

A. P. BROOMELL.
VALVE.
APPLICATION FILED OCT. 24, 1907.

907,729.

Patented Dec. 29, 1908.

Fig. 1.

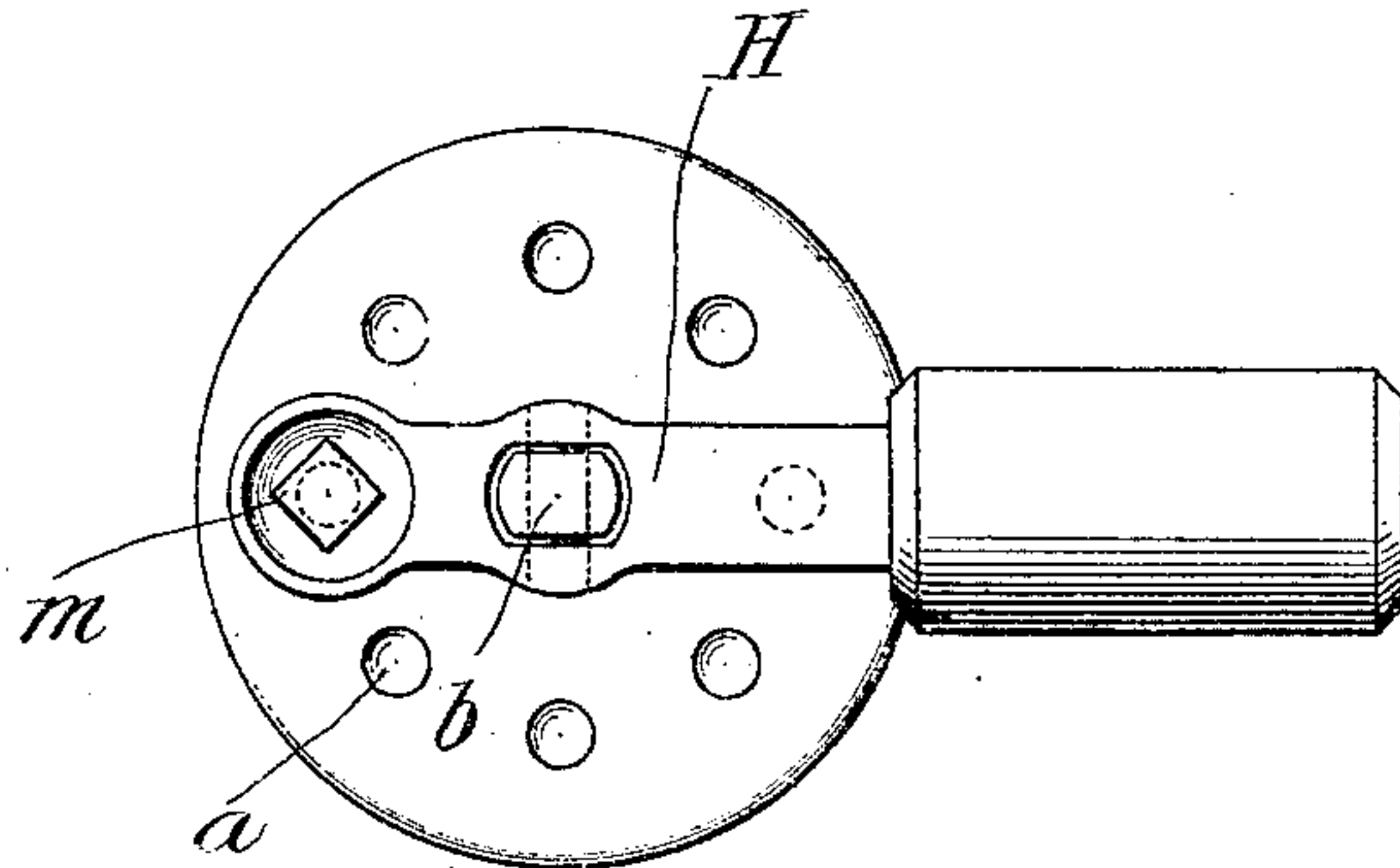


Fig. 2.

