March 10, 1959 J. P. HANSEN 2,876,502

FIBER HANDLING DEVICE

Filed Oct. 28, 1954 2 Sheets-Sheet 1

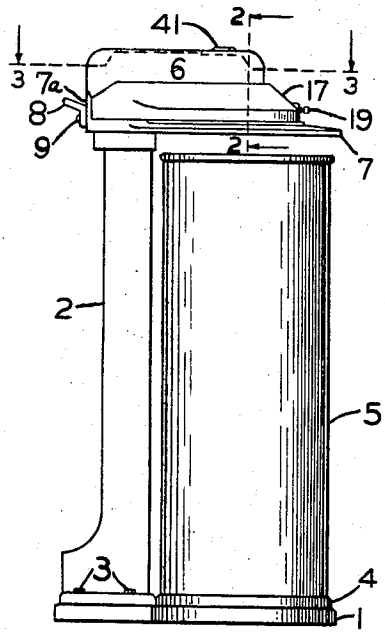


FIG. 1

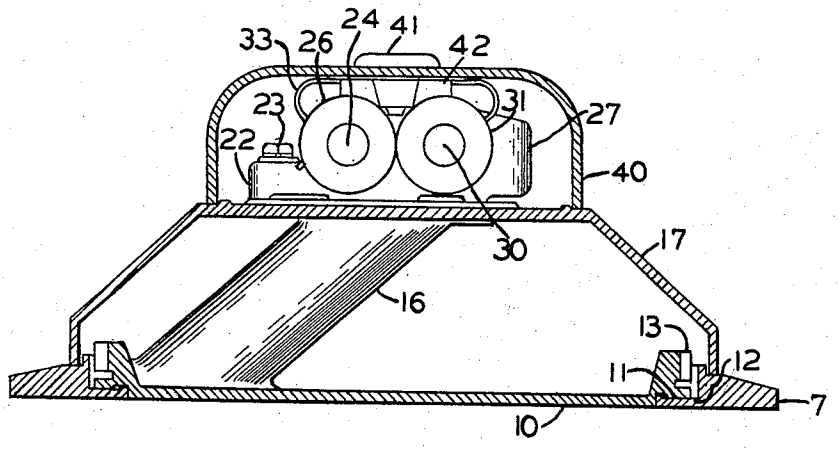


FIG. 2

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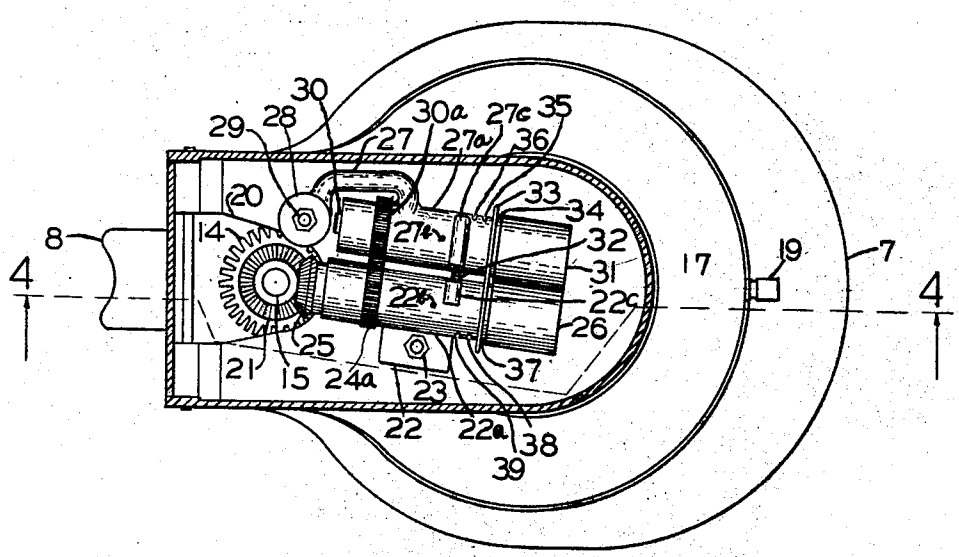


