

May 27, 1952

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2,598,426

LUBRICATING SYSTEM FOR SEWING MACHINES

Filed Nov. 4, 1948

6 Sheets-Sheet 1

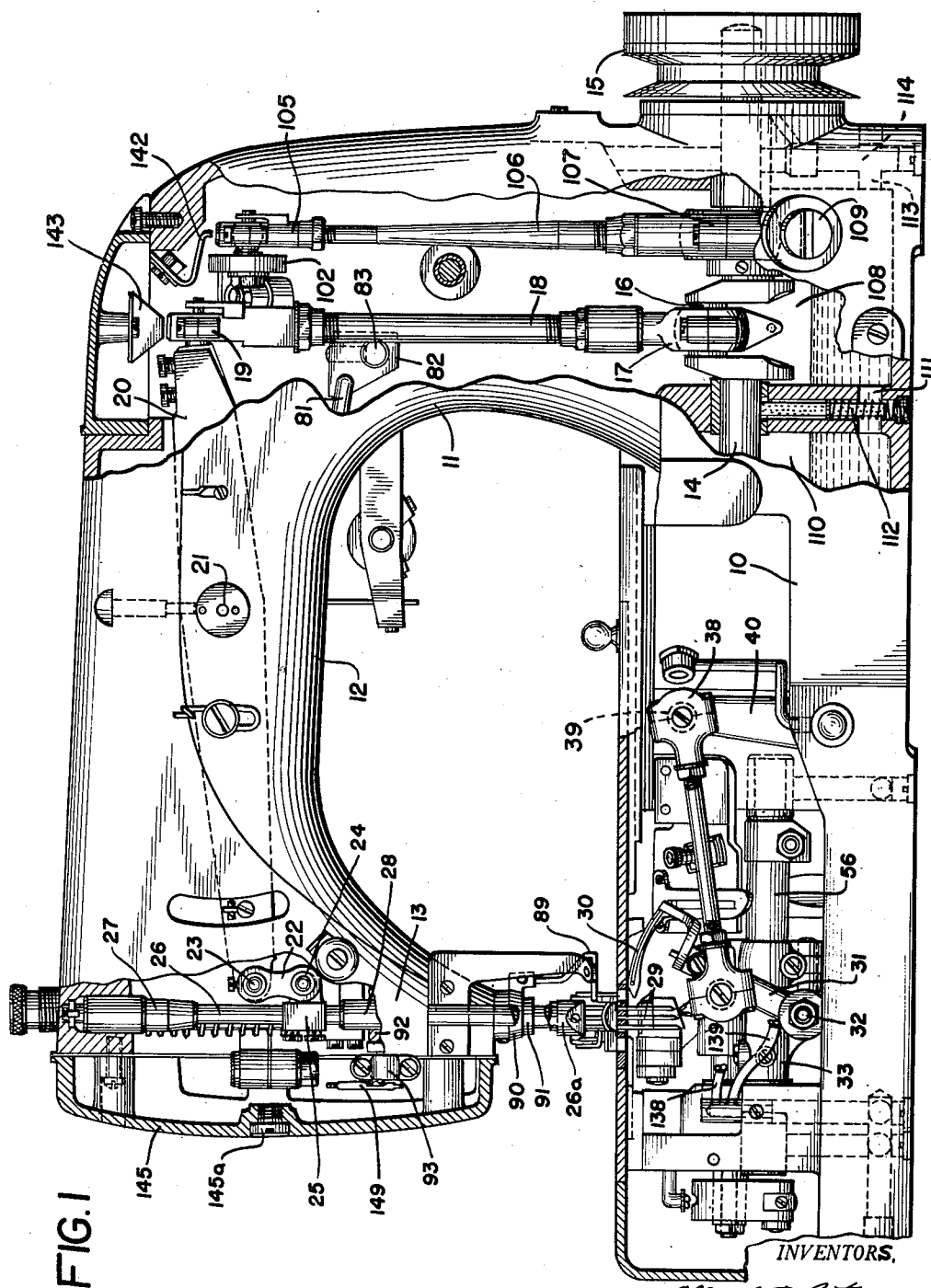


FIG. 1

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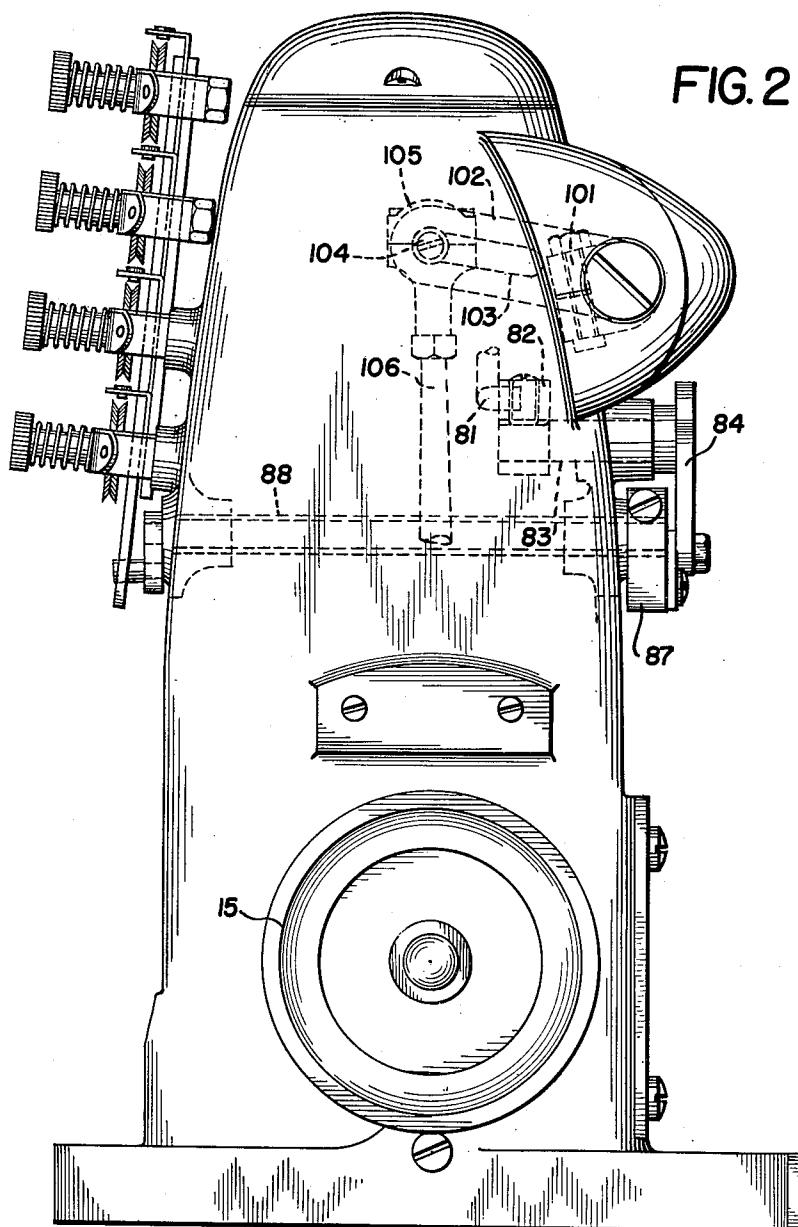
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LUBRICATING SYSTEM FOR SEWING MACHINES

