

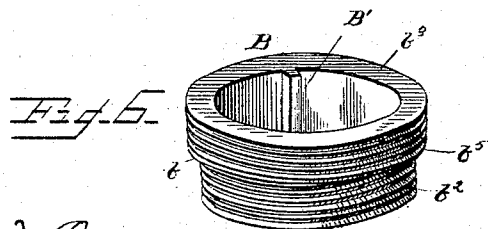
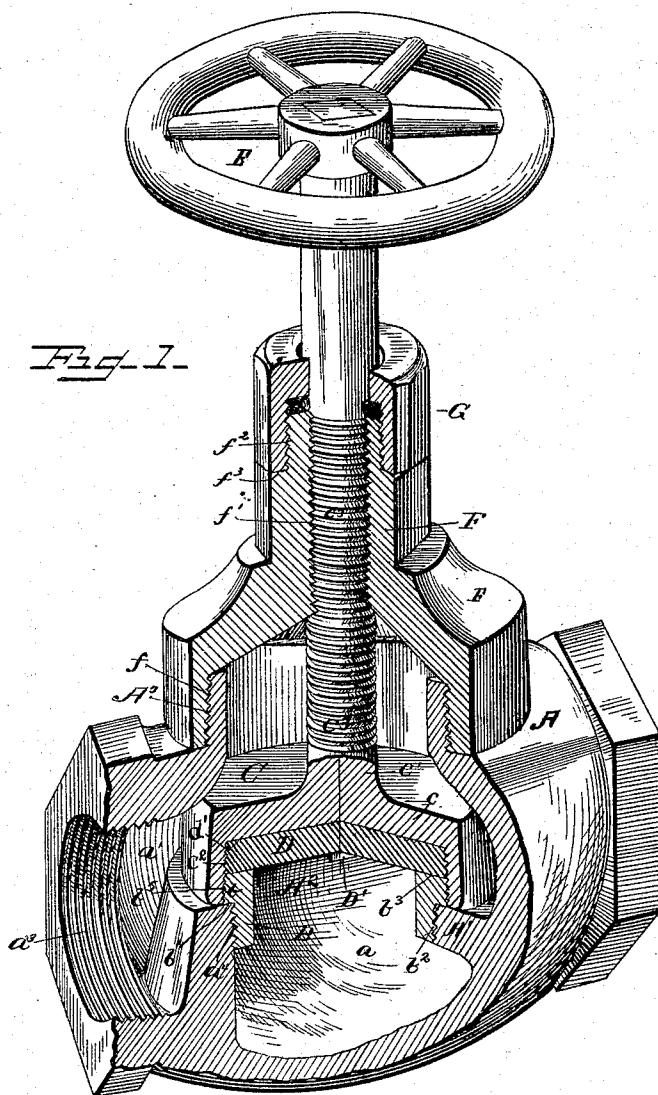
(No Model.)

2 Sheets—Sheet 1.

H. BURNS.
GLOBE VALVE.

No. 542,039.

Patented July 2, 1895.



Witnesses
Howard D. Orr.
O. C. Shepard.

Henry Burns,
Inventor
By J. R. Little,
his Attorney

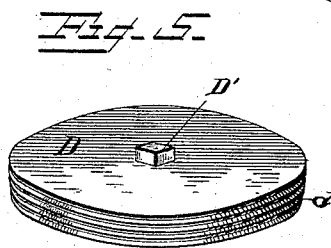
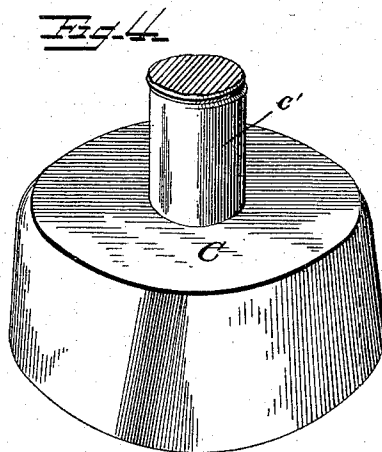
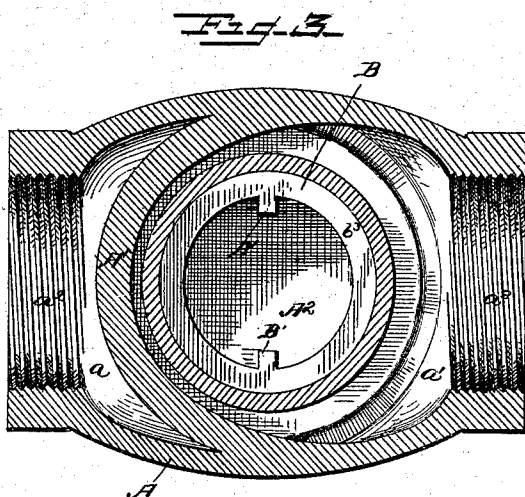
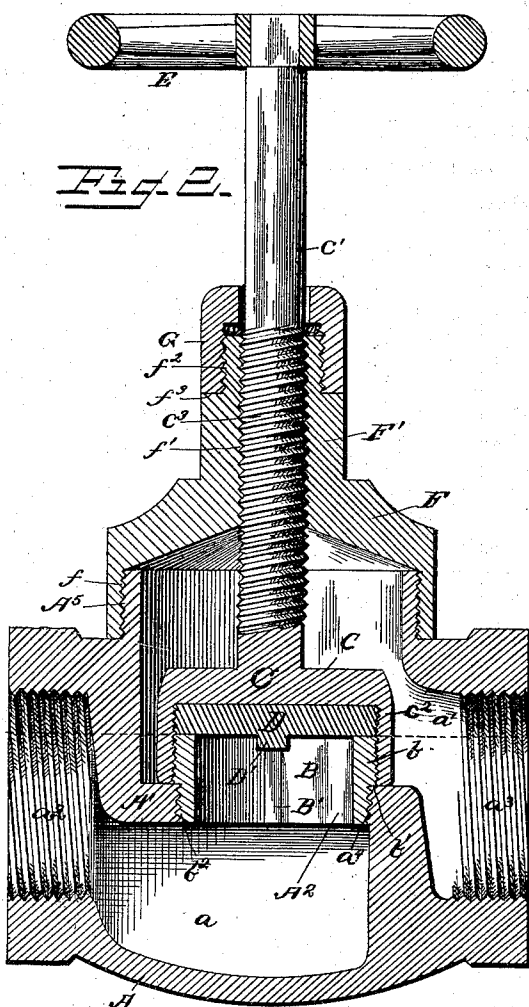
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UNITED STATES PATENT OFFICE.

