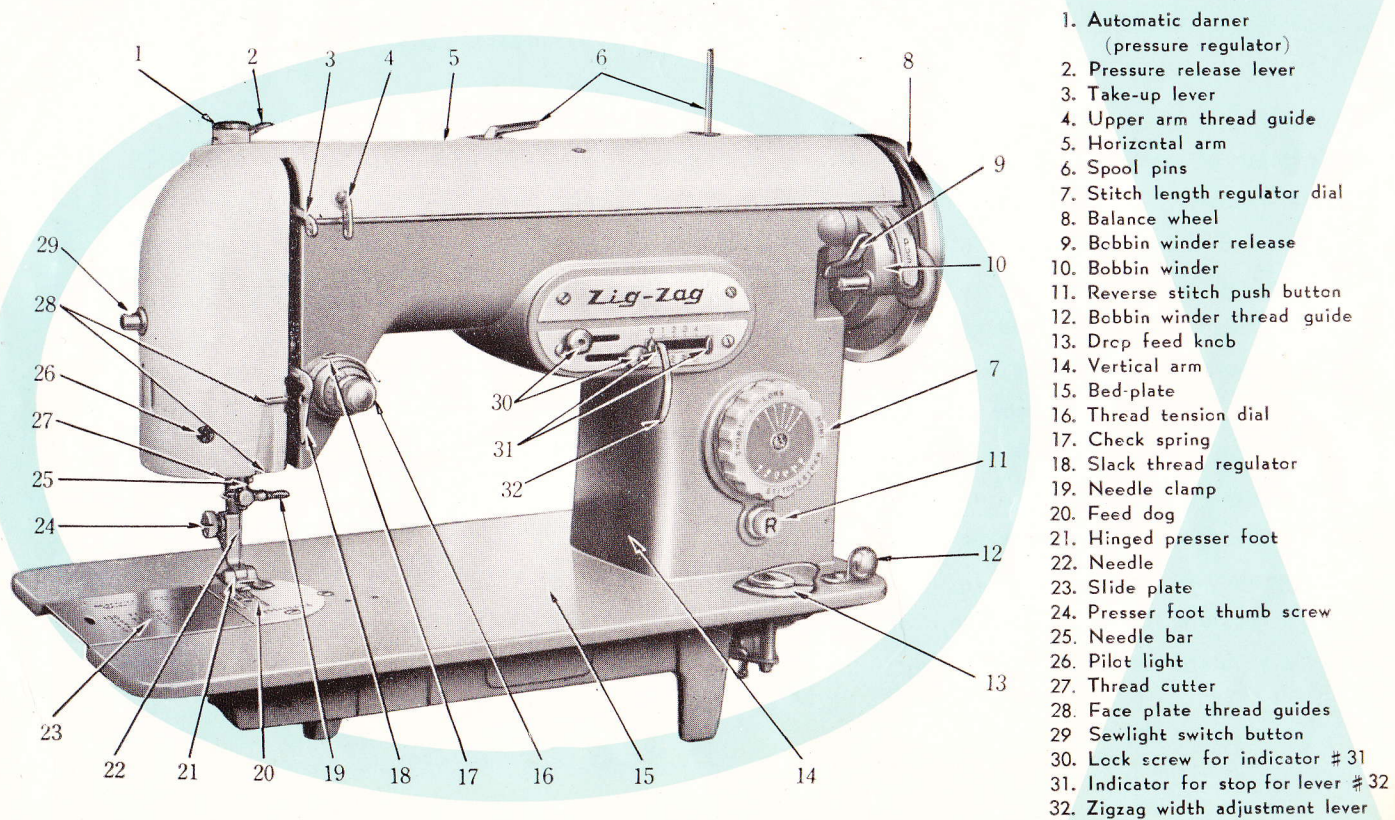


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## Description of Machine



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 regulator dial
8. Balance wheel
9. Bobbin winder release
10. Bobbin winder
11. Reverse stitch push button
12. Bobbin winder thread guide
13. Drop feed knob
14. Vertical arm
15. Bed-plate
16. Thread tension dial
17. Check spring
18. Slack thread regulator
19. Needle clamp
20. Feed dog
21. Hinged presser foot
22. Needle
23. Slide plate
24. Presser foot thumb screw
25. Needle bar
26. Pilot light
27. Thread cutter
28. Face plate thread guides
29. Sewlight switch button
30. Lock screw for indicator #31
31. Indicator for stop for lever #32
32. Zigzag width adjustment lever



## *Special Features*

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

**STITCH REGULATOR** - regulates the stitch length for 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 your 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 differences.

