

No. 778,504.

PATENTED DEC. 27, 1904.

M. OFFENBERG.  
MANTLE FOR INCANDESCENT GAS BURNERS.

APPLICATION FILED MAR. 28, 1904.

Fig: 1.

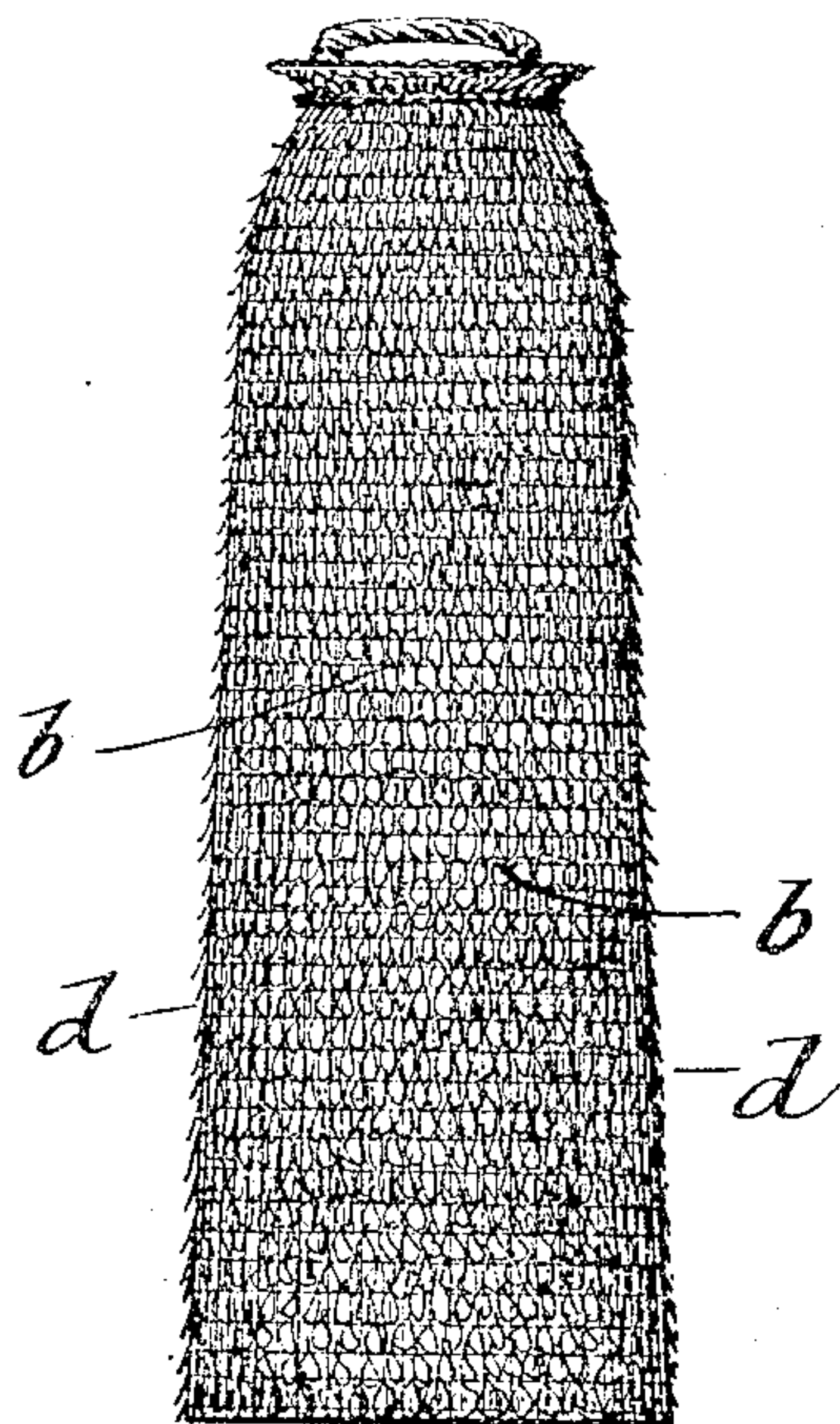


Fig: 2.

