

No. 793,835.

PATENTED JULY 4, 1905.

O. C. KINGCAID.
AUTOMATIC VALVE TRAP.
APPLICATION FILED JAN. 16, 1905.

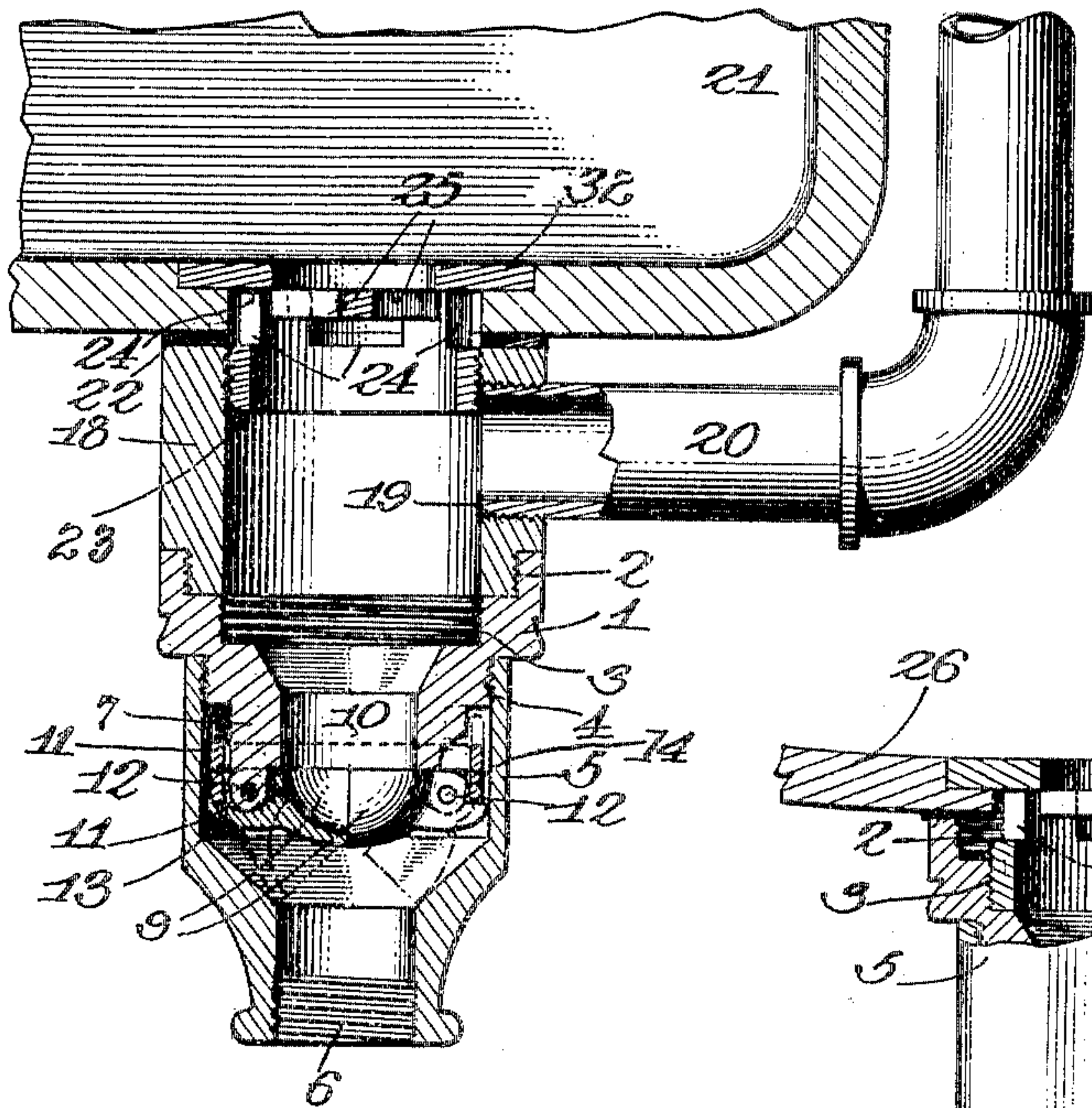


Fig. 1.

