

Sampling of Paul & Paul Patents

Paul & Paul is a small, old and well established firm that keeps pace with the times. You could say the firm deals with inventions where progress meets history.

Attached is a random sampling of first pages of patents prosecuted by the firm through the decades. Do you recognize some of the inventions? Most often the patents reflect technology which is of high interest in that decade.

<u>Pat. No.</u>	<u>Subject Matter</u>	<u>Issue date</u>
<u>1850's:</u>		
16,208	bituminous cement	1856
18,033	finger ring	1857
<u>1880's:</u>		
357,472	knitting machine	1887
406,165	glass manufacture	1889
<u>1890's:</u>		
D25,358	hatchet head	1896
<u>1900's:</u>		
669,011	knitted goods manufacture	1901
<u>1920's:</u>		
1,665,017	commercial cooker	1928
<u>1930's:</u>		
1,776,079	electric locomotive	1930
1,807,820	commercial popcorn cooker	1931
1,978,250	movie projector	1934
2,054,772	hydraulic controls	1936
2,073,332	feed-back controls	1937
2,077,151	high-speed sewing machine	1937
<u>1940's:</u>		
2,285,564	combustion control	1942
2,293,912	variable pitch propeller	1942
2,294,304	machine hydraulic fluid distributor	1942
2,371,590	electronic control system	1945
2,429,817	thermal probe	1947
2,471,057	textile fiber manufacture	1949
<u>1950's:</u>		
2,553,983	avionics auto-pilot	1951
2,572,450	computer printer	1951
2,696,865	flexible conveyor belt	1954
2,734,360	knitting machine	1956
2,861,355	gas clothes dryer	1958

2,902,821	anodized aluminum	1959
<u>1960's:</u>		
3,053,462	fuel injector nozzle	1962
3,144,362	nitrided steel	1964
3,263,182	ultrasonic cleaner signal generator	1966
3,323,993	antacid	1967
3,328,839	carpet molding machine	1967
3,332,079	Loran-C naval navigation radio	1967
3,409,038	magnetic rubber valve	1968
3,417,401	low impedance dipole antenna	1968
3,426,136	cardiac dysrhythmias treatment	1969
3,581,073	avionics navigation computer	1969
<u>1970's:</u>		
3,511,363	vibratory conveyor discharge valve	1970
3,655,542	cellular thermoplastic product	1972
3,832,537	sonar system	1974
3,841,064	combustion gas after cooler	1974
3,920,159	concrete aggregate treatment	1975
4,078,111	extrusion coating undersea cable	1978
4,087,560	ketchup substitute	1978
4,111,605	rotary wing aircraft rotor hub	1978
<u>1980's:</u>		
Plant 4,594	poinsettia plant	1980
4,205,206	carbon granule microphone	1980
4,446,230	venereal disease test diagnosis	1984
4,459,183	circuit board electroplating apparatus	1984
4,531,978	chromate conversion coatings	1985
4,784,169	pc board conductor pattern manufacturer	1988
4,730,769	drip-proof pouring container	1988
<u>1990's:</u>		
5,030,676	UV stabilized PVC	1991
5,310,016	vehicular automated driving system	1994
5,400,360	repeater station for fiber optic system	1995
5,424,836	optical 3-D measurement	1995
5,653,091	sterilize and fill packaging	1997
5,727,105	fiber optic coupling	1998
<u>2000's:</u>		
6,020,989	architectural plate light trans-reduction	2000
6,049,585	x-ray inspection of food filled containers	2000
6,308,561	oil well logging apparatus	2001
6,861,284	semiconductor device	2005
7,005,207	fuel cell	2006
7,328,106	density log computing	2008



US007328106B2

(12) **United States Patent**
Calvert et al.

(10) **Patent No.:** **US 7,328,106 B2**
(45) **Date of Patent:** **Feb. 5, 2008**

(54) **METHOD OF CORRECTING DENSITY LOGS
FOR THE PRESENCE OF THE CASING**

(75) Inventors: **Stefan Eric Edward Calvert**,
Westmoorings (GB); **Charles**
Alexander Pereira, Loughborough
(GB); **James Roger Samworth**, Ashby
da la Zouch (GB)

(73) Assignee: **Reeves Wireline Technologies**
Limited, Leicestershire (GB)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: 11/145,063

(22) Filed: **Jun. 3, 2005**

(65) **Prior Publication Data**

US 2005/0234649 A1 Oct. 20, 2005

Related U.S. Application Data

(63) Continuation of application No. 10/394,671, filed on
Mar. 21, 2003, now Pat. No. 6,909,969.

(30) **Foreign Application Priority Data**

Apr. 12, 2002 (GB) 20020208410.1

(51) **Int. Cl.**
G01V 5/04 (2006.01)
G01V 5/10 (2006.01)

(52) **U.S. Cl.** 702/8; 250/266

(58) **Field of Classification Search** 702/1-8;
250/256, 269.2, 266

See application file for complete search history.

(56) **References Cited**

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3,567,935 A *	3/1971	Nagel	250/264
3,567,936 A *	3/1971	Tittman	250/264
4,297,575 A	10/1981	Smith, Jr. et al.	250/265
4,642,460 A	2/1987	Wallace	250/256
4,645,926 A	2/1987	Randall	250/256
5,528,030 A	6/1996	Mickael	250/269.4
5,684,299 A *	11/1997	DasGupta	250/269.2
6,909,969 B2 *	6/2005	Calvert et al.	702/8

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UK Patent Office Search Report; issued on application No. GB
0208410.1, 1 page.

"The Dual-Spaced Density Log-Characteristics, Calibration and
Compensation" J.R. Samworth, The Log Analyst, Feb. 1992.

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Primary Examiner—John Barlow

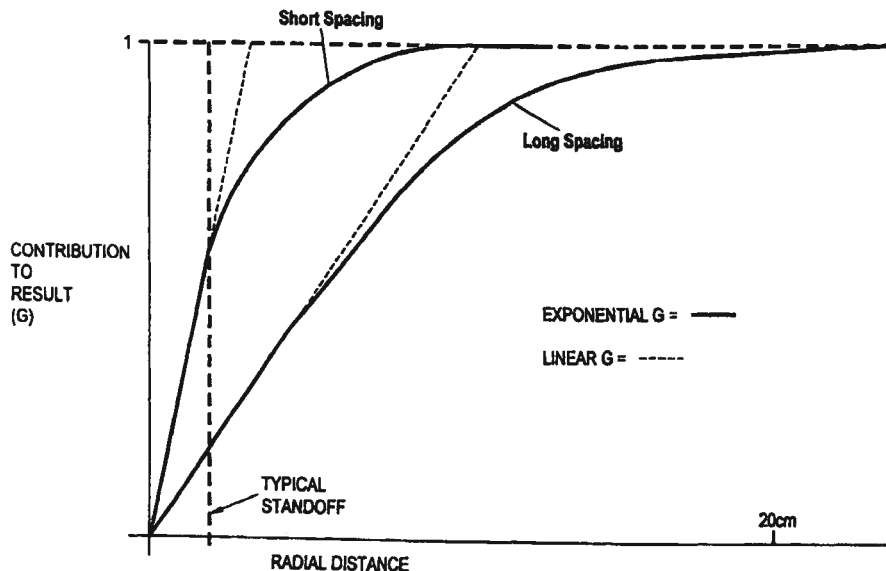
Assistant Examiner—Victor J. Taylor

(74) *Attorney, Agent, or Firm*—Paul & Paul

(57) **ABSTRACT**

A gas detection method includes carrying out respective
neutron and density logs, using neutron and density detec-
tors, along a length of well. The density log is corrected for
the dimensions and properties of the well casing. The
corrected density log is then combined with the neutron log
to compensate for regions of artificially high density outside
the casing. The compensated density log is continuously
calibrated against the neutron log. The dynamically cali-
brated density and neutron logs are inspected for crossovers
that signify the presence of gas in a formation.

29 Claims, 6 Drawing Sheets





US007005207B2

(12) **United States Patent**
Horiuchi et al.

(10) Patent No.: **US 7,005,207 B2**
(45) Date of Patent: **Feb. 28, 2006**

(54) **FUEL CELL**

(75) Inventors: **Michio Horiuchi**, Nagano (JP);
Shigeaki Suganuma, Nagano (JP);
Misa Watanabe, Nagano (JP); **Shuji**
Yamazaki, Nagano (JP)

(73) Assignee: **Shinko Electric Industries Co. Ltd.**,
Nagano (JP)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 508 days.

(21) Appl. No.: **10/244,313**

(22) Filed: **Sep. 16, 2002**

(65) **Prior Publication Data**

US 2003/0054222 A1 Mar. 20, 2003

(30) **Foreign Application Priority Data**

Sep. 17, 2001 (JP) 2001-281730

(51) **Int. Cl.**

H01M 2/00 (2006.01)
H01M 2/02 (2006.01)
H01M 2/14 (2006.01)
H01M 8/01 (2006.01)
H01M 8/12 (2006.01)

(52) U.S. Cl. 429/34; 429/26; 429/38

(58) Field of Classification Search 429/34,
429/38, 26

See application file for complete search history.

(56) **References Cited**

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4,212,929 A * 7/1980 Grevstad et al. 429/37

4,863,813 A 9/1989 Dyer
5,094,928 A 3/1992 Dyer
5,482,792 A * 1/1996 Faita et al. 429/30
5,750,280 A * 5/1998 Akagi 429/32

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Primary Examiner—Patrick Joseph Ryan

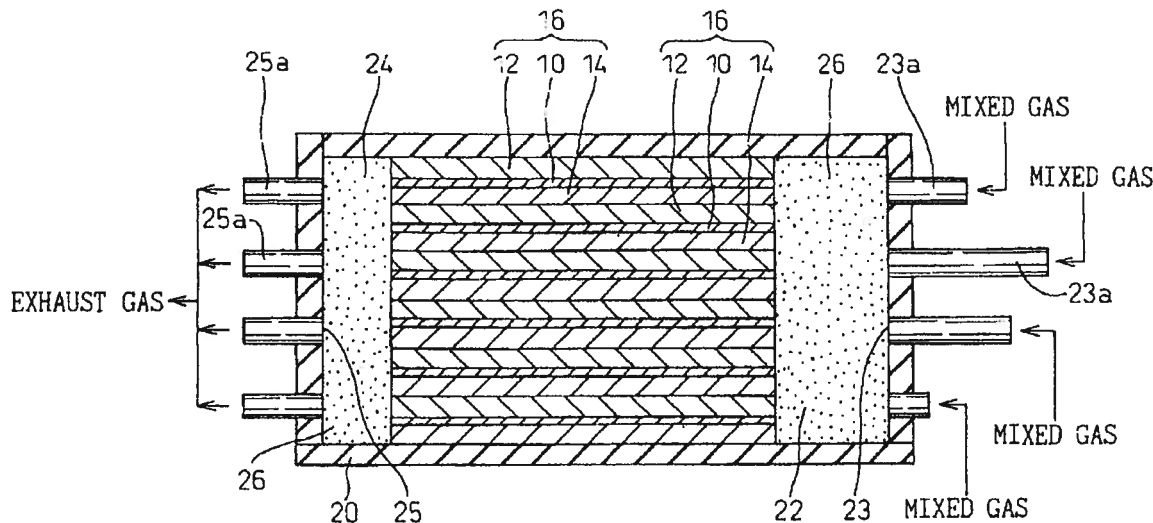
Assistant Examiner—Julian Mercado

(74) *Attorney, Agent, or Firm*—Paul & Paul

(57) **ABSTRACT**

A fuel cell comprising a container having at least one feed port and at least one exhaust port, and a stack of fuel cell elements contained in the container in such a manner that the circumferential faces of the stack of fuel cell elements and the inner surfaces of the container are contacted, the element comprising a cathode layer, an anode layer, and an electrolyte layer, with the electrolyte layer being interposed between the cathode and anode layers, and a mixed gas containing a fuel gas and oxygen being fed to the fuel cell from the feed port, and an exhaust gas is discharged from the exhaust port, wherein packing materials are filled in each of the spaces between the feed port and the stack of fuel cell elements and between the stack of fuel cell elements and the exhaust port, and wherein there is a gap between the adjacent packing materials, at which gap the mixed fuel gas cannot be ignited at the operating condition of the fuel cell even if the mixed fuel gas has an oxygen concentration within the ignition limits for the mixed fuel gas.

22 Claims, 5 Drawing Sheets





US006861284B2

(12) **United States Patent**
Higashi et al.

(10) Patent No.: **US 6,861,284 B2**
(45) Date of Patent: **Mar. 1, 2005**

(54) **SEMICONDUCTOR DEVICE AND PRODUCTION METHOD THEREOF**

(58) Field of Search 438/107-109,
438/622-624

(75) Inventors: Mitsutoshi Higashi, Nagano (JP); Kei Murayama, Nagano (JP); Hideaki Sakaguchi, Nagano (JP); Hiroko Koike, Nagano (JP)

(56) **References Cited**

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5,157,589 A	10/1992	Cole, Jr. et al.	
5,524,339 A *	6/1996	Gorowitz et al.	29/841
5,565,706 A *	10/1996	Miura et al.	257/723
6,025,995 A *	2/2000	Marcinkiewicz	361/760
6,759,268 B2 *	7/2004	Akagawa	438/106

(73) Assignee: Shinko Electric Industries Co., Ltd., Nagano (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

* cited by examiner

(21) Appl. No.: 10/335,689

Primary Examiner—Erik Kielin

(22) Filed: Jan. 2, 2003

(74) Attorney, Agent, or Firm—Paul & Paul

(65) **Prior Publication Data**

US 2003/0102547 A1 Jun. 5, 2003

Related U.S. Application Data

(62) Division of application No. 09/734,855, filed on Dec. 11, 2000, now abandoned.

(30) **Foreign Application Priority Data**

Dec. 16, 1999 (JP) 11-357747

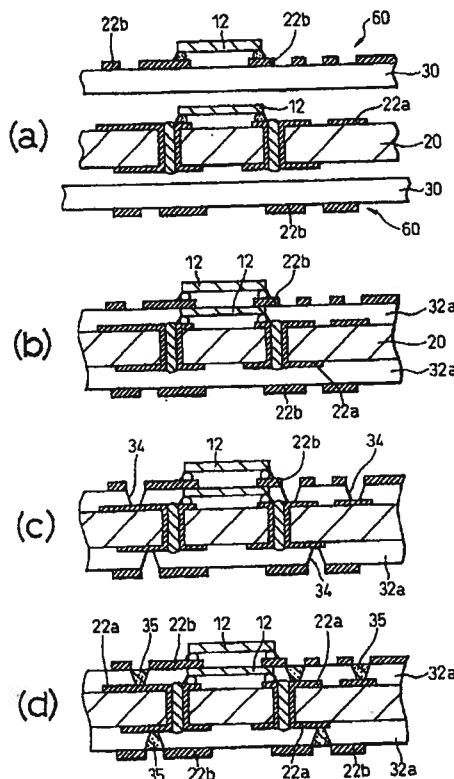
(51) Int. Cl.⁷ H01L 21/44; H01L 21/48; H01L 21/50; H01L 21/4763

(52) U.S. Cl. 438/107; 438/108; 438/109; 438/622; 438/623; 438/624

(57) **ABSTRACT**

In a semiconductor device including an insulating core substrate, a plurality of layers of wiring patterns on the core substrate and insulating layers interposed between the wiring patterns, each adjacent pair of the wiring patterns being electrically connected through a conductor portion penetrating through the insulating layer interposed between them, each of the insulating layers is formed integrally, semiconductor chips thinner than one layer of the insulating layer are mounted into at least one of the insulating layers, and the semiconductor chips are electrically connected to one layer of the wiring pattern of one insulating layer adjacent on the side of the core substrate.

4 Claims, 6 Drawing Sheets





US006308561B1

(12) **United States Patent**
Samworth et al.

(10) **Patent No.:** **US 6,308,561 B1**
(45) **Date of Patent:** **Oct. 30, 2001**

(54) **WELL LOGGING APPARATUS**

(75) Inventors: **James Roger Samworth**, Ashby de la
Zouch; **Charles Richard Easter**;
Charles Alexander Pereira, both of
Loughborough; **Terence Paul Mayor**,
Keyworth, all of (GB)

(73) Assignee: **Reeves Wireline Technologies (GB)**

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/337,146**

(22) Filed: **Jun. 21, 1999**

(30) **Foreign Application Priority Data**

Jun. 26, 1998 (GB) 9813735

(51) Int. Cl.⁷ **G01V 5/12**; **G01V 5/00**;
G06F 15/20

(52) U.S. Cl. **73/152.02**; **73/152.14**;
250/269.7; **250/268**

(58) Field of Search **73/152.02**, **152.14**,
73/152.46; **250/268**, **269.7**

(56) **References Cited**

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3,654,470 4/1972 Wilson 250/83.6 W
3,798,966 * 3/1974 Planche 73/151
3,946,604 * 3/1976 Anderson 73/152
4,031,750 * 6/1977 Youmans 73/151
4,034,218 7/1977 Turcotte 250/269
4,048,495 9/1977 Ellis 250/264
4,504,736 3/1985 Smith, Jr. et al. 250/256

4,578,580 3/1986 Smith, Jr. 250/269
4,628,202 12/1986 Minette 250/269
4,661,700 4/1987 Holenka 250/267
4,814,611 3/1989 Moake 250/267
4,929,915 * 5/1990 Wittrisch 324/347
5,134,285 7/1992 Perry et al. 250/269
5,204,529 4/1993 Diatschenko 250/268
5,390,115 2/1995 Case et al. 364/422
5,451,779 9/1995 Spross et al. 250/266
5,528,029 6/1996 Chapellat et al. 250/266
5,528,556 * 6/1996 Seeman 367/25
5,530,243 6/1996 Mathis 250/269.3
5,563,512 * 10/1996 Mumby 324/339
5,596,142 1/1997 Delpuech et al. 73/152.17
5,608,215 3/1997 Evans 250/269.6

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Primary Examiner—Hezron Williams

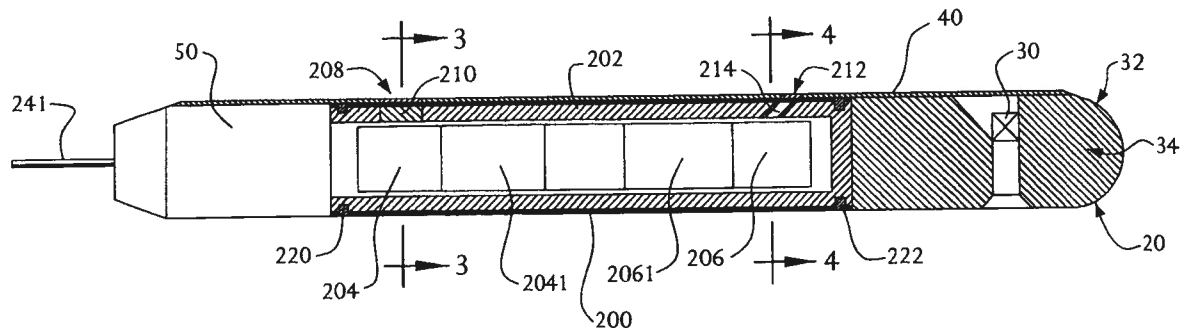
Assistant Examiner—David J. Wiggins

(74) *Attorney, Agent, or Firm*—Paul & Paul

(57) **ABSTRACT**

A well logging device of compact reduced diameter compared to the prior art, such well logging device having both short spaced and long spaced types of gamma ray crystal detectors installed in a measurements skid that comprises a relatively small diameter device constructed to withstand high temperatures and pressures, this device comprising a continuous stainless steel tube which provides pressure resistance and also allows low energy gamma ray transparency via large and small windows. This elongate type of stainless steel skid tube is furthermore internally supported by an internal tungsten tube placed therewithin, while the skid design also includes means for pressing the skid tube against a borehole wall so as to obtain more accurate formation density measurements downhole.

13 Claims, 2 Drawing Sheets





US006049585A

United States Patent [19]**Ocleppo**[11] **Patent Number:** **6,049,585**[45] **Date of Patent:** **Apr. 11, 2000**

[54] **NON-DESTRUCTIVE X-RAY INSPECTION APPARATUS FOR LIQUID FOODSTUFFS CONTAINED IN GLASS VESSELS OR BOTTLES**

4,025,202 5/1977 Deane 356/239.4
 4,136,930 1/1979 Gomm et al. 250/223 B
 5,400,381 3/1995 Steude et al. 378/57

[75] **Inventor:** **Rinaldo Ocleppo**, Canale, Italy

Primary Examiner—David P. Porta
Attorney, Agent, or Firm—Paul & Paul

[73] **Assignee:** **Dylog Italia SpA**, Italy

[57] **ABSTRACT**

[21] **Appl. No.:** **09/075,475**

An apparatus for X-ray inspection of liquid foodstuffs contained in glass vessels such as jars or bottles, comprising a conveyor, along which a plurality of such vessels is moved, having a horizontal path, a section for the inlet and a section for the outlet of said vessels, and a device fitted along said horizontal path for inspecting said vessels and detecting the presence of contaminants in said liquid foodstuff. The apparatus provides for two arcuate connecting sections between said inlet and outlet sections, respectively. The connecting sections extend in vertical directions with the vessel advancing direction varying by 180° with respect to a horizontal axis, whereby said inspection device controls the vessels in an upturned position.

[22] **Filed:** **May 11, 1998**

[51] **Int. Cl.⁷** **G01N 23/12**

[52] **U.S. Cl.** **378/57; 378/58; 378/208**

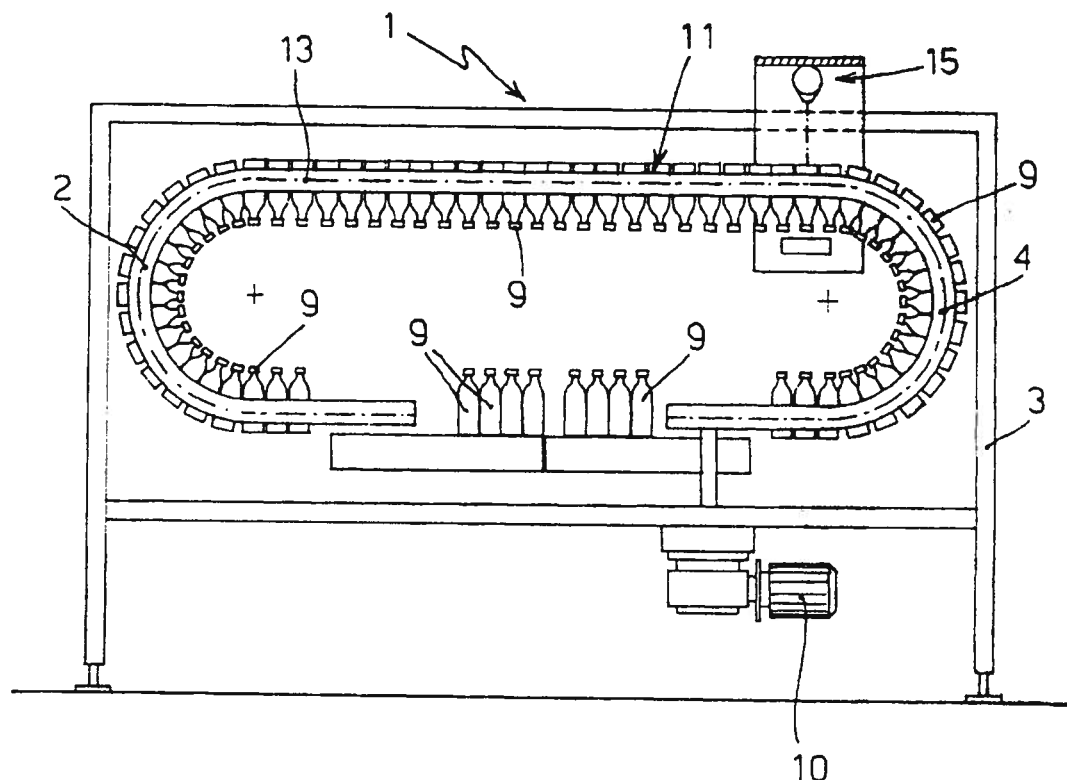
[58] **Field of Search** **378/57, 58, 51, 378/208; 250/223 R, 223 B, 559.4**

[56] **References Cited**

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3,576,442 4/1971 Nakamura 250/223 B
 3,886,353 5/1975 Shioya 250/223 B
 3,958,078 5/1976 Fowler et al. .

5 Claims, 2 Drawing Sheets





US006020989A

United States Patent [19]
Watanabe[11] **Patent Number:** **6,020,989**
[45] **Date of Patent:** **Feb. 1, 2000**[54] **LAMINATED BODIES AND WINDOWS USING THEM**[75] **Inventor:** Haruo Watanabe, Tokyo, Japan[73] **Assignee:** Affinity Co., Ltd., Tokyo, Japan[21] **Appl. No.:** 09/021,876[22] **Filed:** Feb. 11, 1998[20] **Foreign Application Priority Data**

May 14, 1997 [JP] Japan 9-137947

[51] **Int. Cl.⁷** **G02F 1/01**[52] **U.S. Cl.** **359/288; 359/289**[58] **Field of Search** 359/288, 289,
359/237, 238, 240[56] **References Cited****U.S. PATENT DOCUMENTS**

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4,772,506	9/1988	Siol et al.	428/212
4,832,466	5/1989	Nishimura et al.	350/354
4,877,675	10/1989	Falicoff et al.	428/204
5,615,040	3/1997	Watanabe	359/288

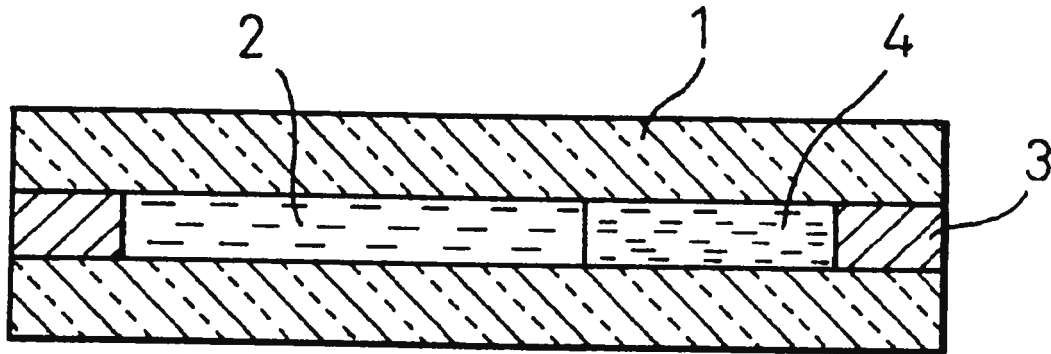
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61-7948	3/1986	Japan .
63-500042	1/1988	Japan .
6-255016	9/1994	Japan .

Primary Examiner—Georgia Epps*Assistant Examiner*—Suzanne Letendre*Attorney, Agent, or Firm*—Paul & Paul[57] **ABSTRACT**

A laminated body comprising an aqueous solution, in which molecules dissolved in water aggregate upon increasing temperature to demonstrate cloudy light-scattering resulting in decrease in light transmittance, sealed between two substrates which are at least partially transparent to allow direct visibility of said aqueous solution, wherein said aqueous solution comprises 0.5 to 45 parts by weight of an amphipathic substance which exhibits a clouding point, is an oil at room temperature and dissolves uniformly in water at room temperature, dissolved in 100 parts by weight of a solution of 0.5 to 40 parts by weight of an ionic water-soluble polymer or a vinyl-based non-ionic water-soluble polymer exhibiting no clouding point at a temperature of not higher than about 45° C. in 100 parts by weight of water, and said aqueous solution undergoes a temperature-dependent reversible sol-emulsion phase transition, as well as a window employing it.

18 Claims, 2 Drawing Sheets

United States Patent [19]

Nagata et al.

