

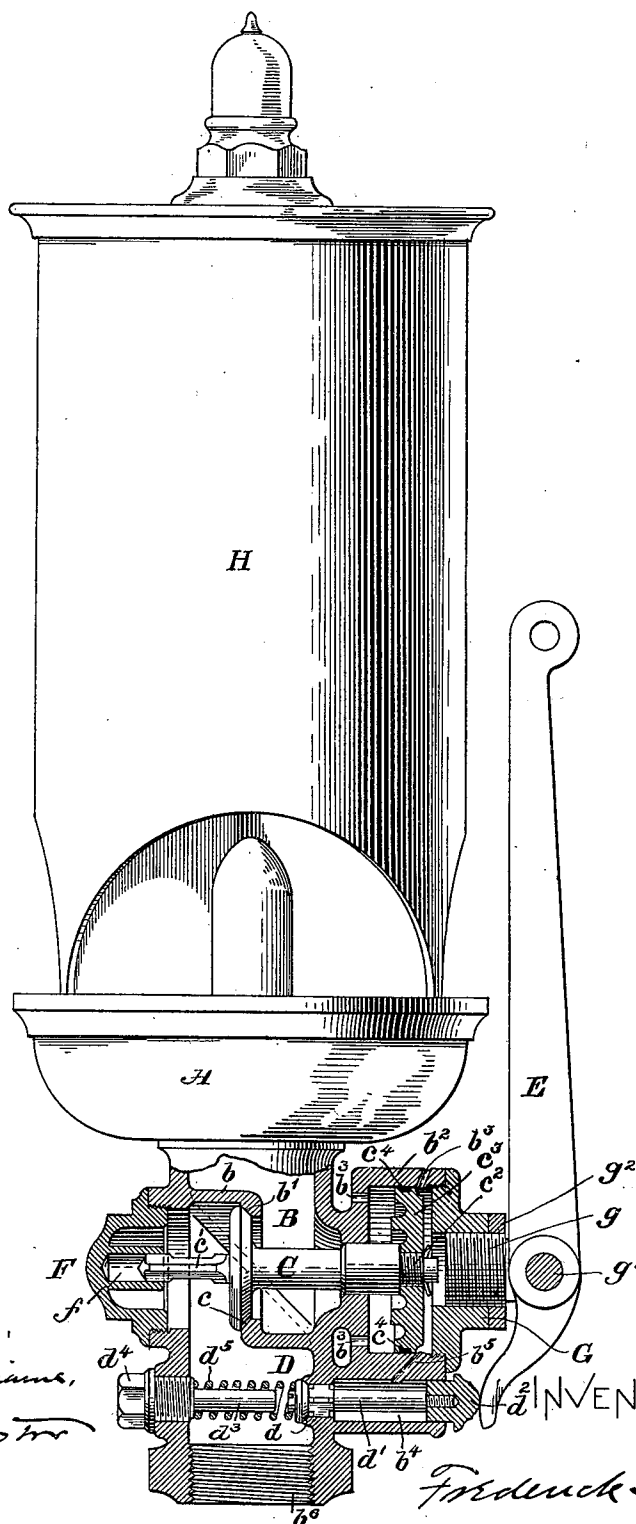
No. 636,907.

Patented Nov. 14, 1899.

F. LANE.
WHISTLE VALVE.

(Application filed Dec. 27, 1898.)

(No Model.)



WITNESSES.

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FREDERICK LANE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE CROSBY STEAM GAGE AND VALVE COMPANY, OF SAME PLACE.

WHISTLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 636,907, dated November 14, 1899.

Application filed December 27, 1898. Serial No. 700,409. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK LANE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Whistle-Valves, of which the following is a specification.

My invention relates to whistle-valves; and its object is to provide a valve easily operated and with its parts so arranged as to be conveniently accessible and to insure quick and effective action.

The drawing which accompanies and forms a part of this specification is a vertical transverse section, partly in elevation, of the valve.

H is the whistle-bell.

A is the whistle-bowl, within and about which are arranged the valve C and the various parts of my invention. This bowl A is divided into two chambers B and D by the partition *b*, through which there is an opening adapted to be closed by the main valve C when seated at *b'*, through which opening passes the valve-stem. Projected laterally from the upper chamber B is the cylinder *b*², with a passage from one to the other, through which passage runs the valve-stem. Projected laterally from the lower chamber D is the cylinder *b*⁴, with a passage from one to the other, adapted to be closed by the auxiliary valve *d'* when seated at *d*, through which passage runs the valve-stem. This cylinder *b*⁴ is parallel to and below the cylinder *b*², and they are connected by the passage *b*⁵. The main valve has a guide-stem *c'*, which extends into the guideway *f* of the cap F, has a valve-seat *b'*, and has a stem which forms the rod of the piston *c*³, the rod and piston having a screw-threaded engagement, as shown at *c*². F is a cap screw-threaded for engagement with the valve-case and adapted on the inside to furnish a guideway for the valve-stem *c'*. The piston *c*³, with its spring-packing *c*⁴, closely fits and slides in the inner periphery of the cylinder *b*². Passages *b*³ lead from the cylinder both above and below the piston to the open air, while the passage *b*⁵ opens into the cylinder above the piston, as shown in the drawing.

