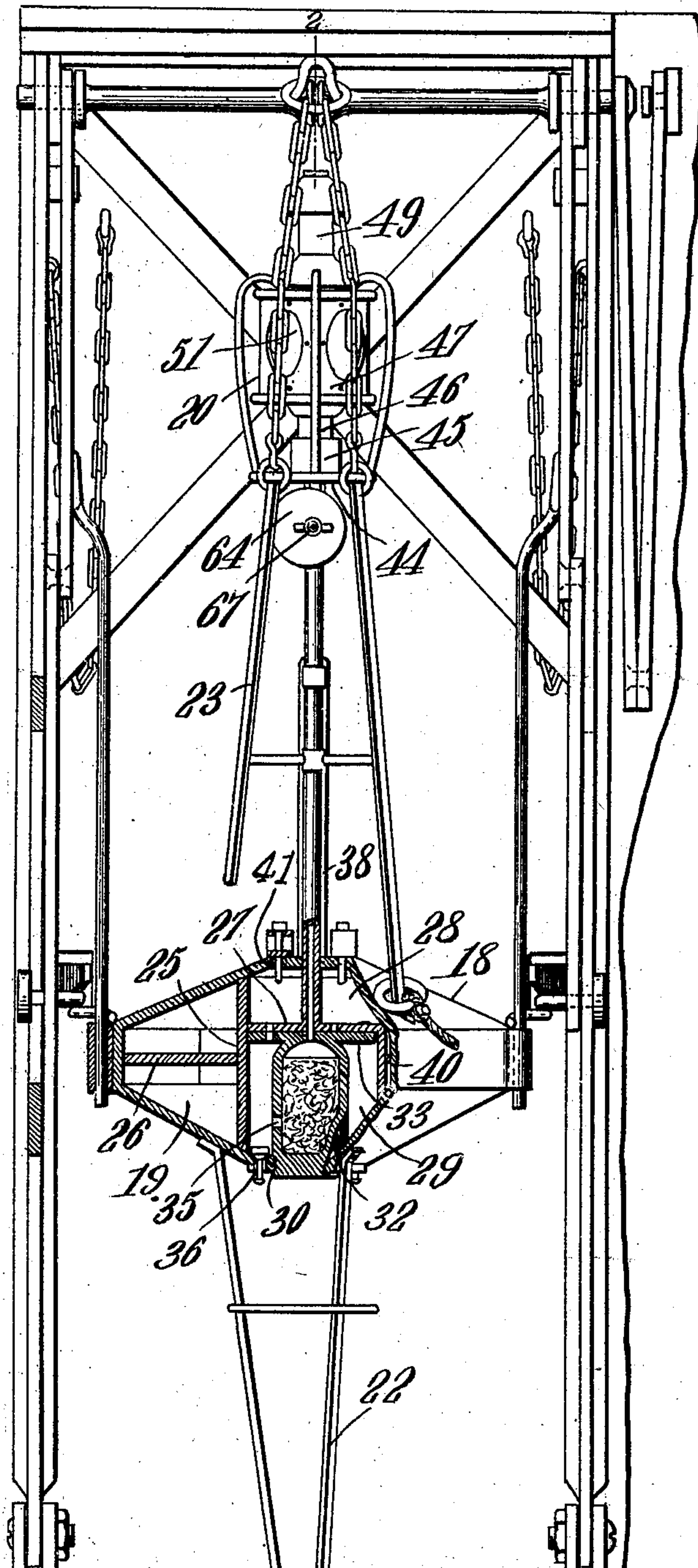


No. 842,195.

PATENTED JAN. 29, 1907.

P. FUCHS.  
MARINE TORCH.

APPLICATION FILED OCT. 12, 1906.



WITNESSES:  
*E. J. Stewart*  
*John E. Parker*

Fig. 1.

Paul Fuchs, INVENTOR.

