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APPARATUS FOR AUTOMATICALLY STOPPING TEXTILE MACHINES

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Fig. 1

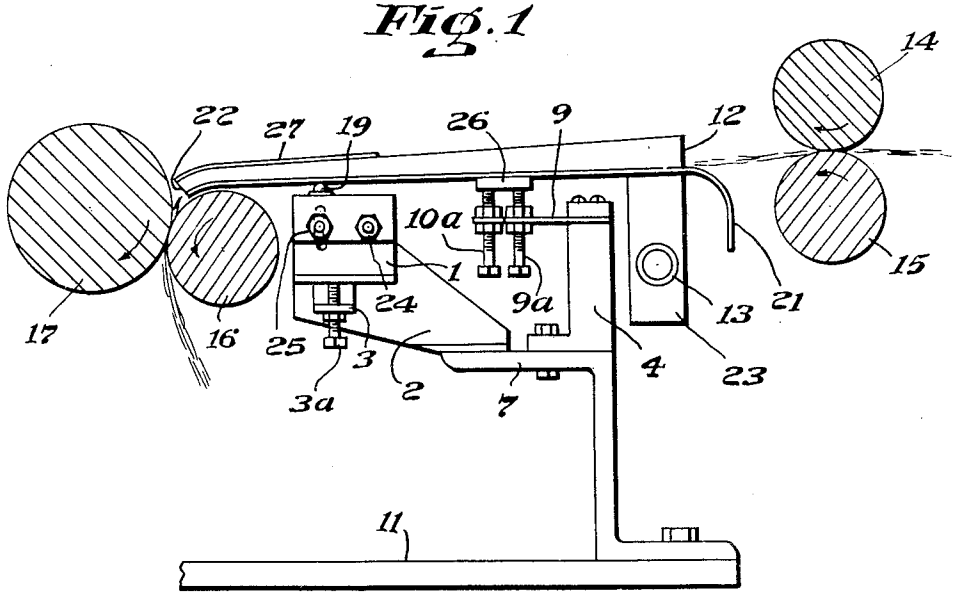
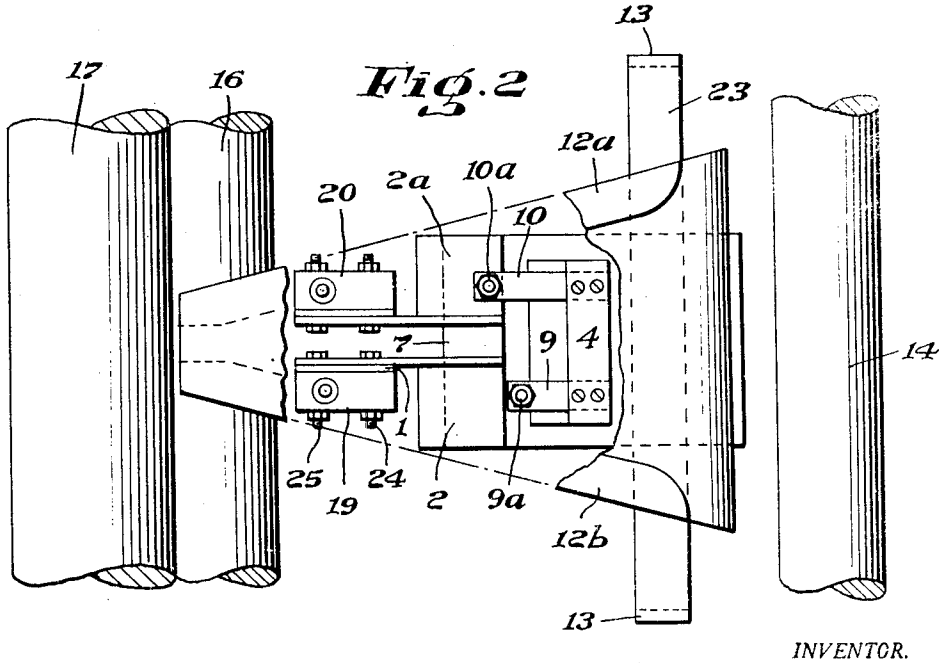


Fig. 2



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APPARATUS FOR AUTOMATICALLY STOPPING TEXTILE MACHINES

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2 Claims. (Cl. 19—168)

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This invention relates to an apparatus for automatically stopping a textile machine to prevent unevennesses in the material delivered to such machine and damage to its parts.

The operation of many textile machines requires that the material delivered by such machines be continuous and of uniform weight and that the material delivered by them shall not be allowed to build up into bunches or "laps" on the rolls of the machine. Such "laps" cause unevenness in the material delivered and often damage the rolls and their bearings.

The principal object of this invention is to provide a very sensitive mechanism to stop the rolls when "laps" begin to form and when the material being delivered is either above or below the predetermined standard of weight per unit length.

Another object is to prevent large bunches of fibers, or any other foreign material above a predetermined weight or size, from being delivered by the rolls to the machine which is to receive the material.

In the drawing Fig. 1 is an elevation and Fig. 2 is a plan view.

