C. J. SUSSMAN.

CLOTH LAYING MACHINE.

APPLICATION FILED FEB. 3, 1914.

1,102,555.

Patented July 7, 1914.

3 SHEETS—SHEET 1.

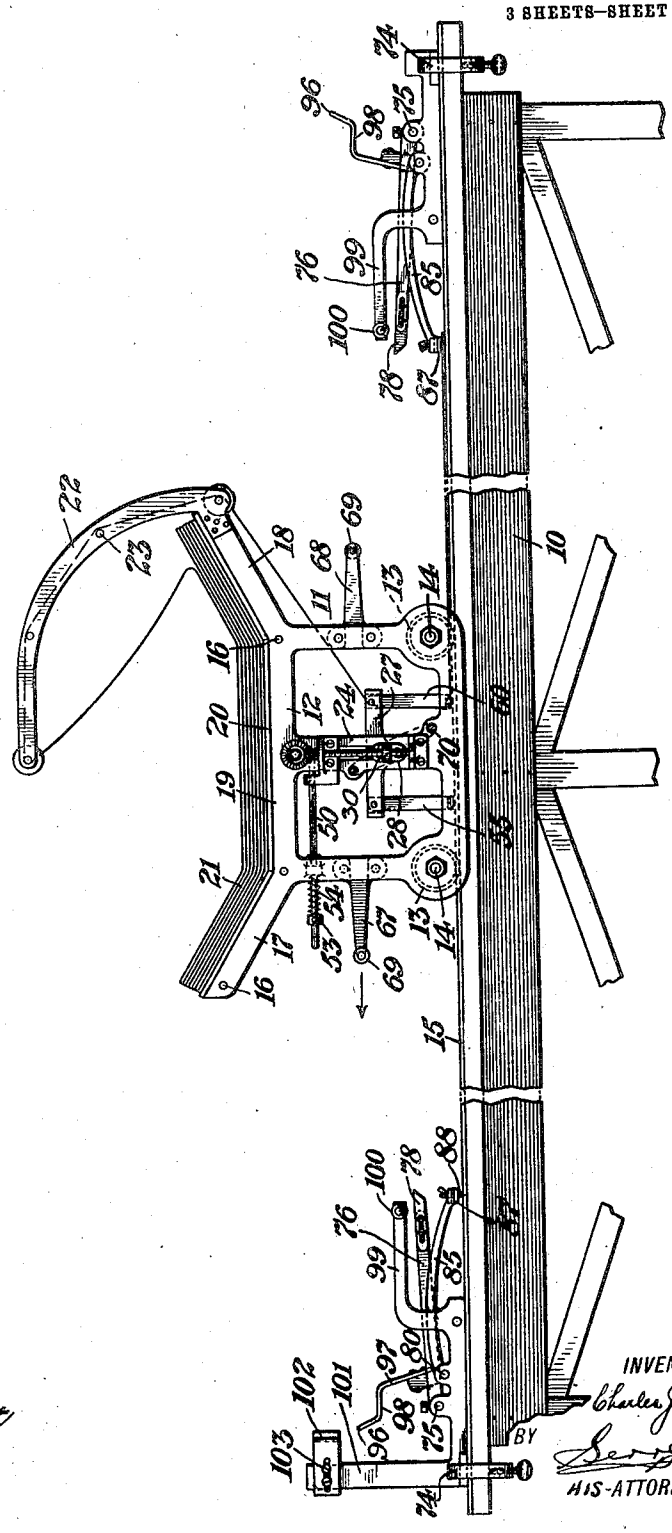


Fig. 1

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