June 7, 1938. A. B. CLAYTON 2,120,210

SEWING MACHINE

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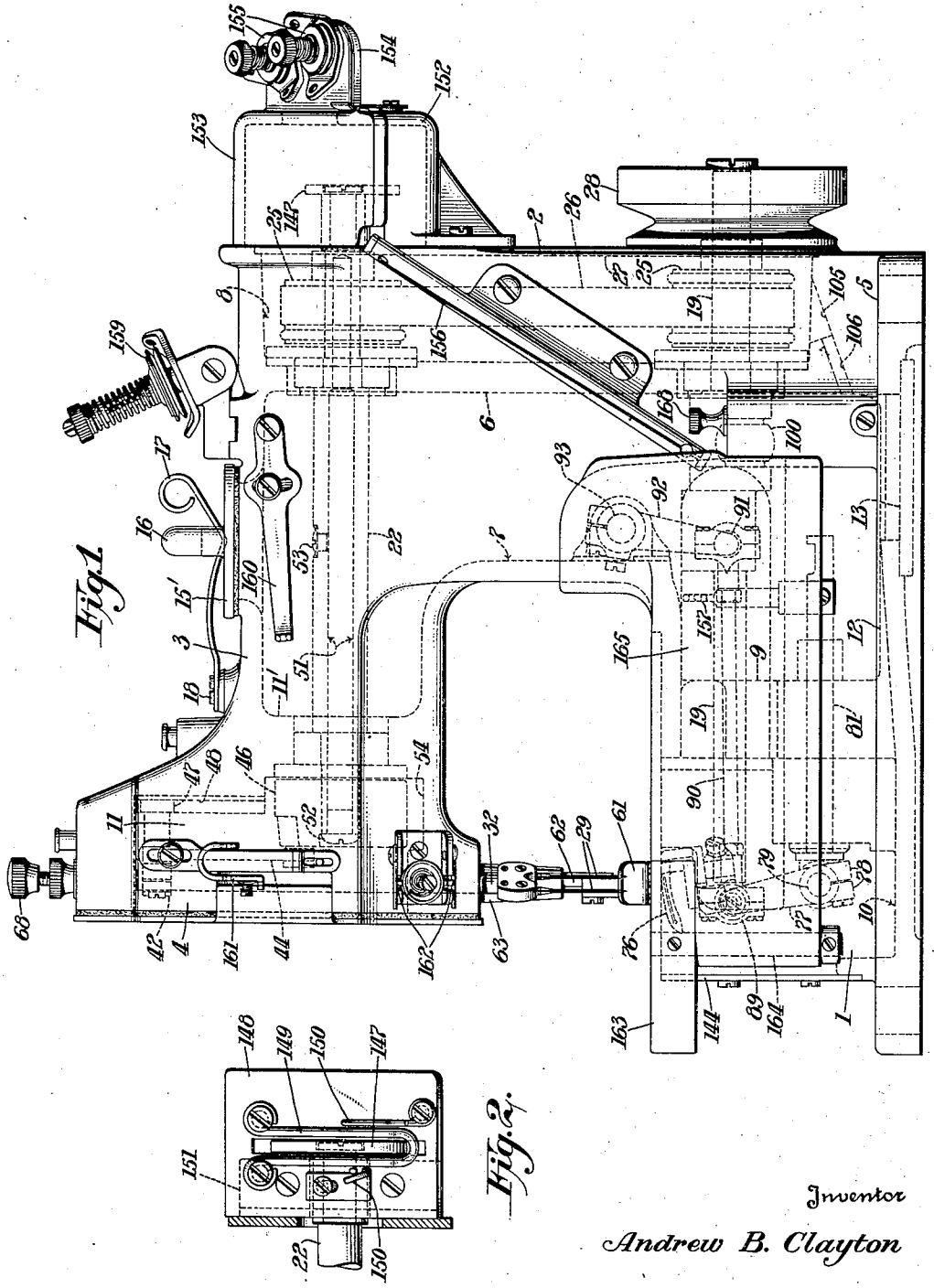


Fig. 1.

Fig. 2.

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SEWING MACHINE

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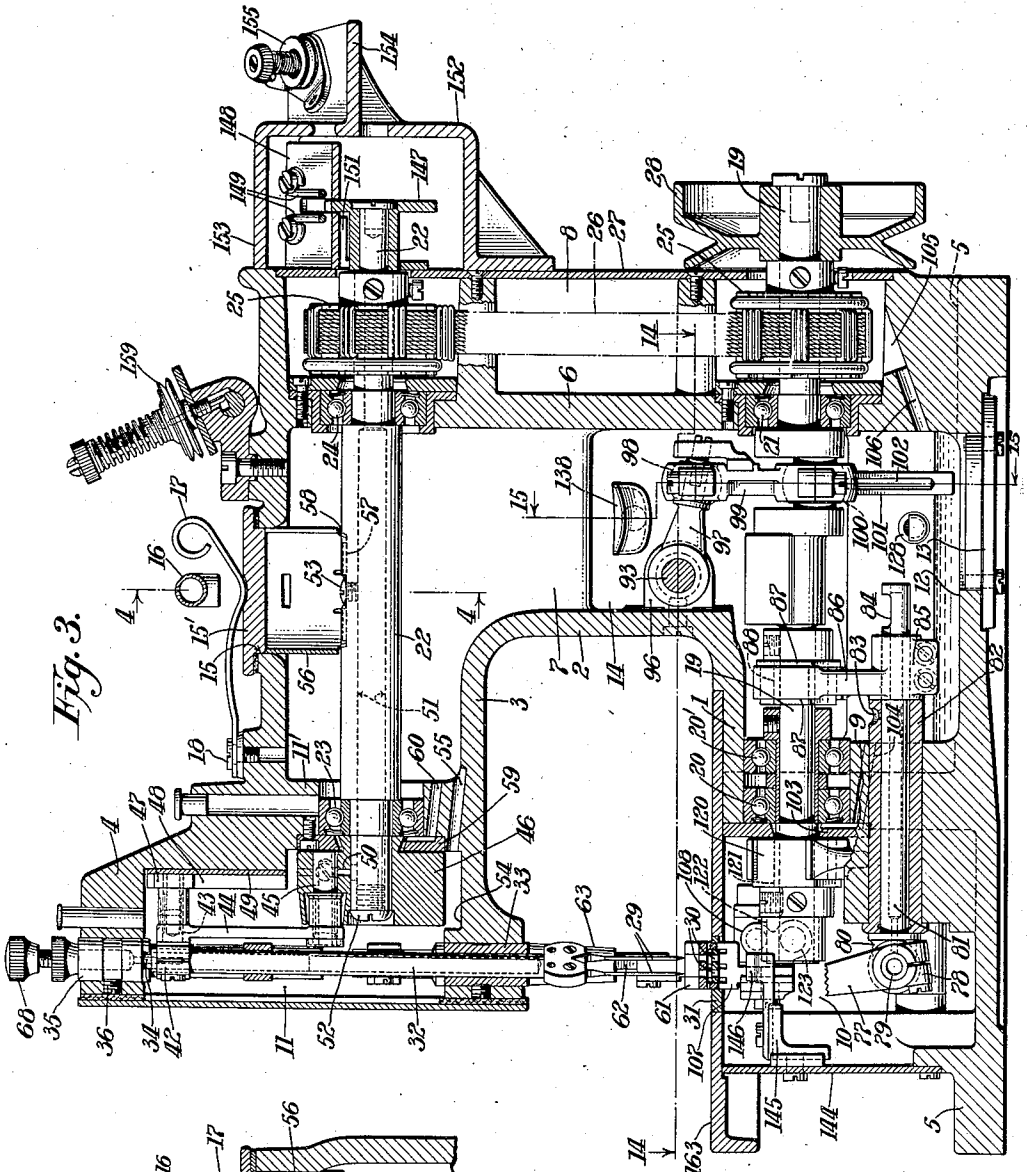


