

March 9, 1943.

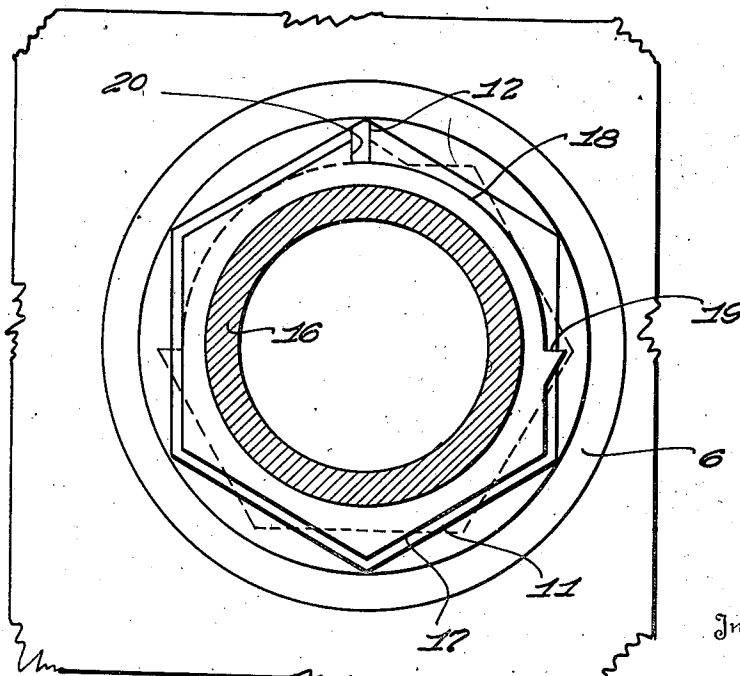
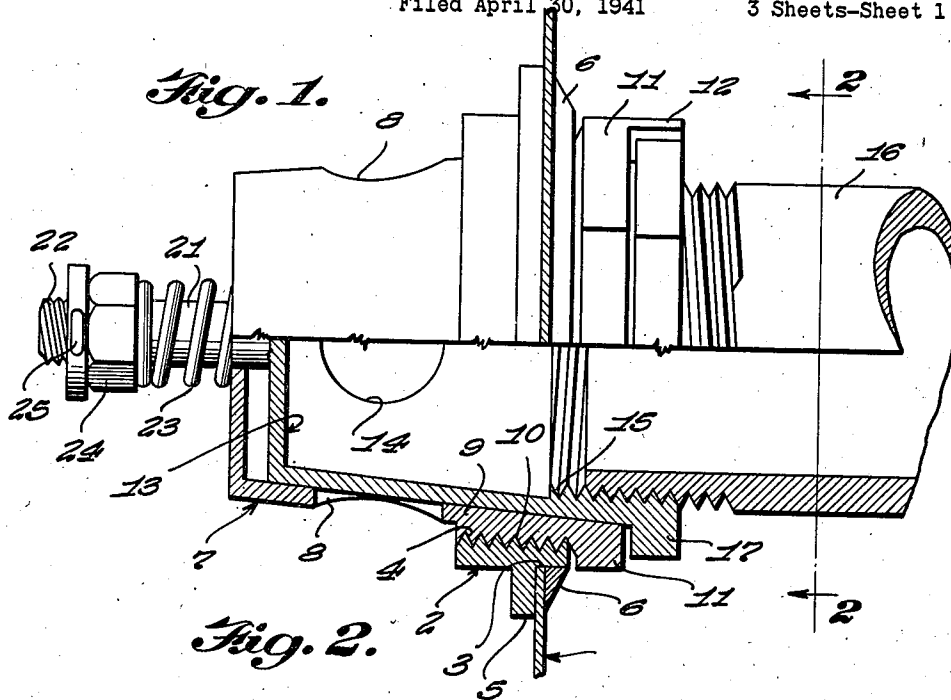
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2,313,331

TURN COCK

Filed April 30, 1941

3 Sheets-Sheet 1



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Fig. 3.

