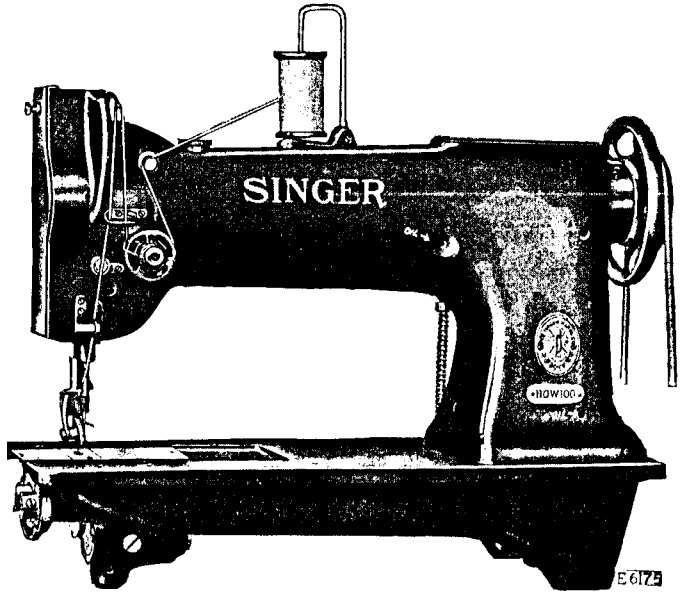
SINGER

110W100,W115,W120,W121

INSTRUCTIONS

FOR USING

SINGER SEWING MACHINES



110w100, 110w115, 110w120 and 110w121

FITTED WITH CONTINUOUS WHEEL FEED
FOR LEATHER WORK

THE SINGER MANUFACTURING CO.

Purchasing of Parts and Needles

Supplies of parts and needles for Singer machines can be purchased at any Singer shop or ordered by mail. If orders are sent by mail, money or a post office order covering their value, including postage, should be enclosed and the order will then be promptly filled and forwarded by mail or express.

DESCRIPTION

Machine 110 w 100 is fitted with a continuously moving wheel feed in combination with a needle feed, and is intended for use in the manufacture of shoes and similar leather work. It has one needle and a gear driven rotary hook and makes the lock stitch.

Machine 110 w 115 is equipped with a vertical trimmer and is designed for stitching and trimming articles of light weight leather at one operation. It is used in the manufacture of boots and shoes, gloves, small leather cases, leather waist belts, etc., and is well adapted for similar work where it is desired to stitch and trim both the outside and lining at one operation.

Machine 110 w 120 is equipped with an oblique under edge trimmer and will stitch the edges and undertrim the linings of shoes, sandals, slippers, etc., at one operation.

Machine 110 w 121 is equipped with a horizontal under-trimmer and adjustable edge guide and will stitch the edges and undertrim articles of light weight leather at one operation. It is used in the manufacture of boots and shoes, gloves, small leather cases, leather waist belts, pump straps, etc.

Speed

The maximum speed recommended for Machines of Class 110w is 3000 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 always turn over toward the operator.

Needles

Needles for Machines of Class 110w are of Class and Variety 16 x 4, and are furnished in the following sizes: Nos. 9, 10, 11, 13, 14, 16, 17 and 18.

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 an x.

The following is an example of an intelligible order:

"100 No. 14, 16 x 4 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 needle. Either right or left twist can be used in the bobbin.

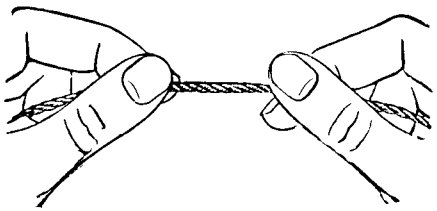


FIG. 2. HOW TO DETERMINE THE TWIST

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.

To Set the Needle

Turn the balance wheel over toward you until the needle bar moves up to its highest point, loosen the set screw in the lower end of the needle bar and put the needle up into the needle bar as far as it will go, with the long groove of the needle toward the left and the eye directly in line with the arm of the machine, then tighten the set screw.

To Remove the Bobbin

Draw out the slide plate at the right of the needle in the bed of the machine. Insert the finger nail of the forefinger under the latch (D, Fig. 5), raise the latch and lift out the bobbin.

To Wind the Bobbin

(SEE FIG. 3)

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.