[11] Patent Number: 5,727,105

[45] Date of Patent: Mar. 10, 1998

[54] PACKAGE STRUCTURE FOR OPTICAL ELEMENT AND FIBERS AND COMPOSITE STRUCTURE THEREOF

[75] Inventors: Hirotoishi Nagata; Masaru Shiroishi; Tsutomu Saito; Takashi Tateyama; Mithuru Sakuma, all of Funabashi, Japan

[73] Assignee: Sumitomo Osaka Cement Co., Ltd., Tokyo, Japan

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,613,026.

[21] Appl. No.: 661,932

[22] Filed: Jun. 11, 1996

Related U.S. Application Data

[62] Division of Ser. No. 362,190, Dec. 22, 1994, Pat. No. 5,613,026.

[30] Foreign Application Priority Data

Dec. 28, 1993	[JP]	Japan	5-335291
Dec. 28, 1993	[JP]	Japan	5-336102
Mar. 30, 1994	[JP]	Japan	6-060750
Apr. 14, 1994	[JP]	Japan	6-075798
Apr. 15, 1994	[JP]	Japan	6-076928
Apr. 28, 1994	[JP]	Japan	6-092147
May 18, 1994	[JP]	Japan	6-103959

[51] Int. Cl.⁶ G02B 6/36

[52] U.S. Cl. 385/94; 385/88; 385/89; 385/90; 385/91; 385/92

[58] Field of Search 385/88-94, 49, 385/31, 32, 44, 50, 52, 95

[56] References Cited

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5,430,820	7/1995	Tongeren et al.	385/94
5,475,784	12/1995	Bookbinder et al.	385/94

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2 264 789	9/1993	United Kingdom	
WO 89/06816	7/1989	WIPO	385/94

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 Japanese Patent Abstract Publication No. 56-135801, published Oct. 1981, in the name of Matsuzaki.
 PCT Patent Application No. WO 89/06816, dated Jul., 1989, in the name of Estrada, et al.

"Practical Method of Waveguide-to-Fiber Connection: Direct Preparation of Waveguide Endface by Cutting Machine and Reinforcement Using Ruby Beads", by N. Mekada et al., published in *Applied Optics*, vol. 29, No. 34, on Dec. 1, 1990.

"Input/Output Fiber Configuration in a Laser Package Design", by E. Suhir, et al., published in *Journal of Lightwave Technology*, vol. II, No. 12, Dec. 1993.

Primary Examiner—Akm E. Ullah

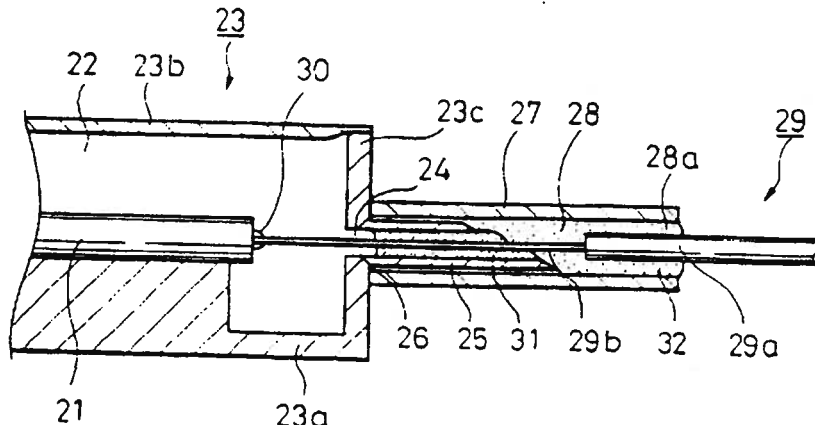
Assistant Examiner—Hemang Sanghavi

Attorney, Agent, or Firm—Paul & Paul

[57] ABSTRACT

An optical element-optical fiber composite structure having a high resistance of the optical fiber to breakage due to cyclical change in temperature, includes a package structure having a main container, side containers attached to the main container and sleeves through which a main chamber of the main container is connected to side chambers of the side containers; an optical element housed in the main chamber; and optical fibers introduced into the main chamber through the side chambers and the sleeves and connected to the optical element.

2 Claims, 21 Drawing Sheets



[54] **PROCESS FOR STERILIZING AND FILLING
PACKAGES FOR FLOWABLE MEDIA.
DEVICE FOR THIS PURPOSE AND USE
WITH A PARTICULAR PACKAGE**

3,837,137 9/1974 Yassushiro et al. 53/510 X
3,970,426 7/1976 Stark et al. .
4,910,942 3/1990 Dunn et al. 53/426 X

[76] Inventor: **Sven Olof Soren Stark**, Sjurup 23,
S-271 00 Ystad, Sweden

[21] Appl. No.: **501,109**

[22] PCT Filed: **Feb. 8, 1994**

[86] PCT No.: **PCT/EP94/00353**

§ 371 Date: **Sep. 22, 1995**

§ 102(e) Date: **Sep. 22, 1995**

[87] PCT Pub. No.: **WO94/18075**

PCT Pub. Date: **Aug. 18, 1994**

[30] **Foreign Application Priority Data**

Feb. 12, 1993 [DE] Germany 43 04 220.1

[51] Int. Cl.⁶ **B65B 55/04; B65B 31/02**

[52] U.S. Cl. **53/426; 53/432; 53/484;
53/510; 53/167; 53/375.6**

[58] Field of Search **53/426, 432, 467,
53/473, 484, 510, 167, 375.6, 375.7**

[56] **References Cited**

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3,531,908 10/1970 Rausing et al. 53/426

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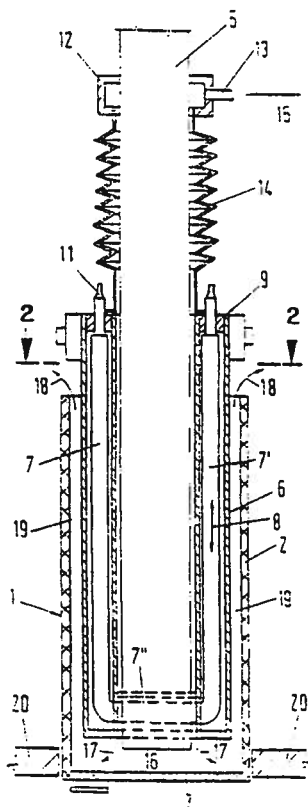
2914075 11/1980 Germany .
239388A1 9/1986 Germany .
40362901A 12/1991 Germany .
595248 2/1978 Switzerland .

Primary Examiner—Linda Johnson
Attorney, Agent, or Firm—Paul & Paul

[57] **ABSTRACT**

A process for sterilizing and filling packages (1) for flowable media, open on one side, under the influence of pulsating light and use of a filler pipe (5) is improved to the effect that treatment by chemical media together with its associated disadvantages is avoided. For this, the package (1), enclosing the filler pipe (5) and the light source (7), is moved sufficiently far relatively to the filler pipe (5) and to the light source (7) for the bottom edge (16) of the filler pipe (5) and the light source (7) to be located near to the closed end (3) of the package. sterile gas is blown into the package (1) and the light is allowed to take effect, and after shutting off the light source (7), the light source (7) is moved along in one direction and the package (1), being filled, is moved in the other direction, then closed and transported onwards.

10 Claims, 4 Drawing Sheets





US005424836A

United States Patent [19]

[11] Patent Number: 5,424,836

Weise et al.

[45] Date of Patent: Jun. 13, 1995

[54] APPARATUS FOR CONTACT-FREE
OPTICAL MEASUREMENT OF A
THREE-DIMENSIONAL OBJECT[75] Inventors: Thomas Weise; Rudger Rubbert, both
of Berlin, Germany[73] Assignee: Geyer Medizin- und
Fertigungstechnik GmbH, Germany

[21] Appl. No.: 70,264

[22] Filed: Jun. 2, 1993

[30] Foreign Application Priority Data

Jun. 3, 1992 [DE] Germany 42 18 219.0

[51] Int. Cl.⁶ G01B 11/24; G01N 21/86[52] U.S. Cl. 356/376; 356/241;
250/561[58] Field of Search 356/241, 376, 375;
250/561, 562, 563

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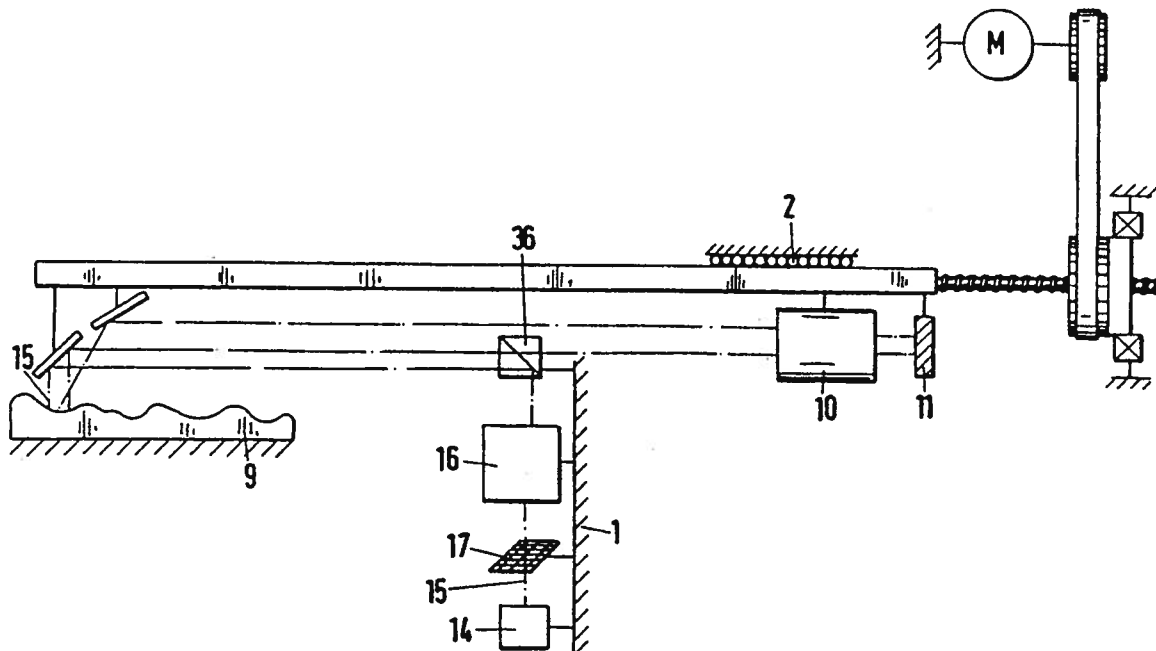
0391532	10/1990	European Pat. Off.	356/376
3829925	3/1990	Germany	356/376
60-55211	3/1985	Japan	356/376
WO9105520	5/1991	WIPO	356/376

Primary Examiner—Rolf Hille
Assistant Examiner—Minhloan Tran
Attorney, Agent, or Firm—Paul & Paul

[57] ABSTRACT

A description is given of an apparatus for the contact-free, spatial measurement of a poorly accessible, three-dimensional object (9) optically by taking surface photographs, having an optic ray source, a recording unit (10, 11) for recording optic rays (15, 18, 19, 25), and an evaluation unit for the evaluation of the data transmitted by the optic rays. In order to make it possible for objects to be measured accurately, preferably in space, in contact-free manner in confined spaces, and for the measuring data results to be recorded, the invention provides that a carrier (4) is movable on at least one guide device (2) relative to the object (9) on a guide track (3) towards the frame (1), that the carrier (4) is able to travel on the guide device (2) by means of a motor (7), that a deflector device (12, 13, 13') is fixed to the carrier (4) in such a way that at least one ray (18, 19, 25; 18', 19', 25') reflected by the object is deflected towards the recording unit (10, 11), that the position and orientation of the frame (1) relative to the object (9) is clearly defined at any time, that the position and orientation of the carrier (4) relative to the frame (1) is clearly defined at any time, that the evaluation unit (11a) has devices for storing data relating to the rays (18', 19', 25') reflected by the object (9) in the form of image elements, -lines, and/or image planes, and that the evaluation unit (11a) has devices for the processing of image data stored.

21 Claims, 13 Drawing Sheets





US005400360A

United States Patent [19]

Richards et al.

[11] Patent Number: 5,400,360

[45] Date of Patent: Mar. 21, 1995

[54] REPEATER FOR A DIGITAL CONTROL SYSTEM

[75] Inventors: Alan W. Richards, Lynchburg;
Kenneth R. Talbott, Gretna; Paul R. Smith, Lynchburg, all of Va.

[73] Assignee: Limitorque Corporation, Lynchburg, Va.

[21] Appl. No.: 35,675

[22] Filed: Mar. 23, 1993

[51] Int. Cl.⁶ H03K 11/00; H04L 25/60;
H04L 25/64[52] U.S. Cl. 375/214; 375/211;
455/7; 455/9[58] Field of Search 375/3, 3.1, 4; 455/7,
455/9, 10, 14; 178/70 R; 379/338, 340

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Primary Examiner—Stephen Chin

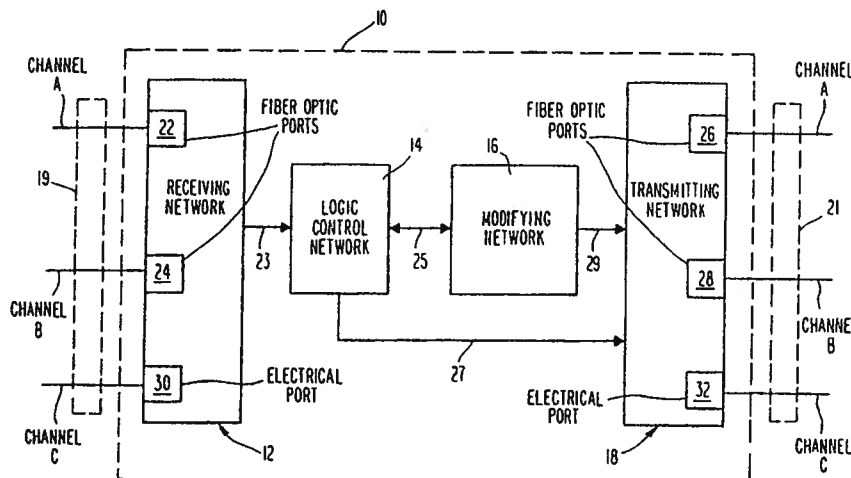
Assistant Examiner—Bryan E. Webst

Attorney, Agent, or Firm—Paul and Paul

[57] ABSTRACT

A repeater device in a communication network within a transmission line segment receives a distorted signal from the transmission line and retransmits a modified signal. The repeater includes a detector for activating the device in response to the input of the signal and a logic control in order for directing the signal to the modifying portion of the device. To minimize bit error which may occur as the signal is being transmitted over the network or as the signal is being received by the modifying portion of the repeater, the repeater replaces the leading bit of the signal prior to being retransmitted back to the network.

29 Claims, 7 Drawing Sheets



United States Patent [19]
Rudelle

US005310016A
[11] Patent Number: 5,310,016
[45] Date of Patent: May 10, 1994

[54] ELECTRICAL DRIVING UNIT FOR
ROLLING VEHICLES AND MOTOR
VEHICLES PROVIDED WITH SUCH A UNIT

[76] Inventor: Leonce Rudelle, Puech D'Autenc,
Andouque, 81350 Valderies, France

[21] Appl. No.: 879,344

[22] Filed: May 7, 1992

[30] Foreign Application Priority Data

May 23, 1991 [FR] France 91-06257

[51] Int. Cl.⁵ B60K 1/00

[52] U.S. Cl. 180/65.1; 180/65.3;
180/65.4; 318/139; 318/268

[58] Field of Search 180/65.1, 65.2, 65.3,
180/65.4, 65.6; 318/244, 245, 246, 139, 268;
388/826

[56] References Cited

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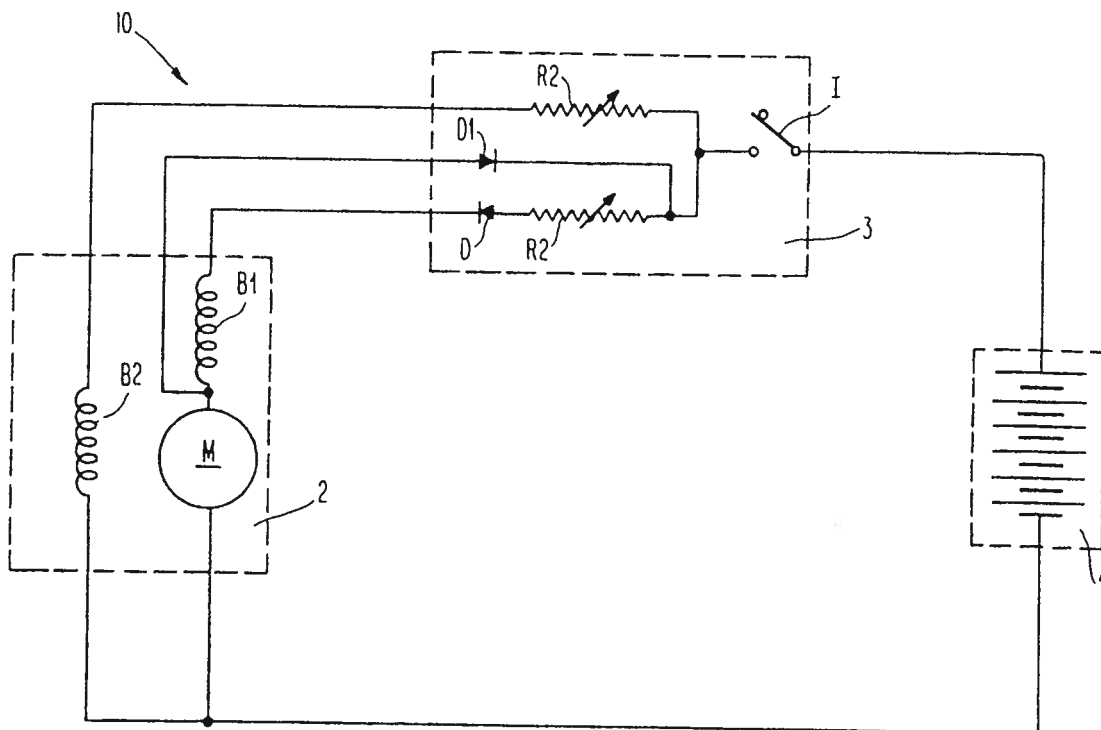
Primary Examiner—Eric Culbreth

Attorney, Agent, or Firm—Paul and Paul

[57] ABSTRACT

The invention relates to an electrical driving unit for a rolling motor vehicle of the kind comprising an electrically motorized subassembly which is fed by a direct current supply subassembly and controlled by an electrically regulated control subassembly and is connected to the running carriage of the vehicle via a gear box, clutch and secondary transmission. This driving unit is remarkable in that the abovementioned electrically motorized subassembly is a motor called "compound" with a series excitation winding and a parallel excitation winding; both connected between said electrically motorized control subassembly and the direct current supply subassembly, which is comprised of a series of accumulator batteries. Applications of the invention include electrical propulsion of land motor vehicles.

7 Claims, 1 Drawing Sheet



United States Patent [19]
Wallen

[11] **Patent Number:** 5,030,676
[45] **Date of Patent:** Jul. 9, 1991

[54] **UV LIGHT STABILIZED POLYVINYL
CHLORIDE COMPOSITION**

[75] **Inventor:** J. Michael Wallen, Lindsborg, Kans.

[73] **Assignee:** Certaineed Corporation, Valley
Forge, Pa.

[21] **Appl. No.:** 380,142

[22] **Filed:** Jul. 14, 1989

[51] **Int. Cl.⁵** C08K 5/58; C08K 3/22

[52] **U.S. Cl.** 524/182; 524/413;
524/436

[58] **Field of Search** 524/182, 413, 436

[56] **References Cited**

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Primary Examiner—Veronica P. Hoke

Attorney, Agent, or Firm—Paul & Paul

[57]

ABSTRACT

An improved unplasticized polyvinyl chloride composition for forming articles for exterior use such as house siding and window profiles includes a polymeric organic impact modifier, at least one thermal dehydrochlorination stabilizer, and an ultraviolet stabilization system. The ultraviolet stabilization system includes from about 0.2-15 parts by weight of the polyvinyl chloride resin of rutile titanium dioxide and less than about 5 parts by weight of the polyvinyl chloride resin of magnesium oxide. Inclusion of magnesium oxide in the unplasticized polyvinyl chloride composition permits the extrusion of ultraviolet resistant siding and window profiles including relatively low levels of titanium dioxide.

15 Claims, 2 Drawing Sheets

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United States Patent [19]

Stark

[11] Patent Number: **4,730,769**

[45] Date of Patent: **Mar. 15, 1988**

[54] **PACKAGING FOR LIQUIDS AND PROCESS AND APPARATUS FOR ITS MANUFACTURE**

[75] Inventor: **Sven O. S. Stark, Ystad, Sweden**

[73] Assignee: **Tetra Pak International AB, Lund, Sweden**

[21] Appl. No.: **850,932**

[22] Filed: **Apr. 11, 1986**

[30] **Foreign Application Priority Data**

Apr. 18, 1985 [DE] Fed. Rep. of Germany 3513976

[51] Int. Cl.⁴ **B65D 5/72**

[52] U.S. Cl. **229/125.15; 229/125.33; 229/125.34; 220/359**

[58] Field of Search **229/17 R; 220/256, 258, 220/359**

[56] **References Cited**

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Primary Examiner—Willis Little

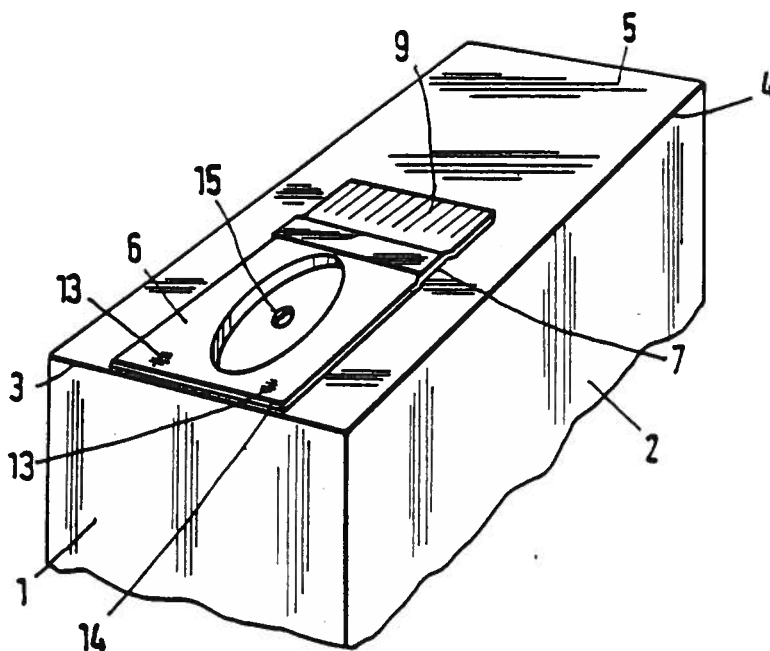
Attorney, Agent, or Firm—Paul & Paul

[57] **ABSTRACT**

Described is a packaging for liquid, made of cardboard, which is made impermeable to liquid by means of a plastic coating over its surface. It has side-walls, base and top wall (5), connected to one another by folded and/or sealed seams. A pouring aperture is located in top wall (5) close to the edge line, and can be torn off and has a separate plastic strip (8) covering the pouring aperture and being applied round the edge of the pouring aperture, and is sealed on at least from the inside.

So that the edge of the pouring aperture remains covered with a protective layer after opening and so that the closure and the protective layer can be produced with simple means, according to the invention the plastic strip (8) covers the pouring aperture tightly and is fixed via two tacked strips (7, 31) to an outer cover strip, in which a hole (15) is located above the pouring aperture, the two tacked strips being smaller than the surface area of cover strip (6), the first tacked strip (7) being applied at a distance from hole (15) and outside the pouring aperture, the second tacked strip (31) being applied outside hole (15) of cover strip (6) and within the pouring aperture (16), the outer cover strip (6) being fixed to the top wall (5) of the packaging via a third tacked strip (9) lying outside the plastic strip (8).

8 Claims, 7 Drawing Figures



United States Patent [19]

Striedieck

[11] Patent Number: 4,784,169

[45] Date of Patent: Nov. 15, 1988

[54] APPARATUS FOR TREATING ARTICLES WITH SOLUTION TO REMOVE SOLIDS AND THEN FILTERING THE SOLUTION

[75] Inventor: Walter J. Striedieck, Port Matilda, Pa.

[73] Assignee: Chemcut Corporation, State College, Pa.

[21] Appl. No.: 23,981

[22] Filed: Mar. 10, 1987

Related U.S. Application Data

[63] Continuation of Ser. No. 570,459, Jan. 13, 1984, abandoned.

[51] Int. Cl.⁴ B08B 3/00; B01D 23/24

[52] U.S. Cl. 134/111; 134/10; 134/64 R; 210/108; 210/167; 210/313; 210/412; 156/642; 15/77

[58] Field of Search 210/108, 167, 312, 313, 210/206, 408, 409, 411, 412, 523, 525; 15/77; 134/10, 104, 64 R, 111; 156/345, 640, 642

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Primary Examiner—Benoit Castel

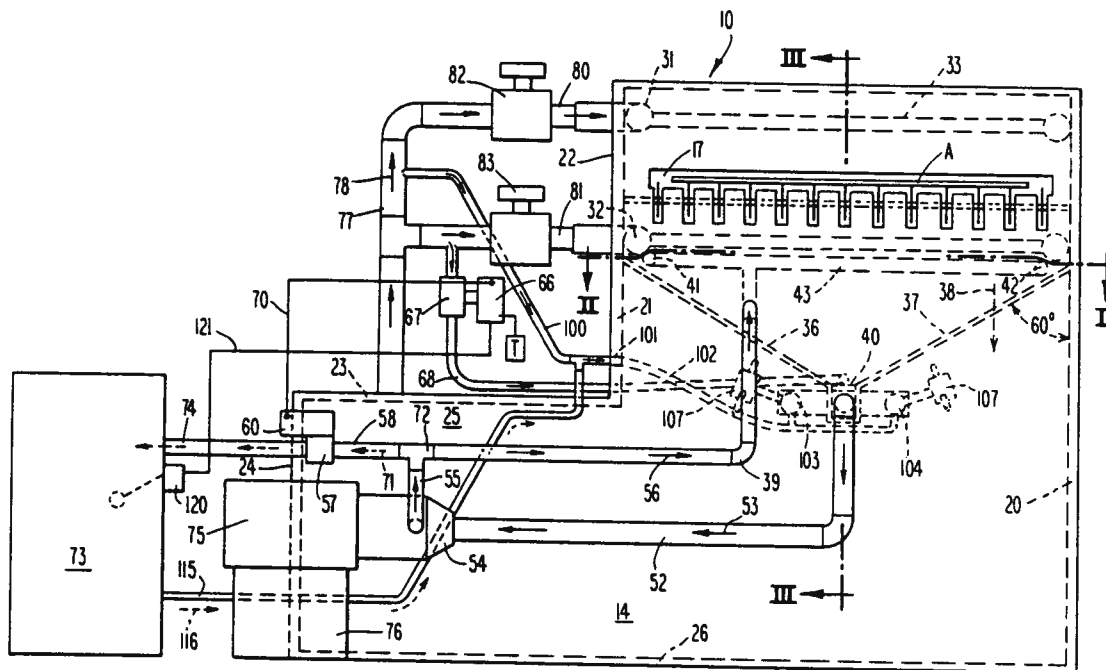
Attorney, Agent, or Firm—Paul & Paul

[57]

ABSTRACT

Apparatus is provided for treating articles, such as printed circuit boards and the like, by removing solid particles, such as polymer resists, by a chemical action such as a stripping action, with the chemical action being provided by spraying a solution onto the articles. The removed particles are then separated from the solution, by novel separation apparatus, so that the solution can be re-used. The novel separation apparatus employs one or more screens or filters that are angularly disposed to allow solution to fall through the screen or screens, and solution is provided in such a manner as to wash along or across the screen or screens, to wash particles into a residence zone, from which they may be evacuated. The particles are preferably propelled from the residence zone on a periodic basis, for subsequent filtration, whereby the solution in which they are carried may likewise be returned for re-use.

