

SINGER
97-1,2,3,4,5,6,7,8,9,10

USE ONLY SINGER OILS and LUBRICANTS

*They insure freedom from lubricating trouble and
give longer life to sewing equipment*

“Singer Oil for High Speed Sewing Machines”

(Cloth and Leather)

For all manufacturing sewing machines except where a stainless oil is desired.

“Singer Stainless Oil for High Speed Sewing Machines”

For all manufacturing sewing machines where a stainless oil is desired.

“Singer Motor Oil”

For oil-lubricated motors, power tables, transmitters and machinery in general.

“Singer Stainless Thread Lubricant”

For lubricating the needle thread of sewing machines for stitching fabrics or leather where a stainless thread lubricant is required.

NOTE: All of the above oils are available in 1 quart, 2 quart, 1 gallon and 5 gallon cans or in 55 gallon drums, and can also be supplied in customer's containers.

“Singer Gear Lubricant”

This specially prepared grease is recommended for gear lubrication on manufacturing sewing machines.

“Singer Ball Bearing Lubricant”

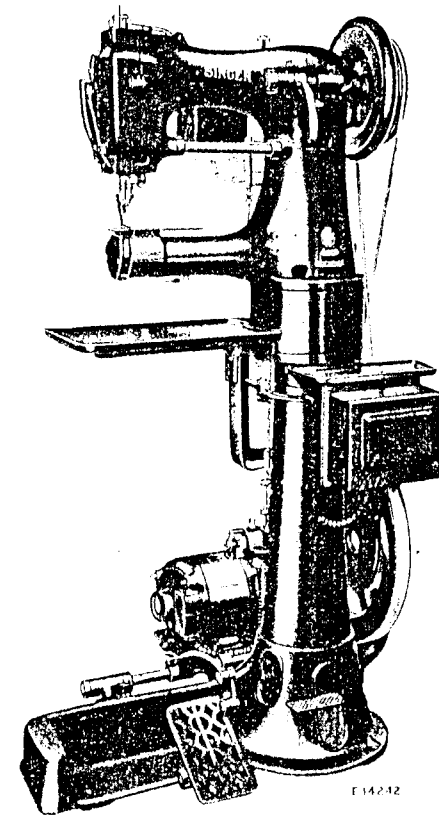
This pure grease is specially designed for the lubrication of ball bearings and ball thrust bearings of motors and electric transmitters, ball bearing hangers of power tables, etc.

NOTE: The above greases are furnished in ¼ lb. tubes and 1 lb. and 4 lb. tins.

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INSTRUCTIONS FOR USING SINGER SEWING MACHINES CLASS 97 FOR HARNESS WORK AND OTHER HEAVY WORK IN LEATHER



MACHINE No. 97-5

THE SINGER MANUFACTURING CO.

DESCRIPTION

To all whom it may concern:

The placing or renewal of the name "Singer" (Reg. U. S. Pat. Off.) or any of the trade marks of The Singer Manufacturing Company on any machine that has been repaired, rebuilt, reconditioned, or altered in any way whatsoever outside a Singer factory or an authorized Singer agency is forbidden.

THE IMPORTANCE OF USING GENUINE SINGER PARTS AND NEEDLES IN SINGER MACHINES

The successful operation of Singer machines can only be assured if genuine Singer parts and needles are used. Supplies are available at all Singer Shops for the Manufacturing Trade and mail orders will receive prompt attention.

Genuine Singer Needles should be used
in Singer Machines.
These Needles and their Containers
are marked with the
Company's Trade Mark "SIMANCO." 1

Needles in Containers marked
"For Singer Machines"
are not Singer made needles. 2

Machines of Class 97 are designed for general harness work and for stitching parachute harness, and are suitable for other heavy work in leather. They have a cylinder bed, one needle and one shuttle and make the lock stitch. They are equipped with foot lifter.

Presser feet (stitch set) for 6, 8 and 10 stitches to the inch are regularly furnished with the machine, but any three presser feet (stitch set) for 3 to 12 stitches to the inch will be furnished if the order so specifies.

These machines can be equipped with an electric heating device, when ordered, at additional charge. A rheostat, for heat control, will also be furnished, when ordered, at additional charge.

