

May 22, 1945.

T. A. ANDERSON
SEWING MACHINE

2,376,648

Filed May 28, 1943

3 Sheets-Sheet 1

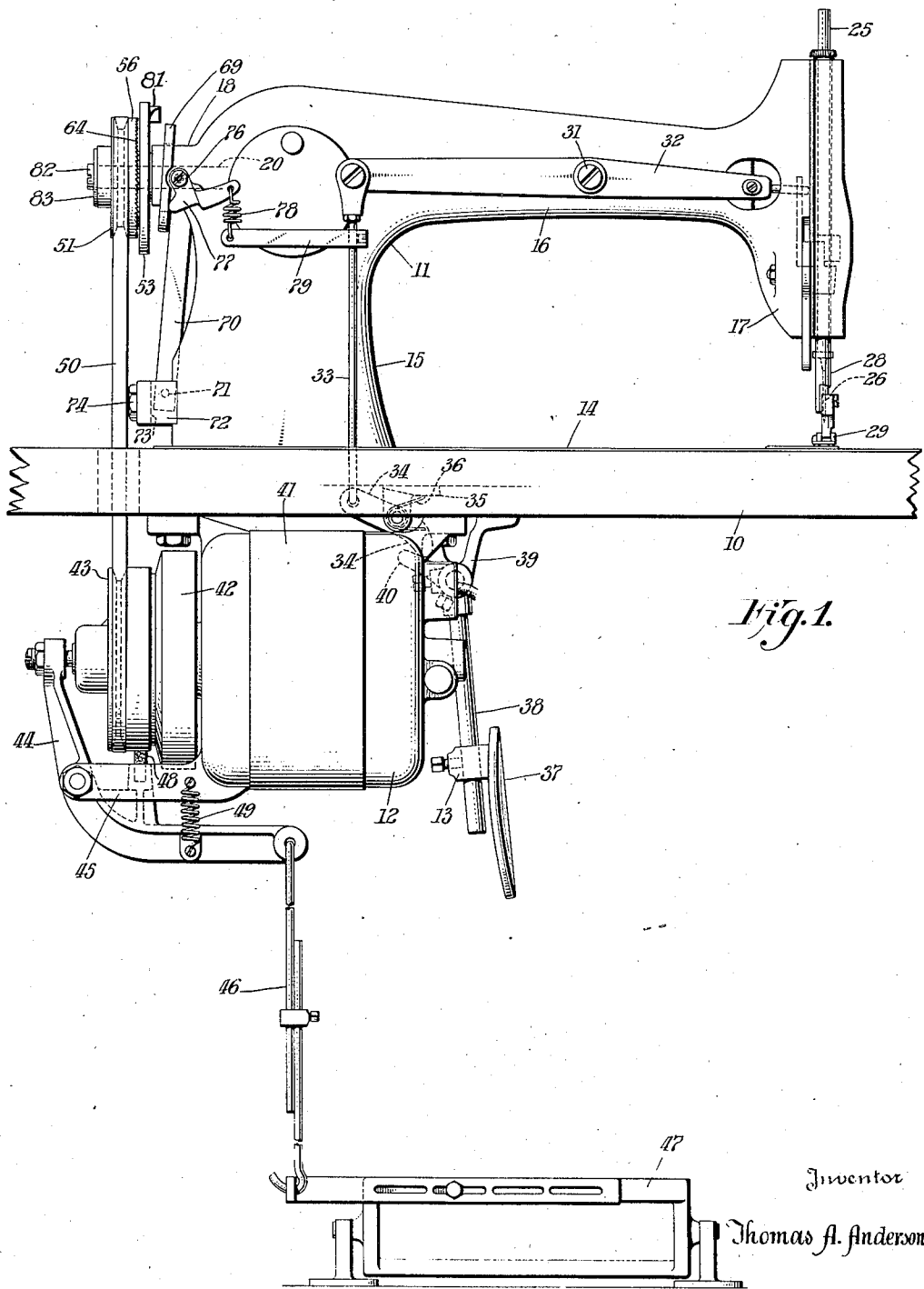


Fig. 1.