13 Claims, 4 Drawing Sheets



United States Patent [19]

Otrhalek et al.

[11] Patent Number: **4,531,978**

[45] Date of Patent: **Jul. 30, 1985**

[54] **METHOD OF FORMING CHROMATE
CONVERSION COATINGS ON ALUMINUM
SURFACES AND THE COATING FORMED
THEREBY**

[75] Inventors: **Joseph V. Otrhalek**, Dearborn,
Mich.; **Donald R. Gerard**, Bowling
Green, Ky.

[73] Assignee: **Detrex Chemical Industries, Inc.**,
Southfield, Mich.

[21] Appl. No.: **483,775**

[22] Filed: **Apr. 11, 1983**

[51] Int. Cl.³ **C23F 7/26; C23F 7/10**

[52] U.S. Cl. **148/6.16; 148/6.2;**
148/6.27

[58] Field of Search **148/6.2, 6.16, 6.27;**
427/57

[56] **References Cited**

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730877 5/1980 U.S.S.R. 427/57

Primary Examiner—Sam Silverberg
Attorney, Agent, or Firm—Paul & Paul

[57] **ABSTRACT**

A method for forming a chromate conversion coating on aluminum surfaces is described in which an aluminum surface is immersed in an aqueous acidic solution containing hexavalent chromium and the aluminum surface and the solution are subjected to ultrasonic energy thus reducing the need for including environmentally harmful accelerator components in said solution.

11 Claims, No Drawings

United States Patent [19]

Brady et al.

[11] Patent Number: 4,459,183

[45] Date of Patent: * Jul. 10, 1984

[54] ELECTROPLATING APPARATUS AND METHOD

[75] Inventors: Joseph M. Brady, Huntingdon; Franz R. Cordes, State College, both of Pa.; Klaus H. Gedrat, Berlin, Fed. Rep. of Germany; Daniel L. Goffredo, Riverton, N.J.; Walter Meyer, Berlin, Fed. Rep. of Germany; Conrad D. Shakley, Spring Mills, Pa.

[73] Assignee: Chemcut Corporation, State College, Pa.

[*] Notice: The portion of the term of this patent subsequent to May 31, 2000 has been disclaimed.

[21] Appl. No.: 473,079

[22] Filed: Mar. 7, 1983

Related U.S. Application Data

[63] Continuation of Ser. No. 309,180, Oct. 7, 1981, Pat. No. 4,385,967.

[51] Int. Cl.³ C25D 7/06; C25D 17/06; C25D 17/28; C25D 21/10

[52] U.S. Cl. 204/27; 204/198; 204/273; 204/275

[58] Field of Search 204/15, 198, 202, 275, 204/276, 273, 274, 27

[56] References Cited

U.S. PATENT DOCUMENTS

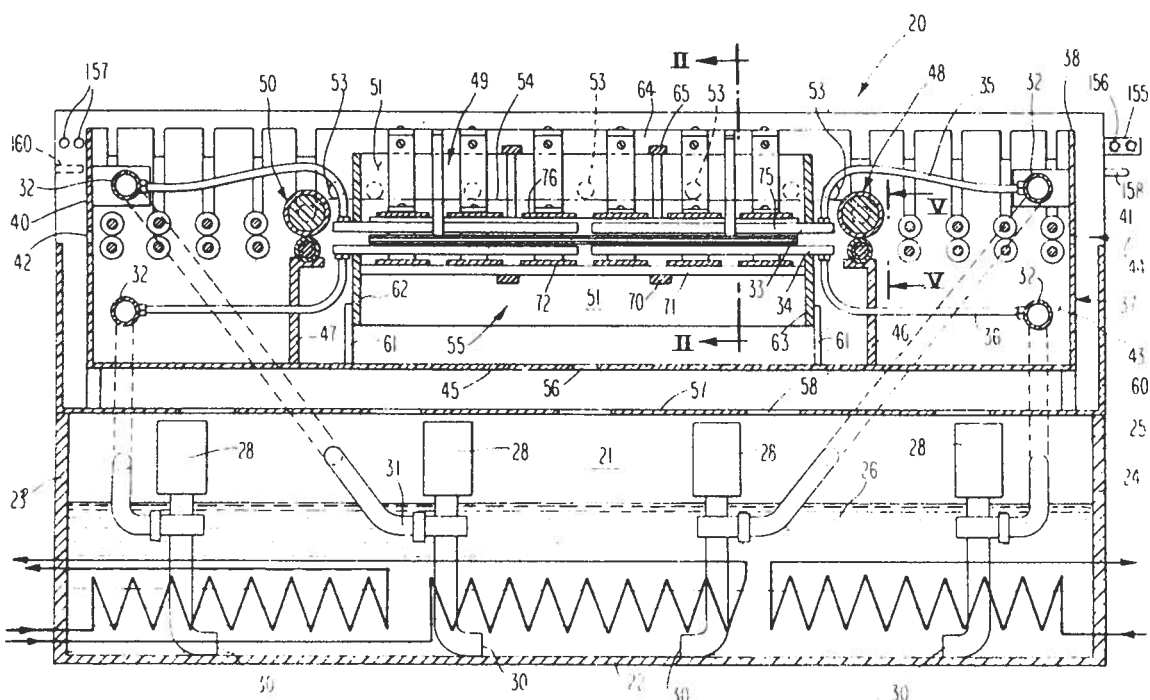
4,385,967 5/1983 Brady 204/27

Primary Examiner—Thomas Tufariello
Attorney, Agent, or Firm—Paul & Paul

[57] ABSTRACT

An electroplating apparatus and method is provided, whereby generally flat workpieces, such as metal plates and the like may be electroplated, on a continuous basis, automatically and without manual intervention. The workpieces are delivered horizontally through a bath of electrolyte. They are conveyed through the bath by being engaged by driven contact wheels that also serve as one of the electrodes. The other electrode is in the bath electrolyte solution. As the workpieces are delivered through the bath, they are engaged and disengaged by the contact wheels, but are always in engagement with contact wheels for not only continuous conveyance, but for continuous electrical connection therewith. A particular slide mount is provided for holding an opposite side of the plate as the plate is carried along its flow path, and this mount is adjustably positionable to accommodate different width workpieces. Solution flow through the electrolyte path is provided on a continuous basis, and both agitates and replenishes the electrolyte solution. Dams are created at ends of the flow path, by the action of squeezing rollers, to prevent passage of electrolyte. Wipers are provided for preventing the turbulence of newly-delivered electrolyte in the bath zone from immediately contacting the contact wheels. Other features are also provided.

20 Claims, 9 Drawing Figures



[54] **TEST METHOD FOR THE LABORATORY DIAGNOSIS OF GONORRHEA AND TEST STRAIN OF *NEISSERIA GONORRHOEAE***

[75] Inventor: Leonard J. Zubrzycki, Pennsauken, N.J.

[73] Assignee: Temple University of the Commonwealth System of Higher Education, Philadelphia, Pa.

[21] Appl. No.: 317,023

[22] Filed: Oct. 30, 1981

[51] Int. Cl.³ C12Q 1/68; C12Q 1/04; C12Q 1/12; C12N 1/20

[52] U.S. Cl. 435/6; 435/34; 435/37; 435/253; 435/871

[58] Field of Search 435/34, 37, 6, 871, 435/253

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

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Primary Examiner—Robert J. Warden

Attorney, Agent, or Firm—Paul & Paul

[57]

ABSTRACT

A strain of *Neisseria gonorrhoeae* ATCC 31953 is described which is abnormal in that it has characteristically poor growth on chocolate agar at a temperature range of about 30° C. to about 37° C. in a CO₂ atmosphere suitable for growth of *N. gonorrhoeae*. This strain is resistant to nalidixic acid at the 5–10 mcg/ml level and resistant to streptomycin at the 1000 mcg/ml level or greater. *N. gonorrhoeae* ATCC 31953 is a test strain suitable for use in the method described for the laboratory diagnosis of gonorrhea. The method comprises the steps of (1) applying a non-toxic preparation of a patient's specimen material, directly to a culture of *Neisseria gonorrhoeae* ATCC 31953, which has abnormal growth characteristics, which is in or on a biological medium suitable for growth of normal *Neisseria gonorrhoeae*, and observing for the restoration of normal growth to the abnormal growth strain *Neisseria gonorrhoeae* ATCC 31953, in or on the biological medium of step (1), under conditions normal for growth of *Neisseria gonorrhoeae*. The observance of growth indicates positive detection of *N. gonorrhoeae* DNA.

16 Claims, No Drawings

United States Patent [19]

Eishima et al.

[11] 4,205,206

[45] May 27, 1980

[54] CARBON GRANULE MICROPHONE WITH
MOLDED RESIN-CONDUCTIVE CARBON
ELECTRODE

[75] Inventors: Tetsusuke Eishima; Takehiro
Ikariyama, both of Tokyo; Raizo
Jinnouchi, Machida; Kunioki Oyagi,
Tokyo; Takashi Soda, Inagi, all of
Japan

[73] Assignees: Iwatsu Electric Co. Ltd.; Nippon
Telegraph and Telephone Public
Corp., both of Tokyo, Japan

[21] Appl. No.: 886,156

[22] Filed: Mar. 13, 1978

Related U.S. Application Data

[63] Continuation of Ser. No. 736,408, Oct. 28, 1976, abandoned.

[30] Foreign Application Priority Data

Oct. 31, 1975 [JP] Japan 50-130324
Dec. 15, 1975 [JP] Japan 50-148455

[51] Int. Cl.² H04R 21/02

[52] U.S. Cl. 179/124

[58] Field of Search 179/124, 140, 190

[56] References Cited

U.S. PATENT DOCUMENTS

308,956	12/1884	Eckert	179/124
549,803	11/1895	Lucas	179/190
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FOREIGN PATENT DOCUMENTS

301656	12/1928	United Kingdom	179/124
526212	9/1940	United Kingdom	179/124
594116	11/1947	United Kingdom	179/124

Primary Examiner—George G. Stellar

Attorney, Agent, or Firm—Paul & Paul

[57] ABSTRACT

Disclosed is an electrode for a carbon transmitter which comprises a body of an electrically conductive material, such as metal or a conductive resin, with at least a part of the surface of the body comprising electrically conductive carbon. Such an electrode may be prepared by applying a carbon coating onto the metallic substrate or by molding a molding resin material having particulate conductive carbon dispersed therein. The electrode has stable electrical properties comparable to those of the known gold-plated electrode.

8 Claims, 5 Drawing Figures

[54] POINSETTIA

[76] Inventor: Cleveland Ott, 677 Grater Ave.,
Graterford, Pa. 19426

[21] Appl. No.: 2,260

[22] Filed: Jan. 10, 1979

[51] Int. Cl.³ A01H 5/00

[52] U.S. Cl. Plt./86

[58] Field of Search Plt./86

Primary Examiner—Robert E. Bagwill

Assistant Examiner—James R. Feyrer
Attorney, Agent, or Firm—Paul & Paul

[57] ABSTRACT

A new and distinct variety of poinsettia plant is a sport of Annette Hegg Hot Pink (U.S. Plant Pat. No. 3,761). The new variety is characterized by bracts which are a lighter pink than the parent and is particularly characterized by venation which is faint and obscure as compared with the more prominent venation of the parent.

1 Drawing Figure

1

ORIGIN OF THE VARIETY

The new variety of poinsettia plant was discovered by applicant as a sport in a bed of Annette Hegg Hot Pink in applicant's greenhouse near Graterford, Pa. This discovery was made in June, 1978.

ASEXUAL REPRODUCTION OF THE VARIETY

Applicant has asexually reproduced the new and distinct variety in his greenhouse by rooting of cuttings from the new sport. The asexually reproduced poinsettia plants have uniformly new and distinct characteristics.

SUMMARY OF THE VARIETY

The new and distinct variety of poinsettia plant is characterized by the following features:

(1) The bracts are pink, a lighter pink than the parent. The pink color of the bract is deeper with greater illumination and paling with less illumination, as for example, when the bract is shaded. The closest designation on the Royal Horticultural Society (RHS) Color Chart is near 52D when fully illuminated, the color paling when shaded. On the Horticultural Color Chart (HCC) the closest designation is HCC 621 when the bract is fully illuminated, paling to HCC 621/3 when shaded.

(2) The bracts are large and of uniform color. The veins are obscured, particularly on the upper side, by a relatively heavy upper epidermal covering.

(3) The stamen filaments are lighter pink than those of the parent.

BRIEF DESCRIPTION OF THE DRAWINGS

The drawing comprises a photographic reproduction in color of the new and distinct poinsettia plant of this application. The color of the bracts in the photograph is as nearly true as it is reasonably possible to make the same in a color illustration of this character.

DETAILED DESCRIPTION OF THE VARIETY

The new and distinct variety of poinsettia plant of this application was asexually reproduced from a sport of the parent Annette Hegg Hot Pink (U.S. Plant Pat. No. 3,761).

The bracts of the new variety of poinsettia plant are a lighter pink than the parent. The color of the bracts is near HCC 621 when fully illuminated, paling to near HCC 621/3 when shaded. It is believed that the lighter

2

pink color is the result of a heavy white upper layer, and somewhat less heavy white lower layer, of epidermal cells covering a red interior.

The veins in the parent are prominent but in the new variety of plant the veins are almost obscured by the relatively heavy epidermal covering, particularly on the upper side.

The flower of the new variety of plant is larger than the flower of the parent.

The filaments of the stamen are light pink whereas the filaments of the stamen of the parent are dark pink.

The following is a chart which compares the color of the bracts of the new variety of plant of the present application with those of its antecedents and with other pink sports of its antecedents. However, an outstanding distinguishing characteristic of the new variety of plant is that the venation of the bracts is faint and obscure in comparison with the venation of the parent.

Bract Color Comparison with Antecedents and Pink Sports of Antecedents				
Plant Patent No.	Plant Name	Color of Bracts		
		(RHS) No.	(HCC) No. Name	
(S.N.2259)	Ott	Near 52D	621 to 621/3	Carmine Rose
(S.N.2260)	Ott	Near 52D	621 to 621/3	Carmine Rose
3392	A.H. Supreme	45D	820/2	Blood Red
2962	Annette Hegg	47A	821/2	Currant Red
3160	A.H. Dark Red	53B	822/1	Cardinal Red
3099	A.H. Pink	Near 47C	020/2	Delft Rose
3120	C-1 Pink	Near 47C	020/2	Delft Rose
3738	C-1 Hot Pink	47D	20/2	Geranium Lake
3761	A.H. Hot Pink	52B	21/1	Carmine

Note: A.H. = Annette Hegg

What is claimed is:

1. A new and distinct variety of poinsettia plant, substantially as herein illustrated and described, characterized as to novelty by bracts which are a lighter pink than the parent, Annette Hegg Hot Pink (U.S. Plant Pat. No. 3,761) and characterized particularly by much less prominent veins than the parent, the veins of the new variety being almost obscured by a heavy epidermal covering, particularly on the upper side.

* * * * *

[54] **COMPOSITE HINGELESS ROTOR HUB FOR ROTARY WING AIRCRAFT**

[75] Inventors: Stephan Roman, Downingtown;
Richard J. Spitko, Aston, both of Pa.

[73] Assignee: The Boeing Company, Seattle, Wash.

[21] Appl. No.: 751,121

[22] Filed: Dec. 16, 1976

[51] Int. Cl.² B64C 27/38

[52] U.S. Cl. 416/141; 416/138

[58] Field of Search 416/138 A, 140 A, 141

[56] **References Cited**

U.S. PATENT DOCUMENTS

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2,845,131	7/1958	Laufer	416/141
3,261,407	7/1966	Culver et al.	416/134 A X
3,330,362	7/1967	Kostan	416/132 X
3,667,863	6/1972	Breuner	416/141
3,695,779	10/1972	Kastan et al.	416/141 X
3,797,964	3/1974	Hanson	416/134 A

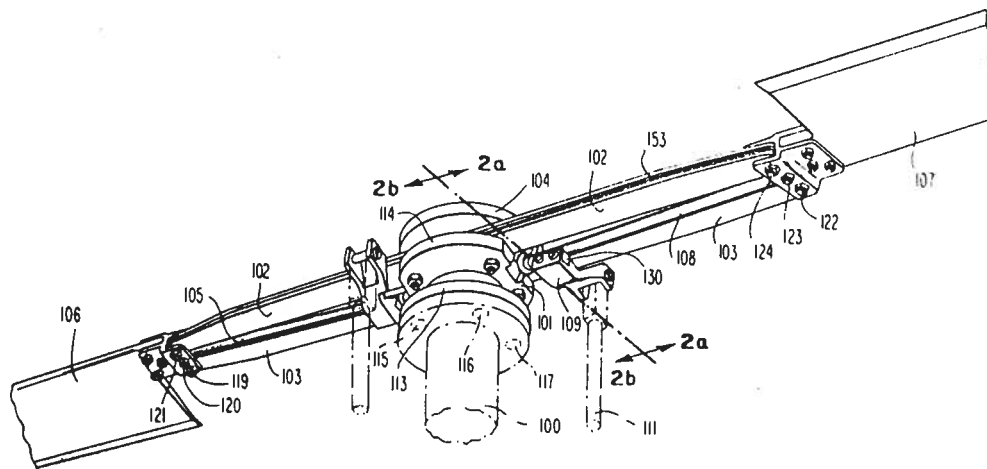
3,865,511	2/1975	Breuner	416/141
3,879,153	4/1975	Breuner	416/138 AX

Primary Examiner—Everette A. Powell, Jr.
Attorney, Agent, or Firm—Paul & Paul

[57] **ABSTRACT**

Each rotor blade is rigidly affixed to a pair of strap members which are also rigidly connected to a rotor hub. Each strap member is defined as an elongated open box beam of rectangular cross section. Each strap member has its open web located on the side of the rectangle opposite that of its associated strap member of a pair. A pitch shaft which is located intermediate the two strap members associated with the given rotor blade, is rigidly attached to that rotor blade, and is rotatably connected with respect to the rotor hub. In alternative configurations, the strap members are configured as various alternative solid or open web designs, but all are configured as pairs having a pitch shaft therebetween.

20 Claims, 13 Drawing Figures



[54] KETCHUP SUBSTITUTE AND PROCESS
FOR MAKING THE SAME

- [75] Inventors: Alden K. Yao; James L. Segmiller,
both of Pittsburgh, Pa.
- [73] Assignee: H. J. Heinz Company, Pittsburgh, Pa.
- [21] Appl. No.: 748,314
- [22] Filed: Dec. 7, 1976

Related U.S. Application Data

- [63] Continuation-in-part of Ser. No. 573,007, Apr. 30,
1975, abandoned.
- [51] Int. Cl.² A23L 1/24
- [52] U.S. Cl. 426/250; 426/589;
426/638; 426/639; 426/650
- [58] Field of Search 426/250, 589, 615, 638,
426/639, 650

[56] References Cited

U.S. PATENT DOCUMENTS

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2,331,308	10/1943	Cooper	426/589
3,116,151	12/1963	Giddy	426/589
3,399,064	8/1968	Partyka	426/589
3,549,384	12/1970	Walker	426/615
3,630,757	12/1971	Meid	426/615

Primary Examiner—Jeanette M. Hunter

Attorney, Agent, or Firm—Paul & Paul

[57] ABSTRACT

A ketchup substitute prepared by mixing a starch slurry with a cooked seasoned carrot batch, and subsequently heating, pulping and deaerating the mixture.

2 Claims, No Drawings

[54] **PROCESS OF EXTRUSION-COATING THE CENTRAL CORE WITH AN INSULATOR OF HIGH PRESSURE-PROCESSED POLYETHYLENE**

[75] Inventors: **Koji Yamaguchi**, Tokyo; **Hideaki Takashima**, Chiba; **Iwao Tsurutani**, Ichihara; **Toshio Nagasawa**, Kyoto, all of Japan

[73] Assignee: **UBE Industries, Ltd.**, Japan

[21] Appl. No.: **688,264**

[22] Filed: **May 20, 1976**

[30] **Foreign Application Priority Data**

Jan. 6, 1976 Japan 51-100

[51] Int. Cl.² **H01B 3/30; H01B 13/14**

[52] U.S. Cl. **427/120; 427/374 D; 264/174; 264/118 R; 264/237; 174/110 PM; 174/120 SR**

[58] Field of Search **174/110 PM, 120 SR; 427/120, 117, 118, 374 D, 398 B; 264/237, 348, 174, 176 R, 178 R**

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,043,716	7/1962	Busse et al.	427/120
3,375,303	3/1968	Joyce	174/110 PM
3,728,424	4/1973	Bauer	264/237 X

3,849,192	11/1974	Schmidt	264/237 X
3,852,518	12/1974	Wargotz et al.	174/120 SR
3,868,436	2/1975	Ootsuji et al.	264/174 X

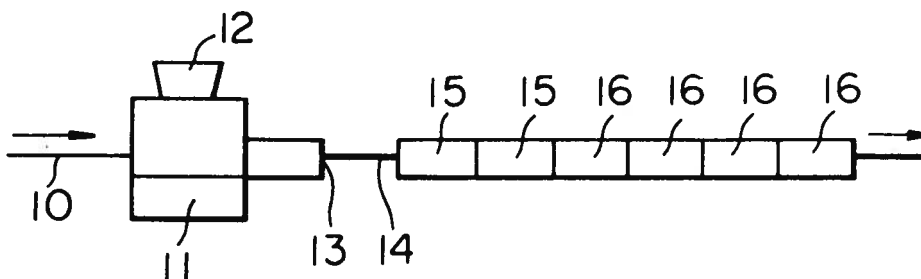
Primary Examiner—Ralph S. Kendall

Attorney, Agent, or Firm—Paul & Paul

[57] ABSTRACT

Provided hereinbelow is a process of extrusion-coating the central core, said core being used in a submarine coaxial cable, with an insulator of high pressure-processed polyethylene having a density of from 0.925 to 0.940 g/cm³ and a melt index of from 0.01 to 0.3 g/10 min with advantages in that said coaxial cable is allowed to be placed on a sea bottom of not less than 500 meters in depth and to effectively transmit alternating current signals with a maximum frequency of not less than 30 MHZ, while attenuation of said signals is reduced, and thus, said coaxial cable has a transmission capacity of not less than 3000 circuits or channels with a frequency band of from 3 to 6 KHz per each circuit or channels, wherein the insulator-covered-core is continuously extruded from an extruder and then is gradually cooled in cooling water troughs to room temperature so that the water content of said insulator, without formation of voids between said central core and said insulator, is reduced by as much as possible.

6 Claims, 3 Drawing Figures



[54] **APPARATUS FOR DISCHARGING AND HEATING AGGREGATE FOR THE MAKING OF CONCRETE**

[76] Inventor: **Onni Olavi Vaananen**, Porttikuja 2
F 68, 00940 Helsinki 94, Finland

[22] Filed: **Mar. 19, 1974**

[21] Appl. No.: **452,547**

[30] **Foreign Application Priority Data**

Mar. 20, 1973 Finland..... 858/73

[52] U.S. Cl..... 222/146 H; 222/564

[51] Int. Cl.²..... B67D 5/62

[58] Field of Search..... 222/146 R, 146 HS, 146 H,
222/564, 185; 214/17 R

[56]

References Cited

UNITED STATES PATENTS

2,900,109	8/1959	Hoopes et al.....	222/146 HS
2,907,501	10/1959	Laird	222/564 X
3,182,859	5/1965	Harris et al.....	222/146 HS

Primary Examiner—Allen N. Knowles

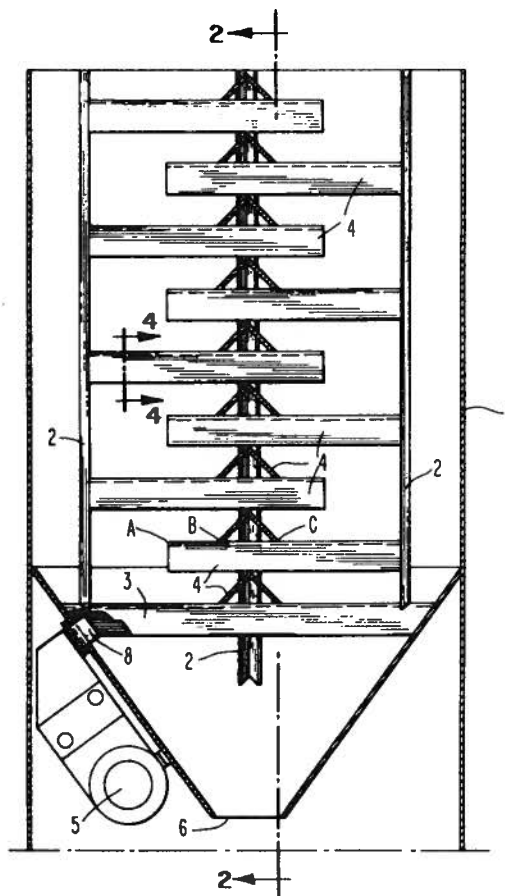
Attorney, Agent, or Firm—Paul & Paul

[57]

ABSTRACT

Aggregate flows downwardly in a vertical silo over mutually crossing, substantially horizontal chutes. A heater and air blower located near the vault discharge port blows air upwardly, which is discharged in the vicinity of the chute crossing points.

8 Claims, 4 Drawing Figures



[54] **AFTERCOOLER**

[75] Inventors: **Joseph A. Hitchiner**, Warminster;
Lawrence H. Brown, Ambler; **Monte R. Blodgett**, Philadelphia; **David S. Brown**, Cornwell Heights, all of Pa.

[73] Assignee: **Edgcomb Steel Company**, Philadelphia, Pa.

[22] Filed: **Oct. 27, 1972**

[21] Appl. No.: **301,615**

[52] U.S. Cl. **55/269, 55/417, 55/432,**

137/204

[51] Int. Cl. **B01d 53/26**

[58] Field of Search **55/267, 269, 428, 430,**
55/431, 432, 309, 312, 313, 218, 417; 137/204

[56]

References Cited

UNITED STATES PATENTS

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3,080,882	3/1963	Baker	137/204
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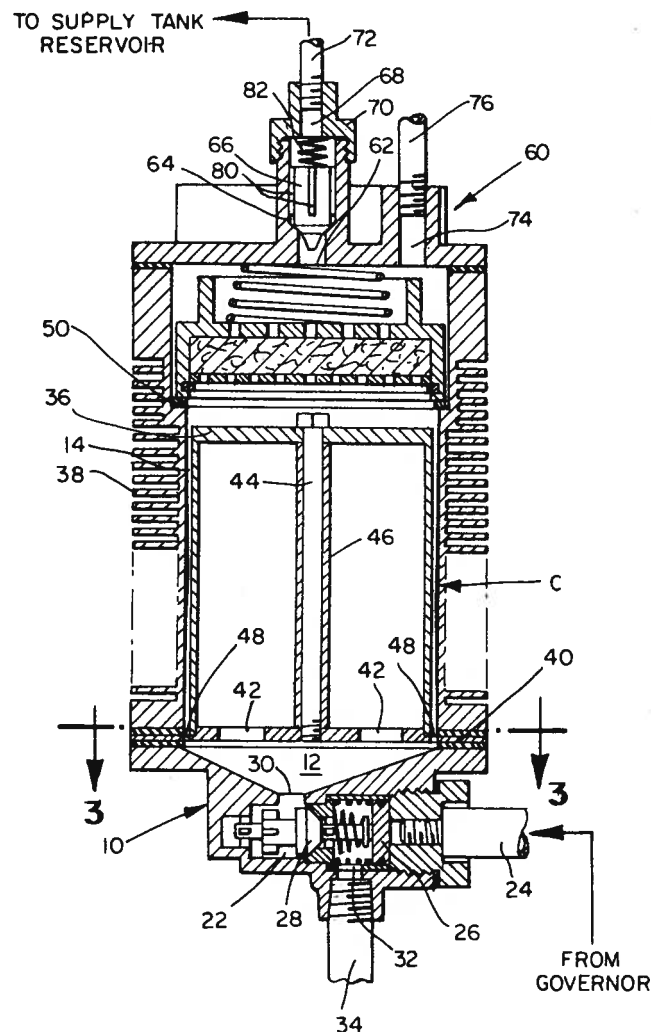
Primary Examiner—Frank W. Lutter
Assistant Examiner—William Cuchlinski, Jr.
Attorney, Agent, or Firm—Paul & Paul

[57]

ABSTRACT

A compact aftercooler having a condensate discharge valve built into the bottom header so as to be heated by the air from the compressor, and a check valve built into the top header.

