

G. B. MOORE.

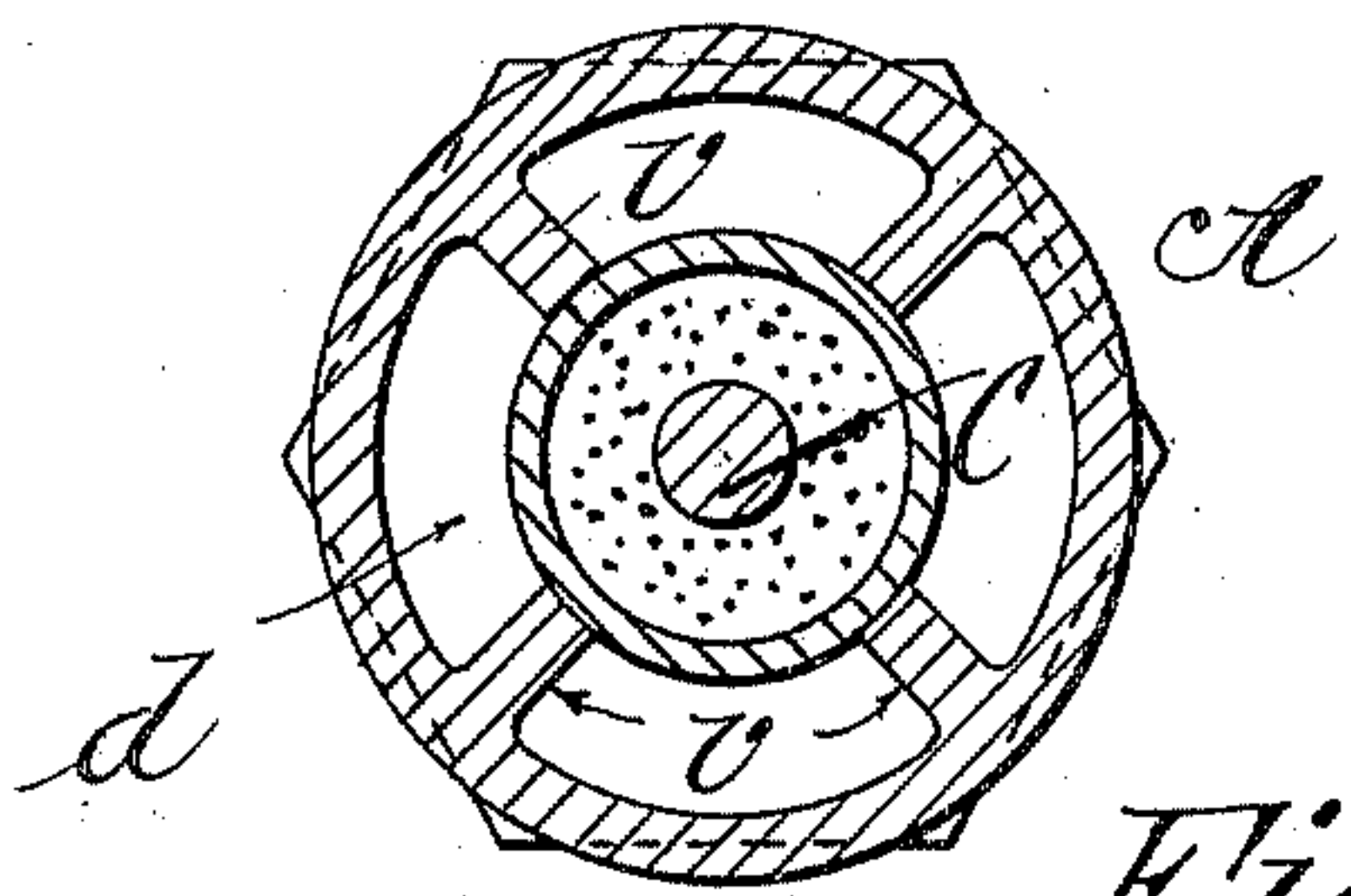
VALVE.

APPLICATION FILED JAN. 31, 1908.

