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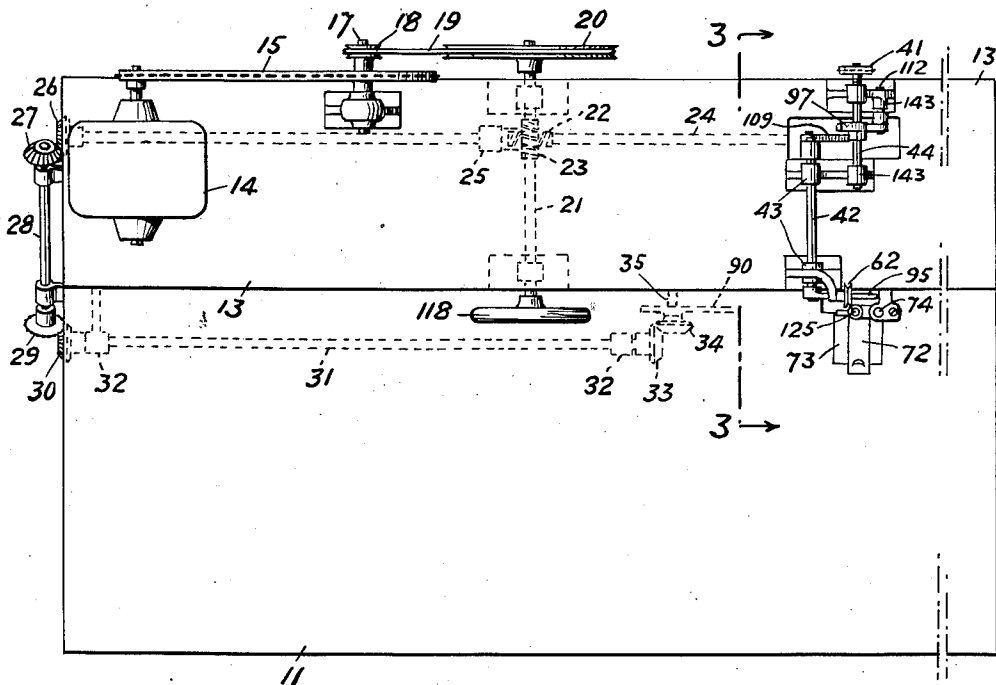
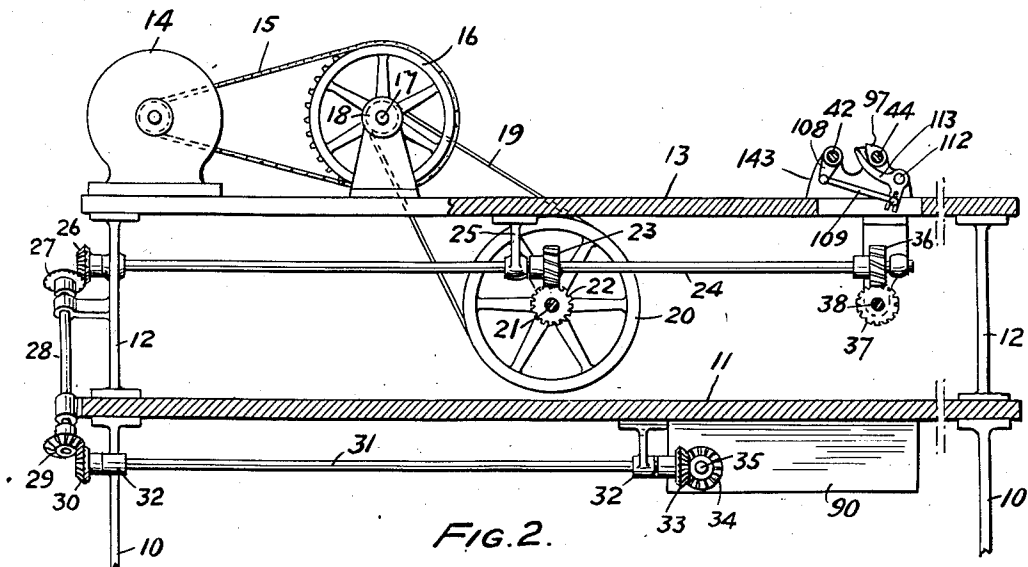
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1,832,636

