

No. 710,986.

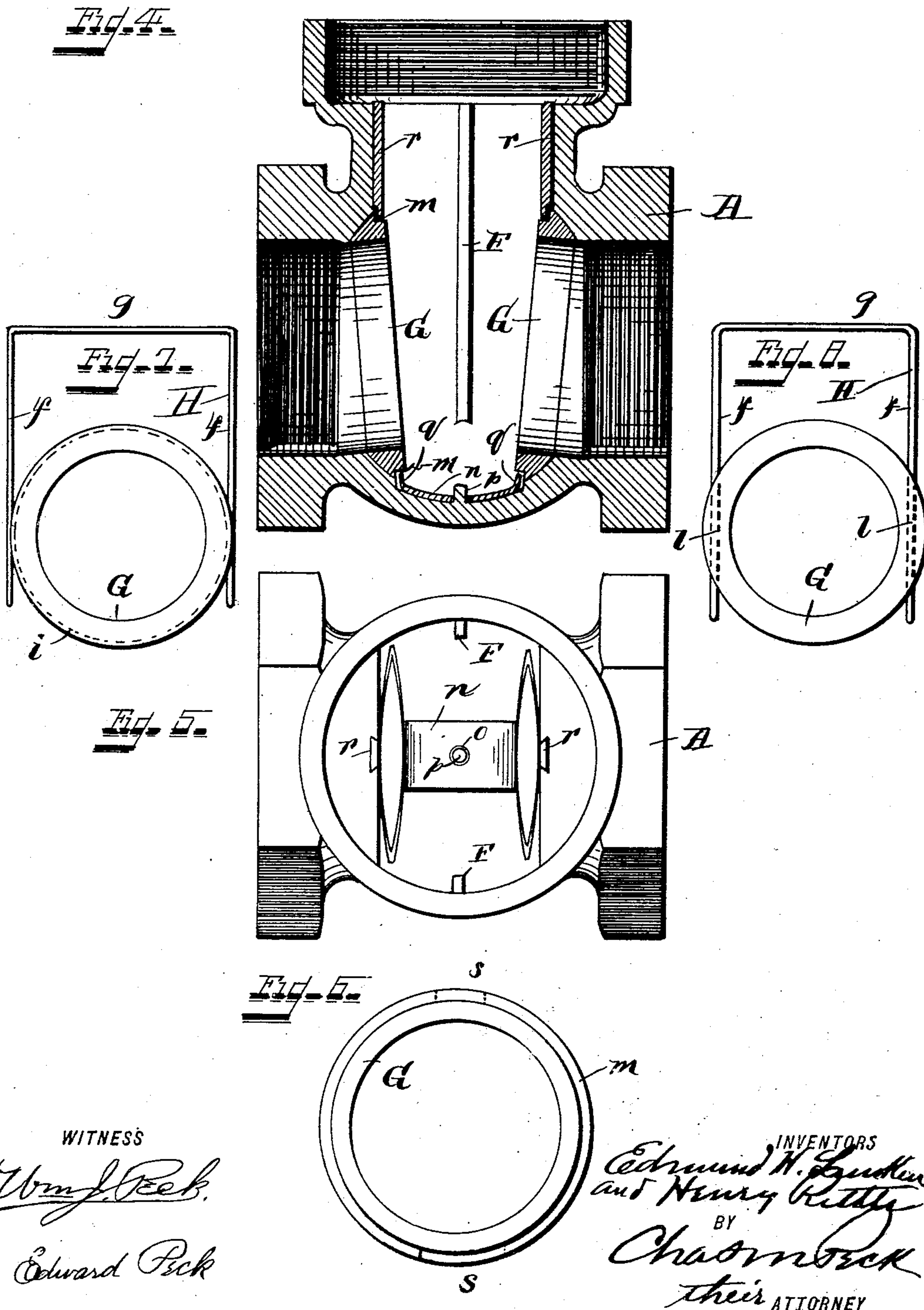
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E. H. LUNKEN & H. RITTER.
GATE VALVE.

(Application filed Dec. 8, 1899.)

(No Model.)

2 Sheets—Sheet 2.



WITNESS

Wm. J. Peck

Edward Peck

INVENTORS

*Edmund H. Lunken
and Henry Ritter*

BY

Chas. M. Peck
their ATTORNEY

UNITED STATES PATENT OFFICE.

EDMUND H. LUNKEN, OF DENVER, COLORADO, AND HENRY RITTER, OF DELHI, OHIO, ASSIGNORS TO THE LUNKENHEIMER COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

GATE-VALVE.

SPECIFICATION forming part of Letters Patent No. 710,986, dated October 14, 1902.

Application filed December 6, 1899. Serial No. 739,458. (No model.)

To all whom it may concern:

Be it known that we, EDMUND H. LUNKEN, residing at Denver, Arapahoe county, Colorado, and HENRY RITTER, residing at Delhi, Hamilton county, Ohio, citizens of the United States, have invented certain new and useful Improvements in Gate-Valves, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to that class of gate or straightway valves employing adjustable and renewable seats; and it has for its object the improved construction of such valves whereby their simplicity of construction, efficiency of action, and length of service are increased.

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

In the accompanying drawings, Figure 1, Sheet 1, is a central sectional side elevation of a valve on the axial plane of its pipe-openings and embodying our invention. Fig. 2, Sheet 1, is a perspective view of one of the removable seats for said valve. Fig. 3, Sheet 1, is a perspective view of the removable fork-holder for the removable seat-ring represented in Fig. 2. Fig. 4, Sheet 2, is a central sectional side elevation of the body of a valve containing our invention in modified form. Fig. 5, Sheet 2, is a plan view of Fig. 4. Fig. 6, Sheet 2, is an inside elevation of one of the ring-seats of the valve of Figs. 4 and 5. Fig. 7, Sheet 2, is an elevation of one of the ring-seats and its retaining-fork of the valve of Fig. 1. Fig. 8, Sheet 2, is a view corresponding to Fig. 7, but with a modification in the construction of the ring-seat.

