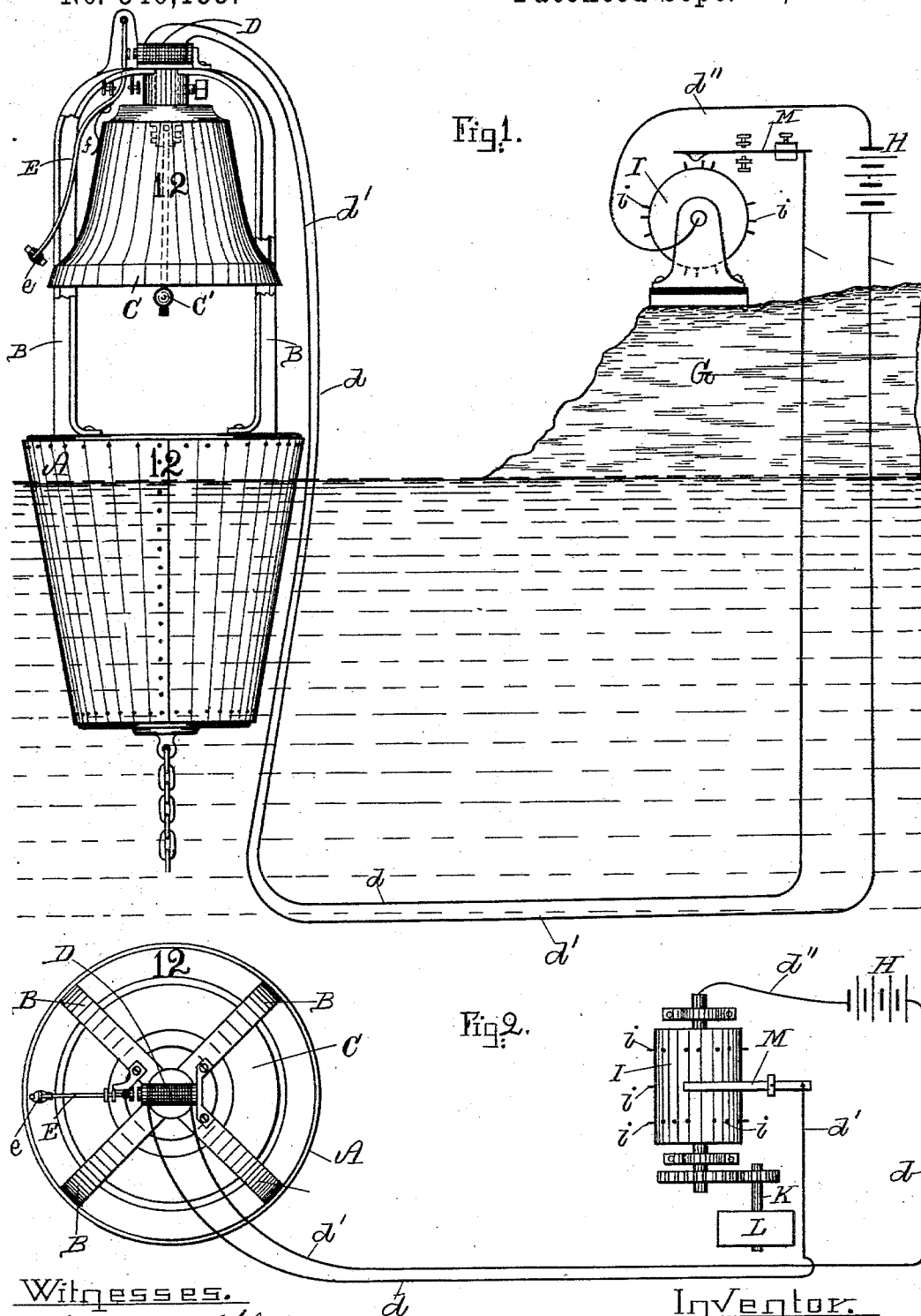


(No Model.)

J. A. FAIRBANKS.
BELL BUOY.

No. 546,135.

Patented Sept. 10, 1895.



Witnesses.

Lauritz N. Möller.
Charles A. Harris.

Inventor.

John A. Fairbanks
by Allan Andrew, his atty.

UNITED STATES PATENT OFFICE.

JOHN A. FAIRBANKS, OF CAMBRIDGE, MASSACHUSETTS.

BELL-BUOY.

SPECIFICATION forming part of Letters Patent No. 546,135, dated September 10, 1895.

Application filed April 15, 1895. Serial No. 545,686. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. FAIRBANKS, a citizen of the United States, and a resident of Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Bell-Buoys, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in bell-buoys anchored at sea to designate shoals, sunken rocks, reefs, or other obstructions in a channel or water-way; and it has for its object to cause a bell or other instrument or apparatus located on the buoy to be sounded at proper intervals by an electric device attached to such buoy and connected by means of wires to a battery or other electric-current generator and to a circuit-breaker located on shore, at a light-house station, a light-ship or other suitable place in the vicinity of the bell-buoy.

