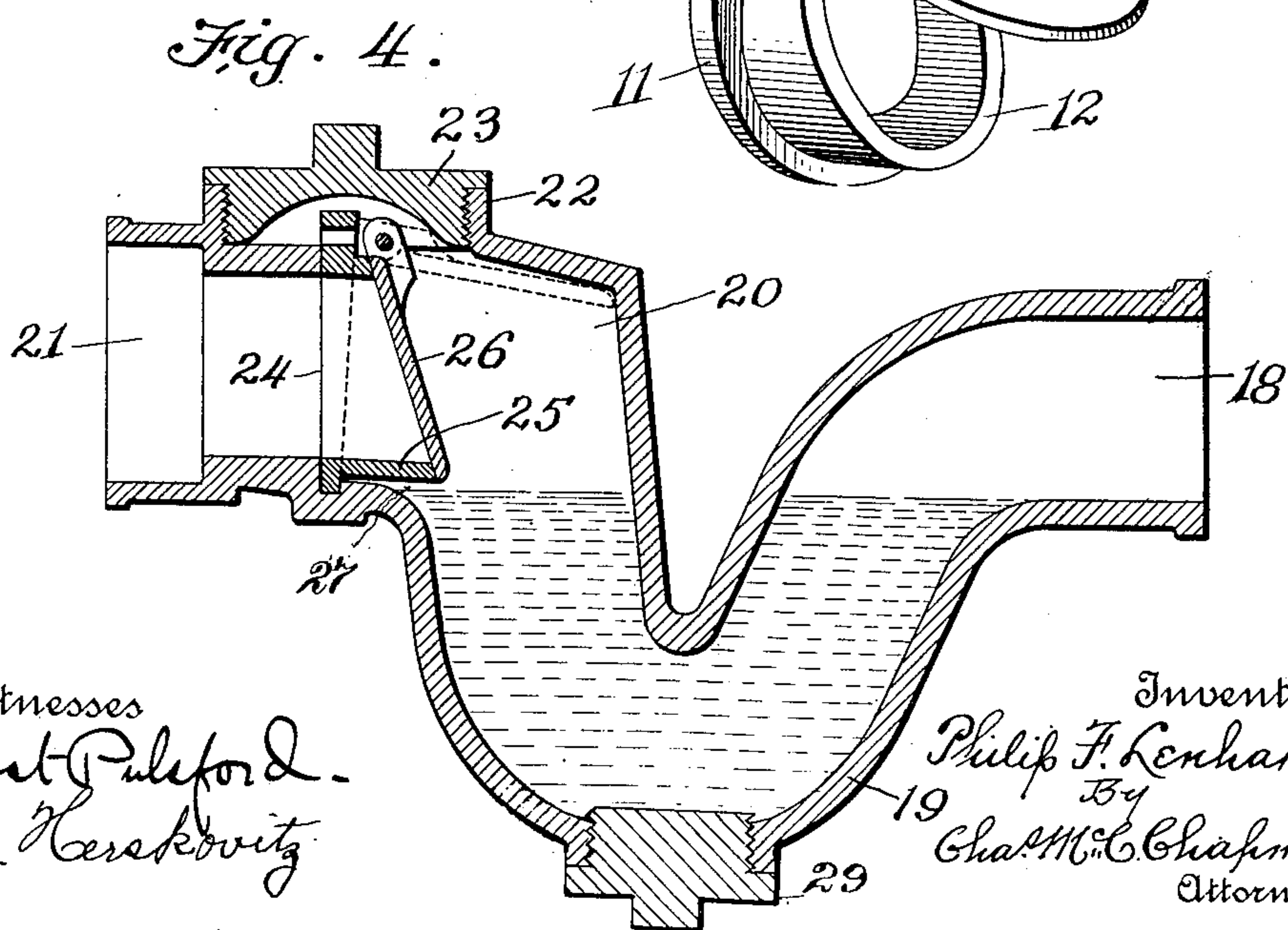
