(No Model.) 2 Sheets—Sheet 1.

J. M. BABBITT, P. F. WOOD & J. A. DOUD.

BELL BUOY.

No. 555,919. Patented Mar. 10, 1896.

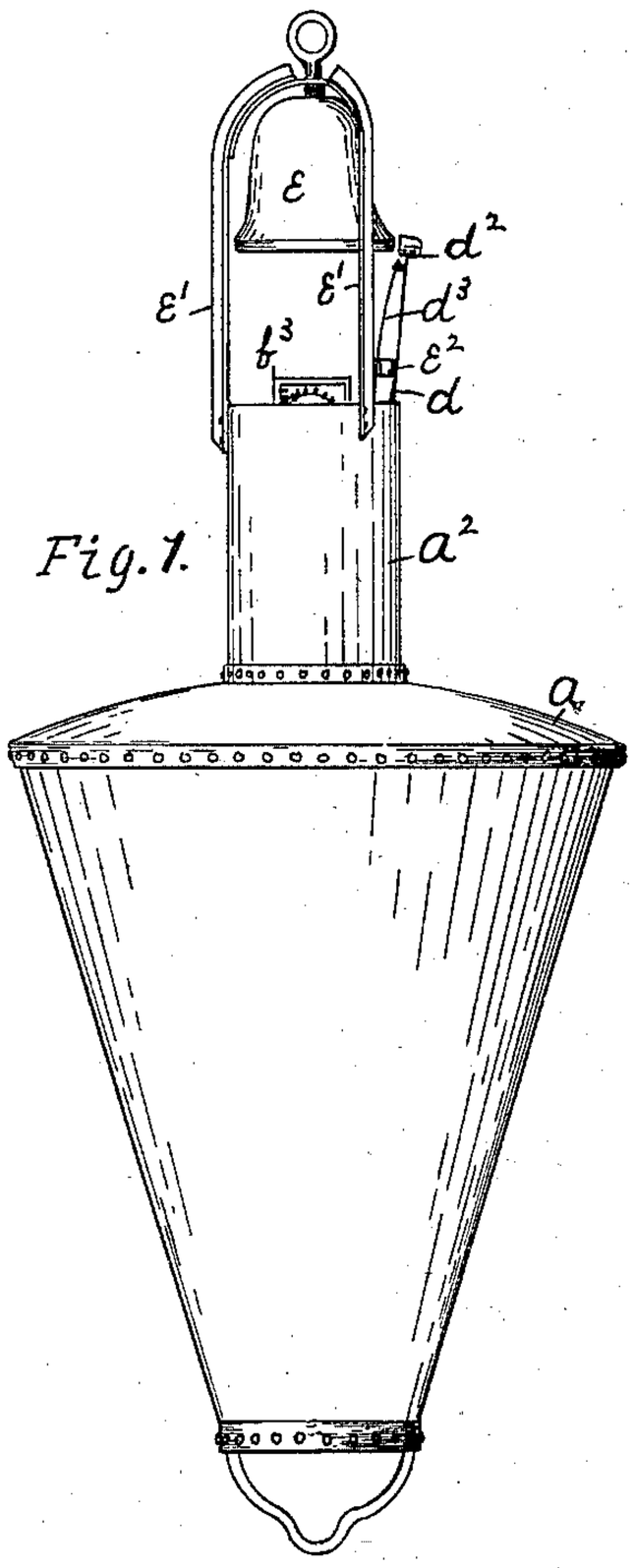

Fig. 1.

