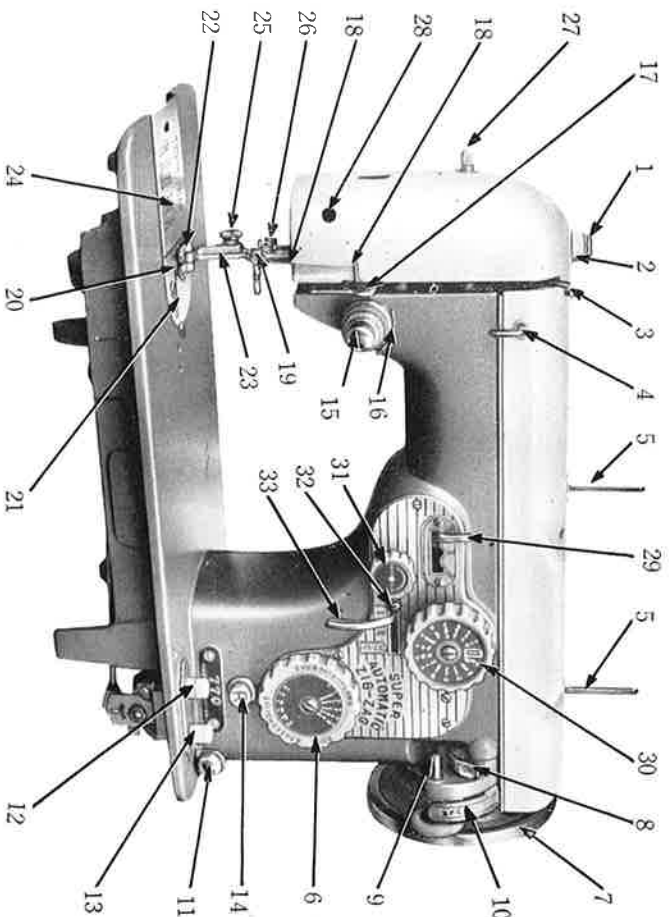


Index

	Page	Page
Index	1	15
Description of machine	2	15
Special features	3	16
1. To wind the bobbin	4	17
2. Inserting new needle	5	18
3. To thread the bobbin case	6	19
4. To insert and remove the bobbin case	7	20
5. To clean the shuttle race	8	23
6. To thread the machine and needle	9	24
7. To prepare for sewing	10	25
8. To commence sewing	10	25
9. To remove the work	11	26
10. To regulate thread tension	11	27
11. To regulate stitch length and to sew in reverse	12	27
12. To regulate pressure of the presser foot	13	28
13. Use of the drop feed	14	29
14. The sewlight	15	30
15. To oil the sewing machine	15	...
16. Straight and zig-zag sewing	16	...
17. Changing the needle position	17	...
18. Automatic zig-zag sewing	18	...
19. Button sewing	19	...
20. Making buttonholes	20	...
21. How to make a blindstitch automatically	23	...
22. Darning and embroidery	24	...
23. Quilting	25	...
24. Sewing braids	25	...
25. Narrow hemmer	26	...
26. How to do felling	27	...
27. Cloth guide and thumb screw	27	...
28. Some useful sewing hints	28	...
29. What to do in case of trouble	29	...
30. Needle and thread sizes	30	...

Description of Machine



1. Automatic darning (pressure regulator)
2. Pressure release knob
3. Thread take-up lever
4. Upper arm thread guide
5. Spool pins
6. Stitch length regulator
7. Balance wheel
8. Bobbin winder release
9. Bobbin winder spindle
10. Bobbin winder lever
11. Bobbin winder thread device
12. Drop feed push button
13. Feed reset button
14. Reverse stitch push button
15. Upper thread tension
16. Check spring
17. Slack thread regulator
18. Face plate thread guide
19. Needle clamp
20. Feed dog
21. Needle plate
22. Presser foot
23. Needle
24. Shuttle cover plate
25. Presser foot thumb screw
26. Thread cutter
27. Sawlight switch button
28. Pilot light
29. Needle position lever
30. Pattern selector
31. Stop setting knob
32. Indicator and stop
33. Zigzag width 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. 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.

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

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

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

FLOATING PRESSER FOOT - glides over pins and cross seams.

PATTERN SELECTOR DIAL - enables you to sew automatically embroidered Patterns shown on 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. The balance wheel will permit the balance wheel to turn freely while the needle bar remains motionless. The balance wheel now disconnected for the bobbin winding operation.
2. Place a spool of thread on the spool pin (Fig. 2). Pass the thread through the tension discs at the right corner of the base of the machine.
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 ⑨ of the bobbin winder.
5. By pressing on the bobbin winder lever ⑩ 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 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.

