

July 31, 1956

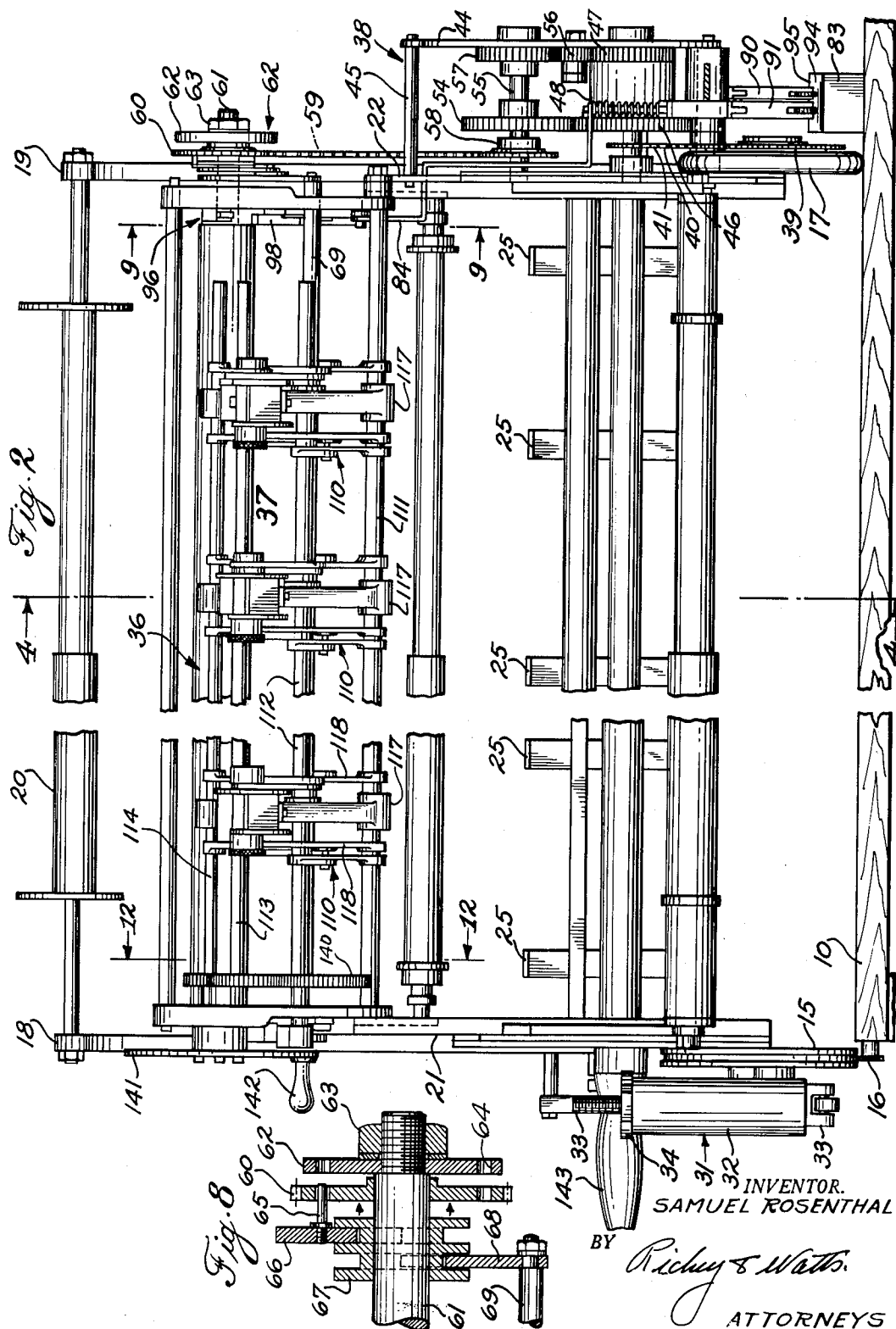
S. ROSENTHAL

2,756,992

METHOD AND APPARATUS FOR SHADE MARKING

Filed Sept. 26, 1950

5 Sheets-Sheet 2



July 31, 1956

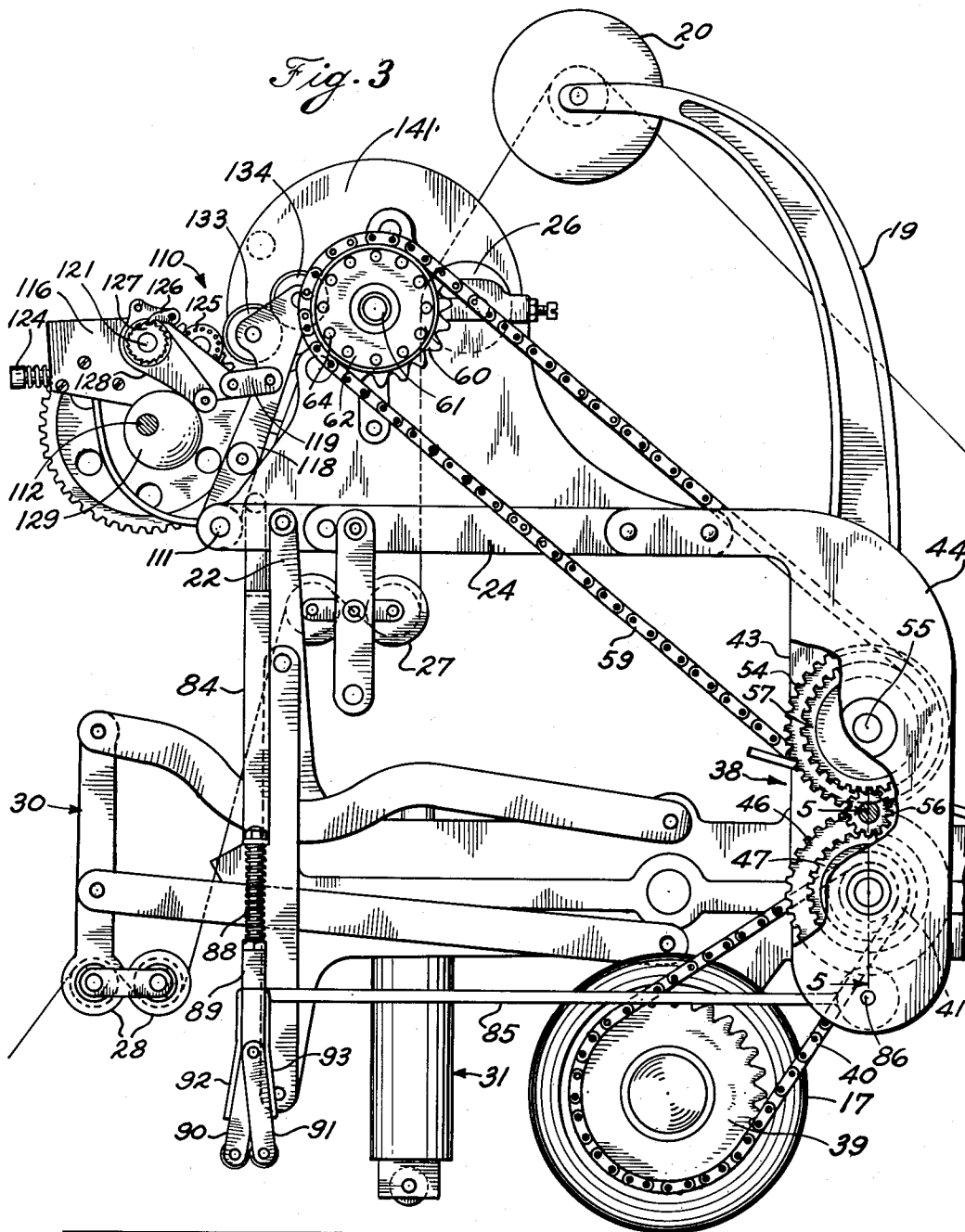
S. ROSENTHAL

2,756,992

METHOD AND APPARATUS FOR SHADE MARKING

Filed Sept. 26, 1950

5 Sheets-Sheet 3



INVENTOR.
SAMUEL ROSENTHAL

BY *Richy & Watto.*
ATTORNEYS

July 31, 1956

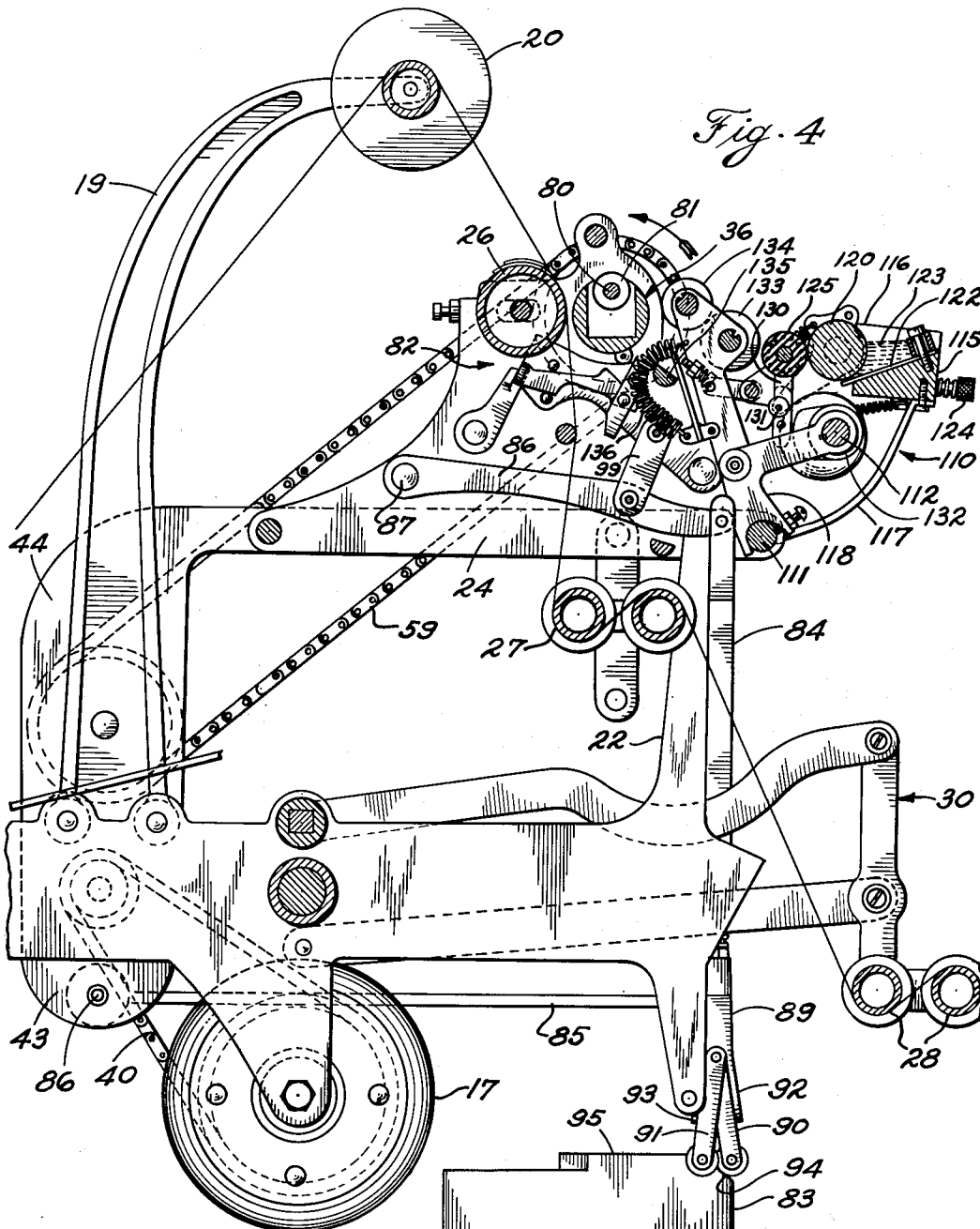
S. ROSENTHAL

2,756,992

METHOD AND APPARATUS FOR SHADE MARKING

Filed Sept. 26, 1950

5 Sheets-Sheet 4



INVENTOR.
SAMUEL ROSENTHAL

BY *Richy & Weth.*
ATTORNEYS

July 31, 1956

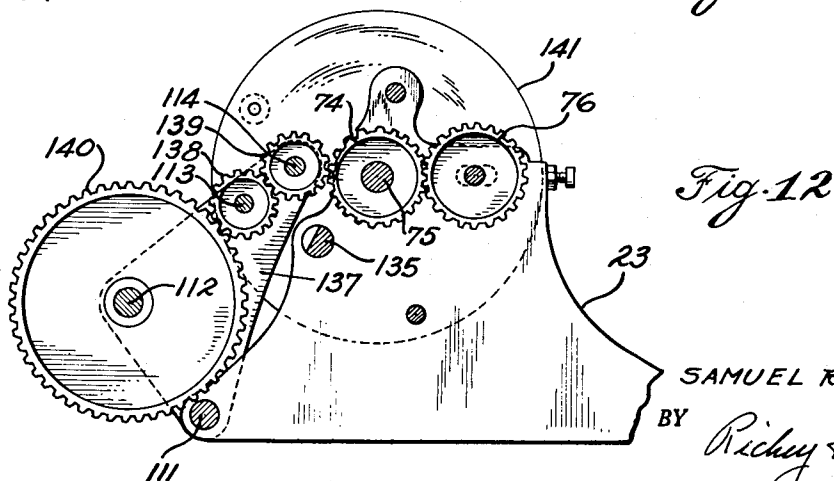
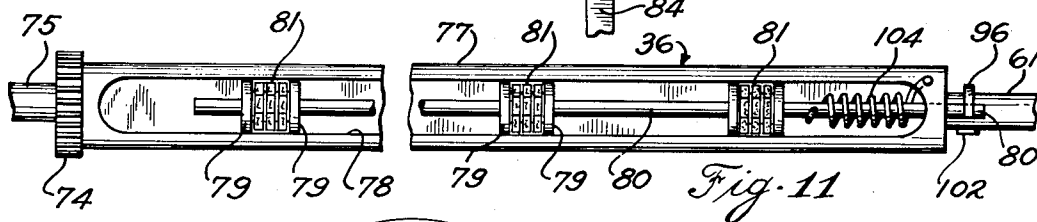