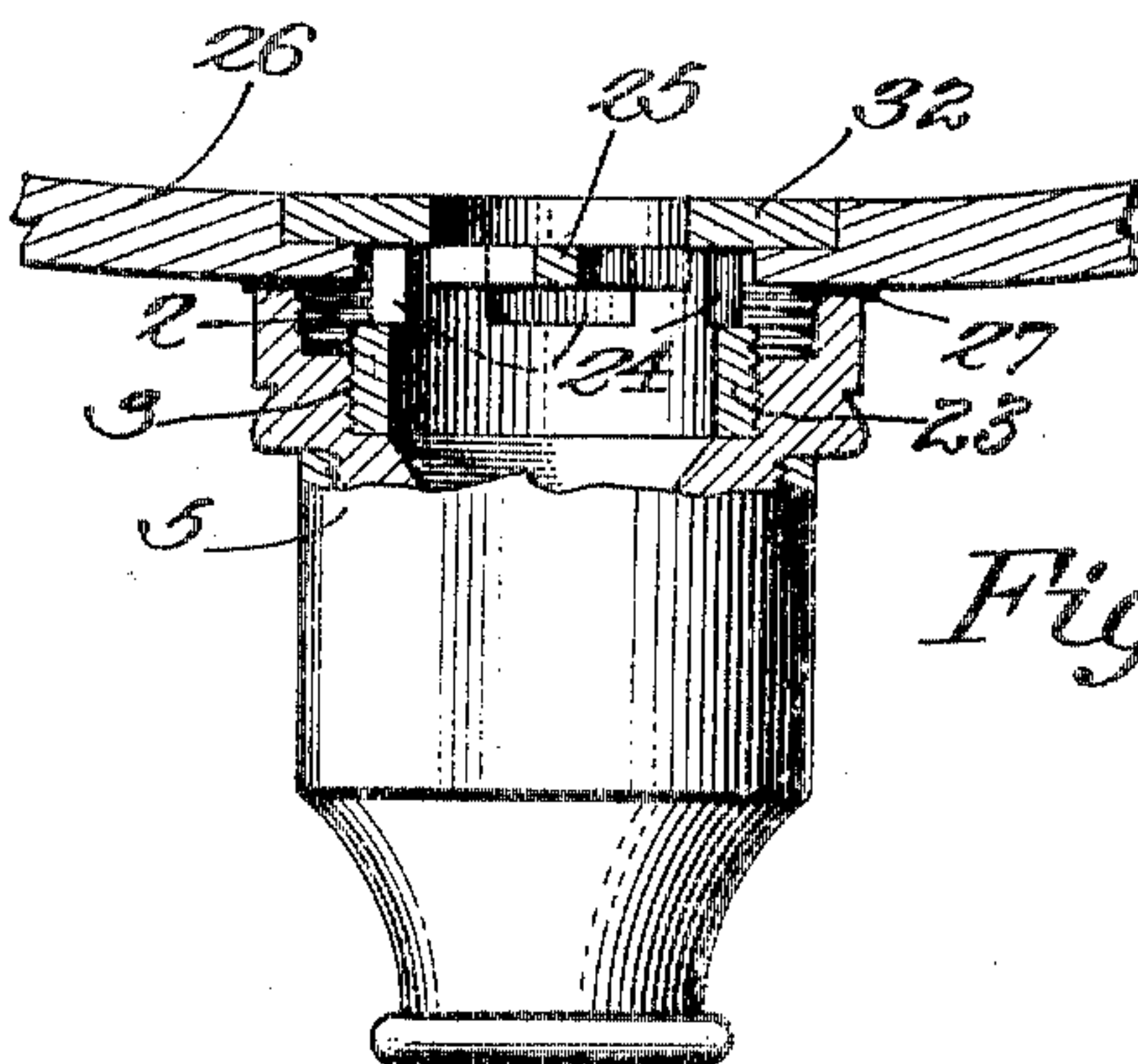


Fig. 2.

Fig. 4.

