Feb. 1, 1944. D. A. CUMFER 2,340,647

SEWING MACHINE

Filed April 10, 1940 3 Sheets-Sheet 1

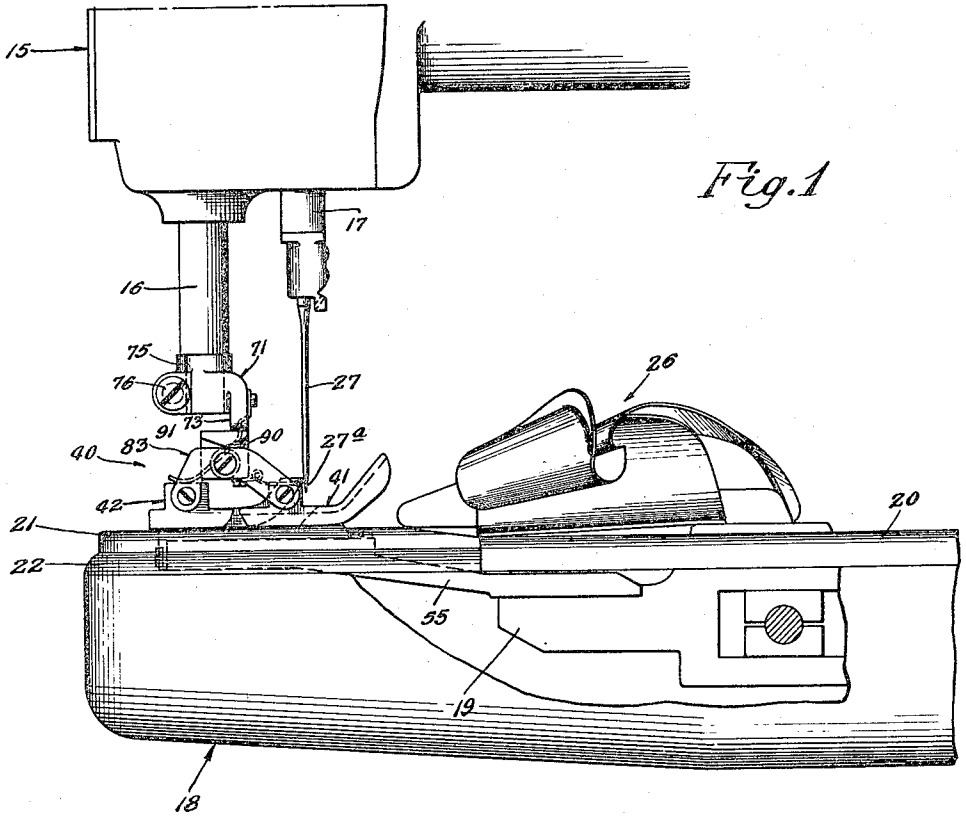


Fig. 1

Fig. 8

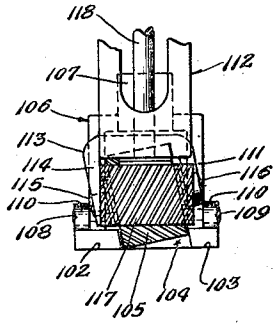
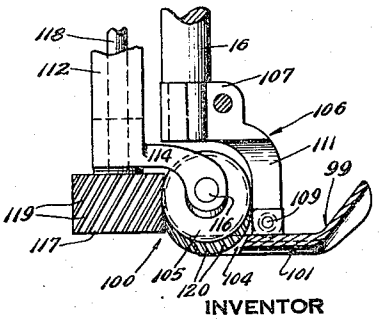


Fig. 7



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SEWING MACHINE

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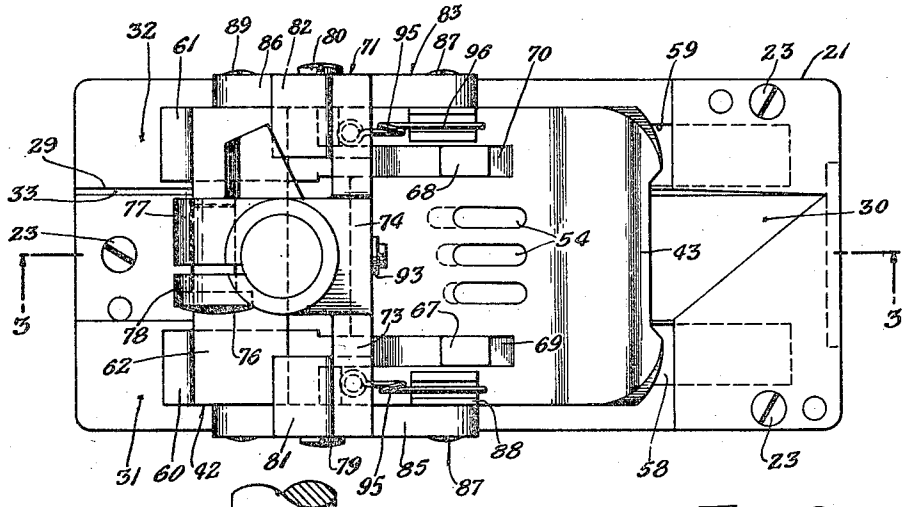


