SINGER
119-2

USE ONLY SINGER OILS and LUBRICANTS

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

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"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.

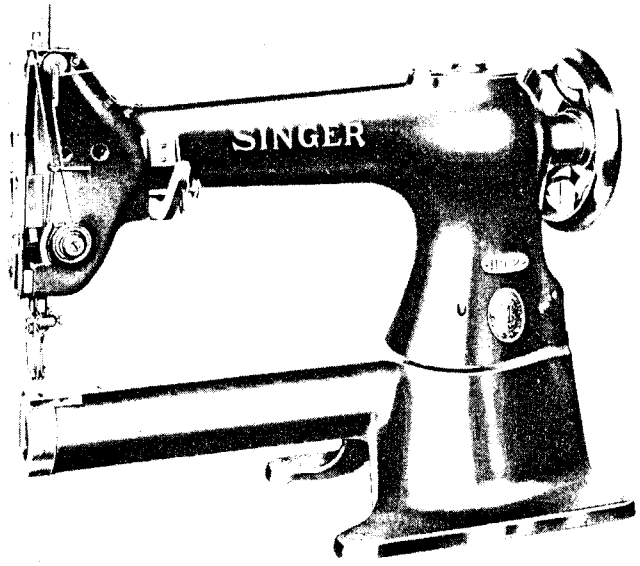
Form 19463

INSTRUCTIONS

FOR USING

SINGER SEWING MACHINE

119-2



SINGLE NEEDLE LOCK STITCH

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

Machine 119-2 is equipped with combined upper and needle feeds and is especially adapted for stitching portfolios, leather hand bags, brief cases and other work in light and medium weight leather and fabrics. The cylinder bed is 10 1/8 inches in length from the needle to the upright part of the arm and 2 5/16 inches in diameter at the end.

Speed

The maximum speed recommended for machine 119-2 is 1600 stitches per minute. The machine should be run slower than the maximum speed at first until the parts which are in movable contact have become glazed by their action upon each other. When the machine is in operation the balance wheel should turn over toward the operator.

To Oil the Machine

To ensure easy running and prevent unnecessary wear of the machine, all parts which are in movable contact require oiling and when the machine is in continuous use, oil should be applied at least twice each day.

Needles and Thread

Needles for Machine 119-2 are of Class and Variety 16x100 and are made in sizes 9,10,11,12,13,14,16,17,18,19,21,22,23,24 and 25.

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. 19, 16x100 Needles"

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

To Set the Needle

Turn the balance wheel over toward you until the take-up lever is at its highest position; loosen the set screw 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 set screw.

To Thread the Needle

Pass the thread from the unwinder or from the spool on the spool pin on top of the machine, from right to left through the

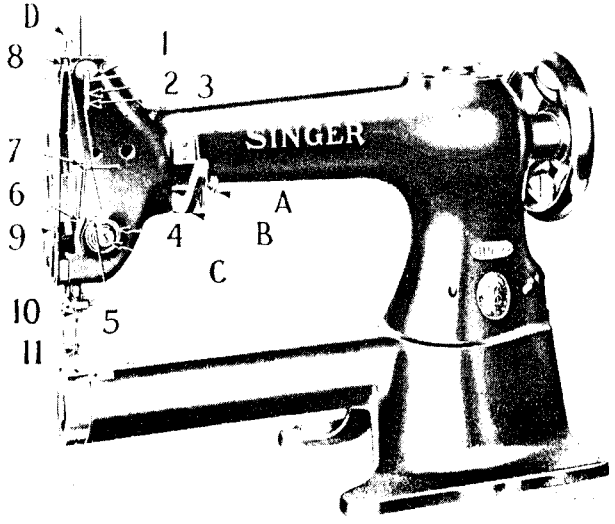


Fig. 2. Threading the Needle

top hole (1) of the thread retainer, down and from left to right through the middle hole (2) of the thread retainer, down and from right to left through the bottom hole (3) of the thread retainer, down under from right to left between the tension discs (4) up into the take-up spring (5) under the tension thread guard (6) up under the thread guard (7) up and from right to left through the hole (8) in the take-up lever, down through the eyelet (9) in the face plate, down through the thread guide (10) in the needle clamp and from left to right through the eye of the needle (11). Leave about two inches of thread with which to commence sewing.

To Remove the Bobbin

Turn the balance wheel over toward you until the needle moves up to its highest position. Draw out the slide in the bed of the machine, reach down with the thumb and forefinger of the left hand, open the bobbin case latch and lift out the bobbin case. While the latch remains open the bobbin is retained in the bobbin case. Release the latch, turn the open end of the bobbin case downward and the bobbin will drop out.

To Wind the Bobbin

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. Pass the thread down through the thread guide in the tension bracket, around the back and between the tension discs.

Having placed the bobbin on the bobbin winder spindle, pass the end of the thread between the bobbin and the disc on the spindle, then push the bobbin up closely against the disc, and the end of the thread will be retained between the bobbin and the disc. With the left hand hold the bobbin winder pulley, and at the same time, with the right hand, turn the bobbin and the disc on the bobbin winder spindle over toward you to expand the spindle, thus securing the bobbin. Then push the bobbin winder pulley over against the machine belt, and start the machine.

