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C. M. LUNGREN.

ART OF FORMING MANTLE SUPPORTS.

APPLICATION FILED MAR. 6, 1905.

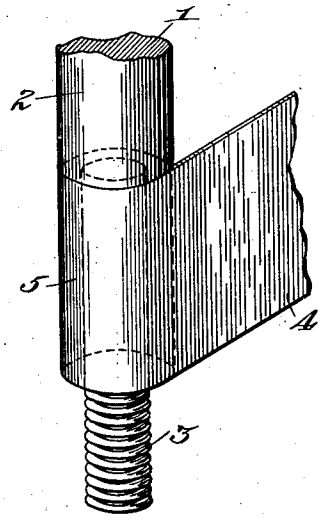

Fig. 1.

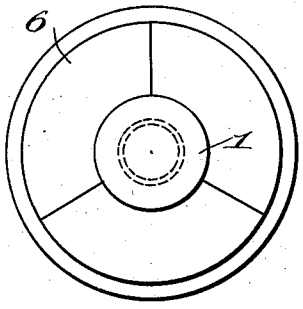

Fig. 4.

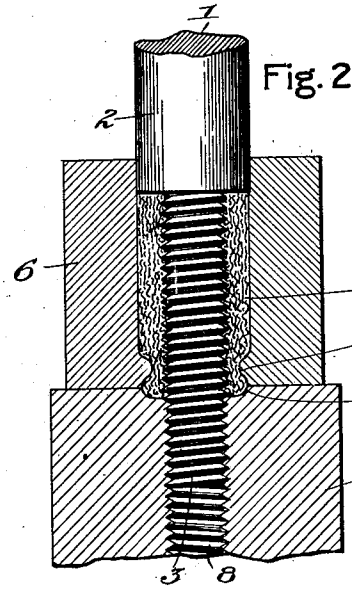

Fig. 2.

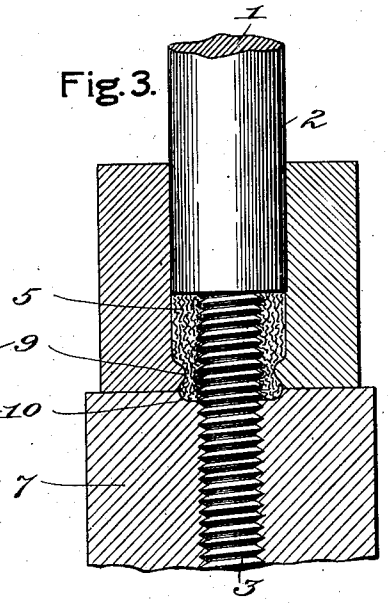

Fig. 3.

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ART OF FORMING MANTLE-SUPPORTS.

No. 836,123. Specification of Letters Patent. Patented Nov. 20, 1906.

Application filed March 6, 1905. Serial No. 248,511.

To all whom it may concern:

Be it known that I, CHARLES M. LUNGREN, residing at Bayonne, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in the Art of Forming a Mantle-Support, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an art for forming means adapted for use in supporting incandescent-lamp mantles.

One of the objects thereof is to provide an art of the above nature whereby an efficient supporting member may readily be formed of inexpensive material.

Another object is to provide an art of the above nature which may be carried on without the use of skilled labor and whereby a high rate of production is practicable.

Other objects will be in part obvious and in part pointed out hereinafter.

The invention accordingly consists in the several steps, the order of the same, and the relation of one or more of the same to one or more of the others thereof, which will be exemplified in the art hereinafter described and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings, wherein is illustrated one of various possible methods of carrying on my invention, Figure 1 is a perspective view of one of the early steps thereof. Fig. 2 is a sectional elevation showing means for carrying on a subsequent step. Fig. 3 is a similar view of the same parts at a later stage in their use. Fig. 4 is a plan of the parts shown in Figs. 2 and 3.

Similar reference characters refer to similar parts throughout the several views.

