

Henry A. Goll
Connected Valves.

Drawing. A.

Fig. 1.

72189

PATENTED
DEC 17 1867

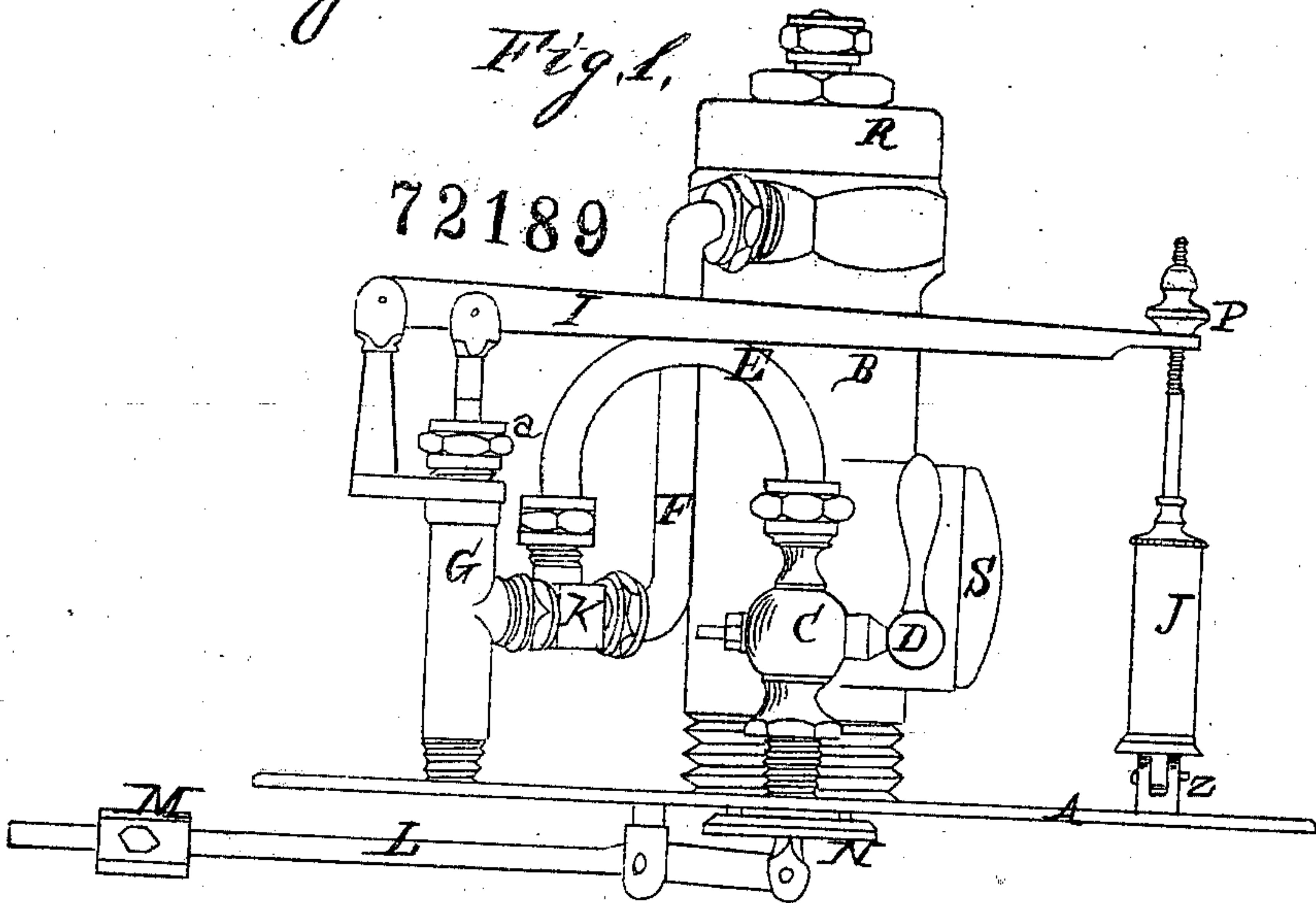
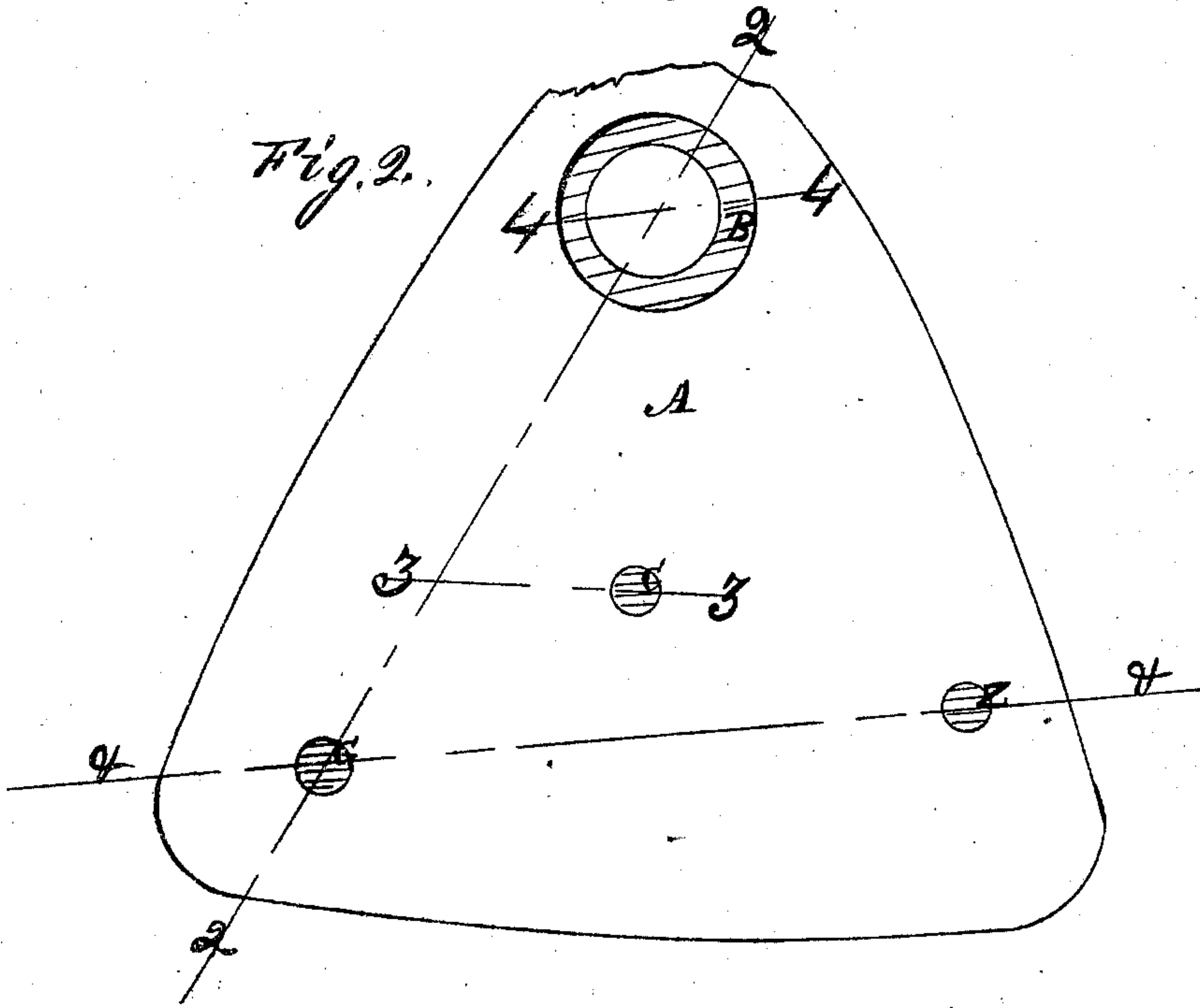