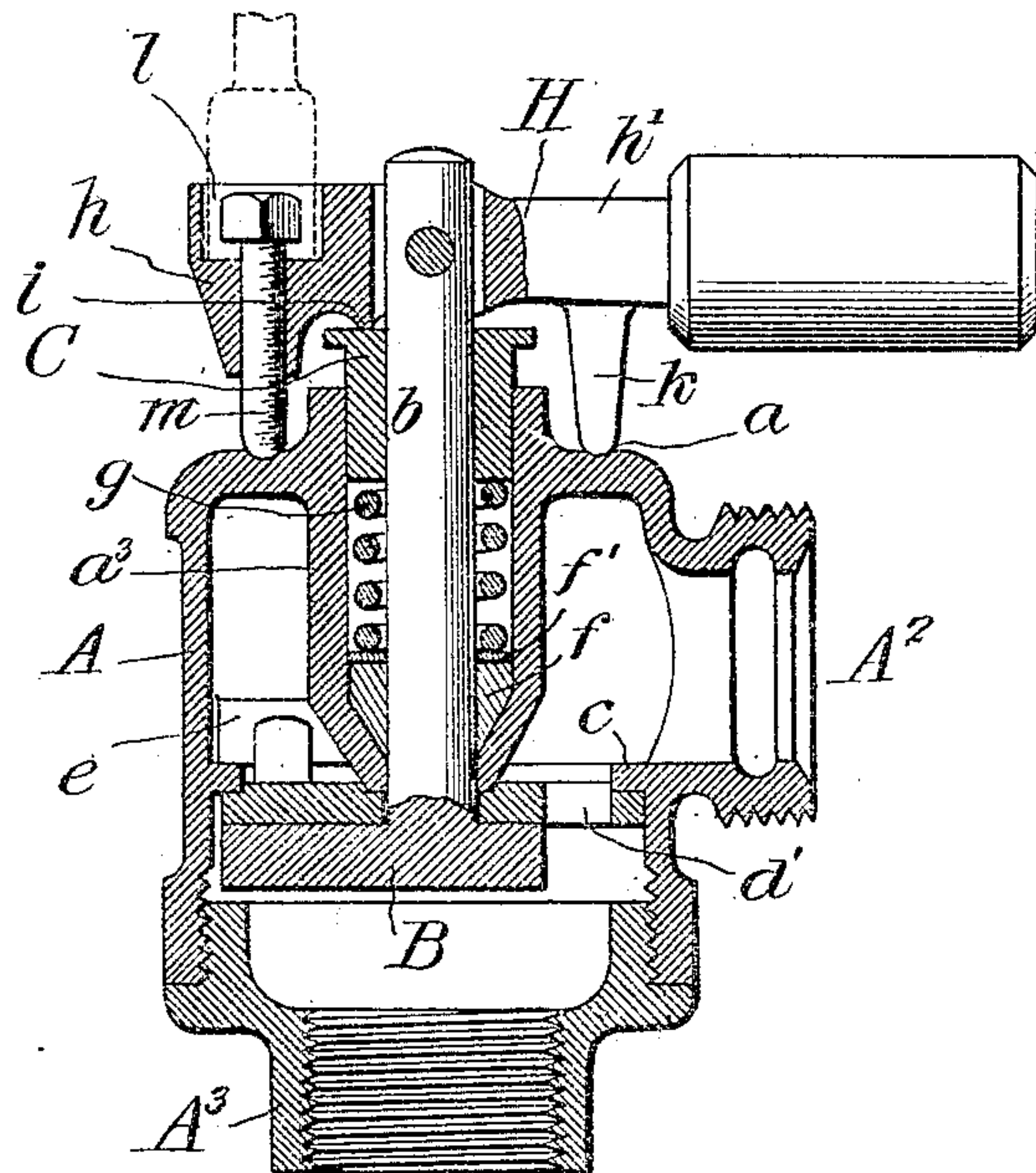


Fig. 3.

