(No Model.)

L. FRIK.

SHOAL WATER ALARM.

No. 358,655. Patented Mar. 1, 1887.

Fig. 1.

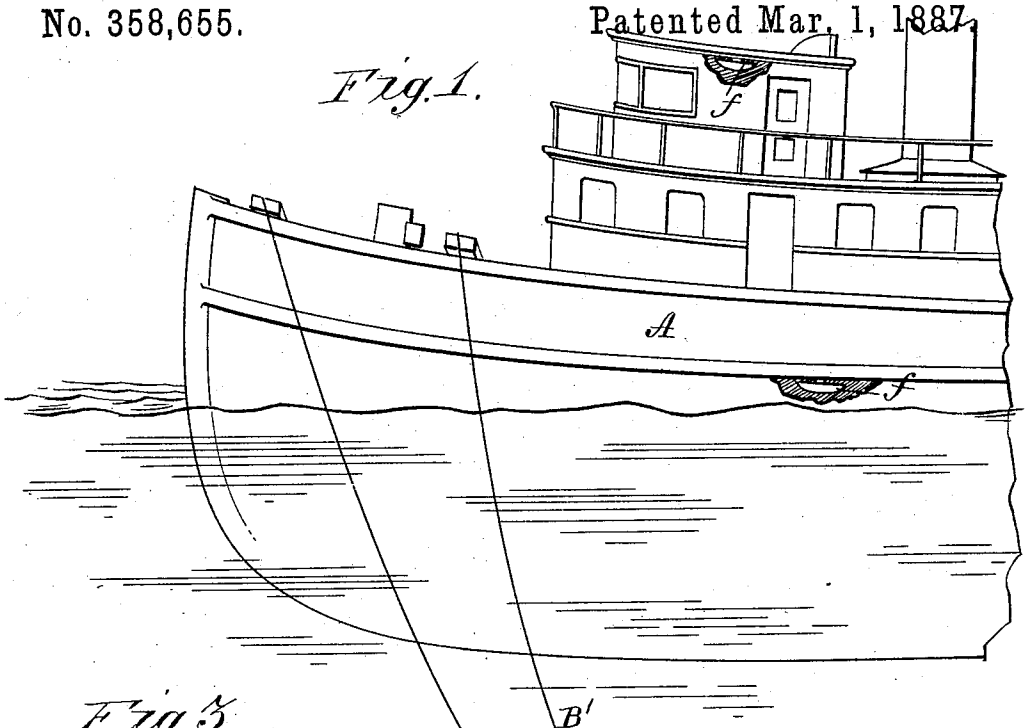
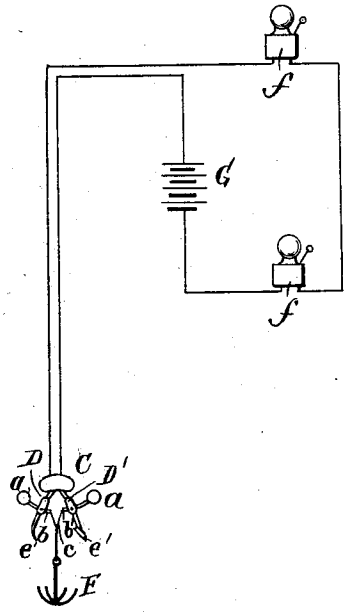
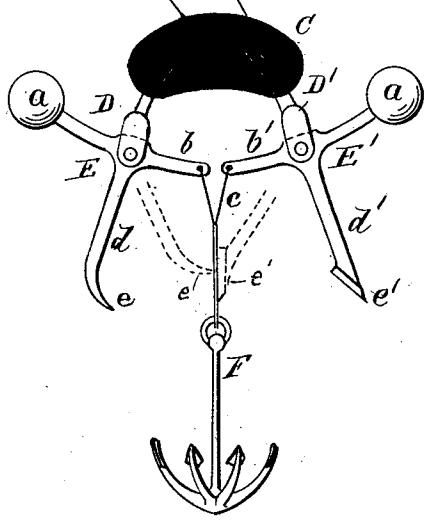


Fig. 3.



