

No. 799,203.

PATENTED SEPT. 12, 1905.

R. B. SWINNY.

DRAIN COCK.

APPLICATION FILED MAY 6, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

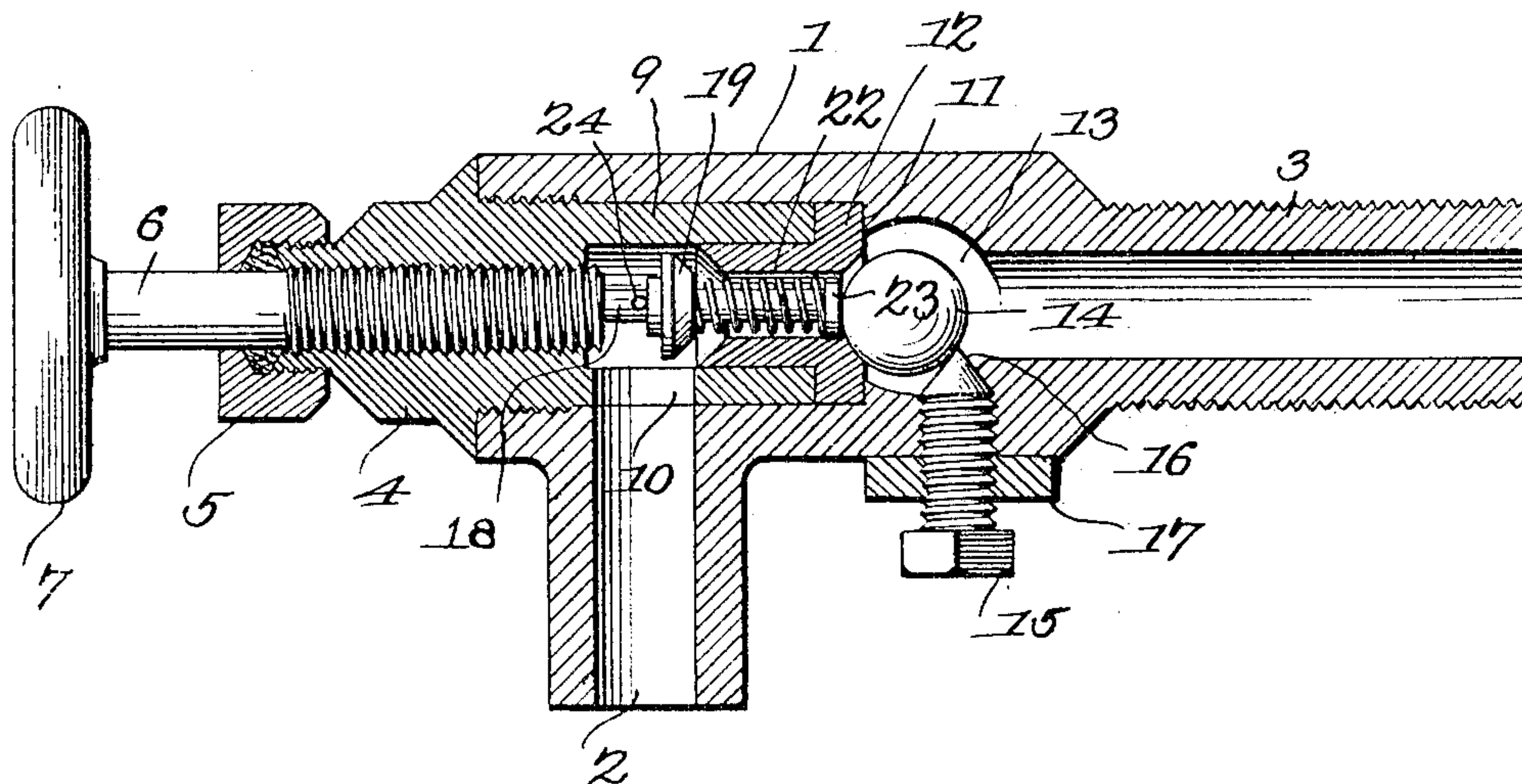
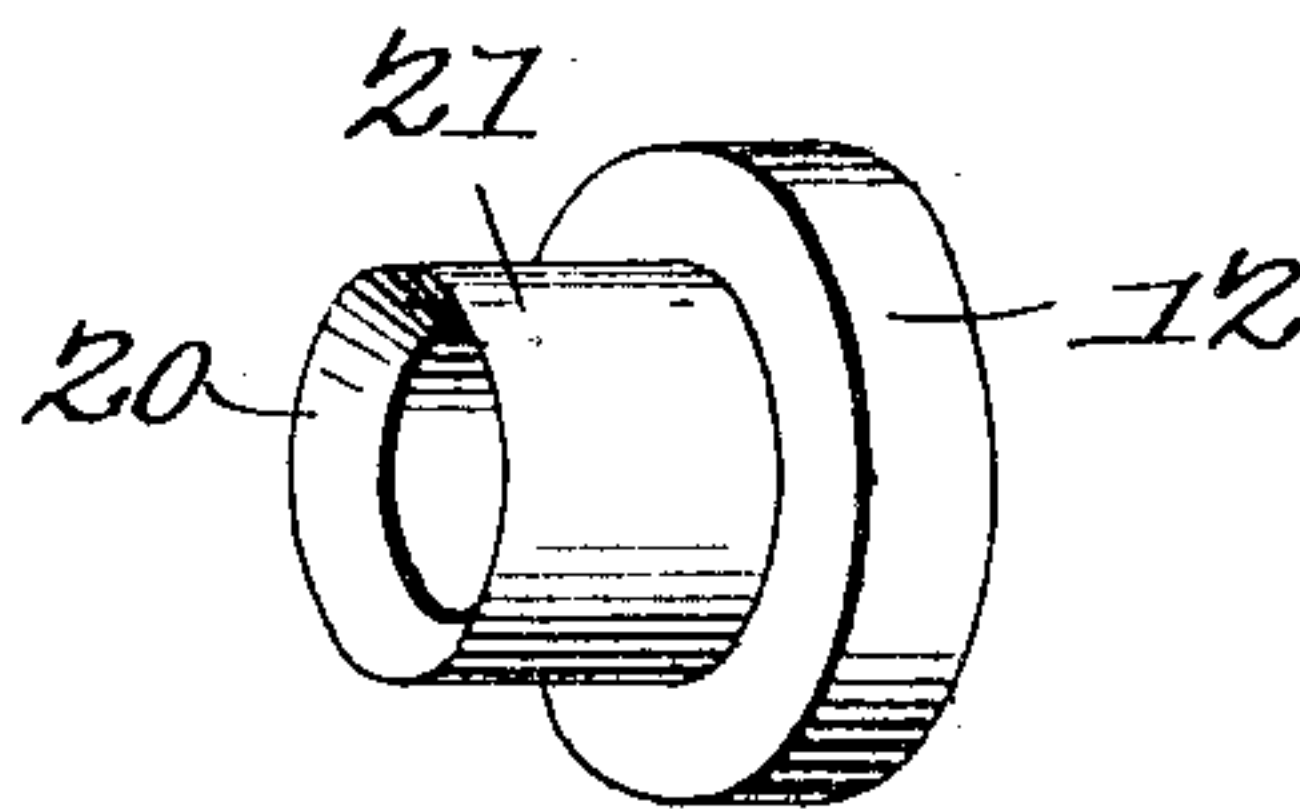


