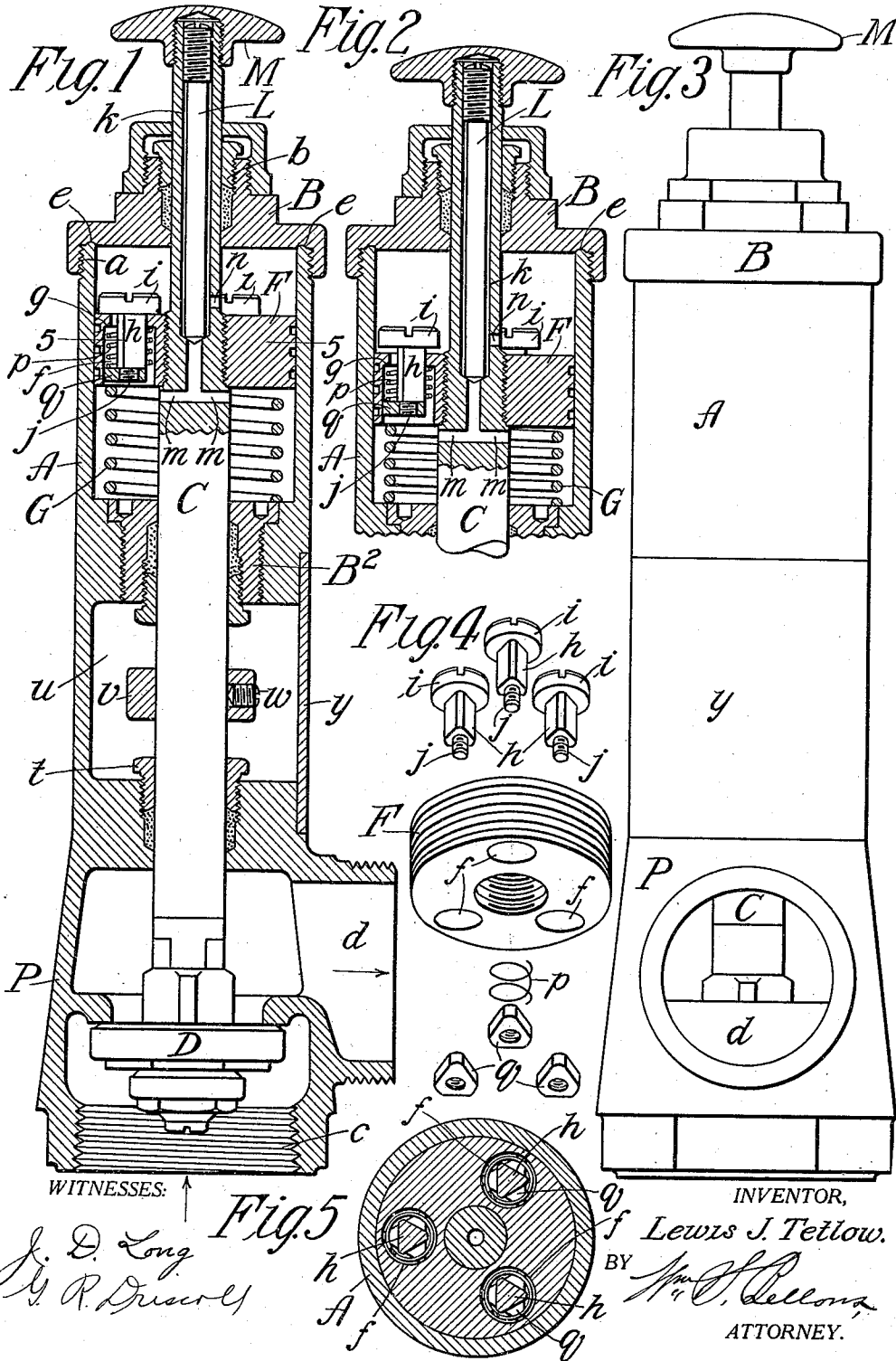


1,149,869.

Patented Aug. 10, 1915.



UNITED STATES PATENT OFFICE.

LEWIS J. TETLOW, OF WEST SPRINGFIELD, MASSACHUSETTS.

