

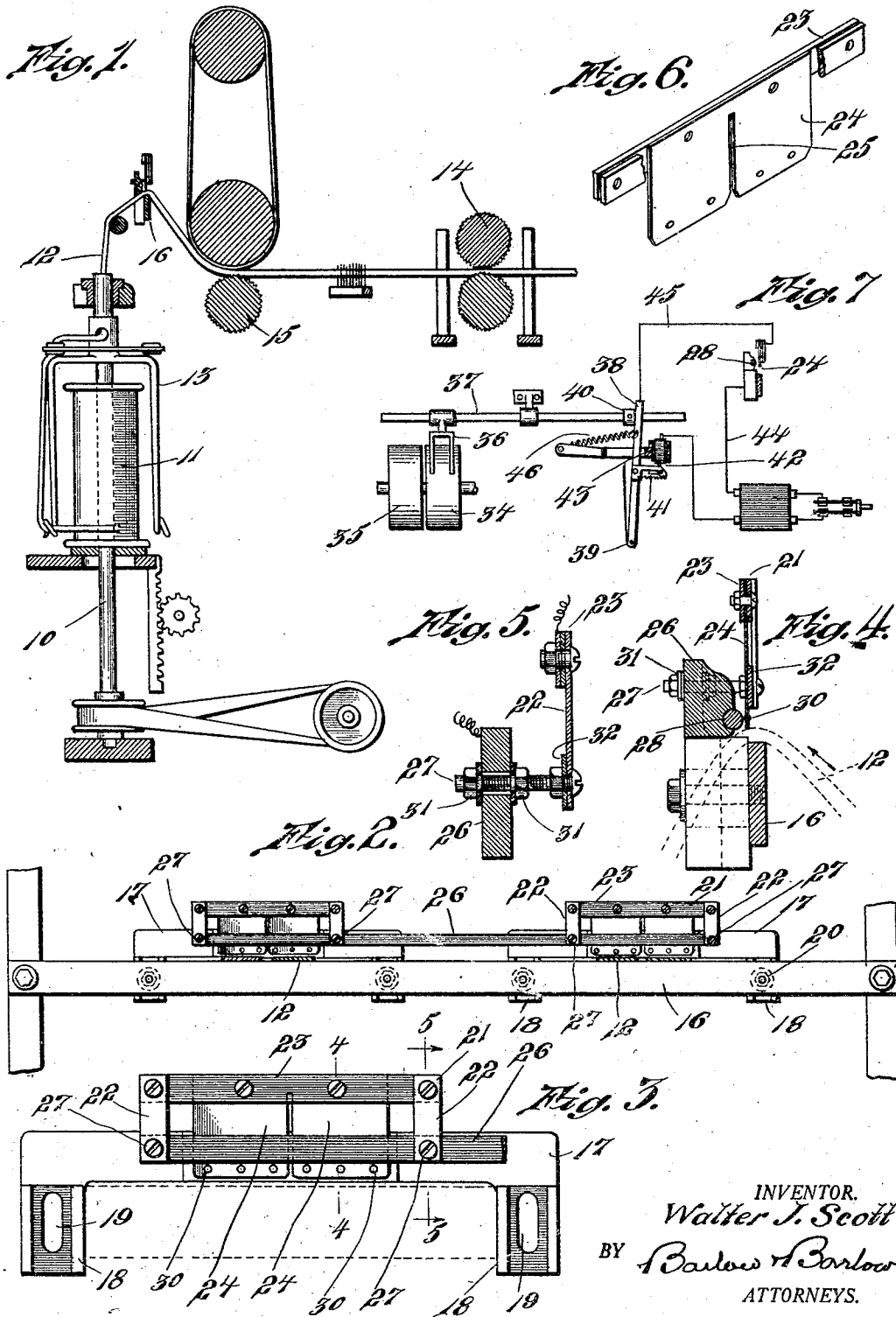
March 7, 1933.

W. J. SCOTT

1,900,400

STOP MOTION FOR GILL BOXES

Filed May 29, 1930



INVENTOR.
Walter J. Scott
BY Barlow & Barlow
ATTORNEYS.

UNITED STATES PATENT OFFICE

WALTER J. SCOTT, OF WOONSOCKET, RHODE ISLAND

STOP MOTION FOR GILL BOXES

Application filed May 29, 1930. Serial No. 458,291.

The present invention relates to stop motions for textile machinery; and has particular reference to an electrically operated stop device applied to drawing frames and the like.

One object of this invention is to provide a feeler member which will operate to stop the machine when the traveling sliver becomes abnormally thickened.

Another object of the invention is to so mount a stop motion on the machine that the feeler member thereof will extend into proximity with the traveling sliver so that a slug or imperfection in the sliver or undue enlargement thereof will operate this stop motion to close an electric circuit and stop the machine.