**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 more efficient sewing without glare. Light bulb is easily changed.

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

**FLOATING PRESSER FOOT** - glides over pins and bastings.

**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.

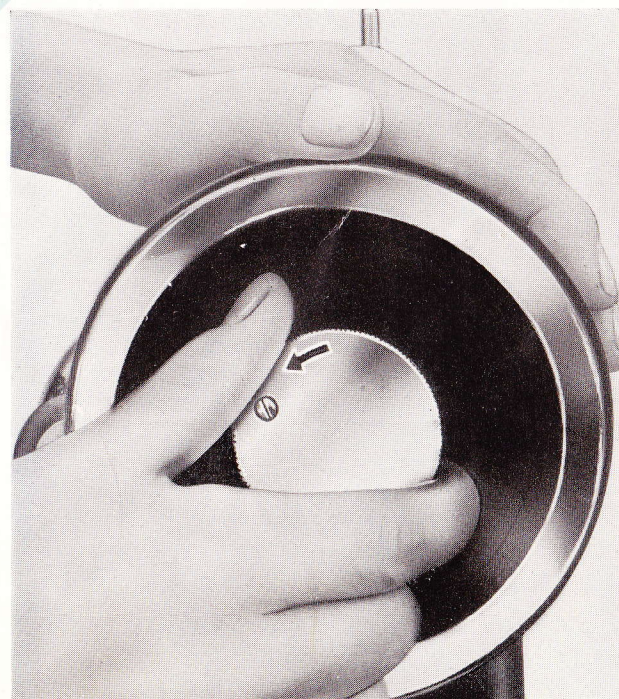


Fig. 1



6. Now manipulate your foot 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.

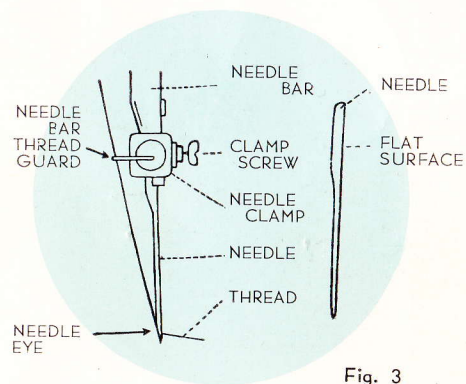


Fig. 3

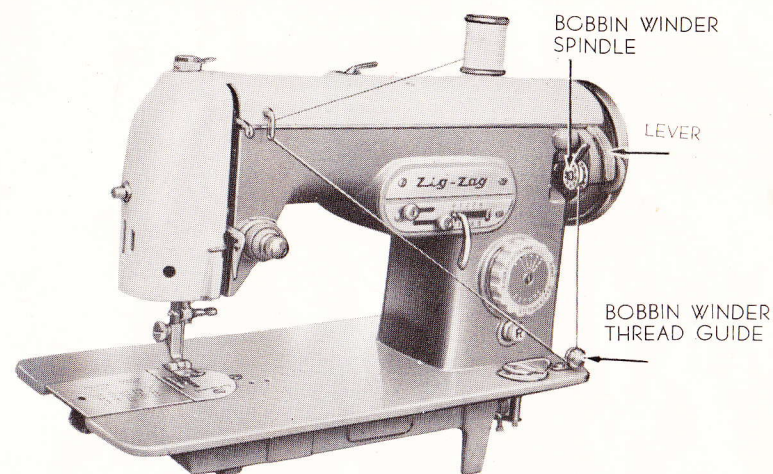


Fig. 2

