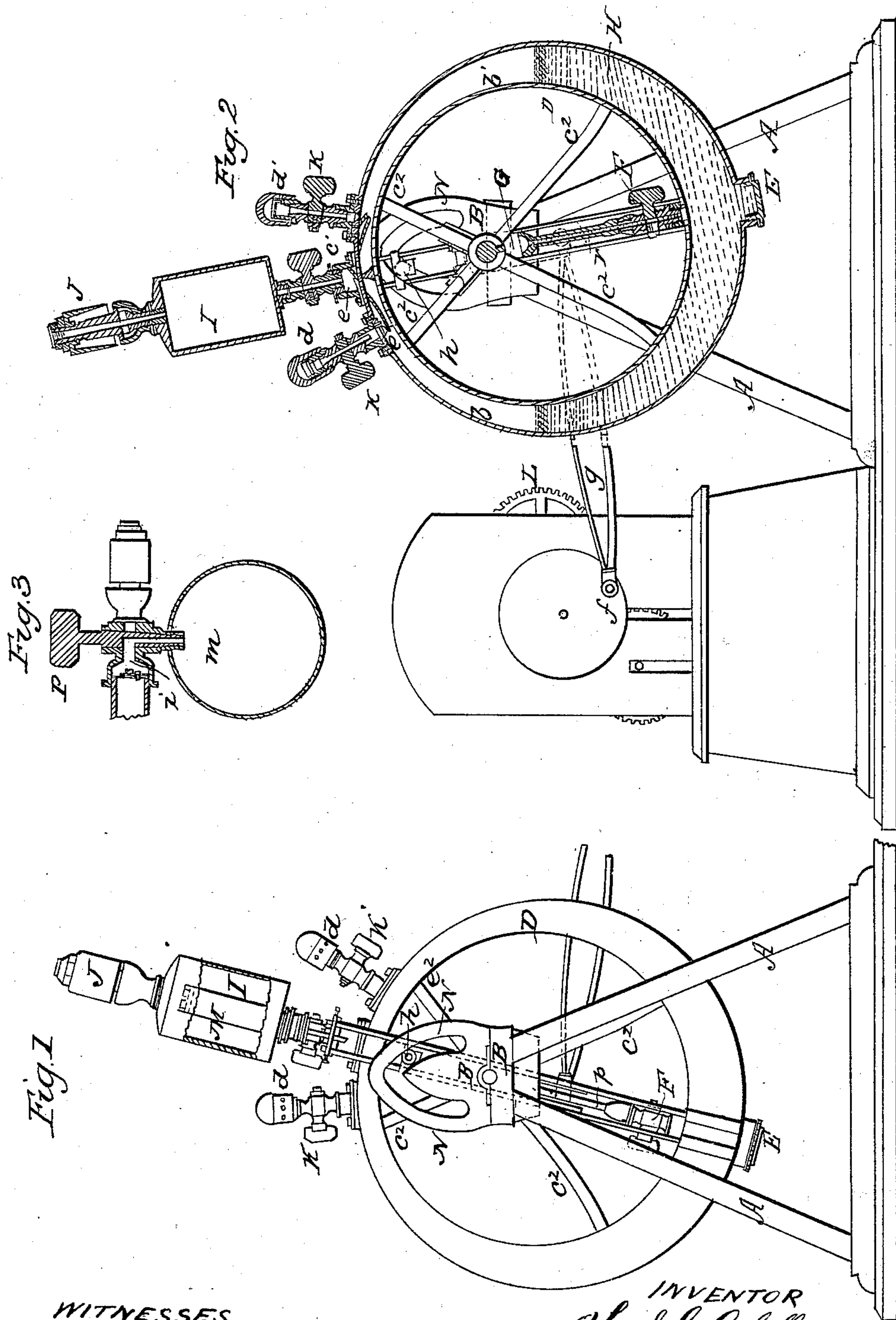


S. G. CABELL.  
Atmospheric Alarm Whistle.

No. 66,459.

