

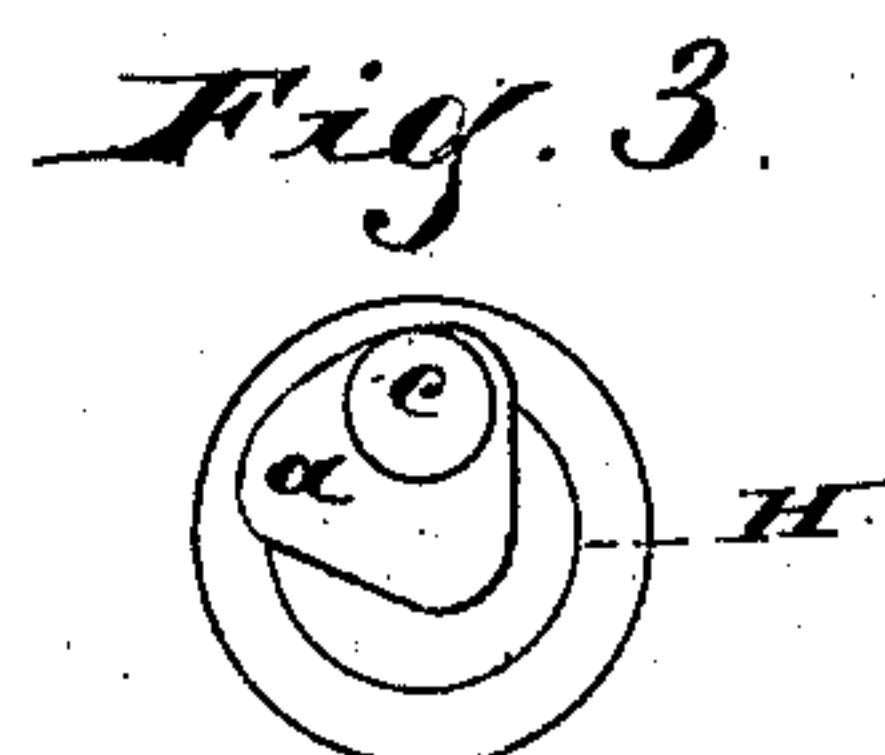
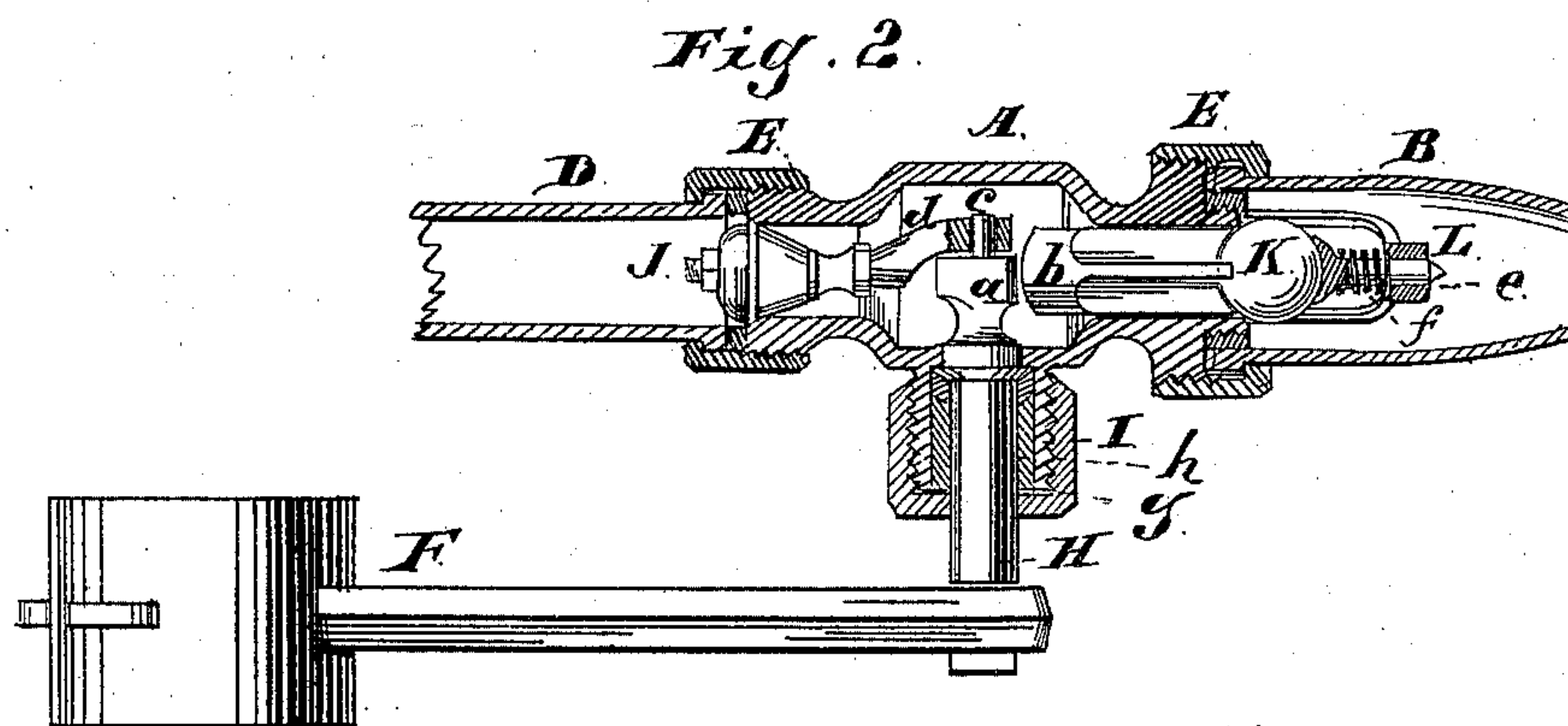
