Dec. 30, 1941. W. L. BARRON 2,268,319

OIL GUARD FOR SEWING MACHINES

Filed Sept. 13, 1940 2 Sheets-Sheet 1

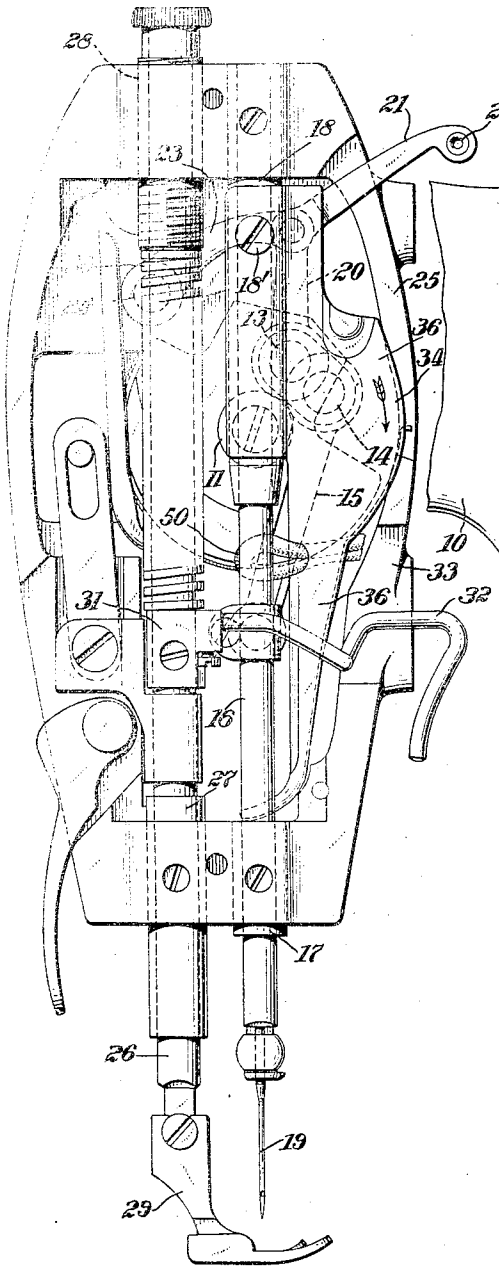



Fig. 1.

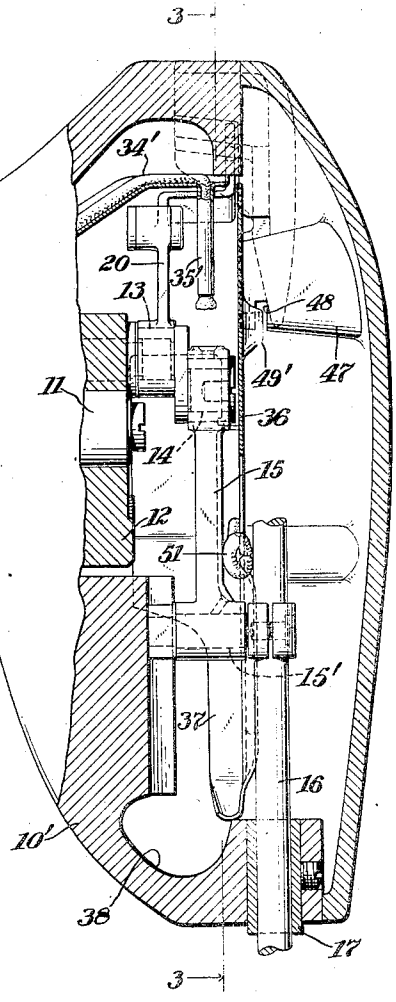



Fig. 2.

