

No. 773,793.

PATENTED NOV. 1, 1904.

J. HUTCHINSON.

FIXTURE ARM BURNER FOR INCANDESCENT MANTLES.

APPLICATION FILED NOV. 23, 1903.

NO MODEL.

Fig. 2.

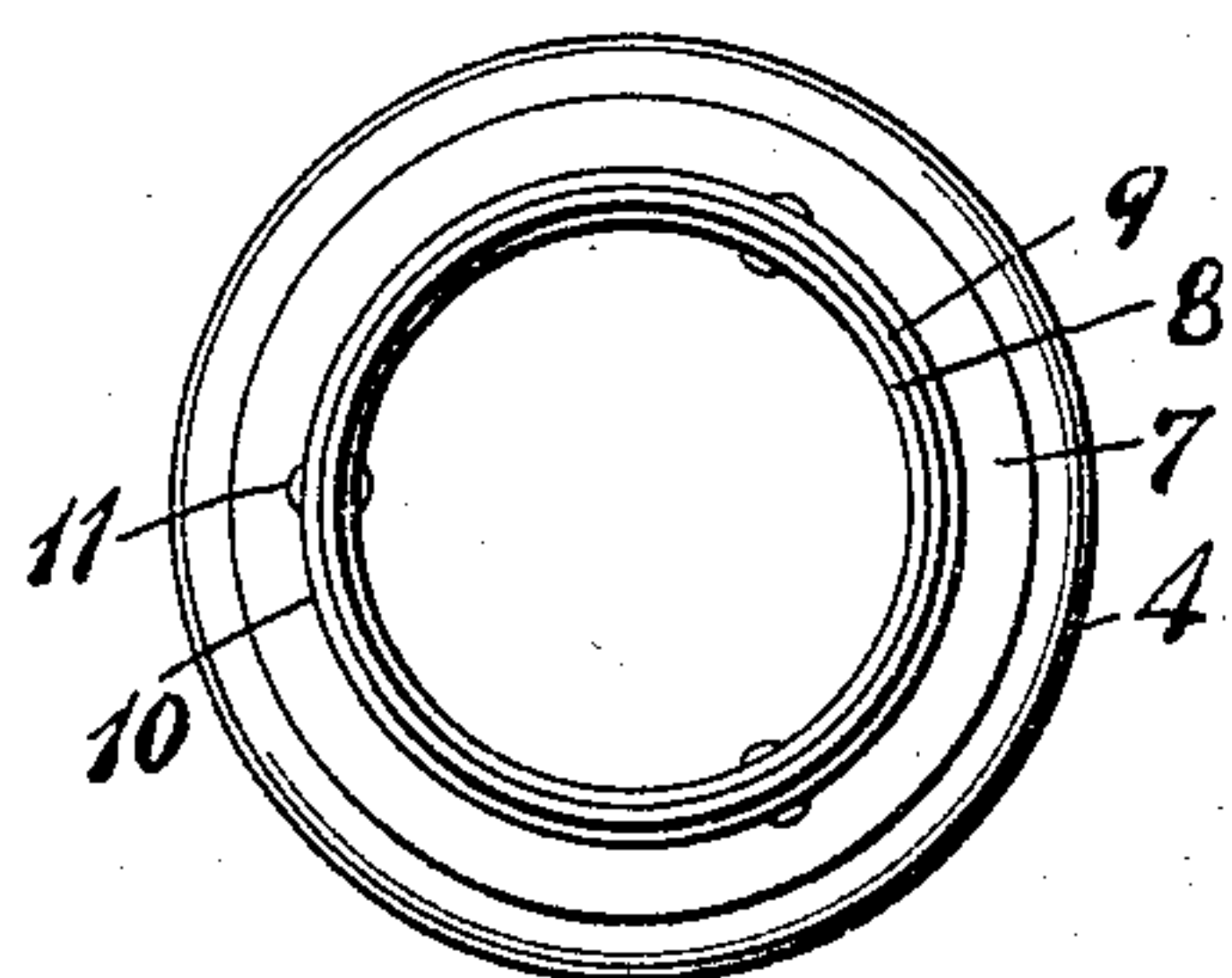


Fig. 3.

