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Wehling

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[54] **FEEDING ARRANGEMENT FOR FIBER SLUBBING TO AN OPENING-UP ROLLER OF OPEN-END SPINNING MACHINES**

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[51] **Int. Cl.** **D01h 1/12**

[58] **Field of Search** 57/50, 58.89–58.95

[56] **References Cited**

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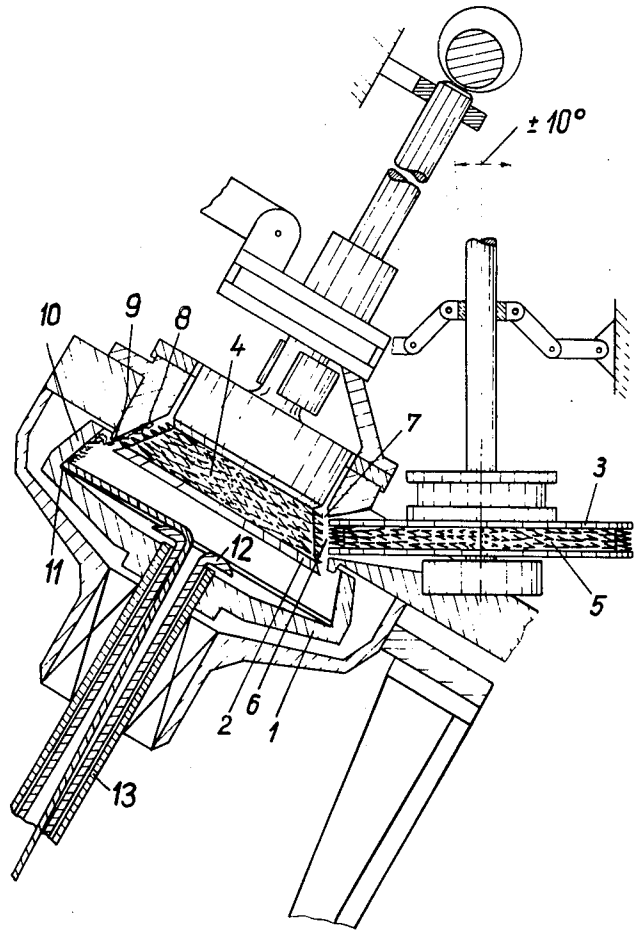
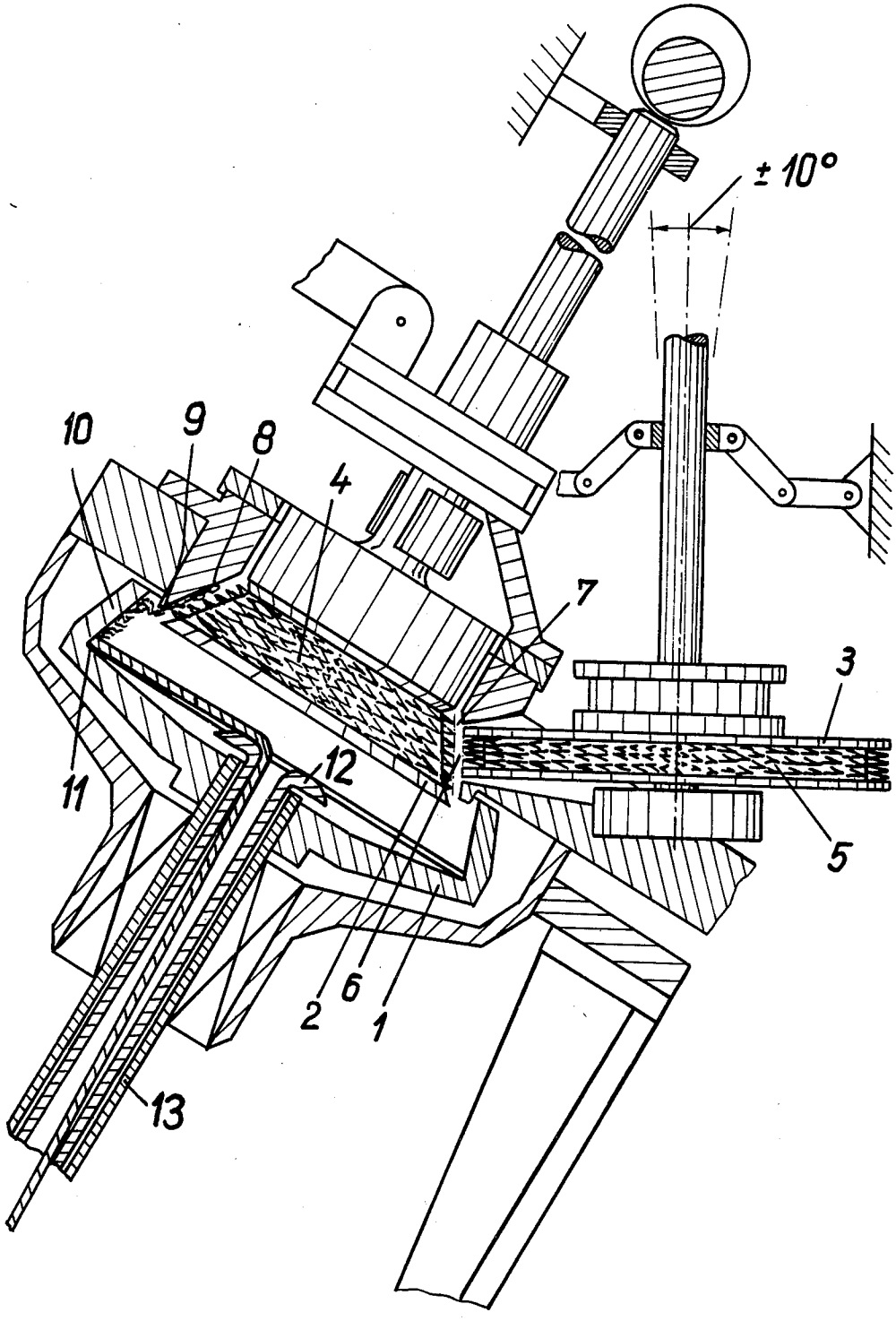
[57] **ABSTRACT**

