

April 7, 1942.

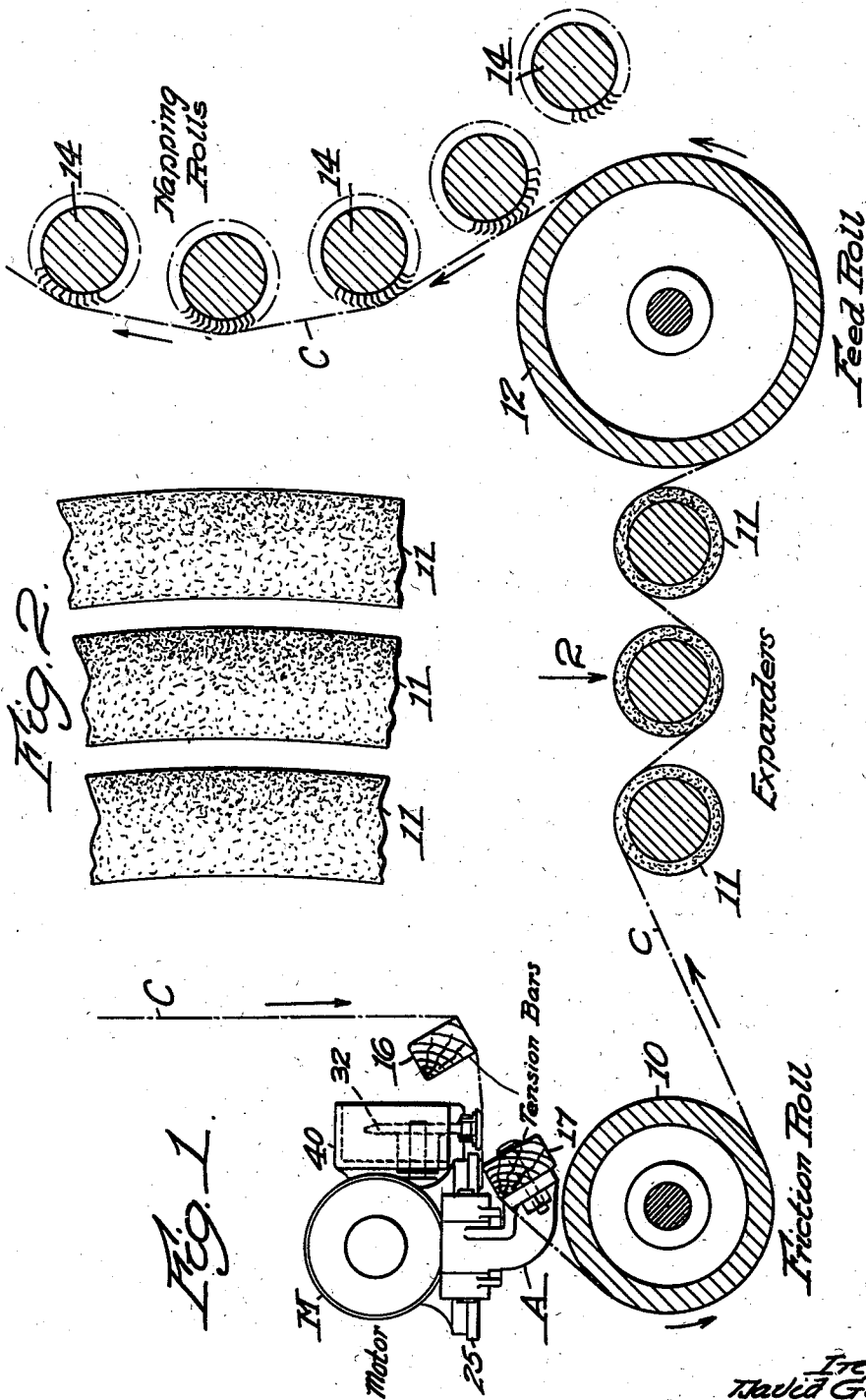
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2,278,985