As tending to cast light upon the general nature of my invention, it may here be noted that the parts used in supporting incandescent-lamp mantles are subjected to wide variations in temperature and also are exposed to the effects of extreme heat. Also it is desirable that parts of this type be characterized by a considerable degree of resilience, so as to render the same adapted to cushion the member or members supported thereon. I propose to provide an art for forming a member which is well adapted to resist the above conditions and for forming the same in a simple and inexpensive manner. The article so formed, although adapted for many uses, is peculiarly suited for employment in the above relation.

Referring now to the accompanying drawings, there is indicated in Fig. 1 a method of carrying on one of the early steps in the preferred embodiment of my invention. About a mandrel 1, which is provided with a cylindrical portion 2 and a threaded extension 3 of less diameter, I wind a strip of moist asbestos paper 4 in such manner as to form a sleeve or spool 5 about the threaded portion thereof. A sectional mold 6, preferably comprising three parts, is then clamped about the spool, as shown in Fig. 2 of the drawings, and a follower 7, threaded as shown at 8, turned down upon the threaded portion of the mandrel. The several sections of the mold 6 being held firmly in position by any desired means, the follower is forced down, so as to compress the soft semiplastic fibrous substance between the threads of the mandrel and outwardly against the walls of the mold, causing it to take the exact shape thereof. Mold 6 is provided at its lower ends with a shoulder or projection 9 of the form indicated in Figs. 2 and 3 of the drawings, and the upper portion of the follower 7 is recessed, as indicated at 10, so as to provide a beaded lower end of the spool. After the follower has been turned to the desired extent, the spool being compressed until its bulk is reduced, preferably, about one-half, the sectional mold is unclamped and removed, the follower drawn from the mandrel, and the spool 5 removed by turning along the threaded portion 3 of the mandrel. It will be obvious that it is immaterial whether this follower or mandrel be turned, it being essential only that a relative turning movement take place. With the spool in this firmly-compressed condition it is dried or baked until it possesses the desired rigid yet resilient characteristics. The final step in this art is the reducing of the spool to the desired exact shape, as by filing.

It will thus be seen that I have provided an art well adapted to accomplish the objects above indicated and possessing many advantages in the matters of simplicity, economy, and practicability. The asbestos fiber, owing to its thorough matting in the previous

processes to which it is subjected in forming the paper, is thoroughly intermingled and matted and upon being compressed in a wet condition, as above indicated, and subsequently baked or dried is formed into a rigid and yet resilient member which is well adapted to stand not only extremes of temperature and sudden variations in temperature, but also the effect of moisture and severe mechanical stresses without warping, cracking, disintegration, or the loss of any of the many desirable qualities which it possesses when newly completed.

Although my art is preferably carried on as above indicated, features thereof may also be practiced and many of its advantages attained as follows: With the asbestos in the form known as "loose asbestos" it is packed about a mandrel and thereafter compressed, as above set forth. With this practice, however, several of the advantages of that above set forth are lost, as the fibers of the asbestos are not as thoroughly matted together as when asbestos paper is used.

Another method of practicing my invention lies in rolling the moistened asbestos paper upon a mandrel of the desired shape and manipulating the same, as by means of hand-tools, in such manner as to form the beaded end and then laying on additional layers of narrower strips, so as to leave the desired groove. When this is done, however, the mere wetting of the paper is not considered sufficient to form an entirely satisfactory spool, as when subjected to heat the outer layers thereof are likely to peel off. It is considered advisable, therefore, to use a binder which upon heating will act as a flux and not only join each layer to those in contact with which it lies, but on account of its thorough permeation of the substance thereof will also strengthen the material. As such a binder or cement I have found silicate of soda, commonly known as "water-glass," to be most satisfactory, though other materials which will flux with asbestos and yet not become brittle in use may be employed to attain this result. Moreover, water-glass may be used instead of water in forming the molded spool, as first described; but this has been found to be unnecessary, as on account of the extreme pressure to which the spool is subjected the use of water is found to be amply sufficient to accomplish the desired result, and the same is more readily accomplished if the use of water-glass is avoided.

