May 5, 1942. B. A. NOLAN 2,281,986

MARINE SKY BEAM SIGNALING DEVICE

Filed Oct. 7, 1939 2 Sheets-Sheet 1

Fig. 1

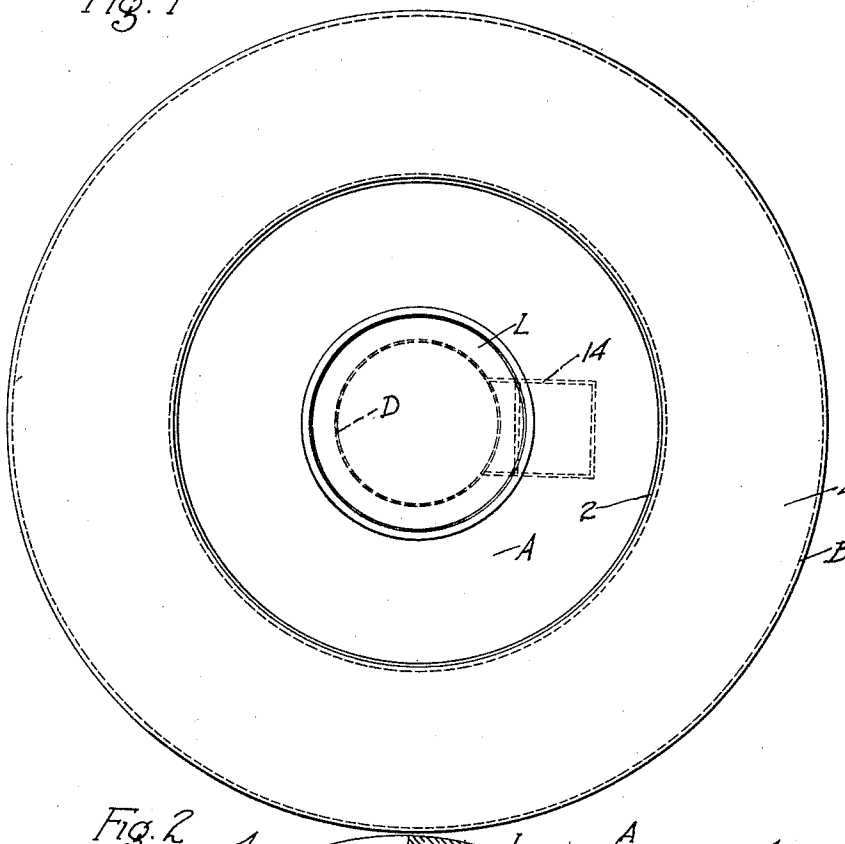
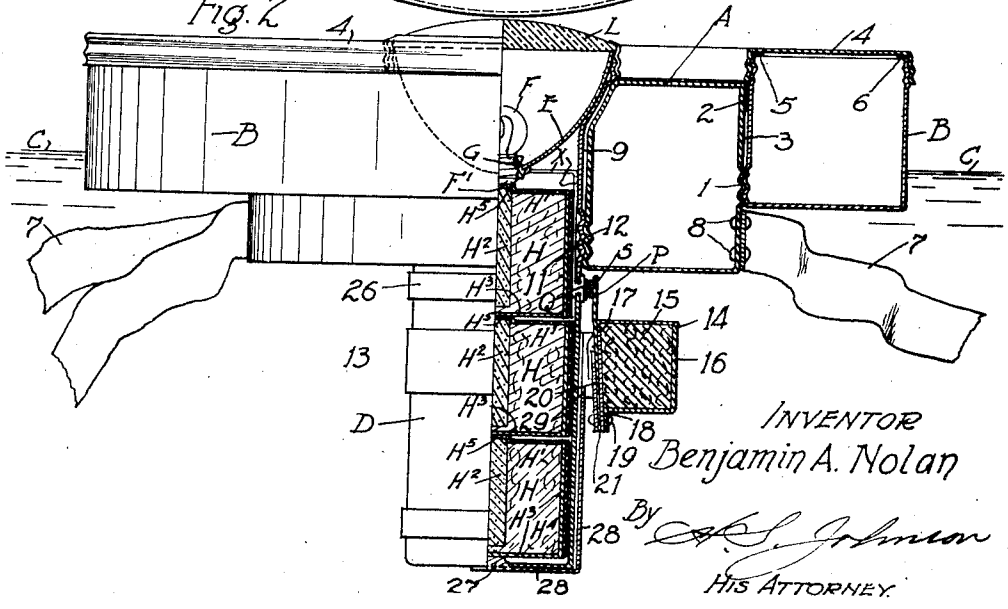


Fig. 2



INVENTOR
Benjamin A. Nolan
By C. S. Johnson
HIS ATTORNEY.

