

SINGER
176-31 TO 176-34

USE ONLY **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 a stainless oil is desired, use:

TYPE D — MANUFACTURING MACHINE OIL, STAINLESS, HEAVY GRADE

OTHER **SINGER** LUBRICANTS

TYPE E — STAINLESS THREAD LUBRICANT

For lubricating the needle thread of sewing machines for stitching fabrics or leather where a stainless 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 or in 55 gallon drums.

GEAR LUBRICANT

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

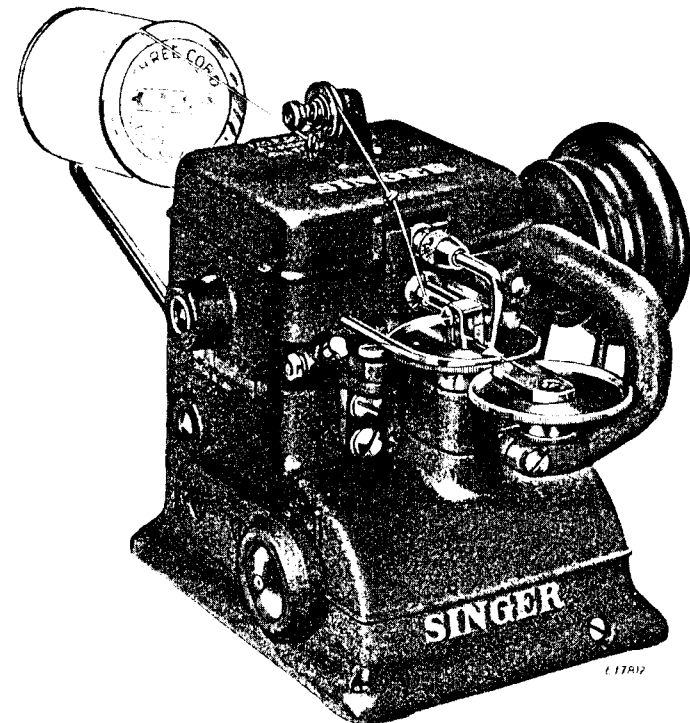
BALL BEARING LUBRICANT

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.

INSTRUCTIONS

FOR USING AND ADJUSTING

SINGER* SEWING MACHINES 176-31 to 176-34



MACHINE 176-31

*A TRADE MARK OF

THE SINGER MANUFACTURING COMPANY

TO ALL WHOM IT MAY CONCERN:

The improper placing or renewal of the Trade Mark "SINGER" or any other of the Trade Marks of The Singer Manufacturing Company (all of which are duly Registered Trade Marks) 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.

DESCRIPTION

Machine 176-31 is recommended for stitching light to medium heavy skins such as chinchilla, mink, ermine, Alaska seal, Hudson seal, fox, squirrel, raccoon, beaver, coney, etc. It is used for manufacturing fur garments and, by retail furriers, for repairs, remodeling and for general all-around work.

Machine 176-32 is similar to Machine 176-31 but has a longer needle bar stroke and higher looper lift for medium heavy skins such as dog, wolf, beaver, goat, etc., and for closing and sleeve operations.

Machine 176-33 is a much larger and heavier machine than either 176-31 or 176-32. It is fitted with heavier parts and has a still longer needle bar stroke and higher looper lift than Machine 176-32. It is adapted to sew the heaviest skins, such as horse, bear, sheep, heavy goat; also automobile rugs, etc.

Machine 176-34 is similar to Machine 176-33 except that it is fitted with special feed discs and work guide for the general Slipper Trade, for joining in one operation the sock lining, padding and upper portion of various kinds of slippers. It is widely used in the manufacture of house slippers.

REGARDING ORDERS FOR MACHINES

When ordering SINGER fur sewing machines, also when returning machines for adjustment or repair, always include a few scrap pieces of skins, showing the lightest as well as the heaviest skins being used; also a spool of thread. The machine can then be adjusted at the factory to exactly meet the requirements. These adjustments should not be disturbed.

KEEP MACHINES CLEAN

To get the best results, every SINGER Fur Sewing Machine should be cleaned every day while in active service. Allowing the machine to accumulate dust, dirt and loose hair will greatly impair its efficiency. If kept clean, the machine will not only do better work but will operate much longer and at less expense for repairs.

Take out the screw **K**, Fig. 3, Page 6; remove the needle guide **KK**, Fig. 3 and remove any foreign matter which may have accumulated beneath the needle guide. When replacing the guide **KK** make sure that the guide is set to insure that the needle centers in the needle groove in this guide, then firmly tighten screw **K**.

TO SET UP MACHINES 176-31 AND 176-32

Table 29738, shown in Fig. 2, Page 5, has the two belt holes, the hole for the feeding disc opening chain, and the hole for the drain plug in the machine base bored when it is shipped from the factory.

Set the machine base plate on the table, with the large hole in base-plate to the right and so that the drain-hole plug and the hole in the base-plate (for the feeding disc opening chain) coincide exactly with the two

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

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

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

holes provided for the purpose in the table; thus the two belt holes will be to the right of the base-plate. Fasten base-plate to the table with four wood screws.