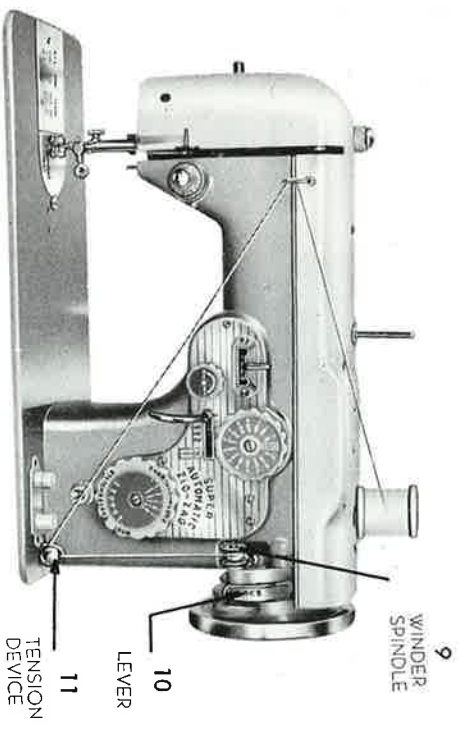


Fig. 2

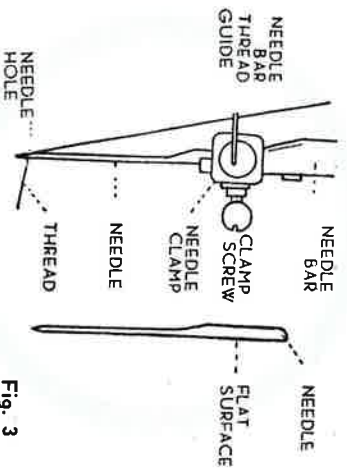


Fig. 3

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).

3. *7a 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

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).

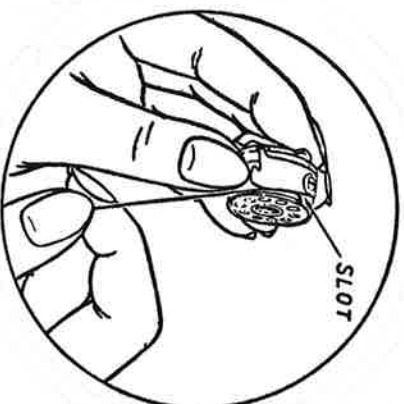


Fig. 5

3. Then pull it through until the tension spring of the case (Fig. 5) until it enters the delivery eye (Fig. 6).

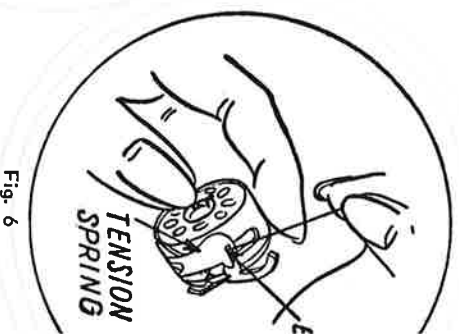


Fig. 6

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. Hold the bobbin case latch between the thumb and forefinger of left hand, with its position finger opposite the notch at the top of the shuttle race and place it on the center

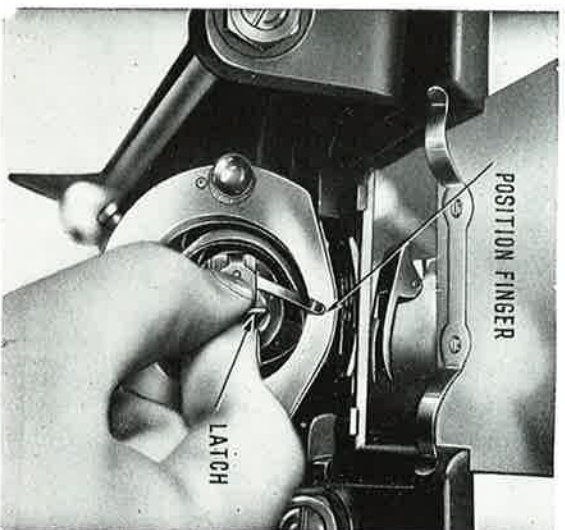


Fig. 8

5. Then release the stud of the shuttle (Fig. 8).
 6. 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.
 7. Pull back slide plate.
- To remove the bobbin case do all the above in reverse order.

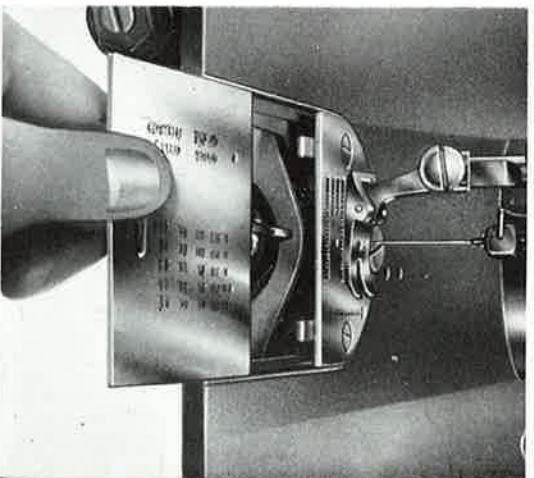


Fig. 7

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.

