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Martin, Sr. et al.

[11] **3,727,907**

[45] **Apr. 17, 1973**

[54] **CLOTH FEEDING AND SPREADING MECHANISM FOR CLOTH SPREADING MACHINE**

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[52] **U.S. Cl.** **270/31**

[51] **Int. Cl.** **B65h 29/46**

[58] **Field of Search** 270/30–31; 226/39, 44; 242/75.43, 75.44, 75.51

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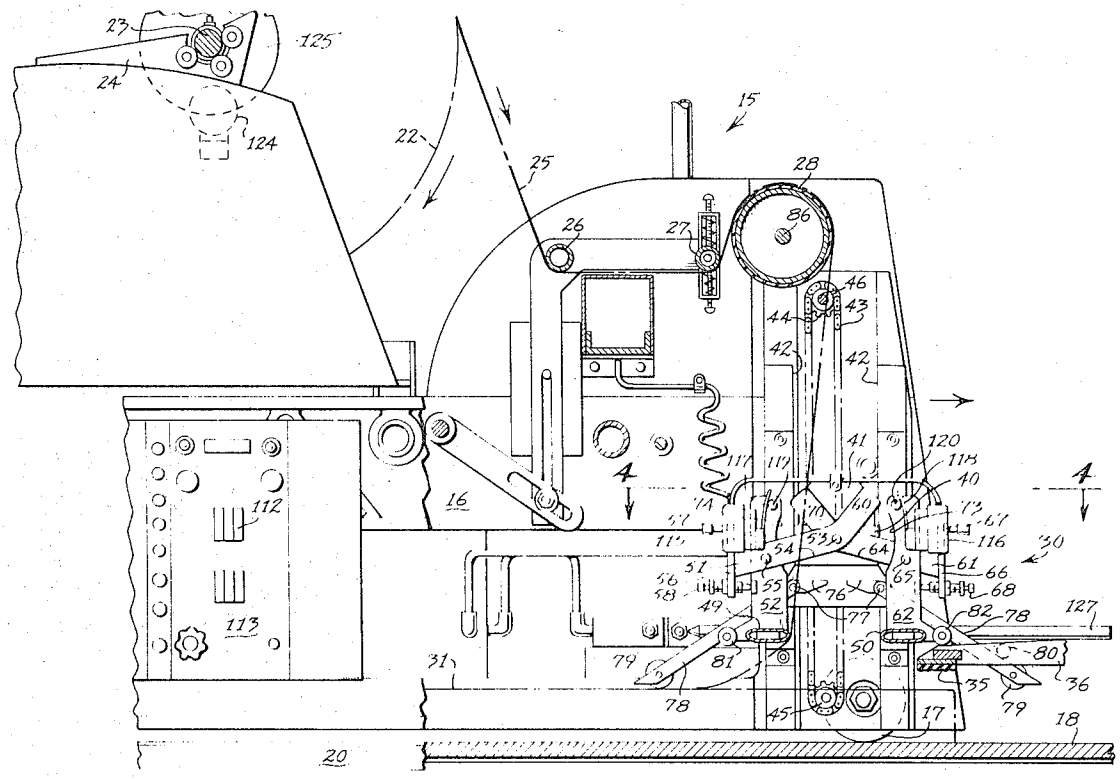
[57] **ABSTRACT**

A spreading mechanism for a cloth spreading machine incorporating a pair of pivotally supported depending opposed tuck blades for cooperation with a conventional catcher mechanism in such a manner that the leading tuck blade is elevated by the catcher to swing away from the trailing tuck blade.

Each tuck blade is provided with a link member and a latching member so that when the leading tuck blade is swung upward away from the trailing tuck blade, the latch members engage the opposing link members to latch the trailing tuck blade in its spreading position, while the leading tuck blade is latched in its elevated non-spreading position.

A cloth feed mechanism for the spreading machine including a positively driven cloth feed roll, a first drive means for driving the feed roll at a normal speed related to the movement of the machine over a spreading table; a second drive means responsive to the cloth tension for driving the feed roll at a second speed faster than the normal speed; and a third drive means responsive to the end-folding position of the machine for driving the feed roll at a third speed faster than the first speed.

