

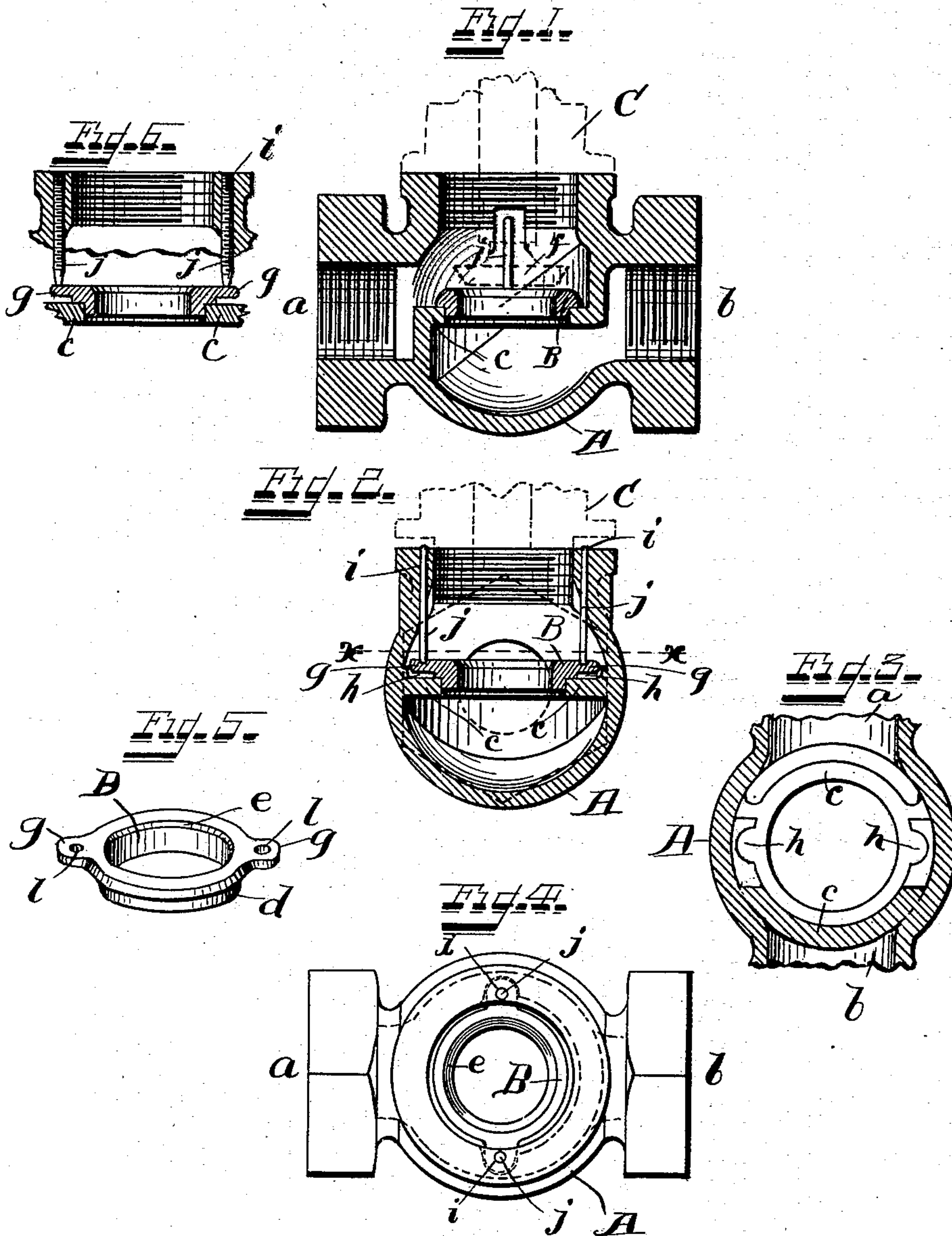
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Patented June 19, 1900.

E. H. LUNKEN.
RENEWABLE SEAT VALVE.

(Application filed Dec. 4, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

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RENEWABLE-SEAT VALVE.

SPECIFICATION forming part of Letters Patent No. 652,605, dated June 19, 1900.

Application filed December 4, 1899. Serial No. 739,186. (No model.)

To all whom it may concern:

Be it known that I, EDMUND H. LUNKEN, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Renewable-Seat Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class of valves among which may be enumerated globe-valves, check-valves in the form of globe and angle valves, and, in short, all that class of valves having an inlet-opening, a pipe-opening, and an interposed valve-seat opening, with a valve-seat covered by a valve that moves to and from its seat always in planes parallel with the plane of the seat; and it has for its object the provision of a removable and renewable seat for this class of valves which can be readily applied and removed without trouble or loss of time and without disconnecting the valve from its pipe-fittings, thereby greatly increasing the efficiency of the valve and prolonging its life.

The novelty of my invention will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is an axial sectional side elevation of so much of a globe-valve as is necessary to illustrate my invention. Fig. 2 is a transverse sectional side elevation of Fig. 1 on the axis of the seat opening. Fig. 3 is a sectional plan view on the dotted line *xx* of Fig. 2 with the ring-seat removed. Fig. 4 is a plan view of the valve with the bonnet or cap removed. Fig. 5 is a perspective view of the ring-seat. Fig. 6 is a sectional side elevation in detail showing a modification in the construction and application of the arms for holding the ring-seat in place.

