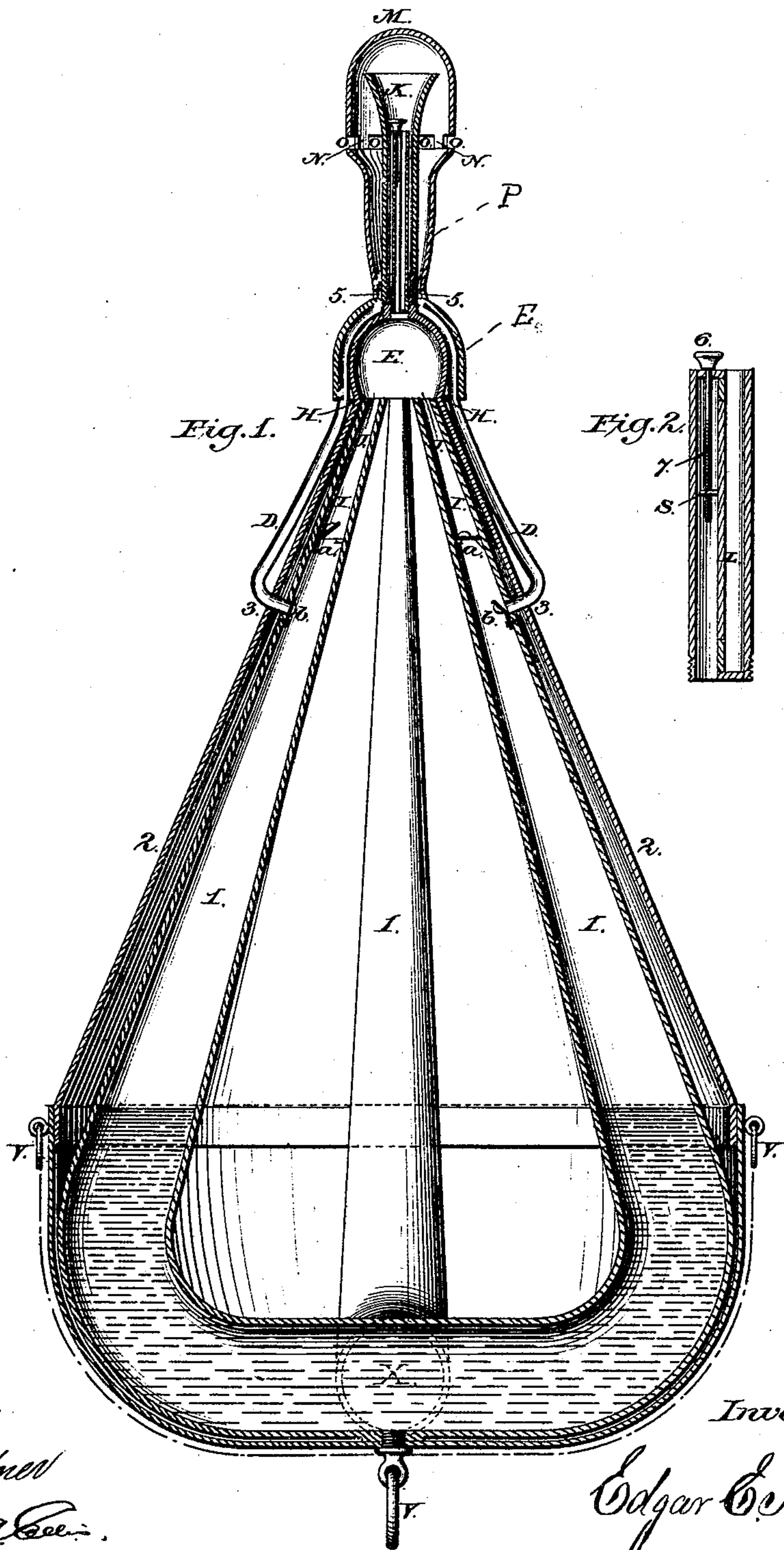


E. E. MANN.

FOG-SIGNAL.

No. 178,788.

Patented June 13, 1876.



Attest:
Wardner
John A. Lee.

Inventor:
Edgar E. Mann

UNITED STATES PATENT OFFICE.

EDGAR E. MANN, OF LAWRENCE, MASSACHUSETTS.

IMPROVEMENT IN FOG-SIGNALS.

Specification forming part of Letters Patent No. 178,788, dated June 13, 1876; application filed June 9, 1876.