MACHINES 97-1 TO 97-5 INCLUSIVE, HAVE 11 INCHES CLEAR SPACE AT THE RIGHT OF THE NEEDLE.

MACHINE 97-1 consists of the head only. When desired for use on a power table, parts for this purpose will be furnished, on order, at additional charge.

MACHINE 97-2 is furnished on a stand for operation by foot power. Otherwise it is similar to Machine 97-1.

MACHINE 97-3 is furnished on a stand and is equipped with shaft and pulleys for operation by mechanical power, otherwise it is similar to Machine 97-2.

MACHINE 97-4 is furnished on a stand and is equipped with a direct current electric motor, otherwise it is similar to Machine 97-2.

MACHINE 97-5 is furnished on a stand and is equipped with an alternating current electric motor, otherwise similar to Machine 97-2.

MACHINES 97-6 TO 97-10 INCLUSIVE, HAVE 12 INCHES CLEAR SPACE AT THE RIGHT OF THE NEEDLE. IN ADDITION TO THE RANGE OF WORK MENTIONED ABOVE, THESE MACHINES ARE DESIGNED TO STITCH CLOSE TO DOUBLE BAR BUCKLES.

MACHINE 97-6 consists of the head only. When desired for use on a power table, parts for this purpose will be furnished, on order, at additional charge.

MACHINE 97-7 is furnished on a stand for operation by foot power. Otherwise it is similar to Machine 97-6.

MACHINE 97-8 is furnished on a stand and is equipped with shaft and pulleys for operation by mechanical power, otherwise it is similar to Machine 97-7.

MACHINE 97-9 is furnished on a stand and is equipped with a direct current electric motor, otherwise similar to Machine 97-7.

MACHINE 97-10 is furnished on a stand, and is equipped with alternating current electric motor, otherwise it is similar to Machine 97-7.

Speed

The maximum speed recommended for Machines of Class 97 is 400 stitches per minute. During operation, the balance wheel should always turn over toward the operator.

Needles

Needles for Machines 97-1 to 97-5 inclusive, are of Class and Variety 97 x 4, and Needles for Machines 97-6 to 97-10 are of Class and Variety 97 x 3 and 97 x 4. These needles are furnished in sizes 22, 23, 24, 25, 26, 27, 28, 29, 30 and 31.

The size of the needle to be used is determined by the size of the thread which must pass freely through the needle eye. The use of rough or uneven thread, or thread which passes with difficulty through the eye of the needle, will interfere with the proper operation of the machine.

Orders for needles must specify the QUANTITY required, the SIZE number, also the CLASS and VARIETY numbers separated by the letter X.

The following is an example of an intelligible order:

"100 No.24, 97 x 4 Needles"

The best stitching results will be obtained with needles furnished by the Singer Sewing Machine Company.

Thread

Left twist thread should be used in the needle. Either right or left twist thread can be used in the bobbin.

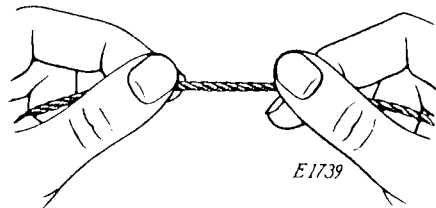


Fig.2. To Determine the Twist

To Remove the Bobbin

Turn the balance wheel over toward you until the needle moves up to its highest position. Hold the shuttle opener (A, Fig.3, page 5) with its curved end pointing downward, and insert it between the shuttle cylinder and the shuttle latch spring as shown

In Fig.3. Raise the end of the shuttle opener (A) and the shuttle will swing outward. Then take out the bobbin.

