

J. D. WALSH.

VALVE.

APPLICATION FILED SEPT. 18, 1906.

953,650.

Patented Mar. 29, 1910.

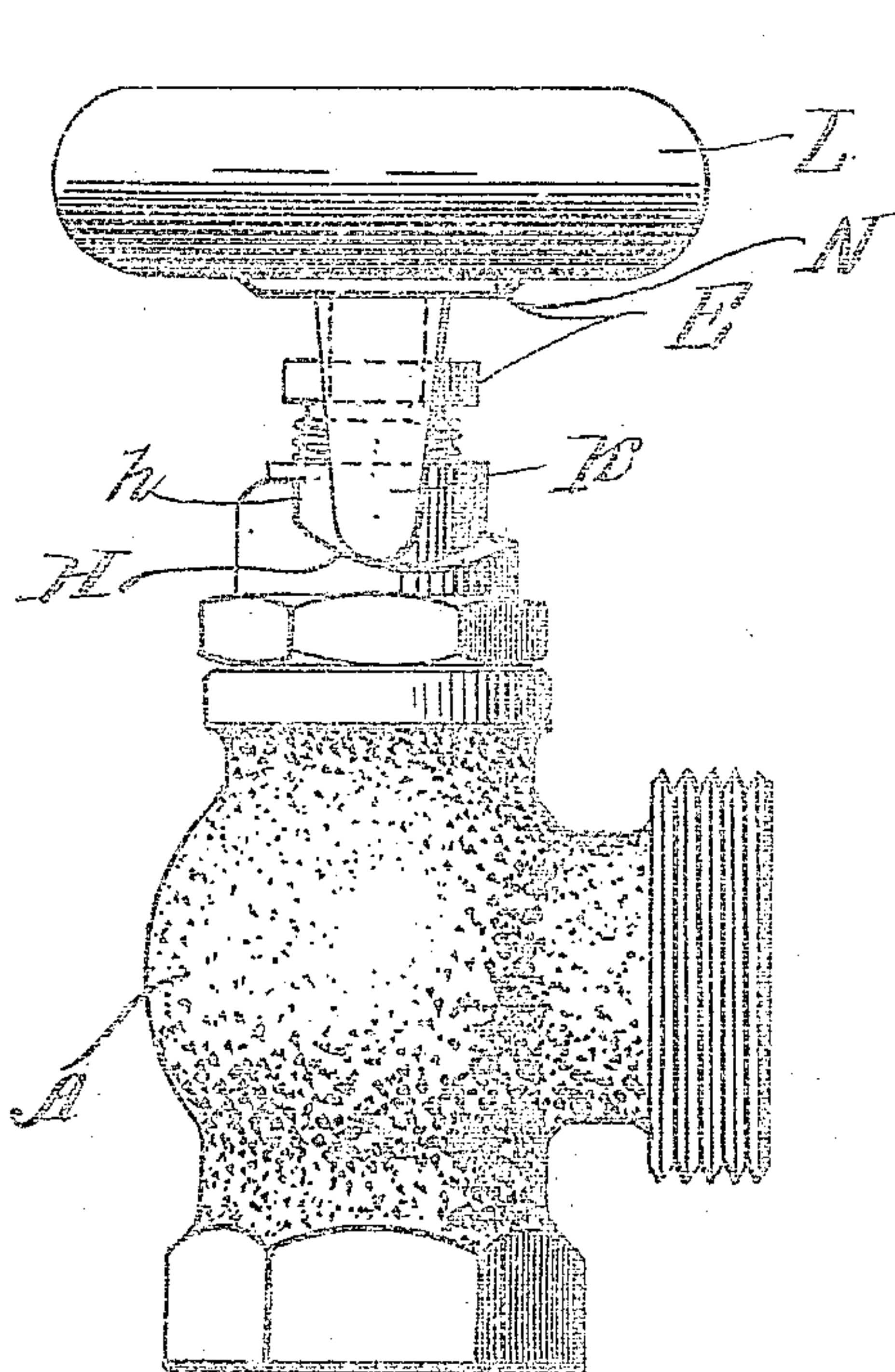


Fig. 1.

