Feb. 5, 1935. W. J. SCOTT 1,989,947

STOP MOTION FOR A GILL BOX

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Fig. 1.

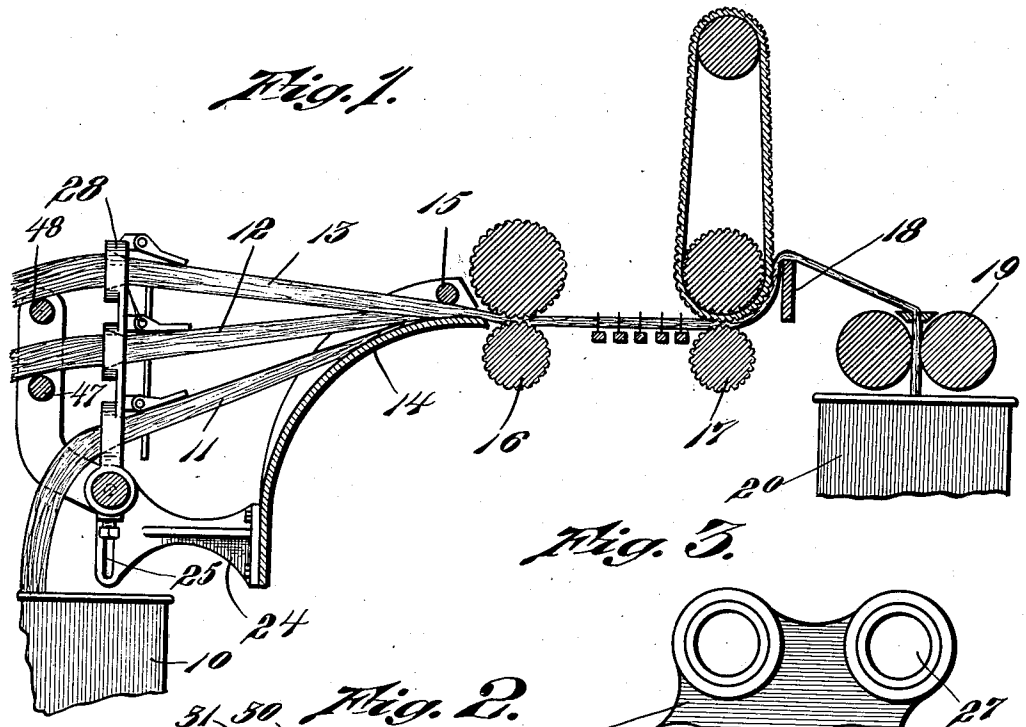


Fig. 3.

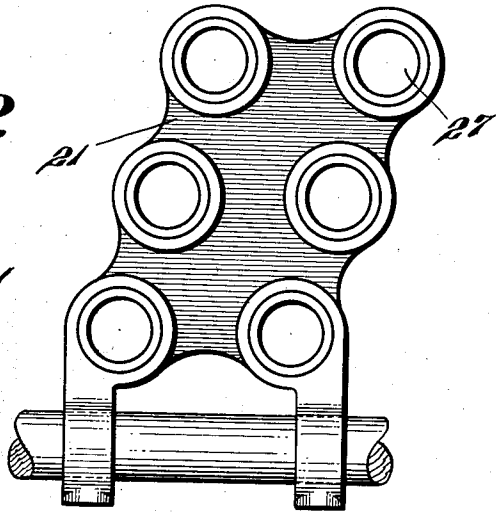


Fig. 2.

