

No. 756,035.

PATENTED MAR. 29, 1904.

W. A. MILLER.
VALVE.

APPLICATION FILED DEC. 2, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

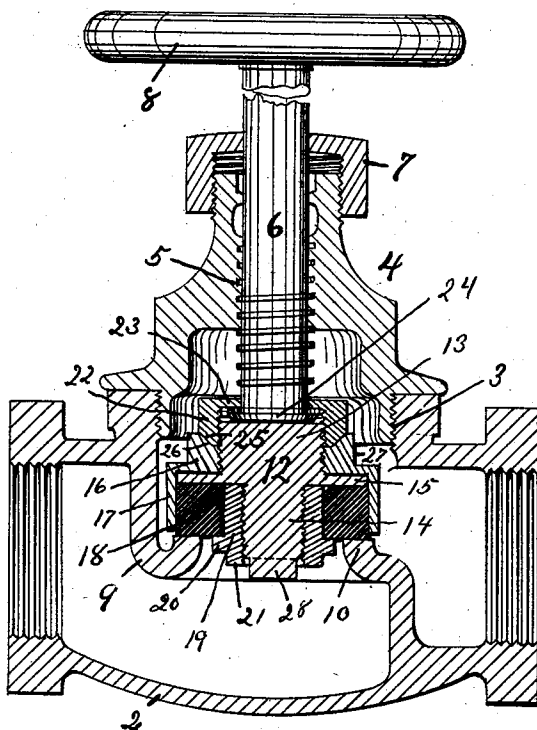


Fig. 2.

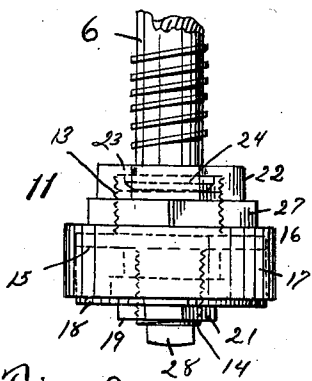


Fig. 3.

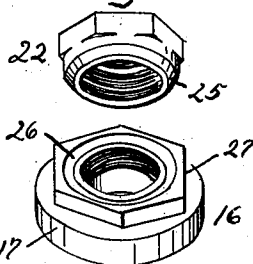


Fig. 4.

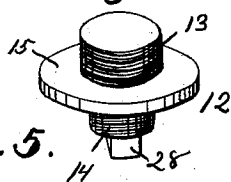


Fig. 6.

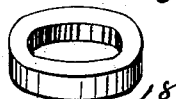
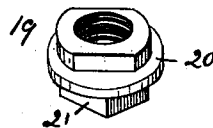


Fig. 7.

WITNESSES:

Henry Krug
Russell M. Everett.

INVENTOR

William A. Miller,
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Drake & Co.
ATTORNEYS

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2 SHEETS—SHEET 2.

Fig. 8.

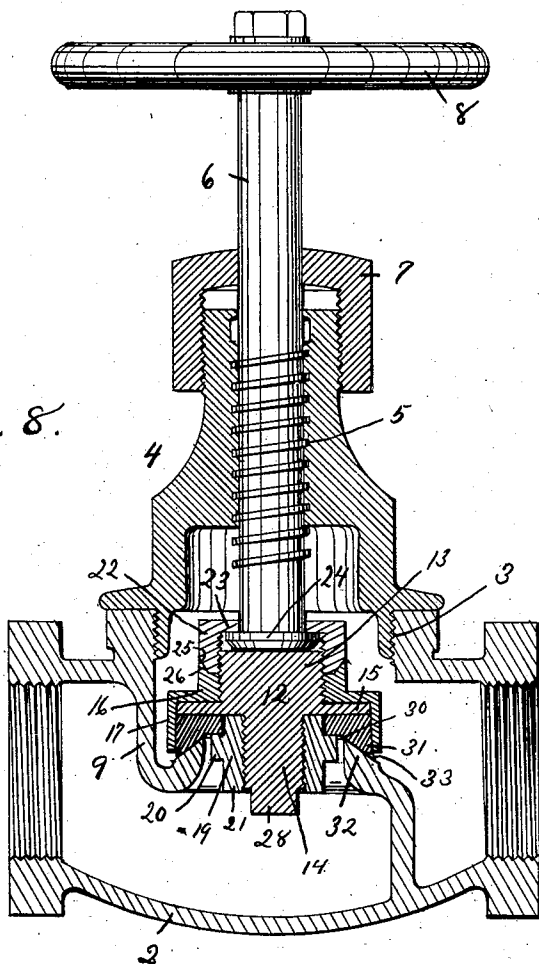
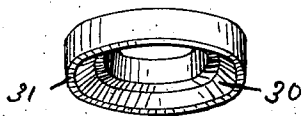
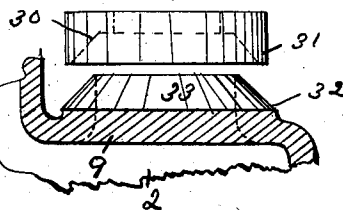