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6 Sheets-Sheet 2



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LUBRICATING SYSTEM FOR SEWING MACHINES

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6 Sheets-Sheet 4

FIG. 4

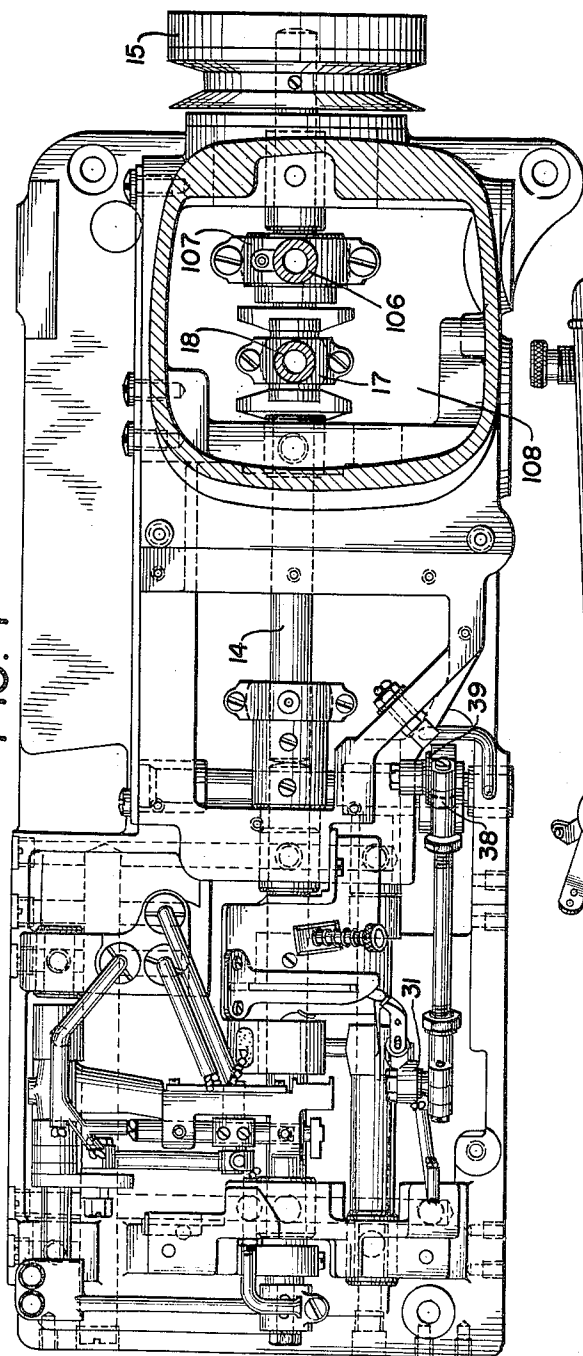
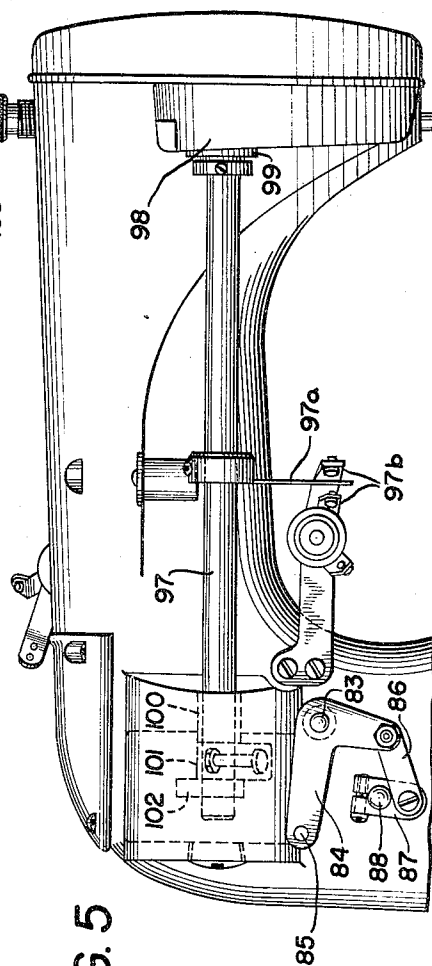


