SINGER
51W19, 52W21 AND 52W22

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"

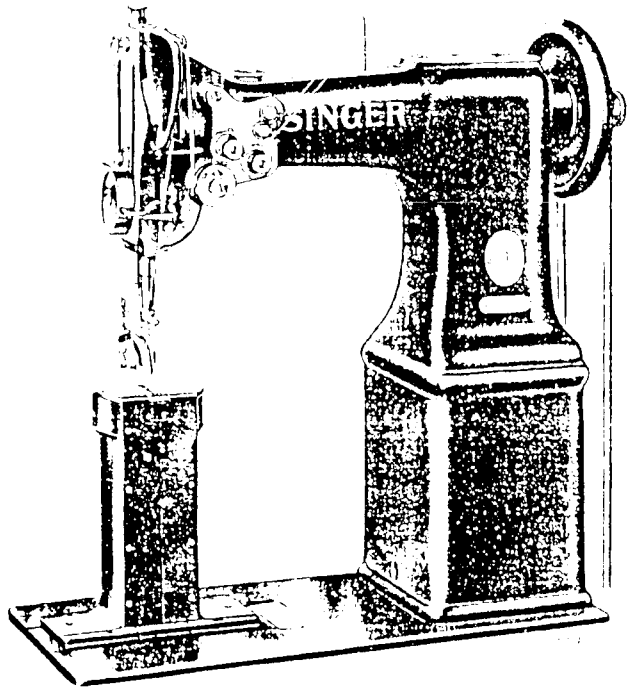
This pure grease is specially designed for the lubrication of ball bearings and ball thrust bearings of motors and electric transmitters, ball bearing hangers of power tables, etc.

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

INSTRUCTIONS

FOR USING AND ADJUSTING

SINGER SEWING MACHINES



MACHINE 52w21

52w19, 52w21 and 52w22

THE SINGER MANUFACTURING CO.

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

DESCRIPTION

Machines 52w19, 52w21 and 52w22 each have two needles and two belt driven rotary sewing hooks and make the lock stitch.

The post bed of these machines adapts them for stitching shoes and other articles of light and medium weight leather, or for other work which is difficult to handle on a flat bed or cylinder bed machine. The post is 7 inches high and its top surface is 1-7/8 by 3-1/2 inches.

Machine 52w19 is intended for staying shoes without changing their shape. It is furnished in gauges from 3/32 to 1/2 inch. It has a drop feed and is fitted with a guide to keep the presser foot rigidly straight and has a flat presser foot spring in addition to the regular presser spring to assist in rubbing down seams.

Machine 52w21 has a drop feed, ball bearing (no back) roller presser and short beak hook. It makes two lines of lock stitching and is especially suitable for stitching on back stays, stitching in gores and for vamping operations in light and medium weight shoes. Other stitching operations in leather are satisfactorily accomplished. The needles are set abreast and turned diagonally in gauges 1/32, 3/64 or 1/16 inch and in gauges 3/32, 1/8, 5/32, 3/16, 7/32 and 1/4 inch needles are set abreast.

Machine 52w22 has a drop feed, ball bearing (no back) roller presser and long beak hook. It is intended for medium and heavy leather. Made in gauges 1/32, 3/64 and 1/16 inch with needles set abreast and turned diagonally and in gauges 3/32, 1/8, 5/32, 3/16, 7/32 and 1/4 inch with needles set abreast.

Speed

The maximum speed recommended for Machines 52w19, 52w21 and 52w22 is 2500 revolutions per minute, depending on the material being stitched. When the machines are in operation, the top of the balance wheel must turn over toward the operator.

CAUTION

After setting up, do not start the machine, not even to test the speed, until it has been thoroughly oiled, as instructed on pages 4 and 5.

To Oil the Machine

When the machine is received from the factory, it should be thoroughly cleaned and oiled.

USE ONLY "SINGER OIL FOR HIGH SPEED SEWING MACHINES (Cloth and Leather)" for general use or "SINGER STAINLESS OIL FOR HIGH SPEED SEWING MACHINES" where a stainless oil is desired.