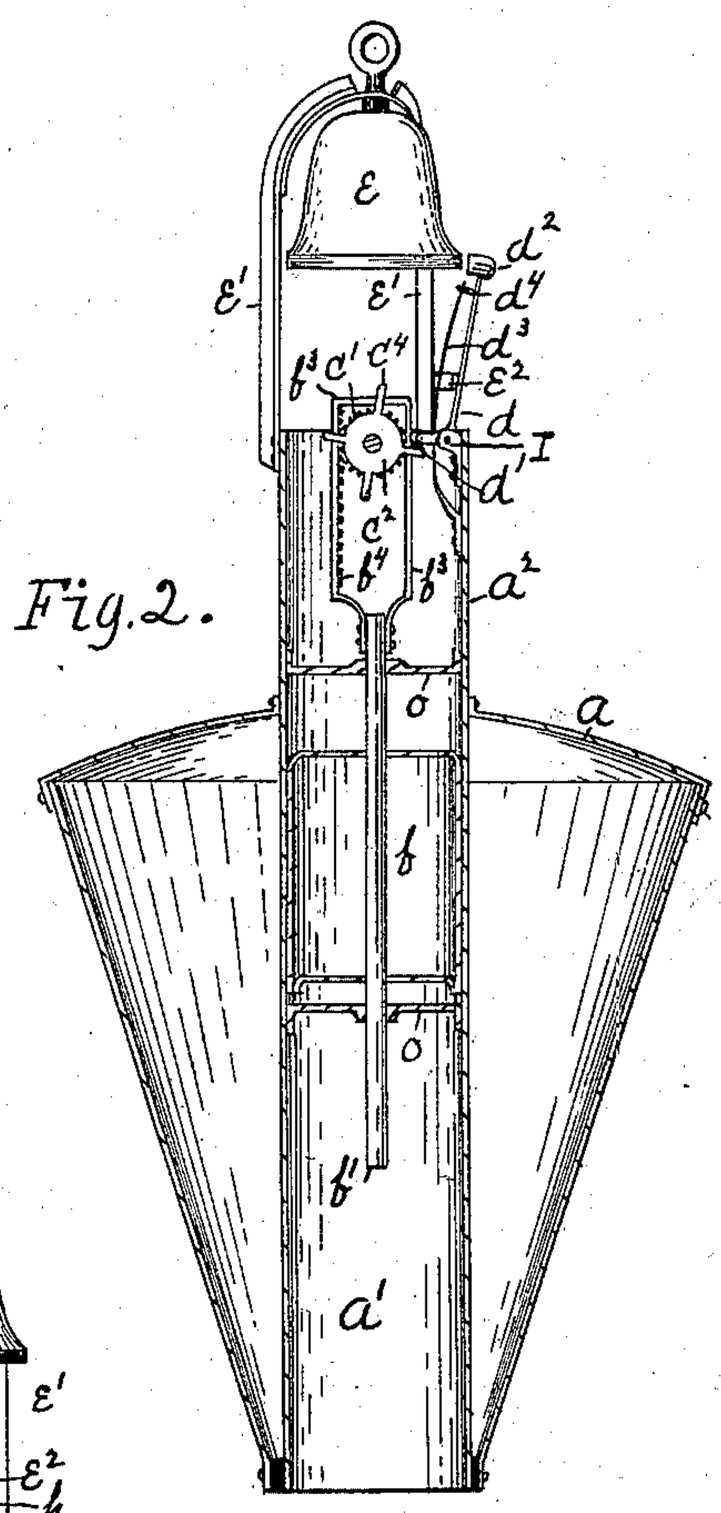

Fig. 2.

Fig. 3.

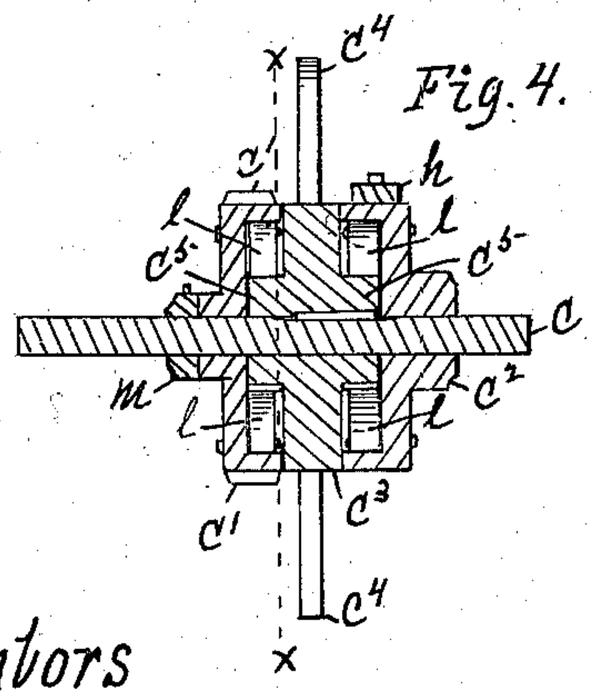

Fig. 4.

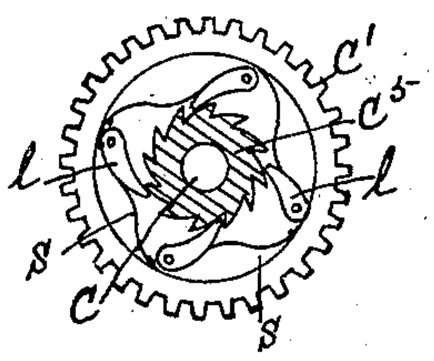

Fig. 5.

