

No. 881,577.

PATENTED MAR. 10, 1908.

J. P. HARRIS.

MANTLE SUPPORT AND PROCESS FOR PROTECTING SAME.

APPLICATION FILED AUG. 25, 1905.

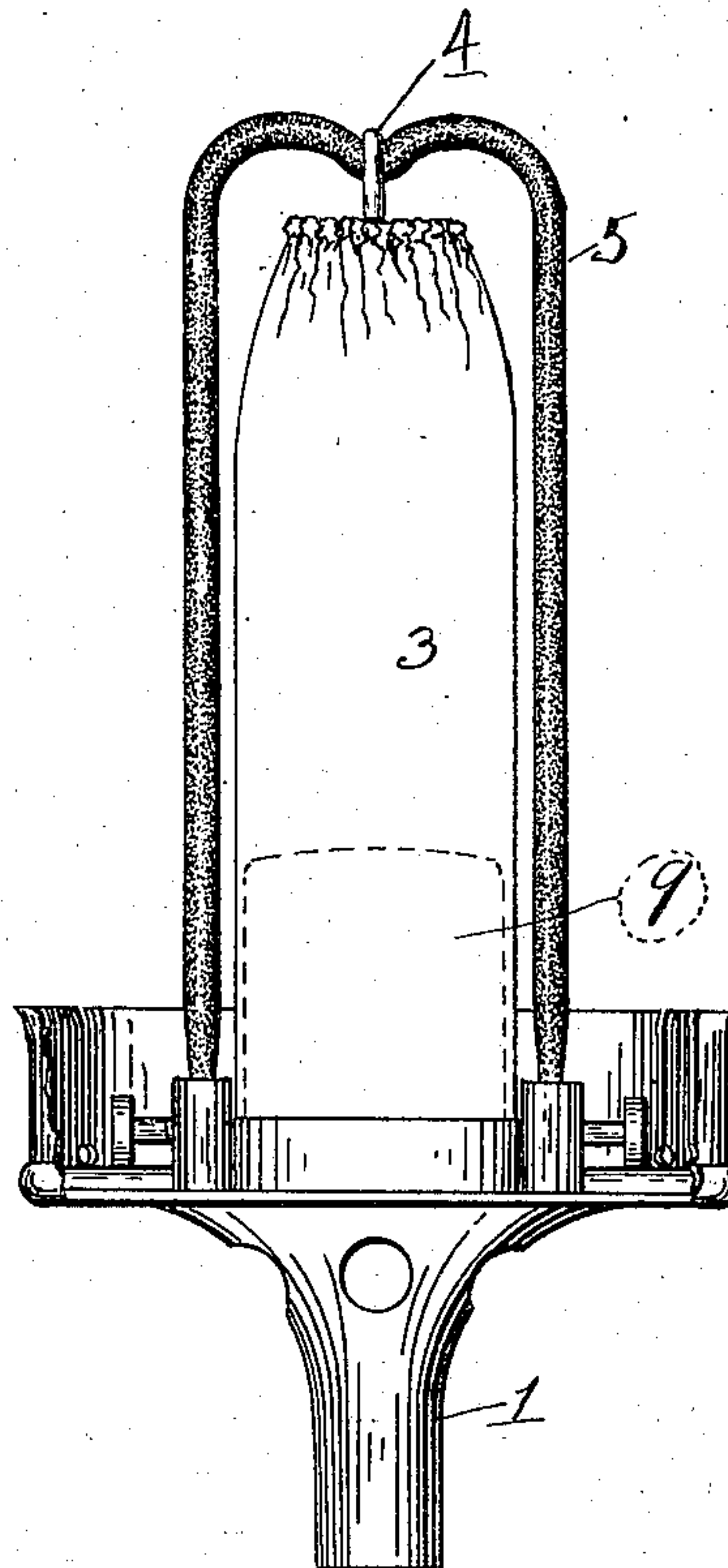


Fig. 1

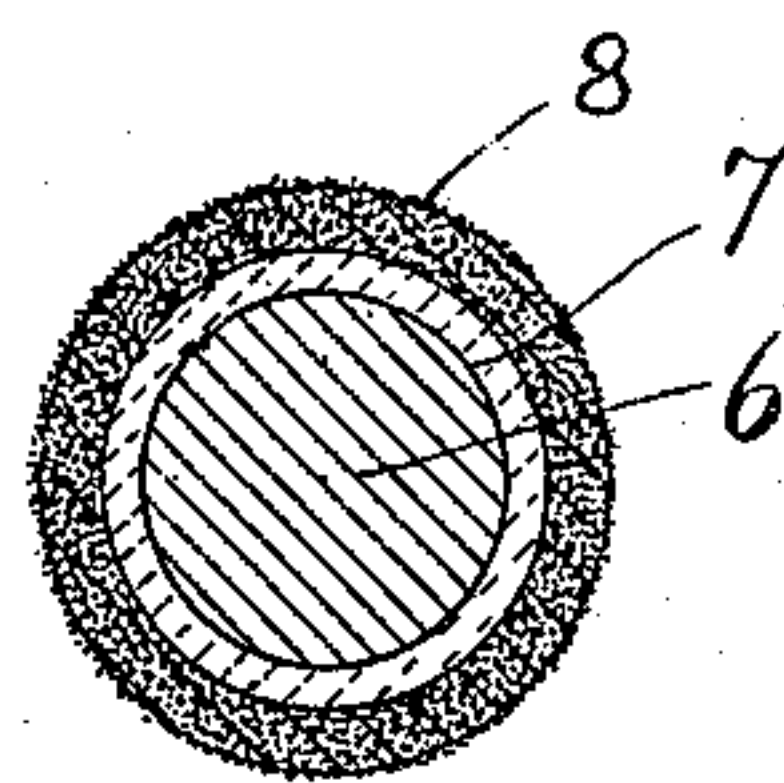
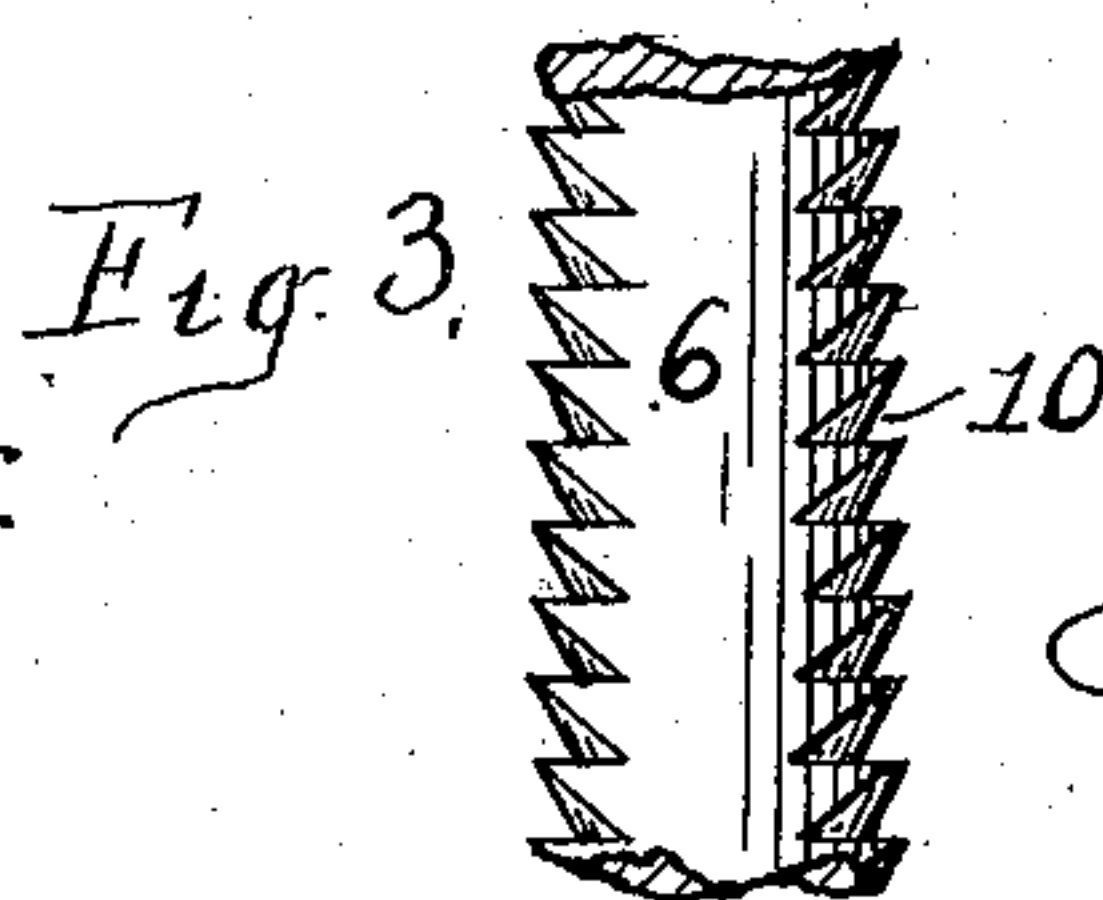


Fig. 2



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN P. HARRIS, OF CLEVELAND, OHIO.

MANTLE-SUPPORT AND PROCESS FOR PROTECTING SAME.

No. 881,577.

Specification of Letters Patent.

Patented March 10, 1908.

Application filed August 25, 1905. Serial No. 275,772.

To all whom it may concern:

Be it known that I, JOHN P. HARRIS, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented a certain new and useful Improvement in Mantle-Supports and Processes for Protecting Same, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

10 In the use of mantle burners it is a well-known fact that the wire or loop which supports the mantle, owing to the intensity of the radiant heat from the incandescent mantle and the formation of rust by the deposition of water vapor thereon, frequently warps and bends, causing the support to sag. This results in a loss of candle power in the mantle and is a fruitful source of the breakage of the same. In a great many instances, the support is completely severed, especially in street and gasoline lighting, leaving the mantle unsupported and causing the same to break. Furthermore, the heat frequently causes the asbestos cord by which the mantle is suspended to adhere to its support, thereby preventing relative movement of the mantle and its support, so that vibrations of the support are transferred bodily to the mantle, resulting in the breaking of the latter.