MACHINE FOR MAKING RUGS, COVERINGS, AND THE LIKE

Filed June 20, 1930

3 Sheets-Sheet 1



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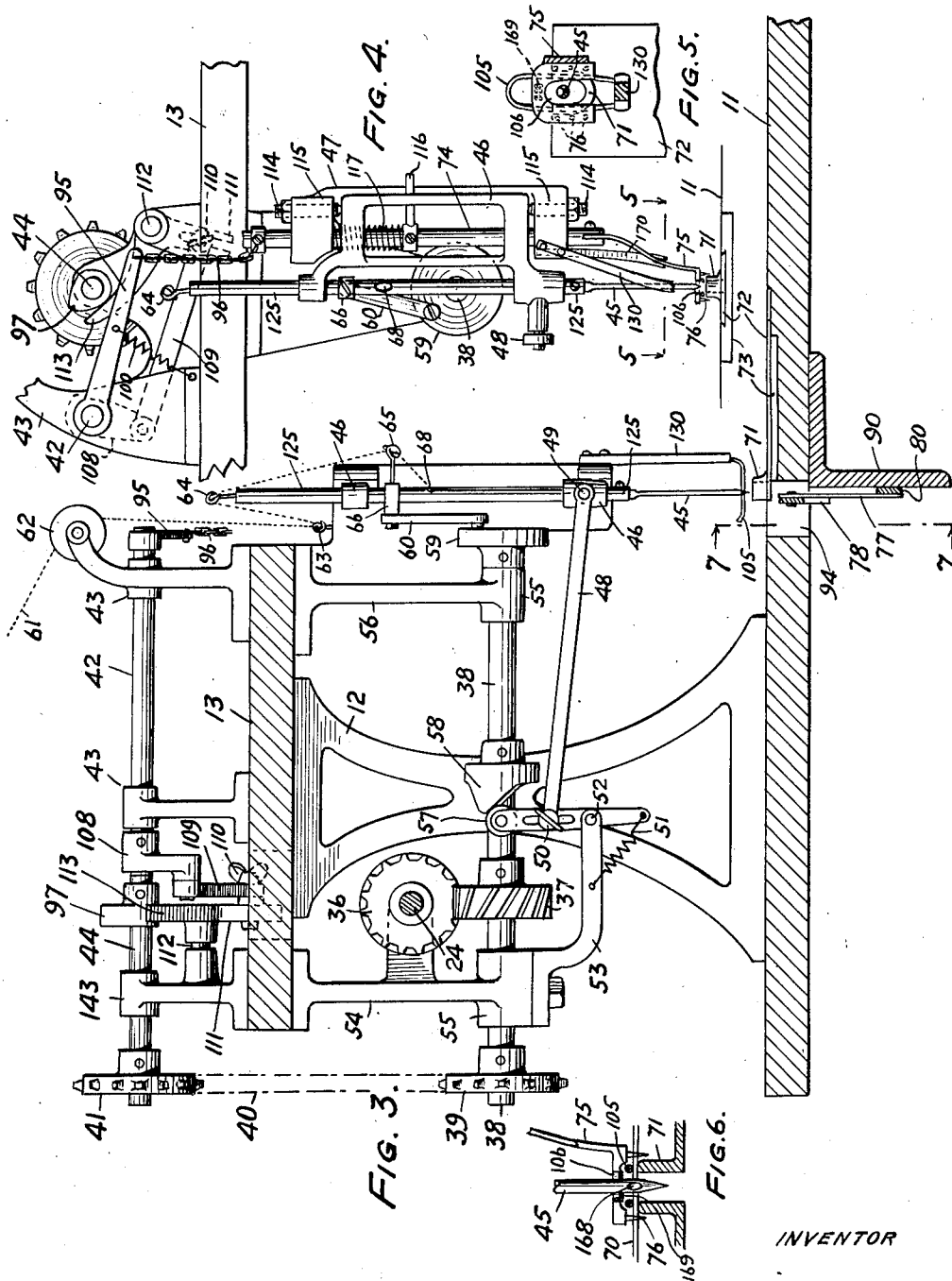
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MACHINE FOR MAKING RUGS, COVERINGS, AND THE LIKE