FIG. 3


FIG. 5

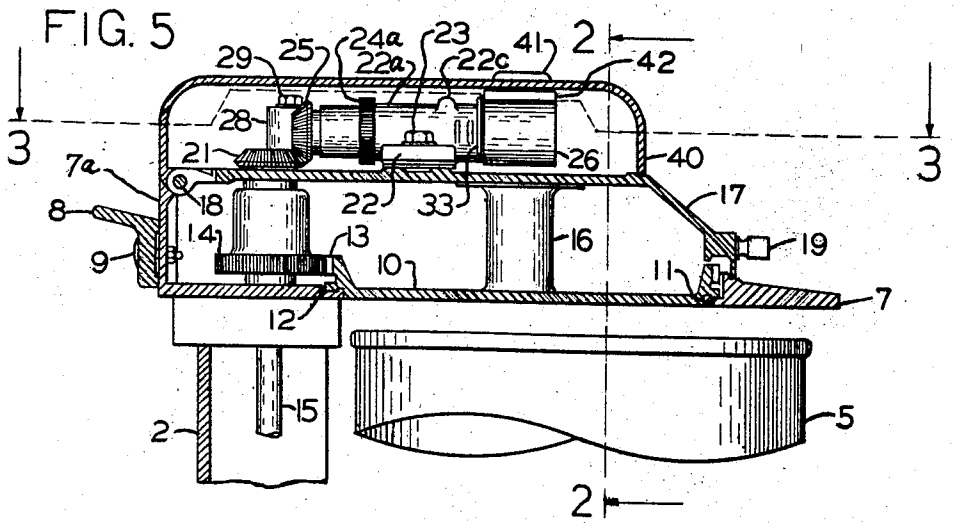


FIG. 4

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# FIBER HANDLING DEVICE

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4 Claims. (Cl. 19—159)

This invention relates to fiber handling devices having a pair of adjacent rotatable rolls between which the fiber is passed and more particularly to improved adjustable means for biasing the rolls toward each other thereby to determine the extent to which the fiber is compressed during its passage between the rolls.

In sliver coilers it is desirable to coil the maximum weight and length of sliver into a given can size in order that the transporting of the sliver from place to place by moving the sliver can from one operation to another may be accomplished efficiently. The weight of sliver deposited in a coiler can is controlled in part by the pressure which the coiler head rolls exert on the sliver tending to compress the sliver. If, however, the sliver compressing force exerted by the rolls is too great, the sliver may become uneven due to interference with the free drafting of the fibers. It is therefore obviously desirable to compress the fiber to an extent sufficient to cause the maximum weight and length to be deposited in the coiler can without interfering with the free drafting of the fibers.

A principal object of this invention is to cause the maximum quantity of sliver to be deposited in a given coiler can size without causing any unevenness in the sliver.

Another object of this invention is to provide a coiler wherein improved adjustable biasing means is utilized to provide a desired sliver compressing force.

The invention in one form comprises pivotally mounted support means for one of the rolls of a coiler head, a plurality of indentations formed in the support means at different distances from the pivotal mounting thereof, and biasing means engageable with the support means at any of the indentations to urge the support means and its associated roll toward a fixed roll thereby to compress the sliver between the rolls to a degree determined by the particular indentation or indentations selected for engagement by the biasing means.

For a better understanding of the invention, reference may be had to the following detailed description taken in conjunction with the accompanying drawings in which Fig. 1 is a side view of a coiler; Figure 2 is a cross-sectional view of the coiler head taken along the line 2—2 of Fig. 1; Figure 3 is a plan view partially in section taken along the line 3—3 of Fig. 1; Fig. 4 is a side view partly in section of the coiler head taken along the line 4—4 of Fig. 3 and Fig. 5 is a side view of a biasing clip comprising an essential feature of the invention. For convenience, the section lines 2—2 and 3—3 are indicated on the enlarged Fig. 4 as well as on Fig. 1.

