No. 608,955. Patented Aug. 9, 1898.

F. A. DAVEY.

STEAM WHISTLE.

(Application filed June 1, 1897.)

(No Model.)

Fig. 1.

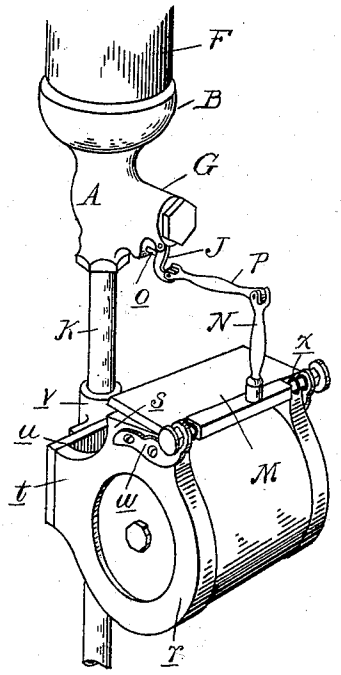


Fig. 2.

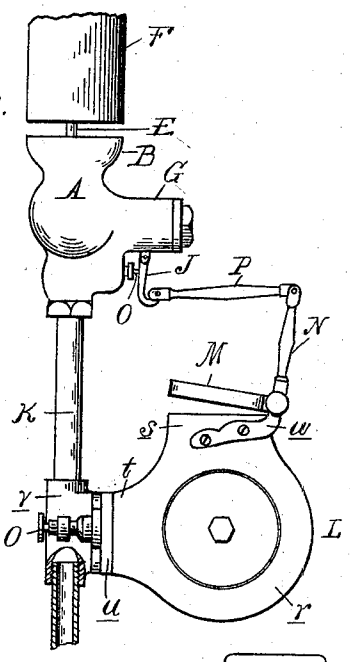


Fig. 3.

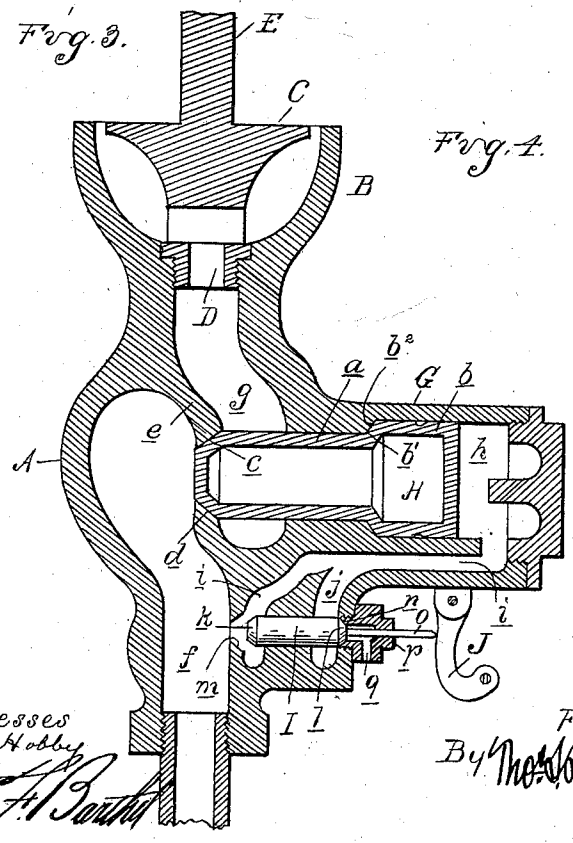
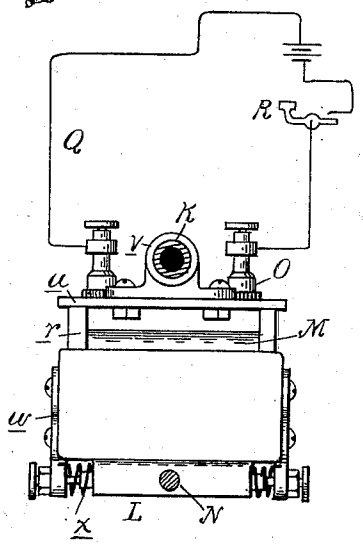


Fig. 4.



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UNITED STATES PATENT OFFICE.

FORIEST A. DAVEY, OF DETROIT, MICHIGAN, ASSIGNOR OF ONE-HALF TO JOHN G. PATTERSON, OF SAME PLACE.

STEAM-WHISTLE.

SPECIFICATION forming part of Letters Patent No. 608,955, dated August 9, 1898.

Application filed June 1, 1897. Serial No. 638,997. (No model.)

To all whom it may concern:

Be it known that I, FORIEST A. DAVEY, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Steam-Whistles, of which the following is a specification, reference being had therein to the accompanying drawings.

It is the object of my invention to obtain a device for operating a whistle which is simple in construction, certain in its operation, and is adapted to be operated from a distance.

The invention consists in the peculiar construction, arrangement, and combination of parts, as more fully hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of my whistle-operating device. Fig. 2 is a side elevation thereof. Fig. 3 is a vertical central section through the controlling-valve, and Fig. 4 is a plan view of the magnet.