Patented July 9, 1867.



WITNESSES  
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# United States Patent Office.

SAMUEL G. CABELL, OF QUINCY, ILLINOIS.

Letters Patent No. 66,459, dated July 9, 1867.

## IMPROVEMENT IN ATMOSPHERIC ALARM-WHISTLES.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, SAMUEL G. CABELL, of Quincy, in Adams county, and State of Illinois, have invented certain new and useful improvements in "Atmospheric Alarm-Whistles;" and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to letters of reference marked thereon, forming part of this specification, and in which—

Figure 1 represents a rear elevation of my apparatus.

Figure 2, a vertical longitudinal section, looking from the front.

Figure 3, a plan of one of the whistles, detached for use in a life-boat, or by an individual in case of shipwreck.

The nature of my invention consists in a novel construction and combination of air-chambers with a blast-whistle, provided with foot-valves for alternate action to produce sound; also, in a combination of blast and vacuum-whistles, or their equivalents, for operation as hereinafter described; further, in the arrangement of a funnel and feed pipe by which to supply the chamber with fluid, and determine its proper level therein; also, in providing for the introduction in such an apparatus of such chemicals as will by their mixture generate gas, and consequent pressure for operating or sounding the whistles; and in combination with an air-chamber of an air-pump, operated by vibrating motion for the same purpose; and further, in providing a simple attachment for the application of the whistles, so that they may be removed from the main apparatus, and be severally made available for use in the life-boats, in case of shipwreck and abandonment of the vessel.

To enable others to make and use my invention I will describe its construction and operation by referring to the drawing, in which—

A represents the framing of the apparatus, supporting, in suitable journals, the horizontal axle B, to which are secured three or more arms,  $c^2$ , connected at their outer ends with the annular chamber D. This chamber D is constructed larger in diameter, on its cross-section, at its lower or pendent side, and gradually tapering each way to its upper side, and is provided with a screw-plug, E, at the bottom, to which further allusion will be made hereinafter. It is also provided with a stop-cock, F, surmounted by a tube,  $r$ , and funnel,  $g$ , for the purpose of charging it with any suitable fluid, H; said tube supporting the funnel at its top, at or about the centre of the annular chamber D, which position indicates the proper level of the charge. At the upper side of this chamber D, at a point where its cross-section is the smallest, is inserted a diaphragm,  $a$ , which divides that portion unoccupied by the fluid H into two distinct compartments,  $b$   $b'$ , and immediately above, extending on each side of this diaphragm, is connected an air-chamber, I, provided with foot-valves  $e$   $e'$ , to establish a communication with the compartments  $b$   $b'$ , alternately. Above, and in communication with the air-chamber, is a blast-whistle, J, the operation of which will be explained hereinafter. On either side of this air-chamber I is attached a whistle,  $d$   $d'$ , each of which communicates with the annular chamber D, through intermediate stop-cocks K K', and is provided with suitable valves  $e$   $e'$ , opening inwardly to the compartments  $b$   $b'$ , in the chamber D.

The operation of the apparatus, thus constructed, will then be as follows: When the vessel is rolling the apparatus may be set transversely of the vessel, and the annular chamber secured, with its central whistle, J, in a vertical position, when, by the rolling motion of the vessel, the fluid H will oscillate from side to side in the chamber D, and thus operate the valves  $e$   $e'$  and  $e$   $e'$ , alternately;  $e$  and  $e'$  opening simultaneously, and on the reverse motion they will be closed and  $e'$  and  $e$  opened, resulting from the alternate pressure and vacuum produced in the compartments  $b$  and  $b'$  by the oscillation of the fluid H, thus causing the whistle J to be sounded by the blast produced by the oscillation to either side; and one of the whistles  $d$   $d'$  will be sounded alternately by the vacuum caused in the compartments  $b$   $b'$  by the receding motion of the fluid H, thus producing a continuous sounding of the blast-whistle, and alternately of the vacuum-whistles. When the motion of the vessel is of a pitching character, as in riding a cross-sea, the apparatus may be arranged parallel with the keelson, when it will operate in the same manner. Should there be little or no motion in the vessel, as is commonly the case in foggy weather, I append to this apparatus a train of wheels, L, put in motion by hand, a weight, spring, or other suitable motor, operating through a crank,  $f$ , and pitman,  $g$ , to communicate an oscillating motion to the chamber D, thus producing the same result by hand or mechanical means. The screw-plug