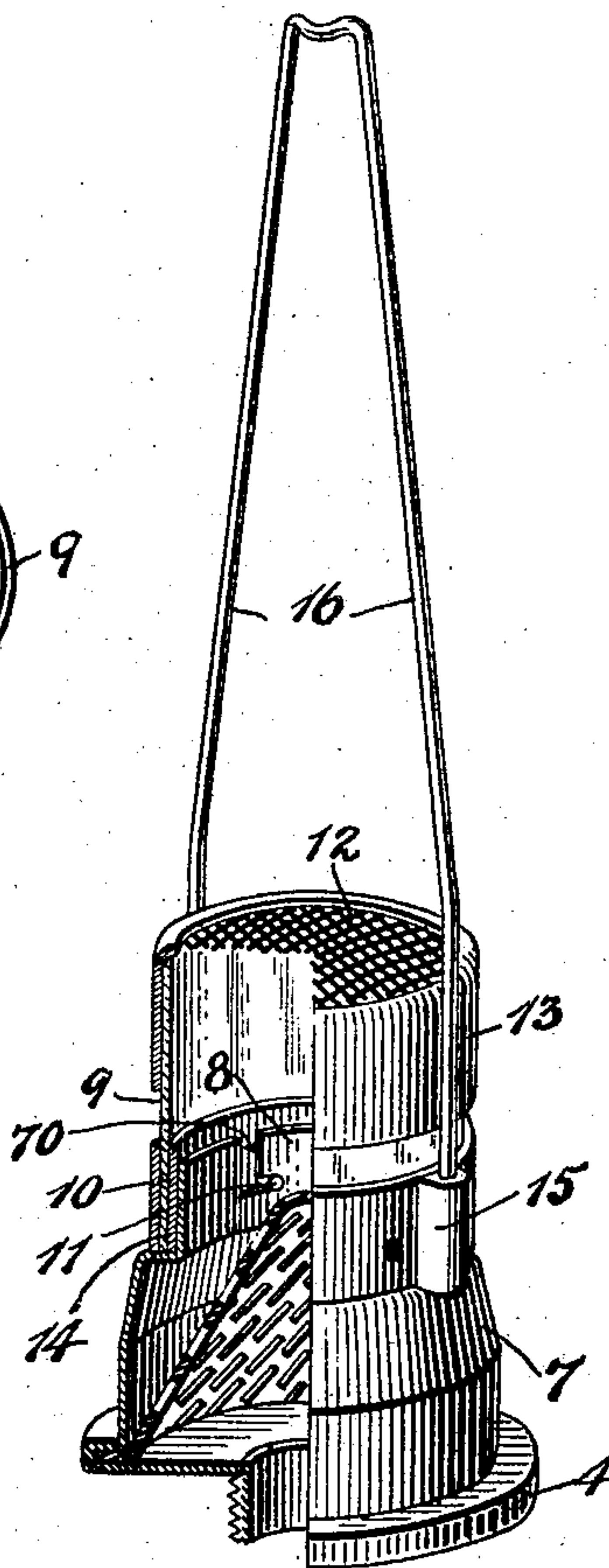


Fig. 4.