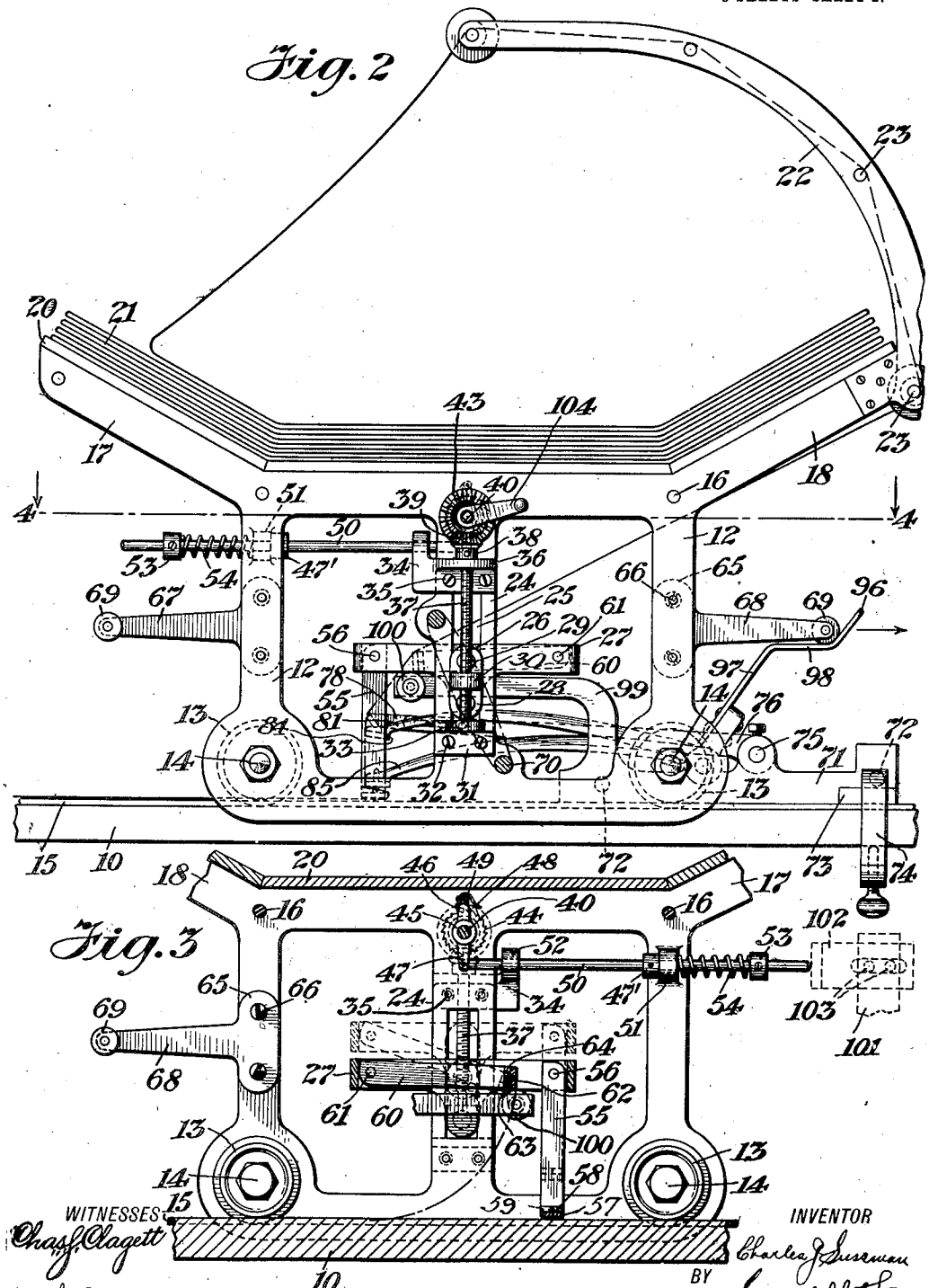
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3 SHEETS—SHEET 2.

Fig. 2



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3 SHEETS—SHEET 3.

