

# NECCHI

## instructions

for the use and maintenance

of your

*free-arm  
automatic  
supernova*

C

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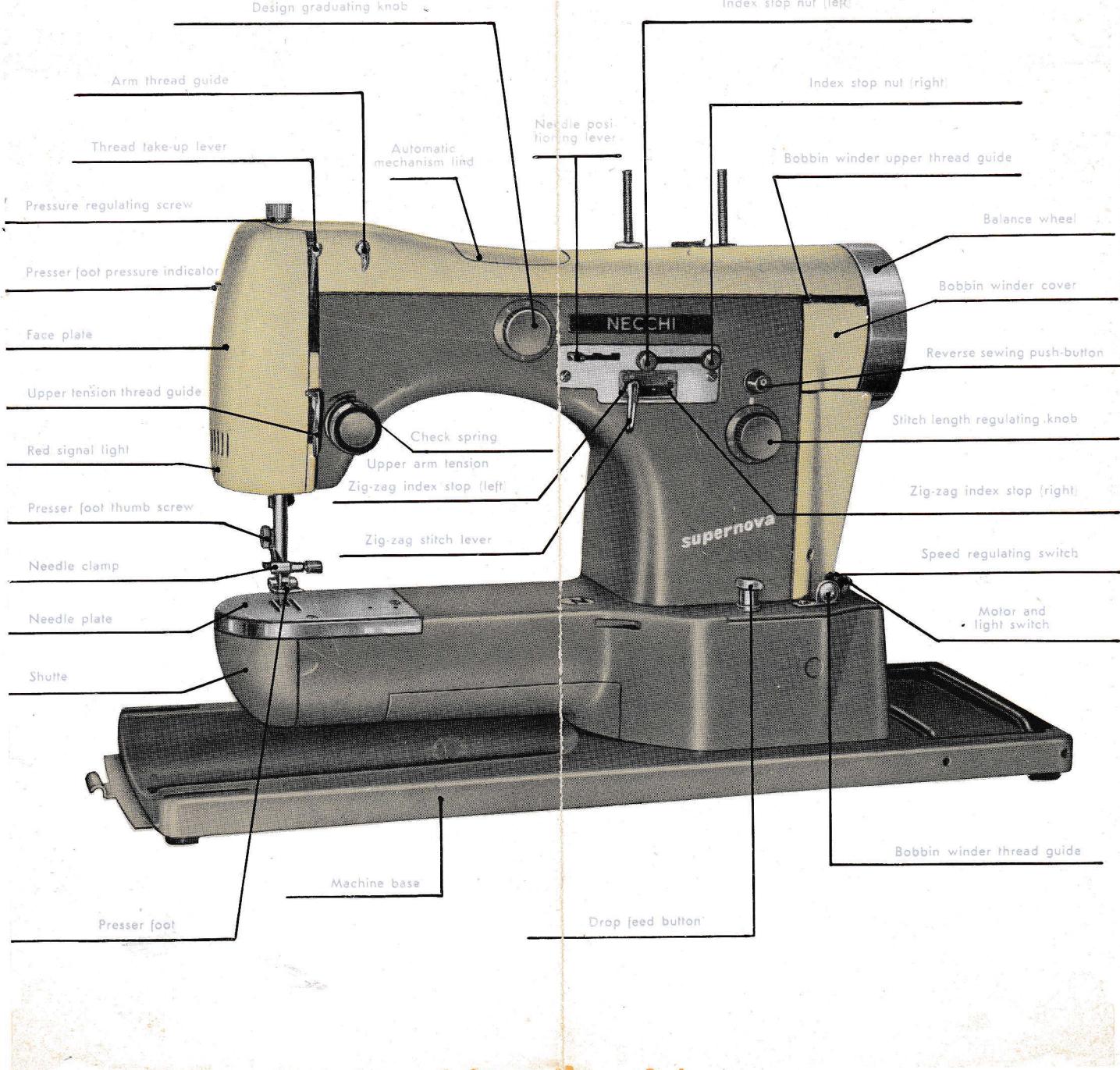
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## FOREWORD

*The machine which you, Madam, have acquired is a jewel of mechanical precision, with graceful lines and an elegance accentuated by the beautifully blended colours.*

*This machine is the result of years of research by our technicians, the work of thousands of specialists and the use of the latest equipment.*

*Like all machines of precision, this machine is very sensitive and therefore, the maximum attention must be given to its maintenance. Proper lubrication ensures that the machine retains its high performance and does not quickly become worn out.*

*It sews, darns and embroiders on light and heavy fabrics, but each of its innumerable operations requires a particular setting. Depending on the type of material to be sewn it is necessary to select the appropriate needle, which, in turn, must have its correct thread. Otherwise the sewing, besides being difficult and imperfect, may cause faults to develop in the machine. This handbook, which it is suggested you read very carefully, tells you fully the little care that the machine requires, so that, in exchange you may receive the full advantages of its vast possibilities.*

## HOW TO USE THE OIL FEEDER



**Stopper**

**Cap**

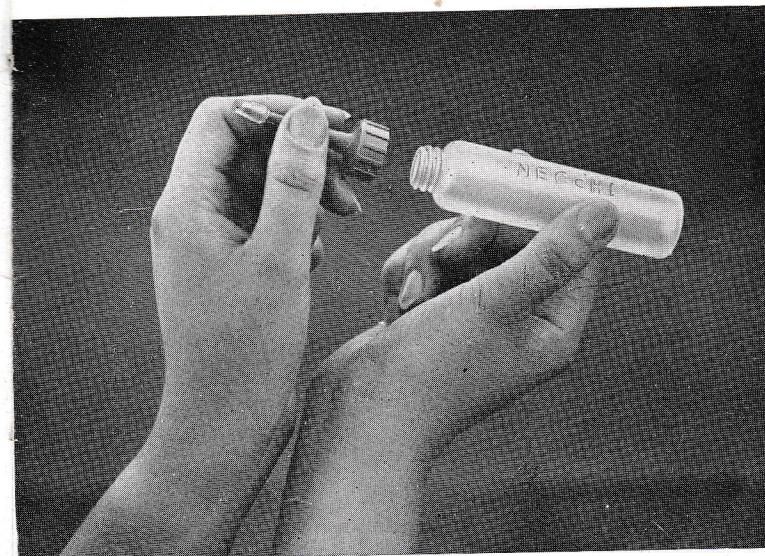
**Oil container**

### To refill

1. Hold the container and unscrew the cap completely.
2. Refill the container.
3. Screw the cap on again.

### To use for oiling

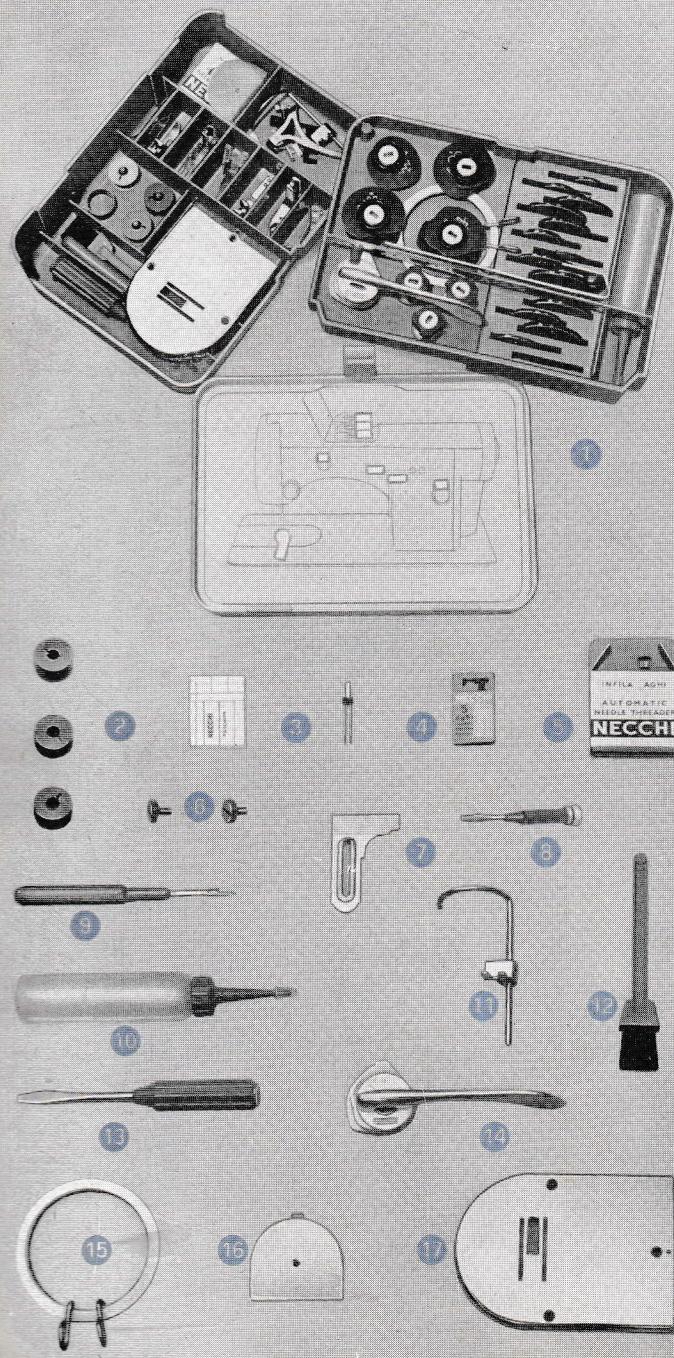
Remove the stopper and press the container.



## Recommended needles and threads

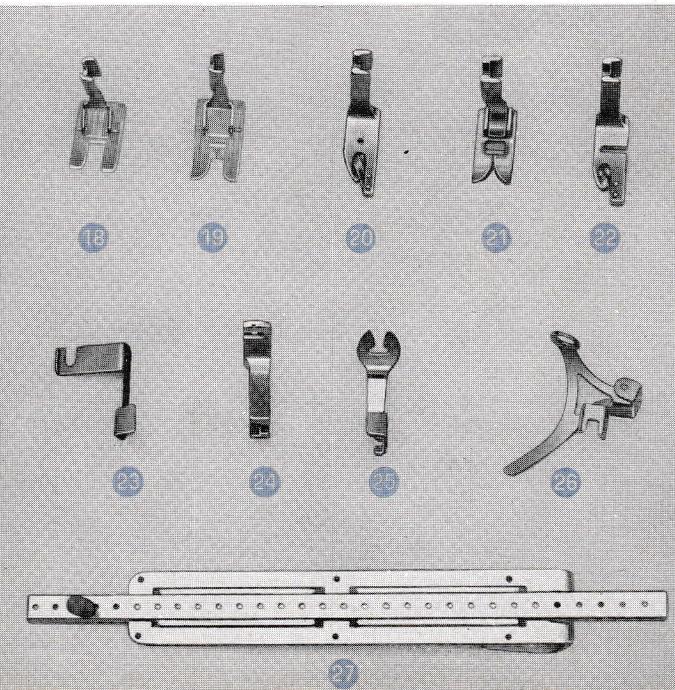
(NECCHI machines take  
**15 x 1 or 705 needles**)

Type of Fabric and Class of Work	Cotton	Size of Thread Silk	Mercerized	Number of Needle 15 x 1	705
Thin fabrics like Muslin, Chiffon, Batiste, fine Linen, Cambric, thin Silk, Calico, etc. For lingerie, infants' wear, aprons and curtains.	80 to 150	0 to 000	50 to 000	10 (fine)	70
Shirting, Sheetings, Calico, Silk and Cotton dress material, light woollen material, etc. For general household sewing and all classes of general work.	60 to 80	A & B Twist	50	14 (medium)	90
Heavy Calico and Silk, light-medium Woollen material, heavy Crettonne, Muslin, Brocade and Quilting. For men's work shirts, smocks, aprons, quilts and drapes.	40 to 60	C Twist	Heavy Duty	16 (light-heavy)	100
Bed Ticking, Upholstery and Awning fabrics, Slip Cover material, Coating, light-medium Canvas. For Trousers, boys' clothing, work uniforms, woollen goods, awnings, slip covers and mattresses.	30 to 40	D Twist	Heavy Duty	18 (medium-heavy)	110
Heavy material, Woollen material, Suiting and Coating, Canvas and Sacking. For heavy clothing in general, such as heavy uniforms, coats, trousers, etc., bedding, bags, etc.	24 to 30	E Twist	40 to 60	20 (heavy)	120



## LIST OF STANDARD ACCESSORIES

1. Box for accessories
2. Bobbins
3. Double needle with case
4. Case with needles
5. Needle threader
6. Screws for straight guide
7. Straight guide
8. Small screw driver
9. Seam ripper and buttonhole cutter
10. NECCHI oiler
11. Quilter wire with clamp
12. Brush
13. Large screw driver
14. Device for automatic buttonholes
15. Darning and embroidery frame
16. Needle plate for embroidering and darning
17. Needle plate for sewing with double needle
18. Presser foot for buttonholes
19. Transparent presser foot
20. Hemming presser foot
21. Presser foot for double needle
22. Presser foot for shell hemming
23. Guide for blindstitching
24. Cording presser foot
25. Presser foot for sewing on buttons
26. Darning presser foot
27. Device for circular sewing.



## ***Chapter 1***

# **GENERAL INSTRUCTIONS**

### **1. POINTS TO OBSERVE**

- a) The balance wheel must always be turned towards the operator, when rotated either by hand or motor.
- b) Do not operate the machine with presser foot in the lowered position, when there is no cloth under the presser foot.
- c) Always keep a piece of cloth under the presser foot when the machine is not in use. This will prevent damage to the feed dog and the presser foot.
- d) Do not operate the machine when the presser foot is raised. Do not push or pull the material to assist the feeding action, since this will only bend the needle; the material is fed automatically without manual assistance.

### **Sewing base**

The sewing base of the machine may be changed so that it is possible to have a cylindrical or flat base on the machine, depending on the type of work to be done.

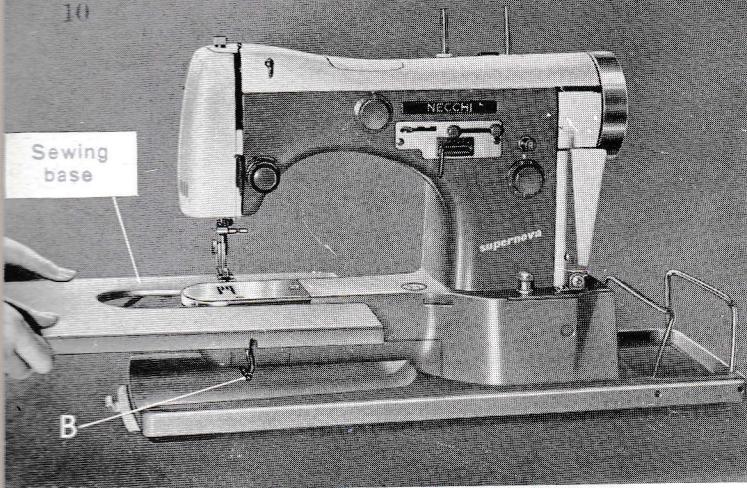


Fig. 1

**To attach the sewing base**

- Prepare the sewing base so that the two attachments A (Fig. 2) are slightly bent and collar B is turned towards the bottom (Fig. 1).
- Place the sewing base next to the machine base as shown in Fig. 1.
- Push the sewing base horizontally until the rubber projections enter the two prepared grooves in the base of the machine.
- Lower the two side attachments and insert them in the appropriate grooves in the machine base (Fig. 2).

Fig. 2

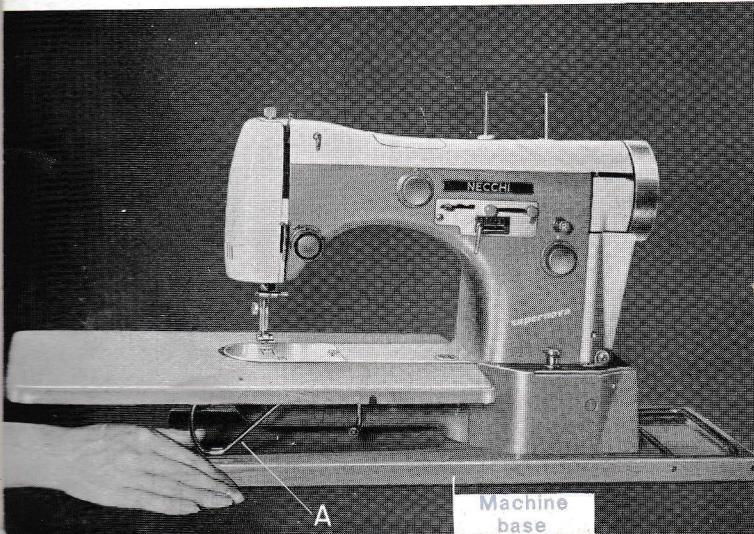
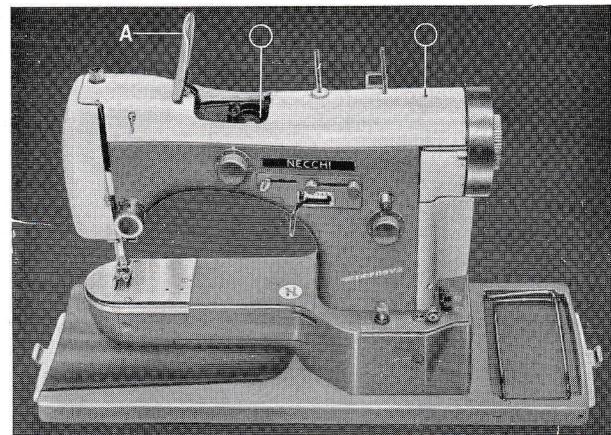
Machine  
base

Fig. 3

**2. LUBRICATION**

The machine must be oiled, not only to properly maintain it, but also to ensure trouble-free running. If used only intermittently, the machine should be oiled at least once a month; but if used continuously, it must be oiled after every 48 hours running. Necchi oil, an oil expressly prepared for sewing machines, is on sale in original containers at all Necchi shops.

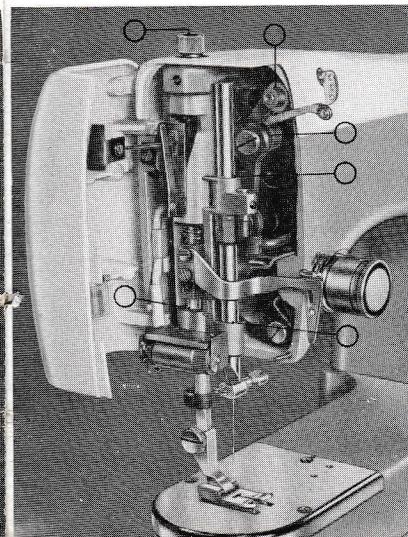


Fig. 4

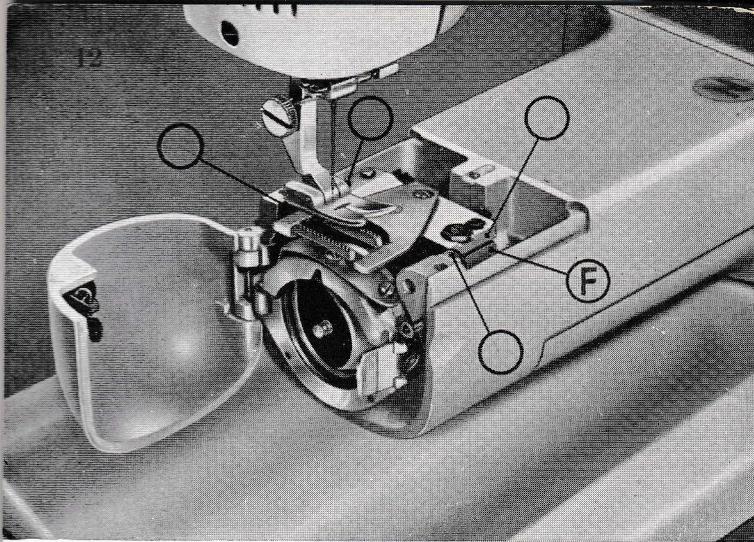


Fig. 5

### 3. TO OIL THE MACHINE PROCEED AS FOLLOWS:

- Raise the top cover and apply a few drops of oil at the points indicated in Fig. 3.  
(In the first hole from the right, 12-15 drops are required).
- Open the face plate by rotating it on its hinges and apply a few drops of oil at the points indicated in Fig. 4.

