

(No Model.)

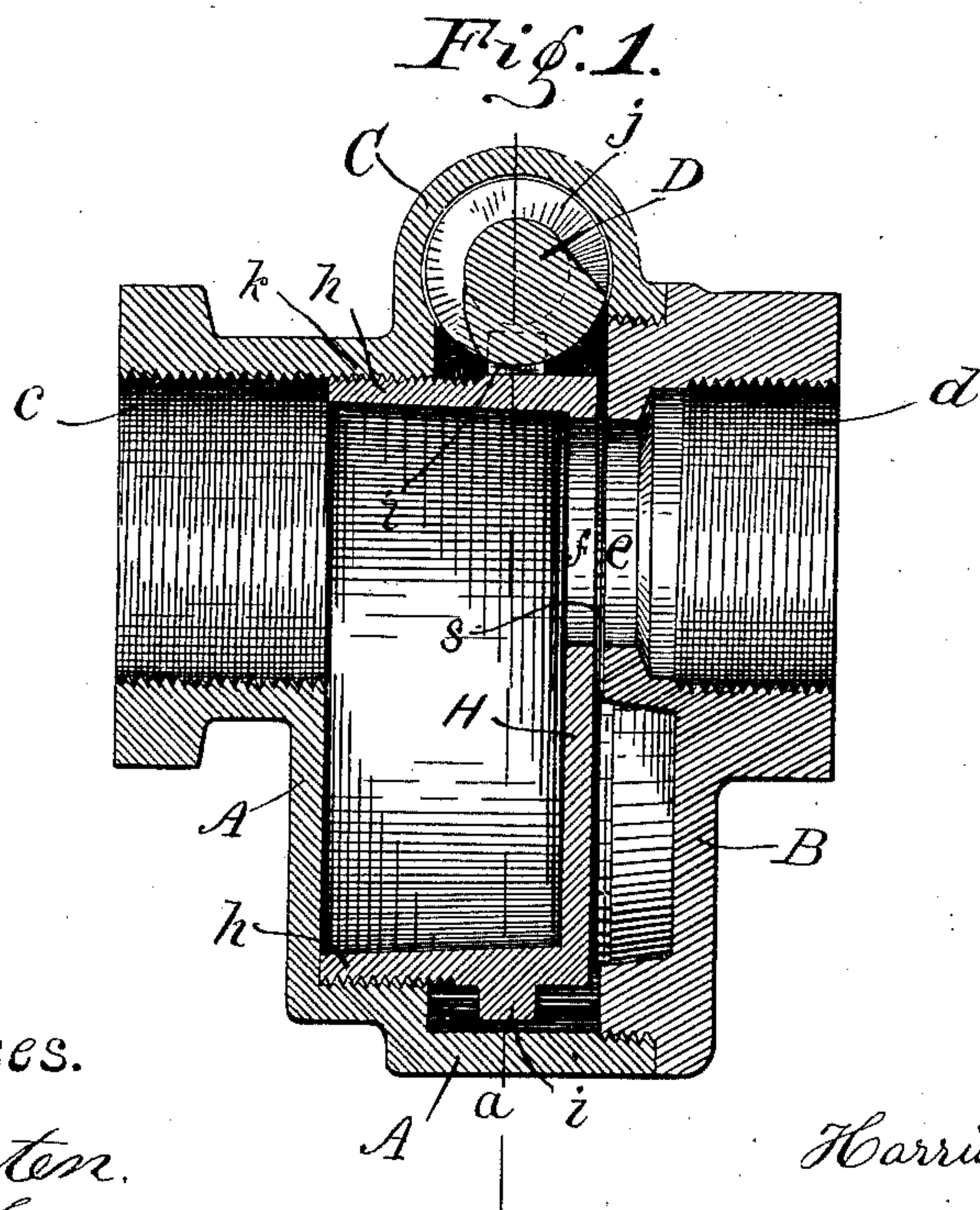
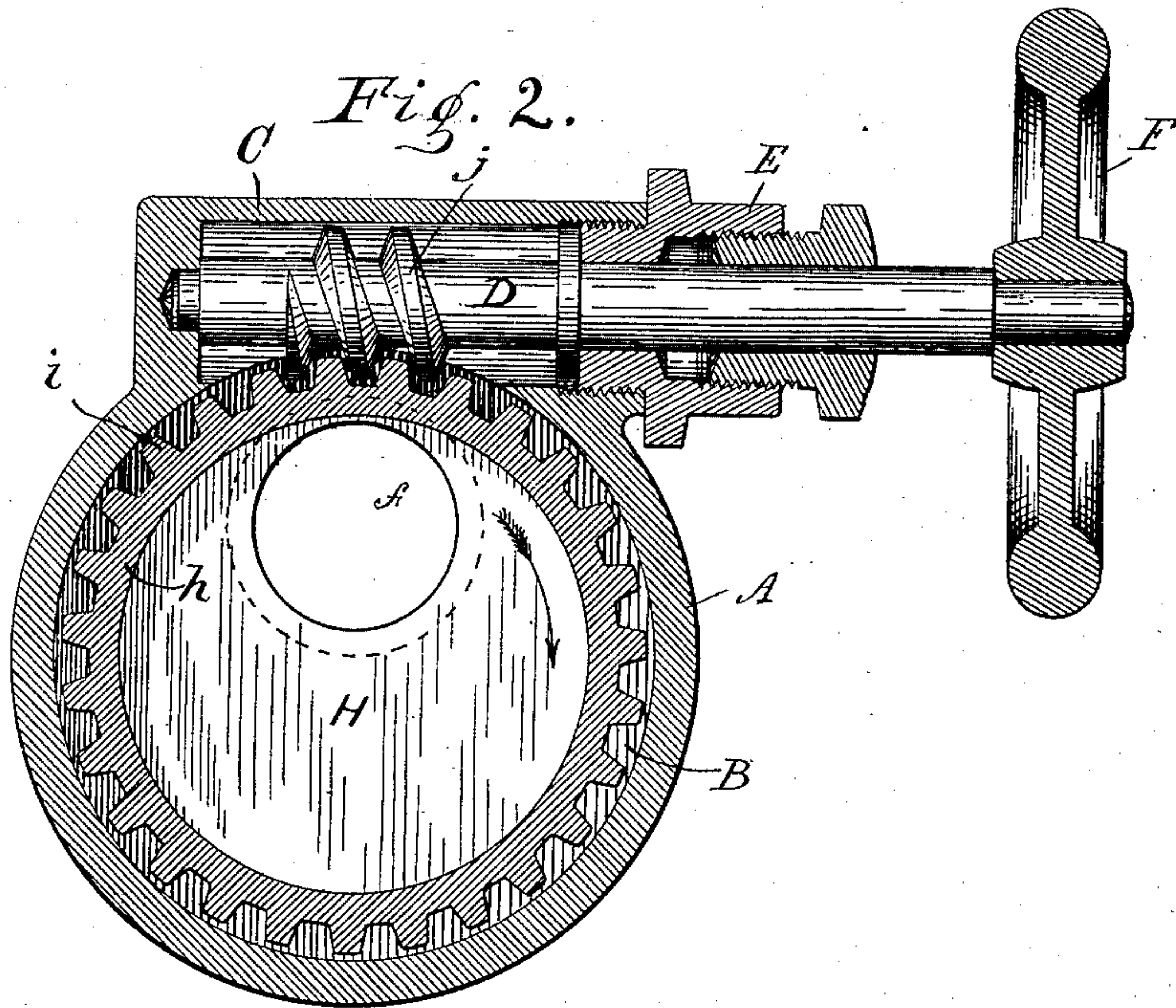
2 Sheets—Sheet 1.

