April 21, 1942. L. G. BOWMAN 2,280,468

BLIND STITCH SEWING MACHINE FOR BINDING CARPETS

Filed April 3, 1940 7 Sheets-Sheet 1

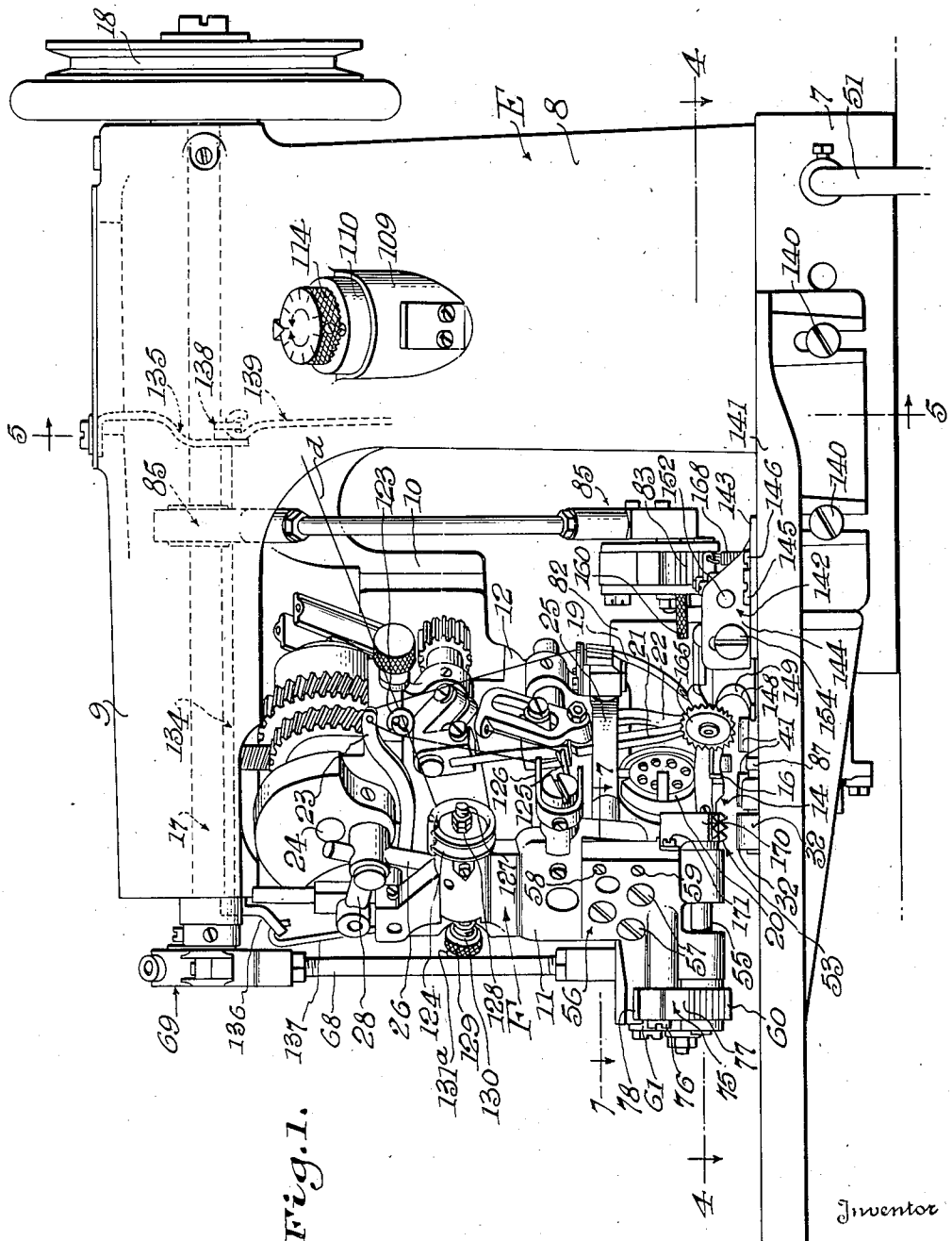


Fig. 1.

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BLIND STITCH SEWING MACHINE FOR BINDING CARPETS

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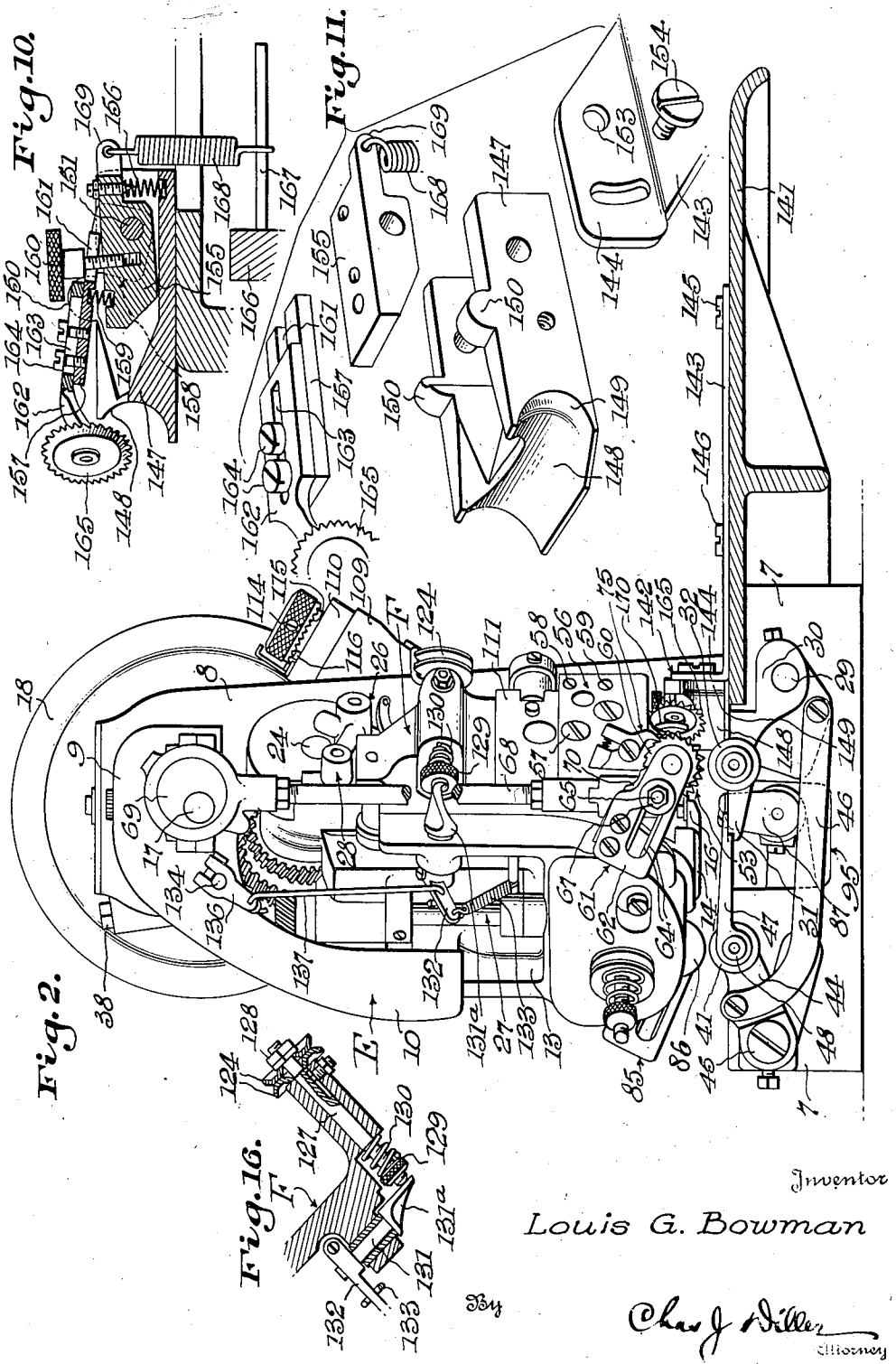


Fig. 2.

Fig. 10.

Fig. 11.

Fig. 16.

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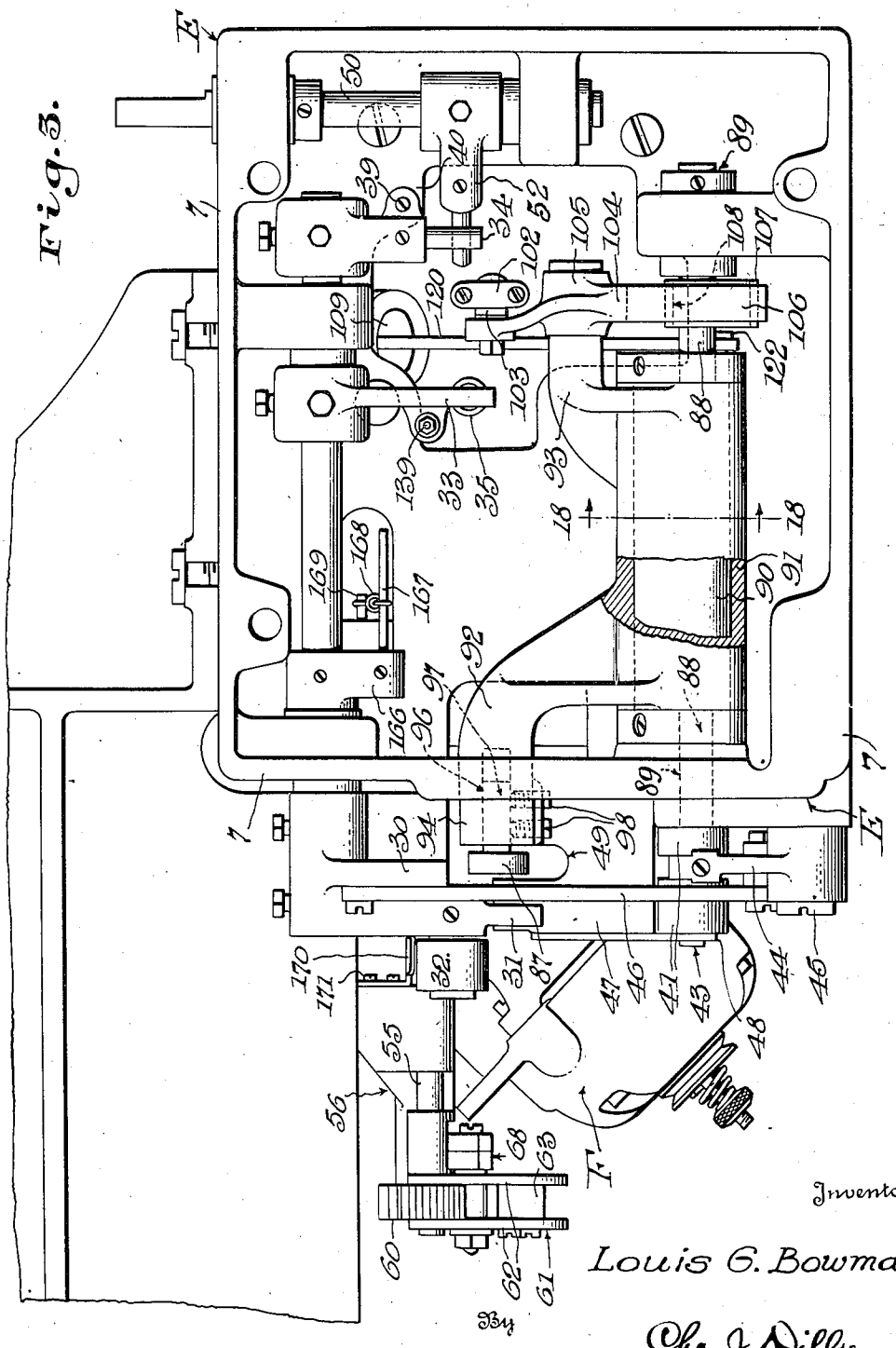
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April 21, 1942. L. G. BOWMAN 2,280,468

BLIND STITCH SEWING MACHINE FOR BINDING CARPETS

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Fig. 3.