By *C. A. Snow & Co.*  
ATTORNEYS

2 SHEETS—SHEET 1.

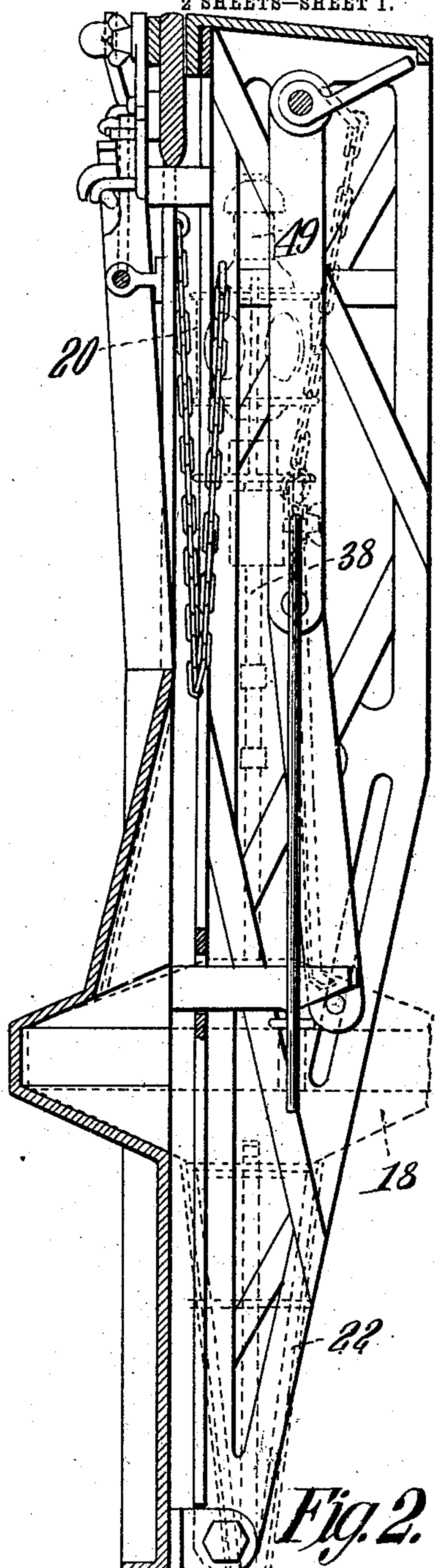


Fig. 2.

