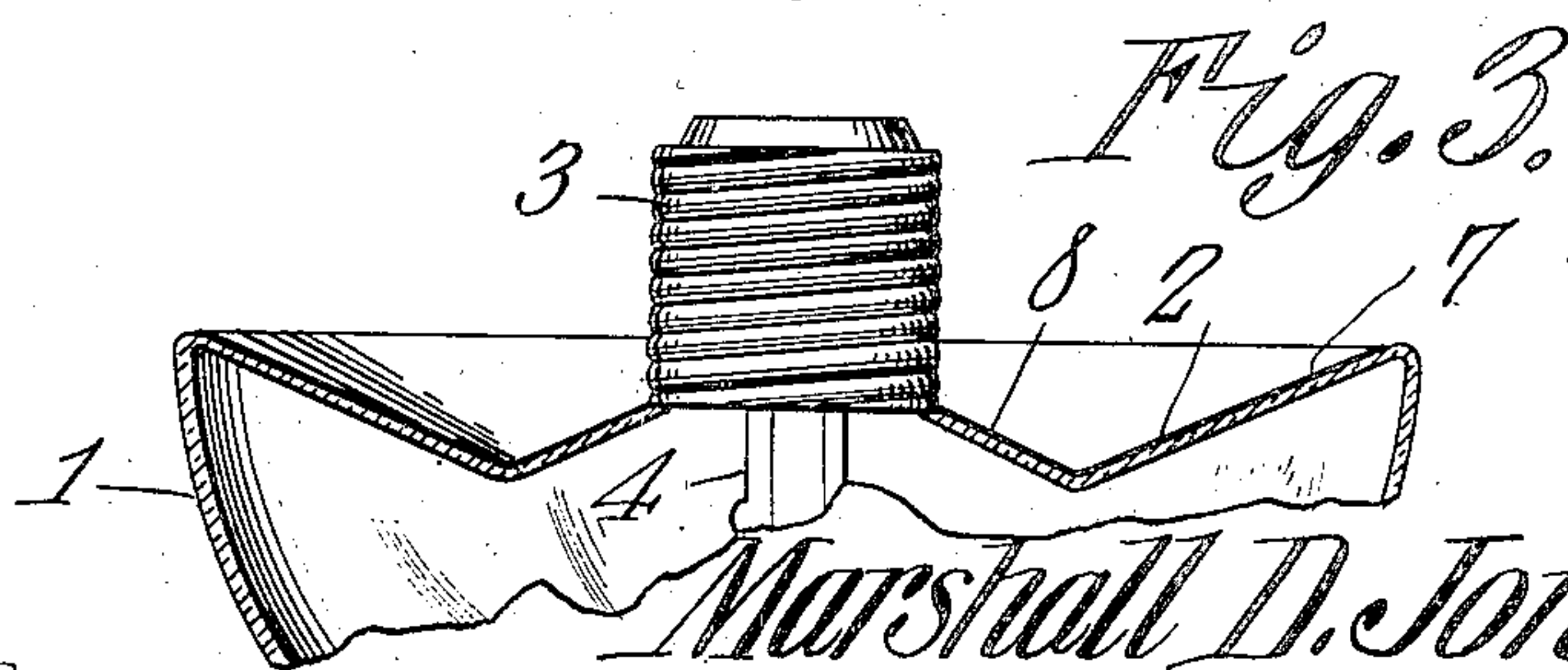
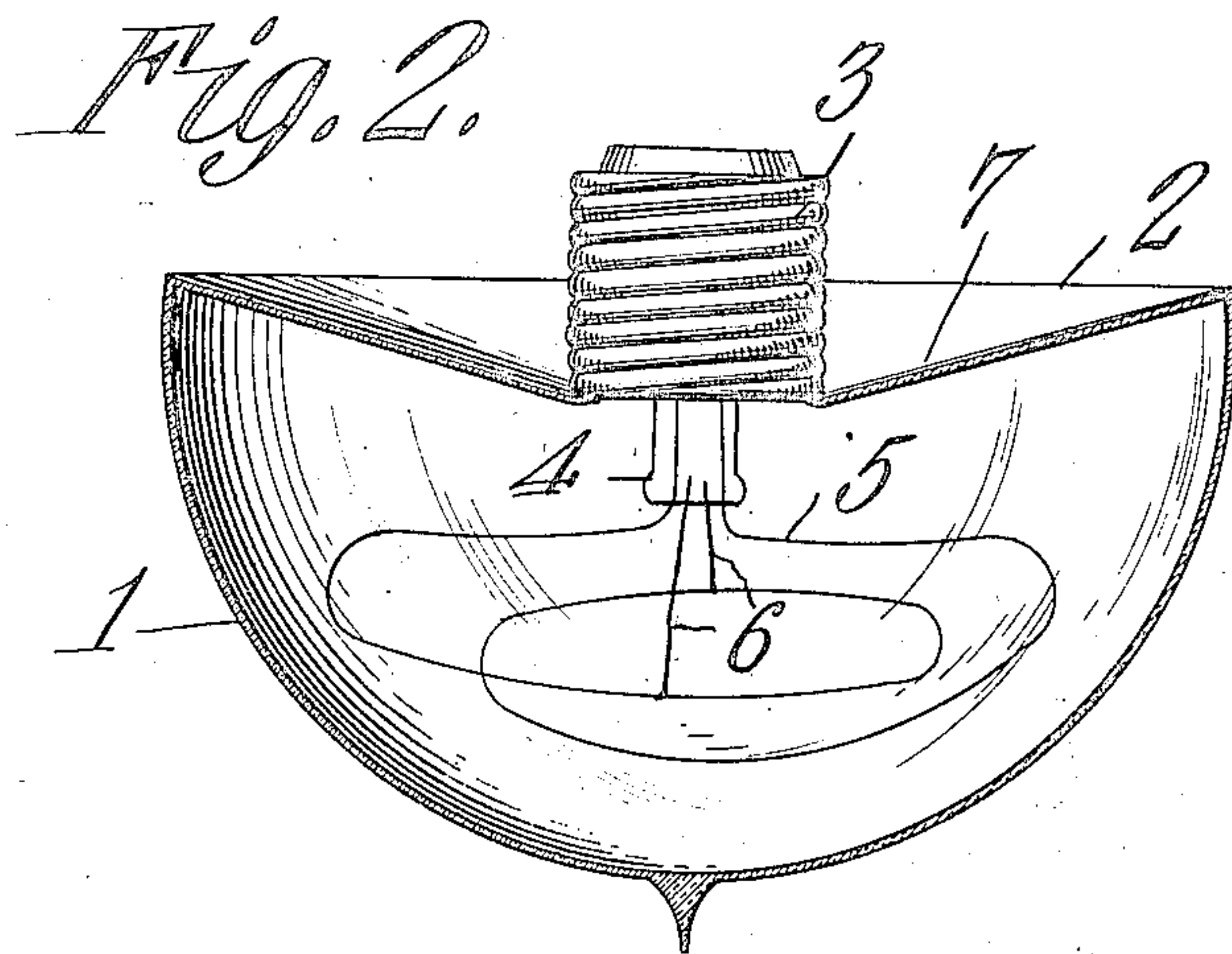
