

SINGER

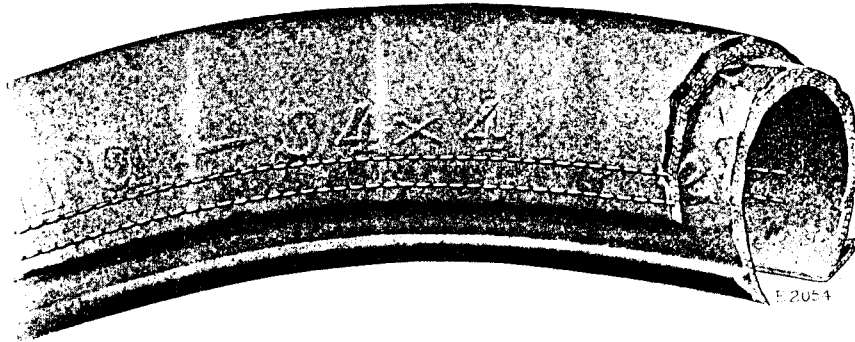
98-3

DESCRIPTION

Machine No. 98-3 is the best on the market for sewing treads on used tires of automobiles as it makes firm lock stitches which cannot unravel.

Two tires can be used to make one retreaded tire. A tire having a good foundation of fabric and beading is selected, and another tire with a sufficiently good rubber exterior is utilized as the tread, after about an inch has been trimmed from each of its clincher edges. The improvised tread is placed outside the "fabric" foundation and the tread is then stitched on firmly by the machine.

Satisfactory treads can be made from tires in which small "blow outs" or "cuts" have been vulcanized. Defective tires or factory "seconds" can also be used, and some manufacturers are furnishing new treads which are especially made for the retreading operation.



SECTION OF RETREADED TIRE SHOWING THE FIRM LOCK STITCHES

The above illustration shows a section of a retreaded tire, two lines of stitching having been made on each side of the tire. The first line of stitching is usually made about $\frac{1}{2}$ inch from each edge, and about $\frac{1}{2}$ inch space is allowed between the lines of stitching. On the heavier or larger sizes of tires, three or four lines of stitching can be made on each side. The length of stitch can be readily adjusted up to $\frac{1}{2}$ inch.

Many tire repairing establishments are making a specialty of reconstructing old tires which have been discarded by motorists, a reconstructed tire from two old ones giving additional mileage equal to or greater than that obtained from the original tires, especially when the reconstructed tire is vulcanized and cemented as well as being stitched.

At each stitch the tire and tread are positively moved forward by the needle which operates in conjunction with the presser foot, and to further ensure the production of uniform and tight lock stitches the needle and bobbin threads are passed through a liquid lubricating wax solution which does not injure the rubber. The solution is placed in a cup at the back of the machine. We highly recommend the use of this special solution which can be purchased at any of the Singer shops.

The machine can be driven by an individual electric motor of $\frac{5}{8}$ horse power, but to afford a margin of power a motor of one horse power is recommended. If the machine is to be driven from a counter shaft, the belt must come from below the stitching mechanism so as to allow the placing of the tire in position for stitching.

The machine is fitted with a Singer Driving Attachment which enables the operator to run the machine by pressure on the treadle. Light pressure on the treadle starts the machine at slow speed. As the pressure on the treadle is increased, the speed is increased until the maximum speed is reached. Thus the machine is always under perfect control.

Speed

The maximum speed recommended for Machine No. 98-3 is 250 stitches per minute.

Needles

Needles for Machine No. 98-3 are of Class and Variety 6 x 4, and size 29 is recommended for tire work.

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

The following is an example of an intelligible order:

"50 No. 29, 6 x 4 Spear Point Needles."

No other needles will give as good results as those 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.

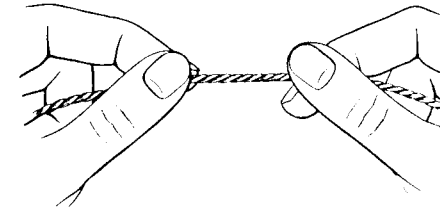


FIG. 3. HOW TO DETERMINE THE TWIST

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.

Barbour's 8 cord gray thread is generally used for the needle and the bobbin for tire work.

Special Thread Solution

A cup is fitted on the back of the arm of the machine for holding a special thread solution through which the needle thread is passed. This cup is also used for lubricating the bobbin thread when winding the bobbin.

This special thread solution which may be obtained from any of the Company's shops or representatives, lubricates and softens the thread, thus obviating breakage and ensuring the making of uniform and tight lock stitches.

To Remove the Bobbin

Turn the balance wheel over toward you until the needle bar moves down to its lowest point; press down on the spring latch underneath the cylinder of the shuttle, then swing the cylinder outward or toward the left as far as it will go and the bobbin will drop out.