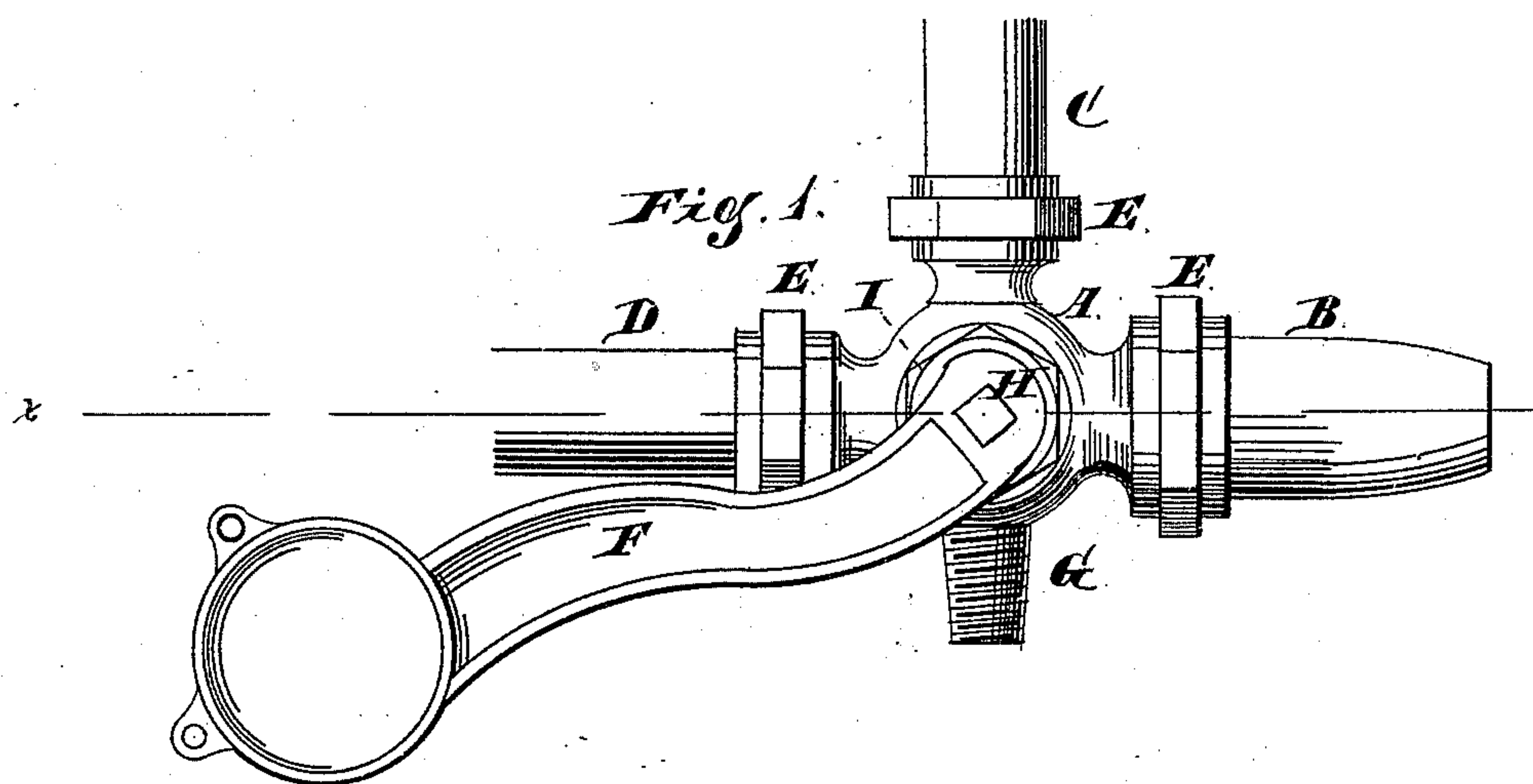
(No Model.)