HENRY BURNS, OF CHARLEVOIX, MICHIGAN.

GLOBE-VALVE.

SPECIFICATION forming part of Letters Patent No. 542,039, dated July 2, 1895.

Application filed April 28, 1894. Serial No. 509,327. (No model.)

To all whom it may concern:

Be it known that I, HENRY BURNS, a citizen of the United States, residing at Charlevoix, in the county of Charlevoix and State of Michigan, have invented certain new and useful Improvements in Globe-Valves; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to

which it appertains to make and use the same. This invention relates to globe-valves, and it has for its object to provide a simple and inexpensive valve in which certain parts subject to wear may be readily and conveniently removed and others substituted, which is especially adapted by its construction and arrangement to be entirely formed of metal, and which will furthermore possess advantages in point of effective operation, adjustability, the substitution of parts, convenience, durability, and general efficiency.

In the drawings, Figure 1 is a perspective view of a globe-valve embodying my improvements, parts being broken away to show the interior construction. Fig. 2 is a vertical longitudinal sectional view. Fig. 3 is a horizontal sectional view taken on the line *xx*, Fig. 2. Fig. 4 is a detail perspective view of the valve proper. Fig. 5 is a detail perspective view of the washer detached. Fig. 6 is a detail perspective view of the removable collar forming the valve-seat.

Corresponding parts in all the figures are denoted by the same letters of reference.

Referring to the drawings, A designates the shell or casing, which may be in the main of ordinary construction, having the angular dividing-partition A', forming the inlet and outlet chambers *a* and *a'*, respectively, with the respective inlet and outlet ports *a*² and *a*³. In the horizontal central portion of the partition A' is formed the valve port A².

The walls of the port or opening A² are threaded, as shown at *a*⁴, this threaded opening being adapted to receive a removable annular ring or collar B, forming the valve-seat. This ring or collar is provided with a circumferential flange *b* at its top, forming a shoulder *b'*, below which latter the periphery of the ring is threaded, as shown at *b*³. The threaded portion of the ring is received

within the threaded opening A², with the shoulder *b'* resting upon the partition A', so that the flange *b* forms a raised valve-seat, the top edge of the ring being preferably flat, as shown at *b*³. The ring is provided with interiorly-projecting lugs B' B', adapted to be engaged by a suitable tool in setting or removing the ring, which lugs preferably extend from the lower edge to the top edge of the ring, as shown. I prefer to construct this removable ring of brass. The ring provides an effective valve-seat which may be readily removed when worn and another substituted, thus avoiding the substitution of an entirely new valve.

C designates the valve proper, which comprises a cup or body portion *c*, adapted to fit over the raised valve-seat, and a projecting stem *c'*. I prefer to construct this piece of brass. In the cup *c* is set a disk or plate D, forming the washer and preferably constructed of white metal or brass. This washer rests upon the projecting top edge *b*³ of the removable ring forming the valve-seat when the valve is closed.

The cup or body portion *c* is of sufficient depth to provide for the adjustment of the washer, and has its interior walls threaded, as shown at *c*². The projecting stem *c'* is preferably solid and of suitable length to extend through the cap-pieces, the stem being threaded, as shown at *c*³. The disk or plate D has its periphery threaded, as shown at *d*, this washer-disk being adapted to be screwed into the corresponding cup *c*. By this construction and arrangement the washer is readily adjustable in the cup, and may be conveniently detached or removed therefrom. Upon the bottom surface of the washer is provided a projecting stud D', preferably centrally arranged and of square or angular shape, which is adapted to be engaged to enable the adjustment or removal of the washer-disk. Upon the top of the stem *c'* is mounted a hand-wheel E, by which the valve may be operated.

