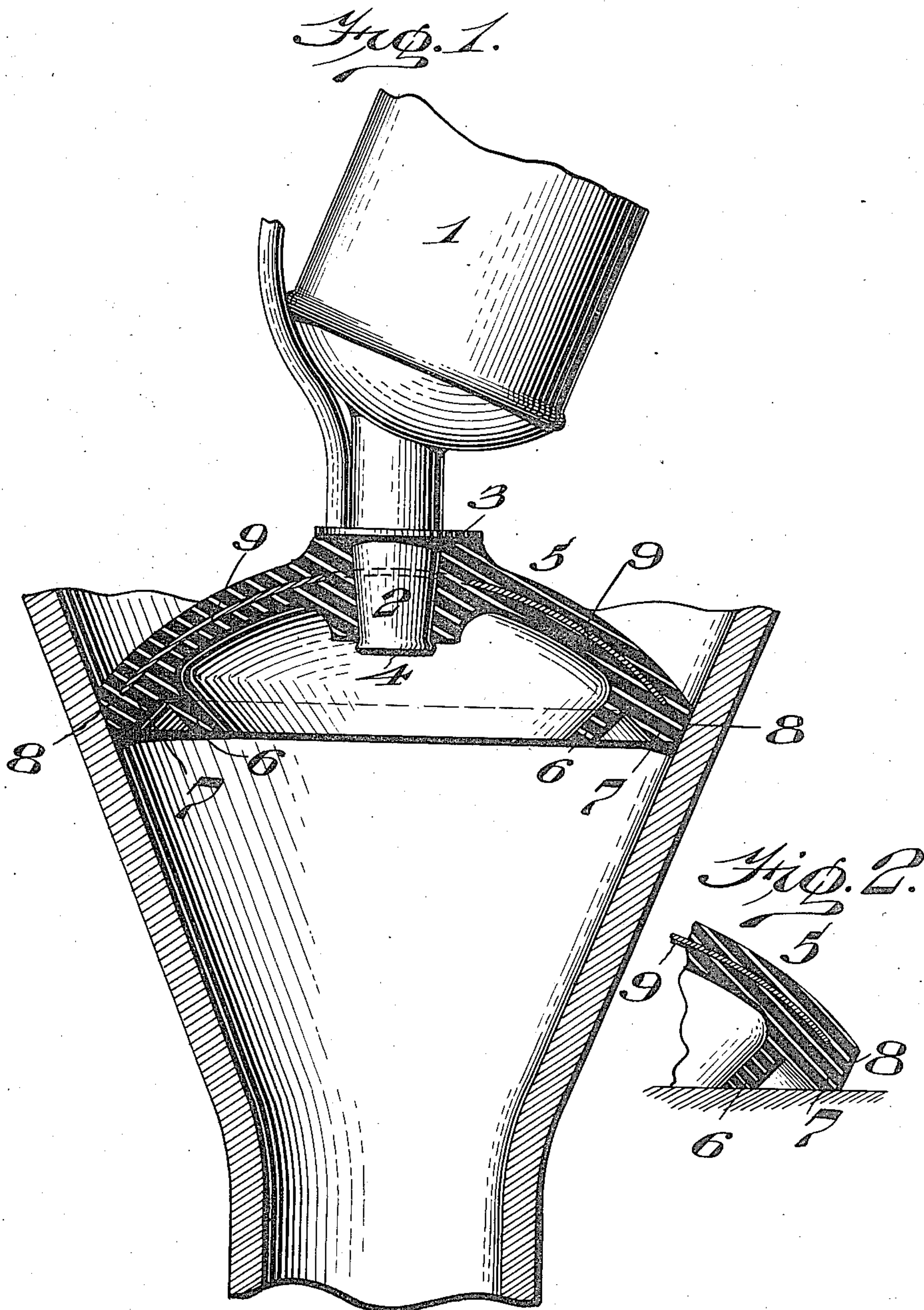


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APPLICATION FILED NOV. 26, 1909.

Patented July 5, 1910.
2 SHEETS—SHEET 1.



