

No. 801,458.

PATENTED OCT. 10, 1905.

C. E. HUXLEY.
SHEET METAL VALVE SEAT RING.
APPLICATION FILED JUNE 14, 1904.

Fig. 1

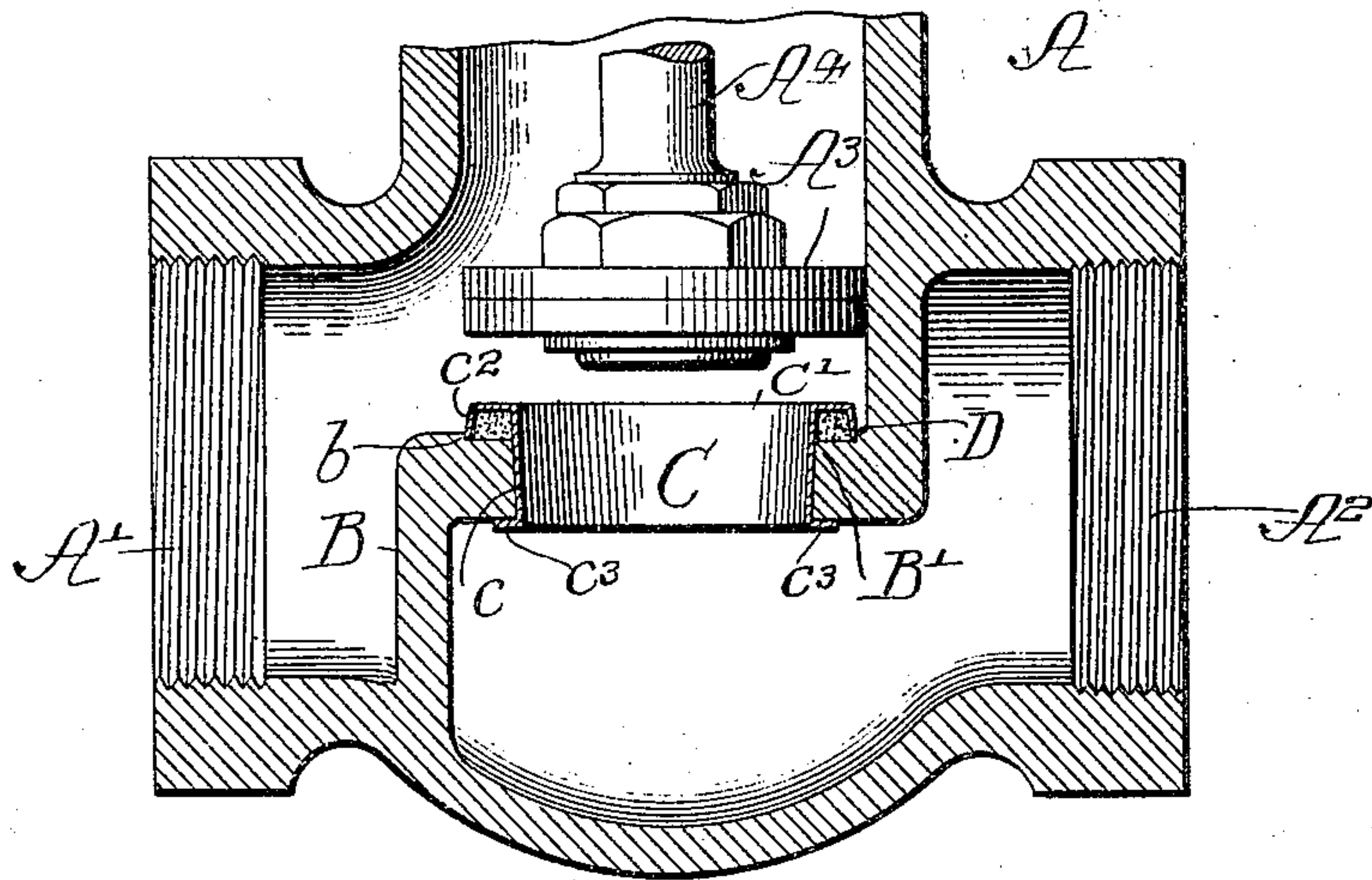


Fig. 2

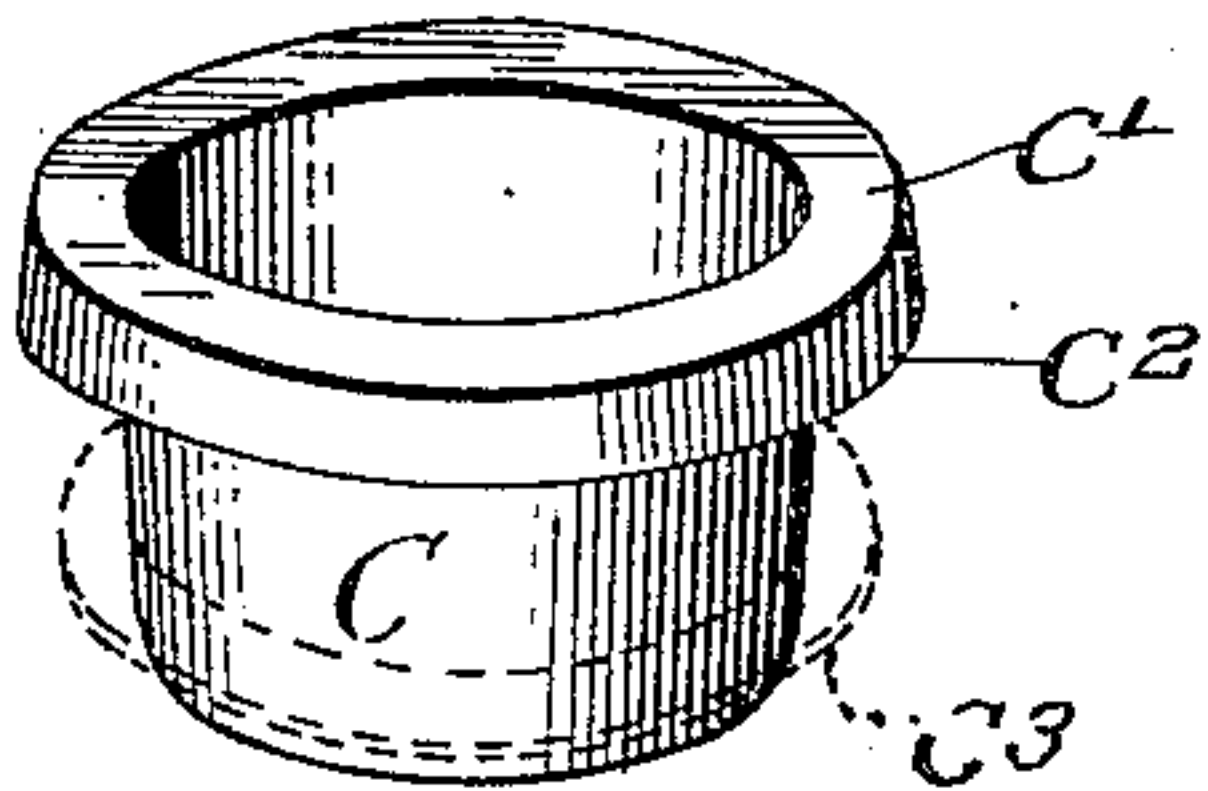
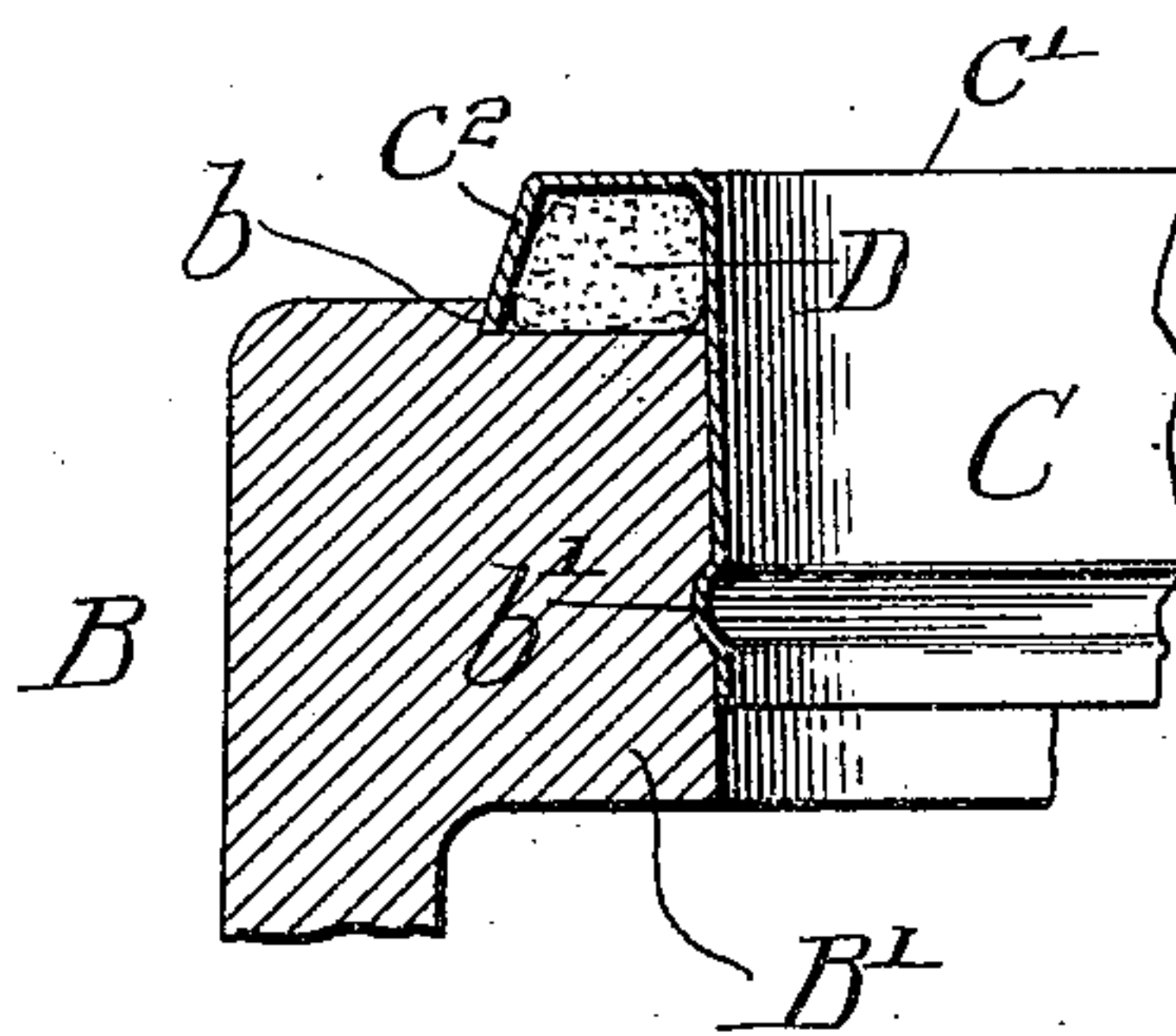


