

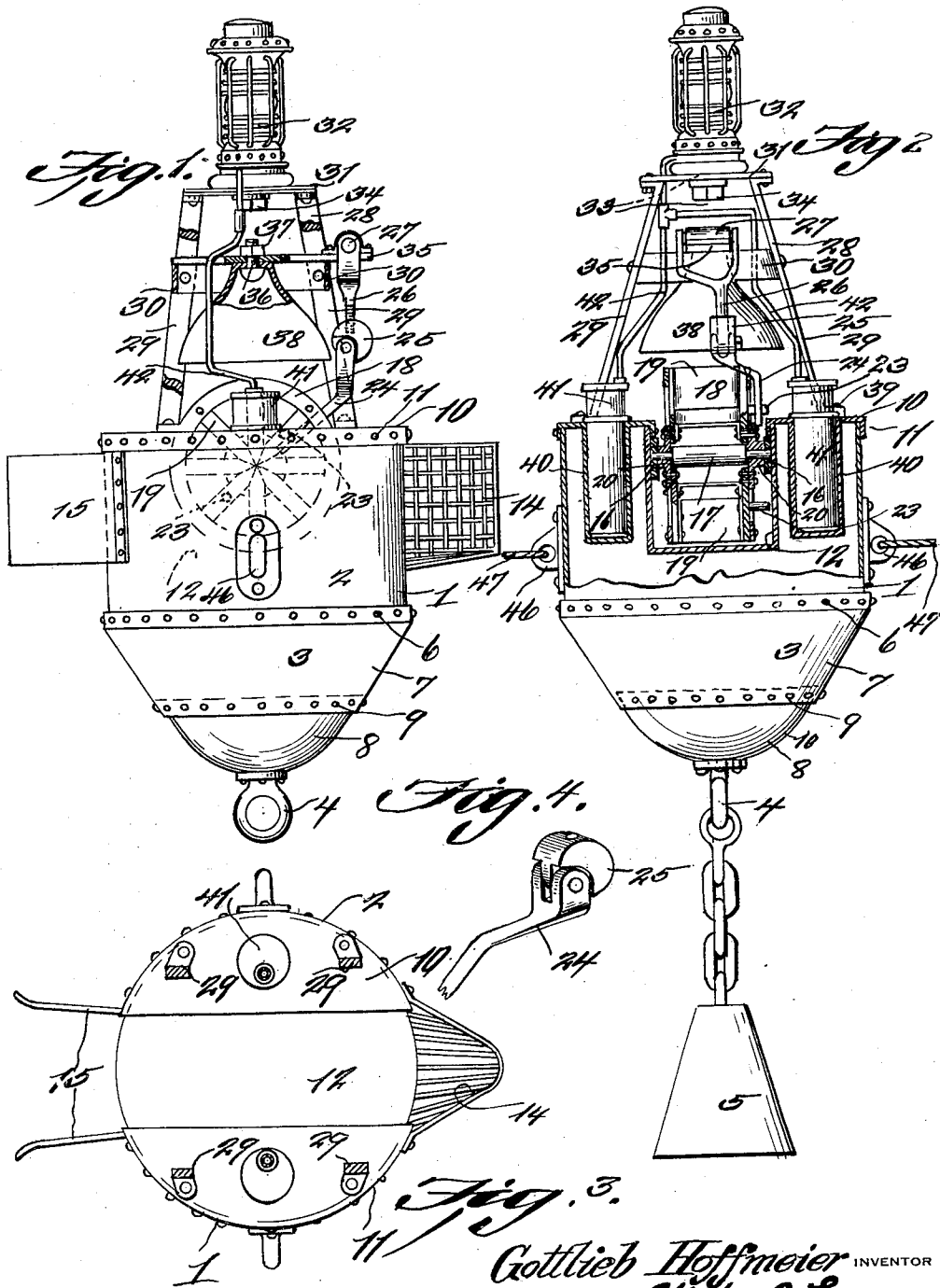
March 3, 1931.

