J. W. SULLIVAN.

INDICATOR AND ALARM.

APPLICATION FILED MAY 24, 1912.

1,055,099. Patented Mar. 4, 1913.

Fig. 1.

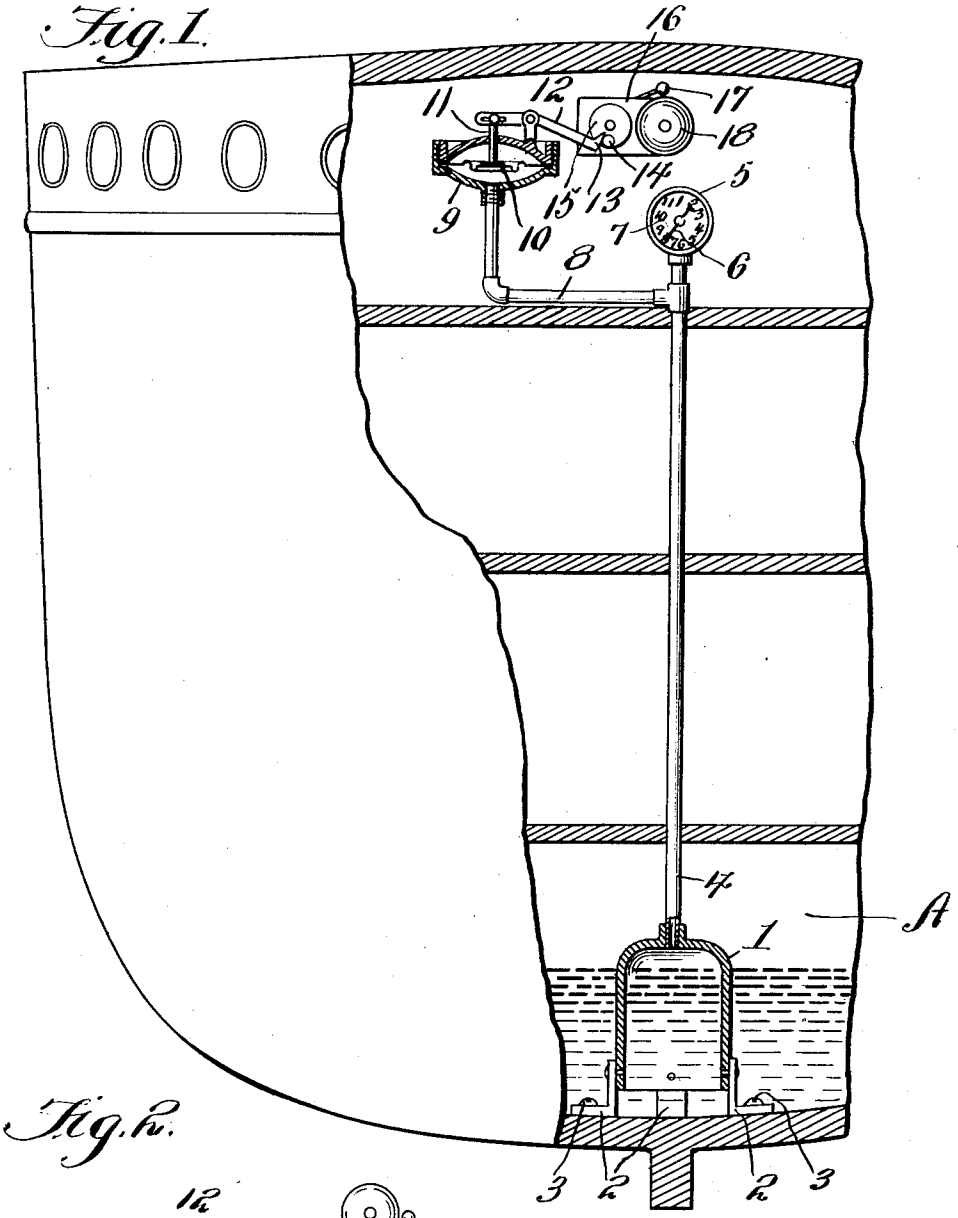
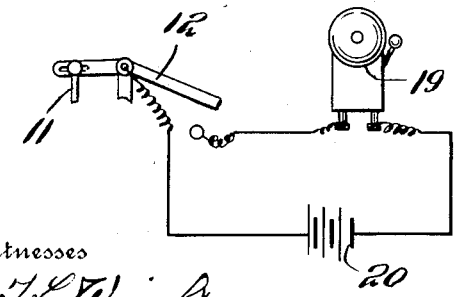


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

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INDICATOR AND ALARM.