Fig. 4

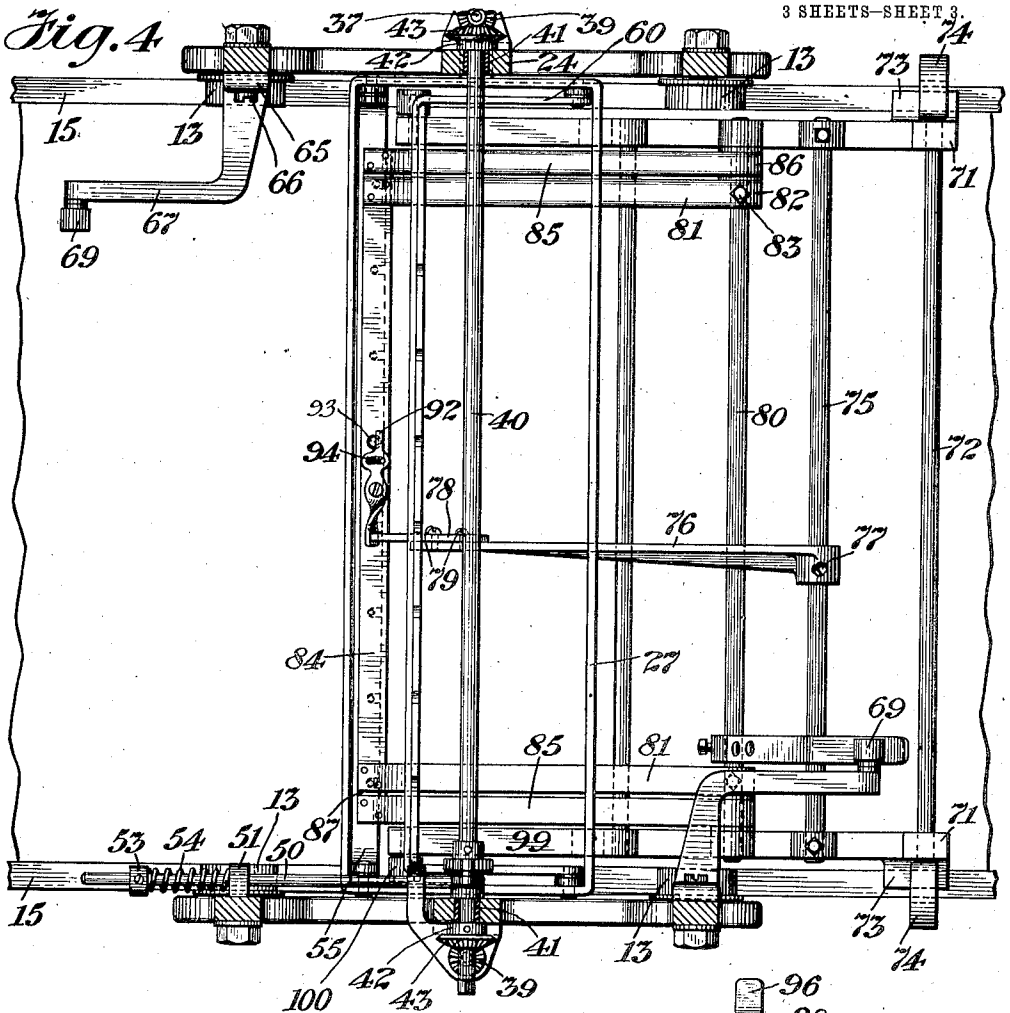


Fig. 5

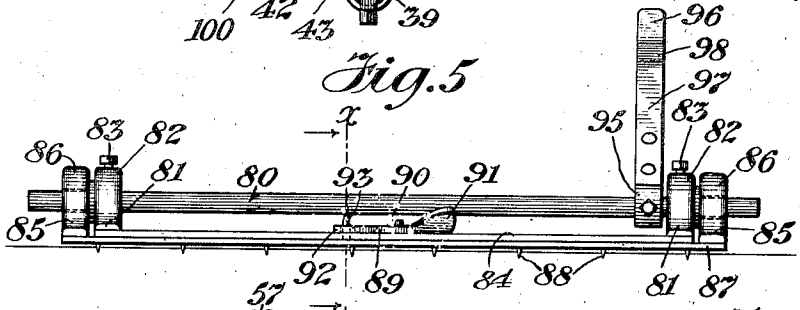


Fig. 6

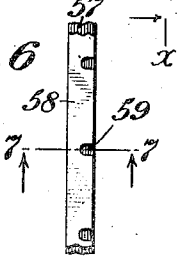
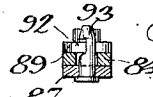


Fig. 7



Fig. 8.



