Feb. 12, 1935. F. PIRON 1,990,613

SPINNING MACHINE

Filed June 11, 1934

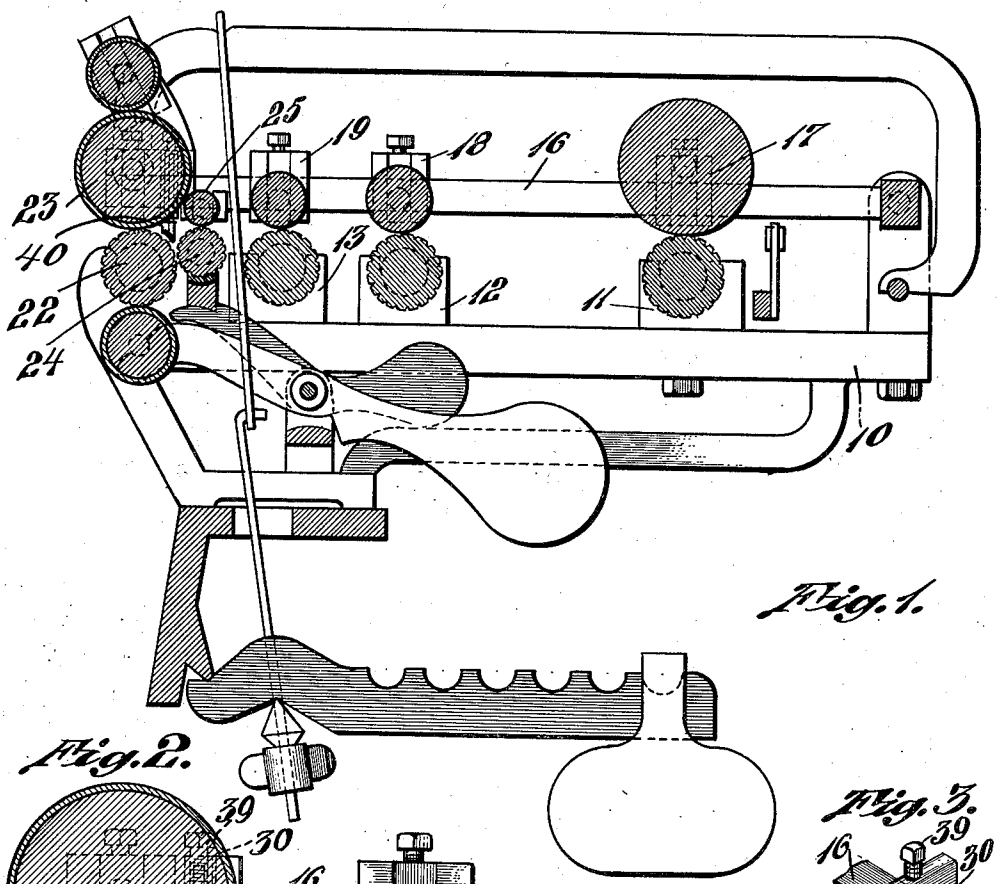



Fig. 1.

Fig. 2.

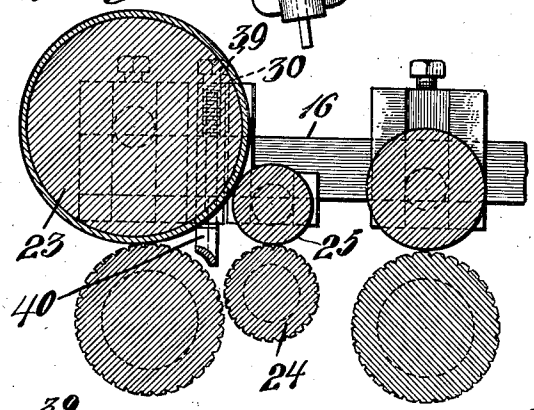



Fig. 3.

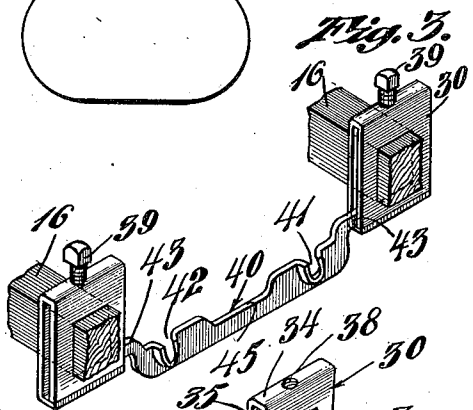
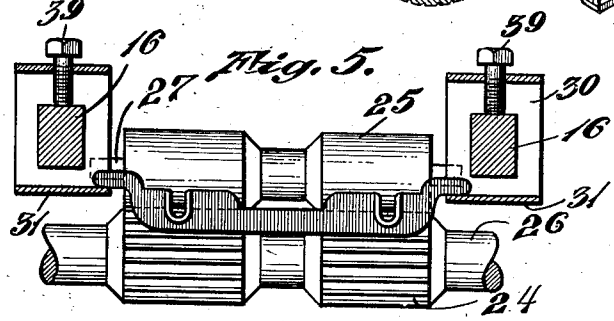



Fig. 4.

