

(No Model.)

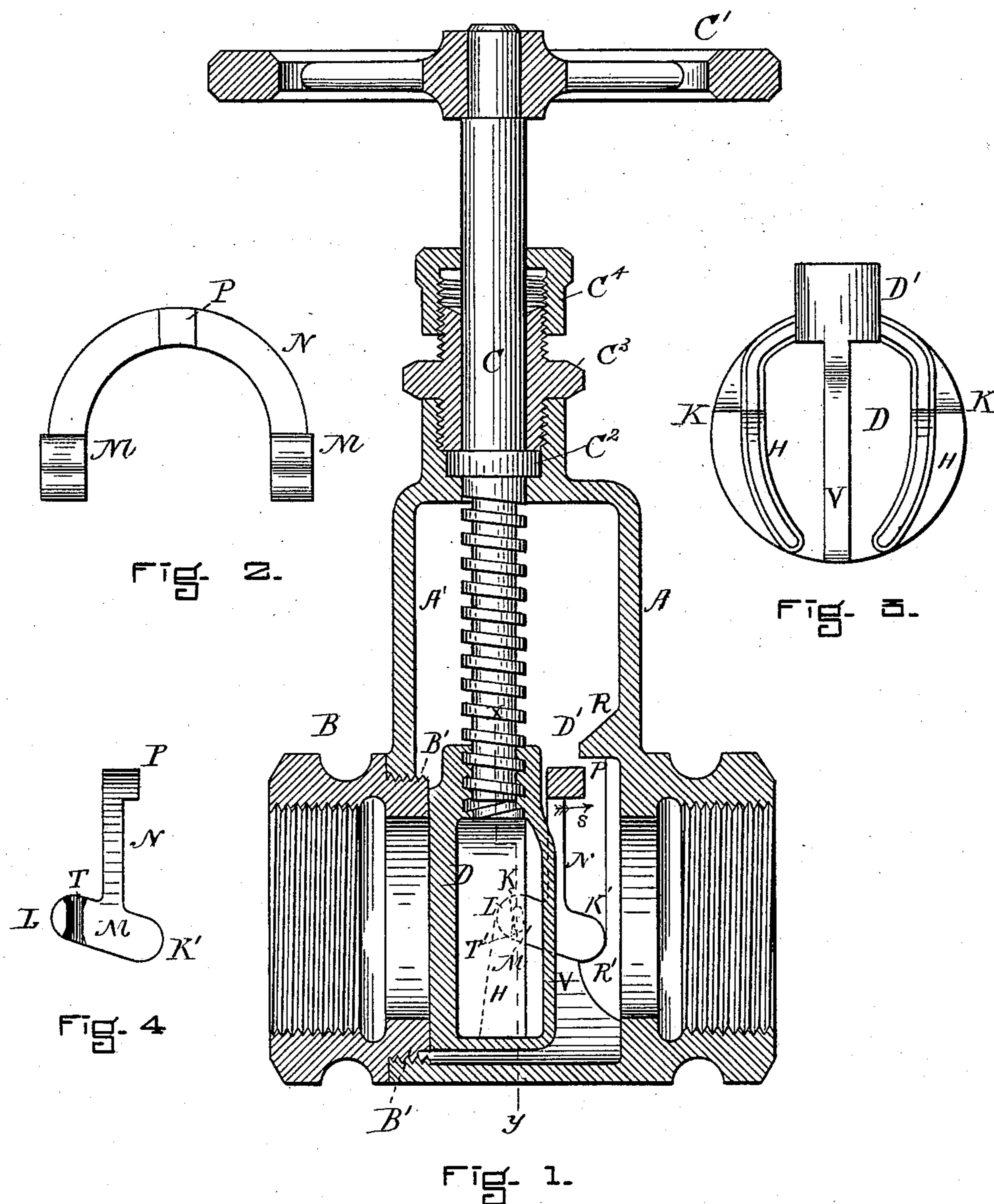
2 Sheets—Sheet 1.

G. F. POTTLE.

VALVE.

No. 320,962.

Patented June 30, 1885.