G. HOFFMEIER

1,795,255

BELL BUOY

Filed Nov. 22, 1929



Gottlieb Hoffmeier INVENTOR
BY Victor J. Evans ATTORNEY

UNITED STATES PATENT OFFICE

GOTTLIEB HOFFMEIER, OF WILMINGTON, DELAWARE, ASSIGNOR OF ONE-HALF TO
CHARLES LUDLAM, OF CAMDEN, NEW JERSEY

BELL BUOY

Application filed November 22, 1929. Serial No. 409,129.

The present invention relates to an improved bell buoy, adapted for use in tide water, mid-stream, and especially of great use in foggy weather, to give warning as to danger to vessels or boats. The transmission of a warning signal may be accomplished either by a sound of a bell or by light from a lamp, or by both.

The invention has for its purpose to provide an improved construction of bell buoy, one that will remain in an upright position at all times, including means to prevent clogging of an actuating paddle wheel, which in turn intermittently operates an arm, which is loosely pivoted on the hammer or bell clock, so that on the return stroke of the hammer or clapper the bell may be sounded.

Another purpose is to provide in connection with this improved bell buoy, means for anchoring the buoy to opposed stationary members, so as to hold the buoy in proper position, whereby the flowing stream can pass through a channel of the buoy and in the right direction to impart movement to the paddle wheel.

Another purpose is to provide in a bell buoy a suspended balance weight, to retain the buoy in an upright position.

A still further purpose is to provide a buoy having a frame-work rising therefrom provided with means for the support of a bell, and also for the support of a suitable signal lamp, which also transmits warning to passing ships or boats that there is approaching danger.

It is to be understood that the particulars herein given are in no way limitative, and that while still keeping within the scope of the invention, any desired modification of details and proportions may be made in the construction of the appliance according to circumstances.

The invention comprises further features and combination of parts to be hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1—is a view in side elevation, and partly in section, illustrating the bell buoy constructed in accordance of the invention.

Figure 2—is a view at right angles to

that in Figure 1, with parts in section to more clearly disclose the invention.

Figure 3—is a plan view, showing more clearly the construction of the frame rising from the buoy.

Figure 4—is an enlarged detailed view of the bell hammer or clapper.

Referring to the drawings, 1 identified the body of the bell buoy, which may be any size and of any shape. Preferably the body comprises a cylindrical part 2 and a frustro conical lower portion 3, the extreme lower portion of which has an eye 4, to which a suitable balance weight as shown at 5 may be connected, to retain the buoy in an upright position.

The cylindrical portion of the body is riveted at 6 to the frustro conical portion 3, while said conical portion consists of the two parts 7 and 8 riveted together as at 9. The cylindrical portion has a head 10, which is also riveted at 11 in position. The cylindrical portion of the buoy has a U-shaped channel 12 constructed across the diameter of the buoy for the passage of water there-through.

One end of this passage has a V-shaped wire fabric or screen 14, which prevents the debris, such as brush, sticks and the like from entering the channel or sluice-way. The other end of the channel or sluice-way is provided with extensions 15, one on each side, which act to guide the water from the buoy.

The opposite walls of the channel or sluice-way have bearings 16 for the reception of the ends of a shaft 7, which carries a paddle wheel.

On one face of the paddle wheel 18 there are blades 19, which act to cause movement to be imparted to the wheel as the water passes through the channel or sluice-way. These blades 19 are connected to the hubs 20, such as will receive the shaft 17 to support the wheel. The blades 19 are between the sides of the wheel, and with which the water in passing through the channel or sluice-way impinges, so as to insure imparting movement to the wheel.

Projecting laterally from the wheel on one side thereof is a plurality of pins or projec-

tions 23, which are engaged by means of a loosely depending trip arm 24, which is pivotally carried by a weight or gravity member 25, located at the lower end of an arm 26, which is suspended from a pivot 27 on a frame 28, which rises from the body of the buoy.

This arm 26 with its weight or gravity member is so located as to hold the arm 24 in the path of the pins 23. However should the paddle wheel rotate fast enough to strike the arm 24, and thereby swing the arm 26 with its weight 25 a greater distance than is ordinarily necessary, the arm 24 is capable of pivotal movement relative to the weight 25 and the arm 26. Furthermore should the wheel take a backward movement or rotation the pins or projections 23 can pass the arm 24, due to the arm being capable of movement pivotally with relation to the weight and the arm 26.