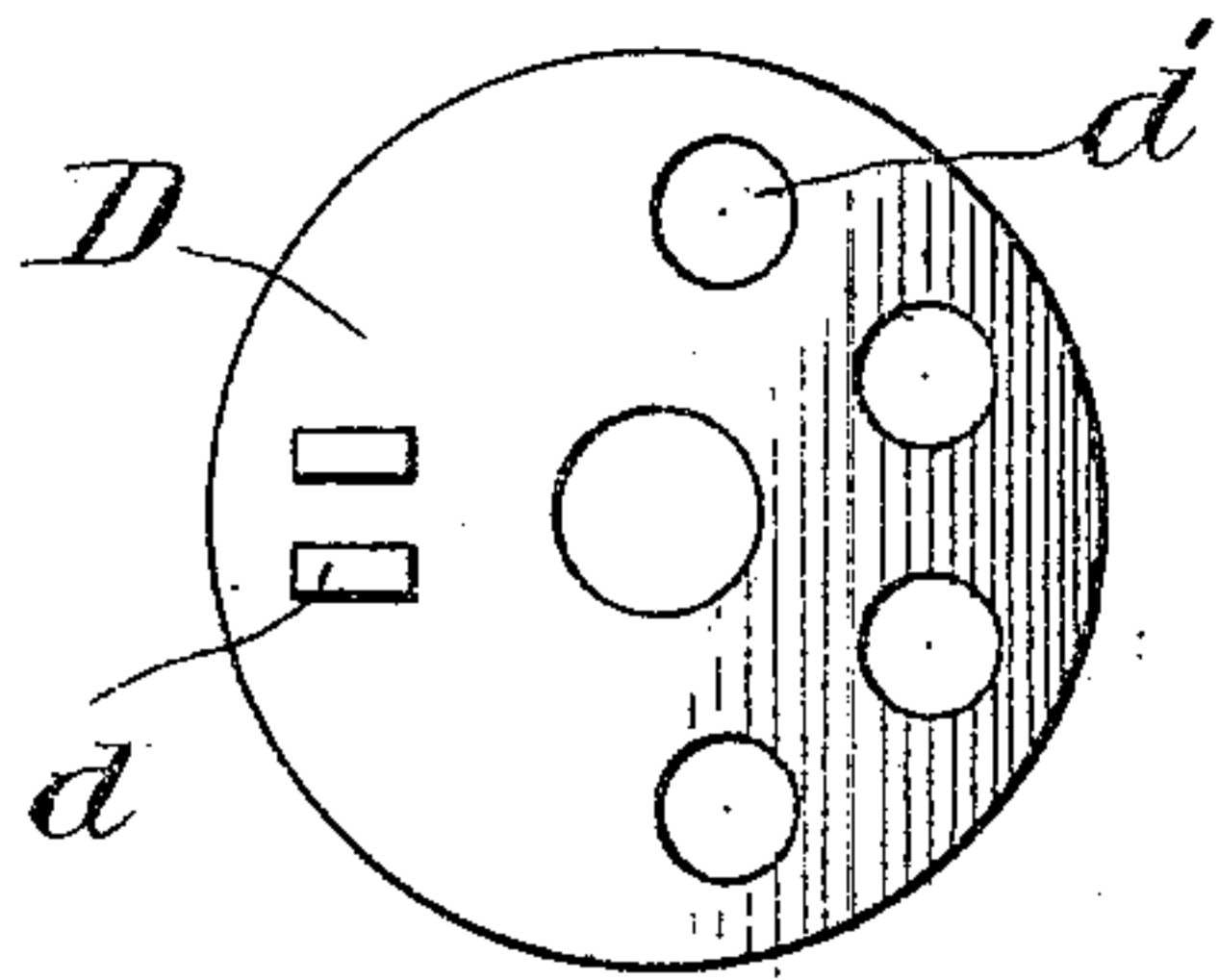
