April 23, 1946. W. J. SCOTT 2,399,148

STOP MOTION FOR DRAWING FRAMES

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Fig. 1.

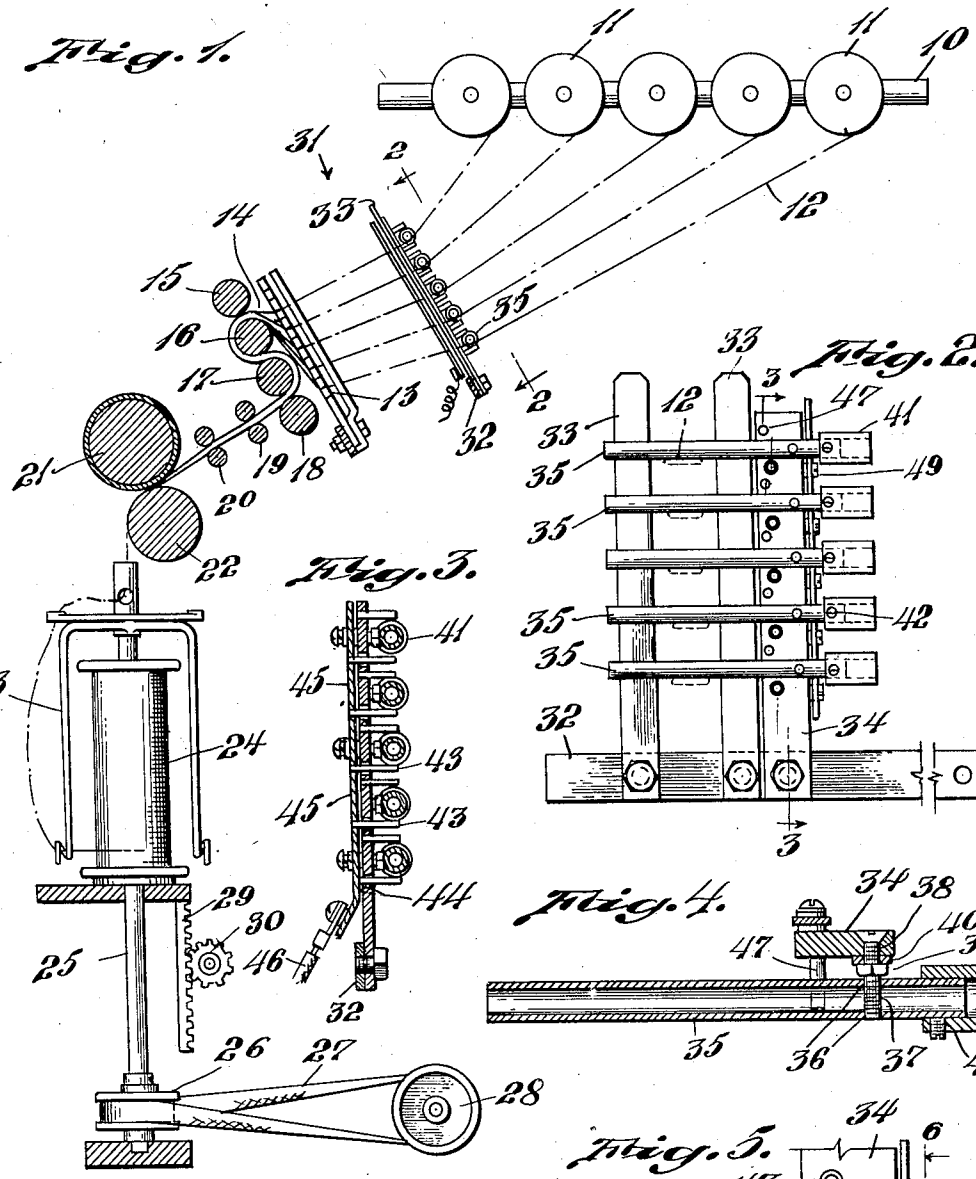


Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

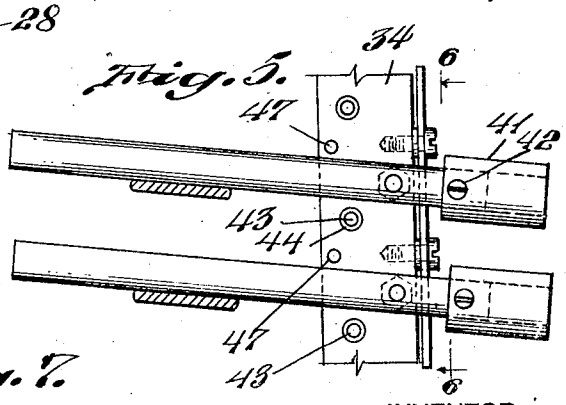


Fig. 6.