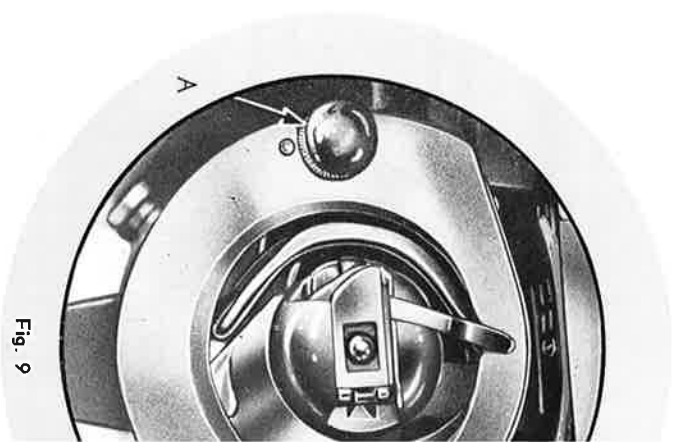


Fig. 9

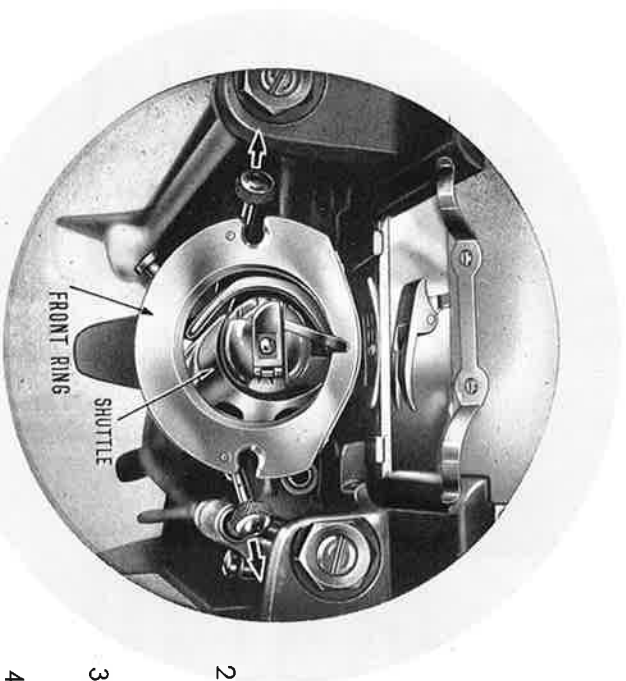


Fig. 10

2. Release the KNOBS (A) at both sides of shuttle (9) by pulling them sidewise; then take out the shuttle body with your fingers (Fig. 9).
3. After shuttle-race and shuttle have been cleaned 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 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.

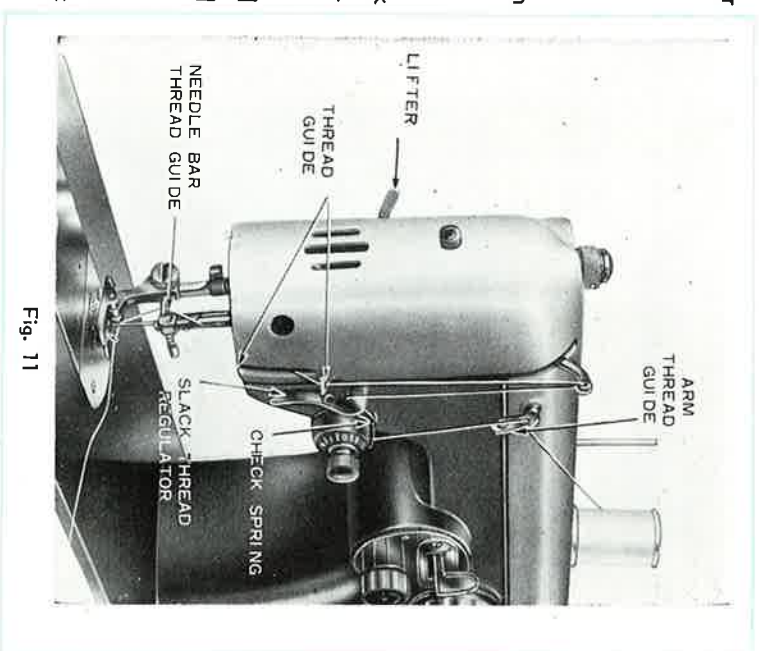


Fig. 11

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 lower thread will be brought up with it through the hole in the needle-plate, as shown (Fig. 12).
4. Place ends of the upper and lower threads between the toes of the presser foot and pull them backwards under the presser foot (Fig. 13).

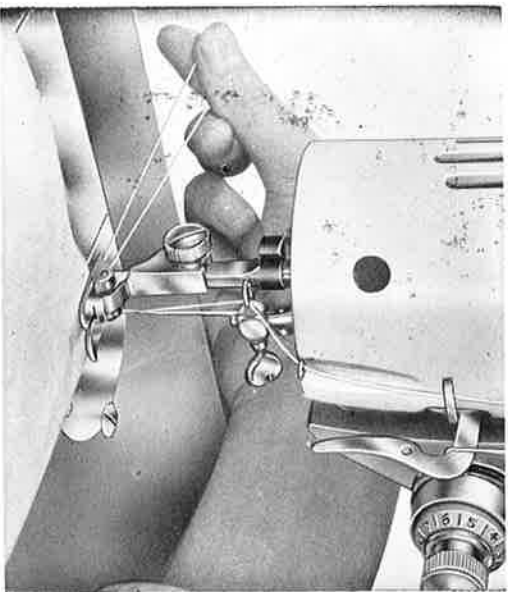


Fig. 13

8. To Commence Sewing

1. Place the fabric to be sewn beneath the presser foot.
 2. Lower the presser foot by lowering the presser bar lift (Fig. 11).
 3. Make sure that zigzag lever "33" (Fig. 17) is set to left at marking "0" on the dial plate, and that the Pattern Selector "30" (Fig. 17) is set so that marking "0" is on of dial.
 4. Commence sewing by slowly TURNING THE BALANCE WHEEL TOWARD YOU while gradually pressing the lever of the foot or knee control.
- For additional information also refer to chapter 16.

