Jan. 6, 1959 G. C. STICHLING 2,866,986

DEVICE FOR LOCATING AND RETRIEVING SUBMERGED OBJECTS

Filed Oct. 11, 1955

FIG. 1

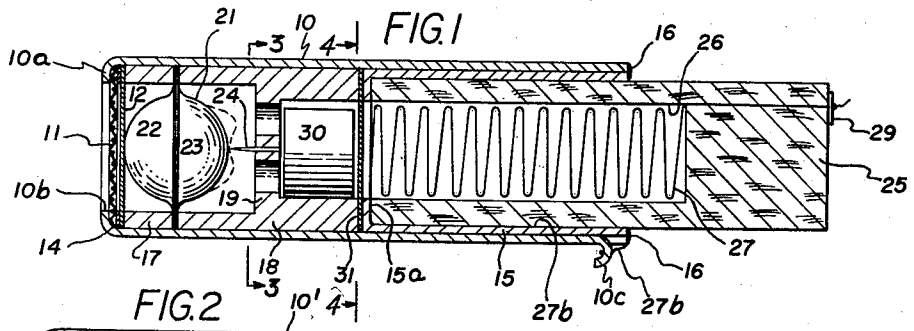


FIG. 2

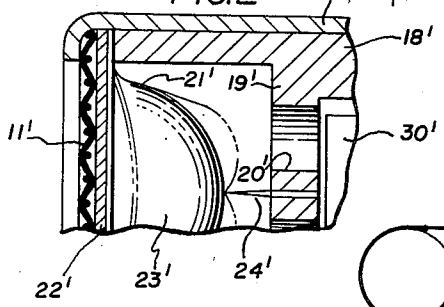


FIG. 5a



FIG. 5

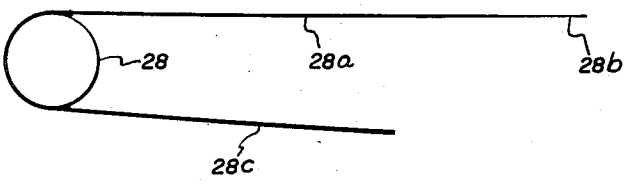


FIG. 3

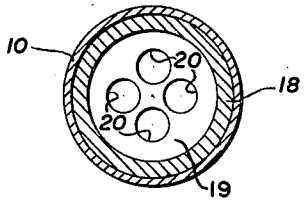


FIG. 6

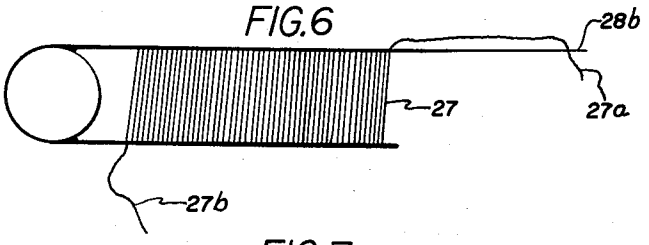


FIG. 4

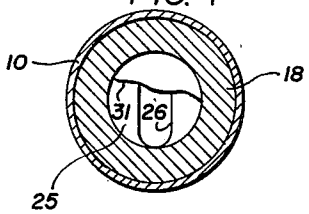
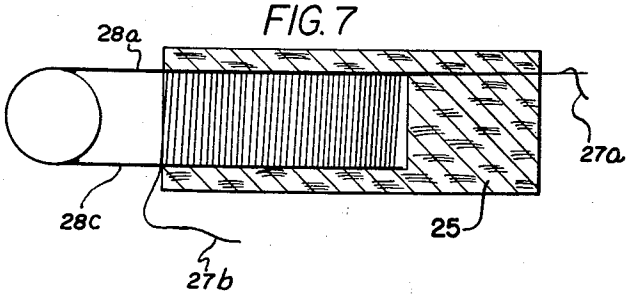


FIG. 7



INVENTOR.
GERHARDT C. STICHLING
BY
H. Chauncey Bregger
ATTORNEY

United States Patent Office 2,866,986
Patented Jan. 6, 1959

2,866,986

DEVICE FOR LOCATING AND RETRIEVING SUBMERGED OBJECTS

Gerhardt C. Stichling, West Orange, N. J.

Application October 11, 1955, Serial No. 539,823

1 Claim. (Cl. 9—9)

My invention relates to improvements in devices for locating and retrieving submerged objects such as outboard motors, fishing rods, guns, seabags, etc., accidentally dropped over the side or otherwise lost in water too deep or too muddy to permit them to be seen from the surface.