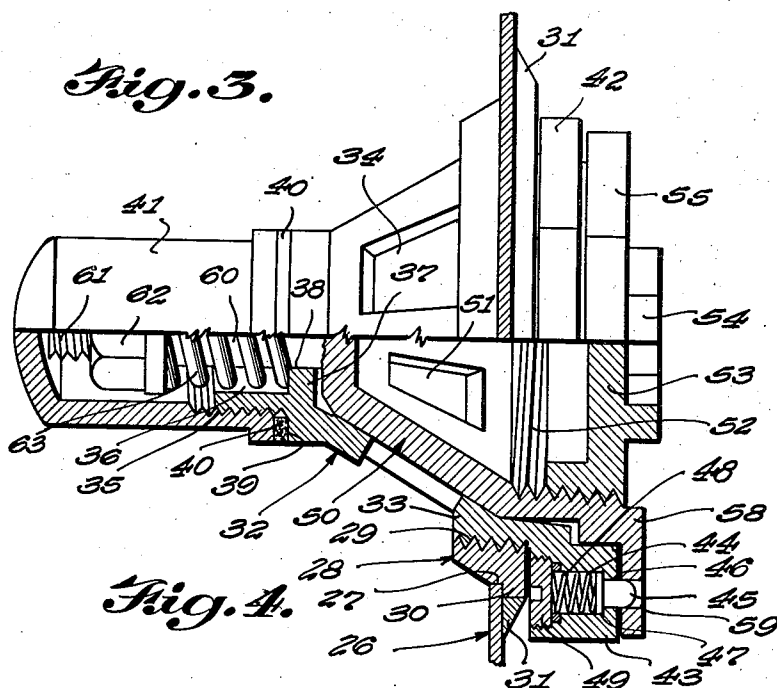
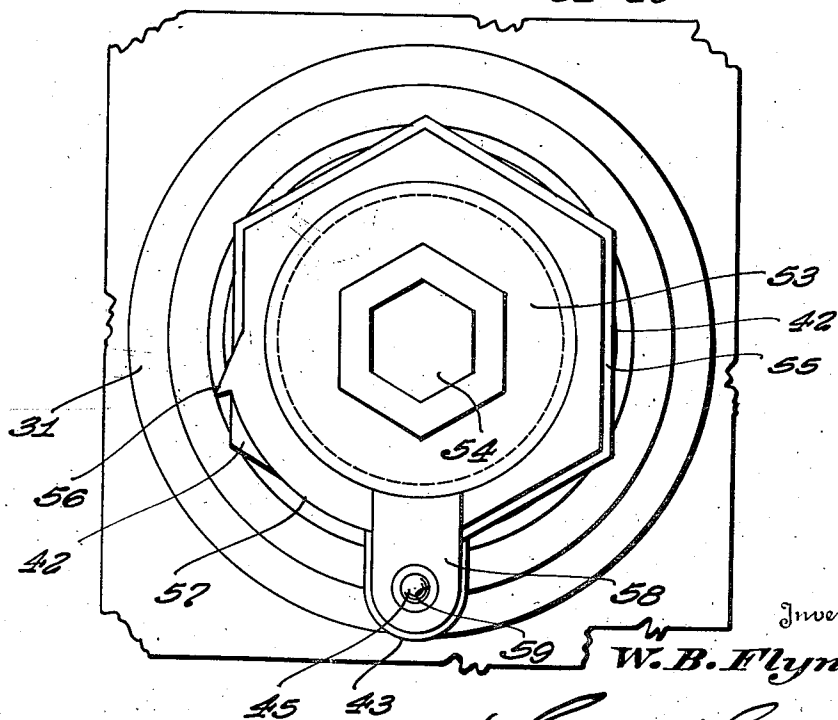


Fig. 4.