Fig. 3.

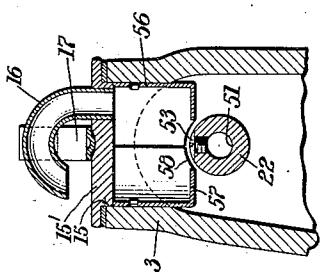


Fig. 4.

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SEWING MACHINE

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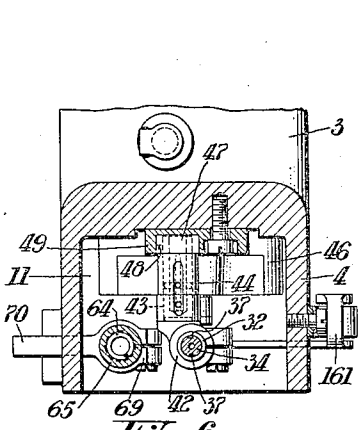


Fig. 6.

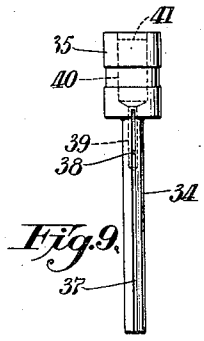


Fig. 9.

Fig. 5.

Fig. 8.

Fig. 7.

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SEWING MACHINE

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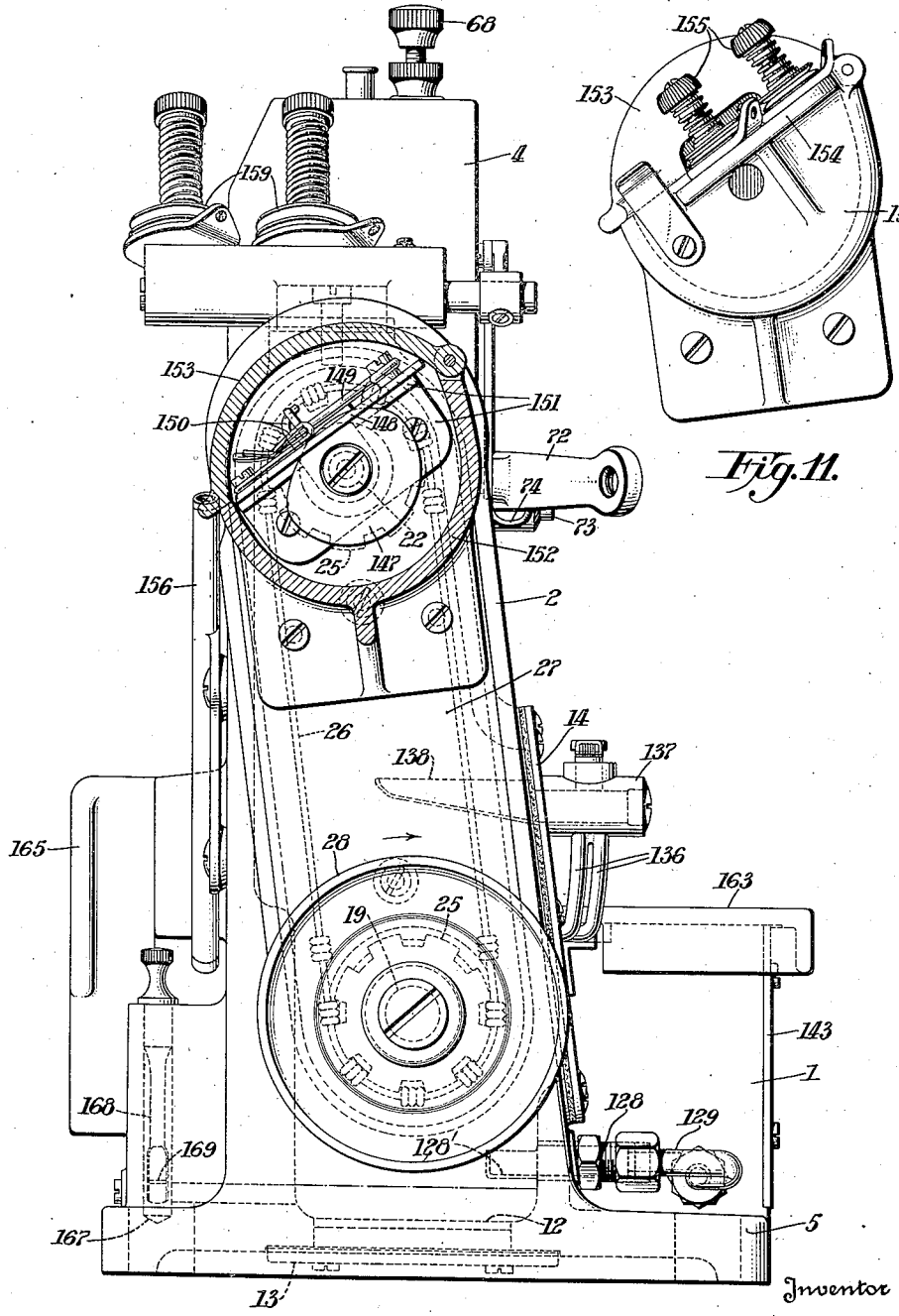


Fig. 10.

Fig. 11.

