Aug. 28, 1934. A. R. MORRILL 1,971,575

SEWING MACHINE

Filed Sept. 19, 1931 8 Sheets-Sheet 1

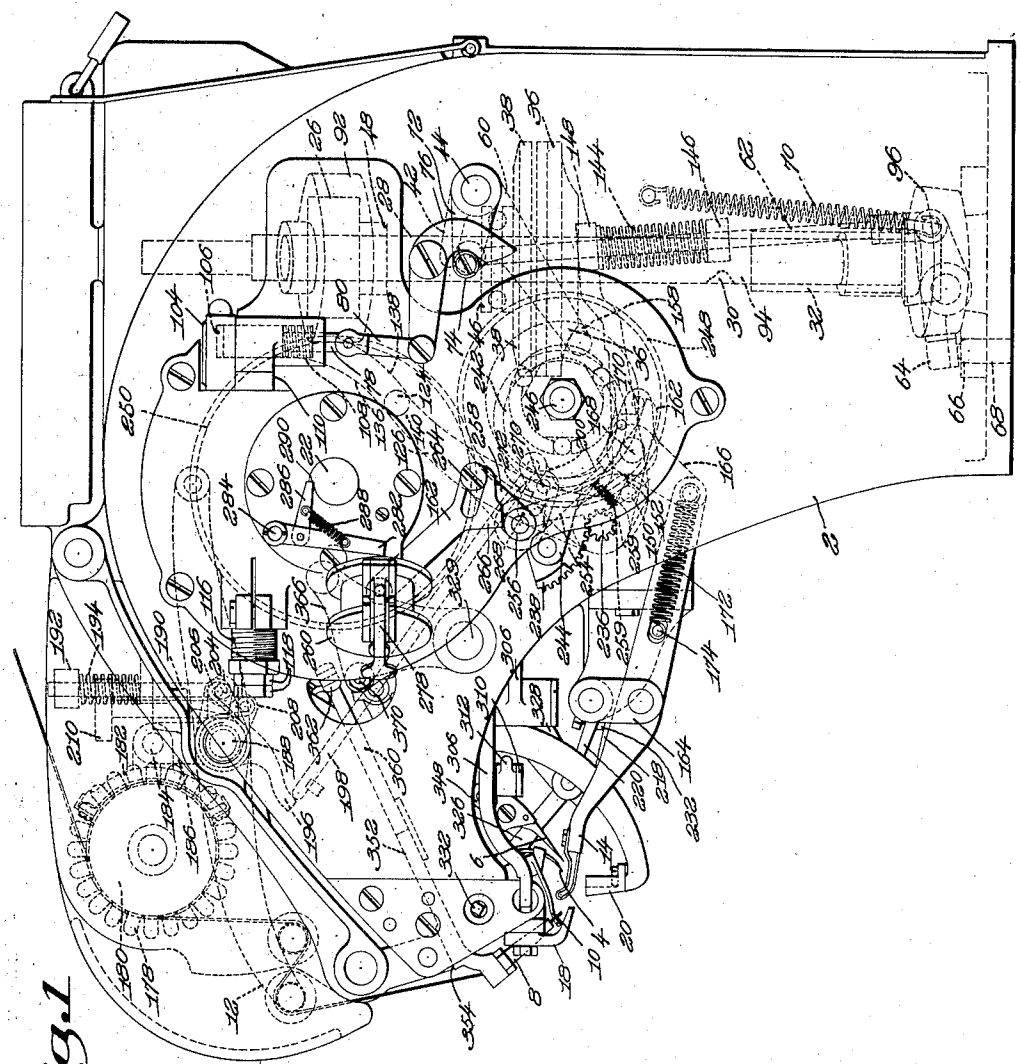


Fig. 1

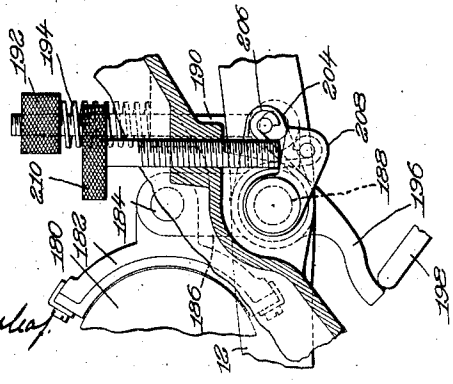


Fig. 2

Witness
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Aug. 28, 1934. A. R. MORRILL 1,971,575