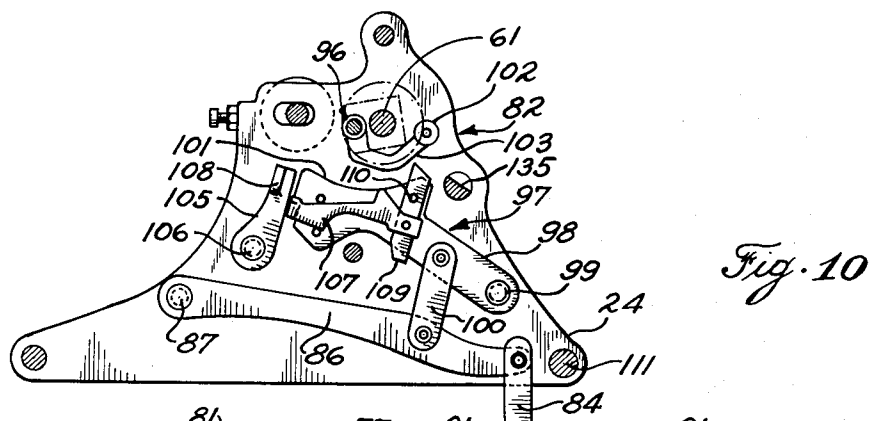
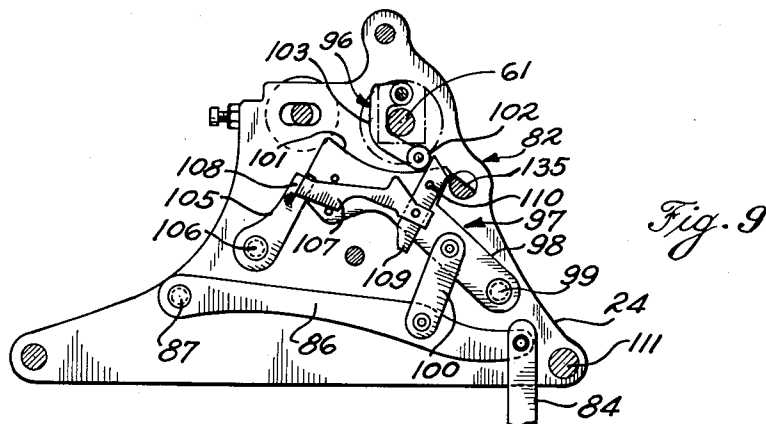
S. ROSENTHAL

2,756,992

METHOD AND APPARATUS FOR SHADE MARKING

Filed Sept. 26, 1950

5 Sheets-Sheet 5



INVENTOR.
SAMUEL ROSENTHAL

BY

Richy & Wills.

ATTORNEYS

1

2,756,992

METHOD AND APPARATUS FOR SHADE MARKING

Samuel Rosenthal, Cleveland, Ohio

Application September 26, 1950, Serial No. 186,826

16 Claims. (Cl. 270—1)

This invention relates to apparel manufacture and more particularly to a novel method of and apparatus for shade marking.

In the manufacture of wearing apparel, it is customary to form the blanks corresponding to the various portions of the garment by spreading a bolt of cloth in successive layers upon a cutting table. The outline of the various pieces which go to make up the garment are then laid out on the top layer of cloth and the entire thickness of the several layers of cloth is cut by a power driven shear. Each cutting operation thus produces a number of pieces of each blank depending upon the number of layers of cloth which are spread. Since the shade of the cloth in any given bolt will vary perceptibly from one end of the bolt to the other, it is then necessary that each piece of every group of pieces be manually ticketed to designate the layer of cloth from which the piece was cut. The finished garment must be then formed of pieces from the same layer of cloth in order that the shade of the completed garment be uniform.