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SEWING MACHINE

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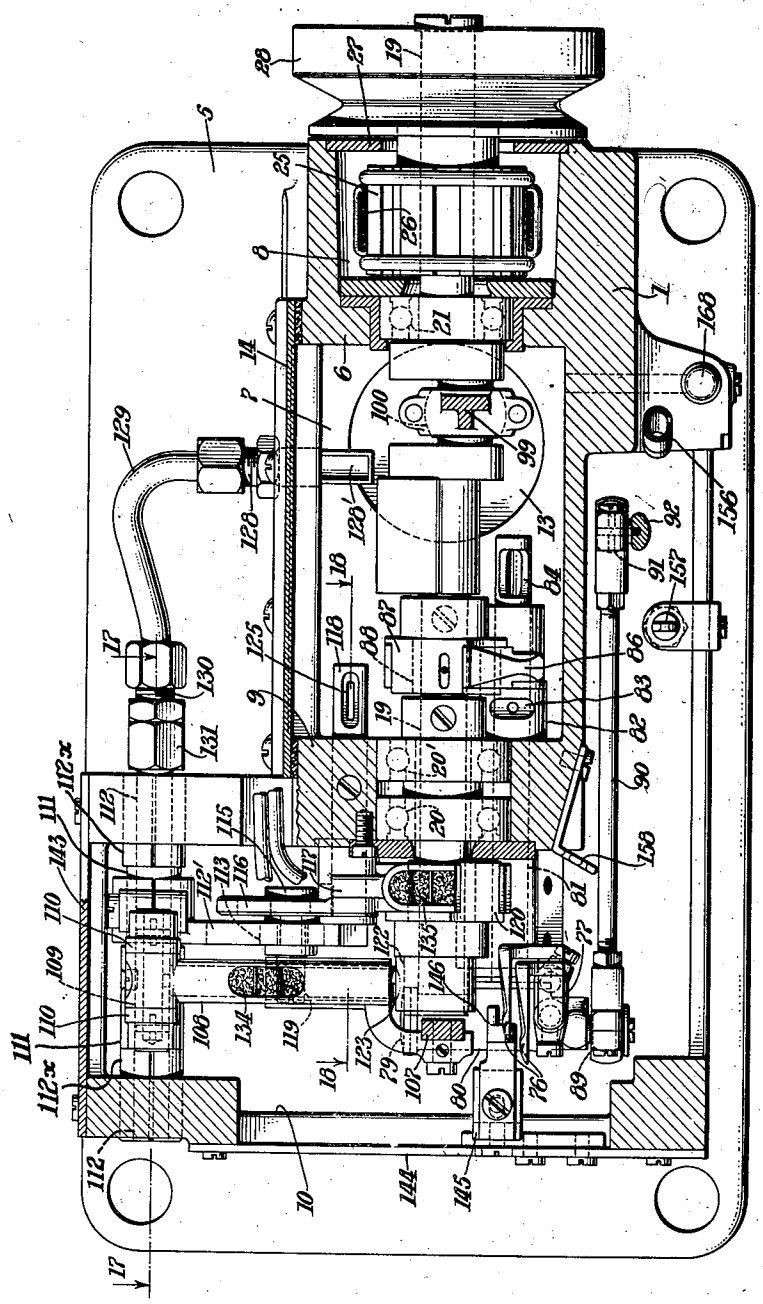


Fig 12.

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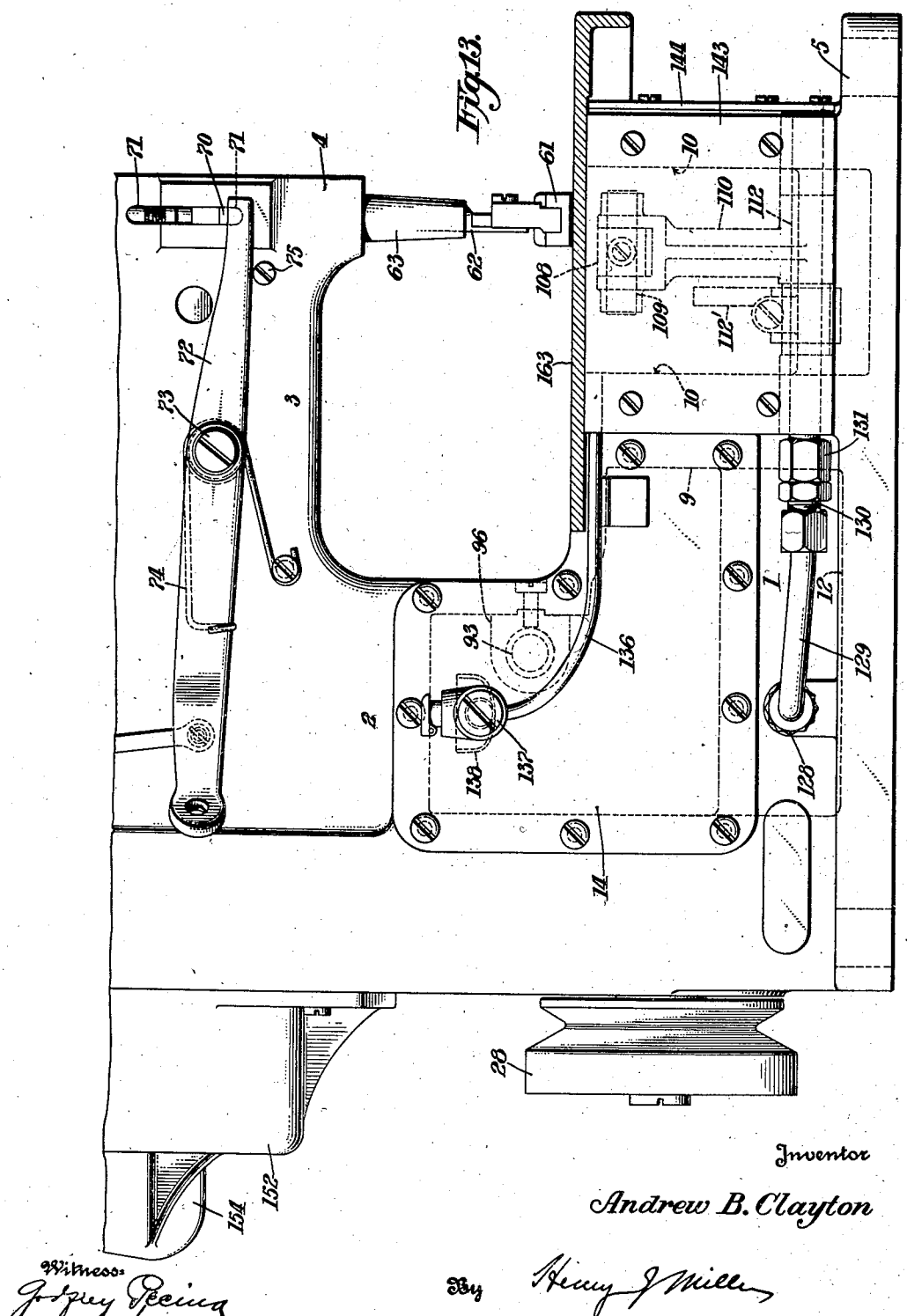
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SEWING MACHINE

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Fig. 13.