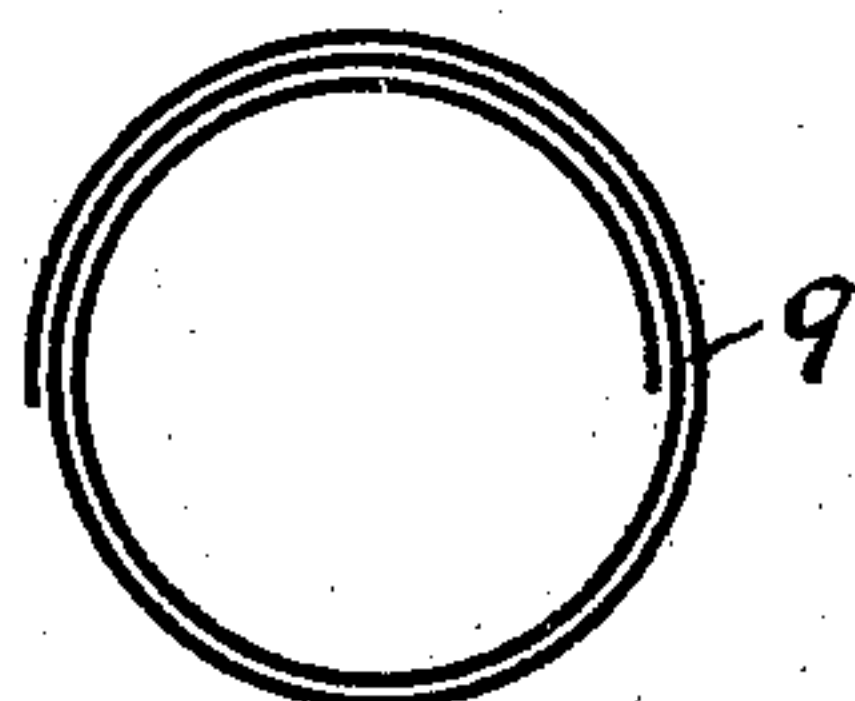


Fig. 1.