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BLIND STITCH SEWING MACHINE FOR BINDING CARPETS

Filed April 3, 1940 7 Sheets-Sheet 4

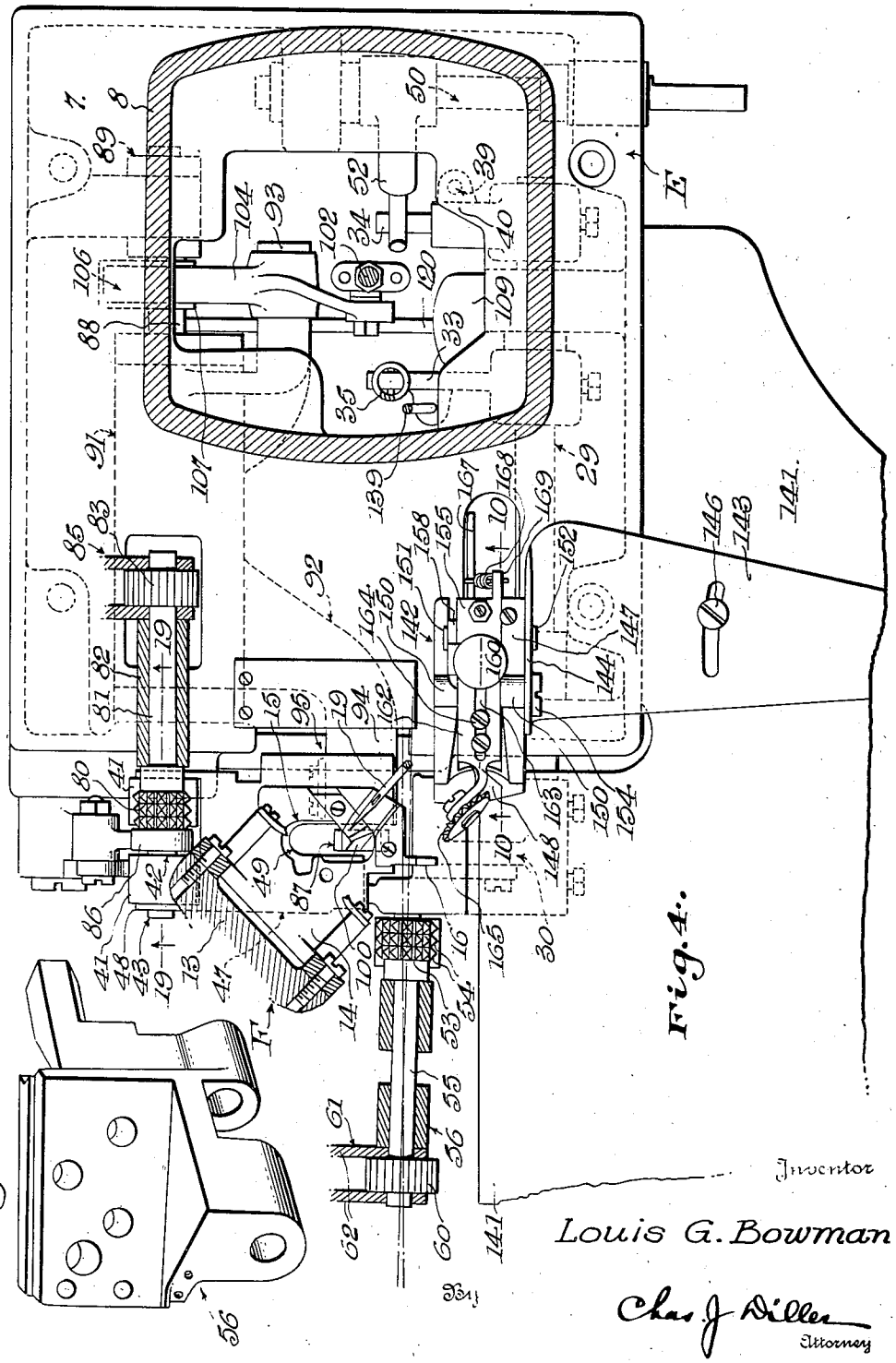


Fig. 4.

Fig. 12.

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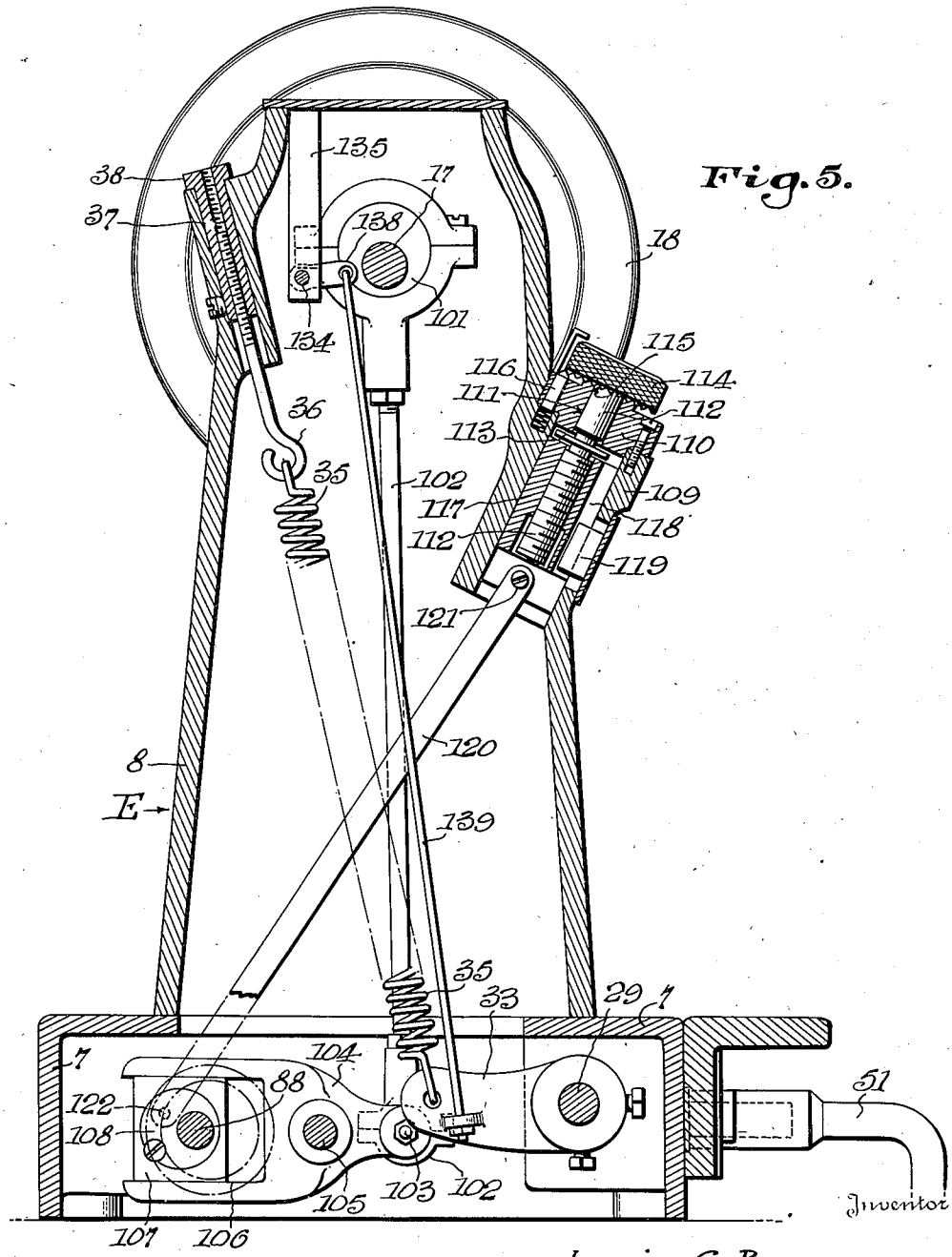
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April 21, 1942. L. G. BOWMAN 2,280,468

BLIND STITCH SEWING MACHINE FOR BINDING CARPETS

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Fig. 5.



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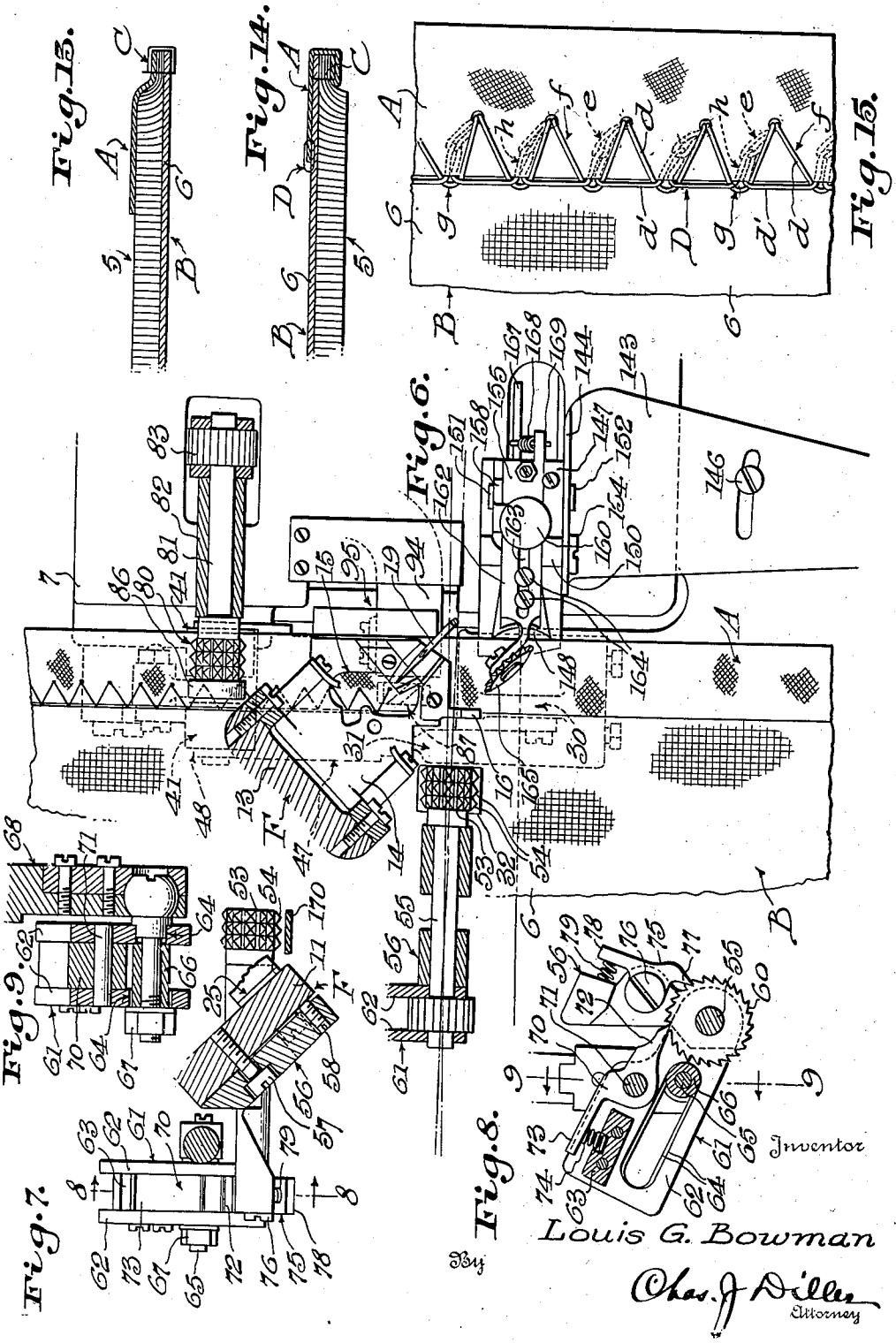
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BLIND STITCH SEWING MACHINE FOR BINDING CARPETS