Fig. 2

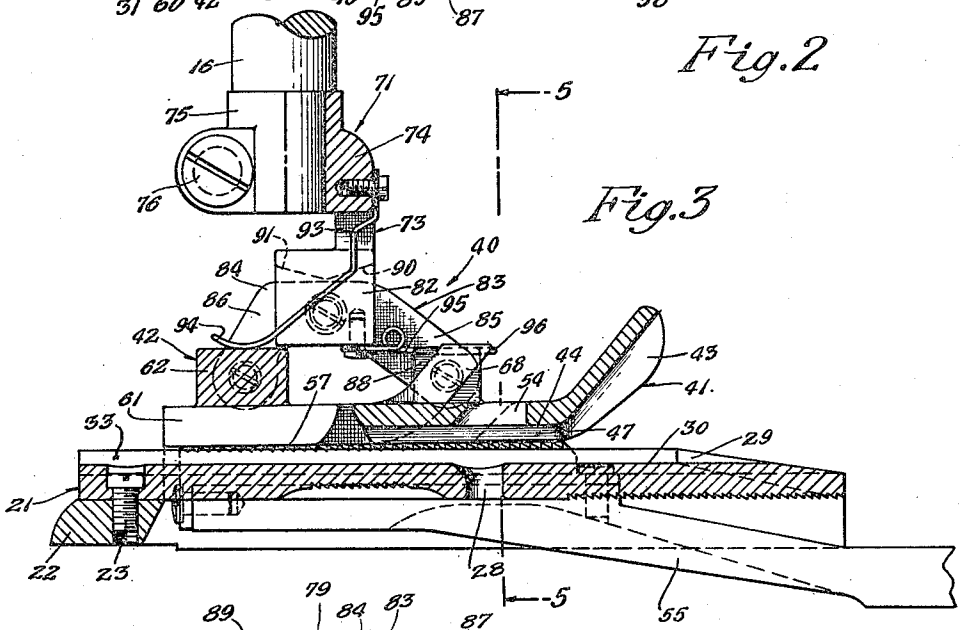


Fig. 3

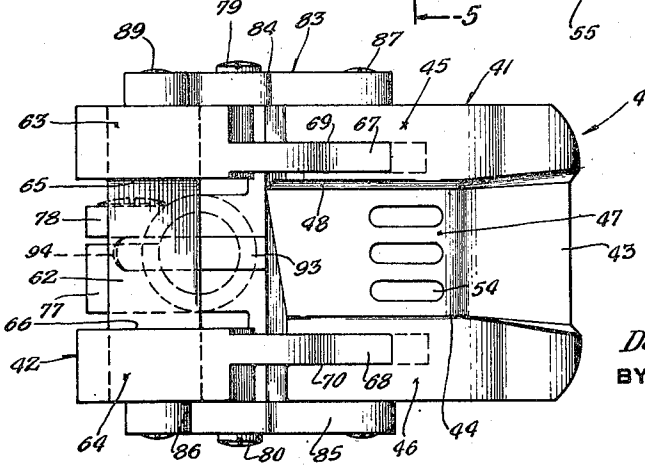


Fig. 4

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Feb. 1, 1944. D. A. CUMFER 2,340,647

SEWING MACHINE

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Fig. 5

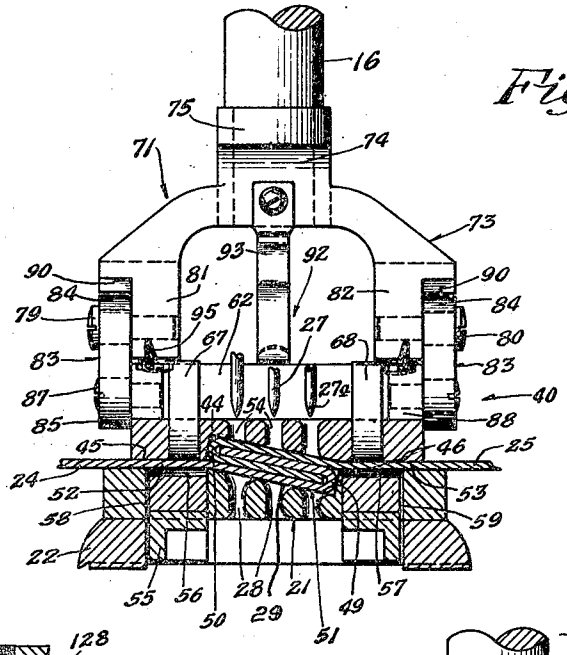


Fig. 9

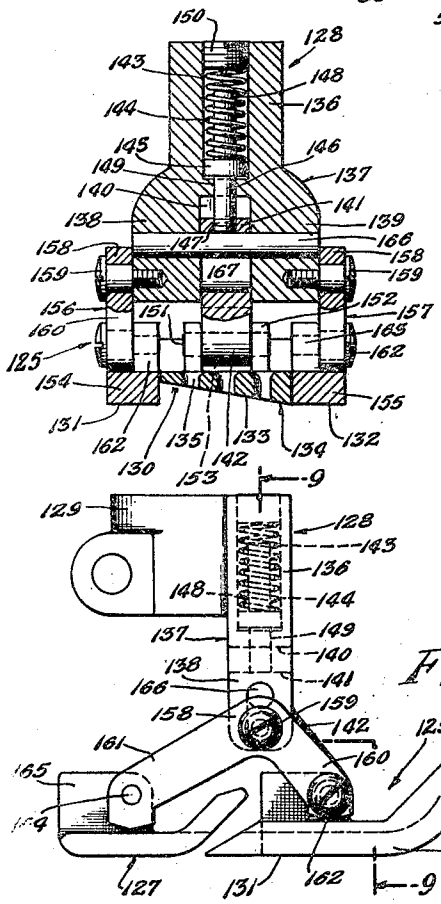
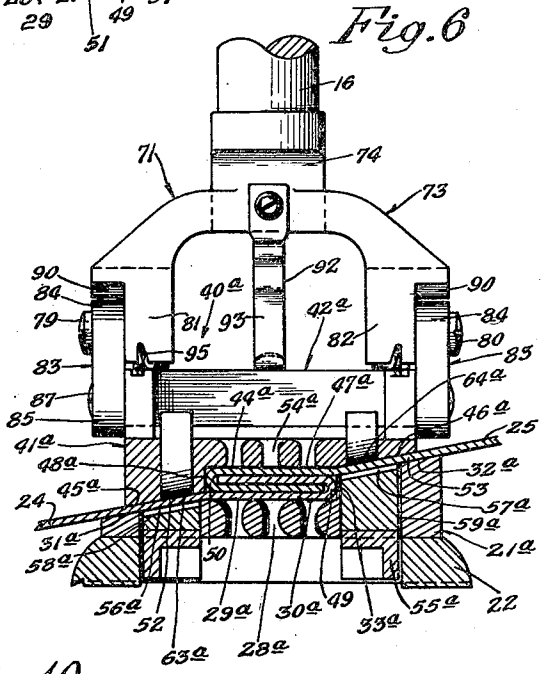


