April 5, 1949. A. LE R. AMBYE 2,466,348

RUBBER-FINGERED TEXTILE FINISHING ROLL

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Fig. 2.

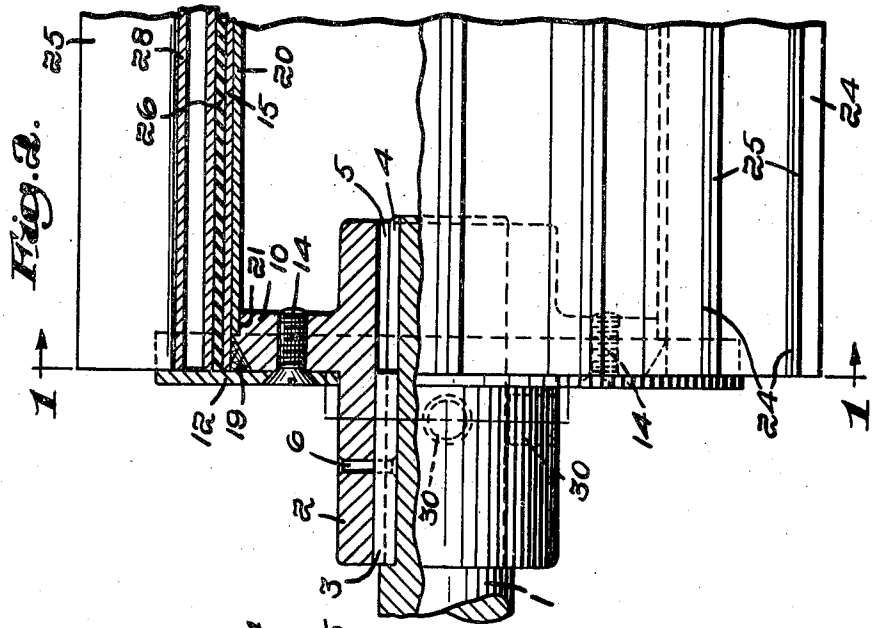
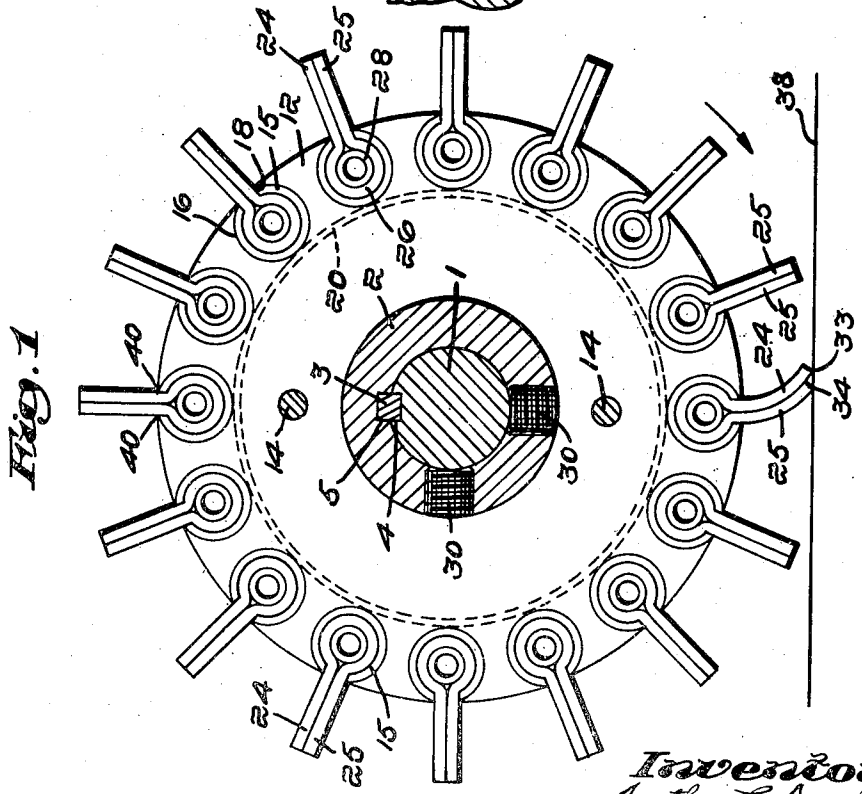


Fig. 1



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RUBBER-FINGERED TEXTILE FINISHING ROLL

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2 Claims. (Cl. 26—31)

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My present invention is a novel and improved roll or roller for use in treating the surface of textile goods to constitute the brushing and finishing operation.

Heretofore it has been customary to subject textile piece goods, such as blankets, clothing, woolen goods, rugs, jute bags, or the like, particularly when made of wool or partly of wool, to a finishing brushing action. This is customary and necessary in brushing up the nap and fluffing up the same after these articles have been matted and pressed down after going thru the various machine processes. Also, it is essential to present such articles to a finishing brushing action to remove lint and effect a cleaning, as well as finishing, operation on the goods.

Prior to my present invention, such finishing rolls have always been made of bristle brushes and the action of such bristle brushes resulted in removing a large amount of the flock or wool particles, as well as the nap, from the piece goods being treated which, of course, constitutes a considerable actual waste, loss of weight, and resulted in many instances in damaging the surface, as well as the wearing capacity of the articles thus treated.

Furthermore, such bristle brushes when utilized as finishing rolls would be quickly filled with the particles removed from the goods, and required constant cleaning of the bristle brushes and consequent repeated stoppage of the brush-cleaning machine.

This constituted a serious interruption in the finishing operation, and as the bristle brushes were gradually filled with flock and waste, they became less efficient and hence a lack of uniformity resulted in the brush-finishing action.

