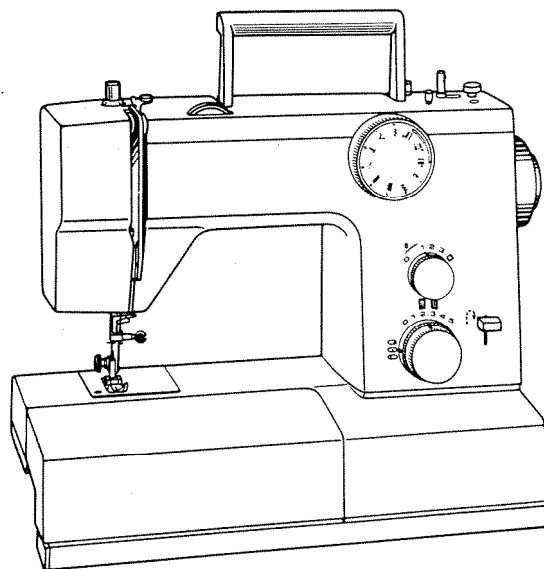


# **INSTRUCTION Book**



**MODEL 1710**

SEWING MACHINE

Record in space provided below the Serial No.  
and Model No. of this appliance.

The Serial No. is located Rear of arm.

The Model No. is located Rear of arm.

Serial No. \_\_\_\_\_

Model No. 1710

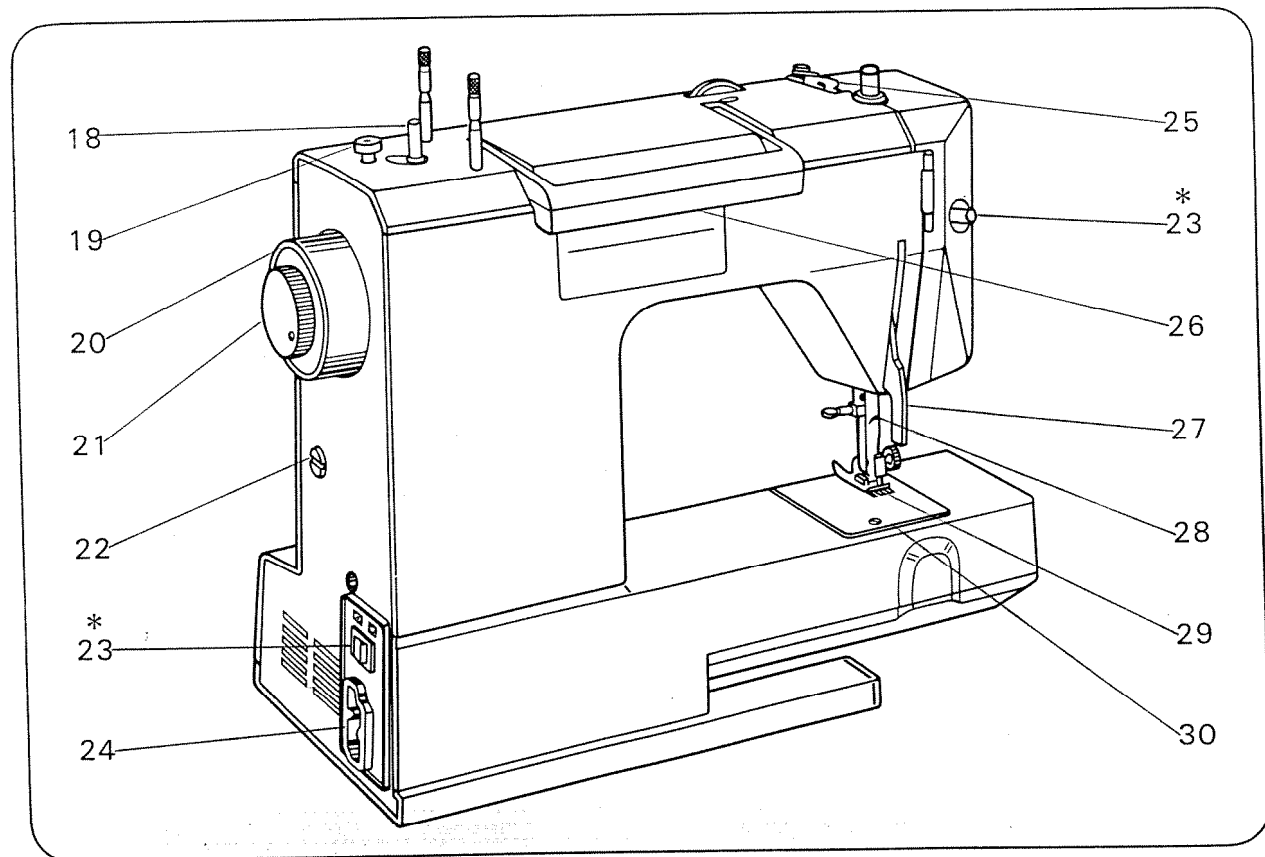
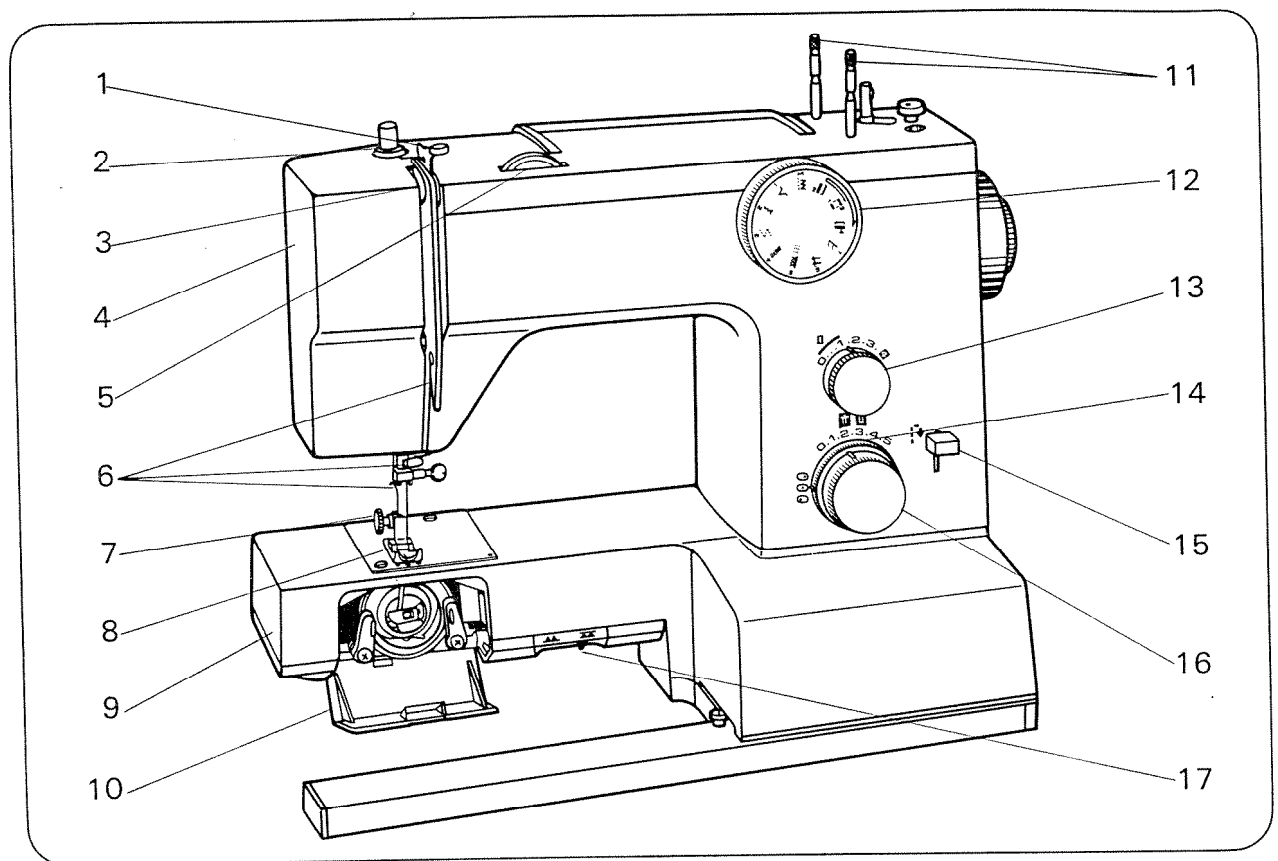
Retain these numbers for future reference.

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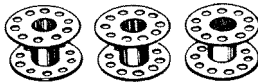
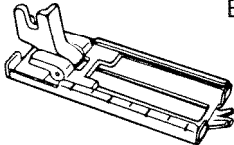

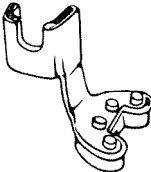

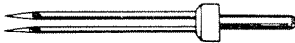


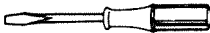
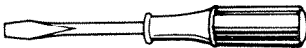
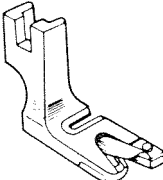

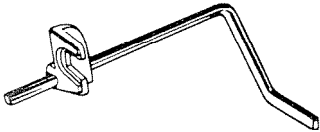
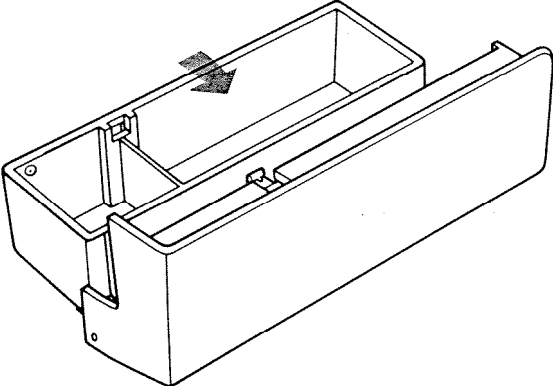
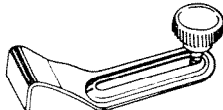

## I. NAMES OF PARTS

1. Thread guide for bobbin winding
2. Pressure regulator
3. Take-up lever
4. Face cover
5. Upper thread tension dial
6. Thread guide for upper threading
7. Presser foot thumb screw
8. Presser foot
9. Free arm
10. Shuttle cover
11. Spool pins (retractable)
12. Pattern selection dial
13. Stitch length dial
14. Needle position control
15. Reverse sewing lever
16. Zigzag width control
17. Drop feed lever

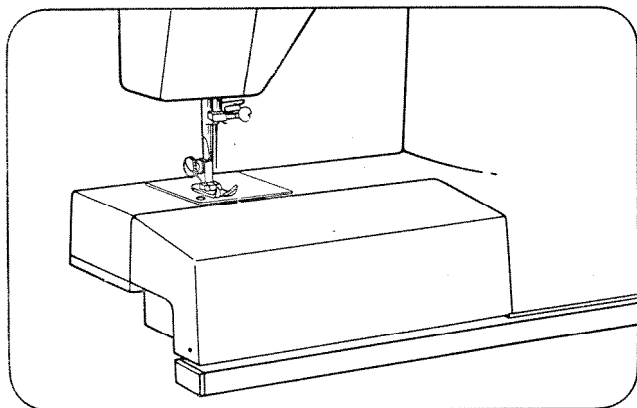
18. Bobbin winding spindle
19. Bobbin winding stopper
20. Handwheel
21. Stop motion knob
22. Special buttonhole adjustment
23. Switch \*
24. Socket
25. Thread guide for upper threading
26. Handle
27. Presser foot lifter
28. Thread cutter
29. Feed dog
30. Needle plate

Specifications vary from country to country.

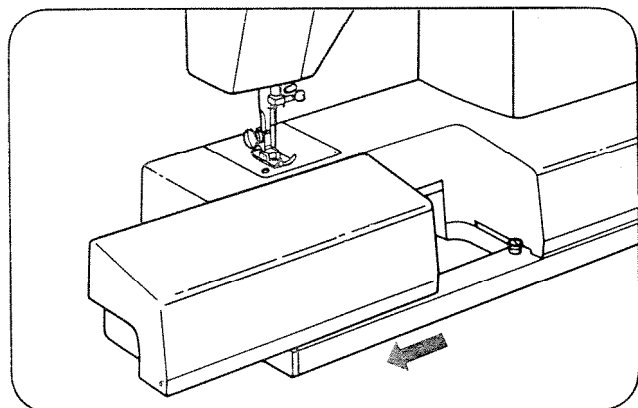
## 2. ACCESSORIES

<p>Felts (2 pcs.)</p> 	<p>Bobbins (3 pcs.)</p> 
<p>Buttonhole foot</p> 	<p>Needles</p> 
<p>Button sewing foot</p> 	<p>Ordinary needles (3 pcs.)</p>  <p>Ball point needle (1 pc.)</p>  <p>Twin needle (1 pc.)</p> 
<p>Zipper foot</p> 	<p>Screw drivers (small)</p>  <p>(large)</p> 
<p>Roll hemming foot</p> 	<p>Oiler</p> 
<p>Quilting guide</p> 	 <p>Accessories are stored in extension table.</p>
<p>Cloth guide</p> 	
<p>Buttonhole cutter</p> 	

### 3. BEFORE SEWING

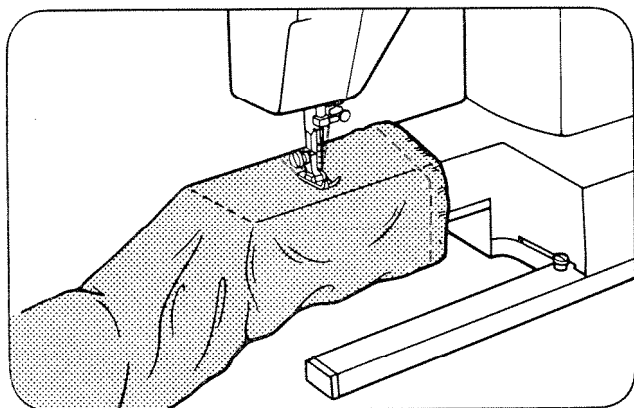


Machine is stored in flat-bed style which makes your work easier in ordinary sewing.



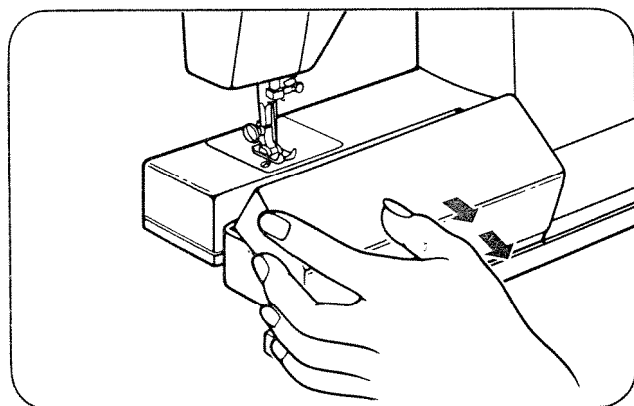
#### (1) Detaching extension table

Slide it off and the machine is used as a free-arm model.



Free-arm is convenient to sew or embroider, trousers, sleeves, cuffs of T-shirts, blouses, etc.

Do vice-versa of above steps to attach extension table.

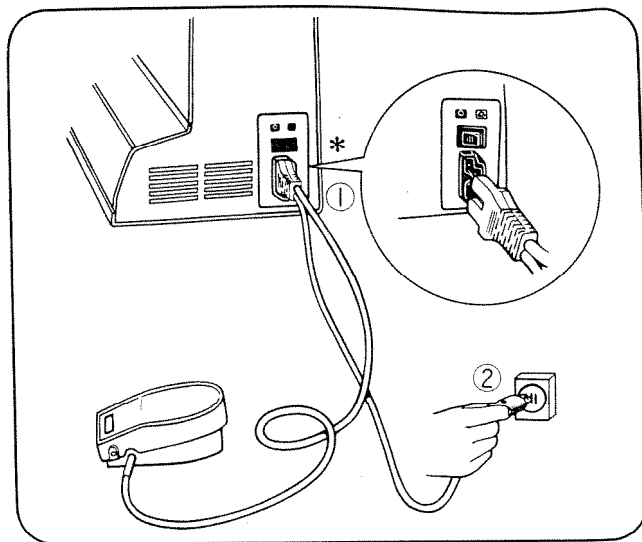


To open lid of accessory box, push it open, as illustrated.

## (2) Connecting foot controller and power cord

Connect foot controller and power cord ① ②.

Before plugging in your machine, be sure that voltage is same as that of your machine. (written on a plate at back of machine)

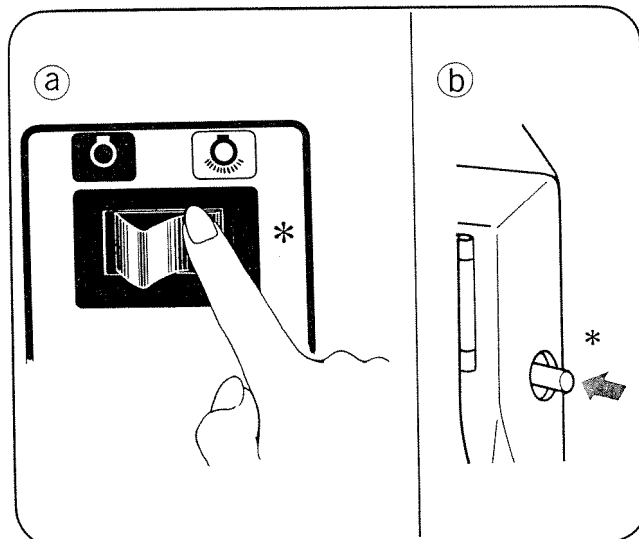


① Switch on, put power on the machine and turn on the sewing light.

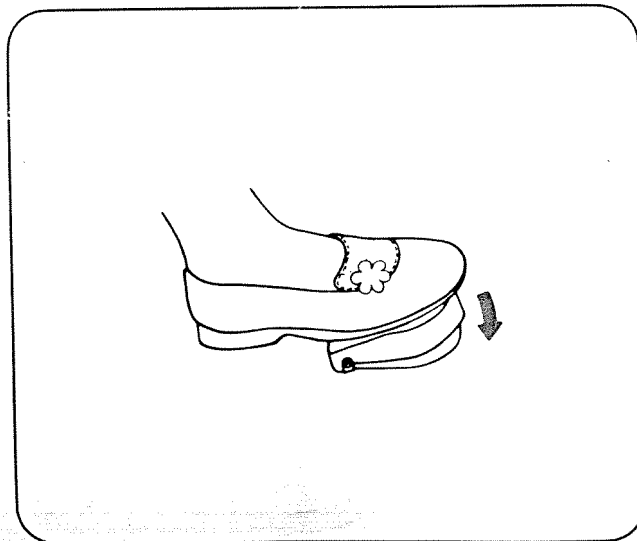
② Push button to turn sewing light on and off.

Always switch off or unplug machine when not in use.

\* Specifications vary from country to country.



The more you press foot controller, the faster the machine runs.

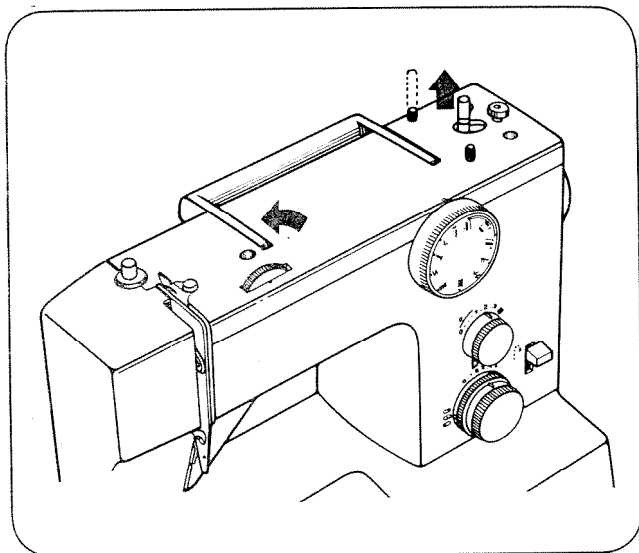




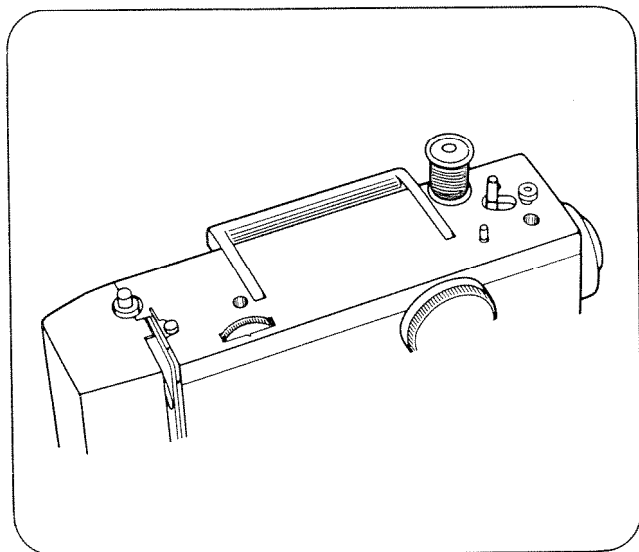
### (3) Threading upper thread

Push back to fold handle.

