

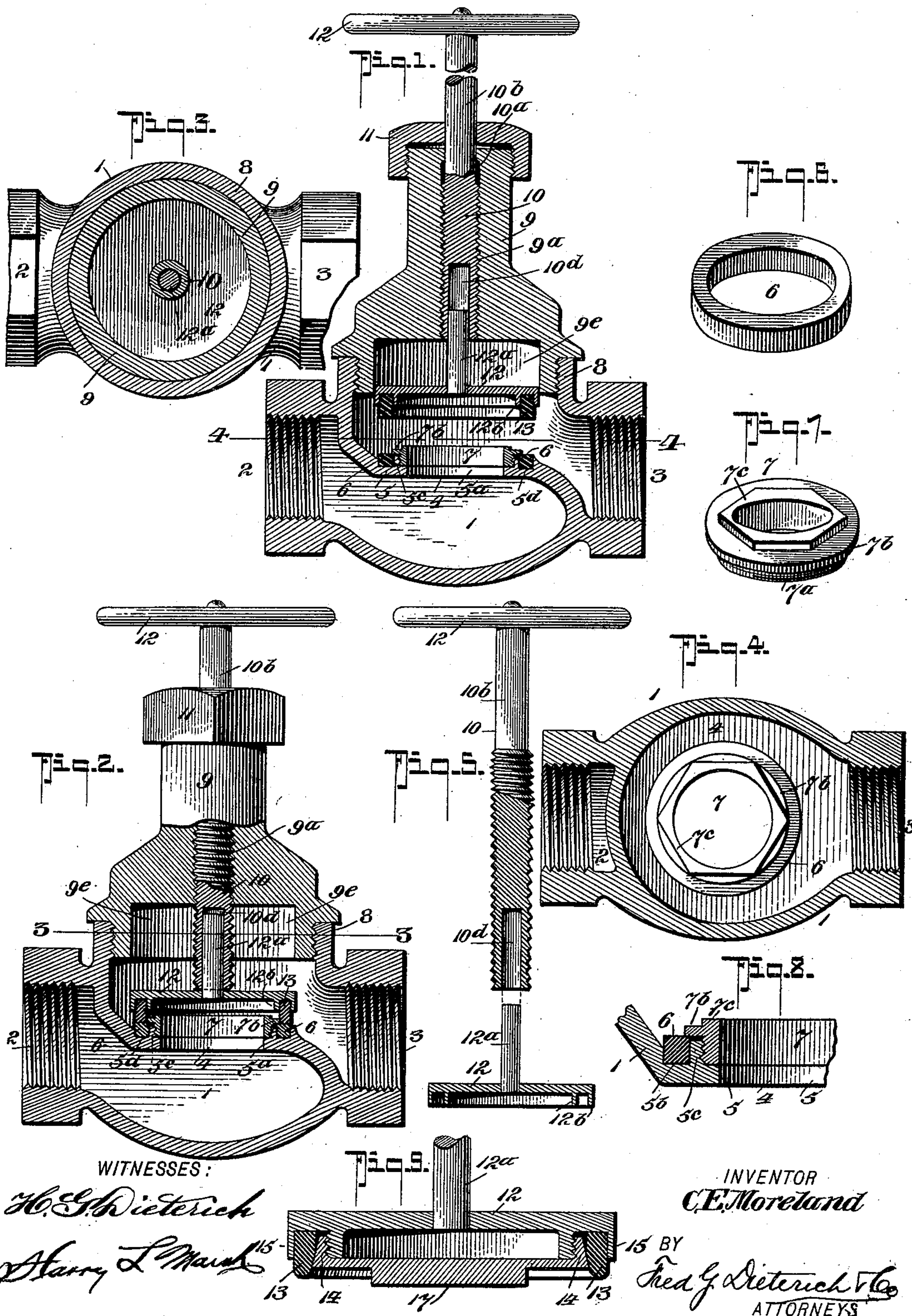
No. 618,709.

Patented Jan. 31, 1899.