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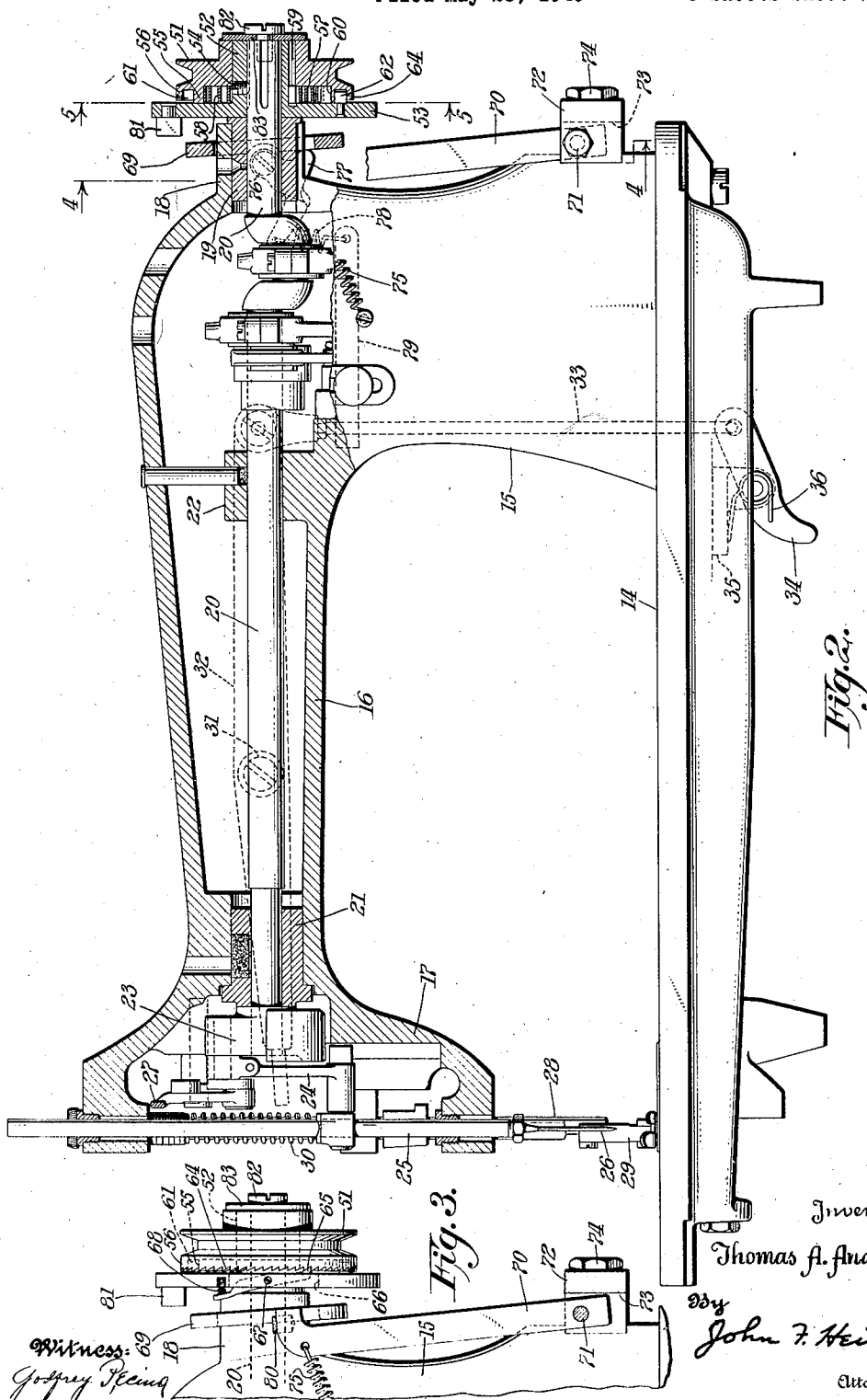
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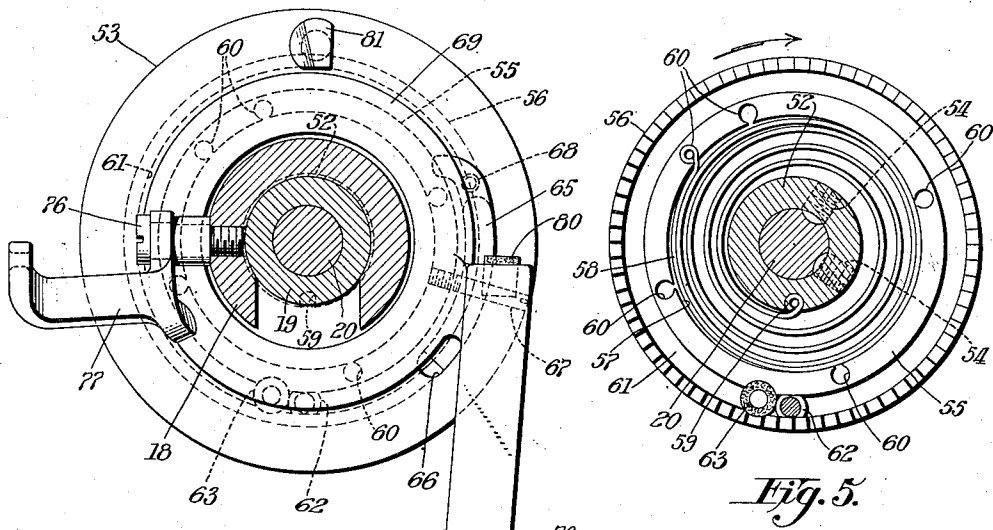


Fig. 4.

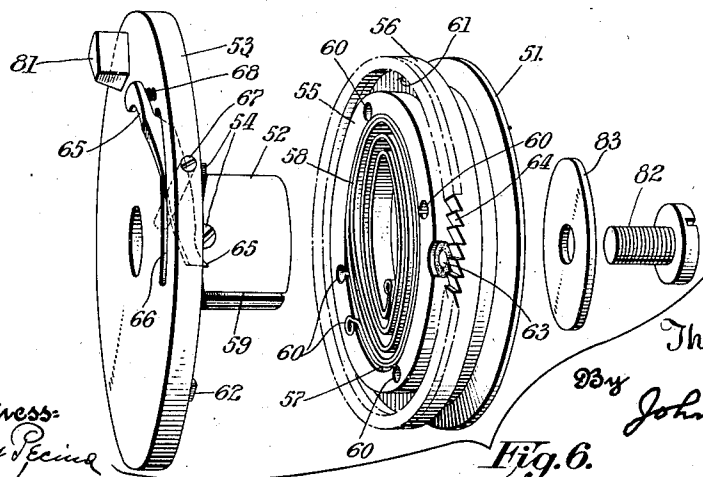
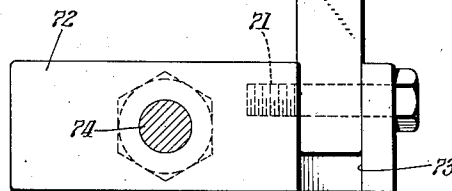


Fig. 6.