FIG. 5



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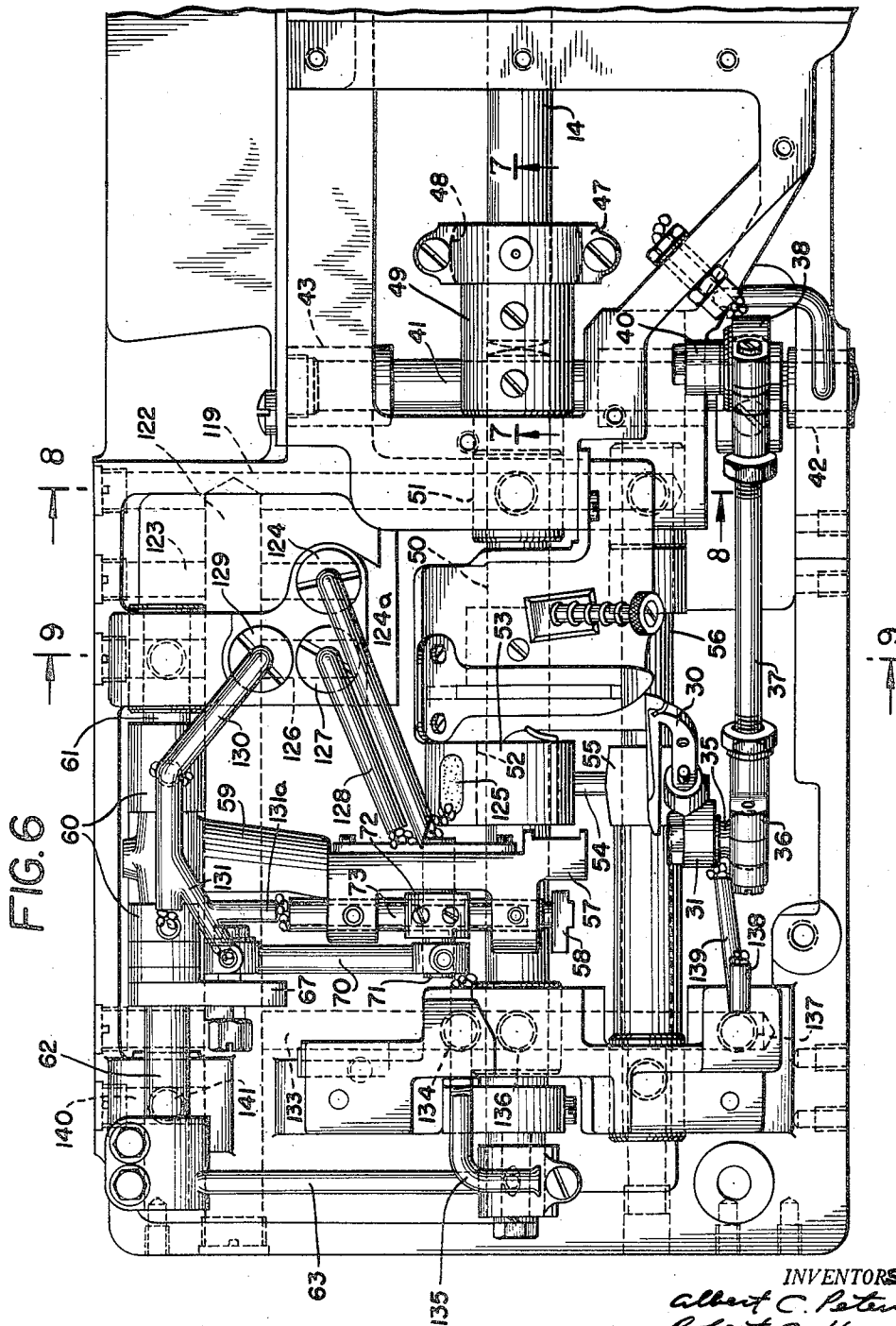
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LUBRICATING SYSTEM FOR SEWING MACHINES

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5 Sheets-Sheet 5



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LUBRICATING SYSTEM FOR SEWING MACHINES

