

No. 736,134.

PATENTED AUG. 11, 1903.

T. M. MURPHY.

NOZZLE.

APPLICATION FILED JULY 10, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

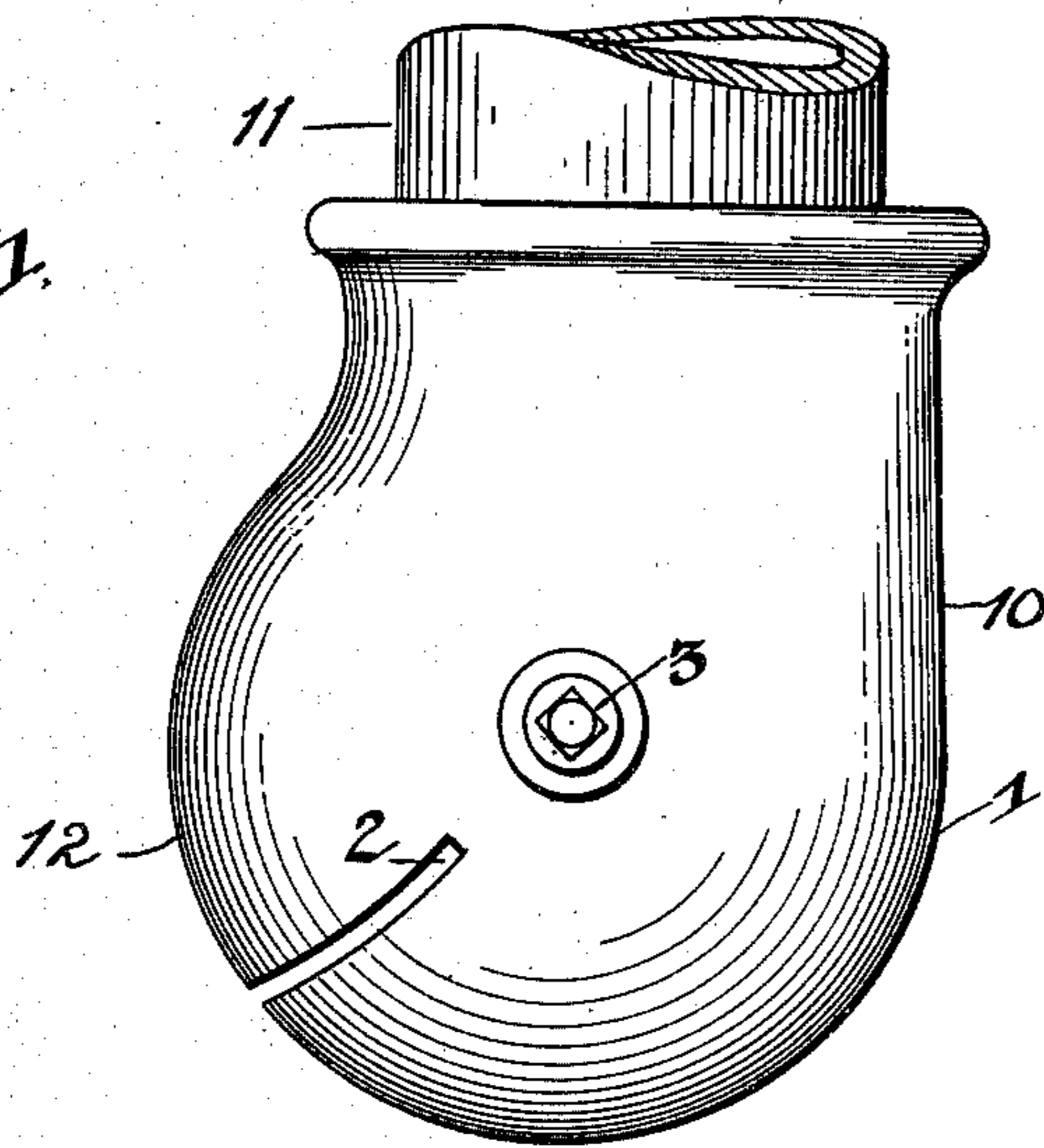


Fig. 2.