7 Claims, 3 Drawing Figures



[54] **METHOD AND APPARATUS FOR
COMPUTING AND DISPLAYING SOUND
RAYS OF A SONAR SYSTEM**[75] Inventor: **Yasumasa Marutani**, Tokyo, Japan[73] Assignee: **Oki Electric Industry Co., Ltd.**,
Tokyo, Japan[22] Filed: **Aug. 23, 1973**[21] Appl. No.: **390,681**[30] **Foreign Application Priority Data**

Sept. 5, 1972 Japan..... 47-88388

[52] U.S. Cl..... 235/193, 181/5 AP, 340/3 R

[51] Int. Cl..... G06g 7/12

[58] Field of Search 444/1; 235/193; 340/3 R,
340/3 C, 3 E, 6 R, 7 PC; 181/5 ED, .5 AP[56] **References Cited****UNITED STATES PATENTS**

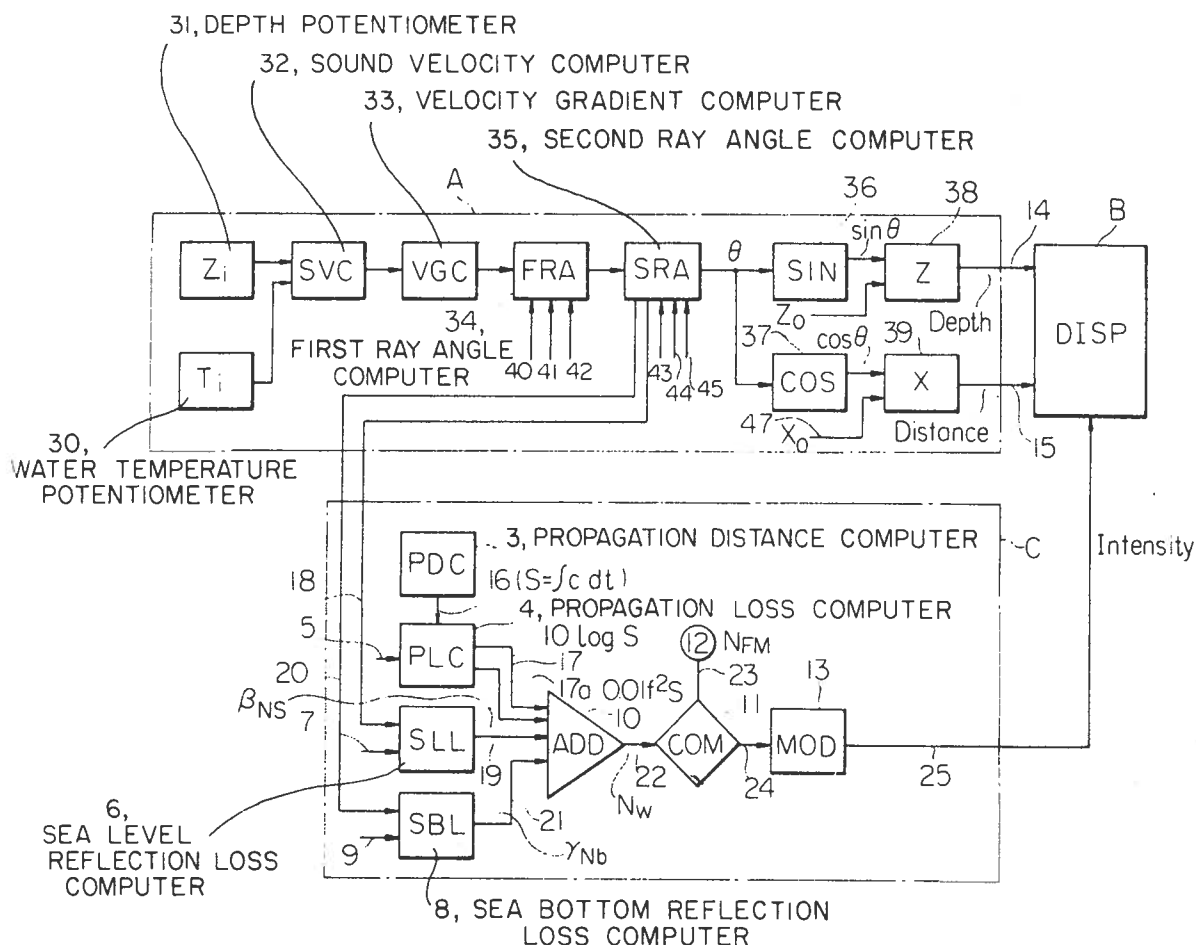
3,757,287 9/1973 Bealor, Jr..... 340/3 R

OTHER PUBLICATIONSRubin & Graber, "Acoustic Ray Tracing on the
General-Purpose Electronic Analog Computer," IEEE
Trans. on Computers, Vol. EC-14, June 1965, pp.
443-455.*Primary Examiner*—Malcolm A. Morrison*Assistant Examiner*—Jerry Smith*Attorney, Agent, or Firm*—Paul & Paul

[57]

ABSTRACT

A method and apparatus for analyzing sound ray paths of a sonar system by an analog computing method is disclosed wherein the transmission loss (N_w) of a sound wave is compared with the value of a figure of merit (N_{FM}) of the sonar system. Sound rays within the detection range of the sonar system are displayed by solid lines while sound rays out of the detection range are displayed by broken lines. Thus ray paths and detection ranges of the sonar system are displayed at the same time.

7 Claims, 14 Drawing Figures

United States Patent

Tamai et al.

[15] 3,655,542

[45] Apr. 11, 1972

[54] **MODIFIED CELLULAR PARTICLE AND
PROCESS FOR THE PRODUCTION
THEREOF**

[72] Inventors: **Isamu Tamai; Minoru Oyama; Atsushi
Osakada; Yasuo Shinohara**, all of Otsu-shi,
Japan

[73] Assignee: **Toray Industries, Inc.**, Tokyo, Japan

[22] Filed: **Mar. 5, 1969**

[21] Appl. No.: **804,435**

[52] U.S. Cl. **204/159.2, 204/159.19, 260/2.5 E,
260/2.5 N, 260/2.5 B, 260/94.9 GA, 260/889,
264/54**

[51] Int. Cl. **C08f 47/10, C08f 29/04**

[58] Field of Search **260/2.5, 2.5 E, 2.5 B;
204/159.17, 159.2, 159.19; 264/54**

[56] **References Cited**

UNITED STATES PATENTS

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3,294,869	12/1966	Robinson	204/159.17
3,298,975	1/1967	Feild et al.	260/2.5

Primary Examiner—Samuel H. Blech
Assistant Examiner—Wilbert J. Briggs, Sr.
Attorney—Paul & Paul

[57] **ABSTRACT**

A modified cellular particle is provided for molding cellular articles and comprises a partially foamed thermoplastic resin containing excess foaming agent which decomposes upon heating to generate a gas. The cellular particle has a mean specific gravity of 95 – 10 percent of the specific gravity of the resin composition, the polymer is cross-linked to a gel content of 20 – 90 percent and the particle has substantially no surface pores. The particles have a mean volume of 0.01 – 2 cc.

2 Claims, 7 Drawing Figures

May 12, 1970

A. SIBITZ

3,511,363

DISCHARGE VALVE FOR VIBRATORY CONVEYORS

Filed Oct. 9, 1967

2 Sheets-Sheet 1

Fig. 1

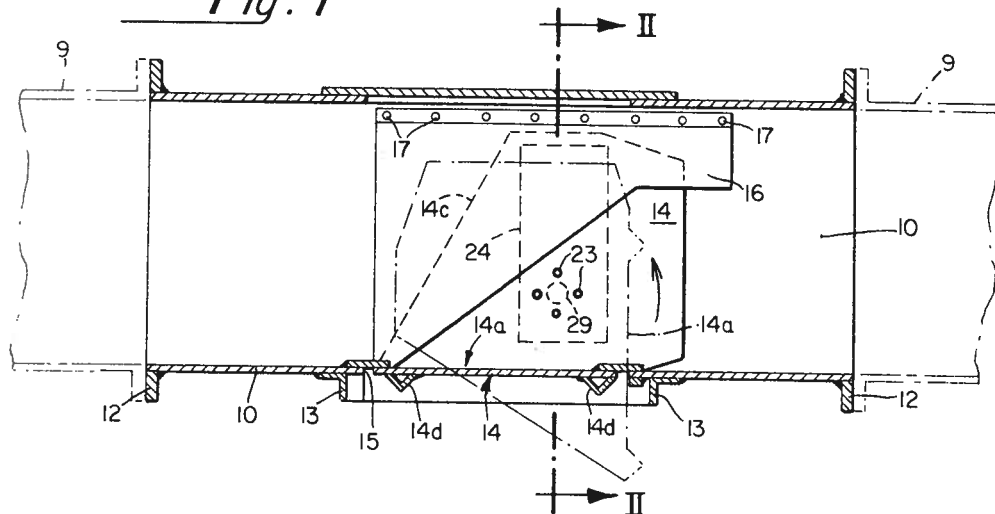
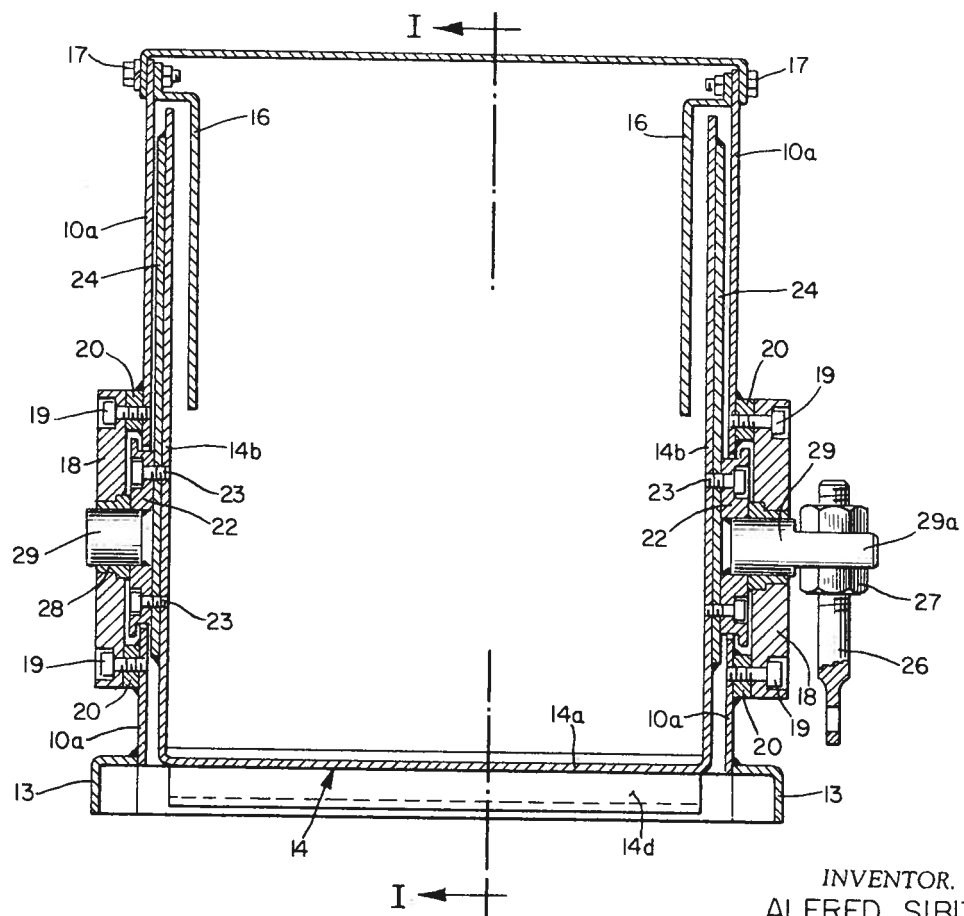


Fig. 2



INVENTOR.
ALFRED SIBITZ

BY

Paul & Paul
ATTORNEYS.

United States Patent

[11] 3,581,073

[72] Inventor **Wilbur A. Visher
Ambler, Pa.**
[21] Appl. No. **799,743**
[22] Filed **Feb. 17, 1969**
[45] Patented **May 25, 1971**
[73] Assignee **Narco Scientific Industries, Inc.
Fort Washington, Pa.**

FOREIGN PATENTS

363,180 8/1962 Switzerland..... 235/189

Primary Examiner—Malcolm A. Morrison
Assistant Examiner—R. Stephen Dildine, Jr.
Attorney—Paul and Paul

[54] **ELECTRONIC COURSE LINE COMPUTER**
12 Claims, 6 Drawing Figs.

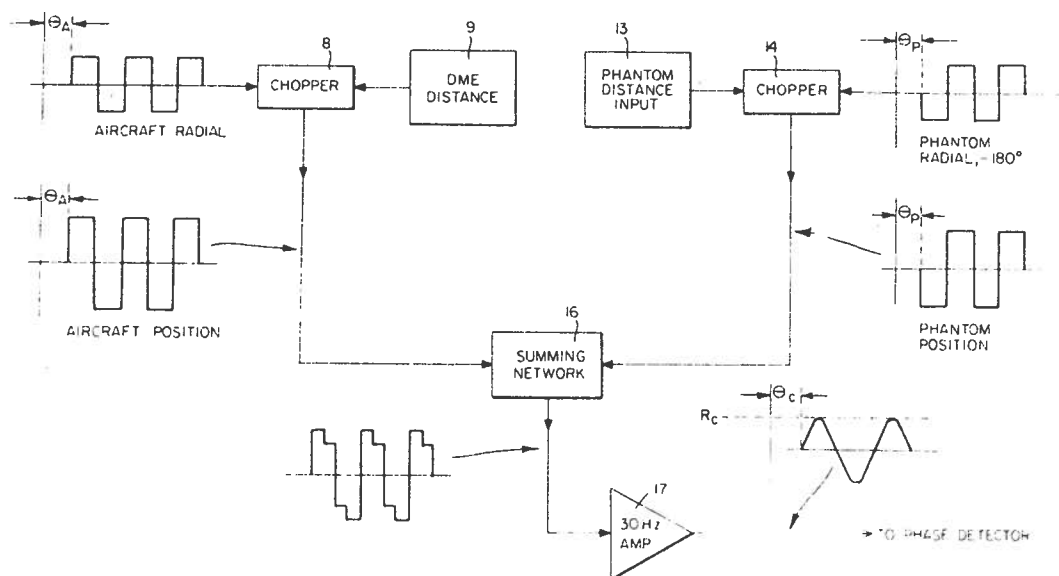
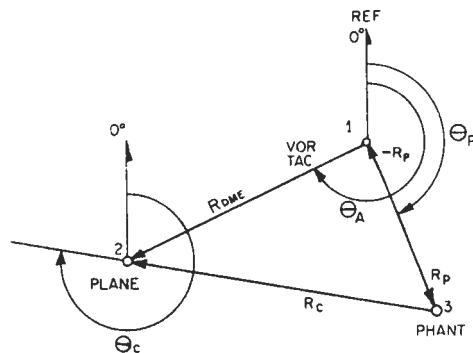
[52] U.S. Cl. 235/150.26,
235/186, 235/189, 35/10.2, 343/112(C)
[51] Int. Cl. G06g 7/22,
G06g 7/78, G01s 7/46
[50] Field of Search..... 235/150.26,
150.27, 186, 189, 190; 35/10.2; 343/6, 106, 112

[56] **References Cited**

UNITED STATES PATENTS

2,599,889 6/1952 Biggs et al..... 235/150.26X
3,281,844 10/1966 Sabin..... 343/112

ABSTRACT: A method of electronically computing navigational course lines and apparatus for carrying out said method is disclosed, whereby a first vector representation of the aircraft location with respect to a VORTAC station is electronically generated by using the VOR signal to control a chopper circuit which acts on the DME distance voltage; a second vector representation of the location of the destination point with respect to the VORTAC is electronically generated in a similar manner, the bearing and distance information being introduced manually by the pilot; the inverse of said second vector is generated; and said first vector representation and said inverse of said second vector representation are electronically added to obtain a third vector representation of the aircraft location with respect to the destination point. Such third vector representation is then compared with a manually adjusted reference signal to provide course direction control, and is processed to provide range information.



1

3,426,136

METHOD FOR THE TREATMENT OF CARDIAC DYSRHYTHMIAS WITH SODIUM THIOLYCOLLATE

Martin F. Tansy, Philadelphia, Pa., assignor to Temple University, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Nov. 17, 1966, Ser. No. 595,038
U.S. Cl. 424-317 6 Claims
Int. Cl. A61k 25/00, 27/00

ABSTRACT OF THE DISCLOSURE

Sodium thioglycollate, administered parenterally or orally is effective in terminating cardiac dysrhythmias in mammals.

This invention is directed to the pharmacotherapeutic treatment of cardiac dysrhythmias.

A wide variety of agents have been tested for their preventive and/or corrective value against cardiac dysrhythmias. Such agents have included quinidine and procainamide. However, existing antiarrhythmics have not proven satisfactory, mainly due to their high toxicity. As a result, synchronized precordial counter-shock is widely used for dysrhythmic therapy.

This invention has as an object the provision of a new pharmacotherapeutic process for the treatment of cardiac dysrhythmias.

This invention has as another object the provision of a method for effecting protective and corrective action against induced dysrhythmias in dogs.

Other objects will appear hereinafter.

I have discovered that sodium thioglycollate, sometimes known as sodium mercaptoacetate is an effective antiarrhythmic when administered intravenously or orally to mammals, and in particular to dogs undergoing induced dysrhythmias.

In particular, I have prevented both catecholamine induced and cardiac glycoside induced dysrhythmias by either the oral administration or parenteral injection of sodium thioglycollate. The catecholamine induced dysrhythmias were provoked by the injection of excess catecholamines, such as epinephrine, norepinephrine, epinephrine, amine, and neosynephrine using conventional techniques in the presence of an anesthetic agent, such as chloroform, cyclopropane, or trichloroethylene.

In 70 observations in 5 different dogs, the corrective results of sodium thioglycollate as an antiarrhythmic for catecholamine induced dysrhythmias was observed without exception. The effectiveness of sodium thioglycollate as an antiarrhythmic was noted when dosages of 4 milligrams per kilogram of dog body weight or more were administered intravenously, or when dosages of 50 milligrams per kilogram of dog body weight or more were administered orally.

The antiarrhythmic effectiveness of sodium thioglycollate was demonstrated with dysrhythmias induced by the injection of cardiac glycosides, such as ouabain and digitalis. However, the amount of sodium thioglycollate required to correct cardiac glycoside induced dysrhythmias was somewhat greater than that required to correct catecholamine induced dysrhythmias. By way of example, on the order of at least 100 milligrams per kilogram of dog body weight of sodium thioglycollate was required to be

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administered orally to correct a dysrhythmia provoked by the injection of a cardiac glycoside such as ouabain. The sodium thioglycollate was found to be effective in the treatment of dysrhythmias in which the ouabain concentration was at a toxic level, such as 0.25 milligram. In particular, the sodium thioglycollate was found to be effective in restoring the normal sinus rhythm in the ouabain intoxicated animal without any accompanying circulatory depressor effects.

Regardless of the mechanism, the electrocardiographic picture was the same whether the ventricular fibrillation was induced by the catecholamine or glycoside. The mechanism by which sodium thioglycollate restores a normal sinus rhythm is unknown. However, it has the unusual property of being able to suppress abnormal impulse formation without depressing the contractile properties of the myocardium. Examination of the EKG demonstrates that this agent suppresses the automaticity of ventricular ectopic foci. Suppression of the ventricular automatic focus permits the normal pacemaker region to resume control of the cardiac rhythm. It appears that sodium thioglycollate has the ability to revert the abnormal heart rhythm by inducing again the predominance of the normal pacemaker.

Regardless of the mode of administration, the sodium thioglycollate in itself at any concentration has no apparent effect on the respiratory tract, cardiovascular system (EKG and blood pressure), CNS function (depression or stimulation), or gastrointestinal function (nausea, vomiting, and diarrhea). In reference to the gastrointestinal tract, using the classical tissue bath technique, intestinal strips from 12 rabbits were unaffected by repeated administration of sodium thioglycollate.

I have determined that sodium thioglycollate is non-toxic in extremely large doses, both when administered orally and when administered intravenously. In experiments with 23 separate dogs, the sodium thioglycollate proved non-toxic in each instance. In acute preparations (dogs under nembutal anesthesia 30 mg./kg.), a 12 kilogram dog tolerated 8 grams of sodium thioglycollate intravenously without succumbing. In the chronic unanesthetized dog, studies on 3 dogs revealed that the animal could withstand single doses of sodium thioglycollate i.v. from 15 milligrams through 1 gram without any apparent after effects. As a result, doses of 150 through 300 mg./kg. did not produce death when given intravenously to dogs. However, it does appear that at levels of 500 to 600 milligrams per kilogram, sodium thioglycollate is toxic. However, this toxicity is reversible. On post mortem examination, no gross pathology was noted, and examination of the heart, liver, kidney, adrenals, spleen, and pancreas upon microscopic examination exhibited no organ alteration attributable to the sodium thioglycollate.

The sodium thioglycollate is administered intravenously in isotonic solutions, and may be administered orally in aqueous solutions.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims, rather than to the foregoing specification as indicating the scope of the invention.

It is claimed:

1. A method for correcting cardiac dysrhythmias in mammals which comprises administering sodium thioglycollate to a mammal undergoing said cardiac dys-

Paul & Paul
261-65

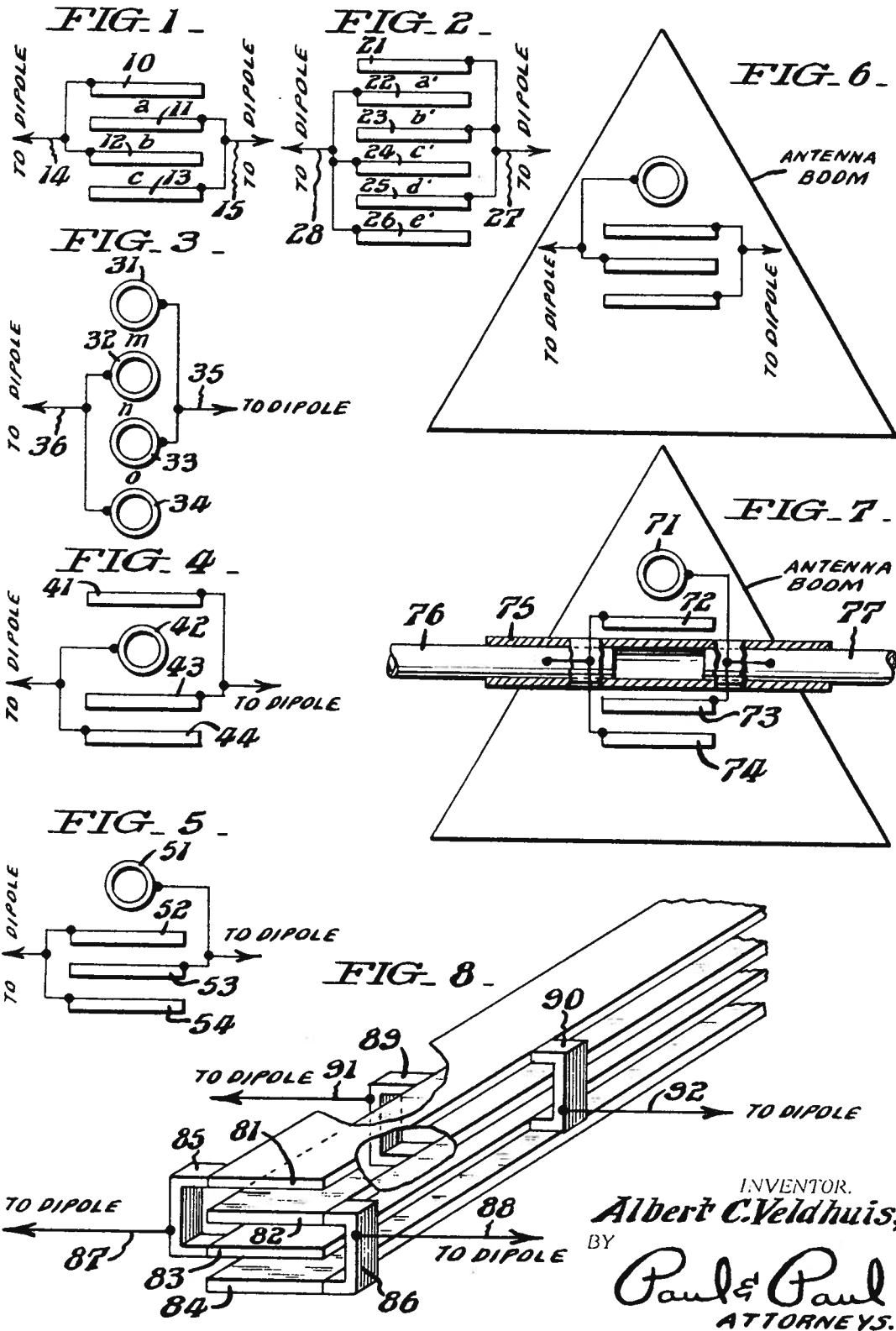
Dec. 17, 1968

A. C. VELDHUIS

3,417,401

LOW INPUT IMPEDANCE DIPOLE ANTENNA ARRAY

Filed Dec. 7, 1965



INVENTOR.
Albert C. Veldhuis,
BY
Paul & Paul
ATTORNEYS.

