

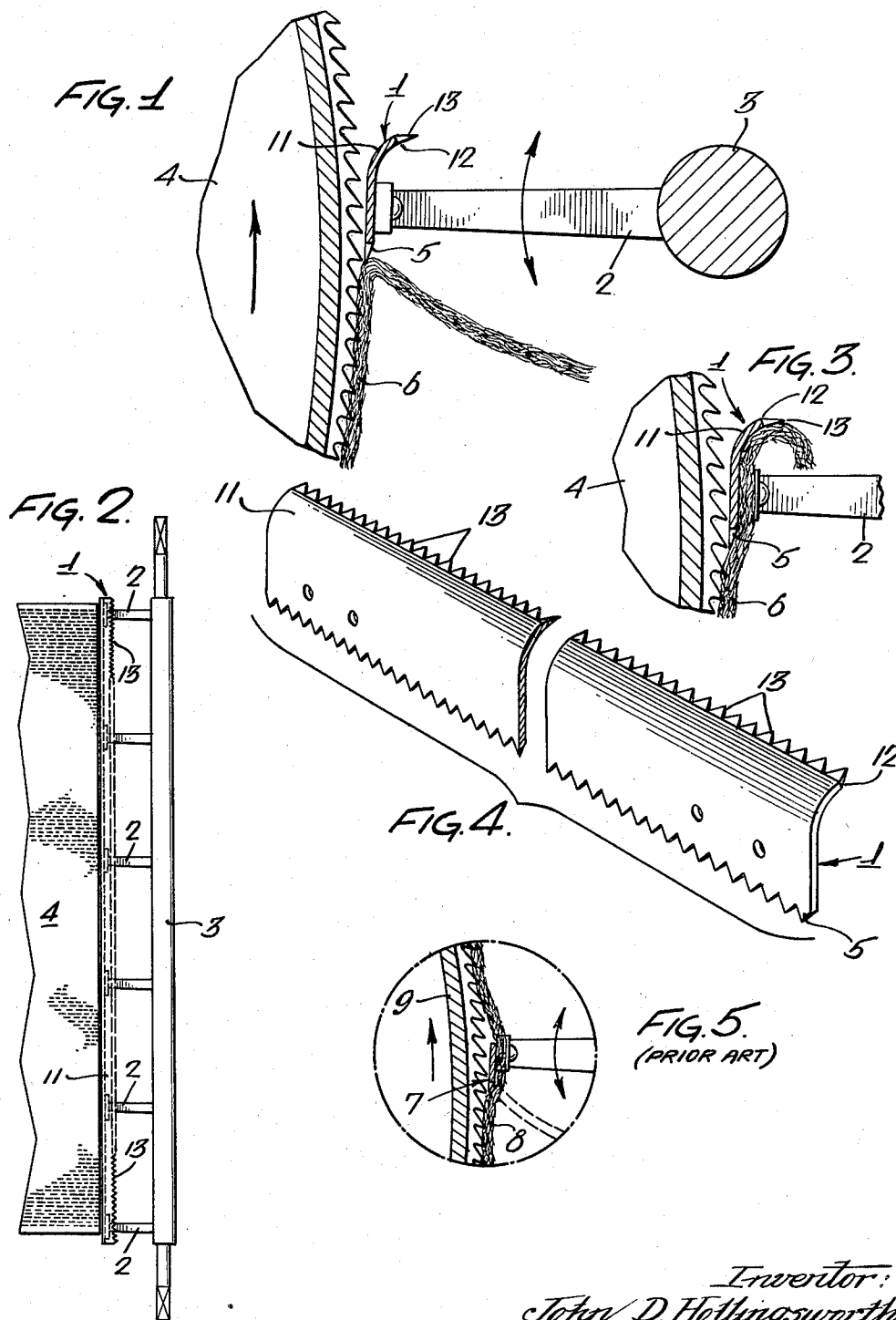
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COMB BLADES

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COMB BLADES

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2 Claims. (Cl. 19—106)

This invention relates to the comb blades of the type used to remove carded or garnetted fibres from carding or garnetting rolls. The object of the invention is to provide a functionally improved blade of this class designed specifically to prevent the stock from "climbing the doffer."

Heretofore comb blades have been made flat, approximately 1" wide, or less, and slightly longer than the roll upon which it is to operate. Conventionally, this blade is reciprocated or oscillated in the direction of its width at the face of the doffer roll in position to intercept the carded or garnetted fiber stock, and functions to separate the stock from the surface of the roll so that it may pass from the roll. With blades of the conventional form the stock, after being separated by the blade from the face of the roll, will not infrequently be deflected back onto the roll at the opposite side of the blade. Such action is termed "climbing the doffer."

With the fiber stock climbing over the comb blade in this manner, the card or garnet machine may only run a few minutes, before the roll becomes excessively loaded with stock and serious damage results to the roll and to other elements of the machine. Frequently the roll or rolls require re-clothing to mend the damage. Also, when the stock "climbs the doffer" production from the machine is lost and potentially good stock is wasted.