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6 Sheets-Sheet 6

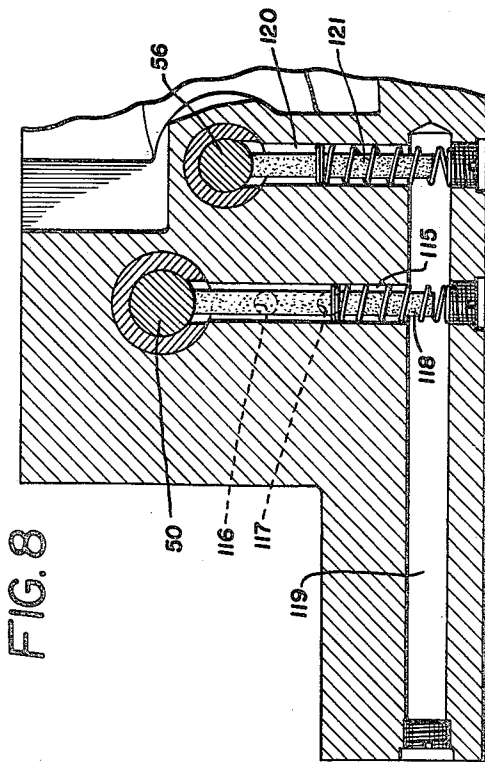


FIG. 8

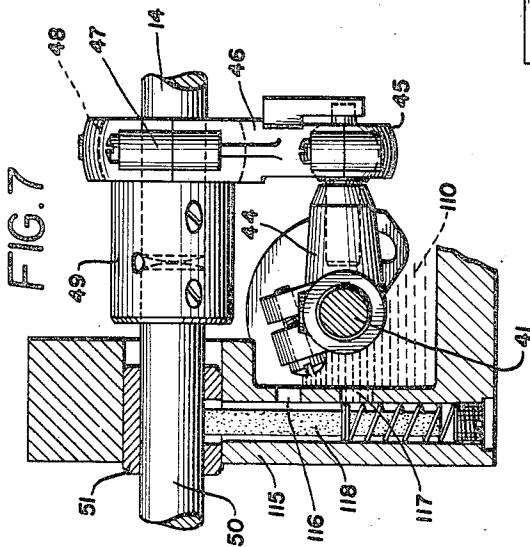


FIG. 7

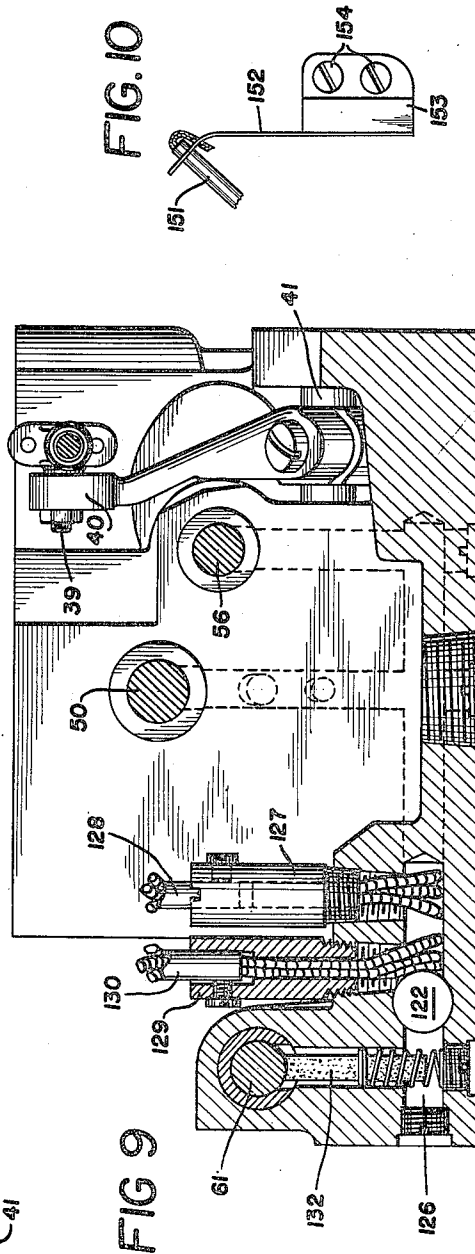


FIG. 10

FIG. 9

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UNITED STATES PATENT OFFICE

2,598,426

LUBRICATING SYSTEM FOR SEWING MACHINES

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Application November 4, 1948, Serial No. 58,222

11 Claims. (Cl. 112-256)

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This invention relates to industrial sewing machines adapted for high speed operation, and more particularly to machines of this type having a plurality of needles and a means adapted to lay a cover thread across and in interengagement with the series of needle thread loops at the upper side of the work. Beneath the work means, such as a looper, is provided for introducing a thread into the lower ends of the needle thread loops and interlock with the latter.

A primary object of the invention has been to provide effective, automatic lubrication of all the relatively moving surfaces of the various operating parts of the machine. This makes possible a desired high speed operation of the machine, without danger of overheating or excessive wear.

As a specific object, it has been a purpose of the invention to provide effective and automatic lubrication of the various moving parts in the needle head of the machine and particularly the needle operating devices.

Another object has been to provide effective, automatic lubrication of the mechanism which serves to operate the cover thread laying means. A feature of the invention, in this connection, is the enclosure of the two ends of a horizontally disposed shaft, forming part of the indicated mechanism, and the provision of means for lubricating the relatively moving parts at the two ends of the shaft.

A further object has been to provide automatic lubrication for all moving parts of a sewing machine, both within and outside of an enclosed hollow chamber extending throughout the major portion of the frame, by lubricant held in a single reservoir in the base of the machine.

Other objects, features and advantages of the invention will appear from the detailed description of an illustrative machine embodying the same, which will now be given in conjunction with the accompanying drawings, in which:

Fig. 1 is a front elevational view of a machine embodying the invention, portions of the frame, or housing, being broken away to disclose the interior mechanism;

Fig. 2 is an end elevational view of the machine as seen from the right of Fig. 1 with certain parts of the interior mechanism disclosed in broken lines;

Fig. 3 is an end view, in elevation, as seen from the left of Fig. 1, with a cover for the needle head broken away to show the interior mechanism;

Fig. 4 is a horizontal sectional view through the machine, taken just below the work supporting surface;

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Fig. 5 is a detail view showing, on a reduced scale, the rear side of the upper overhanging arm of the machine;

Fig. 6 is an enlarged horizontal sectional view, taken along the same plane as Fig. 4, showing a portion of the base of the machine;

Fig. 7 is a detail view in vertical section, taken along the line 7-7 of Fig. 6;

Fig. 8 is a detail view in vertical section, taken along the line 8-8 of Fig. 6;

Fig. 9 is a view in vertical section through the base of the machine, taken along the line 9-9 of Fig. 6; and

Fig. 10 is a detail view of a special lubrication feature of the machine.

The illustrative machine is, in general, of the type disclosed in the patent to Thompson, et al., No. 2,107,918, granted February 8, 1938. It includes a frame having a base, a vertical standard, and an overhanging arm and it is provided with a single, rotary, power receiving shaft, which is located in the base. The stitch forming devices include a plurality of reciprocating needles, a looper and a cover thread laying member, which cooperate in substantially the same manner as those of the Thompson, et al. patent.

Referring now to the drawings, and particularly Fig. 1, there is shown a frame comprising a base 10, a vertical standard 11, rising from one end of the base and a horizontally extending, overhanging arm 12, parallel with the base, terminating in a needle head 13. This frame is largely hollow and provides an enclosed chamber, or space, which is in open communication from the interior of the needle head through the overhanging arm and the vertical standard to a lubricant containing portion of the base.

