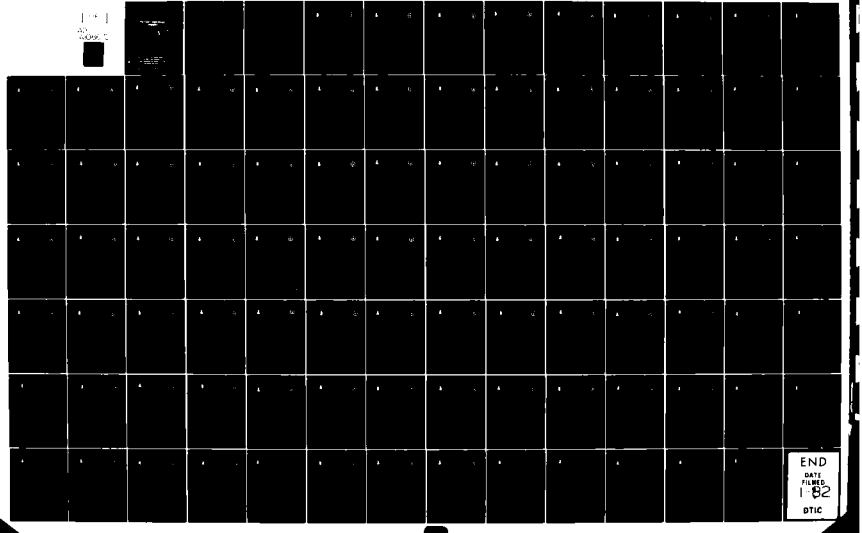
AD-A108 672 AIR FORCE SYSTEMS COMMAND WASHINGTON DC F/G 5/2
PATENT ABSTRACT DIGEST. VOLUME I.(U)
APR 79 F A LUKASIK
UNCLASSIFIED AFSC-TR-81-65 NL



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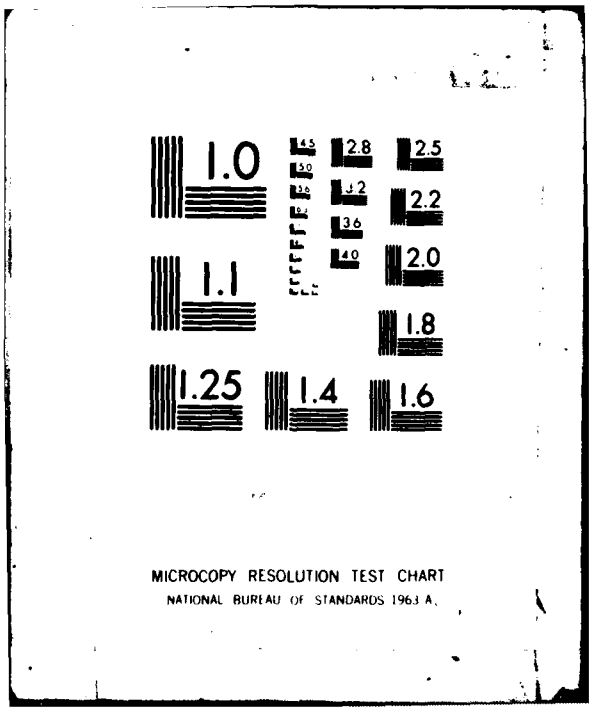
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NATIONAL BUREAU OF STANDARDS 1963 A.

LEVEL II

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PATENT ABSTRACT DIGEST

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7. AUTHOR(s) Dr. Frank A. 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
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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.

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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 1971-72 ANNUAL REPORT ON GOVERNMENT PATENT POLICY AND AIR FORCE REGULATION 110-33.

SIGNED

Chester D. Taylor, Jr.

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] [11] **4,098,659**

Inverso [45] **Jul. 4, 1978**

[54] ELECTROCHEMICAL MILLING PROCESS TO PREVENT LOCALIZED HEATING

[75] Inventor: **Anthony J. Inverso, Ogden, Utah**

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

[21] Appl. No.: **815,134**

[22] Filed: **Jul. 13, 1977**

[51] Int. Cl.² C25F 3/00; C25F 3/14

[52] U.S. Cl. 204/129.65; 204/129.1

[58] Field of Search 204/129.1, 129.3, 129.5, 204/129.65

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,560,357	2/1971	Shaw	204/129.65

FOREIGN PATENT DOCUMENTS

47-5955	5/1968	Japan	204/129.65
1,425,219	2/1976	United Kingdom	204/129.65

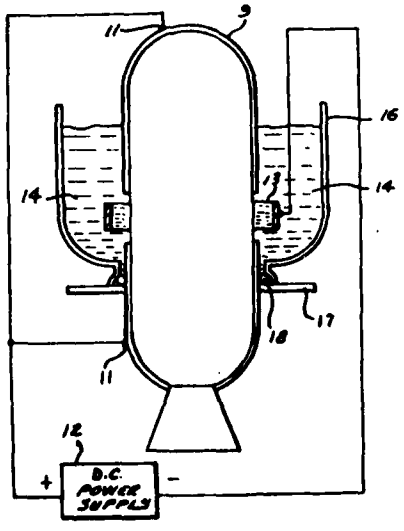
Primary Examiner—T. M. Tufariello

Attorney, Agent, or Firm—Joseph E. Rusz; James S. Shannon

[57] **ABSTRACT**

A process for the electrochemical removal of a metal cover wherein the electrically nonconductive underlying material to be exposed cannot withstand elevated temperatures produced by hot spots or arcs in the material being removed. The item to be processed is first masked, completely covering the area which is to be in contact with the etching solution. Segments of protective maskant are then removed in strips of prescribed width and at specified time intervals to expose additional material. The sequence produces graduated depths in the material being etched away and eventually results in the underlying material being exposed in incremental strips. Appropriate selection of timing and exposure width retains adequate unmasked covering material to avoid local areas of high current density, while insuring a smoothly expanding etched exposure of the underlying material.

2 Claims, 4 Drawing Figures



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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] **4,098,825**

[45] **Jul. 4, 1978**

[54] **ACETYLENE-SUBSTITUTED AROMATIC BENZILS AND ACETYLENE-TERMINATED QUINOXALINE COMPOSITIONS**

[75] Inventors: **Fred E. Arnold**, Centerville; **Frederick L. Hedberg**, 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.: **762,078**

[22] Filed: **Jan. 24, 1977**

[51] Int. Cl.[2] **C07C 49/84**; C07D 241/42

[52] U.S. Cl. ..... **260/590 D**; 544/353; 528/86

[58] Field of Search ..... 260/590 D

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,340,233	9/1967	Leavitt	260/590 D
3,458,548	7/1969	Carlson	260/590 D
3,966,729	6/1976	Kovar et al.	260/250 Q

Primary Examiner—James O. Thomas, Jr.
Assistant Examiner—James H. Reamer
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

As new compositions of matter, acetylene-substituted aromatic benzils. The benzils are particularly useful in the synthesis of acetylene-terminated quinoxaline compositions which cure by nonvolatile addition reactions.

4 Claims, No Drawings

Requests for licensing information should be addressed to:
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PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Sauermann

[11] 4,099,050

[45] Jul. 4, 1978

[54] **CODABLE OPTICAL TRANSPONDER**

[75] Inventor: Gerhard O. Sauermann, Lexington, Mass.

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

[21] Appl. No.: 56,819

[22] Filed: Jul. 10, 1970

[51] Int. Cl.² H04B 9/08

[52] U.S. Cl. 250/199; 350/98

[58] Field of Search ..... 250/196-226, 250/199; 343/6.5 SS, 18 D; 350/97, 98

[56] References Cited

U.S. PATENT DOCUMENTS

2,130,256	9/1938	Wilson	350/97
2,428,713	10/1947	Linderg, Jr. et al.	250/199
2,461,005	2/1949	hworth	343/18 D
3,111,587	11/1963	k...ard	250/199
3,215,842	11/1965	Thomas	343/18 D
3,225,177	12/1965	Stites et al.	235/61.11
3,227,882	1/1966	Bissett et al.	250/199
3,502,888	3/1970	Stites	250/226
3,521,280	7/1970	Janco et al.	343/6.5 SS

OTHER PUBLICATIONS

Barber, "21 Ways to Pick Data Off Moving Objects", 10/63, pp. 82-83, Control Engineering, vol. 10, #10.

Primary Examiner—Nelson Moskowitz
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

A transponder illuminated by broadband optical radiation which is reflected back towards the illuminator by means of corner reflectors. In front of the corner reflectors are placed a plurality of narrow band filters which define the communication channels. The return signal will consist of the activation of a number of discrete channels corresponding to the number of filters used. The system is not restricted to the visible spectrum permitting infrared and ultraviolet radiation to be used to provide a covert communication system.

9 Claims, 3 Drawing Figures

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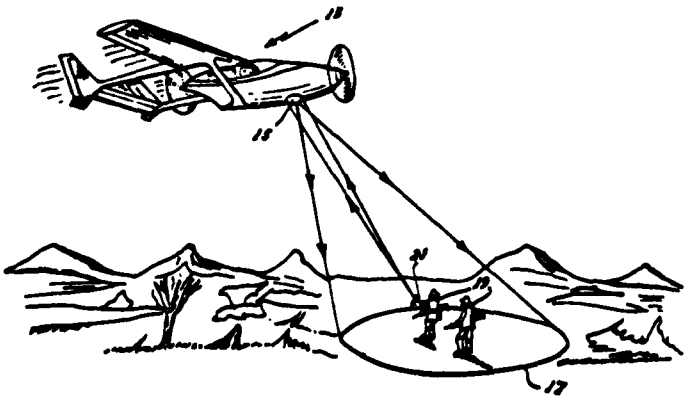

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JAT 00003

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]
Griffin, Jr. et al.

[11] **4,099,373**
[45] **Jul. 11, 1978**

[54] **VENTED IGNITER**

[75] Inventors: **William W. Griffin, Jr., Lake Park; Robert M. Pierce, Tequesta, 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.: **795,821**

[22] Filed: **May 11, 1977**

[51] Int. Cl.² **F02C 7/18; F02C 7/26**
[52] U.S. Cl. ..... **60/39.67; 60/39.82 S; 431/263; 361/253**
[58] Field of Search ..... **60/39.67, 39.82 S; 431/258, 263, 264; 361/253**

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,423,410	7/1947	Simmons	431/263

FOREIGN PATENT DOCUMENTS

880,976	6/1953	Fed. Rep. of Germany	60/39.82 S
802,703	7/1957	United Kingdom	60/39.82 S

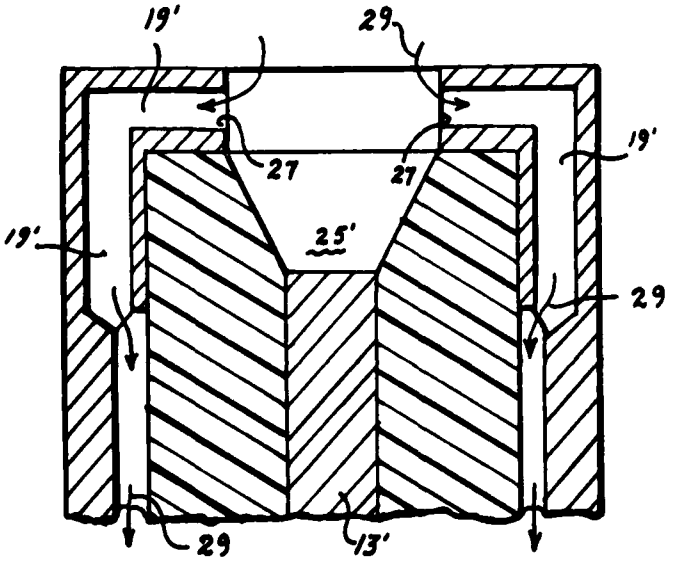
Primary Examiner—Robert E. Garrett
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] **ABSTRACT**

An improved spark igniter for use in a gas turbine engine wherein vent passages which are in the vicinity of the electrode are placed in communication with the ambient environment external to the engine during the ignition sequence causing fuel-air mixture to flow over the electrode as it is abstracted from the engine, thereby enhancing the probability of ignition.

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



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PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Hussey et al.

[11] 4,100,044

[45] Jul. 11, 1978

[54] PROCEDURE FOR REMOVING ALUMINUM FROM AN Al-Al$_3$Ni TWO-PHASE MATRIX

[75] Inventors: Charles L. Hussey, USAF Academy, Colo.; John C. Nardi, Brunswick, Ohio; Armand A. Fannin, Jr., USAF Academy, Colo.; Lowell A. King, Colorado Springs, Colo.; John K. Erbacher, USAF Academy, Colo.

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

[21] Appl. No.: 816,223

[22] Filed: Jul. 15, 1977

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

[52] U.S. Cl. ..... 204/14[illegible]04/129.8; 204/129.95

[58] Field of Search 204/146, 129.8, 129.85, 204/129.95

[56] References Cited

U.S. PATENT DOCUMENTS

3,002,908	10/1961	Hall	204/146
3,257,299	6/1966	Mekjean	204/129.8
3,379,628	4/1968	Burdick et al.	204/129.85
3,615,900	10/1971	Lee	204/146
3,779,879	12/1973	Scott	204/146

Primary Examiner—T. M. Tufariello
Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] ABSTRACT

An electrolytic process for removing aluminum from a solid two-phase matrix of aluminum and trialuminum nickelide filaments by passing an electric current between an inert anode, a cathode composed of the matrix while both are immersed in an aluminum halide containing molten salt electrol[illegible].

4 Claims, 5 Drawing Figures

Requests for licensing information should be addressed to:
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JAT 00005

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Frost et al.

[11] **4,102,207**

[45] **Jul. 25, 1978**

[54] **ELECTROMAGNETIC ULTRASOUND TRANSDUCER**

[75] Inventors: **Harold M. Frost, Rockville, Md.; Thomas L. Szabo, Boston, Mass.**

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

[21] Appl. No.: **751,240**

[22] Filed: **Dec. 16, 1976**

[51] Int. Cl.[2] **G01N 29/00**

[52] U.S. Cl. **73/643**

[58] Field of Search ..... 73/71.5 US, 67.5 R, 73/67.7, 643; 324/37, 40

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,583,213	6/1971	Houck et al.	73/67.5 R
3,786,672	1/1974	Gaertner	73/71.5 US
3,850,028	11/1974	Thompson et al.	73/71.5 US
3,918,295	11/1975	Herbertz	73/71.5 US

FOREIGN PATENT DOCUMENTS

1,425,201	2/1976	United Kingdom	73/71.5 US

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Butenko et al., "Electromagnetic-Acoustic Non-Destructive Testing in Soviet Union," Non-Destructive Testing, vol. 5, No. 3, pp. 154–159, Jun. 1972.

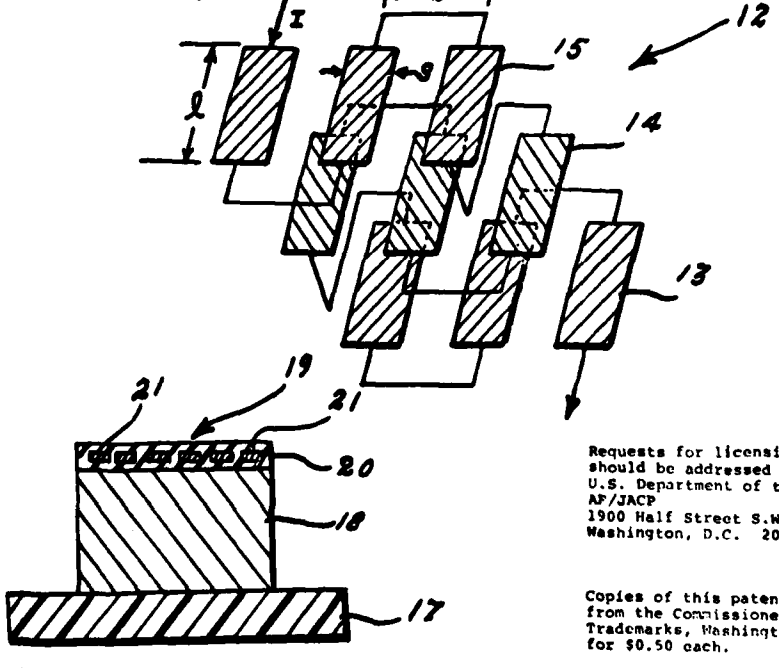
Dobbs et al., "Generation of Ultrasonic Waves Without Using a Transducer," Non-Destructive Testing, vol. 4, No. 1, Feb. 1971, pp. 49–56.

Primary Examiner—Herbert Goldstein
Assistant Examiner—Stephen A. Kreitman
Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews, Jr.

[57] **ABSTRACT**

A handheld, compact, self-contained transducer unit for electromagnetic generation and detection of ultrasound on or in metals and other media is realized by mounting short, flat cable sections directly on a small, powerful permanent magnet. The cable sections are interconnected in an electromagnetic transducer circuit configuration and the plane of the flat cable transducer circuit structure is perpendicular to the magnet magnetization axis. Fabrication of the device can be accomplished by selectively connecting the conductor ends of a flat strip electrical conductor segment and affixing the conductor segment to an appropriate surface of a samarium-cobalt permanent magnet.

1 Claim, 8 Drawing Figures



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JAT 00006

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Carroll et al.

[11] 4,102,431

[45] Jul. 25, 1978

[54] EMERGENCY PERSONNEL LOWERING APPARATUS

[75] Inventors: Charles E. Carroll, Kettering; William H. Hobbs, Centerville, 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.: 815,136

[22] Filed: Jul. 13, 1977

[51] Int. Cl.² A62B 1/14

[52] U.S. Cl. 182/5; 188/65.5

[58] Field of Search 182/5, 6, 7, 3; 188/65.5, 65.4, 65.1, 65.2

[56] References Cited

U.S. PATENT DOCUMENTS

542,641	7/1895	H[illegible]acher	188/65.5
586,173	7/1897	Fr[illegible]	182/5
933,685	9/1909	Wray	188/65.5
946,588	1/1910	Thuener	182/5
1,463,149	7/1923	Barthelemy	188/65.5
3,419,236	12/1968	Weber	182/5

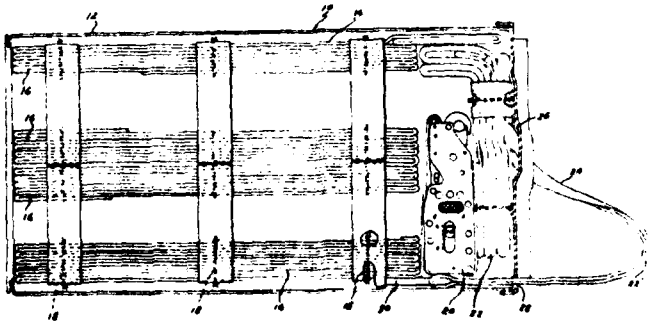
Primary Examiner—Reinaldo P. Machado

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

[57] ABSTRACT

An emergency personnel lowering apparatus having a stowage bag including a lowering line stowed in a plurality of hanks within the bag. A lowering control mechanism and an attachment line are positioned within the bag adjacent the lowering line. A portion of the attachment line extends out of the bag and forms a pull loop. The lowering control mechanism includes an adjustable descent control mechanism which controls the area of contact between different portions of the lowering line to control the rate of descent. Plural paths are provided for the lowering line in the descent control mechanism to adapt the system for different loads. A brake mechanism is provided to stop descent if the person on the line becomes incapable of self protection on the ground.

6 Claims, 11 Drawing Figures



JAT 00007

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Taboada et al.

[11] 4,102,610

[45] Jul. 25, 1978

[54] CONSTANT VOLUME SEAL-FREE RECIPROCATING PUMP

[76] Inventors: John Taboada, 159 Ebbtide, San Antonio, Tex. 78227; Marvin H. Lindsey, 3911 E. Palfrey, San Antonio, Tex. 78223

[21] Appl. No.: 720,465

[22] Filed: Sep. 3, 1976

[51] Int. Cl.[2] F04B 17/04

[52] U.S. Cl. ..... 417/417; 3/1.7; 128/1 D; 415/214; 318/128

[58] Field of Search ..... 415/214; 417/415, 417; 128/1 D, DIG. 3, 273; 3/1.7; 318/128, 130, 132

[56] References Cited

U.S. PATENT DOCUMENTS

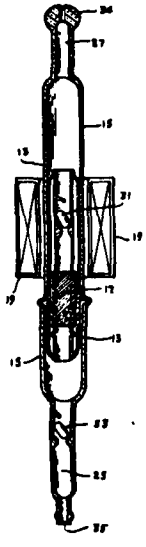
2,481,320	9/1949	Madorsky	417/417
2,604,851	7/1952	Archibald	417/417
3,293,516	12/1966	Maier et al.	318/128
3,348,489	10/1967	Meyer	417/417
3,521,794	7/1970	Bijl	318/130
3,603,706	9/1971	Cermak et al.	417/417
3,629,674	12/1971	Brown	417/415
3,819,293	6/1974	Zitzmann	415/214

Primary Examiner—C. J. Husar
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

A reciprocating pump having a piston completely enclosed by and moving within a cylinder. The pumping action is provided by the interaction between a magnetic component embedded in the piston and an external varying magnetic field produced by a permanent magnet, solenoid, etc. The necessary back-and-forth motion is produced by momentarily offsetting the gravitational force by the spatial driving or time variation of the magnetic field and a suitable combination of valves is provided to control the fluid flow through the cylinder.

1 Claim, 4 Drawing Figures



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PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Griffin

[11] 4,102,872
[45] Jul. 25, 1978

[54] FLUOROCARBON TRIAZINE POLYMERS

[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.: 806,561

[22] Filed: Jun. 14, 1977

[51] Int. Cl.[2] C08G 73/06; C08G 73/00
[52] U.S. Cl. 528/362; 526/246; 526/247; 528/342
[58] Field of Search 260/78.41; 526/245, 526/246, 247

[56] References Cited
U.S. PATENT DOCUMENTS

3,317,484	5/1967	Fritz et al.	260/78.41
3,644,300	2/1972	Dorfman et al.	260/78.41
3,960,814	6/1976	Cochoy	526/246

Primary Examiner—Herbert J. Lilling
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] ABSTRACT

Linear fluorocarbon triazine containing polymers are prepared by reacting a fluorocarbon nitrile with ammonia and silver trifluoroacetate, and reacting the resulting silver chelate with a fluorocarbon acid anhydride to provide a triazine product. The triazine polymers are thermally and hydrolytically stable and resistant to degradation by fuels, properties which render them particularly useful in sealant applications.

7 Claims, No Drawings

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PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Pizzarello et al.

[11] **4,103,144**

[45] **Jul. 25, 1978**

[54] **LOW INDUCTANCE HEATER CONFIGURATION FOR SOLID STATE DEVICES AND MICROCIRCUIT SUBSTRATES**

[75] Inventors: **Frank A. Pizzarello**, Yorba Linda; **Theodore J. LaChapelle, Jr.**, Orange, 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.: **744,471**

[22] Filed: **Nov. 24, 1976**

[51] Int. Cl.² **H05B 1/00**

[52] U.S. Cl. **219/209**; 219/553; 338/15

[58] Field of Search 219/209, 210, 541, 543, 219/552, 553; 338/15, 18, 307-309; 29/611, 620, 621

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,629,166	2/1953	Marsten et al.	29/620
3,414,704	12/1968	Flanagan	219/210
3,649,944	3/1972	Caddock	338/328

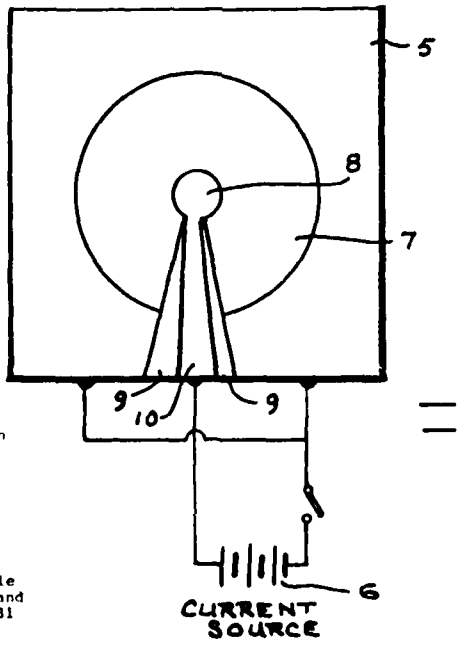
Primary Examiner—C. L. Albritton

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

[57] **ABSTRACT**

A low inductance, rapid response, heater for silicon photodetector and microcircuit applications is realized by depositing on a substrate surface a heater whose contact terminals and resistance element are configured to eliminate electrical noise due to the induced currents that commonly result from on-off switching action. The heater geometry utilizes a concentric ring configuration and consists of an inner disc-shaped contact terminal, a ring-shaped resistive heater element surrounding the disc-shaped contact terminal and an outer peripheral contact terminal surrounding the heater element. The heater is operated by means of an electrical current flowing in a radial direction through the circuit comprising the outer peripheral contact terminal, the annular resistive heater element and the inner contact terminal.

