

No. 850,251.

PATENTED APR. 16, 1907.

W. H. RAWE.
STOP AND WASTE COCK.
APPLICATION FILED APR. 14, 1906

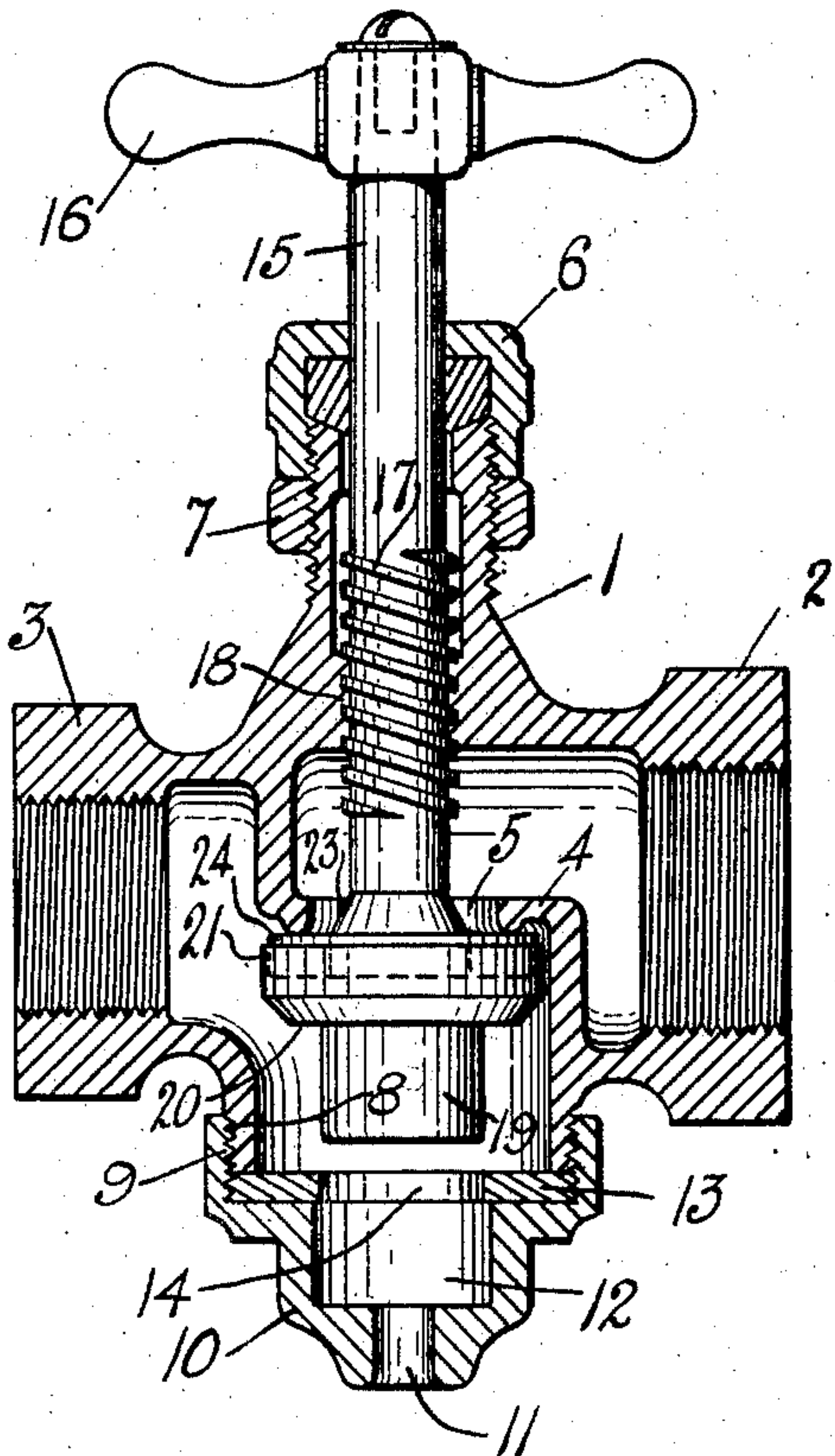


FIG. 1.

