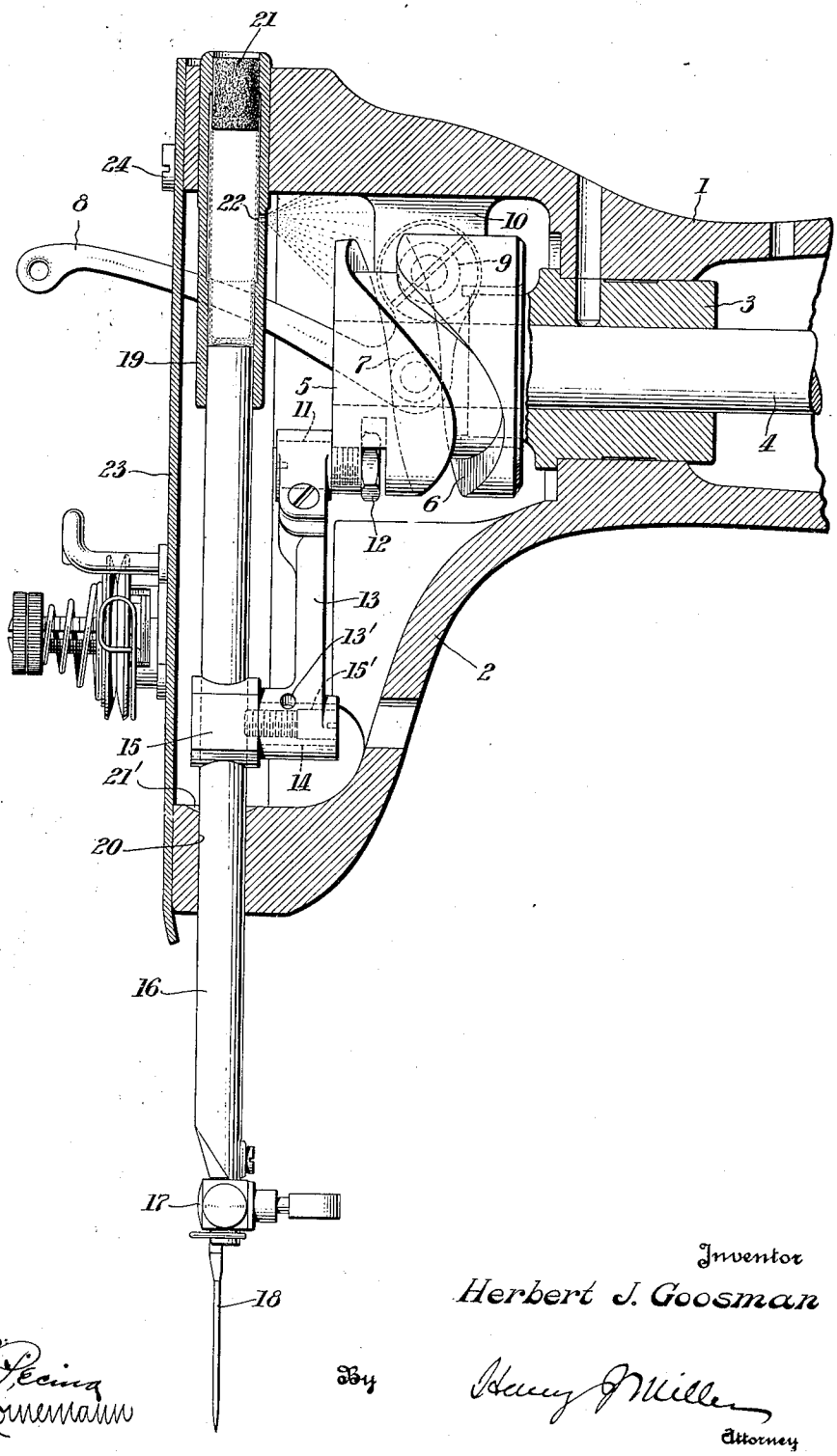
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LUBRICATION OF SEWING MACHINES

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LUBRICATION OF SEWING MACHINES

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This invention relates to a lubricating arrangement for sewing machines and more particularly to an arrangement whereby lubricant is supplied to the mechanism in the sewing head for imparting reciprocating movements to the needle-bar and thread take-up mechanism.

An object of the present invention is to provide a construction whereby lubricant is readily supplied to those rapidly moving parts in the interior of the sewing machine head, which are difficult of access to the sewing machine operative, whereby a quiet and smooth operation of the sewing machine is assured.

