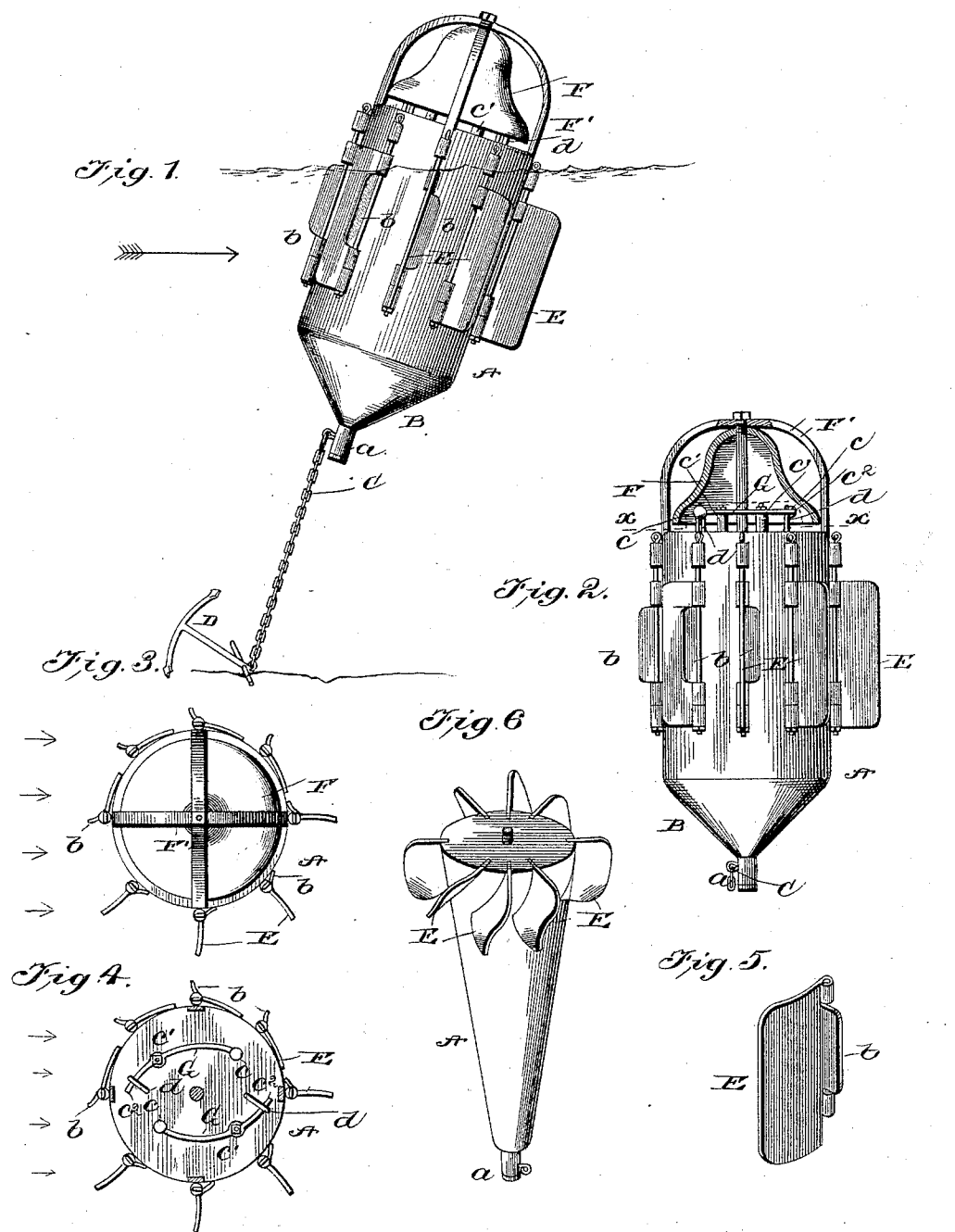


(No Model.)

H. E. HODGSON.
BUOY OR FOG SIGNAL.

No. 460,136.

Patented Sept. 29, 1891.



Witnesses

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UNITED STATES PATENT OFFICE.

HERBERT E. HODGSON, OF NORFOLK, VIRGINIA.

BUOY OR FOG-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 460,136, dated September 29, 1891.

Application filed November 20, 1890. Serial No. 372,064. (No model.)

To all whom it may concern:

Be it known that I, HERBERT E. HODGSON, a citizen of the United States, residing at Norfolk, in the county of Norfolk and State of Virginia, have invented certain new and useful Improvements in Buoys or Fog-Signals, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to improvements in that class of buoys by which audible danger-signals are transmitted to approaching vessels and crafts.

Heretofore buoys have been used which have bells so mounted upon them that the action of the waves causes the buoy to rock and the clapper to strike against the bell, which gives forth a warning peal; but it will be readily seen that unless the waves are of considerable height the buoy will not rock or yaw enough to cause the clapper to swing and strike against the bell, so that a buoy of this kind is useless in harbors and rivers when the water is comparatively smooth. By my device these difficulties are surmounted, for waves are not required to cause the bell to sound, as the tide or current acts with sufficient force.

The construction and operation of my invention will be hereinafter fully set forth and described.

In the drawings, Figure 1 is a perspective of my buoy. Fig. 2 is a side view. Fig. 3 is a top plan view. Fig. 4 is a section on line $x x$, Fig. 2. Fig. 5 is a detail of one of the wings or blades. Fig. 6 is a modified form of buoy.