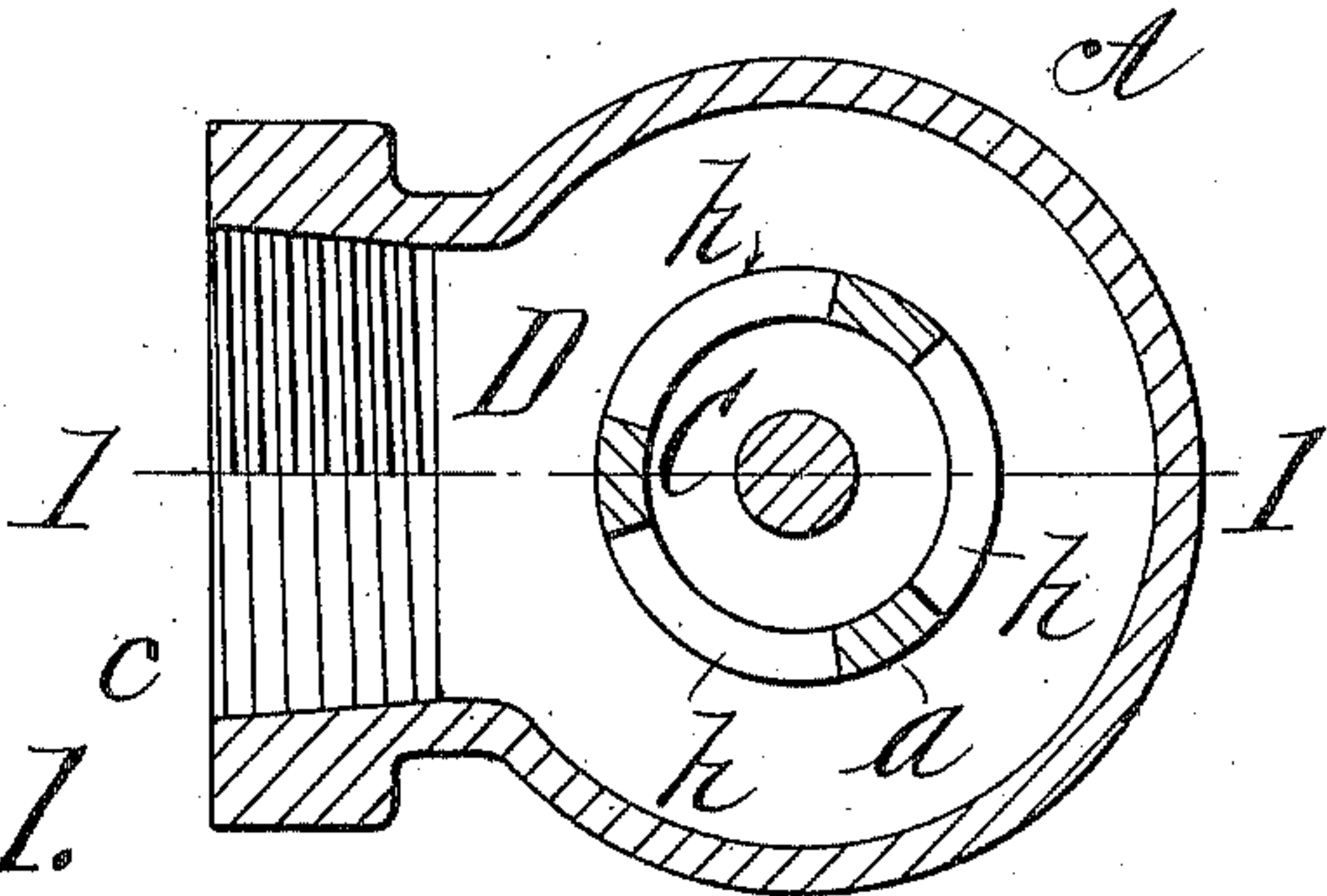
951,407.

Patented Mar. 8, 1910.