Pull out spool pin and put a felt on spool pin.



Put a spool on spool pin.

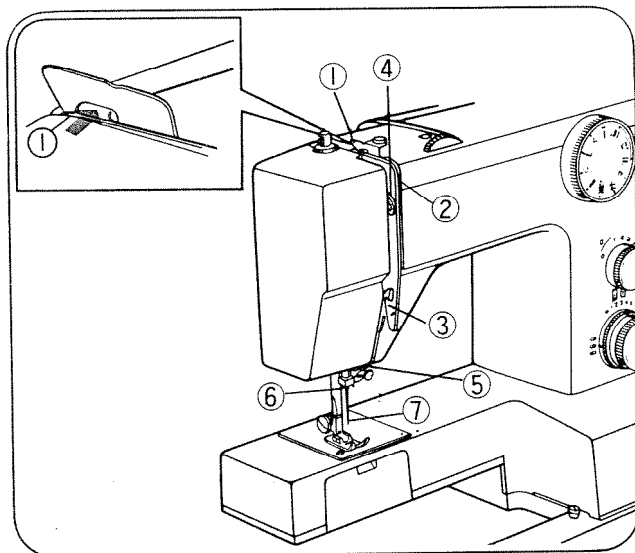


Raise presser foot lifter.

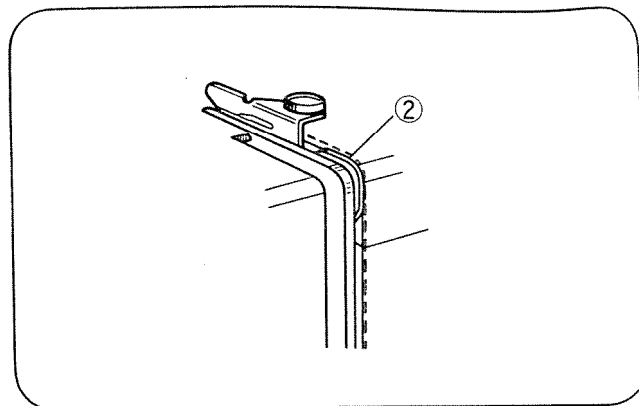
Raise take-up lever to the highest position by turning handwheel towards you.

Thread following numbers ①-⑦.

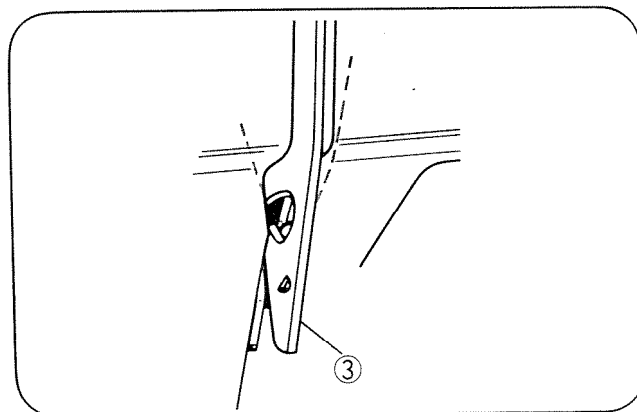
Pass thread through guide ①.



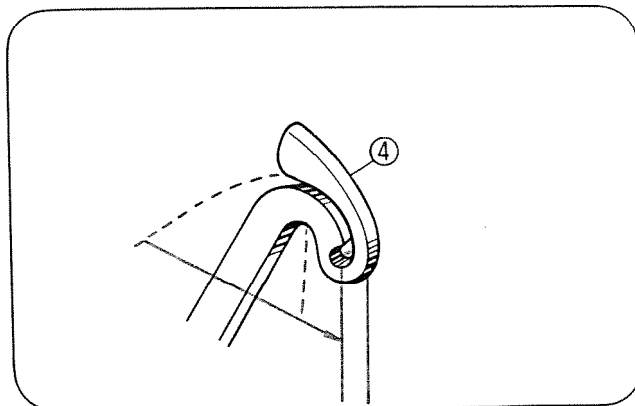
Lead thread either side of tension disc ②.



Hook it to guide ③ from down to upwards.

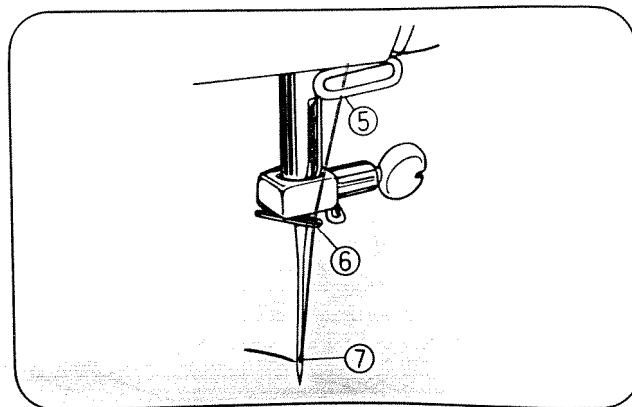


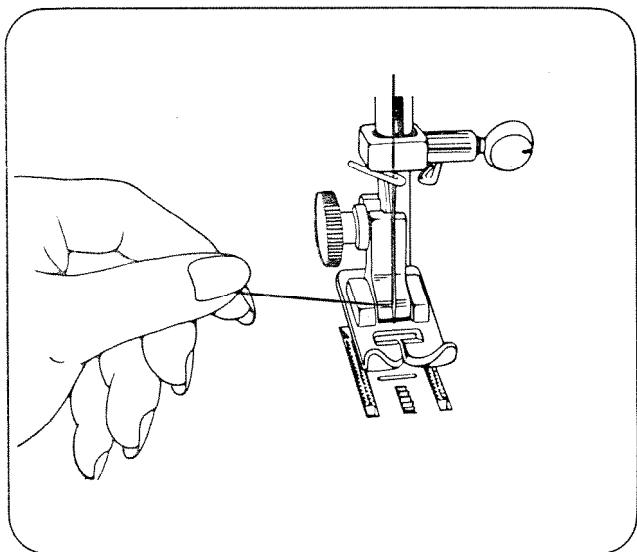
Thread take-up lever ④.



Pass thread to guide ⑤ from right to left, and guide ⑥ (left one) then needle eye ⑦.

Leave end of thread of about 15 cm (6").

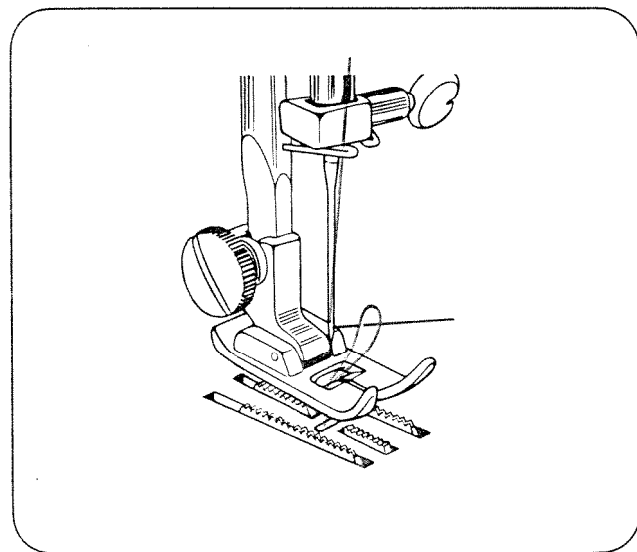




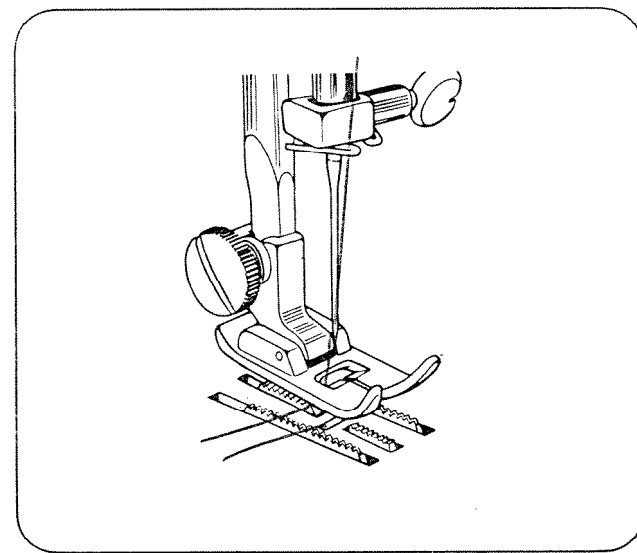
#### **(4) Drawing up lower thread**

Hold end of upper thread with left hand.

Turn handwheel slowly towards you until needle moves down and up again.



Pull upper thread slowly and lower thread will be brought up in a loop.

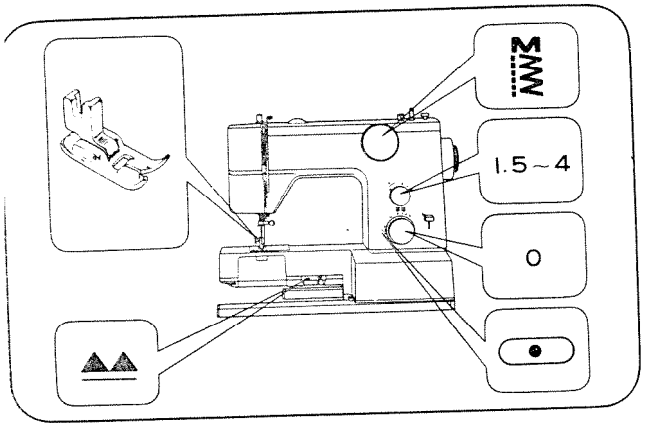


Pull out both threads to about 15 cm (6") and place them together under presser foot on left.

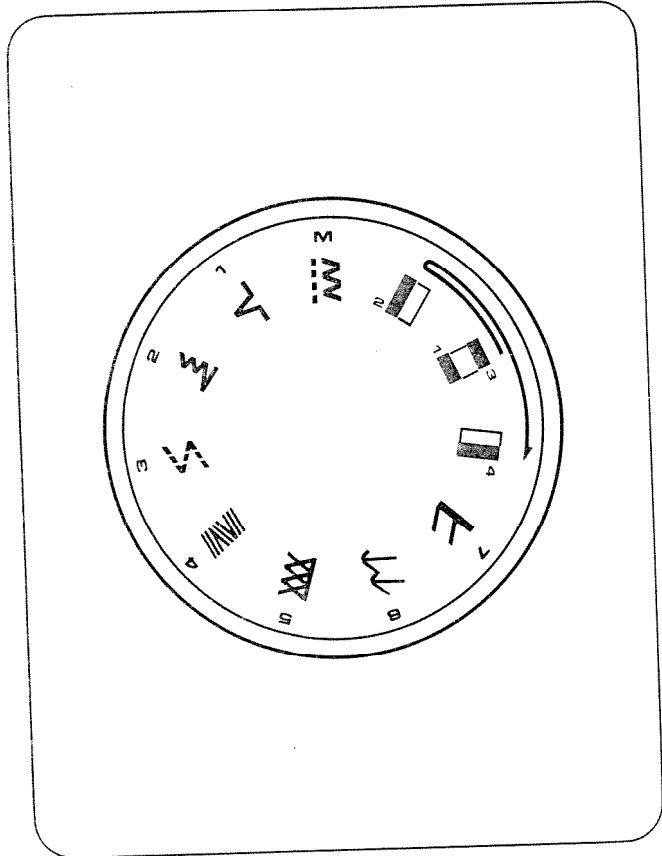
### (5) Fabric, thread and needle table

FABRIC	THREAD			NEEDLE			REMARKS
	European Cotton	Mercerized Cotton	Cotton Covered Polyester, Silk, Nylon	European 705	U.S. Size 15 x 1	Point Style	
VERY SHEER; Lace, Voile, Chiffon, Net	70	60	Silk Nylon	65-70	9	Regular	Loosen up- per tension one or two points
SHEER; Blouse Crepe, Lawn, Organdy, Taffeta	50-70	60	Silk Nylon	65-70	9	"	
LIGHT-WEIGHT; Crepe, wool, Brocade, Velvet	30	50	Silk	75-80	11	"	
MEDIUM; Wool, Silk, Linen, Velvets, Cotton, Faille, Terry cloth	30	50	Silk	80-90	11-14	"	
HEAVY; Denim, Duck, Sailcloth	30	Heavy Duty	C.C.Poly.	100	16	"	
EXTRA HEAVY; Upholstery, Canvas, Awning	30	Heavy Duty	C.C.Poly.	120	19	"	
[KNITS]							
LIGHT-WEIGHT; Tricot Power net	50-70	60	Silk Nylon	70	9	Light Ball	
MEDIUM-WEIGHT; Jersey, Double Knit, Power Net	30	50	Silk Nylon C.C.Poly.	70-80	9-10	Light to Medium Ball	
HEAVY-WEIGHT; Double Knit, Power Net	30	50	Silk Nylon C.C.Poly.	80-90	11-14	Medium to Heavy Ball	
FAKE-FURS, VELOURS	30	Heavy Duty	C.C.Poly.	90-100	14-16	Ball or Sharp	
[LEATHER]							
VINYLS FILMS	30	50	C.C.Poly.	90	14	Wedge	
LIGHT-TO-MEDIUM- WEIGHT	30	50	C.C.Poly.	90-100	14-16	Wedge	
HEAVY LEATHER	30	Heavy Duty	C.C.Poly.	100-110	16-18	Wedge	
[DECORATIVE TOUCHES] TOP STITCHING	Silk twist			100-110	16-18	Regular	
MACHINE EMBROIDERY	Size 50-70			65-80	9-11	Regular	

1. STRAIGHT SEWING



Set machine as shown.

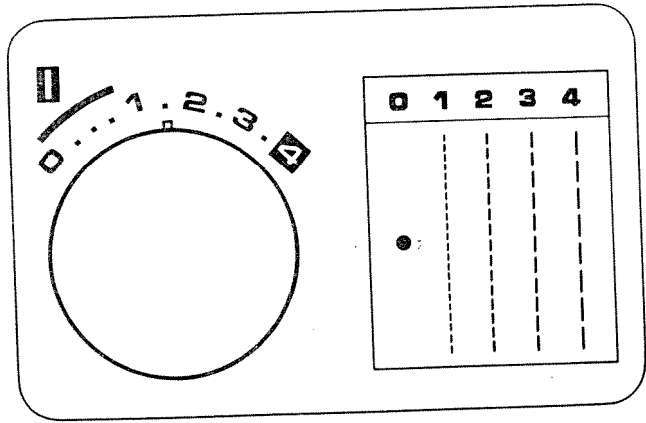


(1) Pattern selection dial

Turn dial to choose pattern.  
Dial can be turned either to right or to left.

- M Straight & Zigzag Stitch
- 1 Blind Hem Stitch
- 2 Elastic Blind Hem Stitch
- 3 Multiple Zigzag
- 4-7 Super Automatic Reverse Stitches
- 8 Buttonhole

\* Always make Sure needle is in the highest position when operating dial.



(2) Stitch length dial

For a longer stitch, turn dial in clockwise. For a shorter stitch, turn it in counter-clockwise.  
For normal sewing it is set between 2 and 3.

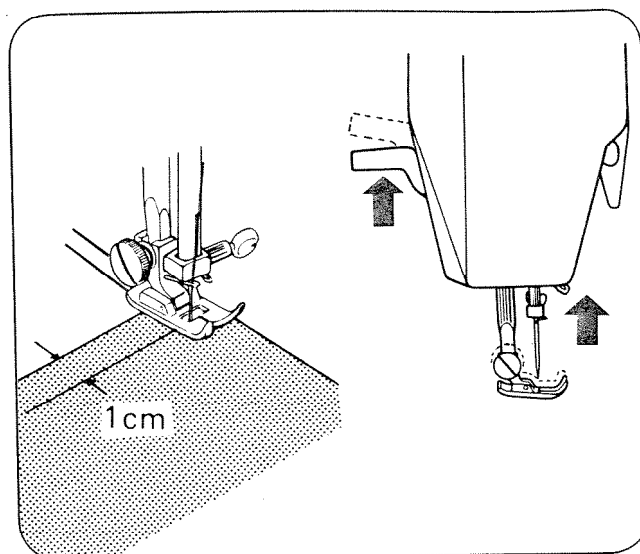
Place fabric under foot about 1 cm (0.4") inside the edge.  
Lower presser foot lifter.

**Important:**

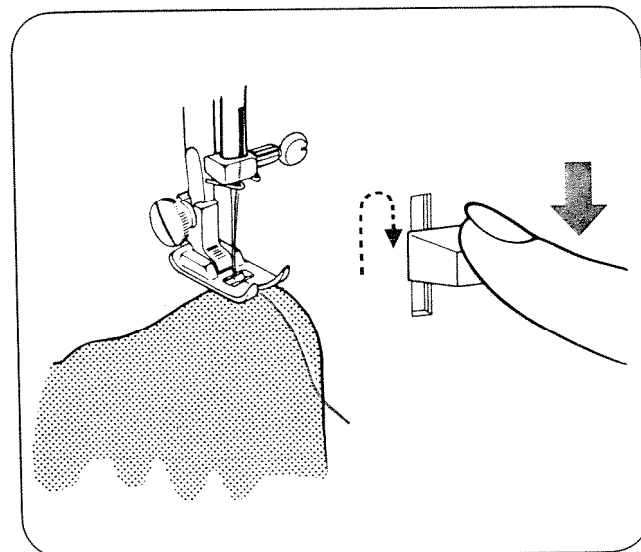
Hold on both threads during the sewing of the first 3~4 stitches of the seam.

**(2) Double presser foot lifter**

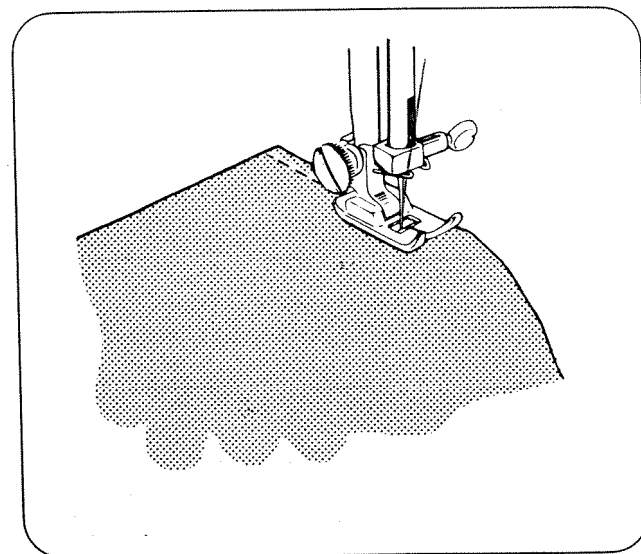
In order to obtain wider gap when using very thick materials, firmly push presser foot lifter up as far as it will go.

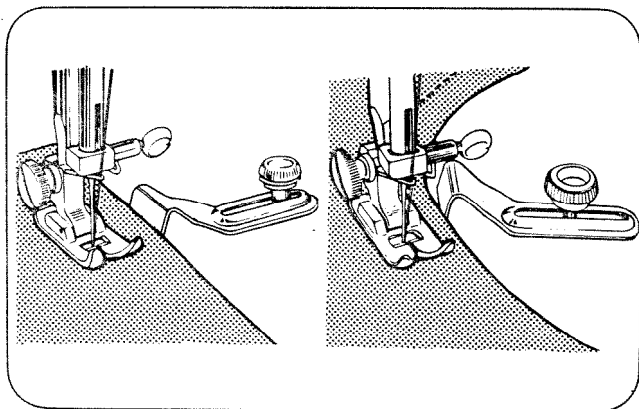


To reinforce seam, sew backwards to the edge of fabric by pushing down reverse sewing lever.



