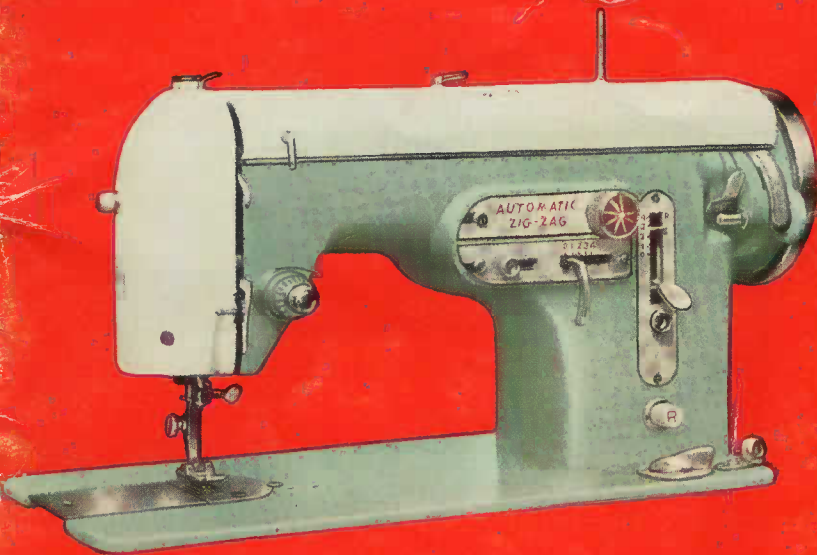


AUTOMATIC



ZIG ZAG

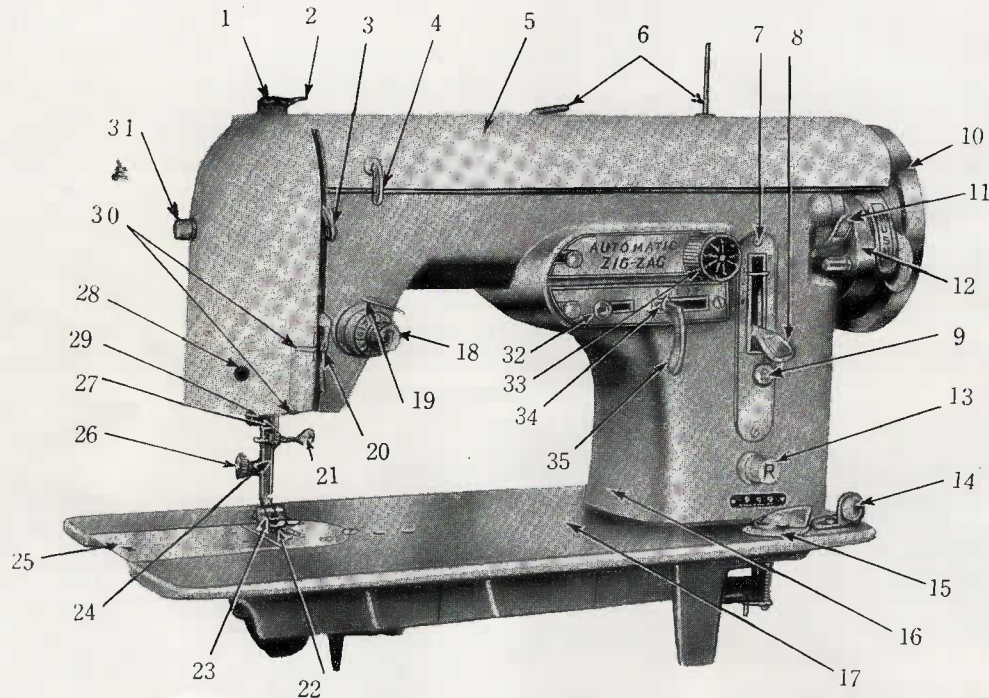
*SEWING
MACHINE*

**INSTRUCTION
MANUAL**

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Description of Machine



1. Automatic darning (pressure regulator)
2. Pressure release lever
3. Take-up lever
4. Upper arm thread guide
5. Horizontal arm
6. Spool pins
7. Stitch length indicator
8. Stitch length regulating lever
9. Stitch length lock screw
10. Balance wheel
11. Bobbin winder release
12. Bobbin winder
13. Reverse stitch push button
14. Bobbin winder thread guide
15. Drop feed dial
16. Vertical arm
17. Bed-plate
18. Thread tension dial
19. Check spring
20. Slack thread regulator
21. Needle clamp
22. Feed dog
23. Hinged presser foot
24. Needle
25. Slide plate
26. Pressure foot thumb screw
27. Needle bar
28. Pilot light
29. Thread cutter
30. Face plate thread guides
31. Sewlight switch button
32. Lock Screw for indicator # 34
33. Cam selector dial
34. Indicator for stopping lever # 35
35. Zigzag width adjusting lever

Special Features

AUTOMATIC DARNER (PRESSURE REGULATOR) - enables you to select the exact pressure according to the kind of material you are sewing.

STITCH REGULATOR - regulates the stitch length and controls forward and backward sewing. It helps you to select the stitch size with ease and accuracy.

AUTOMATIC BOBBIN WINDER - winds your bobbin and stops automatically when bobbin is filled.

CALIBRATED UPPER THREAD TENSION REGULATOR - allows the tension of the upper thread to be easily and accurately adjusted according to thread and material weight.

DROP FEED KNOB - regulates the height of your feed dog for embroidering or darning and for different weights of fabrics.

SEW LIGHT - illuminates your work for better and efficient sewing without glare. Light bulb is easily changed.

SNAP-OUT RACE - is so constructed that cleaning or eliminating tangled thread is very simple and quick.

FLOATING PRESSER FOOT - glides over pins and bastings.

CAM SELECTOR DIAL - enables you to sew automatically any stitches shown on the dial, as well as numerous other designs.

REVERSE STITCH PUSH BUTTON - allows sewing in reverse when button is pressed.

1. To Wind the Bobbin

1. To wind the bobbin the balance wheel must be disconnected from the stitching mechanism. Hold the balance wheel with your left hand and turn the stop motion knob (Fig. 1) toward you with your right hand. This will permit the balance wheel to turn freely while the needle bar remains motionless. The balance wheel is now disconnected for the bobbin winding operation.
2. Place a spool of thread on the spool pin (Fig. 2). Draw thread from the spool over guide then downward across machine from left to right.
3. Pass the thread through the tension device at the right corner of the base of the machine.
4. Now wind the end of the thread around an empty bobbin seven or eight times and place the threaded bobbin on the spindle of the bobbin winder.
5. By pressing on the bobbin winder lever, the small rubber wheel is brought in contact with the balance wheel. To lock into position, press bobbin winder lever until a click is heard. The bobbin winder release latch is now touching the shaft of the bobbin. It holds the bobbin in place.