1,055,099. Specification of Letters Patent. **Patented Mar. 4, 1913.**

Application filed May 24, 1912. Serial No. 699,426.

To all whom it may concern:

Be it known that I, JOHN W. SULLIVAN, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Indicators and Alarms, of which the following is a specification.

This invention relates to indicators and alarms for indicating the height of water in tanks, vessels and the like and for automatically sounding an alarm when a predetermined level has been reached.

The invention has for its object to produce a device of simple and improved construction which may be readily applied to ships for indicating the height of water in the hold in the event of leakage and for sounding an alarm in ample time to give warning if the water should reach the danger mark.

A further object of the invention is to produce a device of the class described which shall be simple and inexpensive, easily installed and perfectly automatic in its operation.

With these and other ends in view which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts which will be hereinafter fully described and particularly pointed out in the claim.

In the accompanying drawing has been illustrated a simple and preferred form of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations and modifications within the scope of the claim may be resorted to when desired.

In the accompanying drawing,—Figure 1 is a sectional elevation showing the improved device installed. Fig. 2 is a detail view in elevation illustrating a slight modification.

Corresponding parts in both figures are denoted by like characters of reference.

In the hold A of a ship, adjacent to the bottom thereof, is placed an inverted bell or vessel 1 having lugs forming feet 2 whereby the lower edge of the bell is slightly elevated above the floor to which the bell is securely connected by fastening members, such as screws 3, engaging the floor through the lugs 2. Connected with the closed top of the bell is an upwardly extending tube 4 which communicates with a suitably constructed pressure gage 5 having a pressure actuated hand or pointer 6 cooperating with the scale 7 to indicate the pressure existing in the tube 4.

Extending from the tube 4 is a branch tube 8 which is connected with one side of a casing 9 containing a diaphragm 10 one side of which is exposed to the pressure existing in the tube 4 and branch 8. Connected with the opposite side of the diaphragm 10 is a post 11 which projects through the casing and engages one end of a trip lever 12, the opposite end of which has a tooth 13 arranged in the path of a trip device, such as the wrist 14 of a wheel 15 forming one of a spring actuated train inclosed within a casing 16 for the purpose of actuating the striker 17 adapted to engage a bell 18 for the purpose of sounding an alarm.

It is desired to be understood that the alarm device may be of any suitable and desired type and construction, and for the purpose of making this clear there has been shown in Fig. 2 an alarm bell 19 arranged in a circuit including a battery 20 and adapted to be closed by the trip lever 12 when the latter is actuated to a certain predetermined extent, thereby sounding the alarm.

It will be readily understood from the foregoing description that the improved device may be readily installed in the hold, or in one or more compartments of a ship and that, in the event of a leak, the water rising within the hold or compartment and within the bell 1 will compress the air within said bell, the tube 4 and the branch 8, thereby actuating the indicator 6 of the gage 5 which is to be arranged in some conveniently accessible and conspicuous place where it may be consulted at a glance as often as may be desired. It will be understood that the units of the scale 7 may be taken to represent feet of water in the hold or that other units of measurement may be adopted. The officers of the ship will thus be enabled at any time to detect the presence of water in the hold before a danger line is reached. As a further precaution, however, the alarm device is provided which is so arranged that when the water reaches a predetermined height sufficient pressure will be created to actuate the trip lever 12, thereby causing the alarm to be sounded.

Having thus described the invention, what is claimed as new, is:—

In a device of the class described, a bell supported above the floor of a compartment and having an upwardly extending tube, a pressure indicating gage connected with said tube, a branch extending from the tube, a casing connected with said branch and having a diaphragm, one side of which is exposed to pressure existing within the branch and the tube, a trip lever mounted on the casing, and a post connected with the diaphragm and extending through the casing to actuate the trip lever; in combination with an alarm device actuated by the trip lever.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. SULLIVAN.

Witnesses:

JOHN J. GRIMES,

WILLIAM VOGT.