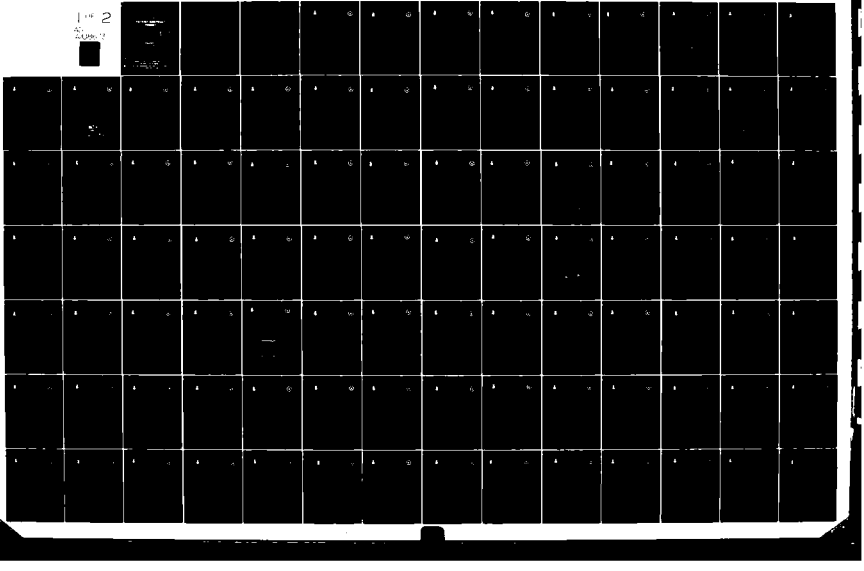
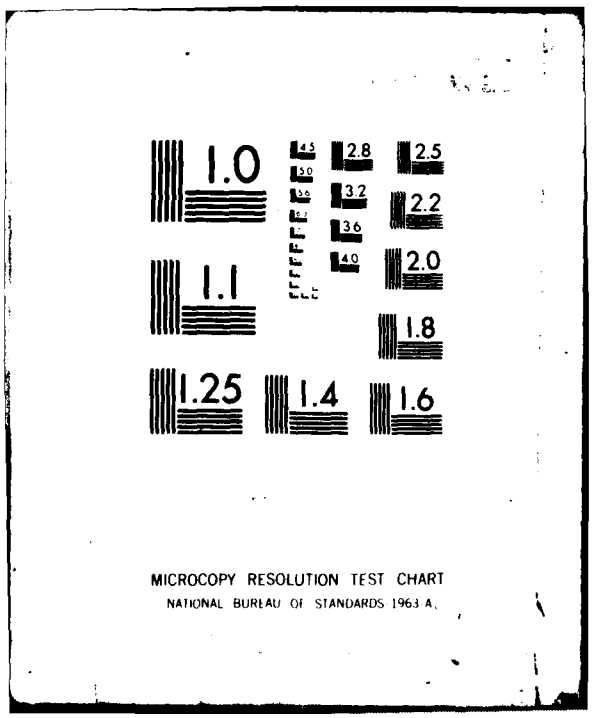
AD-A108 673 AIR FORCE SYSTEMS COMMAND WASHINGTON DC F/G 5/2
PATENT ABSTRACT DIGEST. VOLUME II.(U)
MAR 81 F A LUKASIK
UNCLASSIFIED AFSC-TR-81-66 NL




1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

AFSC-TR-81-66

AD A108673

LEVEL III

PATENT ABSTRACT DIGEST

VOLUME II

MARCH 1981

DTIC ELECTE DEC 16 1981 S E

OFFICE OF THE STAFF JUDGE ADVOCATE

PATENT LAW DIVISION

HQ AFSC ANDREWS AFB WASH. D.C. 20334

AUTOVON 858-5372

81 12 15 196

DTIC FILE COPY

Approved for public release; distribution unlimited.

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER AFSC-TR-81-66	2. GOVT ACCESSION NO. AD-A108 673	3. RECIPIENT'S CATALOG NUMBER
4. TITLE *(and Subtitle)* PATENT ABSTRACT DIGEST		5. TYPE OF REPORT & PERIOD COVERED INTERIM 6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s) Dr. Frank . Lukasik		8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS Office of the Staff Judge Advocate Patent Law Division HQ AFSC Andrews AFB 20334		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE March 1981 13. NUMBER OF PAGES 107
14. MONITORING AGENCY NAME & ADDRESS*(if different from Controlling Office)*		15. SECURITY CLASS. *(of this report)* 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT *(of this Report)*

Unlimited

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Patents, Inventions, Discoveries

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

One page summaries of new technology generated under Air Force programs and protected by issued U.S. patents. Air Force owned patents are available for licensing under AFR 110-33.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

013

SECURITY CLASSIFICATION OF THIS PAGE *(When Data Entered)*

FOREWORD

THE PATENT ABSTRACT DIGEST IS DESIGNED TO PROVIDE INFORMATION ON PATENTED INVENTIONS DEVELOPED BY AIR FORCE RESEARCH AND DEVELOPMENT PROGRAMS. THE DIGEST PULLS TOGETHER ONE-PAGE SUMMARIES OF NEW TECHNOLOGY PROTECTED BY ISSUED U.S. PATENTS. THE MAJOR PURPOSE FOR PUBLISHING THE PATENT ABSTRACTS IS TO SHARE THE TECHNOLOGY WITH OTHER AGENCIES, CONTRACTORS AND MEMBERS OF THE PUBLIC. AEROSPACE SPINOFFS RARELY OCCUR AUTOMATICALLY. THEY ARE AN OUTGROWTH OF DYNAMIC INTERACTIONS OF PEOPLE . . . FROM SPACE SCIENTISTS AND INVENTORS TO THE ULTIMATE USERS IN INDUSTRY. THE PATENT ABSTRACTS ARE INTENDED TO PROVIDE A VIABLE LINK BETWEEN THE PRODUCERS OF TECHNOLOGY AND ITS POTENTIAL USERS, IN EFFECT "CATALYZING" THE TRANSFER PROCESS.

NEW GOVERNMENT REGULATIONS ARE DESIGNED TO PROMOTE FASTER COMMERCIAL USE OF GOVERNMENT GENERATED TECHNOLOGY BY ENABLING PATENT LICENSES TO BE GRANTED. AIR FORCE REGULATION 110-33 PRESCRIBES THE POLICIES, ADMINISTRATIVE REQUIREMENTS, PROCEDURES, TERMS AND CONDITIONS FOR LICENSING AIR FORCE INVENTIONS. SECTION C. PARAGRAPH 11, REQUIRES THE AIR FORCE TO PUBLISH A LIST OF INVENTIONS AVAILABLE FOR LICENSING IN THE FEDERAL REGISTER, THE OFFICIAL GAZETTE OF THE U.S. PATENT AND TRADEMARK OFFICE, AND AT LEAST ONE OTHER PUBLICATION. WE CONCLUDED THAT BARE NOTIFICATION BY TITLE IN THE FEDERAL REGISTER WOULD NOT GO VERY FAR IN STIMULATING COMMERCIAL USERS OF AIR FORCE GENERATED INVENTIONS. THE PATENT ABSTRACT IS THE NEXT STEP UP THE PROMOTIONAL LADDER SUGGESTED IN THE 1971-1972 ANNUAL REPORT ON GOVERNMENT PATENT POLICY AND AIR FORCE REGULATION 110-33.

RECENT LEGISLATION HAS ADDED ADDITIONAL GOVERNMENT EMPHASIS ON THE DISSEMINATION OF GOVERNMENT GENERATED TECHNOLOGY. WE BELIEVE THAT DISSEMINATION OF THE RESULTS OF AIR FORCE R&D PROGRAMS DESCRIBED IN THESE ISSUED U.S. PATENTS WILL HELP REDUCE THE POSSIBILITY OF "RE-INVENTING THE WHEEL" AND THUS SAVE GOVERNMENT R&D FUNDS.

SIGNED

CHESTER D. TAYLOR, JR.
BRIGADIER GENERAL, USAF
STAFF JUDGE ADVOCATE

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Barron et al.

[11] 4,151,539

[45] Apr. 24, 1979

[54] **JUNCTION-STORAGE JFET BUCKET-BRIGADE STRUCTURE**

[75] Inventors: **Mark B. Barron**, Camillus; **Walter J. Butler**, Scotia, both of N.Y.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **864,065**

[22] Filed: **Dec. 23, 1977**

[51] **Int. Cl.**[2] **H01L 29/78**; H01L 29/80; G11C 19/28

[52] **U.S. Cl.** ..... **357/24**; 357/22; 307/221 D

[58] **Field of Search** ..... 357/22, 24; 307/221 D

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,453,504	7/1969	Compton et al.	357/22
3,663,873	5/1972	Yagi	357/22
3,739,240	6/1973	Krambeck	357/24
3,784,847	1/1974	Kurz et al.	357/24
3,825,996	7/1974	Barron et al.	357/24
3,918,081	11/1975	Sangster	357/24
4,012,759	3/1977	Esser	357/24
4,032,952	6/1977	Ohba et al.	357/24

FOREIGN PATENT DOCUMENTS

2504088	8/1975	Fed. Rep. of Germany	357/24

OTHER PUBLICATIONS

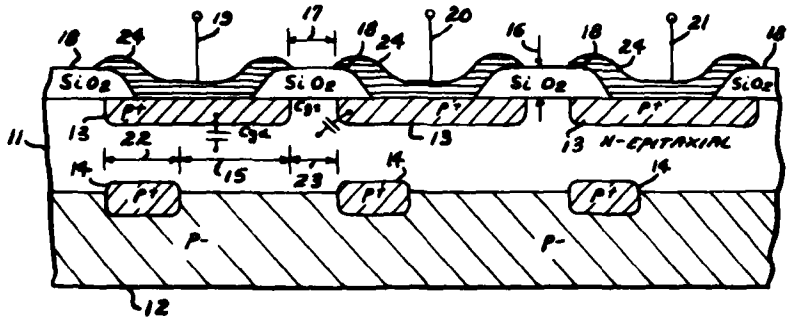
Schuermeyer et al., "New Structures for Charge-Coupled Devices", Proc. IEEE, vol. 60 (11/72) pp. 1444–1445.

Primary Examiner—William D. Larkins
Assistant Examiner—Gene M. Munson
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] **ABSTRACT**

The novel structure disclosed comprises an n-type epitaxial layer on a p^- type substrate with p^+ type top gates diffused into the epi-layer and p^+ buried gates aligned with the source side of the top gates. The top-gate diffusion extends far into the drain region.

1 Claim, 3 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Harris et al.

[11] 4,154,415
[45] May 15, 1979

[54] MODULATING VERNIER FLAP CONTROL SYSTEM

[75] Inventors: Charles V. Harris, Cerritos; George A. Schlanert, Tustin, both of Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 866,144

[22] Filed: Dec. 30, 1977

[51] Int. Cl.[2] B64C 13/02

[52] U.S. Cl. ..... 244/83 C; 74/471 R; 74/491; 74/534; 244/83 F; 244/83 K; 244/211

[58] Field of Search ..... 244/83 C, 83 F, 83 G, 244/83 H, 83 K, 83 E, 210, 211, 213, 75 R, 85; 74/533, 534, 471 R, 491; 200/61.54, 56 R; 116/124 R, 124 A, 124 C

[56] References Cited

U.S. PATENT DOCUMENTS

1,987,066	1/1935	Kingston	244/83 F X
2,279,612	4/1942	Blass et al.	244/83 R
2,609,165	9/1952	Hill	244/85 X
2,665,084	1/1954	Feeney et al.	74/471 X
2,774,555	12/1956	Crawford et al.	244/85 X
2,974,908	3/1961	Platt	244/83 J
3,358,949	12/1967	Harrison	244/83 E
3,636,321	1/1972	Kirschner	244/181 X
3,681,580	8/1972	Gwathmey et al.	244/183 X
3,710,644	1/1973	Downing et al.	74/533 X
3,822,047	7/1974	Schmidt	244/181
3,850,388	11/1974	Olcott et al.	244/75 R

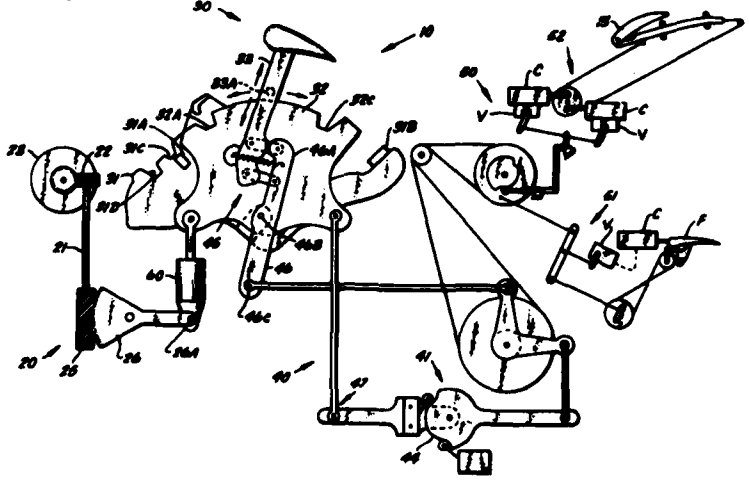
Primary Examiner—Barry L. Kelmachter
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

A slat and modulatable flap control system for an aircraft having slats in the leading edge of the wing and having flaps in the trailing edge of the wing. A detent pin on a control handle, and any one of four detent slots on a detent crank, can be engaged to selectively, and automatically, set the flaps and the slats (because of the cooperative action of other constituent components of the control system) in optimum positional relationship for takeoff/"go-around," cruising, approach, and landing of aircraft. The control system is ideally suited for aircraft used in "short takeoff-and-landing" situations.

3 Claims, 7 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Goldie et al.

[11] 4,155,054
[45] May 15, 1979

[54] MICROWAVE YIG POWER LIMITER USING ELECTRICALLY THIN IRIS

[75] Inventors: Harry Goldie, Randallstown; Steven N. Stitzer, Ellicott City, both of Md.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 854,449

[22] Filed: Nov. 23, 1977

[51] Int. Cl.[2] H01P 1/22
[52] U.S. Cl. ..... 333/17 L; 333/248; H01P/5/04
[58] Field of Search ..... 333/17 L, 24.2, 73 W

[56] References Cited

U.S. PATENT DOCUMENTS

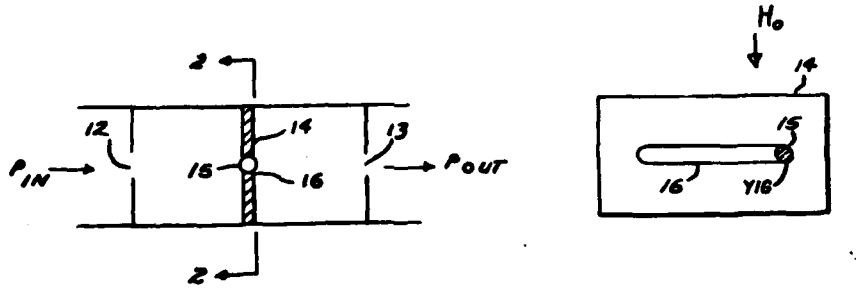
3,040,276	6/1962	Trambarulo et al.	333/24.2
3,480,888	11/1969	Elliott	333/24.2 X
3,500,256	3/1970	Carter et al.	333/17 L

Primary Examiner—Paul L. Gensler
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] ABSTRACT

A ferrimagnetic sphere that is biased to the subsidiary resonance mode and placed within a microwave slotted resonant structure functions as a frequency selective microwave power limiter. When the power level of a signal at the input port exceeds a threshold level, the device prevents the power level at the output port from increasing further. A weak signal present simultaneously passes with relatively little attenuation if it is slightly offset in frequency.

6 Claims, 7 Drawing Figures



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Pickett et al.

[11] 4,155,265

[45] May 22, 1979

[54] INTERFACE SHEAR TRANSDUCER

[75] Inventors: Stephen F. Pickett, Albuquerque, N. Mex.; Glenn F. Cochrane, Jr., Belmont, Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 891,798

[22] Filed: Mar. 30, 1978

[51] Int. Cl.[2] G01L 1/26

[52] U.S. Cl. 73/841; 73/765; 73/784

[58] Field of Search ..... 73/88.5 R, 88 E, 101, 73/141 A, 765, 784, 841

[56] References Cited

U.S. PATENT DOCUMENTS

2,741,120	4/1956	Ormsby, Jr.	73/141 A
3,576,128	4/1971	Lockery	73/141
3,602,866	8/1971	Saxe	73/88.5 X
3,673,861	7/1972	Handy	73/101

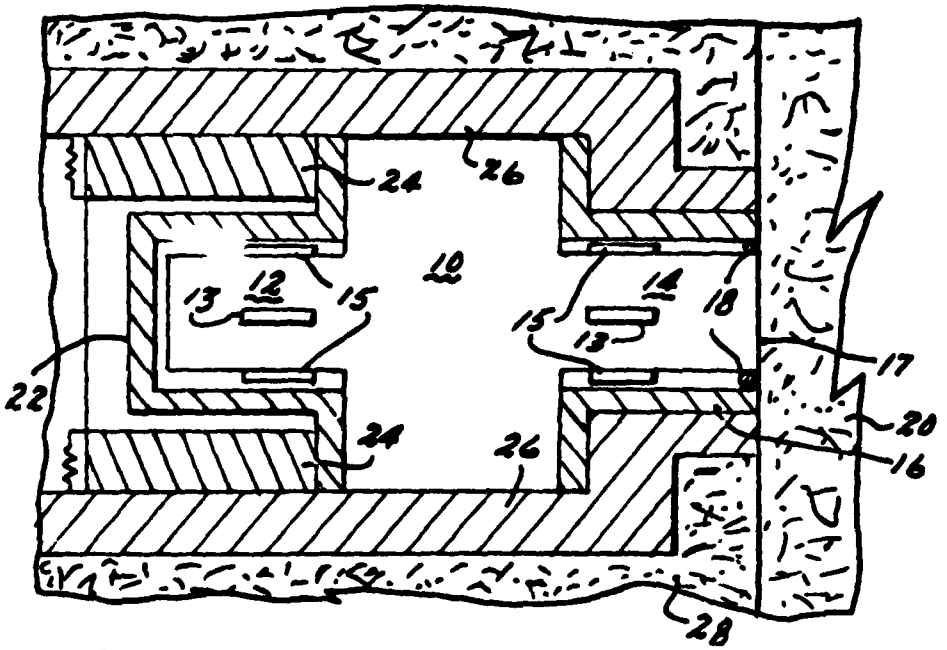
Primary Examiner—Charles Gorenstein

Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] ABSTRACT

A shear transducer having two cylindrical bending beams with two full strain gage bridges so arranged to cancel acceleration induced by forces in the axis of interest.

7 Claims, 4 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00096

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Mihm

[11] 4,155,286

[45] May 22, 1979

[54] WEDGE CLAMP FOR MISSILE LAUNCHER

[76] Inventor: John J. Mihm, 1300 Kirby NE., Albuquerque, N. Mex. 87112

[21] Appl. No.: 856,361

[22] Filed: Dec. 1, 1977

[51] Int. Cl.[2] F41F 7/00

[52] U.S. Cl. ..... 89/1.819; 89/1.5 G

[58] Field of Search ..... 89/1.819, 1.812, 1.806, 89/1.8, 1.5 G; 24/262, 263 A

[56] References Cited

U.S. PATENT DOCUMENTS

2,414,579	1/1947	Anderson et al.	89/1.819 X
2,993,254	7/1961	Larson	24/263 A
3,040,629	6/1962	Duncan et al.	89/1.819 X
3,115,059	12/1963	Moul	89/1.819
3,228,297	1/1966	Kossan et al.	89/1.806
3,267,809	8/1966	Sikora	89/1.819
3,967,529	7/1976	Ingle et al.	89/1.819

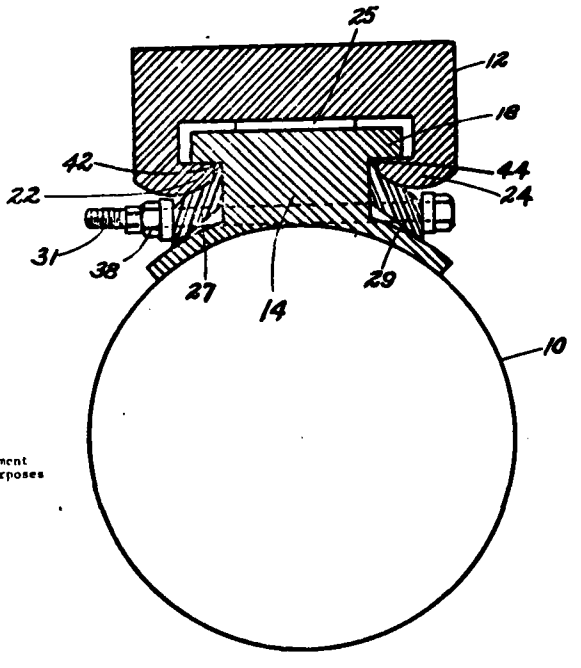
Primary Examiner—David H. Brown

Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] ABSTRACT

An adjustable clamp for a missile launcher system having a pair of semi-resilient wedge members which fit between the missile hanger lugs and launcher rail and are drawn into the gap by means of a pair of plate members and a pair of bolts. The Teflon wedges fill the gap between the missile hanger lugs and the launcher rail and reduce vibration during captive flight and protect the rails against damage.

5 Claims, 6 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Murawski

[11] 4,155,308

[45] May 22, 1979

[54] SABOT FOR SIMULATION TESTING

[75] Inventor: Paul M. Murawski, Blue Island, Ill.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 847,952

[22] Filed: Nov. 2, 1977

[51] Int. Cl.[2] F42B 13/16

[52] U.S. Cl. 102/93

[58] Field of Search ..... 102/93, DIG. 7

[56] References Cited

U.S. PATENT DOCUMENTS

4,083,306 4/1978 Woodring 102/DIG. 7

FOREIGN PATENT DOCUMENTS

1262830 3/1968 Fed. Rep. of Germany 102/93

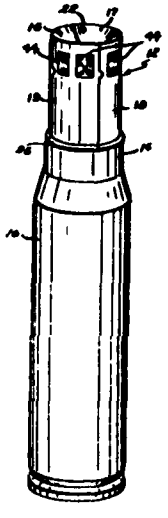
Primary Examiner—Verlin R. Pendegrass

Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] ABSTRACT

A sabot, having four quadrant sections, for use in testing of impact damage of metal fragment-type products. The quadrant sections include molded alignment guides and a depression which forms a central cavity for holding payloads. Recesses are provided in the quarter sections to reduce weight. An external gas plug flare is provided on the external surface of the sabot. The sabot has a conical recess at the forward end with a hole into the interior of the sabot to enhance separation of the quadrant sections after the sabot has left the gun barrel.

1 Claim, 11 Drawing Figures



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Sanok, Jr.

[11] 4,155,579
[45] May 22, 1979

[54] ROTATING DETENT LATCH MECHANISM

[75] Inventor: John S. Sanok, Jr., Arnold, Md.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 840,332

[22] Filed: Oct. 7, 1977

[51] Int. Cl.² E05C 13/04
[52] U.S. Cl. 292/336.3
[58] Field of Search 292/336.3, 179, 263, 292/206, 113, 69, 1, 226

[56] References Cited

U.S. PATENT DOCUMENTS

2,046,790	7/1936	Phillips	292/179
3,536,349	10/1970	Gardner et al.	292/179 X
3,891,253	6/1975	Renell	292/336.3

FOREIGN PATENT DOCUMENTS

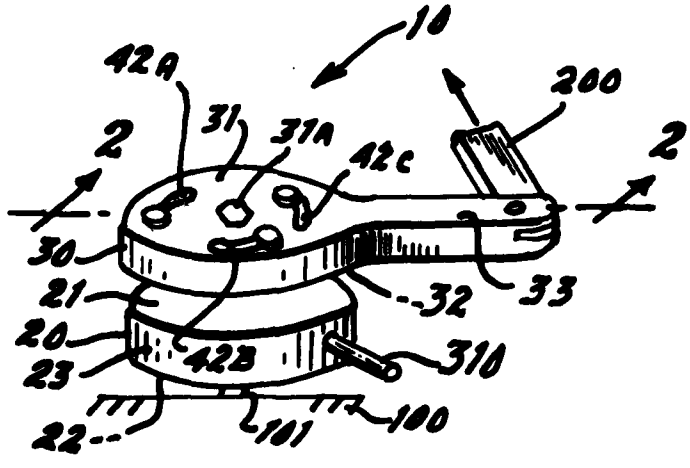
19262 of	1892	United Kingdom	292/206

Primary Examiner—Richard E. Moore
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

A compact, easily fabricated mechanism which provides a latching and unlatching function in a small volume and through a restricted access. The mechanism offers a positive detent for the latch position, and a forced movement to the unlatched position. It is operable by access through a single hole by use of a simple hexagonal stock tool. For remote actuation the mechanism provides a reliable one-time-only unlatching motion.

4 Claims, 6 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Schlossberg

[11] 4,155,628

[45] May 22, 1979

[54] **OPTICAL MULTIPLEXER/DEMULTIPLEXER WITH INTERFEROMETER ELEMENTS**

[76] Inventor: **Howard R. Schlossberg**, 9 Turning Mill Rd., Lexington, Mass. 02173

[21] Appl. No.: **898,068**

[22] Filed: **Apr. 20, 1978**

[51] **Int. Cl.**[2] **G02B 27/14**

[52] **U.S. Cl.** **350/174**; 350/171

[58] **Field of Search** ..... 350/171, 174, 169, 163; 356/106 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,879,109 4/1975 Thomas 350/174

OTHER PUBLICATIONS

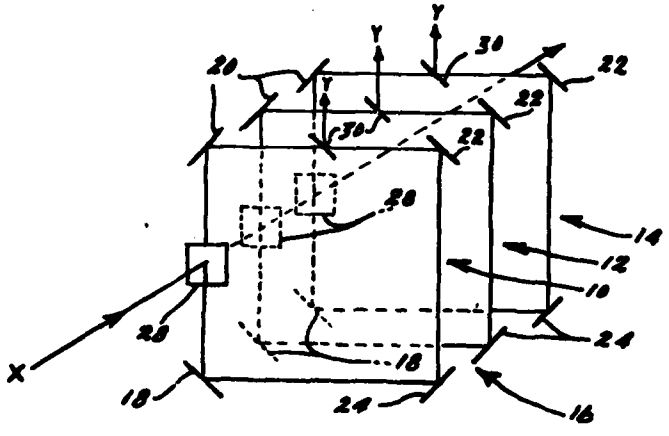
App. Optics, vol. 16, No. 2, Feb. 1977, pp. 263-265.
Modern Communications Principles, Stein & Jones, pub. McGraw Hill, 1967, pp. 211-215.
A Quasi-Optical Radiometer, pp. 106-107, and Quasi-Optical Receiver Design, J. J. Gustinic, 13121 Mindanao Way, Marina Del Ray, CA. 90291.

Primary Examiner—Jon W. Henry
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] **ABSTRACT**

A multiplexer/demultiplexer having a series of novel interferometer elements optically aligned with one another in a stacked relationship. Each of the interferometer elements being made up of a plurality of reflective elements forming an optical path therebetween and a pair of beamsplitters for directing a beam of radiant energy into or out of the optical path. The optical path of each interferometer element being defined for resonance at a different frequency whereby in operation as a multiplexer a plurality of beams of radiant energy, each of a predetermined frequency, emerge from the multiplexer/demultiplexer as a single beam of radiant energy having a multitude of frequencies or in operation as a demultiplexer a single beam of radiant energy having a multitude of frequencies emerges from the multiplexer/demultiplexer as a plurality of beams radiant energy, each at a preselected frequency.

10 Claims, 5 Drawing Figures



RIGHTS OF THE GOVERNMENT

The invention described herein may be manufactured and used by or for the Government of the United States for all government purposes without the payment of any royalty.

JAT 00100

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Honeycutt, Jr. et al.

[11] 4,155,780
[45] May 22, 1979

[54] METHOD FOR PRESTRESSING TURBINE DISKS

[75] Inventors: Fred L. Honeycutt, Jr., Lake Park; Myron C. Starr, Jupiter, both of Fla.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 866,185

[22] Filed: Dec. 30, 1977

[51] Int. Cl.[2] C22F 1/00
[52] U.S. Cl. 148/13.1; 148/14
[58] Field of Search 148/13.1, 13.2, 14, 148/149, 13, 134

[56] References Cited
U.S. PATENT DOCUMENTS

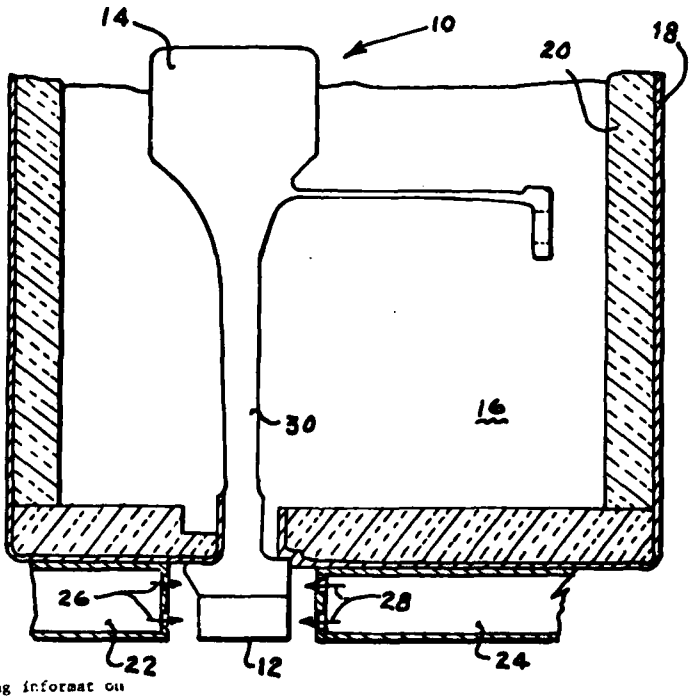
3,558,367 1/1971 Eck 148/149

Primary Examiner—R. Dean
Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller, Jr.

[57] ABSTRACT

A method for adding a residual compressive stress to the rim of a turbine disk by heating the disk to a uniform high temperature, then insulating the rim from the remainder of the disk and cooling to a temperature wherein the rim yields in tension.

1 Claim, 1 Drawing Figure



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00101

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Willmore .

[11] 4,159,454
[45] Jun. 26, 1979

[54] PLUG-IN FILTER NETWORK FOR SEPARATING A COMMUNICATION FREQUENCY INTO DISCRETE FREQUENCY CHANNELS

[75] Inventor: Robert R. Willmore, Millersville, Md.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 866,125

[22] Filed: Dec. 30, 1977

[51] Int. Cl.[2] H01P 1/20
[52] U.S. Cl. 333/20; 325/3; 333/1.1; 333/110; 333/202
[58] Field of Search ..... 333/1, 1.1, 2, 6, 28 R, 333/73 R, 73 W, 20; 328/140, 167; 325/3, 4; 179/15 R, 15 AD, 15 BD

[56] References Cited
U.S. PATENT DOCUMENTS

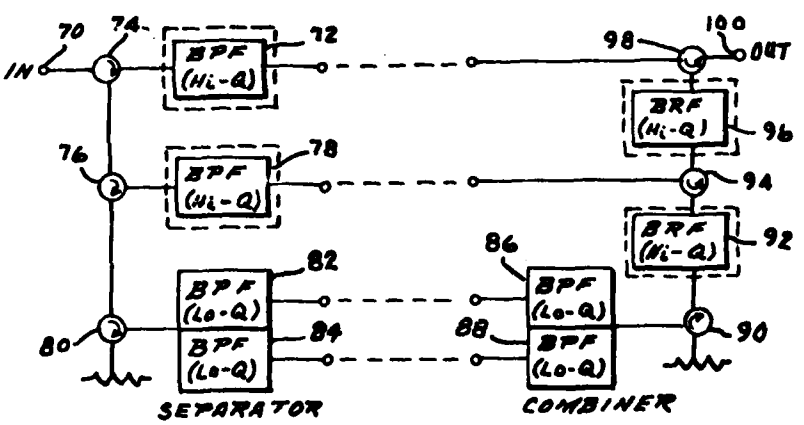
4,109,202 8/1978 Kudsia et al. ..... 333/1.1 X

Primary Examiner—Paul L. Gensler
Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] ABSTRACT

A filter network for separating a transmitted communication frequency into discrete channels. A separator, exemplified by a triplexer, includes a pluggable mid-range high Q bandpass filter and a diplexer of low Q bandpass filters. Circulators receive signals reflected from the high Q filter and pass them to the low Q filters. A combiner circuit takes the attenuated signal from the low Q filters and sends it through a circulator to a high Q plug in filter where the signal passes through a circulator where it is combined with the signal from the high Q filter of the separator as output.

2 Claims, 9 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19] [11] **4,157,231**

Phillips [45] **Jun. 5, 1979**

[54] **HYDRAULIC DRILL UNIT**

[75] Inventor: **Joseph L. Phillips**, Beaux Arts Village, Wash.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **837,330**

[22] Filed: **Sep. 27, 1977**

[51] Int. Cl.[2] **B23B 35/00; B23B 47/18**

[52] U.S. Cl. ..... **408/1 R**; 408/9; 408/11; 408/13; 408/16

[58] **Field of Search** ..... 408/1, 9, 11, 13, 16; 82/2 B, 1 C

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,174,367	3/1965	Lukens	82/2 B
3,259,023	7/1966	Rieger et al.	408/11
3,754,487	8/1973	Nachtigal	82/1 C

Primary Examiner—Leonidas Vlachos

Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

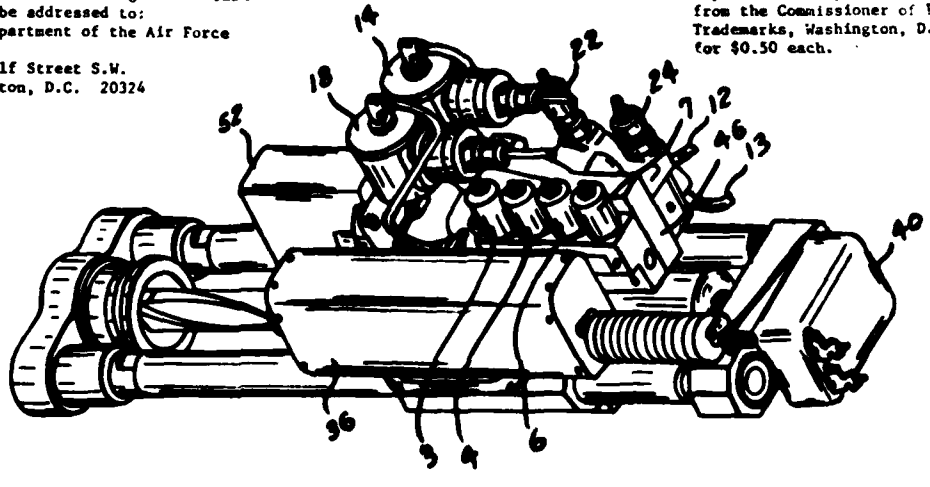
[57] **ABSTRACT**

A hydraulic drill unit for drilling multimaterial, thick layer stock having a conventional hydraulic drill modified to have its feed controlled by a servo valve and its spindle speed controlled by a servo valve. A linear encoder is attached to the drill to provide an indication of drill position. The linear encoded provides 20,000 forward and reverse pulses per inch, depending upon the direction of travel, which are used to determine net feed rate. The net feed rate signal is compared with a command feed rate to control the feed servo valve. A magnetic pickup is used to provide a pulse signal proportional to RPM. This signal is compared with a command speed signal to control the spindle speed servo valve. Differential pressure transducers are used to measure pressure across the hydraulic feed pistion and the hydraulic drill motor to provide signals which can be used as indications of chip packing or a dull drill. Displays are provided to indicate Torque, Thrust, RPM, Inches of travel per revolution and relative displacement of the drill. These displays are used for the manual control of the drill. Torque, Thrust, RPM and absolute displacement information is supplied to a computer for the automatic operation of the hydraulic drill. Since optimized speeds and feeds are generally known for specific drill diameters and materials, this information has been programmed into the computer to provide the command feed and command speed levels for the various materials in a stack to provide the error signals for controlling the feed and speed servo valves. Torque and Thrust buildup are used by the computer for indications of chip packing or dull drill. Four solenoid valves are used to provide rapid advancement and rapid retraction of the drill.