The present invention is concerned with a novel method and apparatus whereby a cloth marking operation at the time of spreading is substituted for the usual subsequent manual ticketing operation. The apparatus of the invention includes the usual spreading table, a cloth spreader with which there is associated a marking mechanism, and apparatus for actuating the marking mechanism. One form of the marking mechanism serves to print marking numerals at spaced intervals or distances along the cloth as the cloth leaves the spreader, so that the cloth is covered with a matrix of numbers, the same number being used for each layer of cloth. The apparatus is so designed and arranged that the reversal of direction of the spreader coincident with the completion of one layer of cloth and the beginning of a new layer causes a change in the number printed upon the cloth.

An object of the invention is the automatic shade marking of cloth.

An object of the invention is the reduction of the cost of apparel manufacture.

An object of the invention is the reduction in the number of hand operations in apparel manufacture.

An object of the invention is the provision of apparatus for designating sheet material.

An object of the invention is the provision of apparatus for printing a matrix of characters upon sheet material.

Further objects and features of the invention will be more clearly understood from the following detailed description and claims taken in connection with the following drawings, in which:

Fig. 1 is a front elevational view of the apparatus of the invention;

Fig. 2 is a view of the apparatus of the invention showing particularly an end elevation view of the spreader and marking apparatus;

Fig. 3 is a rear elevation view of the spreader showing

2

particularly the drive apparatus and components of the inking apparatus;

Fig. 4 is an elevation view in section taken along the line 4—4 of Fig. 2 and showing particularly details of the printing and inking mechanism;

Fig. 5 is a transverse sectional view of the reversing clutch taken along the line 5—5 of Fig. 6;

Fig. 6 is a vertical sectional view taken along the line 6—6 of Fig. 5;

Fig. 7 is a top view of the table illustrating the manner in which the cloth is marked;

Fig. 8 is an enlarged sectional view of the drive clutch mechanism;

Figs. 9 and 10 are views taken along the line 9—9 of Fig. 2 illustrating the details and manner of operation of the register pawl actuating mechanism;

Fig. 11 is a top view of the printing roll; and

Fig. 12 is a sectional view taken along the line 12—12 of Fig. 2 illustrating particularly the drive gear for the various rolls.

Referring now to Figs. 1 and 2, the apparatus of the invention includes a table 10 upon which the cloth is spread in a pile 11 of superimposed layers. The layers are normally of a length such that the component portions of at least one garment may be laid out on the top layer for subsequent cutting of the entire pile. A spreader 12 carries the cloth in a pile 13 from which the cloth is drawn as the spreader traverses the length of the table. The cloth is normally constrained at the ends of the pile 11 in order to assist in the withdrawal of the cloth from the spreader and the uniform deposition of the layers on the pile.

The spreader 12 comprises a frame 14 of suitable construction. A set of wheels 15 at the front of the machine are grooved to engage a track 16 mounted on the side of the table and serve as a guide. A second set of wheels at the rear of the machine engage the surface of the table, a drive wheel 17 being equipped with a rubber tire to obtain the necessary tractive force for the operation of the mechanisms of the marker. Two arms 18 and 19 extend upwardly from the frame 14 for the support of a carrier roll 20 and, conjointly with the uprights 21 and 22 support front and rear bearing plates 23 and 24. A series of strips 25 form a bed for the cloth pile 13.

Cloth from the pile 13 is pulled over the carrier roll 20 and a suitably surfaced platen roll 26 and through tensioning rolls 27 and 28. The lower tensioning rolls 28 are supported from the frame 14 by linkages 29 and 30 and are controlled as to position by an adjustable tensioning device 31. The tensioning device includes a body 32 secured to the frame 14, a spring biased slide 33, and a slide adjusting screw 34. The adjustment of the screw 34 determines the operative clearance between the rolls 28 and the table 10 and the rolls are lifted clear of the pile 11 by a block 35 which engages the lower end of the slide 32 as the spreader reaches the end of the table.

The marking apparatus of the invention functions as an integral part of the spreader and serves to print a matrix of layer identifying symbols upon the cloth as it leaves the spreader. As is shown in Fig. 7, the symbols may be numerical and spaced at appropriate intervals across the width and along the length of the cloth, each layer of the cloth being separately numbered. The number printed is changed automatically for each layer so that every layer is distinctively identified.

The marking apparatus includes the platen roll 26, a printing roll 36, inking apparatus, indicated generally at 37, for supplying marking ink to the characters of the printing roll, and drive apparatus 38 for the entire mechanism. Referring particularly to Figs. 2 and 3, the drive apparatus 38 is actuated by the drive wheel 17 through a sprocket wheel 39 attached thereto, a drive chain 40,

3

and a clutch sprocket 41. The clutch sprocket 41 is secured to a clutch shaft 42 which is in turn appropriately supported for rotation in bearings mounted in bearing plates 43 and 44. The inner bearing plate 43 is mounted on the frame 14 while the outer bearing plate 44 is rigidly secured to the inner plate by means including a spacer 45. The clutch shaft 42 supports a direct drive gear 46, a reverse drive gear 47, and a reversing clutch 48. As is shown more clearly in Figs. 5 and 6, the body 49 of the clutch 48 comprises the driving member and is secured to the shaft 42 by means such as a key 50. The driven members 51 and 52 are secured to the drive gears 46 and 47 respectively and rotate freely on the shaft 42 except as constrained by engagement with the driving member 49. The driven member 52 associated with the reverse drive gear 47 is shown in Fig. 6 and comprises a generally disc-shaped plate having multiple spiral variations around the circumference thereof for the support and engagement of spring actuated friction members 53. It will be seen that the driven member 52 receives and transmits force from the driving member 49 only for one direction of rotation of the latter. The second driven member 51 is similar to that just described except that the sense is reversed and one of the drive gears 46 and 47 is driven for each direction of rotation of the drive wheel. The direct drive gear 46 engages a corresponding gear 54 mounted upon the shaft 55 while the reverse drive gear 47 engages a reversing pinion 56, suitably mounted upon the outer bearing plate 44, the latter gear in turn engaging a corresponding gear 57. The gears 54 and 57 are secured to the shaft 55 and transmit force through the associated sprocket 58, a drive chain 59, and to a sprocket 60 mounted on the rear shaft 61 of the printing roll 36. It will thus be seen that the printing roll is always driven to rotate in the same direction regardless of the direction of translation of the apparatus along the table 10.