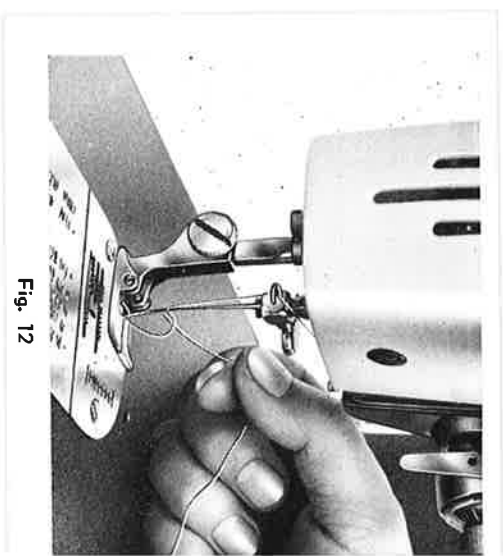
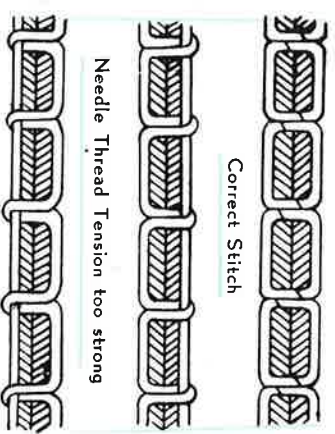


Fig. 12

9. To Remove the Mark

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 behind the presser foot.

Fig. 14



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 regulator dial (Fig. 15) clockwise.

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

Fig. 15

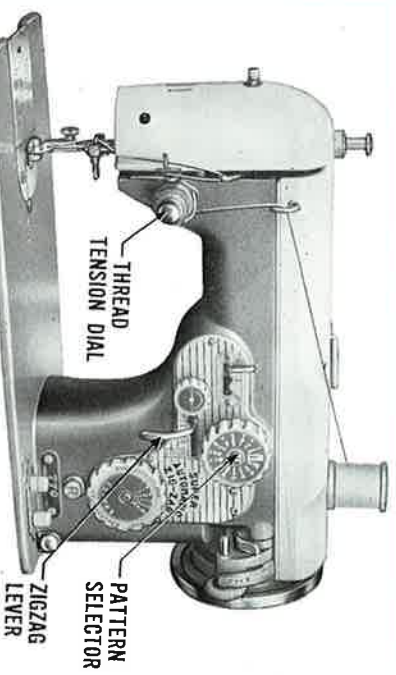




Fig. 16

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 and To Sew in Reverse

The length of stitch is adjusted by turning the stitch length regulator "7" (Fig. 17). When same is turned to such a position that the arrow at its outer ring points at dial marking "0", the material is not being fed through the machine. To increase the length of stitch turn the regulator clockwise until the arrow points at the desired number of stitches per inch. At the upper part of the dial are represented the actual stitch lengths corresponding to the setting of the regulator.

To sew in reverse, such as for tacking or locking the beginnings or ends of seams, Reverse Stitch Button "14" 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.

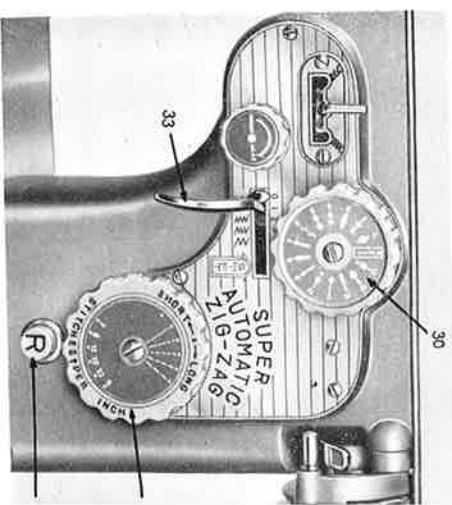


Fig. 17

12. To Regulate the Pressure of the Presser Foot

For Darning and Embroidering :

1. Make sure the presser foot is let down.
2. Grasp pressure release knob (Fig. 18) firmly with right hand and turn clock-wise.
3. With the left hand on the plunger of the darning permit the automatic darning to rise, releasing the pressure on the presser foot. Allow the automatic darning to rise SLOWLY by controlling it with the finger you have placed on the plunger.
4. Push Drop Feed Push Button (12) down as far as it will go (Pg. 14).

For Ordinary Sewing :

Push the automatic darning plunger down as far as possible (Fig. 19).

