6335

Service Manual

SINGER
INDUSTRIAL PRODUCTS

USE **SINGER** OILS and LUBRICANTS

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

---

The following are the correct lubricants for this machine:

TYPE B — MANUFACTURING MACHINE OIL, HEAVY GRADE

When an oil is desired which will produce a minimum of stain on fabrics, even after a long period of storage, use:

TYPE D — MANUFACTURING MACHINE OIL, HEAVY GRADE

OTHER **SINGER** LUBRICANTS

TYPE E — THREAD LUBRICANT

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

TYPE F — MOTOR OIL

For oil lubricated motors and plain bearings in power tables and transmitters.

NOTE: All of the above oils are available in 1 quart, 1 gallon and 5 gallon cans.

GEAR LUBRICANT

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

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. **Furnished in 1 lb. and 4 lb. tins.**

FOREWORD

This book contains complete information covering operation and adjustment for machines 29K171, 29K172 and 29K173

PARTS CHART

Parts Chart for these machines is Form K6461

INDEX

DESCRIPTION

Machines 29K171, 29K172 and 29K173, for stitching boots, shoes, and other tabular work in leather and fabrics, have the following characteristics:

Single Needle, Lock Stitch.

Stop Motion Hand Wheel–releases hand wheel from stitching mechanism for bobbin winding.

Horizontal Oscillating Shuttle.

Eccentric Adjustment for Shuttle Timing.

Cylinder Bed.

Replaceable Steel Horn.

Universal Upper Feed for Stitching in any direction without turning the work.

Stitch Length: 7 to 15 to the inch, depending on material being stitched and operations performed.

Presser Foot rise during feeding action 1/4 inch–(Maximum clearance: 3/8 inch).

Double End Needle Plate–(two sizes of needle holes at each end for various sizes of needles).

Adjustable Thread Take-up Lever.

Two Speed Machine Pulley.

ACCESSORIES AVAILABLE UPON ORDER

(at additional charge)

Stands for mounting the machines: 49732 for 29K171 Machine (foot power)
49733 for 29K172 and 29K173 Machines (foot power)

SPECIAL FEATURES

MACHINE 29K171

End of cylinder bed is 1 inch wide and 7/8 inch deep.

Space at right of needle 12-1/4 inches.

Diameters of belt grooves 2-7/8 inches and 4-7/8 inches.

MACHINE 29K172

End of cylinder bed is 1-5/32 inches wide and 1-1/16 inches deep.

Space at right of needle 17-1/2 inches.

Diameters of belt grooves 3-1/4 inches and 5-1/2 inches.

Large Bobbin.

MACHINE 29K173

End of cylinder bed is 1 inch wide and 7/8 inch deep.

Space at right of needle 17-1/2 inches.

Diameters of belt grooves [illegible] inches and 5-[illegible] inches.

SPEED

The maximum speed recommended for these machines is 500 stitches per minute, depending on material being stitched and operations performed.

For thick work, patching, mending, and stitching elastics, put the driving belt on the larger pulley of the machine and the smaller pulley of the stand.

For light work, put the belt on smaller pulley of the machine and the larger pulley of the stand.

When in operation, the hand wheel must always turn over toward the right (clockwise).

NOTE: If fitted at end of machine, hand wheel must always turn over toward the operator (counter-clockwise).

TO OIL MACHINE

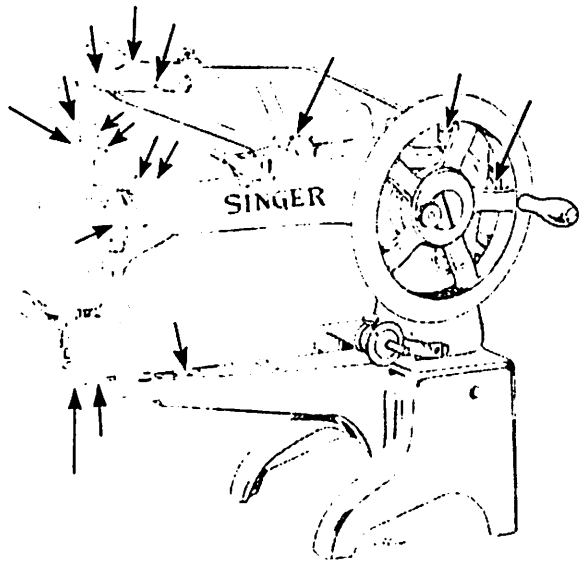

Fig. 2. Oiling Front Side of Machine

When machine is received from the factory, it should be thoroughly cleaned and a drop of oil should be applied to all parts indicated in Figs. 2, 3 and 4.

Apply a drop of oil to the stand at the centres upon which band wheel and treadle work. Also to both ends of the pitman rod connecting the treadle with band wheel.

Run machine for a few minutes to work oil into bearings. When the machine is in constant use, it should be oiled daily.

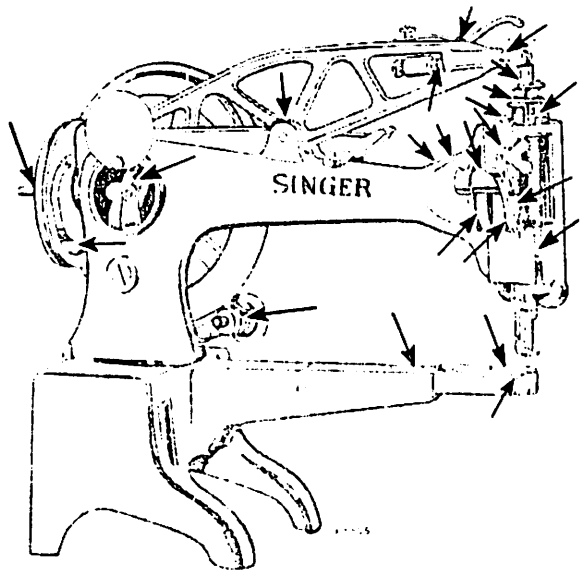

Fig. 3. Oiling Rear of Machine

Use "TYPE B" or "TYPE D" OIL, sold by Singer.