## 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).

### 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 hand, 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.

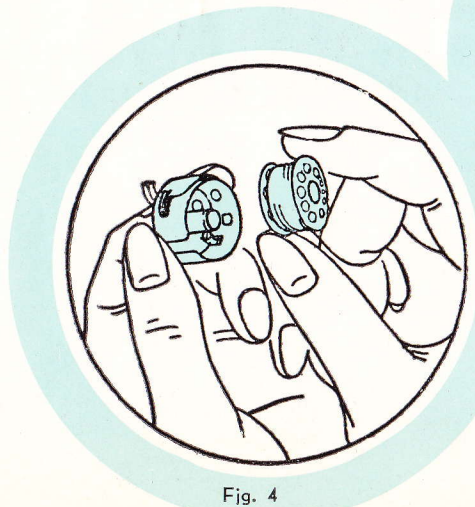


Fig. 4

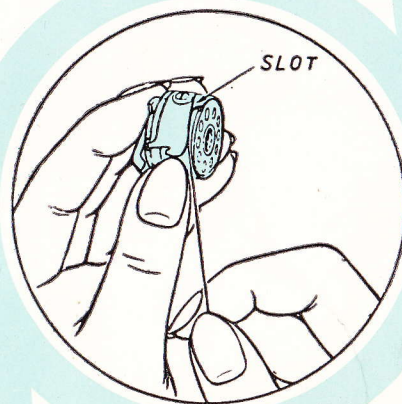


Fig. 5

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. (Fig. 6).



#### 4. *To Insert and Remove the Bobbin Case*

1. Raise the presser bar by lifting the presser bar lifter.
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 (Fig. 8) 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 stud of the shuttle (Fig. 8).

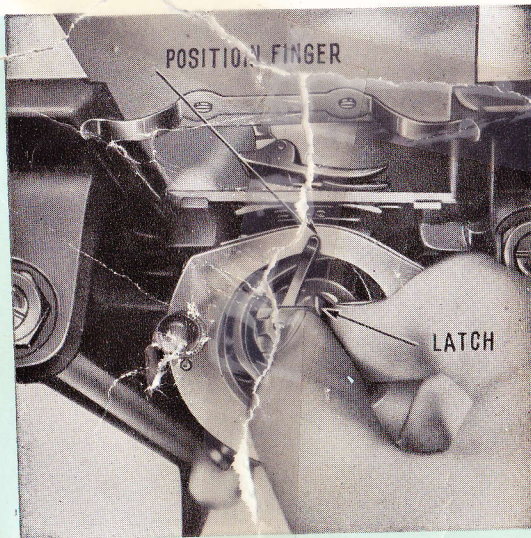


Fig. 8

shuttle (Fig. 8).

