(No Model.)

O. J. McGANN.

STOP AND WASTE COCK.

No. 300,386. Patented June 17, 1884.

Fig. 1.

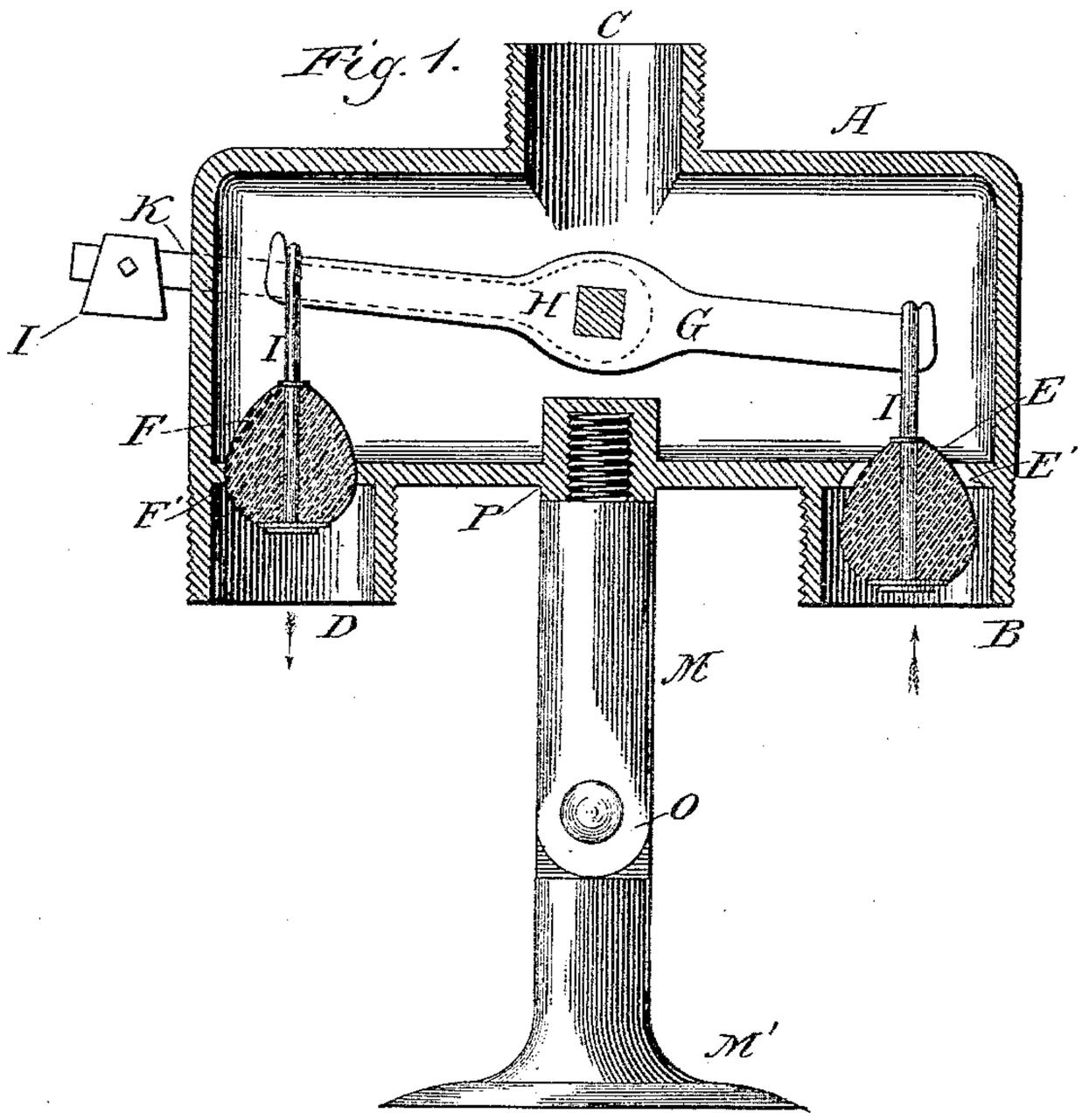
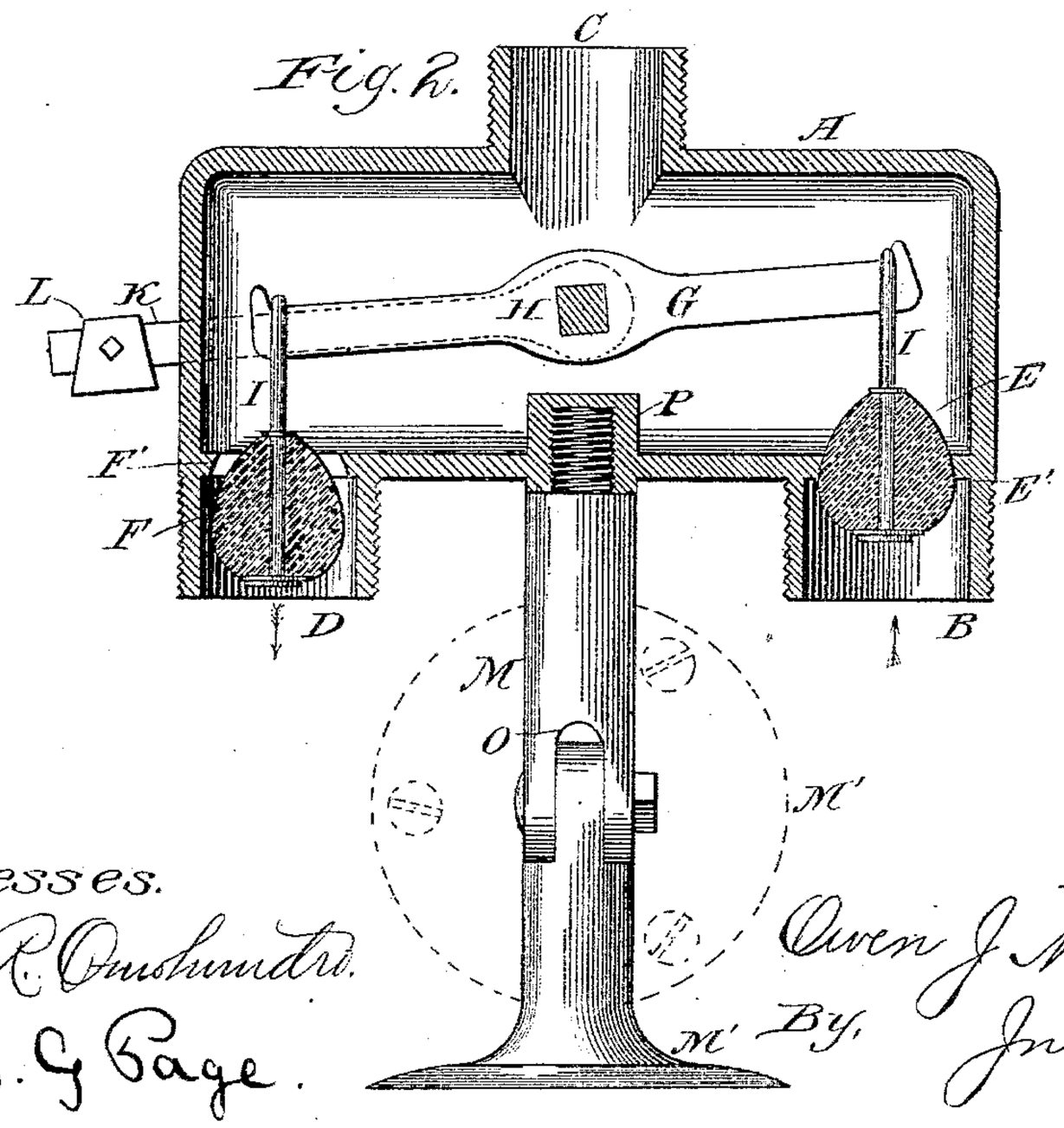


