

SINGER
CLASS 16

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 1/4 lb. tubes and 1 lb. and 4 lb. tins.

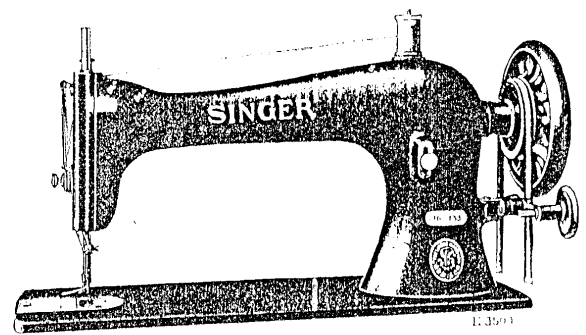
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INSTRUCTIONS

FOR USING AND ADJUSTING

SINGER SEWING MACHINES



Machine 16-133

OF

CLASS 16

(CENTRAL BOBBIN)

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.
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Company's Trade Mark "SIMANCO." 1

Needles in Containers marked
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are not Singer made needles. 2

DESCRIPTION

Machines of Class 16, described in this book, each have one needle and a central bobbin, oscillating shuttle and make the lock stitch.

Machine 16-81 is especially designed for book and pamphlet stitching. It makes stitches from $\frac{1}{4}$ to $\frac{1}{8}$ inch in length and will stitch a book or pamphlet up to $\frac{3}{16}$ inch in thickness. It has a drop feed and a roller presser.

Machine 16-133 is intended for general work in cloth. It has a drop feed and a presser foot.

Machine 16-141 is adapted for sewing cloth or light or medium weight leather and is used for binding clothing, sandals, shoe tongues, rubber coats, mattresses, lap robes, carpets, automobile and carriage trimming and a great variety of other articles, the binders being furnished, on order, at an additional charge. A sample of the binding and the material to be bound should accompany orders for binders. This machine is also useful for stitching heavy buckskin gloves and leather gloves. It has a drop feed and alternating presser feet.

Machine 16-188 is designed for sewing cloth or light or medium weight leather and is used in the manufacture of automobile curtains, waterproof covers, bags, tarpaulins, leather leggings, carriage trimmings, etc. This machine is equipped with upper and under feeding mechanism, each of which can be adjusted independently. By this means, the upper or lower plies of fabric can be fed faster or slower as may be desired.

Binding, hemming and piping can also be accomplished on the machine, attachments for the various operations being furnished, on order, at an additional charge.

To Oil the Machine

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

Oil should be applied at the places indicated by arrows in Figs. 2, 3, 4 and 5, and when the machine is in continuous use, it should be oiled at least twice each day.

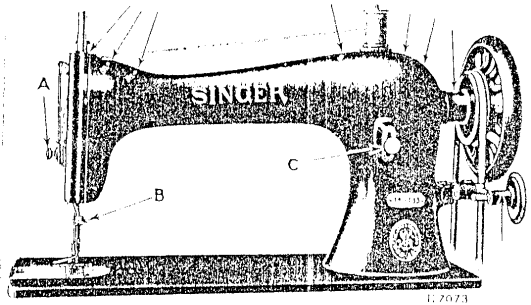


FIG. 2. OILING POINTS AT THE FRONT OF THE MACHINE

Loosen the thumb screw in the round cover plate on the back of the machine, turn the cover plate up and oil the bearings which are thus uncovered, then replace the cover.