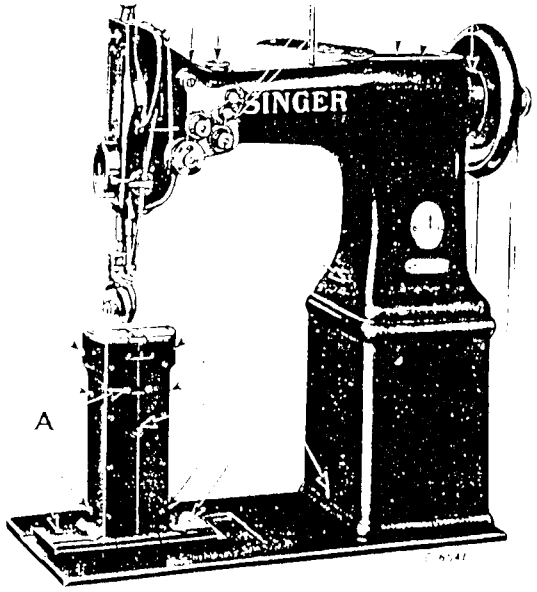


Fig. 3. Front View of Machine, Showing Oiling Points

Oil should be applied at the places designated by arrows in Figs. 3, 4 and 5 and when in continuous use, it should be oiled at least twice each day.

Swing back the cover which is on the top of the machine at the right, and oil the bearings which are thus uncovered, then replace the cover.

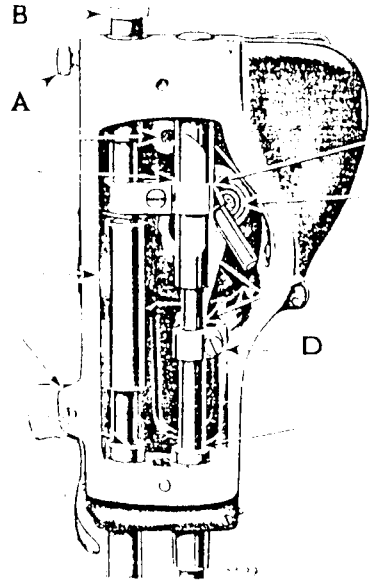


Fig. 4. End View of Machine
Showing Oiling Points,
also Adjustments on the Machine

Loosen the thumb screw in the upper end of the face plate, turn the face plate upward and oil the wicks and bearings which are thus uncovered (see Fig. 4), then turn down the face plate and tighten the thumb screw.

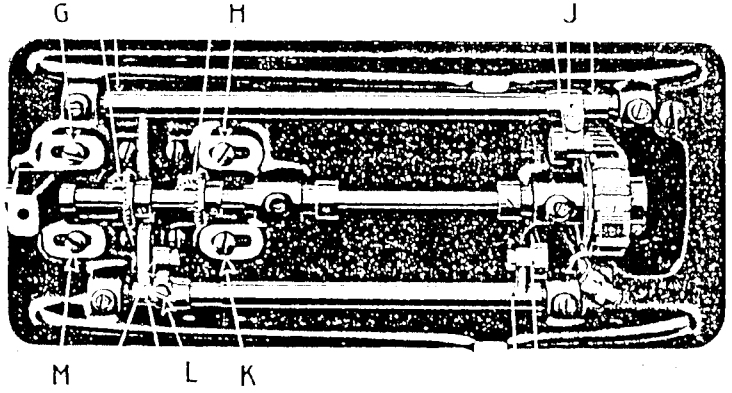


Fig. 5. Base of Machine, Showing Oiling Points
and Adjustments

Turn the machine back on its hinges and apply oil at the places designated by arrows as shown in Fig. 5, and all other places where there are parts in movable contact, then bring the machine forward into place.

The small felt pad C and D, Fig. 11 on the side of the bobbin case should be kept wet with oil to lubricate the hook race.

Needles

Needles for Machines 52W19, 52W21, and 52W22 are of class and variety 128x4 and are furnished in sizes Nos. 9, 10, 11, 12, 13, 14, 15, 16, 18, 20, 22, 23 and 24.

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. If rough or uneven thread is used, or if it passes with difficulty through the eye of the needle, the successful use of the machine will be interfered with.

Orders for needles must specify the quantity required, the size number, also the class and variety numbers separated by x.

The following is an example of an intelligible order:

"100 No. 14, 128x4 Needles."

The best results will be obtained in using the needles furnished by the Singer Sewing Machine Company.