Fig. 2.



Witnesses:

E. J. Stewart
R. M. Elliott

Ross B. Swinny,
Inventor,

by *C. A. Snow & Co.*
Attorneys.

No. 799,203.

PATENTED SEPT. 12, 1905.

R. B. SWINNY.

DRAIN COCK.

APPLICATION FILED MAY 6, 1905.

2 SHEETS—SHEET 2.

Fig. 3.

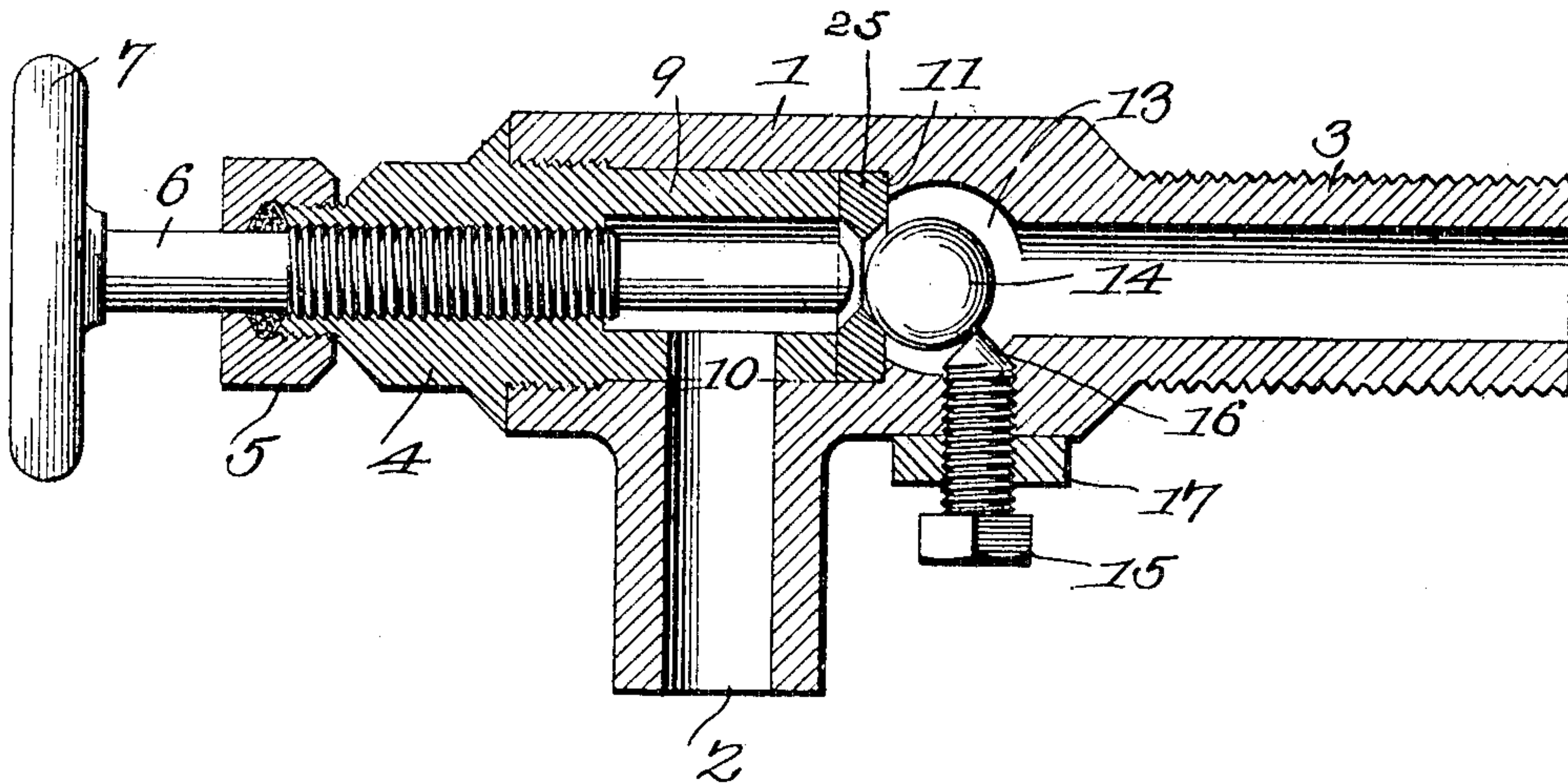


Fig. 4.

