(Model.)

H. F. COLVIN.

STEAM VALVE FOR INJECTORS.

No. 254,615. Patented Mar. 7, 1882.

Fig. 1.

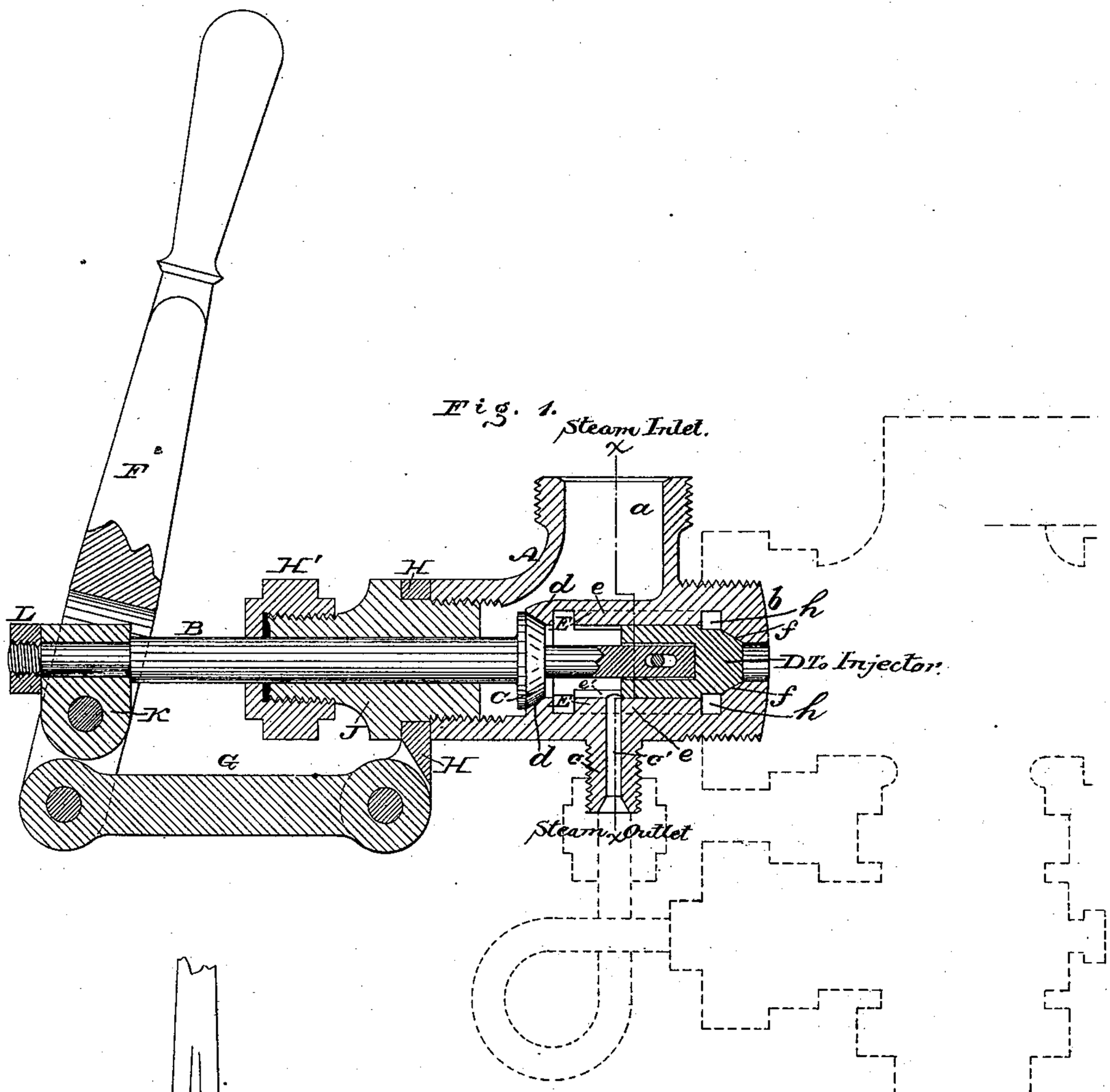


Fig. 3.

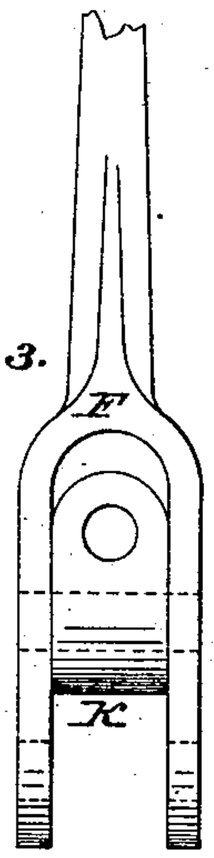
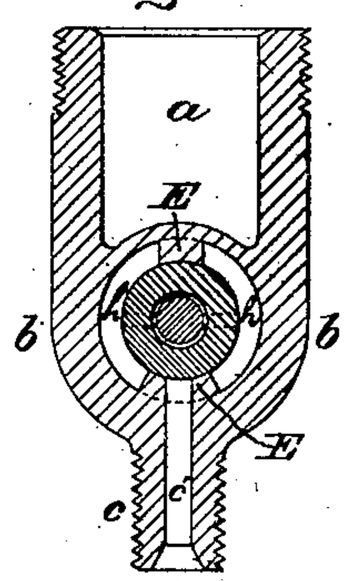


Fig. 2.