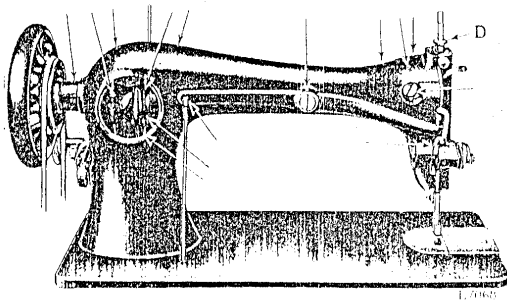


FIG. 3. OILING POINTS AT THE BACK OF THE MACHINE

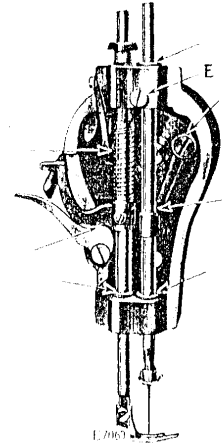


FIG. 4. END VIEW OF MACHINE, SHOWING OILING POINTS

Loosen the screw (E, Fig. 4) near the upper end of the face plate, raise the plate and slip it off over the head of the screw; apply oil at the places designated by arrows in Fig. 4, then replace the face plate and fasten it as before.

Turn back the machine on its hinges and apply oil at the places shown by arrows in Fig. 5.

Apply a drop of oil to the shuttle bearing in the shuttle race each time a bobbin is replaced.

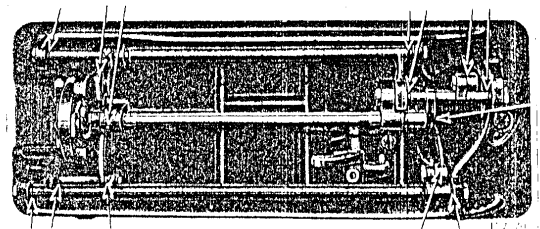


FIG. 5. BASE VIEW OF MACHINE, SHOWING OILING POINTS

Speed

The maximum speeds recommended for Machines of Class 16 are as follows:

| MACHINE | STITCHES PER MINUTE |
|---------|---------------------|
| 16-81 | 150 |
| 16-133 | 1800 |
| 16-141 | 1400 |
| 16-188 | 1400 |

Run the machine slower than the maximum speed until the parts which are in movable contact have become glazed by their action upon each other.

Instructions for Operating the Machine

Raise the presser foot (G, Fig. 6) by means of the presser bar lifter (J, Fig. 6) to prevent injury to the foot (G) and feed (F, Fig. 6).

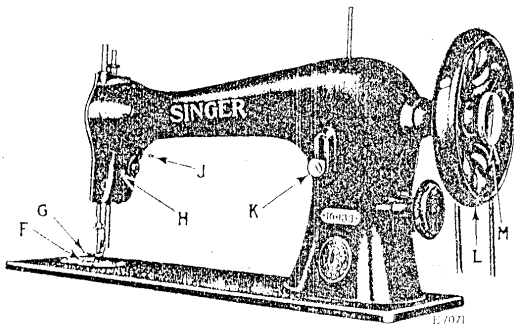


FIG. 6. FRONT VIEW OF THE MACHINE

When Machines of Class 16 are fitted with the stop motion clamp screw (M, Fig. 6), the balance wheel (L, Fig. 6) can be released when required, thus enabling the operator to become proficient in the use of the treadle, and permitting the winding of bobbins without running the stitching mechanism. It also allows the operator to wind bobbins without removing partially sewn work and without unthreading the machine.

To release the balance wheel (L, Fig. 6, page 6) turn the stop motion screw (M, Fig. 6) over toward you. It will be necessary to hold the balance wheel while loosening the stop motion screw.

After releasing the balance wheel, place your feet upon the treadle and with the right hand turn the balance wheel over toward you. This will start the hand wheel, treadle and pitman, the sewing mechanism having been disconnected.

Continue the motion thus begun by an alternate pressure of heel and toe, until a regular and easy movement is acquired, and the balance wheel kept in continuous rotation by use of the feet alone.

When you are thoroughly familiar with the treadle movement, and can restart the machine without turning the balance wheel in the wrong direction, tighten the stop motion screw to connect the balance wheel with the stitching mechanism.

Place a piece of cloth under the presser foot or roller presser, let down the presser bar, and operate the machine in this way without being threaded, until you have become accustomed to guiding the material.

