Sept. 6, 1955 J. M. ELLIOTT ET AL 2,716,781

SLIVER CONTROLLED STOP MOTION ACTUATING DEVICE

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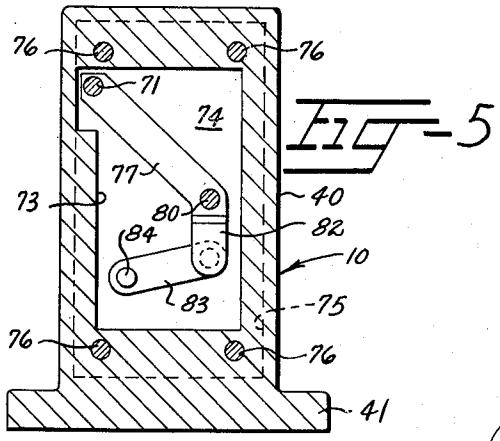



Fig-5

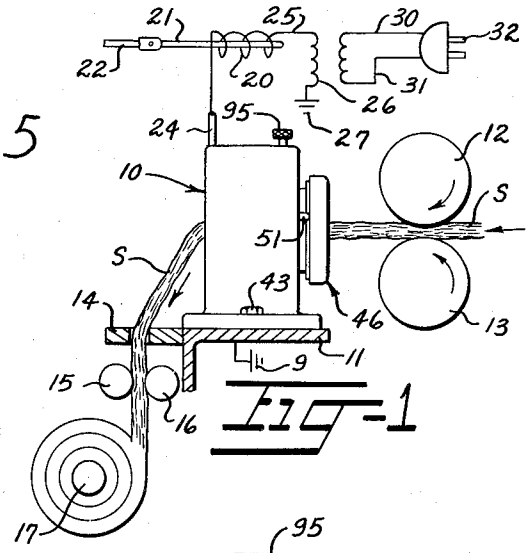



Fig-1

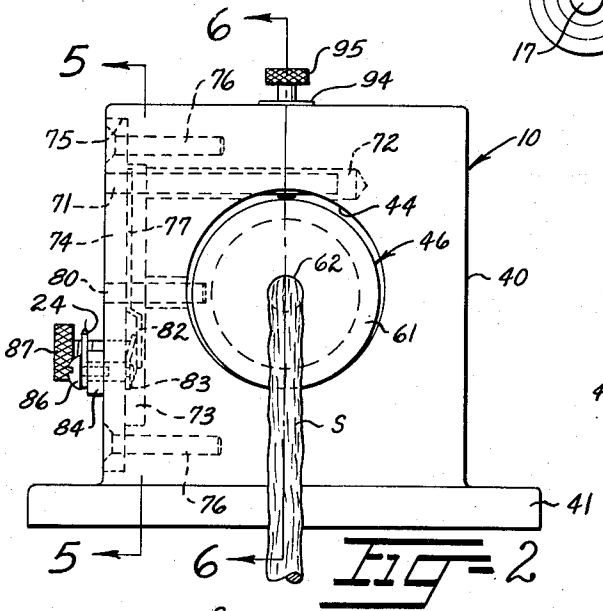



Fig-2

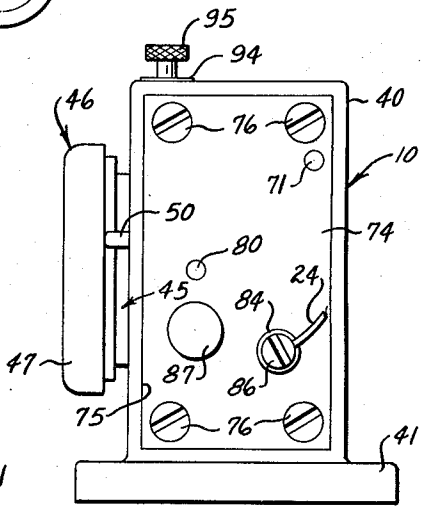



Fig-3

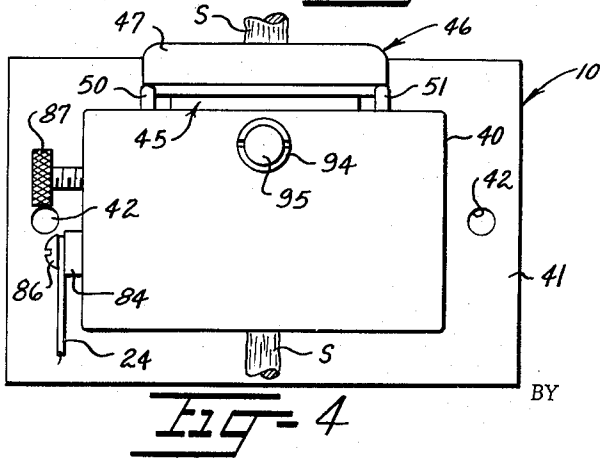



Fig-4

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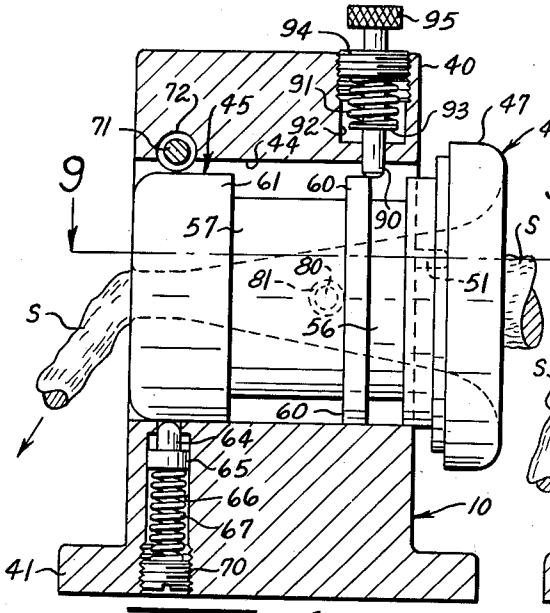
