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Certificate of Guarantee

for the zigzag sewing machine

BERNINA Model 117 L No. [redacted]

Buyer's Name .....

Address .....

City .....

Validity of Guarantee

Machine: 2 years, until .....

Motor: 2 years, until .....

City and date: .....

Signature of Dealer: .....

(terms of guarantee on following page)

Terms of Guarantee

During the period of two years for the machine and two years for the motor, we engage to repair free of charge any eventual damage, provided that same is due to a defect in material or manufacture. All other claims are excluded from the guarantee, which is valid only towards the first purchaser of the machine.

The guarantee enters in force from the day of supply of the machine. The buyer who intends to have repaired the machine, must deliver it to the nearest Bernina dealer. The transport charges to and from the dealer are at the expense of the buyer, as well as any damage that might be caused by inconvenient packing.

The guarantee does not consider the normal wear and any eventual damage in connection with it, such as breakage of the flexes or needles, burning out of the electric bulb, use of the carbon brushes of the motor, etc.

The guarantee is not valid if the buyer does not manage the machine properly, according to the directions for use, if he does not clean and oil it or if any change or repair is made by a third person, who is not authorized to do this. Any damage due to incorrect handling of the machine does not fall under the guarantee.

It is necessary to use only pure sewing machine oil free of acid and resinous substances, and needles of *system 287 WH*.

FR. GEGAUF LIMITED
Manufacturers of Bernina Sewing Machines
STECKBORN
Switzerland

Buyer of Machine

Name: .....

.....

Street: .....

City: .....

Date of delivery: .....

.....
(Signature of Buyer)

(Business Stamp)

Supplier of Machine

.....
(Signature of Supplier)

Notes of the Bernina Dealer regarding instructions, service and delivery of parts

Date	Notes

Bernina

Directions for use of the Zigzag Sewing Machine Model 117L

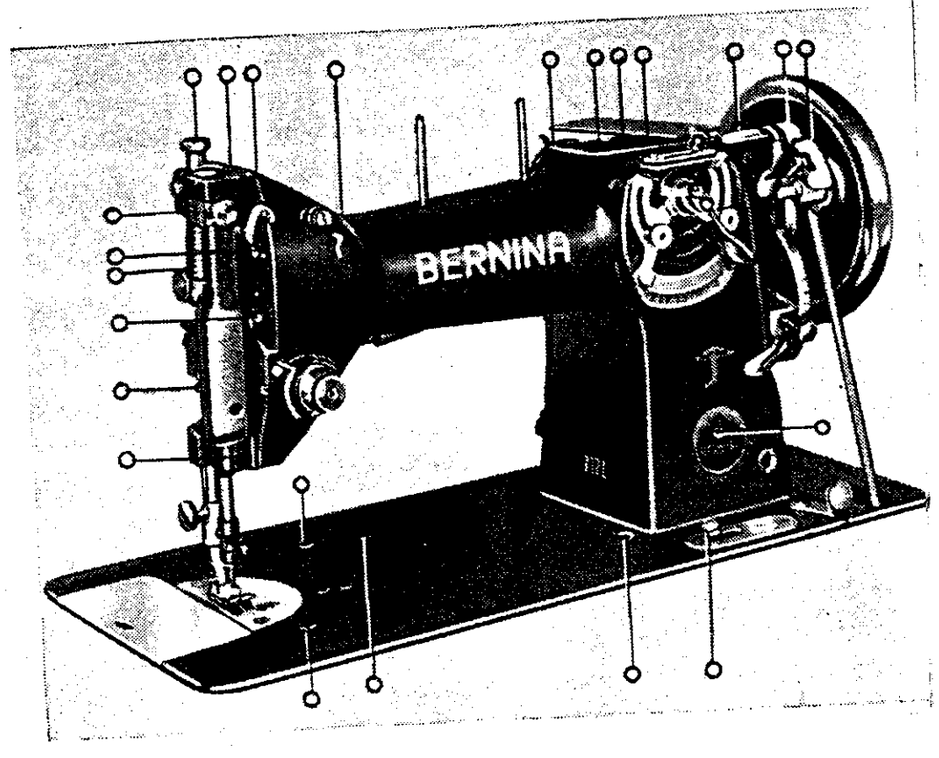
FR. GEGAUF LTD.
Manufacturers of
Bernina Sewing Machines

STECKBORN
(Switzerland)

Cleaning and Oiling

Cleaning the Machine

During sewing, remnants of thread will collect, especially around the rotary hook, and may hinder the smooth running of the machine. The frequent removal of such remnants is therefore essential. Take off the throat plate from time to time and remove the fluff that has gathered below it.