In the preferred form of the improvement the upper bearing-bushing for the reciprocating member or needle-bar forms a chamber containing lubricant. The upper end of this chamber is closed by a felt plug while the upper end of the needle-bar forms the bottom of the lubricant chamber, which, intermediate its ends, is provided with a small aperture. Under the pumping action of the reciprocating needle-bar lubricant is forced through the aperture in the form of a fine spray which is deposited upon the periphery of the take-up actuating cam or cylinder from which it finds its way into the cam-groove entered by the roller carried by the vibrating take-up lever. Other portions of the issuing lubricant-spray strike the actuating link for the reciprocating needle-bar supplying both pivotal end-connections with lubricant. Still other portions of the issuing lubricant flow down the exterior face of the needle-bar and lubricates its lower bearing.

The sewing machine head is closed by the usual cover-plate which prevents the surplus lubricant from dropping upon and soiling the material while being stitched.

The accompanying drawing represents in side elevation, partly in section, a portion of the overhanging arm 1 of a sewing machine terminating in the head 2. Fitted in the overhanging arm is a bearing bushing 3 in which is journaled the upper or actuating shaft 4. Secured upon the free end of the shaft is a cylinder 5 formed with a cam-groove 6 entered by the roller-stud 7 of the thread take-up lever 8 pivoted at 9 to a lug 10 depending from the inner wall of the head 2.

The take-up cam or cylinder 5 carries the crank-stud 11 retained in position by a lock-nut 12. Embracing the crank-stud 11 is one end of a link 13 whose other end embraces a pivot-stud 14 formed upon the block 15 secured upon the needle-bar 16 by the clamp screw 15'. Rotation of the shaft 4, will, by means of the crank-stud 11 and link 13, reciprocate the needle-bar 16 in a well-known manner. The lower end of the needle-bar 16 is fitted with a needle-clamp 17 carrying a needle 18.

The upper end of the needle-bar 16 is guided in an elongated bearing-bushing 19 secured in the overhanging head 2 while the lower end of the bar is guided in an opening 20 in the head, the upper portion of which opening is slightly flared at 21'.

The bearing-bushing 19 is closed at its upper end by a felt-plug 21 capable of absorbing lubricant and its wall, adjacent the take-up cam 5, is provided with a delivery aperture 22.

The upper end of the needle-bar 16 forms the bottom of a chamber to which lubricant is supplied through the porous plug 21 in the upper end of the bearing-bushing 19.

Due to the pumping action of the needle-bar 16 in the bushing 19, a fine spray of lubricant is discharged through the aperture 22 as the upper end of the needle-bar rises in the bearing-bushing. A portion of this lubricant-spray is deposited within the cam-groove 6 entered by the roller-stud 7 of the thread take-up lever 8 while other portions of the lubricant- spray strike the free end of the take-up cam 5 and find their way to lubricate the upper crank-stud 11 of the needle-bar link 13. Still other portions of the lubricant-spray strike the needle-bar link 13 running down the latter and into the aperture 13' in order to lubricate the lower pivot-stud 14. After thus lubricating the cam-groove 6 and crank-stud 11 and pivot-stud 14, the spent lubricant finds its way into the lowest portion of the overhanging head 2 until it reaches the flared portion 21' around the

lower needle-bar bearing where it lubricates the latter.

From the foregoing it will be readily understood that the rapidly moving parts, not conveniently accessible in the overhanging head of the sewing machine, receive a spray of lubricant during the initial reciprocations of the needle-bar after supply of lubricant to the chamber through the felt-plug which assures their quiet and smooth operation.

In order to prevent any spent lubricant from dropping upon the work while being stitched or soiling the stitching thread as it is fed to the needle, the cavity in the overhanging head 2 is closed by the usual cover-plate 23 retained in place by a fastening screw 24.

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

1. In combination, a sewing machine head, a shaft journaled therein, a reciprocating member mounted in said head, a bearing bushing for said reciprocating member closed at one end and provided with a lubricant chamber having an aperture, and operative connections between said shaft and reciprocating member whereby endwise movements of the latter cause a spray of lubricant from said chamber to flow through said aperture unto said operative connections.

2. In combination, a sewing machine head, a shaft journaled therein, a reciprocating member mounted in said head, a bearing bushing for said reciprocating member closed at one end and provided with a lubricant chamber having an aperture, a crank-pin mounted upon said shaft, and a link-connection between said crank-pin and reciprocating member whereby endwise movements of the latter cause a spray of lubricant from said chamber to flow through said aperture unto said link-connection.

3. In combination, a sewing machine head, a shaft journaled therein, a cylinder secured upon said shaft and provided with a cam-groove, a take-up lever pivoted upon said head, a roller carried by said lever and entering said cam-groove, a reciprocating needle-bar mounted in said head, a bearing-bushing for said needle-bar closed at one end and provided with a lubricant-chamber having an aperture, and a link-connection between said cylinder and needle-bar whereby endwise movements of the latter will cause a spray of lubricant to flow through said aperture unto said cylinder and link-connection.

In testimony whereof I have signed my name to this specification.

HERBERT J. GOOSMAN.