Thread

Left twist thread should be used in the needles. Either right or left twist can be used in the bobbins.

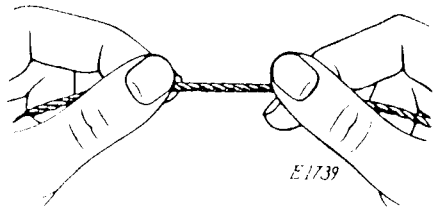


Fig. 6. How to Determine the Twist

Hold the thread as shown above. 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.

Relative Sizes of Needles and Thread

The following sizes of needles and thread are recommended:

Sizes of Needles	Cotton	Silk	Sizes of Needles	Cotton	Silk
9	150		16	40, 50	B, C
10	100 to 150	000, 00	18	30, 40	C
11	90, 100	00	20	24, 30	D
12	80, 90	0	22	20, 24	E
13	70, 80	A	23	16, 20	EE
14	60, 70	A	24	8, 16	

To Set the Needles

Turn the balance wheel over toward you until the needle bar moves up to its highest point; loosen the set screws in the needle holder and put the needles up into the holder as far as they will go, the inside needle or the one nearest the upright part of the arm having its long groove toward the left, and the outside needle or the one farthest from the upright part of the arm having its long groove toward the right, the eyes of both needles being directly in line with the arm of the machine, then tighten the set screws.

To Remove the Bobbins

Draw out the slide plates on the top of the post. Turn the balance wheel over toward you until the needle bar moves up to its highest point. Place the thumb or finger under the projection on the side of the bobbin case caps as shown in Fig. 11, then lift out the caps and remove the bobbins.

(See Fig. 7)

Fasten the bobbin winder to the table with its driving pulley in front of the machine belt, so that the pulley will drop away from the belt when sufficient thread has been wound upon the bobbin.

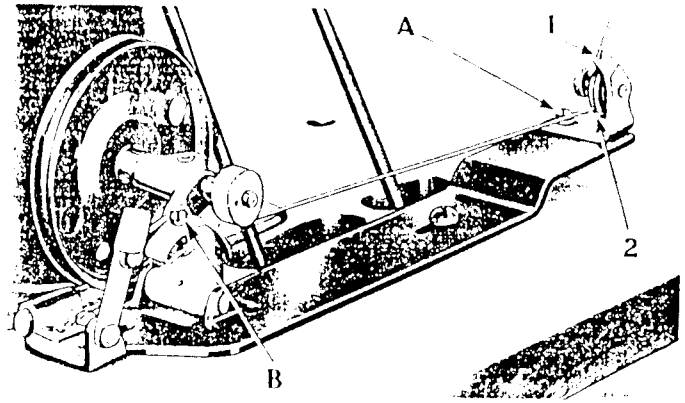


Fig. 7. Winding the Bobbin

Place the bobbin on the bobbin winder spindle and push it on as far as it will go.

Pass the thread down through the thread guide (1) in the tension bracket, around the back and between the tension discs (2). Then wind the end of the thread around the bobbin a few times, push the bobbin winder pulley over against the machine belt and start the machine.

When sufficient thread has been wound upon the bobbin, the bobbin winder will stop automatically.

If the thread does not wind evenly on the bobbin, loosen the screw (A) in the tension bracket and move the bracket to the right or left as may be required, then tighten the screw.

The amount of thread wound on the bobbin is regulated by the screw (B). To wind more thread on the bobbin, turn the screw (B) inwardly. To wind less thread on the bobbin, turn the screw outwardly.

Bobbins can be wound while the machine is stitching.

To thread the bobbin case cap

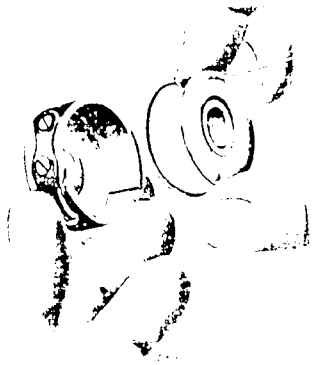


Fig. 8.

With the left hand hold the bobbin case cap as illustrated (see Fig. 8) and place the bobbin into it.

Hold the bobbin between the thumb and forefinger of the right hand, the thread drawing on the top from left to right.

Fig. 9.