9 Claims, 11 Drawing Figures



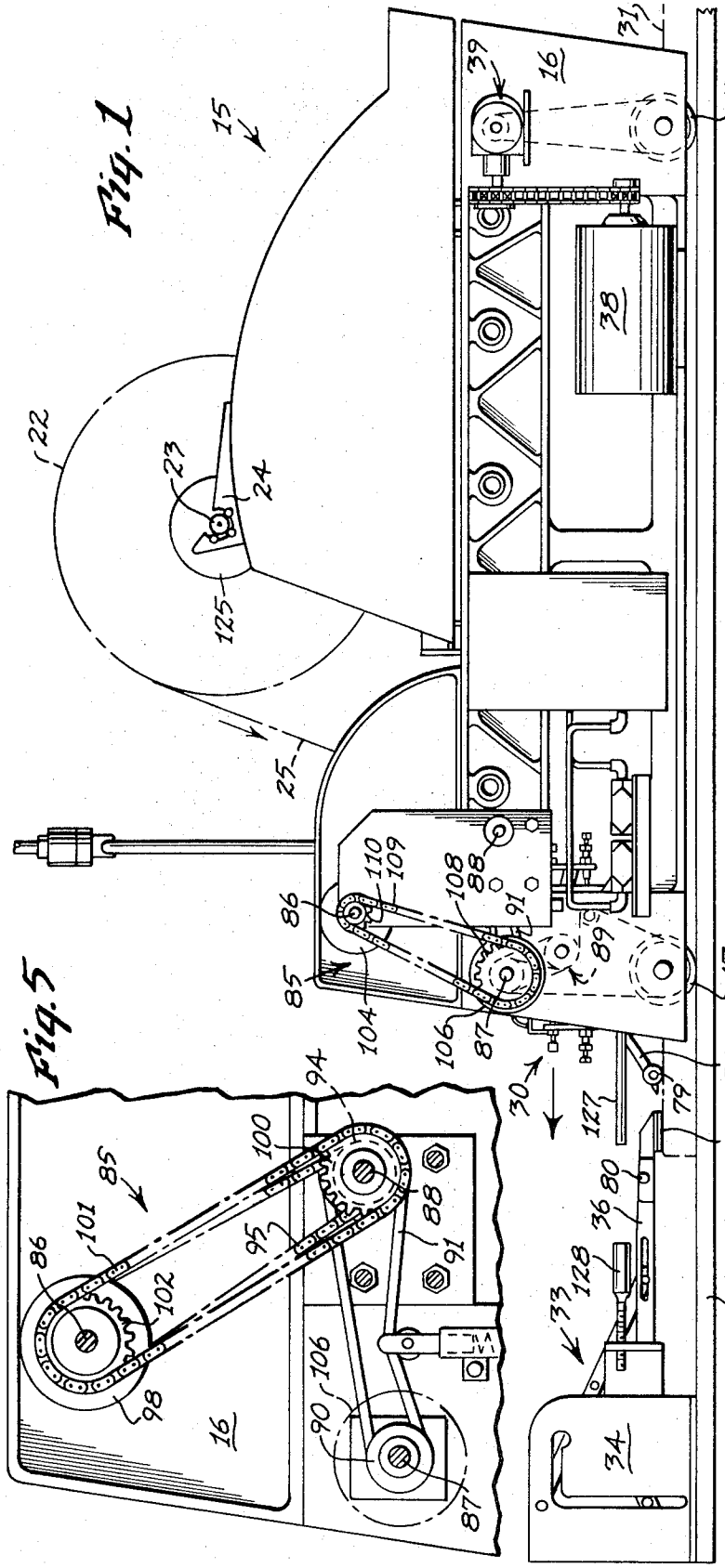


Fig. 1

Fig. 5

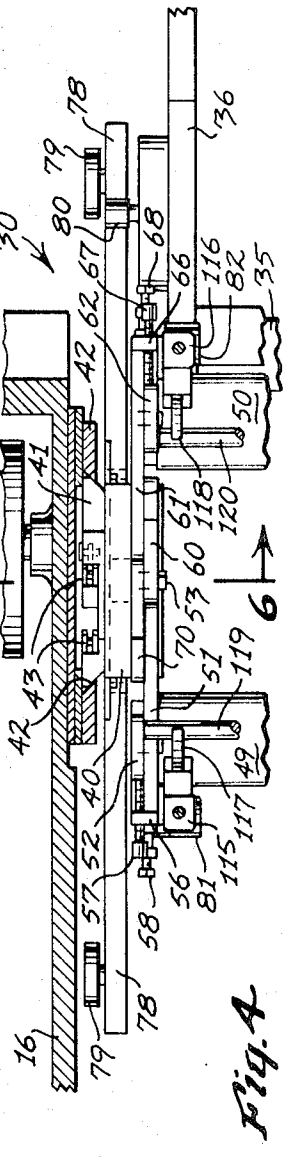


Fig. 4

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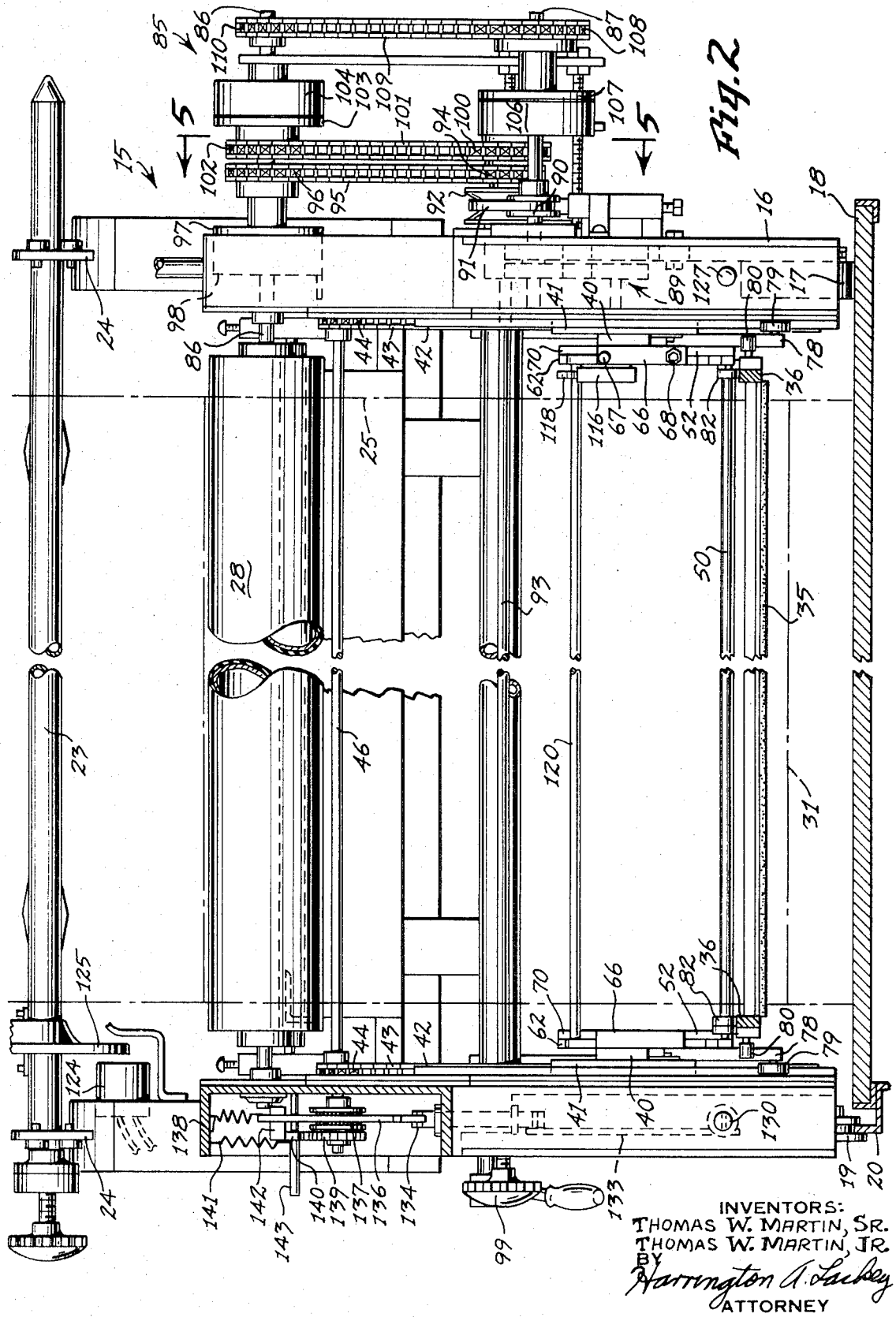

