

**May 24, 1949.**

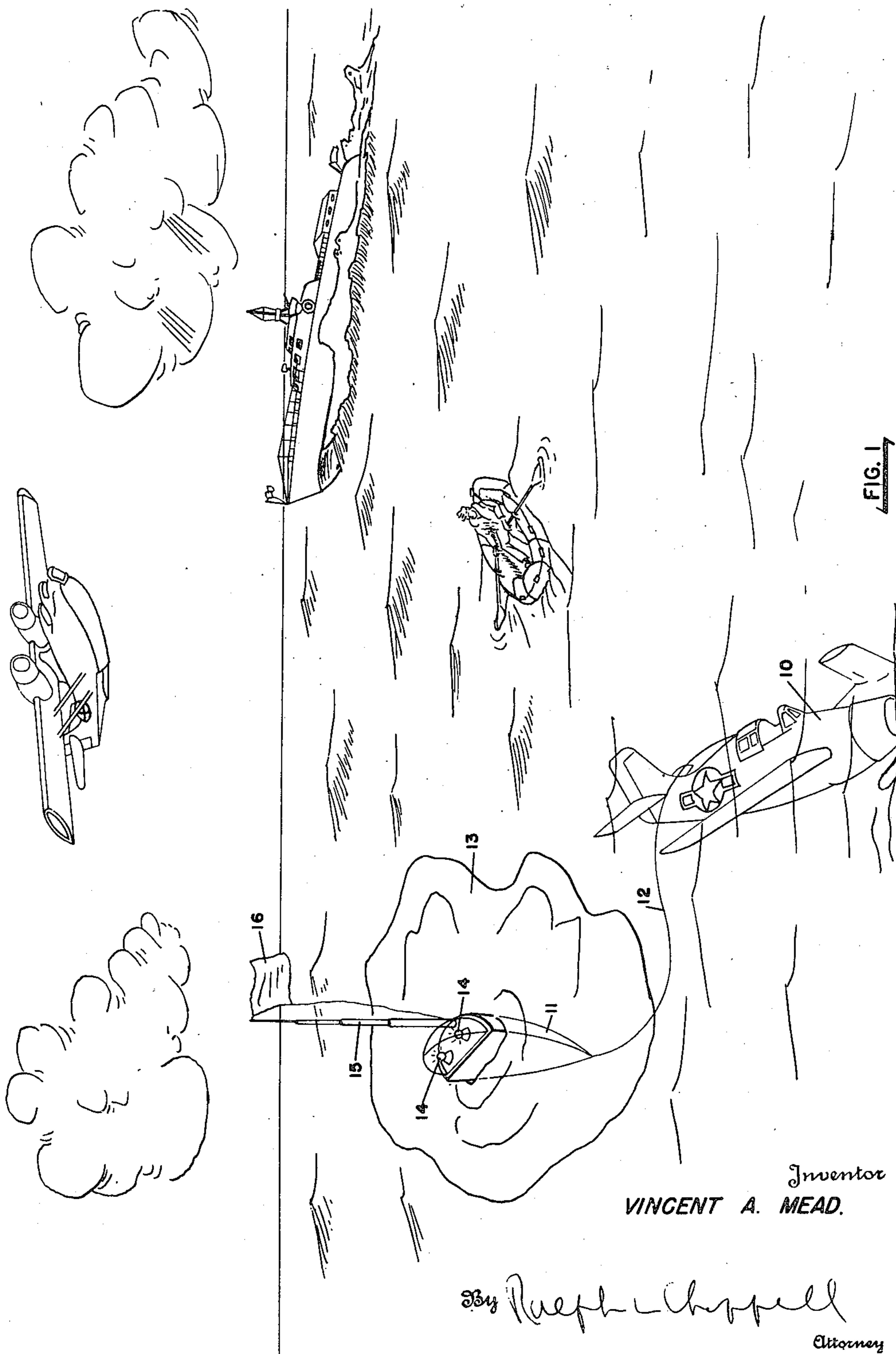
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**2,470,783**

# PLANE MARKER BUOY

Filed May 15, 1945

11 Sheets-Sheet 1



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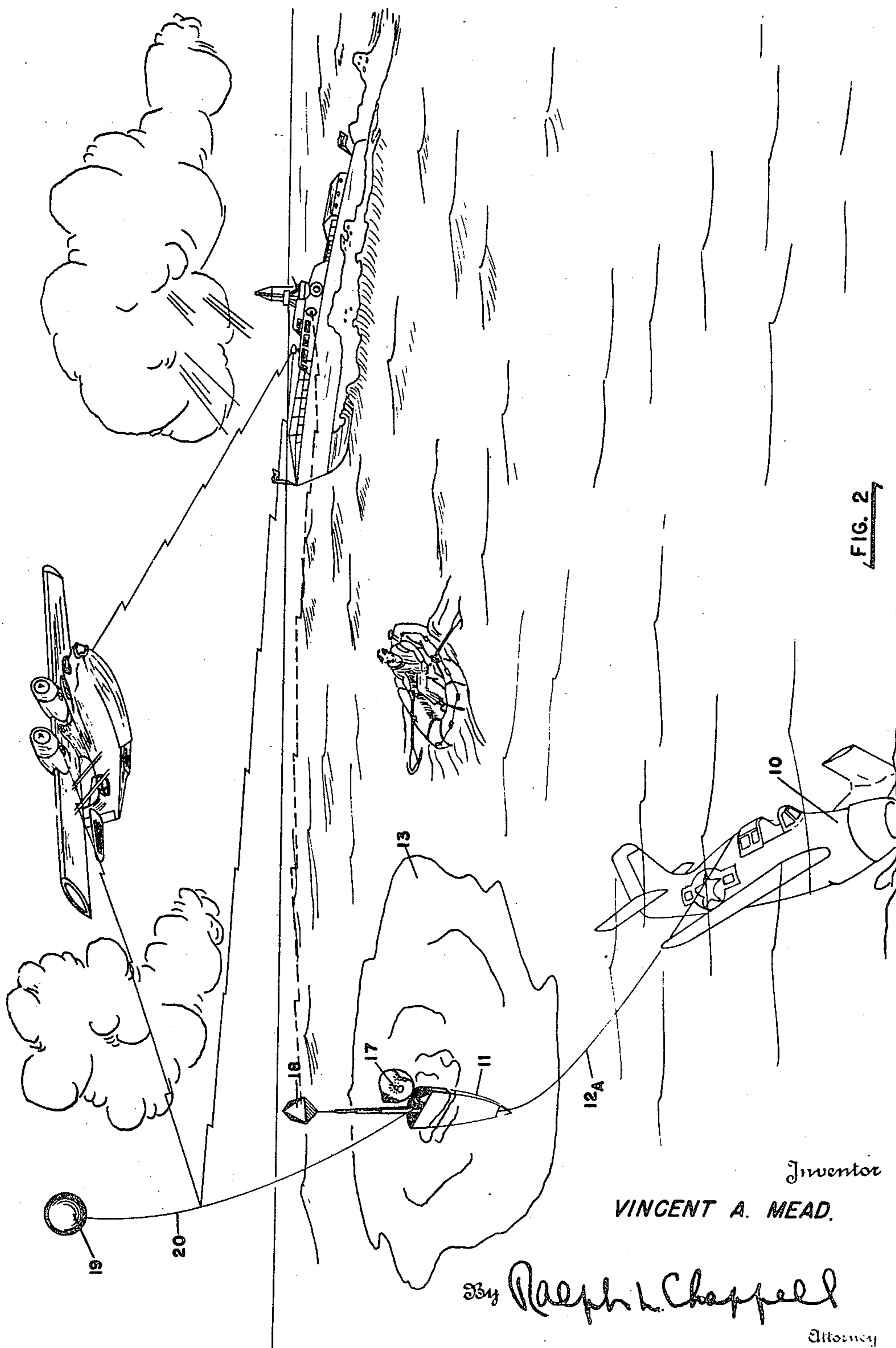
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PLANE MARKER BUOY

Filed May 15, 1945

11 Sheets-Sheet 2



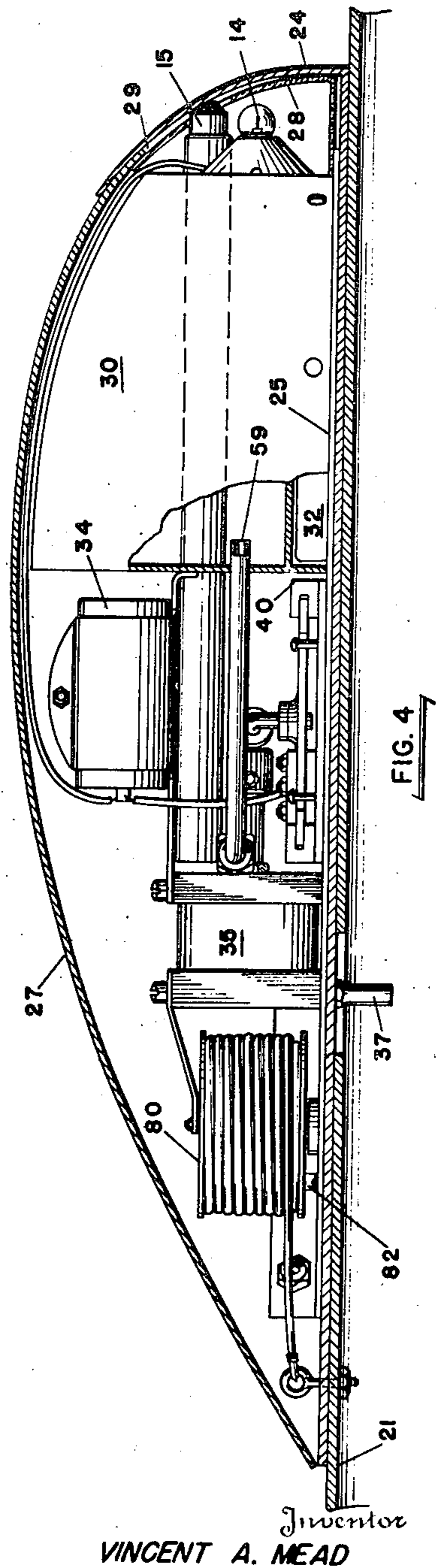
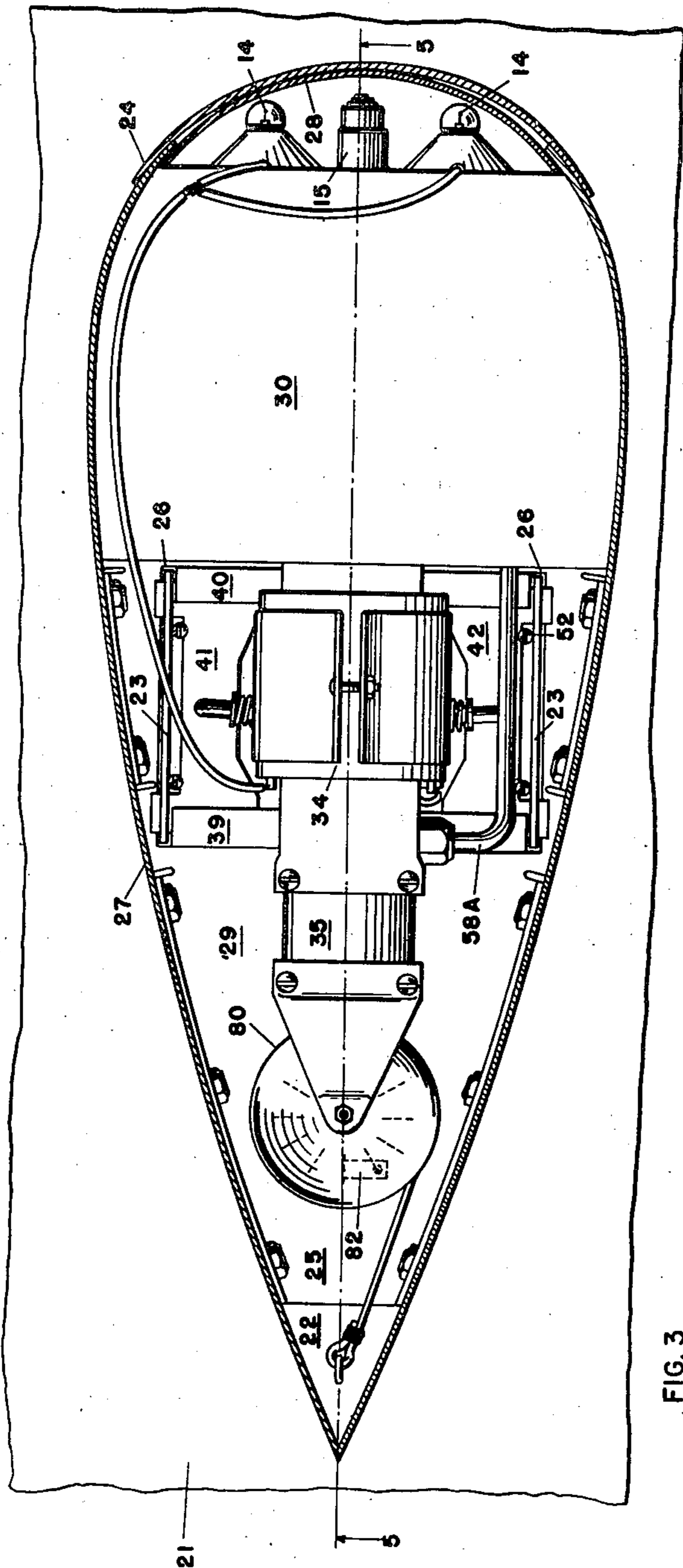
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11 Sheets-Sheet 3



