

T. WHITE.
INCANDESCING LAMP.
APPLICATION FILED MAR. 30, 1909.

983,336.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.

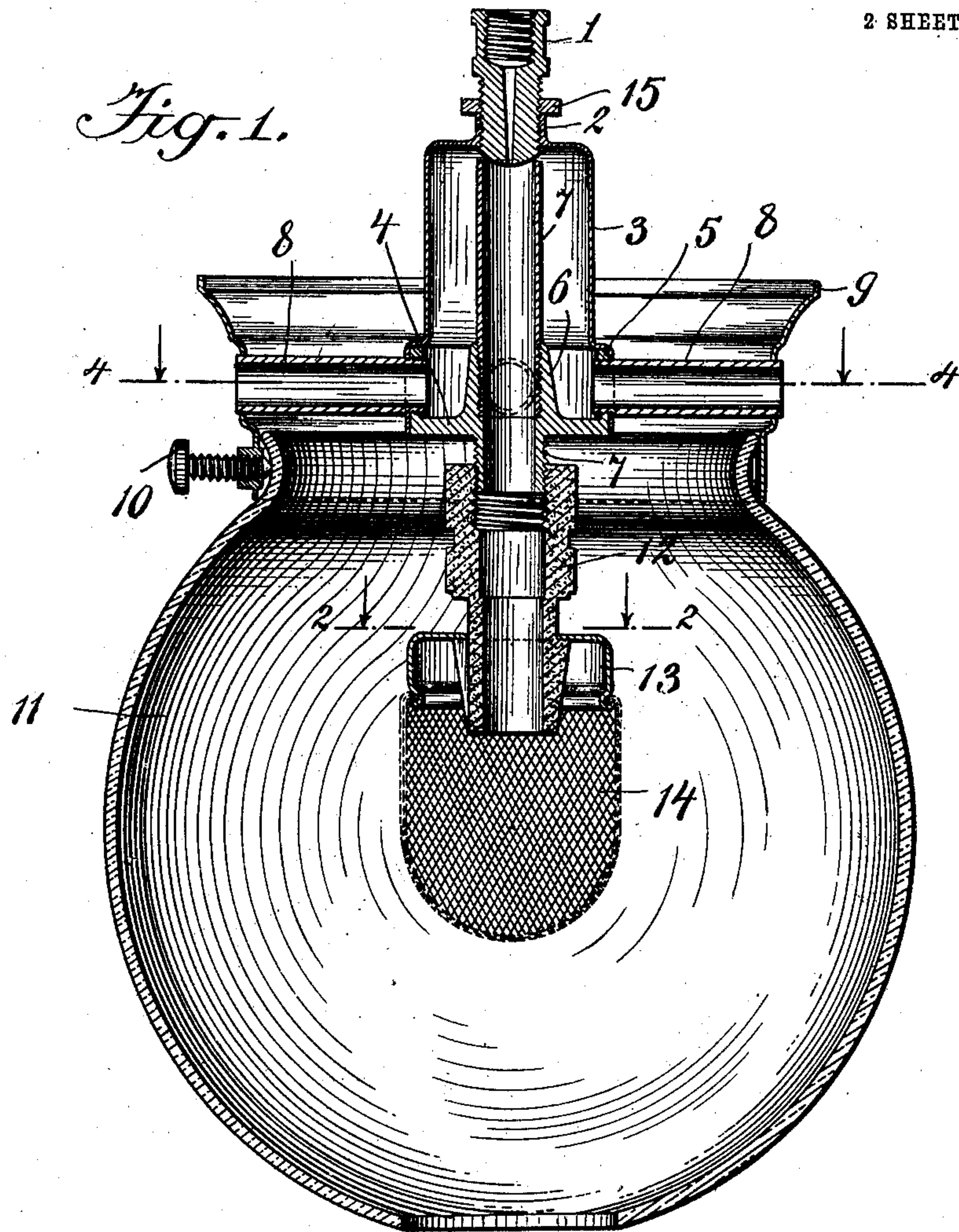
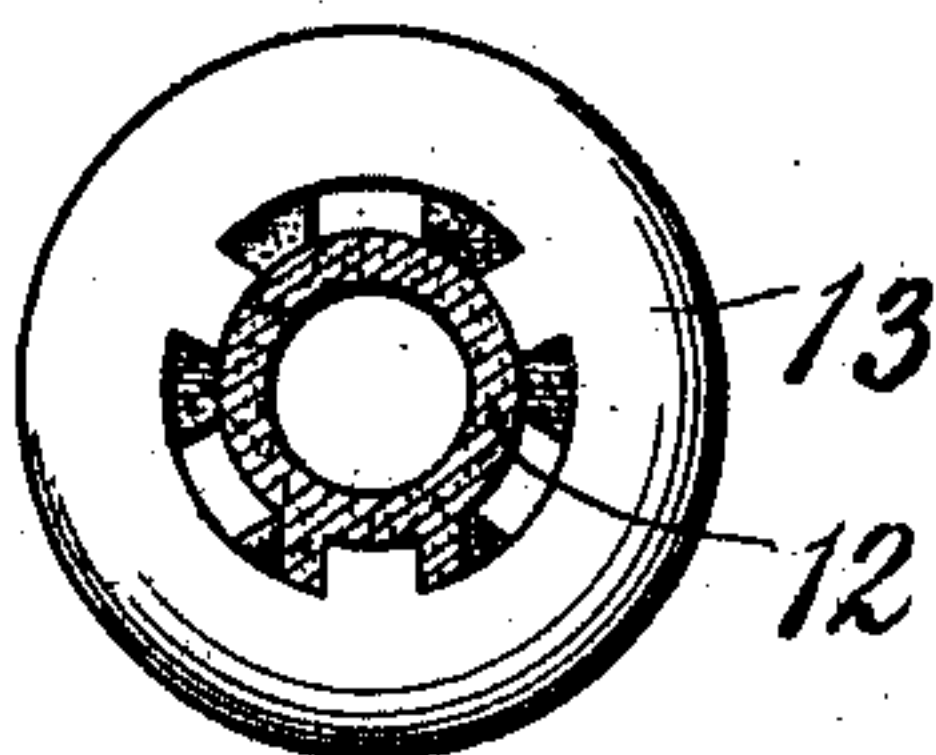