Place the machine on the base-plate and tip the machine over to the right so that it rests upon the machine pulley, then, through the bottom of the machine, hook the feeding disc opening chain into the hole in the end of the pressure lever which is located inside the machine. Start the other end of the chain down through the chain hole in the base-plate and the table. Tip the machine back into operating position and fasten it to the base-plate with the four special screws furnished. Attach the machine-driving belt which should center in the belt holes in the table.

Attach the bracket **B**, Fig. 2, to under side of table (by means of the two wood screws provided with the machine) in such position that the feeding disc opening chain is about central with the chain hole in the base-plate and table, and that the treadle rod **C** will be approximately perpendicular. Then hook one end of the lever into the chain and insert upper treadle rod **C** in the other end of the lever; attach lower treadle rod **E** to left treadle; lightly clamp the two rods together with clamp **D** and adjust the treadle rods for correct length, then securely tighten the clamp **D**.

NOTE—This installation is for a heel-operated treadle used in the fur trade, and should be used with the 176-33 Machine when employed in that trade.

Belt Hole Guard 152051, which accompanies the machine, prevents the furs from coming in contact with the driving belt, and prevents dirt and other foreign matter from dropping down through the belt holes and fouling the driving equipment. It should be attached to the top surface of the table by means of the two wood screws furnished with the machine. The correct position of this belt guard, with relation to the driving belt, is shown in Fig. 1A. The guard should be set close to, but not in contact with, the driving belt.

TO SET UP MACHINES 176-33 AND 176-34

To set up Machine 176-34, or Machine 176-33 for other than the fur trade, follow the previous instructions EXCEPT that the treadle lever should be arranged for toe operation. This is done by hinging the treadle lever **A**, Fig. 2 at one end instead of at the center in the bracket **B**, hooking the chain in the center hole and the treadle rod in the hole in the other end of the lever. This arrangement of treadle is used on sheep-lined coats and on slipper work.

NOTE—The machine pulley should always turn over away from the operator.

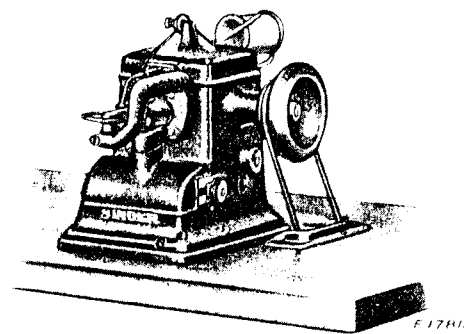


Fig. 1 A
Belt Guard 152051
in Position

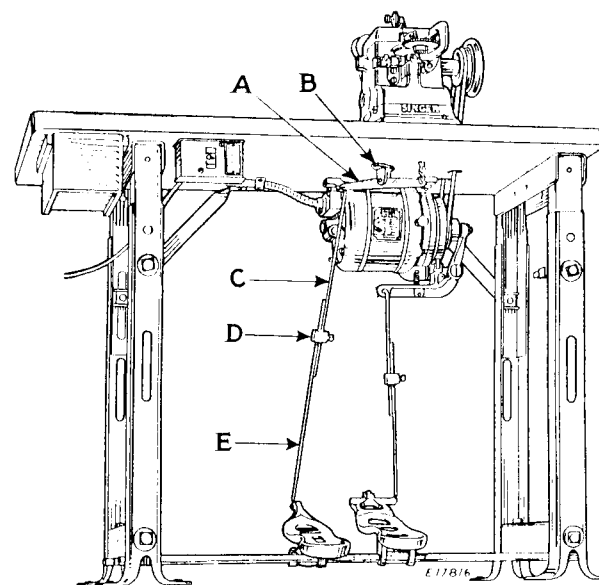


Fig. 2. Setting Up Machines 176-31 and 176-32
(Showing Table 29738 and Stand 46916)

SPEED

Following are the maximum speeds recommended for these machines:

Machine	R. P. M.
176-31	2400
176-32	2000
176-33	1500
176-34	1500

TO OIL THE MACHINES

To insure easy running and prevent unnecessary wear of the parts which are in movable contact, the machines require oiling every day.

