

1,293,753.

P. C. GIBSON.
STOP COCK.
APPLICATION FILED OCT. 17, 1917.

Patented Feb. 11, 1919.
2 SHEETS—SHEET 1.

Fig. 1.

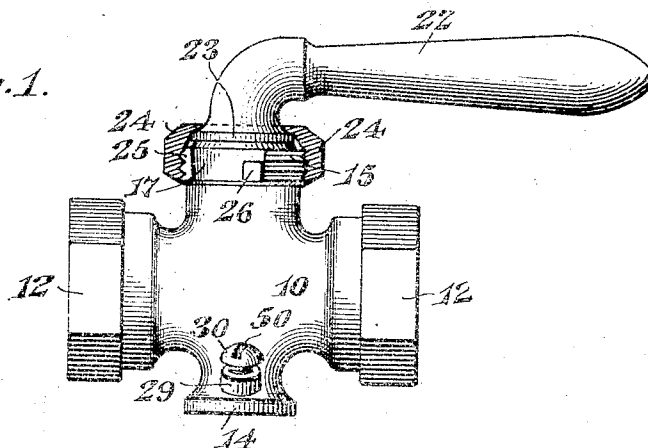


Fig. 2.

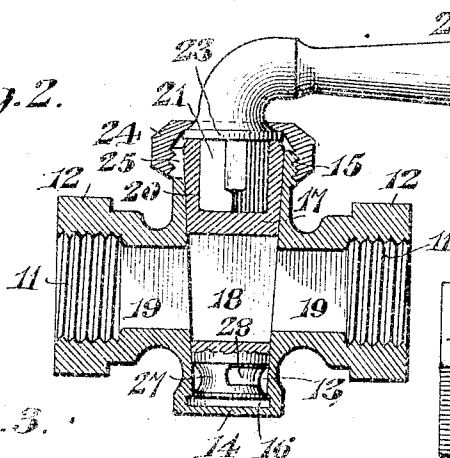
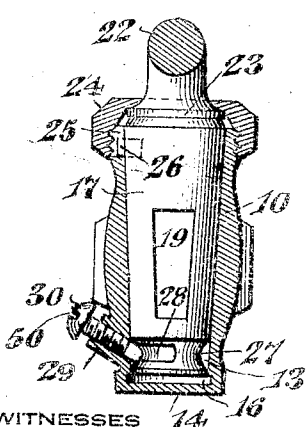


Fig. 3.



WITNESSES
Jas. E. McLaughlin
H. O. Larkin

Fig. 4.

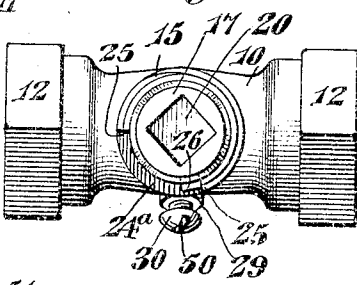
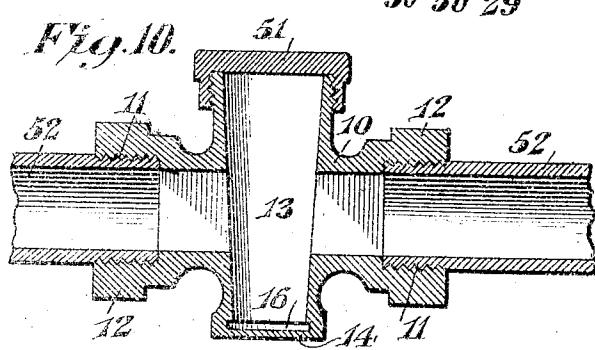


Fig. 10.



