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SLIVER GUIDE FOR TEXTILE COILER

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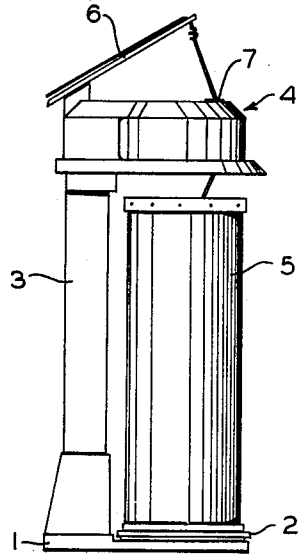

FIG. 1

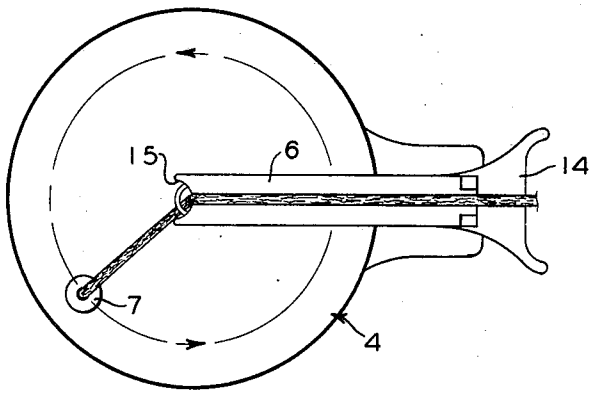

FIG. 2

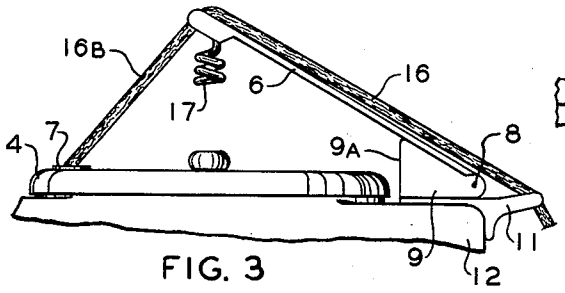

FIG. 3

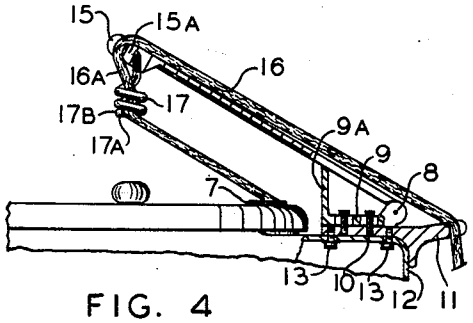

FIG. 4

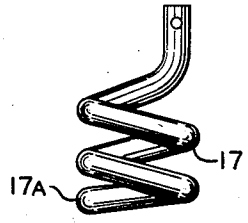

FIG. 5

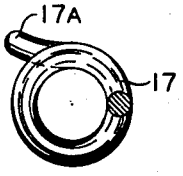

FIG. 6

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SLIVER GUIDE FOR TEXTILE COILER

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5 Claims. (Cl. 19—159)

This invention relates to sliver guides for textile coilers and more particularly to a sliver guide which is adapted to maintain substantially uniform tension in the sliver as it is fed from the calendar rolls of a card machine into the can of an associated coiler.

In a coiler head which is rotatable and in which a trumpet inlet is eccentrically mounted, a sliver drawn into the trumpet from a conventional guide disposed above the center of rotation of the head is likely to receive a varying tension as the trumpet changes position relative to the guide due to rotation of the head. This phenomenon is due to the configuration of the guide surface of the guide and to the varying effect thereof on the length of the path followed by the sliver as the head rotates.

A principal object of this invention is to provide an improved coiler in which uniform tension is applied to the sliver during the coiling operation.

Another and more specific object of the invention is the provision of an improved guide spacer for textile coilers which renders the coiler ineffective to impart a variable tension to the sliver during the coiling operation.

