(No Model.)

J. ERWOOD.

STEAM EXHAUST PIPE VALVE.

No. 388,654. Patented Aug. 28, 1888.

Fig 1.

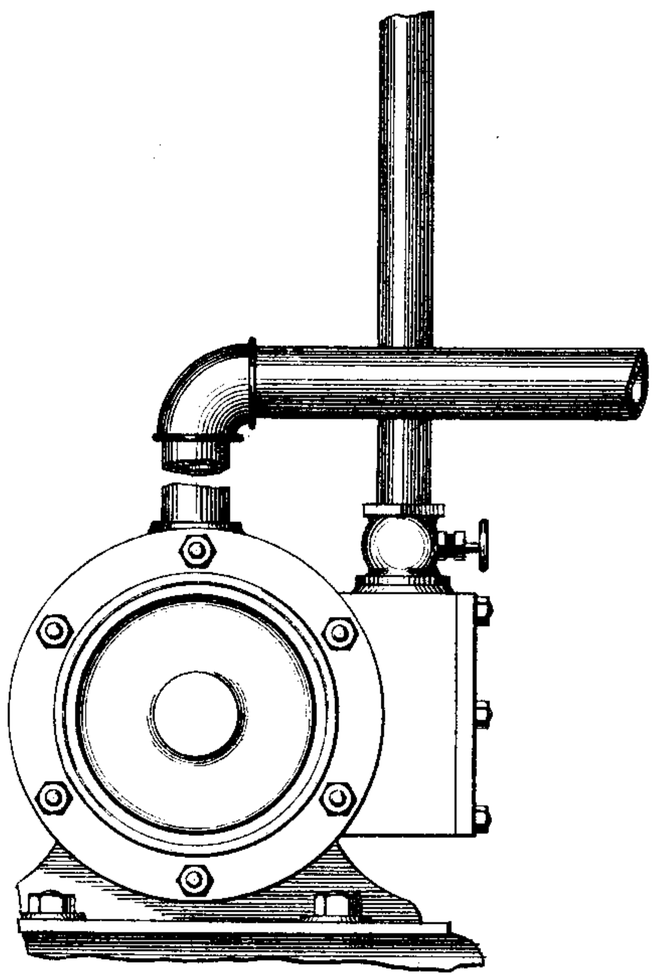


Fig 2.

