June 22, 1943. C. LINHARDT, JR 2,322,716

MARINE TORCH

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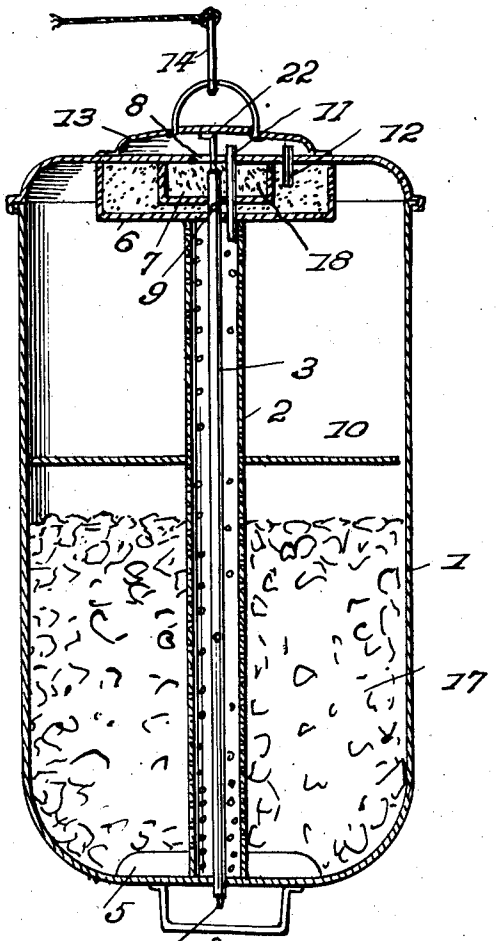


Fig. 1.

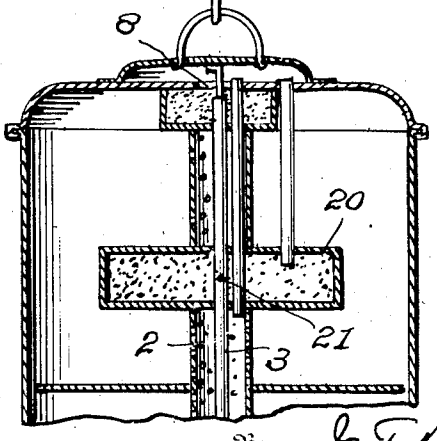


Fig. 2.

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MARINE TORCH

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3 Claims. (Cl. 9—8.3)

This invention is directed to an improvement in marine torches and is designed more particularly as an improvement on Patent No. 1,445,222, issued to me February 13, 1923.

The patent describes a marine torch designed more particularly but not limited to an element to be attached to a life preserver or the like and thrown into the water with the life preserver in rescue work, with the construction of the element automatically producing a light or source of flame by which the person to be rescued may be advised of the location of the life preserver and thus enabled to attempt to reach the life preserver and support himself until more substantial help reaches him.

The life preserver and torch remain as an inactive unit until the life preserver and connected torch is thrown into the water, following which through the use of well known chemicals an inflammable gas is generated and ignited to produce a flame of course in the immediate vicinity of the life preserver to which the torch is connected, to advise the person in the water as to the exact location of the life preserver and enable him to direct his efforts to reach it. In the torch described in the patent, however, it has been recognized that in the sea or rough water there is a considerable liability that the flame will be extinguished by the water passing over the top of the torch, but ordinarily, on cessation of the immersion the flame is automatically re-ignited. It may follow, the rough condition of the water will tend to prevent any other than short periodic flame emission and thus the effective purpose of the torch will be very materially diminished.

The primary object of the present invention is to provide an additional signalling means in the torch, such, for example, as a smoke mixture chemical to provide a smoke emission which even in the absence of the flame will still afford a visible signal to direct the attention of the person in the water to the life preserver; the column of smoke rising from the torch, even if periodically interrupted by the immersion of the torch, would at all times afford an effective signalling means, either as an addition to the flame or in the complete absence of the flame.

The invention is illustrated in the accompanying drawing, in which

Figure 1 is a vertical section of the improved marine torch;

Figure 2 is a section showing a slight modification.

The general construction of the improved torch is similar to that described in the patent mentioned, and preferably includes an imperforate casing 1 centrally provided with a screen or perforate wall tube 2 extending from the bottom to the top of the casing, the casing closing the lower end of the tube. A water inlet pipe 3 is arranged centrally of the tube 2 and opens through the bottom of the casing 1, the lower end of the pipe being normally closed by a valve 4 to prevent water inlet at this end. A weight 5 is secured to the inner side of the bottom of the casing 1 surrounding the tube 2, the weight being sufficient to maintain the casing in an upright position, with the upper surface of the casing somewhat close to but above the normal upper surface of the water. The upper end of the tube terminates at the bottom of a tank 6 to receive a smoke mixture therein, hereinafter termed the smoke emitter, and more specifically referred to hereinafter.