With reference to Fig. 1 the numeral 1 indicates a base on which a pedestal 2 is mounted by means of bolts 3. Rotatably supported by the base 1 is a platform element 4 which supports sliver can 5. Disposed within pedestal 2 is a driving mechanism which imparts rotary motion to platform 4 thereby to rotate can 5 about its vertical axis in known manner. Secured atop the pedestal 2 is the coiler head generally designated by the numeral 6. As is well understood in the art, a mechanism disposed within



pedestal 2 imparts suitable motion to the elements of head 6 so as to coil a sliver into can 5 in a pretermined pattern. As can best be seen from Figs. 1 and 4, the coiler head 6 comprises a coiler base element 7 secured to the upper end of pedestal 2 in any suitable known manner. Coiler base 7 is provided at its left-hand side with an upstanding integrally formed portion 7*a* to which is bolted the sliver guide 8 by means of bolt 9. Coiler base 7 is provided with a cylindrical opening in which a tube gear 10 is rotatably mounted. Tube gear 10 is provided with a rim portion 11 which rides in a circular groove 12 formed in coiler base 7. Tube gear 10 is also provided with a toothed portion 13 which meshes with the gear 14 affixed to shaft 15 and which is therefore rotated thereby. At its upper end shaft 15 is rotatable within a journal bearing means formed in the coiler base 7. Integrally formed with the tube gear 10 is the hollow tube 16 which transmits the sliver into the open can 5 in known manner.

Mounted to the upstanding portion 7*a* of the coiler head base 7 is the intermediate element 17 which is pivotally mounted about the pin 18 and which at its right-hand extremity is provided with a handle 19. Element 17 at its left-hand extremity is provided with a flared opening 20 shown in Fig. 3 through which the shaft 15 extends. Pinion 21 is affixed to the upper end of shaft 15. A cylindrical opening is formed within the intermediate element 17 for receiving the upper end of the tube 16. Since this particular relationship between intermediate element 17 and the tube 16 is conventional, the opening formed within the element 17 is not indicated in the drawing. Affixed atop the intermediate element 17 is a fixed support means 22 secured in position by means of the bolt 23. Support means 22 is provided with a cylindrical sleeve portion 22*a* in which the shaft 24 is rotatably mounted. A bevelled pinion 25 is affixed to the left-hand extremity of the shaft 24 and meshes with bevelled pinion 21 when the intermediate element 17 is in its normal operating position depicted in the drawings. It will be understood that when the handle 19 is moved upwardly to cause the element 17 to rotate in a counter-clockwise direction about pivot 18 as viewed in Figs. 1 and 4, the pinion 25 moves out of engagement with the pinion 21.

Affixed to the right-hand extremity of the shaft 24 as viewed in Figs. 3 and 4 is a coiler roll 26 which is one of a pair of cooperating rolls for imparting movement to the sliver. Also secured to the intermediate element 17 is the movable support means 27 which is pivotally mounted at the pivot means 28 secured by the bolt 29 to the element 17. Movable support means 27 is provided with a cylindrical sleeve portion 27*a* in which the shaft 30 is rotatably mounted. A driven gear 30*a* is secured to the shaft 30 and rotary motion is imparted thereto by means of the driving gear 24*a* affixed to shaft 24. Secured to the right-hand extremity of shaft 30 as viewed in Fig. 3 is a conventional roll 31. Lubrication ports 22*b* and 27*b* are respectively formed within the sleeve portions 22*a* and 27*a* of the fixed and movable support means.

For the purpose of adjustably determining the minimum spacing between rolls 26 and 31 and of the movable support means 27 relative to the fixed support means 22, a set screw 32 is adjustably positioned within the projection 27*c* formed in the sleeve portion 27*a* of movable support means 27 and the end thereof engages the projection 22*c* formed in the sleeve portion 22*a* of the fixed support means 22.