4 Claims, 2 Drawing Figures



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JAT 00010

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Schlossberg

[11] 4,103,255

[45] Jul. 25, 1978

[54] **HIGH POWER, COMPACT WAVEGUIDE GAS LASER**

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

[21] Appl. No.: **776,388**

[22] Filed: **Mar. 10, 1977**

[51] Int. Cl.² H01S 3/03

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

[58] Field of Search ..... 331/94.5 G, 94.5 D, 331/94.5 C, 94.5 R; 350/96 WG, 96 LM

[56] **References Cited**

U.S. PATENT DOCUMENTS

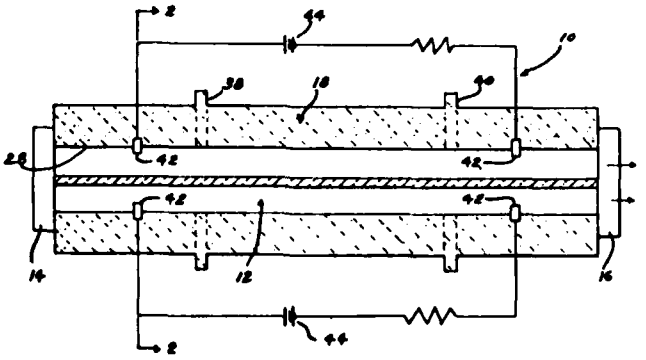
3,404,349	10/1968	Rigrod	331/94.5 C
3,535,017	10/1970	Miller	350/96 WG

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

[57] **ABSTRACT**

A high power, compact waveguide gas laser having a housing located within a resonant cavity. The housing has a longitudinal chamber situated therein, the chamber being divided into a plurality of waveguides by a plurality of infrared transmitting partitions. During operation of the laser, the leakage of laser radiation between adjacent waveguides through the partitions causes the coupling of the phases of the waveguide modes thereby producing a laser output of high power.

10 Claims, 2 Drawing Figures



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JAT 60611

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Hubbell et al.

[11] **4,103,339**

[45] **Jul. 25, 1978**

[54] **ACOUSTIC SURFACE WAVE BUBBLE SWITCH**

[75] Inventors: **Wayne C. Hubbell**, Richardson; **Christopher T. Chang**, Dallas, both of Tex.

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

[21] Appl. No.: **679,268**

[22] Filed: **Apr. 22, 1976**

[51] Int. Cl.² **G11C 19/08**
[52] U.S. Cl. **365/1**; 365/16
[58] Field of Search ..... 340/174 CR, 174 AC, 340/174 YC, 174 MS, 173 MS; 365/1, 16, 157

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,320,596	5/1967	*Smith, Jr. et al.*	*340/173 MS*
3,743,851	7/1973	Kohara	340/174 IC
3,836,897	9/1974	Marsh	340/174 MS

OTHER PUBLICATIONS

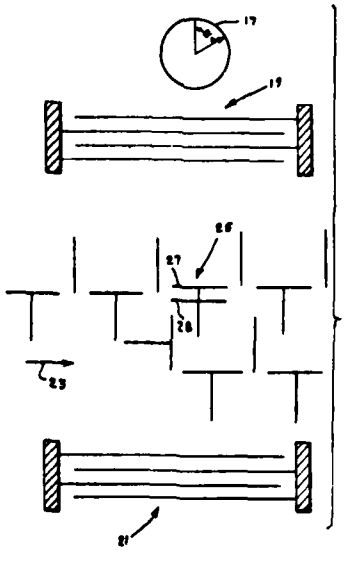
"Bubble Domain Logic Devices" by Lin - IBM Tech. Dis. Bul., vol. 13, #10, 3/71.
Bubble Lattice File Using Double-Layer Structures-by Lin et al., IBM Tech. Dis. Bul., vol. 17, #8, 1/75.

Primary Examiner—Vincent P. Canney
Attorney, Agent, or Firm—Joseph E. Rusz; Julian L. Siegel

[57] **ABSTRACT**

An acoustic surface wave bubble switch in which a magnetic bubble domain traveling in a thin film magnetic platelet can be guided in alternate directions by application of an acoustic wave. An array of longitudinal magnetic elements in the form of single bars and bars combined to form a T configuration together with a rotating in-plane magnetic field causes the magnetic bubble to propagate across the magnetic platelet. One of the configurations of the magnetic element is a T with a second horizontal bar and the bubble will have equal attraction for either of the horizontal bars. At the proper time an acoustic wave can direct the bubble to propagate in the direction of a chosen horizontal bar thereby effecting a switching action.

5 Claims, 5 Drawing Figures



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FOR JAT 00012

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Ipri et al.

[11] 4,104,087
[45] Aug. 1, 1978

[54] METHOD FOR FABRICATING MNOS MEMORY CIRCUITS

[75] Inventors: Alfred C. Ipri, Princeton; Doris W. Flatley, Belle Meade, both of N.J.

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

[21] Appl. No.: 785,481

[22] Filed: Apr. 7, 1977

[51] Int. Cl.² H01L 21/265
[52] U.S. Cl. 148/1.5; 357/44; 357/91
[58] Field of Search 357/44, 4; 148/1.5

[56] References Cited

U.S. PATENT DOCUMENTS

3,836,894	9/1974	Cricchi	340/173 R
3,958,266	5/1976	Athanas	357/23
4,002,501	1/1977	Tamura	148/1.5

OTHER PUBLICATIONS

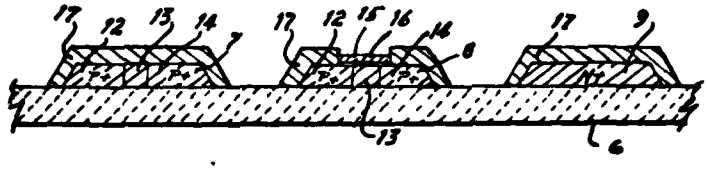
P. J. Krick, "MNOS Memory Array on . . . Inendating Substrate", IBM Tech. Discl. Bull., 15 (1972) 466.
H. Runge, "Threshold Voltage Shift . . . by Ion Implantation", Electronic Engineering, Jan. 1976, p. 41.
M. R. MacPherson, "The Adjustment of MOS . . . Threshold . . . Ion Implantation", Appl. Phys. Lett., 18, (1971) 502.

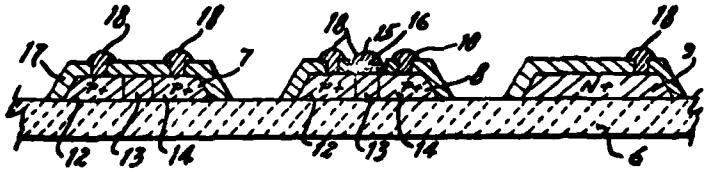
Primary Examiner—L. Dewayne Rutledge
Assistant Examiner—Upendra Roy
Attorney, Agent, or Firm—Joseph E. Rusz; Willard R. Matthews, Jr.

[57] ABSTRACT

MNOS memory circuit fabrication problems that result in leakage, memory device depletion mode switching and leakage paths at the edges of silicon islands are eliminated by a production process in which deposited and thermal oxides are used as a diffusion mask on the island edges, selective control of the threshold level of the memory device is achieved by ion implantation, and a thick oxide is grown on the silicon island edges to control charge injection.

1 Claim, 5 Drawing Figures





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FA2

JAT 00013

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Wirtanen

[11] 4,105,339

[45] Aug. 8, 1978

[54] AZIMUTH MONITORING SYSTEM

[75] Inventor: Theodore E. Wirtanen, Chelmsford, Mass.

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

[21] Appl. No.: 762,079

[22] Filed: Jan. 24, 1977

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

[52] U.S. Cl. 356/152; 250/578; 356/172

[58] Field of Search ..... 356/152, 172; 250/211 J, 578

[56] References Cited

U.S. PATENT DOCUMENTS

3,241,430	3/1966	Kulick	356/152 X
3,486,826	12/1969	Colvin et al	356/152 X
3,564,257	2/1971	Berry et al	250/211 J X
3,816,000	6/1974	Fiedler	356/152
3,990,796	11/1976	Foltz, Jr.	356/152

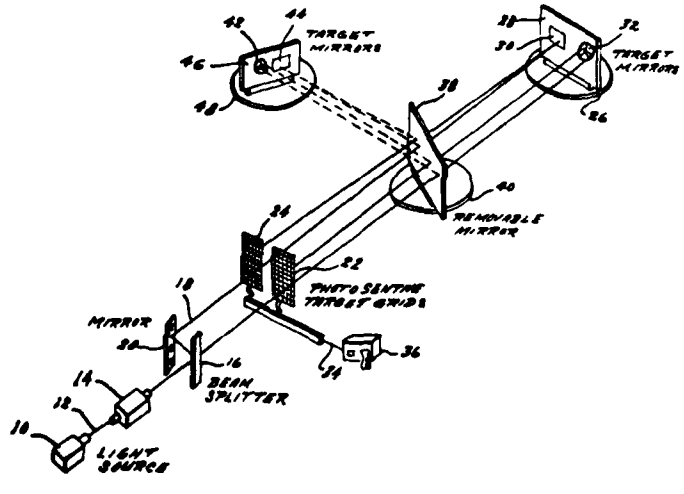
Primary Examiner—S. C. Buczinski

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

[57] ABSTRACT

A system for monitoring changes in azimuth due to shifts in geological features of the earth's surface, using a collimated laser beam which is split and reflected from a plane mirror and a prismatic mirror to target area showing translational and rotational changes in the mirrors location. The beam is directed to a second pair of mirrors at an angle to the beam which will verify the location movement, source or target.

5 Claims, 1 Drawing Figure



F82

JAT 600/4

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Piltingsrud

[11] 4,107,534
[45] Aug. 15, 1978

[54] PLUTONIUM-AMERICIUM DETECTION PROBE WITH FRONTAL LIGHT-GUIDE-DIFFUSER

[76] Inventor: Harley V. Piltingsrud, 3431 Whitfield Ave., Cincinnati, Ohio 45220

[21] Appl. No.: 805,664

[22] Filed: Jun. 13, 1977

[51] Int. Cl.² G01T 1/20

[52] U.S. Cl. 250/368; 250/485; 250/487

[58] Field of Search ..... 250/361 R, 362, 363, 250/368, 483, 487, 485

[56] References Cited

U.S. PATENT DOCUMENTS

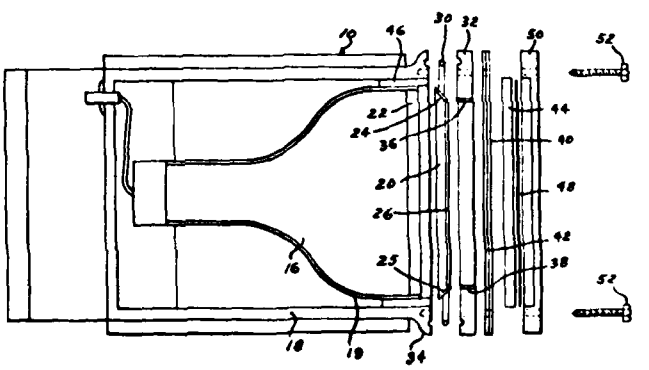
3,917,950 11/1975 Carlson 250/483

Primary Examiner—Davis L. Willis
Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] ABSTRACT

A detector probe for a scintillation detection instrument having a photomultiplier within a housing with an europium activated scintillation crystal positioned adjacent the face plate of the photomultiplier. A thin sheet of foil is spaced from the front of the scintillation crystal. The outer surface of the photomultiplier, except for the face plate, and the peripheral surface of the scintillation crystal are coated with a layer of highly reflective paint. The surface of the scintillation crystal facing the aluminum sheet is course ground and the inner surface of an annular spacer between the scintillation crystal and the surface of the aluminum sheet facing the scintillation crystal are coated with a highly reflective paint to provide an air filled light guide diffuser in front of the scintillation crystal. A layer of styrofoam is provided adjacent the aluminum sheet to protect against thermal and mechanical shock. The forward end of the housing is sealed with a protective layer to prevent radioactive contamination.

5 Claims, 2 Drawing Figures



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FOR JAT 00015

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Evans

[11] **4,107,602**

[45] **Aug. 15, 1978**

[54] **PROBE MEANS UTILIZED WITH A PAIR OF INDICATORS FOR TESTING THE WIRING CONNECTIONS OF A FUSE RECEPTACLE**

[76] Inventor: **David M. Evans, PSC BOX 5095 APO, San Francisco, Calif. 96519**

[21] Appl. No.: **727,817**

[22] Filed: **Sep. 29, 1976**

[51] Int. Cl.² **G01R 31/02**

[52] U.S. Cl. **324/51**

[58] Field of Search ..... 324/51, 52, 53, 66, 324/133, 149; 339/108 TP

[56] **References Cited**

U.S. PATENT DOCUMENTS

396,582	1/1889	Looms	324/51
524,844	8/1894	Smith	324/51
988,891	3/1911	Mitchell	324/51
1,636,707	7/1927	Robinson et al	324/51
2,186,212	1/1940	Scroggin	324/51
2,195,975	4/1940	Ribble et al	324/51 X
2,229,927	1/1941	Kamper	324/51
2,851,659	9/1958	Ladrick	324/51 X
3,742,345	6/1973	Lacey	324/52
3,771,098	11/1973	Dempsey	324/51 X
3,820,017	6/1974	Reichenbach	324/51
3,898,557	8/1975	Strock	324/51
3,973,193	8/1976	Hayes	324/53

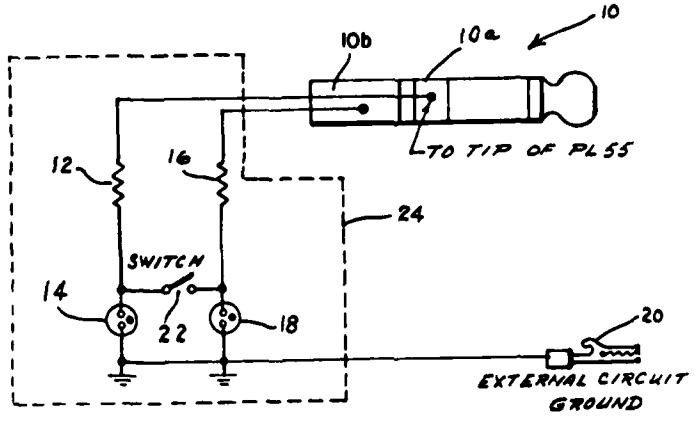
Primary Examiner—Gerard R. Strecker

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

[57] **ABSTRACT**

A fuse safety tester apparatus utilizing a pair of neon light bulbs to test the wiring connections of a fuse receptacle in the active power circuit of a unit under test.

5 Claims, 1 Drawing Figure



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Fo2

JAT 00016

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Zwirn

[11] 4,107,677
[45] Aug. 15, 1978

[54] GATE TRACKING TECHNIQUE UTILIZING DIMENSION MEMORY

[75] Inventor: Robert Zwirn, Encino, Calif.

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

[21] Appl. No.: 274,540

[22] Filed: Jul. 25, 1972

[51] Int. Cl.[2] G01S 9/02
[52] U.S. Cl. ..... 343/7 A; 343/5 DP
[58] Field of Search ..... 343/5 DP, 7 A

[56] References Cited
U.S. PATENT DOCUMENTS

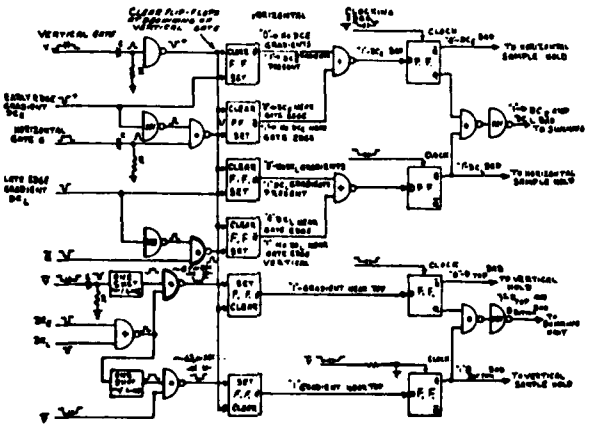
3,151,322	9/1964	Hildebrandt	343/7 A X
3,353,177	11/1967	Wilmot	343/5 DP
3,412,397	11/1968	Evans	343/5 DP

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

[57] ABSTRACT

A target tracking apparatus to accurately measure the position and dimensions of a target and to adjust the size and position of the tracking gate such that it circumscribes the target. The target dimensions are determined and stored in a dimension memory and are utilized to supplement the incomplete data which occurs when the target is only partially within the tracking gate.

4 Claims, 5 Drawing Figures



F0-2

JAT 00017

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Crane et al.

[11] **4,107,980**

[45] **Aug. 22, 1978**

[54] **ASSESSMENT OF FLAW GROWTH POTENTIAL IN STRUCTURAL COMPONENTS**

[75] Inventors: **Robert L. Crane, Kettering; Alten F. Grandt, Jr., Dayton; Joseph P. Gallagher, Bellbrook, 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.: **804,683**

[22] Filed: **Jun. 7, 1977**

[51] **Int. Cl.**[2] **G01B 5/30**

[52] **U.S. Cl.** ..... **73/88 R**

[58] **Field of Search** ..... **73/88 R, 91**

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,136,154	6/1964	Christensen	73/88 R
3,774,443	11/1973	Green et al.	73/88 R
3,979,949	9/1976	Smith	73/88 R

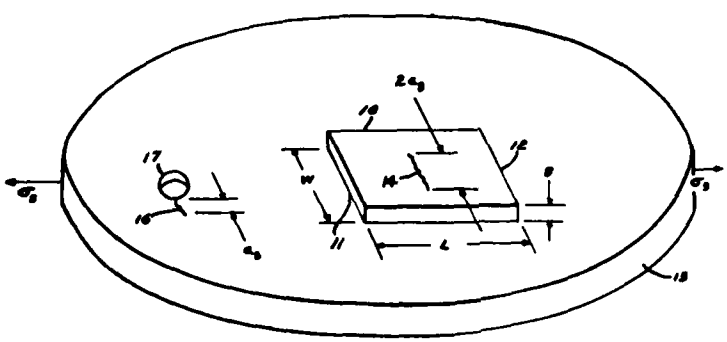
Primary Examiner—Anthony V. Ciarlante

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

[57] **ABSTRACT**

A method for predicting damage accumulation in a structural component in which a gage in the form of a metal strip having a flaw therein of predetermined length is attached to the component having a flaw therein of a length assumed to be greater than the length of any other flaw therein. Damage accumulation in the structural component is tracked by following the growth of the flaw in the gage and determining from that growth the growth in the flaw in the component. Thus, in accordance with this method, flaw growth in a gage is related to flaw growth in a structural component rather than to time so that damage actually accumulated in the component can be predicted regardless of the time factor.

12 Claims, 6 Drawing Figures



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F02

JAT 00018

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Davis

[11] 4,108,073

[45] Aug. 22, 1978

[54] ARMOR PIERCING PROJECTILE

[75] Inventor: Dale M. Davis, Freeport, Fla.

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

[21] Appl. No.: 553,854

[22] Filed: Feb. 27, 1975

[51] Int. Cl.[2] F42B 13/04

[52] U.S. Cl. 102/52; 102/92.3

[58] Field of Search 102/52, 92.3, 92.4, 102/95

[56] References Cited

U.S. PATENT DOCUMENTS

2,849,591	8/1958	Fullerton et al.	102/105
2,983,224	5/1961	P[illegible]n et al.	102/93
3,507,221	4/1970	[illegible]	102/52
3,754,507	8/1973	Dillinger et al.	102/52

FOREIGN PATENT DOCUMENTS

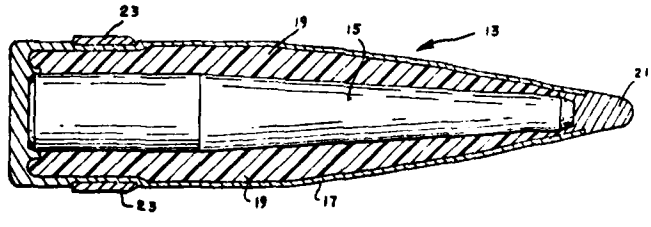
638,756	6/1950	United Kingdom	102/92.3
887,124	1/1962	United Kingdom	102/52

Primary Examiner—Verlin R. Pendegrass
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] ABSTRACT

An armor piercing projectile configuration which provides strength, rigidity and mass properties sufficient to permit long thin armor piercing cores to be fired from guns in a stable and accurate manner. The core is supported at both ends in such a way that a monocoque skin or shell provides rigidity and the space between the core and the shell is filled with rigid material or structure so as to support the core throughout substantially all of its length. The shell is of relatively high density adding to the lateral/transverse moment of inertia ratio to provide gyroscopic stability for the long thin core.

2 Claims, 2 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

[11] 4,108,835

[45] Aug. 22, 1978

Arnold et al.

PHENYLATED AROMATIC HETEROCYCLIC POLYMERS

Inventors: Fred E. Arnold, Centerville, Ohio; James F. Wolfe, Menlo Park, Calif.

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

Appl. No.: 811,345

Filed: Jun. 29, 1977

Int. Cl.[2] C08G 73/22; C08G 75/32

U.S. Cl. ..... 528/183; 528/172; 528/191; 528/176; 260/250 Q; 260/295 R; 260/332.2 R; 260/547.4; 260/515 M; 260/516; 260/520 D; 260/520 E

Field of Search ..... 260/47 CP, 679, 49, 260/78 TF, 78.41

[56] References Cited

U.S. PATENT DOCUMENTS

3,376,257	4/1968	Nakanishi et al.	260/47
3,563,950	2/1971	Steinmann et al.	260/47
3,852,239	12/1974	Bellmann et al.	260/46.5 R

Primary Examiner—Lester L. Lee

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

[57] ABSTRACT

Para-ordered aromatic heterocyclic polymers containing pendant phenyl groups along the polymer chain backbones. The polymers possess a high degree of thermal stability that renders them particularly useful in high temperature applications such as in the fabrication of plastics, composites and fibrous materials.

8 Claims, No Drawings

FOR JAT 00020

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Evers

[11] 4,108,884
[45] Aug. 22, 1978

[54] HYBRID PERFLUOROALKYLENE ETHER THIOIMIDATE ESTER MONOMERS

[75] Inventor: Robert C. Evers, Dayton, Ohio

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

[21] Appl. No.: 817,657

[22] Filed: Jul. 21, 1977

[51] Int. Cl.² C07C 119/18

[52] U.S. Cl. ..... 260/453 RW; 260/544 F; 260/465.6; 528/373

[58] Field of Search ..... 260/453 RW

[56] References Cited

U.S. PATENT DOCUMENTS

3,523,132 11/1977 Dorfman et al. ..... 260/453 RW

OTHER PUBLICATIONS

Migrdichian, V., The Chemistry of Organic Cyanogen Compounds, Reinhold Publishing Corporation, 1947, p. 94

Primary Examiner—Lewis Gotts
Assistant Examiner—Robert C. Whittenbaugh
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] ABSTRACT

Perfluoroalkylene ether thioimidate esters derived primarily from tetrafluoroethylene oxide but end-capped with hexafluoropropylene oxide in the terminal positions of the perfluoroalkylene ether chain. The compounds are particularly useful as monomers to synthesize novel thermooxidatively and hydrolytically stable perfluoroalkylene ether bibenzozazole polymers having improved low temperature viscoelastic properties.

5 Claims, No Drawings

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F02 JAT 00021

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] **4,108,926**

[45] **Aug. 22, 1978**

[54] **REACTIVE PLASTICIZER FOR THERMOPLASTIC POLYSULFONE RESINS**

[75] Inventors: **Fred E. Arnold**, Centerville; **Gerard A. Loughran**, Kettering, both of Ohio; **Anthony Wereta, Jr.**, Sunny Vale, Calif.

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

[21] Appl. No.: **736,287**

[22] Filed: **Oct. 28, 1976**

[51] Int. Cl.² **C08L 29/10**; C08L 49/00; C08L 51/08; C08L 81/06

[52] U.S. Cl. ..... 260/874; 260/30.8 R; 260/607 AR; 528/174; 526/285

[58] Field of Search ..... 260/874, 30.8 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,022,746 5/1977 Kovar et al. 260/874

Primary Examiner—Harold D. Anderson
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H Kuhn

[57] **ABSTRACT**

The new composition 4,4'-bis(3-ethynylphenoxy)diphenylsulfone is prepared by the nucleophilic displacement reaction of m-hydroxyphenyl acetylene with various disubstituted diphenylsulfones. The composition is useful as a composite resin and also as a reactive plasticizer for polysulfone thermoplastic resins. A reactive plasticizer is a material that remains fluid and acts as a plasticizer during early stages of fabrication and then polymerizes to a rigid resin.

