

R. BECKER,
LUBRICATING DEVICE.
APPLICATION FILED MAY 5, 1916.

1,212,440.

Patented Jan. 16, 1917.

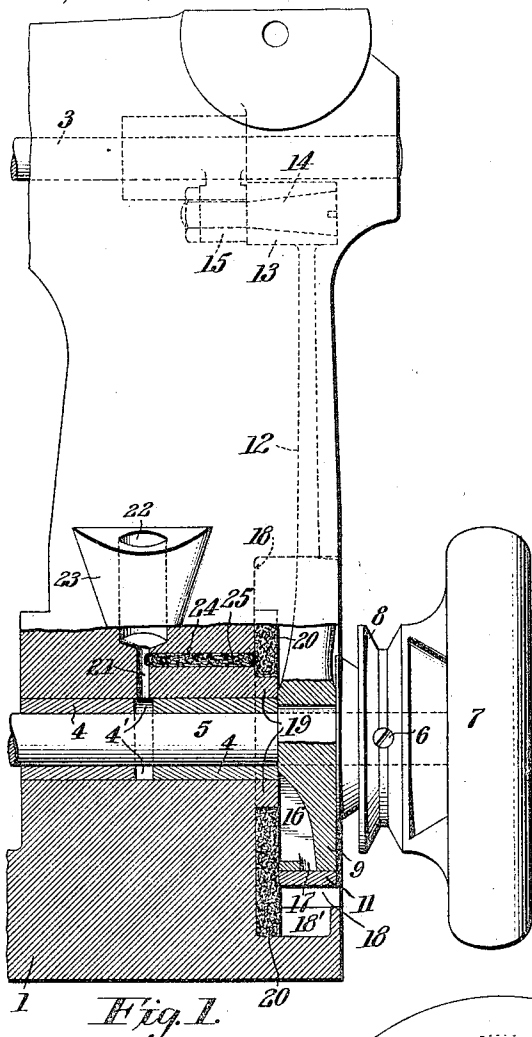


Fig. 1.

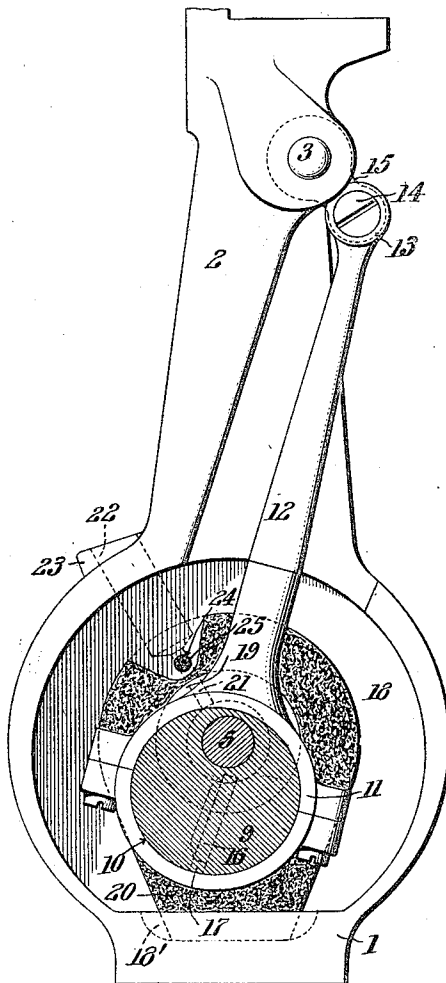


Fig. 2.

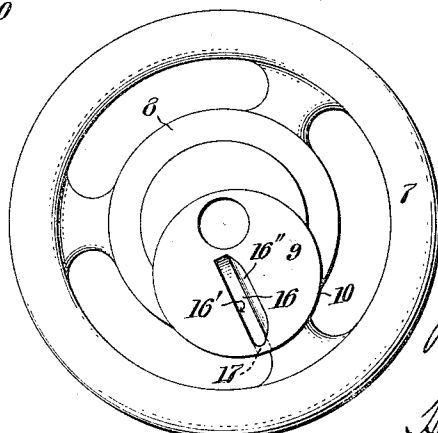


Fig. 3.