According to one form of this invention, adjustable biasing means urges the movable support means toward the fixed support means and thereby determines the pressure exerted by the rolls 26 and 31 on the sliver which passes therebetween. This biasing means in one form comprises a biasing clip shown in Fig. 5 and designated by the numeral 33. The downwardly extending prongs

of the biasing clip 33 are arranged to engage any of a plurality of indentations formed in the fixed and movable support means. The indentations on the movable support means are designated in Figs. 3 and 4 by the numerals 34, 35, and 36 and on the fixed support means by the numerals 37, 38, and 39 and obviously are disposed at different distances from the pivot means 28. Thus by manually shifting the clip 33 from the grooves 34, 37 to the gooves 35, 38 or to the grooves 36, 39 a different lever arm is provided for the substantially constant biasing force exerted against the movable and fixed support means by the biasing clip 33. In this way, and in accordance with this invention, the compressing force exerted by the rolls 26, 31 against the sliver therebetween is adjustable. It is obvious that one, two, or three clips 33 could be used and the biasing force could be varied in this manner.

For the purpose of enclosing the parts above described, a cover 40 pivoted at 18 is provided. Mounted within an opening formed in cover 40 is a trumpet 41 of conventional construction for receiving the incoming sliver into the head and means 42 is loosely mounted about the lower extremity of trumpet 41 and is provided with surfaces configured and disposed to engage and wipe rolls 26 and 31 free of oil or other foreign matter that might accumulate thereon.

As is well understood, the sliver is drawn over the guide 8, through the trumpet 41, between the rolls 26 and 31, through the tube 16 and into can 5. Rotation of can 5 and of tube gear 10 causes the sliver to form in a predetermined pattern in can 5.

While I have shown and described a particular embodiment of the invention, it will be obvious that changes may be made without departing from the principles thereof and I intend in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. In a fiber handling device, movable support means, pivot means on which said movable support means is movably mounted, a roll rotatably mounted on said movable support means, fixed support means, a roll rotatably mounted on said fixed support means, a plurality of indentations formed on said support means at different distances from said pivot means, biasing means selectively engageable with said movable support means at any of said indentations and arranged to exert a biasing force on said movable support means in a direction tending to move said movable support means and its associated roll toward said fixed support means and its associated roll, said biasing means being yieldable to allow said movable support means to move away from said fixed support means, and means for driving said rolls.



2. In a fiber handling device, movable unitary support means, pivot means on which said movable support means is movably mounted, a roll rotatably mounted on said movable support means, fixed support means, a roll rotatably mounted on said fixed support means, a plurality of indentations formed on said movable support means at different distances from said pivot means, a yieldable biasing element having a portion thereof which is selectively engageable with said movable support means at any one of said indentations and arranged to urge said movable support means and its associated roll toward said fixed support means and its associated roll, and means for driving said rolls.

3. A sliver coiler comprising a pair of rolls disposed adjacent each other and normally cooperating to impart movement to the sliver, fixed support means for one of said rolls, pivot means, movable support means for the other of said rolls, said movable support means being mounted on said pivot means for swinging movement thereabout, a plurality of indentations formed on said fixed and movable support means, each indentation on said fixed support means together with a corresponding indentation on said movable support means constituting a pair of indentations, a U-shaped yieldable biasing clip engageable with said fixed and said movable support means at any one of said pair of indentations, said clip being effective yieldably to bias said other roll toward said one roll, and means for driving said rolls.

4. A sliver coiler comprising a pair of rolls disposed adjacent each other and normally cooperating to impart movement to the sliver, fixed support means for one of said rolls, pivot means, movable support means for the other of said rolls, said movable support means being mounted on said pivot means for swinging movement thereabout, a plurality of complementary indentations respectively formed on said fixed and said movable support means, the indentations on said movable support means being at different distances from said pivot means, a yieldable biasing clip selectively engageable with said movable support means at any one of said indentations thereon and with the corresponding indentations on said fixed support means to bias said rolls toward each other, and means for imparting operating movement to said rolls.


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