SEWING MACHINE

Filed Sept. 19, 1931 8 Sheets-Sheet 2

Fig. 3

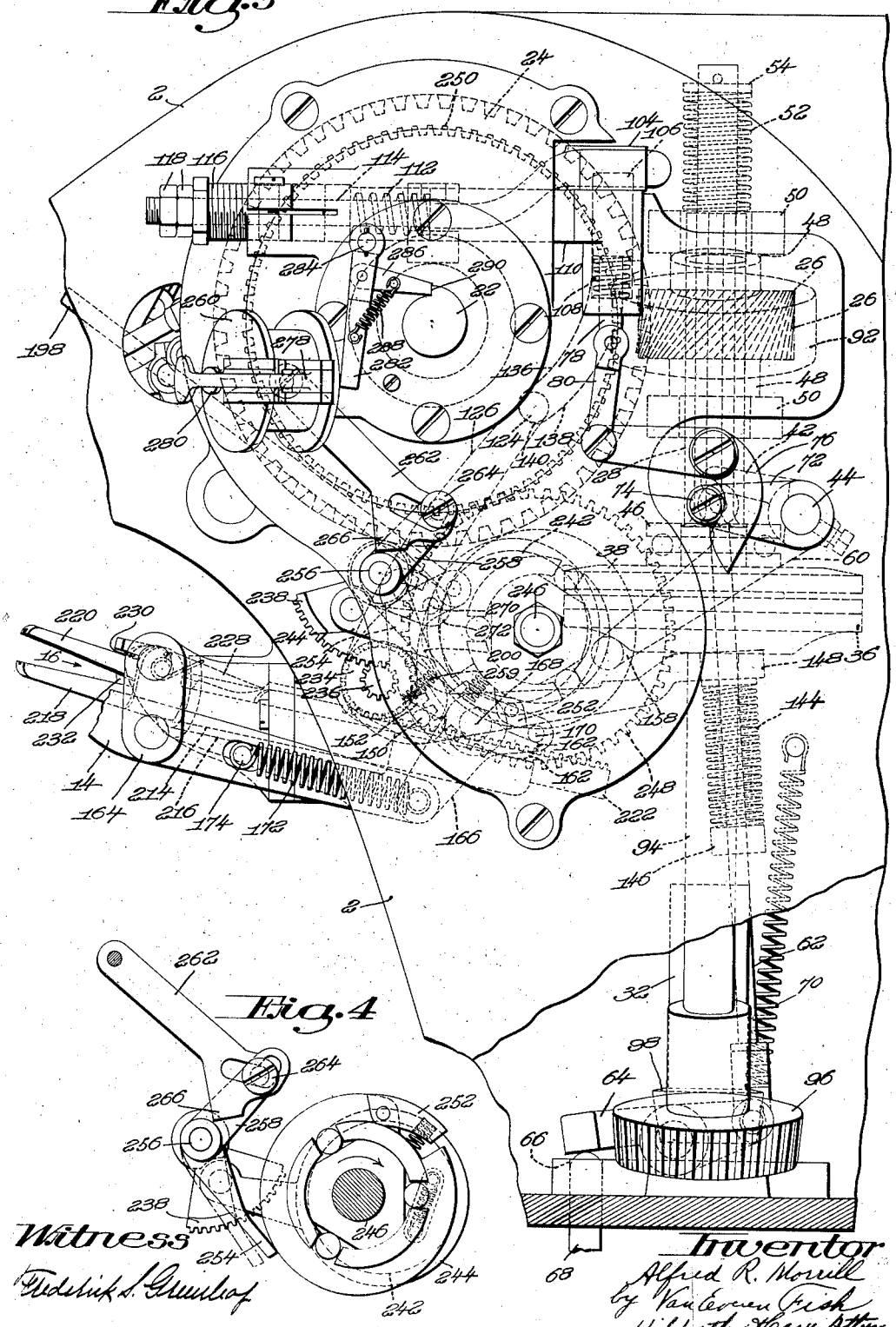


Fig. 4

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Frederick L. Greenleaf

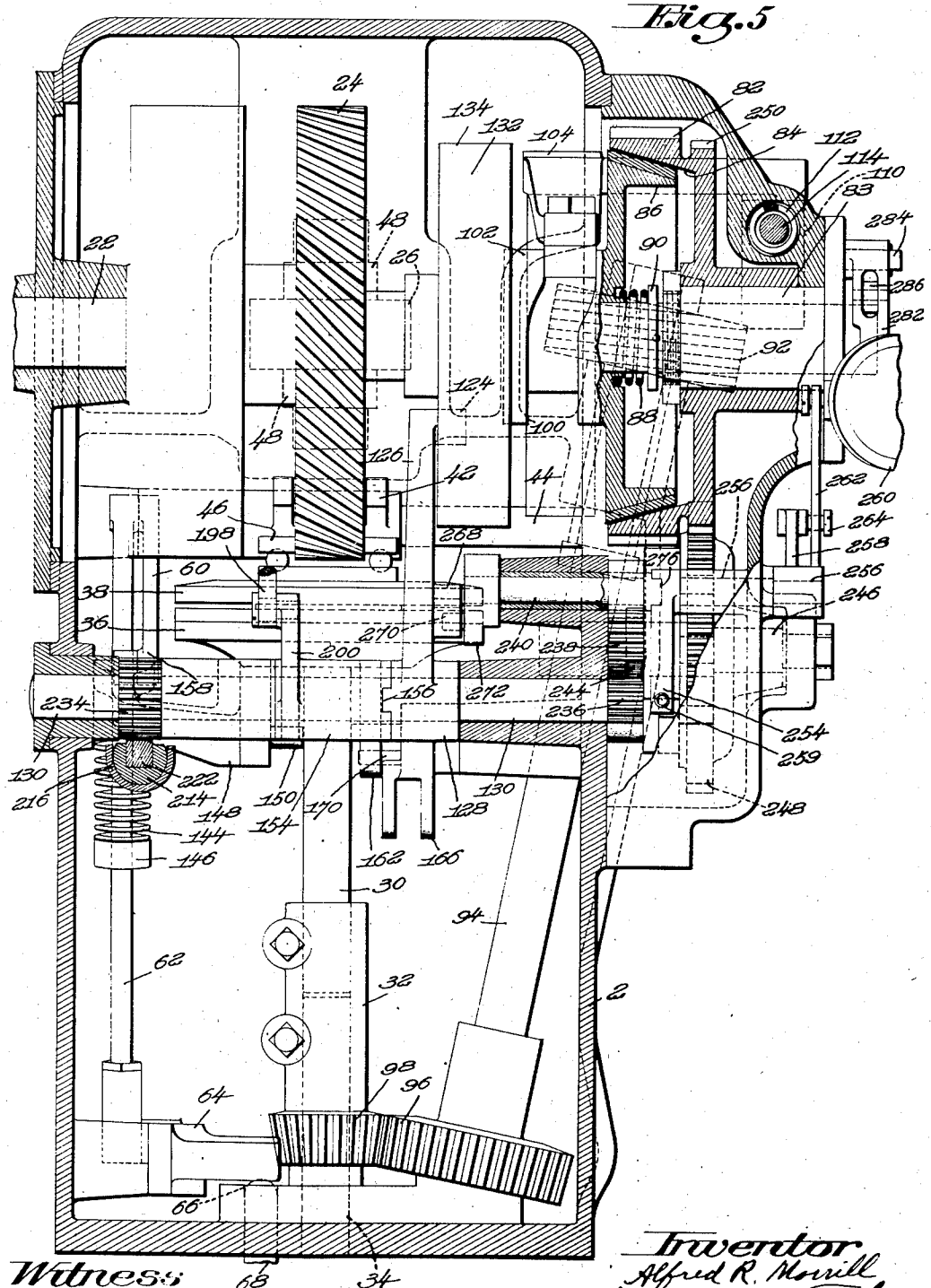
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Aug. 28, 1934. A. R. MORRILL 1,971,575

SEWING MACHINE

Filed Sept. 19, 1931 8 Sheets-Sheet 3

Fig. 5



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Aug. 28, 1934. A. R. MORRILL 1,971,575

SEWING MACHINE

Filed Sept. 19, 1931 8 Sheets-Sheet 4

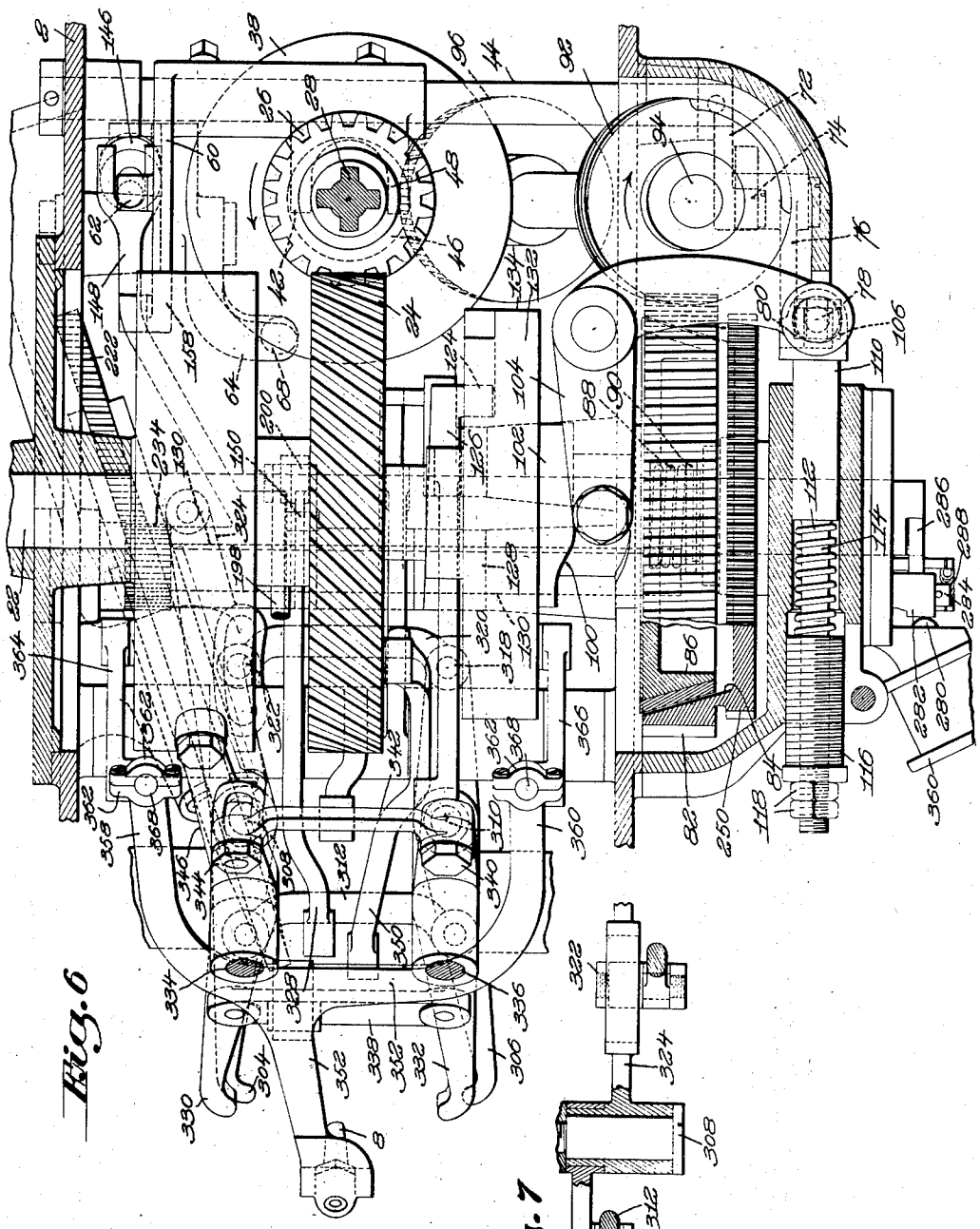


Fig. 6

Fig. 7

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Frederick S. Grumbach.

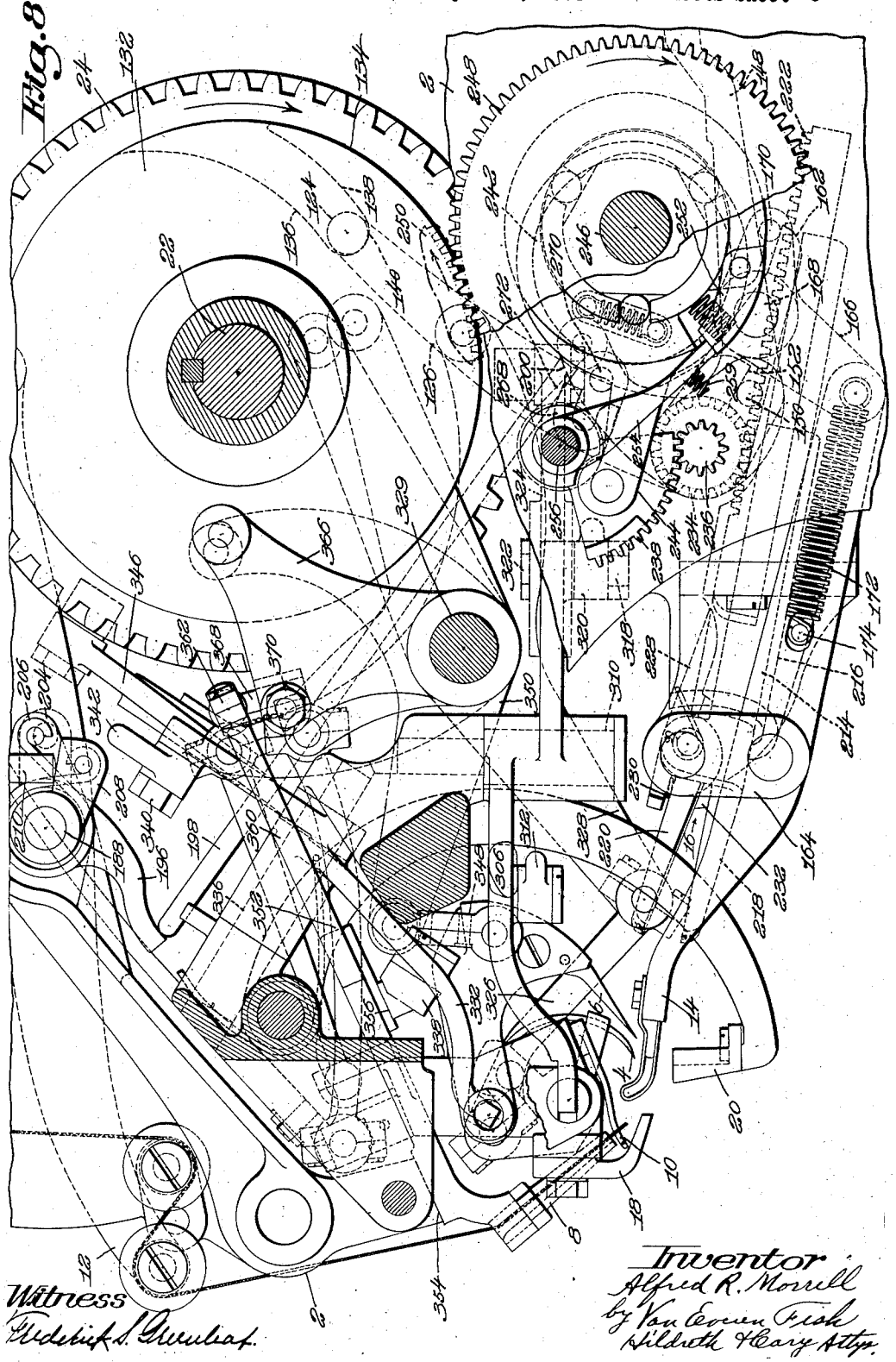
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Aug. 28, 1934. A. R. MORRILL 1,971,575