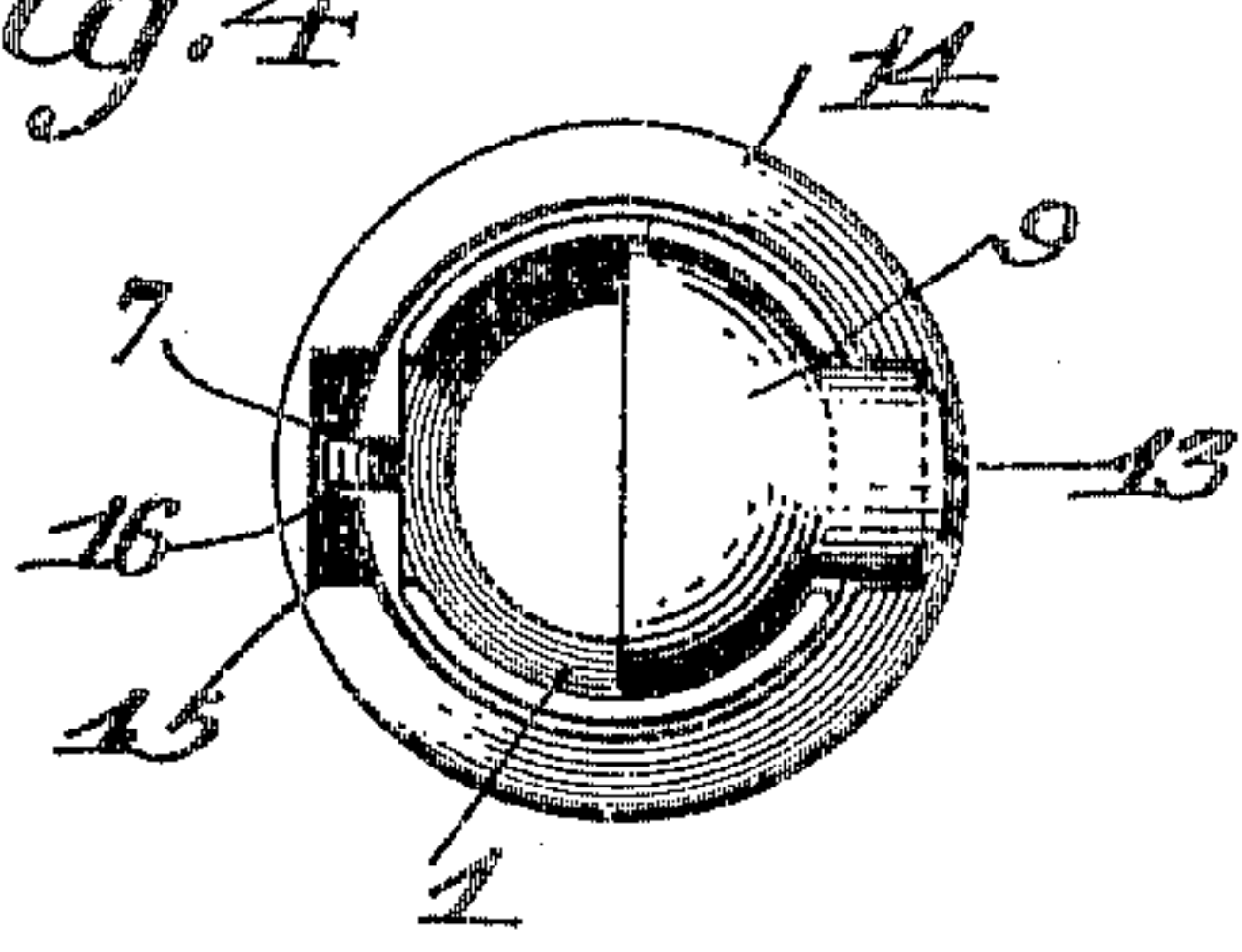


Fig. 5.