Fig. 10

Fig. 6



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Patented Feb. 1, 1944 2,340,647

UNITED STATES PATENT OFFICE

2,340,647

SEWING MACHINE

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Application April 10, 1940, Serial No. 328,972

17 Claims. (Cl. 112—235)

This invention relates to sewing machines, particularly sewing machines of the class adapted to stitch together material sections interfolded to form a felled seam.

An example of a sewing machine of the felling type is shown in Patent 1,796,111, granted March 10, 1931. With machines of this general type there usually is provided a feller or interfolder located forwardly of a presser device between which and a feeding device the interfolded portions of the material sections are advanced relative to a stitching mechanism.

It is an object of the present invention to provide a sewing machine of the felling type which will feed and guide the interfolded portions of the material sections relative to the stitching mechanism in a particularly novel and advantageous manner.

A feature of the invention, resulting in the attainment of the above object, resides in the provision of means whereby the main portions of the material sections, immediately adjacent the interfolded portions, are supported in substantially the same plane to be engaged in an even manner, and whereby the interfolded portions are supported and guided in a plane disposed at an angle relative to the plane of the main portions adjacent thereto.

A related feature of the invention resides in the provision of a presser device having laterally spaced material engaging faces disposed to extend in substantially the same plane, and intermediate which is formed a recess inclined transversely to the line of material feed and cooperable with a like inclined recess in a work support underlying the same to provide an inclined guide channel for receiving and tilting the interfolded portions of the material sections relative to the plane of the laterally spaced presser device faces.

Another feature of the invention resides in so designing the feeding means that it operatively engages only the main portions of the material sections adjacent the interfolded portions and does not engage the interfolded portions of felled sections.

Among other features and advantages of the present invention are the provision of means by which the distortion between the interfolded portions and the main portions of the material sections is minimized adjacent the feeding and stitching mechanism; the provision of roller means in association with and located rearwardly with respect to a presser foot member, to achieve a better and more controlled feeding action in certain cases; and the provision of an advantageous spring control of forwardly and rearwardly disposed members of a presser foot device.

Other objects and features will hereinafter appear.

In the drawings:

Figure 1 is a fragmentary side view of a sewing machine embodying the present invention.

Fig. 2 is a detail view, looking downwardly on the novel presser device and throat plate provided by the present invention.

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

Fig. 4 is a bottom view of the presser device provided by the present invention.

Fig. 5 is a sectional view taken on the line 5—5 of Fig. 3.

Fig. 6 is a view, similar to Fig. 5, but illustrating a modified form of the present invention.

Fig. 7 is a sectional detail view, similar to Fig. 3, but illustrating another modified form of the present invention.

Fig. 8 is a rear view of the modification shown in Fig. 7.

Fig. 9 is a sectional view taken substantially on the line 9—9 of Fig. 10.

Fig. 10 is a side view of a modified form of presser device.

Before describing the present improvements and mode of operation thereof in detail it should be understood that the invention is not limited to the details of construction and arrangement of parts shown in the accompanying drawings, which are merely illustrative of the present preferred embodiments, since the invention is capable of other embodiments, and the phraseology employed is for the purpose of description and not of limitation.

Referring more particularly to the drawings there is illustrated in Fig. 1 for the purpose of facilitating an understanding of the present invention the head end only of a sewing machine of the same general character as the one shown in Patent 1,796,111, granted March 10, 1931, and including a head 15 from which a presser bar 16 and a needle bar 17 extend downwardly toward a lower arm 18 confining a conventional four-motion feed mechanism including a feed dog carrier 19. A conventional cover plate 20 is also provided for the lower arm and terminates short of one end of the lower arm to accommodate a throat plate 21 which is mounted on an adaptor plate 22 also supported on the lower arm. Suitable screws 23 may be utilized in securing the

throat plate and the adaptor plate to the lower arm.

The stitching mechanism, as is conventional, may include a plurality of needles 27, three being shown in the illustrated machine, carried by a needle bar 17 and adapted to pass downwardly through suitable needle holes 28 in the throat plate to cooperate with any suitable looper mechanism, not shown, in the lower arm 18.

Of importance, however, there is provided by the present invention a particularly advantageous means for supporting and guiding fabric sections 24 and 25 which have been interfolded, as by a conventional folder or feller 26, when the sections are advanced relative to the stitching mechanism.

Thus, the throat plate 21 instead of being formed with a usual uniform and continuous surface, is formed with an inclined recess 29 defined by a bottom wall 30 inclined relative to the plane of supporting faces 31 and 32 at either side of the recess and intersecting one of the faces 31, and by a side wall 33 intersecting the other of the faces 32.