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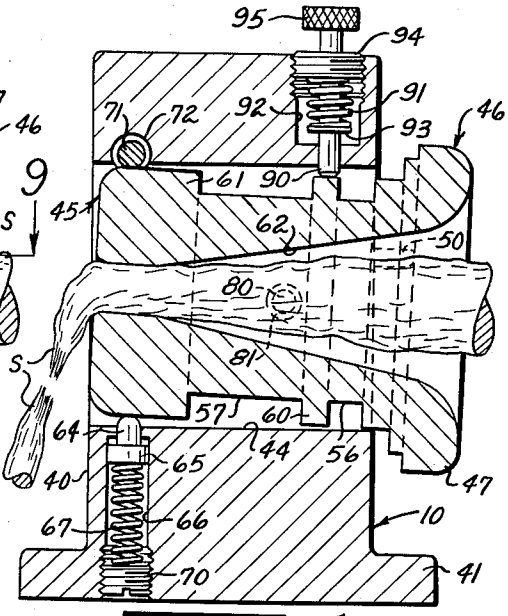
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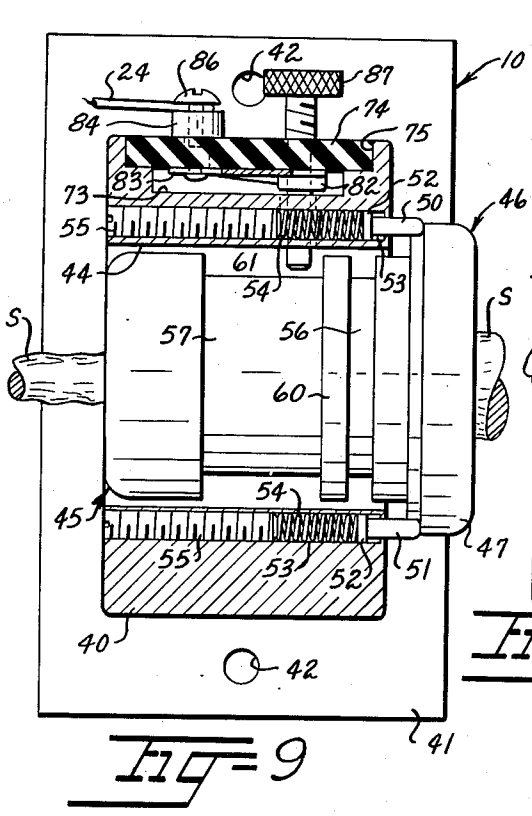
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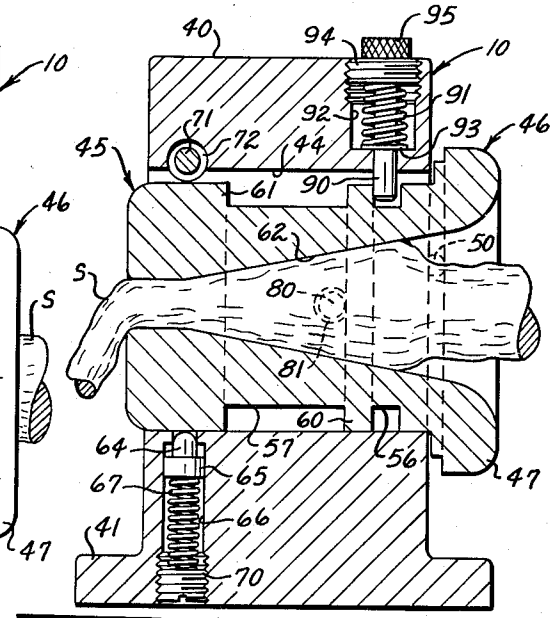

Fig=6




Fig=7




Fig=9




Fig=8

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# SLIVER CONTROLLED STOP MOTION ACTUATING DEVICE

James M. Elliott and Dick R. Green, Raeford, N. C.