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SEWING MACHINE

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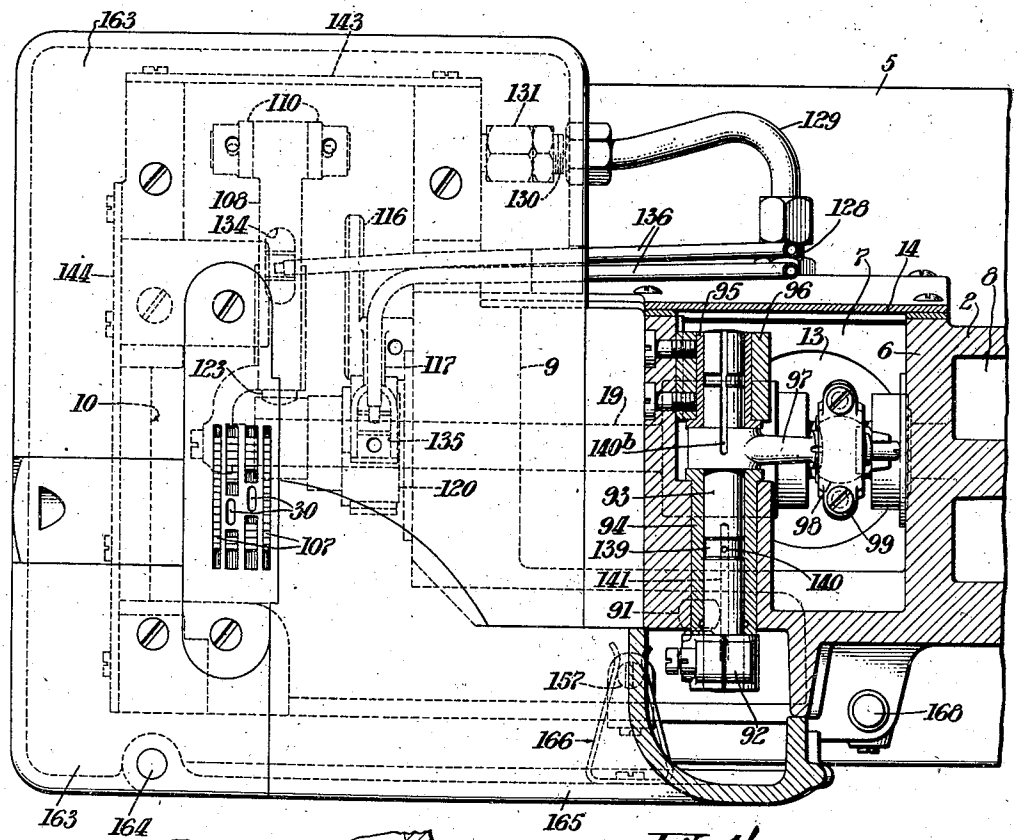


Fig. 14.

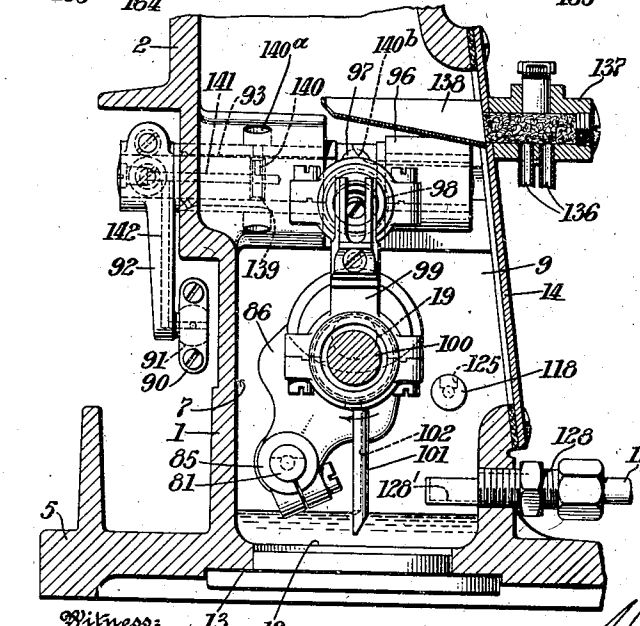


Fig. 15.

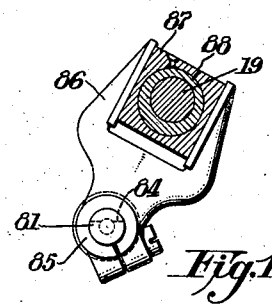


Fig. 16.

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SEWING MACHINE

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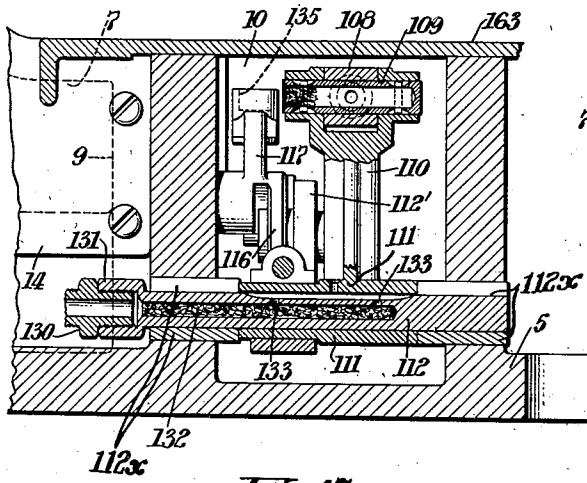


Fig. 17.

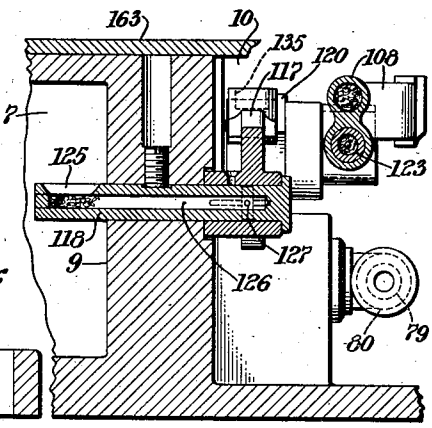


Fig. 18.

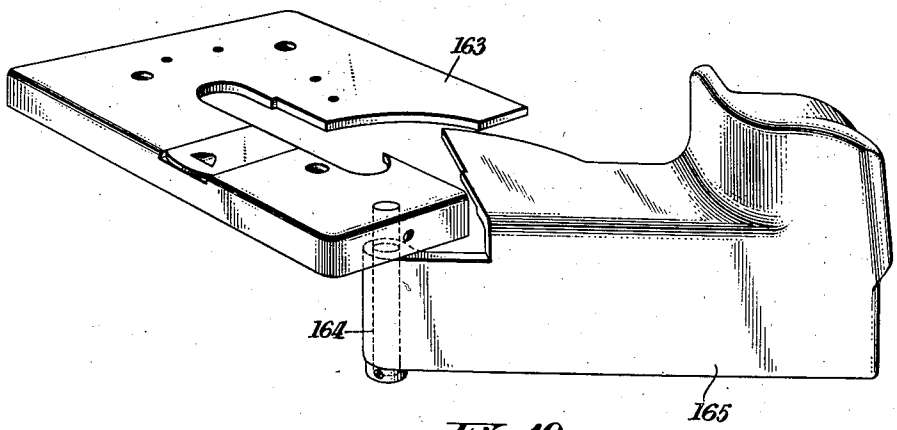


Fig. 19.