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UNITED STATES PATENT OFFICE

2,376,648

SEWING MACHINE

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Application May 28, 1943, Serial No. 488,808

26 Claims. (Cl. 112—219)

This invention relates to sewing machines and has for its primary object to provide means which facilitate bringing the needle or other part of the sewing machine mechanism into a predetermined position of rest.

In power-driven sewing machine installations, in which the starting and stopping of the sewing machine mechanism are both operator-controlled, the mechanism may come to rest in various different positions of the needle, take-up, etc. For reasons such as to permit shifting of the work from one position to another, or for turning the work about the needle, or for insuring that the take-up is at the upper end of its stroke before restarting the machine, it has heretofore been the common practice of operators to grasp the hand-wheel of the machine and to turn it to bring the actuating mechanism of the machine into the desired position thereof. This prior practice has resulted in a substantial loss of time and therefore in production.

Various expedients have hitherto been devised for overcoming the above noted condition, such as stop-motion devices designed to stop the sewing machine in a predetermined position each time that the power is disconnected from the machine. These prior stop-motion devices are unadapted for use with sewing machines of the higher speed types, because of the strains to which the parts are thereby subjected each time that the machine is stopped. In many sewing machine operations the runs are short and the parts do not need to come to rest in any particular position thereof. Consequently, when employing stop-motion devices which arrest the sewing machine mechanism in a predetermined position thereof each time that the power is disconnected from the machine, the mechanism of the sewing machine is in many cases unnecessarily subjected to frequent shocks and strains.

The present invention has therefore for a further object to provide improved means facilitating bringing the sewing machine mechanism at will into a predetermined position of rest, while permitting conventional control of the operation of the machine at other times.

The invention has also for its object to provide means insuring a predetermined position of rest of a sewing machine mechanism when the presser-foot of the machine is lifted from the work.

Other and more specific objects of the invention will be apparent from the following description and claims.

The invention comprises the devices, combinations and arrangements of parts hereinafter de-

scribed in connection with the accompanying drawings, which illustrate an embodiment of the invention and in which:

Fig. 1 is a rear elevation of a power-driven sewing machine installation containing the present improvement, the supporting table and the treadle-connections being partly broken away. Fig. 2 is an enlarged front elevation, partly in vertical section, of the sewing machine. Fig. 3 is a fragmentary front elevation, partly in section, of the belt-pulley end portion of the sewing machine. Fig. 4 represents an enlarged, substantially vertical section of the arm-shaft and its bearing on substantially the line 4—4 of Fig. 2, and shows in side elevation the driven disk, the trip-ring and the trip-ring supporting arm with its bracket detached from the machine. Fig. 5 represents an enlarged vertical section of the arm-shaft on substantially the line 5—5 of Fig. 2 and shows the driving pulley in side elevation as viewed from the driven disk side thereof. Fig. 6 illustrates, in perspective, the driven disk, the driving pulley and the pulley retaining means in disassembled relationship and detached from the machine.

The power-driven sewing machine installation shown in the accompanying drawings comprises a table 10, upon which is supported a sewing machine 11, and to the under side of which table is suitably secured a treadle-controlled electric-transmitter 12 and presser-lifter knee-shift means 13.

The sewing machine 11 has the usual frame including a bed-plate 14, from one end of which rises the standard 15 of a hollow bracket-arm 16 overhanging the bed-plate and terminating in a head 17.

The bracket-arm 16 has a cylindrically segmental frame-boss 18 supporting a bearing-bushing 19. A rotary actuating or needle-reciprocating shaft 20 has one end portion thereof journaled in the bearing-bushing 19; said shaft being additionally journaled at its opposite end in a bearing-bushing 21 and intermediate its ends in a bearing lug 22, both provided within the bracket-arm 16.

The shaft 20 extends into the bracket-arm head 17 and carries a crank-member 23 operatively connected by a link 24 to a needle-bar 25 which is journaled for endwise vertical reciprocation in the bracket-arm head 17; the lower end of said needle-bar carrying a needle 26. The crank-member 23 is also operatively connected to a needle-thread take-up member 27 for actuating said take-up member in a conventional manner.

Journalled for endwise vertical movement in the bracket-arm head 17 is a presser-bar 28, to the lower end of which is suitably secured a conventional presser-foot 29. The presser-foot 29 is yieldingly urged downwardly, toward the work-support by a suitable spring 30. The presser-foot 29 may coact with any usual or suitable work-feeding mechanism to advance the work past the needle. Pivotally mounted upon a fulcrum-stud 31 at the rear side of the bracket-arm 16 to extend lengthwise thereof is a presser-lifter lever 32. One end of the lever 32 is operatively connected in a conventional manner to the presser-bar 28 to lift said presser-bar, against the action of the spring 30. For this purpose, the opposite end of said lever 32 is pivotally connected to the upper end of a lifter-rod 33. The lower end of the lifter-rod 33 is operatively connected to one arm of a two-armed lever 34 fulcrumed upon a suitable bracket 35 depending from the bed-plate 14. The lever 34 is acted upon by a spring 36 to depress the downwardly curved end of said rock-lever opposite to the lifter-rod 33 end thereof.

