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[54] **DEVICE FOR AVOIDING THE ACCUMULATION OF LINT WITH RINGLESS SPINNING**

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[52] **U.S. Cl.**..... **57/58.95,** 57/58.89

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

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

[56] **References Cited**

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Primary Examiner—William I. Price
Assistant Examiner—Charles Gorenstein
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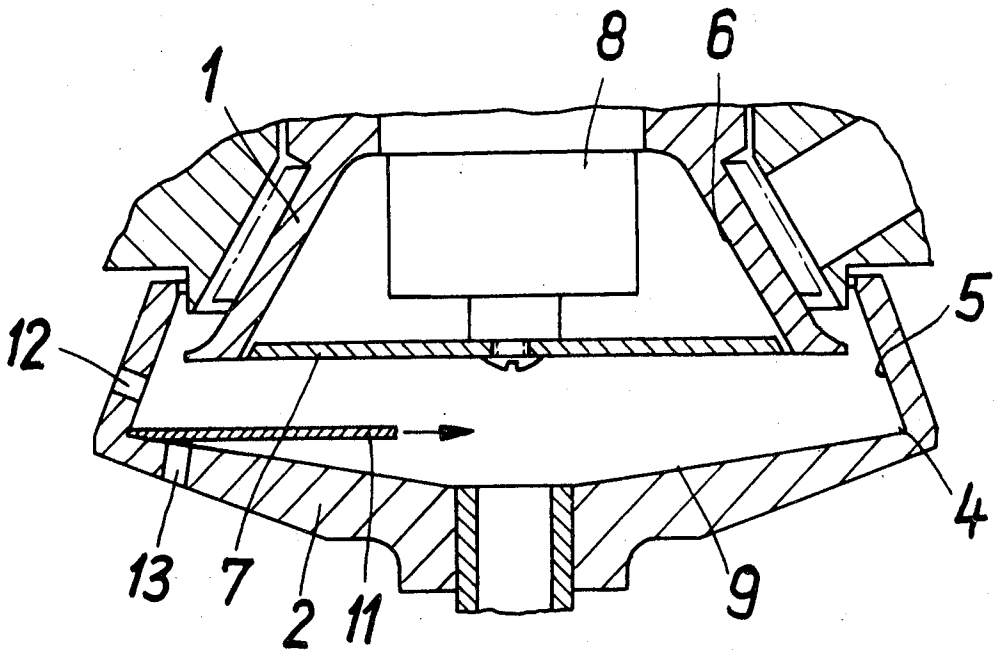
[57] **ABSTRACT**

A spinning device for ringless spinning, in which a rotatable carding member substantially coaxial with a subatmospheric spinning turbine has its bottom side open toward the spinning turbine closed by a closing disc which is preferably flush with that adjacent surface of the carding member which faces the spinning turbine.

