Sept. 27, 1932. J. R. WHITEHOUSE 1,880,164

MACHINE FOR SEWING BELTS, SUSPENDERS, GARTERS, AND THE LIKE

Filed Aug. 5, 1931 3 Sheets-Sheet 1

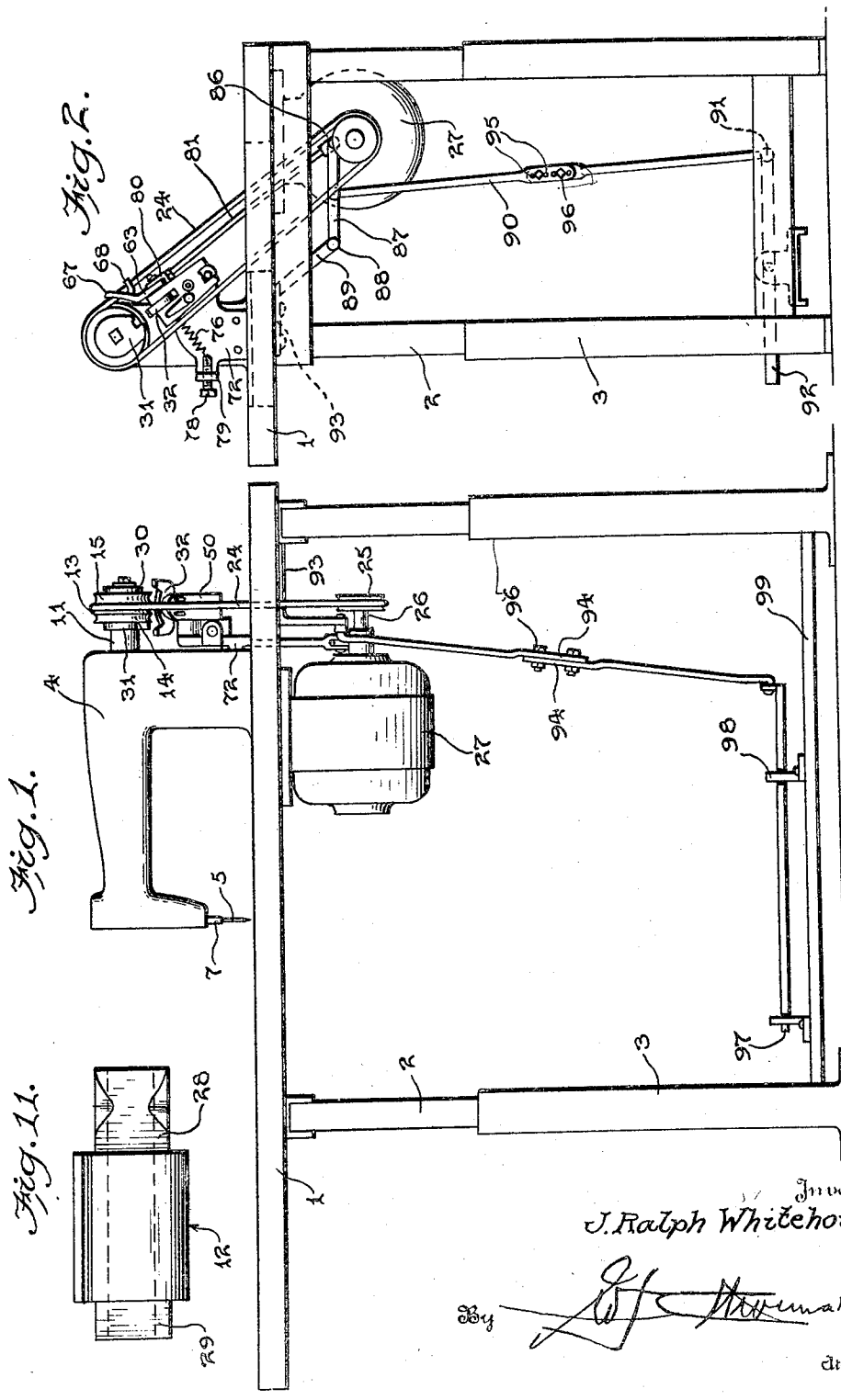

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Fig. 3.