Fig. 3



Witnesses

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UNITED STATES PATENT OFFICE.

CHARLES E. HUXLEY, OF CHICAGO, ILLINOIS.

SHEET-METAL VALVE-SEAT RING.

No. 801,458.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed June 14, 1904. Serial No. 212,468.

To all whom it may concern:

Be it known that I, CHARLES E. HUXLEY, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sheet-Metal Valve-Seat Rings; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in valves of that class in which the seat is formed on a ring that is removably fitted in a suitable opening in the valve-casing; and the invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings, Figure 1 is a fragmentary sectional view of a valve, taken axially through the seat, showing my invention applied thereto. Fig. 2 is a perspective view of the valve-ring removed from the casing. Fig. 3 is a fragmentary section of the casing, showing a modified form of ring applied thereto.

As shown in the drawings, A designates a valve-casing provided with branches A' A² for connection with fluid-conveying pipes. Said casing is provided with an angular partition or bridge B, located between the branches A' A² and in the horizontal part B' of which is formed a tapered opening which is smaller at its lower than at its upper side. Seated in said tapered opening of the bridge is an exteriorly-tapered ring C, the upper horizontal face of which constitutes the valve-seat. A³ designates a vertically-movable disk or closure which is movable toward and from the bridge. Said closure is formed on or attached to the lower end of a rotative screw-threaded stem A⁴, which in the completed structure has screw-threaded engagement with the casing, whereby rotation thereof imparts movement of the closure toward and from the valve-seat. Said seat-ring is formed from a single piece of sheet metal by a stamping or swaging process. It consists of an annular tapered part c, which fits closely within the tapered opening of the bridge or partition B and which extends slightly above said bridge, an annular horizontal part c' and an annular outwardly and downwardly tapered part c², which constitutes a brace and bears at its lower margin against an annular shoulder

b, formed on the upper face of the bridge B. The upper face of the horizontal part c' of the seat-ring constitutes the valve-seat, said seat being parallel with the lower face of the closure.