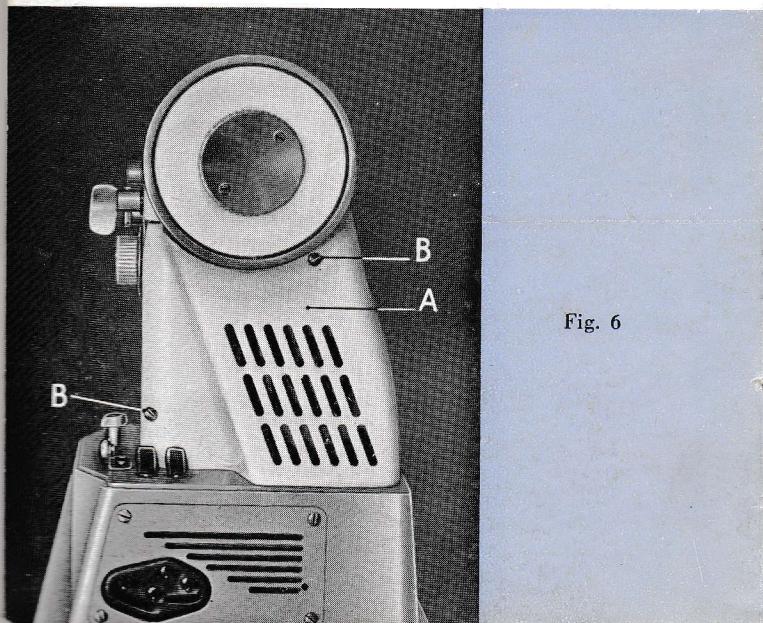


Fig. 6

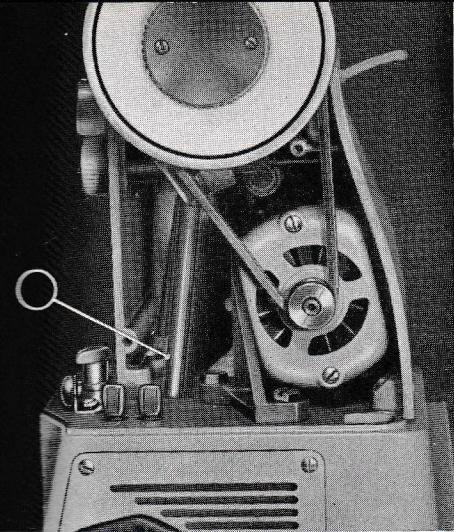


Fig. 7

- Open the shutter, remove the needle plate (see instructions on page 15) and squeeze a few drops of oil onto the points indicated in Fig. 5, including felt F.
- Remove the cover A by removing the two screws B (Fig. 6) and apply a few drops of oil in the oil hole indicated in Fig. 7.
- Tilt the machine backwards so that the underside is accessible and remove the cover plate which is held by four screws. Apply a drop of oil at all points indicated by pointers in Fig. 8.
- Whenever the machine is in continuous use, it is advisable to periodically remove the shuttle cover plate and the shuttle (see instructions on page 30). For cleaning and oiling the shuttle seating, use an oil soaked rag. Before replacing the shuttle in its seating, it should also be oiled but only on the rim.

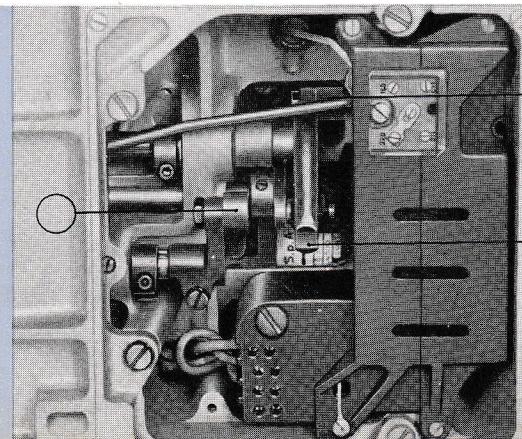


Fig. 8

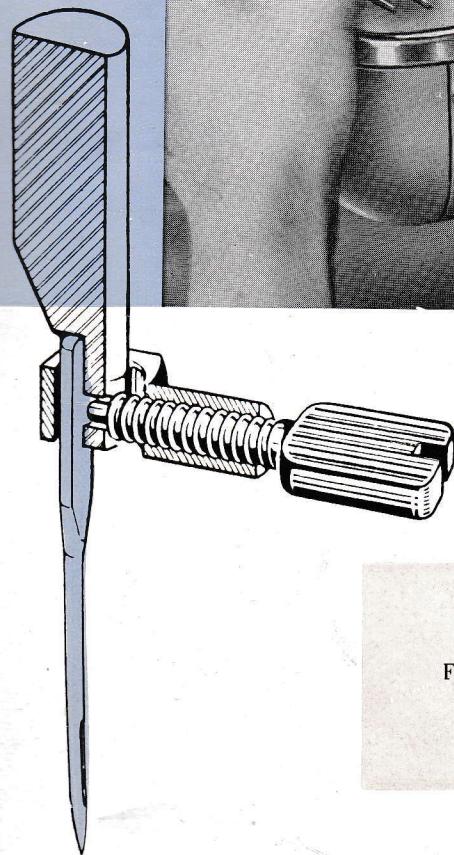


Fig. 9



#### 4. TO INSERT THE NEEDLE

- Bring the needle bar to its highest point by turning the balance wheel towards you.
- Loosen the needle clamp screw (Fig. 9) and insert the needle in the groove of the needle bar. Make sure that the flat side of the needle shank is towards the right.
- Push the needle up into the groove as far as possible, then tighten the needle clamp screw. Make sure that the needle does not turn while being pushed up into the groove.

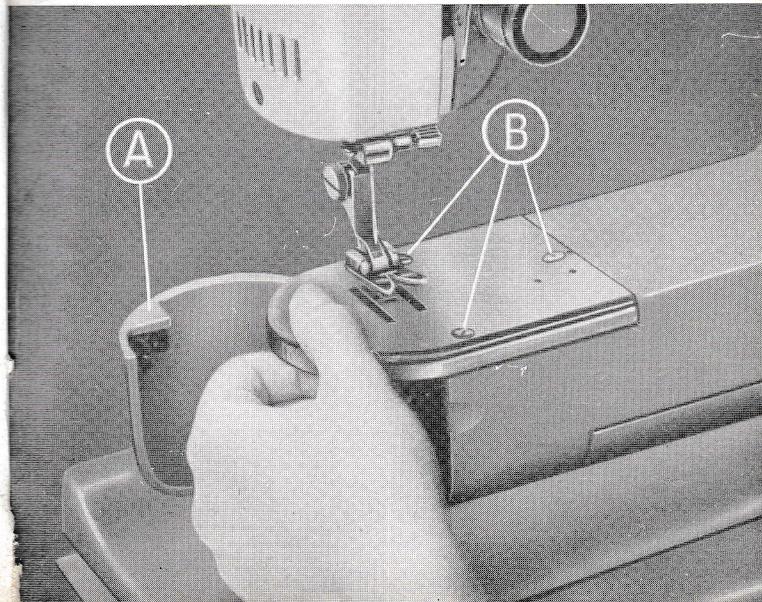
#### 5. TO CHANGE THE NEEDLE PLATE

After opening the shutter A (Fig. 10) remove the three screws B and take out the needle plate. Then put in the new needle plate and fix it in position with the same screws B.

#### 6. TO CHANGE THE PRESSER FOOT

- Bring the needle to its highest position and raise the presser foot by means of the presser foot lever.
- Loosen the presser foot thumb screw.
- Remove the presser foot by pushing it downwards.
- Insert the new presser foot and push it towards the top of the bar until it is hard against the shank of the thumb screw. Tighten the thumb screw.

Fig. 10



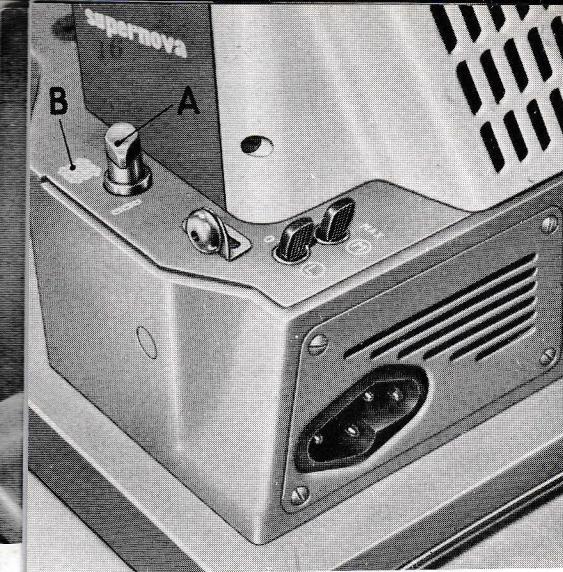


Fig. 11

### 7. TO DROP THE FEED DOG

- Turn the drop feed button A (Fig. 11) either clockwise or counter-clockwise so that one of the two pointers on either side of the button is facing towards the square alignment mark B.
- Push the button down.  
The feed dog is dropped for:
  - embroidery work such as Satin Stitch, monograms etc.
  - darning.
  - sewing buttons.

Fig. 12



### To raise the feed dog:

Turn the button A so that one of its two pointers is facing towards the opposite alignment mark, i.e., the straight design. The button rises automatically.

### To drop the feed dog for short intervals,

as is necessary for some types of embroidery:

- Set button A so that one of its two pointers is facing towards the straight design on the bed plate (Fig. 11).
- At the desired moment, press down button A (Fig. 12) and hold it down with a finger tip until the required number of stitches has been sewn (maximum 15-20 stitches).
- Remove finger from button and it will automatically return to its normal position.

Operations b) and c) can be repeated at will.

### 8. TO THREAD MACHINE

In order to avoid breaking the upper (needle) thread, the machine must be threaded as follows: (Fig. 13 and diagram 13 a):

- Bring the needle to its highest position.
- Run spool thread along the machine arm and through the two holes in the arm thread guide S (Fig. 13).
- Draw it down towards the base and insert it from right to left between the two tension discs U.
- Return thread upwards and enter it into the thread (check) take-up spring.
- Carry thread under the hook of the upper tension thread guide E.
- Pass thread through the open section F of hook E.
- Lead thread upwards and pass it from right to left through the eye I of thread take-up lever.
- Guide thread down again and pass it through open section F of upper tension thread guide E.
- Draw thread into opening K between machine arm and face plate L.
- Pass thread through needle clamp guide N and finally thread it from left to right through the eye of the needle O, leaving about 4 inches hanging down freely.

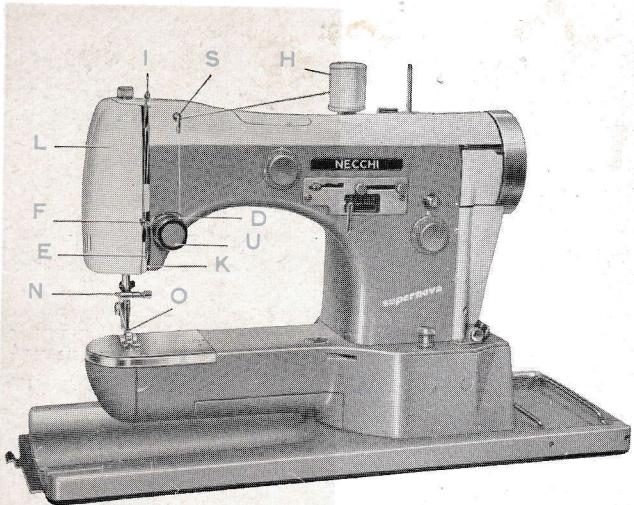


Fig. 13

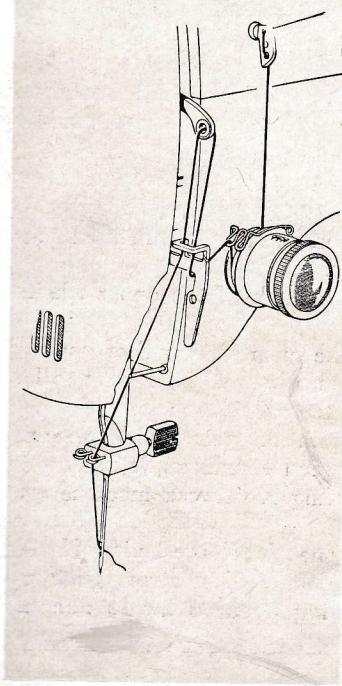


Fig. 13 a

## 9. TO THREAD THE NEEDLE WITH THE NECCHI AUTOMATIC THREADER

- Pass the hook D of the needle threader (Fig. 14 b) through the eye of the needle.
- Using the thumb and forefinger of the left hand, bring the thread under the hook of the threader and hold it there under tension (Fig. 14 c).
- Gently move the threader upwards (see arrow Fig. 14 c) and then withdraw the threader hook, with thread attached, from the eye of the needle (Fig. 14 d).

Every Necchi Automatic Needle Threader is supplied with a spare hook which can be easily fitted in case of breakage of the original hook.

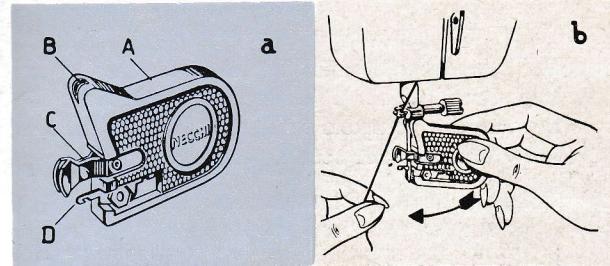


Fig. 14

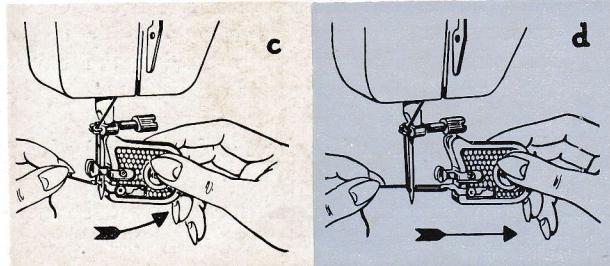




Fig. 15

#### 10. TO PREPARE MACHINE FOR SEWING

- a) Hold the end of the needle thread in the left hand. With the right hand slowly turn the balance wheel through one complete cycle, that is, until the needle has descended and returned to its highest position.
- b) Now, by hand, pull the needle thread which will draw the lower thread up through the stitch hole in the needle plate, as shown in Fig. 15. Place the two threads to the rear of the presser foot.
- c) Place the material under the needle and lower the presser foot. The machine is now ready to sew. Start the machine by gently turning the balance wheel with the right hand towards you, taking care to hold the two threads taut with the left hand behind the presser foot for the first 3 or 4 stitches.

Failure to observe this precaution may cause the thread to get tangled under the needle plate, thus damaging the shuttle and causing the needle to break.

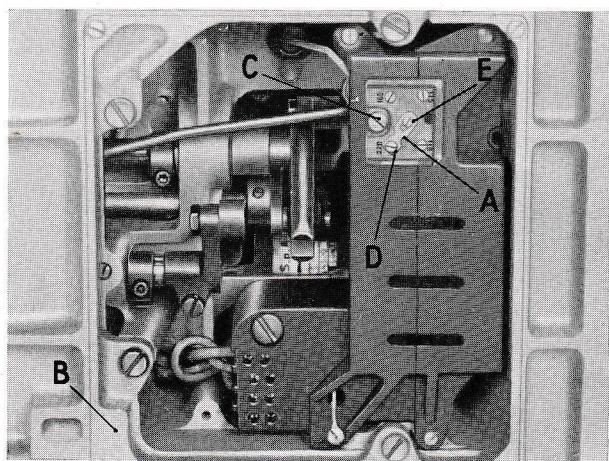
#### 11. TO CONNECT MACHINE TO THE POWER SUPPLY

Before plugging into the power supply make sure that the indicator plate A of the voltage adaptor (Fig. 16) corresponds to the voltage of your local electricity supply.

- a) Tilt machine backwards (the presser foot should be lowered to avoid any possible damage to the presser bar lever).
- b) Remove the plate which covers the opening B.
- c) Remove the cover plate from the voltage adaptor C. If the indicator plate does not indicate the correct voltage:
  - a) Remove screw D and loosen screw E.
  - b) Turn the indicator plate to the local voltage figure.
  - c) Fix the indicator plate in this position by replacing screw D and tightening screw E.

Now plug into power supply.

Fig. 16



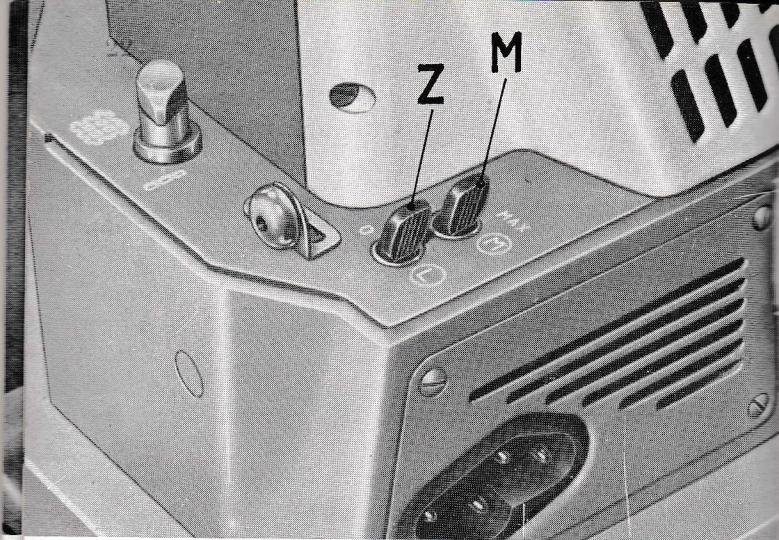
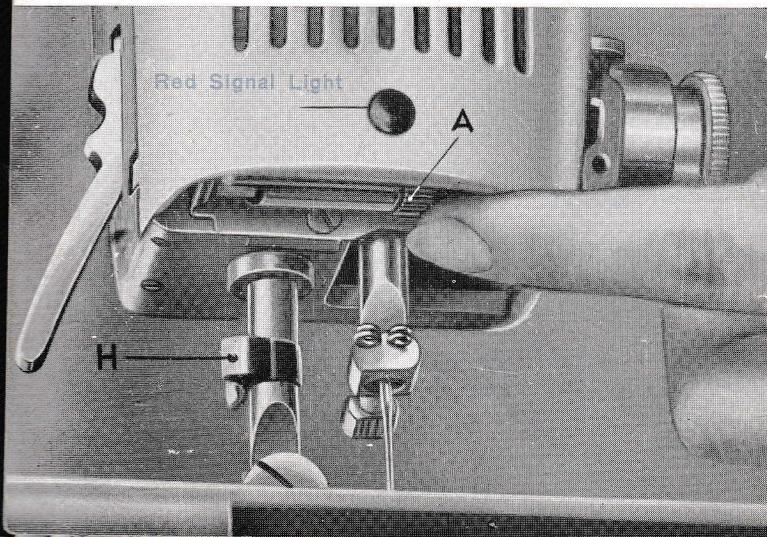


Fig. 17

## 12. LIGHTING (WORKING LIGHT)

After the machine has been connected to the power supply, turn switch Z to the right into position L (Fig. 17). The light switch Z also controls the power supply to the motor. If the working light should not be required, turn shade A (Fig. 18) forwards; the red control light built into the lower part of the face plate will continue to burn, indicating that current is being supplied to the machine.

Fig. 18



## 13. TO RUN THE MACHINE

- Connect the machine to the electric power supply (see page no. 21).
- Push switch Z (Fig. 17) towards the right into position L.

When switch Z (Fig. 17) is in position L, a red lamp, situated in the lower half of the face plate, will light up, indicating that current is being supplied to the machine.

- Start the machine by means of the rheostat. With the switch M (Fig. 17), the speed regulator, a constant reduction of motor speed can be obtained; this is useful for certain types of work and also for beginners.

When switch M is in the « Max » position, the speed of the motor will be that as regulated by the rheostat; in the « Min » position, the range of speed will be instantly reduced.

When work is finished, push switch Z towards the left into position O.

## 14. TO REMOVE WORK FROM THE MACHINE

- Turn the balance wheel towards the operator until the thread take-up lever reaches its highest position.
- Raise presser foot.
- Draw fabric back (away from operator) about 4 inches from the presser foot.
- Keeping the threads taut, pass them through the opening of the thread cutter (Fig. 18) which cuts them. Remove the material.