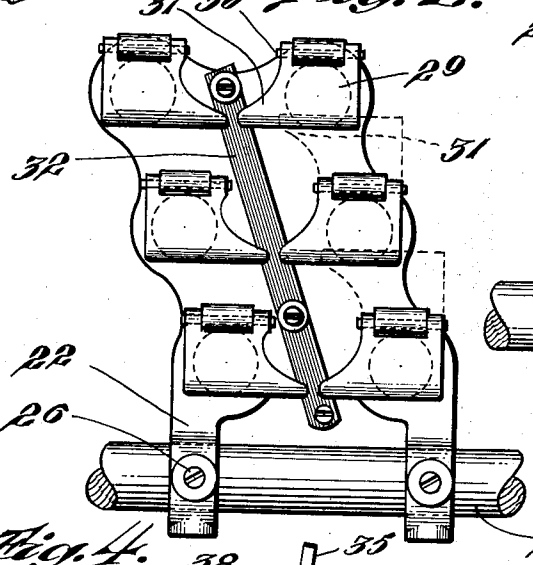
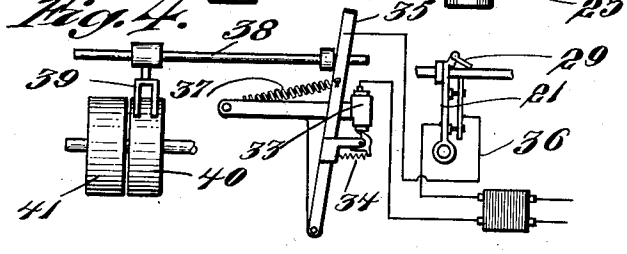


Fig. 4.



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Fig. 5.

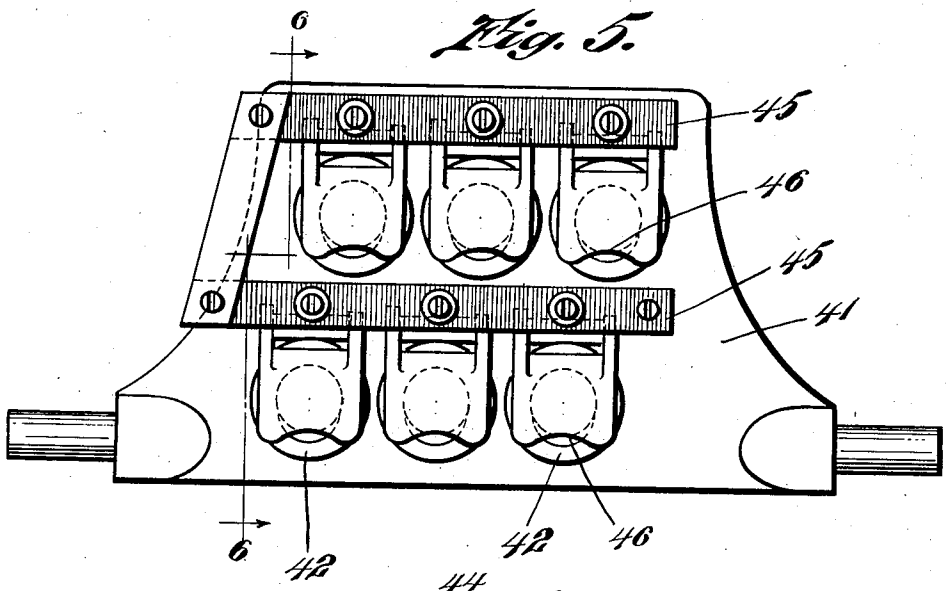
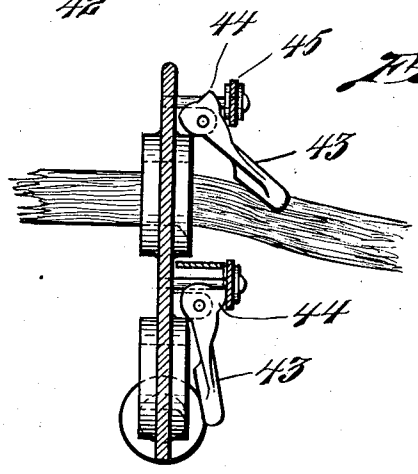


Fig. 6.



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STOP MOTION FOR A GILL BOX

Walter J. Scott, Woonsocket, R. I.

Application June 13, 1931, Serial No. 544,081

4 Claims. (Cl. 19—165)

This invention relates to a stop motion for a gill box, and is a continuation in part of my copending application, Ser. No. 458,292, filed May 29, 1930.