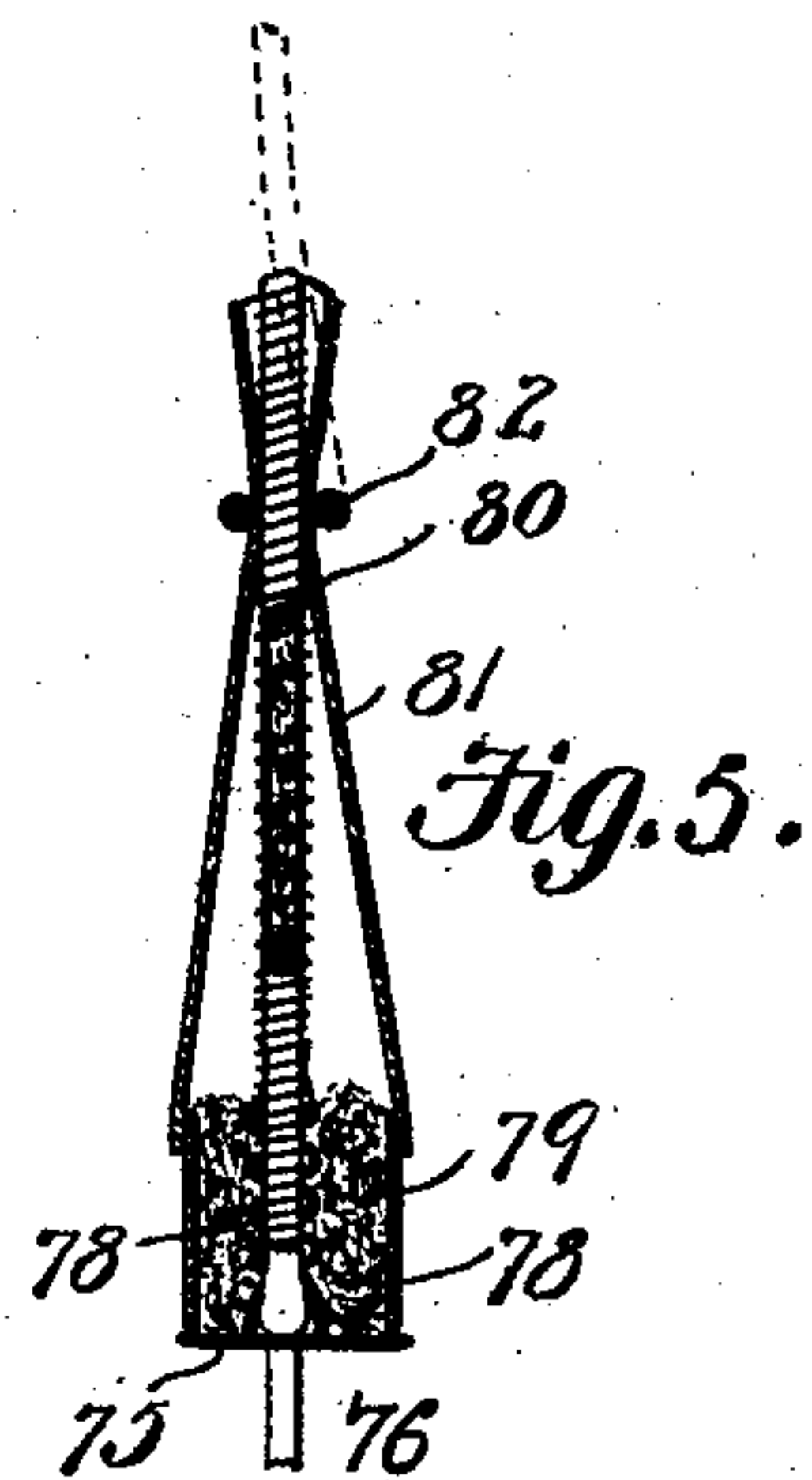
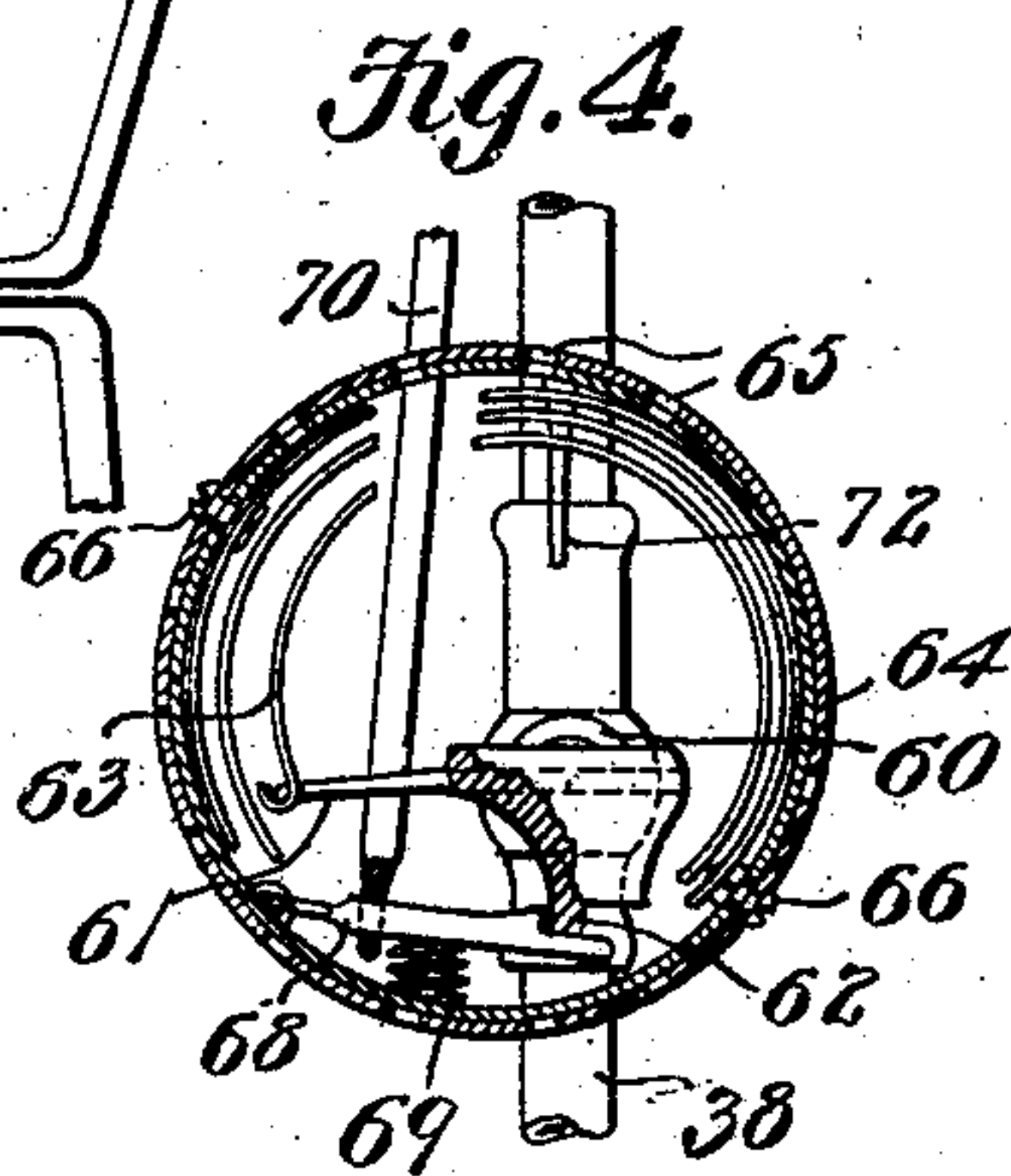