A still further object of the invention is to provide an improved sliver guide spacer for textile coilers through which the sliver can be threaded initially with a minimum of effort on the part of an operator.

The invention in one form comprises a rotatable coiler head, an inlet trumpet mounted in the head and disposed eccentrically therein, a sliver guide having a guide surface engageable by the sliver and disposed in spaced substantially coaxial relation to the head, and a helical guide spacer mounted on the guide adjacent to the guide surface thereof and through which the sliver is arranged to pass.

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 schematic side view of a sliver coiler embodying the invention; Fig. 2 is an enlarged plan view of the arrangement shown in Fig. 1, Fig. 2 being rotated through 180° about the vertical axis of the coiler; Fig. 3 is a side view of the head and associated parts of a coiler embodying the invention; Fig. 4 is a view similar to Fig. 3 but showing the parts in a different relative position, and in which Figs. 5 and 6 are enlarged side and plan views respectively of a coiled guide spacer comprising an essential element of the invention.

With reference to Fig. 1 the numeral 1 designates a fixed base on which a rotatable platform 2 is mounted. Affixed along one edge of platform 1 is a vertical pedestal 3 atop which is mounted the coiler head designated by the numeral 4. Can 5 is removably mounted on rotatable platform 2. As is well-known in the art a sliver fed through head 4 is deposited in the can 5 in a predetermined desired pattern.

After can 5 is filled the can is removed from platform 2 and bodily moved to another operation. Furthermore, as is well understood in the art the pedestal 3 houses

movable driving mechanism which imparts rotation to platform 2 and which provides a predetermined movement to the parts comprising head 4 so as to deposit the sliver in can 5 in the desired pattern. Sliver fed from the calendar rolls of an associated card machine is fed over guide 6 and into an inlet trumpet 7 formed eccentrically within head 4.

As is shown best in Figs. 2 and 4 the guide 6 is hingedly mounted on a pin 8 which cooperates with a bracket 9 affixed by bolts 10 to an auxiliary guide bracket 11 which in turn is affixed to housing 12 by bolts 13. Guide bracket 11 is constructed at its right-hand extremity in a generally U-shaped formation as designated by the numeral 14. Bracket 9 is provided at its left-hand end with an upstanding support portion 9A against which the body of the guide 6 rests due to the action of gravity and to the weight of the sliver and the tension thereon. The left-hand end of guide 6 is also provided with a U-shaped construction 15, it being obvious from the drawing that the sliver 16 passes over the U-shaped portion 14 of the guide bracket 11 and over the U-shaped portion 15 of guide 6.

U-shaped portion 15 of guide 6 is provided with a guide surface 15A configured generally as best shown in Fig. 4.

Since the center of rotation of the head 4 is in alignment with the U-shaped end 15 of guide 6 and since the head 4 causes the inlet trumpet 7 to change position constantly due to rotation of head 4 it is obvious from a comparison of Figs. 3 and 4 that the sliver is stressed to a greater degree when the inlet trumpet 7 is located as indicated in Fig. 4 than when the trumpet 7 is located as indicated in Fig. 3 due to the fact that the sliver in Fig. 4 must extend around the guide surface 15A thereby increasing the distance from the trumpet to the calendar rolls. Obviously varying tension applied to the sliver will result in an impairment in the evenness and quality of the sliver and is undesirable