5. Then release the latch and press the bobbin case in until the latch catches the

6. Allow the end of the thread to hang free about 2 to 3 inches.
7. Pull back slide plate.

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

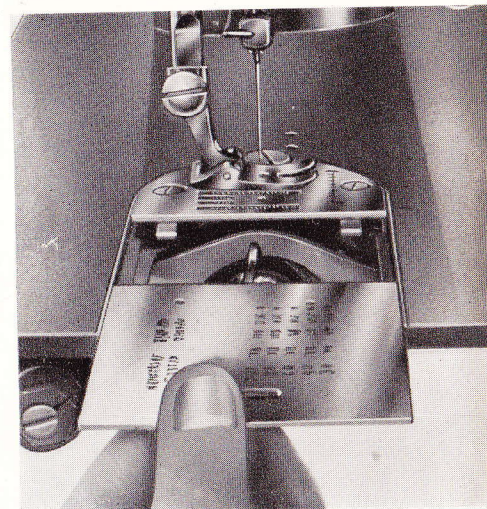


Fig. 7



## 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.

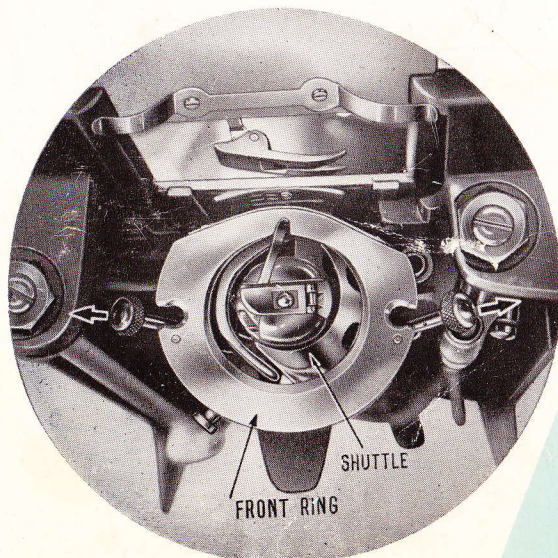


Fig. 10

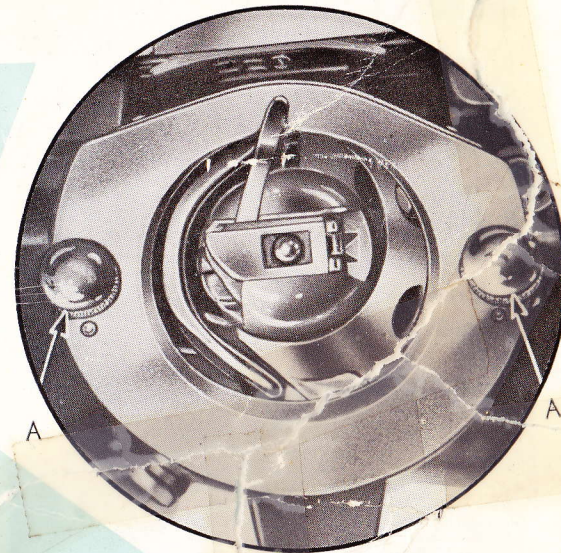


Fig. 9

2. Release the KNOBS (A) at both sides of shuttle race (Fig. 9) by pulling 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 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 ends 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.