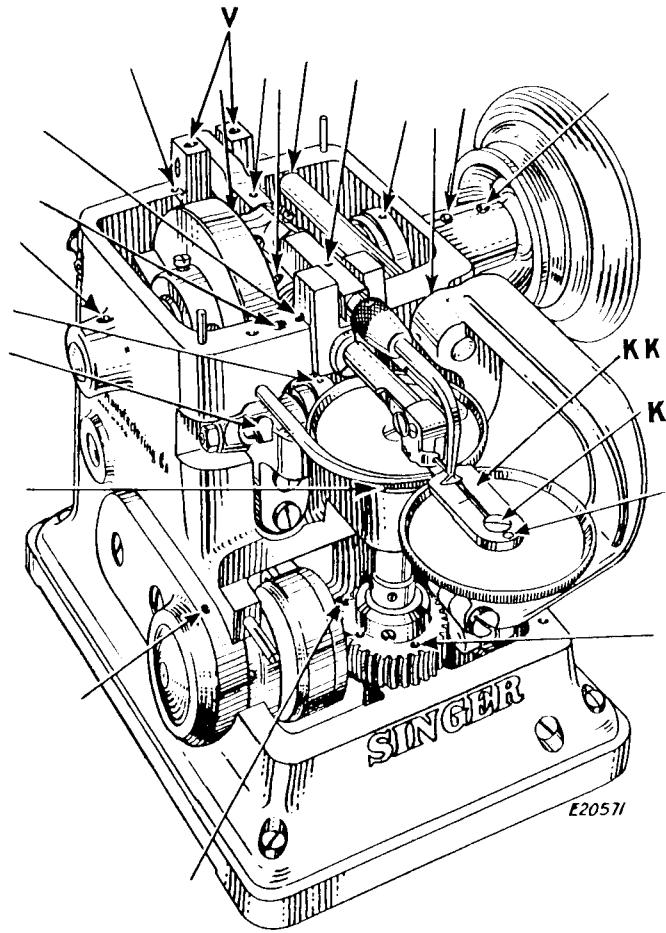


Fig. 3. Oiling Points on Front, Top and Left
(Machines 176-31 and 176-32)

Machine 176-31, only:

Apply a few drops of oil at oiling points V, Fig. 3.

Use "TYPE D" OIL, sold only by Singer Sewing Machine Company. For description of this oil, see inside front cover.

Apply oil to all of the oiling points indicated in Figs. 3, 4, 5 and 6, by the unlettered arrows.

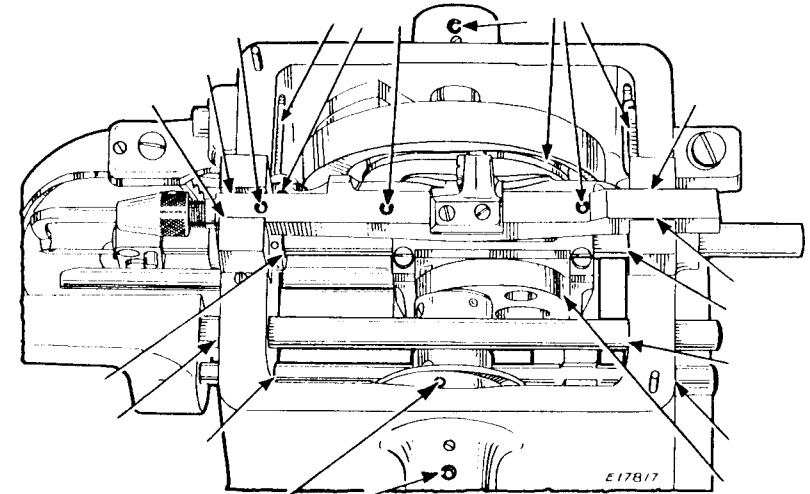


Fig. 4. Oiling Points on Top of Machines 176-33 and 176-34

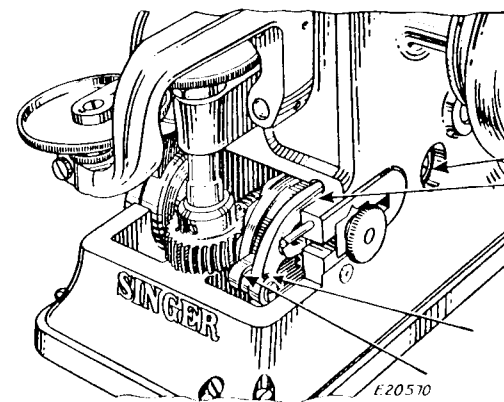


Fig. 5. Oiling Points on
Right of Machines

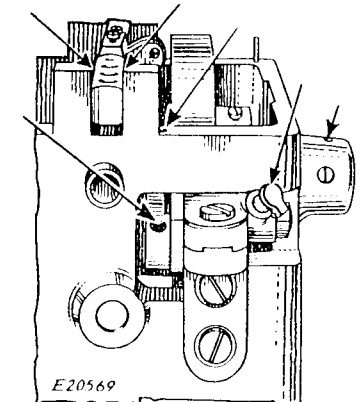


Fig. 6. Oiling Points in
Rear of Machine 176-32

NEEDLES

Machine	Needle Class and Variety	Size of Needle	Class of Work	Size of Thread
176-31	176x1	10 or 12	Medium heavy skins and closing	60
		9	Wolf, raccoon, coney, fox, beaver, etc.	70
		8	Hudson seal, skunk, medium mink, etc.	70-80
		6	Seal, mink, squirrel, etc.	80
		5	Ermine, mole, sable, etc.	90
		4	Chinchilla and all other very fine skins	100-120
176-32	176x3	18 or 21	Heavy dog and wolf, light sheep, etc.	40-50
		16 or 17	Dog, goat, light wolf, etc.	50-60
		14	Raccoon, heavy beaver, etc.	60
		11	For finer skins	60-70
176-33	176x5	22 or 23	Bear, deer, heavy wolf and sheep skin	20-24
		18 or 21	Dog and sheep	36-40
		16	All kinds of lighter skins	50-60
176-34	176x5	22 or 23	Leather soles and uppers and very heavy felt slippers	20-24
		18 or 21	Heavy felt slippers	36-40
		16	Light felt slippers	50-60

The size of the needle is determined by the size of the thread which must pass freely through the eye of the needle. The use of rough or uneven thread, or thread which passes with difficulty through the needle eye, 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 the letter X. Needles are sold in packages containing one dozen needles or in boxes of 100.