To Ensure Perfect Action of the Machine

The balance wheel must always turn over toward the operator.

Do not run the machine with the presser foot or roller presser resting on the feed without cloth under the presser foot or roller presser.

Do not run the machine when both bobbin case and needle are threaded unless there is material under the presser foot or roller presser.

Do not try to help the machine by pulling the fabric, lest you bend the needle; the machine feeds the work without assistance.

The slide over the bobbin case should be kept closed when the machine is in operation.

Needles

Needles for Machines of Class 16, fitted with central bobbin, are of the following class and variety numbers:

| MACHINE | CLASS AND VARIETY NOS. OF NEEDLES | STYLE OF POINT | SIZES |
|----------------------|-----------------------------------|----------------|--|
| 16-81 } 16-133 } | 16 x 73 | Cloth | 7, 8, 9, 10, 11, 13, 14, 16, 17, 18, 19, 21, 22, 23, 24, 25. |
| 16-141 } 16-188 } | 16 x 63 | Cloth | 14, 16, 17, 18, 19, 21, 22, 23, 24, 25. |
| | 16 x 64 | Leather | 14, 16, 17, 18, 19, 21, 22, 23, 24, 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. 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. 18, 16 x 73 Needles," if for cloth.

"100 No. 16, 16 x 64 Needles," if for leather.

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 thread can be used in the bobbin.

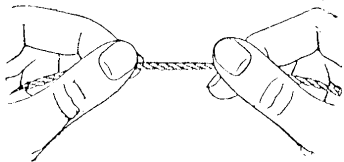


FIG. 7. HOW TO DETERMINE THE TWIST

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

| SIZES OF NEEDLES | CLASS OF WORK | SIZES OF COTTON, LINEN OR SILK |
|------------------|---|---|
| 9 | Very thin Muslins, Cambrics, Linens, etc. | 100 to 150 Cotton 000 & 00 Silk Twist |
| 11 | Very fine Calicoes, Linens, Shirtings, fine Silk Goods, etc. | 80 to 100 Cotton 0 Silk Twist |
| 14 | Shirtings, Sheetings, Bleached Calicoes, Muslins, Silk and general domestic goods, and all classes of general work. | 60 to 80 Cotton A and B Silk Twist |
| 16 | All kinds of heavy Calicoes, light Woolen Goods, heavy Silk, Seaming, Stitching, etc. | 40 to 60 Cotton C Silk Twist |
| 18 | Tickings, Woolen Goods, Trousers, Boys' Clothing, Corsets, Cloaks, Mantles, etc. | 30 to 40 Cotton D Silk Twist |
| 19 | Heavy Woolens, Tickings, Bags, Heavy Coats, Trousers, etc. Heavy clothing generally. | 24 to 30 Cotton E Silk Twist 60 to 80 Linen |

To Remove the Bobbin

Turn the balance wheel over toward you until the needle moves up to its highest point. Draw out the slide in the bed of the

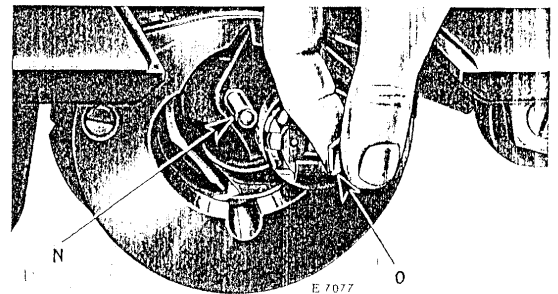


FIG. 8. REMOVING THE BOBBIN CASE

machine, reach down with the thumb and forefinger of the left hand, open the bobbin case latch (O, Fig. 8) 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 downwardly and the bobbin will drop out.

