May 26, 1953 W. C. WHITE 2,639,470

AUTOMATIC STOP DEVICE FOR CARDING MACHINES

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Fig. 1

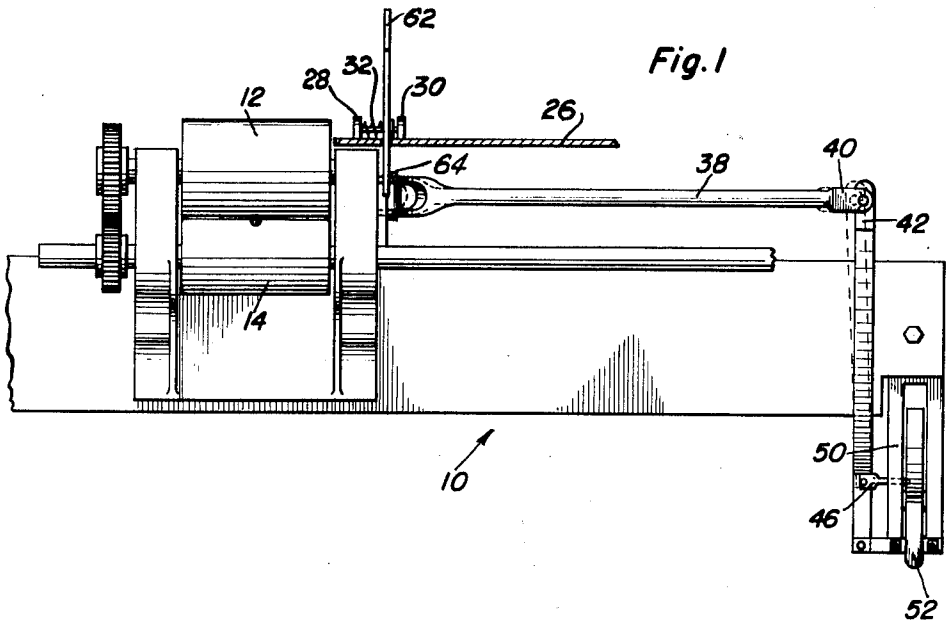
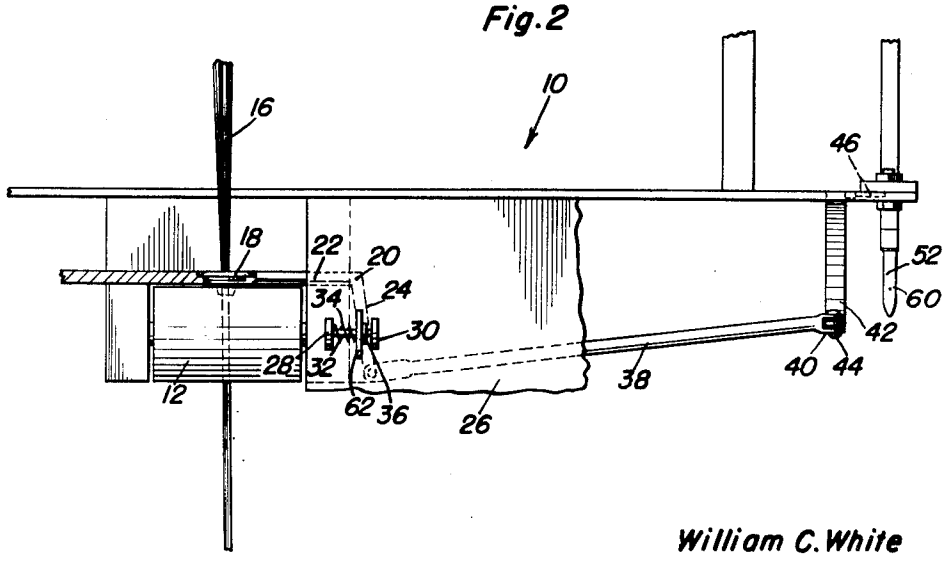