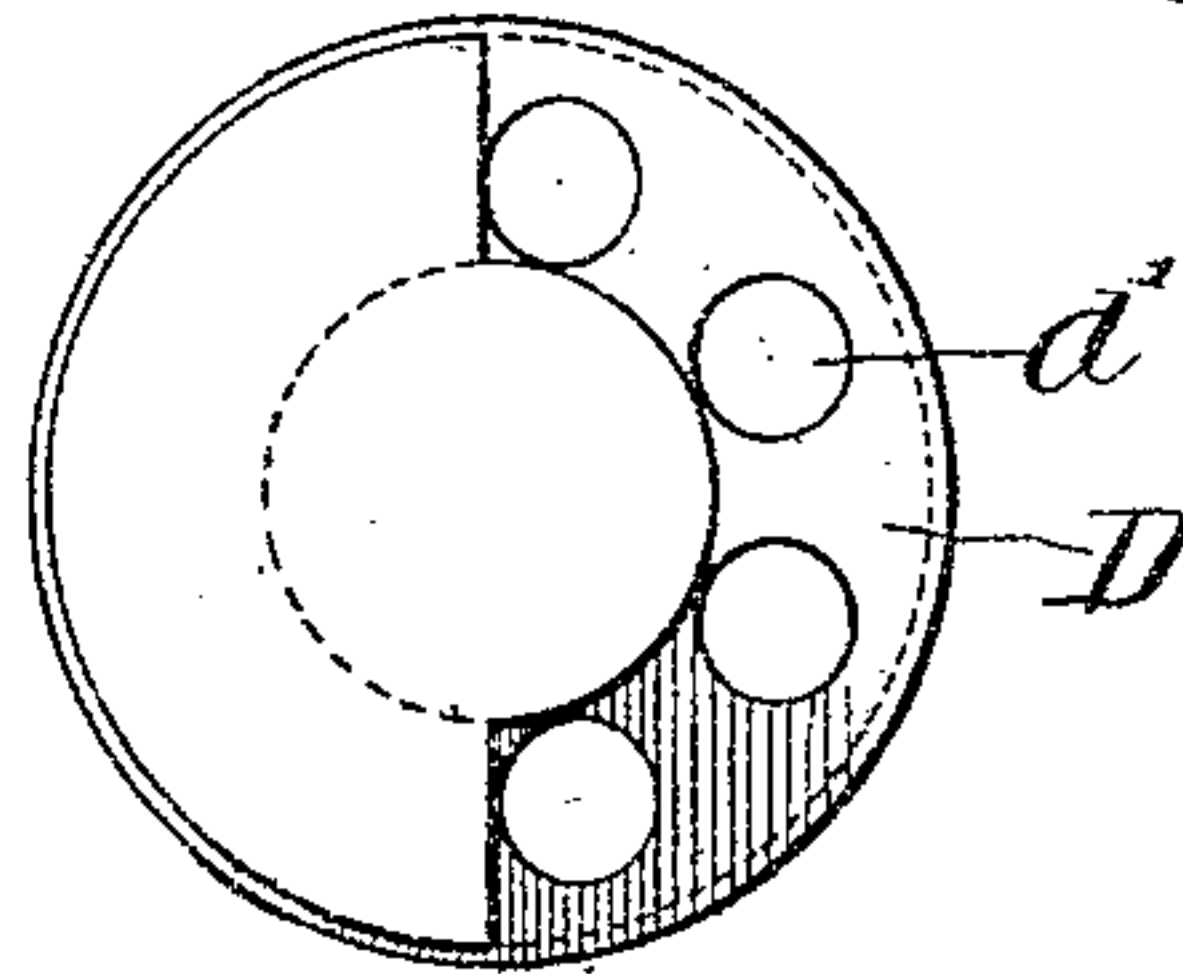


