P. S. DUNN.

VALVE.

APPLICATION FILED MAY 18, 1912.

1,047,183.

Patented Dec. 17, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

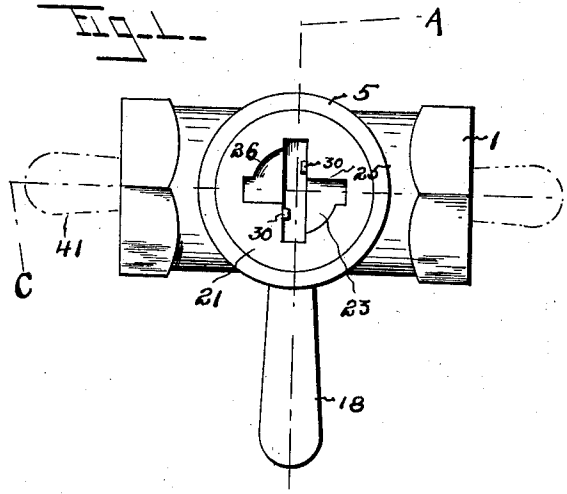


Fig. 2.

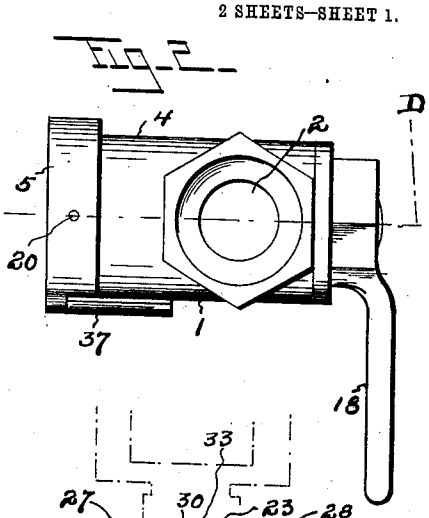
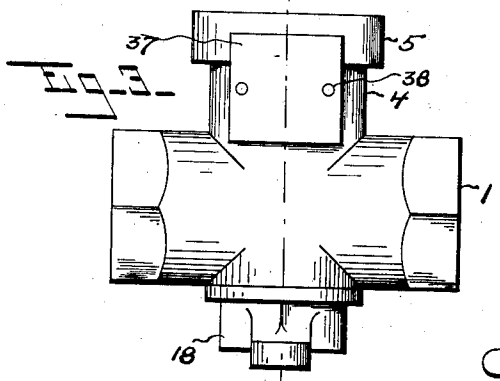


Fig. 3.



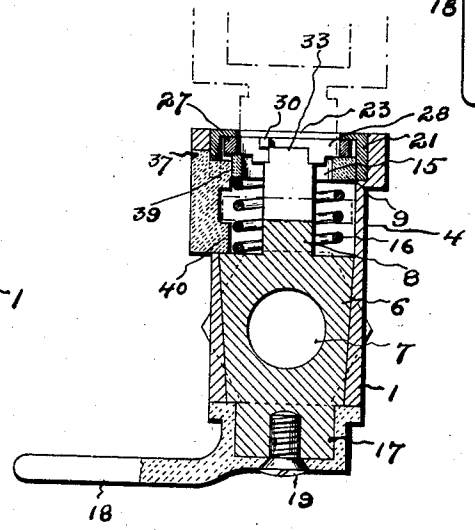
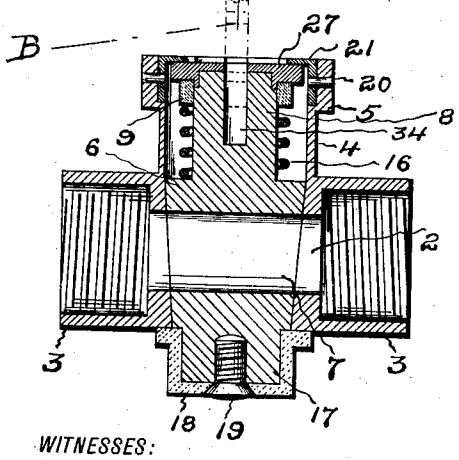


Fig. 4.

Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

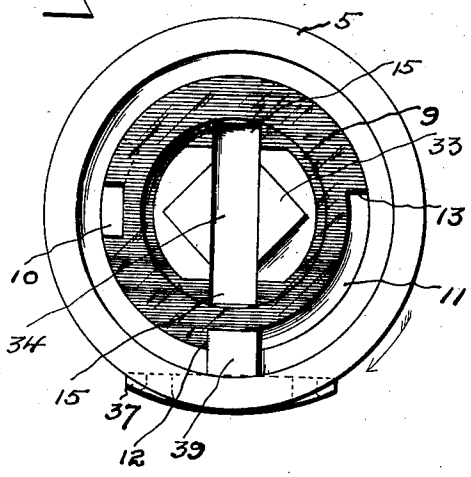
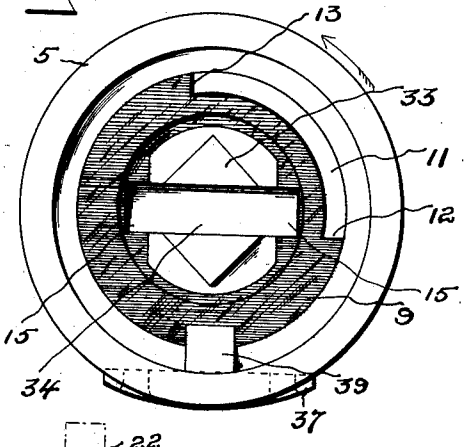


Fig. 7.



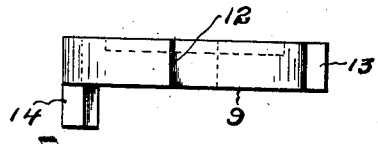


Fig. 8.

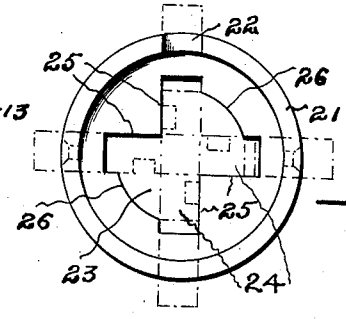


Fig. 9.

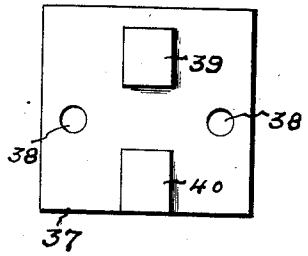


Fig. 10.

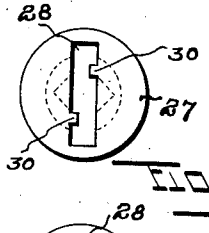


Fig. 11.

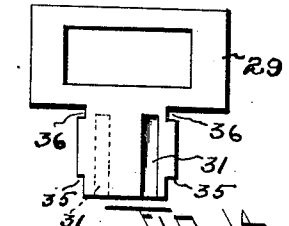


Fig. 14.

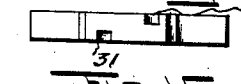


Fig. 15.

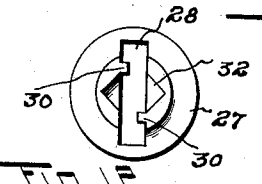


Fig. 12.

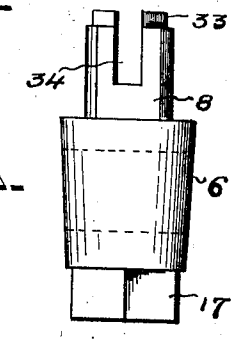


Fig. 13.

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UNITED STATES PATENT OFFICE.

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

VALVE.

1,047,183. Specification of Letters Patent. **Patented Dec. 17, 1912.**

Application filed May 18, 1912. Serial No. 698,154.