Witness:

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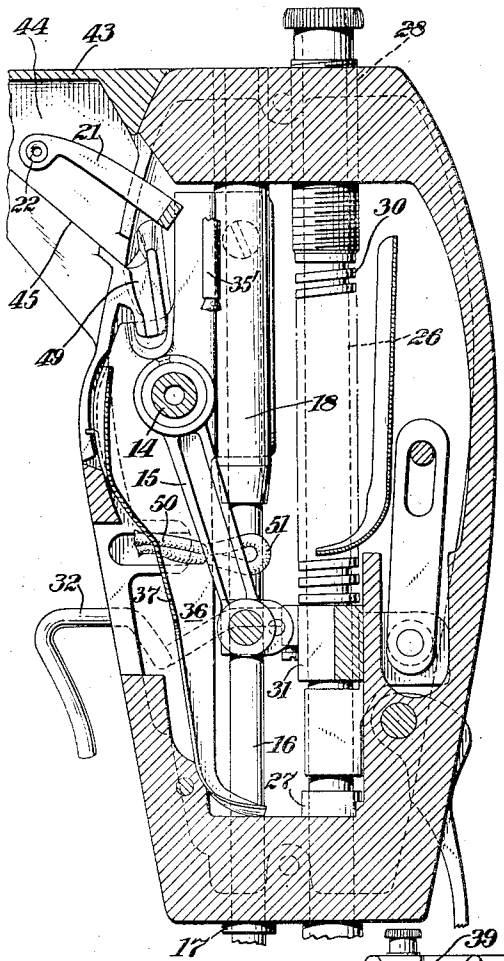



Fig. 3.

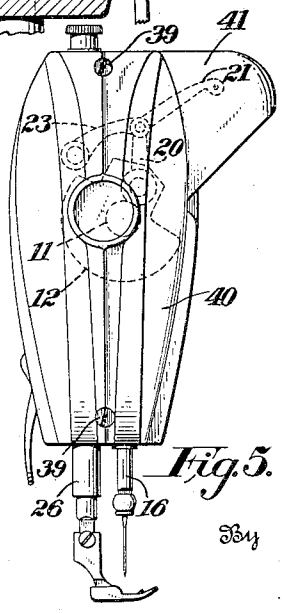



Fig. 5.

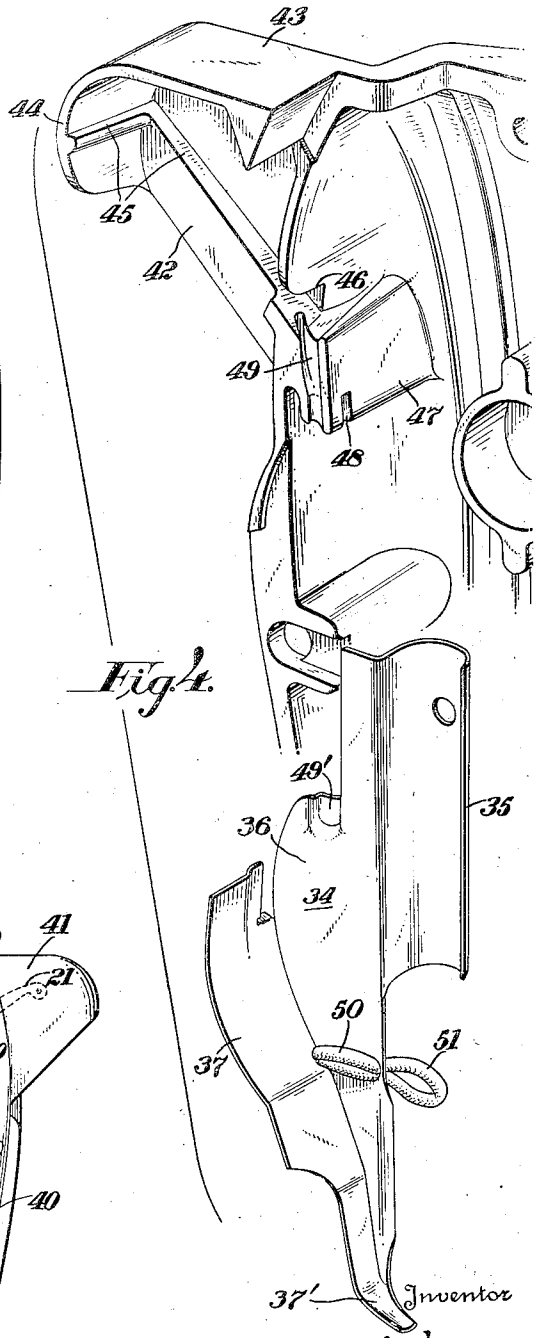



Fig. 4.