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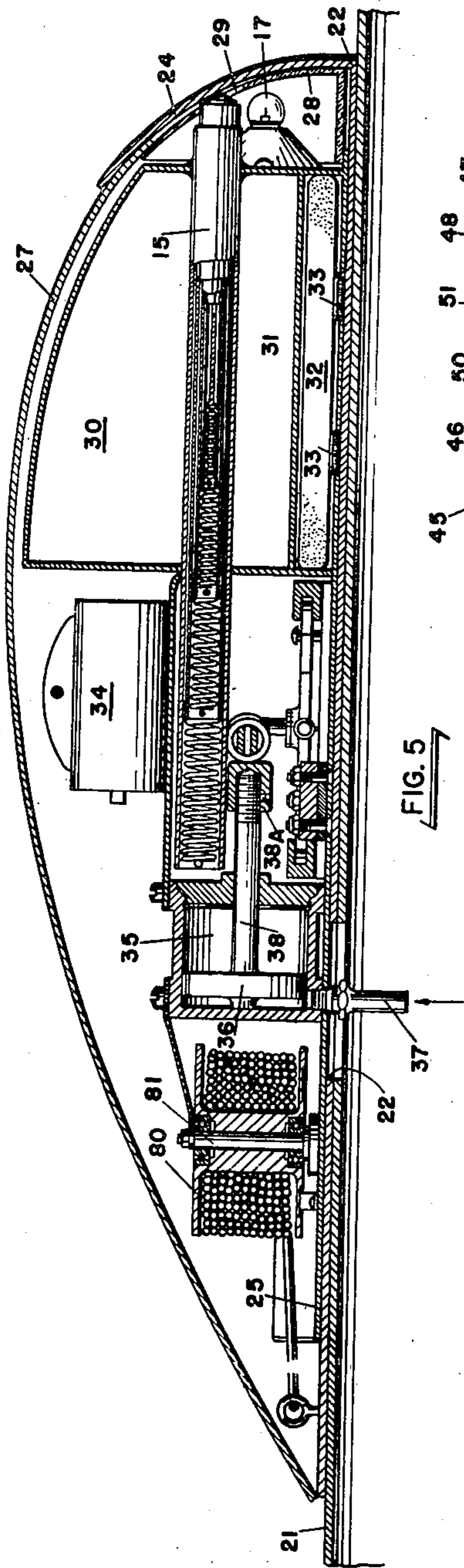