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

When sufficient thread has been wound upon the bobbin, the bobbin winder will stop automatically. To release the bobbin turn the disc on the spindle over from you, then cut the tail thread off inside of the bobbin and the thread leading from the spool, and remove the bobbin.

Bobbins can be wound while the machine is stitching.

To Thread the Bobbin Case

Hold the bobbin between the thumb and forefinger of the right hand, the thread drawing on top from the left toward the right. (See Fig.3).

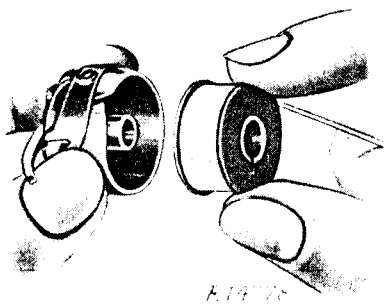


Fig. 3.

With the left hand hold the bobbin case as shown in Fig.3, the slot in the edge being near the top, and place the bobbin into it.

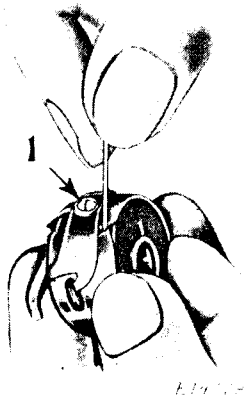


Fig. 4.

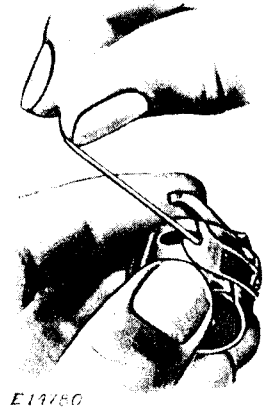


Fig. 5.

Then pull the thread into the slot in the edge of the bobbin case (see Fig.4), draw the thread down under the tension spring and into the delivery eye at the end of the tension spring (See Fig.5).

To Replace the Bobbin Case

After threading, take the bobbin case by the latch holding it between the thumb and forefinger of the left hand; place the bobbin case on the center stud of the shuttle body with the position finger opposite the notch at the top of the shuttle race, release the latch and press the bobbin case back until the latch catches the groove near the end of the stud. Allow about two inches of thread to hang free.

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 position, 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 presser foot.

To Commence to Sew

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

To Remove the Work

Let the thread take-up lever rest at its highest position, raise the presser foot, draw the work back and cut the threads close to the material.

To Regulate the Tensions

The tension on the needle thread should only be regulated when the presser foot is down. Having lowered the presser foot, turn the small thumb nut (C,Fig.2) at the front of the tension discs over to the right to increase the tension. To decrease the tension, turn the thumb nut over to the left.

The tension on the bobbin thread is regulated by the screw (1,Fig.4) in the bobbin case tension spring. To increase the tension, turn the screw over to the right. To decrease the tension, turn the screw over to the left.

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

Tensions

For ordinary stitching the needle and bobbin threads should be locked in the center of the thickness of the material, thus:

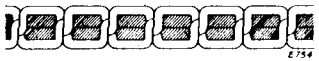


Fig. 6. Perfect Stitch

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:

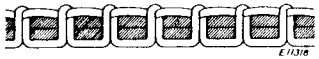


Fig. 7. Tight Needle Thread Tension

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:

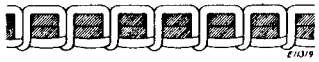


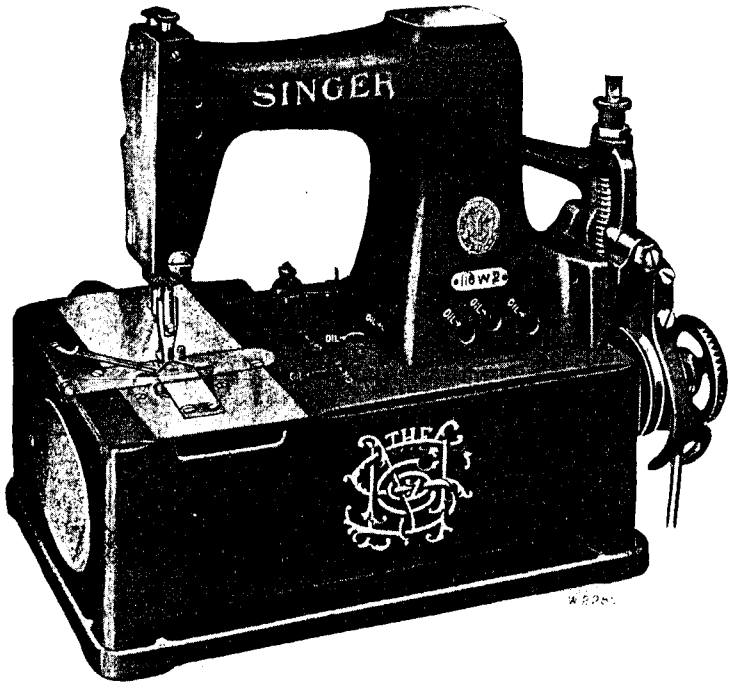
Fig. 8. Loose Needle Thread Tension

To Regulate the Length of Stitch

The length of stitch is regulated by the pivoted lever (B, Fig.2). To lengthen the stitch, loosen the thumb screw (A,Fig.2) and move the lever (B) downwardly. To shorten the stitch, loosen the thumb screw (A) and move the lever (B) upwardly. When the desired length of stitch has been obtained, firmly tighten the thumb screw (A).