6 Claims, 17 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



JAT 00103

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Dion

[11] **4,156,878**

[45] **May 29, 1979**

[54] **WIDEBAND WAVEGUIDE LENS**

[75] Inventor: **Andre R. Dion**, Concord, Mass.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **872,203**

[22] Filed: **Jan. 25, 1978**

[51] **Int. Cl.**[2] **H01Q 15/04**

[52] **U.S. Cl.** **343/909**

[58] **Field of Search** 343/753, 754, 755, 909, 343/910, 854

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,607,009	8/1952	Affel	343/753
3,049,708	8/1962	Berkowitz	343/753
3,833,909	9/1974	Schaufelberger	343/754

FOREIGN PATENT DOCUMENTS

838333 5/1952 Fed. Rep. of Germany 343/909

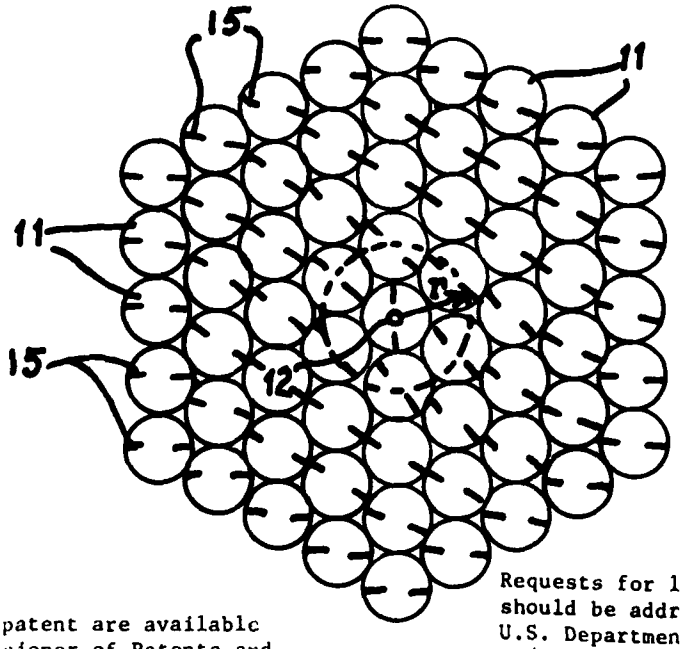
Primary Examiner—Eli Lieberman

Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews, Jr.

[57] **ABSTRACT**

A waveguide lens having improved efficiency and bandwidth characteristics is realized by appropriately combining the waveguide element array configuration of a conventional zoned waveguide lens with the phase shifting means of a constant thickness variable phase shift type waveguide lens. The length of each waveguide element and the phase shift required of its phase shifting means are functions of the waveguide elements radial distance from the lens axis. Design equations for determining waveguide element length and phase shift values are developed using both single and double frequency design procedures.

2 Claims, 10 Drawing Figures



JAT 00104

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Jones

[11] 4,156,514
[45] May 29, 1979

[54] CYLINDER SUPPORT ASSEMBLY

[75] Inventor: Larry R. Jones, Norwalk, Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 889,468

[22] Filed: Mar. 23, 1978

[51] Int. Cl.[2] E21F 17/02
[52] U.S. Cl. 248/58; 248/62
[58] Field of Search ..... 248/54 R, 58, 60, 62, 248/74 R, 74 A, 74 B, 358 A

[56] References Cited

U.S. PATENT DOCUMENTS

285,748	9/1883	Gulick	248/62
1,187,587	6/1916	White	248/62
2,489,481	11/1949	Chester	248/54 R
3,141,642	7/1964	Mayrath	248/74 B

FOREIGN PATENT DOCUMENTS

1299471	7/1969	Fed. Rep. of Germany	248/62
1375626	9/1964	France	248/358 A
303429	8/1968	Sweden	248/358 A

Primary Examiner—Robert A. Haber
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

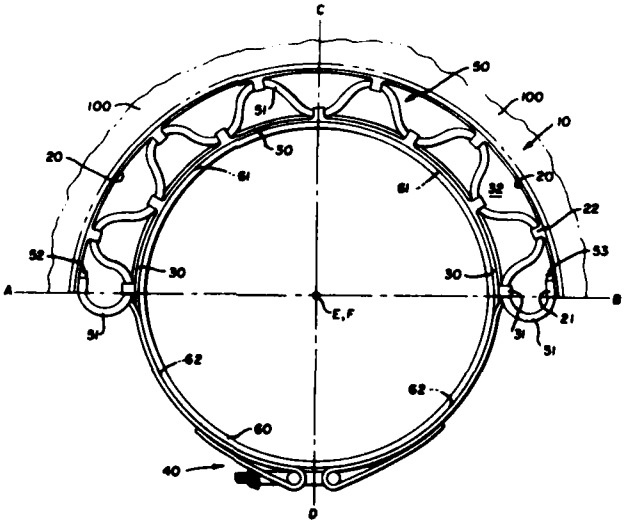
[57] ABSTRACT

The assembly releasably holds a hollow cylinder, or the like, from an overhead support in a stable condition, even during and after the hanging cylinder has expanded lengthwise. The preferred embodiment of the assembly includes: a first half-ring shaped member of sheet metal attached to the overhead support; a second half-ring shaped member of sheet metal disposed along, and in abutting contact with, the upper external surface of, the cylinder; a band clamp encircling and clamping the second half-ring member to the cylinder; and, a wire rope cable that is connected alternately, and recurringly, to the first and second half-ring members. The assembly is simple in structure, light in weight, and inexpensive to fabricate and to install.

2 Claims, 4 Drawing Figures

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324



JAT 00105

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Hilliard, Jr. et al.

[11] 4,159,497

[45] Jun. 26, 1979

[54] SWITCH DEBOUNCE CIRCUIT

[75] Inventors: Milton E. Hilliard, Jr., Millers; Daniel J. Provine, Severna Park, both of Md.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 880,910

[22] Filed: Feb. 23, 1978

[51] Int. Cl.[2] H02H 7/20

[52] U.S. Cl. ..... 361/2; 307/247 A

[58] Field of Search ..... 361/2; 307/247 A

[56] References Cited

U.S. PATENT DOCUMENTS

2,864,007	12/1958	Clapper	307/247 A
3,866,092	2/1975	Burns	361/2
4,045,692	8/1977	Morokawa et al.	307/247 A X

Primary Examiner—Harry E. Moose, Jr.
Attorney, Agent, or Firm—Joseph E. Rusz; George Fine

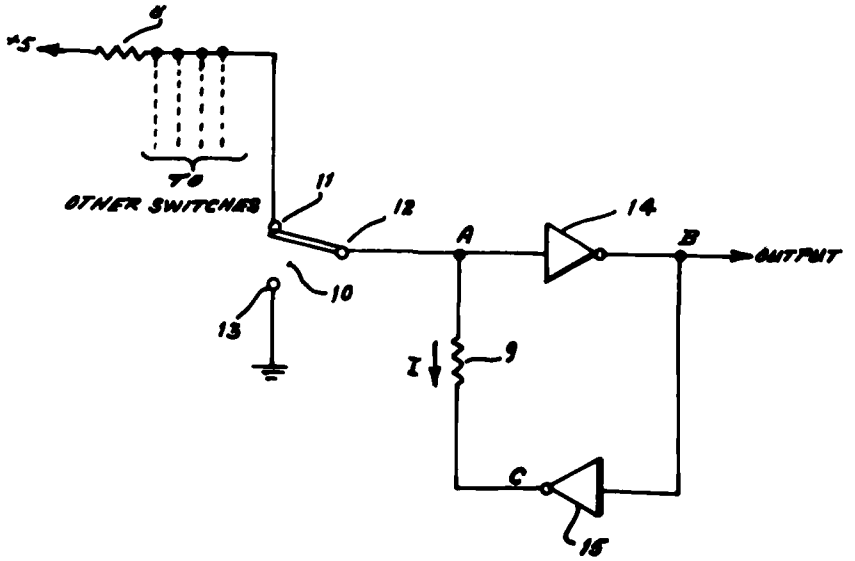
[57] ABSTRACT

A switch debounce circuit buffers the mechanical contacts of a double throw single pole switch into digital logic. It is essentially an active debounce circuit requiring only one wire from the switch to the circuit. The circuit includes a pair of oppositely connected inverting logic amplifiers with a resistor coupled between the output of one amplifier and the input of the second amplifier. The input from the switch is connected to the same leg of the circuit as a resistor and the output is taken from an opposite leg connecting the output of the second amplifier to the input of the first amplifier. The propagation of logic signals is effected by changing the state of the switch but contact bounce does not effect the logic.

2 Claims, 1 Drawing Figure

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Butler et al.

[11] 4,161,041

[45] Jul. 10, 1979

[54] **PSEUDO RANDOM NUMBER GENERATOR APPARATUS**

[75] Inventors: Eric W. Butler, Severna Park; Clinton W. Mesalda, III, Millersville, both of Md.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 949,190

[22] Filed: Oct. 6, 1978

[51] Int. Cl.[2] G11C 13/00

[52] U.S. Cl. 365/244; 365/73

[58] Field of Search 365/244, 78, 73, 76, 365/77

Primary Examiner—Terrell W. Fears

Attorney, Agent, or Firm—Joseph E. Rusz; William Stephanishen

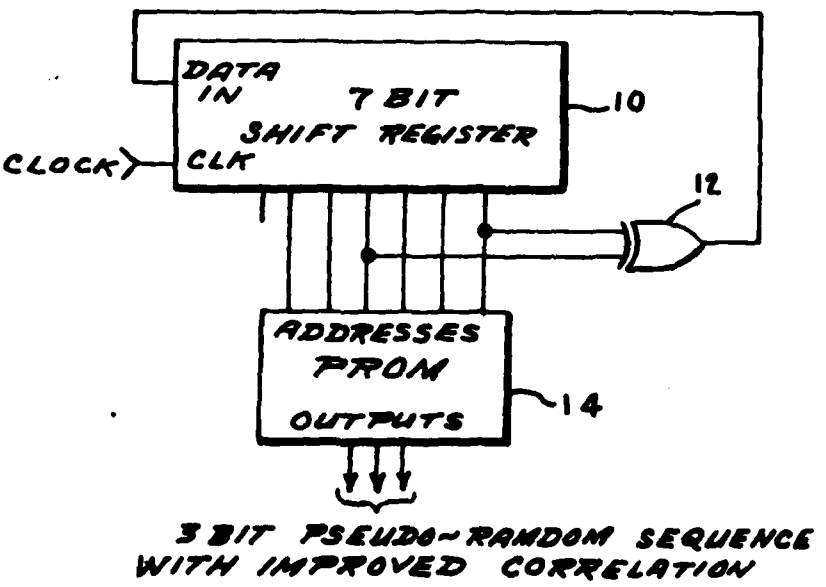
[57] ABSTRACT

An improved pseudo random number generator apparatus utilizing a programmable read only memory to reduce autocorrelation magnitudes by mapping the maximal length shift register states into the final output states.

7 Claims, 9 Drawing Figures

Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



JAT 00107

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Quinlan et al.

[11] 4,161,434

[45] Jul. 17, 1979

[54] METHOD FOR SEPARATING TRIALUMINUM NICKELIDE FIBERS FROM AN ALUMINUM MATRIX

[75] Inventors: Kenneth P. Quinlan, Newton; Joseph J. Hutta, Groton, both of Mass.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 950,658

[22] Filed: Oct. 12, 1978

[51] Int. Cl.[2] C25F 5/00; C25F 3/00; C25F 3/04

[52] U.S. Cl. 204/146; 204/129.8

[58] Field of Search 204/146, 129.75, 140, 204/141.5, 129.8

[56] References Cited

U.S. PATENT DOCUMENTS

3,002,908	10/1961	Hall	204/146
3,254,011	5/1966	Zaremski	204/129.8
3,615,900	10/1971	Lee	204/146
4,100,044	7/1978	Hussey et al.	204/146

OTHER PUBLICATIONS

Transactions of the Metallurgical Society of Aime, vol. 239, Jun. 1967, p. 845.

Transactions of the Metallurgical Society of Aime, vol. 233, Feb. 1965, p. 335.

Primary Examiner—T. M. Tufariello

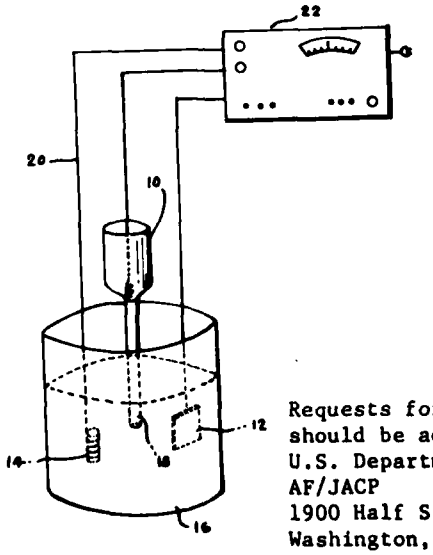
Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] ABSTRACT

Electrolytic production of Al_3Ni fibers using a potassium hydroxide electrolyte.

3 Claims, 3 Drawing Figures

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

JAT 00108

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Hutta et al.

[11] 4,161,826
[45] Jul. 24, 1979

[54] METHOD OF DEAGGLOMERATION OF ALUMINUM POWDER

[75] Inventors: Joseph J. Hutta, Groton; Kenneth P. Quinlan, Newton, both of Mass.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 884,881

[22] Filed: Mar. 9, 1978

[51] Int. Cl.[2] F26B 7/00
[52] U.S. Cl. 34/12; 34/9
[58] Field of Search 34/9, 12

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

[56] References Cited
U.S. PATENT DOCUMENTS

1,674,230 6/1928 Seyfferth 34/9

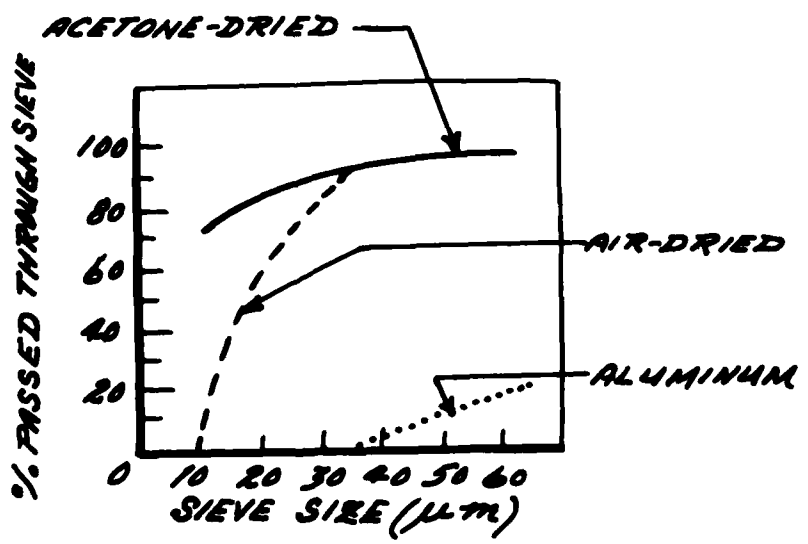
Primary Examiner—John J. Camby
Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] ABSTRACT

A method for deagglomerating finally divided aluminum metal powders by allowing said metals powders to remain in contact with water heated to room temperature for approximately 30 hours.

2 Claims, 1 Drawing Figure

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Specker et al.

[11] 4,161,874

[45] Jul. 24, 1979

[54] HEAD AND NECK IMPACT MEASUREMENT SYSTEM

[75] Inventors: Lawrence J. Specker, Dayton, Ohio; Aubin M. Higgins, Ewington, Ky.; James W. Brinkley, Kettering, Ohio

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 932,071

[22] Filed: Aug. 8, 1978

[51] Int. Cl.² G01M 7/00; G01P 15/00

[52] U.S. Cl. ..... 73/12; 73/432 SD

[58] Field of Search ..... 73/12, 432 SD, 663

[56] References Cited

U.S. PATENT DOCUMENTS

3,841,163 10/1974 Daniel ..... 73/432 SD

Primary Examiner—James J. Gill

Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

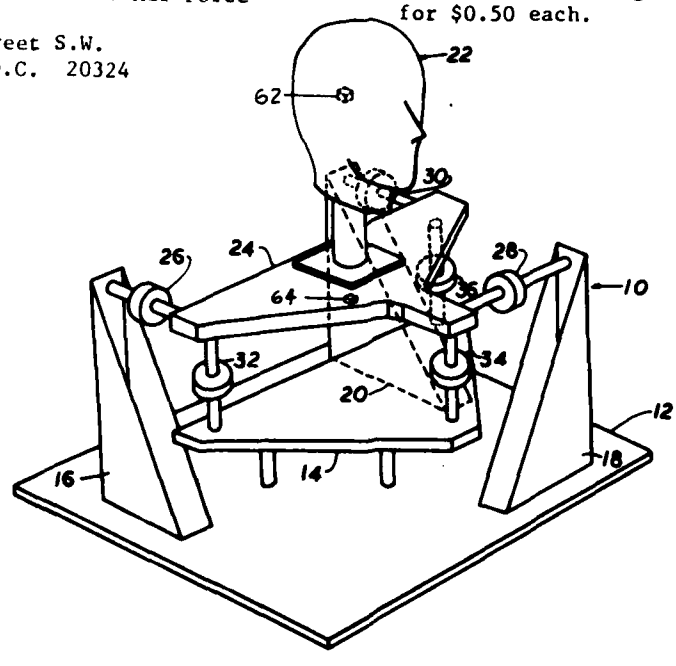
[57] ABSTRACT

A system for measuring head and neck impact forces, having a movable plate member with an anthropometric dummy head and neck member secured to the plate member. Three force measuring cells are positioned in a horizontal plane and are connected between the movable plate member and three column members. Three vertical force measuring cells are positioned between a support plate and the movable plate member. High frequency response triaxial accelerometers are mounted at the center of gravity of the dummy head and neck member and on the movable plate member adjacent the attachmment of the dummy head and neck member.

2 Claims, 4 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Eden et al.

[11] 4,162,203

[45] Jul. 24, 1979

[54] METHOD OF MAKING A NARROW-BAND INVERTED HOMO-HETEROJUNCTION AVALANCHE PHOTODIODE

[75] Inventors: Richard C. Eden, Thousand Oaks; Kenichi Nakano, N. Hollywood, both of Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 920,741

[22] Filed: Jun. 28, 1978

Related U.S. Application Data

[62] Division of Ser. No. 808,496, Jun. 21, 1977, Pat. No. 4,110,778.

[51] Int. Cl.[2] H01L 31/18

[52] U.S. Cl. ..... 204/38 R; 204/38 B; 204/192 D; 427/74; 427/85; 427/87; 29/572

[58] Field of Search ..... 204/38 R, 38 B, 192 D; 427/74, 85, 86, 87, 88, 82; 29/572; 357/13, 16, 30

[56] References Cited

U.S. PATENT DOCUMENTS

3,832,246	8/1974	Lynch	29/572
3,894,895	7/1975	Khandelwal	427/86
4,036,645	7/1977	Pinder	427/74

OTHER PUBLICATIONS

Silicon Nitride Films by Direct RF Sputter Deposition, G. J. Kominiak, J. Electrochem. Soc., Sep. 1975, pp. 1272-1273.

Primary Examiner—John H. Mack
Assistant Examiner—William Leader
Attorney, Agent, or Firm—Joseph E. Rusz; Casimer K. Salys

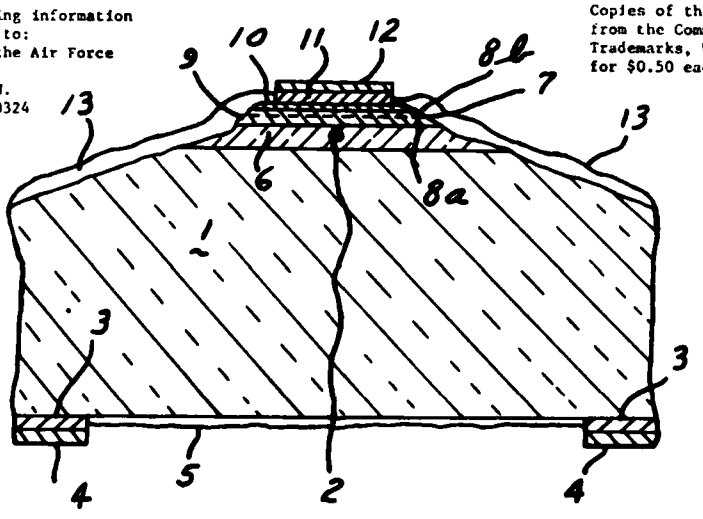
[57] ABSTRACT

A narrow-band, inverted homo-heterojunction avalanche photodiode, configured in the shape of a mesa situated upon a substrate which is transparent to selected light energy wavelengths. The diode is inverted for operation such that the incoming light energy enters the substrate side, passes through a wavelength selective buffer layer and is absorbed upon entering the succeeding, active region. Avalanche gain is attained by drift from the area of absorption to the high field p-n homo-heterojunction located immediately thereafter. The device exhibits low levels of noise during operation because absorption is occurring in a low field region and because the ionization and breakdown noise associated with lattice mismatches is avoided through the formation of the p-n homo-heterojunction in one continuous growth process. Appropriate passivation of the mesa walls inhibits surface leakage and breakdown effects.

2 Claims, 18 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



JAT 00111

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

King

[11] 4,162,222

[45] Jul. 24, 1979

[54] GREASE COMPOSITIONS

[75] Inventor: James P. King, Upper Gwynedd Township, Montgomery County, Pa.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 933,935

[22] Filed: Aug. 15, 1978

[51] Int. Cl.[2] C10M 1/48; C10M 3/42; C10M 1/44; C10M 3/38

[52] U.S. Cl. ..... 252/32.7 E; 252/32.5; 252/49.6

[58] Field of Search ..... 252/32.5, 32.7 E, 49.6

[56] References Cited

U.S. PATENT DOCUMENTS

3,522,178 7/1970 Peschko et al. 252/32.5

Primary Examiner—Delbert E. Gantz
Assistant Examiner—Irving Vaughn
Attorney, Agent, or Firm—Joseph E. Ruaz; Cedric H. Kuhn

[57] ABSTRACT

Grease compositions comprising a silicone fluid and a thickening amount of a poly(metal phosphinate) containing at least one XP(R) (H)X group, where X is oxygen or sulfur and R is alkyl or aryl.

6 Claims, No Drawings

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Arnold et al.

[11] **4,162,265**

[45] **Jul. 24, 1979**

[54] **AROMATIC ENYNE COMPOUNDS AND THEIR SYNTHESIS**

[75] Inventors: **Fred E. Arnold**, Centerville; **Bruce A. Reinhardt**, New Carlisle; **Frederick L. Hedberg**, Xenia, all of Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **946,290**

[22] Filed: **Sep. 27, 1978**

[51] Int. Cl.[2] C07C 87/52; C07C 49/76; C07C 39/18

[52] U.S. Cl. ..... 260/578; 260/582; 260/590 D; 528/171; 568/729

[58] Field of Search ..... 260/578, 590 D; 568/729

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,586,487	2/1952	Schwartzman et al.	260/578 X
2,852,556	9/1958	Katz et al.	260/578 X
3,499,763	3/1970	Clecak et al.	568/729 X
3,624,162	11/1971	Sieber	568/729
4,082,806	4/1978	Harris et al.	260/590 D
4,122,026	10/1978	Osman	260/578 X

FOREIGN PATENT DOCUMENTS

1534311	7/1968	France	568/729

OTHER PUBLICATIONS

Shell Int., "French Patent Abstracts", vol. 6c13, 4:2 (1966).

Wessely et al., "Chem. Ab.", vol. 54, ab. 2229–2230 (1960).

Primary Examiner—Winston A. Douglas
Assistant Examiner—John Doll
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

Difunctional aromatic enyne compounds are prepared by the catalytic coupling of substituted monoethynyl compounds. The compounds are useful as monomers in polycondensation reactions for the preparation of high molecular weight, thermally stable thermoplastic polymers. On thermal treatment of the polymers, the enyne groups along the polymer backbones react by interchain reactions to provide the solvent and craze resistance required for application as structural materials.

4 Claims, No Drawings

Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Speeds et al.

[11] **4,162,292**

[45] **Jul. 24, 1979**

[54] **HIGH PRESSURE HYDRAZINE GAS GENERATOR**

[75] Inventors: **John A. Speeds**, San Jose, Costa Rica; **Robert D. Marcy**, Chatsworth, Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **844,082**

[22] Filed: **Oct. 20, 1977**

[51] **Int. Cl.**[2] **B01J 7/02**; F02C 3/24; F02K 7/08

[52] **U.S. Cl.** ..... **422/206**; 60/39.46 M; 422/49; 422/211; 422/236

[58] **Field of Search** ..... 23/281, 282; 60/257, 60/258, 259, 260, 39.46 M; 422/236, 211, 206, 49

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,101,589	8/1963	Hamrick et al.	23/281 X
3,135,703	6/1964	Sill	23/282 X
3,298,182	1/1967	Webb	23/281 X
3,303,651	2/1967	Grant et al.	60/257 X
3,377,140	4/1968	Hall	23/281 X
3,740,198	6/1973	Sandlin et al.	23/281
3,871,828	3/1975	Ellion et al.	23/281
4,069,664	1/1978	Ellion et al.	60/258

Primary Examiner—Barry S. Richman
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

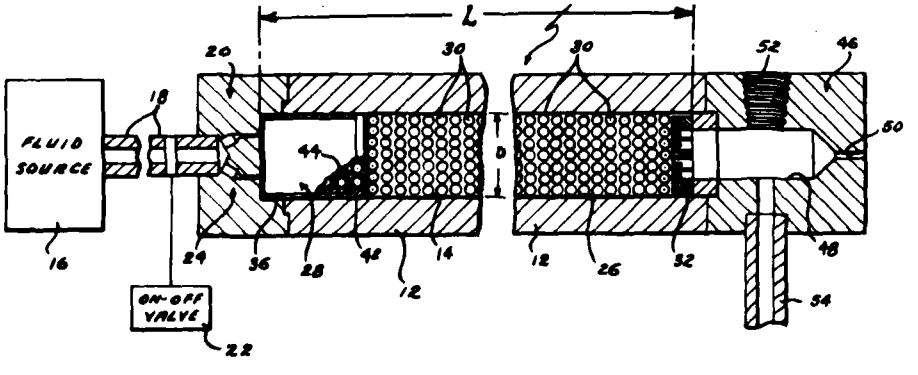
[57] **ABSTRACT**

A high pressure hydrazine gas generator having a decomposition chamber which contains therein an initiator of I_2O_5 crystals and a plurality of heat retaining balls. The liquid hydrazine which is initially introduced into the decomposition chamber, ignites upon contact with the initiator and creates a high temperature within the decomposition chamber. This high temperature is maintained within the chamber by the heat retaining balls and therefore sustains decomposition of the liquid hydrazine into gases which are emitted from the generator under extremely high pressure.

9 Claims, 2 Drawing Figures

Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]
Sibley et al.

[11] **4,162,776**
[45] **Jul. 31, 1979**

[54] **AERIAL PHOTOGRAPHY CAMERA MOUNT ASSEMBLY FOR A HELICOPTER**

[76] Inventors: **Clarence E. Sibley**, HQ26TRW, Box 1331, APO New York, N.Y. 09860; **Francisco C. Sablan**, 13 Woodland Dr., Mary Esther, Fla. 32569

[21] Appl. No.: **877,936**

[22] Filed: **Feb. 15, 1978**

[51] **Int. Cl.**[2] **B64D 47/08**
[52] **U.S. Cl.** ..... **244/118 R; 354/74**
[58] **Field of Search** ..... 244/129.1, 129.5, 118 R, 244/137 R, 1 R, 136; 354/65, 74, 81, 113, 293, 294, 70; 89/37.5 R, 37.5 A, 37.5 D, 37.5 E; 33/1 A; 248/178, 187, 23, 346; 95/12.5

[56] **References Cited**

U.S. PATENT DOCUMENTS

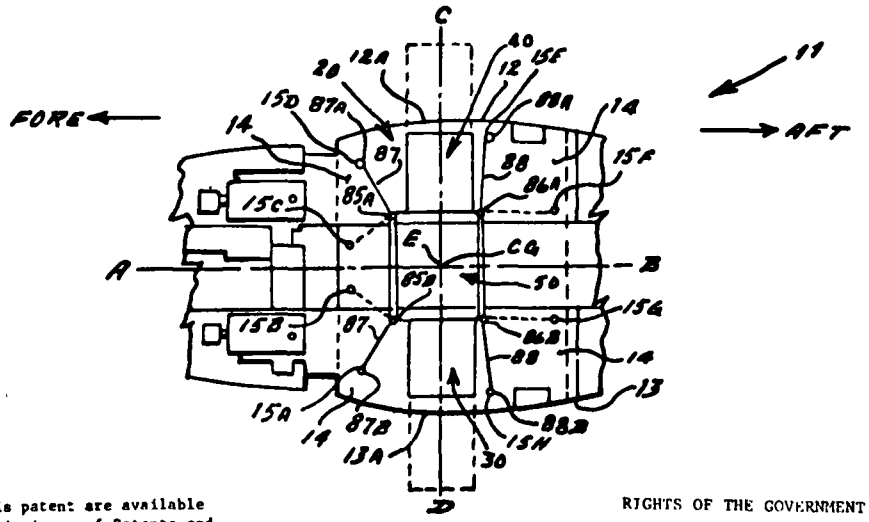
2,506,095	5/1950	Mamtz	354/74
2,842,026	7/1958	Reese et al.	354/293
3,421,721	1/1969	Miller	354/74
3,823,901	7/1974	Holmes et al.	244/118 R
3,897,829	8/1975	Eason	244/136
4,044,364	8/1977	Prinzo	354/74
4,114,839	9/1978	Sibley et al.	244/118 R

Primary Examiner—Galen L. Barefoot
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] **ABSTRACT**

An assembly for mounting, supporting, and releasably holding an angularly adjustable aerial photography camera that is to be used to take aerial reconnaissance photographs, while the assembly is detachably connected to the internal surface of a helicopter that is in stable flight and has an opening in each side. The assembly includes: a rectangular frame which carries the camera; another rectangular frame which carries ballast (i.e., a counterweight); and, a main frame to which the rectangular frames are releasably connected, and in which the frames are slidably movable in opposite directions simultaneously. In flight, the rectangular frames are simultaneously extended on each side of the center of gravity, and of the longitudinal centerline, of the helicopter, and through the opposite openings in the helicopter, with the camera extending out of one of the openings, and with the counterweight extending out of the other opening. This symmetrical loading, and the resultant continued stability of the helicopter in flight, permit the taking of the aerial photographs with the camera.

8 Claims, 17 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Gilbert, III et al.

[11] 4,162,777

[45] Jul. 31, 1979

[54] **CANTED SPAR WITH INTERMEDIATE INTERCOSTAL STIFFENERS**

[75] Inventors: William W. Gilbert, III; Eduardo W. Gomez, both of Fort Worth, Tex.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 902,131

[22] Filed: May 2, 1978

[51] Int. Cl.[2] B64C 3/22

[52] U.S. Cl. 244/123; 52/84; 416/226

[58] Field of Search ..... 244/123, 124; 52/84; 428/119, 120; 416/226, 229 R, 233

[56] References Cited

U.S. PATENT DOCUMENTS

1,751,957	3/1930	Towle	244/123
1,781,160	11/1930	Carns	244/123
1,790,144	1/1931	Haller	244/123
2,014,801	9/1935	Flader	244/123
2,097,599	11/1937	Pavlecka	244/124
2,275,038	3/1942	Whitesell et al.	244/123

FOREIGN PATENT DOCUMENTS

274875	6/1930	Italy	244/123

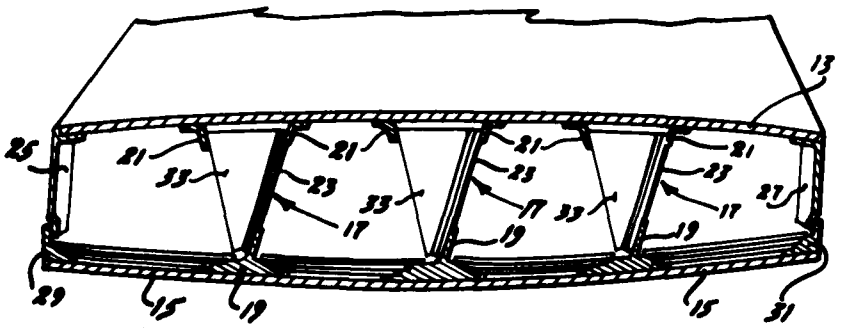
Primary Examiner—Barry L. Kelmachter
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

An aircraft wing box construction including canted sheet metal spar webs continuously tied to the upper and lower skins. Sheet metal intercostal stiffeners of substantially triangular configuration are spaced spanwise along the web to provide shear stiffening for the web and intermittent stabilization for the upper skin. Both the shear web and intercostal stiffeners are fastened to spanwise continuous spar caps which are attached to the upper and lower skins. These caps, supported by the intercostals and webs, provide sufficient stabilization to prevent upper skin buckling up to ultimate design stress with a minimum of shear webs thereby providing significant weight savings.