UNCURLING ATTACHMENT FOR NAPPING MACHINES

Filed Jan. 6, 1941

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

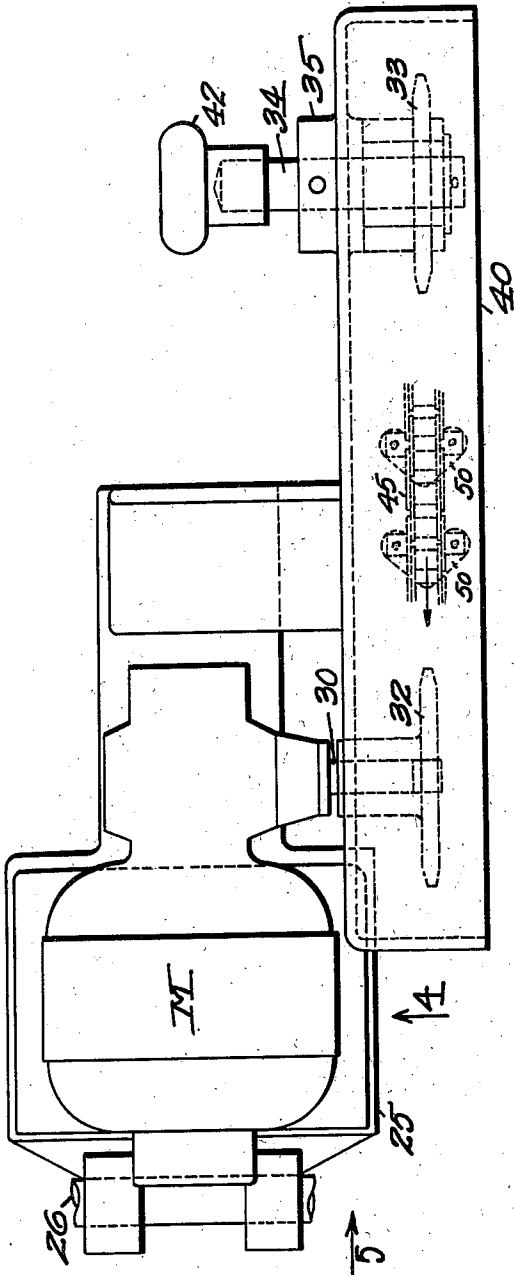


Fig. 3.

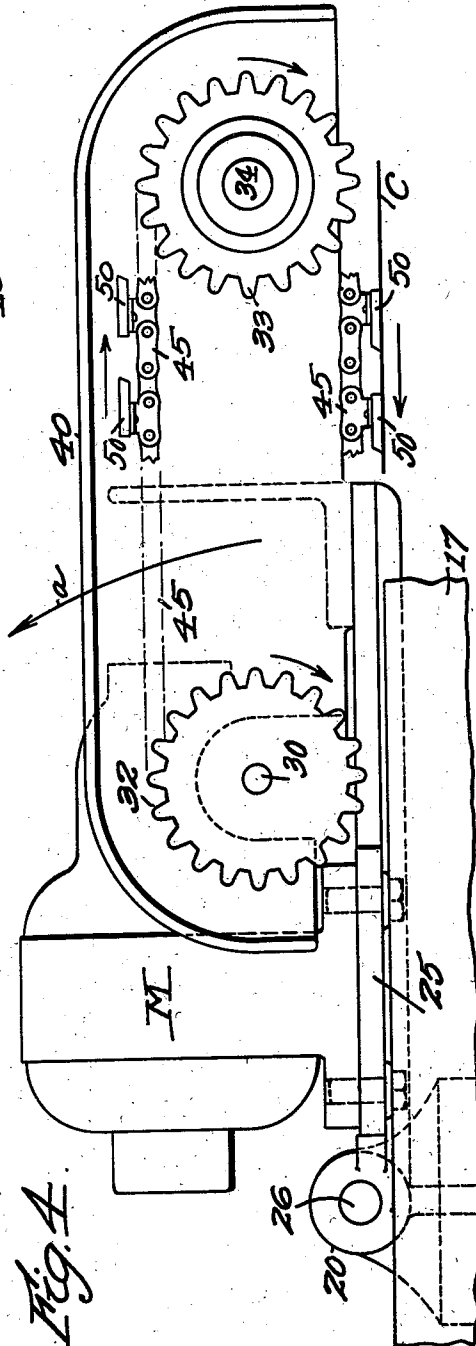


Fig. 4.