3 Claims, No Drawings

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

O'Connell

[11] 4,109,172

[45] Aug. 22, 1978

[54] **HIGH PIEZOELECTRIC COUPLING-TEMPERATURE COMPENSATED BERLINITE SUBSTRATE MEMBER FOR SURFACE ACOUSTIC WAVE DEVICES**

[75] Inventor: **Robert M. O'Connell, Arlington, Mass.**

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

[21] Appl. No.: **826,107**

[22] Filed: **Aug. 19, 1977**

[51] Int. Cl.² **H01L 41/10**

[52] U.S. Cl. **310/313; 310/360**

[58] Field of Search ..... 310/313, 360, 333/72, 333/30 R, 364/821

[56] **References Cited**

U.S PATENT DOCUMENTS

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3,956,718	5/1976	Weinert et al.	310/313 X
3,983,515	9/1976	Mitchell et al.	310/313 X
4,001,767	1/1977	Slobodnik, Jr.	310/313

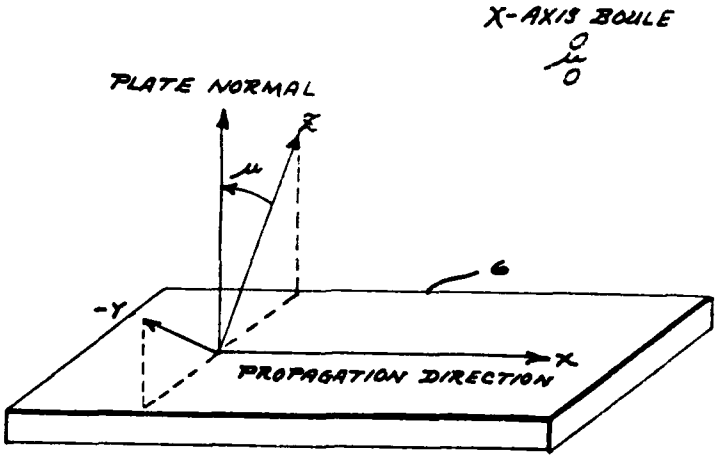
Primary Examiner—Budd Mark O.

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

[57] **ABSTRACT**

A singly rotated propagation surface defining cut of single crystal berlinite ($AlPO_4$) is utilized to provide a temperature compensated surface acoustic wave (SAW) substrate having a high piezoelectric coupling factor. The preferred embodiment of the invention comprises a berlinite substrate member having a propagation surface that substantially coincides with a plane defined by Euler angles Lambda = 0.0°, mu = 80.4°, and Theta = 0.0°.

1 Claim, 7 Drawing Figures



JAT 00023

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

O'Connell

[11] **4,109,173**

[45] **Aug. 22, 1978**

[54] **HIGH PIEZOELECTRIC COUPLING, LOW DIFFRACTION LOSS, TEMPERATURE COMPENSATED BERLINITE SUBSTRATE MEMBERS FOR SURFACE ACOUSTIC WAVE DEVICES**

[75] Inventor: **Robert M. O'Connell**, Arlington, Mass.

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

[21] Appl. No.: **826,108**

[22] Filed: **Aug. 19, 1977**

[51] **Int. Cl.**[2] **H01L 41/10**

[52] **U.S. Cl.** **310/313; 310/360**

[58] **Field of Search** ..... 310/313, 360; 333/72, 333/30 R; 364/821

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,866,153	2/1975	Slobodnik, Jr	310/313 X
3,956,718	5/1976	Weinert et al.	310/313 X
3,983,515	9/1976	Mitchell et al	310/313 X
4,001,767	1/1977	Slobodnik, Jr	310/313

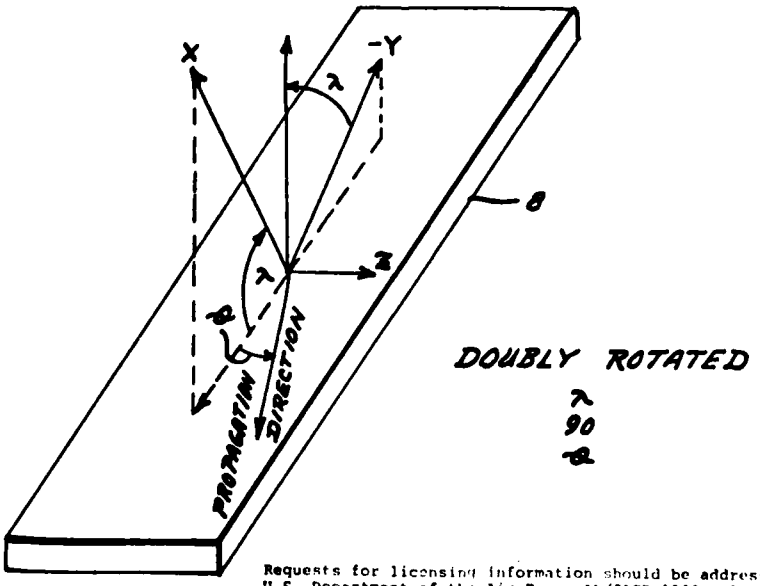
Primary Examiner—Mark O. Budd

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

[57] **ABSTRACT**

Doubly rotated propagation surface defining cuts of single crystal berlinite ($AlPO_4$) are utilized to provide temperature compensated surface acoustic wave (SAW) substrates having high piezoelectric coupling factors and low diffraction losses. A preferred embodiment of the invention comprises a berlinite substrate member having a propagation surface that substantially coincides with a plane defined by Euler angles Lambda = 76.8°, mu = 90.0°, and Theta = 11.5°. An alternative embodiment utilizes a propagation surface that substantially coincides with a plane defined by Euler angles Lambda = 79.7°, mu = 90.0°, and Theta = 5.5°.

2 Claims, 10 Drawing Figures



DOUBLY ROTATED
λ
90
φ

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JAT 00024

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Martin

[11] 4,110,713

[45] Aug. 29, 1978

[54] **LOW OFFSET FIELD EFFECT TRANSISTOR CORRELATOR CIRCUIT**

[75] Inventor: Gayle Patrick Martin, Indialantic, Fla.

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

[21] Appl. No.: 743,386

[22] Filed: Nov. 19, 1976

[51] Int. Cl.[2] H03H 7/02; H03H 7/48; G06F 15/34; H03H 7/46

[52] U.S. Cl. ..... 333/70 R; 307/304; 328/167; 364/819

[58] Field of Search ..... 235/181; 307/229, 220, 307/304, 264; 328/160, 167, 156, 21; 332/31 T, 16 T; 333/70 R; 357/22; 364/819, 820, 728

[56] References Cited

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3,281,718	10/1966	Weberg	332/31 T
3,391,354	7/1968	Ohashi et al.	332/31 T
3,772,614	11/1973	Kjaersgaard	332/16 T

OTHER PUBLICATIONS

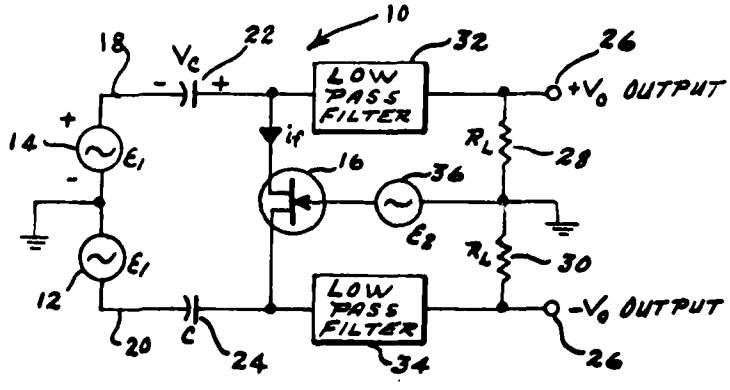
Naylor et al.-"Reducing Phase-Shift in Carrier-Type Analogue Multipliers" in Electronic Engineering Apr. 1971, pp. 38–40.

Primary Examiner—Alfred E. Smith
Assistant Examiner—Marvin Nussbaum
Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] ABSTRACT

A low offset field effect transistor correlator circuit where one signal is applied to a balanced input through capacitors to the drain and source electrodes of a field effect transistor and having a second signal applied to the gate of the transistor. Low pass filters are connected to the source and drain, and the correlated input signals appear across resistors connecting the outputs of the filters.

1 Claim, 2 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Eden et al.

[11] 4,110,778

[45] Aug. 29, 1978

[54] **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.: **808,496**

[22] Filed: **Jun. 21, 1977**

[51] Int. Cl.² H01L 27/14

[52] U.S. Cl. 357/30; 357/13; 357/16

[58] Field of Search 357/30, 13, 16

[56] **Refcrences Cited**

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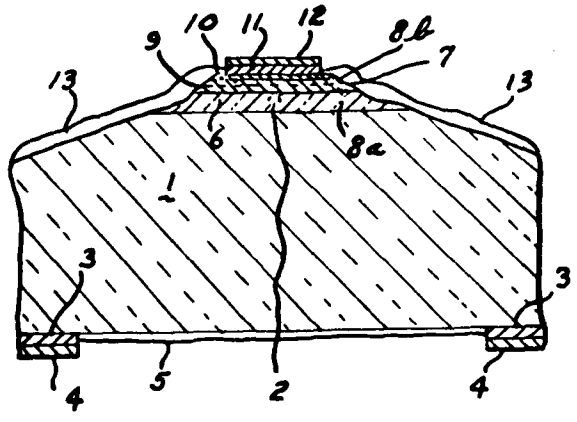
3,886,579	5/1975	Ohuchu	357/13
3,959,646	5/1976	de Cremoux	250/211 J
4,021,836	5/1977	Andrews	357/30
4,053,919	10/1977	Andrews	357/30

Primary Examiner—Martin H. Edlow
Attorney, Agent, or Firm—Joseph E. Rusz; James S. Shannon

[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.

3 Claims, 18 Drawing Figures



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Williams et al.

[11] 4,110,833

[45] Aug. 29, 1978

[54] BALANCED AC CORRELATOR SYSTEM

[75] Inventors: Mark R. Williams, West Melbourne; Gayle Patrick Martin, Indialantic, 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.: 743,361

[22] Filed: Nov. 19, 1976

[51] Int. Cl.[2] G06G 7/19; H04B 1/12

[52] U.S. Cl. 364/819; 325/476; 328/160; 364/574

[58] Field of Search 235/181, 194; 328/160, 328/167; 325/474-477; 364/819, 574

[56] References Cited

U.S. PATENT DOCUMENTS

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3,737,686	6/1973	Swanekamp et al.	235/194
3,867,620	2/1975	Coor	235/181
3,982,114	9/1976	Hook	235/181

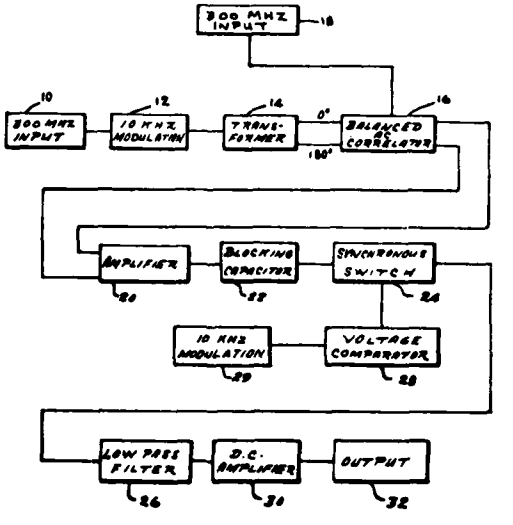
Primary Examiner—Felix D. Gruber

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

[57] ABSTRACT

A system having a pair of input signals, one of which is modulated and transformed into a pair of signals phased 180° apart. These signals are acted on by a FET correlator where the second input signal controls the FET gate. Correlator output is amplified and a blocking capacitor removes DC offset, a synchronous switch operated at the modulated frequency converts the remaining AC to DC which is amplified to the output.

4 Claims, 2 Drawing Figures



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PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

McFadden

[11] 4,111,463

[45] Sep. 5, 1978

[54] **SEPARABLE COUPLING FOR PLURAL PRESSURE LINES**

[75] Inventor: **Beryl L. McFadden, Dayton, Ohio**

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

[21] Appl. No.: **804,488**

[22] Filed: **Jun. 7, 1977**

[51] **Int. Cl.²** **F16L 35/00**

[52] **U.S. Cl.** ..... **285/25; 285/93, 285/137 R; 285/321; 285/349**

[58] **Field of Search** ..... 285/24, 25, 26, 27, 285/28, 29, 137 R, 349, 321, 93; 137/594, 625.18

[56] **References Cited**

U.S. PATENT DOCUMENTS

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3,820,828	6/1974	Fiddler	285/137 R
3,933,379	1/1976	Pontigny	285/137 R
4,007,951	2/1977	Legris	285/137 R

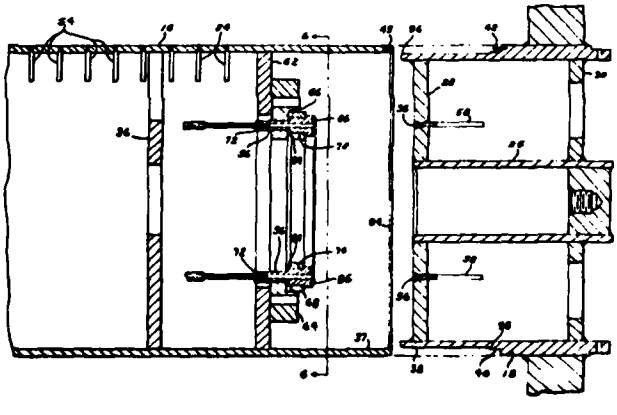
Primary Examiner—Dave W. Arola

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

[57] **ABSTRACT**

A separable coupling, for a plurality of pressure lines, having a flat interface plate with a plurality of apertures located in an annular configuration and with tubular members being secured to the plate in alignment with each aperture. A plurality of tubular studs are supported in a guide ring in the same configuration as the apertures in the interface plate. The guide ring is slidably supported on a mounting plate with the studs passing through holes in the mounting plate. O-rings are positioned in the ends of the studs which are spring loaded to provide a seal around each of the apertures between each of the studs and the interface plate.

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]

Mazdiyasni et al.

[11] 4,113,830

[45] Sep. 12, 1978

[54] METHOD OF FABRICATING SILICON NITRIDE BODIES

[75] Inventors: Khodabakhsh S. Mazdiyasni, Xenia; Charles M. Cooke, 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.: 452,038

[22] Filed: Mar. 18, 1974

[51] Int. Cl.[2] C04B 35/58

[52] U.S. Cl. 264/101; 106/73.2; 106/73.5; 264/85; 264/332

[58] Field of Search 264/65, 66, 85, 332, 264/101; 106/39.7, 65, 73.2, 73.5

[56] References Cited

U.S. PATENT DOCUMENTS

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Aboaf, "Some Properties of Vapor Deposited Silicon Nitride Films Obtained by the Reaction of $SiBr_4$ and NH_3", J. Electrochem. Soc., pp. 1736-1740, Dec. 1969.

Hackh's Chemical Dictionary, p. 771.

Primary Examiner—Robert F. White
Assistant Examiner—John A. Parrish
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] ABSTRACT

In a method for fabricating highly dense, polycrystalline silicon nitride bodies, a mixture of silicon nitride powder and an oxide, hydride or nitride of an element of the lanthanide series in powder form is hot pressed at a temperature ranging from 1600° to 1750° C for a period of 30 to 60 minutes. The method is particularly useful for fabricating structural components, such as stators, blades, airfoils and buckets in high performance gas turbine engines.

10 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]

Horton et al.

[11] 4,114,352

[45] Sep. 19, 1978

[54] **PROTECTIVE JACKET FOR CHRONICALLY INSTRUMENTED DOGS**

[75] Inventors: Michael L. Horton, Greene County, Ohio; Alan M. Harris, Aurora, Colo

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

[21] Appl. No.: 706,316

[22] Filed: Jul. 19, 1976

[51] Int. Cl.² B68C 5/00; A01K 27/00; A01K 29/00

[52] U.S. Cl. ..... 54/79; 2/DIG. 7; 119/143; 1' 6; 128/418; 128/465; D30/37

[58] Field of Search ..... 54/79, 80; 119/143, 119/96, 106; 128/DIG. 4, 2.06 E, 2.1 E, 410, 411, 418, 379, 82.1, 171, 1 A, 2 R, 96, 89 R, 465; 2/1, 45, 247, DIG. 7, 92; D30/37, 38, 39

[56] References Cited

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Outdoor Life; Oct. 1964.

"A Device for Continuous Intravenous Fluid Injections in Dogs", George W. Branham, Laboratory Animal Science, vol. 26, No. 1, pp. 75-77.

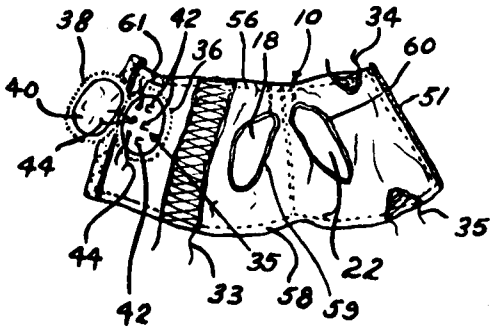
Primary Examiner—Clyde I. Coughenour

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

[57] ABSTRACT

A protective jacket having a body member adapted to cover a dog from the thoracic inlet to the last rib. Lacing is provided to adjust the jacket to accommodate different size dogs. Adjustable gussets are provided to accommodate various dog contours. A full length zipper permits easy removal of the jacket. A zippered oval back pouch on the jacket provides for protection of test leads and test instrumentation.

2 Claims, 4 Drawing Figures



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F02

JAT 00030

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Browning

[11] **4,114,420**

[45] **Sep. 19, 1978**

[54] **ENVIRONMENTAL TEST CHAMBER SYSTEM**

[75] Inventor: **Charles E. Browning**, Dayton, Ohio

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

[21] Appl. No.: **832,708**

[22] Filed: **Sep. 12, 1977**

[51] **Int. Cl.**[2] **G01N 3/18**

[52] **U.S. Cl.** **73/15.6**; 73/95

[58] **Field of Search** 73/15.6, 95

[56] **References Cited**

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"Vacuum and Controlled Atmosphere Chamber," in R. I Research, Inc Bulletin

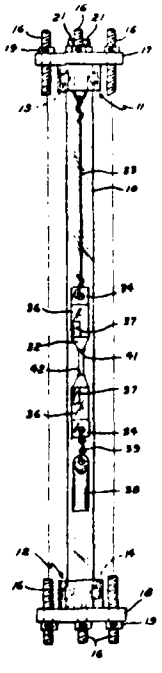
Primary Examiner—Herbert Goldstein

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

[57] **ABSTRACT**

A test apparatus comprising an elongated, heat-resistant glass tube, the ends of which are firmly seated in top and bottom end-caps. A plurality of threaded rods extending through the top and bottom end-caps parallel to the glass tube and having nuts threaded on their ends provides means for holding the end-caps in place. The top end-cap has two threaded ports to which fluid inlet and outlet lines are attached while its interior surfaces has an attachment means for supporting a test specimen within the glass tube. The test apparatus is particularly suitable for performing tests on polymeric film or composites under different environmental conditions.

2 Claims, 7 Drawing Figures



JAT 00631

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Prince et al.

[11] 4,114,510

[45] Sep. 19, 1978

[54] MUZZLE CLAMP ASSEMBLY

[75] Inventors Ronald E. Prince, Winooski; Rene W. Bonnette, Burlington, both of Vt

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

[21] Appl No 791,753

[22] Filed Apr. 28, 1977

[51] Int. Cl.² F41D 7/04

[52] U.S. Cl. ..... 89/12; 89/1 L

[58] Field of Search ..... 89/12, 13 R, 13 A, 1 L, 89/126, 41 A

[56] References Cited

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3,897,714	8/1975	Perrin et al	89/12
4,015,508	4/1977	Blodgett et al	89/12

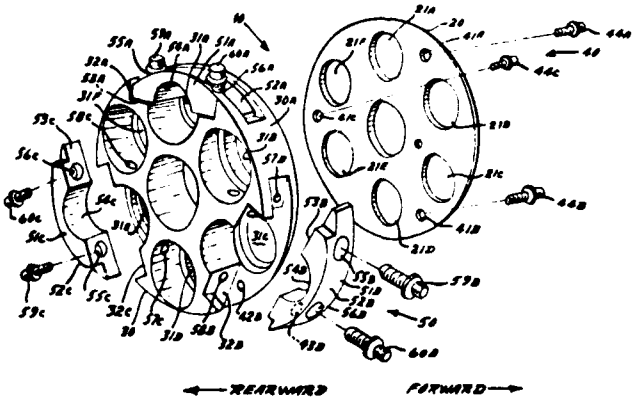
Primary Examiner—David H Brown

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

[57] ABSTRACT

A muzzle clamp assembly, adapted for use with a multi-barrel gun of the Gatling type, for predictably controlling the dispersion, i.e., the impact point of projectiles fired from the multi-barrel gun. The assembly is removably attached to the forward end, i.e., the muzzle end, of the barrel cluster, and, it includes a perforated cylindrical clamp member, a plurality of movable and removable clamps, and a removable perforated front plate with the perforations at positions preselected to effectuate the desired controlled dispersion. These components are assembled and integrated in an untightened condition, are slipped over the muzzle end of the cluster of barrels; and, the movable clamps are tightened to the barrels, while the front plate is tightened to the clamp member. This front plate thereby positions the muzzles of the barrels to effectuate the preselected desired controlled dispersion of the fired projectiles, such as a dispersion pattern of 360° about a theoretical focal point.

7 Claims, 5 Drawing Figures



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PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Brown

[11] **4,114,840**

[45] **Sep. 19, 1978**

[54] **PARACHUTE CANOPY DEPLOYMENT CONTROL APPARATUS**

[75] Inventor: **Herbert R. Brown**, Monroe County, N.Y.

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

[21] Appl. No.: **844,163**

[22] Filed: **Oct. 21, 1977**

[51] **Int. Cl.**[2] **B64D 17/36**

[52] **U.S. Cl.** **244/152**

[58] **Field of Search** 244/152, 149, 145, 142, 244/150

[56] **References Cited**

U.S. PATENT DOCUMENTS

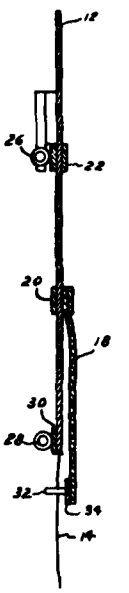
3,049,322	8/1962	Vlasic	244/152
3,278,143	10/1966	Engel	244/150

Primary Examiner—Barry L. Kelmachter
Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] **ABSTRACT**

A system for controlling the deployment of a parachute canopy having a pair of reinforcement ribbons secured to the canopy. The lower edge of the canopy is turned inward and has reefing rings which engage a reefing line that passes through reefing rings secured to the upper reinforcement ribbon. An anti-inversion netting is secured to the outer surface of the canopy adjacent the lower reinforcement ribbon; the anti-inversion netting has control lines connected to the lower edge adjacent alternate radial seams. The control lines have reefing rings which engage the reefing line. Suspension line guide rings secure the netting to the suspension lines at radial seams between those having the anti-inversion netting control lines.

3 Claims, 8 Drawing Figures



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JAT 00033

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Bostick et al.

[11] 4,114,978

[45] Sep. 19, 1978

[54] BURIED GRATING SHARED APERTURE DEVICE

[75] Inventors: Hoyt A. Bostick, Irvine; Paul M. Sutton, Newport Beach; Chester L. Richards, Irvine, 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.: 812,304

[22] Filed: Jul. 1, 1977

[51] Int. Cl.² G02B 5/18

[52] U.S. Cl. ..... 350/1.7; 350/162 R; 350/169

[58] Field of Search ..... 350/1.7, 162 R, 1.1, 350/166, 169, 172; 250/237 G

[56] References Cited

U.S. PATENT DOCUMENTS

3,334,956	8/1967	Staunton	350/162 R
3,542,453	11/1970	Kantor	350/162 R
3,688,109	8/1972	Gamble	350/162 R
3,698,795	10/1972	Flint	350/162 R

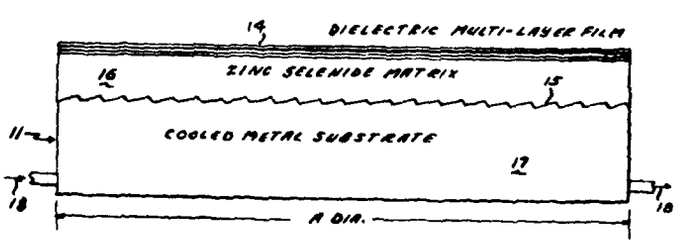
Primary Examiner—Ronald J. Stern

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

[57] ABSTRACT

An incoming longwave infrared beam sharing the same aperture with an outgoing high power laser beam is separated from the laser beam path by a combination of a dichroic mirror and a diffraction grating

3 Claims, 3 Drawing Figures



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JAT 00034

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patcnt [19]
Friedman

[11] **4,114,985**
[45] **Sep. 19, 1978**

[54] **SHIELD FOR HIGH POWER INFRARED LASER BEAM**

[76] Inventor: **Jerome D. Friedman**, 15 Lake St., Lexington, Mass. 02173

[21] Appl. No.: **457,674**

[22] Filed: **Mar. 28, 1974**

[51] **Int. Cl.**[2] **G05D 25/00**; G21F 5/04
[52] **U.S. Cl.** ..... **350/266**; 219/121 L; 250/514; 250/515
[58] **Field of Search** ..... 350/266, 160 R, 1; 250/510, 514, 515; 356/71; 331/94.5 T, 94.5 A; 219/121 LM, 121 L

[56] **References Cited**

U.S. PATENT DOCUMENTS

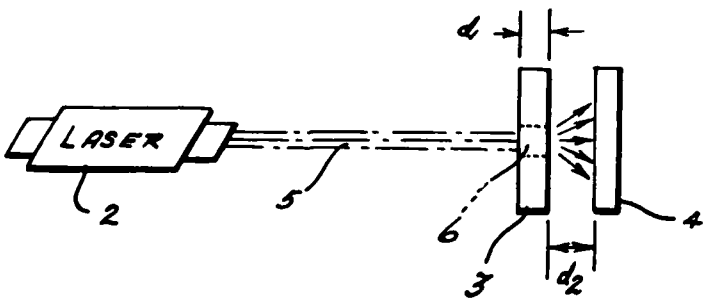
3,615,317 10/1971 Jagodzinski et al. ..... 350/160 R
3,620,597 11/1971 Schwartz et al ..... 350/160 R

Primary Examiner—S. C. Buczinski
Attorney, Agent, or Firm—Joseph E. Rusz, Willard R. Matthews, Jr.