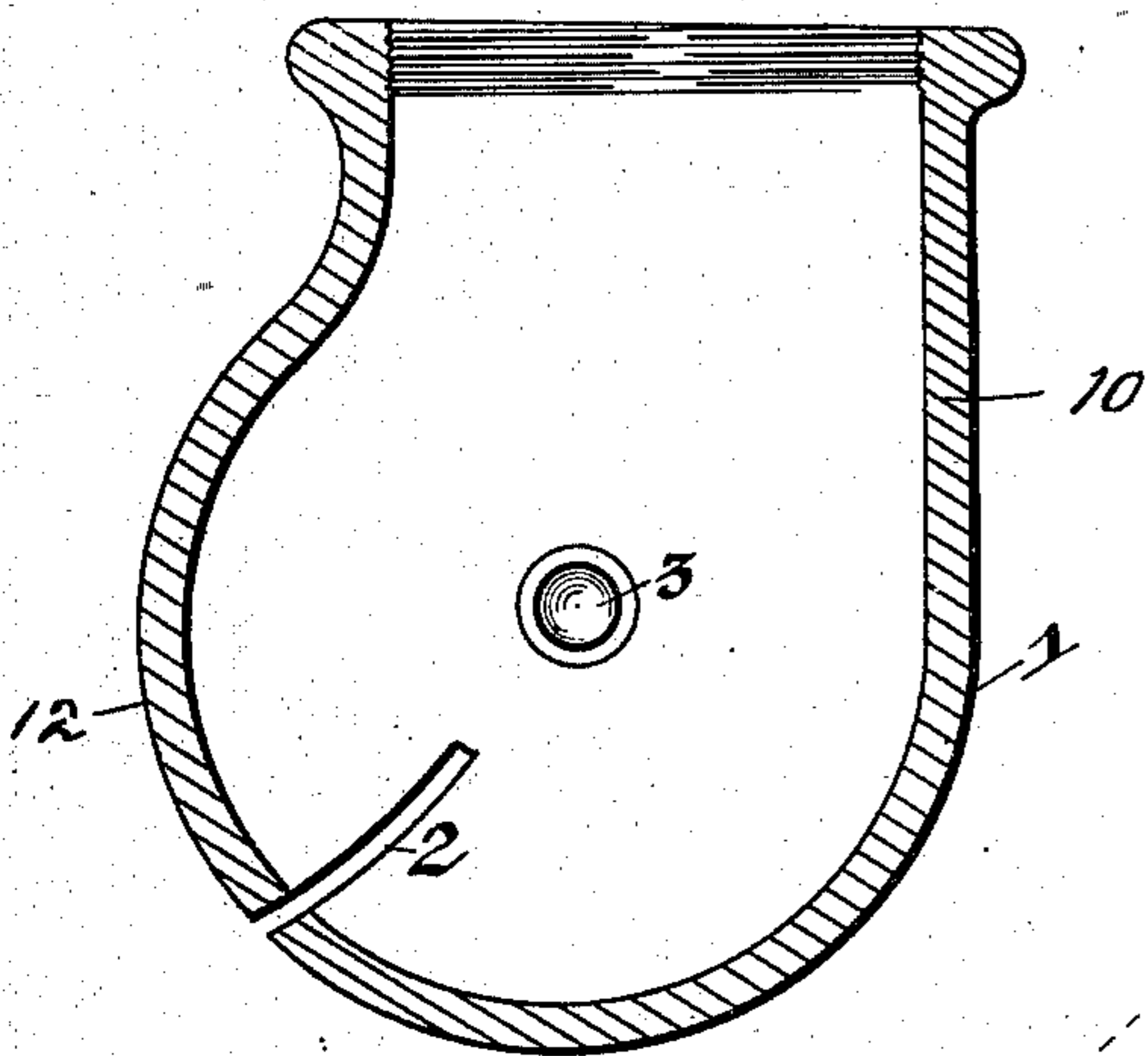