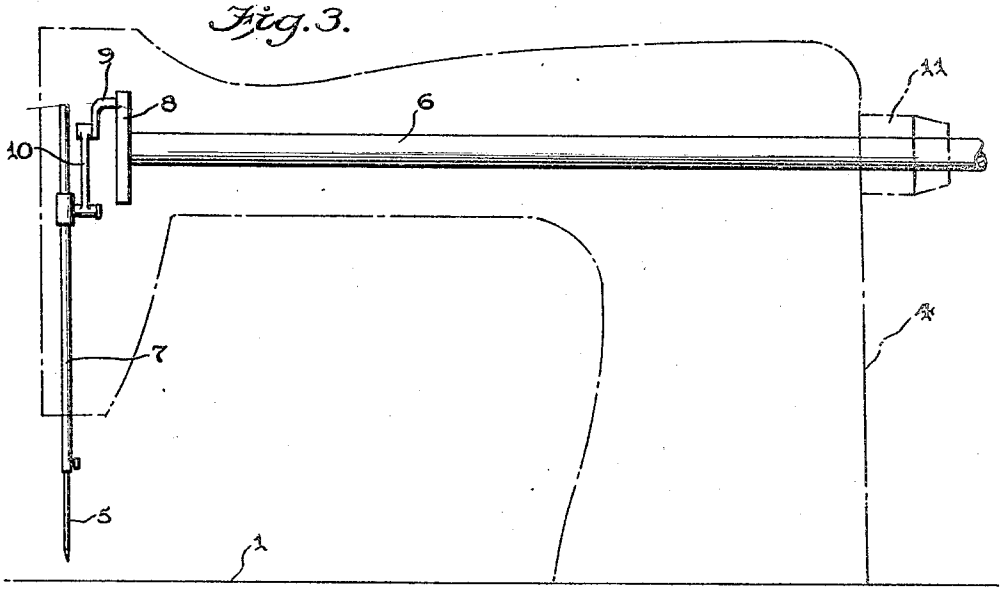


Fig. 12.

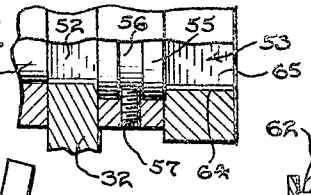


Fig. 4.

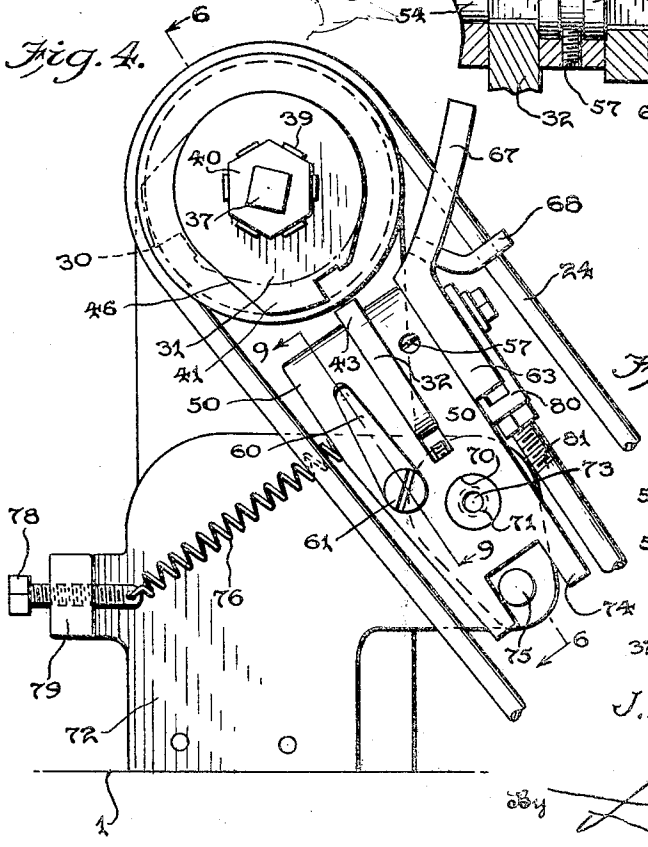


Fig. 9.

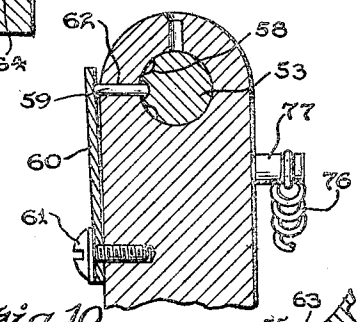
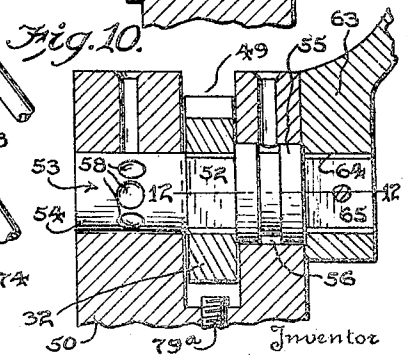


Fig. 10.



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Filed Aug. 5, 1931 3 Sheets-Sheet 3

Fig. 5.

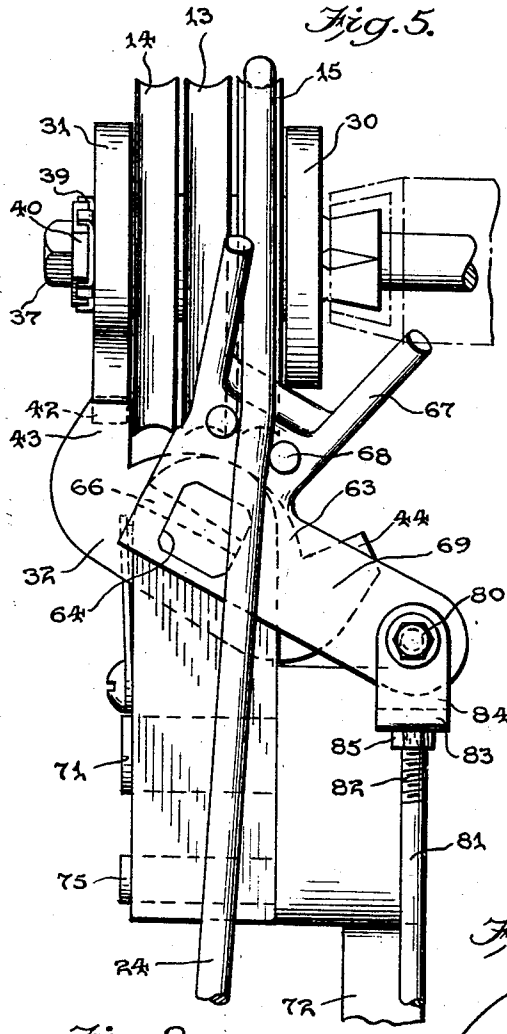


Fig. 6.