To Regulate the Pressure on the Material

The pressure on the material is regulated by the thumb screw (D,Fig.2) on the top of the machine. To increase the pressure, turn the thumb screw over to the right. To decrease the pressure, turn the thumb screw over to the left. The pressure should be only heavy enough to enable the feed to move the work along evenly.



DESCRIPTION

Machine No. 116 w 2 is designed for tacking down or overseaming the thrums or loose ends of threads and gimp which lie between the buttonholes on the under side of button flies of boots, shoes, overgaiters, etc. The machine has one needle and a rotary hook.

The needle has a horizontal movement and vibrates alternately right and left under the bed plate, making a zigzag stitch, which is crossed each time by the bobbin thread, thus giving the seam the appearance of double zigzag stitching or a continuous line of crosses which are not visible on the upper side of the fly.

Setting Up

The front of the drip pan should be placed four inches from the front edge of the table. A hole should then be bored in the

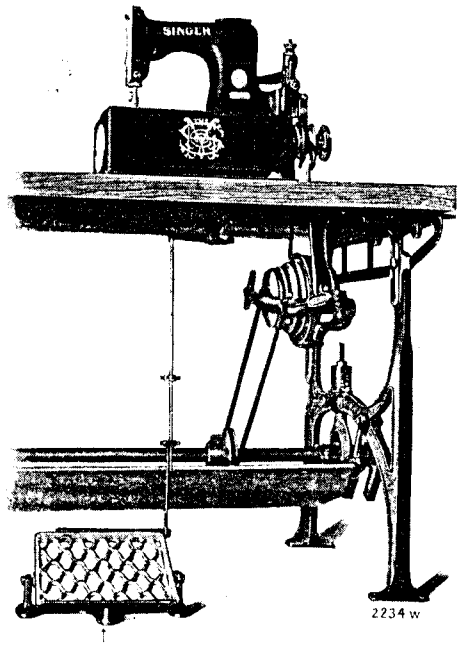


FIG. 2. MACHINE NO. 116W2, WITH TRANSMITTER NO. 222923

table for the projection on the under side of the drip pan. The transmitter No. 222923 to be used, should be fastened to the underside of the table with its large pulley in line with the division line between the two pulleys on the machine; this will ensure the correct action of the belt shifter. Care should also be taken to see that the transmitter operating lever does not project beyond the front edge of the table. Belt holes should be one inch in diameter and inclined at an angle that will coincide with the slant of the belt toward the transmitter pulley.

The machine should be set in the drip pan and fastened to the drip pan by the latch hook at the back of the machine.

Place the round belt from the transmitter to the sewing machine into position and join the ends. The belt should be just tight enough to drive the machine; if the belt is too tight heating will result.

The treadle should be set so that the centre of its front edge is on a plumb line with the presser foot of the machine. The pitman should be adjusted with the heel edge of the treadle against the stop and should be of sufficient length to start the machine when the toe edge of the treadle is depressed.

Speed

The maximum speed recommended for Machine No. 116 W 2 is 1400 stitches per minute. The machine should be run somewhat slower than the maximum speed at first until the parts which are in movable contact have become glazed by their action upon each other.

Needles

Needles for Machine No. 116 W 2 are of Class and Variety 116 N 1, and are furnished in sizes 13, 15, 16 and 17.

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

The following is an example of an intelligible order:

"100 No. 15, 116 N 1 Needles."

To be sure of good results use needles furnished by the Singer Sewing Machine Company.

Thread

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

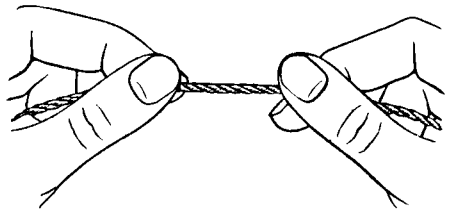


FIG. 3. HOW TO DETERMINE THE TWIST

Hold the thread as shown in Fig. 3. 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.

No. 40 soft finish cotton thread is generally used for the needle and the bobbin.

To Remove the Bobbin

Remove the front bed plate by raising it, the bobbin case and bobbin can then be easily taken out.

To Wind the Bobbin

Fasten the bobbin winder to the table at the rear of the driving pulley of the machine so that when the bobbin winder pulley is pushed over it will come in contact with the machine belt.