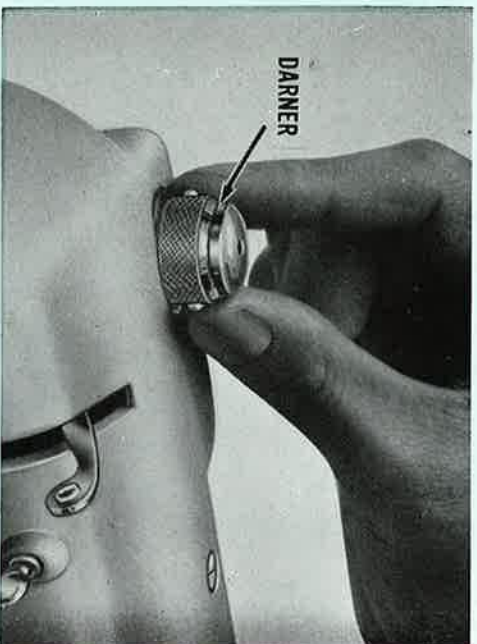


Fig. 18



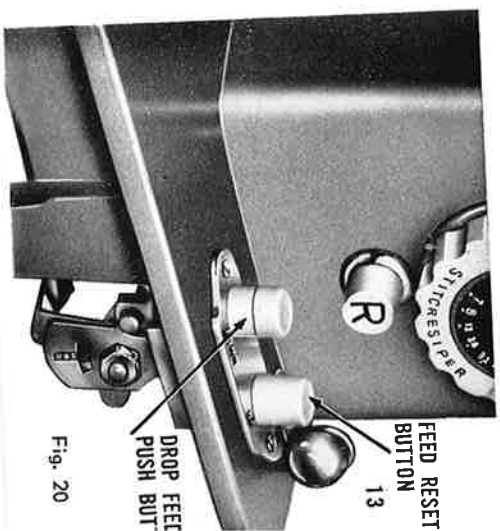
Fig. 19

13. Use of the Drop Feed

The drop feed device shown in Fig. 20 allows adjustment of the feeding mechanism for sewing types of materials for darning and for embroidery.

1. For sewing most materials except the very lightest, Drop Feed Button (12) must be all the way up and Feed Reset Button (13) depressed to its full height. To make certain of this, depress Feed Reset Button (Fig. 20).
2. When working on sheer fabrics, push the Drop Feed Button halfway down until the line around it is level with the bed plate of the machine.
3. Pushing the Drop Feed Button down as far as it will go will lower the feed dog below the level of the needle plate and allow you to move the work about freely in any desired direction, such as necessary for darning and embroidery.

NOTE: For darning and embroidery, release pressure of presser foot as described in Chapter 12.



14. Sew Right

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 light "28" will indicate whether the lamp is on or off. Bulbs may be obtained at dealers, department stores and electrical shops.

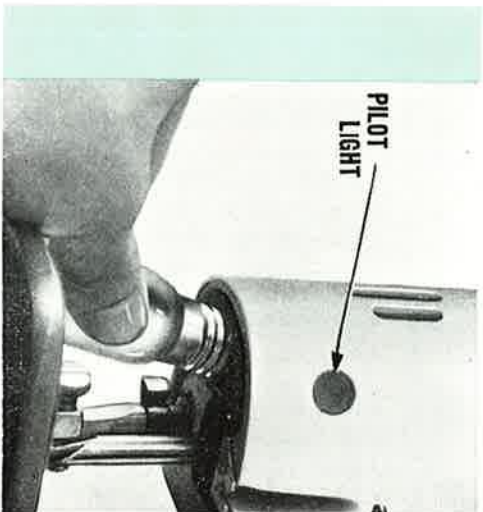


Fig. 21

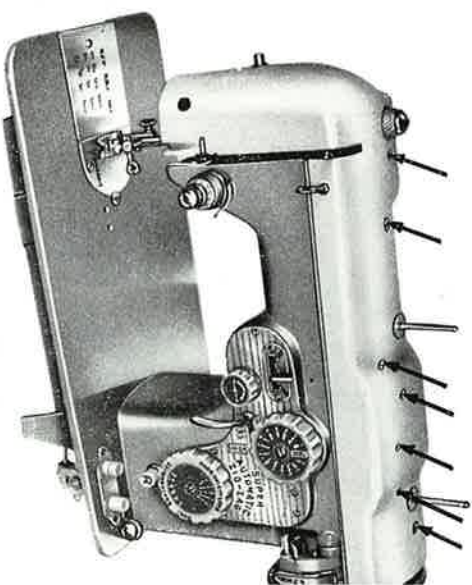
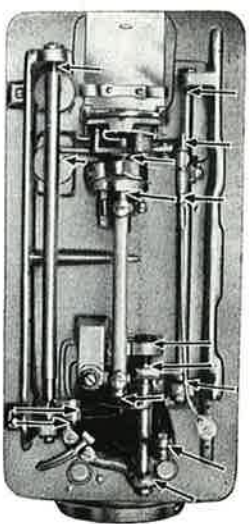


Fig. 22

15. To Oil Sewing Machine

To maintain your machine in smooth running condition, you 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 illustrated in Fig. 22.

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

17. Changing the Needle Position

For straight or zigzag stitching the needle position lever (29) (Fig. 23) is placed in the center notch as seen in the illustration. When in that notch the needle stitches through the center of the oblong needle hole in the needle plate. This lever (29) can be pushed into either the Left or Right notches and both straight and zigzag seams can be sewn in these positions. Changes in needle position can readily be made while the machine is running.