Open 3-10-66
433-65

Nov. 5, 1968

R. H. BLACKFORD

3,409,038

LAMINATED MAGNETIC RUBBER VALVE

Filed April 26, 1966

3 Sheets-Sheet 1

FIG. 1

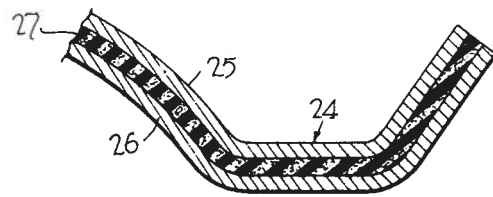
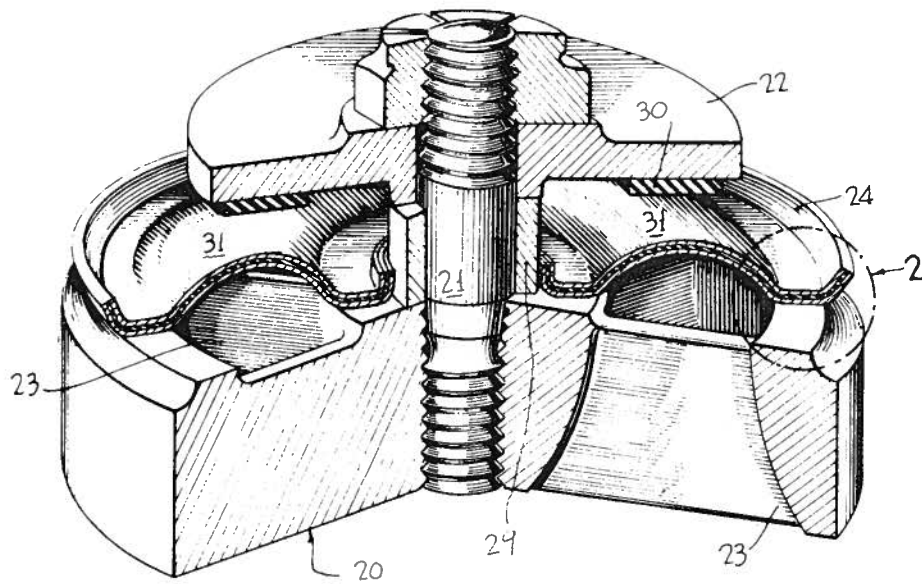


FIG. 10

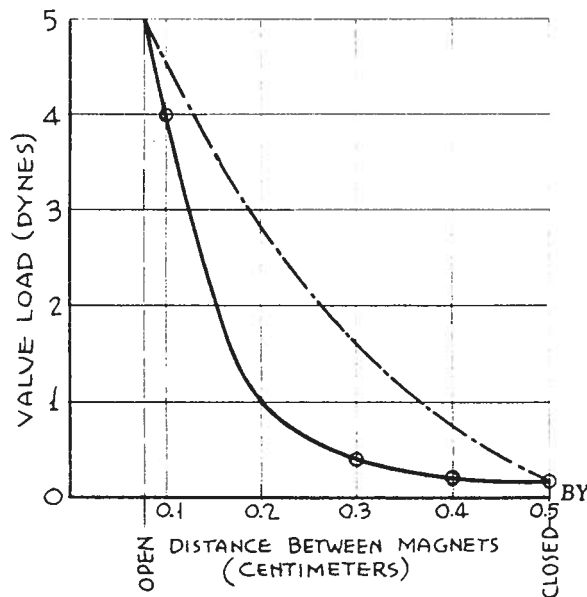


FIG. 2

INVENTOR.
Raymond H. Blackford

Paul & Paul
ATTORNEYS

July 18, 1967

E. R. SARRATT

3,332,079

LORAN-C CYCLE-MATCHING APPARATUS

Filed April 7, 1965

6 Sheets-Sheet 1

FIG. 1 -

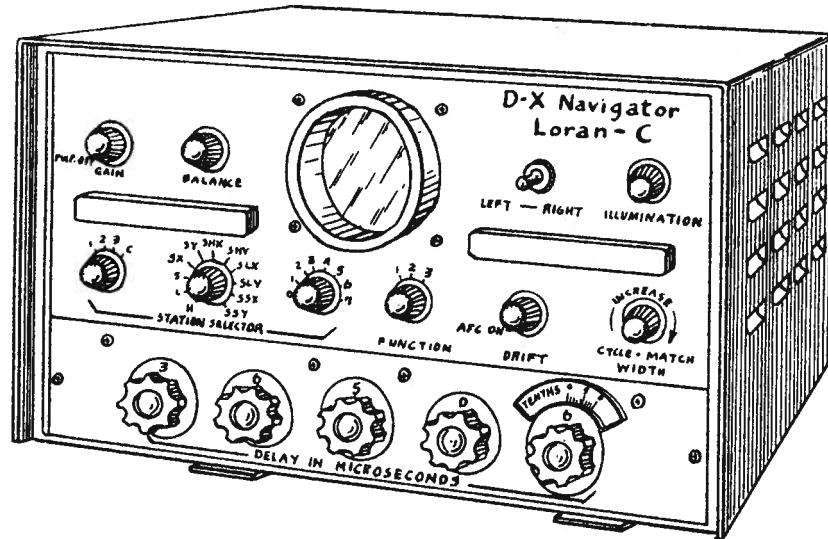
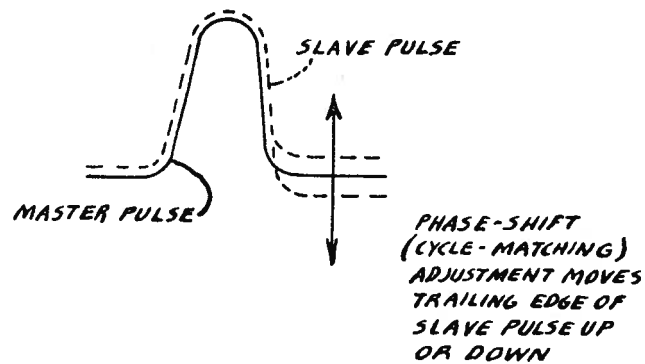


FIG. 7 -



INVENTOR.
Everett R. Sarratt,
 BY
Paul & Paul
 ATTORNEYS.

July 4, 1967

J. B. TREECE ETAL

3,328,839

APPARATUS FOR MOLDING CARPETS

Filed June 2, 1964

7 Sheets-Sheet 1

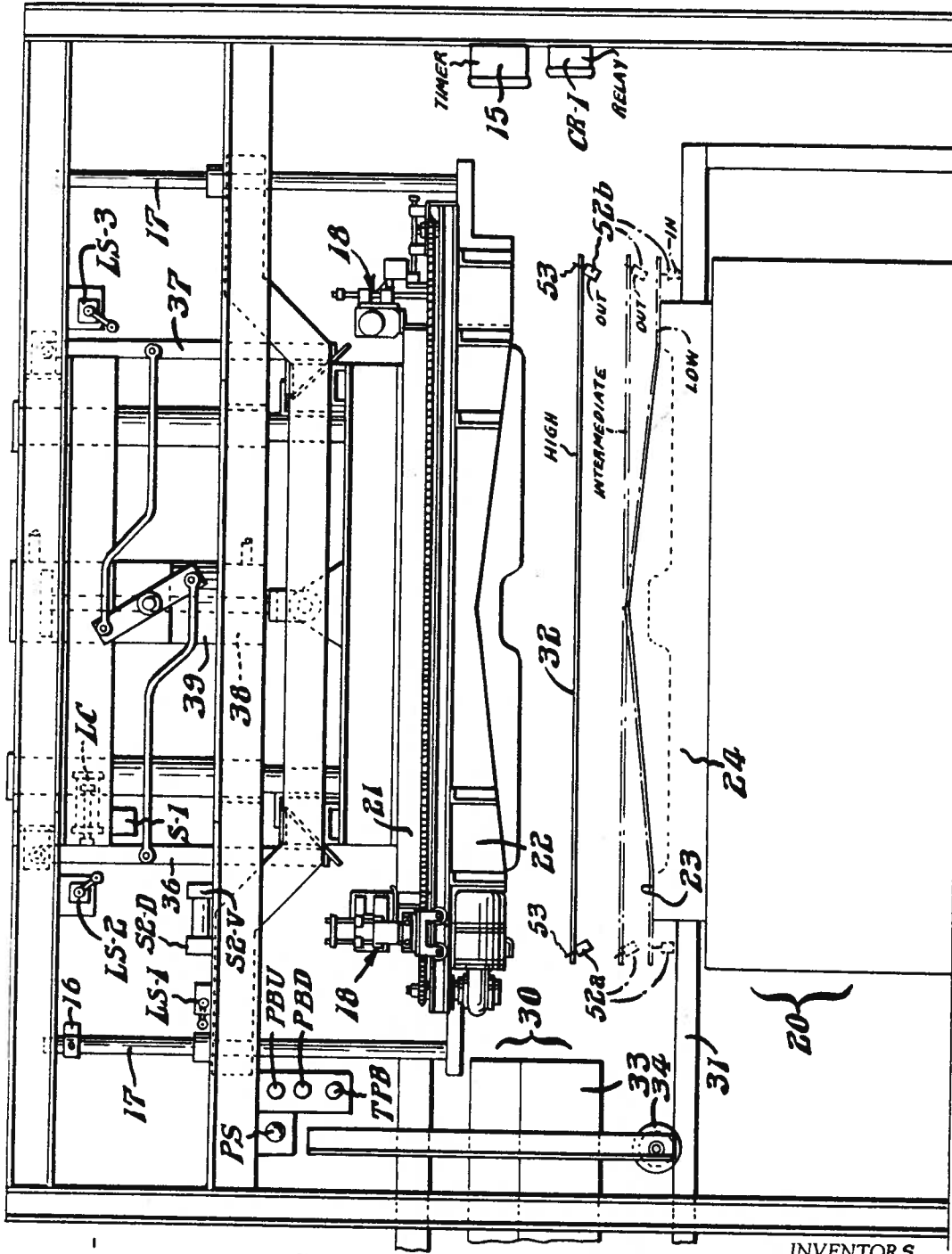


FIG. 1 -

INVENTORS.

Johnny Benjamin Treece
& Jesse Lamar Taylor Harris,
BY Paul & Paul
ATTORNEYS.

1

3,323,993

ANTACID COMPOSITION CONTAINING HYDRATED MAGNESIUM ALUMINATE

Remsen Ten Eyck Schenck, Bangor, Pa., assignor to Keystone Chemurgic Corporation, Bethlehem, Pa., a corporation of Pennsylvania

No Drawing. Original application Sept. 29, 1960, Ser. No. 59,155. Divided and this application Oct. 29, 1963, Ser. No. 319,644

3 Claims. (Cl. 167—55)

The present invention relates to a new chemical compound consisting of hydrated magnesium aluminate, and processes for its production.

This application is a division of my copending application Serial No. 59,155, filed September 29, 1960, now abandoned, which application was a continuation-in-part of my then copending application Serial No. 839,303, filed September 11, 1959, and now abandoned, which application was a continuation-in-part application of my then copending application Serial No. 647,448, filed March 21, 1957, and now abandoned.

The anhydrous form of magnesium aluminate,



is exemplified by the well-known mineral spinel. It has also been synthesized by heating at a very high temperature a mixture of magnesium and aluminum oxides. In this state, it is comparatively inert toward nearly all chemical reagents, and possesses a high fusing point. Particularly well-crystallized specimens are valued as gemstones; except for this and some limited use as a refractory, the substance is of little interest chemically and of none at all biologically.

It has also been proposed to produce metal aluminates by reacting an alkali metal aluminate and a salt of a metal. Reactions of this sort are described in U.S. Patents 2,395,931, and 2,413,184 and result in products which are relatively inactive chemically and which have substantially lower water contents and greater particle size characteristics than the product of the present invention.

I have now discovered that magnesium aluminates may be economically prepared in a hitherto-undescribed, highly hydrated and chemically active form. When produced by one of the wet processes hereinafter described, hydrated magnesium aluminate is a finely-divided, tasteless, insoluble white powder which, in contrast to the magnesium aluminate products hitherto known is highly reactive toward many chemical reagents, notably toward acids.

A suspension of the hydrated magnesium aluminate of the present invention in distilled water shows a pH of 8.0 to 8.5. On addition of dilute acid, such as N/10 HCl, the first action involves decomposition of the molecule into aluminum hydroxide and magnesium chloride. The latter dissolves, while the former remains suspended in a very highly active form. Two equivalents of acid are consumed in this step, and the pH drops to approximately 4. Further additions of acid to the mixture react with the liberated aluminum hydroxide. This step takes place at a constant pH; no reduction of pH below 4 can occur until all the aluminum hydroxide is consumed. Since six additional equivalents of acid are required for this, the buffer action of the hydrated magnesium aluminate of the present invention in the region of pH 4 is pronounced.

By virtue of the above properties, the hydrated magnesium aluminate of the present invention is of interest pharmacologically, as a treatment for excessive gastric acidity. Unlike many other remedies of this type, it cannot over-alkalize the gastric juice when used in normal or usual doses. It establishes a pH in the ideal range near 4 in the stomach, and maintains this for an extended pe-

2

riod in spite of continual secretion of additional acid by the stomach.

The term "hydrated magnesium aluminate" as used throughout this specification and in the appended claims is intended to designate the product of the present invention, as produced by the processes herein disclosed and which is characterized by a water content of from 50% to 60%.

The hydrated magnesium aluminate of this invention is devoid of toxicity, its metabolic products being simple magnesium and aluminum salts, and may thus be freely ingested; the dosage required is small because of its low equivalent weight. In spite of the relatively high degree of hydration of the salt, the equivalent weight is only 40, which is comparable with those of calcium carbonate and magnesium carbonate, and less than half as great as that of sodium bicarbonate.

Hydrated magnesium aluminate contains no carbon dioxide, and this is not a carminative. In some applications this is a decided benefit, as for instance where a simple antacid effect, unaccompanied by eructation, is desired.

Few side-effects, and those of no importance, have been reported to accompany the use of aluminum and magnesium compounds as antacids. The former occasionally produces a slight tendency to constipation, while the latter sometimes has a laxative action. Neither effect is appreciable in normal dosage. Furthermore, it is believed that combining the two substances in a single treatment, as in hydrated magnesium aluminate, results in cancellation of the two factors.

Hydrated magnesium aluminate may profitably be used as an additional ingredient in pharmaceutical formulations designed primarily for other purposes than control of gastric acidity. For example, certain substances widely employed as analgesics have, as a side-effect, the property of irritating the gastric mucosa into secreting more than the normal amount of acid. The hydrated magnesium aluminates of the present invention may be advantageously incorporated with such analgesics.

I have discovered two processes for producing a pure hydrated magnesium aluminate in finely divided form and having a water content of from 50% to 60%. The first of these processes consists in adding an alkali metal aluminate solution to a solution of a magnesium salt and simultaneously adding an acid at a rate such that the pH remains within a range in which the upper limit is the pH at which magnesium hydroxide can precipitate and the lower limit is the pH at which aluminum hydroxide precipitates more rapidly than magnesium aluminate is formed. This range is from pH 6 at the lower limit to pH 10 at the upper limit.

The second process consists in first preparing a slurry of basic aluminum magnesium carbonate in water, and then boiling this slurry. In the boiling the carbonate is hydrolyzed and carbon dioxide is liberated. When no further carbon dioxide can be driven off by continued boiling, the residual insoluble salt consists of hydrated magnesium aluminate.

The processes referred to above for preparing hydrated magnesium aluminate are illustrated in more specific detail in the following examples:

Example 1.—In a reaction vessel equipped with a mechanical stirrer, means for adding simultaneously two separate liquids at individually controlled rates, and a set of electrodes for determination of the pH of the mixture, is placed a solution of 75 gms. of magnesium chloride in 1 liter of water. A quantity of sodium aluminate containing 0.4 gram-atoms of aluminum, corresponding to 33 gm. of actual NaAlO_2 , is dissolved in 2 to 4 times its own weight of water to make a fairly concentrated solution, and this is allowed to flow slowly into the stirred

533-64

F. J. OPOLSKI ET AL

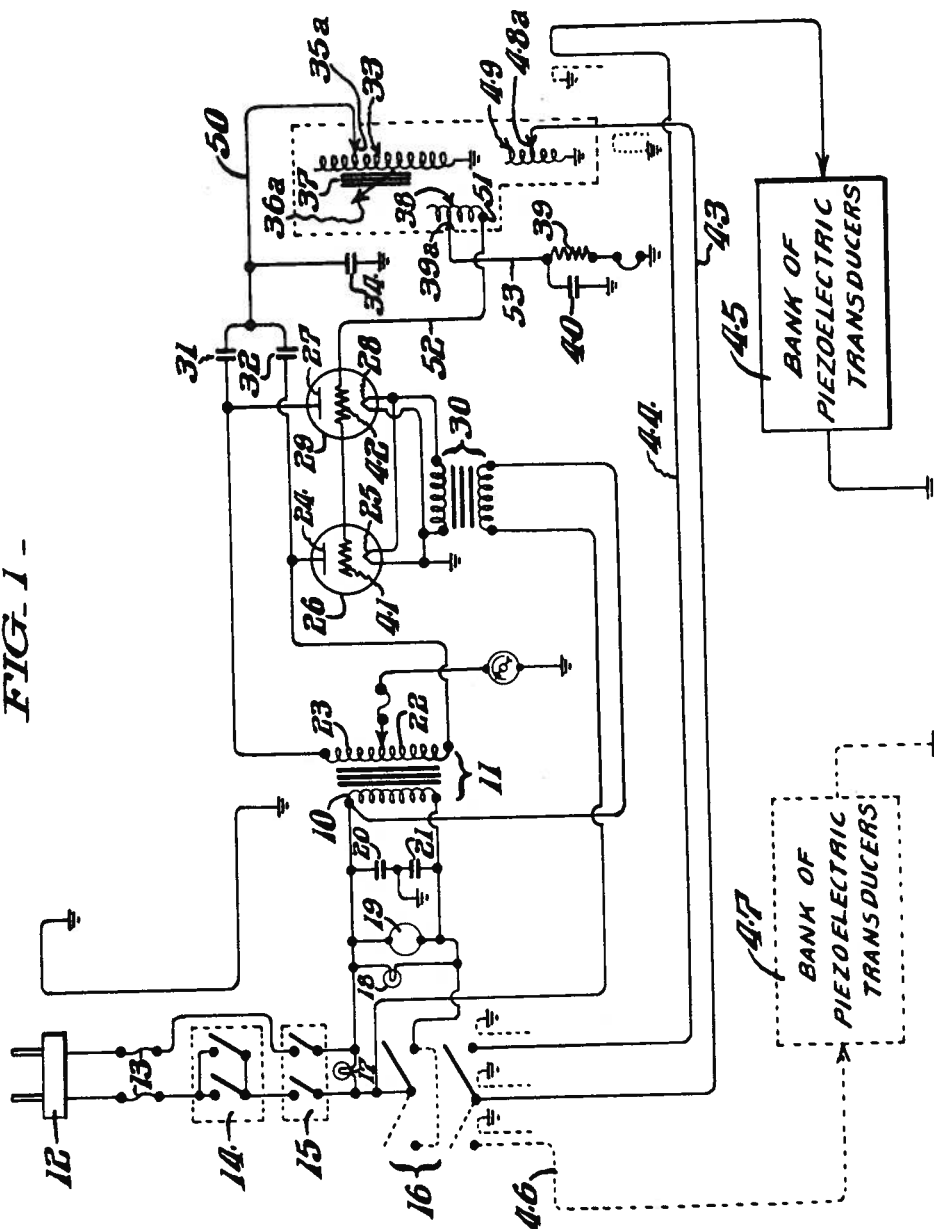
3,263,182

PULSED RADIO-FREQUENCY GENERATOR

Original Filed June 17, 1960

3 Sheets-Sheet 1

FIG. 1 -



INVENTORS.
Frank J. Opolski,
George O'Neal, Jr. &
Carroll B. Range,
 BY *Paul & Paul*
 ATTORNEYS.

Aug. 11, 1964

A. A. BRADD

3,144,362

FORGED AND NITRIDED STEEL ROLL

Filed Sept. 26, 1962

2 Sheets-Sheet 1

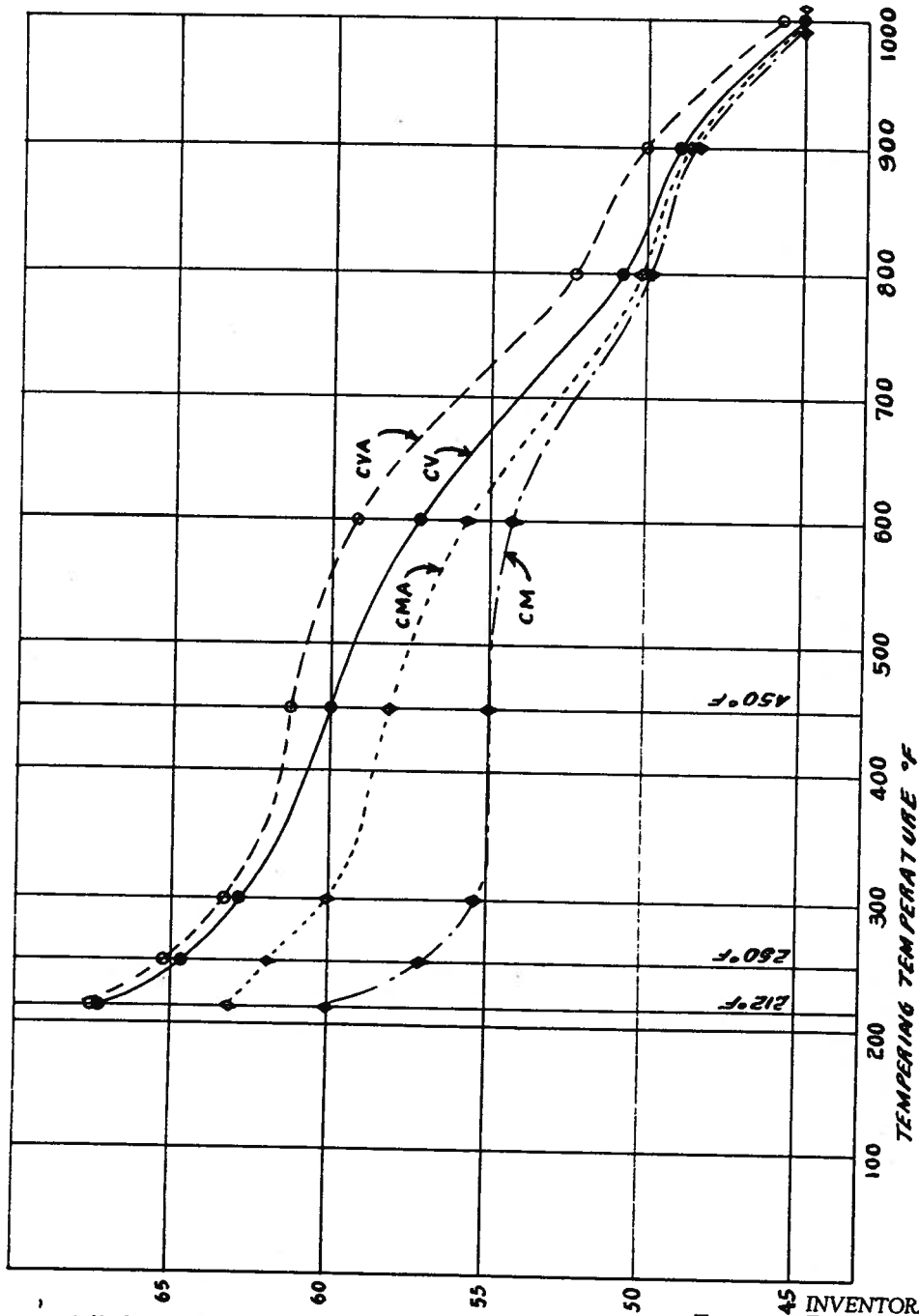


FIG. 1.

HARDNESS - ROCKWELL C, AT ROOM TEMPERATURE
INVENTOR.
Amos A. Bradd,
BY
Paul & Paul
ATTORNEYS.

Sept. 11, 1962

F. G. SCHLOZ
CONSTANT CAPACITY NOZZLE

3,053,462

Filed Aug. 7, 1961

FIG. 1 -

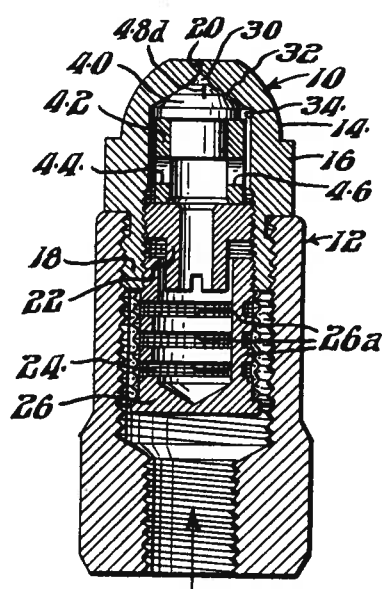


FIG. 2 -

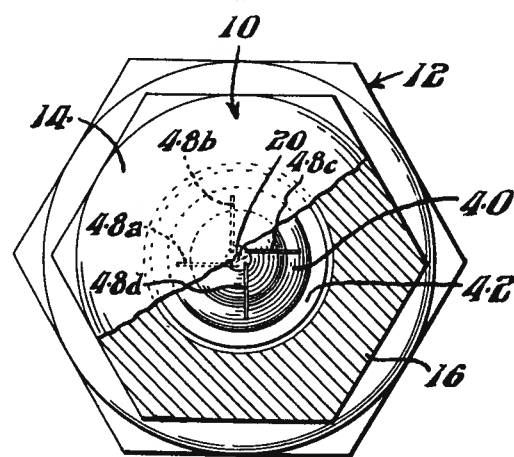


FIG. 3 -

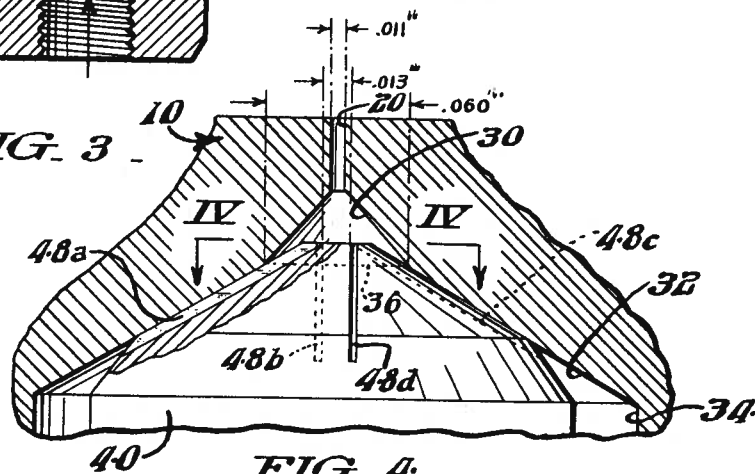
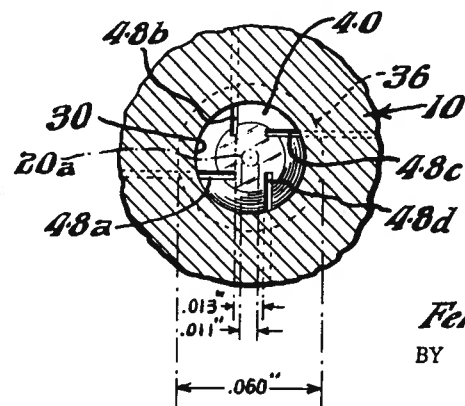


FIG. 4 -

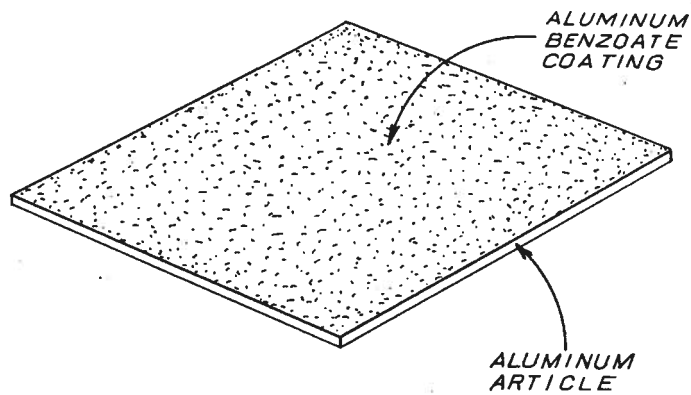


INVENTOR.
Ferdinand G. Schloz,
BY
Paul & Paul
ATTORNEYS.

Sept. 1, 1959

W. H. ROSS, JR
ALUMINUM COATED WITH ALUMINUM BENZOATE, AND METHOD
AND COMPOSITION FOR MAKING SAME
Filed Nov. 18, 1955

2,901,821



INVENTOR.
Wilford H. Ross Jr.

BY

Paul & Paul

ATTORNEYS.