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UNITED STATES PATENT OFFICE.

CHARLES J. SUSSMAN, OF CORONA, NEW YORK.

CLOTH-LAYING MACHINE.

1,102,555. Specification of Letters Patent. Patented July 7, 1914.

Application filed February 3, 1914. Serial No. 816,162.

To all whom it may concern:

Be it known that I, CHARLES J. SUSSMAN, a citizen of the United States, residing at Corona, in the borough and county of Queens, city and State of New York, have invented an Improvement in Cloth-Laying Machines, of which the following is a specification.

In the manufacture of various articles, it is customary to place the cloth or fabric, from which they are made, in superimposed layers upon a cutting table, before the cloth or fabric is cut, in order that a multiplicity of the layers of cloth or fabric may be cut simultaneously. To place the goods upon the cutting table, manually, it is both laborious and costly, and I am aware that various machines have been constructed to so place the cloth upon the cutting table, and the object of my present invention is to provide an improved machine for doing this work.

The principal improvements of my cloth laying machine are devices for positively forming a loop and simultaneously gripping the cloth or fabric at the turn or fold between each layer, so that the layers, irrespective of their number, are of precisely the same length and are evenly spread throughout. That is, the cloth or fabric is just as smoothly laid at the ends of the layers as it is at the center thereof by the use of my improved machine.

The particular improvements to which my invention relates, and the other details of construction, will be hereinafter more particularly described.

In the drawing, Figure 1 represents a side elevation of my improved cloth laying machine, showing the cutting table broken away at both sides of the carriage. Fig. 2 is an enlarged side elevation showing the carriage at the extreme end of its travel. Fig. 3 is a central vertical cross section of the carriage and associated parts, looking in the opposite direction, and at the opposite end of the table. Fig. 4 is a sectional plan on line 4, 4, of Fig. 2. Fig. 5 is an end elevation of the device co-acting with the presser bars for positively forming a loop and gripping the cloth or fabric each time the same is folded, that is to say, at the end of each layer. Fig. 6 is a partial plan of one of the presser bars, Fig. 7 is a cross section on line 7, 7, Fig. 6, and Fig. 8 is a cross section on line x x, Fig. 5.

Referring to the drawing, it will be seen that in carrying out my invention, I employ a cutting table, indicated at 10, which may be made of any suitable material and of the necessary dimensions. I also employ a carriage, indicated at 11, preferably comprising side frame members 12, which are suitably secured together by means of cross rods 16, or otherwise. Each side frame member 12 is provided with rollers or wheels 13, mounted upon axles 14, suitably secured in the side frames, and, as will be understood, the wheels 13 are adapted to run on rails 15 suitably fixed along the edges of the cutting table 10. Each side frame 12, of the carriage 11, is provided with outwardly extending, upwardly inclined arms 17—18, upon which, as well as upon the top member 19 of the side frames, a suitable base 20 is connected for supporting the cloth or other fabric, indicated at 21, which is to be handled by the machine.

Suitably connected to the ends of the arms 18, are support arms 22, which are secured together by tie rods 23 or otherwise. These support arms 22 are preferably curved and the free ends extend to a point appoximately over the center of the carriage and at an appreciable distance above the same. Each of the side frame members 12 includes a centrally vertical member, indicated at 24. Each member 24 is slotted to receive blocks 26 secured to the opposite sides of a presser bar frame 27, which is preferably rectangular and extends entirely across the carriage. Suitably connected to each block 26, is a plate 28 to maintain the blocks, and consequently the presser bar frame, in position, these plates being secured to the blocks by means of rivets 29, or otherwise, and each plate 28 is provided with a lug 30, in which there is a tapped opening.

Adjacent the lower end of each vertical member 24, a bracket 31 is secured by means of screws 32, or otherwise, each bracket 31 being provided with a bearing, indicated at 33. Also adjacent its upper end, and on its outer surface, each central member 24 is provided with a bracket 34, which may be secured thereto by means of screws 35, or otherwise, and each bracket 34 is provided with a bearing 36. I also employ a pair of screw threaded rods 37, each of which is journaled at its lower end in one of the bearings 33 and at its upper end in one of the

bearings 36. Each screw threaded rod also passes through the tapped opening in one of the lugs 30, in order that by turning the screw threaded rods the lugs 30, consequently the blocks and presser bar frame, may be raised or lowered. On each screw threaded rod 37, above the bearing 36, is a collar 38, and above the collar each of the screw threaded rods 37 is fitted with a beveled gear 39.