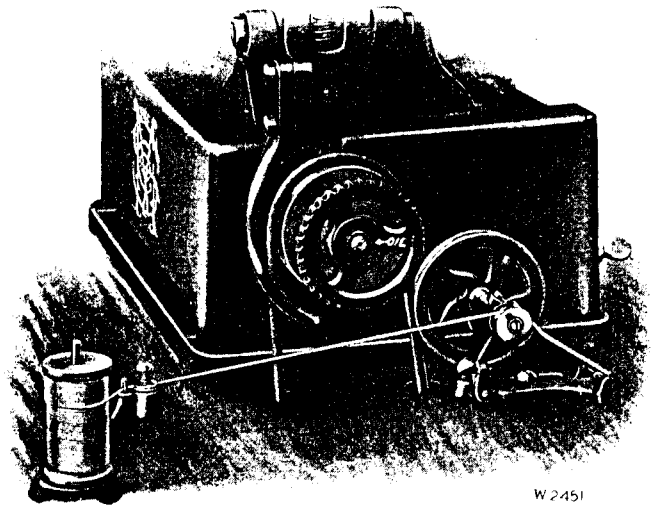


FIG. 4. WINDING THE BOBBIN

Fasten the spool holder for the bobbin winder near the front edge of the table with its tension stud toward the back and about nine inches on a direct line from the bobbin on the bobbin winder spindle. If the thread does not wind evenly on the bobbin, swing the spool holder to the right or left as desired.

Place the bobbin on the bobbin winder spindle and push it on as far as it will go. Put the spool of thread on the spool pin of the bobbin winder spool holder, or take the thread from the thread unwinder, lead the thread under the wire thread guide and between the tension discs (see Fig. 4); wind the end of the thread around the bobbin a few times and push the bobbin winder pulley over against the machine belt. When sufficient thread has been wound upon the bobbin, the bobbin winder will stop automatically. Bobbins can be wound while the machine is stitching.

To Thread the Bobbin Case

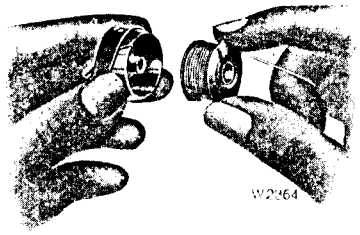


FIG. 5

Hold the bobbin between the thumb and forefinger of the right hand, as shown in Fig. 5, the thread drawing on the top from the left toward the right.

With the left hand hold the bobbin case as shown in Fig. 5, the slot in the edge being near the top, and place the bobbin into it.

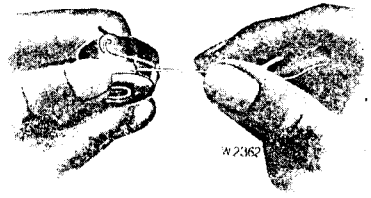


FIG. 6

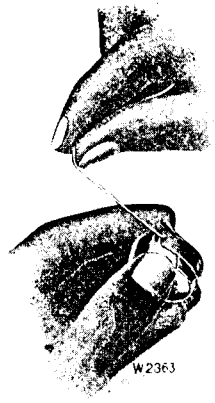


FIG. 7

Then pull the thread into the slot in the edge of the bobbin case as shown in Fig. 6, draw the thread under the tension spring and into the delivery eye at the end of the tension spring (see Fig. 7).

To Replace the Bobbin Case

After threading, place the bobbin case into position in the hook, with the position finger of the bobbin case pointing toward the back of the machine. Then replace the front bed plate, being careful to have the position finger of the bobbin case enter the stop notch in the bed plate. Allow about three inches of thread to hang free from the bobbin case.

To Set the Needle

Remove the back bed plate by raising it. Loosen the hexagon headed screw (3, Fig. 12, page 11) in the needle clamp and put the shank of the needle into the clamp with the long groove of the needle uppermost; then push the needle back against the stop and tighten the hexagon screw.

To Thread the Needle

Pass the thread from the unwinder through the thread guide (1, Fig. 8), into the thread retainer (2, Fig. 8), around between

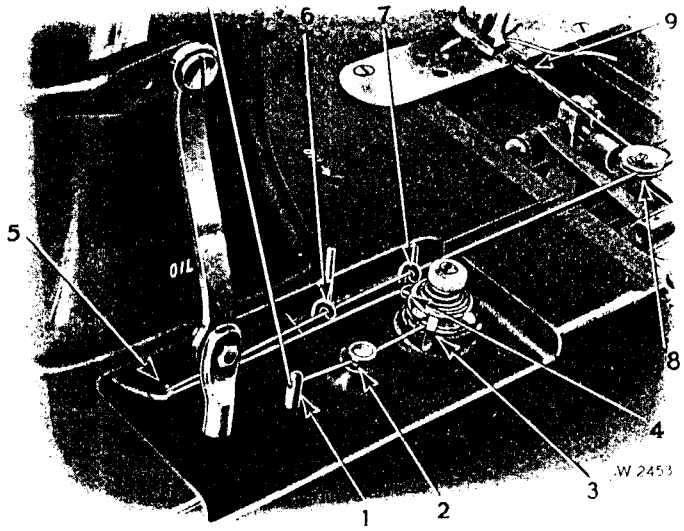


FIG. 8. THREADING THE NEEDLE

the tension discs (3, Fig. 8), until caught by the hook between the discs, then into the thread controller spring (4, Fig. 8), through the thread take-up lever (5, Fig. 8) through the two wire thread guides (6 and 7, Fig. 8), into the thread leader (8, Fig. 8), and downward through the eye of the needle (9, Fig. 8). Draw

about three inches of thread through the eye of the needle and replace the back bed plate.