H. P. HOOD.

STRAIGHT WAY VALVE.

No. 375,872.

Patented Jan. 3, 1888.



Witnesses.

M. Carsten.
V. M. Hood.

Inventor.

Harrison P. Hood.

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2 Sheets—Sheet 2.

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Fig. 4.

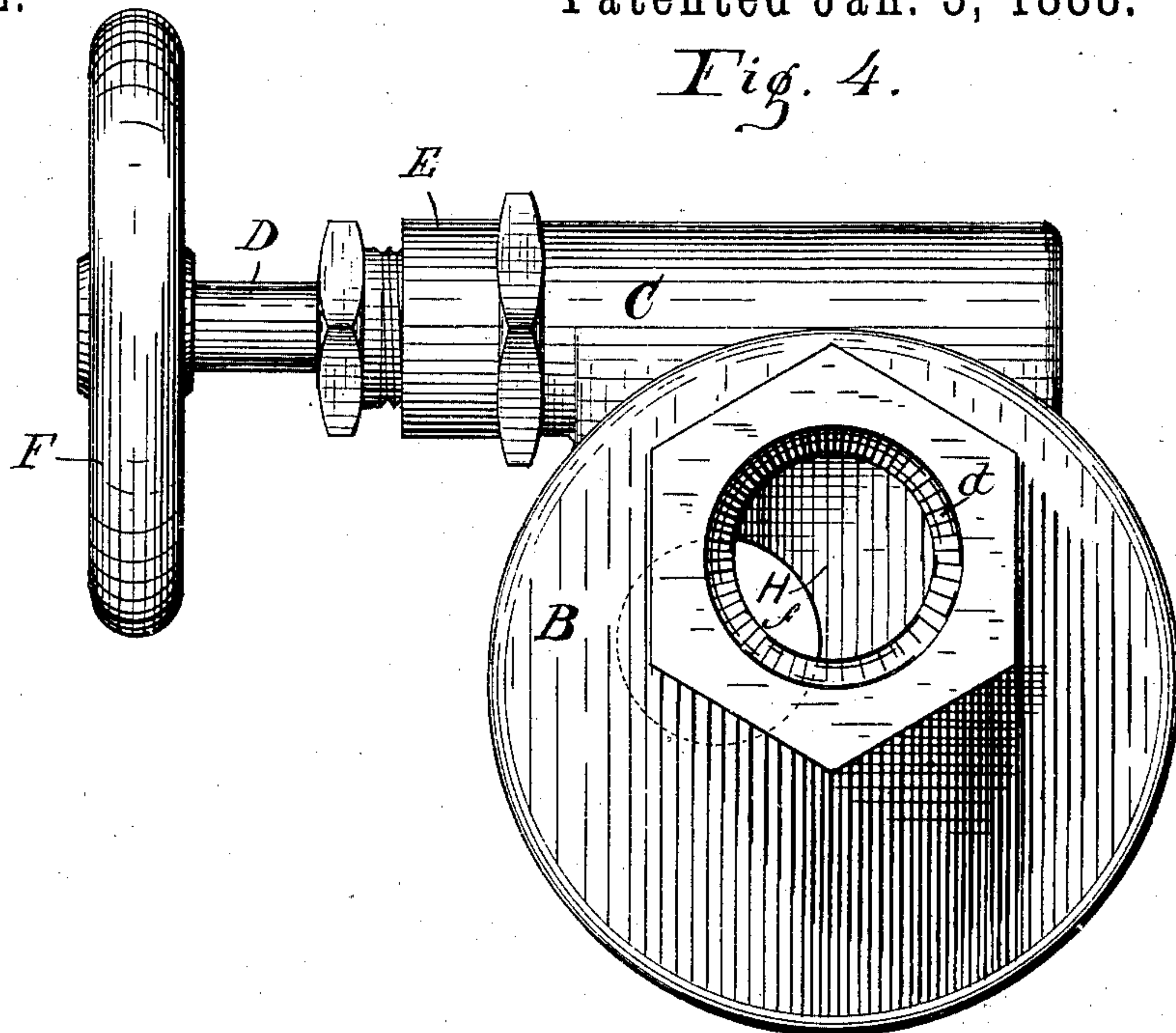
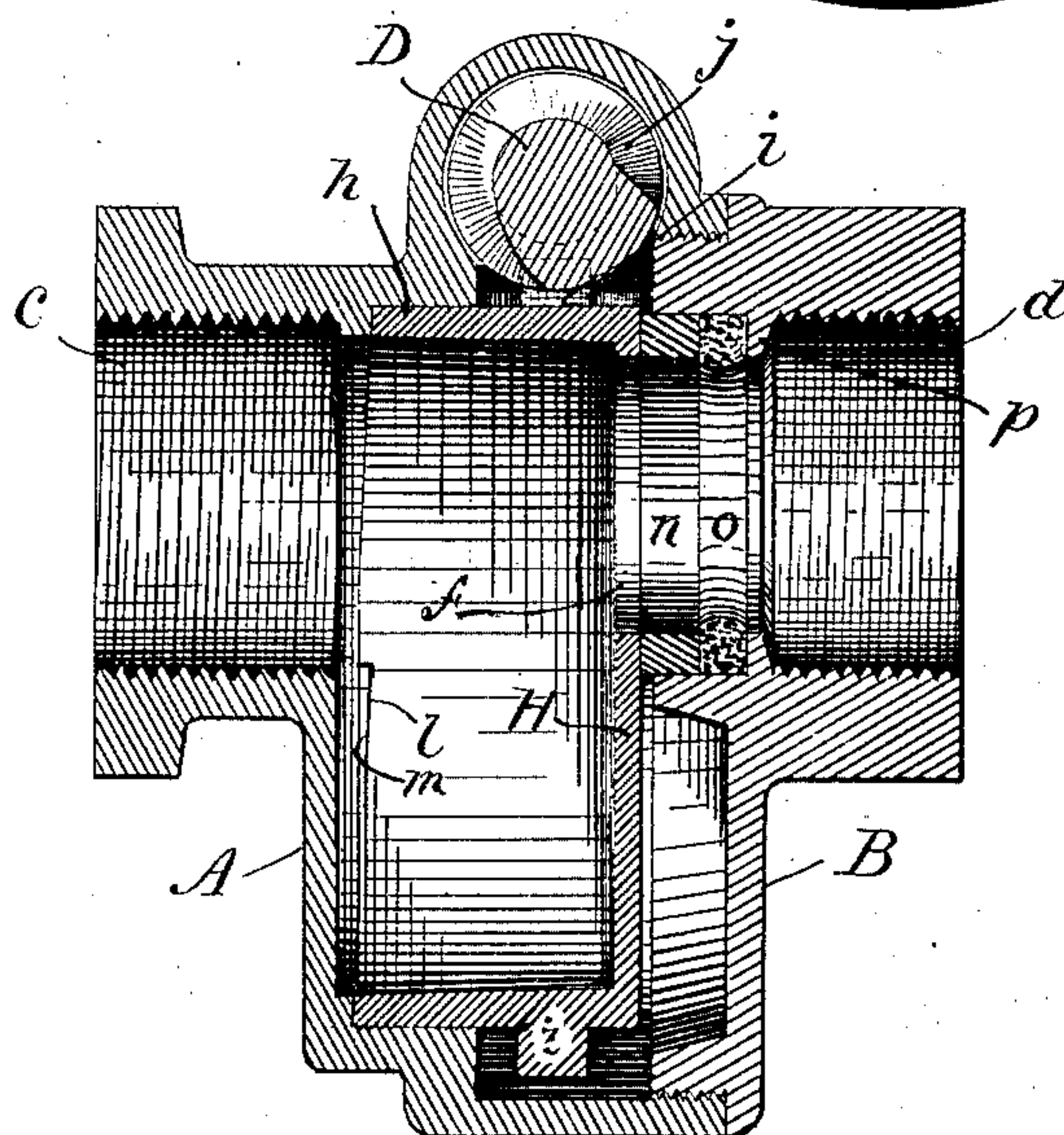