Filed April 3, 1940 7 Sheets-Sheet 6



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BLIND STITCH SEWING MACHINE FOR BINDING CARPETS

Filed April 3, 1940 7 Sheets-Sheet 7

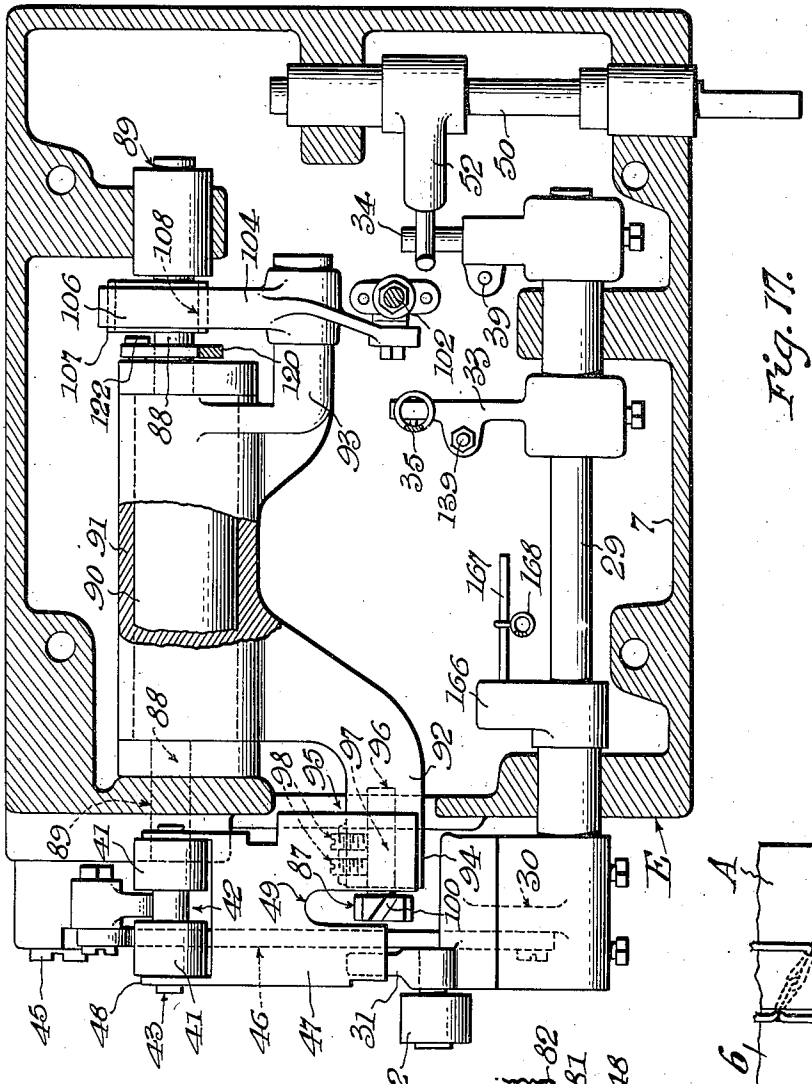


Fig. 17.

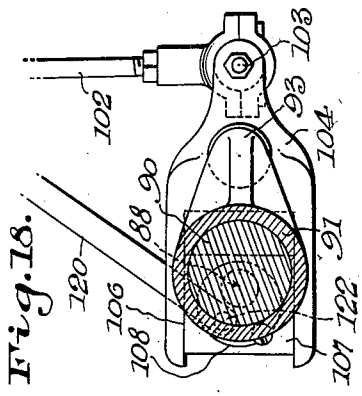


Fig. 18.

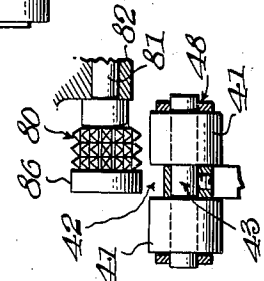


Fig. 19.

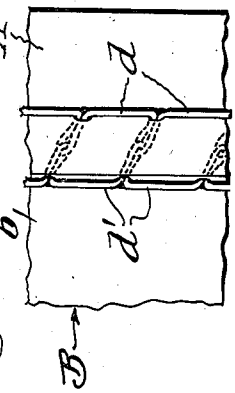


Fig. 20.

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Patented Apr. 21, 1942

2,280,468

UNITED STATES PATENT OFFICE

2,280,468

BLIND STITCH SEWING MACHINE FOR BINDING CARPETS

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Application April 3, 1940, Serial No. 327,714

59 Claims. (Cl. 112—178)

This invention relates to new and useful improvements in sewing machines generally, although more particularly to blind stitch sewing machines for hemming carpets, or similar heavy woven bodies.

Heretofore, a binding has been stitched to the edges of a carpet by two operations on vertical needle machines. The first operation consisted in positioning the binding over the edge of the carpet at the pile side thereof and joining the outer edge of the binding to the edge of the carpet by a line of overedge stitches. The carpet was then turned over, i. e., with the pile underneath, after first turning the binding over the edge of the carpet so as to hide the overedge stitches, and the free edge of the binding was secured to the carpet base by a line of stitches formed by a vertical needle machine. This second line of stitches is objectionable because the stitches on the pile side of the carpet tie down the pile and cause a line or furrow to appear in said pile.

One of the principal objects of this invention is to provide a blind stitch machine for performing the second operation above noted, whereby the free edge of the previously seamed binding can be joined to the carpet base by a line of blind stitches which do not pass through the carpet base and tie down the pile and which thus avoid the forming of the objectionable line or furrow in the pile.

Another object of the invention is to provide a blind stitch machine of the lock stitch type for joining the free edge of the binding to the base whereby the line of stitches will not be subjected to raveling.

A further object of the invention is to provide means for forcing and holding the binding tightly over the edge of the carpet immediately in advance of the sewing operation whereby the binding, when securely sewed in place, will be laid tightly over said edge.

Another object of the invention is to provide an intermittent top feed including a feed wheel for feeding the carpet and binding from the binding guide to the needle, and to adjustably mount said feed wheel on the stitching head whereby it may be set at a slight angle to the direction of feed and thereby effect a crowding of the carpet into the binding.

Another object of the invention is to provide a novel top feed of the character stated embodying two feed wheels, one for feeding the carpet toward the needle and disposed for engagement with the carpet base at one side of the stitch line, and the other for feeding the carpet from the needle and disposed for engagement with the tightly laid and blind stitch secured binding at the other side of said stitch line.

Another object of the invention is to provide a novel presser foot assembly structure which cooperates with and underlies the top feed and which is depressible so as to facilitate insertion and withdrawal of carpet into and from the machine.

Another object of the invention is to provide a novel presser foot assembly structure of the character stated which includes a carpet supporting roller lying directly beneath and opposed to each feed wheel.

Another object of the invention is to provide a novel presser foot assembly structure of the character stated in which is included a carpet supporting and guiding plate disposed between the supporting rollers and on an incline upwardly in the direction of feed.

Another object of the invention is to provide a vertically reciprocatory ridge forming element having a travel of sufficient length to clear the carpet pile when at the lower end of its stroke and when the feed of the carpet occurs, whereby said pile will not be dragged against the element and consequently a furrow in the pile will not be made thereby.

Another object of the invention is to provide novel means for adjustably mounting the ridge forming element so that the upper limit of movement thereof can be altered rapidly and through a wide range to thereby vary the depth of needle penetration in the carpet base and greatly facilitate efficient use of the machine in the binding of carpets of varied thicknesses.

Another object of the invention is to provide a machine of the character stated in which there are included a pair of laterally spaced carpet supporting rollers disposed in rear of the ridge forming element and with the space between the rollers aligned with said element, and an ironer disk or roller disposed for engagement with the uppermost face of the carpet directly over said space so as to be effective to depress or iron out the ridge formed by the engagement of the ridge forming element with the carpet.

A still further object of the invention lies in the provision of means for releasing automatically the needle thread tension upon depression of the presser foot whereby the seamed carpet may be readily removed from the machine.

With these and other objects in view which will more fully appear, the nature of the invention

will be more clearly understood by following the description, the appended claims, and the several views illustrated in the accompanying drawings.

In the drawings:

Figure 1 is a front elevation of a blind stitch sewing machine constructed in accordance with my invention.

Figure 2 is a left hand elevation thereof, the work support being shown in vertical cross section.

Figure 3 is a bottom plan view of the machine, parts being broken away and in section.

Figure 4 is a horizontal section taken on the line 4—4 on Figure 1, the rotary hook being omitted.

Figure 5 is an enlarged vertical section taken on the line 5—5 on Figure 1.

Figure 6 is an enlarged plan view and part horizontal section showing particularly the relation between the carpet, the binding, the ridge-receiving plate, the needle, the rotary feed, and the binding guide, the rotary hook being omitted.

Figure 7 is a detail horizontal section taken on the line 7—7 on Figure 1.

Figure 8 is a vertical section taken on the line 8—8 on Figure 7.

Figure 9 is a vertical section taken on the line 9—9 on Figure 8.

Figure 10 is a fragmentary vertical cross sectional view taken on the line 10—10 on Figure 4.

Figure 11 is a view showing the carpet guide and binding laying parts in separated perspective.

Figure 12 is a detail perspective view of the bracket which supports the adjustably mounted top feed shaft.

Figure 13 is a sectional view showing more or less diagrammatically a carpet having a binding seamed thereto by the first operation hereinabove referred to.

Figure 14 is a similar view but showing the binding seamed to the carpet by the second operation which is performed on the machine herein disclosed.

Figure 15 is a bottom plan view of the carpet and showing particularly the line of blind stitches which secures the free edge of the binding to the base of the carpet.

Figure 16 is a detail longitudinal section showing the mounting of the needle thread tensioning means.

Figure 17 is a fragmentary horizontal sectional view illustrating the co-relation of the ridge forming element and the presser foot assembly structure.

Figure 18 is a detail vertical cross section taken on the line 18—18 on Figure 3.

Figure 19 is a detail vertical cross section taken on the line 19—19 on Figure 4.

Figure 20 is a bottom plan view of a fragment of carpet having the free edge of its binding secured by blind stitching other than the overedge type disclosed in Figure 15.

Like reference numerals designate corresponding parts throughout the several figures of the drawings.

In stitching a binding to a carpet, two separate operations are employed. The first operation, as shown in Fig. 13, consists in superposing the binding A upon the upper face or pile 5 of the carpet B and along the edge thereof, and joining the binding to the base 6 of the carpet by a line of through stitches C made on a vertical needle machine, such as a zig-zag or overedge type. The second operation, as shown in Fig. 14, consists in turning the carpet over and folding the binding around the edge thereof and upon the base of the carpet and then joining the free edge of the binding to said base by a line of stitches D formed on a blind stitch machine embodying my invention. Thus, the line of stitches C will be completely hidden. The stitches D are preferably of the lock stitch type, and, as shown in Fig. 15, include a needle thread *d* and a bobbin thread *d'*. The needle thread between adjacent loops *e* is bowed laterally over the adjacent edge of the binding as at *f* and is secured against the carpet base 6 as at *g* beneath the bobbin thread *d'*, loops *h* of said bobbin thread being concatenated with and drawn into the body of the carpet base 6 by the needle loops *e*. The edge of binding is thus held in flat and firm relation against the base 6 of the carpet.

The blind stitch sewing machine which is employed in the second operation and which embodies my invention, includes a main frame E containing a hollow base 7, a hollow standard 8, and a hollow arm 9 which projects from the upper end of the standard and overhangs the base and terminates in a downwardly projecting arm 10.

Attached to the arm 10 is a stitching head F which is U-shaped in horizontal cross section to form resultant side walls 11, 12 and a connecting wall 13. See Figures 1, 4 and 6 of the drawings. The head is set at an angle of approximately 45° to the longitudinal axis of the frame arm 9, and opens toward the front of the machine and toward the standard 8 thereof.