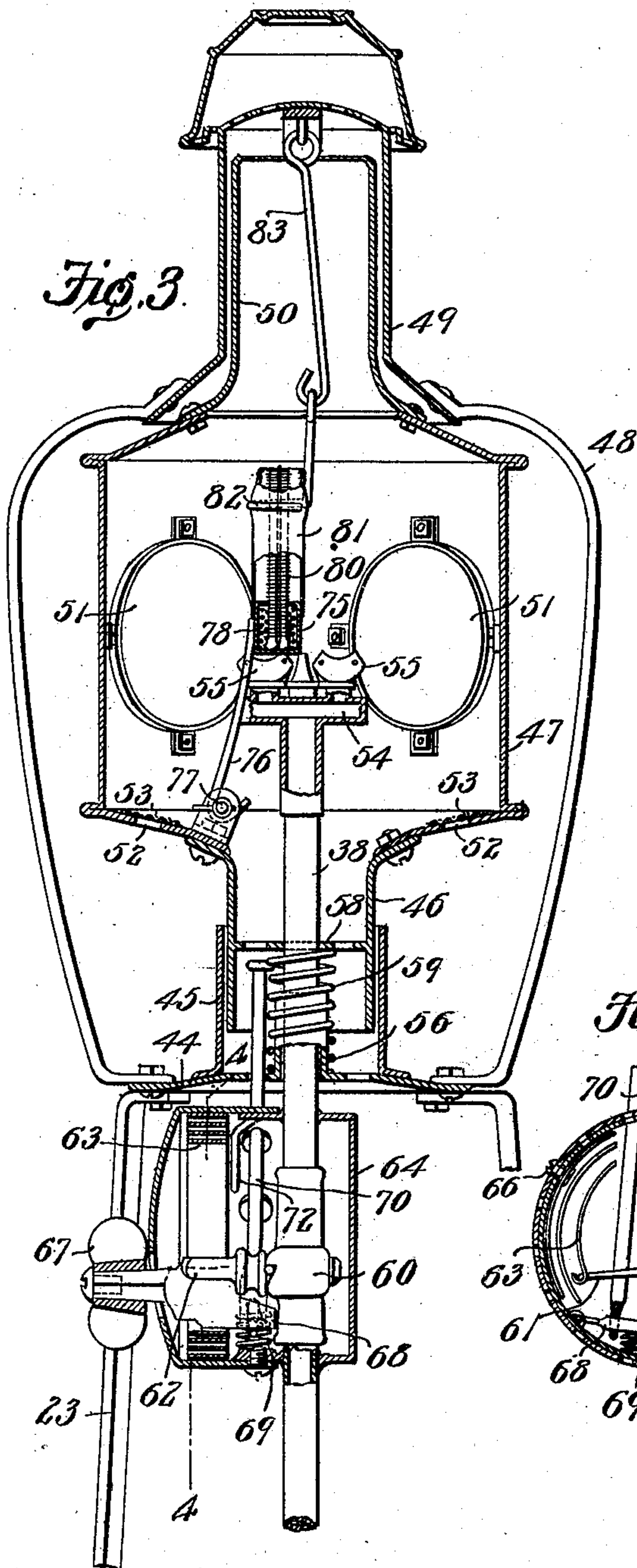
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Witnesses