By suitable combination of varying lengths and widths of zigzag stitch, and by changing the needle position, a multitude of pleasing designs can be made. The samples of stitching reproduced on page 16 show a few of these possibilities. Colored threads and your own ingenuity will help you produce an almost limitless variety of attractive patterns.

See lower right of page 16.

18. *Automatic Zig-Zag Sewing*

Your machine can sew automatically a great variety of beautiful and decorative embroidered pattern 14 stitch pattern plates built into the arm controls the automatic sewing.

These 14 basic design patterns are indicated on the face of Pattern Selector (30). The pattern selected by the machine is the one appearing inside the White Window in front of the Pattern Selector.

To change designs, stop the machine. Then move Zigzag Width Adjusting Lever (33) to the right until it reaches the "SHIFT" position. Hold it there. Now turn Pattern Selector the wanted design appears in the window, and release the Lever (33).

IMPORTANT NOTE : The pattern selector can be turned in clockwise or counter-clockwise directions. Countless variations of these 14 basic patterns can be stitched by changing the setting of need lever (29), moving it into Left, Center or Right notches. Varying the stitch lengths with Stitch Regulator (6) will further diversify the appearance of the designs.

Also by suitably setting Indicator and Stop (32) (see page 16), the movement of Lever (33) can be varied which results in added variations of the automatically sewn patterns.

19. Button Sewing

Turn balance wheel toward you to get needle to its highest position. Raise presser bar and remove regular presser foot and attach button sewing foot, shown in 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 oblong hole in presser foot. Push zigzag width lever "33" to the right (Fig. 23) until the width of the zigzag stitch permits the needle to pass through centers of holes in button and **hold it there**. 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 zigzag width lever "33" (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

20. *Making Buttonholes*

A. **Preset (automatic) Method :-**

1. Push lever (33) into right position and at the same time turn Pattern Selector until the Buttonhole stitch (pattern 7) appears. Release lever.
2. Raise the 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 buttonhole foot shown on Fig. 25. Tighten thumb screw.
3. Turn Stitch Length Regulator (6) to obtain closely spaced stitches. Best setting will be near 32 stitches per inch, depending on material sewn. Try various stitch lengths to obtain best possible appearance.
4. Slightly tighten needle thread tension, turning regulator nut to the right. If appearance of buttonhole should not prove satisfactory, slightly change tension until the desired results are obtained.

Note : For sewing of buttonholes refer to paragraphs 5 to 10 on page 21—22.

B. **Manual Adjustment Method :-**

It is suggested that you make one or two sample buttonholes on a clipping of fabric, same as your garment, to test adjustments of machine and to make corrections, if needed. Also mark with pencil or chalk the position and exact length of buttonhole on garment.

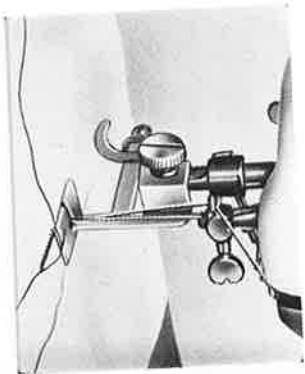
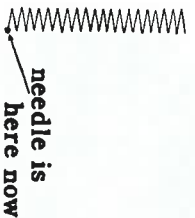


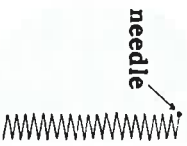
Fig. 25

Adjust gauge on buttonhole presser foot (Fig. 25) to correspond to the desired length of the buttonhole. To determine this adjustment, measure size of button and add approximately $3/16"$ to $1/4"$. The distance from the needle of the machine to the front of the gauge should equal this measurement. The actual sewing of the buttonhole should be done in this sequence.

1. Set zigzag regulating lever "33" (Fig. 23) between markings 1 and 2 on dial. Pull the knob (31) and turn it to the right until the indicator (32) touches the lever. Release knob (31).
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 buttonhole foot shown in Fig. 25. Tighten thumb screw.
3. Set stitch regulator dial to obtain closely spaced stitches. Best length of stitch for buttonholes is when dial is placed near marking "32". Adjust length of stitch, if necessary, to get best possible appearance of buttonhole.
4. Slightly tighten needle thread tension, turning thread tension dial to the right. If appearance of buttonhole should not prove satisfactory, slightly vary tension until the desired results are obtained.
5. Place start of buttonhole under needle and have its end face you. Let down presser foot and begin sewing. Stop when first row of stitches reaches the gauge.
6. Turn handwheel toward you until needle makes another right hand stitch. Leave needle in material. What you have sewn up to now should look like this diagram :

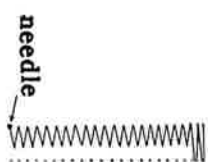
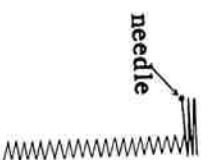


7. Raise presser foot slightly and turn garment clockwise around the needle. The following diagram represents what you should see now : Lower presser foot and turn handwheel toward you until needle is above material.