Fig. 5.




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1,990,613

## SPINNING MACHINE

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Application June 11, 1934, Serial No. 730,114

15 Claims. (Cl. 19—130)

This invention relates to a spinning machine and is an improvement upon my prior Patent No. 1,917,058, dated July 4, 1933.

One of the objects of this invention is to provide a guide for pressing the small protruding fibers into the yarn to avoid loss of these fibers as lint or waste and at the same time permit the guide to oscillate with reference to the spinning rolls so that a traverse of the yarn along these rolls may be provided.

Another object of the invention is the provision of a simple support for an oscillating guide whereby the minimum amount of stock may be utilized and a very thin structure may be provided between the working portions of the surface of the roll.

Another object of the invention is the provision of a guide and support whereby the guiding surfaces between which the yarn guide or oscillating member is positioned, may be adjusted so that the desired guiding space may be provided.

Another object of the invention is the provision of a movable guide which will adjust itself to the travel of the yarn by centralizing itself with respect to the general direction of the travel of the yarn and thus prevent kinking of the yarn and afford a better yarn than where the yarn must be drawn thru at a sharp angle such as in a fixed guide.

With these and other objects in view, the invention consists of certain novel features of construction, as will be more fully described, and particularly pointed out in the appended claims.

In the accompanying drawing:

Fig. 1 is a sectional view showing the relative arrangement of the rolls.

Fig. 2 is an enlarged view of the rolls shown in Fig. 1, and illustrating the position more clearly of my yarn guide in its relation to these rolls.

Fig. 3 is a perspective view of the yarn guide showing the manner of supporting it between two brackets or clamps secured to the overarm.

Fig. 4 is a perspective view of one of these supports.

Fig. 5 is a sectional view thru the support, altho illustrating the yarn guide in full in its relation to one of the pairs of rolls.

In my previous patent above referred to I have rigidly supported an elongated member of very thin construction between the overarm and between the rolls and then provided a sliding member upon such support. The surface covered by this sliding member provides a double thickness of stock and a rather elongated frictioning surface of sliding contact, and in order that this structure may be materially simplified, the elongated support eliminated, and the friction surface reduced, I have provided a short member, itself containing the guiding surfaces and itself bodily slidable or oscillative at its support adjacent the overarm so that a much simpler construction is provided. I provide for adjustment of the space between the guide walls of the support for the guide member so that the desired guiding area may be had, even after assembly of the parts in working position, and by reducing the structure at the ends and providing fingers projecting beyond the main body of the guide I form abutment surfaces by which the guide for the yarn is limited in its movement along the rolls; and the following is a more detailed description of the present embodiment of this invention illustrating the preferred means by which these advantageous results may be accomplished:—

As explained in my above referred to patent, in certain spinning machines, such as in a mule, the space between the front rolls and the pair of rolls positioned back of the front rolls, is very limited, and a guide of very thin construction must be provided that it may go into a limited space. The guide which I have here constructed fulfills this requirement altho of course, it may be used in other spinning machines, such for instance as ring spinning, or the like where greater space can be had.

I have shown an illustration of this invention in connection with a mule spinning frame, in which the stationary part of the frame is designated 10 and bearing blocks 11, 12, 13, etc., are provided for the lower fluted rolls, while along the overarm 16 there are provided guide blocks 17, 18, 19, etc., for the upper rolls in each of the pairs of rolls. The front pairs of rolls are designated 22 and 23, and a pair of rolls just back of the front rolls are designated 24 and 25, and it is between these two pairs of rolls that my guide is positioned. These rolls run with their surfaces just clear of each other, as illustrated more clearly in Fig. 1 where they are shown in connection with a mule spinning machine.

Between the working surfaces of each of these lower rolls 22, there is a reduced portion 26, at a point beneath the overarm, while the upper roll is short, see for instance roll 25 in Fig. 5, with its trunnions 27 as mounted in suitable bearing blocks or guides which are carried by the overarm 16.

At spaced points, such as at the overarms 16,

I provide a supporting member designated generally 30 which is constructed by bending it up from sheet stock to provide a bottom wall 31, side walls 32 and 33, connected by a top wall 34 and leaving a space 35 between the side walls which may be adjusted by moving the side wall 33 towards the side wall 32 by bending it at the top wall and which is permitted by the free edge 36 which may be slid inwardly along the bottom wall 31. A square opening thru each of the side walls, designated 37, is provided for receiving the overarm 16 while a threaded opening 38 is provided for receiving a set screw 39 to extend down into engagement with the top of the overarm 16 for binding the support 30 in position.