Fig. 4.



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UNITED STATES PATENT OFFICE.

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VALVE.

No. 907,729.

Specification of Letters Patent.

Patented Dec. 29, 1908.

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To all whom it may concern:

Be it known that I, ALBERT P. BROOMELL, a citizen of the United States, residing at York, in the county of York, State of Pennsylvania, have invented certain new and useful Improvements in Valves, of which the following is a description, reference being had to the accompanying drawing, and to the letters and figures of reference marked thereon.

This invention relates to valves, of that class shown in United States Patent No. 843,996, issued February 12th, 1907.

The principal object of the invention is to improve the construction of the valve and its seat, and to so construct the latter that it may be readily interchanged with seats having a greater or less number of ports, or ports of different diameter, in accordance with the size of the radiator on which the valve is employed.

A further object is to provide a novel means for holding the valve seating member in position in such manner as to permit ready removal, and further to form the disk of Babbitt metal or similar alloy, which will permit ready easy adjustment of the valve, and at the same time form a steam-tight seat.

A still further object of the invention is to provide means whereby the valve may be locked in any position to which it may be adjusted.

In the accompanying drawings, Figure 1 is a plan view of a valve constructed in accordance with the invention; Fig. 2 is a vertical sectional view of the same; Fig. 3 is a plan view of the valve-seating disk, detached; and Fig. 4 is an inverted plan view of the valve and its seating disk.

The valve casing A is closed at the top, and is provided with an annular series of recesses *a*. One side of the casing is provided with a threaded nipple *A*², to connect with the radiator, and at the bottom of the casing is a detachable internally and externally threaded cap *A*³, for connection with the source of supply.

Depending from the top of the casing is a tube *a*³, the lower end of which is tapered to form a reduced central opening for the passage of a valve stem *b*, at the lower end of which is a valve B, which is formed integral with the stem, and is approximately semi-circular in form.

Extending inward from the circular wall of the casing is an annular flange *c*, which, in connection with the lower end of the tube *a*³ forms a stop for limiting the upward movement of a disk D, that is formed of Babbitt metal or similar alloy, the central portion of said disk having an opening for the passage of the valve stem. From the upper face of the disk extend two spaced lugs *d* arranged to fit on either side of a radial bar *e*, that extends from the central tube to the casing, and is preferably cast integral therewith.

The disk D is provided with ports *d'*, the number and area of which are governed by the size of the radiator to which the valve is to be attached, and it is a simple matter to detach one disk and place another in position, for the purpose of changing the capacity of the valve or in case renewal is necessary.

The valve stem extends upward through a packing ring *f*, which fits within the frusto-conical recess in the bottom of the tube *a*³, and on this packing ring is a washer *f'* against which bears a helical compression spring *g*, encircling the valve stem. The stem also passes freely through a flanged collar *C*^o that fits in the top of the tube *a*³, and the upper end of the stem is pivoted to a handled valve-operating lever H, having two arms *h*, *h'*. From the arm *h* depends a small lug *i* that bears against the top of the collar *C*^o close to the stem, and from the arm *h'* depends a longer lug *k*, that may fit in any one of the recesses *a*. The spring is under constant stress, and operates to keep the packing compressed; to hold the valve closed; to maintain the lever H in adjusted position, and also to hold the valve seating disk in place, so that no screws, bolts or other fastening means are necessary. The outer end of the arm *h* of the operating lever is provided with a recess *l*, and from the bottom of the recess is bored or tapped downward to receive a screw *m*, the head of which is housed in the recess, and is of such shape as to permit engagement by a removable key or wrench, as indicated by dotted lines in Fig. 2. The screw may be turned down in order to force its lower end into any one of the recesses, *a*, and thus lock the valve in any position to which it may be adjusted.

In order to turn the valve, the screw *m* is turned up out of the recess, and the handled end of the lever is raised, causing the lug *i* to bear on collar C, and act as a fulcrum, in

order that the lug *k* may be raised clear of the recesses. The handle is then turned, and motion transmitted to the valve, in order to open or close any of the ports in the valve seat, and thus control the quantity of fluid passing.

In order to change the capacity of the valve to suit radiators of different size, it is merely necessary to change the valve disk, the disks having ports varying in number, and also varying in diameter, so that the valve may be made of any capacity, by placing a proper valve disk in position.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A valve casing having inlet and discharge openings, a rotary valve therein, means for rotating said valve automatic means for temporarily holding the same in predetermined positions, and independent means for positively locking said valve against movement, in any of its adjusted positions.

2. A valve casing having inlet and discharge openings, a rotary valve therein, means for rotating said valve including a handle, a locking lug carried by said handle and automatic means for causing said locking lug to engage the casing for temporarily holding said valve in predetermined positions, and independent means for positively locking said valve against movement, in any of its adjusted positions.