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

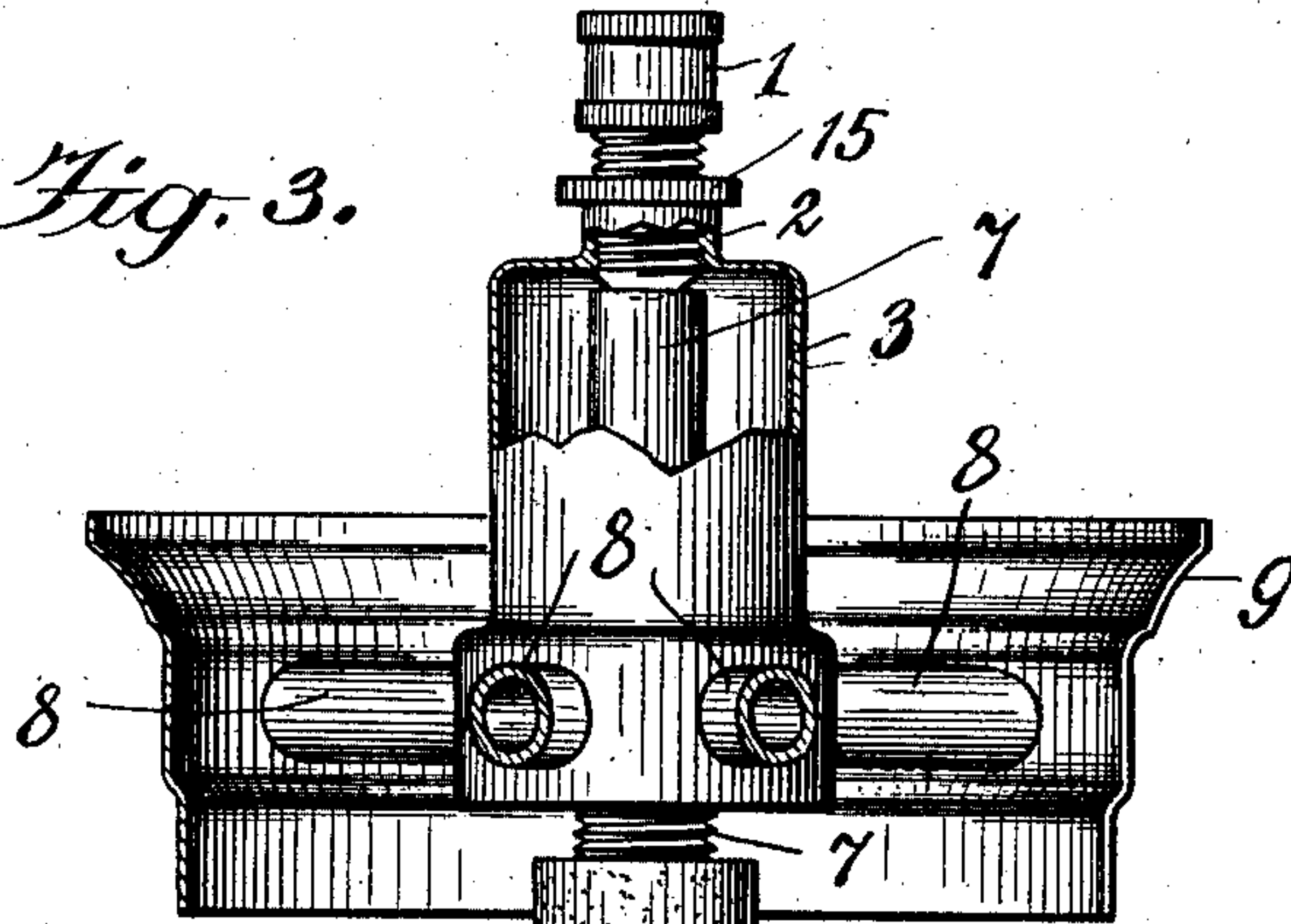


Fig. 5.