FIG. 5

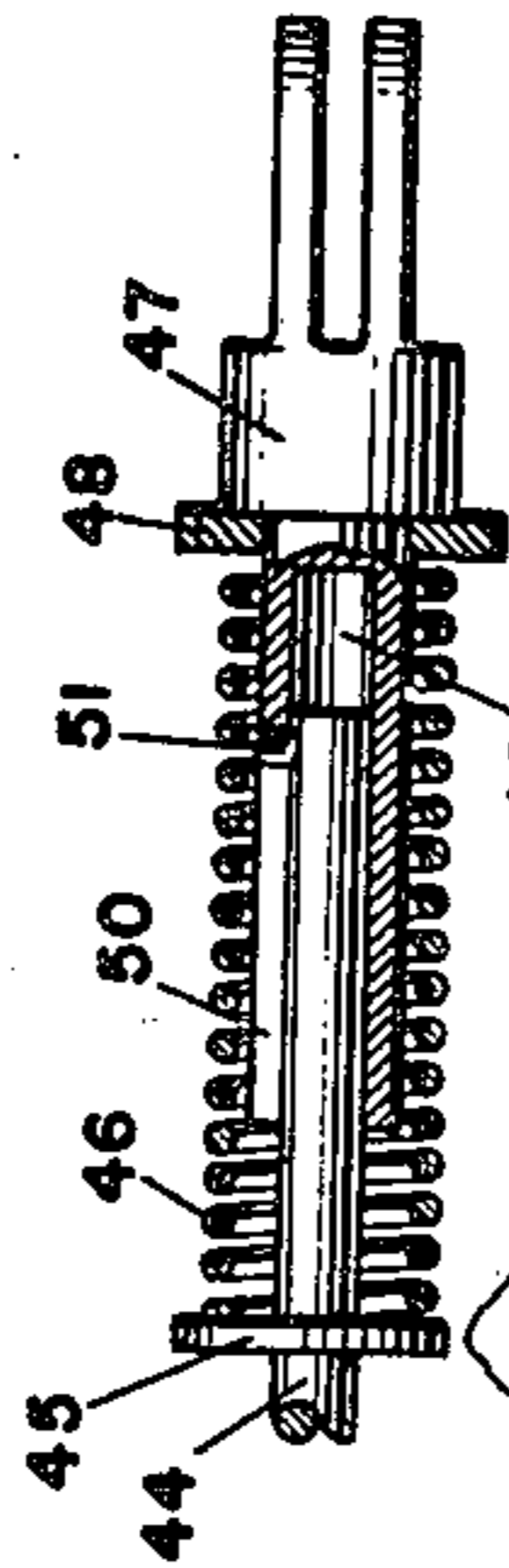


FIG. 7B

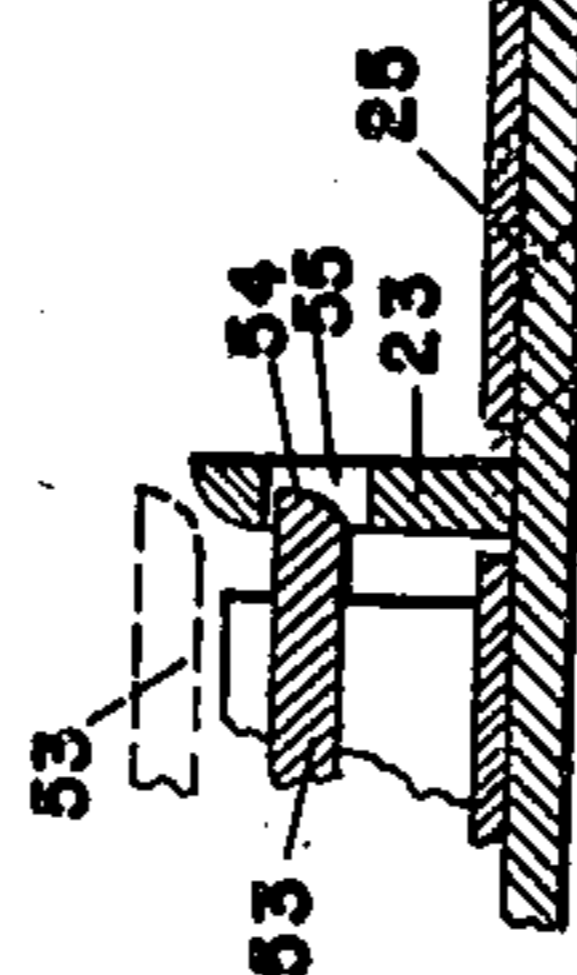


FIG. 7A

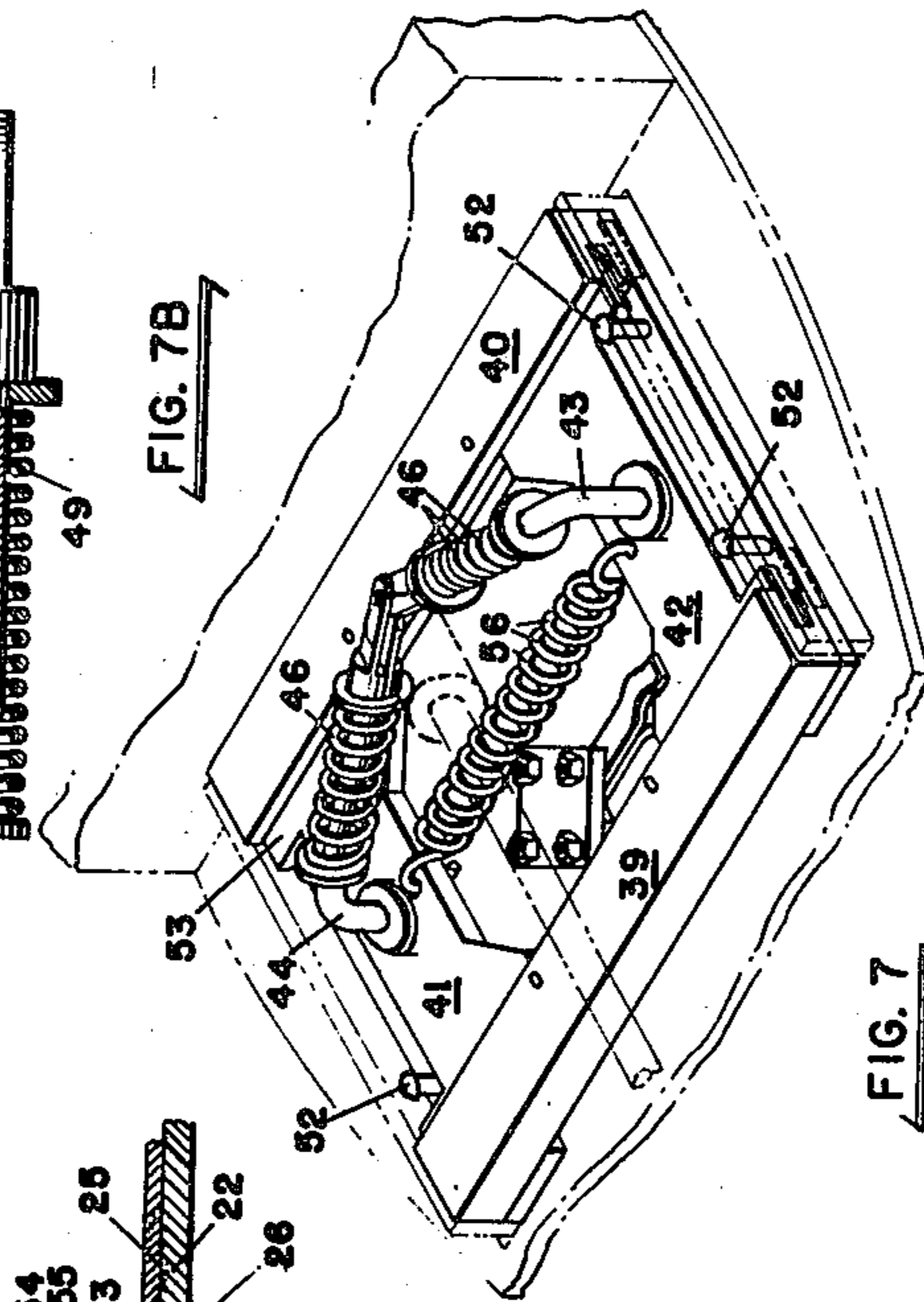


FIG. 7

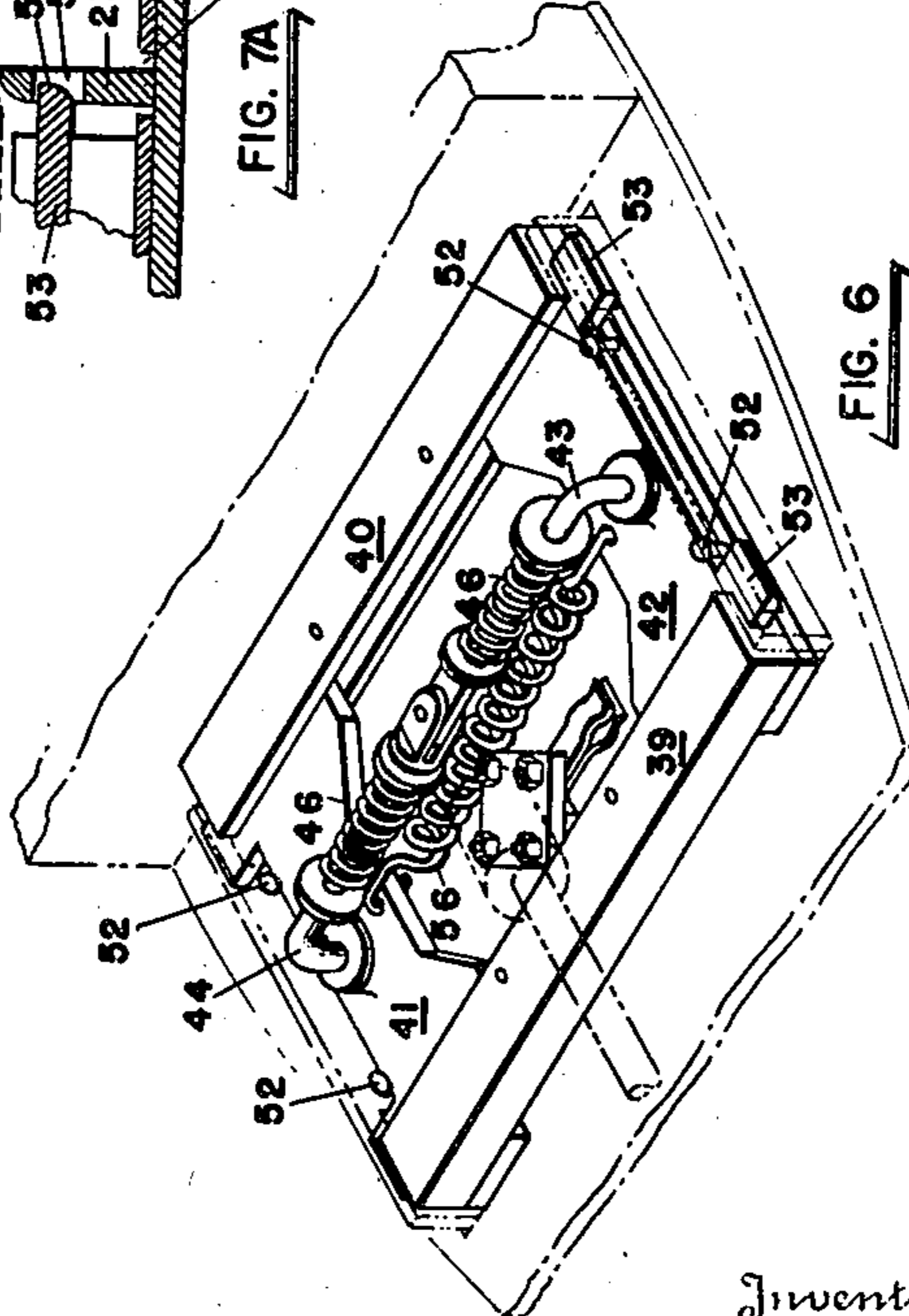


FIG. 6

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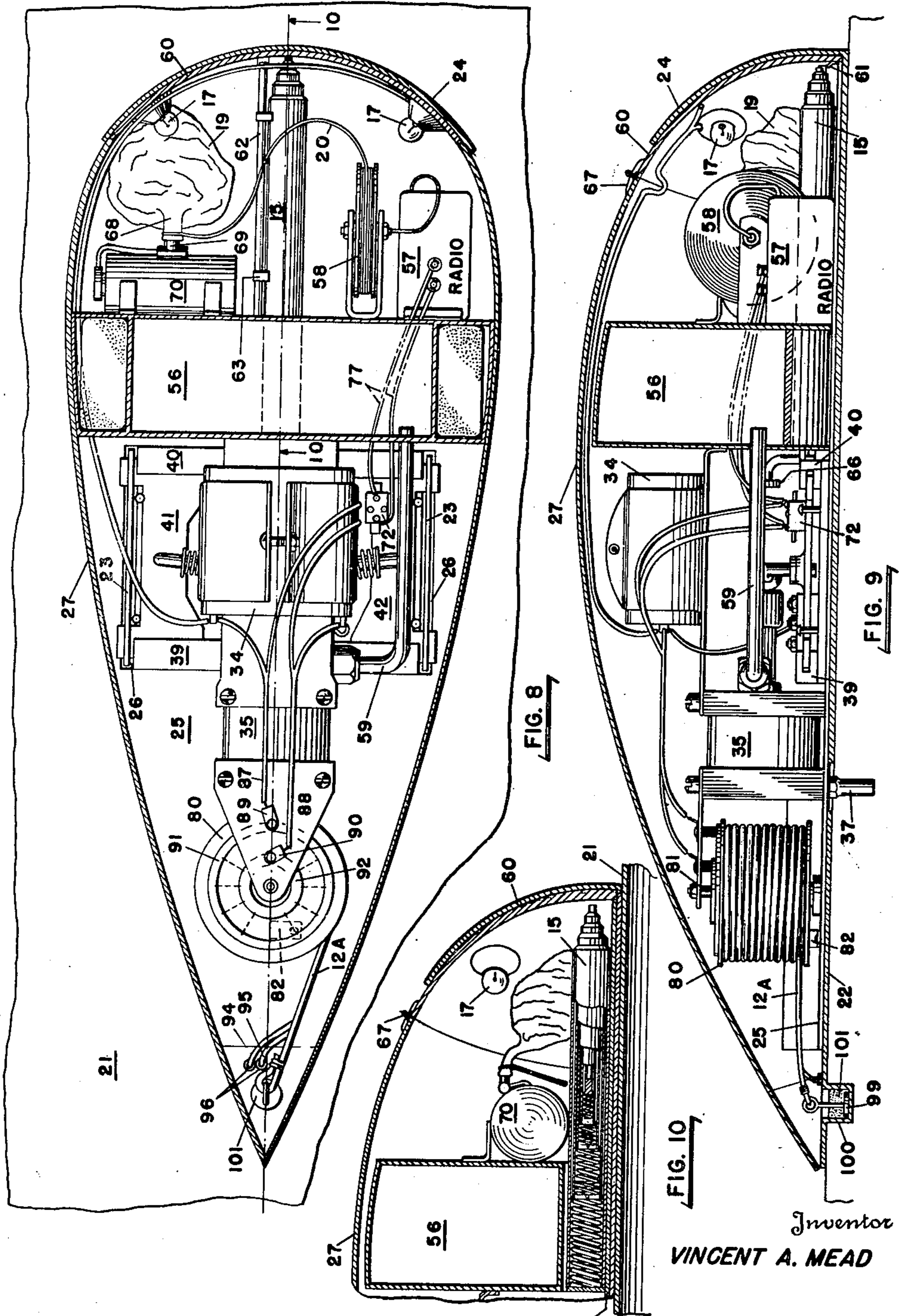
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11 Sheets-Sheet 5



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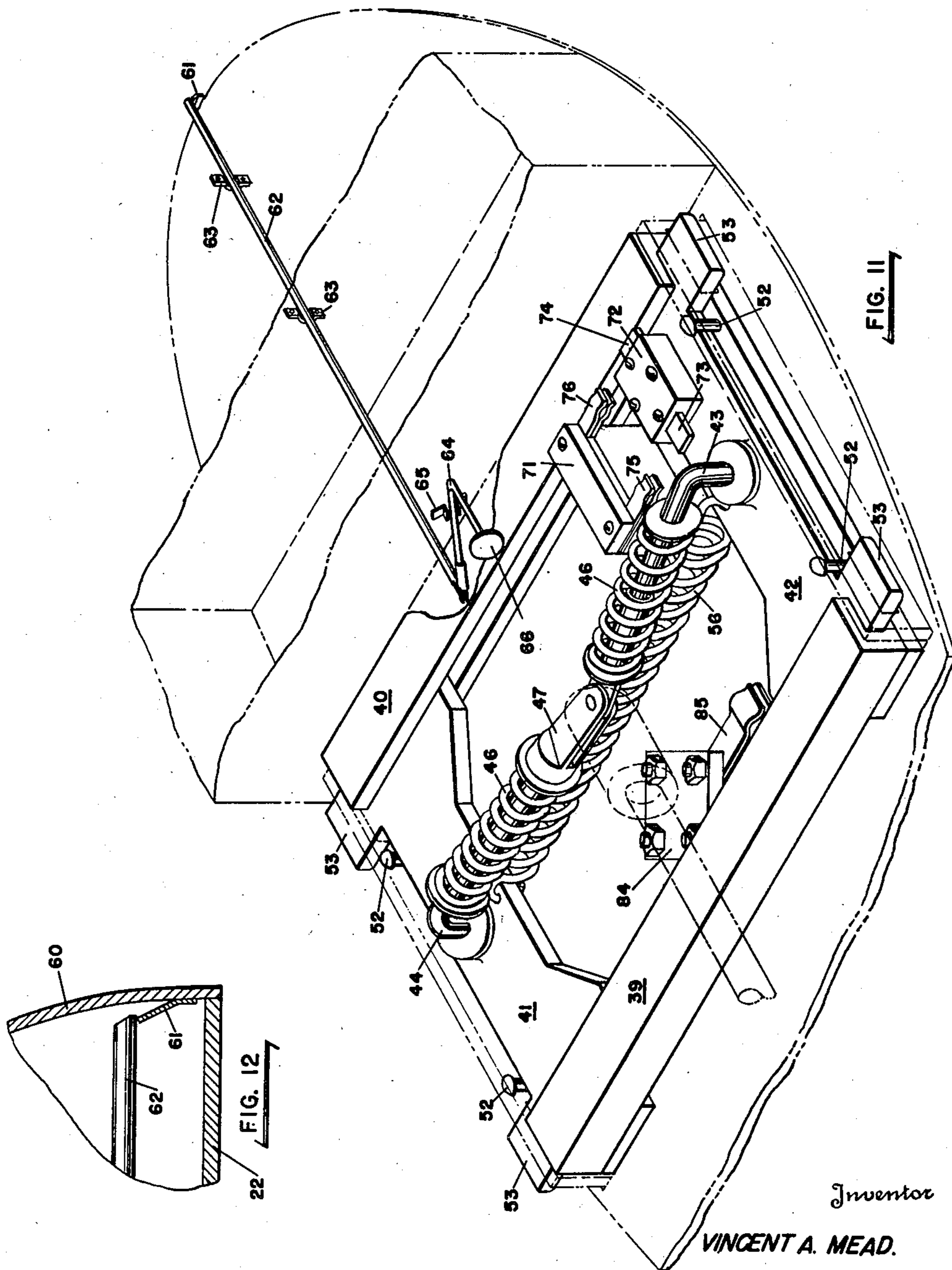
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11 Sheets-Sheet 6