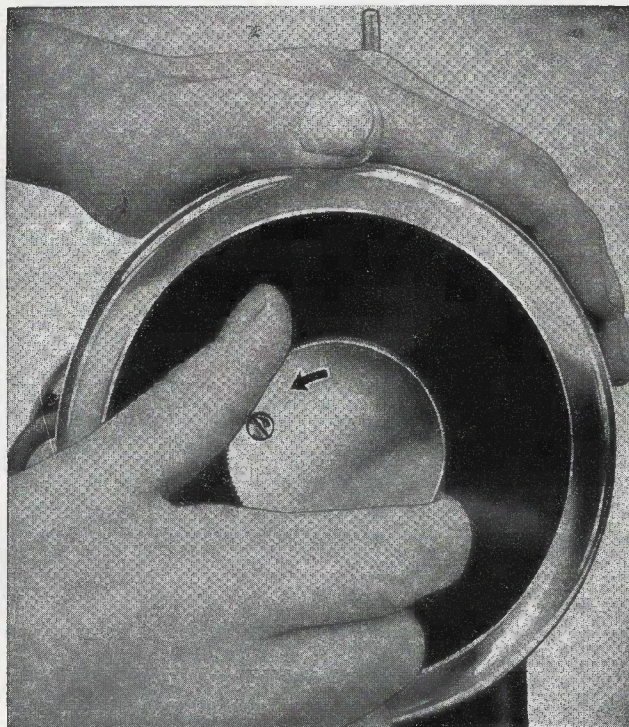


Fig. 1

6. Now manipulate your foot control or knee control in the same manner as for sewing and when the bobbin is completely full it will stop turning automatically. Slip bobbin from spindle. Hold balance wheel firmly with left hand and with the right hand turn stop motion knob away from you until it can not be moved any further and the needle bar moves with the turning of the balance wheel.

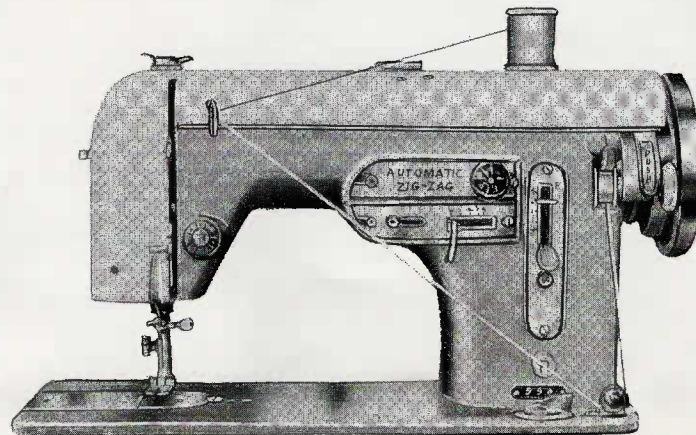


Fig. 2

2. Inserting New Needle

1. Turn the balance wheel toward you, raising needle bar to its highest position, and loosen the needle clamp screw.
2. Hold the needle in the left hand with the point down, and insert the needle up into the needle clamp as far as it will go, with its flat surface to the right; then retighten the clamp screw (Fig. 3).

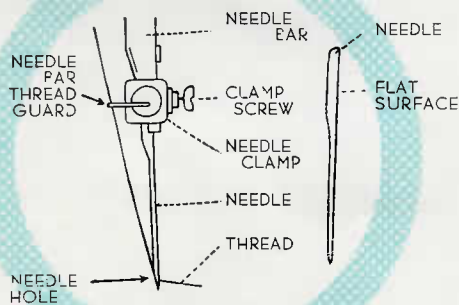


Fig. 3

3. To Thread the Bobbin Case

Before threading the bobbin case, study Fig. 4, 5, 6 to get a general idea as to how it is done.

1. Hold the bobbin case with your left hand and put the bobbin into the bobbin case with your right, leaving about two inches of the thread end unwound (Fig. 4). As the bobbin is being inserted in the bobbin case, the thread flow is clockwise.

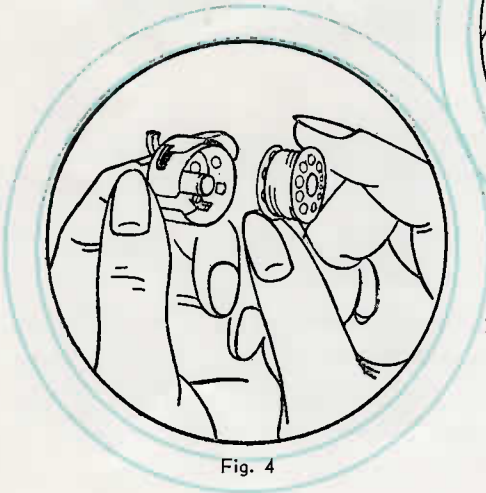


Fig. 4

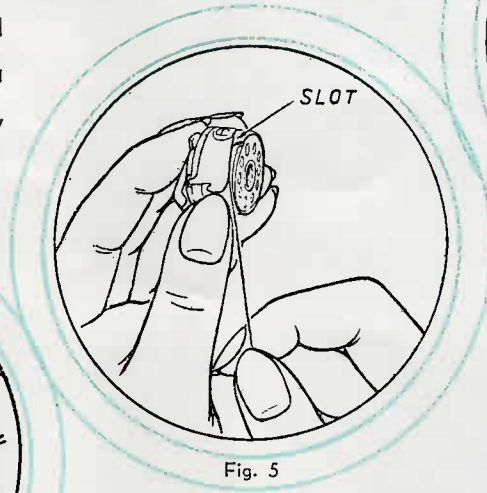


Fig. 5

2. While holding the bobbin case as before, grasp the thread end with your right hand, and guide it into the cross slot (Fig. 5).

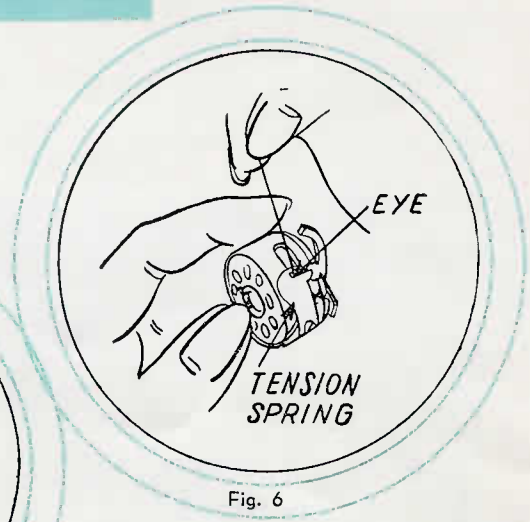


Fig. 6

3. Then pull it through under the tension spring of the bobbin case (Fig. 5) until it enters the delivery eye, and then through the hole in the position finger (Fig. 6).