INVENTOR
Percy C. Gibson,
BY
E. J. Figg
ATTORNEY

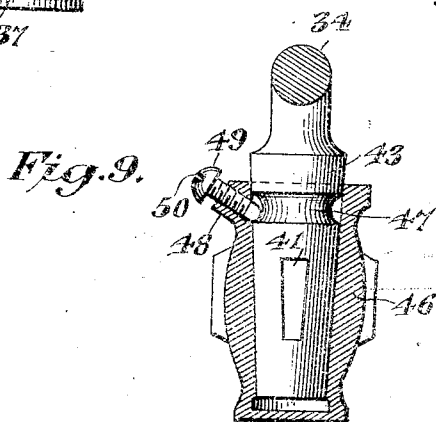
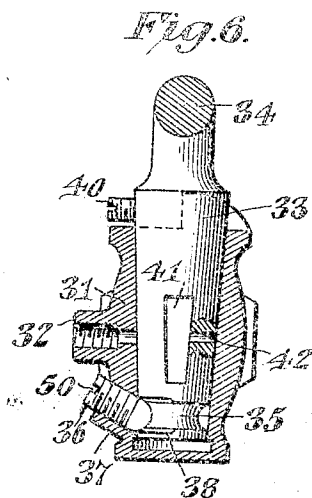
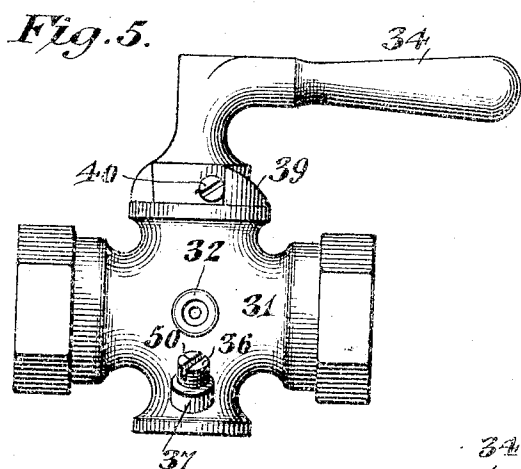
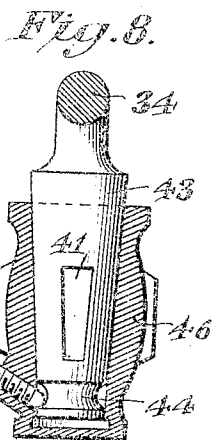
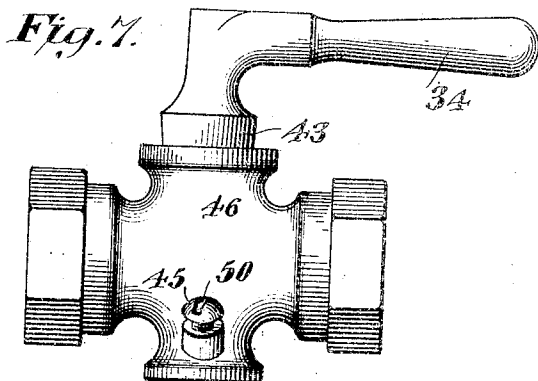
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2 SHEETS—SHEET 2.



WITNESSES

Jas. E. McLaughlin
W. H. Harker

BY

INVENTOR
Percy C. Gibson
E. J. Figgers

ATTORNEY

UNITED STATES PATENT OFFICE.

PERCY C. GIBSON, OF WAUKEGAN, ILLINOIS.

STOP-COCK.

1,293,753.

Specification of Letters Patent.

Patented Feb. 11, 1919.

Application filed October 17, 1917. Serial No. 197,063.

To all whom it may concern:

Be it known that I, PERCY C. GIBSON, a citizen of the United States, residing at Waukegan, in the county of Lake and State of Illinois, have invented a new and useful Stop-Cock, of which the following is a specification.

The invention relates to plug valve cocks, and more particular to the class of adjustable stop cocks.

The primary object of the invention is the provision of a stop cock of this character, wherein a valve plug is adjustably held in its casing so as to take up wear and avoid leakage about the same, thereby eliminating the use of a nut and washer for the fastening of said plug in the casing as is usual.

Another object of the invention is the provision of a stop cock of this character, wherein the handle for the valve plug is readily detachable therefrom and is held in engaging position through the medium of a cap for the valve casing, which latter may be utilized as a pipe connector on the removal of the plug and handle and the fitting of a closure cap thereon.

