Jan. 8, 1946. B. G. H. VAN DER JAGT 2,392,709

METHOD FOR DRAWING SLIVERS

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FIG. 1.

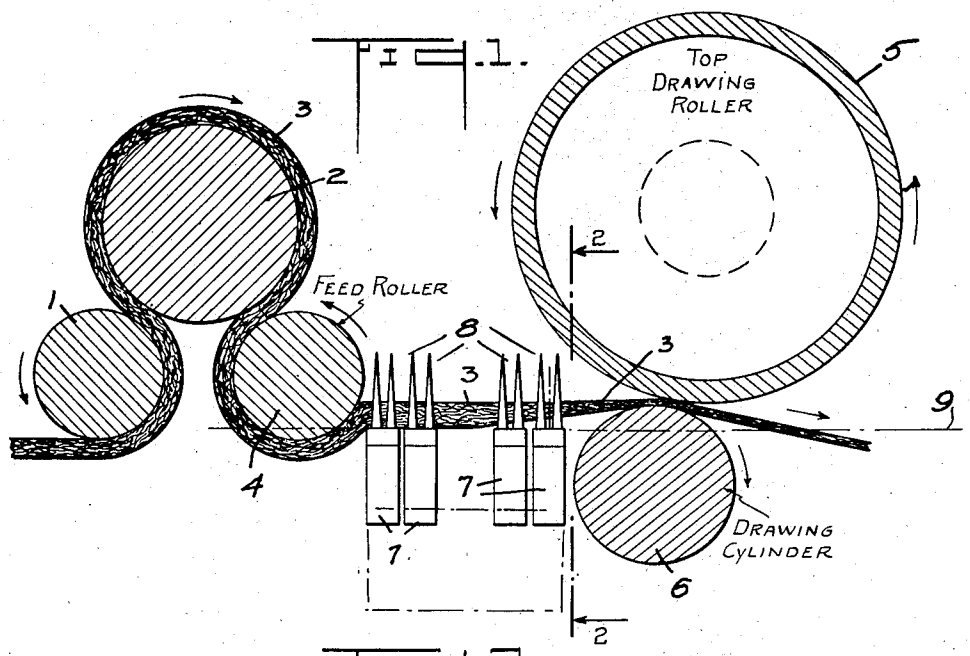
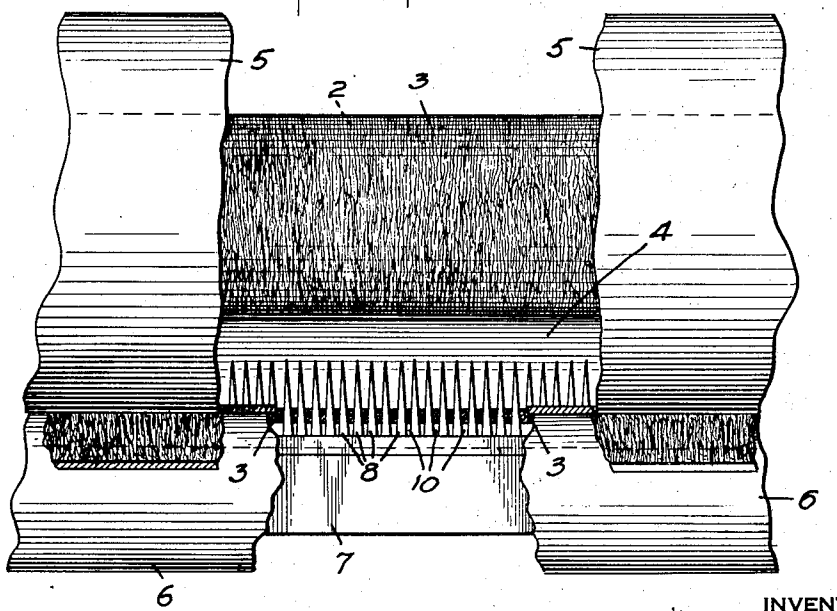


FIG. 2.



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METHOD FOR DRAWING SLIVERS

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2 Claims. (Cl. 19—66)

My invention relates to a method of drawing spinnable slivers from short hard fibers, such as cocoanut fibers, short sisal fibers, palmetto fibers and the like.

An object of my invention is to provide a method whereby cocoanut fibers or similar coarse, hard and short fibers, after treatment with a tacky adhesive according to my U. S. Patent 2,190,744, may be drawn on a drawing frame into spinnable slivers, in such a manner as to avoid to a large degree the frequent breaking of the drawn sliver.

Another object of the invention is to force tightly and adhesively felted slivers of hard, short fibers entering the drawing path of a drawing frame into an immediate and deep engagement with the drawing needles.

Still another object of my invention is, in the use of a drawing frame comprising, a series of fallers carrying tapered drawing needles, and means to advance said fallers along a predetermined drawing path to feed the short, hard and tacky fibers to the front end of the drawing path in such a manner that they are forced to enter deeply between the drawing needles and to withdraw the sliver at the rear end of the drawing path so as to cause an easy and smooth disengagement thereof from the V-shaped interstices between adjacent drawing needles.