4. To Insert and Remove the Bobbin Case

1. Raise the presser bar by lifting the presser bar lifter (Fig. 11).
2. Raise the needle bar to its highest position by turning the balance wheel toward you.
3. Pull out slide plate (Fig. 7).
4. After threading the bobbin case, hold its latch (Fig. 8)

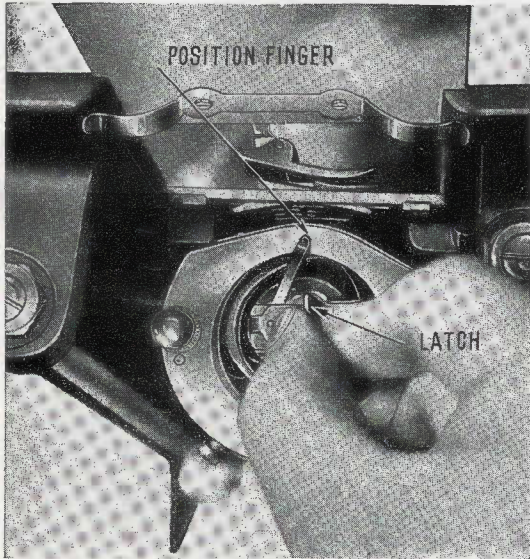


Fig. 8

and place it on the center stud of the shuttle (Fig. 8).

5. Then release the latch and press the bobbin case in until the latch catches the groove near the end of the stud with a click that can be heard.
6. Allow the end of the thread to hang free about 2 to 3 inches.
7. Push back slide plate.

To remove the bobbin case do all the above in reverse order.

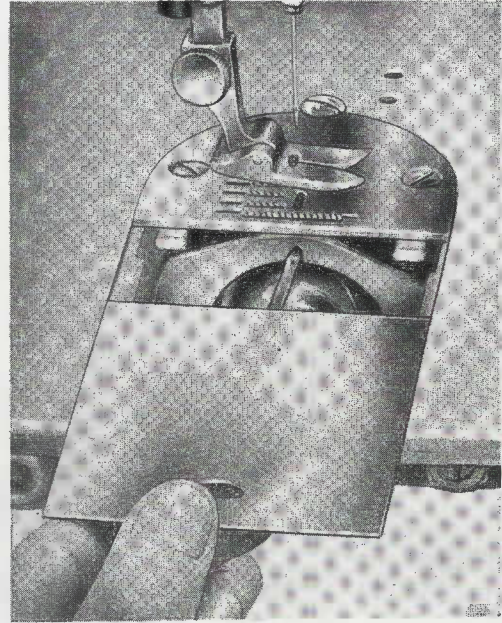


Fig. 7

5. To Clean the Snap-Out Race

When the thread is tangled in the race or dust gets into the space between the shuttle and shuttle-race, follow this procedure :-

1. Raise the needle bar to its highest position and take bobbin case out.

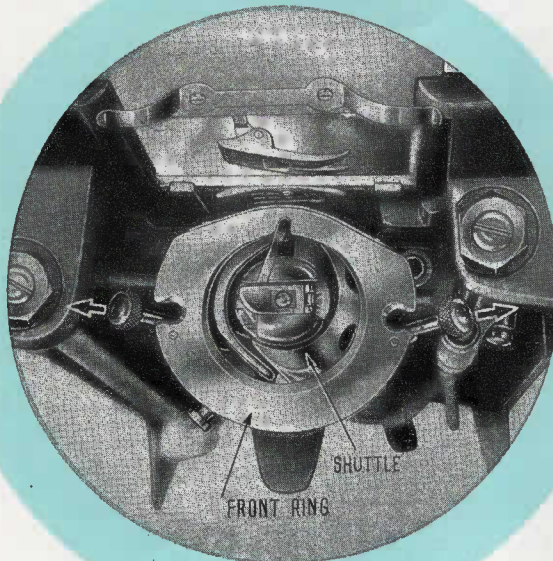


Fig. 10

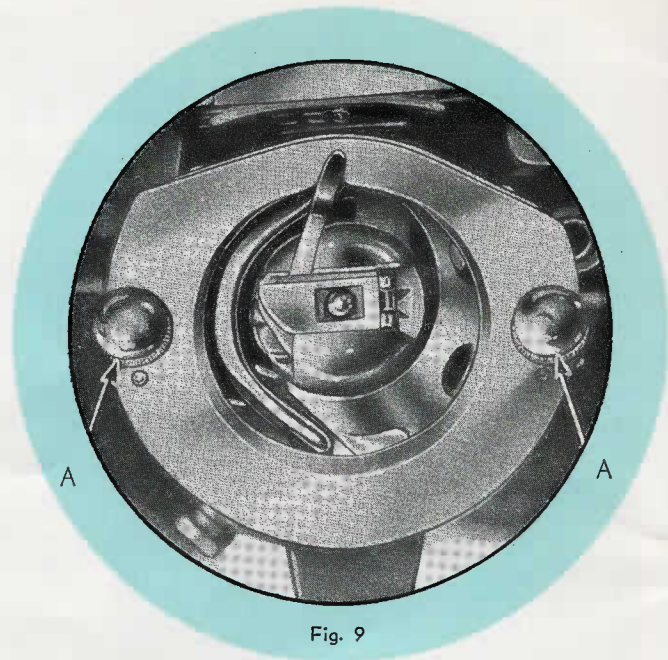


Fig. 9

2. Release the KNOBS (A) on both sides of shuttle race (Fig. 9) by pushing them sideways; then take out the front ring and the shuttle with your fingers. (Fig. 10)
3. After shuttle-race and shuttle have been cleaned, put them back in reverse order.
4. Snap knobs into place as seen in Fig. 9.

6. To Thread the Machine & Needle

1. Turn the balance wheel toward you to raise the needle bar to its highest position.
2. Place a spool of thread on the spool pin.
3. Lead the thread through the arm thread-guide (Fig. 11).
4. Run the thread down from the thread-guide to the tension discs and between them from right to left and up. Draw the thread up through the check spring.
5. Then downward again around the underside of the slack thread regulator and up through the eye of the thread take up lever from right to left.
6. Now run the thread down through both face plate thread guides and then through the loop of the needle bar thread guide from the back.
7. Finally, run the end of the thread through the eye of the needle FROM LEFT TO RIGHT, drawing it through about 3 or 4 inches. You are now ready to sew.