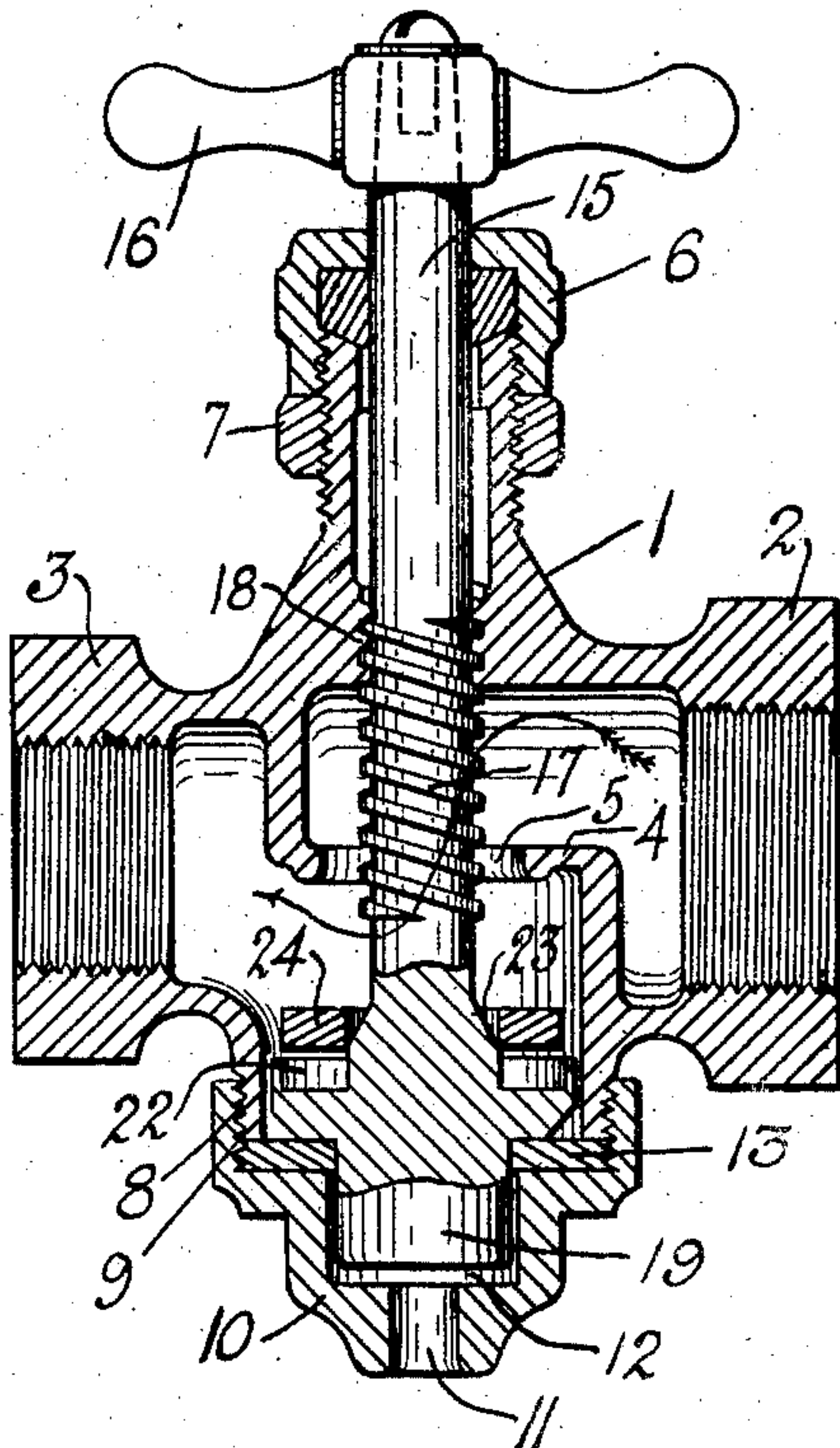


FIG. 2.