Within the base, and extending longitudinally thereof, is a main driving shaft 14 which extends outwardly beyond the end wall of the base and vertical standard and carries a combined hand-wheel and pulley 15 through which power from an electric motor, or the like, may be supplied for driving the machine.

Within the hollow chamber at the base of the vertical standard, shaft 14 is provided with a crank portion 16 cooperating with a strap 17 at the lower end of a connecting rod 18. At its upper end, rod 18 is provided with a strap 19 cooperating with a spherical portion of a ball pin extending from a rock lever 20 journaled at 21 in the overhanging arm. Lever 20 extends at its opposite end into the needle head and is there connected by a link 22 with a needle bar. Link 22 is pivotally connected, at its upper end, with the lever by means of a hollow pin 23 and at its

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lower end it is connected by a similar hollow pin 24 with a block 25 adjustably secured to a needle bar 26. The latter is mounted for vertical reciprocation in bearings 27 and 28 carried by the top and bottom portions of the needle head. At its lower end the needle bar is provided with suitable clamping means 26a (Figs. 1 and 3) for retaining a plurality of needles 29, three being shown.

Beneath the work support a complementary stitch-forming member, in the form of an oscillatable looper, is provided. This is mounted upon the upper end of a looper carrier 31 which is pivotally supported at 32 upon a rocker 33 suitably mounted in the base of the machine. It will be understood that the looper 30 cooperates with the needles 29 and is given both loop-seizing and shedding movements and needle-avoid movements for the formation of stitches in conjunction with the needles. A single looper thread is interlocked with a plurality of needle threads in the formation of a series of modified double locked stitches.

For imparting the loop-seizing and shedding movements to the looper, the looper carrier 31 has a ball stud 35 projecting therefrom which cooperates with a strap 36 at one end of a connecting rod 37, the other end of which carries a strap 38 cooperating with a stud 39 at the upper end of an arm 40. The latter is secured to a rock shaft 41 which is journaled in bearings 42 and 43 and receives rocking movements by the devices shown in Fig. 7. These include a horizontally disposed arm 44 clamped, or otherwise secured, to the shaft 41 and carrying at its outer end a ball pin received by a strap 45 at the lower end of a connecting rod 46. The latter has a strap 47 cooperating with a spherical eccentric 48 secured to the shaft 41. This shaft terminates just to the left of the eccentric 48 but is coupled, by means of a coupling 49, with a shaft 50 journaled in a bearing 51 carried by a vertical wall of the base portion of the frame. Shaft members 41 and 50 constitute, in effect, parts of a single shaft. An eccentric 52, secured to shaft 50, is surrounded by a strap 53 which is connected by a rod 54 with an extension 55 of the rocker 33 that carries the looper. The rocker includes a shaft 56 suitably journaled in the base of the frame. It will be understood that eccentric 52, through the connections explained, serves to impart the loop-seizing and shedding movements to the looper, while eccentric 52 serves to impart the needle avoid movements to the looper.

Suitable work feeding mechanism is provided in the base of the machine. This preferably is of the differential type and includes a main feed dog supporting member 57 and an auxiliary or differential feed dog supporting member 58. Member 57 is secured to or forms a part of a feed bar 59 which is rockably supported by arms 60 of a feed rocker. This rocker is, in turn, secured to a shaft 61 which is suitably journaled in bearings in the base of the frame. A stud 62, projecting from the left arm 60 of the feed rocker (Fig. 6), has clamped or otherwise secured thereto an arm 63 which extends to a point beneath the axis of the shaft 50 and is connected by a link 64 with an adjustable eccentric element 65 capable of adjustment within a member 66 to vary the feed stroke. A plate 67, secured to the feed rocker, has an arcuate slot 68 disposed substantially vertically therein to receive a bolt 69 rotatably carried at the end of a link 70. The opposite end of link 70 is connected with a stud

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71 which projects laterally from a block 72 adjustably secured to a slide rod 73 mounted in laterally projecting arms of the feed bar 59. The auxiliary or differential feed dog carrying member 58 is secured to the forward end of the rod 73. It will be understood that rocking of the feed rocker 60, through the operation of the adjustable eccentric 65, will impart feed and return movements to the two feed dog carrying members 57 and 58 which carry toothed feed dogs, not shown. The extent of movement of these members differs and may be varied in relation to each other by adjustment of the bolt 69 along the arcuate slot 68. The bolt may be clamped in any selected position along the slot. Lifting and lowering movements are imparted to the feed dogs by an eccentric (not shown) secured to the shaft 50. The feed dogs are thus given the desired four-motion movement to engage and advance the work and then return out of engagement with the work.

Cooperating with the feed dog, in advancing the work, is a presser foot 74 (Fig. 3) of any suitable construction. Its shank 75 is clamped to the lower end of a presser bar 76 which is normally urged downwardly by a spring 77 cooperating at its upper end with the top of the needle head housing and at its lower end with a collar 78 secured to the presser bar. The arrangement is such that the presser foot is urged yieldingly against the work in cooperation with the feed dogs by the spring 77. Suitable means are provided for lifting the presser bar against the action of the spring for the introduction and removal of work. This lifting means may suitably comprise a link 79 having a pin and slot connection at its lower end with the collar 78, the arrangement being such that the collar 78 and the presser bar may move upwardly, in response to varying thicknesses of the work, without disturbing the position of the link. If desired, the lower end of the link may be connected with a separate collar slidably mounted on the presser bar just below collar 78. Link 79 is pivotally connected at its upper end to an arm of a bell crank lever 80 (Fig. 3) which is rockably supported by the needle head. An upwardly extending arm of the bell crank is connected by a rod or link 81 with a plate 82 (Fig. 1), within the vertical standard of the frame, secured to a rock shaft 83 journaled in the rear wall of the standard. Outside of the standard, on its rearward face (Fig. 5), there is secured to the shaft 83 a bell crank 84 having an aperture 85, adjacent the end of a horizontally disposed arm, adapted to receive the end of a chain or rod connected with a foot treadle or the like (not shown) for lifting the presser bar. At the same time, provision is made for releasing certain thread tensioning devices, shown in Figs. 2 and 3 but which need not be described, since they do not enter into the invention to be claimed herein. Suffice it to say that a downwardly extending arm of the bell crank 84 is connected by a link 86 with an arm 87 secured to a rock shaft 88 which extends through, and is journaled in the opposite walls of, the vertical standard, as shown in Fig. 2. At the front of the standard, shaft 88 is provided with means for operating the thread tensioning devices.