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(No Model.) 2 Sheets—Sheet 2.

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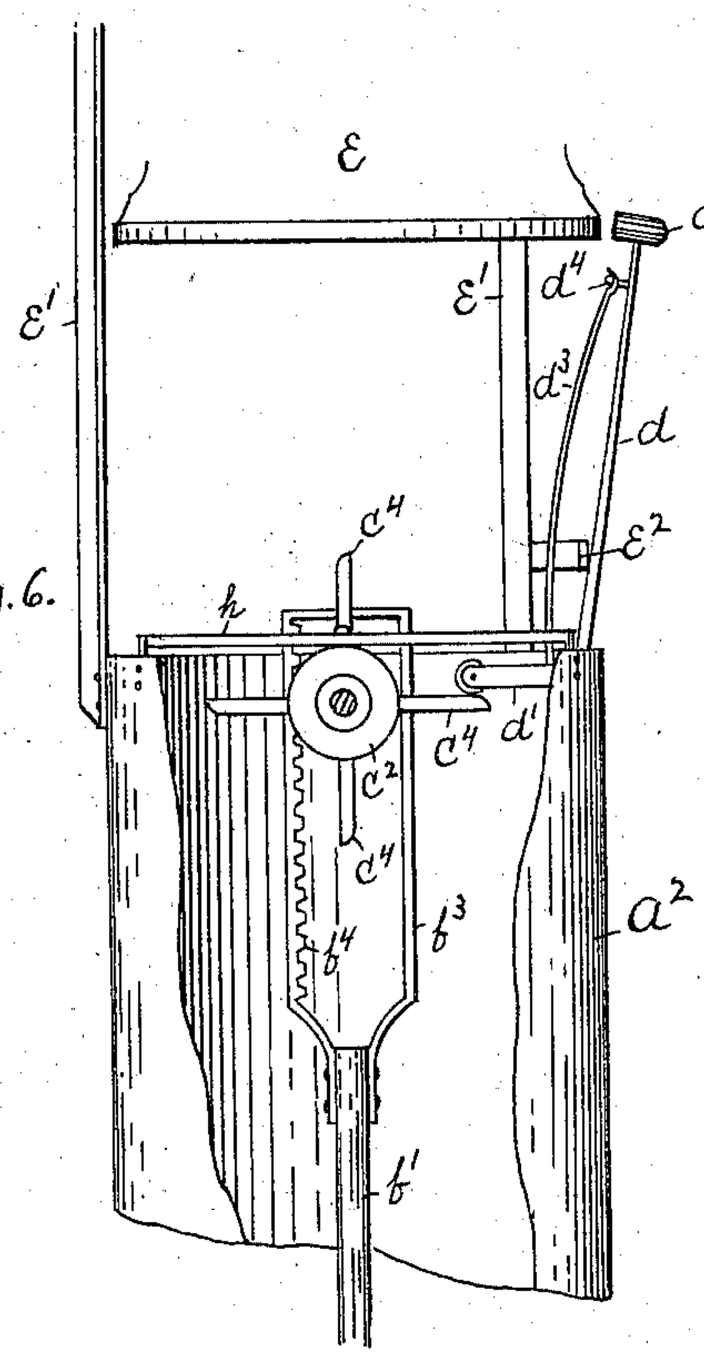
Fig. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH M. BABBITT, PATRICK F. WOOD, AND JOHN A. DOUD, OF NEW BEDFORD, MASSACHUSETTS.

BELL-BUOY.

SPECIFICATION forming part of Letters Patent No. 555,919, dated March 10, 1896.

Application filed November 30, 1895. Serial No. 570,606. (No model.)

To all whom it may concern:

Be it known that we, JOSEPH M. BABBITT, PATRICK F. WOOD, and JOHN A. DOUD, citizens of the United States, residing at New Bedford, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Bell-Buoys, of which the following is a specification.

The object of our invention is to produce a bell-buoy which will give the loudest sound its bell is capable of making whenever it rings and one which will operate to ring the bell when there is but slight motion of the water.

To this end our invention consists in the devices illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of our improved bell-buoy. Fig. 2 is a view in vertical section of the operating parts of the same. Fig. 3 is a view in vertical section of the upper portion of the buoy turned one-quarter of a revolution on its axis from the position shown in Fig. 2. Fig. 4 is an enlarged sectional view of some of the working parts which cause the hammer to strike the bell, and Fig. 5 is a view in cross-section of the same through the line $x\ x$. Fig. 6 is a view of a portion of the upper section of the buoy with the side broken away to more fully show some of the details of construction.