*E. J. Stewart*  
*J. E. Parker*

*Paul Fuchs*, Inventor  
by *Chas. H. Snow*  
Attorneys



# UNITED STATES PATENT OFFICE.

PAUL FUCHS, OF BALTIMORE, MARYLAND.

## MARINE TORCH.

No. 842,195.

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed October 12, 1906. Serial No. 282,469.

*To all whom it may concern:*

Be it known that I, PAUL FUCHS, a subject of the Emperor of Germany, residing at Locust Point, Baltimore, in the State of Maryland, have invented a new and useful Marine Torch, of which the following is a specification.

This invention relates to life-preserving apparatus, and has for its principal object to provide a buoyant support which when thrown overboard will automatically ignite a signal or lamp, so that the position of the apparatus may be readily ascertained by the person to whom it is thrown, as well as from the deck of the vessel, so that the apparatus may be speedily recovered.

A still further object of the invention is to provide a novel form of signaling apparatus carrying a gas-forming element that remains inactive until the apparatus is thrown into the water, provision being made for permitting the entrance of the water to such element, the resultant decomposition of the water forming an inflammable gas that is ignited and serves as a signal to indicate the position of the apparatus.

A still further object of the invention is to provide a novel form of igniting device so arranged as to swing freely over the gas-burner or the like and insure ignition of the gas issuing from the burner.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is an elevation of an apparatus constructed in accordance with the invention, parts being broken away in order to more clearly illustrate the construction. Fig. 2 is a vertical section of the same on the line 2 2 of Fig. 1, the signaling-buoy being shown in dotted lines. Fig. 3 is a vertical section, on an enlarged scale, of the upper portion of the signaling-buoy. Fig. 4 is a vertical section of the same on the line 4 4 of Fig. 3. Fig. 5 is a detail sectional view of the lamp-lighting device.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The apparatus forming the subject of the present invention is intended to be used in connection with a life-buoy, so that the position of the latter may be signaled at night, the signaling-buoy being automatically ignited as soon as it strikes the water in order that its position may be ascertained by the person in the water, as well as from the deck of the vessel.