WITNESSES.
Frank G. Parker.
William Edson

INVENTOR.
George F. Pottle

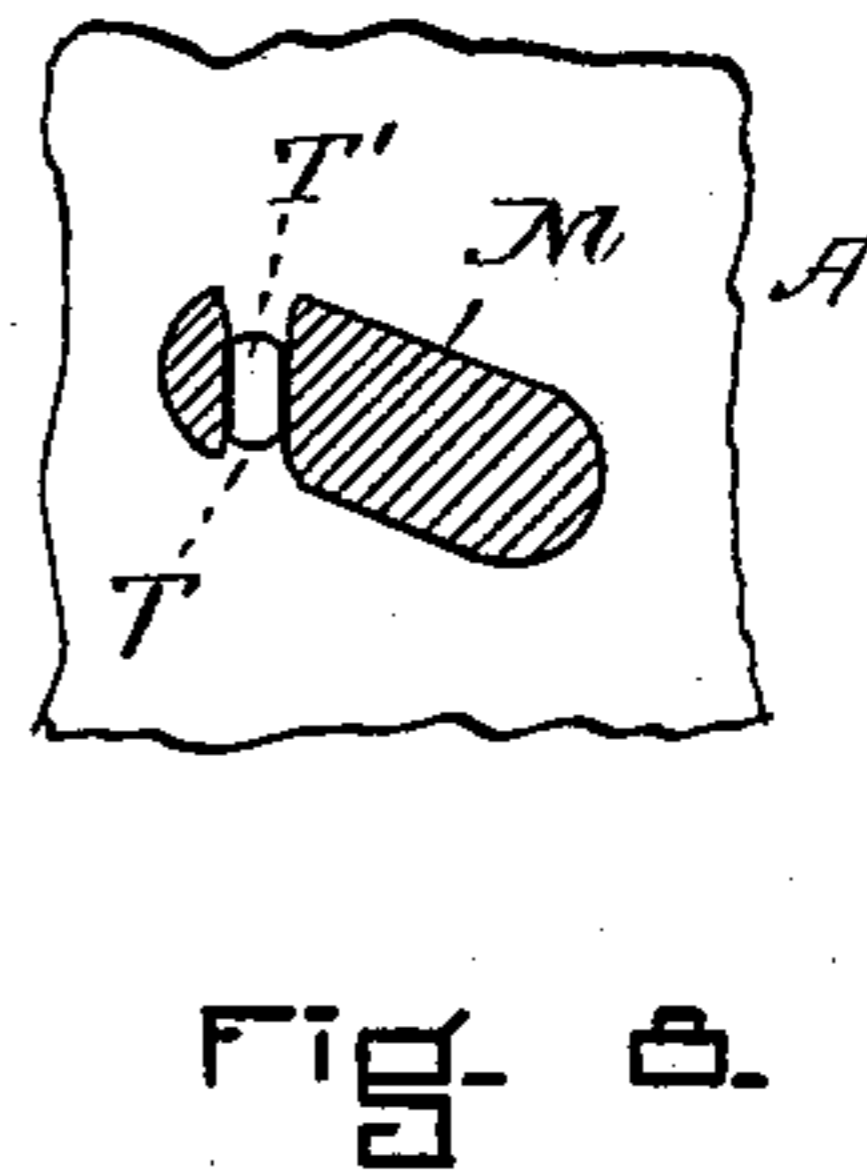