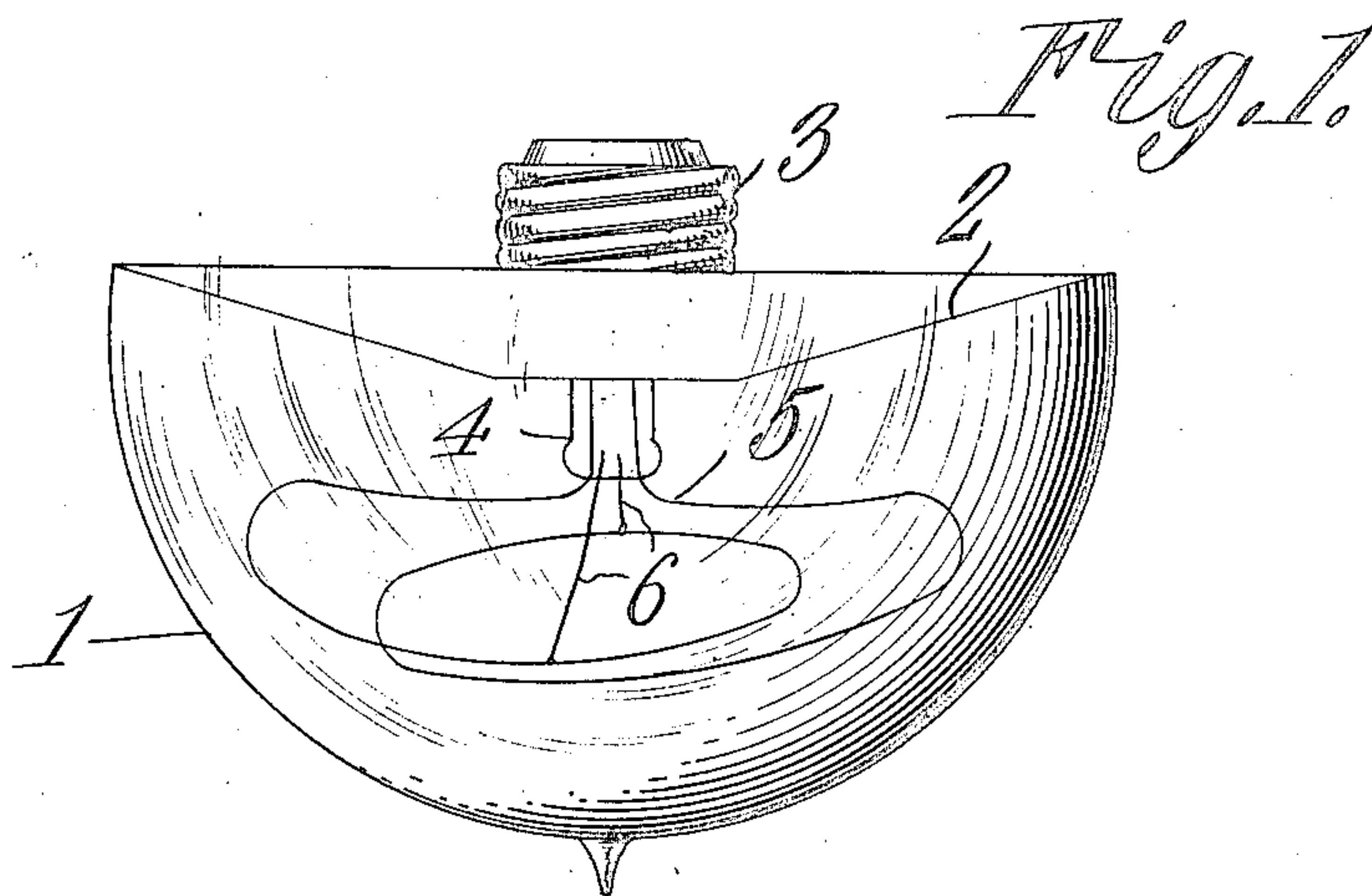