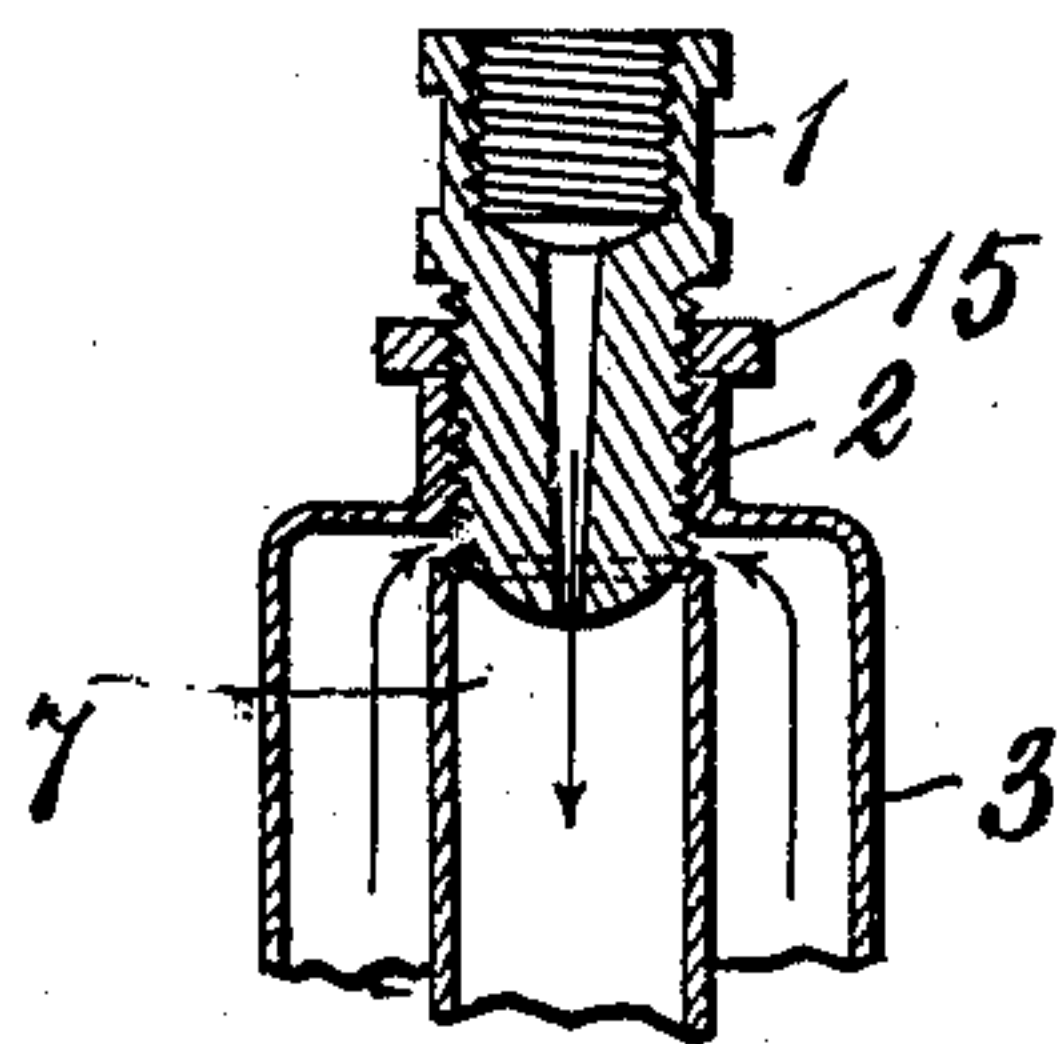


Fig. 6.

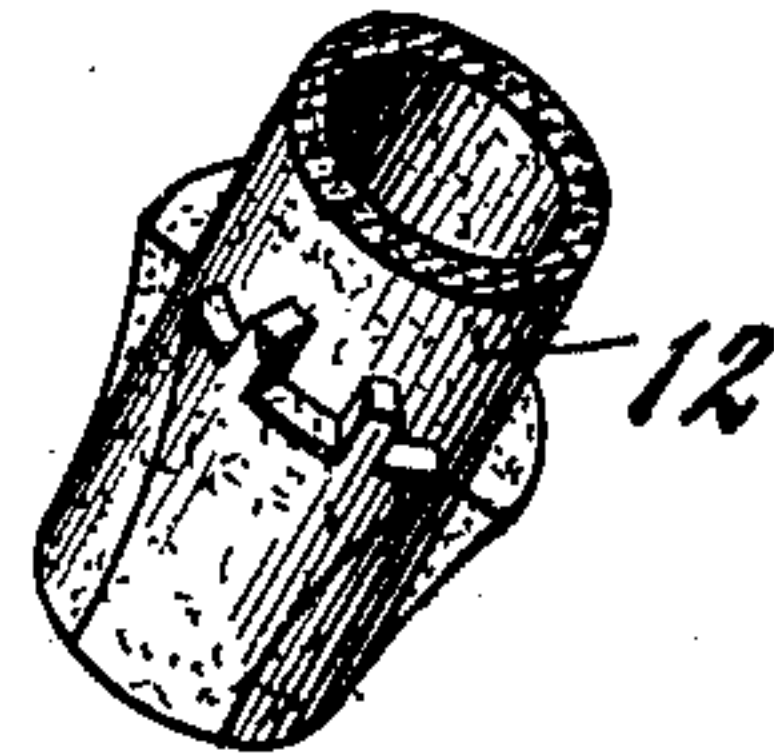


Fig. 7.

