

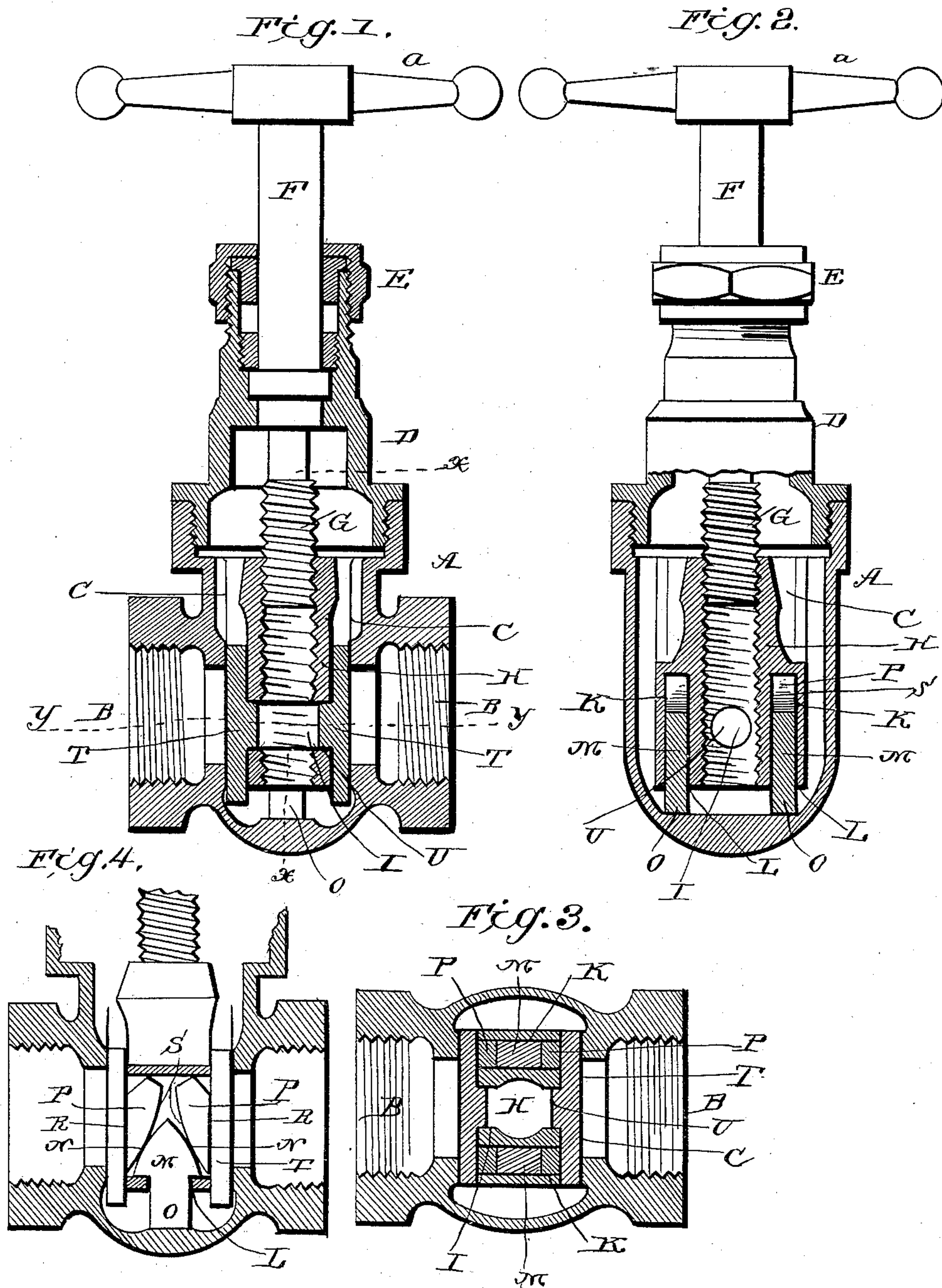
(No Model.)

R. HUGHES.

STRAIGHT WAY VALVE.

No. 387,164.

Patented July 31, 1888.



Witnesses.

Joseph A. Ryan
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UNITED STATES PATENT OFFICE.

ROBERT HUGHES, OF WATERFORD, NEW YORK.

STRAIGHT-WAY VALVE.

SPECIFICATION forming part of Letters Patent No. 387,164, dated July 31, 1888.

Application filed April 3, 1888. Serial No. 269,426. (No model.)

