S. COHN.

MANUFACTURE OF GAS MANTLES.

APPLICATION FILED MAY 8, 1911.

1,046,270.

Patented Dec. 3, 1912.

Fig. 3.

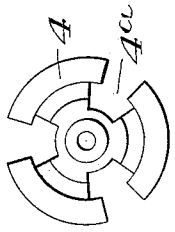


Fig. 4.

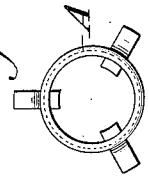


Fig. 5.

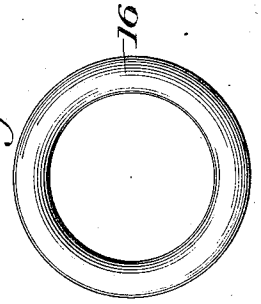


Fig. 2.

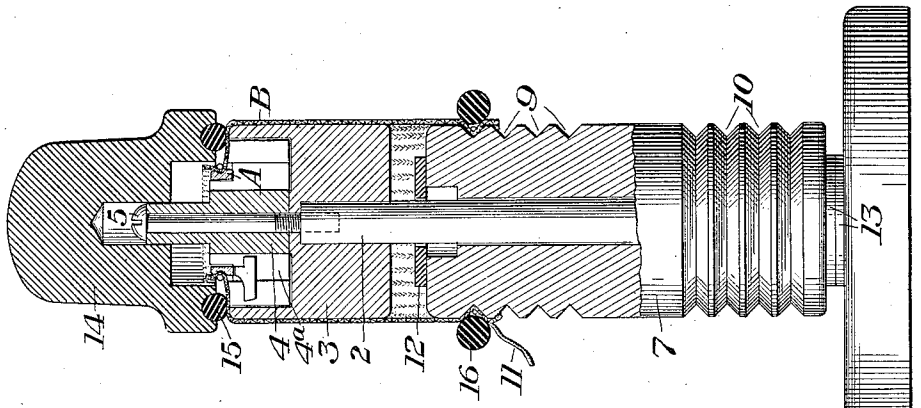
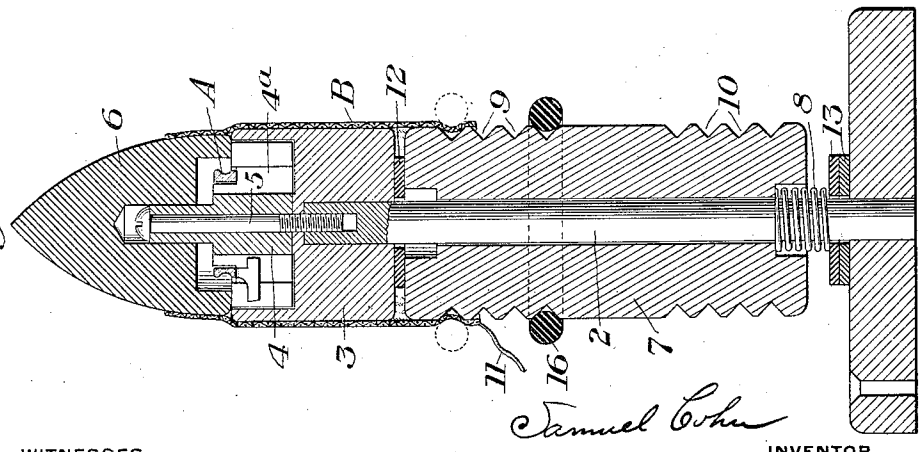


Fig. 1.



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MANUFACTURE OF GAS-MANTLES.

1,046,270. Specification of Letters Patent. Patented Dec. 3, 1912.

Application filed May 8, 1911. Serial No. 625,806.

To all whom it may concern:

Be it known that I, SAMUEL COHN, of New York city, in the county and State of New York, and whose post-office address is care of Mantle Machinery & Patents Co., 31 Nassau street, in said city of New York, have invented a new and useful Improvement in the Manufacture of Gas-Mantles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a central vertical section through the apparatus employed in carrying out my invention; Fig. 2 is a similar view, partly in side elevation, but showing a supplemental holding down cap, and also showing the sleeve portion in its lowest position; Fig. 3 is a detail plan view of the recessed head which receives and supports the refractory mantle ring; Fig. 4 is a plan view of the mantle ring used; and Fig. 5 is a detail view of the elastic clamping ring.

My invention is designed to reduce the number of imperfect mantles or "seconds" resulting either from improper string insertion, improper cutting of blanks, uneven stretching, etc.

My invention produces a uniform web, by fixing the distance between one end portion of the mantle, such as the string portion, and the other end portion of the mantle, to give a substantially uniform number of stitches in any circumferential portion thereof. In inverted mantles it forms a blank in which the distance between the securing string for the ring groove and the shirring string shall be the same at all points around the circumference.