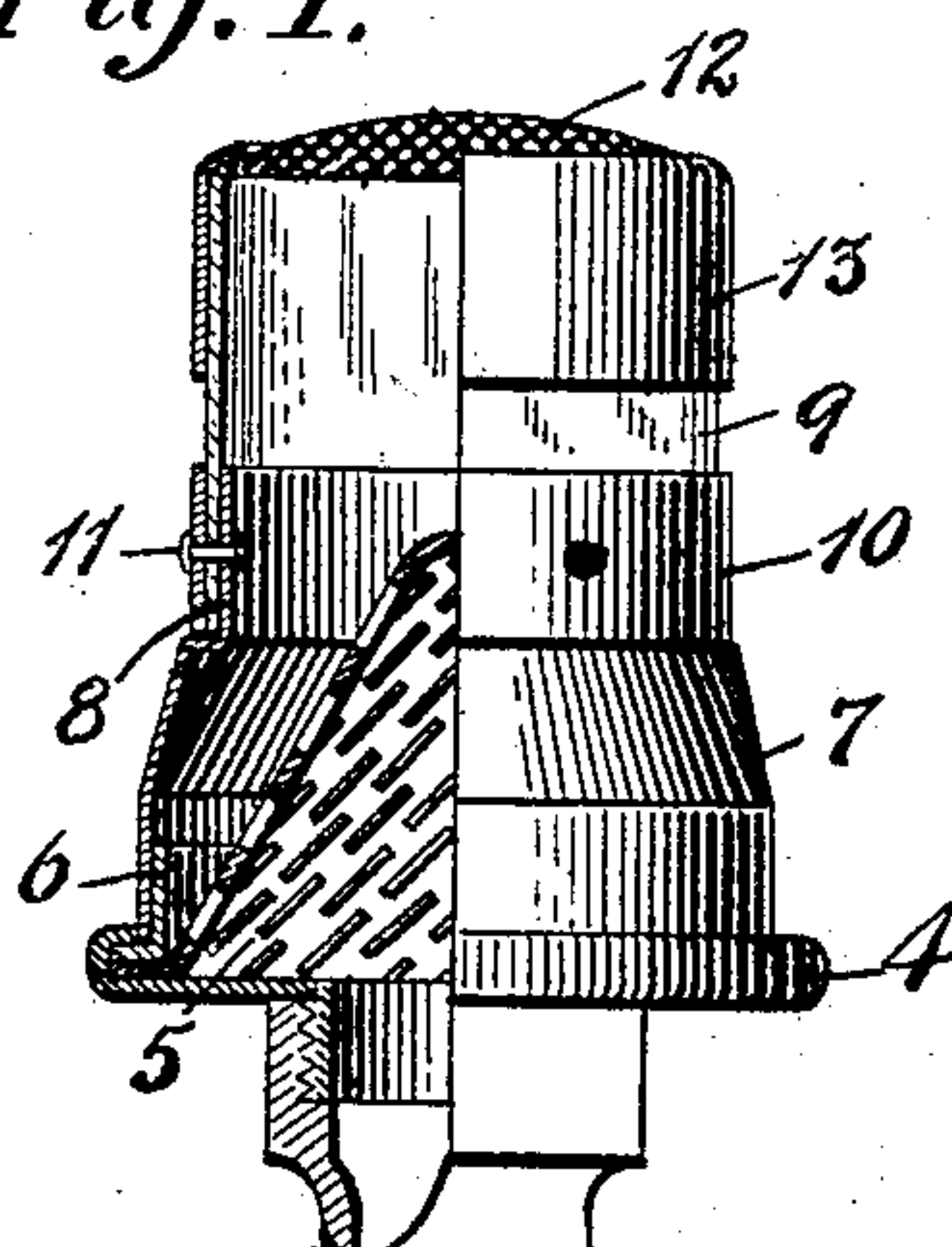
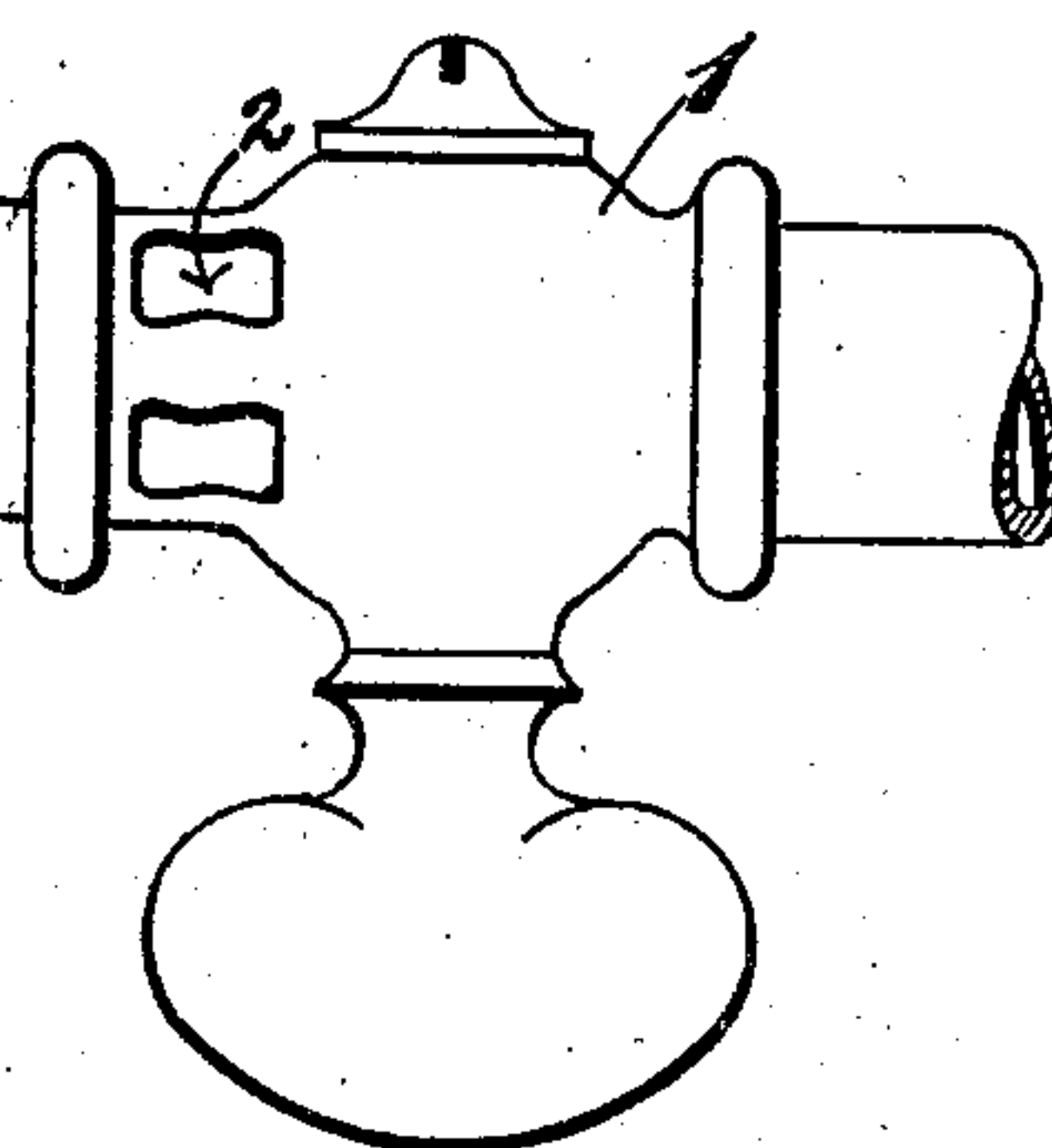
