April 22, 1941. O. W. SCHLUMS 2,239,403

SLIVER GUIDE

Filed April 10, 1939

Fig. 1.

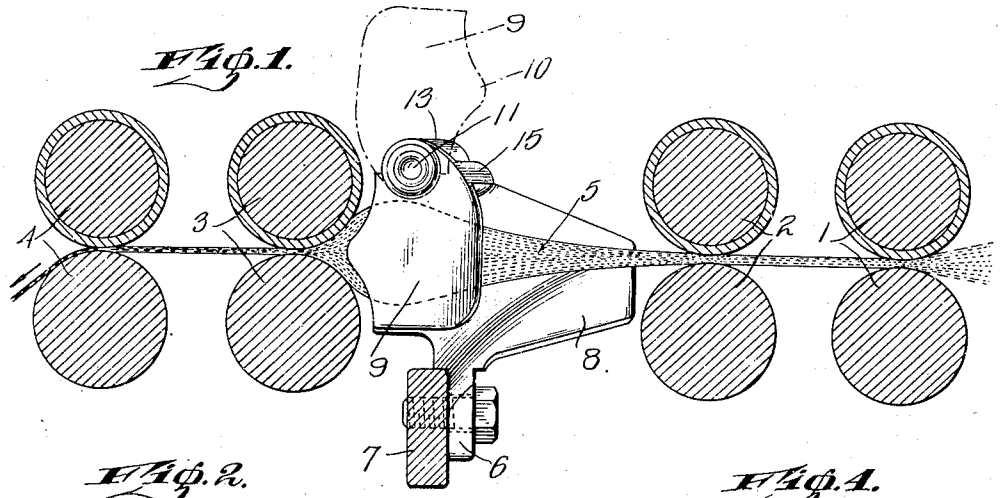


Fig. 2.

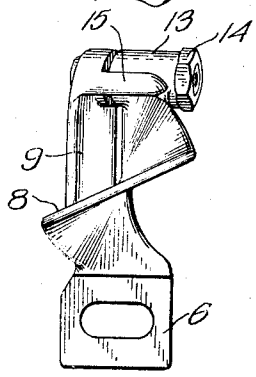


Fig. 3.

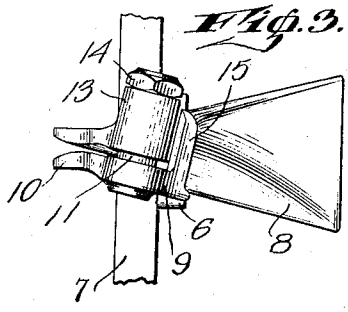


Fig. 4.

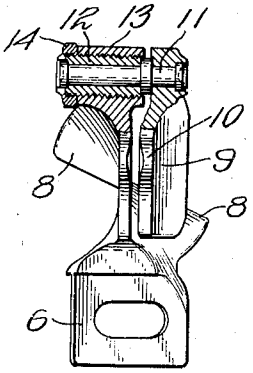


Fig. 5.

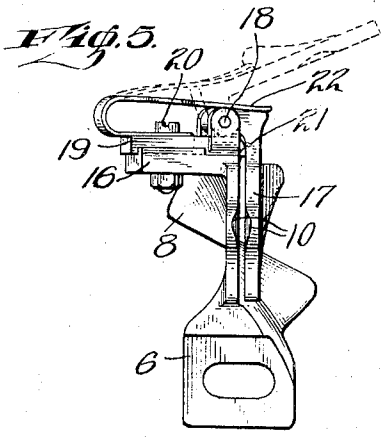
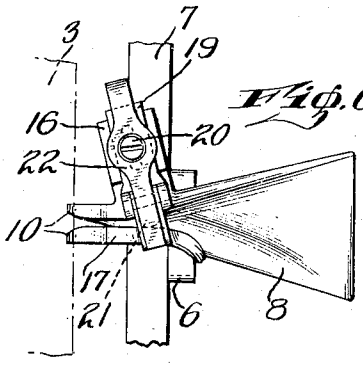


Fig. 6.