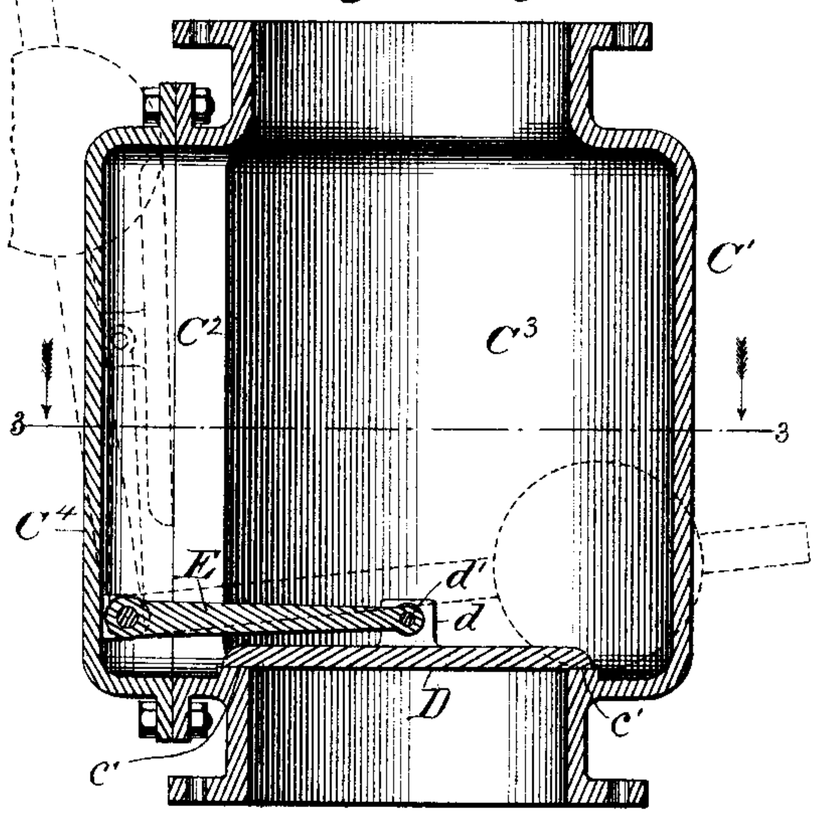
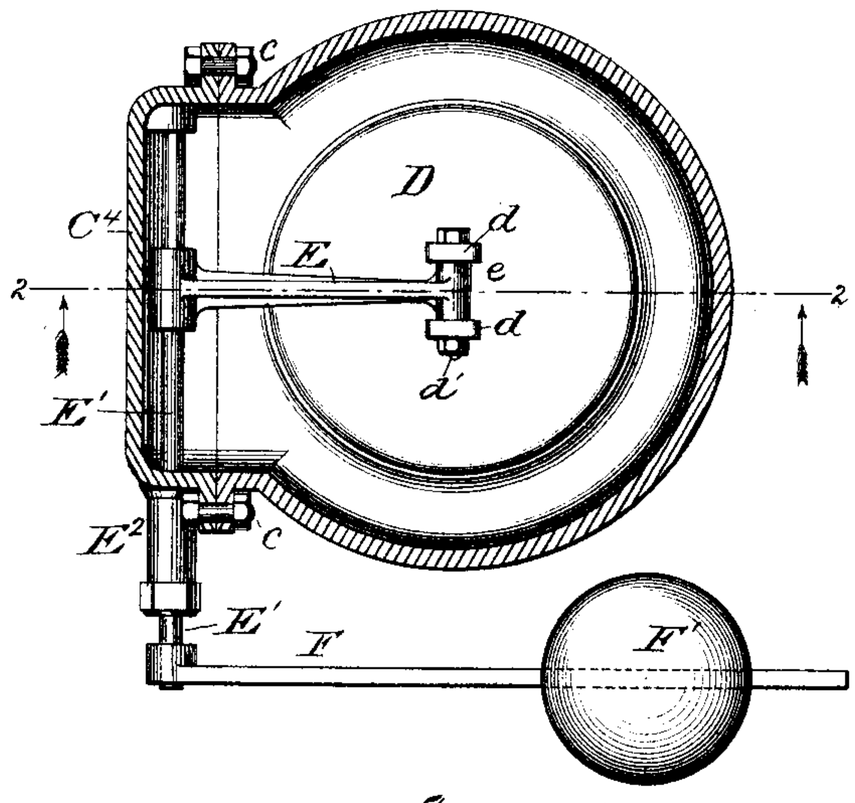


Fig 3.



Witnesses.
Wm. T. Heming.
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UNITED STATES PATENT OFFICE.

JOHN ERWOOD, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-FIFTHS TO JAMES G. BECKERLEG, OF SAME PLACE.

STEAM-EXHAUST-PIPE VALVE.

SPECIFICATION forming part of Letters Patent No. 388,654, dated August 28, 1888.

Application filed April 3, 1888. Serial No. 269,432. (No model.)

To all whom it may concern:

Be it known that I, JOHN ERWOOD, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Steam-Exhaust-Pipe Valves; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to the combination, with the exhaust-steam pipe of an engine and a pipe leading from the exhaust to a heating or other apparatus for using steam at a low pressure, of a valve of peculiar construction arranged in the exhaust-pipe or branch thereof beyond the point from which the pipe leading to the heating or other steam-using apparatus is taken off.

Referring to the accompanying drawings for a more particular understanding of my invention, Figure 1 represents the exhaust-pipe of a steam-engine, a branch leading therefrom conveying exhaust-steam, say, to a heating apparatus or another analogous apparatus, and the valve herein referred to applied to the exhaust-pipe beyond the point from which said branch is taken. Fig. 2 is a central vertical section of the valve-shell and valve in the line 2 2 of Fig. 3, and showing the valve closed. Fig. 3 is a horizontal section in the line 3 3 of Fig. 2.