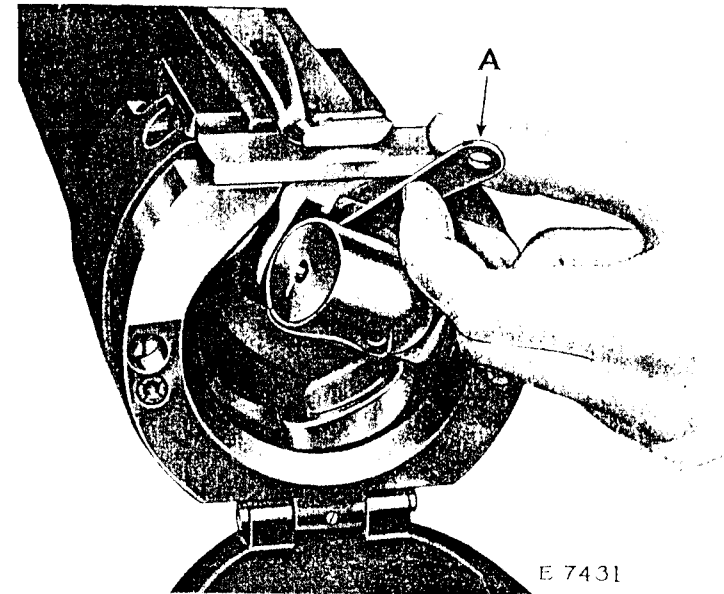


Fig.3. Shuttle Opener 120571 in Use

To Wind the Bobbin

Place the bobbin winder on the table or bench in a position convenient for the operator, and fasten it with two screws, two countersunk holes having been made in the base for this purpose. A connection with the gas supply should then be made by means of a rubber hose to the gas pipe (B, Fig.4, page 6).

Place the bobbin on the bobbin winder spindle and push it up closely against the shoulder, having the small pin in the spindle enter the slot in the bobbin.

Remove the two thumb screws (C and D, Fig.4, page 6) which hold the stripping device into the wax pot (E, Fig.4, page 6) and lift out the stripping device. Pass the thread from the unwinder downward through the hole (1, Fig.4, page 6), then through the hole at the end of the thread post (2, Fig.4, page 6), through the hole at the end of the thread post (3, Fig.4, page 6), then draw the thread upward through the hole (4, Fig.4, page 6), using the thread hook (G, Fig.4, page 6) which is furnished with the bobbin winder, then place the stripping device back in position in the wax pot and fasten it with the two thumb screws (C and D, Fig.4).

Pass the thread over the roller (5, Fig.4, page 6) and through

the hole in the left side of the bobbin from the inside.

If the thread is not to be waxed, when winding bobbins, it

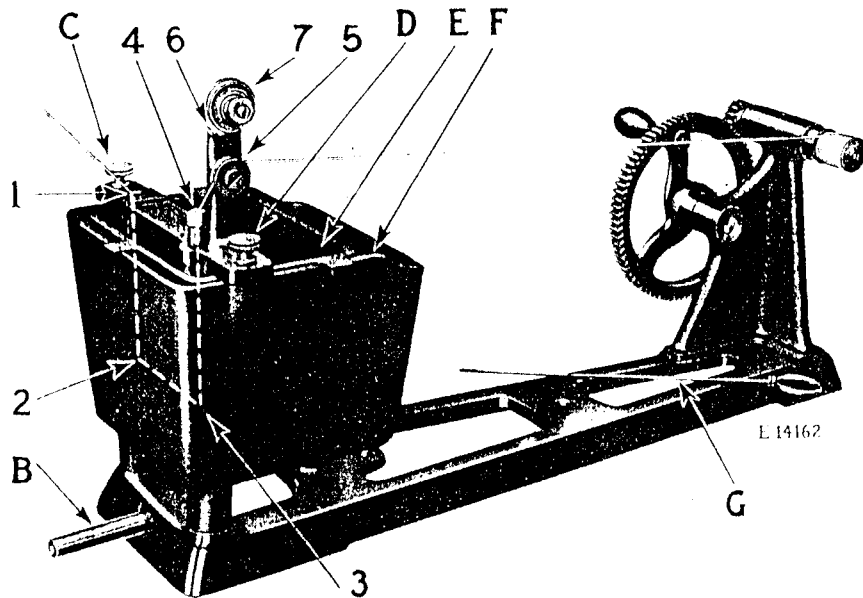


Fig. 4. Winding the Bobbin

should be led directly from the unwinder through eyelet (6, Fig. 4), then between tension discs (7, Fig. 4) and, from the inside, through the hole in the left side of the bobbin.

There are two compartments in the wax pot, the compartment (E, Fig. 4) being for wax, and the compartment (F, Fig. 4) being for water. The wax compartment should contain sufficient wax to fully cover the eyelets in thread posts (2 and 3, Fig. 4). The water compartment (F) should be about three-fourths full of water. Then light the burner.