Rigidly attached to the lower end of the connecting wall 13 of the head F and extending forwardly thereof, is a horizontally disposed ridge-receiving plate 14 having an elongated opening 15 therein through which a ridge of carpet B and superposed binding A is intermittently projected, the longitudinal axis of the opening being disposed in a plane at right angles to the longitudinal axis of the frame arm 9. The plate 14 is located beyond the left hand end of the base 7 as shown in Figs. 4 and 6, and in a horizontal plane spaced considerably above the top surface of the base as shown in Figs. 1 and 2. At its front end the plate 14 removably supports a forwardly extending, vertically disposed guide member 16 the advance, upturned end of which serves the twofold purpose of lining up the edge of the binding A and of guiding the carpet and the binding under said plate.

Journaled in the frame arm 9 and in the upper end of the standard 8, is a main shaft 17 having a driving pulley 18 fixed to its right hand end.

The lock stitch forming mechanism which is mounted in the head F is substantially shown in the patent to Whitelaw 1,176,415, Mar. 21, 1916. This stitching mechanism comprises generally, a reciprocatory curved needle 19, a rotary hook 20 containing a supply of bobbin thread *d'*, a pair of loopers 21, 22, and a take-up lever 23 for the needle thread *d*, these elements being all driven from a horizontal jack shaft 24 which is journaled in the head F and is coupled to the main shaft 17 by a 1–to-1 gear coupling.

The needle 19 is centrally carried by a yoke-shaped needle arm 25 which is journaled in the side walls 11, 12 of the stitching head and above the plate 14 to oscillate about a horizontal axis disposed in a plane diagonal to the longitudinal axis of the main shaft 17 whereby the path of movement of the needle will extend diagonally

across the opening 15 of said plate, the penetrating stroke of the needle being from right to left. The needle arm 25 is oscillated from the jack shaft 24 by driving connections indicated as a whole by the numeral 26 whereby the needle will receive one complete oscillation for each rotation of said jack shaft.

The cooperating hook 20 is rotated from the jack shaft 24 by driving connections indicated as a whole by the numeral 27 whereby the hook will be rotated twice for each rotation of the jack shaft.

The two loopers 21, 22 engage the needle thread *d* which extends from the eye of the needle to the last formed needle loop when the needle is at the beginning of its penetrating stroke, and spread said thread laterally over the edge of the binding and into position for entrance by the needle after which the hook will engage the needle loop of the needle and carry said loop around the supply of bobbin thread *d'* contained within said hook. Thus the needle thread will be spread around the bight of the needle loop, and the bobbin thread which passes through the bight and above the spread portion of the needle thread, will form a lock therefor.

The take-up lever 23 is driven from the needle driving means 26 by driving connections indicated as a whole by the numeral 28 whereby the needle loop just formed will be partially set and the next to last stitch will be set.

Journaled in the base 7 of the main frame E adjacent the front wall thereof is a horizontal rock-shaft 29 whose longitudinal axis is in parallelism with the main shaft 17. The left end of the rock shaft 29 projects beyond the left end of the base, and fixed thereon is an upwardly and rearwardly extending rock arm 30. The arm 30 includes a rearwardly extending supporting lug 31 and carries a freely rotatable carpet supporting roller 32, and these elements comprise parts of a presser foot assembly structure soon to be described in greater detail.

The right hand end of the rock shaft 29 projects beneath the lower end of the standard 8 of the main frame and fixedly secured thereon is a rock arm 33 and a stop arm 34. Located within the standard 8 is a coil spring 35 having its lower end connected to the rock arm 33 and its upper end connected to a hook 36 which is threadably engaged in a sleeve 37 freely rotatable in an opening formed in the upper portion of the standard and held against downward movement by a head 38 which contacts the standard. The sleeve 37 may be rotated to adjust the hook 36 vertically whenever it is desired to vary the tension of the spring. Threadably mounted in the stop arm 34 is a stop pin 39 which engages the under face of the base stop 40 to variably limit upward movement of the arm 30 under the urge of the spring 35. It will be noted that the supporting roller 32 is located in front of the ridge receiving-plate 14 and on the left of the opening 15 therein, and that said roller is centered in a horizontal plane located below and in spaced relation to said plate.

The presser foot assembly structure also includes a pair of carpet supporting rollers 41 disposed in laterally spaced relation in rear of the plate opening 15 and with the space 42 intervening said rollers aligned with the longitudinal center of said opening. The rollers 41 are mounted for free rotation about a common axis as at 43 on a rock arm 44 rockably mounted as at 45 on the base 7. The rock arms 30 and 44 are link-connected as at 46 to move upwardly or downwardly in unison, and a carpet guiding or bridge plate 47 pivotally mounted at 48 for swinging movement about the common axis of the rollers 41 has its front or free end slidably supported on the lug 31 projecting rearwardly from the arm 30. This plate 47 also forms a part of the presser foot assembly structure, and it will be noted that it inclines upwardly from its front end toward the rollers 41 so as to facilitate guiding of the infeeding end of a carpet to said rollers. A ridge forming element accommodating opening 49 is formed in the plate 47 directly beneath the opening 15 formed in the ridge-receiving plate 14.

Manually operable means are provided for depressing the presser foot assembly structure, and to this end a horizontal rock shaft 50 is journaled in the base 7 of the main frame on the right of the rock shaft 29 and is disposed in a plane at right angles thereto. The front end of the rock shaft 50 projects through the front wall of the base and has a knee-press lever 51 fixed thereon. See Figs. 3 and 5. Rigidly attached to the rock shaft 50 within the base is a rock arm 52 which overlies the stop arm 34, and consequently upon movement of the knee-press lever to the right the rock shaft 29 will be rocked and the presser foot assembly structure including the rollers 32 and 41 and the plate 47 will be depressed against the tension of the spring 35, and upon release of the knee-press lever, the spring will return the parts to their normal positions determined by the adjustable stop 39.

Supported on the stitching head F and located directly above the supporting roller 32 is an intermittently rotatable and relatively wide feed wheel 53 having a plurality of circumferential series of teeth 54. This feed wheel is fixed to the right hand end of a horizontal shaft 55 which is journaled in a bracket 56 attached to the side wall 11 of the stitching head by screws 57. By means of the adjustable stop screw 39, the presser foot assembly structure can be retained normally below and in spaced relation to the feed wheel 53. This is important as it prevents the feed wheel 53 from grinding against the supporting roller 32 of the presser foot assembly structure whenever the machine is operated without any work therein.

The shaft 55 is located below the stitching head and has its longitudinal axis normally located in a plane parallel with the main shaft 17. It will be noted that the feed wheel 53 is located at the left of the opening 15 of the ridge-receiving plate 14 but in advance thereof. Thus the carpet B and binding A are adapted to be fed rearwardly from the presser foot and thence under the said plate 14, the direction of feed being at right angles to the longitudinal axis of the main shaft. It may be desirable to direct the carpet slightly toward the right during the feeding thereof whereby the edge of the carpet will be crowded into the binding. For this purpose, a pair of upper and lower set screws 58, 59 are adjustably threaded through the bracket 56 for contact with the side wall 11 of the head F whereby said bracket and consequently the shaft 55 may be adjustably secured at a predetermined angle to the direction of feed thereby to force the carpet slightly toward the right during the feed travel thereof. See Figs. 4 and 6.

It will be obvious that by loosening the bracket mounting screws 57 and adjusting the set screws 58 and 59 to cause them to project a greater or

lesser amount beyond the bracket 56 for engagement with the side wall 11 of the head F, and then again tightening said screws 57, the desired angular relation of the opposing faces of the bracket 56 and said wall 11, and consequently the angular relation of the shaft 55, can be attained.

In order to rotate the feed shaft 55 intermittently, a ratchet wheel 60 is fixed to the shaft 55 adjacent the left hand end thereof. A rearwardly extending feed lever 61 is provided and comprises spaced plates 62, 62 which are journaled on the end of said shaft, and a connecting web 63, the latter being located along the top and toward the rear end of the lever. Below the web 63 the plates are provided with longitudinally extending slots 64, 64. A horizontal pivot shaft 65 extends across the slots 64 and is clamped in any adjusted position along said slots through the medium of a surrounding sleeve 66 and a clamping nut 67, the latter being on the left hand end of the shaft to insure immediate access thereto. A rod 68 is pivotally connected at its upper end with an eccentric 69 fixed to the left hand end of the main shaft 17 and at its lower end to the right hand end of the pivot shaft 65. A feed pawl 70 is disposed between the plates 62, 62 of the feed lever 61, and is fulcrumed on a transverse pivot pin 71 mounted in said plates. The pawl includes a forwardly extending nose 72 which overlies the ratchet wheel 60, and a rearwardly extending tail 73 which overlies the web 63 of the feed lever 61. A coil spring 74 is positioned between said web and tail and functions to retain the nose of the pawl in yieldable engagement with the teeth of the ratchet wheel. A back dog 75 which is pivoted on a horizontal pin 76 mounted on the bracket 56 above the ratchet wheel, includes a downwardly projecting nose 77 and an upwardly extending tail 78 located in front of the bracket. A coil spring 79 is positioned between the tail 70 and the bracket 56 and functions to retain the nose 77 in yieldable engagement with the teeth of the ratchet wheel.

Thus the feed lever 61 is oscillated by the eccentric 69, and upon successive upward movements of the lever the feed pawl will impart step feed movements to the ratchet wheel 60 in a clockwise direction as viewed in Figs. 2 and 8, whereby the feed wheel 53 will be given an intermittent rotary movement in the same direction as the ratchet wheel, and the back dog 75 will prevent the ratchet wheel and the feed wheel from rotating in a reverse direction. The eccentric 69 is timed with the needle reciprocations whereby the feed wheel will begin each feeding movement immediately following the withdrawal of the needle from the carpet and its binding. By adjusting the pivot shaft 65 in one direction or the other along the slotway in the feed lever 61, the travel of the feed pawl 70 will be increased or decreased and consequently the feeding movement of the feed wheel will be increased or decreased.

As has been previously stated, the feed wheel 53 is disposed to the left of the ridge-receiving plate opening 15 and directly over the carpet supporting roller 32, and since the binding A extends over the carpet base 6 or to the left only as far as the guide member 16, it will be obvious that this feed wheel engages only the base of the carpet and not the binding. Also, because of its angular position in advance of the position of needle penetration, the feed wheel 53 feeds the carpet toward the needle and crowds it slightly toward the right or into the binding edge fold. A second intermittent feed wheel of like construction is provided and positioned in rear of the plate opening 15 where it will engage the binding after it has been stitch-secured firmly and flatly against the carpet base. See Figs. 1, 4 and 6. This second feed wheel, designated 80, is disposed directly over the right hand one of the carpet supporting rollers 41 and is secured upon a shaft 81 rotatable about a horizontal axis in a bearing 82 rigidly secured to and depending from the stitching head side wall 12. The shaft 81 also carries a ratchet wheel 83 which is actuated intermittently by a ratchet lever equipment identical with the one previously described and illustrated in Figs. 7, 8 and 9. This second ratchet lever equipment is oscillated by pitman rod and eccentric connections with the main shaft 17 and generally designated 85. The ratchet lever equipments are adjusted so that the feed wheels 53 and 80 move simultaneously and in like degree.

At its left hand end and closely adjacent the feed wheel 80, the shaft 81 carries an ironer disk 86. It will be observed by reference to Figures 4, 6 and 19 that the disk 86 is disposed directly over the space 42 intervening the rear carpet supporting rollers 41 and is of sufficient diameter to engage and depress the binding and carpet slightly into said space thereby ironing out any furrow or indentation which might be formed in the carpet by projection of the ridge or node thereof upwardly in the receiving opening 15 in position to be penetrated by the oscillating needle 19.

In order to intermittently project the node or ridge of the carpet B and binding A into needle penetrating position, I have provided a vertically movable ridge forming element 87. A horizontal bearing shaft 88 is supported as at 89 for movement about its axis in the base 7 of the main frame adjacent the rear wall thereof. The longitudinal axis of this shaft is in parallelism with the rock shaft 29. The bearing shaft 88 carries an elongated eccentric 90, and journaled on the eccentric 90 is a rocking frame which comprises a sleeve 91 surrounding the eccentric 90 and two forwardly extending rock arms 92, 93 which are integral with the sleeve.