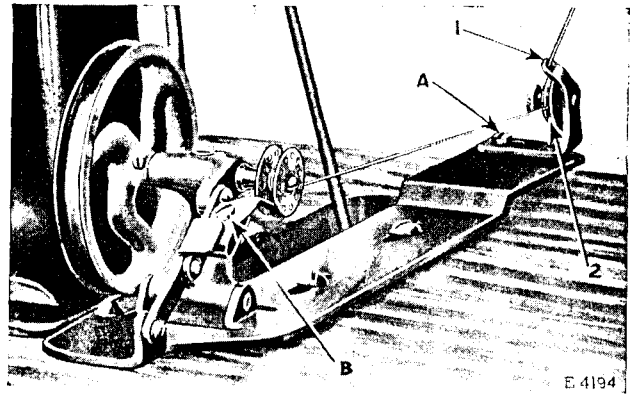


FIG. 3. WINDING THE BOBBIN

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 Replace the Bobbin and Thread the Bobbin Case

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

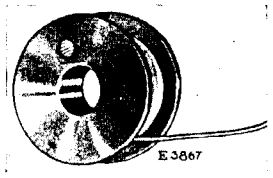


FIG. 4. DIRECTION OF THREAD ON BOBBIN

(see Fig. 4) and place it on the centre stud of the bobbin case, then push down the latch (D) as shown in Fig. 5. Draw the thread into the slot (1, Fig. 5), under and back of the projection (2, Fig. 5), leaving a loose end of thread about two inches long above the slide. When closing the slide plate, leave just enough space for the thread to pass through.

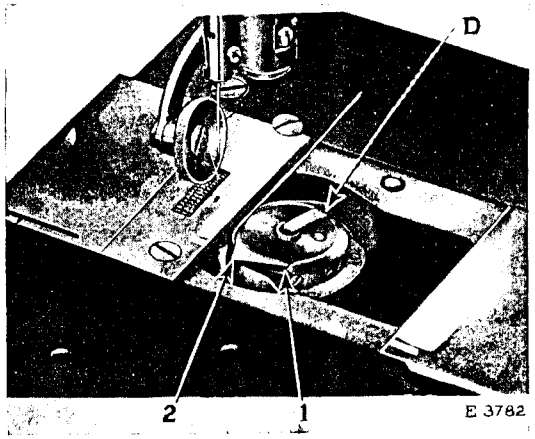


FIG. 5. BOBBIN CASE THREADED

To Thread the Needle

(SEE FIG. 6)

Pass the thread from the spool holder, over from right to left through the thread retainer (1) at the front of the machine,

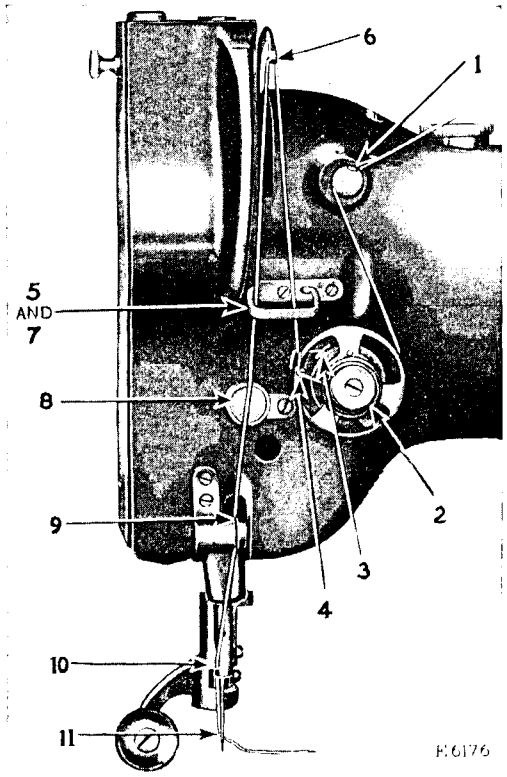


FIG. 6. THREADING THE NEEDLE

down, under from right to left between the tension discs (2), pull the thread up under the thread take-up spring (4) until it enters the retaining fork (3), then pass the thread up through the thread guide (5) and from right to left through the hole (6) in the end of the thread take-up lever, down through the thread guide (7), across the thread oiler (8), into the thread nipper (9), down through the hole (10) at the lower end of the needle bar and from left to right through the eye of the needle (11). Draw about two 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 with it through the hole in the throat plate. Lay the threads back under the roller presser.