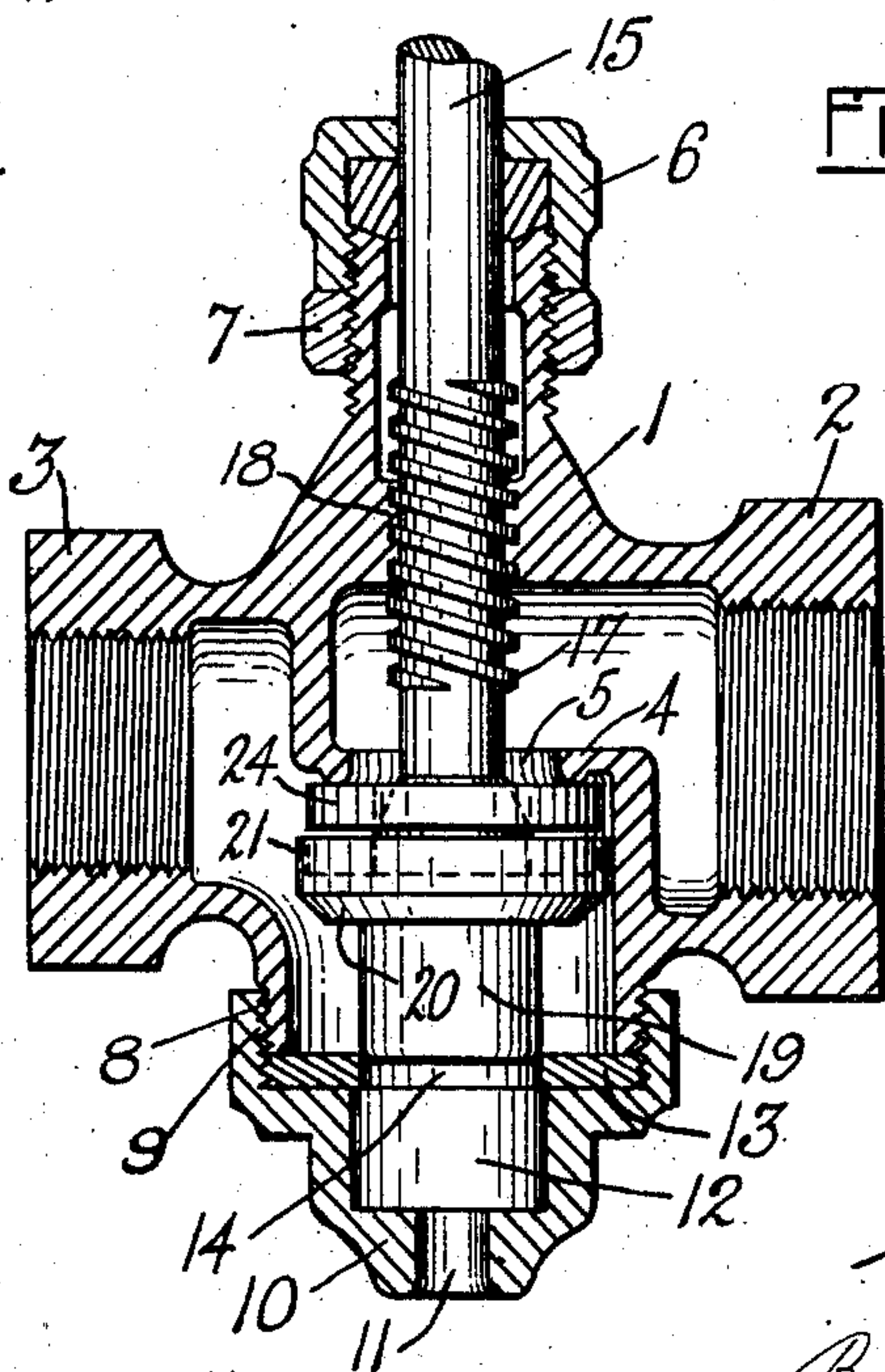


FIG. 3.