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# UNITED STATES PATENT OFFICE

2,268,319

## OIL GUARD FOR SEWING MACHINES

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Application September 13, 1940, Serial No. 356,572

6 Claims. (Cl. 112—256)

This invention relates to an oil-guard and lubricator for a sewing machine, and has for its objective the provision of means for collecting the oil thrown off by the actuating mechanism within the hollow head and conducting the collected oil back into the hollow head and utilizing some of it for lubricating some of the mechanism within the head.

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.

In the drawings: Figure 1 is a front elevation of the head of a sewing machine embodying my invention, the face-plate being removed.

Figure 2 is a side elevation of the head of the machine shown in Figure 1, part of the head being broken away to expose the mechanism within the head.

Figure 3 is a sectional view taken along the line 3—3 of Figure 2.

Figure 4 is a perspective view showing the oil-guard and a portion of the face-plate.

Figure 5 is a front elevation of the head of the machine with the face-plate attached.

In the embodiment selected for illustration, 10 represents the bracket-arm in which the usual rotary needle-bar shaft 11 is journaled. The forward end of the shaft 11 carries the take-up and needle-bar operating cranks 13 and 14, respectively. The needle-bar crank 14 is directly connected by means of the usual link 15 to a needle-bar 16, carrying the eye-pointed needle 19, and journaled in the bearings 17 and 18 fixed to the hollow head.

The take-up is of the so-called link or crank operated type and comprises the usual angle-lever having rigidly related arms 20 and 21, the former of which embraces the take-up operating crank 13, and the latter of which is formed with the thread-eye 22. The lever 20, 21 is pivotally connected at the junction of its arms to one end of the anchor-link 23, the opposite end of which is pivoted at 24 to the head 10' of the machine. It will be understood that the arm 21 of the take-up lever extends through a slot 25 in the head of the machine and controls the needle-thread.

Also located within the hollow head is the usual presser-bar 26 journaled in bearings 27 and 28 and carrying a presser-foot 29. The presser-bar 26 is yieldingly urged downwardly by means of a compression spring 30 and has fixed thereto a block 31 which carries a thread-guide 32 extending toward the front of the machine and is offset laterally so that it extends through a slot 33 formed in the head 10'. The mechanism within the hollow head is lubricated by means of wicking which is supplied from a pump (not shown) through the front bearing of the needle-bar shaft. This wicking, indicated generally as 34', extends through tubing 35' and one of its ends depends so that it may be engaged by the mechanism within the hollow head when this mechanism is operated. It will be understood that a small globule of oil forms on the end of the wick and that as the cranks rotate this globule of oil is wiped off by the action of the actuating mechanism within the head 10'.

The above described construction is fully disclosed in the patent to Richard Kaier, No. 2,206,285, dated July 2, 1940, to which reference may be had for a more complete description of the sewing machine and its lubricating system.

It has been found that when the machine is operated at high speed some of the oil, used for lubrication, is thrown off by the moving parts within the hollow head. This oil is thrown out in a mist due to the high speed attained by the parts within the hollow head. Part of the mist thrown out by these parts comes out of the slots 25 and 33 through which the take-up lever 21 and needle-thread-guide 32 extend. To overcome this difficulty, there is secured to the needle-bar bushing 18, by a screw 18', a sheet-metal oil-guard, indicated generally as 34. This guard is formed with a U-shaped portion 35, which embraces the needle-bar bushing 18, a forwardly extending portion 36 and a laterally extending portion 37 having its depending end 37' tapered and curved rearwardly to form a chute for delivering oil to a sump 38 located in the lower end of the hollow head. The laterally extending portion 37 is disposed between the cranks 13 and 14 and the slot 33 within the hollow head so as to prevent oil from being thrown by these parts through the slot 33.