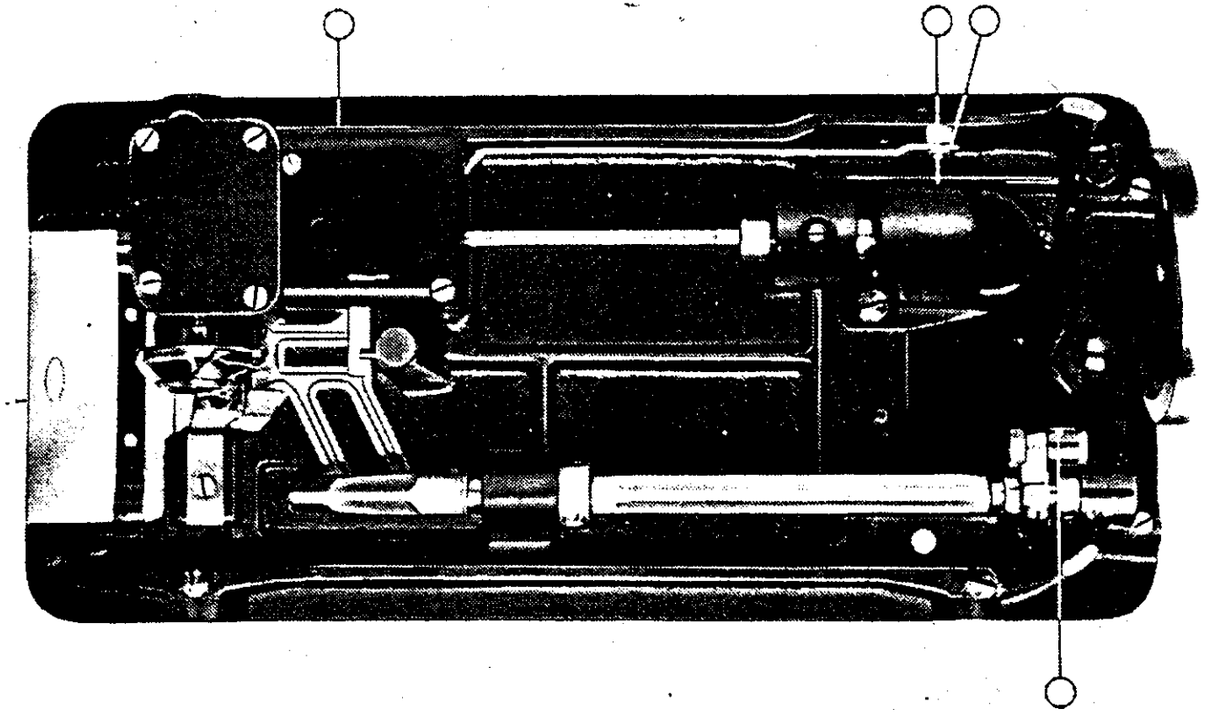


Fig. 2

Lubricating points underneath bed plate

Oiling the Machine

Oil the machine frequently, but not too heavily. A few drops of oil are sufficient to keep the machine running smoothly. If too much oil is applied, the excess will drain off unused and may stain the fabric. *Always oil the machine before use* and not after it. Use clear sewing machine oil only, free of resin and acid. If oil of inferior quality is employed, it may get sticky when it dries and the machine will run hard.

The pictures 1, 2 and 3 show the points where the movable parts are to be oiled. On the machine the oil holes are marked in red. Taking off the face plate,

the parts where oil should be applied from time to time (needle bar and articulated parts) will be visible. Do not forget to oil as well the inner parts under the cover plate on the right top side of the machine. Said cover plate can be turned sideways. In order to oil the parts located underneath the bed plate, turn the machine head backwards. Among these parts, there is the most important and sensitive of the sewing machine, namely the rotary hook. Special attention should be given it. Take care to lubricate its race from time to time at the point indicated by the-arrow in Fig. 3. However, apply only a few drops of oil every time.

Do not forget to take off from time to time the front needle plate screw and to put some oil into the hole that corresponds with the gear case at the backside of the rotary hook.

It may happen, especially if poor oil is used, that residues of oil will get sticky, making the rotary hook running hard. In this case it is necessary to clean the hook race with paraffin, which will dissolve any gummed oil and remove any eventual dust. Afterwards the hook race is to be oiled again.

Careful and correct oiling will insure easy running and prevent unnecessary wear of the parts, so that your sewing machine will have a longer lifetime.

In case of treadle-operated machines, do not forget to oil now and then all holes, articulations and frictional surfaces of the treadle mechanism.

Rotary Hook, the race of which should be oiled a little from time to time at the point indicated by arrow.

Fig. 3

Needle and Thread

Suitable Needle and Thread

For the Bernina Zigzag sewing machine model 117 L use system 287 WH needles only. To obtain the best result of sewing, use first class needles and top-quality thread.

First select the thread to suit the fabric, then the needle to suit the thread, according to the table below. The best test of suitability is to place the thread in the groove of the needle. If the thread fills the groove out and can be pulled backwards and forwards in it without obstruction, the needle is of correct size.

For sewing, needles of sizes 70, 80 and 90 are usually employed, while numbers 60 and 70 (1 and 2) are used for darning.

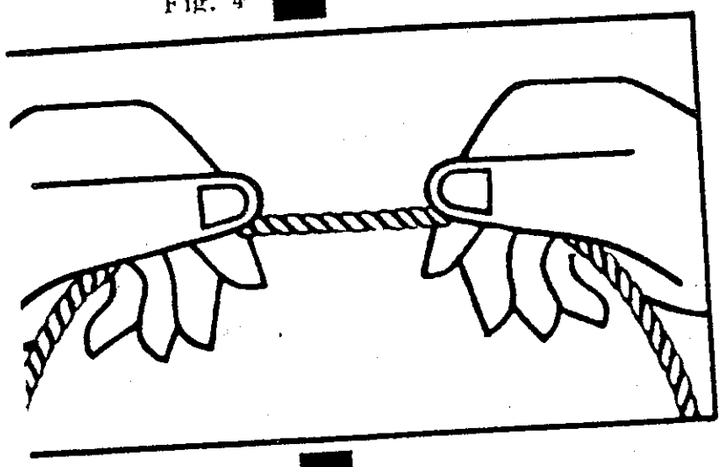
Comparative Table of Needles and Threads

Needle syst. 287 WH		*Sewing Thread*		*Darning Thread*
New No.	Old No.	6-ply unglazed	3-ply unglazed	2-ply
No 60	No 1	–	170–200	80–100
70	2	70–100	70–140	50– 80
80	3	50– 60	50– 70	30– 40
90	4	40– 50	30– 40	–
100	5	20– 30	–	–

Suitable Thread for Sewing and Darning

For plain sewing:	Nos. 60 to 90 3- and 6-ply, unglazed
For darning:	Nos. 50 to 80 2-ply
For zigzag sewing:	Nos. 60 to 90 3-ply only
For ornamental stitches:	Nos. 30 and 40 2-ply

Fig. 4



Left-hand and right-hand twisted cotton

For *darning*, use as top thread *left-hand twisted cotton* only. The bottom thread may be right-hand or left-hand twisted. To find out which way the cotton is twisted, hold a piece of it by the thumb and forefinger of both hands and roll it towards you with your right thumb, as shown in Fig. 4. Left-hand twisted cotton will twist tighter than ever, while right-hand twisted cotton will untwist.

Bobbin Case and Bobbin

Removal of Bobbin Case and Bobbin

Fig. 5

Turn the flywheel by hand towards you until the take-up lever is approximately at its highest position. With the forefinger of the left hand, open the hinged latch A (Fig. 5), hold it between the thumb and forefinger and draw the bobbin case with bobbin out. Let go off the latch and the bobbin will be released and drop out of the case.

Bobbin Winder and Winding of Bottom Thread on Bobbin

To disconnect the sewing mechanism of the machine, hold handwheel with the left hand, while turning the handwheel releasing nut with the right hand towards you, as far as it will go.

Then place the spool of thread on spool pin on the top of the machine. Lead thread through guide 1, down between the small tension discs 2 and from there directly on the bobbin, which is to be slipped on the winder spindle in such a way that the drive dog of the spindle catches the little slit in the bobbin. Press on the winder engaging lever 3 and the winder is set running. When bobbin is filled, the winder will stop automatically. Never wind bobbin quite full, otherwise thread might

slip off the rim and break in sewing. Then turn hand-wheel releasing nut away from you until it is tight and the sewing mechanism is engaged again.

