March 31, 1936. T. H. ROBERTS 2,035,762

GAS COCK

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Fig. 1.

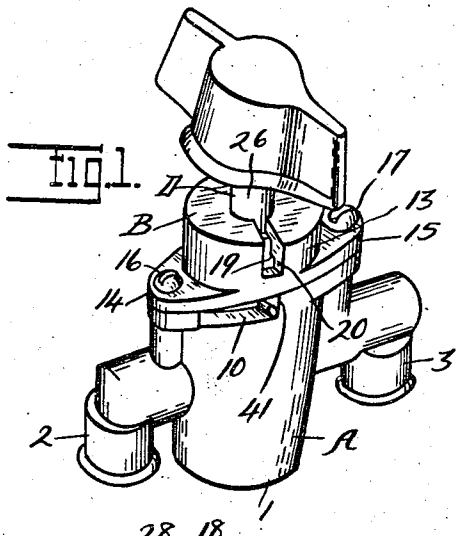
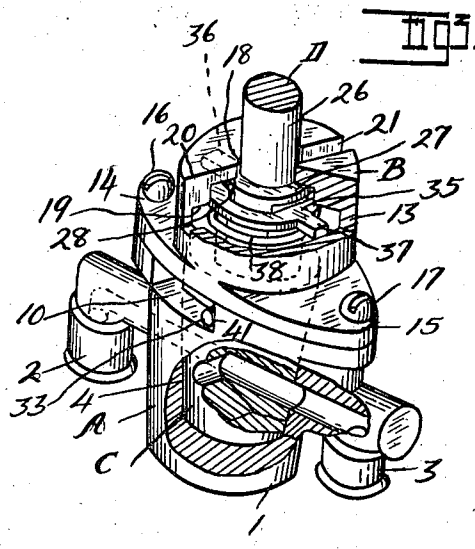
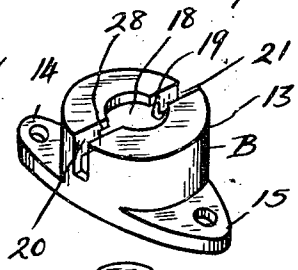


Fig. 3.





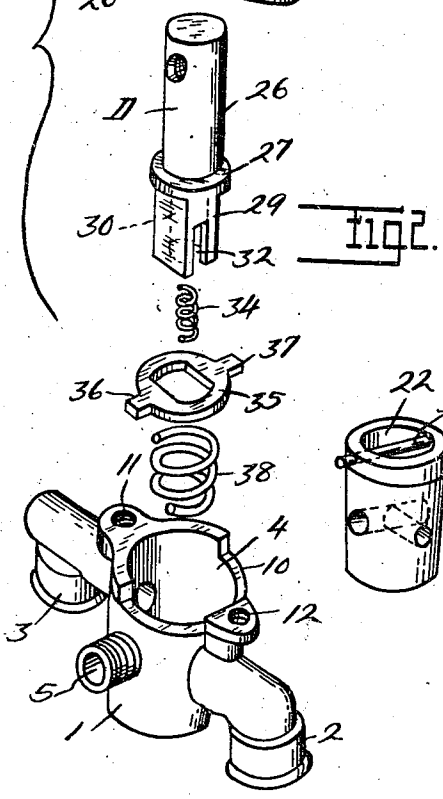
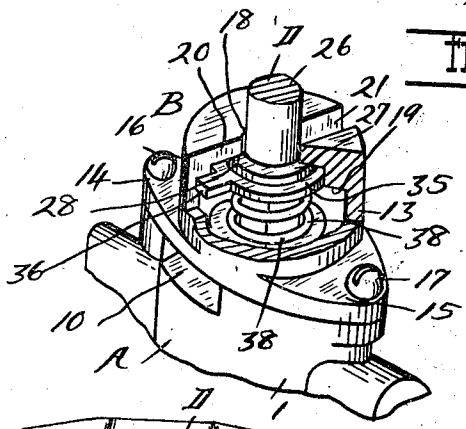


Fig. 2.

Fig. 4.