5 Claims, 3 Drawing Figures



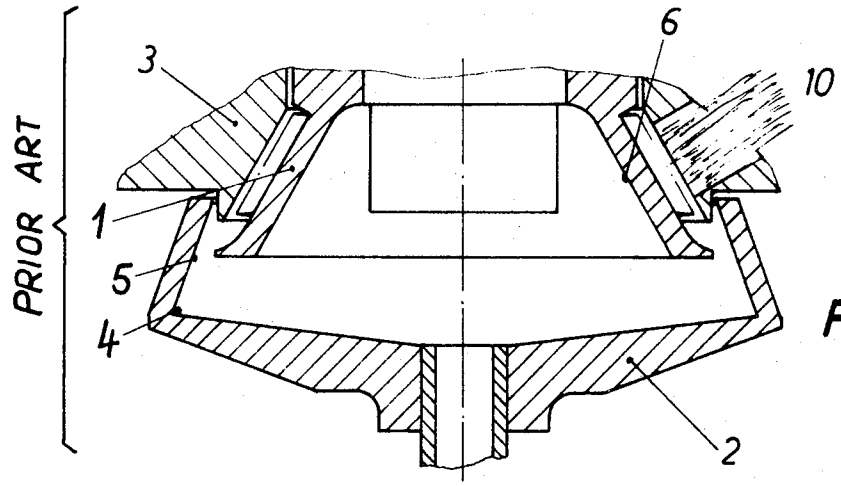


Fig.1

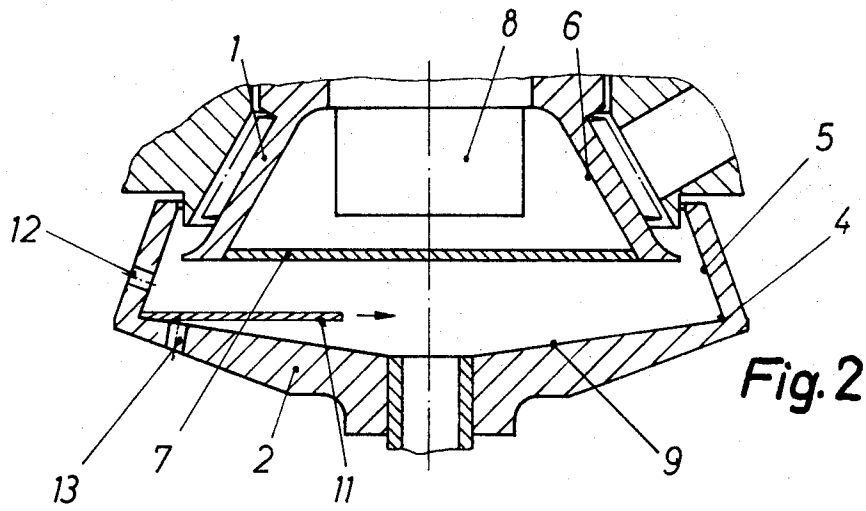
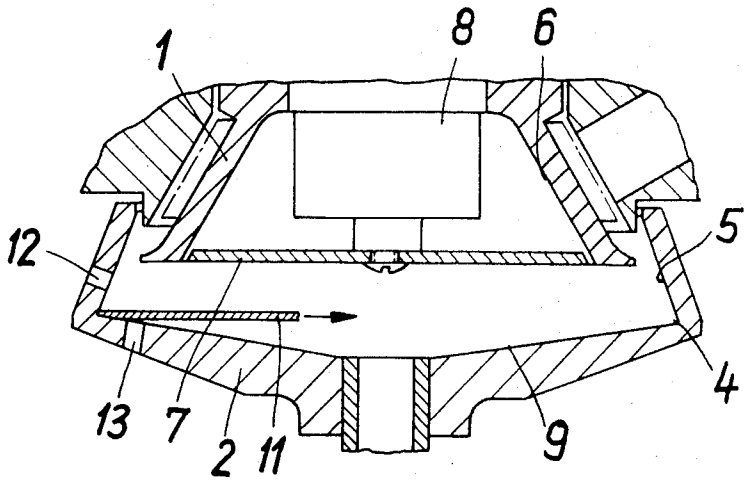


Fig. 2

Fig. 3



DEVICE FOR AVOIDING THE ACCUMULATION OF LINT WITH RINGLESS SPINNING

The present invention relates to a device for avoiding the accumulation of lint when spinning slubbing in a ringless manner in a spinning chamber which comprises a subatmospheric pressure spinning turbine and carding means coaxially arranged with regard to the turbine.

When spinning slubbing in a ringless manner, lint forms in the spinning chamber when carding the slubbing composed of staple fibers into individual fibers. The formation of lint is caused by the carding means rotating at a high speed and the withdrawing nozzle. Due to the prevailing flow conditions, this lint will collect or accumulate in the fiber collecting trough of the spinning turbine and also in the inner contour of the carding means, from where it cannot be removed.

As soon as such a great mass of lint has collected that it cannot hold together any longer, it will break off, and relatively large lint pieces will pass into the fiber collecting trough of the spinning turbine where they interfere with the formation of the yarn. Also unbalances may result which have a disadvantageous effect on the bearing of the spinning turbine.

It is, therefore, an object of the present invention to provide a device which will avoid the accumulation of lint in the spinning chamber when spinning slubbing in a ringless manner.

This object and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawings, in which:

FIG. 1 shows a prior art arrangement of a spinning turbine with carding means.