Fig. 10.

Then pull the thread into the slot in the edge of the bobbin case cap (see Fig. 9) and under the tension spring as shown in Fig. 10.

To ensure the correct tension, draw the thread under the tension spring once or twice; this will remove any lint which may become lodged under the spring.

To Replace the Bobbin Case Caps

To replace the bobbin case cap at the right of the post after threading, take the cap in the right hand, holding the bobbin in the cap with the forefinger, and place it on the centre stud, then push down the latch (B, Fig. 11) having the thread at the left of the projection as shown in Fig. 11 and replace the slide plate.

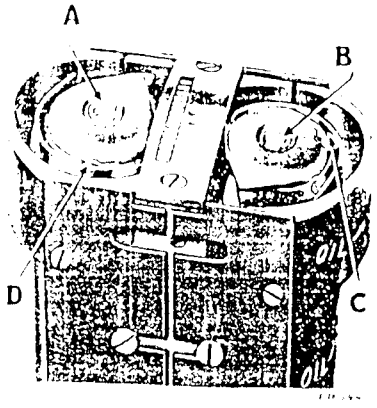


Fig. 11. Threading the Bobbin Case

To replace the left bobbin case cap after threading, take the cap in the left hand, holding the bobbin in the cap with the forefinger, and place it on the centre stud of the left bobbin case, then push down the latch (A, Fig. 11) having the thread at the right of the projection as shown in Fig. 11 and replace the slide plate.

Upper Threading

(See Fig. 12)

To thread the right hand needle, pass the thread from the spool stand from back to front through the bottom hole (A) in the pin on top of the arm, then from right to left through the hole (B) in the pin, through the lower thread guide (C), through the lower thread retainer (D), under from right to left between the tension discs (E), under from right to left into the thread controller (F), up into the fork (G) of the thread controller against the pressure of the thread controller spring, through the thread guide (H), from right to left through the lower hole (J) in the thread take-up lever, through the thread guide (H) again, between the felt pad and felt pad retaining finger (L), through the thread guide (M), through the right hand hole (N) in the needle holder and from left to right through the eye of the right hand needle (O).

To thread the left hand needle, pass the thread from the spool stand from back to front through the hole (1) in the pin on top of the

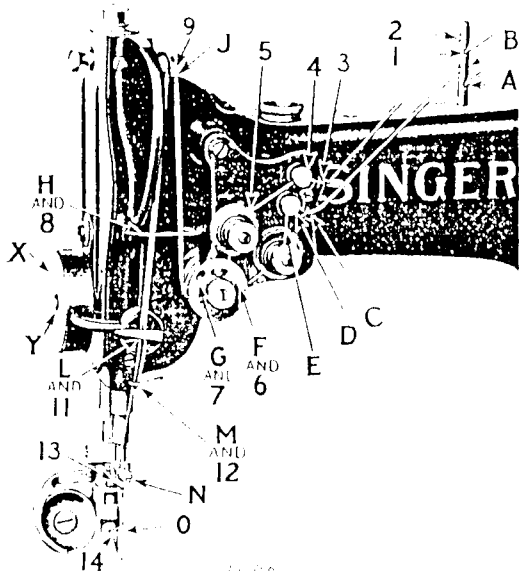


Fig. 12. Upper Threading

arm, then from right to left through the hole (2) in the pin, through the upper thread guide (3), through the upper thread retainer (4), over from right to left between the left tension discs (5), under from right to left into the thread controller (6), up into the fork (7) of the thread controller against the pressure of the thread controller spring, through the thread guide (8), from right to left through the upper hole (9) in the thread take-up lever, through the thread guide (8) again, between the felt pad and felt pad retaining finger (11), through the thread guide (12), through the left hand hole (13) in the needle holder and from right to left through the eye of the left hand needle (14).

To Adjust the Thread Lubricator

To ensure satisfactory results, Singer Thread Lubricant should be used in the thread lubricator which is attached to the face plate.

When replenishing the lubricant supply, fill the reservoir (X, Fig. 12) to about 1/8 inch below the filler hole (Y, Fig. 12).

The amount of lubrication of the thread is controlled by raising or lowering the felt pad holder (L, Fig. 12) above or below the level of the lubricant. For more lubricant, lower the felt pad holder. For less lubricant, raise the felt pad holder.