May 5, 1942. B. A. NOLAN 2,281,986

MARINE SKY BEAM SIGNALING DEVICE

Filed Oct. 7, 1939 2 Sheets-Sheet 2

Fig. 3

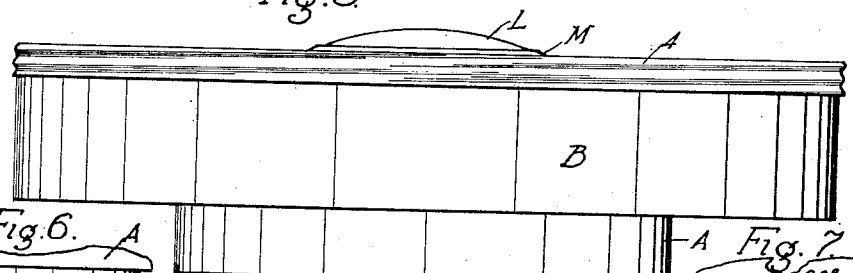
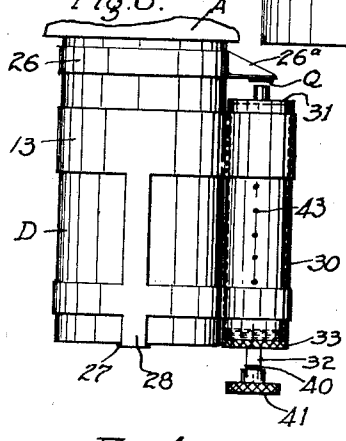


Fig. 6.



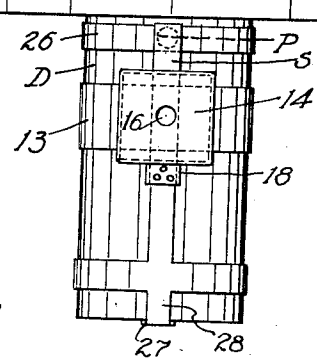


Fig. 7.

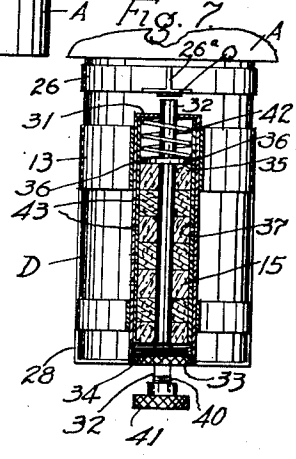


Fig. 4.

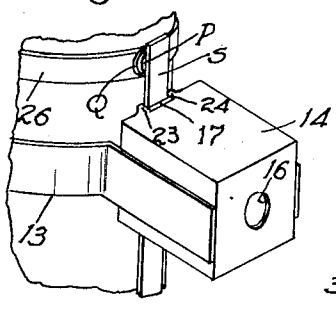


Fig. 8.

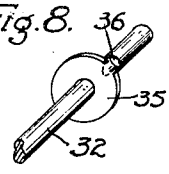


Fig. 5.

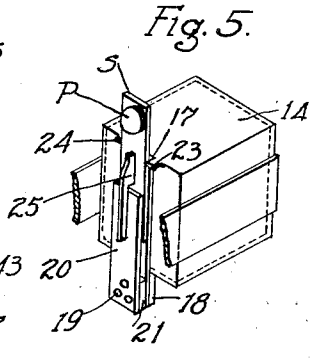
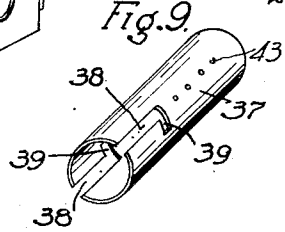


Fig. 9.



INVENTOR
Benjamin A. Nolan
By
C. S. Johnson
HIS ATTORNEY.

Patented May 5, 1942 2,281,986

UNITED STATES PATENT OFFICE

2,281,986

MARINE SKY BEAM SIGNALING DEVICE

Benjamin A. Nolan, Stillwater, Minn.

Application October 7, 1939, Serial No. 298,476

6 Claims. (Cl. 9—8.3)

My invention relates to new and novel marine life saving means and more particularly to a floating self-signaling means as a position locator of the point of a sea disaster.

My invention further resides in a simple manufacture, as a floating signal means, which sends an illuminated beam skyward at the locational point of a disaster.

My invention further resides in a simple marine sky beam signaling device which provides a water tight, air sealed compartment for the carrying of disaster records or the ship's log, passenger list or all combined.

My invention further resides in a simple marine sky beam signaling device which can be manually operated and controlled or which automatically when immersed, starts a beam signal through its self-contained moisture expanding switch.

My invention further resides in the construction which is more specifically described and the novelty of the same herein is furthermore pointed out in the accompanying drawings.

