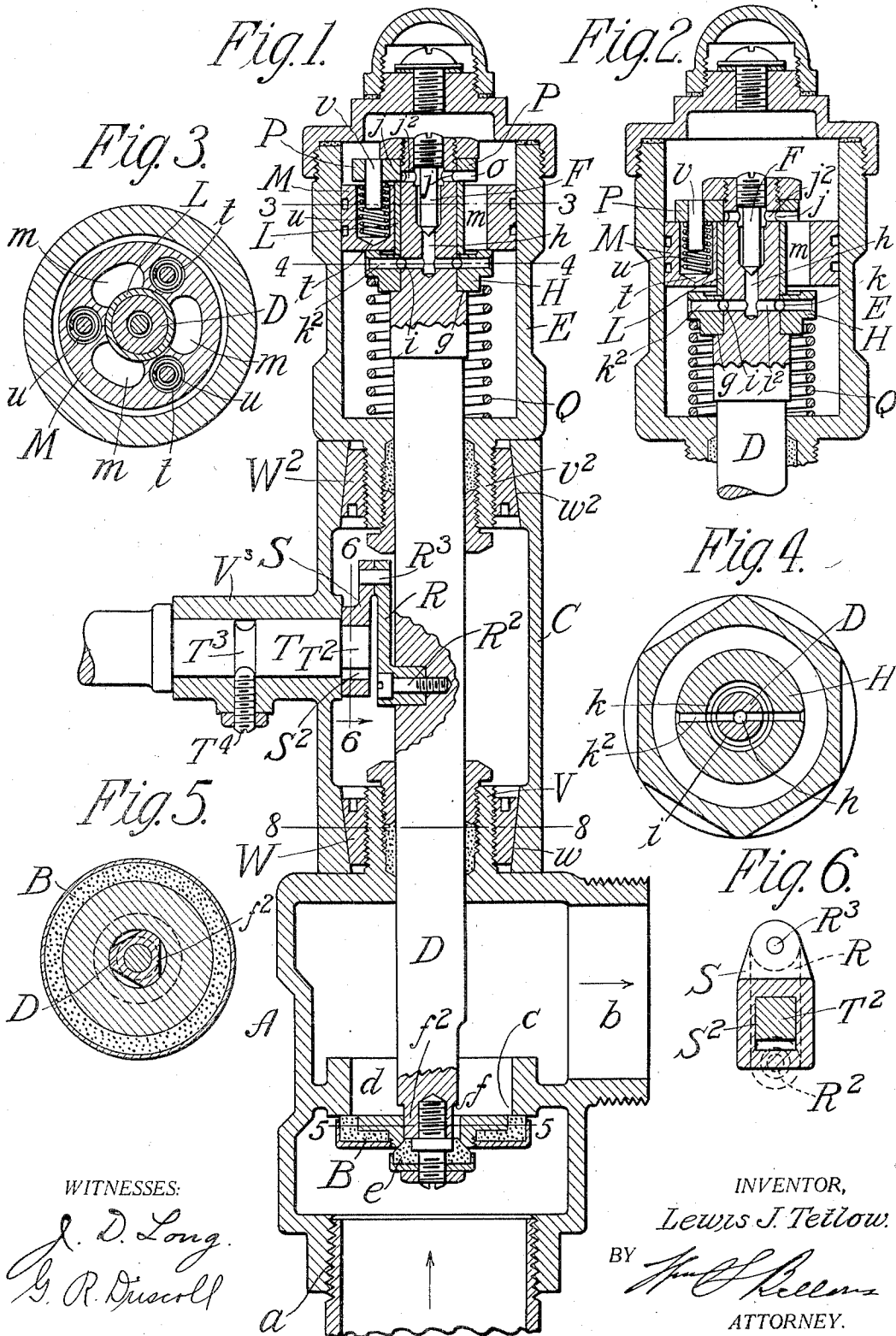


1,108,276.

Patented Aug. 25, 1914.