Filed June 20, 1930

3 Sheets-Sheet 2



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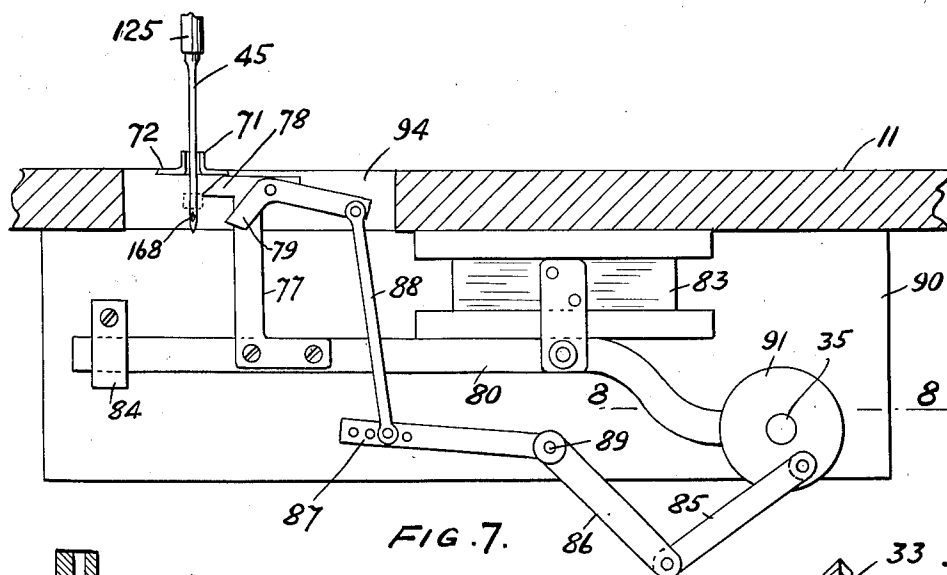
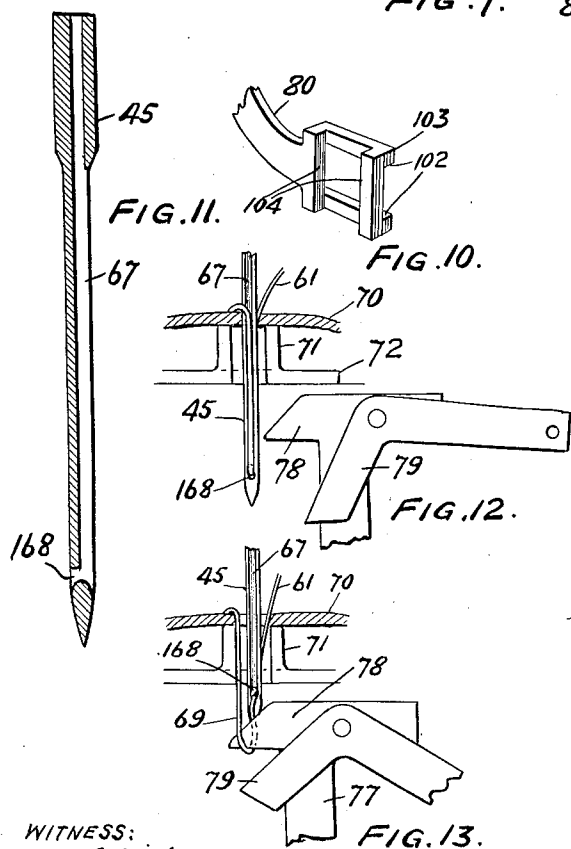
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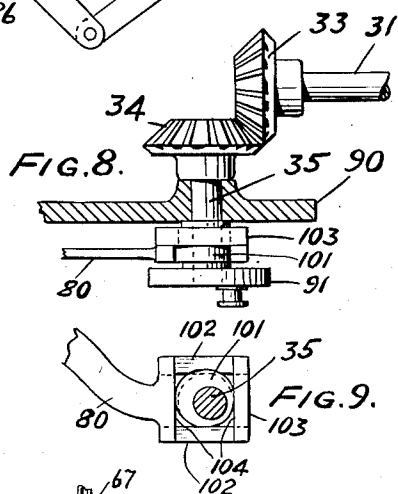
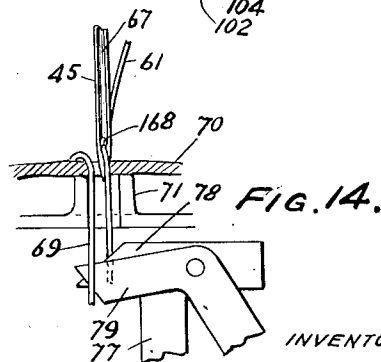
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3 Sheets-Sheet 3



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MACHINE FOR MAKING RUGS, COVERINGS, AND THE LIKE

Application filed June 20, 1930. Serial No. 462,530.

This invention, stated in its broadest terms, relates to a machine for making rugs, coverings, spreads, and the like, and has more especial relation to a machine for forming a rug, covering, spread, or the like, the wearing surface of which is formed of a plurality of loops.