DASH-POT.

1,149,869.

Specification of Letters Patent.

Patented Aug. 10, 1915.

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To all whom it may concern:

Be it known that I, LEWIS J. TETLOW, a citizen of the United States of America, and resident of West Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Dash-Pots, of which the following is a full, clear, and exact description.

This invention relates to improvements in dash pots especially designed to serve as a regulator for a flush or other valve, so that after the valve has been manually opened, and the force employed for its opening released, it will automatically close with as comparatively fast or as slow action as desired.

The objects of the invention are to simplify and cheapen the device by so constructing it that it may be composed of but very few simply formed and inexpensively made parts; to improve it in respect to the specific means for effecting the regulation; for preventing the distortion of the cap provided upper part of the dash pot casing or cylinder so that the piston therein will always play, while with closeness, yet with the proper ease or freedom; and to provide in a simple manner an adjustable abutment for regulating the limitation of axial play of the valve operating stem.

The invention is described in conjunction with the accompanying drawings and is set forth in the claims.

In the drawings:—Figure 1 is a sectional view centrally and vertically through a flushing valve for water closets which includes the dashpot in which the novel features of this invention are combined, the valve being shown as closed, and the piston in the dashpot as having a comparatively high position in the chambered casing. Fig. 2 is a similar sectional view of the dashpot portion of the device, the stem and piston being represented in the positions which they would have when the valve is open. Fig. 3 is a side view of the complete device. Fig. 4 is a perspective view showing the specific constructions of the especially novel parts combined in the dashpot. Fig. 5 is a cross sectional view on line 5—5, Fig. 1.

In the drawings, A represents the chambered cylindrical dashpot casing for containing liquid, provided with a stuffing box T² at its bottom and made open at its upper end and having screw threads *a* threaded for receiving the cap B which is

made with a stuffing box *b*,—the stem C extending axially from above the cap through and downwardly beyond the casing and carrying the valve D for opening and closing the water passage, of which *c* is the inlet and *d* the outlet.

The cap screw engaged on the threaded upper portion of the casing has an annular groove *e* around its under side to receive engagement therein of the upper end portion of the casing,—this construction preventing, when the cap is screwed into its place, the contraction or distortion of the upper part of the cylindrical casing so that the piston therein will always play, while with closeness, yet with the proper ease or freedom.

F represents a piston carried by the stem and normally located somewhat above the middle of the height of the chambered casing A; and, as shown, this piston is screw engaged on the stem, seating at its bottom against a shoulder therefor. The piston has a plurality of cylindrical bores *f f f* there-through outside of and parallel with the axis of the piston, each bore having an internal shoulder *g* near its upper end; and studs *h h h* are provided within the said bores, the same having their shanks of polygonal form and of less cross sectional area than the bores and having heads *i* adapted for seating at the upper end of the piston and forming closures for the bores; and said studs have screw threaded lower end portions *j* on which nuts *q*, of polygonal form, and less area than the bores, are engaged, between which nuts *q* and the aforementioned internal shoulders *g* in the bores, spiral springs *p* are provided under compression, more or less great as may be regulated by screwing the nuts up or down on the threaded extremities of the studs. The said stem has a restricted passage therein communicating with the portions of the chamber in the casing at opposite sides of the piston.

G represents a spring inclosed within the chambered casing and in compression for reaction in an upward direction against the piston and valve stem C, with which the latter is united.

Precisely as made the stem has a passage *k* extending axially therein from its upper end to a point below the piston and terminating in one or more lateral ducts *m* which open into the chamber below the piston, and also having a lateral duct *n* leading

from the passage *k* to the chamber above the piston. The needle valve rod *L* entered in said passage from the upper end thereof and screw engaged therein is operative by its tapered lower end to regulate and restrict the passage at its portion between the lateral ducts *m* and *n*, the needle valve itself being of a common character but by being applied as shown it is accessible for regulation at the upper end of the stem *C* by the mere removal of the handle or push knob *M* which is screw engaged on the upper end of the stem, closing the axial passage therein and concealing and serving as a guard for the needle valve rod.

