Feb. 9, 1937. S. M. BEAR 2,069,935

BALLOON SHIELD FOR CAP SPINNING MACHINES

Filed June 26, 1935

FIG. 1.

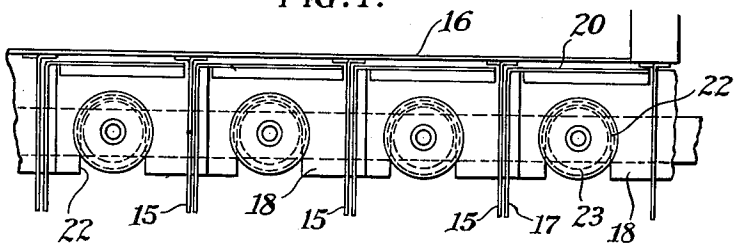


FIG. 2.

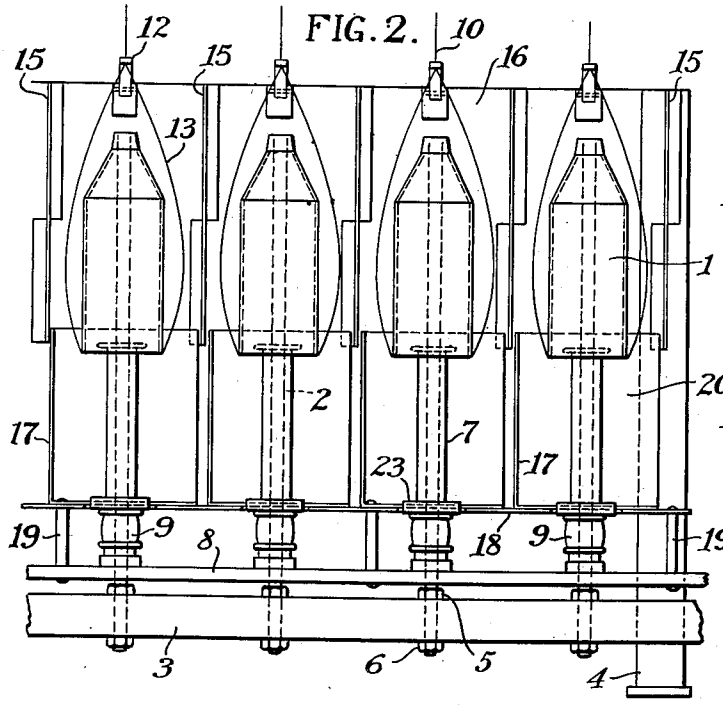


FIG. 3.

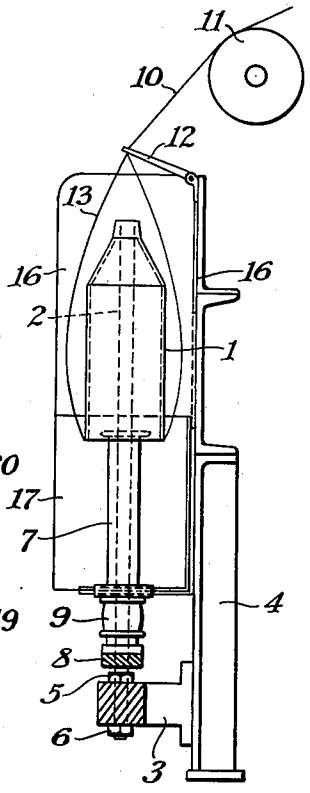
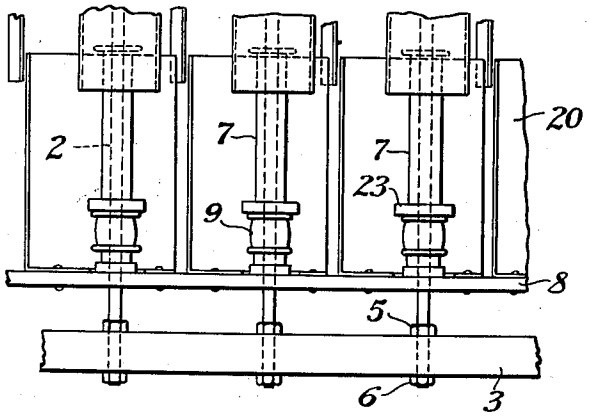


FIG. 4.



