

No. 606,867

Patented July 5, 1898.

W. I. HOOVER.
VALVE.

(Application filed May 15, 1897.)

(No Model.)

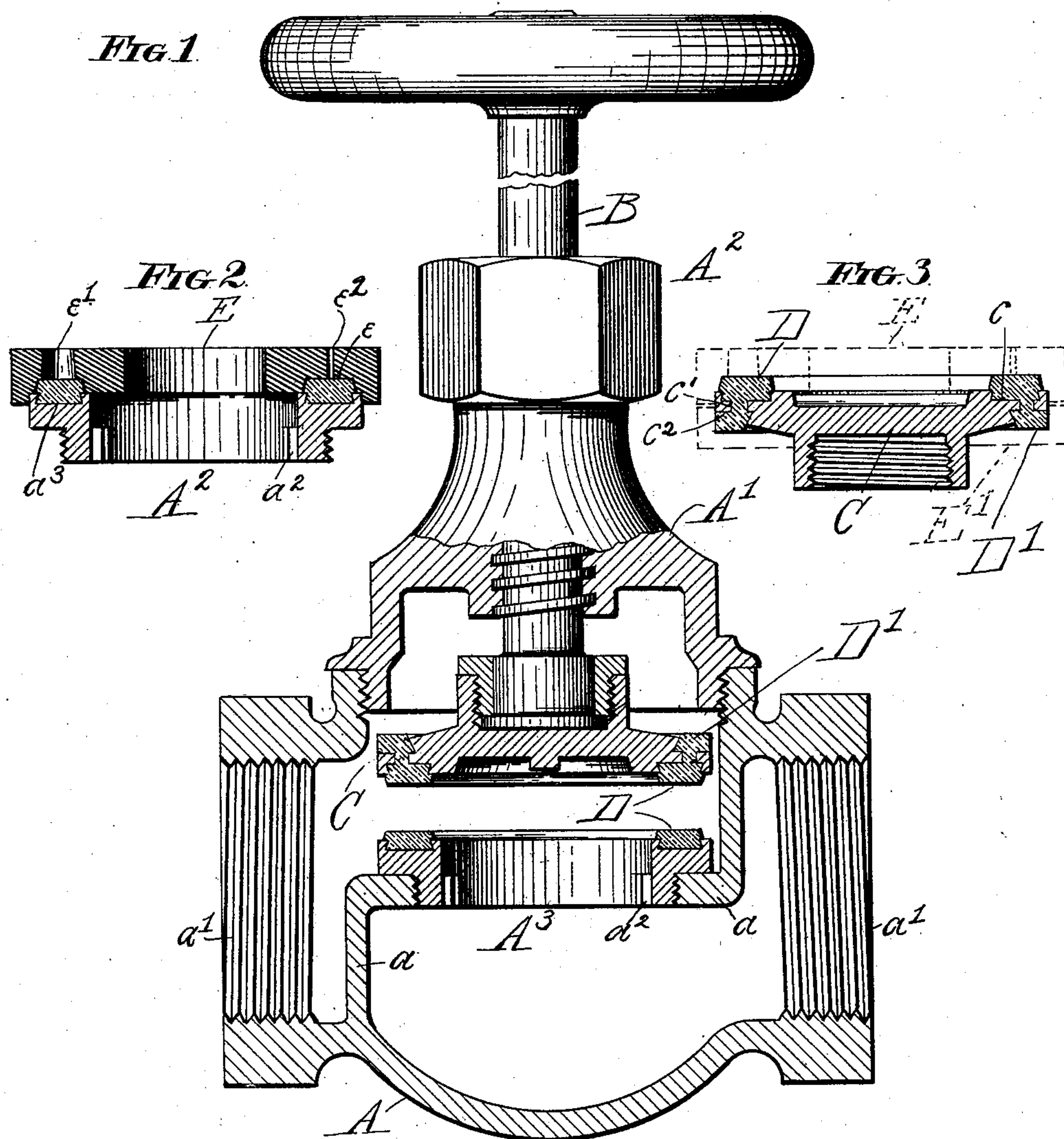
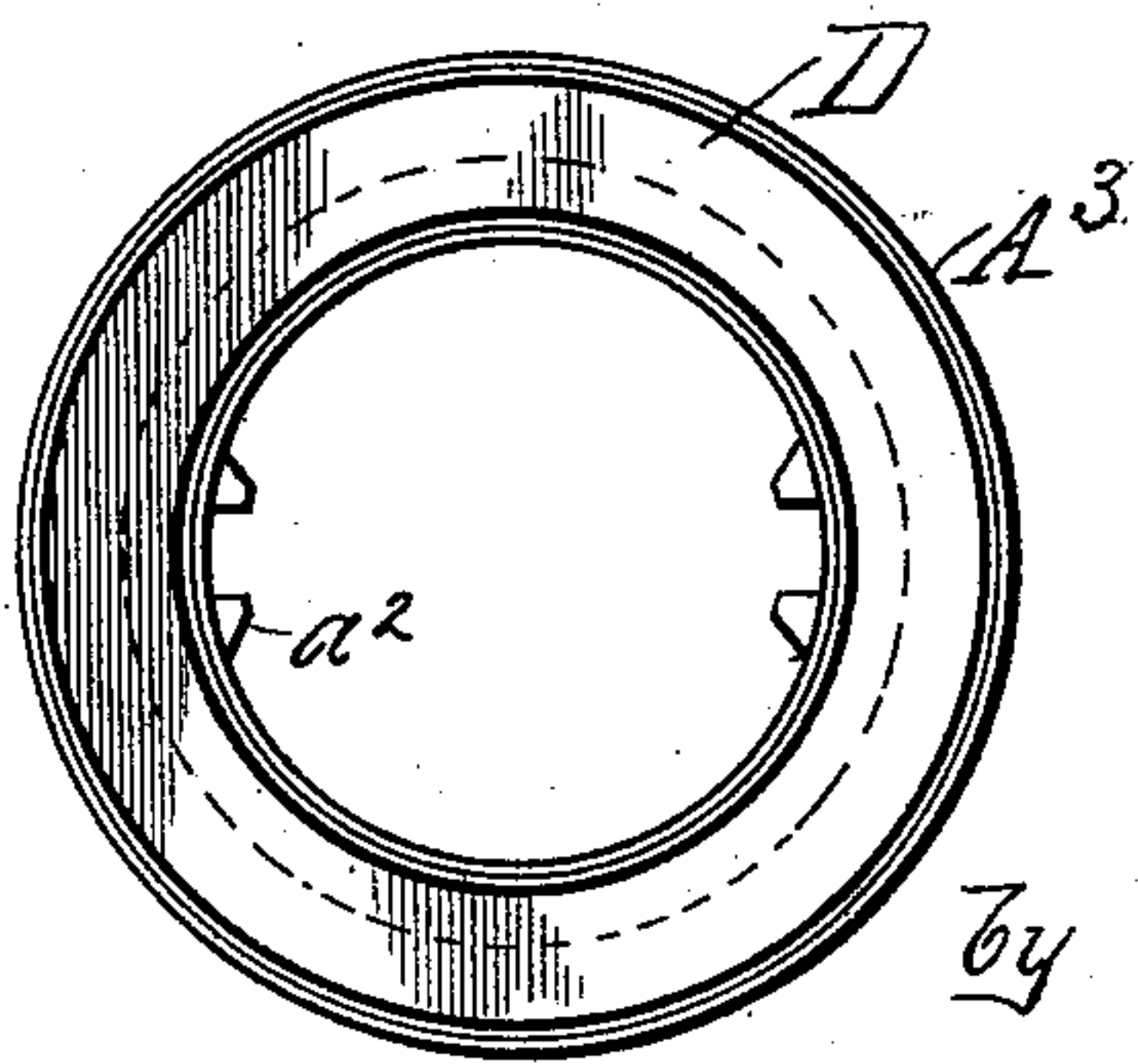