Bobbin Winder

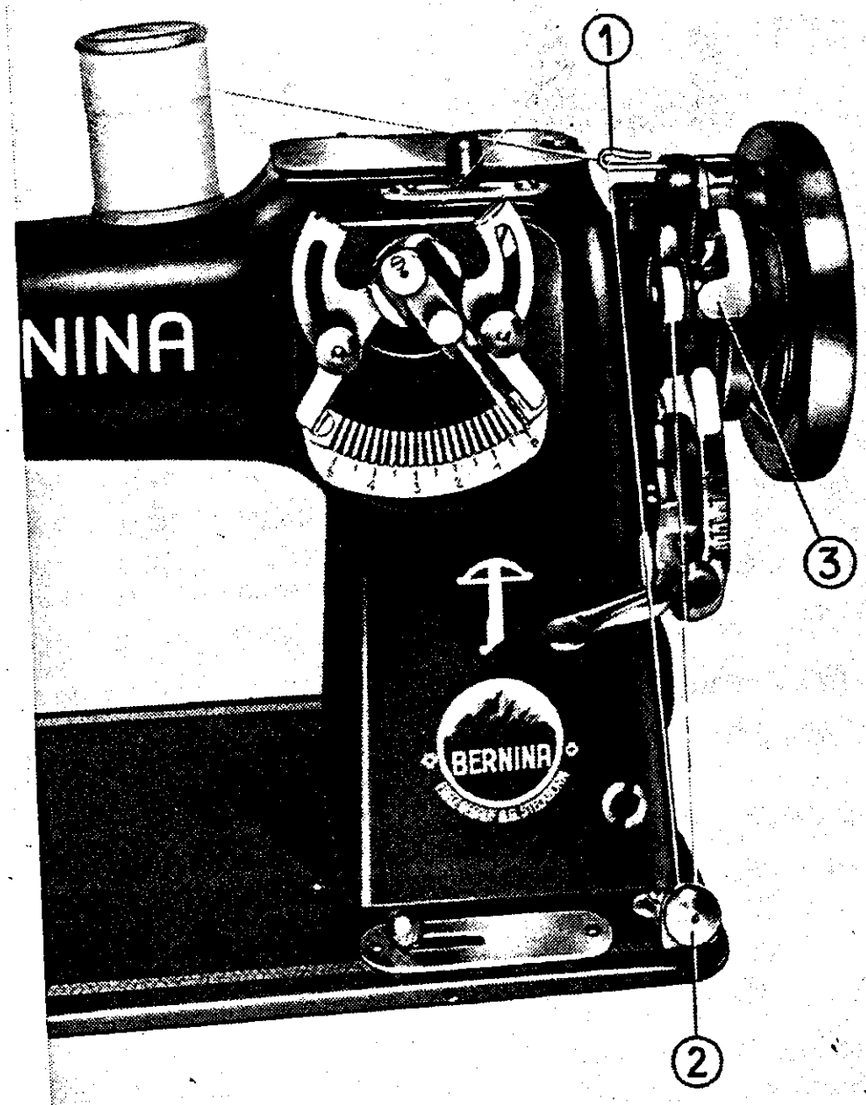
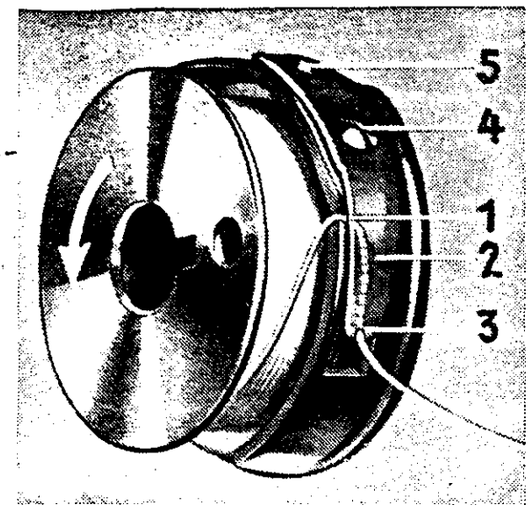


Fig. 6

Inserting Bobbin in Case, and Threading the Bobbin Case

Fig. 7



When placing the bobbin in the case, take care that when the thread is drawn off the bobbin, the latter turns in the direction of the arrow. After having inserted the bobbin, draw the thread through the slit 1, then under the tension spring 2, and let it come out at the forked end 3. The tension spring is secured to the bobbin case by screw 5; the tension is regulated by screw 4.

To replace the Bobbin Case in the Rotary Hook

The bobbin case should be inserted when the take-up lever is approximately at its highest position. As when removing the bobbin case (see Fig. 5, hold it by the hinged latch A between the forefinger and thumb of the left hand in such a way that the opening in the bobbin case is at the top. Now place the case on the stem of the bobbin case holder and push it in, until it will touch the bottom. Now let go off the hinged latch, and make sure that the bobbin case is firmly locked and can no more drop out.

To Set the Needle

Use system 287 WH needles only for the Bernina zigzag sewing machine model 117 L. Bent needles or needles with blunt points should not be used.

Turn the handwheel towards you until the needle bar is at its highest point. Now hold the needle between the thumb and forefinger of the left hand with the long groove facing the operator. Slacken the needle clamp screw by turning it anticlockwise, insert the needle and push it upwards as far as it will go. Now retighten the needle clamp screw by turning it clockwise. It is important to make sure that the needle is pushed right up and is firmly held by the needle clamp screw.