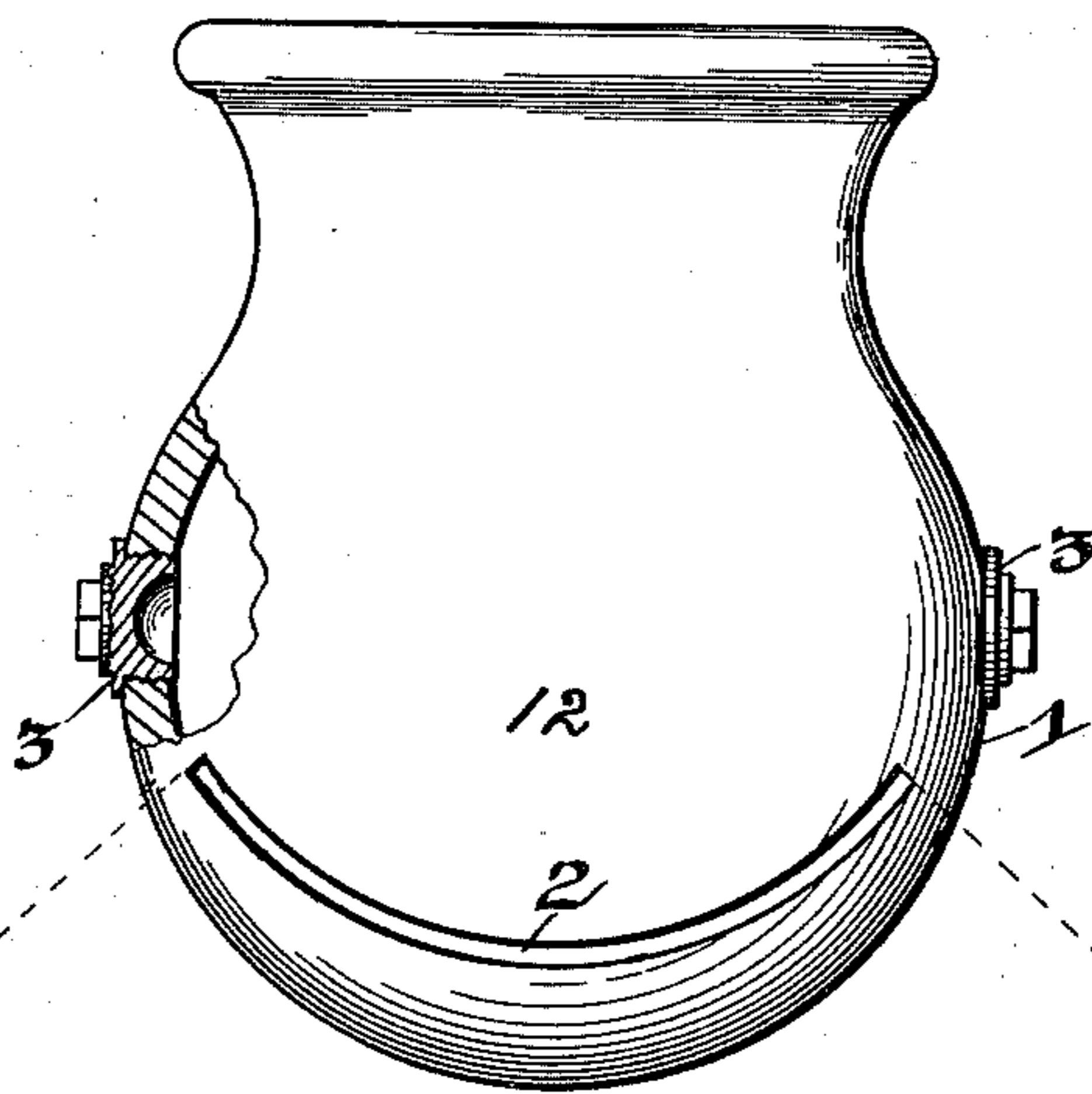