The invention also provides for even stretching throughout the circumference so that there is less liability to bulging, warping, or pulling sidewise in burning.

In my Patent No. 918011, dated April 13th, 1909, I show an improved tool for the manufacture of inverted mantles, but such tool does not provide for fixing the distance from any portion of one string to the corresponding portion of the other string or other peripheral portion of the mantle. It also does not provide a uniform web to produce a mantle with each longitudinal row of stitches of the same length between the parallel strings, where these are used. With the tools heretofore used for this purpose there was no means for giving uniformity of web or even stretching. This stretching is necessary both in upright and inverted mantles in order to loosen the stitches of the impregnated fabric and prevent an uneven, lumpy or irregular shape of the mantle in the burning after shaping. These troubles arise particularly with inverted mantles in which the hand stretching is used, and as a consequence, a considerable percentage of such product must be selected out and sold at reduced prices, on account of stretching on the ring, side distortion, etc.

In the drawings, 2 represents the central stem of my apparatus which is generally similar to that of my patent above referred to. At the upper end of this stem is a head 3, which is recessed in its top to receive a plug 4, which is provided with radial recesses 4^a to receive the legs of the refractory mantle ring A which is dropped into it. In the form shown this plug is secured by a screw 5. The upper end or stem of the plug 4 receives and guides the cap 6, which is preferably weighted or of sufficient weight to give the proper tension and insure the ring string entering the annular recess in the ring.

Thus far the device is generally similar to my previous form.

In the form shown, to carry out my invention, I provide a sliding sleeve 7 having a central hole to receive the stem 2, this sleeve being normally pushed upwardly by a spiral spring 8. The sleeve is provided with a series of exterior annular grooves which are shown as arranged in two sets 9 and 10. Such grooves have their sides inclined and converging inwardly so that as the shirring string 11 is tightened, the web will be drawn down until this shirring string is parallel to the upper ring string by sliding down the groove wall preferably until it reaches the bottom which is at right angles to the axis of the stem parallel to the groove of the refractory mantle ring when in place in the device. By this action the parallelism between the strings is insured, thus giving a uniform web. The spaces between one series of grooves are different from those between the other; or at least the distance from one end of the sleeve to its adjacent groove, differs from the corre-

sponding distance at the other end so that by reversing the sleeve end to end it may adjust to the particular size or length of mantle being tied. The same result may also be attained to some extent by interposing washers 12 between the sleeve and head 3. The spring may also be adjusted by washers 13. With this device I also preferably employ the supplemental cap 14 having a rubber gasket 15 in its lower face, this replacing the cap 6 after tying to the mantle ring. By pressing down on the auxiliary cap 14 the operator holds the upper part of the blank while moving down the sleeve to stretch the mantle. To grip the lower part of the mantle after drawn into a groove in the sleeve, I preferably employ the elastic clamping ring 16 which is moved up over the lower part of the mantle and contracts in the groove to clamp the mantle to the sleeve.

In carrying out my process on this device, with the inverted mantle blanks, the refractory ring and cap being in place the blank B with the shirring string inserted near one end is drawn down over the cap into proper position as shown in Fig. 1. The shirring string is then tightened and drawn, with the lower part of the web, into one of the sleeve grooves, the string and web traveling down the inclined side face of the groove into proper position at the bottom. The spring clamping ring 16 is then pushed up over the lower part of the web and contracts into grooves containing the shirring string, to clamp the lower part of the web to the sleeve around its periphery. The knot is then formed in the ring string and tightened until the upper part of the web is drawn into the groove in the ring and tied in the usual way. When this part of the operation is completed, a uniformity of web is obtained, since the movement of the shirring string into the groove fixes this string parallel to the shirring string drawn into the ring, thus making each longitudinal row of stitches of the same length between the parallel strings. This part of my process, therefore, corrects improper string insertion and improper cutting of the blank from the tubular web. During this time the weighted cap gives proper tension to direct the web and string into the ring groove. The cap 6 is then removed and the cap 14 put in its place. The operator then pushes down with one hand on cap 14 to hold the upper part of the web, and with the other hand seizes the sleeve and pushes it down on the stem to stretch the web, preferably turning it back and forth around the stem during this action. This action stretches the web uniformly and loosens the stitches of the impregnated fabric, properly preparing the blank for the burning operation. The sleeve is then released, the rubber ring pushed down, and the blank attached to the ring removed in the usual way.

