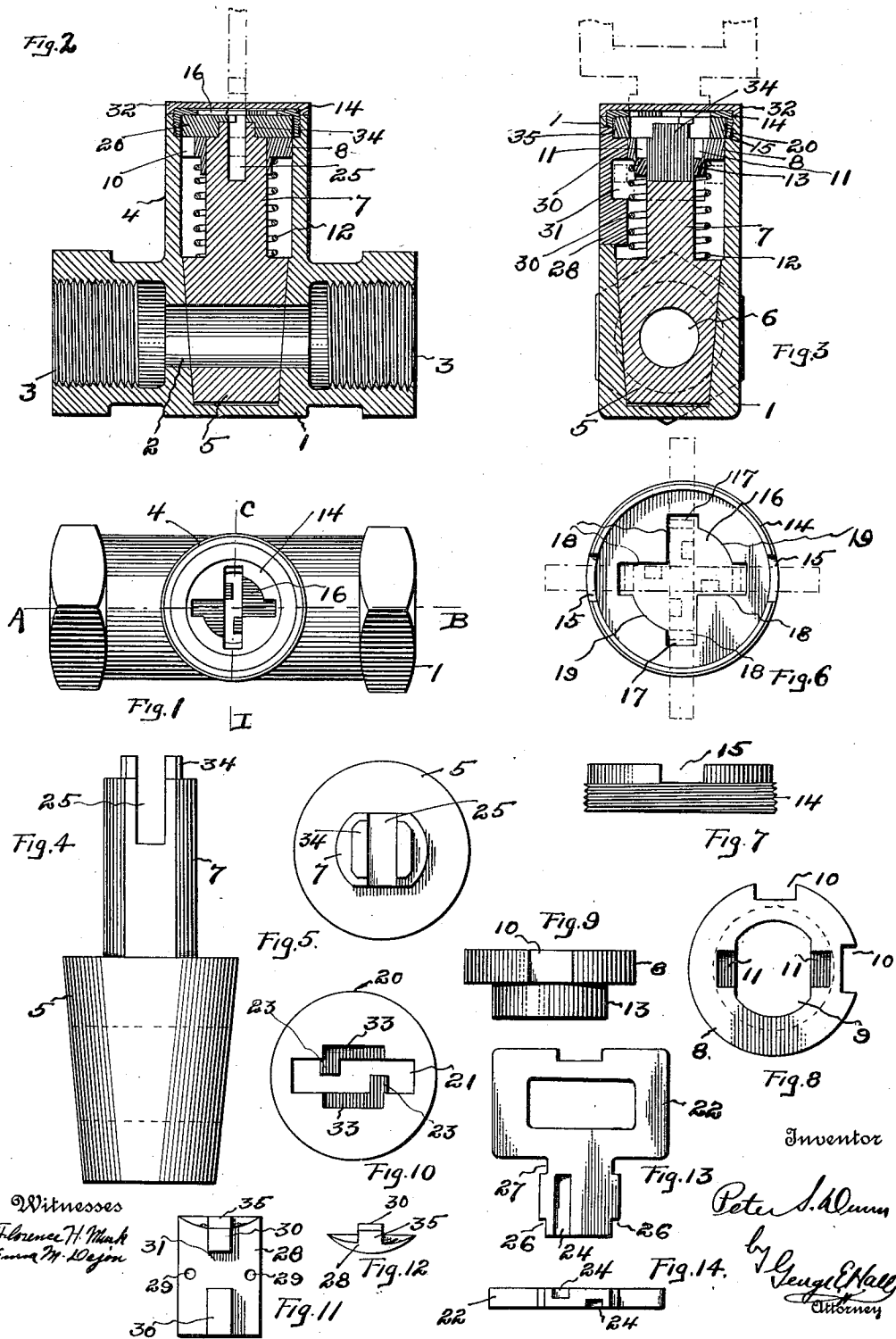


P. S. DUNN.
VALVE.
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Patented Apr. 9, 1912.



Witnesses
Florence H. Mark
Gordon W. Dejeu

Inventor

Peter S. Dunn

by George E. Hall
Attorney

UNITED STATES PATENT OFFICE.

PETER S. DUNN, OF NEW HAVEN, CONNECTICUT, ASSIGNOR OF ONE-THIRD TO DAVID E. FITZ GERALD AND ONE-THIRD TO THOMAS F. FITZSIMMONS, BOTH OF NEW HAVEN, CONNECTICUT.

VALVE.

1,022,471.

Specification of Letters Patent.

Patented Apr. 9, 1912.

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To all whom it may concern:

Be it known that I, PETER S. DUNN, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Valves, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to new and useful improvements in valves, and has for its object, among other things, to provide a valve with means whereby the same can be operated with a key that can only be inserted or taken out when the valve is either wide open or closed.

To these, and other ends, my invention consists in the valve, having certain details of construction and combinations of parts, as will be hereinafter described, and more particularly pointed out in the claims.

Referring to the drawings, in which like numerals of reference designate like parts in the several figures; Figure 1 is a plan view of my improved valve; Fig. 2 is a sectional elevation thereof upon line A—B of Fig. 1; Fig. 3 is a transverse sectional elevation upon line C—D of Fig. 1; Fig. 4 is an enlarged view of the valve plug; Fig. 5 is a plan view thereof; Fig. 6 is a view of the underside of the key cap; Fig. 7 is an elevation thereof; Fig. 8 is a plan view of the tumbler; Fig. 9 is a side elevation thereof; Fig. 10 is an underside view of the key disk; Fig. 11 is an inside view of the guide plate; Fig. 12 is a plan view thereof; Fig. 13 is a side elevation of the key; and Fig. 14 is a view thereof looking toward the bottom of Fig. 13.