See inside front cover of this book for description of these oils.

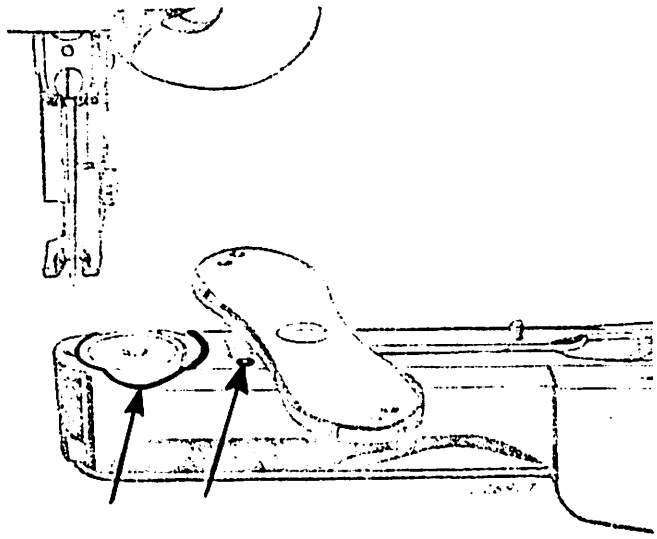

Fig. 4. Oiling Shuttle Race

To oil shuttle race, raise needle bar to its highest point and lift feeding foot A, Fig. 5 by moving lifter B upward.

Press down lever C, Fig. 5 and swing needle plate to position shown in Fig. 4.

Apply a drop of oil to the face of shuttle race and to the hole shown by arrow in Fig. 4.

TO OPERATE THE MACHINE

1. Raise feeding foot **A, Fig. 5** by moving lifter **B** upward.
2. Place both feet upon the treadle.
3. Turn top of hand wheel over toward right to start machine. (If hand wheel is fitted at end of machine, turn top of hand wheel over toward you to start machine.)
4. Allow the feet to move freely with the motion of the treadle. Continue this motion with an alternating pressure of heel and toe until a regular easy movement is acquired and the hand wheel is kept in continuous rotation by use of the feet alone.
5. When familiar with the treadle movement, and you are able to re-start the machine without turning the hand wheel in the wrong direction, place a piece of material under the feeding foot.
6. Lower feeding foot by lowering lifter and operate machine until you have become accustomed to guiding the material.

Material is moved along by the feeding foot only, and the direction of stitching can be changed as desired by turning wings, **Fig. 32.** To make a curved line of stitching, operate machine slowly and, without turning work, turn the revolving wings enough to produce the desired curve.

Feeding foot rises between each stitch while needle is in the material. With needle serving as pivot, material can be turned in any direction. When desired, the feeding foot may be fixed to work in a straight line, in any direction, by tightening the knurled screw **A, Fig. 22.**

Never turn the work or alter the direction of the feed while the foot is pressing on the material, as this may cause missed stitches and damage the surface of the work.

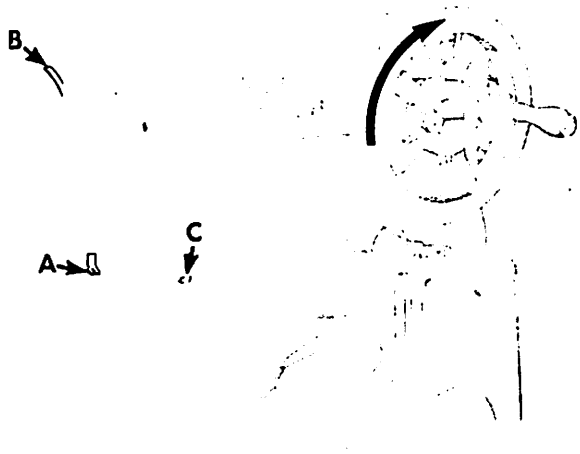

Fig. 5. Operating Machine

NEEDLES

Needles for MACHINES 29K171, 29K172 and 29K173 are of Class and Variety 29x3 for cloth and 29x4 for leather. Needles 29x3 are made in sizes 11, 14, 16, 17, 18, 19, 21, 22, 23, 24 and 25, Needles 29x4 are made in sizes 9, 11, 14, 16, 18, 19, 21, 22, 23, 24 and 25.

The above needles regularly have nickel finish but can be supplied with chromium finish if ordered.

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

Orders for needles must specify the **Quantity** required, the **Size** number, also the **Class** and **Variety** numbers separated by an **x.**

The following is an example of an intelligible order:

"100 No. 16, 29 x 3 Needles", for cloth.
"100 No. 16, 29 x 4 Needles", for leather.

The best stitching results will be obtained by using the needles sold by Singer Sewing Machine Company.

THREAD

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

To determine the twist, hold the thread as shown. Turn the thread over toward you between the thumb and forefinger of the right hand; if left twist, the strands will wind tighter. If right twist, the strands will unwind.

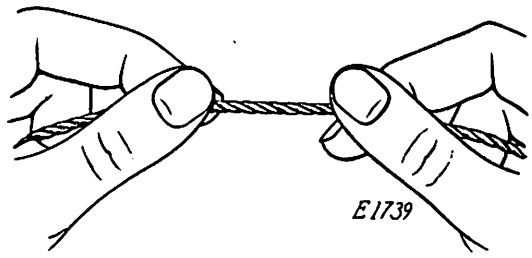

Fig. 6. Determining Twist of Thread

TO REMOVE THE BOBBIN

Raise needle bar to its highest point and lift feeding foot **A, Fig. 7** by moving lifter **B, Fig. 5** upward.

Press down lever **C, Fig. 7** and swing needle plate around as shown.

Turn hand wheel until point of shuttle is nearest operator, then lift out shuttle with thumb and forefinger.

Turn shuttle over and bobbin will drop out.

NOTE: For **29K172 machine**, move bobbin retaining spring **D, Fig. 7** outward before taking out the bobbin.