3 Claims, 5 Drawing Figures

Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Martin

[11] 4,162,818
[45] Jul. 31, 1979

[54] INTERCONNECTION FOR PLANAR ELECTRONIC CIRCUITS

[75] Inventor: Jacob H. Martin, Wellesley, Mass.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 865,268

[22] Filed: Dec. 28, 1977

[51] Int. Cl.[2] H01R 13/00
[52] U.S. Cl. ..... 339/112 R; 339/17 R
[58] Field of Search ..... 339/112 R, 113 B, 17 M, 339/17 R, 17 CF

[56] References Cited

U.S. PATENT DOCUMENTS

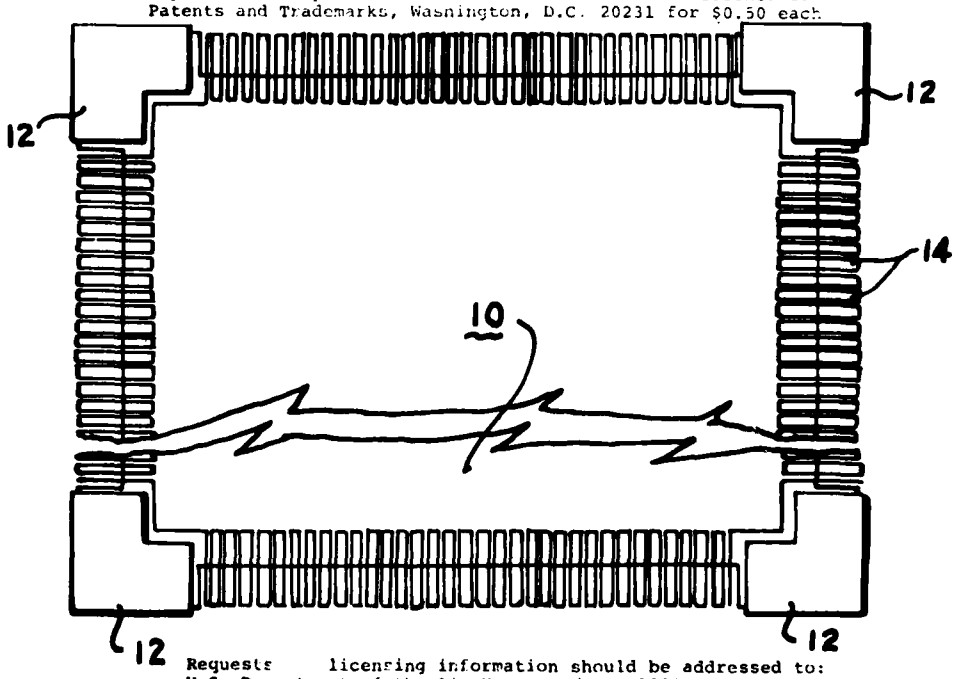
4,045,105 8/1977 Lee et al. ..... 339/17 CF

Primary Examiner—Roy Lake
Assistant Examiner—DeWalden W. Jones
Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] ABSTRACT

A circuit board with connectors along more than one side designed to be stacked with similar boards, having a plurality of electrical contacts to connect to a connector header with resilient contacts, applying a force to the circuit board which is inclined from a central axis whereby the circuit board and the connector header join in a tight, reliable compression contact.

6 Claims, 3 Drawing Figures



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19] [11] **4,163,629**
McDonough et al. [45] **Aug. 7, 1979**

[54] TURBINE VANE CONSTRUCTION

[75] Inventors: **Edward C. McDonough, Lawrenceburg, Ind.; Eugene N. Tuley, Hamilton, Ohio**

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl. No.: **864,049**

[22] Filed: **Dec. 23, 1977**

[51] **Int. Cl.**[2] **F01D 25/12; F02C 7/18**
[52] **U.S. Cl.** **415/115; 415/137**
[58] **Field of Search** ..... 415/115, 116, 117, 136, 415/137, 160; 416/96 A, 97 A

[56] **References Cited**

U.S. PATENT DOCUMENTS

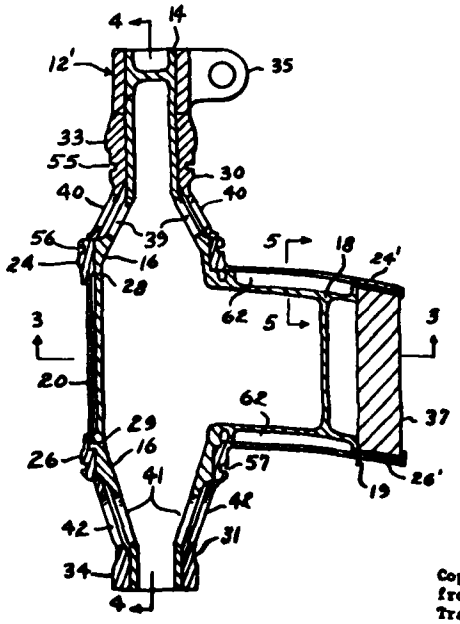
2,807,433	9/1957	Halford et al.	415/137
3,075,744	1/1963	Peterson	415/137
3,240,468	3/1966	Watts et al.	415/115
3,558,237	1/1971	Wall	415/115

Primary Examiner—Louis J. Casaregola
Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] **ABSTRACT**

A variable area turbine vane, for use in high temperature aircraft gas turbines, having a load carrying spar with a heat shield member surrounding the load carrying member. The heat shield member is positioned in grooves which permit spanwise and cordwise expansion of the heat shield member. Cooling air enters the hollow load bearing member and passes through holes in the load bearing member and heat shield member.

2 Claims, 6 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Jacobson, Jr.

[11] 4,163,973

[45] Aug. 7, 1979

[54] MEANS FOR DEVELOPING A RADAR TRACKING ERROR SIGNAL

[75] Inventor: Robert E. Jacobson, Jr., Los Angeles, Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 549,402

[22] Filed: Feb. 18, 1975

[51] Int. Cl.[2] G01S 9/22

[52] U.S. Cl. ..... 343/16 M

[58] Field of Search ..... 343/16 M

[56] References Cited

U.S. PATENT DOCUMENTS

3,229,287	1/1966	Hovda	343/16 M
3,579,239	5/1971	Purcell et al.	343/16 M

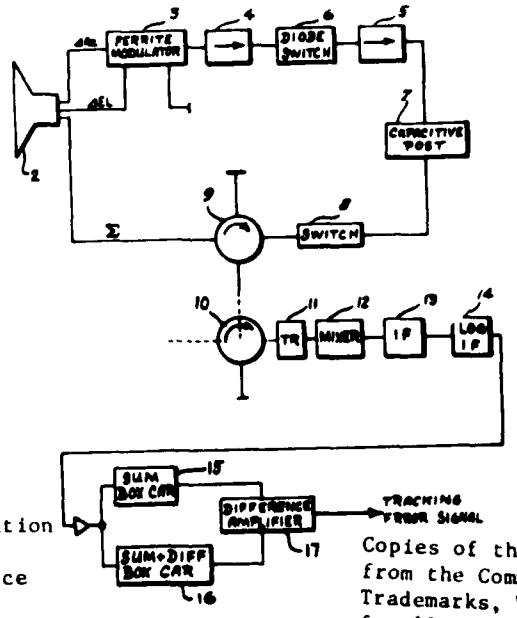
Primary Examiner—T. H. Tubbesing

Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews, Jr.

[57] ABSTRACT

A tracking radar error signal that is independent of pulse to pulse variations of amplitude of the received signal is derived by combining separately detected sum signal energy and difference signal energy in a manner that provides composite error signal pulses that are one-half sum signal energy and one-half sum plus difference signal energy. The pulse composition is realized by means of an RF switch that interrupts the difference signal during approximately one-half of each pulse period. The composite error signal is detected by an IF logarithmic detector and subsequently processed by two parallel box car generators. One box car generator is gated to process sum signal energy and the other is gated to process sum plus difference signal energy. The tracking error signal is obtained from a single pulse by feeding the outputs of the two box car generators to a differential amplifier and obtaining the difference voltage at its output.

1 Claim, 1 Drawing Figure



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00119

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Schuermeyer et al.

[11] **4,163,985**

[45] **Aug. 7, 1979**

[54] **NONVOLATILE PUNCH THROUGH MEMORY CELL WITH BURIED N+ REGION IN CHANNEL**

[75] Inventors: **Fritz L. Schuermeyer**, Yellow Springs; **Charles R. Young**, Xenia, both of Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **838,437**

[22] Filed: **Sep. 30, 1977**

[51] **Int. Cl.**[2] **H01L 29/78**

[52] **U.S. Cl.** **357/23**; 357/13; 357/54; 357/59; 307/238; 365/184

[58] **Field of Search** 365/184; 357/23, 54, 357/13, 59; 307/238

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,877,054	4/1975	Boulin et al.	357/54
3,887,407	6/1975	Ono et al.	357/54
3,923,559	12/1975	Sinha	357/54
3,936,857	2/1976	Ota	357/23
3,996,657	12/1976	Simko et al.	357/23
4,000,504	12/1976	Berger	357/23
4,010,482	3/1977	Abbas et al.	357/23
4,019,198	4/1977	Endo et al.	357/54
4,062,037	12/1977	Togei et al.	357/23

OTHER PUBLICATIONS

J. Verwey et al., "Atmos-An electrically Reprogrammable Read-only Memory Device, "IEEE Transon Elec. Dev., vol. ED-21#10, Oct. 1974, pp. 631-635.

W. Johnson, "Multiple Masking Technique in Ion Implantation," IBM Tech. Discl. Bull., vol. 15#2, Jul. 1972, pp. 660-661.

Primary Examiner—Joseph E. Clawson, Jr.

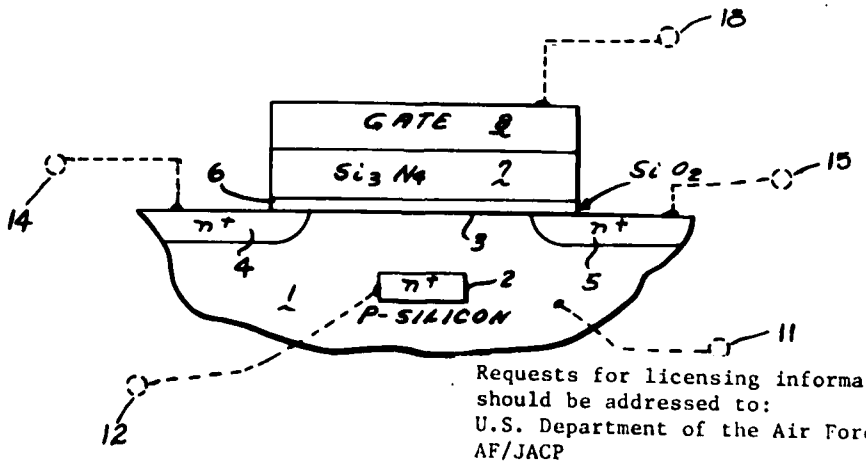
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] **ABSTRACT**

A nonvolatile memory cell is disclosed that has a buried n+ layer from which charge (electrons) is injected into the insulator of n-channel MNOS (Metal Nitride Oxide Semiconductor) type devices.

3 Claims, 6 Drawing Figures

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

JAT 00120

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]
Schmidt

[11] **4,164,741**
[45] **Aug. 14, 1979**

[54] **DECEPTION CIRCUITRY FOR AUTOMATIC RANGE GATE TRACKING IN FIRE CONTROL RADAR**

[75] Inventor: **Jerry D. Schmidt**, Enon, Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **761,891**

[22] Filed: **Sep. 13, 1968**

[51] **Int. Cl.**[2] **G01S 7/38**
[52] **U.S. Cl.** ..... **343/18 E**
[58] **Field of Search** ..... 343/18 E; 328/58

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,931,031	3/1960	Deloraine et al.	343/18 E
2,943,318	6/1960	Deloraine et al.	343/18 E
2,989,744	6/1961	Pettit	343/18 E
3,007,159	10/1961	Podington	343/18 E
3,068,417	12/1962	Fiske	328/58 X
3,971,021	7/1976	Cann	343/18 E
4,072,949	2/1978	Van Brunt	343/18 E

Primary Examiner—T. H. Tubbesing
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

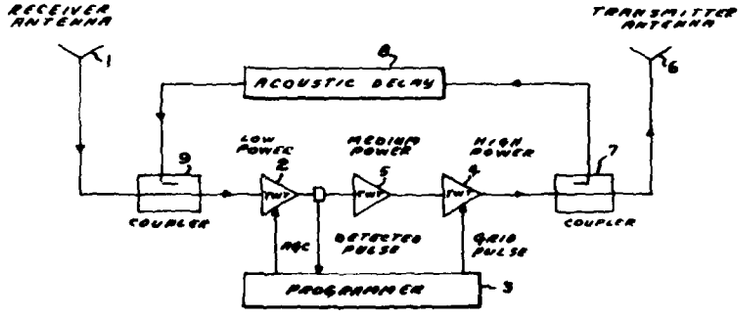
[57] **ABSTRACT**

An acoustic delay line is used in a feed-back loop in the traveling wave tube repeater chain of an electronic countermeasures system to provide a wider transmitted pulse (than the pulse received by the ECM system) resulting in range gate deception in an opposing tracking radar.

4 Claims, 3 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Paciorek et al.

[11] **4,166,071**

[45] **Aug. 28, 1979**

[54] **MONOPHOSPHA-S-TRIAZINES**

[75] Inventors: **Kazimiera L. Paciorek**, Corona del Mar; **Reinhold H. Kratzer**; **Jacquelyn Kaufman**, both of Costa Mesa; **Thomas I. Ito**, Fountain Valley, all of Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **865,271**

[22] Filed: **Dec. 28, 1977**

[51] **Int. Cl.**[2] **C10M 1/44**; C07F 9/22; C07F 9/65

[52] **U.S. Cl.** ..... **260/551 P**; 252/49.9; 252/400 A

[58] **Field of Search** ..... 260/551 P, 543 P

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,463,813	8/1969	Dickerson	260/551 P
3,522,303	7/1970	Ulrich	260/551 P
3,644,456	2/1972	Ulrich	260/551 P X
4,006,203	2/1977	Chance et al.	260/551 P X

FOREIGN PATENT DOCUMENTS

2166498 9/1973 France .

OTHER PUBLICATIONS

Kukhar et al., CA 84:180176c, (1976).
Schoening et al., CA 86:171396p, (1977).
Kukhar et al., CA 85:192681x, (1976).
Kukhar et al., CA 82:4216r, (1975).

Primary Examiner—Thomas Waltz
Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] **ABSTRACT**

A method for synthesizing monophospha-s-triazines by effecting a reaction between an amidoylamidine and a trihalo-phosphorane.

5 Claims, No Drawings

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00122

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Leavitt

[11] 4,166,416
[45] Sep. 4, 1979

[54] OBTURATING SPLIT DISC

[75] Inventor: Leland F. Leavitt, Ogden, Utah

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 908,949

[22] Filed: Apr. 28, 1978

[51] Int. Cl.² F42B 25/20
[52] U.S. Cl. 102/2
[58] Field of Search ..... 102/2-4, 102/223, 225, 263, 1 R

[56] References Cited

U.S. PATENT DOCUMENTS

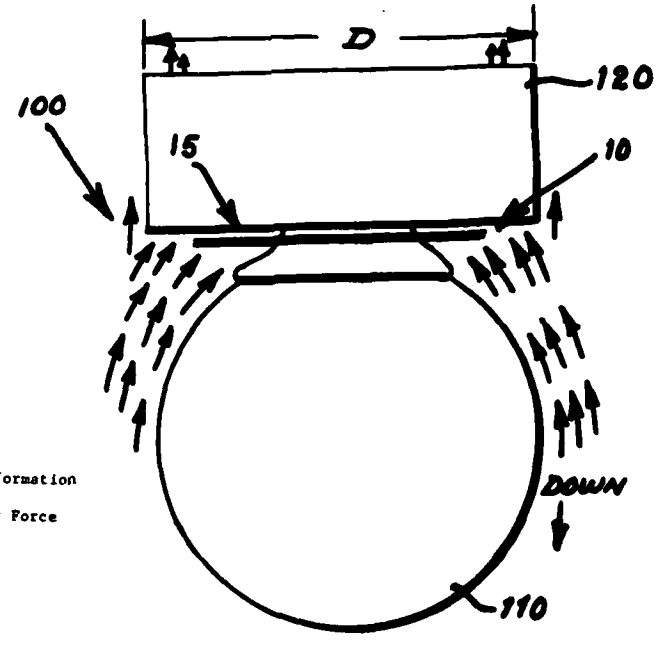
2,364,197 12/1944 Dee 102/2

Primary Examiner—Charles T. Jordan
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

A structural improvement to, and a method of improving, an air-dropped spin-actuated bomb of the anti-personnel type. The structural improvement comprises a split flexible polyethylene obturating disc which replaces the prior art rigid metal obturating disc used on these bombs. The improved disc is releasably connected to the bomb, whereas the prior art disc is fixedly attached to the bomb. The method comprises the step of disposing and releasably connecting the split flexible polyethylene obturating disc to the bomb at a location between the forward body section of the bomb and the aft fin section thereof. The result of the use of the structural improvement, and of the improvement method, is that the arming of the bomb is delayed, so that the bomb, which could only be safely air-dropped from a low speed aircraft, now can also be air-dropped from a high speed, or a very high speed, aircraft.

4 Claims, 3 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

McGraw

[11] **4,166,445**

[45] **Sep. 4, 1979**

[54] **LOW COST SOLAR COLLECTOR**

[76] Inventor: **Thomas F. McGraw**, 7538 Axton St., *Springfield, Va. 22151*

[21] Appl. No.: **866,188**

[22] Filed: **Dec. 30, 1977**

[51] **Int. Cl.**[2] **F24J 3/02**

[52] **U.S. Cl.** **126/432; 126/449**

[58] **Field of Search** ..... 126/270, 271; 237/1 A; 165/104, 107

[56] **References Cited**

U.S. PATENT DOCUMENTS

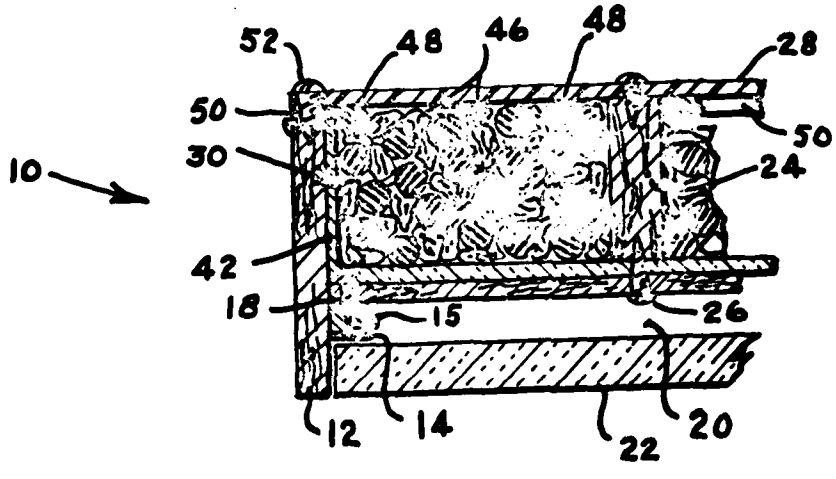
3,908,632	9/1975	Poulsen	126/271
3,939,818	2/1976	Hamilton et al.	126/271
3,981,294	9/1976	Deminet et al.	126/271
4,067,316	1/1978	Brin et al.	126/271
4,082,082	4/1978	Harvey	126/271
4,112,921	9/1978	MacCracken	126/271

Primary Examiner—James C. Yeung
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] **ABSTRACT**

A solar collector having a frame-like wooden housing which contains therein heat absorbing material in the form of pellets of coal or "diced" automobile tires. This material is sealed within the housing by a transparent cover. The resultant sealed container allows a flow of working fluid to pass therethrough by way of a pair of perforated pipes. The collector is oriented to receive maximum solar radiation in order to heat the heat absorbing material. The working fluid which flows in contact with the heat absorbing material, absorbs heat thereform, and, by means of a circulating system which is not part of the invention is generally carried to a storage tank or the like for use at a later time.

10 Claims, 4 Drawing Figures



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Seifert et al.

[11] 4,166,597
[45] Sep. 4, 1979

[54] STOWABLE AND INFLATABLE VEHICLE

[75] Inventors: Clair F. Seifert, Newport Beach; Harvey S. Seapy, Manhattan Beach; Thorvald K. Petersen, Santa Monica, all of Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 468,702

[22] Filed: May 9, 1974

[51] Int. Cl.[2] B64G 1/00
[52] U.S. Cl. 244/160; 244/158; 244/163
[58] Field of Search 244/158, 159, 160, 163

[56] References Cited

U.S. PATENT DOCUMENTS

3,220,004	11/1965	Gillespie, Jr.	244/158
3,405,886	10/1968	Gosnell et al.	244/158

Primary Examiner—Charles T. Jordan

Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

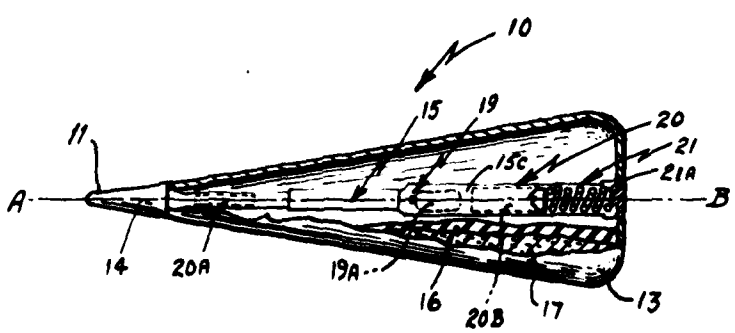
[57] ABSTRACT

A stowable and inflatable vehicle, adapted for use as a decoy space vehicle and as a replica of a relatively hot parent space vehicle. In addition to other components, the inventive decoy and replica vehicle includes: a telescoping central tubular member that provides a rigid support and means for telescoping which aids in stowing the replica inventive vehicle; an inflatable structure which forms an external shape; and, a heater blanket in the outer layers of the structure to simulate the surface temperature of the parent vehicle. As a matter of preference, and in this adaptation, the inventive replica space vehicle is of a conical external configuration. The capability of this inventive vehicle to be inflated to the desired external shape, rather than to assume the external shape by use of solely mechanical expanding means, provides superior structural integrity, and also permits a significant reduction in external dimensions and easy storage, even where stiff materials (which are difficult to fold and to unfold) must be, or preferably are, used.

7 Claims, 3 Drawing Figures

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324



JAT 00125

United States Patent [19]
Seifert et al.

[11] **4,166,598**
[45] **Sep. 4, 1979**

[54] **VEHICLE ENSHROUDING APPARATUS**

[75] Inventors: **Clair F. Seifert**, Newport Beach; **Harvey S. Seapy**, Manhattan Beach; **David E. Dunlap**, Mission Viejo, all of Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **474,479**

[22] Filed: **May 30, 1974**

[51] **Int. Cl.**[2] **B64G 1/00**
[52] **U.S. Cl.** **244/160**; 244/158; 244/163
[58] **Field of Search** 244/158–160, 244/163; 102/105

[56] **Refereaces Cited**

U.S. PATENT DOCUMENTS

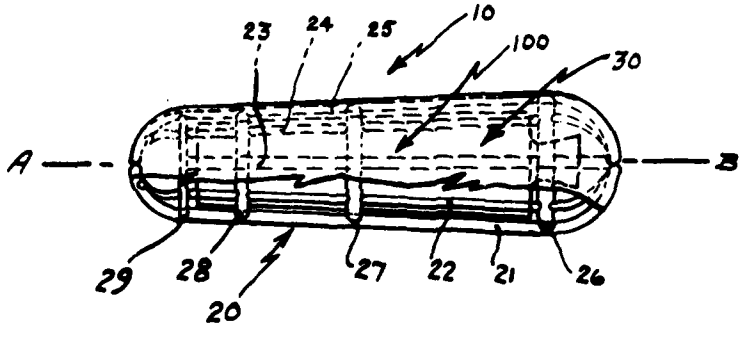
3,220,004	11/1965	Gillespie, Jr.	244/158
3,405,886	10/1968	Gosnell et al.	244/158

Primary Examiner—Charles T. Jordan
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] **ABSTRACT**

Stowable and inflatable apparatus for enshrouding a vehicle. The apparatus, in its most generic and most basic embodiment, includes an inflatable framework external of which is attached a multilayer superinsulating blanket shroud. The inflatable tubular framework includes a plurality of inflatable tubular-shaped longitudinal members in spaced-apart relationship, and a plurality of inflatable toroidal-shaped members also in spaced-apart relationship. Each of the toroidal-shaped members is positioned essentially perpendicular to, and in contact with, each of the tubular-shaped longitudinal members. The inventive apparatus solves the problems which are inherent in enclosing a large, relatively hot space vehicle to retain the heat therefrom, and in folding (and stowing) and in unfolding an apparatus in a space environment.

5 Claims, 2 Drawing Figures



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Witucki et al.

[11] 4,168,273

[45] Sep. 18, 1979

[54] **METHOD FOR THE PREPARATION OF GLYCIDYL 2,2-DINITRO-2-FLUOROETHOXIDE**

[75] Inventors: **Edward F. Witucki**, Van Nuys; **Milton B. Frankel**, Tarzana, both of Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **452,228**

[22] Filed: **Mar. 14, 1974**

[51] **Int. Cl.**[2] **C07D 301/28**

[52] **U.S. Cl.** **260/348.14**; 149/19.3; 149/88; 260/348.45

[58] **Field of Search** ..... 149/88; 260/348 R, 348.14, 260/348.45

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,636,060	1/1972	Frankel et al.	260/348.14
3,652,600	3/1972	Grakauskas	260/348 R
3,784,420	1/1974	Frankel et al.	149/88 X

Primary Examiner—Leland A. Sebastian
Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] **ABSTRACT**

A method for synthesizing glycidyl 2,2-dinitro-2-2 fluoroethoxide which comprises adding sodium hydroxide to a reaction mixture of epibromohydrin and 2,2-dinitro-2-fluoroethanol in the presence of carbon tetrachloride as a solvent for the reaction mixture.

1 Claim, No Drawings

Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Covitt

[11] 4,168,470

[45] Sep. 18, 1979

[54] TWO-BIT A/D CONVERSION APPARATUS WITHOUT A SIGNAL DERIVED AUTOMATIC GAIN CONTROL

[75] Inventor: Arthur L. Covitt, Sudbury, Mass.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 768,812

[22] Filed: Feb. 15, 1977

[51] Int. Cl.[2] H03D 3/00; H03K 13/02; H04B 1/06

[52] U.S. Cl. ..... 325/344; 329/112; 340/347 AD; 340/347 M

[58] Field of Search .... 340/347 M, 347 SY, 347 AD; 329/131, 112, 124; 328/171, 173; 325/414, 400, 344-349; 331/12

[56] References Cited

U.S. PATENT DOCUMENTS

3,181,156	4/1965	Ward	325/349 X
3,611,350	10/1971	Leibowitz et al.	340/347 AD
3,735,391	5/1973	Games et al.	340/347 SY
3,983,499	9/1976	Tan	331/12 X
4,013,965	5/1977	Scharfe	325/320
4,062,005	12/1977	Freed et al.	340/177 R X

OTHER PUBLICATIONS

Landee, et al., Electronic Designers' Handbook, McGraw-Hill Book Co., 1957, pp. 5-37 to 5-39.

The Engineering Staff of Analog Devices, Inc., Analog-Digital Conversion Handbook, 6/1972, pp. I-26 to I-31.

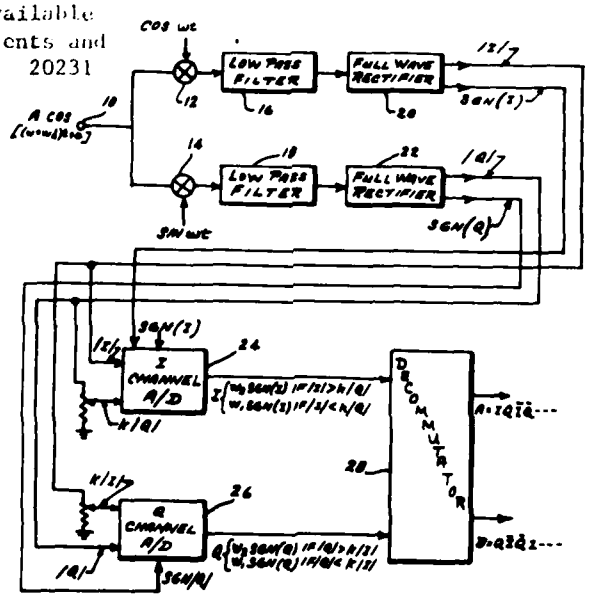
Primary Examiner—Thomas J. Sloyan

Attorney, Agent, or Firm—Joseph E. Rusz; William Stepanishen

[57] ABSTRACT

A two-bit analog to digital conversion apparatus for direct and instantaneous generation of digital signals which are independent of the absolute amplitude of the input signal envelope.

5 Claims, 1 Drawing Figure



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Black, Jr.

[11] **4,168,473**

[45] **Sep. 18, 1979**

[54] **INTERNAL ARRESTER BEAM CLIPPER**

[75] Inventor: **Maurice D. Black, Jr.**, Simi Valley, Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **852,771**

[22] Filed: **Nov. 18, 1977**

[51] **Int. Cl.**[2] **H01S 3/08**

[52] **U.S. Cl.** ..... **331/94.5 C**; 331/94.5 D

[58] **Field of Search** ..... 331/94.5 C, 94.5 D, 331/94.5 T

[56] **References Cited**

U.S. PATENT DOCUMENTS

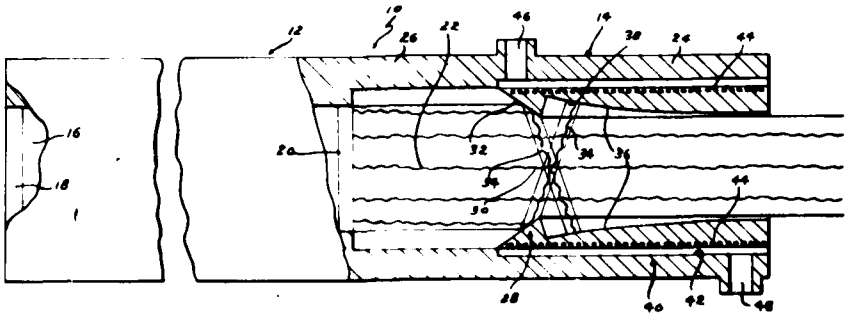
3,426,293	2/1969	Snitzer	331/94.5 C
3,573,656	4/1971	Marcatili	331/94.5 C
3,699,471	10/1972	Mulready et al.	331/94.5 D
3,980,397	9/1976	Judd et al.	331/94.5 T

Primary Examiner—William L. Sikes
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] **ABSTRACT**

An internal arresting beam clipper having a cylindrically shaped housing of predetermined length and a clipping mirror located at one end thereof. The clipping mirror is optically aligned with an out-of-round beam as well as being positioned at a preselected angle with respect to the longitudinal axis of the housing. The beam clipper removes the out-of-round portion of the beam by reflecting that portion of the beam against the wall of the housing. The housing acts as a heat sink and absorbs the rejected radiation that has been reflected thereto by the clipping mirror with the bulk of the beam being passed through the clipping mirror and onto a target.

10 Claims, 3 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Brassaw

[11] 4,168,500

[45] Sep. 18, 1979

[54] METHOD AND SYSTEM FOR MOVING TARGET ELIMINATION AND INDICATION USING SMOOTHING FILTERS

[75] Inventor: Lloyd L. Brassaw, Canoga Park, Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 233,836

[22] Filed: Mar. 10, 1972

[51] Int. Cl.[2] G01S 9/22; G01S 9/42

[52] U.S. Cl. ..... 343/7.7; 343/5 CM; 343/7 A; 343/16 M

[58] Field of Search ..... 343/7.7, 16 M, 5 CM, 343/7 A

[56] References Cited

U.S. PATENT DOCUMENTS

3,308,457	3/1967	Winn	343/16 M X
3,378,843	4/1968	Sherman	343/16 M
3,480,953	11/1969	Shreve	343/7.7
3,706,989	12/1972	Taylor, Jr.	343/7 A

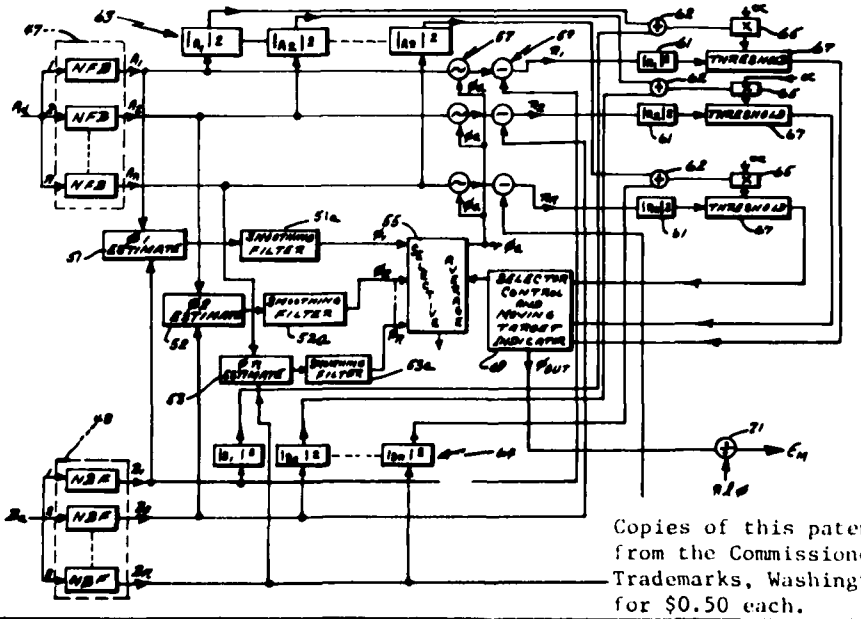
Primary Examiner—Malcolm F. Hubler
Attorney, Agent, or Firm—Joseph E. Rusz; Julian L. Siegel

[57] ABSTRACT

In-phase sum and difference signals and quadrature sum and difference signals from a monopulse radar system are processed to form the sum of the in-phase signals, the sum of the quadrature signals, the difference of the in-phase signals, and the difference of the quadrature signals. The processed sum signals and the processed difference signals are then combined to form complex signals one of which is advanced and the other retarded by predetermined time. The complex signals are then divided into sequences of frequencies of identical banks of narrow band filters. The differences between the outputs of corresponding filters from each bank are smoothed by low pass filters, averaged and then divided by a constant to form a beam pointing error value.

6 Claims, 3 Drawing Figures

Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00130

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Brassaw

[11] 4,168,501

[45] Sep. 18, 1979

[54] METHOD AND SYSTEM FOR MOVING TARGET ELIMINATION AND INDICATION

[75] Inventor: Lloyd L. Brassaw, Canoga Park, Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 233,835

[22] Filed: Mar. 10, 1972

[51] Int. Cl.² G01S 9/22; G01S 9/42

[52] U.S. Cl. ..... 343/7.7; 343/5 CM; 343/7 A; 343/16 M

[58] Field of Search ..... 343/7.7, 16 M, 5 CM, 343/7 A

[56] References Cited

U.S. PATENT DOCUMENTS

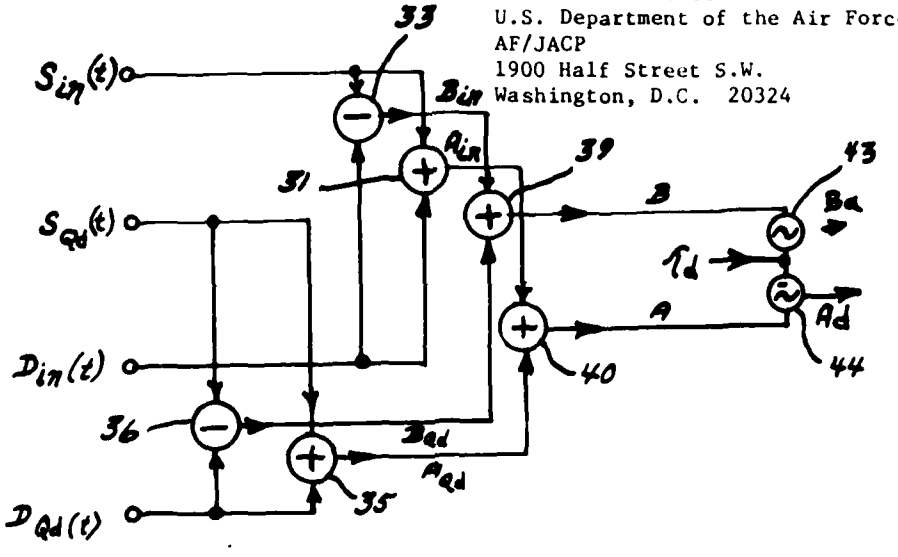
3,308,457	3/1967	Winn	343/16 M X
3,378,843	4/1968	Sherman	343/16 M
3,480,953	11/1969	Shreve	343/7.7
3,706,989	12/1972	Taylor, Jr.	343/7 A

Primary Examiner—Malcolm F. Hubler
Attorney, Agent, or Firm—Joseph E. Rusz, Julian L. Siegel

[57] ABSTRACT

In-phase sum and difference signals and quadrature sum and difference signals from a monopulse radar system are processed to form the sum of the in-phase signals, the sum of the quadrature signals, the difference of the in-phase signals, and the difference of the quadrature signals. The processed sum signals and the processed difference signals are then combined to form complex signals one of which is advanced and the other retarded by predetermined time. The complex signals are then divided into sequences of frequencies by identical banks of narrow band filters. The differences between the outputs of corresponding filters from each bank are averaged and then divided by a constant to form a beam pointing error value.

