June 11, 1957 R. J. DE LATHAUWER 2,795,013

TEXTILE DRAFTING

Filed Aug. 21, 1952 3 Sheets-Sheet 1

FIG. 1

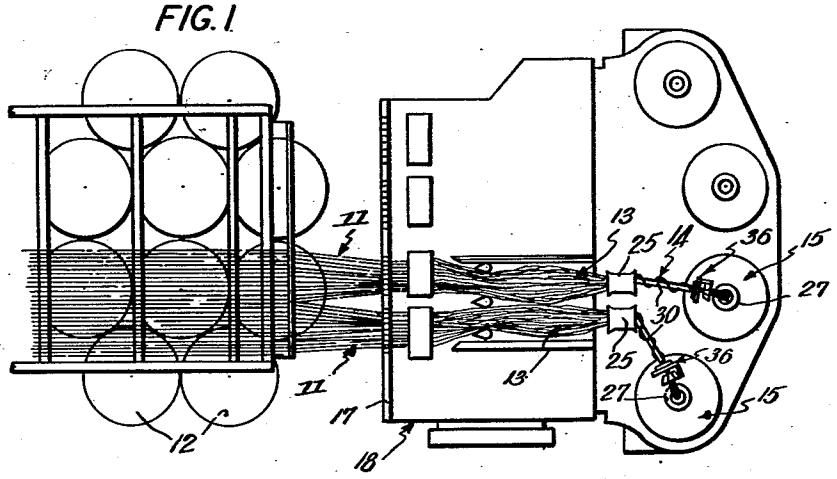


FIG. 2

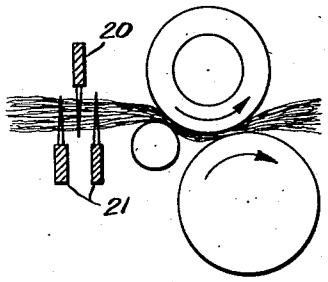
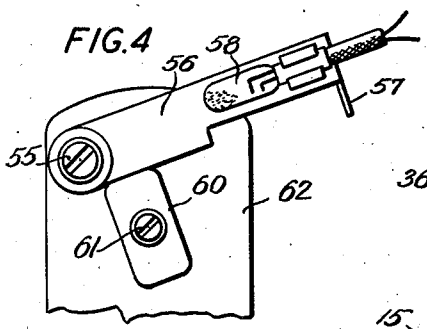


FIG. 4



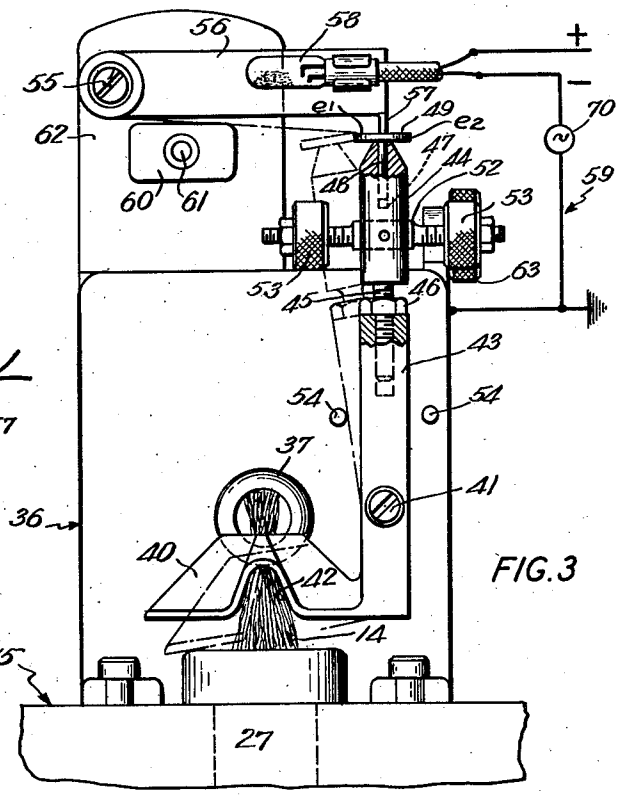


FIG. 3

INVENTOR
RENE J. DeLATHAUWER,
BY Dike, Thompson & Faulkner
ATTYS.

