

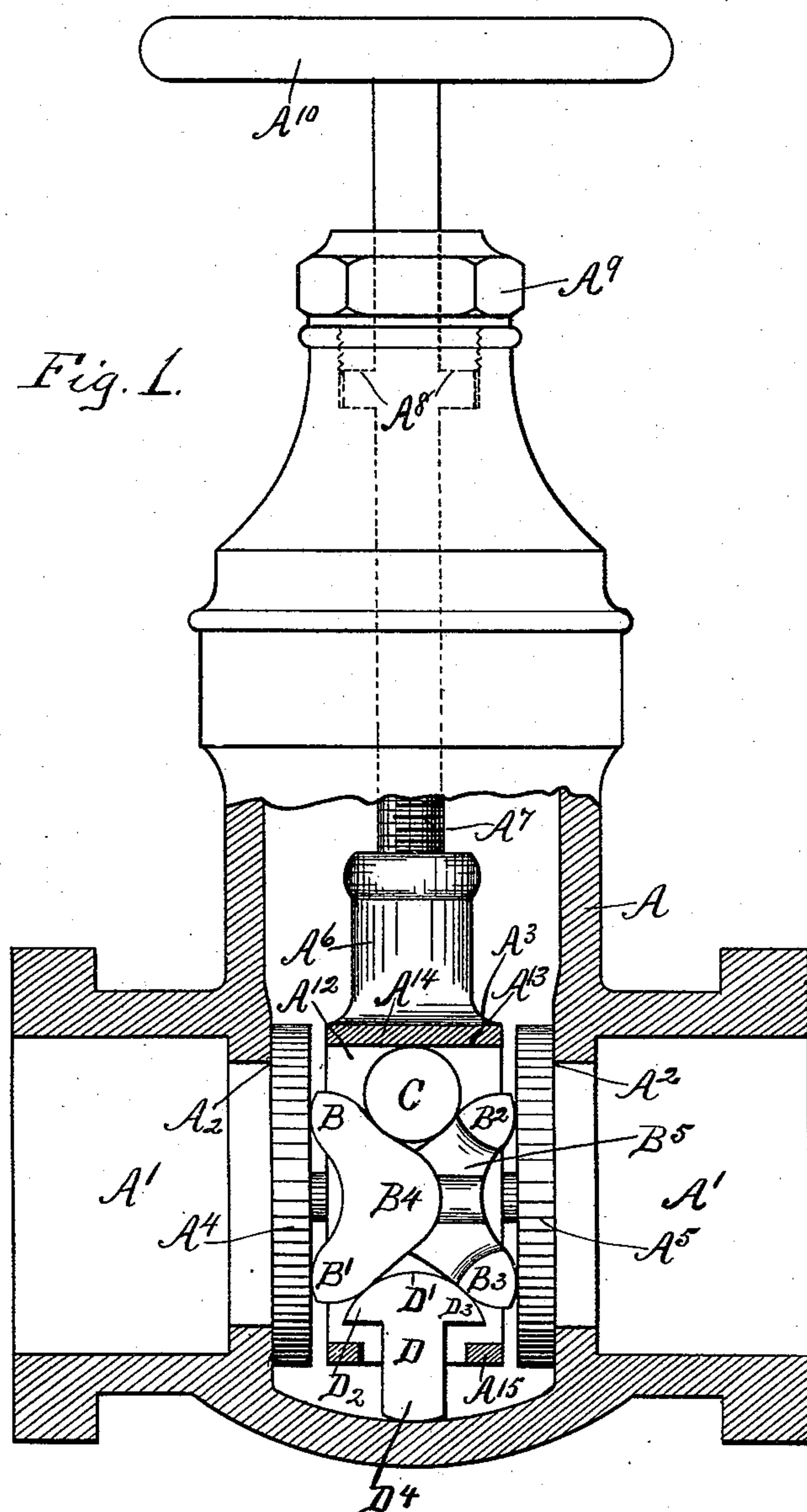
(No Model.)

2 Sheets—Sheet 1.

W. ROSS.
SLIDE GATE VALVE.

No. 539,922.

Patented May 28, 1895.