Allow the water to boil until the wax becomes sufficiently heated to flow freely. Then turn the bobbin winder hand wheel. The end of the thread must be held until a few coils are wound, and should then be cut off.

It is necessary to keep water in the compartment (F) at all times, otherwise the wax will burn and be unfit for use.

Should the wax become hard from continuous heating, breaking of thread may occur. To overcome this difficulty, occasionally put a small piece of beeswax into the wax compartment (E).

To Replace the Bobbin and Thread the Shuttle

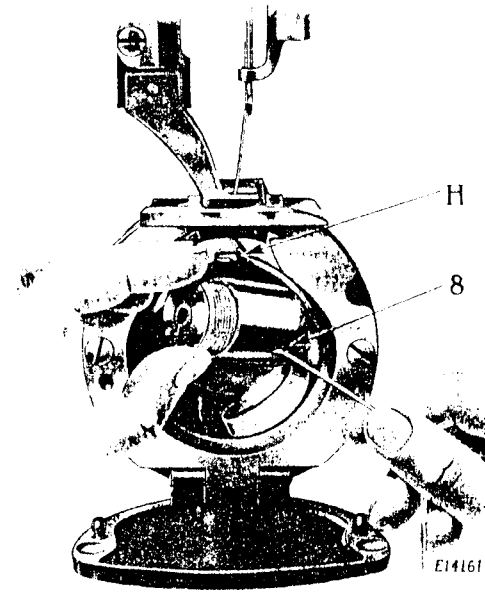


Fig. 5. Replacing the Bobbin

Hold the bobbin between the thumb and forefinger of the left hand, with the thread hand, drawing off from the under side toward the right. Draw the thread into the slot in the cylinder; then place the bobbin into the cylinder as far as it will go, and draw the thread into the delivery eye (8, Fig. 5) allowing about three inches of thread to hang free from the shuttle with which to commence sewing.

Needle Guides

Of the two needle guides in the machine, one is fastened to the needle guide bar in front of the needle bar, the other being located under the throat plate. The guides are marked with numbers corresponding to size numbers of the needles, and the numbers of the guides used should be the same as the number of the needle being used. Remove the screw which holds the needle guide, using the combination screwdriver and wrench furnished with the machine. Then lift out the guide.

To Set the Needle

Turn the balance wheel over toward you until the needle bar reaches its highest position. Remove needle guide from needle bar. Loosen the set screw in the needle clamp and insert needle up into the needle clamp as far as it will go, with the long groove toward the left and the eye directly in line with the machine arm, then tighten the set screw. Place the needle guide on the needle bar, having needle enter the small hole in the needle guide. Turn balance wheel toward you to move the needle to its lowest position, then raise the needle guide to its highest position with the right hand, and tighten needle guide clamp screw.

To Thread the Needle (Operator Facing Back of Machine)

Pass the thread from the thread unwinder at back of machine, up and through hole (1, Fig. 6) in the cone above the spool pin,