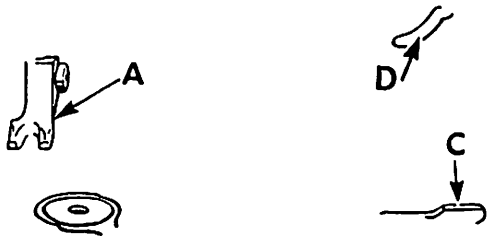

Fig. 7. Taking out the Shuttle

TO WIND THE BOBBIN

Disengage hand wheel from operating stitching mechanism by drawing out plunger **F, Fig. 8** and turning it slightly to left or right.

Place spool of thread on the spool pin and pass end of thread through the centre slot or hole in the bobbin. Then press the bobbin with slot in the side of the bobbin facing to the outside, as far as it will go, on bobbin winder spindle.

Loosen thumb screw **D, Fig. 9** on bobbin winder and push it down until the rubber ring presses against the rim of the hand wheel, then tighten screw.

Turn hand wheel over toward right as when sewing and simultaneously guide the thread with the finger as shown in **Fig. 9.**

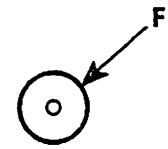

Fig. 8

NOTE: If hand wheel and bobbin winder are fitted at end of machine, the slot in the side of the bobbin must face to the left. The top of hand wheel must then turn over toward you as when sewing, to insure properly wound bobbins.

When bobbin is sufficiently full, remove it from the spindle. Loosen thumb screw **D, Fig. 9** on the winder and move screw upward in slot until the rubber ring is out of contact with the hand wheel, then tighten thumb screw.

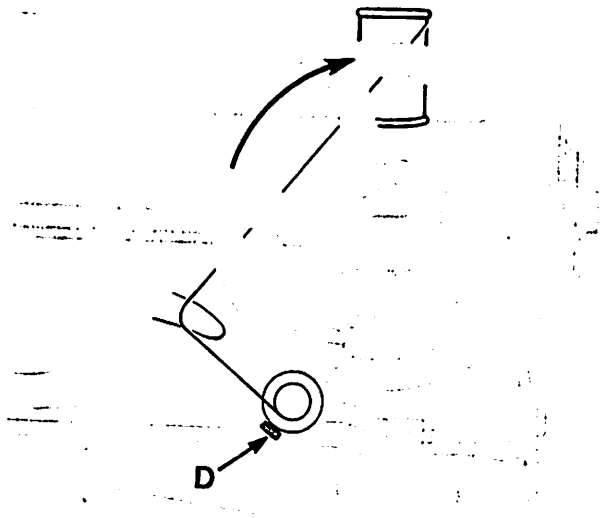

Fig. 9. Winding the Bobbin

Re-engage the hand wheel with the stitching mechanism by turning plunger **F, Fig. 8** slightly while simultaneously turning the hand wheel slowly until the plunger enters the hole in the inner disc.

TO THREAD THE SHUTTLE FOR 29K171 AND 29K173

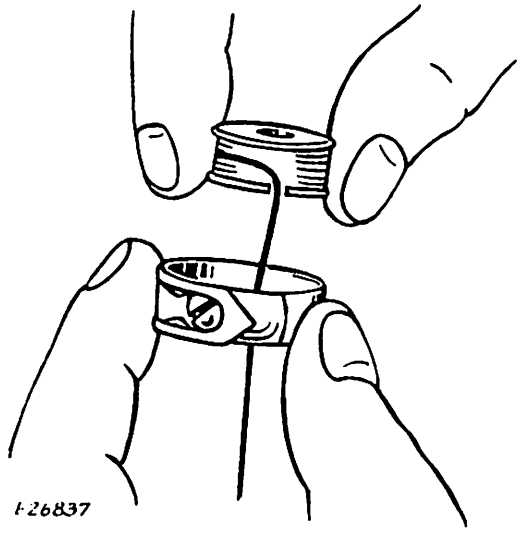

Fig.10

Hold the bobbin between the thumb and forefinger of right hand, the slot in the edge of the bobbin being at the bottom. Allow two or three inches of thread to hang free.

Hold the shuttle in the left hand with the wide opening uppermost. Let end of thread pass through shuttle opening, then place bobbin into shuttle. **See Fig. 10.**

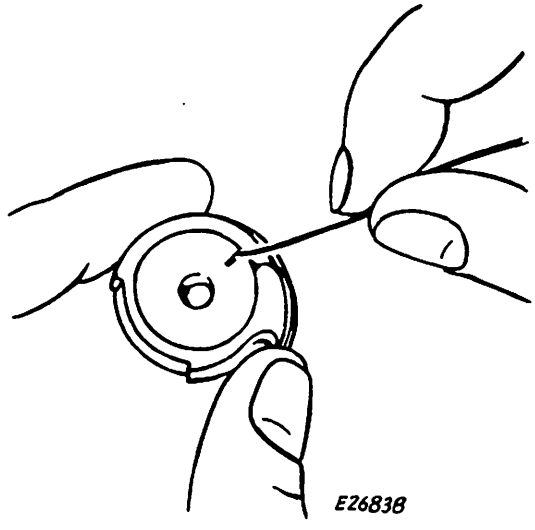

Fig. 11

Turn shuttle over while holding bobbin in it and draw the thread into the slot in the edge of the shuttle and under the end of the tension spring. **See Fig. 11.**

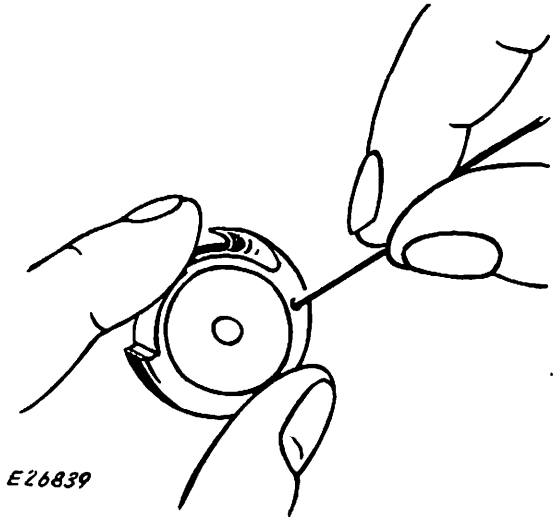

Fig. 12

Pass the thread through delivery eye which is in the upper edge of the shuttle. **See Fig. 12.**