By observing these instructions, both thread ends, one from the needle eye and the other from the hole in the needle plate, will be held by the thread cutter and the machine will thus be ready for the next sewing operation without the necessity of holding the two threads taut for the first few stitches.

## 15. TO TURN A CORNER

- Slow the machine down and stop it at the desired point while the needle is still in the material.
- Raise the presser foot and rotate the material around the needle as desired.
- Lower presser foot and proceed with sewing.

### 16. TO ADJUST THE TENSIONS

If the tensions are correctly adjusted, the stitches will look alike on both sides of the fabric (Fig. 19) since the two threads will interlock inside the material. Should the tension of the needle thread be too high, this thread will tend to pull the bobbin thread to the surface of the material, thus forming small knots (Fig. 20).

To correct this fault, turn tension regulator knob (Fig. 21) to the left taking care that the presser foot is in the lowered position. Sew a few stitches to check that the needle thread tension has been corrected. If necessary, repeat the above operation.

Should the tension of the needle thread be too low, the contrary will happen, namely, the needle thread will be drawn through the fabric to the reverse side (Fig. 22) and will be visible as small knots. The correction of this fault is effected by turning the tension regulating knob to the right with the presser foot in the lowered position.

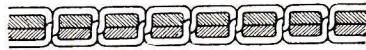


Fig. 19



Fig. 20

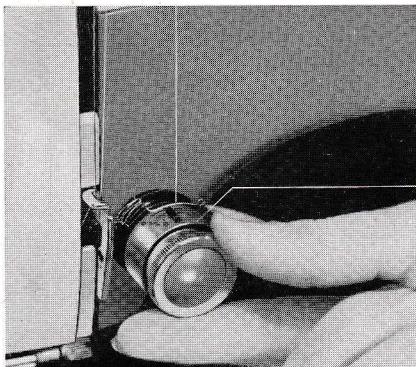


Fig. 21

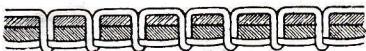


Fig. 22

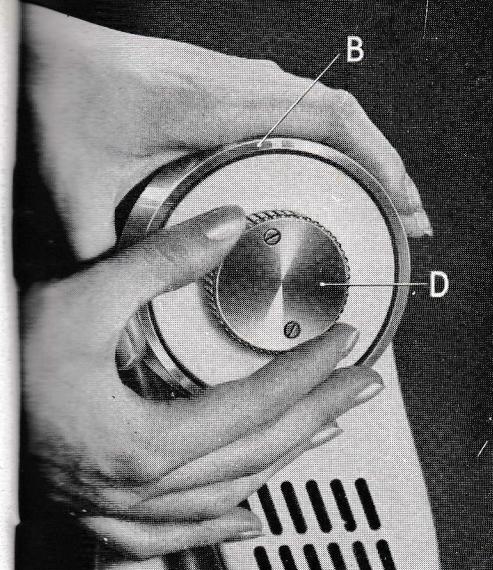


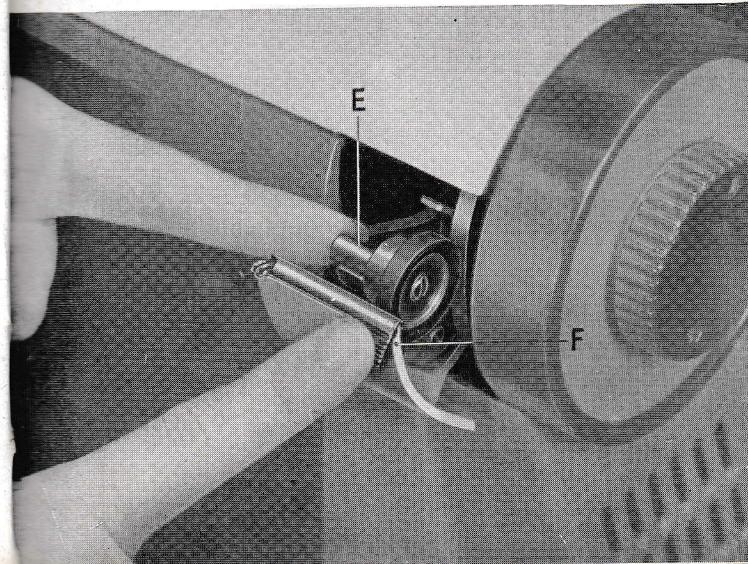
Fig. 23

### 17. TO WIND EMPTY BOBBIN

**Important:** It is necessary to understand the function of the « Stop Motion » by means of which the balance wheel is disconnected from the sewing mechanism, when required, thus permitting the winding of the bobbin without sewing.

- Disconnect the balance wheel « B » (Fig. 23) from sewing mechanism by holding the wheel with the

Fig. 24



left hand and turning the stop motion knob « D » toward you with the right hand, until the knob feels loose.

- b) With the right hand open the Bobbin Winder Cover « F » (Fig. 24) by pushing it downwards as far as it will go. Keep the cover open. With a finger of the left hand, push the short spindle « E » (Fig. 24) slightly sideways until it comes to a stop.

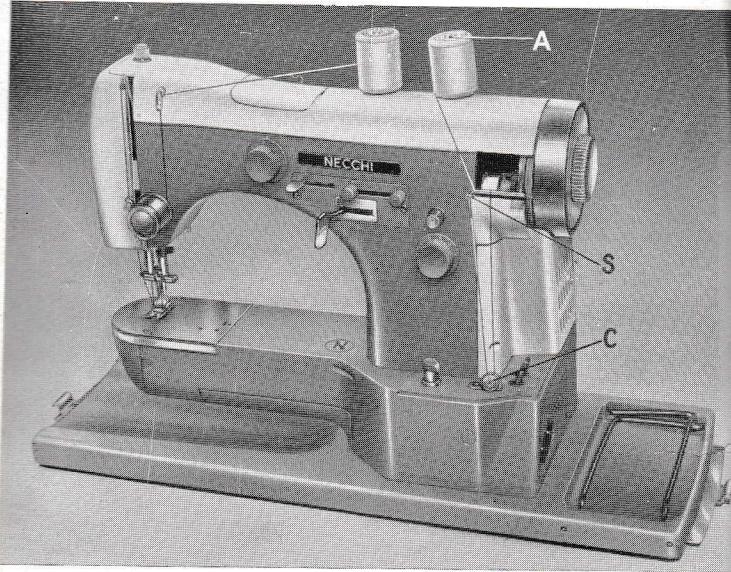
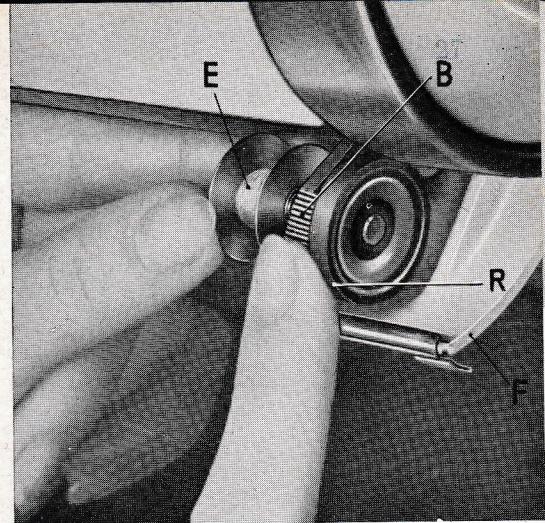


Fig. 25

The cover « F », when left free, will now remain open.

- c) Place the spool of thread on the spool pin « A » (Fig. 25). From this spool draw the thread through the thread guide « S » (Fig. 25) on the bobbin winder cover in the following manner:
1. Take a certain length of the end of the thread, bring it close to the bobbin winder cover and draw it slightly upward against the thread guide « S ».
  2. While holding right hand still, make with left hand a circular motion by bringing thread forward and then backward again toward ma-

Fig. 26



chine. The thread will thus enter the thread guide « S » by itself.

- d) Guide thread through tension device « C » on the bed plate of the machine.
- e) By hand, wind thread a few times round bobbin from right to left (counter-clockwise).
- f) With the forefinger of the right hand press down lever « B » (Fig. 26) (and consequently also the cover « F ») and keep it down.
- g) Take bobbin with thumb and forefinger of the left hand, place it on the spindle « E » (Fig. 26) and push it slightly toward the right until it reaches its position on the spindle.
- h) Let lever « B » free and, by hand, guide the bobbin winder cover slowly upwards until the ring « R » contacts the balance wheel.
- i) Run the machine.
- j) When bobbin is full, the bobbin winder will automatically stop and the cover will shut.
- k) In order to remove the filled bobbin proceed as follows:
  1. With the left hand, open the bobbin winder cover as far as it will go and hold it open.
  2. With the forefinger of the right hand, press down lever « B » and hold it down.
  3. Take the bobbin with thumb and forefinger of the left hand and move it towards the left.
  4. Let the bobbin winder cover free and it will close by itself.

### 18. TO INSERT BOBBIN INTO BOBBIN CASE

- With the left hand, hold bobbin case between thumb and forefinger in such a way that the slot in the bobbin case edge faces upwards and its open side is towards the right, as shown in Fig. 27.
- Hold bobbin between thumb and forefinger of the right hand so that the end of the thread is in the position indicated in Fig. 27.



Fig. 27

- Insert bobbin into the bobbin case, preventing the bobbin from turning by holding it with the thumb of the left hand and with the right hand pull the thread into the slot of the bobbin case, as shown in Fig. 28. Then draw it under the tension spring and along to the end of the tension spring (Fig. 29), leaving about 4 inches of thread hanging free.

Fig. 28

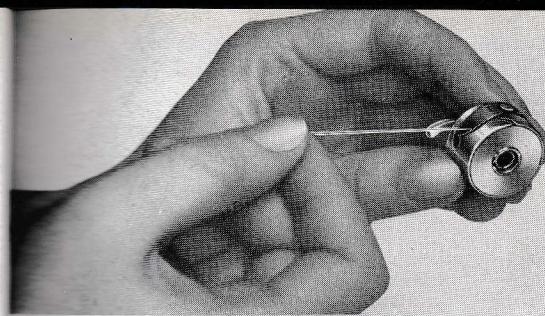
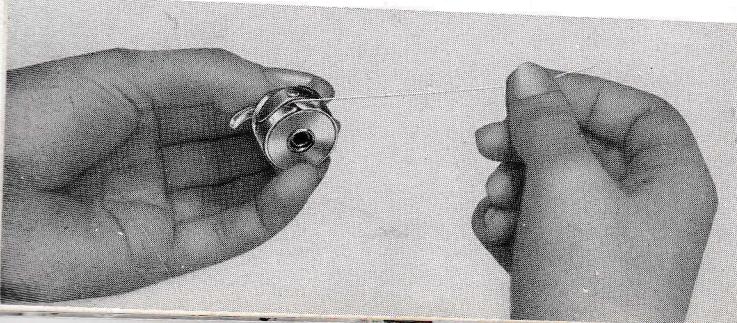
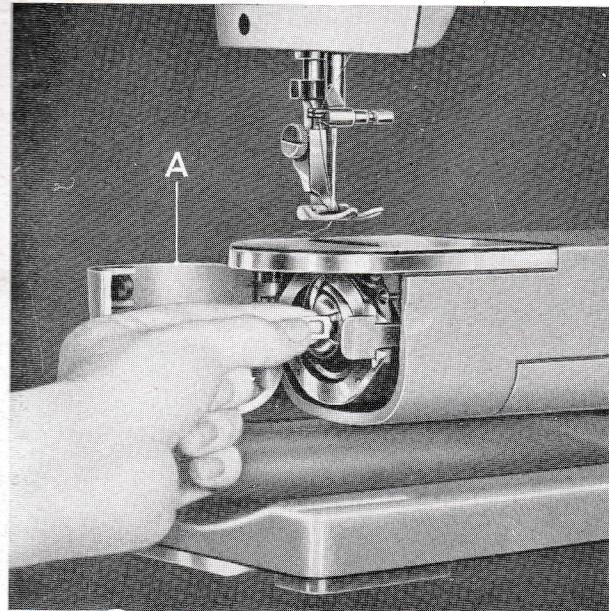


Fig. 29

### 19. TO REMOVE THE BOBBIN CASE

- Raise the presser foot.
- Bring the needle to its highest position.
- Open the slide plate A (Fig. 30).
- Lift the latch of the bobbin case with thumb and forefinger of the left hand and remove bobbin case by pulling it towards the left and out of the machine.
- Release the latch on the bobbin case and the bobbin will be free.

Fig. 30



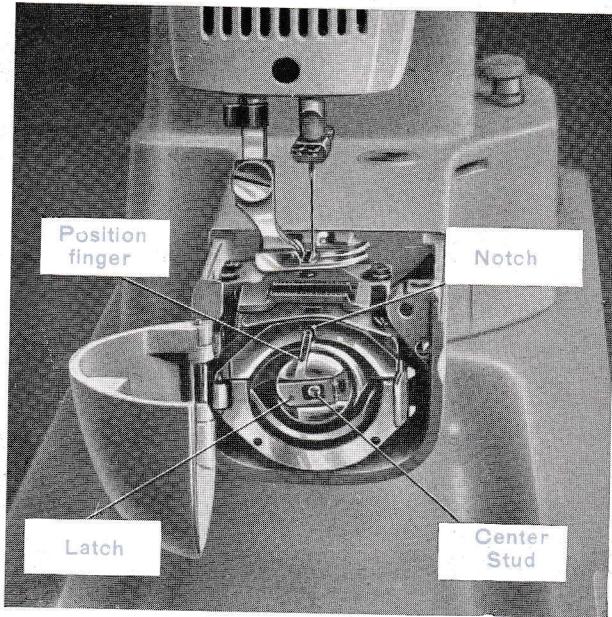


Fig. 31

#### 20. TO FIT THE BOBBIN CASE IN THE MACHINE

- a) Raise the presser foot by lifting the presser bar lever.
- b) Bring the needle to its highest position.
- c) Open the shutter.
- d) Fit a bobbin in the bobbin case (see previous instructions).
- e) With thumb and forefinger of the left hand, take hold of the latch of the bobbin case and place it on the centre stud of the shuttle. The positioning finger of the bobbin case must fit into the notch in the top of the shuttle race cover plate (Fig. 31).
- f) Release latch and press the bobbin case into the shuttle as far as it will go. Leave about 4 inches of free thread hanging down.
- g) Close the shutter.

#### 21. TO REMOVE AND REPLACE THE SHUTTLE

Should the machine appear to be running heavily or tending to jam, it may be due to a piece of loose thread

which has become caught between the shuttle and the shuttle race. To check and correct this:

- a) Bring the needle to its highest position.
- b) Open the shutter.
- c) Remove the bobbin case (see instructions on page 29).
- d) Snap out the shuttle race cover plate retaining latch by swinging it sideways. The shuttle race cover T will open by itself being hinged on hinge B.
- e) Take out the shuttle R (Fig. 32) by gripping its centre stud with the thumb and forefinger of the left hand and pulling it; the shuttle race is thus left free.
- f) Remove any foreign matter and pieces of thread with a small brush. Put a drop of oil into the race and oil the shuttle (but only on its rim).
- g) To insert the shuttle again, take it between the thumb and forefinger of the left hand and place it in the race without using any force.
- h) Fit the shuttle race cover plate T onto the two studs C and push the latch A until it holds the cover plate in place.
- i) Insert the bobbin case (see instructions on page 30).



Fig. 32

## 22. TO CLEAN THE FEED DOG

- a) Remove the presser foot (see instructions on page 15).
- b) Open the shutter and remove the needle plate (see instructions on page 15).
- c) Tilt the machine backwards (in order to prevent any foreign matter falling into the shuttle race).
- d) Clean the teeth of the feed dog with a suitable brush.
- e) Replace the needle plate and the presser foot.

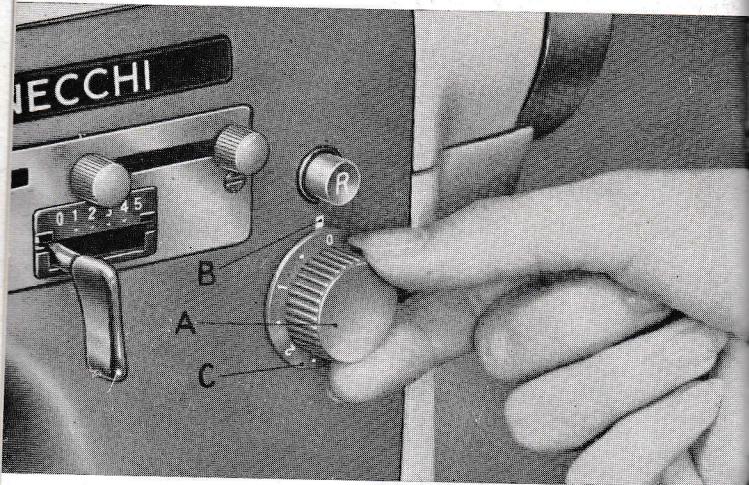


Fig. 33

## 23. TO REGULATE THE LENGTH OF STITCH

The length of stitch is regulated by means of knob A (Fig. 33) on which is the graduated scale C showing the various stitch lengths from 0 to 4. In order to set a definite length of stitch, turn knob A until the number corresponding to the required stitch length is facing the alignment mark B on the machine. Naturally, the stitch length increases from 0 (minimum length) to 4 (maximum length). Normal stitch length corresponds to the number 2.



Fig. 34

## 24. TO SEW IN REVERSE

Press down button R (Fig. 34) and hold it in this position for as long as it is desired to continue sewing in reverse. As soon as the button is released, the machine resumes forward sewing.

## 25. TO REMOVE AND REPLACE THE LIGHT BULB

Should it become necessary to replace the light bulb, proceed as follows:

- a) Open the face plate of the machine.
- b) Remove the old light bulb B (Fig. 35) by pulling it, together with its shade, downwards and out of the lamp holder P. If necessary, gently push the end section R of the lamp holder outwards in order to facilitate the removal of the light bulb.

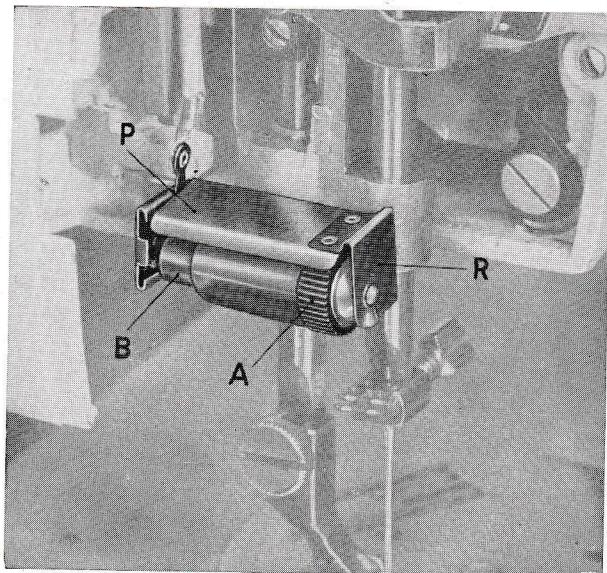


Fig. 35

- c) Remove the old bulb from the lamp shade A and insert a new one. During both these operations a slight pressure must be exerted on one end of the bulb.
- d) Insert the new bulb and shade into the lamp holder and lightly press the end section R inwards, thus ensuring that the bulb is securely held in position.
- e) Close the face plate again.  
Use only Necchi light bulbs.

## 26. CAUSES OF POSSIBLE MINOR FAULTS

Needle (upper) thread breaks. This may be due to the following causes:

- a) Needle fitted incorrectly.
- b) Machine not correctly threaded.
- c) Thread tension too light.
- d) Thread used not suitable for material being sewn.
- e) Knots in the thread.
- f) Eye of needle is rough or sharp.
- g) Point of the needle is damaged, defective or blunt.
- h) Hole in needle plate not smooth.
- i) Machine started at too great a speed.
- j) Sewing started with thread take-up lever not in a sufficiently high position.
- k) Bobbin case damaged due to being hit by the needle.
- l) Imperfect shuttle seating.

### Needle breaks

This may be due to the following causes:

- a) Pulling material forwards or backwards by hand causing the needle to hit against the needle plate.
- b) Bent or blunt needle.