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 construct a valve so that it may be opened or closed with or without a key and locked in its closed position if desired.

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 an end view thereof looking toward the right of Fig. 1; Fig. 3 is a front elevation thereof; Fig. 4 is a sectional view upon line A—B of Figs. 1 and 3; Fig. 5 is a sectional view upon line C—D of Figs. 1 and 2; Fig. 6 is an enlarged plan view of the cylindrical case with the key cap and key disk removed, illustrating the relative position of the tumbler, and its adjacent parts, when the plug is unlocked; Fig. 7 is a similar view, illustrating the tumbler in its locked position; Fig. 8 is an elevation of the tumbler; Fig. 9 is a view of the underside of the key cap; Fig. 10 is a view of the inside of the guide plate; Figs. 11 and 12 are a plan view and underside view respectively of the key disk; Fig. 13 is a view of the plug; Fig. 14 is an elevation of the key; and Fig. 15 is a view thereof looking toward the bottom of Fig. 14.

Heretofore it has been the practice to insert a valve in the service pipe leading from a gas meter so that the supply of gas may be shut off whenever desired. This valve is so constructed that the gas companies who have control thereof lock the same in either an open or closed position by a pad lock or similar device, that is, when the meter is installed the valve is locked in its open position so that the gas will pass therethrough into the service pipe and thence through the building, and when the meter is removed or repairs made thereon, the valve is locked in its closed position. This necessitates the assistance of an employee of the gas company to shut off the gas in the building. It is not always convenient to secure such assistance or to wait for it if it can be procured, because it is desirable, and necessary in fact, to shut off the gas in case of an emergency, such as the discovery of a leak, or in case of fire.

In my invention the mechanism is arranged so that the valve plug may be locked in its closed position, or when unlocked capable of being opened or closed without a key, so that the gas supply may be shut off without the assistance of the gas company employee.

In the embodiment of my invention I provide a valve body 1, having interiorly threaded ends 3, with the usual port 2 therethrough, and projecting laterally therefrom, at right angles to the port 2, is the integral cylindrical case 4, having an exterior flange 5 at the upper end. Within this case is rotatably mounted the plug 6, having a port 7 therethrough, which registers with the port 2 in one of its positions.

Shiftable axially upon the stem 8 of the plug 6, is a tumbler 9, having an opening therethrough of substantially the same shape as the cross section of said stem, which is so designed as to prevent rotation of said tumbler thereon. In the outer edge of said tumbler is a notch 10 and a semicircular recess 11 that terminates at the ends in the faces 12 and 13, which are located at an angle of slightly more than 90° from each other. Upon one side of the tumbler, adjacent to the notch 10, is a stop lug 14, and upon opposite sides of the opening, through the tumbler, are the key pockets 15. Between the tumbler 9 and the head of the plug 6, is a coil spring 16, which holds the plug on its seat and exerts an outward pressure upon said tumbler. The bottom end of the plug is squared at 17, and a handle 18 is secured thereto by a screw 19, means being thus provided for the manual rotation of said plug when unlocked. Secured in the outer end of the case 4, by the pins 20, is a key cap 21, having a notch 22 in the rim thereof, and through the top of which is the opening 23, said opening having radial notches connected therewith, one side of each of said notches having stop faces 25,

and the other side of said notches being connected by the curved faces 26. Between the tumbler 9 and the cap 21 is the key disk 27, having an opening 28 therethrough of substantially the same shape in cross section as that of the key 29. The wards 30 in said opening 28 correspond in shape and location with the recesses 31 in the key. In the underside of the said key disk is a rectangular pocket 32, into which projects the tip 33 of the stem 8 and thereby holds the said key disk in its proper relative position upon said stem. The key 29 is of substantially the same thickness as the width of the slot 34 in the stem 8, and is provided with steps 35, which rest upon the top of the tumbler 9 when the lower portion of said key is within the key pockets 15, and the width of the key at 36 is substantially the same as the distance between the curved faces 26 of the cap 21.