8. Move zigzag width adjustment lever (33) to the extreme right until it reaches the "SHIFT" position. Make 3 to 4 stitches to sew closing bar and stop machine with needle out of material. The adjacent diagram shows the buttonhole as far as it has been made up to now.

9. Turn knob (31) counter-clockwise and permit the return of zigzag width lever (33) to the extreme left. Now sew second line of purl stitches making sure that the already sewn row passes through the right-hand groove at the underside of the buttonhole presser foot. Stop machine with needle out of material. The almost finished buttonhole will look like this :



10. Move zig-zag width lever "B" again to the right and repeat operation described in paragraph "8". This finishes the buttonhole.

If desired, lock stitching by sewing a few stitches with zig-zag width lever "33" returned to dial "0" and the drop feed push button (12) set to "EMBR".

Insert Buttonhole Cutter at one end of buttonhole and carefully cut material between the two stitching. Avoid cutting of stitching to assure strong and lasting buttonhole.

To make reinforced buttonholes introduce gimp of proper size into small hole right in front of the moon shaped stitch hole of the buttonhole presser foot. Sew over gimp as machine makes button seams. For flat buttonholes leave thread tension pretty much the same as for ordinary sewing. For flat buttonholes require a tight tension of the needle thread. For better appearance, use needle of the next heavier size.

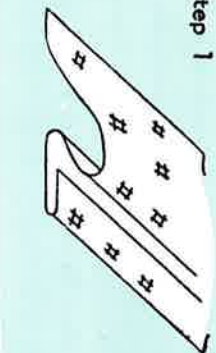
21. How to Make a Blind Stitch Automatically

Your machine is ingeniously designed to produce a blindstitch automatically.

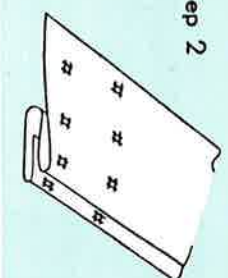
Follow these steps to prepare for blindstitching :

1. "Push lever (33) see page two, to marking 5 on its dial plate, hold it there and turn cam selector dial 30 until a blind stitch (No. 6) appears on top. Now release lever 33."
2. Turn stitch length regulating dial to a setting between markings "12" and "20".
3. Fold the material as follows :

Step 1

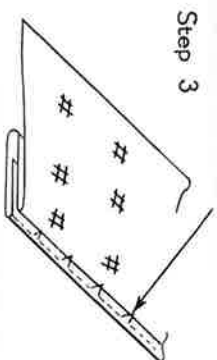


Step 2

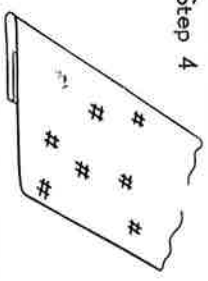


4. Place the material under the presser foot and start to sew on the lower fold.

BLIND STITCH



Step 3



Step 4

5. Remove the material and fold back the upper fold (Step 4).
6. For longer spacing between blindstitches, set stitch regulating dial so that the arrow points to lower r
7. **Note:** For best results, use same color thread as material.
8. Place the material under the presser foot and start to sew on the lower fold.

22. *Downing and Embroidery*

Release automatic darning as explained on Page 13. Push drop feed button down all the way. drop the feed dog below the level of the needle plate and permit the material to be moved in the 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 material on the machine base with both hands, press the material with your left index finger in the direction of the needle. This will help in holding down the material and will prevent the machine from making 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.

23. *Quilting*

The quilting attachment (Fig. 26) will enable you to sew equi-distant lines on padded fabrics without the necessity of marking them in advance. To attach the quilting to the presser bar of the machine, first pull long wire hook out of horse-shoe shaped clamp. Stride the clamp on the presser bar from behind and above ordinary presser foot, and push the wire hook into previous place.

Adjust wire hook to desired distance from needle and bring it to press into fabric. Then tighten thumb screw extending backward from horse-shoe shaped clamp to lock quilting attachment into place. When sewing, wire hook should follow preceding line of stitching.

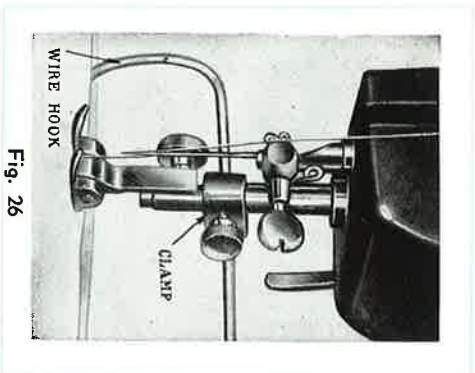


Fig. 26

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 the desired width of the zig-zag stitch.

24. *Sewing Braids*

Turn balance wheel toward 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.

