

R. S. GILLESPIE.
Stop-Valves.

No. 153,561.

Patented July 28, 1874.

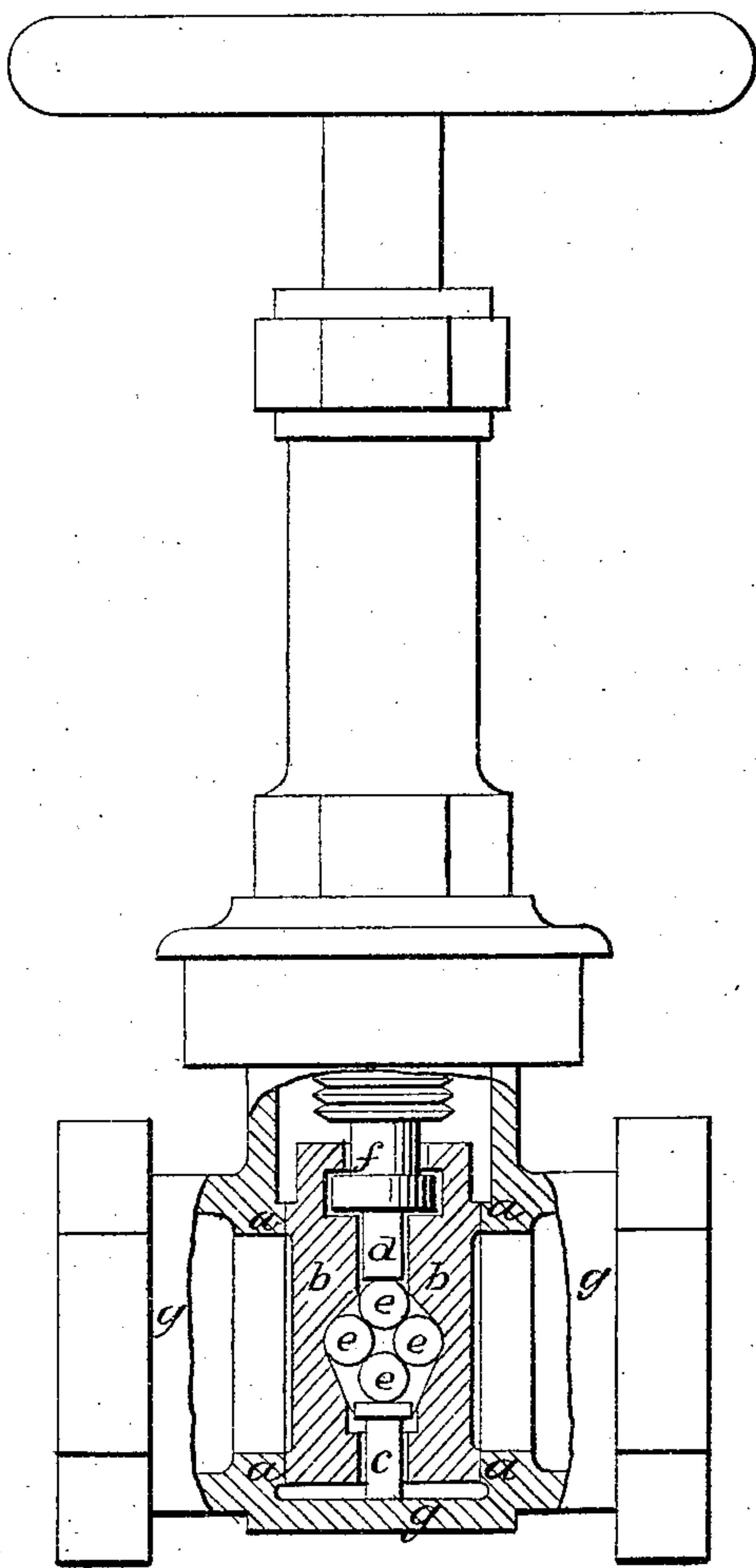


Fig 1

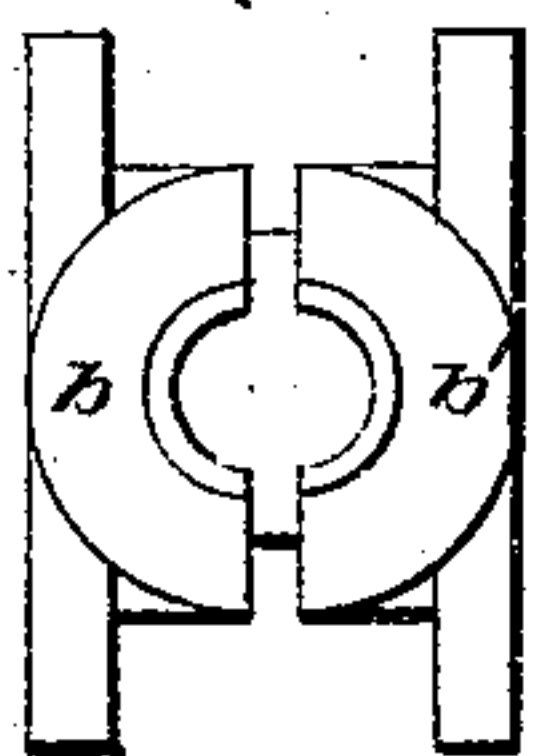


Fig 3

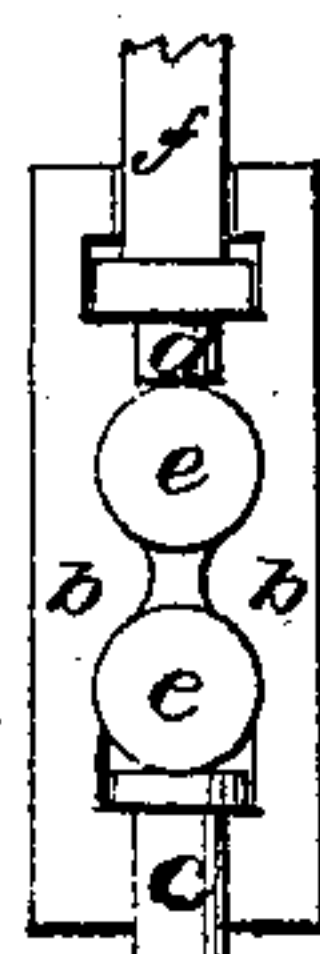


Fig 4

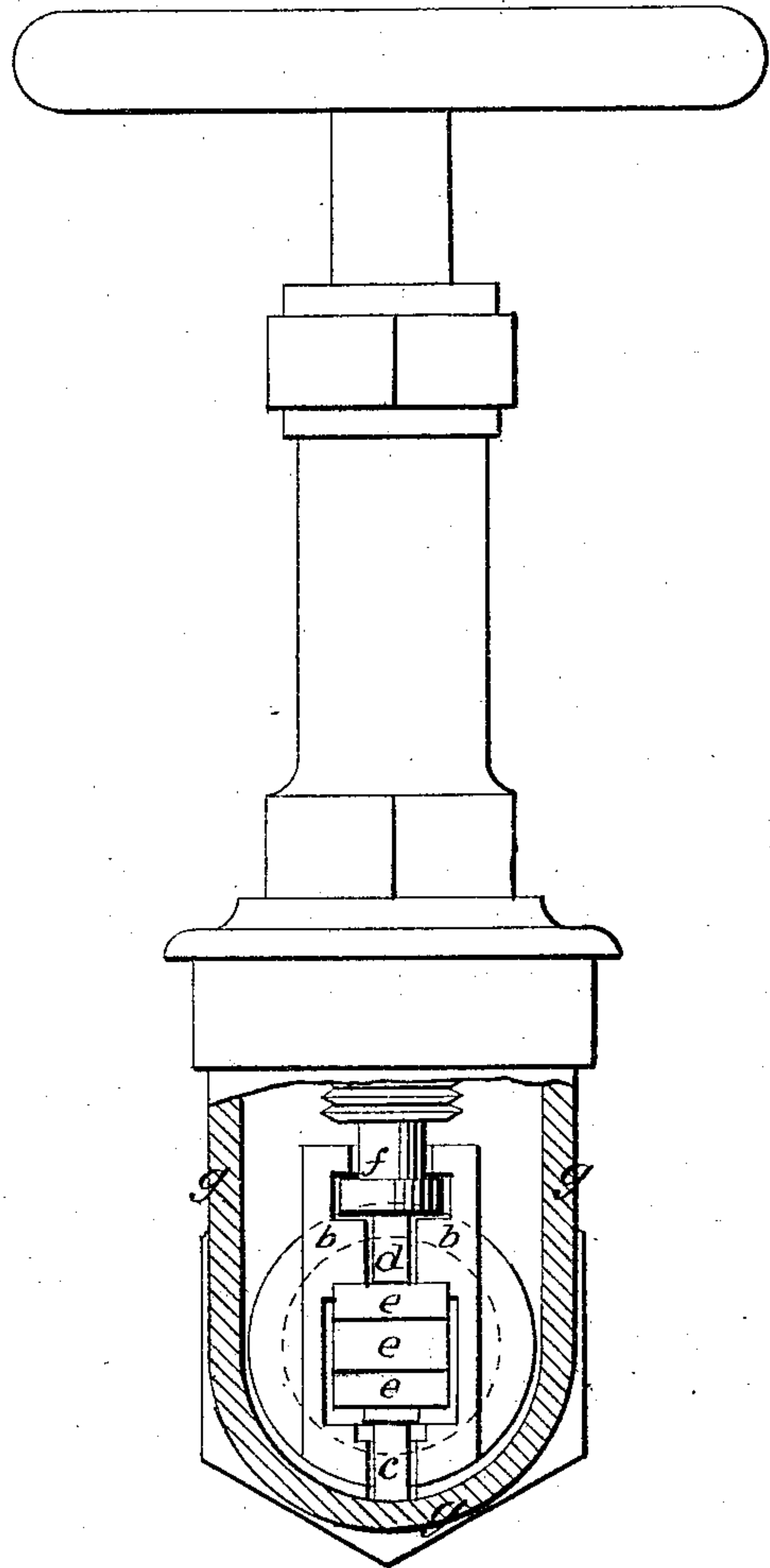


Fig 2

Witnesses.

Henry W. Stucke

Wm. L. Nathan

Inventor.

Richd S. Gillespie

UNITED STATES PATENT OFFICE.

RICHARD S. GILLESPIE, OF NEW YORK, N. Y.

IMPROVEMENT IN STOP-VALVES.

Specification forming part of Letters Patent No. **153,561**, dated July 28, 1874; application filed June 6, 1874.

To all whom it may concern:

Be it known that I, RICHARD S. GILLESPIE, of New York city, in the county and State of New York, have invented a new and useful Improvement in Stop-Valves, of which the following is a specification:

Figure 1 is a side view, partly in section, of a valve to which my improvement has been applied. Fig. 2 is a cross-section of the same. Fig. 3 is a plan of the valve. Fig. 4 shows a modification of the improvement.

Similar letters of reference indicate corresponding parts.

In double-seated valves, as usually constructed, the seats are wedge-shaped, and the faces of the valve are forced against the seats by a stationary cone at the bottom of the valve-case; or the two parts of the valve hanging from a central stem are forced, by a downward movement of said stem, into contact with the wedge-shaped seats.