The advantages of my invention are obvious to those familiar with this art. On account of uniform stretching all around the circumference of the web, the number of defective mantles is greatly reduced, since in burning out the fabric the liability to warping, bulging, etc., is greatly reduced. This effects a large saving in expense as well as avoids any injury to the intermediate parts of the web from rubbing with the hands, and the receiving by the web, of impurities from the operator's hands. The operations are rapid, and avoid the need of hand stretching of inverted mantles after the web is pushed back through the ring after it is secured thereto. My invention also insures the parallelism of the shirring string and the string in the groove of the refractory mantle ring, thus remedying defective shirring string insertion or cutting of the blank from the tubular web. This also aids in preventing distortion during burning and shaping.

I claim:—

1. The method of treating mantle webs having open ends, which consists in securing one open end of the web to its permanent supporting member, gripping the opposite open end portion of the web to a stretching member that is moved relatively to the supporting member and effecting a relative movement between the holding and supporting members to stretch the web.

2. The method of treating mantle webs, which consists in securing one end of the web to its permanent supporting member, securing the supporting member and the other end portion of the web to relatively movable stretching members and relatively moving said stretching members to stretch the web.

3. The method of treating mantle webs, which consists in securing one end of the web to its permanent supporting member, securing the supporting member and the other end portion of the web to relatively movable stretching members, and separating said stretching members longitudinally of the web to stretch said web.

4. The method of treating mantle webs, which consists in mounting a supporting ring on one of two relatively movable stretching members, securing one end of a web to the ring, and the other end to the other stretching member, and relatively moving the stretching members to stretch the web.

5. The method of treating mantle webs, which consists in mounting a supporting ring on one of two relatively movable stretching members, securing one end portion of the web to one of the stretching members, securing the other end of the web

to the ring, and relatively moving the stretching members to stretch the web.

6. The method of treating mantle webs, which consists in mounting a mantle supporting ring on one of two separable stretching members, clamping one end of a web to said member adjacent to the supporting ring, clamping the other end of the web to the other stretching member, and relatively moving the members to evenly stretch the web.

7. In a mantle tying device, a supporting and guide stem, a head member and a collar member both mounted on the stem and arranged to be inserted into the opposite open ends of a mantle web, with means by which said ends of a web may be secured thereto, at least one of said members being movable on the stem relatively to the other.

8. In a mantle tying device, a supporting and guide stem, a head and a collar, both mounted on the stem, one of said parts being movable on the stem relatively to the other and one of said parts having an external annular web-receiving and holding groove.

9. In a mantle tying device, a supporting and guide stem, a sliding collar mounted on the stem, and a head to receive the mantle ring mounted on the stem.

10. In a mantle tying device, an element having means for receiving and holding a mantle ring, and a stretching element movable relatively thereto, the latter having means for clamping the web around its circumference when a mantle ring is in place in said receiving and holding element.

11. In a mantle tying device, a standard, a mantle ring receiving seat, and a stretching sleeve arranged to enter the web and be secured thereto when a mantle ring is in the seat, said parts being movable toward and from each other.

12. In a mantle tying device, a mantle ring receiving seat, and a sleeve arranged to enter the web and be secured thereto when a mantle is in the seat, said parts being movable toward and from each other, and one of them being capable of turning.

13. In a mantle tying device, a standard, a mantle ring receiving seat, and a sleeve arranged to enter the web and be secured thereto, said parts being movable toward and from each other, and a detachable web-clamping cap coacting with the seat.

14. In a mantle tying device, a mantle ring receiving element, mechanism for clamping a portion of the mantle peripherally thereto, and a cylindrical element to which another part of the mantle may be circumferentially clamped, the ring receiving element and the cylindrical element being relatively movable.

15. In a mantle tying device, a stem having a sliding stretching sleeve with a plurality of annular exterior mantle-receiving grooves.

16. In a mantle tying device, a stem having a sliding stretching sleeve with a plurality of annular exterior mantle-receiving grooves, and a spring arranged to press the sleeve in one direction.

17. In a mantle tying device, a stem having a sliding sleeve with annular exterior mantle-receiving grooves, and means for clamping the web circumferentially in any of the grooves of the sleeve.

18. In a mantle tying device, the combination with a support, of a pair of relatively movable web stretching members mounted thereon, one of said members being provided with mantle-ring receiving and holding means and the other having means by which the mantle may be detachably secured thereto.

19. In a mantle tying device, the combination with a supporting standard, of a stationary head mounted thereon and having a mantle ring receiving seat in its upper end, and a stretching sleeve slidably mounted on the standard below the head and having web-engaging means by which the mantle may be detachably secured thereto.

20. In a mantle tying device, the combination with a standard, of a mantle ring holding head carried thereby, and a reversible stretching sleeve movably mounted on the standard and having web-engaging means at different distances from its ends.

In testimony whereof, I have hereunto set my hand.

SAMUEL COHN.

Witnesses:
ALEXANDER HOLMAN,
CAROLINE SCHULZ.