4 Claims, 3 Drawing Figures



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Dempsey et al.

[11] 4,168,532

[45] Sep. 18, 1979

[54] MULTIMODE DATA DISTRIBUTION AND CONTROL APPARATUS

[75] Inventors: Gayle C. Dempsey, Needham; Richard P. Witt, Weston, both of Mass.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 771,598

[22] Filed: Feb. 24, 1977

[51] Int. Cl.[2] G06F 3/04

[52] U.S. Cl. 364/900

[58] Field of Search ..... 179/15 R, 15 BA, 15 BV, 179/15 AL; 364/200 MS File, 900 MS File

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

[56] References Cited

U.S. PATENT DOCUMENTS

3,851,104	11/1974	Willard et al.	179/15 BV X
3,898,373	8/1975	Walsh	364/200 X
3,905,025	9/1975	Davis et al.	364/200
4,002,843	1/1977	Rackman	179/15 AL
4,053,950	10/1977	Bourke et al.	364/200

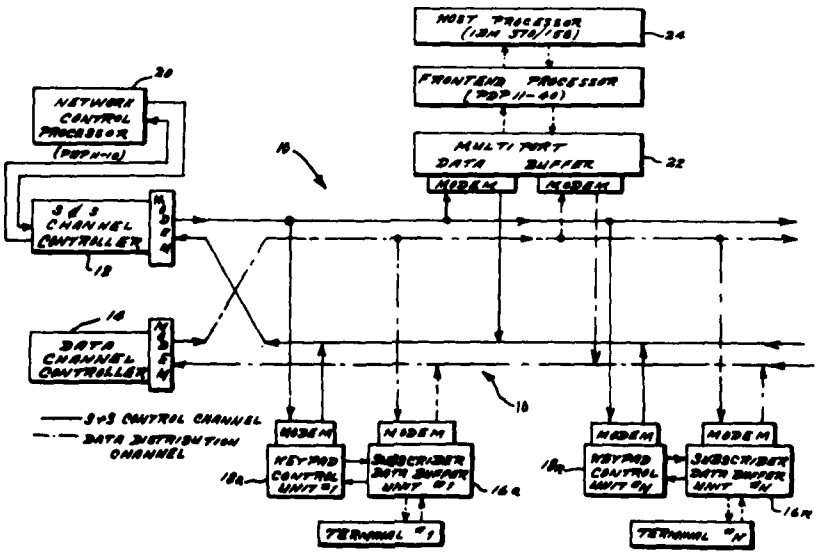
Primary Examiner—Gareth D. Shaw
Assistant Examiner—Thomas M. Heckler
Attorney, Agent, or Firm—Joseph E. Rusz; William Stepanishen

[57] ABSTRACT

A multiplex telecommunications system for simultaneously handling digital data, video and voice traffic on a local level using either broadband coaxial cable or optic fibers as a transmission medium.

5 Claims, 5 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Cubalchini

[11] 4,168,908

[45] Sep. 25, 1979

[54] PRECISION POINTING AND TRACKING CONTROL SYSTEM

[75] Inventor: Ronald Cubalchini, Santa Monica, Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 866,189

[22] Filed: Dec. 30, 1977

[51] Int. Cl.[2] G01B 11/26

[52] U.S. Cl. ..... 356/152; 250/203 R; 356/363

[58] Field of Search ..... 356/141, 152, 356, 358, 356/363; 250/203 R

[56] References Cited

U.S. PATENT DOCUMENTS

4,102,572	7/1978	O'Meara	356/152
4,140,398	2/1979	Hodder	356/152

Primary Examiner—S. C. Buczinski

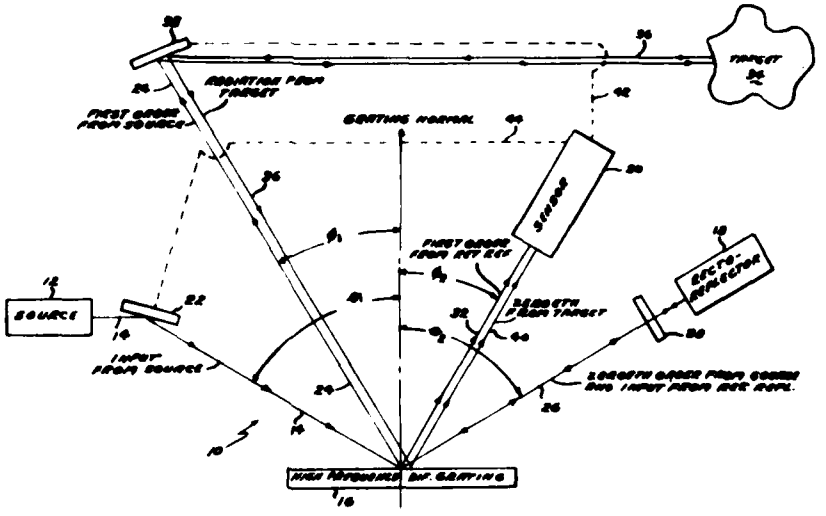
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] ABSTRACT

A precision pointing and tracking control system having a source for producing an electromagnetic beam, a high efficiency diffraction grating, a retroreflector, sensor and means for adjusting the optical relationship between the above elements and a target. The diffraction grating diffracts a large portion of an incident narrow spectral band or monochromatic beam into a single (non-zero) diffraction order in conjunction with the retroreflector as a means of (1) sampling the input narrow band or monochromatic beam, and (2) collecting any radiated electromagnetic energy coming from the direction of propagation (i.e., from the target or receiver). By maintaining a proper relationship between target and source radiation, precision pointing and tracking of the target by the beam produced from the source can be easily accomplished.

10 Claims, 1 Drawing Figure

Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Wong et al.

[11] 4,169,267
[45] Sep. 25, 1979

[54] BROADBAND HELICAL ANTENNAS

[75] Inventors: Jimmy L. Y. Wong, Redondo Beach; Howard E. King, Gardena, both of Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 916,685

[22] Filed: Jun. 19, 1978

[51] Int. Cl.² H01Q 9/00; H01Q 1/36
[52] U.S. Cl. 343/895; 343/749
[58] Field of Search 343/749, 750, 895

[56] References Cited

U.S. PATENT DOCUMENTS

2,966,679	12/1960	Harris	343/895
3,569,979	3/1971	Munk et al.	343/895
3,683,393	8/1972	Self	343/895
3,940,772	2/1976	Ben-dov	343/895

OTHER PUBLICATIONS

Angelakos, D. J. et al., "Modifications on the Axial-Mode Helical Antenna," in IEEE Proceedings, Apr. 1967, pp. 558-559.

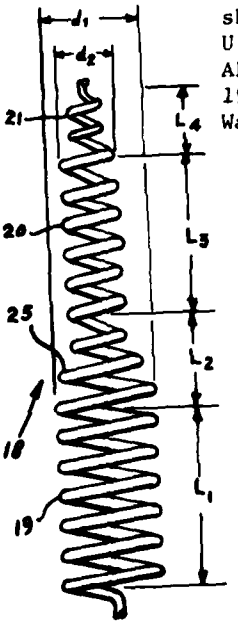
Primary Examiner—Alfred E. Smith
Assistant Examiner—Harry E. Barlow
Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews

[57] ABSTRACT

Increased bandwidth, reduced axial ratios and improved beam shape and sidelobe characteristics are achieved with non-uniform diameter helical antennas. The antenna structures are configured to various combinations of tapered diameter and uniform sections. By varying the number of turns, diameters of the helix sections and lengths of the various helix sections, antennas are synthesized to yield specific gain-frequency response characteristics.

2 Claims, 8 Drawing Figures

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

JAT 00134

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19] [11] **4,169,268**

Schell et al. [45] **Sep. 25, 1979**

[54] **METALLIC GRATING SPATIAL FILTER FOR DIRECTIONAL BEAM FORMING ANTENNA**

[75] Inventors: **Allan C. Schell, Winchester; Robert J. Mailloux, Wayland, both of Mass.**

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl. No.: **904,964**

[22] Filed: **May 11, 1978**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 678,516, Apr. 19, 1976, abandoned.

[51] **Int. Cl.**[2] **H01Q 15/10**

[52] **U.S. Cl.** **343/909**

[58] **Field of Search** ..... 343/753, 754, 755, 872, 343/909, 911 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,684,725	7/1956	Kock	343/909
2,756,424	7/1956	Lewis et al.	343/909
2,763,860	9/1956	Ortusi et al.	343/753
3,708,796	1/1973	Gilbert	343/909

FOREIGN PATENT DOCUMENTS

1058285	3/1954	France	343/754
665747	1/1952	United Kingdom	343/753

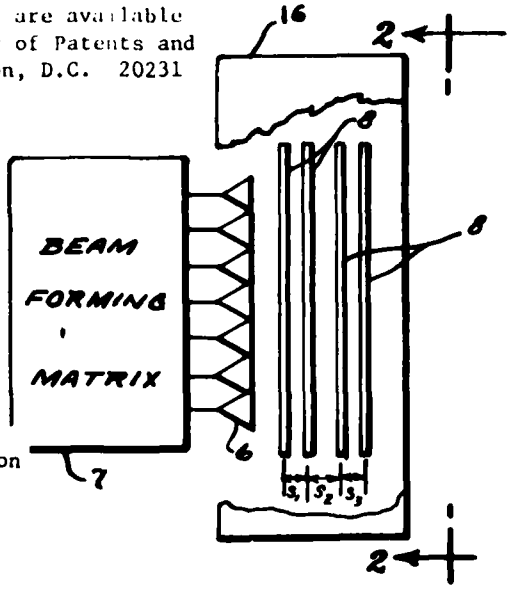
Primary Examiner—Eli Lieberman

Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews

[57] **ABSTRACT**

Sidelobe suppression and other beam transmission property manipulations in directional beam forming antennas is accomplished by means of a spatial filter. The filter geometry consists of a plurality of metallic gratings separated by air or other low dielectric constant dielectric substance. The filter is placed directly over the antenna radiating aperture and is encompassed by a tunnel structure of electromagnetic wave energy absorbing material. The shunt susceptance characteristics of the metallic gratings together with the integrating spacing distances are synthesized in a manner that effects full transmission of beam power in a selected beam direction while offering substantial rejection of it in other directions.

7 Claims, 11 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Goebel et al.

[11] 4,170,008

[45] Oct. 2, 1979

[54] **CLUTTER DISCRIMINATING FUZE APPARATUS**

[75] Inventors: **Robert H. Goebel**, Bridgeton; **Dale A. Fogle**, St. Louis Township, St. Louis County, both of Mo.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **553,360**

[22] Filed: **Feb. 28, 1975**

[51] **Int. Cl.**[2] **F42C 13/04; G01S 9/37**

[52] **U.S. Cl.** ..... **343/7 PF; 102/214**

[58] **Field of Search** ..... 343/7 PF; 102/214

[56] **References Cited**

U.S. PATENT DOCUMENTS

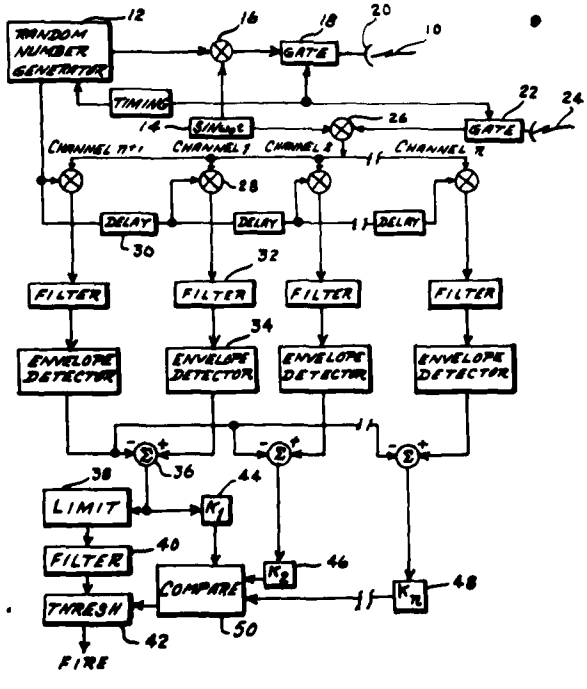
3,332,077	7/1967	Nard et al.	343/7 PF
3,821,737	6/1974	Kalmus	343/7 PF
3,858,207	12/1974	Macomber et al.	343/7 PF
3,906,493	9/1975	Adrian et al.	343/7 PF

Primary Examiner—Malcolm F. Hubler
Attorney, Agent, or Firm—Joseph E. Rusz; William Stepanishen

[57] **ABSTRACT**

A clutter discriminating fuze apparatus for preventing prefires and duds which may result through the use of electronic countermeasure techniques by the enemy.

5 Claims, 1 Drawing Figure



JAT 00136

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Wilkinson

[11] **4,173,122**

[45] **Nov. 6, 1979**

[54] **INTERMITTENT BURNING JET ENGINE**

[75] Inventor: **David B. Wilkinson**, Xenia, Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **876,442**

[22] Filed: **Feb. 9, 1978**

[51] **Int. Cl.**[2] **F02K 7/02**

[52] **U.S. Cl.** ..... **60/247**; 60/270 R

[58] **Field of Search** ..... 60/39.76, 39.77, 247, 60/248, 249, 270 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

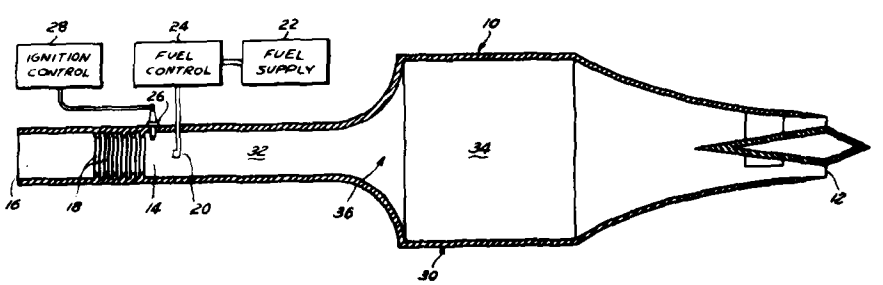
2,647,365	8/1953	Myers	60/270 R
2,745,248	5/1956	Winter et al.	60/247
2,834,183	5/1958	Bertin et al.	60/249
3,533,239	10/1970	Ghougasian	60/247

Primary Examiner—Louis J. Casaregola
Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] **ABSTRACT**

An intermittent burning ramjet engine having a rough wall combustor with fuel supplied to a fuel injector upstream of the combustor. The fuel is cyclically ignited at a predetermined frequency. A resonator tuned to a frequency less than one-tenth of the combustor *frequency is positioned between* the combustor and the ramjet inlet.

3 Claims, 1 Drawing Figure



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00137

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Macdonald

[11] 4,173,322

[45] Nov. 6, 1979

[54] **FLUTTER PREVENTION MEANS FOR AIRCRAFT PRIMARY FLIGHT CONTROL SURFACES**

[75] Inventor: **Kenneth A. B. Macdonald**, Maple Valley, Wash.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **900,621**

[22] Filed: **Apr. 27, 1978**

[51] **Int. Cl.**[2] **B64C 13/00**

[52] **U.S. Cl.** ..... **244/75 A**; 244/83 A

[58] **Field of Search** ..... 244/83 A, 75 R, 75 A, 244/78, 90 R, 213, 215

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,747,344	2/1930	Bell	244/83 A
2,246,203	6/1941	Florez	244/83 A
2,835,459	5/1958	Stewart	244/83 A

FOREIGN PATENT DOCUMENTS

403223	4/1943	Italy	244/83 A

Primary Examiner—Galen L. Barefoot
Attorney, Agent, or Firm—Joseph E. Rusz; James S. Shannon; Casimer K. Salys

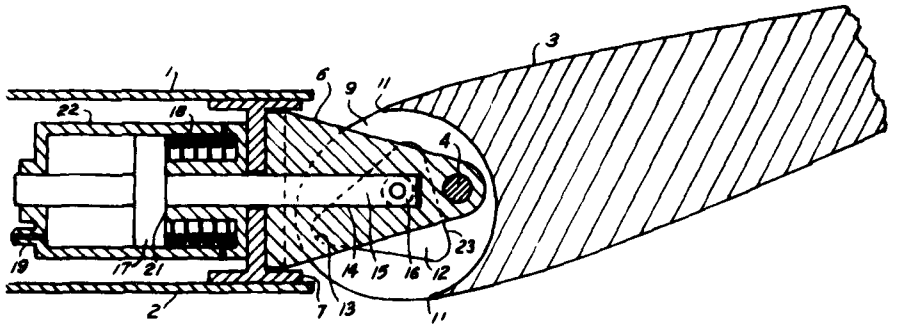
[57] **ABSTRACT**

An apparatus attached to the flight control surface designed to lock the surface in a fixed and generally neutral position when a hydraulic pressure failure occurs. A spring loaded hydraulic actuator is mounted in the fixed wing structure but has an arm with a locking roller extending into a wedge shaped recess in the adjacent movable control surface. When hydraulic pressure is present the actuator spring is compressed and the locking roller on the actuator arm is moved to the wide end of the wedge, effectively avoiding any contact between the roller and the flight control surface surrounding it irrespective of the control surface orientation. Upon the occurrence of a hydraulic pressure drop, the compressed spring translates the actuator arm drawing the locking roller into a detent in the narrow end of the wedge, thereby inhibiting control surface rotation and flutter.

2 Claims, 3 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



JAT 00138

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Palmer

[11] 4,175,812
[45] Nov. 27, 1979

[54] **ELECTRICALLY CONDUCTIVE BONDING STRAP FOR CONNECTING MOVABLE PARTS**

[75] Inventor: **Arlo K. Palmer**, Renton, Wash.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **891,873**

[22] Filed: **Mar. 30, 1978**

[51] **Int. Cl.**[2] **H02G 13/00**
[52] **U.S. Cl.** ..... **339/29 R**; 174/2
[58] **Field of Search** ..... 339/19, 28, 29, 222, 339/277; 174/2, 4, 5; 361/218; 244/1 A

[56] **References Cited**

U.S. PATENT DOCUMENTS

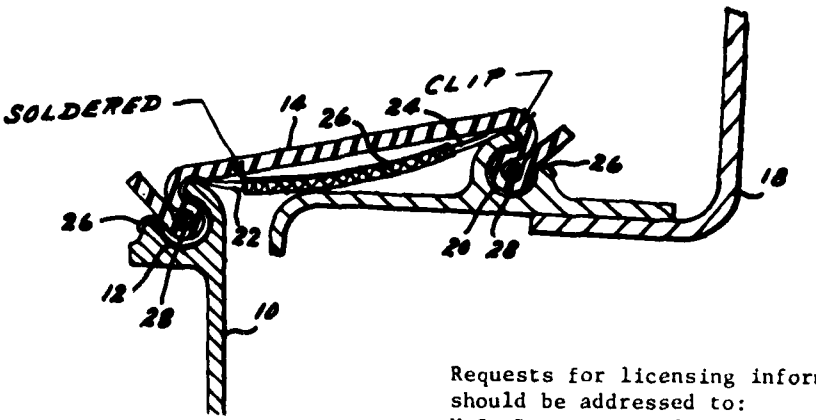
2,129,493	9/1938	Deems	238/14.13
2,286,415	6/1942	Hewel	339/29 B
2,623,918	12/1952	Hartwell	174/2

Primary Examiner—Neil Abrams
Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] **ABSTRACT**

The invention comprises a braided wire having a shaped clip soldered or otherwise connected to each end. The clip is so formed as to follow the shape of a retainer which is designed to secure a rubber weather seal by means of a cable and groove arrangement.

5 Claims, 2 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Kuhn, Jr.

[11] 4,175,835

[45] Nov. 27, 1979

[54] **FLOATING HEAD LASER MIRROR ASSEMBLY**

[75] Inventor: **Ralph F. Kuhn, Jr.**, Calabasas, Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **926,358**

[22] Filed: **Jul. 20, 1978**

[51] **Int. Cl.**[2] **G02B 7/18**

[52] **U.S. Cl.** **350/310**

[58] **Field of Search** 350/310, 288

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,801,285	4/1931	Mills	350/310
3,637,296	1/1972	McLafferty et al.	350/310
3,676,274	7/1972	Matulis	350/310
3,708,223	1/1973	Sorensen et al.	350/310
3,731,992	5/1973	Mansell	350/310
3,781,094	12/1973	Griest	350/310
3,926,510	12/1975	Locke et al.	350/310
3,942,880	3/1976	Zeiders, Jr.	350/310
4,060,315	11/1977	Heinz	350/310

Primary Examiner—Jon W. Henry

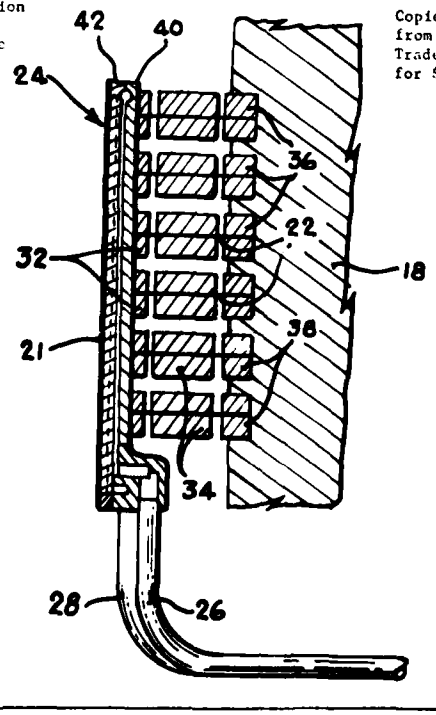
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] **ABSTRACT**

A high power floating head laser mirror assembly having a mirror head, a base structure and a plurality of flexure elements interposed between the mirror head and the base structure for "floatingly" supporting the mirror head with respect to the base structure. In order to preserve proper mirror head alignment and yet allow radial expansion of the mirror head a plurality of posts are located adjacent the flexure elements thereby exposing only a predetermined portion of the flexure element. As a result of the above assembly, the mirror surface is capable of reliable operation within a laser having a light intensity in excess of 5 Kw/cm^2.

9 Claims, 4 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00140

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Harvey et al.

[11] **4,177,227**

[45] **Dec. 4, 1979**

[54] **LOW SHEAR MIXING PROCESS FOR THE MANUFACTURE OF SOLID PROPELLANTS**

[75] Inventors: **Kenneth L. Harvey**, Pleasant Grove; **Howard D. Dixon**, Salt Lake City, both of Utah

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **612,435**

[22] Filed: **Sep. 10, 1975**

[51] **Int. Cl.**[2] **C06B 45/10**

[52] **U.S. Cl.** ..... **264/3 R**; 149/19.1; 149/19.9; 149/19.92

[58] **Field of Search** ..... 149/7, 19.9, 19.92, 149/19.1; 264/3 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,685,163	8/1972	Olt	149/19.92 X
3,730,792	5/1973	Frost et al.	149/19.9
3,801,385	4/1974	Mastrolia et al.	149/19.9
3,834,957	9/1974	McDevitt et al.	264/3 R X
3,870,578	3/1975	Nichols	264/3 R X
3,892,610	7/1975	Huzinec	149/19.92 X

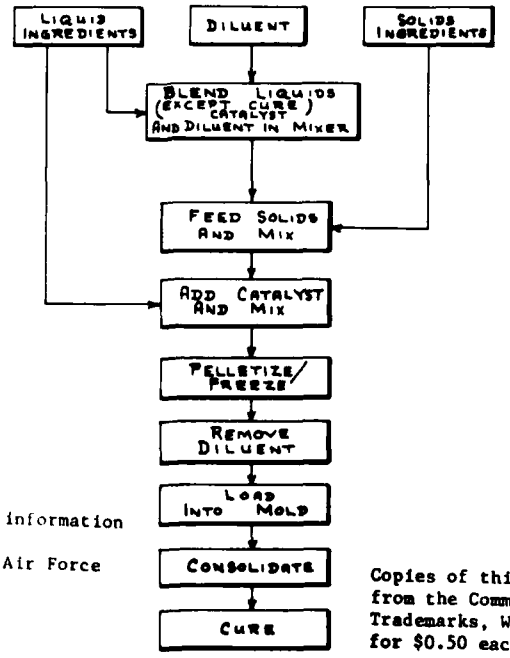
Primary Examiner—Edward A. Miller

Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] **ABSTRACT**

A low shear mixing process for preparing high solids, high viscosity rocket propellants in which the propellant ingredients are blended with an inert diluent to reduce the high shear mixing environment generated by conventional mixing techniques. The diluent is then removed by sublimation from the mixture through a freeze drying process prior to curing and casting the mix according to conventional techniques.

2 Claims, 1 Drawing Figure



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00141

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Mazdiyasni

[11] 4,177,230

[45] Dec. 4, 1979

[54] **PROCESS FOR PRODUCING REACTION SINTERED SILICON NITRIDE OF INCREASED DENSITY**

[75] Inventor: Khodabakhsh S. Mazdiyasni, Xenia, Ohio

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 911,746

[22] Filed: Jun. 2, 1978

[51] Int. Cl.[2] C04B 35/56; C04B 35/58; C01B 21/06

[52] U.S. Cl. 264/60; 106/44; 106/73.5; 264/65; 264/66; 423/344; 423/406

[58] Field of Search 423/344, 406; 106/44, 106/73.5; 264/60, 65, 66

[56] References Cited

U.S. PATENT DOCUMENTS

3,892,583	7/1975	Winter et al.	106/44

FOREIGN PATENT DOCUMENTS

2236078	3/1974	Fed. Rep. of Germany	106/44
1432559	4/1976	United Kingdom	423/344

Primary Examiner—Jack Cooper
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] ABSTRACT

Porous reaction sintered silicon nitride body is infiltrated with an organosilicon compound after which the body is heated at a temperature sufficient to decompose the infiltrated material, resulting in a silicon nitride body having an increased density and significantly improved room temperature strength.

3 Claims, No Drawings

Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19] [11] **4,177,308**
Beeler [45] **Dec. 4, 1979**

[54] **NON-COMBUSTIBLE HIGH TEMPERATURE ABRADABLE SEAL MATERIAL**

[75] Inventor: **David R. Beeler, Fairfield, Ohio**

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl. No.: **932,814**

[22] Filed: **Aug. 10, 1978**

[51] **Int. Cl.**[2] **C04B 21/00**
[52] **U.S. Cl.** ..... **428/117; 106/40 R**
[58] **Field of Search** ..... 106/40 R, 40 V; 428/117

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,041,205	6/1962	Iler	106/40 R
3,068,016	12/1962	Dega	428/117
3,126,149	3/1964	Bowers, Jr. et al.	428/117
3,991,254	11/1976	Takeuchi	106/40 R

Primary Examiner—O. R. Vertiz
Assistant Examiner—Mark Bell
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

A non-combustible, abradable sealant composition for jet engines comprising a major amount of aluminum phosphate and a minor amount of silica or glass microspheres.

11 Claims, No Drawings

Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Rogers

[11] **4,177,328**

[45] **Dec. 4, 1979**

[54] **WALL WICK FOR NICKEL-HYDROGEN CELL**

[75] Inventor: **Howard H. Rogers,** Culver City, Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force,** Washington, D.C.

[21] Appl. No.: **970,910**

[22] Filed: **Dec. 19, 1978**

[51] **Int. Cl.**[2] **H01M 12/06**

[52] **U.S. Cl.** **429/81;** 429/101

[58] **Field of Search** 429/38, 39, 81, 34, 429/101, 144, 145, 59, 33, 247, 72

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,988,584	6/1961	Peters	429/247
3,333,986	8/1967	Chreitzberg et al.	429/81
3,532,549	10/1970	Bradley et al.	429/101
3,615,845	10/1971	Gray	429/34
4,004,067	1/1977	Briggs et al.	429/101

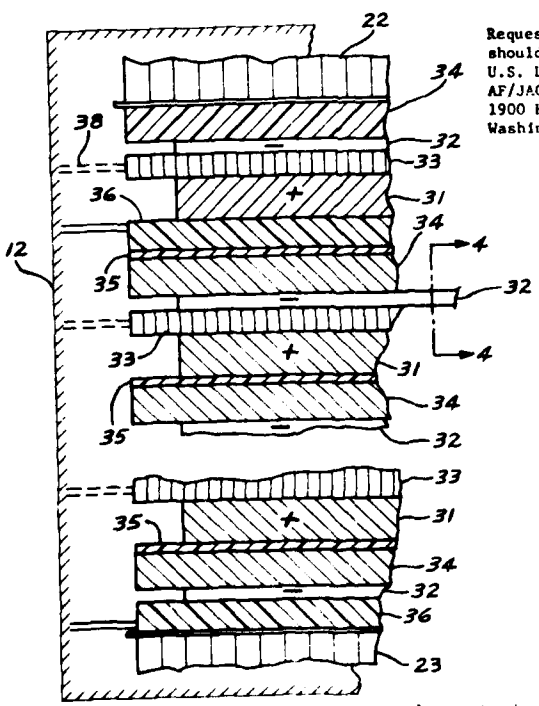
Primary Examiner—Donald L. Walton

Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] **ABSTRACT**

Electrolyte, lost from the stack to the case in a sealed electrochemical cell, is returned to the stack by a zirconium oxide based ceramic deposited on the inside wall of the pressure vessel, wicking by capillary action, the electrolyte from regions external to the stack to the stack components. The ceramic wick is also used to transfer electrolyte from one separator and/or reservoir to another within the stack, replacing an interior stack wick in a recirculating design. The wall wick is also effective in a back-to-back type cell design.

3 Claims, 4 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

McLaughlin et al.

[11] 4,177,437

[45] Dec. 4, 1979

[54] **HIGH POWER PRE-TR SWITCH**

[75] Inventors: **James F. McLaughlin**, Severna Park; **Harry Goldie**, Randallstown, both of Md.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **871,066**

[22] Filed: **Jan. 20, 1978**

[51] **Int. Cl.**[2] **H01P 1/14**

[52] **U.S. Cl.** **333/13**; 313/221; 315/111.2

[58] **Field of Search** 333/13; 313/180, 221, 313/222, 229, 231.3, 480; 315/39, 111.2

[56] **References Cited**

U.S. PATENT DOCUMENTS

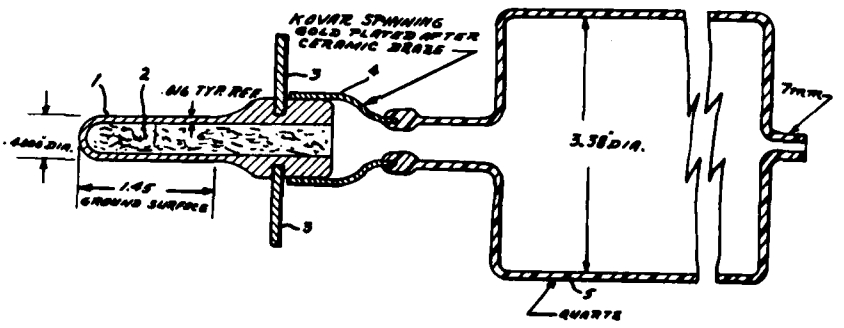
3,219,868	11/1965	Mason et al.	313/221 X
3,497,833	2/1970	Goldie et al.	333/13
3,648,100	3/1972	Goldie et al.	315/39
3,705,319	12/1972	Goldie et al.	333/13 X
3,753,158	8/1973	Prescott	333/13
4,120,808	10/1978	Byrum, Jr. et al.	313/221 X

Primary Examiner—Paul L. Gensler
Attorney, Agent, or Firm—Joseph E. Rusz; George Fine

[57] **ABSTRACT**

A high power pre-TR switch utilizes hot pressed boron nitride to form a vial. The vial contains a halogen gas such as chlorine.

1 Claim, 1 Drawing Figure



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00145

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Masak

[11] 4,177,464

[45] Dec. 4, 1979

[54] MULTIPLEXING OF MULTIPLE LOOP SIDELOBE CANCELLERS

[75] Inventor: Raymond J. Masak, East Northport, N.Y.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 960,207

[22] Filed: Nov. 13, 1978

[51] Int. Cl.[2] G01S 3/06

[52] U.S. Cl. ..... 343/100 LE

[58] Field of Search ..... 343/100 LE

[56] References Cited

U.S. PATENT DOCUMENTS

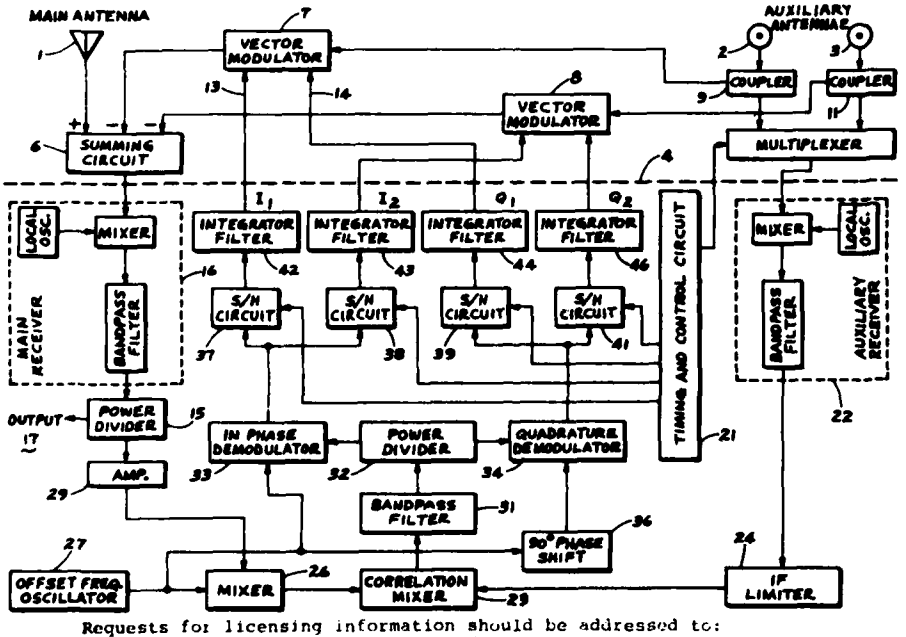
3,202,990	8/1965	Howells	343/100 LE
3,881,177	4/1975	Lea et al.	343/100 LE X
3,982,245	9/1976	Soule, Jr. et al.	343/100 LE
4,044,359	8/1977	Applebaum et al.	343/100 LE

Primary Examiner—Maynard R. Wilbur
Assistant Examiner—Richard E. Berger
Attorney, Agent, or Firm—Joseph E. Rusz; Casimer K. Salys

[57] ABSTRACT

A sidelobe canceller in which the undesired signals in the main antenna channel are cancelled at RF using signals from multiple auxiliary antennas, where each auxiliary antenna signal has been weighted in a vector modulator while at RF. The weighting is determined in a single wideband IF loop by multiplexing the multiple auxiliary antenna signals through the same auxiliary receiver, correlator and demodulator. The demodulated output signal from each auxiliary antenna is sampled and retained as a weighting to adjust the vector modulator for the corresponding auxiliary antenna. A timing and control circuit coordinates the multiplexing and sampling functions.