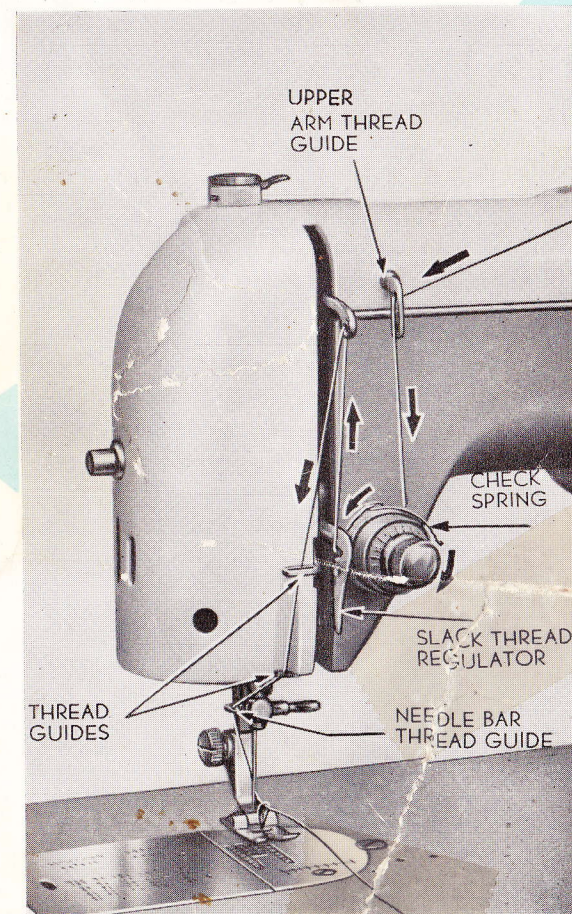


Fig. 11



## 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).

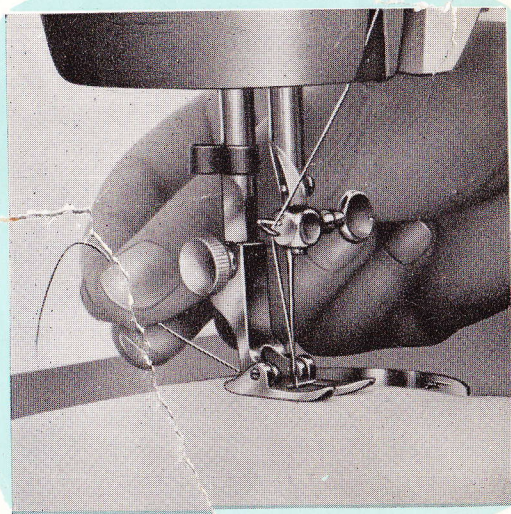


Fig. 13

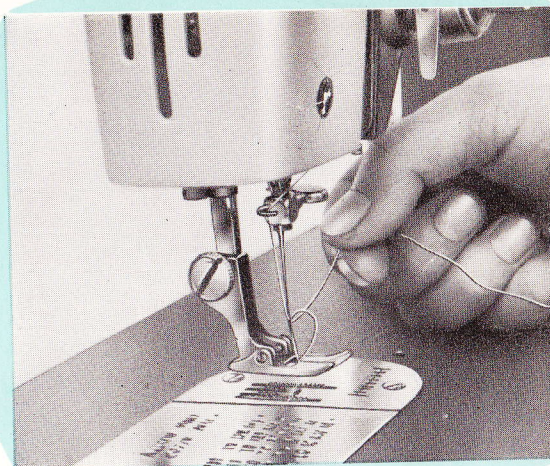


Fig. 12

## 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.
3. Make sure that lever "B" (Fig. 23) is set to the left at marking "O" on the dial plate.
4. Commence sewing by slowly turning the balance wheel toward you while gradually pressing the lever of the foot or knee control.

Always turn balance wheel toward 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 behind the presser foot.

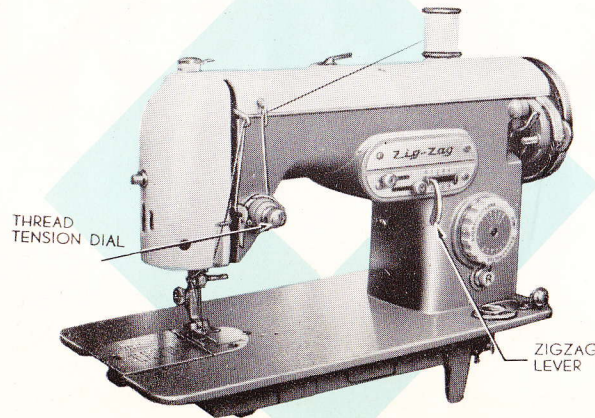
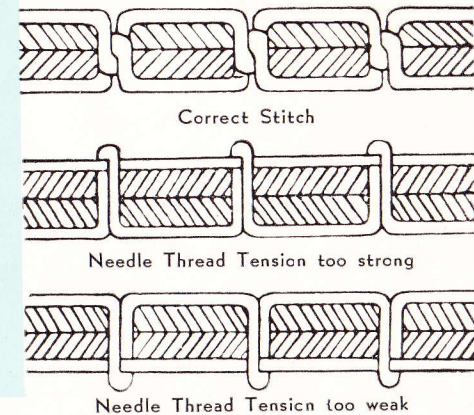


Fig. 15

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

Tension regulating screw

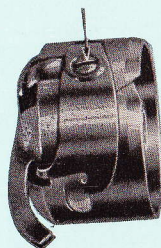


Fig. 16

### 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 "11" 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.

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.



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 it 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. Turn Drop Feed Knob (Fig. 20) to "EMBR." position. For Ordinary Sewing : Push the automatic darning down as far as possible (Fig. 19).