Witnesses:
Frank C. Curtis
A. Delaney

Inventor:
William Ross
by Geo. Amosher
att'y

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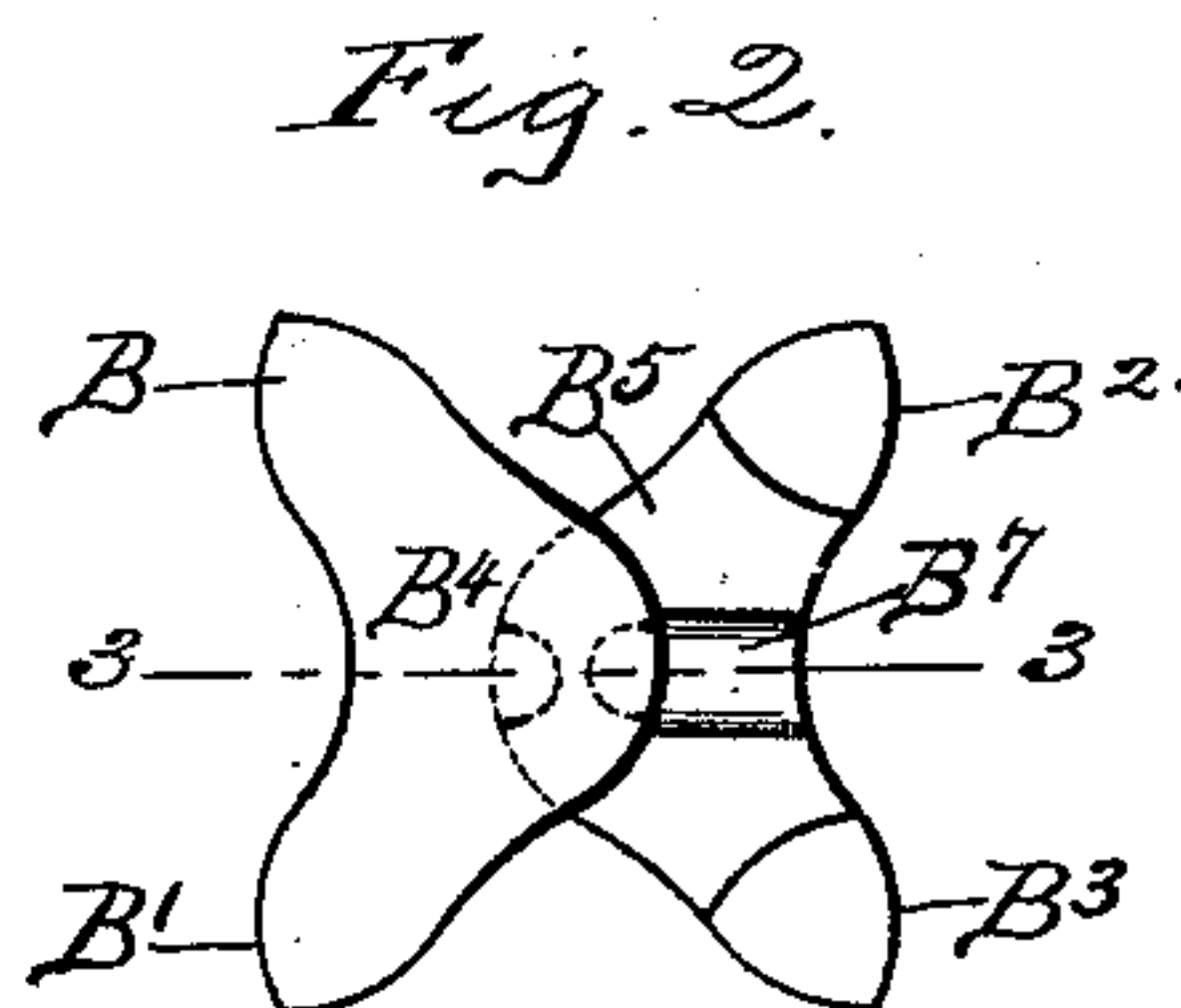
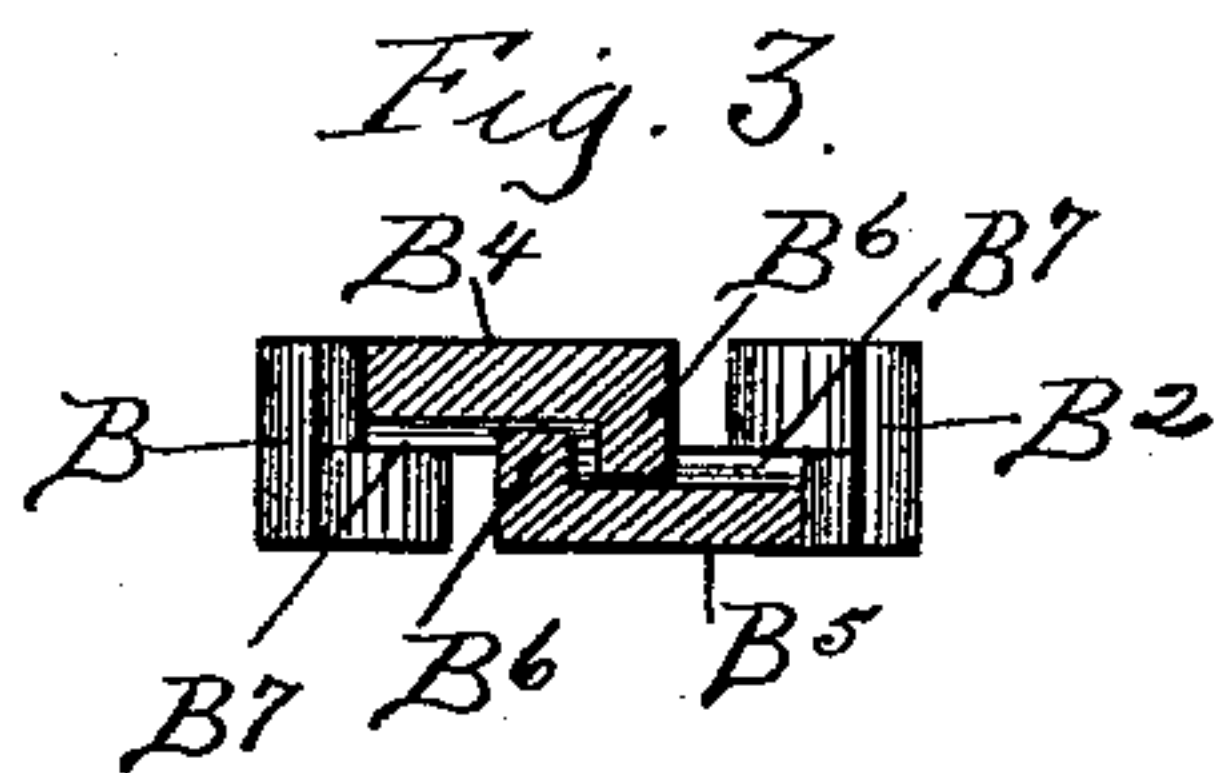