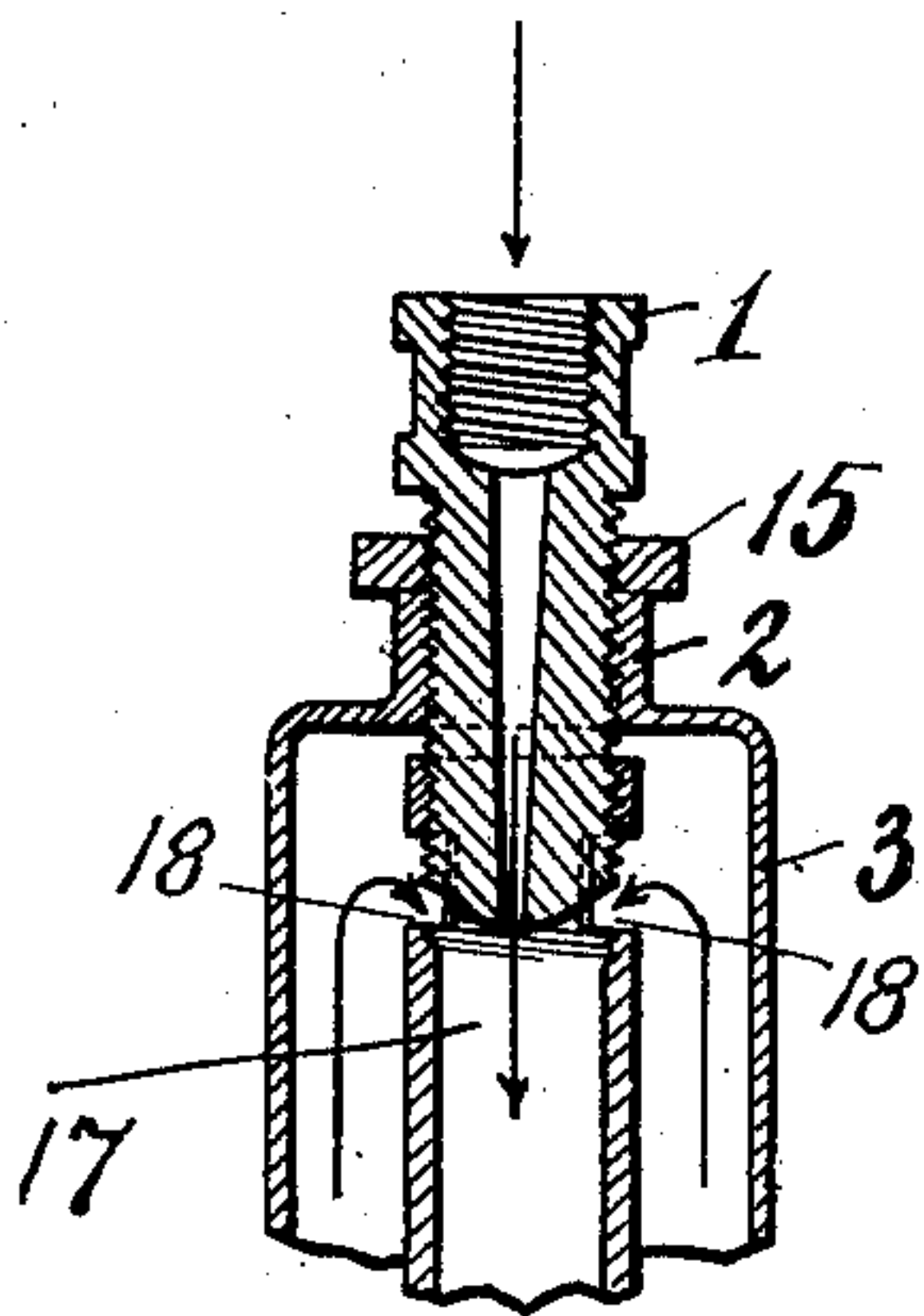