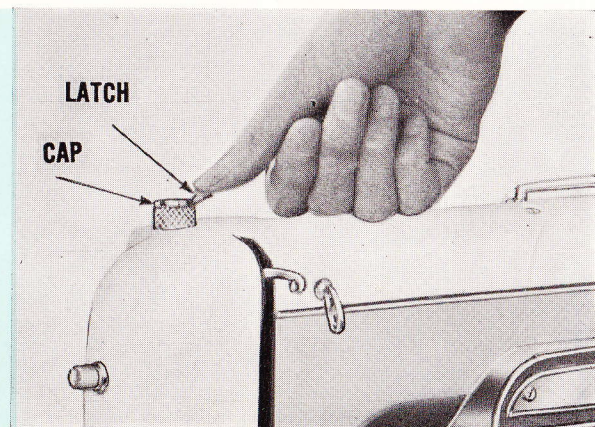


Fig. 18



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 will enable you to move your work freely about in any direction you choose.

3. For embroidering and darning, first release 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 light will indicate whether the lamp is on or off. Bulbs may be obtained at dealers, department stores and electrical shops.

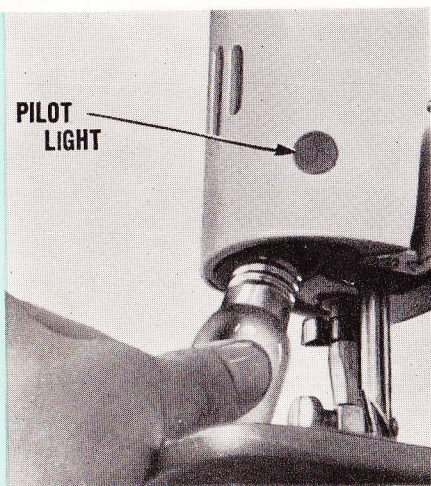


Fig. 21

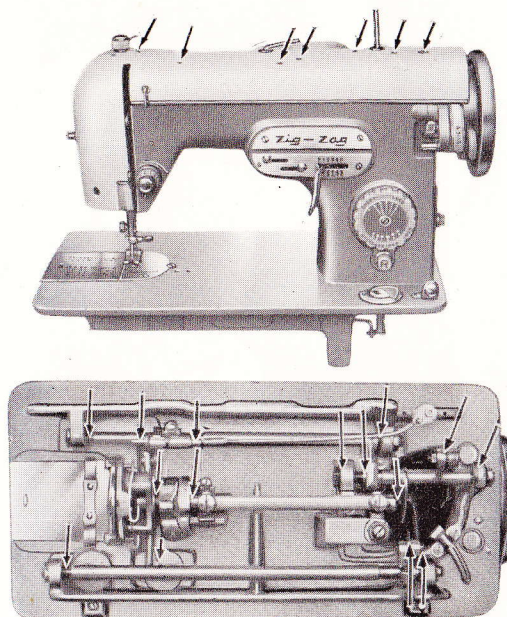


Fig. 22

#### 15. To Oil the Sewing Machine

To maintain your machine 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 the oil to penetrate to all parts.

## 16. Zig-Zag Sewing

Your Zig-Zag Sewing Machine, by virtue of its design, permits you to do zig-zag sewing and numerous other kinds of work requiring a similar stitch. The controls for the zig-zag stitch are located on the arm of the machine, as may be seen on Fig. 23. Notice lever "B" which adjusts the width of the zig-zag seam. For ordinary straight sewing this lever must be set to the left at marking "O" on the dial plate. By moving this lever gradually to the right the machine will sew a zig-zag seam of increasing width, depending on the position of the lever. For the purpose of reverting to a previously used width of zig-zag stitch after having done some straight sewing or for special types of work, such as sewing buttons or making tacks, indicator "A" will be found useful. This indicator serves as a stop for lever "B". To set indicator "A", loosen lock screw "C", turning it to the left. You then will be able to slide same sideways which, at the same time, moves indicator "A" to the desired marking. Tighten lock screw "C" by turning it to the right. The lock screw "D" moves another indicator "E". The purpose of this slide is to make possible a second setting of zig-zag width. Thus, when you want to