Fig. 2.



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Drawing B,
72.189

Fig. 3.

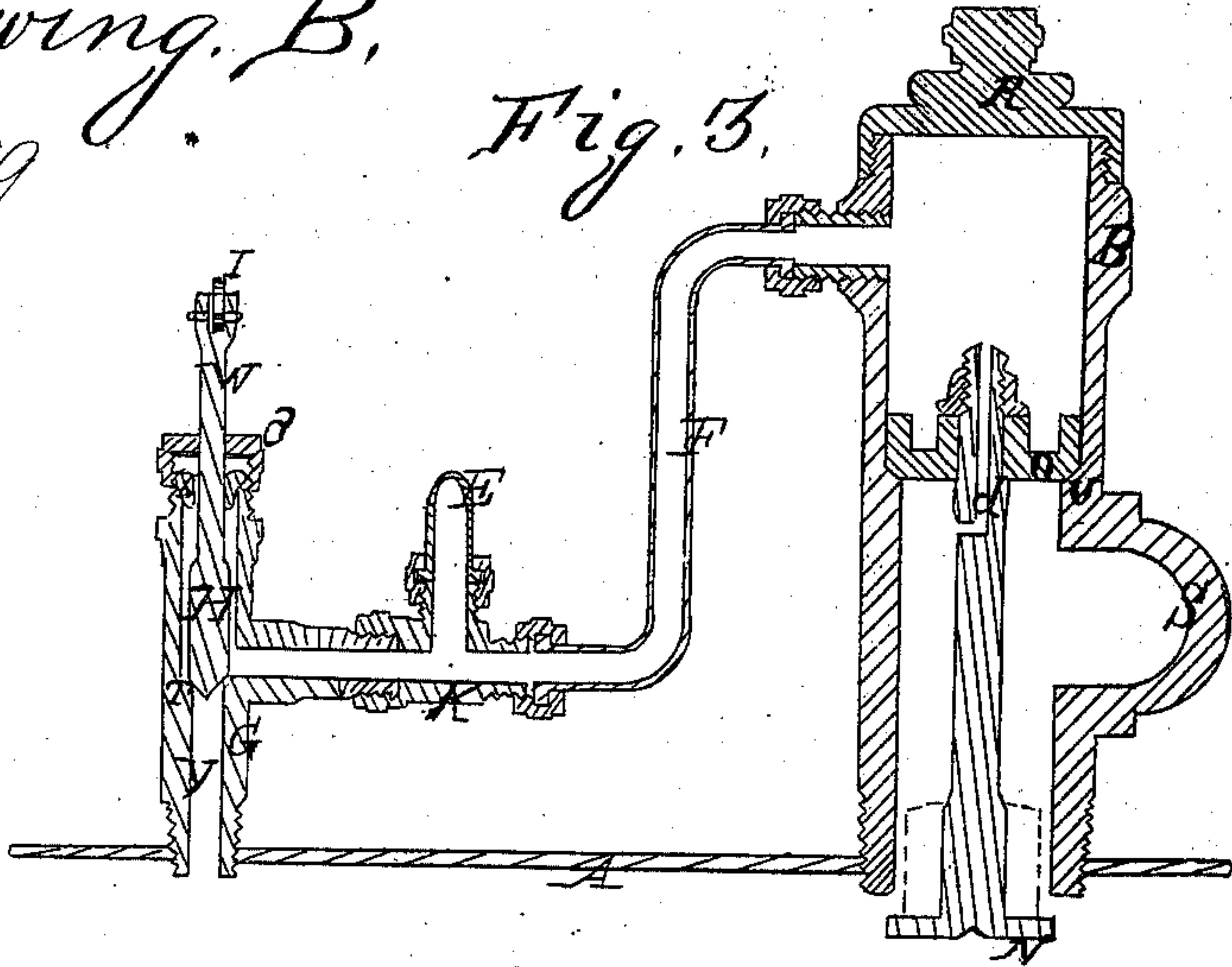


Fig. 5.