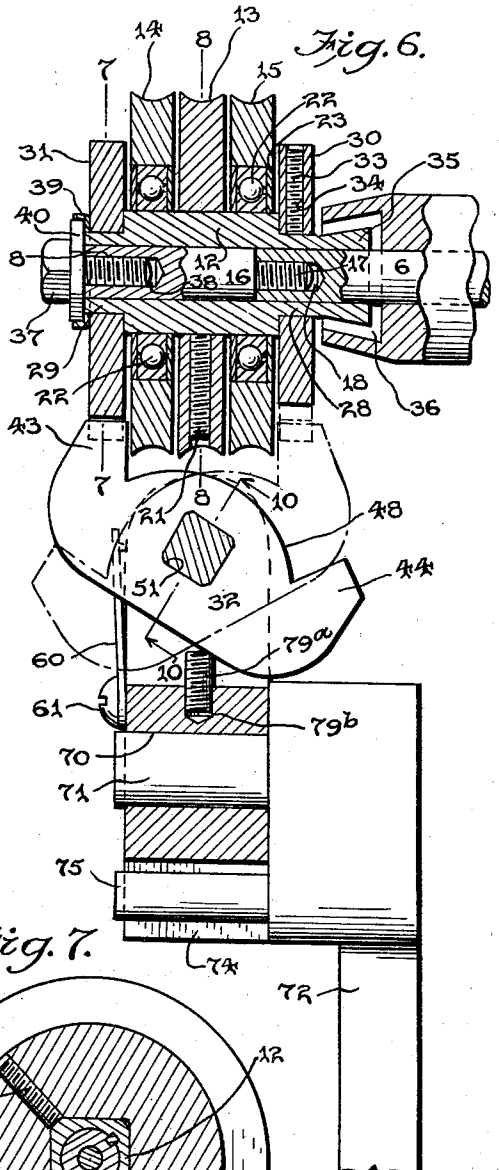


Fig. 7.

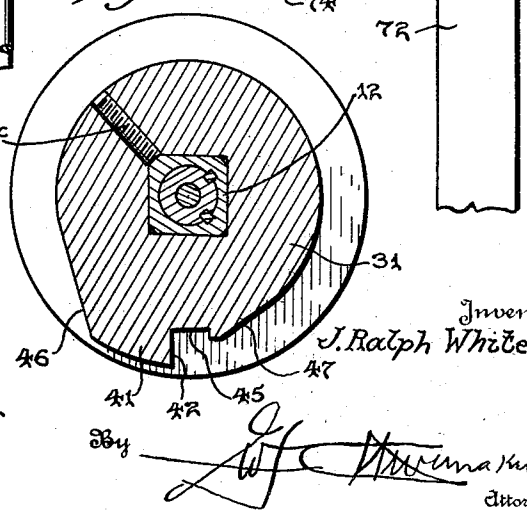
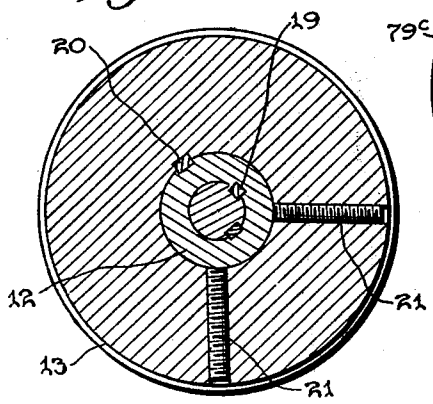


Fig. 8.



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Patented Sept. 27, 1932

1,880,164

UNITED STATES PATENT OFFICE

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MACHINE FOR SEWING BELTS, SUSPENDERS, GARTERS AND THE LIKE

Application filed August 5, 1931. Serial No. 555,276.

The invention relates to a machine for sewing belts, suspenders, garters, and the like.

The object of the present invention is to provide simple, practical and efficient mechanism of strong, durable and comparatively inexpensive construction adapted to be applied to an ordinary sewing machine of the type employed for sewing belts, suspenders, garters and the like, and equipped with means for positively stopping the needle in a plurality of predetermined positions with relation to the work table, so that the needle may be stopped in the work, forming a pivot on which the work may be turned, or for stopping the needle out of the work to permit the work to be removed, thread to be adjusted, or similar operations requiring the needle to be in an elevated position above and out of the work.

A further object of the invention is to provide a sewing machine of this character adapted to enable belts, suspenders, garters and the like to be accurately stitched by operators with comparatively little experience, thereby materially reducing the cost of the work without impairing the accuracy of the same, and at the same time enabling inexperienced persons to be instructed to operate a machine for sewing belts, suspenders, garters and the like in much less time than heretofore and without danger of injury to the work beyond the desired stitch outline.