Figure 1 is a direct top view of my invention;

Figure 2 is a one-half side view of my invention showing a quarter in section along the lines of 2—2 of Figure 1 and showing a section through the moisture expanding switch;

Figure 3 is a side view of my invention showing the back of the moisture expanding switch;

Figure 4 is a perspective view of the moisture expanding switch from the rear;

Figure 5 is a perspective view of the moisture expanding switch from the contact controlling side;

Figure 6 is a side elevation of an alternate method of construction of a moisture expanding switch through which manual contact can be readily made with ease;

Figure 7 is a section taken on the line of 7—7 of Figure 6 of the alternate moisture expanding switch;

Figure 8 is a perspective view of the locking plunger, and,

Figure 9 is a perspective view of the interior tube showing the locking slots for the retention of the locking plunger disc.

In referring to the drawings, A represents a water-tight air-contained float which is provided with a series of screw threadings of which 1 affords a holding and a retaining means for an outer water-tight compartment B for the retention of the ship's data, log, history or other notations of disaster.

The container B is spaced apart from the float member A by means of a compressible packing 2 positioned well above the retaining means for the outer compartment and provides an additional air chamber 3 about the float A. The chamber B is further provided with a removable cover 4 which when made fast atop the chamber B compresses the gaskets 5 and 6 to make the outer chamber B air tight and render the compartment within water-proof.

The chamber A is further provided with side tie straps 7 made fast to the exterior periphery of the chamber A by holding or fastening means 8 so that the entire unit signaling means may be attached to life savers or bits of wreakage, yet permitting the signaling assembly to submerge its bottom structure below a water line C.

In the direct center of the float there is provided an orifice 9 into which is positioned an electric dry cell beam light D permitting its lens L to point skyward. The beam light D is provided with the usual reflector E and electric light F with its cooperating electric socket G and likewise with the usual dry cells H whose electric current is enclosed within the compartment of the beam light D.

The beam light D is held positioned by a series of threadings 11 on the side of the casing containing the batteries and these threadings cooperate with a holding series of threadings 12 within the orifice 9 and near the base of the float A.

The casing of beam light D is provided with a switch holding and supporting band 13 so as to sustain the expanding switch compartment 14 to one side of the beam light casing. The expanding switch compartment 14 is an enclosed compartment packed with a water expanding element 15 and which expands when contacted by moisture admitted through the orifice 16 so as to push moveable the inner contact closure 17 out against the switch contact controls.

The moveable inner closure member 17 is springly connected to and made fast at the bottom of the expanding switch compartment by a downward extending bracket 18 held positioned by the holding means 19 so as to seal the compartment to the water expanding materials. The downward extending bracket 18 likewise supports a companion spring member 20 which is spaced apart at its base fastening means 19 by the spacer 21. The members 17 and 20 being spaced apart by the spacer 21 form a U shaped construction for the saddled rocking contact suspension of the switch contact control S.

The switch contact control S is transversely

positioned between two projecting and aligning fingers 23 and 24 protruding from the top of the expanding switch compartment 14 so as to guide and operatively position the switch contact control S and its saddle supporting element 25 to rest astride the spring member 20.

The switch control S is likewise fitted with a contact point P which when the moisture expanding material within the expanding switch compartment 14 kicks out the spring sustaining inner closure member 17 so as to push upon the switch contact control S, it will cooperate with the contact point Q positioned upon the peripheral band 26 and hold the same in locked contact. Through an orifice in the casing of the beam light D, an electrical connection X is made inwardly under the band and contact points Q. The electrical connection X entirely insulated from the batteries and within the casing terminates in the electric connection with the socket G for the illumination of the light F through the closed circuit electricity generated by the batteries H within the beam light case D.

The batteries H enclosed within the casing of the beam light D and placed atop each other permits one side of the electric circuit's stored energy H1 to be transmitted to the battery housing or casing H3 while the uppermost H5 is in direct contact with the contact point F1 of the electric light F resting in the socket G.

The energy transmitted through the battery casing H3 is insulated from contact by the batteries peripheral insulator H4 thus sealing any possible shortage of electric energy from within.

The energy to be expended by the batteries is transmitted at the lowest point of the beam light casing D outward through an insulated contact point 27 to the exterior conductor 28 and then transmitted to the contact connection 29 upon the sustaining band 13 supporting the expanding switch compartment 14 permitting the same to make contact at will.

In the alternate moisture expanding switch, the switch holding and supporting band 13 encompasses the cylindrical expanding switch tube 30 while the conductor band 26 is provided with a bracket 26a which supports the contact point Q operatively functioning the same as previously described.

The cylindrical casing 30 of the moisture expanding switch is provided with a top closure 31 and provided with an opening permitting the plunger 32 to pass through the same and sustaining same in slidable position. The lower portion of the cylindrical casing 30 is equipped with a knurled screw closure 33 held positioned by threaded connection 34 to the inner wall of the exterior tube 30.