Fig. 2.



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UNITED STATES PATENT OFFICE.

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STOP AND WASTE COCK.

SPECIFICATION forming part of Letters Patent No. 300,386, dated June 17, 1884.

Application filed November 14, 1883. (No model.)

To all whom it may concern:

Be it known that I, OWEN J. McGANN, a citizen of the United States, residing in Pullman, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Waste and Stop Cocks, of which the following is a specification.

This invention relates to that class of stop and waste cocks which are more particularly designed for cutting off the water-supply in houses, and allowing the water in the house pipes and cock to drain off after the supply from the service-pipe has been cut off, and in which a pair of valves located externally to the shell of the cocks are arranged to respectively open into the service and the waste pipe. Heretofore a stop and waste cock of such character has been provided with a pair of valves arranged outside of the shell so as to work within the service and waste pipes, and having their stems running back into the shell, both connected with one and the same bent or cranked end of a spindle passing out through one side of the shell. Under such arrangement a partial rotation of the spindle causes one valve to open against the pressure in the service-pipe, and the remaining valve to simultaneously close the port at the junction of the shell and waste-pipe, and to admit of such operation on the part of the valves. The two ports at the points of junction between the shell and the service and waste pipes are arranged diametrically opposite each other, while the house-pipe or continuation of the service-pipe connects with the shell at a point intermediate of the ends or sides of the latter, with which the service and waste pipes are connected. In a stop and waste cock of such construction the cranked end of the spindle moves in the arc of a small circle, when a partial rotation is given to the spindle for the purpose of operating the valves, and hence the valve-stems, in place of reciprocating longitudinally in a line perpendicular to the planes of the valve-seats, are vibrated to a considerable extent during their reciprocation, and hence the valves prevented from seating accurately upon their respective seats. It will also be observed that as the waste-pipe is designed to lead out of the building, and hence will be conveniently passed out from the latter at the point where the service-pipe enters, it becomes necessary under the construction just mentioned to bend the waste-pipe back and past the cock in order to bring it to the desired point of exit from the building.

The object of my invention is to arrange the valves so that while working in the service and waste pipes they shall both open outwardly or away from the shell in one and the same direction, and when thus operated have their stems reciprocated in planes parallel to each other and substantially perpendicular to the valve-seats, in which way the valves shall be more accurately seated, and also the points of juncture between the shell and the service and waste pipes be made at one side of the shell, whereby the objectionable feature of bending round and back the waste-pipe is avoided. To such end, in lieu of arranging the ports for these valves diametrically opposite each other, or at opposite ends or sides of the shell, I arrange said ports which are opened and closed by the valves at one and the same side of the shell, and in place of a crank-spindle I arrange within the shell an oscillatory lever fulcrumed between its ends, and at each end connecting with one of the valve-stems, whereby the slight curves described by ends of the lever during its operation will not effect any noticeable deviation of the valve-stems from lines perpendicular to the valve-seats. Stop and waste cocks have also been provided with a support for the shell composed of two parts, one socketed and allowed to turn in the other.

A further object of my invention is to improve on such construction by pivoting the two members of the support together, so as to form a hinge-joint, whereby the cock can be set at any required angle.

Figure 1 is a central vertical section through the valve-box and valves, with the valve-supporting lever and the leg or support in elevation, the waste-passage in this figure being shown closed and the supply-passage open. Fig. 2 is a similar view with the waste-passage open and the supply-passage closed.

A indicates a shell or case provided with a suitable inlet, B, at which point the shell can be connected with any main or supply pipe.

The shell is also provided with some suitable outlet, C, at which point connection is made with the line of pipe leading to the point of discharge, and it is also provided with an outlet or drain passage, D, through which water can be drained from the box and pipe leading therefrom when the supply is cut off. It will be understood that as herein constructed either one of the passages shown connecting with the lower portion of the box can serve either as an inlet or a waste passage, one of course, in each instance, being used for one and the other passage for the remaining one of said purposes.

The valves E and F are respectively suspended from opposite ends of an oscillatory lever, G, that is mounted on a rock-shaft or spindle, H, journaled in the sides of the box or shell. These valves both seat upwardly against their respective seats E′ and F′, formed in the bottom of the shell, and are arranged so that when one valve is open the remaining valve shall be closed. This can be easily accomplished by varying the length of the stems I, by which the valves are hung or otherwise connected with the ends of the oscillatory lever. The connection between the valves and lever is such that while the lever oscillates in a vertical plane at right angles to a fixed axis through the spindle the valves shall hang vertically and operate in planes parallel to each other, thereby insuring their accurately closing their allotted passages. The rock-shaft or spindle extends out from one side of the shell, and carries a weighted arm, K, that is employed for assisting the valve for the inlet closing with the pressure of fluid in the main or other source of supply. The weight L can be adjustably secured on this arm, whereby it can be shifted as occasion may require, and will serve to keep the valve for the inlet closed, although no pressure should exist against the valve for the inlet. By turning the spindle either by a handle or by a pull-rod or wire connected with a crank-arm on the spindle, the lever can be oscillated about the axis of the spindle, and hence one valve opened and the other closed, so as to cut off the supply and open the drain-passage, or close the drain-passage and open the supply-passage, according to the direction in which the spindle is turned.