Fig. 3.



Witnesses

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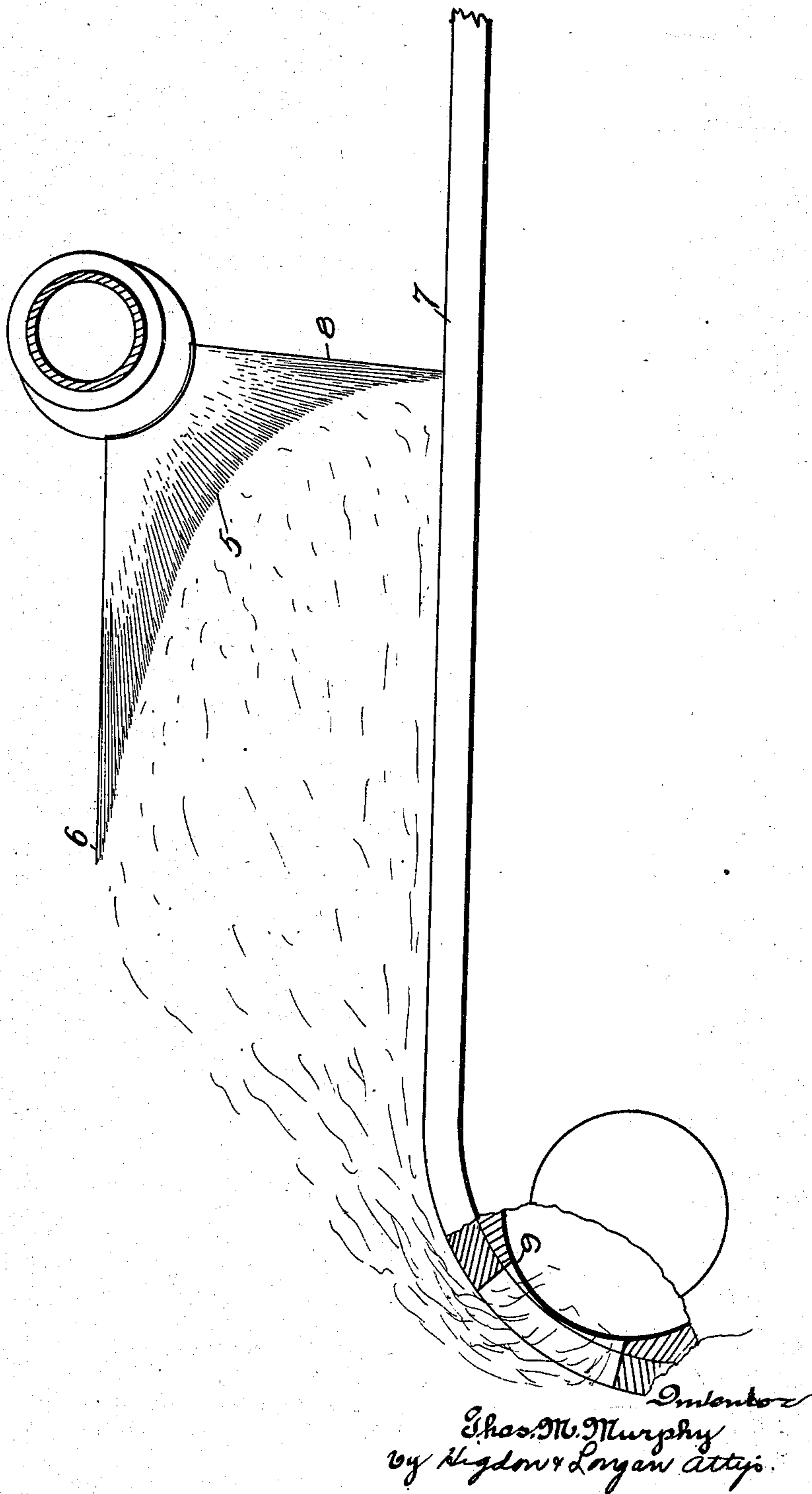
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2 SHEETS—SHEET 2.

Fig. 4.



Witness
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UNITED STATES PATENT OFFICE.

THOMAS M. MURPHY, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO
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NOZZLE.

SPECIFICATION forming part of Letters Patent No. 736,134, dated August 11, 1903.

Application filed July 10, 1901. Serial No. 67,757. (No model.)