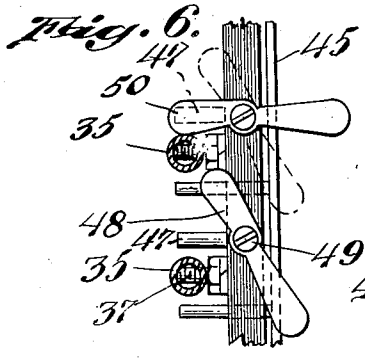
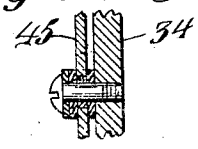


Fig. 7.



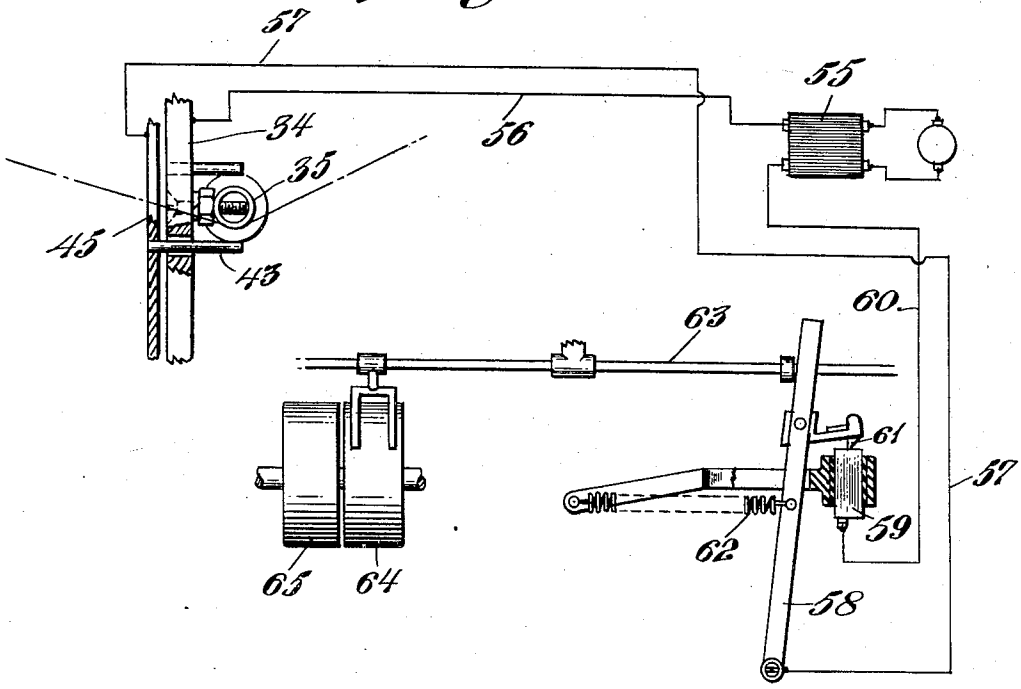
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Fig. 8.



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STOP MOTION FOR DRAWING FRAMES

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Application April 27, 1944, Serial No. 532,971

10 Claims. (Cl. 57—81)

This invention relates to an electric stop motion for a drawing frame. In the use of a stop motion for individual slivers which go to make up a single end in the drawing frame, one sliver is apt to be supported on the other in the arrangement shown in my Patent 1,722,769, while in the showing in my Patent 1,848,667 a sliver must run completely through the guide for the stop motion to operate which makes piecing up difficult.

One of the objects of this invention is to provide an individual control for each of the slivers between the supply source and the drafting rolls which will operate at once upon the sliver being severed even though severed adjacent the supply package.