A further object of the invention is to provide a guide bar over which the sliver is drawn and to mount a plurality of flexible fingers so that their free ends will be spaced a predetermined distance from this guide bar and to also provide a contact bar adjacent these feeler fingers whereby a slug in the sliver or other abnormal thickening of the sliver in traveling over the guide bar will engage the finger to be moved against the contact bar to complete the electric circuit and stop the machine.

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 drawing:

Fig. 1 is a side elevation partly in section illustrating the traveling sliver as passing thru my improved stop mechanism on its way from the draft rolls to the winding spool.

Fig. 2 is a front view showing two sets of feeler fingers as mounted adjacent their common contact bar and their common guiding cross bar with the slivers in section as passing under the fingers.

Fig. 3 is an enlarged view of one of the sets of fingers mounted on that portion of the frame which is adapted to be vertically adjusted to raise or lower the contact fingers relative to the sliver guiding cross bar.

Fig. 4 is an enlarged section on line 4—4 of Fig. 3, showing the travel of the sliver over the guiding bar and beneath the delicately poised feeler fingers which are spaced from their contact bar.

Fig. 5 is a section on line 5—5 of Fig. 3, showing the construction of that portion of the frame whereby the feeler finger may be adjusted towards and from the contact bar.

Fig. 6 is a detail showing a pair of feeler fingers as formed from a single piece of thin sheet stock with the electrical contact buttons positioned at their free ends.

Fig. 7 is a diagrammatic view of the electrically controlled mechanism showing the solenoid which is operated when the feeler finger is moved into engagement with its contact bar to complete an electric circuit and energize the solenoid to release the belt shifting mechanism.

It is found in the practical operation of drawing frames, more particularly gill boxes, that often times a slug or imperfection will be lodged in the traveling sliver which detrimentally affects its quality and should be removed; and to effect such removal, I have positioned a stop mechanism arranged to be operated by any abnormal thickness in the traveling sliver to stop the machine, the attendant then removes the imperfection and starts the machine again. This stop device comprises essentially a plurality of delicately poised flexible fingers which are set with their free ends spaced a predetermined distance from the guide bar over which the sliver travels so that any abnormal thickening of the sliver, either from slugs or other imperfections, will cause this thickened portion to engage the free ends of these feeler fingers and move the same into engagement with the contact bar to close an electric circuit and stop the machine; and the following is a detailed description of the present embodiment of my invention and showing one arrangement of mechanism by which these advantageous results may be accomplished:—

With reference to the drawing, 10 designates the rotating spindle which carries the winding spool 11 on which the treated sliver

12 is wound by the flyer 13, after this sliver has passed thru the two sets of draft rolls 14 and 15. At times this sliver becomes thickened for various reasons and in some instances imperfections such as slugs and the like are lodged in the sliver, which imperfections it is desired to correct or remove before the sliver leaves this machine; and to accomplish this in a simple and effective way, I have provided an electric circuit in which I have mounted a stop motion, the same comprising essentially an elongated sliver guide bar 16 which is located between the draft rolls and the spindle over which bar the sliver is run.

On this bar I have mounted a frame member 17 which is provided with downwardly extending legs 18 slotted as at 19 thru which the same is secured to the bar 16 by means of bolts 20 and by which construction this frame may be adjusted vertically relative to this bar 16.

On this guide bar 16, I have mounted an auxiliary frame 21 which comprises a pair of end standards 22 connected by a pair of spaced cross bars 23 between which is mounted a very thin finger plate 24 split as at 25 to render the fingers more flexible. Also, I have mounted a contact bar 26 which is supported at its ends from the frames 17 by bolts 27, which contact bar is provided with a contact strip 28 of carbon or the like, see Fig. 4.

These feeler fingers 24 which are mounted in this auxiliary frame 21 are arranged to extend downwardly from their attached upper edges and are provided with contact buttons 30 of silver, platinum or the like positioned so that they will come opposite this carbon strip 28 and the space between this bar 28 and these buttons 30 may be regulated by adjusting the nuts 31 on the bolt 27, whereby the whole auxiliary frame 21 may be moved towards or from the cross bar 26.

In this auxiliary frame, I have also mounted a backing bar 32 against which these delicate feeler fingers 24 normally rest.

In the operation of the machine the sliver 12 passes from the draft rolls up over the guide bar 16 and so long as it runs of a normal thickness it is clear of the feeler fingers 24, but if for any reason the sliver becomes abnormally thickened or a slug or other imperfection becomes lodged in the sliver this abnormally thickened portion will engage the free end of one or more of the feeler fingers and move them forwardly so that their contact buttons 30 will come into engagement with the contact strip 28 to close the electric circuit and stop the machine.

