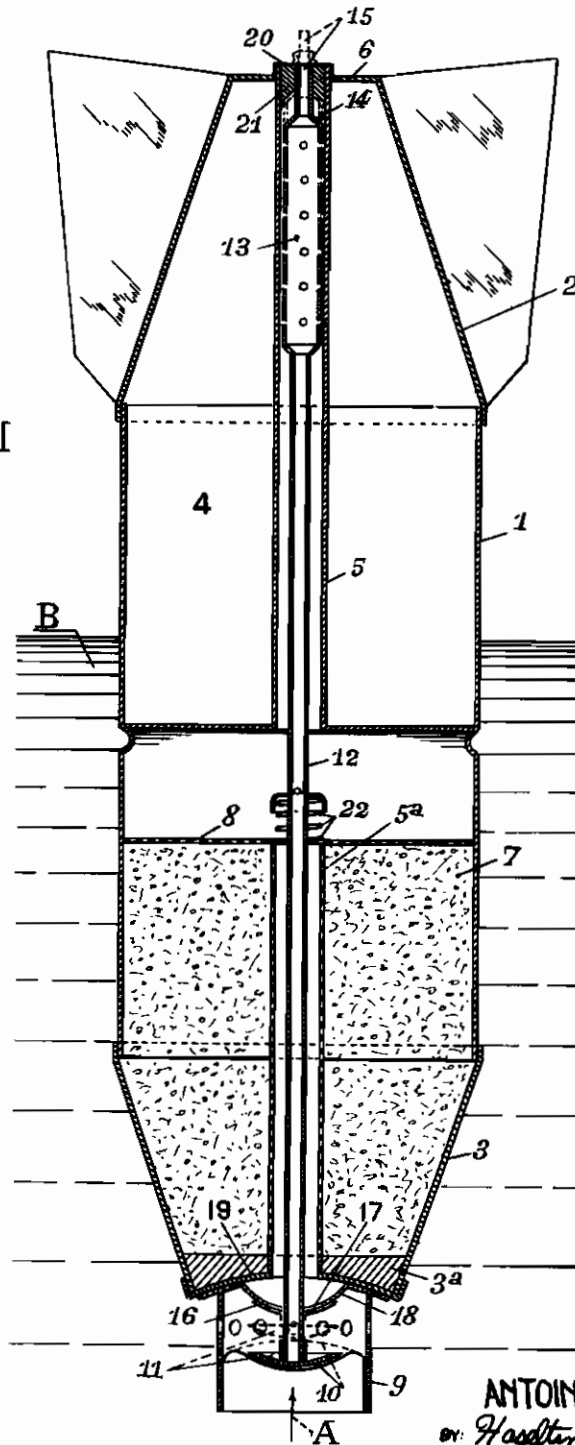


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Filed Feb. 4, 1939

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Fig. 1



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Fig. 3

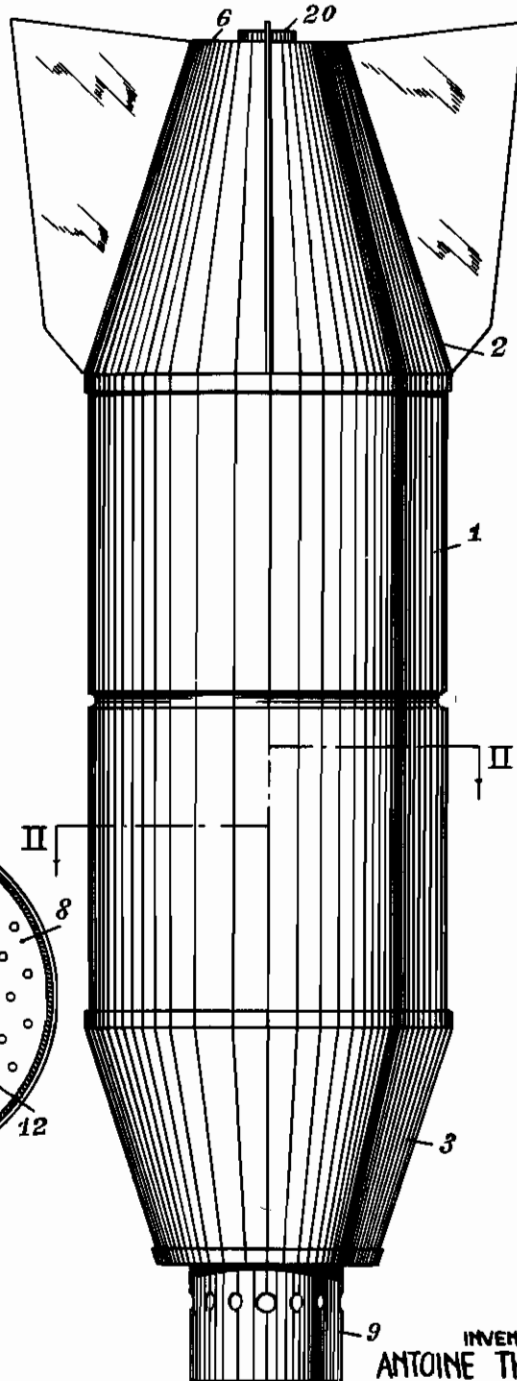
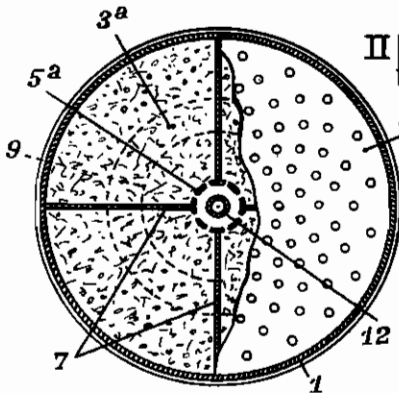


Fig. 2



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# ALIEN PROPERTY CUSTODIAN

## AQUATIC TORCH OR LIGHT BUOY

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Application filed February 4, 1939

The object of the present invention consists in improvements made in the devices used for the automatic lighting of aquatic torches or light buoys which are more particularly intended for seaplanes for facilitating alighting on water, signalling and other operations, and in which a composition is used which serves for producing an illuminating flame, which composition is the object of French Patent No. 575,146 of the 29th December 1923.