To all whom it may concern:

Be it known that I, EDGAR EBENEZER MANN, of the city of Lawrence, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Fog-Signals, (an apparatus for giving warning to mariners of the proximity to dangerous places, such as rocks and shoals,) of which the following is a specification:

The invention consists of a vessel or float formed with an enlarged bottom, and tapering toward the top like an inverted balloon, and designed to float upon the water in an upright position. The said invention is called or known as "Mann's Improved Marine Danger-Signal," and is furnished with pipes or tubes having valves, all so arranged that, (in connection with a supply of mercury, water, glycerine, or other fluid in the lower portion of the pipes,) as the said vessel or float is swayed to and fro by the undulatory action of the water, a supply of air will be drawn into one or more of the said pipes or tubes by the action of the fluid within said pipes, and again forced out and through or between a reed confined within a tube, which rests perpendicularly within a globe resting upon the upper part of the pipes; thence through a horn surmounting said globe, whence the air escapes with a very loud noise, capable of being heard at a very great distance. The constant rocking or undulatory motion of the vessel will cause a continuous sound to escape from the horn, as while one tube or set of tubes, with their valves, are drawing in a supply of air, the air will, at the same time, be forced out of the opposite tube or set of tubes through the horn.

In the accompanying drawing, Figure 1 represents a vertical section of an apparatus embodying my invention or improvements. Fig. 2 represents the outer casing of the vessel or float which contains my apparatus. It is to be made of iron or other metal, or of wood of sufficient strength to withstand the action of the water or shocks to which it may be subjected.

To the bottom of the casing, and on the band encircling the same, are rings to enable me to anchor the float at any desired point. Within the casing are arranged the pipes or tubes 1 1, which communicate with each other at

the center of their lower portion, as seen at *x*, where they also are arranged at right angles to each other, and, conforming to the contour of the casing, extending upward, diminish toward the upper ends, and converging together at the bottom of the globe at the mouth of the tube containing the reed or sounding-bar. From the lower portion of the globe are four cone-shaped pipes, I I, which connect to the main pipes at the upper valves *a a*. These valves open upward. Below the upper valves *a a*, and in the main pipes or tubes, rest the lower valves *b b*, opening downward and inward. These valves are protected by a casing projecting just below and running upward to the interior and inside of the outer globe, as seen at the letter E, which forms an air chamber or passage to the valves *b b*, as seen at letters D D and figures 3 3.

The pipes D receive air from the open space between globes E E. Of these globes, which surmount the cones, there are two, lettered E E, the inner globe being solid, having an aperture only for the tube containing the reed L, and entrances for the four cones at its base J J. On the upper surface of the globe is an aperture, extending upward, in which rests the horn, which is confined by threads as a screw. Outside of the inner globe is another globe, hollow within, acting as a shield and protector to the air-passages, with apertures at its lower base at H H. To the upper part of the globes E E is placed the horn or trumpet shaped conductor K, through which the sound caused by the passage of air in the tube L escapes. The upper part of the horn K is protected by a cap or cover, M, of convex form, and extending over the upper edges of the horn K down to the band N N, in which are four openings, *o o o*, for the egress of sound. Connected to this band and running down to the cup-shaped cap, is a casing, P, with apertures at its base, as seen by figures 5 5, the whole acting as a protector to the horn K, and precluding the possibility of water or other substances from obtaining an ingress to the horn within. Within the inner globe E is a tube or pipe, containing the reed L, resting perpendicularly. At the upper end of this tube is a thumb-screw, 6, connected to a rod, 7, which is attached to a slide, S, resting over the

tongue-piece in grooves. This slide is moved up and down as you turn the thumb-screw at the top, thereby changing the sound at will, and so arranging each float that its locality can be easily determined by its sound.

The float containing the apparatus is designed to be moored at or near any dangerous place for a warning-signal to vessels, or to be used in the marine service, as it may seem proper. It is entirely automatic, and the apparatus is safely protected from the ingress of water or other obstructions floating upon its surface, after being prepared for service.

Having thus described my said invention and its mode of operation, I claim as new and desire to secure by Letters Patent, for "Mann's Improved Marine Danger-Signal," as herein described, to wit:

1. The combination of outside and inside globes E E, for the purpose of protecting the openings to pipes D, as shown.

2. The reed L, having an adjustable device for regulating the sound, in combination with globe or air-chamber E, as set forth.

3. The combination of horn K with protecting-cap M and tube P, as set forth.

4. The combination of globes E E, pipes D, having valves B, and pipes I I, as set forth.

5. The combination of the casing 2, the inner pipes 1 and outer pipes D, and the globes E, substantially as set forth.

EDGAR E. MANN.

Witnesses:

B. F. JAMES,
P. E. WILSON.