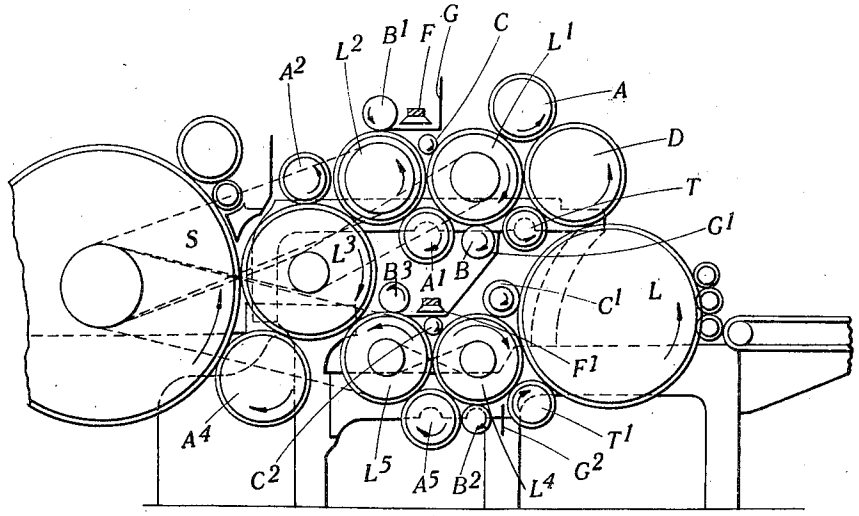
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MEANS AND APPARATUS FOR THE EXTRACTION OF BURS FROM WOOL AND OTHER TEXTILE FIBERS

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MEANS AND APPARATUS FOR THE EXTRACTION OF BURS FROM WOOL AND OTHER TEXTILE FIBERS

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This invention relates to improved means and apparatus for the extraction of burs from wool and other textile fibers.

The usual method of extracting burs is by means of carding machines which comprise a series of what are known as "lickers," "dividers," and bur removers, the material passing through the system and being finally delivered to what is known as a "swift". The "lickers," "dividers," and bur removers, with or without what is known as a "Morel" motion, have been arranged in a variety of manners and have been driven at varying speeds, but in every case the devices have followed one another as a unit. Our invention differs from the usual method in that, instead of the wool or like material passing in one course from one "licker" to the next and so on until the "swift" is reached, the wool is divided into two streams or paths, one say leading upwards and the other downwards and conducted forward till the two streams again meet and are then delivered to the "swift" in convenient manner. This arrangement enables both short and long wools to be efficiently burred without the collection with the bur of an excessive amount of wool.

The before mentioned division of the wool entails a re-arrangement of the "lickers," "dividers" tightening rollers and bur rollers, with addition to or subtraction from the usual numbers thereof, and whilst this arrangement may vary, we hereinafter describe an arrangement suitable for attaining our object.

By dividing the material into two parts it will readily be understood that the rollers on which burring takes place are more lightly loaded than is the case where the wool or like is not so divided and consequently the bur rollers act more efficiently.

It is well known that the capacity of a carding engine is limited according to the capacity of the main burring rollers, therefore by having or reducing the amount of material to be passed in connection with these rollers, burring is more efficient and the output of the machine may be increased without impairing its efficiency or causing wool to drop from overcharged rollers. Whilst the "lickers" and "dividers" may be of the ordinary card clothing covered type, we may use one or more "Morel" treated rollers in each path.

In describing our invention in detail, reference is made to the accompanying drawing which shows a side elevation of a bur removing apparatus placed in front of and driven from the first "swift" of a carding engine.

In order that our invention may be better understood we hereinafter describe a suitable means and apparatus for carrying same into effect.

In a usual apparatus there are what are known as "lickers" or "taker in" rollers (four in number) arranged in line, the wool or like being fed to the first one and taken from the last one and conducted to the "swift" or first cylinder where carding takes place in usual manner.

In order to attain our object, in a convenient form, it can be assumed that the first and last "lickers" of a usual apparatus are not disturbed, the material being fed to the first one L in usual manner. Above the first "licker" L we mount what is known as a "divider" D, which revolving slower than the "licker" L takes a portion of the material and delivers it to a "licker" L^1, which we term the first top "licker," with a tightener roller T, between D and L^1. Above the "divider" D and "licker" L^1 we mount a "divider" A. A bur roller B is provided below the "licker" L^1. This "licker" may with advantage be of the "Morel" type, delivers its material to a second top "licker" L^2, which preferably is also of the "Morel" type, a bur roller B^1 being above L^2. A brush C may operate between the first and second top "licker" L^1 and L^2 to press the wool or like against the "licker" L^2, and a "divider" A^1 below will operate on the two "lickers" L^1 and L^2 and whilst a bur roller may operate below the "divider" A^1 we do not in practice find this necessary. A third "divider" member A^2 is between the second top "licker" L^2 and the end or final ordinary "licker" L^3, from which by a bottom "divider" A^4 the material is delivered to the "swift" S. This gives the upper course of the material.