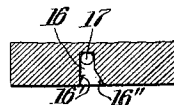


Fig. 4.

WITNESS:

L. E. Fischer.

INVENTOR

Rudolph Becker

BY

Henry J. Miller
ATTORNEY

UNITED STATES PATENT OFFICE.

RUDOLPH BECKER, OF ROSELLE PARK, NEW JERSEY, ASSIGNOR TO THE SINGER MANUFACTURING COMPANY, A CORPORATION OF NEW JERSEY.

LUBRICATING DEVICE.

1,212,440.

Specification of Letters Patent.

Patented Jan. 16, 1917.

Application filed May 5, 1916. Serial No. 95,537.

To all whom it may concern:

Be it known that I, RUDOLPH BECKER, a citizen of the United States, residing at Roselle Park, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Lubricating Devices, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improvement in lubricating devices and is adapted more particularly to that type of sewing machines comprising a rotary shaft carrying a needle-actuating eccentric and connections with the needle including a pitman having a strap embracing said eccentric.

It has for its object to provide a means of insuring a uniform feed of lubricant to the operative surface of the eccentric from a stationary source of supply. The eccentric is preferably fixed upon the main-shaft of the sewing machine and is formed with a lateral lubricant recess having an abrupt shoulder upon one side and connected with the periphery by an oil-distributing duct. The machine frame affords a bearing for the shaft, and in the end adjacent the eccentric is preferably formed with a laterally-open cavity affording a housing for said eccentric and containing an oil-absorbent pad contacting with the adjacent face of the eccentric so as to be scraped by the said shoulder of the latter's lubricant recess to extract oil therefrom for delivery by centrifugal action through the said duct to the peripheral bearing surface of the eccentric. The oil-pad is preferably connected by a suitable branch duct with an oil-duct through which lubricant is supplied to the shaft bearing.

The invention will be understood by reference to the accompanying drawings, in which—

Figure 1 is an elevation, partly in section, of a portion of a sewing machine frame having journaled therein the main-shaft carrying the needle-actuating eccentric; and Fig. 2 is a rear end view of the same with the shaft and the eccentric in section. Fig. 3 is an elevation representing the inner faces of the balance-wheel and the eccentric connected therewith. Fig. 4 is a transverse section of the needle-actuating eccentric.

The present improvement is shown in the drawings embodied in a sewing machine of the Singer single-chain-stitch type in which

the frame comprises the base 1 from which rises the standard 2 having journaled therein the rearward portion of the needle-actuating rock-shaft 3. The base is suitably apertured to receive the bushing 4 in which is mounted the rearward end portion of the main-shaft 5 having fixed thereon by means of the set-screw 6 the hand-wheel 7 having formed integral therewith the grooved belt-wheel 8 adjacent and rotating with which is the needle-actuating eccentric 9 in the form of a flat disk having the circular peripheral bearing surface 10. Embracing the eccentric is the strap 11 at the lower end of the pitman 12 formed at the opposite end with a boss 13 pivotally connected by a stud 14 with the usual lateral crank-arm 15 fixed upon the rock-shaft 3.

The eccentric 9 is shown provided in its inner face with the lubricant recess 16 extending substantially diametrically thereof but in a line at one side of the center of the shaft 5, being formed on one side with the abrupt side wall 16' to form with the face of the eccentric an abrupt angle and at the side opposite with an inclined wall 16''. The end of the recess 16 farthest from the shaft is connected by a radial duct 17 with the bearing face of the eccentric.

The base 1 is shown formed in its rearward end with a cavity or pocket 18 upon the inner wall of which is a projecting boss 19 surrounding the shaft and entering an aperture in a pad 20, of a soft oil-absorbent material such as felt, which is exposed to the scraping action of the edge 16' of the recess 16 in the eccentric which moves in contact or close proximity therewith. A depending portion of the pad 20 extends into a well 18' in the bottom of the cavity 18 for reabsorption of any superfluous oil remaining after saturation of the pad by oil from the source of supply.