Application March 2, 1954, Serial No. 413,587

10 Claims. (Cl. 19—165)

This invention relates to apparatus for automatically stopping textile machinery in response to abnormal variations in the tension or size of a moving strand or sliver of textile material. The present stop motion actuating device is particularly devised for use with pin drafting machines of a type such as is manufactured by The Warner & Swasey Company, Cleveland 3, Ohio. However, the improved stop motion actuating device may be used with many other types of machines, such as carding machines, drawing frames and the like.

It is the primary object of this invention to provide a sensitive mechanism for stopping a textile machine when the material being processed thereby is either above or below a predetermined standard of weight per given length.

It is another object of this invention to provide an improved stop motion actuating device for textile sliver processing machines wherein the sliver passes through a trumpet and having means whereby, upon parting of the sliver or the weight of the sliver becoming below a predetermined standard of weight per unit length, the trumpet will complete a circuit to the stop motion of the textile machine for stopping the same and, moreover, upon the sliver being delivered into the trumpet at a faster than normal rate such as to "choke" the trumpet, as would be the case when the material being delivered is above the predetermined standard of weight per unit length, the trumpet will then also close a circuit to the stop motion of the machine for stopping the same.

Many textile machines, particularly pin drafting machines, each process several strands of sliver simultaneously in the course of which each of the strands of sliver is delivered into a separate coiler or taken up on a separate roll. In such machines, it quite often happens that the processing mechanism for a particular strand of sliver is not used while other sets of such processing devices are used on a particular machine and it is, therefore, another object of this invention to provide means for rendering the improved stop motion actuating device ineffective, when desired, so that it will not stop the machine when a particular strand of sliver is not being passed therethrough and so that another or others of similar stop motion actuating devices may be effective for stopping the machine upon the strand of sliver passing therethrough becoming parted or varying either above or below a predetermined standard of weight per unit length.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds when taken in connection with the accompanying drawings, in which—

Figure 1 is a schematic elevation showing the preferred form of improved stop motion actuating device interposed between a set of delivery rolls and a take-up mechanism with a strand of textile material passing therebetween;

Figure 2 is an enlarged front or discharge end elevation of the improved stop motion actuating device removed from the textile machine showing the parts thereof in the



normal position occupied during which a strand of sliver of proper weight is passing through the trumpet thereof and looking at the left-hand side of the device in Figure 1;

Figure 3 is a view looking at the left-hand side of Figure 2;

Figure 4 is a top plan view of the stop motion actuating device recoved from the textile machine;

Figure 5 is a vertical sectional view taken along line 5—5 in Figure 2;

Figure 6 is an enlarged vertical sectional view taken substantially along line 6—6 in Figure 2, showing the trumpet in elevation and in the position occupied thereby during normal operation of the machine;

Figure 7 is a vertical sectional view similar to Figure 6, but showing the trumpet in section and in the position occupied thereby upon the strand of sliver being parted or unduly slackened and in which position the trumpet causes actuation of the conventional stop motion of the textile machine;

Figure 8 is a view similar to Figure 7, but wherein the trumpet is shown in the position occupied thereby when the strand of sliver is fed into the trumpet at a faster than normal rate or, in other words, when the weight of the strand of sliver per unit length is above the predetermined standard;

Figure 9 is a sectional plan view taken substantially along line 9—9 in Figure 6 showing, in particular, the means for urging the trumpet rearwardly or away from the direction of travel of the strand of sliver under predetermined pressure.

Referring more specifically to the drawings, there is shown schematically in Figure 1 a textile machine of a type for processing textile strands or ropes of textile material or slivers, only one of which is shown and which is generally designated at S. The improved stop motion actuating device is broadly designated at **10** and is fixed on a transverse frame member **11** grounded at **9**. Spaced rearwardly from the stop motion actuating device **10** is a pair of feed rolls **12** and **13** which are driven in opposite directions for advancing or delivering each strand S into and through each corresponding stop motion actuating device **10**.

The strand S then passes downwardly at an angle through a suitable guide **14** and passes between a pair of suitably driven take-up rolls **15**, **16** and, in this instance, the strand of sliver S is then taken up on a suitable take-up roll **17**. The rolls **15** and **16** are also in the equivalent of a coiler mechanism of usual construction which, if used, may feed the sliver S into the usual can.

The textile machine is provided with a conventional electrically operable stop motion which is shown schematically in Figure 1 in the form of a normally de-energized solenoid coil **20** which surrounds a core **21** pivotally connected to an arm **22** having suitable connections thereon, not shown, for stopping the textile machine upon energization of the coil **20**. One end of solenoid coil **20** has a wire or conductor **24** extending therefrom whose other end is connected to the improved stop motion actuating device in a manner to be later described. The outer end of the coil **20** has a wire or conductor **25** extending therefrom to one side of a secondary coil of a transformer **26** which secondary coil is grounded at **27**.