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Patented June 7, 1938 2,120,210

UNITED STATES PATENT OFFICE

2,120,210

SEWING MACHINE

Andrew B. Clayton, Union, N. J., assignor to The Singer Manufacturing Company, Elizabeth, N. J., a corporation of New Jersey

Application January 22, 1937, Serial No. 121,747

15 Claims. (Cl. 112—197)

This invention relates to sewing machines, more particularly of the chain-stitch straight-away-feed type, and has for an object to provide an organized sewing machine of the type in question having improved characteristics enabling it to be commercially operated at speeds of the order of 6000 stitches per minute, without undue wear and tear on the parts.

A further object of the invention is to provide for the simplification and ready access to the parts of the machine, facilitating its manufacture, operation and maintenance.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations, and arrangements of parts hereinafter set forth and illustrated in the accompanying drawings of a preferred embodiment of the invention, from which the several features of the invention and the advantages attained thereby will be readily understood by those skilled in the art.

Referring to the drawings, Fig. 1 is a front side elevation of a sewing machine embodying the invention. Fig. 2 is a detail view, in plan, of the rotary looper-thread take-up element of the machine. Fig. 3 is a longitudinal vertical section through the machine frame showing the internal mechanism. Fig. 4 is a section on the line 4—4, Fig. 3. Fig. 5 is a front end elevation of the machine. Fig. 6 is a section on the line 6—6, Fig. 5. Fig. 7 is a section on the line 7—7, Fig. 5. Fig. 8 is a vertical axial section through the presser-bar and presser-spring. Fig. 9 is an elevation of the needle-bar guide-pin.

Fig. 10 is a rear end elevation of the machine. Fig. 11 is a rear elevation of the housing for the looper-thread take-up which housing is shown in section in Fig. 10. Fig. 12 is a horizontal section through the machine bed at the level of the main shaft. Fig. 13 is a rear side elevation of the machine. Fig. 14 is a section on line 14—14, Fig. 3, showing the cloth-plate in plan. Fig. 15 is a section on the line 15—15, Fig. 3. Fig. 16 is a view of an element of the looper-actuating mechanism which is partially hidden in Fig. 15. Fig. 17 is a vertical sectional view on the line 17—17, Fig. 12. Fig. 18 is a sectional view on the line 18—18, Fig. 12, and Fig. 19 is a perspective view of the cloth-plate and hinged guard carried thereby, removed from the machine.

The hollow machine frame, which is preferably cast in one piece, comprises a hollow bed 1 from one end of which rises the standard 2 of the overhanging bracket-arm 3 terminating in the head 4. The bed 1 includes the rectangular supporting base 5 which constitutes a closed bottom wall of the bed. The hollow frame casting has at the standard end thereof a vertical internal partition 6 which extends from the bottom wall of the bed 1 to the top wall of the bracket-arm 3 and divides the space within the frame casting into an oil or splash-lubrication compartment 7 and a belt compartment 8. The bed 1 has another internal wall or partition 9 which divides the oil-splash compartment 7 from the feed and looper compartment 10. The bracket-arm 3 has an internal partition 11' which divides the oil-splash compartment from the needle-bar-mechanism compartment 11 within the hollow head 4. The oil-splash compartment 7 extends upwardly from the oil sump 12, Fig. 3, through the standard 2 and laterally into the bracket-arm 3. This oil-splash compartment is practically oil-tight. At the bottom of the sump 12 there is provided a clean-out opening closed by the gasket-fitted cap 13. At the rear of the frame there is provided an access opening into the oil compartment 7 which is closed by the gasket-fitted plate 14. In the top wall of the bracket-arm there is provided an access opening 15 into the oil compartment 7 closed by the gasket-fitted cap 15' carrying a breather or ventilating pipe 16, Fig. 4, which passes through the cap 15' and has its free end down-turned. The cap 15' is held in place by the leaf-spring 17 which is pivotally secured to the bracket-arm by the shouldered screw 18 and may be swung laterally about the screw 18 to release the cap 15'.

Disposed within the bed 1 is the lower rotary main shaft 19 which extends through the belt compartment 8 and oil compartment 7 and into the feed and looper compartment 10. The main shaft is journaled in the conventional closed type ball bearings 20 and 21 fitted into the partitions 9 and 6, respectively. Disposed alongside the ball-bearing 20 is an open type ball-bearing 20' to aid in carrying the main-shaft. All of these bearings are exposed to an oil mist or spray produced in the oil-splash compartment.

Disposed within the bracket-arm 3 is the upper rotary shaft 22 which extends through the belt compartment 8 and oil compartment 7 and into the hollow head 4. The upper shaft 22 is journaled in the conventional closed type ball bearings 23, 24 which are fitted into the partitions 11 and 6, respectively, and are exposed to the oil mist generated in the oil compartment.

Mounted on the shafts 19 and 22 within the belt compartment 8 are the belt-sprockets 25 of equal size which are connected by the conven-

tional clip belt 26. The outer open face of the belt compartment 8 is closed by the cover-plate 27 having openings through which the shafts 18 and 22 project. Mounted on the outwardly projecting end of the main-shaft 19 is the belt-pulley and hand wheel 28 by which the machine is driven.

The needles 29, which reciprocate vertically through the needle-holes 30 in the throat-plate 31, are carried by the hollow needle-bar 32 journaled in the bearing bushing 33 in the frame head 4. The upper end of the needle-bar 32 is entered by the guide-pin 34, Figs. 5 and 9, having at its upper end a head 35 which is fixed in the frame-head 4 by the screw 36. The guide-pin 34 is formed with an external longitudinally extending oil-groove 37 to which oil is conducted through the port 38 from the internal duct 39 extending downwardly from the oil-reservoir 40 in the head 35 which may contain an absorbent plug 41. The needle-bar 32 has clamped to its upper end a collar 42 carrying a lateral pin 43 which is embraced by the upper end of the link 44 the lower end of which embraces the hollow crank-pin 45 carried by the crank-head 46 fixed to the upper shaft 22. The lateral pin 43 carries a guide-block 47 which works in the vertical guide-way 48 in the plate 49 fixed in the head 4. The hollow crank-pin 45 is in communication through the lateral duct 50, Fig. 3, with the oil reservoir 51 within the shaft 22. This oil reservoir is closed at the head end of the shaft 22 by means of the screw plug 52. It may be filled with oil through a lateral opening which is normally closed by the removable filler-plug screw 53. Any excess of oil within the head 4 will gravitate to the oil-pocket 54 at the bottom of the head 4 from which it will run through the drainage duct 55 into the bracket-arm 3 and gravitate to the oil-sump 12. To prevent loss of the filler-plug screw 53 within the hollow machine frame when inserting or removing said screw, there is frictionally fitted within the access opening 15 a split cup 56 the bottom 57 of which is apertured at 58 to partially receive the shaft 22 but not touch such shaft; the clearance crack between the apertured cup and shaft being narrow enough to retain the screw 53 should it drop within the cup 56. Any oil which may work its way through the ball-bearing 23 will be trapped within the bearing cap 59 and will run back through the drainage duct 60 into the bracket-arm 3 and gravitate to the oil-sump 12.