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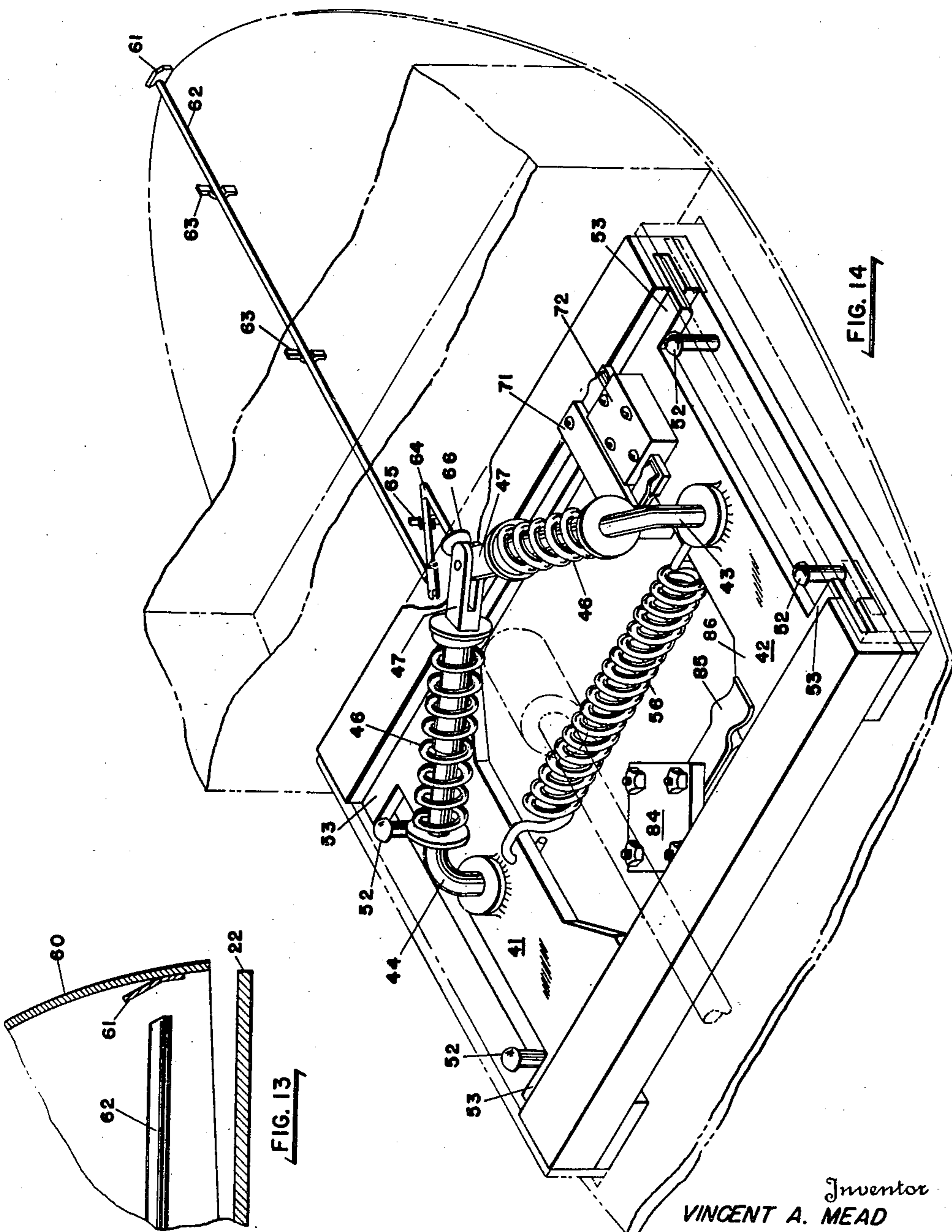
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11 Sheets-Sheet 7



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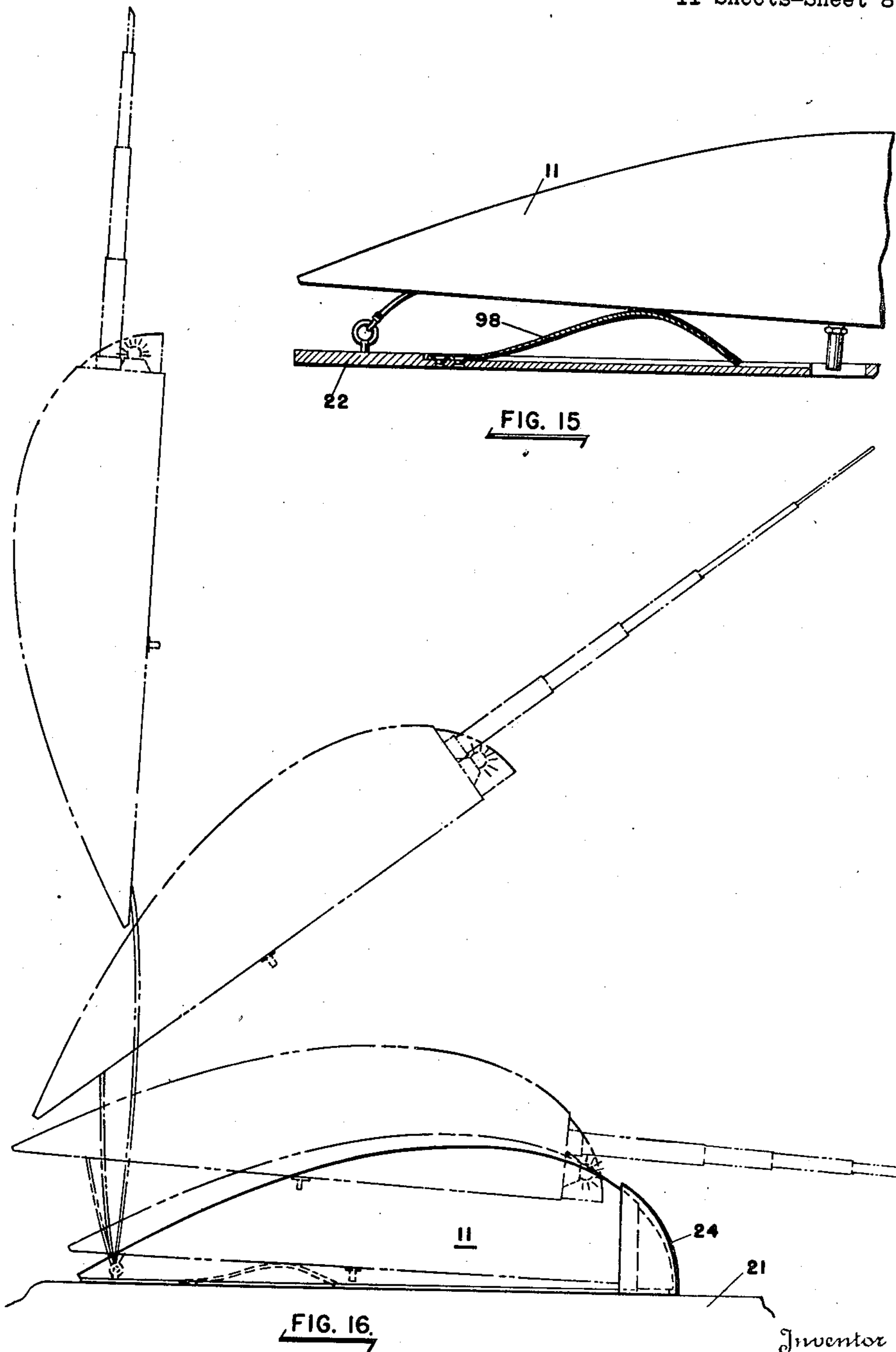
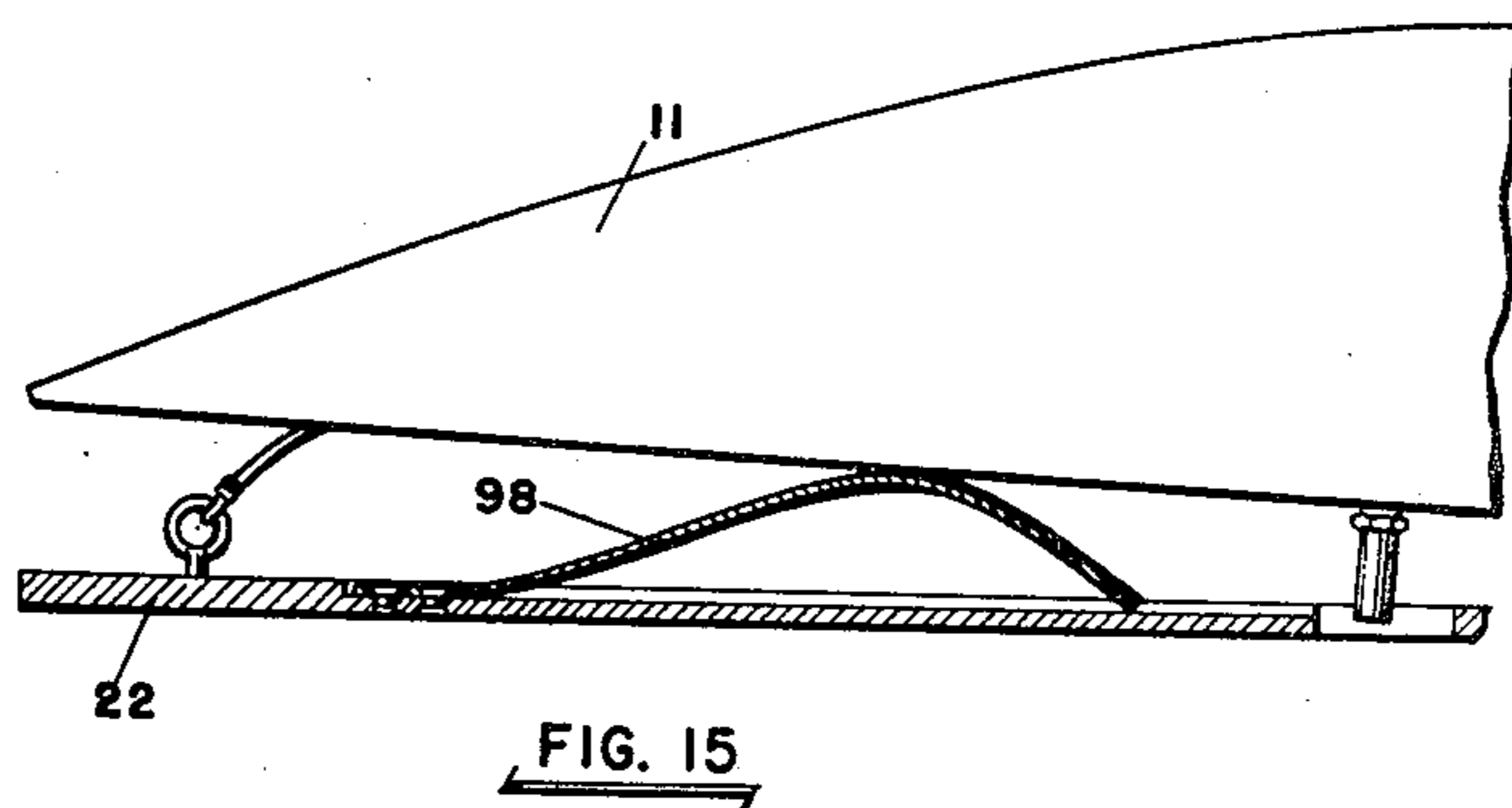
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11 Sheets-Sheet 8