June 11, 1957 R. J. DE LATHAUWER 2,795,013

TEXTILE DRAFTING

Filed Aug. 21, 1952 3 Sheets-Sheet 2

FIG. 5

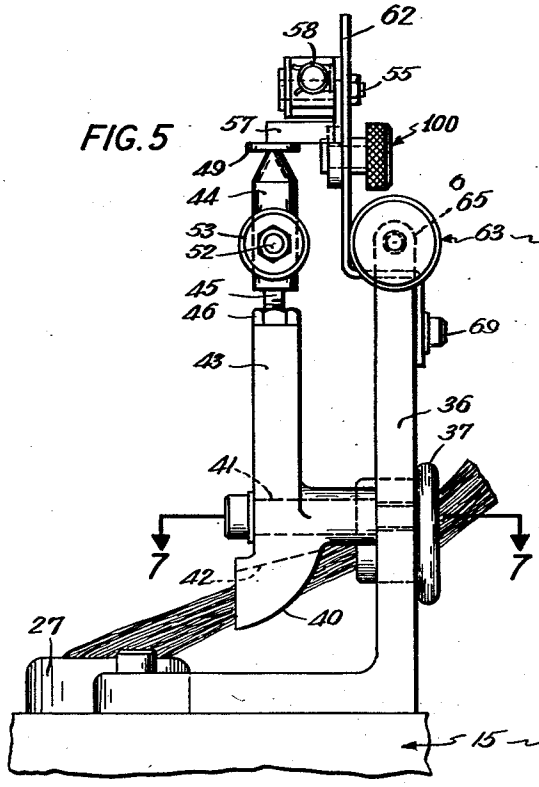


FIG. 6

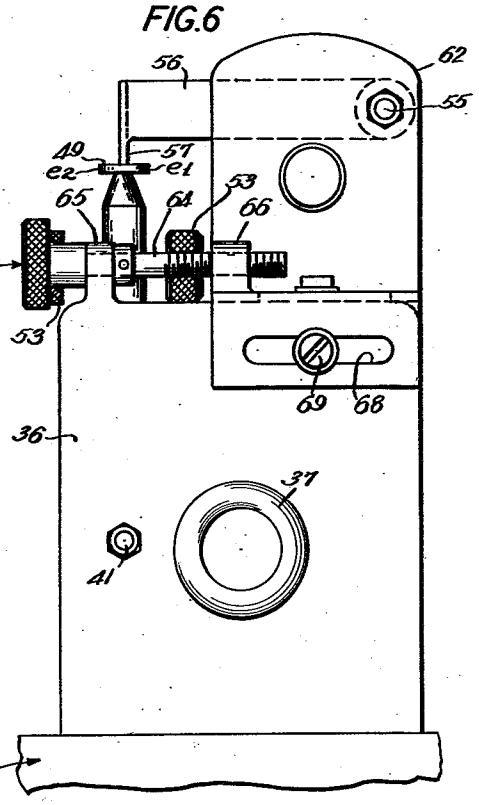


FIG. 7

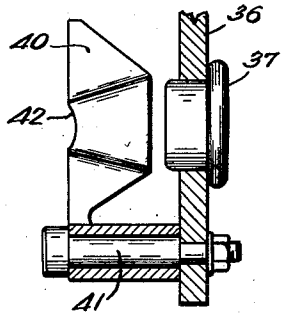
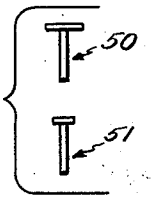


FIG. 8



INVENTOR
RENE J. DeLATHAUWER
BY Dike, Thompson + Bourne
ATT'YS.