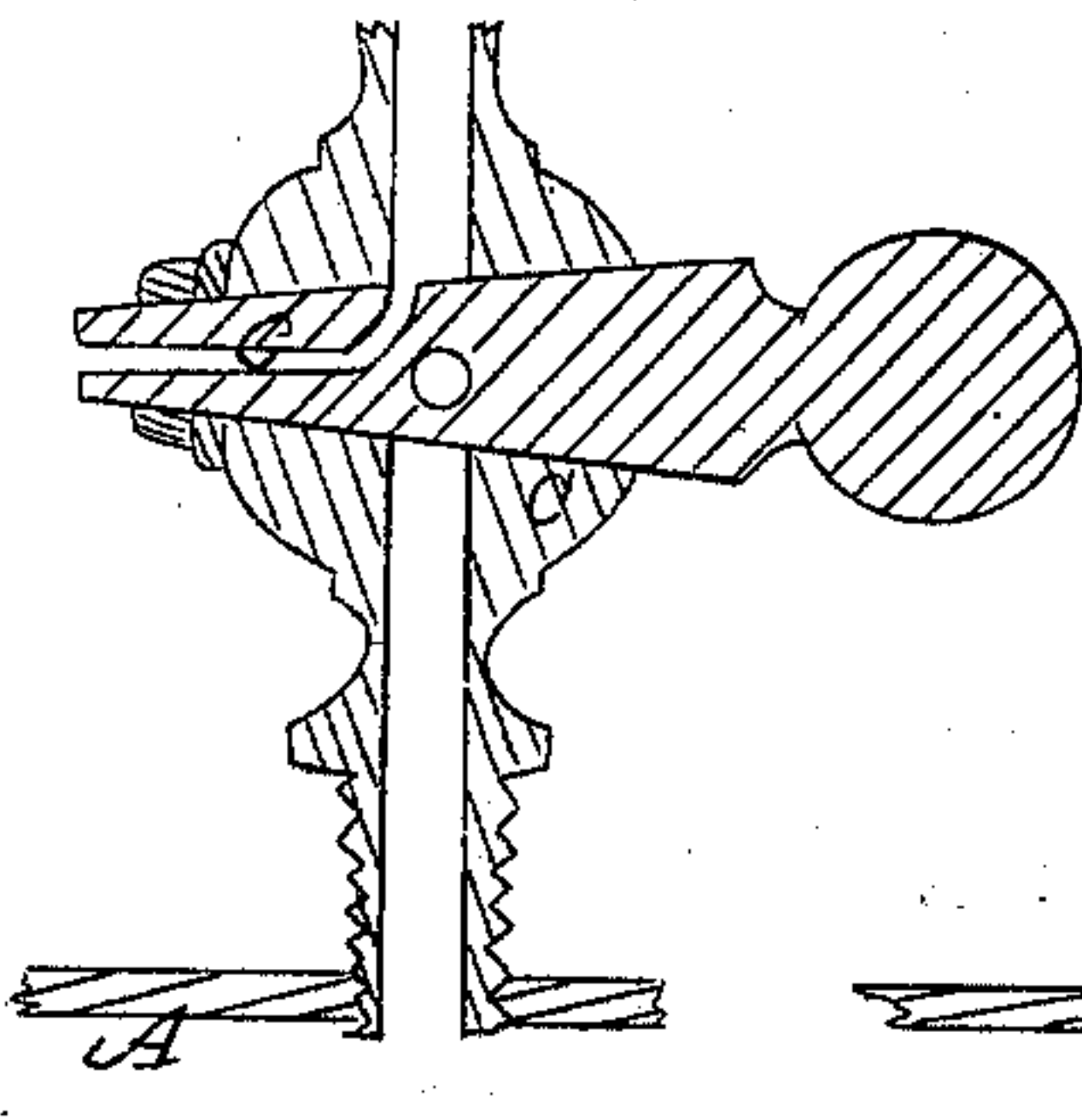