TO THREAD SHUTTLE FOR 29K172

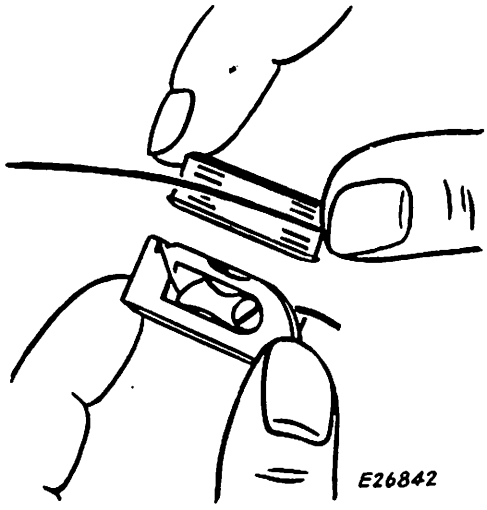

Fig. 13

Place bobbin into shuttle and push back the retaining spring which will hold the bobbin in the shuttle.

With the right hand, draw the thread into the slot in the edge of the shuttle as far as possible. **See Fig. 14.**

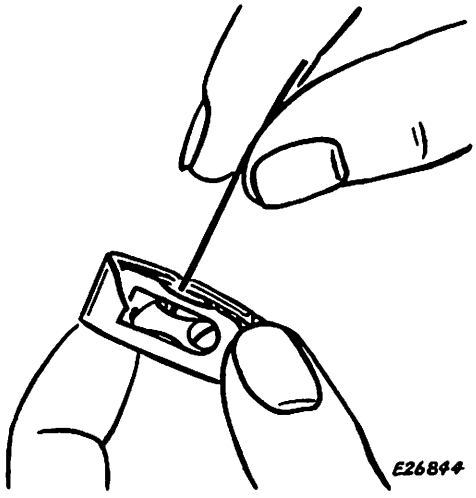

Fig. 15

Hold the bobbin between thumb and forefinger of right hand with the thread leading from right to left.

Hold the shuttle in the left hand with its open end up and its retaining spring moved outward. **See Fig. 13.**

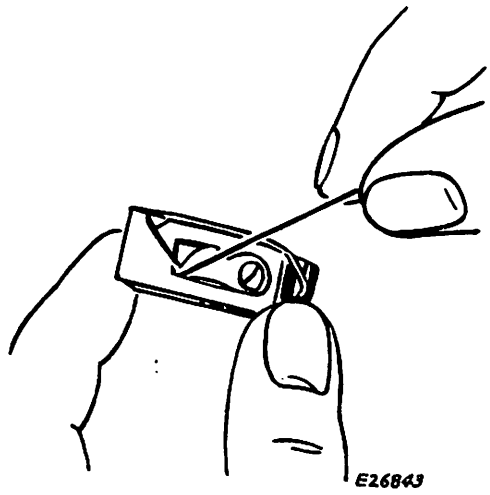

Fig. 14

Then draw thread to the left, up, and to the right under the spring. **See Fig. 15.**

Now insert end of thread up through the small hole in the edge of the shuttle and through the eye in top of the bobbin position post. **See Fig. 16.**

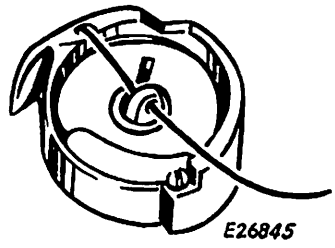

Fig. 16

TO REPLACE THE SHUTTLE

After threading the shuttle, turn hand wheel until the upright part of the shuttle carrier is to the right. Then with the point of the shuttle nearest you, and pointing towards the right, place it into the recess as shown in **Fig. 17.** With needle bar at its highest point, press down lever **C, Fig. 17** and swing back needle plate to its sewing position.

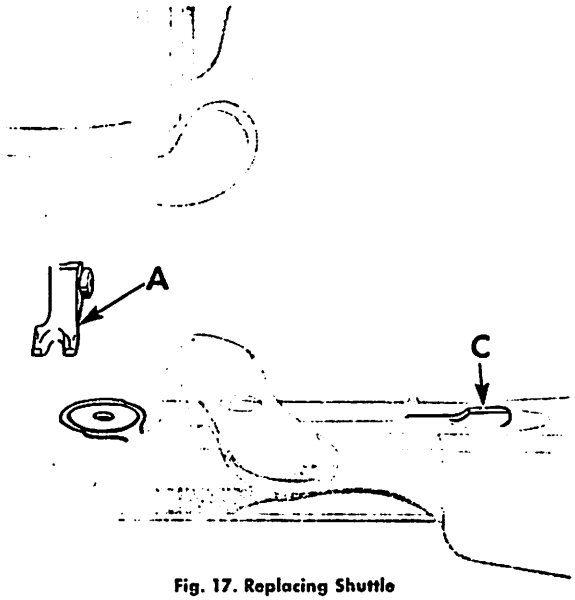

Fig. 17. Replacing Shuttle

TO SET THE NEEDLE

Raise needle bar to its highest point and loosen screw **H, Fig. 18.** Then insert shank of the needle up into the needle clamp as far as it will go with long groove of the needle to the left and its eye directly in line with the arm of the machine. Tighten screw **H, Fig. 18.** Loosen screw **G, Fig. 18** and move the clamp to right or left until the needle passes through the centre of the hole in the needle plate, then tighten screw **G.**

CAUTION: There are two double end needle plates furnished with each machine. Be certain needle is straight and corresponds to the correct needle hole size indicated on end of needle plate.

