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H. G. LUSTFIELD

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FLOATING AUTOMATIC SIGNALING APPARATUS

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Fig. 1

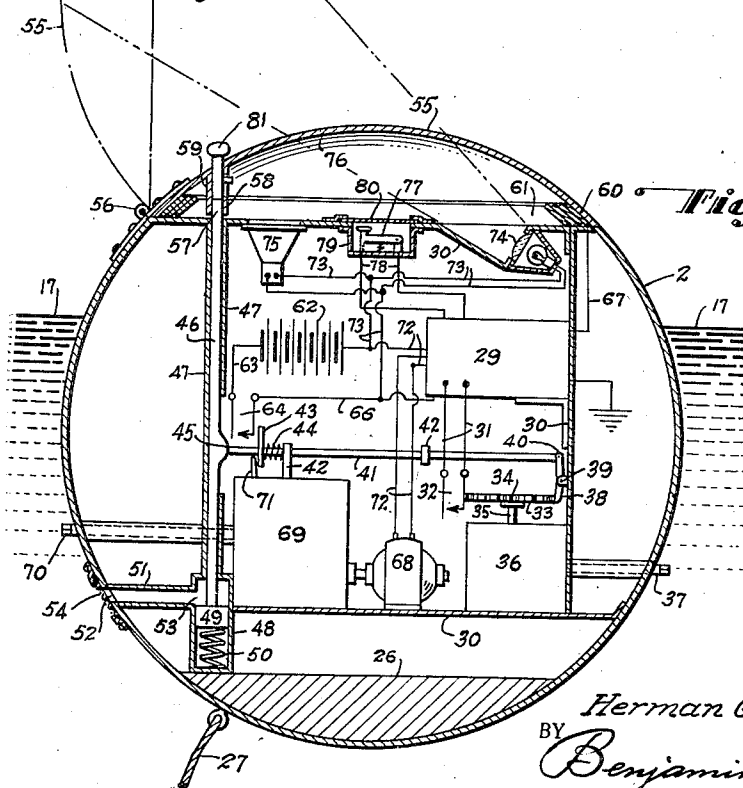
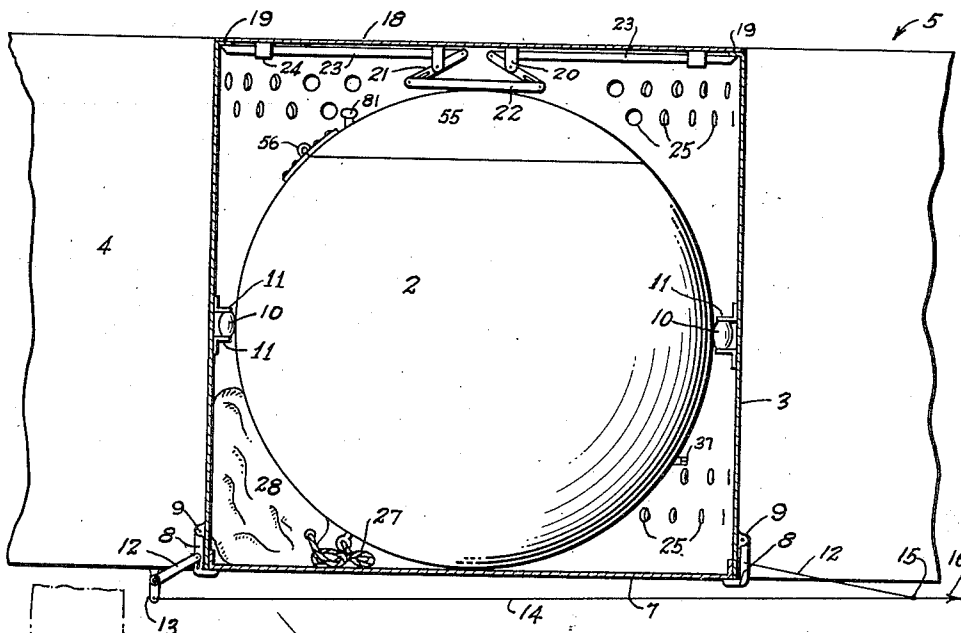


Fig. 2

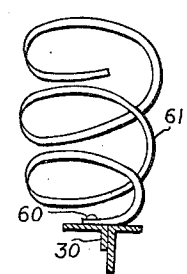


Fig. 3

INVENTOR,
Herman G. Lustfield,
BY Benjamin Roman.
ATTORNEY.

UNITED STATES PATENT OFFICE

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FLOATING AUTOMATIC SIGNALING
APPARATUS

Herman G. Lustfield, Brooklyn, N. Y.

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2 Claims. (Cl. 177—311)

This invention relates to an automatic radio life signaling device for hydroairplanes. At the present time such vehicles are equipped with usual radio transmitting apparatus, which is controlled by an operator and serves to send out messages in case of distress. Should however any accident be so serious as to incapacitate the operator, the survivors would be left without means wherewith to signal their condition or location.