The plunger 32 is equipped at a predetermined point with a rigidly positioned piston 35 which has lock lugs 36 provided upon its sides. The cylindrical chamber 30 of the moisture expanding switch is further provided with an interior cylindrical chamber 37 which at its uppermost ends are provided with lock lug guides 38 and arresting means 39 for the lock lugs. The lower end of the shaft 32 is provided with a threading 40 upon which is made fast a knurled thumb screw 41.

In the assembling of this unit, a tension spring 42 is provided at the top end of the inner tube 37 to hold compressed the various discs 15 made of moisture expanding material. Both the inner and outer cylindrical chambers housing the moisture expanding material are perforated with aligned seepage holes 43 which permit moisture from without to expand the moisture expanding materials within.

In operation of the first case these appliances may be fitted loosely within pockets on the wings of the trans-oceanic air ships. The appliance pockets would permit free floating of the marine life saving sky beam signaling device upon the complete submersion of the pocket containing said appliance. Should an accident befall a ship and should the ship sink at sea, these marine signaling beam devices, would, because of their air-tight compartments and their automatic releasement from their resting position float upon the waters and the bobbing about of the said marine sky beam signaling device, because of the wave motion, would spasmodically send a light beam skyward.

In the second case the operation of the assembly would permit manual operation by a pressure upon the knurled head 41 to compress the tension spring 42 causing the plunger 32 to rise upward and contact the point Q which through its bracket 26a and 26 would complete the circuit from the holding band 13 which is the termination of the other side of the circuit and cause a signal beam to any pointed direction.

In the automatic operation, or floating operation of the cylindrical type of moisture expanding switch, the holes 43 expand and the moisture expanding material 15 within the inner casing, causes the piston 35 to compress the tension spring 42 and raise the shaft 32 to contact the point Q thus completing the circuit while in the original case the moisture would enter through the orifice 16 to expand the moisture expanding element and obtain the same contact results. Should it be desired with the cylindrical type that after a specific length of time to make beam light inactive, the shaft 32 with its rigidly fastened piston 35 may be pulled back against the moisture expanded elements 15 and compress the knurled head 41 and its shaft 32 with its piston 35 may be rotated so that the lugs 36 which normally have slid up and down in guides 38 may be rotated sideways so that the lugs 36 would register and lock in the side guide arresting means 39 and hold piston 35 in compressing locked position thus expelling moisture through the orifice 33. The same may be unlocked when dry by a slight turn so as to release the lugs 36 from their locking position in 39 and manual operation of the beam light can again proceed.

I claim:

1. In a floating marine sky beam signaling device comprising a buoyant body supporting batteries, an electric signal lamp held atop said buoyant body, an electric circuit normally held open connecting the batteries and the signal lamp; a switch for said electric circuit comprising a body member adapted to be attached to the buoyant body, moisture expanding material held within said body member, a yieldable closure member yieldably positioned in said body member, a switch contact point carried upon said yieldable body closure member, said body member being formed with a hole to allow moisture to enter said body member to expand the moisture expanding material so as to press against the yieldable closure member with its switch contact point to close said electric circuit.

2. The switch claimed in claim 1 including means for compressing the expanded material to reset said switch.

3. The switch claimed in claim 1 including

means for compressing the expanded material to reset said switch, and means to lock the switch after expulsion of moisture, from the moisture absorbent material.

4. In an electrical device including an electrical circuit and a buoyant element supporting the same, a switch for the electrical circuit comprising a body member adapted to be attached to the buoyant body, said body member having moisture transmission means through which moisture may seep into said body member, moisture expanding material held within said body member, a yieldable element within said body member in cooperable relation with said moisture expanding material to be operated thereby and movable with respect to said body member, a switch contact point carried by said yieldable element, and a cooperable contact point on said body member engageable with said contact on said yieldable element when said yieldable element is moved by expansion of said moisture expanding material.

5. A switch for use in combination with a buoyant body comprising a body member secured to the buoyant body and having moisture transmission means through which moisture may seep into said body member, a yieldable closure thereupon, a moisture expanding material within said body member in cooperable relation to said closure to actuate said closure, a contact point carried by said yieldable closure and movable therewith, and a cooperable contact point in fixed relation to said body member, said moisture expanding material operating upon contact with moisture to move said yieldable closure and to force said contacts together.

6. A switch comprising a body member having moisture transmission means through which moisture may seep into said body member, a yieldable closure on said member, moisture expandable material in said body member in cooperable relation with said closure to actuate said closure, a contact secured to said yieldable closure and movable therewith, and a cooperable contact secured in fixed relation to said body member, the moisture expanding material operating upon expansion and contraction to actuate said closure to make or break the contact between said contact points.

BENJAMIN A. NOLAN.