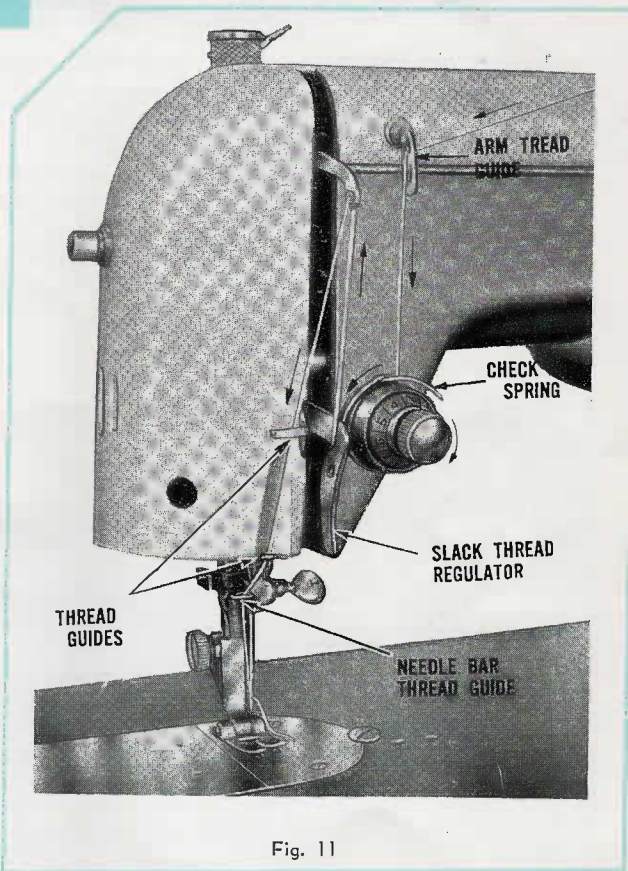


Fig. 11

7. To Prepare for Sewing

1. Hold the end of the upper-thread with the left hand, leaving it slack from the hand to the needle.
2. Turn the balance wheel toward you until the needle goes down and rises to its highest position.
3. Pull the thread you are holding, and the lower-thread will be brought up with it through the hole in the needle-plate, as shown (Fig. 12).
4. Place both ends of the upper and lower thread between the toes of the presser foot and pull them backwards under the presser foot (Fig. 13).

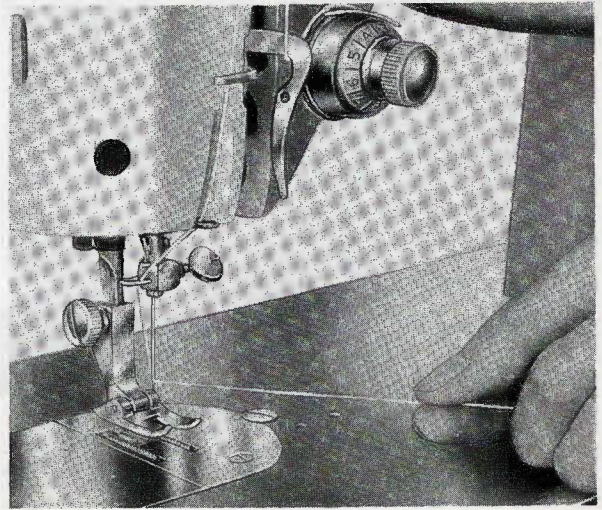


Fig. 12

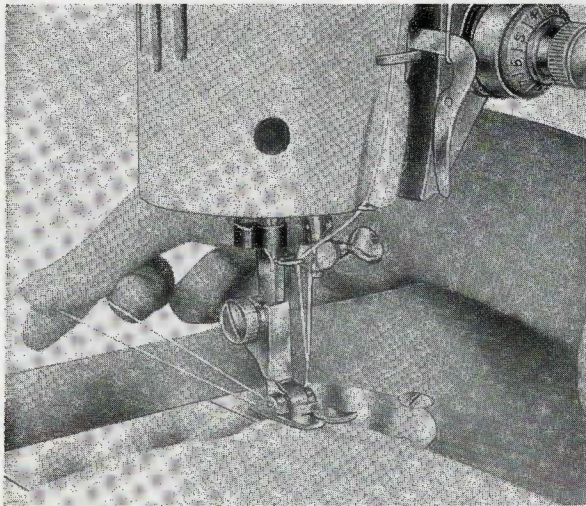


Fig. 13

8. To Commence Ordinary Sewing

1. Place the fabric to be sewn beneath the presser foot.
2. Lower the presser foot, by lowering the presser bar lifter (Fig. 11).
3. Make sure that lever "B" (Fig. 23) is set to the left at marking "O" on the dial plate, and that the Cam Selector Dial "A" (Fig. 23) is set so that marking "O" is on top of Dial.
4. Commence sewing by slowly turning the balance wheel towards you while gradually pressing the lever of the foot or knee control.

Always turn balance wheel toward you and not away from you.

9. To Remove the Work

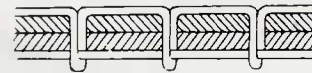
1. Raise the needle bar to its highest position, by turning the balance wheel toward you.
2. Lift the presser foot by lifting the presser bar lifter.
3. Move the fabric back to the left and cut off the thread by passing it over the thread-cutter above the presser foot.
4. Leave both ends of the thread a few inches long, under and to the back of the presser foot.



Fig. 14 Correct Stitch



Needle Thread Tension too strong



Needle Tension too weak

10. To Regulate the Thread Tension

For ordinary stitching the tension of the upper and lower threads should be equal so as to lock both threads in the center of the material (Fig. 14). If one tension is stronger than the other, imperfect stitching will result. Fine materials require a light tension, while heavy materials require more tension to obtain a perfect stitch.

TO INCREASE the tension, turn the thread tension dial (Fig. 15) clockwise.

TO DECREASE the tension, turn the thread tension dial to the opposite direction. (When regulating, always have the presser foot down).

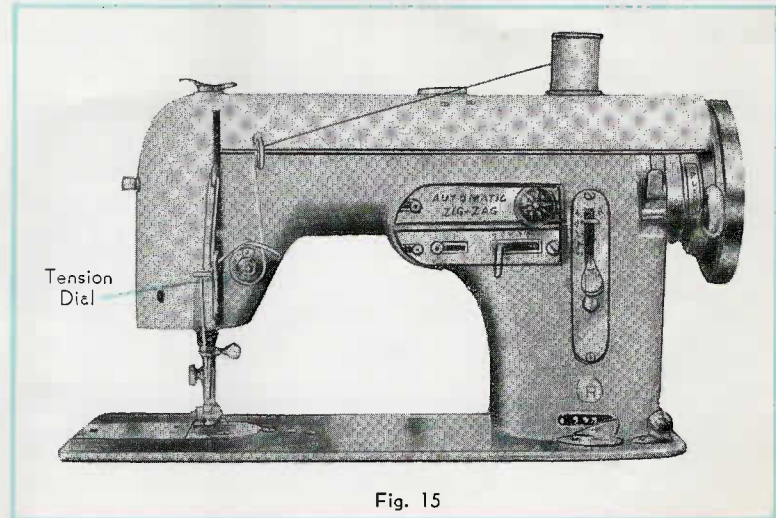


Fig. 15

Tension regulating screw

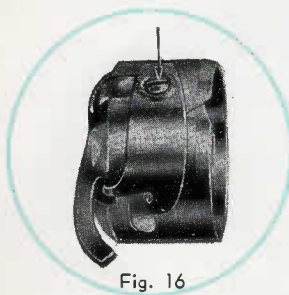


Fig. 16

As all machines are correctly adjusted before leaving the factory and readjusted before the dealer delivers them to you, the lower tension seldom requires to be altered, but, if this becomes necessary, tighten the screw in the tension spring on the outside of the bobbin case for more tension, or loosen the screw slightly for lesser tension (Fig. 16).

NOTE: Do not turn screw in either direction more than about one-quarter turn at a time. Then try and check for results.