136,533
Ch. George Sailer

Nov. 25, 1958

P. W. DOUGLAS

2,861,355

LAUNDRY DRYING MACHINES

Filed Sept. 23, 1955

4 Sheets-Sheet 1

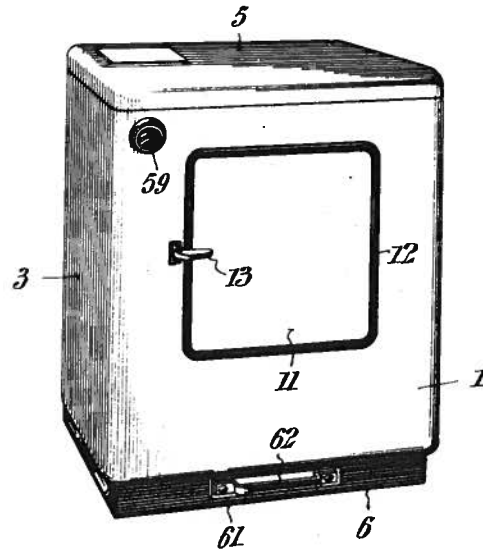


FIG. 1.

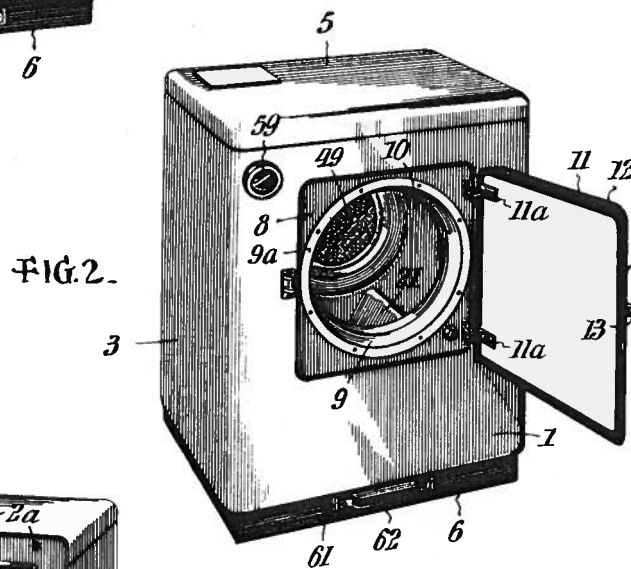


FIG. 2.

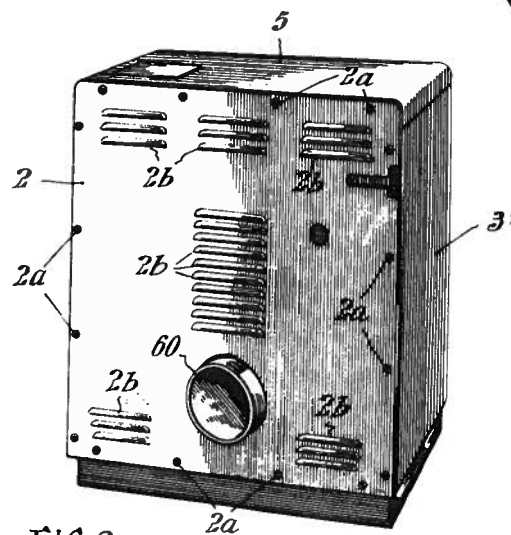


FIG. 3.

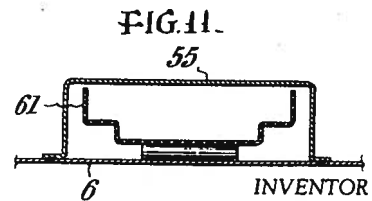


FIG. 4.

INVENTOR
Peyton W. Douglas.
BY *Paul & Paul*

ATTORNEY

Feb. 14, 1956

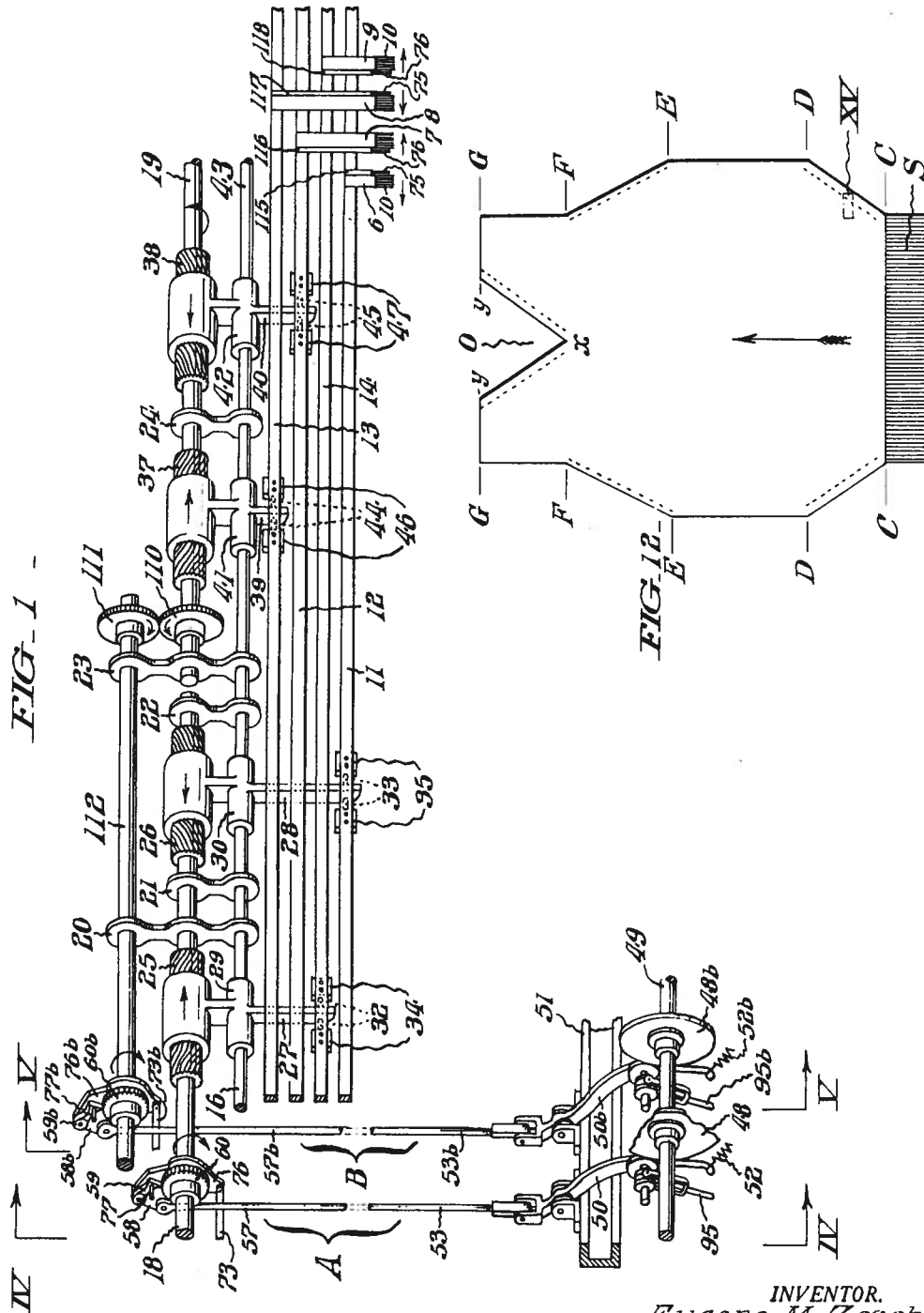
E. M. ZESCH

2,734,360

STRAIGHT KNITTING MACHINE

Filed Feb. 3, 1955

8 Sheets-Sheet 1



INVENTOR.
Eugene M. Zesch,
BY *Paul & Paul*
ATTORNEYS.

Dec. 14, 1954

A. J. SEILER

2,696,865

METHOD OF AND APPARATUS FOR FABRICATING CONVEYER BELTING

Filed Jan. 28, 1952

4 Sheets-Sheet 1

FIG. 1.

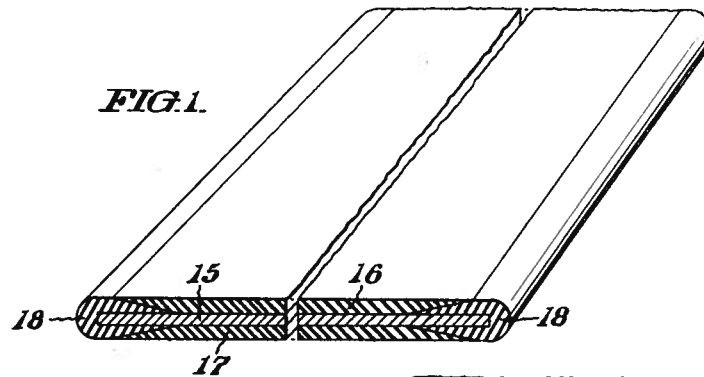


FIG. 2.

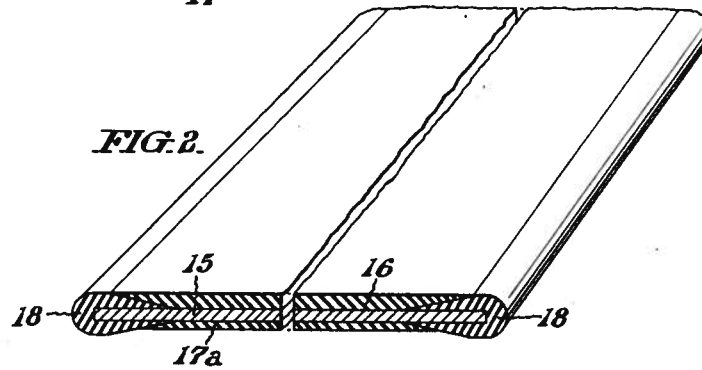


FIG. 3.

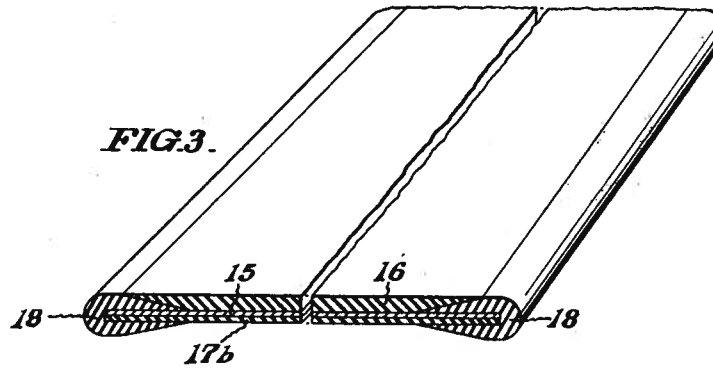
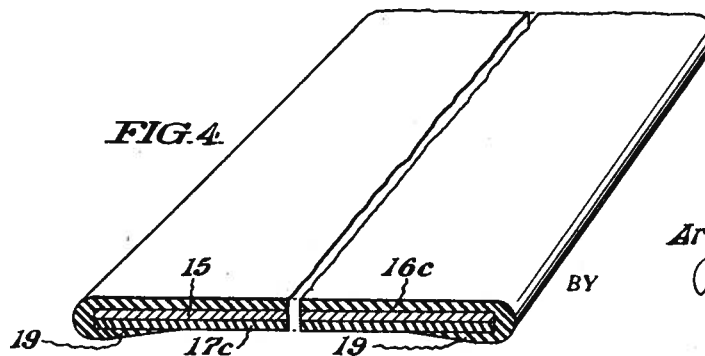


FIG. 4.



INVENTOR:
Arthur J. Seiler,
Paul & Paul
ATTORNEYS.

Oct. 23, 1951

R. J. CRISSY

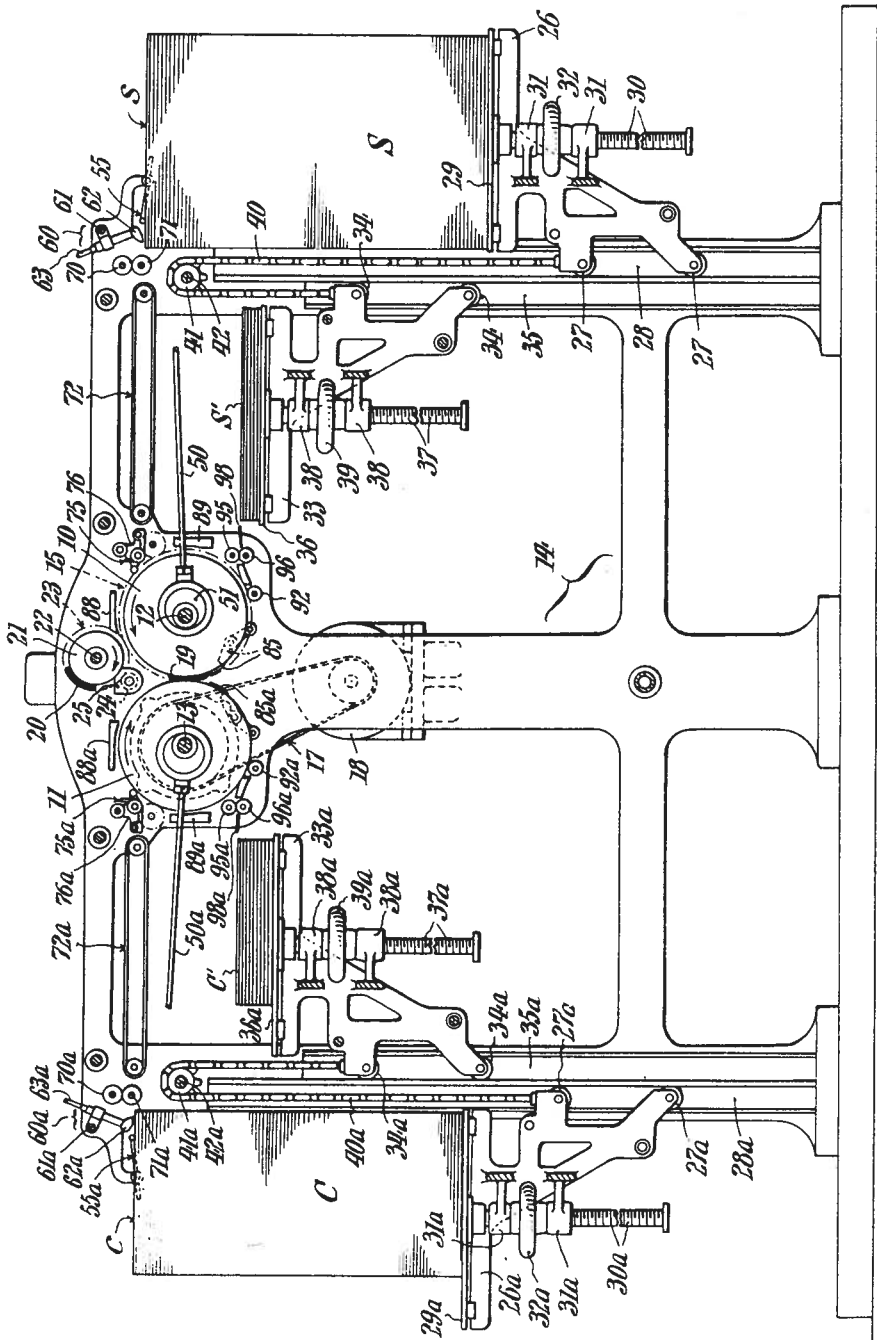
2,572,450

DATA COPYING MACHINE

Filed June 25, 1947

3 Sheets-Sheet 1

FIG. 1.



WITNESSES
Hubert Fuchs
Thomas W. Ferr Jr.

INVENTOR:
Robert J. Crissy,
BY Paul & Paul
ATTORNEYS.

3 Sheets-Sheet 1



Thomas W. Fere, Jr.
A. J. Brittingham

BY *Paul Paul*
ATTORNEYS

Oct. 28, 1947.

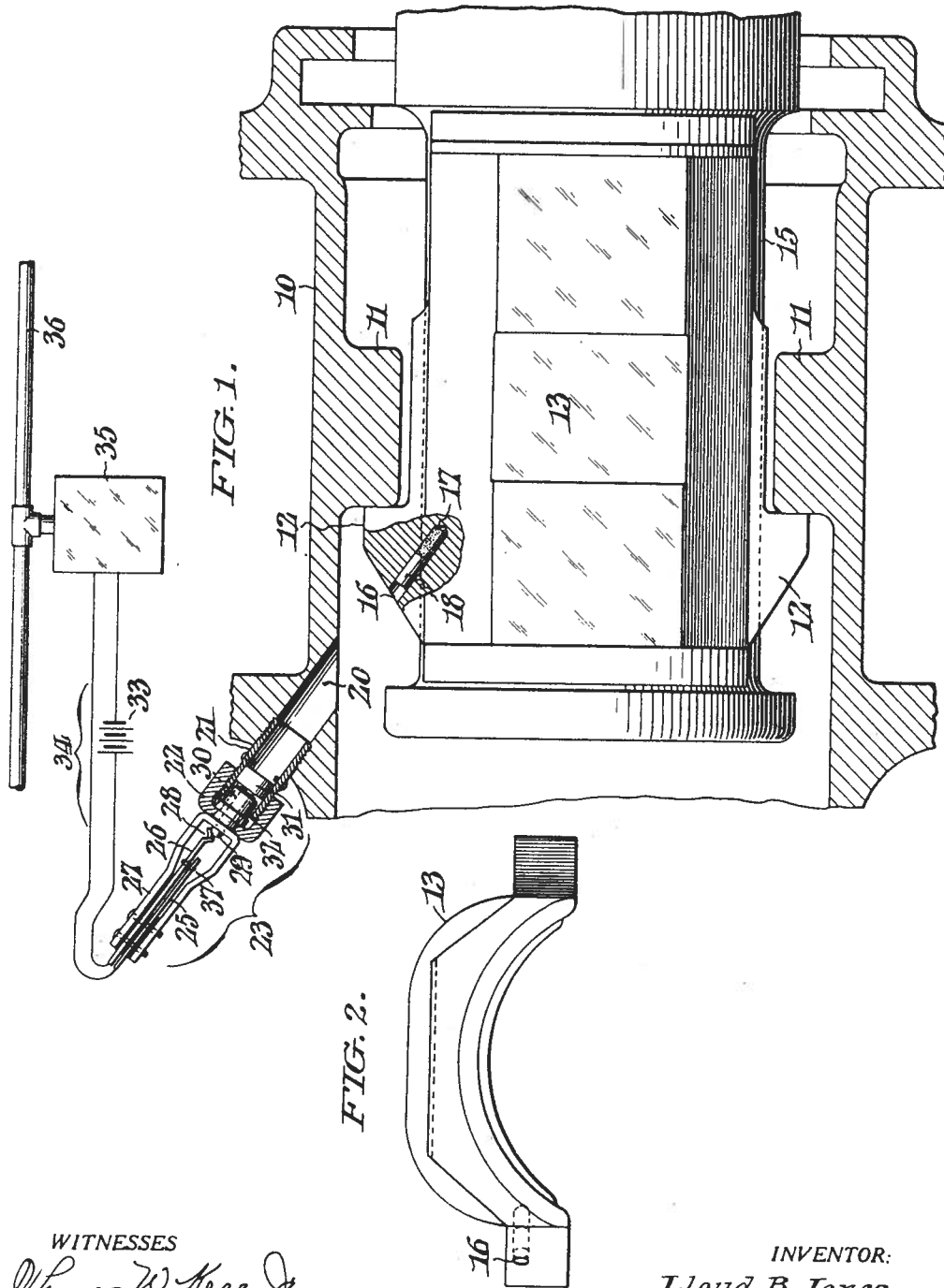
L. B. JONES .

2,429,817

HOT BEARING BOX DETECTION MEANS

Filed Nov. 4, 1944

2 Sheets-Sheet 1



WITNESSES
Thomas W. Kerr, Jr.
Evalyn L. Fullerton

BY

INVENTOR:
Lloyd B. Jones,
Paul Paul
ATTORNEYS.

March 13, 1945.

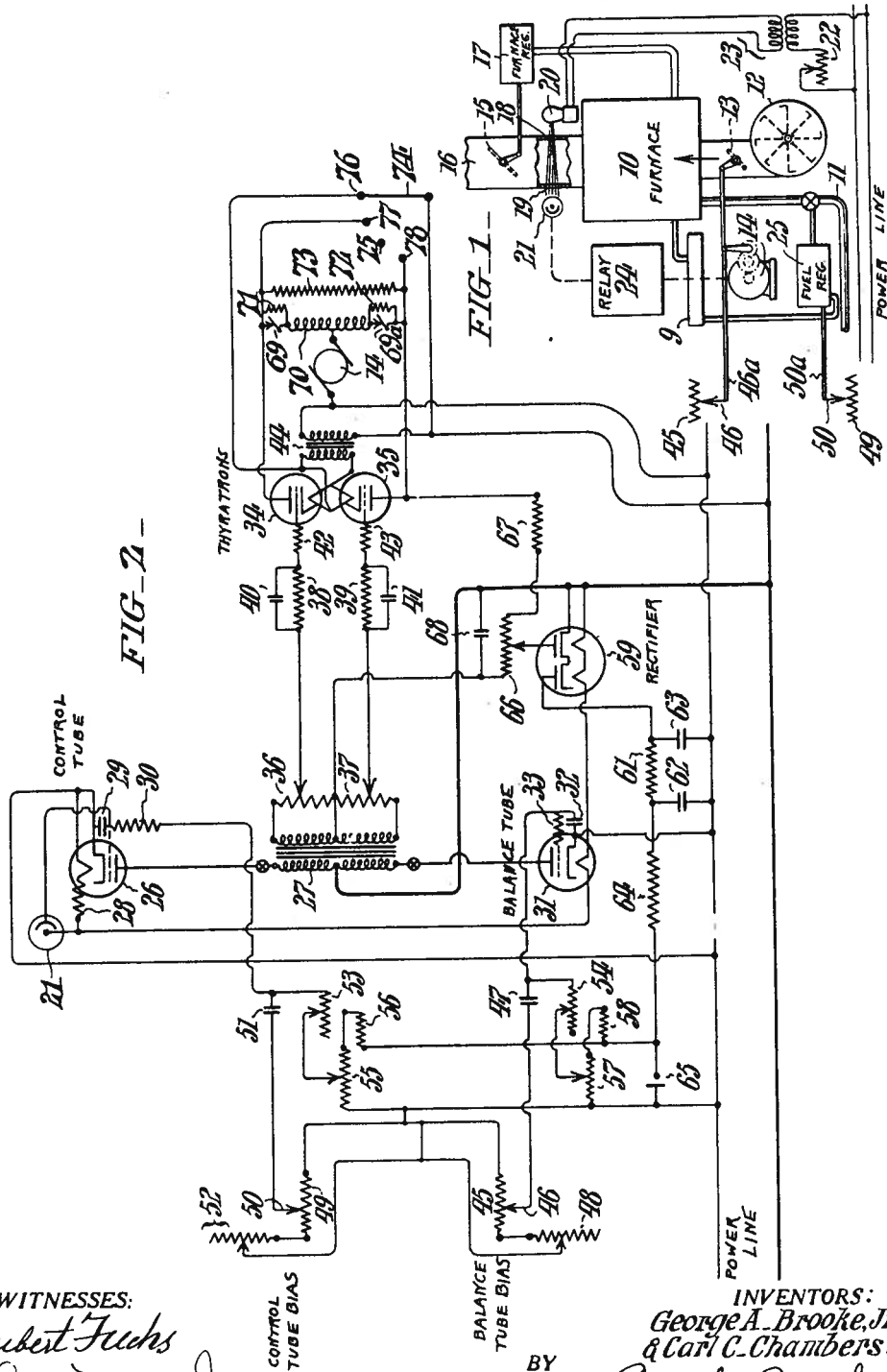
G. A. BROOKE, JR., ET AL

2,371,590

CONTROL SYSTEM

Filed June 6, 1942

2 Sheets-Sheet 1



WITNESSES:
Hubert Feakes
Thomas W. Zee, Jr.

BY

INVENTORS:
George A. Brooke, Jr.,
& Carl C. Chambers,
Paul Paul
ATTORNEYS.

Aug. 25, 1942.

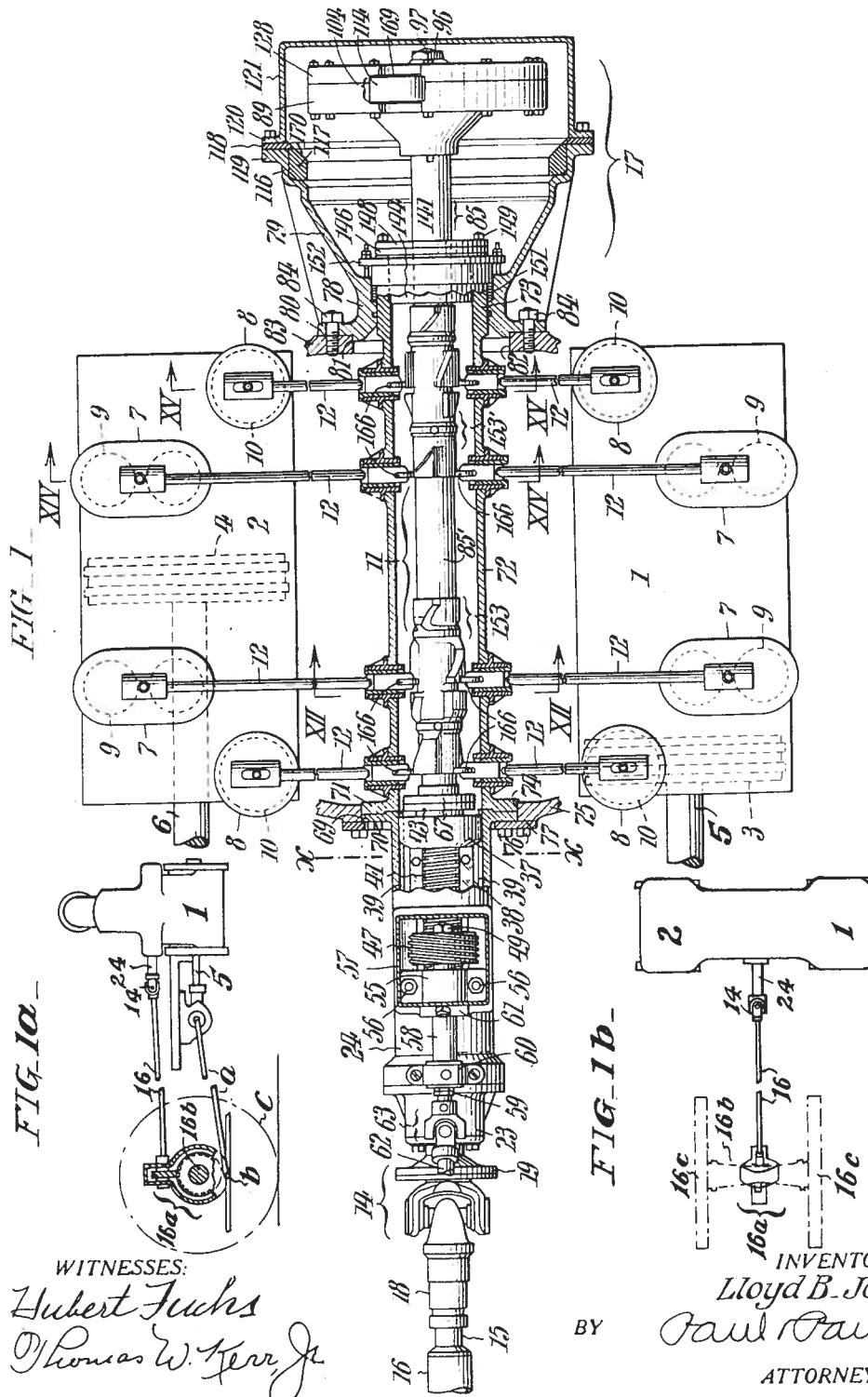
L. B. JONES

2,294,304

MASTER CONTROL FOR FLUID DISTRIBUTORS

Filed Nov. 19, 1941

8 Sheets-Sheet 1



WITNESSES:
Hubert Fuchs
Thomas W. Kerr, Jr.