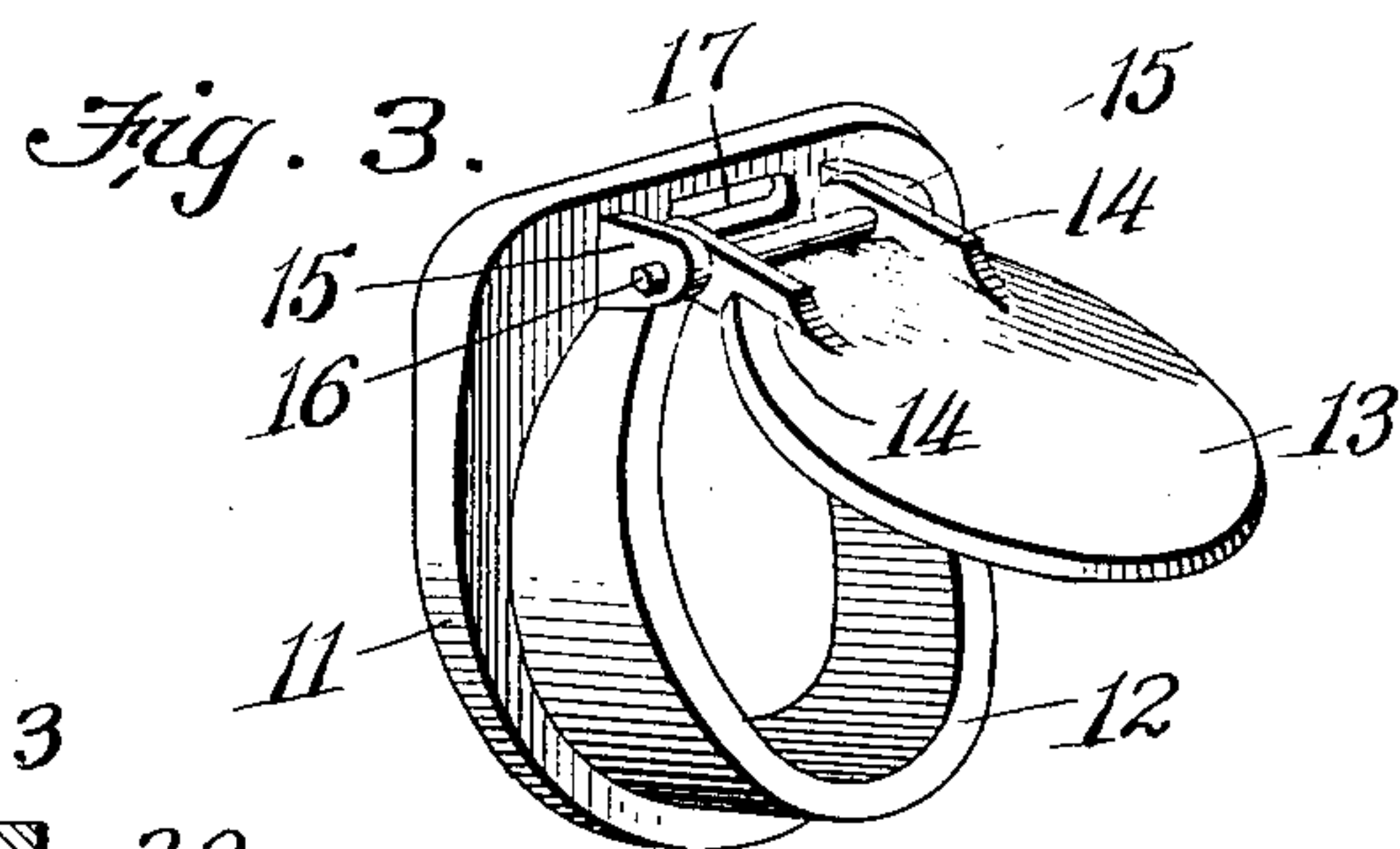