The primary coil of the transformer **26** has opposite ends of lead wires or conductors **30**, **31** connected thereto whose other ends are connected to opposite sides of a plug **32** adapted to be connected to a suitable source of alternating current, not shown. The stop motion heretofore described is merely exemplary of many different types of electrically operated stop motions and is shown by way of illustration only. The textile machine as thus

far described is of the general nature of a pin drafting machine such as is manufactured by The Warner & Swasey Company, Cleveland 3, Ohio, but, of course, the improved stop motion actuating device **10** may be used in association with many other types of machines or any type of machine wherein one or more strands are fed through the machine and taken up as they leave the machine and wherein it is desired that the stop motion is actuated in the event of the weight per unit length of the sliver S varying above or below a predetermined amount.

The improved stop motion actuating device **10** comprises a fixed member, block or housing **40** which is preferably provided with a flange **41** on its lower portion adapted to rest upon and be secured to the frame member **11** as shown in Figure 1. The flange **41** preferably has holes **42** therein (Figures 4 and 9) for the reception of screws **43** for securing the housing **40** to the frame member **11**. The housing **40** has a longitudinally extending or substantially horizontally disposed relatively large bore or hole **44** therethrough (Figures 2, 6, 7, 8 and 9) in which the stem or shank, designated broadly at **45**, of a trumpet broadly designated at **46** is loosely mounted.

It should be noted that the external diameter of the shank **45** of the trumpet **46** is substantially less than the internal diameter of the bore **44** so the shank **45** may float in bore **44**. The rear or ingress end of the trumpet **46** has an enlarged head portion or flange **47** integral therewith which normally engages a pair of laterally spaced or substantially diametrically opposed detents or spring-pressed pins **50**, **51** mounted for forward and rearward movement in the block **40**. The detents **50**, **51** are preferably disposed slightly above the horizontal plane of the axis of said trumpet **46** or on the opposite side of the plane of the axis of the trumpet relative to the direction at which the sliver is diverted as it is drawn from the discharge end of the trumpet.

Each of the detents **50**, **51** has an enlarged head portion **52** thereon mounted for longitudinal movement in a corresponding bore **53** provided in the block or housing **40**. Also disposed in each bore **53** is a compression spring **54**, one end of which engages the corresponding head portion **52** and the other end of which is engaged by an adjustment screw **55** threadably mounted in the block or housing **40** .

The medial portion of the shank **45** of the trumpet **46** is provided with a pair of spaced peripheral grooves, or notches **56**, **57** which define an enlarged annular portion or ridge **60** therebetween. The peripheral groove or notch **57** is spaced from the front or discharge end of the stem or shank **45** and thereby defines an enlarged annular portion **61** on the front end of the shank **45**. The trumpet **46** has a longitudinally extending tapered bore **62** therethrough whose large end may also be termed as the rear or ingress end and whose small end may also be termed as the discharge, egress or front end of the tapered bore **62**.

When the detents **50**, **51** are not abnormally depressed, it is preferable that the front or egress end of the shank **45** of the trumpet **46** is substantially flush with the corresponding end surface of the block or housing **40**. When the sliver or strand S is under proper tension and is of proper weight or density per unit length as it passes through the trumpet **46**, the shank **45** rests upon the bottom of the bore **44**, the enlarged portion **61** being held against the bottom of the bore **44**, as shown in Figure 6, due to the downward movement of the strand S as it leaves the discharge end of the tapered bore **62** under proper tension.

It should be noted, therefore, that it is preferable that the strand or sliver S is diverted from a straight path as it leaves the small or discharge end of the tapered bore **62** in the trumpet **46** so that the strand or sliver S will normally depress a detent or plunger **64** (Figures 6, 7 and 8) and maintain the enlarged portion **61** of the shank **45** against the bottom of the bore **44**. The spring plunger or detent **64** is mounted for vertical sliding movement in the housing **40** and has an enlarged lower or inner end portion **65** thereon which is mounted for radial sliding movement relative to the bore **44** in a bore **66** provided in the housing **40**. The enlarged portion **65** of the plunger **64** engages one end of a compression spring **67** disposed in the bore **66** whose other end engages a set screw or adjustment screw **70** threadably embedded in the lower portion of the housing or block **40** as shown in Figures 6, 7 and 8.

Upon the strand or sliver S becoming unduly slack or the weight per unit length thereof dropping below a predetermined standard or upon the strand or sliver S being parted, the detent or plunger **64** then urges the enlarged portion **61** of the shank **45** into engagement with a contact element such as a bar, electrode or rod **71** which is partially disposed in the bore **44** and is normally spaced from the enlarged portion **61** of the shank **45** of the trumpet **46**.