To Wind the Bobbin

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

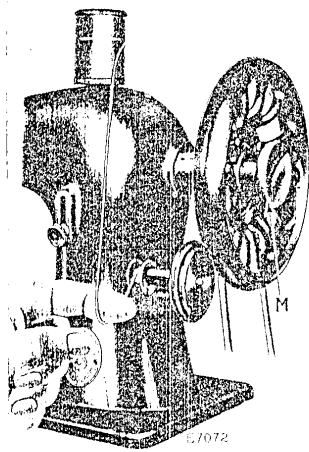


FIG. 9. WINDING THE BOBBIN

Place the spool of thread on the spool pin on top of the machine and pass the end of the thread from the spool through the hole in the side of the bobbin from the inside. Raise the bobbin winder so that its pulley presses against the rim of the balance wheel. (On machines fitted with stop motion, release the balance wheel by means of the stop motion thumb screw (M, Fig. 9) as instructed on page 7). Then start the machine and at the same time hold the end of the thread projecting through the side of the bobbin until a few revolutions have been made. Guide the thread so as to fill the bobbin smoothly and evenly. When sufficient thread has been wound upon the bobbin, stop the machine, break the thread and remove the filled bobbin from the bobbin winder spindle, then push down the bobbin winder pulley.

To Thread the Bobbin Case

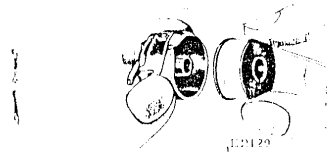


FIG. 10

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. 10).

With the left hand hold the bobbin case as shown in Fig. 10, the slot in the edge being near the top, and place the bobbin into it.



FIG. 11

Then pull the thread into the slot in the edge of the bobbin case (see Fig. 11), draw the thread down under the tension spring and into the delivery eye at the end of the tension spring (see Fig. 12).



FIG. 12

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

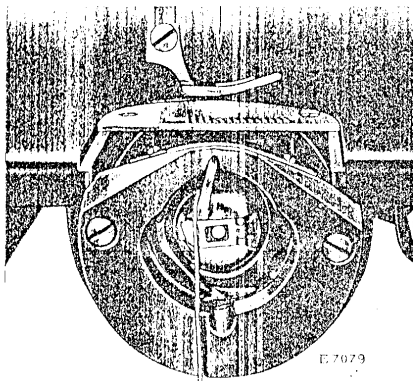


FIG. 13. BOBBIN CASE THREADED AND REPLACED

case on the centre stud (N, Fig. 8, page 9) 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 (see Fig. 13). Allow about two inches of thread to hang free.

To Set the Needle

Turn the balance wheel over toward you until the needle bar moves up to its highest point; loosen the screw (B, Fig. 2, page 4) 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 (B).

To Thread the Needle

(SEE FIG. 14)

Place the spool of thread on the spool pin on top of the machine, pass the thread from the spool over between the thread retainer

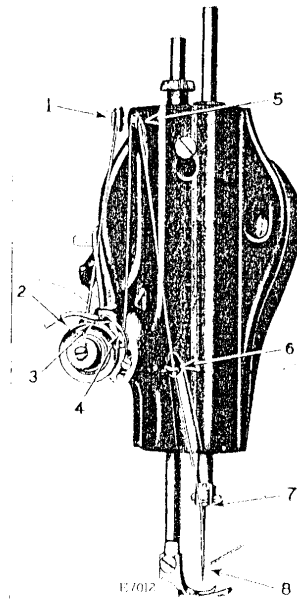


FIG. 14. THREADING THE NEEDLE

disks (1) at the rear of the upper end of the face plate, down under from back to front between the tension discs (2) at the front of the face plate, over the wire guide (3) above the tension discs, into the hook of the thread take-up spring (4), up and toward you through the hole in the end of the thread take-up lever (5), down through the wire thread guide (6) at the front of the face plate, into the wire thread guide (7) at the lower end of the needle bar and from left to right through the eye of the needle (8). 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