In the application of the invention shown, the stop motion device is positioned between the pair of delivery rolls 14 and 15, of which 15 is the driving roll driven by a motor, and the pair of rolls 16 and 17, which may be calender rolls to deliver the material as desired, roll 16 being driven from roll 15, so that when roll 15 is stopped all the rolls are stopped.

The material is delivered in sheet form to the pivoted trough 12, which has a thin curved bottom 21, a top plate 27 and tapered and curved sides 12a and 12b. To the bottom of this trough is fastened a hardened metal plate 26 and the receiving end of the trough is provided with depending arms 23 which are mounted in anti-friction bearings 13 in uprights on the frame of the machine so that the trough may pivot easily about the bearings 13. The mouth 22 of the trough delivers the material to the rolls 16 and 17. The end of the top plate is close to the roll 17.

The trough is supported by screws 9a and 10a which are mounted on flat springs 9 and 10 which are fastened to a block 4 which is bolted to a bracket 7 secured to the bottom plate 11. Spring 9 is shorter and stiffer than spring 10. The springs have holes near their ends through which the screws 9a and 10a pass and are held in adjusted positions by nuts. The ends of the screws bear against the bottom of plate 26. The screw 9a is so adjusted in the spring 9 that the delivery end of the trough is held a predetermined short

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distance above the roll 16. The screw 10a is adjusted, after the machine is in operation and the material flowing through the trough, so that the trough is balanced in its predetermined position with its delivery end slightly above roll 16, and with the plate 26 just touching the end of screw 9a.

A switch 19 is carried on a bracket 1 which is bolted to a plate 2 fastened to an arm of the bracket 7. The bracket 1 is pivoted at 24 and its outer end, secured to the plate 2 at 25, is vertically adjustable by a screw bolt 3a threaded in a bracket 3 attached to the plate 2. The switch has a button which is pressed upward by a spring in the switch so that the switch is normally open. When the button is depressed by the depression of the delivery end of the trough, the contact is made and the circuit is closed whereby a relay is energized which stops the motor driving the roll 15 thereby stopping the rolls 15, 14, 16 and 17.

A similar bracket carries a switch 20 which is mounted on, and adjusted by, means similar to those used with switch 19. Switch 20 has a button which is spring pressed against the bottom of the delivery end of the trough and, when the trough is in normal operating position, the button is depressed by the trough so that the switch contact is open. When the delivery end of the trough rises, the spring in the switch raises the button and closes the contact and the circuit thereby operating the relay to stop the motor which drives the roll 15.

Thus, if the delivery end of the trough is either raised or depressed from its normal operating position, one of the swtiches, 19 or 20, is closed so as to stop the rolls and the delivery of the material.

In operation the material is delivered by the rolls 14 and 15, passes through the trough 12 and into the nip of rolls 16 and 17. Preferably there is a slight tension draft between the rolls 16 and 17 and the rolls 14 and 15.

If the weight of the material in the trough is materially less than the normal operating amount, the delivery end of the trough will be raised by the spring 10 and close the contact in the switch 20 to stop the rolls. Such decrease in the weight of the material in the trough may be caused by a deficiency of material or by the material lapping around roll 14 or around roll 15. Also a lap on roll 16 will raise the delivery end of the trough and close the switch 20 to stop the rolls.

When the delivery end of the trough is de-

pressed against the pressure of the springs 9 and 10, the switch 19 is closed to stop the roll. Such depression may be caused by an excess of weight of the material in the trough, or by a lap on roll 17, pressing down the end of plate 27, or by an object too large to pass readily through the mouth of the trough, which would cause an increased force to be exerted on the material by the pull of the rolls 16 and 17. The strong spring 9 provides a stiff but yielding support for the weight of the trough, the weight of the material and the pull of the rolls 16 and 17.

I claim:

1. An apparatus to stop a textile machine which comprises a trough adapted to receive the textile material and pivoted at its receiving end, means to support said trough in normal operating position said means consisting of two screws each adjustably mounted on a flat spring secured to the frame of the apparatus, one of the springs being more resilient than the other, whereby the trough may be balanced in normal position when the material is passing through it, a switch the contact of which is closed when the delivery end of the trough is depressed below said normal position and a switch the contact of which is closed when the delivery end of the trough is raised above said normal position.

2. An apparatus to stop a textile machine which comprises a trough adapted to receive, conduct and deliver the textile material, a pivot supporting the receiving end of said trough, feeding means to feed said material to said trough, means to support said trough in normal operating position said means consisting of a screw adjustably mounted on a flat spring secured to the frame of the apparatus and bearing against the bottom of said trough, whereby the trough may be balanced in normal position when the material is passing through it, a switch adapted to close an electric circuit when the delivery end of the trough is depressed below said normal position, a switch adapted to close an electric circuit when the delivery end of the trough is raised above said normal position, whereby the closing of either of said circuits stops said feeding means, and a stiffly resilient support adapted to support said trough when said trough is depressed below the position in which said first named switch is closed.

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No references cited.