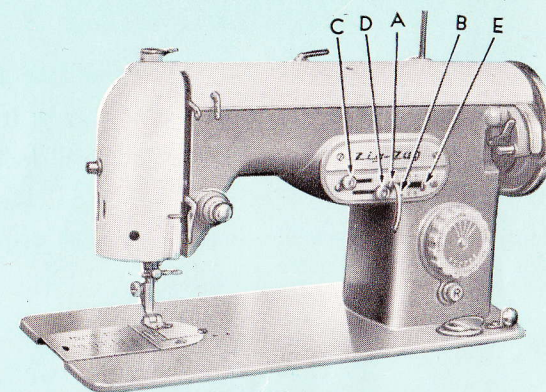
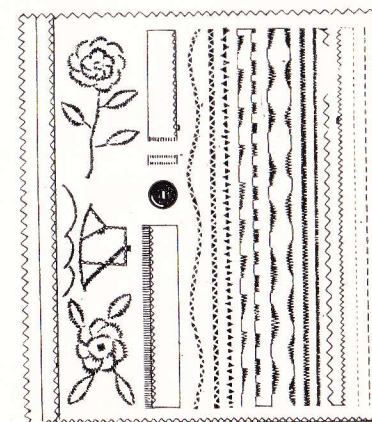


Fig. 23





alternate between a narrow and a wide zig-zag stitch, you use both indicators "A" and "E". For example, set indicator "E" at marking 4 and "A" at marking 1, tightening the lock screws. This will assure you of being able to always revert to the same narrow and wide zig-zag seams. You will find this feature especially convenient when making buttonholes. (Refer to chapter on Buttonhole Sewing)

## 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 as 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 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 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 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.

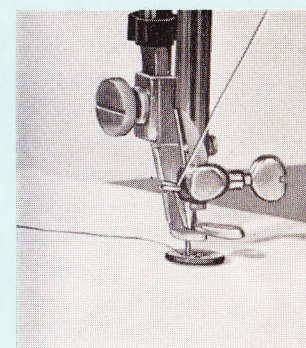


Fig. 24

## 18. Making Buttonholes

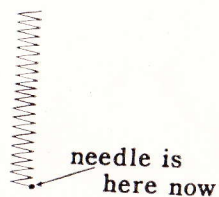
1. Set zig-zag regulating lever "B" (Fig. 23) between marking 1 and 2 on dial. Loosen lock screw "C" to move indicator "A" to the right until it touches the lever. Now slide lock screw "D" to the right until indicator "E" is at marking 4 on dial. Tighten lock screws securely.
2. Raise presser foot and 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. 26. 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.

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.

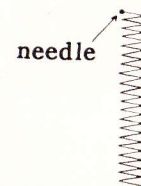
Adjust gauge on buttonhole presser foot (Fig. 25) to correspond to the desired length of the buttonhole. To determine this adjustment, measure size of button and add approximately  $\frac{3}{16}$ " to  $\frac{1}{4}$ ". The distance from the needle of the machine to the front of the gauge should equal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

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:

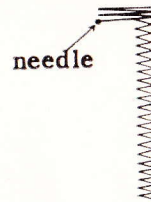


7. Raise presser foot slightly and turn garment clockwise around the needle. The following diagram represents what you should see now:  
Lower presser foot and turn handwheel toward you until needle is above material.

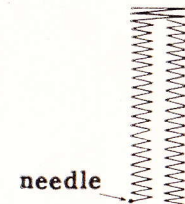




8. Move zig-zag width adjustment lever "B" to the right until it hits indicator "E". Make 3 to 4 stitches to sew closing bar and stop machine with needle out of material. The adjacent diagram shows the buttonhole as far as it has progressed up to now.



9. Return zig-zag width lever "B" to the left until it is stopped by indicator "A". 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 above. This finishes the buttonhole.

If desired, lock stitching by sewing a few stitches with zig-zag width lever "B" returned to dial setting "0" and the drop feed knob (13) set at "EMBR".

Insert Buttonhole Cutter at one end of buttonhole and carefully cut material between the two rows of 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 half-moon shaped stitch hole of the buttonhole presser foot. Sew over gimp as machine makes buttonhole seams. For flat buttonholes leave thread tension pretty much the same as for ordinary sewing. Purl stitch buttonholes require a tight tension of the needle thread. For better appearance, use needle thread of the next heavier size.