In the practice of my invention I provide a valve body 1, having the usual port 2 therethrough, with threaded ends 3, and projecting laterally therefrom, at right angles to the port 2, is the cylindrical case 4. Within this case is rotatably mounted the plug 5, having a port 6 therethrough, which, during the rotation of said plug, is brought into register with the port 2. Shiftable endwise upon the stem 7 of the plug 5 is a tumbler 8, having an opening 9 therethrough of substantially the same shape as the cross section of the said stem. Said tumbler is provided in its outer edge with two notches 10 located substantially 90° from each other, and in the top side thereof

are the key pockets 11. Between the tumbler 8 and the head of the plug 5 is the coil spring 12, which holds the plug on its seat and exerts an outward pressure upon said tumbler. The upper end of said coil spring surrounds the collar 13 integral with said tumbler. Threaded in the end of the case 4 is the key cap 14, having notches 15 in the rim thereof, and through the top of which is the opening 16, said opening having radial notches 17 therein, one side of each of said notches having the stop faces 18, and the other side of said notches being connected by the curved faces 19. Between the tumbler 8 and the cap 14, is the key disk 20, having an opening 21 therethrough of substantially the same shape in cross section as that of the key 22. The wards 23 in said opening 21 corresponding in shape and location with the recesses 24 in said key. In the underside of the said disk is a pocket 33, into which projects the tip 34 of the stem 7 and thereby holds the said disk in its proper relative position upon said stem. The key 22 is of substantially the same thickness as the width of the slot 25 in the upper end of the plug 5, and is provided with steps 26, which rest upon the top of the tumbler 8, when the lower portion of said key is within the key pockets 11, and the width of the key at 27 is substantially the same as the distance between the curved faces 19 of the cap 14.

The guide plate 28 is fixed to one side of the case 4 by rivets, or other similar means, passing through the holes 29 therein, said guide plate being provided with lugs 30 of substantially the same width and depth as the notches 10 in the tumbler 8, and the open space 31 between the inner ends of said lugs is substantially the same width as the thickness of said tumbler. The lug 35, which is practically a continuation of the lug 30, projects into one of the notches 15 in the key cap 14, and thereby locks said cap against disengagement, either accidental or otherwise. That portion of the plate 28 upon either side of the lug 35 is cut away to provide a clearance for the cap 14. When not in use, the end of the case 4 is closed, to prevent dirt or other foreign substance from getting into the operative mechanism, by a cap 32, which is threaded on the key cap 14, as shown in Figs. 2 and 3.

In operation, after the removal of the cap

32, the key is passed through one of the radial notches 17 in the key cap 14, through the opening 21 in the key disk 20, into the slot 25 in the plug stem with the end thereof projecting into the key pockets 11 in the tumbler 8. A pressure is then exerted upon the end of the key and the tumbler 8 is pushed along said stem toward the head of the plug until the said tumbler registers with the open space 31 between the lugs 30 upon the plate 28. The plug and tumbler are now rotated through a path of about 90°, at which time one side of the key will strike against one of the stop faces 18 in the cap 14, thus limiting its movement in that direction. The key is now withdrawn and the spring 12 moves the tumbler 8 outwardly, one of the notches 10 therein now being in register with the lug 30 which prevents the further rotation of said tumbler or plug until the said tumbler is again moved out of disengagement with said lug. The key cannot be removed while moving through said arc of 90° because the key at 27 is only substantially the same width as the open space between the circular faces 19.

There are minor changes and alterations that can be made within my invention, and I would therefore have it understood that I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit and scope of my invention.

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

1. The combination with a valve body; of a plug within said valve body; a tumbler slidable upon the stem of said plug, having a plurality of notches in its outer edge; a plate fixed in said valve body, having a lug thereon of substantially the same shape in cross section as the notches in said tumbler; a key disk, having an operative connection with the stem of said plug, so that it may always be maintained in its proper relative position therewith; a spring between the

head of said plug and said tumbler; and a key cap closing the chamber in said valve containing said plug and tumbler.

2. In a valve, the combination with a valve body, having a laterally projecting case thereon; of a plug within said case; a key cap closing the open end of said case and having an opening therethrough, said opening being formed so as to furnish stop shoulders with intermediate curved faces; a plug within said case; a guide plate fixed to said case and having a lug thereon that projects into the interior thereof; a tumbler having two notches in its outer edge of substantially the same shape in cross section as the said lug; a key disk, having an operative engagement with the stem of said plug and held against movement in one direction by said key cap; and a spring between the head of said plug and the said tumbler.

3. In a valve, the combination with a valve body, having a laterally projecting case thereon; of a key cap closing one end of said case and having an opening therethrough provided with stop faces substantially 90° from each other that are connected by an intermediate circular face; a plug within said case, having a stem thereon that is slotted at its outer end; a key disk held in operative engagement with said stem and having a slot therethrough which registers with the slot in said stem; a tumbler slidable upon said stem but held against rotation thereon, having two radial notches in its outer edge, and having key pockets therein in line with the slot in the stem of said plug; a spring between said tumbler and the head of said plug; and a guide plate fixed to one side of said case and having a lug thereon which projects into the interior of said case.

In testimony whereof I affix my signature in presence of two witnesses.

PETER S. DUNN.

Witnesses:

GEORGE E. HALL,
FLORENCE H. MONK.