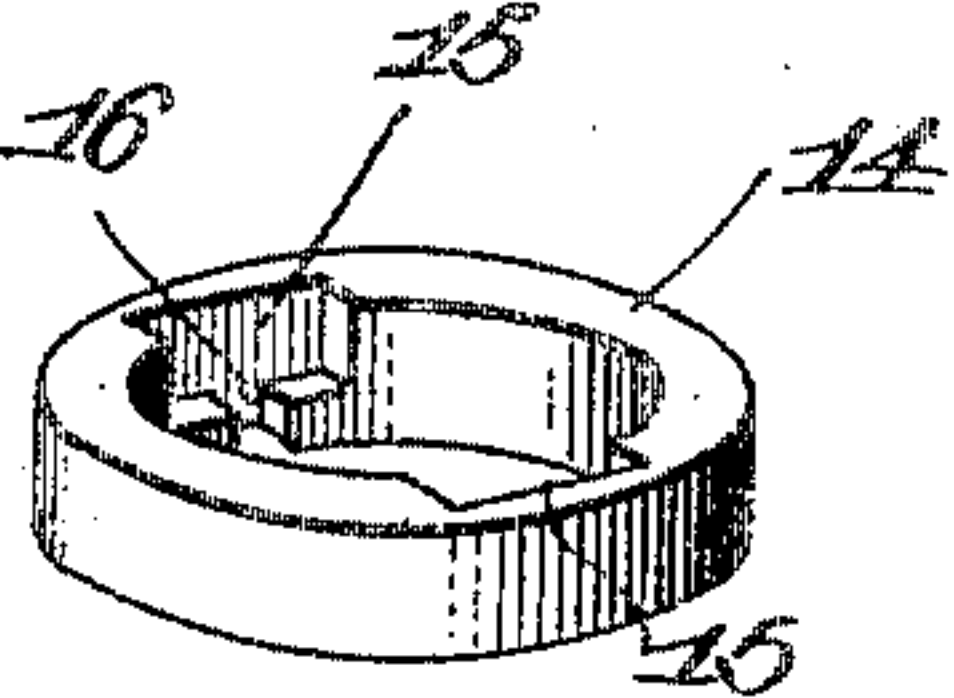


Fig. 6.

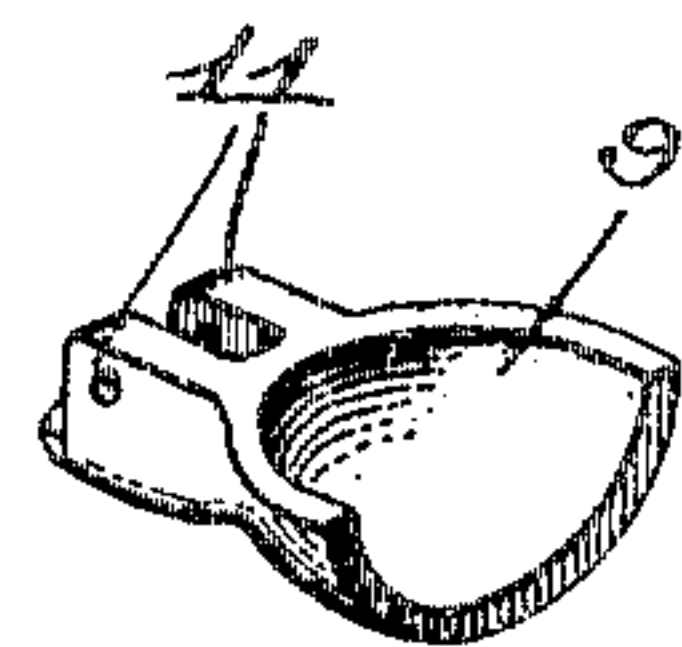


Fig. 3.