June 11, 1957 R. J. DE LATHAUWER 2,795,013

TEXTILE DRAFTING

Filed Aug. 21, 1952 3 Sheets-Sheet 3

FIG.9

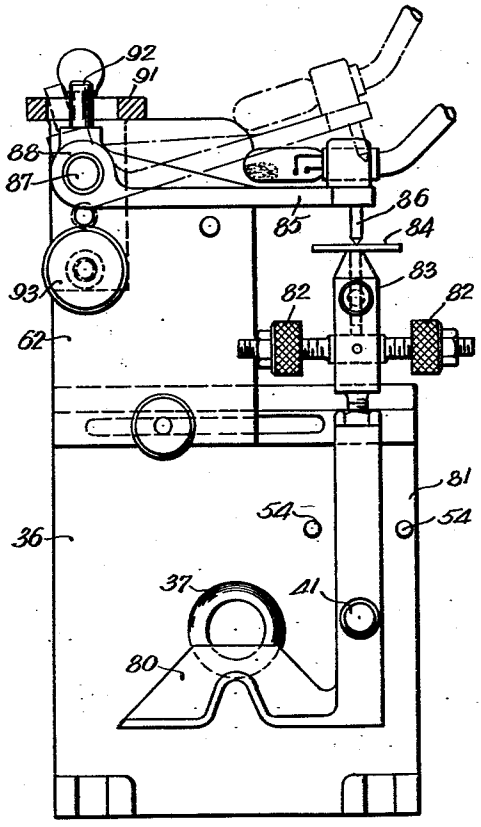


FIG.10

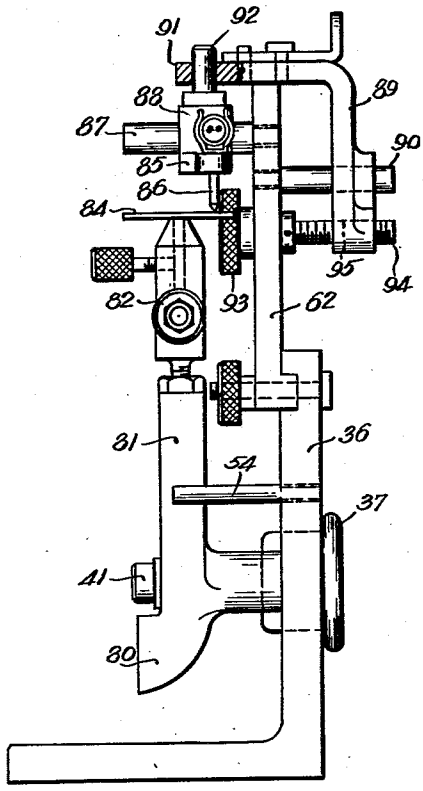


FIG.11

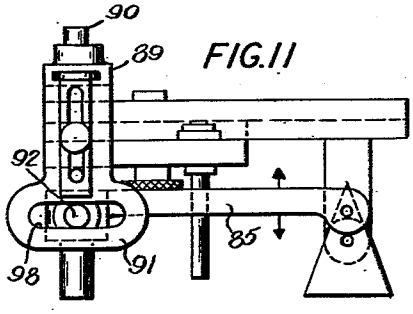
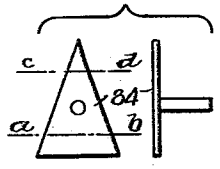


FIG.12



INVENTOR
RENE J. DeLATHAUWER
BY Duke, Thompson & Hamilton
ATT'YS.

United States Patent Office 2,795,013 Patented June 11, 1957

2,795,013

TEXTILE DRAFTING

Rene J. de Lathauwer, Methuen, Mass.

Application August 21, 1952, Serial No. 305,551

9 Claims. (Cl. 19—165)

The present invention relates primarily to machines known as pin drafters which are used in the manufacture of woolen and worsted goods to combine a group of supply slivers into a single sliver, drafting it at the same time and coiling it in a can ready for further subsequent drawing or spinning. The present invention has for its object to provide an effective means for stopping the machine when the sliver varies in size, beyond certain predetermined limits and at the same time to prevent stopping the machine when the variations in the size of the sliver are not outside the predetermined limits.

The present invention is an improvement on the machine shown in my prior Patent No. 2,694,838, November 23, 1954.

Referring to the drawings:

Fig. 1 is a top plain view of the machine embodying my invention, portions only of the gill box being shown.

Fig. 2 is a view showing the arrangement of the combs in the draft rollers in the gill box.

Fig. 3 is a front elevation of the detector shown in Fig. 1.

Fig. 4 is a view showing switch arm held out of operation.

Fig. 5 is a side elevation of Fig. 3.

