

C. A. HAGUE.

Circulating Valves for Fire-Engines.

No. 140,194.

Patented June 24, 1873

Fig. 1.

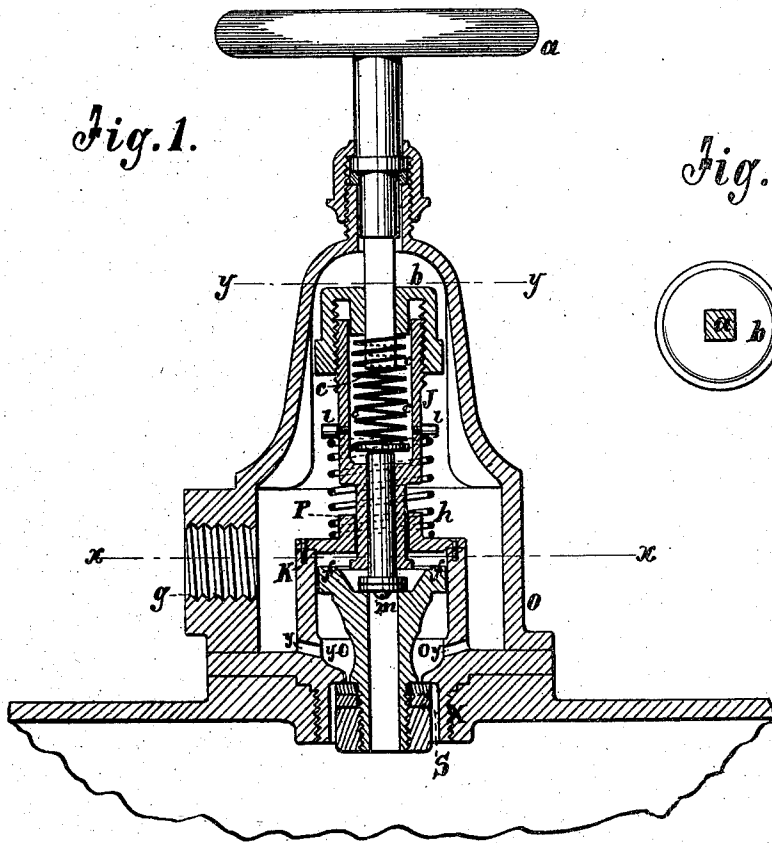


Fig. 3.

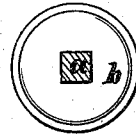
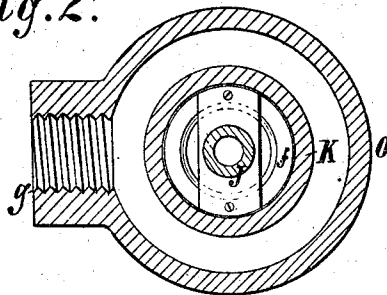


Fig. 2.



Witnesses:

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CHARLES A. HAGUE, OF HUDSON, NEW YORK.

IMPROVEMENT IN CIRCULATING-VALVES FOR FIRE-ENGINES.

Specification forming part of Letters Patent No. 140,194, dated June 24, 1873; application filed April 26, 1873.

To all whom it may concern:

Be it known that I, CHARLES A. HAGUE, of Hudson, in the county of Columbia and State of New York, have invented a new and Improved Circulating-Valve for Steam Fire-Engines, of which the following is a specification:

Figure 1 is a sectional elevation of a circulating-valve, which I propose for use in fire-engines, to relieve the hose of pressure when the pipe-man shuts off the escape at the nozzle. Fig. 2 is a horizontal section on the line *xx* of Fig. 1; and Fig. 3 is a horizontal section on the line *yy*.

Similar letters of reference indicate corresponding parts.

The case *O* is attached to the discharge-chamber of a fire-engine by the screw *X*, and pipe *g* is attached with the suction. When the pressure rises in the discharge by the shutting off of the escape, the water, acting on small valve *m*, lifts it against spring *C*, and acts on the top *f*, the area of which is greater than the valve *S*, which is thereby forced down and opens the passage *y*, through which the water escapes from the discharge to the suction, and thus relieves the pressure in the hose. The valve *S* is held up, when not subject to water-pressure, by the spring *h*. The tension of spring *C* is regulated by the hand-wheel *a* and its stem, which screw the cap-nut *b* up or down on tube *J*, which is prevented from turning by the lugs *l*. The opening of valve *S* may be adjusted for different pressures or different pumps by placing washers be-

tween the case of spring *C* and cap *P*, on case *K*, on which it strikes, or by adjusting said cap up or down by suitable means; also, the construction of valve *f* is such that the extra surface exposed to pressure when valve *m* rises is balanced by corresponding surface on back side, causing the valve *S* to seat itself as soon as the pressure falls below that which raised it.

This device is more instantaneous in action than a relief valve, which has to be opened against a spring, because the power of the spring increases as the valve rises, whereas in this case as soon as the valve *S* has opened a little there is no resistance, except by the slight spring *h*, the power of which is only sufficient to hold the valve up.

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

1. The combination of the valves *S m* and *f* in a case, *O*, attached to the discharge and suction chambers of a pump, substantially as specified.
2. The arrangement of the valves *S f m*, tube *J*, spring *h*, case *K*, the spring *C* and its adjusting mechanism, substantially as specified.
3. The arrangement of spring *C*, adjusting cap-nut *b*, hand-wheel *a*, tube *J*, the valve *m*, and spring *h*, substantially as specified.

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Witnesses:

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