[57] **ABSTRACT**

Shielding from and the termination of high power infrared laser beams is accomplished by interception of the beam by one of two spaced, juxtaposed, ceramic sheet members. The beam intercepting member has a thickness to beam power density relationship that allows opaque to translucent conversion of the portion thereof illuminated by the beam. The translucent portion subsequently diffuses the beam. The diffused beam is then absorbed by the second ceramic sheet member.

3 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]

Evers

[11] 4,115,367

[45] Sep. 19, 1978

[54] PERFLUOROALKYLENE ETHER BIBENZOXAZOLE POLYMERS

[75] Inventor: Robert C. Evers, Dayton, Ohio

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

[21] Appl. No.: 817,658

[22] Filed: Jul. 21, 1977

[51] Int. Cl.² C08G 73/22

[52] U.S. Cl. 528/210; 528/211

[58] Field of Search ..... 260/47 R, 61

[56] References Cited

U.S. PATENT DOCUMENTS

3,846,376 11/1974 Evers 260/61

3,994,861 11/1976 Evers 260/61

Primary Examiner—Lester L. Lee

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

[57] ABSTRACT

Thermooxidatively and hydrolytically stable perfluoroalkylene ether bibenzoxazole polymers having improved viscoelastic properties are synthesized by the polycondensation of perfluoroalkylene ether bis(o-aminophenol) compounds with thioimidate esters derived primarily from tetrafluoroethylene oxide but end-capped with hexafluoropropylene oxide. Based on their lower glass transition temperature, the polymers have a very broad use temperature range which renders them particularly useful under severe environmental conditions encountered in aerospace elastomer applications such as seals and sealants.

7 Claims, No Drawings

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JAT 00036

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Nardi et al.

[11] 4,115,390
[45] Sep. 19, 1978

[54] METHOD FOR THE PREPARATION OF 1-ALKYL PYRIDINIUM CHLORIDES

[76] Inventors: John C. Nardi, 3398 Tyler Dr., Brunswick, Ohio 44212; Charles L. Hussey, Quarters 6402H, USAF Academy, Colo. 80840; Lowell A. King, 460 Winters Cir. N., Colorado Springs, Colo. 80919; Ronald A. Carpio, 21 N. Garland Ave., Colorado Springs, Colo. 80909

[21] Appl. No.: 826,222

[22] Filed: Aug. 19, 1977

[51] Int. Cl.² C07D 213/04
[52] U.S. Cl. ..... 260/290 HL; 260/290 R
[58] Field of Search ..... 260/290 HL, 290 R

Primary Examiner—Alan L. Rotman
Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] ABSTRACT

A method for preparing alkyl pyridinium chlorides by effecting a direct reaction between the corresponding alkyl chloride and pyridine.

5 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]
Grant, Jr.

[11] **4,115,459**
[45] **Sep. 19, 1978**

[54] **PREPARATION OF *FLUOROTRINITROMETHANE***

[75] Inventor: **Louis R. Grant, 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.: **513,630**

[22] Filed: **Oct. 9, 1974**

[51] Int. Cl.[2] C07C 79/12
[52] U.S. Cl. 260/644
[58] Field of Search 260/644

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,127,736	4/1964	Best et al.	60/214
3,441,619	4/1969	Gardner et al.	260/644

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

[57] **ABSTRACT**

Fluorotrinitromethane is synthesized by reacting tetranitromethane with an adduct of an alkali metal fluoride and a fluorinated or chlorofluorinated acetone in an aprotic dipolar solvent.

7 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

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JAT00038

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Heitz et al.

[11] 4,115,616

[45] Sep. 19, 1978

[54] **SELF-SEALING FUEL LINE ASSEMBLY**

[75] Inventors: Roger M. Heitz, Palos Verdes Estates; Franklin Hill, Van Nuys, 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.: 876,445

[22] Filed: Feb. 9, 1978

[51] Int. Cl.² B32B 3/26

[52] U.S. Cl. 428/310; 428/413; 428/419; 428/474; 428/911; 428/912

[58] Field of Search 428/310, 413, 419, 474, 428/911, 912

[56] References Cited

U.S. PATENT DOCUMENTS

1,386,791	8/1921	Murdock	220/63 R
3,509,016	4/1970	Underwood et al.	428/425
3,536,576	10/1970	Schwartz	428/912
3,654,057	4/1972	Olevitch	428/458
3,698,587	10/1971	Baker et al.	428/912
3,722,355	3/1973	King	428/911
3,787,279	1/1974	Winchester	428/912
4,057,359	11/1977	Grooman	428/911

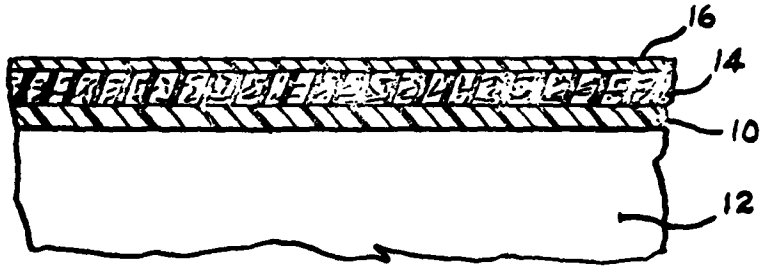
Primary Examiner—William J. Van Balen

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

[57] ABSTRACT

A self-sealing multi-laminated fuel line composite material composed of (a) a plastic fuel line, (b) a precompressed and fuel sensitive foam bonded to said plastic line, and (c) a flexible, plastic laminate bonded on top of said foam.

3 Claims, 1 Drawing Figure



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JAT 00039

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Won

[11] 4,115,689

[45] Sep. 19, 1978

[54] **LEVELING DEVICE FOR FORMING X-RAY SPECIMEN**

[76] Inventor: Vane Y. Won, 6697 Gloria Dr., Sacramento, Calif. 95831

[21] Appl. No.: 813,392

[22] Filed: Jul. 6, 1977

[51] Int. Cl.[2] H01J 37/20

[52] U.S. Cl. ..... 250/272; 250/277 CH

[58] Field of Search ..... 250/272, 273, 274, 277 CH; 356/246

[56] References Cited

U.S. PATENT DOCUMENTS

3,378,684	4/1968	Mentink	250/277 CH
4,037,109	7/1977	Hosokawa	250/272

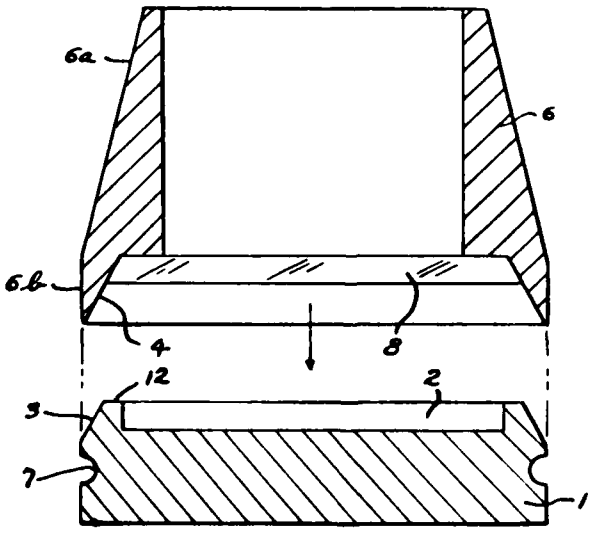
Primary Examiner—Craig E. Church

Attorney, Agent, or Firm—Joseph E. Rusz, James S. Shannon

[57] ABSTRACT

A leveling apparatus used in conjunction with a specimen holder and plastic film window material to accurately and consistently form a flat, bubble free analysis window on the open face of the specimen holder. The specimen holder in the form of a shallow cylindrical cup is slightly overfilled and covered by the plastic film. Placement of the mating leveling apparatus over the film squeezes out trapped air bubbles, levels the exposed face of the specimen, draws the plastic film tight over the exposed face of the specimen, and allows easy installation of a film retaining O-ring to maintain the specimen material in a level state within the holder.

2 Claims, 4 Drawing Figures



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PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Tracy

[11] 4,115,736

[45] Sep. 19, 1978

[54] **PROBE STATION**

[75] Inventor: John M. Tracy, Thousand Oaks, Calif.

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

[21] Appl. No.: 776,037

[22] Filed: Mar. 9, 1977

[51] Int. Cl.[2] G01R 31/02; G01R 31/22

[52] U.S. Cl. ..... 324/158 F; 324/73 R

[58] Field of Search ..... 324/158 F, 158 P, 73 R

[56] References Cited

U.S. PATENT DOCUMENTS

3,710,251	1/1973	Hagge et al	324/158 F
3,761,808	9/1973	Ryan	324/158 F
3,949,295	4/1976	Moorshead	324/158 F

OTHER PUBLICATIONS

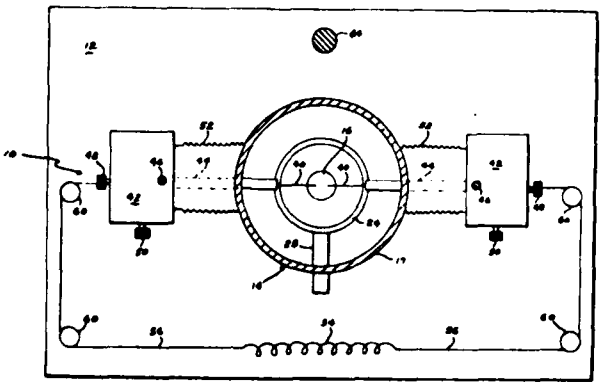
Bruder et al., "Test Chamber with Seal and Boot," IBM Tech. Dis. Bull., vol 17, No. 1, Jun. 1974, pp. 92, 93.

Primary Examiner—Rudolph V. Rolinec
Assistant Examiner—Ernest F. Karlsen
Attorney, Agent, or Firm—Joseph E. Rusz, Jacob N Erlich

[57] ABSTRACT

A probe station having a cryogenic container preferably situated in a vacuum chamber. Semiconductor devices to be tested are attached to the container of cryogenic liquid. Electrical contact to the devices is made using contact wires which are moved by manipulators lying outside the vacuum chamber. Integrity of the vacuum at the manipulators is assured by using bellows to allow for the movement of the contact wires. Visual placement of the contact wires on the devices to be tested is accomplished with the aid of a microscope external to the vacuum. One end of the vacuum chamber is made of clear plastic to be used as the microscope viewing window. A spring is used external to the vacuum space to counteract the effects of atmospheric pressure on the movable bellows. The semiconductor devices are then tested by the connection of the appropriate test equipment to the electrical contact wires. As a result thereof, semiconductor devices can be reliably and effectively tested under the same pressure and temperature at which they are operable.

8 Claims, 3 Drawing Figures



JAT 00041

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Cole et al.

[11] **4,115,749**

[45] **Sep. 19, 1978**

[54] **MICROWAVE HYBRID PHASE MATCHING SPACER**

[75] Inventors: **Sidney Michael Cole**, Waverly; **Paul Lee Clouser**, Vestal, 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.: **790,778**

[22] Filed: **Apr. 25, 1977**

[51] Int. Cl.² **H01P 1/18**

[52] U.S. Cl. ..... **333/31 R**; 333/84 M; 333/97 R

[58] Field of Search ..... 333/21 R, 31 R, 33-35, 333/84 M, 97 R, 33

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,553,607	1/1971	Lehrfeld	333/34
3,686,624	8/1972	Napoli et al.	333/33 UX
3,757,272	9/1973	Laramee et al.	333/84 M X
3,825,861	7/1974	O'Donnell	333/33
3,852,690	12/1974	Telfer	333/84 M

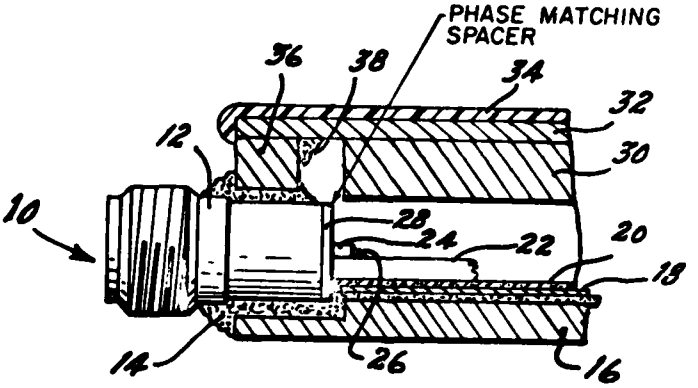
Primary Examiner—Paul L. Gensler

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

[57] **ABSTRACT**

In a hybrid connector for microwave devices between coaxial and microstrip application, the utilization of a calibrated, shaped, dielectric spacer in the connection for phase matching.

1 Claim, 2 Drawing Figures



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JAT 00042

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Harrington

[11] 4,115,775

[45] Sep. 19, 1978

[54] **DEEP PENETRATING FOREBODY WITH TETHERED RADAR REFLECTOR**

[75] Inventor: John J. Harrington, Tewksbury, Mass.

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

[21] Appl. No.: 727,103

[22] Filed: Sep. 29, 1976

[51] Int. Cl.² H01Q 15/00

[52] U.S. Cl. ..... 343/18 B

[58] Field of Search ..... 343/18 B

[56] References Cited

U.S. PATENT DOCUMENTS

2,763,002	9/1956	Fitzgerald et al.	343/18 B X
3,220,004	11/1965	Gillespie, Jr.	343/18 B
3,530,469	9/1970	Dailey et al.	343/18 B
3,900,849	8/1975	Scott et al.	343/18 B X

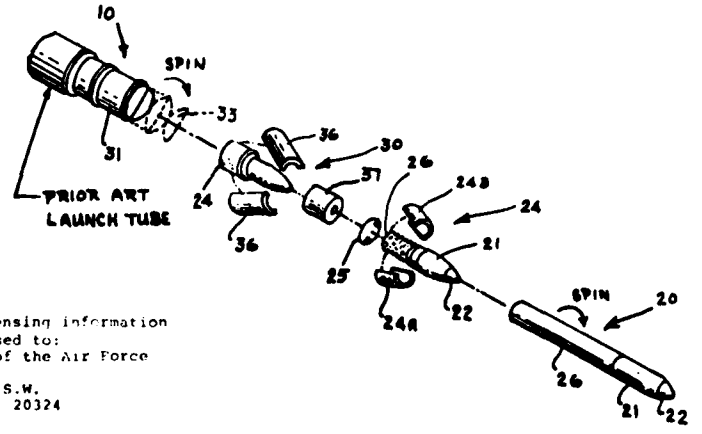
Primary Examiner—T.H. Tubbesing

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

[57] ABSTRACT

An aid in penetrating hostile radar defenses by forming target images that are false in size and configuration. The inventive device includes: a cone-shaped deep penetrating forebody with an orgival nosetip, a bellows-fold, expansible, cylinder-like shaped, tethered radar signal reflector bag connected to the aft end of the forebody and carrying a plurality of circumferential crown reflectors along its length, and a cannister lined with a plurality of sabots to house, hold and support the payload (i.e., the forebody and the connected radar reflector bag) until the payload is launched and is separated from the cannister and the sabots.

10 Claims, 5 Drawing Figures



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JAT 00093

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Schwerdtfeger et al.

[11] 4,115,784

[45] Sep. 19, 1978

[54] DEPLOYABLE GROUND PLANE ANTENNA

[75] Inventors: Lee Schwerdtfeger, Silver Spring; Lee E. Stillman, Wheaton; William E. Prain, Ellicott City, all of Md.

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

[21] Appl. No.: 765,719

[22] Filed: Feb. 4, 1977

[51] Int. Cl.² H01Q 15/20

[52] U.S. Cl. 343/915; 343/DIG. 2; 350/289

[58] Field of Search 350/288, 289; 343/DIG. 2, 915, 912, 881, 882, 705, 840

[56] References Cited

U.S. PATENT DOCUMENTS

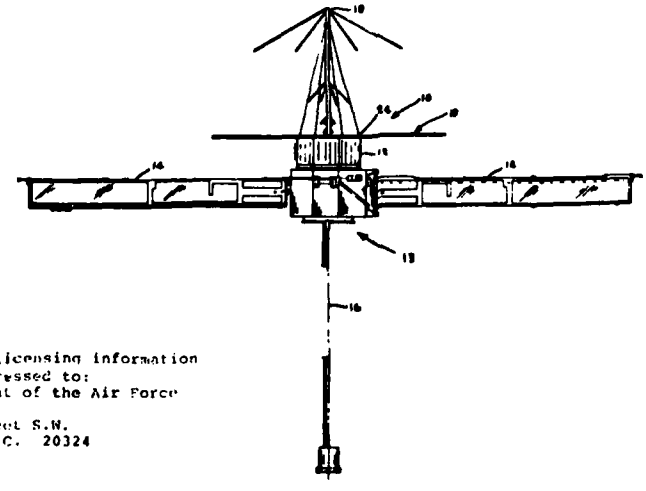
3,618,111	11/1971	Vaughan	343/915
3,635,547	1/1972	Rushing et al.	343/915
3,707,720	12/1972	Stachiw et al.	343/915
3,715,760	2/1973	Palmer	343/915
4,030,102	6/1977	Kaplan et al.	343/DIG. 2

Primary Examiner—Alfred E. Smith
Assistant Examiner—David K. Moore
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] ABSTRACT

A deployable ground plane antenna for use aboard a satellite or the like, with the antenna and erection mechanism being compactly stowable within the confines of a launch vehicle prior to and during launch thereof. After ejection of the satellite from the launch vehicle, the ground plane antenna self-deploys on removal of a single cable restraint. The mesh-like ground plane or reflector is pulled into a deployed planar configuration by flexible rods which carry the ground plane and which are spring-loaded to provide erection force.

7 Claims, 4 Drawing Figures



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JAT 00049

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Rahilly

[11] 4,116,717

[45] Sep. 26, 1978

[54] ION IMPLANTED EUTECTIC GALLIUM ARSENIDE SOLAR CELL

[75] Inventor: William P. Rahilly, Dayton, Ohio

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

[21] Appl. No.: 748,584

[22] Filed: Dec. 8, 1976

[51] Int. Cl.[2] H01L 31/06

[52] U.S. Cl. ..... 136/89 SJ; 29/572; 148/1.5; 357/30; 357/90; 357/91

[58] Field of Search ..... 136/89 CC, 89 SG, 89 SJ; 29/572; 357/30, 90, 91; 148/1.5

[56] References Cited

U.S. PATENT DOCUMENTS

3,675,026	7/1972	Woodall	250/211 J
3,969,746	7/1976	Kendall et al.	357/30

OTHER PUBLICATIONS

R. K. Smeltzer et al. "Vertical Multijunction Solar Cell Fabrication," *Conf. Record.* 10th *IEEE Photospecialists' Conf.*, Palo Alto, Calif., Nov. 1973, pp. 194–196.

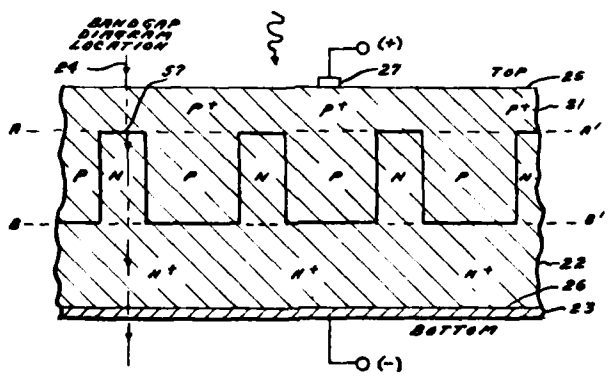
K. V. Vaidyanathan et al., "The Effect of Be+ Ion Implantation and Uniform Impurity Profiles on the Electrical Characteristics of GaAs Solar Cells," *Conf Record.* 10th *IEEE Photospecialists' Conf.*, Palo Alto, Calif., Nov. 1973, pp. 31-33.

Primary Examiner—John H. Mack
Assistant Examiner—Aaron Weisstuch
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] ABSTRACT

An improved gallium arsenide solar cell is provided by ion implanting both the top and bottom of a plural vertical PN junction eutectic gallium arsenide cell body to obtain an electrical drift field, with multiple ion implants progressively larger in dose and progressively lower in implant energies to provide a P-type ion implanted top layer having a common connection to all P regions of the cell body and an N-type ion implanted bottom layer having a common connection to all N regions of the cell body. The implanted regions of the cell are pulsed electron beam annealed at room temperature.

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.

JAT 00045

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Nardi et al.

[11] **4,117,207**

[45] **Sep. 26, 1978**

[54] **MOLYBDENUM CHLORIDE-TETRACHLOROALUMINATE THERMAL BATTERY**

[76] Inventors: **John C. Nardi**, 3398 Tyler Dr., Brunswick, Ohio 44212; **Charles L. Hussey**, Quarters 6402H; **John K. Erbacher**, Quarters 4501-H, both of USAF Academy, Colo. 80840; **Lowell A. King**, 460 Wintery Circle N., Colorado Springs, Colo. 80919; **Armand A. Fanuia, Jr.**, 4311-G, USAF Academy, Colo. 80840

[21] Appl. No.: **862,161**

[22] Filed: **Oct. 14, 1977**

[51] **Int. Cl.**[2] **H01M 4/36**

[52] **U.S. Cl.** **429/103**; 429/104; 429/112; 429/191; 429/199; 429/218

[58] **Field of Search** 429/112, 103, 101, 104, 429/102, 191, 199, 218

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,645,792	2/1972	Hacha	429/112
3,751,298	8/1973	Senderoff	429/112
3,957,532	5/1976	Settle et al.	429/218
3,988,163	10/1976	Sklarchuk	429/103
4,064,327	12/1977	King et al.	429/112

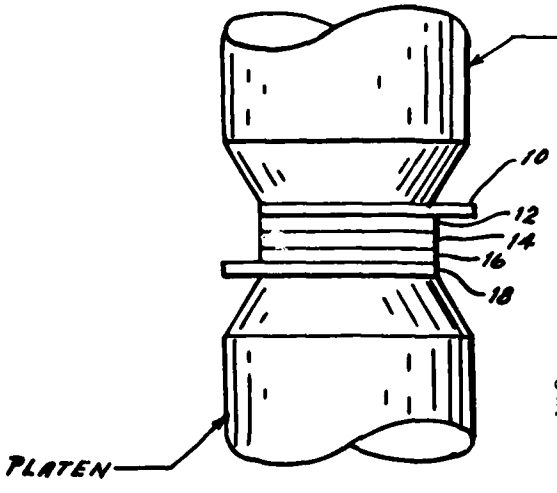
Primary Examiner—Charles F. LeFevour

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

[57] **ABSTRACT**

A thermally activated reserve battery operable within a temperature range of about 165° to 250° C and composed of a lithium-aluminum alloy anode, a molybdenum pentachloride cathode and a separating electrolyte composed of sodium tetrachloroaluminate.

2 Claims, 9 Drawing Figures



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PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Pondrom, Jr.

[11] 4,117,318

[45] Sep. 26, 1978

[54] OPTICAL POSITION PICK-OFF IN ZERO-DRAG SATELLITE

[75] Inventor: Walter L. Pondrom, Jr., Fullerton, Calif.

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

[21] Appl. No.: 797,143

[22] Filed: May 16, 1977

[51] Int. Cl.[2] G01J 1/20

[52] U.S. Cl. 250/201; 244/171; 250/206

[58] Field of Search ..... 74/5.6 A; 250/201, 203 R; 244/165, 171

[56] References Cited

U.S. PATENT DOCUMENTS

3,439,547	4/1969	Slater	74/5.6 A
3,499,332	3/1970	Fingerett et al.	74/5.6 A
3,501,967	3/1970	De Cotiis	74/5.6 A
3,532,892	10/1970	Murphy	250/203 R
3,535,525	10/1970	Minkowitz	250/203 R X
3,654,475	4/1972	Montpas	250/203 R

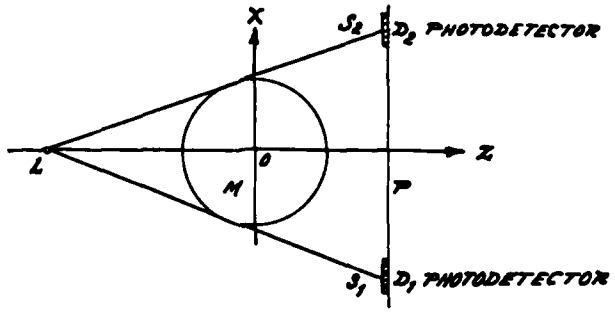
Primary Examiner—Lawrence J. Dahl

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

[57] ABSTRACT

An optical position pick-off for proof-mass in a zero-drag satellite is obtained by placing a spherical mass shielded from all forces except gravity, between a flat screen having four equally spaced photodetectors and a light source. The mass interrupts the light beam and casts a circular shadow on the screen, the periphery of which passes through the center of each of the detectors. A shift in the mass in any direction causes its shadow to cover more of certain detectors and less of others or more of all or less of all. The unbalance of the detectors may be used to actuate small jets to change direction of the satellite until the mass returns to its null position.