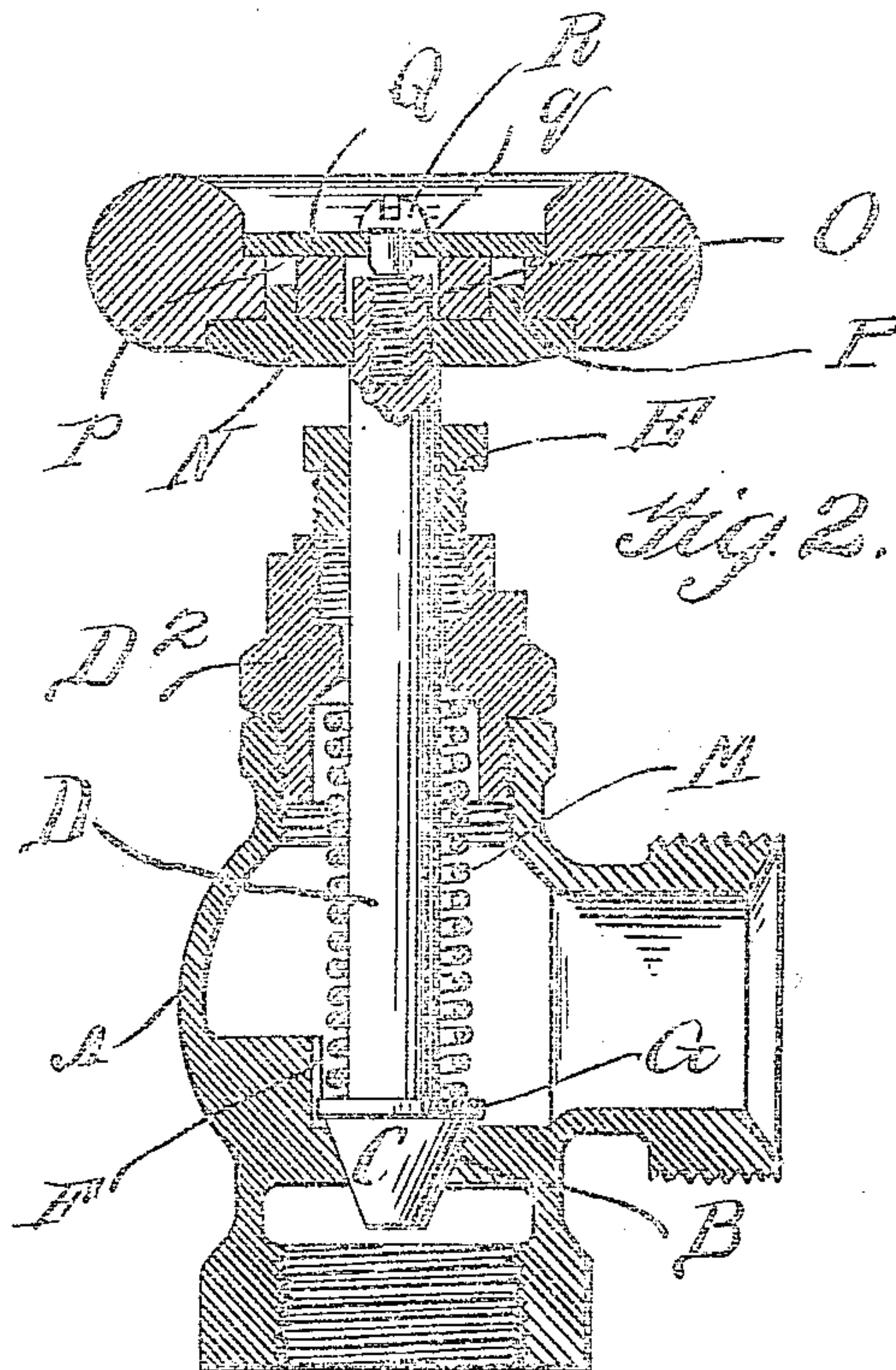


Fig. 2.