To Prepare for Sewing

Raise the cover plate at the left side of the bed of the machine. Reach under the bed of the machine with the left hand and take

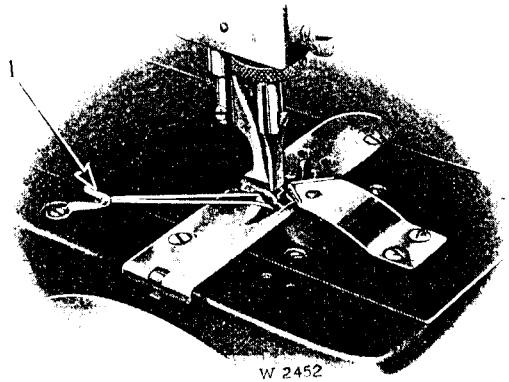


FIG. 9. THREADS HELD BY THREAD CUTTER

hold of the end of the needle thread, leaving it slack from the hand to the needle, depress the foot treadle and turn the machine driving pulley over from you one revolution, thus catching the bobbin thread; draw up the needle thread through the hole in the throat plate and the bobbin thread will come up with it. Pass the two threads back and under the thread cutter (1) as shown in Fig. 9.

To Commence Sewing

Place the shoe fly under the presser foot and depressing blade, with the buttonholes at the right, thrum side down and with the thrums over the delivery end of the thrum guide, into position for the needle to overstitch the thrums of the first buttonhole. Start the machine by depressing the treadle as far as it will go with the toe. As the machine is started, the presser foot descends automatically upon the work. The toe should be kept on the treadle while sewing. To stop the machine, press the treadle as far as it will go with the heel. When the machine stops, the presser foot is raised automatically. Some operators run one fly after another making a string of them without stopping the machine after finishing each fly.

To Remove the Work

Draw the work to the left and pass the threads under the thread cutter (1, Fig. 9, page 7) to cut them off and hold them for the next fly.

To Regulate the Tensions

The tension on the needle thread is regulated by the thumb nut over the tension discs on the bed of the machine at the back. To increase the tension turn the thumb nut downward. To decrease the tension turn the thumb nut upward.

The tension on the bobbin thread is regulated by the screw near the centre of the tension spring on the outside of the bobbin case. To increase the tension turn this screw over to the right. To decrease the tension turn this screw over to the left.

The bobbin thread requires a very light tension. The tension on the needle thread should be sufficient to draw the lock into the goods.

To Adjust the Tension Release

To cause the tension discs to open wider, tip the machine back, as shown in Fig. 13, page 11, loosen the pinch collar (4, Fig. 13, page 11) beneath the tension release lever on the starting rod (5, Fig. 13, page 11) and move the collar downward. To cause the discs to open less move the collar upward. When the tension discs have been adjusted to open the desired distance, tighten the pinch collar.

To Regulate the Length of Stitch

Tip the machine back as shown in Fig. 13, page 11. To increase the length of stitch, loosen the feed driving cam set screw (6, Fig. 13, page 11), and move the feed cam downward. To shorten the stitch move the feed cam upward. When the desired length of stitch has been obtained tighten the feed driving cam set screw.

To Regulate the Pressure on the Material

The pressure on the material is regulated by the thumb screw (13, Fig. 14, page 14) at the top of the machine. To increase the pressure on the material loosen the set screw (12, Fig. 14, page 14) and turn the thumb screw downward. To decrease the pressure turn the thumb screw upward. When the desired pressure on the material has been obtained tighten the set screw.