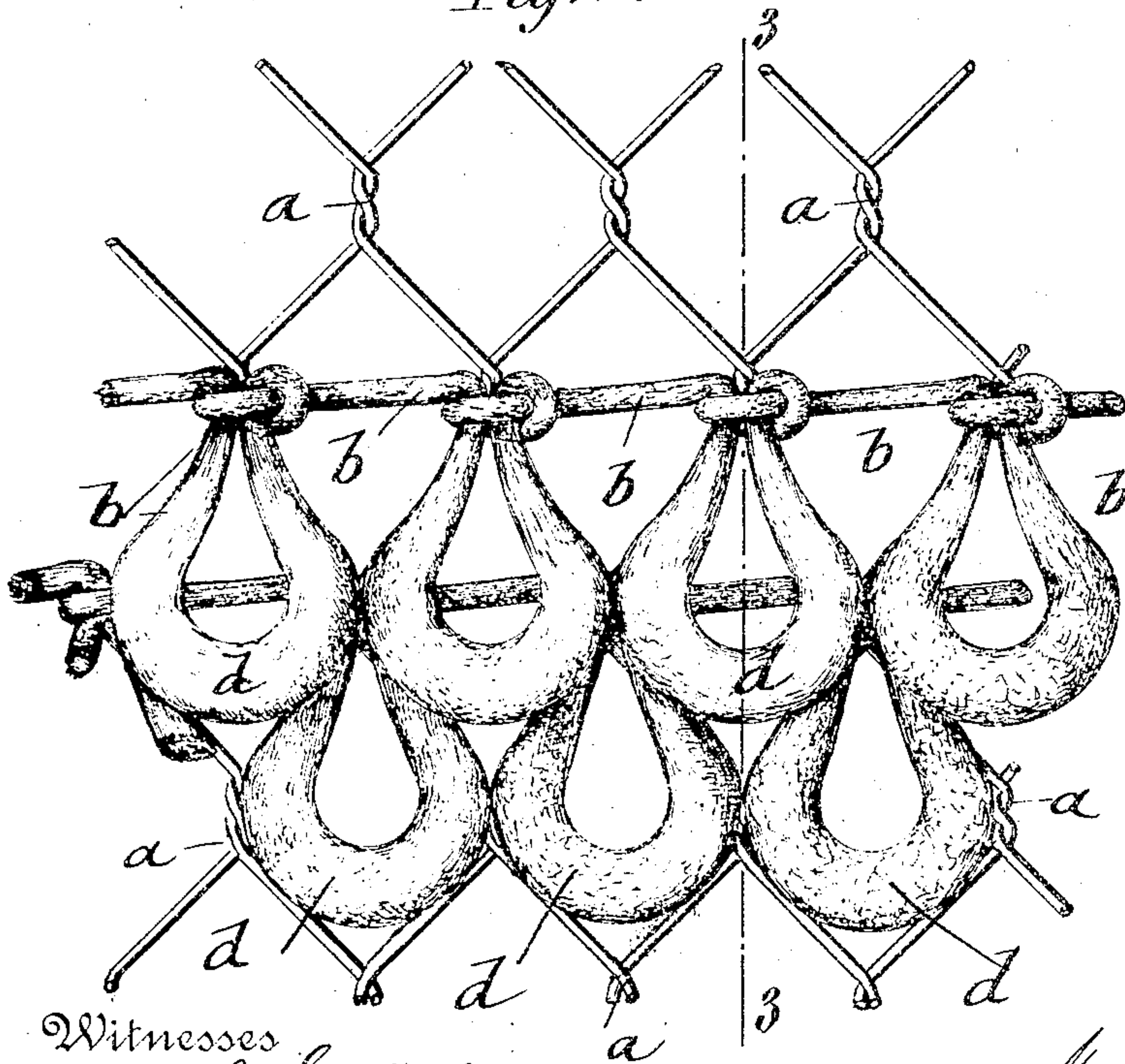