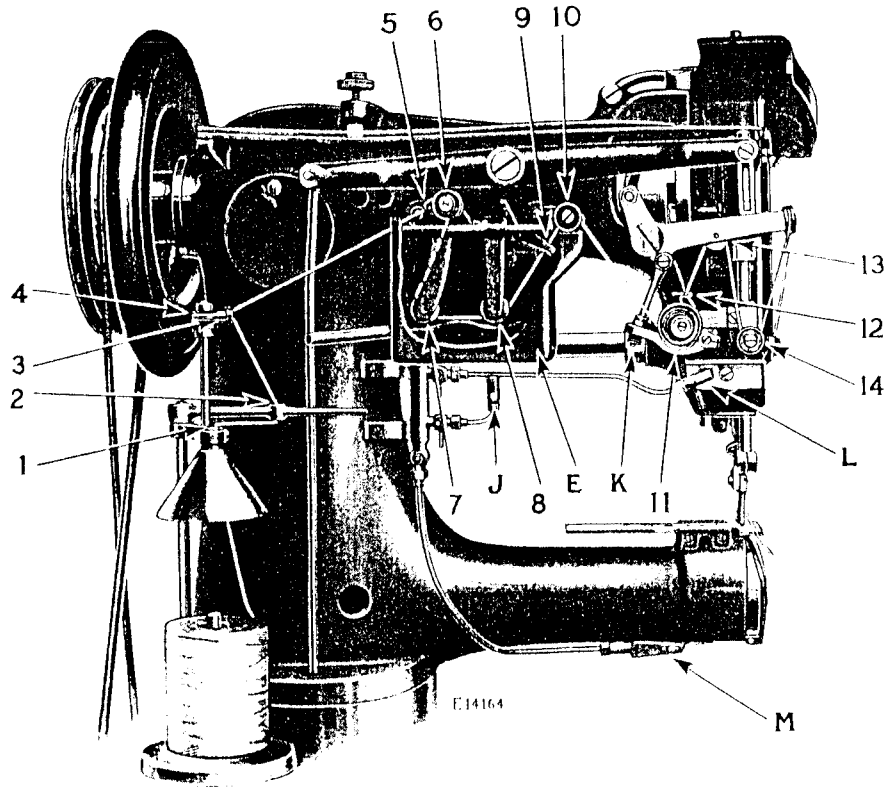


Fig. 6. Threading the Needle

and up through the hole in thread guard (2, Fig. 6). Form a loop with the thread and pass the loop from right to left through thread eyelet (3, Fig. 6). With the right hand, hold the end of the thread and the thread leading from the spool, at the same time, with the left hand, giving the loop one complete turn over toward you so that the thread will be twisted between points (2, Fig. 6) and (5, Fig. 6), then pass the loop around the thread straightener wheel (4, Fig. 6).

Remove the two screws which hold the stripping device into the wax pot (E, Fig. 6) on the back of the machine, and lift out the stripping device. Pass the thread from eyelet (3, Fig. 6) over from left to right through eyelet (5, Fig. 6) between tension

discs (6, Fig. 6) and down under from left to right around roller (7, Fig. 6) at the bottom of the stripping device, and from left to right around the bottom of the right roller (8, Fig. 6). Pull back the lever at the top of the stripping device and hook the thread into the slot in stripper (9, Fig. 6), then pass the thread over from left to right through roller (10, Fig. 6) and place the stripper back into the wax pot, and fasten with the two screws. Have the thread take-up at its lowest position and pass the thread from roller (10, Fig. 6) down under from left to right around tension wheel (11, Fig. 6), passing the thread completely around the tension wheel, then up through tension check spring (12, Fig. 6), over from left to right through roller (13, Fig. 6) on the take-up arm, for this purpose using the thread wire furnished with the machine, down under from left to right through wire roller (14, Fig. 6), up and from back to front through take-up roller (15, Fig. 7), down back of spring (16, Fig. 7) on the face plate, through thread eyelet (17, Fig. 7), into the hole in needle guide (18, Fig. 7) and through eye of needle (19, Fig. 7) toward the balance wheel. If the thread is not to be waxed, omit the rollers in the wax pot and pass it direct from tension discs (6, Fig. 6) through the roller (10, Fig. 6).

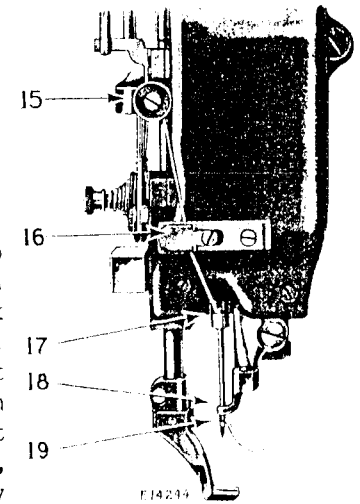


Fig. 7.

Threading the Needle

To Prepare for Sewing

With the left hand, hold end of needle thread, leaving it slack from hand to needle; turn balance wheel over toward you until the needle moves down and then up again to its highest position, thus catching the bobbin thread. Draw up the needle thread and the bobbin thread will come up with it through the hole in throat plate. Lay both threads back under presser foot.

Fill the small chamber in wax pot (E, Fig. 6) with water, then half fill the large chamber with wax, and light the three gas burners (J, L and M, Fig. 6). The machine must be warm enough so that the thread will draw freely through the rollers.