5 Claims, 2 Drawing Figures



Requests for licensing information should be addressed to:
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JAT 00047

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Boario

[11] **4,117,480**

[45] **Sep. 26, 1978**

[54] **REAL TIME SIGNAL CORRELATOR FOR HIGH RESOLUTION RADAR**

[75] Inventor: **William R. Boario**, Dayton, Ohio

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

[21] Appl. No.: **425,095**

[22] Filed: **Jan. 12, 1965**

[51] Int. Cl.[2] **G01S 9/02**

[52] U.S. Cl. ..... **343/5 CM**; 324/77 K; 343/5 SA; 343/100 CL

[58] Field of Search ..... 343/5 PR, 100.7, 5 CM, 343/5 SA, 100 CL; 324/77 K

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,184,679 5/1965 Kuehne 343/100.7

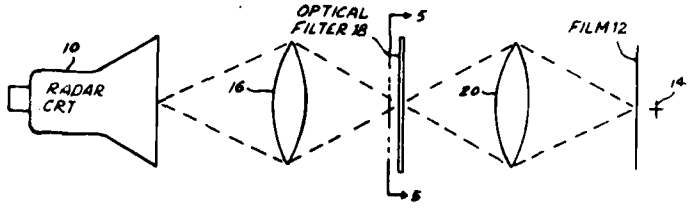
Primary Examiner—S. C. Buczinski

Attorney, Agent, or Firm—Joseph E. Rusz; Louis E. Hay

EXEMPLARY CLAIM

1. A real time signal correlator for use on high resolution mapping radar apparatus aboard a moving aircraft having a ground speed indicator and comprising on an optical axis in the order named. A time modulating light source, a first cylindrical lens, an optical filter having at least one optically apertured time variable function and located to be substantially at the imaging plane of said first cylindrical lens, a second cylindrical lens optically parallel to said first cylindrical lens, and an optically sensitive film substantially at the imaging plane of said second cylindrical lens normal to the optical path and movable in a direction parallel to the time variable function on said optical filter, the linear velocity of said film being synchronized to the ground speed indicator on the aircraft so that when the time function of said modulating light source is identical with the time variable function of said optical filter the two time variable functions are correlated and impressed upon said film.

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

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JAT 000948

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Gorr et al.

[11] 4,117,485

[45] Sep. 26, 1978

[54] **RADAR TARGET CROSS SECTION CONTROL METHOD AND MEANS**

[75] Inventors: **Benjamin B. Gorr**, Ipswich; **Richard B. Mack**, Winchester, 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.: **105,749**

[22] Filed: **Jan. 5, 1971**

[51] **Int. Cl.**[2] **G01S 7/38**; H01Q 15/00; H01Q 17/00

[52] **U.S. Cl.** ..... **343/18 E**; 343/5 SA; 343/18 A; 343/18 B

[58] **Field of Search** ..... 343/18 A, 18 B, 18 C, 343/18 D, 18 E, 18 R, 5 SA

[56] **References Cited**

U.S. PATENT DOCUMENTS

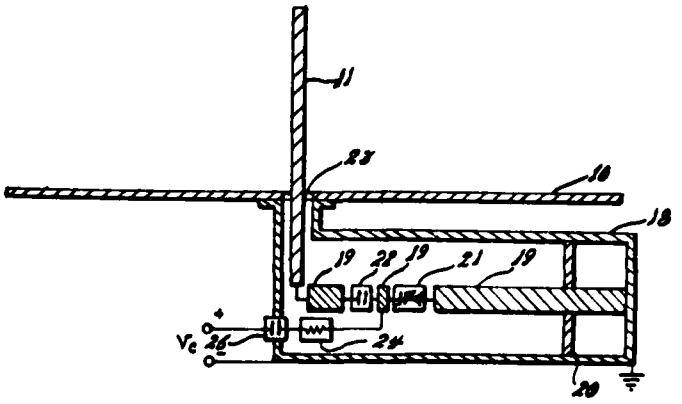
2,931,031	3/1960	DeLorraine et al	343/5 SA
3,096,494	7/1963	Jacobs et al	333/81
3,098,973	7/1963	Wickersham et al	343/18 B
3,277,476	10/1966	Sabin et al	343/5 SA
3,305,863	2/1967	Jacobs	343/18 R
3,309,704	3/1967	Klingler	343/18 A
3,325,808	6/1967	Manning	343/18 A
3,568,194	3/1971	Wilson et al	343/18 E

Primary Examiner—Malcolm F. Hubler
Attorney, Agent, or Firm—Joseph E. Rusz, Willard R. Matthews, Jr.

[57] **ABSTRACT**

Radar target back scattering is controlled by an impedance loading technique. The target is loaded with a variable impedance that is adjusted in response to the frequency of any incident radar signal to achieve optimum reflectivity for that particular frequency. Either radar target cross section reduction or enhancement is achieved over a broad band of frequencies by appropriate control of a voltage variable capacitance diode.

11 Claims, 6 Drawing Figures



Requests for licensing information should be addressed to:
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JAT 00049

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Hilgers et al.

[11] 4,140,225

[45] Feb. 20, 1979

[54] SHEET MATERIAL STORAGE RACK

[75] Inventors: William H. Hilgers; Owen F. Martin, both of Santa Maria, Calif.

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

[21] Appl. No.: 820,493

[22] Filed: Jul. 29, 1977

[51] Int. Cl.² A47F 7/00

[52] U.S. Cl. 211/162; 211/46

[58] Field of Search 211/162, 46, 94, 41, 211/94.5; 206/449, 454; 269/297

[56] References Cited

U.S. PATENT DOCUMENTS

1,841,620	1/1932	McCoy	211/46
2,076,848	4/1937	Kiever	211/162 X
2,547,368	4/1951	Booth	211/46 X
2,618,905	11/1952	Dicks et al.	269/297
2,928,550	3/1960	Stobie	211/46
3,883,004	5/1975	Slaga	211/162
4,036,370	7/1977	Chevalier	211/46 X

FOREIGN PATENT DOCUMENTS

2248939 1/1974 Fed. Rep. of Germany 206/454

Primary Examiner—James T. McCall
Assistant Examiner—Robert W. Gibson, Jr.
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashijian

[57] ABSTRACT

A storage rack suitable for maintaining sheet material free of surface scratches, dents, dings, etc. caused by handling and moving. A rectangular frame as large as the largest sheet to be stored is suspended from an overhead monorail. A channel member forming the lower edge of the frame supports the sheets which lean against the frame and are held in place by diagonal straps. A plurality of parallel overhead rails each of which supports a single frame provide the storage area. The overhead rails are at least twice the overall length of the frames to allow a selected frame to be moved from its storage position into the open where a desired sheet may be removed or added and the frame pushed back to its stored position without chance of damage to the sheet.

Requests for licensing information should be addressed to:
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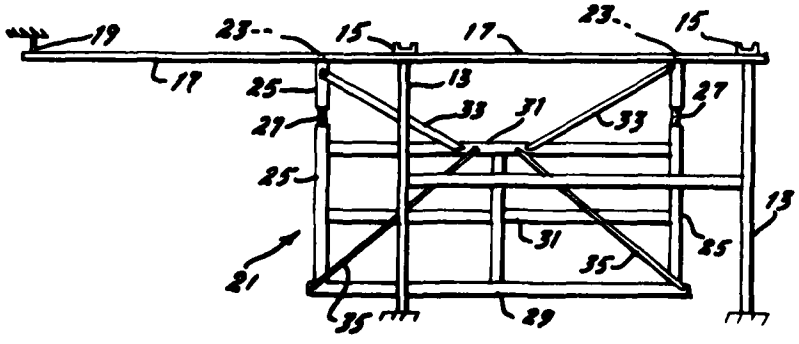
Washington, D.C. 20324



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JAT 00050

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Christian et al.

[11] **4,132,660**

[45] **Jan. 2, 1979**

[54] GREASE COMPOSITIONS

[75] Inventors: **John B. Christian**, Yellow Springs, **Christ Tamborski**, 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.: **882,527**

[22] Filed: **Mar. 1, 1978**

[51] **Int. Cl.**[2] **C10M 1/32; C10M 3/26; C10M 5/20; C10M 7/30**

[52] **U.S. Cl.** ..... **252/51.5 R; 252/52 A; 252/392**

[58] **Field of Search** ..... 252/51.5 R, 52 A, 392

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,525,690	8/1970	Christian	252/51.5 R
4,071,459	1/1978	Cohen et al.	252/51.5 R

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

[57] **ABSTRACT**

An antirust, anticorrosion grease composition comprising a major proportion of a perfluorinated polyalkylether base fluid, a minor proportion of a fluorocarbon polymer thickening agent, and a rust and corrosion inhibiting amount of a fluorine-containing benzoxazole.

12 Claims, No Drawings

Requests for licensing information should be addressed to:
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JAT 00051

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19] [11] **4,132,988**
Blacksmith et al. [45] **Jan. 2, 1979**

[54] **RADAR INTRUSION DETECTION SYSTEM**

[75] Inventors: **Philipp Blacksmith**, Concord; **J. Leon Poirier**, Chelmsford; **Frederick S. Holt**, Winchester, all of Mass.

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

[21] Appl. No.: **826,082**

[22] Filed: **Aug. 19, 1977**

[51] **Int. Cl.**[2] **G08B 13/18**
[52] **U.S. Cl.** ..... **340/552**; 343/5 PD
[58] **Field of Search** ..... 343/5 PD; 340/258 B

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,688,298 8/1972 Miller et al ..... 340/258 B

Primary Examiner—T.H. Tubbesing
Attorney, Agent, or Firm—Joseph E. Rusz, George Fine

[57] **ABSTRACT**

A radar intrusion detection system for isolated resources uses only one bistatic radar in combination with multiple passive reflectors to define the zone to be protected. Any intruder crossing a boundary of the zone within which is located the isolated resources interrupts the radar beam and thus may sound an alarm.

1 Claim, 3 Drawing Figures

Requests for licensing information should be addressed to:
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Washington, D.C. 20324

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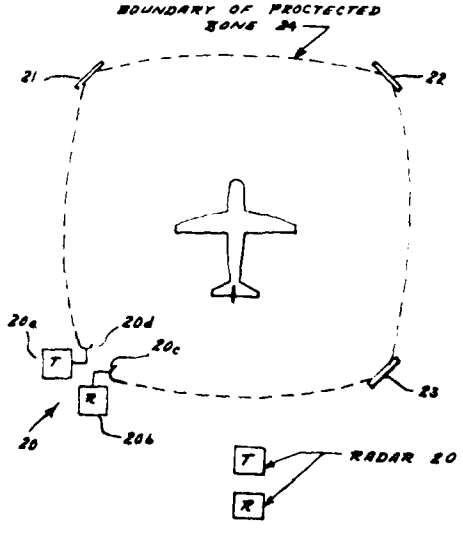


JAT00052

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19] [11] **4,135,185**
Rotman et al. [45] **Jan. 16, 1979**

[54] **RF LOOP INTRUDER DETECTION SYSTEM**

[75] Inventors: **Walter Rotman**, Brighton, **J. Leon Poirier**, Chelmsford; **Nicholas V. Karas**, Lowell; **Peter R. Franchi**, Winchester; **Ronald L. Fante**, Reading, all of Mass.

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

[21] Appl. No.: **840,355**

[22] Filed: **Oct. 7, 1977**

[51] **Int. Cl.**[2] **G08B 13/18**
[52] **U.S. Cl.** ..... **340/552**; 343/5 PD
[58] **Field of Search** ..... 340/552, 553; 343/5 PD

[56] **References Cited**

U.S. PATENT DOCUMENTS

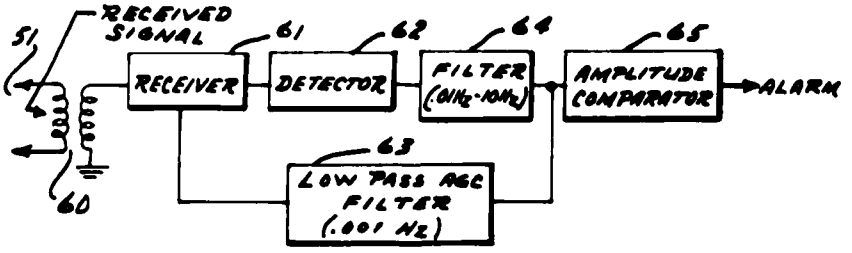
3,696,368	10/1972	Kauffman	340/552
3,794,992	2/1974	Gehman	340/552

Primary Examiner—Glen R. Swann, III
Attorney, Agent, or Firm—Joseph E. Rusz; George Fine

[57] **ABSTRACT**

An RF intruder system utilizes two concentric loops of wire spaced apart for a predetermined magnitude, either of which can transmit and/or receive electromagnetic energy. This area within the loops are to be protected against intrusion. Without intrusion, the received signal is steady. Upon intrusion, there are signal changes which are instantly noted by signal detection and processing.

4 Claims, 7 Drawing Figures



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JAT 00053

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Kami et al.

[11] 4,135,296

[45] Jan. 23, 1979

[54] **METHOD OF JOINING A FINE WIRE FILAMENT TO A CONNECTOR**

[75] Inventors: **Seiji Kami**, Pacoima; **Warren A. Stefferson**, Canoga Park, 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.: **826,106**

[22] Filed: **Aug. 19, 1977**

[51] **Int. Cl.**[2] **H01R 43/00**

[52] **U.S. Cl.** ..... **29/628**; 29/517; 174/84 C

[58] **Field of Search** ..... 29/628, 517, 456; 339/276 T, 276 R, 276 D; 174/84 C, 94 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,262,802	11/1941	Hayden	339/276 T
2,490,809	12/1949	Holke	174/94 R
3,110,755	11/1963	Esser	174/84 C X
3,440,333	4/1969	Blomstrand	29/628 X
3,475,545	10/1969	Stark et al	174/84 C X
3,927,471	12/1975	Tricker	29/628 X

FOREIGN PATENT DOCUMENTS

229040	12/1943	Switzerland	174/94 R

Primary Examiner—Victor A. DiPalma
Attorney, Agent, or Firm—Joseph E. Rusz, Arsen Tashjian

[57] **ABSTRACT**

Fine diameter wires especially suited for high temperature filaments are physically and electrically held in simple cylindrical connectors by lining the inside of the connector with a closely wound wire coil, inserting the fine wire into the center of the coil, and lightly crimping the outer surface of the connector until the filament wire is electrically joined to the connector and firmly held therein without the filament being weakened or excessively stressed.

2 Claims, 3 Drawing Figures

Requests for licensing information should be addressed to:
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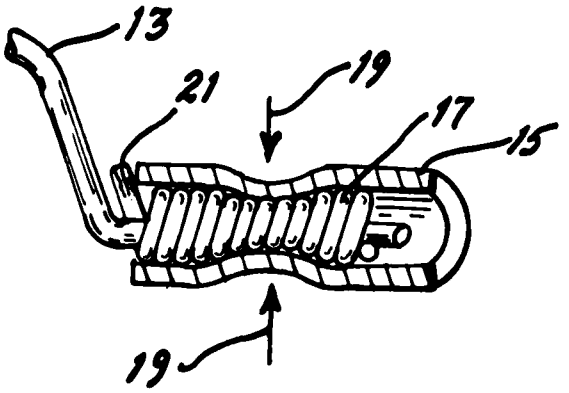

JAT 00054

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] 4,137,370

[45] Jan. 30, 1979

[54] **TITANIUM AND TITANIUM ALLOYS ION PLATED 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.: **825,005**

[22] Filed: **Aug. 16, 1977**

[51] **Int. Cl.**[2] **B32B 15/00**

[52] **U.S. Cl.** **428/660**; 427/38; 428/668; 428/670; 428/926

[58] **Field of Search** 427/38; 428/660, 668, 428/670, 926

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,842,463	7/1958	Bond et al.	428/660
3,278,404	10/1966	Cotton et al	428/670
3,297,552	1/1967	Gisser et al.	428/660
3,474,520	10/1969	Takizawa et al	428/670
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3,816,079	6/1974	Bachmann et al.	428/660

FOREIGN PATENT DOCUMENTS

1188895	3/1965	Fed. Rep. of Germany	428/670
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2102633	4/1972	France	428/660
1051994	12/1966	United Kingdom	428/670

OTHER PUBLICATIONS

IBM Technical disclosure bulletin, vol. 16, No. 1, 6/73, p. 39.

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 an ion 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

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JAT 00065

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Francis et al.

[11] **4,140,002**

[45] **Feb. 20, 1979**

[54] IMPACT SOUND STRESSING HOLDING ASSEMBLY

[75] Inventors: **James F. Francis**, Poughkeepsie; **Eric W. Hearn**; **Ralph G. Dessauer**, both of Wappingers Falls, all 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.: **902,134**

[22] Filed: **May 2, 1978**

[51] **Int. Cl.**[2] **G01N 3/32**
[52] **U.S. Cl.** **73/12**; 73/7
[58] **Field of Search** 73/12, 7

[56] **References Cited**

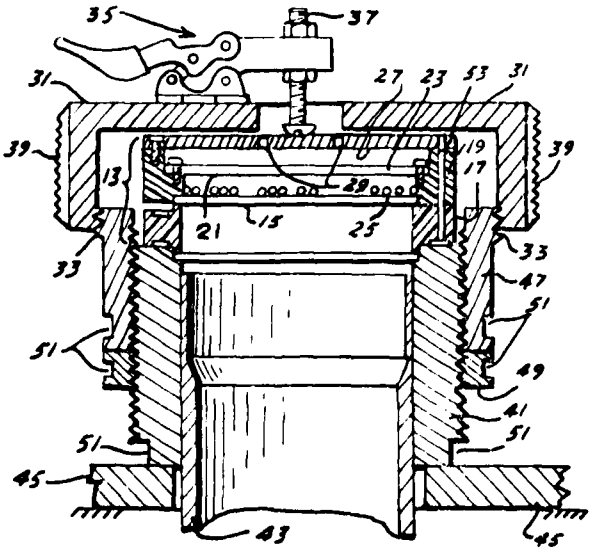
U.S. PATENT DOCUMENTS

4,004,449 1/1977 Gorey et al. 73/12

Primary Examiner—Anthony V. Ciarlante
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashjian

[57] **ABSTRACT**

A holding assembly for impact sound stressing semiconductor wafers and the like including a novel fixture for securing the wafer across a sound tube by clamping between Teflon rings. A cover membrane is also secured across the sound tube to create a closed space defined by the sound tube, cover membrane and semiconductor wafer. Tungsten spheres located in the closed space bounce between the wafer and the membrane when vibrations are propagated in the sound tube for impact sound stressing the semiconductor wafer.



JAT 00056

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Orlando

[11] **4,140,592**

[45] **Feb. 20, 1979**

[54] **GAS BEARING SURFACE COATING**

[75] Inventor: **Vincent A. Orlando, Clearwater, Fla.**

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

[21] Appl. No. **991,800**

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

[51] **Int. Cl.**[2] **B21D 53/10; C25D 11/34; C23C 15/00**

[52] **U.S. Cl.** ..... **204/56 R; 29/149.5 A; 29/149.5 S; 204/192 C; 308/DIG. 1; 308/DIG. 8**

[58] **Field of Search** ..... 204/56 R, 192 R, 192 C; 29/149.5 A, 149.5 S, 149.5 R; 308/DIG. 1, DIG. 8

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,242,742	3/1966	Parker	308/DIG. 1
3,375,179	3/1968	Pittman	204/56 R
3,694,331	9/1972	Csontos et al.	204/56 R
3,726,572	4/1973	Beardmore	308/DIG. 1
4,005,914	1/1977	Newman	308/DIG. 1

Primary Examiner—John H. Mack
Assistant Examiner—William Leader
Attorney, Agent, or Firm—Joseph E. Rusz; William J. O'Brien

[57] **ABSTRACT**

A method for increasing the life and reliability of beryllium gas bearings by applying a coating of chromium to one bearing surface and an anodized beryllium coating to its mating surface.

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 the 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]

Naden

[11] 4,141,076

[45] Feb. 20, 1979

[54] ASSOCIATIVE BUBBLE MEMORY APPARATUS

[75] Inventor: Rex A. Naden, Richardson, Tex.

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

[21] Appl. No.: 809,729

[22] Filed: Jun. 24, 1977

[51] Int. Cl.² G06F 7/50; G11C 11/14

[52] U.S. Cl. 364/714; 364/716; 365/1; 365/4; 365/5; 365/50

[58] Field of Search 364/714, 716; 365/1, 365/4, 5, 49, 50

[56] References Cited

U.S. PATENT DOCUMENTS

3,508,220	4/1970	Stampler	365/50
3,701,125	10/1972	Chang et al	365/4
3,732,551	5/1973	Homma et al	365/4 X
3,761,886	9/1973	Kluge	365/5 X
3,983,383	9/1976	Naden	364/714
3,986,016	10/1976	Linn et al	364/714
4,032,905	6/1977	Chen	365/4

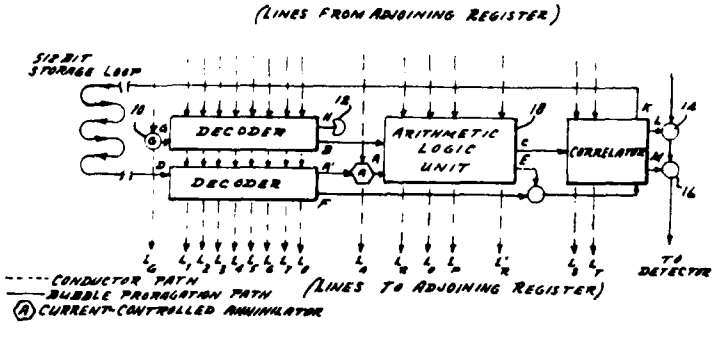
Primary Examiner—Jerry Smith

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

[57] ABSTRACT

An associative bubble memory apparatus utilizing a plurality of registers therein to provide a high total memory capacity and to provide data retrieval or correlation based upon content rather than the address of the data of interest.

7 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

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SAT 000 58

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] 4,142,037
[45] Feb. 27, 1979

[54] READILY CURABLE FLUOROCARBON ETHER BIBENZOXAZOLE POLYMERS

[75] Inventors: Robert C. Evers, Dayton; Tonson Abraham, Kettering, 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.: 863,026

[22] Filed: Dec. 21, 1977

[51] Int. Cl.² C08G 65/40
[52] U.S. Cl. 528/210; 528/211
[58] Field of Search ..... 260/47 R, 61; 528/210; 211

[56] References Cited

U.S. PATENT DOCUMENTS

3,846,376 11/1974 Evers 260/61
4,053,498 10/1977 Evers ..... 260/453 RW
4,064,109 12/1977 Evers 260/61

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

[57] ABSTRACT

Thermooxidatively and hydrolytically stable perfluoroalkylene ether bibenzoxazole polymers containing hydrocarbon cure sites are synthesized by the polycondensation of a fluorocarbon bis(o-aminophenol) containing a hydrocarbon moiety and a perfluoroalkylene ether diimidate or dithioimidate ester. The polymers are readily curable to elastomers that are resistant to hydrolysis over a wide use-temperature range. Thus, the polymers are especially suitable for use in aerospace applications where extreme environments are encountered. In particular, the polymers are useful as seals, sealants, and the like.

7 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

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JAT00659

F62

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Fritts

[11] 4,136,234

[45] Jan. 23, 1979

[54] CHARGE SENSING ELECTRODE FOR A 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.: 896,862

[22] Filed: Apr. 17, 1978

Related U.S. Application Data

[62] Division of Ser. No. 844,162, Oct. 21, 1977.

[51] Int. Cl.[2] H01M 2/02

[52] U.S. Cl. 429/178; 429/91; 429/218

[58] Field of Search 429/91-93, 429/178, 209, 218, 233

[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 X
4,020,243	4/1977	Oldford	429/93

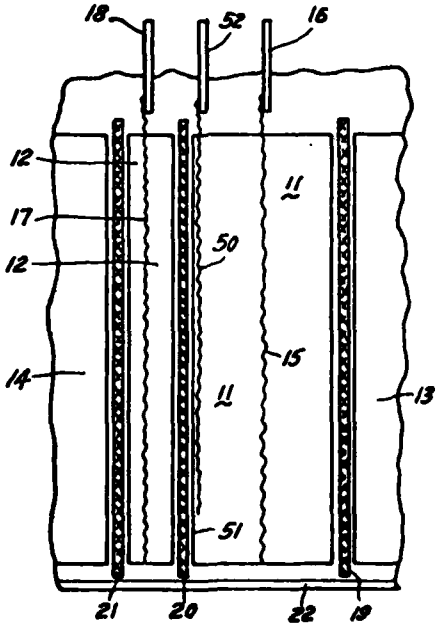
Primary Examiner—Charles F. LeFevour

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.