Similar letters refer to similar parts in the several views.

The letter a indicates the buoy, having a vertical tubular opening a' through its center and having an extension a^2 beyond its top. To the top of the extension a^2 are riveted the supports e', curving inward at their tops, to which is rigidly secured the bell e. To the top of the extension a^2 and midway between two of the supports e' is pivoted the bell-crank d, having the hammer d^2 rigidly secured to its upright arm and its opposite arm provided with the friction-roller d'.

e^2 is a cross-bar riveted to two of the supports e', against which the upright arm of the bell-crank d comes in contact when the face of the hammer d^2 is still a slight distance from the rim of the bell e.

d^3 indicates a flat spring secured to the inside of the extension a^2, having its upper end flexibly connected to the upright arm of the bell-crank d at d^4.

c is a shaft supported in bearings $n\ n$ secured to the inside of the extension a^2, on which shaft is keyed the part c^3, having the ratcheted extensions $c^5\ c^5$ and provided with the four arms c^4 extending from its circumference.

c' is a chambered gear-wheel having the pawls l pivoted therein, as is shown in Fig. 5, and is mounted loosely on the shaft c, with its chamber covering the ratcheted extension c^5 contiguous to it and its pawls taking into said ratchet and yieldingly supported there by the springs s.

c^2 is a chambered disk fitted with pawls and springs in all respects like the gear c' and loosely mounted on the shaft c on the opposite side of the part c^3 and covering the ratcheted extension c^5 contiguous to it, and its pawls taking into the ratchet in the same direction as the pawls of the gear c'.

The chambered disk c^2 is rigidly secured at its top to the cross-bar h, which has its ends riveted to the inside of the extension a^2, as shown in Fig. 6.

b^3 is a link inclosing the gear c' and provided with the rack b^4, adapted to engage the gear c'. The lower end of the link b^3 is secured to the shaft b', which is supported in guides $o\ o$ and adapted to have a free vertical movement therein.

b is an air-tight float or chamber secured on the shaft b' and adapted to have a free vertical movement in the tubular opening a'.

The operation is as follows: The parts being arranged as shown and the buoy being anchored in the water, the waves cause the float b to rise and fall, and thereby, by means of the link b^3, causes the gear c' to oscillate on the shaft c, and by means of its pawls taking into the ratchet, causes the shaft c and the part c^3 to which it is fast to partially revolve, which degree of revolution is held and maintained by the pawls in the chambered disk c^2 until another rise and fall of the float b, and so on, until one of the arms c^4 has caught under the friction-roller d' and raised the short arm of the bell-crank d to that point where it is about to slip by the end of the arm

c^4, thus bringing the hammer d^2 to its farthest limit of motion from the bell, when, at another rise and fall of the float b, the friction-roller d' slips over the end of the arm and the spring d^3 causes the hammer to smartly strike the bell. When the waves are sufficiently high to cause the float b to reach its limit of motion, the hammer is caused to strike the bell at each rise and fall of said float. It will be observed that the helve of the hammer brings up against the cross-bar e^2 before the hammer reaches the bell; but there is sufficient spring in said helve to allow the hammer to reach the bell smartly, when it recoils and is held from contact with the bell, so as not to impair its sound.

It will be observed that the pawls l are so arranged with respect to the teeth of the ratchet that a very slight movement of the gear will cause the arms c^4 to move also.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

In combination with a buoy, adapted to float on the water, and having a vertical tubular opening through its center; a bell, mounted above said opening; a shaft, mounted transversely in said opening, near its top, having ratchets and projecting arms rigidly secured thereto; a gear-wheel, loosely mounted on said shaft and provided with pawls adapted to take into one of said ratchets; a disk, loosely mounted on said shaft and provided with pawls adapted to take into the other of said ratchets, said disk, being rigidly secured from turning with said shaft; a bell-crank, pivoted to the top of said tubular opening, having one of its arms within the sweep of the projecting arms on said shaft, and its other arm provided with a hammer adapted to strike the rim of the bell; a spring adapted to impel said hammer against the bell at certain times; a stop, to hold the hammer, normally, from contact with the bell, a shaft supported in guides, and adapted to have a vertical movement in said tubular opening; a rack, adapted to engage with the gear-wheel on shaft c, secured to the top of said vertical shaft; a float adapted to move easily in said tubular opening, secured to said vertical shaft and adapted to actuate it, by its flotation, all as, and for the purpose described.

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