Any suitable mechanism may be employed in the stopping of the machine, but I have herein shown one method of performing this function which is that of a tight pulley 34 and a loose pulley 35, a belt-engaging fork

36 which is mounted on the shift rod 37 which may be moved endwise to shift the belt from one pulley to another. I have also provided a lever 38 which is pivoted at 39 at its lower end, its upper end being in engagement with the collar 40 on this shift rod. This lever is provided with a latch 41 which engages a finger 42 in the solenoid 43 whereby when the feeler finger 24 is engaged by an enlargement in the traveling sliver, it is moved into engagement with the contact strip 28 to close the circuit thru the wires 44 and 45 to energize the solenoid 43 to move and release the latch 41 permitting the lever 38 under action of its tension spring 46 to move the shift rod 37 and shift the belt from the tight to the loose pulley to stop the machine.

My improved stop mechanism is very simple and inexpensive in construction and is effective in its operation as the delicately poised fingers which are supported in proximity to the upper surface of the traveling sliver will be engaged by an abnormal thickness, imperfection or slug in the sliver to be moved into engagement with the contact member in the electric circuit, which will serve to energize the electric device to stop the 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 gill box, draft rolls acting upon the sliver as fed therethrough, means for receiving the treated sliver, stop mechanism intermediate said rolls and receiving means, said stop mechanism including a plurality of flexible feeler members rigidly secured at one end with their free ends independently movable and extending to a position adjacent the traveling sliver, a contact member normally spaced from said feeler members, whereby an abnormally thickened portion in the sliver will engage and move the free end of one of said feeler member into engagement with said contact member to complete an electric circuit and stop the machine.

2. In a gill box, draft rolls acting upon the sliver as fed therethrough, means for receiving the treated sliver, stop mechanism intermediate said rolls and receiving means, said stop mechanism including a plurality of flexible feeler members rigidly secured at one end with their free ends independently movable and extending to a position adjacent the traveling sliver, a contact member normally spaced from said feeler members, whereby an abnormally thickened portion in the sliver will engage and move the free end of one of said fingers into engagement with said contact member to complete an electric circuit and

stop the machine, and means whereby the working position of said feeler members may be adjusted toward and from said contact member.

5 3. In a gill box, draft rolls acting upon the sliver as fed therethrough, means for receiving the treated sliver, stop mechanism intermediate said rolls and receiving means, said
10 stop mechanism including a guide bar over which the sliver is led, a plurality of flexible fingers rigidly secured at one end with their free ends extending adjacent said guide bar, a contact member normally spaced from said
15 feeler member, whereby the thickening of the traveling sliver as it passes over said guide bar will engage and move the free ends of said fingers to complete an electric circuit and stop the machine.

4. In a gill box, draft rolls acting upon the
20 sliver as fed therethrough, means for receiving the treated sliver, stop mechanism intermediate said rolls and receiving means, said stop mechanism including a guide bar over which the sliver is led, a plurality of flexible
25 fingers rigidly secured at one end with their free ends extending adjacent said guide bar, a contact member normally spaced from said feeler member, whereby the thickening of the traveling sliver as it passes over said guide
30 bar will engage and move the free ends of said fingers to complete an electric circuit and stop the machine, and adjustable means for regulating the working distance between the free ends of said feeler fingers and the
35 sliver guiding edge of said guide bar.

5. In a gill box, sliver draft rolls acting upon the sliver as led therethrough, means for receiving the treated sliver, stop mechanism intermediate said rolls and receiving
40 means including a frame, flexible fingers rigidly secured at one end on said frame, an electrical contact bar, a sliver guide bar, the free ends of said fingers being positioned adjacent said electrical contact bar, and said
45 sliver guide bar and normally spaced from both, whereby an abnormal thickness in the traveling sliver over said guide bar will engage and bend said fingers into engagement with said contact bar to complete an elec-
50 trical circuit thru said bar and stop the machine, means for adjusting portions of said frame to position the working edges of said fingers relative to said sliver guide bar, and means for adjusting other portions of said
55 frame to position said finger edges relative to said contact bar.

6. In a drafting machine, a stop mechanism including a plurality of flexible feeler mem-
60 bers rigidly supported at one end with their free ends independently movable, a contact member normally spaced from said feeler members but positioned to be engaged by the passage of an abnormal enlargement in the yarn during this normal continuous travel
65 of the work to move the free ends of the feeler

members into engagement with said contact member, and an electric circuit connected to said contact member and feeler members.

7. In a drafting machine, a guide over which the yarn travels, a stop mechanism
70 including a plurality of flexible feeler members rigidly supported at one end with their free ends independently movable and spaced from said guide a predetermined distance to
75 accommodate the normal thickness of the work, a contact member spaced from but adjacent said feeler members to be engaged by said members upon an abnormal condition of the work moving the members into engagement
80 therewith and an electric circuit connected to said contact member and feeler members.

In testimony whereof I affix my signature.

WALTER J. SCOTT.

85

90

95

100

105

110

115

120

125

130