The arm 92 is relatively long and disposed within the base and includes an end portion 94 which projects laterally toward the left through an opening 95 formed in the left end wall of the base and terminates below and in substantial registry with the opening 15 of the ridge-receiving plate 14. The end portion 94 of the arm 92 is provided with a longitudinally extending bore 96 for receiving the ridge forming element supporting shank or bearing pin 97 whose longitudinal axis is in parallelism with the bearing shaft 88. Set screws 98 are threadably mounted in said arm end 94 for engaging the shank 97 to thereby retain the same against movement. The ridge forming element 87 is carried by the member 97 and, as shown in the accompanying drawings, this element consists of a thin flat finger which is rigidly connected at its base to said member. It will be noted that the element 87 is provided with a needle clearing notch 100 at its upper end and that it registers with the opening 15 of the ridge-receiving plate 14. This element functions to alternately move into and out of engagement with the carpet B to intermittently project a node of carpet and binding upwardly through said opening into needle penetrating position.

The rock arm 93 is relatively short and extends to a point below the hollow standard 8. An eccentric 101 is fixed to the main shaft 17, and a pitman link 102 is connected at its upper end with said eccentric and is pivotally connected at its lower end as at 103 with one end of a movement compounding lever 104 which is pivotally supported intermediately of its ends as at 105 on the arm 93. The other end of the lever 104 is forked as at 106 to receive a slide block 107 encircling an eccentric disk 108 secured upon the bearing shaft 88. It will be observed by reference to Figures 3, 5, 17 and 18 that the eccentric elements 101 and 108 have their axes of eccentricity diametrically-oppositely disposed with respect to the axis of the bearing shaft 88.

As the link 102 is vertically reciprocated in the frame standard 8 by the eccentric 101, the lever 104 is caused to swing about the eccentric 108 and the arms 93 and 92 are caused to swing about the eccentric 90. The compounded leverage provided by these separate pivotal points and the interconnection at 105 of the lever 104 and the arm 93 serves to impart a wide range of upward-downward movement to the ridge forming element 87. This range of movement is sufficient to cause the element 87 to always clear or move out of contact with the carpet pile at the lower limit of travel of said element, and since the eccentric 101 is timed so that the element 87 is always clear of the carpet pile during feed movements of the carpet, contact of the element with the moving pile and the consequent formation of a furrow in said pile is avoided.

In practice, it may be found desirable, when binding carpets of different thicknesses, to vary the depth of needle penetration in the base 6 of the carpet, and inasmuch as the needle 19 oscillates about a fixed axis, it follows that the node of carpet and binding which is formed by the upward movement of the ridge-forming element 73, must be either raised a greater or lesser distance with respect to the point of penetration of the needle. For this purpose, manually operable means are provided for angularly adjusting the eccentrics 90 and 108 whereby the upper limit of movement of the ridge forming element will be suitably raised or lowered. To this end, the frame standard 8 is provided in its front wall with an inclined opening forming a housing 109 having an exteriorly located upper end and an interiorly located lower end. The upper end of the housing is closed by a cap 110 having an axial bore 111 in which is rotatably mounted the upper end of a manually operable screw 112, the cap being secured to the housing. The screw is provided intermediate its ends with a flange 113 which is positioned between the under face of said cap 110 and the upper end of the housing 109 to retain the screw against longitudinal movement with respect to said housing. The upper end of the screw projects above the cap 110 and secured thereon is a disk-shaped head 114 having a knurled periphery and provided on its under face with a concentric line of teeth 115 engageable by a spring pin 116 mounted in the cap 110 for frictionally retaining the screw in any position of angular adjustment. Slidably mounted in the housing 109 is a nut 117 having threaded engagement with the lower end of the screw 112. The nut 117 is provided with a longitudinally extending key-way 118 on its periphery for receiving a key 119 mounted on the housing 109 to thereby retain the nut against turning with the screw but permit longitudinal movement of the nut with respect to said screw. A link 120 is pivotally connected at its upper end as at 121 to the lower end of said screw and has its lower end pivotally connected as at 122 to the eccentric 90 on which the rocking frame sleeve 91 is fulcrumed. Thus, upon rotation of the screw 112 in one direction, the bearing shaft 88 and the eccentrics 90 and 108 affixed thereto will be turned about the axis of the shaft 88 and the rocking frame sleeve 91 will be elevated and also swung about the eccentric 90, and consequently the ridge forming element 87 will be bodily raised whereby said element will present the ridge of carpet and binding at a higher elevation with respect to the point of needle penetration and the needle will therefore make a deeper penetration in the carpet. It will also be apparent that when the screw is rotated in the opposite direction, the rocking frame will be lowered and also rocked in the opposite direction and the element will be lowered so that the needle will make a relatively shallow penetration in the carpet. During these movements of adjustment, the degree of movement effected is accentuated by the compound leverage provided by the separate pivotal points about the eccentrics 90 and 108 and the interconnection at 105 of the lever 104 and the arm 93, and by this means the range of adjustment desired can be obtained by a lesser degree of rotation of the adjustment screw 112 than would otherwise be necessary.

The needle thread *d* is led from the supply to a stationary thread guide 123 on the stitching head F, thence between tension disks 124, 124 mounted on said head, thence through an eye in the looper 22, thence through a spring guide 125, thence through a stationary guide 126 on the head, thence through a guide eye on the take-up lever 23, and thence to the needle. The tension disks 124, 124 are freely mounted on the forward end of a horizontal bearing rod 127 which is mounted for longitudinal sliding movements in the stitching head F. A nut 128 is mounted on the rod 127 in front of said disks, and a nut 129 is mounted on the rear projecting end of the rod in spaced relation to the stitching head. A coil spring 130 is disposed around the rod between the nut 129 and the head and functions to urge the rod rearwardly and thereby maintain the disks in yieldable contact.

It is desirable to provide means for releasing said tension automatically upon depression of the presser foot assembly structure so as to permit the operator when removing the work from the machine to pull the needle thread through the various guides. To this end, a cam arm 131[a] is rigidly mounted on the left hand end of a rock shaft 131 which is journaled in the head F, the longitudinal axis of the shaft being disposed at right angles to the tension rod 127, and the cam arm 131[a] being located adjacent the rear end of said rod. A rock arm 132 is fixed to the right hand end of said rock shaft 131, and a coil spring 133 which is connected at its ends to the rock arm 132 and to the head F, functions to retain the cam arm 130 normally out of engagement with the rear end of the tension rod 127. A rock shaft 134 extends longitudinally within the overhanging arm 9 of the frame, the left hand end of the shaft having a bearing in the end wall of the frame arm and projecting outwardly therebeyond, and the right hand end of the shaft having a bearing in a hanger 135 which is supported by said frame arm. Secured to the projecting

end of the rock shaft 134 is a rock arm 136 which is connected by a link 137 to the rock arm 132. A rock arm 138 is secured to the right hand end of the rock shaft 134, and a vertical link 139 located within the frame standard 8 is pivotally connected at its upper end to said rock arm 138 and at its lower end to the rock arm 33. Thus, upon movement of the knee-press lever 51 to the right, the shaft 50 will be rocked against the tension of the spring 35, the presser foot assembly structure will be depressed, and the cam arm 130 will be rocked against the tension of the spring 133 and will contact the rear end of the tension rod 127 and move said rod forwardly against the tension of the spring 130 to thereby release the tension on the needle thread.

Supported on the frame base 7 and attached to the front wall thereof by screws 140, 140 is a work support or table 141 which extends to the left of the base and in front of the presser foot assembly structure, the upper surface of the table being in a plane slightly below the upper peripheral surfaces of the supporting rollers 32 and 41.

Mounted on the table 141 is a carpet guiding and binding laying unit generally designated 142. This unit includes a mounting plate 143 which is triangular in shape and is equipped with an upstanding, transversely disposed supporting flange 144. The plate is pivotally secured to the table 141 as at 145 and has an arcuate slot therein for receiving a clamp screw 146 threadably mounted in a tap formed in said table. By swinging the plate about its pivot 145 the position of the mounting flange 144 can be altered with relation to the stitch forming mechanism. A generally rectangular guide block 147 is supported by the flange 144 transversely of the line of feed and with its left hand end in position for engaging and guiding movement of the carpet edge about which the binding is folded and to which said binding is to be affixed by a line of blind lock stitches. The swinging adjustment of the plate 143 just referred to serves to appropriately position the guide end of said block, and it will be noted that said guide end is curved about a longitudinal center as at 148 and has its advance edge rounded off as at 149 so as to facilitate its carpet edge guiding function. See Figs. 1, 2, 6, 10 and 11.

While the left hand or guide end of the block 147 is solid, the block is U-shaped in vertical cross section throughout the remainder of its length, and the front and rear walls of the block formed by this U-shaping are provided with opposed upstanding guide lugs 150. A pivot pin 151 is mounted in said walls and traverses the space between them and extends as at 152 as a pivot into the receiving aperture 153 in the opposing mounting flange 144. This flange also has a longitudinal slot therein to receive a clamp screw 154 threaded into a receiving bore in the block 147 and which serves to secure adjustments of elevation of the guide end of the block about the pivotal support 152, 153.

Within the channel in the U-shaped block 147 a mounting bar 155 is pivoted on the pin 151. The bar extends at each end beyond its pivotal mounting, and a compression spring 156 is interposed between the right hand end thereof and the underlying block surface and serves to yieldably hold the left hand end of the bar down in movement limiting contact with the block. A supplemental mounting plate 157 overlies the bar 155 between the guide lugs 150 and extends a distance beyond the left hand end thereof. An ear 158 depends vertically from one side at the right hand end of the plate 157 and is pivoted on the cross pin 151. A compression spring 159 interposed between the plate 157 and the bar 155 to the left of the pivotal mounting of said plate constantly tends to force the left hand end of the plate upwardly, and this upward movement of the plate is adjustably limited by a screw 160 threaded in a receiving bore into the bar 155 through a bifurcation 161 in the right hand end of the plate 157. A second mounting plate 162 is mounted on and extends beyond the left hand end of the plate 157. The plate 162 is longitudinally slotted as at 163 and is adjustably secured by screws 164 so that the degree to which the left hand end thereof extends beyond the plate 157 can be altered at will, and this extended end is twisted into a plane intersecting the line of feed of the carpet at an angle approximating 45° and also inclined to the vertical in the rearward-upward direction. On this bent end a finely toothed binding stretching or spreading disk 165 is freely rotatably mounted.

The binding spreading disk 165 angularly overlies the binding A in the manner illustrated in Figure 6 of the drawings from which it will be observed that this disk is disposed to the right of the carpet base engaging front feed wheel and immediately in front of the ridge-receiving plate 14. Engagement of the angularly disposed and rearwardly tilted disk in rolling contact with the binding A serves to draw or spread the same firmly and flatly over the edge portion of the carpet base, and it will be observed by reference to Figure 10 of the drawings that the springs 156 and 159 permit the disk to yield upwardly or downwardly.

In order to lift the disk 165 out of contact with the binding each time the presser foot assembly structure is depressed by actuation of the knee-press, the rock shaft 29 is equipped with a rearwardly extended, horizontally disposed rock arm 166 from which a pin 167 projects in parallel relation to said shaft. Each time the shaft 29 is rocked to depress the rock arm 36, the rock arm 166 and pin 167 will be depressed, and since the pin is connected by a spring link 168 with the lug 169 extending from the right hand end of the bar 155 this downward movement of the pin will draw the right hand end of the bar and plate assembly 155, 157, 162 downwardly and lift the disk 165 clear of the binding A. The spring 168 forms a yieldable connecting link but it is to be understood that it is of sufficient strength to dominate the compression spring 156 and that its coils are normally closed as illustrated in Figure 10.