Fig. 2



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Fig. 3

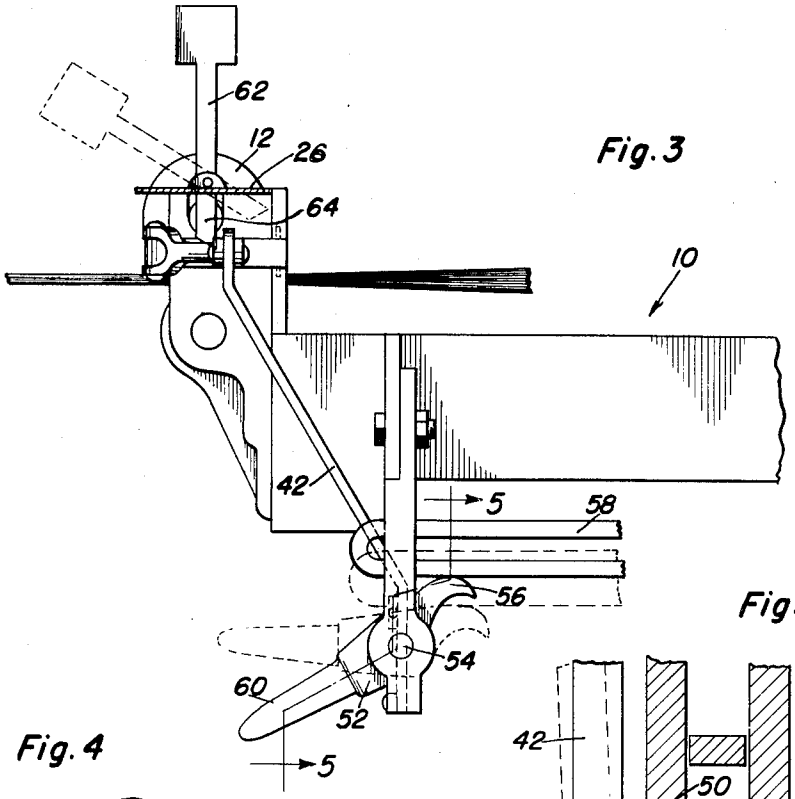


Fig. 4

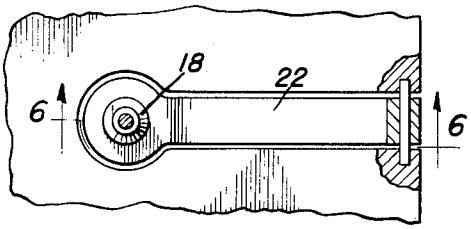


Fig. 5

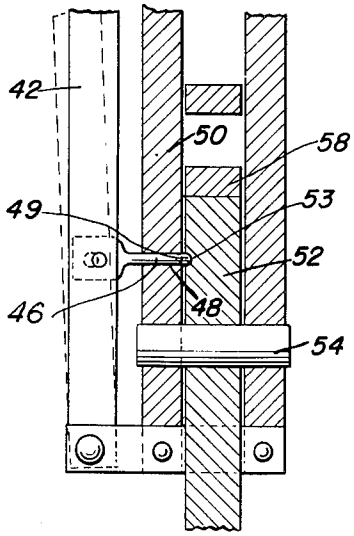
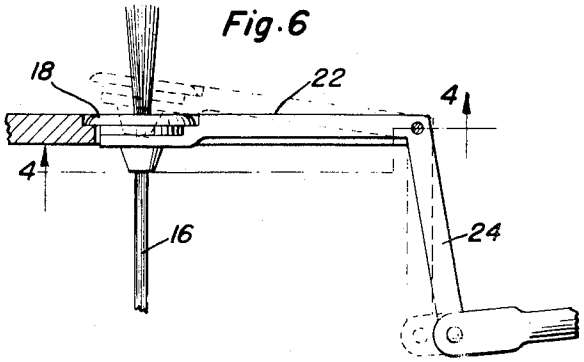


Fig. 6



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AUTOMATIC STOP DEVICE FOR CARDING MACHINES

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5 Claims. (Cl. 19—168)

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This invention relates to means for drawing cotton or other fibers, and more particularly to a stop device for stopping the machine whenever the strands of fiber which are being drawn are broken.

An object of this invention is to provide means for stopping the carding machine whenever the strand that is being drawn becomes separated on the feed side of the drawing roll.

A further object of this invention is to provide means actuated by the strands being drawn by the rolls which means is urged to another position if the strand should break thus permitting a further member to stop the machine.