To Prepare for Sewing

With the left hand hold the ends of the needle threads, leaving them slack from the hand to the needles, turn the balance wheel over toward you until the needles move down and up again to their highest point, thus catching the bobbin threads. Draw up the needle threads and the bobbin threads will come with them through the holes in the throat plate. Lay the threads back under the roller presser.

To Commence Sewing

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

To Remove the Work

Stop the machine with the thread take-up lever at its highest point, raise the presser, draw the work back and cut the threads close to the goods.

To Regulate the Pressure of the Roller Presser or Presser Foot on the Material

The pressure of the presser on the material is regulated by the thumb screw (B, Fig. 4) at the top of the machine.

To increase the pressure, loosen the thumb screw (A, Fig. 4) at the back of the machine and turn the thumb screw (B) over to right or downward. To decrease the pressure, turn the thumb screw (B) over to the left or upward. When the required amount of pressure is obtained, tighten the thumb screw (A).

Tensions

The needle and bobbin threads should be locked in the centre of the thickness of the material, thus:

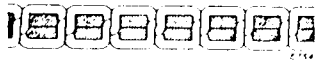


Fig. 13. Perfect Stitch

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:

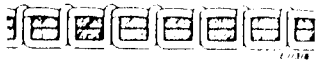


Fig. 14. Tight Needle Thread Tension

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. 15. Loose Needle Thread Tension

To Regulate the Tensions

The tensions on the needle threads are regulated by the thumb nuts (E3, Fig. 17) at the front of the tension discs on the front of the arm of the machine. To increase the tension, turn the thumb nuts over to the right. To decrease the tension, turn the thumb nuts over to the left.

The tensions on the bobbin threads are regulated by means of the screw nearest the centre of the tension spring on the outside of each bobbin case cap.

To Regulate the Length of Stitch

The length of stitch is regulated by the thumb screw (A, Fig. 16) at the right of the balance wheel.

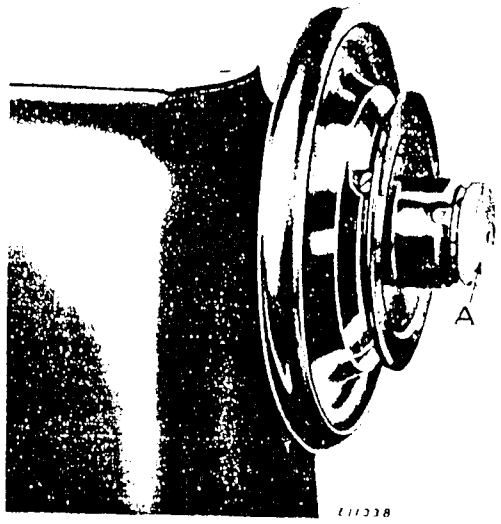


Fig. 16. Stitch Regulator

The feed regulating spindle head is marked with figures corresponding with the range of the number of stitches to the inch that the machine will make.

There is a notch in the hub of the balance wheel as shown in Fig. 16; and the number appearing in the notch shows the number of stitches to the inch that the machine is ready to make.

To lengthen the stitch, turn the thumb screw over toward you. To shorten the stitch, turn the thumb screw over from you.

INSTRUCTIONS
FOR
ADJUSTERS AND MACHINISTS

Thread Controller

The function of the thread controller spring is to hold back the slack of the needle threads until the eye of each needle reaches the goods in its descent, as without this controlling action of the spring, the slack thread or silk (more especially silk) will sometimes be penetrated by the point of the needle as the needle is descending.

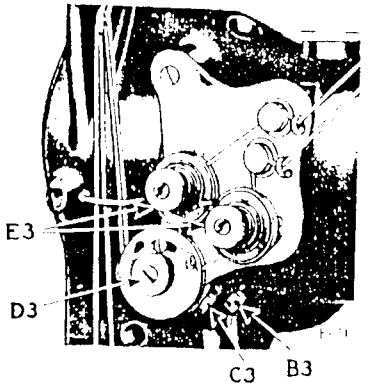


Fig. 17. Adjustment of Thread Controller

To change the thread controller stop for more controller action on the threads, loosen the set screw (C3, Fig. 17) and turn the thread controller spring stop to the right; for less action, turn the thread controller spring stop to the left, after which securely tighten the set screw (C3).

