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CARD FOR LONG STAPLED FIBROUS MATERIAL, ESPECIALLY CELLULOSE WOOL

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Fig. 1

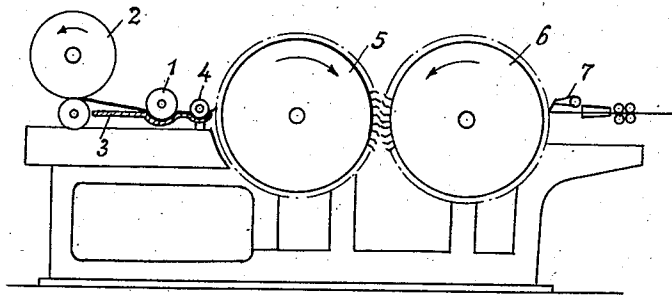


Fig. 2

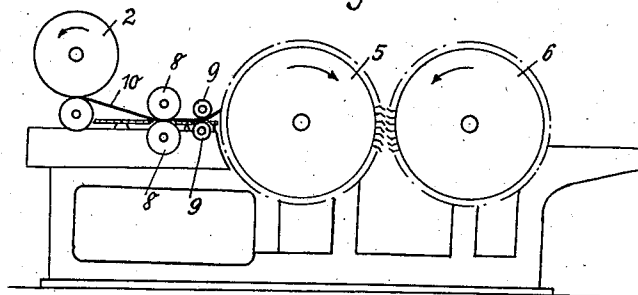
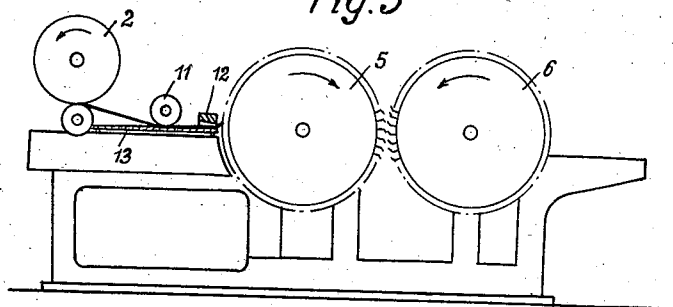


Fig. 3



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UNITED STATES PATENT OFFICE

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CARD FOR LONG STAPLED FIBROUS MATERIAL, ESPECIALLY CELLULOSE WOOL

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5 Claims. (Cl. 19—105)

This invention relates to a card for the treatment of slivers which are formed of long, smooth fibres, especially for the treatment of fibres of cellulose wool and similar artificial or natural fibrous materials.

For the carding of cellulose wool, cards with a feeding arrangement have been used up to the present which are similar to those adopted for carding cotton, except that the feeding arrangement has been slightly further removed from the spiked roller. It has been found that in cards in which the feed roller, or the pair of feed rollers, are arranged near the spiked roller, or in cards having no spiked roller but in which the feed roller or feed rollers are arranged near the carding drum, such arrangements are not very practical for the treatment of long stapled fibrous material, especially if cellulose wool or similar fibrous material has to be treated. The feed roller must work necessarily with a certain pressure in order that it can grip the wool and move it along. If longer fibres are to be treated, i. e., fibres of a length of about 50, 60, or 70 mm. or more, the fibres are fed into the drum which receives same from the feed roller while the rear ends of the fibres are still subjected to the pressing action of the feed roller. The result is that the fibres are bent and broken, and thus the sliver supplied by the card contains only a small portion of fibres of original length. A considerable waste results further from the cutting off of the fibre points.

The present invention has for its object to avoid bending and breaking of the fibres during their transition from the feed roller to the carding cylinder or the like disposed beyond this roller. In order to attain this end, means are provided for passing the wool from the feed roller to the carding cylinder, said means having no teeth or cards according to my invention, same being particularly adapted for carding long stapled fibrous material, especially cellulose wool, said means being disposed between the feed roller or the pair of feed rollers and the first drum of the carding device, and said means exerting a less pressure upon the fibres than the feed roller. Such means effectively guides the fibres at the end of the feed table and prevents scattering of the fibres without undue clamping action thereon. The fibres can thus be pulled from under said means by the following cylinder in said arrangement, without tearing the fibres.

The passing means may consist in the simplest form of a slotted guide disposed between the feed roller and the first cylinder, through which

guide the fibrous material passes. This guide can be slightly tapered in the direction of movement of the fibrous material. The passing means may, however, also consist of a driven cylinder or pair of cylinders free from teeth and cards and cooperating with the feed table.