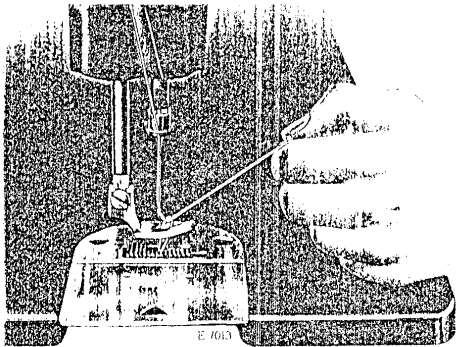


FIG. 15. DRAWING UP THE BOBBIN THREAD

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 (see Fig. 15). Lay both threads back under the presser foot.

To Commence Sewing

Place the material beneath the presser foot or roller presser, lower the presser bar 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 point, raise the presser bar, draw the work back and cut the threads close to the material.

Tensions

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



FIG. 16. 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. 17. 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. 18. LOOSE NEEDLE THREAD TENSION

To Regulate the Tensions

The tension on the needle thread should only be regulated when the presser bar is down. Having lowered the presser bar, turn the small thumb nut (A, Fig. 2, page 4) at the front of the tension discs over toward you to increase the tension. To decrease the tension, turn this thumb nut over from you.

The tension on the bobbin thread is regulated by the screw (1, Fig. 11, page 11) in the bobbin case tension spring. To increase the tension, turn this screw over to the right. To decrease the tension, turn this 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.

To Regulate the Length of Stitch

The length of stitch is regulated by the thumb screw (C, Fig. 2, page 4) in the slot on the front of the upright part of the arm. To lengthen the stitch, loosen the thumb screw (C) and move it downwardly. To shorten the stitch, loosen the thumb screw (C) and move it upwardly. When the desired length of stitch has been obtained, tighten the thumb screw (C).

To Regulate the Pressure on the Material

The pressure on the material is regulated by the thumb screw (D, Fig. 3, page 4) on the top of the machine. To increase the pressure, turn this thumb screw over to the right. To decrease the pressure, turn this thumb screw over to the left. The pressure should only be heavy enough to enable the feed to move the work along evenly.

INSTRUCTIONS FOR ADJUSTERS AND MACHINISTS

To Time the Needle with the Shuttle

See that the needle is pushed up into the needle clamp as far as it will go.

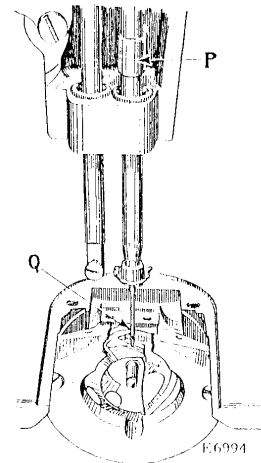


FIG. 19. NEEDLE AND SHUTTLE CORRECTLY TIMED
(SHUTTLE RACE BROKEN TO SLOW POINT OF SHUTTLE AND NEEDLE)

Turn the balance wheel over toward you until the point of the shuttle reaches the centre of the needle on the upward stroke of the needle bar.

When the shuttle is in this position, the top of the eye of the needle should be $\frac{1}{16}$ inch below the point of the shuttle, as shown at Q, in Fig. 19.

If the eye of the needle is not the correct distance below the point of the shuttle, loosen the screw which fastens the needle bar in position in the needle bar connecting stud (P, Fig. 19). (This screw can be reached through the hole (H, Fig. 6, page 6) provided for the purpose in the arm). After loosening the screw, move the needle bar up or down in the needle bar connecting stud until it is at the required height, then securely tighten the screw.

To Remove and Replace the Shuttle Race

Turn the balance wheel over toward you until the needle bar moves up to its highest point.

Take out the two screws (R, Fig. 20) which hold the shuttle race in position and remove the shuttle race. Then remove the shuttle from the shuttle race.