Fig. 10.

WITNESSES:

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Fig. 9.



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UNITED STATES PATENT OFFICE.

WILLIAM A. MILLER, OF ELIZABETH, NEW JERSEY.

VALVE.

SPECIFICATION forming part of Letters Patent No. 756,035, dated March 29, 1904.

Application filed December 2, 1902; Serial No. 133,564. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM A. MILLER, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented and produced new and original Improvements in Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to numerals of reference marked thereon, which form a part of this specification.

This invention relates more particularly to that kind of valves represented by what are known as "globe-valves;" and the objects of the invention are to obtain a valve in which the contact-washer or packing-ring can be easily and conveniently removed when worn and replaced by a new one, to enable said washer or ring to be forced out even though it should stick without injuring any part of the valve, to secure a wedging closure of the contact-washer or packing-ring upon the valve-seat, to provide a practical construction adapted to attain the above objects, and to obtain other advantages and results some of which will be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved valve and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth, and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is a central sectional view of a globe-valve embodying my invention. Fig. 2 is a side view of the valve proper. Figs. 3 and 4 are perspective views of the coupling-cap and packing-ring holder, respectively, of the valve proper. Fig. 5 shows in detail the central core of the valve proper. Figs. 6 and 7 illustrate in perspective the preferred form of contact-washer or packing-ring and a retaining-nut for the same, respectively. Fig. 8 is a central section of an entire valve, illustrating

a modified construction of packing-ring and valve-seat. Fig. 9 is a side elevation of such modified valve-seat with the packing-ring adjacent thereto, and Fig. 10 is a perspective view of the packing-ring from its under side.

In said drawings, 2 indicates a globe-valve casing having at one side a threaded aperture 3, into which an ordinary bonnet 4 is screwed. Said bonnet has a central passage 5 for the valve-stem 6, said passage being interiorly threaded to receive coöperating threads on the valve-stem and enable the latter to be moved longitudinally, as is common. A stuffing-box 7 for the valve-stem 6 is at the outer end of the bonnet 4, and any usual hand-wheel 8 is upon the projecting end of said stem.

Within the valve-casing 2 is the usual dividing-partition 9, in which the annular valve-seat 10 is formed, and above said valve-seat, lying partly in the bonnet 4, is the valve proper 11, carried upon the end of the stem 6. Said valve proper comprises a core or body part 12, having opposite exterior-threaded ends 13 14 and a middle annular flange 15, all in one integral piece. Upon the rear or outer threaded end 13 of the said core screws a packing-ring holder 16, comprising a sleeve recessed at its forward or inner end to receive the said annular flange 15 on the valve-core. Said annular flange fits loosely, yet nicely, in the bottom of said recess, and the walls 17 of the recess extend forwardly beyond the same. The contact-washer or packing-ring 18 is then laid in said recess upon the flange 15, being protected at its periphery by the recess-walls 17 and being held in place by a retaining-nut 19, screwed upon the forward or inner threaded end 14 of the valve-core. Said retaining-nut 19 preferably extends through the central opening of the packing-ring 18 and has an outer annular flange 20, adapted to engage the ring, with a wrench-receiving head 21 beyond.