A further object of the invention is the provision of a stop cock of this character wherein the plug and its casing are of novel form, so that in the mounting of the plug within the casing the same can be conveniently tightened therein with despatch in the event of wear to avoid leakage.

A still further object of the invention is the provision of a stop cock of this character which is extremely simple in construction, thoroughly reliable and efficient in its purpose, strong, durable and inexpensive to manufacture.

With these and other objects in view, the invention consists in the features of construction, combination and arrangement of parts as will be hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the accompanying drawings:

Figure 1 is an elevation of a stop cock constructed in accordance with the invention showing the cap or collar in section;

Fig. 2 is a vertical longitudinal sectional view through the stop cock;

Fig. 3 is a vertical transverse sectional view thereof;

Fig. 4 is a top plan view with the handle for the valve plug and the cap removed;

Fig. 5 is a side elevation of a slight modification of the invention showing a waste cock;

Fig. 6 is a vertical transverse sectional view thereof;

Fig. 7 is a side elevation of another modification of the invention;

Fig. 8 is a vertical transverse sectional view thereof;

Fig. 9 is a view similar to Fig. 8 showing a further modification of the invention;

Fig. 10 is a vertical longitudinal sectional view through the valve casing shown in Figs. 1 to 4 in the drawings, with the valve plug removed and a closure cap thereon for the use of the casing as a pipe connector.

Similar reference characters indicate corresponding parts throughout the several views in the drawings.

Referring to the drawings in detail, particularly Figs. 1 to 4 inclusive, there is shown a valve plug casing 10 which is formed with the opposed internally threaded nipple extensions 11 for the connection of pipe sections therewith as usual. The nipple extensions are formed with external wrench-engaging surfaces 12 for permitting the convenient connection of the casing with the pipe sections. Formed centrally in the casing 10 is a downwardly tapered valve plug chamber 13 having the closed lower end 14 and the opposite externally threaded upper open end 15, the closed end 14 being formed with a circular recess 16 greater in size than the smaller end of the chamber 13 for a purpose presently described.

Fitted within the chamber 13 is a valve plug 17 which is correspondingly shaped to said chamber and is formed with a vertical opening or slot 18 centrally thereof, which is adapted to register with the passage 19 in said casing 10 when the plug 17 is in one position for the free passage of fluid through the stop cock.

The wider end of the plug 17 is formed with a squared socket 20 for the detachable engagement therein of the squared lug 21 formed on an operating handle 22. The

lug 21 is detachable from the socket 20 for the removal of the handle 22 from the plug. The handle 22 at the point of juncture of the lug 21 therewith is formed with an annular shoulder 23, with which engages a collar or nut 24 which is detachably engaged with the threaded upper end 15 of the casing 10, and in this manner the handle 22 is held engaged with the plug 17 in said casing.

Formed in the upper threaded end 15 of the casing 10 is a cut-away portion 24^a providing stop shoulders 25 approximately 90° apart, while formed on or engaged in the plug 17 is a stop lug 26 which is adapted to contact with the shoulders 25 for limiting the turning movement of the plug when operated by the handle 22. By this means it can be accurately determined when the opening or slot 18 registers with the passage 19 in the casing, or is at right angles thereto and shut off from the same, thereby controlling the flow of fluid through the stop cock.

Formed near the lower or smaller end of the plug 17 is an annular groove 27 and an elongated arcuate notch 28 within the wall of the groove, while threaded in a box 29 formed externally on the casing 10 is an inwardly inclined adjusting screw 30, the inner rounded end of which engages in the notch 28 to fasten the plug 17 within the chamber 13 in the casing 10. On the adjustment of this screw, the plug 17 can be loosened or tightened within the casing so as to avoid leakage of the fluid about the plug, and also in this manner wear in the wall of the casing and the plug is taken up. The smaller end of the plug 17 is of less diameter than the recess 16 in the closed end 14 of the casing, so that on adjusting the screw 30, the smaller end of the plug can be drawn into the recess for the tightening of the plug in said casing as will be clearly apparent. The inclination of the adjusting screw 30 in the casing exerts a downward thrust upon the plug 17, while the said screw engaging in the notch 28 limits the turning of the plug thus coacting with the stop lug 26.