Various constructions or designs for the above purpose have been proposed heretofore. Some examples of these are disclosed in Patents Nos. 1,476,387; 1,719,838; 2,528,799; and 2,569,977.

It is one of the objects of my invention to provide an improved device of the character referred to which is simple in construction and manner of operation, inexpensive, light, infallible in operation and only so under the specific conditions and circumstances intended, and which can be made small enough and of a shape to permit its being readily incorporated in or associated with the article or object to be insured against a day when it would otherwise be lost.

Other objects and advantages will hereinafter appear.

For the purpose of illustrating my invention, an embodiment thereof is shown in the drawing, wherein

Fig. 1 is a central, longitudinal section of a device constructed and operating in accordance with my invention;

Fig. 2 is an enlarged, fragmentary view partly in elevation and partly in section as in Fig. 1; showing a modification;

Figs. 3 and 4 are sections taken, respectively, on the lines 3—3 and 4—4 in Fig. 1, one of the elements in Fig. 4 being partly broken away;

Figs. 5, 6 and 7 are elevational views illustrative of a step in the manufacture of my improved device; and

Fig. 5*a* is an enlarged, fragmentary, plan view of Fig. 5.

In the embodiment of my invention shown in Figs. 1, 3 and 4, the reference numeral **10** designates a tubular casing which may be drawn or otherwise formed or made out of sheet metal. At the lefthand end of casing **10** there is formed or provided a circular lip or flange **10***a* which defines a relatively large water-inlet opening **10***b*.

Disposed within casing **10** at flange **10***a* there is a filter and protective element which may be in the form of a flat, circular, metal or plastic disc with a suitable number of relatively small holes through the same, or in the form of a flat, circular piece **11** of metal mesh, as represented in Fig. 1. Also within casing **10** there is a flat or planar, imperforate diaphragm **12** of suitable elastic or flexible material such as the plastic phenolethylene. Diaphragm **12** is spaced from the mesh disc or piece **11** by a thin washer or ring **14** between these two parts and whose inside diameter is the same as the diameter of opening **10***b*.

Into the other or righthand end of casing **10** and having with respect thereto a relatively snug or press fit, there is inserted a tubular sleeve **15** which may also be drawn or otherwise formed or made out of sheet metal, and which is provided at the lefthand end thereof with a circular lip

or flange **15***a* defining a circular opening about the same diameter as that of the water-inlet opening **10***b*. For the purpose of fixing sleeve **15** to casing **10**, the adjacent edges of these two parts may be brazed or otherwise sealed together, as indicated at **16**. In effect, casing **10** and sleeve **15** are integral.

Fitting snugly within casing **10** are a spacer ring **17** and an associated, cylindrical element **18** open at each end thereof and hollow except for a centrally disposed partition or wall **19** through which there are the holes or passages **20**, as more clearly shown in Fig. 3.

Supported between ring **17** and element **18** is a capsule or equivalent unit **21** containing water. In the form shown in Fig. 1, capsule **21** comprises two similar, semispherical parts **22** and **23** which may be of thin, plastic, pliable or elastic material and whose complementary edges are sealed or molded together and are pressed or clamped tightly between ring **17** and element **18**. This is accomplished in assembly by forcing sleeve **15** all the way home into the righthand end of casing **10**, as shown. The volume of water in capsule **21** is greater than the cubic content of the latter when the elastic material of the same is unstretched or under no strain, and to the extent that the parts or halves **22** and **23** are stretched to a degree short of the burstling or rupturing point. In other words, when complete and ready for assembly in casing **10** as shown in Fig. 1, the capsule **21** comprised of the two parts **22** and **23** of elastic material may be said to be, to a substantial degree or extent, "blown up" with water. The respective dimensions are such that part **22** of the capsule is in contact with diaphragm **12** and part **23** is slightly spaced from or engages lightly the sharp point of a needle or equivalent puncturing part **24** fixed in the partition or wall **19**.

The technique and methods of making various types and shapes of plastic capsules filled with a liquid are well known to those skilled in the art, and as to such technique and methods reference is made to the publications and patents relating to the same.