The inner portion of the electrode or contact element **71** is loosely disposed in a bore **72** provided therefor in the housing **40** thereby providing an air insulator between the electrode **71** and housing **40**, since the housing **40** is preferably made from cast iron, aluminum alloy, steel or some other electrically conductive material. The electrode or contact element **71** extends from right to left in Figure 2 and passes through a substantially rectangular cavity or recess provided in one side of the block or housing **40**, and the outer end of the electrode, contact pin or contact element **71** is fixed in an insulation block or plate **74** carried by the block **40**.

In this instance, the insulation block or plate **74** is fitted in a suitable recess **75** in one side of the block or housing **40** and this insulation block or plate **74** is fixed to the block **40** by any suitable means, such as screws **76**. It will be observed in Figures 2, 3, 5 and 9 that the contact pin or electrode **71** also penetrates a stationary bus bar or contact strip **77** adhesively or otherwise secured to the inner surface of the insulation plate **74**. The bus bar or contact strip **77** extends downwardly at an angle in Figure 5 and is also penetrated by a second contact element, electrode, contact bar or pin **80** fixed in the insulation plate **74**. It should be noted that the first pin or electrode **72** is partially disposed in the bore **44** and is disposed substantially tangent relative to the periphery of the enlarged portion **61** of the shank **45**. The second electrode or contact pin **80** is disposed substantially radially of the axis of the shank **45** of the trumpet **46**.

The second contact pin or electrode **80** extends inwardly through the cavity or recess **73** and loosely extends through an opening or bore **81** provided in the block or housing **40** and the inner end of the second electrode **80** terminates in closely spaced relation to the periphery of the annular groove, recess or notch **57** in the shank **45** of the trumpet **46**.

Also, it will best be observed in Figures 6, 7, 8 and 9 that the enlarged intermediate portion **60** of the shank **45** of the trumpet **46** is normally spaced to one side of the inner end of the second contact pin or electrode **81**. The second contact pin or electrode **81** is provided for actuating the stop motion, including the solenoid coil **20** (Figure 1) in the event of the strand or sliver S choking the tapered bore **62** or bunching therein as shown in Figure 8 and as will be more clearly described later in this context.

Referring again to Figures 2, 3, 5 and 9, it will be observed that the bus bar **77** has an off-set rigid portion **82** on one end thereof which is spaced inwardly from the insulation plate **74** and is adapted to, at times, be engaged by one end of a leaf spring contact arm, switch arm or bar **83** which end is disposed between the off-set portion **82** of the bus bar **77** and the insulation plate **74**. The end of the leaf spring switch arm or bar **83** is

fixed to a terminal or pin **84** which pin **84** holds the switch arm **83** against the insulation plate **74**. The pin **84**, which is necessarily of electrically conductive material, is suitably fixed in the insulation block **74** and the end of the wire **24** remote from the solenoid coil **20** (Figure 1) is connected to the terminal or pin **84** by any suitable means such as a screw **86** threadably embedded in the terminal **84**.

The outer surface of the leaf spring switch arm **83**, that is, the surface adjacent the insulation block **74** and opposite from the extension **82** of the bus bar **77**, is engaged by one end of an adjustment screw **87** which threadably penetrates the insulation block **74**. Thus, by turning the adjustment screw **87** in either direction, the corresponding end of the left spring switch arm **83** may be moved into and out of engagement with the extension **82** on the bus bar **77** to make or break contact between the wire **24** and the bus bar **77**.

Now, it is to be understood that the discharge or egress end of the tapered bore **62** in the trumpet **46** is of a predetermined size such as to permit a sliver of a predetermined weight per unit length to pass therethrough. Thus, as heretofore stated, upon the sliver S being parted or becoming unduly slack so the weight or density per unit length thereof drops below a predetermined standard (Figure 7), the plunger **64** urges the portion **61** of the trumpet shank **45** against electrode **71** to energize the stop motion (Figure 1). The detents **50**, **51** also assist the plunger **64** in rocking the trumpet **46** to cause the stem **45** to engage electrode **71** upon undue slackness or parting of the sliver S.

In the event of the sliver S being fed into the large ingress end of the tapered bore **62** at a faster than normal rate, which would cause the weight of the sliver per unit length to be above a predetermined standard, the sliver then forms into a bunch or chokes the tapered bore **62** in the trumpet **46** as shown in Figure 8. Of course, this exerts forward pressure on the wall of the tapered bore **62** and tends to move the trumpet **46** forwardly to depress the detents **50**, **51** against the compression springs **54**.

Now, the relative positions of the second contact pin or electrode **81** and the shoulder formed at the juncture of the enlarged portion **60** and the annular groove **57** are such that only very slight inward or forward movement of the trumpet **46** moves the enlarged annular portion **60** into engagement with the contact pin or electrode **81**. Since both of the electrodes **71**, **81** are connected to the bus bar **77**, and the block or housing **40** is grounded to the machine frame, it follows that the circuit will then be completed to the solenoid coil **20** to thereby actuate the conventional stop motion of the machine.