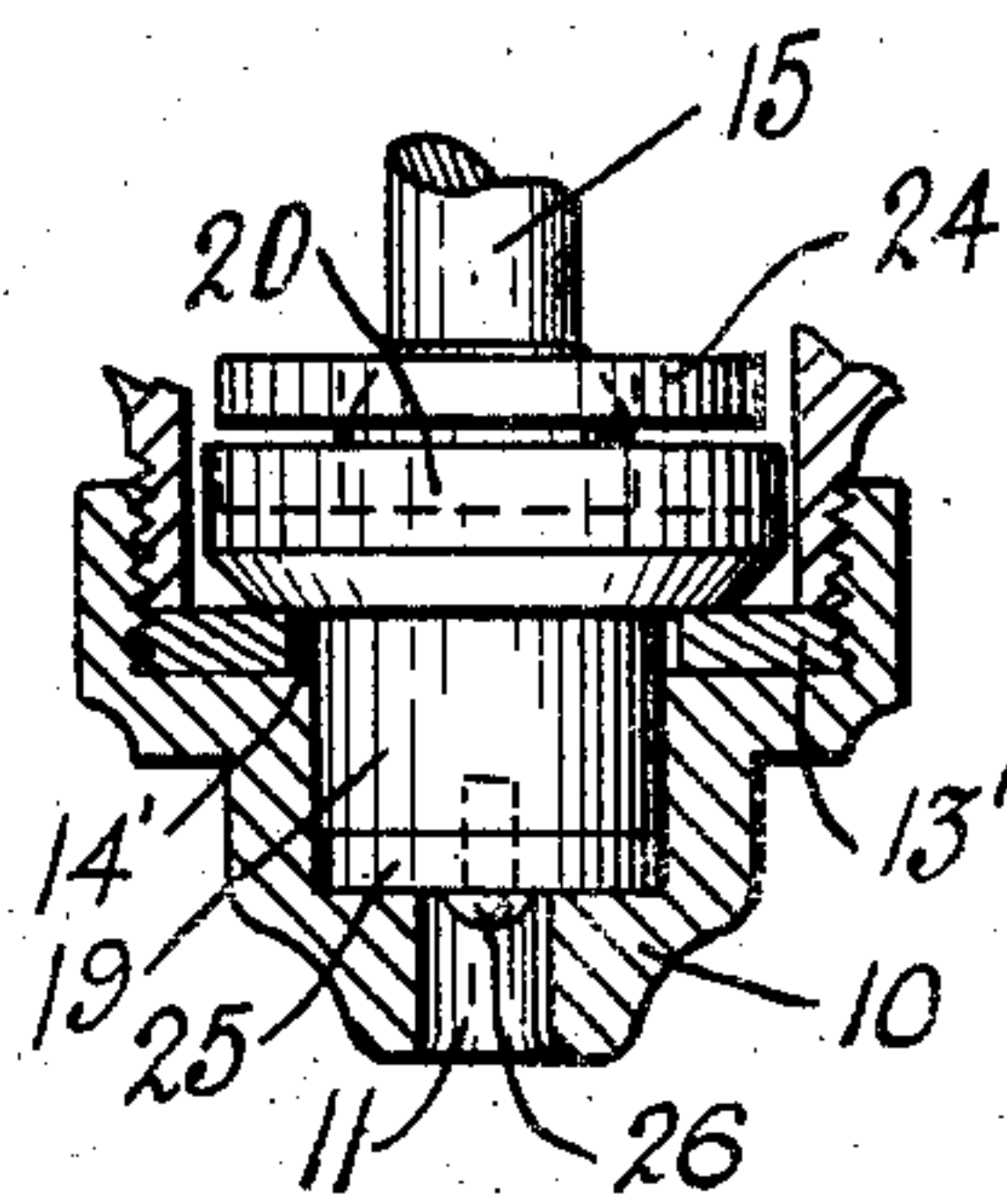


FIG. 4.