The signaling-buoy 18 comprises in general a centrally-arranged buoyant casing 19, an elevated lamp 20, and a lower weight 21, these being connected by a skeleton frame 22, and the weight being sufficient to maintain the frame in upright position with the lamp well out of the water. The weight further insures the descent of the buoy in a vertical line with the weight downward when the apparatus is launched, so that it may strike the water in proper position.

The buoyant casing 19 has substantially convex upper and lower faces and is provided at the center with an annular partition 25, forming a cylindrical chamber extending from top to bottom of the casing. Outside the partition 25 are arranged a number of horizontal and vertical partitions 26, which subdivide the casing into air-compartments, any one of which may be ruptured without permitting the entrance of water to the others. The cylindrical central compartment is divided by a horizontal partition 27 into upper and lower chambers 28 and 29, and at the lower end of the chamber 29 is arranged an internally-threaded ring 30, adapted to receive the peripheral threads of a carbid-casing 32, the upper end of said casing being open and being tapered slightly to form a contracted mouth, which when the casing is screwed tightly in place will be pressed against the washer or disk 33, formed of rubber or some equivalent packing material which will make an air-tight joint with the mouth of the casing. The carbid-casing or generating-tank is provided with a number of openings 35, through which the water may enter and by contact with the calcium carbid or similar agent produce a gas. The water enters the lower compartment 29 through small valved openings 36, and the compartment will become filled with water, which will encircle the casing 32, the water entering said casing 32 through the minute



perforations 35, formed in the casing, unless sufficient gas has been generated to prevent the entrance of the water. When the pressure of gas is excessive, the water will be kept out; but as soon as the pressure lowers the water will enter the chamber and intermingle with the carbid. Extending upward from the partition 27 is a gas-pipe 38, the open end of which is directly above the mouth of the casing 32, and the gas flows through this pipe into the lamp 20. In the partition 27 are formed openings 40, through which air may freely pass, and the upper wall of said compartment 28 is provided with small valved openings 41, these valves being moved upward by the pressure of air within the two compartments when the device is thrown overboard and the float or buoy is partly immersed. When this occurs, the water entering through the valved openings 36 forces the air through the openings 27 and thence through the valved openings 41, permitting water to enter the chamber or chambers; but the water can enter the generating-tank only through the openings 35, and the generated gas must pass through the pipe 38 to the lamp.

The lower skeleton frame 22, which depends from the buoyant casing 19, carries the weight 21, and the lower end of said weight is preferably pointed in order that it may enter the water. The upper skeleton frame 23, which extends from the top of the buoyant casing 19, is secured at its upper end to an annular flange 44, projecting from the lower end of a metallic sleeve 45, that forms a guide for a pendent sleeve 46, carried by the casing 47 of the lamp, the two sleeves fitting telescopically. Extending upward from the flange 44 are a number of guard-arms 48, the upper ends of which support a hood 49, that fits over the top of the lamp-casing, the latter having a chimney-section 50, that fits slidably within the neck of the hood.

The lamp-casing is preferably of rectangular form in general contour and is provided with bull's-eyes or panels 51 in each of its sides. In the lower portion of the casing are draft-openings 52 for the entrance of air, these being preferably covered by small sheets 53, of wire-gauze or similar material, that will prevent the entrance of water.

The gas-pipe 38 extends upward within the lamp-casing and is provided with a burner-head 54, carrying a number of tips 55, these being of the acetylene-gas type in the present instance. The upper portion of the pipe is partly guided by a tubular flange 56, that forms a part of the flange 44 and extends also through a central opening in a disk 58, carried by the sleeve 46 of the lamp-casing, this disk, as well as the flange 44, being provided with openings that will permit the entrance of air and serve also to allow the outflow of any water which may enter

through the openings 52. Between the flange 44 and the disk 58 is arranged a helical compression-spring 59, that encircles the gas-pipe 38, and this spring maintains the lamp-casing in a normally elevated position, said casing, however, being of sufficient weight to move downward against the action of the spring as a result of the shock caused by the contact of the float 19 with the surface of the water when the device is thrown overboard, the lamp-casing descending momentarily and then being elevated to its normal position by the spring.