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BALLOON SHIELD FOR CAP SPINNING MACHINES

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4 Claims. (Cl. 118—11)

This invention relates to balloon shields particularly adapted for use in spinning machines. One object of my invention is to provide a shield for yarn being wound upon a bobbin. Another object of my invention is to provide a shield for cap spinning machines in which the shields are arranged to protect both the yarn ballooning about the cap and the yarn wound on the bobbin. Another object of my invention is to provide a plurality of shields, each shield being made in two parts, one adapted to slide relative to the other, so that as the bobbin and cap move relative to each other, the silk will be protected. Other objects will appear from the following specification, the novel features being particularly pointed out in the claims at the end thereof.

It is desirable to protect yarn being wound on bobbins and yarn ballooning around caps before reaching the bobbin from dirt and grease which may be thrown from one moving part to another. Since, in cap spinning machines, it is necessary to move the bobbin and cap relative to each other, it is somewhat difficult to adequately protect the yarn in all positions of the relatively movable parts. I have divided the various shielding members into two parts, one part of which is carried by a relatively fixed part of the machine and the other part of which is carried by a relatively movable part, so that when the cap and bobbin are spaced from each other, both the yarn being wound upon the bobbin and the yarn ballooning about the cap will be adequately protected on at least three sides. It is usually desirable to leave one side open so that the bobbins can be readily removed when the desired amount of yarn has been wound thereon.

Coming now to the drawing wherein like reference characters denote like parts throughout,

Fig. 1 is a top plan view of a portion of a spinning machine having guards constructed in accordance with and embodying a preferred form of my invention.

Fig. 2 is a side elevation of the portion of the machine shown in Fig. 1.

Fig. 3 is an end elevation partially in section of the machine shown in Fig. 2.

Fig. 4 is a fragmentary view of a portion of the machine shown in Fig. 2, but with the parts in a different position.

In cap spinning, it is customary to provide a cap member 1 which is mounted upon a relatively fixed spindle rod 2. This rod is normally held by a suitable bracket 3 supported on the machine frame 4 as by nuts 5 and 6. The cap is normally, therefore, stationary with respect to the frame 4.

It is also customary to mount a bobbin 7 on the spindle rod 2 and to move the bobbin into and out of the cap 1 by means of a traverse bar 8, which is moved up and down relative to the machine frame by any suitable mechanism. The usual pulleys 9 may also be carried up and down by the traverse bar and they may be at the same time rotated in the usual manner so that the bobbins 7, which are connected to the pulleys 9 may be turned.

Thus, as the bobbin 7 is rotated and moves into and out of the cap 1, the yarn 10 passing over a feed roll 11, and a thread guide 12, balloons as indicated at 13 about the cap 1 as it is wound upon the bobbin 7.

As thus far described, the machine may be any well known type of cap spinning machine. However, with machines now in use, there is sometimes difficulty due to the fact that it is possible for dirt or grease from one bobbin to be transferred to another and thus spoil the yarn. In some machines, the silk is partially protected by means of shields extending partially between the caps, but because the caps and bobbins must move relative to each other, the shields have not been of sufficient size to protect both the yarn ballooning about the cap and the yarn being wound upon the bobbin.

I have provided a series of shields so arranged that they completely protect the yarn on three sides of the bobbin leaving the front open as usual to facilitate doffing the fresh bobbin.

As indicated in the drawing, there are a plurality of shield members 15 which extend between the caps and which are fastened to the plate 16 which forms a portion of the machine frame. Each of the fixed guards 15 protects two caps, since they extend between the caps and the rear side of the caps is protected by the wall 16 forming a part of the machine. Thus that part of the yarn which balloons about the caps 1 as indicated at 13, is protected by the guard plates 15, which extend almost down to the bottom of the caps 1.