It quite often happens that the increase in the weight of the sliver S per unit length may occur only momentarily or at frequent intervals and the operator of the textile machine may then assume that the textile machine has stopped for some other reason than that of the increase in weight per unit length of the sliver S. As a result, it may happen that the machine will have been restarted several times before the operator will have detected that the actual cause of the machine stoppage was the result of enlarged places in the sliver S or an increase in the weight per unit length of the sliver S.

Therefore, in order to maintain the enlarged annular portion **60** of the shank **45** of the trumpet **46** in engagement with the second contact pin or electrode **81**, once moved to this position by an enlarged or thick place in the strand or sliver S, the shoulder at the juncture of the enlarged portion **60** and the annular groove **56** in the shank **45** of the trumpet **46** is engaged by a spring-pressed locking pin **90** as shown in Figure 8. The inner end of pin **90** normally bears against the periphery of the enlarged portion **60** and is urged into the peripheral notch or groove **56** in the shank **45** of the trumpet **46** by a compression spring **91** which is disposed in a cavity or bore **92** in the block or housing **40**.



The compression spring **91** also surrounds the medial portion of the locking pin **90** and one end thereof bears against an abutment **93** fixed to the pin **90**. The other or upper end of the compression spring **91** (Figures 6, 7 and 8) bears against the lower surface of a screw or externally threaded bushing **94** threadably mounted in the upper end of the cavity **92**, which screw is slidably penetrated by the locking pin **90**. The upper end of the locking pin **90** has an enlarged portion or head **95** thereon which is preferably knurled to enable an operator to grasp the head **95** of the locking pin **90** for releasing the locking pin **90** from engagement with the shoulder at the juncture of the enlarged portion **60** and the peripheral groove **56** of the shank **45**.

As heretofore stated, upon an abnormal amount of the sliver entering the tapered bore **62** in the trumpet **46**, sufficient to cause the trumpet **46** to depress the detents **50**, **51**, the annular portion **60** on the shank **45** moves into engagement with the second contact pin or electrode **81** to close the circuit to the solenoid coil **20** (Figure 1). As the enlarged portion **60** moves into engagement with the second contact pin or electrode **81**, the lower end of the locking pin **90** is so spaced from the second contact pin or electrode **81** that it will drop into the notch or peripheral groove **56** in the shank **45** to thereby maintain the enlarged portion **60** in engagement with the contact pin **81** until the operator again raises the locking pin **90** in order to permit the detents **50** and **51** to again move the trumpet **46** outwardly to operative position.

Thus, the locking pin **90** insures that the machine cannot be started when the enlarged portion **60** has once moved into engagement with the second contact pin or electrode **81**. It is apparent that it is unnecessary to provide means for locking the enlarged front end portion **61** of the shank **45** in engagement with the first contact pin or electrode **71**, since the shank **45** is urged against the first electrode or pin **71** by the plunger **64** while, on the other hand, the detents **50** and **51** urge the enlarged portion **60** away from the second contact pin or electrode **81** immediately upon a thickened place in the sliver S having passed through the trumpet **46** and, of course, this is prevented by the locking pin **90** thereby insuring that the condition of the strand or sliver S is corrected before the machine can again be started.

Most drafting machines, pin drafting machines in particular, process several strands simultaneously and one of the improved stop motion actuating devices would be used for each strand. In this instance, the wire **24** from the terminal **84** of each stop motion actuating device is connected with the coil **20** so that, upon any one or more of the strands varying above or below the standard of weight per unit length for which the discharge end of the corresponding tapered bore **62** is designed, the machine is stopped. If, for any reason, one or more of a series of such stop motion actuating devices is not being used, as may often be the case, the operator merely turns the screw **87** on the corresponding stop motion actuating device or devices so the contact arm **83** is moved out of contact with the extension **82** on the contact strip or bus bar **77**.

Although the two electrodes **71**, **81** are shown, it is contemplated, within the scope of this invention, to so position a single electrode that it will normally be spaced from said trumpet, but will be engaged by the shank **45** upon the weight of the sliver per unit length being either greater or less than the predetermined standard established by the size of the egress end of the tapered bore **62** and the resilient pressure exerted on the trumpet **46** by the detents or plungers **50**, **51** and **64**.

To this end, the electrode **71** can extend into a peripheral groove in the stank **45** sufficiently proximate to the periphery of said groove to be engaged thereby upon the sliver S being parted or becoming unduly slackened, and one wall of the latter groove could be so disposed as to engage the electrode upon moving forwardly as a result

of the sliver choking the tapered bore 62. Since the two electrodes 71, 81 cooperate in essentially the manner last described, a detailed illustration and description thereof is deemed unnecessary.

In the drawings and specifications there has been set forth a preferred embodiment of the invention and, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation, the scope of the invention being defined in the claims.