A float member in the form of a cork **25** is inserted into sleeve **15** and has a relatively tight fit with respect thereto. That portion of cork **25** inserted into casing **10** is provided with a cavity **26** within which there is disposed or stored a length of fishline **27**, or the equivalent. For this purpose there may be used the special tool shown in Figs. 5 and 5*a*. This comprises a flat, U-shape piece of spring steel to which there is soldered a ring **28**. The free end of the side or leg **28***a* of the U is pointed sharply to form a needle **28***b*. The other side or leg **28***c* of the U is sprung to be slightly out of parallel relation with respect to the side or leg **28***a*, as shown in Fig. 5. One end **27***a* of line **27** is threaded into the eye of needle **28***b*, the legs **28***a* and **28***c* are sprung and held parallel to each other, and line **27** is wound about the latter, as shown in Fig. 6. This assembly is then inserted into cavity **26** and needle **28***b* is forced through the righthand end of cork **25** to expose the end **27***a* of line **27**, as shown in Fig. 7, after which the end **27***a* of the line is pulled out of the eye of needle **28***b*, the legs **28***a* and **28***c* of the tool are forced toward each other sufficiently to release them from the coil of line, and the tool is then pulled out to leave the coil of line in cavity **26**, as represented in Fig. 1. A small washer or button **29** is threaded onto the protruding end **27***a* of the line, after which this end is knotted close to the former. The end **27***a* of line **27** is thereby fixed with respect to cork **25**. Cork **25** is inserted into the righthand end of casing **10** and forced all the way home, as shown in Fig. 1, after which the end **27***b* of line **27** is tied to a piece **10***c* struck from the edge of casing **10**. The end **27***b* of line **27** is thereby fixed with respect to casing **10**.

The power for causing the device to function is pro-

vided by a tablet **30** of calcium carbide, Alka-Seltzer, or any other suitable salt or substance which generates a gas upon exposure to water and which is disposed within element **18**, between the lefthand end of casing **10** and cork **25**.

A circular piece **31** of thin paraffin paper cemented or otherwise secured over the open end of sleeve **15**, seals off and protects tablet **30** from moisture or water before cork **25** is inserted into casing **10**.

In use, the device is clamped or otherwise secured to the article to be insured against loss in event it is accidentally dropped into a body of water under conditions where the article can not be seen from the surface. In such case the water pressure at opening **10***b* forces diaphragm **12** to the right. The latter pushes capsule **21** hard against the sharp point of needle **24**. The material of part **23** of the capsule resists until it is forced inwardly as indicated in dashline, at which time the capsule is punctured and bursts to release the water therein which sprays and flows through passages **20**, to react with tablet **30** and cause generation of a gas. Diaphragm **12** now functions as a check valve seating against the mesh **11**, thereby permitting the pressure to build up rapidly as generation of the gas continues. The gas pressure soon reaches a high point whereat the thin paper cover **31** bursts and cork **25** is simultaneously blown out of casing **10** and is free therefrom to float to the surface, during which action line **27** pays out from cavity **26**.

In the modification shown in Fig. 2 the various parts or elements corresponding respectively to those in Figs. 1, 3 and 4, are designated by the same respective reference numerals as the latter, but those in Fig. 2 are primed. In Fig. 2 the diaphragm **12** and ring **17** in Fig. 1 are omitted, and the part **22'** of capule **21'** is flat and serves the purpose of diaphragm **12**. Otherwise, the construction and manner of operation are the same as in Figs. 1, 3 and 4.

Various modifications such as in the size, shape and arrangement of the parts or elements are possible without departing from the spirit of my invention or the scope of the claim.

I claim as my invention:

In a device of the character described, a tubular casing,

a float member in the form of a cork inserted into an end of said casing and having a relatively tight fit with respect to the latter and movable longitudinally thereof to be free therefrom, that portion of said float member inserted into said casing being provided with a cavity, a length of line disposed within said cavity, one end of said line being fixed with respect to said float member, the other end of said line being fixed with respect to said casing, and means for causing said device to function in the sense that said float member is caused to move longitudinally of said casing to become free from the latter and thus to become freely movable away from the same for the distance limited by the length of said line; said means including gas-generating means disposed within said casing between the other end thereof and said float member and characterized by the fact that said means generates a gas upon exposure to a liquid, a closed capsule containing such liquid and disposed within said casing, at least part of the wall structure of said capsule being puncturable, a puncturing part supported within said casing between said capsule and said gas-generating means and having a relatively rigid and relatively sharp point disposed in proximity to said part of said wall structure and effectual to puncture the latter, said capsule being movable relatively with respect to said point and in such wise as to effect the puncturing of said part of said wall structure by said point, said casing being provided with a water-inlet opening, and a diaphragm disposed within said casing between said water-inlet opening and said capsule and movable responsive to occurring water pressure from without said casing to engage said capsule and to impart movement to the latter to effect said puncturing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,118,420	Horst	Nov. 24, 1914
1,476,387	Atwell	Dec. 4, 1923
2,803,838	Wales	Aug. 27, 1957

FOREIGN PATENTS

1,010,689	France	Mar. 26, 1952