

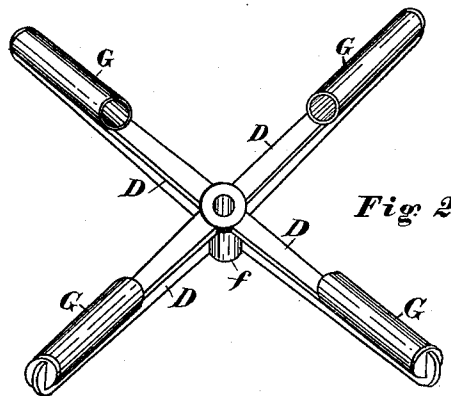
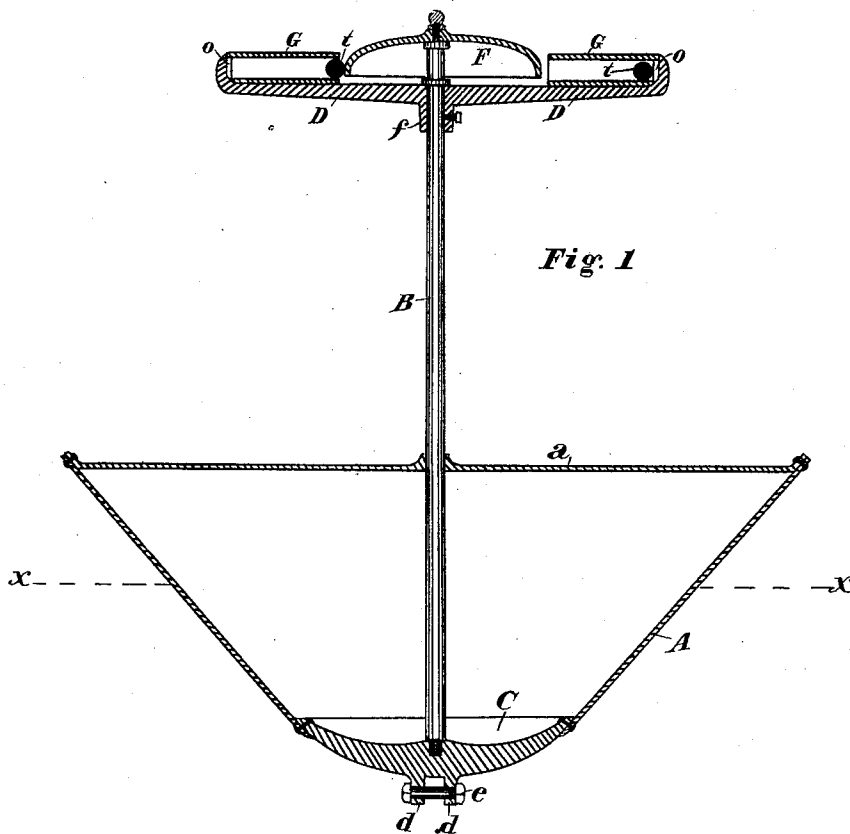
(No Model.)

2 Sheets—Sheet 1.

W. R. CLOSE.
FOG SIGNAL.

No. 482,077.

Patented Sept. 6, 1892.



Witnesses:

George H. Grady
Wm. B. Eaton

Inventor:

Walter R. Close,
by P. W. J. Lander,
His Attorney.

(No Model.)