Fig. 2

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Fig. 11

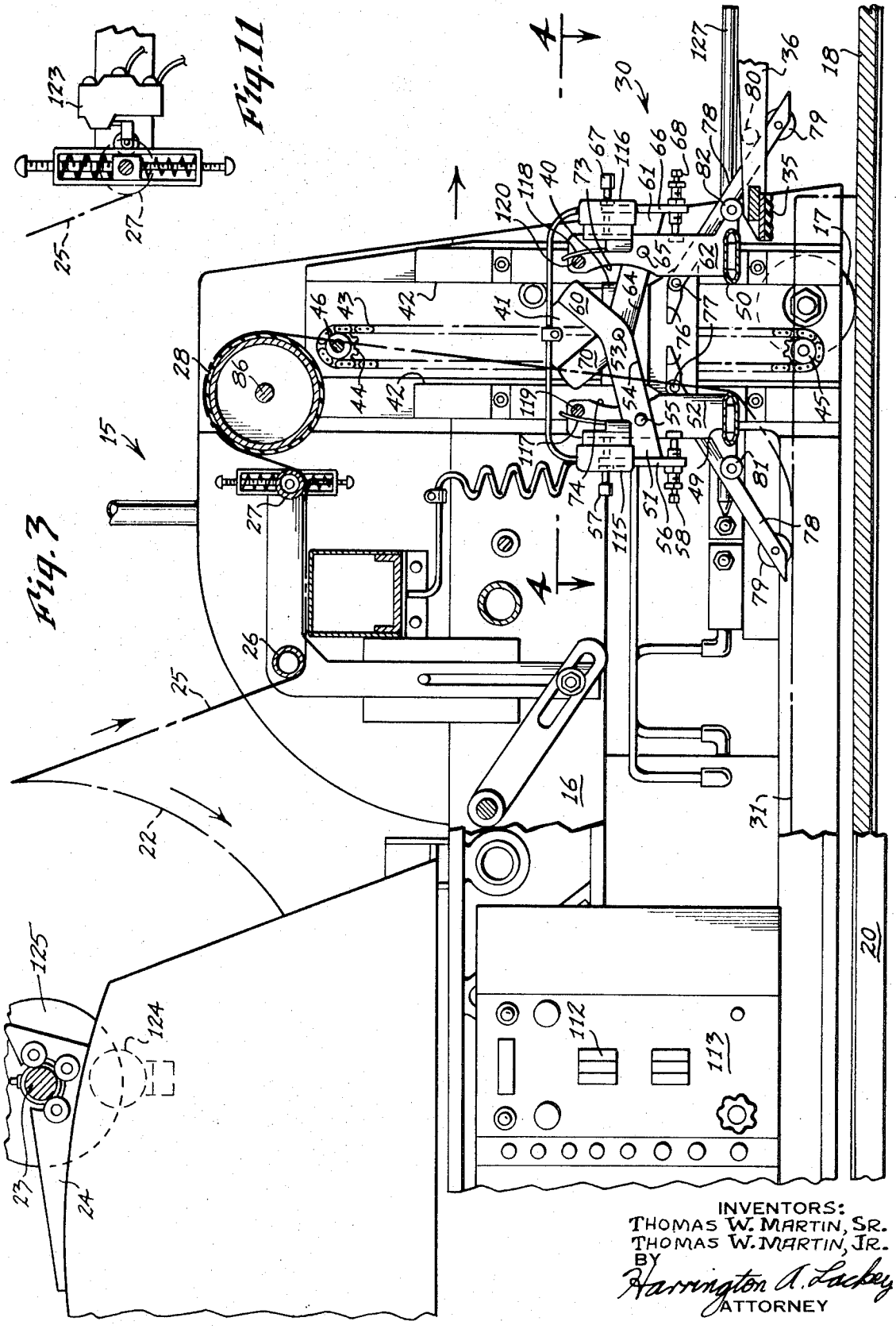

Fig. 3

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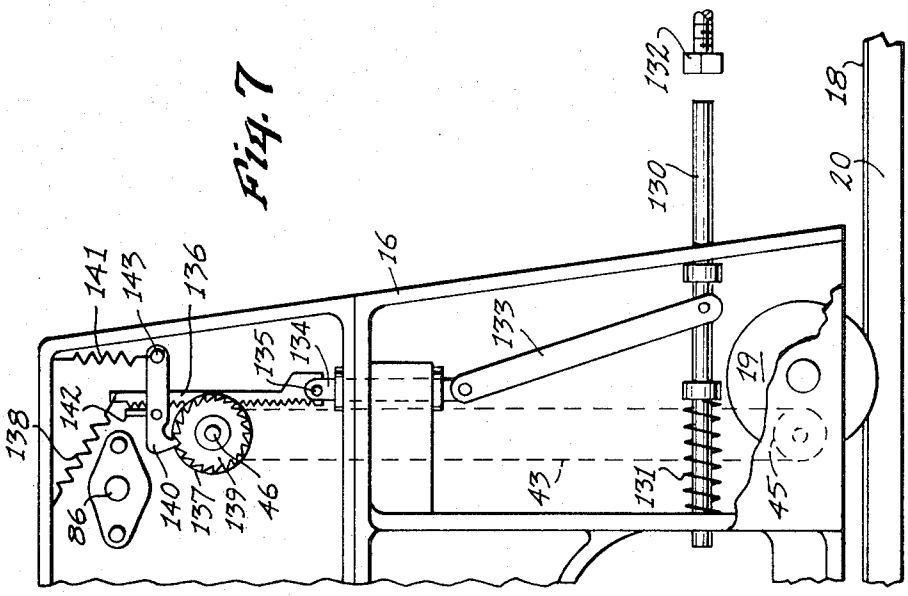