Fig. 5.



Fig. 6.

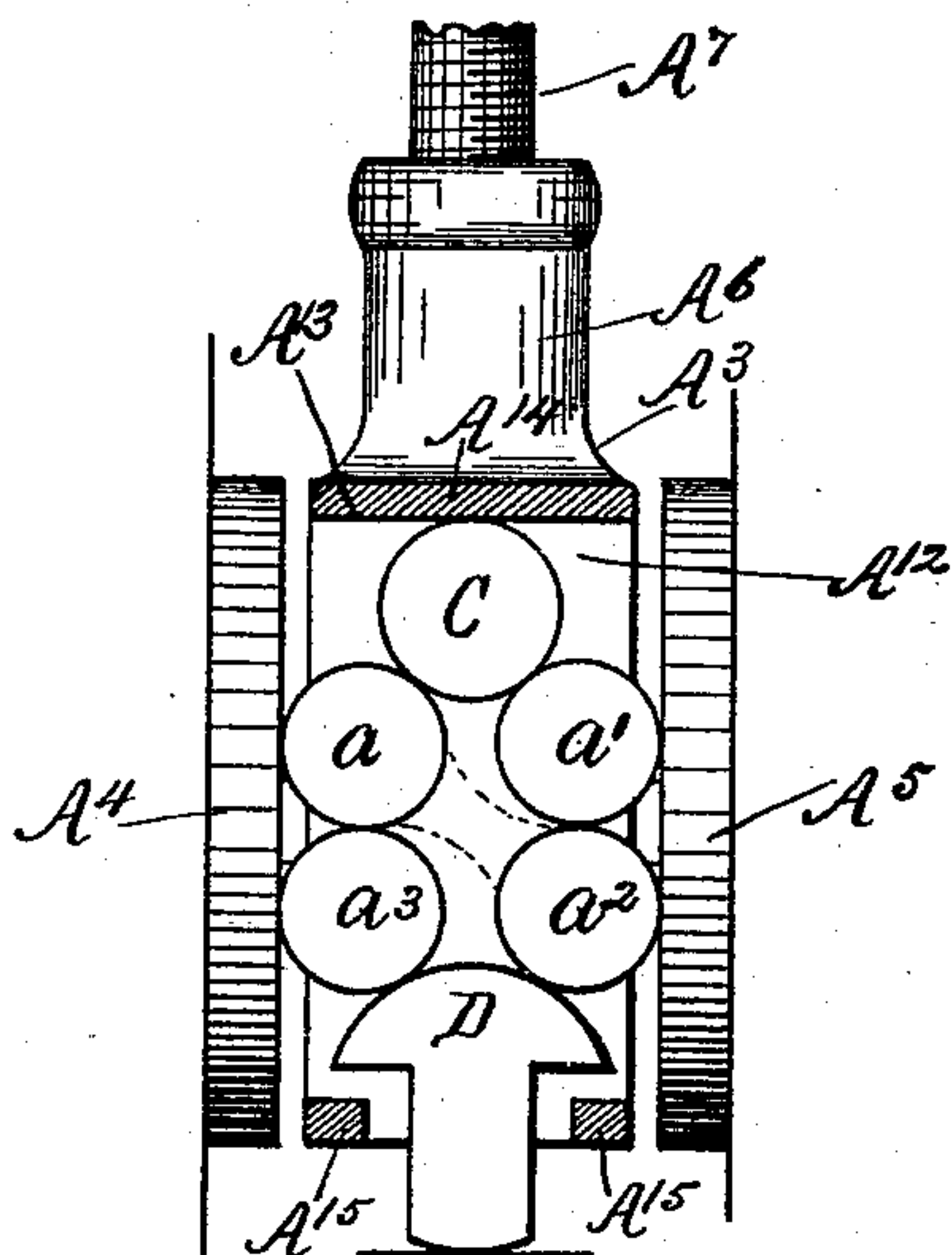
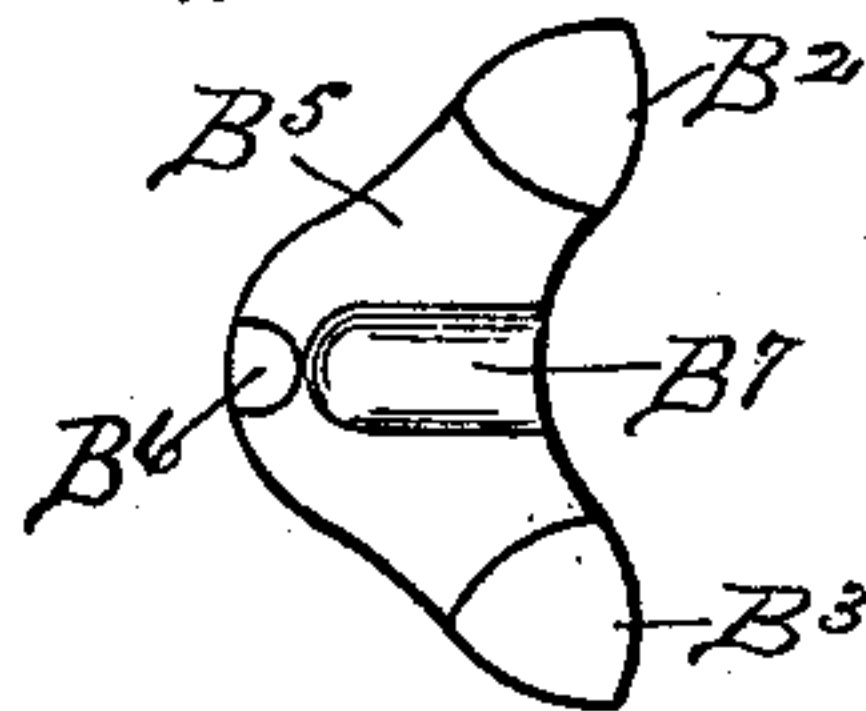


