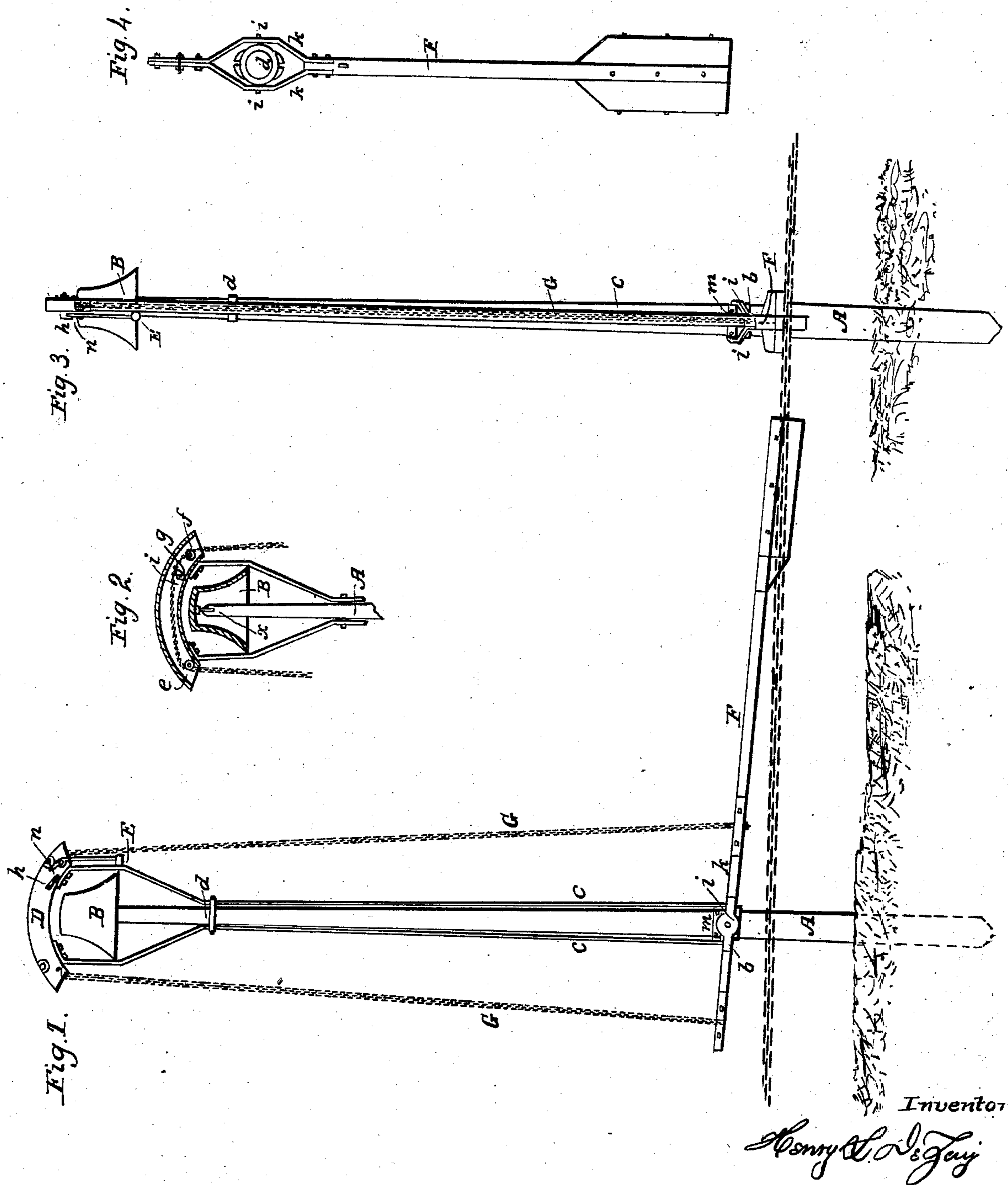


H. L. DE ZENG.

Fog Bell.

No. 15,605.

Patented Aug. 26, 1856.



UNITED STATES PATENT OFFICE.

HENRY L. DE ZENG, OF GENEVA, NEW YORK.

SELF-ADJUSTING FOG-BELL.

Specification of Letters Patent No. 15,605, dated August 26, 1856.

To all whom it may concern:

Be it known that I, HENRY L. DE ZENG, of the village of Geneva, in the county of Ontario and State of New York, have invented a new and useful Self-Adjusting Reef and Fog Bell; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification.