SEWING MACHINE

Filed Sept. 19, 1931 8 Sheets-Sheet 5

Fig. 8



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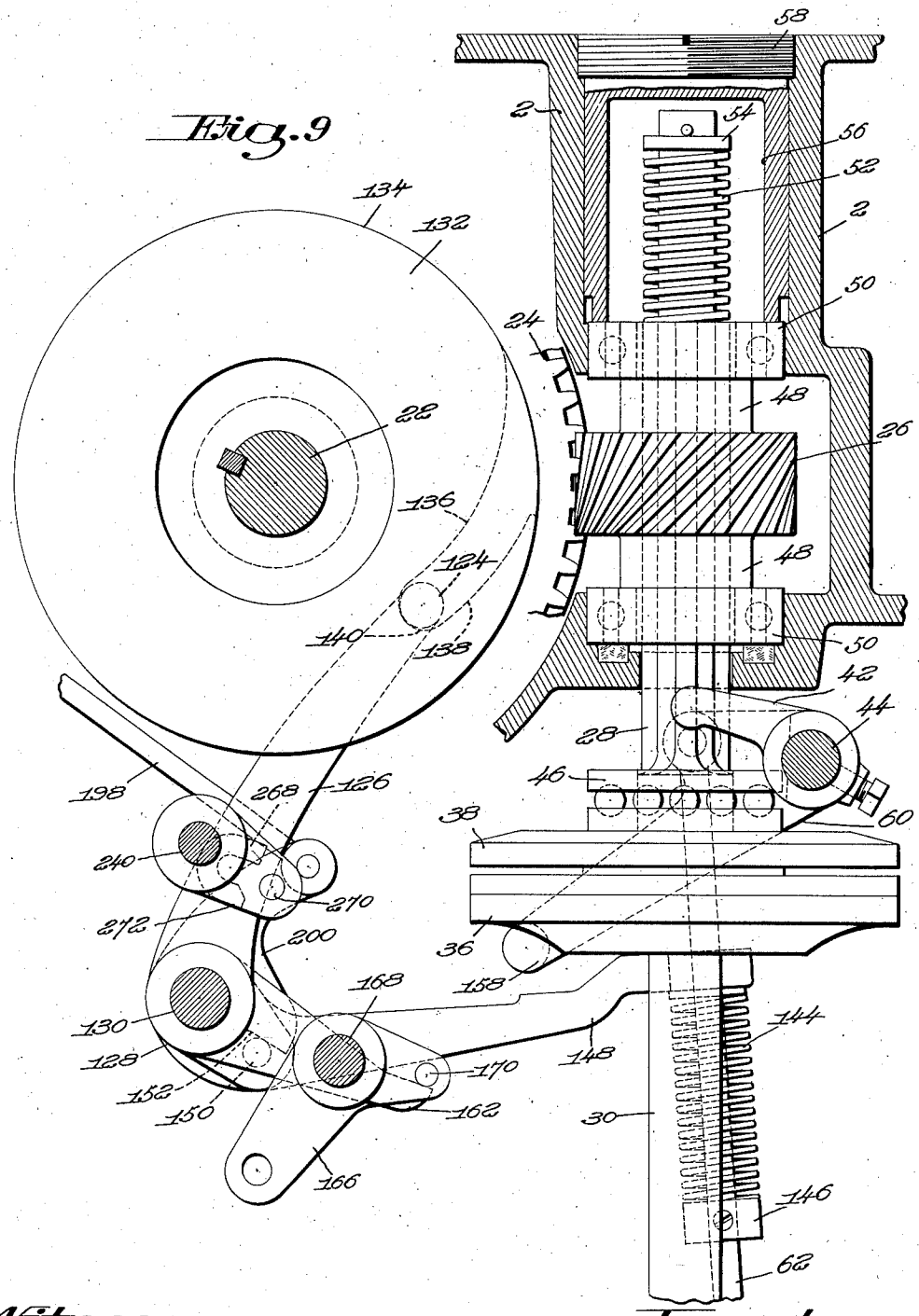
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Aug. 28, 1934. A. R. MORRILL 1,971,575

SEWING MACHINE

Filed Sept. 19, 1931 8 Sheets-Sheet 6

Fig. 9



Witness

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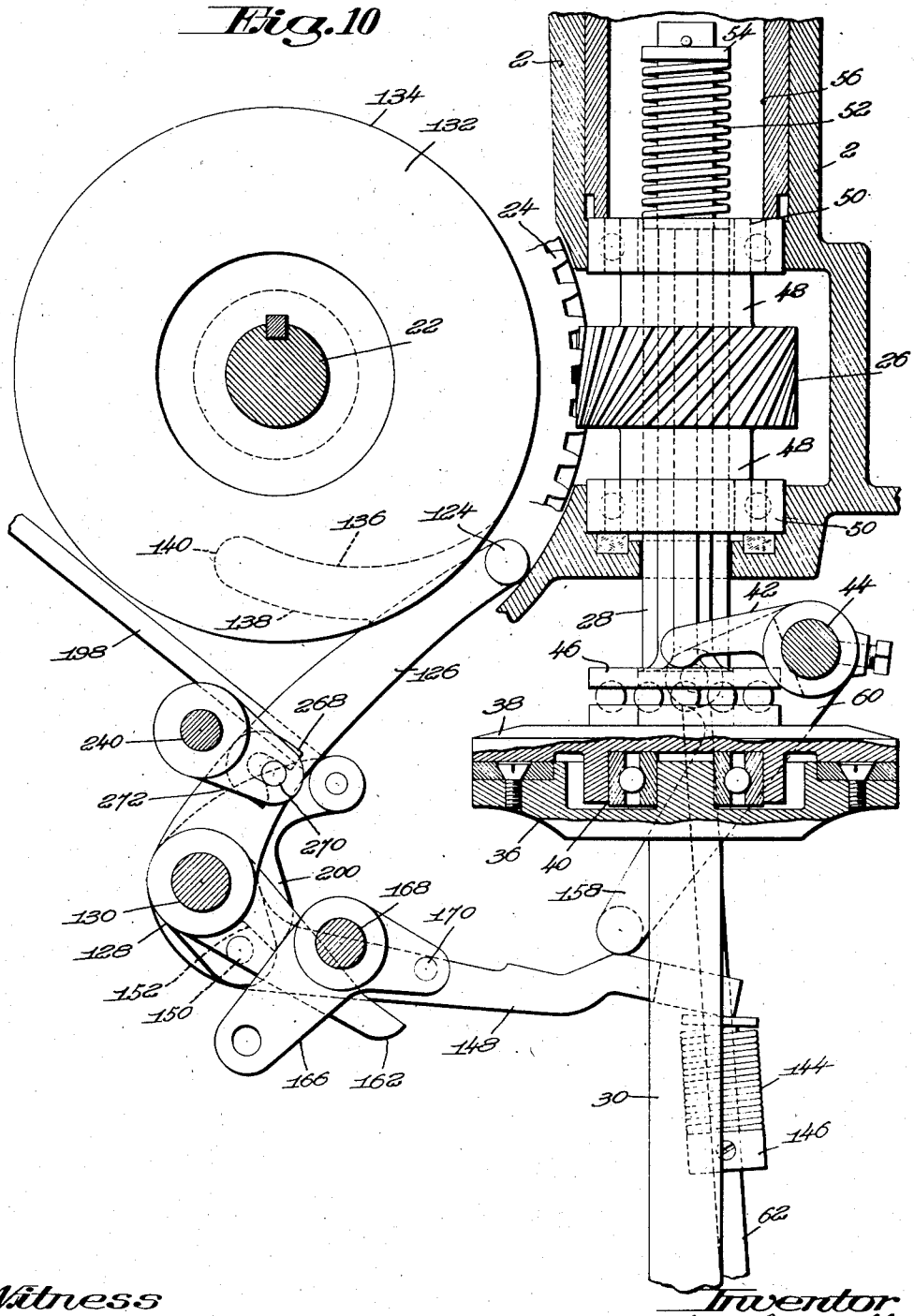
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Aug. 28, 1934. A. R. MORRILL 1,971,575

SEWING MACHINE

Filed Sept. 19, 1931 8 Sheets-Sheet 7

Fig. 10



Witness

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Aug. 28, 1934. A. R. MORRILL 1,971,575