A further object of the invention is to enable the mechanism for stopping the needle in the desired predetermined position with relation to the work table to be operated by the foot of the operator, thereby leaving both hands of the operator entirely free for accurately presenting the work to the needle of the machine.

A further object of the invention is to provide needle stopping mechanism adapted to enable the needle to be stopped either in or out of the work without interfering with the continuous operation of the motor, which reciprocates the needle when the latter is stitching the work.

A further object of the invention is to provide an automatically operating yieldable locking device adapted to hold the needle controlling shifting mechanism in each of its positions or adjustments to prevent accidental change of position of the mechanism which controls the operation and stopping of the reciprocating needle.

With these and other objects in view, the invention consists in the construction and novel combination and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

In the drawings:

Figure 1 is a front elevation of a sewing machine constructed in accordance with this invention.

Fig. 2 is an end elevation of the same.

Fig. 3 is an enlarged detail view illustrating the arrangement of the needle reciprocating shaft and means for connecting the shaft with the needle.

Fig. 4 is an enlarged detail side elevation of the mechanism for controlling the operation and stopping of the needle of the sewing machine.

Fig. 5 is an enlarged detail front elevation of the mechanism shown in Fig. 4.

Fig. 6 is a detail sectional view taken substantially on the line 6—6 of Fig. 4.

Fig. 7 is a detail sectional view on the line 7—7 of Fig. 6, illustrating the construction of one of the stop cams.

Fig. 8 is a similar view on the line 8—8 of Fig. 6, showing the central driving pulley.

Fig. 9 is a detail sectional view on the line 9—9 of Fig. 4.

Fig. 10 is a detail sectional view on the line 10—10 of Fig. 6.

Fig. 11 is a detail view of the adapter sleeve.

Fig. 12 is a detail sectional view on the line 12—12 of Fig. 10.

In the accompanying drawings, in which is illustrated the preferred embodiment of the invention, 1 designates a work table which

is adjustably supported upon uprights composed of telescoping sections 2 and 3 adapted to permit the work table to be readily adjusted to the desired height to suit the convenience of the operator. The lower sections 3, which are provided at their lower ends with suitable feet and fixed to the floor in any desired manner, receive the upper sections 2 which are suitably secured at their upper ends to the under side of the work table and which may be secured to the lower sections 3 in any suitable manner to maintain the work table in its vertical adjustment.

Suitably mounted on the work table is a machine head 4 of the ordinary construction, in which vertically reciprocates a needle 5, which is actuated by a horizonal shaft 6 journaled in suitable bearings of the head 4 and connected with a vertically reciprocating needle holding rod 7 in the usual manner for vertically reciprocating the needle when the shaft is rotated. Any suitable means may be employed for this purpose, and in Fig. 3 of the drawings the shaft 6 has mounted on its front or needle end a crank disk 8 which is provided with a wrist pin 9 connected by a pitman or link 10 with the reciprocating needle holding rod 7. The needle holding rod may be guided in any suitable manner, as will be readily understood.

The head 4 is provided at the rear portion of the shaft 6 with a tubular extension 11 forming a bearing for the shaft 6 which extends rearwardly beyond the tubular extension 11 and has mounted on it an adapter sleeve 12 keyed or otherwise fixed to the shaft 6 and having mounted on it a central fast pulley 13 and loose side pulleys 14 and 15. When the adapter sleeve is applied to an ordinary sewing machine the rear end of the shaft 6 is provided with an extension 16 having a reduced inner threaded portion 17 which extends into and engages an interiorly threaded socket 18 in the projecting rear end of the shaft 6. The shaft 6, however, may be made of a sufficient length to render unnecessary the extension 16. The adapter sleeve, which is preferably fixed to the shaft 6 and the extension 16 thereof by one or more keys 19, has a central or main cylindrical body portion upon which the pulleys 13, 14 and 15 are mounted. The central drive pulley is fixed to the adapter sleeve by a key 20 and also by radially arranged clamping screws 21 extending inwardly from a point adjacent the periphery of the pulley 13. The loose side pulleys 14 and 15 are provided with ball bearings 22 and the key 20 preferably engages the inner races of the ball bearings. The ball bearings may be of any desired construction and are preferably provided with grease retaining rings 23.

The peripheries of the fast and loose pulleys are grooved, as clearly shown in Figs. 5 and 6, to receive a driving belt 24, which also passes around a driving pulley 25 suitably fixed to the shaft 26 of an electric motor 27 mounted upon the under side of the work table. The driving belt is adapted to be shifted by the means hereinafter described from the central fast pulley to one or the other of the loose side pulleys for enabling the reciprocation of the needle to be stopped by the means hereinafter described.