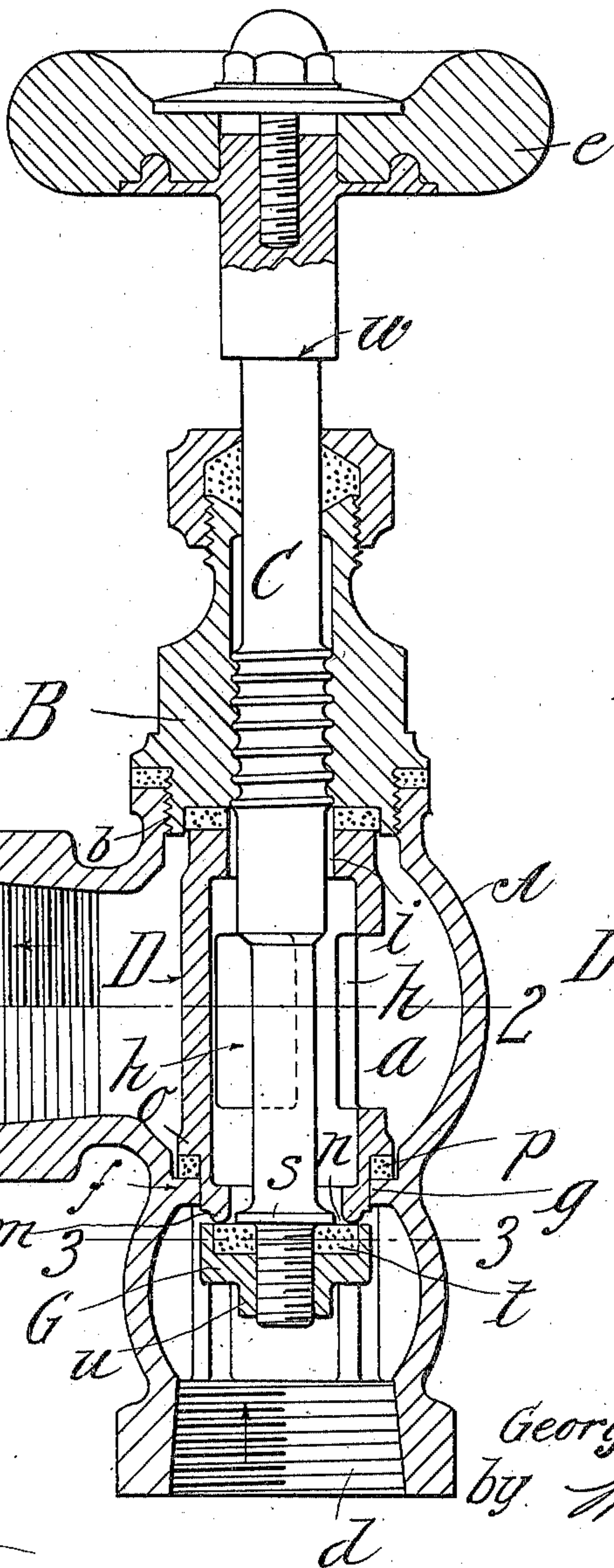
*Fig. 3.*



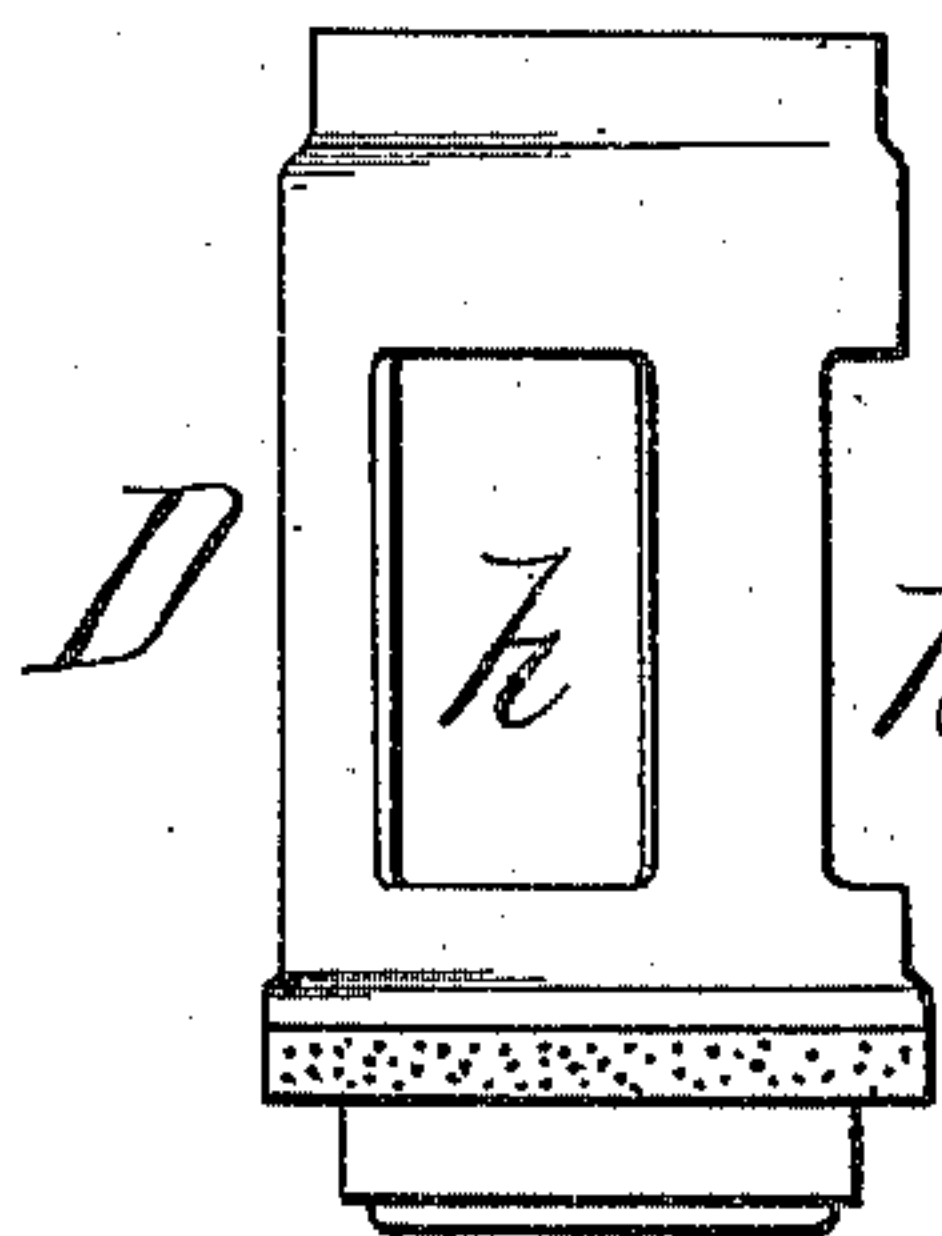
*Fig. 2.*



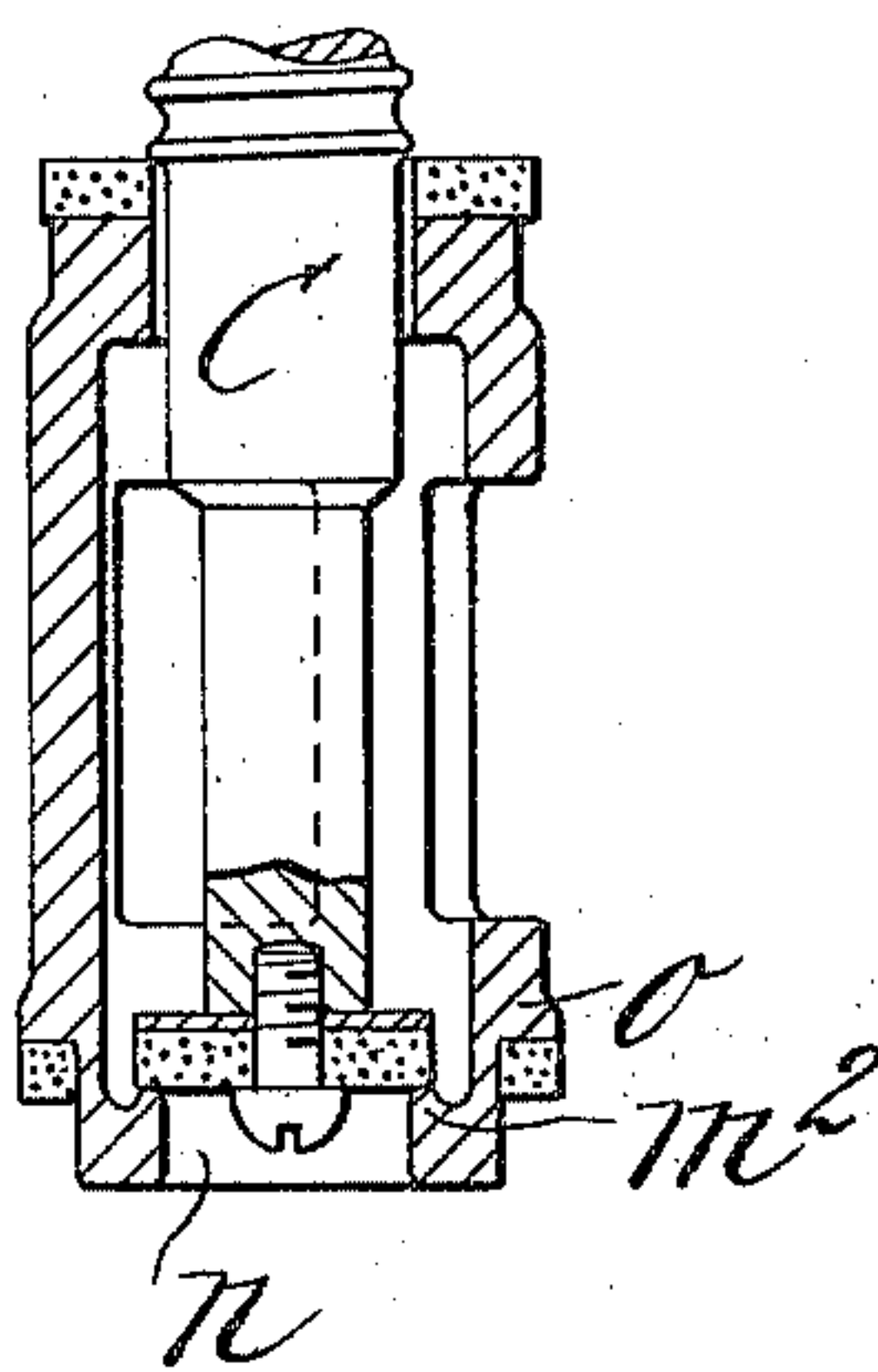
*Fig. 1.*



*Fig. 4.*



*Fig. 5.*



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## VALVE.

951,407.

Specification of Letters Patent.

Patented Mar. 8, 1910.

Application filed January 31, 1908. Serial No. 413,568.

*To all whom it may concern:*

Be it known that I, GEORGE B. MOORE, a citizen of the United States of America, and resident of Springfield, in the county of Hampden and State of Massachusetts, have invented certain new and useful Improvements in Valves, of which the following is a full, clear, and exact description.

This invention relates to improvements in valves for employment in steam fitting, especially in connection with radiators and the steam or hot water pipes thereof, although the improved valve has a wide availability for advantageous use.

The principal object of the invention is to provide a valve of such construction and capability that in case either the valve proper, or the valve-seat, or both become worn out or defective, they may, with