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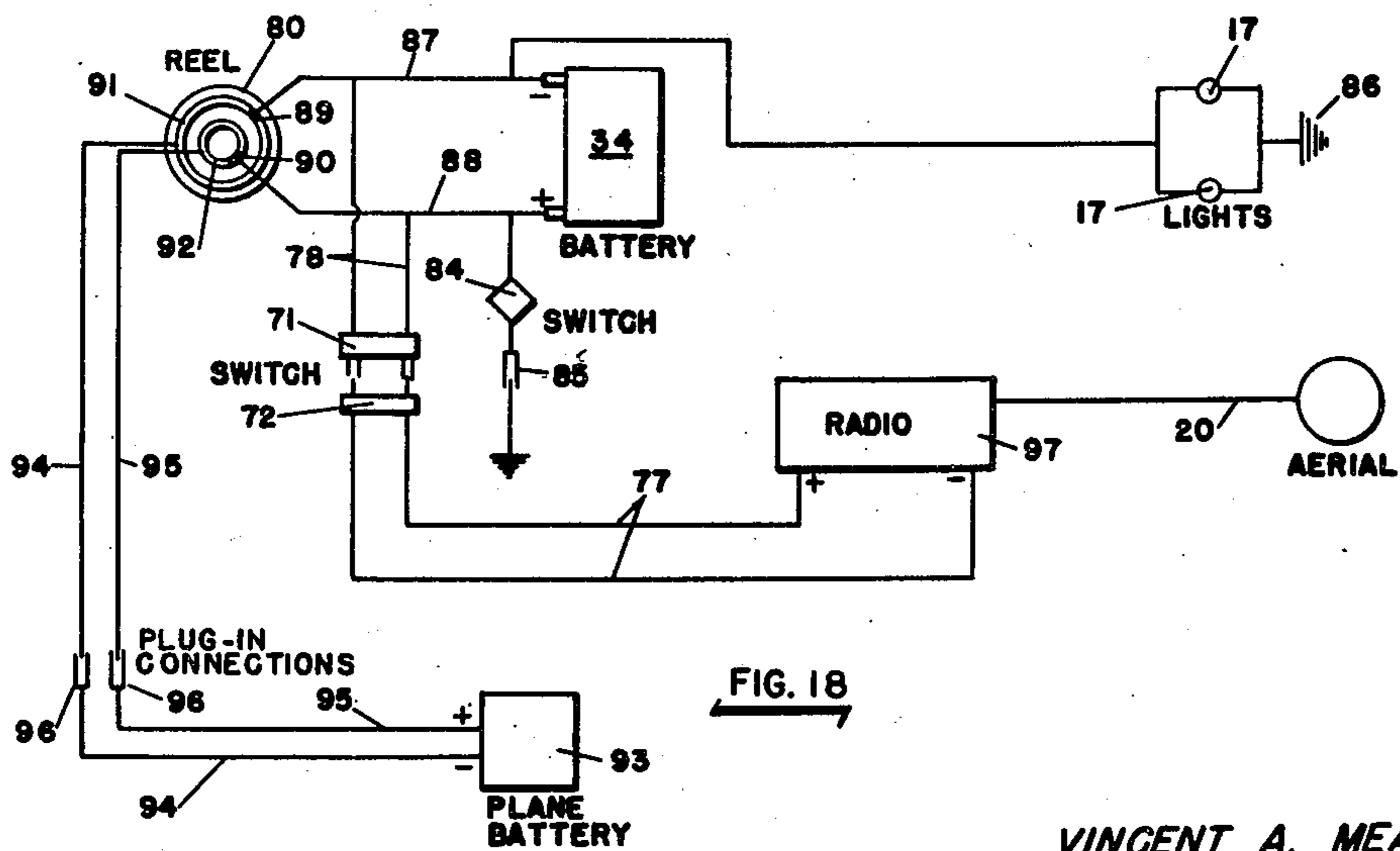
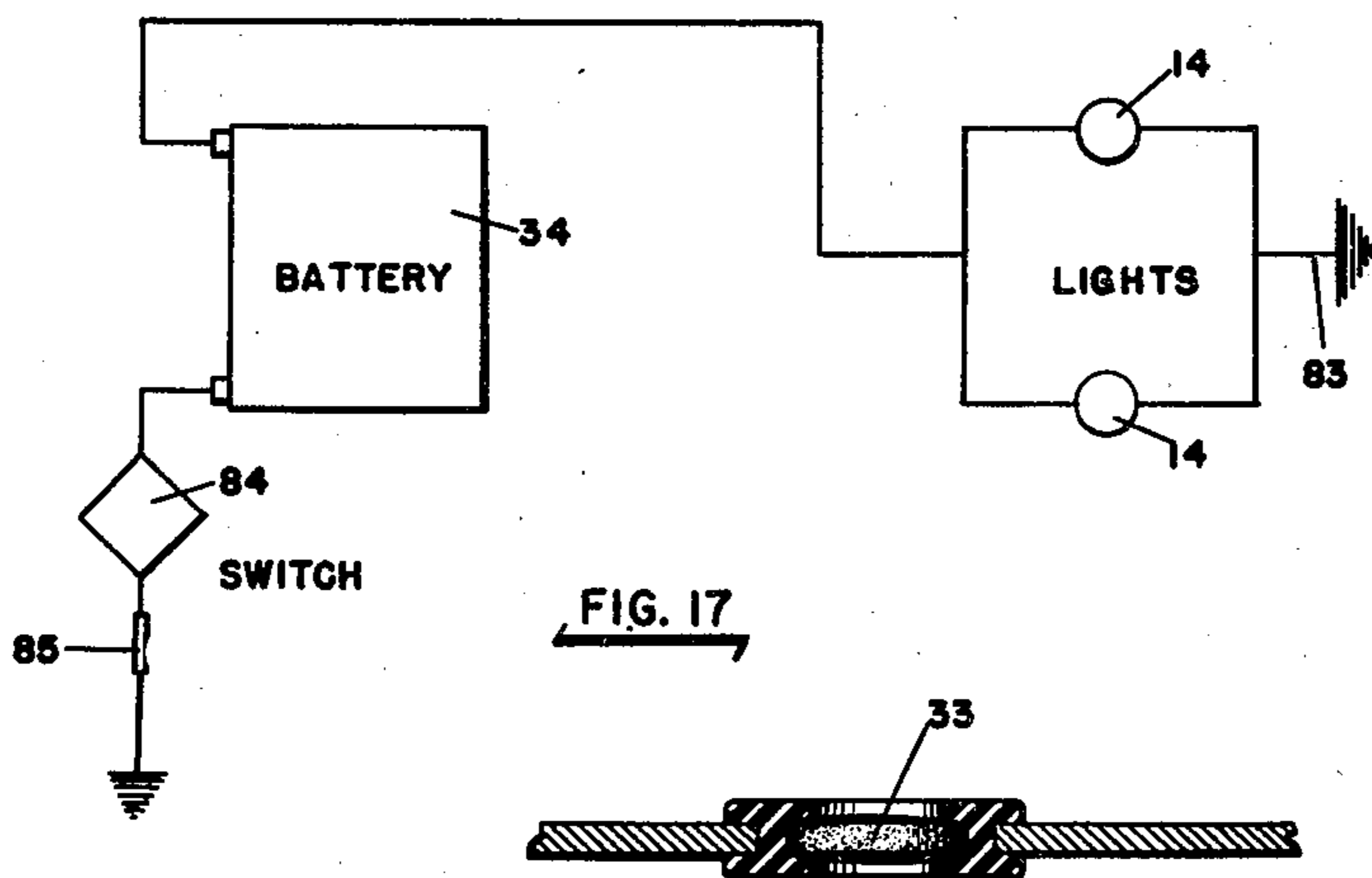
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11 Sheets-Sheet 9