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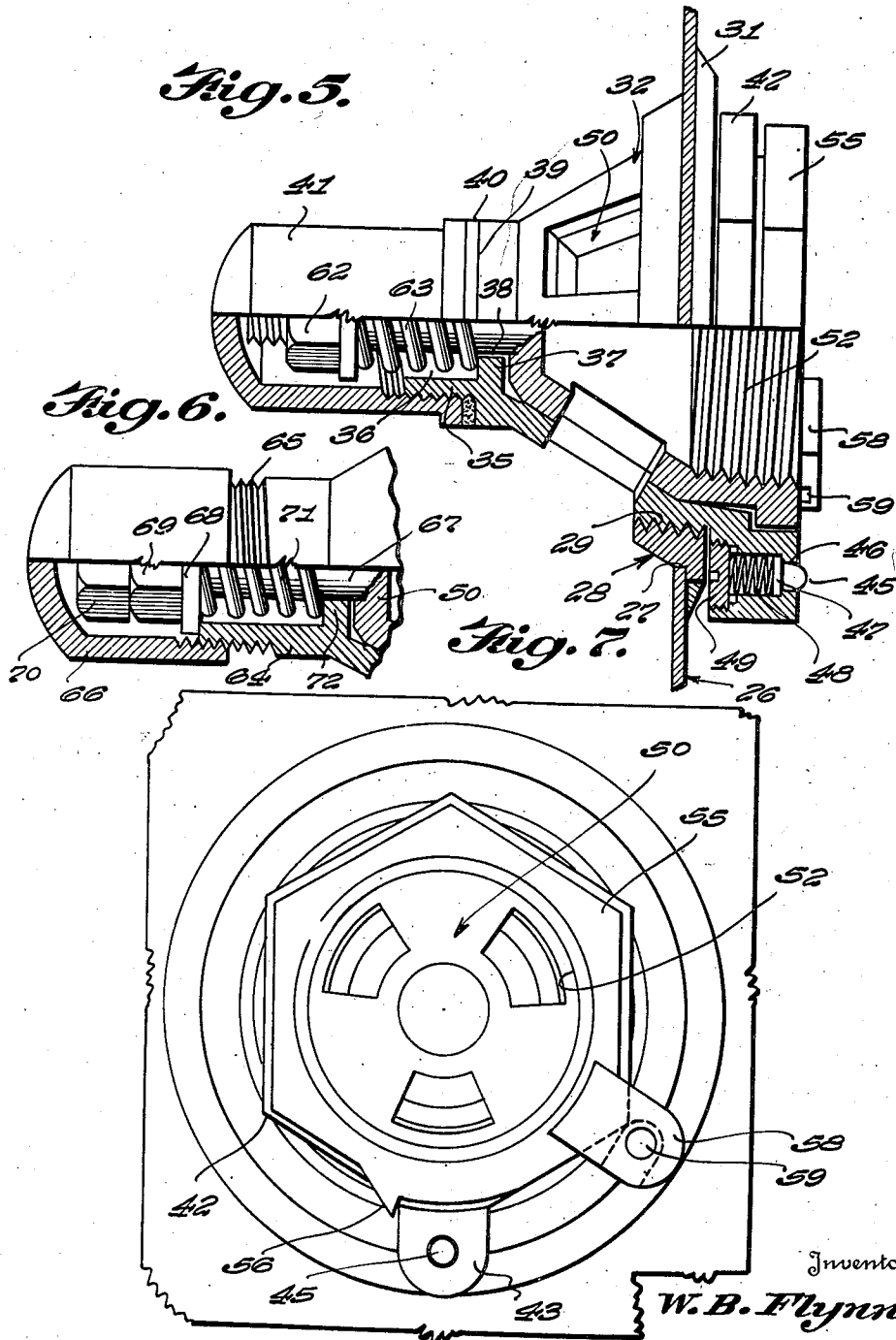
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UNITED STATES PATENT OFFICE

2,313,331

TURNCOCK

William B. Flynn, Galeta, Calif.

Application April 30, 1941, Serial No. 391,218

1 Claim. (Cl. 251—164)

This invention relates to closures and more particularly to a turn cock for use in connection with barrels, drums and other similar containers.

One object of the invention is to provide a turn cock which will permit effective control of the flow of fluid into and out of the barrel or container.

Another object of the invention is to provide a turn cock, the use of which will permit the elimination of the necessity of employing an extra valve on each container or barrel to control drainage and thus the saving to the consumer which would be realized by elimination of waste of fluid which normally takes place during the interval between the removal of the ordinary bung and the installation of an extra control valve in the bung hole.

A further object of the invention is to provide a device of this character, the use of which will eliminate the use of special mechanical racks for handling drums during drainage thereof.

A still further object of the invention is to provide a turn cock which is disposed internally of the barrel and which includes a hollow plug or casing.