Another object of this invention is to provide a feeler arm to be held out of engagement with the electric closing circuit contact by the sliver so that should the sliver be ruptured or break or the tension becomes slack the arm will move into electric circuit closing position.

Another object of this invention is to so position the stop motion that the machine may be brought to rest prior to the sliver running to the drafting rolls so that the broken end may be more readily pieced up.

Another object of the invention is to provide a more simple and yet more positive pivotal mounting for the member which engages the sliver and rocks upon the sliver being broken or slackened.

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 drawings:

Fig. 1 is a diagrammatic view partly in section illustrating the sliver from the supply package passing through the drafting rolls and being twisted and packaged on a spindle;

Fig. 2 is a view looking substantially on line 2—2 of Fig. 1;

Fig. 3 is a section on substantially line 3—3 of Fig. 2;

Fig. 4 is a sectional view through one of the contact feeler arms;

Fig. 5 is a view of a fragmental portion of the showing in Fig. 2 on a much larger scale;

Fig. 6 is a sectional view on substantially line 6—6 of Fig. 5;

Fig. 7 is a sectional view illustrating the mounting of one of the electrical circuit members showing it insulated from a mounting frame; and

Fig. 8 is a diagrammatic view illustrating the wiring of the electric stop motion.

In proceeding with this invention, I mount between the sliver supply packages and the sliver guide adjacent the drafting rolls a device having a contact feeler arm for each individual sliver. The arrangement is such that each feeler arm tends to swing by gravity toward a contact but is held therefrom by resting upon the sliver. Thus should a sliver break adjacent the supply package the sliver quickly falls away from the feeler arm permitting it to drop immediately to stop the machine and leave a long end of sliver for piecing up and continuing operation.

With reference to the drawings more specifically I have illustrated a creel 10 having a plurality of sliver supply packages 11 mounted thereon. The sliver ends 12 extend from each of these packages 11 through a guide opening or notch 13 and thence a plurality of slivers are grouped together as at 14 and extend through the rolls 15, 16, 17, and 18, thence through the carrier rolls 19 and 20 to the delivery roll 21 of the drafting device. The yarn is then conducted by the flyer 23, to be twisted and packaged as at 24 on the package which is rotated by the spindle 25, driven by the pulley 26 and belt 27 from the driving drum 28. Traverse may be had by means of the rack and gear 29 and 30.

The device which forms the subject of this invention is a stop motion designated generally 31 and located, as shown in Fig. 1, between the supply packages 11 and the guide just back of the drafting rolls comprising the series of notches 13. This stop motion consists of a frame having a horizontal mounting bar 32 and upstanding guide bars 33 between which each sliver 12 passes. An upstanding support 34 pivotally mounts a plurality of contact feeler arms 35, each arm being provided with a threaded opening 36 for the reception of a threaded bolt 37 therein. This threaded arrangement provides a unique and simple mounting for the arm 35 in a pivotal manner. The bolt itself extends through an opening 38 in a support 34 and is held in position by a nut 39 and washer 40. The threads of the member 37 prevent lateral movement of the arm 35 except in so far as allowed by the rocking movement of the arm on the member 37. The rocking movement and lateral movement caused by the threads keep a clean electrical contact at all times and provide a very effective electrical connection to each of the feeler arms. The support 34 is of metal as are

the feeler arms and consequently this may be considered the ground side of an electric circuit.

A weight 41 is adjustably held by the set screw 42 on the arm 35 at one side of the pivot. The arrangement which I have shown, as in Figs. 2 and 5, is such that the arm on the side of the pivot away from the weight is heavier than the arm with the weight on the side of the pivot so that the unweighted arm tends to move downwardly to engage a contact pin 43 which extends through the bar upright support 34 in spaced relation to the support 34 (see Fig. 8), the opening through which it extends 44 being of a size larger than the contact pin 43. The contact pin 43 extends through this opening from a bar 45 which is connected by the wire 46 in an electrical circuit. A plurality of these contacts 43 extends through support 34 from bus bar 45 as shown clearly in Fig. 3, there being one of these contacts for each of the arms 35 which are arranged in vertical superposed relation. A stop 47 extends outwardly from the support 34 on the opposite side of the arm 35 from the contact (see Figs. 2 and 5) and would limit the upward movement of the arm 35 by reason of this stop.

