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WIRE LINED TUBE FOR COILING CHENILLE STRIPS

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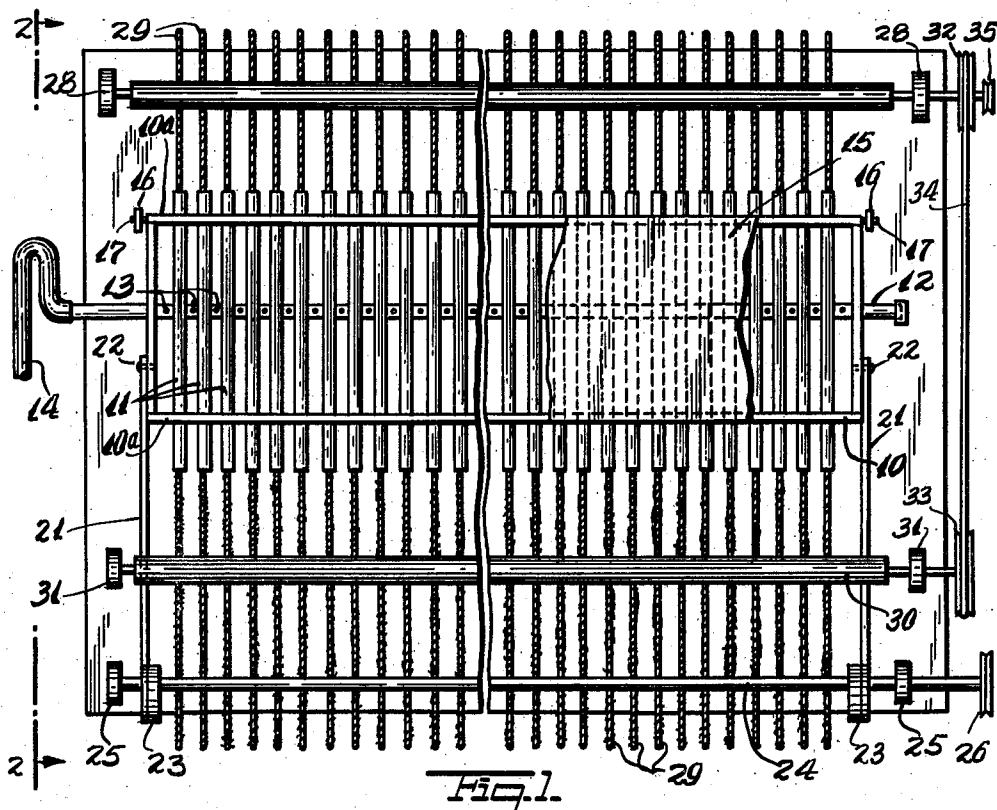


Fig. 1.

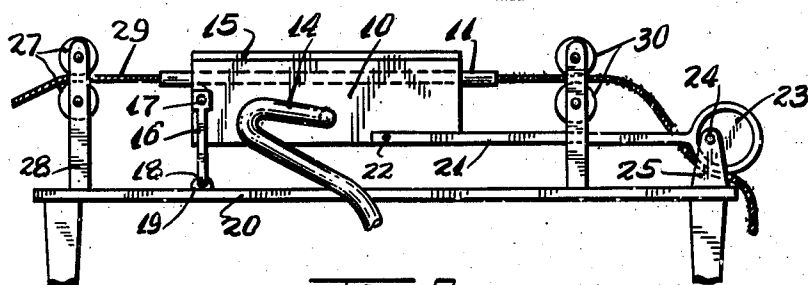


Fig. 2.

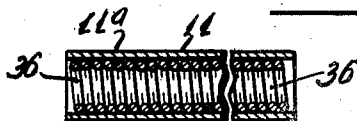


Fig. 3.

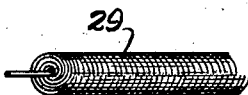


Fig. 4.