Fig. 7

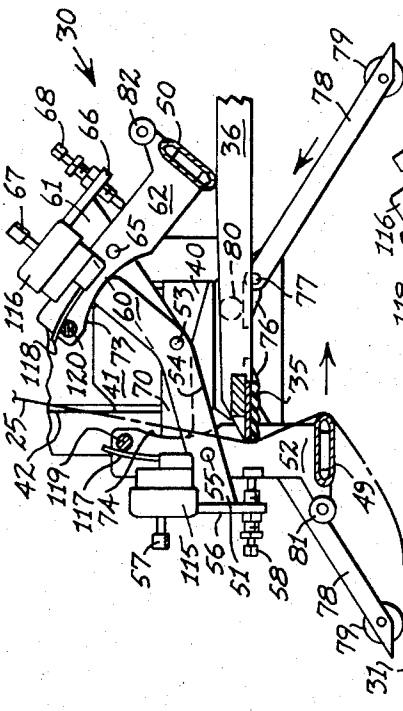

Fig. 8

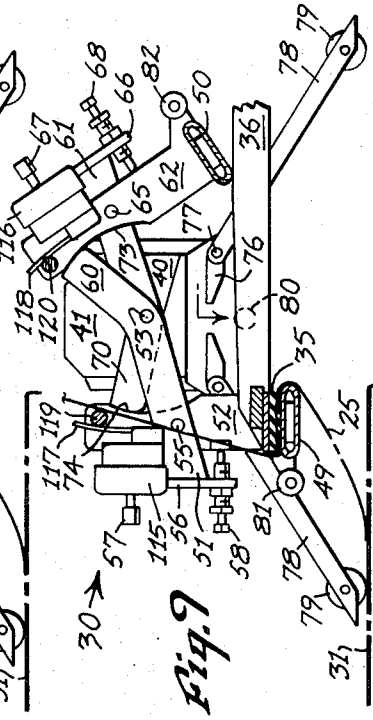

Fig. 9

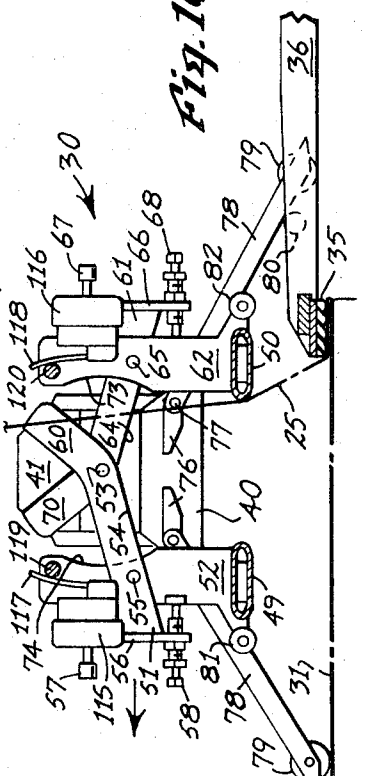

Fig. 10

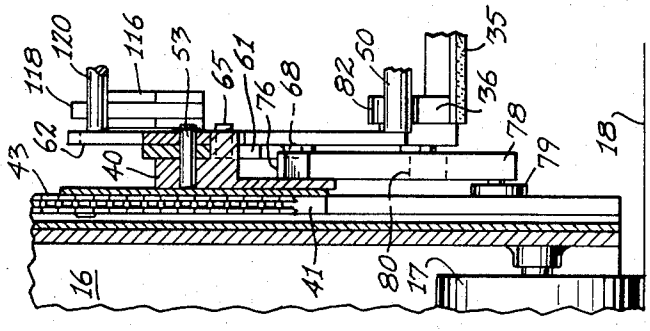

Fig. 6

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CLOTH FEEDING AND SPREADING MECHANISM FOR CLOTH SPREADING MACHINE

BACKGROUND OF THE INVENTION

This invention relates to a cloth spreading machine, and more particularly to an improvement in the cloth feeding and spreading mechanism for a cloth spreading machine.

The spreading mechanisms of cloth spreading machines generally include a pair of tuck blades, each of which is adapted to move relative to the other, either in a vertical movement or in a swinging movement toward the other tuck blade when engaged by the catcher mechanism at the end of the spreading path.

The trailing tuck blade should be held in a comparatively statonary position so that the catcher bar will always drop, not only upon the trailing tuck blade, but also in as near the same position upon the tuck blade as possible for each spreading cycle. Latching of the trailing tuck blade is taught in the Theodosiou U.S. Pat. No. 3,112,107 and in the Grimm et al. U.S. Pat. No. 3,473,798. However, in both of these patents, the tuck blades are pivotally mounted so that the leading tuck blade is swung in toward the trailing tuck blade upon actuation by the catcher mechanism.

It is also important in the spreading of cloth that the cloth be spread at as nearly a constant tension as possible so that the cloth will not be stretched and the spread layers of cloth will not be wrinkled. One common method of maintaining uniform tension in the cloth is to employ a dancer roller, such as that disclosed in the above Theodosiou U.S. Pat. No. 3,112,107. The dancer roller, responsive to the tension in the cloth, actuates a brake upon the feed roller to maintain substantially uniform tension. Dancer rollers have also been employed in combination with electrical switches for controlling electrical drive means for feeding or not feeding the cloth.

Another problem in cloth spreading machines is the extra demand for cloth created by the interengagement of the catcher bar with the tuck blades. The actuation of the catcher mechanism, many times, jerks the cloth it needs from the cloth supply or the cloth feed mechanism and its sudden demand for an extra amount of cloth is usually greater than conventional dancer rolls and cloth sensing mechanisms can immediately produce.

SUMMARY OF THE INVENTION

It is therefore an object of this invention to overcome the above enumerated problems by providing a cloth spreading machine incorporating an improved cloth spreading device and cloth feeding mechanism.