To Thread the Machine

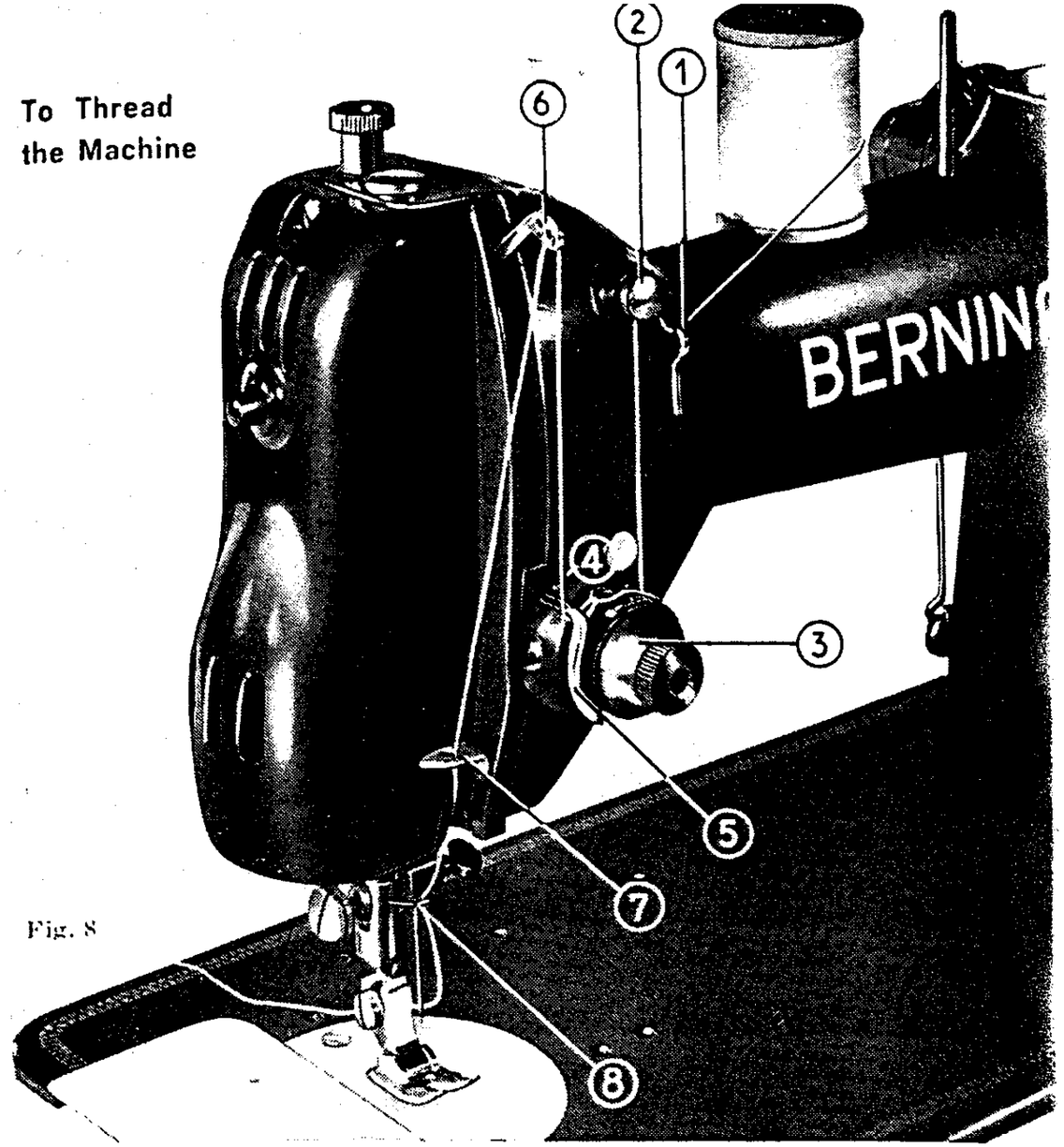


Fig. 8

Lead spool thread at first in the preliminary tension, namely under hook 1 and between thread tension discs 2, then down to the right of and between the thread tension discs located in the tension box 3, up into thread regulator spring 4, back under thread guide 5, up through the hole 6 in the take-up lever, down through face plate eyelet 7 and through needle holder thread guard 8 and

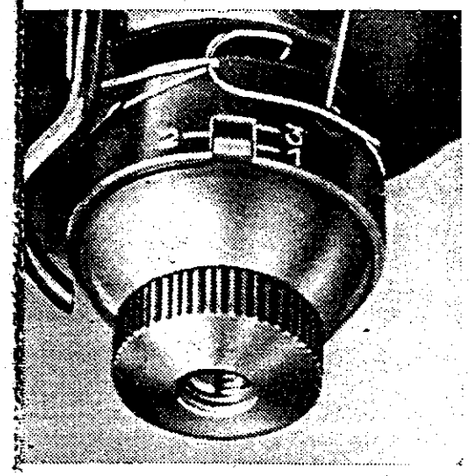


Fig. 9

from there to the needle, wh
must be threaded *from from*
back.

Bringing up the Bobbin Thread

Hold needle thread slightly be
tween thumb and forefinger o
the left hand and turn flywhee
with the right hand towards
you, until take-up lever is about
at its highest point. Then pull
slightly the needle thread and
the bobbin thread will come up.
Pull both threads back under
the presser foot, place material
under same, lower foot and the
machine is ready to sew.

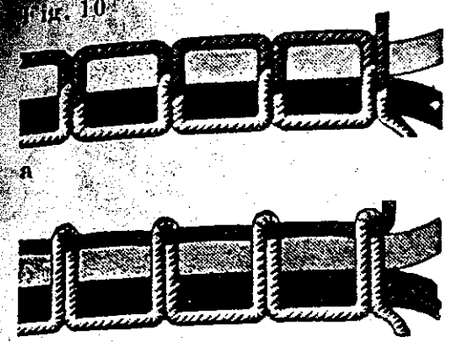
Thread Tension Scale

The thread tension box is provided with a scale graduated from 1 to 3. This graduated scale enables the operator to reset at any time the thread tension that was ascertained by trial as the most convenient for sewing or darning. When the pointer is at 1, the tension is loose and is suitable for darning. With the pointer at 2 the tension is firmer and, in most cases, correct for sewing.

of Top and Threads

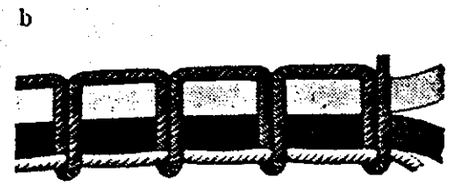
The tension of the bottom thread should always be looser than that of the top or spool thread; it must be possible to draw the bottom thread out of the bobbin case under slight and even tension. The three diagrams a, b, and c show the results of right and wrong thread tension.

Fig. 10



a

The top and bottom thread tensions are both correct; looping takes place in the middle of the two pieces of material.



b

The tension of the top thread is too tight. The looping is visible on the top surface of the work.

c

The tension of the top thread is too loose. The looping is visible on the under side of the material.

As a rule, the tension of the bobbin thread should not be altered. To adjust the stitch it is usually sufficient to reset the top thread tension. In general, the stitch is nicer when the bobbin thread is one number finer than the top thread. The stitch should not be too short; such stitches damage the material.

Plain Stitch

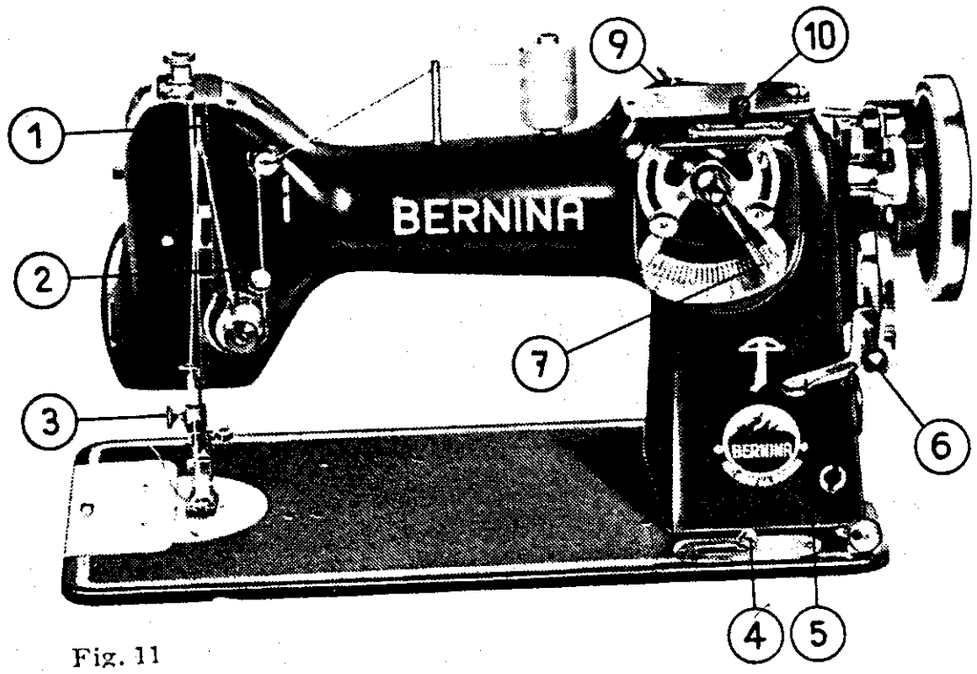


Fig. 11

For plain stitch sewing set the machine as follows:

1. Bring take-up lever 1 to its highest point.
2. According to thread size, adjust top thread tension between 1½ and 2½.
3. Insert presser foot. For ordinary stitching the zigzag presser foot can be used as well. Thread needle *from front to back*. Take top and bottom threads and lay them back under the presser foot. Hold both threads between the thumb and forefinger of the left hand while sewing the first stitches.
4. Set drop feed lever 4 to the right, as per sewing sign.
5. Place indicator of stitch regulator 5 a little under zero. Turning stop screw 6 anticlockwise, stitch regulator can be adjusted to the widest stitch (see description in the next chapter).
6. Set zigzag adjusting lever 7 quite to the right on zero position, in which case the machine will do plain sewing. As soon as said lever is turned to the left, a zigzag seam will result.
7. Set knob 10 in central position, so that the needle will stitch *in the middle* of the stitch hole (see description on page 37).

Take care that balance wheel is always turned towards you.

In case of treadle-operated machines, never use the treadle in order to bring take-up lever to its highest point, but turn balance wheel by hand towards you. Otherwise you risk to turn the mechanism of the machine in the wrong direction, in which case top and bottom threads will get jammed in the hook race and block the machine. Lower presser foot only if material is under same. Also after use of the machine, a little piece of cloth should be laid under the presser foot and the needle should be unthreaded.

Adjustment of different Length of Stitches Forward and Backward Sewing

Below the bobbin winder, there is the scale for the stitch regulator 5, Fig. 11, graduated from 0–5. The more the indicator of lever 5 is placed upwards or downwards from zero position, the longer the stitch will be.

According to the position of the stitch regulator 5, the machine will sew forwards od backwards. When placing the indicator of the lever 5 downwards *under zero position*, the machine will sew *forward*. On the contrary, if said indicator is placed upwards *over zero position*, the machine will sew *backward*. Forward and backward sewing allows to reinforce certain parts of the fabric and to fasten the end of a stitch.

To ensure that forward and backward stitches are of the same length, use lock screw 6, by which the upward and downward movement of the stitch regulator 5 can be limited. To shorten the movement, turn said lock screw to the right; to lengthen it, turn the screw to the left.

To Remove Work from Machine

Stop the machine with the take-up lever at its highest point. Raise the presser foot with the lifter, which releases the top thread tension. Then take hold of the fabric and pull it from you. Take particular care to remove the material from the presser foot *to the rear only*, otherwise the needle will bend and cause then faulty stitches and thread breakage.

To Turn a Corner

When turning a corner, turn balance wheel by hand towards you until take-up lever is brought at its highest point. Now go on turning the balance wheel until the needle point has gone through the fabric and about 1/8 inch into the stitch-hole of the needle plate. Lift the presser foot and then only turn the fabric round the needle, using it as a pivot. Never turn the fabric, when the needle is lifted.

Darning and Mending

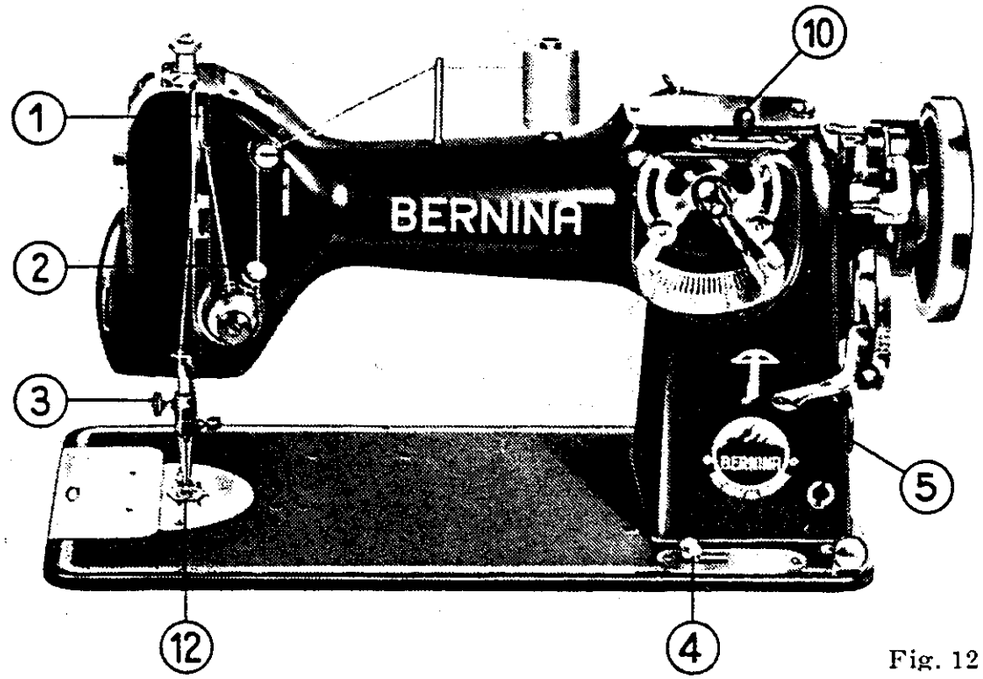
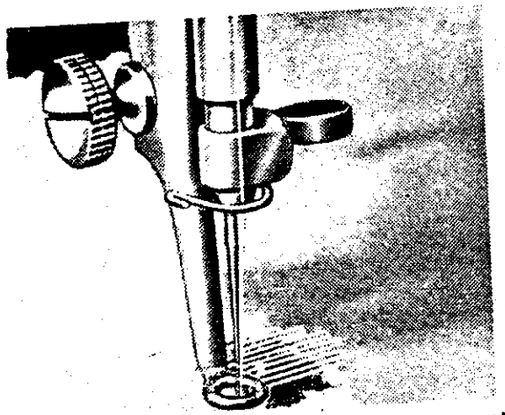