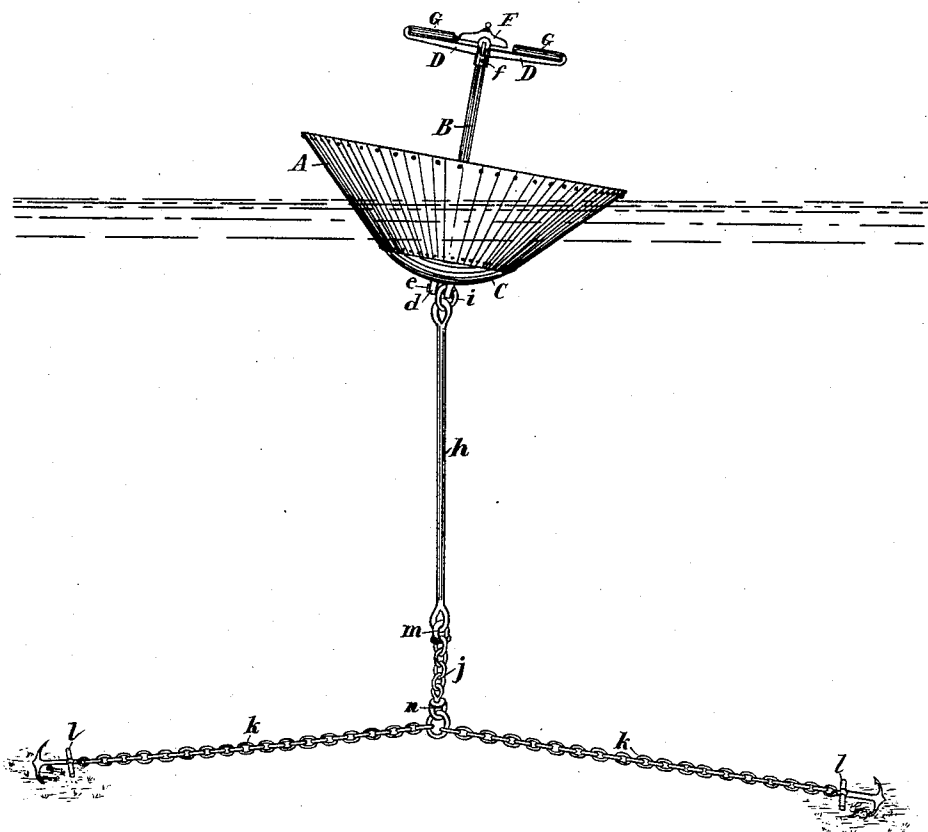
2 Sheets—Sheet 2

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Fig. 3



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UNITED STATES PATENT OFFICE.

WALTER R. CLOSE, OF BANGOR, MAINE.

FOG-SIGNAL.

SPECIFICATION forming part of Letters Patent No. 482,077, dated September 6, 1892.

Application filed November 18, 1891. Serial No. 412,270. (No model.)

To all whom it may concern:

Be it known that I, WALTER R. CLOSE, a citizen of the United States, residing at Bangor, in the county of Penobscot and State of Maine, have invented new and useful Improvements in Fog-Signals; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improved fog-signal which is to be operated by wave motion; and it consists of a hollow anchored float provided with a vertical mast carrying an attached gong at its upper end with horizontally-extending radial arms provided with tubes inclosing rolling balls so situated as to cause the latter to strike against said gong by an inclination of the arms produced by a movement of the float, as will hereinafter be fully described.

Throughout the description reference is made to the accompanying drawings, in two sheets, forming part of this specification, in which—

Figure 1 represents a vertical sectional elevation of my improved fog-signal. Fig. 2 shows a perspective view of the radial-arms of my device with tubes attached. Fig. 3 is an elevation of my invention complete, showing anchoring attachment.

Similar letters of reference refer to correspondingly like parts throughout the different figures.

The object of my invention is to produce a continuously-striking fog-signal, which will be operated by a very slight wave motion, for the purpose of warning vessels approaching dangerous places.

The description of my invention is as follows:

Referring to the drawings, A represents a float, which is constructed of sheet metal, with sloping sides depending toward a central point, and a flat deck *a* riveted to the upper edges of these sides. The bottom of the float A is constructed of cast-iron, is convex in shape and very heavy, and is provided with projecting lugs *d d*, depending from its center, which lugs are provided with a transverse bolt *e*, furnishing means for attaching a cable to anchor my device. This bottom C is riveted

to the lower edges of the converging sides of the float A and by the means of its increased weight will serve as ballast to prevent the float from turning over. The advantage of the convex surface of the bottom C of the float A is that it offers less resistance in the water and allows the float to pitch and roll more easily than would be possible with the sides extended to a point. Consequently less wave motion would operate my device with this construction.

The float A of my device I generally construct about seven feet across the top, with sides converging to two feet at the bottom and about three feet deep. This, with the solid cast bottom C, will make a boat that will sink to within fifteen inches from its deck to the dotted line marked *x x* in Fig. 1 of the drawings. The flaring sides of the float A above the water-line present a broad and overhanging surface for the force of the waves to act upon, and the undulations of the latter will tend to rock and roll the former, which through the medium of the remainder of my invention will produce the warning-signal for the benefit of passing vessels.