No. 887,943.

PATENTED MAY 19, 1908.

M. D. JONES.
INCANDESCENT ELECTRIC LAMP.
APPLICATION FILED APR. 30, 1907.



WITNESSES:

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UNITED STATES PATENT OFFICE.

MARSHALL D. JONES, OF DAVENPORT, IOWA, ASSIGNOR OF ONE-FOURTH TO LOUIS H. SMITH,
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INCANDESCENT ELECTRIC LAMP.

No. 887,943.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed April 30, 1907. Serial No. 371,064.

To all whom it may concern:

Be it known that I, MARSHALL D. JONES, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented a new and useful Incandescent Electric Lamp, of which the following is a specification.

This invention has reference to improvements in incandescent electric lamps, and its object is to provide a lamp having great light-diffusive power.

The invention consists essentially in forming the lamp bulb substantially hemispherical in shape, with a dished upper surface of substantially frusto-conical shape, with the filament entering through the center of the dished upper surface and so formed as to constitute a broad light-giving unit extending in a direction perpendicular to the axis of the body portion of the lamp and entering said body portion to a greater distance than does the dished upper surface. The dished portion of the lamp has its outer surface silvered to constitute a reflecting mirror, while the filament is sufficiently removed therefrom to cause the light to be reflected over a large area.

Lamps constructed in accordance with the present invention are particularly adapted for desk lamps, for show windows, for ceiling lamps, and for decorative purposes. In fact, they may be used wherever it is desirable to throw a diffused beam of light in some particular direction. These lamps are also particularly adapted for clusters, where the light coming from an ordinary lamp is partially lost or absorbed.

Bulbs constructed in accordance with the present invention have a diffusive area up to one hundred and eighty degrees, or possibly somewhat less, beyond which zone no light at all passes from the lamp; consequently, they give a materially greater amount of light within the circumscribed area of diffusion than does an ordinary lamp, and in addition to this the base of the lamp is not interposed in any manner in the light area of the lamp.

The invention will be fully understood from the following detailed description taken in connection with the accompanying drawings forming part of this specification, in which,—

Figure 1 is a side view of an incandescent electric lamp constructed in accordance with my invention; Fig. 2 is a central section

through the same, with the base shown in elevation; and Fig. 3 is a central section, showing a modified form of the reflector.