To Commence Sewing

Place the material beneath the presser foot, lower the foot upon it and commence to sew, turning balance wheel toward you.

To Remove the Work

Stop the machine with the thread take-up lever resting at its highest position. With the right hand, turn balance wheel over toward you until thread take-up lever is lowered about one-half inch; draw about three inches of thread through take-up lever, raise presser foot, draw the work back and cut the threads close to goods. Leave the ends of the threads under the presser foot.

To Regulate the Length of Stitch

Stitch length is regulated by lever (P, Fig. 9, page 12) in the slot on the front of the arm. Indicator (O, Fig. 9, page 12) is marked with figures corresponding with the range of number of stitches to the inch that the machine will make. Lever (P, Fig. 9) indicates the number of stitches to the inch that the machine is set to make.

To alter stitch length, loosen nut on lever (P, Fig. 9) using the wrench furnished for this purpose, and move lever (P) until it is opposite desired number on indicator, then tighten the nut.

Stitch Sets

To set the stitches below the upper surface of the work, it is necessary to use a stitch set in place of the regular presser foot. Fig. 8, page 11, shows how the upper row of stitches is depressed by means of a stitch set.

Stitch sets are made as follows:

No. 58957	for 3 stitches to the inch				
No. 58952	" 4	"	"	"	"
No. 58879	" 5	"	"	"	"
No. 58780	" 6	"	"	"	"
No. 58880	" 7	"	"	"	"
No. 58881	" 8	"	"	"	"
No. 58882	" 9	"	"	"	"
No. 58883	" 10	"	"	"	"
No. 58884	" 11	"	"	"	"
No. 58885	" 12	"	"	"	"

Each stitch set is marked with the figure corresponding to the number of stitches to the inch for which it must be used, and the number on the stitch set, being used, must conform to the number of stitches to the inch for which machine is set.

Unless otherwise ordered, the machine will be furnished with stitch sets for 6, 8 and 10 stitches to the inch.

To Regulate the Pressure on the Material

The pressure on the material is regulated by the thumb screw (N, Fig. 9, page 12) at the top of the machine. To increase the pressure, turn the thumb screw over to the right. To decrease the pressure, turn the thumb screw over to the left.

The presser foot pressure should be sufficient to hold the work down firmly so that the material will not rise when the needle is being withdrawn, and preventing skipping of stitches.

When sewing light material, remove the top presser spring.

CAUTION

When raising the presser foot by means of the foot lifter, as when turning corners, BE SURE TO RAISE THE PRESSER FOOT ONLY WHEN THE NEEDLE IS AT ITS HIGHEST POSITION OR WHEN AT ITS LOWEST POSITION BEFORE THE PRESSER FOOT CLUTCH IS ENGAGED.

Failure to comply with these instructions may result in serious damage to the machine.

Tensions

As shown by the illustration below, the needle and bobbin threads should be locked as nearly as possible in the center of

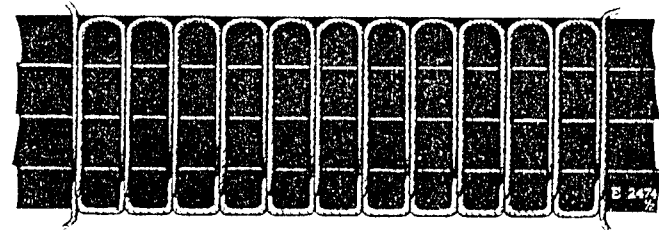


Fig. 8. Perfect Stitch

the thickness of the bottom strip of leather, whether the work be of two, three, four or more plies. This means that the bobbin thread has tighter tension than the needle thread. When these tensions are correctly adjusted, very satisfactory work is accomplished. When the correct adjustment has once been made, it is seldom necessary to change it, as the machine will stitch from light to heavy work without change.

To Regulate the Tensions

The tension on the needle thread is regulated by the thumb nut at the front of tension discs (6, Fig. 6, page 8) and the thumb nut at the front of tension wheel (11, Fig. 6, page 8) at the back of the machine. The tension at the tension discs should be enough only to cause the tension wheel to turn when the brake (K, Fig. 6, page 8) is unlocked.