Fig. 6 is a rear view of Fig. 5.

Fig. 7 is a section on line 7—7 of Fig. 5.

Fig. 8 shows two of the replaceable platforms.

Fig. 9 is a view similar to Fig. 3 showing a device embodying my invention in modified form.

Fig. 10 is a side elevation of Fig. 9.

Fig. 11 is a plan view of parts shown in Fig. 9.

Fig. 12 shows a plan and side elevation of a triangular platform.

Referring now to the drawings and particularly to Fig. 1 in which is shown a machine which combines groups of five supply slivers **11** from five supply cans **12** into a single sliver **13** drawing it down to a small size as indicated at **14** and delivering it to coiler heads **15** which coil it down in suitable receiving cans not shown. After passing the separator bar **17** the five supply slivers enter the gill box **18** where they are combed and drawn by combers or fallers **20** and **21**. After leaving the gill box **18** the slivers **13** pass through condensers **25**. At this time the slivers are reduced in size and compacted and should be of uniform diameter throughout their length.

On leaving the condensers **25** the slivers **14** are guided to the eye **27** of the coiler **15** (see Figs. 1–3 and 5) by means of a cylindrical rod or tube **30** around which the sliver passes in a spiral path. Any suitable guiding means may be used.

On the top of each coiler head **15** is a bracket **36** to which the guide **30** is secured. This bracket contains an eye **37** by which the drawn-down and condensed sliver **14** is guided into the coiler eye **27**. Between the eye **37** and eye **27** the sliver is under substantially uniform tension. The bracket **36** carries a feeler in the shape of a bell crank having a horizontal arm **40** and a vertical arm **43**. This bell crank is arranged to swing about a pivot **41** (see

Figs. 3 and 5). The horizontal arm **40** is provided with a notch **42** having a depth considerably greater than the diameter of the sliver passing through the notch. At the narrowest portion, the notch has a width substantially equal to the desired diameter of the sliver and the sides of the notch flare outwardly and downwardly as shown in Fig. 3. At its upper end the vertical arm **43** carries an extension **44** having a screw threaded stem **45** which is secured in place by a set nut **46**. This enables the upper end of the arm **43** of the bell crank to be adjusted vertically as required. The upper end of the extension **44** is provided with a hole **47** in which is received the stem **48** of an interchangeable platform **49** having an upper face which is in a horizontal plane when the arm **43** of the bell crank is in vertical position. The platform **49**, as viewed in Figs. 3 and 6, has opposite edge portions *e*1 and *e*2 defining limits of upward support for a switch operating element **56**, as will appear. Platforms having top surfaces of different sizes may be substituted according to the uniformity of sliver which it is desired to produce. Two platforms **50** and **51** of smaller sizes than the platform **49** are shown in Fig. 8.

The extension **44** is also provided with a horizontal rod **52** screw threaded at its ends and provided with thumb nuts **53** and **54** respectively by means of which the bell crank may be counterbalanced so that the notch **42** will rest lightly on the sliver **14**. The vertical arm **43** of the bell crank tends to move to the left in dot and dash lines as shown in Fig. 3 when the sliver in the notch is too small and to the right when the sliver is too large. The movement of the arm **43** is limited by stops **54**, **54** on the bracket **36**.

At **55** (see Figs. 3 and 4) is a pivot on which is a switch operating element embodied as a switch arm **56** swinging in a vertical plane and having a downwardly extending point or projection **57** normally resting on the top surface of the platform **49** and at the center thereof. The arm **56** carries a mercury switch **58** so arranged that when the arm **56** drops from its normal position on the top surface down below either of said opposite edge portions the mercury in the switch completes an electric circuit **59** and actuates a stop motion (not shown) which stops the machine. There is also provided a cam **60** on a shaft **61** on an extension **62** of the bracket **36** and having a knurled knob **100** on the other end. The cam **60** is so placed that it can be turned to raise the switch arm **56** so that its downwardly extending contact point **57** will no longer rest upon the platform **49** as shown in Fig. 4.