Fig. 4.



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Frank C. Curtis
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UNITED STATES PATENT OFFICE.

WILLIAM ROSS, OF TROY, NEW YORK, ASSIGNOR TO THE TROY VALVE COMPANY, OF SAME PLACE.

SLIDE GATE-VALVE.

SPECIFICATION forming part of Letters Patent No. 539,922, dated May 28, 1895.

Application filed September 15, 1892. Serial No. 445,945. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM ROSS, a citizen of the United States, residing at Troy, county of Rensselaer, and State of New York, have invented certain new and useful Improvements in Slide Gate-Valves, of which the following is a specification.

My invention relates to such improvements and consists of the novel construction and combination of parts hereinafter described and subsequently claimed.

Reference may be had to the accompanying drawings and the letters of reference marked thereon, which form a part of this specification.

Similar letters refer to similar parts in the several figures.

Figure 1 of the drawings is a view of my improved valve, partly in elevation and partly in section. Fig. 2 is a view in elevation of two pairs of interlocking bearing-blocks detached. Fig. 3 is a horizontal section of same, taken on the broken line 3 3 in Fig. 2. Fig. 4 is a view in elevation of one of the interlocking pairs detached. Fig. 5 is a top plan view of the mobile block detached. Fig. 6 is a view partly in elevation and partly in section, showing a modified form of bearing-blocks.

My invention which forms the subject of this application, is an improvement upon the valve shown and described in United States Letters Patent No. 442,458, dated December 9, 1890, to which patent reference may be had. When the valve is made as shown in said patent, with the mobile block interposed between the four bearing-blocks, and a wedge-shaped abutment fixed upon the carrier to engage and actuate one pair of the blocks, if one of the gates is kept from its seat by an interposed stone or other obstruction, the gate-carrier would be forced over toward the opposite side of the valve-case to seat the other gate, thereby causing a lateral movement of the carrier which might bend the carrier-stem or cause so much binding friction between it and the case as to render it difficult to turn the stem sufficiently to fully seat the gate; and, when one pair of blocks is engaged by a plane-faced abutment, an obstruction which caused one gate to tip more than the other

would in practice cause an unequal strain upon the carrier, the blocks bearing more heavily upon one side of the carrier than upon the other side, thereby tending to produce a binding friction between it and the main stem. By interposing the mobile block between a single pair of the four bearing-blocks and a runway for the mobile block on the carrier, the nest of blocks can be moved laterally of the carrier, and the position of the blocks relatively to the carrier and to each other can be varied to seat one of the gates independently of the position of the other gate, and without imparting any lateral movement or strain to the carrier.

Referring to the drawings, A— is the valve-case of the usual form provided with the straight water-way, A'—, and the gate-seats, A²—.

A³ is the carrier which carries the gates, A⁴— and A⁵— and the nest of blocks. The carrier is provided with a screw threaded nut, A⁶— adapted to receive the screw-threaded portion, A⁷— of the stem. The stem is provided with a collar shown by dotted lines, A⁸—, which collar bears upon the top of the case and the cap, A⁹—, to prevent a longitudinal movement of the stem, and allow rotary movement. The rotary movement is imparted by the handle, A¹⁰— fixed on the exteriorly projecting end of the stem. Rotary movements of the stem impart vertically reciprocating movements to the carrier to slide the gates to and from a position in front of their respective seats, in a well known manner, and as described in said Patent No. 442,458.