Ordinary bell-buoys when rocked by the waves cause their bells to be sounded, but remain silent in a quiet sea, and for this reason are unreliable in foggy or dark weather in case the sea should be calm enough to prevent the sounding of the bell on the buoy. To obviate this difficulty is the object of my invention, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a side elevation of the improved bell-buoy and its electrical connection, and Fig. 2 represents a top plan view of the same.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

A represents an ordinary bell-buoy of any well-known form or construction, the same being anchored at sea, as is common in devices of this kind.

On the buoy is mounted a suitable bell-supporting frame B, to which the bell or other sounding instrument C is secured, as shown.

C' is the clapper, loosely hung within the bell, as usual.

On the frame B, preferably above the bell C, I locate a suitable electric striking apparatus, and I have for this purpose shown in the drawings an electromagnet D, from the

spool of which lead the wires *d* and *d'* to the battery or current-generator located on shore or on a light-ship or other place in the vicinity of the bell-buoy, as shown in the drawings. Said wire may be inclosed in a cable and conducted along the sea-bottom to the shore or light-ship, as may be most practical, according to the locality in the vicinity of which the bell-buoy is anchored.

E represents a pivoted armature-lever hung at one end of the electromagnet D and provided at its free end with a hammer *e*, as shown. Said armature-lever is attracted toward the electromagnet, causing the hammer to strike the bell whenever the circuit is closed through the electromagnet, and said armature-lever is automatically returned to its normal position, preferably by the influence of a spring *f* when the circuit is broken, as shown in Fig. 1.

G represents the battery station, shore, or light-ship on which is located a battery or electric-current generator H, having one of its poles connected to the electromagnet D, by means of the wire *d'*, as shown. From the other pole of the battery H leads a wire *d''* to the rotary circuit-closer I, which is set in a rotary motion preferably from a motor-shaft K, geared to the shaft of the rotary circuit-closer I, as shown in Fig. 2.

The shaft K may be actuated by any suitable motor L, and as a source of power may use steam or water pressure, springs, weights, electricity, or other means, as may be most convenient, according to circumstances, without departing from the essence of my invention.

M is a brush or sweeper, which is connected to the electromagnet spool D by means of the wire *d*, as shown.

On the circumference of the rotary circuit-closer I are a series of pegs or projections *i* in electrical connection with the battery-wire *d''*, and as one of such pegs comes in metallic contact with the sweeper M the circuit is closed through the electromagnet D, causing the hammer *e* to strike against the bell C.

It is the practice to mark buoys with numbers to identify their position on the chart, and I therefore prefer to locate the pegs *i* on

the drum I in groups corresponding to the number of the bell-buoy for which the circuit-closer is used. Thus, for instance, if the bell-buoy is marked 12, I arrange the pegs *i* in groups of 3, with a little larger space between the first and second peg as compared with the space between the second and third peg. Thus when the drum I is rotated it will cause the bell C to be struck one blow, after which there will be a pause, followed by two blows in quick succession, thereby notifying the mariner in a foggy or dark and calm day or night that he is in the vicinity of buoy, No. 12.

The circuit-closing drum I may be used for a number of bell-buoys if so desired, it being only necessary to make additional rows of pegs *i* thereon, as shown in Fig. 2, and arrange sweepers in connection therewith, and make wire connections to the additional bell-buoys from the battery like the one as above stated.

The motor may be provided with a suitable starting and stopping device of any well-known form or construction, which is under the control of the operator at the battery-station.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. A bell buoy anchored at sea and having a bell or other sounding instrument arranged thereon, in combination with an electrically operated striking or sounding device arranged on said buoy, wires leading from said sounding device to a battery or electric current generator located at a distance from such buoy and an automatic circuit closer and breaker adapted to close and break the circuit to produce sounds corresponding with the chart

number of the buoy, substantially as described.

2. A bell buoy anchored at sea and having a bell or other sounding instrument arranged thereon provided with a hammer or sounding device, adapted to be sounded by the motion of the sea, combined with a positive electric device located at a station in the vicinity of, or away from the bell buoy and electrically connected to a striking mechanism on said bell buoy, for the purpose of causing the bell on the buoy to be positively sounded at any and all times when the sea is so calm as to prevent the rocking of the buoy to sound the bell thereon as herein specified.

3. A bell buoy anchored at sea and having a bell or other sounding instrument arranged thereon and having a number corresponding to its chart location combined with an electrically operated striking or sounding device arranged on said bell buoy and electrically connected to a battery or electric current generator and a circuit closer located at a station in the vicinity of or away from said bell buoy, said circuit closer being arranged to intermittently close and open the circuit and produce sounds on the bell buoy sounding device corresponding to the chart number of the buoy, substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 11th day of April, A. D. 1895.

JOHN A. FAIRBANKS.

Witnesses:

ALBAN ANDRÉN,
LAURITZ MÖLLER.