To all whom it may concern:

Be it known that I, ROBERT HUGHES, a citizen of the United States, residing at Waterford, in the county of Saratoga and State of New York, have invented a new and useful Improvement in Straight-Way-Valve Cocks, of which the following is a specification.

My invention relates to an improvement in straight-way-valve cocks; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claim.

In the accompanying drawings, Figure 1 is a vertical longitudinal sectional view of a straight-way-valve cock embodying my improvements. Fig. 2 is a transverse sectional view of the same, taken on the line *x x* of Fig. 1. Fig. 3 is a horizontal sectional view taken on the line *y y* of Fig. 1. Fig. 4 is a detail sectional view.

A represents the valve-case, which is provided with threaded openings B on opposite sides in line with each other, and has two vertical parallel plane guide-faces, C, on its inner side, the said faces being arranged at right angles to the openings B and at the inner ends thereof, and said openings extending through the said faces, as shown.

To the upper side of the valve-case is screwed a cap, D, which is provided at its upper end with a packing-gland, E.

F represents a stem, which is swiveled in the said cap, is arranged in the center of the same, and has the depending threaded portion, G.

H represents a plunger, which is provided with a threaded central opening, which engages the threaded portion of the stem, and said plunger is arranged in the case A midway between the plane faces C, and has its opposite sides, which are presented to the said plane faces, parallel, as shown. Transversely through the center of the lower portion of the plunger H is made a horizontal opening, I, of suitable diameter, and in the said plunger are a pair of vertical slots, K, which are arranged at right angles to the broad sides of the plunger, and in the lower sides of the latter are openings L, which communicate with the lower ends of the openings K. In the said openings K are located cams M, which are shaped like arrow-

heads, and have their opposite sides, N, beveled upward to a point. From the bases of the said cams depend vertical stems O, which extend through the openings L.

P represents two pairs of blocks of suitable size, which have the plane vertical outer sides, R, and have the inclined inner sides, S, the inclination of which corresponds with the inclination of the sides N of the cams. The said blocks P are fitted in opposite sides of the openings K and bear against the inclined sides of the cam.

T represents a pair of circular disks of suitable size, which are adapted to close the inner ends of the openings B and effect ground or tight joints with the plane opposing sides, C, of the valve-case, and said circular disks are provided on their inner sides with central projecting bosses or trunnions, U, which enter opposite ends of the opening I of the plunger, and thereby arrange the said disks on opposite sides of the said plunger and cause the same to bear between the opposing plane sides of the plunger and of the valve-case, as shown. The inner sides of the circular disks bear against the plane vertical outer sides, R, of the blocks.

The operation of my invention is as follows: By turning the stem in one direction by means of a suitable handle or hand-wheel, *a*, the plunger is caused to move upward, so as to raise the disk T, and thereby uncover the openings B and permit fluid to flow freely through the valve-case. By turning the said stem in the opposite direction the threaded portion thereof causes the plunger to descend, so as to move the disk T across the inner ends of the openings B, and when the said disks are concentric with the said openings the lower ends of the stems O of the cams come in contact with the lower side of the valve-case, and continued movement of the stem in the same direction causes the plunger to be forced farther downward, and thereby the cams move upward in the openings K, and their inclined sides force the blocks P outward against the inner sides of the disks, so as to force the latter so firmly against the sides of the case at the inner ends of the openings B as to tightly close the said openings and thereby effectually cut off the flow of the fluid.

I do not desire to limit myself to the precise

construction hereinbefore described, as the blocks P, instead of being formed separately from the disks T, may be formed integrally therewith.

5 Having thus described my invention, I claim—

The combination of the T-shaped valve-casing having the vertical plane guide and binding faces C at the inner ends of its lateral arms
10 B, the plunger H, threaded internally and provided with the transverse opening I in line with the arms B, and the vertical slots K at right angles thereto, the disks T, provided on their inner faces with bosses that enter the op-
15 posite ends of the opening I, and with their outer faces adapted to close against the faces C, the cam-blocks M, with their stems resting in the slots K, with their ends bearing on the

lower interior surface of the casing and their opposite inclined or beveled edges in the said 20 slots, the pair of blocks P in the openings or slots K on each side of the inclined surfaces of the cam-blocks M, with their vertical edges resting against the inner surfaces of the disks T on the sides of the bosses thereof and their 25 inclined edges against those of the cam-blocks, and the valve-stem F, with its threaded portion engaging within the plunger and moving the latter vertically, substantially as specified.

In testimony that I claim the foregoing as my 30 own I have hereto affixed my signature in presence of two witnesses.

ROBERT HUGHES.

Witnesses:

EDGAR C. MCKALLOR,
GEORGE H. COLE.