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PLANE MARKER BUOY

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11 Sheets-Sheet 10

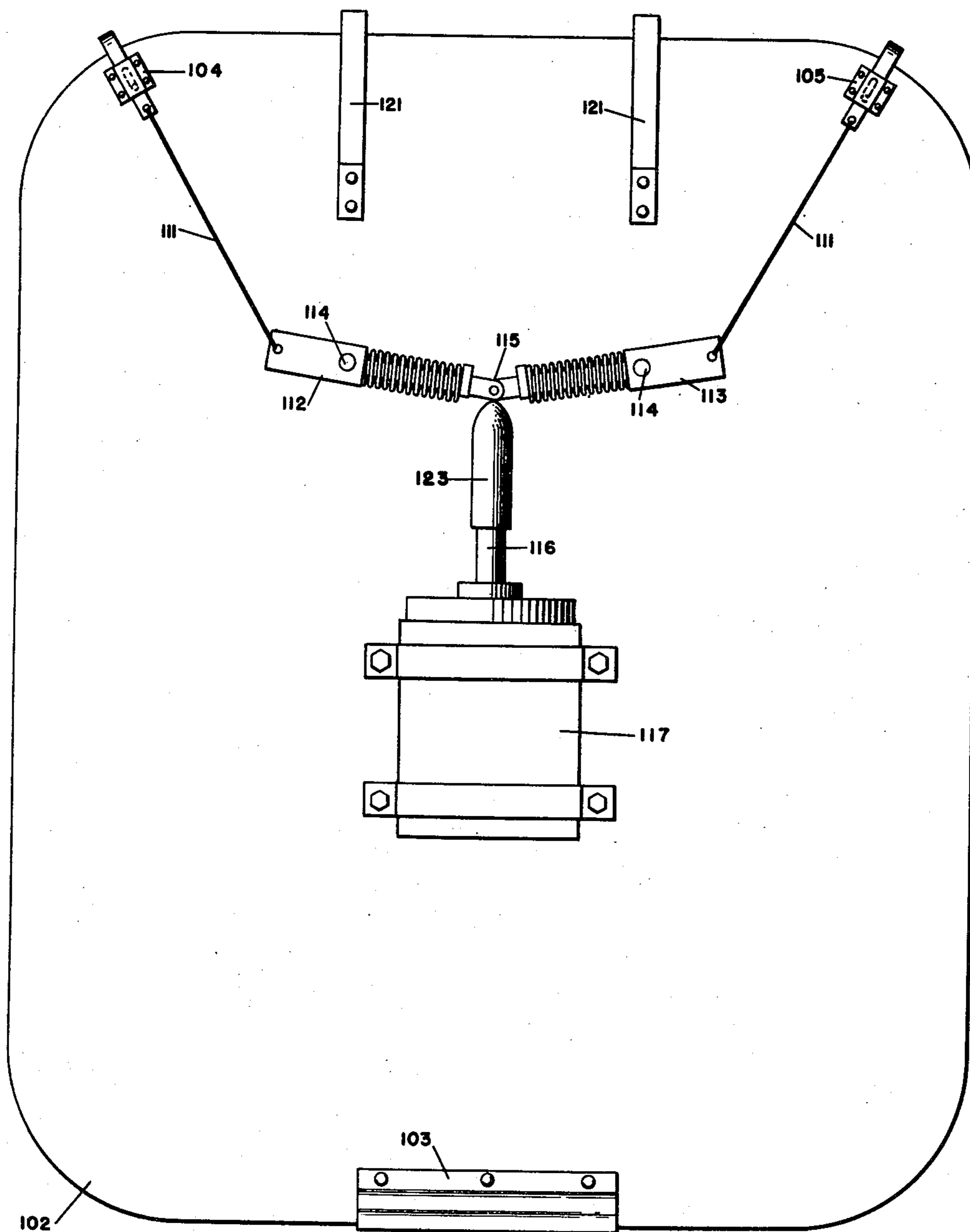


FIG. 20

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PLANE MARKER BUOY

Filed May 15, 1945

11 Sheets-Sheet 11

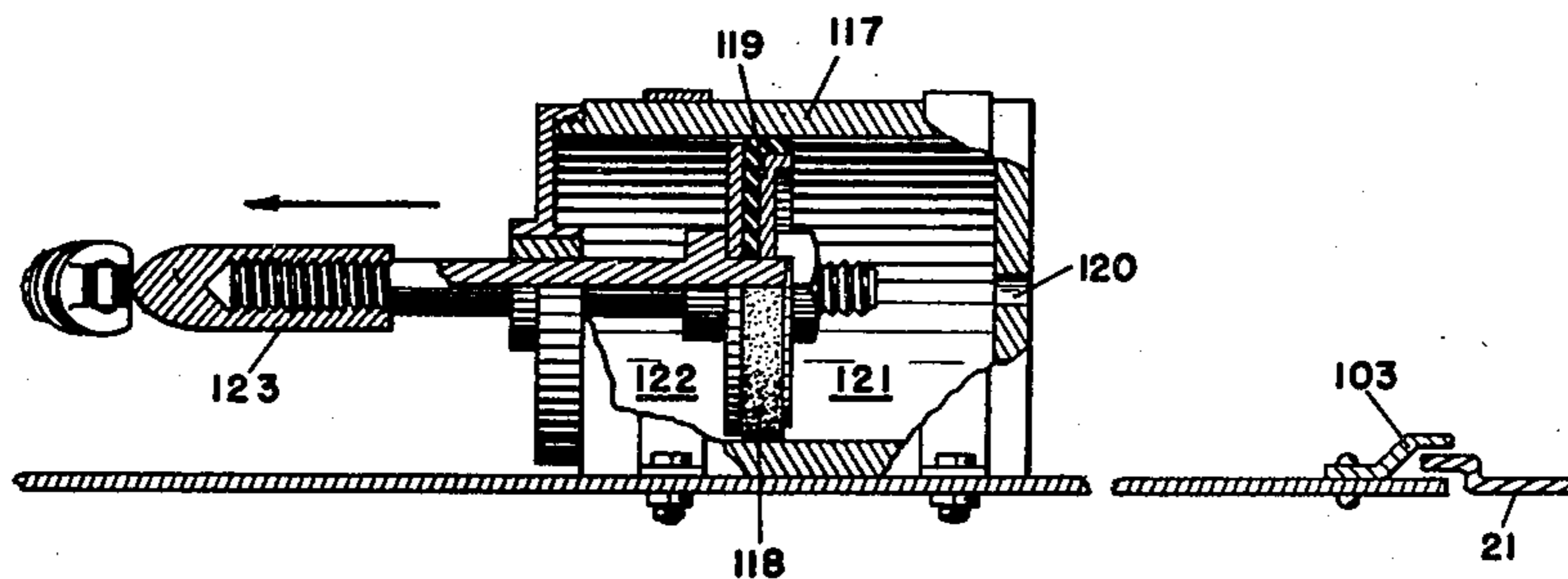


FIG. 21

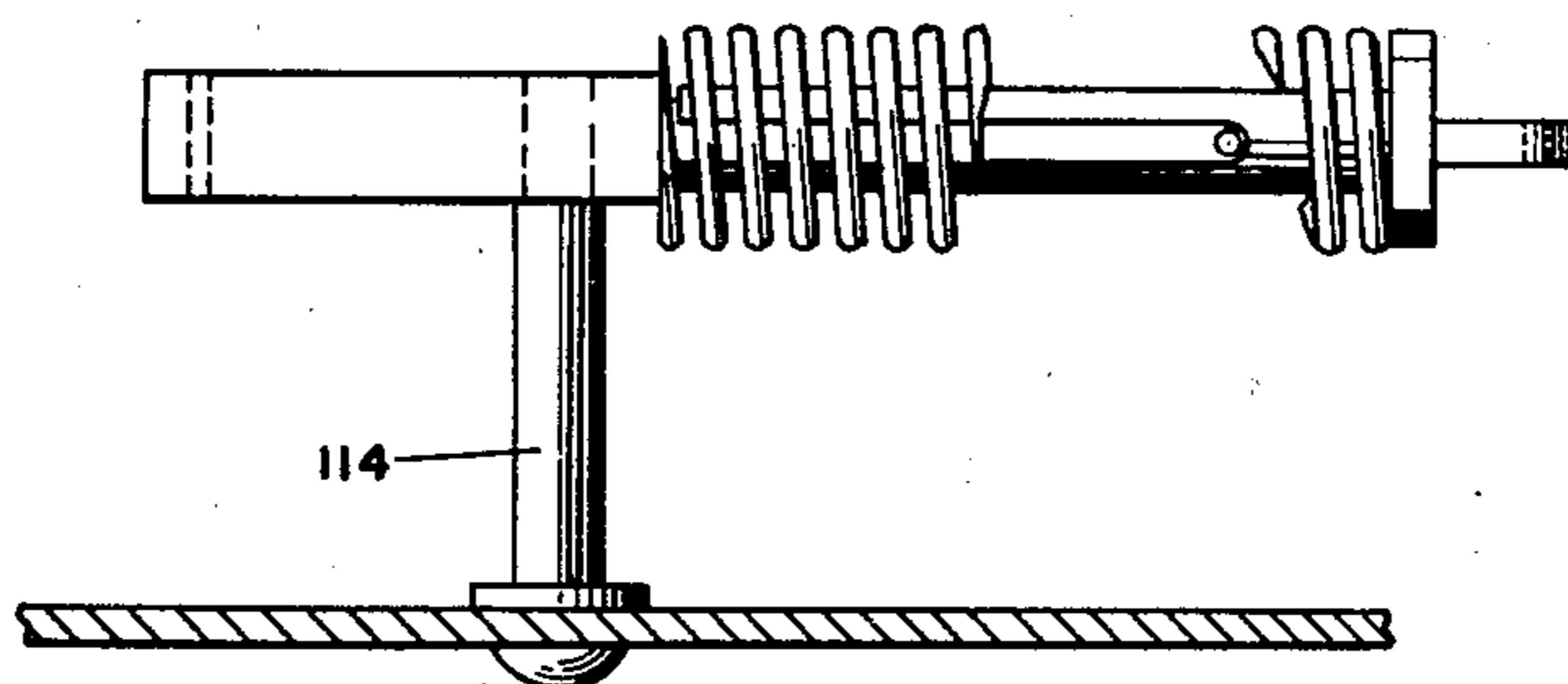


FIG. 22

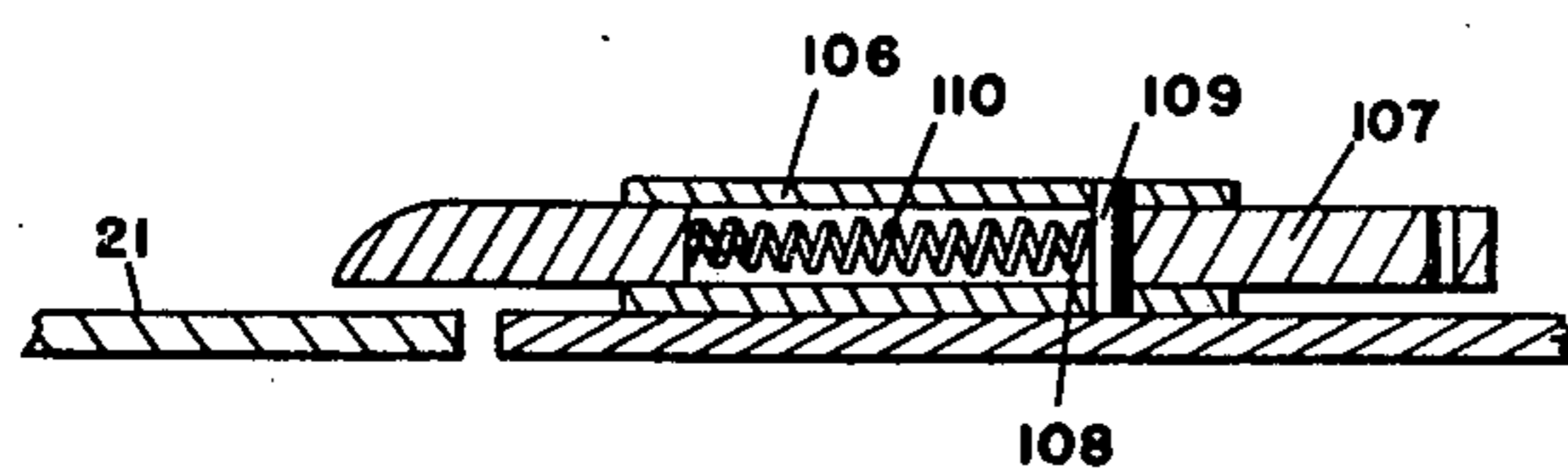


FIG. 23

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## UNITED STATES PATENT OFFICE

2,470,783

## PLANE MARKER BUOY

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18 Claims. (Cl. 9—9)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

1

This invention relates to air-sea rescue devices and more particularly to a new and improved position indicator for aircraft.

It is well known that it is difficult to locate objects at sea and more particularly when the sea is rough. For this reason, the survivors of crash landings at sea stand little chance of being seen and rescued unless they are provided with adequate signaling means.

Heretofore, life rafts and emergency flotation equipment have been provided to aid in keeping operating personnel afloat. However, in many cases the aircraft may sink before such rescue equipment can be used. For aviators and others who are forced down at sea therefore, the present invention is of particular importance and, because of its automatic operation, it is effective no matter what local conditions may exist.

In air-sea operations there are several means which may be employed to indicate visually the presence of a sunken craft and to lead rescue craft to their location. One of those contemplated by the present invention is the automatic release of a marker dye to discolor the surface of the water, a second indicia is a surface float, whose visibility is enhanced by the provision of an upwardly extending pennant bearing staff; to aid in locating the object at night, electric lights are provided and are automatically turned on when required; in addition to, or in place of, the pennant, a radar wave reflecting surface may be suspended from the staff; and in one embodiment means are provided which automatically erects an aerial and operates a suitable radio transmitter to summon aid.

It is an object of the present invention to provide a new and improved air-sea rescue device which occupies a minimum amount of space upon an aircraft and which, upon submersion of the craft, is automatically and positively released to float to the surface and is actuated to emit rescue summoning impulses.

