

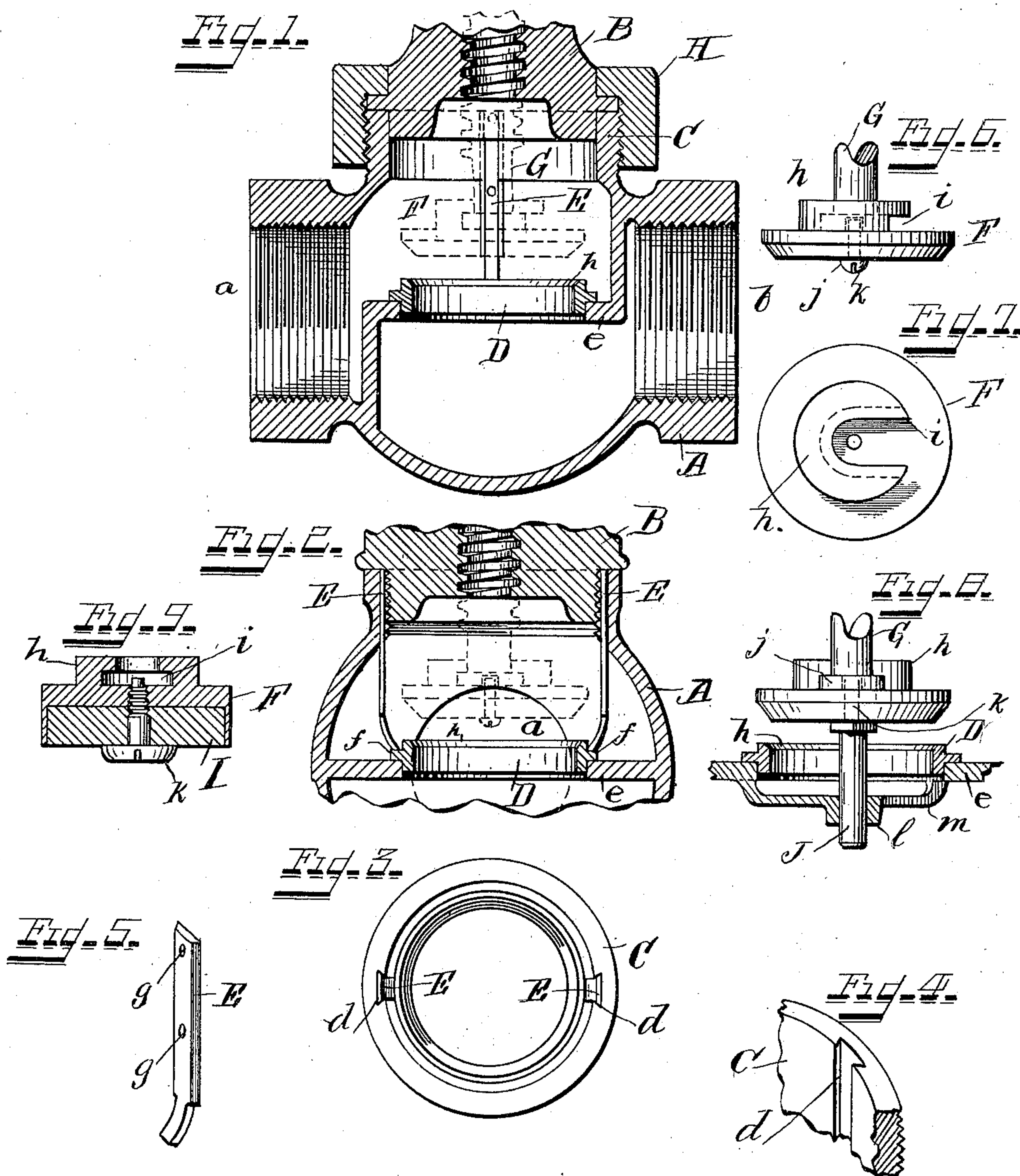
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Patented July 10, 1900.

E. H. LUNKEN.
VALVE.

(Application filed Apr. 13, 1900.)

(No Model.)



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VALVE.

SPECIFICATION forming part of Letters Patent No. 653,302, dated July 10, 1900.

Application filed April 13, 1900. Serial No. 12,771. (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 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-valves, angle-valves, and, in short, all that class of valves having a pipe inlet-opening, a pipe exit-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 one object the provision of a removable and renewable seat with novel means for holding it in place and which seat and means can be readily applied and removed without trouble or loss of time and without disconnecting the valve from its pipe-fittings; and it has for another object the provision of an attachable and detachable valve swiveled and held centrally upon the lower end of the valve-stem, which can be readily detached therefrom for purposes of replacement and which can be readily applied to the stem again, all of which improvements greatly conduce to the efficiency of the valve and prolong 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 side elevation of so much of one form of a globe-valve as is necessary to illustrate my invention. Fig. 2 is a view of the upper part of the valve in central section looking toward the right of Fig. 1, but showing a slight modification in the manner of connecting the bonnet to the body. Fig. 3 is a plan view of the neck of the valve with the cap or bonnet removed. Fig. 4 is a detail perspective of the interior of the upper portion of the neck, showing the dovetailed groove which receives the ring-seat holder. Fig. 5 is a perspective view of one of the ring-seat holders. Fig. 6 is a side elevation

of the valve-disk, showing the lower part of the stem united thereto. Fig. 7 is a plan view of the valve-disk of Fig. 6. Fig. 8 is a side elevation of a modified form of a valve-disk and stem for iron body construction, the ring-seat and spider for guiding the lower part of the stem being shown in section. Fig. 9 is a central sectional side elevation of a modified form of valve-disk provided with an elastic or composition seating portion.