And still another object of the invention is to provide a turn cock which will be a very welcome addition to barrels and will greatly facilitate the handling of said barrels and the draining of the contents therefrom by individuals.

And a further object of the invention is to provide a turn cock which will be simple in construction.

Another object of the invention is to provide a turn cock of this character which may be installed on barrels or drums during the manufacture thereof or which may be placed in use on drums already made.

Still further objects of the invention, not specifically mentioned hereinbefore, will appear during the course of the following description.

In the drawings forming a part of my application:

Figure 1 is a longitudinal sectional view, partly in elevation, showing one embodiment of my improved turn cock,

Figure 2 is a vertical sectional view on the line 2—2 of Figure 1 looking in the direction indicated by the arrows,

Figure 3 is a longitudinal sectional view, partly in elevation, showing another embodiment of my invention as it would appear in closed position,

Figure 4 is an end elevation of this embodiment of the invention and looking at that end of

the device which will be disposed exteriorly of a barrel or drum,

Figure 5 is a longitudinal sectional view, partly in elevation, showing the device as it would appear in open position,

Figure 6 is a detail sectional view, partly in elevation, showing a slightly modified inner end construction, and

Figure 7 is an end view similar to Figure 4, but showing this embodiment of the invention as it would appear in open position.

Referring now to the drawings in more detail, the numeral 1 indicates in general the end wall or stock of a conventional drum. In this connection it is desired to state that the device lends itself particularly well for use with drums of the fifty gallon capacity type and drums similar thereto.

There will first be described the embodiment of the invention illustrated in Figures 1 and 2 of the drawings. In this embodiment the numeral 2 indicates a coupling ring which is mounted in an opening 3 which is formed in the end wall 1 in a conventional manner. The coupling ring 2 includes a threaded inner portion 4 and a flange 5, said flange normally abutting the inner surface of the wall 1 of the drum. For retaining the coupling ring 2 in operative position within the opening 3, I provide a weld 6 which abuts the outer surface of the margins defining the opening 3 and also the outer rim of the ring 2. It will now be understood that the weld effectually retains the coupling ring in operative position within the opening 3 and with the flange 5 in engagement with the inner surface of the wall 1.

This embodiment of my improved turn cock includes a hollow casing or shell 7 which is of substantially frusto-conical shape. The casing 7 is mounted in the opening and has its major portion disposed internally of the drum. The casing 7 is formed with vertically aligned openings 8 which cooperate with openings formed in the plug, to be described hereinafter, for allowing entry of fluid or discharge thereof from the drum. Said casing 7 is, as best seen in Figure 1, formed with a thickened portion 9 which is externally threaded at 10, said externally threaded portion being normally screwed into the threaded portion 4 of the ring 2. Formed on the casing 7 and normally extending exteriorly of the barrel or drum is a head 11 which is of hexagonal or other suitable shape for engagement by a wrench. Formed on the head 11 and projecting forwardly therefrom is a stop lug 12, the purpose of which will be set forth in more detail hereinafter.

Associated with the casing 7 is a plug 13 which is hollow throughout its interior and which is provided with aligned openings 14 which cooperate with the openings 8, in the manner hereinbefore set forth. The plug 13 is, like the casing 7, substantially frusto-conical in shape. Said plug has its major portion slidably mounted within the casing so that partial rotation of said plug may be effected for bringing the openings 14 into or out of registration with the openings 8. Near its outer end the plug 13 is formed with an internally threaded thickened portion 15, which thickened portion has screwed therein the free end of a discharge or inlet pipe 16. Formed on the outer end portion of the plug 13 is a turning head 17 which is substantially hexagonal in shape to receive a wrench or other tool but which, as best seen in Figure 2, is cut away to define an arcuate track 18 having substantially triangular stop shoulders 19 and 20 at its ends. The stop shoulders 19 and 20 are engaged by the stop lug 12 in extreme open or closed position. More specifically, when the device is in closed position, as shown in Figures 1 and 2, the lug 12 will engage the shoulder 20. When the device is open, the lug 12 will move over the track and will engage the shoulder 19 when the device is in full open position.