The presser-foot 61, Figs. 5 and 8, of the machine is carried by the short hollow presser-bar 62 which is journaled in the bearing sleeve 63 in the head 4 and is urged downwardly by the coil-spring 64 housed within the guide tube 65 fixed in the head 4. The spring 64 is fitted at its lower end with the tapered plug-head 66 which engages the top end of the hollow presser-bar 62. At its upper end the spring 64 is fitted with the cylindrical plug-head 67 which is engaged by the adjustable thumb-screw 68 by which the working pressure of the spring 64 upon the presser-bar 62 may be regulated. There is clamped to the presser-bar 62 a split-collar 69 having a lateral arm 70 which extends outwardly of the head 4 through the guide-slot 71 and is engaged by the usual treadle- or knee-controlled presser-lifting lever 72, Fig. 13, fulcrumed at 73 on the bracket-arm 3 and biased by the spring 74 in a direction to yieldingly retain the front end of the lever 72 in engagement with the stop-pin 75.

Cooperating with the needles 29 to form stitches are the thread-carrying loopers 76 which are mounted on the looper-carrier arm 77 having at its lower end a split boss 78 which is clamped to a stud-pin 79 journaled in the transverse bearing head 80 of the hollow looper-supporting rock-shaft 81. The rock-shaft 81 is journaled below and parallel to the main shaft 19 in a bushing 82 in the frame-partition 9. Within the oil compartment the bushing 82 is formed at its upper side with an oil-catching pocket 83 to lubricate the bearing between the bushing 82 and the rock-shaft 81. The rock-shaft 81 has at the upper side of its inner end-portion an oil-catching pocket 84 communicating through the hollow rock-shaft with the bearing between the transverse bearing head 80 and the stud 79. The rock-shaft 81 has clamped to it within the oil compartment 7 the split hub 85, Figs. 15 and 16, of a fork 86 which embraces the follower block 87 of the looper side-throw eccentric 88 fixed to the main shaft 19.

The looper-carrier 77, Figs. 1, 5, and 12, is connected by a ball-and-socket joint 89 to one end of a link 90 which is connected at its other end by a ball-and-socket joint 91 to the lower end of a crank-arm 92, Fig. 15, clamped at its upper end to the outboard projection of a rock-shaft 93, Fig. 14, journaled above and transversely of the main-shaft 19 in bushings 94, 95 in the frame front side wall and the internal bearing block 96 which is detachably mounted on the frame within the standard 2.

The rock-shaft 93 has forged integral therewith a laterally extending crank-arm 97 connected by a ball-and-socket joint 98, Fig. 3, to the upper end of a pitman 99 which at its lower end embraces the eccentric ball or crank 100 in the main-shaft 19. Extending downwardly from the pitman 99 is the oil-splasher or agitator 101 which dips into the oil-sump 12. The oil-splasher 101 is formed in its front side with an oil pick-up groove 102 which communicates at its upper end with the bearing of the eccentric ball 100. It will be understood that, while the machine is in operation, the looper-operating parts within the oil compartment will be flooded with a mist or spray of oil and effectively lubricated, the spray being confined within the oil-compartment and prevented from reaching the feed and looper compartment 10 on the other side of the partition 9. Any oil which may possibly work its way through the ball-bearing 20, Fig. 3, will be trapped by the bearing cap 103 and returned through the drainage duct 104 to the oil-sump 12. In this connection it may be noted that the belt-compartment 8 has an oil-pocket 105 at its lower end which is connected by the oil-drainage duct 106 with the oil-sump. Any possible leakage of oil through the ball-bearings 21 and 24 is thus taken care of.

The machine is provided with a four-motion feed-dog 107, Fig. 5, which is mounted on the feed-bar 108 fulcrumed at its rear end on the pin 109 carried by the forked upper end of the feed-rocker 110, Figs. 12 and 17. The feed-rocker 110 has formed integral therewith at its lower end a tubular boss 111, Fig. 17, which is journaled to rock upon the stationary bearing pin 112 fixed in split bushings 112× in the frame. Clamped upon the tubular boss 111 of the feed-rocker 110 is the inclined slotted arm 112′ which is engaged by the slide-block 113 journaled on the bushing 114, Fig. 7, carried by the feed-adjusting pin 115 which passes through and is clamped to the slotted

arm 116 of the feed-actuating lever 116, 117, fulcrumed on the stud-pin 118 carried by the machine frame. By loosening the clamp-screw 119 on the pin 115, the latter may be shifted along the slots in the lever-arms 112', 116 and clamped in any desired position of adjustment upon the lever-arm 116, thereby regulating the length of the feeding stroke imparted to the feed-bar 108. The feed-lever arm 117 is forked to embrace the block 120 on the feed-eccentric 121 on the main shaft 19.

The feed-bar 108 receives its rising and falling components of motion from the feed-lift eccentric 122 on the main shaft. The eccentric 122 is embraced by the strapped end of a cylindrical pin 123 which slidably fits a horizontal bore 124, Fig. 5, in the feed-bar 108.

It will be observed in Fig. 18, that the fulcrum-pin 118 for the feed-actuating lever 117 passes through the partition 9 from the feed and looper compartment 10 into the oil-splash compartment 7 and is provided within the latter compartment with an oil-catching pocket 125 communicating through the wick-filled bore 126 and port 127 with the bearing for the lever 117.

The bearing between the feed-rocker 110 and the pin 112, Fig. 17, is similarly lubricated by oil splashed from the sump 12, Fig. 15, into the oil-catching pocket 128' at the inner end of the nipple 128 which is connected by the oil-pipe 129 to the nipple 130 threaded into the head end 131, Fig. 17, of the pin 112 which has a wick-filled bore 132 and ports 133 leading to the bearing surfaces.