Referring to the drawings, the buoy is represented as a whole by A, it being of a cylindrical shape with a conical end B, although any buoy now commonly in use which will present the least friction to the water may be used.

To the conical end B is secured, by means of a swivel-connection a , the holder C, the other end of which is secured to the river-bed in any suitable way, but, as shown in the drawings, by an anchor D. The holder C may be a chain or cable or a metallic rod, for I do not limit myself to any particular means for anchoring the float. The buoy floats with the tide as far as the holder will permit and lies in a

position inclined with the course of the tide or current.

To the sides of the float or buoy are adjustably hinged wings or blades E, having stops b , which bear against the sides of the buoy when the wings are extended. It will be seen that the wings can lie in either of two positions, either in a plane tangential to the cylindrical portion of the buoy or in planes passing vertically through the central lines of the buoy, the stops b preventing the said wings or blades from swinging entirely around.

On the top of the buoy is secured a bell or gong F, held in place by brace-rods F'. The strikers or clappers G G are made, preferably, of spring metal, and have at one end weights or striker-heads $c c$. The strikers are pivoted a short distance from their opposite ends $c^2 c^2$ (and it will be also noticed that the changes of the direction of the flow of the tide make no difference in the rotation of the buoy, as it always rotates practically uniformly in the same direction) to studs $c' c'$, secured to the top of the buoy, the movement of the strikers being limited by means of pins or guideways $d d$. Knowing that the top of the buoy is inclined, it will be readily seen that when the striker is lifted and let fall the momentum of the striker-head c will cause it to strike the gong or bell, the resiliency of the spring metal causing it to rebound and assume a position a short distance therefrom.

I do not limit myself to this exact mode of ringing the gong or bell, as I may use a clapper hung to the bell and so pivoted that it may swing in a certain number of directions, or I may use a ball of metal running in grooves and striking the bell as it rolls to and fro, for it is immaterial how the bell is rung.

It will be readily understood from the drawings and description how the buoy operates. Assuming that the tide or current is running in the direction of the arrow in Fig. 1, (the buoy being of course inclined in the same direction,) the water rushing past forces itself between the buoy and the wings or blades on one side of the buoy and compels the wings to assume their extended positions. Then the buoy or float being anchored, it is turned partly around and the next blades are forced out by the tide, thus securing a practically uniform rotation. As soon as a wing or blade

gets to a position parallel to the course of the current or tide and begins to swing farther around it returns to its first position and offers no frictional surface or obstruction to the flow of the water. Thus it is obvious that a perpetual rotation is insured as long as the tide or current runs. As the buoy rotates, the strikers or clappers are carried up until they project beyond the center of gravity, when they will fall and strike against the bell, this operation being continued as long as the buoy rotates. Any number of strikers may be used which will not interfere with each other, though two will sufficiently answer all purposes. One advantage of using a buoy of this description is that the speed of the current can be readily ascertained by noting the intervals between the peals of the bell, for if the current is running swiftly the intervals will be of short duration, and vice versa.

In Fig. 6 a modification is shown in which the wings or blades are rigidly secured to the sides of the buoy. The buoy in this case is preferably of a conical shape and has the anchor-chain swiveled to its apex. The wings or blades are somewhat similar to the blades of a screw-propeller, being arranged spirally, so that the acting surfaces thereof are substantially helices of screws. These wings or blades may extend spirally the entire length of the buoy; but I have found it sufficient to have them of a comparatively short length and near the top. The buoy is not heavily ballasted, and consequently will float in an inclined position, the bell and strikers being mounted and the buoy rotating in substantially the same way as the one hereinbefore described.

I do not wish to be understood to limit myself to the exact construction shown and described herein, as any one skilled in the art may make many modifications without departing from the spirit and scope of my invention.

What I claim is—

1. In a rotating buoy having means, substantially as described, therein or connected

therewith to engage with the water, whereby the water flowing continuously in either direction causes the rotation of the buoy.

2. A rotating bell-buoy having wings or blades extending laterally in opposite directions and engaging with the water, whereby the continuous flow of the water causes the rotation of said buoy, substantially as set forth.

3. A bell-buoy having swinging wings or blades secured to its sides, engaging with the water, whereby said buoy is rotated, substantially as set forth.

4. A buoy having suitable means connected therewith and engaging with the water, whereby the water flowing continuously in either direction causes the rotation of the buoy, a bell mounted thereon, and means for ringing said bell, substantially as described.

5. A buoy having suitable means connected therewith and engaging with the water, whereby the continuous flow of the water in either direction causes the rotation of the buoy, a bell mounted thereon, and one or more strikers for ringing said bell, substantially as described.

6. A buoy having a bell mounted thereon, means for ringing said bell, and swinging wings adjustably secured to the sides thereof and adapted to engage with the water, whereby said buoy is rotated, substantially as set forth.

7. The combination, with a buoy-holder C and the bell, of the continuously-rotating buoy, carrying the bell and swiveled to said holder C, substantially as set forth.

8. The combination, with the holder C, of the continuously-rotating buoy, swiveled loosely to said holder C, and an intermittently-acting signaling device supported upon said buoy, substantially as set forth.

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

HERBERT E. HODGSON.

Witnesses:

JOHANNA YOUNG,
MARCUS B. MAY.