The principal object of the invention is to provide an apparatus which will remedy the aforesaid disadvantages, and which in case of distress will be floatable apart from the hydroairplane and automatically operate to send out radio life signaling information.

Other objects and advantages will hereinafter appear.

In the accompanying drawing—

Fig. 1 is a cross-sectional elevational view, showing a fragment of the airplane equipped with the invention, and the retaining provisions in the airplane for the apparatus of the invention.

Fig. 2 is a cross-sectional elevational view showing the apparatus, devices, and diagrams of the circuits of the invention.

Fig. 3 shows a detail of the invention.

The operating parts and devices constituting the entire apparatus 1, of the invention, is supported by and completely encased within a spherical shell 2, Fig. 2, which is normally retained within a housing 3 forming part of the fuselage 4 of a hydroairplane. The shell 2 rests upon a wooden floor 7 of housing 3, which floor is releasable from the housing, but is normally held in place in the manner shown by pawls 8 pivoted at 9 to said housing, and the shell is maintained in position laterally by a series of rollers 10 bearing thereagainst being mounted in brackets 11 secured to said housing. A wire 12 joined to a pawl 8 and a wire 14 joined to a bell-crank 13 are in turn joined at 15 to a common wire 16 in the manner shown, and the wire 16 extends to the officer in charge of the controls of the plane, whereby upon withdrawal of the wire 16 in the direction of the arrow releases the pawls 8 and disengages the floor 7 from the housing 3, thereby causing the shell 2 to drop out of the plane and into the water 17, Fig. 2.

The top of housing 3 is normally closed by a ceiling 18 resting upon a rim 19 thereof, and to lugs 20 of said ceiling are pivoted levers 21, pivoted in turn to a common link 22, normally contacting with the shell 2, and also to bolts 23

which passing through hasps 24 of said ceiling normally engage the rim 19 of the housing and thereby maintain the ceiling 18 locked to the housing 3, in the manner shown. Should, however, the fuselage 4 become inverted through disaster, the shell 2 would press upon link 22 and cause the levers 21 to withdraw the bolts 23 and in turn unlock the ceiling 18 from the housing 3, thereby releasing said ceiling and permitting the shell 2 to drop into the water. Also, in case the plane 5 should sink without opportunity to draw the wire 16, the water would enter the housing 3 through openings 25 thereof and buoy up the shell 2 to similarly actuate the above parts to release the ceiling 18 and permit the free floating of the shell 2. Should, under similar circumstances, the plane sink in inverted condition, the pawls 8 would drop away by their gravity, the floor 7 would become disengaged, and the shell 2 would buoy out of the housing 3. The shell 2 is provided with a weighted keel 26, whereby, irrespective of the condition in which the shell may reach the water, it will right itself automatically and become disposed with its apparatus and all parts in the upright operative state illustrated in Fig. 2. A cable 27 secured to the keel 26 carries a sea anchor 28, by which means the shell 2 is prevented from drifting.

In the interior of shell 2 is located a radio transmitter 29, secured to a framing 30 fastened to the wall of the shell, from which transmitter the leading in wires 31 are connected to a telegraphic key 32 that is operable by a rotatable wheel-disk 33 equipped with a telegraphic periphery 34 mounted on a shaft 35 driven by a spring motor 36 windable by a stem 37. As the motor 36 is normally in wound condition the wheel 33 is held stationary by a pawl 38 engaging its periphery 34 and fulcrumed at 39 being pivoted at 40 to a rod 41. Said rod is longitudinally slidable in fixed brackets 42 and carries an arm 43 with a spring 44 curled therearound between said arm and one of said brackets, as shown, and the rod 41 maintains the pawl 38 in operative engagement with the wheel 33 by abutment of its terminal against a cam 45 forming part of a vertical plunger rod 46 slidable in a tubular guide 47 secured to the framing 30. The lower end of rod 46 passes through and into a cylinder 48, wherein it is provided with a piston 49 normally maintained in elevated position shown by a spring 50 located between it and the bottom of the cylinder. When, therefore, the rod 46 is in this position its cam 45 is situated to bear upon the terminal of rod 41 and maintains

the pawl 38 in locking engagement with the telegraphic wheel 33. A tube 51 connects an opening 52 in the shell 2 with an opening 53 in cylinder 48, whereby the water can enter said cylinder and move it downwardly, thereby sliding the rod 46 accordingly and moving the cam 45 away from the rod 41. This causes the rod 41 to slide toward the left, as viewed in the drawing, by the spring 44 pressing its arm 43, whereby the pawl 38 is actuated to release the wheel 33 and the latter is permitted to automatically operate the telegraphic key 32. The ingress opening 52 is preferably covered over by a strainer 54, to prevent any solid matter producing obstruction of the conveying tube 51.