To Oil the Machine

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

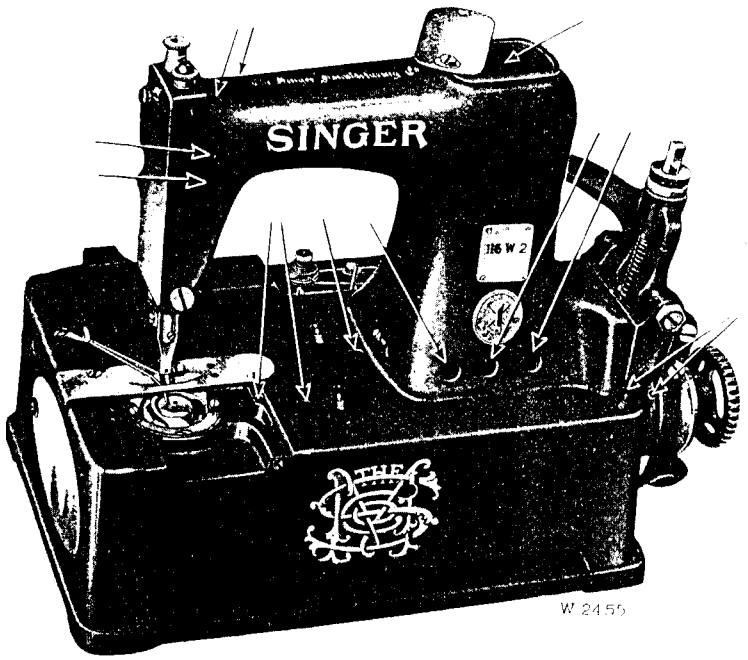


FIG. 10. OILING POINTS AT THE FRONT OF THE MACHINE

and when in continuous use it should be oiled frequently. Oil should be applied at all of the oil holes and bearings indicated by arrows in Figs. 10, 11, 12 and 13.

When oiling the bearings through the oil holes at the front of the machine as shown in Fig. 10, the tip of the oil can should be inserted into the holes far enough to reach the parts intended for oiling.

Turn back the cap which is at the top of the machine and apply oil to the bearings and joints thus uncovered, then replace

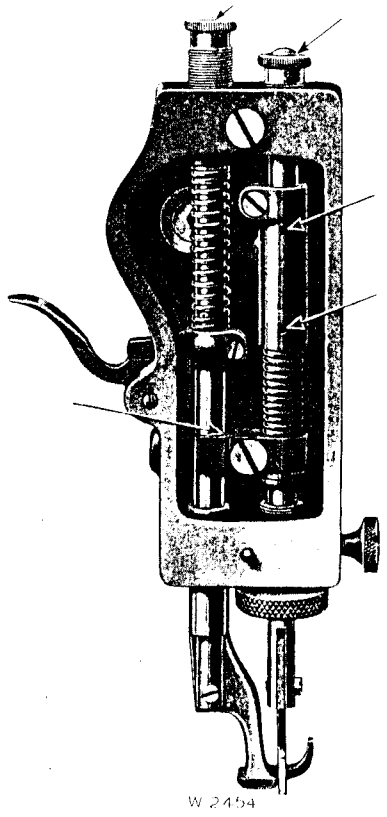


FIG. 11. END VIEW OF MACHINE, SHOWING OILING POINTS

the cap. Loosen the thumb screw in the upper end of the face plate, turn the face plate upward and apply oil at the places indicated by arrows in Fig. 11, then turn down the face plate and tighten the thumb screw.

Occasionally oil the bobbin case bearing in the bobbin case race.

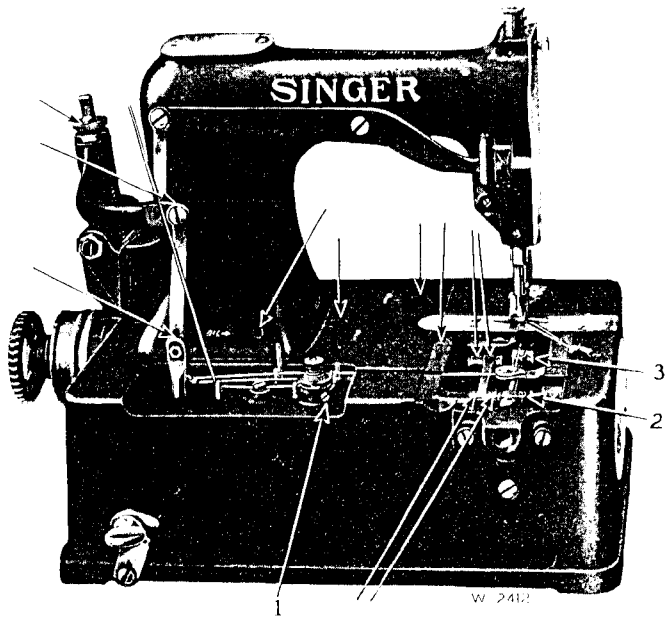


FIG. 12. OILING POINTS AT THE BACK OF THE MACHINE

ADJUSTMENTS ON THE MACHINE

1 Screw for regulating the thread controller spring.
2 Screw for adjusting the needle bar.
3 Needle clamp screw.

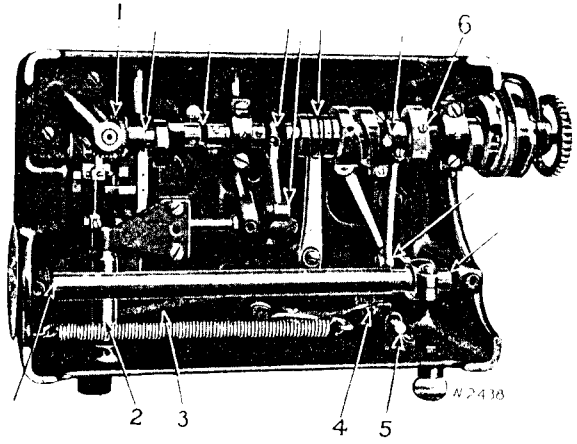


FIG. 13. OILING POINTS IN THE BASE OF THE MACHINE

ADJUSTMENTS ON THE MACHINE

1 Hook driving gear.
2 Needle bar frame.
3 Needle bar frame pitman.
4 Pinch collar for adjusting tension release.
5 Starting rod.
6 Screw for regulating the length of stitch.