The yarn guide member consists of a thin, elongated strip of sheet stock 40 which is notched as at 41 and 42 and drawn slightly forwardly to provide a smooth rounding surface for the entrance of the yarn and for confining it so that any straggling fibers will be forced back into the main strand as it travels thru the machine. At the ends of this body portion of the yarn guide I have formed fingers 43 which extend into the space 35 in the support. A notch as at 45 may be provided for lightening up the structure. The fingers 43 will be sufficiently short so that with the top rolls removed, the support 30 may be first placed on the overarm and then by diagonally placing the support or guide 40 with first one end in the support and then the other, the yarn guide may be placed in position.

In supplying the supporting member 30, I usually leave the walls 32 and 33 close together so that they will bind the fingers 43 when first positioned into these supports. However, as I position the supports in place I may take a screw driver and place it in the opening 35 and by twisting this screw driver open the support so that the guide walls 32 and 33 are positioned the correct distance apart for maintaining the desired guiding action on the yarn guide as it is moved by the oscillation of the threads.

It will, of course, be understood that one or any desired number of slots or notches 42 or 41 may be placed in the guide 40 depending upon the number of ends which are located between two adjacent places of support, such as the overarm.

By this construction a very simple arrangement of oscillatory guide is formed which may be extremely simple and economical to manufacture and assembled in position on the spinning machine.

The foregoing description is directed solely towards the construction illustrated, but I desire it to be understood that I reserve the privilege of resorting to all the mechanical changes to which the device is susceptible, the invention being defined and limited only by the terms of the appended claims.

I claim:

1. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, spaced supports between said pairs of rolls, and a yarn guide having its ends slidably engaging said spaced supports and out of contact with said rolls.

2. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, spaced supports between said pairs of rolls, and a yarn guide slidably supported at its ends only on said spaced supports and out of contact with said rolls.

3. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, spaced supports between said pairs of rolls, and a yarn guide engaging said supports and out of contact with said rolls, the entire structure between said supports being movably mounted with relation thereto.

4. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, spaced supports between said pairs of rolls and independent thereof, and a yarn guide out of contact with said rolls and having its ends slidably engaging said spaced supports and provided with a notch to receive said yarn.

5. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, a yarn guide, spaced supports located between said pairs of rolls to movably support the ends of guide and yet permit it to slide with respect to the rolls and said support and out of contact with said rolls, and means to limit the movement of said yarn guide.

6. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls with their surfaces closely adjacent and just clearing the front rolls, spaced supports located between said pairs of rolls, and a yarn guide slidably mounted at its ends between said supports to follow the traverse of the yarn along said rolls and out of contact with said rolls.

7. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls with their surfaces closely adjacent and just clearing the front rolls, spaced supports located between said pairs of rolls and a yarn guide slidably mounted at its ends between said supports and provided with a notch to receive the yarn and out of contact with said rolls.

8. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls with their surfaces closely adjacent and just clearing the front rolls, spaced supports located between said pairs of rolls, a yarn guide out of contact with said rolls and slidably mounted at its ends between said supports and provided with a notch to receive the yarn, and stop means on said member to limit the movement of the guide.

9. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, spaced supports between said pairs of rolls, and a yarn guide out of contact with said rolls, and a finger at each end slidably engaging each of said spaced supports.

10. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, spaced supports between said pairs of rolls, and a yarn guide out of contact with said rolls and having its ends slidably engaging said spaced supports, the body portion of said guide adjacent said finger forming an abutment to limit the movement of said guide.

11. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls with their surfaces closely adjacent and just clearing the front rolls, an overarm extending from the back of the machine, and a support on said overarm between the front rolls and the next pair of rolls, and a yarn guide out of contact with said rolls and slidably supported at its ends in said supports adjacent said overarm.

12. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls with their surfaces closely adjacent and just clearing the front rolls, an overarm extending from the back of the machine, a yarn guide out of contact with said rolls, means in substantially the plane of said overarm for engaging and slidably supporting the ends of said guide from said overarm.

13. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, spaced supports between said pairs of rolls and independent thereof, and a yarn guide having its ends slidably engaging said spaced supports, said supports each comprising a bottom wall and spaced side walls providing a space between which said yarn guide is slidably supported and guided.

14. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, spaced supports between said pairs of rolls and independent thereof, and a yarn guide having its ends slidably engaging said spaced supports, said supports each comprising a bottom wall, a top wall and spaced side walls all formed of one piece of material suitably bent to form said structure providing a space between which said yarn guide is slidably supported and guided.

15. In a spinning machine, a plurality of pairs of rolls between which the yarn travels, including a pair of front rolls and a pair of rolls back of the front rolls, spaced supports between said pairs of rolls and independent thereof, and a yarn guide having its ends slidably engaging said spaced supports, said supports each comprising a bottom wall, a top wall and spaced side walls all formed of one piece of material suitably bent to form said structure, the edges of said bent structure being at the juncture of the bottom and one side wall, whereby the side wall may be bent inwardly or outwardly to adjust the size of the guiding space between said side walls.

FERNAND PIRON.