The presser-lifter knee-shift 13 comprises a knee-pad 37 adjustably carried by a rod 38 depending from and fulcrumed for swinging movement upon a bracket 39 suitably secured to the under side of the table 10. Supported by the bracket 39 for movement with the knee-pad rod 38 is an arm 40 positioned to engage and rock the lever 34, thereby to lift the presser-foot 29, when the knee-pad rod 38 is swung to the left from the position thereof shown in Fig. 1. The described presser-lifter device is structurally of conventional form and any other well known or suitable presser-lifter device may be substituted therefor.

The electric transmitter 12 shown in the drawings is more fully disclosed in the U. S. patent of H. J. Goosman, No. 2,048,501, July 21, 1936. This transmitter provides power means in the form of an electric-motor 41 for rotating a combined clutch-member and fly-wheel 42. Complementary to the clutch-member 42 is a combined clutch-member and belt-pulley 43 adapted to be axially shifted into and out of clutching engagement with the clutch-member 42. For this purpose, there is provided a clutch-lever 44 fulcrumed between its ends upon an arm 45 extending from the frame of the electric-motor 41. One arm of the clutch-lever 44 is disposed to engage the hub of the clutch-member 43; and connected to the other arm of said clutch-lever 44 is a lengthwise adjustable treadle-rod 46 connected for actuation by a suitable treadle 47. The clutch-lever 44 carries a brake-shoe 48 adapted to engage the periphery of the clutch-member 43 under the action of a spring 49, which spring at the same time functions to retract the clutch-lever 44 from effective engagement with the clutch-member 43.

The clutch-member 43 is connected by a belt 50 to a belt-pulley 51 comprising the driving member of the sewing machine. The belt-pulley 51 is journaled for rotation coaxially of and relatively to the needle-reciprocating shaft 20. To this end, the belt-pulley 51 is freely journaled upon the hub 52 of a driven disk-member 53 secured by screws 54 to the shaft 20 for rotation therewith. The belt-pulley 51 is held upon the shaft 20, in close proximity to the disk-member 53, by a screw 82 threaded into the end of the shaft 20 and by a washer 83 interposed between the head of the screw 20 and the pulley 51.

The face of said belt-pulley proximate to the disk-member is cut away to provide concentric inner and outer flanges 55 and 56. The inner flange 55 defines an axial pulley-cavity 57 in which is housed a torque-transmitting coil-spring 58. The inner end of the coil-spring 58 is anchored in a slot 59 formed in the hub 52 of the driven member, while the outer end of said coil-spring is anchored in a selected one of a plurality of notches 60 formed in the inner pulley-flange 55. The spring 58 is coiled in a direction so that the spring becomes more tightly wound upon rotation of the belt-pulley 51 relatively to the disk-member 53 by means of the electric-transmitter 12; it being understood that the belt-pulley 51 is rotated in one direction only by the electric-transmitter. When the spring 58 becomes wound to an extent sufficient to overcome the inertia of the sewing machine mechanism, said spring will transmit to the shaft 20 a rotation-torque which will result in rotation of the shaft 20 in unison with the belt-pulley 51.

The spaced belt-pulley flanges 55 and 56 define therebetween an annular recess 61 providing clearance for a buffer-element 62 carried by and extending from the side face of the disk-member 53 proximate to the belt-pulley 51. A complementary buffer-element 63 is carried by the belt-pulley 51 to extend across the recess 61, thereby to arrest movement of the buffer-element 62 in the recess 61. Upon rotation of the belt-pulley 51 relatively to the disk-member 53 and in the power-driven direction thereof illustrated by an arrow in Fig. 5 of the drawings, the buffer-element 63 will be initially carried clockwise away from the buffer-element 62 and may ultimately engage said buffer-element 62 from the opposite side thereof. It is possible, dependent upon the inertia of the sewing machine mechanism and the acceleration speed of the belt-pulley 51, that rotation of the shaft 20 by the torque action of the spring 58 may be induced before the buffer-element 63 engages the buffer-element 62; it being understood that the initial tension of the spring 58 may be regulated by anchoring the outer end of said spring in different ones of the pulley-notches 60. In any event, the described complementary buffer-elements 62, 63 limit the extent to which the spring may become tensioned by rotation of the belt-pulley 51; said buffer-elements at the same time providing a positive drive for the shaft 20. The increasing tension imposed upon the spring 58 by rotation of the belt-pulley 51 relatively to the shaft 20 tends to minimize buffer-element engaging shock by reason of the shaft-rotating torque transmitted by the tensioned spring.

Recovery of the spring 58 from the imposed torque-transmitting tension is normally prevented by operator-controlled releasable latching means. To this end, the rim of the outer pulley-flange 56 is provided with a circular series of ratchet-teeth 64 concentric with the shaft 20. The ratchet-teeth 64 are engaged by a latch-member in the form of a latch-lever 65 which extends through an arcuate slot 66 formed in the disk-member 53; said latch-lever 65 being mounted upon a pivot-screw 67 threaded into the disk-member, whereby the latch-member is supported for rotation with said disk-member. The tail of the latch-lever 65 at the bracket-arm side of the disk-member 53 is engaged by a spring 68 to urge the lever-nose at the opposite side of said disk member into engagement with the ratchet-teeth 64.