The particular apparatus herein described utilizes the printing roll 36 also as a transmission means between the drive apparatus 38 and the remainder of the mechanism and incorporates a clutch 62 for effectively disconnecting the printing roll from the drive apparatus. As shown more clearly in Fig. 8, the drive sprocket 60 is mounted for free rotation upon the rear printing roll shaft 61 while a clutch wheel 62 is secured thereto by a nut 63. A series of holes 64 circumferentially spaced around the clutch wheel 62 cooperate with a similar series of holes in the drive sprocket 60 to accommodate a clutch pin 65. The clutch pin 65 is mounted upon a generally annular plate 66 which rides in a groove in a collar 67 mounted for free rotation and limited translation along the shaft 61. An annular plate 68, which rides in a groove in the collar 67 adjacent to that of the plate 66, is attached to a shaft 69 passes through the rear bearing plate 24, across the machine, and through the front bearing plate 23. An eccentric pin 70 supported in a block 71 attached to the front bearing plate 23 engages a block 72 mounted on the end of the rod 69. The rotation of a handle 73 thus serves to move the collar 67 along the shaft 61 and cause the engagement or disengagement of the clutch pin 65 in the circumferential holes of the sprocket 60 and the clutch wheel 62.

As conveniently outlined in Fig. 3, and shown in detail in Fig. 12, a gear 74 on the shaft 75 at the front end of the printing roll 36 engages an identical gear 76 secured to the shaft of the platen roll 26 so that the two rolls are driven at the same speed but in opposite directions. The platen roll 26 is mounted in sliding bearings to enable relative movement between the two rolls during the printing operation, the platen roll being urged toward the printing roll by springs in the mounting. Details of the bearing mounting are not shown since such mountings are well known and the details thereof are not germane to the present invention.

4

Referring now to Figs. 4 and 11, the printing roll 36 comprises a cylindrical body 77 formed from steel or other suitable material and having the ends reduced to form the rear shaft 61 and the front shaft 75. The central portion of the body 77 is machined to form a recess 78 of generally rectangular cross section along a major portion of the length of the body, the resulting configuration being apparent from the cross sectional view of Fig. 4. A series of plates 79 are appropriately mounted in the recess 78 and serve as bearings for a shaft 80 which extends along the length of the recess and is journaled through an opening in the wall of the rear end of the body of the roll. The plates 79 and the shaft 80 serve as supports for a series of printing registers 81 which are thus mounted within the recess 78 so that the active printing elements of the registers extend somewhat beyond the surface of the roll. The printing registers 81 are of a well known disc type bearing numerical characters and may include any desired number of decadic discs. The characters active for printing are cyclically controlled by pawls which are secured to the shaft 80.

The register pawls are actuated at the ends of the table 10 so that the registers are advanced by one digit for each successive layer of cloth. To that end, there is included a pawl actuation mechanism 82 as a component of the marking apparatus, and an associated actuating means comprising a block 83 mounted upon the table 10. The pawl actuating mechanism 82 is shown generally in Figs. 2, 3, and 4, and the detailed construction and manner of operation will be evident from Figs. 9 and 10. As shown, the mechanism comprises a parallel linkage including a vertical member 84 supported by a lower horizontal member 85 pivoted on a spacer 86 (for the bearing plates 43 and 44) and an upper horizontal member pivoted on a pin 87. The vertical member 84 comprises two relatively movable parts, distended by a spring 88, a lower part 89 supporting two roller terminated links 90 and 91. The links 90 and 91 are constrained by strips 92 and 93 depending from the part 89 so that each link is free to swing freely in only one direction. The block 83 is formed with an inclined surface 94 and a horizontal surface 95 so that, as the spreader 12 reaches an end of the table 10, the forced engagement between the roller of one of the links 90 or 91 causes the elevation of the vertical member 84.

The pawl actuating mechanism 82 includes a trigger 96 for the rotational displacement of the register shaft 80 and a trigger actuator 97 for engaging the trigger 96 to accomplish that rotation. As shown particularly in Figs. 9 and 10, the trigger actuator 97 comprises a flat plate 98 pivoted upon a pin 99 and connected to the upper horizontal member 86 by a link 100. The upper portion of the plate 98, is formed into an arcuate surface 101, skewed with respect to the center of rotation of the printing roll shaft 61, for engagement by a roller 102 mounted at the end of a trigger arm 103. The trigger arm 103 is mounted at the end of the shaft 80 and is of generally arcuate form around the shaft 61 to permit a maximum travel while maintaining a minimum normal outer radius between the outer surface and the center of the shaft 61. The trigger is normally maintained in the extended position of Fig. 10 by a torsion spring 104 (Fig. 11) and rotates freely with the printing roll body 77.

The trigger actuator 97 has two positions, a normal inoperative position as shown in Fig. 10 and an operative position, as shown in Fig. 9. The actuator plate 98 is held in the operative position by a locking plate 105 which is pivoted upon a pin 106. Release of the locking plate 105 is affected by a slide 107 which engages a lip 108 on the outer surface of the plate and is actuated by a trip lever 109 pivoted with respect to the plate 98 upon a pin 110. A spring (not shown) causes the retraction of the slide 107 after the tripping operation.