One object of the present invention is to provide a machine of comparatively simple and inexpensive mechanism for automatically forming a series of loops in regular sequence upon canvas or other fabric and to sever the loops so formed, if desired, into a long pile which is securely held intact with the canvas or other fabric to withstand loosening or displacement.

A further object of the present invention is to provide a machine of the character stated comprised of an association of mechanisms of simple and comparatively inexpensive construction arranged in unitary, compact form so as to materially reduce the cost of production and selling of rugs, coverings, spreads and the like according to present day methods.

A further object of the present invention may be said to reside in the provision of a needle mechanism in which a tubular needle is employed so shaped that the thread or threads forming a loop passes vertically throughout the height of and within the needle and thereafter through a puncture formed in the backing of the rug, covering, spread, or the like, which puncture is no larger than is the diameter of the thread or combined threads so that the latter completely fill the puncture to form a snug fit.

A further object of the present invention is to provide a novel form of loop making and severing mechanism.

A still further object of the present invention resides in the provision of a novel form of presser foot and presser foot operating mechanism.

A still further object of the present invention resides in the provision of a novel form of construction in which the work table is arranged and proportioned with respect to the needle mechanisms so that the operator has an unobstructed and ample sur-

face for supporting work to be done, which work frequently is of large dimensions.

Other and further objects reside in the provision of general details of construction and in the arrangement, combination and connection of parts for attaining the results sought by the foregoing objects.

With these and other objects in view, the invention consists of the novel construction hereinafter described and finally claimed.

The nature, characteristic features and scope of the invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof, and in which:

Fig. 1 is a top or plan view of a machine embodying the invention;

Fig. 2 is a view thereof in side elevation, partly sectioned;

Fig. 3 is a view in transverse section taken upon the line 3—3 of Fig. 1, and looking in the direction of the arrows;

Fig. 4 is a view in front elevation of certain of the parts shown at the right hand side of Fig. 3;

Fig. 5 is a view in section taken upon line 5—5 of Fig. 4, looking in the direction of the arrows;

Fig. 6 is a fragmentary view, partly in section and partly in elevation, of certain of the parts shown at the lower portion of Fig. 4;

Fig. 7 is a view in section taken upon the line 7—7 of Fig. 3, looking in the direction of the arrows;

Fig. 8 is a fragmentary view, partly in elevation and partly in section, hereinafter referred to;

Fig. 9 is a fragmentary view in elevation of cam parts for operating the cutter mechanism of the machine;

Fig. 10 is a view in perspective of the cam box as shifted by the cam shown in Fig. 9;

Fig. 11 is a vertical sectional view of the needle employed in the machine of the invention;

Fig. 12 is a fragmentary view, partly in elevation and partly in section, illustrating the needle as having punctured the fabric to form a loop;

Fig. 13 is a similar view showing the loop

as having been formed and about to be severed; and

Fig. 14 is a view similar to Fig. 13 and illustrating the loop as severed and the needle in the act of being withdrawn.

For the purpose of illustrating my invention I have shown in the accompanying drawings one form thereof which is at present preferred by me, since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various instrumentalities of which my invention consists can be variously arranged and organized and that my invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

Referring now to the drawings in detail, the reference numeral 10 designates a pair of standards for supporting a horizontally disposed elongated platform 11 which may serve the purpose of a work table having an unobstructed surface sufficient to support work of varying and relatively large size. Mounted upon the work table are a pair of standards 12 for supporting a horizontally arranged, elongated platform 13. Mounted upon the platform 13, which is arranged in parallelism with the platform 11, is an electric motor 14 for driving, by any desired means, as a sprocket chain 15 and sprocket wheel 16, a transversely arranged shaft 17 which has fixed thereto a pulley 18 for driving, as by means of a belt 19, a wheel 20 mounted upon a shaft 21. The shaft 21 is arranged transversely of the machine below the platform 13, parallels the shaft 17, and is provided with a worm gear 22 for meshing with a worm gear 23 fixed to a longitudinally arranged shaft 24. The shaft 24 is supported by the hangers 25, depending from platform 13, and by one of the standards 12, as clearly shown in Fig. 2. The shaft 24 is provided at one end with a bevelled gear 26 in mesh with a bevelled gear 27 carried by a shaft 28 arranged at an angle transversely of the machine and provided at its lower end with a bevelled gear 29 in mesh with a bevel gear 30 fixed to a longitudinal shaft 31 arranged below the work table 11 and supported in hangers 32 depending from the work table 11. The shaft 31 has fixed thereto a bevel gear 33 in mesh with another bevel gear 34 mounted upon a transverse shaft 35 for operating loop making and severing mechanism to be presently described. The longitudinal shaft 24 is provided with a worm gear 36, best seen in Fig. 3, and is in mesh with another worm gear 37 mounted upon shaft 38 which is arranged transversely of the machine above the work table for operating the shafts 42 and 44 to be presently described. The shaft 38 is provided with a sprocket wheel 39 for operating through the medium of a sprocket chain 40, a sprocket