Means are provided for introducing a cover thread into the stitching on the upper side of the work. For this purpose, a cover thread carrying member 89 is provided, this projecting downwardly from a collar 90 secured to a sleeve 91 which surrounds the presser bar. Sleeve 91

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is journaled within a bearing at the lower end of the needle head and, in turn, provides a bearing for the presser bar. Within the needle head the sleeve carries, adjacent its upper end, a collar or block 92 from which extends a ball-pin adapted to be received by a strap 93. The latter is connected, by an adjustable rod or link 94, with a similar strap 95 which cooperates with a ball-pin projecting laterally from the lower end of a depending arm 96 secured to a rock shaft 97. In order to permit complete enclosure and proper lubrication of the parts just described, the needle head is provided with a rearwardly extending bulge or projection 98 (Fig. 3). Shaft 97 passes through a transversely extending wall of the bulge 98 which may suitably be provided with a bearing sleeve or boss 99 in which the shaft is journaled. Shaft 97 is substantially parallel with the overhanging arm of the frame and, at its opposite end, extends into a corresponding bulge or extension projecting rearwardly from the vertical standard of the machine. A bearing 100 (Fig. 5) is provided in a transversely extending wall of this bulge, and within the hollow of the latter there is secured to the shaft 97, by means of a clamp 101, an arm 102 (Fig. 2). The latter has an elongated slot 103 adapted to receive a stud 104 carried by a strap 105 at the upper end of a rod or link 106. By appropriately adjusting the stud 104 along the slot 103, and clamping it in selected position, the extent of rocking movement imparted to the shaft 97, and hence the extent of movement of the cover thread carrying member, may be varied. Rod 106 has a strap 107, at its lower end, arranged to receive an eccentric or crank provided on the shaft 14. This imparts a desired movement to the cover thread laying finger. It will be understood that, as the sleeve 91 is oscillated or rocked about the axis of the presser bar, the finger 89 will carry a cover thread back and forth across the path of the three needles in such a manner as to incorporate the cover thread in the loops of the needle thread at the upper side of the work.

While the ends of shaft 97 are fully enclosed to permit automatic lubrication of the driving and driven elements associated therewith, it is desirable to have the intermediate portion of the shaft exposed, as shown in Fig. 5. This permits the securing of a thread take-up arm 97a at about its mid-point for cooperation with thread guides 97b, forming part of the cover-thread handling devices.

Means are provided for thorough and automatic lubrication of the various bearing surfaces of the driven parts of the machine. For this purpose, a sump 108 (Fig. 1) is provided at the base of the vertical standard, this being adapted to receive lubricant to the level indicated. A gauge 109, preferably formed of Lucite, is provided through the front wall of the standard to indicate the level of the lubricant. At the opposite side of the vertically disposed, transversely extending wall, which carries a bearing for the shaft 14, a further lubricant sump 110 is formed within the base of the machine frame. Sump 110 communicates with sump 108 by one or more openings 111 through the vertical wall. A wick 112, which is spring urged upwardly in a vertical opening within the wall, serves to deliver lubricant to the bearing for shaft 14. Similarly, in the end wall of the frame, adjacent hand wheel 15, a passage 113 is provided to deliver oil to a vertical passage 114 which may also

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carry a spring urged wick for lubricating a bearing for the shaft 14 in this end wall of the frame.

Referring to Figs. 7 and 8, the wall which carries the bearing 51 for shaft 50 is provided with a vertically disposed channel 115 which communicates, through openings 116 and 117, with the sump 110. Within the vertical channel 115 a spring urged wick 118 is provided to deliver lubricant to the bearing 51. The lower end of vertical channel 115 communicates with a horizontal passage 119 extending across the base of the frame. This passage also communicates with a vertical channel 120 having therein a spring urged wick 121 for lubricating the bearing for shaft 56.

Turning now to Fig. 6, the horizontal passage 119 is intersected by another horizontal passage 122 extending longitudinally of the base of the frame. Passage 122 serves to deliver lubricant to numerous points at the outer end of the base. Firstly by means of a passage 123, parallel with the passage 119, lubricant is delivered to the lower end of a screw plug 124 which carries a wick-filled tube 124a for delivery of the lubricant to a felt-packed opening 125 in the eccentric strap 53 and to other points, such as the feed lift eccentric not shown. A further transverse passage 126, parallel with the passages 119 and 123, serves to deliver lubricant to the base of a screw plug 127 (Fig. 9) carrying a wick-filled tube 128 for delivering lubricant to various bearing surfaces on the feed bar. A screw plug 129, carrying a wick-filled tube 130, also communicates with the passage 126 to deliver lubricant to other bearing surfaces of the feeding mechanism. The main tube 130 delivers lubricant to the bearings for the feed bar 59 in the feed rocker. A branch 131 delivers lubricant to the pivotal connection of the link 70 with the stud 69. A further branch 131a of the tube serves to deliver lubricant to the reciprocating rod 73 which carries the auxiliary or differential feed dog. Another vertical passage in the base of the frame, communicating with the transverse passage 126, carries a spring urged wick 132 which delivers lubricant to the bearing for the shaft 61 of the feed rocker (see Fig. 9). A further transverse passage 133, communicating with the longitudinal passage 122, serves to deliver lubricant to a variety of points. Thus, through a vertical passage 134 and a wick-filled tube 135 lubricant is delivered to the feed eccentric 65, 66 and also to the connection between link 70 and the stud 71. A further vertical passage 136 delivers lubricant to another bearing for the shaft 50. Still another vertical passage 137 delivers lubricant through a wick-filled tube 138 to the ball and strap connection 35, 36 for the looper rocker 34. Another wick-filled tube 139, extending from passage 137, delivers lubricant to the bearing for the looper rocker, as shown in Fig. 1. A short transverse passage 140, extending rearwardly from the passage 122, communicates with a vertical passage 141 provided with a spring-urged wick, similar to 132 of Fig. 9, for lubricating the other bearing for the feed rocker shaft 161.