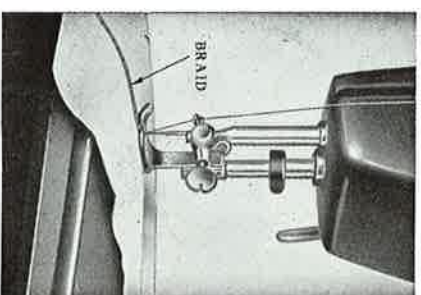


Fig. 27

25. *Narrow Hemmer*

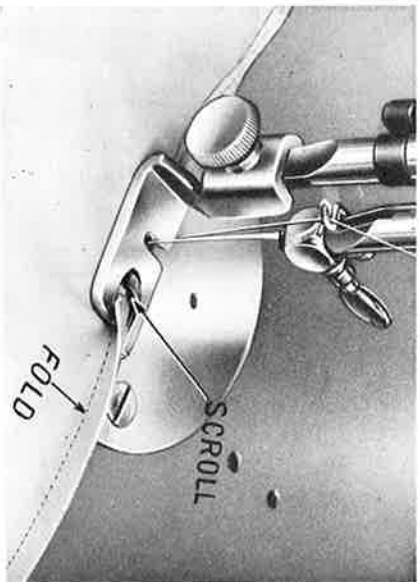


Fig. 29

3. Lower presser foot and begin to sew. (Fig. 28).

Guide material into hemmer foot while proceeding with

2. Pull material toward you until the beginning of the hem is just below the needle.

NOTE: Do not crowd material into scroll and do not leave scroll only partly filled by material. Feed 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 long stitch and tight tensions will produce a shell stitch.

26. How to do Rolling

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 serves as a guide for the top piece of material. Fig. 29 shows this detail.

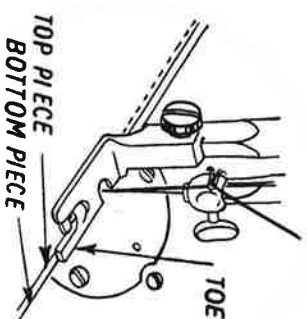


Fig. 29

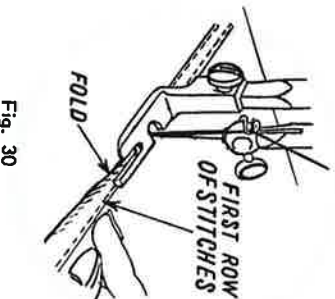


Fig. 30

3. Open and spread out material and put back on machine right side 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).

27. 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

28. *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 jerseys, bias cut cloth, etc., it is advisable to sew them with reduced 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 a thin paper underneath the material and sew with the shortest stitch possible. This will keep you 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 toward you.
3. Do not run machine without cloth.
4. When sewing, do not pull the material because you will bend the needle. The machine is to feed the material automatically.

29. 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 wound too fully.

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 :

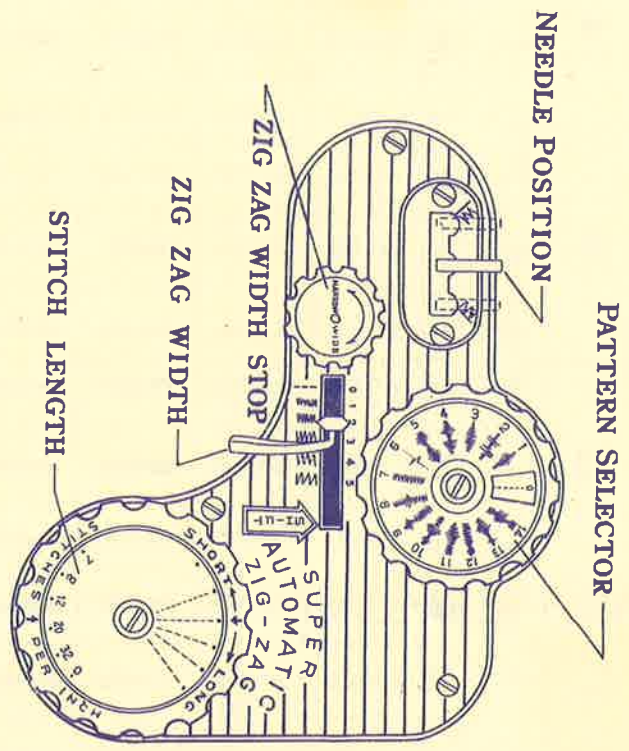
1. Using bent or blunt needles.
2. Needle inserted incorrectly.
3. Needle threaded improperly.
4. Using wrong size needle.
5. Pressure of presser foot insufficient, especially when sewing heavy material.

UNEVEN STITCHES :

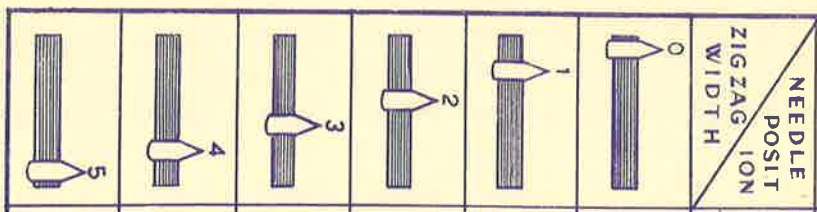
1. Presser foot not resting evenly on material.
2. Feed dog not adjusted high enough.
3. Too short stitches used.
4. Pulling the cloth while the machine is sewing
5. Needle too fine for material or thread too coarse.

30. 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 silk and cottons, light weight woollens, 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, study 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



PATTERN NUMBER	NEEDLE POSITION		ZIG ZAG WIDTH	
	L	R	M	R
0				
1				
2				
3				
4				



AUTOMAT
FULL
ZIG ZAG
SEWING
MACHINE
INSTRUCT
MANUAL