2 SHEETS—SHEET 1.



WITNESSES:

J. D. Long.  
G. R. Driscoll

INVENTOR,

Lewis J. Tetlow.

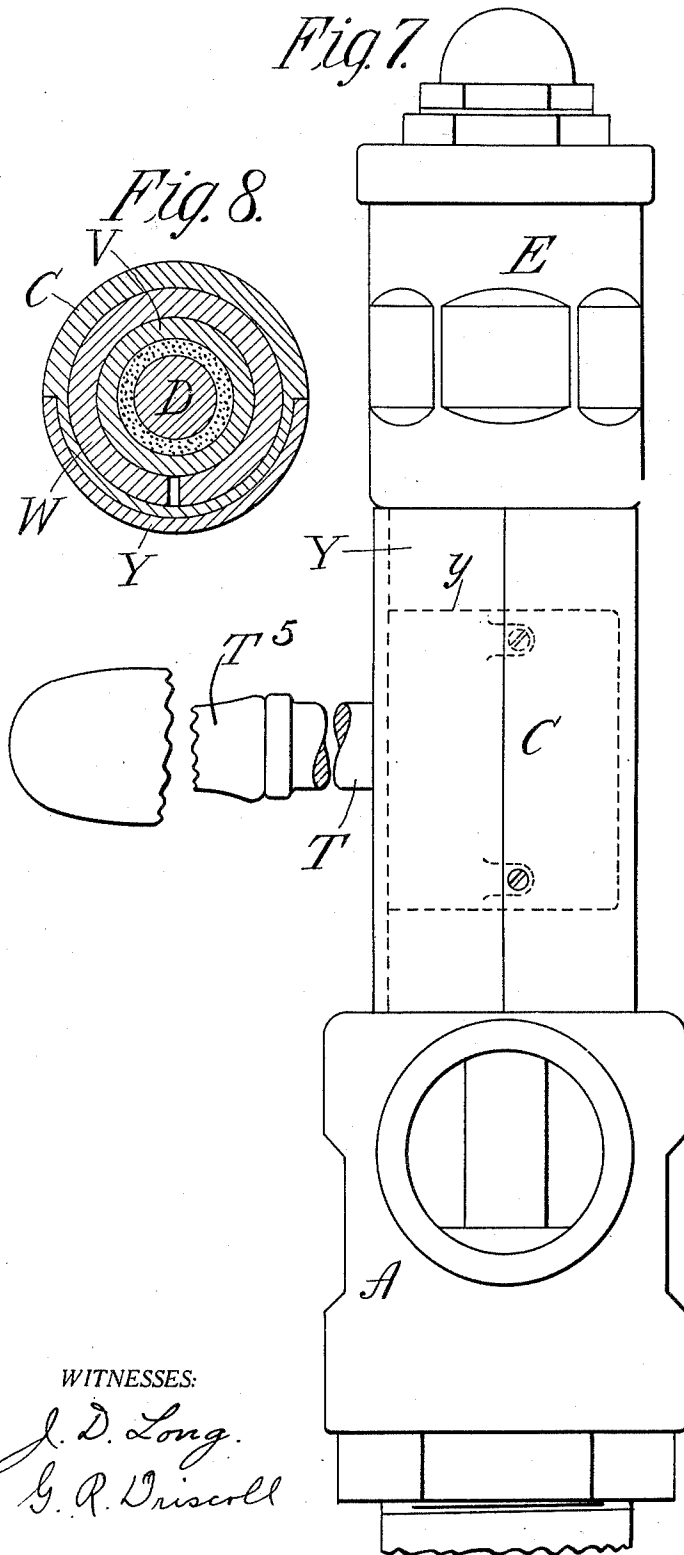
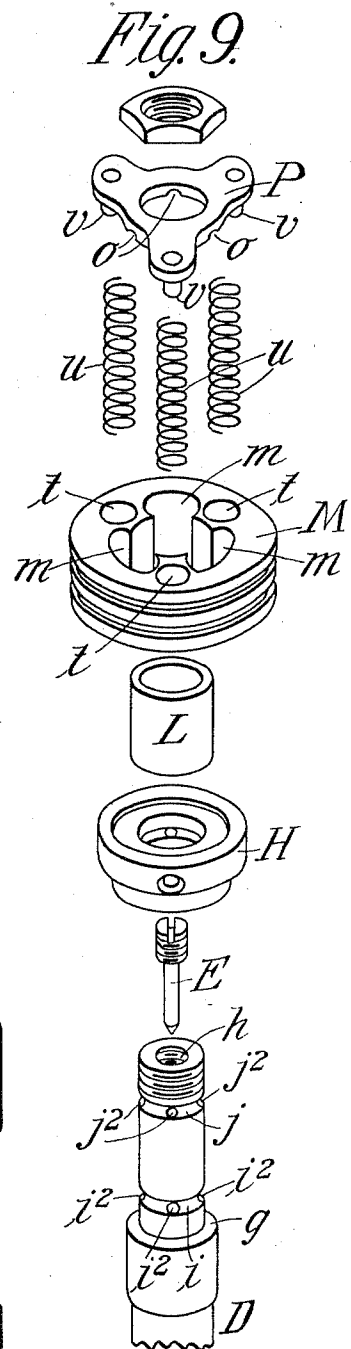
BY