A device for feeding fiber slubbing to an opening-up roller of open-end spinning machines with coaxial arrangement of an under-pressure spinning turbine and opening-up roller, in which the opening-up roller provided with means for opening up the fiber slubbing is conical whereas the feeding roller is cylindrical and the central axis of the feeding roller is substantially parallel to the conicity of the opening-up roller.

2 Claims, 1 Drawing Figure

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FEEDING ARRANGEMENT FOR FIBER SLUBBING TO AN OPENING-UP ROLLER OF OPEN-END SPINNING MACHINES

The present invention concerns an improved feeding of fiber slubbing from staple fibers in open-end spinning machines.

When spinning fiber slubbing without a ring in a spinning chamber which comprises an underpressure spinning turbine and an opening-up roller the axes of which are arranged coaxially with regard to each other, the fiber slubbing to be spun is by means of a feeding roller mounted in an axis parallel manner thereto supplied in the following manner:

1. If the opening-up roller is conical and the feeding roller is cylindrical, a portion of the fibers of the fiber slubbing is from the feeding roller to the opening-up roller in the triangle formed between the two bodies of revolution conveyed to the opening-up roller in an uncontrolled manner so that as a result thereof the fibers are fed in an irregular manner into the spinning turbine.
2. If with a conical opening-up roller a conical feeding roller is employed having the same but negative angle of inclination, the distance between the two bodies of revolution mounted in an axis parallel manner can be adjusted, but the different feeding-in speeds, which depend on the magnitude of the angle of inclination of the feeding roller, are substantially un-influenced by the conical design of the feeding roller so that the fiber slubbing will in the needle field of the feeding roller unilaterally be differently guided and will be subjected to stresses in the longitudinal direction. As a result thereof, the fibers are in a discontinuous manner deposited in the spinning turbine. This means that the spun threads will have thin or thick areas.
3. The employment of a cylindrical opening-up roller and a cylindrical feeding roller mounted in an axis-parallel manner thereto avoids the drawbacks set forth above under 1. and 2., but has the disadvantage that the distance between the mantle of the opening-up roller and the wall of the housing for the opening-up roller cannot be varied.

It is, therefore, an object of the present invention, with a coaxial arrangement of the opening-up roller and the spinning turbine in an open-end spinning process, to avoid the above mentioned drawbacks encountered during the feeding of the fiber slubbing and to improve the feeding of the fiber slubbing to the opening-up roller.

This object and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawing diagrammatically illustrating a device according to the invention for feeding fiber slubbing in open-end spinning machines.

The invention consists primarily in that the opening-up roller which is provided with means for opening up the fiber slubbing is conical whereas the feeding roller is cylindrical, and that the central axis of the feeding roller is substantially parallel to the conicity of the opening-up roller.

In view of this arrangement it will be realized that the distance between the combing-out means of the opening-up roller and the guiding means of the feeding roller can be so adjusted that the fiber slubbing which is fed by means of the feeding roller can in an aimed manner be fed to the combing-out means of the opening-up roller in order subsequently to be loosened or dissolved into individual fibers. Furthermore, a uniform drawing-in speed of the fiber slubbing over the entire width of the feeding roller will be obtained so that no uncontrolled faulty drafting can occur in the feeding member while at the same time, in view of the axial displacement of the conical opening-up roller, the distance between the combing-out means and the housing wall surrounding same can be so adjusted that the individual fibers loosened or dissolved out of the fiber connection can in an unimpeded manner pass into the spinning turbine.