The tension on the bobbin thread is regulated by the screw which holds the tension spring to the cylinder. To increase the tension, turn the screw over to the right. To decrease the tension, turn the screw over to the left.

To Oil the Machine

To insure easy running and prevent unnecessary wear of the machine, all parts which are in movable contact require oiling

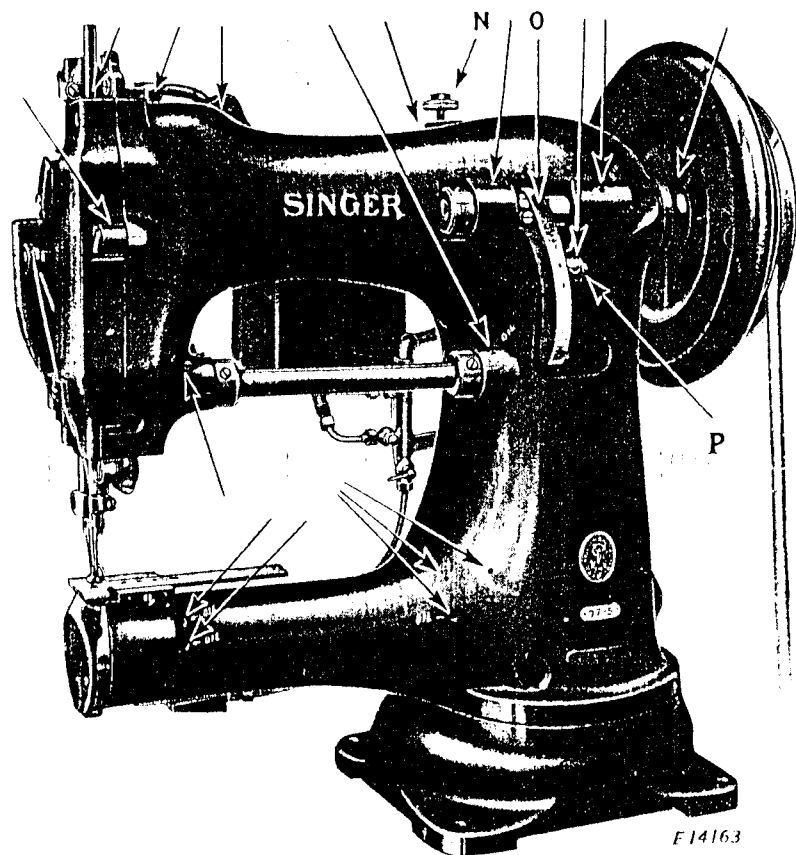


Fig.9. Oiling Points at the Front of the Machine
Also Adjustments on the Machine

and, when the machine is in continuous use, oil should be applied frequently.

The places where the machine should be oiled are indicated, in Figs. 9 and 10, by unlettered arrows pointing to the oil holes and bearings.

Oil should also be regularly applied to the shuttle race.

At the back of the machine is a round cover plate, fastened by a screw. Turn this cover plate aside; rotate the balance