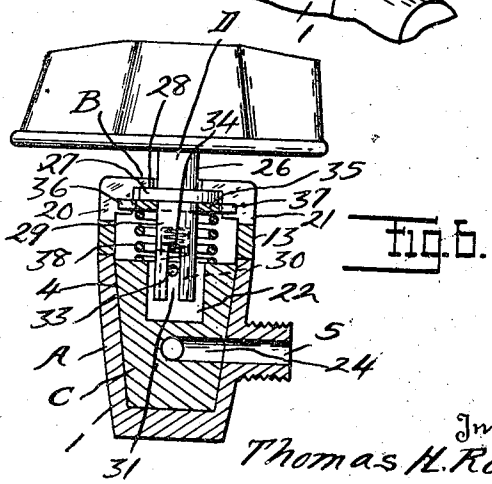


Fig. 6.

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Fig. 5.

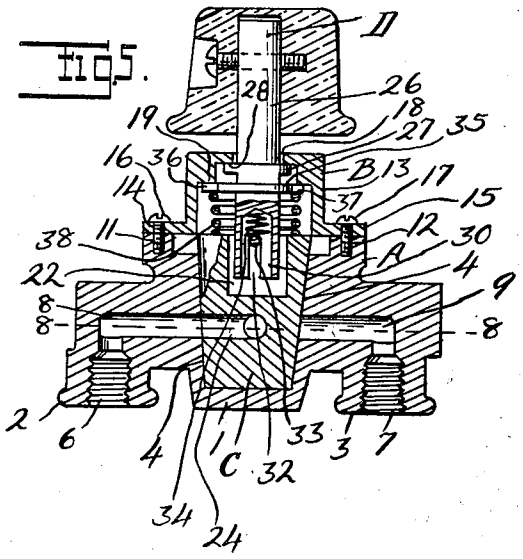


Fig. 7.

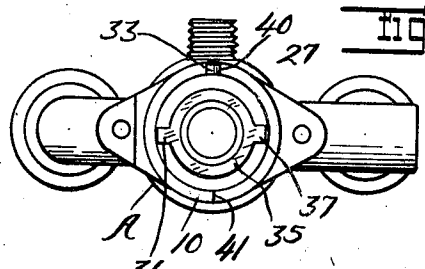


Fig. 8.

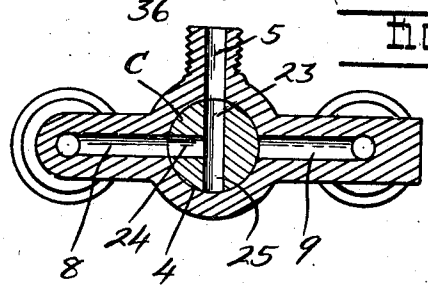
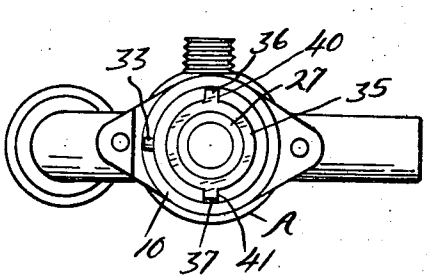


Fig. 9.



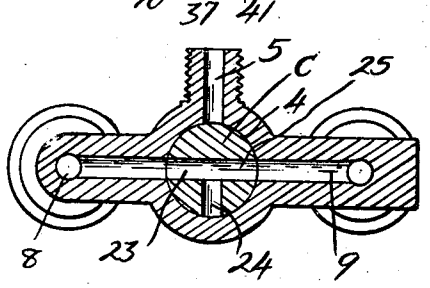
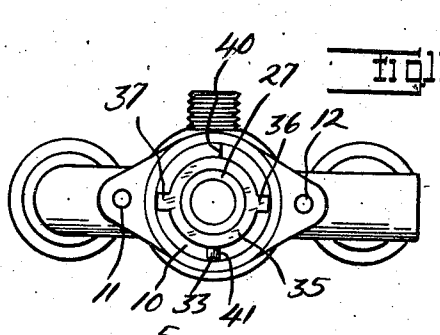


Fig. 10.

Fig. 11.



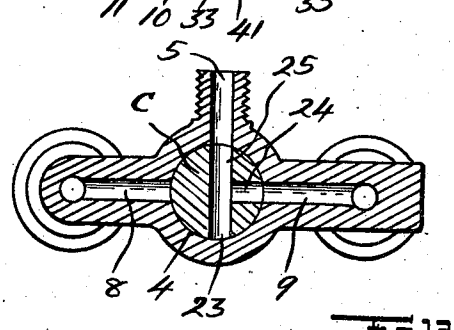


Fig. 12.