WITNESSES

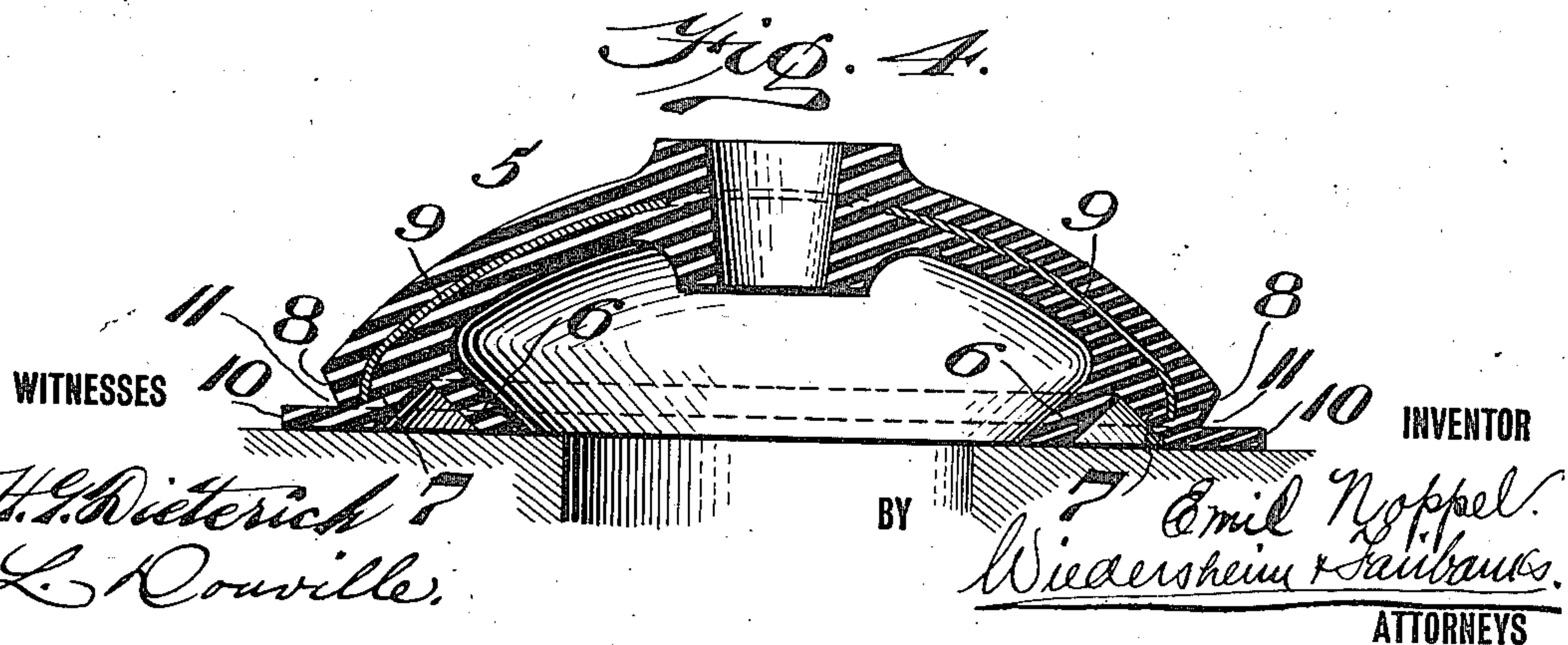
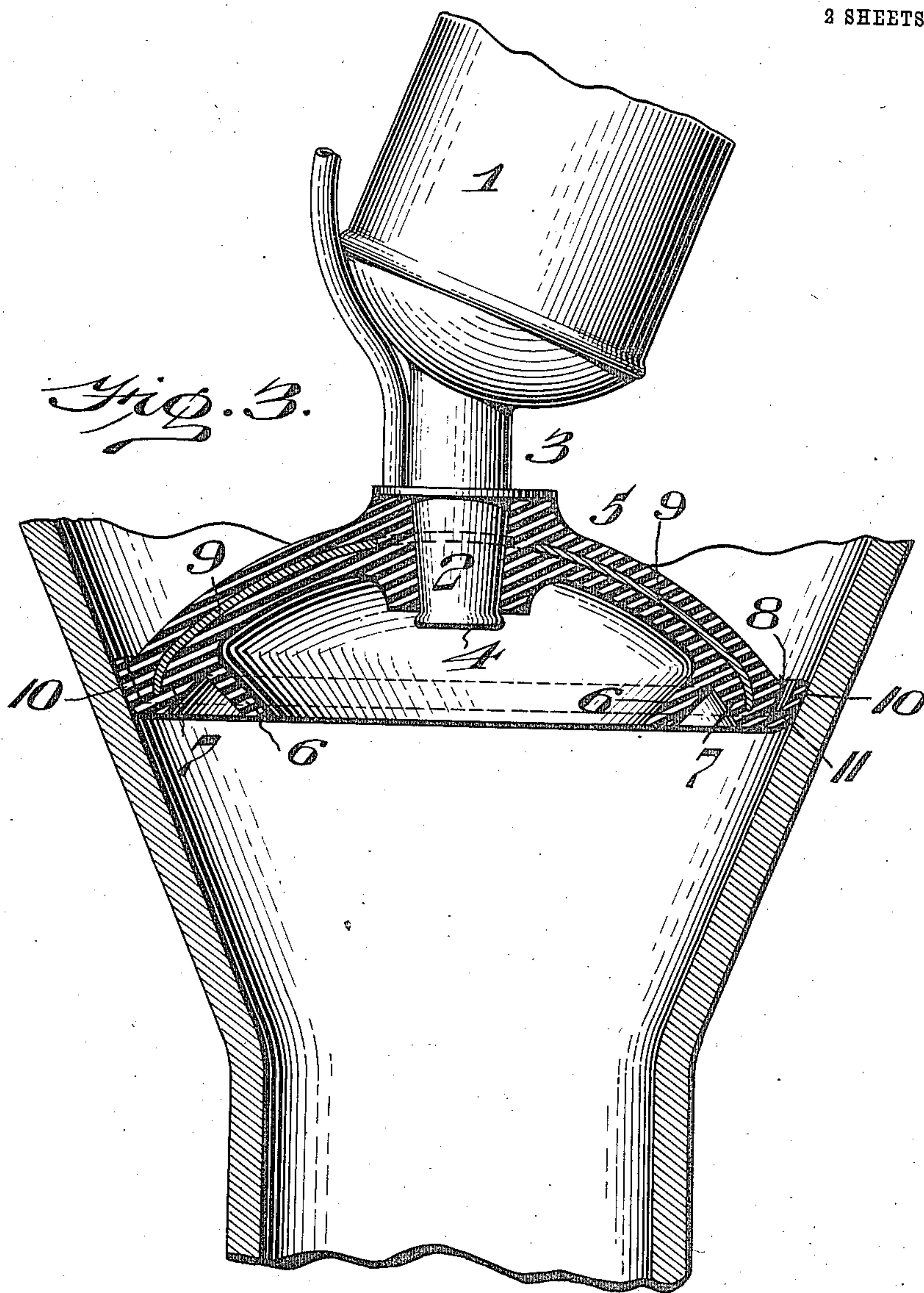
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UNITED STATES PATENT OFFICE.