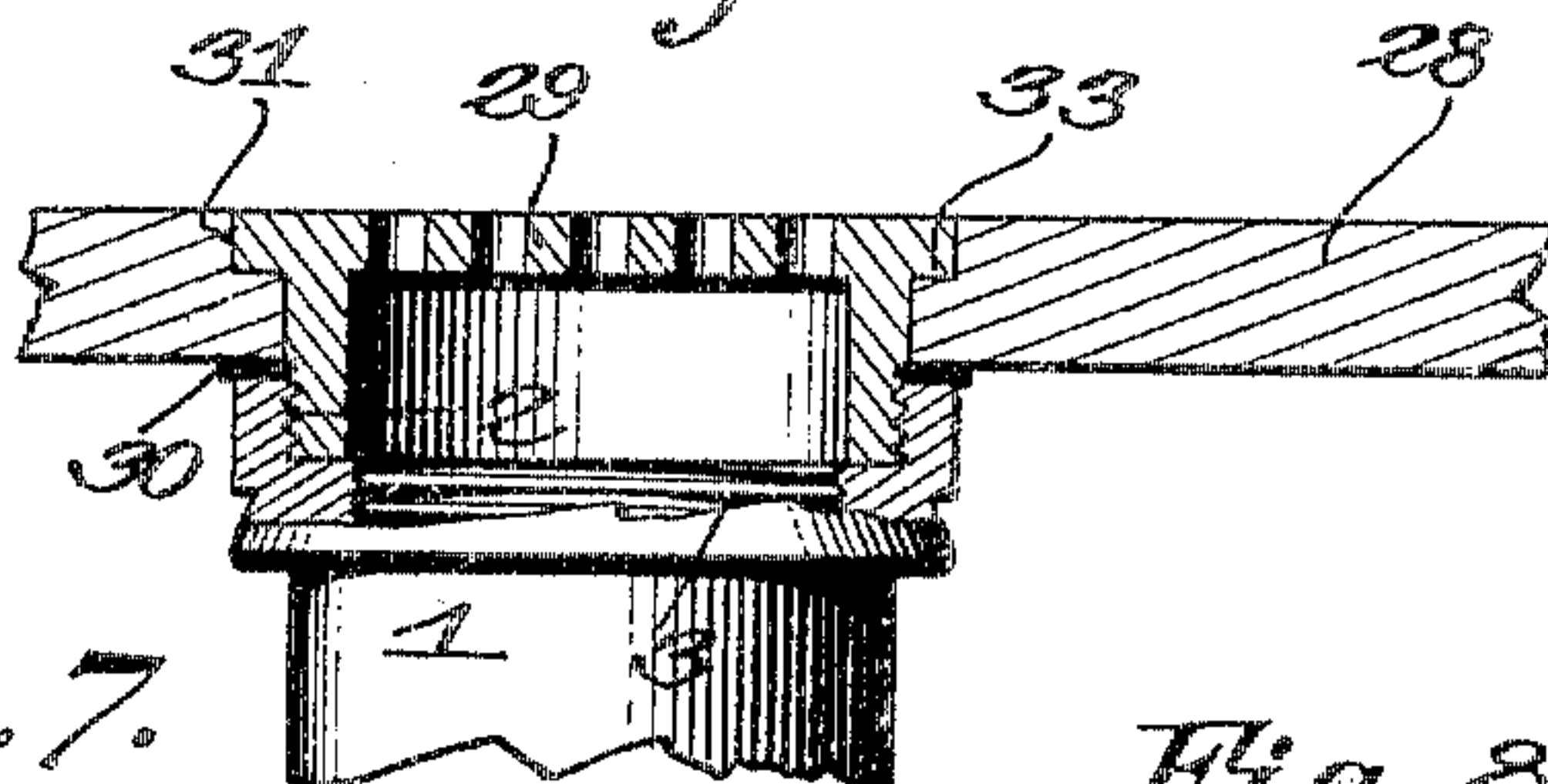


Fig. 7.