One object of this invention is to provide a cloth spreader device in which the leading tuck blade is swung upward away from the trailing tuck blade, so that there is more head room for the catcher bar between the tuck blades.

Another object of this invention is to provide a pair of tuck blades having latching members which automatically latch the trailing tuck blade in a dependent relatively stationary spreading position when the leading tuck blade is elevated to its non-spreading position. The latch members are also adapted to mutually latch both tuck blades in their spread-apart, spreading and non-spreading positions, respectively. Each tuck blade is provided with a link member having an upwardly projecting latch arm which swings down into contact with the other link member when the leading tuck blade is swung upward.

The link member of each tuck blade is made in two parts pivotally connected to each other, so that the tuck blades are free to depend with slight limited pivotal movement to compensate for slight variations in the tension of the cloth.

The movement of the depending tuck blades is also adapted to cooperate with electrical switch means for controlling cloth feed to the tuck blades.

In this spreading device, each tuck blade also functions as a dancer bar.

The cloth feed means includes a positively driven feed roller provided with three separate transmissions, each transmission having a larger sprocket than the previous transmission, and each successive transmission being adapted to override the preceding transmission upon actuation. The first drive means is coupled to the motive means for moving the machine or carriage so that the feed roll is driven at a speed related to the table speed of the carriage. The second drive means is provided with a slight overfeed in response to variations in tension of the cloth against the trailing tuck blade. The third drive means is actuated by a switch mechanism each time the carriage moves into engagement with a catcher mechanism so that the speed of the feed roll is increased about three times its normal feed in order to quickly supply the cloth demands of the end-folding operation of the catcher mechanism.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a remote or left-side elevation of a cloth spreading machine and catcher mechanism made in accordance with this invention, mounted on a spreading table, shown fragmentarily;

FIG. 2 is an enlarged front elevation of the spreading machine disclosed in FiG. 1, with parts broken away and with the table shown in section;

FIG. 3 is an enlarged, fragmentary, proximal or right-side elevation of the cloth spreading machine, with parts broken away, and disclosing the spreader device in an initial step cooperating with the catcher mechanism, disclosed fragmentarily;

FIG. 4 is a fragmentary section of the left front portion of the spreading machine, taken along the line 4—4 of FIG. 3;

FIG. 5 is an enlarged fragmentary section taken along the line 5—5 of FIG. 2;

FIG. 6 is a fragmentary section taken along the line 6—6 of FIG. 4;

FIG. 7 is a fragmentary, right-side elevation of the front portion of the spreading machine, with parts broken away to show the elevator actuator mechanism;

FIG. 8 is a fragmentary schematic view of the cooperation of the spreading device and catcher mechanism in a step subsequent to the operation disclosed in FIG. 3;

FIG. 9 is a schematic view similar to FIG. 8 showing a subsequent step;

FIG. 10 is a schematic view similar to FIG. 9 showing a further step in which the end-fold has been completed, and the spreading machine is moving in a reverse direction; and

FIG. 11 is an enlarged, fragmentary view of a dancer roll and sensing switch for controlling the cloth supply brake.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now more particularly to FIGS. 1, 2 and 3, the cloth spreading machine 15 made in accordance with this invention includes a carriage or carriage frame 16 supported by smooth-surfaced wheels 17 on the left or remote side of the frame 16 for rolling movement over the top surface of a spreading or cutting table 18. The right or proximal side of the machine is supported by grooved wheels 19 for movement along the track or rail 20.

Mounted on the frame 16 is a cloth supply, such as the cloth roll 22, supported on spindle 23 journaled at its opposite ends for rotary movement in the cradles 24. The cloth web 25 is unwound from the roll 22, passing beneath guide bar 26, dancer roller 27, over the top cloth feed roll 28, and then down to the spreader device 30, where the cloth web 25 is spread in layers 31 upon the table 18.

As best disclosed in FIG. 1, a catcher mechanism 33 including a standard 34 and catcher bar 35 is mounted in a fixed position upon the table 18 at one end of the longitudinal spreading path of the carriage frame 16. The catcher bar 35 is supported for vertical movement by the arms 36 from the standard 34. As disclosed in FIG. 1, the catcher mechanism 33 is located at the front end of the spreading machine 15 adjacent the forward extremity of the spreading path. A similar catcher mechanism is also located at the opposite end of the spreading path, not shown.

The carriage frame 16 is driven by the electric motor 38 which drives the rear wheels 17 through the reduction transmission 39, as disclosed in FIG. 1.

The spreader device 30 includes a spreader frame, or end frames 40, to which are fixed guide plates 41, dovetailed in vertical tracks 42 for vertical reciprocable movement. The guide plates 41 are fixed to the opposite ends of the endless chains 43 trained around upper and lower sprockets 44 and 45, respectively. The upper sprocket 44 is duplicated at each end of a transverse rotary shaft 46.

Suspended between the end frames 40 are the transverse, opposed tuck blades 49 and 50. Each end of the tuck blades 49 and 50 are pivotally supported from the pair of end frames 40 by a pair of link members. The link members supporting the opposite ends of the rear tuck blade 49 each preferably comprise two parts, a rear link arm 51 and rear leg 52. The rear link arm 51 is pivotally mounted upon the end frame 40 by pivot pin 53 and normally rests upon stop ledge 54 forming an integral part of the end frame 40, so that the rear link arm 51 declines rearwardly. The rear portion of the link arm 51 is pivotally connected by pivot pin 55 to leg 52, the bottom end of which is fixed to one end of the rear tuck blade 49. The upper portion of the leg 52 projects above its pivotal connection at pin 55 and above the rear link arm 51.

Fixed to the rear end of the rear link arm 51 is a bracket 56 which is disposed substantially parallel to the rear edge of the leg 52, and is shown substantially vertical, in the normal spreading position of the rear tuck blade 49. Projecting forward from the upper end of the bracket 56 is a stop lug or pin 57 engaging the rear edge of the rear leg 52 above its pivot pin 55. Projecting forward from the lower end of the bracket 56 is an adjustable spring-biased plunger 58 engaging the rear portion of the leg 52 below the pivotal axis of the pin 55.