J. GRAHAM.

CUT-OFF FOR SERVICE PIPES.

No. 283,774.

Patented Aug. 28, 1883.



Witnesses:
Albert H. Adams.
Edgar B. Bond.

Inventor:
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UNITED STATES PATENT OFFICE.

JOHN GRAHAM, OF CHICAGO, ILLINOIS.

CUT-OFF FOR SERVICE-PIPES.

SPECIFICATION forming part of Letters Patent No. 283,774, dated August 28, 1883.

Application filed February 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN GRAHAM, residing at Chicago, in the county of Cook and State of Illinois, and a citizen of the United States, have invented new and useful Improvements in Cut-Offs for Service-Pipes, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a side view; Fig. 2, a longitudinal section on line *x*; Fig. 3, a detail showing the inner end of the weighted shaft.

The object of this invention is to improve the construction and operation of a cut-off for a water service-pipe having a single shaft by so arranging the valves with the shaft that the waste-valve will not be opened until the water-valve is closed, and so that the waste-valve shall be closed before the water-valve is opened when the movement is reversed; and it consists in providing the inner end of a shaft with one or more shoulders and a crank or wrist pin, and combining the same with two valves, and in the several combinations of parts hereinafter more fully described and claimed as new.

In the drawings, A indicates the body or central part of the cut-off; B, the coupling for the service-pipe; C, stand-pipe; D, waste-pipe; E, couplings; F, weighted lever or crank; G, a screw which may be used for attaching the cut-off to its foundation or support when in place; H, shaft; I, stuffing-box; J, waste-pipe valve; K, service-pipe valve; L, valve-cage; *a*, shoulder or projection on the inner end of the shaft H; *b*, sliding valve-support; *c*, crank-pin or wrist-pin; *d*, *e*, valve-stems; *f*, spring; *g*, packing of stuffing-box; *h*, collar in stuffing-box.