An object of this invention is to provide an electrical stop motion which will operate whenever the sliver breaks or is reduced appreciably in size from normal and which at the same time will position the strands of sliver as desired between the draft rolls.

Another object of the invention is a provision of a combined stop motion and guide for directing the slivers side by side in a parallel arrangement between the draft rolls.

A further object of the invention is a provision of means whereby the feeler members for causing contact for stopping the machine may be easily removed from engaging position so that a fewer number of sliver ends may be operated or those remaining on the spindle which have not run out may continue.

A still further object of the invention is to prevent the slivers from jamming as fed to the stop motion from the supply cam.

With these and other objects and advantageous features in view, the invention consists of a novel arrangement of parts more fully disclosed in the detailed description following, in conjunction with the accompanying drawings, and more particularly set forth in the appended claims.

Fig. 1 is a view partly in section illustrating the travel of the slivers and the general arrangement of my stop device relative to the operating mechanism.

Fig. 2 is a front view showing one of my stop plates as applied to one form of drawing frame.

Fig. 3 is a rear view of the plate shown in Fig. 2.

Fig. 4 is a diagrammatic view illustrating the electrical connection for stopping the machine when one of the feeler members drops into engagement with its contact.

Fig. 5 is a front view of a modified form of stop plate; and

Fig. 6 is a section on line 6—6 of Fig. 5 with one strand of sliver extending therethrough.

It is found in the operation of gill boxes or other drawing frames that where a plurality of sliver, tops or ends, (say six, more or less) are led from cans or other supply source to a set of draft rolls to be blended together into a single sheet and then delivered to a receiving can or otherwise accumulated upon a spool or other means that slivers when arranged as illustrated in my above referred to application, may pile one on top of the other and in order to avoid such undesirable result I have arranged the guides for the slivers so that the slivers will be positioned between the draft rolls one beside the other in a horizontal plane, which arrangement also permits me to remove the feeler members or gates by swinging them upwardly about their horizontal axis when the contact bar is arranged to one side of the guide to lay against the plate itself and prevent contact with the contact bar when in raised position which is an improvement over my copending above referred to application. I also provide a support and guide for the sliver before entering the stop motion guide plate which will prevent the slivers at different horizontal levels from jamming; and the following is a detailed description of the present embodiment of this invention illustrating the preferred means by which these advantageous results may be accomplished:—

With reference to the drawings, 10 designates one of the supply cans from which the sliver 11 is drawn while the slivers 12 and 13 are drawn from similar cans not illustrated over the guide apron 14 and beneath the bar 15 to pass between draft rolls 16 and 17 and then over bar 18 and through press rolls 19 into a receiving can 20.

It is convenient to use six slivers or ends and I have accordingly illustrated in this invention a plate 21 having six openings or guides and I have arranged these guides on an angle to the horizontal or vertical whereby the slivers are positioned side by side rather than one on top of the other in directing them to the first pair of rolls 16.

This plate 21 is provided with legs 22 secured to bar 23 extending laterally across the machine and supported by a bracket 24 from the apron 14. A slot 25 permits a vertical adjustment of the bar 23 and consequently the plate, whereas the bolts 26 permit of lateral adjustment of the plate with reference to the drawing frame.

The openings 27 are slightly tapered from the supply end to the delivered end as illustrated in dotted lines at 28 to confine the slivers as they are drawn therethrough and thus apply tension to them between the plate and the first set of draft rolls 16.

Feeler members 29 are hinged as at 30 above each opening to fall by gravity across the opening and are each provided with a finger portion 31 to engage the contact bar 32 extending diagonally between the rows of openings and insulated from the plate as illustrated in my copending application. Thus when the feeler 29 is in the lower or closed position illustrated in Fig. 2, the finger portion 31 thereof will engage the contact bar, close the electric circuit to stop the machine. By

providing the openings and contact bar at an angle I may swing the feeler fingers for the right hand set of openings as illustrated in Fig. 2, about their pivot to a raised position, as illustrated in dotted lines so that the finger portion 31 will be out of contact with the bar but rather raised against the bar. This may be accomplished for both of the upper two sets of members or gates and also all of the feeler members on the right hand openings in Fig. 2 thus eliminating the necessity of providing a wedge or the like to position the feelers or gates in raised position of contact with the bar 32 as is necessary in my above referred to copending application.