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

The body A of the valve, its detachable bonnet B, screw-stem C, stuffing-box D, and tapered disk-valve E, guided on ribs F in the body, are all of the usual or any suitable construction and need no further description except in the particulars to be hereinafter pointed out.

Referring now to Figs. 1, 2, 3, and 7, *ab* are the pipe-openings of the body of the valve, having on their interior ends within the body

tapered seats *c*, which in cross-section are beveled or rounded, as shown, to receive the correspondingly beveled or rounded sides *d* of the removable ring-seats G of Fig. 2, whose inner faces are flat, as seen at *e*, Fig. 1, to receive the flat faces of the valve-disk E, which when screwed down to close the valve bear evenly against the faces *e*, which owing to their rounded or beveled sockets are thus enabled to conform evenly and snugly at all points with the surfaces of the valve-disk E. To hold these ring-seats in place when the valve is open, we provide wire forks H, Fig. 3, having two pendent lower ends *f* and an upper connecting curved loop *g*. Before the bonnet is attached to the body and after the ring-seats have been slipped into place in their sockets the pendent ends *f* of the forks H are slipped down through perforations *h* in the body and embrace, or rather fit into, circumferential grooves *i* in the ring-seats G, as seen in Figs. 1 and 7, while the upper looped ends of the forks occupy recesses *j* in the neck of the body and are held down in place by the lower threaded end of the bonnet B, which is screwed down upon them.

The above construction, it will be observed, permits the ring-seats to turn freely on their axes in their sockets, so as to form what are known as "regrinding-seats" in connection with the valve-disk, while at the same time they are held securely in place, though should it be desired at any time to remove an old and worn seat and substitute for it a new one it is only necessary to unscrew the bonnet from the body and lift out the valve-disk, which is attached to the bonnet, whereupon either fork H can be pulled out, thereby freeing the ring-seat, which is pushed into the valve-body recess and is lifted out through the neck. A new ring-seat can then be inserted in place of the old one, the fork H be reinserted to engage it, and the bonnet screwed back to its place all in a very short space of time and with little or no trouble.

The configuration of the socket and that side of the ring-seat which engages the same is optional with the constructor, though we prefer that it should be beveled or rounded to form a joint in the nature of a ball-and-

socket joint, which will permit the tilting of the ring-seat to bring its flattened engaging side always in perfect and close contact with the side of the valve-disk to form a tight joint. Where it is not desired that the ring-seat should be free to turn on its axis, it may have perforations *l* through its edges for the passage of the fork-rods *f* in place of the circumferential groove *i*, as seen in Fig. 8.

10 In Figs. 4, 5, and 6 we have shown a modified form of means for holding the ring-seats in place, which may be described as follows: The ring-seats instead of having a circumferential groove *i* or perforations *l* may have their inner sides rabbeted, as at *m*, to be engaged at the bottom by a strap or yoke-piece *n*, dropped into the bottom of the valve-body, and having a central perforation *o* fitting over a teat or projection on the bottom of the body to hold it in place and with upturned ends *q* to fit the rabbeted portion of the ring-seat. The ring-seats are held at their upper ends by straight dovetailed pieces slipped down through dovetailed slides in the body of the valve and whose lower ends engage the upper rabbeted portions of the seats, thus holding them securely in place at top and bottom instead of on the side, as before described, and should it not be desirable that the rings be left free to turn for regrinding purposes recesses *s* (represented by the dotted lines in Fig. 6) may be formed in their inner edges at the top and bottom to receive the lower ends of the pieces *r* and the upturned ends of the piece *n*.

35 Having thus fully described our invention, we claim—

1. In a gate-valve, the combination of a valve-body having a passage therethrough, a socket in said passage, a ring-seat having one side fitted to enter and conform to said socket and the other side formed to engage the valve-disk, the valve-disk with operating mechanism therefor in said body, and a holder composed of two arms connected at their upper

ends and straddling and engaging the ring-seat and confined in recesses in the valve-body, substantially as described.

2. In a gate-valve, the combination of a valve-body having a passage therethrough, a socket in said passage, a ring-seat having one side fitted to enter and conform to said socket and the other side formed to engage the valve-disk, the valve-disk with operating mechanism therefor in said body, and a holder composed of two arms connected at their upper ends and straddling and engaging grooves in the ring-seat, substantially as described.

3. In a gate-valve, the combination of a valve-body having a passage therethrough, a socket in said passage, a ring-seat having one side fitted to enter and conform to said socket and the other side formed to engage the valve-disk, the valve-disk with operating mechanism therefor in said body, and a holder composed of two arms connected at their upper ends and straddling and engaging a circumferential groove in the periphery of the ring-seat, substantially as described.

4. In a gate-valve, the combination of a valve-body having a passage therethrough, a socket in said passage, a ring-seat having one side fitted to enter and conform to said socket and the other side formed to engage the valve-disk, the valve-disk with operating mechanism therefor in said body, and a holder for the ring-seat composed of two arms confined in recesses in the valve-body and engaging a circumferential groove in the periphery of the ring-seat, said arms being connected at their upper ends by an integral bow-shaped portion adapted to be clamped in the neck of the body and confined in place by the bonnet of the valve, substantially as described.

EDMUND H. LUNKEN.
HENRY RITTER.

Witnesses:

EDWARD PECK,
CLAUDE PROEUMIAR.