40 indicates a shaft which extends between and is journaled in suitable bearings 41 in the side frames 12 of the carriage. Exteriorly of these side frame members, the shaft 40 is provided with collars 42, and adjacent the collars 42, on both ends of the shaft, there are beveled gears 43, adapted respectively to mesh with the beveled gears 39 on the screw threaded rods 37. On the shaft 40, immediately within one of the side frame members 12, a ratchet 44 is fixed, by means of a set screw or otherwise. Between the ratchet 44 and the adjacent surface of the side frame 12, a collar 45 is loosely mounted on the shaft 40. Connected to and extending in diametrically opposite directions from the collar 45, are arms 46 and 47. At its free end, the arm 46 is provided with a pawl 48, pivotally connected thereto and adapted by means of a spring 49 to normally contact with the teeth of the ratchet 44.

The free end of the arm 47 is suitably connected to one end of a rod 50, which is suitably journaled in bearings 51 and 52, the former preferably being a lug provided on the side frame member 12, and the latter a projection on one of the brackets 34. Adjacent its free end, the rod 50 is provided with a collar 53, and surrounding the rod 50, and extending between the collar 53 and the adjacent surface of the bearing 51, is a spring 54, by means of which, as will be understood, the rod 50, with its associated parts, will be normally held in the position shown in Fig. 3, so as to maintain the stop 47′ in contact with the bearing 51.

The short sides of the presser bar frame 27 are provided with hangers employed in pairs, one pair being indicated at 55 and pivoted to the presser bar frame, as indicated at 56, and the other pair of hangers being indicated at 60 and pivoted to the presser bar frame, as indicated at 61. Extending between the hangers 55, and suitably connected thereto, is a presser bar 57, and associated with the presser bar 57 is an auxiliary member 58, extending between the hangers 55, immediately above the presser bar 57, and provided at its inner edge with spaced notches 59. Similarly the presser bar 62 extends between and is suitably connected to the hangers 60, and associated with the presser bar 62 is an auxiliary member 63, extending between the hangers 60, immediately above the presser bar 62, and provided in its inner edge with a series of spaced notches, indicated at 64.

Suitably connected to the end uprights of one side frame 12 of the carriage are brackets 65 which may be secured thereto by bolts or rivets 66, or otherwise, and extending from these brackets, in opposite directions from the end members of the side frame of the carriage, are arms 67 and 68, at the end of each of which a roller 69 is mounted. On both sides, the carriage frame may be provided, in suitable positions, with a handle, a portion of which, on one side of the carriage, is indicated at 70, in Figs. 1 and 2.

In order to operate the hereinbefore described parts of my improved machine, I employ similar devices fixed at both ends of the cutting table, and inasmuch as these devices are similar but reversed in position, a description of one of the same will answer for both. Each of these devices comprises a frame, made of side members 71 suitably secured together by tie-rods 72, or otherwise. Each of the side members 71 may be provided with suitably spaced lugs 73, by means of which, together with clamps 74, these members may be secured in position at the respective ends of the cutting table. In each of these end members there is a fixed rod 75 extending between and secured in the side members 71, and an arm 76 extends from and is fixed to the rod 75 by means of a set screw 77 or otherwise. At its free end, the arm 76 is provided with a trip 78, which is adjustable to position and secured thereto by means of bolts 79, or otherwise. Also extending between and journaled in the side members 71 is a rocker shaft 80.

81 indicates arms which at their respective corresponding ends are provided with heads 82 each secured on the rocker shaft 80 by means of a set screw 83.

Secured to and extending between the free ends of the arms 81 is a cross bar 84. 85 indicates another pair of arms which are also provided at their respective corresponding ends with heads 86 loosely mounted on the rocker shaft 80 between the heads 82 and the frames or side members 71.