Overlying the throat plate 21 and secured to the presser bar 16 is a novel presser device 40 which may include, in addition to a forward presser foot 41, a rear presser foot 42. The forward presser foot 41, which preferably includes an upturned forward end 43, is formed with an inclined recess or channel 44 which laterally spaces material engaging and feeding faces 45 and 46 that extend in substantially the same plane and respectively overlie the supporting faces 31 and 32 of the throat plate. Similarly to the inclined recess 29 in the throat plate, the recess 44 in the forward presser foot is defined by a top or base wall 47 which is formed with suitable needle holes 54 therein and is disposed at an angle relative to the plane of the presser foot faces 45 and 46 to intersect one of the faces 46, and by a side wall 48 which intersects the other of the presser foot faces 45.

With the construction described above it is seen that the recess 44 in the presser foot 41 and the recess 29 in the throat plate 21, which are so dimensioned as to receive and confine only the interfolded portions 49 and 50 of the fabric sections, together provide a chamber 51 which is inclined transversely and intersects the plane defined by the supporting faces 31 and 32 of the throat plate. Thus a means is provided for receiving interfolded portions 49 and 50 of the fabric sections as they leave the feller 26 and guiding them at an angle relative to adjacent main portions 52 and 53 of the fabric sections which are supported on the laterally spaced faces 31 and 32 of the throat plate.

For advancing the fabric sections relative to the needles 27 which pass downwardly through suitable holes 54 and 28 in the presser foot 41 and throat plate 21 respectively, there may be, and as shown preferably is, provided a feed dog 55 supported by the feed dog carrier 19 and having laterally spaced feeding faces 56 and 57 disposed in substantially the same plane and adapted to extend upwardly through suitable slots 58 and 59 in the faces 31 and 32 of the throat plate to cooperate with the presser foot faces 45 and 46 in operatively engaging the main portions 52 and 53 of the fabric sections at opposite sides of the interfolded portions 49 and 50 confined in the inclined guiding chamber 51, to advance the material along a line of feed and relative to the stitching mechanism.

While the presser device 40 may be constructed so as to include only one presser foot member, such as the forward member 41 described above, it is preferably constructed so as to include the rear presser foot member 42 which, as shown, may comprise a pair of laterally spaced side sections 60 and 61 which depend from an upper transversely extending connecting section 62 and are formed with material engaging faces 63 and 64 on the rear presser member, to supplement the engaging faces on the forward presser member in cooperating with the feeding faces 56 and 57 of the feed dog to feed the material relative to the stitching mechanism. Also, inner walls 65 and 66 on the side sections 61 and 62 cooperate in guiding the interfolded portions 49 and 50 as they move rearwardly from the stitching mechanism and the forward presser member 41 in a rearwardly extending continuation of the inclined recess 29 in the throat plate 21.

Preferably, laterally spaced upturned forward ends 67 and 68 on the rear presser member 42 extend into and are guided by slots 69 and 70 formed in the rear of the forward presser member 41 at opposite sides of the inclined recess 44.

As shown, there is provided a particularly advantageous supporting means 71 for associating the forward and rear presser members 41 and 42 with the presser bar 16 in such a way that the two presser members may move independently of each other.

Thus, the supporting means 71 includes a yoke member 73 having an upstanding portion 74 including a split collar 75 adapted to envelop and be pulled into secure clamping relationship with the lower end of the presser bar 16 by a clamping screw 76 passing through threaded holes in ears 77 and 78 on the split collar.

Pivotally supported, as by pivot studs 79 and 80 in opposite depending sections 81 and 82 of the yoke member which together with the presser bar 16 constitutes a carrier, are supporting arms 83. Each supporting arm has a substantially flat intermediate section 84 through which one of the pivot studs passes. Also, each supporting arm 83 is formed with forwardly and rearwardly extending depending sections 85 and 86 respectively connected by pivot studs 87 with laterally spaced upstanding ears 88 on the forward presser member, and by pivot studs 89 to opposite sides of the connecting section 62 of the rear presser member. It is to be particularly noted that the pivotal axis for the forward presser member, provided by the axially aligned pivot studs 87, is equidistant from the common plane of the faces 45 and 46 of this presser member. Rocking movement of the pivoted supporting arms 83 is limited by forward and rearward stops 90 and 91 provided by an overlying shoulder formed at each lateral side of the yoke member.

Opposed spring means 92 make possible a simple and advantageous control of the presser members. The opposed spring means include a spring finger 93 secured to the upstanding portion 74 and having a free end portion 94 overlying and engaging the connecting section 62 above the pivot line defined by the pivot studs 89 for the rear presser member, and a pair of spring fingers 95 respectively secured at one end to opposite depending sections on the yoke member 73 and having free end portions 96 overlying and engaging ears 88 on the forward presser member above the pivot line defined by the pivot studs 87. With this construction the opposed action of the spring finger 93 and the pair of spring fingers 95

achieves a desired and balanced relation between the forward and rearward presser members in their movement with respect to the main supporting pivot studs 79 and 80. Also, by disposing the spring finger 93 and the pair of spring fingers 95 with end portions 94 and 96 respectively adapted to exert a downward spring action above and slightly forwardly and rearwardly of the separate pivot lines of the rear and forward presser members 42 and 41, a spring balance of each of the individual presser members is achieved. While a pair of spring fingers 95 are shown for control of the forward presser member, it will be appreciated that satisfactory results may be achieved if only one of the pair of spring fingers 95 is used.