3 Claims, 1 Drawing Figure



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324
Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00146

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Lundvall, I et al.

[11] 4,177,465
[45] Dec. 4, 1979

[54] NEAR-RANGE PERSONNEL BEACON LOCATOR APPARATUS

[75] Inventors: Donald O. Lundvall, I, Papillion; John P. Engels; Robert R. Yesconis, both of Omaha, all of Nebr.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 949,189

[22] Filed: Oct. 6, 1978

[51] Int. Cl.² G01S 11/00
[52] U.S. Cl. ..... 343/112 D
[58] Field of Search ..... 343/112 D

[56] References Cited

U.S. PATENT DOCUMENTS

2,571,368	10/1951	Kahn et al.	343/112 D
4,023,176	5/1977	Currie	343/112 D

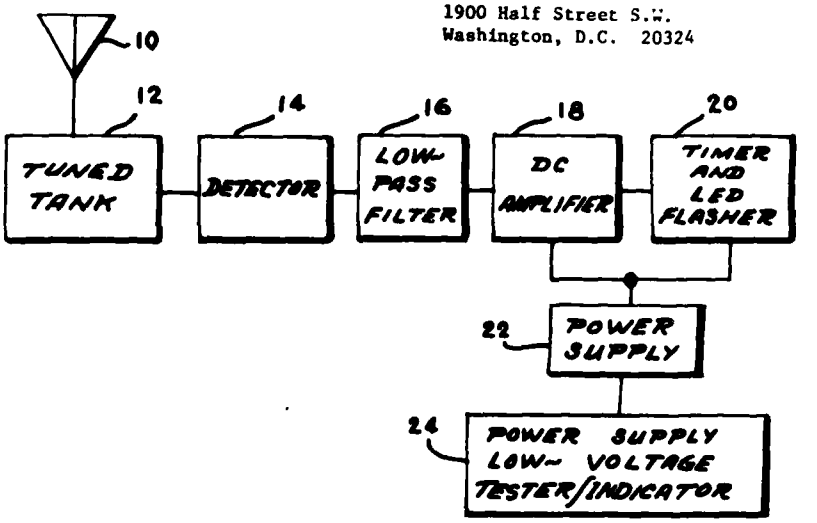
Primary Examiner—Maynard R. Wilbur
Assistant Examiner—Richard E. Berger
Attorney, Agent, or Firm—Joseph E. Rusz; William Stepanishen

[57] ABSTRACT

A near-range personnel beacon locator apparatus utilizing a tuned tank circuit to receive the emitted signal from an activated personnel beacon. The detected signal is applied to a D.C. amplifier to provide a D.C. level which drives a controlled variable duty cycle timer for driving a light emitting diode indicator.

7 Claims, 4 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Bliamptis

[11] 4,177,493

[45] Dec. 4, 1979

[54] HIGH VOLTAGE ANTENNA PROTECTION SYSTEM

[75] Inventor: Emmanuel E. Bliamptis, Lexington, Mass.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 865,753

[22] Filed: Dec. 29, 1977

[51] Int. Cl.² H02H 7/20

[52] U.S. Cl. 361/56; 333/12; 343/904; 361/117; 361/118; 361/133

[58] Field of Search ..... 361/56, 54, 43, 118, 361/119, 117, 133, 134, 129, 212, 220, 221; 333/12, 17 L; 324/109; 343/720, 851, 904, 905, 906

[56] References Cited

U.S. PATENT DOCUMENTS

500,455	6/1893	Wurts	361/133
3,112,429	11/1963	Person	361/134
3,280,376	10/1966	Person	361/133

FOREIGN PATENT DOCUMENTS

171666 6/1952 Fed. Rep. of Germany 361/133

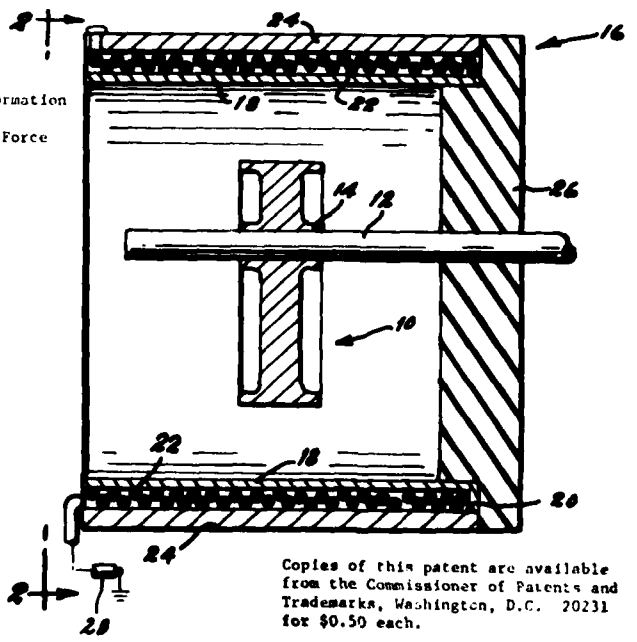
Primary Examiner—Patrick R. Salce

Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] ABSTRACT

A device for the protection of antennas against lightning and electromagnetic pulse consisting of an electrically conducting rotor that is free to turn on a conducting shaft which is connected to the antenna. This combination is placed within an electric coil with one end connected to ground. The rotor is mounted eccentrically within the coil so that when a predetermined critical voltage on the antenna is exceeded electrical current flows through the rotor, and coil to ground via the air gap separating the rotor and coil, a magnetic field is set up in the coil which turns the rotor and reduces the air gap as the voltage is dissipated, after discharge of the surge, the rotor returns to its quiescent position.

5 Claims, 2 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00148

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Wess

[11] 4,177,681

[45] Dec. 11, 1979

[54] **APPARATUS FOR ADJUSTING AND LOCKING A LINEAR ACTUATOR**

[75] Inventor: **Thomas B. Wess**, Cincinnati, Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **893,868**

[22] Filed: **Apr. 6, 1978**

[51] **Int. Cl.**[2] ..... **F16H 21/44**; F1 .1 21/54; F16H 25/18

[52] **U.S. Cl.** **74/110**; 74/522; 74/586; 92/13.41; 92/13.8; 244/85, 403/118; 403/320

[58] **Field of Search** ..... 244/85; 92/13.41, 13.8, 92/13.4; 188/196 A, 196 C; 100/257; 74/522, 110, 586; 403/118, 320, 343

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,639,735	8/1927	Jones	74/586 X
1,811,913	6/1931	Browall	188/196 C
1,837,473	12/1931	Neveu	188/196 C
2,300,831	11/1942	James	92/13.41
2,431,070	11/1947	Nelson	74/110
2,442,306	5/1948	McCormick	92/13.41
2,619,304	11/1952	Feeney et al.	244/85
2,716,965	9/1955	Klamp	92/13.8
2,753,134	7/1956	Gordon et al.	244/85
2,861,758	11/1958	Howard	244/9
2,972,898	2/1961	Hartel	74/105
2,976,844	3/1961	Goldring	92/13.41
3,232,182	2/1966	Gilbert	92/13.41
3,392,909	7/1968	Turner	91/189
3,763,747	10/1973	Beichel et al.	74/110 X
3,815,471	6/1974	Kobelt	91/189
3,893,544	7/1975	Means	188/196 A
3,904,301	9/1975	Schroeder	403/320 X
4,114,250	9/1978	Dent	403/343 X

FOREIGN PATENT DOCUMENTS

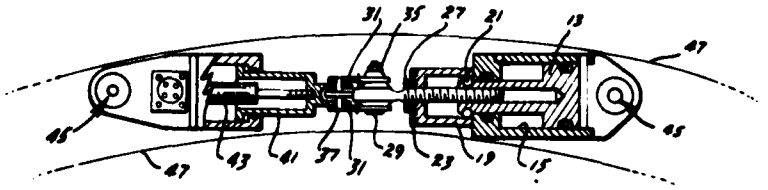
19963	3/1972	Australia	92/13.8
421989	3/1911	France	74/586
32395	11/1927	France	403/343
724755	2/1955	United Kingdom	244/226

Primary Examiner—Leslie Braun
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] **ABSTRACT**

A cylindrical linear actuator suitable for installation in a confined area and capable of infinite stroke adjustment over its scheduled travel and lockable at any position of its designated stroke includes overlapping and combining rod end stroke adjustments to minimize actuator length. Electrical feedback is precalibrated to give a known signal proportional to the actuator stroke and to the position of the load clevis thereby always giving the correct position of the load.

3 Claims, 2 Drawing Figures



Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Arnold et al.

[11] 4,178,428

[45] Dec. 11, 1979

[54] **THERMALLY STABLE ENYNE POLYSULFONE POLYMERS**

[75] Inventors: **Fred E. Arnold**, Centerville; **Bruce A. Reinhardt**, New Carlisle, both of Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **946,291**

[22] Filed: **Sep. 27, 1978**

[51] **Int. Cl.**[2] **C08G 75/23**

[52] **U.S. Cl.** ..... **528/174**; 260/30.8 R; 260/607 AR; 428/411; 528/125; 528/126; 528/128

[58] **Field of Search** ..... 528/174, 125, 126, 128; 260/30.8 R, 607 AR

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,108,926 12/1978 Arnold et al. 528/174

Primary Examiner—Lester L. Lee
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

High molecular weight enyne polysulfone thermoplastics are prepared by the reaction of alkali metal salts of 1,4-bis(3-hydroxyphenyl)-buta-1-ene-3-yne and various aromatic diols with aromatic dihalosulfones. Because of the presence of the enyne moiety in the polymer backbone, the polymer can be lightly crosslinked to provide solvent resistant thermoplastics. The polymers are useful in fabricating graphite thermoplastic composites for structural applications.

9 Claims, No Drawings

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Friedman et al.

[11] 4,179,190
[45] Dec. 18, 1979

[54] WIDE BAND ADJUSTABLE BREWSTER ANGLE POLARIZER

[75] Inventors: Jerome D. Friedman; Carl A. Pitha, both of Lexington, Mass.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 866,742

[22] Filed: Jan. 3, 1978

[51] Int. Cl.[2] G02B 5/30
[52] U.S. Cl. 350/152
[58] Field of Search 350/152

[56] References Cited

U.S. PATENT DOCUMENTS

2,651,971	9/1953	Rosch	350/152
3,428,388	2/1969	Kuebler et al.	350/152
3,439,968	4/1969	Hansen et al.	350/152

FOREIGN PATENT DOCUMENTS

1155625	5/1958	France	350/152

OTHER PUBLICATIONS

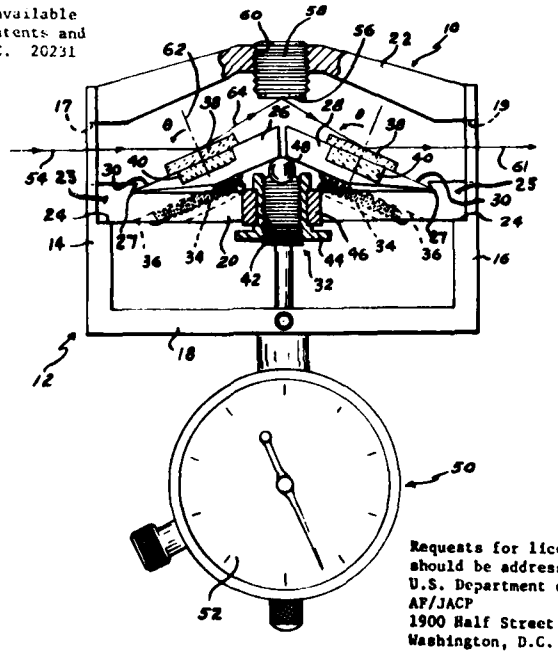
Klauser, H. E., "Infrared Polarizer", *IBM Technical Disclosure Bulletin*, vol. 6, No. 10, Mar. 1964, p. 51.

Primary Examiner—John K. Corbin
Assistant Examiner—R. A. Rosenberger
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] ABSTRACT

A wide band adjustable Brewster angle polarizer having a pair of dielectric elements adjustably mounted within a housing. A dial micrometer is operably attached to the means for adjusting the angular relationship between the normal to the dielectric material and an incoming beam of unpolarized light. The micrometer is calibrated in direct relationship between the wavelength of the incoming beam of light and the establishment of a Brewster angle between the normal to the dielectric material and the incoming beam. Thereby, by proper selection of the dielectric material, light ranging from the ultraviolet to the infrared range of the optical spectrum can be quickly and reliably polarized.

8 Claims, 1 Drawing Figure



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Hobbs

[11] 4,179,657

[45] Dec. 18, 1979

[54] **ANTI-JAMMING COMMUNICATION SYSTEM**

[75] Inventor: **Charles F. Hobbs**, Medford, Mass.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **757,885**

[22] Filed: **Aug. 28, 1958**

[51] **Int. Cl.**[2] **H04K 1/00; H04L 9/00**

[52] **U.S. Cl.** **325/33**; 178/22

[58] **Field of Search** ..... 179/15 AS; 325/33; 178/22, 5.1

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,510,338	6/1950	Guanella	250/6.6 X
2,517,587	8/1950	Mohr	250/6.6 X
2,709,218	5/1955	Gabrilovitch	250/6.6 X
2,720,557	10/1955	Goodall	178/43.5
2,923,764	2/1960	Druz et al.	178/5.1
2,952,735	9/1960	Weiss	250/6.6

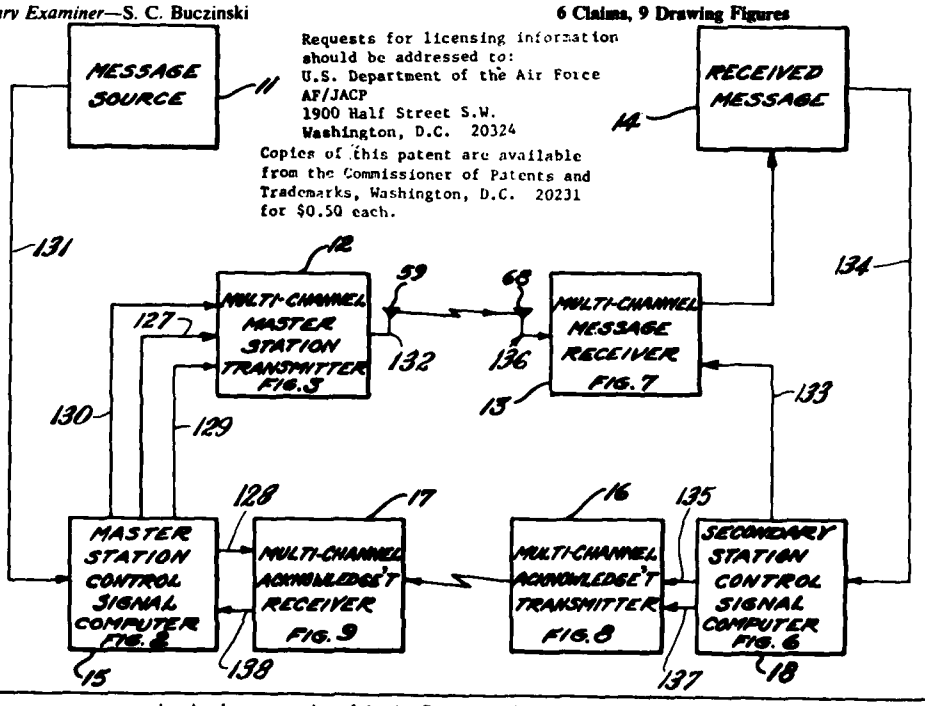
Primary Examiner—S. C. Buczinski

Attorney, Agent, or Firm—Joseph E. Rusz; George Fine

EXEMPLARY CLAIM

1. A system of communications to an intended destination in a manner to elude detection by unauthorized sources, and to prevent jamming, which comprises multi-channel transmitting means, each of said channel transmitting means having a different frequency and delay, said frequency and delay being variable, means to generate time and address digits, means to encipher said time and address digits, means to initially set the frequencies and delays in each of said transmitting channels, said setting means receiving said enciphered time and address digits, means to convert a message to be transmitted into digital bits, means to encipher said message digital bits, means for multiple transmission of the initial message digital bit after said setting of channels, and means to successively reset the frequency and delay in each of said transmitting channels after said multiple transmission of said first message digital bit, said resetting means receiving successive enciphered message digital bits until said message is completely transmitted.

6 Claims, 9 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Fritts

[11] 4,179,799

[45] Dec. 25, 1979

[54] METHOD OF MOLDING A DOUBLE CATHODE HAVING A SENSING GRID FOR A POROUS ELECTRODE PRIMARY BATTERY

[75] Inventor: David H. Fritts, Dayton, Ohio

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 896,863

[22] Filed: Apr. 17, 1978

Related U.S. Application Data

[62] Division of Ser. No. 844,162, Oct. 21, 1977, Pat. No. 4,126,735.

[51] Int. Cl.[2] H01M 4/08

[52] U.S. Cl. 29/623.5; 264/105; 429/91

[58] Field of Search 29/623.1, 623.5; 264/104, 105; 429/93, 91, 92, 233, 178, 218

[56] References Cited

U.S. PATENT DOCUMENTS

2,988,590	6/1961	Andre	429/93
3,206,335	9/1965	Sundberg	429/93
3,720,869	3/1973	Rowlette	429/93
3,901,960	8/1975	Holloway et al.	264/104
3,944,434	3/1976	Gröppel et al.	29/623.5
4,020,243	4/1977	Oldford	429/93

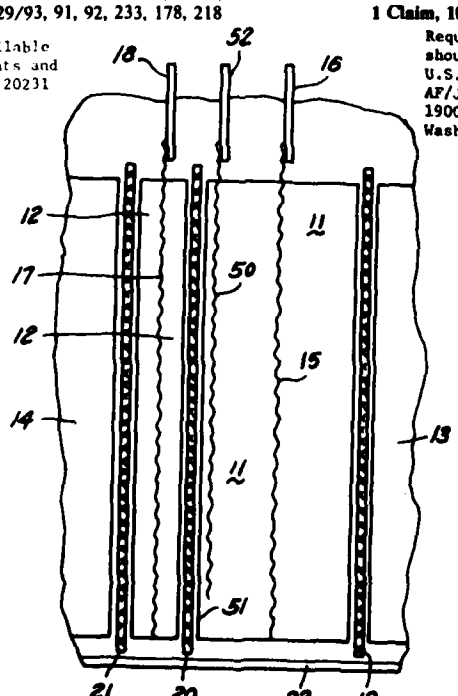
Primary Examiner—Daniel C. Crane

Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] ABSTRACT

In a porous electrode primary battery a sensing grid is positioned in a cell on or near the surface of the porous cathode facing the separator and anode. The voltage measured between this sensing grid and the conventional cathode current collector grid is a function of the current distribution within the electrode which is continuously changing as the battery discharges, thus the measured voltage is indicative of the state of charge of the particular cell having the sensing grid and for a battery containing cooperatively connected cells, the state of the battery in general.

1 Claim, 10 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Hildebrand

[11] 4,180,329

[45] Dec. 25, 1979

[54] SINGLE BLADE PROXIMITY PROBE

[75] Inventor: James R. Hildebrand, Palm Beach Gardens, Fla.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 889,795

[22] Filed: Mar. 23, 1978

[51] Int. Cl.[2] G01B 11/14

[52] U.S. Cl. 356/375; 250/224; 356/23; 415/118

[58] Field of Search 356/372, 373, 375, 426, 356/23; 73/655; 415/118; 250/224, 561; 358/106-108

[56] References Cited

U.S. PATENT DOCUMENTS

3,327,584	6/1967	Kissinger	356/375
3,599,002	8/1971	Beutelspacher et al.	356/23 X
3,856,410	12/1974	Swift et al.	356/398
3,908,444	9/1975	Peter	73/71.3
3,917,432	11/1975	Feuerstein et al.	415/118

FOREIGN PATENT DOCUMENTS

783524	9/1957	United Kingdom	356/375
1080726	8/1967	United Kingdom	356/375

OTHER PUBLICATIONS

Drinkuth et al., "Laser Proximity Probes for Measurement of Running Turbine Tip Clearance," ISA Paper, 20th Annual Aerospace Instrument Symposium, May 21-23, 1974.

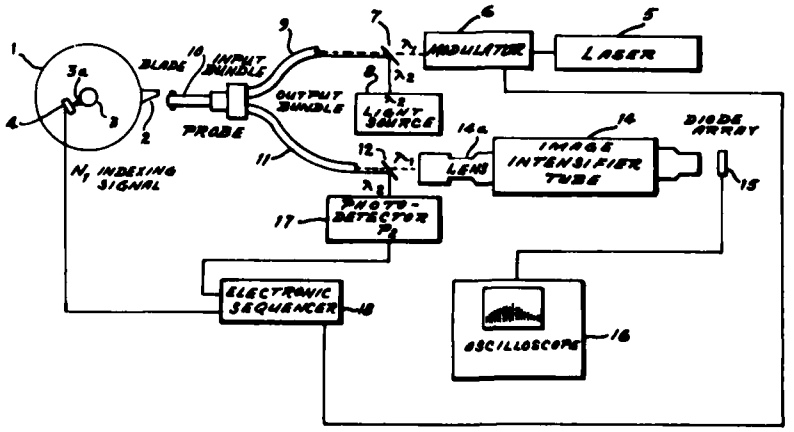
Primary Examiner—F. L. Evans

Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews, Jr.

[57] ABSTRACT

A single blade proximity probe uses fiber optics to direct a laser output at turbine engine blades and to return the reflected light to an image intensifier probe which provides an output indicative of blade clearance. To enable the system to measure the clearance of a single blade tip on an operating turbine, a second light beam having a different wavelength from the laser output is directed over the laser light path to count the blades and to strobe the laser on the desired blade.

2 Claims, 1 Drawing Figure



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Abraham et al.

[11] 4,180,725

[45] Dec. 25, 1979

[54] **GATING APPARATUS FOR STATIC CROSSED FIELD PHOTOMULTIPLIERS**

[75] Inventors: **Wayne G. Abraham**, Los Altos Hills; **Richard S. Enck, Jr.**, San Jose, both of Calif.; **Ronald H. Goehner**, Wayne, N.J.; **Robert V. Brick**, Sunnyvale, Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **904,965**

[22] Filed: **May 11, 1978**

[51] **Int. Cl.**[2] **H01J 39/12**

[52] **U.S. Cl.** ..... **250/207**; 250/213 VT; 313/95

[58] **Field of Search** ..... 250/207, 213 VT; 313/95, 105 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

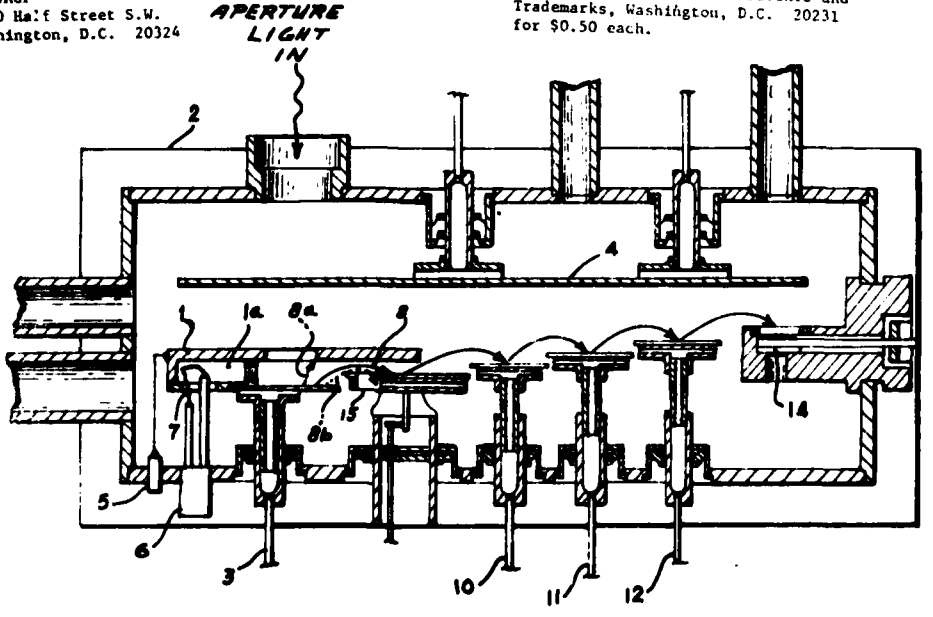
3,431,420 3/1969 Fisher 250/207

Primary Examiner—David C. Nelms
Assistant Examiner—Darwin R. Hostetter
Attorney, Agent, or Firm—Joseph E. Rusz; Sherman H. Goldman

[57] **ABSTRACT**

Gating apparatus for a static crossed field photomultiplier utilizes a gating electrode which is mounted in a position between the cathode and the rail electrode. The gating electrode is pulsed thus causing the cathode current to be either multiplied or diverted so as to modulate the current by shifting the cathode beam into and out of the dynode area where secondary amplification occurs.

4 Claims, 1 Drawing Figure



JAT 00155

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Hook et al.

[11] **4,180,779**

[45] **Dec. 25, 1979**

[54] **QPSK DEMODULATOR WITH TWO-STEP QUADRUPLER AND/OR TIME-MULTIPLEXING QUADRUPLING**

[75] Inventors: **William R. Hook**, Los Angeles; **Ronald P. Hilberg**, Redondo Beach, both of Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **944,440**

[22] Filed: **Sep. 21, 1978**

[51] **Int. Cl.**[2] **H04L 27/22**

[52] **U.S. Cl.** **329/50**; 325/320; 325/346; 329/122

[58] **Field of Search** 329/50, 104, 110, 122, 329/124; 325/320, 346, 349

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

[56] **References Cited**

U.S. PATENT DOCUMENTS

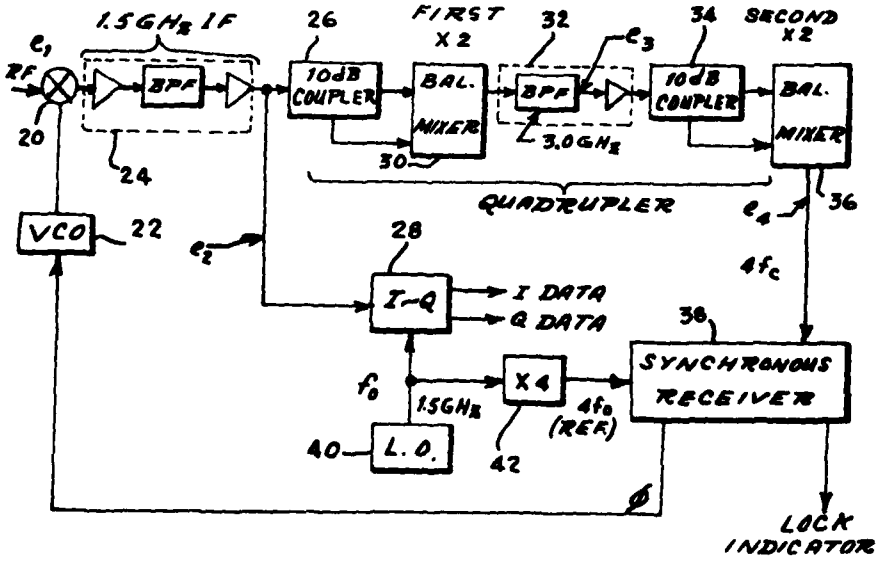
4,097,813 6/1978 Otani et al. ..... 329/124 X

Primary Examiner—Siegfried H. Grimm
Attorney, Agent, or Firm—Joseph E. Rusz; William Stepanishen

[57] **ABSTRACT**

A QPSK demodulator apparatus utilizing a pair of doubling units in tandem but separated by a bandpass filter to remove any undesired cross products and to eliminate possible noise signal that may be applied to the second doubler. The use of two doubling units to provide a times 4 quadrupling allows the use of heterodyning in order to operate at a lower frequency.

7 Claims, 7 Drawing Figures



Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Williamson et al.

[11] **4,181,435**

[45] **Jan. 1, 1980**

[54] HOLOGRAPHIC FIELD LENS DETECTOR

[75] Inventors: **Tommy L. Williamson**, Kettering; **Harold W. Rose**, Xenia, both of Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **373,527**

[22] Filed: **Jun. 29, 1973**

[51] **Int. Cl.**[2] **G01B 11/26**; G02B 5/18

[52] **U.S. Cl.** ..... **356/141**; 350/3.72; 350/162 ZP; 356/152

[58] **Field of Search** ..... *356/141, 152*; *350/3.5*, 350/162 ZP, 3.72

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,375,750	4/1968	Ellis et al.	356/152
3,478,219	11/1969	Nutz	356/152
3,701,602	10/1972	Bergin et al.	356/152

OTHER PUBLICATIONS

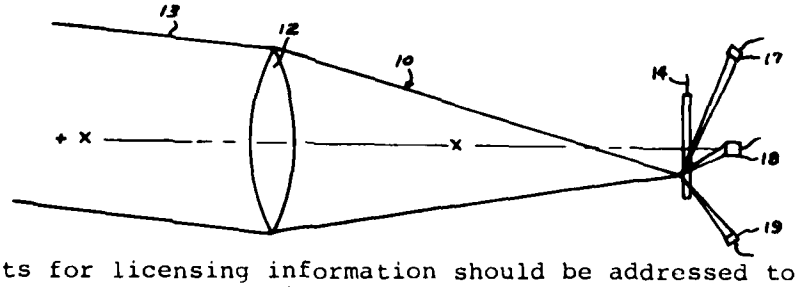
Sincerbox, *IBM Tech. Discl. Bulletin*, 8-1967, pp. 267, 268.

Primary Examiner—S. C. Buczinski
Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] **ABSTRACT**

A holographic field lens detector system having an objective lens for focusing incoming light from a distant illuminating source upon a holographic lens positioned at the back focal plane of the objective lens. The aperture of the objective lens is simultaneously imaged on four detectors positioned in back of the holographic lens and on the four sides of holographic lens. The output of opposite pairs of detectors are fed to sum and difference circuits with the output of the sum and difference circuits being supplied to divide circuits to provide X and Y position information for the illumination on the holographic lens.

2 Claims, 5 Drawing Figures



Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Fujishiro et al.

[11] **4,181,590**

[45] **Jan. 1, 1980**

[54] **METHOD OF ION PLATING TITANIUM AND TITANIUM ALLOYS WITH NOBLE METALS AND THEIR ALLOYS**

[75] Inventors: **Shiro Fujishiro**, Yellow Springs; **Daniel Eylon**, Dayton, both of Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **941,714**

[22] Filed: **Sep. 12, 1978**

Related U.S. Application Data

[62] Division of Ser. No. 825,005, Aug. 16, 1977, Pat. No. 4,137,370.

[51] **Int. Cl.**[2] **C23C 15/00**

[52] **U.S. Cl.** ..... **204/192 N; 427/38**

[58] **Field of Search** ..... 204/192 N; 427/38; 428/670, 672, 674, 660

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,514,388	5/1970	Brumfield et al.	204/192 N
3,928,159	12/1975	Takodoro et al.	204/192 N

FOREIGN PATENT DOCUMENTS

1188895 3/1965 Fed. Rep. of Germany 428/670

OTHER PUBLICATIONS

Schroeder et al., "Adherence and Porosity in Ion Plated Gold," J. Electrochem. Soc. 9/67, pp. 889–892.

Murayama, "Structures of Gold Thin Films Formed by Ion Plating," Jap. J. Appl. Phys., Suppl. 2, Pt. 1, 1974, pp. 459–462.

IBM Technical Disclosure Bulletin, vol. 16, No. 1, 6/73, p. 39, Miller, "Multiple Reflow Ti-Pt Metallurgy."

Primary Examiner—Arthur J. Steiner

Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

Components fabricated from titanium and titanium alloys are subjected to anion plating with noble metals or their alloys. The structures so treated are highly resistant to oxidation at elevated temperatures and possess improved mechanical properties.

3 Claims, No Drawings

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00158

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Psarras

[11] **4,181,678**

[45] **Jan. 1, 1980**

[54] **SYMMETRICAL PERFLUOROALKYLENE OXIDE α,ω-DIACYL FLUORIDES**

[75] Inventor: **Theodore Psarras**, Gainesville, Fla.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **942,571**

[22] Filed: **Sep. 15, 1978**

[51] **Int. Cl.**[2] **C07C 53/20; C07C 51/58**

[52] **U.S. Cl.** ..... **260/544 F**

[58] **Field of Search** ..... 260/544 F, 543 F

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,250,806	5/1966	Warnell	260/535
3,317,484	5/1967	Fritz	260/78.4
3,318,911	5/1967	Takehara et al.	260/340.7
3,862,971	1/1975	Rudolph et al.	260/408

Primary Examiner—Gerald A. Schwartz

Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

Symmetrical perfluoroalkylene oxide α,ω-diacyl fluoride is prepared by reacting a perfluoroalkylene oxide, α, ω-diiodide with fuming sulfuric acid in the presence of zinc sulfate while adding chlorine.

5 Claims, No Drawings

Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00159

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]
Psarras

[11] **4,181,679**
[45] **Jan. 1, 1980**

[54] **ω-IODOPERFLUOROALKYLENE OXIDE ACYL FLUORIDES**

[75] Inventor: **Theodore Psarras**, Gainesville, Fla.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **954,943**

[22] Filed: **Oct. 24, 1978**

[51] **Int. Cl.**[3] **C07C 53/20; C07C 51/58**
[52] **U.S. Cl.** ..... **260/544 F**
[58] **Field of Search** ..... 260/544 F; 260/543 F

[56] **References Cited**
U.S. PATENT DOCUMENTS

3,862,971 1/1975 Rudolph et al. 260/408

Primary Examiner—Gerald A. Schwartz
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

ω-Iodoperfluoroalkylene oxide acyl fluorides are prepared by reacting a perfluoroalkylene oxide α,ω-diiodide with fuming sulfuric acid in the presence of zinc sulfate. The iodoacyl fluorides are intermediates for use in synthesizing perfluoroalkylene ether diimidate esters.

4 Claims, No Drawings

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]
Evers et al.

[11] **4,181,681**
[45] **Jan. 1, 1980**

[54] **2-AMINO-4-ETHYNYLPHENOL**

[75] Inventors: **Robert C. Evers; George J. Moore,** both of Dayton, Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force,** Washington, D.C.

[21] Appl. No.: **925,899**

[22] Filed: **Jul. 19, 1978**

[51] **Int. Cl.**[2] **C07C 91/44**
[52] **U.S. Cl.** **260/575;** 528/210
[58] **Field of Search** 260/575, 578, 571; 528/210

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,700,743	10/1972	Relles	260/668 R
3,928,450	12/1975	Bilow et al.	260/571
3,981,932	9/1976	Diamond	260/578 X

OTHER PUBLICATIONS

Morrison et al., "Organic Chemistry", 3rd edition, pp. 673 & 677 (1975).
Fieser et al., "Reagents for Organic Synthesis", vol. 1, pp. 441 & 1081 (1967).
Schofield et al., "Chemical Abstracts", vol. 44, Ab. No. 2992g (1950).
Cook et al., "Chemical Abstracts", vol. 58, Ab. No. 12390d (1963).