We claim:

1. An improved textile-sliver-controlled circuit maker and breaker comprising a trumpet having a substantially axial tapered bore therethrough through which the silver passes and wherein the sliver is withdrawn from the small end of said bore in a direction substantially radially of said bore, a fixed element having a cavity therein of substantially greater dimensions than the trumpet and in which said trumpet is at least partially disposed whereby the trumpet is normally maintained in engagement with one surface of said fixed element by the radial pull of said sliver against the corresponding surface of said tapered bore, an electrode carried by and insulated from said fixed element and projecting into the cavity, said electrode and said trumpet being adapted to be interposed in an electrical circuit, and means urging said trumpet toward said electrode whereby, upon said sliver becoming unduly slackened, the trumpet is moved into contact with said electrode to close the circuit.

2. An improved textile-sliver-controlled circuit maker and breaker comprising a trumpet having a substantially axial tapered bore therethrough through which the sliver passes and wherein the sliver is withdrawn from the small end of said bore in a direction substantially radially of said bore, a fixed element having a cavity therein of substantially greater dimensions than the trumpet and in which said trumpet is at least partially disposed whereby the trumpet is normally maintained in engagement with one surface of said fixed element by the radial pull of said sliver against the corresponding surface of said tapered bore, an electrode carried by and insulated from said fixed element and projecting into the cavity, said electrode and said trumpet being adapted to be interposed in an electrical circuit, means urging said trumpet toward said electrode whereby, upon said sliver becoming unduly slackened, the trumpet is moved into contact with said electrode to close the circuit, and manually operable means interposed in one side of said circuit for rendering said trumpet ineffective in closing said circuit when it contacts said electrode.

3. An improved textile-sliver-controlled circuit maker and breaker for a machine having means for feeding and withdrawing said sliver comprising a trumpet having a substantially axial tapered bore therethrough through which the sliver passes in its course between the feeding and withdrawing means, a fixed element having a cavity therein in which said trumpet is at least partially loosely disposed, an electrode carried by and insulated from said fixed element and projecting into the cavity, said electrode and said trumpet being adapted to be interposed in an electrical circuit, means urging said trumpet away from said electrode toward the feeding means whereby, upon said sliver becoming unduly enlarged and thereby choking said tapered bore, the trumpet is moved into contact with said electrode to close the circuit, and manually operable means interposed in one side of said circuit for rendering said trumpet ineffective in closing said circuit when it contacts said electrode.

4. An improved textile-sliver-controlled circuit maker and breaker for a machine having means for feeding and withdrawing said sliver comprising a trumpet having a substantially axial tapered bore therethrough through which the sliver passes in its course between the feeding and withdrawing means, a fixed element having a cavity therein in which said trumpet is at least partially loosely disposed, an electrode carried by and insulated from said fixed element and projecting into the cavity, said electrode and said trumpet being adapted to be interposed in an electrical circuit, means urging said trumpet away from said electrode toward the feeding means whereby, upon said sliver becoming unduly enlarged and thereby choking said tapered bore, the trumpet is moved into contact with said electrode to close the circuit, and manually releasable means for maintaining the trumpet in contact with said electrode upon such contact initially being established.

5. An improved textile-sliver-controlled circuit maker and breaker for a machine having means for feeding and withdrawing said sliver comprising a trumpet having a substantially axial tapered bore therethrough through which the sliver passes in its course between said feeding and withdrawing means and wherein the sliver is withdrawn from the small end of said bore in a direction substantially radially of said bore, a fixed element having a cavity therein of substantially greater dimensions than the trumpet and in which said trumpet is at least partially disposed whereby the trumpet is normally maintained in engagement with one surface of said fixed element by the radial pull of said sliver against the corresponding surface of said tapered bore, electrical contact means carried by and insulated from said fixed element and projecting into the cavity, said electrical contact means and said trumpet being adapted to be interposed in an electrical circuit, first resilient means urging the end of said trumpet adjacent the withdrawing means toward said contact means under predetermined pressure, second resilient means urging the trumpet toward the feeding means under predetermined pressure whereby, upon said sliver becoming unduly slackened, the trumpet is moved into engagement with said contact means to close the circuit, and said contact means being so arranged as to be engaged by said trumpet upon said sliver becoming enlarged and thereby choking the trumpet to cause the trumpet to move away from the feeding means against said second resilient means.

6. An improved textile-sliver-controlled circuit maker and breaker for a machine having means for feeding and withdrawing said sliver comprising a trumpet having a substantially axial tapered bore therethrough through which the sliver passes in its course between said feeding and withdrawing means and wherein the sliver is withdrawn from the small end of said bore in a direction substantially radially of said bore, a fixed element having a cavity therein of substantially greater dimensions than the trumpet and in which said trumpet is at least partially disposed whereby the trumpet is normally maintained in engagement with one surface of said fixed element by the radial pull of said sliver against the corresponding surface of said tapered bore, electrical contact means carried by and insulated from said fixed element and projecting into the cavity, said electrical contact means and said trumpet being adapted to be interposed in an electrical circuit, first resilient means urging the end of said trumpet adjacent the withdrawing means toward said contact means under predetermined pressure, second resilient means urging the trumpet toward the feeding means under predetermined pressure whereby, upon said sliver becoming unduly slackened, the trumpet is moved into engagement with said contact means to close the circuit, said contact means being so arranged as to be engaged by said trumpet upon said sliver becoming enlarged and thereby choking the trumpet to cause the trumpet to move away from the feeding means against said second resilient means, and manually operable means interposed in one side of said circuit for rendering said trumpet ineffective in closing said circuit when it engages said contact means.