### Bobbin (lower) thread breaks

This may be due to the following causes:

- a) Tension on bobbin thread too low.
- b) Bobbin badly wound.
- c) Bobbin too full and binds in the bobbin case.
- d) Foreign matter or dirt in bobbin case.

### Skip stitches, knotted stitches

This may be due to the following causes:

- a) Needle incorrectly fitted.
- b) Bent or blunt needle.
- c) Incorrect thread for the size of needle being used.
- d) Needle too large for material being sewn.
- e) Insufficient pressure being exerted by pressure foot.

### **Uneven stitches**

- This may be due to the following causes:
- Presser foot not resting completely on the fabric.
  - Insufficient pressure being exerted by presser foot.
  - Pushing or pulling fabric by hand.
  - Using too short a stitch.
  - Too fine a needle used with too coarse or uneven a thread.

### **Difficult and heavy running of the machine**

This may be due to a loose piece of thread becoming caught between shuttle and race (see instructions on page 30).

**Important:** It is possible that after considerable use some of the mechanical parts of your machine will require adjustment. If, after referring to the causes of minor faults listed above, you cannot make your machine work perfectly, do not attempt to repair the machine yourself, but call your local Necchi sewing machine dealer. He will put your machine in perfect running order.

## **Chapter 2**

# **SEWING WITHOUT THE AUTOMATIC MECHANISM**

The following work can be done on the machine without using the automatic mechanism:

- Normal straight sewing
- Zig-zag stitching
- Fancy stitches, corded appliques, ordinary appliques, monograms, etc.
- Button sewing
- Hemming
- Blindstitching
- Circular sewing
- Sewing with twin needles

**Important:** In order to change from automatic sewing to normal sewing (straight or zig-zag) carry out the following operations:

- 1) Remove the cams. To do this:
  - Move the automatic cam stop motion lever 8 (Fig. 73), which is at the rear of the machine arm, towards the face plate until it cannot be moved any further.
  - Open the automatic mechanism lid 4 (Fig. 73) on top of the machine and remove the cams (see instructions on page 68). Close the lid.
  - Push automatic cam stop motion lever back until it rests against the machine arm.
- 2) Disengage the automatic mechanism. To do this:
  - Turn the design graduating knob (Fig. 74) clockwise until the diamond design on this knob coincides with the white square mark on the machine arm.
  - Rotate the balance wheel through at least one complete revolution.
  - Again turn design graduating knob in a clockwise direction until the triangular design on it (Fig. 75) coincides with the white square mark on the machine arm.

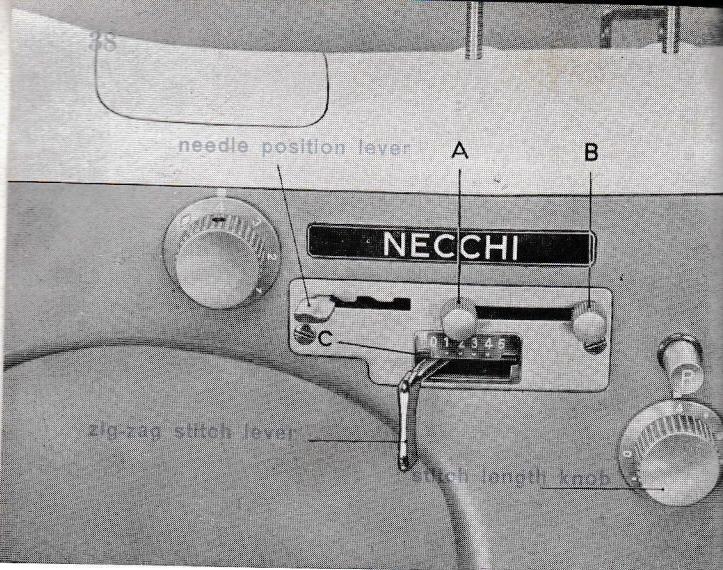


Fig. 36

## 1. STRAIGHT SEWING (Fig. 36)

### Machine setting:

*Needle positioning lever:* In left notch.

*Zig-zag stitch lever:* At extreme left. To move this lever, press down lightly and guide by hand.

*Stitch length knob:* Set for desired stitch length.

## 2. TACKING

(Tacking - a series of quick forward and backward stitches for reinforcement and finishing of seams).

- Set the required stitch length.
- Push button R (Fig. 34) as explained for sewing in reverse.

## 3. BASTING

- Set stitch length knob for maximum stitch length.
- Decrease needle thread tension by setting tension indicator between 0 and 3.

This permits long and loose stitches to be made, which can be easily unraveled.

## 4. TO SET THE WIDTH OF ZIG-ZAG STITCH

Fig. 37

- Loosen the two buttons A and B.
- Move the zig-zag stitch lever along the graduated scale until it reaches the desired position and hold it by hand in this position.
- Shift button A so that the index stop C remains against the zig-zag stitch lever on its left side.
- Firmly tighten button A.

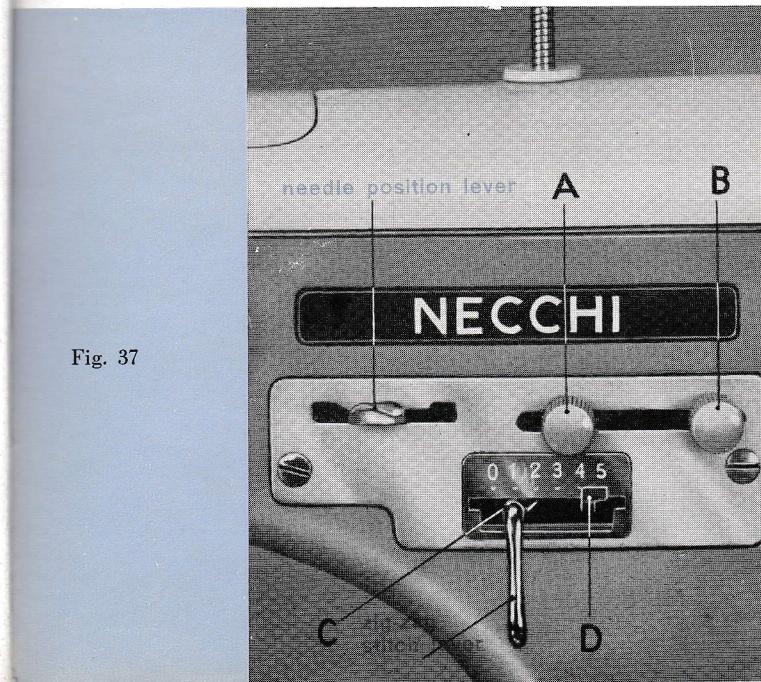


Fig. 37

## 5. ZIG-ZAG STITCH

### Machine setting:

**Needle positioning lever:** In centre notch.  
**Zig-zag stitch lever:** Set for desired width.  
**Stitch length knob:** Set for required length.  
 Commence sewing.

## 6. EMBROIDERY

### a) To make the satin stitch (Fig. 38)

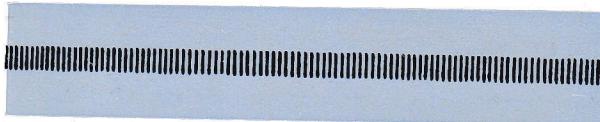


Fig. 38

### Machine setting:

**Needle positioning lever:** In centre notch.  
**Zig-zag stitch lever:** Set for desired width.  
**Stitch length knob:** Set as close as possible to the zero mark, but still allowing the material to feed (thread must not pile up).  
**Threads:** Use No. 50 for needle thread and for bobbin thread.  
**Thread tensions:** Use fairly loose tension for needle thread (between 0 and 2) and rather tight lower tension. Upper thread should lie flush on upper side of fabric, and part of it be also visible on lower side of fabric. Lower thread should appear on underside of fabric as a seam which is almost straight.  
**Presser foot:** Use transparent zig-zag hinged foot with grooved bottom for satin stitch.  
**Procedure:** Follow the above procedure for all fancy embroidery in which the satin stitch is the basic stitch.

### b) To make the design shown in Fig. 39

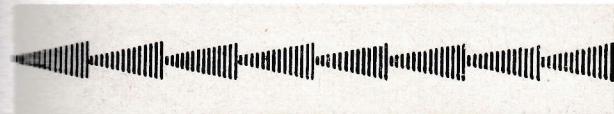


Fig. 39

**Needle positioning lever:** In centre notch.

**Zig-zag stitch lever:** Set on 1. Loosen knob B and move it towards the right until the right index stop is at the extreme right. Re-tighten knob B.

**Stitch length knob:** Set as for satin stitch.

**Procedure:** Commence sewing and move the zig-zag stitch lever slowly from 1 to 5 and then flip it quickly back to 1 again. Repeat this operation as many times as desired. The length of the design depends on the speed with which the zig-zag stitch lever is operated.

### c) To make the design shown in Fig. 40

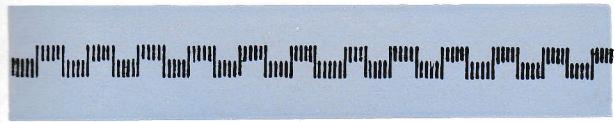


Fig. 40

### Machine setting:

**Needle positioning lever:** In left notch.

**Zig-zag stitch lever:** Set on 2.

**Stitch length knob:** Set as for satin stitch.

**Needle thread tension:** As for satin stitch.

**Procedure:** Commence sewing and move the needle positioning lever rapidly, first from the left notch to the right notch and then vice versa without stopping at the centre notch and only stopping briefly in the extreme positions.

Repeat this operation as many times as desired. The length of the design depends on the time the needle positioning lever remains stationary in the left and right notches.

**d) To make the design shown in Fig. 41**

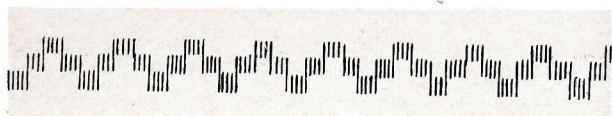


Fig. 41

**Machine setting:**

*Needle positioning lever:* In left notch.

*Zig-zag stitch lever:* Set on 2.

*Stitch length knob:* Set as for satin stitch.

*Needle thread tension:* As for satin stitch.

**Procedure:** Commence sewing and move the needle positioning lever from the left to the centre notch and then on to the right notch and return again, using all three notches. The length of the design depends on the time the needle positioning lever is stopped in each of the three notches.

**e) To make the design shown in Fig. 42**

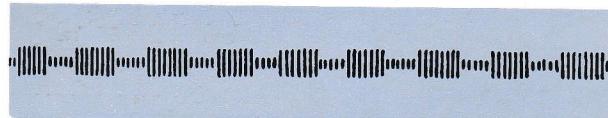


Fig. 42

**Machine setting:**

*Zig-zag stitch lever:* Set between 1 and 4.

*Needle positioning lever:* In centre notch.

*Stitch length knob:* Set as for satin stitch.

**Procedure:** Commence sewing with the zig-zag stitch lever set on 1, then quickly flip lever over to 4. Repeat this as many times as necessary. The length of the design depends on the time the zig-zag stitch lever is kept in each of its positions.

**7. TO EMBROIDER AND SEW MONOGRAMS WITH DROPPED FEED DOG**

**NOTE** - Silk, nylon or mercerized machining thread is usually used for this type of work.

**Machine setting:**

*Needle positioning lever:* In centre notch.

*Zig-zag stitch lever:* Set for desired stitch width.

*Stitch length knob:* Set as for satin stitch.

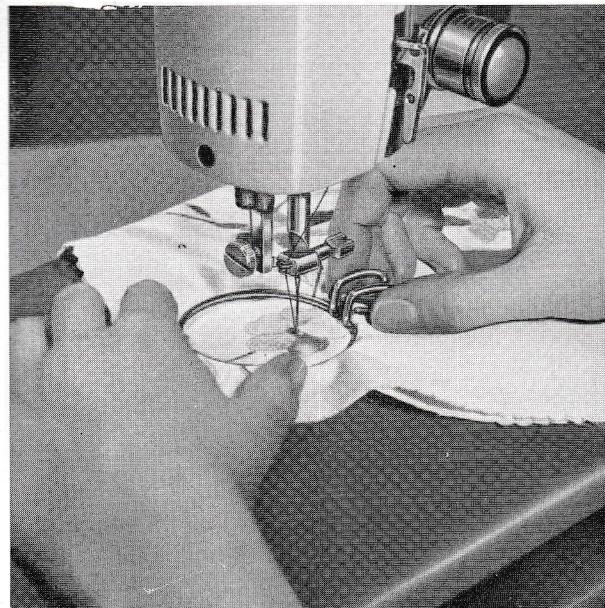
*Needle thread tension:* As for satin stitch.

*Feed dog:* In dropped position, proceed as explained in paragraph 7, page 8 - « To Drop the Feed Dog ».

**Procedure:**

- a) Remove the presser foot.
- b) Clamp the material to be embroidered in the hoop.
- c) Place the hoop with the material under the hoop.
- d) Bring presser bar lever to its lowest position.  
(Fig. 43).

Fig. 43



- e) Having positioned the hoop under the needle bar, hold the needle thread with the left hand and slowly turn the balance wheel towards you with the right hand, so as to draw the bobbin thread through and out of the material.
- f) Hold both threads in the left hand and commence sewing slowly while holding the hoop with the right hand.
- g) Move the hoop slowly, taking care to only move it when the needle is out of the material.

## 8. APPLIQUE WORK

### a) Lace Edging

#### Machine setting:

*Needle positioning lever:* In centre notch.

*Zig-zag stitch lever:* Set for required width.

*Stitch length knob:* Set for required length.

*Needle thread tension:* Normal.

**Procedure:** Raise the presser foot and place the lace edging on the hem of the material to which it is to be stitched. Of course, the hem of the material must be accurately and cleanly cut for this type of work. Lower the presser foot and commence sewing, making certain that the needle, whilst making zig-zag stitches, goes through both the fabric and the lace.

### b) Raised Stitch Applique (Decorative Cord Stitch)

In this type of work, a cord (Pearl cotton No. 5) is covered with zig-zag stitches as shown in Fig. 44.

#### Machine setting:

*Needle positioning lever:* In centre notch.

*Zig-zag stitch lever:* Set the width of zig-zag stitch according to the thickness of cord being used.

*Stitch length knob:* Set as for satin stitch.

*Needle thread tension:* As for satin stitch.

**Procedure:** Attach the zig-zag cording presser foot to the presser bar. Thread the cord through the hole in the base of the foot. Commence sewing, starting the machine slowly. Follow the design carefully until a certain aptitude has been gained in guiding the material.

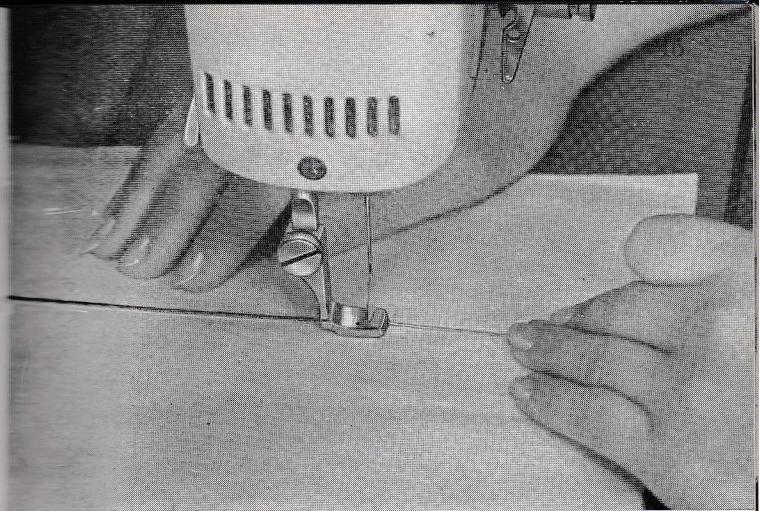


Fig. 44

### c) Contrast Work Applique

#### Machine setting:

Same as for « Raised Stitch Applique » with the exception of the stitch length knob which is set in any desired position.

This type of work is essentially the same as « Raised Stitch Applique ». However to obtain the desired contrast, the colour of the cord must be different from that of the needle thread.

**Procedure:** The sewing procedure « Contrast Work » is the same as for « Raised Stitch Applique » with the exception that for « Contrast Work » the zig-zag stitches are spaced so as to leave the underlying cord visible.

### d) Cut-out Work

#### Machine setting:

Same as for satin stitch.

The piece to be applied (according to the selected design) is first basted or tacked on the material. Then place the double material under the presser foot and embroider along the outline of the design.

Having finished the embroidery work, take a pair of very sharp scissors and cut away the surplus part of the material as close as possible to the edge of the design.

## 9. HEMSTITCHING

### a) Hemstitching with Drawn Threads (Fig. 45)

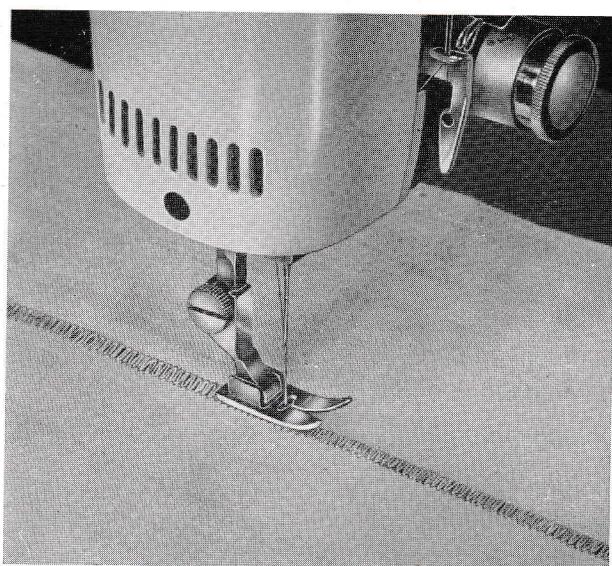


Fig. 45

#### Machine setting:

*Needle positioning lever:* In centre notch.  
*Zig-zag stitch lever:* Set for narrow stitch (between 1 and 2).  
*Stitch length knob:* Set between 0 and 1.  
*Needle thread tension:* Normal.  
*Needle:* Use size No. 100.

**Procedure:** Draw the desired number of threads from the material to be hemstitched. Place the material under the presser foot, lower the presser foot and commence sewing. Take care that the needle enters alternately close to the edge of the undrawn side of the material, and then into the part from which the threads have been drawn.

After stitching on one side of the « drawn area » repeat the procedure on the other side.

### b) Hemstitching - Picot Edge (Fig. 46)

This kind of hemstitching is best done on organdy or other types of similar material.

#### Machine setting:

*Needle positioning lever:* In centre notch.  
*Zig-zag stitch lever:* Set for narrow stitch (between 1 and 2).  
*Stitch length knob:* Set between 0 and 1.  
*Needle thread tension:* Normal.  
*Needle:* Use size No. 100.

**Procedure:** Place the material, on which a design has been sketched or printed, under the presser foot together with the applique to be attached.

Lower the presser foot and commence sewing, following the outline of the design (on the material or the applique).

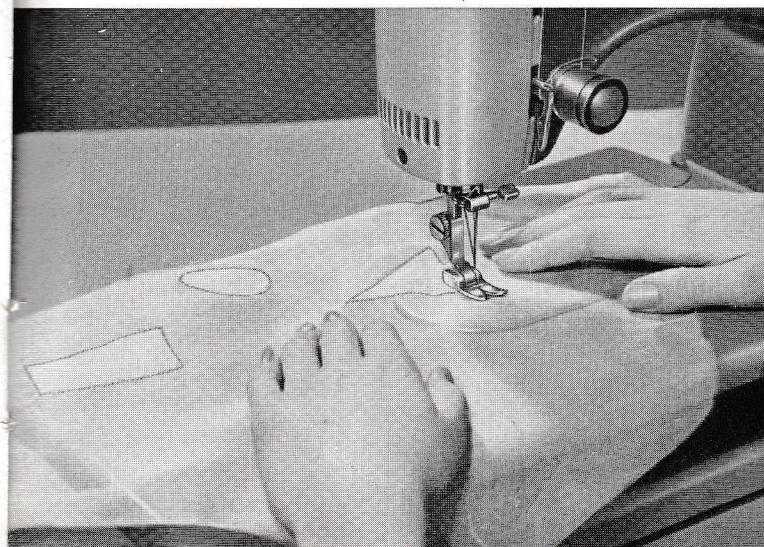
With a pair of sharp scissors, cut the surplus applique material from around the design, very close to the zig-zag stitches.