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SLIVER GUIDE

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Application April 10, 1939, Serial No. 267,057

14 Claims. (Cl. 19—157)

The invention is an improved sliver guide for use in long draft spinning systems and comprises certain special and novel features of utility in these systems as will be made apparent in the following description of the drawing wherein

Fig. 1 represents a cross section through the drafting rolls of a spinning or roving machine showing a form of the new sliver guide in elevation.

Fig. 2 is a rear elevation of the guide.

Fig. 3 a plan view,

Fig. 4 a front view, parts in section, and

Figs. 5 and 6 are respectively plan and front views of a modified form.

The new guide is mounted between a first or back set of drawing rolls marked 1 and 2, and a front set of drawing rolls marked 3 and 4. It will be understood that sliver drafted in the first set in the usual way emerges therefrom in the form of a flat and fairly wide band, 5, the flattened form being due to the spreading action of the drafting rolls, and in the drawing being shown somewhat exaggerated. It passes thence into the back rolls 3 of the second drafting set by which it is further drafted and from which it emerges and passes to some twisting or spinning device.

It is the function of the new guide to receive and turn the flat band of sliver one quarter-turn on its own axis so that it enters the rolls 3 in an edgewise position. Such quarter-turning is disclosed in application Serial No. 93,592, filed July 31, 1936, and is not herein claimed except as performed by this new device which is so contrived that the threading up and piercing operations can be done with greater convenience and with the saving of a great deal of time by the operative.

The guide comprises a slotted base or stem 6, bolted to a traverse bar 7 and formed in its upper portion as a skew plate 8. The cross dimension of this plate nearest the back roll-set occupies an angle to horizontal of about 25° and this end of the plate constitutes a sort of receiving shelf while its front end, due to the skew of it, is exactly vertical and forms one side of a narrow, vertical guiding channel or crevice through which the flat sliver riding on and guided by the smooth surface of the plate is turned and delivered in the edgewise position.

The other side of the vertical crevice is formed by a member herein termed a gate, since it is freely movable on a hinge axis. It is marked 9. The crevice it forms is somewhat greater or higher in its vertical dimension than the widest sliver to be guided and its width or horizontal dimension is selected so as to preserve the thin, flat shape of the sliver and its edgewise position as it passes on to the rolls 3. The front edges of the plate 8 and the gate 9 are even with each other and pointed with nibs 10, whereby they thus support the sliver up very close to the bite of the rolls 3 which is desirable.

The gate is so organized that it can be swung, pushed or flopped out of the way at such times as when the machine is to be threaded up or when piecing is to be done, thus exposing the fixed wall of the crevice and the whole of the skew plate so as to give ample space for inserting the sliver into the rolls 3, and so that the sliver can then be readily placed and held against the plate while the gate is restored or closed upon it. The tendency is for the flat sliver to assume the horizontal plane of the draft rolls, so that turning it to its edgewise position involves a certain distortion of its path against its natural tendency, but by the action described the sliver can be properly located in the crevice very quickly and accurately, and while it is in motion.

So long as the provision for such gate manipulation is present, it does not greatly matter how the crevice is shaped or where or how the gate is pivoted, but it is desirable and necessary in any case that in its final or closed position its smooth inner face shall be generally parallel to the opposite wall of the crevice, in the vertical sense, and separated therefrom by a selected constant spacing suited to the particular weight or sliver. In the form of Figs. 1 to 4 the gate is pivoted on the shouldered end of a horizontal stud 11 carried in a sleeve 12, which latter is screw-threaded in a barrel 13 at the head of the fixed member 8, the construction being such that screwing the sleeve 12 in or out of the barrel shifts the stud and thus varies the width of the crevice and the set nut 14 locks the adjustment. The stud's axis in this form extends crosswise to the sliver and preferably at a slight angle to the line of the draft rolls, and the gate is arranged so that it can be flicked up to about the position shown in dots in Fig. 1, which is about 180° from its closed position. Thus opened, it rests by its gravity, with its stop arm 15 bearing on the top of the member 8, remaining in this position until flicked back again. Due to the angle of its hinge, it closes in the direction of the sliver movement which helps in completing the closing movement and guards against any tendency for the sliver to open the gate, besides permitting the gate to close to a position extremely close to the bite line of

the rolls 3, this being an advantage due to hinge location irrespective of the quarter-turning function of the crevice. The shouldered stud 11 in conjunction with the stud-holding sleeve 12 represents the means, in this form, which establishes the working position of the gate, which is to say, the crevice width.