SEWING MACHINE

Filed Sept. 19, 1931 8 Sheets-Sheet 8

Fig. 11

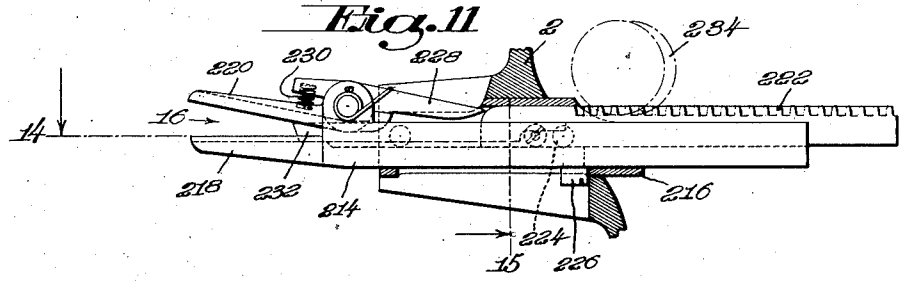


Fig. 12

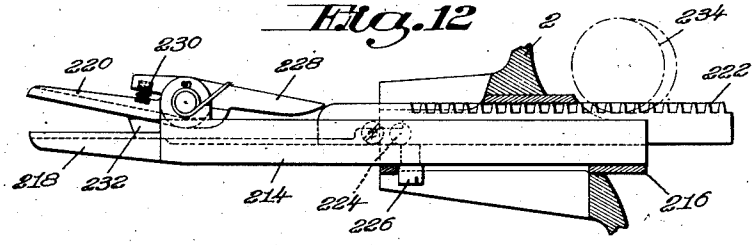


Fig. 13

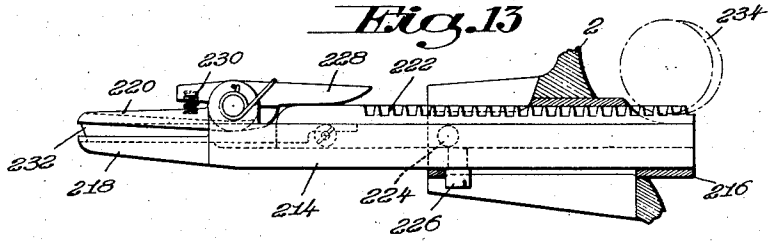


Fig. 15

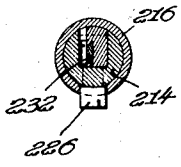


Fig. 14

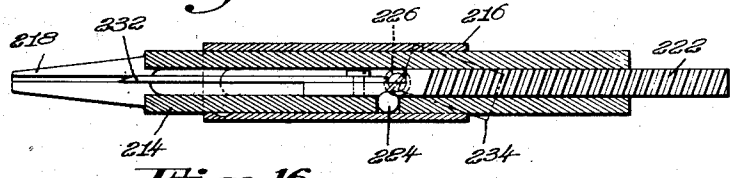
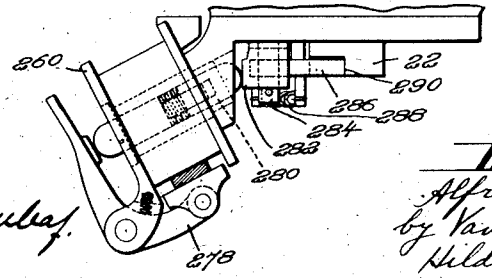


Fig. 16



Witness

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Patented Aug. 28, 1934 1,971,575

UNITED STATES PATENT OFFICE

1,971,575

SEWING MACHINE

Alfred R. Morrill, Beverly, Mass., assignor to United Shoe Machinery Corporation, Paterson, N. J., a corporation of New Jersey

Application September 19, 1931, Serial No. 563,735

37 Claims. (Cl. 112—35)

This invention relates to inseam sewing machines and is herein shown as embodied in a machine adapted to sew the welts and uppers to the insoles of welt shoes.

The object of the invention is to simplify the construction of sewing machines of this class and render their operation more reliable and uniform in character.

In accordance with this object, one feature of the invention contemplates the provision of a simplified and improved driving and stopping mechanism of that type which acts by slowing the machine down to a definite speed and then by throwing into operation stopping devices to bring the machine to rest. In the form shown, the driving and stopping mechanism is of that type which reverses the main sewing cam shaft to prevent looping and stops the machine with the needle back free of thread. In connection with the stopping mechanism, a positive stop arm or movable follower is employed, cooperating with an abutment on a cam on the sewing cam shaft. The stop arm is brought to bear upon the cam before the cam shaft is reversed and is retracted from the cam as the machine is restarted. The cam also serves to release the welt guide for contact with the work, to cause the tension to be applied to the sewing thread and to lock out of action certain control or tripping devices for a welt cutter applied to the machine.

Another feature of the invention contemplates the simplification and improvement of the welt cutter and welt cutter actuating mechanisms together with the provision of novel control or tripping devices therefor, including a welt measuring mechanism. The control or tripping devices for the welt cutter are unlocked by the stop arm when operated by the cam on the cam shaft in bringing the machine to rest and as a further means for preventing the operation of the welt cutter during the sewing, a separate pawl operated by a projection on the cam shaft is provided. The projection is suitably arranged to strike the pawl during reverse rotation of the cam shaft and after the stop arm has acted to unlock the tripping devices so that the tripping devices cannot be actuated until the final extreme angular movement of the cam shaft. Corresponding forward rotation of the cam shaft immediately releases the pawl and prevents operation of the tripping devices.

The improved welt cutter and welt cutter actuating mechanism are not only simple and reliable in construction and operation but also cooperate in a novel manner with the stitching devices which are constructed and arranged to feed the welt with the shoe during formation of the initial stitches on a new shoe so that the welt does not become displaced by movements of the shoe not imparted to the welt. In the machine herein shown, the needle is utilized in feeding the work and a continuous feeding movement for the shoe and welt is produced by providing a feed point or awl arranged to enter the work by first engaging the welt, and mounted for separate feeding movements in timed relation to the feeding movements of the needle.

Other features of the invention include an improved looper supporting and actuating mechanism and a novel and improved feeding adjustment for the stitch forming devices, wherein the feeding movements of the needle and awl may be varied by moving slidable adjusting pivots along arcuate slots provided in oscillating arms connected between the cam shaft and the respective feed slides for supporting the needle and the awl. Tracking of the needle in the holes formed by the awl is insured by so arranging the arcuate slots that their centers of curvature will coincide with pivotal connections at the ends of operating links attached at their opposite ends to the adjusting pivots.

The several features of the present invention above referred to and other features consisting of certain combinations and arrangements of parts hereinafter described and claimed will be clearly understood from the following description taken in connection with the accompanying drawings, in which

Fig. 1 is a view in side elevation of a sewing machine embodying the improvements of the present invention;

Fig. 2 is a fragmentary detail view on an enlarged scale of adjusting devices shown in Fig. 1 for controlling the operation of the machine;

Fig. 3 is a side view on an enlarged scale of a part of the sewing machine shown in Fig. 1;

Fig. 4 is a detail view of certain parts of the operating clutch for the welt cutter of the machine, shown in Fig. 3;

Fig. 5 is a sectional view in front elevation on the same scale as Fig. 3, taken on a plane passing through the main cam shaft of the machine, certain parts having been removed;

Fig. 6 is a plan view in section of the operating portions of the machine;

Fig. 7 is a detail view, partly in section, of one of the feeding arms shown in Fig. 6 for operating the feed slide for the awl;

Fig. 8 is a view in side elevation of a portion of the sewing mechanism, partially in section;

Figs. 9 and 10 are views in side elevation of parts of the driving and stopping mechanism illustrating different positions of the parts;

Figs. 11, 12 and 13 are views in side elevation of the welt cutter, illustrating its operation in gripping and cutting the welt;

Fig. 14 is a plan view in section of the welt cutter taken along the line 14 of Fig. 11;

Fig. 15 is a view in cross section of the operating parts of the welt cutter taken along the line 15 of Fig. 11; and

Fig. 16 is a plan view of a portion of the welt measuring mechanism.

The shoe machine illustrated in the drawings is adapted for sewing the upper and the welt to the insole of a welt shoe, and is provided with the usual operating elements of a welt sewing machine, comprising a curved hook needle, a curved awl cooperating therewith, a looper, a thread arm, a take-up, a welt guide, a welt cutter, a channel guide, and a back rest. Except for the omission of the back gage and the addition of a welt guide which rests yieldingly against the shoe during the sewing of a seam, the operation and construction of the stitch-forming devices is substantially the same as that described in applicant's co-pending application for Inseam shoe sewing machine, Serial No. 208,116, filed July 25, 1927. These devices are arranged and actuated to secure a continuous and even feed of the work, the needle and channel guide being mounted on a feed slide to move together in the line of feed, while the awl is mounted on a second slide. In order to facilitate the handling of the work by the operator, and particularly during the initial attachment of the welt to the shoe, the needle and the awl are arranged to pierce the work from the outside so that in entering the work, they first engage the welt. The machine is driven by a motor (not shown) through a driving and stopping mechanism having high speed forward and low speed reverse driving connections. A shift from one connection to the other is controlled by the operator through a foot pedal or other convenient means which operates to stop the machine when released with the needle retracted from the work. Reversal of the machine during the last movements of the stitch forming devices causes the needle to be retracted free of thread, and additional simplified and improved means is provided for retracting the welt guide and cutting the welt as the machine stops.

Referring more specifically to the drawings, the casing which supports the head of the machine and houses the operating mechanism is indicated at 2 and may be mounted on a suitable column or other base (not shown). The operating mechanism and stitch forming devices (see Fig. 8) carried in the head of the machine include a curved hook needle indicated at 4, an awl 6, a looper 8, a thread arm or finger 10, a take-up 12, a welt guide 14, a welt cutter 16, a channel guide 18 and a back rest 20. The main cam shaft 22 (see Figs. 5, 9 and 10) is mounted in bearings in the head of the machine and is driven in a forward direction from an electric motor through a gear 24 fixed to the cam shaft and meshed with a worm gear 26 on a vertical driven shaft 28.

The machine is provided with a driving and stopping mechanism for the cam shaft which is controlled by the operator and which acts automatically, when thrown into operation, to stop the machine with the needle retracted free of thread. This mechanism comprises a high speed forward driving connection to the motor which is in operation during sewing and a low speed reverse driving connection which, in stopping the machine, is thrown into operation at a predetermined point in the rotation of the main cam shaft.