B— and B'— are the bearing blocks which bear upon the back of gate, A⁴—, to seat it; and B³— and B²— are the bearing blocks which seat the gate, A⁵—. I prefer to connect the bearing-blocks in pairs, and have shown as a preferred form the blocks, B—, B'— connected by a plate, B⁴—, and the blocks, B²—, B³— connected together by a similar plate, B⁵—. These plates are each provided with an offsetting lug, B⁶— adapted to interlock, as shown in Fig. 3, and hold the blocks within the block-chamber, A¹²—, in the carrier. The blocks fit loosely in the chamber and are freely movable to and from each other to

adapt their position to the position of the gates. The lug on one plate is adapted to move freely in the slideway or groove, B⁷— in the other plate.

5 C— is the mobile block which I have shown in the form of a cylindrical roll. This block is located between the bearing-blocks, B— and B²— on one side, and the runway, A¹³— on the opposite side. The runway shown is
10 a plane surface on the inner side of the wall, A¹⁴— of the carrier.

D— is the seating plunger consisting of a loose block interposed between the lower case wall and the bearing-blocks B¹— and B³—. 15 The lower end which engages the case may be of any desired form and the upper end is preferably provided with a rounded surface, D¹— and with projecting pieces, D²— and D³— adapted to engage with the carrier wall, A¹⁵—
20 and support the upper end of the plunger within the chamber, A¹²—, the stem, D⁴— hanging loosely in the opening in wall, A¹⁵—.

To seat the gates, the carrier-stem is rotated in a direction to force the carrier down- 25 ward until, the seating plunger striking the bottom of the valve-case, and the mobile block bearing upon the carrier wall which forms its runway, the seating blocks are forced outward by the plunger and mobile
30 block sufficiently to force the gates tightly against their seats. Should some obstacle become interposed between one of the gates and its seat sufficient to prevent an appreciable outward movement of the seating-blocks con- 35 tiguous to that gate, the free movement of the other blocks toward the other gate is not interfered with, and the partly open gate affords a resisting medium for its seating-blocks, and the mobile block rolls along its runway,
40 A¹³— and along the stationary seating-block to follow the movable seating-block and tightly seat the unobstructed gate without any lateral movement or strain upon the carrier or carrier-stem. The seating-plunger
45 while in use, bears upon the valve-case without connection with the carrier, and its oscillatory movement in following up a moving bearing-block does not affect the carrier or

carrier-stem. I am thus able to provide a simple gate-seating mechanism for slide-gate 50 valves which can be operated without communicating to the main stem any lateral or side strain, thereby lessening the wear upon the valve and increasing its efficiency by diminishing the resistance to the force neces- 55 sary to its operation.

I do not wish to be limited to any exact form for the mobile block, or means for securing it in place upon the carrier. Its movement relatively to the carrier may be rolling, 60 sliding or oscillatory.

The carrier may have a single or a double chamber for one or two nests of seating-blocks.

In Fig. 6, I have shown the bearing-blocks, a—, a¹—, a²—, and a³— divested of any rigid 65 connection between them, one block simply resting upon another.

When desired, the bearing blocks may be connected diagonally, as for example, a¹— with a²—, as indicated by the dotted lines. 70

What I claim as new, and desire to secure by Letters Patent, is—

1. In a slide-gate valve, the combination with the carrier and two pairs of bearing-blocks interposed between a valve gate and 75 a resisting medium; of a mobile block interposed between two of the bearing-blocks and the carrier; a runway on the carrier for the mobile block and a seating-plunger interposed between the other two bearing-blocks 80 and the valve-case, substantially as described.

2. In a slide-gate valve, the combination with the carrier and four bearing-blocks interlockably connected in pairs and interposed 85 between a valve-gate and a resisting medium; of a mobile block interposed between two of the bearing-blocks and the carrier; and a seating-plunger interposed between the other two bearing-blocks and the valve-case, sub- 90 stantially as described.

In testimony whereof I have hereunto set my hand this 6th day of September, 1892.

WILLIAM ROSS.

Witnesses:

GEO. A. MOSHER,
FRANK C. CURTIS.