To all whom it may concern:

Be it known that I, THOMAS M. MURPHY, of the city of St. Louis, State of Missouri, have invented certain new and useful Improve-
5 ments in Nozzles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to nozzles for street-
10 cleaners and the like; and it consists of the novel features herein shown, described, and claimed.

The object of my invention is to construct an improved nozzle especially adapted for
15 street-cleaners; and it consists of a casing in the form of a spherical or globular head or shell, being arranged at the top or upper end for connection to the discharge-pipe of a tank or other vessel adapted to contain water,
20 such head or shell being provided with a curved slot of peculiar shape and arrangement to be hereinafter more definitely set forth, whereby the water is delivered in a peculiarly advantageous manner, as will also
25 be described.

Figure 1 is a side elevation of the nozzle, the discharge-pipe being broken away. Fig. 2 is a longitudinal section. Fig. 3 is a front
30 elevation. Fig. 4 is a diagrammatic plan view illustrating the operation of the nozzle and showing how the curvature of the slot affects the operation.

Referring to the drawings in detail, the casting 1 is substantially spherical except at the
35 top, which is provided with a screw-threaded opening to receive the discharge-pipe. The elongated curved slot 2 is sawed or milled in the forward lower side of the casting, so as to discharge water at an angle of about fifty
40 degrees relative to a vertical line, and the angle of the water relative to the line of travel is regulated by turning the casting upon the discharge-pipe. Openings are formed in the sides of the casting, and said
45 openings are normally closed by means of the plugs 3, said plugs being removable to provide a connection for the hose.

My improved nozzle is adapted especially

for street-cleaning, and the operation is illustrated in Fig. 4. The water is discharged forwardly and toward the gutter, and the cur-
50 vature of the slot assists materially in the operation, as shown. Suppose that the nozzle is set to discharge water at an angle of forty-five degrees relative to the line of travel and the water-tank is drawn along the asphalt
55 pavement with the nozzle two or three feet from the curve, the object being to wash the asphalt pavement and force the dirt forwardly along the gutter to the sewer, the water dis-
60 charged from the center of the slot strikes the ground at the point indicated by 5 in Fig. 4 and the water discharged from the extreme forward end of the slot is thrown farther
65 ahead, as indicated by 6, and this water runs toward the gutter and wets up the dirt and prepares it to be moved, while the water from
70 the extreme end of the slot strikes the curb 7 and the asphalt along the line 8 and pushes the dirt, which has already been wet, along the gutter toward the sewer-manhole 9.

It will be observed from an examination of the drawings that the slot 2 is formed in the lower forward portion 12 of the curved wall
75 of the nozzle or head and that the general direction of this slot when it is viewed from the side, as represented in Fig. 1, is downward and forward from its inner ends. Stated
80 otherwise, the slot when considered from a position to one side of the nozzle may be said to be disposed at an acute angle to a trans-
85 verse vertical plane cutting the inner upper ends of the slot. This statement applies to the longitudinal direction of the slot as a whole and when it is considered from the side
90 of the nozzle; but as the slot is longitudinally curved, by which I mean the curve of the slot indicated in Figs. 1 and 2 as distinguished from the curve thereof incident to the slot being formed in the wall of the globular head or shell and best indicated in
95 Fig. 3, the angle of the slot to transverse vertical planes parallel to the vertical plane already referred to varies at each point along the length of the slot. For convenience in statement I shall speak of but a single trans-

verse vertical plane cutting the slot and I shall refer the whole slot or its various parts to this single plane, it being evident, it is thought, from the foregoing description what is intended by such statement—that is, the direction of the slot considered as a whole and longitudinally is at an angle to a vertical plane cutting the slot transversely, and this angle varies throughout the length of the slot, being most acute at its upper inner end and least acute at its lower outer end. The particular location of the slot in the head for giving the best results when the nozzle is employed for street-washing purposes is that illustrated in the drawings—that is to say, the general inclination of the slot downward and forward is at an angle approximately fifty degrees to a transverse vertical plane cutting the slot at its upper inner end, though, as stated, this angle is not constant throughout the length of the slot, but varies. Another feature of construction which tends to the effectiveness of the nozzle consists in making the opposite walls of the curved slot 2 parallel with each other throughout the entire length of the slot. There is a great advantage in this form of slot for this class of work. The position of the nozzle upon the discharge-pipe may be regulated by turning the nozzle upon the screw-threaded end of the discharge-pipe, so that the stream of water will fit the curvature of the pavement, and when the proper adjustment has been secured the pavement may be thoroughly cleaned in the manner shown and described.