The upper part of the spherical shell 2 is formed as an oblate cover 55, held thereto by a spring hinge 56, and said cover is normally held in closed state, contrary to the opening action of spring hinge 56, by the terminal 57 of the rod 46 being lodged within the bore 58 of a lug 59 of the cover while said rod is maintained in the elevated position shown. When, however, the rod 46 is slid downwardly by the action of the water upon its piston 49 the terminal 57 disengages from the lug 59, and the cover 55 is then automatically opened up to the position shown by the dash and dot lines, Fig. 2, by the action of spring hinge 56. To the framing 30, Figs. 2, 3, is secured by welding means the end 60 of a springy curled aerial strap 61 which is normally maintained in the condition shown by the rim of cover 55 clamping it against the framing, but when the cover opens up the strap 61 uncurls and erects itself in manner shown in Fig. 3, in which condition it functions as an aerial.

Electric energy current is supplied for the transmitter 29 by a battery 62, from which it flows through wire 63, to switch 64, and along wire 65 to said transmitter, the latter being connected by wire 67 to end 60 of the aerial 61. Current is also supplied to the transmitter 29 by a generator 68 operable by a spring motor 69 windable by a stem 70 and releasable by a lever 71, said generator being connected to the transmitter by wires 72, which are also joined to the battery wires 65, 66 as shown. The spring motor 69 is normally in wound condition, and when the actuating plunger rod 46 descends, as above described, with its cam 45 the arm 43 impelled by spring 44 strikes the lever 71 and starts the motor 69 operating to drive the generator 68. Simultaneously, the arm 43 also closes the switch 64, thereby closing the circuit of battery 62 to energize the transmitter 29.

Wires 73 conduct battery current to a lamp 74 and a siren 75, thus furnishing luminary and audible signals for the territory in which the apparatus floats. The inner surface 76 of the cover 55 is coated as a mirror, whereby it receives and reflects the rays from the lamp 74 and serves as a beacon for the apparatus and territory in which it floats. A manual telegraphic key 77, connected to the transmitter 29 by lead-in wires 78, is mounted within a compartment 79 depending from the framing 30 and covered by a rubber sheet 80, which key can be operated by a survivor reaching thereto, in case the automatic sender 33 fails to operate. There is also provided an emergency plunger 81, slidably mounted in the lug 59 in the manner illustrated and protruding from the cover 55, which

plunger may be depressed by a survivor against the terminal 57 of rod 46 and the latter thereby actuated, in case of its failure to operate automatically. The telegraphic periphery 34 of sending wheel 33 is so designed that it will produce messages vital to life saving signaling, as SOS and name of the airplane, the trip, line, or similar information, and the energy supplied by battery 62, generator 68, and motors 69, 36 will be sufficient to last until rescue reaches the airplane.

When, therefore, the airplane 5 meets with distress, its officer draws the wire 16 and releases the flooring 7 to drop out the shell 2, which falling into the water assumes an uprightly floatable operative position. Thereupon, the water entering the conduit 51 and cylinder 48 presses down upon piston 49 and actuates the rod 46 to set the entire apparatus into operation as above described. The telegraphic wheel 33 and key 32 will then send out the radio life saving signals and information, which will be picked up by the well known radio beam method by offices, stations, and ships, thereby resulting in almost exact location of the disaster and bringing rescue to the distressed. If rescue approaches in darkness, the ship will be guided to precise spot of the disaster by the lamp 74, its reflected light from mirror 76, and by the siren 75 in case of fog, while during daylight the upstanding cover 55 will act as a beacon and sun reflecting beam. Should any accident prevent the officer drawing the wire 16 and drop out the shell 2, the latter will be buoyed up out of its housing 3 when the airplane falls into the water, as above described, whether the plane falls uprightly or invertedly.

Variations may be resorted to within the scope of the invention, and portions of the improvements may be used without others.

Having thus described my invention, I claim:

1. A releasable distress signaling apparatus for an airplane having the combination of a water-floatable shell, said shell encasing within it a radio transmitter, a generator for current, a wound spring motor for operating said generator, a detent for releasing said wound motor, a circuit for feeding said current to said transmitter, and a code transmitter with lead-in wires for said radio transmitter, a motor for actuating said code transmitter, means to arrest the actuation of said code transmitter, mechanism for releasing said detent and said arresting means, and said mechanism being actuated by the pressure of the water of floatation.

2. A releasable distress signaling apparatus for an airplane having the combination of a water-floatable shell, said shell encasing within it a radio transmitter, means for supplying current, a circuit for feeding said current to said transmitter, and a code transmitter with lead-in wires for said radio transmitter, a motor for actuating said code transmitter, means to arrest the actuation of said code transmitter, mechanism for releasing said arresting means, said mechanism being actuated by the pressure of the water of floatation, said shell carrying a collapsible and expandable aerial for said radio transmitter, means to maintain said aerial in collapsed state, and said mechanism when in its said actuation releasing said aerial maintaining means to permit extension of said aerial.

HERMAN G. LUSTFIELD.