5

In the operation of the pawl actuating mechanism 82, the vertical member 84 is urged upward by the block 83 as the spreader reaches the end of the table. The pawl actuator plate 98 is moved upward and locked into the operative position by the locking plate 105. As the spreader is again moved down the table, the normal rotation of the printing roll 36 by the drive apparatus 38 brings the roller 102 into engagement with the arcuate surface 101. Further rotation of the roll 36 causes an increasing displacement of the trigger arm 103 and a rotational displacement of the shaft 80 with respect to the body 77 of the roll until the position of maximum displacement shown in Fig. 9 is reached. The total displacement is such that the register pawls which are attached to the shaft 80 advance a disc of each of the registers by one step, thus changing the printing character by one digit. The further rotation of the roll 36 then actuates the trip lever 109 and slide 107 to deflect the locking plate 105 and allow the actuator plate 98 to drop to the lower, inoperative position. Simultaneously, the trigger arm 103 springs back to the extended position under the influence of the spring 104. The printing operation then proceeds, the new number being printed upon the cloth until a new actuating cycle again advances the register. It is to be understood, of course, that the pawls may be operative to rotate the register discs either upon the initial displacement of the shaft 80 or upon the spring actuated return.

The printing registers 81 are supplied with ink by a series of inking devices 110, an inking device being associated with each register. Referring particularly to Figs. 2, 3, and 4, each of the inking devices comprises a unitary mechanism pivotally supported upon a transverse shaft 111 and having a series of common drive shafts 112, 113, and 114. Each inking device includes an ink reservoir formed from a block 115 and side plates 116 and supported from the transverse shaft 111 by a support member 117. The forward ends of the plates 116 are attached to plate-like members 118, configured as shown in Fig. 4, by means such as a link 119. An ink feed roll 120 mounted upon a shaft 121 supported by the side plates 116 cooperates with a leaf spring 122 mounted on the block 115 to form a reservoir for the ink 123. The pressure of the spring 122 upon the surface of the roll 120 is made adjustable by a thumbscrew 124.

The ink feed roll 120 and an ink transfer roll 125 are driven from the ink feed drive shaft 112. The ink feed roll 120 is intermittently rotated by a pawl 126 which actuates a ratchet wheel 127 secured to the feed roll shaft 121. A pawl lever arm 128, also mounted upon the feed roll shaft 121, is actuated by a cam 129 mounted upon the drive shaft 112. The ink transfer roll 125 is supported upon lever arms 130 mounted upon a pivot 131 so that the transfer roll is forced into contact with the feed roll 120 by a cam 132 mounted upon the shaft 112. During the interval when the cam 132 is not incident upon the lever arm 130, the transfer roll 125 is held in contact with, and is frictionally rotated by, an ink transfer roll 133. The ink transfer roll 133 is in rolling engagement with an ink transfer roll 134, which latter roll is impinged by the characters of the registers 81 as the printing roll rotates thus transferring the ink to the characters. The spacing between the transfer roll 134 and the printing roll 36 is controlled by a rotationally adjustable shaft 135 having a flattened side. The members are held in firm contact with the shaft 135 by a series of springs 136.

The various drive shafts for the inking devices are supported and driven as shown in Fig. 12. The shafts 112, 113, and 114 are supported in bearings mounted in end plates pivoted upon the shaft 111, a front end plate 137 being shown. Two gears 138 and 139 of equal diameter are secured to the transfer roll shafts 113 and 114 respectively and engage the printing roll drive gear 74 so that

6

the transfer rolls 133 and 134 are driven at equal speeds but in opposite directions. A relatively larger gear 140 is secured to the ink feed cam shaft 112 and drives the shaft. A hand drive comprising a wheel 141 attached to the printing roll shaft 75 at the front side of the front bearing plate 23 and a handle 142 enables the adjustment of the printing and inking apparatus as desired.

In the operation of the inking devices 110, the rotation of the printing roll 36 by the drive apparatus 38 causes the actuator of the ink feed cam shaft 112 by the gear train composed of gears 74, 139, 138, and 140. The consequent rotation of the ink feed roll 120 by the action of the associated cam and pawl carries a supply of ink to the transfer roll 125 by the adhesion of a film of ink to the surface of the roll 120. The transfer roll 125 is rotated by frictional engagement with the driven roll 133 and transfers the ink thereto. The ink is then transferred by surface contact from the roll 133 to the roll 134 and thence to the printing registers 81. When desired, the inking devices may be made inoperative by a rotation of the shaft 135 to disengage the gears and separate the transfer roll 134 a sufficient distance from the printing roll 36 to clear the registers.

The ink utilized in connection with the marking device may be of a suitable type removable from the cloth by washing. The ink may preferably be a fluid of relatively high viscosity to insure an optimum transfer from the reservoirs to the printing registers. It is to be understood that the term "ink" is here used in a generic sense and may include solids as well as fluids.

In the operation of the apparatus, the cloth to be spread is laid out in a pile upon the strips 25. The web of the cloth is then led over the carrier roll 20 between the printing roll 36 and the platen roll 26 and through the tensioning rolls 27 and 28. The end of the cloth is attached to the table 10 by any suitable means. The spreader 12 is then moved along the table, utilizing handles 143 for ordinary operation. The movement of the spreader relative to the table drives the mechanism of the marker to print a matrix of numerals upon the cloth, as has been explained, and such operation continues while the spreader is in motion. At the ends of the table, the engagement of the block 83 with the actuating mechanism associated with the printing apparatus serves to advance the number printed by one digit as the spreader is started in the reverse direction. This operation continues until the cloth from the pile on the spreader is completely laid out. The printing mechanism may then be reset so as to start a new series of identifying numerals or the series in use may simply be continued. It is an important feature of the invention that the utilization of a marking symbol printed upon the cloth leads to great simplification and general economy in the identification and handling of garment components where the production operations are highly functionalized.

The cloth forms for the garment components are cut from the pile 11 by the usual cutters. After the various sewing and other individual and assembly operations are performed, the numbers or other characters printed upon the cloth may be removed as by washing.