The following is an example of an intelligible order:

"100 No. 8, 176x1 Needles"

For best results, use only SINGER* needles, bearing the trade mark SIMANCO*.

TO SET THE NEEDLE
(See Fig. 7)

Turn the balance wheel until the looper swings out of the way as shown below, and open the feed discs.

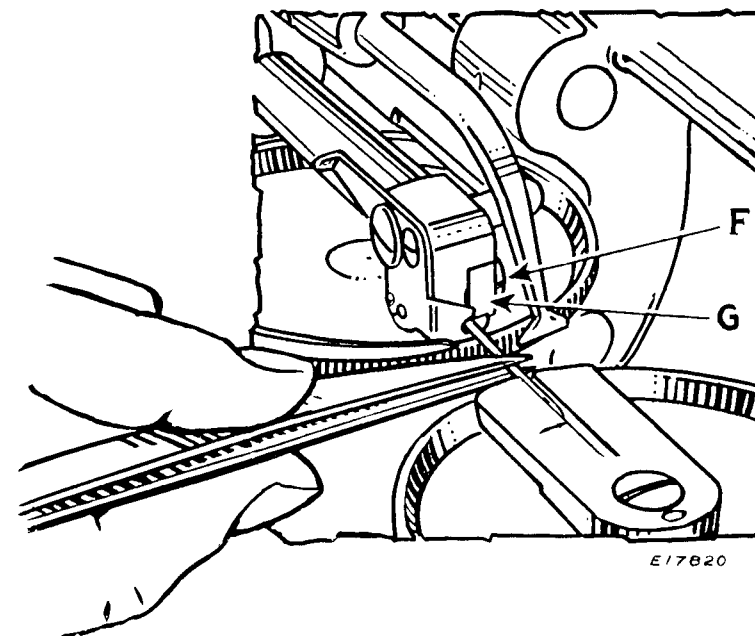


Fig. 6. Inserting the Needle

Holding the needle in tweezers with its short groove up, place it into the needle groove in the needle bar, under the clamp G, and push it back as far as it will go, then tighten the clamp screw F.

Never release the needle clamp more than is necessary to free the needle, and, before inserting a needle, make sure that a piece of broken needle is not left in the groove.

TO THREAD THE MACHINES

Pass the thread from the spool on the spool holder 1, Fig. 8 at the rear of the machine, then through the thread guide 2, forward and over between the tension discs 3, forward through the thread guide 4, down and

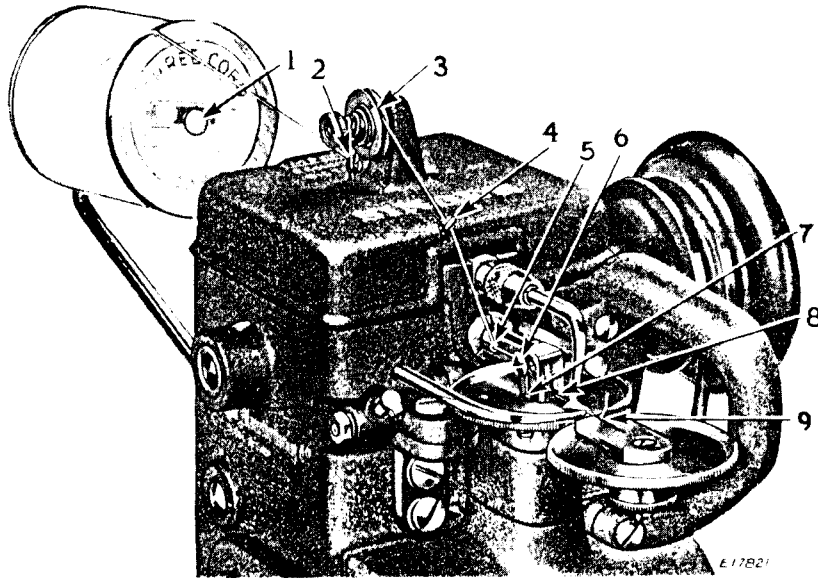


Fig. 8. Threading the Machine

through the hole 5 in the needle bar tension plate. Now turn the machine pulley until the needle bar tension plunger 6 opens, and, holding the thread stretched tight in both hands, open the front disc and pass the thread under the needle and BACK UNDER THE NEEDLE BAR into the thread slot 7. With the left hand, loop the thread over the tension plunger 6, then draw forward the end held in the right hand, close up under the needle bar and into the hole 8 in the tension plate through which the needle protrudes, then, from the underside, pass the thread up through the needle eye 9.

NOTE Machines 176-33 and 176-34 are threaded as described above except that the thread is passed from the tension discs 3 through the guide X, as shown in Fig. 9, Page 11.

THREAD TENSION

The tension on the thread is regulated by turning the thumb nut at the left of the tension discs, on top of the machine.