3 Claims, 10 Drawing Figures



JAT 00060

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Fritts

[11] **4,137,374**

[45] **Jan. 30, 1979**

[54] **METHOD FOR STATE OF CHARGE OF 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.: **902,133**

[22] Filed: **May 2, 1978**

Related U.S. Application Data

[62] Division of Ser. No. 844,162, Oct. 21, 1977.

[51] **Int. Cl.**[2] **H01M 10/44**

[52] **U.S. Cl.** **429/50; 429/91; 429/178; 429/218**

[58] **Field of Search** **429/50, 91-93, 429/178, 209, 233, 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	Rorvlette	429/93 X
4,020,243	4/1977	Oldford	429/93

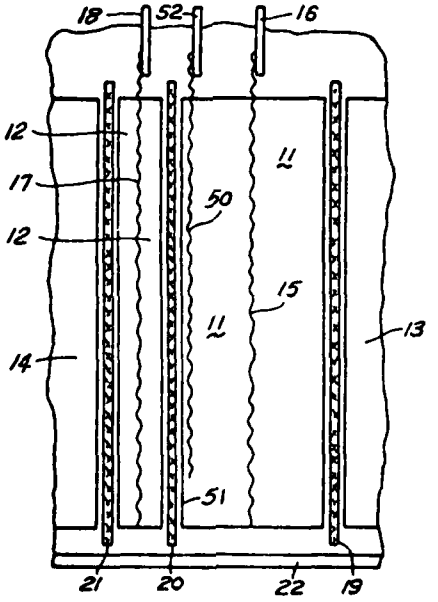
Primary Examiner—Charles F. Lefevour

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



Requests for licensing information should be addressed to:
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1900 Half Street S.W.
Washington, D.C. 20324

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JAT 00061

United States Patent [19]

Sears

[11] **4,135,548**

[45] **Jan. 23, 1979**

[54] **LIQUID NITROGEN LEVEL CONTROLLER**

[75] Inventor: **Daniel Sears**, 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.: **823,562**

[22] Filed: **Aug. 11, 1977**

[51] **Int. Cl.**[2] **F16K 21/18**; F17C 13/02; G01F 23/24

[52] **U.S. Cl.** **137/392**; 73/304R; 62/49; 340/618; 222/64

[58] **Field of Search** ..... 137/392; 62/45, 49, 62/55; 417/7; 235/92 FL; 73/304 R; 340/618, 620; 222/64, 65

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,291,149	12/1966	Atkins et al.	137/392
3,509,825	5/1970	Sorenson	137/392
3,545,482	12/1970	Paull	137/392
3,741,683	6/1973	McTamaney et al.	137/392
3,757,317	9/1973	Kahn et al.	137/392
4,059,424	11/1977	Bentz	62/49

OTHER PUBLICATIONS

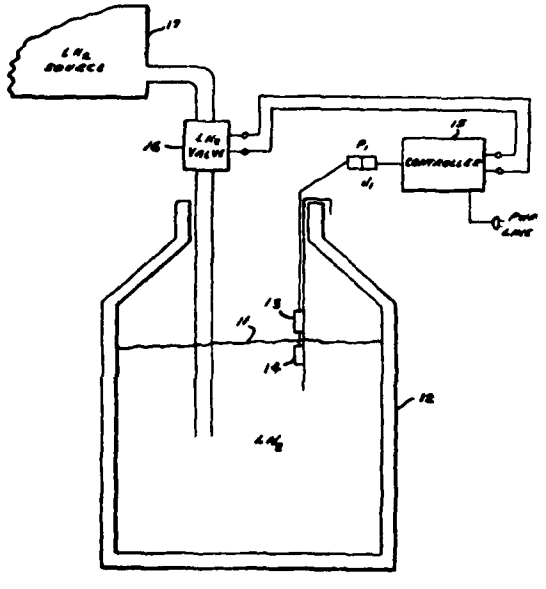
Electronic Circuit Manual, McGraw Hill, 1971.
Guidebook of Electronic Circuits, McGraw Hill, 1974.

Primary Examiner—Martin P. Schwadron
Assistant Examiner—A. Michael Chambers
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] **ABSTRACT**

The liquid nitrogen level in a flask is controlled by the degree of immersion of two sensing coils of copper wire in the liquid nitrogen activating a solid state switching circuit which controls a liquid nitrogen inlet flow valve. Manual override and sensor fault indication is provided.

1 Claim, 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]

Rew et al.

[11] 4,135,298

[45] Jan. 23, 1979

[54] **DEFORMABLE HEAT TRANSFER FIN**

[75] Inventors: James A. Rew, Glen Burnie, Albert B. Simon, Ellicott City, Thomas M. Fahey, Laurel, all of Md.

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

[21] Appl. No.: 808,493

[22] Filed: Jun. 21, 1977

[51] Int. Cl.[2] B23P 15/26

[52] U.S. Cl. ..... 29/727; 29/157.3 V; 29/421 R; 29/455 R; 29/523

[58] Field of Search ..... 29/727, 421 R, 157.3 V, 29/523, 455 R

[56] References Cited

U.S. PATENT DOCUMENTS

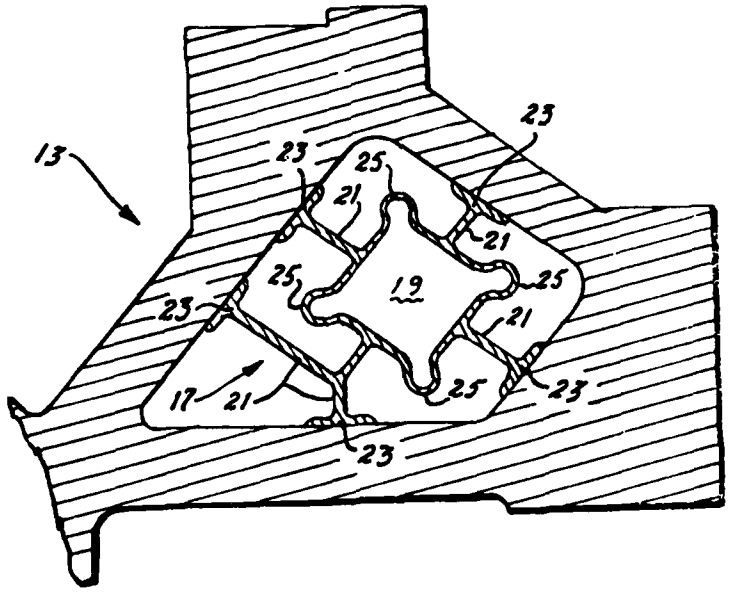
2,487,257	11/1949	Morgan	29/421
2,693,026	11/1954	Simpelaar	29/523
3,173,196	3/1965	Grimm	29/421 X
3,623,204	11/1971	Wagle	29/157.3 V X
3,636,607	1/1972	DeMarco	29/523 X

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

[57] **ABSTRACT**

A mechanically deformable heat transfer fin for installation in a hollow cavity of a large complex elongated extrusion to improve heat transfer characteristics without brazing, welding or glueing. Since the required design cannot be obtained with the transfer fins as an integral part of the extrusion using presently known techniques, a separate fin insert of slightly smaller dimensions than the hollow opening of the large extrusion is installed therein. The insert includes a plurality of legs and an internal pressure cavity which can be sealed off at both ends with pressure cap fittings secured by tie rods. After installation in the extrusion, pressure is applied to the inner chamber until the legs of the insert move outward and contact the inner surface of the extrusion walls. The pressure is raised until the relatively thin walls of the insert are permanently deformed so that, when the pressure is relieved, the insert is held fixedly in place.

2 Claims, 3 Drawing Figures



JAT 00063

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Capehart et al.

[11] 4,138,592

[45] Feb. 6, 1979

[54] ELECTROMAGNETIC DETECTION LINE DIGITIZER

[76] Inventors: Jack D. Capehart, 5562 Overbrooke Rd., Kettering, Ohio 45440; John F. Mazzae, 803 Picket Pl., Dayton, Ohio 45433; David R. McGrew, 7543 Abraham Ct., Dayton, Ohio 45414

[21] Appl. No.: 833,778

[22] Filed: Sep. 16, 1977

[51] Int. Cl.[2] G08B 5/22

[52] U.S. Cl. ..... 178/19; 346/139 C

[58] Field of Search ..... 178/19, 18, 20; 318/568; 35/61; 200/159 B; 340/146.3 SY; 346/139 C; 33/1 M, 1 LE

[56] References Cited

U.S. PATENT DOCUMENTS

3,894,183	7/1975	Barish	178/18
3,936,712	2/1976	Gerber et al	318/568
3,982,165	9/1976	Rich	178/18

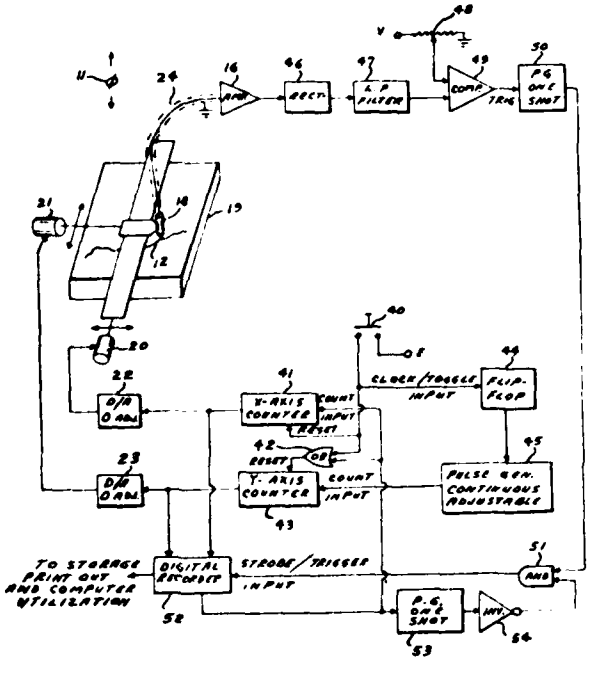
Primary Examiner—Thomas A. Robinson

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

[57] ABSTRACT

A graphic curve digitizer is disclosed wherein the x-y coordinate values of a response curve (made electrically conductive) are obtained by a digitally controlled x-y conductive probe and electronic system sensing when the probe contacts the curve by the voltage signal existing in the conductive curve due to the antenna effect of the conductive curve in an environmental alternating current electromagnetic field.

2 Claims, 3 Drawing Figures



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RIGHTS OF THE GOVERNMENT

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

JAT 00064

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] **4,135,169**
[45] **Jan. 16, 1979**

[54] **PRE-TR HIGH POWER/INTERMEDIATE POWER STAGE APPARATUS**

[75] Inventors: **James F. McLaughlin**, Severna Park; **Theodore M. Nelson**, 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.: **776,390**

[22] Filed: **Mar. 10, 1977**

[51] Int. Cl.[2] **H01P 1/14**
[52] U.S. Cl. **333/13**; 315/39
[58] Field of Search 333/13; 315/39

[56] **References Cited**

U.S. PATENT DOCUMENTS

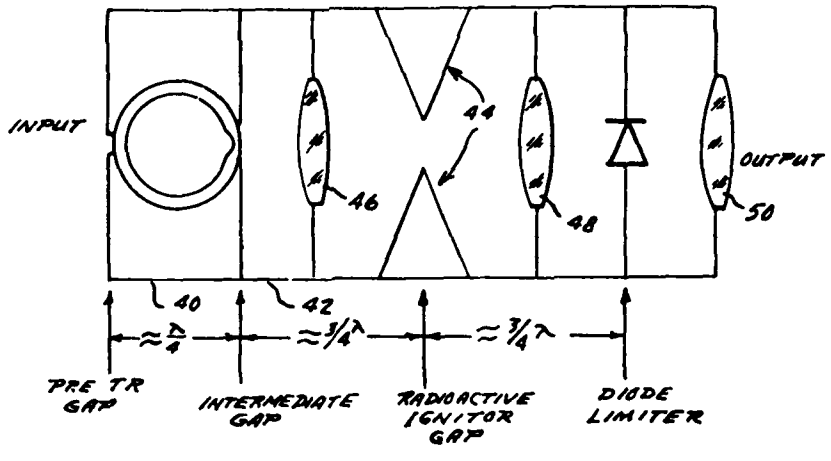
3,753,158	8/1973	Prescott	333/13
4,027,255	5/1977	Blakeney et al.	333/13

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

[57] **ABSTRACT**

A pre-TR high power/intermediate power stage apparatus for receiver protectors utilizing a single quartz vial filled with a halogen gas and having a predetermined configuration to provide the dual function of a high power pre-TR and the intermediate power stage.

4 Claims, 10 Drawing Figures



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Washington, D.C. 20324

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JAT 00065

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Sletten

[11] 4,141,014

[45] Feb. 20, 1979

[54] MULTIBAND HIGH FREQUENCY COMMUNICATION ANTENNA WITH ADJUSTABLE SLOT APERTURE

[75] Inventor: Carlyle J. Sletten, Acton, Mass.

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

[21] Appl. No.: 826,083

[22] Filed: Aug. 19, 1977

[51] Int. Cl.² H01Q 13/12

[52] U.S. Cl. 343/768; 343/874

[58] Field of Search 343/767, 768, 770, 771, 343/874

[56] References Cited

U.S. PATENT DOCUMENTS

2,600,179	6/1952	Alford	343/767
2,794,184	5/1957	Kolar et al.	343/767
2,807,019	9/1957	Darling	343/767
2,960,694	11/1960	Semiuk	343/768

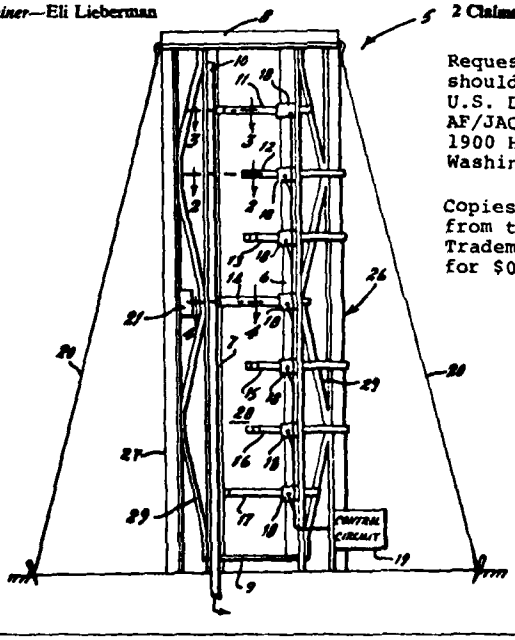
Primary Examiner—Eli Lieberman

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

[57] ABSTRACT

A portable multiband H.F. antenna that has minimum ground area requirements and that is capable of transmitting electromagnetic wave radiation with horizontal polarization, azimuth plane omnidirectional patterns and a null in the vertical beam pattern is realized by means of an easily erectable tower type radiator. The tower structure has adjacent conductive leg members that define an elongated antenna slot aperture the total length of which is resonant to the lowest operating frequency band. A microwave transmission line resides along one side of the slot and the slot aperture is fed by shorting the transmission line to the oposite side of the slot. Operation at higher frequency bands is achieved by shorting out sections of the slot aperture on both sides of the feed. An array of radiating slot apertures can be provided by shorting the full slot aperture into sections and feeding each slot section separately. The addition of capacitance to the feed circuit permits operation at frequency bands below that provided for by the full slot aperture length.

2 Claims, 4 Drawing Figures



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1900 Half Street S.W.
Washington, D.C. 20324

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JAT00066

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Stoner et al.

[11] 4,135,494

[45] Jan. 23, 1979

[54] OVER-PRESSURE PROTECTION DEVICE

[75] Inventors: David L. Stoner, College Station; Charles F. Shield, III, San Antonio; Ronald G. Julian, San Antonio; Ewald Koegel, San Antonio, all of Tex.

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

[21] Appl. No.: 776,038

[22] Filed: Mar. 9, 1977

[51] Int. Cl.² A61B 19/00

[52] U.S. Cl. ..... 128/1 R; 3/1.4; 73/731

[58] Field of Search ..... 128/1 R, 2.05 D, 2.05 E, 128/214 F, 349 BU, DIG. 12; 3/1.4; 73/405, 406

[56] References Cited

U.S. PATENT DOCUMENTS

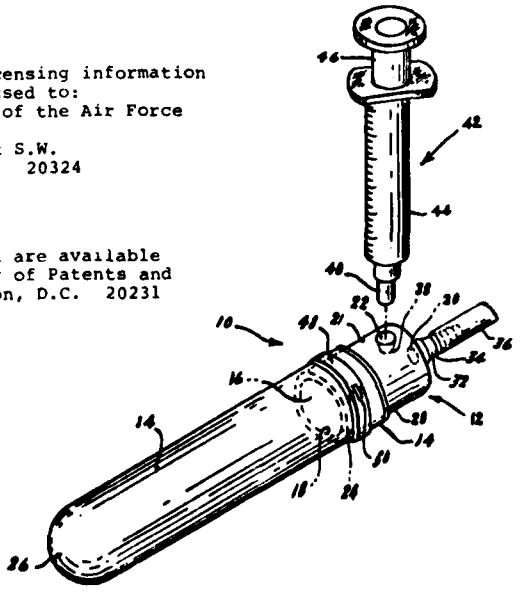
3,610,230	10/1971	Anderson	128/2.05 D
3,625,199	12/1971	Summers	128/2.05 D
3,710,777	1/1973	Sparks	128/1 R
3,794,043	2/1974	McGinnis	128/349 BU
3,916,874	11/1975	Perrin	128/1 R
3,958,557	5/1976	Sharp et al.	3/1.4
4,000,741	1/1977	Binard et al.	128/349BU
4,050,893	9/1977	Hancock et al.	3/1.4

Primary Examiner—Robert W. Michell
Assistant Examiner—Henry S. Layton
Attorney, Agent, or Firm—Joseph E. Rusz; Jacob N. Erlich

[57] ABSTRACT

An over-pressure protection device utilized for limiting the fluid pressure applied to a vein which has been removed from the body and which is being tested prior to transplantation within the body. The over-pressure protection device has a port for accepting a fluid under pressure, a tapered fitting for connection of the device to the vein to be tested and a resilient membrane which regulates the pressure of the fluid being applied to the vein. The specific characteristics of the resilient membrane limits the fluid pressure applied to the vein and therefore prevents subsequent deterioration of the vein.

2 Claims, 2 Drawing Figures



JAT 00067

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Barnes

[11] **4,139,990**

[45] **Feb. 20, 1979**

[54] **FLUID PULSATION AND TRANSIENT ATTENUATOR**

[76] *Inventor:* **Douglas R. Barnes, 1464 Hilltop Rd., Xenia, Ohio 45385**

[21] Appl. No.: **896,830**

[22] Filed: **Apr. 17, 1978**

Related U.S. Application Data

[62] Division of Ser. No. 780,955, Mar. 24, 1977.

[51] **Int. Cl.**[2] **F25B 9/02; F15C 1/16**

[52] **U.S. Cl.** **62/5; 137/812**

[58] **Field of Search** **62/5; 137/809, 810, 137/812**

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,893,432	7/1959	Gibson	62/5
3,214,923	11/1965	Palmisano et al.	62/5
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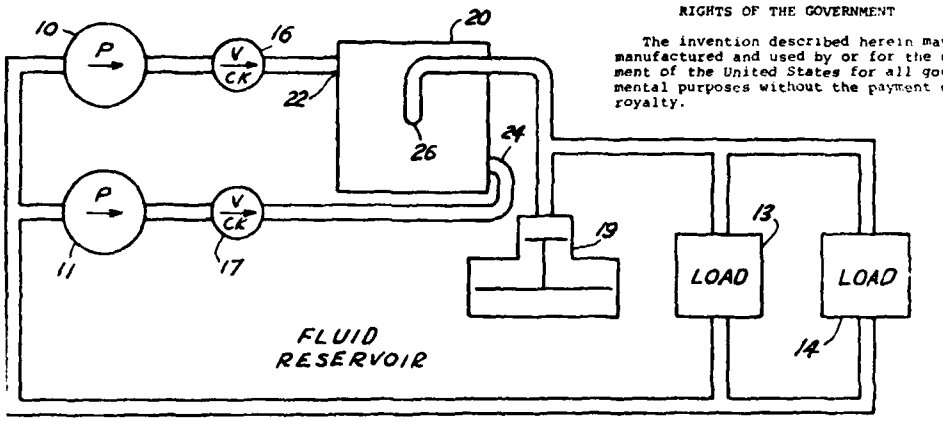
3,756,285	9/1973	Johnson	137/810
3,775,988	12/1973	Fekete	62/5
3,815,379	6/1974	Inglis	62/5

Primary Examiner—Lloyd L. King
Attorney, Agent, or Firm—Joseph E. Rusz; Richard J. Killoren

[57] **ABSTRACT**

An attenuator, for use in a fluid system for reducing pulsations and transients, having a vortex chamber with a plurality of tangential inlets and one or more outlets with converging nozzles being provided in the inlets to increase the inlet flow velocity and to provide diode action. At least one elbow is provided in the outlet line adjacent the vortex chamber outlet with a second elbow being provided at a distance from the elbow adjacent the vortex outlet, approximately equal to the radius of the vortex chamber. The second elbow is not needed when outlet line discharges to a sump or to the atmosphere.

2 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]

Cochoy et al.

[11] **4,140,727**

[45] **Feb. 20, 1979**

[54] **FLUOROALKYLENEETHER SILICATE COPOLYMERS**

[75] Inventors: **Robert E. Cochoy**, Colorado Springs, Colo.; **Alan A. Shaffer**, New Carlisle, Ohio

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

[21] Appl. No.: **868,355**

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

[51] Int. Cl.[2] C08L 43/04

[52] U.S. Cl. .... 260/827; 260/37 SB; 528/12; 528/29; 528/32; 528/38

[58] Field of Search .... 260/2 S, 46.5 R, 46.5 UA, 260/827; 528/12, 29, 32, 38

[56] References Cited

U.S. PATENT DOCUMENTS

3,346,515	10/1967	Curry	260/2 S
3,997,501	12/1976	McLeod	260/2 S

Primary Examiner—Melvyn I. Marquis
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

Fluoroalkyleneether silicate copolymers are synthesized by the polycondensation of a bis-dimethylcarbinol containing a fluoroalkyleneether segment and bis-(dimethylamino) methylvinylsilane. The copolymers are useful in applications, e.g., as seals and sealants, involving use temperatures ranging from about -90° C. to 600° C. They are particularly useful when blended with a fluorocarbon elastomer, enhancing the strength and low temperature flexibility of the elastomer.

14 Claims, No Drawings

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JAT 60069

United States Patent [19]

Rumrill, Jr. et al.

[11] **4,145,956**

[45] **Mar. 27, 1979**

[54] **PILOT OPERATED STEPPING VALVE**

[75] Inventors: **Edwin W. Rumrill, Jr.; Frank D. Lewis, Sr.**, both of Atlanta, Ga.

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

[21] Appl. No.: **790,772**

[22] Filed: **Apr. 25, 1977**

[51] **Int. Cl.**[2] **F15B 13/043**

[52] **U.S. Cl.** **91/380**; 91/461; 137/625.64

[58] **Field of Search** 91/365, 368, 380, 461; 137/625.64; 251/30

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,654,347	10/1953	Clark	91/380
3,079,899	3/1963	Inaba et al.	91/461 X
3,125,002	3/1964	McCombs	91/365
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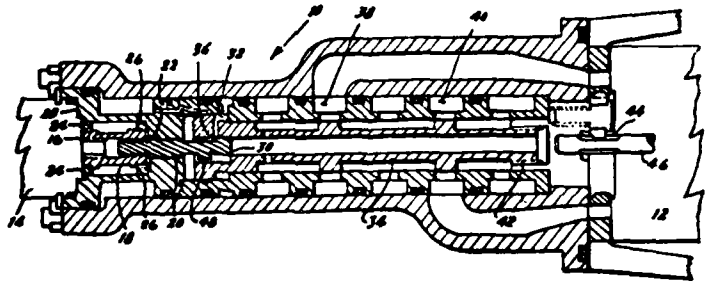
3,709,257	1/1973	Faissandier	91/461 X
3,805,670	4/1974	Fallows	91/461 X
3,875,849	4/1975	Patel	137/625.64 X
3,891,145	6/1975	Bartholomaus et al.	91/461 X

Primary Examiner—Gerald A. Michalsky
Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] **ABSTRACT**

A pilot operated stepping valve where an electrical pulse motor drives a pilot valve spool which controls the flow of hydraulic fluid driving a main valve spool which actuates a hydraulic motor or actuator. The main valve spool follows the pilot spool and is hence sensitive to the pulses received by the pulse motor.