11. To Regulate the Stitch Length

The length of the stitch can be changed by adjusting the stitch length regulating lever "L" (Fig. 17).

When the lever is at marking O, the material is not being fed through the machine.

To change stitch slightly loosen lock screw "S" by turning same to the left.

Now move stitch regulator lever gradually downward to feed material forward and to lengthen stitch. Set lever to desired length of stitch and lock screw by turning to the right. To sew in reverse, such as for tacking or locking the beginnings or ends of seams, Reverse stitch Button is most convenient. Push this button, identified by "R" on its surface, as far as it will go. Machine will sew in reverse as long as this button is depressed.

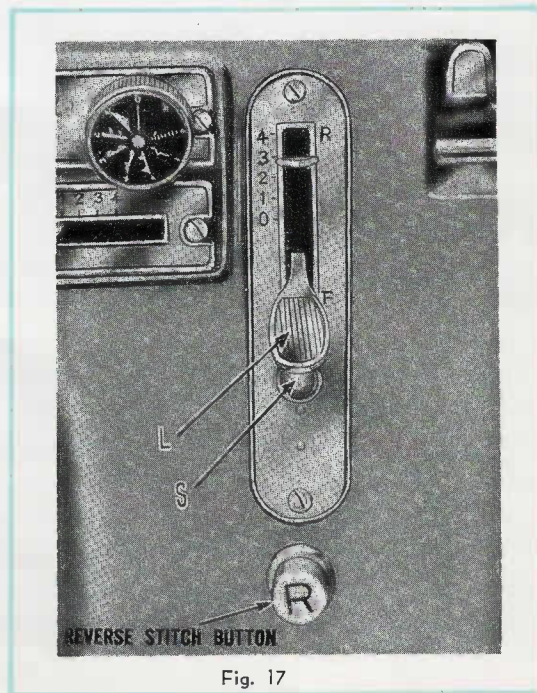


Fig. 17

12. To Regulate the Pressure of the Presser Foot

For Darning and Embroidering :

1. Make sure presser foot is down.
2. Place one finger on the cap of the automatic darning (Fig. 18).
3. Place another finger on the latch (Fig. 18) and push down, thus raising the automatic darning and

releasing the pressure. Allow the automatic darning to rise SLOWLY by controlling it with the finger you have on the cap.

4. Set Drop Feed Knob (Fig. 20) to "EMBR." position.

For Ordinary Sewing : Push the automatic darning down as far as possible (Fig. 19).

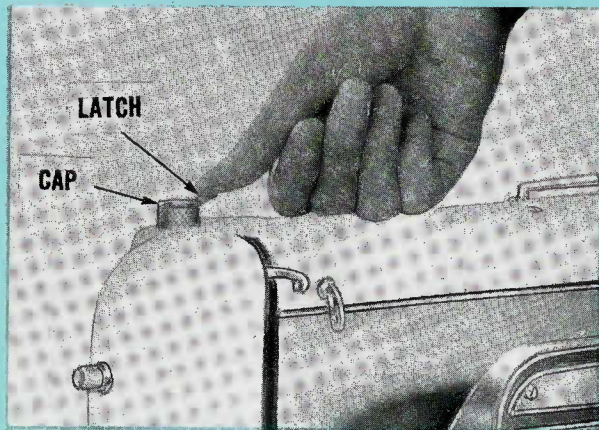


Fig. 18

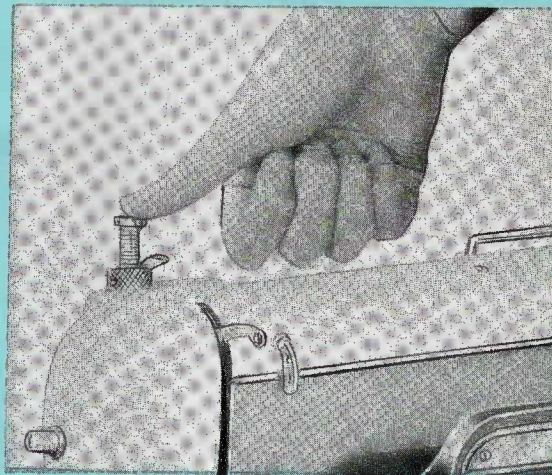


Fig. 19

13. To Use the Drop Feed Knob

By using the drop feed device you may adjust the feed dog for sewing different types of materials and for embroidering or darning (Fig. 20).

1. For sewing very light fabrics, move indicator to "SILK"; for heavier cloths, to "NORM".
2. When the indicator is at the "EMBR" position, the feed dog will be lowered below the surface of the needle plate.

This is for embroidering and darning, and you will be able to move your work freely about in any direction you choose.

3. For embroidering and darning, first remove pressure of presser foot (Page 13).

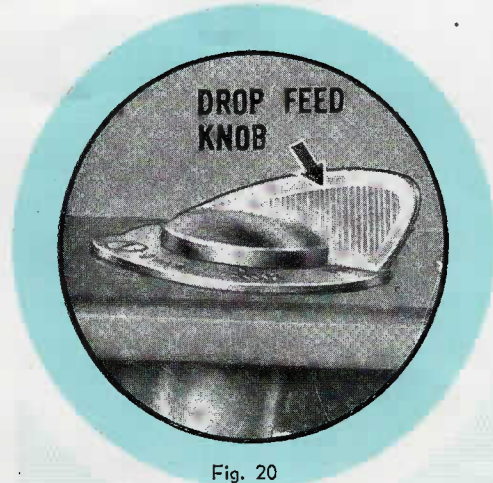


Fig. 20

14. Sew Light

The lighting fixture is enclosed in the face plate (Fig. 21). Push the switch button to light it, and again to turn it off. The red pilot will indicate whether the light is on or off. Bulbs may be obtained at dealers, department stores and electrical shops.

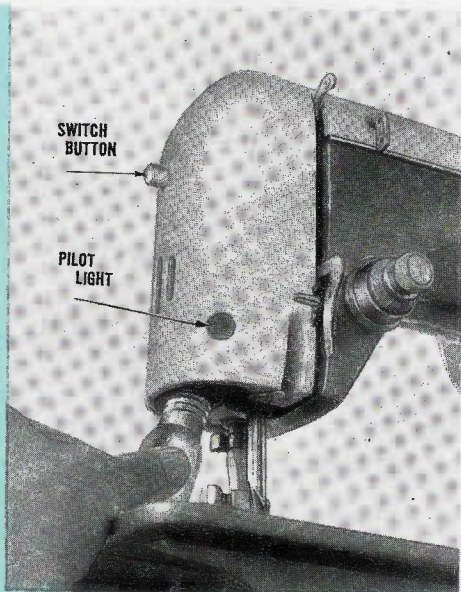


Fig. 21

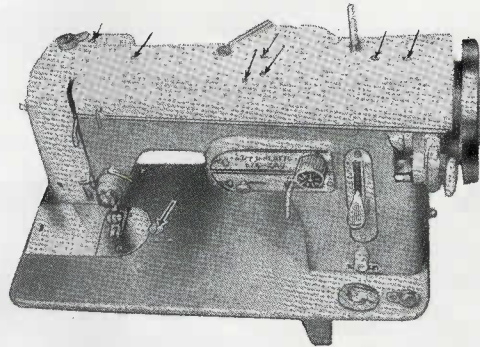
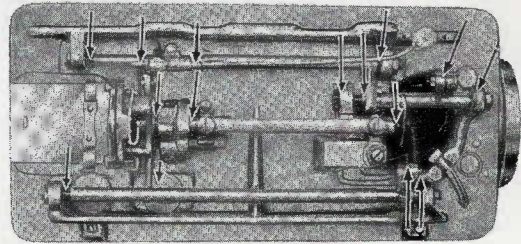


Fig. 22

15. To Oil the Sewing Machine

To see that your machine is always in smooth running condition you must keep it oiled at all times. No grease is required. Just a drop of oil is sufficient at each time of oiling. Points to be oiled are illustrated in Fig. 22.