To Wind the Bobbin

(Operator Facing the Back of the Machine)

Note: The solution cup (A, Fig. 5, page 8) at the back of the machine should contain sufficient thread solution to well cover the eyelets in the thread post on the underside of the cover.

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

Place the spool of thread on the platform at the back of the machine and near the bottom of the stand. Raise the cover of the solution cup shown below and pass the thread from right to left through the hole (B, Fig. 5, page 8) at the right of the cup, then through the lower eyelet (C, Fig. 5, page 8) on the under side of the cover. The thread must now be passed through the tube (D, Fig 5, page 8) at the left of the bottom of the lid and for this portion of the threading a wire hook is provided.

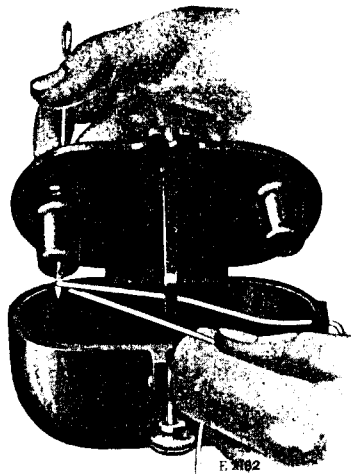


FIG. 4. WINDING THE BOBBIN; THREADING THE SOLUTION CUP

The hook is passed down through the tube from the top of the cover and after the thread is engaged in the hook as shown by the above illustration, it is pulled through. The lid of the cover is then closed. Pass the thread up and from back to front through the hole in the tension bracket above the machine (see Fig. 1, page 1) through the small wire eyelet back of the

tension discs, over between the tension discs, into the eyelet at the front of the discs, down and through the hole in the left side of the bobbin from the inside. Push the bobbin winder pulley up against the balance wheel and place the bobbin winder latch in position as shown in Fig. 6, page 9. Then start the machine. The end of the thread must be held by the hand until a few coils are wound and should then be cut off. When sufficient thread has been wound upon the bobbin, the bobbin winder will stop automatically.

Extra bobbins which may have been wound ready for use, or partially used bobbins should be kept in the drip cup (B, Fig. 6, page 9) when not in use in order to keep the lubricated bobbin thread in good condition. This drip cup should contain enough solution to cover the bobbins.

To Thread the Shuttle

Hold the bobbin between the thumb and forefinger of the left hand with the thread drawing off from the underside toward the right and place the bobbin into the cylinder as far as it will go. Draw the thread into the slot in the cylinder and into the delivery eye, then push the cylinder back until it is locked by the spring, allowing about three inches of thread to hang free from the shuttle with which to commence sewing.

To Set the Needle

Turn the balance wheel over toward you until the needle bar moves up to its highest point; loosen the screw (A, Fig. 6, page 9) in the needle clamp and put the needle up into the clamp as far as it will go, with the long groove of the needle toward the left and the eye of the needle directly in line with the arm of the machine, then tighten the screw.

To Thread the Needle

(Operator Facing the Back of the Machine)

Note: The solution cup (A, Fig. 5, page 8) at the back of the machine should contain sufficient thread solution to well cover the eyelets in the thread post on the underside of the cover.

Turn the balance wheel over toward you until the thread take-up lever (11, Fig. 6) moves up to its highest point.