30 Attempts have been made to overcome these objectionable results by various schemes, such as protecting part of the support by a surrounding tube of pipe clay extending only as far as the bend in the same; but this fails to prevent the adhesion of the asbestos cord to the support and, as the tube is a conductor of heat, produces warping and cracking of the portions of the mantle adjacent thereto. A further attempt has been made to protect the support by wrapping the same with asbestos cord; but the turns of the cord are liable to become slightly separated, permitting not only the access of radiant heat thereto but also permitting the deposition of water vapor from the combustion of the gas, with the result that the wire or support will become corroded and weakened at these points, with the objectionable results hereinbefore set forth.

50 My invention has for its object to protect such supports from the heat from the mantle, thereby avoiding the objections noted and permitting the employment of ordinary iron wire in the construction of such supports without liability of the same to warp, bend, or break.

A further object of the invention is the provision of a support which will be impervious to the heat of such burners; and a still further object of the invention is a process for protecting such supports from the deleterious effects noted.

Referring to the drawings:—Figure 1 represents an elevation, with parts broken away, of a part of a mantle burner showing a wire loop protected in accordance with my invention; Fig. 2 represents an enlarged cross-sectional view through the support, showing the wire and the protecting material thereon; and Fig. 3 shows an enlarged detail of the wire or support prepared for coating.

In said drawings, 1 represents the base of the burner, 2 the gallery, and 3 the mantle. The mantle is suspended by the ordinary asbestos cord 4 from the supporting loop 5. Said burner, as is usual, is provided with the cap 9, indicated in dotted lines in Fig. 1.

Referring more particularly to Fig. 2, the loop or support comprises a wire which may be of iron or any ordinary material. In order to protect this wire from the heat and the deposition of water vapor from the burner, I first roughen or serrate the same in any suitable manner. Two vertical sets of serrations 10 may be provided, located on diametrically opposite portions of the wire, but one set will be formed on the inner portion of the wire, that is, the portion adjacent to the mantle. I then dip the wire into cement embodying therein material which is non-fusible at the temperature of atmospheric burners. This material is preferably magnesium in combination, as asbestos, the cement which I generally employ being asbestos cement. The wire may be dipped into the cement several times, to obtain a layer of sufficient thickness. The provision of the serrations gives a thicker coat of material where most needed,—in the zone of greatest heat. A layer of such cement is indicated at 7 in Fig. 2. As a further protection, before the cement is thoroughly set and dried, I dip the cement-coated wire into powdered material which is also non-fusible at the temperature of atmospheric burners. A material suitable for this purpose is magnesium in combination, as the silicate, oxid, or carbonate. I have found a mixture of the oxid with the silicate (preferably as asbestos) to be particularly well suited for this purpose. A coating of such powdered material is, in.

licated at 8, in Fig. 2. Should the cement tend to crack or scale, the coating of powdered material prevents the access of water vapor to the wire and in a large measure prevents the access of heat thereto. The powdered condition of the material further provides air spaces between the particles thereof and renders the exterior coating in a large measure non-heat conducting, thereby preventing the warping of the mantle adjacent to the support. Moreover the fact that the outer coating is of powdered material prevents the adhesion of the asbestos cord thereto, as would be the case were such cord supported from another cord of the same material.

While I have described the particular ingredients which I employ in the cement and in the outer coating of powdered material, I do not propose to be limited to such materials except as such limitations may be included in the claims hereto annexed or may be rendered necessary by the prior state of the art.

Having thus described my invention what I claim as new and desire to secure by Letters-Patent is:—

1. The process of protecting mantle supports which consists in coating the same with a cement containing refractory material and then applying to the support thus coated a coating of refractory material, substantially as specified.

2. The process of protecting mantle supports which consists in coating the same with a cement containing refractory material and

then applying to the support thus coated a coating of refractory material applied in a powdered condition, substantially as specified.

3. The process of protecting mantle supporting wires which consists in roughening or serrating the wire, applying to the same a cement containing refractory material, and then applying to the wire thus coated a coating of refractory material in powdered condition, substantially as specified.

4. A mantle support having thereon an inner coating of cement containing refractory material and an outer coating of powdered refractory material, substantially as specified.

5. A mantle support comprising a wire having the surface thereof, which is adjacent to the mantle, roughened or serrated and having applied thereto a coating of cement containing refractory material and a further coating of refractory material applied in powdered condition, substantially as specified.

6. A mantle support having thereon an inner coating of asbestos cement and an outer coating consisting of a mixture of powdered magnesium oxid and powdered magnesium silicate, substantially as specified.

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

JOHN P. HARRIS.

Witnesses:

JOHN HARRIS,
J. B. HULL.