Aug. 26, 1958 E. V. CAILLE 2,848,755

CARD-CLOTHING

Filed Dec. 30, 1955

FIG. 1

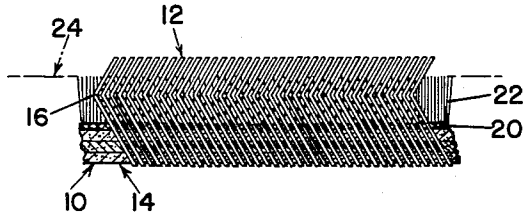


FIG. 2

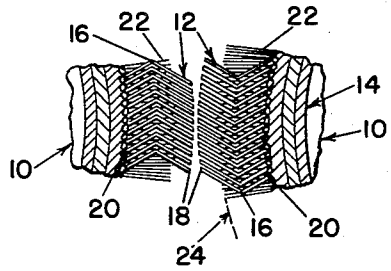
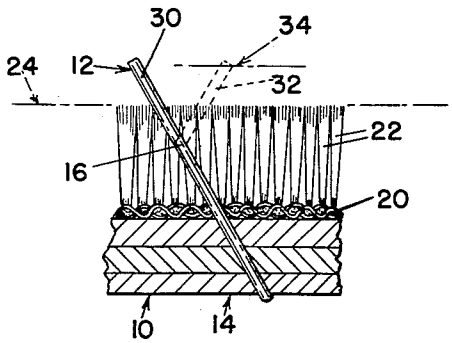


FIG. 3



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CARD-CLOTHING

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2 Claims. (Cl. 19—114)

This invention relates to new and improved card-clothing, and the principal objects of the invention resides in the provision of a special type of fabric as the upper or ultimate layer of the foundation of the card-clothing, this fabric being provided with piles, i. e., upstanding fibers, throughout which the teeth of the card-clothing are interspersed with the teeth of the card-clothing projecting slightly above the top surface defining the ends of the individual piles of the fabric described.

The advantages as well as the disadvantages of the use of felt and sponge-rubber and the like through which the teeth of card-clothing extend, are well known in the art, particularly with respect to the operation of the worker rolls and the doffer with relation to the main cylinder. Briefly some of the reasons for the use of such material is to provide against the matting down of fibers at the bases of the teeth of the card-clothing, the felt or sponge rubber thereby holding the fibers being worked near the ends of the teeth, so that they are more easily picked up by the worker rolls and the doffer. Also the carding action takes place at the tips of the teeth and therefore the materials applied to the teeth as described will hold the fibers in the card-clothing region of operation, so that the carding action is much more thorough. There are other advantages in the use of felt or sponge rubber or similar materials, but there is one primary deficiency in the use of these materials which is overcome by the present invention, and this deficiency resides in the fact that the individual teeth cannot be adequately or accurately bent to form the knees in the teeth, where solid material such as felt or sponge rubber are utilized in the manner stated, and therefore an inferior card-clothing is made where these materials are used.

By the use of the pile fabric to be described hereinafter, all of the advantages of the prior art are achieved and further advantages are derived as for instance, a better, softer, brushing action. At the same time, the teeth are easily bent to form the knees because of the fact that the pile fabric is easily displaceable to an extent necessary to provide for operation of the knee-forming tool in the piles, the piles always returning to their original position as will be clear when the action of pile fibers, such as commonly encountered in rugs is considered, under usage of individual walking on the same and crushing the piles, which however always come back to original upstanding condition.

Other objects and advantages of the invention will appear hereinafter.

Reference is to be had to the accompanying drawings, in which

Fig. 1 is a view in side elevation illustrating the new card-clothing;

Fig. 2 is a similar view illustrating the action of the new card-clothing as between the main cylinder and the doffer; and

Fig. 3 is a sectional view on an enlarged scale showing more clearly the pile fabric and the action required in forming the knees in the card-clothing.

Referring now to Fig. 1, the reference numeral **10** generally indicates the foundation for the card-clothing. This foundation may be made up of a plurality of layers or laminations of such material as may be found desirable to act as a card-clothing foundation. Examples of such materials are canvas, duck, rubber, etc.

The teeth are generally indicated at **12** and as is usual in the art, they are thrust through the foundation from the rear surface **14**, so that they project from the opposite surface to a considerable degree, whereupon they are bent in the manner shown to form the knees indicated at **16**, the points being indicated at **18** and being ground off in the usual manner.

In the present invention, the topmost layer or lamination of the foundation indicated at **20** is a pile fabric such as velvet, plush, carpeting, etc. The piles of the fabric are indicated at **22** and these extend upwardly from the foundation as clearly shown. The pile fabric extends the width and length of the card-clothing and the teeth **12** are thrust through this pile fabric in the same manner as with respect to the remainder of the foundation, which may be conventional.

It is preferred that the pile should not extend to the points of the teeth, but should terminate in a plane above the knees as indicated by the reference numeral **24**. This pile surface is similar to any pile surface and may be as dense as required by the circumstances. In any event, the surface of the pile fabric forms a fiber-supporting surface, and the fibers will not be pressed down into the piles, regardless of the action of the card. All fibers will be supported at the top of this surface and this is true regardless of the pressures applied to the card-clothing, it being substantially impossible to thrust the fibers down through the piles.

It will be seen, therefore, that all of the fibers in process will be held at the tips of the teeth. In general an appropriate ratio of pile length to exposed tooth length is about four to five. That is, with a tooth extending 5/16 of an inch above the foundation, the pile will be about 1/4 of an inch long and the points of the teeth will extend above the pile surface about 1/16 of an inch. Practically all of the effective carding action is achieved in the 1/16 of an inch at the tooth points, and therefore the pile fabric is seen to maintain the fibers in the position where they will be processed to the greatest degree. Furthermore, it will be clear from inspection of Fig. 2 that the fibers will be taken from the cylinder by the doffer to a very high degree, since the fibers are not crowded or sucked down to the foundation.

The improved action of the doffer with relation to the fibers leads to greater utility of the usual doffer roll, and the usual fancy roll may be eliminated. The carding teeth during cleaning will not injure the plush or pile fabric because of the ability of the upstanding piles to become disturbed and return to original position. However, it is clear that if the carding teeth should engage the surface of felt or sponge rubber, then these materials would soon be torn to pieces.

An inspection of Fig. 3 shows how the teeth appear when first provided in the foundation, and this is indicated by the reference numeral at **30**. This action does not disturb the piles or injure them in any way. The knee forming tool may then be thrust into the piles to bend the teeth into the final form shown in dotted lines indicated at **32**. It will be clear that the individual piles will bend over to accommodate this tool and that they will then spring back to original position upon removal of the tool, something which is completely impossible with the use of felt or similar solid materials. The refer-

ence numeral 34 indicates the usual grinding off of the ends of the teeth to form the points.

It is believed that it will be clear from the above that the use of the pile fabric in conjunction with the card-clothing is an extremely advantageous construction, and it is believed that it will also be clear that the advantages of the present invention are present in all kinds of card-clothing such as that used on the doffer, the working rolls, and the strippers as well as the main cylinder.

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

1. Card-clothing comprising a foundation and teeth therein extending therefrom, and soft, hair-like upstanding filaments secured to the foundation generally throughout, said filaments extending at the same side of the foundation as the teeth, the latter being bent and thus provided with knees located in the filaments.

2. Card-clothing comprising a flexible foundation and teeth therein extending therefrom, and a flexible pile fabric secured to the foundation and having the pile thereof extending at the same side of the foundation as the teeth, the latter being bent and thus provided with knees and the pile terminating short of the points of the bent teeth but above the knees.

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