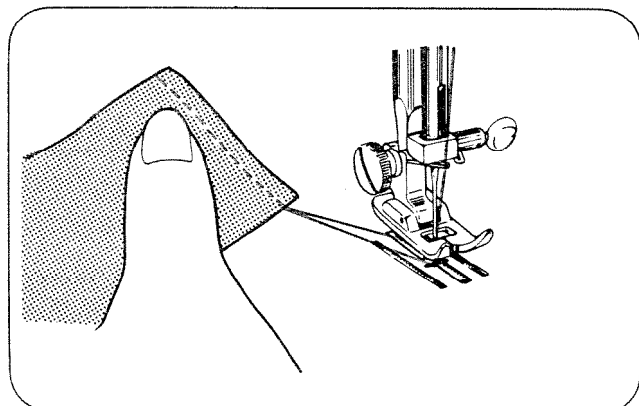
Release lever and commence forward sewing guiding fabric by hand as it is fed.  
Never pull material.



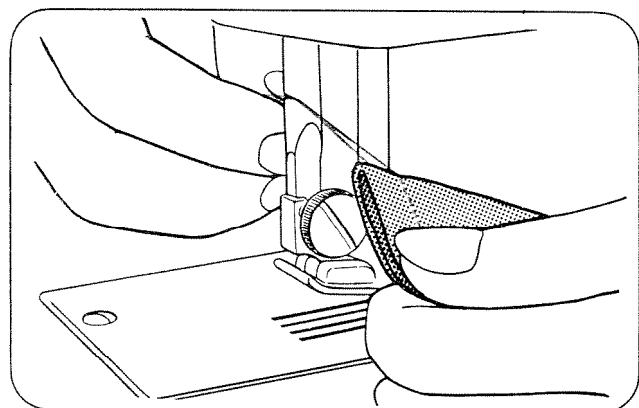


#### (4) Cloth guide

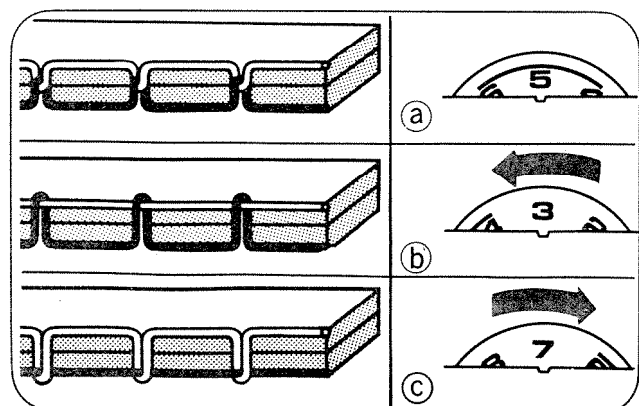
Use cloth guide when sewing a long seam of regular distance from edge of material. Set guide in hole on arm, at right of needle plate, and adjust distance. Run machine with edge of fabric touching guide. Position cloth guide at an angle to sew a curved seam.



Sew reverse stitches for reinforcement at end of seam. Draw fabric to left when sewing is finished.



Cut threads with thread cutter behind presser bar.



#### (5) Adjusting thread tension

Test stitch performance on a scrap of material you are going to use.

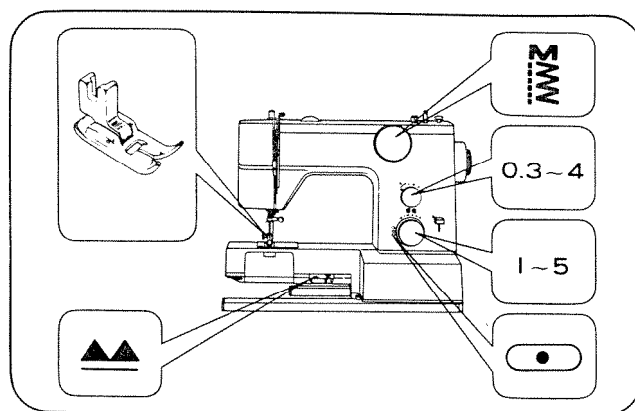
With correct tension (a), upper and lower threads tension is equal and strong enough to lock both threads in center.

If upper tension is too tight (loose), upper (lower) thread lies straight along upper (lower) surface of fabric (b.c). Correct by turning tension dial.

## 5. ZIGZAG STITCH SEWING

Set machine as shown.

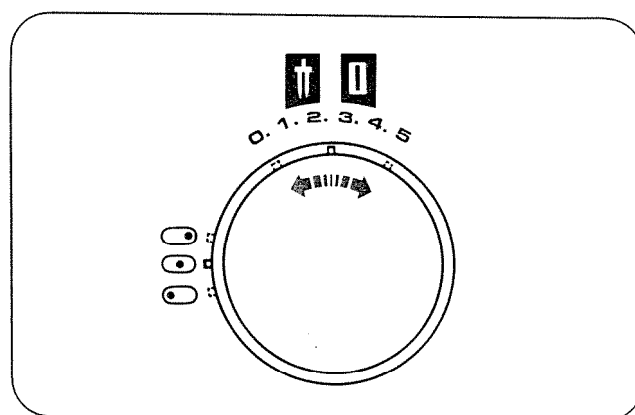
To prevent seam ends unravelling, set machine for straight stitch and sew in reverse at beginning and ending of seam.



### (1) Zigzag width control

Set control at required number.  
Larger the number, wider the stitch.  
Set it at 0 for straight sewing.

Make sure needle is in upper position when you set control.



### (2) Needle position control

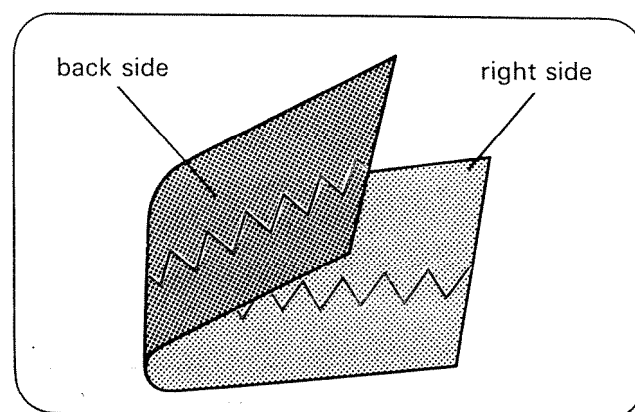
Needle position can be changed by turning needle position control.

When selecting position, make sure needle is in upper position to avoid tearing material or bending needle.

Position	Straight stitch	Zigzag stitch (width 2.5)	
			Left position: button sewing, etc.
			Middle position: straight stitch, buttonholes, etc.
			Right position: blind hem, overlock, etc.

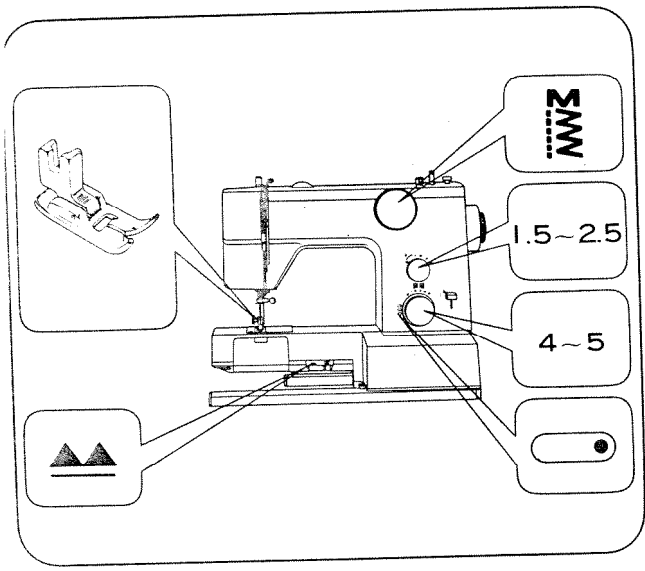
### (3) Thread tension for zigzag stitch

Better-looking zigzag stitching requires less upper tension than straight stitching.  
Loosen upper tension slightly.

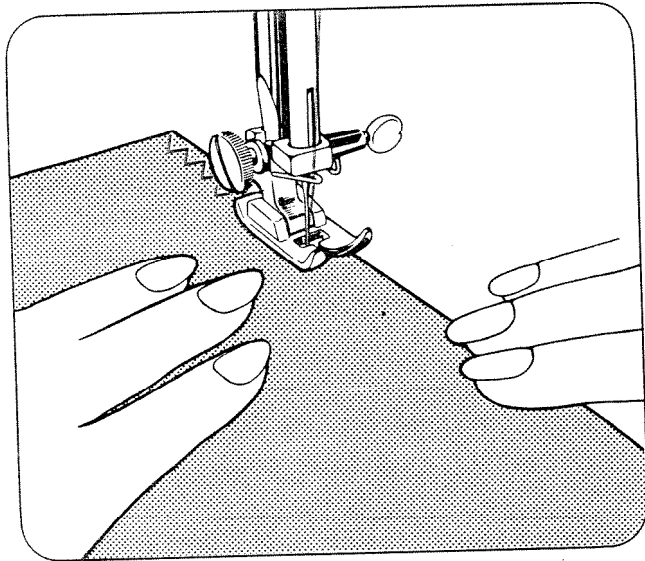




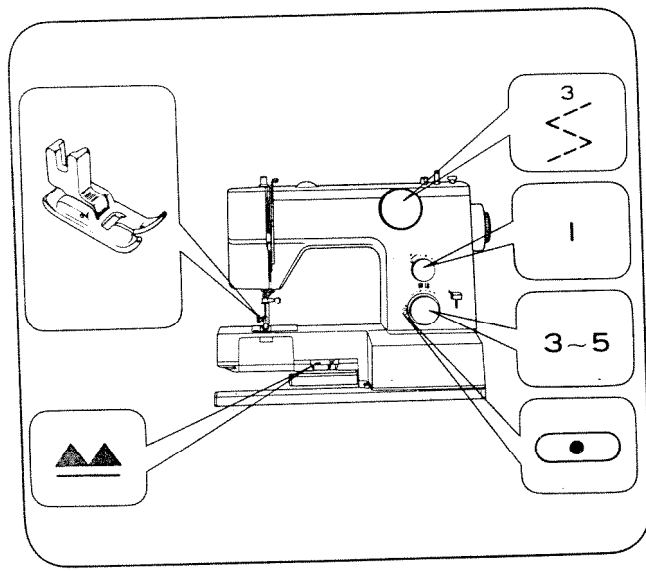
3. OVERCASTING



For light weight material:  
Set machine as shown.



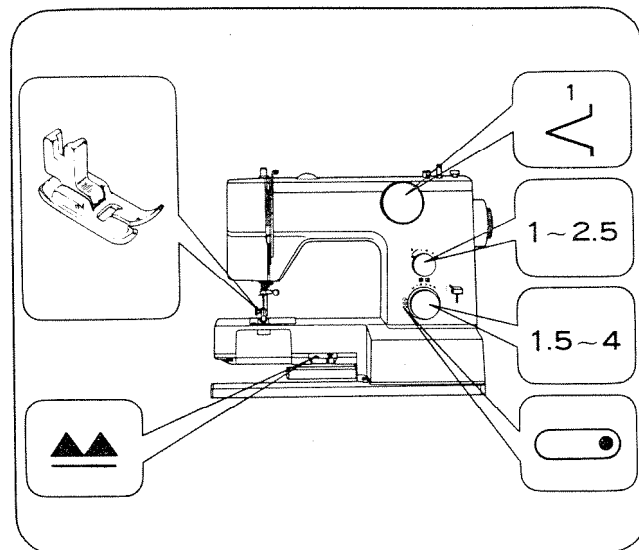
Sew carefully so that all stitches on right side  
are flush with edge of fabric.



For thick and elastic material:  
Set machine as shown.  
Sew in the same way as above.

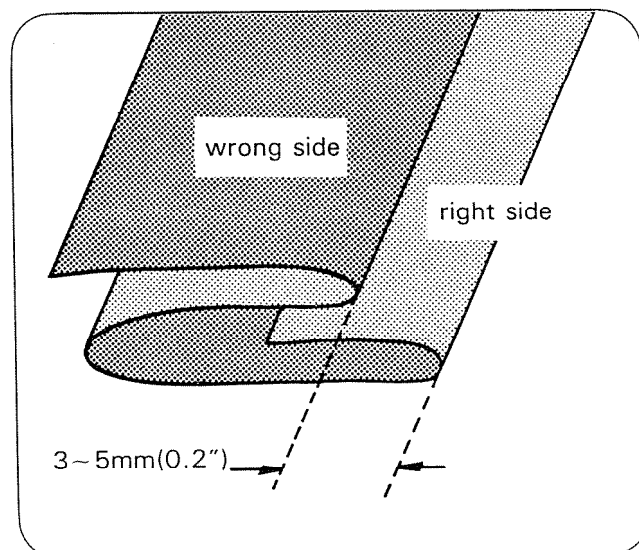
## 7. BLIND HEM STITCH

Set machine as shown.

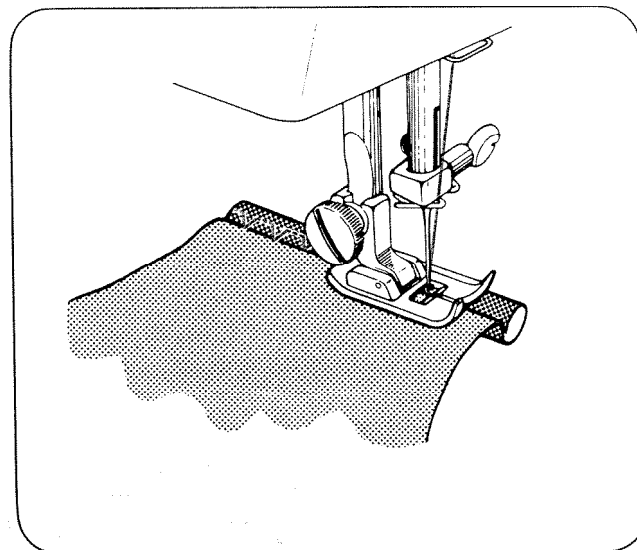


Fold material as shown and place it under foot.

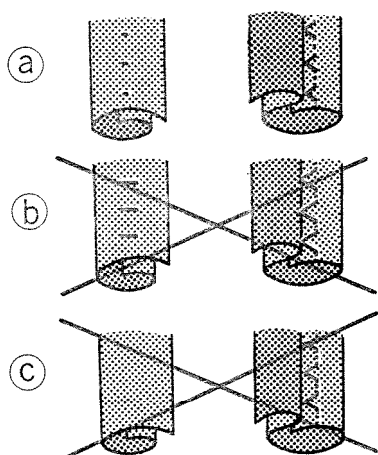
For a neater finish, it is preferable to baste or iron hem before hand.



Sew carefully so that straight stitches are made on hem edge, and slanting stitches pierce only one or two threads of fold.



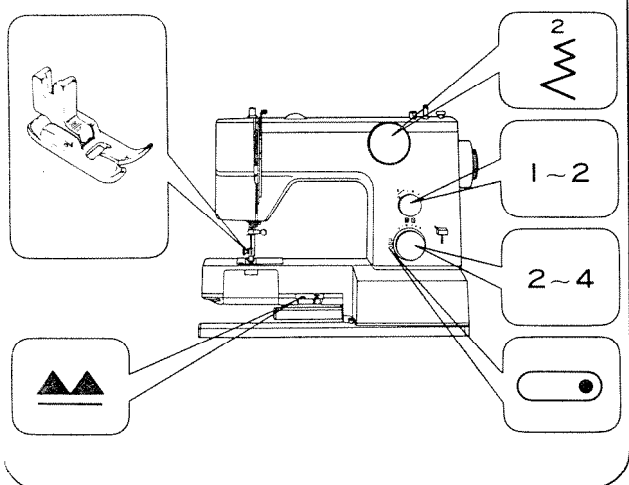
right side      wrong side



- (a) Correct seam.
- (b) Needle is catching edge of fold too much.
- (c) Needle is not catching edge of fold at all.

#### Elastic blind hem stitch

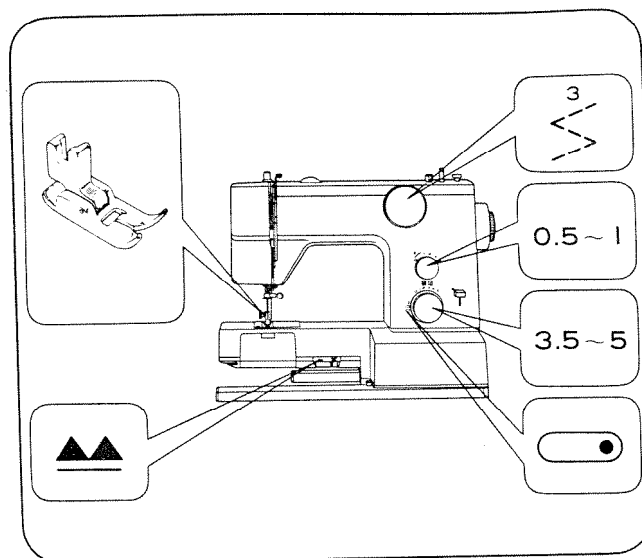
For elastic materials, set machine as shown and sew in the same way as for normal blind hem stitch.



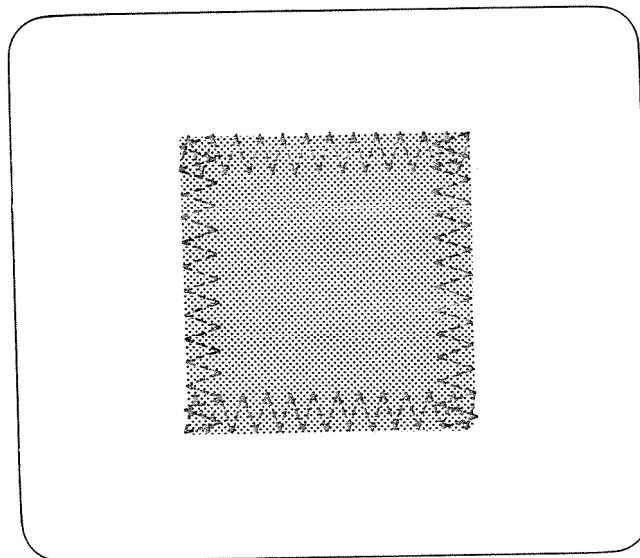
## 8. MENDING

### (1) Patching

Set machine as shown.



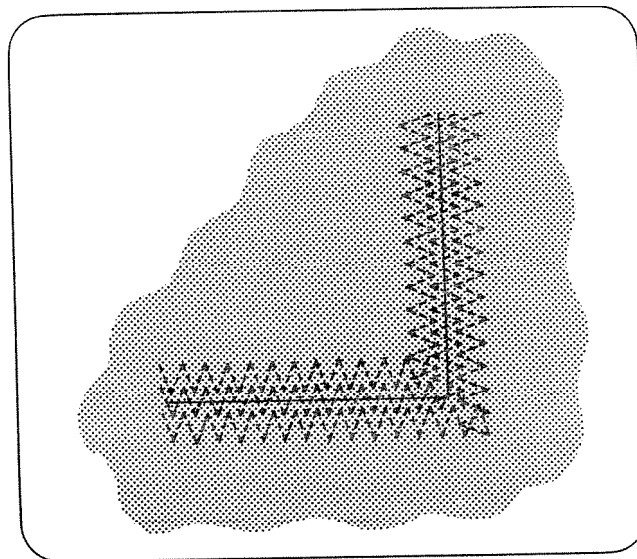
Place the patch over the worn part.  
Sew along the edge of the patch on the right side.  
Trim away the worn part close to the seam on back side.



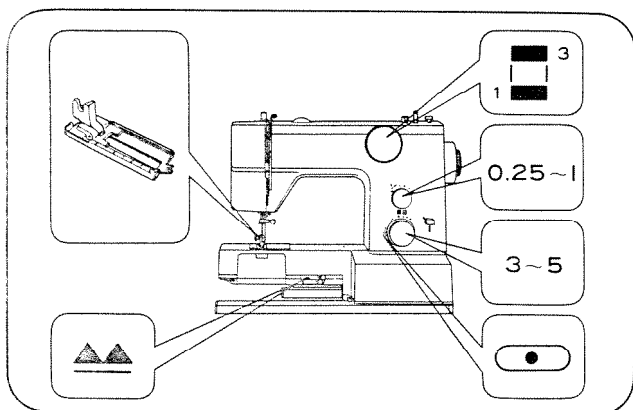
### (2) Mending a rip

Set machine in the same way as for patching.

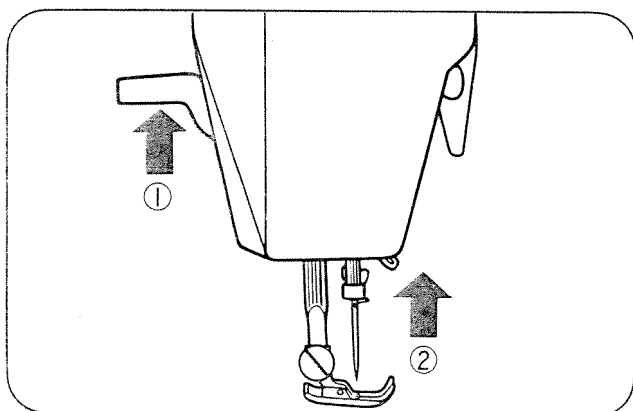
Sew the edges of tear together first.  
Then sew two more seams on either side.  
A piece of gauze can be placed underneath to reinforce the rip.