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARRISON P. HOOD, OF INDIANAPOLIS, INDIANA.

STRAIGHT-WAY VALVE.

SPECIFICATION forming part of Letters Patent No. 375,872, dated January 3, 1888.

Application filed August 3, 1887. Serial No. 246,010. (No model.)

To all whom it may concern:

Be it known that I, HARRISON P. HOOD, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Improvement in Straight-Way Valves, of which the following is a specification.

My invention relates to an improvement in straight-way valves of that class in which the discharge-opening is opened or closed by the partial rotation of a disk.

The objects of my improvement are, first, to provide a valve of this class in which means shall be provided whereby the wearing of the contact-surfaces of the disk and the valve-seat shall be compensated for and taken up without affecting the closing qualities of the valve; second, to provide means whereby a double valve seat shall be provided, one portion of which shall furnish a fixed and positive stop for the valve, while the other portion shall follow the movement of the valve-disk and maintain at all times a close contact therewith.

The accompanying drawings illustrate my invention.

Figure 1 represents a central longitudinal section. Fig. 2 represents a transverse section at *a*, Fig. 1. Fig. 3 represents a central longitudinal section showing a modified form of the valve and valve-seat. Fig. 4 is an end elevation showing the valve partially closed.

The valve case consists of a short cylindrical chamber, A, with closed ends, one of which, B, is removable for the purpose of introducing the valve, being preferably screwed into the case, as shown. In the opposite ends of said case are screw-threaded openings *c* and *d*, leading to the interior of the case, and adapted to receive the ends of a line of pipe. Said openings are arranged opposite each other and eccentrically to the axis of the cylindrical case, so that the effective opening is entirely at one side of said axis. The inner end of the opening *d*, Fig. 1, is reduced to correspond with the internal diameter of the pipe to be used, and forms the valve-seat *e*.