Forming an upward and forward projecting integral extension of the rear link arm 51 is the rear latch member or latch arm 60.

In a similar manner, the front tuck blade 50 is suspended from the end frame 40 by a link member. The front link member is also formed in two parts, a front link arm 61 and a front leg 62, identical to the rear arm 51 and rear leg 52. The rear portion of the link arm 61 is pivotally mounted to the end frames 40 by the same pivot pin 53 that supports the rear link arm 51. The front link arm 61 also declines forward upon the stop ledge 64. The leg 62 is pivotally connected to the front portion of the link arm 61 by pivot pin 65, so that the upper portion of the leg 62 projects above the pin 65. The front end of the link arm 61 also supports a bracket or plate 66 having an upper stop lug 67 projecting rearward against the front edge of the leg 62 above the pivotal axis of the pin 65. A spring-biased adjustable plunger 68 is supported in the lower portion of the bracket 66 to project against the front edge of leg 62 below the pivotal axis of the pin 65, in a manner similar to the bracket 56 and biased plunger 58.

Angling upward and rearward as an integral part of the front link arm 61 on the opposite side of the pivot pin 53 is the front latch member or latch arm 70.

The location and dimensions of the respective latch arms 60 and 70 are such that when either of the tuck blades 49 or 50 is swung from its normal spreading position away from the opposite tuck blade, such as indicated by the outwardly swung tuck blade 50 in FIGS. 8 and 9, the ends of the latch arms 60 and 70 will be received within the arcuate recesses 73 and 74, respectively, formed in the opposed edges of the upper portions of the respective legs 62 and 52. The recesses 73 and 74 are so formed that as the tuck blades 49 and 50 gradually swing away from each other, the ends of the latch arms 60 and 70 will gradually wedge against the arcuate surfaces of the recesses 73 and 74. In other words, the lower portions of the recesses 73 and 74 have a slightly shorter radius than the upper portion of the recesses, relative to the pivot pin 53 as a center.

Also fixed to the inner face of each end frame 40 are a pair of opposed spaced apart lands 76, to the opposite ends of which are pivoted by pins 77 forward and rearward declining cam arms 78, the bottom ends of which support cam rollers 79.

Projecting laterally outward of the catcher arms 36 are cam rollers 80, which are adapted to ride up the inclined surfaces of the cam arms 78, to lift the catcher bar 35, in a well-known manner, as the carriage frame 16 approaches and cooperates with the catcher mechanism 33.

Each tuck blade 49 and 50 is also provided with a cam roller 82 and 82, respectively, on the opposite side of each respective tuck blade from the other tuck blade, to engage the upper portion of the catcher bar 35 as the bar is elevated on the inclined cam arms 78 to initiate the outward swinging movement of the respec-

tive tuck blades 49 and 50. FIG. 3 shows the upper portion of the catcher bar 35 engaging the cam roller 82 of the tuck blade 50 as the catcher cam roller 80 is riding up the inclined cam arm 78. As the catcher bar 35 continues to rise, the tuck blade 50 itself engages the catcher arm 36, as shown in FIG. 8, causing the tuck blade 50 to swing upward until the catcher bar 35 has attained its highest elevation, as indicated in FIG. 8, where the catcher cam roller 80 is riding across the land 76. FIG. 9 shows the catcher cam roller 80 dropping through the space between the lands 76 permitting the catcher bar 35 to drop upon the tuck blade 49 to form the end-fold in the cloth web 25.

FIG. 10 shows a subsequent step in which the spreading machine has reversed its direction, the catcher bar 35 has wiped the end-fold from the retreating tuck blade 49, and the tuck blade 50 is assuming its spreading position as the trailing tuck blade in the reverse movement of the carriage frame 16.

This cooperation between the catcher bar 35 and tuck blades 49 and 50 is well-known in the art, except for the swinging of the leading tuck blade, such as tuck blade 50, away from the spreading trailing tuck blade 49.

As illustrated in FIGS. 8 and 9, as the front tuck blade 50 is swung forward and upward by the catcher bar 35 and catcher arms 36, the latch arms 60 and 70 swing into engagement with their respective arcuate recesses 73 and 74 of the respective legs 62 and 52 to simultaneously lock both legs against any further movement away from each other. At the same time, the upper stop lugs 57 and 67 limit the movement of the legs 52 and 62 toward each other about the pivot pins 55 and 65, respectively. The downward pivotal movement of the tuck blade 50 about the pivot pin 53 is controlled by the height of the catcher arms 36.

Therefore, while the leading tuck blade (front tuck blade 50 in FIGS. 8 and 9) is held in its raised forward non-spreading position by the catcher arms 36, the rear tuck blade 49 is held relatively stationary in its spreading position during the formation of the end-fold about the tuck blade 49 by the movement of the catcher bar 35.

After the end-fold is formed by the catcher bar 35, and the carriage frame 16 begins moving in the reverse direction, as illustrated in FIG. 10, the tuck blades 49 and 50 are restored to their normal depending spreading position, and the latch arms 60 and 70 are restored to their upper non-latching positions above the respective arcuate recesses 73 and 74.

The cloth web 25 is fed to the spreader device 30 by the positive driving of the top feed roll 28 at different speeds by the cloth feed control mechanism 85. The feed control mechanism 85 includes the cloth roll shaft 86 supporting the feed roll 28 and journaled in the carriage frame 16 for rotation. The feed control mechanism 85 also includes the drive shaft 87 and an intermediate driven shaft 88 mounted for rotation on the frame 16. The drive shaft 87 receives its power from the left front wheel 17 through a uni-directional transmission 89 of any conventional type, that is, a transmission which will drive the drive shaft 87 in the same direction regardless of the direction of rotation of the wheel 17. Various forms of such uni-directional transmissions are well-known in the art.

The drive shaft 87 carries a drive pulley 90, which transmits power through the belt 91 to the driven variable-speed pulley 92. The diameter of the variable-speed pulley 92 is changed by the rotary shaft 93 controlled by the hand knob 96, which is fixed to clutch disc 97. The driven sprocket 96 and clutch right or proximal side of the carriage frame 16. The driven pulley 92 is fixed to the driven shaft 88.