Within the smoke emitter tank and secured to the inner surface at the top of the casing is a receptacle 7 for the igniting chemical, the top of the casing within the outline of the receptacle 7 being formed with an opening 8. The inlet pipe 3 extends through the bottom of the smoke emitting tank and igniting receptacle 7, and terminates in line with but below the opening 8. This pipe 3 is formed with openings 9 to permit water to flow to and through the tube 2 and to permit water to flow directly into the material of the smoke emitting tank. A baffle 10 is arranged transverse the casing 1, centrally secured to and carried by the tube 2, the peripheral edge of the baffle terminating short of the inner wall of the casing. A burner tube 11 extends through the ignition chemical receptacle 7, the bottom of the smoke emitter tank 6 and into the tube 2, the upper end of the burner tube extending through the opening 8 and above the open end of the receptacle.

A smoke emission tube 12 having a retracted orifice, is carried by the upper wall of the casing 1 extending above said casing and downwardly into the smoke emission tank 6.

The open tubes 11 and 12 and the opening 8 are covered by a sealing cover 13 provided with supporting rings 14, and the casing 1 is adapted to, if desired, be connected by any appropriate flexible connector designed to be secured to a life preserver, when the device is to be used with such preserver.

An appropriate chemical is arranged in the lower part of the casing 1 and surrounding the tube 2 such chemical being of a nature to gen-

erate inflammable gas in the presence of water, as, for example, calcium carbide, indicated at 17. A chemical such as calcium phosphide indicated at 18 is arranged in the igniting chamber 7, and any well known smoke mixture chemical, which, in the presence of water, will emit a smoke, as indicated at 19 is placed in the smoke emitting tank 6. The chemical used in the tank 6 is preferably calcium phosphide, which, if used in a quantity relatively large in comparison with the water admitted, will produce in the presence of the water a smoke, though in reduced quantity relative to the water, the same chemical produces a flame.

It is to be noted that the supporting rings 14 are connected to their supports to be inseparable therefrom in the ordinary uses of the device so that when a life preserver is taken from its support to be thrown into the water, and the torch forcibly eliminated with it, the rings 14 will break the sealing cover from the top of the casing 1, leaving the torch ready for action. As will be plain from the patent referred to the immersion of the torch to the proper depth in the water will produce an inflammable gas from the carbide, and a flame from the calcium phosphide to ignite that gas, at the same time the chemical in the smoke emitting tank 6 will emit a column of smoke through the tube 12 which will naturally rise above the surface of the water. Thus, if the flame is momentarily or periodically extinguished by the waves or rough condition of the water, and thus serve at best as a rather inefficient signal of the location of the life preserver, the smoke will rise above the surface of the water, and, nowithstanding its possible periodic interruption, will nevertheless present a column of smoke beyond the reach of the water which will serve in some measure as an indicator of the position of the life preserver.

In the modified form shown in Figure 2 the tank for receiving the smoke emitting chemical, and indicated at 20, is arranged about the tube 2 materially below the upper end of the latter and is open to water reception through an opening 21 in the pipe 3. The smoke in this instance will pass with the water through the pipe 3 and out the outlet 8.

It will be apparent from the above that considering the advantages of the construction in the patent above referred to, the present construction combines such advantages and at the same time provides an additional and wholly independent signalling means, the visible effect of which is beyond the influence of waves or rough water, to add to the effectiveness of the signal.

It is, of course, to be understood that the valve 4 is, as in the patent referred to, connected by a rod 22 to the sealing cover 13 so that when the latter is disconnected as described, the rod 22 is moved with the sealing cover and the valve 4 opened to permit free flow of water through the water inlet pipe 3.

While I have mentioned the use of the torch in connection with a life preserver, it is to be understood that this in no way is to be construed as a limitation. Obviously the torch can be used in a variety of ways and for a variety of purposes.

What is claimed as new is:

1. A marine torch, including a casing, a foraminous tube in the casing, a tank carried by the tube, a receptacle arranged above the tank and in open communication with an opening in the top of the casing, the casing being formed to receive a chemical open to the foraminous tube for creating an inflammable gas when subjected to the action of water, the receptacle receiving a chemical to create a flame when subjected to the action of water, the tank receiving a chemical to create a volume of smoke on contact with water, a water-inlet pipe arranged within and open to the foraminous tube, said pipe extending through the lower end of the casing and being open to the admission of water from beyond the casing, said pipe extending through the tank and open thereto and terminating within and open to the receptacle.

2. A construction as defined in claim 1, wherein an open burner tube leads from the foraminous tube through and closed against both the tank and receptacle and terminates in an open end above the top of the casing, and wherein a smoke tube has its lower end in open communication with the tank and leads upwardly outside the receptacle and opens above the upper end of the casing.

3. A marine torch, including a casing formed in its lower portion to receive a chemical of a character to generate an inflammable gas on contact with water, a foraminous tube passing through the chemical-receiving area of the casing and extending above the same, a pipe extending through the tube and opening below the casing, said pipe being in communication with the foraminous tube, a tank carried by the foraminous tube and designed to receive a chemical to produce a smoke on contact with water, a receptacle supported at the upper end of the casing and designed to receive a chemical to produce a flame on contact with water, said pipe passing through and in communication with the tank and opening in the receptacle, means to deliver the inflammable gas from the foraminous tube to and beyond the top of the casing, said means passing through the tank and receptacle extending through an opening in the casing, which opening forms an outlet from the receptacle.

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