## 9. MAKING BUTTONHOLES



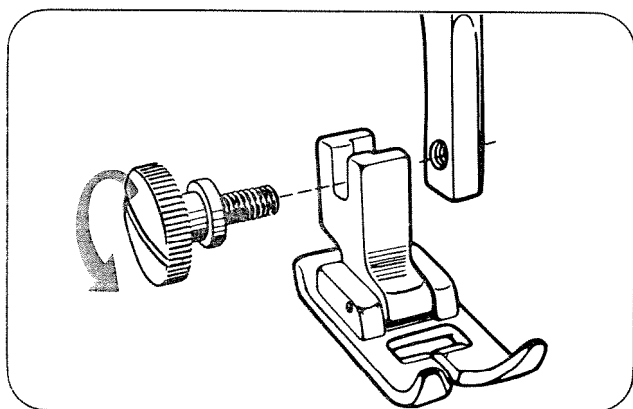
Set machine as shown.



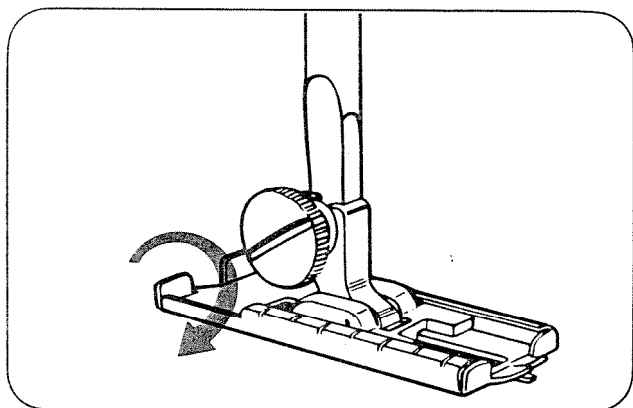
### (1) Changing presser foot

Raise presser foot lifter ①.

Set needle in the highest position by turning handwheel towards you ②.



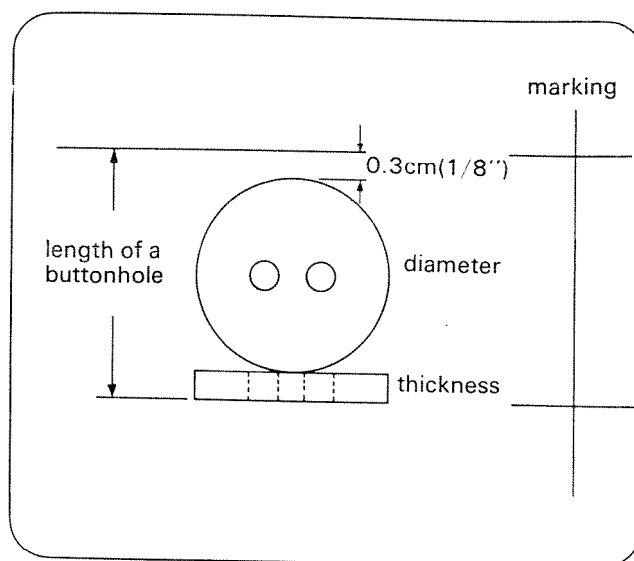
Remove foot by loosening screw with screwdriver.



Replace new foot and tighten screw.

## (2) Determine length

Measure diameter and thickness of button and add 0.3cm (1/8") for bar tacks. Mark buttonhole size on material.

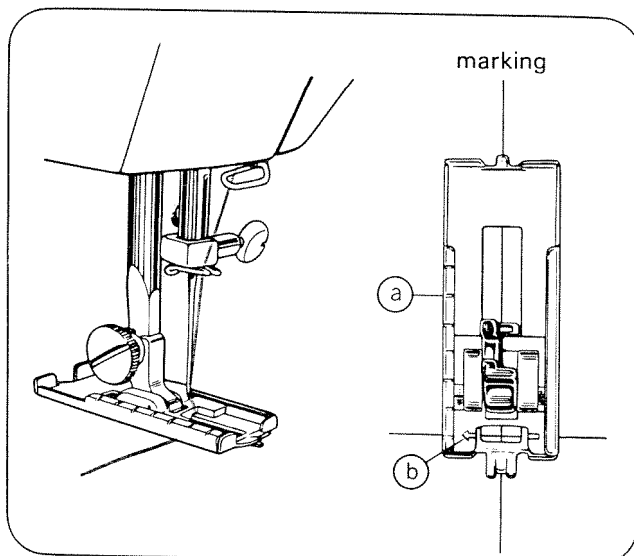


## (3) Determine width

Determine width according to diameter of button, its thickness, and kind of material.

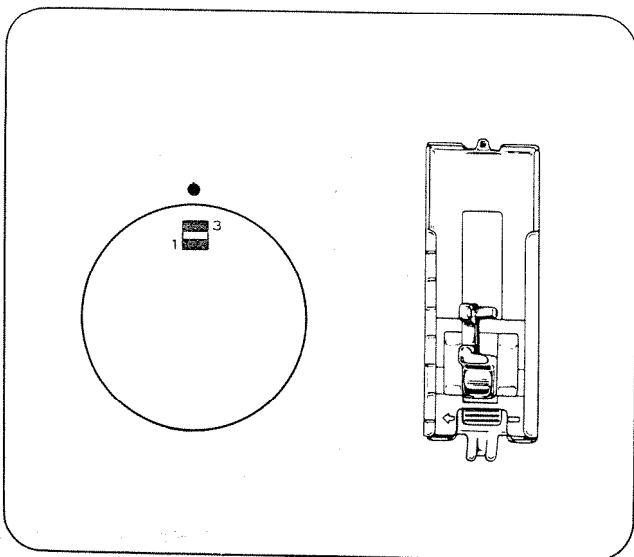
Completely push back sliding part ① of buttonhole foot.

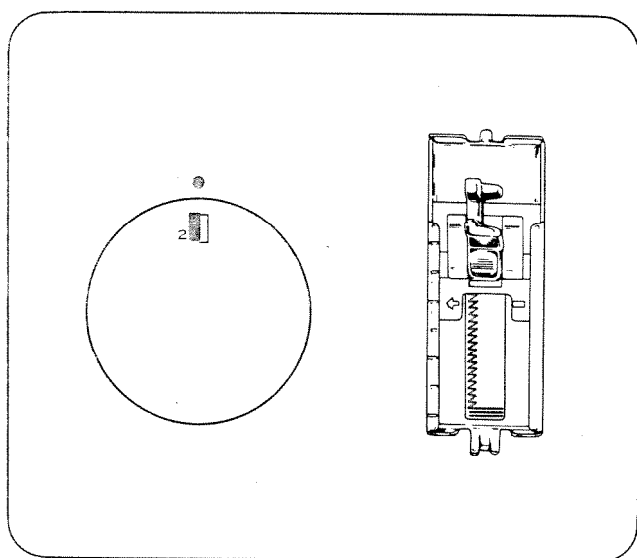
Place material under foot so that marking of buttonhole passes through center of foot and arrow ② of foot indicates beginning line of marking.



## (4) Buttonhole sewing

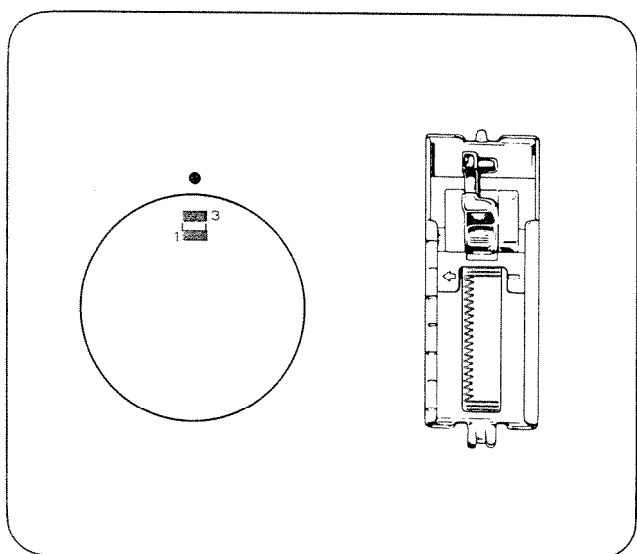
**Bar tacking:** Set pattern selection dial to 1 (G) and sew 5-6 stitches.



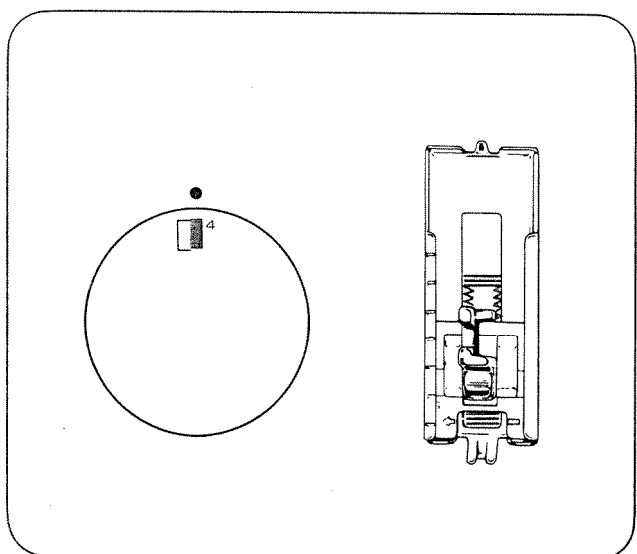


**Left side:** Change pattern to 2 (2 ■). Sew left side from front to back until it reaches end line.

Remember the point where arrow shows so that it is not necessary to mark end lines for all buttonholes.



**Bar tacking:** Change pattern to 3 (■<sup>3</sup>\*) and sew 5-6 stitches.



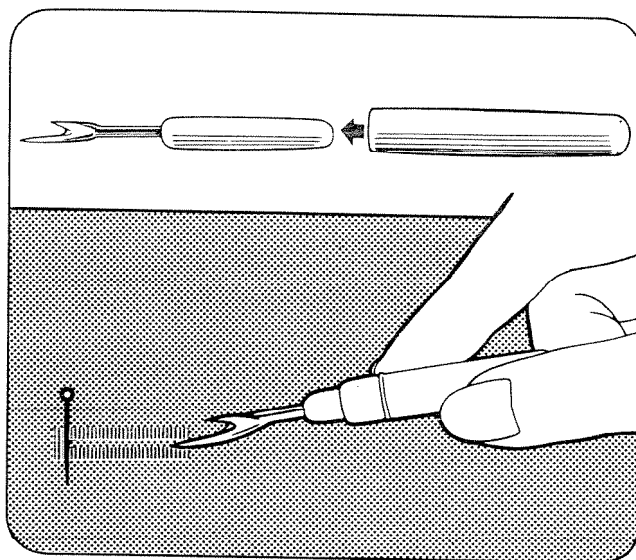
**Right side:** Change pattern to 4 (■<sup>4</sup>) and sew right side until it catches first bar tack.

**Quick finish:** To prevent unstitching, set zigzag width at 0 and proceed for a few stitches.

### (5) Cutting buttonholes

Stick a needle through bar tacks to prevent over-cutting.

Cut buttonhole along center with buttonhole cutter:

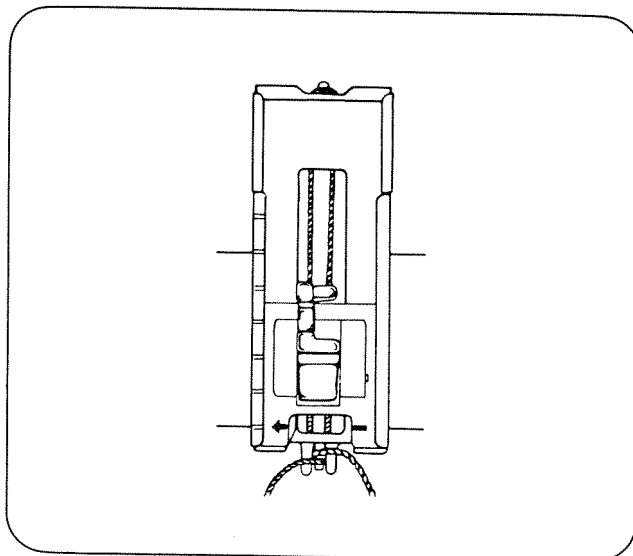


### (6) Corded buttonholes

For stretch fabrics such as knits, a corded buttonhole is effective to keep finished buttonhole in shape.

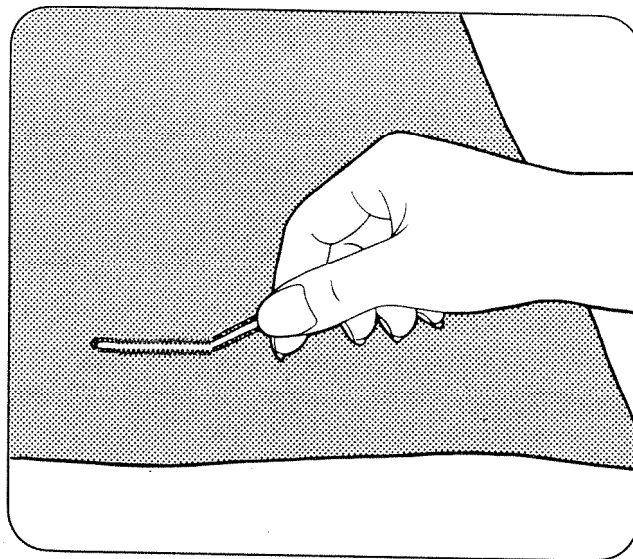
Hook filler cord on top spur and lead ends of cord under foot, pull taut, and hook them to bottom notches as shown.

Proceed with stitching as for regular buttonholes.



When buttonhole is completed, pull filler cord ends so that loop on the other end disappears into buttonhole stitching.

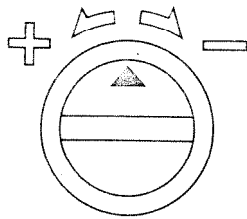
Thread ends of cord to reverse side and tie, or cut both ends of cord.





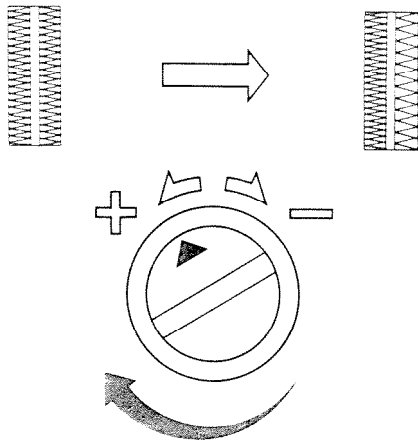
### (7) Left and right side balance of buttonhole

Stitch density on right and left sides of buttonhole can be adjust by buttonhole balance control dial.



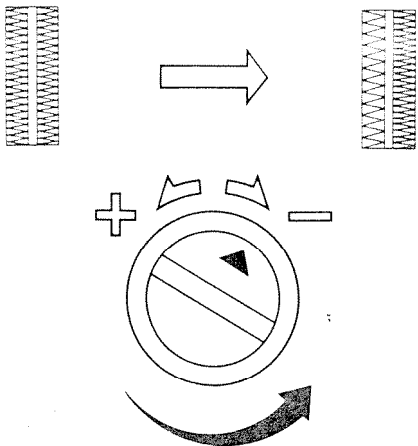
If the stitches on the right side of the buttonhole are too close together, turn the dial to the left (+).

\*Turning dial to left opens right side and closes left side.



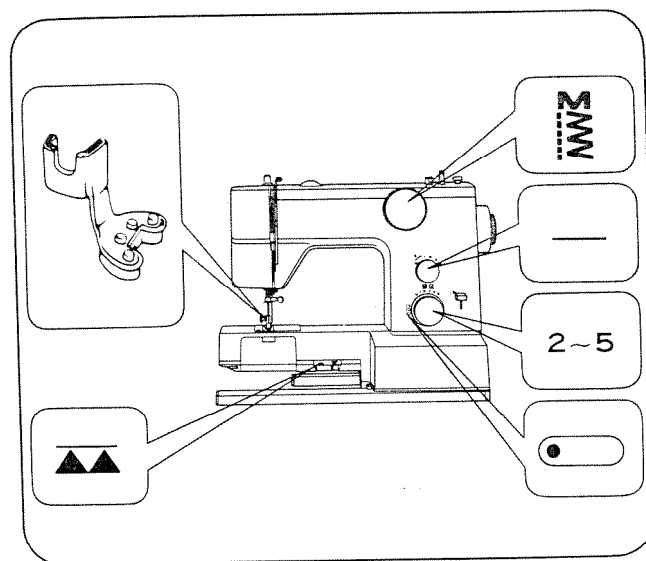
If the stitches on the right side of the buttonhole are too open, turn the dial to the right (-).

\*Turning dial to right closes right side and opens left side.



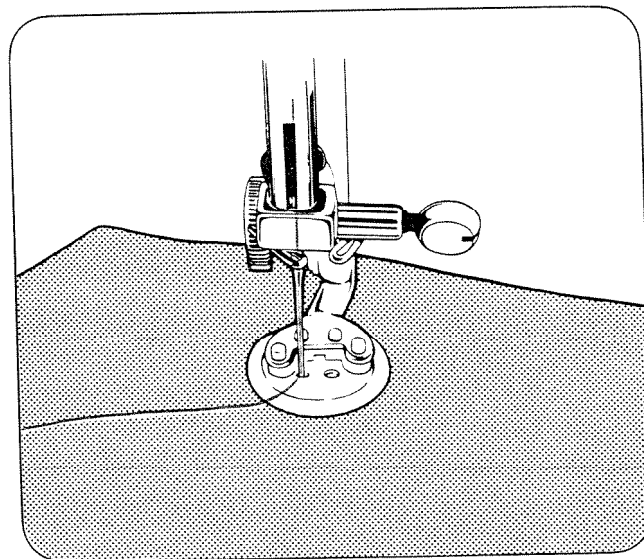
## 10. SEWING ON BUTTON

Set machine as shown.



Position a button and material under foot. When needle comes to left side of stitch, lower foot. Raise needle and adjust zigzag width so that needle comes to right hole of button.

Run machine at medium speed and sew 5-6 zigzag stitches.



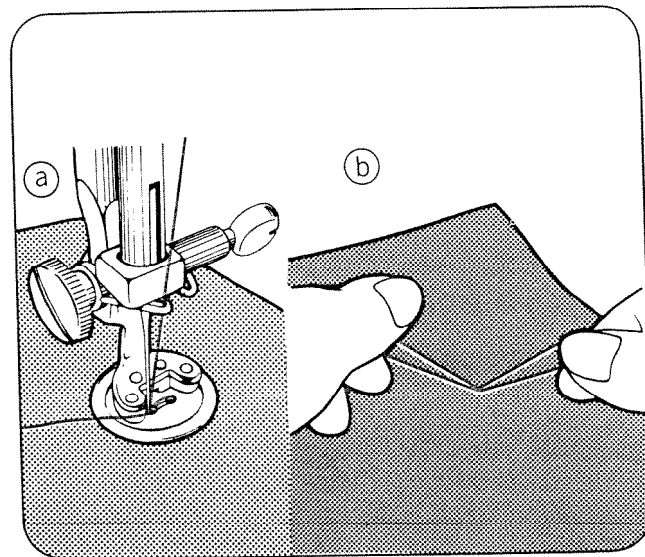
Stop machine when needle is in upper position.

① Set zigzag width control to 0 and sew 3-4 stitches to prevent unstitching.

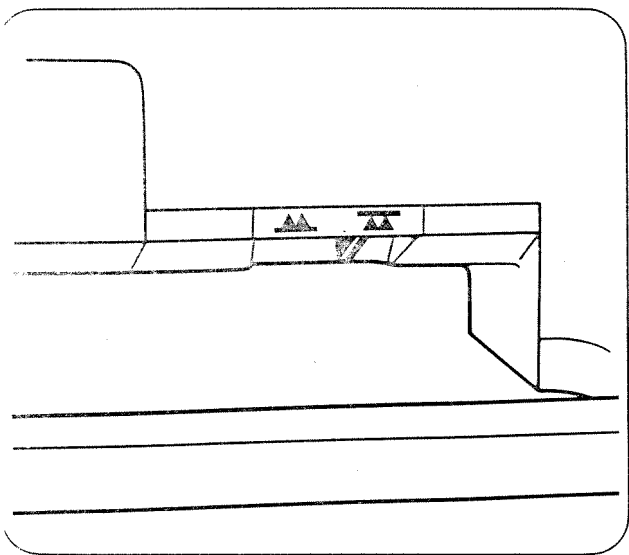
OR


② Draw out work and cut off threads.