the valve stem be most readily removed from the valve body, and replaced, without the necessity of any disconnection of the body from the radiator and steam supplying pipe, or from such other parts or conduits as the valve body may be connected with.

In the present case the valve and its stem, and the part in which the valve seat is comprised are constructed as an entirety, readily removable from the valve body or casing (although the valve and the seat comprising part are separable from each other), all so that the valve and its seat are in substance a self contained appliance for employment, in an unusually convenient manner in a valve body, for instance of the design, in globe valves.

The invention consists in the parts combined in and constituting the improved valve all substantially as hereinafter fully described in conjunction with the accompanying drawings and set forth in the claim.

In the drawings,—Figure 1 is a central sectional view through the valve on the plane of the axis of the valve proper and its stem. Fig. 2 is a horizontal cross section on line 2—2, Fig. 1. Fig. 3 is a horizontal cross section on line 3—3, Fig. 1. Fig. 4 is a side view of the shell or part removable from the main valve body and in which the valve-seat is comprised. Fig. 5 is a sectional view of parts in similar relations to the corresponding parts shown in Fig. 1, but illustrating a manifest modification.

Similar characters of reference indicate corresponding parts in all of the views.

In the drawings,—A represents the valve-

body having the general shape and characteristics of an ordinary globe or radiator valve. Said valve-body has the substantially centrally located main inclosed chamber, *a*, has the oppositely located bonnet receiving opening *b*, and an inlet opening *d* and also a sidewise located outlet opening *e*.

The valve body has internally therein at the junction of the inlet opening with the main valve chamber an annular ledge or seat *f* which surrounds a circular opening *g*.

B represents the bonnet or removable top of the valve body, screw engaged in the aforementioned opening *b* therefor, and the valve stem C screw engages in a usual manner through the bonnet and is provided at its upper end with a handle *c* as usual.