In order to guard the operator's hand from contacting the feed wheel 53 during the operation of the machine, I have provided a vertical guard plate 170 which is disposed immediately in front of said wheel and is supported on the bracket 48 by a screw 171.

In operation, the presser foot assembly structure is first depressed and the binding spreader disk 165 elevated by the knee-press lever 51 and the ridge edge portion of a carpet B together with the binding A which has been previously joined thereto by the first operation, is placed between the presser foot assembly structure roller 52 and the feed wheel 53 with the edge of the carpet and the binding against the guiding surface 148 of the block 147, the base 6 of the carpet being uppermost. The knee-press is then released and consequently the roller 32 and the

wheel 53 will clamp the carpet at a point to the left of the binding.

When the main shaft 17 is rotated by the usual power means, the feed wheel 53 will feed the carpet together with the binding rearwardly above the ridge forming element 87, and the latter will intermittently project a ridge of carpet and binding upwardly through the opening 15 in the plate 14 into needle penetrating position. During the feed travel of the carpet and binding, the member 16 will overlie the edge of the binding A and assist in guiding the binding of the carpet, and the disk 165 of the unit 142 which bears upon the binding will spread or force the binding to the left and thereby lay said binding tightly over the edge of the carpet. Simultaneously therewith, the feed wheel 53 which has been set at a slight angle to the direction of feed, engages the base 6 of the carpet and crowds the edge of the carpet into the binding. By providing a vertically yieldable support for the disk 165, said disk will cooperate with carpets of different thicknesses which may be fed through the binder.

The carpet is given its feeding movement while the ridge forming element is below and out of contact with the pile of the carpet and consequently a furrow will not be formed in the carpet pile.

Immediately after the ridge of carpet and binding has been elevated by the ridge forming element 87, the needle 19 enters the binding and the base of the carpet, and the rotary hook 20 and the loopers 21, 22 cooperate with the needle to lay the needle thread *d* over the edge of the binding and to effect the concatenation of the needle thread with the bobbin thread *d'*.

When it is desired to remove the work from the machine, the knee-press 51 is operated to depress the presser foot assembly structure, to lift the disk 165 out of contact with the binding A, and to release the tension disks 124 whereby the operator may withdraw the work and simultaneously pull the needle thread *d* through the various thread guides.

When the presser foot assembly structure is depressed the supporting rollers 32, 41, 41 move down simultaneously and the slidable engagement of the plate 47 on the supporting lug 31 permits the relative movement of the parts occasioned by the angular movement of the rock arms 30 and 44.

As has been previously stated, the inclined plate 47 guides the infeeding edge of a carpet to the rollers 41 so as to properly move over said rollers and be received between one said roller 41 and the opposing feed wheel 80. This roller and wheel equipment grips the bound edge of the carpet and draws it away from the position of needle penetration whereas the roller and feed wheel equipment 32, 53 grips the carpet alone to the left of the binding A and feeds the same toward the position of needle penetration. As the bound carpet edge portion is being fed away from the position of needle penetration, the ironer disk 36, engaging the same directly over the space 42 between the underlying supporting rollers 41 and in the vertical plane in which the ridge forming element oscillates, irons out any semblance of a ridge which might tend to remain in said edge portion and assures against the appearance of an unsightly furrow in the pile side of the carpet.

While this disclosure stresses the attachment of the free edge of the binding A to the base 6 of the carpet B by an overedge blind lock stitch of the character disclosed in Figure 15, the invention is not to be considered limited to employment of this particular stitch formation. In Figure 20, for example, the free edge of the binding is shown attached to the carpet base by other than an overedge stitch. By eliminating the loopers, 21, 22 and their function of spreading the needle thread *d* over the free edge of the binding, attachment of the free edge of the binding to the carpet base can be effected in the manner illustrated in Figure 20. With the loopers 21, 22 removed, the stitch line formed by the needle thread *d* can be made to overlie the free edge of the binding in a straight line and the stitch line formed by the bobbin thread *d'* can be made to similarly overlie the carpet base beside the free edge of the binding, the concatenations of these threads taking place, blind stitch fashion, within the carpet base, as shown in dotted lines in Figure 20.

The terms presser foot, presser foot structure, and presser foot assembly herein used and relating to the rollers 32, 41 and the members which support them, including the plate 47, are used because these elements perform the customary broad purpose of a presser foot, namely, that of opposing the intermittent feed mechanism, in this instance the feed rollers 53 and 80. In the present machine, however, the elements 32, 41 and 47 are disposed beneath the work being fed through the machine and are in the nature of work supporting or work clamping devices which hold the work against the feed rollers 53 and the plate 14.

It is of course to be understood that the details of structure and arrangement of parts may be variously changed and modified without departing from the spirit and scope of my invention.

I claim:

1. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above said plate and including a needle mounted for reciprocations across said opening and a rotary hook cooperating with said needle, means including a rotatable drag element disposed in front of the plate for drawing tight a binding around the edge of the carpet, means located below the plate for projecting a ridge of carpet and binding upwardly through the opening of said plate with the base of the carpet and the edge of the binding in needle penetrating position, and means for intermittently feeding the carpet and binding past the stitch forming mechanism whereby the needle thread will be intermittently laid over the edge of the binding.

2. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above said plate and including a needle mounted for reciprocations across said opening and a rotary hook cooperating with said needle, means disposed in front of the plate for directing a binding around the edge of the carpet, the pile side of the carpet being disposed lowermost, means located below the plate for projecting a ridge of carpet and binding upwardly through the opening of said plate with the base of the carpet and the edge of the binding in needle penetrating position, a top feed disposed in front of the plate

for engaging the base of the carpet alongside of the binding, and a vertically yieldable presser foot structure disposed below the feed for cooperation therewith.

3. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above said plate and including a needle mounted for reciprocations across said opening and a rotary hook cooperating with said needle, means disposed in front of the plate for directing a binding around the edge of the carpet, means located below the plate for projecting a ridge of carpet and binding upwardly through the opening of said plate with the base of the carpet and the edge of the binding in needle penetrating position, an intermittently rotatable feed disposed in front of the plate for engaging the base of the carpet alongside of the binding, and a vertically yieldable presser foot structure disposed below the feed for cooperation therewith.

4. In a blind stitch sewing machine, the combination with a main frame including an overhanging arm, of a main shaft journaled in said arm and extending longitudinally thereof, a stationary horizontal plate attached to the free end of said arm and provided with an opening, a stitch forming mechanism mounted on said arm and including a needle mounted for reciprocations across said opening, means for projecting a ridge of material upwardly through said opening into needle penetrating position, a top feed wheel rotatably mounted on the free end of said arm in cooperative relation to said stitch forming mechanism, and driving connections between said main shaft and said feed wheel for imparting intermittent rotations to said wheel in timed relation to the needle reciprocations.

5. In a blind stitch sewing machine, the combination with a main frame including an overhanging arm, of a main shaft journaled in said arm and extending longitudinally thereof, a stationary horizontal plate attached to the free end of said arm and provided with an opening, of a stitch forming mechanism mounted on said arm and including a needle mounted for reciprocations across said opening, means for projecting a ridge of material upwardly through said opening into needle penetrating position, a top feed wheel rotatably mounted on the free end of said arm in cooperative relation to said stitch forming mechanism, and driving connections between said main shaft and said feed wheel for imparting intermittent rotations to said wheel in timed relation to the needle reciprocations, said driving connections including a horizontal feed shaft on which the wheel is fixed, a ratchet wheel fixed on said feed shaft, a feed lever fulcrumed on said feed shaft and having operative engagement with said ratchet wheel, an eccentric on the main shaft, and a link connecting the feed lever and the eccentric.

6. In a blind stitch sewing machine, the combination with a main frame including an overhanging arm, of a main shaft journaled in said arm and extending longitudinally thereof, a stationary horizontal plate attached to the free end of said arm and provided with an opening, of a stitch forming mechanism mounted on said arm and including a needle mounted for reciprocations across said opening, means for projecting a ridge of material upwardly through said opening into needle penetrating position, a top feed wheel located in cooperative relation to the stitch forming mechanism, means for supporting the feed wheel on said frame arm at an inclination to the general direction of feed, and driving connections between said main shaft and said feed wheel for imparting intermittent rotations to said wheel in timed relation to the needle reciprocations.

7. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, a rotary feed wheel located in front of said stitch forming mechanism, a presser foot structure separate from the plate and disposed below the feed wheel for cooperation therewith, and means for intermittently rotating the feed wheel in timed relation to the needle reciprocations.

8. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a vertically reciprocatory ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, a rotary feed wheel located in front of said stitch forming mechanism, a presser foot structure separate from the plate and disposed below the feed wheel for cooperation therewith, means for intermittently rotating the feed wheel in timed relation to the needle reciprocations, and means for reciprocating said ridge forming element in timed relation to the feeding movements of said feed wheel whereby the latter will terminate prior to engagement of the ridge forming element with the carpet being fed by said wheel.

9. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, a rotary feed wheel located in front of said stitch forming mechanism, a presser foot structure separate from the plate and disposed below the feed wheel for cooperation therewith, means for intermittently rotating the feed wheel in timed relation to the needle reciprocations, means for yieldably urging the presser foot structure upwardly toward said feed wheel, and means for adjustably limiting the upward movement of said presser foot structure.

10. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, and means for supporting the feed at an inclination to the general direction of feed for crowding the body fabric toward said unit.

11. In a combined sewing and binding machine,

the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, and means for supporting the feed at an inclination to the general direction of feed for crowding the body fabric into the binder, said feed supporting means being adjustable to vary the inclination of the feed.

12. In a blind stitch sewing machine, the combination with a main frame including a base, a standard, and an arm extending laterally from the standard and overhanging the base, of a stationary horizontal plate attached to the free end of the overhanging arm and provided with an opening, a stitch forming mechanism supported on the arm and including a needle mounted for reciprocations across said opening, a rotary feed wheel mounted on the arm in front of said plate, a vertically yieldable presser foot structure supported on the base and disposed below said feed wheel, a ridge forming element supported on the base and disposed below the opening of said plate for projecting a ridge of material upwardly through said opening into needle penetrating position, and means for rotating the feed wheel in timed relation to the needle reciprocations.

13. In a blind stitch sewing machine, the combination with a main frame including a base, a standard, and an arm extending laterally from the standard and overhanging the base, of a stationary horizontal plate attached to the free end of the overhanging arm and provided with an opening, a stitch forming mechanism supported on the arm and including a needle mounted for reciprocations across said opening, a rotary feed wheel mounted on the arm in front of said plate, a vertically yieldable presser foot structure supported on the base and disposed below said feed wheel, a ridge forming element supported on the base and disposed below the opening of said plate for projecting a ridge of material upwardly through said opening into needle penetrating position, means for rotating the feed wheel in timed relation to the needle reciprocations, and a fabric guiding and binding laying unit disposed in front of said plate and at one side of the feed wheel and presser foot.

14. In a blind stitch sewing machine, the combination with a frame including a laterally extending arm, of a stitching head depending from the free end of said arm, a main shaft extending longitudinally of and journaled within said arm, one end of the shaft projecting beyond the stitching head, a horizontal plate attached to the lower end of the stitching head and provided with a ridge receiving opening, a stitch forming mechanism supported on said head and including a needle mounted for reciprocations across said opening, a rotary feed wheel located in cooperative relation to said needle, a horizontal feed shaft journaled on said head, and driving connections between the projecting end of the main shaft and the feed shaft and located exteriorly of the head for imparting intermittent rotations to said feed wheel.

15. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above the plate and including a needle mounted for reciprocations across said opening, a fabric guiding and binding laying unit disposed in front of said plate, a ridge forming element located below the plate for projecting a ridge of the carpet and the upper edge of the binding upwardly through the plate opening into needle penetrating position, a feed cooperating with one face of the carpet at a point alongside of the binding and in front of the plate, and a vertically yieldable presser foot structure disposed opposite the feed for cooperation with the other face of the carpet.

16. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above said plate and including a needle mounted for reciprocations across said opening and a rotary hook cooperating with said needle, a fabric guiding and binding laying unit disposed in front of the plate, means located below the plate for projecting a ridge of carpet and binding upwardly through the opening of said plate with the base of the carpet and the edge of the binding in needle penetrating position, a top feed disposed in front of the plate for engaging the base of the carpet alongside of the binding, a vertically yieldable presser foot structure disposed below the feed for cooperation therewith, a normally active needle thread tensioning means, and means for depressing said presser foot structure and simultaneously releasing said tensioning means.

17. A ridge forming mechanism for blind stitch sewing machines comprising a rocking frame fulcrumed to swing about a horizontal axis, a ridge forming element rigidly connected thereto, means for rocking said frame, and means for altering the degree of rocking movement imparted to said frame to thereby vary the height to which said element projects a ridge.

18. A ridge forming mechanism for blind stitch sewing machines comprising a rocking frame fulcrumed to swing about a horizontal axis, an upwardly projecting ridge forming finger rigidly connected thereto, means for rocking said frame, and means for altering the degree of rocking movement imparted to said frame to thereby vary the height to which said element projects a ridge.

19. A ridge forming mechanism for blind stitch sewing machines comprising a horizontal shaft, an eccentric mounted on said shaft for angular adjustments, a rocking frame fulcrumed on said eccentric, a ridge forming element operatively connected to said frame for bodily movements therewith, means for rocking said frame, and means for angularly adjusting the eccentric to raise or lower said rocking frame and thereby vary the height to which said element projects a ridge.

20. In a blind stitch sewing machine, the combination with a main frame including a base, a standard, and an arm extending laterally from the standard and overhanging the base, of a stationary horizontal plate attached to the free end of the overhanging arm and provided with an opening, a stitch forming mechanism supported on the arm and including a needle mounted for reciprocations across said opening, a rocking frame fulcrumed on the base to swing about a horizontal axis and having an end portion projecting below said plate, a ridge forming ele-

ment rigidly connected to the projecting end of said rocking frame for projecting a ridge of fabric upwardly through the opening of the plate into needle penetrating position, means for rocking said frame, and means for altering the degree of rocking movement imparted to said frame to thereby vary the height to which said element projects a ridge.

21. In a blind stitch sewing machine, the combination with a main frame including a base, a standard, and an arm extending laterally from the standard and overhanging the base, of a stationary horizontal plate attached to the free end of the overhanging arm and provided with an opening, a stitch forming mechanism supported on the arm and including a needle mounted for reciprocations across said opening, a horizontal shaft mounted in said base, an eccentric mounted on said shaft for angular adjustments, a rocking frame fulcrumed on said eccentric, a ridge forming element operatively connected to said frame for bodily movements therewith and located below the opening of the plate for projecting a ridge of fabric upwardly therethrough into needle penetrating position, means for rocking said frame, and manually operable means mounted on the main frame for angularly adjusting the eccentric to raise or lower said rocking frame.

22. In a blind stitch sewing machine, the combination with a main frame including a base, a standard, and an arm extending laterally from the standard and overhanging the base, of a stationary horizontal plate attached to the free end of the overhanging arm and provided with an opening, a stitch forming mechanism supported on the arm and including a needle mounted for reciprocations across said opening, a horizontal shaft mounted in said base, an eccentric mounted on said shaft for angular adjustments, a rocking frame fulcrumed on said eccentric, a ridge forming element operatively connected to said frame for bodily movements therewith and located below the opening of the plate for projecting a ridge of fabric upwardly therethrough into needle penetrating position, means for rocking said frame, and manually operable means mounted on the main frame for angularly adjusting the eccentric to raise or lower said rocking frame, said manually operable means including a manually rotatable element mounted on the standard and a link connection between said rotatable element and said eccentric.

23. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above said plate and including a needle mounted for reciprocations across said opening and a rotary hook cooperating with said needle, means disposed in front of the plate for directing a binding around the edge of the carpet, means located below the plate for projecting a ridge of carpet and binding upwardly through the opening of said plate with the base of the carpet and the edge of the binding in needle penetrating position, an intermittently rotatable feed disposed in front of the plate for engaging the base of the carpet alongside of the binding, and a freely rotatable carpet supporting roller disposed below and yieldably opposed to said feed for cooperation therewith.

24. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above said plate and including a needle mounted for reciprocations across said opening and a rotary hook cooperating with said needle, means disposed in front of the plate for directing a binding around the edge of the carpet, means located below the plate for projecting a ridge of carpet and binding upwardly through the opening of said plate with the base of the carpet and the edge of the binding in needle penetrating position, an intermittently rotatable feed wheel disposed in front of the plate opening for engaging the base of the carpet alongside of the binding, an intermittently rotatable feed wheel disposed in rear of the plate opening for engaging the bound edge portion of the carpet, and a vertically yieldable presser foot assembly structure disposed below said feed wheels for cooperation therewith.

25. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above said plate and including a needle mounted for reciprocations across said opening and a rotary hook cooperating with said needle, means disposed in front of the plate for directing a binding around the edge of the carpet, means located below the plate for projecting a ridge of carpet and binding upwardly through the opening of said plate with the base of the carpet and the edge of the binding in needle penetrating position, an intermittently rotatable feed wheel disposed in front of the plate opening for engaging the base of the carpet alongside of the binding, an intermittently rotatable feed wheel disposed in rear of the plate opening for engaging the bound edge portion of the carpet, and a vertically yieldable presser foot assembly structure disposed below said feed wheels for cooperation therewith and including two freely rotatable carpet supporting rollers directly opposed to said feed wheels.

26. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above said plate and including a needle mounted for reciprocations across said opening and a rotary hook cooperating with said needle, means disposed in front of the plate for directing a binding around the edge of the carpet, means located below the plate for projecting a ridge of carpet and binding upwardly through the opening of said plate with the base of the carpet and the edge of the binding in needle penetrating position, an intermittently rotatable feed wheel disposed in front of the plate opening for engaging the base of the carpet alongside of the binding, an intermittently rotatable feed wheel disposed in rear of the plate opening for engaging the bound edge portion of the carpet, a presser foot assembly disposed below said feed wheels and including two freely rotatable carpet supporting rollers directly opposed to said feed wheels and a carpet edge supporting and directing plate between said freely rotatable rollers and inclined upwardly-rearwardly toward the rearmost one thereof.

27. In a blind stitch sewing machine for binding carpets, the combination with a stationary horizontal plate having an opening, of a blind stitch forming mechanism operating above said plate and including a needle mounted for reciprocations across said opening and a rotary hook cooperating with said needle, means including an edge guide for tightly spreading a binding around and over the edge portion of a carpet, means lo-

cated below the plate for projecting a ridge of carpet and binding upwardly through the opening of said plate with the base of the carpet and the edge of the binding in needle penetrating position, top feed means effective to feed the carpet and crowd it against the edge guide and into the binding, and supporting means underlying the carpet as it is being fed.

28. In a blind stitch sewing machine, the combination with a main frame including an overhanging arm, of a main shaft journaled in said arm and extending longitudinally thereof, a stationary horizontal plate attached to the free end of said arm and provided with an opening, a stitch forming mechanism mounted on said arm and including a needle mounted for reciprocations across said opening, means for projecting a ridge of material upwardly through said opening into needle penetrating position, two top feed wheels rotatably mounted on the free end of said arm one in front and one in rear of said stitch forming mechanism, and driving connections between said main shaft and each of said feed wheels for imparting intermittent rotations to said wheels in timed relation to the needle reciprocations.

29. In a blind stitch sewing machine, the combination with a main frame including an overhanging arm, of a main shaft journaled in said arm and extending longitudinally thereof, a stationary horizontal plate attached to the free end of said arm and provided with an opening, a stitch forming mechanism mounted on said arm and including a needle mounted for reciprocations across said opening, means for projecting a ridge of material upwardly through said opening into needle penetrating position, two top feed wheels rotatably mounted on the free end of said arm one in front and one in rear of said stitch forming mechanism, and a set of driving connections between said main shaft and each of said feed wheels for imparting intermittent rotations to said wheels in timed relation to the needle reciprocations, each said set of driving connections including a horizontal feed shaft on which the wheel is fixed, a ratchet wheel fixed on said feed shaft, a feed lever fulcrumed on said feed shaft and having operative engagement with said ratchet wheel, an eccentric on the main shaft, and a link connecting the feed lever and the eccentric.

30. In a blind stitch sewing machine, the combination with a main frame including an overhanging arm, of a main shaft journaled in said arm and extending longitudinally thereof, a stationary horizontal plate attached to the free end of said arm and provided with an opening, of a stitch forming mechanism mounted on said arm and including a needle mounted for reciprocations across said opening, means for projecting a ridge of material upwardly through said opening into needle penetrating position, a top feed wheel located in cooperative relation to the stitch forming mechanism, a fabric edge guiding means disposed to one side of said opening, means for supporting the feed wheel on said frame arm at an inclination to the general direction of feed for imparting feed movements to a fabric and for simultaneously crowding it against said guide means, and driving connections between said main shaft and said feed wheel for imparting intermittent rotations to said wheel in timed relation to the needle reciprocations.

31. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, a rotary feed wheel located in front of said stitch forming mechanism, a rotary feed wheel located in rear of said stitch forming mechanism, means for intermittently rotating said feed wheels in timed relation to the needle reciprocations, a presser foot assembly structure separate from and disposed below the plate, means for yieldably urging the presser foot assembly structure upwardly toward the plate, and means for adjustably limiting the upward movement of the presser foot assembly structure, said assembly structure including two freely rotatable rollers one directly opposed to each feed wheel.

32. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, a rotary feed wheel located in front of said stitch forming mechanism, a rotary feed wheel located in rear of said stitch forming mechanism, means for intermittently rotating said feed wheels in timed relation to the needle reciprocations, a presser foot assembly structure separate from and disposed below the plate, means for yieldably urging the presser foot assembly structure upwardly toward the plate, and means for adjustably limiting the upward movement of the presser foot assembly structure, said assembly structure including two freely rotatable rollers one directly opposed to each feed wheel, and a carpet edge supporting and directing plate between said freely rotatable rollers and inclined upwardly-rearwardly toward the rearmost one thereof.

33. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, a rotary feed wheel located in front of said stitch forming mechanism, a rotary feed wheel located in rear of said stitch forming mechanism, means for intermittently rotating said feed wheels in timed relation to the needle reciprocations, a presser foot assembly structure separate from and disposed below the plate, means for yieldably urging the presser foot assembly structure upwardly toward the plate, and means for adjustably limiting the upward movement of the presser foot assembly structure, said assembly structure including two freely rotatable rollers one directly opposed to each feed wheel, a rock arm supporting each freely rotatable roller, and a carpet edge supporting plate extending between the freely rotatable rollers and pivotally mounted at one end on one of the rock arms adjacent the roller thereon, the other rock arm having means for slidably supporting the other end of said pivoted plate.

34. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a ro-

tary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, means for supporting the feed at an inclination to the general direction of feed for crowding the body toward said unit, and a second rotary feed disposed in rear of the needle for engagement with the sewed binding and operable in unison with the first mentioned feed.

35. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, means for supporting the feed at an inclination to the general direction of feed for crowding the body toward said unit, a second rotary feed disposed in rear of the needle for engagement with the sewed binding and operable in unison with the first mentioned feed, and a fabric supporting roller underlying and directly opposed to each said rotary feed.

36. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, means for supporting the feed at an inclination to the general direction of feed for crowding the body toward said unit, a second rotary feed disposed in rear of the needle for engagement with the sewed binding and operable in unison with the first mentioned feed, a fabric supporting roller underlying and directly opposed to each said rotary feed, means yieldably urging the supporting rollers toward the rotary feeds, and means for moving the supporting rollers away from the rotary feeds for facilitating insertion of work into and withdrawal of work from the machine.

37. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, means for supporting the feed at an inclination to the general direction of feed for crowding the body toward said unit, a second rotary feed disposed in rear of the needle for engagement with the sewed binding and operable in unison with the first mentioned feed, a fabric supporting roller underlying and directly opposed to each said rotary feed, means yieldably urging the supporting rollers toward the rotary feeds, and means for raising the disk and for simultaneously moving the supporting rollers away from the rotary feeds for facilitating insertion of work into and withdrawal of work from the machine.

38. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric and at an inclination to the vertical in an upward-rearward direction for forcing the binding toward the feed, and means for supporting the feed at an inclination to the general direction of feed for crowding the body fabric toward said unit.

39. In a blind stitch sewing machine, the combination with a frame including a laterally extending arm, of a stitching head depending from the free end of said arm, a main shaft extending longitudinally of and journaled within said arm, a horizontal plate attached to the lower end of the stitching head and provided with a ridge receiving opening, a stitch forming mechanism supported on said head and including a needle mounted for reciprocations across said opening, a rotary feed wheel located in advance of the needle and at one side of the stitching line, a second rotary feed wheel located in rear of the needle and at the opposite side of the stitching line, and independent driving connections between the main shaft and each said feed wheel for imparting intermittent rotations thereto, said driving connections being located exteriorly of said head.

40. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, fabric supporting means, fabric feeding means, and ridge depressing means disposed in rear of the ridge forming element and effective to iron out impressions made in fabrics by said element.

41. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, fabric supporting means, fabric feeding means, ridge depressing means disposed in rear of the ridge forming element and effective to iron out impressions made in fabrics by said element, and fabric supporting means underlying said depressing means and presenting a space of limited width into which fabrics are depressed by said depressing means.

42. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for

projecting a ridge of fabric upwardly through said opening into needle penetrating position, fabric supporting means, fabric feeding means, ridge depressing means disposed in rear of the ridge forming element and effective to iron out impressions made in fabrics by said element, and a pair of laterally spaced freely rotatable supporting rollers underlying said depressing means and between which fabrics are depressed by said depressing means.

43. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, fabric supporting means, fabric feeding means, a rotary ridge depressing disk disposed in rear of the ridge forming element and effective to iron out impressions made in fabrics by said element, and a pair of laterally spaced freely rotatable supporting rollers underlying said depressing disk and between which fabrics are depressed by said depressing disk.

44. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, a rotary feed wheel located in front of said stitch forming mechanism, a second rotary feed wheel located in rear of the stitch forming mechanism, fabric supporting means opposing said feed wheels, and a ridge depressing disk rotatable with said second feed wheel and effective to iron out impressions made in fabrics by said element.

45. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, a rotary feed wheel located in front of said stitch forming mechanism, a second rotary feed wheel located in rear of the stitch forming mechanism, fabric supporting means opposing said feed wheels, and a ridge depressing disk rotatable with said second feed wheel and effective to iron out impressions made in fabrics by said element, said fabric supporting means including a pair of laterally spaced freely rotatable rollers underlying said disk and between which fabrics are depressed by said disk.

46. A ridge forming mechanism for blind stitch sewing machines comprising a horizontal shaft, an eccentric mounted on said shaft for angular adjustments, a rocking frame fulcrumed on said eccentric, a ridge forming element operatively connected to said frame for bodily movements therewith, means for rocking said frame, and means for angularly adjusting the eccentric and including movement compounding devices effective for simultaneously moving said rocking frame about its fulcrum on the eccentric for rapidly raising or lowering said ridge forming element.

47. A ridge forming mechanism for blind stitch sewing machines comprising a horizontal shaft, an eccentric mounted on said shaft for angular adjustments, a rocking frame fulcrumed on said eccentric, a ridge forming element operatively connected to said frame for bodily movements therewith, means for rocking said frame, and means for angularly adjusting the eccentric to raise or lower said rocking frame, and means for simultaneously moving said rocking frame about its fulcrum on the eccentric and in the direction in which the adjustment is being effected so as to compound the movement and increase the rapidity of adjustment of the position of the ridge forming element.

48. In a blind stitch sewing machine, a fulcrum member, a rocking frame rockable about said member and including long and short arm extensions, a ridge forming element carried by the long arm, and actuating means for said element including an actuator lever, a fixed fulcrum member for one end of said lever, a reciprocable thrust link connected with the other end of said lever, and means pivotally connecting said short arm and said lever adjacent said thrust link.

49. In a blind stitch sewing machine, a fulcrum member, a rocking frame rockable about said member and including long and short arm extensions, a ridge forming element carried by the long arm, and actuating means for said element including an actuator lever, a fixed fulcrum member for one end of said lever, a reciprocable thrust link connected with the other end of said lever, and means pivotally connecting said short arm and said lever adjacent said thrust link, each said fulcrum member comprising an eccentric, said eccentrics being fixed upon a common shaft adjustable about its axis and being positioned with their centers of eccentricity diametrically oppositely disposed with respect to the axis of said shaft, and means for adjusting the shaft about its axis to move the eccentrics in opposite directions and simultaneously effect a lifting or lowering of the rocking frame and a movement of said frame about its fulcrum in like direction for rapidly raising or lowering said ridge forming element.

50. In a blind stitch sewing machine, the combination with a main frame including a base, a standard, and an arm extending laterally from the standard and overhanging the base, of a stationary horizontal plate attached to the free end of the overhanging arm and provided with an opening, a stitch forming mechanism supported on the arm and including a needle mounted for reciprocations across said opening, a fulcrum member mounted in said base, a rocking frame rockable about said member and including long and short arm extensions, a ridge forming element carried by the long arm and located below the opening of the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, and actuating means for said element including an actuator lever, a fixed fulcrum member for one end of said lever, a reciprocable thrust link connected with the other end of said lever, and means pivotally connecting said short arm and said lever adjacent said thrust link, each said fulcrum member comprising an eccentric, said eccentrics being fixed upon a common shaft adjustable about its axis and being positioned with their centers of eccentricity diametrically oppositely disposed with respect to the axis of said shaft, and manually operable means for adjusting the shaft about its axis to move the eccentrics in opposite directions and simultaneously effect a lifting or lowering of the rocking frame and a movement of said frame

about its fulcrum in like direction for rapidly raising or lowering said ridge forming element, said manually operable means including a manually rotatable element mounted on the standard and a link connection between said rotatable element and said eccentric.

51. In a blind stitch sewing machine, the combination with a main frame including a base, a standard, and an arm extending laterally from the standard and overhanging the base, of a stationary horizontal plate attached to the free end of the overhanging arm and provided with an opening, a stitch forming mechanism supported on the arm and including a needle mounted for reciprocations across said opening, a main shaft journaled in the overhanging arm and extending longitudinally thereof, a rocking frame located within the rear portion of the base to rock about a horizontal axis in parallelism with the main shaft and including a forwardly extending rock arm projecting below the plate, a ridge forming element connected to said arm to move bodily therewith to project a ridge of fabric upwardly into needle penetrating position, operating connections between said main shaft and said rocking frame for actuating the latter, a top feed disposed in front of said plate and having driving connections with said main shaft, a second top feed disposed in rear of said plate and having driving connections with said main shaft, a horizontal rock shaft journaled at the front portion of the base in parallelism with the axis of the rocking frame, a rearwardly extending rock arm fixed to said rock shaft, a second rock shaft journaled parallel to the first rock shaft at the rear portion of said base, a forwardly extending rock arm fixed to said second rock shaft, link means for causing said rock arms to move in unison, fabric supporting rollers carried by said rock arms and opposing said top feeds, means yieldably holding the rock arms against depression, and means for depressing said rock arms.

52. In a blind stitch sewing machine, the combination with a main frame including a base, a standard, and an arm extending laterally from the standard and overhanging the base, of a stationary horizontal plate attached to the free end of the overhanging arm and provided with an opening, a stitch forming mechanism supported on the arm and including a needle mounted for reciprocations across said opening, a main shaft journaled in the overhanging arm and extending longitudinally thereof, a rocking frame located within the rear portion of the base to rock about a horizontal axis in parallelism with the main shaft and including a forwardly extending rock arm projecting below the plate, a ridge forming element connected to said arm to move bodily therewith to project a ridge of fabric upwardly into needle penetrating position, operating connections between said main shaft and said rocking frame for actuating the latter, a top feed disposed in front of said plate and having driving connections with said main shaft, a second top feed disposed in rear of said plate and having driving connections with said main shaft, a horizontal rock shaft journaled at the front portion of the base in parallelism with the axis of the rocking frame, a rearwardly extending rock arm fixed to said rock shaft, a second rock shaft journaled parallel the first rock shaft at the rear portion of said base, a forwardly extending rock arm fixed to said second rock shaft, link means for causing said rock arms to move in unison, a fabric supporting roller carried by the rearwardly extended rock arm and opposed to one top feed, two fabric rollers carried by the forwardly extended rock arm in laterally spaced relation with the space aligned with the ridge forming element, a ridge ironer overlying the space between said two rollers for depressing fabric into said space, means yieldably holding the rock arms against depression, and means for depressing said rock arms.

53. In a blind stitch sewing machine, the combination with a stationary horizontal plate having an opening, of a stitch forming mechanism located above the plate and including a needle mounted for reciprocations across said opening, a ridge forming element located below the plate for projecting a ridge of fabric upwardly through said opening into needle penetrating position, a rotary feed wheel located in front of said stitch forming mechanism, means for intermittently rotating the feed wheel in timed relation to the needle reciprocations, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said feed and including a freely rotatable disk in drag contact with the binding being laid and disposed at an angle to the general direction of feed of the body fabric for spreading the binding over the fabric edge portion, a binding guide member supported vertically at the front of the plate and close to said disk and having an upwardly turned fabric receiving end, and a presser foot assembly structure yieldably opposing said feed.

54. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatably disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, means for mounting the unit for lateral adjustments with relation to the line of feed of the fabric, and means for supporting the feed at an inclination to the general direction of feed for crowding the body fabric toward said unit.

55. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, means for adjustably mounting the disk on said unit for lateral adjustments with relation to the line of feed of the fabrics, and means for supporting the feed at an inclination to the general direction of feed for crowding the body fabric toward said unit.

56. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on

said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, means for mounting the unit for lateral adjustments with relation to the line of feed of the fabric, means for adjustably mounting the disk on said unit for lateral adjustments with relation to the line of feed of the fabrics, and means for supporting the feed at an inclination to the general direction of feed for crowding the body fabric toward said unit.

57. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, means for yieldably and vertically-adjustably mounting said disk on the unit for accommodating fabrics of different thicknesses, and means for supporting the feed at an inclination to the general direction of feed for crowding the body fabric toward said unit.

58. In a combined sewing and binding machine, the combination with a stitch forming mechanism including a reciprocatory needle, of a rotary feed disposed in cooperative relation to the needle for feeding a body fabric to the needle, a fabric guiding and binding laying unit disposed in front of said needle and at the right of said rotary feed for receiving the edge of the body fabric, a freely rotatable disk mounted on said unit at an angle to the general direction of feed of the body fabric for forcing the binding toward the feed, means for yieldably and vertically-adjustably mounting said disk on the unit for accommodating fabrics of different thicknesses, a presser foot structure yieldably opposed to said rotary feed, and means for simultaneously depressing the presser foot structure and lifting said disk to facilitate insertion and removal of fabrics.

59. In a machine of the character described, a fabric guiding and binding laying unit comprising a mounting plate having an upstanding, transversely disposed mounting flange and mountable for lateral adjustments relative to the line of fabric feed, a U-shaped block having a closure wall at one end curved to provide a fabric guiding surface, means for supporting the block on the flange for vertical adjustment of said guiding surface, a bar pivotally supported on the block for limited movement downwardly, spring means yieldably holding the block depressed, a plate pivotally supported on the block and extending beyond the guide surface, means yieldably urging the plate upwardly, adjustable means limiting upward movement of said plate, and a binding spreading disk angularly disposed with respect to the line of fabric feed and freely-rotatably supported on said plate.

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