In Figs. 5 and 6 the body part of the guide and its skew plate 8 are constructed about the same as already described but instead of the pivot barrel this form is provided with a flat top or head 16 and the gate 17 is hinged to a horizontal pivot 18 carried in a gate support 19 which is adjustably bolted to the head 16 as by the slot and bolt attachment indicated at 20. In its closed position the gate bears upon a stop 21 also carried by the gate support 19 and of such length as to establish parallelism between the inner face of the gate and the opposite wall of the crevice for all positions of the gate support 19, which latter can be set, as desired, according to the crevice width required. The gate in this form swings on an axis almost parallel with the sliver and is held closed by a spring 22, which also serves to hold it open, as indicated by the dotted lines. The indicated angle of the hinge axis (with relation to the stem 6) causes the gate to swing slightly away from the draft rolls as it is opened so that it clears the draft rolls and the guide can therefore be set up close to them and still be readily opened. In both forms, it will be noted, the crevice is opened so that the sliver can be placed in it laterally or transversely as distinguished from many prior guides in which it must be threaded through the channel.

I claim:

1. A sliver guide adapted for location between first and second drafting roll-sets for quarter-turning a flattened sliver from the first set to an edgewise entry into the second set, comprising a fixed member formed with a smooth face suited for conducting the sliver in its flattened form, said face forming one side of a narrow vertical crevice, a gate member forming the other side of said crevice adapted to open up the crevice-forming face of the fixed member, said gate being pivoted on a horizontal axis extending crosswise of the sliver so that it closes in the direction of sliver travel.

2. A sliver guide of the kind set forth comprising a fixed member and a gate together forming a vertical crevice for guiding a flat sliver in edgewise position to a pair of drafting rolls, said member and gate having their delivery edges provided with projecting nibs extended toward the bite line of said rolls and said gate having a support on which it moves away from the bite line when being opened.

3. A sliver guide suited for location between drafting rolls for quarter-turning a flattened sliver from the first rolls to edgewise entry into the second rolls, comprising a relatively fixed member having a conducting face forming one side of a vertical crevice, a gate member having a conducting face forming the other side of said crevice, said gate member being readily movable by the unaided fingers away from the conducting face of the fixed member to allow the sliver to be brought laterally into contact with that face in the process of threading-up, and being adapted when closed to keep the sliver running in an edgewise position through the guide.

4. A sliver guide for location between drafting rolls for quarter-turning a flattened sliver from the first rolls to edgewise entry into the second rolls, comprising a relatively fixed member having a conducting face forming one side of a vertical crevice, a gate member having a conducting face forming the other side of said crevice, said faces being vertically parallel at their delivery end and flared apart at their other end to receive the sliver, and said gate member being readily movable by the unaided fingers away from the conducting face of the fixed member so that the sliver may be brought laterally into contact with that face in the process of threading-up or piecing, and adjustable means for limiting the return movement of said gate member to establish a selected width for said crevice which will keep the flattened sliver in edgewise position as it passes through the guide.

5. A sliver guide for location between drafting rolls for quarter-turning a flattened sliver from the first rolls to edgewise entry into the second rolls, comprising a relatively fixed member having a conducting face forming one side of a vertical crevice, a self-closing gate member movably mounted thereon having a conducting face forming the other side of said crevice, the supporting means of said gate prescribing an opening movement away from the conducting face of the fixed member and in a direction counter to the sliver travel and far enough to permit the sliver to be brought laterally into position on said face in the process of threading-up or piecing and a return movement which is in the direction of sliver travel, said gate when closed serving to keep the flattened sliver in an edgewise position while passing through the guide.