The usual headed or flanged inner end of the valve-stem 6 is adapted to abut against the rear or outer end of the valve-core 12, and there is screwed upon the extreme rear extremity of the threaded rear end 13 of said core beyond the packing-ring holder 16 a coupling-collar 22. Said coupling-collar is of the ordinary type, having an interior annular

flange 23 at its outer end adapted to engage the flange 24 of the valve-stem.

Preferably where the coupling-collar 22 approaches the outer end of the packing-ring holder 16 it is beveled rearwardly outward, as at 25, and the adjacent end of the holder 16 is correspondingly recessed, as at 26. This economizes space and permits a longer wrench-receiving portion 27 on the packing-ring holder, as will be understood.

In operation to remove a packing-ring from the valve the retaining-nut 19 is first taken off, and then if the ring is loose it will drop out, as usual. It often happens, however, that the ring is expanded or otherwise stuck fast in place, and heretofore considerable difficulty has been experienced in prying it out and at considerable risk of injuring the valve parts. By my improved construction, however, if the ring sticks the valve-core 12 is screwed forwardly out of the packing-ring holder 16 and the ring thus forced out of said holder, the annular flange 15 acting as a follower. For this purpose the forward extremity of the front threaded end 14 of the core 12 is made angular, as at 28.

Under some conditions I may make the packing-ring of my valve instead of a plain band, as shown at Figs. 1, 2, and 6, with an interior recess 30 at its inner end or side next the valve-seat, said recess providing outwardly-flaring or conical walls 31. (All shown in Figs. 8, 9, and 10.) The valve-seat 32 is then formed with tapering or inwardly-beveled walls 33, so that the packing-ring sets down over the valve-seat and is wedged or jammed at its edges 31 between said walls 33 of the valve-seat and the inclosing walls or skirt 17 of the packing-ring holder. A more tight and impervious closure is thus obtained.

Having thus described the invention, what I claim as new is—

1. In a valve, the combination of a core having opposite threaded ends and an intermediate annular flange, a packing-ring lying against one side of said flange, a retaining-nut screwed on the adjacent end of the core, and a packing-ring holder screwed upon the opposite threaded end of the core and being recessed to receive the said annular flange and packing-ring.

2. In a valve, the combination of a recessed packing-ring holder having a threaded central aperture, and a core having a rear end adapted

to screw into said aperture, an annular flange adapted to lie upon the bottom of the said recess and a forward end adapted to receive a packing-ring, and means for turning.

3. In a valve, the combination with a packing-ring holder recessed at its forward end and having a central threaded aperture, of a core having an exteriorly-threaded rear end adapted to screw in said aperture and an annular flange adapted to lie in said recess, means for oppositely turning said parts each with respect to the other, a packing-ring, and a valve-stem.

4. In a valve, the combination with a central core having an exteriorly-threaded rear end, a packing-ring-carrying forward end and an intermediate annular flange, of a packing-ring holder screwed on said threaded rear end of the core and being recessed at its front end to receive the said annular flange and having at its rear end a flaring recess, a coupling-cap adapted to be screwed upon the extremity of said rear end of the core and having a tapered forward end adapted to enter the recess of the adjacent end of the packing-ring holder, and a valve-stem and a packing-ring.

5. In a valve, the combination of a casing containing a valve-seat, a valve-stem movable in the casing toward and from the valve-seat and having its inner or lower end flanged, and a valve proper comprising a coupling-cap surrounding the said stem above its flange and having a depending, interiorly-threaded, tapered flange, a core disposed below the flanged end of the stem and having exteriorly-threaded ends and an intermediate annular flange the rear end receiving the said coupling-cap and the forward one having a wrench-receiving extremity, a sleeve interposed upon said core between the coupling-cap and the annular flange and being recessed at its end to receive said flange, and extend therebeyond, an annular contact-washer or packing-ring upon the forward end of the core and lying in said recess against the annular flange, and a retaining-nut upon the forward end of the core outside said washer or ring.

In testimony that I claim the foregoing I have hereunto set my hand this 25th day of November, 1902.

WILLIAM A. MILLER.

Witnesses:

C. B. PITNEY,

RUSSELL M. EVERETT.