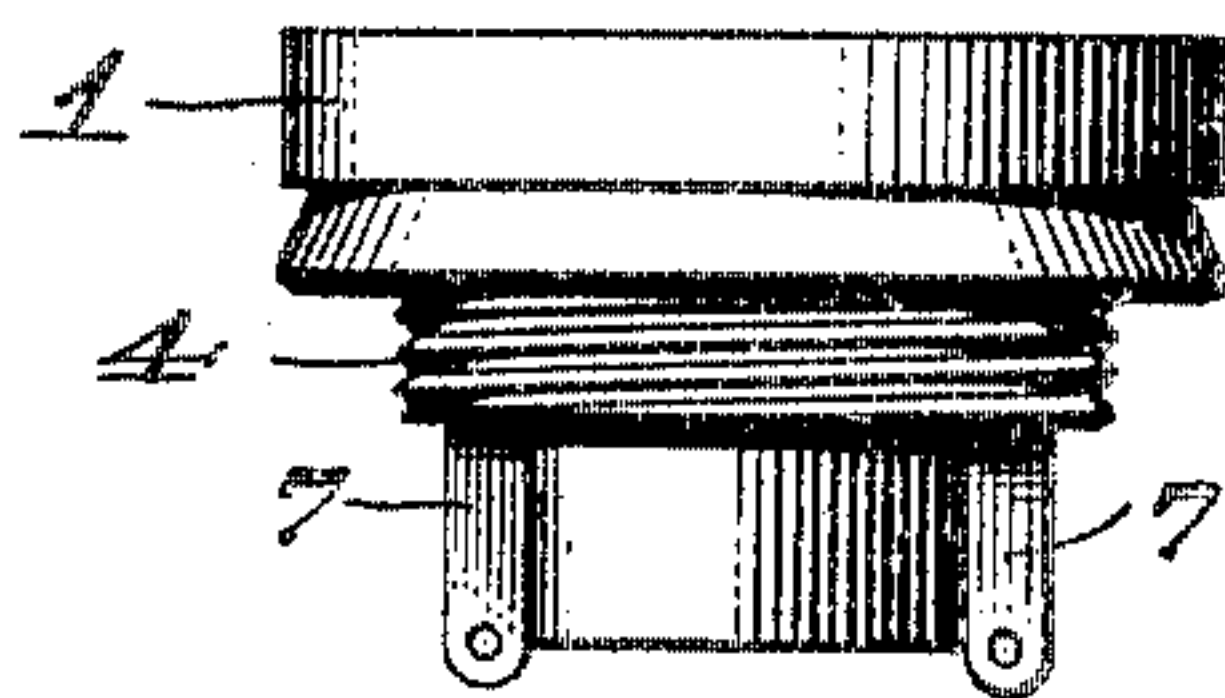
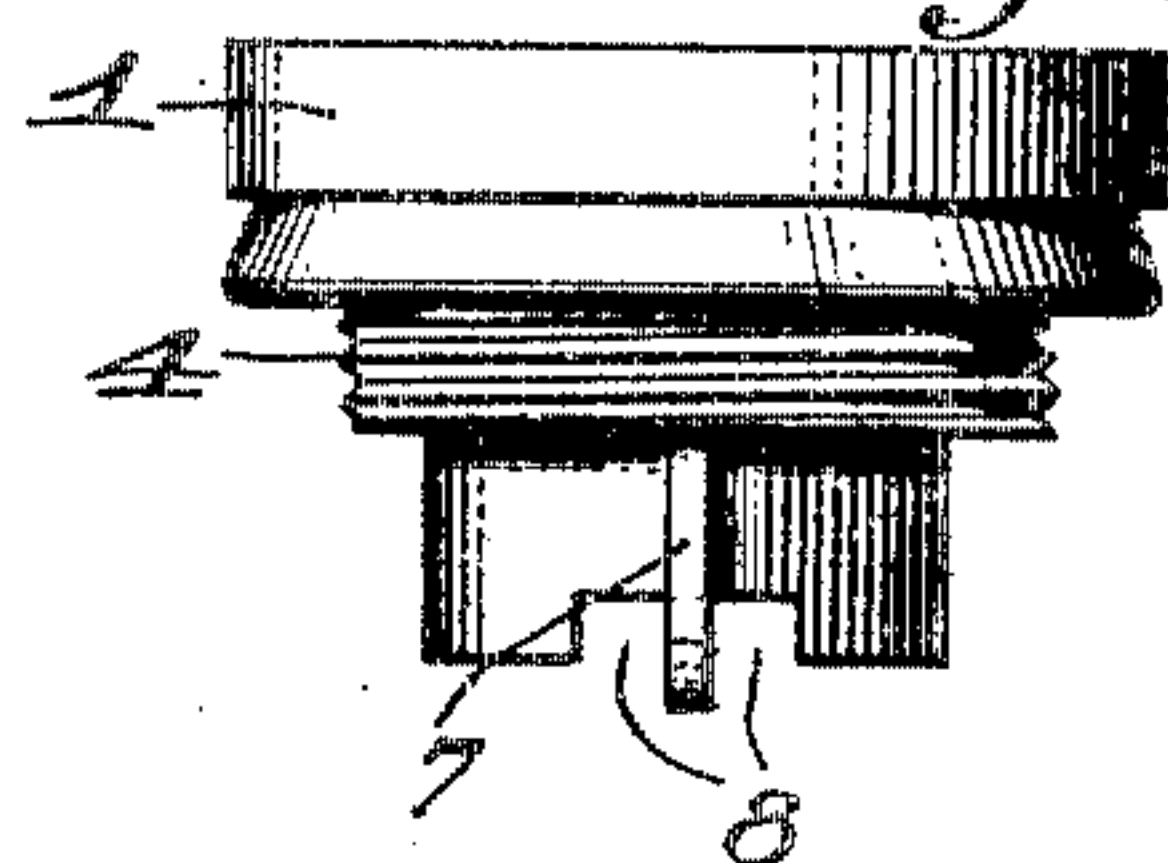


Fig. 8.



