C. M. LUNGREN.

MANTLE.

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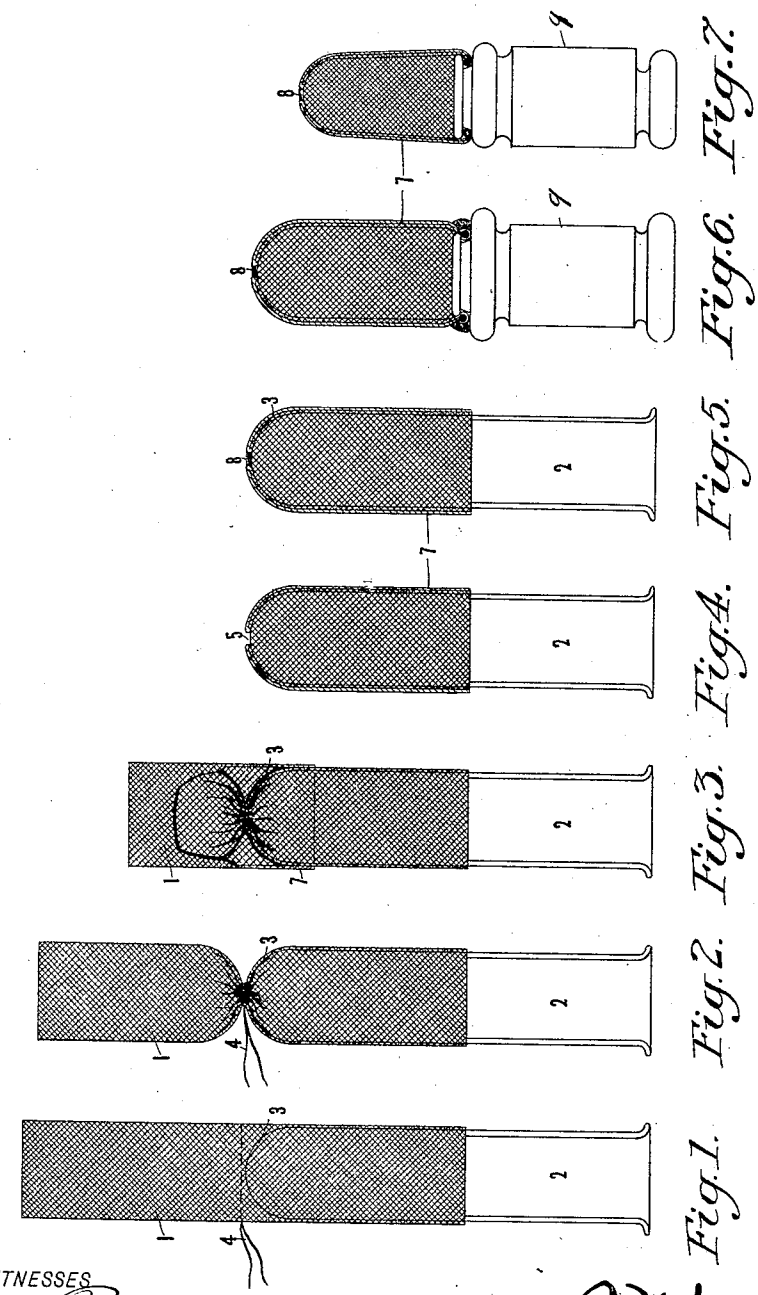
1,052,008. Patented Feb. 4, 1913.



WITNESSES

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MANTLE.

1,052,008. Specification of Letters Patent. Patented Feb. 4, 1913.

Application filed April 27, 1907. Serial No. 370,616.

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 Mantles, 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 devices of that class commonly known as "incandescent mantles", and also concerns unitary devices of this nature which are provided with means adapting them for being readily attached to and detached from a gas burner. Since, however, certain advantages characteristic of this invention prominently appear when it is used as a mantle unit comprising a support permanently carrying an inverted, double-walled mantle, it will be conducive to clearness to herein disclose it through such embodiment.

One of the principal objects of this invention is to produce a mantle unit including a support adapted to be detachably secured to a burner and permanently carrying a mantle of pronounced strength and durability by constructing it of a number of walls or layers, each of which adheres to and mutually supports and reinforces its neighbor.

Another object within the contemplation of this invention, is to devise a mantle unit which, while being possessed of an unusual degree of strength and durability, will be capable of being made more cheaply and expeditiously than those heretofore produced.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be indicated in the following claim.

As conducive to a better understanding of this invention, it may here be noted that hitherto such mantles as have formed a permanent member of a mantle unit have not possessed as high a degree of strength and durability as has been deemed desirable, and when such mantles have been submitted to a use in which they undergo considerable vibration, they tend to rapidly deteriorate.