FIG. 2 shows the improved arrangement of a spinning turbine with carding means according to the invention.

FIG. 3 illustrates a modification according to which the cover disc forms a stationary disc on the bearing pivot of the carding element.

The device according to the present invention which comprises a subatmospheric pressure spinning turbine and carding means coaxially arranged therewith is characterized primarily in that the open portion of the carding means has its end covered by a disc which is preferably flush with the outer contour of the carding means.

The disc may rotate together with the carding means or may be provided as a stationary disc on the bearing stud of the carding means.

The spinning turbine may be provided with radial and/or axial bores for the withdrawal of the centrifuged off lint or flue. The radial bores are located in the inlet portion. The axial bores are provided at the flange side adjacent the fiber collecting trough.

Referring now to the drawing in detail, the prior art arrangement shown in FIG. 1 for avoiding the accumulation of lint in the spinning chamber when spinning slubbing in a ringless manner comprises primarily a subatmospheric pressure spinning turbine 2 and a carding device 1.

When spinning slubbing 10 in a ringless manner with this spinning device, in which the carding device 1 is arranged coaxially with regard to the spinning turbine 2, lint will form in the spinning chamber when opening up or carding the fed-in slubbing 10 of staple fibers into individual fibers. This is caused by the carding device

1 which rotates at high speed and by non-illustrated and differently designed withdrawing nozzle means on which the thread being spun is rolling. Heretofore this lint in the spinning chamber was carried along by the air current conditions and the occurring centrifugal forces and collected in the fiber collecting trough 4 of the spinning turbine 2 and also in the inner contour 6 of the carding device 1.

Since the occurring lint cannot be removed from the spinning device during the spinning process, it will continually build up on the inner contour 6 of the carding device 1.

This process of accumulation or collection of the lint on the inner contour 6 of the rotating carding device 1 will continue until the mass of the accumulated lint has built itself up to such an extent that it cannot hold together any longer on the inner contour 6 in view of the forces acting thereupon and will break off, whereupon the lint is in the form of relatively large pieces of accumulated lint or dirt centrifuged into the fiber collecting trough 4 of the spinning turbine 2. Since, however, the yarn formation takes place in the fiber collecting trough 4, it will be appreciated that the centrifuging of such pieces of lint into the fiber collecting trough may bring about a break in the thread or an additional unbalance of the spinning turbine 2 and thus of the bearing of the spinning turbine may result.

As will be seen from FIG. 2, the device of FIG. 1 has been improved according to the present invention inasmuch as the inner contour 6 of the carding device 1 has been covered by a disc 7. Due to the covering up of the inner contour 6 of the carding device 1, a considerable portion of the air turbulence is transformed into a laminary flow. Since the bottom surface of the carding device 1 formed by the disc 7 and the inner contour 9 on the flange side of the spinning turbine 2 are to a great extent nearly parallel and have the same sense of rotation, for all practical purposes a laminary air flow is created between the two surfaces of rotation. The lint formed during the spinning process will now continually be centrifuged either by the cover disc 7 designed as centrifuging disc onto the fiber collecting surface 5 of the spinning turbine 3 from where it is continuously being spun into the yarn 11, or it will be withdrawn through the bores 12 which are arranged either in the inlet portion 5 and/or through bores 13 which are provided at the flange side near the collecting trough 4 of the spinning turbine 2.

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

What we claim is:

1. A spinning device for ringless spinning, which includes a subatmospheric spinning turbine, a rotatable carding member arranged substantially coaxially with said spinning turbine and having an open side facing toward said turbine, and disc means closing said open side and having its outer surface substantially flush with that surface portion of said carding member which defines said open side.

2. A device according to claim 1, in which said disc means is so connected to said carding member as to be rotatable therewith.

3. A device according to claim 1, which includes means connected to and holding said disc means stationary with regard to said rotatable carding member.

4. A device according to claim 1, in which said spinning turbine has fiber inlet means provided with radial bores.

5. A device according to claim 1, in which said spinning turbine has peripheral flange means and fiber collecting trough means, and in which said peripheral flange means is provided with axial bores near said fiber collecting trough means.

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