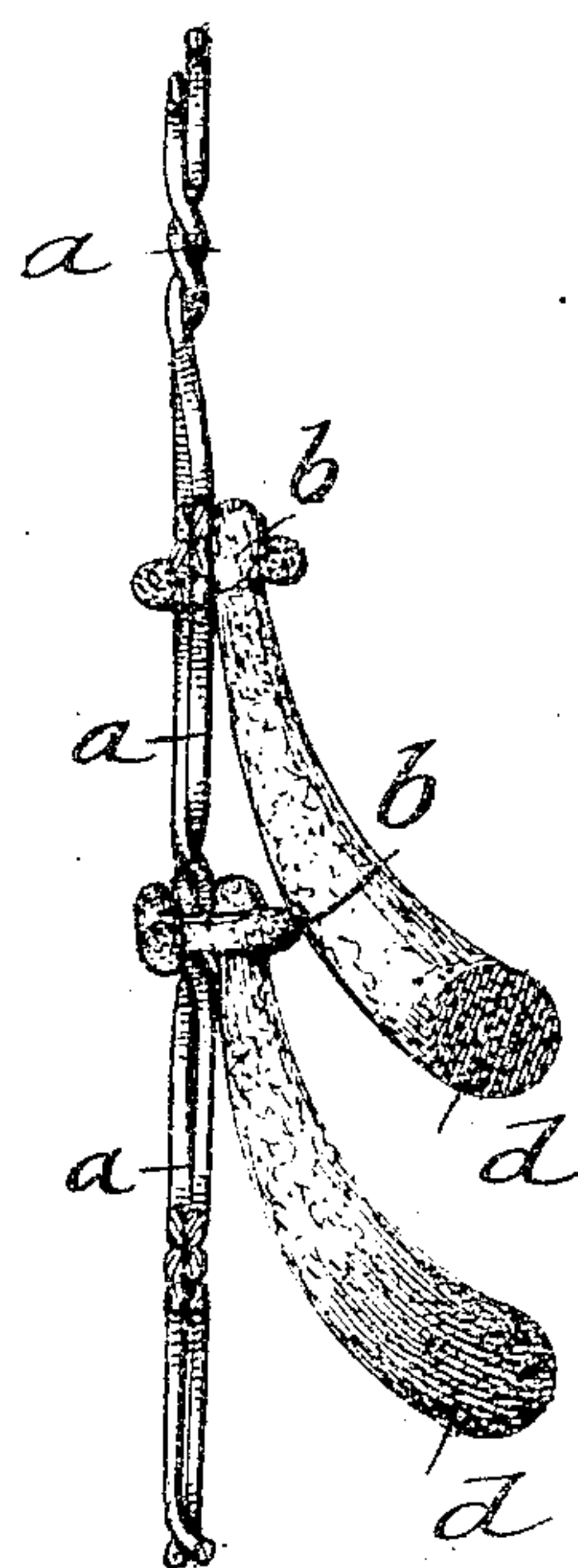