2 Claims, 1 Drawing Figure



PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Schultz

[11] 4,146,196

[45] Mar. 27, 1979

[54] SIMPLIFIED HIGH ACCURACY GUIDANCE SYSTEM

[75] Inventor: Robert L. Schultz, Edina, Minn.

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

[21] Appl. No.: 706,048

[22] Filed: Jul. 20, 1976

[51] Int. Cl.[2] F41G 3/16; F41G 3/22; F41G 7/10; F41G 9/00

[52] U.S. Cl. 244/3.1; 244/3.16; 244/3.19

[58] Field of Search ..... 89/41 H, 41 EA; 244/3.11, 3.14, 3.16, 3.12, 3.1

[56] References Cited

U.S. PATENT DOCUMENTS

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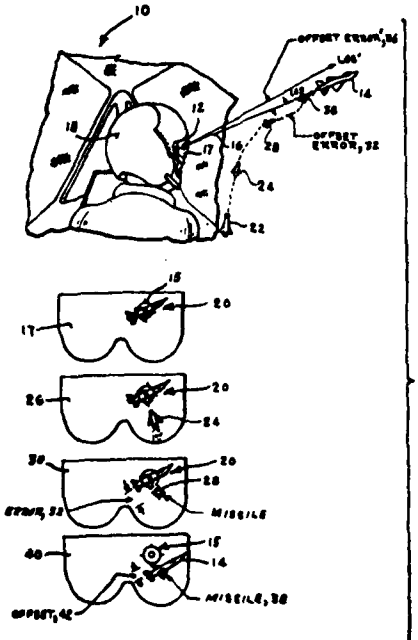
3,211,045	10/1965	Gerhardt	89/41 EA
3,617,015	11/1971	Kinder	244/3.14
3,753,538	8/1973	Marsh et al.	244/3.12
4,020,324	4/1977	Buscher et al.	89/41 EA
4,037,202	7/1977	Terzian	244/3.11
4,040,744	8/1977	Schertz et al.	244/3.16

Primary Examiner—Samuel W. Engle
Assistant Examiner—Thomas H. Webb
Attorney, Agent, or Firm—Joseph E. Rusz; Henry S. Miller

[57] ABSTRACT

A simplified guidance system for air-to-air missiles where the pilot adjusts his helmet sight to compensate for missile errors and this information is fed to a computer which computes correction data from error information, aircraft position information and missile position information, correction data is then sent via a radio link to the missile control system which changes the flight path accordingly.

2 Claims, 2 Drawing Figures



JAT 00071

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Ley

[11] 4,144,577

[45] Mar. 13, 1979

[54] **INTEGRATED QUANTIZED SIGNAL SMOOTHING PROCESSOR**

[75] Inventor: Gordon S. Ley, Arnold, Md.

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

[21] Appl. No.: 842,140

[22] Filed: Oct. 14, 1977

[51] Int. Cl.² G06F 7/38; H03K 4/02

[52] U.S. Cl. ..... 364/571; 307/264; 328/156; 340/347 R

[58] Field of Search ..... 364/571, 575, 570; 328/135, 137, 147, 149, 156, 158, 165, 162; 307/227, 264; 340/347 AD, 347 R

[56] References Cited

U.S. PATENT DOCUMENTS

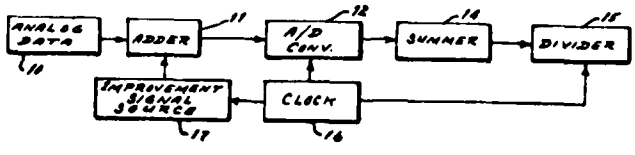
3,560,957	2/1971	Miura et al.	340/347 AD
3,622,765	11/1971	Anderson	364/575
3,628,061	12/1971	Jackman	307/227
3,701,954	10/1972	Seminatore et al.	307/227
3,826,927	7/1974	Halfhill	307/227
3,872,389	3/1975	Willard	328/147
3,877,022	4/1975	Lehman et al.	340/347 AD
3,942,173	3/1976	Wold	340/347 AD

Primary Examiner—Charles E. Atkinson
Assistant Examiner—Errol A. Krass
Attorney, Agent, or Firm—Joseph E. Rusz; George Fine

[57] **ABSTRACT**

An integrated quantized signal smoothing processor samples an analog signal, converts it to a digital number and averages n samples, the averages of n equal or nearly equal signals will be quantized with the quantization interval of an A/D converter. An improvement signal is added at the input of the A/D converter with the output quantization interval becoming q/n. For a given accuracy, the improvement permits a lower number of bits in the A/D converter.

2 Claims, 3 Drawing Figures



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JAT 00072

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]
Puchalska-Hibner

[11] **4,144,585**
[45] **Mar. 13, 1979**

[54] **BUBBLE DOMAIN STRUCTURES AND METHOD OF MAKING**

[75] Inventor: **Irena Puchalska-Hibner, Orsay, France**

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

[21] Appl. No.: **714,546**

[22] Filed: **Aug. 16, 1976**

Related U.S. Application Data

[63] Continuation of Ser. No. 452,590, Mar. 19, 1974, abandoned.

[51] **Int. Cl.**[2] **H01F 10/02**
[52] **U.S. Cl.** **365/3**; 365/30; 365/33; 427/47; 427/128; 427/132; 427/250; 427/294; 428/900
[58] **Field of Search** 427/127-132, 427/48, 47, 250, 294; 428/900; 365/30, 33, 3

[56] **References Cited**

FOREIGN PATENT DOCUMENTS

1106710 3/1968 United Kingdom.

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Williams et al., J of AP, vol. 28, No. 5, May 1957, 427–448, pp. 548–555 *Mag. Domain Patterns on thin Films.*
Sugita et al., J. Phys Sec. Japan, vol. 19, (1964) 782, *Stripe Magnetic Domain . . . in from Films.*

Primary Examiner—Bernard D. Pianalto
Attorney, Agent, or Firm—Joseph E. Rusz; Robert Kern Duncan

[57] **ABSTRACT**

A magnetic bubble domain structure and method of making comprising a film of a nickel-iron alloy of 80 to 83.5% nickel content and substantially zero constant of magnetostriction formed by vapor deposition of the alloy onto a flat substrate at a substrate temperature in the range of room temperature to 200° C. at an angle of incidence of approximately 60° to a film thickness of 0.2μm to 3.0μm, the film being immersed in a magnetic field perpendicular to the film and of 1600 to 2400 oersteds intensity.

4 Claims, No Drawings

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JAT 000 73

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Hilgers et al.

[11] 4,140,225

[45] Feb. 20, 1979

[54] SHEET MATERIAL STORAGE RACK

[75] Inventors: William H. Hilgers; Owen F. Martin, both of Santa Maria, Calif.

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

[21] Appl. No.: 820,493

[22] Filed: Jul. 29, 1977

[51] Int. Cl.[2] A47F 7/00

[52] U.S. Cl. 211/162; 211/46

[58] Field of Search 211/162, 46, 94, 41, 211/94.5; 206/449, 454; 269/297

[56] References Cited

U.S. PATENT DOCUMENTS

1,841,620	1/1932	McCoy	211/46
2,076,848	4/1937	Kiever	211/162 X
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2,618,905	11/1952	Dicks et al.	269/297
2,928,550	3/1960	Stobie	211/46
3,883,004	5/1975	Slaga	211/162
4,036,370	7/1977	Chevalier	211/46 X

FOREIGN PATENT DOCUMENTS

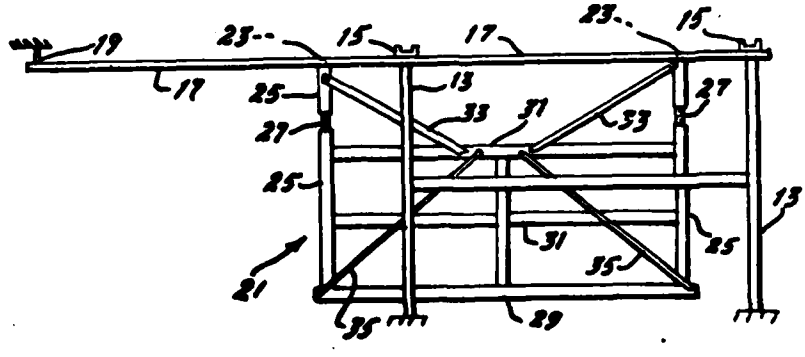
2248939 1/1974 Fed. Rep. of Germany 206/454

Primary Examiner—James T. McCall
Assistant Examiner—Robert W. Gibson, Jr.
Attorney, Agent, or Firm—Joseph E. Rusz; Arsen Tashijian

[57] ABSTRACT

A storage rack suitable for maintaining sheet material free of surface scratches, dents, dings, etc. caused by handling and moving. A rectangular frame as large as the largest sheet to be stored is suspended from an overhead monorail. A channel member forming the lower edge of the frame supports the sheets which lean against the frame and are held in place by diagonal straps. A plurality of parallel overhead rails each of which supports a single frame provide the storage area. The overhead rails are at least twice the overall length of the frames to allow a selected frame to be moved from its storage position into the open where a desired sheet may be removed or added and the frame pushed back to its stored position without chance of damage to the sheet.

3 Claims, 4 Drawing Figures



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JAT 00074

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Laker et al.

[11] **4,146,808**

[45] **Mar. 27, 1979**

[54] **THINNED WITHDRAWAL WEIGHTED SURFACE ACOUSTIC WAVE INTERDIGITAL TRANSDUCERS**

[75] Inventors: **Kenneth R. Laker, Staten Island, N.Y.; Thomas L. Szabo, Boston; Andrew J. Slobodnik, Jr., Malden, 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.: **850,325**

[22] Filed: **Nov. 10, 1977**

[51] Int. Cl.² **H01L 41/10**

[52] U.S. Cl. **310/313**

[58] Field of Search ..... 310/313; 333/72, 30 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,946,342 3/1976 Hartmann ..... 310/313 X

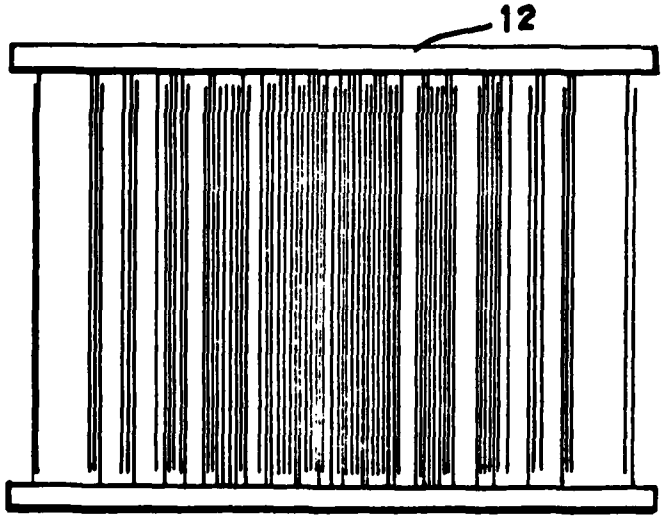
Primary Examiner—Mark O. Budd

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

[57] **ABSTRACT**

Passband distortion due to mass loading in withdrawal weighted surface acoustic wave transducers is substantially reduced by a thinning technique in which interdigital transducer electrodes are selectively withdrawn to synthesize a response function $H_w'(N)$. $H_w'(N)$ is a modified response function that has been scaled from a desired response function $H_w(N)$ by a thinning factor THIN. THIN is a positive, non-zero constant with a maximum value of unity. Thinned withdrawal weighted transducers fabricated in accordance with the technique have electrode weights that are normalized to less than unity and achieve mass loading reduction with a minimum amount of degradation of the desired response function.

4 Claims, 10 Drawing Figures



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JAT 00075

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Sinenci

[11] 4,146,201

[45] Mar. 27, 1979

[54] PARACHUTE INSPECTION ARCH

[75] Inventor: Francis P. Sinenci, Hana, Hi.

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

[21] Appl No.: 852,112

[22] Filed: Nov. 16, 1977

[51] Int. Cl.[2] B64D 21/00

[52] U.S. Cl. ..... 244/142; D7/196; 135/3 R; 211/1; 272/1 R; 272/113; 272/56; D21/245

[58] Field of Search ..... 244/142, 148, 121, 147, 244/118 R, 1 R; 272/113, 115, 56, 1 R; D34/5 D, 5 H; 135/3 R, D7/196; 211/1

[56] References Cited

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3,261,605	7/1966	Smith	D34/5 D
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3,544,125	12/1970	Unno	272/56

FOREIGN PATENT DOCUMENTS

2308722	9/1974	Fed. Rep. of Germany	244/121

OTHER PUBLICATIONS

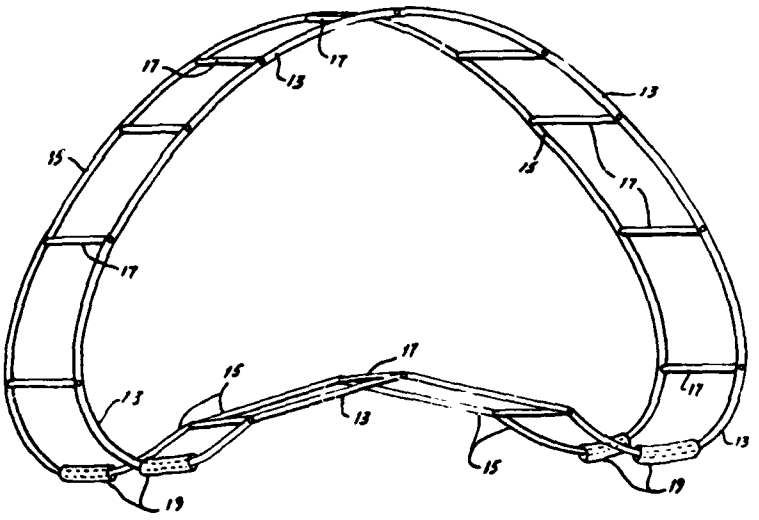
Irving Air Chute Co., Canopy Test, Jan. 25, 1944, (2 photographs).

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

[57] ABSTRACT

An inspection aid for use in the visual inspection, repair and repacking of parachutes including a pair of large opposed spaced side frame members of light tubular material having a shape approaching that of a cardioid. The frame members are parallel to each other and joined by a series of spaced transverse cross members which serve to maintain the shape and rigidity of the arch. In use, the parachute canopy is billowed open with a pedestal fan and the arch is carried into the open canopy and turned to the side. A person can then enter the open parachute and visually examine the canopy fabric and make required repairs after which the parachute is folded and reefed. The remaining gores are inspected and folded, the inspection arch is removed and the reefing is completed in the usual manner.

3 Claims, 1 Drawing Figure



JAT 00076

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19] [11] **4,146,197**

Grotz [45] **Mar. 27, 1979**

[54] **BOUNDARY LAYER SCOOP FOR THE ENHANCEMENT OF COANDA EFFECT FLOW DEFLECTION OVER A WING/FLAP SURFACE**

[75] Inventor: **Charles A. Grotz, Seattle, Wash.**

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

[21] Appl. No.: **833,788**

[22] Filed: **Sep. 16, 1977**

[51] **Int. Cl.**[2] **B64C 21/02**

[52] **U.S. Cl.** **244/12.5**; 244/204; 244/207

[58] **Field of Search** 244/204, 12.1, 198, 244/12.5, 207, 212, 213, 215

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,827,657	8/1974	Schwarzler	244/215
3,884,433	5/1975	Alexander	244/207
3,940,092	2/1976	Farris	244/207

FOREIGN PATENT DOCUMENTS

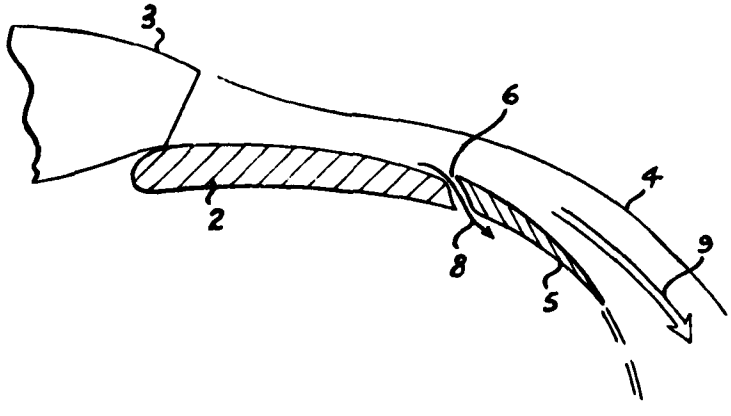
488614 7/1938 United Kingdom 244/204

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

[57] **ABSTRACT**

A STOL aircraft having turbojet or torbofan engines mounted above and forward of the wing whereby the engine exhaust gases flow over and, by the Coanda effect, attach to the upper surfaces of the wing and a downwardly curved extendible flap to produce a downwardly turned exhaust flow having a large vertical component of thrust. Premature separation of the exhaust flow from the wing or flap due to reduced velocity in the boundary layer of the flow, which would result in decreased turning of the exhaust gases and a reduced vertical thrust component, is prevented by a boundary layer scoop extending across the exhaust flow, in an area just prior to where the exhaust flow would separate from the wing or flap, for removing the boundary layer gases and discharging them beneath the wing.

2 Claims, 3 Drawing Figures



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JAT 00077

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Maier, Jr.

[11] **4,148,050**

[45] **Apr. 3, 1979**

[54] **RADIATION DOSE RATE HARDENED LIGHT DETECTOR**

[75] Inventor: **Rae J. Maier, Jr., Bosque Farms, N. Mex.**

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

[21] Appl. No.: **866,432**

[22] Filed: **Jan. 3, 1978**

[51] Int. Cl.[2] **H01L 27/14**

[52] U.S. Cl. ..... **357/30; 357/15; 357/4; 250/211 J**

[58] Field of Search ..... 357/30, 15, 4; 250/211 J

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,393,088	7/1968	Manasevit	117/106
3,704,376	11/1972	Lebovec	250/211 J
3,971,057	7/1976	Connors	357/30

OTHER PUBLICATIONS

Anderson et al., Solid State Electronics, 1976, vol. 19, pp. 973–974.

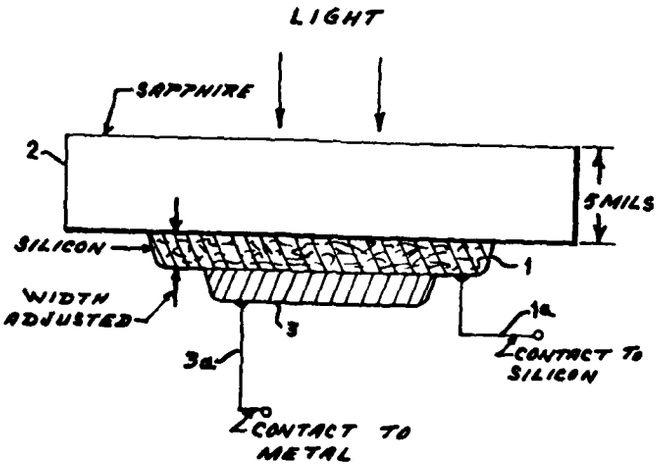
Primary Examiner—Martin H. Edlow

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

[57] **ABSTRACT**

A radiation dose rate hardened light detector uses a Schottky diode island on a sapphire substrate. The thickness of the silicon is carefully adjusted to produce interference absorption at the light wavelength of interest. The light enters the silicon through the sapphire and is reflected off a metal electrode to produce the interference at the silicon-sapphire interface.

4 Claims, 1 Drawing Figure



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JAT 00078

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Heinrich et al.

[11] 4,151,478

[45] Apr. 24, 1979

[54] NONLINEARLY VARIABLE GAIN APPARATUS

[75] Inventors: Eric C. Heinrich, Seminole; William H. Mosley, Jr., St. Petersburg, 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.: 866,433

[22] Filed: Jan. 3, 1978

[51] Int. Cl.[2] H03F 1/36

[52] U.S. Cl. 330/108; 330/69; 330/103

[58] Field of Search 328/145; 330/69, 103, 330/108, 260, 282

[56] References Cited

U.S. PATENT DOCUMENTS

3,448,289	6/1969	Harris	328/145 X
3,506,847	4/1970	Schow	328/145 X

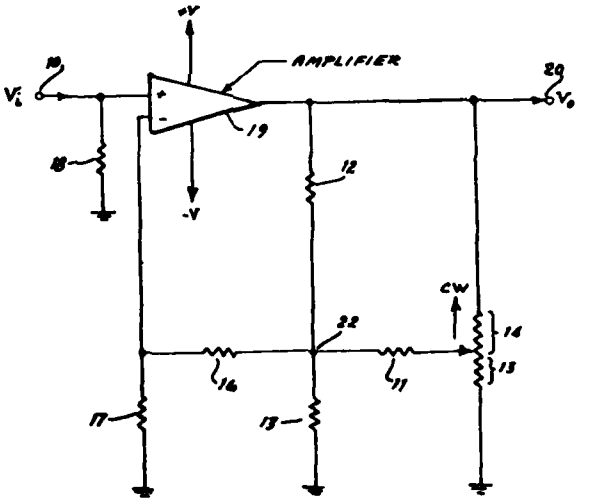
Primary Examiner—Lawrence J. Dahl

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

[57] ABSTRACT

A nonlinearly variable gain circuit is utilized to produce an inverted logarithmic S curve of gain versus potentiometer rotation while using a linear resistance taper potentiometer. An operational amplifier feedback circuit uses the linear potentiometer and a resistance network in combination.

1 Claim, 1 Drawing Figure



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JAT 000 79

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Leiby, Jr.

[11] 4,147,995

[45] Apr. 3, 1979

[54] FOIL MODERATED RADIOACTIVE PREIONIZATION SYSTEM FOR GAS LASERS

[75] Inventor: Clare C. Leiby, Jr., Bedford, Mass.

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

[21] Appl. No.: 826,221

[22] Filed: Aug. 19, 1977

[51] Int. Cl.[2] H01S 3/09

[52] U.S. Cl. ..... 331/94.5 PE

[58] Field of Search ..... 331/94.5 G, 94.5 D, 331/94.5 P, 94.5 PE; 330/4.3

[56] References Cited

U.S. PATENT DOCUMENTS

3,935,547	1/1976	Riemersma et al.	331/94.5 PE
3,986,139	10/1976	Meneely et al.	331/94.5 G
4,064,465	12/1977	Hundstad et al.	331/94.5 PE

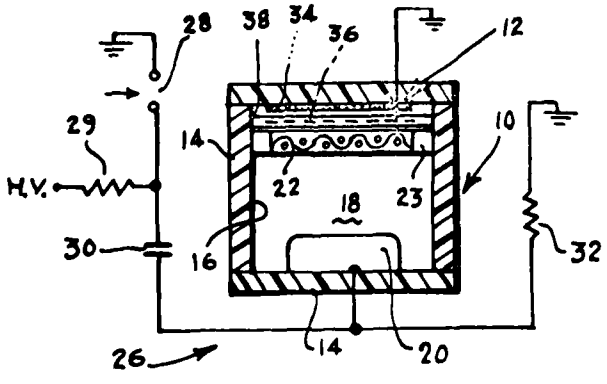
Primary Examiner—William L. Sikes

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

[57] ABSTRACT

A safe, radioactive preionization system having a thin metallic film or foil, either placed in front of or deposited on the surface of radioactive sources, in order to isolate the radioactive source from laser discharge regions and to produce copious secondary emission electrons. The film or foil prevents bombardment of the radioactive source by discharge electrons and/or ions. In addition, the secondary emission electrons ejected from the metallic film or foil are more numerous than the radioactive decay particles which produce them and have lower energies. Hence, they are much more efficient preionization agents than the high energy particles emitted by the radioactive source.

10 Claims, 6 Drawing Figures



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(84)

JAT 00080

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Weingarten

[11] **4,147,111**

[45] **Apr. 3, 1979**

[54] **LOAD DISTRIBUTIVE CARGO PLATFORM SYSTEM**

[76] Inventor: **Joseph L. Weingarten**, 1927 Oak Tree Dr., E., Dayton, Ohio 45440

[21] Appl. No.: **807,619**

[22] Filed: **Jun. 17, 1977**

[51] Int. Cl.[2] **B60P 7/08**

[52] U.S. Cl. ..... **105/463**; 193/35 SS; 244/118 R; 414/529

[58] Field of Search ..... 105/463, 464, 465, 454, 105/375; 214/84, 515; 244/118 R; 193/35 SS

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,011,665	12/1961	Wise	193/35 SS X
3,213,993	10/1965	Long	193/35 SS
3,439,790	4/1969	Langley et al.	193/35 SS

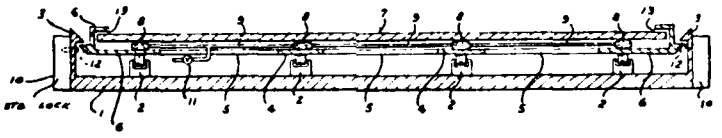
Primary Examiner—Albert J. Makay

Attorney, Agent, or Firm—Joseph E. Rusz; James S. Shannon

[57] **ABSTRACT**

A cargo pallet, pallet support and restraint system which distributes the supporting forces equally over the bottom of the cargo pallet, even though the cargo load forces are concentrated and unevenly distributed over the pallet. The pallet is supported by a system of multiple ball or roller assemblies acting in conjunction with an interconnected hydraulic pallet support system to produce a multiplicity of equal lifting forces acting over the bottom surface of the pallet. Rails located at the pallet periphery restrain the pallet's upward movement and thereby introduce forces opposing those of the hydraulic pallet support system. The force and torque interactions among the areas of load concentration, the interconnected hydraulic pallet support system, the restraining rails, and the pallet structure rigidity, distributes the concentrated load evenly over the bottom of the pallet by hydraulically maintaining an equal supporting force from each of the underlying pallet support ball or roller assemblies.