From the foregoing it will be seen that the shell is adapted to constitute a joint in the service-pipe, and also to be connected with the waste-pipe—as, for instance, while one portion of the service-pipe connects with the shell at the inlet-point B, the remaining portion of the service-pipe, or the "house-pipe," as it may be called, in contradistinction to the first said part of the service-pipe, connects with the shell at its outlet-point C; also, that the waste-pipe connects with the shell at the waste-outlet point D, which is at the same side of the shell as the inlet B, whereby the two ports for the valves and the valve-seats E′ and F′ thereat are at one and the same side of the shell, with the valves arranged to open outwardly, and in one and the same direction from the shell, with respect to which the valves are externally located, but working, however, in the service and waste pipes, which can be coupled with screw-necks provided on the shell for such purpose. As the valves both open away and in one and the same direction from seats at or in one side of the shell or casing, one of the valve-stems is made of unequal length, so that when one valve closes with the pressure in the service-pipe the remaining valve for the waste-pipe shall open with the pressure in the shell, and, conversely, that when the valve for the waste-pipes closes the valve for the service-pipe shall open.

The support for the shell consists of a jointed leg, M, having a flat foot or base, M′, adapted to be secured either to a floor, wall, or other suitable supporting medium. This leg is provided with any suitable hinge-joint, O, formed by pivoting together the meeting ends of the two members of the support, one of said members being provided at one end with a screw-threaded shank capable of being fitted in a screw-threaded socket, P, in the shell. The base of this leg-piece has screw-holes (shown in dotted lines, Fig. 2) for bolts or screws employed in securing it to a wall or floor, and the part of this leg thus provided with a base or foot can be turned up, as indicated by dotted lines, so that the base can be secured to a wall when desired. Any suitable means could be provided for locking the sections of the leg together at the joint, so as to make the leg rigid after it has been bent at an angle; or the leg can be used without such locking means, if preferred.

It will be understood that my improved stop and waste cock could be used for steam as well as for water, the waste-passage where the cock is used for steam being used either for carrying off the water of condensation or for clearing out the pipes and cock.

I have herein shown a conical form of valve, but do not confine myself to such shape, or to any particular material, the form and material of the valves being in practice such as may be deemed best suited for the purpose for which the valves are employed.

Heretofore in balanced valves for boiler-feeders and steam-traps two valves working simultaneously in opposite directions have had their stems connected with the ends of an oscillatory lever common to both valves. In such instances, however, the valve-seats have been provided in a partition running centrally through the shell or casing, so as to divide the latter into two chambers, and the valves have been so arranged that one valve opens away from one side and the other valve opens away from the opposite side of said partition, whereby the valves open in different directions, whereas under my construction the valves both

open away and in the same direction from one side of the shell or casing, one valve opening against the pressure in the service-pipe and the other valve opening with the pressure within the shell at a time when the first valve closes with the pressure in the service-pipe.

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

1. In a stop and waste cock, the shell constructed to connect with the service and waste pipes, and having two of its ports and valve-seats thereat at one of its sides, in combination with a pair of valves respectively opening into the service and waste pipes, and having their stems respectively connected with opposite ends of an oscillatory lever, which said valves are arranged so that while susceptible of moving in unison to simultaneously open one and close the other of said ports they shall alternately open in one and the same direction away from their seats, and outwardly from the shell, substantially as described.

2. In a stop and waste cock, the shell constructed to constitute a joint in the service-pipe, and provided with a valve apparatus for opening and closing its ports, in combination with a jointed support for the shell, consisting of a leg composed of two members, one being connected with the shell, the other provided with a perforated base-plate, and both being pivoted together to form a hinge-joint in the leg, whereby the shell can be set at various angles, substantially as described.

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Witnesses:
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