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E. R. HAWKINS
LIFE SAVING DEVICE
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2,408,166

Fig. 1.

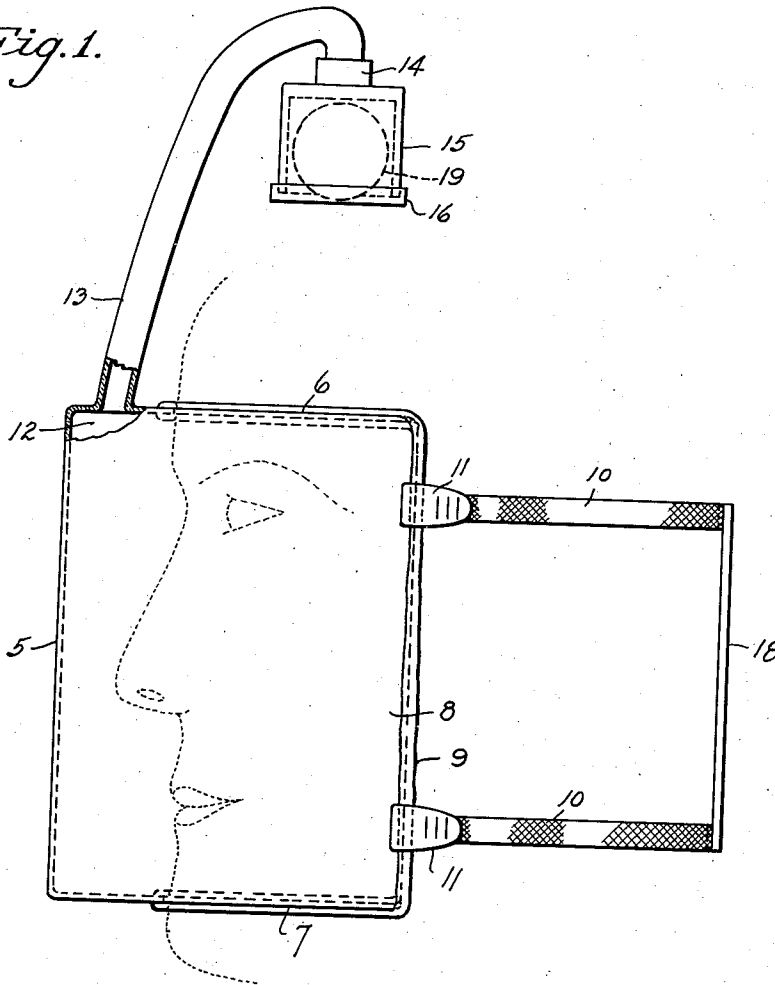


Fig. 2.

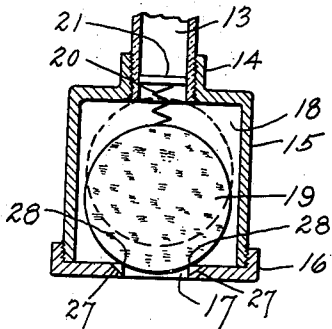
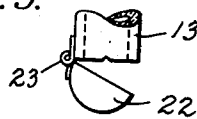


Fig. 3.



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LIFESAVING DEVICE

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4 Claims. (Cl. 128-145)

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This invention relates to protective devices and more especially to a respiratory mask article adapted for use when bathing, also as a life-saving article.

An object of the invention is to provide a simple, practical, and inexpensive article of the character described.

Another object is to provide a novel or respiratory mask and protective device adapted for use in the water when bathing.

Another object is to provide an emergency life-saving article for use on water.

Still other objects of my invention include providing such means that are positive in operation, convenient in use, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawing merely shows and the following description merely describes one embodiment of the present invention, which is given by way of illustration or example only.

In the drawing, like reference characters designate similar parts in the several views.

Fig. 1 is an elevation view of an embodiment of my invention.

Fig. 2 is an enlarged view in section showing the valve structure also shown in Fig. 1.

Fig. 3 is a fragmentary view showing a modified form of valve actuating member.

Referring more particularly to the drawing, I show a respiratory mask article comprising a mask element 5 preferably, but not necessarily, formed of a transparent plastic material, substantially semicircular in configuration, and having upper and lower curved edge portions 6 and 7, and a pair of side edge portions 8, which edge portions may be provided with a resilient, water-sealing edge strip 9, whereby the mask may be fitted across and around the face, head and chin, and along the sides of the face or head of the user, to provide a water tight mask for a person. A pair of resilient or adjustable bands 10 may be provided, and secured, as by fasteners 11, to the mask and being adapted to extend around the back of the head and neck of the user, as should be clear. A spacing member 18 connects and holds apart the upper and lower bands 10. Mask 5 extends outwardly from the face as shown, forming a respiration chamber 12 to which is connected tube 13 having a tubular passage in communication with chamber 12 at one end.