EMIL NOPPEL, OF PHILADELPHIA, PENNSYLVANIA.

SUCTION-CUP.

963,060.

Specification of Letters Patent.

Patented July 5, 1910.

Application filed November 26, 1909. Serial No. 529,856.

To all whom it may concern:

Be it known that I, EMIL NOPPEL, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Suction-Cup, of which the following is a specification.

My invention relates to a new and useful suction cup which is especially adapted for use in cleaning outlet pipes of sinks, drains, tanks, closets and similar receptacles and for other purposes, in connection with a force and suction pump or with a hose or pipe for conducting water or a fluid to the outlet pipe and it consists of means whereby the cup is applicable for use on a flat or substantially flat surface or whereby the same may be inserted directly in a drain and engaged with the walls thereof.

It further consists in forming the outer lower edges of the cup at an angle to the bottom wall or face thereof.

It further consists in providing a yielding bifurcated open end with the outer edge of the cup extending at an angle to the bottom face thereof.

It further consists of an outwardly extending flange which is permitted suitable movement by means of the angular edge.

It further consists of other novel features of construction, all as will be hereinafter fully set forth.

I have found in practice in the cleaning of outlet pipes that the suction cup, for use in connection with a pump or attached to a hose or other suitable device, should be applicable for use, both upon a flat or substantially flat surface, for example, such as is the form or case in the ordinary wash-stands and can also be used directly in the discharge or drain pipe of a closet drain or other similar device. My invention is capable of performing such uses and in the drawing, I have shown an embodiment thereof which I have found in practice operates successfully but it will be evident that changes may be made in the construction, the arrangement of the parts may be varied and other instrumentalities may be employed which will come within the spirit of my invention and I do not therefore desire to be limited in every instance to the exact form as herein shown and described but desire to make such changes as may be necessary.

Figure 1 represents a vertical section of

a cup and drain pipe and a side elevation of a portion of a pump which may be employed. Fig. 2 represents a vertical section of a cup showing the same applied to a flat or substantially flat surface. Fig. 3 represents a vertical section of a cup and drain pipe and a side elevation of a pump which may be employed, showing a flange on the cup. Fig. 4 represents a vertical section of a cup, showing the same applied to a flat or substantially flat surface.

Similar numerals of reference indicate corresponding parts in the figures.

Referring to the drawings:—1 designates a portion of a barrel of a pump which can be of any suitable or desired construction and having the necessary parts in order to operate successfully, said pump in the present instance being provided with a nipple which carries the upper flange and lower flange or projection 4.