Forward rotation of the cam shaft is imparted through a high speed friction clutch under direct control of the operator, which clutch causes the vertical driven shaft 28 to be coupled to a continuously rotating shaft 30 arranged in alignment below the shaft 28. The shaft 30 is connected by a clamp sleeve 32 to a motor driven shaft 34 supported in a bearing in the bottom of the machine casing 2. The clutch for coupling the vertical shaft 28 with the continuously rotating shaft 30 comprises a driving part 36 and a driven part 38. The driven part is held in alignment with the driving part by means of a radial bearing 40 disposed between extending portions of the clutch, and relative movement of the clutch parts to control the rotation of vertical driven shaft 28 is effected by a forked member 42 extending from a hub fixed to a horizontal shaft 44. The arms of the forked member operate against a thrust bearing plate 46 surrounding the lower end of the vertical shaft 28. Rotation of the shaft 44 causes the clutch parts to be engaged and the worm gear 26 to be rotated at variable speeds depending on the pressure applied between the operating parts of the clutch. The gear 26 is formed with integral hubs 48 supported in bearings 50 in the frame of the machine and is splined to receive the vertical shaft 28 so that the shaft may slide with the driven clutch member as the clutch is engaged or disengaged by rotation of the shaft 44. The driven part 38 of the clutch is retained in disengaged relation with the driving part 36 by a compression spring 52 thrusting at its lower end against the upper bearing 50 and at its upper end against a collar 54 fixed to the upper end of the shaft 28. The spring 52 and the upper end of the shaft are contained within a cup-shaped member 56 (see Fig. 9) having a threaded portion 58 screwed into a cylindrical opening in the machine casing and having its lower end resting in engagement with the upper bearing 50. Access is provided to the compression spring 52 and the bearings 50 by removing the cup-shaped member 56. The shaft 44 is rocked to engage the clutch parts by means of an arm 60 extending from the hub which carries the yoke member 42. This arm is pivotally connected to the upper end of a vertical link 62 (see Fig. 3) pivotally connected at its lower end to the rearwardly extending arm of a rock lever 64 fulcrumed on the machine casing. The forward arm of the lever 64 is slightly curved and extends over an opening 66 in the bottom of the machine casing through which a control rod 68 is projected. The movement of the control rod is governed by a foot treadle (not shown) under the control of the operator. Upward movement of the control rod 68 causes a corresponding downward movement of the link 62 which rocks the shaft 44 until the yoke member 42 strikes the thrust bearing 46 engaging the forward driving clutch to operate the machine in the normal way.

The driving and stopping means is shifted to the low speed reverse driving mechanism by downward movement of the control rod 68 which causes the shaft 44 to be rocked in the reverse

direction to release the main driven clutch part from the driving part of the clutch. The link 62 is raised to release the yoke 42 from engagement with the clutch by a relatively strong spring 70, stretched between the pivot at the lower end of the link and the machine casing. At its right end the shaft 44 carries an arm 72 provided with a roller 74. This roller engages a cam surface on the arm of a bell crank 76 fulcrumed on the machine casing and having a horizontal arm connected to a locking pin 78 by means of an intermediate link 80 pivoted at its lower end to the bell crank and at its upper end to the locking pin. Movement of the arm 72 causes the locking pin to be retracted or released for throwing into operation the low speed reverse driving mechanism.

Connections for driving the cam shaft 22 at low reverse speed comprise a continuously rotating gear 82 (see Fig. 5) mounted to turn freely on a bearing sleeve 83 for one end of the cam shaft and provided with an inner clutching surface 84. The cam shaft is driven from the gear 82 by the frictional engagement of a driven clutch member 86 splined for sliding movement upon the cam shaft and normally disengaged from the clutching surface 84 of the gear 82, through the action of a compression spring 88 acting between the driven clutch member and a collar 90 fixed to the cam shaft.

The gear 82 meshes with a worm 92 carried on an inclined shaft 94 journalled in the machine casing. The shaft 94 carries a pinion 96 which meshes with and is operated through a bevel gear 98 mounted on the motor driven shaft 34. When the clutch member 86 engages the clutching surface 84 of the gear 82, the cam shaft is gradually slowed down by the braking action of these parts in absorbing the energy due to the momentum of the cam shaft. After the forward movement of the shaft has ceased, the clutch acts to turn the cam shaft in a reverse direction at a comparatively low speed until the clutch is automatically disengaged, at which time the cam shaft is brought to rest with the needle and other parts of the stitch forming mechanism in the proper position for the removal of the shoe.

The mechanism for engaging and disengaging the clutch member 86 from the gear 82 at the proper times in the rotation of the cam shaft comprises a cam groove 100 formed in a sleeve 102 extending from the clutch member 86. The groove is engaged by a roll on one arm of a bell crank lever 104 (see Fig. 6). The other end of the bell crank lever is provided with a hole 106 adapted to receive the end of the locking pin 78 which is held out of engagement with the lever during normal running of the machine so that the lever may be oscillated idly by the cam. The locking pin 78 is pressed into engagement with the hole 106 by a spring 108 so that when the cam arm 72 moves upwardly to the position shown in Fig. 3, the locking pin 78 is released and engages the hole 106 to stop the oscillation of the bell crank 104. The locking pin is mounted in the end of a slide 110 which is held in normal position by a spring 112. The spring surrounds a bolt 114 extending from the forward end of the slide and is interposed between a shoulder on the slide and the inner end of a screw threaded sleeve 116. The bolt 114 carries nuts 118 which engage the outer end of the sleeve and hold the spring under compression.

When the treadle is depressed, the control rod 68 is forced upwardly and the shaft 44 is turned until the locking pin has been withdrawn, the yoke member 42 acts to engage the main forward driving clutch and cause the machine to be operated in the normal way. When the treadle is released, the spring forces the locking pin upward against the under side of the bell crank lever and as the hole in the lever registers with the locking pin, the pin snaps into the hole, thus connecting the lever with the slide 110. The cam groove 100 is so constructed that the hole in the end of the bell crank is brought into position to register with the locking pin at the proper time in the cycle of operations of the stitch forming mechanism. When the locking pin is engaged with the bell crank lever, the lever is held from movement about its pivot and the cam groove 100 acting on the roll carried by the lever shifts the clutch member 86 to slow down and reverse the main cam shaft. The locking pin enters the hole in the bell crank lever and the friction clutch is engaged while the needle is retracted and just before it begins its advance movement, and the forward rotation of the cam shaft is arrested after the needle has advanced and entered the work. The clutch then acts to turn the cam shaft in a reverse direction at a low speed until the shaft arrives at the point where the cam groove 100 first acted to engage the members of the clutch at which time the reversely moving cam acts to again disengage the clutch members.

According to the present invention, the cam shaft is brought to a final stop by a positive stop arm or movable follower acting on a cam fixed to the sewing cam shaft. The follower, indicated at 124 (see Figs. 9 and 10) is mounted on an arm 126 extending from a hub 128 loosely mounted on a horizontal shaft 130, rotatable in the machine casing. The follower 124 rests, during the rotation of the cam shaft in the reverse direction, on the surfaces of the cam 132. The outside surface 134 of the cam is uniform and produces no movement of the follower 124. The cam is also provided with a surface 136 inclined inwardly towards the center of the cam and with a lip portion 138 forming with the surface 136 a slot arranged to prevent the follower from entering except during reverse rotation of the cam shaft and to positively control the movement of the follower after it has once entered within the cam slot until the cam shaft has rotated in a forward direction through a sufficient angle to allow the follower 124 to clear the lip 138. The inner end of the slot between the cam surface 136 and the lip 138 is formed with an abutment portion 140 for positively arresting the rotation of the cam shaft by engagement with the follower 124 as the cam shaft is rotated in a reverse direction. The timing of the parts is such that the follower 124 comes into contact with the abutment 140 just after the cam shaft reaches the point where the cam groove 100 acts to disengage the members of the low speed reverse driving clutch during its final movements, so that the cam shaft will rotate a short distance under its own momentum and will be positively stopped by engagement of the abutment 140 with the follower 124. Reverse rotation of the cam shaft while the needle is in engagement with the work causes a corresponding reverse movement of the looper for the needle, permitting the needle to be withdrawn from the work, free of thread.

Other operations, including the retraction of the welt guide from contact with the work, release of the tension on the thread, and the unlocking of control devices for permitting subsequent operation of the welt cutter, are performed

by movement of the follower 124 within the transverse slot on the cam 134. The stop arm 126 is moved to disengage the follower 124 from contact with the cam 132 during the operation of the machine by the high speed forward driving mechanism by the operation of the foot treadle in shifting to the forward driving mechanism. It is allowed to engage the cam shaft under spring pressure by operation of the foot treadle in shifting from the forward high speed mechanism to the reverse low speed mechanism. By this arrangement, a more positive and exact control is afforded and the other operations performed by the cam follower may be timed more closely to take place at the exact stopping point of the sewing cam shaft.

The cam follower 124 is resiliently pressed into engagement with the cam 132 during reverse rotation of the cam shaft by a spring 144 carried on the link 62 which connects the horizontal shaft 44 with the foot treadle. The spring is supported at its lower end by a collar 146 fixed to the link 62 and, at its upper end, the spring acts against the forked end of an arm 148 fulcrumed loosely on the shaft 130. The thrust of the spring 144 is transferred to the follower arm 126 by a pin 150 projecting from the side of the arm 148 and resting against a shoulder 152 extending from a hub 154. The hub is formed with a key and slot connection 156 (see Fig. 5) coupling it with the hub 128 of the follower arm 126. The pin 150 is released from contact with the shoulder 152 by rotation of the shaft 44 in shifting to the forward from the low speed driving mechanism by an extension 158 from the arm 60 to which the upper end of the link 62 is connected. When the foot treadle is depressed, the extension 158 is brought to bear against the upper surface of arm 148 and move the arm downwardly. The follower 124 is not released from contact with the cam 132 until the cam shaft has rotated in a forward direction sufficiently to allow the follower to clear the lip 138. Thus, the follower arm is positively actuated by the cam and prevents return movement of the parts which it actuates or controls before renewed operation of the stitch forming devices.