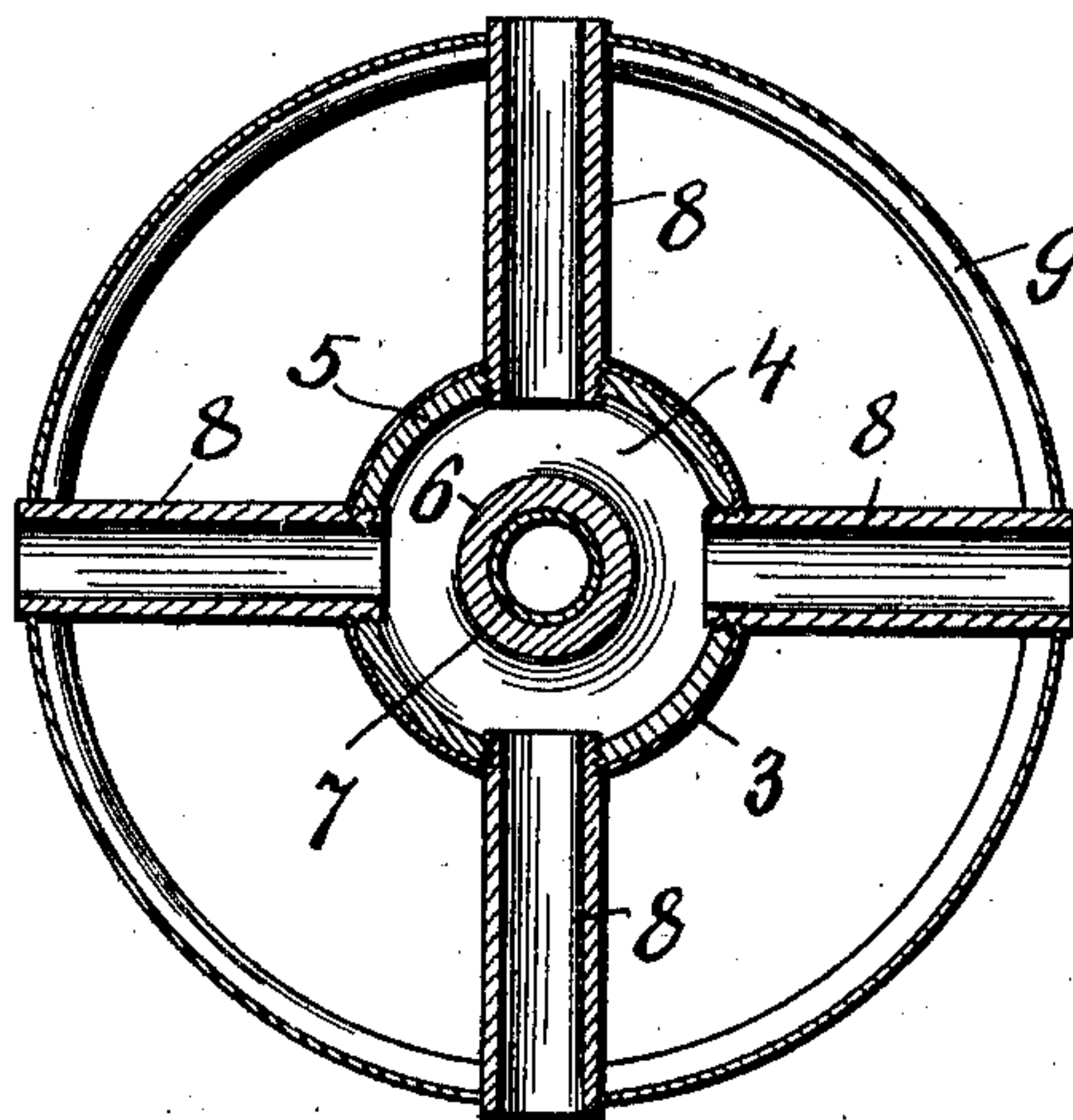