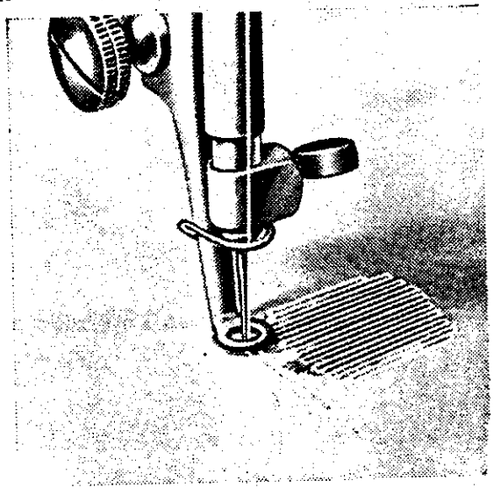
Fig. 12

For darning set the machine as follows:

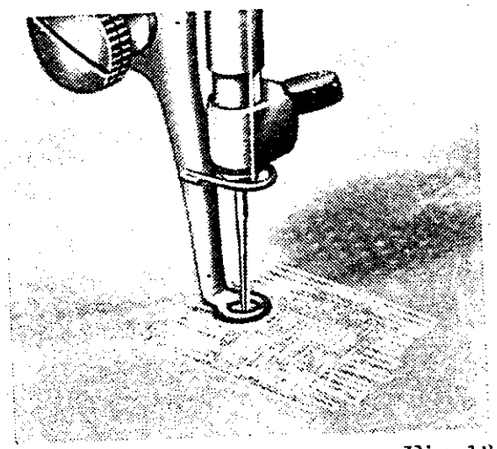
1. Lower feed dog by setting lever 4 to the left, as per darning sign.
2. Bring take-up lever 1 to its highest point.
3. According to thread size, adjust top thread tension between 1 and 2.
4. Fix darning plate 12 on needle plate.
5. Remove presser foot with prolongation and insert darning foot.
6. Place zigzag adjusting lever 7 to the right on zero position.
7. Set knob 10 in central position, so that the needle will stitch *in the middle* of the stitch hole (see description on page 37).



a



b



c

Fig. 13

Darning underclothes, household linen, etc.

Darning underclothes or linen is child's play on the Bernina, thanks to the patented hopper darning foot.

Begin to stretch threads from side to side, as shown in Fig. a. Make these thread rows parallel and as close as possible. Do not let them go too far beyond the border of the damaged area, but only as far as it will be necessary to give them a firm hold. It is advisable to make these thread rows of different length, so as to prevent the material from tearing at the limit of the darn.

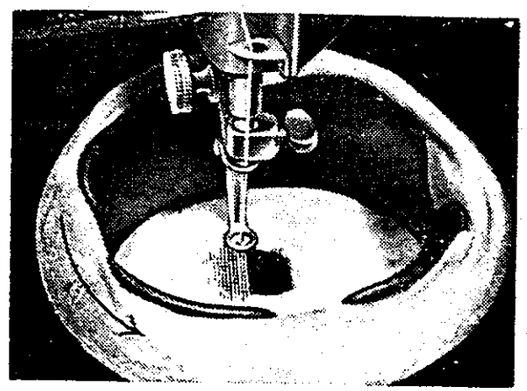
Then, begin to cover the side-to-side thread rows from front to back and in reverse. Sew the first covering seams a little beyond the limit of the side-to-side thread rows (Fig. b), so as to form a regular and firm darn.

Make these covering seams parallel and as close as possible. Now fill out the intermediate spaces in the darn with a few more covering runs, which should not be made, however, beyond the border of the original hole (Fig. c).

If a darning ring is used, the outside ring should be wrapped round with stuff so as to stretch the fabric better and more tightly. The inner ring should be forced *well through*, so that the fabric lies *directly* on the throat plate (i. e., no space is left between the throat plate and the material being darned). The material must be firmly and tightly stretched.

For darning, use as top thread left-hand twisted cotton only (see Fig. 4).

a



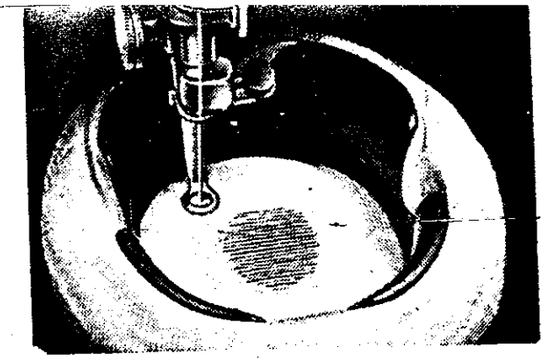
b

Fig. 14

Darning Stockings

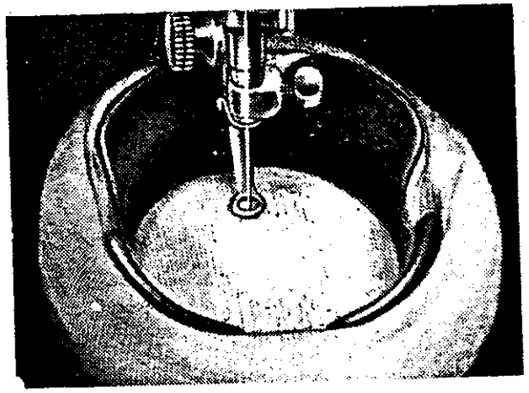
For darning stockings, use the darning apparatus, on which the stocking is rolled up in such a way that the damaged area is located in the center of the apparatus.

Now place the stocking, fitted to the apparatus, under the darning foot and sew an ordinary seam round the damaged area; this will prevent any ladders (Fig. a). Then run parallel rows of stitches backwards and for-



c Fig. 14

wards, at right angles to the laddering direction of the stocking (Fig. b). The darning seams should be made about on fourth of an inch beyond the border of the damaged area, care being taken not to finish all the rows level with each other.



d

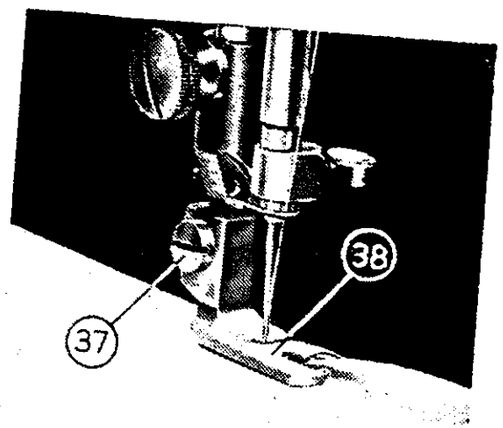
Now turn the darning apparatus a quarter of a turn in the direction of the arrow (Fig. b) and start covering the rows of stitches just laid. To make these cover seams less visible, they are laid in the laddering direction of the stocking; begin slightly beyond the outermost stitches (Fig. c). The covering rows of stitches, which rows should be irregular as to length, should be parallel to each other and run with the mesh of the stocking. Now fill in the small interstices in the actual darning area by laying a further covering row of stitches, in the same direction, between the covering rows already sewn. These final covering rows should not be made beyond the border of the original hole (Fig. d).