Encircling the frame-boss 18 and therefore surrounding the shaft 20, is a latch-releasing trip-ring 69 supported for bodily movement lengthwise of the shaft 20 from a spring-retracted position and into engagement with the latch-lever 65 in any angular position of rotation of said latch-lever about the shaft 20. The trip-ring 69 is carried by the upper end of an upright supporting-arm 70, of which the lower end is pivotally mounted upon a screw 71 threaded into a bracket 72; a clearance-slot 73 being provided in the bracket 72 for the lower end of the arm 70. The bracket 72 is secured by a screw 74 to a recessed seat provided in the bracket-arm standard 15. The supporting-arm 70 is yieldingly biased by a spring 75 into a position in which the trip-ring 69 is retracted from the latch-lever 65.

Fulcrumed upon the rearward side of the frame-boss 18, by a screw 76, is a trip-ring shifting lever 77. One arm of the lever 77 is positioned for engagement with the trip-ring 69, thereby to swing the supporting-arm 70 in a direction to carry said trip-ring into tripping engagement with the latch-lever 65. The other arm of the lever 77 is connected by a spring 78 to an arm 79 extending laterally from the presser-lifter rod 33. Upon downward movement of the presser-lifter rod 33 to raise the presser-foot 29 from the work, the lever 77 is yieldingly rocked to shift the trip-ring 69 into latch-releasing position.

When the latch-lever 65 is released from the disk-member 53, the tensioned spring 58 is free to exert upon the shaft 20 a torque tending to rotate or to turn said shaft 20 in the direction of rotation of said shaft with the pulley 51; it being understood that the pulley 51 is at this time held against rotation by the electric-transmitter brake 48 acting through the belt 50.

The upper end of the supporting arm 70 is suitably provided with a stop-element 80, and the disk-member 53 carries a stop-element 81 for rotation with the disk-member and therefore with the shaft 20. In the operator-actuated movement of the supporting arm 70 to trip the latch-lever 65, the stop-element 80 will be brought into the path of rotation of the stop-element 81. The shaft 20 will therefore be brought to rest in a predetermined position of the needle 26 and of the take-up member 27. The stopping position of the shaft 20 will, of course, be dependent upon the location of the stop-element 80 angularly of the disk-member 53.

From the foregoing description, it will be understood that upon actuation by the operator of the treadle 47 to release the electric-transmitter brake 48 and to effect rotation of the clutch-member 43 with the motor-driven clutch-member 42, the belt-pulley 51 will be driven by the belt 50. Initially, the belt-pulley 51 will be rotated relatively to the disk-member 53 which is fast on the shaft 20, owing to inertia of the sewing machine mechanism. In said initial rotation of the belt-pulley 51, the torque-transmitting spring 58 becomes wound more tightly, thereby imposing on the spring 58 a tension which is sufficient to effect rotation of the shaft 20 in unison with the belt-pulley 51. This winding of the spring 58 may be limited by the complementary buffer-elements 62, 63 which, thereafter, may function positively to rotate the shaft 20. Recovery of the spring 58 from the tension thus imposed upon it is normally prevented by the latching means comprising the latch-lever 65 carried by the

driven member 53 and the ratchet-teeth 64 provided upon the driving pulley 51.

The latching means described and the inter-engaging buffer-elements combine to lock the driven-member 53 positively to the driving pulley 51. Consequently, the sewing machine may now be stopped and thereafter repeatedly started and stopped, under the control of the operator and in the conventional manner, without disconnecting the driven member 53 from the driving pulley 51 and without imposing any additional tension upon the spring 58.

Should it be desired for any reason to bring the sewing machine mechanism from any stopping position thereof into a predetermined position of rest, the knee-shift 13 may be at will operator-actuated to bring the trip-ring 69 into latch-releasing engagement with the latch-lever 65. The spring 58 is thereby rendered free to recover from the tension imposed thereupon in the initial rotation of the pulley 51 and, as the pulley 51 is held against rotation by the belt-connections with the braked clutch-member 43 of the electric-transmitter 12, the spring 58 transmits a torque to the shaft 20 to turn said shaft in the direction in which the shaft rotates during the operation of the machine. This further turning movement of the shaft 20 is arrested in a predetermined position of the parts by the engagement of the rotary stop-element 81 with the stop-element 80; the stop-element 80 having been brought into effective position by shifting the trip-ring 69 into latch-releasing position.

While the trip-ring shifting and stop-element carrying supporting-arm 70 is in the present construction operatively connected for actuation by the presser-foot lifter device, it will be obvious that said supporting arm or a functionally equivalent member could be actuated independently of the presser-foot lifter, without departing from the spirit and scope of the present invention.

Inasmuch as the additional turning movement imparted to the shaft 20 to bring it into a predetermined position of rest is in a direction which is the same as when the sewing machine is in operation, the stitch-forming implements are thereby actuated in their normal thread-handling direction.

Having thus set forth the nature of the invention, what I claim herein is:

1. The combination with a sewing machine having stitch-forming mechanism including a reciprocatory needle, a rotary needle-reciprocating shaft, and primary operator-controlled means for at will starting rotation of said shaft and for bringing said shaft to rest in an indeterminate position of said needle, of supplemental operator-controlled means for initiating a further turning movement of said shaft from an intermediate position of rest of the shaft, a rotary stop-element carried to turn with said shaft, and a complementary stop-element shiftable by said supplemental operator-controlled means into the path of movement of said rotary stop-element for arresting said turning movement of the shaft in a predetermined position of said needle.