Hitherto, at the moment of using these apparatus, it was necessary previously to tear off by hand the water-tight diaphragms in order to prepare the working of said apparatus. This operation, which is of the simplest nature per se, offers however a serious drawback, since in many cases and more particularly in aviation, the removal of the diaphragms by hand is sometimes difficult and dangerous owing to the time required for this operation, which is taken to the detriment of that of piloting, particularly if the pilot is alone and in danger.

Account must also be taken of the neglect to remove the diaphragms.

All these drawbacks and risks are now eliminated by the improvements made in these illuminating apparatus, the chief purpose of which is to eliminate any previous operation and to effect their lighting automatically.

Said improvements are more particularly characterized by diaphragms formed by water-tight materials of very small thickness and subjected to the movement of an actuating member which is itself subjected to the effects of the fall for causing them to be torn off and perforated.

Said improvements are shown in the accompanying drawings which are given by way of a constructional example of one of the embodiments of the object of the invention.

In said drawings:

Fig. 1 shows a longitudinal sectional view of the whole of the parts and elements forming an aquatic illuminating apparatus.

Fig. 2 shows a plan view and a sectional view along the line II—II of Fig. 3, of the arrangement of the partitions which hold in a normal position the composition serving for producing the illuminating flame.

Fig. 3 shows an outside view of the apparatus illustrated in Fig. 1.

The aquatic apparatus or torch of sufficiently streamline shape with tail fins, comprises a cylindrical body 1 which terminates at each of its ends by conical portions 2 and 3. On the inside, and in the upper part of the body 1, is located a

water-tight chamber 4 which ensures the buoyancy of the apparatus in co-operation with weighting members 3a placed in the inverted cone 3.

5 The central part of the chamber 4 forms a cylindrical pipe 5 which opens on the upper end 6 of the apparatus.

In the lower part of the body 1 are arranged partitions 7 forming compartments, Figs. 1 and 2, which are intended to hold the illuminating composition in a normal position.

The central part of said compartments also forms a perforated pipe 5a placed in the axial extension of the pipe 5. A cover 8, which is likewise perforated, closes said compartments.

15 It is to this known arrangement that the improvements which characterize the invention apply. Said improvements more particularly consist in a small cylinder 9 without a bottom and having a perforated wall, which cylinder is fixed on the end of the conical portion 3. In said cylinder, at a predetermined height, is placed a diaphragm 10 which is preferably made of metal, is slightly curved outwardly and is of very small thickness, for example  $\frac{1}{16}$  of a millimetre. The upper face of said diaphragm is in contact with a push member 11 secured to a rod 12 which carries at its upper part a tube 13, the slightly conical end of which forms a valve 14 of which the stem is formed by an illuminating jet 15 fixed on this perforated tube 13.

At the required instant, the rod 12 can move freely in the conduits 5 and 5a.

Towards the lower end of said rod 12, is fixed thereto by known means (welding), on the one hand a diaphragm 16 which hermetically closes an orifice 17 of large diameter provided in the central part of a cap-shaped member 18, the latter being secured to the end 19 which closes the conical portion 3 of the body 1, and on the other hand an illuminating jet 15, carried by the tube 13 and the rod 12, is adapted to bear on a diaphragm 20 that hermetically closes the upper orifice of the conduit 5 which opens at the top of the conical portion 2. The jet 15 passes inside a bush 21 which forms a seat for the valve 14.

A retracting spring 22 holds the valve 14 against the bush 21.

Thus constructed, the improved apparatus operates in the following manner:

Owing to its tail fins, the apparatus always falls in a vertical position; as soon as it touches the water, the diaphragm 10 is pushed back inside the cylinder 9 as would be a piston, moving, by

means of the push member 11, the rod 12 in the direction of the arrow A. This movement, which is indicated in dotted lines, has the effect of first of all tearing away the diaphragm 16 and uncovering the orifice 17, and then of perforating the diaphragm 20 by means of the jet 15. At this instant, the tension of the spring 22 causes the joining of the tube 13 forming the valve 14 against the bush or seat of the valve 21.

As the diaphragm 16 has been torn away, the water penetrates inside the apparatus up to the water line B.

The illuminating composition being moistened, the gas is produced instantaneously and penetrates into the perforated tube 13 and into the jet 15 where it ignites on contact with the air in accordance with the principle described in French Patent No. 575,146.

An automatic working is thus obtained which

completely eliminates any previous and sometimes difficult manipulation. These improvements enable the apparatus to be left to fall freely without any precaution and ensure complete automaticity of working, by means of the appropriate shape of the apparatus, and by means of the special device described for the perforation of diaphragms which is obtained solely by the movement of a diaphragm which only operates at the instant of the impact against the water or under a predetermined hydrostatic pressure. Said improvements justify a most important advance in this kind of apparatus of which the shapes, the dimensions and the materials used for its manufacture may vary without for that reason changing the general arrangement of the invention which has just been described.

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