INSTRUCTIONS
FOR
ADJUSTERS AND MACHINISTS

Thread Controller

The thread controller spring (4, Fig. 8, page 6) holds back the slack of the needle thread until the eye of the needle, as it comes forward, reaches the goods.

For more controller action on the thread loosen the stop screw (1, Fig. 12, page 11) and move the stop so as to give the spring a little more room for action, or for less action set the stop more against the spring, and retighten the stop screw.

To strengthen action of thread controller spring on the thread, with a very small screw driver, loosen the tension stud set screw at the back of the machine, and with a larger one, turn the tension stud slightly in the direction that will strengthen the action of the spring, or turn it in the reverse direction for a lighter action and retighten the stud set screw.

To Set the Needle Bar

The needle bar which is in the machine when shipped from the factory, has upon it about 1¼ inches from the needle stop, two lines about ⅛ inch apart. When the needle bar is as far forward (toward you) as it can come, the farther mark should be even with the near side of needle bar frame. These marks are plainly visible near thread leader (8, Fig. 8, page 6), when the needle bar is at back position. If necessary, the needle bar can be adjusted to position at connection stud (2, Fig. 12, page 11).

To Remove the Hook from the Machine

Remove the screw with its spring from each side of the hook bracket (8, see Fig. 15, page 16) and remove the hook.

Time of Needle and Hook

When the needle is on its right hand vibration and is as far forward as it can come, so that the farther mark on the needle bar is just visible at the near side of the needle bar frame, turn the hand wheel slowly in the running direction (from you), until the near mark on the needle bar is in line with the near side of the needle bar frame, the loop seizing point of the hook should then be at the centre of the needle, just back of its eye.

To Time the Hook

Adjustments must be made when the needle bar has vibrated to the right.

If the hook is not in correct time as noted above, see that the needle bar is correctly positioned, loosen the set screws in gear (1, Fig. 13, page 11), then turn the balance wheel in the running direction until the needle moves as far forward as it can come, the farther mark showing at the near side of the frame; continue turning until the near mark is on line with the frame. Now, turn the hook by hand until its point passes the needle about ¼ inch, then carefully and slowly push the hook backward until the point of the hook is at the centre of the needle, just back of its eye, as mentioned above, and tighten the screws in gear (1), being careful that neither bar nor hook has accidentally moved since positioned as directed, as there must be no lost motion between the heel of the hook and the hook driver, when the machine is correctly timed.

To Set the Hook

The point of the hook should run so as to just barely clear the needle when the needle is deflected against the needle guard on the hook driver, and is so set when the machine leaves the factory.

Remove the front and back bed plates, throat plate and bobbin case. Turn the hand wheel while looking through the (sewing) hook for three adjusting screws back of, and two in front of the hook's centre, slightly loosen both large screws, and tighten the two small back screws, drawing the hook as close to the needle as desired, then tighten both large screws. Be careful that the hook is moved out squarely so that it will be as close to the needle when on the left hand vibration as when on the right; if it is not, loosen one of the small back screws and tighten the other.

To set the point of the hook farther from the needle, loosen the two small back screws and the large front one, then turn the large back screw inward until the point of the hook is the desired distance from the needle and tighten the screws that were loosened.

Loop Openings

To increase the openings between the hook driver and the (sewing) hook to allow the thread to pass freely, loosen both large screws slightly, turn the small front screw inward and tighten both large screws. To reduce the openings, turn the small front screw outward and tighten both large screws. Verify the correctness of the timing before commencing to sew.

To Adjust the Height of the Depressing Blade

The depressing bar (1, Fig. 14), holding the depressing blade (10, Fig. 14), at the correct height above the needle, is rigidly

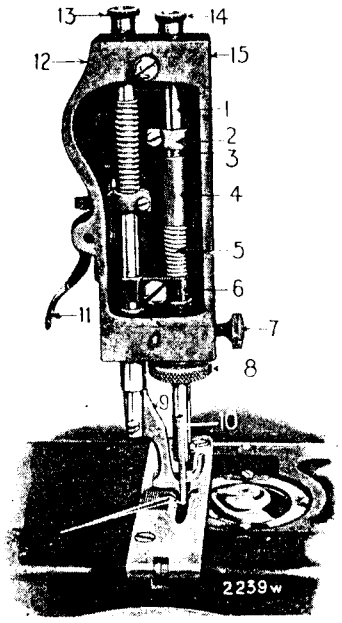


FIG. 14. ADJUSTMENTS ON THE MACHINE

1 Depressing bar.
2 " " lifting collar.
3 Space for adjusting marks between collar and sleeve.
4 Depressing bar lifting sleeve.
5 " " spring.
6 " " position guide.
7 Check thumb screw.
8 Thumb screw for limiting the height of the depressing blade above the needle.
9 Presser foot.
10 Depressing blade.
11 Presser foot lifter.
12 " bar (pressure regulating) thumb screw set screw.
13 Presser bar (pressure regulating) thumb screw.
14 Depressing bar bushing thumb screw.
15 Depressing bar bushing thumb screw set screw.

fastened in proper position before the machine is shipped from the factory. As this adjustment requires great accuracy no attempt should be made to change its position, except as indicated in the instructions which follow:

When in proper position as the needle is coming forward, the under edge of the depressing blade just clears the edges of the needle's groove by a space of about two one-thousandths of an inch, or the thickness of a fine thread.