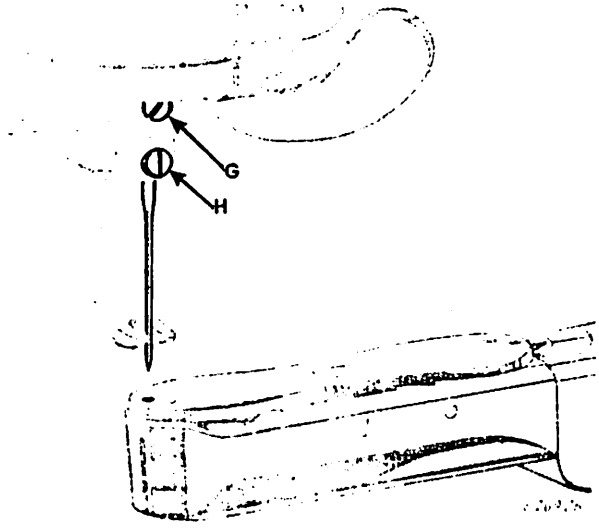

Fig. 18. Setting the Needle

TO THREAD NEEDLE

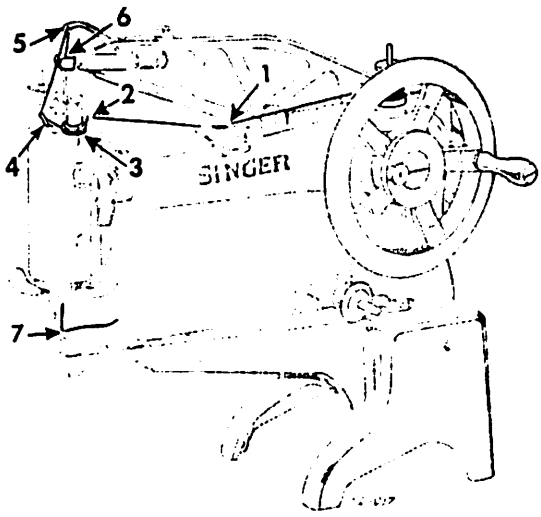

Fig. 19. Threading Needle

1. Place the spool of thread on the spool pin so that thread will draw from the rear side of spool. **See Fig. 19.**
2. Raise the wire guide in the oil cup on top of the arm and pass thread under guide **1,** then press guide back into position.
3. Draw the thread around back of pin **2** which is near the tension discs on top of the arm and from back to front and right to left between the tension discs **3. See Fig. 20.**
4. Pass thread through wire eyelet **4.**
5. Lead thread up and from front to back through the hole **5** in the take-up lever.
6. Draw about 10 inches of thread through the hole in take-up lever and insert the end into the slit in the end of the threading wire supplied with the machine. Then pass end of threading wire down through hole **6** which runs through the centre of the needle bar.
7. Remove thread from threading wire then withdraw threading wire. Pass the thread from left to right through the eye of the needle **7.** Draw about three inches of thread through the eye of the needle with which to start sewing.

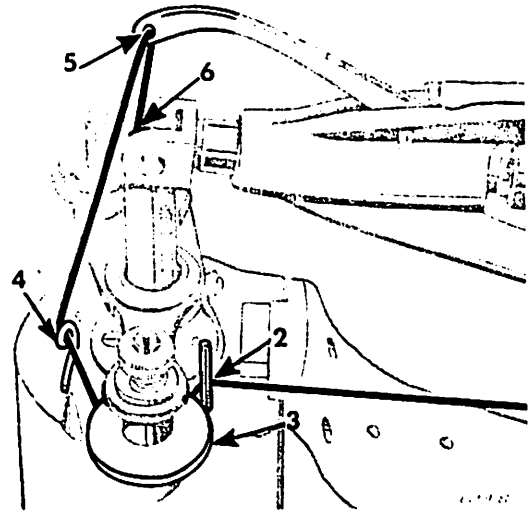

Fig. 20. Upper Threading

TO THREAD NEEDLE FOR DARNING

1. Place the spool of thread on the spool pin so that thread will draw from rear side of spool.

2. Raise the wire guide in the oil cup on top of the arm and pass thread under guide **1** then press guide back into position. **See Fig. 19.**

3. Pass thread over the pin **2** near the tension discs in front of the arm and from right to left under and between the tension discs **3, Fig. 21.**

4. Pass thread through wire eyelet **4.**

5. Pass thread up and from front to back through the hole **5** in the take-up lever.

6. Draw about 10 inches of thread through the hole in take-up lever and insert the end into the slit in the end of the threading wire supplied with the machine. Then pass end of threading wire down through hole **6** which runs through the centre of the needle bar.

7. Remove thread from threading wire then withdraw threading wire. Pass the thread from left to right through the eye of the needle **7.** Draw about three inches of thread through the eye of the needle with which to start darning.

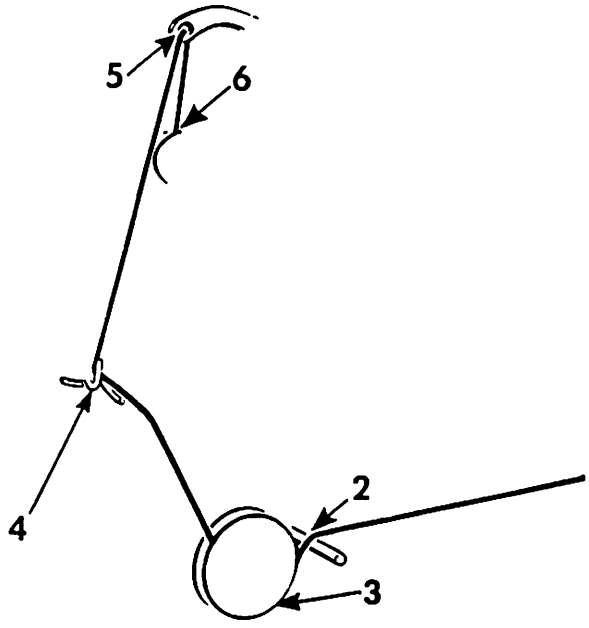

Fig. 21. Upper Threading for Darning

TO PREPARE FOR SEWING

With the left hand hold the end of the needle thread, leaving it slack from the hand to the needle. Turn top of hand wheel over to right until the needle moves down and up again to its highest point, thus catching the bobbin thread; draw up the needle thread and the bobbin thread will come up with it through the hole in the needle plate. **See Fig. 22.** Lay both threads back under the feeding foot.