The extension **62** (see Fig. 6) is adjustable horizontally to center the contact point **57** on the platform **49**, by means of a thumb-screw **63** whose shaft **64** passes through a lug **65** on the bracket **36** and a screw-threaded lug on the extension **62**. A slot **68** in the extension **62** permits the adjustment to be made and a clamping screw **69** holds the parts together in adjusted position.

The operation of the device in the form described is as follows: When the machine is producing normal sliver, the notch in the horizontal arm **40** rests on the sliver **14** and holds the arm **43** in a substantially vertical position, the counterweights **53** and **53** having been adjusted so that the arm **43** will exert very little pressure on the sliver. As the sliver varies in size between the predetermined limits, the platform **49** is moved back and forth under the contact point **57** but contact is still maintained and the machine is not stopped. Throughout this normal operation the mercury switch **58** is open and the machine continues to operate.

However, if a spot in the sliver, which is less than the predetermined minimum limit, passes under the feeler **40** the platform **49** is moved so far to the left as shown in Fig. 3, that the contact point **57** rides over the edge *e*2 and off the platform and the switch arm **56** drops down, tilt-

ing the mercury switch 58 and stopping the machine. Likewise if a thick spot having a diameter greater than the predetermined maximum limit, passes under the feeler 40 the platform 49 is carried to the right and the contact 57 rides over the edge e1 and off the top surface allowing the switch arm 56 to drop down and stop the machine. Thus, the machine is stopped whenever the up and down movement of the notched arm 40 is great enough to move the platform 49 in either direction out from under the contact point 57. Therefore the sliver may vary in size within the prescribed limits but when these limits are passed the machine will be stopped and the prescribed limits may be varied by substituting a larger or smaller platform 49 as may be required. For convenience, a light 70 is placed in the circuit 59 and this lights when the machine is stopped, showing the operator which sliver has stopped the machine. The operator can also see by the position of the vertical arm 43 and the platform 49 which sliver has stopped the machine. After the machine has been stopped, the operator turns the cam 60 by the knurled thumb screw knob 100 and raises the switch arm 56 to the position indicated in Fig. 4, so that she can remove the defective portion of the sliver and join the ends. She then replaces the vertical arm 43 in running position and lowers the switch arm 56 so that the contact point 57 again rests on the upper surface of the platform.

In Figs. 9, 10, 11, and 12 I have shown an embodiment of my invention in slightly modified form. In this embodiment the feeler 80, vertical arm 81, counterbalancing weights 82, 82 and extension 83 of the vertical arm 81 are the same as in the other form of my invention. The electrical parts are also identical and therefore are not shown. However, platform 84 on the upper end of the extension 83 has converging sides being triangular in shape as shown in Fig. 12.

At 85 (see Fig. 10) is shown a switch arm having a contact point 86 which when in operating position rests on the upper surface of a platform 84. The switch arm 85 is pivoted at 87 to the upward extension 62 of the bracket 36. The switch arm 85 is provided with a boss 88 forming a bearing so that the switch arm may be moved lengthwise of the bearing, i. e., to the right or left as shown in Fig. 10, and thereby the contact point 86 may be moved lengthwise of the triangular platform 84. This is accomplished by a bracket 89 slidable on a pin 90 fixed to the extension 62 of bracket 36 and having a horizontal arm 91 with a hole in it which embraces the pin 92 on the upper end of the switch arm 85. The bracket 89 may be slid lengthwise of the fixed pin 90 by means of a thumb nut 93 on the end of a screw 94 which passes through a screw-threaded hole 95 in the depending arm of the bracket 89. The bracket 89 is slotted as shown at 98 in Fig. 11 to permit the pin 92 on the switch arm 85 to move during the swinging movement of the switch arm but the slot fits the pin closely enough so that it will move the switch arm along the pivot shaft 87 when the parts are being adjusted to vary the range of permissible variation of the sliver. By turning the thumb nut 93 the position of the contact point 86 with respect to the width of the triangular platform 84 may be varied and thereby the permissible range of variation in size of the sliver may be changed without substituting a different platform. For instance, if the movable contact point is adjusted so that it will travel along the line *a*, *b* in Fig. 12, a relatively large variation in the size of the sliver will be permitted. On the other hand, if it is adjusted so that the travel is along the line *c*, *d* in Fig. 12, the travel will be short and variations in the size of the sliver will be kept within close limits. By this arrangement the operator may adjust the machine to permit certain variations in size of sliver.