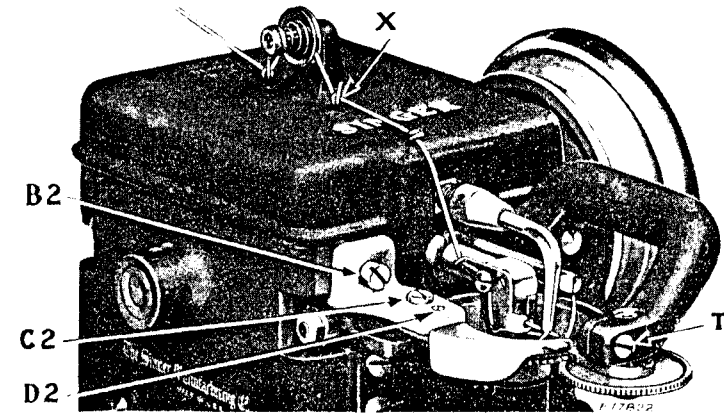


Fig. 9. Adjustments on Machine 176-34

TO CHANGE THE LENGTH OF STITCH

Loosen the round thumb nut H, Fig. 10, Page 12, on the lower right hand side of the machine and move it toward you for a shorter stitch, or away from you for a longer stitch.

TO REGULATE THE PRESSURE OF THE FEED DISCS

The pressure between the feed discs may be increased by turning the screw N, Fig. 10 to the right, or decreased by turning this screw to the left. Do not use a heavier pressure than is necessary for positive feeding of the work.

TO POSITION THE WORK GUIDE ON MACHINES 176-33 AND 176-34

The work guide may be moved sidewise, toward or away from the needle, after loosening the large screw B2, Fig. 9.

To raise or lower the guide, loosen screw C2 and turn the small set screw D2 up or down as required, then tighten screw C2.

INSTRUCTIONS FOR ADJUSTERS and MACHINISTS

TO ADJUST THE FEED DISCS IN RELATION TO THE NEEDLE

Both discs on these machines should be set to a height where the needle, at or just forward of its eye, barely clears the rim of the disc. Both discs should be adjusted to the needle and should be held apart while adjustment is being made.

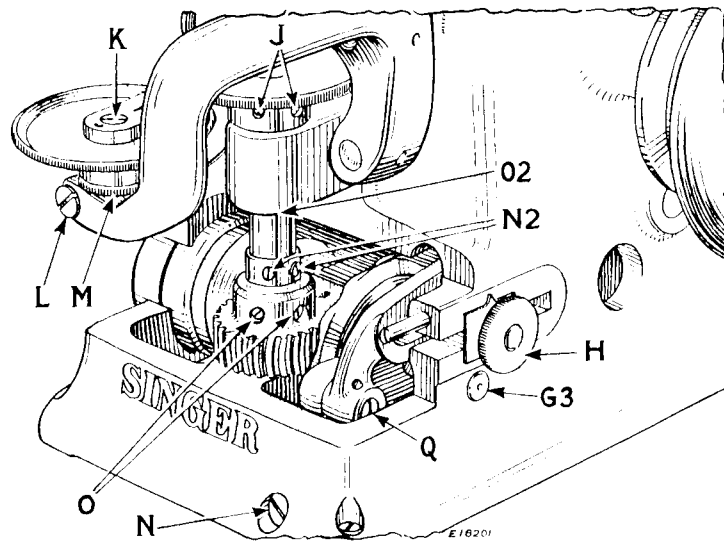


Fig. 10. Adjusting the Feed Discs

To Adjust the Rear Disc on Machines 173-31, 176-32, 176-33 and 176-34, loosen the two set screws N2, Fig. 10 in the back feeding disc shaft reinforcing sleeve; also loosen the two set screws O, Fig. 10 in the hub of the back feeding disc worm gear; then, by means of the left hand treadle, hold the front disc disengaged from the back disc and set the back disc up or down as required. With the worm gear down against its seat, tighten the two screws O, then tighten the two screws N2 in the reinforcing sleeve, making sure that the upper end of the sleeve is against the machine casting at O2, Fig. 10.

To Adjust the Front or Idler Disc on Machines 176-31, 176-32 and 176-33, loosen the screw L, Fig. 10 and adjust the disc to the needle by turning the knurled flange of the disc stud M, Fig. 10 to the left to lower the disc, or turn the knurled flange to the right to raise the disc. Should the needle guide be in the way of the needle while making this adjustment, loosen the screw K, Fig. 10 and turn the guide aside, then retighten the screw K slightly. When the disc is set at the correct height, loosen the screw K, move the needle guide back into position so that the needle will be located centrally in the needle groove of the guide and securely tighten the screw K.

On Machine 176-34, the idler disc may be slid up or down after loosening the clamp screw T, Fig. 9. See that the needle guide groove is in line with the needle before tightening the clamp screw.

TO REMOVE THE FEED DISCS (See Fig. 10)

A set of thinner feed discs, for sewing mink and similar furs, may be furnished for Machine 176-31.

To Remove the Idler Disc, remove screw K and lift off the idler disc, being careful not to lose the bearing rollers for this disc.

To Remove the Idler Disc Complete (including the bearings housing and the bearings), loosen clamping screw L, and unscrew complete idler disc assembly from feeding disc arm.