I have discovered that the above difficulties can be eliminated, constant machine stoppages for cleaning the brushes can be prevented, and a more even and uniform finishing operation performed, while the removal of any substantial amount of flock, wool, or waste from the piece goods being treated and the surface damage can be prevented, while still effecting an efficient lint-removing, cleaning, and fluffing-up action to restore the material to its desired fluffiness, thickness, and appearance.

In carrying out my present invention, I have devised a novel type of textile rubber-fingered finishing roll, wherein a plurality of yielding rubber-engaging fingers are employed, which effectually clean and fluff up the surface of piece goods, particularly woolens or blends of same, preserving and restoring the nap without waste,

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and removing the lint therefrom, and presenting the desired and uniform finished appearance.

I am aware that various uses have been made of rolls with rubber-engaging surfaces, members, strips, ribs, or the like, but I believe it to be a distinct novelty in the textile finishing art to provide a rubber-fingered finishing roll, and particularly with the novel type of rubber-fingered elements arranged in cooperative pairs so as to constitute mutual bracing elements, applying a predetermined tension on the piece goods being treated, and by a plurality of yielding ridges because of the novel construction which I have devised.

In carrying out my present invention, I provide a pair of discs keyed or otherwise secured to a rotating shaft, which discs are arranged in spaced relation of sufficient length for the treatment of the width of the piece goods to be acted upon. Said discs are united around the periphery of each by pipes welded thereto, which are formed with an open slot in which a strip of rubber of suitable width and length is fitted and held in locked position in the pipe by a rod around which the U-shaped portion of the double rubber strip is fitted and is thereby secured in position.

Referring to the drawings illustrating a preferred embodiment of my invention:

Fig. 1 is a side view of a suitable disc and attached rubber fingers taken on the line 1—1 of Fig. 2, and

Fig. 2 is a fragmentary view partly in cross-section of the disc, hub, and finger construction shown in Fig. 1.

My finishing roll may be of any length and diameter desired, and is adapted to be rotated on a shaft 1 from any suitable source of power, which shaft may extend lengthwise of the roll or, as herein shown, be fitted in the hub 2, to which it is rotatively secured by a key 3 engaging cooperating keyways in the shaft, as shown, at 4 and in the hub as indicated at 5, and held in position by a pin 6. The hub 2 has formed thereon an annular flange 10, to which a disc 12 is attached by screws 14—14.

This construction of hub, flange, and disc constitutes the opposite ends of the finishing roll, and the two discs at each end are united by a series of tubes 15, each tube extending thru an appropriately bored recess 16 in the disc, said tubes also having a longitudinal slot as indicated at 18. Each of these slotted tubes 15 are preferably welded to both the disc 12 and flange 10, as indicated at 19.

While these tubes 15 thus fitted in each of the

discs 12 at the end of the roll give sufficient strength and uniformity to the finishing roll, I may also provide a drum 20 to unite the flanges 10 of each hub at opposite ends of the roll, as indicated in Fig. 2. The end portions of the drum 20 may be fitted into a shouldered recess in the top of each flange 10, as indicated at 21 and welded or otherwise secured thereto.

My novel type of finishing roll with rubber fingers constitutes a double rib-like effect so that a plurality of edge portions will operate upon the material being finished as the rubber fingers are flexed under contact with and pressure upon the surface of the piece goods during the finishing operation.

For this purpose I provide a strip of rubber slightly greater than double the extent of the width required for the rubber fingers, such rubber fingers comprising the two projecting edge portions 24 and 25, and an inner U-shaped portion 26 fitted around a rod or tube 28 and all of suitable diameter and extent to fit snugly within the tube 15, and with the projecting rubber fingers 24 and 25 extending thru the open slot 18 in the tube and lengthwise of the roll.

With the finishing roll thus constructed and in rotative action as indicated by the direction of the arrow, Fig. 1, the goods to be finished are supported on a worktable as indicated at 38 so that the rubber ribs 24 and 25 will be in yielding contact with the goods to effect the finishing operation during the relative movement between the ribs and the goods. This flexing action of the rubber ribs and of each pair of ribs is important as indicated at the point of contact between the rubber ribs and the goods in Fig. 1, wherein the rubber ribs are flexed and thus present successive edges or ridges, as shown at 33 and 34, as each pair of fingers engage the material.

In order to prevent damage to the rubber ribs as they project from the slot in the tubes, I prefer to round off the edges of each slot at the outer portion at the point indicated at 40, thus permitting flexing of the ribs as they engage from the slot without damage or injury.

To hold the hub 2 in adjusted position lengthwise of the shaft 1, set screws 30—30 are provided.

Also, while I prefer to use rubber for the ribs or fingers, I may utilize a suitable synthetic plastic or equivalent material.

My novel rubber-fingered finishing roll thus acts upon the piece goods without injuring or damaging the same, without removing masses of waste and flock as in the case of bristle brushes, is self-clearing, and does not become matted up with waste material and, furthermore, is uniform in its action throughout the entire finishing operation, effecting a cleaning, brushing up, and fluffing up of the nap, and restoring the appearance of the goods and preserving substantially the full weight and mass of material in the article being operated on, while removing lint or other foreign substance. Thus, also, the prior difficulty of constant stoppage of the machine, cleaning of bristle brushes, or the like, is entirely eliminated by the use of my rubber-fingered textile finishing roll.

I claim:

1. A finishing roll of the kind described, comprising a rotatable roll member carrying a plurality of slotted tubes lengthwise of the roll, in combination with rubber strips projecting from the slot of each tube.

2. A finishing roll of the kind described, comprising a rotatable roll member carrying a plurality of slotted tubes lengthwise of the roll, in combination with rubber strips projecting from the slot of each tube, and means to lock said rib within each tube.

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