Another object of the present invention is to provide an air-sea rescue device which is simple in construction, positive in actuation and which automatically initiates a number of rescue summoning signals upon submersion within a body of liquid.

Still another object of the present invention is to provide a novel release mechanism which is responsive to hydrostatic pressure, inertia forces, or both.

An additional object of the present invention is to provide in a compact unit an automatically releasable buoy which contains dye marker, an illuminating device, a flag or expansible radar wave reflecting device, and an antenna erecting and radio signaling mechanism, all within a compact streamlined housing.

Still another object is to provide an improved

2

release mechanism for sea rescue equipment wherein the equipment is released promptly and positively upon immersion.

Further objects will be apparent from the specification and the appended drawings in which;

Fig. 1 is a pictorial view showing one embodiment of the present device in use;

Fig. 2 is a view similar to Fig. 1 showing the use of a radio signaling device and electronic beam intercepting means;

Fig. 3 is a top plan view partially in section showing the inside of a marker buoy constructed in accordance with one embodiment of the present invention;

Fig. 4 is a side elevation partially in section of the embodiment illustrated in Fig. 3;

Fig. 5 is a longitudinal sectional view partially in elevation taken along a line substantially corresponding to line 5—5 of Fig. 3;

Fig. 6 is a perspective view of the release mechanism and switch arrangement employed in the embodiment illustrated in Figs. 3 to 5;

Fig. 7 is a change position view of the release mechanism shown in Fig. 6;

Fig. 7A is an enlarged detailed vertical section through a portion of the hold down latch;

Fig. 7B is an enlarged detailed side elevation with a portion broken away of a slide actuating arm;

Fig. 8 is a top plan view partially in section of another embodiment of the present invention;

Fig. 9 is a side elevation partially in section of the embodiment illustrated in Fig. 8;

Fig. 10 is a detailed sectional view of the forward portion of the embodiment illustrated in Figs. 8 and 9 taken along a line substantially corresponding to line 10—10 of Fig. 8;

Fig. 11 is a perspective view of the release mechanism employed in the embodiment illustrated in Figs. 8 to 10;

Fig. 12 is a detailed enlarged view of a portion of the hood latch mechanism of the embodiment illustrated in Figs. 8 to 11;

Fig. 13 is a change position view similar to Fig. 12 and showing the latch in released position;

Fig. 14 is a perspective view similar to Fig. 11 but wherein the release mechanism has been actuated;

Fig. 15 is a detailed view of the spring employed to kick the after portion of the device away from the sunken aircraft;

Fig. 16 is a change position view showing the manner in which the device is freed from a sunken craft;

Fig. 17 is a diagrammatic drawing of a simple electric circuit employed in the embodiment illustrated in Figs. 3 to 7 inclusive;

Fig. 18 is a diagrammatic drawing of the elec-

tric circuit employed in the embodiment illustrated by Figs. 8 to 14;

Fig. 19 is a vertical cross-section through a dye marker release grommet with a water soluble plug in place;

Fig. 20 is a plan view showing the application of the release mechanism of the present invention to a door or hatch;

Fig. 21 is a sectional view partially in elevation of the release cylinder shown in Fig. 20;

Fig. 22 is an enlarged detailed side elevation partially broken away of one of the release arms employed in the embodiment of Fig. 20;

Fig. 23 is a detailed side elevation partially in section of the release latch employed in the embodiment illustrated in Fig. 20.

Referring to the drawings in detail, the device of the present invention is illustrated in one form of its use in Fig. 1 where a submerged aircraft 10, is shown with the buoy 11 released and connected thereto by an anchor line 12. The buoy is shown floating on the surface of the water surrounded by a dye-marker smear 13 which is particularly visible from the air. Electrically illuminated lights 14 and an upright standard 15, bearing pennant 16 are provided to aid in attracting air-sea rescue services and effect an early rescue of the plane personnel.

In Fig. 2, the buoy 11 is shown provided with the lights 14 mounted upon a hinged cover and upon release of the buoy this cover swings out of the way to permit the erection of a suitable radar reflecting pennant 18 of any desired design. This permits detection by the usual radar detection means. In addition this embodiment provides a buoyant balloon 19 which is automatically filled with a light gas and lifts aloft a radio antenna 20. A radio transmitting set within the buoy then automatically sends a distress signal upon a selected "crash" frequency to direct air-sea rescue services to the scene.

In the embodiment illustrated in Figs. 3-7 inclusive, the buoy 11 may be secured to the plane's fuselage 21 by quick release means hereinafter to be described, and is preferably mounted in an out of the way location but where it is not likely to become entangled when released such as immediately abaft the cockpit enclosure of the plane. In order to secure the buoy in place a mounting platform 22 may be provided which is securely affixed to the fuselage of the plane in any suitable manner, such as by aircraft rivets, and this platform may have spaced upwardly extending latch plates 23 thereon with which releasable latch members on the buoy may engage to hold the buoy on the plane. The platform 22 includes a cup like upwardly formed forward portion 24 within which the nose of the buoy nests when in place.

The buoy housing has a bottom plate 25 which rests upon the platform 22 and has elongated slots 26 therein to receive the upwardly extending latch plates 23. Suitable hydrostatically operated release latches within the buoy engage these latch plates 23 by mechanism hereinafter to be described to releasably retain the buoy in place upon the plane. The remainder of the housing includes an outer formed cover or hood 27 which, as shown, may be aerodynamically streamlined to lessen wind resistance.

In this embodiment the lights 14 are mounted at the forward end within an enclosure 28 of transparent material. Also located within this enclosure is the retracted pennant bearing staff

15 which, when extended, passes through an opening 29 in the enclosure 28.

Within the housing is located a buoyancy chamber 30 supported upon the bottom plate 25 of the housing and spaced therefrom by means of a wall so as to provide a dye-marker chamber 32 therebetween. Suitable dye-marker material is located within the chamber so formed. Access of sea water to this chamber to afford release of the dye is gained through the water soluble seals 33, shown in detail in Fig. 19. These seals may be in the form of sodium chloride tablets which will soon dissolve upon immersion in water.

Alongside the buoyancy chamber 30 may be mounted electric batteries 34 to provide a source of current for the lights 14. These batteries are spaced above a hydrostatic pressure responsive trip mechanism operable to release the buoy from the plane upon immersion and which mechanism comprises a cylinder 35 having a movable piston 36 therein and provided with an inlet nipple 37 at one end through which sea water may enter to press the rear of the piston and force the piston stem 38 forwardly to actuate the release mechanism.

The release mechanism for the buoy has been designed for quick and positive operation immediately upon immersion of the plane, and is shown in detail in Figs. 6 to 7B inclusive. It includes a latch slide supporting rack having spaced tracks 39 and 40 each having grooved portions which are opposed to receive the edges of slides 41 and 42. These slides are secured to a toggle arrangement, including toggle arms 43 and 44 (shown in detail in Fig. 7B) which arms are extensible.

In Fig. 7B the details of the toggle arms as shown include an arm stem 44 having a washer 45 secured thereon which washer bears against the end of a compression spring 46. At the opposite end of the spring and telescoping over the end of the arm 44 is a slideable head 47 which has a similar washer 48 against which the end of the spring 46 bears. The axial opening 49 in this head receives the end of the arm 44 and there is provided in the wall of the head an elongated slot 50. The end of the stem 44 has a guiding pin 51 which rides in the slot 50 and keeps the parts of the toggle arm and head from relative rotation so that they cannot be worked into an inoperative position. Toggle arm 43 may be similar to the above although the guide pin and slot arrangement 51 and 50 may be eliminated in one of the toggle arms if desired.

The slides 41 and 42 may have cut-away portions adjacent each end which bear against movement limiting posts 52 to prevent undue separation of the parts. At each outward corner of the slides there may be provided latch ears 53 each of which has a rounded under surface 54 and is adapted to engage in the latch slots 55 provided in the upwardly extending latch plates 23.

Compression spring 46 normally tends to part the toggle stem and head and separate slides 41 and 42 upon which they are mounted, while the tension spring 56 normally tends to draw the slides into approachment and therefore to unlatch the latch ears 53 from the latch plates.

To install the buoy upon a plane the plate 22 is first mounted thereon by any suitable means such as aircraft rivets. The latch mechanism may then be set by moving the knee of the toggle arms past the center and against the adjustable head 38a of the stem 38. The buoy may then bodily be installed in place with the latch plates 23 extending into the slots 26 in the base plate 25 of

5

the buoy. In this position the latch ears 53 will be immediately above the latch plates 23 as shown in dotted lines in Fig. 7A and, when forced downwardly, the rounded under portion of the ears forces the slides backwardly and permits the parts to latch together.

In the embodiment illustrated in Figs. 8 to 14 inclusive the mechanism contained within the buoy is modified to permit the installation of a radar wave reflecting means and also means for emitting a radio signal of a desired frequency so that the buoy may be located by the use of radio signal detection equipment of conventional design. This embodiment is therefore capable of being detected from a much greater distance than the embodiment just described and consequently increases the chances of an early rescue by the search party.

In this second embodiment, in addition to the above additional location signaling means, there is provided a novel control circuit whereby the electric battery of the sunken craft may be connected in parallel with the battery in the buoy and will provide additional power for operating the radio signal emitting device and buoy illuminating means. As shown by Figs. 8 and 9 this embodiment comprises a buoyancy chamber 56 of modified shape which provides additional room in the upper portion of the buoy so that a radio 57, an antenna reel 58 and an antenna lifting balloon 19 may be located therein as shown.

In both embodiments it will be noted that one side of the piston 36 is vented into the buoyancy chamber by a vent pipe 59 so as to assure free movement of the operating piston by hydrostatic pressure.

In this embodiment the nose of the buoy includes a hinged cover 60 which is preferably made of plastic or some transparent material and is normally retained in closed position by means of a catch including a detent 61 on the cover which may be engaged by the end of a forwardly projecting latch rod 62. An enlarged view of this catch is shown in the latched position in Figs. 11 and 12 and in the released position in Figs. 13 and 14. The latch rod may be mounted for longitudinal sliding movement in clips 63. As shown in Figs. 11 to 14 inclusive the rod is withdrawn for release of the cover by means of a reverse motion connection comprising arm 64 hinged at 65 and having an enlarged end 66 located in the path of the knee of the toggle type latch release mechanism. Operation of the latter moves the shaft 62 and simultaneously opens the cover 60. A spring hinge 67 may be employed to aid in the opening of the cover. In this embodiment the electric lights 17 may be mounted upon the hinged cover 60.

The mouth 68 of the antenna raising balloon 19 may be removably secured to the outlet 69 of a gas generator 70 which may be of any approved design as is well known in the art so that upon immersion in water it generates a lighter than air gas such as hydrogen and inflates the balloon 19. As the balloon inflates it becomes more buoyant until it finally pulls loose from the outlet 69 and rises into the air raising the antenna 20 which uncoils from its storage reel 58. Loss of buoyant gas from the mouth of the balloon may be prevented by the use of any suitable one way check valve located in the mouth of the balloon.

In order to start the radio 57 to sending out a position indicating distress signal it may be connected to the sunken plane's batteries through

6

the medium of a stationary switch block 71 and a moveable electrode bearing member 72 which parts are shown in the normal separated position in Fig. 11 and in the closed operating position in Fig. 14. When closed the switch arms 73 and 74 are engaged by clips 75 and 76 respectively to connect the radio set power supply wires 77 to wires 78 which supply power in parallel from the battery 34 and through a supply reel and a specially constructed anchor line 12a from the batteries of the sunken plane.