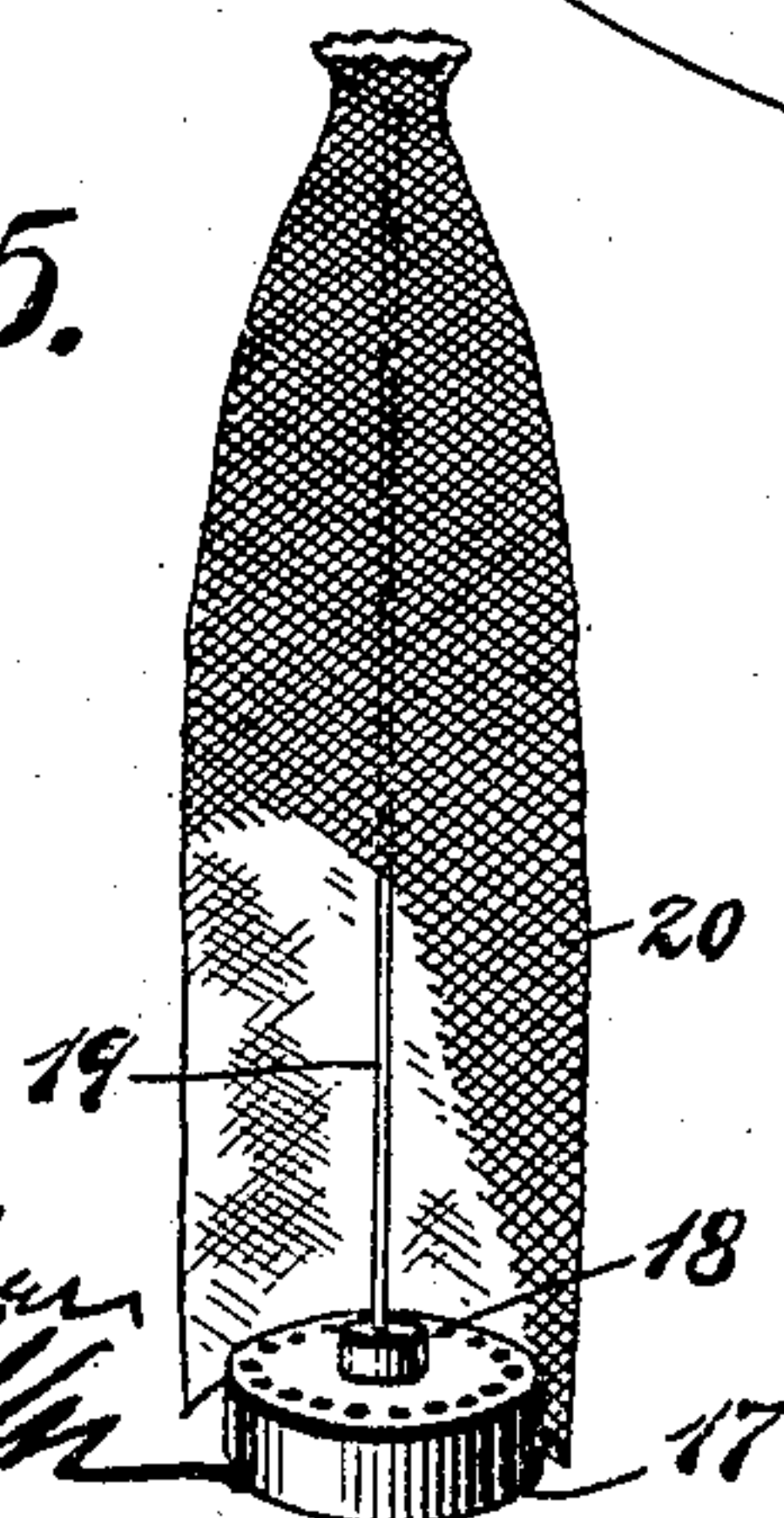