Also mounted on the driven shaft 88 is a first drive sprocket 94 coupled to the driven shaft 88 through a first overriding clutch. Power is transmitted from the first drive sprocket 94 through chain 95 to the first driven sprocket 96 and clutch disk 97 free-wheel upon the feed roll shaft 86. Clutch disc 97 is adapted to engage electromagnetic clutch 98, when energized, which is fixed to the feed roll shaft 86.

Also mounted upon the driven shaft 88 by means of a second overriding clutch, is a second drive sprocket 100 of slightly larger diameter than the first drive sprocket 94. Power is transmitted from the drive sprocket 100 through the chain 101 to the driven sprocket 102 fixed to clutch disc 103. Driven sprocket 102 and clutch disc 103 free-wheel upon the feed roll shaft 86. The clutch disc 103 is adapted to engage the magnetic clutch 104, when energized, which is also fixed to the feed roll shaft 86. Thus, because of the larger diameter of the second drive sprocket 100, it is apparent that when the magnetic clutch 104 is energized, the top feed roll 28 will be driven at a speed slightly greater than its normal speed, when driven by the magnetic clutch 98 alone. Because the first drive sprocket 94 is mounted on the first overriding clutch, magnetic clutch 104 controls the drive of the feed roll 28 whether the first magnetic clutch 98 is energized or not.

Also fixed to the drive shaft 87 is a third magnetic clutch 106 adapted, when energized, to engage the clutch disc 107 integral with a third drive sprocket 108. When the clutch disc 107 is disengaged from the clutch 106, the clutch disc 107 and drive sprocket 108 free-wheel upon the drive shaft 87. Power is transmitted from the third drive sprocket 108 through chain 109 to driven sprocket 110 fixed to the end of the feed roll shaft 86. Since the diameter of the third drive sprocket 108 is greater, preferably about three times greater, than the diameter of the first drive sprocket 94, then the speed of the feed roll 28 will be accelerated to a speed about three times its normal speed, when the magnetic clutch 106 is energized. When the third magnetic clutch 106 is energized, the drive which it transmits to the cloth feed roll 86 will overfeed the drives to the feed shaft 86 imposed by the first and second magnetic clutches 98 and 104, respectively, whether they are energized or not, because of the supporting first and second overrunning clutches.

Normally, the magnetic clutch 98 is energized to engage the clutch disc 97, while the magnetic clutches 104 and 106 are normally de-energized. The size of the sprockets 94 and 96 and the adjustment of the variable driven pulley 92 is such that the top feed roll 28 is driven from the carriage wheel 17 at a rate related to the table speed of the carriage frame 16. Normally, the top feed roll 28 is driven to feed the cloth web 25 at a speed slightly less than the speed of the carriage frame 16 in order to maintain a slight tension in the cloth 25.

This speed, of course, can be varied by manipulating the knob **99** to vary the diameter of the driven pulley **92**.

A manual switch **112** is provided on the control panel **113** for de-energizing the first magnetic clutch **98** so that the top feed roll **28** may free-wheel for threading, dead-heading, or for any other purpose.

Mounted upon each of the brackets **56** and **66**, respectively, are front and rear micro-switches **115** and **116** having switch fingers **117** and **118**, each of which is disclosed in FIG. **3**, engaging switch actuator rods **119** and **120** fixed to the upper portions of the legs **52** and **62**, respectively. Switch finger **117** and switch actuator rod **119** cooperate with each other in such a manner that when excessive tension develops in the cloth web **25** against the rear tuck blade **49** in spreading position, the tuck blade **49** is urged rearwardly about the pivot pin **55**, causing the actuator rod **119** to move forward away from the switch finger **117**, thereby actuating the switch **115** to energize the second magnetic clutch **104**. The cloth feed shaft **86** is then overdriven by an amount proportional to the difference in the diameters of the first and second drive sprockets **94** and **100**. The cloth web **25** will continue to be fed at the slightly faster rate until the web tension is relaxed against the tuck blade **49**. The tuck blade **49** is then restored to its normal spreading position, causing the actuator rod **119** to resume its normal position against the switch finger **117** to de-actuate the micro-switch **115**. The front micro-switch **116**, switch finger **118** and actuator rod **120** function in the same manner as their rear counter-parts **115**, **117** and **119**, when the tuck blade **50** functions as the trailing spreader blade after the carriage frame **16** reverses its forward travel to move rearward, as disclosed in FIG. **10**.

In this manner, tuck blades **49** and **50** function, not only as conventional spreading tuck blades, but also as dancer bars sensitive to the tension in the web **25**.

As best disclosed in FIGS. **3** and **11**, a dancer roll **27** may also be provided between the top feed roll **28** and the cloth supply roll **22** to actuate micro-switch **123**, when slack develops in the portion of the cloth web **25** between the rolls **22** and **28**, to energize electromagnetic brake **24** to produce a flux in the ferromagnetic brake disc **125** fixed upon the cloth roll spindle **23** to retard the rotation of the cloth supply roll **22** until the excessive slack is removed from this portion of web **25**.

The third electromagnetic clutch **106** is energized by a switch, not shown, which is actuated by the depression of the plunger rod **127** engaging the stop **128** fixed to the catcher standard **34**, as the carriage frame **16** approaches the end of its forward travel and the spreader device **30** cooperates with the catcher mechanism **33**. When the magnetic clutch **106** is energized to engage the clutch disc **107**, the cloth feed roll **28** is accelerated to a speed approximately three times its normal speed, by virtue of the much larger third drive sprocket **108**. Because of the overriding clutches associated with the fist and second drive sprockets **94** and **100**, the third drive sprocket **108** overfeeds both magnetic clutches **98** and **104**, even if they are energized. This greatly accelerated overfeed provides the extra cloth supply demanded by the end-folding of the web **25** produced by the engagement of the catcher bar **35** with the trailing blade **49**, as shown in FIG. **9**. As the spreader device **30** reverses and leaves the catcher mechanism **33**, plunger rod **127** is released to de-energize the third magnetic clutch **106** to restore the cloth feed roll to its normal speed. The extra slack developed by the removal of the tuck blade **49** from beneath the catcher bar **33** is taken up in the normal spreading operation by the normal underfeeding of the top feed roll **28**.