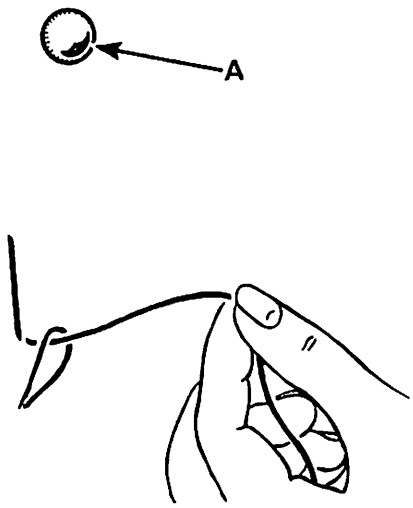

Fig. 22. Drawing up Bobbin Thread

NOTE: Turn top of hand wheel over toward you if hand wheel is fitted at end of machine.

TO START SEWING

Place the material under the feeding foot, lower the foot and start to sew, turning the hand wheel over to right. (Turn hand wheel over toward you if located at end of machine.)

CAUTION: Do not try to help feeding of the work by pulling the material as this may deflect the needle and cause it to break. The machine feeds the work easily without any assistance.

TO REMOVE THE WORK

Let the needle bar rest at its highest point, raise the feeding foot, then draw the material backward about 3 inches and cut the threads close to the work. Leave the ends of the threads under the feeding foot.

TENSIONS

For perfect stitching, the tension on needle and bobbin threads must be heavy enough to pull threads to centre of material and make a firm stitch, thus:

Fig. 23. Perfect Stitch

If the tension on the needle thread is too tight, or if that on the bobbin thread is too loose, the needle thread will lie straight along the upper surface of the material thus:

Fig. 24. Tight Needle Thread Tension

If the tension on the bobbin thread is too tight, or if that on the needle thread is too loose, the bobbin thread will lie straight along the under side of the material, thus:

Fig. 25. Loose Needle Thread Tension

NEEDLE THREAD TENSION

The tension on the needle thread is regulated by the thumb nut near the tension discs. **See Fig. 26.**

To increase the needle thread tension, tighten thumb nut.

To decrease the needle thread tension, loosen thumb nut.

NOTE: Tension on needle thread can be tested **only** when the feeding foot is down.

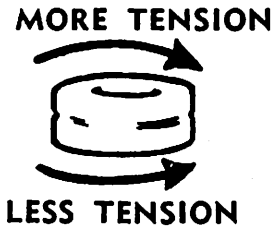

Fig.26. Regulating Needle Thread Tension

BOBBIN THREAD TENSION

The tension on bobbin thread is regulated by the screw in **Figs. 27** and **28** on the end of the shuttle tension spring.

To increase bobbin thread tension, gradually tighten screw. **See Fig. 27.**

To decrease bobbin thread tension, gradually loosen screw. **See Fig. 28.**

When bobbin thread tension has been properly adjusted, it is seldom necessary to change it because a correct stitch can be usually obtained by varying the needle thread tension.

Fig. 27. Increasing Bobbin Thread Tension

Fig. 28. Decreasing Bobbin Thread Tension

TO REGULATE THE TAKE-UP LEVER WITH REGULATOR INDICATOR

The spring tension on take-up lever **J, Fig. 29** is adjusted by thumb nut **K**. The tension on this lever should be about the same as that applied to the upper thread by the tension discs.

When the stitch is set, at the top of the needle bar stroke, lever **J** should be held down far enough by the tension of the thread so that the take-up action will keep the thread taut until the needle enters the work.

When sewing light weight materials with fine thread, more take-up action may be secured by turning the thumb nut **K** so that it screws up to decrease the take-up spring tension. This should be done instead of tightening the thumb nut of the tension discs.

For heavier materials and thread, the take-up tension must be about the same as that applied to the upper thread by the tension discs.

The travel of take-up lever **J** is regulated by means of knurled nut **L**. The indicator near nut **L** is marked with the figures 0 to 4. This indicator provides a useful guide to the operator in setting the take-up movement most suitable for the material and thread being used. For thin materials, such as kid or box calf, turn knurled nut **L** until the zero mark is opposite the small plunger **U**.

Other adjustments can be made in steps by turning the nut to suit any thickness of material and thread within the capacity of the machine.

NOTE: All machines sent out from the factory are so adjusted that they will give satisfactory results on a general range of materials. Before any adjustment is made to the travel of the take-up lever, the needle bar should be raised to its highest point.

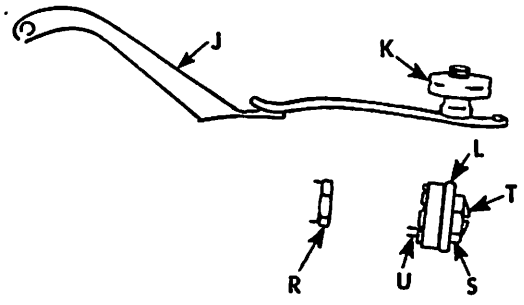

Fig. 29. Regulating Tension and Travel of Take-up Lever

ADJUSTMENT OF THREAD TAKE-UP LEVER REGULATOR INDICATOR

The range of adjustment given by the indicator, when sent out from the factory, should suffice for all general purposes, but, if desired, the range can be raised or lowered by means of the adjusting screw **T, Fig. 29** at the extreme right.

To alter the range, loosen the lock nut **S** and, using a screwdriver, turn the centre screw **T** to the right to reduce the travel of the take-up lever.

To increase the travel, turn the screw **T** to the left. Wear at the tip of the centre screw can also be taken up in this manner. When the proper adjustment has been obtained, tighten the lock nut **S**.

It is most important that the hexagon head nut **R** be securely locked against the face of the piston.