After oiling, run the machine at high speed for a few minutes to get oil to penetrate to all parts.

16. Automatic Zig-Zag Sewing

Your machine can sew the most beautiful decorative and embroidery stitches **AUTOMATICALLY** by means of various cams built into your machine. There are seven (7) different cams installed in the machine, corresponding with the seven (7) different basic stitch patterns shown on the Cam Selector Dial "A". Simply turn this Dial to bring the preferred stitch pattern to the top and the desired stitch will be sewn **AUTOMATICALLY**. To change the design, stop the machine, move lever "B" as far to the right as it will go and hold it there.

The basic stitch patterns indicated on the Cam Selector Dial can be varied, and a limitless variety of designs

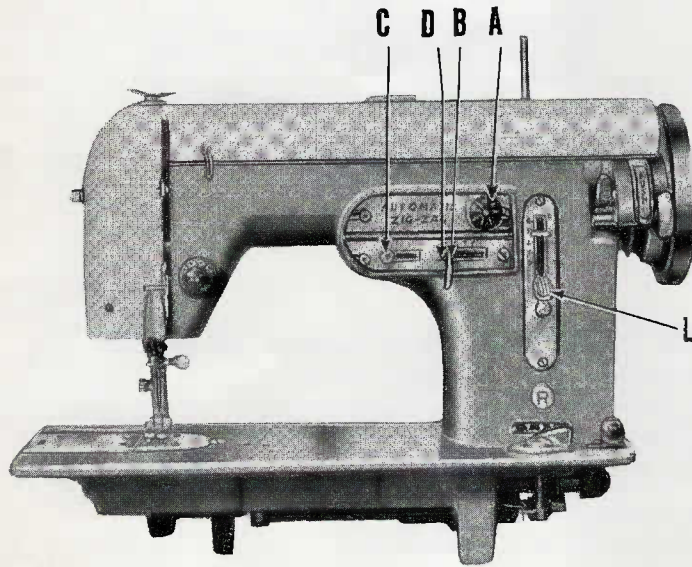
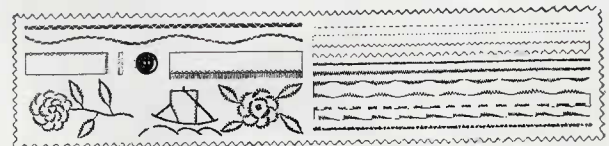
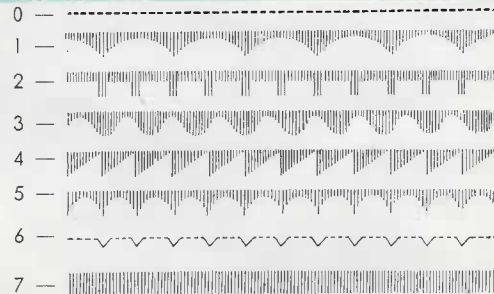


Fig. 23

STITCH PATTERNS

To produce **AUTOMATICALLY** the stitch patterns shown below, simply adjust the Cam Selector Dial so that the number on top is the same as the corresponding number opposite the patterns in the following chart.



made, by changing the settings of lever "B", and lever "L". Indicator "D" serves as a stop for lever "B", and to set it, loosen lock screw "C" and slide this screw sideways until indicator "D" is at the desired marking. Then tighten lock screw "C".

Your machine can also perform Zig-Zag sewing manually. The Cam Selector Dial should be set so that marking "0" is on top. Lever "B" adjusts the width of the Zig-Zag stitch by manipulating this lever back and forth; to the right, the Zig-Zag stitch widens and to the left, it becomes narrow.

17. Button Sewing

Turn balance wheel toward you to get needle to its highest position. Raise presser bar and remove regular presser foot, attach button sewing foot instead of it, shown on Fig. 24. Drop the feed dog as required for darning and embroidery. Upper and lower thread tensions remain the same as for ordinary sewing. Place material or garment with button under the presser foot, so that holes in button line up with the oblong hole in presser foot. Push zig-zag width lever "B" to the right (Fig. 23) until the width of the zig-zag stitch permits the needle to pass through center of holes in button. Before sewing with power, turn balance wheel by hand (toward you) making one stitch into each hole in the button and be sure that needle will not hit same. Then sew five to six stitches to attach button. Push zig-zag stitch lever "B" (Fig. 23) to left and let needle stitch two or three times through the same hole to lock thread. Remove garment from machine and snip threads.

When attaching four-hole buttons, first sew one set of two holes, then stitch into second set of two holes and lock thread with two or three plain stitches in last hole same as described above.

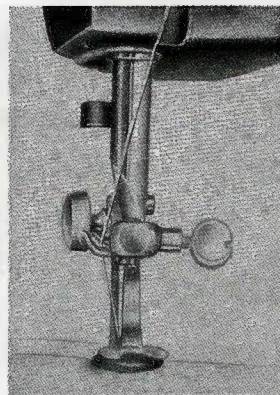


Fig. 24

18. Making Buttonholes

A. Pre-set (automatic) method :-

1. Move zigzag regulating lever "B" (Fig. 23) to the right as far as it will go. At the same time turn cam selector knob to setting "7". (Buttonhole stitch)
2. Raise presser foot and turn balance wheel toward you to bring needle to its highest position. Remove regular presser foot from presser bar by loosening thumb screw. Instead attach special button-hole foot shown on Fig. 23. Tighten thumb screw.
3. Set stitch regulator lever to obtain closely spaced forward stitches. Best length of stitch for buttonholes is when indicator is placed between markings 0 and 1 on dial. Adjust length of stitch, if necessary, to get best possible appearance of buttonhole.
4. Slightly tighten needle thread tension, turning tension regulator nut to the right. If appearance of button hole should not prove satisfactory, slightly vary tension until the desired results are obtained.