In Figs. 5 and 6 there is shown a modification of a stop cock, wherein the casing 31 at one side thereof is formed with a drain 32, while the plug 33 has integrally formed therewith the turning handle 34, the lower end portion of the plug being formed with the annular groove 35, into which engages the adjusting screw 36 which is threaded at an inward inclination into an external boss 37 formed on the casing 31, so that the plug 33 is fastened in said casing in this manner.

The opposed edges of the groove 35 are cut away for a distance to form opposed arcuate notches 38 for accommodating the inner end of the screw 36, which is of rela-

tively large size, and this screw 36 acting in the notches 38 will limit the turning movements of the plug 33 in the casing 31. Formed on the top of the casing are spaced stops 39, with which contact a stop screw 40 engaged in the plug 33, and in this manner the plug will be limited in its turning movement and at the same time the operator can determine with accuracy the setting of the plug. The said plug is formed with the usual passage 41 therein for the flow of fluid through the casing, and intersecting this passage is the usual vent 42 for the draining of the casing on the side opposite the fluid pressure side on the adjustment of the plug in one position. It will be noted that the adjusting screw 36 will enable the tightening of the plug 33 in the casing to take up wear and avoid leakage.

In Figs. 7 and 8 of the drawings there is shown another modification of the invention, wherein the plug 43 near its smaller end is formed with an annular groove 44 of greater size than the adjusting screw 45. The latter is threaded in the casing for the plug at an inward angle to engage in the groove 44, for the two-fold purpose of fastening of the plug in the casing and also for permitting the tightening of the plug therein when occasion requires.

In Fig. 9 there is shown a still further modification of the invention, wherein the plug 46 near its larger end is formed with an annular groove 47, while threaded in an external boss 48 formed on the casing, at or near the top thereof, is an inwardly inclined adjusting screw 49, which engages in the groove 47 to fasten the plug in the casing and also for permitting the tightening of the plug therein when desired.

The adjusting screws are provided with screw driver slots 50 so that a screw driver can be used when occasion requires the tightening of the plug in the casing, thus, it is seen, that the plug can be fastened in the casing and adjusted with despatch.

In Fig. 10 of the drawings, the casing 10 which is identical in construction to the casing shown in Figs. 1 to 4 of the drawings, has removed therefrom the plug 17 and its handle 22, together with the collar or nut 24. In lieu thereof a closure cap 51 is detachably engaged on the upper threaded end 15 of said casing, thereby converting said casing 10 into a pipe connector for pipe sections 52, as will be apparent. The purpose of this is that should the stop cock prove defective after it is installed, instead of disconnecting it from the pipe which would require as much time and labor as the value of the stop cock, the handle with the plug are removed and the cap screwed on the upper threaded portion.

Changes in the form, proportion, size and minor details of construction, within the

scope of the appended claims may be made without departing from the spirit of the invention.

From the foregoing, it is thought that the construction and manner of operation of the invention will be clearly understood, and therefore a more extended explanation has been omitted.

What is claimed is:

1. In a stop cock, a casing having a plug chamber closed at its bottom, a turn plug fitted in the chamber, means at the upper end of the plug for retaining it in place and permitting its rotation, and supplemental means engaged in and extending through the casing, said means being adjustable from the exterior of the casing and acting constantly upon the plug to tighten the same in said chamber, said supplemental means not interfering with the limited rotary movement of the plug.

2. In a stop cock, a casing having a plug chamber, a turn plug fitted in the chamber, means engaging the plug at the upper end for holding it in the casing, and an adjusting screw mounted in the casing at an inclination to said plug and independent of said means and constantly engaging the plug to tighten the same in said chamber, said screw also assisting in retaining the plug in the casing.