By the first arrangement—that is to say, by the use of the cone—the lower ends of the faces of the valve are brought into contact with the valve-seats; but the upper ends of said faces are not brought into contact with said seats with certainty. In fact, it has been more practical to depend upon wedge-seats and omit the cone entirely, which cone cannot be used with any certainty of tight joints, except with wedge-seats, so that wedge-seated valves are, in fact, the only practical double-seated valves in practical use.

My invention is an improvement upon double-seated valves, some of which are provided with a headed pin or spreader and two disks by the introduction of rollers that may act on the principle of a toggle-joint, as hereinafter described.

g is the valve-case. *a* are the valve-seats. *b* are the two parts of the valve, in the inner side of the upper ends of which are formed semicircular grooves to receive a circular flange formed upon the lower end of the valve-stem *f*. In the inner sides of the parts *b* of the valve are formed semicircular or wedge-shaped recesses, in and between which are

placed four small rollers or cylinders, *e*. Between the upper ends of the parts *b* of the valve is placed a loose pin, *d*, the lower end of which rests upon the upper roller *e*, and its upper end projects so as to be struck by the lower end of the valve-stem *f* when the valve has been forced down. Between the lower ends of the ports *b* of the valve is placed a loose pin, *c*, upon the upper end of which rests the lower roller *e*, and its lower end projects so as to strike the bottom of the case *g* when the valve is forced down. The pin *c* is kept from dropping out by a flange formed upon its upper end.

By this construction, when the valve is forced down, the pin *c* strikes the bottom of the case *g* and forces the pin *d* up against the lower end of the valve-stem *f*. As the valve-stem *f* moves farther down, the pins *c d* are forced inward against the outer rollers *e*, which force the middle rollers *e* outward, forcing the faces of the valve against the valve-seats. The rollers *e* thus operate as a double toggle-joint, pressing outward in lines at right angles with the valve stem.

In raising or opening the valve, the first movement of the valve-stem removes the pressure of the pins *d c* from the rollers *e*, the pressure of the rollers *e* from the parts *b* of the valve, and the pressure of the valve-faces from the valve-seats, so that the valve can be raised without any friction between its faces and seats.

In the modification shown in Fig. 4 only two rollers are used, which will produce the same effect, but in a less perfect and reliable manner.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The rollers *e*, combined in the described valve and valve-seat *a b*, with stem *f* and pins *c d*, as and for the purpose specified.

RICHARD S. GILLESPIE.

Witnesses:

PETER P. KELLER,
C. W. LABAGH.