6. A sliver guide for location between draft rolls for quarter-turning a flattened sliver from the first rolls for edgewise entry into the second rolls, comprising a relatively fixed member having a conducting face forming one side of a vertical crevice, a gate member having a conducting face forming the other side of said crevice, said crevice having a width adapted to keep the sliver in edgewise position as it travels through the guide and said gate member being mounted on the fixed member to open and close said crevice and being held closed by gravity or like force and having means for holding it wide open notwithstanding said closing force.

7. A sliver guide for location between first and second drafting rolls for quarter-turning a flattened sliver from the first rolls to an edgewise entry into the second rolls, comprising a fixed member having a skew conducting face one end of which forms one side of a vertical crevice, and a gate member having a conducting face forming the other side of said crevice pivotally mounted to expose said skew face when turned to its open position, said gate having means for establishing its position when closed to provide a working crevice width suited for keeping the flat sliver in edgewise position.

8. A sliver guide adapted for location between first and second drafting rolls for quarter-turning a flattened sliver from the first rolls to an edgewise entry into the second rolls, comprising a fixed member formed with a skew face for conducting the sliver in its flattened form, one end of said face forming one side of a vertical crevice, a gate member having a conducting face forming the other side of said crevice, said crevice being so narrow as to hold the flattened sliver in edgewise position and said gate being pivotally mounted on the fixed member to expose the skew surface of the fixed member, and being subject to

gravity or like force to return it to its closed position.

9. A sliver guide adapted for location between first and second drafting roll-sets for quarter-turning a flattened sliver from the first set to an edgewise entry into the second set, comprising a fixed member having a conducting face forming one side of a narrow vertical crevice, a gate member forming the other side of said crevice pivotally mounted to expose the conducting face of the fixed member and being subject to gravity or like force to retain it in its open and closed positions, and means for establishing said closed position at a selected crevice width adapted to hold the flat sliver in edgewise position.

10. A sliver guide for location between first and second drafting rolls for quarter-turning a flattened sliver from the first rolls to an edgewise entry into the second rolls, comprising a fixed member formed with a conducting face forming one side of a vertical crevice, and a gate member having a parallel face forming the other side of said crevice pivotally mounted on a gate support to open the crevice, said gate support being adjustable and provided with means to hold the face of the gate parallel to the face on the fixed member, in all of its adjustments.

11. A sliver guide comprising a relatively fixed member having a conducting surface which forms one side of a sliver-conducting crevice or passageway, a gate member having a conducting surface forming the other side of said passageway, said surfaces being convergent in the direction of sliver travel, means for movably mounting the gate on the fixed member comprising a horizontal pivot located at the top of said member and occupying an angle which prescribes a closing movement for the gate in the direction of sliver travel, said gate being subject to a force tending to move it in that direction.

12. A sliver guide comprising a relatively fixed member having a conducting face one end of which forms one side of a sliver-conducting passageway, a gate member having a conducting face opposite that end and forming the opposite side of said passageway, the other end of the face on said fixed member being uncovered, and means for pivotally mounting said gate member so that when open it allows a pieced sliver to be laid on said fixed face by lateral horizontal movement thereof.

13. A sliver guide adapted for location between drafting roll-sets for quarter-turning a flattened sliver from the first set to an edgewise entry into the second set, comprising a fixed member having a conducting face forming one side of a vertical crevice, a gate member having a conducting face forming the other side of said crevice, said crevice being of a width adapting it to keep the flat sliver in an edgewise position and said gate being pivotally mounted to open the crevice on an axis substantially parallel to the sliver travel and being subject to gravity or like force to return it to and hold it in its closed position.

14. A two-part sliver guide of which one member is provided with a base for attachment to a support and the other is attached to the first by means of a hinge, the proximate faces of said members being smooth and complementarily shaped to jointly provide a sliver-conducting channel, wider at the entrance end than at the delivery end, when said members are in their closed relation, said hinged member being freely movable as a gate by the unaided fingers of the operative, to expose the part of the channel formed on the fixed member and permit lateral threading and having means for retaining it closed against opening by the pressure of the sliver.

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