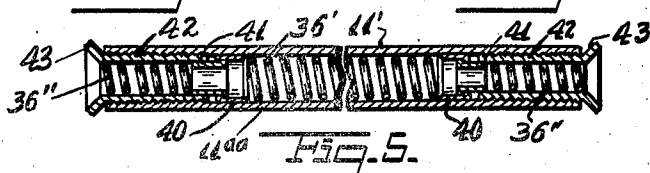


Fig. 5.

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WIRE LINED TUBE FOR COILING CHENILLE STRIPS

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3 Claims. (Cl. 28—62)

This invention relates to new and useful improvements in a means for coiling chenille strips.

The invention has for an object to characterize said means by a cover or tube and by a wire lining mounted therein, with the coils thereof closely wound, or substantially closely wound. It is proposed that the chenille strips or other cord or threads desired to be treated according with a process for using the tube, be engaged through the tube and manipulated as hereinafter more fully explained.

Heretofore tubes for the treatment of chenille strips have been known but these tubes have been formed with threads cut on their inner wall to assist in forming the outside of the chenille strips, or other cords, engaged in these tubes. While such threads have worked with some satisfaction I have discovered that far superior results may be obtained by the use of a wire in helical form lining the inside of the tube. I have found that the threads are objectionable because of their shallowness and roughness. While on the other hand, the use of a wire within the tube has proven to be very satisfactory. With the wire, chenille strips have been formed to present a uniform and smooth appearance, far superior to other methods heretofore used.

Still further the invention proposes an arrangement whereby the wire within the tube may be stretched or released so as to change the pitch of its coils to adapt the tube to produce treated strips and cords with different degrees of surface formation. Still further the invention proposes the construction of a tube as mentioned which is simple and durable and which may be manufactured and sold at a reasonable cost.

For further comprehension of the invention, and of the objects and advantages thereof, reference will be had to the following description and accompanying drawing, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawing forming a material part of this disclosure:

Fig. 1 is a plan view of an apparatus with tubes constructed in accordance with this invention, to be used for surfacing chenille strips, cords, and the like.

Fig. 2 is an end elevational view looking in the direction of the line 2—2 of Fig. 1.

Fig. 3 is a fragmentary longitudinal sectional view of a tube constructed in accordance with this invention.

Fig. 4 is a side elevational view of a chenille strip treated in accordance with this invention.

Fig. 5 is a longitudinal sectional view of another wire lined tube constructed in accordance with a modification of this invention.

It is advisable to best understand the invention to first understand the process for treating the chenille strips, yarns, and cords. The apparatus embodying the process, in accordance with this invention, includes a container 10 having opposed side walls 10^a through which a plurality of covers or tubes 11 are mounted. These tubes are so arranged that their end portions project from the side walls. A gas heater tube, or other type of heater, is mounted across the bottom area of the container 10. As illustrated a heater 12 comprises a gas pipe having a plurality of openings 13 through which the gas may come out and burn. This pipe 12 is supplied with gas from a flexible tube 14. The container 10 may be provided with a removable cover 15 so as to assist in holding the heat produced by the burner within the container. This heat is utilized to heat the intermediate portions of the tubes 11.

The container 10 is supported at its ends by vertical links 16. Pintles 17 connect the links 16 with the ends of the container 10. These links are pivotally supported at their bottom ends by pintles 18 coacting with brackets 19 mounted on a table or bench 20. The container 10 is also supported at its ends by connecting rods 21. These connecting rods are connected with the ends of the container by pintles 22. The connecting rods 21 engage over cams 23 which are mounted on a shaft 24. The shaft 24 is rotatively supported in bearings 25 mounted on the table 20. A pulley 26 is mounted on one end of the shaft 24 for engagement by a driving belt not shown in the drawing. The arrangement is such that when the shaft 24 rotates, the container 10 will be oscillated in a horizontal plane forwards and rearwards.