2. The combination with a sewing machine having stitch-forming mechanism including a reciprocatory needle, a rotary needle-reciprocating shaft, and primary operator-controlled means for at will starting rotation of said shaft in one direction and for bringing said shaft to rest in an indeterminate position of said needle, of supplemental operator-controlled means for initiating

a further turning movement of said shaft in the same direction, a rotary stop-element carried to turn with said shaft, and a complemental stop-element shiftable by said supplemental operator-controlled means into the path of movement of said rotary stop-element, thereby to arrest said turning movement of the shaft in a predetermined position of said needle.

3. In a sewing machine installation, the combination with relatively rotatable driving and driven members of sewing machine actuating mechanism, and power-transmitting means for rotating and for stopping rotation of said driving member, of a torque transmitting spring interposed between said members for effecting rotation of said driven member in unison with said driving member, said spring being connected for effecting a winding thereof upon rotation in one direction of said driving member relatively to said driven member, releasable means normally preventing recovery of the wound spring, and means for tripping said releasable means.

4. In a sewing machine installation, in combination, relatively rotatable driving and driven members, power-transmitting means operatively connected for rotating and for stopping rotation of said driving member, a torque-transmitting spring connecting said members for effecting unison rotation of said driven member with said driving member, said spring being connected for effecting a winding thereof upon rotation in one direction of said driving member relatively to said driven member, releasable means for latching said members together and normally preventing recovery of the wound spring, and means for tripping said releasable means, said spring being wound and connected for effecting a further turning movement of said driven member in the same direction.

5. In a sewing machine installation, the combination with relatively rotatable driving and driven members of a sewing machine actuating mechanism, and power-transmitting means for rotating and for stopping rotation of said driving member, of a torque-transmitting spring interposed between said members for effecting rotation of said driven member in unison with said driving member, said spring being connected for effecting a winding thereof upon rotation in one direction of said driving member relatively to said driven member, releasable means normally preventing recovery of the wound spring, means for tripping said releasable means to permit said spring to transmit to said shaft an additional turning movement in the same direction, and stop means for arresting said turning movement of said shaft in a predetermined position of the sewing machine mechanism.

6. In a sewing machine installation, in combination, coaxially journaled and relatively rotatable driving and driven members, power-transmitting means operatively connected for rotating and for stopping rotation of said driving member, a torque-transmitting spring yieldingly interposed between said members for effecting unison rotation of said driven member with said driving member, said spring being connected for effecting a winding thereof upon rotation in one direction of said driving member relatively to said driven member, means limiting the extent of winding of said spring, releasable means normally preventing recovery of the wound spring, and means for tripping said releasable means.

7. In a sewing machine installation, in combination, coaxially journaled and relatively ro-

tatable driving and driven members, power-transmitting means for rotating and for stopping rotation of said driving member, a torque-transmitting spring interposed between said members for effecting rotation of said driven member in unison with said driving member, said spring being connected for effecting a winding thereof upon rotation in one direction of said driving member relatively to said driven member, releasable latching means preventing recovery of the wound spring, operator-controlled means for tripping said latching means, and stop means brought into effective position by said operator-controlled means for arresting rotation of said driven member under the action of the released spring.

8. The combination with a rotary actuating shaft of a sewing machine, of a driving member journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft for rotation therewith, power-transmitting means for actuating said driving member, a torque-transmitting spring yieldingly connecting said members for effecting rotation in unison of said members, said spring being connected for effecting a winding thereof upon rotation in one direction of said driving member relatively to said driven member under the action of said power-transmitting means, releasable latching means normally preventing recovery of the wound spring, operator-controlled means for tripping said latching means to permit a further rotation of said shaft under the action of said spring, and stop means effective to arrest said further rotation of said shaft.

9. The combination with a rotary actuating shaft of a sewing machine, of a driving member journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft for rotation therewith, a shaft-rotating torque-transmitting spring yieldingly connecting said members for effecting a winding of said spring upon rotation in one direction of said driving member relatively to said shaft, releasable latching means normally preventing recovery of the wound spring, and tripping means for said latching means.

10. The combination with a rotary actuating shaft of a sewing machine, of a belt-pulley journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft for rotation with said shaft, a torque-transmitting spring yieldingly connecting said belt-pulley and driven member for effecting a winding of said spring upon rotation in one direction of said belt-pulley relatively to said shaft, releasable latching means normally preventing recovery of the wound spring, means for tripping said latching means and thereby permitting a further rotation of said shaft under the action of said spring, and stop means effective to arrest said further rotation of said shaft in a predetermined position.

11. The combination with a rotary actuating shaft of a sewing machine, of a belt-pulley journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft adjacent said belt-pulley for rotation with said shaft, a torque-transmitting spring yieldingly connecting said belt-pulley and driven member for effecting a winding of said spring upon rotation in one direction of said belt-pulley relatively to said shaft, coating buffer-elements carried by said belt-pulley and driven member for limiting rotation of said belt-pulley relatively to said shaft, releasable latching means nor-

mally preventing recovery of the wound spring, means for tripping said latching means thereby to permit a further rotation of said shaft in the same direction under the action of said spring, and stop means effective to arrest said further rotation of said shaft.