CAUTION. When replacing the idler disc assembly, operate the knee control to move the feeding disc arm forward (as when spreading the discs) while screwing the idler disc assembly into the feeding disc arm, otherwise the teeth on the two discs may be damaged.

To Remove the Feeding Disc, loosen the two set screws O, in hub of back feeding-disc worm gear; also loosen the two screws N2, and the two screws J, then drop feeding-disc shaft down until feeding-disc can be removed.

TO REMOVE THE LOOPER CAM ROLLER

To remove this roller without disturbing the cam, loosen the two screws AA, Fig. 11, draw out the looper shaft and remove the roller arm BB, Fig. 11 with the roller. Note that the roller can be removed or replaced in the cam raceway only through the cut at CC, Fig. 11.

When reassembling these parts, be sure that the screws AA are seated on the "flat" of the looper shaft.

ADJUSTMENT FOR WEAR IN THE NEEDLE BAR

The needle bar bushing Y, Fig. 11, Page 12 is split and may be drawn in, to take up any play which develops, by turning the threaded collar Z, Fig. 11 in the direction indicated by the arrow in Fig. 11. This collar is provided with holes and may be tapped around the needle bar with a small punch.

TO SET THE NEEDLE BAR

The needle bar may be set to the correct position after loosening the two clamp screws DD, Fig. 11.

On Machines 176-31, 176-32 and 176-33, the needle bar should be set so that the center of the needle eye is opposite the mark LL, Fig. 12

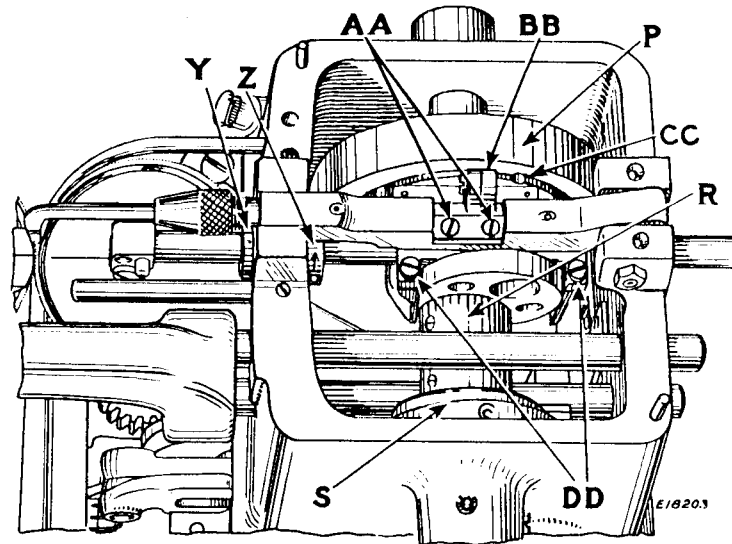


Fig. 11. Needle Bar Adjustments

on the needle guide when the needle bar is all the way forward and the feed discs are together, then tighten the clamp screws DD, Fig. 11. These screws need not be excessively tight.

On Machine 176-34, the needle bar should be set so that the front end of the needle bar tension plate HH, Fig. 12 is about $\frac{1}{2}$ inch from the rim of the feeding disc JJ when the needle bar is all the way forward.

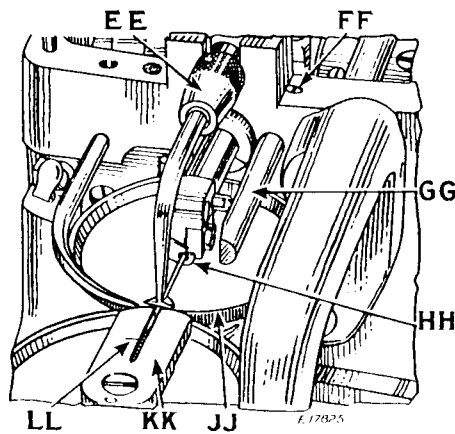


Fig. 12. Setting the Needle Bar

See that the needle bar is turned so that the side of the tension plate HH is about square with the surface of the disc. Align the groove in the needle guide KK with the needle, and have the needle locate in the center of the groove; then tighten the clamp screws DD, Fig. 11. These screws need not be excessively tight.