It will be observed from an examination of the drawings that the globular head 1 is of peculiar construction in that its rear wall 10 is practically parallel with the direction of the flow of the water as it enters the nozzle from the supply-pipe 11, while the spherical portion 12, in which part is situated the slot 2, is opposite to the wall 10. In other words, the head is not a truly spherical body, but has a parti-spherical portion that is arranged on that side of the axis of the supply-pipe from which it is desired the sheet of water should be discharged. This arrangement is particularly advantageous where the water delivered through the nozzle is under high pressure, as the water entering the head with great velocity will be easily deflected toward the slot 2 by the shape of the head reducing the friction and preventing backflow or eddies within any portion of the nozzle-head.

I claim—

1. A nozzle, consisting of a hollow globe-shaped casting open at one side and adapted to receive the end of a water-pipe and having the elongated curved slot formed in the opposite side adapted to be brought at different angles relative to the surface of the ground or street, the said casting having lateral openings normally closed by plugs, the said open-

ings being adapted to receive the ends of sections of hose, substantially as specified.

2. An improved nozzle consisting of a casing having an open end adapted to be connected with a supply-pipe and a closed end of approximately globular form, there being formed in the curved wall of the closed end of the nozzle a delivery-slot, which, when considered as a whole and from a position to one side of the nozzle, is disposed at an acute angle to a transverse plane substantially parallel with the longitudinal axis of the nozzle and cutting the slot at its ends, the angle of the slot varying from its inner to its outer portions, substantially as set forth.

3. An improved nozzle, consisting of a casing in the form of an approximately globular head or shell having its upper end open and arranged to be connected with a supply-pipe, and having formed in the curved wall of the closed end thereof a downwardly-inclined delivery-slot disposed at an angle to a transverse plane that is parallel with the longitudinal axis of the nozzle and cuts the slot at its ends, the angle of the slot increasing from its inner upper portions to its lower portions, substantially as set forth.

4. An improved nozzle, consisting of a casing in the form of an approximately globular head or shell having an open end for attachment to a supply-pipe, and having formed in the curved wall of its closed end a delivery-slot, the opposite walls of which are parallel with each other, such slot, considered as a whole and from a position to one side of the nozzle, being disposed at an acute angle to a transverse plane parallel with the longitudinal axis of the nozzle and cutting the slot at its ends, and the slot being curved longitudinally whereby its angle to the said transverse plane changes at various points of its length, substantially as set forth.

5. An improved nozzle, consisting of a casing having its upper end open and adapted for attachment to a supply-pipe and its lower end in the form of an approximately globular head in the lower forward quadrant of which there is formed a curved inclined slot, the general longitudinal inclination of such slot from its inner end portions to its outer lower middle portion being downward, and the inclination of the slot relative to a transverse plane parallel with the longitudinal axis of the nozzle and cutting the slot at its ends increasing from its upper to its lower portions, substantially as set forth.

6. A nozzle of approximately globular form, having a rear wall 10 that is substantially parallel with the direction of the supply-pipe where it connects with the nozzle, and a parti-spherical wall 12 arranged opposite the rear wall 10, the parti-spherical wall having formed therein a discharge-orifice, substantially as set forth.

7. A nozzle of approximately globular form having a rear wall that is substantially parallel with the longitudinal axis of the nozzle, and a parti-spherical wall 12 arranged opposite to the said rear wall, the parti-spherical wall having formed therein a curved discharge-slot that inclines relative to the longitudinal axis of the nozzle, the angle of the said slot with reference to a plane parallel to the said axis and cutting the slot at its ends is varying in its different portions, substantially as set forth.

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

THOMAS M. MURPHY.

Witnesses:

ALFRED A. EICKS,

JOHN C. HIGDON.