WITNESSES.

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STOP AND WASTE COCK.

No. 850,251.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed April 14, 1906. Serial No. 311,689.

To all whom it may concern:

Be it known that I, WILLIAM H. RAWE, a citizen of the United States, residing at Pawtucket, in the county of Providence and State of Rhode Island, have invented certain new and useful Improvements in Stop and Waste Cocks, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to that class of cocks adapted to clear from the eduction-pipes the water remaining after a closure of the valves and is applicable to both top and bottom compression stop and waste cocks.

The objects of my invention are, in addition to the ends commonly sought in such structures, compactness, a minimum of parts, a direct control of the discharge at all times, an avoidance of a forcible discharge of the water from the waste-opening during the transit of the valves, and prevent leakage of the valves without the use of a spring.

To the above ends essentially my invention consists in the novel construction and combination of parts hereinafter described, and illustrated in the accompanying drawings, wherein—

Figure 1 is a vertical central section of an approved embodiment of novel device, partly in side elevation and showing the waste open; Fig. 2, a like view of the same with the waste closed; Fig. 3, a similar view showing the waste at the moment of closure, and Fig. 4 a fragmentary view of a modification of my invention.

Like reference characters indicate corresponding parts throughout the views.

The hub of my novel structure may be of any form suitable for carrying the several structural details. In the form thereof herein shown it consists, essentially, of a body 1, provided with the usual horizontally-disposed induct and educt openings 2 and 3 and the horizontal partition or web 4, provided with the opening or passage 5. Upon the upper part of the body 1 is screwed a guard nut or cap 6, held in position by a lock-nut 7.

The lower portion of the case 1 is exteriorly threaded at 8 to engage the threads 9 of a cap 10. The latter is provided with a central orifice 11, leading to an opening or chamber 12 of enlarged diameter. Resting upon the inner face of the cap and in contact with the extremity of the threaded end of the casing is an annular packing 13, the diameter of whose

central opening 14 is substantially the same as that of the opening 12.

The valve rod or spindle 15, having a handle 16, is provided intermediate its length with a thread 17, which engages threads 18 on the interior of the valve-body. The lower end of the rod is provided with a head 19, whose diameter is sufficient to permit it to enter the openings 14 and 12 as a tight sliding fit. An integral annular shoulder 20 upon the base of the head has a flat lower face adapted to seat upon the packing-ring 13 when the valve-rod is at its lowest extreme of travel. The upper side of the shoulder has a vertical annular marginal flange 21, which forms an annular channel or seat 22 rectangular in cross-section. From the inner margin of the channel 22 the spindle-head is beveled at 23. An annular packing-ring 24 is tightly, but not immovably, seated in the channel 22.

In the modified form of my invention shown in Fig. 4 the opening 14' of the packing-ring 13' is enlarged, and a packing-disk 25 is fixed by a screw 26 or otherwise to the lower extremity of the head.

The operation of the novel cock is as follows: Assuming that the parts are in full waste position, with the water discharging from the educt-pipe out through the chamber 12 and orifice 11 of the cap 10, as shown in Fig. 1, the upper surface of the packing-ring 24, which is smoothly fixed in the shoulder or valve 21, will contact with its seat, closing the opening 5 from the induct-pipe 2. The rotation of the valve-stem carries the valve 21 downwardly and away from its seat and brings the margin of the low extremity of the head 19 into contact with the inner margin of the ring 13, which cuts off the flow of waste water through the ring and cap 10, as shown in Fig. 3. During the descent of the valve-rod, however, the packing-ring 24 has by the pressure of the water been unseated from the channel 22 and elevated to a horizontal plane above the shoulder 20 and adjacent the opening 5, whereby the force of the water from the induct 2 is broken and discharges smoothly and evenly during the transit of the valve within the described limits.