Primary Examiner—John Doll
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

2-Amino-4-ethynylphenol, a novel compound, is prepared by a four-step synthetic sequence in which the key reaction is the treatment of 4-acetoxy-3-nitroacetophenone with a Vilsmeier reagent derived from N,N-dimethylformamide and phosphorus oxychloride. The compound is useful as an endcapping agent in the synthesis of fluorocarbon ether bibenzoxazole oligomers which, because of the presence of acetylenic terminal groups, can be cured by thermal means to provide broad-use temperature, fuel and fluid resistant vulcanizates.

2 Claims, No Drawings

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Wendt et al.

[11] 4,181,774

[45] Jan. 1, 1980

[54] **ELECTROMAGNETIC INTERFERENCE FILTER WINDOW**

[75] Inventors: **Jerry P. Wendt**, Arcadia, Calif.; **Andrew J. Steckl**, Ballston Spa, N.Y.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **970,947**

[22] Filed: **Dec. 19, 1978**

[51] **Int. Cl.**[2] **B32B 17/06**; C03C 17/22

[52] **U.S. Cl.** ..... **428/335**; 204/192 P; 350/164; 350/311; 350/1.6; 331/94.5 G; 427/162; 427/165; 428/34; 428/433; 428/469

[58] **Field of Search** ..... 428/335, 332, 469, 34, 428/433; 427/162, 165; 204/192 P; 350/1, 164, 311; 331/94.5 G

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,415,352	2/1947	Iams	350/153 X
3,569,858	3/1971	Witteman	331/94.5 G
3,671,286	6/1972	Fischell	428/332
3,815,036	6/1974	Nozik	350/1 X
3,920,533	11/1975	Pompei	204/192 P
3,935,351	1/1976	Franz	428/34
3,958,042	5/1976	Katsube et al.	427/162

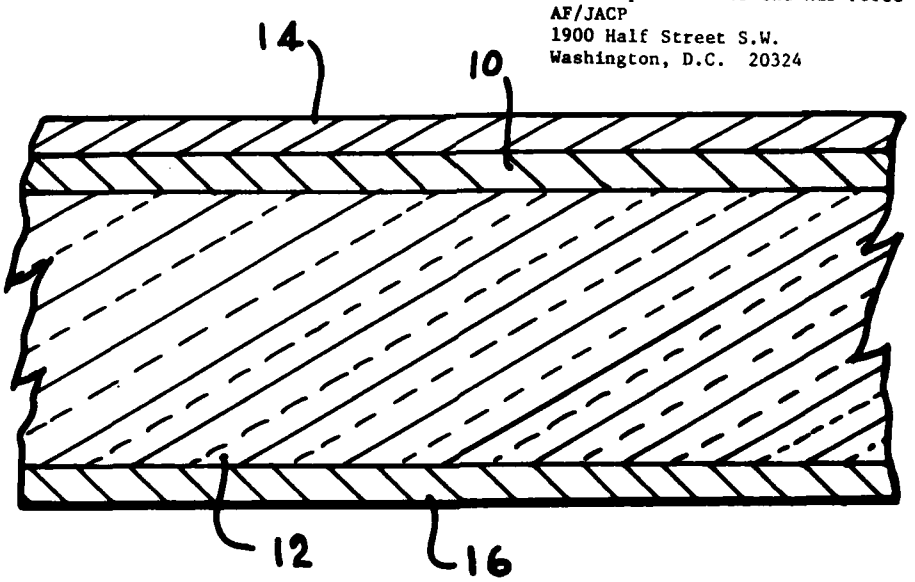
Primary Examiner—Herbert, Jr., Thomas J.
Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] **ABSTRACT**

A laser window material for use in the infrared wavelength spectrum comprising a glass substrate having an indium tin oxide conductive film deposited in one surface thereof and magnesium fluoride antireflection films deposited atop the conductive film and the opposite surface of the glass substrate.

3 Claims, 1 Drawing Figure

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00162

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Ehrenspeck

[11] **4,183,027**

[45] **Jan. 8, 1980**

[54] **DUAL FREQUENCY BAND DIRECTIONAL ANTENNA SYSTEM**

[76] Inventor: Hermann W. Ehrenspeck, 94 Farnham St., Belmont, Mass. 02178

[21] Appl. No.: 935,048

[22] Filed: Aug. 18, 1978

Related U.S. Application Data

[63] Continuation of Ser. No. 840,469, Oct. 7, 1977, abandoned.

[51] Int. Cl.² H01Q 3/00

[52] U.S. Cl. 343/726; 343/789

[58] Field of Search 343/726, 725, 727, 728, 343/789, 837, 834-836, 817, 819

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,438,043	4/1969	Ehrenspeck	343/837
3,508,278	1/1970	Ehrenspeck	343/837
3,605,104	9/1971	Weston et al.	343/837
3,742,513	6/1973	Ehrenspeck	343/837

FOREIGN PATENT DOCUMENTS

630592	4/1948	United Kingdom	343/789

OTHER PUBLICATIONS

Terman's Electronic and Radio Engineering, 4th Edition, McGraw Hill, 1955, pp. 907 and 908.

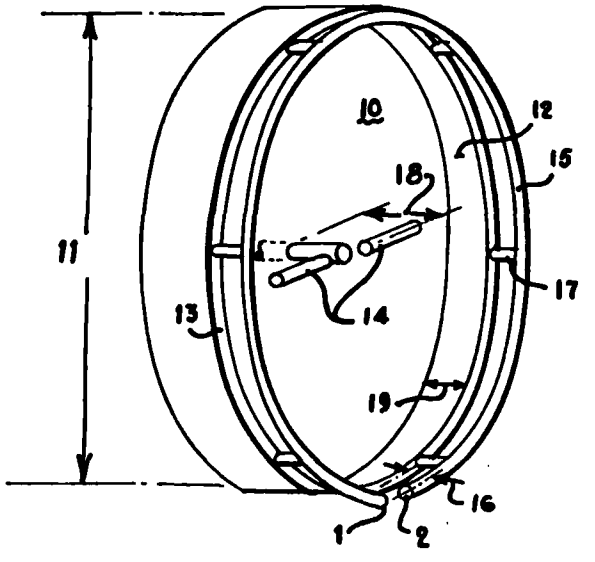
Primary Examiner—David K. Moore

Attorney, Agent, or Firm—Joseph E. Rusz; George Fine

[57] **ABSTRACT**

A dual frequency band directional antenna or system in the form of a cavity reflector antenna mechanically combined and radiation-coupled with a loop of approximately the same shape and periphery as the rim edge of the cavity reflector, which loop is arranged outside and in front of, and in close proximity and parallel to the cavity rim edge, and, when properly energized, acts for the lower frequency band as a loop radiator with preselected field polarization, whereby the entire cavity structure serves two purposes by acting simultaneously as reflector for the higher frequency band cavity reflector antenna and for the lower frequency band, electrically separate loop radiator, with the radiation patterns of both sources being unidirectional over both frequency bands and with their radiation maxima directed into the center axis normal to the bottom plate of the cavity reflector structure.

17 Claims, 9 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

JAT 00163

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Mullally

[11] **4,184,125**

[45] **Jan. 15, 1980**

[54] **ANALOG TUNING VOLTAGE CIRCUIT WITH ANALOG SIGNAL MULTIPLEXING**

[75] Inventor: **James F. Mullally, Apalachin, N.Y.**

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl. No.: **922,601**

[22] Filed: **Jul. 7, 1978**

[51] **Int. Cl.**[2] **H03G 3/00**

[52] **U.S. Cl.** **330/282**; 330/51; 330/84; 330/86; 330/295

[58] **Field of Search** 330/51, 84, 86, 110, 330/282, 295; 328/103, 154

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,355,670	11/1967	Pastoriza	330/86 UX
3,500,316	3/1970	Brown	330/86
3,622,904	11/1971	Knight	330/51 X
3,662,275	5/1972	Riley	330/51 X

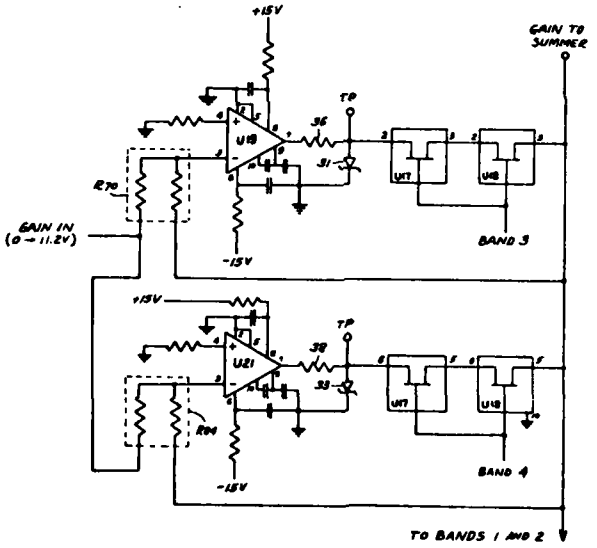
Primary Examiner—James B. Mullins

Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] **ABSTRACT**

Disclosed is an analog tuning circuit, suitable for multiplexing, having a field-effect transistor connected to the output of an operational amplifier with the drain connected in a feedback loop to the inverting input of the amplifier.

1 Claim, 4 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Smolinski et al.

[11] **4,184,821**

[45] **Jan. 22, 1980**

[54] **HIGH VELOCITY ROTARY VANE COOLING SYSTEM**

[76] Inventors: **Ronald E. Smolinski**, 4081 Forest Ridge Blvd., Dayton, Ohio 45424; **Kenneth P. Schwartz**, 2604 N. Emerald, Fairborn, Ohio 45324

[21] Appl. No.: **932,812**

[22] Filed: **Aug. 10, 1978**

[51] **Int. Cl.**[2] **F04C 29/02**

[52] **U.S. Cl.** **418/93**; 418/152; 418/264

[58] **Field of Search** 418/152, 264

[56] **References Cited**

U.S. PATENT DOCUMENTS

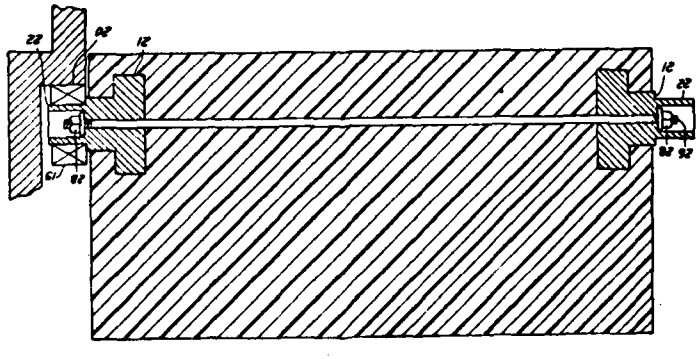
2,498,029	2/1950	Clerc	418/264
2,672,282	3/1954	Novas	418/152 X
3,001,482	9/1961	Osborn	418/264 X
3,568,645	3/1971	Grimm	418/264
3,809,020	5/1974	Takitani	418/152 X
3,904,327	9/1975	Edwards et al.	418/152 X
4,088,426	5/1978	Edwards	418/152 X

Primary Examiner—Leonard E. Smith
Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] **ABSTRACT**

A reverse Brayton cycle rotary vane cooling system having a compressor and an expander driven by a common shaft. The cooling system includes a plurality of vanes made of a carbon epoxy plastic composite with bearing support inserts molded into the plastic composite. A bolt passes through the bearing support inserts and plastic composite. Oil is supplied to the vane slots with any oil passing into the cooling gas being removed by oil separators.

3 Claims, 3 Drawing Figures



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Millea

[11] 4,184,896

[45] Jan. 22, 1980

[54] SURFACE BARRIER TAILORING OF SEMICONDUCTOR DEVICES UTILIZING SCANNING ELECTRON MICROSCOPE PRODUCED IONIZING RADIATION

[75] Inventor: Michael F. Millea, Manhattan Beach, Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 913,186

[22] Filed: Jun. 6, 1978

[51] Int. Cl.[2] H01L 21/26; H01L 21/324; H01L 29/78

[52] U.S. Cl. ..... 148/1.5; 29/576 B; 250/492 A; 357/23; 357/24; 357/29; 357/52; 357/91

[58] Field of Search ..... 148/1.5; 250/492 A, 250/492 B; 29/576 B; 357/29, 52, 91, 24, 23; 427/35

[56] References Cited

U.S. PATENT DOCUMENTS

3,507,709	4/1970	Bower	357/52 X
3,691,376	9/1972	Bauerlein et al.	357/52 X
3,755,092	8/1973	Astula	204/35 N
3,796,932	3/1974	Amelio et al.	357/24
3,829,961	8/1974	Bauerlein et al.	357/29
3,886,530	5/1975	Huber et al.	357/23 X
3,888,701	6/1975	Tarneja et al.	148/1.5
4,109,029	8/1978	Ozdemir et al.	250/492 A

OTHER PUBLICATIONS

Tokuyama et al., "Si-SiO_2 Interface States . . . Ion Species", Textbook, Ion Implantation in Semiconductors . . ., 1973, pp. 159-168.

Donovan et al., "Radiation Hardening . . . Displacement Damage", J. Applied Physics, vol. 43, No. 6, Jun. 1972, pp. 2897-2899.

Broers et al., "Microcircuits by Electron Beam", Scientific American, Nov. 1972, pp. 34-44.

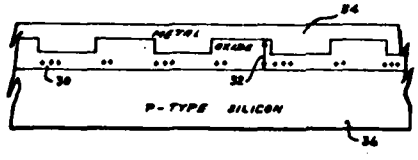
Bhatia et al., "Irradiation Technique . . . Charge-Coupled Storage Cell", I.B.M. Tech. Discl. Bull., vol. 15, No. 3, Aug. 1972, pp. 723-724.

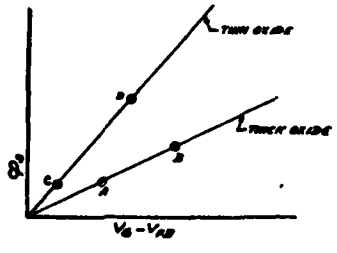
Primary Examiner—L. Dewayne Rutledge
Assistant Examiner—W. G. Saba
Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] ABSTRACT

A method of spatially tailoring the surface barrier of MOS devices by means of a scanning electron microscope using ionizing radiation at the silicon dioxide-silicon interface to control the surface charge distribution. The MOS is subsequently annealed at about 300° C. for several hours to stabilize the surface potential.

1 Claim, 5 Drawing Figures





Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]
Gillman et al.

[11] **4,185,031**
[45] **Jan. 22, 1980**

[54] **FLUORINATED PHOSPHINIC ACIDS**

[75] Inventors: **Hyman D. Gillman**, East Vincent Township, Chester County; **James P. King**, Upper Gwynedd Township, Montgomery County, both of Pa.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **946,265**

[22] Filed: **Sep. 27, 1978**

[51] **Int. Cl.**[2] **C07F 9/30**; C10M 1/44
[52] **U.S. Cl.** ..... **260/502.4 R**; 252/42.7; 260/429.3; 260/429.5; 260/438.5 R; 260/439 R
[58] **Field of Search** ..... 260/502.4 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,719,448 3/1973 Chance et al. ..... 260/502.4 R

FOREIGN PATENT DOCUMENTS

1443533 3/1969 Fed. Rep. of Germany .... 260/502.4 R

Primary Examiner—Joseph E. Evans
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

Fluorinated phosphinic acids prepared by reaction of fluorinated olefins with an acid containing one or more P-H bonds in the presence of a free radical initiator. The reaction products of the acids with various metal centers are effective grease thickeners for liquid lubricants.

4 Claims, No Drawings

Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Griffin

[11] **4,185,041**

[45] **Jan. 22, 1980**

[54] **CHANNEL SEALANT COMPOSITIONS**

[75] Inventor: **Warren R. Griffin**, Dayton, Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **830,227**

[22] Filed: **Sep. 2, 1977**

[51] Int. Cl.² C08L 85/02; C08L 83/08; C08L 75/04

[52] U.S. Cl. 525/188; 525/474

[58] Field of Search ..... 260/824 R, 823, 2.3, 260/858; 106/33

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,580,870	5/1971	Rosner	260/824 R
3,663,469	5/1972	Weissmahr	260/858
3,726,944	4/1973	Bennett et al.	260/2.3
4,000,166	12/1976	Witner et al.	260/824 R
4,026,839	5/1977	Dieck et al.	260/824 R
4,057,090	11/1977	Hoshikawa et al.	106/33

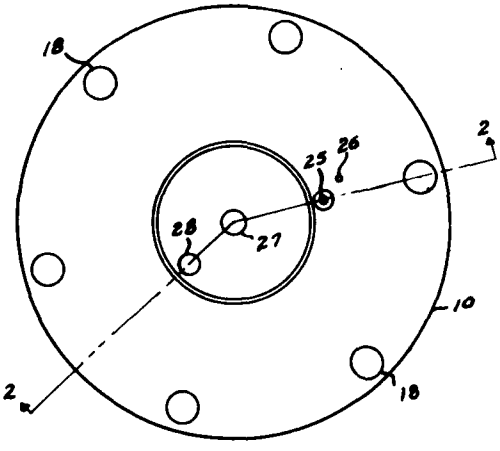
Primary Examiner—Wilbert J. Briggs, Sr.

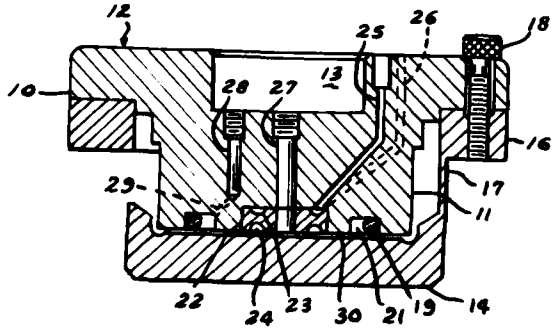
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

A sealant composition comprising a non-crosslinked, elastomeric mastic and an extrusion-inhibiting amount of vulcanized rubber particles of irregular shape and having sharp edges and angular surfaces. When the composition is used as a channel sealant, the ability of the particles to deform at structural gaps while offering resistance to extrusion prevents the loss of the elastomeric mastic.

6 Claims, 2 Drawing Figures





Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Harrison, Jr.

[11] **4,185,247**

[45] **Jan. 22, 1980**

[54] **MEANS FOR REDUCING SPURIOUS FREQUENCIES IN A DIRECT FREQUENCY SYNTHESIZER**

[75] Inventor: **Earnest R. Harrison, Jr., Crownsville, Md.**

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl. No.: **866,743**

[22] Filed: **Jan. 3, 1978**

[51] Int. Cl.³ **H03K 13/32**

[52] U.S. Cl. **328/165; 328/14**

[58] Field of Search 328/14, 155, 165

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,882,403	5/1975	Gerken	328/14
3,973,209	8/1976	Nosaen et al.	328/14
3,976,945	8/1976	Cox	328/14
4,011,516	3/1977	Heimbigner et al.	328/14

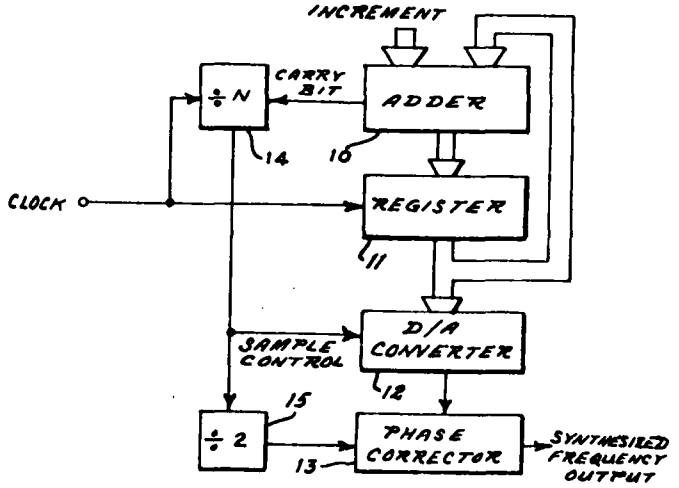
Primary Examiner—John S. Heyman

Attorney, Agent, or Firm—Joseph E. Rusz; George Fine

[57] **ABSTRACT**

Spurious frequencies are eliminated in a direct frequency synthesizer by means of a feed forward correction circuit. The improved direct frequency synthesizer of the invention includes a series adder, clocked register, a D/A converter and a phase corrector. The adder is inputted by a digital control increment and the output of the register. The system clock frequency is divided down by a smoothing counter that in part controls the phase of the output signal. Spurious frequencies are manifested by overflow of the register. The register overflow is converted to an analog signal by the D/A converter. The system output is provided by a voltage controlled oscillator that is controlled by an amplifier which is responsive to both the smoothing counter output and the analog output of the D/A converter. Additionally, the D/A converter is sampled twice for every cycle of output frequency, resulting in a doubling of the output frequency for a given D/A converter.

2 Claims, 4 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00169

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Ernst

[11] 4,185,458

[45] Jan. 29, 1980

[54] TURBOFAN AUGMENTOR FLAMEHOLDER

[75] Inventor: Richard C. Ernst, North Palm Beach, Fla.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 904,850

[22] Filed: May 11, 1978

[51] Int. Cl.³ F02G 3/00

[52] U.S. Cl. ..... 60/261; 60/39.72 R

[58] Field of Search ..... 60/261, 39.72 R

[56] References Cited

U.S. PATENT DOCUMENTS

3,002,352	10/1961	Helfrich	60/39.72 R
3,085,401	4/1963	Lefebvre	60/39.72 R
3,153,324	10/1964	Meyer	60/261
3,170,294	2/1965	Meyer	60/39.72 R
3,295,325	1/1967	Nelson	60/261
3,485,045	12/1969	Riecke	60/261
3,800,527	4/1974	Marshall	60/39.72 R
3,931,707	1/1976	Vdovjak	60/261

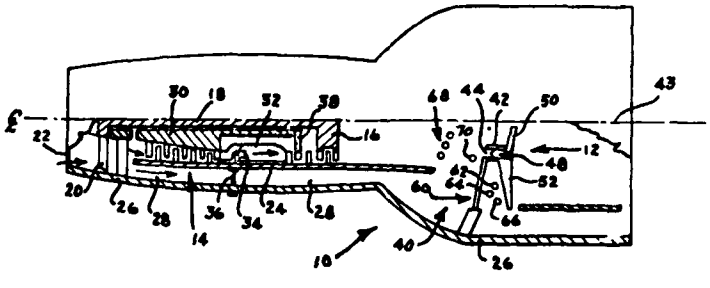
Primary Examiner—Douglas Hart

Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] ABSTRACT

A turbofan augmentor flameholder having a hollow ring-like structure of annular configuration concentric with the center line of a turbine of a turbofan engine. The ring-like structure has protruding therefrom in the radial direction a first group of hollow gutters extending in a direction toward the center line of the turbine and a second group of hollow gutters extending from the ring-like structure in a direction away from the center line and toward the outer casing of the turbofan engine. The second group of gutters have a vee-shaped angular configurated portion in a direction toward the turbine. The angular configurated portion gradually increases in angle along the gutter in the radial direction as a direct function of its distance from the ring-like structure. Such a relationship provides optimum efficiency for the dispersion of hot exhaust gases from the turbine to the flameholder for gas turbofan engine augmentation.

3 Claims, 4 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Wilkinson

[11] **4,185,461**

[45] **Jan. 29, 1980**

[54] **TURBOJET ENGINE WITH COMBUSTOR BYPASS**

[75] Inventor: **David B. Wilkinson, Xenia, Ohio**

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl. No.: **868,359**

[22] Filed: **Jan. 10, 1978**

[51] Int. Cl.[2] **F02K 3/10; F02K 1/02**

[52] U.S. Cl. **60/261; 60/262; 60/39.23**

[58] Field of Search 60/261, 262, 247, 284, 60/39.67, 39.21, 39.23, 39.37

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,693,674	11/1954	Anxionnaz et al.	60/262
2,946,185	7/1960	Bayer	60/262
3,045,425	7/1962	Seifferlein	60/261
3,486,338	12/1969	Hautsmann et al.	60/262

FOREIGN PATENT DOCUMENTS

925984	3/1955	Fed. Rep. of Germany	60/262
615277	1/1961	Italy	60/262

OTHER PUBLICATIONS

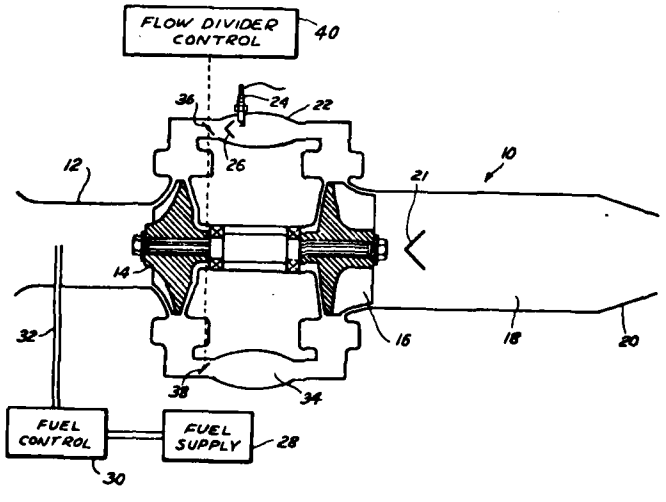
Hill et al., *Mechanics and Thermodynamics of Propulsion*, 1965, pp. 216-217.

Primary Examiner—Carlton R. Croyle
Assistant Examiner—Thomas I. Ross
Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] **ABSTRACT**

A propulsion system having an afterburning turbojet with the fuel supplied at the inlet to the turbojet compressor. The turbojet combustor has a bypass with a flow control connected at the inlets to the combustor and the bypass to control the amount of fuel-air mixture from the compressor that enters the combustor.

2 Claims, 1 Drawing Figure



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Quinville

[11] **4,185,558**

[45] **Jan. 29, 1980**

[54] **RE-ENTRY VEHICLE BOUNDARY LAYER TRANSITION SUPPRESSOR**

[75] Inventor **James A. Quinville, Redlands, Calif**

[73] Assignee **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl No. **725,582**

[22] Filed **Apr. 23, 1968**

[51] Int. Cl.² **B64C 1/38**

[52] U.S. Cl. **102/105; 244/160**

[58] Field of Search ..... 102/105; 244/117 I, 244/123, 160

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,129,667 4/1964 Wen 102/105

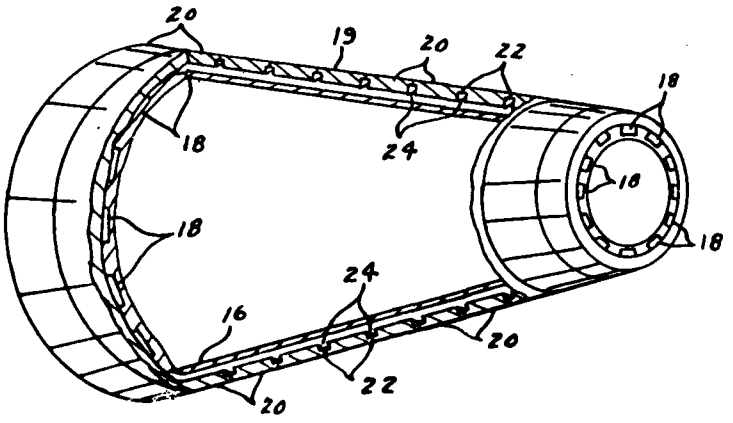
Primary Examiner—Verlin R. Pendegrass

Attorney, Agent, or Firm—Joseph E. Rusz, Richard J. Killoren

[57] **ABSTRACT**

Boundary layer transition is delayed on a re-entry vehicle by making use of the differential pressure that normally exists between the surface of a re-entry vehicle and the base region of the vehicle. Choked flow orifices are provided on the surface of the vehicle at the input to the internal ducting leading to the base region of the vehicle.

1 Claim, 6 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00172

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Peash

[11] **4,185,858**

[45] **Jan. 29, 1980**

[54] **SECONDARY SEAL FOR TUBING JOINED VIA V-BAND COUPLINGS**

[75] Inventor: **Douglas E. Peash, Enum Claw, Wash.**

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl. No.: **920,867**

[22] Filed: **Jun. 28, 1978**

[51] Int. Cl.² **F16L 23/04**

[52] U.S. Cl. **285/367**; 277/236; 285/DIG. 18

[58] Field of Search ..... 285/367, 366, 365, DIG. 18, 285/233, 234; 277/236

[56] **References Cited**

U.S. PATENT DOCUMENTS

1,863,122	6/1932	Matthews	285/367 X
2,050,137	8/1936	Walsh	285/DIG. 18 X
2,489,587	11/1949	Rice	285/367
3,235,293	2/1966	Condon	285/367 X
3,464,722	9/1969	Larkin	285/367
3,563,571	2/1971	Werra	285/367 X
3,762,746	10/1973	Amada	285/367 X
3,822,075	7/1974	Duncan	285/367

FOREIGN PATENT DOCUMENTS

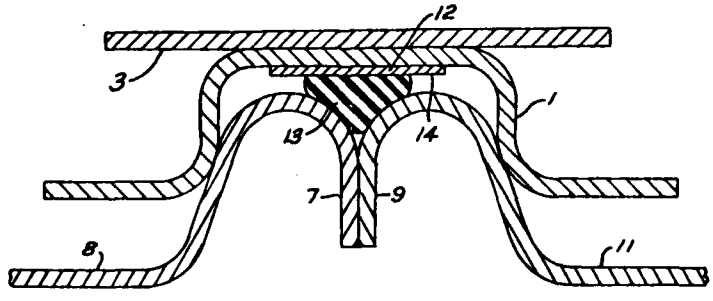
2638018	3/1977	Fed. Rep. of Germany	285/DIG. 18

Primary Examiner—Thomas F. Callaghan
Attorney, Agent, or Firm—Joseph E. Rusz; James S. Shannon; Casimer K. Salys

[57] **ABSTRACT**

A device for sealing the joint between ducts having sheet metal flanges mated with V-band couplings. Seal assemblies are interposed between the V-band coupling and the abutting duct flanges. As the V-band coupling is tightened to draw the ends of the duct flanges together the seal assembly is compressed, deforming the sealing material in contact with the duct flanges and effectuating a tight seal therebetween. A variety of seal assembly configurations are contemplated including those of continuous or segmented structure, those having compressible resilient materials or ductile metals as sealing materials, and those having a support band bonded to the sealing material for added structural rigidity.

2 Claims, 8 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Williamson et al.

[11] 4,185,919

[45] Jan. 29, 1980

[54] QUADRANT DETECTION SYSTEM

[75] Inventors: Tommy L. Williamson, Kettering; Harold W. Rose, Xenia, both of Ohio

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C

[21] Appl. No.: 369,030

[22] Filed: Jun. 8, 1973

[51] Int. Cl.² G01B 11/26; G02B 5/18

[52] U.S. Cl. ..... 356/141; 350/3.72; 350/162 ZP; 356/152

[58] Field of Search ..... 356/141, 152; 350/3.5, 350/162 ZP, 3.72

[56] References Cited

U.S PATENT DOCUMENTS

3,375,750	4/1968	Ellis et al.	356/152
3,701,602	10/1972	Bergin et al.	356/152

OTHER PUBLICATIONS

Sincerbox, IBM Tech. Discl. Bulletin, 8-1967, pp. 267, 268.

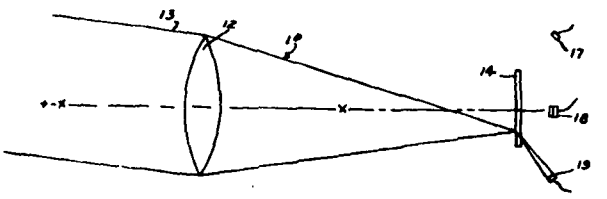
Primary Examiner—S. C. Buczinski

Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] ABSTRACT

A quadrant detection system having an objective lens and a holographic lens positioned at the back focal plane of the objective lens. Four photoelectric detectors are positioned on the side of the holographic lens remote from the objective lens. The holographic lens has lens elements in four quadrants with each quadrant having a focal point corresponding to the position of the photoelectric detectors.

2 Claims, 5 Drawing Figures



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Picklesimer et al.

[11] 4,187,359

[45] Feb. 5, 1980

[54] **ACETYLENE-TERMINATED POLYIMIDE COMPOSITIONS**

[76] Inventors: **Lewellyn G. Picklesimer**, 3765 Winthrop Dr., Dayton, Ohio 45431; **Michael A. Lucarelli**, 175 Old Dayton Yellow Springs Rd., Fairborn, Ohio 45324; **Theodore J. Reinhart, Jr.**, 345 Forrer Blvd., Dayton, Ohio 45419

[21] Appl. No.: **967,049**

[22] Filed: **Dec. 6, 1978**

[51] **Int. Cl.**[2] **C08L 77/10**

[52] **U.S. Cl.** ..... **525/6**; 260/45.9 K; 260/45.9 KA; 528/125; 528/434

[58] **Field of Search** ..... 526/6, 15, 52; 528/177, 528/178, 125; 260/45.9 K, 45.9 KA

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,845,018	10/1974	Bilow et al.	528/178
3,864,309	2/1975	Bilow et al.	528/178
3,897,395	7/1975	D'Alelio	528/178
4,098,767	7/1978	Bilow	528/178

Primary Examiner—Lester L. Lee
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

A composition of matter comprising an acetylene-terminated polyimide oligomer and trinitriloacetonitrile. The composition has a retarded cure rate, thereby facilitating the fabrication of void-free molded objects and composites.

3 Claims, No Drawings

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Midolo

[11] 4,187,692

[45] Feb. 12, 1980

[54] LIQUID COOLED ROTARY VANE AIR CYCLE MACHINE

[76] Inventor: Lawrence L. Midolo, 1475 Black Oak Dr., Centerville, Ohio 45459

[21] Appl. No.: 902,524

[22] Filed: May 3, 1978

[51] Int. Cl.[2] F25D 9/00

[52] U.S. Cl. ..... 62/402; 123/119 CD; 418/85

[58] Field of Search ..... 62/86, 402, 499, 505; 418/83, 85, 86; 123/119 CD

[56] References Cited

U.S. PATENT DOCUMENTS

3,424,135	1/1969	Tado	418/86
3,884,664	5/1975	Edwards	62/402
4,117,695	10/1978	Hargreaves	62/86

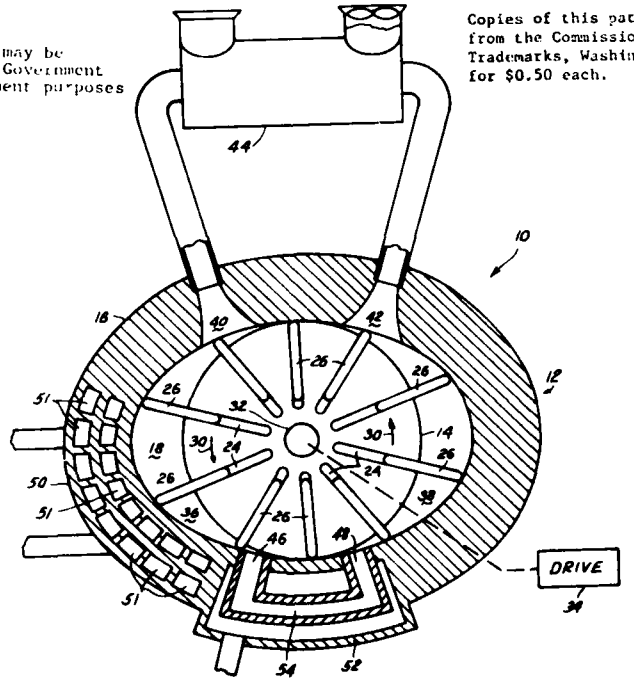
Primary Examiner—Ronald C. Capossela

Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] ABSTRACT

An air cooling system having a rotary assembly within a non-circular chamber wherein compression and expansion used in a modified reverse Brayton cycle are provided within the same chamber by the change in volume brought about by vanes sliding within slots in the rotor. Air is supplied to the compressor portion of the chamber from an air-to-air heat exchanger which receives cooled air from the expander. A transfer passage is provided between the output of the compressor and the inlet of the expander. A liquid cooled heat exchanger is provided adjacent the compressor. A second liquid cooled heat exchanger is provided around the transfer passage. Coolant is supplied to the liquid cooled heat exchangers from a radiator.