12. The combination with a rotary actuating shaft of a sewing machine, of a driving pulley-member journaled coaxially of said shaft for rotation relatively thereto, a driven disk-member carried by said shaft adjacent said pulley-member for rotation with said shaft, a coil-spring yieldingly connecting said members for effecting unison rotation of said disk-member with said pulley-member, said spring being housed in one of said members and being connected for effecting a winding of said spring upon rotation in one direction of said pulley-member relatively to said disk-member, releasable latching means normally preventing recovery of the wound spring, and means for tripping said latching means thereby to permit relative rotation of said members under the action of said spring.

13. The combination with a rotary actuating shaft of a sewing machine, of a driving member journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft adjacent said driving member for rotation with said shaft, a torque-transmitting spring interposed between said members for effecting rotation of said driven member in unison with said driving member, said spring being connected for effecting a winding thereof upon rotation in one direction of said driving member relatively to said driven member, latching means normally preventing recovery of the wound spring, said latching means comprising a series of ratchet-teeth carried by one of said members and a spring-pressed latch-lever carried by the other of said members for engagement with said ratchet-teeth, and operator controlled means for tripping said latch-lever.

14. In a sewing machine, in combination, a rotary actuating shaft, a driven member having a hub secured upon said shaft for rotation therewith, a driving member disposed at one side of said driven member and journaled upon said hub for rotation relatively to said shaft, said driving member having an annular cavity and being provided at the driven member side thereof with a circular series of ratchet-teeth, a coil-spring housed in said cavity of the driving member, said spring having one of its ends connected to said driving member and having its other end connected to the hub of said driven member for transmitting a shaft rotating torque to said driven member upon rotation of said driving member in one direction, a latch-lever carried by said driven member for engagement with said ratchet-teeth, and operator-controlled means for tripping said latch-lever.

15. In a sewing machine, in combination, a rotary actuating shaft, a disk having a hub secured upon said shaft for rotation therewith, a belt-pulley journaled upon said hub for rotation relatively to said shaft at one side of said disk, said belt-pulley having a circular series of ratchet-teeth concentric with said belt-pulley, a coil-spring having one of its ends connected to said belt-pulley and having its other end connected to transmit a shaft-rotating torque to said disk upon rotation of said belt-pulley in one direction, coaxing buffer-elements carried by said belt-pulley and disk permitting limited initial rotation of said belt-pulley relatively to said shaft

for effecting a winding of said coil-spring, a latch-lever carried by said disk for engagement with said ratchet-teeth in a direction normally preventing recovery of the wound spring, operator-controlled means for tripping said latch-lever in any angular position of rest of said actuating shaft, a rotary stop-element carried by said disk, and a complemental stop-element brought into effective position by said operator-controlled means for shaft-arresting engagement by said rotary stop-element.

16. In a sewing machine, in combination, a rotary actuating shaft, a disk having a hub secured upon said shaft for rotation therewith, a belt-pulley journaled upon said hub for rotation relatively to said shaft at one side of said disk, said belt-pulley being provided at the disk side thereof with radially spaced and concentric circular flanges, one of said flanges being circumferentially provided with a series of ratchet-teeth and the other of said flanges providing an axial cavity in said belt-pulley, a coil-spring housed in said cavity of the belt-pulley and having one of its ends anchored to said belt-pulley and having its opposite end anchored to the hub of said disk, a buffer-element carried by said disk and extending between the flanges of said belt-pulley, a complemental buffer-element carried by said belt-pulley for rotation therewith and disposed to engage the buffer-element carried by said disk, a latch-lever pivotally mounted upon said disk for engagement with said ratchet-teeth in a direction normally preventing rotation of said shaft responsively to the action of said spring and relatively to said pulley, a latch-lever tripping ring surrounding said shaft and supported for movement into and out of engagement with said latch-lever, and manually operable means for shifting said ring into tripping engagement with said latch-lever.

17. The combination with a rotary actuating shaft of a sewing machine, of a driving member journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft for rotation therewith, a torque-transmitting spring yieldingly connecting said members for effecting a winding of said spring upon rotation in one direction of said driving member relatively to said shaft, releasable means including a latch-member rotatable with said shaft for normally preventing recovery of the wound spring, and operator-controlled means for releasing said latch-member in any angular position of rotation of said latch-member.

18. The combination with a rotary actuating shaft of a sewing machine, of a driving member journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft for rotation therewith, a torque-transmitting spring yieldingly connecting said members for effecting a winding of said spring upon rotation in one direction of said driving member relatively to said shaft, releasable means including a latch-member rotatable with said shaft for normally preventing recovery of the wound spring, a latch-member releasing tripping ring surrounding said shaft, and operator controlled means for shifting said trip-ring endwise of said shaft into engagement with said latch-member.

19. In a power-driven sewing machine installation including a sewing machine having a needle, and a rotary needle-reciprocating shaft, power means, and a clutch-and-brake device interposed between said power means and said

sewing machine for controlling the operation of said sewing machine, the improvement which consists in the interposition between said clutch-and-brake device and said rotary shaft of a torque-transmitting spring with latching means normally preventing recovery of said spring from the tension imposed thereupon in starting rotation of said shaft, and an operator-controlled means for tripping said latching means at will after said machine has been brought to rest, thereby permitting a further rotation of said shaft under the action of said spring for needle-positioning purposes.