wheel 41 mounted upon shaft 44, which is transversely arranged of the machine above the platform 13 and is supported upon said platform 13 in bearings 143, the function of the shaft 44 to be hereinafter described. Paralleling the shaft 44 is the shaft 42 operable from the shaft 44 for a purpose to presently appear. This shaft 42 is also mounted upon the platform 13, in bearings 43.

Referring now to the needle mechanism, best seen in Figs. 3 and 4, the reference numeral 45 designates a tubular needle mounted for vertical and lateral movement upon a bracket 46, which bracket 46 is mounted upon a fixed support 47 for swinging movement. The bracket 46 and its needle holder 125 and needle 45 are laterally movable by means of a link 48 having pivotal relation at one end as at 49 with the bracket 46 and adjustably secured as at 50 with the slotted portion of an arm 51. The arm 51 is fulcrumed as at 52 with a fixed arm 53 supported by a hanger 54 secured to the under side of the platform 13, the shaft 38 being journaled in bearings 55 carried by the hangers 54 and 56. The upper end of the arm 51 is provided with a roller 57 cooperatively arranged with respect to a cam 58 fixed to the shaft 38 so that in rotation of the shaft 38 the cam rocks the arm 51 transversely of the machine to move the bracket 46 around its pivot points forwardly and backwardly along with the needle 45. In addition to this back and forth movement of the needle 45 the needle is moved vertically of the brackets 46 of the machine by means of a disc 59 and link 60, see Figs. 3 and 4, the disc 59 being fixed to the transverse shaft 38. The yarn or thread 61, which may be of one or more colors and one or more strands, is fed to the needle 45 from one or more bobbins, not shown in the drawings, through a tension device 62, then downwardly through a fixed eye 63, thence upwardly through a fixed eye 64 carried by the top of the needle bar 125, thence passes through a fixed eye 65 carried by a collar 66 upon the needle bar 125, thence passes downwardly through the apertured portion 68 of the needle bar 125 to the needle 45 and thence along the slotted portion 67 of the needle and outwardly through the aperture 168 of the needle immediately above the needle point. The eyes 63, 64, and 65, arranged as described, function as tensioning means so that loops 69, see Fig. 13, may be formed upon the fabric 70 being operated upon. The fabric may be canvas, linen, burlap, or the like, or the material suitable for the making of imitation fur. In the connection it is to be noted that the yarn comprising thread or threads 61 passes before the slotted portion 67 of the needle so that when the needle point punctures the fabric 70 the aperture formed in the fabric is of a diameter not in excess of the cross section of

a thread or threads. This is so that the diameter of the hole as formed is of less diameter than the diameter of the yarn carried by the needle so as to provide a snug fit to prevent ready pulling out. The needle 45 in operation passes through a guide 71, which is fixed to a slide 72 mounted in ways 73, so that the slide 72 may be manually adjusted back and forth. The guide 71 has a U-shaped opening therethrough sufficiently large to permit back and forth movement of the needle 45 as operated by the cam 58 and its adjuncts. Fixed with respect to a spring-pressed post 74 is a presser foot 75 which in the operation of the machine serves to prevent the fabric 70 from being lifted when the needle 45 is making its upward stroke. The underside of the presser foot 75 is provided with prongs 76 to assist in maintaining the fabric 70 in proper position, which is taut or stretched to permit easy puncture by the needle as it descends. The spring-pressed post or presser bar 74 which is mounted in the bracket or needle bar gate 46 is arranged to swing laterally with the needle bar while the needle is through the work 70 in order to feed said work. After the needle 45 with its thread or threads descends and punctures the stretched fabric 70, as shown in Fig. 6, a loop 69 is formed as the needle ascends, see Fig. 13. At this time an arm 77 carrying a fixed member 78 comprising a combined hook and fixed cutter blade, and also carrying a pivotally arranged cutter blade 79, moves in a direction toward the loop 69 so that the fixed cutter blade 78 passes partly through the loop 69 to the position shown in Fig. 13. This movement of the arm 77 is caused by the transverse movement of the rod 80 to which the arm 77 is fixed, the movement of the rod 80 being transmitted from the cam 101, see Fig. 8, mounted upon shaft 35, said rod 80 being guided by the parts 83 and 84, so as always to maintain a substantially horizontal position. With the loop 69 formed and the cutting blades in the position shown in Fig. 13, the movable cutter blade is operated from the disc 91 through the medium of links 85, 86, 87, and 88, the link 88 being pivotally connected to the movable cutter blade 79 and the links 85 and 86 having pivotal relation with respect to one another, and the link 87 having fulcrumed relation as at 89 with a fixed part 90 of the machine beneath the work table 11. The shaft 35 is provided with a bevel gear 34 meshing with another bevel gear 33 upon the horizontally arranged shaft 31. The fixed and movable cutters 78 and 79 function through the apertured portion 94 of the work table, as best seen in Figs. 3 and 7, it being understood, in the connection, that the guide 71 is positioned in alignment with the apertured portion 94 of the work table.