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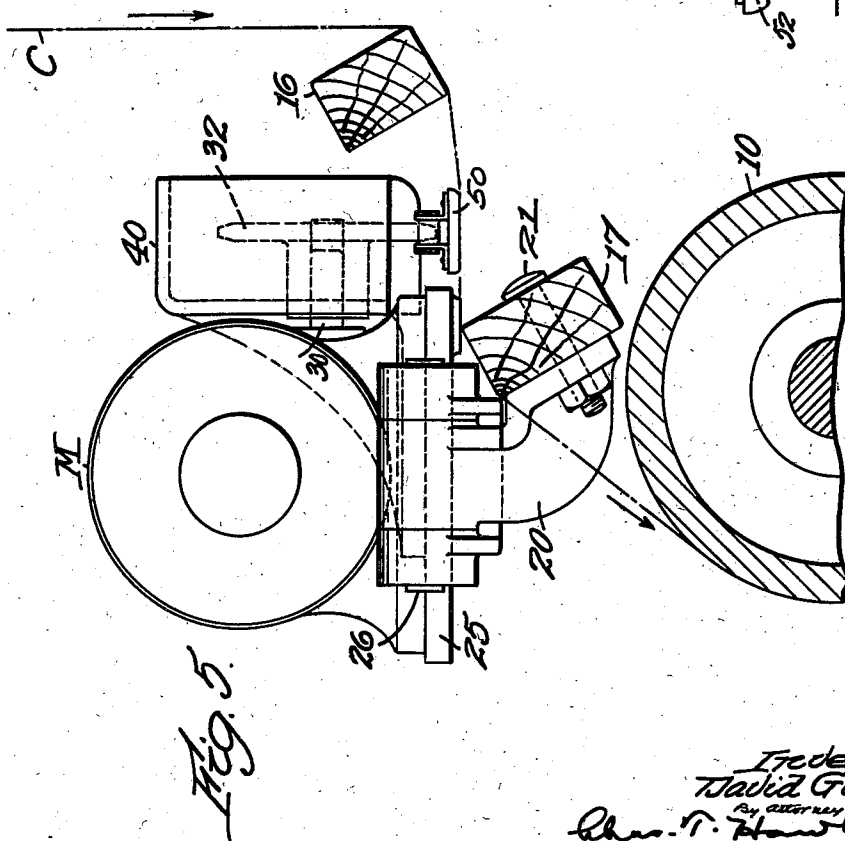
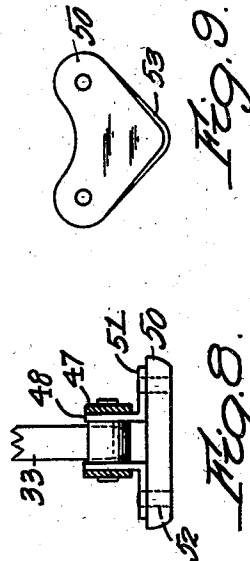
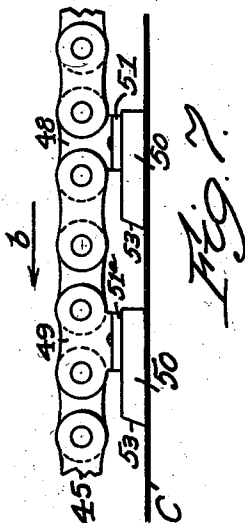
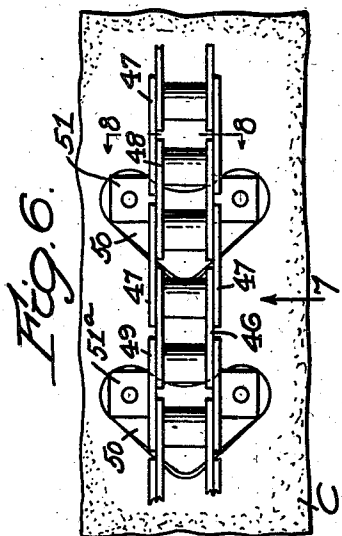
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UNCURLING ATTACHMENT FOR NAPPING MACHINES