D represents a substantially cylindrical metallic shell, located centrally within the main valve chamber, and removably confined between the inner end of the bonnet and the aforementioned annular ledge *f*, the same being rendered of skeleton shape whereby it has side openings *h h* of considerable area. The said shell has a circular opening *i* at its upper end for the free passage therethrough of an intermediate portion of the valve stem, and at the lower portion of its wall is comprised an annular valve seat *m* which surrounds a circular opening *n* which opening when the valve is positioned away from the valve seat affords a steam or water way from the inlet of the valve to and through the main valve chamber and thence to the outlet opening *e*.

As shown, the lower end portion of the openwork shell is necked down whereby an annular shoulder *o* is constituted, the same to receive support on the aforementioned ledge *f* in the valve body through the medium, preferably, of a packing ring *p*, while the cylindrical lower extremity of the said shell which is of the reduced diameter is designed to reasonably closely fit in the opening *g* surrounded by the ledge *f*, while its valve-seat-constituting end protrudes below the ledge as shown in Fig. 1.

The lower extremity of the stem of the valve, in the construction shown in Fig. 1, and which plays below, and within or through the valve seat opening is of reduced diameter, screw threaded, and with a shoulder *s* at a suitable distance above its lower end for the reception and confinement of the valve proper G, the same being axially bored and internally screw threaded, for screw en-



gaging the threaded extremity of the stem and to be turned up with a hard bind against the aforesaid shoulder *s*.

The lower portion *u* of the generally cylindrical valve *G* is made with an oblong or prismatic integrally formed part *u* to be engaged by a wrench, while the upper portion of the valve is made of cup-shape for the reception therewithin of a hydraulic or any suitable packing *t*.

The inlet way *d* in which the valve *G* is downwardly movable to open from the valve seat *m* formed in the lower part of the metallic shell *D*, against the pressure and to reversely move to close with the pressure is provided with a plurality of internally arranged radial ribs *v* to serve as guides and steadying members for the valve.

The valve stem *C*, at a suitable point between the top of the bonnet and the handle is made with a shoulder *w* which, when the valve stem is screwed in the downward direction serves as a stop, by abutment against the top of the bonnet for limiting the valve opening movement.

Assuming that this valve has coupled connections at *d* with the steam supply pipe and at *c* with a radiator, and after protracted use the valve seat has become badly worn, lapped out, or otherwise defective, it is not necessary, for remedying the defect to disconnect the valve body from the steam pipe and radiator, and to replace it with a new valve, or with a new valve body,—possibly still making use of the bonnet and stem with the valve proper thereon, for as apparent it is only necessary to unscrew the bonnet from the valve body taking out therewith the shell *D* comprising the valve seat *m*, when by removing of the valve proper *G* from the stem the seat-comprising cage may be disconnected from the stem, and either reground, or retrimmed and replaced, or substituted at comparatively slight expense with an entirely new shell.

The valves may be constructed without departure from this invention for opening downwardly against the pressure, or as rep-

resented in Fig. 5 for closing downwardly against the pressure; and in the latter case the valve seat instead of being in the form of an annular dependent lower end portion of the open work shell *D* is made as shown at *m*<sup>2</sup>, Fig. 5, as an internal ledge or shoulder somewhat above the lower end of the part *D*.

I claim:—

In combination, a chambered body having in its upper portion a bonnet receiving screw threaded opening,—having at its bottom an inlet and at its side an outlet opening, and having an annular ledge or seat therewithin surrounding a circular opening leading from the inlet opening into the main chamber in the body, a compressible packing on said ledge, a bonnet screw-engaged in the aforementioned opening having a valve stem screw engaged therethrough which is provided with a valve on its lower end, and a substantially cylindrical side-wise apertured metallic shell having a tubular lower end portion located centrally within the main valve chamber, being constructed, at its lower extremity with a tubular portion, of reduced diameter, and with a shoulder, which latter rests on the packing on said ledge while the portion of reduced diameter therebelow extends loosely through the ledge surrounded opening and protrudes below the ledge base, said shell being removably confined against the packing on said ledge by the bearing on the upper end thereof of the lower end of the bonnet, the lower extremity of the valve stem being extended through the tubular lower end of said shell and carrying a valve for an upward closing, and downward opening, movement relatively to the seat therefor at the orifice of the downwardly protruding tubular portion of said shell.

Signed by me at Springfield, Mass., in presence of two subscribing witnesses.

GEORGE B. MOORE.

Witnesses:

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