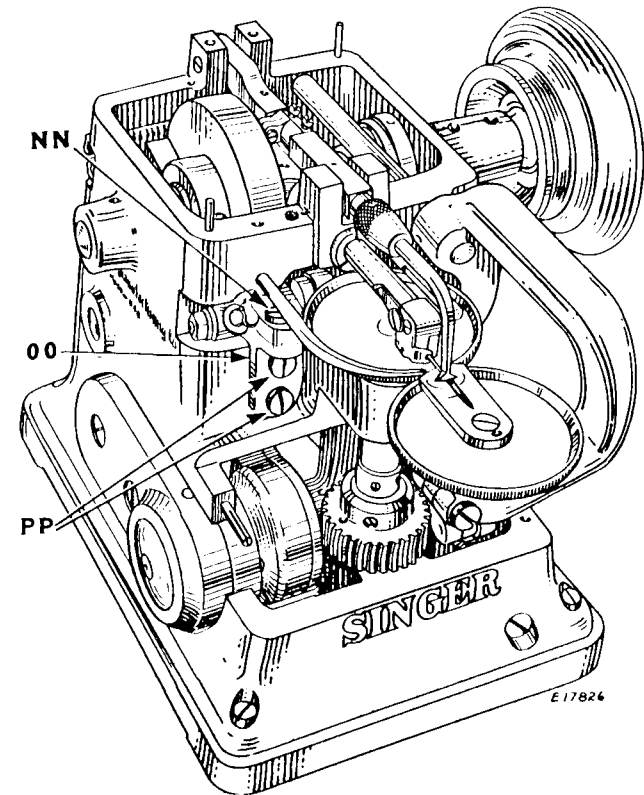


Fig. 13. Adjustments on the Loper

TO ADJUST THE LOOPER

With the needle bar and feed discs properly adjusted, insert the shank of the looper in the holder and tighten the clamping nut EE, Fig. 12 sufficiently to insure that the looper will remain in position while making adjustments. Turn the machine pulley until the looper is at extreme front end of its stroke, when it should stand about centrally over the groove in the needle guide as shown in Fig. 13; also adjust it in or out so that it covers about half of the needle eye and leaves half of the needle eye visible when looking straight down the front of the looper as shown in Fig. 13.

Adjust the looper for height by loosening the screws **PP**, Fig. 13 and moving the bracket **OO**, Fig. 13 up or down until the looper clears the needle guide on 176-31, or the bottom of the looper clearance cut in the needle guide on Machines 176-32, 176-33 and 176-34, by a scant $\frac{1}{16}$ inch, then tighten the screws **PP**, Fig. 13. Should adjustment of looper shaft rear adjusting bracket **X2**, Fig. 14 on Machines 176-32, 176-33 and 176-34, have been disturbed, it must be adjusted in conjunction with front bracket

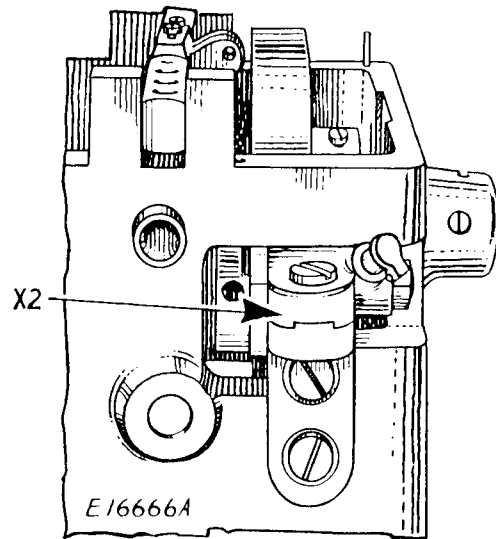


Fig. 14. Adjustment at Rear of Machine

OO to properly set the looper. The rear bracket **X2** is adjusted the same as front bracket **OO**.

Now turn the machine pulley until the looper has moved to the extreme end of its backward stroke, then continue turning the machine pulley slightly until the looper reaches a point nearest to the left side of the needle. With the looper in this position, adjust it sidewise until it barely touches, but does not deflect, the needle. See Fig. 12, Page 14. If the needle does not clear the sloping top surface of the looper heel, loosen screw **NN**, Fig. 13, Page 15 and move the top portion of looper bracket **OO**, Fig. 13 forward, or outward, thus lowering the looper on its extreme back stroke until the needle just clears, but does not touch, the sloping top surface of the looper heel, as shown in Fig. 12, Page 14. If the needle comes too far above the heel of the looper, first make certain that the looper is set at correct height above the bottom of the clearance cut in the needle guide, then loosen screw **NN** and move the top portion of bracket **OO** backward, or inward. When correct adjustment is made, firmly tighten screw **NN**.

After clamping nut **EE**, Fig. 12, Page 14 is finally tightened, turn the machine pulley over rapidly a few times by hand to determine that the looper does not strike anywhere. Finally a test should be made with the machine running at full speed—to make sure that the looper does not strike the needle, needle guide or rear disc.

TO TIME THE LOOPER (See Fig. 11, Page 14)

When the machine leaves the factory, the looper is timed for normal conditions, so that the timing marks "T" on the looper cam **P**, the needle bar eccentric **R** and the feed eccentric **S**, are in line with each other. To time the looper, loosen the two set screws in the looper cam **P**. Move the cam over away from you to time the looper earlier, or over toward you to time the looper later. Then securely tighten the two set screws in the looper cam **P**.

TO SET THE NEEDLE BAR TENSION RELEASE

The tension plunger on the needle bar should release the thread about the time the looper has taken up the slack in the thread after it has entered the loop. This adjustment usually has to be varied somewhat for different skins and for different threads.

The post **GG**, Fig. 12, Page 14 should be moved inward (toward the machine) for a later release, or outward (away from the machine) for an earlier release of the thread, after loosening the small set screw **FF**, Fig. 12, Page 14.

TO REMOVE THE FEED CLUTCH (See Fig. 15)

To remove the feed clutch, first remove the machine from the base plate, setting it on end, as shown in Fig. 15. Then remove the screw **A3** and the screw **Q** at opposite ends of the lever **B3**. Loosen the two set screws **C3** in the worm wheel **E3** and the three set screws in the clutch **F3**. Tap the shaft **G3**, Fig. 10, moving it from right to left. Worm wheel **E3** and lever **B3** will then fall out.