At the completion of a loop 69, the cutting

thereof, and the withdrawal of the needle 45, it is necessary to disengage the prongs 76 of the presser foot 75 from the fabric 70 and this is accomplished by means of an arm 95, one end of which is connected with the top of the presser foot post 74 by means of a chain 96, which arm 95 is caused to function by means of a cam 97 secured to rotatable shaft 44, said cam operating upon said arm which is fixed to shaft 44, see Fig. 4. Cam 97 causes arm 113 to function so that the arm 95 is raised, thus lifting the presser bar against the spring 117, said arm 95 being spring pressed as at 100 to assist in its return to normal position.

Referring now more particularly to Figs. 8, 9, and 10, the shaft 35, which operates the bar 80, is provided with a cam 101 having two cam faces. In rotation of the shaft 35 one of the cam faces, shown by dotted lines in Fig. 9, engages with the horizontal, parallel surfaces 102 of a cam box 103; and the other cam surface shown by full lines in Fig. 9 engages with the vertical, parallel surfaces 104 of a cam box 103. Thus, the cam in its movement within the cam box 103 operates the link 80 forwardly and rearwardly, and upwardly and downwardly, it being understood in the connection that the link 80 is fixed to the cam box 103.

Referring now more particularly to Figs. 3, 4, and 5, there is fixed to the bracket 47 a holder 130 carrying a loop-like member 105, see Fig. 5, the loop portion of which member 105 straddles the guide 71 so that the needle 45 in its reciprocation may pass through an opening 106 in the presser foot. In the connection it is to be noted that the guide 71 considered in plan is provided with a substantially U-shaped slot, and that the presser foot 75 is also provided with a substantially U-shaped slot, the U-shaped slots, however, being reversed with respect to one another. The shaft 42, which is arranged in the bearings 43 and has fixed to said shaft at one end the arm 95, has also connected with said shaft 42 a link 108 which has pivotal connection with another link 109, see Fig. 4. The free end of the link 109 is provided with a set screw 110 which is in adjustable engagement with the slotted portion of a finger 111 fulcrumed as at 112 with the bearing 143, which carries the shaft 44, see Fig. 4. As cam 97 operates arm 113 the finger 111 moves in the desired direction the link 109.

In order to permit swinging movement of the bracket 46, shown in Fig. 4, a pair of pivots are provided and are shown as being screws 114 fitted to the collars 115 of the fixed support 47. Arranged between the uppermost collar 115 of the fixed support 47 and a stop 116 fixed to the presser-bar 74 is a presser-bar lowering spring 117 coiled around said presser-bar 74, see Fig. 4. As cam 97 acts upon arm 113 to rock shaft 42,

arm 95 is raised to lift the presser-bar against the presser-bar lowering spring 117. The cross shaft 21, shown in Fig. 1, is provided with a hand wheel 118 whereby manual adjustment of the shaft 21 may be obtained, when desired.

The bottom of the presser foot 75 is provided with a depending lug 169, best seen in Fig. 5, having a roughened under surface for pressing upon the tops of the loops on the back of the goods while the needle is descending. The purpose is to prevent displacement of the loop.

The fixed bracket 47 is provided with a spring 170, best seen in Fig. 4, which spring presses against the presser foot 75 so that said spring restores the presser foot to normal position after forward movement of the presser foot, as hereinbefore described.

What is claimed is:

1. In a machine of the character stated, an elongated, horizontally arranged work table, a platform paralleling said work table and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot through which said needle operates, and means connecting said rock shaft with said presser foot.