Several factors have been known to contribute to this undesirable action. Air currents or drafts may blow the stock from its intended course after initial removal from the roll back onto the toothed surface beyond the blade, as described. Too light and too heavy feeding of the stock onto the roll have both been known to cause this phenomenon. Failure to follow its normal path away from the card and consequent piling up of the stock on the floor until it comes in contact with the roll surface has resulted in its being carried over the comb and back onto the roll; and laying a lap at the start of a new supply of stock into the carding machine sometimes creates variations in feeding, also causing the stock to "climb the doffer." As previously indicated, a primary object of the invention is to provide a comb blade which will positively preclude the aforescribed undesirable phenomenon.

Another object is to reduce to a practical minimum air turbulence resulting from the rapid oscillatory movement of the comb blade.

The invention will be more readily understood by reference to the attached drawings wherein:

Fig. 1 is a fragmentary sectional view showing my improved comb blade operating to remove carded fibers from a doffer roll in normal manner;

Fig. 2 is a plan view on a reduced scale of the parts shown in Fig. 1;

Fig. 3 is a view corresponding to Fig. 1 showing the manner in which the improved comb blade functions to prevent the stock from climbing the doffer;

Fig. 4 is a view in perspective of my improved comb blade detached from the machine, and,

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Fig. 5 is a fragmentary view corresponding to Fig. 1 illustrating the conventional comb blade of the prior art and the manner in which the fiber stock "climbs the doffer."

With reference to the drawings, the comb blade 1 forming the subject of the present invention may be mounted in conventional manner upon fingers 2, projecting from a comb bar 3. The blade is supported at the face of the doffer roll 4 in conventional position as shown in the drawings with the blade parallel to the roll axis and with the toothed lower edge 5 of the blade in position to intercept the fiber stock 6 and to strip it from the roll, the stock moving upwardly to the blade as the roll rotates in the direction indicated by the arrow in Fig. 1. The blade is continuously oscillated as indicated by the arrows in Fig. 1. Normally, the fiber stock, after being separated from the roll by the comb blade, follows a path away from the roll, as also indicated in Fig. 1.

In Fig. 5 I have illustrated the phenomenon known as "climbing the doffer" which sometimes occurs with conventional comb blades of the form shown at 7. The blade is mounted and oscillated in the conventional manner, and as described above. The fiber stock is indicated by the reference numeral 8 and the normal path away from the doffer roll 9 is in this case shown in broken lines. In "climbing the doffer" the fiber stock 8 for any of the reasons set forth fails to follow the normal course, and after separation from the face of the roll moves upwardly around the blade and back onto the surface of the roll.

The present invention resides in the discovery that by making the comb blade substantially wider than the conventional blade shown in Fig. 5, and by then bending the top of the blade outwardly, preferably in a smooth curve as illustrated, so as to form a terminal lip 11 which in assembly extends away from the roll, the blade will not only act efficiently in the normal function, but will function also in positive manner to prevent the fiber stock, once separated, from moving back to roll surface, and climbing the doffer.

In effect, the out-turned lip throws the stock, if deflected upwardly from the normal course of departure from the roll, outwardly, away from the roll, and tends to turn it downwardly toward the normal course, as indicated in Fig. 3. The lip formation also carries the upper free edge 12 of the blade, outwardly to a point sufficiently remote from the roll surface to form an effective barrier to a return of the separated stock to the roll surface.

While this deflector lip may take various forms, I prefer the smoothly curved arc formation, not only because of its functional efficiency as described, but also because the curved top edge makes the blade stronger and more resistant to bending. This form of lip also permits the use of harder material in the manufacture of the blade, since it avoids any critical line of bending or of potential fracture, and thereby avoids a need for use of softer materials, less susceptible to fracture, but less desirable.

As stated above, comb blades of this type are conventionally made flat, and about one inch or less in width. I have found that blades one and one-half inches in width, or wider, and turned outwardly from a line approximately one inch from the working edge and at an angle of, say forty-five degrees or more, to be highly effective for the purpose of this invention.

I have discovered further, that by providing the upper edge 12 of the blade with teeth 13, preferably of the same general character as those at the lower edge 5, the functional properties of the blade are materially improved. These teeth bite immediately into the fiber stock, if the latter shows any tendency to climb the comb, and discourages the tendency in its incipency. The teeth there-

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by contribute substantially to the positive nature of the stock-deflecting function of the comb.

The teeth improve the functional properties in another important respect. They reduce in substantial degree the surface area of the comb opposed to the direction in which comb oscillates, and thereby decrease the volume of air displaced in each rapid movement of the blade. This has the favorable effect of reducing air turbulence around the blade, and the disturbing effect of such turbulence on the stock.

(This is a continuation in part of application Serial No. 710,009, now abandoned.)

I claim:

1. An oscillatory comb blade for separating fiber stock from doffer and like rolls, said blade having a flat, roll-confronting face, said blade terminating at its bottom in a working edge, and terminating at its top in a stock-deflecting lip, said lip turning outwardly from the plane of

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the face, and extending to a point remote from the latter, and terminating in an outer toothed edge, said lip being of shorter dimension than the flat roll-confronting face whereby the toothed edge of said lip provides minimum air turbulence upon oscillation of said blade while deflecting the stock outwardly from the plane of the face.

2. A comb blade according to claim 1, wherein the stock-deflecting surface of the lip curves smoothly away from said plane.

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