The inner and outer terminal portions 28 and 29 of the adapter sleeve are squared or of other polygonal or non-circular shape, and receive stop cams 30 and 31 which are fast on the adapter sleeve and adapted to be engaged by a shiftable latch 32 for stopping the needle either in or out of the work, as hereinafter fully explained. The inner stop cam 30 is clamped on the inner polygonal portion 28 by a radially arranged screw 33 engaging a threaded radially arranged opening 34 extending through the stop cam 30, as clearly illustrated in Fig. 6 of the drawings. The inner polygonal portion of the adapter sleeve is provided with a tapered extension 35 rectangular in cross section and rotating in an oil well 36 in the outer end of the tubular extension 11 of the head of the sewing machine. The oil well 36 consists of an enlargement of the outer end of the bore or opening of the tubular extension 11, and the rotation of the sleeve extension 35 results in lubricating the bearing of the shaft 6 while the inclined surfaces formed by the tapering oil well and the tapering extension 35 tend to cause the lubricant to drain back into the lowest portion of the oil well. Any other means for lubricating the bearing of the shaft 6 may, of course, be employed. The outer stop cam 31 is retained in its interlocked relation with the outer polygonal portion of the adapter sleeve by means of a cap screw 37 threaded into a socket 38 in the outer portion of the extension 16 and engaged by a lock washer 39 mounted on the outer polygonal end of the adapter sleeve and having a plurality of lugs or projections which are bent into engagement with a polygonal flange 40 of the cap screw.

The stop cams 30 and 31 are similar in construction and they are preferably arranged with their stop portions at an angle of approximately 90 degrees. The inner stop cam stops the needle in the work, and the outer stop cam stops the needle in an elevated position out of the work, but approximately midway between the upper and lower limits of its movement, so that when the needle is stopped out of the work the thread will be slack and not under tension, as would be the case were the cams placed on the adapter sleeve 180 degrees apart so that one cam would stop the needle at the lower limit of its movement and the other cam at the upper limit of its movement. The cams, however, may be arranged in any desired position on

the adapter sleeve for stopping the needle in the desired predetermined position with relation to the work table.

Each cam is provided with a peripheral projection 41 forming a stop shoulder 42 to be engaged by one of a pair of spaced projecting lugs 43 and 44 of the shiftable latch 32, and a recess 45 is provided at the inner end of the shoulder 42 in each of the stop cams to enable the shiftable latch when engaged with the stop cam to hold the shaft 6 against rotary movement in either direction. The cam is provided with inclined faces 46 and 47 located in advance and in rear of the peripheral projection 41. The inclined face 46, which forms a portion of the periphery of the stop cam, extends to the outer peripheral edge of the projection 41, and the other inclined face 47 extends to and terminates at the recess 45. These inclined faces facilitate the operation of the shiftable latch 32.

The shiftable stop latch 32 consists of a substantially oblong body recessed at one of its longitudinal edges at 48 to form the projecting end lugs 43 and 44 and to provide an intervening substantially arcuate recess 48. The recess, however, may, of course, be of any other desired configuration, but it is preferable to provide the curved edge of the arcuate recess between the terminal cam engaging lugs 43 and 44. The stop latch, which is mounted in a bifurcation or slot 49 of a pivoted cushioned block or body 50, is provided with a central polygonal opening 51 to fit a square central portion 52 of a spindle or pivot 53 having cylindrical portions 54 and 55 journaled in bearing openings in the block 50 at opposite sides of the slot or bifurcation 49. The cylindrical portion 55 is provided with an annular groove 56 forming opposite collar-like portions and receiving the inner end of a screw 57 mounted in a threaded perforation of the block at one side of the slot or bifurcation 49 for holding the spindle or pivot 53 against longitudinal movement. The cylindrical portion 54 of the pivot or spindle is provided with sockets or indentations 58 adapted to be engaged by a pin 59 of a spring catch 60 consisting of a leaf spring secured at one end to the block 50 by a screw 61 and provided at the other end with the said pin 59 which operates in an opening 62 extending from the exterior of the block to the bearing opening in which the cylindrical portion 54 is mounted. The sockets 58 consist of concavities and the engaging end of the pin 59 is rounded as shown. The spring catch has sufficient strength to maintain the pin 59 in engagement with one of the concavities 58 to hold the pivot or spindle 53 and the latch 32 and a belt shifter 63 against accidental movement, but when the belt shifter 63, which is mounted on the pivot or spindle 53, is positively operated, the pin 59 of the spring catch will automatically disengage the concavity and permit the spindle 53 to be partially rotated for changing the position of the stop latch 32 and the belt shifter 63. The stop latch is adapted to be shifted by a partial rotary movement of the spindle 53 from the full line position shown in Fig. 6, in which it engages the outer stop cam, to the dotted line position illustrated in the said figure, in which it is engaged with the inner stop cam 30 and also to an intermediate or neutral position out of engagement with both of the said stop cams. The spring catch engages one of the concavities of the spindle in each position of the stop latch, so that the stop latch and also the belt shifter 63 will be held against accidental movement in any one of its positions. When the stop latch 32 is in engagement with the outer stop cam, the belt has been shifted from the central fast pulley to the loose pulley at the inner side of the fast pulley, and the needle is stopped in its elevated position out of engagement with the work. When the stop latch 32 is in the dotted line position and in engagement with the inner stop cam 30, the needle is locked in a down position in the work to form a pivot on which the work may be turned accurately by the operator, and the belt has been shifted from the central fast pulley to the loose pulley at the outer side of the fast pulley. When the latch is in its neutral position out of engagement with both of the cam stops, the belt shifter is in a central position and the belt is on the central fast pulley for reciprocating the needle.