Fig. 4.



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THOMAS WHITE, OF BROOKLYN, NEW YORK.

INCANDESCING LAMP.

983,336.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed March 30, 1909. Serial No. 486,653.

To all whom it may concern:

Be it known that I, THOMAS WHITE, a citizen of the United States, residing at borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Incandescent Lamps, of which the following is a specification.

My invention relates to a Welsbach lamp and more particularly to the inverted type, and will be understood by reference to the accompanying drawings in which—

Figure 1 is a central vertical section; Fig. 2 a horizontal section on the plane of the line 2—2 of Fig. 1; Fig. 3 a side elevation partly in section and with the globe removed; Fig. 4 a horizontal section on the plane of the line 4—4 of Fig. 1; Fig. 5 a detail sectional view of the connection between the hood and the gas inlet pipe; Fig. 6 a perspective view of the refractory burner tip to which the mantle is attached; and Fig. 7 a detail sectional view of a modification.

Similar reference numerals indicate similar parts in the several views.

In the present embodiment of my invention the numeral 1 designates a nipple interiorly threaded at its upper end and adapted for attachment to a gas supply pipe, said nipple having a central gas passage constricted at the lower end to provide a discharge orifice of comparatively small diameter to increase the velocity of the issuing stream of gas which is directed into the burner tube. This nipple in effect constitutes the end of the gas supply pipe and, as shown in the drawings, is exteriorly screw threaded to receive the threaded flange 2 of a depending hood 3 upon which hood the burner parts are supported, as will fully appear. The open lower end of the hood is secured to a casting 4 comprising a base having an upwardly extended peripheral flange 5 which flange is surrounded by the lower end of the hood, an interior upwardly extended annular flange 6, and a corresponding downwardly extended flange 7. The flanges 6 and 7 are in substantial alinement so as to provide a central opening through the casting 4. The flange 6 is interiorly threaded to receive the lower end of a burner tube 7 which projects upwardly into the hood 3 in axial alinement with the nipple 1 and terminates opposite the end thereof thus opening freely into the hood 3. The lower end of hood 3 and flange 5 are provided with open-

ings to receive the inner ends of radially extended tubes 8 which at their outer ends are open to the atmosphere. Four such tubes are shown, although a greater or less number may be used, and upon them is supported a bracket 9 through which pass clamping screws 10 to support a globe 11.

The depending flange 7 of the casting 4 is exteriorly threaded to receive a tube or tip 12 of refracting material which constitutes the burner outlet. This tube is provided at its lower end with suitable means as a bayonet joint adapted to be engaged by a metallic collar 13 from which the mantle 14 is suspended.

All of the parts above described except the globe 11, the burner outlet and the mantle are of metal and may be cast, stamped, or spun to suitable form in any well-known manner.

The gas issuing from the nipple 1 acts as an injector to draw the air through tubes 8 upwardly into hood 3 from which it passes into tube 7 through the open upper end thereof, combustion taking place from the burner outlet 12 to cause incandescence of mantle 14. To provide for the admission of the proper volume of air for admixture with the gas in the burner tube 7 it is necessary to regulate the distance between the nipple 1 and the inlet end of the burner tube 7. This I accomplish in the manner of supporting said tube upon the hood 3. The end of the gas inlet pipe, or nipple 1, is threaded to such extent as to permit of a substantial adjustment thereon of the hood 3 and consequently of the adjustment of the burner tube 7 toward and away from the gas inlet pipe. By referring to Figs. 1, 3 and 5, it will be seen that the extent of permissible adjustment of hood 3 on the gas inlet pipe enables the tube 7 and the inlet pipe to be adjusted relatively to each other to vary the distance between them from complete closure to full opening of said tube. When the hood is turned so as to move the tube 7 toward the inlet pipe, the former may be completely closed by seating upon the rounded end of said pipe, and when the hood is turned so as to lower the burner tube it will be moved so as to enlarge the distance between it and the gas inlet pipe to permit a greater or less volume of air from hood 3 to pass into said tube.