A represents the exhaust-pipe of a steam-engine, having a vertical part, A′. B is a branch pipe leading from the exhaust-pipe to a steam-heating or other apparatus for which exhaust-steam is available, and C is the valve, hereinafter described, located in the vertical part of the exhaust-pipe beyond the branch B.

The valve C consists of a shell having a central enlarged part, C′, nearly cylindric in shape, but extended at one side to form the chamber C^2. The shell is made in two parts, C^3 C^4, of which the part C^4 forms a cap, secured to the body of the shell by bolts *c c*, the joint of the two parts being in a vertical plane through the chamber C^2. Within the lower end of the shell, at the bottom of the enlarged part of the latter, is a horizontal annular seat, *c′*, upon which rests the valve proper, D, when closed. The valve D is desirably circular in form and provided with two lugs, *d d*, upon its upper surface arranged in a diameter of the valve D, and said lugs are bored to receive a pivot-bolt, *d′*.

E is an arm secured at one end to a shaft, E′, which is mounted rotatably in the sides of the cap C^4, near the bottom thereof, so that the arm E when in a substantially-horizontal position may extend over the valve D between the lugs *d* of the latter. The free end of the arm E is laterally extended to form a sleeve, *e*, which stands at right angles to the direction of the arm, and which is bored or otherwise apertured to receive the pivot-bolt *d′*, by which said free end of the arm E is pivoted to the lugs *d d*. The shaft E′ extends through a stuffing-box, E^2, cast on the side of the cap C^4, and to the outer end of said shaft is secured a weight-arm, F, to which is movably attached a weight, F′. The weight-arm F is secured to the shaft E′ at such an angle with respect to the arm E that when the arm E is thrown up against the cap-plate C^4 said weight-arm will stand at a slight outward and upward inclination, as shown in dotted lines of Fig. 2, so as to retain the valve, which is raised by the arm E, in its lifted position. The weight-arm E, when the valve is closed, is in a substantially-horizontal position and serves to hold the valve D to its seat with force determined by the gravity of the weight and its position upon the weight-arm F, while the pivot *d′* enables the valve to adjust itself perfectly to its seat.

The recess C^2 in the valve-shell is of such depth as to allow the valve D to be withdrawn wholly within the recess, substantially as shown by dotted lines of Fig. 2, and to thereby offer no obstruction to the free outward passage of steam through the prolongation A′ of the exhaust-pipe when said valve is open.

The weight F′ will be adjusted with reference to the requirements of the steam-pressure in the branch pipe B, and the valve being arranged, as shown, in a vertical part of the exhaust-pipe beyond the point at which the branch B is taken therefrom any excess of pressure in the exhaust-pipe above that to which the valve is adjusted will result in rais-

ing the valve D and allowing steam to escape through the exhaust-pipe. In operation it will rise and fall as the pressure in the exhaust-pipe A shall vary above and below the resistance to which the valve D is adjusted by the weight F'. When the steam is not to be diverted to the branch B, the valve D is entirely lifted by upward force applied to the lever F, and is retracted into the recess C^2 where it offers no impediment to a free passage of steam through the pipe A', and where it will be retained by the weight F' until again lowered.

I claim as my invention—

The combination, with the vertical part A' of an exhaust-pipe leading from a steam-engine and a branch pipe, B, taken from said exhaust-pipe, of the valve C, located in the vertical part of the exhaust-pipe beyond the point at which the branch B is taken, said valve C comprising the laterally-recessed shell C', provided with a horizontal seat, *c'*, the rotatable shaft E', passing through a stuffing-box, E^2, the valve D, the arm E, secured to the shaft E' and pivotally attached to the middle of the valve proper, D, the exterior weight-arm, F, and the movable weight F', substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

JOHN ERWOOD.

Witnesses:
M. E. DAYTON,
TAYLOR E. BROWN.