A supporting member formed according to any of the above methods of practicing my art is found to possess many desirable characteristics, some of which will be evident from the above description and some of which can be appreciated only through a full understanding of the conditions of practical use. As above indicated, my art may be carried on without the employment of skilled labor or the use of expensive tools or materials, and a high rate of output is readily attained.

As my art could be carried on by means of various forms of apparatus and with certain apparent departures from the process above outlined, I intend that all matters set forth in the foregoing description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

I desire it also to be understood that the language used in the following claims is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which as a matter of language might be said to fall therebetween.

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

1. The art of forming a mantle-support which consists in superposing a plurality of layers of relatively thin fibrous material upon a mandrel, and then compressing the same into the desired shape.

2. The art of forming a mantle-support which consists in superposing a plurality of relatively thin moist asbestos layers upon a mandrel, and then compressing the same into the desired shape.

3. The art of forming a mantle-support which consists in superposing successive relatively thin layers of plastic asbestos upon a mandrel, impregnating the same with water-glass, compressing the same into a shape having a beaded end, and then drying and finishing said support.

4. The art of forming a mantle-support which comprises winding a thin strip of a fibrous material upon a mandrel, shaping the resultant roll, and drying the same.

5. The art of forming a mantle-support which comprises winding a thin strip of fibrous material on a mandrel, forcing the resultant roll into the desired shape, and drying the same.

6. The art of forming a mantle-support which comprises winding a strip of a fibrous, refractory substance in moist condition upon a mandrel, and reducing the resultant member to the desired shape.

7. The art of forming a mantle-support which comprises winding a strip of moist asbestos paper upon a mandrel, and reducing the same to the desired shape.

8. The art of forming a mantle-support which comprises winding a thin strip of moist asbestos paper about a mandrel, reducing the same to the desired shape, and drying the same.

9. The art of forming a mantle-support which comprises winding a thin strip of asbestos paper about a mandrel, compressing the same into the desired shape, and drying the same.

10. The art of forming a mantle-support which comprises winding a strip of a fibrous, refractory substance in moist condition upon a mandrel, compressing the same into the desired shape about said mandrel, and hardening the same.

11. The art of forming a mantle-support which comprises winding a thin strip of moist asbestos paper about a mandrel, compressing the same about said mandrel into the desired shape, and drying the same.

12. The art of forming a mantle-support which comprises winding a strip of a fibrous, refractory material about a mandrel, surrounding the resultant blank with a mold, and compressing the same within said mold about said mandrel.

13. The art of forming a mantle-support which comprises winding a strip of moist asbestos paper about a threaded mandrel, surrounding the same with a mold, placing a follower upon the threaded portion of said mandrel, and compressing the resultant blank within said mold upon said mandrel by means of said follower.

14. The art of forming a mantle-support which comprises winding a strip of moist asbestos paper about the threaded portion of a threaded mandrel to form a blank, surrounding the same with a mold, placing a follower upon the threaded portion of said mandrel, compressing the blank by means of said follower within said mold upon said mandrel, removing said blank, and drying the same.

15. The art of forming a mantle-support which comprises applying externally to a suitable mandrel a fibrous material, placing said prepared mandrel in a mold, and forcing into the space between said mold and mandrel a follower, whereby said material will be highly compacted and closely shaped to the contacting walls of said parts.

16. The art of forming a mantle-support which comprises applying externally to a threaded mandrel a fibrous material, placing said prepared mandrel in a mold, and rotating into the space between said mold and mandrel a follower, whereby said material will be highly compacted and closely shaped to the contacting walls of said parts.

17. The art of forming a mantle-support comprising wrapping a threaded mandrel with thin fibrous strips, placing said wrapped mandrel in a mold, and screwing a follower along said threaded mandrel and into said mold, whereby the fibrous wrapping will be highly compacted and contoured to the desired shape.

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

CHARLES M. LUNGREN.

Witnesses:
A. C. MOORE,
J. A. DIXON.