In order to retain the plug 13 in operative position within the casing 7, I provide the following structure. The plug 13, as best seen in Figure 1, has formed on its inner end wall an inwardly and axially extending stem 21 which is threaded at its outer end, as shown at 22. Surrounding the stem and abutting the outer face of the inner end wall of the casing 7 is a spring 23. A nut 24, screwed on the portion 22, retains the spring tensioned against the end wall of the casing. It will thus be seen that the plug will be retained in operative position within the casing. A cotter key 25 is passed through the threaded portion 22 of the stem and serves to retain the nut 24 against displacement from the stem.

While it is believed that the operation of this embodiment of the invention will be entirely clear, after a reading of the foregoing description, it is thought that a brief description thereof will not be out of place. It should be understood that my invention will be permanently mounted within the drum or barrel so that, when it is desired to drain the barrel, it is only necessary to screw the pipe 16 into the threaded portion 15 of the plug 13. When this is done and it is desired either in drain or to fill the barrel, a wrench is engaged with the turning head 17 and said turning head is shifted from the position shown in Figure 2 to that shown in dotted lines in Figure 2, when the openings 8 and 14 will be brought into registration. After this is done, the contents of the drum may be drained or, conversely, the drum or barrel may be filled. After filling or draining, it is only necessary to move the head 17 in the opposite direction for closing the drain cock.

It has been found by actual experience that, while the embodiment of the invention hereinbefore described lends itself particularly well for use for controlling flow of most liquids, it does not operate entirely satisfactorily when used with barrels containing gasoline. Accordingly, I have provided the modified embodiment which is illustrated in Figures 3, 4, 5, 6 and 7 and which will be described hereinafter. This embodiment of the invention will function equally well when used with fluids of any kind.

In the embodiment shown in Figures 3 through 7, the numeral 26 indicates the end wall or stock of a drum which is similar to the drum having the wall 1. The wall 26 is formed with an opening 27 similar to the opening 3. Mounted in the opening 27 is a coupling ring 28 which is internally threaded throughout its length, as shown at 29, and which is formed with a flange 30 which overlies the outer margin defining the opening 27. A well 31 engages the outer surface of the margin defining the opening 27 and also the rim of the coupling ring 28 and retains said coupling ring in operative position within the said opening 27.

Screwed into the coupling ring 28 and having its margin portion extending inwardly from the wall 26 of the drum is a casing 32 which is of substantially frusto-conical shape. The casing 32 is formed with a thickened externally threaded portion 33 which engages the threaded portion 29 of the ring 28. The casing 32 is formed with openings 34, the purpose of which will be set forth in more detail hereinafter. Also, the casing 32 is formed with a reduced externally threaded nipple 35 which is formed with an axial bore 36, said bore having a bottom wall 37 which is axially apertured at 38. The reduced nipple 35 defines a shoulder 39 against which is normally seated a sealing gasket 40. Normally screwed on the nipple 35 and having its inner end engaged with the gasket 40 is a sealing cap 41.

The casing 32 is formed with an exteriorly extending head 42 which is of hexagonal or other suitable shape to receive a wrench or other tool. As best seen in Figures 3, 5 and 7, the head 42 is formed with a depending lug 43. The lug 43 is formed with a bore 44 in which is mounted a latch member 45. The bore 44 is reduced to define an opening 46 which communicates with the front face of the lug 43 and slidably receives the latch member therethrough so that said latch member may project slightly past the face of said lug. The opening 46 cooperates with the bore to define a shoulder which receives thereagainst a flange or skirt 47 on the latch member 45 and thus prevents outward displacement of the latch member. A spring 48 is carried within the bore 44 and normally urges the latch member to its outwardly extended position. The bore is engaged at its inner end to receive a screw cap 49 which retains the spring in operative position within said bore.

Associated with the casing 32 is a plug 50 which is substantially frusto-conical shaped and which is hollow throughout its interior. The plug is slidably mounted within the casing 32 and has openings 51 which may be positioned to register with the openings 34 in the casing 32, as will be described in more detail hereinafter. The plug 51 is formed with an internally threaded portion 52 to receive an inlet or outlet pipe similar to the pipe 16. When the inlet or outlet pipe 16 is not in place, however, a closure plug 53 is screwed therein. Said closure plug provides added insurance against leakage and also protection for the threads 52. The plug 53 is formed with a hexagonal socket 54 to receive a wrench for permitting ready removal of said plug. As best seen in Figures 3, 4 and 7, the plug is formed with a hexagonally shaped turning head 55 which is adapted to have a wrench or other tool engaged therewith when it is desired to turn the plug within the casing 32.