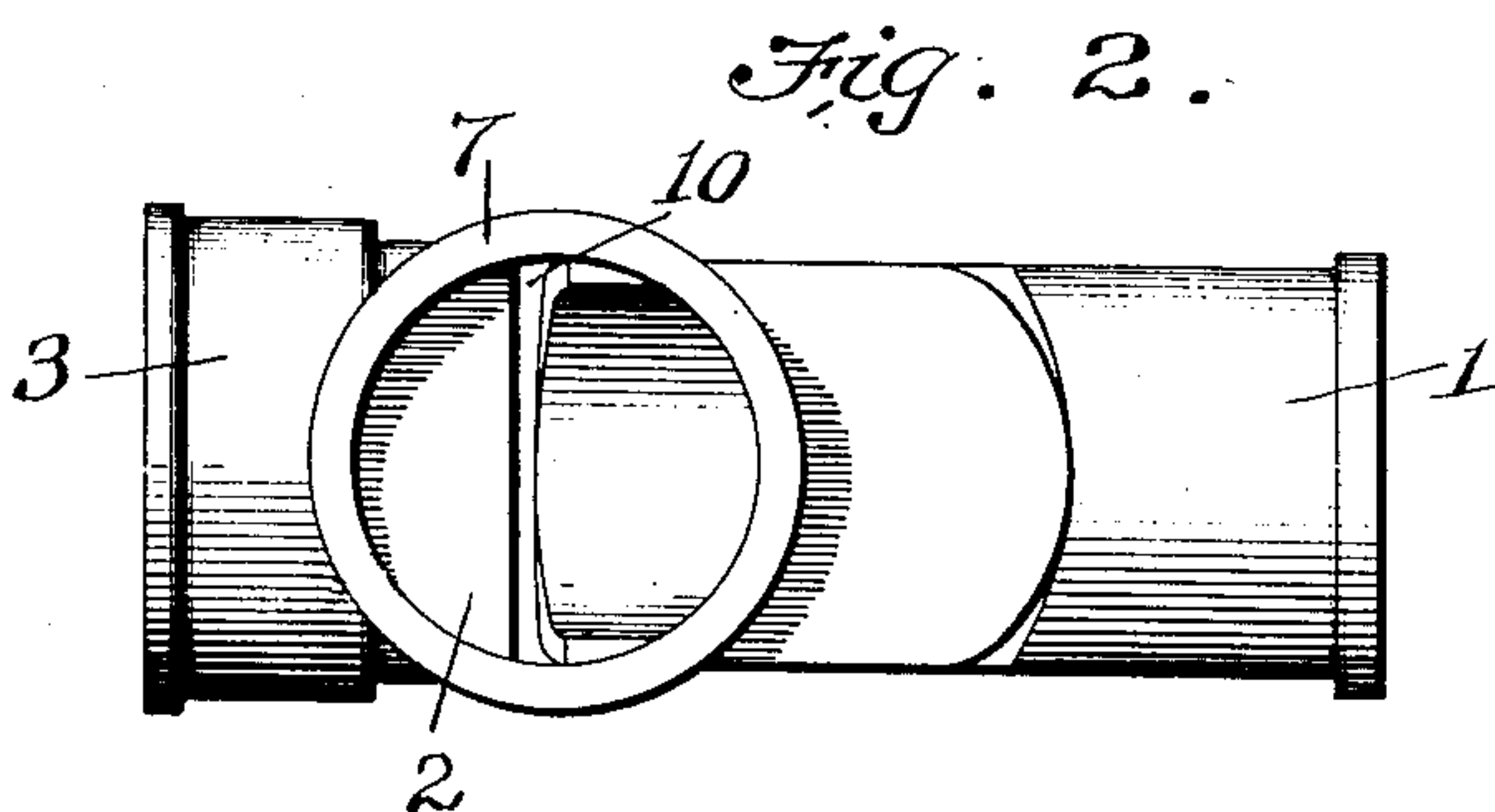