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2,035,762

UNITED STATES PATENT OFFICE

2,035,762

GAS COCK

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Application April 18, 1932, Serial No. 606,027

9 Claims. (Cl. 251—164)

This invention relates generally to valves and refers more particularly to gas valves of the rotary plug type designed for use in connection with double burners in ovens and the like.

In the accompanying drawings:

Figure 1 is a perspective view of a valve embodying my invention;

Figure 2 is a perspective view of the parts forming the valve;

Figure 3 is a fragmentary perspective view of the valve with parts broken away and showing the passage 25 in registration with the inlet passage 5;

Figure 4 is a fragmentary perspective view of the valve with parts broken away and showing the position of the washer 35 when the valve is in fully closed position;

Figure 5 is a vertical sectional view through the valve and showing the position of the parts when the passage 23 is in registration with the inlet 5;

Figure 6 is a fragmentary sectional view through the valve taken at substantially right angles to Figure 5;

Figure 7 is a top plan view of the valve with the cap and handle removed and showing the position of the parts when the passage 23 is in registration with the inlet passage 5;

Figure 8 is a sectional view taken on the line 8—8 of Figure 5;

Figure 9 is a view similar to Figure 7 but showing the position of the parts when the passages 23 and 25 are in registration with the passages 8 and 9;

Figure 10 is a view similar to Figure 8 but showing the position of the plug when the passages 23 and 25 respectively are in registration with the passages 8 and 9;

Figure 11 is a view similar to Figure 7 but showing the position of the parts when the passage 25 is in registration with the passage 5;

Figure 12 is a view similar to Figure 8 but showing the position of the plug when the passage 25 is in registration with the passage 5.

Referring now to the drawings, A is the casing; B is the cap; C is the rotary plug; and D is the handle stem of a valve embodying my invention. As shown, the casing A is a casting having a central portion 1 and the laterally projecting L-shaped portions 2 and 3 respectively. Preferably the central portion 1 is provided with a tapered socket 4 and a transversely extending inlet passage 5, while the wing portions 2 and 3 are provided at their free ends with threaded sockets 6 and 7 respectively and are provided with outlet passages 8 and 9 respectively that extend from diametrically opposite sides of the socket 4 to the inner ends of the sockets 6 and 7. Preferably the central portion 1 of the casing is provided at the open end of and around approximately half the socket 4 with an arcuate recess 10 and is provided in said end at substantially diametrically opposite points of the socket with threaded sockets 11 and 12 respectively.

The cap B is preferably formed of sheet metal and has a cup-shaped portion 13 registering with the open end of the socket 4 and is provided at diametrically opposite points of said cup-shaped portion with laterally projecting attaching flanges 14 and 15 respectively which are secured to the central portion 1 of the casting by screws 16 and 17 respectively engaging the sockets 11 and 12. Preferably the cup-shaped portion 13 has a central opening 18, an annular flange or shoulder 19 concentric with the opening, and radially extending slots 20 and 21 respectively at approximately diametrically opposite sides of the opening.

The rotary plug C fits in the socket 4 and is provided in its outer end with a substantially cylindrical socket 22. As shown the plug terminates flush with the outer end of the socket 4 and is provided intermediate its ends with three passages 23, 24 and 25 respectively that extend transversely thereof in a common horizontal plane and meet at the center. Preferably passages 23 and 25 are in alignment, while the passage 24 is disposed at substantially right angles to the passages 23 and 25.

The handle stem D has a cylindrical portion 26 in the opening 18 in the cap, has an annular flange 27 engaging the inner side 28 of the cap, and has a substantially rectangular portion 29 in the cylindrical socket 22. Preferably the rectangular portion 29 of the stem has a downwardly opening substantially cylindrical socket 30 and is provided at diametrically opposite sides of said socket with transversely extending slots 31 and 32 respectively. A pin 33 extending diametrically across the socket 22 in the plug and into the recess 10 in the casing is received in the socket 30 and slots 31 and 32, while a coil spring 34 within the socket 30 abuts the pin 33 and normally holds the flange 27 of the stem against the inner face 28 of the cap. A washer 35 is non-rotatably sleeved upon the rectangular portion 29 of the stem and has laterally projecting lugs 36 and 37 respectively that are engageable with the slots 20 and 21 in the cap, and a coil spring 38 is sleeved upon the rectangular portion 29 of the stem be-

tween the upper end of the plug C and the washer 35 and normally holds the lugs 36 and 37 of the washer against the flange 19 of the cap.

