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DEVICE FOR SEPARATING THE FIBRES AND CONVEYING THE SEPARATED FIBRES

Filed Dec. 22, 1960

FIG. 1

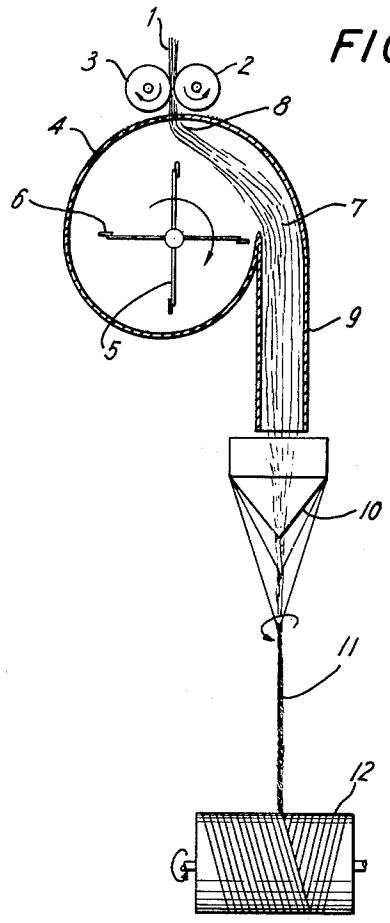


FIG. 2

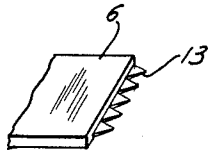
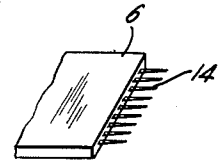


FIG. 3



Miloslav Pávek INVENTORS
Jiří Havlas
BY
Michael S. Striker
ATTORNEY

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DEVICE FOR SEPARATING THE FIBRES AND CONVEYING THE SEPARATED FIBRES

Miloslav Pávek and Jiří Havlas, Liberec, Czechoslovakia, assignors to Sdruzeni podniku textilniho strojirenstvi, Liberec, Czechoslovakia

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9 Claims. (Cl. 57—58.91)

The present invention relates to a device for simultaneously dividing a fibrous material into fibres and conveying of the separated fibres to the spinning mechanism, particularly for spindleless spinning machines.

Various types of such spindleless spinning machines are known, for spinning the yarn directly from loose fibres, the spinning mechanism of such machines comprising for example a spinning basket provided with needles or a stripping member. These known types of spinning machines have one common disadvantage in that they have to be provided with a separate mechanism for tearing the fibres from the supplied material (band or roving) as well as with a further mechanism for conveying the separated fibres into the twisting mechanism. For these reasons the machine becomes intricate and difficult to operate and the consumption of driving power is increased.

According to the present invention the entire mechanism is substantially simplified, as it unites both mechanisms into one, which serves on the one hand for tearing the fibres from the supplied fibrous fabric (roving, band) and on the other hand for conveying the separated fibres to the spinning mechanism, for example a spinning basket.

According to the main feature of the invention a rotary fan of the vane-type is provided between the supply of the fibrous material and the spinning device, the vanes of said fan being provided also with combs separating the supplied fibrous material into individual fibres, which are conveyed by the air stream from the fan to the spinning mechanism.

The combs of the fan can be of the tooth- or needle-type.

The accompanying drawing shows:

Further features and advantages of the invention will be apparent from the ensuing description on hand of the accompanying drawing representing an exemplary embodiment of the invention.

FIG. 1 is a diagrammatic representation of the spinning device,

FIG. 2 shows a toothed comb of the fan vanes,

FIG. 3 a needle comb of the fan vanes.

The treated fibrous material **1** (roving, band or the like) is supplied by means of feed rollers or supply means **2, 3** to a blower which comprises a casing **4** and a fan **5** of the vane type in such a way that combs **6** secured to the ends of the fan vanes are adapted to strip the individual fibres **7** from the fringe **8**, whereby the fibrous material is divided into fibres and the separated fibres are conveyed by a stream of air from the fan through a discharge conduit **9** to a known spindleless spinning device, such as a spinning basket **10** of the needle-type.