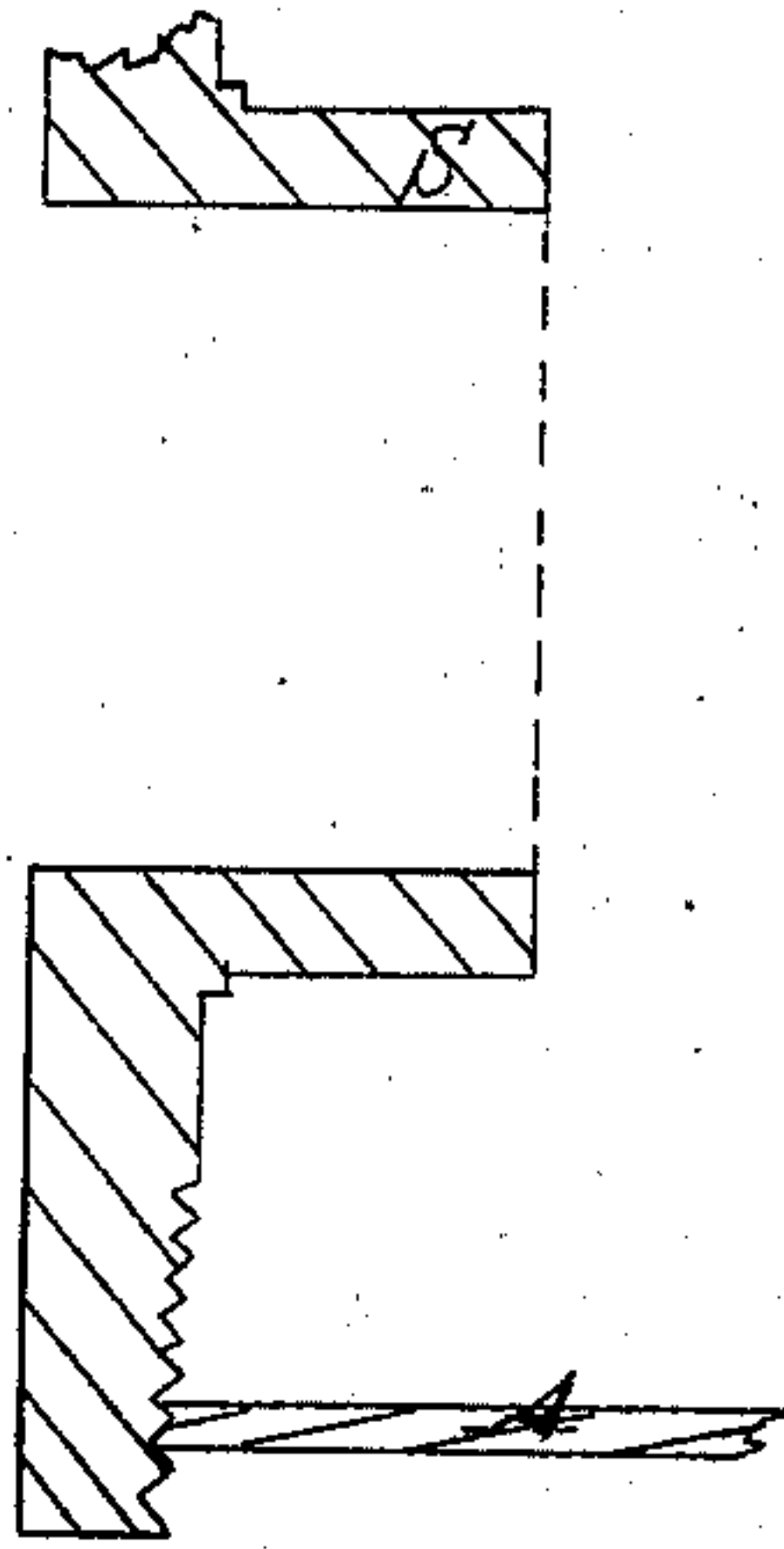