The adjustment of the burner tube is readily effected by simply turning the hood 3, and this may be done after the ignition of

the combustible mixture to determine the proper volume of air to be admitted to the burner tube according to the character or richness of the gas, or the pressure under which it issues. Thus while the burner tube remains in fixed relation to the hood and to the air inlet pipes 8 the said tube may be adjusted relatively to the gas inlet pipe to contract or enlarge the opening therein to control the volume of air admitted to the burner tube, thereby insuring a proper mixture of gas and air under all conditions. When once adjusted for any given condition, the relation of the parts may be maintained by a suitable lock nut 15.

The hood 3 is closed at its upper end by the manner of attaching it to the gas inlet pipe and at its lower end by the casting 4, thus completely closing said hood to the products of combustion. The hood 3, however, is open through the tubes 8 to the atmosphere at a point below the upper end of the burner tube and beyond the zone of the ascending products of combustion. By extending the tubes 8 radially from the hood the air entering therethrough will be heated by the escaping products of combustion.

In the construction above described the burner tube terminates at its inlet below the gas inlet pipe and in Fig. 7 I have illustrated an obvious modification. In the latter the burner tube 17 is threaded at its upper end to engage the gas inlet pipe and to be closed thereby, the necessary air being admitted through openings 18 in the side of the burner tube. The latter will be supported on the hood in the manner indicated in Fig. 1 so that when the hood is rotated the burner tube 17 will be moved up or down on the gas inlet pipe to contract or enlarge the openings more or less as may be required.

In the inverted type of incandescent lamp the heat of the flame combined with the heat of the mantle creates an upward or back pressure in the burner tube against the down flowing stream of gas and air tending to check the latter. In the present lamp the rapid expansion of the air of the hood 3 creates a pressure which, assisted by the force of the stream of gas issuing from the orifice of nipple 1, overcomes the back pressure, and complete combustion is always secured at the burner tip.

The globe 11 and bracket 9 confine the products of combustion about the tubes 8 and hood 3 so that they escape above the outlet ends of said tubes.

What I claim and desire to secure by Letters Patent is:—

1. In a lamp the combination of a gas inlet pipe, a hood suspended from said pipe, an inverted burner tube supported upon and

projecting upwardly into said hood, said tube having an opening for the admission of air from said hood, means for adjusting said hood on the inlet pipe and thereby the relation between said pipe and burner tube to contract or enlarge said opening, and an incandescing mantle surrounding the burner outlet.

2. In a lamp the combination of a gas inlet pipe, a hood suspended from said pipe, an incandescing burner tube supported upon and projecting upwardly into said hood and terminating at its inlet opposite the end of said pipe, means for adjusting said hood on the inlet pipe to thereby vary the distance between the said pipe and tube to control the volume of air admitted to the latter, and an incandescing mantle surrounding the burner outlet.

3. In a lamp the combination of a gas inlet pipe, a hood suspended from said pipe, said hood being closed to the products of combustion and open to the atmosphere only at its lower end, an inverted burner tube supported upon and projecting upwardly into said hood and terminating at its inlet opposite the end of said pipe, means for adjusting said hood and thereby said tube relatively to the gas inlet pipe to control the volume of air admitted to said tube, and an incandescing mantle surrounding the burner outlet.

4. In a lamp the combination of a gas inlet pipe, a hood suspended from said pipe, a burner tube, a member intermediate said hood and tube to which the latter is secured and from which it projects upwardly into the hood, a burner tip secured to said member in axial alinement with the tube and carrying an incandescing mantle below its outlet, and means for supplying air to said hood.

5. In a lamp the combination of a gas inlet pipe, a hood suspended from said pipe, a member secured to said hood and comprising a downwardly extending flange, a burner tube supported by said member and projecting upwardly into the hood, a burner tip secured to said flange and projecting downwardly in axial alinement with the burner tube and carrying an incandescing mantle at its lower end, and air supply tubes extending radially from said member and the base of the hood.

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

THOMAS WHITE.

Witnesses:

W. A. PAULING,
CHARLES S. JONES.