As best seen in Figures 4 and 7, the head 55 is formed with a stop shoulder 56 and an arcuate track 57. The stop shoulder 56 and track 57 are similar in their action to the shoulders 19 and 20 and the track 18. That is to say, the stop shoulder 56 will limit turning movement of the plug to full open position.

Formed on the turning head 55 of the plug 50 is an outwardly offset depending latch lug 58. The latch lug 58 is, when the device is in closed position, disposed to overhang the lug 43 and is formed with an opening 59 to receive the end of the latch member 45. It will thus be seen that the latch member will cooperate with the lug 58 for releasably retaining the plug in closed position. The lug 58 may be swung for displacing the latch member from the opening 59 for moving the plug to open position, as will be described more fully hereinafter.

In order that the plug 50 may be retained in operative position within the casing 32, I employ the following structure. The plug 50 is formed with an axially and inwardly extending stem 60 which extends through the opening 38 in the wall 37 and through the nipple 35. The stem 60 is externally threaded at 61 and has a nut 62 screwed thereon. A spring 63 is confined between the nut and the wall 37 and retains the plug 50 tensioned against the casing 32. The cap 41, of course, prevents displacement of the nut 62 and the gasket 40 effectually prevents leakage from between the cap and the shoulder 39.

In Figure 6 of the drawings, a slightly modified form of cap is disclosed. In this embodiment the nipple is shown at 64 and said nipple is externally threaded at 65 to receive a cap 66. In this form of the invention, a portion of the plug 50 is shown and said plug is formed with a stem 67 which is similar to the stem 60. The stem 67 extends through the nipple and through a washer 68 and has nuts 69 and 70 screwed on its free end, the nut 70 being a lock nut. A spring 71 is confined between the washer 68 and the wall, indicated at 72, of the nipple 64. The spring 71 will urge the stem 67 outwardly and thus tension the plug against the wall of the casing 32.

The operation of this embodiment of the invention is quite similar to that of the embodiment disclosed in Figures 1 and 2 and described hereinbefore. However, a brief description of the operation of this embodiment will be set down herein so as to avoid confusion.

It should be understood that, like the first de-

scribed embodiment of the invention, this form of turn cock will be installed permanently on the barrels or drums.

When it is desired to drain or to fill a barrel equipped with this embodiment of my improved turn cock, it is only necessary to remove the plug 53 from the opening 52 and to screw a pipe similar to the pipe 16 therein. A wrench is then engaged with the turning head 55 and said turning head is rotated for turning the plug 50 within the casing 32 until the openings 51 and 34 are brought into registration. After this takes place, liquid may be introduced to the interior of the drum or may be removed therefrom, as required.

The stop shoulder 56, as stated, will limit movement of the plug 50 to full open position. The plug is normally retained in closed position, however, by the action of the latch member 45 in the opening 59. In this connection, by referring to Figure 5, it will be seen that the opening 59 extends to one side of the lug 58 so that said latch member may easily be guided to latching position.

Both embodiments of my invention will lend themselves particularly well for use in conjunction with barrels, kegs, drums and other containers and will greatly facilitate filling and draining of such containers.

It is believed that further description of the invention is unnecessary.

Having thus described the invention, what is claimed as new is:

In a turn cock, a casing, means mounting the casing in the wall of a container, a plug mounted within the casing for circumferential sliding movement therein, means carried by the plug and engageable with the casing for limiting outward displacement of the plug from the casing, said casing having a depending lug formed with a bore, said bore having a reduced opening communicating with the outer surface of the lug, a latch member in the bore and having a portion thereof extending through the opening and past the outer surface of the lug, a spring normally urging the latch member outwardly, means retaining the spring and latch member in operative position within the bore and opening, a head carried by the plug, a lug carried by the plug and having an opening for receiving the latch member for releasably holding the plug in a set position, and means on the head of the plug for limiting movement of said head and plug to full open position.

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