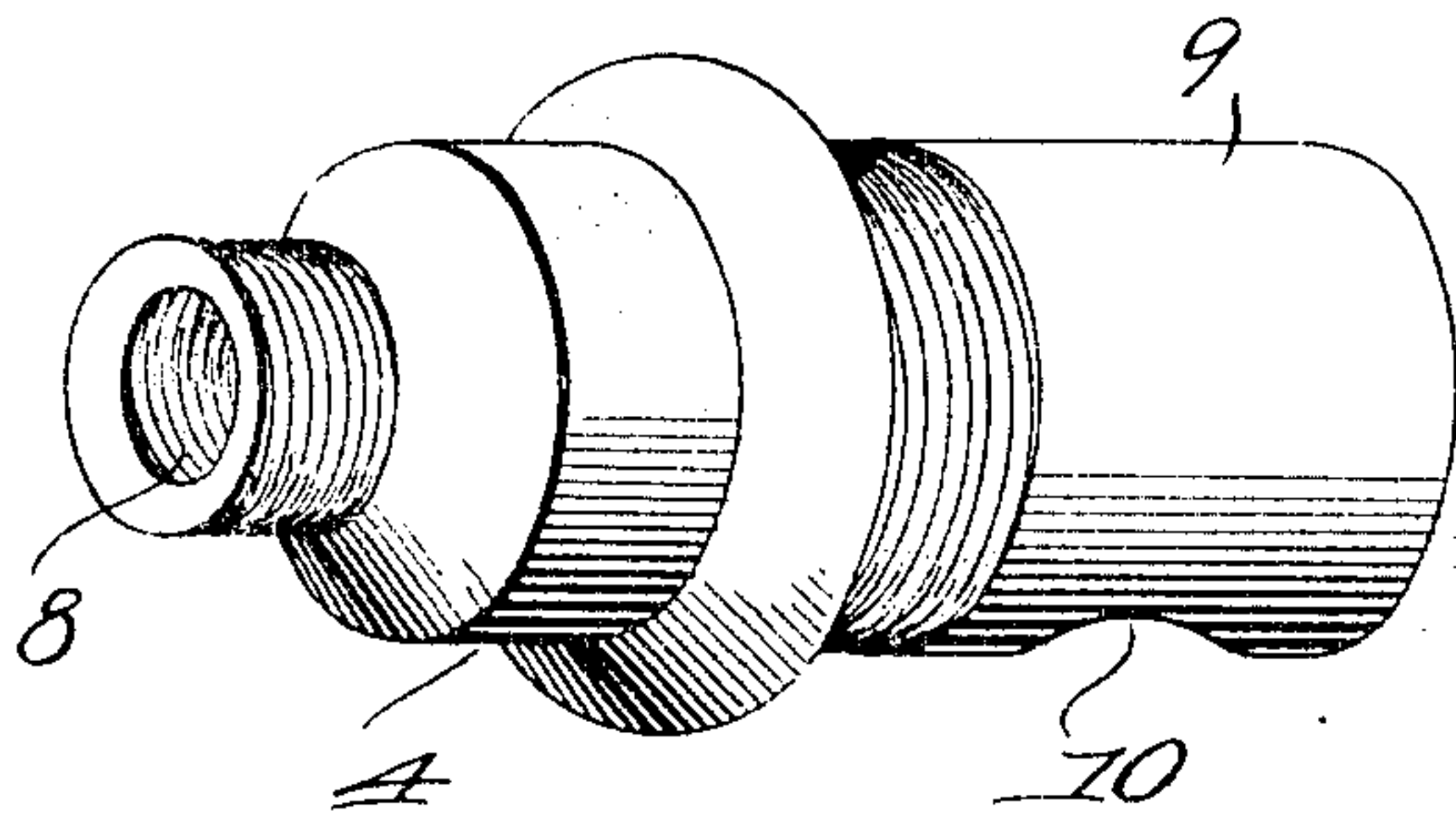
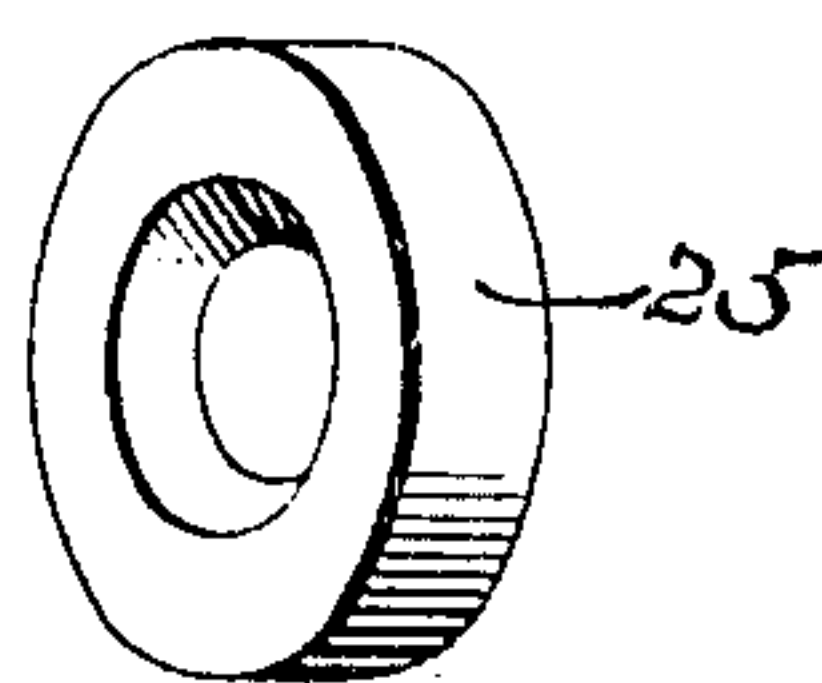