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3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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UNCURLING ATTACHMENT FOR NAPPING
MACHINES

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Application January 6, 1941, Serial No. 373,331

5 Claims. (Cl. 26—1)

This invention relates to cloth finishing machines and more specifically to machines, such as napping machines, which brush or otherwise operate on the surface of a piece of cloth to raise a nap thereon.

In napping certain materials, such as knitted fabrics, it is found that the edges of the cloth have a strong tendency to roll inwardly or "curl," particularly after one or two passages through a napping machine. These curled edges are very troublesome in substantial napping operations and commonly require an operator at each side of the machine to uncurl the edges by hand as the cloth enters the machine and approaches the usual spreader rolls or expanders.

It is the general object of my present invention to provide an attachment by which such a curled cloth edge may be rapidly and effectively straightened as the cloth is drawn into a napping or other cloth-finishing machine.

A further object is to provide an attachment which may be easily and quickly moved to an inoperative position.

My invention further relates to arrangements and combinations of parts which will be hereinafter described and more particularly pointed out in the appended claims.

A preferred form of the invention is shown in the drawings, in which

Fig. 1 is a sectional side elevation of parts of a napping machine with my invention applied thereto;

Fig. 2 is a detail plan view, looking in the direction of the arrow 2 in Fig. 1;

Fig. 3 is a plan view of my improved uncurling attachment;

Fig. 4 is a side elevation of the attachment, looking in the direction of the arrow 4 in Fig. 3;

Fig. 5 is an end view, looking in the direction of the arrow 5 in Fig. 3;

Fig. 6 is a plan view showing certain of the uncurling members;

Fig. 7 is a side elevation, looking in the direction of the arrow 7 in Fig. 6;

Fig. 8 is a sectional end elevation, taken along the line 8—8 in Fig. 6; and

Fig. 9 is a plan view of a shoe forming a part of each uncurling member.

Referring to Figs. 1 and 2, I have shown parts of a napping machine of commercial type, comprising a friction roll 10, spreader rolls or expanders 11 which are preferably curved in horizontal plan as indicated in Fig. 2, a feed roll 12 and a plurality of napping rolls 14 mounted in the usual napping cylinder, not shown.

As the cloth C enters the machine, it is drawn under a fixed guide or tension bar 16 and over a second fixed guide or tension bar 17, which bars extend across the machine parallel to the axis of the friction roll 10.

The parts thus far described are of the usual construction and in themselves form no part of my present invention, which relates specifically to an uncurling attachment A which is bolted to the lower tension bar 17 and which engage the cloth C as it passes between the tension bars 16 and 17.

My improved uncurling attachment comprises a bracket 20 (Fig. 5) secured to the lower tension bar 17 by bolts 21 and held in fixed position thereon. A stand 25 is pivotally connected at one end by a cross rod 26 to the bracket 20 and normally occupies the horizontal position shown in Figs. 3, 4 and 5. The stand 25 and its supported parts may be swung upward and outward as indicated by the arrow a in Fig. 4 to an inoperative and withdrawn position when the machine is to be threaded.