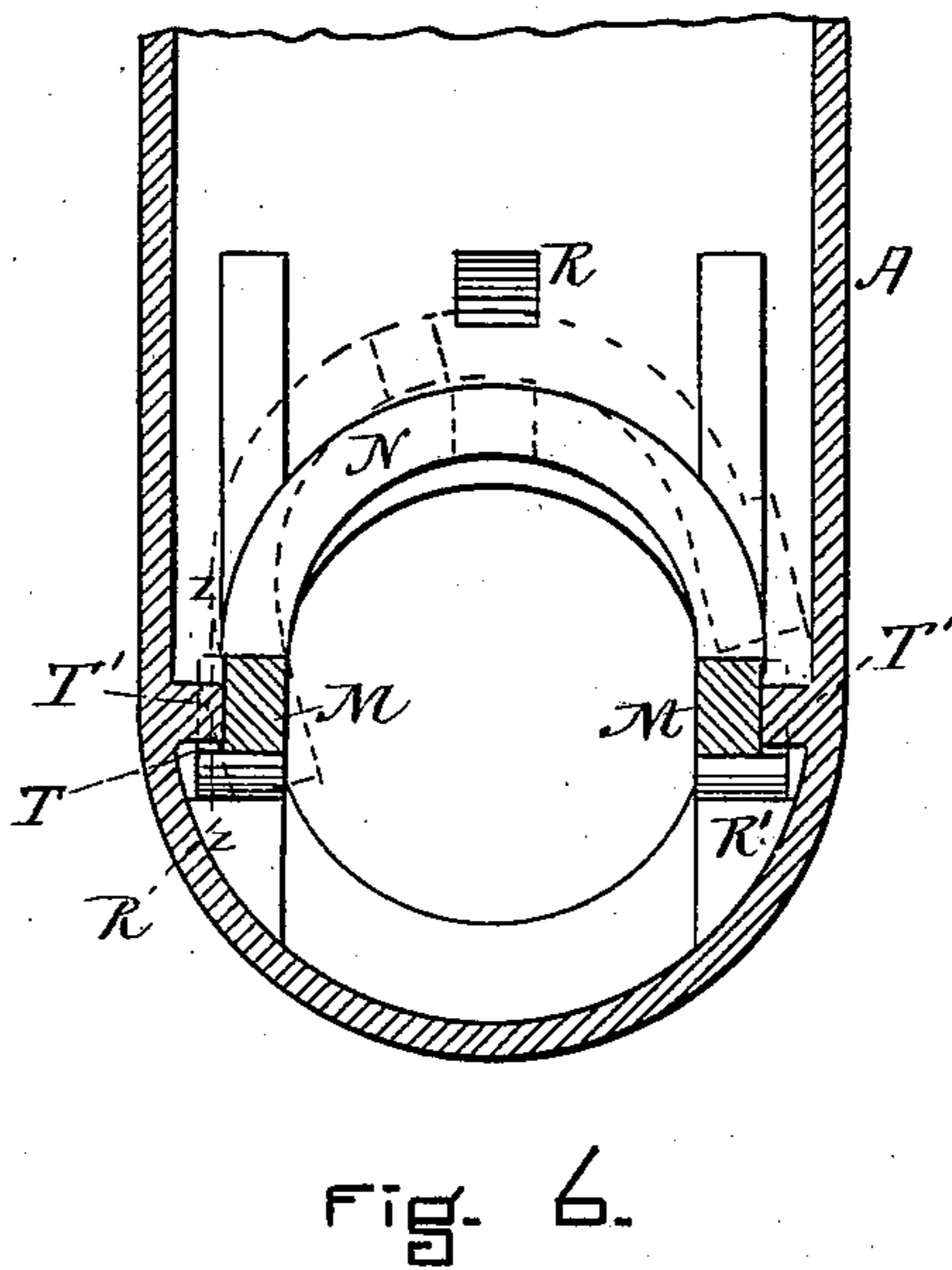
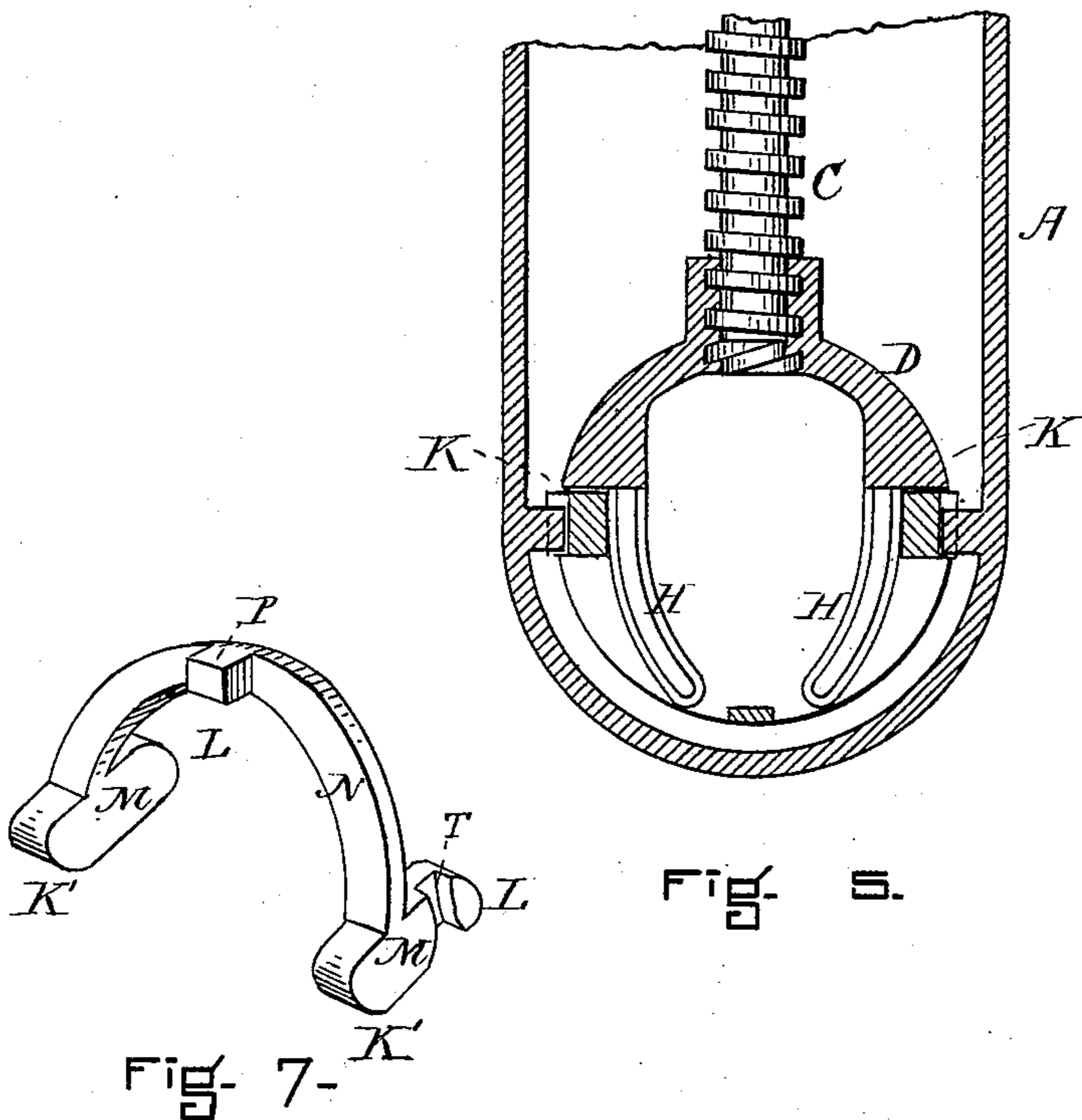
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UNITED STATES PATENT OFFICE.