Parts within the vertical standard are lubricated by spray or mist generated by the passage of certain portions of the crank 16, strap 17, and strap 107 through the lubricant in reservoir 108. This mist is delivered directly to various bearing surfaces and is delivered indirectly to other surfaces. A member 142 secured to the standard (Fig. 1) serves to catch a portion of the spray and deliver it to an opening in the top of the strap

105. Similarly, a plate 143 serves to collect and deliver some of the spray to an opening in the top of the strap 19. Member 143 also serves to deflect some of the spray onto the rock lever 20 along which the lubricant flows toward the needle head to lubricate certain of the parts therein. A portion of this lubricant accumulates in a sump 144 (Fig. 3) at the bottom of the needle head. Additional lubricant may be supplied to the needle head, whenever required, through an opening in the front cover 145 which is normally closed by a plug 145a (Fig. 1). Constant visual indication of the level of the lubricant in the sump 144 may be provided by a suitable gauge, such as a Lucite plug 146 extending through the cover.

Suitably supported within the needle head, at a central point, is a distributing drum or chamber 147 from which a wick-filled tube 148 extends into the sump. Lubricant picked up by the wicking is delivered to various points within the needle head. Thus, a portion is delivered through a wick-filled branch tube 149 from the wall of which a part of the wicking projects laterally into engagement with the ball-pin within the strap 93. Another wick-filled branch tube 150 similarly serves to deliver lubricant to the ball-pin within the strap 95. An upwardly extending wick-filled tube 151 delivers a portion of the lubricant to the surface of an upper, inclined portion of a small plate 152 (Figs. 3 and 10) having a laterally bent portion 153 secured by screws 154 or the like to a fixed part of the needle head. Lubricant is delivered from the surface of plate 152, by means of wicks 155 and 156 projecting outwardly from the hollow pins which provide the pivots 23 and 24 for the link 22, to the bearing surfaces of these pins. Suitable radial passages may be provided, if desired, in the walls of the pins 23 and 24 to deliver the lubricant from within the latter to the bearing surfaces thereof. One or more such passages may be provided in each pin.

It will be understood that the machine is equipped with various auxiliary devices, such as thread handling means, including thread tensioning devices, take-up devices, guides and the like. These are illustrated to some extent but since their details do not enter into the invention to be claimed, they need not be described.

While an illustrative machine has been described in considerable detail, it will be understood that numerous changes may be made in the construction and arrangement of the various parts without departing from the principles and scope of the invention.

What we claim is:

1. A sewing machine comprising a frame having a base, a vertically disposed standard rising from one end of said base and an elongated overhanging arm projecting laterally from said standard over said base, said arm terminating in a needle head, the base, standard, arm and needle head being hollow and having a continuous intercommunicating space which is fully enclosed, the portion of said space within the base forming a lubricant reservoir, a rotary shaft extending longitudinally of said base, a reciprocating needle carrying bar in said head, complementary stitch forming means in said base, connections from said shaft for operating said needle carrying bar and said complementary means, said connections including a rock lever extending longitudinally of said arm into said head and eccentric means on said shaft connected with said rock lever, said

rock lever being pivoted at an intermediate point in said arm and being at times inclined downwardly from said standard toward said needle head, said eccentric means being arranged to dip into the lubricant in said reservoir and whip it into a spray within said standard, and stationary means at the top of said standard for deflecting a portion of the lubricant spray onto said rock lever for delivery along said lever to the needle head.

2. A sewing machine comprising a frame having a base, a vertically disposed standard rising from one end of said base and an overhanging arm projecting laterally from said standard over said base, said arm terminating in a needle head, the base, standard, arm and needle head being hollow and having a continuous intercommunicating space which is fully enclosed, the portion of said space within the base forming a lubricant reservoir, a rotary shaft extending longitudinally of said base, a reciprocating needle carrying bar in said head, a plurality of thread carrying needles at the end of said bar, complementary stitch forming means in said base, an oscillatable member carried by said head adapted to lay a cover thread across the path of the loops formed by said needles, connections from said shaft for operating said needle carrying bar, said oscillatable member and said complementary means, said connections including a rock lever extending longitudinally of said arm into said head, said rock lever being pivoted at an intermediate point in said arm and being at times inclined downwardly from said standard toward said needle head, a rock shaft extending along said arm and connected with said oscillatable member for operating the same, both of the ends of said rock shaft being enclosed within said intercommunicating space, and eccentric means on said rotary shaft connected with said rock lever and said rock shaft, said eccentric means being arranged to dip into the lubricant in said reservoir and whip it into a spray within said standard, means at the top of said standard for deflecting a portion of the lubricant spray onto said rock lever for delivery along said lever to the needle head, and means within said needle head for supplying such lubricant to the connections from said rock shaft to said oscillatable member.