The welt guide 14 is retracted from contact with the work by movement of the follower 124 within the cam slot through the action of an arm 162 (see Figs. 8, 9 and 10) extending from the hub 154 toward the rear of the machine. The welt guide 14 is mounted for movement toward and from the work in a circular path corresponding to that of the needle by parallel links consisting of a link 164 pivoted to the guide at its forward end and fulcrumed on the machine casing and of the downwardly extending arm of a bell crank 166 pivotally connected to the rear end of the guide and fulcrumed on a stub shaft 168 extending from the machine casing. The other arm of the bell crank 166 is provided with a pin 170 which extends into the path of movement of the arm 162 operated by the cam follower 124. During the reverse rotation of the cam shaft as the follower 124 is moved within the slot in the cam, the arm 162 strikes the pin 170, rocking the bell crank 166 and moving the welt guide away from the work toward the rear of the machine. Upon renewed operation of the machine as the follower 124 is actuated by the cam, the welt guide is again thrust into contact with the work by the action of a spring 172 stretched between the pivotal connection at the rearward end of the welt guide and a pin 174 extending from the machine casing.

Tension on the sewing thread is normally controlled by the operation of a thread tension wheel 178 (see Figs. 1 and 2) of the usual construction, having a brake drum 180 engaged by a brake member 182. The brake member is pivotally mounted at 184 to one arm of a bell crank 186 fulcrumed loosely on a shaft 188 journalled in the machine casing. The other arm of the bell crank is pivotally connected to a vertical bolt 190 extending through an opening in the upper side of the casing 2. The upper end of the bolt is threaded and is provided with a thumb nut 192 for adjustably compressing a spring 194 surrounding the bolt. The action of the spring 194 against the nut 192 causes the bell crank 186 to thrust the brake 182 against the drum 180, producing a suitable tension on the thread as it is withdrawn from the tension wheel. The brake member 182 is released from engagement with the drum 180 by the action of the cam follower 124 on the cam 132, as the machine is brought to rest, by a finger 196 extending from the bell crank 186 and overlying a rod 198 slidable in the machine casing. The other end of the rod is pivotally connected to an arm 200 extending from the hub 154 operated by the cam follower. As the follower 124 enters the slot in the cam, the arm 200 is rocked to thrust the rod 198 against the finger 196 to cause the brake to be released from the brake drum on the thread tension wheel. As the machine is restarted, the rod is withdrawn and the brake again applied.

During the sewing, each stitch is set up by the take-up 12 which is constructed in substantially the same manner as in applicant's co-pending application, above referred to. The take-up is fixed to the shaft 188 and is actuated by a cam groove in a cam disk on the sewing cam shaft. This cam groove engages a cam follower on the rear end of the take-up lever and is shaped to actuate the take-up lever positively to set the stitch. The take-up lever is acted upon by a spring 206 coiled around the shaft 188, one end of the spring being arranged to act on an arm 204 fixed to the shaft 188, and the other end of the spring being connected to an arm 208 pivotally mounted upon the shaft 188 and held in position by a manual adjusting screw 210. The tendency of the spring 206 is to urge the outer end of the take-up lever upwardly to exert a yielding tension on the thread between the tension wheel and the work, and the cam groove which engages the follower at the rear end of the take-up lever is shaped to permit this action of the spring after the take-up has been actuated positively to exert a stitch setting strain on the seam. The take-up is thus permitted to yield as the needle reaches the limit of its retracting stroke.

Apparatus for severing the welt after the machine has been brought to rest comprises the welt cutter 16 having gripping and severing elements (see Figs. 11 to 15). The welt cutter is carried on a reciprocating slide 214 mounted in a guideway 216 in the machine frame and is provided with a relatively stationary jaw 218 and a pivotally mounted jaw 220. The jaws 218 and 220 are resiliently retained in separated relation and are brought together to grip the welt. The slide 214 is reciprocated by an independent rack 222 arranged to slide within a slot in the slide 214 and is locked to the slide 214 during the greater part of its movement by a ball 224 seated in an opening in a wall of the slide and engaging

a recess in the adjacent side of the slide. When the slide 214 reaches the forward end of its movement, a screw 226 threaded into the under side of the slide strikes an abutment on the guideway 216 to stop the movement of the slide. At the same time the ball 224 comes opposite a recess in the guide 216. Continued movement of the rack 222 causes the rack to be unlocked from the slide 214 and the slide to be locked to the guideway by the ball 224. At the same time, the forward end of the rack strikes an arm 228 pivoted concentrically with the jaw 220 and connected with it by means of a spring 230. The jaw 220 is thus yieldingly closed towards the jaw 218 and as the rack 222 continues to advance, a knife 232 attached to the end of the rack moves against and severs the welt held between the jaws.

The rack 222 is operated by a gear 234 (see Figs. 5 and 8) fixed to the left end of the shaft 130 upon which the follower arm 126 is fulcrumed. The other end of the shaft is provided with a similar gear 236 meshing with a gear segment 238 pivoted loosely on a shaft 240. The segment 238 is oscillated by an eccentric 242 having a pitman 244 pivotally connected with the segment. The eccentric is fixed to a shaft 246 having bearings at the right side of the machine. The shaft 246 is rotated intermittently by a gear 248 rotating loosely on the shaft and meshing with a similar gear 250 formed integrally with the continuously driven gear 82, rotating on the sewing cam shaft. The gear 248 may be connected to drive the shaft 246 through a Horton or other one-revolution clutch on the driven part of which there is provided a latch 252 normally tensed outwardly to engage a stop arm 254. The stop arm is fixed to a shaft 256 journalled in the right side of the machine casing and attached at its outer end to an arm 258. The stop arm is held in a position to strike the latch 252 on the one-revolution clutch by a spring 259 acting between the arm and the casing. Rocking of the shaft 256 swings the stop arm 254 away from the latch 252 on the one-revolution clutch, releasing the clutch and causing the eccentric to be rotated through one revolution. The shaft 256 is rocked by the operator in removing the shoe from the machine after the machine has been brought to rest by causing a movement of a welt measuring device 260.

The welt measuring device is connected to the arm 258 fixed to the shaft 256 by a link 262 pivotally connected to the welt measuring device at one end and connected to the arm 258 by means of a pin and slot connection. The slot is provided with a shoulder to thrust against a screw 264 and a cam portion 266 is formed on the link to engage the hub of the lever 258, so that, after the arm 258 is moved downwardly, the shoulder in the slot will be raised from engagement with the screw 264 (see Fig. 4) and the stop arm 254 will be released to normal position in order to prevent more than one revolution of the eccentric.

The welt cutter is locked out of operation by a positive movement of the cam actuated follower arm 126 and is held locked out of operation during sewing. As the machine is started from a stopped position, the cam follower 124 moves outwardly from the cam shaft to cause a U-shaped lug 268 extending from one side of the follower arm 126 to engage a pin 270 on an arm 272 fixed at one end of the shaft 240. The other end of the shaft 240 is provided with a key portion engaging a slot 276 in the hub of the stop arm 254 (see Fig. 5), so that when the arm 272 is held from rotation, the stop arm 254 may not be released from the one-revolution clutch. When the machine again comes to rest, the follower 124 is moved inwardly toward the cam shaft and the locking lug 268 is disengaged from the pin 270.

The welt measuring device 260 acts to grip and rotate with the welt and during rotation by the movement of the welt in removing the shoe the stop arm is released from the one-revolution clutch. The welt measuring device acts to grip the welt by means of a gripper 278 (see Figs. 3 and 16) actuated by a plunger 280. The plunger bears against the end of an arm 282 loosely pivoted on a stud 284 fixed to the casing 2. The arm 282 carries at its central part a pivoted pawl 286, which bears against the right end of the cam shaft, under the action of a spring 288 stretched between the pawl and the arm. The cam shaft is provided with a projection 290 arranged to act, in the stopped position of the shaft, against the end of the pawl to actuate the gripper in the welt measuring device to grip the welt. As soon as the welt is gripped, the welt measuring device may be rotated to release the one-revolution clutch for actuating the welt cutter, but, as this does not occur until the final extreme angular movement of the cam shaft, just prior to the engagement of the abutment on the cam 132 against the follower 124, the welt cutter cannot be operated until the cam shaft has practically stopped. The pawl 286 is released from the projection 290 on the cam shaft immediately upon renewed operation of the stitch forming devices, so that the welt is released from the gripper of the welt measuring device in ample time to permit feeding movement as the seam progresses.

The welt cutter operates through a continuous movement to grip, sever and release the welt, being advanced and immediately retracted, leaving the end of the welt extending free from the welt guide. As the machine is started in operation on a new shoe, the loose end of the welt is engaged by the needle which then passes through the lip of the insole to receive the thread. Before the needle withdraws from the work, the awl engages the welt and the feeding movements of the needle and awl are imparted to both the welt and the shoe so that there can be no displacement of the welt with relation to the shoe. The needle then reenters the work through the opening formed as soon as the awl is withdrawn, and the initial stitch is completed. Satisfactory initial attachment of the welt with the present welt cutter is thus effected by employing a feed mechanism the work feeding instrument or instruments of which first engage the welt in entering the work.

