Nov. 26, 1929. C. LINHARDT, JR 1,737,424

MARINE TORCH

Filed Aug. 4, 1927

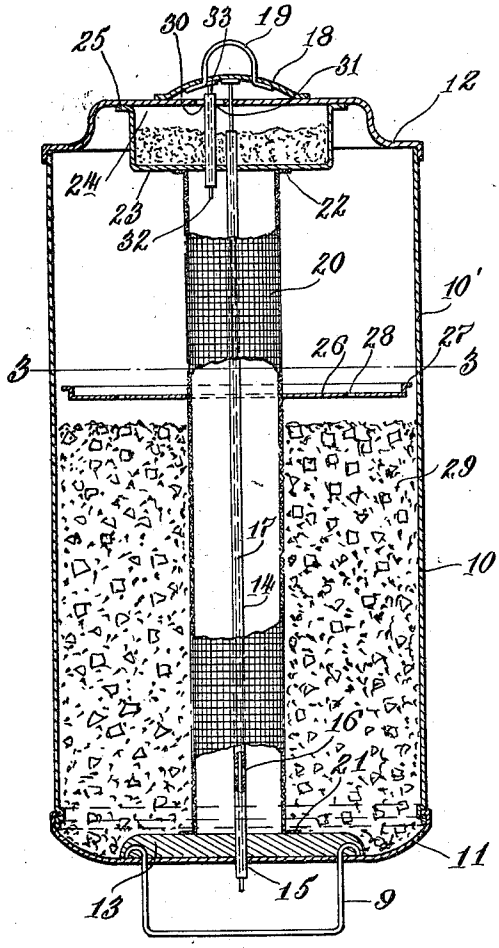


Fig. 1.

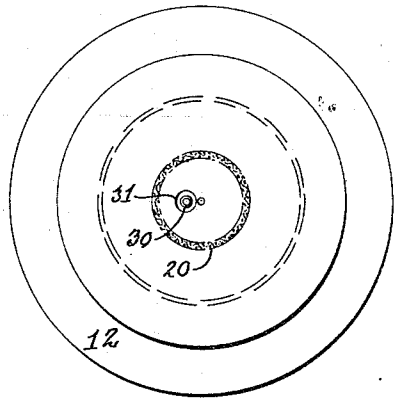


Fig. 2.

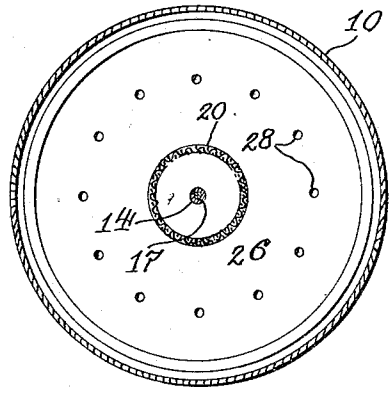


Fig. 3.

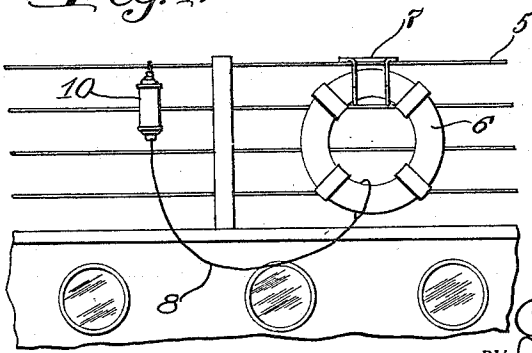


Fig. 4.

INVENTOR.
Charles Linhardt, Jr.
BY
ATTORNEY.

Patented Nov. 26, 1929 1,737,424

UNITED STATES PATENT OFFICE

CHARLES LINHARDT, JR., OF BALTIMORE, MARYLAND

MARINE TORCH

Application filed August 4, 1927. Serial No. 210,477.

This invention relates to certain new and useful improvements in marine torches and has for its particular object the provision of a torch equipped with a single tube and burner, each communicating with a carbide gas chamber and a phosphide gas chamber, which structure provides a self-igniting water light and one which is instantaneous in its operation.

The present invention is an improvement over the structure illustrated in the Charles Linhardt, Jr. Patent, No. 1,445,222, issued February 13, 1923.

A further object of the invention is the provision of a marine torch equipped with a gas making chamber and a flame igniting chamber, a water conveying tube communicating with the gas and flame chambers, a burner tube communicating with said chambers, said construction when the device is in operation providing a siphon means whereby created gas will force sufficient water through the water tube to the flame chamber to ignite the burner tube or gases passing therethrough.

A still further object of the invention is the provision of a marine torch, simple in construction, positive in operation, and one which can be manufactured at a comparatively small cost.

With these and other objects in view, the invention consists in certain novel features, combination and arrangement of parts as will be hereinafter more fully described, pointed out in the accompanying drawing, and claimed.

In the drawing,

Figure 1 is a vertical longitudinal sectional view through the complete torch;

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1; and,

Figure 4 is a fragmentary side elevation, showing the complete apparatus, comprising the torch and the life buoy with the connecting line, all supported from the rail of a ship.

Referring to the drawing, the numeral 5 indicates the rail of a ship to which a life buoy 6 is attached in any convenient way as by the means of hooks 7 or the like.