According to a further development of the invention, the axis of the feeding roller is relative to the conicity of the opening-up roller inclined in conformity with the type of fiber to be spun at an angle of from +10° to −10°. This includes a situation in which the axis of the feeding roller is precisely parallel to the conicity of the opening-up roller. In view of this arrangement it will be assured that, while taking into consideration the type of fibers to be spun, the fed fiber connection will be combed out uniformly and thus the fibers will in a continuous manner be conveyed to the spinning turbine.

The sole FIGURE of the drawing shows a view of the apparatus according to the invention.

Referring now to the drawing in detail, the opening-up roller **2** is conical. The cylindrical feeding roller **3** has its circumference provided with guiding means **5** for guiding the fiber slubbing. The incidence of the feeding roller **3** with regard to the opening-up roller **2** is so selected that the central axis of the feeding roller **3** is substantially parallel to the field of the combing-out means **4** of the opening-up roller **2.** This has the advantage that the distance **6** between the combing-out means **4** and the guiding means **5** can be so adjusted that the fiber slubbing which is fed by the feeding roller **3** can in an aimed manner be fed to the combing-out means **4** of the opening-up roller **2** in order subsequently to be loosened out or dissolved out of the fiber connection into individual fibers. In the specific example shown, the axis of the feeding roller **3** is precisely parallel to the lines of the steepest gradient of the conical mantle of the opening-up roller **2** or the field of the combing-out means **4.** This direction of the central axis is adapted for a certain fiber type to yield the desired uniform combing-out of the fed fiber connection and in addition thereto to yield the desired continuous transport of the fibers into the spinning turbine **1** in the best possible manner. In order to realize this result for the various types of fibers to be spun, the central axis of the feeding roller has, depending on the type of fiber to be spun, advantageously a position of from between +10° to −10° inclination relative to the conicity of the opening-up roller. This is not outside the basic feature of the present invention.

The fibers supplied from the feeding roller **3** are removed from their connection by way of a very fast rotating combing-out means provided with gripping elevations and the fibers are accellerated substantially to the peripheral speed of the combing-out means or roller **4.** By way of the great centrifugal forces arising thereby these fibers fly up on the inner housing wall **8** of the combing-out means or roller **4.** There the fibers land upon the basis of the force components of centrifugal force and on the basis of the conical form of the

combing-out means or roller **4** and the housing wall **8** causing an air stream in the direction of the spinning rotor or turbine **1.** As soon as the fibers reach the lower edge **9** of the combing-out-roller housing **8** the same are accellerated or skidded under effect of centrifugal force on to the conical inlet part **10** of the spinning or turbine **1** above. The turning ratio of the spinning rotor or turbine **1** has a value of approximately **2** to **5** times relative to that of the combing-out means or roller **4.** From this high number of turns there result forces which transport the fibers with aid or support by way of the air stream onto the conical inlet part **10** in the spinning groove **11.** From there there is noted that the fibers subject to rotation being imparted thereto are withdrawn as yarn through the fixed or stationary withdrawal nozzle **12** which is arranged in the hollow axis **13** of the spinning rotor or turbine.

A further advantage of the cylindrical design of the feeding roller **3** is seen in the uniform drawing-in speed of the fiber slubbing over the entire width of the feeding roller **3** so that an uncontrolled faulty drafting in the feeding member cannot occur. The conical opening-up roller **2** has the advantage that, in view of the axial displacement of the roller, the distance **7** between the combing-out means **4** and the housing wall surrounding same can be so adjusted that the individual fibers loosened or dissolved out of the fed fiber connection can pass into the spinning turbine **1.** The magnitude of the conicity of the opening-up roller **2** is dependent on the fiber length and fiber type to be spun and may be between 20° and 45°.

It is, of course, to be understood that the present invention is by no means limited to the specific showing in the drawing but also comprises and modifications within the scope of the appended claims.

What I claim is:

1. In combination with an opening-up roller of an openend spinning machine, a fiber slubbing feeding arrangement which includes: an under-pressure spinning turbine axially aligned with said opening-up roller, said opening-up roller being conical, a substantially cylindrical feeding roller having its central axis substantially parallel to a mantle line of said opening-up roller, said opening-up roller feeding fibers over the entire circumference of said spinning turbine, the axis of said feeding roller being adjustable relative to conicalness of said opening-up roller, and an axis-forming means of said feeding roller relative to the conicity of the opening-up roller being inclined by an angle of from +10° to −10° depending on the fiber type to be spun.

2. An arrangement in combination according to claim **1,** in which the conicity of the opening-up roller is within a range between 20° to 45°.

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