The herein-described unit, consisting of a support in a plural-walled mantle, will be herein disclosed in conjunction with what is deemed to be a simple and satisfactory method of making the same, which method constitutes the subject matter of my co-pending application, Serial No. 370,617, filed April 27th, 1907, but it is to be understood that other methods may be employed to produce a mantle unit made in accordance with the appended claim.

In the accompanying drawings, wherein is shown one of the various possible embodiments of my invention, like characters of reference denote corresponding parts through all the figures, of which—

Figure 1 is an elevation showing a preliminary step in which a mandrel has been inserted midway into a tubular blank, and a draw string has been positioned preparatory to strangulating the blank adjacent the ends of the mandrel; Fig. 2 illustrates a further step in which the blank has been drawn into the shape of an hour glass; Fig. 3 illustrates a subsequent step showing the free end of the blank being telescoped over the portion supported by the mandrel; Fig. 4 illustrates the completion of the telescoping, with a residual small opening at the end of the blank; Fig. 5 is a like view showing the small opening closed by darnings or weavings of strands; Fig. 6 shows the blank mounted on a suitable mantle support and having its edges countersunk and cemented into a groove adjacent the end of said support; Fig. 7 shows a mantle unit in finished form, after having been shrunk and burned.

Turning now to the accompanying drawings, a tubular blank 1 of woven fabric is first obtained, and such blank is gathered together or strangulated at a point intermediate its ends. This may most conveniently be done by inserting midway into the blank a mandrel 2 having a rounded end 3. An ordinary test tube of suitable size is well adapted to serve as a mandrel for this purpose, being inexpensive and readily obtainable and having a smooth surface adapting it for being freely inserted into and withdrawn from the blank. A draw string 4 is preferably threaded around the circumference of the blank at a point adjacent the rounded end of the mandrel, and this string is then tightened as shown by Fig. 2, thus bringing the tubular blank into approximately the shape of an hour glass. The

outer or free portion of the blank may now be reversed or telescoped over the portion supported by the mandrel, as shown by Fig. 3, and the two portions of the blank may then be drawn tightly over the mandrel as shown by Fig. 4, so as to cause the blank to conform closely in shape to said mandrel. In practice it will be observed that the blank thus drawn over the mandrel has a small aperture 5 in its end. Having thus brought the blank in the condition illustrated by Fig. 4, the small aperture 5 may be closed by darnings of a suitable thread, as illustrated by 8 in Fig. 6. The capsule-shaped blank, having a double wall thickness, is now ready for cleansing, saturation and mounting upon the tubular support. After being cleansed and freed from oils, greases and various other impurities, the capsule-shaped blank is dried and then saturated with a suitable illuminant solution, and then drawn tightly over a form while wet and allowed to dry to the desired extent, either in the air or by a gentle oven heat. In this operation the two thicknesses of fabric forming the double wall of the blank are pressed tightly together and adhere so as to form substantially a single layer. To render more positive the union between the contacting surfaces, I prefer to use fabric which is rough on one side and to bring the rough faces or surfaces together. The saturated fabric is preferably allowed to dry until it is only slightly moist instead of quite dry, inasmuch as it is much easier to manipulate it in this slightly moist condition in the subsequent operations. The impregnated blank may now be mounted upon a suitable tubular support or spool 9, thoroughly dried, incinerated, and then brought to final shape and hardness by a suitable flame. The blank may be mounted on a suitable mantle support or spool prior to being incinerated, either in the manner disclosed in my copending process application, Serial No. 370,617, filed April 27th, 1907, in which the end arrived at is illustrated by Fig. 6, or I may mount the blank on the support in various other ways, as for example in the manner described by my United States Patent No. 845,185.

It will thus be seen that the above-disclosed unitary device is one well adapted to achieve the ends and objects aforesaid. Structurally it is exceedingly simple, strong and durable. Owing to the fact that the mantle of the unit comprises a plurality of adhering walls, it will be seen that these walls mutually reinforce and support one another and the mantle is thus capable of enduring shocks and strains to an extent far exceeding single wall mantles.

The herein described composite mantle, because possessing a plurality of adhering walls, is well adapted for relatively rough usage such as that common to railroad service. Furthermore, the cost of production of such a mantle unit is very low, and it is adapted for being manufactured in large quantities.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

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

In lighting apparatus, a mantle comprising two interfitted tubular walls curving inwardly at their lower portions to such a point as will substantially close the lower end of the mantle and closely fitting one another throughout and having both walls rigidly and permanently secured at their upper open ends throughout the edge of the mantle to a suitable support.

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

CHARLES M. LUNGREN.

Witnesses:
G. R. JEWETT,
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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."