Suitably connected to and extending between the free ends of the arms 85, there is a cross bar 87, and in spaced positions and extending from its under surface, the cross bar is provided with a series of pins 88, these pins being spaced similarly to the recesses or notches in the auxiliary members associated with the presser bars. On the upper surface of the cross bar 84 a latch 89 is pivoted, as indicated at 90. One end 91 of the latch 90 is upturned or inclined and adapted to be engaged by the free end of the trip 78. The other end 92 of the latch 89 is adapted to engage a catch pin 93 fixed in the cross bar 87 and extending through

an aperture provided therefor in the cross bar 84, these parts being normally maintained in this position by a spring 94, so that by actuating the rocker shaft 80, the arms 85 and their cross bar 84 will be raised and in turn will raise the cross bar 87 and its arms 85. Also secured on the rocker shaft 80, on the same side of the machine as are the brackets 65, with their arms 67 and 68, is a collar and bracket, indicated at 95, to which is suitably connected a stop arm 96, the respective portions 97 and 98 of which are adapted in turn to be engaged by the rollers 69 on the free ends of the arms 67 and 68. Also associated with each of these side members 71 and preferably connected to and extending from the sides thereof, are projecting arms 99, at the free ends of which rollers 100 are mounted in such positions as to contact with the respective sides of the hangers, to which the presser bars are connected. Furthermore, as indicated in Figs. 1 and 3, one of these end members is provided with a standard 101, at the upper end of which an adjustable plate 102 is connected by means of the screws 103, in such a position as to be struck by the free end of the rod 50 at the end of the travel of the carriage in one direction.

In the operation of the hereinbefore described apparatus, the cloth or fabric, in any convenient form, is placed on the support 20, on the top of the carriage, and the end of the cloth is passed over the rods 23, connecting the arms 22, and is also passed beneath one of the presser bars to lie flat on the cutting table, as shown in Fig. 1. One of the pairs of cross bars 84—87 is manually raised, the end of the cloth is placed beneath the same, and these cross bars lowered in position so that the pins or grippers 88 on the cross bar 87 pass through the cloth adjacent the end thereof to maintain the same in position. The carriage is then moved from end to end of the cutting table and the cloth placed in superimposed layers thereon. The devices employed at both ends of the table for forming loops or folds in the cloth at the end of each layer are duplicates, and inasmuch as, in Figs. 2 and 4, I have shown the parts at the end of the travel from left to right, I will describe the action of these parts as the same takes place at the right-hand end of the table, as shown in Figs. 1, 2 and 4. In traveling from left to right, the cloth passes beneath the presser bar 57, and upon approaching the end of the travel in this direction, the rollers 100 on the projecting arms 99 first come into contact with the sides of the hanger 60 and the continued movement of the carriage causes these hangers to swing from a vertical position to that shown in Fig. 2, the presser bar 62 and the auxiliary member 64, as will be understood, being carried from the one position to the other by means of the movement of the hangers. The roller 69 next engages the part 97 of the stop arm 96, and, as will be understood, continued movement of the carriage in this direction will then tilt the said stop arm from left to right, as shown in Fig. 2, thereby lifting the arms 81, the cross bar 84, and by means of the latch 89, the cross bar 87, with its arms 85, will also be raised. The height to which these cross bars and arms are raised is the position of the cross bar 84, as indicated in Fig. 2, this height being reached when the carriage has traveled sufficiently far for the roller 69 to engage with the part 98 of the stop arm 96. The then continued movement of the carriage will bring the trip 78 into engagement with the up-turned end 91 of the latch 89, moving the same against the action of the spring 94 so as to release the end 92 of the latch from engagement with the pin 93, thereby permitting the cross bar 87 to fall by the action of gravity. This takes place when the carriage is at the end of its travel, in which position the roller 69 is in engagement with the extremity of the stop arm 96. As will be apparent, in the descent of the cross bar 87 the forward edge of the same engages the cloth or fabric and makes a loop in the same, or, in other words, folds it over the presser bar 57, the cross bar 87 coming to rest against the auxiliary member 58 and extending across the top of the presser bar 57. As the cross bar 87 comes to rest in this position, the pins or grippers 88, in the under surface thereof, pass through and thus engage the cloth or fabric and extend into the notches 59 made in the auxiliary member 58. The depth of the auxiliary member is preferably somewhat greater than the length of the pins 88 so that the points of the pins cannot be damaged by coming into contact with the upper surface of the presser bar. These features are clearly illustrated in Fig. 2.