F designates a cap-piece, which is adapted to screw over the corresponding open top of the shell or casing A, these parts being relatively threaded, as shown at *f* and A⁵, and the cap-piece is provided with a projecting stem F', having a central threaded bore *f'*

for the accommodation of the threaded portion of the projecting valve-stem. The stem of the cap-piece is exteriorly threaded and shouldered at its top, as shown at f^2 and f^3 , respectively, to receive a binding-nut G, as shown.

The operation and advantages of my invention will be readily understood by those skilled in the art to which it appertains.

10 By reason of the improved construction and arrangement of parts as above described and illustrated the valve-seat and washer-disk may be readily removed and adjusted and substitution effected.

15 I prefer to construct the casing and cap-piece of brass or iron, and it will thus be noted that the entire valve is adapted to be formed of metal.

20 By reason of the herein-described relative construction and arrangement of parts, providing for the adjustability and removability of the valve-seat and washer-disk, the two latter principal wearing parts may be conveniently adjusted with relation to each other or readily detached for purposes of substitution.

25 It will also be noted that the size of the valve-port may be conveniently and inexpensively regulated, as desired, by employing different rings or collars of adapted thickness, without changing the washer-disk or the casing and general parts, the improved washer-disk being adapted to effectively operate with relation to any thickness or size of removable seat-ring which may be employed.

30 It will be understood that the general features of construction and arrangement of the adjustable and removable valve-seat and washer-disk are adapted for effective employment in valves of other general structure and arrangement as well as for globe-valves.

35 The outer face of the flange b at the top of the removable valve-seat ring B may be threaded, as shown at b^5 , this projecting exteriorly-threaded portion of the ring being adapted to receive the correspondingly-threaded projecting edge c^2 of the cup c . A threaded joint between the ring forming the valve-seat and the valve-cup carrying the washer is thus formed, which provides a double steam-joint. If desired, and under varying circumstances, the outer face of the projecting portion of the ring may, however, be smooth or unthreaded, this construction being adapted for effective use in cases where an especially tight joint is not required.

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

1. An improved valve comprising the shell or casing having the partition in which is formed the threaded valve port or opening and provided with a threaded ring or collar mounted in said opening and forming a projecting valve seat, the valve proper consisting of the interiorly-threaded cup and the

projecting threaded stem and having the washer disk or plate provided with a threaded periphery and the projecting lug, the threaded washer disk being adjusted in the threaded cup, and a cap piece provided with an interiorly-threaded stem, substantially as set forth.

2. The herein described improved globe valve, comprising the shell or casing having the partition in which is formed the threaded valve port or opening and provided with the exteriorly-threaded removable ring or collar adjusted in said opening and having the interiorly-projecting lugs and the circumferential flange at its top forming the projecting valve seat; the valve proper consisting of the interiorly-threaded cup and the projecting threaded stem and having the removable washer disk or plate provided with the threaded periphery and the centrally-arranged lug projecting from its outer face, the threaded washer disk being adjusted in the corresponding washer cup; and the cap piece having the interiorly-threaded projecting stem; substantially as set forth.

3. An improved valve having the valve port or opening in which is set a removable ring or collar B, corresponding to said opening and provided with a circumferential flange at its top projecting laterally and forming a raised valve seat, in combination with the valve proper comprising a cup adapted to fit over the raised valve seat and carrying a corresponding disk or plate adjustably secured within said corresponding containing cup and forming the washer, substantially as set forth.

4. In a valve, the combination, with a removable ring or collar forming the valve seat, of the valve proper comprising an interiorly-threaded cup in which is adjusted a removable disk or plate provided with a threaded periphery and forming the washer, said washer disk being adapted to be adjusted within the threaded cup and with relation to the adjustable ring forming the valve seat, substantially as set forth.

5. An improved valve comprising the cup or body portion having the interiorly-threaded walls, in combination with the corresponding circular disk or plate having the threaded periphery and provided with a lug projecting from its outer surface, the disk being adjustable within the corresponding containing cup and forming the washer, substantially as set forth.

6. A valve comprising a cup or body portion within which is adjustable a corresponding disk or plate forming the washer, said washer disk being adjusted in and carried by said corresponding containing cup, substantially as set forth.

7. An improved valve, comprising a removable ring or collar seated in the valve port and provided with a projecting circumferential flange at the top forming a raised valve

seat, the outer face of said flange being threaded, in combination with an interiorly-threaded cup carrying an adjustable threaded disk or plate forming the washer, the threaded
5 washer disk being adjustable within its said interiorly-threaded corresponding cup and carried thereby and the interiorly-threaded projecting edge of the cup being adapted to engage the threaded projecting flange of the ring or collar, substantially as set forth. 10

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

HENRY BURNS.

Witnesses:

H. S. HARSHA,
JOSEPH STEVENS.