B. Manual Adjusting Method :-

1. Set zig-zag regulating lever "B" (Fig. 23) between markings 1 and 2 on dial. Loosen lock screw "C" and move slide "D" to the right until it touches the lever. Tighten lock screw securely.
2. Raise presser foot and turn balance wheel toward you to bring needle to its highest position. Remove regular

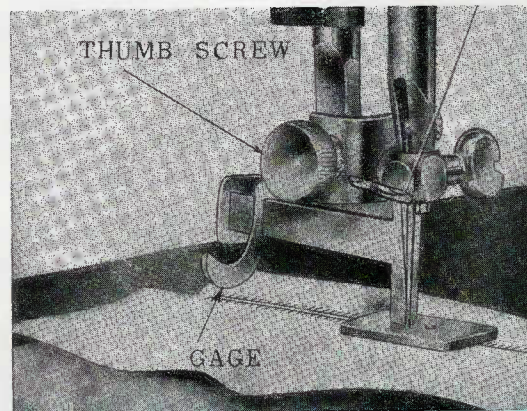


Fig. 25

presser foot from presser bar by loosening thumb screw. Instead attach special button-hole foot shown on Fig. 23. Tighten thumb screw.

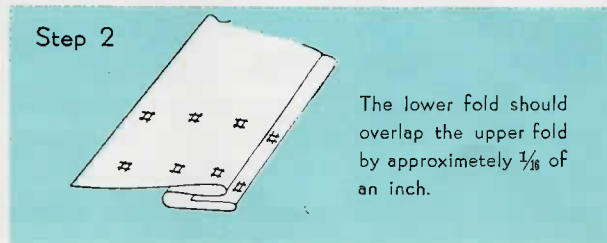
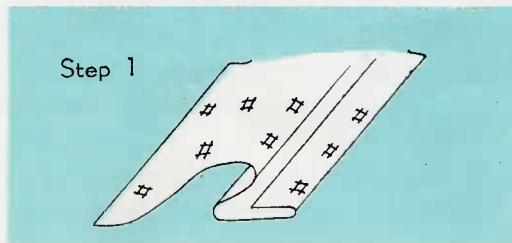
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19. How to Make a Blind Stitch Automatically

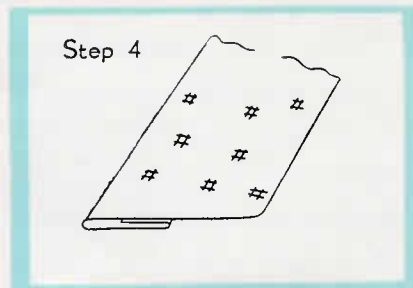
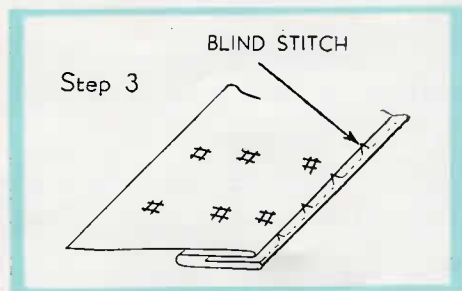
Your machine is ingeniously designed to produce a blind stitch automatically.

To Prepare Your Machine :

1. Set your magic Cam Selector Dial "A" (Fig. 23) so that number 6 is on top, holding lever "B" at marking "5" on dial plate (Fig. 23).
2. Then set lever "B" to the left at marking "O" on the dial plate, and tighten lock screw "C" securely.
3. Set stitch length regulating lever "L" (Fig. 17) so that the indicator is at number 1.
4. Fold the material as follows :



5. Place the material under the presser foot and start to sew on the lower fold.



6. Then remove the material and fold back the upper fold (Step 4).

7. For longer spacing between blind stitches, set stitch length regulating lever so that indicator is at higher numbers.

8. **NOTE:** For best results, use same color thread as material.

20. *Darning and Embroidery*

Release automatic darning as explained on Page 13. Turn drop feed knob to "EMBR" position. This will drop the feed dog below the level of the needle plate and permit the material to be moved in any direction desired. Then remove the presser foot and raise the presser bar lifter to a horizontal position. Embroidery will be done most successfully when material is stretched in an embroidery hoop. Hold the hoop closely on the machine base with both hands, press the material with your left index finger in the vicinity of the needle. This will help in holding down the material and will prevent the machine from making skip stitches. Manipulate work carefully and be sure to keep finger out of path of needle to avoid injury. Adjust thread tensions for best appearance of embroidery work and slightly increase the lower thread tension (bobbin thread) to avoid the lower thread from being pulled up.

21. Quilting

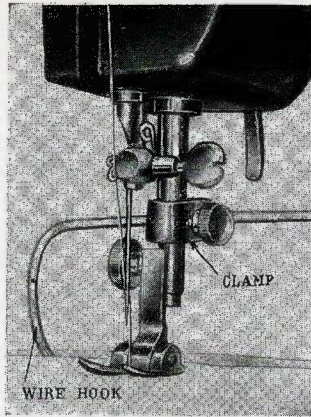


Fig. 26

Zig-zag stitch quilting is done the same as straight stitch quilting with the exception of the position of the zig-zag stitch lever which should be set for any desired width of the zig-zag stitch.

22. Sewing Braids

Turn balance wheel towards you until the needle reaches its highest point. Raise the presser bar and remove ordinary presser foot from the machine and attach braiding foot, as shown in Fig. 27. Introduce braid through small hole at front of foot. Adjust width of zig-zag seam and length of stitch to obtain a covering of the braid which appears most desirable for the material you are sewing. Using needle thread of a contrasting color will enhance the beauty of your braiding.

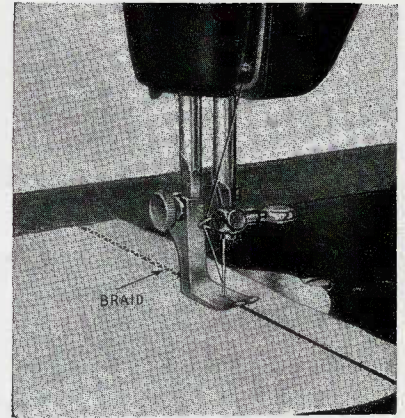


Fig. 27

23. *Narrow Hemmer*

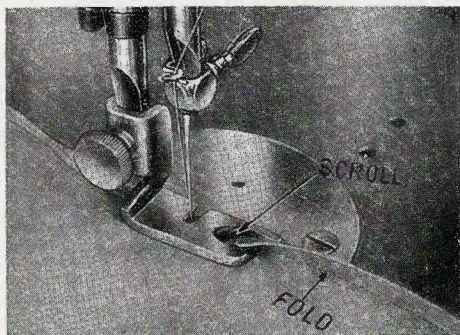


Fig. 28

Turn balance wheel toward you until needle reaches its highest point. Raise presser bar and remove regular presser foot. Attach hemmer foot (Fig. 28).

Now handle material as follows:

1. Fold over edge of material approximately $\frac{1}{8}$ " wide, then fold it over again in the same way for a length of about 2". Insert this folded end from beneath into spiral formed opening (scroll) of hemmer foot. Move material back and forth until the hem forms itself in the scroll.
2. Pull material toward you until the beginning of the hem is just below the needle.