The belt shifter 63 is preferably in the form of a substantially L-shaped lever provided at its angle with a substantially rectangular opening 64 to receive the polygonal terminal portion 65 of the spindle or pivot 53, and the belt shifter 63, which may be secured to the pivot 53 by any suitable means, may be conveniently fastened to the said polygonal portion 65 by means of a tapered key 66 arranged in registering tapering openings in the belt shifter and the said polygonal portion 65 of the pivot 53. The angle or L-shaped lever which constitutes the belt shifter consists of a body portion having the said opening 64 and extending upwardly from the pivot 53, and is provided at the top with spaced upwardly extending slightly divergent belt engaging arms 67 receiving the belt 24 between them and adapted when the belt shifter is oscillated to the right to carry the belt from the central fast pulley to the inner loose pulley to the position illustrated in Fig. 5 of the drawings, and when the belt shifter is moved in the opposite direction, it will carry the belt from the inner loose pulley to the central fast pulley, and further movement of the belt shifter to the left will carry the

said belt from the central shaft pulley to the outer loose pulley, as will be readily understood.

In order to prevent the belt from being thrown too far by a quick movement of the belt shifter, the latter is provided adjacent the lower ends of the belt engaging arms with outwardly extending supplemental belt engaging arms 68, preferably consisting of spaced pins rigidly secured to the belt shifter and receiving the belt between them, as clearly illustrated in Fig. 5 of the drawings, and adapted to form a guide for the belt to limit the lateral throw or movement of the said belt. The belt shifter is provided at the bottom with a laterally extending arm 69 to which the operating mechanism for actuating the belt shifter is connected.

The belt 24 extends downwardly and rearwardly from the central fast pulley to the pulley of the motor shaft, and is arranged at an inclination, as illustrated in Figs. 2 and 4 of the drawings. The block or body 50, which constitutes a support for the stop latch and the belt shifter, is set at an inclination and is arranged between the two runs of the belt, as clearly illustrated in Fig. 4 of the drawings. This block is provided at a point intermediate of its ends, preferably slightly below its center, with a bearing opening 70 for the reception of a horizontal pivot 71 mounted in an opening of an ordinary inverted L-shaped supporting bracket 72 which is bolted or otherwise secured to the head 4 of the sewing machine, but it may, of course, be mounted on the sewing machine in any other desired manner, as will be readily understood. The upper arm or portion of the supporting bracket extends rearwardly to a point opposite the space between the runs of the belt 24 and the pivot 71, which preferably consists of a headed pin, passes through the projecting horizontal arm of the supporting bracket and through the block 50. The head of the pin is arranged at one end thereof and the other end is preferably provided with a threaded socket 73 for the reception of a cap screw for securing the pivoted block 50 in position on the pin 71. The block is provided at its lower end with a recess 74 which receives a fixed stop 75 preferably consisting of a pin rigidly mounted in an opening of the supporting bracket 72 and extending outwardly therefrom into the said recess 74 and adapted to be engaged by the opposite walls thereof to limit the pivoted movement of the block 50. One wall of the recess 74 is normally maintained in engagement with the stop 75 by means of a coil spring 76 arranged at an inclination, as clearly illustrated in Fig. 4 of the drawings, and connected at its upper end to a stud 77 carried by the pivoted block 50 and located at the upper portion thereof. The spring extends downwardly and forwardly from the stud 77 and is connected at its lower end with an adjusting screw 78 mounted in a threaded opening of a fixed arm 79 of the supporting bracket 72. The arm 79, which is integral with the supporting bracket 72, is approximately L-shaped and extends forward horizontally from the bracket and laterally thereof, the outer portion of the arm 79 constituting a laterally projecting stud into which the adjusting screw 78 is threaded.

The screw 78 is adapted to be adjusted to tension the spring 76, which yieldably maintains the lower end of the block in engagement with the fixed stop 75 and which permits the pivoted block to yield and move rearwardly when the stop latch 32 is thrown into a projecting position and is engaged by one of the stop cams. This will eliminate the jar and shock which would otherwise result were a relatively fixed stop provided for engagement with the stop cams. The spring, while permitting the pivoted block to yield and cushion the blow incident to the engagement of a stop cam with the stop latch, returns the pivoted block to its initial or normal position illustrated in Fig. 4 of the drawings, so that the needle will be accurately stopped in a predetermined position with relation to the work table.

The stop latch is limited in its movement by an adjustable stop 79^a consisting of a screw mounted in the bottom wall of the bifurcation 49 in a threaded socket 79^b thereof and arranged to engage the lower edge of the pivoted stop latch, as clearly illustrated in Fig. 6 of the drawings. The adjustable stop 79^a not only limits the movement of the stop latch but also limits the movement of the belt shifter. When one of the lugs or projections 43 and 44 engages one of the stop cams or members 30 and 31, such lug or projection enters the recess 45, and when it is fully engaged in the recess 45, the opposite shoulders of the recess engaging the stop latch will maintain the stop cam and the needle rigidly against movement until the stop latch is disengaged from the stop cam. The stop cams are provided with radially arranged clamping screws 79^c for engaging the adapter sleeve, as clearly illustrated in Figs. 6 and 7 of the drawings.

The needle is stopped in the work to enable it to constitute a pivot for accurately turning the work and to prevent an accidental running of the line of stitching beyond the desired stitch outline of the work. This will enable belts, suspenders, garters and other articles to be accurately and more rapidly stitched by operators of less experience than heretofore required for this class of work, and will materially reduce the period of training of an operator for such work.