B B'

Fig. 2.





WITNESSES:

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SHOAL-WATER ALARM.

SPECIFICATION forming part of Letters Patent No. 358,655, dated March 1, 1887.

Application filed April 29, 1886. Serial No. 200,519. (No model.)

To all whom it may concern:

Be it known that I, LOUIS FRIK, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and Improved Shoal-Water Alarm, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a side elevation of my improved apparatus. Fig. 2 is an edge view of the electric-circuit closer. Fig. 3 is a diagram showing the electrical connections.

The same letters of reference indicate the same or corresponding parts in the different figures of the drawings.

The object of my invention is to provide a simple and efficient device for indicating shoal water.

My invention consists in the construction and arrangement of parts, hereinafter described and claimed.

From the vessel A are suspended two flexible electrical conductors, B B′, to the extremities of which is attached a plate, C, provided with two forked arms, D D′, which are insulated from each other, and in which are pivoted weighted three-armed levers E E′, which are oppositely arranged with respect to each other, the outer projecting arms being provided with weights *a*, the adjacent arms *b b′* being connected by weak cords *c* with a small drag-anchor, F. The downwardly-projecting arm *d* of the lever E carries an electrical contact-point, *e*, and the corresponding arm, *d′*, of the lever E′ carries a contact-plate, *e′*.

The conductors B B′, extending to the vessel, are connected with a circuit conveniently arranged on board the vessel, including a battery, G, and one or more electric bells, *f*, as shown in Fig. 3. Normally, the electric circuit is held open by the weight of the small anchor F, which overbalances the weights *a* and holds the arms D D′ apart; but when the anchor F engages the sea-bottom the cord *c* is broken and the weights *a* cause the arms D D′ to approach each other, bringing the point *e* into contact with the plate *e′*, as indicated by dotted lines in Fig. 1, thus establishing the electric circuit, causing the bell to ring, indicating that the vessel is in shoal water. The alarm is again arranged for use by the application to the levers E E′ of another small anchor.

It is obvious that the flexible conductors B B′ may be included in a single electric cable, if desirable; also, that other means of releasing the levers E E′ by the contact with the sea-bottom may be adopted. Therefore I do not limit or confine my invention to the exact form herein shown and described.

The conductors B B′, or the cable including them, will be wound upon a suitable reel, so that the depth at which the alarm is operated may be varied as circumstances may require.

My improved shoal-water alarm may be carried by vessels running in deep water and employed for discovering or locating marine elevations.

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

1. In a shoal-water alarm, the combination of an electric circuit and signaling devices with conducting-lines in electrical connection with said circuit and signal, movable contact-points at the outer ends of the said conducting-lines, means for throwing the said points into engagement, and a device for engaging the bed of a body of water and holding said points out of contact until it strikes the bed of the water, when the points will be released and thrown into contact and an alarm be sounded, substantially as set forth.

2. In a shoal-water alarm, the combination, with the conducting-lines and electric circuit including the alarm or signaling devices, of counterbalanced levers electrically connected with the outer ends of the lines and having contact-points, and an anchor severally connected with said levers and holding their contact-points out of engagement, whereby when the anchor engages the bed of a body of water it will become disconnected from the levers, the contact-points of which will then be brought together and an alarm sounded, substantially as set forth.

3. In a shoal-water alarm, the combination,

with the conductors B B′ and circuit, including the battery G and an alarm, of the bell-crank-levers E E′, connected electrically with the conductors and having inward projecting arms *b b′*, counterbalancing-weights *a a*, and downward-extending arms *d d′*, having contacting-point *e* and plate *e′*, respectively, the anchor F, and the weak connection *c* between the anchor and the arms *b b′*, substantially as set forth.

LOUIS FRIK.

Witnesses:
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