INVENTOR:
Lloyd B. Jones.
 BY *Paul Paul*
 ATTORNEYS.

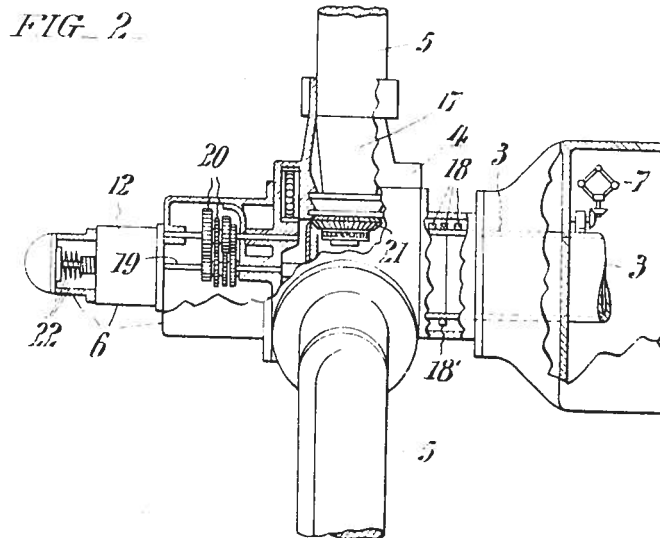
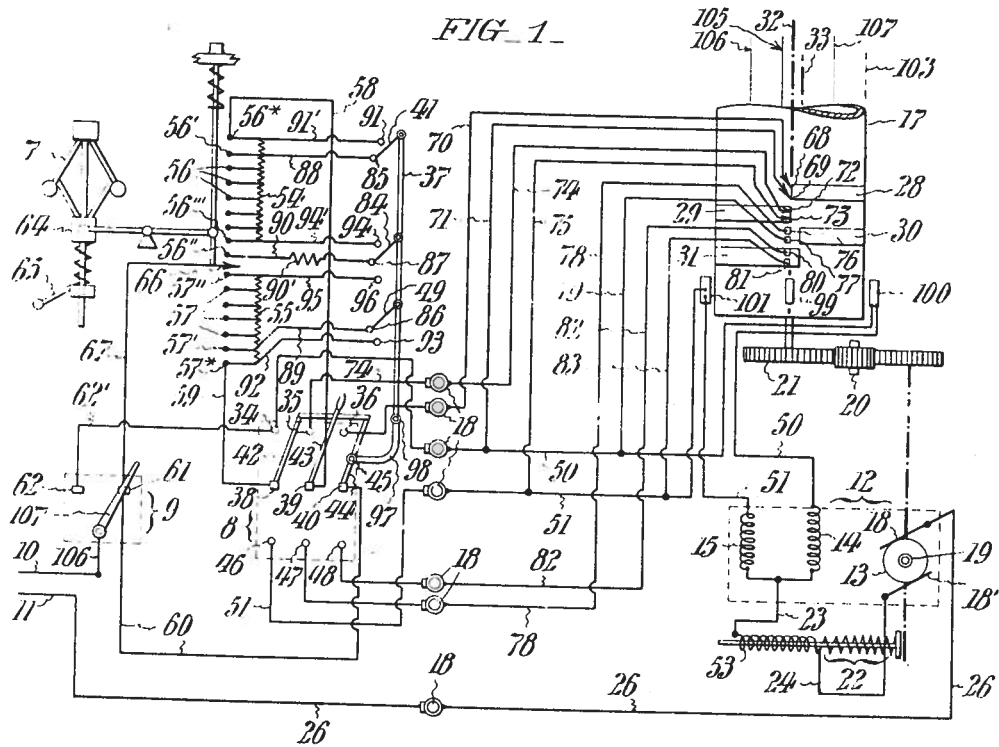
Aug. 25, 1942.

M. R. MULLEN

2,293,912

PROPELLER

Filed Sept. 9, 1941



WITNESSES

Hubert Suchs
Woodrow Stevenson

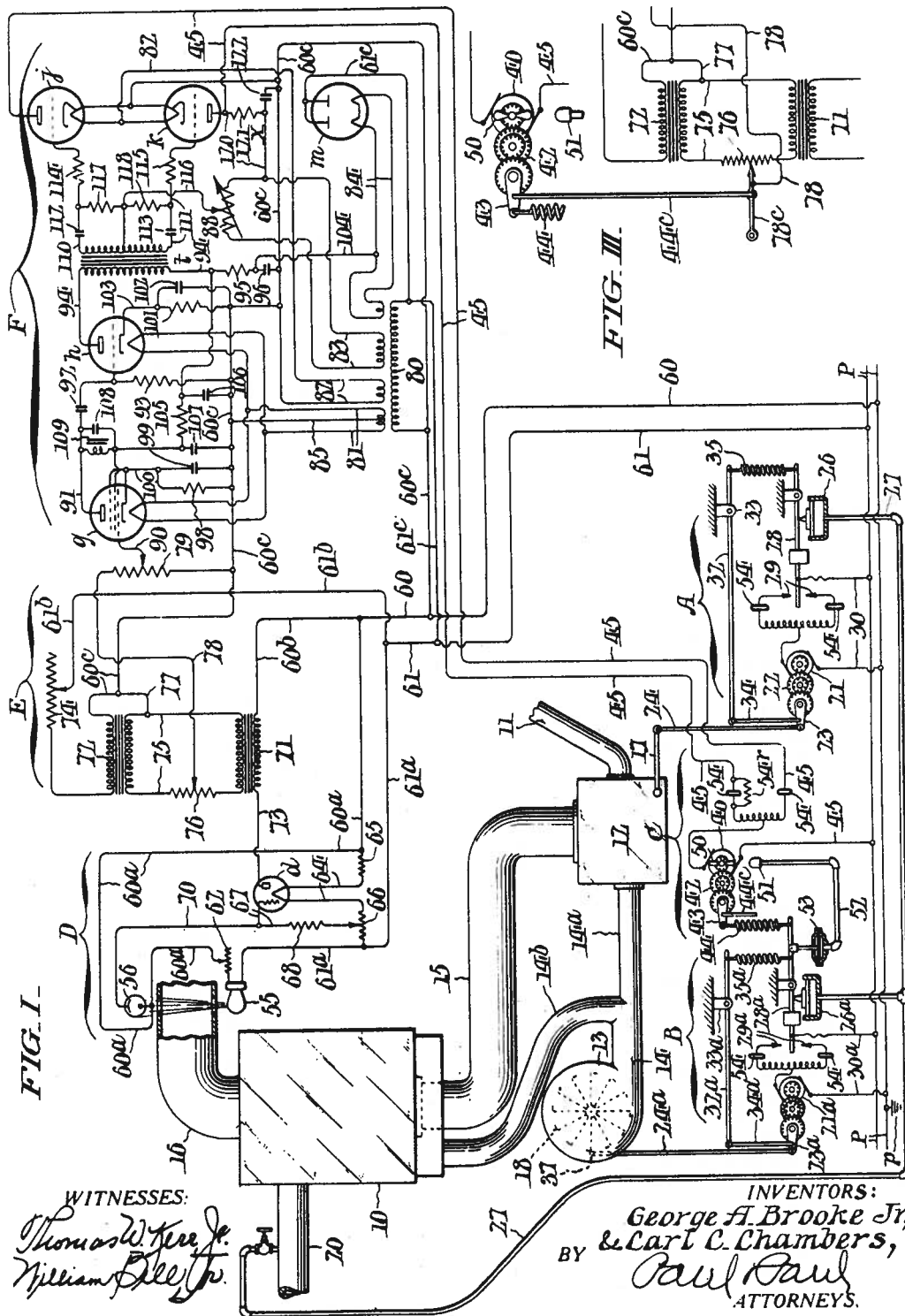
INVENTOR:
Milton R. Mullen,

BY

Paul Paul
ATTORNEYS.

2,285,564

2 Sheets-Sheet 1



April 13, 1937.

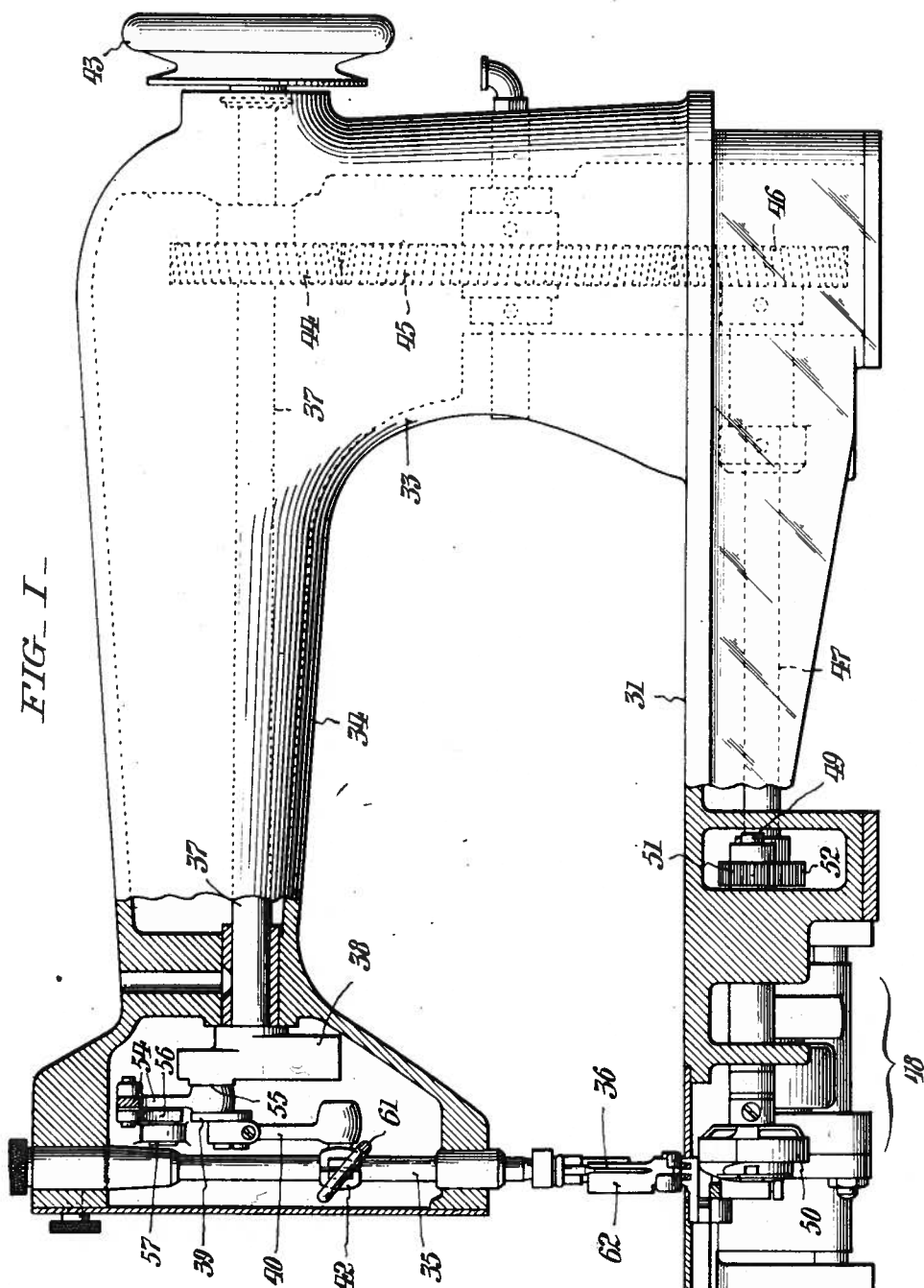
C. O. NELSON

2,077,151

SEWING MACHINE

Filed Nov. 19, 1934

7 Sheets-Sheet 1



WITNESSES:

Hubert Fuchs
William Bell, Jr.

INVENTOR:

Carl O. Nelson,
Frederick Paul
ATTORNEYS.

BY

March 9, 1937.

G. A. BROOKE, JR

2,073,332

COMPENSATED CONTROL SYSTEM

Filed June 13, 1936

3 Sheets-Sheet 1

FIG. I.

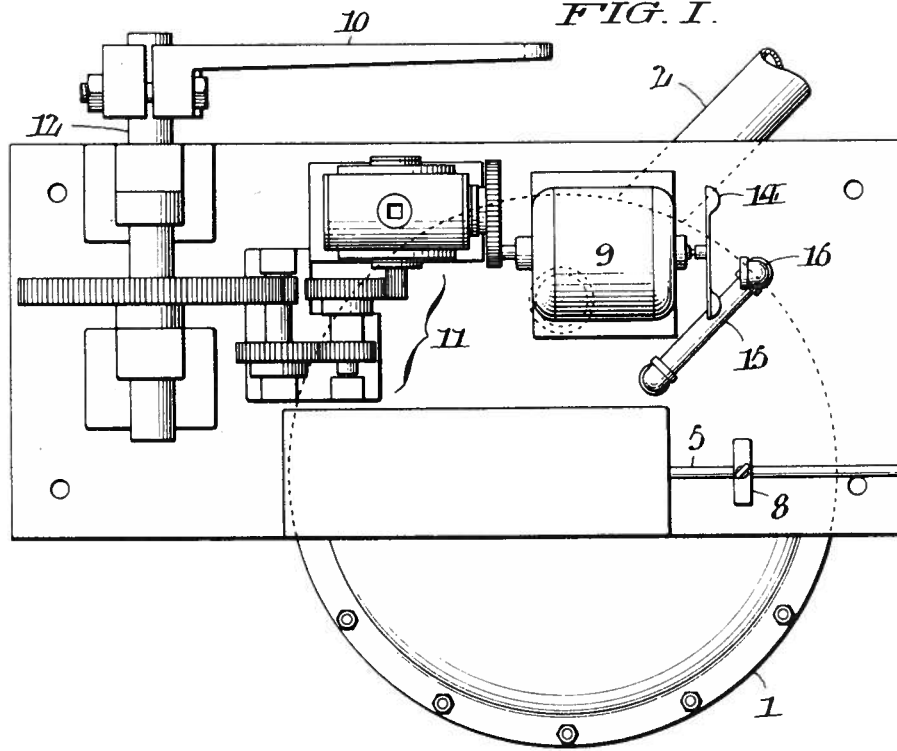
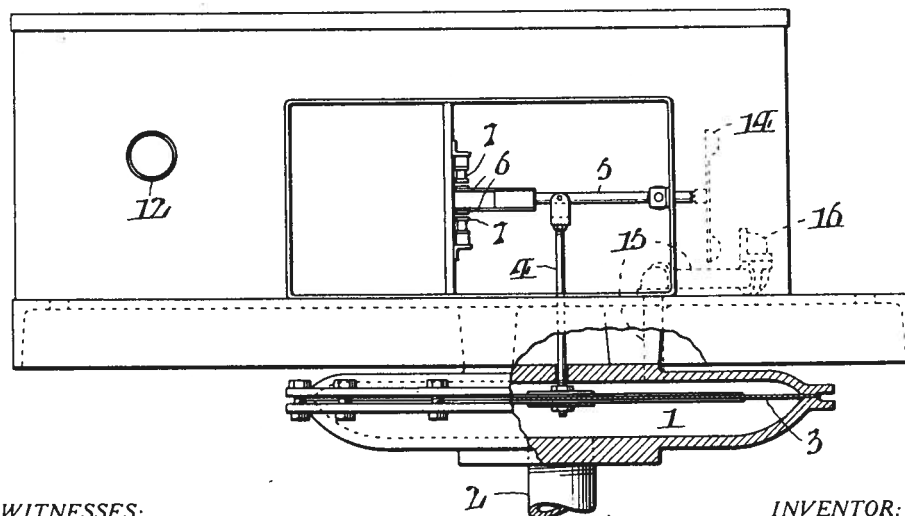


FIG. II.



WITNESSES:

Thomas W. Herr, Jr.
John A. Weidler

INVENTOR:

George A. Brooke, Jr.,
BY Fraley Paul
ATTORNEYS.

Sept. 15, 1936.

R. A. LIGHT ET AL

2,054,772

CHECK VALVE

Filed Nov. 23, 1933

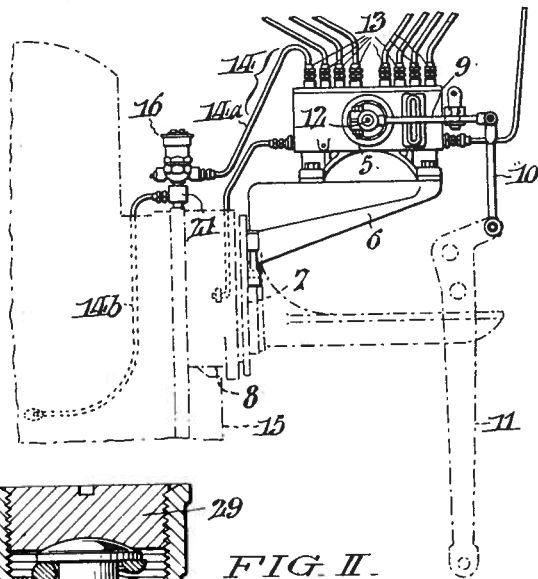


FIG. I.

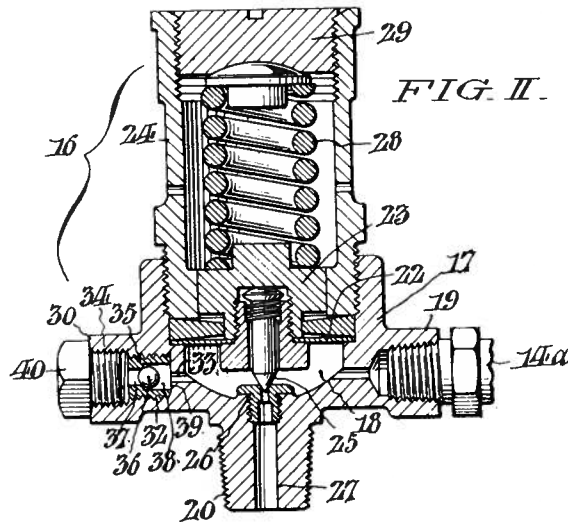
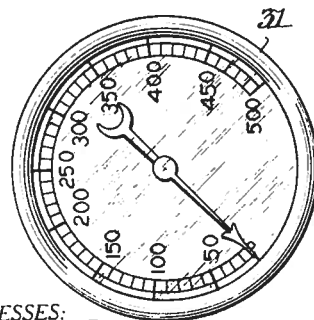


FIG. II.

FIG. III.



WITNESSES:

John C. Berger
Moscow Stevenson

INVENTOR:
Ralph A. Light &
Joseph W. Price Jr.,
BY *Harry Paul*
ATTORNEYS.

Oct. 23, 1934.

J. J. DILKS, JR

1,978,250

MOTION PICTURE PROJECTION METHOD AND APPARATUS

Filed Sept. 18, 1930

6 Sheets-Sheet 1

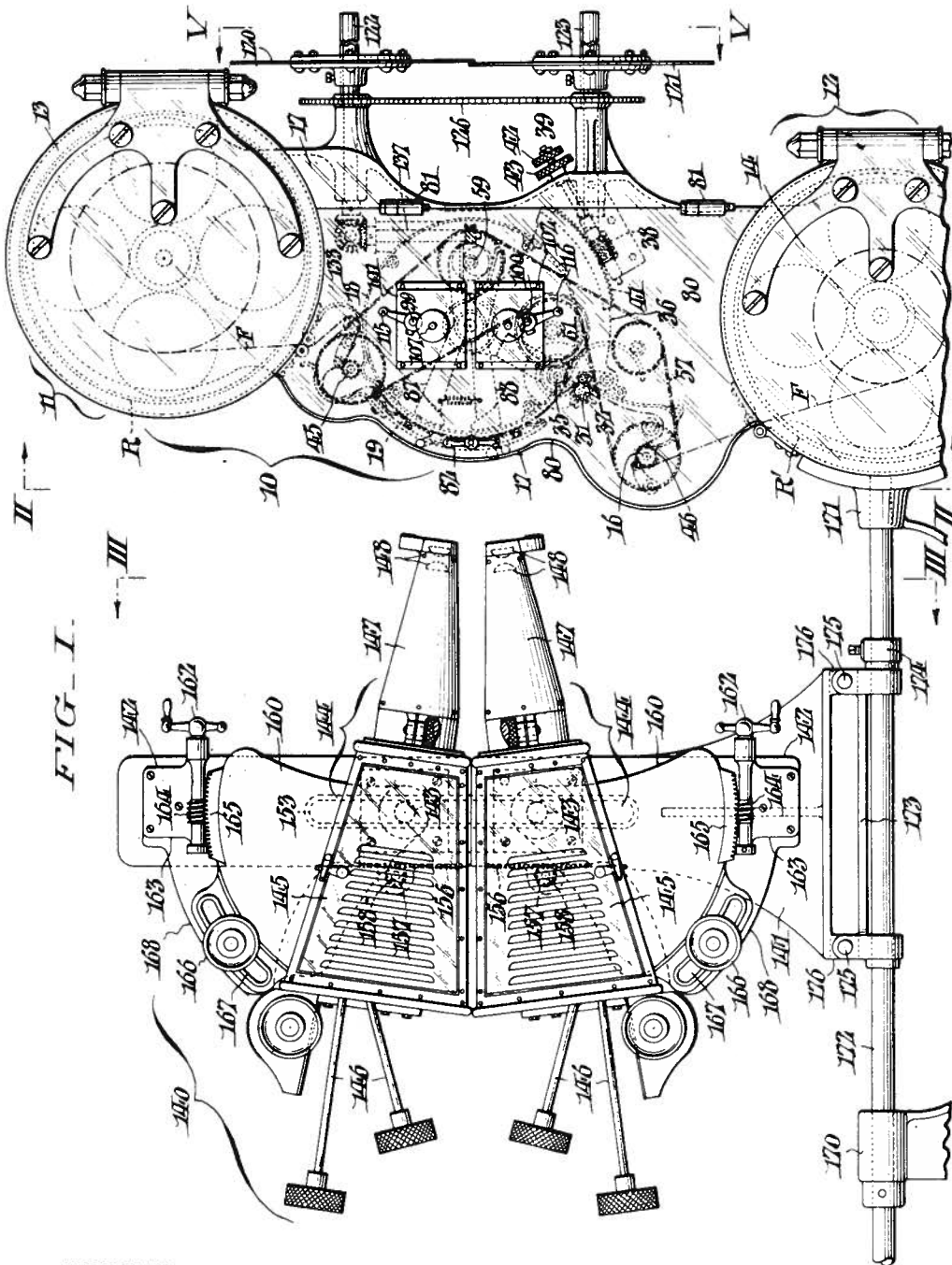


FIG. I.

WITNESSES
John C. Buzner
Hubert Hicks

INVENTOR:
James J. Dilks, Jr.
BY *Tracy & Paul*
ATTORNEYS.

June 2, 1931.

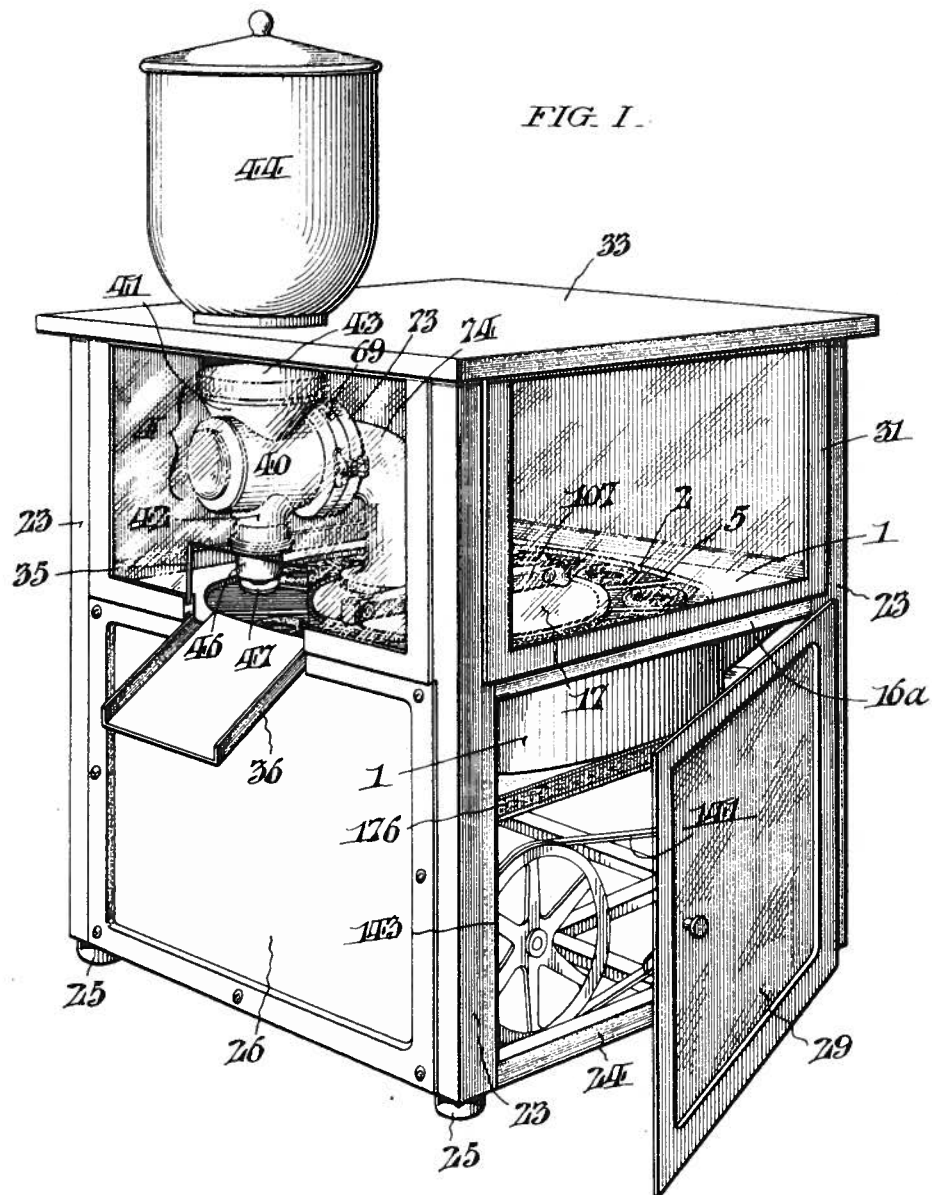
J. C. BERGNER

1,807,820

COOKING APPARATUS

Original Filed Dec. 4, 1926

6 Sheets-Sheet 1



WITNESSES

Thomas W. Kerr, Jr.
John A. Weidner

INVENTOR:

John C. Bergner,
BY Tracy Paul
ATTORNEYS.

Sept. 16, 1930.