TO CHANGE LENGTH OF STITCH

The length of stitch is regulated by the stitch regulator which is held in position by thumb screw **M, Fig. 30** at back of the feeding foot bar. Loosen thumb screw **M** and move the regulator up or down until its top is in line with the mark indicating desired number of stitches to the inch as shown by the arrow. Then tighten the thumb screw.

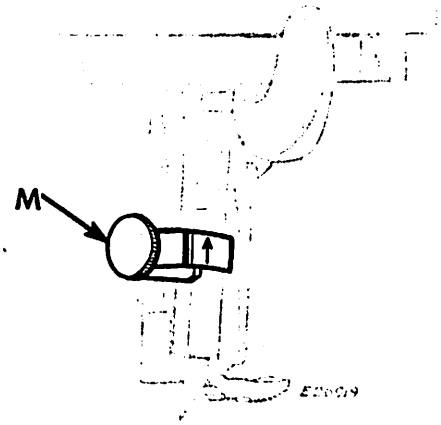

Fig. 30. Changing Stitch Length

TO REGULATE PRESSURE ON THE MATERIAL

The pressure on the material is regulated by knurled thumb nut **O, Fig. 31.** To increase the pressure, tighten the thumb nut. To reduce the pressure, loosen the thumb nut.

Heavier pressure is required for leather work than for sewing cloth or cotton materials. The pressure should be only heavy enough to enable the feed to move the work along evenly.

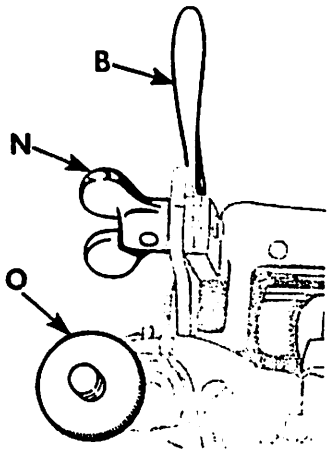

Fig. 31. Regulating Pressure on Material

TO TURN A CORNER

Stop the machine with the needle in the work and turn top of hand wheel over to right until the feeding foot rises. Then turn the work as desired, using the needle as a pivot.

NOTE: If hand wheel is located at end of machine, turn top of hand wheel over toward you.

TO REGULATE THE AUTOMATIC LIFT OF THE FEEDING FOOT

While the machine is in operation, the feeding foot rises after it has moved the work forward; then the foot moves toward the needle and descends again upon the fabric. It is advisable that the lift of the foot should be only sufficient to clear the thickest part of the work.

To adjust the lift, raise the feeding foot by means of lifter **B, Fig. 31.** To increase the feeding foot lift, loosen wing screw **N** and move the screw toward you. To reduce the lift, move the screw away from you. When the desired height of lift is obtained, tighten the wing screw.

TO CHANGE DIRECTION OF THE FEED

While stitching, the work is moved along by the action of the feeding foot only.

The direction of the stitching can be changed as desired by turning the foot around by means of the two handles **E, Fig. 32.**

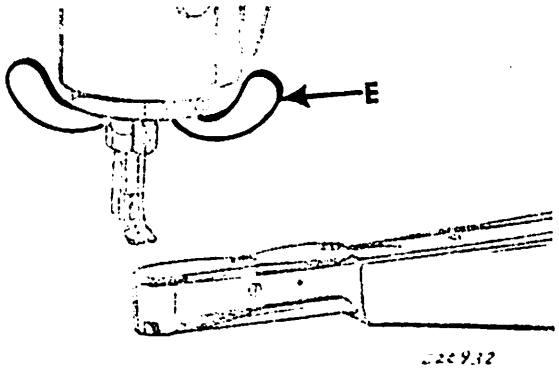

Fig. 32. Changing Feed Direction

TO CHANGE THE NEEDLE PLATE

1. Raise the needle bar to its highest position.

2. Loosen screw **Q, Fig. 33** and, by lifting upward, remove needle plate and hinge pin **P.**

3. When replacing the needle plate, place flat side of pin **P** toward screw **Q.**

4. Tighten screw **Q** on flat side of pin **P.**

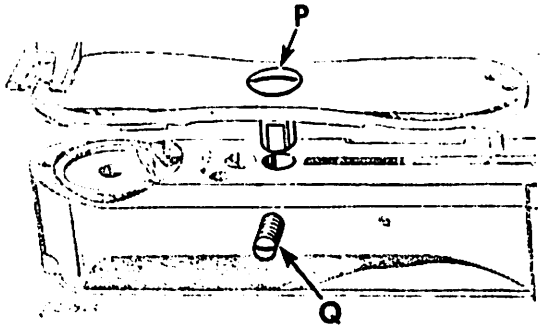

Fig. 33. Correct Position of Hinge Pin in Needle Plate

HINTS FOR PERFECT OPERATION

Oil the machine regularly.

The top of hand wheel must always turn over to the right (clockwise). If located at end of machine, the hand wheel must turn over toward you (counter-clockwise).

Never run the machine without material between the feeding foot and needle plate.

Do not run the machine when both shuttle and needle are threaded unless there is material under the feeding foot.

The Belt

See that the belt is not too tight; it should be just tight enough not to slip. If too loose, remove the hook at one end, shorten the belt and rejoin.

Machine Working Heavily

If the machine runs hard after standing idle for some time, use a little kerosene or benzine in the oiling places, run the machine rapidly, then wipe clean and oil.

To Avoid Breaking Needles

The feeding foot should be securely fastened by the thumb screw. Do not sew heavy seams or very thick material with too fine a needle. A large needle and thread to correspond should be used on heavy work. **See page 5.**

Avoid pulling the material when stitching. This may cause the needle to strike on the needle plate and break.

Breaking of Upper Thread

Improper threading of machine.

Tension being too tight.

The thread being too coarse for the size of the needle.

The needle being bent, having a blunt point, or being set incorrectly.

Breaking of Under Thread

Improper threading of shuttle.

Bobbin Thread tension being too tight.

Skipping of Stitches

The needle may not be accurately set into the needle bar or the needle may be blunt or bent.

Remove the accumulation of dirt or lint which might gather behind thread retaining spring near bottom of needle bar by working a piece of tape or thread back and forth between spring and needle bar.