GEORGE F. POTTLE, OF MEDFORD, ASSIGNOR OF ONE-HALF TO WARREN S. HILL, OF HYDE PARK, AND ROYAL O. STORRS, OF DEDHAM, MASS.

VALVE.

SPECIFICATION forming part of Letters Patent No. 320,962, dated June 30, 1885.

Application filed April 11, 1885. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. POTTLE, of Medford, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Valves, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to that class of clear-way valves in which the valve is pressed upon the seat by a toggle-lever, the object being to so construct the valve and all its parts that no small joints, pins, or pivots are necessary, all of the parts being made with large bearings, which are formed without the aid of pivots or screws. These objects I attain by mechanism shown in the accompanying drawings, in which—

Figure 1 is a vertical section of my invention. Figs. 2, 3, and 4 are elevations in detail. Fig. 5 is a part section taken on line X Y, Fig. 1, looking toward the valve-seat. Fig. 6 is a section taken on the same line—that is, X Y—of Fig. 1, looking to the right. Fig. 7 is a perspective view showing the construction of the toggle and its bail, and Fig. 8 is a section taken on line Z Z of Fig. 6 to show the position of the side lugs on the cam A and the slots in the toggle M M.

In the drawings, A represents the case of the valve, into which is screwed a nipple, B, Fig. 1, the inner face, B' B', of which forms the valve-seat.

C is a screw having a hand-wheel, C', which serves to move the valve up or down.

C² is a collar attached to the screw C for the purpose of preventing it from moving longitudinally.

C³ is a screw-quill, which serves to hold the collar C² in place, and C⁴ is a piece which, together with the quill C³, completes the stuffing-box. (See Fig. 1.)

The valve D, Figs. 1, 3, and 5, consists of a flat disk, which forms the valve proper, and the boss D', which serves as a nut for the screw C to work in, and by which the valve is raised and lowered. The valve D has upon its back rib-pieces H H (see Figs. 1, 3, and 5) and shoulders K K, Figs. 3 and 5, one of which shoulders is indicated by dotted lines at K, Fig. 1. These shoulders K K, Fig. 3, are made concave, so as to fit the ends L L of the toggles M

M. (See Figs. 1, 2, 4, 7, and 8.) The opposite ends K' K' of the toggles are adapted to fit recesses R', formed on the interior of the valve-case A, one of which is shown at R', Fig. 1, and both at R' R', Fig. 6. The toggles M M are connected by a bail, N, as shown in Figs. 2, 4, and 6. This bail N is curved, so as to surround the upper side of the clear-way of the valve, and has on its center a boss, P.

The toggle and bail do not move up with the valve, but always remain at rest in the recesses R', their only movement being an oscillating movement, in which the ends L L move slightly upward and the bail N drops over in the direction of the arrow at S, Fig. 1. This takes place when the valve is raised.

R, Figs. 1 and 6, is a projection cast on the interior of the case A, and serves to prevent the toggles M and their bail N from getting out of place—that is, if the valve was turned bottom side up or sidewise there would be no danger of the toggles getting out of place.

In each of the toggles M, a groove, T, is made, (see Figs. 4, 6, 7, and 8,) which engage with projecting lugs T' T'. (Shown at Figs. 6 and 8, and indicated by dotted lines at T', Fig. 1.) These lugs T' T', resting in the grooves T in the toggles M M, serve, in connection with the boss R, to prevent the toggles and bail from getting out of place. V, Figs. 1 and 3, is a guard-piece located on the back of the valve, as shown. This piece, as the valve rises, holds the bail N back and prevents it from falling in under the boss D' of the valve when the valve is drawn up.

To put my toggle-piece M M N P in place I proceed as follows: Before putting in the valve-seat piece B B' B', and before inserting the screw C, I slip the valve D up into the upper part of the valve-chamber A', Fig. 1, and close against the left-hand wall. Then I insert the toggle-piece first in the position indicated by the dotted line in Fig. 6. Then I swing it around as indicated by the full lines in Fig. 6, so that the lugs T' T' engage with the slots T, and the boss P on the bail N comes under the projection R, which serves as a stop for the bail N. Now the screw C is inserted, and all the parts are locked together.

The operation of my valve is as follows: It being represented in Fig. 1 as closed, to open

it I turn the screw C by the hand-wheels C' in the proper direction. This raises the valve D with a tendency to loosen the toggle M M' and free the valve from its seat. As the valve continues to rise, the guard V, Fig. 1, will force the upper part of the bail N P back, so that the boss P will pass under the boss R and thus prevent it (the bail) from going up with the valve, although it is loose and has no action on the valve. As soon as the valve is pressed down again by the screw, the toggle M M' being in place acts at once, and forces the valve forward to its seat.

I claim—

In a clear-way valve, the combination of the valve D, having a guard-piece, V, and shoulders K K, with the toggle-piece M M N P, and the case A, having a projection, R, lugs T' T', and shoulders R' R', all operating together substantially as described and before set forth.

GEORGE F. POTTLE.

Witnesses:

FRANK G. PARKER,
WILLIAM EDSON.