3. In a stop cock, a casing having a plug chamber closed at its bottom, a turn plug fitted in the chamber, means engaged in the casing and adjustable from the exterior thereof and active upon the plug to tighten the same in said chamber, a handle detachably engaged in the plug, and a collar threaded on the casing and locking the handle to the plug, said means being operated independently of the handle and collar.

4. In a stop cock, a casing having a plug chamber closed at its bottom, a turn plug fitted in the chamber, adjustable means engaged in the casing and active upon the plug at its lower end to tighten the same in said chamber, the bottom of said chamber being formed with a recess of greater size than the adjacent end of the chamber to form a clearance for said plug when tightened, a handle detachably engaged in the outer end of the plug, a collar threaded on the casing and embracing the handle for locking the same with the plug, and coöperative stop lug and shoulders on the plug and casing respectively for limiting the turning movement of said plug.

5. In a stop cock, a casing having a plug chamber closed at its bottom, a turn plug fitted in the chamber, adjustable means engaged in the casing and active upon the plug at its lower end to tighten the same in said chamber, and a handle on the plug, said means being inclined relatively to the plug

and serving also to retain the plug in the casing.

6. In a stop cock, a casing having a tapered plug chamber, a plug correspondingly shaped to the chamber and rotatably fitted therein and having an annular groove, and a screw threaded in the casing at an angle to the plug and engaged in the groove to fasten and tighten the plug in said casing.

7. In a stop cock, a casing having a tapered plug chamber, a plug correspondingly shaped to the chamber and rotatably fitted therein and having an annular groove, and a screw threaded in the casing at an angle to the plug and engaged in the groove to fasten and tighten the plug in said casing, the groove being formed with a notch to coact with the screw for limiting the rotation of the plug.

8. In a stop cock, a casing having a tapered plug chamber and a closed bottom, a plug correspondingly shaped to the chamber and rotatably fitted therein and having an annular groove and spaced at its lower end from the bottom, and a screw threaded in the casing at an angle to the plug and engaged in the groove to fasten and tighten the plug in said casing, the groove being formed with a notch to coact with the screw for limiting the rotation of the plug, and a handle on the plug.

9. In a stop cock, a casing having a tapered plug chamber and a closed bottom, a plug correspondingly shaped to the chamber and rotatably fitted therein and having an annular groove and spaced at its lower end from the bottom, a screw threaded in the casing at an angle to the plug and engaged in the groove to fasten and tighten the plug in said casing, the groove being formed with a notch to coact with the screw for limiting the rotation of the plug, a handle on the plug, and means for detachably connecting the handle to the plug.

10. In a stop cock, a casing having a tapered plug chamber and a closed bottom, a plug correspondingly shaped to the chamber and rotatably fitted therein and having an annular groove, said plug extending to the top of said chamber, a screw threaded in the casing at an angle to the plug and engaged in the groove to fasten and tighten the plug in said casing, a handle detachably connected with the plug, external screw threads provided on the upper end of the casing, a collar engaged with the threads of the casing and a shoulder on the handle to hold the handle to the plug, whereby upon the disconnection of the handle and plug from the casing a cap may be engaged with the screw threads at the upper end of the casing so as to change the stop cock into a union.

11. In a device of the character described, a casing, a plug chamber formed in the casing, a turn plug fitted in the chamber, said

plug having an annular groove near one of its extremities, and a screw element passing through the casing and engaging the lower wall of said groove at an angle to the axis of the plug for taking up wear in the same.

12. In a device of the character described, a casing, a plug chamber formed in the casing, a turn plug fitted in the chamber, said plug having an annular groove near one of its extremities, and a screw mounted in the casing and engaging the plug in its groove

for the triple function of holding the plug in its chamber, taking up wear in the plug, and limiting the rotation of the plug on its own axis.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

PERCY C. GIBSON.

Witnesses:

PETER H. SCHWARZ,
H. NOWOTARSKI.