Referring to the drawings, there is shown an incandescent electric lamp bulb, the body 1 of which is approximately hemispherical in outline. The socket end or cap portion 2 of the lamp bulb is dished in the form of a shallow, inverted, frusto-cone integral with the body portion 1, and at its center carrying the screw-base 3 of the ordinary Edison type, as shown, or of any other desired type. The base end of the lamp is provided with the usual glass support 4 for the filament 5.

It will be observed that this filament conforms in a manner to the shape of the body 1 of the lamp. The filament may be of the spiral form, and is so shown, but the spiral is condensed in the direction of the central axis of the lamp so that the filament spreads laterally but is in the main quite close to the support 4. In order that the filament may be securely supported within the bulb, suitable anchors 6 may be provided.

It will be observed that the filament is carried within the body portion 1 entirely beyond the zone occupied by the frusto-conical base-carrying portion, so that light from the filament reaches every portion of the reflecting surface, and, consequently, the diffusive effect of this reflecting surface is greatly enhanced. It will be further observed that the glass support 4 projects beyond the point of greatest projection of the base carrying portion 2 into the body portion 1, whereby the filament while spread laterally with relation to the axis of the body portion 1, is still located well beyond the base-carrying portion 2 and in no case is it brought into close relation thereto.

On the exterior surface of the dished portion 2 of the lamp bulb there is provided a layer 7 of a suitable material for forming a reflecting surface on the exterior of said portion 2, which reflecting surface, however, is adjacent to the glass so that it will reflect all light coming from the filament 5 to the portion 2 of the bulb in a direction toward the body portion 1 and through the same outward away from said dished portion 2. This reflecting surface may be formed of the ordinary mercurial silvering compound used on looking-glasses or it may be produced in any desired way.

It will be seen that the light element, con-

sisting of the filament 5, covers a considerable area with relation to the axis of the lamp, and this light element is backed by a reflector, also of considerable area and so shaped or
5 formed as to spread the light rays.

Now, let us assume that the lamp is in the position illustrated in the drawing, that is, with the base uppermost and the body portion directed downward. It is known that
10 the intensity of illumination will be the greatest in a downward direction from the filament and will gradually grow weaker up to a horizontal plane and beyond. Now, with the reflecting surface formed as shown,
15 those rays of light which would ordinarily pass upward above the horizontal plane are caught by the reflector and thrown outward at various angles from the horizontal plane and downward. These reflected rays are
20 added to or reinforce the weaker horizontal light emanations from the filament so that the photometric value of the lamp will be approximately equal throughout the light-giving zone.

It will be seen that lamps of the character described are particularly useful where it is desired that a rather diffused light shall be thrown in one general direction. For instance, lamps of this character are particularly useful for cluster chandeliers, for in such cases not only is there a greater amount of light in the direction desired, but the artistic effect is much enhanced. For show-window or show-case illumination, for art gallery
35 illumination, for cornice illumination, for reading lamps, or for house illumination where it is desirable that the light be in the main directed downward and sidewise, these lamps are particularly adapted, while for
40 decorative purposes the brilliant base of the lamp will add very materially to the esthetic effect.

In Fig. 3 the reflector is shown in the form of a shallow, invert, frusto-cone 2 with
45 a central reëntering frusto-cone 8, at the

central plateau whereof is the screw-base 3. This form will act in a similar manner to the form shown in the other figures, but will also give more diffusion of light.

I claim:—

1. An incandescent electric lamp having a substantially hemispherical body portion, a base portion provided with walls of invert frusto-conical shape and having a reflecting surface, and a filament entering the body of
55 the lamp through the center of the base portion and extending in a direction substantially perpendicular to the axis of the body portion and located in the latter at a point beyond the point of greatest extension of the
60 base carrying portion into the body portion.

2. An incandescent electric lamp comprising a substantially hemispherical body portion, a base portion provided with walls of invert frusto-conical shape and having a reflecting surface, a terminal base carried
65 directly by the center of said base portion, a support carried by said base and entering centrally into the body portion beyond the point of greatest extension of the base portion
70 therein, and a filament carried by said central support and in the form of a substantially flat spiral extending in a direction perpendicular to the axis of the body portion.

3. An incandescent electric lamp having
75 an invert, frusto-conical base with the central portion formed with a reëntering frusto-cone, and provided with a reflecting surface.

4. A light-reflecting and diffusive element comprising a frusto-conical reflector having
80 its central portion in the form of a reëntering frusto-cone.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

MARSHALL D. JONES.

Witnesses:

S. H. SMITH,
C. E. LAMB.