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The other end of tube 13 is suitably connected to a neck portion 14 on the upper side of a valve housing 15. The housing 15 is a hollow box of suitable material, and has a bottom member 16 provided with a central aperture 17. A plurality of channels 27 extend from the inside of the housing 15 to the aperture 17. A buoyant valve member 19 is provided and positioned within structure 15 and preferably comprises a ball of cork or other equivalent material which will float on water. A light spring 20 is secured between a bar 21 suitably secured within neck 14 and the float member 19 in such manner as to retain the float member 19 away from the inlet to the tube 13 when there is not enough water in the housing 15 to buoyantly move the valve 19 to a tube-closing position.

It will be noted that the channels 27 provide projections 28 which support the valve 19 when the housing 15 is free of water. When the valve is resting on the projections 28, air is permitted to move in and out of the housing 15, past the valve 19, through the channels 27.

The operation of the invention should be apparent from the foregoing description. The mask may be applied to the face as shown in Fig. 1 for protection when a person is in a body of water. If the person's head is at or above the surface of the water, the housing 15 is thereby above the level of the water, due to the length of the tube 13. In this position, the person may breathe freely, since air passes in and out of the housing 15, past the valve 19, through the channels 27. Of course, there is a direct connection therefrom through the tube 13 to the inside of the mask 5.

If the person goes under water sufficiently for the housing 15 to be submerged, the buoyancy of the valve 19 causes it to close the tube 13 as suggested by the broken lines in Fig. 2. With the tube 13 closed to the ingress of water, the person may breathe the air in the mask 5 and in the tube 13. The period of being submerged is relatively short, and when the person again returns to the surface, the housing 15 is raised above the surface, thus permitting the water in the housing 15 to drain out and permit the escape of foul air and the ingress of fresh air.

In Fig. 3 I show a modified form of valve which comprises a buoyant, semi-spherical valve member 22 pivoted at 23 adjacent the end of tube 13, and the operation of this modification will be substantially similar to that of valve member 19, such that water tending to enter tube 13 will raise float member 22 and cause it to close against the end of tube 13. Raising the valve

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member 22 from the surface of the water permits it to open, for the ingress of fresh air.

While I have illustrated and described what I now regard as the preferred embodiment of my invention, the construction is, of course, subject to modifications without departing from the spirit and scope of my invention. I, therefore, do not wish to restrict myself to the particular form of construction illustrated and described, but desire to avail myself of all modifications that may fall within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. In a respiratory mask article, a shield adapted to be secured on the face, a tube leading upwardly from the shield having a transverse bar near the end thereof, and a check valve structure for respiration secured at the end of said tube, a buoyant valve in said body adapted to close the tube against the ingress of water when the structure is submerged, and spring means secured to said bar and tending to move the valve away from its tube closing position when the structure is freed of water, the spring means being of such lightness that water in the structure buoyantly closes the valve against the action of the spring means, the structure having in the bottom thereof an aperture for the movement of air in and out of the valve, the wall of said aperture having annularly arranged projections for seating the valve free of the aperture structure around the valve.

2. In a device of the character referred to, a shield adapted to be secured to the face and forming an air chamber, a tube connected to said shield and having a downwardly directed end providing a seat, a valve chamber connected to said end having a removable bottom, said bottom having a central aperture and annularly arranged lugs extending inwardly from the face thereof, a buoyant valve member within said chamber, and

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a spring normally to hold said valve against said lugs and free of the aperture, said valve being operable against the tension of said spring by buoyancy to engage the seat in the end of said tube, and said spring unseating said valve when uninfluenced by water and holding said valve open during inspiration of the wearer.

3. In a device of the character referred to, the combination of: a shield having means for securing same to the face and forming an air chamber, a tube connected to the upper part of said shield and having a downwardly directed portion provided with threads, the end of said tube forming a seat, a valve chamber threadedly connected with said tube portion and having a removable bottom, said bottom having a central aperture and lugs extending radially from the face thereof, a buoyant valve member in said chamber, and a yielding means to hold said member against said lugs and free of the aperture in the bottom of said chamber, said valve being operable against said yielding means by its buoyancy to seal the passage in said tube against the flow of water, and said yielding means maintaining the valve member open during inspiration of the wearer.

4. In a device of the character referred to, the combination of: a shield having means for securing same to the face, a tube connected at one end to said shield, a valve chamber associated with the other end of said tube and having in the bottom thereof a central aperture, said aperture provided with inwardly directed radial projections, a buoyant valve in and adapted to be guided by the walls of said chamber to a seating position with the end of said tube, and a spring to hold said valve against said projections and free of the aperture in said chamber, said valve being operable against said spring by its buoyancy to seal the end of said tube, and said spring maintaining the valve open for admission of air.

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