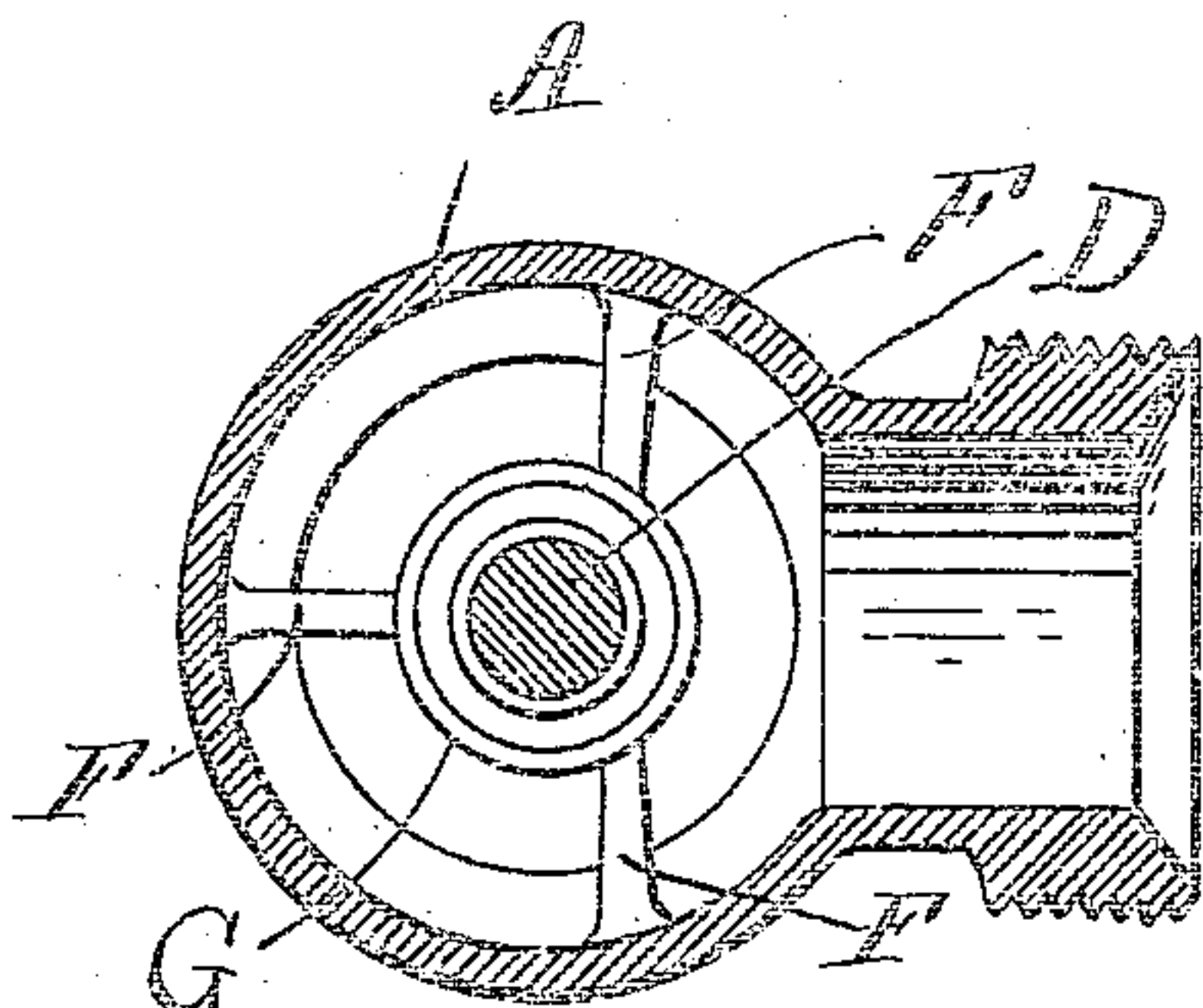


Fig. 3.