The stand 25 supports a motor M having a gear connection to a cross shaft 30 having a sprocket 32 fixed to its outer end. A similar sprocket 33 is rotatably mounted on a cross rod 34 fixed in a support 35 carried by a casing 40 which preferably forms an integral part of the stand 25. A knob 42 on the cross rod 34 forms a convenient handle for swinging the attachment A to inoperative position.

A chain 45 is mounted on the sprockets 32 and 33, and the lower run of the chain is adjacent and parallel to the surface of the cloth C between the tension bars 16 and 17. The chain 45 includes regular links 46 and 47 (Fig. 6) and special links 48 and 49.

Each uncurling member comprises a shoe 50 on which a pair of special links 48 or 49 are mounted. These special links 48 and 49 are formed with outwardly extended flanges 51 and 51^a respectively and are secured in pairs in spaced relation on each shoe 50 by rivets 52 or in some other suitable manner.

The links 48 and 49 are of identical construction except for the lengths of the portions 51 and 51^a, which parts vary to provide a narrow spacing for the links 48 and a wide spacing for the links 49, so that the uncurling members can be assembled in the chain as shown in Figs. 6 and 7.

The shoes 50 are wedge-shaped in plan, as shown in Fig. 9, and the front edge of each shoe is backwardly beveled as clearly shown at 53 in Fig. 7.

When the attachment is in operation, the chain 45 with its uncurling members moves continuously toward the selvage of the cloth C, as indicated by the arrow *b* in Fig. 7. The shoes 50, when thus moved, are extremely effective in uncurling and straightening a curled cloth edge as the cloth approaches the friction roll 10 and the expanders or spreader rolls 11.

It will be understood that two such uncurling attachments A are provided for each napping machine, which two attachments are identical in construction, except that they are made right and left-hand so that the shoes 50 for each attachment travel toward the adjacent edge of the cloth C.

By providing two such attachments on a napping or similar machine, I am able to entirely eliminate hand labor in uncurling and straightening the cloth as it approaches the friction roll 10, whereas under the previous practice it was necessary to have an operator at each side of the machine when napping knitted fabrics or other materials having similar curling characteristics.

I have described my invention as applied to a napping operation, but it will be obvious that it may also be used to equal advantage in other cloth finishing operations, such as brushing or shearing.

While my uncurling attachment is of simple construction, it is entirely effective and satisfactory for its designed purpose.

Having thus described my invention and the advantages thereof, I do not wish to be limited to the details herein disclosed, otherwise than as set forth in the claims, but what I claim is:

1. In a cloth finishing machine, an uncurling attachment comprising a plurality of separate rigid cloth-engaging uncurling members which are each wedge-shaped in plan, and means to move said plurality of members simultaneously and continuously in a closed path, with the un-

curling members which are in engagement with the cloth moving toward a side edge of said cloth.

2. The combination in a cloth finishing machine as set forth in claim 1, in which the cloth-engaging front edge of each uncurling member is upwardly and rearwardly beveled.

3. In a cloth finishing machine, an uncurling attachment comprising a chain mounted to move in a closed path above the cloth and in a plane substantially perpendicular to the plane of the cloth and also perpendicular to the direction of travel of the cloth, means to move said chain continuously, and a plurality of uncurling members mounted on said chain and successively engaging the cloth and moving outward thereover toward the adjacent side edge of said cloth.

4. In a cloth finishing machine, an uncurling attachment comprising a chain mounted to move in a closed path above the cloth and in a plane substantially perpendicular to the plane of the cloth and also perpendicular to the direction of travel of the cloth, means to move said chain continuously, and a plurality of uncurling members forming links in said chain and successively engaging and sliding over the cloth while moving outward toward the adjacent side edge thereof.

5. An uncurling attachment for a cloth finishing machine comprising a plurality of separate rigid cloth-engaging uncurling members, a flexible suspension device to which all of said uncurling members are attached in spaced relation in their direction of travel, and means to move all of said members simultaneously along a closed path and to thereby slide said members successively along the cloth toward a side edge of the cloth as the cloth approaches the cloth finishing mechanism.

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