Witnesses

E. J. Blum
Wm. Baggett

Oliver C. Kingcaid, Inventor.
by *C. A. Snow*
Attorneys

UNITED STATES PATENT OFFICE.

OLIVER CLARK KINGCAID, OF FAIRMONT, WEST VIRGINIA.

AUTOMATIC-VALVE TRAP.

SPECIFICATION forming part of Letters Patent No. 793,835, dated July 4, 1905.

Application filed January 16, 1905. Serial No. 241,375.

To all whom it may concern:

Be it known that I, OLIVER CLARK KINGCAID, a citizen of the United States, residing at Fairmont, in the county of Marion and State of West Virginia, have invented a new and useful Automatic-Valve Trap, of which the following is a specification.

This invention relates to automatic-valve traps for bath-tubs, lavatories, sinks, and the like; and it has among its objects to improve and to simplify the construction and operation of this class of devices, to insure the automatic opening and closing of the valve members at the proper times, to provide a construction which is not liable to become obstructed or impeded by foreign substances, and to provide a construction whereby a single standard size valve will be applicable to various fixtures, as above indicated.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that the right is reserved to any changes, alterations, and modifications to which recourse may be had within the scope of the invention and without departing from the spirit or sacrificing the efficiency of the same.

In said drawings, Figure 1 is a vertical sectional view showing the invention applied in operative position to a bath-tub. Fig. 2 is a side elevation, partly in section, showing the application of the invention to a lavatory-bowl. Fig. 3 is a side elevation, partly in section, illustrating the application of the invention to a sink or similar fixture. Fig. 4 is a bottom plan view of the valve-casing with one of the valve members in position and the other valve member removed. Fig. 5 is a perspective detail view of the annular counter-weight for retaining the valve members in a

closed position. Fig. 6 is a perspective detail view of one of the valve members detached. Fig. 7 is a detail side view of the valve-casing. Fig. 8 is a side view of the same, taken at right angles to Fig. 7.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

The valve-casing 1 of the device is provided at its upper end with internally-threaded bores 2 3 of different diameters, the upper bore 2 being obviously the largest. Said valve-casing also has an externally-threaded portion 4 for connection with a reduction-casing 5, within which the lower portion of the valve-casing is accommodated and the lower end of which is internally threaded, as shown at 6, for connection with the waste-pipe. The valve-casing below its externally-threaded portion 4 is reduced in diameter and is provided with oppositely-disposed vertical flanges or webs 7 7, adjacent to which notches 8 are formed in the lower edge of the casing. The valve is composed of two members 9 9, combining to form an approximately semispherical cup adapted to form a tight closure for the lower end of the longitudinal bore 10 of the valve-casing. The valve members are provided with ears or lugs 11, straddling the flanges 7, with which they are pivotally connected by means of pins 12. Said ears or lugs are accommodated in the notches 8 at the lower edge of the valve-casing, and said valve members are provided below said ears or lugs with outwardly-extending lateral flanges 13, serving to support a ring or annulus 14, which is slidably mounted exteriorly upon the valve-casing and which constitutes a weight, which by impinging upon the flanges 13 at the outer ends of the valve members serves to keep the latter normally in a closed position. The annular weight 14, as will be best seen in Fig. 5 of the drawings, is provided upon its inner side with recesses 15 for the accommodation of the pivotal ears of the valve members, and it is also provided with notches, as 16, engaging the web 7 of the valve-casing, upon which the said weight is thus guided without danger of displacement.

The valve-casing 1, with its related parts, and the reduction-casing 5 are always used in con-

nection with each other, the reduction-casing constituting a protective cover for the operative parts of the valve, which may, however, be readily disassembled from the valve-casing proper for the purpose of affording access when necessary to the parts of the valve.

The valve device may be fitted to various fixtures by means which will now be described.

10 When the device is to be used in connection with a bath-tub, a pipe-section 18, having a lateral threaded opening 19 for the reception of the overflow-pipe 20, is threaded into the bore 2 of the valve-casing, the upper edge of the pipe-section 18 abuts against the under side of the bath-tub 21, a washer 22 of flexible material being interposed for the purpose of insuring a tight joint. The upper end of the pipe-section 18 is interiorly threaded for the reception of the plug-seat 23, by tightening which the parts will be securely drawn together. The plug-seat has been illustrated as being provided with the usual cross-bars 25, constituting a strainer, and it has further been shown as provided with lateral openings 24 to assist in permitting the water to flow freely therethrough from the tub.