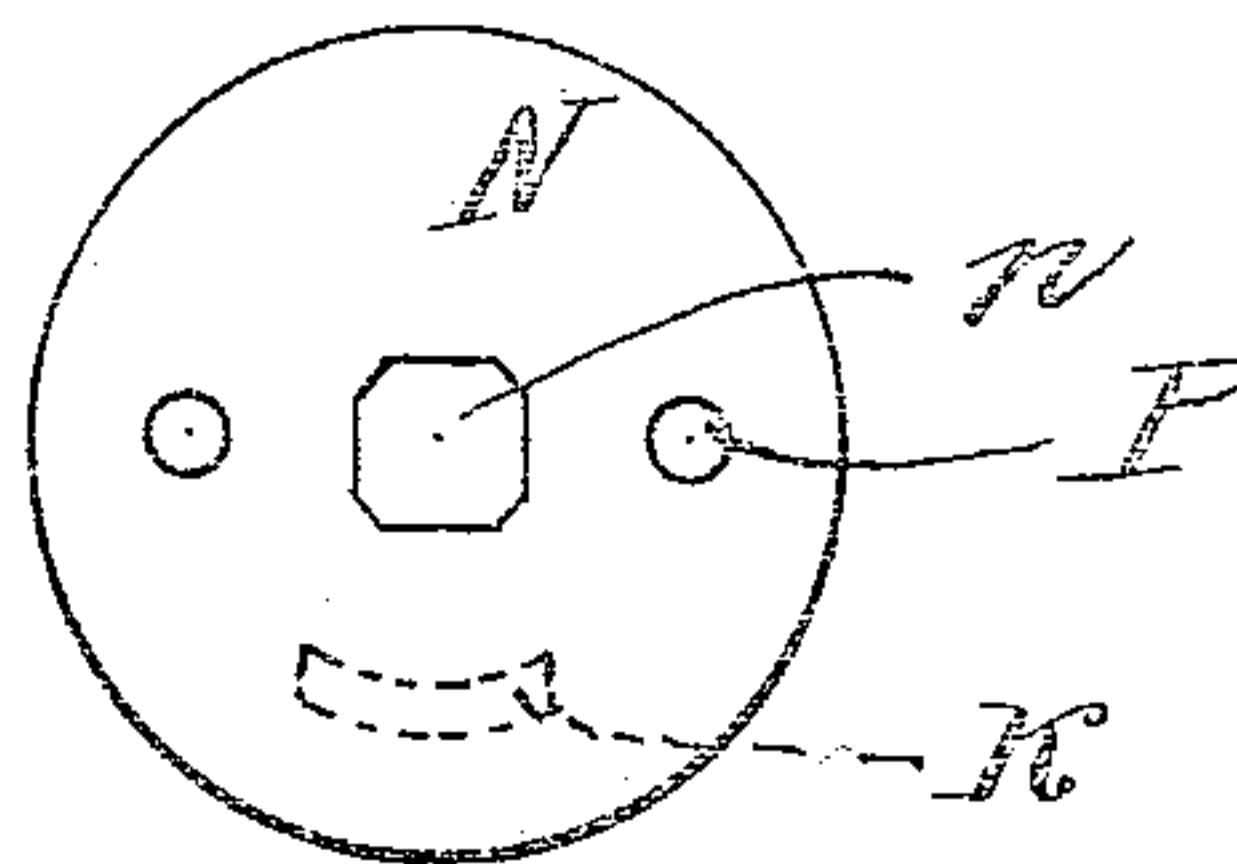


Fig. 5.