At the center of the deck *a* of the float A a hole is made, through which is inserted a mast B, about six feet in length, the lower end of which is permanently fastened to the inside and center of the bottom C, while the upper end is provided with a gong about two feet in diameter secured thereto, and just below and underneath this gong F is fastened the hub *f*, with horizontally-projecting radial arms D, the outer ends of which are bent upward to form abutments. Attached longitudinally and secured to the upper surface of these arms D are tubes G, about eleven inches in length, having their inner ends open and placed almost in contact with the edge of the gong F, while their outer ends extend out to the abutments of the arms D and are closed by any good and sufficient means and provided with leather buffers *o o*, which, together with the abutments on the arms D, receive the force of the balls in this direction, which are to roll within. Each tube G incloses a solid metal ball *t*, weighing about five pounds, which is allowed to roll freely back and forth, according to the inclination of the radial arms D, and is prevented from coming out at the

open end of the tubes by coming in contact with the gong F.

In the drawings I have shown only four radial arms attached to the mast B; but, if desired, more can be added without departing from the nature of my invention.

It can now be readily understood that as the float A is canted by a swell or action of the waves the radial arms D must necessarily be placed out of a horizontal position, which would consequently cause the balls *t* within the tubes G to roll therein, those on the uppermost side coming in contact with and striking against the gong F, while those on the lower side will roll outward and against the buffers *o* in the ends of their tubes. Upon the righting of the float A the momentum of the latter obtained would incline the arms D in the opposite direction and reverse the rolling of the balls *t*, those on the previously-lower side now being upon the upper, and their balls, rolling downward, will strike the gong F to produce the signal, while the opposite balls will return to the outward ends of their respective tubes, and so on as long as any movement of the float exists. The float A, rocking by the action of the waves, would naturally roll a little, which movement would cause a different ball to strike the gong in turn and produce a continuously-striking signal, and it would be almost impossible for two balls to strike at exactly the same time, owing to this rolling movement. As the radial arms D are located some distance above the float A, less motion is required to operate the signal than if the balls and gong were placed upon the deck *a*. Furthermore, the higher the gong is located the farther will its sound extend, and the radial arms do not obstruct the passage of the sound in this construction.

My device is anchored in the following manner: *h* refers to the balance-rod, which is about ten feet in length and is constructed with an eye at each end. To the upper end of the balance-rod *h* is welded a ring *i*, which is secured to the bottom C of the float A by means of the projecting lugs *d d* and bolt *e*. The lower end of the balance-rod *h* is attached to a cable *j* by means of a shackle *m* or other suitable attachment, which cable is provided with a swivel *n* to prevent the same from kinking. To the lower end of the cable *j* depart tenor-chains *k k*, which extend to anchors *i* firmly embedded in the river-bottom. This construction allows the float A to freely move around a central point, and all strain is received by the tenor-chains *k k* and tends to draw the anchors *ll* toward each other and embed them more firmly into the mud. The

use of the balance-rod *h* is necessary from this point. In case of an overturn that might happen in some places where there is great rise and fall of tide this rod *h* on account of its stiffness will prevent fouling the anchoring-cable, and thus allow the boat to right itself.

My device can further be used upon steamers and sailing vessels to serve the place of a fog horn or signal to be used nights and in foggy weather. For this purpose the float A and anchoring attachment are dispensed with and the rest of the invention mounted upon a mast or bowsprit or other suitable location receiving considerable motion, where it will operate in the same manner as hereinbefore described. In this capacity my invention will prevent collisions at sea and will not require the necessary attention occasioned with previous devices.

Having thus described my invention and the manner in which it operates, what I claim, and desire to secure by Letters Patent of the United States, is—

1. An improved fog-signal consisting of the combination of a float, a vertical mast extending above said float, a gong attached to the upper end of said mast, radial arms projecting beneath said gong and beyond the same, tubes with one end closed attached to said radial arms in proximity to said gong, and rolling balls located within said tubes and adapted to roll and strike against said gong in the manner described, with an anchoring attachment consisting of a balance-rod secured to the bottom of said float and connected thereto by a link, a cable fastened to the lower end of said rod, and tenor-chains departing from said cable, their opposite ends attached to anchors, all substantially in the manner shown, and for the purpose set forth and described.

2. In a fog-signal, the combination, with a float having converging sides, of a heavy bottom secured thereto, the bottom surface of which is convex and provided with two depending lugs, a mast secured to the bottom and projecting above the top of the float, a gong secured to the top of the mast, tubes secured to the mast and projecting outward beyond the outer edge of the gong, balls within the tubes, a pin through the lugs on the bottom of the float, a link secured thereto, and anchoring mechanism secured to the link, substantially as set forth.

WALTER R. CLOSE.

Witnesses:

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