Draw thread ends through to wrong side and tie a knot.



## 11. DROP FEED LEVER

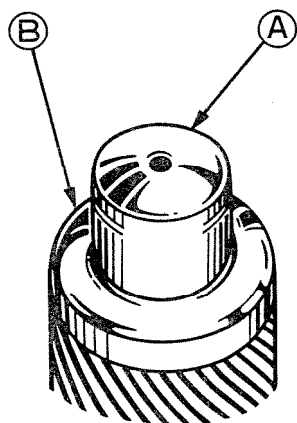




The lever is in the right side of shuttle cover. For normal sewing, move the lever to  position.

To lower feed dog, move the lever to  position.



This position is used for button sewing, darning and embroidery.




## 12. FOOT PRESSURE



**Normal sewing:** Usually for straight sewing or zigzag sewing, pressure pin  should be maintained in the lower position. While the advancement is normal, drop feed lever is on  position.

**Thin or delicate fabric sewing:** Because lighter pressure is desirable for perfect sewing of fine silk or weak fabric, pressure button should be adjusted in the middle.

Loosen pressure with outer ring  and then push pressure pin  half way towards the bottom.

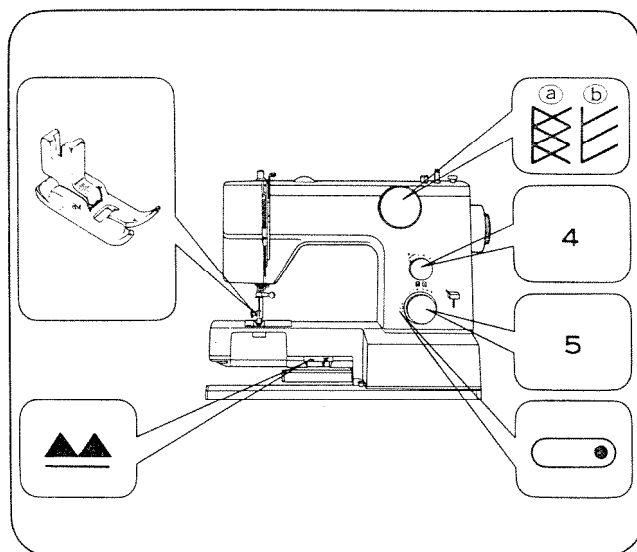
**Oversewing and embroidering:** To be able to move fabric freely in case of darning, mending and embroidering, loosen pressure pin  by pushing outer ring , move drop feed lever to  position.

### 13. OVERLOCKING

Overlocking stitches make it possible to sew and overcast seams at the same time.

Set machine as shown.

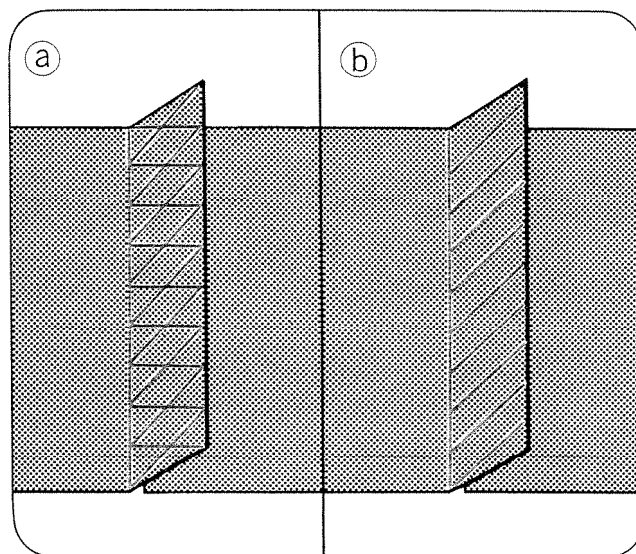
- Ⓐ For medium, thin material
- Ⓑ For medium, thick material



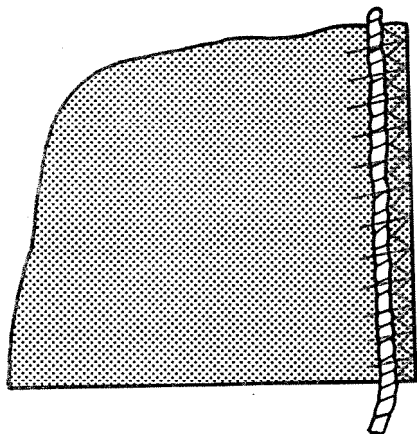
Put two pieces of cloth together with right sides facing and sew.

To prevent edges from fraying, sew so that right side stitches drop outside the edge of material.

In some cases overlocking stitches can be used for overcasting.



## 14. APPLICATIONS OF THE ELASTIC OVERLOCKSTITCH



This stitch is very effective for overcasting, edgestitching, etc, on knits and very stretchy fabrics, also, for decoration.

### TOPSTITCHING

A decorative topstitch can be produced with the elastic edging stitch. Stitch around the structural lines of the garments for a dramatic effect. Topstitch a braid or decorative inset with the elastic edging to add an additional decorative flair.

Pattern: 

Length: 5

Width: 5

Feed Dog: Up


Pressure: Normal

Foot: Embroidery

Needle Position: L or R

### EDGING

As with the stretch blind hem, the elastic edging stitch can be used for a decorative edge on place mats, napkins and tablecloths. Proceed as you would with the stretch blind hem stitch, but use the elastic edging stitch instead.

Pattern: 

Length: 5

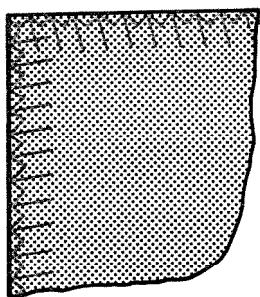
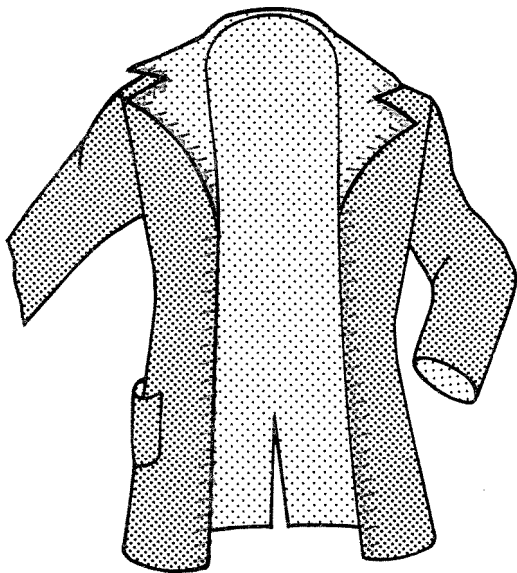
Width: 3—5

Feed Dog: Up

Pressure: Normal

Foot: Embroidery

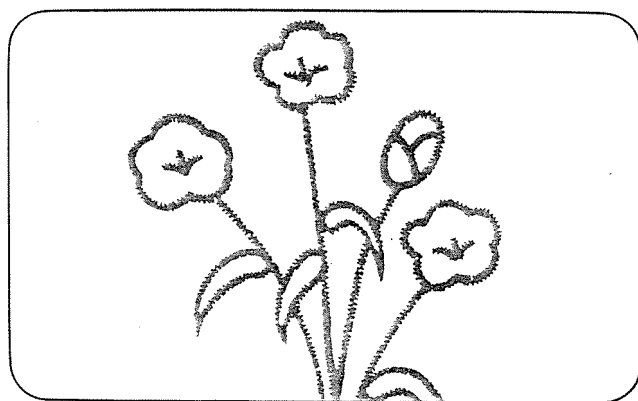
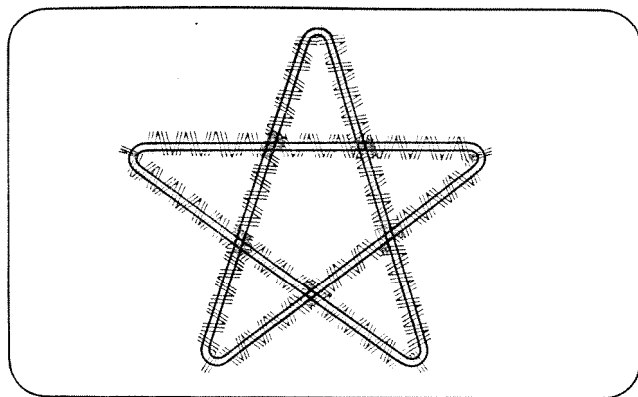
Needle Position: M, L or R



## 15. APPLICATION OF RICK-RACK

### A. Topstitching/Rick-Rack

A decorative topstitch can be produced with the rick-rack stitch. Stitch around the structural lines of the garment for a special effect. Topstitch braid or a decorative inset to add an additional creative flair.

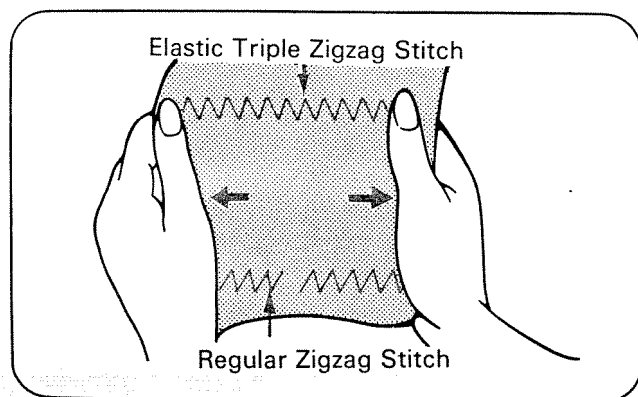
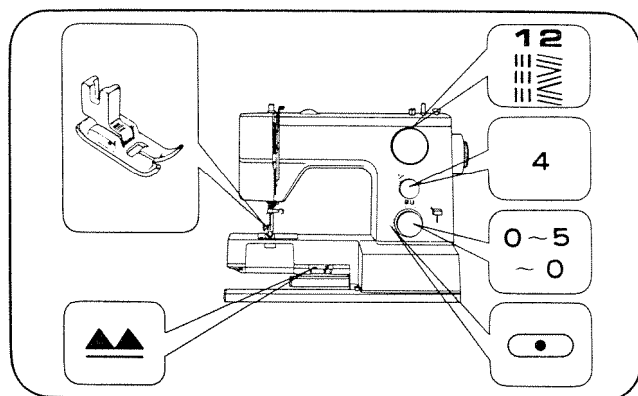


### B. Tapering/Rick-Rack

The rick-rack stitch may be tapered to form creative stems and petals of flowers, embroidered pictures and wall hangings. As in tapering the zigzag, slowly turn the stitch width lever from 0 to 5 and back to 0. A group of these tapered rick-rack stitch will form bouquet-like effect.

### C. Procedure:

- The elastic rick-rack stitch is a zigzag line of stitching that is desired so that seams may be pressed open.
- Apply this stitch to areas of stress on both wovens and knits.
- Use narrow width of zigzag as a heavy duty triple stitch for seams.
- Use medium and wide widths of zigzag for overcasting edges of seams, facings and hems of heavier weight fabrics such as terrycloth, and for attaching elastic. Use also for decorative stitching.
- Guide your fabric from the front. Do not pull or push as it will cause poor stitching.

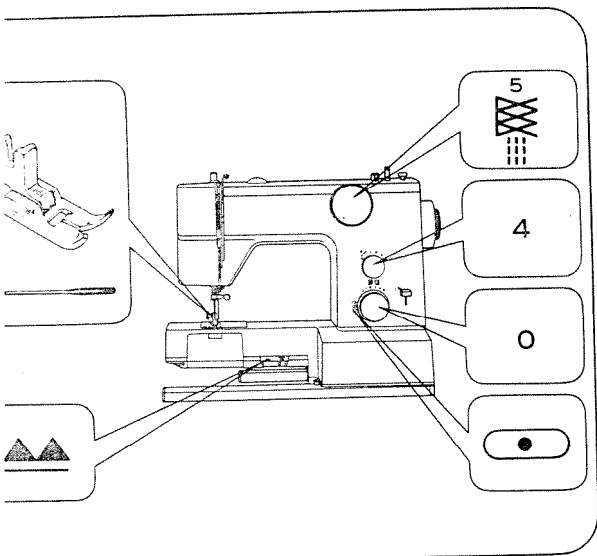


## STRETCH SEAMS

A ball-point needle is essential.  
Paper may be laid under knits for smoother feeding.

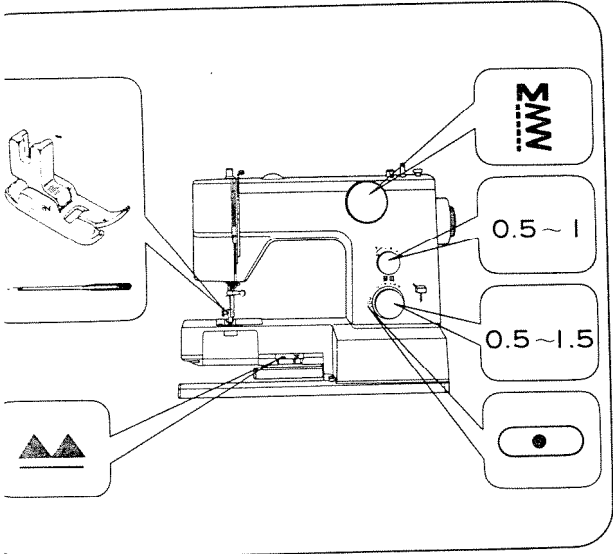
① **Medium-weight fabrics...**  
double knit, jersey.

Apply elastic triple stitch.



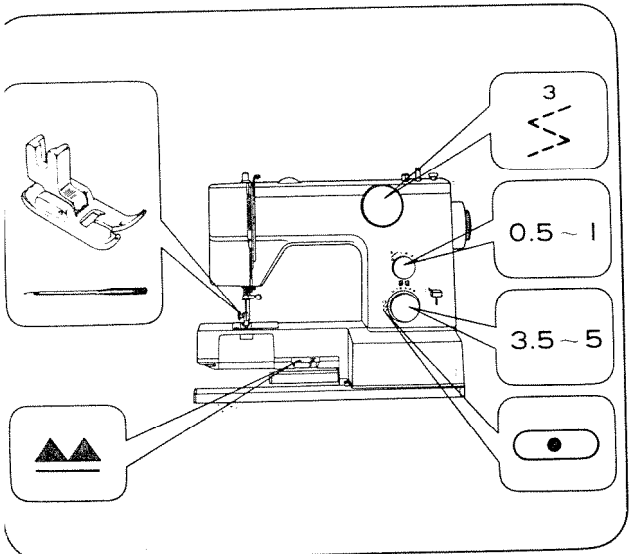
② **Light-weight fabrics**

Apply small zigzag. Reduce upper and lower thread tension.



③ **For Very elastic fabrics...**  
spandex (power net)

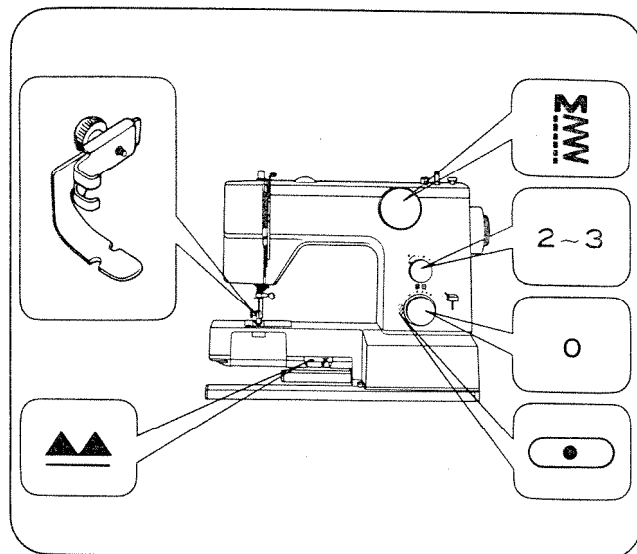
Use lapped or abutted seam.  
Apply multiple zigzag.



## 17. ZIPPER SEWING

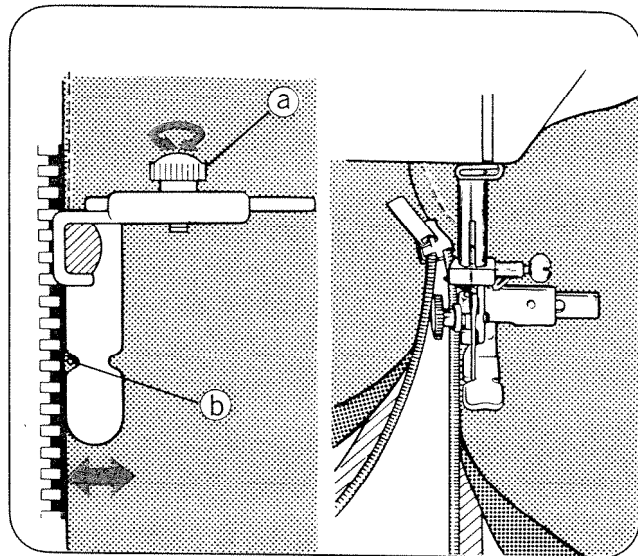
Set machine as shown.

By using special zipper foot with sliding adjuster, zipper sewing can be easily done without turning fabric.



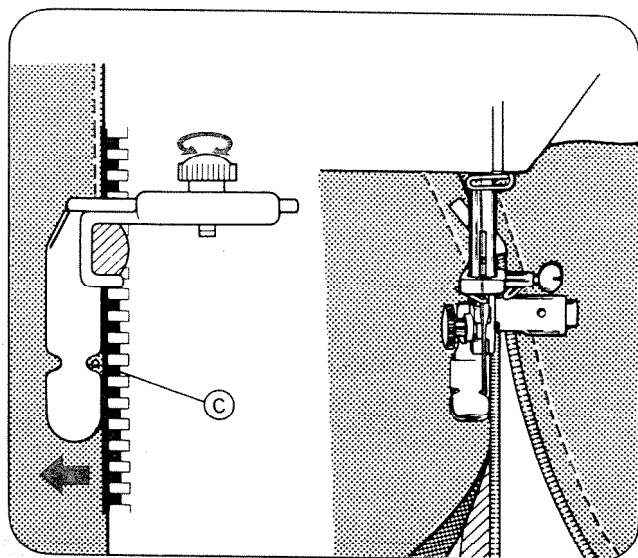
Loosen screw (a) and set foot so that needle comes into position (b). Tighten screw.

Sew right side of zipper guiding fabric carefully so that right side teeth of zipper are parallel with left edge of foot.



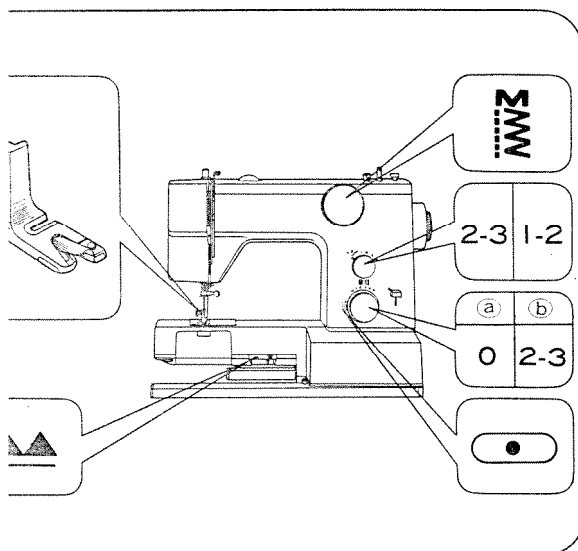
Re-set foot so that needle comes into position (c).

Sew left side of zipper in the same way.



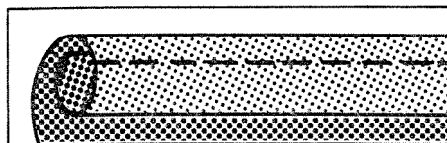


## ROLL HEMMING

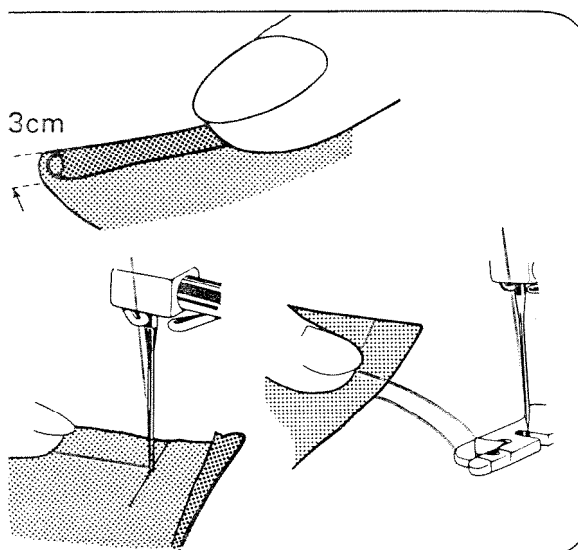
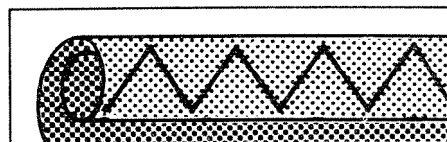


Set machine as shown.