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HENRY F. COLVIN, OF PHILADELPHIA, PENNSYLVANIA.

STEAM-VALVE FOR INJECTORS.

SPECIFICATION forming part of Letters Patent No. 254,615, dated March 7, 1882.

Application filed October 4, 1881. (Model.)

To all whom it may concern:

Be it known that I, HENRY F. COLVIN, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Steam-Valves for Injectors, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a longitudinal section of the steam-valve embodying my invention. Fig. 2 is a vertical section in line *x x*, Fig. 1. Fig. 3 is an end view of a portion of the lever of the valve and the connection of the stem thereof.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of a steam-valve formed of two valves connected to a common stem, one of said valves being fixed to the stem and the other valve loosely connected thereto, the latter valve being surrounded by a steam-passage, the operation and advantages being hereinafter fully set forth.

It also consists of the lever connected to the valve-stem and shell of the valve, whereby it may be placed in most convenient positions, and provision is made for removing and reapplying the packing.

Referring to the drawings, A represents a shell, which is formed with a steam-inlet branch, *a*, and two steam-outlets or discharge-branches, *b c*, which latter branches, *b c*, are at, or about at, a right angle to each other.

B represents the valve-stem, which carries a disk-valve, C, which is firmly secured to the stem near its end, the seat *d* of said valve being formed by the walls *e e* within the shell. To the end of the stem is connected a valve, D, which has a seat, *f*, for its outer end on the inner face of the branch *b*, said valve D being of the form of a hollow cylinder closed at its outer end, and freely receiving at the inner end the end of the stem B, to which it is connected by a pin which is fixed to the cylinder and passed through a slot in the stem, or vice versa, whereby the stem may be moved to a limited extent without moving the valve.

Projecting inwardly and longitudinally from the walls *e e* are ridges E, between which the valve D is fitted, so that there are left between the sides of the valve D and the walls *e* the steam-passages *h*, it being noticed that the valve D is of such length that when the valve is on its seat *f* the duct *c'* of the branch *c* is uncovered, and when said valve is moved from its seat the duct *c'* is covered or closed, the part *e'* of the ridge E thus acting as a seat for the side of the valve D, thus making three seats in the entire valve. The branch *b* is shown connected to an injector for supplying a steam-boiler with water, and the branch *c* is shown connected to the water-supply pipe of said injector. In order to prime the injector the lever of the stem B is drawn out to an extent not exceeding the length of the slot of the connection of the valve D and said stem. This causes the valve C to leave its seat *d* without disturbing the valve D. The steam which enters the shell through the branch or passage *a* now reaches the duct *c'* of the passage *c*, and so enters the water-supply of the injector, whereby the water is forced into the injector for priming purposes. As soon as the water appears at the overflow the stem is drawn out to full extent. This moves the valve D from its seat *f*, and the side of said valve covers the duct *c'*. Steam is thus cut off from the branch *c*, and, entering the passage *h* around the valve D, reaches the duct of the discharge-branch *b*, and so enters the injector, which is now in full operation. When service of the injector is not required the stem B is forced in until the valve C closes on its seat *d*, and thus the supply of steam is cut off from both branches *b c*.

While I have described the valve in connection with an injector, it is evident that it is serviceable for any apparatus or device requiring at least two steam-jets for operation. The number of branches *c* may be increased, and the valve D made sufficiently long to cover and uncover the ducts thereof.

F represents the lever of the valve-stem, whose inner end is bifurcated and pivoted to one end of a link, G, which extends parallel with said stem. The other end of the link is pivoted to a ring, H, which abuts against the edge of the shell A, and is fitted on and securely held by a stuffing-box or nut, J. The outer end of the stem is passed through an opening in a block, K, and securely connected thereto by a nut, L, on the end of the stem, said block being fitted within the bifurcation

of the lever F and pivoted thereto. It will be seen that by loosening the nut J the yoke or ring H is free to be rotated on the nut, and the lever, with connected parts, may be turned so as to adjust or set the lever in the most convenient position, after which the nut is again tightened. During the sliding movements of the valve-stem the pivotal connection of the block K with the lever F prevents binding of said block with the valve-stem. By unscrewing the nut L and drawing out the lever F to full extent the block K may be entirely cleared of the valve-stem, whereby the packing-nut H′ may be removed, fresh packing applied, said nut restored, and the lever and block again connected to the stem.

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

1. A steam-valve consisting of a shell having two discharge-passages, and two valves connected to a common stem, one of said valves being fixed on the stem and provided with a seat, and the other valve loosely connected to said stem and provided with two seats, the latter valve being surrounded by a steam-passage leading to its end seat, substantially as and for the purpose set forth.

2. The valve-stem, in combination with the lever and pivoted block, substantially as and for the purpose set forth.

3. The shell and valve-stem, in combination with the lever, pivoted block, link, and ring, substantially as and for the purpose set forth.

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