In use when the parts are in the position illustrated in Figures 9 and 10, the valve is fully closed. In this position the pin 33 is substantially midway between the ends 40 and 41 respectively of the arcuate slot 10 in the casing and the lugs 36 and 37 are in the slots 20 and 21. Thus the plug is locked against axial rotation. Should it be desired to have gas flow through the outlet 8, the handle stem D may be depressed so that the flange 27 will move the washer 35 downwardly and cause the lugs 36 and 37 to be removed from the slots 20 and 21 whereupon the plug C may be turned by the stem D to cause the passage 23 to register with the inlet 5. (Figures 7 and 8.) When in this position the pin 33 will abut the end 40 of the recess 10 and the lugs 36 and 37 of the washer will be held by the spring 38 against the flange 19 of the cap. Upon turning the plug C from the position illustrated in Figures 7 and 8 to the position illustrated in Figures 9 and 10 the lugs 36 and 37 will slide on the flange 19 until they are in vertical alignment with the slots 20 and 21 whereupon they will be moved upwardly in said slots by the spring 38 and the plug C will again be locked in closed position against axial turning movement. Should it be desired to have gas flow through the outlet 9, the handle stem D may be depressed so that the flange 27 will move the washer 35 downwardly and cause the lugs 36 and 37 to be removed from the slots 20 and 21 whereupon the plug C may be turned by the stem D to cause the passage 25 to register with the inlet 5. (Figures 11 and 12.) When in this position the pin 33 will abut the end 41 of the recess 10 and the lugs 36 and 37 of the washer 35 will be held by the spring 38 against the flange 19 of the cap. Upon turning the plug C from the position illustrated in Figures 11 and 12 to the position illustrated in Figures 9 and 10, the lugs 36 and 37 will slide on the flange 19 until they are in vertical alignment with the slots 20 and 21 whereupon they will be moved upwardly in said slots by the spring 38 and the plug C will again be locked in closed position. If desired the plug C may be turned from the open position illustrated in Figures 11 and 12 to the open position illustrated in Figures 7 and 8 or vice versa without being locked in the intermediate closed position illustrated in Figures 9 and 10 by pressing the handle stem D inwardly against the tension of spring 34 while it is being turned so that the lugs 36 and 37 of the washer will pass beneath and behind the slots 20 and 21.

Thus from the foregoing it will be apparent that I have provided a safety gas valve wherein the plug C will be locked automatically in the closed position illustrated in Figures 9 and 10 when the handle stem D is operated normally, i. e., merely turned without being moved longitudinally, but that may be moved from one open position to the other without being locked when the handle stem D is operated abnormally, i. e., pressed inwardly while it is turned. Regardless of how the stem D is turned, i. e., merely turned or held inwardly while being turned, the outlet passage 8 is closed before the outlet passage 9 is opened and vice versa, therefore, only one outlet is open at any one time. When the plug C is in the closed position illustrated in Figures 9 and 10 the handle stem D must be pressed inwardly to release the lugs 36 and 37 from the slots 20 and 21 when it is desired to turn the plug to either of the two open positions aforesaid. Thus the valve can not be accidentally opened. Both springs 34 and 38 retain the plug C in the socket. The spring 34 urges the handle stem D outwardly, while the spring 38 urges the washer 35 against the cap. The pin 33 serves as an abutment or seat for the spring 34 as well as a stop for the plug C, consequently an extremely practical and efficient construction is provided.

What I claim as my invention is:

1. In a valve, a casing having a socket and an arcuate recess around the socket, a rotary plug in the socket and having a socket, a pin extending diametrically of the socket in the plug and in the recess, a cap for the casing, a handle stem extending through the cap into the socket in the plug and having a socket and slots receiving the pin, a flange on the stem engageable with the cap, and a spring in the socket in the stem seated on the pin and urging the flange against the cap.

2. In a valve, a casing having a socket and an arcuate recess around the socket, a rotary plug in the socket in the casing and having a socket, a pin extending diametrically of the socket in the plug and in the recess, a cap for the casing having a slot therein, a handle stem extending through the cap into the socket in the plug and having a socket and slots receiving the pin, a flange on the stem engageable with the cap, a lock washer non-rotatably sleeved upon and movable longitudinally of the stem, said lock washer having a projection engageable with the slot in the cap, yieldable means between the plug and lock washer urging the latter toward the cap, and yieldable means in the socket in the stem seated on the pin and urging the flange toward the cap.