By referring to Figs. 12 and 14, it will be observed that the feed-bar 108 is provided with a wick-filled pocket 134 and the feed-actuating lever is provided with wick-filled pocket 135. The pocket 134 communicates with and lubricates the bearings for the pins 109 and 123, Fig. 5. The pocket 135 lubricates the feed-eccentric 121 and follower block 120. Oil is conducted by gravity to the pockets 134, 135 by conduits 136, leading downwardly from the wick-filled reservoir 137 mounted on the cover-plate 14 and fed by the oil-catching pocket 138 at the inner side of such cover-plate.

The bearings for the looper-actuating rock-shaft 93 are lubricated from the oil-catching pockets 140a and 140b, Figs. 14 and 15, and oil fed to the groove 139 and port 140 in the rock-shaft 93, from the oil-catching pocket 140a is conducted by the holes 141, 142 to the ball-and-socket bearing 91.

The rear wall of the feed and looper compartment 10 is closed by the removable cover-plate 143. The outside wall of the feed and looper compartment 10 has an access opening therethrough which is closed by the removable cover-plate 144 on which is mounted the needle-guard fixture 145 carrying the needle-guard 146.

The end of the upper shaft 22 which projects outwardly through the belt-compartment cover-plate 27 has mounted thereon the single-disk rotary take-up or looper-thread-controlling cam 147 operating through the slotted guard-plate 148 carrying the U-shaped thread-retainer 149 and thread-guides 150. The guard-plate 148 is mounted on the angle-bracket 151 fixed to the cover-plate 27. The entire take-up assembly is guarded by the enclosing housing 152 including the hinged cover 153 and the supporting ledge 154 for the looper-thread tension devices 155.

The looper-threads lead from the supply through the tension devices 155, Fig. 1, to and through the rotary take-up device within the housing 152 and thence externally of the housing and downwardly through the thread tube 156. From the lower end of the thread tube 156, Fig. 12, the looper-threads lead through the thread-guides 157 and 158 to the loopers 76.

The needle-threads lead from the supply through the needle-thread tension-devices 159, Fig. 1, to the adjustable thread-guide arm 160 from which the threads run to and through the thread-eyes in the take-up arm 161 fixed to the needle-bar. From the take-up 161 the threads run down through the guides 162 to the needles 29.

Detachably secured to the machine bed 1, flush with the throat-plate 31, is the cloth-plate 163 having near its front edge a depending hinge-pin 164 carrying the guard 165, Fig. 19, for the exposed connections of the looper-mechanism. The guard 165 is yieldingly retained in closed position by the arms of the U-spring 166, Fig. 14, which grip the thread-guide post 157.

Communicating with the oil-sump 12, Fig. 10, is an oil well 167 into which dips a removable oil-gage rod 168 having a mark 169 thereon to indicate the proper oil level to be maintained within the sump 12.

While the machine is operating, the space within the oil compartment 7 is filled by an oil mist and spray produced by the agitator 101. This mist thoroughly lubricates all of the ball-bearings as well as the parts of the looper-actuating mechanism within the oil compartment. Notwithstanding this flush lubrication within the oil compartment, the loopers themselves and thread and work-handling parts are maintained dry and un-contaminated by oil, yet the feeding mechanism is automatically lubricated. The machine is also easy to thread up and access may be readily had to any part with a minimum loss of time.

The invention is not to be understood as limited to the specific embodiment thereof shown and described.

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

1. A sewing machine having a hollow frame including a bed having a bottom wall, a standard and a bracket-arm, said frame having within it a vertical partition extending from the bottom wall of the bed through the standard to the top wall of the bracket-arm and dividing said hollow frame into an oil-splash compartment and a belt compartment, a lower main-shaft extending horizontally through said compartments, an upper shaft extending horizontally through said compartments, bearings for said shafts exposed to oil mist in said oil-splash compartment, a belt connection between said shafts in said belt compartment, a reciprocatory needle actuated by said upper shaft, a looper actuated by said lower shaft, and an oil agitator in said oil compartment.

2. A sewing machine having a hollow frame including a bed having a bottom wall, a standard and a bracket-arm, said frame having within it a vertical partition extending from the bottom wall of the bed through the standard to the top wall of the bracket-arm and dividing said hollow frame into an oil-splash compartment and a belt compartment, a lower main shaft extending horizontally through said compartments, an upper shaft extending horizontally through said compartments, bearings for said shafts exposed to oil mist in said oil-splash compartment, a belt connection between said shafts in said belt com-

partment, a reciprocatory needle actuated by said upper shaft, a looper actuated by said lower shaft, a removable cover-plate closing said belt compartment, an oil agitator in said oil compartment, and a belt-pulley and rotary looper-thread take-up carried by said shafts externally of said oil and belt compartments.

3. A sewing machine comprising a frame casting including a bed, standard and overhanging bracket-arm, said frame casting having an internal partition dividing the space therewithin into a splash-lubrication compartment and an open-faced belt compartment, a cover-plate closing the open face of said belt compartment, upper and lower rotary shafts each journaled at one end in said partition and extending through clearance apertures in said cover-plate, belt-connected sprockets on said shafts within said belt compartment, a reciprocatory needle actuated by said upper shaft, looper and feed mechanisms actuated by said lower shaft and including looper-actuating eccentrics and followers disposed in said splash-lubrication compartment, a rotary looper-thread take-up mounted on said upper shaft exteriorly of said belt compartment, a housing for said take-up mounted on said belt-compartment cover-plate, and an oil agitator in said splash-lubrication compartment.

4. The combination recited in claim 3 in which the looper-thread take-up housing comprises stationary and hinged sections, and in which one or more looper-thread tension-devices are mounted on the stationary section of said housing.

5. A sewing machine having a hollow frame casting including a bed, a standard rising from one end of said bed, and a bracket-arm carried by said standard and overhanging said bed, said casting having at the standard end thereof a vertical internal partition dividing the space within the casting into an oil-splash compartment and an open-faced belt compartment, an upper rotary shaft disposed in said bracket-arm and journaled at one end in said partition, a lower rotary shaft disposed in said bed and journaled at one end in said partition, belt-sprockets and a connecting belt carried by said shafts in said belt compartment, a reciprocatory needle actuated by said upper rotary shaft, a looper, looper-actuating mechanism including looper-actuating eccentrics carried by said lower rotary shaft within said oil-splash compartment, a removable cover-plate closing said belt compartment, and means to splash oil in said oil-splash compartment.

6. A sewing machine having a hollow frame casting including a bed having a bottom wall, a standard and a bracket-arm, said casting having within it a vertical partition extending from the bottom wall of the bed through the standard to the top wall of the bracket-arm and dividing the hollow frame into an oil-splash compartment and a belt compartment, a lower main shaft extending horizontally through said compartments, an upper shaft extending horizontally through said compartments, a belt-connection between said shafts within said belt compartment, a reciprocatory needle carried by said bracket-arm and actuated by said upper shaft, a looper mounted in said bed and connected to be actuated by a portion of the lower shaft within said oil compartment, a four-motion feed-dog connected to be actuated by a portion of said lower shaft exterior to said oil compartment, and oil-splashing means in said oil compartment.