ATTORNEY.

1,108,276.

Patented Aug. 25, 1914.

2 SHEETS—SHEET 2.



INVENTOR,

*Lewis J. Tetlow.*

BY

*Wm. H. Adams*  
ATTORNEY.

# UNITED STATES PATENT OFFICE.

LEWIS J. TETLOW, OF WEST SPRINGFIELD, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO D. EDWARD HENNESSEY, OF HOLYOKE, MASSACHUSETTS.

## DASH-POT.

1,108,276.

Specification of Letters Patent.

Patented Aug. 25, 1914.

Application filed July 17, 1913. Serial No. 779,612.

*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.

10 This invention relates to improvements in dash-pots.

An object of the invention is to provide in a dash pot apparatus, in combination with the valve proper which opens and closes the passage of water to the bowl, a regulating device susceptible in operation of permitting the ready and quick opening of the valve, but preventing the valve from closing only in a slow or gradual manner,—the length of the time of the closing being variable as predetermined,—the flushing apparatus having the general capabilities above set forth being of such improved construction as to be simpler and cheaper of manufacture, easy of assembly, and operative with greater reliability and without derangement after protracted use than heretofore usual in appliances of this general class.

30 Another object of the invention is to provide means whereby the handle used for moving the valve to opened position may be turned either to the right or left with the same result,—that is of causing the opening of the valve.

Other objects will be hereinafter rendered apparent in conjunction with the description of the flushing apparatus.

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

In the drawings:—Figure 1 is a central vertical sectional view of the flushing apparatus with the valve proper in its closed position and other parts positioned correspondingly thereto. Fig. 2 is a sectional view of the dashpot or regulating portion of the device similar to the illustration thereof in Fig. 1, excepting that the parts are shown in the position assumed thereby when the valve proper is downwardly moved to its opened position. Figs. 3, 4 and 5 are cross sectional views respectively on lines 3—3, 4—4 and 5—5, Fig. 1. Fig. 6 is a partial sectional elevation as taken on line

6—6, Fig. 1. Fig. 7 is a side elevation of the flushing apparatus as seen looking at the outlet side thereof. Fig. 8 is a cross sectional view on line 8—8, Fig. 1; Fig. 9 is a perspective view showing the upper end portion of the valve stem and parts and appurtenances thereof in separated relations.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings, A represents the body of the valve proper, the same as here shown having the inlet opening *a* at the bottom and the laterally extended outlet opening *b*,—*c* representing the valve seat opening for which a primary valve B is provided for closing with the pressure in an upward direction. The primary valve is made with a central circular aperture or opening *d* with a downwardly flaring mouth seating at which is the auxiliary valve *e* carried at the lower end of the valve stem D, which stem has the shoulder *f* slightly above the valve proper B for lost motion, so that when the valve stem is forcibly moved downwardly it causes the opening of the auxiliary valve to relieve the pressure before,—by the engagement of the shoulder *f* with the main valve,—the latter is forced to its opened position; it being here noted that the portion *f*<sup>2</sup> of the valve stem below the shoulder is slabbed or reduced at its sides to form waterways through the main valve.