CAUTION: Do not bend spring away from needle bar or spring may become permanently damaged.

Examine feeding foot and remove any dirt or lint from the teeth to insure regular feeding of material.

Working on old, hard leather

When working on old, hard leather, it is advisable to soften the leather with oil, use a coarse needle and make a long stitch to prevent needle from splitting the leather.

TO EXAMINE, REMOVE AND RE-ASSEMBLE THE PARTS FROM THE RACK BOX

Remove machine from treadle stand or power bench after taking out the four screws located at the base of the machine. The machine should then be tilted back upon its machine pulley end, the underside facing the adjuster. Parts can be examined or removed from the rack box after taking out the two screws **V, Fig. 34** and removing the cover plate. The following parts are then exposed as shown in **Fig. 35:** long rack **Y,** short rack **X,** intermediate pinion **Z,** shuttle driving pinion **W,** needle plate locating pin and spring **A2,** all of which can be removed without disconnecting the rack box from the machine.

To take out the shuttle carrier, remove the small set screw in the shuttle driving pinion **W** by inserting a small screwdriver through the groove at the side of the rack box as shown in **Fig. 35.** The shuttle carrier can then be pressed through the pinion. To remove the long rack **Y,** insert a screwdriver through hole as shown in **Fig. 36** and take out the screw **X2.** Before proceeding to withdraw the rack, remove the pinion **Z, Fig. 35** then grip the rack and draw it straight toward the pulley end of the machine. The short rack **X** and shuttle driving pinion **W** can be removed without difficulty. When replacing any one or re-assembling the whole of these parts, care must be taken to see that the gears and racks are correctly engaged, as shown in **Fig. 36.**

INSTRUCTIONS FOR REMOVAL OF THE RACK BOX

If for any reason it is necessary to remove the rack box from the machine, proceed as follows: Remove the machine from its treadle stand or power bench. Turn the hand wheel until the connecting rod hinge screw **X2, Fig. 36** is opposite the hole in the lower arm. Then tilt the machine back upon its machine pulley end, the underside facing the adjuster. Insert a screwdriver through the hole as shown in **Fig. 36,** and remove the screw **X2.** Slightly loosen the two screws **B2** by giving them a half turn with a screwdriver. Then drive out the taper pin **C2,** using a 3/16" punch and hammer, and take out the two screws **B2.** The machine should now be replaced on its feet and the horn will then come away if pulled in a horizontal direction.

CAUTION: Never raise the front of the horn or the end of the long rack may be damaged.

When re-assembling the box to the machine, be sure that the taper pin **C2** is driven in as far as it will go before finally tightening the two screws **B2, Fig. 36.**

NOTE: Cover plate is shown removed in **Fig. 36** to illustrate how the gears and racks should be correctly engaged.

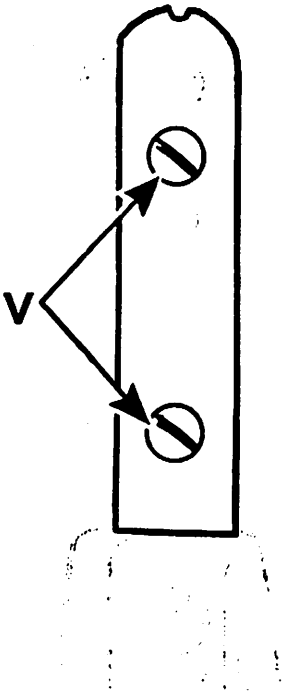

Fig. 34. Removing Cover Plate

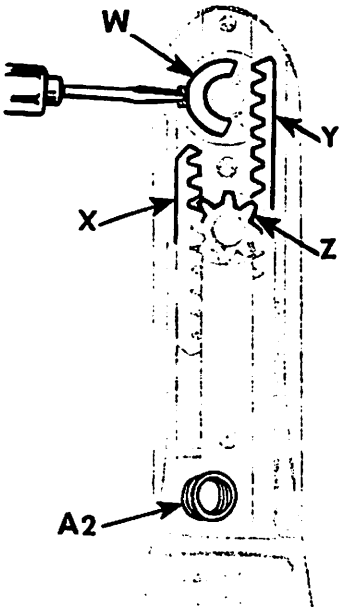

Fig. 35. Removing Parts from Rack Box

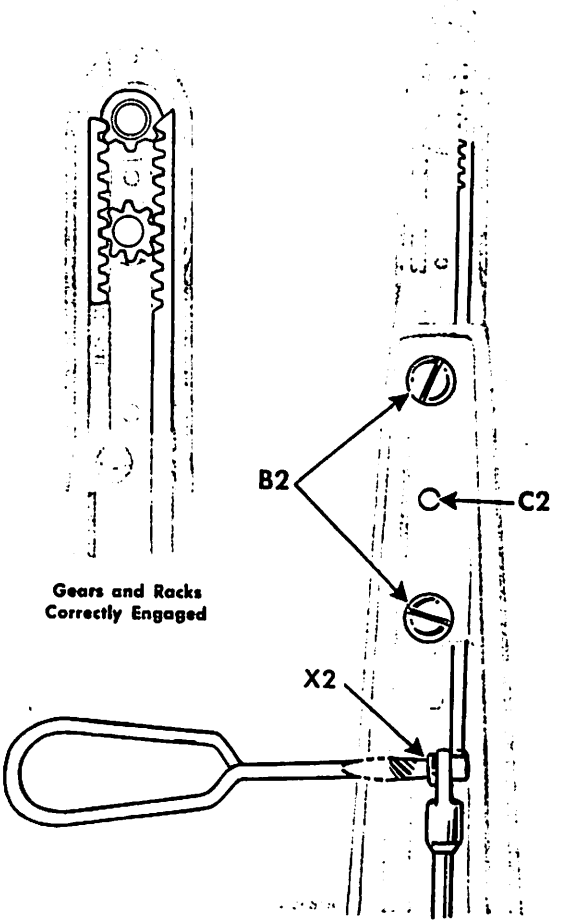

Fig. 36. Removing Rack Box