1 Claim, 4 Drawing Figures



JAT 00176

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Smolinski

[11] 4,187,693

[45] Feb. 12, 1980

[54] CLOSED CHAMBER ROTARY VANE GAS CYCLE COOLING SYSTEM

[76] Inventor: Ronald E. Smolinski, 4081 Forest Ridge, Dayton, Ohio 45424

[21] Appl. No.: 915,707

[22] Filed: Jun. 15, 1978

[51] Int. Cl.² F25D 9/00

[52] U.S. Cl. ..... 62/402; 418/85; 123/119 CD

[58] Field of Search ..... 62/402, 499, 86; 418/85, 86; 123/119 CD

[56] References Cited

U.S. PATENT DOCUMENTS

3,686,893	8/1972	Edwards	62/402
4,021,163	5/1977	Morita et al.	418/83
4,117,695	10/1978	Hargreaves	62/499

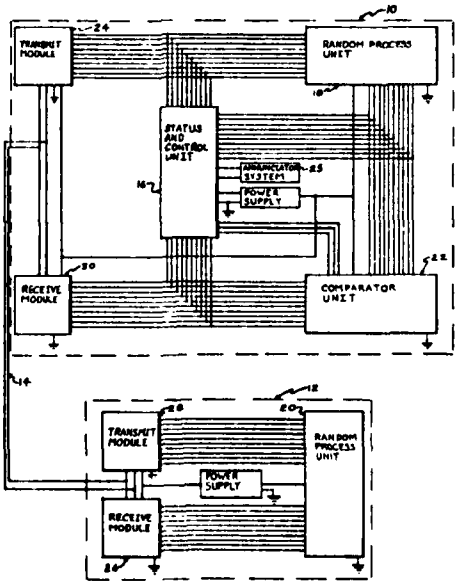
Primary Examiner—Ronald C. Capossela

Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] ABSTRACT

A gas cycle cooling system having a rotary compressor and expander driven by a common shaft wherein the compression and expansion of a modified reverse Brayton cycle is provided within a closed chamber by changes in volume brought about by vanes sliding within slots in a rotor. The rotor is positioned within the chamber to provide spaces between the rotor and the chamber wall which act as effective gas transfer passages between the compressor and the expander. Liquid from a first heat exchanger is circulated through the wall of the rotor housing adjacent the compressor portion of the chamber to remove heat during the compressor phase of the cycle. Liquid is circulated through the wall of the rotor housing adjacent the expander portion of the chamber to provide cooling for a second heat exchanger.

5 Claims, 2 Drawing Figures



JAT 00177

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Midolo

[11] 4,187,694

[45] Feb. 12, 1980

[54] **BINARY WORKING FLUID AIR CONDITIONING SYSTEM**

[76] Inventor: **Lawrence L. Midolo**, 1475 Black Oak Dr., Centerville, Ohio 45459

[21] Appl. No.: **962,742**

[22] Filed: *Nov. 21, 1978*

[51] **Int. Cl.**[2] **F25D 9/00**

[52] **U.S. Cl.** ..... **62/402**; 62/323; 123/119 CD; 60/618

[58] **Field of Search** ..... 62/402, 323; 123/119 CD; 60/618

[56] **References Cited**

U.S. PATENT DOCUMENTS

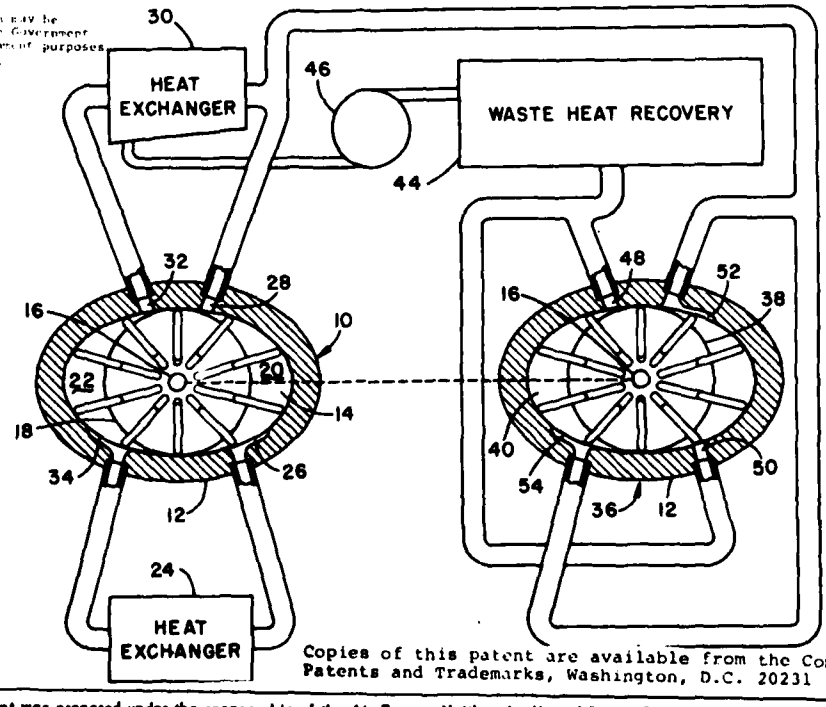
3,228,189	1/1966	Baker	60/618
3,252,298	5/1966	Andrews	62/402
3,350,876	11/1967	Johnson	60/618
3,668,884	6/1972	Nebgen	62/402
3,713,294	1/1973	Balje et al.	62/402
3,830,062	8/1974	Morgan et al.	60/618
3,967,466	7/1976	Edwards	62/402
3,968,649	7/1976	Edwards	62/402
4,017,285	4/1977	Edwards	62/402
4,069,672	1/1978	Milling	60/618

Primary Examiner—Ronald C. Capossela
Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] **ABSTRACT**

An air conditioning system for vehicles having a reverse Brayton cycle cooling system with a turbine drive for the rotor in the reverse Brayton cycle cooling system. A binary working fluid is used in the air conditioning system with air used in the reverse Brayton cycle cooling system. Waste heat is used to provide superheated water vapor for driving the turbine with the turbine return supplied to the air flow at the outlet of the compressor of the cooling system. The combined working fluid is supplied to a heat rejection heat exchanger where the excess water vapor is condensed and returned to the waste heat recovery system.

9 Claims, 4 Drawing Figures



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Siegman et al.

[11] 4,188,591

[45] Feb. 12, 1980

[54] RF EXCITED MERCURY LASER LAMP

[75] Inventors: Anthony E. Siegman; Neil C. Holmes, both of Stanford; Max T. Artusy, Mt. View, all of Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 840,353

[22] Filed: Oct. 7, 1977

[51] Int. Cl.[2] H01S 3/092

[52] U.S. Cl. ..... 331/94.5 P; 313/220

[58] Field of Search ..... 331/94.5 P, 94.5 D, 331/94.5 G, 94.5 R; 313/220

[56] References Cited

U.S. PATENT DOCUMENTS

3,535,653	10/1970	Zarowin	331/94.5 G
3,541,371	11/1970	Legros et al.	331/94.5 G X
3,659,220	4/1972	Erickson	331/94.5 G
3,992,683	11/1976	Djeu et al.	331/94.5 G
4,032,862	6/1977	Huchital et al.	331/94.5 P

OTHER PUBLICATIONS

Bell, "Ring Discharge Excitation of Gas Ion Lasers", *Applied Physics Letters*, vol. 7, No. 7, Oct. 1, 1965, pp. 190–191.

Huchital et al., "Pumping of Nd:YAG with Electrodeless Arc Lamps", *IEEE J. of Quantum Electronics*, vol. QE-12, No. 1, Jan. 1976, pp. 1-3.

Sinclair et al., *Gas Laser Technology*, Holt, Rinehart and Winston, Inc., N. Y., 1969, pp. 129, 130, 141–145.

Goldsborough et al., RF "Induction Excitation of CW Visible Laser Transitions in Ionized Gases", *App. Phy. Let.* vol. 8, No. 6, Mar. 15, 1966, pp. 137–139.

Artusy et al., "DC-Excited and Sealed-Off Operation of the Optically Pumped 546.1-nm Hg Laser", *App. Phy. Let.*, vol. 28, No. 3, Feb. 1, 1976, pp. 133–134.

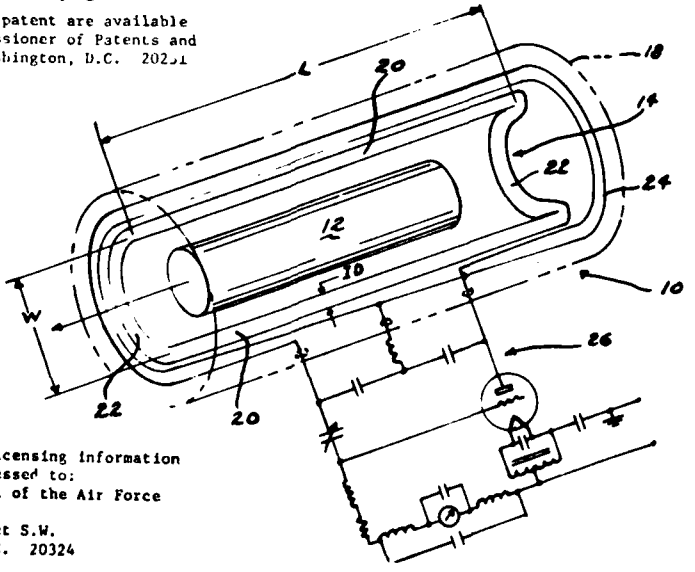
Primary Examiner—James W. Davie

Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] ABSTRACT

An optically pumped laser wherein the optical pumping means is in the form of a mercury discharge lamp and a radio-frequency excited coil surrounding the lamp. The discharge lamp is constructed in the form of a closed loop and is inductively excited by the high power radio-frequency coil. The coil forms the primary coil and the lamp the secondary coil of an air-core transformer. Current in the lamp is excited entirely by the radio frequency magnetic fields passing through the plane of the lamp thereby optically pumping the lasing medium.

6 Claims, 3 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Miller

[11] **4,189,203**

[45] **Feb. 19, 1980**

[54] **CIRCULAR CONNECTOR**

[75] Inventor: **John W. Miller, Smyrna, Ga.**

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl. No.: **927,434**

[22] Filed: **Jul. 24, 1978**

[51] Int. Cl.[2] **G01B 7/12; G01B 7/28; H01R 13/64**

[52] U.S. Cl. ..... **339/184 M; 73/1 J**

[58] Field of Search ..... **73/1 J; 339/184 M, 258 R, 339/258 RR**

[56] **References Cited**

PUBLICATIONS

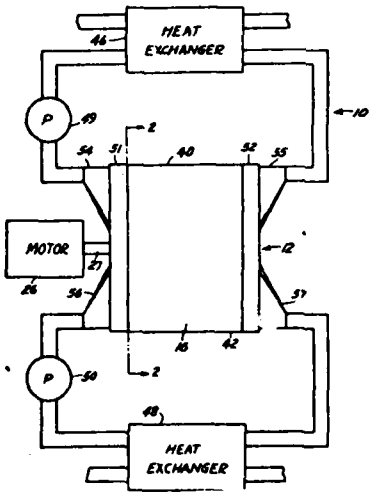
"Dimensional Evaluation of Tapered Fastener Systems," Interim Technical Report, Lockheed-Georgia Co., Mar. 1977.

Primary Examiner—Eugene F. Desmond
Attorney, Agent, or Firm—Joseph E. Rusz; Casimer K. Salys

[57] **ABSTRACT**

A high contact density circular connector capable of receiving and holding a multi-element probe tip used to test the quality of tapered fastener holes. The outer surface of the probe tip has a multiplicity of conductive segments, which are covered by a thin layer of insulation at the end to be inserted into the holes being inspected. When the probe tip is inserted into a hole, capacitors are formed between the conductive segments on the probe tip and the metallic walls of the hole, which can be measured for value and correlated in a computer to disclose hole characteristics such as size, shape, and smoothness. The circular connector is the means by which probe measurements are transferred from the tip into a coaxial cable, for transmission to the electronic processor without molesting the minute capacitance measurements. The connector receives the probe tip, and by means of a key, indexes the angular orientation of the cylindrically shaped probe tip to mate appropriate conductive segments on the probe tip with the connector clips within the body of the circular connector. With the probe tip in place, a compression ring encircling the connector is rotated to draw the connector body and contacts tightly about the probe tip, thereby insuring effective electrical mating and fixed retention of the probe tip in the connector.

1 Claim, 3 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 0018U

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Stadnick et al.

[11] **4,189,527**

[45] **Feb. 19, 1980**

[54] **SPHERICAL HEAT PIPE METAL-HYDROGEN CELL**

[75] Inventors: **Steven J. Stadnick**, Redondo Beach; **Howard H. Rogers**, Culver City, both of Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **4,244**

[22] Filed: **Jan. 17, 1979**

[51] **Int. Cl.**[2] **H01M 12/06**

[52] **U.S. Cl.** **429/26**; 429/27; 429/101; 429/120

[58] **Field of Search** 429/26, 27, 101, 120; 165/32, 58, 132, 177

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,461,954	8/1969	Banks et al.	429/120 X
3,525,386	8/1970	*Grover*	429/26 X
3,834,944	9/1974	Dennison	429/26
3,850,694	11/1974	Dunlop et al.	429/27 X
3,867,199	2/1975	Dunlop et al.	429/101
3,904,436	9/1975	Cercone et al.	429/120 X

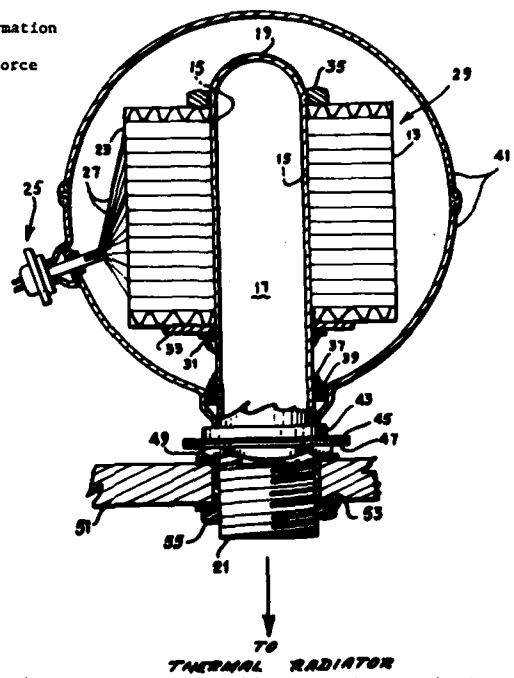
Primary Examiner—Anthony Skapars
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] **ABSTRACT**

A metal-hydrogen cell (e.g., silver-hydrogen or nickel-hydrogen) of heat pipe design wherein a central heat pipe serves as a thermal path, a positive plate conductor and terminal, and a mechanical support for the stack. The positive plates are electrically, mechanically and thermally connected to the heat pipe in the stack center. The negative plate terminals are at the outside edge of the stack. The pressure vessel may be of spherical configuration to provide a light weight design which has a two to one stress advantage in hoop stress over a cylinder with the same wall thickness and internal pressure.

5 Claims, 1 Drawing Figure

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00181

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Van Workum

[11] 4,190,814
[45] Feb. 26, 1980

[54] SINGLE AXIS RESONATOR FOR LASER

[75] Inventor: John A. Van Workum, Albuquerque, N. Mex.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 882,525

[22] Filed: Mar. 1, 1978

[51] Int. Cl.² H01S 3/081
[52] U.S. Cl. ..... 331/94.5 C; 350/294
[58] Field of Search ..... 331/94.5 C, 94.5 D; 350/294, 299, 293

[56] References Cited

U.S. PATENT DOCUMENTS

3,824,487	7/1974	Buczek et al.	331/94.5 C
3,942,127	3/1976	Fluhr et al.	331/94.5 C
3,969,688	7/1976	Freiberg et al.	331/94.5 C
4,050,036	9/1977	Chambers et al.	331/94.5 C

OTHER PUBLICATIONS

Edmonds, The Reflaxicon, A New Reflective Optical Element, and Some Applications, Applied Optics, vol. 12, No. 8 (Aug. 1973) pp. 1940-1944.

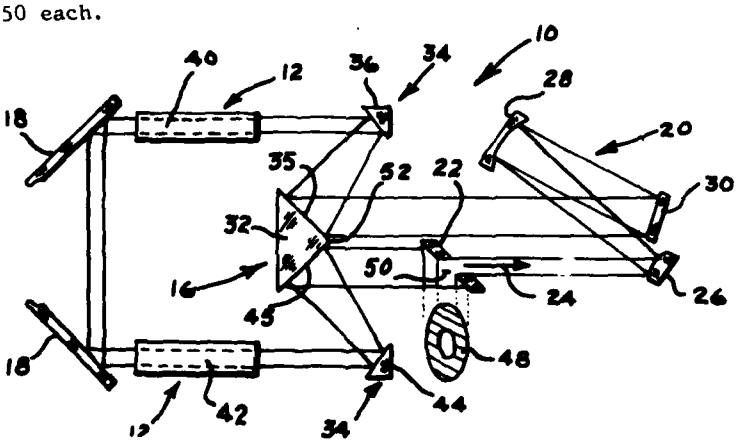
Primary Examiner—William L. Sikes
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] ABSTRACT

A single axis resonator for use within a laser having an annular gain region. The single axis resonator extracts optical power from the annular gain region by the use of a beam expander, reflaxicon, corner cube and output coupler, wherein the optical axis of the resonator passes through the center of the output coupler. The reflaxicon transforms a substantially elliptically-shaped beam into a crescent-shaped beam which closely resembles the shape of a section of the annular gain region. The crescent-shaped beam is reflected through the gain region several times to build up energy before being translated back into its original shape for reflection out of the laser by the output coupler.

8 Claims, 2 Drawing Figures

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

JAT 00182

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Albanese

[11] 4,190,815

[45] Feb. 26, 1980

[54] HIGH POWER HYBRID SWITCH

[75] Inventor: Victor J. Albanese, Valley Stream, N.Y.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 884,882

[22] Filed: Mar. 9, 1978

[51] Int. Cl.[2] H01P 1/12

[52] U.S. Cl. 333/101; 333/109; 333/111

[58] Field of Search ..... 333/7 R, 10, 101, 109, 333/111, 113, 114, 115, 116

[56] References Cited

U.S. PATENT DOCUMENTS

2,973,512	2/1961	Walsh	333/109
3,419,821	12/1968	Jones	333/11
3,480,885	11/1969	Schrank	330/11
3,571,765	3/1971	Friedman	333/31
3,659,227	4/1972	Whistler	333/7
3,769,610	10/1973	Savarin et al.	333/10

Primary Examiner—Eugene R. LaRoche
Assistant Examiner—Robert E. Wise
Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews, Jr.

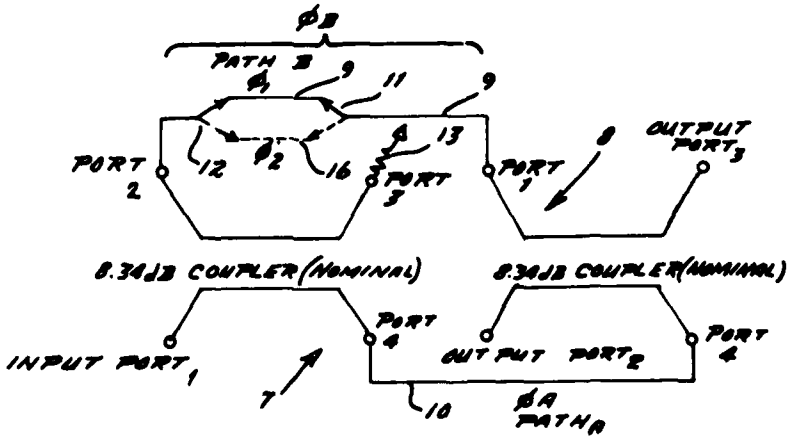
[57] ABSTRACT

High levels of R.F. power are controlled and switched by means of a hybrid switching network that employs an intermediate power level switch matrix in conjunction with a pair of 8.34 (nominal) directional couplers and a phasing network. The two directional couplers are connected in tandem by two equal length transmission lines to form a broadband quadrature 3dB hybrid. Switching is accomplished by selectively inserting a 180° phase shift means into the lower power carrying transmission line. The phase shifting means can be a length of transmission line, a solid state device, or a Schiffman type phase shifter.

8 Claims, 6 Drawing Figures

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324



JAT 00183

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Cross et al.

[11] 4,190,858

[45] Feb. 26, 1980

[54] **METHOD FOR IMPROVED PERFORMANCE OF INFRARED VIDICON CAMERAS**

[75] Inventors: **Edward F. Cross**, Los Angeles; **Wilbur A. Garber**, San Pedro, both of Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **946,263**

[22] Filed: **Sep. 27, 1978**

[51] **Int. Cl.**[2] **H04N 5/33**

[52] **U.S. Cl.** **358/113**; 358/217

[58] **Field of Search** 358/113, 217; 250/333, 250/351

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,646,267	2/1972	Tompsett	358/113
4,100,574	7/1978	Felix	358/113

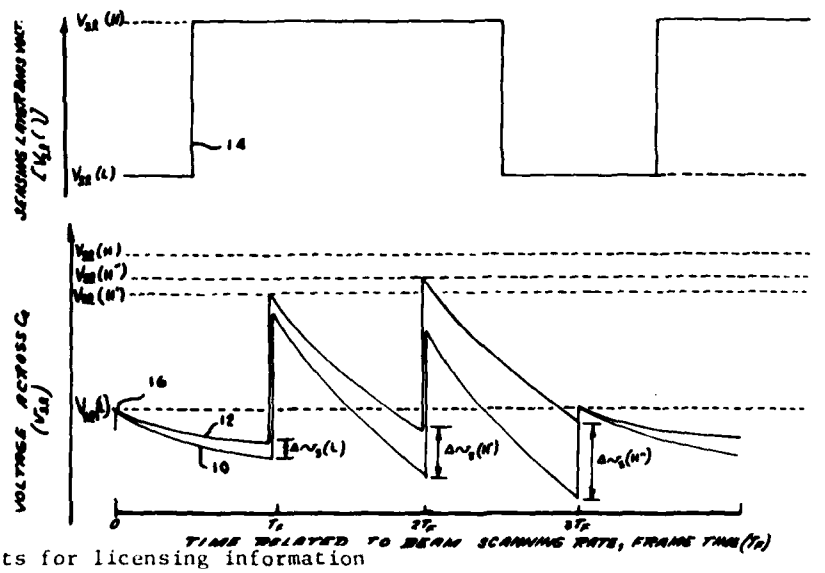
Primary Examiner—Richard Murray

Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] **ABSTRACT**

Infra red (IR) vidicon camera tube performance is improved by alternately switching the sensing layer voltage to one of two values in synchronism with the frame rate of an IR TV camera. In operation the sensing layer is switched to a high voltage for two frames and then switched to the normal voltage for one frame readout. Camera tube response is in real time, thereby eliminating need for change in scanning beam rate or subsequent data processing of recorded video data.

1 Claim, 5 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Quinlan et al.

[11] **4,191,561**

[45] **Mar. 4, 1980**

[54] **METHOD FOR THE PRODUCTION OF TRIALUMINUM NICKELIDE FIBERS**

[75] *Inventors:* **Kenneth P. Quinlan**, Newton; **Joseph J. Hutta**, Groton, both of Mass.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **968,874**

[22] Filed: **Dec. 12, 1978**

[51] **Int. Cl.**[2] **C23F 1/02**

[52] **U.S. Cl.** ..... **75/101 R**; 252/79.4; 423/132; 428/611; 75/138

[58] **Field of Search** ..... 75/101 R, 101 BE, 104, 75/111, 114, 121, 138; 428/611; 156/665, 656; 252/79.4; 423/132, DIG. 14

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,052,582	9/1962	Snyder et al.	252/79.4
3,511,645	5/1970	Goni	75/101 R
3,594,292	7/1971	Russell et al.	428/611
3,729,794	5/1973	Douglass	428/611
3,779,839	12/1973	Kaihu et al.	156/665
4,100,044	7/1978	Hussey et al	204/146

FOREIGN PATENT DOCUMENTS

975512	10/1975	Canada	428/636

OTHER PUBLICATIONS

Prescott, F. J., et al; "Sequestering Agents In Aluminum Etching" *Metal Finishing*, Oct. 1953, pp. 65-67.

Primary Examiner—L. Dewayne Rutledge
Assistant Examiner—Michael L. Lewis
Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] **ABSTRACT**

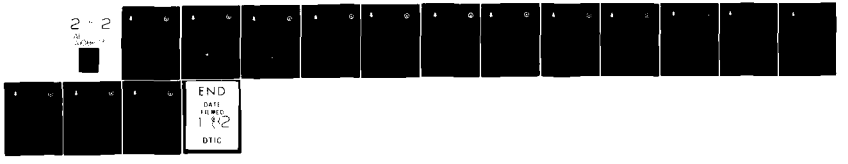
A process for the production of trialuminum nickelide fibers which involves the utilization of an oxalic acid-hydrogen chloride mixture for separating the fibers from a solid, two-phase, composite matrix of aluminum and trialuminum nickelide fibers.

2 Claims, No Drawings

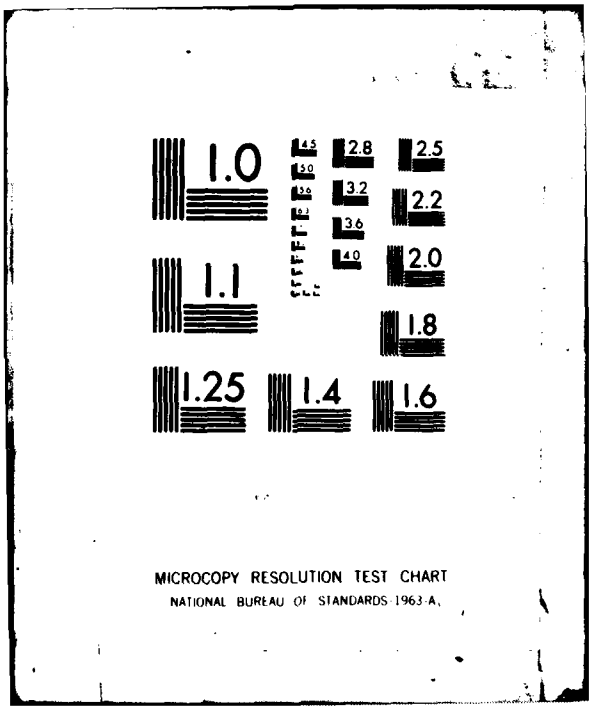
Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

AD-A108 673 AIR FORCE SYSTEMS COMMAND WASHINGTON DC F/G 5/2
PATENT ABSTRACT DIGEST. VOLUME II.(U)
MAR 81 F A LUKASIK
UNCLASSIFIED AFSC-TR-81-66 NL



END
DATE FILMED
1 82
DTIC


1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6
6.3
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963-A

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Jacomini

[11] 4,192,235

[45] Mar. 11, 1980

[54] RADIANT-ENERGY CONTROLLED PROXIMITY FUZE

[75] Inventor: Omar J. Jacomini, Severna Park, Md.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 381,272

[22] Filed: Jul. 8, 1964

[51] Int. Cl.² F42C 13/04

[52] U.S. Cl. 102/214

[58] Field of Search ..... 102/70.2 P, 214; 343/7 PF

[56] References Cited

U.S. PATENT DOCUMENTS

2,913,716	11/1959	Powell	102/214
3,014,215	12/1961	Macdonald	102/214

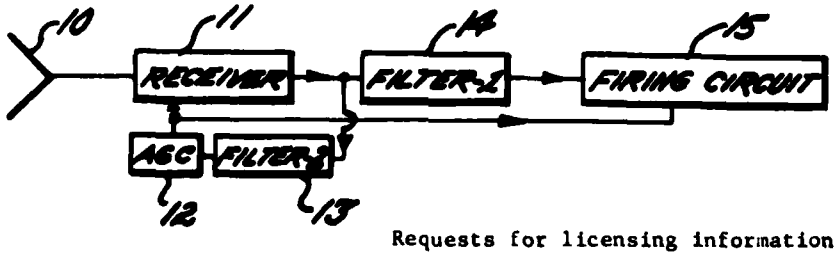
Primary Examiner—Charles T. Jordan

Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

EXEMPLARY CLAIM

1. A receiver for the transmitter-receiver combination utilized with a proximity fuze comprising a receiver arranged to be gain controlled, said receiver being fed the radiant energy reflected by a target, first and second filters, each having predetermined characteristics, said first filter having a predetermined characteristic being essentially a smoothed value of a predetermined voltage over preselected time, said second filter having a characteristic being essentially a smoothed value of said predetermined voltage over said preselected time minus a time seconds earlier, and each directly receiving the output signal from said receiver, an automatic gain control circuit interconnecting said second filter with said receiver, said automatic gain control operating so that the output signal from said first filter is the ratio between said value of said predetermined voltage over said preselected time, and said value of said predetermined voltage over said preselected time minus said time seconds earlier, and a firing circuit for said proximity fuze, said circuit being interconnected to said receiver by way of said first filter and also receiving an output signal from said automatic gain control circuit for addition to the output signal from said first filter.

1 Claim, 4 Drawing Figures



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Boddie

[11] 4,192,302

[45] Mar. 11, 1980

[54] HEPATIC ISOLATION AND PERFUSION CIRCUIT ASSEMBLY

[76] Inventor: Arthur W. Boddie, 110 Chimney Rock, San Antonio, Tex. 78231

[21] Appl. No.: 941,715

[22] Filed: Sep. 12, 1978

[51] Int. Cl.[2] E03D 9/04

[52] U.S. Cl. ..... 128/214 R; 128/214 B; 128/1 R; 128/DIG. 3

[58] Field of Search ..... 128/214 R, 214 B, DIG. 3, 128/1 R; 422/45; 210/321

[56] References Cited

U.S. PATENT DOCUMENTS

2,587,910	3/1952	Shulman	3/1 X
3,483,867	12/1969	Markovitz	128/214 R
3,490,438	1/1970	Lavender et al.	128/214 R
3,516,408	6/1970	Montanti	128/334 C
3,533,408	10/1970	Paoli	128/214 R
3,638,649	2/1972	Ersak	128/214 R
3,881,483	5/1975	Sausse	128/214 R
3,890,969	6/1975	Fischel	128/214 R
3,946,731	3/1976	Lichtenstein	128/DIG. 3
4,061,141	12/1977	Hyden et al.	128/214 R

OTHER PUBLICATIONS

Article-"Isolated Perfusion of the Liver with HN_2 " Ausman and Aust, Surgical Forum, 1960, vol. X, pp. 77-79.

Article-Development of a Technic for Isolated Perfusion of the Liver", Ausman, *N.Y. State Medical Journal*, 1961, pp. 3993-3997.

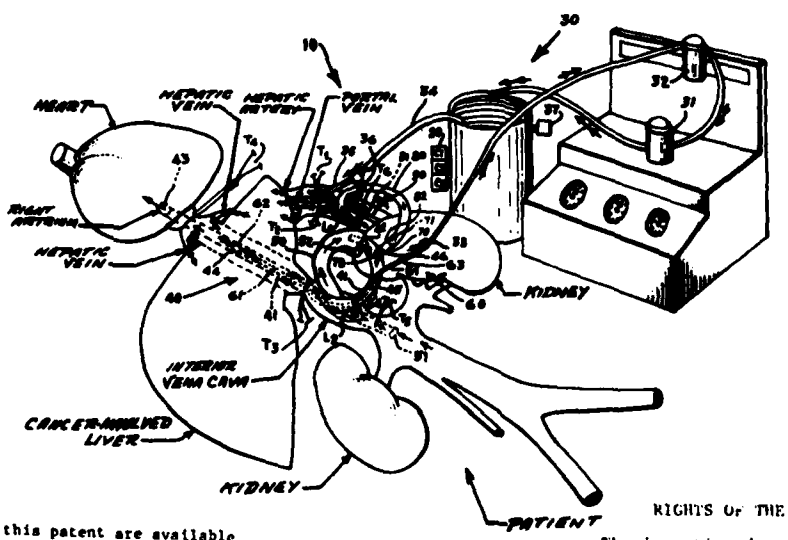
Article-"A Technique of Isolated Perfusion of the Liver", Chung, et al. *Surgery*, 1962, vol. 51, No. 4, pp. 508-511.

Primary Examiner—Henry K. Artis
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

The assembly, through a plurality of shunts, allows blood circulation from the lower part of a patient's body and from the intestines to flow unimpeded to the heart, while isolating hepatic venous blood containing toxic agents from the general circulation and returning it to a heart-lung machine. As a result, the assembly can be used to perfuse the liver, of a patient which has become involved with cancer, with extremely high does of cancericidal chemotherapy agents, while at the same time avoiding the toxic effects of these agents on the patient's body as a whole.

5 Claims, 3 Drawing Figures



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Prucha et al.

[11] 4,192,967

[45] Mar. 11, 1980

[54] TELETYPE MIXER APPARATUS FOR CODING AND DECODING

[75] Inventors: Martin J. Prucha, Mountain View, Calif.; Willis L. Donaldson; Douglas N. Travers, both of San Antonio, Tex.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 554,286

[22] Filed: May 26, 1966

[51] Int. Cl.² H04L 9/02
[52] U.S. Cl. 178/22
[58] Field of Search 178/22

[56] References Cited

U.S. PATENT DOCUMENTS

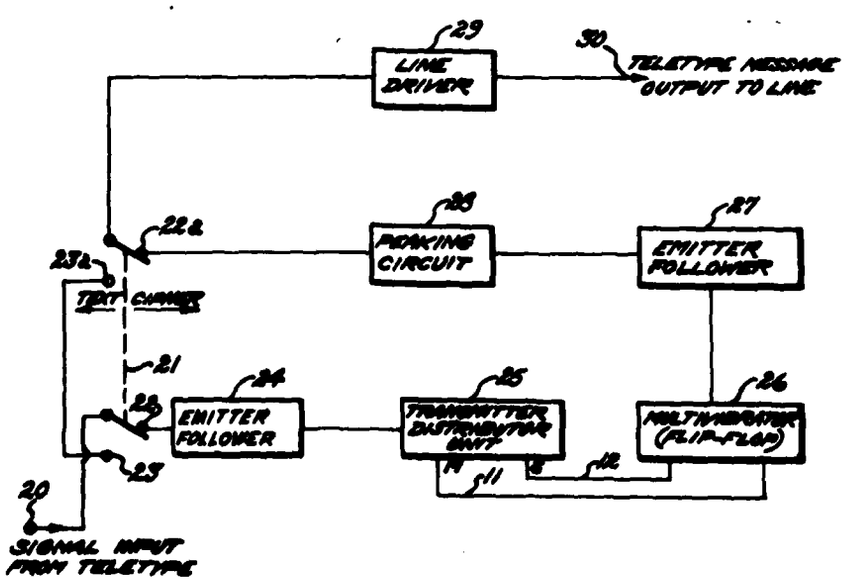
2,401,855	6/1946	Briggs et al.	178/22
2,872,514	2/1959	Negri	178/22
3,229,037	1/1966	Stürzinger et al.	178/22
3,291,908	12/1966	Ehrat	178/22

Primary Examiner—Howard A. Birmiel
Attorney, Agent, or Firm—Joseph E. Rusz; George Fine

[57] ABSTRACT

Apparatus for terminating teletype signal lines and mixing cryptographic teletype signals to furnish an enciphered teletype signal including a secondary operating mode of the mixer unit to retransmit the incoming teletype signal in the event enciphering or deciphering is not required.