The device shown is by preference made of brass, and the body or central part, A, may be made in the form shown or any other suitable form, as desired. It is provided with three couplers, E, by means of which the pipes or the connections for pipes BCD are attached. It is also provided with an extension, through which the shaft H passes, which is also adapted to be used in connection with the stuffing-box I. This stuffing-box is of the ordinary construction, it being provided with a slip-collar, *h*, and a packing, *g*, of rubber or other suitable material, to make the opening through which the

shaft H passes water-tight. The shaft H passes through the stuffing-box, as shown, and it is provided with a weighted lever or crank-arm, F, the weight being sufficient to operate the arm in its outward direction. The inner end of the shaft H is provided with a shoulder, *a*, which, by pressing against the sliding valve-support *b*, presses the valve K outward in its cage, and thereby opens it. When the pressure of the shoulder is removed from the slide *b*, the valve K is reseated by the pressure of the water, and also by that of the spring *f*, which surrounds its stem *e*. The valve is also surrounded by a cage, L, which, in connection with the slide *b*, stem *e*, and spring *f*, prevents the valve from getting out or away from an operative position. The shaft H is also provided with a pin, *c*, which is located away from the center of the shaft, so as to give it a crank movement when the shaft H is partly rotated. This pin passes through the inner end of the valve-stem *d*, so that a rotary movement of the shaft H either opens or closes the valve J, according to the direction of the movement. When the weighted lever F is lifted, the pin *c* being on the upper side, as shown in Fig. 3, the valve J is drawn into its seat more closely and firmly, while the valve K is opened by the pressure of the shoulder *a* against the slide *b*. The water then passes in at B and out the pipe C, the slide *b* being fluted or cut away as shown, so as to permit the water to flow into the central part, A. By placing the weighted lever on the other side, then, when the weight is down, the valve J will be closed and a valve, K, opened; or by turning the shaft H half round, so that the pin *c* will be on the under side, then the weight in the position shown in Fig. 1 will close the valve J and open the valve K. The construction and operation, of course, are the same in all of these variations or changes of the weighted lever F and shaft H.

It will be seen from the foregoing description and from the drawings that the valve K cannot in any event be opened until the valve J is closed. This arrangement prevents the flowing of any water from the service-pipe right through and out at the waste-pipe, as is the case with ordinary constructions, where in a certain position of the valves both valves are partly open. It will also be seen that the

valve J cannot be opened until after the valve K is shut, as the stem *d* does not commence to crowd the valve J backward until the shoulder *a* severs its contact with the slide *d*, so that by this arrangement of the shaft and valves with the weighted lever the only water which can escape through the waste-pipe is that which is standing in the pipe C when the valves are operated. As these cut-offs are frequently located beneath floors and in places where it is difficult for the waste-water to flow off, it is important that as little water as possible be permitted to escape, and by this arrangement the smallest possible quantity of waste is reached, as only the water which is in the pipe when the cut-off is operated flows away, it being absolutely impossible for any water to pass through from the supply-pipe to the waste-pipe, and by this arrangement I accomplish this desirable object by the use of a single weighted lever.

It will be understood that the weighted shaft is operated from above in the ordinary manner.

I do not claim the weighted arm, nor do I claim, broadly, the use of two valves in a cut-off; but

What I claim as new, and desire to secure by Letters Patent, is as follows:

1. The combination of the shaft H, having a shoulder, *a*, and pin *c*, with the slide *b*, operating valve K, and stem *d*, operating the valve J, substantially as and for the purposes specified. 30

2. The combination of the waste-valve J, having a valve-stem, and the shaft H, having a cam, *a*, at its inner portion, and attached to the waste-valve stem to positively move the same in opening and closing, with the unattached slide *b* and the water-valve K, both arranged in lines with the waste-valve and its stem, substantially as described. 35 40

3. The combination of a shaft, H, having a cam, *a*, at its inner portion, and a waste-valve J, having a valve-stem attached to the shaft, with a slide, *b*, disconnected from but actuated by the cam on the shaft, the valve K, bearing against the slide, the spring *f*, and the cage L, said parts being arranged to operate substantially as described. 45

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