Still further objects of the invention reside in the provision of an automatic stopping device for a carding machine that is strong, durable, highly efficient in operation, simple in construction and manufacture, capable of being readily and easily affixed to existing machines, and which is quite inexpensive.

These, together with the various ancillary objects of the invention which will become apparent as the following description proceeds, are attained by this automatic stop device for carding machines, a preferred embodiment of which has been illustrated by way of example only, in the accompanying drawings, wherein:

Figure 1 is an elevational view showing the automatic stop device for carding machines operatively installed on a carding machine;

Figure 2 is a top plan view of the invention;

Figure 3 is an elevational view taken at right angles to the view shown in Figure 1;

Figure 4 is a vertical sectional view as taken along line 4—4 in Figure 6;

Figure 5 is a vertical sectional view as taken along line 5—5 in Figure 3, and being shown in an enlarged scale for greater detail; and

Figure 6 is a horizontal sectional view as taken along line 6—6 in Figure 4.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 generally designates a carding machine on which the automatic stop device comprising the present invention is adapted to be installed. The carding machine includes a pair of drawing rolls 12 and 14 through which the strand is drawn.

As can be best seen in Figure 2 the strand of fiber as indicated at 16 is drawn by the rolls 12 and 14 through an aperture in a thimble member 18 which is pivotally mounted as at 20 on the carding machine. The thimble member 18 is of substantially L-shape having arms 22 and 24

Mounted on the cover 26 forming part of the conventional carding machine is a pair of members 28 and 30 having a rod 32 supported therebetween on which a coiled spring 34 coaxial

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therewith is mounted. A stop member 36 is mounted on the rod 32.

Pivotally connected to the arm 24 of the thimble member 18 is a connecting rod 38 which terminates in a bifurcated portion 40 in which one end of a connecting link 42 is pivotally secured by means of pins 44. The connecting link 42 is provided with two substantially vertical portions and a central angularly disposed connecting portion between the vertically disposed portions. A pin 46 is secured to the lower vertical portion of the connecting link 42 and extends through an aperture 48 in the bracket 50 in which a cam member 52 is pivotally mounted on shaft 54. The cam member 52 is provided with a cam supporting end 56 on which the reduction gear drop lever 58 which controls the operation of the machine rests. A handle portion 60 is also formed on the cam member 52. The pin 46 has a rounded end 49 which extends into a rounded recess 53. The strand 16 applies sufficient pressure to the thimble 18 to retain the pin 48 in the recess 53 and thus the drop gear lever 58 is held in lifted position. Hence, when the strand 16 parts, the weight of the gear drop lever 58 urges the cam member toward the position as shown in dotted lines in Figure 6 thus forcing the pin out of engagement with the cam member 52 allowing it to fall and subsequently allowing the reduction gear drop lever 58 to descend to stop the machine.

In order to permit the machine to operate before the rolls start drawing the strands through the thimble member there is provided a flag member 62 provided with a cam surface 64 which engages the arm 24. The flag is pivotally mounted on the rod 32 between the two members 28 and 30, welded to the cover 26. When the carding machine is started the flag faces in an upright position while the strand is being threaded thereby locking the tension arm 24 in the operating position or in the positions as shown in solid lines in Figure 6. When the operation of the machine has commenced, the flag is lowered manually which allows for the device to operate as is claimed heretobefore. The spring 34 urging the flag member 62 against the stop 36 improves the operation of the flag 62.

In the operation of the machine according to the invention the handle 60 is depressed to raise the cam 52 and elevate the reduction gear lever 58 to start the operation of the rolls 12 and 14. The flag 62 is then raised so that the cam surface 64 will move the arm 24 so that the link 42 will shove the pin 46 so that the end 49 thereof will engage the rounded recess 53 thereof and retain the cam 52 in elevated position. This moves the thimble 18 into normal operating position and the sliver 16 will be engaged therethrough and engaged with rolls 12 and 14. The

flag 62 will then be lowered and removing the cam surface 64 from engagement with the arm 24 so that the sliver retains the thimble in operating position as shown in Figure 2 and in solid position in Figure 6. The weight of the lever 58 on the cam 52 tends to push the pin 46 out of the rounded recess 52 and thereby tends to urge the thimble 18 to the position shown in dotted lines in Figure 6. However, the pressure applied by the sliver 16 maintains the pin 46 in relation to the bonded recess 53 so that the cam 52 is maintained in elevated position as long as the sliver maintains the pressure on the thimble 18.