To Commence Sewing

Place the material beneath the roller presser, lower the roller presser 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 roller presser, draw the work back and cut the threads close to the leather.

To Regulate the Pressure on the Material

The pressure on the material is regulated by the hexagon screw (L, Fig. 13, page 13) at the back of the machine, the screw acting on a flat spring. To increase the pressure, turn this screw downwardly, To decrease the pressure, turn this screw upwardly.

Tensions

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 be 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 (K, Fig. 12, page 12) at the front of the tension discs on the front of the machine. To increase the tension, turn this thumb nut over to the right. To decrease the tension, turn the thumb nut over to the left.

The tension on the bobbin thread is regulated by means of the screw nearest the centre of the tension spring on the outside of the bobbin case.

To Change the Length of Stitch

The length of stitch is controlled by the stitch regulating gears (F and G, Fig. 10) at the left on the underside of the bed

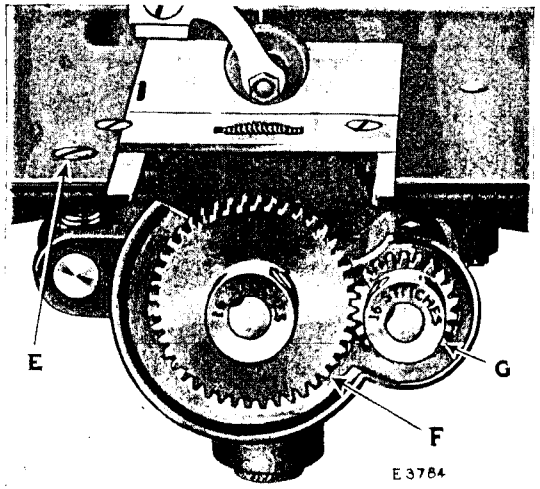


FIG. 10. VIEW OF MACHINE, SHOWING STITCH REGULATING GEARS

of the machine. When it is desired to change the length of stitch, it will be necessary to change both of these gears. To remove the stitch regulating gears, loosen the two screws in the hub at the left of each of the gears and withdraw the gears from the shafts.

The following stitch regulating gears are made for use with each machine:

LARGE GEAR NO.	SMALL GEAR NO.	STITCHES PER INCH
237763	237764	12
237711	237716	14
237712	237717	15
237713	237718	16
237714	237719	17½
237715	237720	19
237768	237769	21
237751	237752	23

The machine is regularly equipped with stitch regulating gears for making 16 stitches, and gears for making 17½ and 19 stitches are furnished as extras without additional charge. Gears for making 12, 14, 15, 21 or 23 stitches to the inch will be furnished, on order.

The stitch regulating gears are marked with numerals indicating the number of stitches to the inch that they make, and when

selecting the gears, care must be taken to see that the gears to be used are marked with the corresponding numbers.

Having selected the pair of gears desired, place them on the shafts as shown in Fig. 10, having the position screw in the hub at the left of each gear enter the groove in the shafts. See that the gears are pushed as far as they will go on the shafts, then firmly tighten the two screws in each gear.

To Regulate the Amount of Travel of the Needle Bar

When the stitch regulating gears (F and G, Fig. 10) have been changed to produce a different length of stitch, the throw or

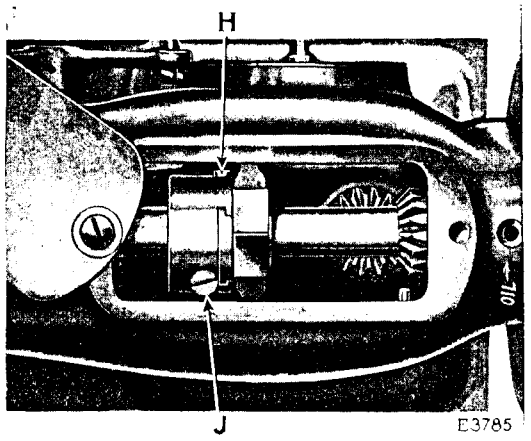


FIG. 11. ADJUSTMENT FOR REGULATING AMOUNT OF TRAVEL OF NEEDLE BAR

amount of travel of the needle bar must also be changed, so that the needle will move forward in unison with the wheel feed for each stitch.