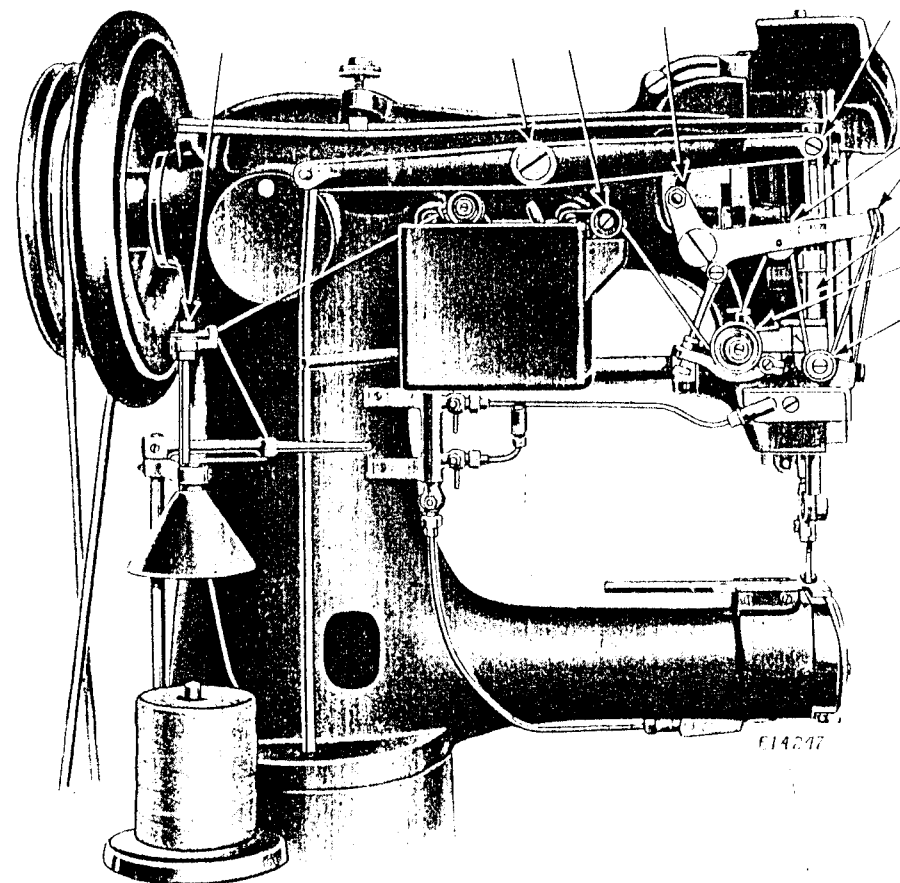


Fig.10. Oiling Points at Back of Machine

wheel slowly and oil the moving parts inside the machine arm, after which return the back cover to its closed position.

TO ADJUST CLASS 97 MACHINES

To Set the Needle Bar on Machines 97-1, 97-2, 97-3, 97-4 and 97-5

To reach the two needle bar clamping screws, lift up the hinged plate at the rear side of the machine head, as these two clamping screws are positioned at the rear side and are therefore reached from the rear side of the machine head.

Loosen these two clamping screws, then turn the balance wheel toward you until the needle bar is at its lowest position; the point of the shuttle will then be from $\frac{3}{16}$ to $\frac{1}{4}$ inch from the needle. Then turn the balance wheel to bring the shuttle point to the centre of the needle, after which set the needle bar so that, on its upward stroke, the top of the needle eye will be approximately $\frac{1}{32}$ inch below the shuttle point. Then securely tighten the two needle bar clamping screws.

To Set the Needle Bar on Machines 97-6, 97-7, 97-8, 97-9 and 97-10

It is not necessary to remove the face plate, as the two needle bar clamping screws are accessible through holes, provided for this purpose, in the face plate. Otherwise adjustment is accomplished in exactly the same manner as with the machines mentioned first above.

Needle Guide Bar, all Class 97 Machines

There is no adjustment necessary for the needle guide bar. This bar is pinned in proper position, viz: so that the bottom of the upper needle guide is $\frac{1}{16}$ inch above the top surface of the presser foot.

Presser Bar, all Class 97 Machines

The presser bar is set to bring the bottom of the presser foot $\frac{1}{16}$ inch above the top surface of the needle plate. To adjust, loosen the set screw in the presser bar guide bracket and set as instructed, viz: to position the bottom of the presser foot $\frac{1}{16}$ inch above the top surface of the needle plate.

Timing

These machines are so constructed and adjusted as to prevent their getting out of time. Only the feed cam might require retiming. Feed cam timing is accomplished through the arm side opening just forward of the balance wheel in the rear side of the machine arm, after loosening the thumb screw and turning aside the arm side cover for this opening.

The two adjusting screws in the feed cam are accessible through this opening.

This cam should be set to insure that the feeding does not start until the presser foot begins to rise, and feeding of the material should occur just before the presser foot descends upon the material to hold it securely to the needle plate; by which time the needle will have returned for penetration of the material for the following stitch.

Important

For perfect results, the needle, upper needle guide and lower needle guide must all be of the same size number.

The thread must be of proper size for the needle being used.

Proper threading as well as regulation of needle and bobbin thread tensions must be observed as instructed.

Proper lubrication of the machine must be observed as instructed.