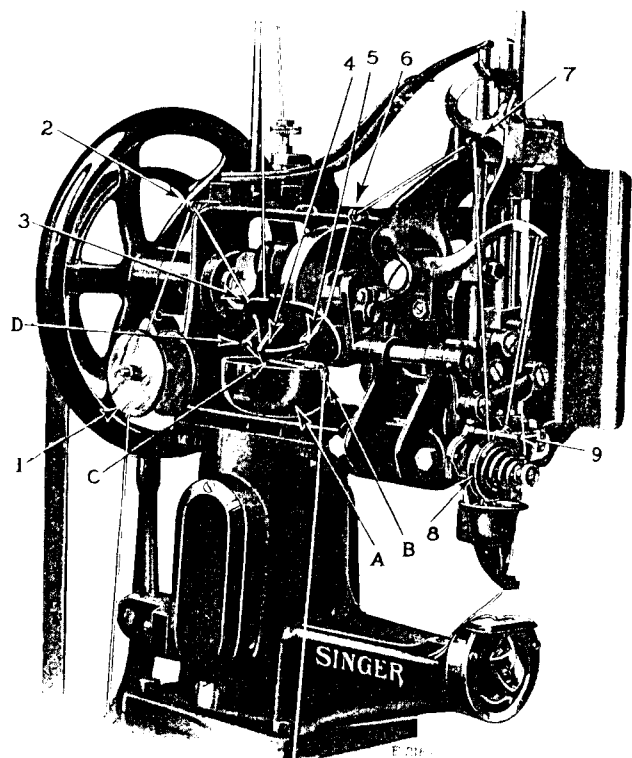


FIG. 5. THREADING THE NEEDLE

Place the spool of thread on the platform at the back of the machine and near the bottom of the stand, pass the thread up and once around the wooden spool (1, Fig. 5) at the back of the machine, from left to right through the eyelet (2, Fig. 5). Raise the cover of the solution cup (A, Fig. 5) and pass the thread down through the hole (3, Fig. 5) in the cover, then from left to right through the hole (4, Fig. 5) on the under side of the cover. Pass the wire hook (furnished with the machine) down through the right tube (5, Fig. 5) on the under side of the cover and after engaging the thread in the hook pull the thread up through as

illustrated by Fig. 4, page 6, which shows the bobbin thread being pulled through the left tube, then close the cover. Pass the

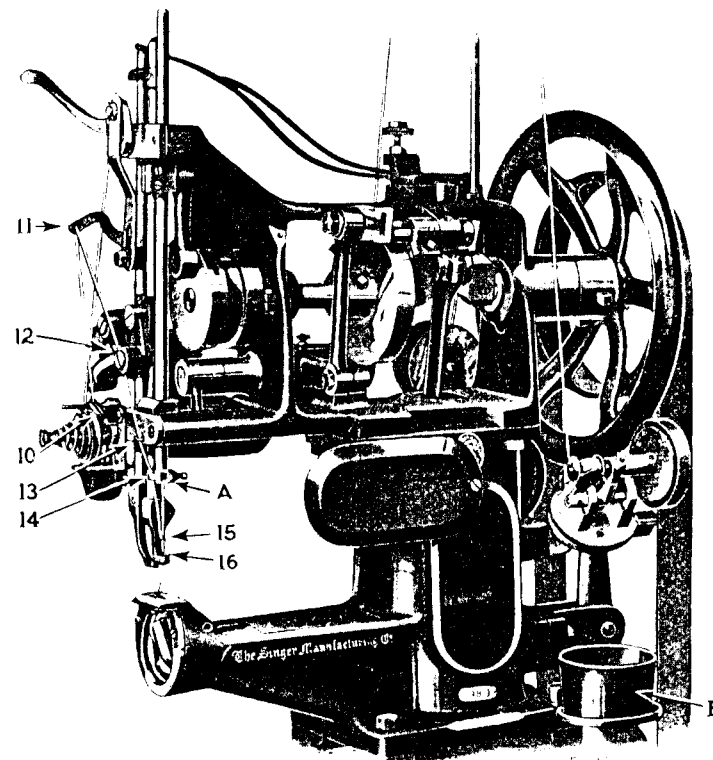


FIG. 6. THREADING THE NEEDLE

thread from left to right through the wire eyelet (6, Fig. 5), from left to right through the thread guide (7, Fig. 5) down, under from back to front between the tension discs (8, Fig. 5) up over the tension thread guard (9, Fig. 5) above the discs, into the thread take-up spring lever (10, Fig. 6) up and from back to front through the hole in the end of the thread take-up lever (11, Fig. 6) down back of the link (12, Fig. 6) and through the thread guide (13, Fig. 6) below, into the thread eyelet (14, Fig. 6) and through the eye of the needle (15, Fig. 6) towards the balance wheel, then pass the thread down through the hole in the feeding foot (16, Fig. 6). Draw about three inches of thread through the eye of the needle with which to commence sewing.

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 the balance wheel over toward you 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 throat plate. Lay both threads back under the feeding foot.

To Operate the Machine

Each machine is furnished with a separate tire supporting stand which is fitted with two rollers to facilitate the turning of the tire while stitching. This stand can be adjusted to the height which is found most convenient for handling the tire. As shown by the illustration on the first page, the tire is laid in a perfectly normal position being supported by the two rollers of the adjustable stand and by the end of the machine which is enclosed by the tire.

The operator will get the best results from this machine if he assists the work forward in conjunction with the feeding mechanism, so that the machine will not have the whole of the task of pulling the entire weight of a heavy tire by means of the needle and the feeding foot. The operator should cultivate as far as possible the habit of delivering the tire to the needle.

Tensions

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



FIG. 7. 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. 8. 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. 9. LOOSE NEEDLE THREAD TENSION

To Regulate the Tensions

The tension on the needle thread is regulated by the thumb nut (A, Fig. 10, page 12) at the front of the tension discs. To increase the tension turn the thumb nut over toward you. To decrease the tension turn the thumb nut over from you.

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

To Regulate the Length of Stitch

The length of stitch is regulated by moving the end of the connection (C, Fig. 10, page 12) which is fastened by the hexagon nut (B, Fig. 10, page 12) in the slide at the front of the machine. To increase the length of stitch loosen the hexagon nut and move the connection toward you in the slide. To shorten the stitch move the connection away from you in the slide. When the desired length of stitch has been obtained tighten the hexagon nut.