When replacing the shuttle race, have the needle bar at its highest point and turn the shuttle in the race so that it correctly engages the shuttle driver, then securely fasten the shuttle race in position by means of the two screws (R).

To Raise or Lower the Feed Dog

The feed lifting rock shaft crank (S, Fig. 20) should be set so that when it raises the feed bar to its highest point, slightly less

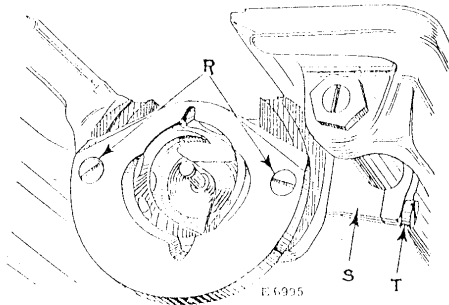


FIG. 20. ADJUSTMENT FOR RAISING AND LOWERING THE FEED DOG

than the full depth of the teeth project through the slots in the throat plate. To raise or lower the feed dog, loosen the clamping screw (T, Fig. 20) and move the feed lifting rock shaft crank (S) until the feed dog is set at the required height, then securely tighten the clamping screw (T).

To Time the Feeding Mechanism

The feeding mechanism should be timed so that the feed dog starts its feeding movement (away from the operator) when the

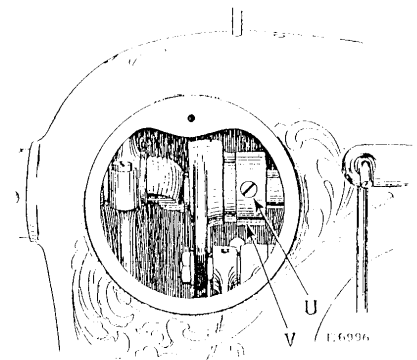


FIG. 21. ADJUSTMENT FOR TIMING FEEDING MECHANISM

needle bar commences its downward stroke. The feed should always finish its feeding movement before the needle reaches the goods on its downward stroke.

When it is necessary to time the feeding mechanism, press the stitch regulator (C, Fig. 2, page 4) down to its lowest point for the longest stitch and turn up the round cover plate at the back of the machine. Loosen the feed eccentric set screw (U, Fig. 21) and turn the feed eccentric (V, Fig. 21) until the feed is correctly timed as instructed above, then securely tighten the set screw (U).

To Adjust the Thread Take-up Spring

The thread take-up spring (W, Fig. 22) should be set so that when the eye of the needle reaches the goods on the downward

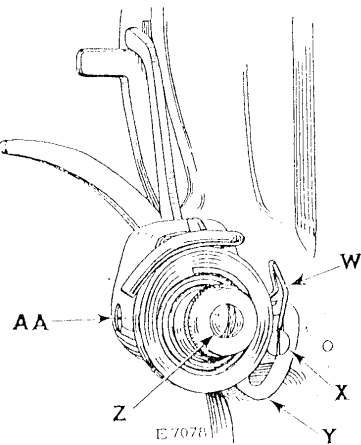


FIG. 22. ADJUSTMENT OF THREAD TAKE-UP SPRING

stroke of the needle bar, the spring will be through acting and will rest against the thread take-up spring regulator plate (Y, Fig. 22). If the thread take-up spring is not correctly set, loosen the set screw (X, Fig. 22) which holds the thread take-up spring regulator plate (Y) in position and lower the plate (Y) for more movement of the spring, or raise it for less movement. When the spring is correctly set, securely tighten the set screw (X).

The tension on the thread take-up spring (W) is regulated by loosening the set screw (AA, Fig. 22) at the side of the face plate and turning the tension stud (Z, Fig. 22) over toward you to increase the tension, or over from you to decrease the tension. When the desired tension is obtained, securely tighten the set screw (AA).

The tension on the thread take-up spring should be just sufficient to take up the slack of the needle thread until the eye of the needle reaches the goods in its descent.

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