The lower course of the material is from the first main "licker" L to a first bottom "licker" L^4. After the "licker" L there is an assisting brush C^1 operating from the "licker" L to "licker" L^4, and later or below a tightener roller T^1, a lower bur roller B^2 operates in connection with the "licker" L^4, and is just clear of a bottom "divider" A^5 which co-operates between the first bottom "licker" L^4 and the second bottom "licker" L^5, both of which are preferably of the "Morel" type, there being a bur roller B^3 above, and a brush C^2 will operate to press the wool or like against the "licker" L^5. The bottom "divider" may have a bur roller below, but as mentioned above same is not in practice necessary. The second bottom "licker" L^5 delivers its material to the end or final "licker" L^3 and this completes the second path.

The brush C^1 before referred to may be dis-

carded with some classes of material, but where "hard heads" or other undue compact material is present the brush C^1 serves to prevent damage to the roller L^4 from such hard matter. Whereas a usual type of apparatus comprises four "lickers" and eight bur rollers, we utilise in the form described six "lickers" and four bur rollers but it will be seen that in each path, there are four "lickers," two being common to each of the paths.

It will be noted that the "lickers" or "Morel" cylinders L^1 and L^2 are adjacent and rotatable in opposite directions, as is the case with the "lickers" L^4 and L^5.

The bur rollers B, B^1 and B^3 will each have scraper members of usual formation and these are shown at F and F^1 and the guards G, G^1 and G^2 are provided to protect adjacent rollers against extracted burs falling or being directed thereon. It will be seen that the lower bur roller B^2 is not provided with a scraper, the burs falling on to the floor below, but in the other cases the scrapers F and F^1 are almost in the same vertical plane and the scraper F^1 serves both the bur rollers B and B^3.

The "licker" L^3 is driven from the "swift" S by a crossed belt and the "lickers" L^2 and L^5 are driven also from the "swift" by open belts. The "licker" L^1 being driven from the "licker" L^3, and the "licker" L^4 is driven from the "licker" L^5 by a crossed belt. Arrows in the drawing illustrate the direction of rotation of the various parts. All other driving arrangements are similar to those provided on a usual standard machine.

We find that by using duplicate adjacent "Morel" rollers operating in opposite directions and arranging the parts as hereinbefore described not only is the burring operation most efficient but a carding action takes place before the material is delivered to the "swift" this enables us to deal efficiently with long wools as well as short, and we find that the amount of wool taken out in the burring process is very much less than that taken out in usual processes.

What we claim is:

1. That method of treating wool and like material which consists in feeding and separating the material to be treated, separating the ribbon into upper and lower layers to form separated strips, subjecting each strip to the action of bur extracting rollers, and subsequently combining the material into a single body.

2. That method of treating wool and like material which consists in feeding and separating the material to be treated, separating the ribbon into upper and lower layers to form separated strips, subjecting each strip to the action of bur extracting rollers, subsequently combining the material into a single body, and subjecting the combined body to a carding action.

3. That method of treating wool and like material which consists in feeding and separating material to be treated, separating the ribbon into upper and lower layers to form separated strips, maintaining said strips in separated condition, subjecting said separated strips individually to the action of bur extracting rollers, and subsequently combining said strips to form a single body.

4. That method of treating wool and like material which consists in feeding and separating material to be treated, separating the ribbon into upper and lower layers to form separated strips, maintaining said strips in separated condition, subjecting said separated strips individually to the action of bur extracting rollers, and subsequently combining said strips to form a single body, and subjecting the combined body to a carding action.

5. In combination in a machine for treating material such as wool and the like, means for feeding the material into the machine, means to separate said material into upper and lower layers, means in the path of said layers to extract extraneous material from the individual layers, and means to direct said layers into combinative juxtaposition.

6. In combination in a machine for treating material such as wool and the like, means for feeding the material into the machine, means to separate said material into upper and lower layers, means in the path of said layers to extract extraneous material from the individual layers, means to direct said layers into combinative juxtaposition, and means to direct the combined layers to a carding mechanism.

7. In combination in a machine for treating material such as wool and the like, means for feeding the material into the machine, means to separate said material into upper and lower layers, means in the path of said layers to extract extraneous material from the individual layers, means to direct said layers into combinative juxtaposition, a carding mechanism positioned to receive the juxtaposed layers, and means to direct said juxtaposed layers to the carding mechanism.

8. In a machine for treating textile fibers, the combination with a first licker and a final licker and means for feeding the material to said first licker, of means for dividing the material as it passes from the first licker and leading it therefrom into two streams and uniting said streams into a single body as it passes from the final licker, said means including a pair of adjacent and oppositely rotating licker rollers disposed in the path of each of said streams and burring rollers disposed respectively above and below one of the licker rollers of each pair.

9. In a machine for treating textile fibers, the combination with a first licker and a final licker and means for feeding the material to said first licker, of means for dividing the material as it passes from the first licker and leading it therefrom into two streams and uniting said streams into a single body as it passes from the final licker, said means including a pair of adjacent and oppositely rotating licker rollers disposed in the path of each of said streams, burring rollers disposed respectively above and below one of the licker rollers of each pair, and a divider roller disposed between and below the rollers of each pair of said oppositely rotating licker rollers.

10. In a machine for treating textile fibers, the combination with a first licker and a final licker and means for feeding the material to said first licker, of means for dividing the material as it passes from the first licker and leading it therefrom into two streams and uniting said streams into a single body as it passes from the final licker, said means including a pair of adjacent and oppositely rotating licker rollers disposed in the path of each of said streams, a burring roller disposed below the first of each pair of oppositely rotating licker rollers, and a burring roller disposed above the second roller of each of said pair.

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