E, at the bottom of the annular chamber D, is provided for a twofold purpose: first, to facilitate the removal of any sediment that might accumulate in the bottom of said chamber, and secondly for the introduction of such salts, minerals, or metals, as will by solution in acids or other fluids generate gas, and consequent pressure or blast for operating or sounding the whistle attached to said chamber. The salts or metallic filings being deposited in the cupped plug E, and it screwed into place, the acid is poured in through the funnel *g*, sufficient to fill the cup, which must be coated on its inner side with porcelain or other substance that will resist the action of the acid; the cock F being stopped, the gas generated by the decomposition of the metal filings or other equivalent will escape through and sound the whistles. As at times, in very dense fog, sound is much impeded and a more powerful and shrill whistle is necessary to be heard at a given distance, I combine with the before-described apparatus an air-pump, M, arranged within the air-chamber I, and having its piston operated by means of a roller, *h*, running in a slotted cam, N, of suitable form, attached to the framing A, thus communicating a reciprocating motion to the piston of said pump, by the oscillation of the chamber D, and thereby increasing the pressure of the air in the air-chamber I, and consequently producing a louder sound of the whistle J. In order to make this apparatus available in case of emergency, such as shipwreck or the abandonment of the vessel from any other cause, I provide an apparatus as represented in fig. 3, consisting of a stop-cock, P, having an angular passage, *i*, through the plug, as represented, and an elastic and self-contracting bag, *m*, attached to the end of the plug. To this stop-cock is connected a common air-pump, bellows, or any suitable blast instrument, the plug being turned so as to establish a passage between the air-pump or bellows and the bag *m*. Said bag may be filled with air, and thus expanded to its greatest capacity, and retained ready for use; three of these accompanying the apparatus in case of abandonment, in which case the whistles may be removed from the before-described apparatus, and each attached to one of these hand instruments, to be used on the life-boats. The elastic bag being filled with air and the whistles attached, when it is desired to sound the whistle, it is done by simply turning the plug half round, or to any desired or necessary extent, to establish a passage between the said bag and the whistle, when the bag will gradually collapse, discharging the air through and sounding the whistle, which may be made to continue for a reasonable length of time, in proportion to the size and contractile power of the bag. This apparatus is equally applicable for light-houses, reefs, points or bars on tortuous channels, or buoys, as for vessels.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is—

1. The chamber D, when constructed so that the air-chambers *b b'* thereof communicate by means of valves *c c'*, on either side of a dividing plate, *a*, with the whistle J, for operation substantially as set forth.
2. The arrangement and combination of the vacuum-whistles *d d'* with the blast-whistle J, or their equivalents, for alternate operation, the former serving to supply air to the chamber D, and the latter to give it vent, by means of valves suitably arranged and operating substantially as set forth.
3. The arrangement and combination of the funnel G with the chamber D, so as to serve as a gauge for the level of the fluid in said chamber, as set forth.
4. In combination with an air-chamber and whistles, I claim the use of any compounds that will, by their decomposition or chemical combination, generate gas, and consequent pressure for operating or sounding said whistles, or their equivalents, essentially as specified.
5. The combination, with the vibrating weight or chamber D, of an air-pump, M, and air-chamber I, operating substantially as described.

S. G. CABELL.

Witnesses:

W. MORRIS SMITH,  
GEO. A. HANSON.