4 Claims, 5 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Millberger et al.

[11] 4,193,032

[45] Mar. 11, 1980

[54] **HIGH SPEED TRANSMITTER PULSER**

[75] Inventors: Walter E. Millberger, Serverna Park; Larry G. Wright, Pasadena, both of Md.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 826,057

[22] Filed: May 8, 1969

[51] Int. Cl.[2] G01S 7/38

[52] U.S. Cl. ..... 178/116; 375/68; 343/18 E

[58] Field of Search ..... 343/18 E; 325/104, 120, 325/132, 150, 169

[56] References Cited

U.S. PATENT DOCUMENTS

3,891,989	6/1975	Barney et al.	343/18 E
3,909,828	9/1975	Israel et al.	343/18 E
4,037,227	7/1977	Kline	343/18 E

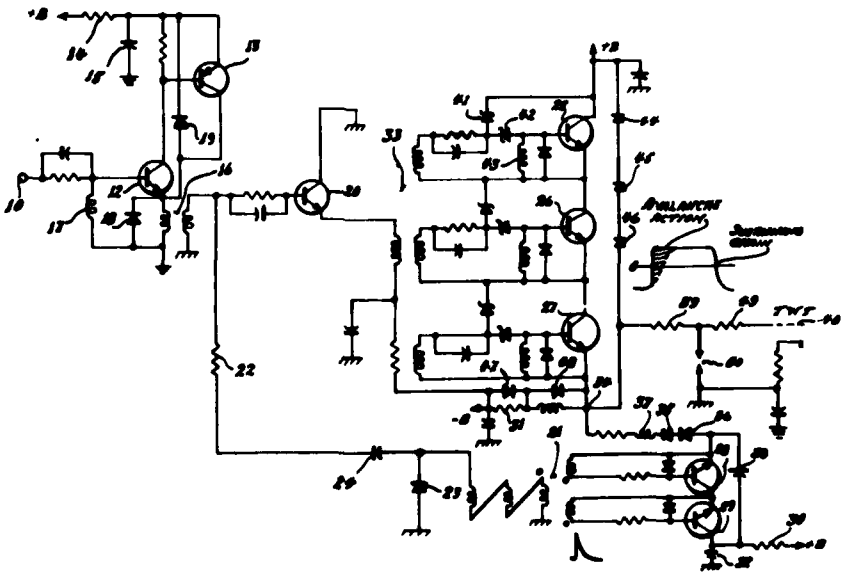
Primary Examiner—T. H. Tubbesing

Attorney, Agent, or Firm—Joseph E. Rusz; George Fine

[57] ABSTRACT

An apparatus for pulsing a high speed transmitter having pulser delay times in the nanosecond range. The combination of solid state and spark gap devices provide protection against high voltage arcs for both transient and power follow-through conditions.

6 Claims, 1 Drawing Figure



Requests for licensing information should be addressed to:
U.S. Department of the Air Force AF/JACP 1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]
Carter et al.

[11] **4,193,047**
[45] **Mar. 11, 1980**

[54] **FREQUENCY SELECTIVE FERRIMAGNETIC POWER LIMITER**

[75] Inventors: **Philip S. Carter, Palo Alto, Calif.; Steven N. Stitzer, Ellicott City; Harry Goldie, Randallstown, both of Md.**

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force, Washington, D.C.**

[21] Appl. No.: **902,130**

[22] Filed: **May 2, 1978**

[51] Int. Cl.[2] **H01P 1/22**
[52] U.S. Cl. ..... **333/17 L; 333/24.2; 333/222**
[58] Field of Search ..... **333/17 L, 24.2, 73 S, 333/204, 205**

[56] **References Cited**
U.S. PATENT DOCUMENTS

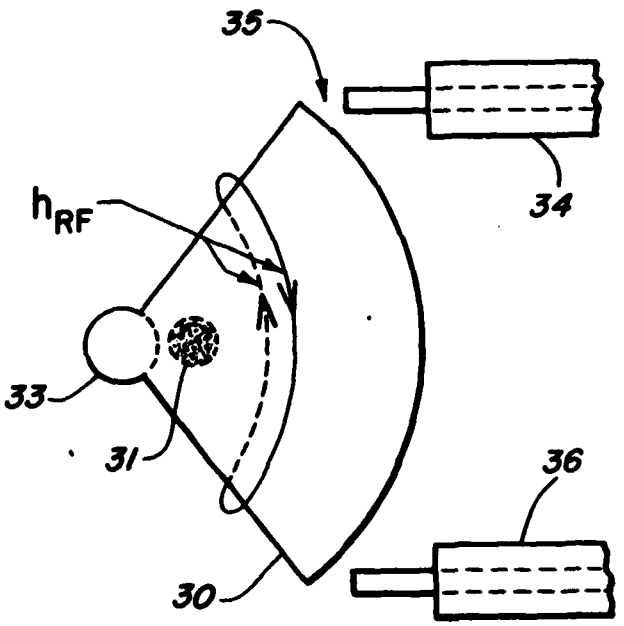
3,113,278	12/1963	Okwit	333/24.2
4,146,896	3/1979	Beril et al.	333/204 X

Primary Examiner—Paul L. Gensler
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] **ABSTRACT**

Two sectoral radial resonators coupled at their centers of radii by a strip transmission line and doubly loaded with opposing ferrimagnetic spheres between the said strip transmission line and the ground planes provides a frequency selective power limiter.

1 Claim, 10 Drawing Figures



Requests for licensing information should be addressed to: U.S. Department of the Air Force AF/JACP 1900 Half Street S.W. Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Harris

[11] 4,193,059
[45] Mar. 11, 1980

[54] ATTITUDE INDICATOR COMPARATOR WARNING SYSTEM

[75] Inventor: Richard L. Harris, Oklahoma City, Okla.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 915,788

[22] Filed: Jun. 15, 1978

[51] Int. Cl.[2] G08B 21/00; G08C 19/46

[52] U.S. Cl. ..... 340/27 AT; 33/328; 340/27 R; 340/181; 340/198; 340/315; 340/681; 318/654

[58] Field of Search ..... 340/27 R, 27 NA, 27 AT, 340/181, 198, 315, 681; 33/328, 329, 330; 318/654; 244/177, 194, 196

[56] References Cited

U.S. PATENT DOCUMENTS

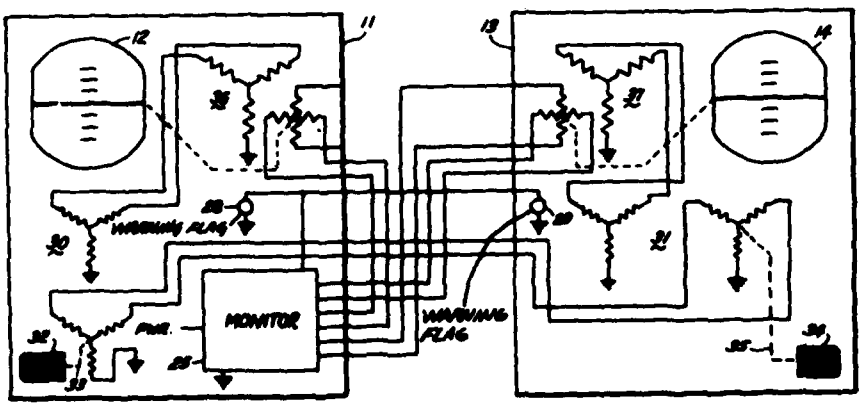
2,428,402	10/1947	Winterbottom	340/315
2,432,772	12/1947	Lear	340/315
2,596,698	5/1952	Laing et al.	340/198
2,794,975	6/1957	Sedgfield et al.	340/198
2,810,119	10/1957	Brown	340/27 NA
2,950,460	8/1960	Seifried et al.	340/27 R
3,094,691	6/1963	Traffaisen	340/181
3,534,349	10/1970	Mallinson	340/198
3,537,086	10/1970	Andresen	340/27 R

Primary Examiner—John W. Caldwell, Sr.
Assistant Examiner—James J. Groody
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] ABSTRACT

The indications of attitude indicators at two different indicating locations that are indicating the same parameter but actuated from different sources, are monitored for the same indication by electrically interconnecting two transolvers that are mechanically coupled to the respective attitude indicator at each location. A monitor, at one indicating location, furnishes the excitation for the transolver at the other location and by the magnitudes of the sine and cosine outputs of the local transolver furnishes flag indication of any system defects of either indicator at each location.

4 Claims, 3 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Zoltai

[11] 4,193,061

[45] Mar. 11, 1980

[54] **ELECTRONIC AUTHENTICATION SYSTEM**

[76] Inventor: John T. Zoltai, P.O. Box 5463, Santa Fe, N. Mex. 87502

[21] Appl. No.: 923,749

[22] Filed: Jul. 11, 1978

[51] Int. Cl.² H04Q 3/02

[52] U.S. Cl. ..... 371/67; 235/382; 340/149 R

[58] Field of Search ..... 340/146.1 C, 146.1 R, 340/146.1 E, 149 R, 149 A; 364/200, 900; 235/380, 382

[56] References Cited

U.S. PATENT DOCUMENTS

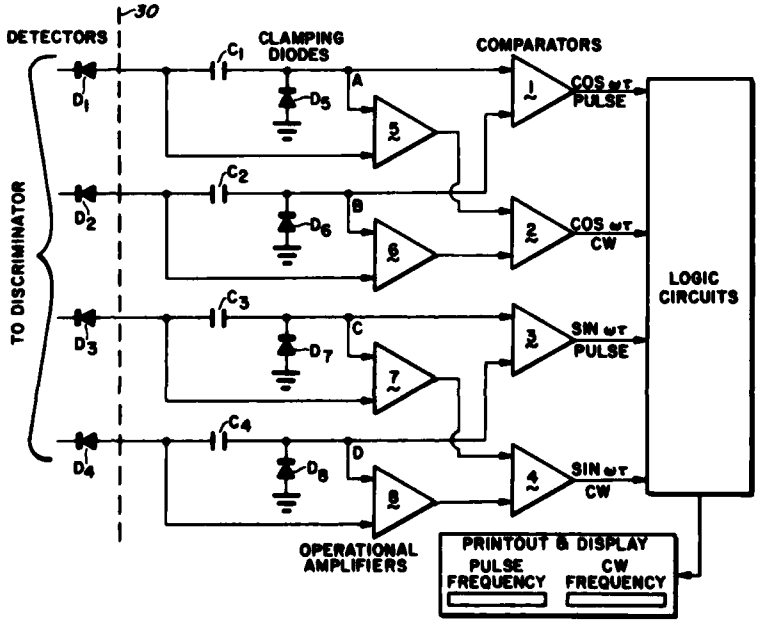
3,794,813	2/1974	Spetz	235/382
3,846,622	11/1974	Meyer	235/382
3,956,615	5/1976	Anderson et al.	340/149 A
4,016,404	4/1977	Appleton	235/380
4,017,835	4/1977	Randolph	235/380
4,114,027	9/1978	Slater et al.	340/149 A
4,142,097	2/1979	Ulch	340/149 R

Primary Examiner—Charles E. Atkinson
Attorney, Agent, or Firm—Joseph E. Rusz; William Stepanishen

[57] ABSTRACT

An electronic authentication system utilizing a predetermined random code to simultaneously interrogate the control unit and the remote unit by a comparison of the response of each unit.

7 Claims, 6 Drawing Figures



RIGHTS OF THE GOVERNMENT

The invention described herein may be manufactured and used by or for the Government of the United States for all government purposes without the payment of any royalty.

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00192

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Morrison et al.

[11] **4,193,066**

[45] **Mar. 11, 1980**

[54] **AUTOMATIC BIAS ADJUSTMENT CIRCUIT FOR A SUCCESSIVE RANGED ANALOG/DIGITAL CONVERTER**

[75] Inventors: **Steven Morrison; Thomas K. Lisle, Jr.; Clarence C. Glover,** all of Baltimore, Md.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force,** Washington, D.C.

[21] Appl. No.: **898,047**

[22] Filed: **Apr. 20, 1978**

[51] **Int. Cl.**[2] **H03K 13/02**

[52] **U.S. Cl.** ..... **340/347 CC**; 340/347 AD

[58] **Field of Search** ..... 340/347 AD, 347 CC, 340/347 M; 235/310

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,501,625	3/1970	Gorbatenko	235/310
3,646,586	2/1972	Kurz	340/347 AD
3,754,232	8/1973	Gut	340/347 CC
3,786,491	1/1974	Carleton	340/347 CC
3,889,255	6/1975	Pettersen	340/347 CC

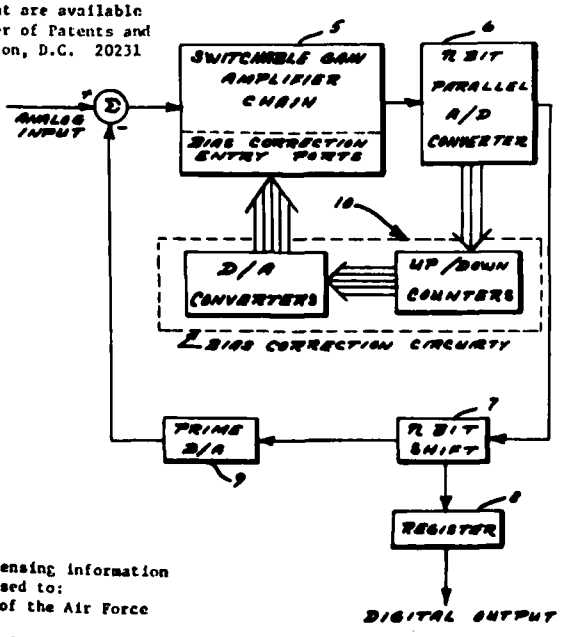
Primary Examiner—Charles D. Miller

Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews, Jr.

[57] **ABSTRACT**

An automatic bias adjustment circuit for a successive ranged analog/digital converter (SRADC) that eliminates the need for manual bias adjustments and calibration inputs. The bias correction circuit comprehends dual flip flops that are triggered by selected comparators of the SRADC n bit parallel analog/digital converter. The flip flop output signals control up/down counters whose output bits drive digital/analog converter. The digital/analog converted signals are introduced back into the SRADC analog chain to zero bias errors in a particular sub-range. A disabling circuit prevents operation of the bias adjustment circuits for the first sub-range.

2 Claims, 3 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Morrison et al.

[11] 4,194,186

[45] Mar. 18, 1980

[54] DIGITAL HYSTERESIS CIRCUIT

[75] Inventors: Steven Morrison; Thomas K. Lisle, Jr., both of Baltimore, Md.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 898,867

[22] Filed: Apr. 20, 1978

[51] Int. Cl.[2] H03K 13/02

[52] U.S. Cl. ..... 340/347 AD; 340/347 CC

[58] Field of Search ..... 340/347 AD, 347 CC; 235/92 PE

[56] References Cited

U.S. PATENT DOCUMENTS

3,786,488	1/1974	Ahlgren	235/92 PE
3,786,491	1/1974	Carleton	340/347 CC
4,084,082	4/1978	Alfke	235/92 PE

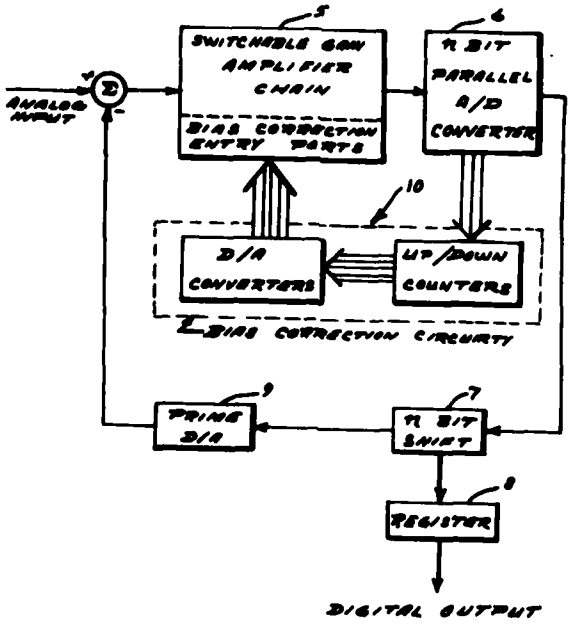
Primary Examiner—Charles D. Miller

Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews, Jr.

[57] ABSTRACT

Noise induced hunting is eliminated in successive ranged digital/analog converter bias correction circuits by means of a digital hysteresis circuit. The digital hysteresis circuit comprehends a first up/down counter that counts to its extremums from a pre-set intermediate state in response to enable and up/down input signals. For each extremum count an enable output pulse and a reset pulse is generated at the counter output. The enable output pulses are counted by a second up/down counter the output of which drives a digital/analog converter. Each reset pulse resets the first up/down counter to its pre-set state.

2 Claims, 5 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Goldie

[11] 4,194,200

[45] Mar. 18, 1980

[54] **COMBINED RECEIVER PROTECTOR, AGC ATTENUATOR AND SENSITIVITY TIME CONTROL DEVICE**

[75] Inventor: **Harry Goldie**, Randallstown, Md.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **956,704**

[22] Filed: **Nov. 1, 1978**

Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 801,714, May 31, 1977, abandoned.

[51] **Int. Cl.**[2] **G01S 7/34**

[52] **U.S. Cl.** ..... **343/5 SM**; 343/7 AG; 333/13

[58] **Field of Search** ..... 333/13; 343/5 SM, 7 AG

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,984,741	5/1961	Bronstein et al.	343/5 SM X
3,588,894	6/1971	Prickett	343/7 AG
3,725,913	4/1973	Roehl et al.	343/5 SM
3,949,398	4/1976	Donahue	343/5 SM X
4,027,255	5/1977	Blakeney	333/13

Primary Examiner—T. H. Tubbesing

Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews

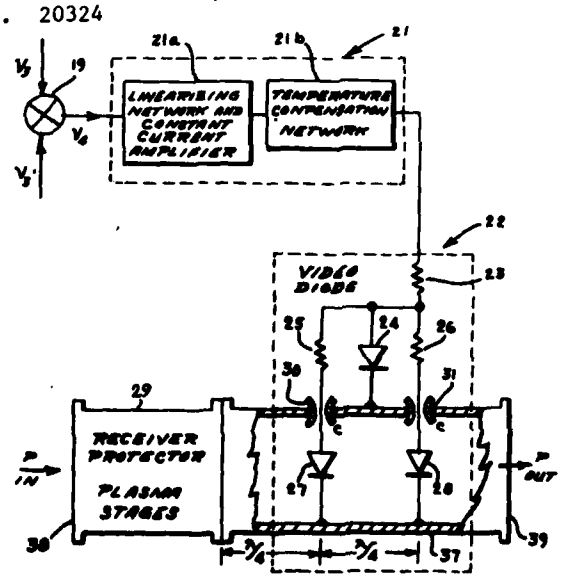
[57] **ABSTRACT**

The passive receiver protector, AGC attenuator and sensitivity time control functions of a radar are combined in a single device which performs the functions in front of the radar low noise amplifier with relatively low loss. The receiver protector utilizes semiconductor diodes which operate as a power limiter during transmit and as precision attenuators during receive.

9 Claims, 6 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.



PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Willmore et al.

[11] 4,194,205
[45] Mar. 18, 1980

[54] R.F. POWER AND VIDEO MODULATION MONITORING CIRCUIT FOR COUNTERMEASURES SYSTEM

[75] Inventors: Robert R. Willmore, Millersville; William B. McCartney, Odenton, both of Md.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 868,969

[22] Filed: Jan. 6, 1978

[51] Int. Cl.[2] G01S 7/38; G01S 7/40; H04K 3/00

[52] U.S. Cl. ..... 343/17.7; 343/18 E

[58] Field of Search ..... 343/17.7, 18 E

[56] References Cited

U.S. PATENT DOCUMENTS

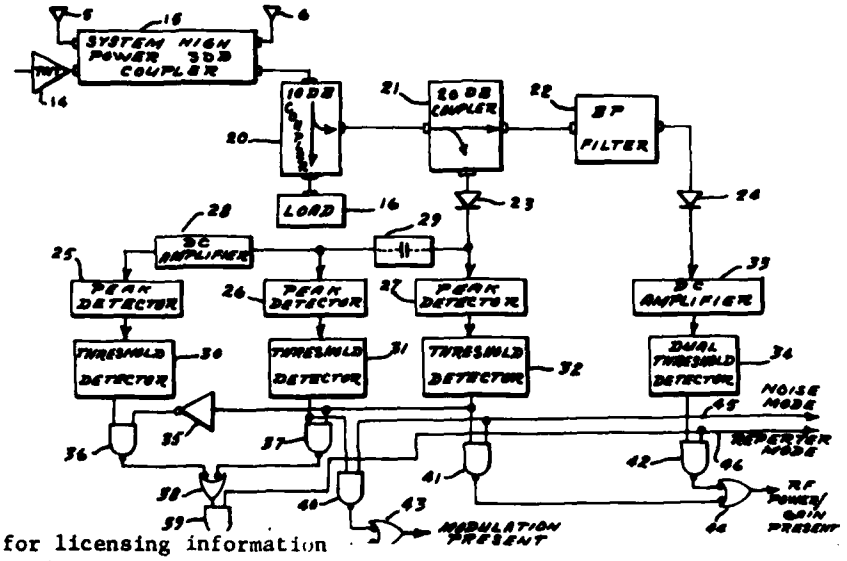
2,840,810	6/1958	Bailey, Jr.	343/17.7
3,543,270	11/1970	Wiley, Jr.	343/17.7 X
3,792,475	2/1974	Smetana	343/17.7
4,114,152	9/1978	Wiedemann	343/18 E X
4,121,214	10/1978	Marinaccio et al.	343/18 E
4,122,452	10/1978	Richmond	343/18 E

Primary Examiner—Malcolm F. Hubler
Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews

[57] ABSTRACT

The RF power and video modulation monitoring circuit of the invention provides the unique capability of monitoring the performance of a repeater/noise jammer countermeasures system when the system is operating in either the repeater or the noise jamming mode. In the repeater mode the systems noise level is measured in an unused portion of the countermeasures system frequency band to provide a monitor of system gain and antenna VSWR. In the noise mode crystal detection and threshold comparison provides an indication of RF power output. In either jamming mode the measurement of AC in the detected output provides a monitor of modulation.

3 Claims, 2 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

JAT 00196

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Tsui et al.

[11] 4,194,206
[45] Mar. 18, 1980

[54] **INSTANTANEOUS FREQUENCY MEASUREMENT (IFM) RECEIVER WITH CAPABILITY TO SEPARATE cw AND PULSED SIGNALS**

[75] Inventors: **James B. Y. Tsui**, Centerville; **Gerd H. Schrick**, Dayton, both of Ohio

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **240**

[22] Filed: **Dec. 22, 1978**

[51] **Int. Cl.**[2] **G01S 7/36**
[52] **U.S. Cl.** ..... **343/18 E**; 324/78 F
[58] **Field of Search** ..... 324/77 E, 78 F; 343/18 E

[56] **References Cited**

U.S. PATENT DOCUMENTS

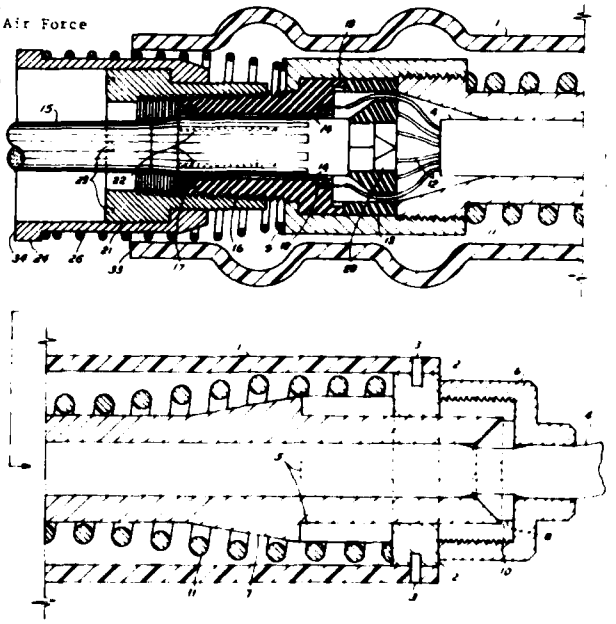
3,922,676	11/1975	O'Berry et al.	343/18 E X
3,986,188	10/1976	True	343/18 E
4,025,920	5/1977	Reitboeck et al.	343/18 E X
4,146,892	3/1979	Overman et al.	343/18 E

Primary Examiner—T. H. Tubbesing
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] **ABSTRACT**

The video outputs of the correlators of a conventional IFM receiver are split by capacitors to obtain (1) pulse signals only and (2) pulse plus cw signals. Combining these signals in differential amplifiers, frequency readings are provided in the normal manner with the improvement that the individual frequency readings of simultaneously received pulse and cw signals are provided.

2 Claims, 2 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Coulbourn, Jr.

[11] **4,194,209**

[45] **Mar. 18, 1980**

[54] **BROADBAND WAVEGUIDE LENS ANTENNA AND METHOD OF FABRICATION**

[75] Inventor: **Charles B. Coulbourn, Jr.**, Rolling Hills Estates, Calif.

[73] Assignee: **The United States of America as represented by the Secretary of the Air Force**, Washington, D.C.

[21] Appl. No.: **866,187**

[22] Filed: **Dec. 30, 1977**

[51] **Int. Cl.**[2] **H01L 19/06**

[52] **U.S. Cl.** **343/753; 343/910**

[58] **Field of Search** ..... 343/909-911 R, 343/753, 754, 756

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,547,416	4/1951	Skellett	343/910
2,599,763	6/1952	Kock	343/910
2,640,154	5/1953	Kock	343/910
2,729,816	1/1956	Crawford	343/909
2,736,894	2/1956	Kock	343/910

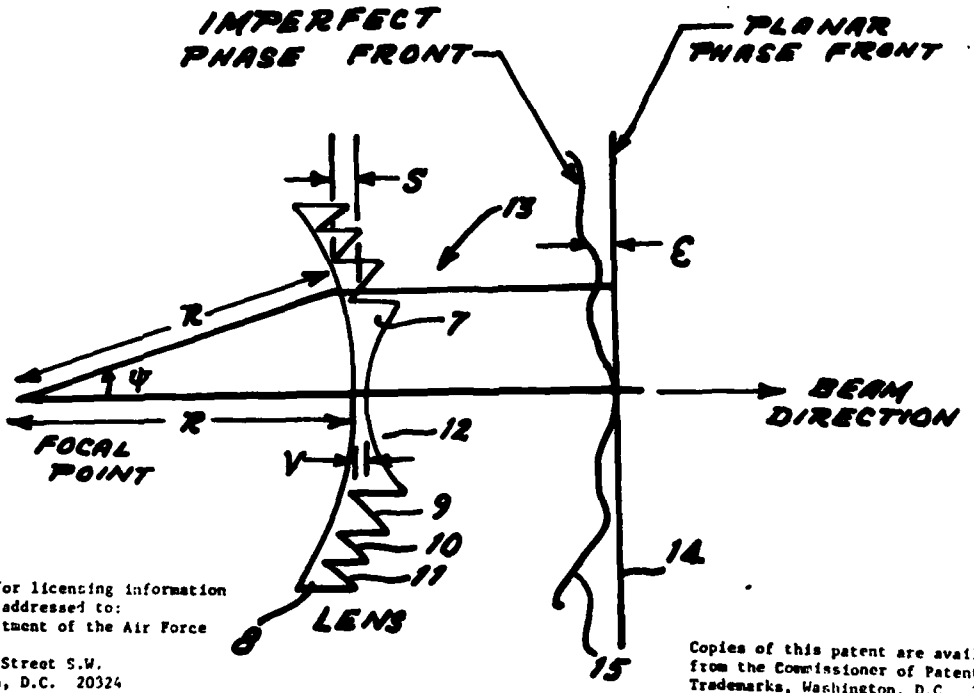
Primary Examiner—David K. Moore

Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews, Jr.

[57] **ABSTRACT**

Increased bandwidth in a waveguide lens antenna is achieved by altering the geometry of the stepped antenna guide plates in a manner that causes the net contribution of the antenna phase dispersion sources to result in zero average aperture phase error. Design equations are included for the fabrication of waveguide lens antenna having any desired degree of phase compensation. In principle, the plate geometry is configured to effect a given relationship between the components of phase error due to guide plate dispersion and the component of phase error due to the guide plate steps. When these components are equal and opposite zero average aperture phase error (maximum bandwidth operation) is achieved.

1 Claim, 13 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Tracy et al.

[11] 4,194,708

[45] Mar. 25, 1980

[54] **REMOTELY PILOTED VEHICLE**

[75] Inventors: Daniel J. Tracy, Maple Valley; John P. Palmer, Seattle; Daniel J. O'Brien, Kirkland, all of Wash.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 944,441

[22] Filed: Sep. 21, 1978

[51] Int. Cl.[2] B64C 15/02; B64D 1/06

[52] U.S. Cl. ..... 244/15; 89/1.5 R; 244/45 A; 244/100 A; 244/133; 244/135 R; 244/137 R

[58] Field of Search ..... 244/15, 13, 45 A, 135 R, 244/135 C, 118 R, 119, 133, 137 R, 100 A, 100 R, 14, 89, 90 R, 123; 89/1 A, 1.5 R, 1.5 E

[56] References Cited

U.S. PATENT DOCUMENTS

2,644,777	7/1953	Havens	244/119 X
2,660,383	11/1953	Feeney et al.	244/90 R X
2,823,880	2/1958	Bergeson	244/135 C
2,967,677	1/1961	Winzen et al.	244/2
2,982,501	5/1961	Griffith et al.	244/135 R X
3,009,669	11/1961	Locke	244/119 X
3,305,196	2/1967	Hanlon	244/123
3,362,659	1/1968	Razak	244/45 A
3,869,103	3/1975	Nelson et al.	244/100 R
3,964,698	6/1976	Earl	244/100 A
4,093,156	6/1978	Coe	244/45 A

FOREIGN PATENT DOCUMENTS

1506122 10/1969 Fed. Rep. of Germany ..... 244/137 R

OTHER PUBLICATIONS

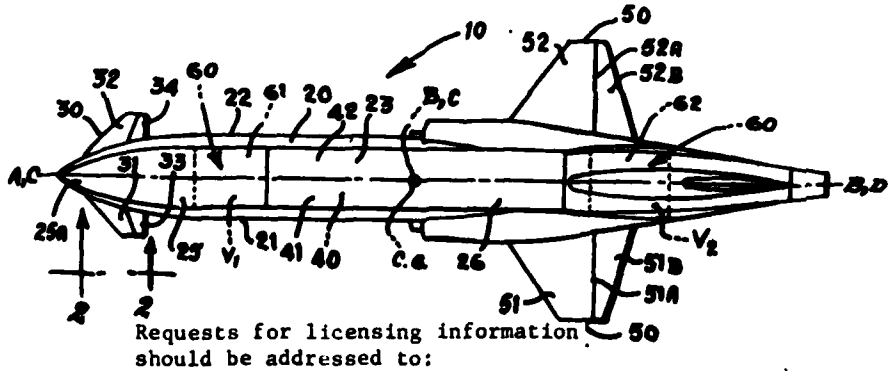
O'Brian et al., "U.S./F.R.G. Advanced Tactical RPV Requirements As Analyzed by Boeing and Dornier", 4th Annual Symposium of the National Association of Remotely Piloted Vehicles, 6/1977, FIGS. 10 & 14.

Primary Examiner—Barry L. Kelmachter
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

A recoverable remotely piloted vehicle (RPV) having: a deflectable canard/elevator placed very close to the nose tip; a constant (cross) section fuselage; wings mounted low and well aft on the fuselage; elevons; a centrally positioned weapons/payload bay, with doors, located internal of the upper portion of the fuselage; and, inflatable landing skids. The weapon/payload is dropped from the RVP, while the RVP is in flight in an inverted position.

4 Claims, 5 Drawing Figures



Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324

Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Barry

[11] 4,194,811

[45] Mar. 25, 1980

[54] **REMOTELY CONTROLLED ELECTROMAGNETIC OPTICAL FOCUSING ASSEMBLY**

[75] Inventor: James D. Barry, Los Angeles, Calif.

[73] Assignee: The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

[21] Appl. No.: 902,523

[22] Filed: May 3, 1978

[51] Int. Cl.[2] G02B 7/04

[52] U.S. Cl. 350/255

[58] Field of Search 350/46, 47, 255; 250/201

[56] References Cited

U.S. PATENT DOCUMENTS

1,866,581	7/1932	Simjian	350/255 X
3,062,100	11/1962	Ludewig et al.	350/255 X
3,917,394	11/1975	Sturdevant	350/255 X
4,021,101	5/1977	Camerik	350/255
4,092,529	5/1978	Aihara et al.	250/201
4,135,206	1/1979	Kleuters et al.	250/201 X

FOREIGN PATENT DOCUMENTS

1131093	10/1956	France	350/255

Primary Examiner—F. L. Evans

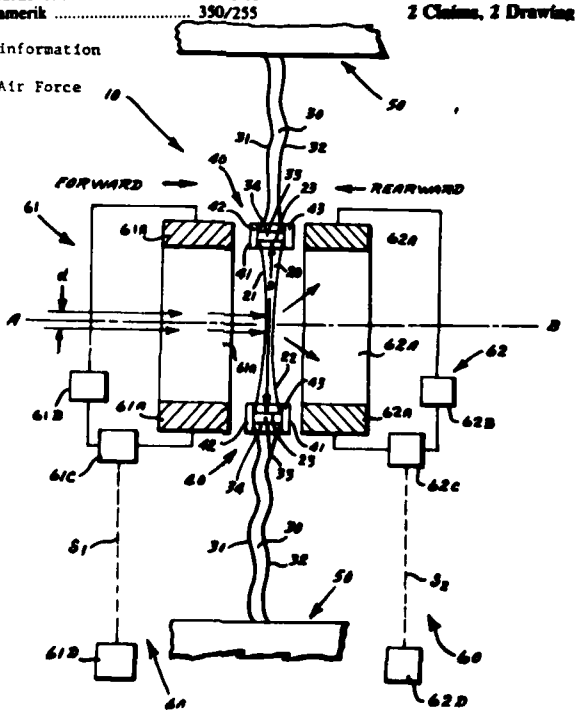
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

A lens of an optical system in space is to be moved, and thereby be focused, resulting in the focusing of the system. The lens is mounted, in a diaphragm of resilient material, with a ring-like component made of magnetic material. An electromagnet is positioned on either side of the lens and of the ring-like component. Application of d.c. current, by remote control, through the electromagnets, causes the translational movement, and the necessary focusing, of the lens and, therefore, of the optical system.

2 Claims, 2 Drawing Figures

Requests for licensing information should be addressed to:
U.S. Department of the Air Force
AF/JACP
1900 Half Street S.W.
Washington, D.C. 20324



Copies of this patent are available from the Commissioner of Patents and Trademarks, Washington, D.C. 20231 for $0.50 each.

END

DATE
FILMED

1-82

DTIC