In order to connect the buoy to the plane both embodiments employ an anchor reel 80 which is rotatable upon an upright axle shaft 81 mounted upon the base plate 25. A ratchet in the form of a flexible tongue 82 registers with radially arranged notches on the undersurface of the reel 80 to keep the anchor line taut.

In Figs. 17 and 18 are shown schematic wiring diagrams which may be employed in the embodiments hereinbefore described.

Fig. 17 shows a simple wiring diagram wherein the lights 14 have one side grounded as at 83 and their other side is connected to one side of the buoy's battery 34. The opposite side of battery 34 is grounded through a suitable switch 84 having prongs 85 which engage with the edge portion 86 of one of the slides 42 to ground the battery and provide an electrical circuit through the lights 14.

In the second embodiment there is provided means for automatically initiating action of the radio and for taking current from the batteries of the sunken plane which batteries are connected in parallel with the buoy's battery during at least a portion of the time of their use.

As shown in Fig. 18, wires 87 and 88 extend from the buoy battery 34 to contacts 89 and 90 supported adjacent the top of the reel 80 and adapted to provide electrical contact with the current collector rings 91 and 92 respectively.

Current may pass from the plane's battery 93 through the wires 94 and 95 as shown to plug in connections 96 which permit separation of the wires 94 and 95 when desired for purposes hereinafter described.

From the diagram in Fig. 18 it will be apparent that the plane's batteries are thus connected in parallel through the collector rings 91 and 92 so that the radio 57 may be provided with current from these batteries. In order to actuate the radio the switch comprising stationary switch 71 and movable switch block 72 is engaged to supply current to the radio 57.

When the buoy is submerged with a sinking plane the latch means is released by the hydrostatic pressure and the buoy is freed and may rise to the surface of the water by means of its own buoyancy. In order to assist the separation of the buoy from the plane there may be provided a resilient member such as the leaf spring 98 which is normally compressed and upon release of the latch positively urges the buoy away from the plane. This device serves to kick free the tail end of the buoy and insures its positive separation from the sinking craft.

In the second embodiment of this invention there may be provided as shown in Fig. 9 an anchor line terminal in the form of an inverted mushroom shaped anchor member 99 having an upright stem to which the anchor line is affixed. This member may be sunk into a well 100 and normally retained in place by a water soluble solid such as a calcium salt which is normally hard but after prolonged immersion in water

7

(such as 48 hours) will dissolve and release the anchor 99. The above arrangement is for the purpose of insuring that the buoy will be eventually released from the plane if the plane sinks to a depth which is greater than the length of the anchor line.

The pennant bearing staff 15 may be of the telescoping type shown in detail in Fig. 10 wherein the telescopic portions are shown to have compressed a plurality of compression springs and, upon release of the buoy these springs cause the telescoped portions of the staff 15 to extend.

In Figs. 20 to 23 inclusive there is shown a modified adaptation of the hydrostatic release mechanism of the present invention shown applied to a cover or hatch whereby the cover may automatically be released upon the submersion of the craft bearing same. This automatic release device may be employed for the automatic release of life saving equipment such as life rafts and the like in addition to its use as hereinbefore described.

As shown in the drawings hatch or cover 102 may be provided at one end with a flange 103 which may engage under one edge of an opening in the plane's fuselage. At the opposite end the cover may be provided a pair of spaced spring biased catches 104 and 105 details of which are shown in Fig. 23 which is a longitudinal sectional view through one of the catches. As there shown they are provided with a carrier 106 housing a bolt 107 which has a longitudinal slot 108. Post 109 passes through this slot in the manner shown. A compression spring 110 disposed in the slot and bearing against the post normally urges the bolt 107 forward. To the bolt of each of the catches may be secured flexible operating lines 111 adapted to be actuated in unison by the toggle means hereinbefore described. In the present embodiment this toggle means includes toggle arms 112 and 113 pivoted at 114 and hinged together at 115 to provide a knee against which the end of an actuating rod 116 bears. The rod 116 can be operated by a hydrostatic pressure cylinder 117 which functions in the manner hereinbefore described in detail whenever the device is submerged.

The details of the interior of the actuating cylinder 117 are shown in Fig. 21 wherein there is provided a piston including a leather seal 118 having a backing plate 119 to keep the seal in intimate contact with the cylinder walls. In this embodiment water may enter through opening 120 into the chamber 121 and force the piston forward against the air in chamber 122. This air compresses sufficiently to permit movement of the actuating arm 116 and release of the toggle mechanism.

In order to insure a positive separation of the hatch from the plane upon operation of the release catches 104 and 105 resistant members 121 may be provided. These members may be in the form of spring strips located between the edge of the hatch and the edge of the opening in the plane. An adjustment is provided on the stem 116 by means of an adjustment cap 122.

In the various modifications of the release mechanism herein shown the device is preferably installed so that it will be actuated by a sudden stoppage such as would be occasioned when an aircraft strikes the surface of a body of water in a crash. To accomplish this the cylinder 35 or 117 may be aligned with the longitudinal axis of the aircraft so that inertia accumulated in the piston and stem will assure

8

those parts to move and strike the knee of the toggle to release the buoy.

While there is shown a particular embodiment of the present invention it will be understood that it is not desired that this invention be limited thereto since many modifications may be made by those skilled in the art, it is therefore contemplated by the appended claims to cover any such modifications as fall within the true spirit and scope of the present invention.

The invention described herein may be manufactured and used by or for the Government of the United States of America for governmental purposes without the payment of any royalties thereon or therefor.

Having thus described this invention what is claimed and desired to secure by letters Patent is:

1. An air-sea rescue device for indicating the location of submerged aircraft, comprising a housing releasably secured to the aircraft, a buoyant chamber within the housing, hydrostatic release means including slidable catches operable upon submersion of the housing to release the housing from the aircraft, an anchor line for connecting the housing to the aircraft, and visual indicating means energized by actuation of the hydrostatic release means to indicate the location of the buoy and the aircraft.
2. An air-sea rescue device for indicating the location of submerged aircraft, comprising a buoy removably secured to the aircraft, a buoyant chamber within the buoy, release means normally securing the buoy to the aircraft and operable by increasing hydrostatic pressure upon submergence to free the buoy from the aircraft, and resilient means operable to forceably separate the buoy from the aircraft upon its release.
3. An air-sea rescue device for indicating the location of a submerged plane, comprising a housing, a buoyancy chamber within the housing, release means for freeing the housing from the plane upon submergence of the plane, and a dye marker chamber within the housing having access openings for the penetration of sea water, said openings being normally closed by a water-soluble seal.
4. An air-sea rescue device for indicating the location of submerged planes, comprising a housing, a buoyancy chamber within the housing, a release device operable upon submergence of the housing to free the housing, a radio transmitter located within the housing, and means actuated by the release device for initiating operation of the radio transmitter.
5. An air-sea rescue device for indicating the location of submerged aircraft, comprising a housing, an automatic radio transmitter within the housing, antenna means for the radio transmitter including an expansible balloon and gas generating means for inflating the balloon, and means for actuating the radio and releasing the antenna means upon submergence of the housing, whereby the antenna of the radio transmitter may be raised aloft and a signal automatically emitted upon release of the housing from the plane.
6. An air-sea rescue device for indicating the location of submerged planes, comprising a housing, a buoyant chamber within the housing, release means normally securing the housing to the plane and operable upon submersion to free the housing, automatically operating radio transmitting means within the housing, an anchor line for connecting the housing to the plane

when freed, and an electric power and anchor cable extending with the anchor line from the housing to the plane for conducting current from the plane's batteries to the radio transmitter.

7. An air-sea rescue device for indicating the location of submerged aircraft, comprising a housing, a buoyant chamber within the housing, a dye marker chamber within the housing and having access openings therein normally closed by water-soluble plugs, automatically operable release means for freeing the housing from the plane, a radio transmitter within the housing, electric conduit means for conducting current from the plane's batteries to the radio transmitter after release of the housing, and release means for the conduit including an anchor embedded in water-soluble material and jack plugs adjacent the anchor and separable upon release of the anchor by disintegration of the water soluble material.

8. An air-sea rescue device for indicating the location of submerged aircraft, comprising a housing, a buoyancy chamber within the housing, automatically operable release means actuated by hydrostatic pressure for freeing the housing from a plane upon submergence, a visual indicator within the housing, and means for actuating the visual indicator upon operation of the automatically operable release means.

9. An air-sea rescue device for indicating the location of submerged aircraft, comprising a housing, a buoyancy chamber within the housing, a dye marker within the housing, automatically operable quick release means within the housing, a radio transmitter within the housing, an antenna lofting apparatus within the housing and means for conducting electric current from the plane's batteries to the radio after release of the housing from the plane.

10. A release mechanism for an air-sea rescue device wherein a buoyant housing is carried by an aircraft and adapted to be released upon submergence of the aircraft, comprising a slide, latch means on the slide normally securing the housing to the plane, resilient means tending to withdraw the slide, an arm restraining the slide from movement by the resilient means, and means for rendering said arm ineffective and permitting withdrawal of the slide including a member responsive to hydrostatic pressure.

11. A release mechanism for an air-sea rescue chamber, comprising a slide track, a slide operable in the track, latch means on the slide normally securing the housing to the plane, resilient means tending to release the latch, an arm normally blocking release of the latch by the resilient means, and means operable upon submergence of the plane to render the arm ineffective and permitting the release means to free the housing from the plane.

12. An air-sea rescue indicator for airplanes, comprising a base, a buoyancy chamber mounted upon said base, a dye container mounted upon the base, illuminating signal lights mounted upon the base, a telescoping flag-bearing standard mounted upon the base, and a release operable by hydrostatic pressure to simultaneously free the device from the plane, illuminate the lights and free the flag bearing standard for erection.

13. An air-sea rescue device, comprising in combination a housing enclosing a plurality of location signaling means, a hold-down and release mechanism mounted in said housing and

normally engaging a portion of the plane, and a pressure responsive control for actuating the release mechanism and initiating action of the location indicating device.

14. An air-sea rescue device having a plurality of location indicating means adapted to reveal the location of a sunken plane, comprising a housing, location indicating means within the housing, an extensible connection between the plane and the housing including a reel mounted within the housing, a release mechanism, and means for automatically actuating the release mechanism upon immersion of the entire unit to a predetermined depth whereby the device is freed from the plane to rise to the surface but is anchored by the extensible connection.

15. A release mechanism for an air-sea rescue chamber, comprising oppositely disposed slot engaging ears mounted for approachment and retraction, means normally urging said ears together, means operable to urge said ears apart, and pressure responsive release means for upsetting the knee of the toggle to permit approachment of the ears.

16. A position indicating buoy for sunken craft, comprising a housing, a radar wave reflecting device located within the housing and extensible therefrom, means for releasably supporting the housing on a craft, and means for extending the reflecting device upon release of the buoy from the craft.

17. An air-sea rescue device for indicating the location of submerged aircraft, including a buoy releasably secured to the aircraft, release means including a latch operable upon submergence of said buoy to release it from the aircraft, said release means including a chamber, a piston member in said chamber, said chamber on one side of said piston enclosing a gas at approximately atmospheric pressure, the chamber on the opposite side of said piston having an opening to the outside whereby influx of water upon submergence produces a pressure against said piston causing it to compress the gas and cause movement of said piston, and mechanism actuated by movement of said piston to cause release of said latch.

18. An air-sea rescue device for indicating the location of a submerged craft, comprising a buoy, fasteners for securing the buoy upon the craft, emergency release mechanism operable by hydrostatic pressure connected to said fasteners, normally quiescent emergency signal means carried by the buoy, and separate water-responsive means adapted to actuate said signal means upon submergence of the craft.

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