The stitch forming devices are arranged to facilitate initial attachment of the welt by mounting the needle 4 and the channel guide 18 on a slide having bearing sleeves projecting beyond the journals which support them. A feeding movement is imparted to the needle by two levers 304 and 306 (see Figs. 6, 7 and 8) pivotally mounted respectively on stub shafts 308 and 310 and engaging at their forward ends with slots formed in the bearing sleeves of the needle slide. The levers are connected together by a link 312 and the lever 306 is provided with a rearward extension pivotally connected at 318 to a link 320. The other end of the link 320 is connected to an adjusting pivot 322 slidable in an arcuate slot

in an arm 324 pivotally mounted on the stub shaft 308. The center of curvature of the arcuate adjusting slot lies in the pivotal connection 318 while the needle is in its extreme lateral position after being back fed and the arm 324 is operated to move the needle and channel guide in their feeding movements by a cam on the sewing cam shaft. The needle is actuated to pierce the work by a link 326, connected at one end to the needle segment and at the other end to a lever 328 fulcrumed on a horizontal shaft 329 and operated by a cam on the cam shaft. The awl 6 is mounted on a slide in a similar manner, having bearing sleeves operated by two levers 330 and 332 which are pivoted, respectively, on stub shafts 334 and 336 and are connected together by a link 338. The lever 332 is provided with a rearward extension pivotally connected at 340 to a link 342. The other end of the link 342 is connected to an adjusting pivot 344 slidable in an arcuate slot in an arm 346, pivotally mounted on the stub shaft 334. The center of curvature of this arcuate adjusting slot lies in the pivotal connection 340 when the awl has nearly reached its extreme advanced feeding position and is aligned with the needle. At this point in the feeding movement the awl is being withdrawn from the work by a link 348 connected to a cam actuated lever 350 and the needle is being projected into the work. The lever 350 is fulcrumed on the shaft 329. The feeding movements of the needle and awl may be adjusted by loosening the adjusting pivots 322 and 344, sliding them to the desired position in their respective slots and clamping them in their new positions, the changes in effective lever arms resulting in increase or decrease in individual feeding movements. however, the needle will always enter the work in the hole provided by the awl since the arcuate slots define centers in the pivotal connections of their respective links, while the needle is entering the work. The distances from all points in the arcuate slots to the respective pivotal connections are the same at this time so that the same positions will be assumed by the needle and awl irrespective of their individual feeding adjustments, and the needle will always track the awl in entering the work.

For mounting and operating the looper 8 a Y-shaped support 352 is provided upon which the looper is fixed at an angle to the plane of the support. At its forward end the support bears against a finished surface 354 on the machine casing and at its central portion a flat bearing surface 356 for the support is formed on the link 338 connecting the awl feeding levers 330 and 332. The remaining divergent arms 358 and 360 of the support are each connected by means of a universal joint 362 to one of two actuating arms 364 or 366, fulcrumed to the fixed shaft 329. The universal joints are constructed with socket portions at the ends of the arms 358 and 360 and cooperating ball members mounted at the ends of pins 368. The pins are vertically adjustable in the actuating arms by releasing clamp bolts 370 which normally secure the pins in position in holes formed in the arms, so that the surfaces 354 and 356 will provide the proper guiding action for the looper support. The actuating arms 364 and 366 are operated by followers engaging cams on the sewing cam shaft to impart independent movements to the actuators and to move the looper in a closed path about the needle as it is projected through the work.

The construction and operation of the thread arm 10, and other portions of the stitch-forming devices are substantially the same as in the copending application, Serial No. 208,116, to which reference may be had for a more complete description.

The nature and scope of the invention having been indicated, and a machine embodying the several features of the invention having been specifically described, what is claimed is:

1. A sewing machine having, in combination, stitch forming devices, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having high and low speed driving mechanisms, means under the control of the operator for shifting from the high to the low speed mechanisms, and means for stopping the shaft at a predetermined point comprising a cam fixed to the cam shaft and a follower actuated by movement of the shifting means to engage the surfaces of the cam during rotation of the shaft by the low speed mechanism.

2. A shoe sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, means under the control of the operator for shifting from the forward to the reverse mechanisms, and means for stopping the shaft at a predetermined point comprising a cam having a slot, on the cam shaft, to limit the movement of the shaft in a reverse direction and a follower resiliently pressed into engagement with the cam.

3. A shoe sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, means under the control of the operator for shifting from the forward to the reverse mechanisms, and means for stopping the shaft at a predetermined point comprising a cam on the shaft having a slot, a movable follower mounted to engage the cam, and a lip provided on said cam to prevent the follower from entering into the slot except during reverse rotation of the cam shaft.

4. A shoe sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, means under the control of the operator for shifting from the forward to the reverse driving mechanisms at a predetermined point in the rotation of the shaft, cam means provided with a uniform idle surface and a transverse surface inclined at an angle to the idle surface for stopping the shaft at another point and a movable follower, resiliently pressed into engagement with the surfaces of the cam during operation of the reverse driving mechanism and released from pressure against the cam by the shifting means in shifting to the forward driving mechanism.

5. A shoe sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, a tension wheel over which the thread passes, a brake for the tension wheel, and means for releasing the brake from the tension wheel and for stopping the machine comprising a cam on the cam shaft having a slot with an abutment at one end, and a mov-

able follower mounted for positive actuation to release the tension on the thread by entrance within the cam slot and to stop the machine by contact with the abutment.

6. A shoe sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, a tension wheel over which the thread passes, a brake for the tension wheel, driving and stopping means for said cam shaft having high and low speed driving mechanisms, means under the control of the operator for shifting from the high to the low speed mechanisms, and means for releasing the brake from the tension wheel comprising a cam on the cam shaft having a slot, a movable follower mounted for positive actuation to release the tension on the thread by entrance within the cam slot during rotation of the shaft by the low speed mechanism and a lip provided on said cam for preventing movement of the follower from within the cam slot until the cam shaft has rotated through a predetermined angle.

7. A shoe sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, a tension wheel over which the thread passes, a brake for the tension wheel, driving and stopping means for said cam shaft having high and low speed driving mechanisms, means under the control of the operator for shifting from the high to the low speed mechanisms, and means for releasing the brake from the tension wheel comprising a cam fixed to the cam shaft and a follower actuated by movement of the shifting means to engage the surfaces of the cam during rotation of the cam shaft by the low speed mechanism.

8. A shoe sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, a tension wheel over which the thread passes, a brake for the tension wheel, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, and means for releasing the brake from the tension wheel comprising a cam on the cam shaft having a slot, a movable follower mounted to engage the cam and a lip provided on the cam to prevent entrance of the follower into the slot except during reverse rotation of the cam shaft.

9. A shoe sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, a thread tension wheel over which the thread passes, a brake for the tension wheel, driving and stopping means for the cam shaft having forward and reverse driving mechanisms, means under the control of the operator for shifting from the forward to the reverse driving mechanisms at a predetermined point in the rotation of the shaft, means driven from the cam shaft for positively releasing the brake from the tension wheel subsequent to the operation of the shaft by the reverse driving mechanism and for stopping the shaft at another point, comprising a cam and a movable follower resiliently pressed into engagement with the cam and connections between the shifting means and the follower for releasing the follower from pressure against the cam in shifting to the forward driving mechanism.

10. A shoe machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, a thread tension wheel over which the thread passes, a brake for the tension wheel, driving and stopping means for the cam shaft having forward and reverse driving mechanisms, means under the control of the operator for shifting from the forward to the reverse driving mechanisms at a predetermined point in the rotation of the shaft, means for positively releasing the brake by the reverse driving mechanism and for stopping the shaft at another point comprising a cam and a movable follower resiliently pressed into engagement with the cam, connections from the follower to the shifting means for releasing the follower from pressure against the cam in shifting to the forward driving mechanism and a lip provided on said cam for preventing movement of the follower away from the cam until the cam shaft has rotated through a predetermined angle.

11. An inseam sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, a tension wheel over which the thread passes, a brake for the tension wheel, a welt guide, and means for releasing the brake from the tension wheel and causing a retracting movement of the welt guide comprising a cam on the cam shaft having a slot and a movable follower mounted for positive actuation to release the tension on the thread and retract the welt guide by entrance within the cam slot.

12. An inseam sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, a welt guide, driving and stopping means for said cam shaft having high and low speed mechanisms and means for causing a retracting movement of the welt guide comprising a cam on the cam shaft having a slot and a movable follower mounted for positive actuation to retract the welt guide by entrance within the cam slot during rotation of the shaft by the low speed mechanism.

13. An inseam sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, means under the control of the operator for shifting from the forward to the reverse mechanisms, a welt guide and means for stopping the cam shaft and retracting the welt guide comprising a cam on the cam shaft, a follower for the cam and resilient means released by operation of the shifting means in shifting to the reverse driving mechanism for pressing the follower into engagement with the cam to retract the welt guide.

14. An inseam sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, means for shifting from the forward to the reverse mechanism, a welt guide, a cam on the cam shaft having a slot and a movable follower to engage the cam slot during rotation of the shaft by the reverse driving mechanism for positively retracting the welt guide from engagement with the work.

15. An inseam sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having forward and

reverse driving mechanisms, means under the control of the operator for shifting from the forward to the reverse driving mechanisms at a predetermined point in the rotation of the shaft, a welt guide, cam means for operating the welt guide, provided with a uniform idle surface and a transverse surface inclined at an angle to the idle surface, and a movable follower resiliently pressed into engagement with the surfaces of the cam during operation of the reverse driving mechanism and released from pressure against the cam by the shifting means in shifting to the forward driving mechanism.

16. An inseam sewing machine having in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, means for shifting from the forward to the reverse driving mechanisms, a welt guide, a welt cutter, actuating mechanism for the welt cutter, devices for throwing the actuating mechanism into operation, and means for preventing the operation of said devices during the sewing and for rendering them operable upon completion of the sewing comprising a cam on the cam shaft having a slot, and a movable follower mounted to engage the cam slot and be positively actuated during reverse rotation of the cam shaft.

17. An inseam sewing machine having, in combination, stitch forming devices, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having high and low speed driving mechanisms, means under the control of the operator for shifting from the high to the low speed driving mechanisms, a welt guide, a welt cutter, actuating mechanism for the welt cutter, devices for throwing the actuating mechanism into operation and means for preventing the operation of said devices during the sewing and for rendering them operable upon completion of the sewing comprising a cam fixed to the cam shaft and a follower actuated by movement of the shifting means to engage the surfaces of the cam during rotation of the cam shaft by the low speed mechanisms.