Again place the material with attached applique under the presser foot and make certain that the needle stitches exactly into the right side of (outer) holes of the first row of zig-zag stitches.

Running the machine slowly, sew all round the applique.

To obtain a Picot Edge, cut with sharp scissors between the rows of hemstitching.

Fig. 46



**10. OVERLOCK STITCH (ZIG-ZAG ON RAW EDGE)  
(Fig. 47)**

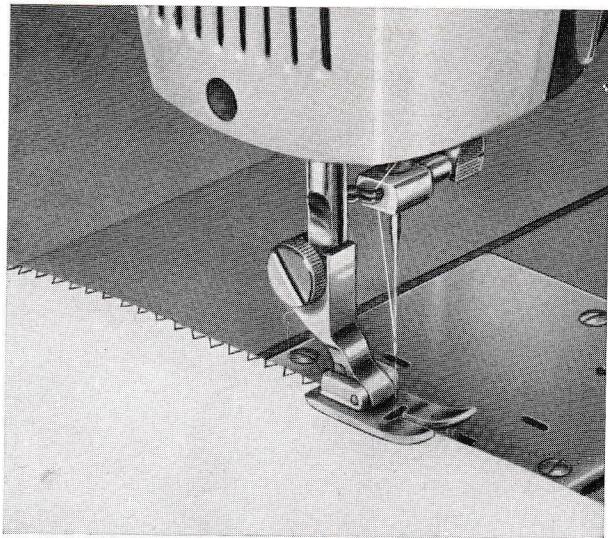


Fig. 47

**Machine setting:**

*Needle positioning lever:* In centre notch.  
*Zig-zag stitch lever:* Set to desired width.  
*Stitch length knob:* Set for desired length.  
*Needle thread tension:* Normal.

**Procedure:** Commence sewing, making sure that the zig-zag stitches alternately enter the material and just miss the raw edge of the material.

**11. NARROW STRAIGHT HEMSTITCH (Fig. 48)**

**Machine setting:**

*Needle positioning lever:* In centre notch.  
*Zig-zag stitch lever:* At extreme left.  
*Stitch length knob:* Set between 3 and 4.  
*Needle thread tension:* Normal.  
*Presser foot:* Attach straight stitch narrow hemming foot, leaving it in the raised position.

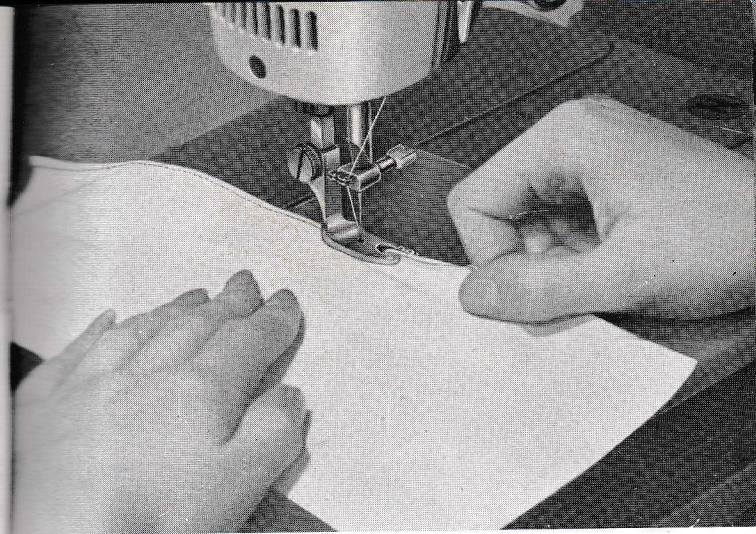


Fig. 48

**Procedure:** Fold over the edge of the material about an eighth of an inch for a length of two inches and insert the fold from beneath the hemming foot in the spiral (scroll) of the presser foot. Move the material back and forth until the hem is formed, then push the material until its end is under the needle. Lower the presser foot and commence sewing. Guide and slowly feed the material towards the presser foot so as to assist the hem into the scroll of the presser foot.

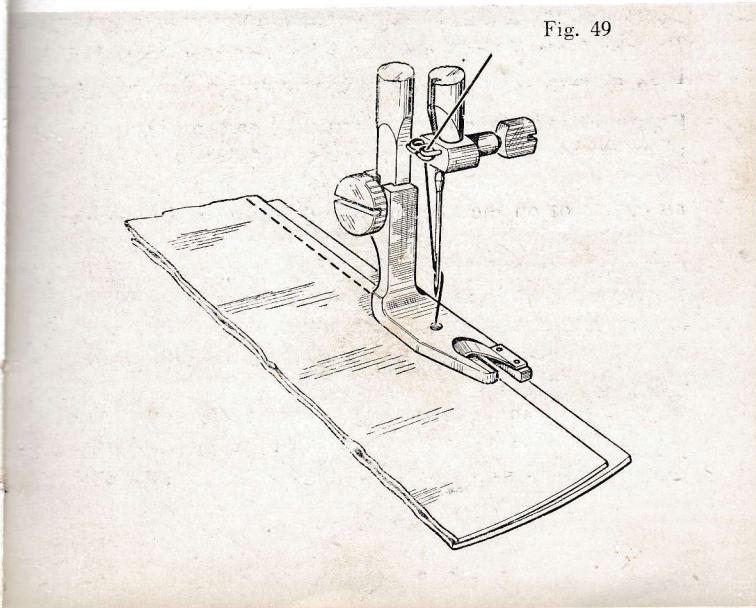


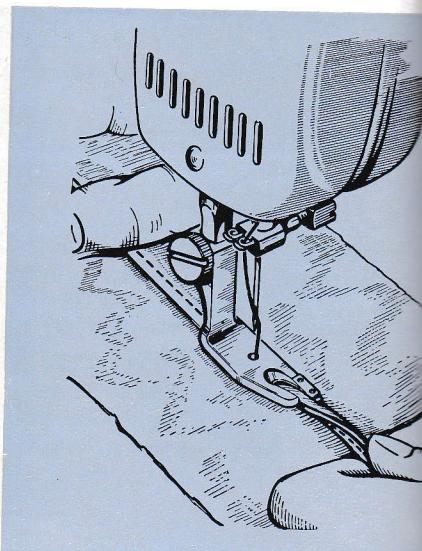
Fig. 49

## 12. FLAT FELLED SEAMS (Figs. 49 and 50)

### Machine setting:

*Needle positioning lever:* In centre notch.  
*Zig-zag stitch lever:* At extreme left.  
*Stitch length knob:* Set between 3 and 4.  
*Needle thread tension:* Normal.

Fig. 50

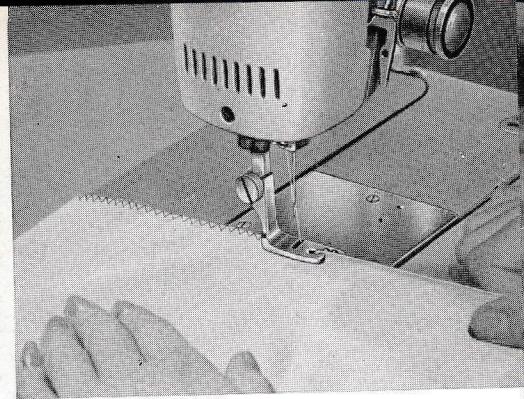


*Presser foot:* Attach straight stitch narrow hemming foot, leaving it in the raised position.

**Procedure:** Place a piece of material on top of another piece so that their right edges are perfectly parallel. The right edge of the lower piece should protrude about an eighth of an inch beyond the upper piece (Fig. 49). Lower the presser foot and commence sewing along the edge of the upper material. The right or outside toe of the presser foot is used as a guide for the edge of the lower piece of material. After sewing is finished, open the two pieces of material out so that the two joined edges are turned upwards.

Raise the hemmer foot and fold over the edges of the materials to the left and insert them from underneath into the spiral of the presser foot. Lower the presser

Fig. 51



foot and sew as described in the paragraph « Narrow Straight Hemstitching ». Guide the first row of stitches towards the left toe of the presser foot.

## 13. NARROW ROLLED EDGES (Fig. 51)

This type of work simulates hand rolling.

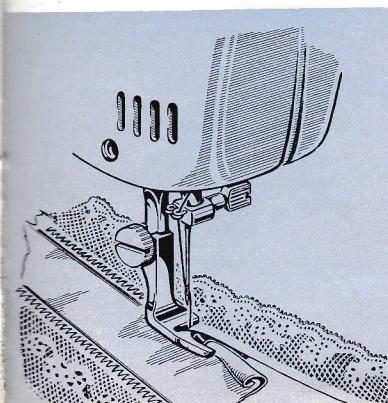
### Machine setting:

*Needle positioning lever:* In centre notch.  
*Zig-zag stitch lever:* Set between 2 and 3.  
*Stitch length knob:* Set between 1 and 2.  
*Needle thread tension:* Normal.  
*Presser foot:* Attach zig-zag stitch hemming foot and leave it in raised position.

**Procedure:** Insert the edge to be hemmed in the spiral of the hemming foot, then slip the fabric through the spiral until the end is under the needle. Lower the presser foot and commence sewing, guiding the material into the hemming foot so as to assist the feeding of the material.

## 14. HEMMING AND SEWING ON LACE (Fig. 52)

Fig. 52



These two operations can be done simultaneously.

#### **Machine setting:**

The machine setting is the same as for the No. 13 type of work - « Narrow Rolled Edges ».

**Procedure:** Start hemming as described in the previous section No. 13, make several stitches then stop the machine.

Bring the needle to its highest position and raise the hemming foot. Insert the lace into slot on the side of the foot as shown in Fig. 52 and pass it to the rear under the presser foot.

Lower the hemming presser foot and continue sewing. Guide the material, being sewn, with the left hand while, with the right hand, guide the lace and keep it in the presser foot slot. The needle must always stitch through both lace and hem.

#### **15. SHELL STITCH HEMS (Fig. 53)**

This type of work is best done on silk or rayon materials.

**Procedure:** For this type of stitch use the same machine setting and follow the same procedure as outlined in the preceding section No. 14 with one exception: the needle thread tension must be rather tight. This will

Fig. 53

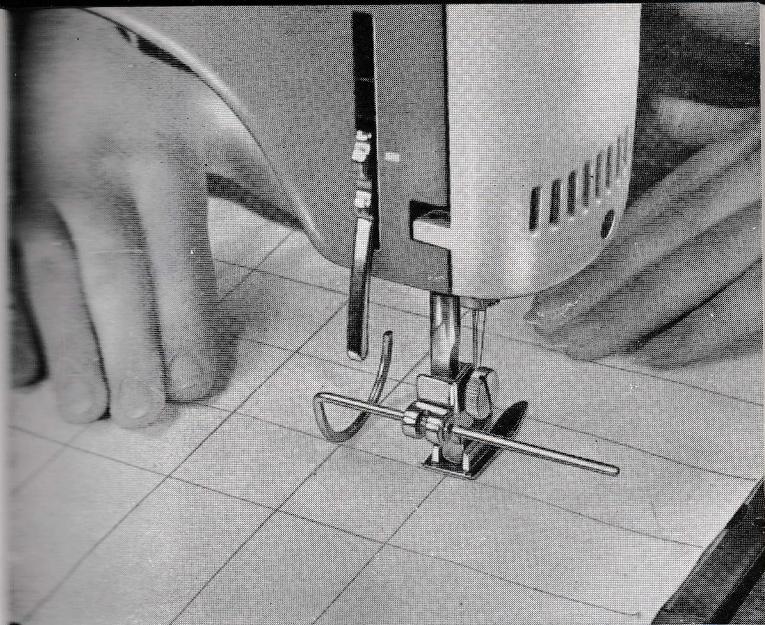
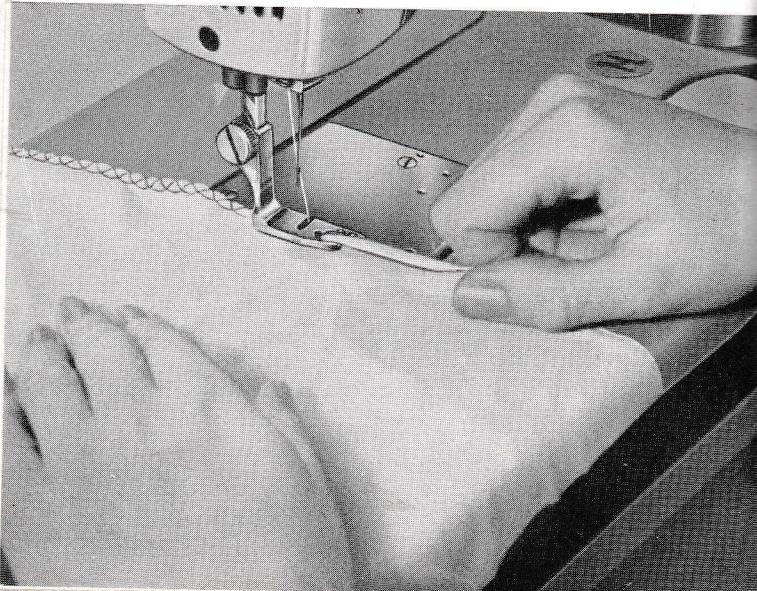


Fig. 54

cause edge to picot and thus give the desired shell stitch effect. For this work the zig-zag stitches must be wide and well spaced.

#### **16. QUILTING (Fig. 54)**

##### **Machine setting:**

*Needle positioning lever:* In centre notch.

*Zig-zag stitch lever:* At extreme left.

*Stitch length knob:* Set to desired length.

*Needle thread tension:* Normal.

*Presser foot:* Zig-zag stitch hinged foot.

**Procedure:** Attach adjustable quilting guide to the presser foot bar as shown in Fig. 54.

Place material under the presser foot and line it up on the line to be sewn. Move curved guide to the right as far as necessary to mark desired line of parallel stitches, i.e. so that the bar setting gives a measure of the distance between successive parallel lines of stitches. Sew the first line. Move the material to the right until the curved part of the guide coincides with the first line of stitches. The needle will then be directly over the line of the second row of stitches, which can now be sewn.

These two operations can be done simultaneously.

#### **Machine setting:**

The machine setting is the same as for the No. 13 type of work - « Narrow Rolled Edges ».

**Procedure:** Start hemming as described in the previous section No. 13, make several stitches then stop the machine.

Bring the needle to its highest position and raise the hemming foot. Insert the lace into slot on the side of the foot as shown in Fig. 52 and pass it to the rear under the presser foot.

Lower the hemming presser foot and continue sewing. Guide the material, being sewn, with the left hand while, with the right hand, guide the lace and keep it in the presser foot slot. The needle must always stitch through both lace and hem.

#### **15. SHELL STITCH HEMS (Fig. 53)**

This type of work is best done on silk or rayon materials.

**Procedure:** For this type of stitch use the same machine setting and follow the same procedure as outlined in the preceding section No. 14 with one exception: the needle thread tension must be rather tight. This will

Fig. 53

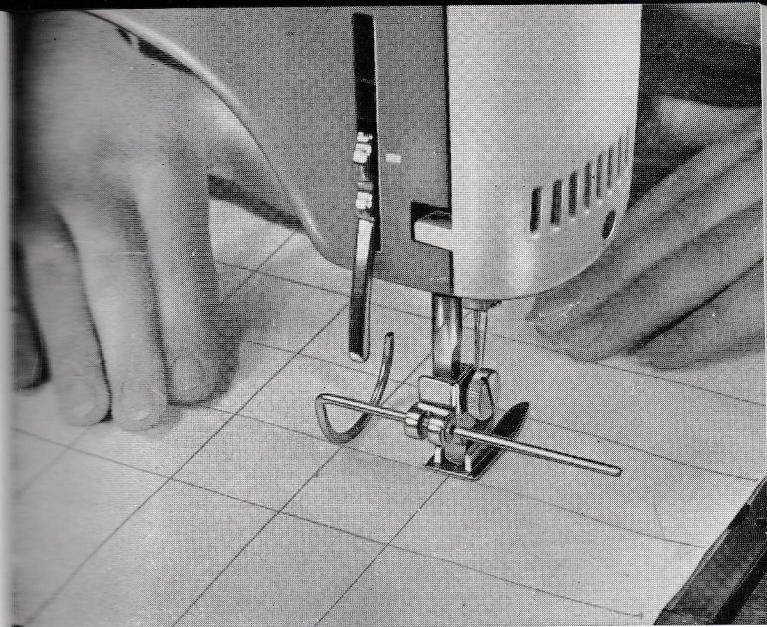
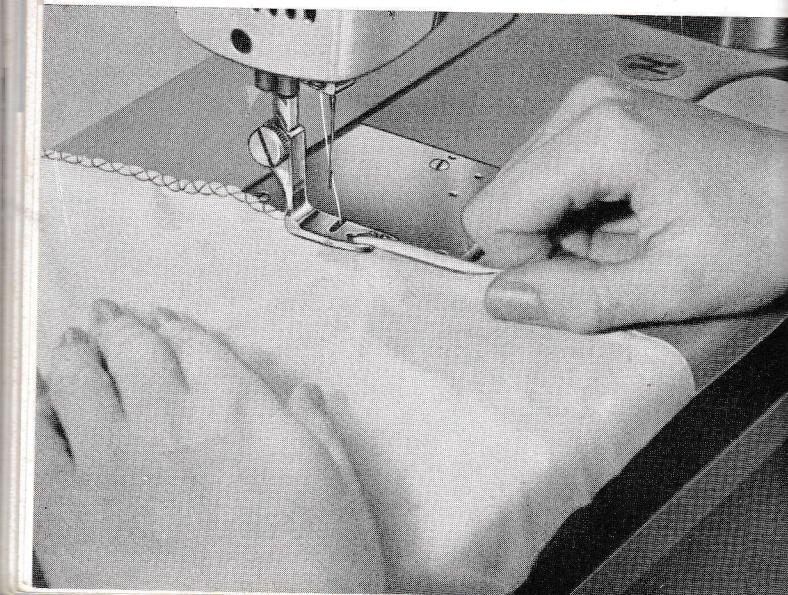


Fig. 54

cause edge to picot and thus give the desired shell stitch effect. For this work the zig-zag stitches must be wide and well spaced.

#### **16. QUILTING (Fig. 54)**

##### **Machine setting:**

*Needle positioning lever:* In centre notch.

*Zig-zag stitch lever:* At extreme left.

*Stitch length knob:* Set to desired length.

*Needle thread tension:* Normal.

*Presser foot:* Zig-zag stitch hinged foot.

**Procedure:** Attach adjustable quilting guide to the presser foot bar as shown in Fig. 54.

Place material under the presser foot and line it up on the line to be sewn. Move curved guide to the right as far as necessary to mark desired line of parallel stitches, i.e. so that the bar setting gives a measure of the distance between successive parallel lines of stitches. Sew the first line. Move the material to the right until the curved part of the guide coincides with the first line of stitches. The needle will then be directly over the line of the second row of stitches, which can now be sewn.

## 17. BUTTON SEWING (Fig. 55)

### a) Two-hole Buttons.

#### Machine setting:

*Needle positioning lever:* In left notch.

*Zig-zag stitch lever:* Set between 4 and 5 (depending on the distance between the button holes).

*Needle thread tension:* Normal.

*Feed dog:* In dropped position (see instructions in paragraph 7, page 16).

*Presser foot:* Attach the button sewing foot and leave it raised.

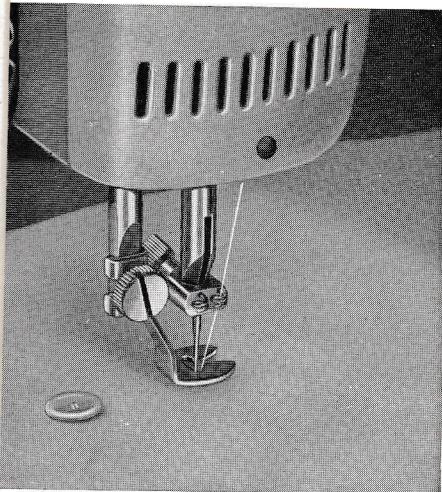


Fig. 55

**Procedure:** Lower the presser foot onto the button to be attached, taking care that the holes in the button are in line with the zig-zag stitch. Slowly turn the balance wheel by hand towards you so that the needle goes through the left hole of the button, then through the right one. If the needle hits the button, change the throw of the needle by adjusting the zig-zag stitch lever. Run the machine at medium speed, making about 5-6 stitches. Bring the zig-zag stitch lever to the extreme left and sew some straight stitches in the same holes in order to tie up the zig-zag stitches and prevent them unravelling.