Swing back the cover plate at the top of the machine and loosen the screw (H, Fig. 11) in the needle bar driving eccentric on the arm shaft. To increase the throw or amount of travel of the needle bar for a longer stitch, turn the large screw (J, Fig. 11) on the needle bar driving eccentric over to the left or upwardly. To decrease the throw of the needle bar for a shorter stitch, turn the large screw (J) over to the right or downwardly. When the required throw of the needle bar is obtained, firmly tighten the screw (H).

To Raise or Lower the Feed Wheel

The height of the feed wheel is regulated by the screw (E, Fig. 10, page 10) located immediately at the rear of the left slide plate in the bed of the machine. To raise the feed wheel, turn this screw over to the right. To lower the feed wheel, turn the screw over to the left.

The feed wheel should be set so that slightly less than the full depth of the teeth will project through the feed wheel slot in the throat plate.

To Oil the Machine

To ensure easy running and prevent unnecessary wear of the parts which are in movable contact, the machine requires oiling, and when in continuous use, it should be oiled at least twice each day.

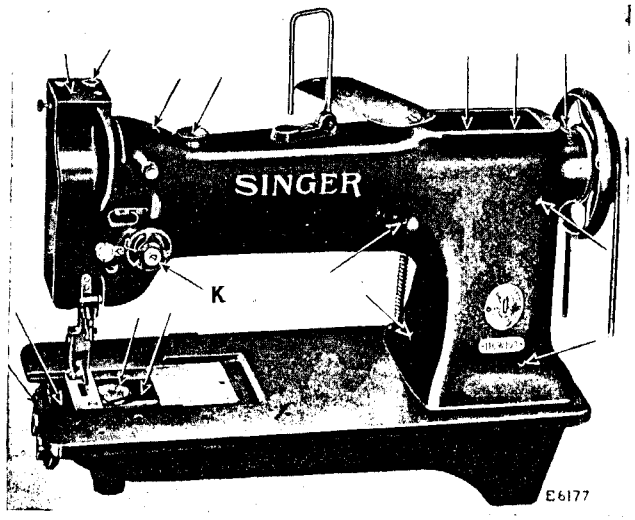


FIG. 12. FRONT VIEW OF MACHINE, SHOWING OILING POINTS

The places where the machine should be oiled are indicated in Figs. 12, 13, 14 and 15, by arrows pointing to the oil holes and bearings.

Oil the bobbin case bearing in the hook race each time a bobbin is replaced.

Swing back the cover at the top of the machine and apply oil to the gears and needle bar driving eccentric thus uncovered.

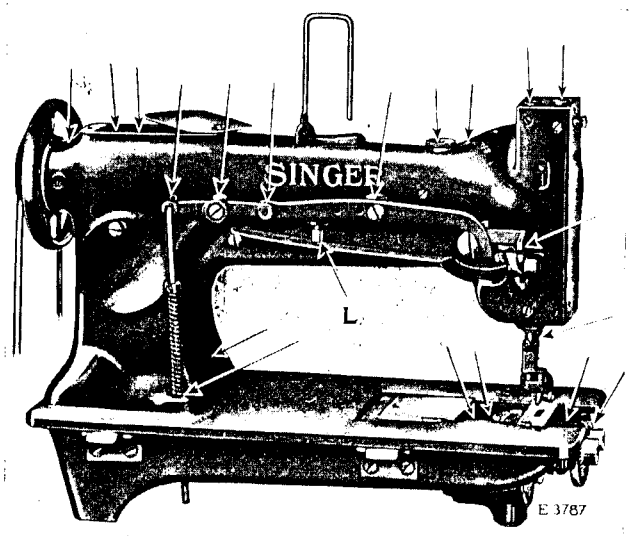


FIG. 13. BACK VIEW OF MACHINE, SHOWING OILING POINTS

Occasionally remove the two covers (M and N, Fig. 14) of the gear cases on the underside of the bed of the machine and