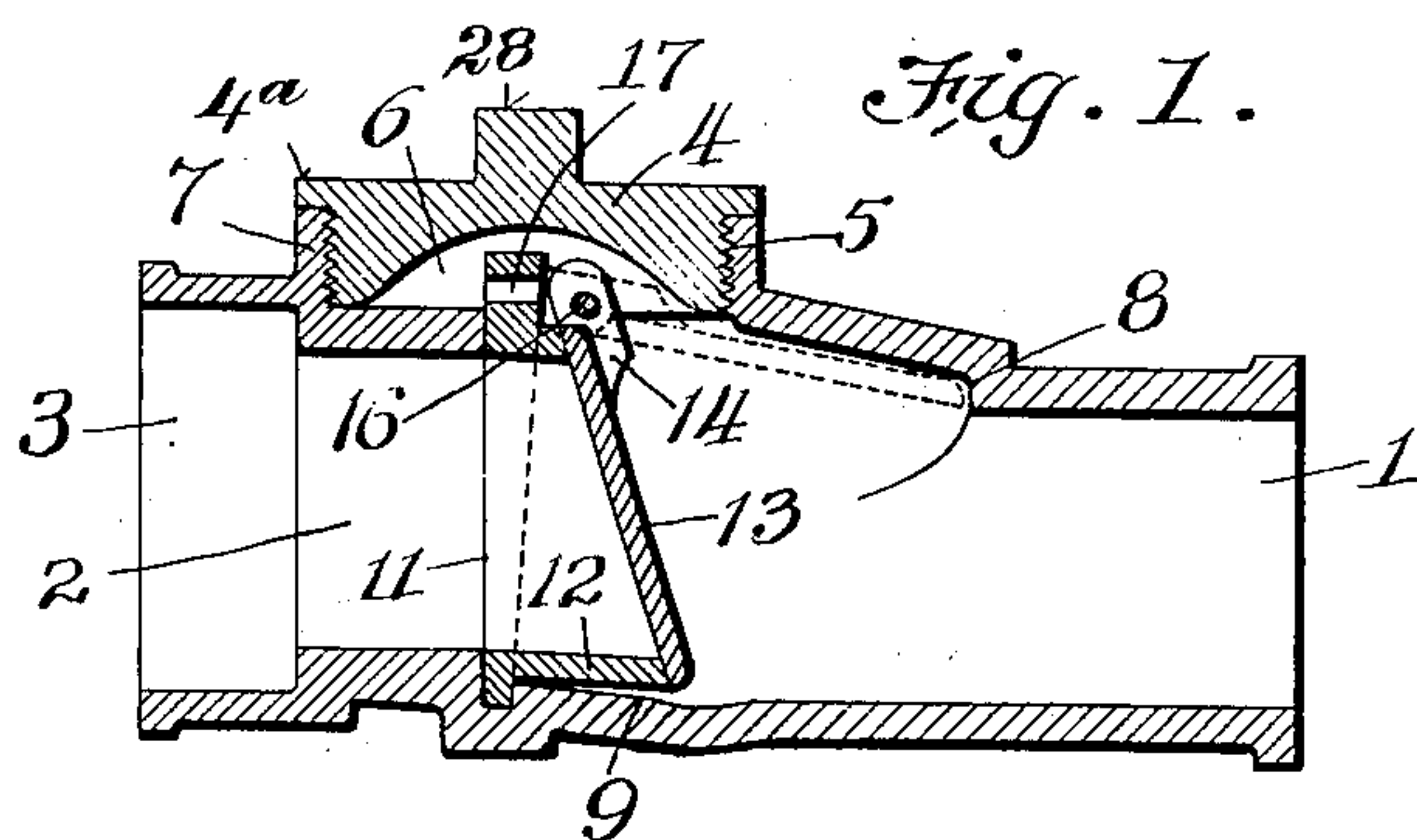