### b) Four-hole Buttons with Parallel Stitching.

Machine setting and procedure are the same as that outlined for two-hole buttons. After stitching between the first two holes, slightly raise the presser foot and move the material so as to bring the second pair of holes into line with the needle, then sew between this second pair of holes (Fig. 56).

### c) Four-hole Buttons with Cross Stitching.

Machine setting and procedure are the same as for two-hole buttons. After stitching between the first two button holes, slightly raise the presser foot and turn the material at a right angle so that the remaining two holes are in line with the needle.

Sew these two holes (see Fig. 57) then move the zig-zag stitch lever to the extreme left and make some straight tying stitches.

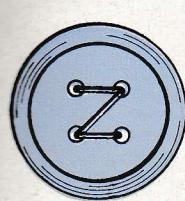


Fig. 56

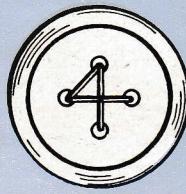


Fig. 57

## 18 DARNING

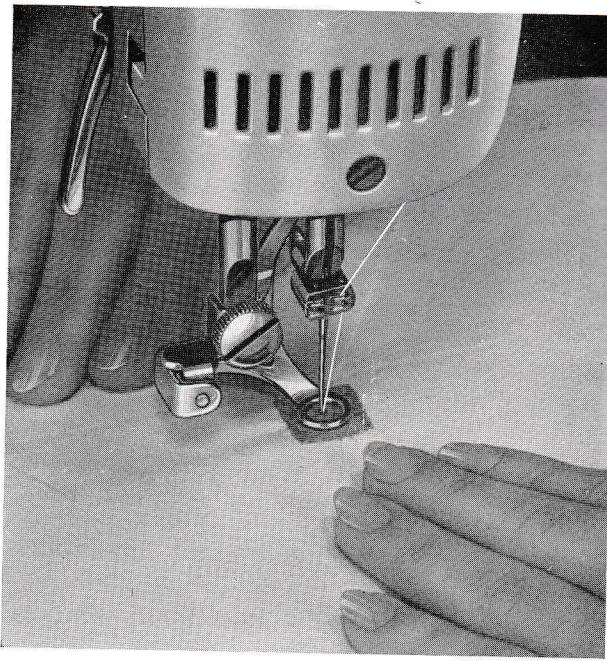


Fig. 58

**Machine setting:**

*Needle positioning lever:* In centre notch.

*Zig-zag stitch lever:* At extreme left.

*Needle thread tension:* Normal.

*Feed dog:* In dropped position (see instructions in paragraph 7, page 16).

*Presser foot:* Attach darning presser foot.

*Thread:* Use a suitable thread for the material to be darned.

**Procedure:** Place the material to be darned under the presser foot (Fig. 58).

Commence sewing in the area to be darned and move the material from left to right (and right to left) until the area is covered by parallel lines of stitching (Fig. 59).

Then repeat, moving the material backwards and forwards, until the cross stitching has completely covered the area which was to be darned (Fig. 60).

Fig. 59

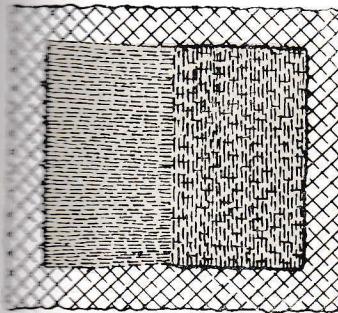
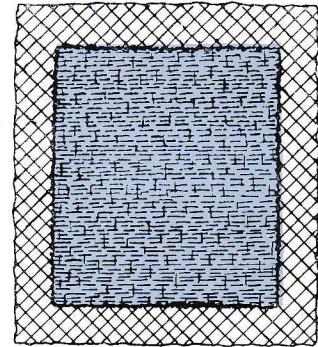


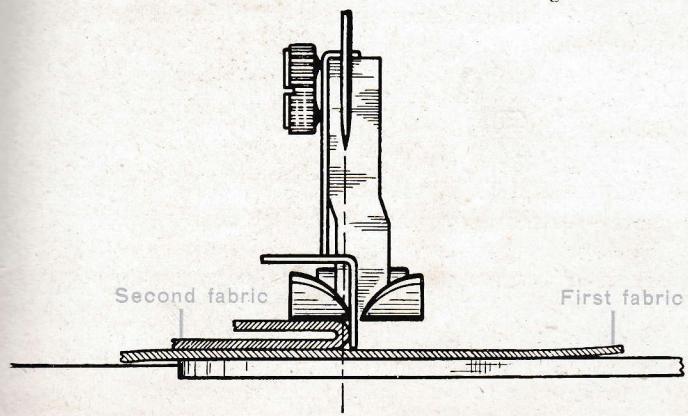
Fig. 60



**NOTE:** If large tears or very large thread bare areas are to be darned, it is advisable to clamp the material in an embroidery hoop, which can be purchased from your nearest Necchi dealer.

## 19. INVISIBLE SEWING (BLINDSTITCHING)

Fig. 61



With blindstitching it is possible to sew together a folded piece of material, or two pieces of material, in such a manner that the stitches will not be visible on one side of the material.

#### **Machine setting:**

- Needle positioning lever:* In centre notch.  
*Zig-zag stitch lever:* Set between 2 and 4, according to the thickness of the material and in such a way that the needle enters in the centre of the folded material, as shown in Fig. 61.  
*Stitch length knob:* Set on 4.  
*Needle thread tension:* Normal.  
*Presser foot:* Attach the normal zig-zag stitch hinged presser foot to the presser foot bar as shown in Fig. 62.

#### **Procedure:**

- Place the unfolded first piece of material on the base of the machine. The stitches will be seen on the reverse side of this material.
- Place the second material, well folded, on top of the first material as shown in Fig. 61.
- Lower the presser foot and commence sewing. Carefully check that the folded edge of the upper material is always against the side of the blind-stitch guide. If stitches appear on both sides of the material, decrease the width of the zig-zag stitch; on the other hand, if the needle does not catch the folded edge of the upper material, increase the width of the zig-zag stitch a suitable amount.

#### **20. ADJUSTABLE STRAIGHT STITCHING GUIDE (Fig. 63)**

With the aid of this guide a straight hem can be sewn parallel to the edge of the material and at a uniform set distance from the edge.

- Attach the straight guide to the bed of the machine by means of the two thumb screws which fit into the screw holes in the base of the machine (Fig. 61).
- Adjust the guide to the required width, firmly tighten the screws and commence sewing.

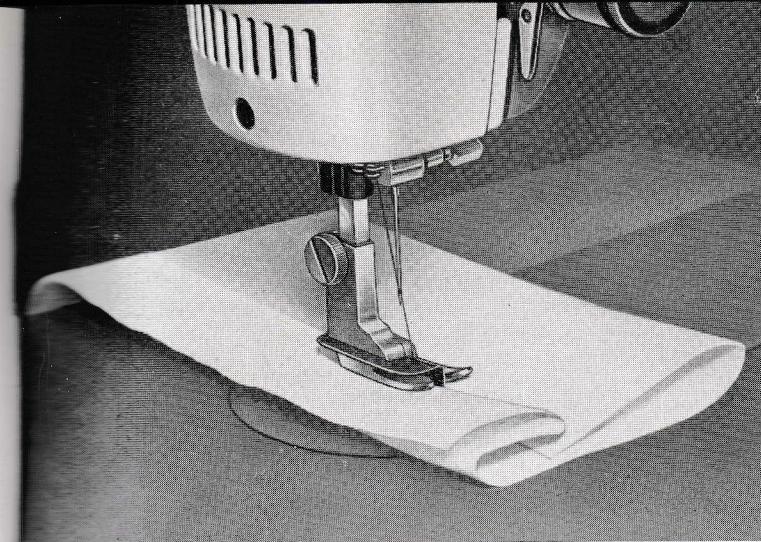


Fig. 62

#### **21. SEWING WITH A DOUBLE NEEDLE**

A double needle makes it possible to sew simultaneously with two threads of the same colour, or of different colours, thereby increasing the variety and attractiveness of fancy stitches that can be done on this machine. In order to sew with a double needle, the machine must be set as follows:

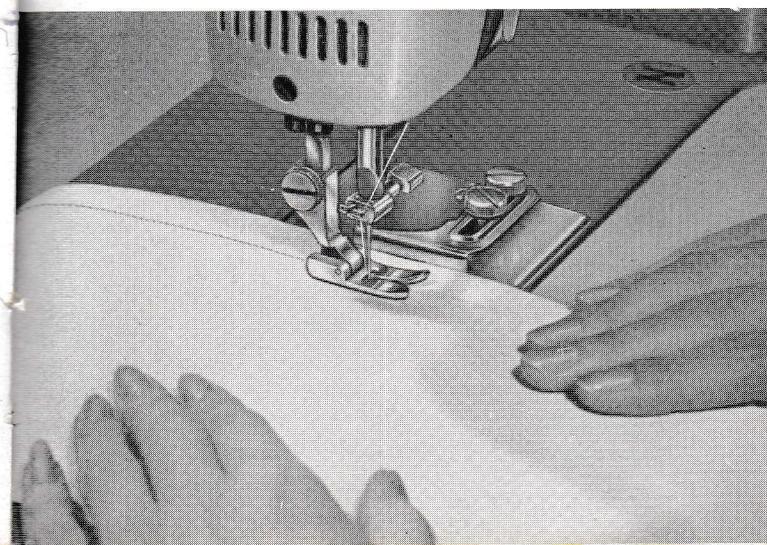


Fig. 63

- a) Bring the needle to its highest position by turning the balance wheel towards you. Loosen needle clamping screw, remove needle, replace it with twin needle (Fig. 64 a) and tighten clamping screw again. Be careful not to bend the needles when inserting them.
- b) Substitute the normal hinged presser foot with the presser foot for double needle (Fig. 64).
- c) Substitute also the normal needle plate with that for use with a twin needle (see instructions on page 15).

For sewing with a twin needle it is essential that:

- a) the lower or bobbin thread, after passing under the tension spring of the bobbin case, must be threaded through the hole in the bobbin case positioning finger (Fig. 64 b).
- b) The machine is threaded as illustrated in Fig. 65.
- c) The two spools are placed exactly as shown in Fig. 65.

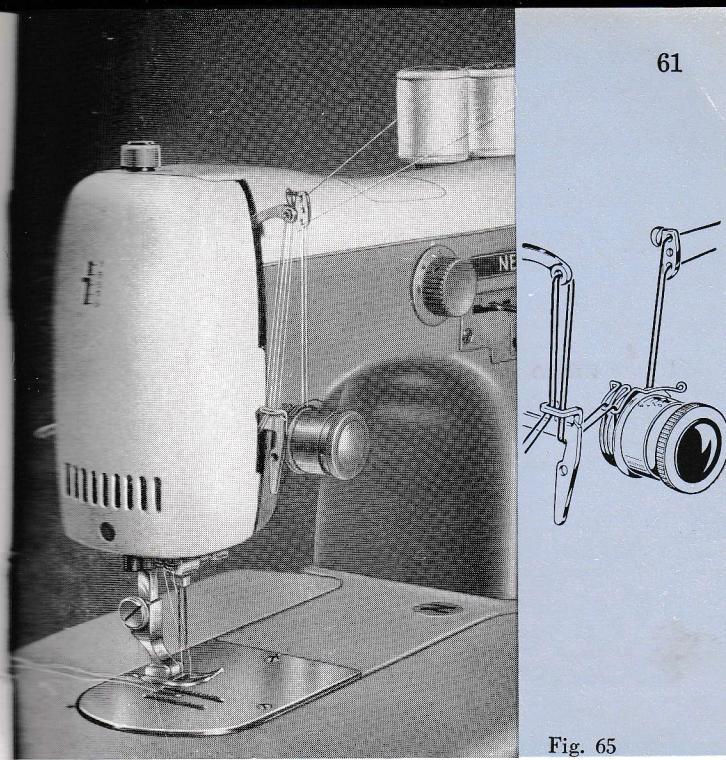
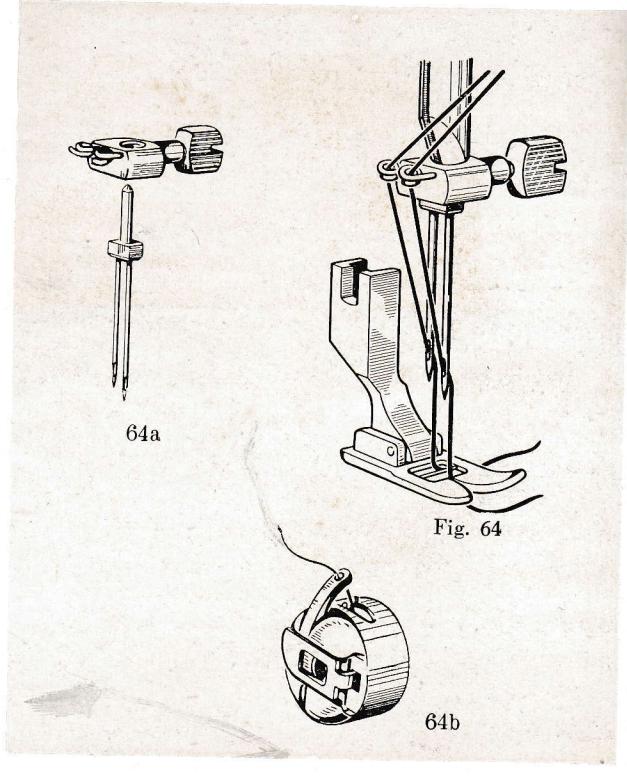


Fig. 65

## 22. TYPES OF FANCY STITCHES OBTAINABLE WITH A DOUBLE NEEDLE

Some of the fancy stitches which can be done with a double needle are illustrated below. Of course, it is necessary to realise that the actual work, which is done on material and with threads of different colours, will show the beauty of these fancy stitches much more vividly than the black and white illustrations shown below.

When sewing with a double needle, use No. 50 embroidery thread for both needle and bobbin threads.

### a) To make the design shown in Fig. 66

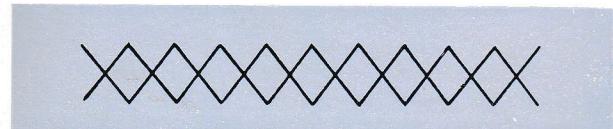


Fig. 66

**Machine setting:**

*Needle positioning lever:* In centre notch.  
*Zig-zag stitch lever:* Set between 4 and 5.  
*Stitch length knob:* Set on 3.

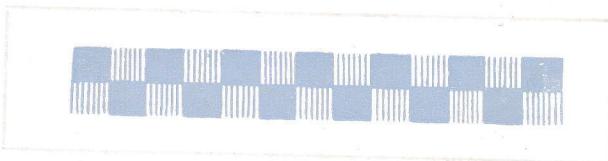
**b) To make the design shown in Fig. 67**

Fig. 67

**Machine setting:**

*Needle positioning lever:* Move rhythmically to and fro between right and left notches.  
*Zig-zag stitch lever:* Set on 2.  
*Stitch length knob:* Set as for satin stitch.

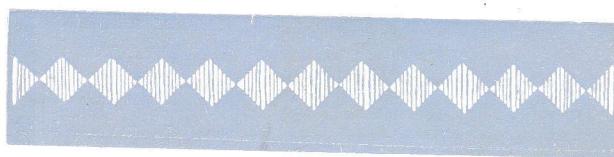
**c) To make the design shown in Fig. 68**

Fig. 68

**Machine setting:**

*Needle positioning lever:* In centre notch.  
*Zig-zag stitch lever:* Move slowly and evenly to and fro between the left and right notches.  
*Stitch length knob:* Set as for satin stitch.

Fig. 69

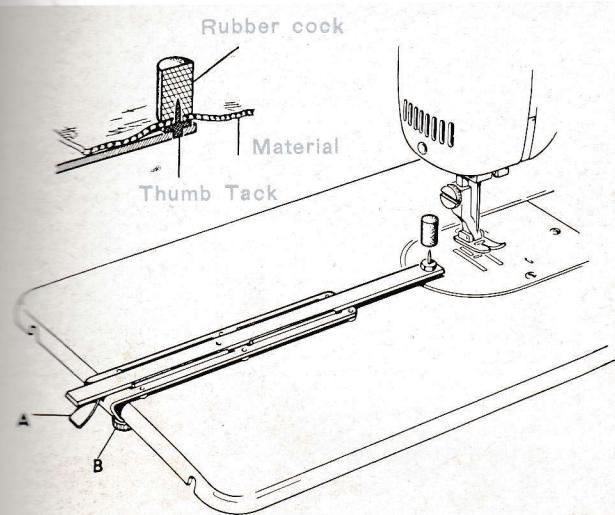


Fig. 70

**23. CIRCULAR SEWING**

The machine sewing base is provided with a guide (Fig. 69) which enables the machine to be used for circular sewing.

Figure 71 illustrates the type of work which can be done by means of circular sewing, and Fig. 69 shows a cross-section of the material to be sewn, attached to the fitting included in the accessory box supplied with the machine.

To do circular sewing proceed as follows:

- a) Attach the fitting to the sewing base and fix it with the appropriate screw.
- b) Press the lever A to free the runner which determines the diameter of the circle to be sewn. The further away the drawing-pin is from the needle, the larger will be the circle sewn.

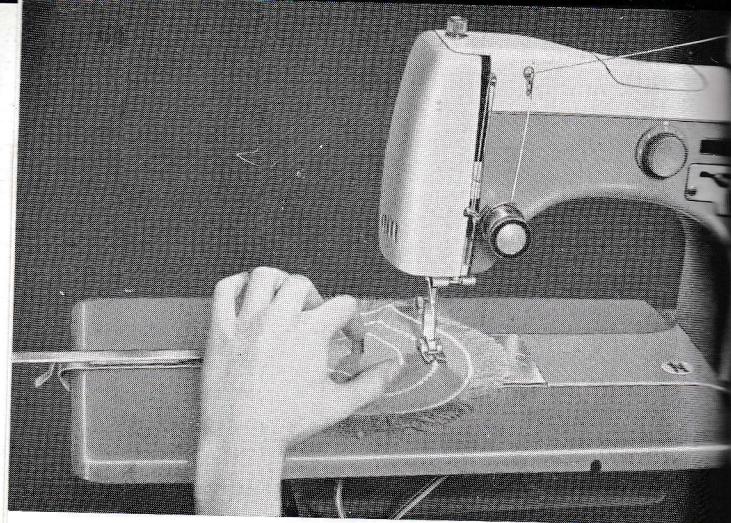


Fig. 71

### **Chapter 3**

## **AUTOMATIC ZIG-ZAG SEWING MECHANISM**

### **INTRODUCTION**

- c) Place the material under the presser foot and fix it on the drawing-pin, by means of the rubber cork, at the centre of the circle to be sewn (Fig. 69-70).

Circular sewing must only be done on materials of a certain consistency, such as corduroy, stiff wool, leather, etc. For lighter materials, it is of advantage to use a standard embroidery hoop.

The automatic mechanism fitted to this machine enables an almost unlimited number of embroidery designs to be sewn automatically.

This is done by means of various shaped discs, called cams, which are grouped in threes and fitted into the machine. Supplied with the machine, there are five permanently fixed groups, which are used for executing specific designs as marked on them, and, a series of single cams, which can be grouped according to the 90 basic designs tabulated in the charts.

Each side of the single cams is marked with a specific number which corresponds to that used in the design charts. Moreover, besides the various basic designs listed in the aforementioned charts, it is possible to combine all the single cams in many other groups of three, thus enabling the operator of the machine to sew a very large variety of designs.

## 1. HOW TO ASSEMBLE A GROUP OF SINGLE CAMS AND FIT THEM IN THE MACHINE

Place the cam holder bushing (Fig. 72) on the table and proceed as follows:

- Select the cam as listed in column 1 of the design charts and place it on the bushing, making sure that one of the two slots in the cam coincides with the key on the bushing (Fig. 72). The cam face with the required number is turned upwards.