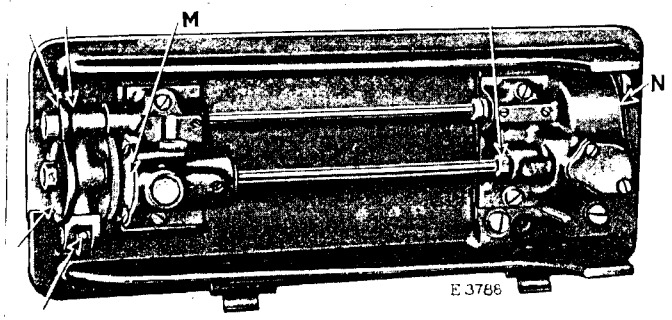


FIG. 14. BASE VIEW OF MACHINE, SHOWING OILING POINTS

fill the gear cases with Singer High Speed Lubricant, a grease which is especially prepared for the purpose. When removing the cover (N) be careful not to damage the paper gasket under the cover. If this gasket is torn, the grease will leak out of the gear case when the cover is replaced.

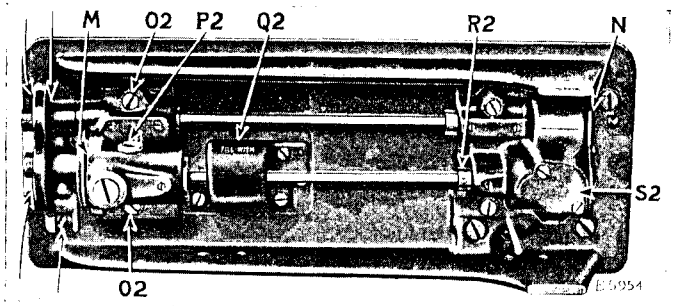


FIG. 15. BASE VIEW OF MACHINE 110 W 121 SHOWING OILING POINTS

The oil reservoir (Q2, Fig. 15) underneath the bed of Machine 110 w 121 should be kept filled with oil to lubricate the knife driving eccentric and fork connection.

To Change the Trimming Margin on Machines 110 w 115 and 110 w 120

The distance from the trimmed edge to the line of stitching is determined by the throat plate used, each throat plate being adapted for but one trimming margin.

The trimming margin is measured from the centre of the needle hole to the cutting edge of the throat plate.

To change the machine from one trimming margin to another, it is only necessary to change the throat plate and adjust the knife.

Machine 110 w 115 can be furnished with throat plates for making .045, .060 or .085 inch trimming margin, as desired, for trimming abreast of the needle. Orders for the machine should specify the trimming margin required. Unless otherwise ordered, this machine will be fitted for making the trimming margin .045 inch.

Machine 110 w 120 can be furnished with throat plates for making .040, .050, .060 or .075 inch trimming margin, as desired, for trimming abreast of the needle.

This machine can also be furnished with throat plates for making .015, .025, .040 or .050 inch trimming margin, as desired, for trimming back of the needle.

Orders for this machine should state whether it is desired to trim abreast of the needle or back of the needle, and the order should also specify the trimming margin required. Unless otherwise ordered, this machine will be fitted to trim abreast of the needle, the trimming margin being .040 inch.

To Change the Trimming Margin on Machine 110 w 121

To change the machine from one trimming margin to another, it is only necessary to adjust the guide to or from the needle. A change in the trimming margin does not require a change of the throat plate.

To Adjust the Trimmer on Machine 110 w 115

The knife (T, Fig. 16) should be set so that its cutting edge presses against the cutting edge of the throat plate to ensure making a shear cut.

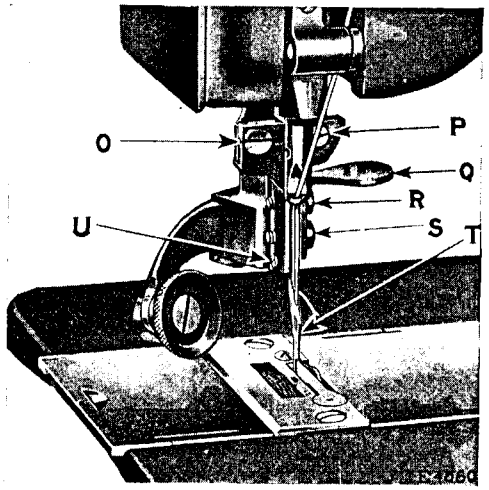


FIG. 16. ADJUSTMENTS OF TRIMMER ON MACHINE 110 W 115

The sidewise adjustment of the knife is obtained by loosening the two screws (O and P, Fig. 16) and moving the knife holder to the right or left, as may be required. The knife can also be slightly adjusted sidewise by loosening or tightening the screw (U, Fig. 16) at the lower end of the knife holder.