In the operation of a sewing machine embodying the features described above, material sections which have been interfolded as by the feller 26, are directed relative to the stitching mechanism in such a way that the main portions 52 and 53 of the sections are engaged and fed in the same plane and hence a uniform feed is achieved. At the same time, because of the inclination laterally of the line of feed of the supporting wall 30 and the opposed wall 47 of the guide chamber 51, relative to the plane of the spaced supporting faces 31 and 32 and of the spaced feeding faces 56 and 57, the interfolded portions 49 and 50 are inclined transverse relative to the plane of the main portions 52 and 53 and the usual adverse abrupt break or bend in the material between at least one of the main portions and the adjacent interfolded portion, present in the use of many of the prior machines, is eliminated. This elimination of adverse abrupt bending or breaking of the material during the feeding and stitching operation is most advantageous, not only from the standpoint of a more efficient feed, but also from the standpoint of a more efficient and satisfactory stitching operation. In addition, with the main portions supported in the same plane adjacent the angularly disposed interfolded portions it has been found unnecessary to change any of the organization on the machine to sew either light or heavy materials.

Moreover, in the operation of a sewing machine embodying the structural features shown in Figs. 1–5, the points 27a of the needles 27 are caused to penetrate the interfolded portions of the material in staggered or sequential relation. This result follows from the fact that the interfolded portions are inclined relative to the line of needle movement. Hence the points of the needles, which are disposed in a common plane at a right angle to the line of needle movement and parallel to the plane of the faces 31 and 32 on the throat plate, penetrate the material in consecutive relation. Because of this, the blow of the penetration is lessened considerably, thus causing less wear and pounding on the needle bar drive parts.

In Fig. 6, a modified form of the present invention is shown. It differs from the form first described primarily in the fact that instead of guiding and supporting the interfolded portions in a plane inclined relative to the line of needle movement, the interfolded portions are supported and guided in a plane disposed at a right angle to the line of needle movement.

In achieving this modified supporting and guiding of the material sections there is provided a throat plate 21a which, like the throat plate 21 first described, is formed with laterally spaced supporting faces 31a and 32a at opposite sides of a recess 29a defined by a bottom wall 30a inclined relative to the plane of the supporting faces 31a and 32a and by a side wall 33a. Unlike the throat plate first described, however, the modified throat plate 21a is so formed that while the plane of the supporting faces is inclined relative to the line of needle movement the plane of the bottom wall 30a of the recess is disposed to a right angle to the line of needle movement. In this manner the main portions 52 and 53 of the material sections, while supported in the same plane, are supported in a plane inclined relative to the line of needle movement and the interfolded portions 49 and 50 of the material sections are supported in a plane at a right angle to the line of needle movement.

Overlying the modified throat plate 21a is a modified presser device 40a including forward and rear presser foot members 41a and 42a associated with the presser bar 16 by the same supporting means 71 utilized in associating the presser device 40 with the presser bar in the form first described and shown in Figs. 1–5.

The modified forward and rear presser members 41a and 42a differ from the presser members 41 and 42 solely in their adaptation to cooperate with the modified throat plate 21a. Thus, laterally spaced material engaging faces 45a and 46a are provided on the forward presser member which extend in substantially the same plane and respectively overlie the supporting faces 31a and 32a of the throat plate. Intermediate the engaging faces 45a and 46a is a recess 44a, which like the recess in the presser foot 41, is defined by a side wall 48a and a top or base wall 47a inclined relative to the plane of the engaging faces 45a and 46a. However, in the modified presser foot 40a and to adapt the same for cooperating with the modified throat plate 21a it is to be noted that the plane of the top or base wall of the recess 44a is like the plane of the bottom wall of the recess 29a in the throat plate 21a, disposed at a right angle to the line of needle movement.

Likewise the modified rear presser foot member 42a is so formed that the engaging faces 63a and 64a on the laterally spaced side sections thereof, while disposed to extend in the same plane, are also disposed to extend in a plane which is inclined relative to the line of needle movement to cooperate with the overlying continuations of the supporting faces 31a and 32a on the throat plate 21a.

For advancing the material sections relative to the needles which pass downwardly through suitable holes 54a and 28a in the presser foot 42a and throat plate 21a respectively, the feed dog 55a is provided with laterally spaced feeding faces 56a and 57a which, like the feeding faces 56 and 57 first described, extend upwardly through slots 58a and 59a in the throat plate, and when in operative material engaging position are disposed in substantially the same plane with each other and with that of the supporting faces 31a and 32a on the throat plate and the engaging faces 45a and 46a, and 63a and 64a on the forward and rear presser members respectively. However, to adapt the feeding faces 56a and 57a to the modified construction of the throat plate 21a and the presser foot members 41a and 42a, they are disposed in a plane which is inclined relative to the line of needle movement.

In all other respects the modified form of the invention shown in Fig. 6 is exactly the same as the form of the invention shown in Figs. 1–5.

However, and as explained above, in the operation of a sewing machine embodying this modified form of the invention the material sections are advanced relative to the stitching mechanisms in such a way that while the main portions 52 and 53 are fed in the same plane, they are fed in a plane which is inclined relative to the line of needle movement, and while the interfolded portions 49 and 50 are supported and guided so as to be transversely inclined relative to the main portions 52 and 53, they are supported and guided in a plane disposed at right angle to the line of needle movement.

