

(No Model.)

R. N. PRATT.
GATE VALVE.

No. 477,608.

Patented June 21, 1892.

Fig. 1

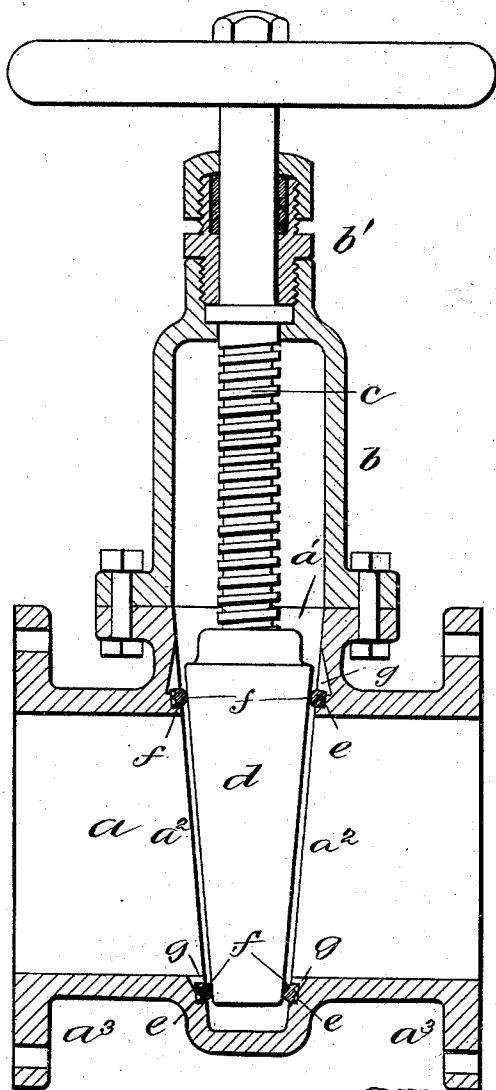


Fig. 3

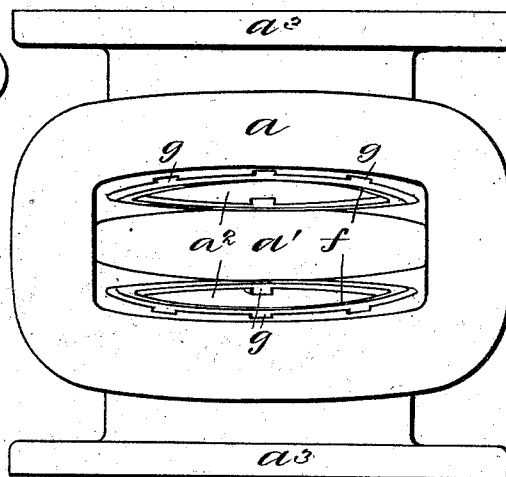
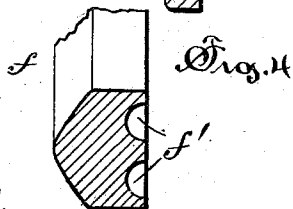
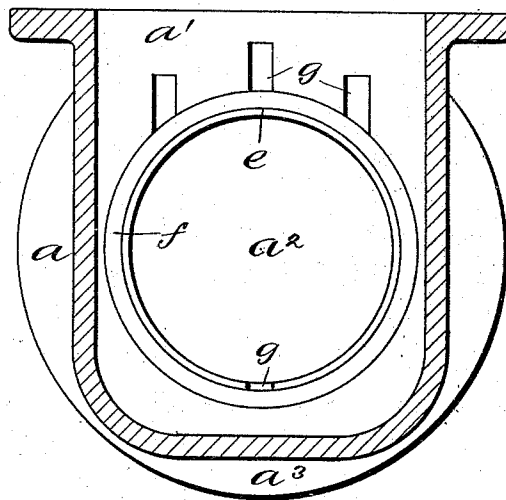


Fig. 2



Witnesses:
John H. Healy
G. F. Jenkins.

Inventor,
Rufus N. Pratt, by
Harry R. Williams
att'y.

UNITED STATES PATENT OFFICE.

RUFUS N. PRATT, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE PRATT
& CADY COMPANY, OF SAME PLACE.

GATE-VALVE.

SPECIFICATION forming part of Letters Patent No. 477,608, dated June 21, 1892.

Application filed August 3, 1891. Serial No. 401,463. (No model.)

To all whom it may concern:

Be it known that I, RUFUS N. PRATT, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Gate-Valves, of which the following is a full, clear, and exact specification.

The invention relates to the class of straight-way gate-valves having renewable seats; and the object of the invention is to provide a valve of this class which shall be cheap in construction and have the best form of cheap and durable seats, which can be readily placed in position or removed therefrom when they become so worn that the valve leaks, which seats are interchangeable and occupy but little space, so that a number can be kept on hand in order that the valve may be repaired or renewed at a slight expense without being removed from its connections.

Referring to the accompanying drawings, Figure 1 is a longitudinal vertical section of the valve. Fig. 2 is a transverse vertical section of the body. Fig. 3 is a plan of the body, and Fig. 4 is a detail enlarged section of one of the seats.

In the views the letter *a* indicates the body of the valve, which is cast to shape of any suitable metal, with a vertical oblong gate-chamber *a'*, from which ports *a²* open to the ends of the body that are threaded or provided with flanges *a³* for attachment to the pipes or mains of the system in which the valve is to be located when in use. A bonnet *b*, secured to the top of the body by bolts or screws, supports in a suitably-packed gland *b'* a threaded spindle *c*, that raises or lowers a gate *d* of any common construction. In the interior walls of the gate-chamber, around each port and concentric therewith, a channel or groove *e* is formed, preferably by inserting a cutting or boring tool into the interior through the ports. Rings or annular seats *f*, slightly thicker than the depth of the grooves, so they will project beyond the metal, are loosely placed in the grooves *e*. These seats are formed

of a composition of india-rubber gum and asbestos fiber vulcanized and solidified under heat and pressure, the peculiar nature of this composition being that when the valve is in use for steam or water the seats will soften slightly and become more elastic, making a closer fit against the gate. They will also absorb moisture and swell so as to stick fast into the groove and not drop out when the gate is raised; but when not in use they will harden and contract, so as to be easily removed from the grooves. The front faces of the seats are preferably made rounding or a little wedge-shaped, so that a narrower bearing-surface is provided, against which the gate has to force in closing, the gate making a closer fit against the narrow surface, and the narrow edge, being more elastic, lengthens the life of the seat. To make the seats more elastic and more easily compressible, grooves *f'* may be made in the back face of the ring, as shown.

Openings *g* are made in the walls of the wedge-chamber into the grooves *e* back of the seats to enable the edge of a tool to be inserted behind the seats to assist in their removal. The packings at first fit loosely in the grooves in the gate-chamber; but when in use they swell and tightly fit and hold in the grooves.

With the construction described a straight-way gate-valve having a round water-way is cheaply produced and provided with seats which are durable, efficient, and simple to insert or remove when they become worn.

I claim as my invention—

A straight-way gate-valve consisting of a body, a bonnet secured thereto and bearing a spindle supporting a gate, said body being provided with annular grooves surrounding the ports, mortises opening to the back of the grooves from the interior of the gate-chamber, and annular seats loosely placed in the grooves, substantially as specified.

RUFUS N. PRATT.

Witnesses:

ARTHUR H. BRONSON,
HARRY R. WILLIAMS.