It may be found advisable to increase the tension of the spring for coarse thread, or to lessen it for fine thread.

To increase the tension of the thread controller on the threads, loosen the tension stud set screw (B3, Fig. 17), located nearly under the tension stud, and turn the tension stud (I3, Fig. 17) slightly to the left with a screw driver, or to decrease the tension, turn it to the right and retighten the stud set screw (B3).

To Raise or Lower the Feed Dog

Tip the machine back and turn the balance wheel toward you until the feed dog is at its highest position. Loosen the pinch screw (L, Fig.5) in the feed bar slide block crank on the feed lifting rock shaft and move the crank up or down until the feed dog is at the desired height, then retighten the pinch screw (L).

If the feed dog strikes the end of the feed dog slot in the throat plate, loosen the pinch screw (J, Fig.5) of the feed driving connection crank at the right hand end of the rock shaft, then set the feed dog so that it will not strike when the longest stitch is taken, and re-tighten the pinch screw (J).

To Remove and Replace the Feed Dog

Remove the slide from over the outside sewing hook and also loosen the screw (A, Fig.3). Tip the machine back on its hinges and remove the two screws (G and M, Fig. 5) which hold the outside hook post in position, then remove the outside hook post. This will give a clear view of the feed dog screw for the purpose of removing and replacing the feed dog.

To Set the Needle Bar

The needle bar which is in the machine when shipped from the factory, has upon it (about two inches from the bottom) two lines 3/32 inch apart. When the needle bar is at its lowest point, loosen the needle bar connecting stud pinch screw (D, Fig.4) and set the needle bar so that its upper mark is even with the bottom of the needle bar bushing.

To Set a New Needle Bar Which Has no Mark. Set the needle bar so that when it rises 3/32 inch from its lowest position, the point of the hook will be at the centre of the needle and about 1/16 inch above the eye.

To Time the Sewing Hooks

To See if the Hooks are in Correct Time. Remove the slide and throat plate and turn the balance wheel toward you until the needle bar has passed its lowest position and risen so that the lower mark on it is even with the bottom of the needle bar bushing. If in correct time the point of the hook will be at the centre of the needle and 1/16 inch above the eye; if not, loosen the screws in the bevel gear on the shaft under the hook and turn the gear forward or backward slightly until the hook is in time as instructed above, then retighten the screws. On very heavy work it may be necessary to set the needle bar a little lower and the hook slightly slower than the above rule.

To Adjust the Sewing Hooks

The inside sewing hook can be moved to or from the needle by loosening the two screws (H and K, Fig. 5) underneath the bed of the machine and moving the inside hook post to the right or left as may be necessary to bring the inside hook into proper relation with the inside needle. When the inside sewing hook is correctly adjusted, securely tighten the two screws (H and K).

The outside sewing hook can be moved to or from the outside needle by loosening the two screws (G and M, Fig. 5) under the bed of the machine and moving the outside hook post to the right or left as may be necessary to bring the outside hook into proper relation with the outside needle. When the outside sewing hook is correctly adjusted, securely tighten the two screws (G and M).

To Change the Gauge of the Machines

Change the needle holder, throat plate, feed dog and presser foot or roller presser needle guard, then loosen the four screws (G, H, K and M, Fig. 5) which hold the hook posts and move each post until the point of the hook runs as close to the needle as possible without striking, then time the hooks as instructed on page 17.

In order to change the roller presser from one gauge or width between the needles to another, replace the needle guard on the machine with one desired and add or remove one or more shims to set the roller outward or inward as desired.

Shim .024" No. 236645, 1/64" No. 229744, 1/32" No. 229745, 1/16" No. 202760 and should use screw 200096 for 1/32", 3/64" and 1/16" gauge, 200082 for 3/32" and 1/8" gauge, 200077 for 5/32", 3/16" and 7/32" gauge, 200064 for 1/4" gauge. A 1/16" inch shim and screw 200082 sets the roller properly for 1/8 inch gauge.

To Remove the Belt from Within the Arm

Slide the arm shaft connection belt off the lower pulley, remove the feed regulating spindle and balance wheel from the end of the arm shaft, loosen the arm shaft bushing (back) screw at the back of the arm and remove the bushing, lift the belt up through the arm cap hole as far as possible and draw it out through the space normally occupied by the bushing.