The frame 28 comprises the inclined beams 29, which are held rigid by the transverse braces 30, which are disposed in rectangular formation and secured to the inclined beams 29. The upper ends of the inclined beams 29 are connected by a platform 31, which support a suitable lamp 32, a projection 33 of which passes through the platform 31 and receives a nut 34 to hold the lamp 32 in position.

A cross piece or bar 35 is carried by certain of the braces 30, and connected to the cross piece or bar 35 by means of a screw projection 36 and nut 37 is a bell 38, which is so positioned that when the pins 23 engage with the arm 24 in order to oscillate the weight 25, the weight on its return movement will strike the bell 38, and thereby sound an alarm, giving notice of danger. The lower ends of the beams 29 of the frame 28 are secured at 39 to the upper face of the head 10 of the body 2 of the bell buoy.

Received in chambers 40, the wall of which depend from the head 10 of the body of the buoy, are gas tanks 41 preferably containing acetylene gas. These tanks have conduit connections 42 with the lamp 32 to supply fuel thereto, the illumination of the lamp acting to give warning in the dark, without depending upon the warning given by the sounding of the bell.

The diametrical opposite points on the body 2 of the buoy castings 46 are riveted. These castings have openings, in which suitable anchoring cables 47 may be attached, so as to hold the buoy in position.

The invention having been set forth, what is claimed is:

1. A bell buoy comprising a hollow airtight body provided with a transverse channel or sluice-way, extensions adjacent one end of the channel, one on each side for the guiding of the water away from the channel, a wire mesh or screen guard at the other end of the channel to prevent débris entering the

channel, and a sounding signal on the body including a fluid operated actuator therefor mounted in the channel, an illuminating signal on the body, and means carried by the body for supplying gas to the illuminating means.

2. A bell buoy comprising a hollow airtight body provided with a transverse channel or sluice-way, extensions adjacent one end of the channel, one on each side for the guiding of the water away from the channel, a wire mesh or screen guard at the other end of the channel to prevent débris entering the channel, and a sounding signal on the body including a fluid operated actuator therefor mounted in the channel, an illuminating signal on the body, and means carried by the body for supplying gas to the illuminating means, a balancing weight depending from the lower end of the bell buoy for balancing the bell buoy mid stream, and means for anchoring the bell buoy from diametrically opposite sides thereof.

3. A bell buoy comprising a hollow airtight body having a transverse channel for the flow of water therethrough, and provided with chambers formed downwardly into the body, one on each side of the channel, gas containers removably fitting said chambers, a framework rising from the upper face of the body, an illuminating signal mounted on the framework, piping connecting the containers and the illuminating signal supplying gas to the latter, a sounding signal on the framework and including a pendulum clapper, a rotatable actuator mounted in the channel and operative by the water passing through the channel in one direction to operate the clapper, said pendulum clapper being in the path of elements on the actuator and provided with a device to swing past said elements should the actuator rotate in an opposite direction rendering the sounding signal non-operative.

4. In a bell buoy, the combination with a hollow airtight body having a framework rising from the upper face of the body and provided with a transverse channel, of a sounding signal actuator mounted in the channel and operative by the water passing therethrough, said body having chambers formed downwardly therein, one on each side of the channel, gas containers removably fitting in said chambers, an illuminating signal on the framework and operatively connected to and receiving gas from said containers, a sounding signal on the framework, a pendulum clapper therefor suspended from the framework and provided with a loose extension to swing in the path of elements on the actuator to operate the pendulum when the actuator rotates in one direction, and to swing past said elements when the actuator rotates in the opposite direction without operating the pendulum.

5. In a bell buoy, the combination with a hollow airtight body having a framework rising from the upper face thereof and provided with a transverse channel, said body having chambers formed downwardly thereinto, one on each side of the channel, gas containers removably fitting into said chambers, an illuminating signal on said framework and operatively connected to and receiving gas from said containers, a sounding signal on the framework, a pendulum clapper for the sounding signal suspended from the framework, an actuator for the clapper, said actuator being mounted in the channel and rotatable by the water passing therethrough and provided with elements moving in the path of the clapper for sounding the last named signal.

In testimony whereof he affixes his signature.

GOTTLIEB HOFFMEIER.

25

30

35

40

45

50

55

60

65