Hemmer

(Width of hem about ¼")

Attach the hemmer in place of the ordinary presser foot. This is done by raising the presser foot bar until the hemmer can easily be inserted.

Fold the border of the clotch over to the desired width of hem and push the fabric, so prepared, into the scroll of the lifted hemmer until it is under the needle; then lower the presser foot. When sewing, guide the folded border of the cloth very lightly. If too much cloth enters the hemmer, the hem will be bulgy and eneven; if too little enters, the hem will not be taken in enough.



Lap Hemmer

The lap hemmer, or feller, is similar in shape to the hemmer just described; only, the lap hemmer has no scroll. Lap hems are used for very firmly joining two pieces of material; they are made in two operations, as follows:

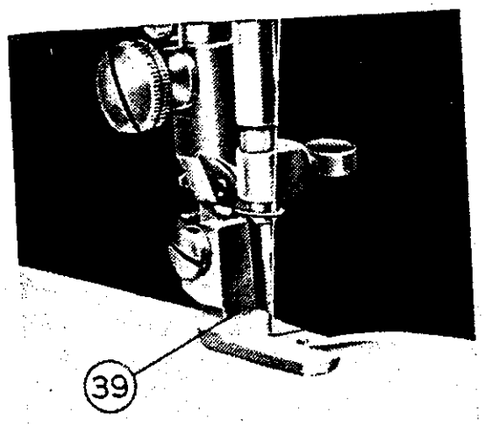
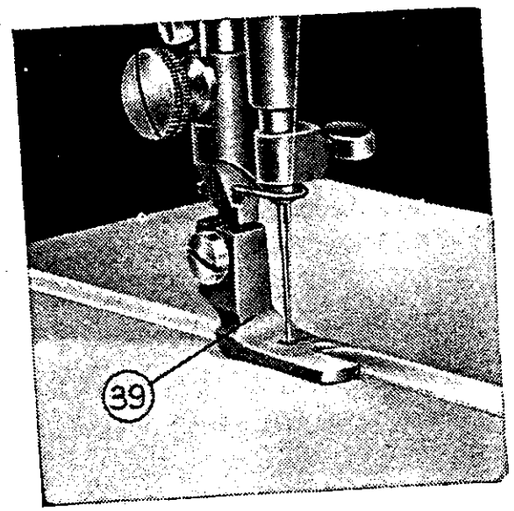


Fig. 16 a

First operation

Place the pieces of fabric to be joined one on top of the other in such a way that the lower piece projects slightly, and guide both pieces into the feller as when hemming, so that they are turned down. When sewing, take care that the same width of material always enters the feller.

b



Second operation

Unfold and lay flat the two pieces of fabric. The joint will now stand up like a small pleat. This pleat is now guided through the feller again, *in the same direction as the first time*, so that it is laid down and sewn on.

Edger

As the illustration shows, the stitch hole is located right at the edge of the presser foot. This presser foot without guide is therefore particularly suitable for sewing directly along the edge of the fabric.

If the edger is fitted with the quilter guide, it will be found ideal for quilting work, as the picture below shows.

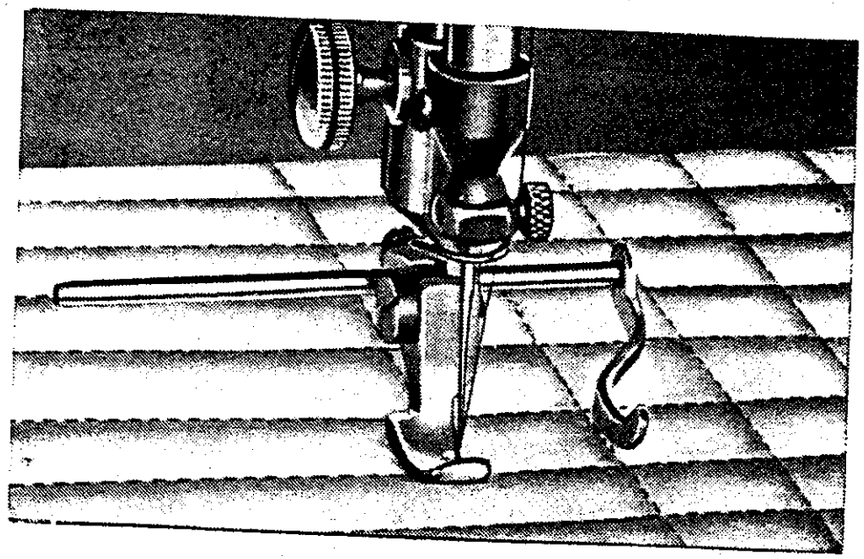


Fig. 17

First fix the quilter guide with the blade at the desired distance from the edger. Then make a seam and shift the material to the right, until the seam just made will be exactly below the blade of the quilter guide. Now run a further seam, following with the blade of the quilter guide the first one, and so on. When all the seams are made in one direction, repeat the operation in the transverse direction, i. e. right angles to the first rows of seams.

Ruffler

Of *two pieces of material*, place *under* the ruffler the piece that is to be ruffled and lower the presser foot lever. Now insert the top material, which is to remain smooth, into the side slot of the ruffler, from the left. The more the smooth top piece is held back during sewing, the larger and closer are the ruffles on the lower material.

If a single piece of material is to be ruffled, place it under the ruffler (not in the slot of it). The ruffles will vary according to the length of stitch used.

Ruffles can also be made as follows:

Charge the bobbin with thick thread (30/6). Loosen the top thread tension and sew with a long stitch. This incorrect tension will result in the formation of ruffles, which can be slid along the strong bottom thread as desired. Then, with plain stitch, sew the ruffles on the fabric, using a normal top and bottom thread tension and a normal thread size. For this latter method of making ruffles, the usual presser foot may be used.

(The ruffler is excluded from the normal accessories.)