However, I prefer to provide a second section to each of the guard plates 15, this section consisting of a second guard plate 17 which is mounted upon a base plate 18 carried by the traverse bar 8, since plate 18 is supported by a plurality of posts 19 which are attached to the traverse bar.

Thus, each time the traverse bar 8 raises and lowers the bobbin 7, with respect to the cap 1, plate 17 being spaced closer to the bobbin than plate 15, telescopes plates 15 as indicated in Fig.

4 where the traverse bar 8 is shown as having started its upward movement.

I prefer to form the plates 17 L-shaped in cross-section so that there will be spaced from the wall 16 a guard plate 20 as best shown in Fig. 1. The plate 20 protects the rear surface of the bobbin and being a part of the guard plate 17 moves up and down with it. I also prefer to provide a bottom wall 21 which may be cut out at 22 to permit the bottom flange 23 of the bobbin to engage the pulley 9.

With the construction above described, it will be seen that all of the yarn from the guide 12 down to the bottom of the bobbin 7 will be protected on at least three sides so that, if oil or dirt should fall upon one bobbin and should be thrown from the rapidly rotating bobbin, it would strike a portion of the shield—either shield plate 17 or shield plate 15—so that the oil or dirt would not be thrown from one bobbin to another. The shield plates 15 are primarily intended to protect the balloon 13 so that if the balloon should break, the yarn would not spread down the machine and catch in yarn ballooning about other caps as might otherwise occur.

The balloon shields above described have been designed primarily for use on cap spinning machines. However, it is obvious that such shields would be useful on machines where ring spinning is employed or would be useful on twisting machines, or other machines where yarn is laid on a bobbin by means of relatively movable parts.

Whenever a bobbin is turned at high speed for winding yarn, it is possible for dirt or oil to be spread from one bobbin to another, unless steps are taken to shield the bobbins so that this cannot occur.

It is obvious that various changes can be made without departing from my invention. While I have illustrated and described a preferred embodiment of my invention it is to be understood that this is merely illustrative of a preferred application of my invention to a known type of spinning machine and my invention is not limited to the particular type of machine shown and described, except as indicated in the appended claims.

Having thus described my invention, what I declare is new and desire to secure by Letters Patent of the United States is:

1. In a machine for winding yarn on bobbins, the combination with a frame, a plurality of yarn winding devices thereon and each including a fixed part and a relatively movable part, one of said parts supporting a bobbin, and a traverse member movably mounted on said frame and for supporting the relatively movable parts of said winding devices, of a plurality of shields on said traverse member, each shield including two adjoining side walls in angular relation for forming with one wall of an adjacent shield a three-sided compartment for each winding device.

2. In a cap spinning machine, the combination with a frame, a plurality of caps fixed to said frame, a traverse member movably mounted on said frame and reciprocating with respect to said caps, and a plurality of bobbins on said traverse member, of a plurality of shields on said traverse member, each shield including two angularly adjoining side walls for forming with one wall of an adjacent shield a three-sided compartment for each bobbin.

3. In a cap spinning machine, the combination with a frame, a plurality of caps fixed to said frame, a traverse member movably mounted on said frame and reciprocating with respect to said caps, and a plurality of bobbins on said traverse member, of a plurality of L-shaped shields on said traverse member, each shield forming with one side of an adjacent shield a three-sided compartment for each bobbin.

4. In a cap spinning machine, the combination with a frame, a plurality of caps fixed to said frame, a traverse member movably mounted on said frame and reciprocating with respect to said caps, and a plurality of bobbin assemblies on said traverse member and each including a bobbin above said member and a pulley below said member, of a plurality of shields on said traverse member, each shield including two angularly adjoining side walls for forming with one wall of an adjacent shield a three-sided compartment for each bobbin, and a plurality of base plates on said traverse member, each base plate being provided with a recess for the respective bobbin assembly and forming a bottom for said compartment above the pulley of said bobbin assembly.

STEPHEN M. BEAR.