Fig. 4.



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HENRY A. GOLL, OF CHICAGO, ILLINOIS.

Letters Patent No. 72,189, dated December 17, 1867.

IMPROVEMENT IN PRESSURE SAFETY-VALVES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, HENRY A. GOLL, of Chicago, in the county of Cook, in the State of Illinois, have invented new and useful Improvements in Connected Valves; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is an elevation of my invention taken parallel with the red line *g g* on the ground-plate A, fig. 2, drawing A.

Figure 2, same drawing, represents the ground-plate to which the device is attached, and the position of the same on said plate.

Figure 3, drawing B, is a sectional elevation of the safety-valves and the pipe communicating with the same. This drawing is taken through red line 2 2, fig. 2.

Figure 4, same drawing, a broken vertical section of the larger safety-valve, taken through the red line 4 4, fig. 2, showing the discharge-pipe.

Figure 5 is a broken vertical section of the cock attached to a pipe communicating with the two pipes attached to the safety-valves.

The figs. 4 and 5 are made double the size of the other figures, in order to show the construction more clearly.

My invention relates to the combination of valves arranged in a novel manner, and so that they may be used for steam, water, and fluids of all kinds.

My object is to provide boilers, tanks, &c., with a cheap, safe, and compact device, which can be used for the above-described purposes, and readily understood and operated by persons of ordinary skill, and which will receive an over-pressure of steam or other force through one valve, and convey it to the top of a main valve, which has a larger surface at the top than at the bottom, for the purpose of causing the pressure to force said large valve down, and open a valve communicating with a tank or boiler, and allow the sudden escape of steam or other substance; and further, in the use of a cock communicating with the boiler or tank and with the safety-valves, for the purpose of relieving the under-pressure, when required.

In order to give a correct understanding of my invention, I have marked corresponding parts with similar letters, and will now give a detailed description.

A represents the ground-plate, or the part of the boiler to which my device is attached. B is the cylinder, in which the larger valve O is fitted, and connected with a valve, N, the latter communicating with the inside of the boiler, or the chamber where the pressure is supposed to exist. This cylinder is secured to plate A by means of a screw, or otherwise, as most convenient, and has a cap, R, made fast to it by a screw-thread, in order that it may be removed for cleaning, repairing, &c. The chamber above the valve O is made larger than below it, by which means a valve-seat, U, fig. 3, drawing B, is provided, and a greater surface is provided for pressure on the top of valve O than upon the bottom of valve N, by which means an equal pressure against both valves will result in keeping the valve N open, unless controlled by a spring-balance, J P Z, and lever I, fig. 1, drawing A, which are arranged similar to other safety-valves for regulating pressure. A cylinder, G, is also made fast to plate A, and has a valve, H, arranged to shut the communication between plate A and the pipe F, and has also a cap, *a*, fitted on its top, and arranged to allow the shank of valve H to have a vertical motion, the packing X being of metal, and fitted so as to prevent the escape of steam, and yet permit the stem W to work freely. The opening Y, communicating with boiler A, should be made the same size as the shank W, and the space above the valve-seat T should be made large enough for the steam to pass around said valve and into a chamber above, when opened by the pressure of steam. The object of this construction is to give a seat to valve H, and yet neutralize the force of steam against said seat, by means of shoulders having the same area at the top of valve. This arrangement is clearly shown at fig. 3, drawing B. A pipe, F, figs. 1 and 3, is connected to the cylinders G B, and has a coupling, K, which is made to receive a pipe, E, communicating with a cock, C, used for the purpose of controlling the pressure, when below that which the safety-valve is set to indicate. The arrangement of this cock, and its connection with pipe F, I consider important, especially as a precautionary means for ascertaining the pressure, in case the valves cease to work, and in case of accident, or when water alone is used, in which case the valve H need not be employed. A common balancing-valve bar, L, is made to operate against

valve N, when the device is used for steam, in order to prevent the escape of the latter when being generated. A small opening, *d*, is made through the main valve O, for the purpose of allowing steam to pass out at opening S and relieve the pipes F and chamber above the said valve O, after the pressure has been relieved from the valve H, so as to permit the valve N to close. An opening, *e*, fig. 5, drawing B, is arranged to answer this purpose, when required.

Operation.

In order to use my invention, it is first required that the parts G B and C be placed upon the boiler or tank, in such positions as to receive an equal pressure, and that the lever I should be adjusted by screw P, fig. 1, so as to secure the required pressure. Should the pressure increase, the valve H will rise, and permit the steam to pass through pipe F and force down the valves O N, as seen at fig. 3, and allow a suitable space between said valve N and cylinder B for steam to escape up said cylinder and out at pipe S. When it is required to operate valve O, before a certain pressure is obtained, the cock C can be opened, which will produce the result, in consequence of the pipe E communicating with said cock and chamber above the valve.

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

1. The combination of valves O, N, and H, with cylinder G and pipe F, substantially as set forth.
2. The valve H, arranged to operate in cylinder G, and having a shoulder on the top of it corresponding with the diameter of the valve-seat T, in combination with said cylinder-pipe F and valves O N, substantially as herein described.
3. The combination of cock C, pipe E, double valve O N, and cylinder B, as and for the purpose set forth.
4. The valve O, having the opening *d* in its stem, for the escape of steam above said valve, in combination with a lower valve, N, arranged to receive pressure directly from boiler A, as set forth.

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Witnesses:

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