A represents an iron or wooden shaft strongly attached to the rocks or bar by drilling or otherwise. B, is a heavy bell resting upon the top of the shaft A and is held in position by a pin, X (inside and against the top of the bell) passing down into the shaft (see Fig. 2). On the shaft A, is a shoulder or ring, b, for a purpose hereafter described. Around the shaft A, revolves a frame composed of two upright iron bars, C, C, bolted to two or more rings, d, d, the lowest of which rests upon the shoulder or ring, b, and supports the frame, the others strengthening and holding the bars, C, C, in their proper position by screw-bolts passed through, the rings being thicker on two sides that the bars, C, C, may be flush with their outer surface (see Fig. 4). Above the upper ring, d, (and under the bell) the bars C, C, diverge sufficiently to clear the rim of the bell when they are again nearly parallel till they reach as high as its top, when they are bent inward and strongly bolted to the underside of, and support a hollow arch, D, reaching over the bell (see Fig. 1.) Inside of this arch, D, and near each end is a friction roller, e and f, and also near the roller, f, an oval-shaped cam, g, having on its upper edge a spur or tooth, l, (see Fig. 2). The axle of this cam, g, extends through one side of the arch, D, and bending at right angle reaches about half-way to the bolt upon which the friction roller, f, revolves (see Figs. 1 and 3).

E, is a heavy hammer swinging on the outside of the arch D, and having for its fulcrum the same bolt that passes through the roller, f. The handle or shank of this hammer is bent at its fulcrum so as to reach to and be acted upon by the axle of the cam, g, as described hereafter. The covering or top of the arch, D, is held down by ears reaching down the sides and screw bolts passed through as represented. On each side of the lowest ring, d, (see Fig. 4) and

equally distant from the openings that receive the bars, C, C, is a trunnion, i, upon which plays a bar, k. These bars are perforated to fit the trunnions, i i, and are bent around the ring, d, in such a form as not to interfere with it or the shaft, A. When made to vibrate, (on the trunnions) the ends on one side (of the ring d) being strongly bolted together but on the opposite firmly attached to an arm or lever, F, which extends some distance from the shaft, A, and has bolted to the end of it (on each side and underneath) heavy pieces of timber to form a strong float as represented (see Figs. 1 and 3). Equally distant from and on each side of the trunnions, i i, is attached to the arm or lever, F, by a clevis and bolt the end of a chain, G, which runs through the arch, D, and is made to act as described hereafter. Over the lowest ring, d, is placed and strongly bolted to the shaft A, a ring, M, for the purpose of preventing the frame above described being raised from its proper position.

The principal characteristics of my invention are as follows. When the float at the extremity of the arm or lever, F, is actuated by the swells, the chain, G, will be drawn backward and forward through the arch, D. This will cause the cam, g, to turn partially around or until the spur or tooth l, passes out of reach of the chain, and one end of the cam strikes the bottom of the arch, the opposite one presenting a smooth surface for the chain to slide over, the two friction rollers e and f relieving the ends of the arch. This will compel the axle of the cam, g, to act upon the heel of the hammer, E, at the passage of each swell, the hammer, being a sufficient distance from the bell to allow the bent axle or catch, h, of the cam, g, to pass to the upper side of the heel, n, of the hammer, the ends of both being beveled for that purpose (see Fig. 1). As the frame revolves upon the shoulder or ring, b, it will make no difference which direction the waves roll or what may be the state of the tide as the float will swing around and adjust itself in any position required.

It is evident from the action of the chain as above described that a whistle may be substituted for the bell if desired by having the bars, C, C, parallel above the top of the shaft, A, and placing a wheel between them (for the chain to act upon) having both

ends of its axle bent in the form of a crank to work the pistons of air pumps placed below and attached to the bars, C C. By this means a sufficient pressure can be produced, the form of the whistle and pump being too well known to require a minute description.

I do not claim a float or a lever attached to a float for giving motion to alarm apparatus on reefs or similar situations as a lever has before been attached to a float, but this lever always stood in one direction and was not allowed to swing around and accommodate itself and the float to the direction in which the swell or current or both were moving. Consequently the same worked hard was unreliable and always exposed to being broken by a storm. But by my arrangement the float can and will always swing around and carry the lever with it into any position that will accommodate the forces acting on it. Therefore what I claim and desire to secure by Letters Patent is—

25 1. Attaching a float to a lever or arm that is connected at or near the other end to a fixed vertical shaft or axis in such a manner that said float shall be allowed to swing

around said vertical shaft or axis and accommodate itself to the direction in which the swell or current or both are moving, so that said float is not subjected to any side waves concussion or strain from either the tide or swell, but is free to oscillate or vibrate with the swell and communicate motion to any suitable bell or other alarm substantially as specified. 30 35

2. I claim attaching the ends of a chain or its equivalent on opposite sides of a lever, that receives a vibrating or oscillating motion from a swell when said chain is passed over a cam, wheel, or similar article to communicate the motion imparted to the lever, and chain to the hammer, of a bell or other signal of alarm substantially as specified. 40 45

3. I claim the arrangement of the cam, *g*, and catch, *h*, relatively with the heel, *n*, of the hammer, and with the chain substantially as specified, whereby the vibrating motion of the chain works the said hammer, as set forth. 50

HENRY L. DE ZENG.

Witnesses:

E. P. REES,

WM. GARDNER.