If it is desired to hold any one of the arms away from its contact 43 this may be accomplished by reason of the lever 48, (see Fig. 6), pivoted as at 49 on the bar 34 in a manner so that there is sufficient friction to maintain this lever in any adjusted position. Thus, the lever may be swung from the position shown at the lower part of Fig. 6 to the position shown at the upper part of Fig. 6 so that its arm 50 will engage the feeler contact arm 35 pressing it downwardly so as to move the feeler contact toward or against the stop 47 and hold it from contact position.

Should one of the slivers 12 break adjacent the package 11 the feeler arm 35 would immediately drop to engage the contact pin 43. An electric circuit is thus established such as shown in Fig. 8 from the electrical supply 55 through the line 56 to the frame 34, thence through metallic parts, including each of the feeler contact arms 35, thence to the live contact 43, thence to bus bar 45, and wire 46 and by line 57 to a metallic connection through the lever 58 to the electromagnet 59, thence back by line 60 to the supply 55. Thus, the electromagnet 59 is energized which tips the latch 61 carried by the lever 58 to permit the spring 62 to move the lever and shift the rod 63 to move the belt from the tight pulley 64 to the loose pulley 65 and stop the machine.

Should it so happen that only four of the five slivers were desired to provide an end, then one of the arms 35 would be locked in inoperative position by shifting the lever 48 in the position shown in Fig. 6 and the other arms would function in a normal manner.

I claim:

1. An electric stop motion for a drawing frame comprising an electric circuit, draft rolls, a set of a plurality of sliver supply sources for supplying a composite end to said draft rolls, guides positioned adjacent said draft rolls on the side thereof nearest said supply sources for guiding said slivers in spaced relation from each source to said rolls, a support separate of said guides positioned at a location between said guides and supply sources, elongated contact feeler arms one for each sliver pivotally mounted on said support on the side thereof nearest said supply sources and each weighted to swing in a plane extending substantially vertically to close said electric circuit but held from such closing position by resting against a normally tensioned sliver whereby upon slackening of a sliver the arm will swing to close said circuit and means responsive to the closing of said circuit for arresting the drawing of said end.

2. An electric stop motion for a drawing frame comprising an electric circuit, draft rolls, a set of a plurality of sliver supply sources for supplying a composite end to said draft rolls, guides positioned adjacent said draft rolls on the side thereof nearest said supply sources for guiding said slivers in spaced relation from each source to said rolls, a support separate of said guides positioned at a location between said guides and supply sources and beneath said supply sources, elongated counterbalanced contact feeler arms, one for each sliver, pivotally mounted on said support on the side thereof nearest said supply sources and each weighted to swing in a plane extending substantially parallel to said support to swing to close said electric circuit but held from such closing position by resting against a normally tensioned sliver whereby upon slackening of a sliver the arm will swing to close said circuit and means responsive to the closing of said circuit for arresting the drawing of said end.

3. An electric stop motion as set forth in claim 1 wherein individual means are provided to hold each contact arm inoperative.

4. An electric stop motion as set forth in claim 1 wherein a stop is located adjacent each contact arm to limit movement of the arm in a direction away from circuit closing position.

5. An electric stop motion as set forth in claim 1 wherein a stop is located adjacent each contact arm to limit movement of the arm in a direction away from circuit closing position and means are provided to hold each arm against its stop.

6. An electric stop motion as set forth in claim 2 wherein individual means are provided to hold each contact arm inoperative.

7. An electric stop motion as set forth in claim 2 wherein a stop is located adjacent each contact arm to limit the movement of the arm in a direction away from circuit closing position.

8. An electric stop motion as set forth in claim 2 wherein a stop is located adjacent each contact arm to limit the movement of the arm in a direction away from circuit closing position, and means are provided to hold each arm against its stop.

9. In an electric stop motion for a drawing frame, an electric circuit, a contact feeler arm for closing said circuit, means to pivotally mount said arm comprising an opening in said arm and a member extending into said opening, said opening and member having interengaging threads.

10. In an electric stop motion for a drawing frame, an electric circuit, a contact feeler arm for closing said circuit, said arm having a threaded opening, and a threaded mounting member in said opening engaging said threads sufficiently loosely for pivotally mounting said arm.

WALTER J. SCOTT.