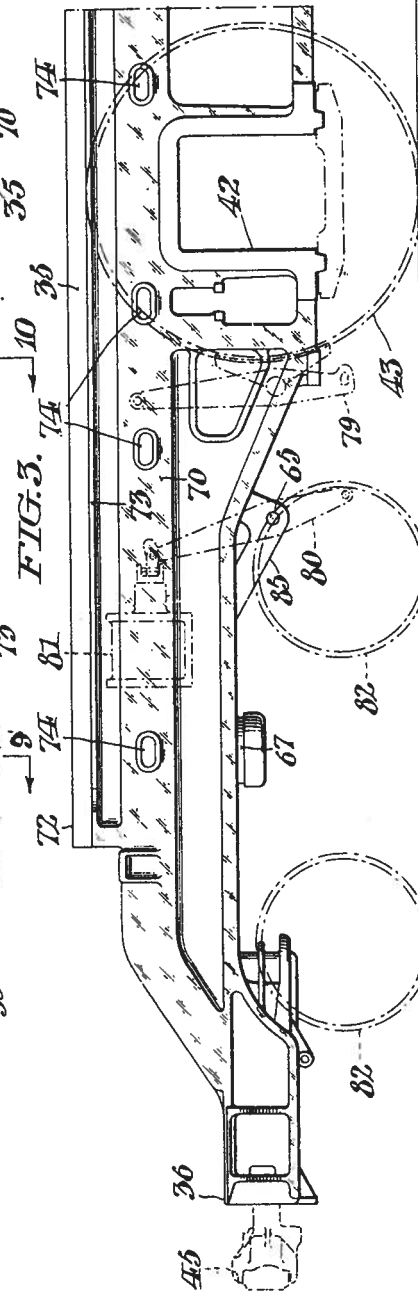
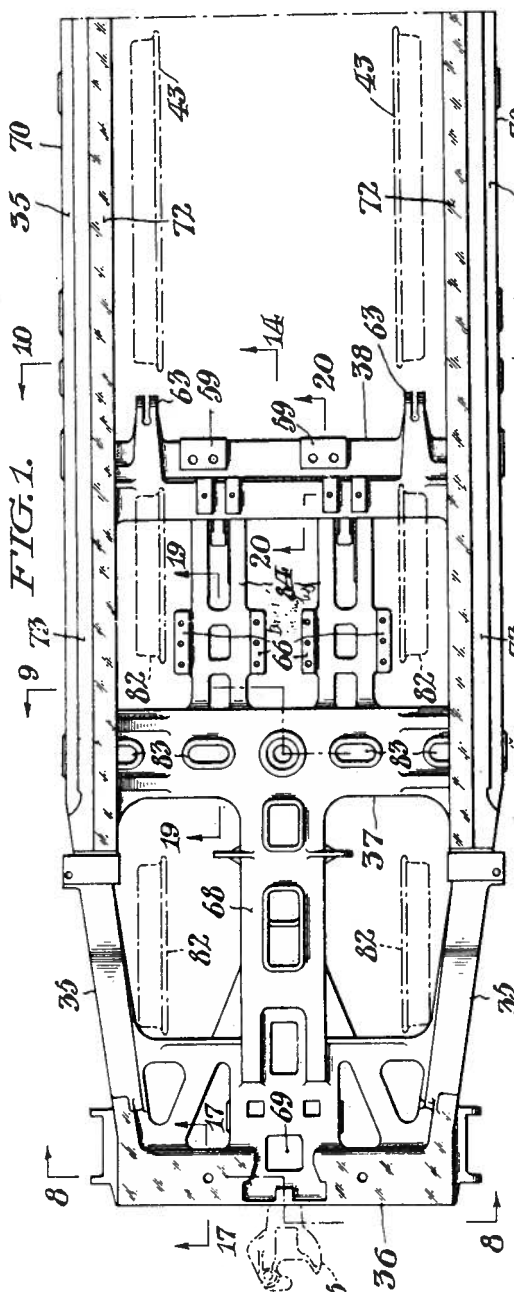
J. MORCH ET AL

1,776,079

FRAME FOR ELECTRIC LOCOMOTIVES

Filed April 25, 1929

6 Sheets-Sheet 1



WITNESSES
John A. Weidler
George M. Muchamp

INVENTOR:
John Morch &
Gustav Arenz Silversparr
BY
Felix Paul
ATTORNEYS.

April 3, 1928.

1,665,017

J. C. BERGNER.

COOKING APPARATUS

Original Filed July 10, 1919

2 Sheets-Sheet 1

FIG. I.

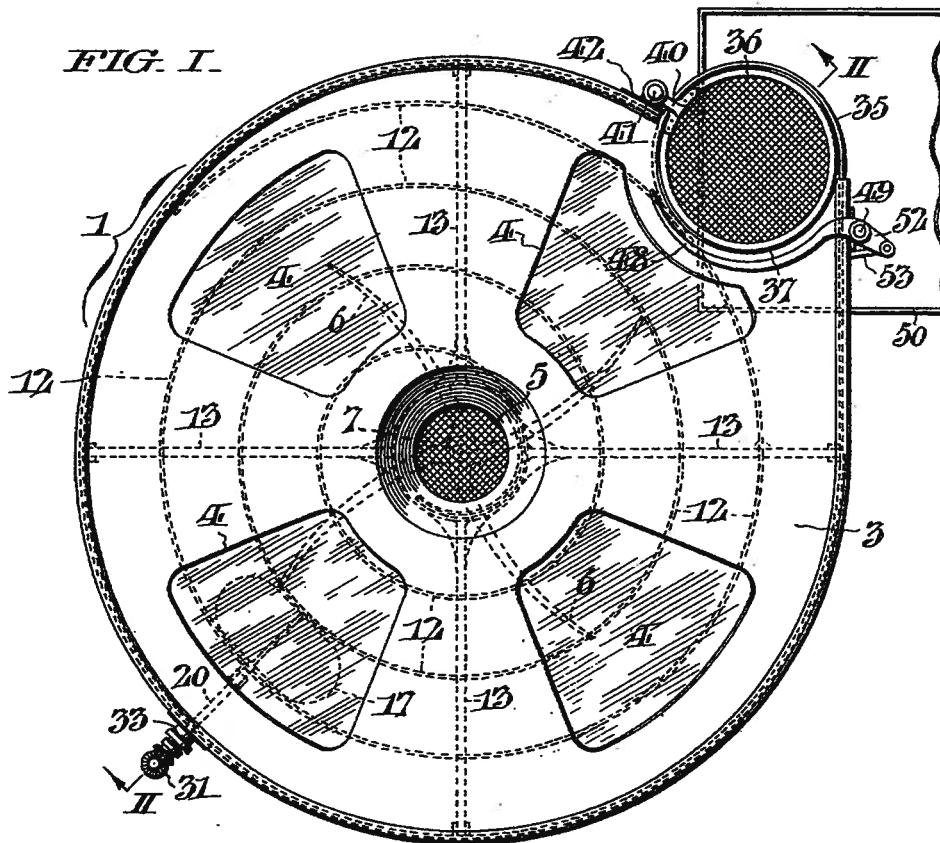
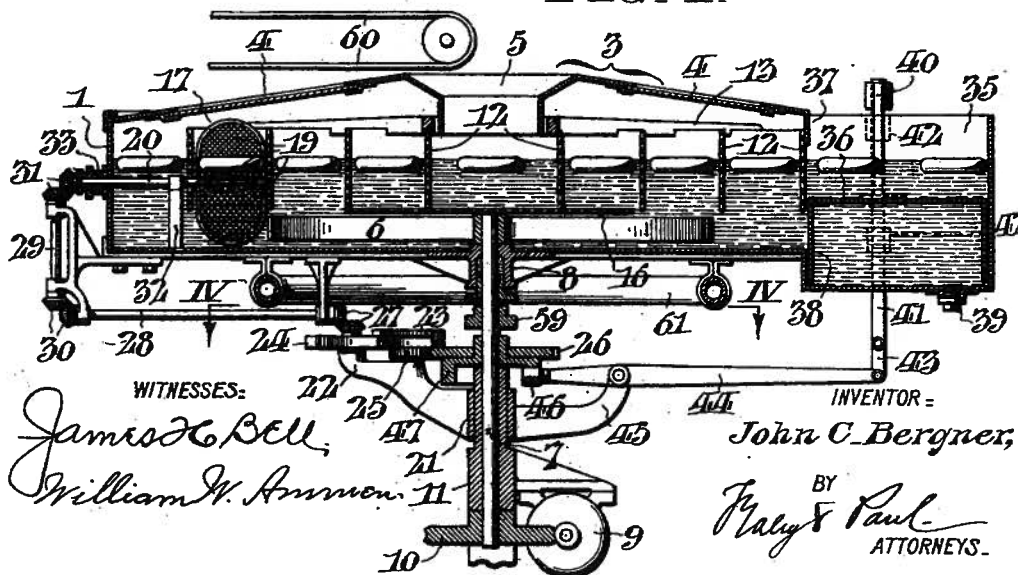


FIG. II.



No. 669,011.

Patented Feb. 26, 1901.

N. E. KAHN.
FLAT KNIT CAP AND ART OF MAKING SAME.

(Application filed July 18, 1900.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1.

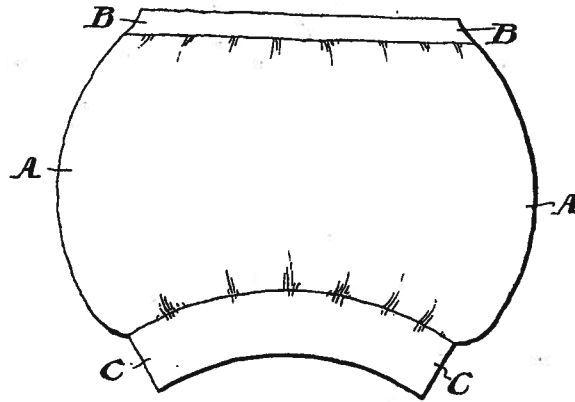


FIG. 2.

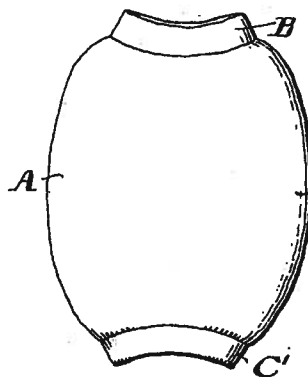


FIG. 3.

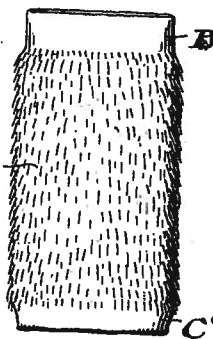


FIG. 4.

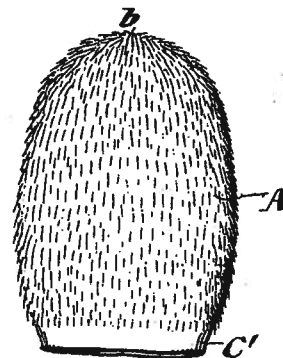


FIG. 5.

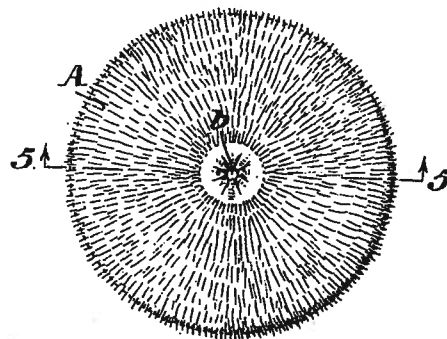
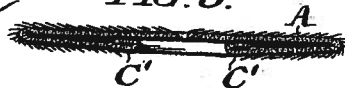


FIG. 6.



WITNESSES:

James H. Bell
Nathan E. Paige

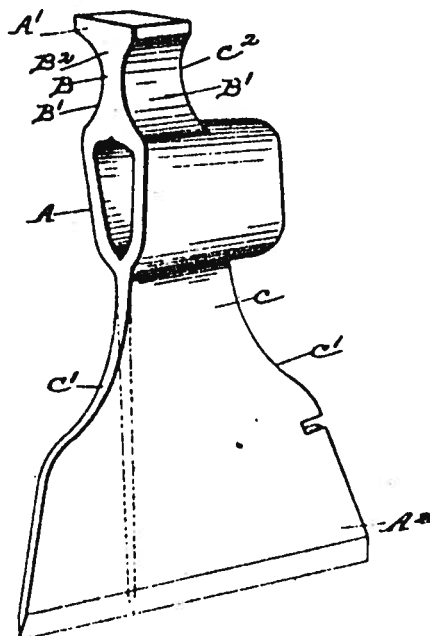
INVENTOR:

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DESIGN.
E. ROGERS.
HATCHET.

No. 25,358.

Patented Apr. 7, 1896.



Witnesses:
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Inventor:
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By Mark & Curtis
Atty.

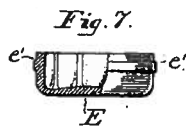
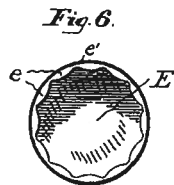
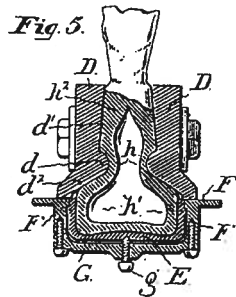
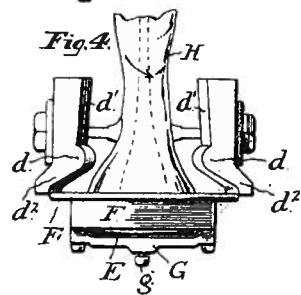
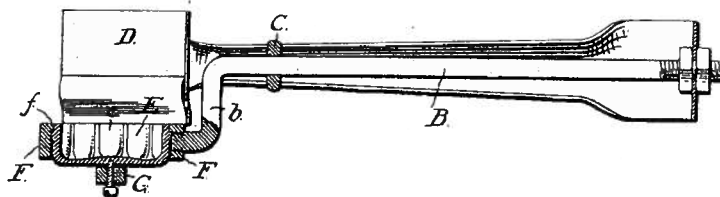
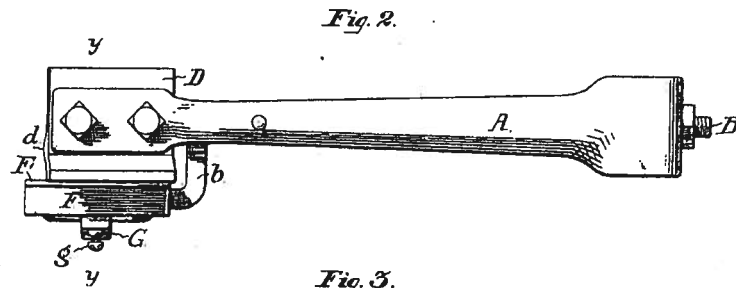
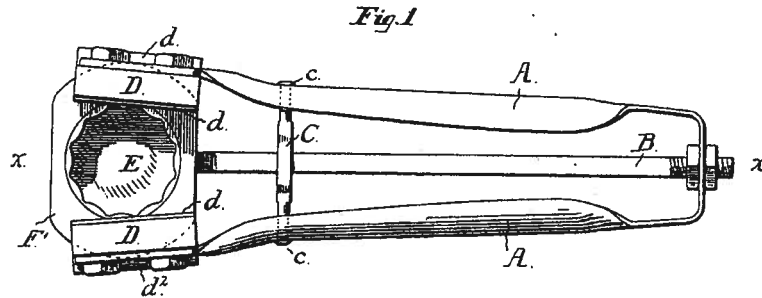
(No Model.)

W. S. FOX.

DEVICE FOR MOLDING ARTICLES FROM GLASS.

No. 406,165.

Patented July 2, 1889.



Witnesses:
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A. E. Paige

Inventor
Wm. S. Fox
By Hollingsworth & Bailey

(No Model.)

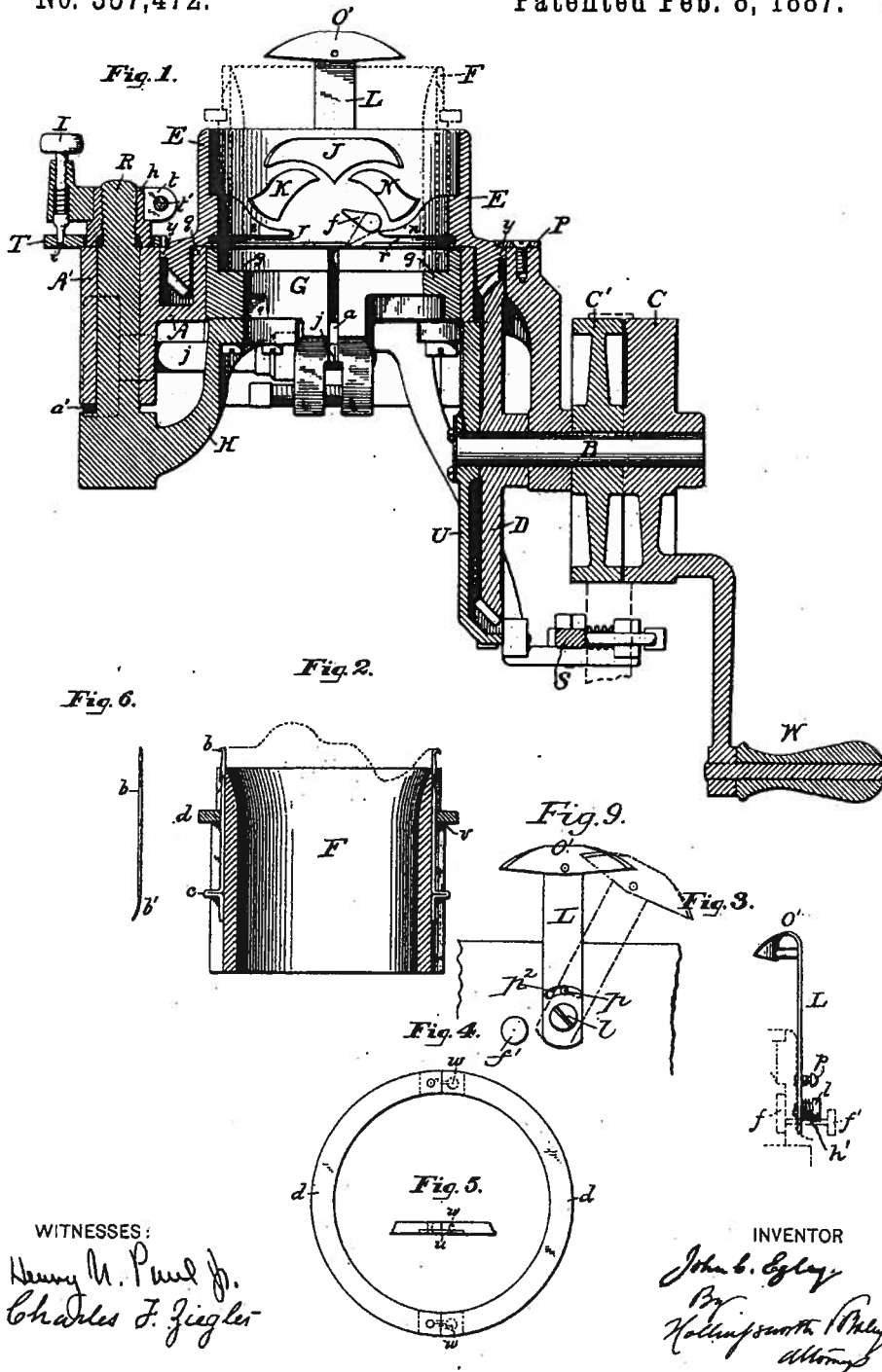
2 Sheets—Sheet 1.

J. C. EGLY.

CIRCULAR KNITTING MACHINE.

No. 357,472.

Patented Feb. 8, 1887.



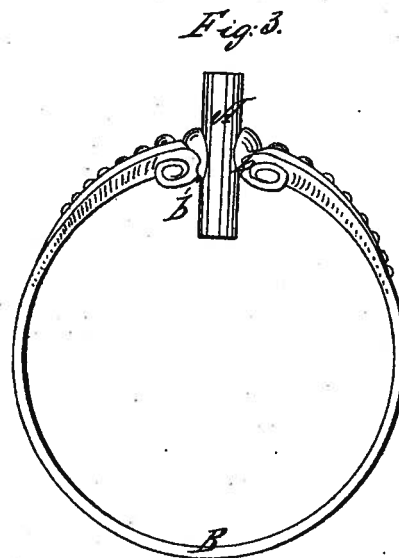
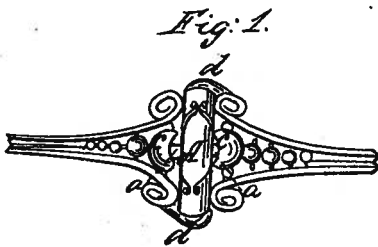
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E. Bliss,
Finger Ring,
N^o 18,033. *Patented Aug. 25, 1857.*



UNITED STATES PATENT OFFICE.

W. H. JOHNSON, OF SPRINGFIELD, ILLINOIS.

MODE OF INCORPORATING BITUMINOUS LIQUIDS WITH WET EARTHS FOR A CEMENT.

Specification forming part of Letters Patent No. 16,208, dated December 9, 1856.

To all whom it may concern:

Be it known that I, WILLIS H. JOHNSON, of Springfield, in the county of Sangamon and State of Illinois, have invented or discovered a new and useful Process of Making Bituminous Cements and Mortars, the bases of which are the earths, gravel, and the like substances, of which the following is a specification.

My invention consists in incorporating the bituminous liquids with the earthy base when the latter has been ground, kneaded, stirred, or otherwise mixed with water into a homogeneous paste or mortar of a proper consistency for paints, mastic, plaster, building of walls, molding into proper form for bricks, statuary, &c., as the case may require.

Heretofore in making bituminous cements and mortars it has been deemed indispensable that the earthy base should be dry at the time of mixture with the bituminous matter, and also that both should be highly heated to effect a thorough diffusion of the bitumen throughout the mass of the base. By the old process the entire fluidity or plasticity of the cement or mortar was derived from the bituminous liquid, and a large quantity of the latter therefore was in all cases required. By my new process the fluidity or plasticity of the cement is produced by water, and therefore the bituminous fluid may be used in very small proportions. In hardly any case will as high as twenty-five per cent. of the cement or mortar be bituminous fluid, while for many purposes five per cent. will be ample. By the old process neither a useful cement nor mortar could be made without using a much greater proportion than five or even twice five per cent. of the bituminous liquid, and even when used in the lowest practicable proportions the quantities were so large as to be highly detrimental to the quality of the product. The cement was in all cases used while hot, in which state its plasticity or fluidity was greatest. By my process the expense and inconvenience of heating the cement while being made and applied is saved, and also the cost of the excess of bituminous fluid, which is the most expensive material of the compound, and while the cost of the cement is thus diminished, its quality for most purposes greatly improved.

The proportions herein mentioned of the in-

gredients of cements and mortars are determined by measure.

I take argillaceous or calcareous earths and water, and by any convenient process reduce them into a homogeneous cement or mortar. If the mortar be for molding into bricks to be used in a damp situation, I add to it, say, from ten to fifteen parts of coal-tar, (such as is sold at gas-works answers well,) which should be recently made, as I find that it does not mix so readily with the mortar after long exposure to the atmosphere. If the mortar is for bricks to be used in a comparatively dry situation—as, for example, the walls of a building above the ground—from five to ten per cent. of tar would be sufficient. If the bricks should be for use in a wall constantly wet, twenty-five per cent. of tar may be used. The tar is poured into the mass of the aqueous mortar, and by kneading, stirring, or otherwise thoroughly intermixed with and diffused through its mass. The tar diffuses very readily, and when diffused the aqua-bituminous cement is ready to be molded into bricks and dried. When dried they will be impervious to water and fit for the weather side of a wall. The proportions of the bitumen being so small, these bricks have very much the color and appearance of chocolate or brown stone.

To increase the strength of the bricks and diminish their cost the mortar may be mixed with coarse sand or gravel or both in any proportions not too great for the mortar to cement these granular materials into a concrete mass.

I prefer for ordinary building purposes to mix equal parts of sand and gravel and mortar when the proportion of tar is small; but when large I prefer twice as much sand and gravel as mortar.

For roofing, mastics, coating the walls of cisterns and damp cellars, the tar is mixed in the proportion of from ten to twenty per cent., and the other materials are used in various proportions, according to the smoothness or toughness required in the coating, being in these governed as in the preparation of ordinary aqueous or hydraulic cements. These paints, mastics, and roofing are applied in the same manner that other paints, mastics, and roofings are which are prepared with oil as the solvent or vehicle for spreading the earthy

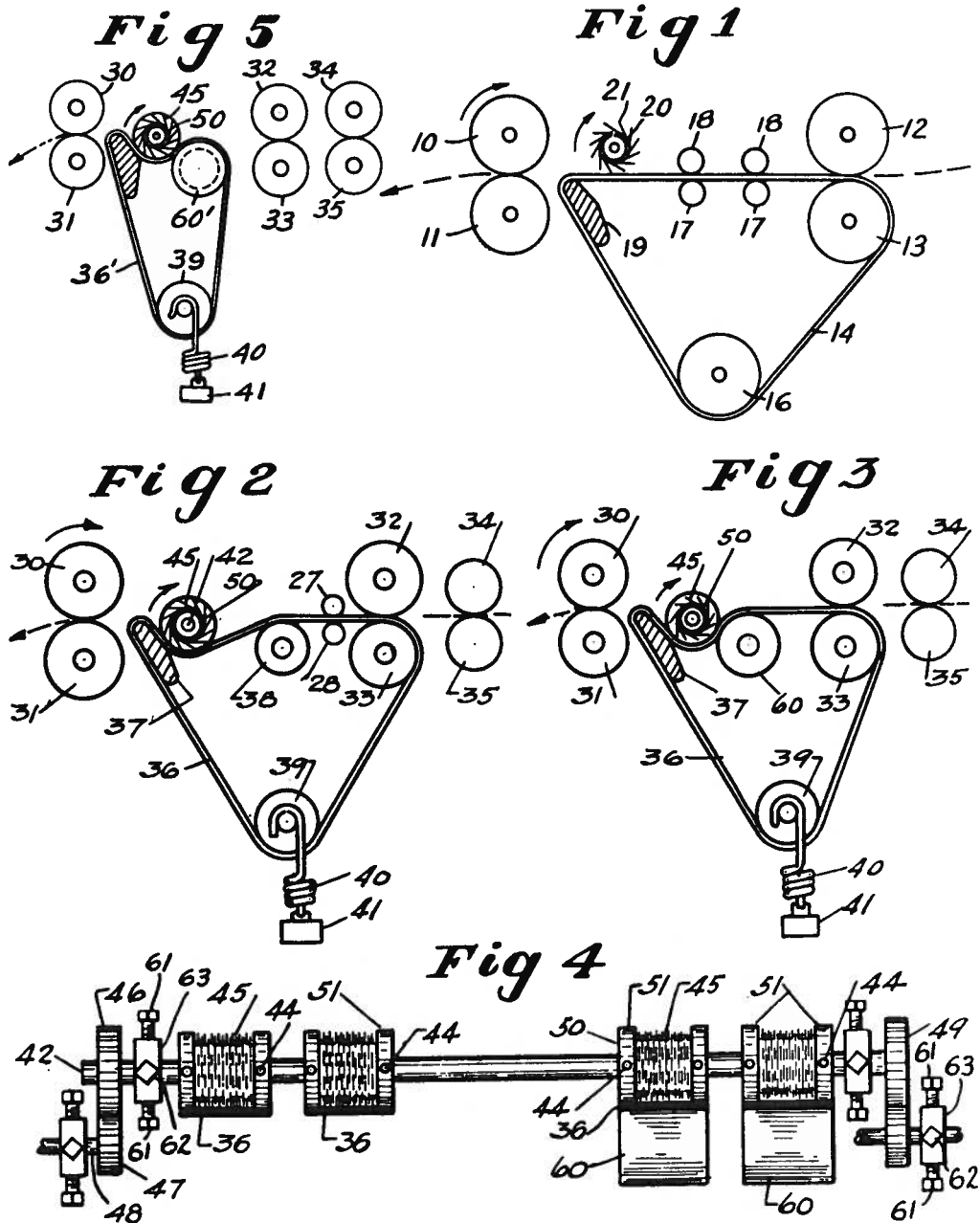
May 24, 1949.

W. F. BIRD

2,471,057

METHOD AND APPARATUS FOR DRAFTING TEXTILE FIBERS

Filed Dec. 18, 1945



INVENTOR
WHITWORTH F. BIRD
BY *Paul J. Schmitz*
ATTORNEY