C. E. MORELAND.
VALVE.

(Application filed Sept. 29, 1898.)

(No Model.)



WITNESSES:

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CHARLES E. MORELAND, OF CEREDO, WEST VIRGINIA, ASSIGNOR OF ONE-HALF TO HENRY MOHLENDOR, OF SAME PLACE.

VALVE.

SPECIFICATION forming part of Letters Patent No. 618,709, dated January 31, 1899.

Application filed September 29, 1898. Serial No. 692,222. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. MORELAND, residing at Ceredo, in the county of Wayne and State of West Virginia, have invented a new and Improved Valve, of which the following is a specification.

This invention, which relates to improvements in globe-valves, comprehends generally the organization of parts constituting the complete valve and in its more specific nature embodies a novel construction of valve-seat and valve engaging the same, combined in such manner as to provide for a ready removal and renewal of the packing members of the seat and valve.

The main object of my invention is to provide a valve of this character having the several parts so disposed and connected that the entire structure of valve can be economically produced and the valve, the seat, and their packing members rendered the more effective in their uses and the construction desirable in that the parts can be quickly and conveniently exposed for inspection and the renewal of packing or other members.

With these objects in view the invention comprehends certain details of construction and peculiar combination of parts, such as will be first described, and then be specifically pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of my improved valve, the valve being in its open position. Fig. 2 is a similar view showing the valve closed down on its seat. Fig. 3 is a horizontal section on the line 3 3 of Fig. 2. Fig. 4 is a horizontal section on the line 4 4 of Fig. 1. Fig. 5 is a detail view of the valve-spindle and the valve. Fig. 6 is a detail view of one of the metallic packing-rings. Fig. 7 is a detail view of the valve-seat, packing-ring, and the retaining-cap. Fig. 8 is an enlarged detail view of a portion of the valve-seat, its packing-ring, and the retaining-cap; and Fig. 9 illustrates a modified means for holding an elastic packing on the valve, hereinafter particularly referred to.

In the drawings, in which like numerals indicate like parts in all the figures, 1 indicates

the valve-casing, which may have the conventional contour.

2 designates the induction and 3 the education way, which ways are disposed on the diametrically opposite ends of the casing.

The diaphragm 4 has a central horizontal seat 5 surrounding the orifice 5^a, which seat has an annular depression 5^b, the inner wall of which extends upwardly to form a flange 5^c, which flange has internal threads, as shown.

6 indicates the seat-packing for the end of the metallic ring of a width to snugly fit the depression 5^b and of such thickness that when fitted in place its upper face will project slightly above the upper face of the annular flange 5^c. While the said ring 6 may be fitted sufficiently tight to remain on the seat depression 5^b without further holding means, yet I prefer, on the score of positively and properly holding the ring 6 on its seat, to provide a detachable cap-piece in the end of the ring 7, having a central opening of a size equal the orifice 5^a, a pendent exteriorly-threaded flange 7^a, adapted to engage the threaded shank 5^c, an annular flange 7^b, arranged to project over the head of the flange 5^c and lap the inner edge of the ring 6, and a non-circular or nut portion 7^c, as clearly shown in Fig. 7.

The valve-casing has its top formed with an opening of a larger diameter than the valve-seat surrounded by a vertical exteriorly-threaded flange 8.

So far as described it will be readily seen that the packing-ring 6 can be quickly and conveniently removed from or replaced on the seat whenever the shank or neck 9 of the valve is removed. Furthermore, by extending the flange 5^c, as shown, the said ring 6 is held from direct steam impact as the steam charges through the orifices 5^a, and by providing a detachable cap-piece 7 of the construction shown the said packing-ring 6 is not alone securely and positively held to its seat under all conditions, but is also the more thoroughly protected and held from dislodgment by steam or fluid pressure.

The shank member 9, which is externally threaded to engage the flanges 8 of the valve-casing, has a centrally-threaded way 9^a for the externally-threaded valve-controlling

spindle 10, its upper end terminating in a stuffing-box 10^a for the non-threaded portion 10^b of the spindle, said shank being also externally threaded at the upper end to receive the gland 11.