Supported on the top of the valve body A is a frame or casing C and supported on the top of this frame or casing is a cylindrical chambered casing E through a central opening in the bottom of which,—for which suitable packing is provided,—the valve stem D is passed for a closed, or liquid tight, and yet free sliding fit. Toward the upper end of the valve stem which is within the cylindrical chambered casing E, such stem is formed with a shoulder *g* and is of a reduced diameter above such shoulder. The valve stem also has an axial passage *h* leading downwardly from its upper end; and such stem also has a peripheral annular groove *i* at a short distance above the shoulder *g* and also another peripheral annular groove *j* still farther toward its upper end with radial ducts *i*<sup>2</sup> and *j*<sup>2</sup> connecting said axial passage *h* with said annular grooves *i* and *j*.

F represents a tapered pointed plug

screw engaged in and for regulating the restriction of the axial passage  $h$ .

H represents a collar fitted about the valve stem and in engagement with the  
5 aforementioned valve stem shoulder  $g$ , the same having an annular groove  $k$  in its internal wall matching with the first aforementioned annular groove  $i$  of the valve stem; and one or more ducts  $k^2$  extend radially  
10 through the collar from its internal annular groove to its periphery. An element of considerable advantage and practical importance embodied in the present construction is found in the provision of the sleeve  
15 L which is closely fitted in a surrounding relation about the portion of the valve stem above the said collar H. M represents a piston fitted in the cylindrical casing above said collar and of slightly less length than  
20 that of the sleeve L. This piston has comparatively large passages  $m$   $m$  extending therethrough from top to bottom and well toward the inner portion of the piston, these passages being alternately opened and  
25 closed by the said collar in the operation of the flushing valve.

P represents a frame or spider having an encircling fit about the upper extremity of the valve stem, resting on the upper end of  
30 the sleeve L and spaced by such sleeve at a distance from the collar H greater than the length of the piston, whereby in the endwise movement of the valve stem there is relatively a lost motion between it and the  
35 piston, which latter at times has one end in contact against the collar H and at other times has its opposite end in contact against the spider frame P. The said spider frame P has grooves  $o$  in its under side, toward  
40 the piston, extending from its outer edge to connection with the annular groove  $j$  formed in the periphery of the valve stem.

Q represents a spiral spring of considerable strength and power applied at the  
45 lower portion of the cylindrical casing and in compression between the bottom of the latter and the collar H, this being in substance reactive in an upward direction against the valve stem.

50 The piston M has a plurality of upwardly opening sockets  $t$   $t$  therein in which spiral springs  $u$   $u$  are seated, said springs being in compression between the bases of the sockets and the spider frame P, and exerting  
55 a pressure to force the piston in a downward direction against the collar H. The spider frame has depending studs or dowels  $v$  which enter the sockets interiorly of the springs therein.

60 As a means for manually moving the valve stem downwardly in the valve opening direction, R represents a bar pivoted at  $R^2$  to an intermediate part of the valve stem, to the upper extremity of which, by  
65 pivot  $R^3$ , a crank arm or bar S is connect-

ed. This crank arm or bar S has a rectangular opening  $S^2$  therein in which is entered the rectangular extremity  $T^2$  of an operating shaft T which is fitted through a cylindrically bored boss  $V^3$  therefor on the  
70 side of the frame C which connects the body of the valve proper with the dashpot or regulator. The shaft T is made with a peripheral groove  $T^3$  shown in Fig. 1, into which the extremity of the screw stud  $T^4$   
75 is engaged for detachably holding the shaft in its place. The rotative motion imparted to the shaft through the opposite crank-like handle extension  $T^5$  thereof, whether to the right or the left, is effective for causing, through the pivotally connected or  
80 link-like bar R a movement of the valve stem in the downward, opening, direction; and, therefore, persons not conversant with the construction of the flushing valve may effect the operation thereof with equal facility by turning the shaft in either direction.