20. In a power-driven sewing machine installation including a sewing machine having an endwise reciprocatory needle, a rotary needle-reciprocating shaft, a work-engaging presser-foot, presser-foot lifter mechanism for disengaging the presser-foot from the work, power means, and a clutch-and-brake device interposed between said power means and said sewing machine for controlling the operation of said sewing machine, the improvement which consists in the interposition between said clutch-and-brake device and said rotary shaft of a torque-transmitting spring with releasable latching means normally preventing recovery of said spring from the tension imposed thereupon in starting rotation of said shaft, operative connections with said presser-foot lifter mechanism for releasing said latching means upon disengagement of said presser-foot from the work, thereby permitting rotation of said shaft under the action of said spring, and stop means effective upon release of said latching means for arresting rotation of said shaft in a predetermined position of said needle.

21. The combination with a sewing machine having an endwise reciprocatory needle, a rotary needle-reciprocating shaft, a work-engaging presser-foot, and operator-controlled presser-foot lifter mechanism, of a driving member journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft for rotation therewith, power-transmitting means operatively connected for rotating and for stopping rotation of said driving member, a torque-transmitting spring connecting said driven member for rotation in unison with said driving member, said spring being yieldingly connected for effecting a winding thereof upon rotation of said driving member relatively to said driven member by said power-transmitting means, releasable latching means normally preventing recovery of the wound spring, and means operatively connected to said presser-foot lifter mechanism for releasing said latching means during lifting of said presser-foot.

22. The combination with a sewing machine having an endwise reciprocatory needle, a rotary needle-reciprocating shaft, a work-engaging presser-foot, and operator-controlled presser-foot lifter mechanism, of a driving member journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft for rotation therewith, power-transmitting means operatively connected for rotating and for stopping rotation of said driving member, a torque-transmitting spring connecting said driven member for rotation in unison with said driving member, said spring being yieldingly connected for effecting a winding thereof upon rotation of said driving member relatively to said driven member by said power-transmitting

means, releasable latching means normally preventing recovery of the wound spring, means operatively connected for releasing said latching means upon actuation of said presser-foot lifter mechanism, thereby to permit a further rotation of said shaft under the action of said spring, and stop-means effective upon release of said latching means for arresting said further rotation of said shaft in a predetermined position.

23. The combination with a sewing machine having an endwise reciprocatory needle, a rotary needle-reciprocating shaft, a work-engaging presser-foot, and operator-controlled presser-foot lifter mechanism, of a driving pulley journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft for rotation therewith, power-transmitting connections with said pulley for rotating and for stopping rotation of said shaft, a torque-transmitting spring connecting said driven member for rotation in unison with said pulley, said spring being yieldingly connected for effecting a winding thereof upon rotation of said pulley under the action of said power-transmitting means, releasable latching means rotatable with said shaft for normally preventing recovery of the wound spring, a latch-releasing trip-ring surrounding said shaft, a support for said ring providing for axially shifting said ring endwise of said shaft, operative connections with said presser-foot lifter mechanism for shifting said trip-ring into latch-tripping engagement with said latching means, thereby to permit further rotation of said shaft under the action of said spring, a stop-element rotatable with said shaft, and a complementary stop-element rendered effective upon release of said latching means for arresting rotation of said shaft.

24. The combination with a rotary actuating shaft of a sewing machine, of a driving member journaled coaxially of said shaft for rotation relatively thereto, a driven member carried by said shaft for rotation therewith, a torque-transmitting spring yieldingly connecting said members for effecting rotation of said driven member in unison with said driving member, said spring being connected for producing a winding thereof upon initial rotation of said driving member in one direction relatively to said driven member, releasable latching means normally preventing recovery of the wound spring, a latch-tripping member, operator-controlled means for shifting said latch-tripping member into latch-releasing engagement with said latching means, thereby to permit rotation of said shaft under the action of said spring, a rotary stop-element carried for rotation with said shaft, and a complementary stop-element shiftable by said operator-controlled means into the path of rotation of said rotary stop-element.

25. The combination with a rotary actuating shaft of a sewing machine, of a driving member journaled coaxially of said shaft for rotation relatively thereof, a driven member carried by said shaft for rotation therewith, a torque-transmitting spring yieldingly connecting said members for effecting rotation of said driven member in unison with said driving member, said spring being connected for producing a winding thereof upon initial rotation of said driving member in one direction relatively to said driven member, complementary latching means normally preventing recovery of the wound spring and including a latch-member carried for rotation with said shaft, a latch-releasing trip-ring surrounding

said shaft, a trip-ring carrying arm pivotally supported for movement of said trip-ring into and out of latch-releasing engagement with said latch-member, a rotary stop-element carried for rotation with said shaft, a complemental stop-element carried by said arm for movement into the path of rotation of said rotary stop-element, and operator-controlled means for actuating said arm in a direction to trip said latch-member and to arrest subsequent rotation of said shaft.

26. The combination with a sewing machine having stitch-forming mechanism including a reciprocatory needle, and a rotary needle-reciprocating shaft, of primary power means for effecting rotation of said shaft, primary operator-con-

5 trolled means for rendering said primary power means effective and ineffective to rotate said shaft, and for bringing said shaft to rest in an indeterminate position of said needle, normally ineffective supplemental power means for transmitting a further turning movement to said shaft, supplemental operator-controlled means operable independently of said primary operator-controlled means for rendering said supplemental power means effective to turn said shaft, a stop-element carried for rotation with said shaft, and a complemental stop-element shiftable by said supplemental operator-controlled means into the path of movement of said rotary stop-element.

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