To adjust the knife to the correct height, loosen the two screws (R and S, Fig. 16) and move the knife up or down on the knife holder, after which the two screws (R and S) should be securely tightened.

To throw the knife out of action, press the lever (W, Fig. 17, page 16) to the left. To throw the knife into action, press down on the handle (Q, Fig. 16).

To Adjust the Trimmer on Machine 110 w 120

The knife (E2, Fig. 17) should be set so that its cutting edge presses against and just passes below the cutting edge of the throat plate to ensure making a shear cut.

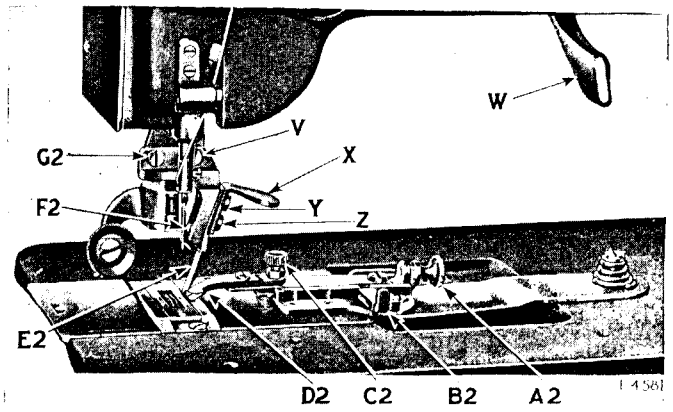


Fig. 17. Adjustments of Trimmer and Edge Guide on Machine 110 w 120

The sidewise adjustment of the knife is obtained by loosening the two screws (G2 and V, Fig. 17) and moving the knife holder to the right or left, as may be required. The knife can also be slightly adjusted sidewise by loosening or tightening the screw (F2, Fig. 17) at the lower end of the knife holder.

To adjust the knife to the correct height, loosen the two screws (Y and Z, Fig. 17) and move the knife up or down on the knife holder, after which the two screws (Y and Z) should be securely tightened.

To throw the knife out of action, press the lever (W, Fig. 17) to the left. To throw the knife into action, press down on the handle (X, Fig. 17).

To Adjust the Edge Guide on Machine 110 w 121

The edge guide (H2, Fig. 18) can be adjusted so that the knife will trim the edge of the under ply of leather from flush up to 1/8

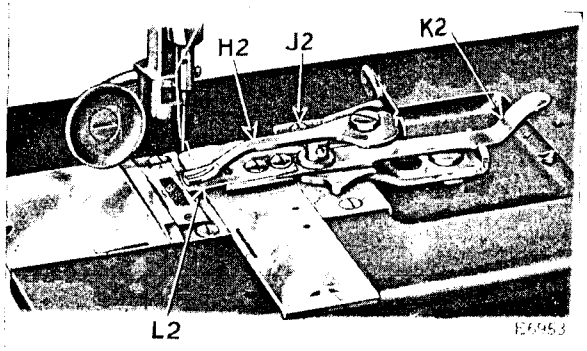


Fig. 18. Adjustments of Trimmer on Machine 110 w 121

inch under the edge of the upper ply. To change the margin from the edge to the line of stitching on the upper ply of leather, loosen the screw (J2, Fig. 18) and move the edge guide (H2) to the right or left until the desired margin is obtained, then securely tighten the screw (J2).

If desired, the edges of both the upper and under plies of leather can be trimmed simultaneously.

To Disengage the Edge Guide on Machine 110 w 121

To disengage the edge guide (H2, Fig. 18), swing it toward the operator as far as it will go.

To Disengage the Trimmer on Machine 110 w 121

To disengage the knife (L2, Fig. 19), raise the handle (K2) and swing it toward you, as shown in Fig. 19, until it is locked out

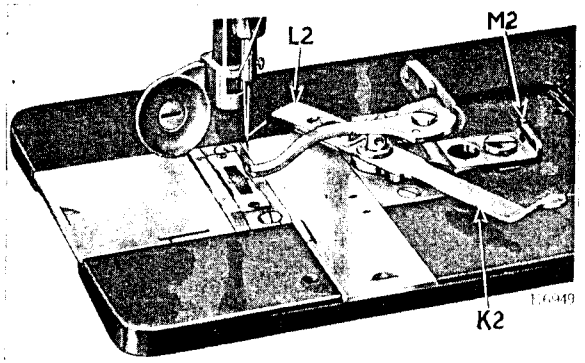


Fig. 19. Trimmer on Machine 101 w 121 Disengaged

of position. When re-engaging the knife, be sure to see that the handle (K2) is pushed back until it springs into position in the notch in the knife bracket (M2, Fig. 19).