The seat-ring may be fastened in place by turning or spinning the lower margin of the ring outwardly and upwardly against the lower face of the bridge B to constitute a holding-flange c³, as shown in Fig. 1, or the wall of the tapered opening may be provided with an annular groove b', as shown in Fig. 3, and the material of the tapered part c of the seat-ring forced into said groove by a spinning operation or otherwise to constitute an interlocking holding-rib. Other holding means may be employed, and in some instances the ring may be held in place by friction sufficiently tight to avoid the necessity of specially-constructed holding means.

The extension of the tapered ring beyond the opening in which it is seated to bring the horizontal seat fully above the face of the bridge forms beneath the seat portion of the ring a space which may be filled by a yielding packing-gasket D. If such gasket be employed, it is preferably placed under some compression when the ring is inserted in place. The gasket thus held in place provides a wide fluid-tight joint between the lower surface thereof and the upper recessed face of the bridge to prevent the leakage of fluid between the seat-ring and casing when the closure is turned down upon its seat. The engagement of the tapered part c of the ring with the walls of the tapered opening when said parts are made to fit closely provides, however, a reliable joint between ring and casing, and such joint is supplemented by the close engagement between the holding flange or rib and the engagement of the margin of the tapered brace c² with the annular shoulder b on the upper face of the bridge. Thus it will be seen that the construction of the ring and its attachment to the casing is such that a fluid-tight joint between the same and the casing is assured, whether or not the packing-gasket D be employed; but the presence of said gasket under some compression does not necessitate such close fitting between the casing and the other parts of the ring.

The ring made and fitted to the casing as thus described affords a slight yielding of the seat when the closure is turned down tightly upon the same, thereby insuring a fluid-tight

joint between the seat and its closure, notwithstanding original slight irregularities of fit between the parts.

I claim as my invention—

5 1. The combination with a valve-casing having an interior partition provided with a tapered opening, of a sheet-metal ring having a tapered part which fits closely within said tapered opening, said ring extending at its
10 larger end beyond said opening, and said larger end being turned laterally outwardly to form an annular seat, and an annular shoulder formed on the face of said partition around said larger part of the opening and engaged
15 by the margin of said laterally-turned part of the ring.

2. The combination with a valve-casing provided with a tapered opening, of a sheet-metal seat-ring having a tapered part which fits
20 closely within said tapered opening, said ring extending at its larger end beyond the part of the casing in which said opening is formed, and turned laterally outwardly to form a flat, annular seat, and radially beyond said seat
25 with an annular outwardly-tapered part or brace and an annular shoulder in the casing engaged by the margin of said outwardly-tapered part.

3. The combination with a valve-casing provided with a tapered opening, of a sheet-metal seat-ring having a tapered part which fits
30 closely within said tapered opening, said ring extending at its larger end beyond the part of the casing in which said opening is formed, and turned laterally outwardly to form a flat, annular seat, and radially beyond said seat
35 with an annular outwardly-tapered part or brace, an annular shoulder in the casing engaged by the margin of said outwardly-ta-

pered part, and a packing-gasket confined under compression between said flat annular seat part of the ring and the casing. 40

4. The combination with a valve-casing provided with a tapered opening and with an annular shoulder surrounding said opening at
45 one end thereof, of a sheet-metal seat-ring having a tapered part which fits closely within said tapered opening, said ring extending at its larger end beyond the part in which said tapered opening is formed and at said larger
50 end with an outwardly-turned part *c'* constituting a seat and with an outwardly-tapered part *c''* engaging at its margin said annular shoulder.

5. The combination with a valve-casing provided with a tapered opening and with an annular shoulder surrounding said opening at
55 one end thereof, of a sheet-metal seat-ring having a tapered part which fits closely within said tapered opening, said ring extending at
60 its larger end beyond the part in which said tapered opening is formed and at said larger end with an outwardly-turned part *c'* constituting a seat and with an outwardly-tapered
65 part *c''* engaging at its margin said annular shoulder, and a radially-turned flange at the smaller end of the ring which interlocks with the casing at the smaller end of said tapered opening.

In testimony that I claim the foregoing as
70 my invention I affix my signature, in presence of two witnesses, this 10th day of June, A. D. 1904.

CHARLES E. HUXLEY.

Witnesses:

WILLIAM L. HALL,
GERTRUDE BRYCE.