G is a cap forming the outer end of the cylinder *b*² and having a screw-threaded engagement

therewith. This cap has a central opening, into which is screw-threaded an adjustable plug *g*, which is furnished at its outer end with parallel lugs adapted to pivotally engage the lever E by means of the pin *g'*, and thus constitute a fulcrum for such lever. The plug *g* is held in place after adjustment by the lock-nut *g*².

The auxiliary valve *d'* has a stem screw-threaded at its outer end for engagement with the hollow cap *d*², which is adapted to fit and slide into the cylinder *b*⁴ and to serve as an abutment against which the short arm of the lever rests. The screw-plug *d*⁴ has a pin *d*³, employed as a guide to the spring *d*⁵, which is adapted to hold the valve *d'* to its seat. The bowl is internally screw-threaded at its lower end *b*⁶ for engagement with the receptacle to which it is to be attached. It will be observed that the caps F and G and the plugs *d*⁴ *d*² are so constructed as to make it an easy matter to assemble or remove the various parts of the entire mechanism.

The operation of my whistle-valve is as follows: When the whistle-valve is fixed upon a steam-boiler, the steam from the boiler fills the lower chamber D and by pressure upon the valves C *d'* holds them to their respective seats, the spiral spring *d*⁵ assisting to hold the valve *d'* to its seat. To sound the whistle, the operator pulls the lever E, thereby depressing the cap *d*², forcing the valve *d'* from its seat, and allowing the steam to escape from chamber D into the cylinder *b*⁴, thence through the passage *b*⁵ into that part of cylinder *b*² which is above the piston. The pressure of the steam upon the piston being practically of the same degree as that of the steam in chamber D, it follows, as the surface of the piston is larger than the surface of the valve C, that this pressure will force the valve C from its seat, and thereby allow steam to escape from the chamber D into chamber B and thence upward through the upper part of the whistle-bowl A to the whistle. If the pressure by the lever on the cap *d*² be removed, the valve *d'* will immediately return to its seat, being forced thereto by the steam-pressure in chamber D, assisted by the load or pressure of the spring *d*⁵. The steam remaining in the

cylinder b^4 , passage b^5 , and space above the piston c^3 now instantly dissipates, through the opening b^5 , into the open air, thus removing the pressure from the piston and allowing the valve C to be forced to its seat by the pressure in chamber D. This cuts off the supply of steam to chamber B, and the whistle ceases to blow or sound.

For convenience we may call the chamber D the "induction-chamber" and the chamber B the "eduction-chamber."

Having now described the various parts of my invention and its method of operation, what I claim as new, and desire to secure by Letters Patent, is—

1. In a whistle-valve the combination, with a whistle-bowl consisting of an induction-chamber leading by a valve-controlled passage into an eduction-chamber, of a valve seated in the induction-chamber, provided with a guide-stem c' , and attached by a stem or rod to a piston adapted to slide in a cylinder laterally projected from the valve-casing; such rod and piston; such cylinder with a movable outer end and provided with passages into the open air, and also with a passage leading from its outer end above the piston into another cylinder; such other cylinder with a valve-controlled passage leading into the induction-chamber, and with a movable or sliding outer end; such valve seated in the induction-chamber, and attached by a stem, or rod, to the sliding outer end of the cylinder, and adapted to be forced from its seat from the outside of the valve-casing by means applied to such sliding end; a spiral spring arranged in the induction-chamber to assist in forcing the last-named valve to its seat; a lever arranged without the valve-casing and adapted to force the sliding outer end into the cylinder; a movable screw-plug and pin inserted in the valve-casing and adapted to guide the spiral spring; a movable cap inserted in the valve-casing and adapted to guide the valve-stem c' ; and a valve-casing with the various movable

parts; substantially as and for the purposes set forth.

2. In a whistle-valve the combination, with a whistle-bowl consisting of an induction-chamber leading by a valve-controlled passage into an eduction-chamber, of two valves seated in the induction-chamber, and two cylinders projected from the valve-casing, one cylinder having a piston; all so arranged that, when one valve is forced from its seat, steam will escape from the induction-chamber into one of the cylinders and thence into the other cylinder causing the piston therein to open the other valve, thus allowing the steam to escape from the induction-chamber to the eduction-chamber, and thence to the valve-whistle; together with external means for forcing the first-mentioned valve from its seat, and a spring to assist in forcing said valve to its seat; and means for adjusting and operating the several parts; substantially as described.

3. In a whistle-valve the combination, with two valves, not positively or mechanically connected, seated in the induction-chamber, of two cylinders laterally projected from the valve-casing, with means for adjusting the several parts, and means for operating the mechanism from the outside; substantially as described.

4. In a whistle-valve the combination, with a main valve and an auxiliary valve and two cylinders, one cylinder having a sliding outer end, of a lever fulcrumed on the outer end of one cylinder and adapted to depress the sliding end of the other cylinder thereby forcing the auxiliary valve from its seat; substantially as described.

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

FREDERICK LANE.

Witnesses:

WATERMAN L. WILLIAMS,
RALPH W. FOSTER.