(a) With straight stitch

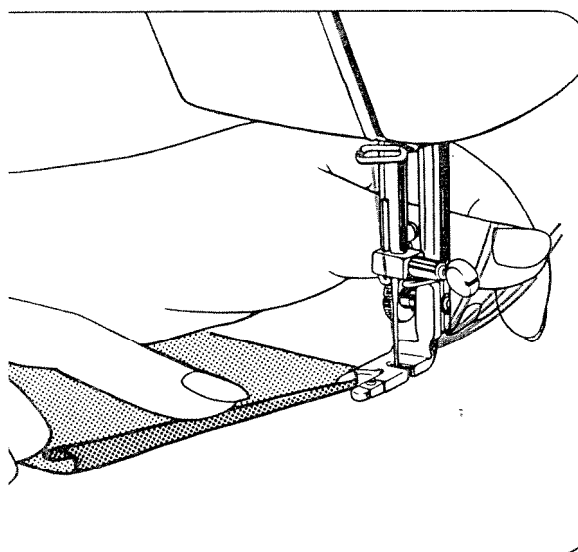


(b) With zigzag stitch



Make 0.3cm(1/8") double fold for about 5cm (2") at very edge of material, and crease it.

Sew twice at 0.6cm(1/4") from edge. Draw out work and leave about 15cm(6") of thread.



Place material under presser foot and guide edge into scroll, pulling six thread ends towards back.

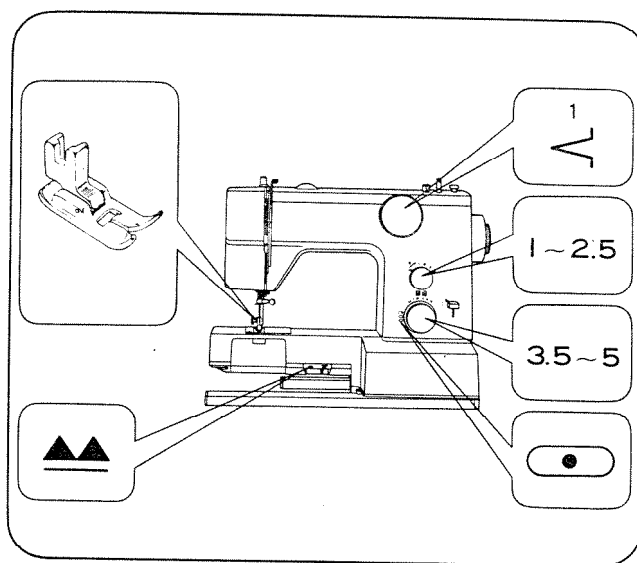
Sew a few stitches as shown.

Keep guiding material holding raw edge about 0.6cm(1/4") in front of foot.

## 19. SHELL STITCHING

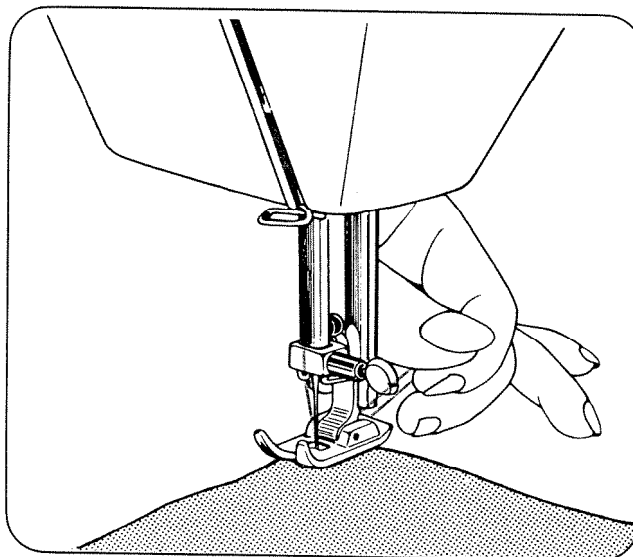
Silk, nylon organdy or similar sheer fabrics are suitable.

Set machine as shown.

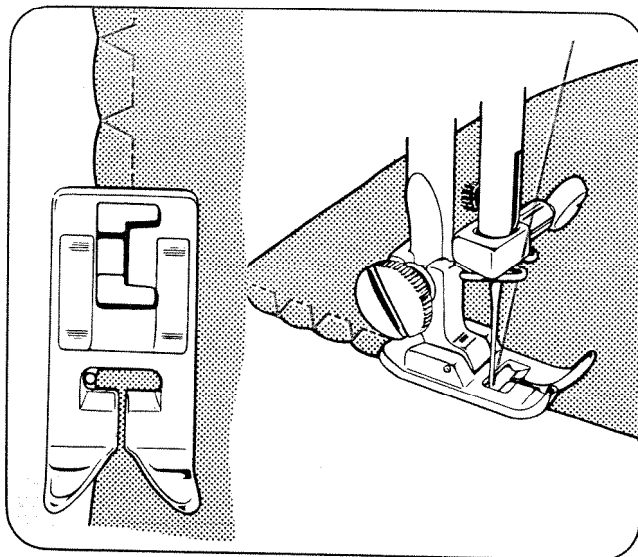


Fold edge of material. With folded edge to left, place it under presser foot.

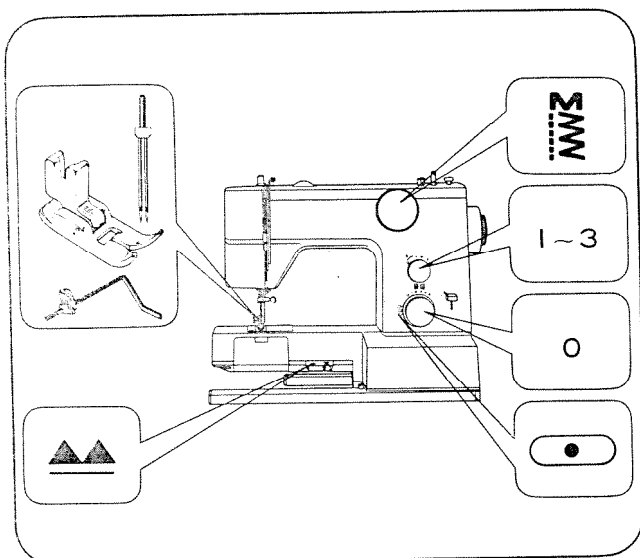
Pull thread ends towards back when starting sewing.



Make sure needle misses raw edge of fold when it moves side ways.



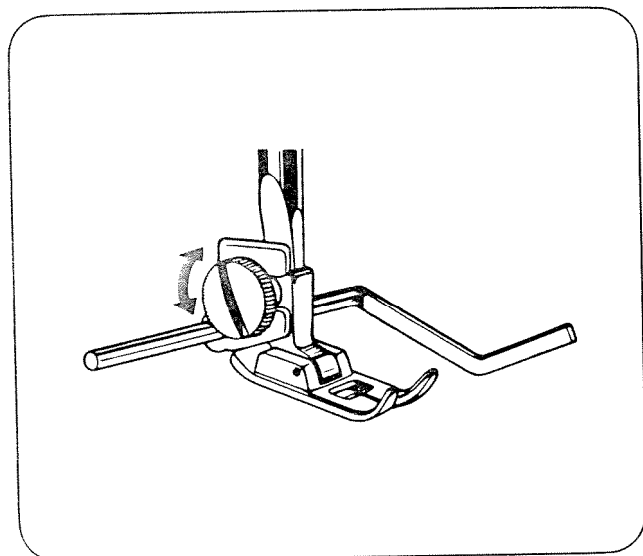
## 20. PIN TUCKING



Set machine as shown.

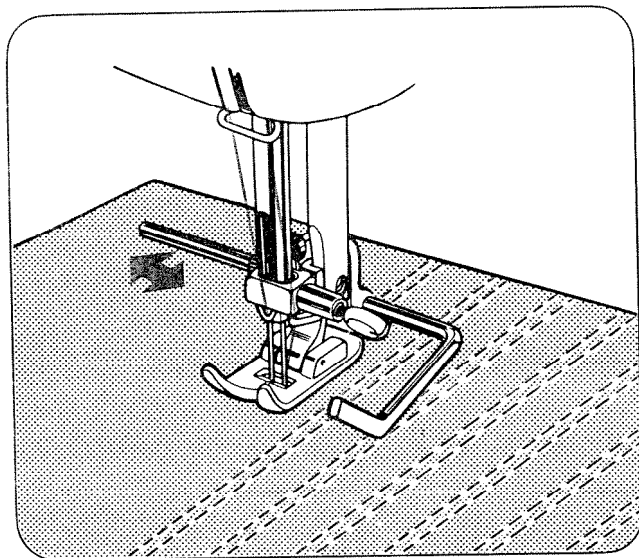
For better appearance, use sheer material and tighten lower thread a little.

For twin needle threading, see p. 36.



Loosen presser foot thumb screw and insert square cut of quilting guide holder between screw and foot.

Tighten screw.



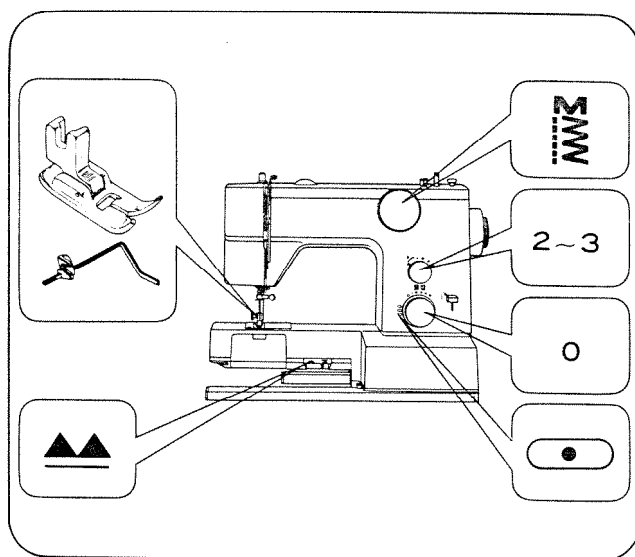
Mark first line with pencil or tailor's chalk, and sew.

From second line, just sew, following seam of first line using guide.

Interval between seams can be adjusted by moving guide - in direction of arrow.

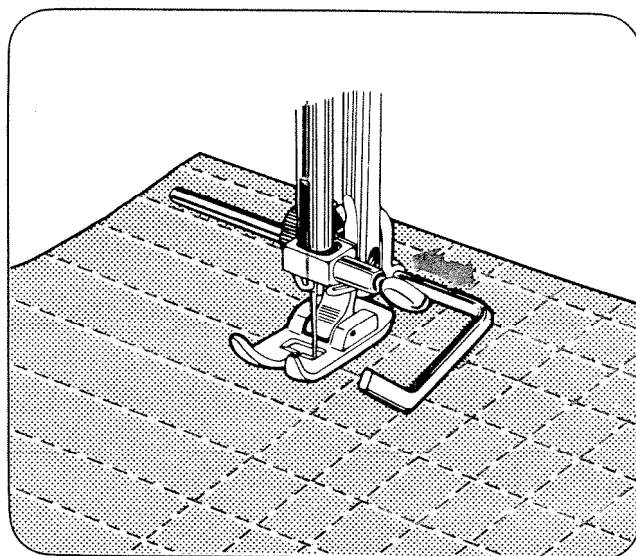
## 21. QUILTING

Set machine as shown.

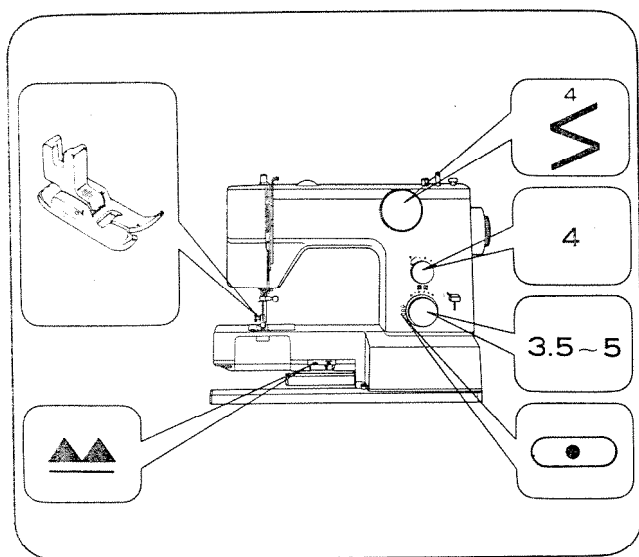


Baste layers of material to prevent them from slipping out as you sew.

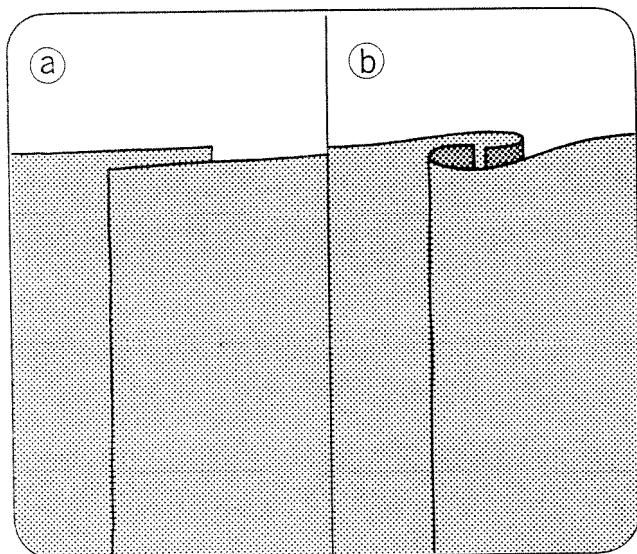
Attach quilting guide and sew in the same way as pin tucking.



## 22. LAPPED SEAM SEWING

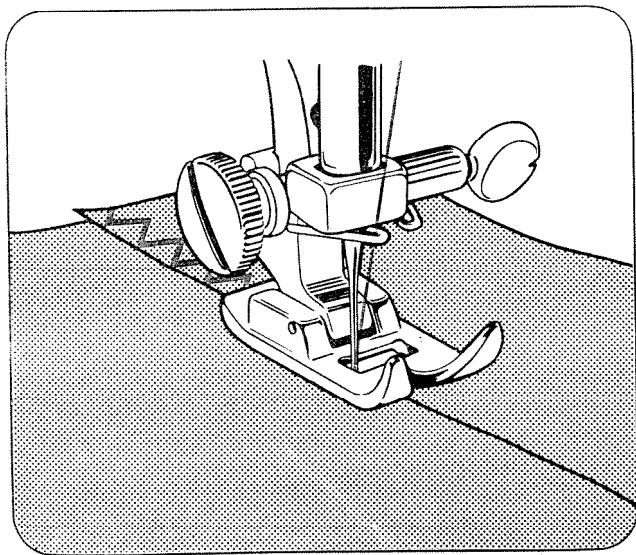


Set machine as shown.



Place one piece of fabric over another according to the width of stitch size.

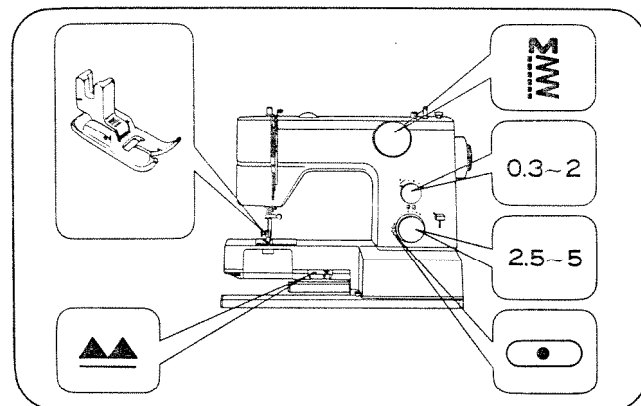
- Ⓐ For non-fray fabrics.
- Ⓑ For easy to fray fabrics.



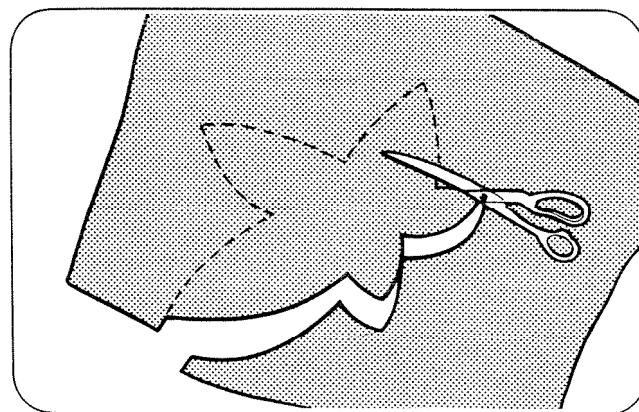
Sew over folded area from right side.

## 23. APPLIQUE WORK

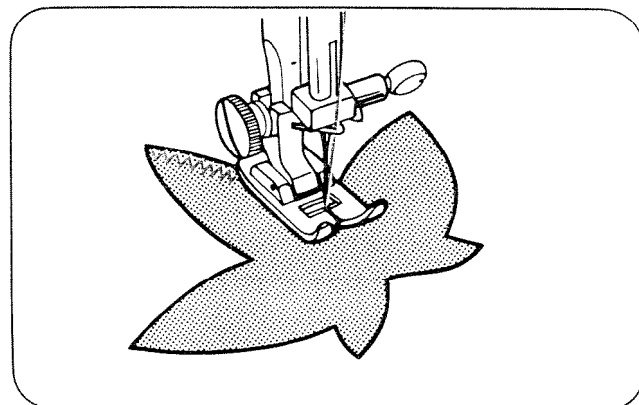
Set machine as shown.



Draw design on material to be used as an applique and cut it out.  
Place cut-out on base material and baste it.



Sew around outline with zigzag stitch adjusting stitch length and width according to shape and size of cut-out and type of base material.

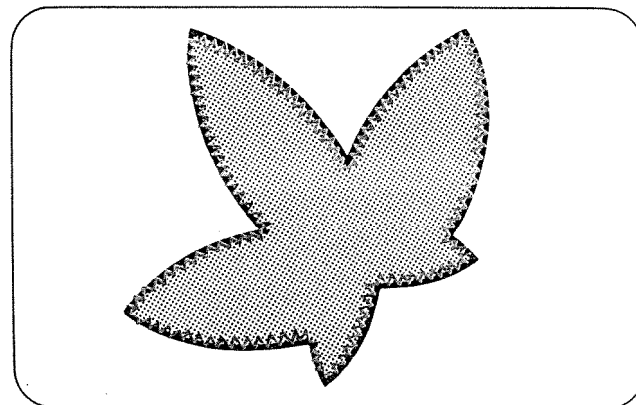


To change direction at corners, or to sew very small circles, stop machine, positioning needle just away from edge of cut-out, lift presser foot and turn material.

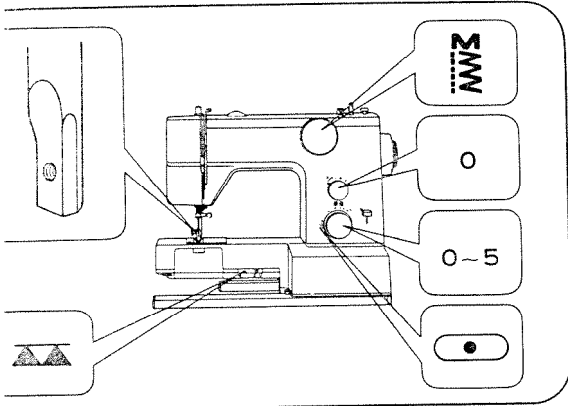
Lower presser foot and continue sewing.

Sew a few stitches at end with zigzag width at 0.

This is to prevent unstitching.