In the return movement of the carriage, the presser bar 57 is withdrawn from the cloth or fabric and the fabric is pressed forward by the edge of the cross bar 84 until the same has been lowered to its normal position by the roller 69 passing off the stop arm 96. Immediately after this is accomplished, the presser bar 62 is permitted to assume its normal vertical position by the hangers 60 passing off the rollers 100. The cloth, however, is, at substantially all times, engaged by the edge of the presser bar 62, even when in its uppermost position, when the carriage is at this end of the table, as shown in Fig. 2. In the continued movement of the carriage, from right to left, the cloth is then placed in another smooth layer, until the left-hand end of the cutting table is reached, when the hereinbefore described

operations are completed. Each time the carriage reaches the end of its travel from right to left, as indicated in Fig. 1, the free end of the rod 50 strikes the adjustable plate 102 and moves the rod against the action of the spring 54. This movement of the rod swings the arms 46 and 47, and thereby, through the pawl 48 moves the ratchet wheel 44 a pre-determined distance, thereby imparting a partial revolution to the shaft 40. This partial revolution of the shaft 40 is imparted through the beveled gears 43 to the beveled gears 39, and thence to the screw threaded rods 37, which movement, as hereinbefore stated, raises the presser bar frame 27 a pre-determined distance each time the carriage reaches the end of its travel from right to left, as shown in Fig. 1. This, as will be understood, may be adjusted, depending upon the thickness of the material which the machine is used to place on the table, and as shown in Fig. 2, the shaft 40, at one end thereof, may be provided with a handle 104, by which the same may be turned in the opposite direction to lower the presser bar frame and associated parts.

I claim as my invention:

1. In a cloth laying machine the combination with a cutting table and a carriage movable from end to end thereof, of a frame, hangers in pairs pivotally connected at opposite sides of the said frame, a presser bar extending between and connected to each pair of hangers, an auxiliary member having notches in one edge thereof associated with each presser bar, means operative when the carriage is adjacent the ends of its travel for engaging the forward pair of hangers to raise their presser bar and associated auxiliary member out of position, a pair of superimposed cross bars, gripping devices associated with the lower cross bar, devices for normally connecting the said cross bars, and means operative when the carriage is at the end of its travel in either direction for raising the upper cross bar and with it the lower cross bar and then releasing the lower cross bar with which the said gripper devices are associated, permitting it to fall to co-act with the other presser bar to form a loop in the cloth and to cause the said gripper devices to engage the cloth and hold the same in position.

2. In a cloth laying machine the combination with a cutting table and a carriage movable from end to end thereof, of a frame, hangers in pairs pivotally connected at opposite sides of the said frame, a presser bar extending between and connected to each pair of hangers, an auxiliary member having notches in one edge thereof associated with each presser bar, means operative when the carriage is adjacent the ends of its travel for engaging the forward pair of hangers to raise their presser bar and associated auxiliary member out of position, a pair of cross bars superimposed, one on the other, a series of teeth extending from the under surface of the lower cross bar, devices for normally maintaining the said cross bars together, means for raising the upper cross bar and with it the lower cross bar when the carriage is at the end of its travel, and means also operative when the carriage is at the end of its travel for releasing the lower cross bar, permitting the same to drop to co-act with the other presser bar to form a loop in the cloth and at the same time cause the said teeth to pass through the cloth into the notches in the auxiliary member associated with the said other presser bar to hold the cloth in position.

