

Hamkins, Goodwin & Cummings.

Valve Cock,

No 18,847,

Patented Dec. 15, 1857.

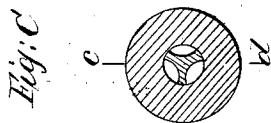
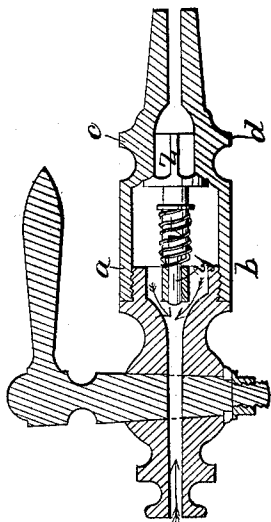
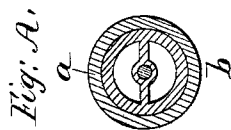
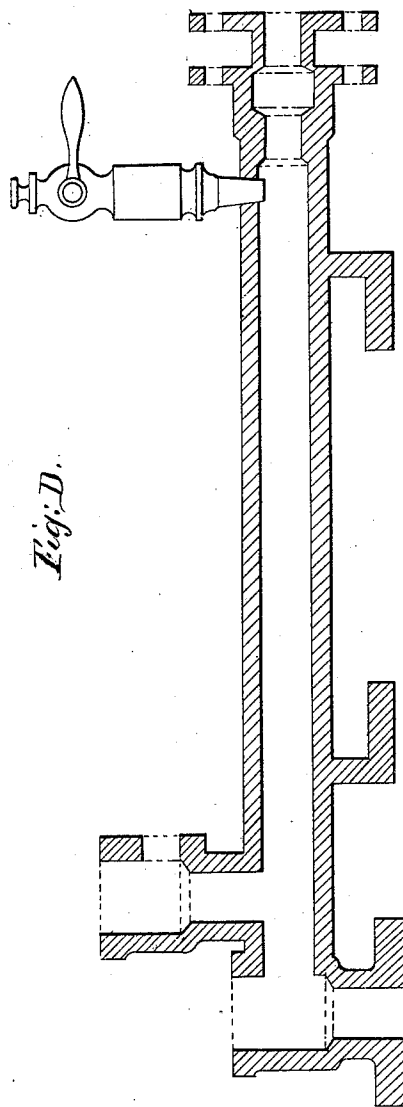


Fig. B



UNITED STATES PATENT OFFICE.

MOSES C. HAWKINS, JACOB W. GOODWIN, AND JAMES CUMMINGS, OF ERIE, PENN-
SYLVANIA.

SPRING-VALVE COCK.

Specification of Letters Patent No. 18,847, dated December 15, 1857.

To all whom it may concern:

Be it known that we, MOSES C. HAWKINS, JACOB W. GOODWIN, and JAMES CUMMINGS, of the city and county of Erie and State of Pennsylvania, have invented an Improvement in Air-Cocks for Force-Pumps, the nature of which invention we do hereby declare to be fully described and set forth in the following description and specification.

10 In connection with the ordinary air-cock, we employ, first, the air-valve Z, as shown in the accompanying drawing B, or its mechanical equivalent; second, the valve-gage Y, and spiral spring V, as described in the same drawing. These several parts form in combination with each other and with the ordinary air-cock, the peculiar mechanical contrivance which we call a "valve air-cock," and which we claim to be new, as well as highly useful and important.

We will explain the utility of the improvement which we claim to have invented, with the manner of its operation, as applied to the force-pump of a steam engine. It is a well established fact, that air, or vapor, or both together, often accumulates in the barrel of the pump, between the stuffing box and feed-valve, and by its presence there, prevents a full and uniform action of the pump. The air, as it becomes condensed by continued accumulation, expands and fills the vacuum which is intended to be produced by the withdrawal of the plunger or piston rod, so that the natural pressure of the atmosphere upon the water in the well or reservoir, is insufficient to force the water through the feed-valve into the pump-barrel, there being really no vacuum produced by the withdrawal of the plunger, in consequence of the expansion of the condensed air and vapor in the pump-barrel, as described. Under such circumstances, the force pump must of course, at once become useless, and much danger thereupon arise to engine and boiler, as it is well known that steam boilers often explode for the reason of not being properly supplied with water by the force pump. By applying the "valve air cock" to the barrel of the pump,

near the stuffing box, as described in drawing D, accompanying, this difficulty is completely overcome, securing to the force pump a full and regular action. The operation of the "valve air-cock," may be thus described:

When the air or vapor accumulates in the pump-barrel, so as to impair the due working of the pump, it will, on turning the cock as described in drawing B, escape, as the plunger passes in, by forcing back the valve Z, which is instantly closed by the external pressure of the atmosphere, the moment the plunger begins to be drawn back, excepting when the external pressure upon the valve, is less than the internal pressure of the expanding air. When the air and vapor has escaped, the cock should be turned back, as in drawing D. When the accumulated air is again found to cause trouble, again turn the cock, as described, and let it escape. It will be seen that by employing such an air cock as we have described, the force pump may be relieved of the air detrimental to its action, without in mean time at all impairing or suspending the due working of the pump, no matter how rapid the motion of the plunger may be, an important object which can be accomplished by no air cock heretofore known or used. It remains to be explained, that the valve-gage Y, and the spiral spring V, are employed for the purpose of assisting to keep the valve Z in its place and gaging its motion.

We do not claim any part of the air cock, constructed as described, when taken separately. But—

We do claim—

The valve Z, valve-gage Y, with spiral spring V, in combination with the ordinary air cock, in the manner described, and for the purpose set forth.

MOSES C. HAWKINS.
JACOB W. GOODWIN.
JAMES CUMMINGS.

Witnesses:

J. F. DOWNING,
WM. A. GRISWOLD.