To Regulate the Pressure on the Material

The pressure on the material is regulated by the thumb screw (D, Fig. 10, page 12) at the top of the machine at the right. To increase the pressure loosen the nut just beneath the thumb screw and turn the thumb screw downward. To decrease the pressure turn the thumb screw upward. When the required amount of pressure is obtained, tighten the nut. The pressure should be heavy enough to enable the feed to move the work along evenly and the needle should rise without lifting the work, thus preventing the skipping of stitches.

To Oil the Machine

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

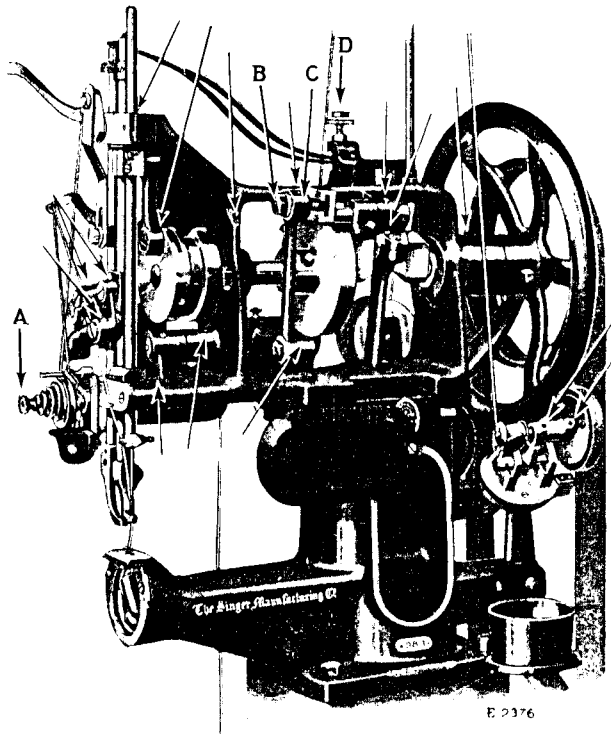


FIG. 10. OILING POINTS AT THE FRONT OF THE MACHINE ALSO ADJUSTMENTS ON THE MACHINE

- A. Thumb Nut for regulating tension on needle thread.
- B. Nut for holding connection C in position.
- C. Feed regulator connection.
- D. Thumb screw for regulating pressure on material.

oiling 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. 10 and 11 by arrows pointing to the oil holes and bearings. Oil should be regularly applied to the shuttle race.

To oil the oscillating shaft bearing remove the screw (A, Fig. 11) in the top of the bed of the machine and apply the oil through the screw hole, then replace the screw.

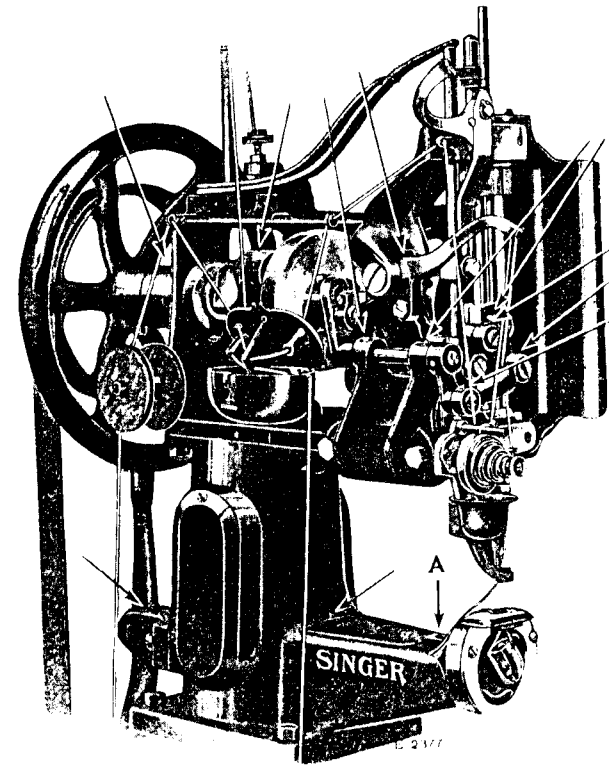


FIG. 11. OILING POINTS AT THE BACK OF THE MACHINE

To oil the loose pulley of the Singer driving attachment on the column stand, turn the pulley by hand until a screw in its belt surface is brought to view. Take out the screw and fill the oil tube through the screw hole with oil, then replace the screw.

There is a cover plate on the front of the machine and another at the back, each being fastened by a screw; swing the plates aside; turn the balance wheel slowly and oil the moving parts inside, then swing the covers back into position.