Fig. 5.



Witnesses
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FIXTURE-ARM BURNER FOR INCANDESCENT MANTLES.

SPECIFICATION forming part of Letters Patent No. 773,793, dated November 1, 1904.

Application filed November 23, 1903. Serial No. 182,277. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HUTCHINSON, a citizen of the United States, residing at New York city, New York county, New York, have
5 invented certain new and useful Improvements in Fixture-Arm Burners for Incandescent Mantles, of which the following is a full, clear, and exact description.

The subject-matter of this invention is the
10 art of incandescent gas-lighting.

My invention relates particularly to improvements in fixtures for employing incandescent mantles.

My object is to construct an incandescent-
15 mantle gas-light fixture of a simple form which will lend itself particularly to artistic treatment and which may, nevertheless, be economically manufactured and give uniform and efficient service. I have particularly sought to
20 construct the parts in such a way that the injector action shall be satisfactory and uniform throughout the operation of the burner and the parts retain their original appearance without that discoloration from heat which in my
25 particular construction would be otherwise apparent.

The invention consists in what may be termed a "fixture-arm" burner. A gas-cock is provided at one end of the fixture-arm and
30 a burner-head at the other with such thermal insulation as will prevent the heat from the flame from being transmitted to the arm. Air and gas inlets are provided, and an upwardly-curved arm performs the function of an injector and a mixing-chamber, while the burner-head acts as an expansion-chamber of larger
35 cross-sectional area.

Figure 1 is a side elevation of a fixture-arm burner embodying the improvements of my invention, half of the burner-head being shown
40 in cross-section. Fig. 2 is a plan view of the burner-head with the cap removed. Fig. 3 is a perspective view and section of a slightly different construction, in which the parts are provided with a two-armed mantle-support.
45 Fig. 4 is a detailed plan view of a strip of mica, partially wound up for employing my invention. Fig. 5 is a detailed perspective view, on a smaller scale, of a form of burner-cap with

central mantle-support for use with my invention.

1 indicates a gas-cock forming a part of the fixture-arm and to which gas is to be supplied.

2 represents air-inlets adjacent the gas-inlet.

3 is a portion of the arm of the fixture constituting a curved mixing and injecting tube.
55

4 is a flange of the platform, secured to the arm 3.

5 is a strainer of suitable form, which is supported by the platform and extends upwardly
60 in a form suggesting a cone.

6 is a substantially vertical flange, which forms the centering and joining medium for the shell 7.