It is to be understood that while a hand driven apparatus is illustrated in the disclosure, any suitable form of mechanical or electrical drive may be utilized in the practice of the invention. Further, it is to be understood that the marker changing apparatus may be mounted at only one end of the table or may be only operable at predetermined intervals, no limitation with respect thereto being intended.

The foregoing description is necessarily of a detailed character in order that the specific embodiment of the invention be completely set forth. It is to be understood that the specific terminology is not intended to be restrictive or confining and that various rearrangements of parts and modifications of detail may be resorted to without

7

departing from the scope or spirit of the invention as herein claimed.

What is claimed is:

1. Apparatus for shade marking comprising a table, a cloth spreader mounted for translation along said table, a marking mechanism mounted on said spreader for marking identifying symbols at spaced intervals over at least one surface of the cloth as it is spread, said marking means being operable to change the symbols marked, and means for actuating the said marking means to change the symbol marked at a predetermined distance from each end of the table.

2. Apparatus for shade marking comprising a table, a cloth spreader mounted for translation along said table, a marking mechanism mounted on said spreader for marking identifying symbols at spaced intervals over at least one surface of the cloth as it is spread, means for actuating said marking mechanism to change the symbols marked, and means for operating said actuating means at a predetermined distance from said table and comprising trigger members mounted on the table near each end thereof.

3. Apparatus for piling cloth preparatory to cutting comprising the combination of a table, moving means for spreading a strip of cloth in successive superimposed layers along a predetermined portion of the table, the said spreading means including means for impressing identifying indicia at spaced intervals across and along the strip as it passes from the spreading means to the table, and means on the spreading means for successively changing the indicia impressed upon the cloth from each indicia to a successive indicia, and fixed means for actuating the changing means at predetermined distances from the ends of the portion of the table on which cloth is laid so that the change of indicia on the cloth occurs at the end of each layer of the cloth.

4. Apparatus for piling cloth preparatory to cutting comprising in combination a table, a cloth spreader adapted to be reciprocated along the table to spread a strip of cloth in superimposed layers on the table, the cloth spreader comprising means for supporting a strip of cloth, means for transferring the strip from the spreader to the surface of the table, means comprising a plurality of marking devices spaced across the spreader and adapted to produce identifying indicia upon the cloth as it passes from the spreader to the table, means for operating the marking devices during movement of the spreader along the table to cause the devices to repeatedly produce the same indicia upon the cloth during each traverse of the spreader along the table, and means for changing the marking devices to produce successively different indicia upon successive layers of the cloth including a member on the spreader and a trigger member at each end of the table adapted to be engaged by the member on the spreader, each trigger member being spaced a predetermined distance from an end of the table so that each layer of cloth is characterized by a mark different from that of the other layers.

5. Apparatus for piling cloth preparatory to cutting comprising in combination a table, a cloth spreader adapted to be reciprocated along the table to spread a strip of cloth in superimposed layers on the table, the cloth spreader comprising means for supporting a strip of cloth, means for transferring the strip from the spreader to the surface of the table, means comprising a plurality of marking devices spaced across the spreader and adapted to impress identifying indicia upon the cloth as it passes from the spreader to the table, means for operating the marking devices in synchronism with the movement of the spreader along the table to cause the devices to repeatedly engage the cloth to impress the same indicia during each traverse of the spreader along the table, and means for changing the marking devices to impress successively different indicia upon successive layers of the cloth

8

including a member on the spreader and a trigger member at each end of the table adapted to be engaged by the member on the spreader, each trigger member being spaced a predetermined distance from an end of the table so that each layer of cloth is characterized by a mark different from that of the other layers.

6. Apparatus for piling cloth preparatory to cutting comprising in combination a table, a spreader adapted to be reciprocated along said table to spread cloth in superimposed layers upon the table comprising a bed for supporting the cloth to be spread and guide rolls for transferring the cloth from the spreader to the table, a printing apparatus for printing identifying marks upon the cloth as it passes from the spreader to the table including a plurality of printing registers spaced across the spreader, the said printing registers comprising printing members adapted to be shifted to change the mark impressed upon the cloth, and drive means for causing the said printing registers to repeatedly engage the cloth and thereby repeatedly impress the same mark at relatively small intervals along the length of the strip for each traverse of the machine along the table, and means for actuating the printing registers to change the mark impressed upon the cloth of successive layers and comprising a trigger member at each end of the table and a member on the spreader for engaging one of the trigger members upon each traverse of the spreader along the table.

7. Apparatus for piling cloth preparatory to cutting comprising in combination a table, a spreader adapted to be reciprocated along said table to spread cloth in superimposed layers upon the table comprising a bed for supporting the cloth to be spread and guide rolls for transferring the cloth from the spreader to the table, a printing apparatus for printing identifying marks upon the cloth as it passes from the spreader to the table and including a printing roll and a platen roll, the said printing roll including a plurality of printing registers spaced across the spreader and adapted to engage the cloth upon rotation of the roll, the said printing registers comprising printing members adapted to be shifted to change the mark impressed upon the cloth, and drive means for simultaneously rotating the said two rolls in opposite directions at a speed corresponding to the speed of translation of the spreader along the table and thereby repeatedly impress the same mark at relatively small intervals along the length of the strip for each traverse of the machine along the table, and means for actuating the printing registers to change the mark impressed upon the cloth of successive layers and comprising a trigger member at each end of the table and a member on the spreader for engaging one of the trigger members upon each traverse of the spreader along the table.

8. Apparatus for piling cloth preparatory to cutting and comprising a table, a guide rail along one edge of said table, a spreader adapted to be reciprocated along the table to spread cloth in superimposed layers upon the table, the said spreader including guide wheels engaged with said guide rail and a drive wheel engaged with the table, a bed for supporting the cloth to be spread and guide rolls for transferring the cloth from the spreader to the table, a printing apparatus for printing identifying marks upon the cloth as it passes from the spreader to the table including a plurality of printing registers spaced across the spreader and adapted to engage the cloth, the said printing registers comprising printing members adapted to be shifted to change the mark impressed upon the cloth, and drive means for causing the said printing registers to repeatedly engage the cloth and thereby repeatedly impress the same mark at relatively small intervals along the length of the strip for each traverse of the machine along the table, the said drive means being operatively connected to the drive wheel for operating the printing apparatus at a speed corresponding to the speed of translation of the spreader along the table, and means for actuating the printing registers to change the mark

impressed upon the cloth of successive layers and comprising a trigger member at each end of the table, and a member on the spreader operatively connected to the printing registers and adapted to operatively engage a trigger member upon each traverse of the spreader along the table.