A further modified form of the invention is shown in Figs. 7 and 8. This modified form differs from the form shown in Figs. 1–5 in the provision of a presser foot member 99 of modified construction and in the provision of an auxiliary feeding unit 100. The modified presser foot member, like the forward presser foot member 41 shown in Figs. 1–5, is formed with a recess 101 therein which is intermediate and inclined relative to laterally spaced material engaging faces 102 and 103 disposed to overlie laterally spaced supporting faces on a throat plate (not shown in Figs. 7 and 8) like the throat plate shown in Figs. 1–5. Unlike the forward presser foot member 41 embodied in the construction shown in Figs. 1–5, however, the modified presser foot member 99 is formed with a central slot 104 in the rear portion thereof and in line with the inclined recess 101. Located in this slot 104 is a feed roller or wheel 105 which is so mounted that it rotates on an axis which is substantially parallel to the plane of the bottom wall of the throat plate recess.

For associating the presser foot member 99 with the presser bar 16 there may be advantageously provided a yoke member 106 which, like the yoke member 71 described in connection with Figs. 1–5, is formed with a split collar 107 adapted to be clamped on the lower end of the presser bar. Suitable pivot studs 108 and 109 may be provided for effecting a desired pivotal connection between upstanding ears 110 on the presser foot member and depending arms 111 of the yoke member. For supporting and locating the feed wheel 105 of the auxiliary feed unit 100 there may be provided a bracket 112 suitably carried by the sewing machine head 15 and formed at its lower end with a yoke portion 113 having arms 114 between which the feed wheel is rotatably carried as by pivot studs 115 and 116.

For positively rotating the feed wheel there may be advantageously provided a gear 117 supported on the lower end of a shaft 118 and formed with helical teeth 119 adapted to engage cooperating helical teeth 120 formed on the feeding face of the feed wheel 105. One form of satisfactory means which might be used for supporting and operating the auxiliary feeding unit 100 is shown in Patent 2,145,826, granted January 31, 1939. Reference is therefore made to the latter patent for a complete and detailed description of the operation of the auxiliary feeding unit.

In Figs. 9 and 10 there is shown a modified form of presser device 125 which may be substituted for the presser device 40 embodied in that form of the invention shown in Figs. 1–5.

As in the form illustrated in Figs. 1–5, the modified presser device 125 may include a forward presser foot 126 and a rear presser foot 127, pivotally carried by a supporting means 128 which may be secured to the presser bar 16 as by a split collar 129.

Of importance, however, the forward presser foot is not formed of a one piece construction but is so formed that an inclined recess 130 intermediate laterally spaced material engaging faces 131 and 132 is defined at its upper side by an inclined lower face 133 of a confining member 134 which is movable toward and away from the inclined bottom wall 30 of the recess 29 formed in the throat plate 21 (see Figs. 1–5). Needle holes 135 may be provided in the confining member 134 similarly to the needle holes 54 formed in the presser foot 41 shown in Figs. 1–5.

In achieving this result, which permits the interfolded portions 49 and 50 of the material to push upwardly without affecting the relative positions of the laterally spaced faces 131 and 132 and the feed dog, there is provided in an upstanding portion 136 in the supporting means 128, which terminates in a downwardly extending yoke portion 137 having a pair of laterally spaced arms 138 and 139 defining therebetween a guide slot 140 in which is movable a heel portion 141 of a forwardly extending supporting finger 142 for the confining member 134.

Confined in a bore 143 in the upstanding portion 136 of the supporting means 128 is a conventional helical spring 144 which by pressing downwardly on a flange 145 on a connecting pin 146 secured, as by a threaded connection 147, to the upper end of the heel portion 141 of the supporting finger 142, effects a spring bias of the latter and of the confining member supported thereby toward the throat plate 21. An extension 148 of the connecting pin 146 in the bore 143 serves to center and properly locate the spring 144 in the bore 143 and relative to the flange 145. Adverse lateral movement of the connecting pin 146 is overcome by the lateral support effected by the walls of a reduced bore 149 intermediate the slot 140 and the bore 143 and by the action of the spring 144 on the flange 145. A suitable threaded plug 150 in the upper end of the bore 143 not only enables ready access to the bore 143 but enables an adjustment of the initial compression of the spring.

For pivotally connecting the confining member 134 to the forwardly extending supporting finger 142 there may be provided a pivot pin 151 which passes through laterally spaced upstanding ears 152 on the confining member and through a suitable hole 153 in the forward end of the supporting finger 142.

To complete the organization of the forward presser foot there may be provided, as shown in Figs. 9 and 10, a pair of side sections 154 and 155 the undersides of which form the laterally spaced material engaging faces 131 and 132. Connecting these side sections 154 and 155 to the outer lateral sides of the respective yoke arms 138 and 139, are supporting arms 156 and 157, of the same general nature as the supporting arms 83 shown in Figs. 1–5. Each of the supporting arms 156 and 157 has an intermediate section 158 through which passes a pivot stud 159 threaded into the adjacent one of the yoke arms 138 and 139, and also has forwardly and rearwardly extending depending sections 160 and 161 which are respectively connected by pivot studs 162 to upstanding ears 163 on the side sections 154 and 155, and by a pivot pin 164 to an upstanding portion 165 on the rear presser foot 127.

Preferably and as shown, the pivot studs 162 and the pivot pin 151 are aligned so that when the forward presser foot organization is in normal position the pivot axes of the side sections 154 and 155 and of the confining member 134 will

be substantially aligned. Also, preferably and as shown, a transverse pin 166 carried by the yoke 137 and passing through a closed ended slot 167 in the heel 140 of the supporting finger 142 serves to limit downward movement of the confining member in the defined recess 130 intermediate the material engaging faces 131 and 132 of the side sections 154 and 155.