## 19. 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.

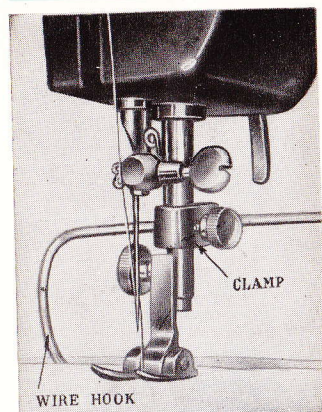


Fig. 26

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.

## 21. 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.

## 20. Quilting

The quilting attachment (Fig. 26) will enable you to sew equi-distant lines on padded fabric without the necessity of marking them in advance. To attach the quilter 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 quilter attachment into place. When sewing, wire hook should follow preceding line of stitching.

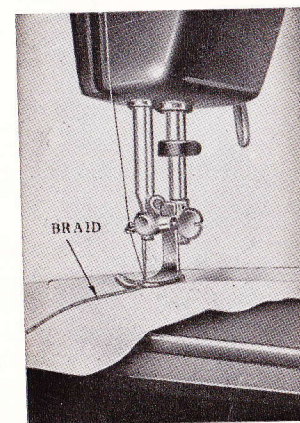


Fig. 27



## 22. *Narrow Hemmer*

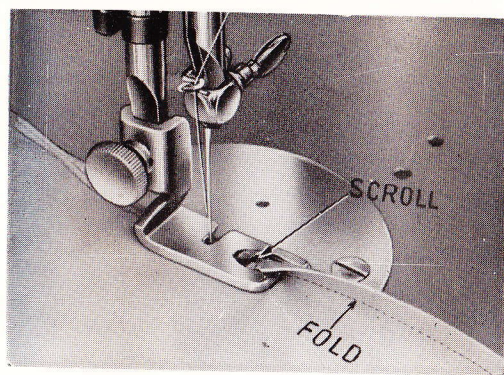


Fig. 28

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 zigzag stitch for this hemming operation. Be sure, however, to adjust the width of the zigzag stitch to be as wide as the hem itself. Using a very long stitch and tight tensions will produce a shell stitch.

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

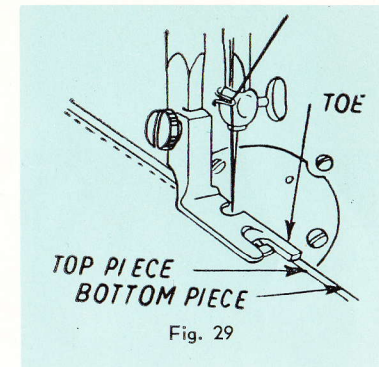


Fig. 29

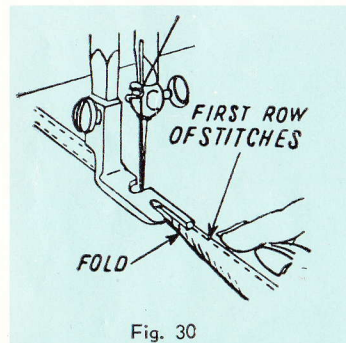


Fig. 30

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

## 24. 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.

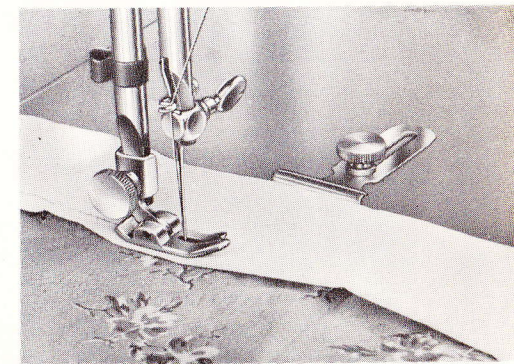


Fig. 31



## 25. *Some Useful Sewing Hints*

### TO TURN CORNERS :

1. Stop the machine while 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 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 toward 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.

## 26. *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 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 running
5. Needle too fine for material or thread too coarse.