5 designates the suction cup of elastic or other suitable pliable material having a suitable bore to receive the nipple and which is provided with means for holding the same in operative contact with the surface to which it is applied. In the construction shown, said means are provided by bifurcating the open end of the cup to form angular members 6 and 7 each of which members have a flat base or lower edge and the free edge 8 of the outer member 7 being beveled or extending at an angle to the base of the said member 7. As the cup is preferably formed of elastic or other suitable material, I provide a stiffening member 9 within the body which consists in the present instance of a substantially cup-shaped metal plate, the outer edge of which extends to a point adjacent the inclined edge 8 of the member 7 and the bottom edge thereof, in order to assist in holding the portions in suitable position when in place in a drain.

In the construction shown in Figs. 3 and 4, I have provided on the lower portion of the cup the extending flange 10, which preferably extends beyond the radius of the outer wall thereof and forming between it and the angular wall 8 the V shaped opening 11, as best seen in Fig. 4; it being understood that the bottom wall or face of the flange is preferably in the same plane with that of the bottom of the angular members 6 and 7.

The operation of the device is as fol-

lows:—Fig. 2 shows one side of the cup 5 applied to a flat or substantially flat surface for instance to the bottom of a sink or washstand and around the drain pipe thereof. When suitable means is operated to create a suction, the outer member 7 is actuated thereby being held in close and operative contact with the surface of the sink or washstand by atmospheric pressure but when the pressure is forced into the pipe the inner member 6 is actuated and is held in close and operative contact with the surface by the force of air subjected therein. It will thus be seen that the cup is adapted for a flat or substantially flat surface. Fig. 1 shows the cup in operative position in a closet, drain or similar outlet where the walls thereof are inclined. In this instance the angular wall 8 contacts properly with the inclined wall of the drain so that the angular wall 8 is forced against the said wall of the drain when the cup is used either with force or suction as will be evident so that the cup is adapted for use for this purpose also.

In the construction shown in Figs. 3 and 4 I have provided the outwardly extending flange or lip 10, which, as will be best understood from Fig. 3, is adapted to contact with the walls of the drain or outlet and will accommodate or take care of inequalities which might occur in the wall or face of the drain or outlet. I have found in practice that in some instances the drain is not always exactly round and the face thereof has sometimes inequalities and I can provide for these, as previously stated, by means of the flange and by reason of the inclined face 8 which permits the flange 10, when inserted in the drain, to abut the angular face 8, providing a tight joint, as seen in the left of Fig. 3 and at the same time should there be any inequalities in the drain or outlet the flange 10 will engage therewith, leaving a slight space between it and the inclined wall 8, as seen at the right of Fig. 3, the advantage of which will be apparent. When used on a flat or a substantially flat surface the members are in position as seen in Fig. 4. Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a device of the character stated, a cup provided with a yielding bifurcated open end, the outer member of which has a flat base and an upwardly and outwardly extending edge portion.

2. In a device of the character stated, a cup, the open end of which is provided with separated and yielding outer and inner members, an outer edge portion of the outer member extending upwardly and outwardly at an angle to the base thereof.

3. In a device of the character stated, a

cup, the open end of the same being provided with separate and yielding outer and inner members, each having a flat base and an outer edge portion of the outer member extending upwardly at an angle to the flat base thereof.

4. In a device of the character stated, a cup, provided with a yielding bifurcated open end and an outer edge portion of the outer member extending outwardly at an angle to the base thereof, the body portion of said cup being strengthened or stiffened.

5. In a device of the character stated, a cup, the open end of the same being provided with separated and yielding inner and outer members each having a substantially flat base and an outer edge portion of said outer member extending outwardly at an angle to the base thereof, and a strengthening or stiffening means within the body portion of said cup the outer edge of said member being situated adjacent the base and the angular edge of the said outer member.

6. In a device of the character stated, a cup provided with yielding bifurcated open end, the outer member of which has a flat base and an angularly outwardly extending outer edge portion, and an outwardly extending flange on the outer member.

7. In a device of the character stated, a cup, the open end of which is provided with separated and yielding outer and inner members, the outer member having an edge portion being inclined outwardly at an angle to the base thereof, and an outwardly extending flange on said outer member.

8. In a device of the character stated, a cup, the open end of the same being provided with separated and yielding outer and inner members, each having a flat base and the outer member having an edge portion extending outwardly at an angle to the flat base thereof, and an outwardly extending flange on said outer member.

9. In a device of the character stated, a cup, provided with a yielding bifurcated open end and the outer member having an edge portion extending outwardly at an angle to the base thereof, and an outwardly extending flange on the outer member, the body portion of said cup being strengthened or stiffened.

10. In a device of the character stated, a cup provided with a yielding bifurcated open end, an outer edge portion of said outer member being inclined outwardly at an angle to the base of the outer member, an outwardly extending flange on the outer member, and a strengthening or stiffening device within the body portion of said cup.

EMIL NOPPEL.

Witnesses:

WM. CANER WIEDERSEIM,
C. D. McVAY.