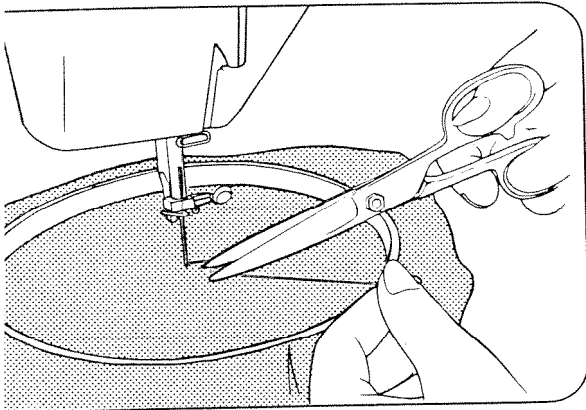
EMBROIDERY



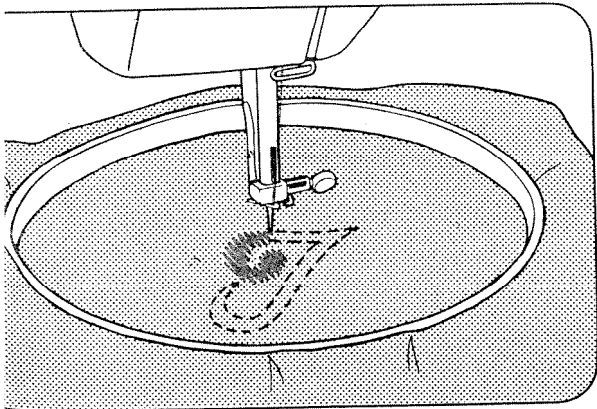
Set machine as shown.  
Remove foot, and holder screw.  
To avoid lower thread being pulled up, reduce upper thread tension.

Needle	Thread
No. 9	120~100
No. 11	100~80
No. 14	60~50

For good embroidery, it is important to use correct needles and thread.  
Use thin embroidery silk for upper thread and a thinner silk of same kind and color for lower thread.  
Trace your design on material and center it in embroidery hoop.  
Make sure material is taut.



Pull out lower thread by turning hand wheel towards you while holding upper thread lightly.  
Lower presser foot lifter.



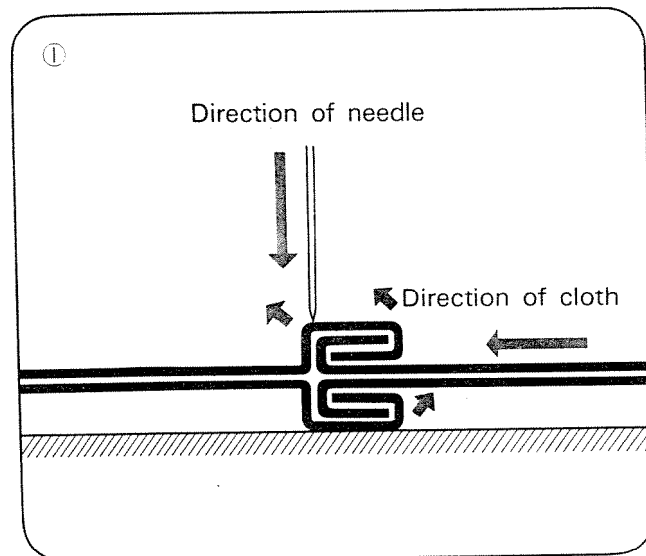
Hold both threads and start sewing along outline of design with satin stitch.  
Continue sewing guiding hoop by hand.  
To finish filling, sew several stitches with zigzag width at 0.  
Lay typewriting paper underneath when embroidering sheer fabric.

## 25. THICK CLOTH SEWING

(particularly denim)

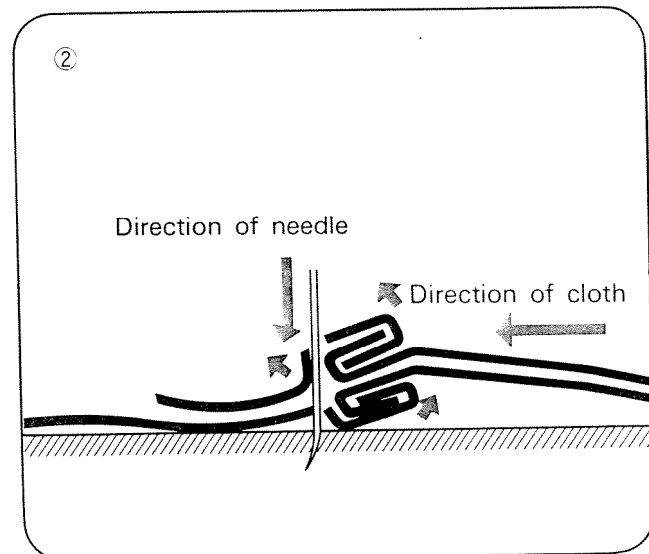
For thick fabric sewing, it is important to respect scheme.

You remark that the sewing is set flat. Needle is perpendicular on the seam and penetrates cloth properly.



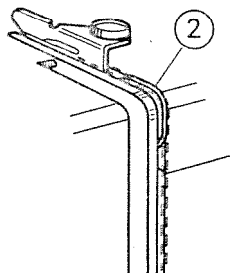
Improper setting causes slips and break of needle. For sewing of important thick cloth, sew gently maintaining the cloth perfectly.

Breaking needle is not mechanical problem but simply misuse.



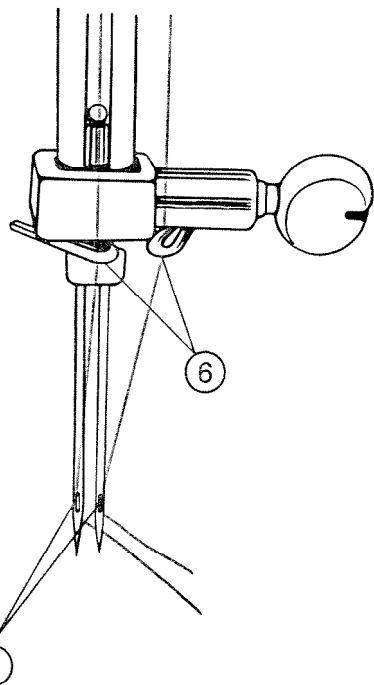


## 26. TWIN NEEDLE THREADING



Thread in the same way as normal threading, except at points ②, ⑥ and ⑦.




At point ②, pass threads separately to right and left of tension disc.



At guide ⑥, pass one of threads to right guide and the other at left guide.

At point ⑦, thread from right guide should be lead to right needle eye, and from left guide to left needle eye.

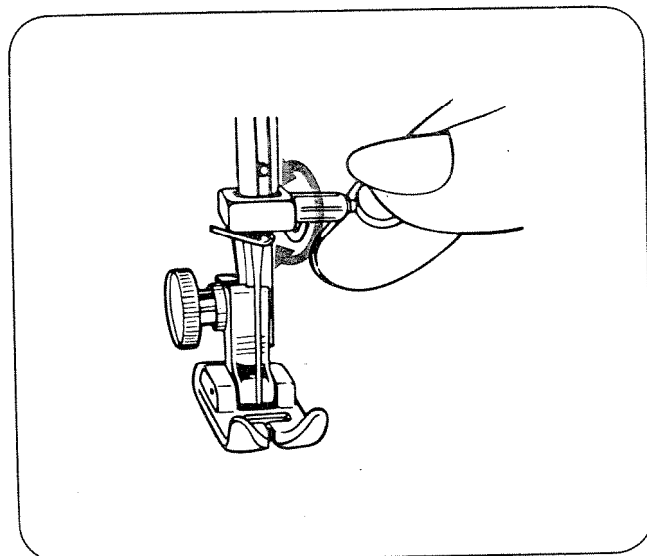
Leave ends of threads of about 15 cm (6").

When using twin needle sewing be sure zigzag width control setting between 0 and 2.5, and needle position control at . If zigzag width control above 2.5 or needle position control at  ,  this will cause needle break.

## 27. NEEDLE CHANGING AND SETTING

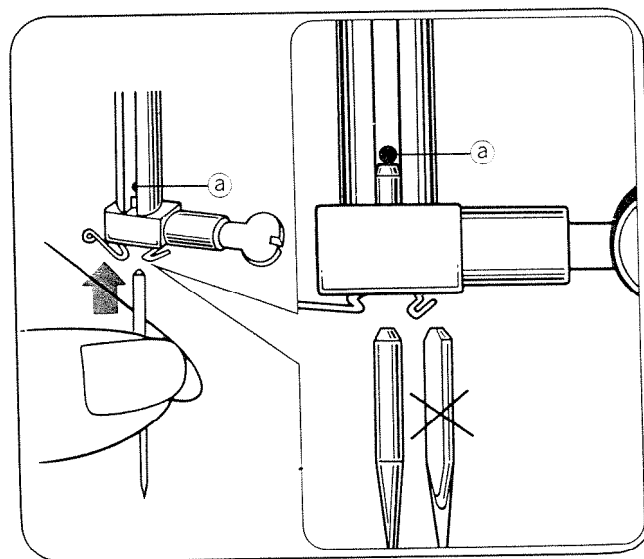
Set needle in the highest position by turning handwheel towards you.

Loosen needle clamp screw and remove needle.



With flat face away from you, insert a new needle into groove of needle bar.

Push needle until it reaches stopper (a) and tighten needle clamp screw firmly.



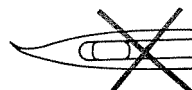
Always use a straight needle with a sharp point.

Using defective or worn needles not only causes stitch skipping, breakage of needles or snapping of thread; it also can damage hook and needle plate.

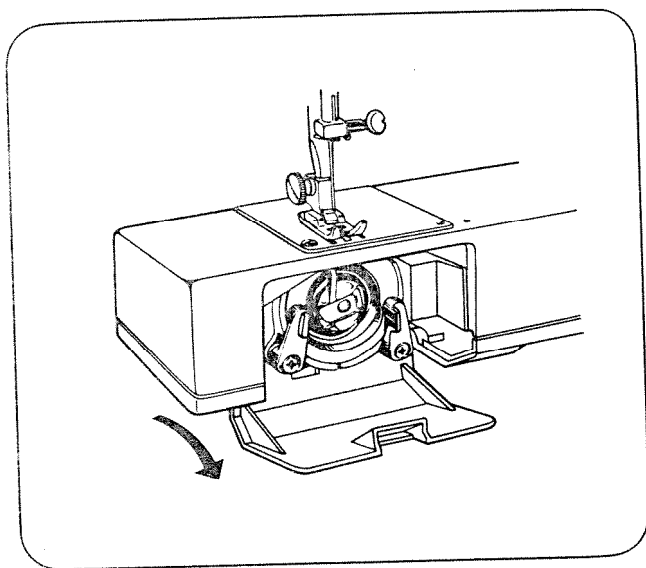
Proper needle

straight shaft

sharp point

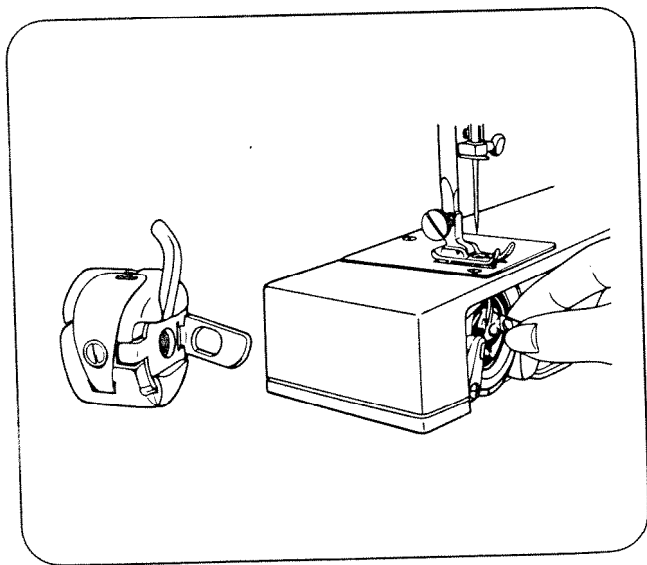


## 28. WINDING BOBBIN

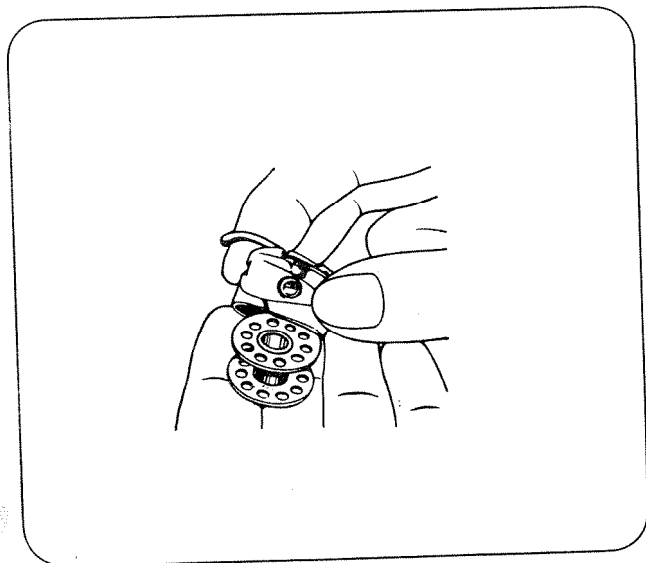


Set needle in the highest position by turning handwheel towards you.

Open shuttle cover.

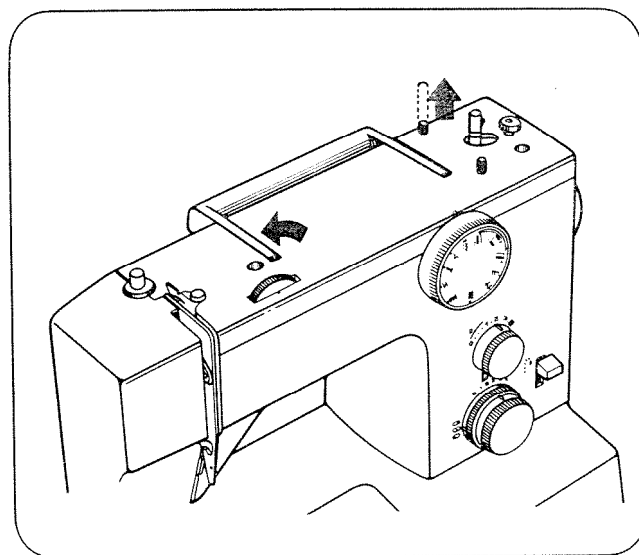


Open latch of bobbin case and take it out.

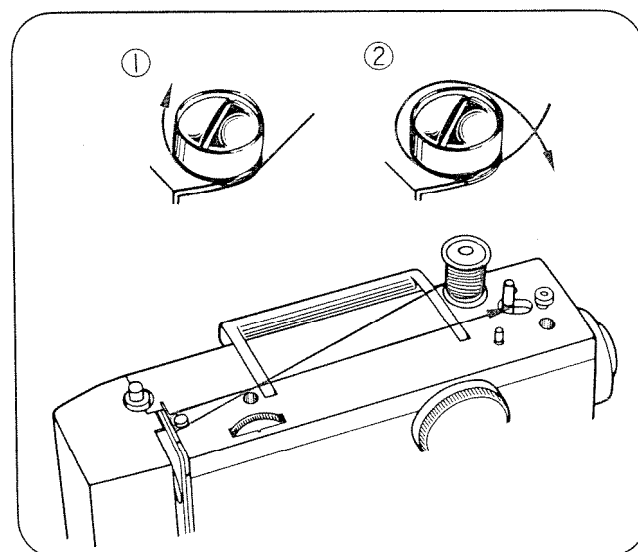


Close latch of bobbin case and bobbin comes out easily.

Push back to fold handle.  
Pull out spool pin.

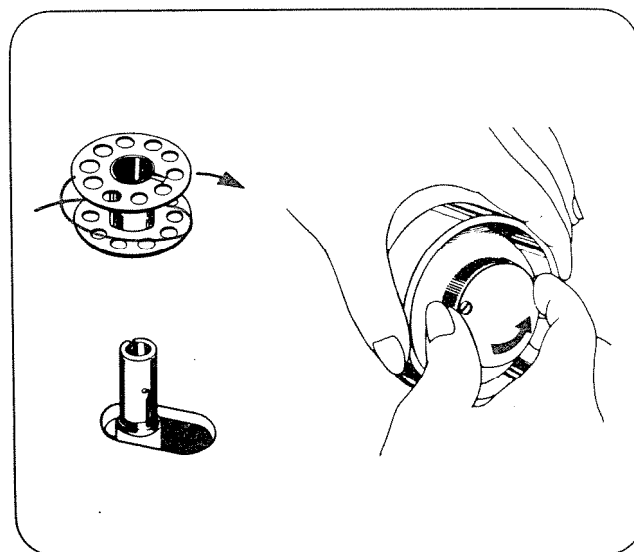


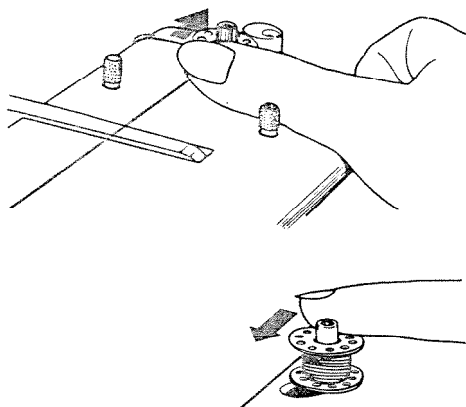
Put a spool on spool pin.  
Draw thread from spool pin through thread  
guide and pretension device, following numb-  
ers ① and ②.



Wind thread clockwise around bobbin several  
times.  
Push bobbin on to spindle.

Holding handwheel with your left hand  
disengage handwheel by unscrewing stop  
motion knob.

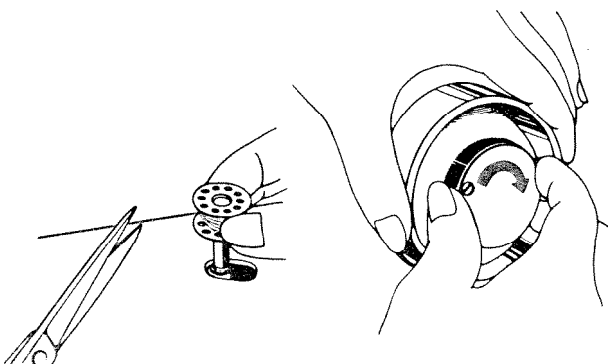




Push bobbin to right and press down foot controller.

Machine stops automatically when winding is full.

Push bobbin to left.

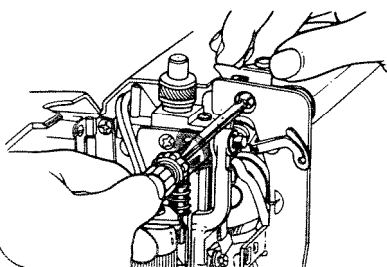


Take off bobbin from spindle and cut thread.

Retighten stop motion knob.

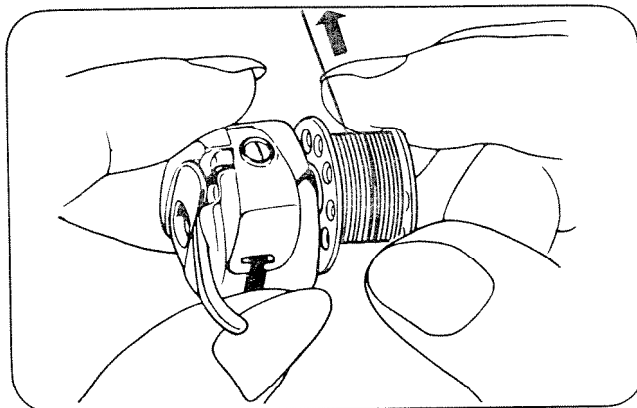
trouble		
correction		

If bobbin is wound unevenly as shown, open face cover and loosen set-screw of the guide for bobbin winding, by using screw driver and adjust height.