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

In Figs. 1 and 2, A represents the body with opposite pipe-openings *a b* to form inlet and outlet openings for the valve. Within the body between these openings *a b* is the usual diaphragm *e*, having through it a circular opening containing the removable and renewable ring-seat D, with which the valve-disk F, carried upon a stem G, engages to open and close the valve by its upward and downward movements. The upper part of the stem is threaded to pass through a corresponding central aperture in the bonnet or cap B, which is secured to the neck C of the body either by means of a union H, engaging a flange on the bonnet and screwed to the outside of the neck, as seen in Fig. 1, or by means of an exteriorly-threaded hub carried upon the lower part of the bonnet and which screws into the interiorly-threaded neck, as seen in Fig. 2. The upper end of the stem projecting from the bonnet is provided with the usual hand-wheel (not shown) for turning, and thereby raising and lowering, the stem and valve-disk to open or close the valve, as will be readily understood.

Formed in the interior of the neck of the valve, on opposite sides of the neck of the valve, at right angles to the pipe-openings, are two inwardly-dovetailed vertical openings *d*, Fig. 4, which in the case of the construction shown in Fig. 2 are set far enough back so as not to interfere with the threads on the interior of the neck of the valve and the threads on the hub of the bonnet which engage therewith, and into these grooves are slipped two ring-seat-holding arms E, Fig. 5, which are dovetailed to fit the grooves *d* snugly and whose lower ends are inturned and diminished in width, so as to clear the

dovetailed grooves in the insertion of the arms, and which lower ends rest upon a flange *f* upon the ring-seat, while the upper ends of the arms come a trifle above the top of the neck, so that when the bonnet is screwed down into position there may be a slight flexure of the arms to hold the ring-seat securely to its opening in the diaphragm, where it is supported by the flange *f*. One or more openings *g* may be made through the arms *E* to permit the introduction of a hook for withdrawing them from place when it is desired to take out the ring-seat.

To secure the valve-disk to the lower part of its stem, so that it may be swiveled thereon and readily removed for replacement or any other purpose, I provide a boss or projection *h*, Figs. 6, 7, 8, and 9, upon the upper side of the disk *F*, which boss or projection has an undercut opening *i* from one side thereof extending beyond the center of the disk and with its inner end rounded, as seen in Fig. 7. The lower end of the stem *G* has upon it a collar *j*, which slips freely into the undercut portion *i* of the projection *h* of the valve-disk, and a screw *k*, passed centrally up through the bottom of the valve-disk with which its threads engage, has a smooth projection which enters a very slightly enlarged bore in the center of the collar *j*, thus holding the disk firmly to the stem and at the same time permitting it to swivel or turn thereon. The top of the cut-out portion *i* is of just sufficient size to snugly fit the valve-stem, so that there can be no wobbling of the disk on the stem. In Fig. 9 I have shown the disk *F* as having an opening on its under side extending as nearly as possible to its periphery, in which is fitted an elastic or composition seat *I*, held in place by the same screw *k* that serves to center and hold the valve-disk to its stem.

In Fig. 8, which represents larger valves constructed with iron bodies, I have provided the screw *k* with a pendent stem *J*, which extends down through a central bore *l* in a spider *m* upon the underside of the diaphragm *e*, which spider may be either secured to the diaphragm in any suitable manner or be integral with it or be integral with the ring-seat

D. By this manner of uniting the disk to the lower part of the stem the disk may be at any time quickly detached from the stem to permit it to be replaced by a new disk.

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 last-named opening, a pair of independently insertible and removable seat-holding arms having dovetailed edges and fitted into dovetailed recesses on opposite sides of the neck of the valve and whose lower ends bear upon the ring-seat, and the valve which engages with the ring-seat, substantially as described.

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 last-named opening, a pair of independently insertible and removable seat-holding arms with dovetailed edges confined in dovetailed recesses within the interiorly-threaded neck of the valve, said recesses being sufficiently deep so that when the arms are inserted they are beyond the inner ends of the threads so as not to interfere with the same, and the lower ends of which arms bear upon the ring-seat, and a valve-stem provided on its lower end with a valve-disk cooperating with the seat of the valve to open and close the same, substantially as described.

3. As a new article of manufacture, a holder for removable ring-seats of valves, consisting of an arm with dovetailed edges adapted to engage dovetailed recesses in the neck of the valve and whose lower ends are adapted to engage the ring-seat, said arms being of sufficient length so that when inserted to hold the ring-seat in place their upper ends are pressed down by the securing of the bonnet to the valve, substantially as described.

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