1 Claim, 8 Drawing Figures



RIGHTS OF THE GOVERNMENT

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JAT 00081

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Toy et al.

[11] 4,149,016
[45] Apr. 10, 1979

[54] **PERFLUOROETHERS**

[75] Inventors: Madeline S. Toy, Palo Alto; Roger S. Stringham, Woodside, 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.: 852,114

[22] Filed: Nov. 16, 1977

Related U.S. Application Data

[62] Division of Ser. No. 771,853, Feb. 23, 1977, Pat. No. 4,077,857.

[51] Int. Cl.[2] C07C 43/18
[52] U.S. Cl. 568/664; 252/77; 252/67; 252/65
[58] Field of Search ..... 260/611 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

2,982,786	5/1961	McCane	260/611 R
3,242,218	3/1966	Miller	260/615
3,397,191	8/1968	Beckerbauer	260/615 X
3,435,078	3/1969	Nychka	260/615
3,514,487	5/1970	Anello et al.	260/614
4,024,192	5/1977	Benninger et al.	260/611 R

OTHER PUBLICATIONS

Toy et al., Chem. Abs. vol. 85, (1976) 20643v.
Cady, Proceedings of the Chemical Society, Apr. 1960, 133 & 136.

Primary Examiner—Bernard Helfin
Attorney, Agent, or Firm—Joseph E. Rusz; Sherman H. Goldman

[57] **ABSTRACT**

A method for synthesizing perfluoropolyethers by effecting addition reactions under low temperature photolysis between perfluoroolefins, perfluorodialkyl peroxides and fluoroxyperfluoroalkanes resulting in the snythesis of new compounds.

2 Claims, No Drawings

Requests for licensing information should be addressed to:
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Washington, D.C. 20324

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JAT 00082

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19] [11] **4,147,610**

Larson [45] **Apr. 3, 1979**

[54] **INDICATORS AND SHUTDOWN SYSTEM FOR PLATING**

[76] Inventor: **David W. Larson**, 3224 N. 425 E., North Ogden, Utah 84404

[21] Appl. No.: **903,291**

[22] Filed: **May 3, 1978**

[51] Int. Cl.[2] C25D 17/00; C25F 3/02

[52] U.S. Cl. 204/228; 204/129.2

[58] Field of Search ..... 204/228, 224 R, 224 M, 204/129.2

[56] **References Cited**

U.S. PATENT DOCUMENTS

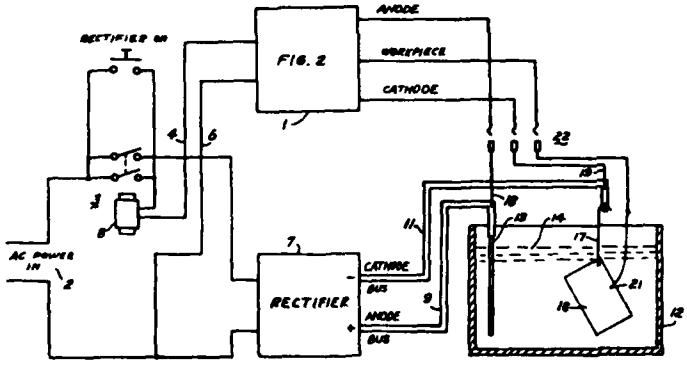
2,494,121	1/1950	Grainger	204/228 X
2,564,823	8/1951	Wallace	204/228
3,336,214	8/1967	Cnota	204/228
3,417,008	12/1968	Koltuniak	204/228 X
3,496,087	2/1970	Goodwin	204/228

Primary Examiner—John H. Mack
Assistant Examiner—D. R. Valentine
Attorney, Agent, or Firm—Joseph E. Rusz; James S. Shannon

[57] **ABSTRACT**

An electrical apparatus for detecting improper operation in the electrolytic plating or etching of a workpiece. Three connections are made from the electrical detection circuit to the work area at the plating or etching tank, namely to the anode bus bar, the cathode bus bar, and the workpiece being processed. In the detection circuit are two polarity sensing devices, which in conjunction with other electrical and manual switching devices, indicators, timers and alarms can detect incorrect operation of the plating or etching process and notify the operator accordingly. Furthermore, in the case where the operator fails to respond to a warning indicator the apparatus disclosed automatically initiates shutdown of the process in operation. The use of three connections and an appropriately interconnected pair of polarity sensing devices notifies the operator when the electrical polarity at the workpiece is incorrect, when the workpiece is attached to the wrong bus bar, or when the time has elapsed in a short preparatory etch preceeding the plating process.

5 Claims, 2 Drawing Figures



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JAT 00083

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Troy

[11] **4,146,839**

[45] **Mar. 27, 1979**

[54] **CHANNEL TRAFFIC MONITORING RADIO TRANSCEIVER**

[76] Inventor: **Stephen R. Troy, 717 Cottonwood Dr., Severna Park, Md. 21146**

[21] Appl. No.: **765,710**

[22] Filed: **Feb. 4, 1977**

[51] Int. Cl.[2] **H04B 7/00**

[52] U.S. Cl. **325/25**; 325/52; 325/63

[58] Field of Search ..... 325/15, 17, 25, 51, 325/52, 53, 54, 56, 65, 67, 63, 55; 343/175, 176, 177, 179; 179/15 BZ, 42 A; 364/200, 900

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,487,312	12/1969	Egan et al.	343/175
3,983,492	9/1976	Fisher et al.	325/63
4,013,958	3/1977	Spayth	343/177

Primary Examiner—Benedict V. Safourek

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

[57] **ABSTRACT**

A channel traffic monitoring radio transceiver having basic transceiver components in combination with a microcontroller which provides the electronic operations which enables the transceiver to automatically establish the least congested channel of communication of a plurality of channels. The microcontroller incorporates therein a digital multiplexer, channel counter, channel traffic memory, channel address display, program read only memory, mode select switch, clock and microprocessor. After operation for a short period of time under the appropriate program stored in the program memory, the channel address corresponding to the lowest traffic number will be shown on the channel address display. This channel will be the least congested channel for communication between parties making initial contact on a congested channel.

7 Claims, 2 Drawing Figures

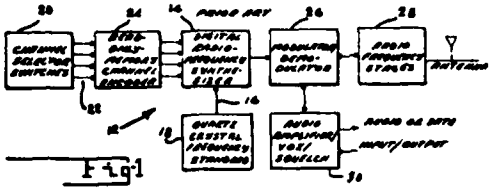
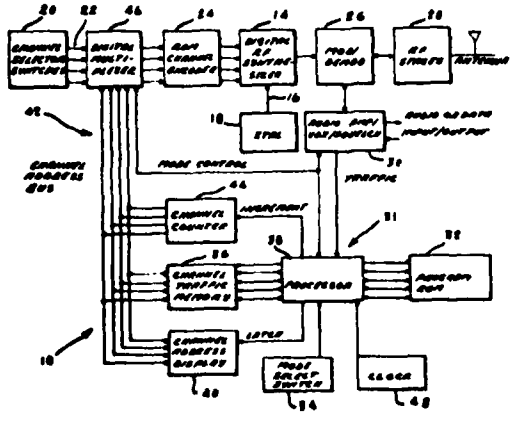


Fig 1



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United States Patent [19]

Arnold et al.

[11] **4,151,358**

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

[54] **ETHYNYL-SUBSTITUTED BIS-NAPHTHALIMIDES**

[75] Inventors: **Fred E. Arnold**, Centerville; **Frederick L. Hedberg**, 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.: **870,793**

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

Related U.S. Application Data

[62] Division of Ser. No. 750,945, Dec. 15, 1976, Pat. No. 4,086,248.

[51] **Int. Cl.**[2] **C07D 401/12; C07D 401/10**

[52] **U.S. Cl.** **546/98**

[58] **Field of Search** ..... 260/281 NH

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,402,166 9/1968 Heckl ..... 260/281 NH

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

[57] **ABSTRACT**

As new compositions of matter, ethynyl-substituted aromatic 'peri' anhydrides. The compounds are useful as endcapping agents for thermally stable heterocyclic imide compositions.

6 Claims, No Drawings

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19]

Gulley, Jr.

[11] 4,150,291

[45] Apr. 17, 1979

[54] **NONDESTRUCTIVE TESTER FOR FIBERGLASS-ALUMINUM HONEYCOMB STRUCTURES**

[75] Inventor: Lee R. Gulley, Jr., Dayton, Ohio

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

[21] Appl. No.: 864,067

[22] Filed: Dec. 23, 1977

[51] Int. Cl.² H01T 19/04

[52] U.S. Cl. 250/324

[58] Field of Search 250/324, 325, 326; 324/32, 215, 216; 361/235

[56] References Cited

U.S. PATENT DOCUMENTS

3,344,345 9/1967 Molina 324/215

3,351,760 11/1967 Brown 324/216

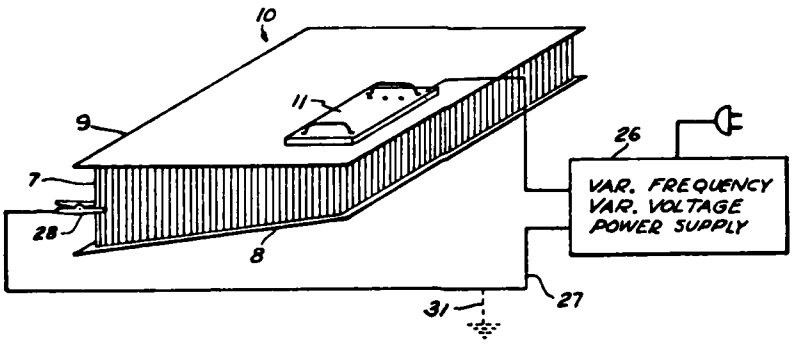
Primary Examiner—Bruce C. Anderson

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

[57] **ABSTRACT**

Defects and irregularities in fiberglass-aluminum honeycomb structures are visually displayed by ionization corona formed by a relatively high potential on a conductive mesh screen contained in transparent dielectric hand-held probe. Both the frequency and the amplitude of the potential are controllable by hand operated controls on the probe to provide optimum electrographic images in the ionization of the air in the interelectrode gap between the probe electrode and the structure being examined.

4 Claims, 5 Drawing Figures



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JAT 00086

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Maringer et al.

[11] 4,149,884

[45] Apr. 17, 1979

[54] **HIGH SPECIFIC STRENGTH POLYCRYSTALLINE TITANIUM-BASED ALLOYS**

[75] Inventors: **Robert E. Maringer**, Worthington; **Edward W. Collings**, Columbus; **Carroll E. Mobley, Jr.**, Columbus; **Harold L. Gegel**, Kettering, 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.: **921,139**

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

[51] Int. Cl.[2] C22C 14/00

[52] U.S. Cl. 75/175.5; 148/32

[58] Field of Search 75/175.5; 148/133, 32

[56] **References Cited**

U.S. PATENT DOCUMENTS

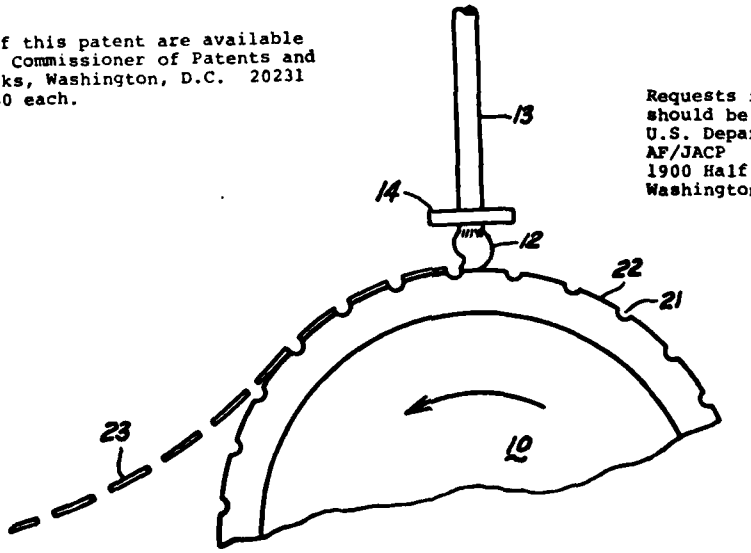
2,884,323	4/1959	Abkowitz et al.	75/175.5
2,906,654	9/1959	Abkowitz	75/175.5
3,069,259	12/1962	Margolin	75/175.5
3,989,514	11/1976	Tanner et al.	75/175.5
4,050,931	9/1977	Tanner et al.	75/175.5
4,067,732	1/1978	Ray	75/170

Primary Examiner—L. Dewayne Rutledge
Assistant Examiner—Peter K. Skiff
Attorney, Agent, or Firm—Joseph E. Rusz; Cedric H. Kuhn

[57] **ABSTRACT**

Polycrystalline titanium-based alloys having a high specific strength are formed by the rapid solidification of a melt composition containing about 80 weight percent titanium and specific amounts of aluminum, vanadium, iron and copper. In the form of filaments the alloys are particularly useful as reinforcing agents in composite structures while in the form of powders the alloys are eminently suitable for use in the fabrication of structural components by the application of powder metallurgy technology.

6 Claims, 2 Drawing Figures



JAT 00087

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Krayenbuhl et al.

[11] **4,150,540**

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

[54] **ROCKET NOZZLE SYSTEM**

[75] Inventors: **Harold A. Krayenbuhl**, Fair Oaks; **Gene Dolgonas**, Carmichael; **Charles J. Rogers**, Placerville, 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.: **787,676**

[22] Filed: **Apr. 14, 1977**

[51] **Int. Cl.**[2] **F02K 9/04**

[52] **U.S. Cl.** ..... **60/271**; 60/200 A; 60/263; 239/265.15

[58] **Field of Search** ..... 60/200 A, 271, 253; 239/265.11, 265.15

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,048,970	8/1962	Herzog	60/200 A
3,052,090	9/1962	Herzog	60/200 A
3,133,411	5/1964	McCorkle	60/200 A
3,156,097	11/1964	Kraus	60/200 A
3,285,519	11/1966	McKague	239/265.15
3,372,548	3/1968	Mathis et al.	60/271
3,606,164	9/1971	Stokes et al	239/265.15
3,694,883	10/1972	Olcott	60/200 A
3,771,726	11/1973	Mikeska	239/265.11

OTHER PUBLICATIONS

"Mark's Handbook", 7th Edit., 1967, McGraw-Hill; pp. 6-182, 6-205.

"Rubber Technology", 2nd Edit., 1973, Van Nostrand; pp. 368, 369, 381.

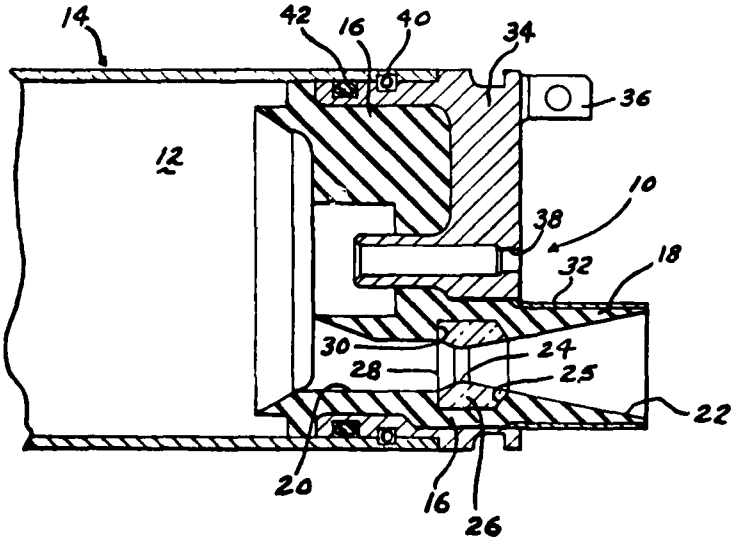
Primary Examiner—Robert E. Garrett

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

[57] **ABSTRACT**

An improved rocket nozzle system having a closure insulator located adjacent the combustion chamber of a rocket engine. The closure insulator has formed as an integral part thereof a plurality of nozzles. Each of the nozzles has incorporated therein a throat insert of pyrolized graphite cloth laminate and a consumable washer. The entire closure insulator assembly including nozzles is transfer molded as one piece into a steel housing. The housing is mounted on the combustion chamber thereby providing an effective nozzle system which is reliably operable under high temperature operation.

2 Claims, 2 Drawing Figures



United States Patent [19]
Null

[11] **4,149,166**
[45] **Apr. 10, 1979**

[54] DOPPLER COUNTERMEASURE DEVICE

[75] Inventor: **Fay E. Null, Shalimar, Fla.**

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

[21] Appl. No.: **108,960**

[22] Filed: **May 9, 1961**

[51] **Int. Cl.**[2] **F42B 13/56**
[52] **U.S. Cl.** ..... **343/18 E;** 102/89 R; 102/89 CD; 244/3.27
[58] **Field of Search** ..... 343/18, 18 E; 244/14, 244/3.1, 3.27; 102/63, 89 R, 89 CD

[56] **References Cited**

U.S. PATENT DOCUMENTS

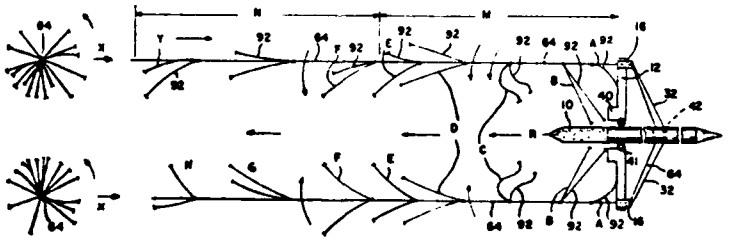
3,568,191 3/1971 Hiester ..... 343/18 E

Primary Examiner—Verlin R. Pendegrass
Attorney, Agent, or Firm—Joseph E. Rusz, Sherman H. Goldman

EXEMPLARY CLAIM

1. A Doppler decoy protection device comprising a missile capable of being launched from a space craft whose protection is sought, and to travel in advance thereof and at a speed greater than the speed of said space craft, guide means extendable rearwardly from said missile, Doppler decoy means slidable on said guide means for simulating the Doppler characteristics of the craft whose protection is sought, means for damping the speed of travel of said decoy means rearwardly on said guide means so that the resultant forward speed of said decoy means will substantially equal the speed of the craft whose protection is sought.

34 Claims, 26 Drawing Figures



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PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

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United States Patent [19] [11] **4,147,868**

Arnold et al. [45] **Apr. 3, 1979**

[54] **ACETYLENE-SUBSTITUTED AROMATIC BENZILS AND ACETYLENE-TERMINATED QUINOXALINE COMPOSITIONS**

[75] Inventors: **Fred E. Arnold**, Centerville; **Frederick L. Hedberg**, 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.: **870,705**

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

Related U.S. Application Data

[62] Division of Ser. No. 762,078, Jan. 24, 1977, Pat. No. 4,098,825.

[51] Int. Cl.[2] **C07D 241/44**; C07D 241/42

[52] U.S. Cl. **544/353**; 544/354

[58] **Field of Search** ..... 260/250 Q; 544/353, 544/354

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,966,729 6/1976 Kovar et al. ..... 260/250 Q

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

[57] **ABSTRACT**

Acetylene-terminated quinoxaline compositions are prepared by reacting an aromatic bisbenzil with an excess of a bis(o-diamine) to provide an ortho-diamino endcapped quinoxaline oligomer which is then converted to the acetylene endcapped composition by reacting with an acetylenic benzil.

6 Claims, No Drawings

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JAT 00090

PATENT ABSTRACT
FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]
Evers

[11] **4,147,858**
[45] **Apr. 3, 1979**

[54] **FLUOROCARBON ETHER BIBENZOXAZOLE OLIGOMERS CONTAINING REACTIVE ACETYLENIC TERMINAL GROUPS**

[75] Inventor: **Robert C. Evers, Dayton, Ohio**

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

[21] Appl. No.: **925,900**

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

[51] Int. Cl.[2] **C08G 73/22**
[52] U.S. Cl. ..... **528/210**; 260/307 D; 526/247; 526/259; 526/260; 526/285; 528/205; 528/211
[58] Field of Search ..... 526/247, 259, 260, 285; 528/205, 210, 211; 260/307 D

[56] **References Cited**

U.S. PATENT DOCUMENTS

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

[57] **ABSTRACT**

Fluorocarbon ether bibenzoxazole oligomers having reactive terminal acetylenic groups which make it possible to thermally cure the oligomers without the evolution of volatiles to rubbery vulcanizates exhibiting high thermooxidative stability and low temperature flexibility, properties that render the materials suitable for various aerospace applications such as for seals and sealants.

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

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JAT 00091

PATENT ABSTRACT

FROM THE AIR FORCE SYSTEMS COMMAND

PROVIDES INFORMATION ON PATENTS GENERATED BY AIR FORCE SPONSORED PROGRAMS

United States Patent [19]

Evans et al.

[11] **4,140,291**

[45] **Feb. 20, 1979**

[54] **RAMP TOE STOWAGE SYSTEM**

[75] Inventors: **Donald E. Evans**, Marina del Rey; **Lewell M. Lively, Jr.**, Anaheim, 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.: **841,776**

[22] Filed: **Oct. 13, 1977**

[51] **Int. Cl.**² **B64C 1/14**

[52] **U.S. Cl.** ..... **244/118 R; 244/129.5**

[58] **Field of Search** ..... 244/118 R, 118 P, 137 R, 244/137 P, 129.5, 129.6, 129.4; 24/257 R; 14/71.1, 71.5, 72.5; 49/37, 40, 79; 105/367, 368 R, 378

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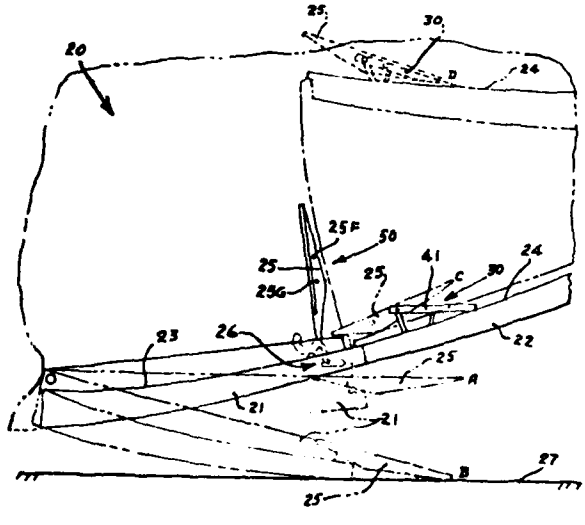
Primary Examiner—Galen L. Barefoot

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

[57] **ABSTRACT**

A structural system for capturing, supporting, and releasably securing a tail ramp toe of an aircraft, while the aircraft is either on the ground or in flight. The preferred embodiment of the ramp toe stowage system is adapted for use with a cargo aircraft having a downwardly and outwardly opening tail ramp, with at least one ramp toe removably attached to it; and, an upwardly and inwardly opening tail door that is complementary to, and aft of, the tail ramp, with the tail door having an internal surface. The stowage system is located over, and is attached to, the internal surface of the tail door, and includes two horizontally positioned tracks that accept complementary guide rollers which are on the side edges of the ramp toe, near the known center of gravity of the toe. Unlike the prior art, the system requires only one man to stow the ramp toe, or to release it from stowage, even while the aircraft is in flight.

7 Claims, 14 Drawing Figures



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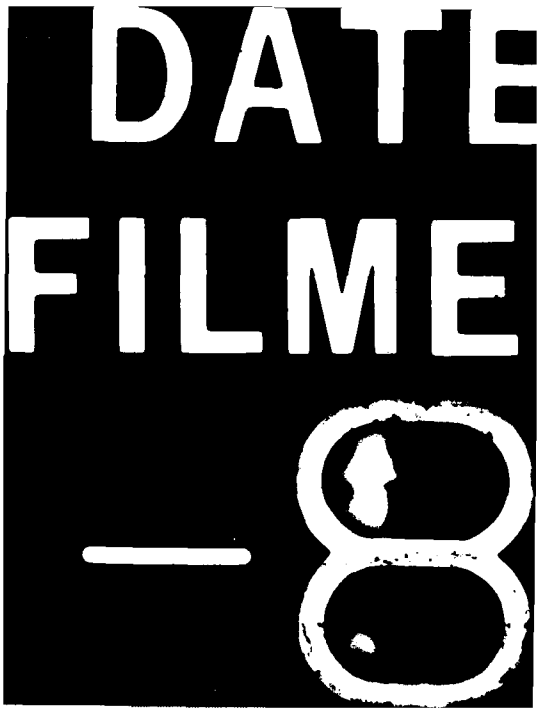
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