In some cases it is necessary to position the guide openings and feelers so closely together as to prevent angular positioning of the contact bar between generally vertical guide openings and in these cases I use the modified plate 41 having three generally vertical rows of guides 42 arranged at an angle as heretofore mentioned with the feeler members 43 hinged above each opening and provided with a finger portion 44 to engage the contact bar 45 upon swinging downwardly to a position similar to the contacting position required in the first mentioned form. The feeler members 43 are each of plate form with guiding means at its free edge which is formed by concaving the edge on the arc of a circle 46 as shown to span the sliver and direct it in its path.

In order to keep the slivers apart and prevent them from jamming, I provide bars 47 and 48, each at substantially the level of one of the levels of the guide openings in the stop motion plate to lift and support the sliver as it is led from the supply cans.

One means of connecting the stop device in the electrical circuit, as illustrated in Fig. 4, in which the solenoid 33 is arranged to control a release latch 34 on the shipper rod 35 whereby when the feeler 29 is permitted to move into engagement with the contact bar 32 the circuit closes through the wire 36 to operate the solenoid 33 to release the latch 34 and permit the shipper bar under tension of spring 37 to throw the shipper rod 38 and through the belt fork 39, the belt (not shown) is moved from the tight pulley 40 to the loose pulley 41 to stop the machine.

My improved stop motion is very simple and inexpensive in construction and very effective in its operation and by its use the machine will stop if any one of a plurality of slivers should break or become excessively thin or slack and thus will prevent the uneven places in the finished stock.

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 drawing frame, means for supplying a plurality of slivers, draft rolls for said slivers, a guide for each sliver said guides arranged one diagonally above the other at an angle to the horizontal and a feeler member adjacent each guide arranged to engage and be held in raised position by the tension on the sliver and a contact member arranged diagonally along said guide to be engaged by said feeler upon release of tension on the yarn said feeler and contact members being in an electric circuit and means energized by closing said electric circuit for stopping the machine.

2. In a drawing frame, means for supplying a plurality of slivers, draft rolls for said slivers, a plate having a plurality of openings each of which acts as a guide for one of said slivers the centers of said openings being on an angle with relation to a horizontal or vertical plane and a feeler member adjacent each guide opening arranged to engage and be held in raised position by the tension on the sliver passing through said guide opening and a contact member insulated from said plate and arranged parallel to the centers of said openings to be engaged by said feeler upon release of tension on the yarn, said feeler and contact members being in an electric circuit and means energized by closing said electric circuit for stopping the machine.

3. In a drawing frame, means for supplying a plurality of slivers, draft rolls for said slivers, a plate having a plurality of openings each of which acts as a guide for one of said slivers the centers of said openings being on an angle with relation to a horizontal or vertical plane and a feeler member adjacent each guide opening arranged to engage and be held in raised position by the tension on the sliver passing through said guide opening and a contact member insulated from said plate and in front of a portion of said feeler and arranged parallel to the centers of said openings to be engaged by said feeler upon release of tension on the yarn, said feeler and contact members being in an electric circuit and means energized by closing said electric circuit for stopping the machine.

4. In a drawing frame, means for supplying a plurality of slivers, draft rolls for said slivers, a plate having a plurality of openings each of which acts as a guide for one of said slivers the centers of said openings being on an angle with relation to a horizontal or vertical plane and a pivoted feeler member adjacent each guide opening arranged to engage and be held in raised position by the tension on the sliver passing through said guide opening and a contact member insulated from said plate and in front of a portion of said feeler and arranged parallel to the centers of said openings to be engaged by said feeler on the opposite side of its pivot from the feeler portion thereof upon release of tension on the yarn, said feeler and contact members being in an electric circuit and means energized by closing said electric circuit for stopping the machine.

WALTER J. SCOTT.