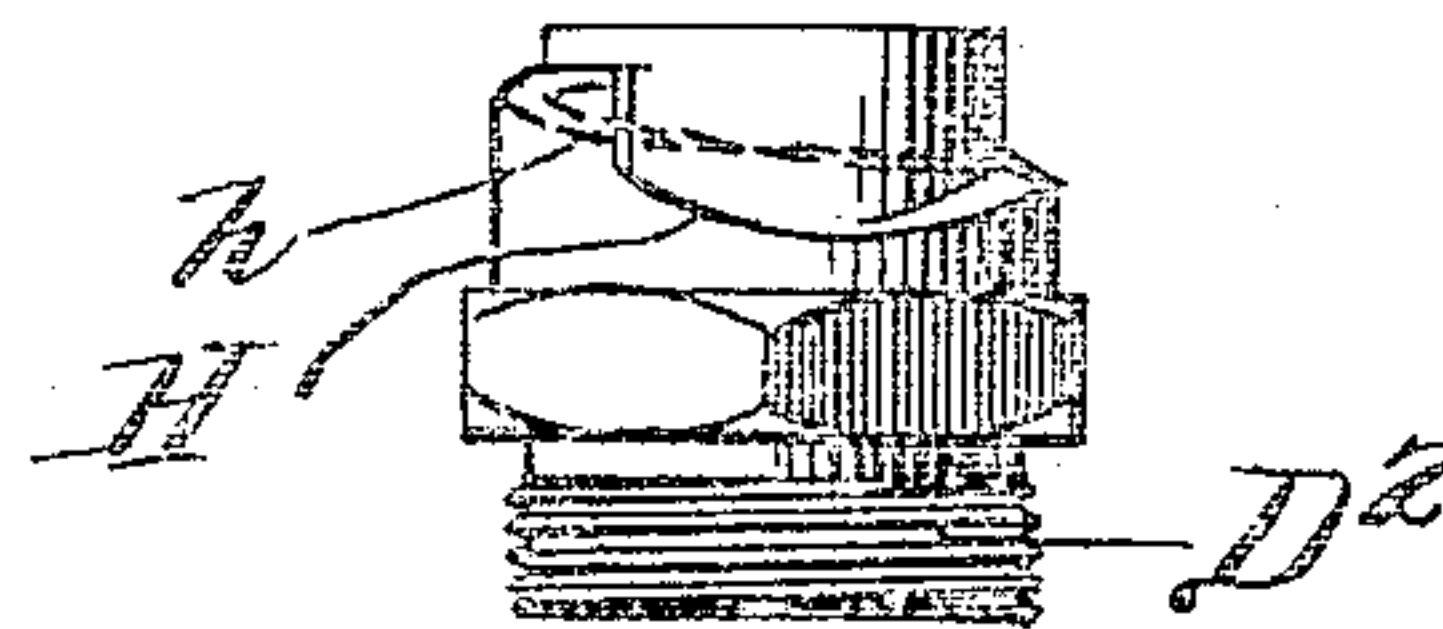


Fig. 4.

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VALVE.

953,650.

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To all whom it may concern:

Be it known that I, JOHN D. WALSH, a citizen of the United States, residing at Lockport, in the county of Niagara and State of New York, have invented certain new and useful Improvements in Valves; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to valves, and the constructions to be illustrated and described are applicable more particularly to steam radiator valves, though, as will be obvious, they may have a wide range of usefulness.

Among the objects of the invention, is to provide a valve whose degree of opening may be regulated by a simple, even turning of the valve-stem, steps or graduations being avoided.

A further object is to provide a novel construction of handle and traveling member carried thereby for effecting raising of the handle and valve-stem.

A still further object is to guide and steady the valve and valve-stem in their vertical movement within the valve-body.

These objects are attained in the constructions illustrated in the accompanying drawings, in which:

Figure 1 is a side elevation of the valve complete; Fig. 2 is a longitudinal, vertical section thereof; Fig. 3 is a horizontal section of the same; Fig. 4 is a detail of the stuffing-box, showing the cam-way formed thereon; Fig. 5 is a plan view of the handle-attachment carrying the lifting finger which coöperates with the cam-way.