While as shown the rear presser foot is of a simple one piece construction it will be appreciated that if desired it may be formed in the same general manner as the forward presser foot, as by providing a rearward extending finger on the heel 141 of the supporting finger 142 and by pivotally supporting a separate confining member thereon similar to the confining member 134 associated with the forward presser foot. Also, if desired, the rear presser foot may be eliminated altogether.

With the modified presser device 125 shown in Figs. 9 and 10, which as shown is preferably formed with forward and rear presser feet 126 and 127 each provided with an upturned forward end, it is seen that as with the presser device shown in Figs. 1–5 there is provided a means which when associated with a work support formed like the throat plate 21, will serve to cooperate in guiding and feeding interfolded material relative to a stitching mechanism in such a way that while the main portions 52 and 53 are advanced in the same plane, the interfolded portions are advanced in a plane inclined relative thereto. However, with the modified presser device 125, the interfolded portions 49 and 50 are yieldingly confined by the spring pressed confining member 134.

While in describing the material operated upon by sewing machines embodying the present invention, such material has been described as including sections, it is to be understood that the present invention is applicable to operate on material whether the latter be a single piece of material looped upon itself to provide adjacent marginal sections or whether it be two separate pieces of material having adjacent marginal sections.

Variations and modifications may be made within the scope of this invention and portions of the improvements may be used without others.

Having thus described the invention, what is claimed as new is:

1. In a sewing machine, the combination of a throat plate; a presser device; feeding means having a line of feed; sets of cooperable feeding faces on the presser device and the feeding means, said sets of faces being located in the same plane; and supporting and guiding means between the sets of faces and angularly disposed relative thereto laterally of the line of feed for cooperating with folded material, said angularly disposed supporting and guiding means having portions on opposite sides of the plane of said sets of faces.

2. In a sewing machine, the combination of a throat plate; a presser device; feeding means having a line of feed; laterally spaced apart sets of cooperable faces on the presser device and on the feeding means in the same plane as the throat plate; and a feeding roller angularly disposed relative to said faces laterally of the line of feed for cooperating with folded material between the sets of cooperable faces.

3. In a sewing machine, the combination of a throat plate; a presser device having sets of spaced apart feeding faces; feeding means with a line of feed, having sets of spaced apart feeding faces said set of spaced apart faces in the presser device and in the feeding means being in the same plane; and opposed faces between said sets angularly arranged relative to the throat plate and to the feeding faces laterally of the line of feed, said angularly arranged opposed faces respectively extending away from opposite sides of the plane of said feeding faces.

4. In a sewing machine for stitching material sections having main portions and portions interfolded to form a felled seam, presser means having laterally spaced material engaging faces disposed in the same plane; feeding means with a line of feed, having laterally spaced material engaging faces disposed in the same plane and opposed to and cooperable with said presser means faces, for engaging and feeding the main portions of the fabric sections in substantially the same plane; and supporting and guiding means intermediate and inclined relative to said spaced engaging faces laterally of the line of feed and having portions disposed on opposite sides of the plane thereof, for receiving and guiding the interfolded portions of said material sections intermediate and at an angle to said main portions of the material sections.

5. In a sewing machine for stitching material sections having main portions and portions interfolded to form a felled seam, presser means having laterally spaced material engaging faces located at opposite sides of a guiding recess therein; feeding means with a line of feed, having laterally spaced material engaging faces located in the same plane and opposed to and cooperable with said presser means faces, for engaging and feeding the main portions of the material sections in substantially the same plane; and material supporting means, underlying said presser means, having a recess therein opposed to said presser means recess and cooperable therewith to provide a chamber intermediate said spaced engaging faces and inclined relative thereto laterally of the line of feed for receiving the interfolded portions and guiding the same in a plane laterally inclined relative to the plane of said main portions and said engaging faces.

6. In a sewing machine for stitching material sections having main portions and portions interfolded to form a felled seam, feeding means having a line of feed; presser means having laterally spaced material engaging faces located in the same plane at opposite sides of a guiding recess therein; supporting means underlying said presser means, having laterally spaced material engaging faces with apertures therein and having a recess therein intermediate said spaced engaging faces and apertures, said recesses in said supporting means and in said presser means together forming a chamber inclined relative to said engaging faces laterally at the line of feed for receiving the interfolded portions and guiding the same in a plane laterally inclined relative to the main portions; and material engaging faces in said feed means, disposed in substantially the same plane, projecting through said apertures and cooperable with said presser means faces for engaging the main portions and advancing the sections with the interfolded portions in said guiding chamber.

7. In a sewing machine for stitching material sections having main portions and portions interfolded to form a felled seam, presser means having laterally spaced material engaging faces, said presser means including a forward member and a rearward member movable independently

of each other; feeding means with a line of feed, having laterally spaced material engaging faces located in the same plane, opposed to and cooperable with said presser means faces, for engaging and feeding the main portions of the fabric sections in substantially the same plane; and supporting and guiding means intermediate and inclined relative to said laterally spaced engaging faces laterally of the line of feed, for receiving said interfolded portions and guiding the same at an inclination relative to said main portions of the material sections, said inclined supporting and guiding means providing a guiding chamber having portions extending away from opposite sides of said plane of said laterally spaced engaging faces.

8. In a sewing machine having a feeding means with a line of feed, presser means including a pair of members disposed longitudinally the line of feed and cooperable with said feeding means to advance material; supporting means for said presser means; a common pivot means transverse the line of feed, for pivotally mounting both of said presser members on said supporting means; a separate pivot means for said rear presser member, intermediate said first-named pivot means and said rear presser member; and yielding means carried by said support and engaging said rear presser member at a location overlying the pivotal axis of said separate pivot means, for resisting pivotal movement of said rear presser member in either direction.