The same letters of reference are used to indicate identical parts in all the drawings.

A represents the body of an ordinary globe-valve with opposite pipe-openings *a b* to form inlet and outlet openings for the valve. Within the body, between these openings, is the usual diaphragm *c*, having through it an

opening coincident with the neck-opening of the valve and containing the removable and renewable valve-seat B, which, as seen in Fig. 5, is a ring rabbeted on its under side, as at *d*, to fit the opening in the diaphragm *c* and provided on its upper side with a beveled seat *e*, with which the usual or any suitable disk valve *f* (dotted lines, Fig. 1) engages to open or close the valve. In addition the ring-seat B has oppositely-set laterally-projecting ears or lugs *g*, which when the seat is applied to its place in the diaphragm preferably fit into recesses *h*, Figs. 2 and 3, in the diaphragm to prevent the seat from being turned when seated, or, as seen in Fig. 6, these recesses *h* may be dispensed with and the ears *g* may simply project over the top of the diaphragm or other valve-opening where a diaphragm is not employed.

One means of holding the ring-seat to its opening (illustrated in Figs. 1 and 2,) consists in drilling two or more holes *i* through the thickened part of the neck of the valve and through which holes are snugly fitted rods or arms *j*, whose lower ends engage with the ears *g* or, preferably, with depressions *l* in said ears, as seen in Figs. 2 and 5, and whose upper ends, when the arms are thus inserted, slightly project above the top of the neck of the valve, as seen in Fig. 2, so that when the cap or bonnet C (shown by dotted lines) is screwed down the arms are compressed and exert pressure upon the ring-seat B to firmly hold it in place.

Another modification and one that will be particularly desirable in large valves, as seen in Fig. 6, consists in threading the aperture *i* and in correspondingly threading or making screws of the arms *j*, which can then be screwed down through the apertures in the neck until they bear upon the ring-seat B or its ears *g* to hold the ring-seat securely in place. Under this form of construction the cap or bonnet of the valve would have nothing to do with exerting pressure upon the arms to hold the ring-seat in place; but the threads in the neck and on the screw-arms would answer this purpose.

To remove the ring-seat where the arms are of the form shown in Figs. 1 and 2, it is only

necessary to remove the cap or bonnet and insert any suitable form of tool, which will engage with the under side of the ring-seat, so as to lift it, and with it the arms *j*, which
 5 can then be pulled out. The ring-seat can then be removed through the neck and can be redressed or replaced by a new ring-seat and the arms reinserted to hold it in place without loss of time and with little or no in-
 10 convenience.

To remove the ring-seat with the screw-arms of Fig. 6, it is only necessary to screw out the arms by means of a suitable screw-driver sufficiently far to permit the removal
 15 of the ring-seat, whereupon it can be replaced or a new one substituted for it, as will be readily understood.

In both of the cases illustrated it is immaterial what form of cap or bonnet is employed,
 20 except that, as in Figs. 1 and 2, it should have a projecting flange to cover and compress the outer ends of the arms *j*, as will be readily understood.

While I have shown but two arms *j* in both
 25 forms of construction, it is evident that any number may be employed, and while I prefer to employ the use of separate ears *g* for each arm, yet they may be dispensed with if the upper flange of the ring-seat is broad enough
 30 to be engaged by the lower ends of the arms. It is also to be observed as a characteristic of my invention that neither the size of the valve-body nor its neck need be in the least increased or enlarged; nor is the opening or
 35 passage-way through the valve in the least restricted, owing to the fact that the arms that hold the ring-seat are at the sides of the valve-chamber and do not in any way obstruct the passage of the contents of the valve,
 40 so that my invention is applicable to the standard sizes of valves now on the market, to which

it can be applied in a very simple and cheap manner.

Having thus fully described my invention, I claim—

1. In valve construction in which the valve moves to and from its seat in constantly-parallel planes, the combination of the body having inlet and outlet openings and an interposed seat-opening, a ring-seat fitted to said
 50 last-named opening, a plurality of arms held in perforations in the neck of the valve and adapted to hold said ring-seat in place, and the valve which engages with the ring-seat, substantially as described. 55

2. In valve construction in which the valve moves to and from its seat in constantly-parallel planes, the combination of the body having inlet and outlet openings and an interposed seat-opening, a ring-seat fitted to said
 60 last-named opening, a plurality of screw-arms engaging threaded perforations in the neck of the valve and adapted to hold said ring-seat in place, and the valve which engages with the ring-seat, substantially as described. 65

3. In valve construction in which the valve moves to and from its seat in constantly-parallel planes, the combination of the body having inlet and outlet openings and an interposed seat-opening, a ring-seat fitted to said
 70 last-named opening and provided with projecting lugs adapted to fit recesses in the edge of the seat-opening, a plurality of arms held in perforations in the neck of the valve with their lower ends engaging said lugs and adapted
 75 to hold said ring-seat in place, and a valve which engages with the ring-seat, substantially as described.

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