The bushing 4 is shown formed in two endwise spaced sections affording between them a lubricant space 4' surrounding the shaft 5 which is fed by means of a duct 21 extending downwardly from the oil-receptacle 22 formed in the lateral lug 23 upon the standard 2 into which oil is introduced for lubrication of the rotary parts. A duct 24 extending lengthwise of the shaft 5 connects the duct 21 with the cavity 18, and is filled with a soft oil-absorbent material, such as wicking 25, through which a re-

stricted flow of oil is permitted from the supply receptacle 22 to the inner face of the oil-pad 20. Thus a portion of the oil introduced into the receptacle 22 passes through the duct 21 into the recess 4' to lubricate the bearing of the shaft 5 in the bushing 4, and a portion is led through the duct 24 into the cavity 18 to maintain the oil-pad 20 saturated. In the rotation of the shaft, and with it the eccentric 9, the edge 16' of the recess 16 produces a suction or a scraping action upon the exposed surface of the pad 20 with the effect of inducing a slow feed of the oil into the recess 16 at a rate proportionate to the speed of rotation, such oil being impelled by centrifugal action through the connecting duct 17 to the periphery of the eccentric and into contact with the inner face of the eccentric strap 11. It is found in practice that actual contact is not required between the eccentric and the pad 20 to effect the desired result, as the rapid rotation of the eccentric with its described shoulder serves to produce a suction to draw oil from the adjacent face of the pad to the eccentric.

The eccentric 9 constitutes a rotary actuating member whose operative face affords a cam surface of which the pitman 12 is the follower, the strap 11 acting merely as a means of holding the follower to the cam surface; but it is evident that the form of such cam element is not an essential of the present improvement, so long as it has a connection with the element for mechanically or otherwise inducing the feed of lubricant thereto from the stationary pad from which it draws the oil; and that the cam member may be mounted otherwise than upon a rotary shaft. The form of the cam member will obviously determine the position of the oil-pad relatively to the cam element.

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

1. A lubricating device comprising, in combination, a rotary cam-element formed with a cam surface and with a shoulder disposed angularly to its direction of movement and having an oil-directing connection with said surface, a follower for said cam-element

contacting with said cam-surface, a fixed member, and an oil-absorbent pad sustained by said member in proximity to said shoulder.

2. A lubricating device comprising, in combination, a fixed member, an oil-absorbent pad sustained thereby, a rotary cam-element formed with a cam-surface and having a face provided with a shoulder for engagement with the adjacent face of said pad for collection of oil from the latter and delivery thereof to the cam-surface, and a follower for said cam-element contacting with said cam-surface.

3. A lubricating device comprising, in combination, a rotary cam-element formed with a cam-surface and with a laterally-open lubricant recess connected by an outwardly extending duct with said cam-surface, a follower for said cam-element contacting with said cam-surface, a fixed member or support, and an oil-absorbent pad sustained by said member or support in proximity to said cam-element.

4. A lubricating device comprising, in combination, a shaft, a cam-element mounted thereon and formed with a cam-surface and with a laterally-open lubricant recess connected by an outwardly extending duct with said cam-surface, a follower for said cam-element contacting with said cam-surface, a bearing for said shaft formed with a surrounding cavity, and an oil-absorbent pad within said cavity, and in contact relation with the recessed face of said cam-element.

5. A lubricating device comprising, in combination, a rotary shaft, an eccentric mounted thereon and formed with a laterally-open lubricant recess having a side wall terminating in an abrupt shoulder and connected by an outwardly extending duct with the periphery of said eccentric, a pitman having a strap embracing said eccentric, a frame containing a bearing for said shaft and a projecting boss concentric with the latter, and an apertured oil-absorbent pad entered by and sustained upon said boss close to the recessed face of said eccentric.

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

RUDOLPH BECKER.