These and other objects which will become apparent as the description proceeds, are accomplished, according to the present invention, by the combination of steps specified in the following detailed description, defined in the appended claims and illustratively exemplified in the accompanying drawing, in which

Fig. 1 is substantially a longitudinal diagrammatic section of a drawing machine for carrying out the method according to the invention, and

Fig. 2 is partly an end elevation of this machine and partly a cross-section taken on line 2—2 of Fig. 1.

Referring to the drawing, 1 and 2 denote transport rollers adapted to supply a preformed sliver 3, for instance of cocoanut fibers treated with a tacky adhesive and being in a tacky condition, to the ultimate feed roller 4. A pair of drawing rollers including a top drawing roller 5 and a drawing cylinder 6 are arranged at a distance forwardly of the feed roller 4. A series of fallers 7 carrying tapered drawing needles 8 are movably interposed between the feed roller 4 and the drawing cylinder 6, means (not shown) being provided to advance said fallers along a drawing path extending substantially from the feed roller 4 to the drawing cylinder 6 in such a manner that the bases of the drawing needles 8 move in a predetermined drawing plane 9 (indicated by dot and dash line). At the end of the drawing path the fallers are moved downward in the usual manner and return on a lower level to their starting point.

According to the invention, the feed roller 4 and the drawing cylinder 6 are so arranged relative to each other and to the drawing plane 9, that the latter coontains chords of both, the feed roller and the drawing cylinder. In the embodiment shown, the feed roller 4, which has its axis disposed above the horizontal drawing plane 9, projects downwardly to a point about $\frac{1}{16}$ of one inch below said plane, while the drawing cylinder 6, the axis of which is disposed below the drawing plane 9, projects about $\frac{3}{8}$ of one inch upwardly beyond said plane.

I have found that the breaking of drawn slivers consisting of hard, coarse and short fibers, which was heretofore very frequent especially in cases where such slivers were drawn after application of a tacky adhesive to the fibers, was caused mainly by a downward jamming and wedging of the coarse and tacky fiber masses into the bottoms of the V-shaped interstices between adjacent drawing needles.

By the arrangement of the drawing cylinder 6 with its periphery projecting to a certain extent above the drawing plane 9, the drawn sliver 3 is pulled, near the end of the drawing path, upwardly out of the bottoms of the V-shaped interstices 10 between adjacent drawing needles 8, thereby preventing any jamming or wedging down of the sliver into these V-shaped interstices and eliminating the main cause for the breaking of the fibers.

Moreover, by using this method which insures a smooth and easy disengagement of the sliver from the V-shaped interstices between the drawing needles at the end of the drawing path, it is possible to press the fibers down into said interstices more firmly and with greater force at the beginning of the drawing path, thus accomplishing a more effective drawing operation and a more complete loosening up of the sliver during the initial stage of the drawing process.

According to the illustrated embodiment of the invention, this additional improvement is accomplished by the depression of the feed roller periphery below the level of the drawing plane 9. As will be seen from Fig. 1, owing to this arrangement the needles 8 of the upwardly moving faller 7 at the beginning of the drawing path enter into the sliver 3 from a level considerably below the drawing plane 9, and the fibers of the

sliver 3 are forcibly pressed down into the interstices between the drawing needles 8 so that even closely and adhesively felted slivers are completely pierced by the latter. At the same time, the sliver is loosened and the fibers therein are disengaged from one another by the approximately rectangular bending of the sliver at the point where it enters the drawing path and also by the hammering of the upwardly driven faller 7 against the lower surface of the sliver 3. Thus a more effective drawing operation is accomplished at the beginning of the drawing path, while any danger of the initially pressed down fibers becoming wedged into and jammed in the V-shaped interstices 10 between the drawing needles at the end of the drawing path is completely obviated.

I claim:

1. In the method of drawing spinnable slivers from coarse, hard and short fibers, such as cocoanut fibers, short sisal fibers, palmetto fibers and the like, by moving the fibers over a drawing path traversed in the direction of the fiber movement by series of tapered drawing needles having their bases disposed in a predetermined drawing plane, the steps of treating the fibers with a tacky adhesive, feeding the fibers while in a tacky condition to the front end of said drawing path, and drawing the sliver off said drawing path at the rear end thereof upwardly out of the bottoms of the V-shaped interstices between adjacent drawing needles at a small angle to said drawing plane.

2. In the method of drawing spinnable slivers from coarse, hard and short fibers, such as cocoanut fibers, short sisal fibers, palmetto fibers and the like, by moving the fibers over a drawing path traversed in the direction of the fiber movement by series of tapered drawing needles having their bases disposed in a predetermined drawing plane, the steps of treating the fibers with a tacky adhesive, feeding the fibers while in tacky condition to the front end of said drawing path from a level slightly below said drawing plane so that the tacky fibers engage immediately deeply into the interstices between the drawing needles, and drawing the sliver off said drawing path at the rear end thereof upwardly out of the bottoms of the V-shaped interstices between adjacent drawing needles at a small angle to said drawing plane.

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