No. 814,788.

PATENTED MAR. 13, 1906.

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SEWER VALVE OR TRAP.  
APPLICATION FILED SEPT. 10, 1904.



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# UNITED STATES PATENT OFFICE.

PHILIP F. LENHART, OF BROOKLYN, NEW YORK, ASSIGNOR TO PERFECT SEWER TRAP MANUFACTURING COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## SEWER VALVE OR TRAP.

No. 814,788.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed September 10, 1904. Serial No. 223,952.

*To all whom it may concern:*

Be it known that I, PHILIP F. LENHART, a citizen of the United States, residing in Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Sewer Valves or Traps, of which the following is a description.

This invention relates to improvements in sewer traps or valves, and particularly to the type or class of such devices which automatically open to permit the passage of water, &c., and automatically close to prevent the flow of backwater or gas.

It is an object of this invention to provide a compact and effective sewer valve or trap which can be located or disposed in any character of pipe-line, water, or sewer connection.

It is another object of this invention to provide an effective and cheaply-constructed sewer valve or trap which is simple in construction and operation and accessible for purposes of cleaning, repair, and examination.

Another object of this invention is to provide a sewer valve or trap which will permit the passage of all fluids or substances into sewers or reservoirs, but which will prevent the backing up or flowing of such fluids or substances in the opposite direction.

With the above objects in view and others which will appear during the course of this description my invention consists in the parts, features, and combinations of elements hereinafter described and claimed.

In the drawings forming part of this specification, Figure 1 represents a longitudinal vertical section of the trap or valve and its casing. Fig. 2 is a top plan of the casing with the hand-hole plug and valve removed. Fig. 3 is a perspective view showing details of the valve, and Fig. 4 shows in longitudinal vertical section the application of my invention to the style of traps technically known as "running" and "basin."

Referring to the drawings, the numeral 1 indicates the casing, which, as shown, is made in one piece, this being important not only from the standpoint of manufacture, but also for the reason that it avoids the possibility of leakage from pressure, bad packing in joints, or expansion and contraction under changes of atmosphere. As shown, the "inner" section is much shorter than the "outer"

section and is provided with the valve-seat portion 2 and the enlarged coupling portion 3, the two being of different dimensions for obvious structural reasons. The valve-seat portion 2 extends a short distance beyond and partially closes the hand-hole, which is sealed by the cap or plug 4, formed with screw-threads to enable it to be screwed into place, as shown at 5, in the vertically-projecting flange 7 of the casing. The screw plug or cap 4 in its bottom is provided with a concave portion or recess, producing the space 6 between the valve-seat portion 2 of the casing and the bottom of the plug 4, this chamber or space 6 being provided for the reception of the upper portion of the valve, as hereinafter described. The top flange 4<sup>a</sup> of the cap rests on the flange 7 and closes and tightly seals the hand-hole. The outer section of the casing is also provided with an enlarged portion at its top, providing the shouldered receptacle or depression 8 for the reception of the valve-lid, as hereinafter described. At its bottom the casing is provided with the depression 9, which is located directly opposite to and below the hand-hole, which is closed by the plug 4, and the casing is also provided with the groove 10 in the forward end of the valve-seat 2 for the reception and retention of the valve, said groove being flared from bottom to top and open at the top, as shown in Fig. 2.