The relation at the contact point to the width of the triangular surface of the platform will be seen in Fig. 11 in which the machine is shown as adjusted to permit small variations in size, for instance, about that indicated by the line *c*, *d* in Fig. 12.

Otherwise than as described, the construction and mode of operation of the device shown in Figs. 9–12 is the same as in Figs. 1–18 inclusive. Under certain conditions, it is desirable to use interchangeable platforms of different size such as are shown in Fig. 8 while under other conditions the use of a platform with converging sides is desirable. While I have shown in Figs. 3 and 8 circular platforms and in Figs. 9, 10, 11 and 12 platforms which are triangular in shape, and vary in width from front to back it will be understood that the essential thing is to have a platform which will allow the predetermined variations in width but will stop the machine when the prescribed variations are exceeded.

I claim:

1. In a defective work detector for drafting machine producing a sliver and in combination, a feeler resting on the sliver, a feeler arm movable by the feeler, a flat platform carried by the feeler arm, stop mechanism, a switch arm normally in substantially horizontal position and having a contact point resting on the platform on the feeler arm, and a mercury switch on the switch arm and operating to actuate the stop mechanism and stop the machine when the switch arm is moved out of horizontal position by movement of the platform out of contact with the contact point.

2. A defective work detector mechanism for operating a stop mechanism in a drafting machine which produces a sliver, comprising movable means including a feeler element arranged to make contact with a moving sliver and to move in either of opposite directions in response to variations in said sliver, said movable means including a substantially horizontal platform movable generally horizontally in either of two directions in response to the movement of said feeler element, a downwardly movable switch operating element normally upwardly supported by said platform, said platform having a top surface including opposite edge portions defining limits of upward support by said platform for said switch operating element, and control mechanism for said stop mechanism including a switch actuated by downward movement of said switch operating element from its normal position on the top surface below either of said opposite edge portions when said platform moves in either direction beyond said limits of support and out from under said switch operating element in response to the movement of said feeler.

3. In the combination as set forth in claim 2, said platform being removably replaceable by another platform having a different distance between said edge portions thereby defining different said limits of upward support.

4. In the combination as set forth in claim 2, said edge portions converging in a direction lateral to the said directions of movement of said platform, and means adjustably to shift the position of said switch operating element in said lateral direction relative to said converging edge portions thereby to vary the said limits of upward support.

5. In the combination as set forth in claim 2, counterbalancing means for said movable means whereby the movable means may be adjusted so that the said feeler element makes sensitively responsive contact with said sliver.

6. A defective work detector mechanism for operating a stop mechanism in a drafting machine which produces a sliver, comprising pivotally movable means including a horizontal arm and a vertical arm movable in either of opposite directions in response to the movement of said horizontal arm, said horizontal arm having a feeler element arranged to make contact with a sliver moving thereunder and to move up and down in response to variations in said sliver, said vertical arm having on its upper end a substantially horizontal platform, a pivotally mounted switch arm normally upwardly supported by said plat-

form, said platform having a top surface including opposite edge portions defining limits of upward support by said platform for said switch arm, and control mechanism for said stop mechanism including a switch actuated by downward movement of said switch arm when said platform moves in either direction beyond said limits of support and out from under said switch arm in response to the movement of said feeler.

7. In the combination as set forth in claim 6, said platform being removably replaceable by another platform having a different distance between said edge portions thereby defining different said limits of upward support.

8. In the combination as set forth in claim 6, said edge portions converging in a direction lateral to the said directions of movement of said platform, and means adjustably to shift the position of said switch arm in said lateral direction relative to said converging edge portions thereby to vary the said limits of upward support.

9. In the combination as set forth in claim 6, counterbalancing means for said pivotally movable means whereby the pivotally movable means may be adjusted so that the said feeler element makes sensitively responsive contact with said sliver.

References Cited in the file of this patent

UNITED STATES PATENTS

327,696	King	Oct. 6, 1885
538,537	Rogers	Apr. 30, 1895
581,548	Geb	Apr. 27, 1897
1,892,116	Parker	Dec. 27, 1932