12 indicates the valve-spindle handle. The detachable shank portion of the casing has an upwardly-extending seat 9^c, in which the disk 12, forming a part of the valve, has vertical play, said disk being substantially the diameter of the said seat 9^c. The disk 12 has a centrally-projecting stem 12^a, which plays and is guided in a vertical recess 10^d on the lower end of the spindle 10.

13 indicates a packing-ring, which is adapted to be detachably secured to the under face of the disk 12, and when such ring is of metal it is swaged between a pair of concentric annular flanges 12^b, held pendent from the disk 12, said disk 13 being of a diameter the same as ring 6.

From the foregoing it will be readily seen that when steam is on and the spindle 10 adjusted to an open position the valve-disk will be held up, as shown in Fig. 1, it being guided by its stem moving in the recess of the spindle 10 and its edges engaging the seat 9^c of the shank.

It is manifest that by protecting the packing-ring 6, as described, the only effect the steam-pressure can have thereon will be in the nature of a downward force, which serves to aid in keeping such ring 6 on its seat. As the steam-pressure will hold the valve up in the seat 9^c under ordinary conditions and as the lower end of the spindle 10 is recessed it follows that in closing the valve the spindle can be lowered until its bottom end bears against the disk 12, thereby providing for a solid abutting pressure on the valve by moving it down accurately against its seat, it being obvious that the rings 6 and 13 engage when the valve is closed.

When it is desired to use elastic packing-rings instead of metallic rings, the ring 13 is secured to the valve-disk in the manner shown in Fig. 9, by reference to which it will be observed that the inner one of the concentric pendent flanges of the valve-disk is externally threaded and adapted to receive a wedge-cap 14, the perimeter of which is wedge-shaped and adapted, when the cap is screwed home, to clamp the ring 13 against the outer flange 15, said cap-piece having a non-circular hub 17, whereby it can be readily screwed in place.

It will be observed by arranging these several parts as described and shown access can be quickly had to the valve and the parts adjusted, the worn rings removed, and new rings properly placed by any one.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. As an improvement in globe-valves; the combination with a slidable valve having a disk portion provided with a pendent packing-ring; of the casing having its diaphragm formed with an annular depression surrounding the steam-passage, the inner wall of such depression forming a vertical protecting-flange, said flange having an internally-threaded portion; a packing-ring detachably held in the said depression; a detachable open cap member having a threaded portion to engage the threaded flange, and an annular horizontal member adapted to lap and engage the valve-seat packing-ring, substantially as shown and for the purposes described.

2. In a globe-valve of the character described; a slidable valve and means for moving it against the valve-seat, said valve having a disk provided with concentric pendent rims, one of such rims being threaded; an elastic packing-ring adapted to be fitted between the rims, and a securing-cap having a threaded portion to engage the threaded rim; a wedge portion to engage and compress the packing against the non-threaded rim, and a wrench-receiving head, for the purposes described.

3. The hereinbefore-described improved globe-valve; comprising in combination; a valve-casing having its diaphragm formed with an integral valve-seat provided with an annular depression, the inner wall of the depression being extended to produce a vertical protecting-flange; said flange being of less height than the thickness of the packing-ring, and having internal threads; a packing-ring detachably fitted in the depression; an open cap-piece having a threaded shank to engage the aforesaid threaded flange and provided with an annular member to engage the upper face of the packing-ring, and a non-circular or wrench-receiving head; a shank-piece detachably fitted in the casing, provided with an annular seat or hollow chamber in its lower edge and a vertically-threaded bore; a threaded spindle portion operated in said bore and having an elongated recess in its lower end; and a valve consisting of a disk having a shank fitting the recess in the spindle and having concentric pendent rings, said disk being of a size to snugly play in the hollow chamber of the casing-shank; and a packing-ring detachably held between said disk valves, substantially as shown and described.

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Witnesses:

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