Fig. 5.



Witnesses:

Witnesses
E. J. Stewart
R. M. Elliott

Ross B. Swinny,
Inventor,

by *Cashmore*
Attorneys.

UNITED STATES PATENT OFFICE.

ROSS B. SWINNY, OF BELPRE, OHIO, ASSIGNOR OF ONE-HALF TO JACOB HENRY SHAW, OF BELPRE, OHIO.

DRAIN-COCK.

No. 799,203.

Specification of Letters Patent.

Patented Sept. 12, 1905.

Application filed May 6, 1905. Serial No. 259,206.

To all whom it may concern:

Be it known that I, ROSS B. SWINNY, a citizen of the United States, residing at Belpre, in the county of Washington and State of Ohio, have invented a new and useful Drain-Cock, of which the following is a specification.

This invention relates to drain-cocks, and more particularly to one adapted for use in connection with steam-cylinders.

The object of the invention is to provide a drain-cock which may be readily applied to a steam-cylinder and which shall permit the ready escape of the water of condensation therefrom and also positively preclude the entrance of air and dust to the cylinder and which shall be simple of construction, thoroughly efficient and durable in use, and which will not be liable to become deranged from long-continued use.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a drain-cock, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, Figure 1 is a view in vertical longitudinal section through a drain-cock constructed in accordance with the present invention. Fig. 2 is a perspective detail view of the valve-seat. Fig. 3 is a view in vertical longitudinal section through a modified form of drain-cock. Fig. 4 is a detached detail view of a valve-stem guide used in connection with the device. Fig. 5 is a perspective detail view of the valve-seat used in connection with the drain-cock shown in Fig. 3.

Referring to the drawings and to Figs. 1 and 2 thereof, 1 designates the body of the cock, having intermediate of its ends a downwardly-discharging outlet 2. One end of the body is reduced and exteriorly threaded to form an attaching-shank 3, and the other end in alinement with the bore of the shank is internally threaded to receive the valve-stem guide 4, the outer end of which is reduced and threaded to receive a stuffing-box 5, of the usual or any preferred construction. The valve-stem 6 carries on its outer end a hand-wheel 7, as usual, and is provided intermediate of its ends with threads to engage the threads of an orifice 8 in the valve-stem guide. The valve-stem guide 4 is provided with an

unthreaded extension 9, which engages a suitable chamber formed in the body of the cock for the purpose and with an orifice 10 to register with that of the outlet. The chamber in which the valve-stem guide fits terminates at its inner end in a shoulder 11, against which bears a valve-seat 12, which is held in position against the shoulder by the terminal of the extension 9, as clearly shown in Fig. 1. Adjacent to the shoulder the body is formed with a circular chamber 13, in which is disposed a ball-valve 14, that is adapted to engage with the valve-seat in the usual manner to close passage therethrough, the ball being of greater diameter than the bore of the shank in order to prevent its escape there-through, and thus into the part of the machine with which the cock is combined.