Attached to the life buoy 6 is a line 8, the free end of which is secured to a handle member 9 of the casing 10 of the torch. This casing is preferably formed of a cylindrical shell 10′ having a bottom portion 11 and a top portion 12, all soldered or welded together to form a water tight receptacle, as clearly illustrated in Figure 1. To maintain the buoy in an upright position I provide the bottom portion 11 with an annular weight member 13 and locate the same centrally thereof so as to assure a vertical position of the casing when in the water.

Mounted centrally in the casing 10 is a water conveying tube 14, its lower end extending through the weight 13 and projecting slightly beyond the outer surface of the bottom 11, as at 15, said tube provided adjacent the bottom 11 with openings 16 communicating with the interior of the casing 10, the purpose of which will be hereinafter more fully described. The opening of the tube 14 is normally closed by a valve rod 17, which extends throughout the entire length of said tube and has its upper end secured to a cap 18, which cap is normally air and water tight on the top portion 12 of the casing, but may be readily torn therefrom by the means of a handle 19, which is secured to the cap and when the latter is torn from the head 12 it automatically lifts the valve rod 17 from the tube 14.

Surrounding the tube 14 is an annular screen member 20, which has its lower end secured as at 21 to the weight member 13, while its upper end is secured, as at 22, to the bottom wall 23 of an auxiliary chamber 24, which chamber is secured, as at 25, to the interior of the head portion 12.

This chamber 24 is supplied with calcium phosphide and is the means for igniting and re-igniting the torch, as will be hereinafter more fully described. A baffle 26 is secured to the screen 20 near its central portion and is located within the casing 10, and this baffle is stiffened by means of a peripheral flange 27 and is perforated as at 28, to permit the passage of generated acetylene gas therethrough.

This acetylene gas also passes around the periphery of the disc by virtue of the fact that the disc is of a diameter less than the interior diameter of the casing.

That portion of the casing between the baffle 26 and bottom 11, constitutes a carbide chamber in which is placed carbide 29, preferably in the usual granular form, and this carbide is held in said chamber by the baffle 26.

A burner tube 30 is secured to the bottom wall 23 of the auxiliary chamber 24 and has its lower end projecting beyond the same and located within the screen 20. The upper end of this tube extends through an opening 31 in the head 12 and this burner tube is sealed by a valve rod 32, which has its upper end secured as at 33, to the cap 18, and it is obvious when the cap is removed the valve rod 32 is displaced from the burner tube, as previously described for the water tube 14.

The opening 31 in the head 12 is of a diameter larger than the diameter of the burner tube 30 so that gases from the chamber 24 will immediately escape from this chamber, become ignited and form a flame sufficient to ignite the carbide gases passing up through the burner tube 30.

The operation of the device is approximately as follows:

The life buoy and torch is normally suspended at the rear of the ship and the torch being hermetically sealed, as illustrated in Figure 1, is ready for use, assuming there is a use for the torch, the cap 18 is torn from the head 12. This will cause the valve rods 17 and 32 to be withdrawn longitudinally from the water tube 14 and burner tube 30, and these rods are pulled entirely clear of the torch.

When this is done, the life buoy is removed from the hooks 7 and the buoy and torch are thrown together overboard.

After the torch strikes the water, it will immediately assume an upright position by virtue of the weight in its bottom. Water will at once enter in the tube 14 at the lower end, passing through opening 16 into the carbide chamber, mixing with the carbide and making acetylene gas, which gas immediately rises and forces gas up through water tube 14. The rising of the gas and water in tube 14 carries sufficient water to chamber 24 to mix with the phosphide gas, igniting the same at the opening surrounding the burner tube 30, simultaneously with this action the acetylene gas is escaping through tube 30 and is ignited by the flame created by the phosphide gas.

It will be readily understood that by virtue of this construction a siphon action is created at the burner point, so that a flame created by the phosphide gas is prepared simultaneously to meet the escaping carbide gas which has been created by the water entering the tube 14.

The flaming phosphide gas will set fire to the generated acetylene gas, which is escaping through tube 30, and the torch will burn automatically as long as normal conditions prevail and the supply of combustible gas is continued.

The action of this torch in operation is identical with the structure claimed in my Patent, No. 1,445,222, with the following exceptions: The flaming gas created by water contacting with the phosphide gas is approximately simultaneous with the created carbide gas escaping from the burner tube 30.

While I have described one embodiment of the invention, it is to be understood, that various changes might be made in the construction, combination and arrangement of parts, without departing from the spirit of the invention as claimed.

Having thus described my invention, what I claim as new is:

A marine torch comprising a casing having a weight in one end, said casing forming a carbide chamber, a gas chamber interiorly arranged at the top of said casing, a water conveying tube extending longitudinally through said casing and gas chamber, one end terminating in said chamber and its other end extending through and secured to the bottom of said casing, a burner tube extending through the top of the casing and bottom wall of said gas chamber, said water tube provided adjacent its lower end with an opening communicating with the carbide gas chamber, valves closing said tubes, means for simultaneously removing said valves to permit water to enter the carbide chamber and also permit water and generated gas to travel to the gas chamber to ignite the burner tube.

In testimony whereof he hereunto affixes his signature.

CHARLES LINHARDT, JUNIOR.