8 is a collar, which in the form shown in Fig. 65 1 is integral with the shell 7 and forms the foundation-support for the insulating-tube 9. This tube is preferably formed of a strip of thin mica, as shown in Fig. 4, coiled up tightly about the collar 8 and held in place by the
70 ring 10. The rivets 11 may be provided for securing these parts together.

12 is the top plate for the burner, formed, preferably, of wire-gauze, which rests above the insulating-tube and is held in place there-
75 on by the rim 13. The rim and top constitute a cap.

In operation the flame occurs above the top plate 12, and substantially all the heat therefrom which affects the burner is transmitted
80 downward through the cap. The tube of mica 9 insures the complete insulation of all the lower parts of the burner, so that there is no possibility of the burner head or arm being discolored by the heat. This is of great im-
85 portance where the fixtures are made of expensive materials with high polish or oxidized finish, which would be discolored by the heat and absolutely ruined in appearance. The cap is completely insulated from the other
90 parts of the burner-head.

In the form of my invention shown in Fig. 3 the inner ring 14 is provided to reinforce the insulating-tube 9. The parts may be secured together by a rivet 11, as in the form
95 shown in Fig. 1. In this form I have provided a bayonet-joint 70, into which the pin 11 is adapted to coact, so as to removably secure

the parts together. 15 is an ear projecting from the ring 10, which affords a bearing for the mantle-supporting rods 16. In this form of construction the cap-insulating tube and mantle-support may all be removed together.

In the structure shown in Fig. 5 the cap 17, having perforations in the top, may be used in place of the cap shown in Figs. 1 and 3. 18 is a stud projecting from the top of the cap affording a step for the center support-rod 19 for the mantle 20. The rim of the mantle extends downward part way of the rim of the cap. In using the mantle with the form of structure shown in Figs. 1 and 3 it also extends down partially around the rim 13.

The gas which is supplied from the right hand, as shown in the drawings, passes through the gas-cock 1 and draws air into the arm 3 through air-inlets 2. This upwardly-turned arm performs the function of an injector. After the gas and air have been drawn into the arm they are mixed within the arm, which thus additionally performs the function of a mixing-chamber. The mixture after leaving the arm passes through the strainer 5 into the enlarged space or expansion-chamber in the burner-head, which insures the steady and uniform operation of the burner and prevents "pumping" or "beating." The perforated plate 12 at the top is thermally insulated from the lower part of the burner, and thus absolutely prevents the high temperature of the flame from being communicated to the fixture-arm, which would otherwise interfere with the injector, as well as ruin the artistic appearance of the fixture. The advantages of such a construction will be apparent to those acquainted with the art from the standpoint of the manufacturer, dealer, and user.

What I claim is—

1. A fixture-arm burner for incandescent

mantles comprising a gas-cock and an upwardly-turned arm with means for admitting gas and air adjacent one another, said upwardly-turned arm forming a mixing-chamber and performing the function of an injector in combination with a removable burner-head including a perforated cap, a shell forming an enlarged expansion-chamber and means for thermally insulating said upwardly-turned injector and mixing-arm from said cap.

2. A fixture-arm burner for incandescent mantles comprising an upwardly-curved arm with means for admitting gas and air adjacent one another, said curved arm forming a mixing-chamber and performing the function of an injector for the gas and air in combination with a removable upwardly-turned burner-head comprising a shell forming an expansion-chamber of enlarged cross-section and a perforated cap surmounting said shell with means for supporting an incandescent mantle.

3. In a gas-burner in combination, a mixing-tube with means for air and gas supply and having a tubular member, a removable insulating-tube supported thereby forming a vertical section of an expansion-chamber, and a perforated top plate surmounting said insulating-tube and vertically separated from said tubular member.

4. In an incandescent gas-burner, the combination of a mixing-tube with means for supplying gas and air, a burner-head forming an expansion-chamber having outlets for the combustible mixture and an insulating-tube forming a section of said burner interposed between the metal parts above and below and vertically separating them.

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