In replacing the belt see that the sewing hook and needle are in correct time before running the belt on the lower pulley, and verify the correctness of the timing before commencing to sew.

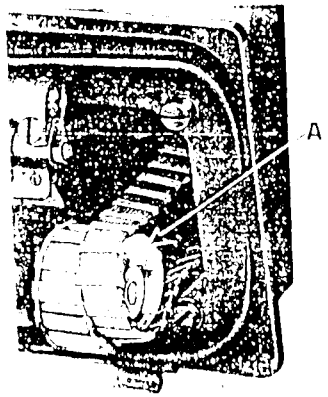


Fig. 20. Putting Belt on Lower Pulley with Belt Replacer 241538

To facilitate the replacing of the belt on the lower pulley, use belt replacer 241538 (A, Fig. 20). Rest the replacer in the loop of the belt as shown in Fig. 20, having the notches in the replacer engage the two set screws in the hub of the pulley. Turn the balance wheel toward you until the belt is fully over the pulley, then remove the replacer.

Note: As belt replacer 241538 will serve for several machines, it is not regularly furnished with the machine, and must be ordered separately.

To Remove the Sewing Hooks from the Machine

Remove the two hook gib screws (P and R, Fig. 18) and remove the gib (Q, Fig. 18) to allow the base of the bobbin case to be taken out,

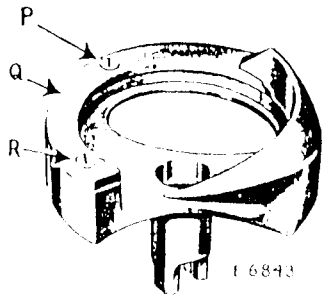


Fig. 18.

after which remove the screw from the centre of the hook. Tapping the hook lightly on the bottom will force it from its socket. Do not try to pry it out, as prying may bend the shank of the hook. In replacing the hook, be sure that the pin on the shank properly enters the slot at the top of the socket, otherwise the hook will be out of time.

Needle Guards

The needle guard which is part of each hook washer should stand out far enough to prevent the point of the hook from striking the needle, but not far enough to prevent the point of the hook from catching the loop. Bend the needle guard slightly to adjust it.

To Adjust the Mechanical Opener

Remove the cover plate at the front of the inside hook post.

The bobbin case lever (N, Fig. 19) at the left of the inside sewing hook, actuated by the eccentric on the hook shaft, strikes the pro-

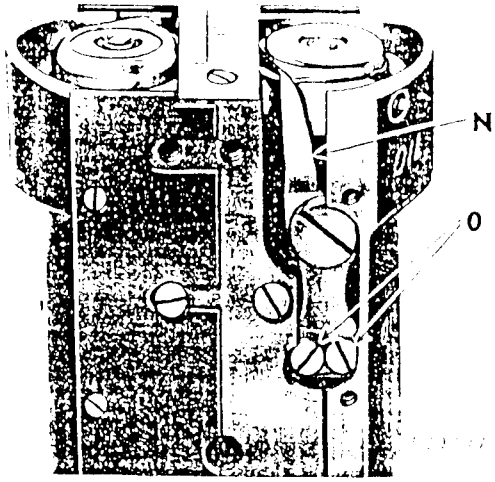


Fig. 19. Adjustment of Mechanical Opener

jection on the bobbin case and turns the bobbin case slightly, making an opening between the bobbin case stop and the stop on the throat plate when the thread is across the bobbin case and passing between the stops.

The bobbin case lever (N) may be adjusted by loosening the two bobbin case lever screws (O, Fig. 19) and moving the bobbin case lever forward or backward.

This adjustment should be made so that the opening between the lever and the edge of the bobbin case is just perceptible when the bobbin case lever has opened the bobbin case all the way.

If the bobbin case lever is set to open the bobbin case too far, it will cause a bind between the bobbin case bearing and the hook bearing when the bobbin case is opened all the way, and care must be taken to see that this does not occur. After the correct adjustment is made, firmly tighten the two screws (O, Fig. 19).

The above instructions also apply to the bobbin case lever for the outside sewing hook. This lever is accessible for adjustment after removing the cover plate at the rear of the outside hook post.