In the gas-pipe 38 is arranged a cock 60, to the stem of which is secured an arm 61 and a lug 62. The outer end of this arm is engaged by the inner end of a spiral spring 63, that is arranged within a casing 64, that surrounds the gas-cock. This casing is provided with a number of peripherally-arranged openings 65 for the reception of a securing-screw 66, that is attached to the outer end of the spring, the series of openings affording a means for adjusting the stress of the spring. The stem of the valve is further provided with a winged knob 67, that projects outside the side for convenience in moving the valve to its normal closed position.

To the lower portion of the casing 64 is pivoted a catch 68, that normally is held up in engagement with the lug 62 by means of a helical compression-spring 69, the catch serving to hold the valve in its closed position against the stress of spring 63. Connected to this catch is a rod 70, the upper end of which is arranged immediately below the partition 58, carried by the lamp-casing, and is provided with an enlarged head which is struck by the partition as the lamp-casing descends, the moving being transmitted through the rod to trip the catch and allow the spring to move the valve to open position, the opening movement being stopped by contact of the arm 61 with a fixed stop-finger 72.

In order to ignite the gas automatically, an igniting device of the character shown in Figs. 3 and 5 is employed. This consists of a two-part casing, the lower member 75 being in the form of a preferably metallic cup that is carried by a rod 76, the lower end of the rod being hooked over the pin 77 at the bottom of the lamp-casing. In this section 75 of the casing are two slightly-spaced partitions 78, formed of roughened sheet metal or the like, and the casing has a packing 79, of cotton or similar material, to prevent the entrance of moisture. The upper end of the igniting device is formed of a number of ordinary matches 80, which are preferably coated with paraffin and are carried by the upper section 81 of the casing. This section of the casing is preferably formed of paper or similar material saturated with paraffin, and the heads of the matches are arranged



between the roughened plates 78. The upper end of the casing 81 and the matches are gripped by a bar 82, that is hung to a link 83, depending from the hood of the lamp. When completed, the igniting device as a whole is preferably dipped in paraffin in order to render it moisture-proof. In the operation of this portion of the mechanism the shock resulting from the contact of the buoyant casing 19 with the water will result in downward movement of the lamp-casing—that is to say, the downward movement of the casing 19 will be checked, while the lamp continues to move down and in so doing will compress the spring 59 and effect release of the catch 68, opening the gas-cock. At the same time the connection between the two sections of the igniting device will be broken and the heads of the matches will be drawn over or between the roughened metal strips 78, the matches igniting and freely burning together with the paraffin-coated section of the casing which surrounds them. The igniting device is of such character as to burn for a period of three or four minutes, so that ample time is allowed for the entrance of water to the generating-tank and the formation of acetylene gas. The burning matches are hung on the arm 83, and as the apparatus rocks on the water the matches will swing over all of the burners, so that all of the gas-jets will be ignited. The matches and the casing are wholly consumed and do not interfere with the flame, the latter burning until the supply of carbid is exhausted.

When the apparatus is taken on board, the gas-cock 67 is closed, the generating-tank removed and replenished with carbid, and a fresh igniting device is placed in position, the apparatus being placed in condition for use in a very short time.

In order to successfully launch the apparatus and prevent breakage by contact with the side of the vessel, suitable means are employed on the vessel for carrying the buoy, as shown, for instance, in Figs. 1 and 2.