The operating arm 69 of the belt shifter is connected by a suitable pivot 80 with the upper end of a link rod 81 having a thread-

ed upper end 82 which is threaded into a lug or ear 83 of a connecting plate 84 to form an adjustable connection between the upper end of the rod 81 and the belt shifter. The threaded portion 82 of the rod 81 is provided with a lock nut 85 which engages the lug or ear 83, but any suitable means may, of course, be employed for adjustably and pivotally connecting the upper end of the link rod with the belt shifter. The lower end of the link rod 81 is connected by a suitable pivot 86 with the free end of an approximately horizontal lever 87 fulcrumed at the other end at 88 on a fixed arm 89. The lever 87 is pivotally connected at an intermediate point, preferably at its center, to the upper end of a link rod 90 which is connected at its lower end by a suitable pivot 91 to the rear end of a treadle 92. The fixed arm 89 is preferably formed integral with an attaching plate 93 secured to the lower face of the table, as clearly indicated in Figs. 1 and 2 of the drawings.

The link connection between the lever 87 and the treadle 92 is preferably composed of two sections having overlapped portions 94 provided with a plurality of perforations 95 and adjustably secured together by bolts 96 for adjustably connecting the belt shifting mechanism with the treadle. The overlapped adjustably connected ends 94 of the sections of the link rod 90 permit an initial adjustment of the connection between the treadle and the belt shifter, and the adjustable connection at the upper end of the link rod 81 provides a fine adjustment as a final adjustment for accurately positioning the parts of the shifting mechanism with relation to the treadle. The treadle is provided intermediate of its ends at opposite sides with suitable trunnions 97 which are journaled in suitable bearings 98 preferably mounted on a base or support 99 which connects the lower sections of the legs 3, but the treadle may be mounted in any other desired manner, and when the front or outer portion of the treadle is depressed by the heel of the operator, the belt will be shifted from the central fast pulley to the outer loose pulley, and the stop latch will engage the inner stop cam and the needle will be locked in the work to form a pivot on which the work is adapted to be turned. By operating the belt shifter with the foot, the hands are left free for accurately turning the work which pivots on the needle. The device provides a quick action stop and will stop within a stitch of the desire point, and if a single stitch more is required it can be made and the machine stopped without making more than the one stitch.

By providing means for positively stopping the needle selectively in a plurality of positions with relation to the work table, so that the needle may be stopped in the work to form a pivot on which the work may be turned or stopped in an elevated position out of the work, quicker, easier and more accurate work may be accomplished at less expense than is possible with sewing machines of the ordinary construction, and the work may be performed by less experienced help with a much shorter period of training. This results from the mechanism for enabling the needle to be accurately and instantly stopped in either an up or down position when desired.

What is claimed is:

1. In a sewing machine, a power driven shaft, a needle reciprocated by the said shaft, a fast pulley mounted on the shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a belt shifter for moving a driving belt from the fast pulley to a loose pulley and vice versa, fixed stop members mounted on the said shaft, and a co-acting stop member movable with the belt shifter for engaging a stop member of the shaft when the belt is shifted from the fast pulley to a loose pulley, whereby the needle may be positively stopped in a plurality of predetermined positions with relation to the work.

2. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, a fast pulley secured to the said shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a pivotally mounted belt shifter having spaced means for engaging a driving belt to shift the same from one of said pulleys to another, stop cams fixed to the shaft in different positions, and a stop latch movable with the belt shifter and carried into engagement with one of the stop cams of the said shaft when the belt is shifted to one of the loose pulleys, whereby the needle may be positively stopped in a predetermined position with relation to the work.

3. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, a fast pulley secured to the said shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a pivotally mounted belt shifter having spaced means for engaging a driving belt to shift the same from one of said pulleys to another, stop cams fixed to the shaft in different positions, a stop latch movable with the belt shifter and carried into engagement with one of the stop cams of the said shaft when the belt is shifted to one of the loose pulleys, whereby the needle may be positively stopped in a predetermined position with relation to the work, and a yieldably mounted support for the belt shifter and the stop latch for cushioning the stop cams and the latch.

4. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, a fast pulley secured to the said shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a pivotally mounted belt shifter having spaced

means for engaging a driving belt to shift the same from one of said pulleys to another, stop cams fixed to the shaft in different positions, a stop latch movable with the belt shifter and carried into engagement with one of the stop cams of the said shaft when the belt is shifted to one of the loose pulleys, whereby the needle may be positively stopped in a predetermined position with relation to the work, a pivotally mounted support for the belt shifter and stop latch, and yieldable means connected with the support for cushioning the engagement of the stop cams with the stop latch.

5. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, a fast pulley secured to the said shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a pivotally mounted belt shifter having spaced means for engaging a driving belt to shift the same from one of said pulleys to another, stop cams fixed to the shaft in different positions, a stop latch movable with the belt shifter and carried into engagement with one of the stop cams of the said shaft when the belt is shifted to one of the loose pulleys, whereby the needle may be positively stopped in a predetermined position with relation to the work, a pivotally mounted support for the belt shifter and stop latch, means for limiting the pivotal movement of the said support, and yieldable means connected with the pivoted support for maintaining the same normally in a predetermined position and for cushioning the engagement of the stop cams with the stop latch.

6. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, a fast pulley secured to the said shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a supporting bracket, a block pivotally mounted on the supporting bracket, means for limiting the pivotal movement of the supporting bracket, yieldable means connected with the supporting bracket for maintaining the same in a normal predetermined position and for cushioning the supporting bracket, a belt shifter pivotally mounted on the supporting bracket for shifting a driving belt from one pulley to another, stop cams fixed to the shaft and located in different positions, a stop latch also pivotally mounted on the said pivoted support and connected with and actuated by the belt shifter and having portions cooperating with the stop cams, one of the said portions being movable into the path of one of the stop cams when the belt is shifted to one of the loose pulleys.

7. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, a fast pulley secured to the said shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a pivotally mounted supporting block having a recess forming spaced shoulders, a fixed stop extending into the recess for limiting the pivotal movement of the said support, a spring connected with the support for maintaining one of the shoulders normally in engagement with the said stop and for cushioning the block when the same moves from the said stop, a belt shifter pivotally mounted on the said support for shifting a driving belt from one pulley to another, stop members fixed to the said shaft and arranged in different positions, a shiftable stop latch pivotally moutned on the said support and connected with the belt shifter and movable into the path of one of the stop members of the shaft when the belt is shifted to one of the loose pulleys, whereby the needle is stopped in a predetermined position with relation to the work, the said spring operating to cushion the stopping of the needle.

8. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, a fast pulley secured to the said shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a pivoted support having a limited pivotal movement, a belt shifter pivotally mounted on the support and provided with means for shifting a driving belt from one of said pulleys to another, a shiftable stop latch pivoted intermediate of its ends on the said support and movable with the belt shifter, stop members fixed to the shaft and arranged in different positions to be engaged by the stop latch, and a stop carried by the pivoted support and arranged to limit the movement of the stop latch.

9. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, a fast pulley secured to the said shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a support, a pivot carried by the same, a belt shifter fixed to the pivot and provided with means for shifting a driving belt from one of the said pulleys to another, stop members fixed to the said shaft and arranged in different positions on the same, a stop latch also fixed to the said pivot and movable with the belt shifter, and automatically operating means engageable with the said pivot for yieldably holding the said belt shifter and stop latch in their several positions.

10. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, a fast pulley secured to the said shaft, loose pulleys arranged on the said shaft at opposite sides of the fast pulley, a support, a pivot carried by the same, a belt shifter fixed to the pivot and provided with means for shifting a driving belt from one of the said pulleys to another, stop members fixed to the said shaft and arranged in different positions on the same, a stop latch also

fixed to the said pivot and movable with the belt shifter, said pivot being provided with a plurality of indentations, and a spring catch having a projecting portion engageable with the said indentations for yieldably holding the belt shifter and the stop latch in their several positions against accidental movement.

11. In a sewing machine, a power driven shaft, a needle reciprocated by the said shaft, an adapter sleeve connected with the shaft and having polygonal terminal portions, fast and loose pulleys mounted on the intermediate portion of the adapter sleeve, stop members interlocked with the polygonal terminal portions of the adapter sleeve, a belt shifter movable to carry a driving belt from one of said pulleys to another of the same, a shiftable latch movable with the belt shifter and carried by the same to engage one of the stop members of said sleeve when the belt is shifted to a loose pulley, and means for operating the belt shifter.

12. In a sewing machine, a power driven shaft, a needle reciprocated by the said shaft, fast and loose pulleys on the said shaft, a pivotally mounted belt shifter for shifting a belt from one of said pulleys to another of the same, stop members carried by the said shaft and arranged in different positions and in fixed relation with the said shaft, a shiftable stop latch movable with the belt shifter, and operating means comprising a treadle, an intermediate lever, a link rod connecting the treadle with the intermediate lever, a separate link rod connecting the intermediate lever with the belt shifter, and means for effecting independent adjustment of the treadle and the belt shifter.

13. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, stop cams fixed to the shaft and having stop portions arranged at an angle for stopping the needle in a plurality of positions, a shiftable stop latch movable into and out of the paths of said cams and means for operating the stop latch and for connecting the shaft with and for disconnecting the shaft from its driving power.

14. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, stop cams fixed to the shaft and having stop portions arranged at an angle for stopping the needle in a plurality of positions, a centrally pivoted shiftable stop latch having spaced lugs movable into and out of the path of the stop cams and means for operating the stop latch and for connecting the shaft with and for disconnecting the shaft from its driving power.

15. In a sewing machine, a power driven shaft, a reciprocating needle actuated by the said shaft, stop cams fixed to the shaft and having stop portions arranged at an angle for stopping the needle in a plurality of positions, a centrally pivoted shiftable stop latch adapted to be oscillated to move its terminal portions into and out of the paths of the stop cams, a pivotally mounted support carrying the stop latch, means for cushioning the support and for normally maintaining the same in a predetermined position with relation to the said shaft, and means for operating the stop latch and for connecting the said shaft with and for disconnecting the shaft from its driving power.

In testimony whereof I have hereunto set my hand this 3rd day of August, 1931.

J. RALPH WHITEHOUSE.