The automatically-acting valve consists of the body portion 11, which is caused to converge from top to bottom, as shown in Figs. 1, 3, and 4, and which is made of dimensions such that it fits tightly within the groove 10 and projects above and beyond the top of the latter, as shown in Figs. 1 and 4. As shown in Fig. 3, the body of the valve is provided with the laterally-extending integral flange portion 12, proportioned so as to be much wider at its bottom than at its top. The valve-lid 13 is made of a size to completely cover the opening in the flange 12 and be substantially flush all around with the outer edge and surface of said flange, said valve-lid being provided with the lugs 14, apertured for the reception of the pivotal pin 16, which passes through said lugs and also through ears 15, formed upon or attached in any suitable manner to the body of the valve 11 at the top of the flange 12. It will be noted that



the lugs 14 on the valve-lid are located between and play closely to the ears 15 on the valve-body, this construction and disposition being for the purpose of preventing any lateral play between the valve-lid and the flange 12, which would cause the structure to leak and become ineffective and defective in operation, also to strengthen the pivotal connection between the valve-lid and valve-body by relieving the pivotal pin 16 of lateral strain and throwing whatever strain or drag there may be upon the ears and lugs. By the construction just described a very simple, effective, strong, and easy-working pivotal connection is produced and one which does not easily get out of order and which may be readily repaired without having to renew any of the main parts of the valve. At the top of the flange 11 an aperture or elongated slot is provided for the purpose of lifting the valve from its seat, as hereinafter described. The valve is composed or made of a metal, composition, or otherwise which will not corrode, rust, or be otherwise injuriously affected by liquids or gases.

In basin-traps, running-traps, or others provided with angles or elbows, as shown in Fig. 4, the body portion of the casing would be provided with the outer section 18, the basin or elbow portion 19, the shoulder portion 20, and the coupling portion 21. The screw-threaded flange portion of the hand-hole 22 receives the plug 23 in the same manner as shown in Fig. 1, and the structure of said plug or cap is substantially the same as that shown in Fig. 1. The valve-seat 24, the valve-body 25, and the valve-lid 26 are all substantially the same as shown in Figs. 1 and 3. Obviously the trend or disposition of the coupling portion 21 is immaterial in so far as the important features of my invention are concerned, for in basin-traps the coupling will extend vertically or at an angle relatively to the valve and valve-seat, and in basin-traps the elbow 19 will be provided with a hand or drain hole fitted with and tightly closed by a plug or screw-cap 29, Fig. 4, in general structure substantially the same as the plug 4. The importance of my invention in this connection will now be appreciated when it is considered that to clean out a basin-trap the plugs 23 and 29 are removed, the valve lifted out of place, and a hose inserted for complete and rapid flushing, and if from long disuse the water in the elbow should become evaporated no gas can pass up through the basin because of my automatically closing and normally closed valve.

It will now be seen that the casing in Fig. 1 is so constructed as to provide a seat for the valve which is afforded by the groove 10, the flange 11 of the valve being entered at the top of the groove at its largest portion and pushed down into place, as shown in Fig. 1,

where it tightly fits and wedges itself in place, it being only necessary to putty or pack the joint thus made between the valve and its seat in order to prevent leakage. The space between the valve-seat 2 and the cap or plug 4 is provided for the purpose of receiving the top of the valve-body and to allow the free working of the lid and pivotal portion of the valve, it being apparent that when it is desired to remove the valve from its seat it is only necessary to unscrew the plug 4, insert an implement in the aperture or slot 17, and remove the valve from its seat by using the top of the flange 7 as a fulcrum. The depression 8 in the top of the casing is for the reception of the valve-lid 13, as shown by dotted lines in Figs. 1 and 4, this permitting the free passage of all fluid or substances through the valve and casing and also enabling the valve-lid 13 to become flush with the valve-casing at the top and present a substantially uniform or continuous surface at the top of said casing from the inner end of the valve-seat 2 to the end of the casing. The depression 9 at the bottom of the casing is for the purpose of affording a clearance between the enlarged portion, lip, or bottom of the flange 12 and the casing to provide for the reception or collection of sediment or other matter in case of the backing up of the fluid, which otherwise might tend to obstruct the valve-passage and prevent the normal operation of the valve-lid. This is also provided for in the form shown in Fig. 4, as at 27, the structure of the casing in this instance being such as to prevent any sediment or obstruction collecting about the valve-opening, so as to interfere with the proper working of the valve-lid.