2. In a machine of the character stated, an elongated horizontally arranged work table, a platform paralleling said work table and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot through which said needle operates, prongs depending from the underside of said presser foot, and means connecting said rock shaft with said presser foot.

3. In a machine of the character stated, an elongated horizontally arranged work table, a platform paralleling said work table and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot through which said needle operates, and means including a spring pressed arm and chain connecting said rock shaft with said presser foot.

4. In a machine of the character stated, an elongated horizontally arranged work table, a platform paralleling said work table and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot having a U-shaped slot therethrough through which said needle operates, and means connecting said rock shaft with said presser foot.

5. In a machine of the character stated, an elongated horizontally arranged work table, a platform paralleling said work table and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser

foot through which said needle operates, means connecting said rock shaft with said presser foot, and a guide having a U-shaped slot therethrough arranged on the work table beneath said presser foot.

6. In a machine of the character stated, an elongated, horizontally arranged work table, a platform paralleling said work table and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot through which said needle operates, means connecting said rock shaft with said presser foot, and a fixed holder carrying a loop-shaped member at its lower end for movement both vertically and laterally there-through of said needle.

7. In a machine of the character stated, an elongated horizontally arranged work table, a platform paralleling said work table, and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot through which said needle operates, means connecting said rock shaft with said presser foot, and severing means for cutting said loops as formed, said severing means being operatively connected with said longitudinally arranged shaft.

8. In a machine of the character stated, an elongated horizontally arranged work table, a platform paralleling said work table and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of

the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot through which said needle operates, means connecting said rock shaft with said presser foot, severing means for cutting said loops as formed, a short shaft arranged transversely of the machine beneath said work table, and means including a cam and an eccentric operatively connected with said short shaft and severing means for imparting proper movements thereto.

9. In a machine of the character stated, an elongated horizontally arranged relatively wide work table, standards supporting said work table, a relatively narrow platform paralleling said work table and supported by brackets mounted upon said work table, a longitudinal shaft arranged above said work table and supported in hangers carried by said platform, a vertically disposed fixed frame mounted above said work table, a bracket having horizontal pivotal relation with said frame, a needle carrying a thread for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric mounted for vertical reciprocation in said bracket, a main transverse shaft operable by said longitudinal shaft, means arranged between said main transverse shaft and needle for needle reciprocation, means arranged between said main transverse shaft and said bracket for moving the latter about its pivot point, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot bar vertically movable in said bracket and paralleling said needle and provided with a presser foot having a U-shaped slot through which presser foot said needle operates, and means connecting said rock shaft with said presser foot bar.

10. In a machine of the character stated, an elongated horizontally arranged, relatively wide work table, standards supporting said work table, a relatively narrow platform paralleling said work table and supported by brackets mounted upon said work table, a longitudinal shaft arranged above said work table and supported in hangers carried by said platform, a vertically disposed fixed frame mounted above said work table, a bracket having horizontal pivotal relation with said frame, a needle carrying a thread for penetrating a fabric and passing the strand through the fabric to produce succes-

sive loops below the underside of the fabric mounted for vertical reciprocation in said bracket, a main transverse shaft operable by said longitudinal shaft, means arranged between said main transverse shaft and needle for needle reciprocation, means arranged between said main transverse shaft and said bracket for moving the latter about its pivot point, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot bar vertically movable in said bracket and paralleling said needle and provided with a presser foot having a U-shaped slot through which presser foot said needle operates, means connecting said rock shaft with said presser foot bar, and a fixed holder carried by the frame supporting said pivotal bracket which holder is provided with a loop-shaped member at its lower end and below said presser foot for movement therethrough both vertically and laterally of said needle.

11. In a machine of the character stated, an elongated horizontally arranged relatively wide work table, standards supporting said work table, a relatively narrow platform paralleling said work table and supported by brackets mounted upon said work table, a longitudinal shaft arranged above said work table and supported in hangers carried by said platform, a vertically disposed fixed frame mounted above said work table, a bracket having horizontal pivotal relation with said frame, a needle carrying a thread for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric mounted for vertical reciprocation in said bracket, a main transverse shaft operable by said longitudinal shaft, means arranged between said main transverse shaft and needle for needle reciprocation, means arranged between said main transverse shaft and said bracket for moving the latter about its pivot point, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot bar vertically movable in said bracket and paralleling said needle and provided with a presser foot having a U-shaped slot through which presser foot said needle operates, means connecting said rock shaft with said presser foot bar, and a guide having a U-shaped slot therethrough arranged on said work table beneath said presser foot, which presser foot is also provided with a U-shaped slot in register with the slot of said guide.