In applying the device to a lavatory-bowl, which has been indicated at 26 in Fig. 2 of the drawings, the pipe-section 18 is dispensed with and the plug-seat 23 is threaded directly into the bore 3 of the valve-casing, the dimensions of the parts being obviously gaged with this end in view. In this case a washer, as 27, is interposed between the bowl 26 and the upper edge of the valve-casing.

In the application of the invention to a sink, urinal-bowl, or similar fixture, which has been indicated at 28 in Fig. 3, a strainer 29 is provided, which is threaded directly into the bore 2 of the valve-casing, between which and the bottom of the fixture a washer 30 is interposed.

In any of the various forms of the device the fixture is preferably provided with an annular recess or seat, as 31, for the reception of a flange, which upon the plug-seat has been designated 32, while upon the strainer the said flange is designated 33.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood. The weight of the annulus 14 is sufficient to retain the valve members normally in a closed position. The weight of water impinging upon the upper sides of the valve members will tend to swing said members open apart from each other, thus permitting the passage of the water, the valve being instantly and automatically restored to normal closed position as soon as the water has passed.

Having thus described the invention, what is claimed is—

1. A tubular valve-casing, a valve member pivotally connected therewith to form a clo-

sure, and a slidable member guided upon the casing and impinging upon an extended portion of the valve member.

2. A tubular valve-casing, valve members pivotally connected therewith and cooperating to form a closure, and a slidably-supported member guided upon the casing and impinging upon extended portions of said valve members to keep the latter normally closed.

3. A valve-casing, valve members pivotally connected therewith and having laterally-extended flanges, and a slidable weight member guided upon the casing and supported upon said flanges.

4. A valve-casing, valve members pivotally connected therewith and cooperating to form a closure, and an annular weight member guided upon the casing and impinging upon extended portions of the valve members to retain the latter normally in a closed position.

5. A valve-casing, valve members pivotally connected therewith and cooperating to form a closure, said valve members being provided with laterally-extending flanges, and an annular weight member slidably engaging the casing and supported by the laterally-extending flanges of the valve members.

6. A valve-casing having notches at its lower edge and provided with exterior webs or flanges, valve members cooperating to form a closure, said valve members being provided with ears accommodated in the notches of the valve-casing and pivotally connected with the flanges, said valve members being provided with outward-extending flanges, and an annulus slidably engaging the valve-casing, provided with recesses engaging the lugs of the valve members and the flanges of the casing; said annulus being supported upon the outward-extending flanges of the valve members.

7. A valve-casing having an exterior threaded portion and a reduced downward extension, valve members pivotally supported at the lower edge of said extension and cooperating to form a closure, an annular weight member engaging the valve members and tending to keep the latter normally closed, and a reduction-casing engaging the exteriorly-threaded portion of the valve-casing; said reduction-casing constituting an exterior casing for the valve members and provided at its lower end with means for connection with a waste-pipe.

8. The combination with two separably-connected members adapted for connection respectively with a supply and with a waste pipe and one of said members having a reduced portion accommodated within the other member; of valve members pivotally connected with said reduced portion and cooperating to form a closure; and an annulus slidably engaging the said reduced portion, impinging upon the valve members and tending to keep the latter normally in a closed position.

9. A valve-casing having a bore internally threaded at its upper end, valve members sup-

ported pivotally at the lower end of said casing and cooperating to form a closure, and an annulus slidably engaging the casing and impinging upon lateral extensions of the valve members, in combination with a pipe-section having a lateral opening for an overflow-pipe, said pipe-section being threaded into the valve-section, and a plug-seat threaded into said pipe-section; said valve-casing being provided with an auxiliary threaded bore for direct engagement with said plug-seat.

10. A valve-casing, valve members connected pivotally therewith and cooperating to

form a closure, said valve members being provided with lateral extensions, and an annular weight member slidably engaging the casing and impinging upon the lateral extensions of the valve members; in combination with a strainer threaded into the valve-casing.

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

OLIVER CLARK KINGCAID.

Witnesses:

M. H. KINKAID,
CARL D. SPRINGER.