7. A sewing machine having a hollow frame comprising a bed, standard and overhanging bracket-arm terminating at its free end in a head, said hollow frame having internal partitions dividing the space therewithin into a needle-bar-mechanism compartment 11 in said head, a feed and looper compartment 10 in that portion of the bed directly below said head, an oil-splash compartment 7 in said bed, standard and bracket-arm, and a belt-compartment 8 in said standard, an upper rotary shaft extending from compartment 8 through compartment 7 into compartment 11, a lower rotary shaft extending from compartment 8 through compartment 7 into compartment 10, a needle and needle-bar mechanism connected to the upper shaft within compartment 11, a looper mounted in compartment 10, looper-actuating mechanism connected within compartment 7 to be driven by the lower shaft, a feed-dog and feed-dog-actuating mechanism connected to the lower shaft in compartment 10, a sprocket-driven belt connecting the upper and lower shafts within compartment 8, and oil-splashing means actuated by the lower shaft in compartment 7.

8. A sewing machine having a hollow frame including a bed, standard and bracket-arm, said frame having within it a substantially oil-tight splash-lubrication compartment, a main-shaft journaled in said frame and entering said compartment, two looper-actuating rock-shafts journaled in said frame and entering said compartment, mechanism driven by said main-shaft and disposed within said compartment for actuating said rock-shafts, a reciprocatory needle carried by said bracket-arm, a complemental looper in said bed, a looper-carrier pivotally supported by one of said rock-shafts externally of said compartment, an operative connection externally of said compartment between the other rock-shaft and said looper-carrier, and means to splash oil in said compartment.

9. A sewing machine having a frame formed with a bed and an overhanging bracket-arm, said frame having an oil-splash compartment, a main-shaft journaled in said bed and passing through said compartment, driving elements on said shaft within said compartment, a reciprocatory needle carried by said bracket-arm, a rock-shaft journaled below and parallel to said main shaft in a wall of said compartment and connected to be actuated by one of said driving elements, a looper-carrier fulcrumed on said rock-shaft exteriorly of said compartment, a second rock-shaft journaled above and transverse to said main-shaft in a wall of said compartment and connected to be actuated by another of said driving elements, a crank-arm carried by said second rock-shaft exteriorly of said compartment, a link-connection between said crank-arm and looper-carrier, a looper mounted on said looper-carrier in cooperative relation with said needle, and oil-splashing means within said compartment.

10. A sewing machine having a frame formed with a bed and an overhanging bracket-arm, said frame having an oil-splash compartment, a main shaft journaled in said bed and passing through said compartment, driving elements on said shaft within said compartment, a reciprocatory needle carried by said bracket-arm, a rock-shaft journaled below and parallel to said main shaft in a wall of said compartment and connected to be actuated by one of said driving elements, a looper-carrier fulcrumed on said rock-shaft exteriorly of said compartment, a second rock-shaft journaled above and transverse to said main

shaft in a wall of said compartment and connected to be actuated by another of said driving elements, a crank-arm carried by said second rock-shaft exteriorly of said compartment, a link-connection between said crank-arm and looper-carrier, a looper mounted on said looper-carrier in cooperative relation with said needle, and a cloth-plate detachably mounted on said bed and including a hinged portion guarding said crank-arm and link-connection when in closed position.

11. A sewing machine having a frame formed with a bed and an overhanging bracket-arm, said frame having an oil-splash compartment, a main shaft journaled in said bed and passing through said compartment, driving elements on said shaft within said compartment, a reciprocatory needle carried by said bracket-arm, a rock-shaft journaled below and parallel to said main shaft in a wall of said compartment and connected to be actuated by one of said driving elements, a looper-carrier fulcrumed on said rock-shaft exteriorly of said compartment, a second rock-shaft journaled above and transverse to said main shaft in a wall of said compartment and connected to be actuated by another of said driving elements, a crank-arm carried by said second rock-shaft exteriorly of said compartment, a link-connection between said crank-arm and looper-carrier, a looper mounted on said looper-carrier in cooperative relation with said needle, and work-feeding mechanism disposed exteriorly of said compartment and including feed-lift and feed-advance actuating elements carried by said shaft.

12. In a sewing machine, a hollow frame formed with a bed, a standard and a bracket-arm terminating in a head, said frame having an oil sump in said bed and a substantially oil-tight oil-splash compartment draining to said sump and extending upwardly within said standard and laterally into said bracket-arm, there being a partition in said bracket-arm which divides said compartment from the space within said head, an upper shaft disposed in said bracket-arm and extending through a bearing in said partition into said head, and a reciprocatory needle-bar mounted in said head and connected to be actuated by said shaft, said head having an oil-catching pocket below said shaft, and said frame having an oil-drainage duct extending from said pocket through said partition to said compartment.

13. A sewing machine having a hollow frame including a bed, standard and bracket-arm, a hollow shaft journaled in said bracket-arm and constituting a rotary oil-reservoir, a crank on said shaft receiving oil from said reservoir, a removable filler plug in the side of said shaft, said frame having an opening therein through which access is had to said filler plug, a tubular guard carried by said frame and extending from said opening into close proximity with said shaft to prevent accidental loss of the filler plug within the sewing machine frame when removed from said shaft, and a removable cover closing said frame opening.

14. A sewing machine comprising a hollow frame having a splash-lubrication compartment, a main-shaft extending through said compartment, two looper-actuating eccentrics on said shaft, a bearing bushing fixed in said frame and extending at its inner end into said compartment, said bushing having an oil-catching pocket at its inner end to lubricate the bearing surface within said bushing, a hollow rock-shaft journaled in said bearing and extending at its inner end into said compartment, said rock-shaft having a bearing head at its outer end and an oil-catching pocket at its inner end in communication with said bearing head, a looper-carrier journaled in said bearing head, an eccentric follower arm fixed to said rock-shaft within said compartment and embracing one of said looper-actuating eccentrics, means actuated by the other of said eccentrics to rock said looper-carrier relative to said bearing head, and an oil agitator within said compartment.

15. A sewing machine having a frame formed with a splash-lubrication compartment, a main-shaft extending through said compartment and having therewithin an eccentric crank-portion, a rock-shaft journaled in said frame and extending through a wall of said compartment, means actuated by said eccentric crank-portion for rocking said rock-shaft, a crank-arm fixed to said rock-shaft exteriorly of said compartment and having a ball at its free end, said rock-shaft and crank-arm having communicating oil-holes leading to said ball, an oil-catching means in said splash-lubrication compartment in communication with the oil-hole in said rock-shaft, a looper-supporting rock-shaft actuated by said main-shaft, a looper-carrier journaled on said rock-shaft, a link connection between said looper-carrier and ball, and an oil agitator in said compartment.

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