A pair of feed rollers 27 are supported upon brackets 28 mounted on the table 20 and engage a plurality of chenille strips, or other cords, 29 for drawing the same from a supply. These strips, cords, or yarns engage through the tubes 11 and at their other ends engage between a pair of rollers 30 mounted on bearings 31 supported on the table 20. These rollers 30 assist in drawing the strips, or yarns 29 through the tubes 11. The rollers 27, and 30 are driven by a suitable driving device, including pulleys 32, and 33 engaged by a belt 34. A driver wheel 35 is associated with one of the pulleys 32 and is adapted to be engaged by a driver belt not shown on the drawing.

The constructions of the tubes 11 form the

basis of this invention. Each tube 11 comprises a tube 11^a, preferably circular in transverse and cross section. This tube is lined with a wire 36 wound in helical form. The wire 36 necessarily is in the form of a spring, preferably its turns should be closely wound, or nearly closely wound. This spring 36 may be normally of a slightly larger diameter than the inside diameter of the tube 11^a so that when it is engaged into the tube 11 it frictionally maintains its position. The chenille strips 29, or cords, are engaged through the coils of the spring 36. In Fig. 4 a piece of the chenille strip 29 has been illustrated, so that the character thereof may be observed and better understood.

The operation of the device is as follows:

The chenille strips 29 are threaded through the tubes 11. The heater 12 is turned on so as to heat the tubes and then the shaft 24 is set rotating to cause the connecting rods 21 to rapidly oscillate the container 10, and consequently the tubes 11 longitudinally. The strips 29 are slowly drawn through the tubes, during the oscillating thereof. The springs 36 or coiled wire, will rub, twist and form the surface fibres of the strips 29, bending and arranging them to be uniformly placed. Because of the smoothness and evenness of the wire 36 it will be found that the chenille strips when coming out from the tubes will be exceptionally smooth and uniform.

In Fig. 5, a modified form of the invention has been disclosed which distinguishes from the prior form especially in the fact that an arrangement has been provided by which the pitch of the wire within the tube 11' may be varied. According to this form of the invention the tubes 11' include a circular tube 11^{aa} in which a coiled wire 36' is disposed. This wire has its ends fixedly connected with collars 40. These collars have inturned flanges engaging complementary flanges on adjacent collars 41, so that these collars are rotatively connected. The collars 41 are fixedly connected with bushings 42 which threadedly engage end portions of the tube 11^{aa} and which extend from the ends of the tubes. The extended end of the bushings 42 are provided with flanges 43 by which they may be manually gripped and turned.

When the flanges 43 are turned, the bushing 42 may be threadedly moved inwards or outwards of the tube 11^{aa}. This will stretch or allow the spring 36' to contract. Thus the pitch of the turns of the spring 36' may be varied.

When this tube is used it will be found that it is possible to control the extent of the surfacing produced by the tube, by varying the pitch of the wire coil 36'. When the turns are separated further apart that will produce a different effect upon the strip than if they were closer together.

Each of the bushings 42 are also lined with coiled wires or springs 36''. However these wires or springs are stationary. They serve to assist in surfacing the strips, cords, and threads passed through the tubes. The tubes 11' are to be used in an apparatus as illustrated and described relative to Figs. 1 and 2.

In other respects this form of the invention is identical to the prior form and its application will be readily understood.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and the right is reserved to all changes and modifications coming within the scope of the invention as defined in the appended claims.

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

1. A wire lined member for surfacing chenille strips, yarns, and cords, comprising a cover, a wire in helical form lining the inside wall of said cover, and means for stretching said wire for changing the pitch of its helical form.

2. A wire lined member for surfacing chenille strips, yarns, and cords, comprising a cover, a wire in helical form lining the inside wall of said cover, and means for stretching said wire for changing the pitch of its helical form, including bushings threadedly engaged into the ends of said cover, a swivel connector in between the inner ends of said bushing and the inner turns of said wire.

3. A wire lined member for surfacing chenille strips, yarns, and cords, comprising a cover, a wire in helical form lining the inside wall of said cover, and means for stretching said wire for changing the pitch of its helical form, including bushings threadedly engaged into the ends of said cover, a swivel connector in between the inner ends of said bushing and the inner turns of said wire, said bushing being provided with flanges by which they may be easily gripped and turned.

DAVID BOSTON.