It will be noted that the valve is disposed in its seat directly below the hand-hole, this being of great importance in connection with cleaning out the sewer-trap or removing the valve structure for any purpose, and by covering the valve structure with a cap or plug inserted and tightly retained in the hand-hole the breaking and injury to the valve are avoided and backflow of fluids is prevented, the plug or cap 4 being tightly screwed into place by means of a wrench applied to the angular extension 28. It will also be noted that by this structure I am enabled to make my casing of a single piece or casting, as heretofore mentioned, thus providing a strong, water-tight, and compact structure. Furthermore, by extending the valve-seat 2 so as to cause the same to project partially under the hand-hole and partially close the same means are provided whereby the chance for sewage to collect in and about the hand-hole is minimized, because the valve-seat 2 continues the passage through the casing 1 and directs the sewage through the same and beyond the hand-hole, thus preventing said sewage from reaching the hand-hole and clogging and accumulating thereat, and, again, as



previously stated, the valve-seat holds the valve structure in such position that when the plug 4 is removed from the hand-hole said valve structure can be quickly and readily removed without having to clean away sewage and without any difficulty or obstruction caused by the latter.

From the above description it will be understood that I have provided a simple, reliable, and effective device which automatically opens to permit the discharge of sewage, &c., and which will automatically close to prevent the passage of backwater, gas, &c. The valve-lid is arranged at an angle so that by its own weight it will automatically drop or swing into place and completely close the passage through the casing and remain tightly closed under all normal and practical conditions.

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

1. In combination, a valve-casing provided between its ends with a reduced portion having a valve-seat provided with a groove open at the top and the side walls of which diverge from bottom to top, and a valve located in said seat having a body portion shaped to conform to the groove of the valve-seat, whereby the valve can be dropped into the seat from above and will automatically set and fit tightly in said seat by the wedging of the one within the other.

2. A sewer-trap having in combination a casing provided with a hand-hole formed by a projecting flange; a valve-seat projecting beyond and partially closing the hand-hole; a plug or cover provided with a recess in its bottom, for sealing the hand-hole, thus providing a chamber between the valve-seat and the plug; and a valve structure retained in said seat and projecting well into said chamber and provided in said projecting portion with means to receive a removing implement, whereby when the plug is removed the valve structure presents itself for easy and ready removal.

3. A sewer-trap comprising a casing provided with a valve-seat having a flared groove, in combination with a valve the body portion of which is provided with an extended

flange and with a converging portion cooperating with and automatically tightly wedging itself into the flared groove, and said body portion having pivoted thereto above the flange a valve-lid hanging at an angle to the valve-body against said flange, whereby the valve is rigidly set in place and its lid normally remains closed.

4. In combination with the valve-casing having the inner section provided with a valve-seat, the latter having a flared groove; of a composite valve structure having a wedge-shaped body portion seated and removably held in said groove, said structure having the extended, flange portion at the bottom; and a valve-lid pivoted to the body portion at the top and cooperating with said flange portion and held by the latter at an angle to the valve structure so as to remain normally closed and at rest upon the said flange.

5. In combination, a valve-casing having between its ends a hand-hole, and immediately below said hole a cylindrical portion which partially closes said hole and has a flared valve-seat in its end, a complete composite valve structure, including a wedge-shaped body portion, flange portion and pivoted lid portion, retained in said valve-seat portion by the structure of the latter and the body portion in position permitting bodily removal through said hand-hole, and means for sealing said hand-hole.

6. A sewer-trap comprising a casing provided with a groove the side walls of which converge from top to bottom and the top of which groove is open, in combination with a valve structure consisting of a body portion having a lid pivoted thereto, said body portion being shaped to conform to the shape of the said groove, whereby the valve structure can be dropped into the groove from above and will automatically wedge itself into place and be firmly held in said groove.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

PHILIP F. LENHART.

Witnesses:

CHAS. McC. CHAPMAN,  
ARTHUR R. JARRETT.