3. In a cloth laying machine the combination with a cutting table and a carriage movable from end to end thereof, of a frame, hangers in pairs pivotally connected at opposite sides of the said frame, a presser bar extending between and connected to each pair of hangers, an auxiliary member having notches in one edge thereof associated with each presser bar, means operative when the carriage is adjacent the ends of its travel for engaging the forward pair of hangers to raise their presser bar and associated auxiliary member out of position, a pair of cross bars superimposed one on the other, a series of teeth extending from the under surface of the lower cross bar, a latch for normally connecting the cross bars, means operative when the carriage is at the end of its travel for raising the upper cross bar and with it the lower cross bar, and means also operative when the carriage is at the end of its travel for releasing the said latch, permitting the under cross bar to fall to co-operate with the other presser bar to form a loop in the cloth, and to permit the said teeth to pass through the goods into the notches in the auxiliary member associated with the said other presser bar to hold the cloth in position.

4. In a cloth laying machine the combination with a cutting table and a carriage movable from end to end thereof, of a frame, hangers in pairs pivotally connected at opposite sides of the said frame, a presser bar extending between and connected to each pair of hangers, an auxiliary member having notches in one edge thereof associated with each presser bar, means operative when the carriage is adjacent the ends of its travel for engaging the forward pair of hangers to raise their presser bar and associated auxiliary member out of position, a rocker shaft, arms fixed at one end on the said rocker shaft, a cross bar extending between the other ends of the said arms, arms loosely mounted at one end on the said

rocker shaft, a cross bar extending between the free ends of the said loosely mounted arms, and normally lying beneath the aforesaid cross bar, a series of teeth extending from the under surface of the said lower cross bar, means for normally maintaining the cross bars together, means operative when the carriage is adjacent the end of its travel for actuating the said rocker shaft to raise the said arms fixed thereto, together with their cross bar and the lower toothed cross bar connected thereto, and means also operative when the carriage is at the end of its travel for releasing the said lower cross bar, permitting the same to drop to cooperate with the other presser bar to form a loop in the cloth, and to simultaneously cause the said teeth to pass through the cloth into the notches in the auxiliary member associated with the said other presser bar to hold the cloth in position.

5. In a cloth laying machine the combination with a cutting table and a carriage movable from end to end thereof, of a frame, hangers in pairs pivotally connected at opposite sides of the said frame, a presser bar extending between and connected to each pair of hangers, an auxiliary member having notches in one edge thereof associated with each presser bar, means operative when the carriage is adjacent the ends of its travel for engaging the forward pair of hangers to raise their presser bar and associated auxiliary member out of position, a rocker shaft, a pair of arms fixed at one end to the said rocker shaft, a cross bar connected to and extending between the free ends of the said arms, a pair of arms loosely mounted at one end on the said rocker shaft, a cross bar extending between and connected to the free ends of the said loosely mounted arms, a series of teeth in spaced positions extending from the lower surface of the under cross bar, a latch pivoted to the upper cross bar, a pin connected to the lower cross bar and adapted normally to be engaged by the said latch to connect the said cross bars together, a stop arm connected to the said rocker shaft, a bracket connected to the end of the carriage, a roller at the end of the said bracket, and adapted when the carriage is at the end of its travel to strike the said stop arm partially revolving the said rocker shaft to raise the said cross bars, and a trip adapted to engage the said latch when the carriage is at the end of its travel to release the said under cross bar to permit the same to fall to coöperate with the other presser bar to form a loop in the cloth, and at the same time cause the said teeth to pass through the cloth into notches in the auxiliary member associated with the said other presser bar to hold the cloth in position.

6. In a cloth laying machine the combination with a cutting table and a carriage movable from end to end thereof, of a presser bar having a continuous lower surface and being provided with a series of spaced recesses in its upper surface at one edge thereof, a pair of superimposed cross bars, means for normally connecting the cross bars together, a series of gripper teeth projecting from the under surface of the lower cross bar, means for raising the upper cross bar and with it the lower cross bar and releasing the said lower cross bar with its gripper teeth to permit the lower cross bar, when so released, to coöperate with the said presser bar to form a loop in the cloth and to cause the said gripper teeth to pass through the cloth into the recesses in the upper surface of the said presser bar to engage the cloth and hold the same in position.

Signed by me this 5th day of January, 1914.

CHARLES J. SUSSMAN.

Witnesses:
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J. B. LE BLANC.