Another object of the invention is to simplify the carding device with cards for long stapled fibrous material. As the fibres are supplied to the carding device in great length, they can be smoothed much easier. In a card according to the invention for long stapled cellulose wool it is merely necessary to provide a carding cylinder disposed beyond the passing means and then a doffing cylinder of approximately the same diameter as the carding cylinder.

Several embodiments of the card according to my invention are illustrated by way of example in the accompanying drawing, in which—

Fig. 1 shows diagrammatically one form of card for the treatment of long stapled cellulose wool.

Fig. 2 shows an elevation partly in section of the feed arrangement utilizing a pair of rollers,

Fig. 3 shows an elevation partly in section of the passing means in the form of a slotted guide.

The card shown in Fig. 1 is equipped with a feed roller 1 which receives from the lap roller 2 a bat consisting of long stapled cellulose wool. The bat is subjected by the feed roller 1 to a certain pressing action necessary to effect movement of the wool. Beyond the feed roller 1 is disposed the passing means which is at least as long as the fibres contained in the fleece and, if desired, even longer. This means comprises a portion of the surface of the feed cable 3 and a pull roller 4, the latter being driven so that its circumferential speed is the same as that of the feed roller 1. The pull roller 4 may be smooth, fluted or roughened on the circumference and is mounted so that it exerts only a slight pressure upon the wool. Beyond the pull roller 4, instead of the usual lick-in and with omission of the usually provided main cylinder, is disposed a stretching drum 5 with doffer filleting and of approximately the same diameter as the doffer commonly used in cotton cards. Beyond this stretching drum 5 is disposed a doffer 6 of similar construction but equipped with cards oppositely directed to those of the stretching drum 5. The drum 5 and roller 6 rotate in the direction of the arrows. They take up the material and deliver it with uniformly directed fibres by means of the doffer comb 7 into a sliver funnel of usual

construction or into any other drawing arrangement.

The pull arrangement 4 following the feed roller 1 can be provided also in any other construction of card. The apparatus may, for instance, be equipped as usual, with or without a lick-in, with a main cylinder of greater diameter which is constructed as a flat card or as a rolled card.

In the form of construction shown in Fig. 2 a pair of feed rollers 8 are used, instead of one single feed roller and also a pair of pull rollers 9 disposed beyond these feed rollers, the pair of pull rollers exerting only very little pressure upon the wool 10.

In the form of construction shown in Fig. 3 the fibrous material passes beyond the feed roller 11 through a slotted guide formed by a bridge 12 and a table 13 and which effects uniform directing of the wool when the wool is conveyed towards the following drum 5 and prevents scattering of the fibres. The slotted guide is slightly tapered in the direction in which the fibrous material is moving.

Instead of the bridge 12 an endless band may be arranged which circulates at the same speed as the wool is fed. For the rollers 9 shown in Fig. 2 circulating endless bands may be substituted.

I claim:

1. A card for long stapled fibrous material, especially cellulose wool, comprising a carding device consisting of rotary drums for smoothing the fibres; a feeding device for forwarding the fibres to said carding device, said feeding device comprising rotary means exerting a clamping pressure upon the fibrous material, and a fibre

passage disposed between said feeding device and the first drum of said carding device for guiding the fibrous material in a horizontal direction towards the carding device, said passage being formed between spaced members forming a slot for the passage of said fibrous material without clamping pressure thereon.

2. In a card as set forth in claim 1, a feed table; and said fibre passage being formed by the surface of said feed table and a rotary cylinder spaced above said table in order to touch the fibrous material from above without effective clamping pressure.

3. In a card as set forth in claim 1, a feed table; and said fibre passage being formed by two rotary cylinders, the upper of said cylinders being disposed above the other cylinder in order to touch the fibrous material from above without effective clamping pressure.

4. In a card as set forth in claim 1, a feed table; and said fibre passage being formed by the surface of said feed table and a bridge disposed at the rear end of said feed table.

5. A card for long stapled fibrous material, especially cellulose wool, comprising a carding device for smoothing the fibres consisting of two carding drums of substantially equal diameters; a feeding device for forwarding the fibres to said carding device; and a fibre passage arranged between said feeding device and the first of said drums for guiding the fibrous material in a horizontal direction towards the carding device, said passage being formed between spaced members forming a slot for the passage of the fibrous material without clamping pressure thereon.

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