The upper portion *t* of the fitting or body *P* of the valve is in separated relation to the lower part of the cylindrical chambered casing *A* so that the stem *C* extends downwardly across the space *u*; and the stem within such space is provided with a collar *v* adjustably confined thereon by the set screw *w* adapted to serve as an abutment for a limiting coaction with the upper part *t* of the stationary part of the valve body or fitting. By upwardly or downwardly adjusting this collar, the extent of the valve opening movement may be increased or diminished.

The general mode of operation of this device is the same as in regulators or dashpots quite generally employed in connection with flushing valves, that is on the downward forcing of the stem *C* to open the valve and permit the water flow to the bowl, the oil or other liquid in the chamber below the piston is freely displaced by passing through the bores *f* to occupancy in the chamber above the piston, the headed studs being relatively upwardly forced, unseating the heads from their closing relations to the bores. Immediately the downward movement of the stem and piston is terminated, the springs react to carry the studs downwardly, their heads seating on the upper end of the piston and closing the bores. The water pressure tending to force the valve closed to its seat, or as more commonly employed its water pressure assisted by the spring *G* moving the stem and piston upwardly, the displacement of the liquid in the chamber above the piston to the chamber below the piston is slowly by way of the ducts *m*, *m*, the restricted passage *k* and the duct *n*.

An efficient dashpot or regulator for the valve is constituted, as will be perceived on an inspection of the drawings, by fewer parts than heretofore found in devices of this character which have proved adequate and operative for the purpose for which they are designed. The regulation for timing may be conveniently performed by an adjustment of the needle valve rod, for which it is only required to temporarily remove the handle knob, and the adjustable

limiting abutment collar *v* is accessible by the temporary removal of the cover plate *y*, which together with an integral part of the frame of the device forms an inclosure for the latter named part.

I claim:—

1. In combination a chambered cylindrical casing for a liquid, a stem axially and movably fitted through the casing, a piston centrally secured to and carried by the stem having a plurality of cylindrical bores therethrough outside of and parallel with the axis of such piston, each bore having an internal shoulder near the upper end thereof, a stud within each said bore, of less cross sectional area than the latter, having a head normally adapted for a seating on the upper end of the piston and forming a closure for the bore, and having a screw threaded lower portion, nuts on the screw threaded portions of the studs, and springs in compression between said nuts and the internal shoulders in said bores,—said stem having a restricted passage therein communicating with the portions of the chamber in the casing at opposite sides of the piston.

2. In combination a chambered cylindrical casing for a liquid, a stem axially and movably fitted through the casing, a piston carried by the stem having a plurality of cylindrical bores therethrough parallel with the axis of such piston, each bore having an internal shoulder near one end thereof, a stud within each said bore, substantially polygonal, of cross sectional form, leaving spaces between its sides and the wall of the bore, having a head normally adapted for a seating at one end of the piston and forming a closure for the bore, and having a screw threaded portion at its opposite end, nuts on the screw threaded portions of the studs, and springs in compression between said nuts and the internal shoulders in said bores, said stem having a restricted passage therein communicating with the portions of the chamber in the casing at opposite sides of the piston, and a spring in compression in the casing, reacting against the piston at the side thereof opposite the location of the bore closing heads of said studs.

3. In combination a chambered cylindrical casing for a liquid, a stem axially and movably fitted through the casing, and extending both above and below the latter, a piston carried by the stem having a plurality of cylindrical bores therethrough parallel with the axis of such piston, each bore having an internal shoulder near one end thereof, a stud within each said bore, of less cross sectional area than the latter, having a head normally adapted for a seating at one end of the piston and forming a closure for the bore, and having a screw threaded end portion, nuts on the screw threaded portions of the studs, springs in compression between

said nuts and the internal shoulders in said bores,—said stem having a restricted passage therein communicating with the portions of the chamber in the casing at opposite sides of the piston,—a stationary member below the chambered casing through which said stem extends, and an abutment adjustably confined above, and adapted for a limiting coaction with said stationary member. 10

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

LEWIS J. TETLOW.

Witnesses:

WM. S. BELLOWS,
G. R. DRISCOLL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."