3. In a valve, a casing having a socket and an arcuate recess around the socket, a rotary plug in the socket in the casing and having a socket, a pin extending diametrically of the socket in the plug and in the recess, said pin being engageable with opposite ends of the recess to limit rotary movement of the plug, a cap for the casing having slots at diametrically opposite points thereof, a handle stem extending through the cap into the socket in the plug and having a socket and slots receiving the pin, a flange on the stem engageable with the cap to prevent withdrawal of the stem from the plug, means for holding the stem against turning movement including a washer non-rotatably sleeved upon but movable longitudinally of the stem, said washer having lugs at diametrically opposite points thereof engageable with the slots aforesaid in the cap, yieldable means between the plug and washer urging the latter toward the cap, and yieldable means in the socket in the stem seated on the pin and urging the flange toward the cap, the yieldable means aforesaid permitting longitudinal movement of the stem relative to the plug and pin, and said flange and washer being constructed and arranged in such a way that the lugs of the washer will be removed from the slots in the cap by the flange on the stem when the latter is moved longitudinally.

4. In a valve, a casing having a socket, a rotary plug in the socket in the casing and having a socket, a pin extending diametrically of the socket in the plug, a cap for the casing, a handle stem extending through the cap into the socket in the plug and having a socket and slots receiving the pin, a projection on the stem engageable

with the cap, and a spring in the socket in the stem seated on the pin and urging the projection against the cap.

5. In a valve, a casing having a socket, a rotary plug in the socket in the casing and having a socket, a pin extending diametrically of the socket in the plug, a cap for the casing, a handle stem extending through the cap into the socket in the plug and having a socket and slots receiving the pin, a projection on the stem engageable with the cap to limit outward movement of the stem relative to the plug, a spring in the socket in the stem seated on the pin and urging the projection against the cap, a washer on the stem between the plug and projection engageable with the cap to control rotary movement of the plug, and a spring around the stem between the plug and washer, said washer being movable by the projection out of engagement with the cap and movable by the last mentioned spring into engagement with the cap.

6. In a valve, a casing having a socket, a rotary plug in the socket in the casing and having a socket, a cap for the casing, a handle stem extending through the cap and slidably but non-rotatably engaging the socket in the plug, a projection on the stem engageable with the cap to limit outward movement of the stem relative to the plug, a spring engaging the stem and urging the projection against the cap, a washer on the stem between the plug and projection engageable with the cap to control rotary movement of the plug, said washer being spaced from and free of the plug, and a spring around the stem in the space between the plug and washer, said washer being movable by the projection out of engagement with the cap and movable by the last mentioned spring into engagement with the cap.

7. In a valve, a casing having a socket, a rotary plug in the socket in the casing and having a socket, a pin extending diametrically of the socket in the plug, a cap for the casing having a slot therein, a handle stem extending through the cap into the socket in the plug and having a socket and slots receiving the pin, a projection on the stem engageable with the cap, a washer non-rotatably sleeved upon and movable longitudinally of the stem, said washer having a part engageable with the slot in the cap, yieldable means between the plug and washer urging the latter toward the cap, and yieldable means in the socket in the stem seated on the pin and urging the projection toward the cap.

8. In a valve, a casing having a socket, a rotary plug in the socket in the casing and having a socket, a pin extending diametrically of the socket in the plug, a cap for the casing having slots at diametrically opposite points thereof, a handle stem extending through the cap into the socket in the plug and having a socket and slots receiving the pin, a projection on the stem engageable with the cap to prevent withdrawal of the stem from the plug, means for holding the stem against turning movement including a washer non-rotatably sleeved upon but movable longitudinally of the stem, said washer having lugs at diametrically opposite points thereof engageable with the slots aforesaid in the cap, yieldable means between the plug and washer urging the latter toward the cap, and yieldable means in the socket in the stem seated on the pin and urging the projection toward the cap.

9. A valve comprising a casing having a socket, a rotary plug in said socket, a stem for rotating said plug slidably interlocked therewith, a cap for said casing having an opening for said stem, means for checking rotary movement of said plug including a washer slidably and non-rotatably mounted on said stem in spaced relation to the plug and having a portion engageable with a recess in the cap, and a spring surrounding the stem between the plug and washer, said spring urging the washer toward the cap, a projection on the stem engageable with the cap to limit withdrawal of the stem and engageable with the washer to render the checking means inoperative, and means associated with said stem for holding the projection against the cap in an inoperative position relative to said checking means regardless of the position of said washer relative to the recess in said cap.

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