12. In a machine of the character stated, an elongated horizontally arranged relatively wide work table, standards supporting said work table, a relatively narrow platform

paralleling said work table and supported by brackets mounted upon said work table, a longitudinal shaft arranged above said work table and supported in hangers carried by said platform, a vertically disposed fixed frame mounted above said work table, a bracket having horizontal pivotal relation with said frame, a needle carrying a thread for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric mounted for vertical reciprocation in said bracket, a main transverse shaft operable by said longitudinal shaft, means arranged between said main transverse shaft and needle for needle reciprocation, means arranged between said main transverse shaft and said bracket for moving the latter about its pivot point, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot bar vertically movable in said bracket and paralleling said needle and provided with a presser foot having a U-shaped slot through which presser foot said needle operates, means connecting said rock shaft with said presser foot bar, and severing mechanism arranged below said work table for cutting said loops as formed, said severing mechanism being operatively connected with said longitudinal shaft.

13. In a machine of the character stated, an elongated horizontally arranged relatively wide work table, standards supporting said work table, a relatively narrow platform paralleling said work table and supported by brackets mounted upon said work table, a longitudinal shaft arranged above said work table and supported in hangers carried by said platform, a vertically disposed fixed frame mounted above said work table, a bracket having horizontal pivotal relation with said frame, a needle carrying a thread for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric mounted for vertical reciprocation in said bracket, a main transverse shaft operable by said longitudinal shaft, means arranged between said main transverse shaft and needle for needle reciprocation, means arranged between said main transverse shaft and said bracket for moving the latter about its pivot point, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot bar vertically movable in said bracket and paralleling said needle and provided with a presser foot having a U-shaped slot, through which presser foot said needle operates, means connecting said rock shaft with said presser foot

bar, severing means including a hook-like member and a pivotal blade for coacting with said loops as formed, and mechanism operatively connected with said longitudinal shaft for shifting said hook-like member and pivotal blade transversely of the machine.

14. In a machine of the character stated, an elongated horizontally arranged relatively wide work table, standards supporting said work table, a relatively narrow platform paralleling said work table and supported by brackets mounted upon said work table, a longitudinal shaft arranged above said work table and supported in hangers carried by said platform, a vertically disposed fixed frame mounted above said work table, a bracket having horizontal pivotal relation with said frame, a needle carrying a thread for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric mounted for vertical reciprocation in said bracket, a main transverse shaft operable by said longitudinal shaft, means arranged between said main transverse shaft and needle for needle reciprocation, means arranged between said main transverse shaft and said bracket for moving the latter about its pivot point, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot bar vertically movable in said bracket and paralleling said needle and provided with a presser foot having a U-shaped slot, through which presser foot said needle operates, means connecting said rock shaft with said presser foot bar, a frame depending from said work table, a short shaft journaled in said frame and operable from the longitudinal shaft arranged above the work table by means of an inclined shaft and bevel gears, means including a cam and eccentric upon said short shaft, and severing means including a hook-like member and a pivotal blade for coacting with said loops as formed, said hook-like member being operatively connected with said cam and said pivotal blade being operatively connected with said eccentric.

15. In a machine of the character stated, an elongated, horizontally arranged work table, a platform paralleling said work table and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral

movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot through which said needle operates, means connecting said rock shaft with said presser foot, and a pendant lug fixed to the underside of said presser foot for pressing upon the tops of the loops upon the back of the goods while said needle is descending.

16. In a machine of the character stated, an elongated, horizontally arranged work table, a platform paralleling said work table and superimposed thereon, a longitudinal shaft arranged intermediate said work table and platform, a main transverse shaft operable by said longitudinal shaft, a needle carrying a strand for penetrating a fabric and passing the strand through the fabric to produce successive loops below the underside of the fabric, means operable by said main transverse shaft for vertical reciprocation of the needle, independent means operable by said main transverse shaft for lateral movement of said needle, an auxiliary transverse shaft mounted for rotation above said platform and rotatable by said main transverse shaft, a rock shaft paralleling said auxiliary transverse shaft and operable thereby, a presser foot through which said needle operates, means connecting said rock shaft with said presser foot, and a leaf-spring carried by a fixed part of the machine for bearing against said presser-foot for restoring the latter to normal position after forward movement of said presser foot.

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