The guide plate 37 is fixed to one side of the case 4 by rivets or other similar means passing through the holes 38 therein, and is provided with lugs 39 and 40 of substantially the same width and depth as the notch 10 in the tumbler 9, and the open space between the ends of said lugs is substantially the same width as the thickness of said tumbler.

The registering of the notch 22 in the cap 21 with the lug 39 insures the proper relative position of said cap with the other parts within the case 4.

In Figs. 1 to 6 inclusive of the drawings, the plug is shown in its open position, that is, with the port 7 in register with the port 2, in which position the lug 39 is within the recess 11 in the tumbler 9, one side thereof being in contact with the face 12 of said recess, more particularly as shown in Fig. 6. By means of the handle 18 the plug may be rotated manually until the face 13 at the opposite end of said recess contacts with the opposite side of the face of the lug 39, in which position the valve will be closed and the handle 18 will lie parallel with the axis of said valve, shown herein by broken lines in Fig. 1 and designated by the numeral 41.

To lock the plug against rotation, the key is passed through one of the radial notches 24 in the key cap 21 through the opening 28 in the key disk 27 and into the slot 34 in the stem 8, with the end thereof projecting into the pockets 15 in the tumbler 9. At this time a slight pressure is exerted upon the end of the key in the direction of its length, and the tumbler 9 is pushed along said stem toward the head of the plug until it registers with the open space between the lugs 39 and 40 upon the guide plate 37, as shown by broken lines in Fig. 4. The plug and tumbler are now rotated through a path of about 90° until the face of the stop lug 14 is brought into contact with the lug 40, at which time the notch 10 in the tumbler will be in register with the lug 39. The key is now withdrawn and the spring 16 moves the tumbler 9 outwardly, so that the lug 39 enters said notch 10 and prevents rotation of the tumbler or plug in any direction until it is again disengaged. This is accomplished by reversing the operations above described. The arrangement of the parts is such that the key may be removed in either of its extreme positions. If the key is inserted when the valve has been closed, through the handle 18, as above described, the plug is rotated by means of the key until the face 12 of the recess 11 contacts with the lug 39, as shown in Fig. 6.

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 notch and a recess in its outer edge, said recess being of greater width than said notch; a plate fixed in said valve body, having a lug thereon of substantially the same shape in cross section as the said notch; a key disk, having an operative connection with the stem of said plug so that it may be always maintained in its proper 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 inclosing 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 a notch and a recess in its outer edge, said notch being of substantially the same shape in cross section as said lug and said recess being of greater width than said notch; a key disk, having 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 the valve body, having a laterally projecting case thereon; of a key cap closing one end of said case with an opening therethrough provided with stop faces 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 that registers with the slot in said stem; a tumbler slidable upon said stem, having key pockets therein in line with the slot in the stem of said plug, and having a notch and a recess in its outer edge, said recess being of greater width than said notch; a spring between said tumbler and the head of said plug; and a plate fixed to one side of said case and having a lug thereon, which projects into the interior of said case.

4. In a valve, the combination with a valve body, having a laterally projecting case thereon; of a guide plate fixed to one side of said case and having companion lugs thereon, with an open space therebetween, that project into the interior of said case; a key cap closing the open end of said case and having an opening therethrough with stop shoulders; a plug within said case; a tumbler of substantially the same or less thickness than the width of the open space between the said lugs and having a notch in its outer edge of substantially the same shape in cross section as said lugs and a recess of greater width than said notch; a key disk, having 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 said tumbler.

5. 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 provide stop shoulders; a guide plate fixed to said case, having companion lugs thereon that project into said case; a tumbler slidable upon the stem of said plug, having a notch therein of substantially the same shape in cross section as said lugs; a stop shoulder connected adjacent to said notch and a recess of greater width than said notch; a key disk, having an operative engagement with the stem of said plug; and a spring between the head of said plug and the said tumbler.

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

PETER S. DUNN.

Witnesses:

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FLORENCE H. MONK.

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