3. A sewing machine comprising a frame having a base, a vertically disposed standard rising from one end of said base and an overhanging arm projecting laterally from said standard over said base, said arm terminating in a needle head, the base, standard, arm and needle head being hollow and having a continuous intercommunicating space which is fully enclosed, the portion of said space within the base forming a lubricant reservoir, a rotary shaft extending longitudinally of said base, a reciprocating needle carrying bar in said head, a plurality of thread carrying needles at the end of said bar, complementary stitch forming means in said base, an oscillatable member carried by said head adapted to lay a cover thread across the path of the loops formed by said needles, connections from said shaft for operating said needle carrying bar, said oscillatable member and said complementary means, said connections including a rock lever extending longitudinally of said arm into said head, said rock lever being pivoted at an intermediate point in said arm and being at times inclined downwardly from said standard toward said needle head, a rock shaft extending along said arm and connected with said oscillatable member for operat-

ing the same, both of the ends of said rock shaft being enclosed within said inter-communicating space, and eccentric means on said rotary shaft connected with said rock lever and said rock shaft, said eccentric means being arranged to dip into the lubricant in said reservoir and whip it into a spray within said standard, means at the top of said standard for deflecting a portion of the lubricant spray onto said rock lever for delivery along said lever to the needle head, and elevating and distributing means within said head for delivering a part of such lubricant to the connections from the adjacent end of said rock shaft to said oscillatable member.

4. In a sewing machine having a fully enclosed hollow frame with a work support, a vertical standard and an overhanging arm, said arm terminating in a needle head, a reciprocable needle bar in said head carrying a plurality of needles, and a cover thread laying member cooperating with said needles, the combination of means for driving said cover thread laying member which comprises a rock shaft extending along said arm exterior thereof, said shaft extending at one end into said vertical standard and at its other end into said needle head, thread controlling means operated from an exposed portion of said shaft, means within said standard for rocking said shaft, and connections from said shaft in the needle head for operating said member.

5. In a sewing machine having a hollow frame with a work support, a vertical standard and an overhanging arm, said arm terminating in a needle head, a reciprocable needle bar in said head carrying a plurality of needles, and a cover thread laying member cooperating with said needles, the combination of means for driving said cover thread laying member which comprises a rock shaft extending along said arm exterior thereof, said shaft extending at one end into said vertical standard and at its other end into said needle head, means within said standard for rocking said shaft, connections from said shaft in the needle head for operating said member, said standard, arm and needle head being hollow and providing a continuous enclosed chamber, and means within said chamber for delivering lubricant to the connections at both ends of said rock shaft.

6. In a sewing machine having a needle head, bearings at the top and bottom of said head, a reciprocable needle bar mounted in said bearings, a lubricant sump at the bottom of said needle head, and means for reciprocating said bar which comprises a rock lever and a bodily movable link pivotally connected with said lever and bar, the combination of means for lubricating both of the pivots of said link which comprises a plate within said needle head having a surface positioned adjacent said pivots, means for delivering lubricant from said sump to said surface of said plate, and wick means carried directly by said pivots and arranged in substantially continuous wiping contact with said surface of said plate.

7. In a sewing machine a reciprocating member, means for operating said member comprising a moving part and a bodily movable link connecting said part with said member, a pivot pin in the connection between said link and said member and arranged to be moved bodily with the latter, a lubricant sump below said pivot pin, a stationary plate having a surface adjacent and substantially parallel with the path of movement of said pivot pin, means for supplying lubricant from said sump to said surface of said plate, and

wick means carried directly by said pivot pin and arranged in substantially continuous wiping contact with said surface of said plate.

8. In a sewing machine a reciprocating member, means for operating said member comprising a moving part and a bodily movable link connecting said part with said member, a hollow pivot pin in the connection between said link and said member and arranged to be moved bodily with the latter, a stationary plate having a surface adjacent and substantially parallel with the path of movement of said pivot pin, means for supplying lubricant to said surface of said plate, and wick means within the hollow of said pivot pin and projecting axially from the end thereof into contact with said surface of the plate.

9. In a sewing machine a needle head having an oil retaining sump, a needle carrying member in said head, means for operating said member comprising a driven operating member and connections therefrom to said needle carrying member including a bodily movable link, a pivot pin connecting said link with one of said members, and means for lubricating said pivot pin comprising a plate in said head having a surface adjacent the path of movement of said link, wick means for supplying lubricant from said sump to said surface of said plate and wick means carried directly by said pivot pin arranged in substantially continuous wiping contact with said surface of said plate as said link is moved.

10. In a sewing machine a needle head having an oil retaining sump, a needle carrying member in said head, means for operating said member comprising a driven operating member and connections therefrom to said needle carrying member including a bodily movable link, a pivot pin connecting said link with one of said members, said pivot pin having a longitudinally extending bore, and means for lubricating said pivot pin comprising a plate in said head having a surface adjacent the path of movement of said link, means for supplying lubricant from said sump to said surface of said plate and wick means carried by the bore of said pivot pin arranged in substantially continuous wiping contact with said surface of said plate as said link is moved.

11. In a sewing machine having a frame with a base providing a work support, a vertical standard and an elongated overhanging arm terminating in a needle head, said frame being provided with an intercommunicating enclosed chamber extending from said base to said needle head, said machine having a main drive shaft, stitch forming means including a plurality of reciprocatory needles, complementary stitch forming means cooperating with said needles on the underside of the work together with cover thread laying means on the upper side of the work, work feeding means in said base outwardly of said enclosed chamber for advancing the work relative to said stitch forming means, and connections from said shaft to said stitch forming and work feeding means for operating the latter, said connections including a rock lever extending longitudinally of said arm into said head, said rock lever being pivoted at an intermediate point in said arm and being at times inclined downwardly from said standard toward said needle head, the combination of means for lubricating said operating connections to said stitch forming means and work feeding means which comprises a main lubricant reservoir in said base, a sump in said needle head, means for creating a mist from the lubricant in said reservoir, means for collecting

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lubricant from said mist and delivering the same to said sump along said rock lever, and wick means for delivering lubricant from said reservoir and said sump to all of said operating connections for said stitch forming means and said work feeding means.

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