The continued rotation of the valve-spindle completes the cut-off by causing the head 19 to traverse the opening 14 of the packing-ring and to slide along the wall of the chamber 12 until checked by the seating of the lower face of the shoulder 20 upon the ring 13, as shown in Fig. 2.

A reversal of the valve-rod one or two turns is sufficient to return the parts to full waste position, and as the valve 20 approaches its seat over the opening 5 the ring 24 is forced back into seat 22 and cushions the closure.

A packing-ring or leather washer 25 may be applied to the head 19 of the valve-spindle, as shown in Fig. 4, and the modified ring 13' be substituted for the ring 13 without departing from the spirit of my invention, in which form the ring 13' serves both as a packing means and a valve-seat. In both of the shown structures the waste packing-ring 13 or 13' serves the three purposes of packing the joint intermediate the casing and cap, constitutes a seat for completing the waste cut-off when the main valve is open, and coöperates with the valve-head 19 during its traverse of the chamber 12 in controlling the waste of water during the opening and closing of the main valve.

The lock-nut 7 is of particular service in securing the guard or stuffing nut 6 when the cock is under ground.

Applicant does not limit himself to the particular details of structure herein shown.

What I claim is—

1. In a stop and waste cock the combination with the valve case and seat, of a valve-rod mounted in the case and concentrically traversing the valve-seat, a shoulder upon the rod below the valve-seat and a floating packing-ring interposed between the shoulder and valve-seat.

2. In a stop and waste cock the combination with the valve case and seat, of a valve-rod mounted in the case and traversing the valve-seat, a shoulder upon the rod below the valve-seat, an annular vertical flange upon the shoulder, and a packing-ring upon the shoulder tightly engaged by the flange and removable by the flow of the water.

3. In a stop and waste cock the combination with the valve case and seat, of a valve-rod mounted in the case and traversing the seat, a shoulder upon the rod below the valve-seat and adapted to coöperate therewith, a channel upon the upper face of the shoulder, and a packing-ring interposed between the shoulder and seat adapted to rest snugly in the channel when the valve-rod is at the

limit of its upward travel, and to leave the channel when the valve-rod descends.

4. In a stop and waste cock the combination with the casing and the partition and its opening, of a waste-cap upon the casing, a packing-ring fixed within the cap, a valve-rod in the casing, a shoulder upon the rod adapted when elevated to close the opening in the partition, and means upon the extremity of the rod coacting with the packing-ring for controlling the discharge of the waste water through the cap when the shoulder of the rod is free of the partition-opening and a packing on the upper side of said shoulder removable by the flow of the water.

5. In a stop and waste cock the combination with the casing and the partition and its opening, of a waste-cap upon the casing provided with a cylindrical chamber and waste-educt leading therefrom, a packing-ring fixed within the cap at the margin of the chamber, a valve-rod in the casing traversing the partition-opening, a shoulder upon the rod positioned to register with the partition-opening when the rod is elevated and to rest upon the packing-ring when depressed, a head upon the extremity of the rod adapted to traverse the packing and enter the chamber when the shoulder of the rod is free of the partition-opening and a floating packing-ring carried by said head.

6. In a stop and waste cock the combination with the casing, partition, and valve-opening therein, of a waste-cap upon the casing, a waste packing-ring fixed within the cap, a valve-rod in the casing, a shoulder upon the rod, a floating packing-ring upon the upper face of the shoulder adapted to coöperate with the shoulder to close the valve-opening in the partition when the rod is elevated, and a head upon the extremity of the rod adjacent the shoulder adapted to traverse the waste packing-ring and permit the shoulder to rest upon the waste packing-ring when the rod is depressed.

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

WILLIAM H. RAWE.

Witnesses:

HORATIO E. BELLWS,
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