The large thumb screw (8, Fig. 14, page 14) under the arm head, held by thumb screw (7, Fig. 14, page 14), passes through the arm head and acts as a stop for position guide (6, Fig. 14, page 14) to rest upon, thus limiting the drop of the blade. The machine when it leaves the factory is adjusted for a wide range of work, but if the shoe flies in process should be of thicker stock than the machine is adjusted to work, loosen thumb screw (7, Fig. 14, page 14) and slightly turn thumb screw (8, Fig. 14, page 14) to raise the blade the merest trifle, then refasten thumb screw (7, Fig. 14, page 14). The depressing blade bends the "Shoe fly" into the depression in the throat plate and holds it so that the needle can pierce the goods at the right depth for stitching. This adjustment must be very carefully made, as too much depression may deflect the needle and cause it to break. When very thin goods are brought for the operation, the blade may be adjusted lower than when usually set.

If for any cause the depression bar has been removed from the machine, it can be reassembled correctly, as there are two marks on the bar within space (3, Fig. 14, page 14). The upper mark should be just visible under lifting collar (2, Fig. 14, page 14), and the under mark over sleeve (4, Fig. 14, page 14) when at its lowest point compressing spring (5, Fig. 14, page 14).

Adjustment of the Needle Support

To observe the needle support in action, remove the front and back bed plates, depressing blade and presser foot; turn the hand wheel slowly by hand in the running direction while watching the point of a straight needle come forward to the opening in the throat plate. Stop turning when the taper of the needle's point is resting on the tapered top of the support about 1/32 inch from its front edge; and further observe, as turning is renewed, that, as the eye of the needle passes over the high part of the support, the support drops away from the needle far enough to allow the thread to work between them without pinching, usually two or three one-thousandths of an inch or the thickness of a thread.

To adjust the needle support loosen the adjusting screw set screw and turn the adjusting screw (5, Fig. 15, page 16) in the bell crank (4, Fig. 15, page 16), until the support just touches the under side of the needle's tapered point as its tip is within 1/32 inch from the extreme upper tapered surface of the support. If necessary time the cam (7, Fig. 15, page 16), on the hook driver shaft, in its relation to roller (6, Fig. 15, page 16), so that the upper

edge of the support is just about three one-thousandths of an inch or the thickness of the thread below the needle as its eye is crossing the highest part of the support on its movement toward the hook.

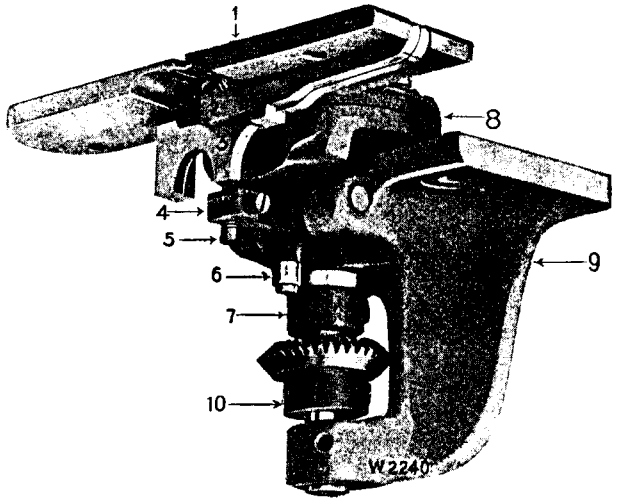


FIG. 15. ADJUSTMENTS ON THE MACHINE

1 Throat plate.
2 Needle Guard.
3 " support.
4 " " lifting bell crank.
5 " " adjusting screw and its set screw.
6 Needle support lifting bell crank roller.
7 Needle support cam.
8 Hook bracket.
9 " " base.
10 " driving gear.

The hook driving shaft holds the cam, gear, etc., in position.

In adjusting the needle support and the cam which actuates it great care should be taken to see that the needle support does not deflect the needle point upwardly the slightest nor fall away from the needle sufficiently to allow the point to be deflected downwardly the slightest in penetrating the material; the aim being to compel the needle point to travel in a perfectly straight line until it has passed beneath the depressing blade.

The timing and adjustment of these co-operating parts should be very exact to obtain enduring results.

Needle Bar Frame Pitman

Should the needle not enter guard (2, Fig. 15) properly on either vibration, the needle bar frame (2, Fig. 13, page 11) can be adjusted to vibrate farther to the left or right by lengthening or shortening the pitman (3, Fig. 13, page 11).