It will thus be seen that as long as the sliver 16 maintains its proper size to maintain the tension on the thimble 18 the pin 46 will remain in operative position and prevent the disengagement of the reduction gear and consequently maintain the carding machine in operation.

However, since numerous modifications will readily occur to those skilled in the art after a consideration of the foregoing specification and accompanying drawings, it is not intended to limit the invention to the precise embodiment shown and described, but all suitable modifications and equivalents may be readily resorted to which fall within the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. An automatic stop device for carding machines comprising a thimble member through which fiber strands are drawn, means urging said thimble member to a first position, the strands urging said thimble member to a second position, a gear drop lever controlling the carding machine, and means operatively connected to said thimble member permitting said gear drop lever to stop the machine when said thimble member is in the first position, said last recited means including a connecting rod pivotally secured at one end to said thimble member, a connecting link pivotally connected to said connecting rod, a pin secured to said connecting link, a round end on said pin, a bracket, a cam member pivotally secured to said bracket, a rounded recess in said cam, said pin extending through said bracket and engaging the rounded recess in said cam member, said gear drop lever being supported by said cam member, said first recited means comprising the weight of said gear drop lever.

2. An automatic stop device for carding machines comprising a thimble member, said thimble member being substantially L-shaped and having an aperture therethrough through which fiber strands are drawn, means urging said thimble member to a first position, the strands urging said thimble member to a second position, a gear drop lever controlling the carding machine, and means operatively connected to said thimble member permitting said gear drop lever to stop the machine when said thimble member is in the first position, said last recited means including a connecting rod pivotally secured at one end to said thimble member, a connecting link pivotally connected to said connecting rod, a rounded pin secured to said connecting link, a bracket, a cam member pivotally secured to said bracket, a round recess in the side off said cam, said pin extending through said bracket and engaging the rounded recess in said cam member, said gear drop lever being supported by said cam member, said first recited means comprising the weight of said gear drop lever.

3. An automatic stop device for carding machines comprising a thimble member through which fiber strands are drawn, means urging said thimble member to a first position, the strands urging said thimble member to a second position, a gear drop lever controlling the carding machine, means operatively connected to said thimble member permitting said gear drop lever to stop the machine when said thimble member is in the first position, said last recited means including a connecting rod pivotally secured at one end to said thimble member, a connecting link pivotally connected to said connecting rod, a round ended pin secured to said connecting link, a bracket, a cam member pivotally secured to said bracket, a rounded recess in the side of said cam member, said pin extending through said bracket, the end of said pin engaging the recess in said cam member, said gear drop lever being supported by said cam member, said first recited means comprising the weight of said gear drop lever, and means for setting said thimble member in the second position to start said machine.

4. An automatic stop device for carding machines comprising a thimble member, said thimble member being substantially L-shaped and having an aperture therethrough through which fiber strands are drawn, means urging said thimble member to a first position, the strands urging said thimble member to a second position, a gear drop lever controlling the carding machine, means operatively connected to said thimble member permitting said gear drop lever to stop the machine when said thimble member is in the first position, said last recited means including a connecting rod pivotally secured at one end to said thimble member, a connecting link pivotally connected to said connecting rod, a pin pivotally secured to said connecting link, a bracket, a cam member pivotally secured to said bracket, said pin extending through said bracket engaging said cam member, said gear drop lever being supported by said cam member, said first recited means comprising the weight of said gear drop lever, and means for setting said thimble member in the second position to start said machine.

5. An automatic stop device for a carding machine comprising a trumpet member pivotally mounted on said machine, fiber slivers passing through said trumpet member, a gear drop lever controlling the operation of said machine, a cam member supporting said lever, a bracket supporting said cam member, a pin slidably mounted in said bracket, said pin engaging said cam to retain it in operative position, a link member extending between said trumpet member and said pin, said sliver applying pressure to said trumpet member to maintain said pin in operative relation to said cam.

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