18. An inseam sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, means under the control of the operator for shifting from the forward to the reverse driving mechanisms, a welt guide, a welt cutter, actuating mechanism for the welt cutter, devices for throwing the actuating mechanism into operation, and means for preventing the operation of said devices during sewing and for rendering them operable upon completion of the sewing comprising a cam and a movable follower, resiliently pressed into engagement with the surfaces of the cam during operation of the reverse driving mechanism and released from pressure against the cam by the shifting means in shifting to the forward driving mechanism.

19. An inseam sewing machine having, in combination, stitch forming devices including a hook needle and a looper, a cam shaft for actuating the stitch forming devices, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, means under the control of the operator for shifting from the forward to the reverse driving mechanisms, a welt guide, a welt cutter, actuating mechanism for the welt guide and the welt cutter, devices for throwing the actuating mechanism into operation, and means for preventing the operation of said devices during sewing comprising a cam and a movable follower mounted for positive actuation by the cam upon reverse rotation of the cam shaft to retract the welt guide and to render the welt cutter devices operable for throwing into operation the welt cutter.

20. A welt sewing machine having, in combination, stitch forming and work feeding devices including a work piercing instrument mounted for movement along the line of work feed and arranged to enter the work by first engaging the welt, a cam shaft for operating the instrument to pierce and feed the work, a welt guide, a welt cutter comprising welt gripping and severing elements and actuating mechanism rendered operable subsequent to the completion of the operation of the stitch forming devices for causing the welt cutter to grip, sever, and release the welt prior to renewed operation of the stitch forming devices.

21. A welt sewing machine having, in combination, stitch forming devices including a work piercing instrument mounted for movement along the line of work feed and arranged to enter the work by first engaging the welt, a cam shaft for operating the instrument to pierce and feed the work, a welt guide, a welt cutter and actuating mechanisms for retracting the welt guide upon completion of the sewing and subsequently rendered operable for causing the welt cutter to advance, to sever the welt and to be retracted prior to renewed operation of the stitch forming devices.

22. A welt sewing machine having, in combination, stitch forming devices including a work piercing instrument mounted for movement along the line of work feed and arranged to enter the work by first engaging the welt, a cam shaft for operating the instrument to pierce and feed the work, a welt guide, a welt cutter, actuating mechanisms for retracting the welt guide upon completion of the sewing and subsequently rendered operable for causing the welt cutter to advance, to sever the welt and to be retracted prior to renewed operation of the stitch forming devices, and means for locking the welt cutter actuating mechanism out of operation until after the welt guide has been retracted.

23. A welt sewing machine having, in combination, stitch forming devices including a work piercing needle and a work piercing awl mounted for movement along the line of work feed and arranged to enter the work by first engaging the welt, a cam shaft for operating the needle and awl alternately to pierce and feed the work, a welt guide, a welt cutter, and actuating mechanism rendered operable upon completion of the sewing to cause the welt cutter to grip, sever and release the welt prior to renewed operation of the stitch forming devices.

24. A welt sewing machine having, in combination, stitch forming and work feeding devices, including a work piercing awl mounted for movement along the line of work feed and arranged to enter the work by first engaging the welt, a cam shaft for operating said devices to impart a continuous feeding movement to the work, a welt guide, a welt cutter, and actuating mechanism rendered operable upon completion of the sewing to cause the welt cutter to grip, sever, and

release the welt prior to renewed operation of the stitch forming devices.

25. A welt sewing machine having, in combination, stitch forming devices including a work piercing awl mounted for movement along the line of work feed and arranged to enter the work by first engaging the welt, a cam shaft for operating the stitch forming devices to impart a continuous feeding movement to the work, driving and stopping means for said cam shaft having high and low speed driving mechanisms, means under control of the operator for shifting from the high to the low speed driving mechanisms, a welt guide, a welt cutter, actuating mechanism for the welt cutter, devices for throwing the actuating mechanism into operation, and means for preventing the operation of said devices during sewing and for retracting the welt guide comprising a cam fixed to the cam shaft and a follower actuated by movement of the shifting means to engage the surfaces of the cam during rotation of the cam shaft by the low speed means.

26. A welt sewing machine having, in combination, stitch forming devices, a cam shaft for operating the stitch forming devices, welt measuring mechanism for gripping and limiting the movement of the welt upon removal of the work, a welt cutter, actuating mechanism for the welt cutter, connections between the welt measuring and the actuating mechanisms for throwing into operation the welt cutter upon removal of the work, a projection on the cam shaft, a pawl mounted to cooperate with the projection in the stopped position of the cam shaft for causing the welt measuring mechanism to grip the welt and to release it immediately upon renewed operation of the stitch forming devices.

27. A welt sewing machine having, in combination, stitch forming devices, a cam shaft for operating the stitch forming devices, driving and stopping means for said cam shaft having forward and reverse driving mechanisms, an abutment carried by the cam shaft, a follower cooperating with the abutment to bring the cam shaft to rest during operation of the shaft by the reverse driving mechanism, welt measuring mechanism for gripping and limiting the movement of the welt upon removal of the work, and means comprising a projection on the cam shaft and a pawl mounted to cooperate with the projection just prior to the movement of the abutment against the follower in bringing the cam shaft to rest, for causing the welt measuring mechanism to grip the welt and to release it immediately upon renewed operation of the stitch forming devices.

28. A sewing machine, having, in combination, stitch forming devices including a hook needle and a looper, two independently operable actuators for said looper and a support to which said looper is fixed, provided with a slidable bearing in the machine and pivotally connected to the actuators at separated points for moving the looper to thread the needle.

29. A chain stitch sewing machine having, in combination, stitch forming devices including a curved hook needle and a looper, a cam shaft for operating said stitch forming devices, two independent actuators for the looper having followers cooperating with cams on the cam shaft, a support from which the looper extends at a fixed angle, provided with a slidable bearing in the machine and pivoted at separated points to the actuators for moving bodily and guiding the looper.

30. A chain stitch sewing machine having, in combination, stitch forming devices including a curved hook needle and a looper, a cam shaft for operating the stitch forming devices, two independent actuators for the looper having followers cooperating with cams on the cam shaft, a Y-support, the shank arm of which is slidable in the machine and arranged to carry the looper at a fixed angle with respect to the plane of the support, and universal connections between the remaining divergent arms of the support and the actuators for moving bodily and guiding the looper.

31. A sewing machine having, in combination, stitch forming devices including a work piercing needle and a work piercing awl, separate feed slides for the needle and awl respectively, a cam shaft for operating the stitch forming devices, levers connected to the feed slides for producing feeding movements of the needle and awl, an arm having a follower for operating each feed slide from the cam shaft, a link connected between each lever and arm by an arcuate slot and a slidable adjusting pivot at one end and a pivotal connection at the other end, said slots defining centers coinciding with said pivotal connections at predetermined points in the feeding movements of the awl and needle, respectively, to insure tracking of the needle with the awl independently of the positions of the slidable pivots within their slots.

32. A sewing machine having, in combination, stitch forming devices including a work piercing needle and a work piercing awl, separate feed slides for the needle and awl, respectively, a cam shaft for operating the stitch forming devices, levers connected to the feed slides for producing feeding movements of the needle and awl, an arm having a follower for operating each feed slide from the cam shaft, a link connected between each lever and arm by an arcuate slot and a slidable adjusting pivot at one end and a pivotal connection at the other end, said slots defining centers coinciding with said pivotal connections in the extreme advanced position of the awl and in the extreme retracted poistion of the needle during their respective feeding movements, to insure tracking of the needle with the awl independently of the positions of the slidable adjusting pivots within their slots.

33. A sewing machine having, in combination, stitch forming devices including a work piercing needle and a work piercing awl, separate feed slides for the needle and awl, respectively, a cam shaft for operating the stitch forming devices, cam operated levers connected to the feed slides for producing feeding movements of the needle and awl, an arm having a follower for operating each feed slide from the cam shaft, a link connected between each lever and arm by an arcuate slot and a slidable adjusting pivot at one end and a pivotal connection at the other end, said slots defining centers coinciding with said pivotal connections at the same time while the awl is in its extreme advanced position and the needle is in its extreme retracted position during their respective feeding movements to insure tracking of the needle with the awl independently of the position of the slidable adjusting pivots within their slots.

34. A sewing machine having, in combination, a curved hook needle, means for placing the thread in the hook of the needle including a thread handling device movable with relation to the needle, a pair of levers, a three cornered support provided with a slidable bearing in the machine carrying said device at one corner and having its

other corners connected respectively to said levers, and means for independently oscillating said levers.

35. An inseam welt shoe sewing machine having, in combination, stitch forming and work feeding devices including an instrument arranged to engage the welt and mounted for movement back and forth in the direction of feed, welt gripping and cutting mechanism, and means for rendering said mechanism operative subsequent to the completion of the sewing to grip and cut the welt and to release the welt prior to renewed operation of the stitch forming and work feeding devices on a new shoe.

36. An inseam welt shoe sewing machine having, in combination, stitch forming and work feeding devices including a work piercing instrument arranged to enter the work by first engaging the welt and mounted for movement back and forth in the direction of feed, a welt guide, a welt severing cutter, mechanism for retracting the welt guide upon completion of the sewing, mechanism for actuating the welt cutter, and means for rendering the mechanism for actuating the welt cutter operative subsequent to the retraction of the welt guide to advance the welt cutter to sever the welt and then retract the welt cutter prior to renewed operation of the stitch forming devices on a new shoe.

37. An inseam welt shoe sewing machine having, in combination, stitch forming and work feeding devices including a work piercing instrument arranged to enter the work by first engaging the welt and mounted for movement back and forth in the direction of feed, welt gripping and cutting mechanism, and means for rendering said mechanism operative subsequent to the completion of the sewing to grip and cut the welt and release the welt prior to renewed operation of the stitch forming and work feeding devices on a new shoe.

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