The valve body is made with an upstanding externally threaded cylindrical hub V,  
90 and the cylindrical casing is made with a similar, but downwardly extending externally threaded hub  $v^2$ .

The casing C of a general cylindrical form has the internal walls thereof at its lower  
95 and upper end portions endwise convergent as shown at  $w$  and  $w^2$ .

W and  $W^2$  represent split externally tapered and internally threaded rings which  
100 when screwed in place tightly lock the frame to the valve body and the dashpot or cylindrical casing to the frame.

The frame C is made with an aperture indicated by dotted lines at  $y$  in Fig. 7 and  
105 which is closed by a detachable cover Y so that access to the interior of the frame for the assemblage of the parts is possible.

When the valve stem is moved in the downward valve-opening direction, the parts having been as shown in Fig. 1, the collar H  
110 is first carried to open relation for the bottom of the piston leaving the large passages  $m$  open so that the oil, gasoline, or other liquid below the piston may be freely displaced into the compartment above the piston. So soon as the manually applied downward force on the valve stem is released, the  
115 springs  $u$  are effective to instantaneously force the piston the very slight distance it is permitted to move to effect, by the relation with which it is brought to the collar H, a closing of the large passages  $m$  so that the upward and closing movement of the valve as impelled by the spring Q is sufficiently  
120 slow to permit the regulated displacement of the liquid from the lower to the upper compartment which is by way of the radial ducts  $k^2$  in the collar, through the annular groove  $i$  in the stem, the radial ducts  $i$  in the stem, the axial passage  $h$  and the radial ducts  $j^2$   
125 130

in the stem to the annular groove *j*, and thence by the grooves *o* in the spider frame to the upper compartment in the cylindrical casing.

5 I claim:—

1. In combination, a stem, means for operating the stem, a casing surrounding one end of the stem, said surrounded stem end having lateral openings and an axial passage, a collar on said stem, a spring between the collar and one end of the casing, a sleeve on the stem, a piston on the sleeve, said piston having openings closed by the collar, and means carried by the stem for holding the piston against the collar to close said openings.

2. In combination, a casing, a piston slidable in the casing and dividing the same into two compartments, and provided with relatively large passages through which liquid may flow from one compartment to the other, a stem extending through into the casing and through the piston and provided with lateral passages located on one side of the piston and an axial passage communicating with the lateral passages at one end and at its opposite end with the chamber on the opposite side of the piston, a collar on the stem normally closing the passage in the piston, a spider secured to the stem, and a spring between the spider and the piston to hold the piston against the collar.

3. In combination, a casing, a piston slid-

able in the casing and dividing the same into two compartments, and provided with relatively large passages through which liquid may flow from one compartment to the other, a stem extending through into the casing and through the piston and provided with lateral passages located on one side of the piston and an axial passage communicating with the lateral passages at one end and at its opposite end with the chamber on the opposite side of the piston, a collar on the stem normally closing the passages in the piston, said piston having sockets, springs in the sockets, and a spider secured to the stem for confining the springs in the sockets.

4. In combination, a casing, a stem having one end in the casing and formed with lateral passages and an axial passage leading from said lateral passage through the end of the stem, a collar on the stem, a sleeve on the stem, a piston on the sleeve and sliding against the wall of the casing, said piston having relatively large openings and dividing the casing into two chambers, a stop on the stem and springs between the stop and the piston for holding the piston against the collar to close said piston openings.

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

LEWIS J. TETLOW.

Witnesses:

G. R. DRISCOLL,

J. D. LONG.