A is the valve-casing, which has preferably integral therewith at its upper end the lower cup B of the whistle.

C is the deflector-disk, having the screw-threaded nipple D, securing it to the casing, and the upward-extending shank E, to which the upper bell F of the whistle is secured.

The casing A is provided with the lateral extension G, within which is slidingly secured the piston-valve H. This preferably consists of a hollow cylindrical body portion *a*, having the enlarged end portion *b*, with the annular shoulder or valve-face *b'* between, and the conical valve-face *c* formed at its small end, adapted to engage with the valve-seat *d*, formed around a port in the partition *e* of the casing, said partition dividing the inlet-passage *f* from the passage *g*, leading to the whistle. The enlarged end portion *b* slides in a chamber *h*, communicating through the passage *i* with the inlet-passage *f* and by the branch passage *j* with an exhaust-port in the casing, while the shoulder *b'* normally seats upon the seat b^2 in the casing.

I is a double valve having the opposite conical faces *k* and *l*, adapted, respectively, to seat in the seats *m* and *n* and to control the passages *i* and *j*.

o is the stem of the valve passing out through the cap *p*, on which the seat *n* is formed and which has the exhaust-port *q* therein.

J is a lever pivotally secured to the casing and adapted to press against the valve-stem *o*.

K is a pipe connected to the lower end of the valve-casing.

L is an electromagnet connected to the pipe K and preferably of cylindrical form, having at its opposite end the heads *r*, with the upwardly-projecting lugs *s*, forming the poles of the magnet, and laterally-extending lugs *t*, which are connected by a non-magnetic cross-bar *u*, the latter being connected by the sleeve *v* to the pipe K.

M is an armature pivotally secured to the non-magnetic arms *w*, secured to the heads *r* and normally held slightly above the pole-pieces by the springs *x*.

N is an arm projecting upward from the armature M, and P is a link connecting the arm N and the lever J.

O are binding-posts secured to but insulated from the cross-bar *u*, to which the terminals of the magnet-coil are secured.

The lower end of the sleeve *v* is preferably screw-threaded and forms a union or connection between the pipe K and the steam-pipe.

The parts being thus constructed, their operation is as follows: Steam admitted through the pipe K enters the passage *f* and through the passage *i* to the chamber *h*. As the area of the end *b* is larger than that of the valve end of the piston, the latter will be held normally to its seat. The magnet L is connected in an electric circuit Q, which may extend to any distance desired from the whistle, and is provided with a suitable key or circuit-closer R. If now the circuit is closed, the magnet will be energized, which will attract the armature M and rock the arm N, the latter, through the medium of the link P and lever J, moving the valve I, so as to close the passage *i* and open the exhaust-passage. This will relieve the pressure from the chamber *h* and allow the pressure in the passage *f* to open the valve H, admitting steam to the whistle. The valve I is so small that but very little power is required to operate it, while the arrangement of the electromagnet

and controlling-levers is such as to insure a positive operation of the valve whenever the circuit is closed. The valve H being hollow is very light, and thus moves easily without danger of injuring the seats by striking too hard a blow.

What I claim as my invention is—

1. In a whistle-valve, a main steam-valve, comprising a freely-sliding piston, heads thereon of different area, seats around each head, seats in the casing against which the seats on the pistons respectively bear, the main steam-passage to the whistle leading to and controlled by the smaller head, and an auxiliary valve-controlled passage leading to the larger head, having an exhaust therein.

2. In a whistle-valve, a main steam-valve comprising a freely-sliding piston, heads thereon of different area, seats around each head, seats in the casing against which the seats on the piston respectively bear, the main steam-passage to the whistle controlled by the smaller head, an auxiliary passage from the steam-supply pipe to the larger head, an exhaust-port therein, and a valve for controlling the supply and exhaust port to the larger piston, said valve consisting of a freely-sliding stem having oppositely-arranged seats thereon at opposite ends and corresponding seats around the ports leading from the main steam-supply to the auxiliary passage and from the auxiliary passage, and means for actuating said valves in both directions.

3. The combination with a main whistle-valve of the kind described, of the controlling-valve for the supply and exhaust to the large piston, consisting of the valve I having inclined seats at opposite ends controlling respectively the supply and exhaust ports, the cap *p* having the exhaust-port therethrough and a seat on its inner end against which the valve I is adapted to engage, an actuating-stem for the valve passing freely through the cap, said cap being detachable to permit of the removal of the valve I.

4. The combination with the whistle, the valve and pipe of an electromagnet secured to said pipe and comprising a cylindrical body having the end heads *r* provided with the upwardly-projecting pole-pieces *s* and the rearwardly-extending lugs *t*, the connecting non-magnetic cross-bar *u* secured to the pipe and the hinged armature M, and a connection between said magnet and valve consisting of an upwardly-projecting arm on the armature, a lever on the valve and a link connecting said arm and lever.

In testimony whereof I affix my signature in presence of two witnesses.

FORIEST A. DAVEY.

Witnesses:
M. B. O'DOGHERTY,
OTTO F. BARTHEL.