3. A valve casing having inlet and discharge openings, a rotary valve therein, means for rotating said valve including a handle, a locking lug carried by said handle and engaging the casing for temporarily holding said valve in predetermined positions, a spring for normally holding said lug against said casing, and independent means for positively locking said valve against movement, in any of its adjusted positions.

4. A valve casing having inlet and discharge openings, a detachable seating disk formed of Babbitt metal and located between the openings, said disk having a plurality of ports therein, a valve, means for rotating said valve, whereby one or more of said ports may be opened, and a spring surrounding the stem of the valve and operating to seat the valve and to hold the disk in position in the casing.

5. A valve casing having an inwardly extending flange, a central tube a ported disk engaging the lower face of the flange, interengaging members on casing and disk for preventing rotative movement of the latter, a valve seated against the lower face of the disk and a stem carrying said valve and extending upward through said central tube, and a spring located in said tube for holding said valve against said disk, and said disk against said flange.

6. A valve casing having an inwardly extending flange and provided with a central tube, an arm extending from the casing to the tube, a ported disk seated against the flange and bottom of the tube, and provided with a pair of spaced lugs engaging said arm, a valve seated against the disk, and a spring-elevated stem carrying said valve.

7. A valve casing having an inwardly extending flange and provided with a central tube, the lower end of which is contracted in diameter, a ported disk bearing against the bottom of the flange and tube, a valve, and a stem extending through an opening in the disk, and upwardly through said tube a spring located in said tube and operating to hold the valve seated against said disk.

8. A valve casing having an inwardly extending flange, and provided with a central tube having a contracted lower end, a ported disk bearing against the bottom of the flange and tube, means for preventing rotative movement of the disk, a valve seated against the lower face of the disk, a stem carrying the valve and passing up through the tube, a packing disposed in the lower portion of the tube, a spring bearing on the packing, a collar seated on the spring and having an opening through which the stem passes, and an operating member secured to the stem.

9. A valve casing, a valve therein, a stem carrying the valve, a two-armed lever secured to the stem at a point outside the casing, a collar through which the stem passes, a lug carried by each arm of the lever, one lug bearing on the collar and the other on the casing, a valve-supporting spring acting on said collar, and a locking screw carried by one of the arms of the lever.

10. In a valve of the class described, a casing having an annular series of recesses, a valve, a carrying stem therefor, a two-armed handled lever pivoted to said stem, a lug carried by one arm of the lever, and an adjustable locking screw carried by the other arm of the lever, the lug and screw being arranged to enter the recesses to lock the valve in adjusted position.

11. In a valve of the class described, a casing having an annular series of locking recesses, a valve, a spring-elevated stem carrying the valve, a collar surrounding the stem above the spring, a two-armed lever pivoted to the stem and having a lug bearing on the collar, a second lug carried by the handled arm of the lever, and arranged to engage the recesses, the opposite arm of said lever having a recess, and a tapped opening in alignment therewith, and a screw mounted in said opening and arranged to engage the locking recesses, the head of the screw being housed in the arm recess.

12. In combination a valve casing, a segment closing valve therein, said valve having a stem formed integral therewith, a detach-

able seating disk having a plurality of ports therein, and means for rotating said valve whereby said segment may be turned successively over said ports.

5 13. In combination a valve casing, a segment closing valve therein, said valve having a stem formed integral therewith, a detachable seating disk having a plurality of ports therein and means for rotating said valve
10 whereby said segment may be turned successively over said ports, and means for holding said seating disk against rotation.

14. A valve casing having inlet and discharge openings, a ported disk detachably
15 held within said casing, means for holding said disk from rotation, a segmental closing valve seated against said disk, a stem formed integral with said valve and a spring for hold-

ing said valve against said ported disk and said ported disk in place in the casing. 20

15. A valve casing having inlet and discharge openings, rotary valve therein including a valve stem, a handle pivoted to said valve stem, a lug carried by said handle and engaging depressions in the top of said
25 casing, for temporarily locking the said valve in predetermined positions, and a key operated locking screw carried by said pivoted handle for permanently locking said valve when desired. 30

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

ALBERT P. BROOMELL.

Witnesses:

ROY C. NEY,

ROSA M. NEUMAN.