3. Lower presser foot and begin to sew. Guide material into hemmer foot while proceeding with work (Fig. 28).

NOTE: Do not crowd material into scroll and do not leave scroll only partly filled by material. Feed just enough material into the hemmer foot to fill out the scroll.

Instead of a straight stitch, you can also use a zig-zag stitch for this hemming operation. Be sure, however, to adjust the width of the zig-zag stitch to be as wide as the hem itself. Using a very long stitch and tight tensions will produce a shell stitch.

24. How to do Felling

The hemmer foot can also be used for doing felling. Proceed in the following manner:

1. Lay two pieces of cloth one on top of the other with their RIGHT sides facing each other. The right edge of the bottom piece must extend about $\frac{1}{8}$ inch beyond the right edge of the top piece. See Fig. 29.
2. Sew both pieces of cloth together, using the hemmer foot like a regular presser foot. Use the right edge of long toe of hemmer foot to guide the bottom piece of material, while the left edge of the same toe

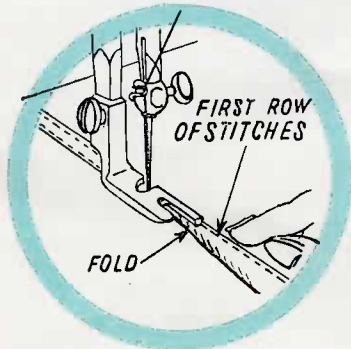
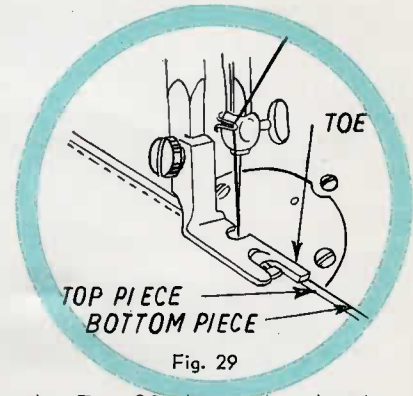


Fig. 30

3. Open and spread out material and put back on machine right sides downward. Make sewn edges of material stand up.
4. Fold over the edges to the left and insert them into the scroll of the hemmer foot. Sew as you would do ordinary hemming. Use left edge of long toe of hemmer foot as guide, having original seam run alongside of it (Fig. 30).

25. Cloth Guide & Thumb Screw

This is an attachment designed as a guide for straight stitching when making wide hems, deep tucks or seam widths which are greater than presser foot allows. (Fig. 31)
It is attached to machine as illustrated...a very simple operation.

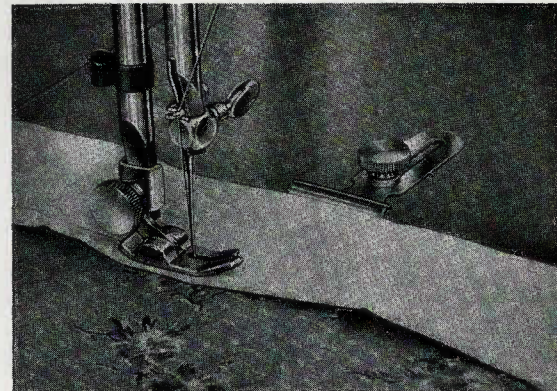


Fig. 31

26. *Some Useful Sewing Hints*

TO TURN CORNERS :

1. Stop the machine while the needle is still in the material.
2. Raise the presser foot and turn the fabric using the needle as a pivot.
3. Lower the presser foot and resume sewing.

TO SEW ELASTIC FABRICS :

In sewing such elastic materials as flannels, bias cut cloths, etc., it is advisable to sew them with reduced upper thread tension, otherwise the thread will break when the sewn materials are stretched.

TO SEW VERY THIN CLOTH :

When sewing very thin cloth which tends to gather as you sew, place a sheet of newspaper or any other thin paper underneath of the material and sew with the shortest stitch possible. This will keep your work from gathering.

BASTING :

1. Reduce the tension of the upper thread and employ the longest stitch possible.
2. The stitches may then be easily removed by pulling the lower thread.

TO KEEP YOUR MACHINE IN PERFECT CONDITION :

1. Keep all moving parts of the machine constantly oiled and clean.
2. Always turn balance wheel towards you.
3. Do not run machine without cloth.
4. When sewing, do not pull the material otherwise you will bend the needle. The machine is designed to feed the material automatically.
5. Do not operate machine when the presser bar lifter is raised.

27. *What to do in Case of Trouble*

BREAKING OF THE UPPER THREAD :

1. Incorrect threading.
2. Upper thread tension too tight.
3. Defective needle, or needle set in incorrectly.
4. Needle rubbing against presser foot or other attachments.
5. Needle eye too small for thread used.
6. Knots in sewing thread.
7. Stitch hole in needle plate damaged and rough.

BREAKING OF THE LOWER THREAD :

1. Incorrect threading of the bobbin case.
2. Lower thread tension too tight.
3. Bobbin being wound too full.

BREAKING OF THE NEEDLE :

1. Pulling the fabric while machine is sewing thus causing the needle to strike the needle plate.
2. Using bent needle.

SKIPPING STITCHES :

1. Using bent or blunt needles.
2. Needle inserted incorrectly.
3. Needle threaded improperly.
4. Using wrong size needle.
5. Pressure of presser foot insufficient, especially when sewing heavy material.

UNEVEN STITCHES :

1. Presser foot not resting evenly on material.
2. Feed dog not adjusted high enough.
3. Too short stitches used.
4. Pulling the cloth while the machine is sewing.
5. Needle too fine for material or thread too coarse.

28. NEEDLE AND THREAD SIZES (USE 15 × 1 NEEDLE ONLY)

Sizes & Grades of Needles	Type of Fabric and Work to be done	SIZE OF THREAD		
		Cotton	Silk	Linen
11 (Medium-Fine)	Medium light-weight and summertime fabrics. For house dresses, children's dresses, washable cotton dresses, aprons, curtains.	80 to 100	0 Twist	
14 (Medium)	Dress silks and cottons, light weight woolens, draperies, fabric furnishings. For general household sewing, fine men's shirts, smocks, window draperies and fabric decorations.	60 to 80	A & B Twist	
16 (Light-Heavy)	Heavy cretonne, madras, muslin, brocades and quilts. For men's work shirts, sturdy smocks and aprons, heavy quilting and fabric furnishings.	40 to 60	C Twist	
18 (Medium-Heavy)	Heavy woven coating, light weight canvas, bed ticking, upholstery and awning materials, slipcover fabrics. For work or sports uniforms, suits made of strong linen or cotton fabrics, awnings, slip covers and mattresses.	30 to 40	D Twist	
19 (Heavy)	Heavy woven suiting, coating, duck, ticking, drilling, canvas and sacking. For heavy wash uniforms, bedding supplies for hospitals, hotels and camps.	10 to 30	E Twist	60 to 80
21 (Extra-Heavy)	For bags, canvas, coarse cloths and heavy goods.	Very Coarse		40 to 60

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