9. In a sewing machine for stitching material sections having main portions and portions interfolded to form a felled seam, stitching means; feeding means having a line of feed; work supporting means having laterally spaced sections for supporting said main portions and having an intermediate recess therein extending longitudinally of the line of feed and inclined relative to said spaced sections of the supporting means laterally of the line of feed; a presser member opposed to and cooperable with said feeding means for advancing said material sections relative to said stitching means, having a recess therein opposed to said recess in said work supporting means and cooperable therewith in receiving and guiding the interfolded portions; positively driven roller means rearwardly disposed relative to the stitching means and said presser member for action on the interfolded portions in said inclined supporting means recess; and pivot means for supporting said roller means at an angle corresponding to the inclination of said supporting means recess.

10. In a sewing machine for stitching material sections having main portions and portions interfolded to form a felled seam, stitching means including needle means having a line of needle movement; feeding means having a line of feed; work supporting means associated with said feeding means, having laterally spaced material supporting faces disposed to extend in substantially the same plane inclined relative to line of needle movement laterally of the line of feed, and having an intermediate recess therein extending longitudinally of the line of feed and inclined laterally relative to said supporting faces for receiving and guiding the interfolded portions in a plane substantially at a right angle to the line of needle movement; and presser means opposed to said supporting faces and cooperable with said feeding means for advancing the material relative to said stitching means.

11. In a sewing machine for stitching material sections having main portions and portions interfolded to form a felled seam, stitching means; feeding means having a line of feed; work supporting means underlying said stitching means, having laterally spaced faces for supporting the main portions of the material sections and having a recess therein intermediate said spaced faces for receiving the interfolded portions of the material sections, said recess having a bottom wall inclined laterally of the line of feed relative to said supporting faces and intersecting one of said supporting faces; and presser means having laterally spaced faces opposed to said spaced faces of the supporting means and having a recess therein opposed to said supporting means recess, said presser means recess having a top wall inclined complementary to said inclined bottom wall, said feeding means cooperating with said presser means for advancing said material sections relative to said stitching means.

12. In a sewing machine, presser means including a forward and a rearward presser member; a presser bar having a carrier means fixed thereon; supporting means intermediate said forward and rearward presser members; pivot means for mounting said supporting means on said carrier means; separate pivot means respectively located forward and rearward of said first named pivot means, for connecting said supporting means to said forward and rearward presser members; and opposed spring means on said carrier means and acting on said forward and rearward presser members respectively at opposite sides forward and rearward of said first-named pivot means.

13. In a sewing machine, the combination of a throat plate; feeding means having a line of feed; a presser device; cooperable feeding faces on the presser device and the feeding means, in the same plane as the throat plate; and opposed faces between and angularly disposed relative to said feeding faces laterally of the line of feed, for confining folded material, said opposed angularly disposed confining faces respectively extending at an inclination relative to and away from opposite sides of the plane of said throat plate, one of said confining faces being provided by a member movable relative to said feeding faces and having a bias toward the other of the confining faces.

14. In a sewing machine, the combination of a work support; feeding means having a line of feed; a presser device having forward and rear presser means, overlying said work support and said feeding means; laterally spaced apart sets of cooperable faces on the forward presser means and on the feeding means, said sets of faces being located in the same plane; and means between and angularly disposed relative to said cooperable faces laterally of the line of feed, for confining folded material, said angularly disposed confining means having portions on opposite sides of the plane of said sets of faces, one of said portions including a yielding member in said presser device.

15. In a sewing machine, supporting means; presser means having sections with laterally spaced apart material engaging faces; pivot means for connecting said sections to said supporting means; material confining means intermediate said engaging faces; pivot means for said confining means; and spring pressed means connecting said last named pivot means and said support independently of said sections of the presser means.

16. In a sewing machine, feeding means hav-

ing a line of feed; work supporting means disposed in a common plane; stitching means including a plurality of needles having work penetrating points disposed transversely of the line of feed, the points of said needles being in substantially the same plane; and means inclined relative to said work supporting means laterally of the line of feed, for supporting and guiding interfolded portions of material sections at an inclination relative to said work supporting means and to the plane of said needle points laterally of the line of feed, said inclined supporting and guiding means providing a guiding chamber having portions extending away from opposite sides of the plane of said work supporting means, whereby said respective needle points consecutively will enter said interfolded portions.

17. In a sewing machine, the combination of feeding means having a line of feed and having a set of laterally spaced feeding faces disposed in the same plane laterally of the line of feed; presser means, opposed to said feeding means, having a set of material-engaging faces disposed in the same plane and spaced laterally of the line of feed to provide a recess therebetween; a presser means support; means for connecting said presser means including the spaced engaging faces thereof to said support for pivotal movement on an axis extending laterally of the line of feed and equidistant from the plane of said engaging faces; and work-supporting means opposed to said presser means, including a recessed section intermediate said set of feeding faces, opposed to said presser means recess and defined by a supporting portion inclined relative to said feeding faces laterally of the line of feed, said recess between said spaced faces of the presser means having a top defining means opposed to and inclined complementary to said inclined supporting portion, and said recess in the presser means and said recessed section in said work supporting means providing a guiding chamber having portions extending away from opposite sides of said plane of said laterally spaced feeding faces.

DONALD A. CUMFER.

CERTIFICATE OF CORRECTION.

Patent No. 2,340,647. February 1, 1944.

DONALD A. CUMFER.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 5, second column, line 60, claim 6, for "laterally at" read --laterally of--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 16th day of May, A. D. 1944.

Leslie Frazer

(Seal) Acting Commissioner of Patents.