Referring to these drawings: A indicates the valve-body, B the apertured valve-seat, C the conical valve fitting therein, and D the valve-stem.

D² is the stuffing-box suitably screwed into the open top of the valve-body, and E is the gland. The valve-stem passes through and is guided in the stuffing-box and gland, as will be readily apparent. In addition, guiding wings F are provided in the interior of the body. There are preferably three of these wings, and they are most advantageously formed integral with the sides of the valve-body and with the valve-seat. As clearly indicated in Fig. 3, the inner edges of these wings are in guiding relation

with the conical valve, or more specifically with a circular flange G which crowns the valve. The wings are so disposed relatively that the spaces between their guiding edges are less than the diameter of the circular flange referred to.

Formed spirally around the side of the stuffing-box, is a cam-way H, so constructed that it completes but one circle throughout its rise. This cam-way coöperates with a lifting finger K depending from the handle L. It will be obvious that, when the handle is turned counter-clockwise, the lifting finger will ride up the incline, thus elevating the valve-stem and lifting the valve slightly from its seat. A reverse movement, or a continuation of the same movement carrying the lifting finger past the drop h, permits the valve to close again. Such closing is effected by the expansive force of coil spring M interposed between the stuffing-box D² and the top of the valve. It is considered advisable that the portion of the cam-way shall curve or incline upward slightly toward the face of this drop. By this construction, the closing of the valve is slightly eased.

The lifting finger K is conveniently formed integral with a washer-member N, which is centrally apertured at n and surrounds the reduced upper end O of the valve-stem. The washer member N is provided with a plurality, conveniently two, of upstanding lugs P, which take into holes p formed for their reception in the handle L. A washer Q of sufficient size to cover the holes p overlies the top of the handle, and is furnished with a central aperture q, through which passes a screw R taking into the end of the valve stem, the latter being tapped for its reception. Both washer Q and washer member N are countersunk in the faces of the handle.

The great advantage of the form of graduated valve which I have described lies in the fact that the elevating cam-way is of such gentle pitch that no steps, graduations, or notches are required to hold the valve stem in any position. The frictional engagement of the tip of the lifting finger with the cam-way due to the compression of the spring is sufficient to reliably retain the valve stem at any point in its revolution and the valve at the desired height. By employing a continuous elevating cam-way, the turning of

the valve to graduate the degree of opening thereof is materially easier. The use of retaining notches or graduated steps required some amount of bodily lifting of the valve stem by the hand of the operator, and this against the tension of a strong spring was undesirable. Moreover, the portion of the valve-stem, or adjunctive part, which co-operated with these graduated notches or steps became speedily worn, in such manner that, as the age of the valve increased, the degree of opening that it was possible to secure grew less.

What is claimed as new is:

1. In a valve, the combination with a valve-body and valve-seat, and a lifting valve and valve-stem rotatable within the body, of a spiral cam-way disposed around the valve-stem stationary with the valve-body, a centrally apertured hand-wheel set upon the upper end of the valve stem, a washer member upon the lower surface of said hand wheel and having a depending finger to coöperate with the cam-way and

being further provided with upstanding lugs received within the hand wheel to the side of the central aperture thereof, a washer overlying the hand wheel and covering the apertures within which said lugs are received, and a screw passing centrally through said washer and taking into the end of the valve stem.

2. In a valve, the combination with a valve-body and seat, of a valve and valve-stem, a gradually elevating cam-way surrounding said valve-stem, a vertical wall connecting the extremities of said cam-way, and a slightly downwardly inclined portion in said cam-way adjacent the base of said wall.

In testimony whereof, I affix my signature, in the presence of two subscribing witnesses.

JOHN D. WALSH.

Witnesses:

CHARLES R. BISHOP,
ROBERT HALL.