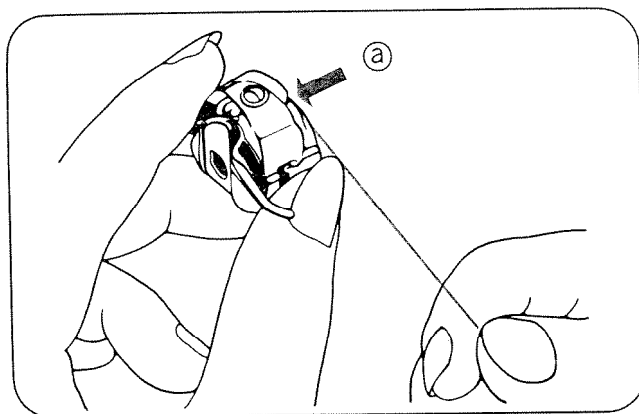


## 29. INSERTING BOBBIN

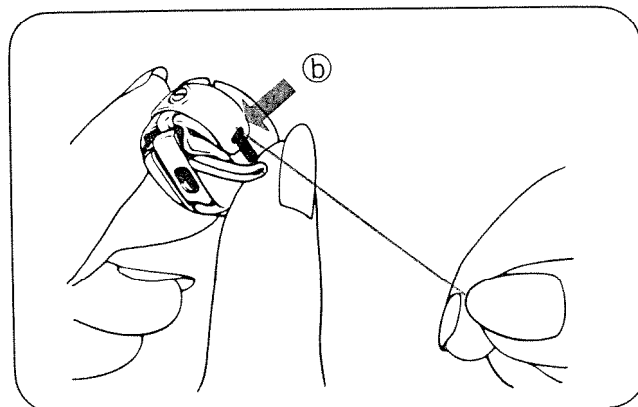
Place bobbin in its case with thread running in direction of arrow.



Guide thread into slot (a) of bobbin case.



Pulling thread to left, bring it under tension spring then to delivery eye (b).

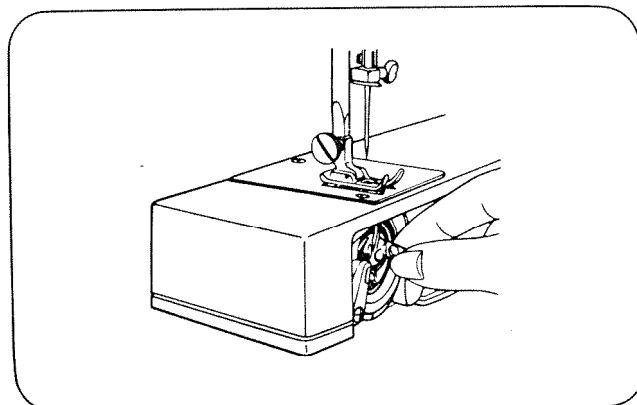


Raise needle in the highest position.

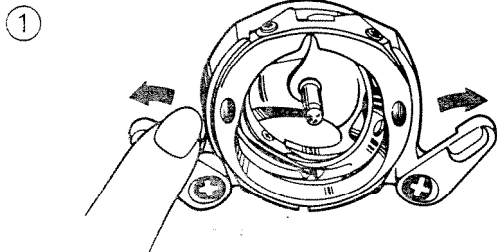
Leave end of thread of about 10 cm (4") from bobbin case.

Take hold of latch and push bobbin case into hook.

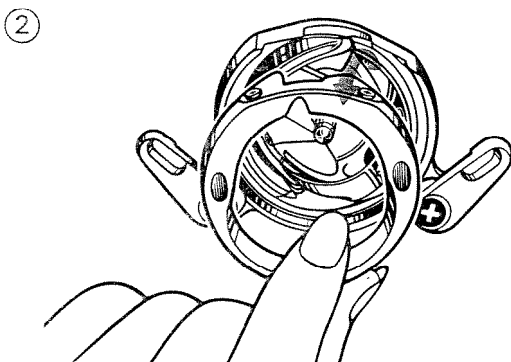
Release latch when bobbin case is fully inserted.



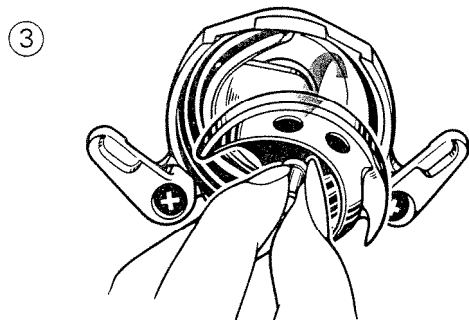
### 30. LOWER TENSION ADJUSTMENT



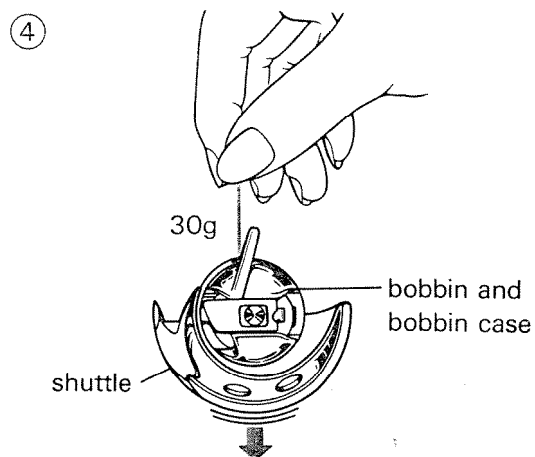
Push latches towards outside.



Remove shuttle cover



Remove shuttle



all of them descend with light resistance

In case of skipping stitch or loop stitch, your machine is not out of order.

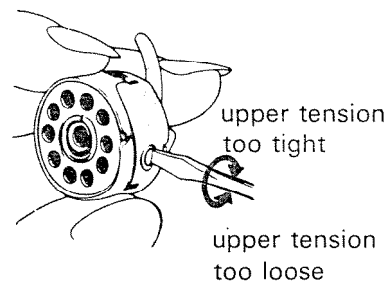
To check bobbin thread tension, suspend bobbin, bobbin case and shuttle all together by thread as illustrated.

Move back and forth vertically (like yo yo). always use original bobbin.

Then it is easy to adjust upper tension on the numbers 4, 5, 6.

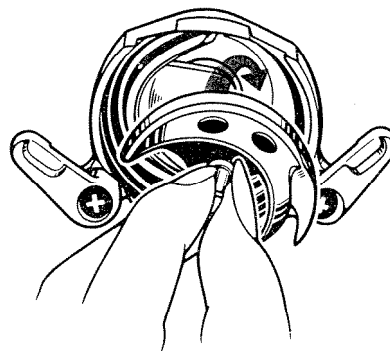
For tension adjustment, turn screw using small screwdriver.

⑤



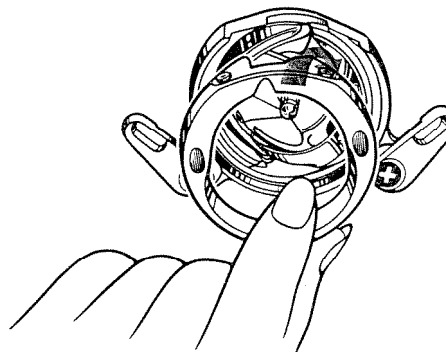
attach shuttle

⑥



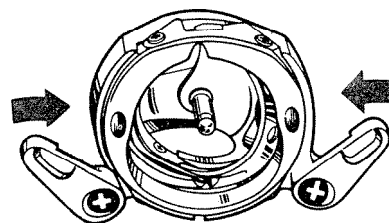
attach shuttle cover

⑦



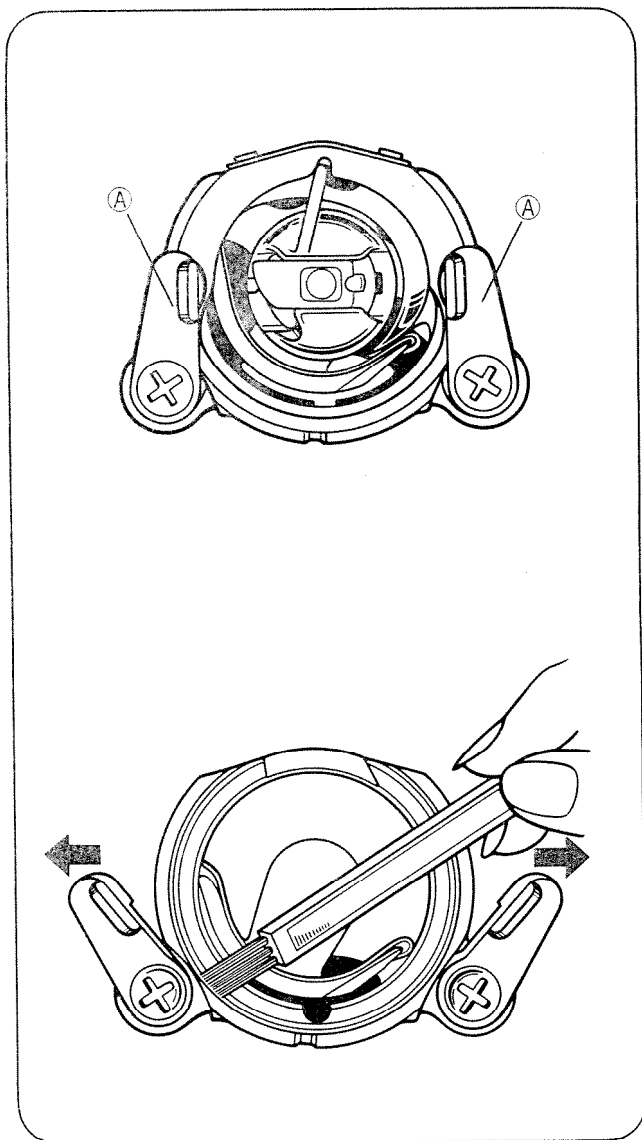
push latches towards inside

⑧





### 31. CLEANING SHUTTLE CASE



Thread stuck between shuttle and shuttle case causes sudden rapid running or sudden stop machine.

In this case you should proceed as follows:

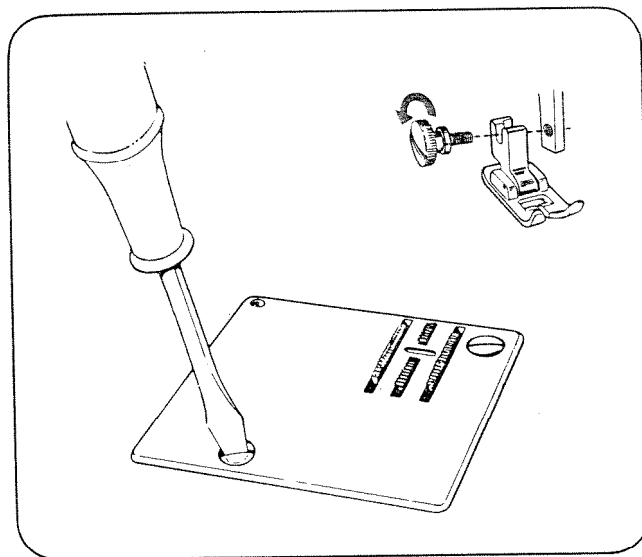
- ① Lift presser foot and remove bobbin case.
- ② Push latches ② towards outside and remove shuttle cover and shuttle with finger.
- ③ Clean shuttle and shuttle case and assemble them in its place.

## 32. MAINTENANCE

Your machine requires regular cleaning and oiling for satisfactory sewing performance. A machine which is used for a few hours a day needs to be cleaned and oiled once a month.

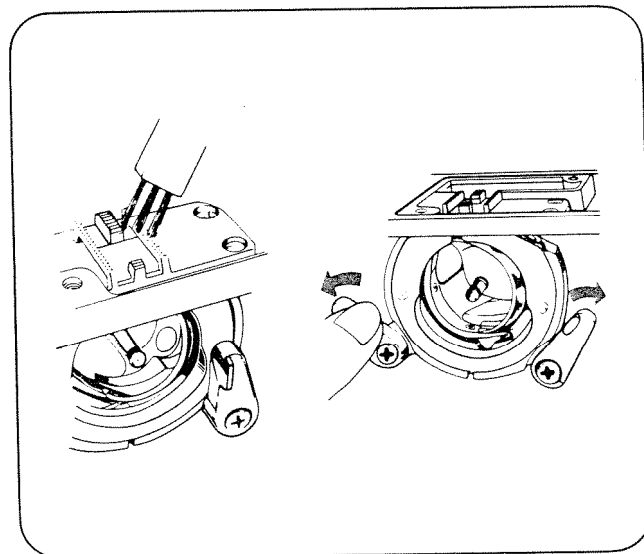
### (1) Cleaning

Remove foot and needle.  
Remove needle plate.

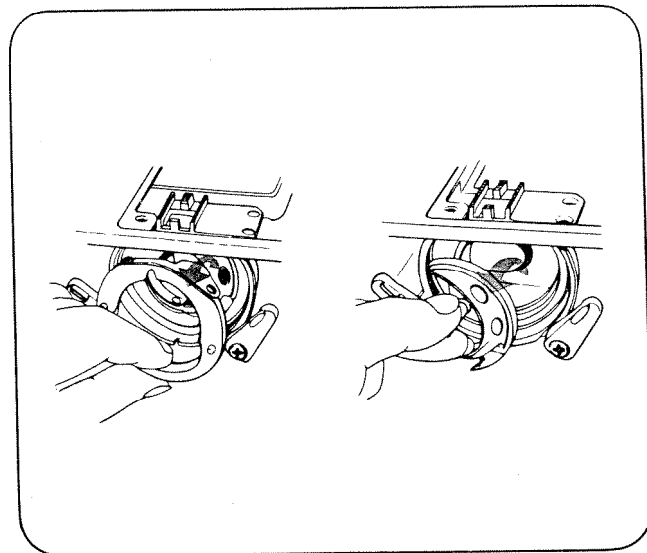


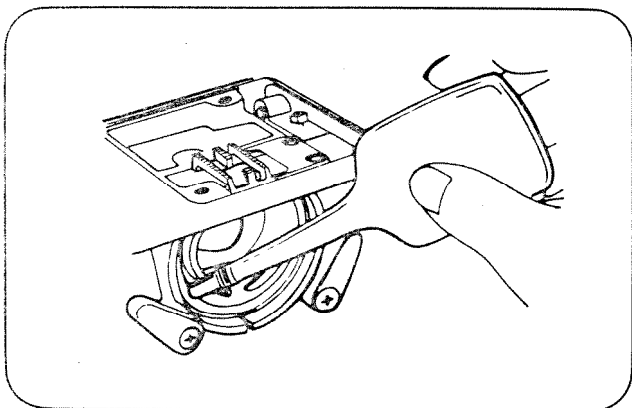
Brush off all dust and lint on feed dog with cleaning brush.

Turn latches outwards.



Remove shuttle cover.  
Remove shuttle. Clean shuttle race with a cleaning brush and a soft cloth.

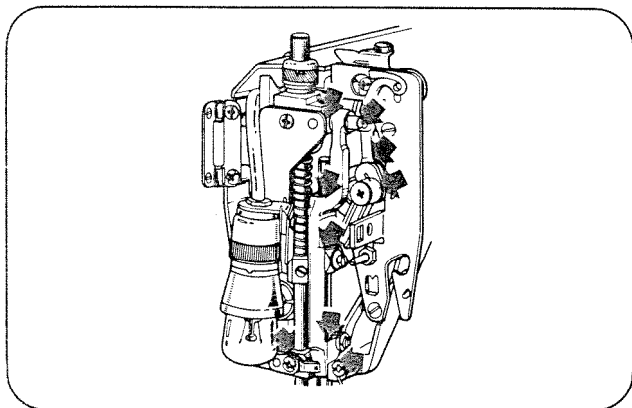




## (2) Oiling

Use oil manufactured specially for sewing machine use. Other oils will eventually cause mechanism to jam.

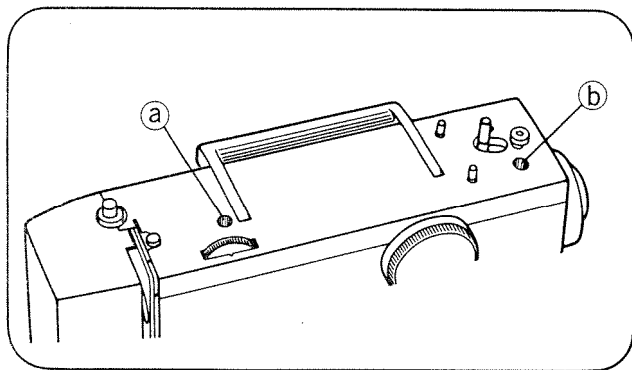
Apply one drop of oil to part of hook where friction occurs.



Open face cover and apply oil in the same way.

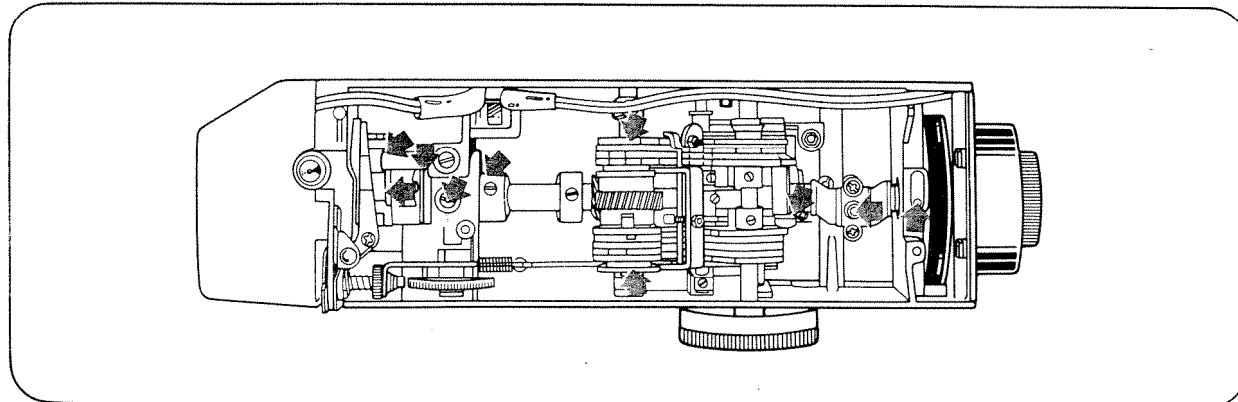
Be careful not to apply too much oil or it may stain your material and cause some sewing difficulty.

After oiling, run machine for 1-2 minutes to allow oil to penetrate to every part.



Remove top cover by loosening screws (a) and (b) with large screwdriver.

Apply one drop of oil to lubricating points indicated by arrows.



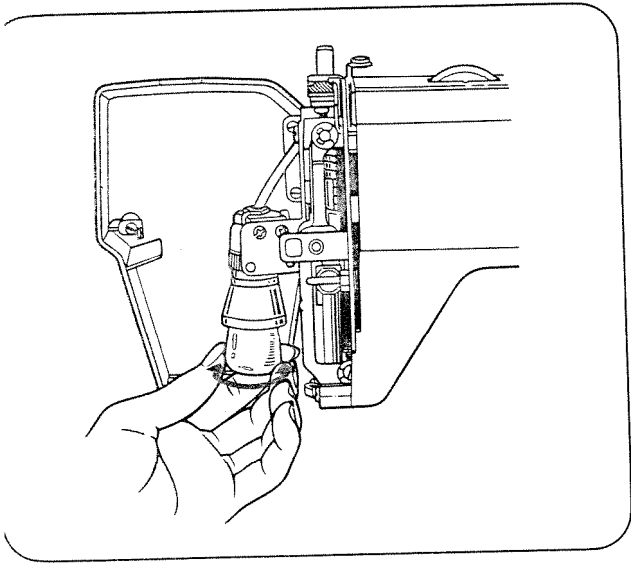
### 33. TROUBLE CHART

PROBLEM	PROBABLE CAUSE	CORRECTION
Breaking lower thread	Thread not wound evenly on the bobbin or not drawn up correctly Lower thread tension too tight Lint stuck in the bobbin case and inside the tension spring	P. 8, P.40 P. 44 Remove lint and fluff with a cleaning brush
Skipping stitches	Needle not fully inserted Needle bent Size or type of needle and thread not suitable for the material Incorrect upper threading Too much oil on the shuttle	P. 39 P. 39 P. 9 P. 6 P. 48
Irregular stitches	Incorrect size of needle for the material Upper thread tension too loose Incorrect lower tension	P. 9 P. 12 P. 44
The material not fed correctly	Pattern selection dial not set correctly Incorrect feed dog height Lint stuck on the feed dog	P. 10 P. 24 P. 47
The material puckers	Upper or lower thread thread tension too tight Stitch too long for material Thread too thick Incorrect threading of upper or lower thread	P. 44, P. 12 P. 10 P. 9 P. 6, P. 43
Breaking needle	Needle not correctly inserted Needle bent Needle clamp screw too loose Upper thread tension too tight Needle too fine for the material Dials and levers have been changed while the needle was down in the material Zigzag width set more than 2.5 while twin needle was attached	P. 39 P. 39 P. 39 P. 12 P. 9 P. 10, P. 13 P. 38

\*If trouble is still apparent in the machine, please consult your nearest dealer.  
Do not try to correct fault by yourself.

For adjusting the tension of any belts, please do not try to adjust it by yourself but contact your nearest dealer.

#### 4. CHANGING LIGHT BULB



Unplug the machine.  
Open face cover as shown.

Remove bulb by unscrewing it in counter-clockwise.

Install a new bulb by screwing it in clockwise.