9. The method of marking corresponding parts of successive portions of a strip of cloth for associating according to shade which comprises repeatedly impressing a first identifying indicia at spaced intervals across and along the upper side of the strip while laying the strip upon a supporting surface, changing the indicia impressed to a second indicia, folding the strip upon itself where the change in indicia occurs, and similarly impressing the second indicia upon the under side of the strip while laying the strip back upon itself, changing the indicia impressed to a third indicia, again folding the strip back upon itself and similarly impressing the third indicia upon the upper side of the strip while again laying the strip back upon itself, to thereby cause superimposed parts of the strip to bear indicia corresponding to the layer in which the part of the strip occurs.

10. The method of marking corresponding parts of successive portions of a strip of cloth for associating according to shade which comprises repeatedly impressing a first identifying indicia at spaced intervals across and along the strip while laying the strip upon a supporting surface, changing the indicia impressed to a second indicia, folding the strip upon itself where the change in indicia occurs and similarly impressing the second indicia upon the strip while laying the strip back upon itself, changing the indicia impressed to a third indicia, again folding the strip back upon itself and similarly impressing the third indicia upon the strip while again laying the strip back upon itself to thereby cause superimposed parts of the strip to bear indicia corresponding to the layer in which the part of the strip occurs.

11. The method of marking corresponding parts of successive portions of a strip of cloth for associating according to shade which comprises repeatedly impressing a first identifying indicia upon the cloth across and along a first portion of the strip while spreading the first portion of the strip to form a first layer of cloth, changing the indicia impressed upon the cloth to a second indicia and spreading a second portion of the strip upon the first portion to form a second layer of cloth while repeatedly impressing the second indicia across and along the second portion of the strip, whereby the superimposed parts of the strip bear indicia corresponding to the layer in which the part occurs.

12. The method of marking corresponding parts of successive portions of a strip of cloth for associating according to shade which comprises repeatedly impressing a first identifying indicia upon the cloth across and along a first portion of the strip, while spreading the first portion of the strip to form a first layer of cloth, changing the indicia impressed upon the cloth to a second indicia and spreading a second portion of the strip upon the first portion to form a second layer of cloth while repeatedly impressing the second indicia across and along the second portion of the strip, and continuing to so form further layers of cloth while impressing a different identifying indicia over the cloth of each layer as it is spread, whereby the superimposed parts of the strip bear indicia corresponding to the layer in which the part occurs.

13. The method of marking corresponding parts of successive portions of a strip of cloth for associating according to shade which comprises printing a first identifying numeral at spaced intervals over a first portion of the cloth while spreading the first portion of the cloth upon a supporting surface, printing a second identifying

numeral at spaced intervals over a second portion of the cloth while spreading the second portion of the cloth upon the first portion to form a second layer, and repeatedly spreading succeeding portions of the cloth one upon the other to form further layers of cloth while printing different identifying numerals over the cloth for each successive layer, whereby cloth from the several layers may be identified according to the layer in which it was spread.

14. The method of manufacturing garments which includes as steps thereof spreading cloth in a number of superimposed layers and impressing a number of separate identical identifying indicia at closely spaced intervals upon the cloth, and so impressing a different indicia for each separate layer of the cloth, cutting the cloth thus formed in superimposed layers to produce bundles of garment parts identical in shape and selecting corresponding parts from the various bundles in accordance with the indicia printed upon the layers of cloth to associate parts for a garment which have been cut from one layer of cloth.

15. The method of manufacturing garments and the like which includes as steps thereof spreading cloth in a number of superimposed layers and impressing a number of separate identical identifying indicia at closely spaced intervals upon the cloth, and so impressing a related succeeding indicia for each successive layer of cloth, cutting the cloth thus formed in superimposed layers to produce bundles of garment parts identical in shape and selecting corresponding parts from the various bundles in accordance with the indicia printed upon the layers of cloth to associate parts for a garment which have been cut from one layer of cloth.

16. The method of manufacturing garments and the like which includes as steps thereof transferring a strip of cloth continuously from a carrier to a table, impressing identifying indicia upon the cloth at spaced intervals across the strip and progressively along the strip as the cloth passes from the carrier to the table, reversing the direction of the carrier at each end of the table to form successive superimposed layers of cloth, and changing the indicia impressed upon the cloth to a different indicia upon each reversal of the direction of the carrier so that each layer of cloth has a corresponding unique indicia impressed thereon, cutting through the several layers of cloth to produce bundles of garment parts identical in shape, and selecting correspondings parts from the various bundles in accordance with the indicia impressed upon the cloth to associate parts for a garment which have been cut from one layer of the cloth.

References Cited in the file of this patent

UNITED STATES PATENTS

TM 233,774	Elkert	Oct. 11, 1927
216,046	MacDonough	June 3, 1879
235,968	Shaw	Dec. 28, 1880
305,781	Baker	Sept. 30, 1884
350,640	Reinhardt	Oct. 12, 1886
674,356	Feister	May 14, 1901
871,923	Galwey	Nov. 26, 1907
1,500,424	Smith	July 8, 1924
1,509,525	Murray et al.	Sept. 23, 1924
1,605,991	Shields	Nov. 9, 1926
1,806,076	McKee	May 19, 1931
1,843,098	McKee	Jan. 26, 1932
2,148,375	Krassner	Feb. 21, 1939
2,427,275	Gold	Sept. 8, 1947
2,522,784	Guilbert	Sept. 19, 1950

FOREIGN PATENTS

196,358	Great Britain	Apr. 19, 1923
---------	---------------	---------------