The spreader device **30** is elevated at uniform increments upon each spreading cycle of the carriage frame **16**. The mechanism for elevating the spreader device **30** is best disclosed in FIG. **7**. A plunger rod **130** is mounted for longitudinal reciprocable movement in the right front portion of the frame **16**, and is biased to a forward position by the spring **131**. The plunger rod **130** is depressed rearward when it engages the stop pin **132** fixed to the table or to the catcher mechanism **33** in any convenient manner. As the plunger rod **130** is pushed rearward by the stop pin **132**, the pivoted link arm **133** is urged to a vertical position to force upward the vertically reciprocal actuator rod **134**, also pivotally connected to link arm **133**. Pivoted by pin **135** to the top of the actuator rod **134** is a rack **136** biased into engagement with rotary gear **137** by spring **138**. The rotary gear **137** is fixed upon the elevator shaft **46**, so that each upward stroke of the rack **136** rotates the gear **137** and shaft **46** a small uniform distance to raise the spreader end frames **40**.

As the carriage frame **16** reverses to move rearward, plunger rod **130** is returned to its forward position by the spring **131**, permitting the rack **136** to be lowered to its original position. However, the rotary gear **137** is held in its actuated position by the ratchet **139** and holding pawl **140** biased into ratcheting position with the ratchet **139** by the spring **141**.

Fixed to the pawl **140** and extending transversely behind and adjacent to the rack **136** is a release arm **142** so positioned that when a handle **143** on the front end of the pawl **140** is depressed, not only is the locking pawl **140** released from the ratchet **139**, but also the release arm **142** engages and thrusts forward the rack **136** about its pivot pin **135** to release the rack from the rotary gear **137**. In this manner, the spreader frame **130** may be easily lowered to the table after a desired number of layers **31** have been spread and removed from the table **18**, preparatory to the next spreading cycle.

What is claimed:

1. In a cloth spreading machine including a carriage frame adapted for relative longitudinal reciprocal movement in a path over a spreading table, and a cloth supply mounted on said carriage frame, a cloth feeding and spreading mechanism comprising:

a. a spreader frame mounted on said carriage frame for vertical reciprocal movement,

b. at least one elongated tuck blade having a spreading edge,

c. means mounting said tuck blade transversely of said reciprocating path on said spreader frame for movement between a normal spreading position in which said spreading edge extends adjacent to said spreading table, and a tension position spaced above said spreading position,

d. a cloth feed roll rotatably mounted on said carriage frame for feeding cloth from said supply to said spreader frame and across the spreading edge of said tuck blade,

e. means for driving said feed roll at different speeds including a normal speed related to the speed of said carriage frame relative to said table,

f. a sensing device on said spreader frame responsive to the position of said tuck blade relative to said spreader frame,

g. said sensing device being operatively connected to said driving means to drive said feed roll at said normal speed when said tuck blade is in said normal spreading position, and to drive said feed roll at a faster speed when said tuck blade is moved to said tension position by excessive tension in the cloth across and engaging said spreading edge, and

h. elevator means for automatically elevating said spreader frame to maintain said tuck blade a substantially uniform distance above the top layer of cloth on said table while in said spreading position as said carriage frame moves relatively over said table.

2. The invention according to claim 1 in which said means for driving said feed roll comprises electrical driving means, said sensing device comprising electrical switch means adjacent said tuck blade mounting means, actuable by the movement of said tuck blade.

3. The invention according to claim 1 in which said driving means comprises first drive means for driving said feed roll at said normal speed, and second drive means for overriding said first drive means to drive said roll at said faster speed than said normal speed, said sensing device being operatively connected to aid second drive means to actuate said second drive means when said tuck blade is in said tension position.

4. The invention according to claim 1 in which said means for mounting said tuck blade on said spreader frame comprises a leg fixed to said tuck blade, and means pivotally supporting said leg on said spreader frame for swinging movement between said spreading position and said tension position.

5. The invention according to claim 4 in which said means for driving said feed roll is electrically operated, and said sensing device comprises an electrical switch mounted on said spreader frame and having a switch actuator mounted in the path of said leg for actuation by the movement of said leg.

6. In a cloth spreading machine including a carriage frame adapted for relative longitudinal reciprocal movement in a path over a spreading table, a cloth supply mounted on said carriage frame, and a spreader device on said carriage frame for spreading cloth from said supply on said table, cloth feed means comprising:

a. a cloth feed roll rotatably mounted on said carriage frame for feeding cloth from said supply to said spreader device,

b. first drive means for driving said feed roll at a normal speed related to the speed of said carriage over said table,

c. second drive means for overriding said first drive means to drive said roll at a second speed faster than said normal speed,

d. means responsive to the tension in said cloth fed to said spreader device for actuating said second drive means,

e. third drive means for overriding said first and second drive means to drive said roll at a third speed faster than said second speed,

f. means responsive to the position of said carriage frame adjacent the end of said path to actuate said third drive means to overfeed cloth.

7. The invention according to claim 6 in which said first drive means comprises a feed roll shaft supporting said feed roll, motive means for driving said carriage frame, first transmission means including a first overriding clutch coupling said motive means to said feed roll shaft, said second drive means comprising second transmission means including first means for selectively coupling said motive means to said feed roll shaft to drive said shaft at said second speed when said second transmission means is coupled, said tension responsive means comprising a sensing device operatively connected to said first coupling means, said third drive means including third transmission means including second means for selectively coupling said motive means to said feed shaft, and a second overriding clutch in said second transmission means.

8. The invention according to claim 7 in which said first and second selective coupling means comprise electromagnetic clutches, said sensing device comprises an electrical switch, and said position responsive means comprises an electrical switch means on said carriage frame.

9. The invention according to claim 7 in which said first transmission means comprises a first sprocket mounted on said first overriding clutch, said second transmission means comprises a second sprocket mounted on said second overriding clutch, and said third transmission means comprises a third sprocket, said sprockets driving chains in each of said corresponding transmissions, so that the speed of the feed roll shaft is proportional to the diameters of the first, second or third sprockets.

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