Complete removal of shaft **G3**, Fig. 10 will reveal three screws behind hub **H3** of shaft, that hold clutch to the casting. Remove these screws and clutch will fall out.

ADJUSTMENT FOR WEAR IN THE FEED CLUTCH (See Fig. 16)

The feed clutch consists of two units, each having three rollers, bearing against removable hardened steel wearing plates **J3**. After considerable use, the rollers may wear shallow grooves in the steel plates, which will result in an uneven stitch.

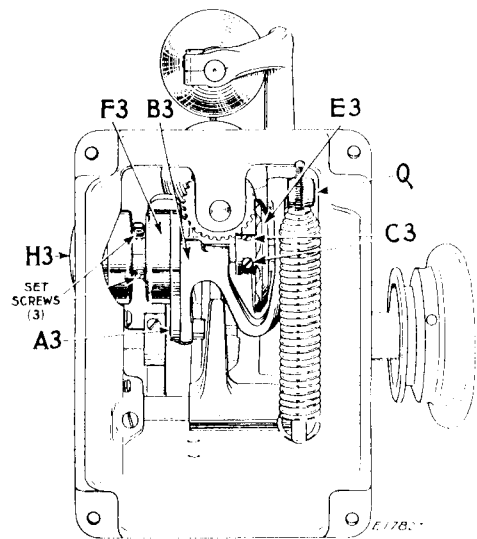


Fig. 15. Removing and Replacing Feed Clutch

By simply turning the plates J3, six new wearing surfaces can be used before replacing the new wearing plates.

To remove and replace the wearing plates J3, insert the three screws in the holes K3 in the open end of the clutch. By pulling firmly on these screws, the driver L3 can be removed from the clutch housing, freeing the rollers M3 and the springs N3.

The wearing plates J3 may then be easily slipped out of place and turned as desired.

When the wearing plates have been slipped into position, replace the driver L3 halfway into the open end of clutch housing, making sure that the driver is in the correct rotary position, as shown in Fig. 16. Then insert the springs N3. Insert the rollers M3 against the springs, one at a time. Then press entire assembly firmly into the housing.

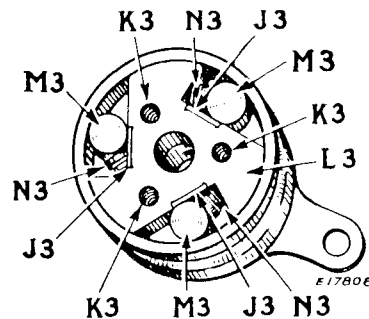


Fig. 16. Correct Position of Driver in Open End of the Feed Clutch

To remove and replace wearing plates at the other end of the clutch, put driving arm O3, Fig. 17 into the jaws of a vise and gently pull clutch housing free of driving arm. The rollers and the springs will fall out at the same time.

Then remove the three screws P3, Fig. 17 and change the wearing plates, where necessary.

When wearing plates are in place, put the driver Q3, Fig. 17 halfway into clutch housing, making sure that the driver is in the correct rotary position, as shown in Fig. 17.

Then insert rollers against the springs, one at a time. Press entire assembly into clutch housing. Place driving arm O3 over proper end of clutch and replace screws P3.

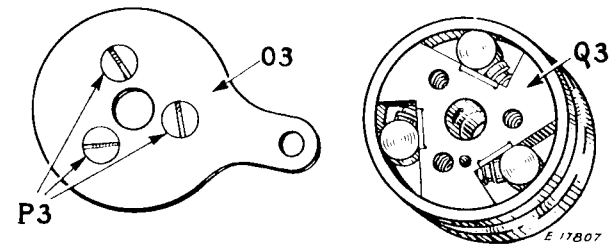


Fig. 17. Showing Driving Arm and Correct Position of Driver in the Driving End of the Feed Clutch

TO REPLACE THE FEED CLUTCH

Before replacing the clutch in the machine the entire clutch assembly must be aligned, by inserting the shaft in one end of the clutch, and slowly rotating the clutch housing backward and forward, with one hand, while pressing firmly on the hub of the shaft with the other hand, until the shaft slips through the clutch housing. Hammering or otherwise forcing this alignment will be of no avail and may injure the moving parts.

When the clutch assembly is aligned, **carefully** remove the shaft and place open end of clutch against clutch seat in the head of the machine. Insert shaft, temporarily, from **right to left** through casting and clutch. Press clutch assembly together with your fingers and fasten it to clutch seat with 3 screws. Securely tighten the 3 screws, **carefully** remove the shaft from the machine and **immediately** replace the shaft from **left to right** through the casting and clutch assembly. Then slip shaft through lever B3 and gear E3, as shown in Fig. 15.

Replace screw Q, Fig. 15 and screw A3, Fig. 15 in lever and connecting arms. Then while firmly pressing hub H3 against casting, tighten the three set screws in the clutch, making sure that the first set screw tightened is on the "flat" of the shaft. When gear E3 is properly engaged, tighten the two set screws C3, making sure that the first set screw tightened is on the "flat" of the shaft.