Tapped into the body, preferably on the side at which the outlet is arranged, is a bolt 15, having an inner conical terminal 16 adapted to engage with the valve 14 and to adjust it relatively to the valve-seat, it being seen that by moving the bolt inward the ball will be caused to approach the seat and by a reverse movement of the bolt it will be caused to recede therefrom, and by these various adjustments the size of the escape-opening between the valve and the seat will be determined. In order to hold the valve at the desired adjustments, there is combined with the bolt a locking-nut 17, which bears against the outer side of the body and operates in the manner common to such devices to lock the bolt against movement.

The inner end 18 of the valve-stem, as clearly shown in Fig. 1, is of less diameter than its threaded portion and is adapted to project through the orifice of the valve-seat, thus to effect unseating of the valve when it is desired to permit escape of steam or liquid through the cock; but upon the same being revolved in the direction to move its inner end away from the valve the steam or water pressure within the cylinder or the like will cause the valve instantly to seat itself, and thus cut off escape.

As stated, it is one of the objects of the invention to preclude entrance of air and dust within the steam-cylinder, which under certain conditions will occur, as when a locomotive is running downhill without steam. Under such conditions and on each stroke of the piston air will be drawn thereinto, together with dust or dirt, which will have a deleteri-

ous effect upon both the cylinder and the piston. To obviate this objection, there is combined with the portion 18 of the valve-stem a valve 19, which is loosely mounted on the stem and is designed to engage with a valve-seat 20, formed in an extension 21 of the valve-seat 12, the valve being normally held out of engagement with the seat of a coiled spring 22, which bears at one end against a stop or head 23 on the inner terminal of the stem and at its other end against the inner face of the valve, a stop 24 in the nature of a pin or the like carried by the reduced portion of the stem operating to limit the movement of the valve and to hold it properly positioned relatively to the seat to insure its proper action when necessary. It will be seen from this arrangement that although the means employed for this purpose is exceedingly simple it will thoroughly effective for the purposes designed, will be positive and certain in operation at all times, and will not be liable to get out of repair from long-continued use.

In the form of the invention shown in Fig. 3 the supplemental or vacuum valve 19 is dispensed with, as also the extension on the valve-seat 25, and this latter element is made reversible, thus to increase its life. This latter form of the invention is designed as a drain-cock pure and simple and will secure the results designed in an efficient manner.

It will be seen from the foregoing description that although the drain-cocks of the present invention are exceedingly simple in construction that they combine in a thoroughly feasible and practical manner all the essentials requisite to the production of a highly-efficient device, and, moreover, by reason of the manner in which the parts are constructed and combined liability of breakage or derangement in use is reduced to a minimum, and, furthermore, that in case of breakage repairs may readily and cheaply be effected.

Having thus described the invention, what is claimed is—

1. A drain-cock embodying a pressure-operated valve and a vacuum-operated valve, the latter being normally held by spring-pressure away from its seat.

2. A drain-cock comprising a casing, a ball-valve arranged therein, and means for adjusting the valve to and from its seat and positively maintaining it in adjusted position.

3. A drain-cock comprising a body having a circular chamber, a valve-seat forming one side of the chamber, a ball-valve arranged in the chamber, and means for adjusting the valve relatively to the seat.

4. A drain-cock comprising a body, provided intermediate of its ends with a circular chamber, a valve-seat forming one side of the chamber, a ball-valve arranged within the chamber, a bolt carried by the body and having a conical point to engage the valve to adjust it relatively to the seat, and means for locking the bolt against movement.

5. A drain-cock comprising a body provided intermediate of its ends with a circular chamber, a valve-seat forming one side of the chamber, a valve-stem guide having an extension engaging the seat to hold it in position, a valve-stem carried by the guide and movable into and out of engagement with the valve, a bolt projecting through the body and having a conical point adapted to engage the ball to adjust it relatively to the seat, and means for locking the bolt against movement when once adjusted.

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

ROSS B. SWINNY.

Witnesses:

W. L. McMORRIS,
JNO. S. WARWICK.