To Time the Trimmer on Machine 110 w 121

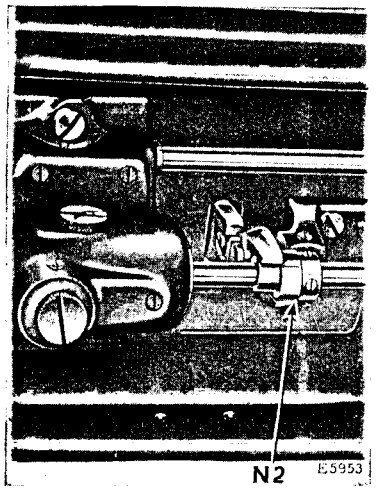


Fig. 20 View of Machine 110 w 121 Showing Adjustment for Timing the Knife

The knife (L2, Fig. 18) should be timed so that it is at its most forward position toward the operator and $\frac{1}{32}$ inch in front of the needle when the needle bar is at its lowest point. In case the knife is not correctly timed, loosen the two set screws in the eccentric (N2, Fig. 20) and turn this eccentric on the shaft until the correct timing of the knife is obtained, then securely tighten the two set screws in the eccentric (N2).

To Adjust the Edge Guide on Machine 110 w 120

(See Fig. 17 on Page 16)

The purpose of the edge guide finger (D2, Fig. 17) is to keep the shoe upper out of range of the knife, thus preventing the knife from cutting the edge of the upper while the stitching and trimming is in progress. When in proper adjustment, the edge guide finger (D2) should be slightly to the left of the knife (E2). The sidewise adjustment of the edge guide finger is obtained by turning the thumb screw (A2, Fig. 17) at the right hand end of the guide. The back edge of the finger should stand as close to the knife as possible without striking it.

The edge guide finger (D2) should be adjusted to a height that will permit the facing or lining to pass freely under it to the knife while protecting the edge of the upper from injury. To adjust the edge guide finger (D2) to the correct height, loosen the lock nut just below the thumb screw (C2, Fig. 17) and turn the thumb screw (C2) up or down, as may be required. If the edge guide finger should run under or catch the lining, it should be slightly raised. When the edge guide finger is set at the correct height, securely tighten the lock nut.

When desired, the edge guide finger can be drawn back out of the way of the operator by pulling forward on the latch (B2, Fig. 17).

The complete edge guide attachment can be swung aside on its hinge screw after raising the attachment over the position pin at the left.

Adjustable guide 237904 is furnished when trimming abreast of the needle, and adjustable guide 237905 is furnished when trimming back of the needle.

To Sharpen the Knife Used in Machines 110 w 115 and 110 w 120

When it is necessary to resharpen the knife, loosen the two screws which fasten the knife to the knife holder and remove the knife. Knife grinder 207032 should be used to sharpen the knife. As this grinder can be used for several machines, it should be ordered separately.

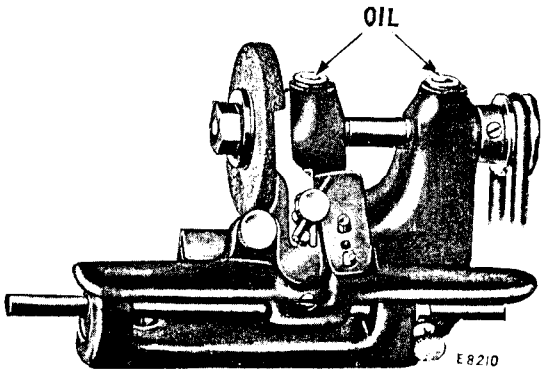


FIG. 21. KNIFE GRINDER 207032

Sharpen the cutting edge of the knife on the beveled side only, and grind off as much from the projection as from the cutting edge so as to maintain their relative proportions, and to prevent the projection from striking the hook.