C is a cylindrical chamber formed integral with case A, and having its axis at right angles to the axis of the case.

D is a screw-shaft, mounted in chamber C so as to turn therein without endwise motion. Screw-shaft D passes out through the stuffing-box E, and is provided with the hand-wheel F.

The valve consists of a circular disk, H, having an opening, *f*, arranged eccentrically to the axis to correspond with the openings *c* and *d* in the case. The peripheral surface of disk H is extended by means of an annular flange, *h*, projecting from one side of the disk, and on said surface are cog-teeth *i*, which intermesh with the screw *j* on shaft D. A portion of the interior of the case A at *k* is bored out true and screw-threaded, and the exterior of flange *h* is turned true and screw-threaded to fit therein, the arrangement being such that the case A forms a bearing in which the valve is supported and turns easily, and at the same time moves forward or backward, according to the direction in which it is turned.

In the modification shown in Fig. 3 the screw-threads in the case and in flange *h* are omitted, and the valve is forced forward by means of corresponding inclined surfaces, *l* and *m*, formed, respectively, on the ends of the flange and the case.

In the form shown in Fig. 1, when the valve is open, as there shown, there is a short space, *s*, between the face of the valve and its seat. This form of the valve is designed for steam-pipes, and the space mentioned is not objectionable; but when the valve is used for water, particularly muddy water, it is desirable that it shall be impossible when the valve is open for sediment from the water to reach or be deposited upon the valve-seat, the water being prevented from entering the case around the valve. For this purpose, when the valve is to be used on water-pipes, I prefer the form shown in Fig. 3, in which the valve-seat C, Fig. 1, is bored out to receive an inner annular ring, *n*, which is yieldingly supported, so as to project beyond the surface of seat *e*, by means of an annular washer, *o*, of rubber or other elastic material, which rests against an abutment, *p*, formed in the end plate; or in some cases where there is not much wear the entire seat may be of rubber, the whole arrangement being such that when the end plate, B, is screwed

into the case A the valve-seat comes in contact with the valve and is compressed, and is held constantly in contact with the valve by the recoil of the elastic washer, thus preventing the deposit of sediment on the seat.

In operation, when the screw-shaft D is turned to the right, valve H is turned in the direction indicated by the arrow in Fig. 2, and the solid portion of the valve is brought across the openings *c* and *d*, the valve at the same time being screwed forward against the seat with a strong force.

In the modification shown in Fig. 3 washer *o* is compressed until the valve comes in contact with the surrounding fixed seat *e*, which thus stops the valve and forms a second tight joint against the disk. In opening, the screw-shaft and valve are turned in the opposite direction until more or less of the opening *f* registers with the openings *c* and *d*, the valve when fully open being prevented from passing the opening by the end of flange *h* striking the case, as in Fig. 1, as the valve is screwed into the case. It will be observed that, there being but one opening in the valve-disk, all of the remaining surface is available for closing the eccentrically-arranged opening in the case, so that as the surface of the valve or its seat wears away the valve simply advances a little farther and the opening is effectually closed. Heretofore in this class of valves there have been several openings concentrically arranged around the axis of the valve, and a very slight

wearing of the surfaces in contact allows the solid portion to pass, and to thus slightly re-open the discharge-ports.

I claim as my invention—

1. In a straight-way valve, the cylindrical case having the hollow screw-threaded bearing *k* formed therein, the eccentrically-perforated disk-valve H, having an annular screw-threaded flange projecting from one side thereof and intermeshing with the screw-threads in said bearing, cog-teeth arranged on the periphery of said disk, means for revolving the disk-valve from the exterior, and the removable case-end B, arranged to cover the entire face of the disk-valve, and having a single eccentrically-arranged opening, *d*, and valve-seat *e*, all combined and arranged to co-operate in the manner and for the purpose set forth.

2. In a straight-way valve, the case having an interior bearing formed therein, the eccentrically-perforated disk-valve arranged to turn in said bearing and to move longitudinally therein when so turned, the removable case-end B, having the fixed annular valve-seat *e*, and the movable annular valve-seat *n*, mounted on a yielding support in said fixed seat, all combined and arranged to co-operate in the manner and for the purpose specified.

HARRISON P. HOOD.

Witnesses:

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