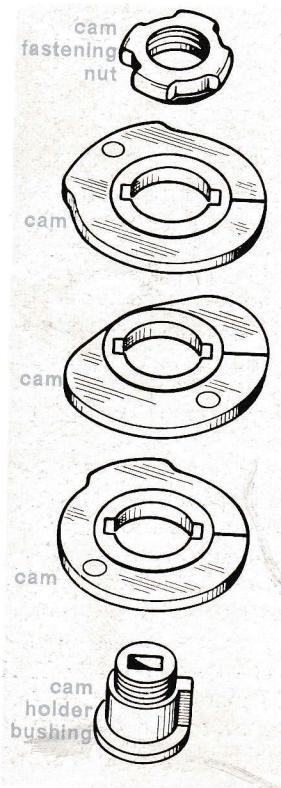
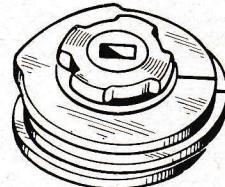
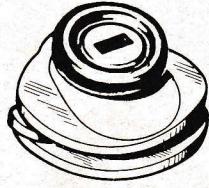


Fig. 72

three-cam group



permanent cam group

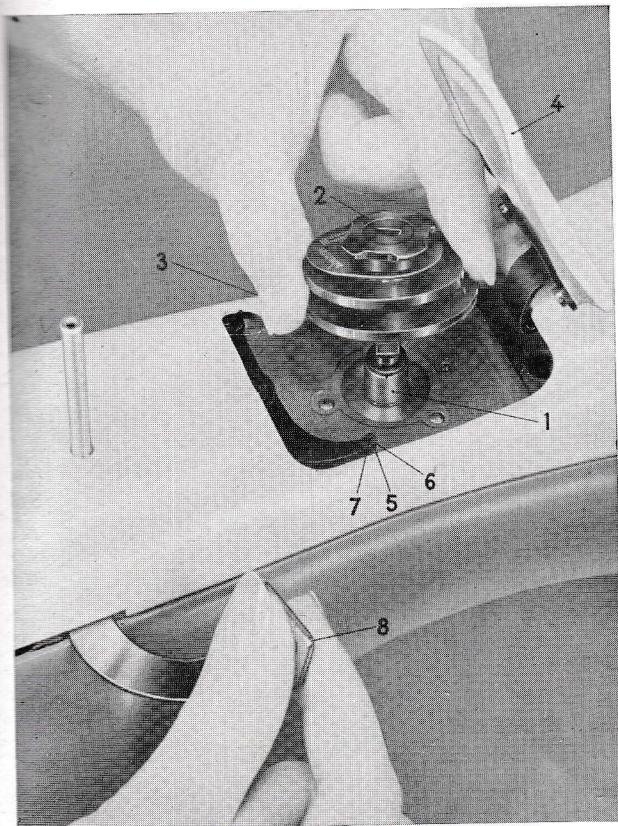


Select the second cam, as listed in column 2 of the design charts, and place it on top of the first cam already positioned, so that the line on this second cam coincides with that on the first.

- Continue in the same way with the third cam as listed in the third column of the design charts.
- Screw on the cam fastening nut and securely tighten it.

To fit the cam assembly in the machine:

Fig. 73



- a) Move the automatic cam stop motion lever 8 (Fig. 73) to the left.
- b) Open the automatic mechanism lid 4, on the top of the arm, and slide the cam assembly until the underside of the bushing touches the base on which it must rest.
- c) Move the lever 8 back again into its normal position.

The permanent cam groups are fitted in the machine in the same way.

## 2. HOW TO REMOVE THE CAM ASSEMBLY FROM THE MACHINE AND DISMANTLE IT

- a) Move the automatic cam stop motion lever 8 (Fig. 73) to the left.
- b) Raise the automatic mechanism lid 4, and with the thumb and forefinger lift the cam assembly off the spindle.
- c) If the cam group is not one of the permanently fixed type, unscrew the cam fastening nut and invert the bushing over the free hand and the three cams will fall off into the hand. If necessary, gently shake the bushing.

## 3. TO EXECUTE THE DESIGNS SHOWN ON THE COLOURED CHARTS (Pages 76 to 85)

In the charts, which show some examples of designs that can be executed automatically, there is given, for each design, the cams to be used and the machine setting, that is, the setting for:

The needle positioning lever, the zig-zag stitch lever, the design graduating knob and the stitch length knob. For the designs, Nos. 1-25, the cams can also be selected by using the Selector Device incorporated on the accessories box. The designs, Nos. 26-30, correspond to the five fixed groups and on each of these groups the design is reproduced.

The machine setting required for the execution of each design is shown in the respective columns of each chart; the various columns give the position of:

1. Needle positioning lever.
2. Zig-zag stitch lever.
3. Design graduating knob.
4. Stitch length knob.

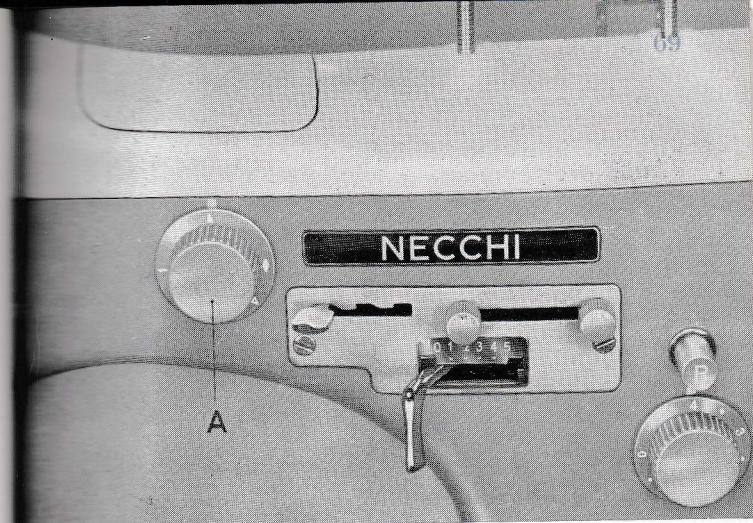


Fig. 74

## 4. TO EXECUTE THE DESIGNS SHOWN ON THE COLOURED CHARTS (Pages 86-95)

These charts show some variations of the designs given in the preceding charts. These variations are obtainable with the same cams, but using different machine settings. For each design three variations can be obtained by altering the relative placement of the cams, that is, by turning one or two of the cams so that the lines, marked on their upper face, instead of coinciding, are opposite to each other.

## 5. THE DESIGN GRADUATING KNOB (Fig. 74)

The knob A regulates the length of the design. When it is set on number 1, the design length will be normal; on number 2, the design length will be doubled; on number 3, the design length will be trebled, and so on. NOTE: The setting of this knob must not exceed the number 4.

## 6. HOW TO STOP THE AUTOMATIC MECHANISM FROM FUNCTIONING

When, during the execution of some work, normal straight or zig-zag stitching is required, it is necessary to:

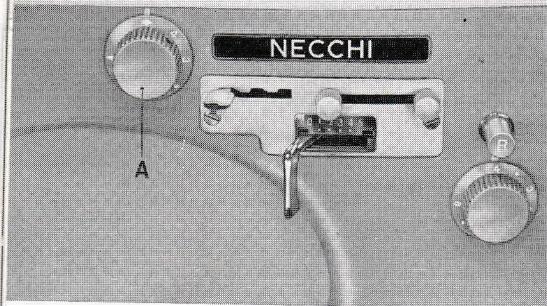


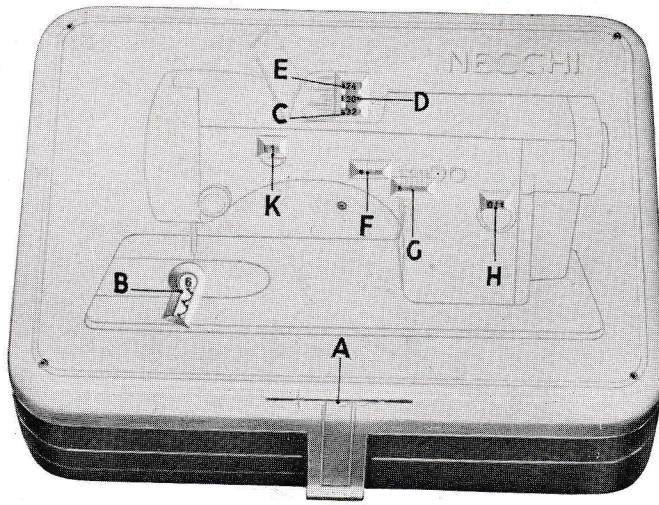
Fig. 75

- Stop the machine. Turn the design graduating knob A until the white diamond mark on it is lined up with the white mark on the machine arm (Fig. 75).
- By hand, turn the balance wheel around one complete revolution.
- Turn the design graduating knob A again until its white triangle is in line with the white mark on the machine arm (Fig. 74).

## 7. HOW TO USE THE SELECTOR DEVICE

An automatic device, incorporated in the cover of the accessories box, can be used to select the cams and

Fig. 76



to obtain the machine settings in order to carry out the designs shown in the charts. Here is how to use the device:

- With the accessories box closed, turn the knurled dial (Fig. 76) with a finger. The basic designs, Nos. 1-15, as set out in the charts, will appear one by one in the window B.
- The designs, Nos. 16 to 30, will appear in the window B1 (Fig. 77) on the reverse side of the cover of the accessories box by turning the same knurled dial A (Fig. 76).
- The numbers which appear in the windows C, D and E (on the topside of the box cover), or those which appear in the windows C1, D1 and E1 (on the reverse side of the box cover), indicate the cams required and the order in which they must be assembled.  
The windows C and C1 indicate the lowest cam, the first to be placed on the cam holder bushing; the windows D and D1 indicate the second cam and the windows E and E1, the third cam.
- In the window F (Fig. 76) or F1 on the reverse side (Fig. 77), the black mark indicates in which notch (left, centre or right) the needle positioning lever must be placed (see Fig. 33, page 32).

Fig. 77

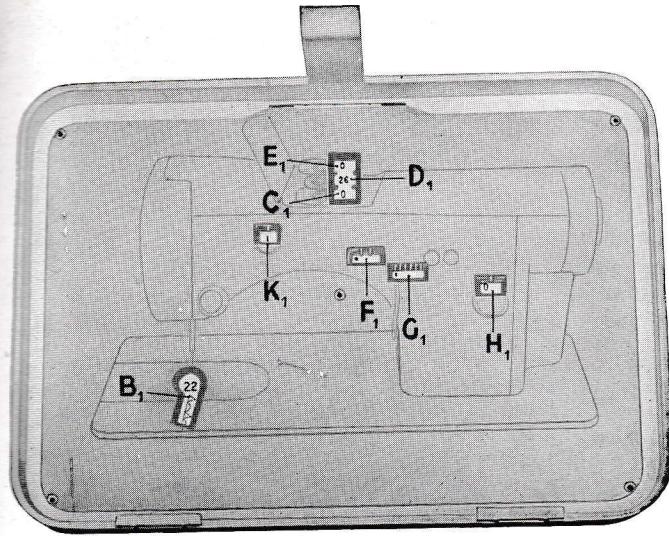




Fig. 78

- e) In window G (Fig. 75) and G1 (Fig. 77), the mark indicates the scale reading on which the zig-zag stitch lever must be set (see Fig. 33, page 32).
- f) In window K (and window K1 in Fig. 77), the number indicates the position at which the design graduating knob has to be set (Fig. 74, page 69).
- g) In the window H (and window H1 in Fig. 77) the number indicates the required setting for the stitch length knob.

## 8. AUTOMATIC SEWING OF BUTTONHOLES

In order to automatically sew buttonholes, follow the following instructions:

### Machine setting:

Place the permanent cam group, bearing the buttonhole design, together with the cam group lever, on the cam spindle (see Fig. 78).

*Needle positioning lever:* In the left notch.

*Zig-zag stitch lever:* At extreme left.

*Design graduating knob:* Any position.

*Stitch length knob:* Set on 0.5.

*Needle thread tension:* Set on 5. Use No. 40 thread or mercerized cotton.

*Bobbin thread tension:* Normal. Use No. 70 mercerized cotton.

*Presser foot:* Transparent foot for making buttonholes automatically.

**Procedure:** Thread the machine with the advised thread and proceed as follows:

- a) Place the material under the presser foot, bring the needle to its highest position and turn cam group lever into the central position.
- b) Sew 3-4 stitches (first part of the upper bar tack).
- c) Bring the needle out of the material and move the cam group lever to the left.
- d) Sew the row of stitches on the left, as long as desired.
- e) Bring the needle out of the material and move the cam group lever to the central position.
- f) Sew 5-6 stitches (the complete lower bar tack).
- g) Bring the needle out of the material and move the cam group lever to the right.
- h) Sew the righthand row of stitches of the same length as already sewn for the left row.
- i) Bring the needle out of the material and move the cam group lever to the central position again.
- j) Sew 2-3 stitches (completing the upper bar tack).

**NOTE:** After a little practice all the above procedures can be done without interrupting the work, that is, without stopping the machine to bring the needle out of the material and to change the position of the cams.

## 9. SEWING OF «FLAT STITCHED» BUTTONHOLES AUTOMATICALLY (with satin stitch)

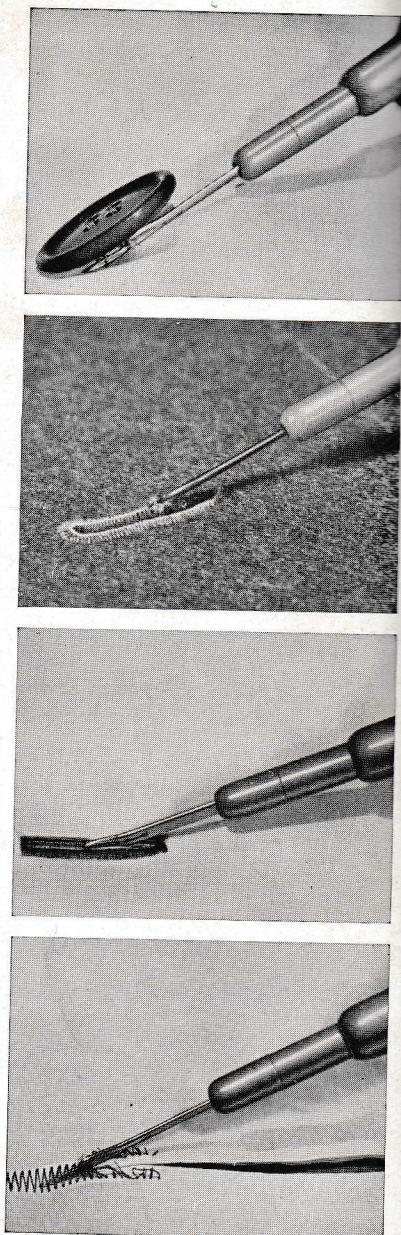
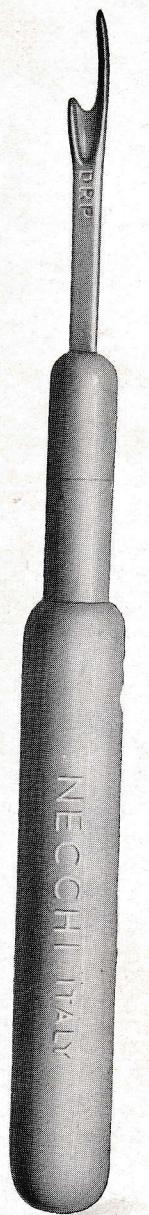
### Machine setting:

The machine setting is exactly the same as that described for «Automatic Sewing of Buttonholes» with the exceptions of:

- a) *Needle thread tension:* Set between 0 and 3.
- b) *Needle and bobbin threads:* Use No. 50 thread.

**Procedure:** Exactly the same as that described for «Automatic Sewing of Buttonholes».

## NECCHI BUTTONHOLE CUTTER



**NOTE:** The present paragraph is an addendum to Chapter 2.

**HAND MADE BUTTONHOLES****Raised Buttonholes****Machine setting**

**Automatic Mechanism:** disconnected.

**Needle Position Lever:** In the left notch.

**Zig-zag Stitch Lever:** Set the left index stop on 1.5 and the right index stop on 3.

**Stitch Length Regulating Knob:** Near to « 0 ». In order to obtain the correct adjustment, try out on a piece of fabric similar to that used to make the buttonhole. Stitches should neither overlap nor be too far apart.

**Upper Thread Tension:** Set on n. 5. Use n. 40 mercerized cotton thread.

**Lower Thread Tension:** Slightly loose. Use n. 50 mercerized cotton thread.

**Presser Foot:** Use the transparent buttonhole presser foot provided with guide which is included in the accessory box.

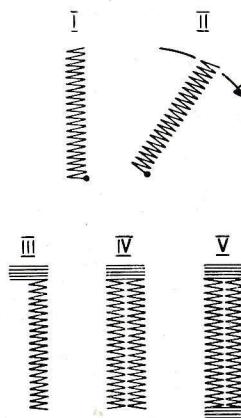


Fig. 1

**Procedure.**

- Place the fabric under the presser foot and adjust the graduated guide according to the desired length of the buttonhole.

- b) With the zig-zag stitch lever on the left index stop, make the first row of stitches (fig. 1, Operation « I ») going as far as to reach the limit marked by the guide. Leave the needle in the fabric to the right of the stitching.
- c) Raise the presser foot and turn the fabric half a turn round the needle (fig. 1, Operation II). Lower the feed dog again.
- d) Raise the needle from the fabric and move the zig-zag stitch lever to the right index stop which should be on 3.
- e) Make the first bar tack with 3 or 4 stitches (fig. 1, operation III) and stop with the needle off the fabric.
- f) Move the zig-zag stitch lever to the left index stop, which should be at 1.5, and make the second row of stitches as long as the first (fig. 1, Operation IV).
- Stop with the needle off the fabric.
- g) Move the zig-zag stitch lever to the right index stop and make the second bar tack (fig. 1, Operation V).
- h) Raise the presser foot, cut the two threads leaving 2- $2\frac{1}{2}$  inches spare and remove the fabric. Pull the lower thread and with the aid of an ordinary needle draw the upper thread through the fabric in order that both ends are on its wrong side.
- Then knot the two threads together.
- i) Finally cut the fabric between the two rows of stitches with the special Necchi buttonhole cutter.

## 2) Flat stitched buttonholes

### Machine setting

The machine setting is the same as described for Raised Buttonholes with the following exceptions:

- a) *Upper thread tension*: set at n. 3; n. 50 thread.
- b) *Lower thread tension*: Normal; n. 50 thread.

**Procedure:** is exactly the same as described for making « Raised Buttonholes ».

**NOTE:** The present paragraph is in substitution of the corresponding one, on Chapter 3.

### AUTOMATIC BUTTONHOLES

To make buttonholes automatically, please note the following instructions.

#### 1) Raised Buttonholes

##### Machine setting

*Automatic mechanism*: disconnected.

*Cams to be used*: Permanent three cam group, fitted with handle, to be inserted on the driver pin (fig. 2).

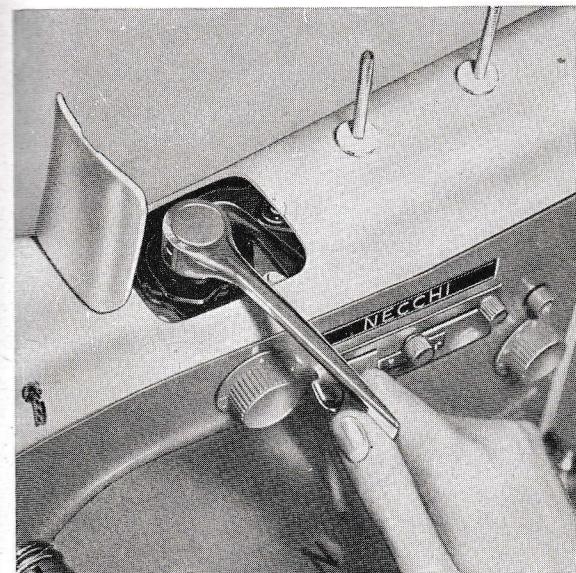


Fig. 2

The cam group may be turned in respect of the handle and fixed in two positions; one for buttonholes in heavy fabrics and the other for buttonholes in light fabrics.

The change from one position to another is made in the following manner (fig. 3).

Holding the cam group with the left hand fingers,

the left index  
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e fabric half  
Operation II).

and move the  
index stop

or 4 stitches  
h the needle

he left index  
d make the  
e first (fig. 1,

c.  
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remove the  
with the aid  
upper thread  
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c. 50 thread.  
50 thread.

escribed for

**NOTE:** The present paragraph is in substitution of the corresponding one, on Chapter 3.

## AUTOMATIC BUTTONHOLES

To make buttonholes automatically, please note the following instructions.