Fig: 3.



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# UNITED STATES PATENT OFFICE.

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## MANTLE FOR INCANDESCENT GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 778,504, dated December 27, 1904.

Application filed March 28, 1904. Serial No. 200,275.

*To all whom it may concern:*

Be it known that I, MORRIS OFFENBERG, a citizen of the Empire of Austria-Hungary, residing in New York, borough of Manhattan, in the State of New York, have invented certain new and useful Improvements in Mantles for Incandescent Gas-Burners, of which the following is a specification.

This invention relates to certain improvements in mantles for incandescent gas-burners, in which an increased emission of light is obtained by the union of the threads treated with the light-emitting substances with a permanent skeleton frame of suitable metallic wire or other permanent refractory material, so that said skeleton frame forms after the burning off of the mantle a strong and durable carrier for the light-emitting body of the mantle; and the invention consists of a mantle for incandescent gas-burners composed of a permanent skeleton frame and a burned-out body formed of the salts of the rare earth metals that is interwoven with the permanent skeleton frame and supported thereon.

The invention consists, further, of the blank for an incandescent mantle composed of a permanent skeleton frame of metallic wire or other permanent refractory material and which carries the threads saturated with the solutions of the salts of the rare earth metals, said threads being interwoven with the wire skeleton frame; and the invention consists, lastly, of certain details of construction of my improved mantle, which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my improved mantle for incandescent gas-burners. Fig. 2 is a detail of a portion of the mantle drawn on a larger scale and showing the interweaving of the wire skeleton frame with the treated light-emitting threads; and Fig. 3 is a vertical transverse section on line 3-3, Fig. 2.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, *a* represents the skeleton frame of my improved mantle for in-

candescent gas-lights, and *b* the light-emitting threads, which are interwoven therewith and which are treated with a solution of the salts of the rare earth metals, such as thorium, cerium, &c. The skeleton frame *a* is preferably made of open-meshed thin metallic wire, made of an alloy of nickel and platinum or similar alloy, which is capable of being knitted into shape on a special knitting-machine constructed for this purpose, or it may be made of any other permanent fire-resisting or refractory material.

The light-emitting threads *b* are made in the usual manner of slightly-twisted threads of suitable textile fibers, which threads are treated in the well-known manner with a solution of the salts of the rare earth metals employed in the manufacture of incandescent mantles. The threads are loosely interknitted or interwoven with the skeleton frame *a* at the points of intertwisting of the wire strands, as shown in Fig. 2, so as to form outwardly-projecting pendent loops or meshes *d*, which surround the open-meshed skeleton frame and form a greatly-enlarged light-emitting surface. The threads can be treated with the solutions either before being interwoven with the wires of the skeleton frame *a* or they can be interwoven or knitted therewith in tubular form as they are delivered by the knitting-machine. The required lengths of the blanks for the mantles are then cut off from the tubular body and finished at the head in the usual manner ready for being burned off. The blanks can be shipped without being burned off by being nested one on top of the other. The blank is then placed over a Bunsen burner and subjected to the heat of the blue flame of the same, so that the fibrous matter is burned to ashes, while the oxidized light-emitting body is supported on the wire skeleton frame, or the blank may be burned off in the factory and collodionized and delivered to the users in the same manner as the mantles heretofore in use. In both cases the firm permanent skeleton frame protects the light-emitting portion of the mantle against accidental injury which is so common at present and which is a source of great loss, not only during the manufacture,

but also in the hands of the public when applying the mantles to the gas-burners. The wire skeleton frame also imparts an increased life to the mantle, as the earthy light-emitting body is not self-sustaining as heretofore; but  
5 bodily supported by the skeleton frame, which acts as a reinforcement for the mantle. The light-emitting surface of the mantle is largely increased by the enlarged surface of light-  
10 emitting loops or meshes of which the incandescent body is composed.

The advantages of my improved mantle are economy in the manufacture of the same, less liability to injury in handling the mantles, a  
15 greatly-increased emission of light, and a greater durability and longer life of the mantle itself.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

20 1. An incandescent gas-mantle, comprising a permanent skeleton frame formed of intermeshing wire, and threads or filaments of in-

candescible oxids interwoven with and supported by said skeleton frame.

2. An incandescent gas-mantle, comprising 25 a metallic skeleton frame, and a light-emitting body consisting of a plurality of threads or filaments of incandescible oxids, said threads or filaments being individually interwoven with and supported by said skeleton frame. 30

3. An incandescent gas-mantle, comprising a permanent skeleton frame formed of intermeshing wire, and threads or filaments of incandescible oxids interwoven with and supported by said skeleton frame and having out- 35 wardly-extending pendent meshes or loops.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

MORRIS OFFENBERG.

Witnesses:

PAUL GOEPEL,  
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