Fixed to the hollow head 10' by the screws 39, is a face-plate 40 formed with an ear 41 which has a vertical wall 42 extending towards the front of the machine, and an overhanging wall 43 which is curved downwardly at 44 to form a hood which acts as an oil-guard and also protects the operator from injury by the take-up lever. Beneath the overhanging wall 43 there

is formed a ledge 45 which is inclined downwardly so that the oil collected and condensed by the walls 42 and 43 will run down this ledge through a slot 46 formed in the face-plate 40 and back into the hollow-head.

The inside of the face-plate 40 is formed with a lug 47 provided with a slot 48 and a groove 49. When the face-plate is put in position on the machine, the slot 48 receives the grooved portion 49', formed in the upper end of the wall 36 of the guard 34, and the oil which flows down the ledge 45 enters the groove 49 and flows down along the walls 36 and 37 to the sump 38 within the hollow head. For the purpose of lubricating the reciprocatory needle-bar, a wick 50 is threaded through the walls 36 and 37 of the guard and the oil as it travels down along the walls 36 and 37 saturates the wick 50 so that its free end 51, which lies against the needle-bar, will adequately lubricate the needle-bar. The end 51 of the wick is also located so that it will be engaged by the lower end of the needle-bar link 15 just as the link reaches the end of its upward movement. This arrangement provides lubrication for the bearing surface between the lower end of the link 15 and the pin 15' which is fixed to the needle-bar.

From the foregoing it will be obvious that the construction described and illustrated serves the three-fold purpose of: 1st, protecting the operator from injury by the take-up lever; 2nd, collecting and preventing the escape of oil from the openings in the hollow-head; 3rd, returning the collected oil to the interior of the hollow-head and utilizing the collected oil for the purpose of lubricating bearing surfaces within the hollow-head.

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

1. A sewing machine having in combination, a hollow head, a take-up lever extending through a slot in said head, mechanism within the hollow head for actuating said take-up lever, means for supplying oil to said actuating mechanism and a guard located on the outside of the hollow-head and over the take-up lever slot for collecting oil thrown through the slot by the actuating mechanism and returning it to the hollow-head.

2. A sewing machine having in combination, a hollow-head provided with a slot, actuating mechanism within the hollow head, means for supplying lubricant to said hollow head, a guard located on the outside of said head and overlying said slot for collecting lubricant thrown through the slot by the actuating mechanism, and means formed on said guard for returning the collected lubricant into the hollow head.

3. A sewing machine having in combination, a hollow head provided with a slot, actuating mechanism within the hollow head, means for supplying lubricant to said hollow-head, a guard located on the outside of said head and overlying said slot for collecting lubricant thrown through the slot by the actuating mechanism, said guard comprising a forwardly extending wall and an overhanging wall having a portion curved downwardly to form a hood, and an inclined ledge formed on said walls for conducting oil collected by said walls to a point within the hollow head.

4. A sewing machine face-plate formed with a laterally extending ear-shaped guard having a laterally extending portion which is adapted to overlie the take-up slot in the hollow-head of the machine.

5. The combination with a sewing machine having a hollow head provided with slots through which moving parts of the stitch-forming mechanism extend, and lubricated mechanism within the head for actuating the stitch-forming mechanism, of a guard located within the head, a wick carried by said guard and in contact with a moving part of the mechanism within the head and means for collecting oil thrown off by the mechanism within the head and conducting it to said wick.

6. The combination with a sewing machine having a hollow-head provided with a slot through which moving parts of the stitch-forming mechanism extend, and lubricated mechanism within the head for actuating the stitch-forming mechanism, of a guard located within the head, a wick carried by said guard and in contact with a moving part of the mechanism within the head, a second guard located exteriorly of said head and overhanging the slot in a position to collect oil thrown through the slot by the lubricated mechanism within the head, and means to conduct the oil collected by said second guard back into the hollow-head.

WILLIAM L. BARRON.