7. An improved textile-sliver-controlled circuit maker and breaker for a machine having means for feeding and withdrawing said sliver comprising a trumpet having a substantially axial tapered bore therethrough through which the sliver passes in its course between said feeding and withdrawing means and wherein the sliver is withdrawn from the small end of said bore in a direction substantially radially of said bore, a fixed element having a cavity therein of substantially greater dimensions than the trumpet and in which said trumpet is at least partially disposed whereby the trumpet is normally maintained in engagement with one surface of said fixed element by the radial pull of said sliver against the corresponding surface of said tapered bore, electrical contact means carried by and insulated from said fixed element and projecting into the cavity, said electrical contact means and said trumpet being adapted to be interposed in an electrical circuit, first resilient means urging the end of said trumpet adjacent the withdrawing means toward said contact means under predetermined pressure, second resilient means urging the trumpet toward the feeding means under predetermined pressure whereby, upon said sliver becoming unduly slackened, the trumpet is moved into engagement with said contact means to close the circuit, said contact means being so arranged as to be engaged by said trumpet upon said sliver becoming enlarged and thereby choking the trumpet to cause the trumpet to move away from the feeding means against said second resilient means, and manually releasable means for maintaining said trumpet in engagement with said contact means upon said such engagement being initially established by said movement of the trumpet against the second resilient means away from said feeding means.

8. An improved stop motion actuating device for a machine having means for feeding and withdrawing a strand of fibrous material, said device comprising a housing having a longitudinal extending bore therethrough, a trumpet having a shank of substantially less diameter than said bore disposed within said bore, said trumpet having a tapered longitudinally extending bore therethrough and into the large end of which said strand of fibrous material is fed and wherein said strand is withdrawn from the small end of said tapered bore in the trumpet at an angle relative to the axis of said tapered bore, resilient means urging the end of said trumpet adjacent the small end of said tapered bore away from the direction in which strand is diverted as it leaves the small end of said tapered bore, second resilient means normally urging said trumpet toward the feeding means, electrical contact means carried by said housing, said contact means being disposed adjacent the periphery of the shank and substantially diametrically opposite said first resilient means, said shank having at least one enlarged intermediate portion normally spaced toward said feeding means relative to said electrical contact means, whereby a strand of uniform size passing through the tapered bore in the trumpet normally maintains the trumpet out of engagement with said contact means and, upon the size of the strand dropping below a predetermined minimum, the first resilient means will move the periphery of the shank into engagement with the contact means and, upon the size of the strand increasing above a predetermined maximum, the enlarged portion on the shank will move into engagement with the contact means.



9. An improved stop motion actuating device comprising a housing having a longitudinally extending bore therethrough, a trumpet having a shank of substantially less diameter than said bore disposed within said bore, said trumpet having a tapered longitudinally extending bore therethrough and into the large end of which a strand of fibrous material is adapted to pass and wherein said strand is withdrawn from the small end of said tapered bore in the trumpet at an angle relative to the axis of said tapered bore, resilient means urging the end of said trumpet adjacent the small end of said tapered bore away from the direction in which strand is diverted as it leaves the small end of said tapered bore, second resilient means normally urging said trumpet toward the direction from whence the strand is moving as it enters said tapered bore in the trumpet, a first and a second electrode, said first electrode being disposed adjacent the periphery of the shank and substantially diametrically opposite said first resilient means, said shank having at least one peripheral groove intermediate its ends defining an enlarged intermediate portion normally spaced adjacent one end of said second electrode and toward the large end of said tapered bore, whereby a strand of uniform size passing through the tapered bore in the trumpet normally maintains the trumpet out of engagement with either of said electrodes and, upon the size of the strand dropping below a predetermined minimum, the first resilient means will move the periphery of the shank into engagement with the first electrode and, upon the size of the strand increasing above a predetermined maximum, the enlarged portion on the shank will move into engagement with the second electrode.

10. In a structure according to claim 9, an insulation plate fixed to said housing and to which said electrodes are secured, a metallic bus bar connected to said electrodes, a terminal spaced from said bus bar and said electrodes and fixed in said plate and having means for securing a conductor thereto, a leaf spring contact member fixed to said terminal and normally biased away from said bus bar, and a hand screw threadably mounted in said plate for moving said leaf spring contact member into and out of engagement with said bus bar.

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