To Sharpen the Knife Used in Machine 110 w 121

Loosen the two screws which fasten the knife in position and remove the knife. Knife grinder No. 41325 should be used to grind the knife if badly worn; or if grinding is unnecessary, the knife should be honed with a triangular oil stone, which can be supplied when ordered.

INSTRUCTIONS

FOR

ADJUSTERS AND MACHINISTS

Thread Controller

The function of the needle thread controller spring is to hold back the slack of the needle thread until the eye of the needle nearly 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.

When once correctly adjusted to thin material (as it is when it leaves the factory), the thread controller stop is automatically adapted to varying thicknesses by the rise and fall of the presser bar.

To change the thread controller stop for more controller action on the thread, remove the face plate and set the small extension collar on the presser bar lower, or for less action set it higher.

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 thread, loosen the tension stud set screw located nearly under the tension stud, and turn the tension stud slightly to the left with a screw-driver, or to decrease the tension, turn it to the right and retighten the stud set screw.

To Set the Needle Bar

See that the needle is up in the bar as far as it will go. There are two lines across the needle bar about two inches above the lower end. When the needle bar is at its lowest position, the upper mark should be just visible at the end of the needle bar frame.

In case the needle bar is not set at the correct height, loosen the needle bar connecting stud pinch screw and place the needle bar in the correct position as instructed above, then retighten the screw.

To Set a Needle Bar which has no Mark. Set the needle bar so that when it rises $\frac{3}{32}$ inch from its lowest position, the point of the sewing hook will be at the centre of the needle and about $\frac{1}{16}$ inch above the eye.

To change the forward and backward position of the needle bar. Raise the round cover plate at the back of the machine and loosen the large screw thus brought to view. While this screw is loose, the needle bar can be moved forward or backward, as required, to bring the needle in the desired position in the throat plate needle hole, after which securely tighten the large screw and replace the cover plate.

To Time the Sewing Hook

Remove the throat plate and turn the balance wheel over toward you until the lower mark across the needle bar is just visible at the end of the needle bar frame on the upward stroke of the needle bar. If the needle bar and sewing hook are correctly timed, the point of the hook will be at the centre of the needle and about $\frac{1}{16}$ inch above the eye.

In case the sewing hook is not correctly timed, remove the screw (P2, Fig. 15) and loosen the two set screws in the hook driving gear thus uncovered, then turn the balance wheel over toward you until the needle bar has descended to its lowest point and has risen until the lower timing mark across the needle bar is just visible at the end of the needle bar frame. Now turn the sewing hook until the point of the hook is at the centre of the needle, after which securely tighten the two set screws in the hook driving gear and replace the screw (P2).

To Set the Sewing Hook to or from the Needle

To prevent the point of the sewing hook from dividing the strands of the thread, it should be run as close to the needle (within the scarf) as possible.

Remove the gear case cover (S2, Fig. 15) and loosen the two screws in the hook shaft spiral driving gear thus uncovered, also loosen the screws in the collar (R2, Fig. 15), then loosen the two screws (O2, Fig. 15) and move the hook saddle toward or away from the needle, as required, after which securely tighten

the two screws (O2), then move the collar (R2) over against the bushing and tighten its set screws. Tighten the two screws in the hook shaft spiral driving gear and at the same time hold the shaft to the right and the spiral gear to the left to eliminate any end play in the hook driving shaft.

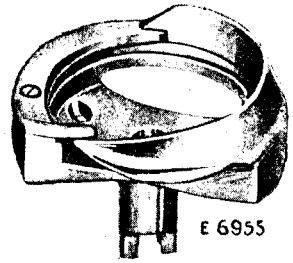


Fig. 22

To Remove the Hook from the Machine

Remove the hook gib screw at the heel of the hook and move the gib aside to allow the base of the bobbin case to be taken out, after which remove the screw from the centre of the hook. Tapping the hook lightly on the bottom of its rim 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 prongs of the shank properly enter the slot at the bottom of the socket, otherwise the hook will be out of time.

Needle Guard

The needle guard, which is part of the 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 Remove the Bobbin Case Base from the Sewing Hook

Remove the two hook gib screws from the sewing hook, swing aside the hook gib and remove the bobbin case base.

To Remove the Needle Bar Rock Frame Shaft

Remove the face plate and needle bar rock frame, then raise the round cover plate at the back of the machine and loosen the large screw thus brought to view. The needle bar rock frame shaft can then be withdrawn from the machine.