Similarly, the fibres retained by the combs **6** of the fan **5** are taken off the combs by the air flowing under the influence of centrifugal force and are conveyed to

the discharge conduit **9**. The separated fibres, supplied by the air current, are condensed and twisted into yarn or roving by the spindleless spinning device, such as the spinning basket **10** of the needle type.

The yarn or roving **11** is then wound in the conventional ways on a known bobbin **12**.

The combs **6** provided on the vanes can be equipped with pointed projecting means spaced from each other in the direction of the axis of rotation of the rotary fan means **5**. Either teeth **13** (FIG. 2) or needles **14** (FIG. 3) may be provided.

By the arrangement according to the invention the whole working mechanism of the spindleless spinning device is greatly simplified and is extremely efficient in operation.

What we claim is:

1. In a spinning machine, in combination, a spinning means; supply means for supplying fibrous material; and a rotary fan member disposed between said supply means and said spinning means adjacent said supply means to receive the fibrous material from said supply means, and having pointed means for dividing the supplied fibrous material into individual fibers and means producing a fluid current for conveying the fibers toward the spinning means.

2. In a spinning machine, in combination, a spinning means; supply means for supplying fibrous material; and a rotary member disposed between said supply means and said spinning means adjacent said supply means to receive the fibrous material from the same and having comb means for dividing the supplied fibrous material into individual fibers and means producing a fluid current for conveying the fibers toward the spinning means.

3. In a spinning machine, in combination, a spinning means; supply means for supplying fibrous material; and a rotary fan member disposed between said supply means and said spinning means adjacent said supply means to receive the fibrous material from said supply means, and including a plurality of vane means, each vane means having a free end, and a comb secured to said free end of each vane means for dividing the supplied fibrous material into individual fibers, said combs and the air current produced by said vane means being adapted to convey the fibers toward said spinning means.

4. A spinning machine as set forth in claim 3 wherein each of said combs has short flat triangular teeth.

5. A spinning machine as set forth in claim 3 wherein each comb has a row of closely spaced thin needle-shaped pointed elongated teeth.

6. In a spinning machine, in combination, a spinning means; supply means for supplying fibrous material; a blower means including a housing having an inlet located adjacent said supply means to receive the fibrous material from said supply means, and a tubular outlet extending into close proximity with said spinning means, and a rotary fan member located in said housing and including a plurality of vane means, each vane means having a free end, and a comb secured to said free end of each vane means for dividing fibrous material supplied through said inlet into individual fibers and for transporting the fibers from said inlet to said outlet, said vane means producing an air current in said housing for cleaning said combs, and in said tubular outlet for conveying the fibers through said tubular outlet to said spinning means.

7. A spinning machine as set forth in claim 6 wherein said spinning means is a rotary spinning basket.

8. In a spinning machine, in combination, supply means for supplying a fibrous material; rotary fan means disposed adjacent said supply means to receive the fibrous material therefrom, said rotary fan means having pointed projections spaced at least in axial direction of said fan means for dividing the fibrous material into individual fibers, and being adapted to produce a fluid current flowing in one direction whereby fibers are conveyed by said current in said direction; and spinning means disposed adjacent said fan means so as to receive fibers moving in said direction of said fluid current.

9. In a spinning machine, in combination, casing means having an inlet and an outlet; supply means for feeding fibrous material into said inlet; rotary means in said casing means rotatable about an axis and having radially outwardly spaced from said axis a plurality of projecting

means spaced in the direction of said axis and cooperating with an inner surface of said casing between said inlet and said outlet for dividing fibrous material supplied by said supply means into individual fibers, said rotary means being adapted to produce a fluid current between said inlet and outlet so that divided fibers are conveyed through said outlet; and spinning means located in the region of said outlet for receiving and spinning fibers discharged from said outlet.

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