FIG. 4



Witnesses:

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UNITED STATES PATENT OFFICE.

WALTER I. HOOVER, OF AURORA, ILLINOIS.

VALVE.

SPECIFICATION forming part of Letters Patent No. 606,867, dated July 5, 1898.

Application filed May 15, 1897; Serial No. 636,625. (No model.)

To all whom it may concern:

Be it known that I, WALTER I. HOOVER, of Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Valves, of which the following is a specification.

This invention relates to improvements in globe-valves, and has for its object to provide a construction in which the contacting surfaces of the valve seat and disk can be readily redressed or renewed without disconnecting the valve from the piping to which it is attached, no matter how awkward the location of the valve or how badly corroded or worn said surfaces may have become.

The invention consists in the matters herein set forth, and particularly pointed out in the appended claim.

In the accompanying drawings, Figure 1 is a sectional side elevation of a globe-valve provided with my improvement. Fig. 2 is a sectional detail of the removable seat and of the mold for casting the soft-metal bearing-ring in said seat. Fig. 3 is a similar view of the valve-disk with the mold shown in dotted line. Fig. 4 is a top plan view with the valve-seat removed.

A designates a globe-valve casing of the usual shape, with a removable dome A', having a stuffing-box A², through which the valve-stem B passes to support and operate the valve-disk C. An apertured diaphragm *a* divides the casing between its outlet and inlet openings or ports *a'* and is apertured to receive a removable annular valve-seat A³, which has a screw-threaded engagement therewith. The valve-casing thus described will be constructed, as usual, of some metal, preferably brass or other incorrodible composition, of relatively high melting-point, and the removable seat A³ and valve-disk will be constructed of similar material. Inwardly-projecting lugs *a*² of said seat permit the ready application of a wrench or spanner in removing or replacing the seat in its screw-threaded socket. Although referred to as a "valve-seat," the present improvement does not, however, contemplate that the removable ring A³ shall directly receive the thrust of the valve-disk; but to this end its upper surface is provided with an undercut or dovetailed annular groove *a*³, into which a soft-

metal or babbitt ring is cast to form a more easily-renewable bearing-surface D. This soft-metal ring projects considerably above the metal of the seat A³, and may thus be reduced by repeated truing or redressing operations before the metal of the seat A³ will interfere with the redressing operation. When this point is reached or whenever considered necessary, the bearing-surface as a whole may be completely renewed by simply melting out the softer metal and casting a new bearing-surface in its place. The relatively harder nature and higher melting-point of the removable brass seat permits its being heated sufficiently to melt the babbitt without injury to itself, and as the seat is removable it becomes unnecessary to heat the valve-casing as a whole, which would be liable to result in the serious warping of its casing. The removability of the seat furthermore permits of the casting in of a new bearing-surface without removing the valve from the piping in which it is connected, no matter how awkward or inconvenient its situation, and even where the valve-seat rests in an inclined plane or in an inverted position, in which case it would be obviously impossible to pour in a new soft-metal bearing-ring without taking the valve down if the seat were not removable. The provision of the removable hard-metal seat with the renewable soft-metal bearing-surface cast into and projecting above the seat in accordance with this improvement is therefore of the greatest practical importance in producing a valve which can be repaired when leaky with the greatest economy and despatch.

As herein shown, the valve-disk C is also conveniently provided with a soft-metal bearing-ring D, exactly similar to the bearing-surface of the valve-seat and cast into an undercut or dovetailed groove *c* in the same manner. Said bearing-rings may be conveniently cast into both the valve and disk by means of a simple metal mold E, which is shaped to fit over the edges of both the seat A³ and disk C, as shown in full lines in Fig. 2 and in dotted lines in Fig. 3. The under surface of said mold is provided with an annular groove *e* of the shape desired for the projecting portions of the bearing-rings and with suitable apertures *e'* and *e*² for the en-

trance of the metal and the escape of accumulating gas, which might render the casting porous. The particular valve shown is also provided with an upper soft-metal bearing-surface D' on its valve-disk, arranged to contact with the lower edges of the dome A' when the valve is fully opened. This feature will, however, ordinarily be omitted; but, if considered desirable, the seat D' may be cast in at the same time with the bearing-surface D of the disk by providing a second metal mold E', as shown in Fig. 3, and providing apertures c', through which the metal poured into the mold E will flow into the mold E' and into the groove c², provided in the upper side of the valve-disk to receive the ring D'. The integral necks of soft metal connecting the rings D D' through the apertures c² would then serve to additionally secure said rings in place.

I claim as my invention—

In a globe-valve the combination with a removable hard-metal seat of relatively high melting-point screwed into the valve-casing,

and a soft-metal bearing-ring of relatively low melting-point cast into a groove into said hard-metal seat and projecting above the surface thereof so as to receive the thrust and wear of the valve-disk, of a removable hard-metal valve-disk made of the same external diameter as said removable seat and having a soft-metal bearing-ring similar to the seat bearing-ring cast into a groove in the disk and projecting below the surface thereof to contact with the bearing-ring of said seat, the grooves in the seat and disk which receive the bearing-ring being also of similar size and shape, whereby both rings may be cast in by the use of a mold fitting over the perimeter of the seat and disk.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two subscribing witnesses, this 4th day of May, A. D. 1897.

WALTER I. HOOVER.

Witnesses:

GEO. M. VAN SICKLE,
WM. S. BEAUPRE.