### 1) Raised Buttonholes

#### Machine setting

*Automatic mechanism: disconnected.*

*Cams to be used: Permanent three cam group, fitted with handle, to be inserted on the driver pin (fig. 2).*

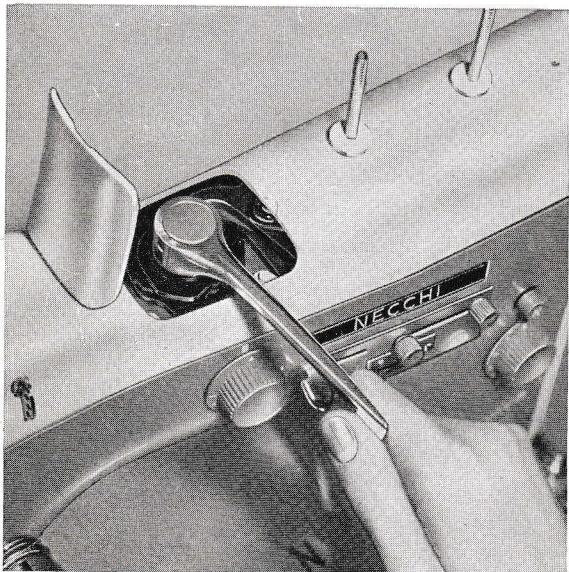


Fig. 2

The cam group may be turned in respect of the handle and fixed in two positions; one for buttonholes in heavy fabrics and the other for buttonholes in light fabrics.

The change from one position to another is made in the following manner (fig. 3).

Holding the cam group with the left hand fingers,

push it upwards keeping firm the handle with the right hand und turn it.

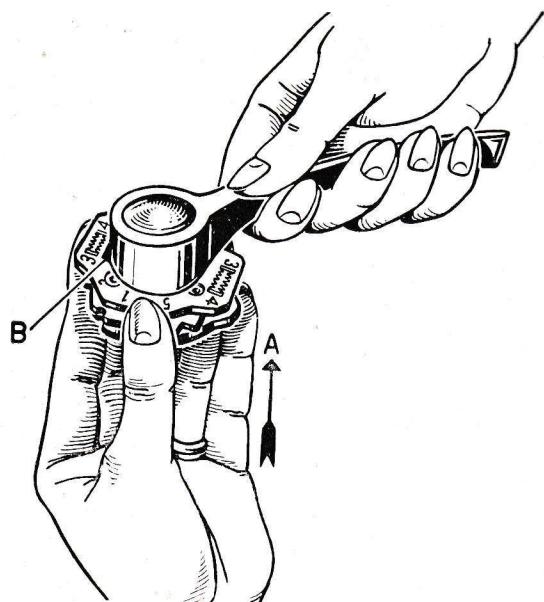


Fig. 3

Stop pushing and turn the cam group until one of the two buttonholes engraved in its upper surface is in line with the index marked « B ».

When it is in the correct position, a click will be heard and the group remains fixed.

*Needle Position Lever:* in the left notch;

*Zig-zag Stitch Lever:* Extreme left.

*Stitch Length Regulating Knob:* Near to « 0 ». In order to obtain the correct adjustment, try out on a piece of fabric similar to that used to make the buttonhole. Stitches should neither overlap nor be too wide apart.

*Upper Thread Tension:* For light fabrics: set at n. 5. For heavy fabrics: set at maximum.

Use n. 40 mercerized cotton thread.

*Lower Thread Tension:* Slightly loose; use n. 50 mercerized cotton thread.

**Presser Foot:** use the transparent buttonhole presser foot provided with guide which is included in the accessory box.

**Needle:** For light fabrics: use a n. 70 (or 10) needle.  
For heavy fabrics: use a n. 90 (or 14) needle.

**Procedure:**

- a) Place the fabric under the presser foot and adjust the graduated guide according to the desired length of the buttonhole.
- b) With the needle at its highest position, bring the cam group handle to position « 1 ».
- c) Make the upper bar tack with 3 or 4 stitches and stop with the needle off the fabric.
- d) Move the cam group handle to position « 2 » and make the left row of stitches until the upper bar tack reaches the limit marked by the guide. Stop with the needle off the fabric.
- e) Move the cam group handle to position « 3 ». The machine will sew straight stitches in the reverse direction.
- f) When the needle arrives at the upper bar tack, move the cam group handle to position « 4 » and make the right row of stitches until the upper bar tack reaches the limit marked by the guide. Stop with the needle off the fabric.
- g) Move the cam group handle to position « 5 » make the lower bar tack with 3 or 4 stitches: The buttonhole is then completed.
- h) Raise the presser foot, cut the two threads leaving 2-2½ inches spare and remove the

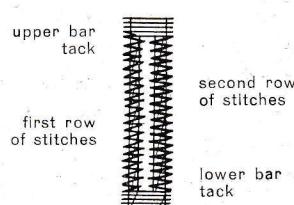


Fig. 4

fabric. Pull the lower thread and with the aid of an ordinary needle draw the upper thread through the fabric in order that both ends are on its wrong side.

Then knot the two threads together.

- i) Finally cut the fabric between the two rows of stitches with the special Necchi buttonhole cutter.

**NOTE** - After some practice, all the operations described above can be made continuously without having to stop the machine each time to raise the needle from the fabric and move the cam group handle.

## 2) Flat stitched buttonholes

### Machine setting

The machine setting is the same as described for « Raised Buttonholes » with the following exceptions:

- a) *Upper thread tension:* set. at n. 3; n. 50 thread;
- b) *Lower thread tension:* normal; n. 50 thread.

**Procedure:** is exactly the same as for making « Raised Buttonholes ».

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Chart No. 1

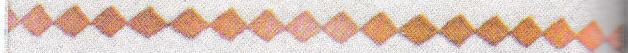
Design number	Design	Gauge and stitch positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
		1	3				
1		20	18	left	0	2,5	4
2		24	0	center	0	1	0,1
3		16	0	»	0	1	0,3
4		20	30	left	0	2	4
5		20	18	»	0	1,5	4
6		20	24	»	0	2,5	0,5
7		20	30	»	0	3	0,3
8		17	25	»	0	2,5	0,1
9		28	20	10	»	2,5	0,3

Chart No. 1

Design number	Design	Gauge and stitch positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
		2	3				
10		10	10	left	0	1	4
11		20	18	»	0	2	4
12		24	26	»	0	2	0,1
13		20	16	»	0	2,5	0,3
14		20	26	»	0	1	0,2
15		20	24	»	0	1	0,3
16		22	20	26	»	3	0,2
17		22	0	18	»	2	4
18		32	16	30	»	2	4

Chart No. 1

Design number	Design	Cams and cam positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob
		2	3				
19		0	24	left	0	1	0,5
20		0	30	»	0	1	0,5
21		0	16	»	0	1	4
22		26	0	»	0	1	0,3
23		0	30	»	0	1	4
24		0	30	»	0	1	4
25		34	24	»	0	1	0,2
26		permanent three cam assembly		»	0	1	4
27		»	»	»	2	2,5	0,1

### **Chart No. 1**

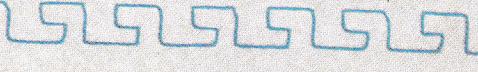
Design number	Design	Gauge and stitch positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
		2	5				
28		»	»	left	2	2,5	0,1
29		»	»	»	0	1	4
30		see Par. "Automatic Buttonholes" on Chapter No. 3					
31		17	20	»	0	1	0,2
32		26	19	»	0	2	0,1
33		35	20	31	»	0	1
34		0	35	26	»	0	1
35		18	0	11	»	0	1,5
36		35	0	18	»	1,5	1

Chart No. 1

Design number	Design	Gauge and tension positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
		2	3				
37		21	26	left	0	1	0,7
38		0	19	»	0	1,5	0,3
39		0	20	»	0	1	3
40		0	30	»	0	1	0,4
41		0	27	»	0	1	0,5
42		0	16	»	0	1	1,2
43		0	26	»	0	1	0,5
44		0	16	»	0	1	2
45		0	11	center	1	1	0,5

Chart No. 1

Design number	Design	Gems and lever positioning			Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob
		2	3					
46		0	27	left	0	1	1	1
47		0	11	"	1	1	1	1
48		0	17	"	0,5	2	0,3	
49		28	17	18	"	0	1	0,6
50		28	16	18	"	0	2	0,2
51		11	0	31	"	0	1	1,4
52		10	0	31	"	0	1	1,5
53		14	21	27	"	0	1	0,4
54		14	21	26	"	0	1	0,4

Chart No. 1

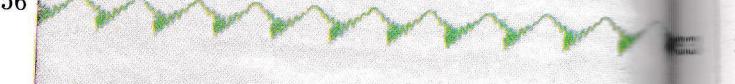
Design number	Design	Laws and positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob
		2	3				
55		21	17	left	0	2	0,2
56		35	17	»	0	1	0,4
57		0	25	»	0,5	1	0,4
58		20	25	»	0	2	0,4
59		0	10	»	0	1	1
60		19	0	25	»	0	1
61		31	20	17	»	0	1
62		19	21	26	»	0	2
63		20	26	18	»	0	0,1

Chart No. 1

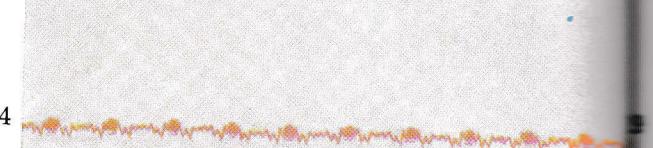
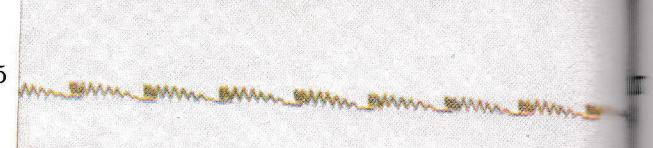
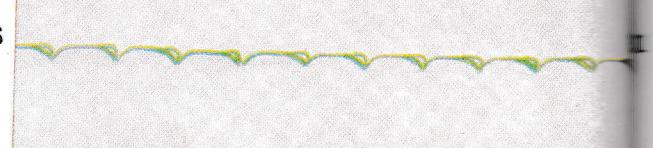
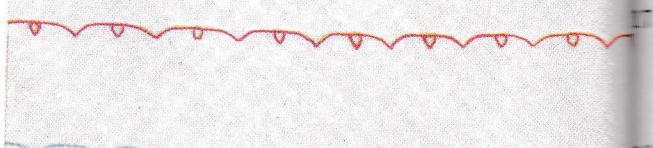
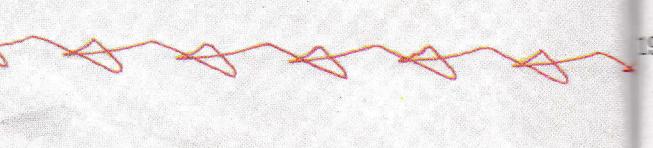
Design number	Design	cams and positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
		2	3				
64		34	22	left	0	1	1
65		34	19	right	0	1	0,5
66		0	21	left	0	1	0,5
67		0	26	»	0	1	1,5
68		0	21	»	0	1	0,5
69		0	31	»	0	1	1,3
70		0	18	»	0	2	0,4
71		0	27	»	0	1	1,5
72		22	34	30	»	1	0,4

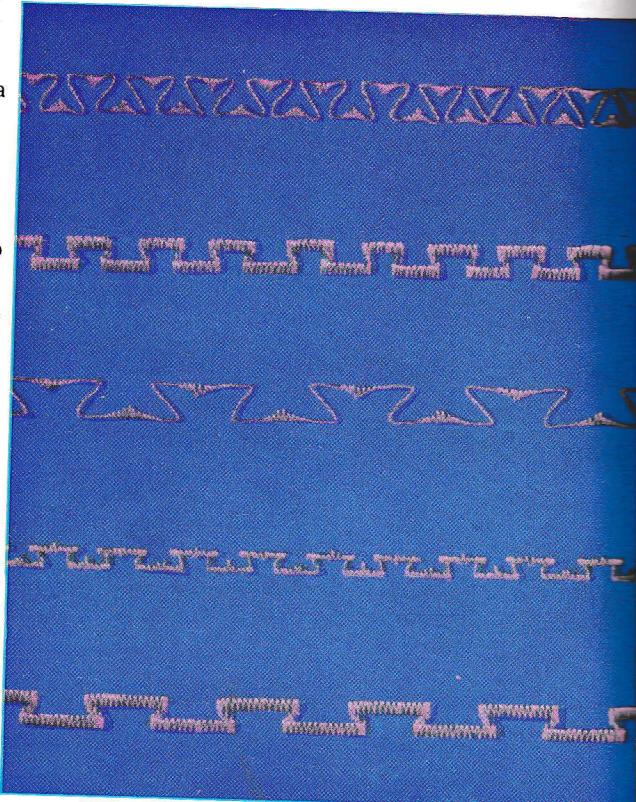
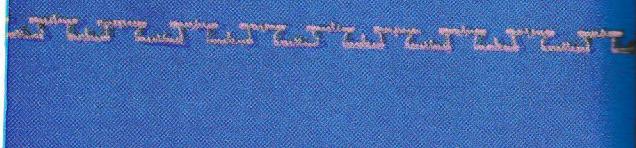
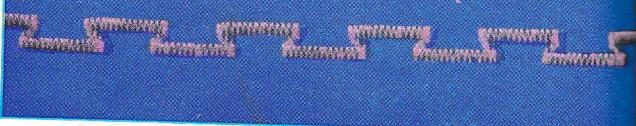
Chart No. 1

Design number	Design	cams and cammer positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob
		2	3				
73		20	16	left	0	1	0,5
74		20	16	»	0	1	0,5
75		27	25	»	0	2	0,1
76		21	17	»	0	1	0,5
77		17	31	»	0	2	0,1
78		30	0	»	0	2,5	0,1
79		17	20	34	»	0	1,5
80		0	19	30	»	0	1
81		0	30	11	»	0	0,3

Chart No. 1

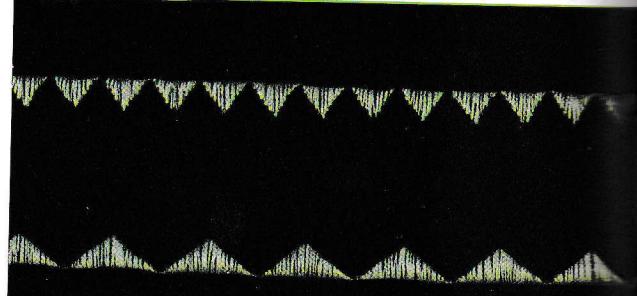
Design number	Design	Cams and lever positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob	
		2	3					
82		17	19	center	0	1	0,4	
83		0	30	left	0	1,5	0,8	
84		16	31	»	0	1	0,3	
85		16	35	31	»	0	1	0,3
86		0	27	24	»	0	2	0,1
87		15	0	17	»	0	1	0,3
88		15	0	34	»	0	1	0,5
89		15	0	11	»	0	1	0,4
90		30	0	27	»	0	1	0,4

Chart No. 2

Design number	Design	Cams and lever positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob
		2	3				
1a		20	18	left	0	3,5	0,2
1b		20	18	"	2	3	0,2
1c		20	18	"	0	4	0,3
1d		20	18	center	1	3	0,2
1e		20	18	left	2	3	0,2

Designs derived from No. 1  
(see chart No. 1 page 76)

Chart No. 2

Design number	Design	Cams and lever positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob
		2	3				
3a		16	0	left	0	1	0,3
3b		16	0	right	0	2,5	0,3
3c		16	0	center	0	3	0,2
3d		16	0	left	0	3	0,2
3e		0	16	0	center	0	0,5

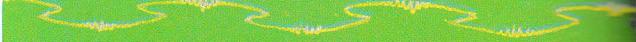
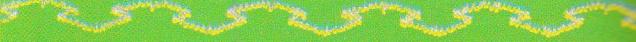
Designs derived from No. 3  
(see chart No. 1 page 76)

Chart No. 2

Design number	Design	Gems and needle positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob
		2	3				
9a		20	10	left	1	3	0,2
9b		20	10	right	0	4	0,3
9c		28	20	10	center	0	3
9d		28	20	10	left	0	4
9e		28	20	10	"	0	0,1

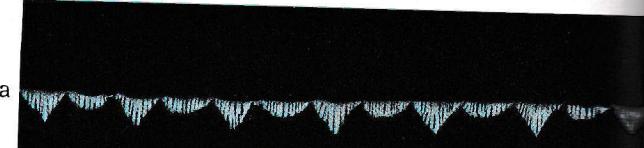
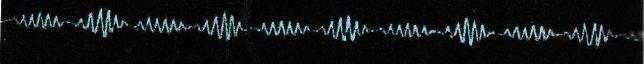
Designs derived from No. 9  
(see chart No. 1 page 76)

Chart No. 2

Design number	Design	Cams and lever positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
		2	3				
13a		22	20	16	left	2	2,8 0,3
13b		22	20	16	"	0	4 0,3
13c		22	20	16	center	1	3 0,2
13d		22	20	16	left	1	2 0,2
13e		22	20	16	"	1	3,5 0,2

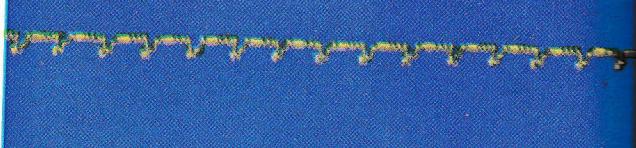
Designs derived from No. 13  
(see chart No. 1 page 77)

Chart No. 2

Design number	Design	Cams and lever positioning			Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob
		2	3					
22a		0	26	0	left	0	3,2	0,1
22b		0	26	0	center	0	3,2	0,1
22c		0	26	0	right	0	3,2	0,1
22d		0	26	0	center	0	1,5	0,1
22e		0	26	0	»	0	1,5	0,5

Designs derived from No. 22  
 (see chart No. 1 page 78)

Chart No. 2

Design number	Design	Cams and their positioning		Needle position lever	Zig-zag stitch lever	Design graduating knob	Stich length regulating knob	
		2	3					
24a		28	0	30	left	0	1	0,4
24b		28	0	30	center	1	1	0,4
24c		28	0	30	left	1	3	0,4
24d		28	0	30	»	1	1	0,4
24e		28	0	30	center	1	3	0,4

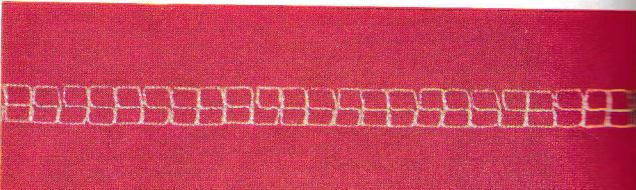
Designs derived from No. 24  
(see chart No. 1 page 78)

Chart No. 2

Design number	Design	Cams and their positioning			Needle position lever	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
			2	3				
26a		permanent three cam assembly			left	0	3,5	3
26b		" " "	"	"	"	0	1	0,3
26c		" " "	"	"	center	0	2,5	4
26d		" " "	"	"	left	1	1	0,3
26e		" " "	"	"	"	1	2,5	4

Designs derived from No. 26  
(see chart No. 1 page 78)

Chart No. 2

Design number	Design	Cams and their positioning			Needle position lever	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
		1	2	3				
29a		permanent three cam assembly			left	0	1	0,6
29b		"	"	"	"	1	1	4
29c		"	"	"	center	1	1	4
29d		"	"	"	left	1	2	0,5
29e		"	"	"	"	1	3	4

Designs derived from No. 29  
(see chart No. 1 page 79)

Chart No. 2

Design number	Design	Cams and their positioning			Needle position lever	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
		1	2	3				
55a		27	21	17	left	0	3	0,3
55b		27	21	17	"	0	1	0,1
55c		27	21	17	center	0	1	0,3
55d		27	21	17	left	0,5	1	0,3
55e		27	21	17	right	0	1	0,2

Designs derived from No. 55  
 (see chart No. 1 page 82)

Chart No. 2

Design number	Design	Cams and their positioning			Needle position regulating	Zig-zag stitch lever	Design graduating knob	Stitch length regulating knob
		1	2	3				
86a		0	27	24	right	0	3	0,2
86b		0	27	24	left	0	2,5	0,2
86c		0	27	24	"	0	1	0,2
86d		0	27	24	"	0	4	0,3
86e		0	27	24	center	0	2	0,2

Designs derived from No. 86  
(see chart No. 1 page 85)

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