I claim—

1. A signaling-buoy having a gas-supply, and mechanically-actuated means operable by the shock or jar resulting from the contact of the buoy with the water for igniting the gas.
2. The combination with a signaling-buoy, having a gas-supply and provided with a plurality of burner-tips, of an automatic frictional igniting device mounted for swinging movement over said tip.
3. The combination with a signaling-buoy having a gas-supply, and provided with a plurality of burner-tips, of a frictional igniting device arranged to swing freely over the burner, and means for automatically igniting said lighting device.
4. A signaling-buoy having a gas-supply, a burner including a pair of tips, a lamp-cas-

ing surrounding the burner, a frictional lighting device arranged within the casing at a point above the burner and free to swing over all of the tips, and means for automatically igniting said lighting device.

5. A signaling-buoy having a frame, a gas-supply, a burner, a lamp-casing surrounding the burner and movable independently of the burner and frame when the descent of the buoy is checked by contact with the water, and a two-part igniting device, one of the parts being carried by a stationary portion of the buoy, and the other by the lamp-casing, the downward movement of the latter serving to separate the parts of the igniting device.

6. A signaling-buoy having a gas-supply, a burner, a valved connection between the gas-supply and burner, and mechanism operable by the shock or jar resulting from contact between the buoy and the water for effecting opening movement of the valve.

7. The combination with a signaling-buoy, having a gas-supply, of a burner, a valved connection between the gas-supply and burner, a lamp-casing surrounding the burner, said casing being free to move independently of the buoy, and means operable by movement of the casing for opening the valve when the buoy strikes the water.

8. The combination with a signaling-buoy, having a gas-supply, of a frame, a burner having a valved connection with the gas-supply, a lamp-casing guided by the frame and movable independently thereof, a spring serving to hold said casing in elevated position, a spring tending to open the valve, a catch for retaining the valve in closed position, and a trip-rod movable by said casing to permit opening movement of said valve.

9. In a signaling-buoy, the combination with a frame, of a gas-supply, a burner, a pipe extending between the gas-supply and burner, a valve in said pipe, a spring tending to move the valve to open position, a catch for locking the valve in closed position, a trip-rod connected to said catch, and a spring-elevated burner-casing surrounding the lamp, said casing being moved downward when the buoy strikes the water, and serving by engagement with the trip-rod to release the catch and permit opening movement of the valve.

10. The combination with a signaling-buoy, of a frame, a gas-supply, a burner, a pipe extending between the gas-supply and the burner, a valve within said pipe, a valve-stem, a pair of arms projecting from the stem, a spring engaging one of said arms and tending to move the valve to open position, a spring-pressed catch engaging the other arm and locking the valve in closed position, a trip-rod connected to the catch, a burner-hood supported by the frame, a lamp-casing surrounding the burner and partly guided by the hood, a spring normally maintaining the



casing in elevated position, said spring being compressed as the casing descends when the buoy strikes the water, the casing serving by engagement with the trip-rod to release the catch and permit opening movement of the valve.

11. In a signaling-buoy having a gas-supply, a frame, a flanged collar supported by the frame, guard-arms extending upward from said flanged collar, a burner-hood carried by said arms, a burner arranged below the hood, a pipe extending between the gas-supply and the burner, a lamp-casing surrounding the burner, and guided between the flanged collar and the hood, a spring tending to maintain said casing in elevated position, a valve in the pipe, a valve-stem, a pair of arms projecting from the stem, a spring connected to one of said arms and tending to open the valve, a catch engaging the second arm and holding the valve in closed position, a trip-rod connected to the catch and arranged within the path of downward movement of the lamp-casing, and a casing sur-

rounding the valve and trip mechanism, and to which the outer end of the valve-opening spring is secured.

12. The combination with a signaling-buoy having two members, movable relatively to each other, of an igniting device comprising a lower cap having roughened partition-walls, means for connecting said cap to one of the parts of the buoy, matches having their heads arranged between said roughened partitions, a cover or casing formed of a combustible waterproof material surrounding the matches and secured to the cap, and means for connecting the cover or casing to the second part of the buoy.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of witnesses:

PAUL FUCHS.

Witnesses:

JULIUS G. J. GUDE,  
WILLY ERBERT,  
CHARLES ELBELNANY.