According to a feature of this invention means are provided for rendering the guide 6 ineffective to impart a varying tension to the sliver 16. Such means as indicated in the drawings may take the form of a guide spacer 17 constructed in the form of a helix. Obviously if the vertical distance of the guide spacer 17 is correctly chosen, that portion of the sliver designated by the numeral 16A which is disposed at any moment between the guide surface 15A and the lower portion of the guide spacer is always of a constant length. Therefore since all other portions of the sliver are automatically of constant length it follows that a constant tension is applied to the sliver 16 by the rolls disposed within the head 4 which draw the sliver into the trumpet 7. For example, the distance between the guide bracket 11 and the card calendar rolls is obviously constant. Similarly, the distance between the guide bracket 11 and the U-shaped end 15 of the guide 6 is constant as is the path of travel of the sliver between the inlet 7 and the lower extremity of the guide spacer 17. Thus by the invention a constant tension is applied to the sliver resulting in greatly improved uniformity thereof. The guide spacer 17 is constructed in the form of a helix so as to enable an operator quickly to thread the sliver 16 therethrough. For example, in order to cause the sliver to assume the position shown in Fig. 4 an operator need only thread the sliver 16 over the U-shaped end 14 of guide bracket 11 and over the U-shaped portion 15 of guide 6 and into the inlet trumpet 7. Thereafter rotary motion of the head 4 automatically threads the portion 16B of the sliver 16 into the guide spacer 17 provided the helix is coiled in the correct direction, i.e., in such a direction that a predetermined direction of rotation of head 4 causes the portion 16B of the sliver to follow the helix downwardly until the entire body of the sliver is dis-

posed coaxially relative to the axis of the guide spacer **17** and enveloped thereby.

As is best shown in Figs. 5 and 6 the lower tip **17A** of the guide spacer **17** is flared outwardly in a tangent-like fashion. The purpose of this constructional feature is to simulate a circular configuration for the lower end of the helix thereby to impart a uniform tension to the sliver.

While we have shown and described a particular embodiment of the invention we do not wish to be limited thereto and intend in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

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

1. A sliver coiler comprising a sliver guide, an inlet passage for said coiler spaced from said guide and movable relative thereto, and a guide spacer fixed in position relative to said guide and disposed in a position generally between said guide and said inlet for maintaining a substantially constant length of sliver between said guide and said inlet irrespective of changes in the relative positions of said guide and of said inlet passage, said guide spacer being initially rendered operable automatically in coordination with relatve movement of said guide and of said inlet.

2. A sliver coiler comprising a sliver guide, an inlet passage for said coiler spaced from said guide and movable relative thereto, and a helical guide spacer mounted on said guide and extending in a direction generally toward said inlet and through which the sliver is threaded, said helical guide spacer being wound in a direction to cause a sliver extending between said guide and said inlet and outside of said guide spacer to be automatically enveloped thereby in response to relative movement of said inlet and guide.

3. A sliver coiler comprising a rotatable head, an inlet trumpet mounted in said head and disposed eccentrically with respect thereto, a sliver guide having a guide surface engageable by the sliver and disposed in spaced substantially coaxial relation to said head, and a helical guide spacer mounted on said guide adjacent said guide surface and coiled downwardly from said guide in the direction of rotation of said head, said guide spacer being disposed generally in spaced coaxial relation to said head and through which the sliver threadedly passes, the end of said helix adjacent said head being configured to simulate a circle.

4. A sliver coiler comprising a rotatable head, an inlet trumpet mounted in said head and disposed eccentrically with respect thereto, a sliver guide having a guide surface engageable by the sliver and disposed in spaced substantially coaxial relation to said head, and a helical guide spacer mounted on said guide adjacent said guide surface and disposed generally in spaced coaxial relation to said head and through which the sliver threadedly passes, said helical guide spacer being wound in a direction to cause a sliver extending between said guide and said inlet and outside of said guide spacer to be automatically enveloped thereby in response to relative movement of said inlet and guide.

5. A sliver coiler comprising a rotatable head, an inlet trumpet mounted in said head and disposed eccentrically with respect thereto, a sliver guide having a guide surface engageable by the sliver and disposed in spaced substantially coaxial relation to said head, and a helical guide spacer mounted on said guide adjacent said guide surface and disposed generally in spaced coaxial relation to said head and through which the sliver threadedly passes, said helical guide spacer being wound in a direction to cause a sliver extending between said guide and said inlet and outside of said guide spacer to be automatically enveloped thereby in response to relative movement of said inlet and guide, and the end of said helix adjacent said head being configured to simulate a circle.

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