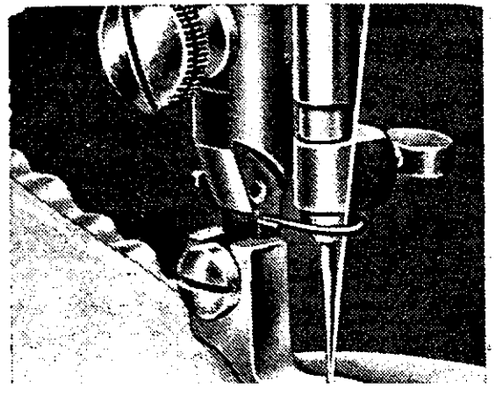


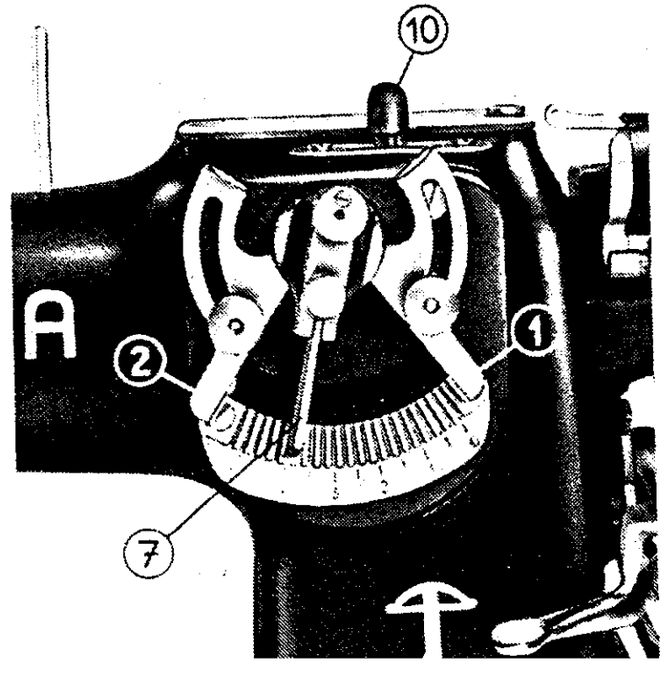
Fig. 18

Zigzag

Zigzag Sewing

For zigzag sewing the machine is set according to directions 1 to 5 for plain sewing on page 14. While for ordinary stitching the zigzag adjusting lever 7 (Fig. 19) always remains on zero position, said lever is turned to the left when zigzag sewing, namely from 0 to 5, according to the desired width of the zigzag seam. The more lever 7 is turned to the left, the wider the zigzag stitch will be. Never turn lever 7 when the machine is stopped and the needle is stitched in the fabric. While sewing, however, lever 7 may freely be turned. For zigzag sewing do not use 6 ply cotton, but only 2 or 3 ply cotton.

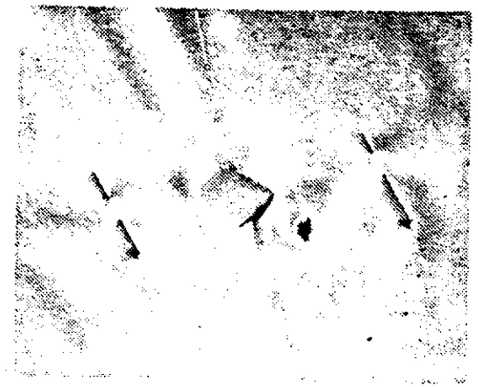
Fig. 19



Elastic Sewing of Jersey

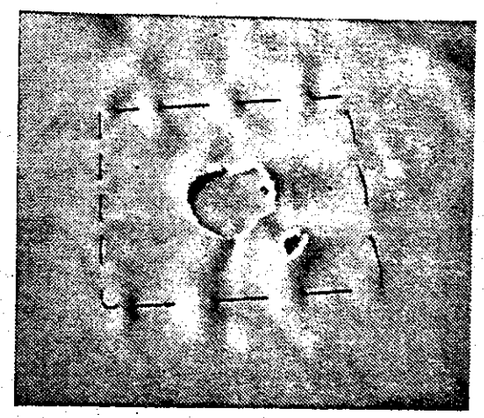
1st manner. Lay the piece for mending under the damaged part of the cloth (Fig. a), in the direction of the meshes. The wrong side of both pieces must be on the top. Fix the pieces by provisional stitches around the damaged part (Fig. b). Then, sew a zigzag seam along these stitches (Fig. c) with stitch length No. 1 and width No. 3 or 4. Next to it, at the distance of about half presser foot, sew another zigzag seam.

Cut the damaged part of the cloth along the inner seam, while the superfluous part of the piece for mending is cut along the outer seam. Then remove the provisional stitches.



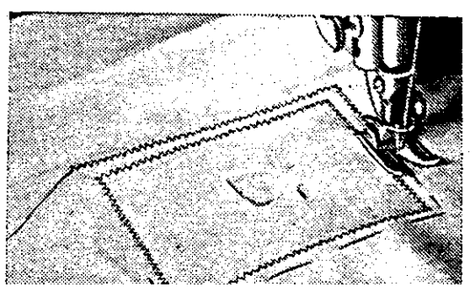
a

Fig. 20



b

c



2nd manner. Cut out the piece for mending according to the desired form and size. Lay it on the damaged part of the cloth, in the direction of the meshes. The wrong side of both pieces must be on the top. Fix the pieces by provisional stitches around the damaged part. Then, oversew the border of the piece for mending with zigzag stitch (stitch length No. 1 and width No. 3 or 4). Next to this seam make another one inside of it, at the distance of about half presser foot. Cut the damaged part of the cloth along the inner seam and remove the provisional stitches.

The Sewing on Laces

When sewing on an lace, use a short and narrow stitch. Therefore, set stitch regulator 5 (Fig. 11) on No. 1 and zigzag adjusting lever 7 on No. 1 or 2. Place the lace on the fabric, about 1/8 inch inside of its border, so that the sewing on is easier. Then sew the lace on and along this zigzag seam cut the superfluous part of the fabric that remains under the lace.

Roll Hemmer

The roll hemmer, marked with two red stripes, is similar in form as the ordinary hemmer. The only difference is that the stitch hole is not round but large, so to allow zigzag sewing. Proceed as in ordinary hemming. Place zigzag adjusting lever 7 (Fig. 11) on No. 3 or 4. Roll hems are particularly used for edging fine material.

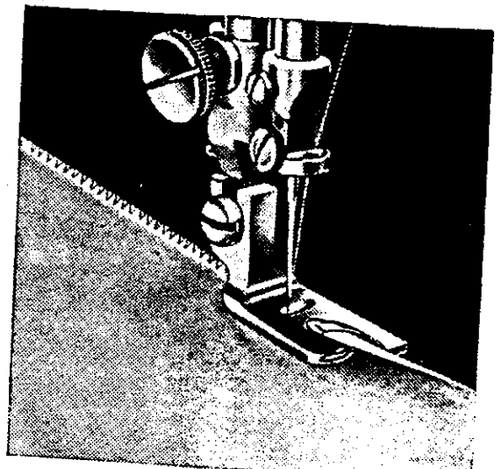


Fig. 21

Shell Roll Hemming

For such hems, the roll hemmer (2 red stripes) will be used as well. Proceed as in ordinary hemming. The shell roll hem is obtained by a very tight needle thread tension and by making a long stitch.

Braiding

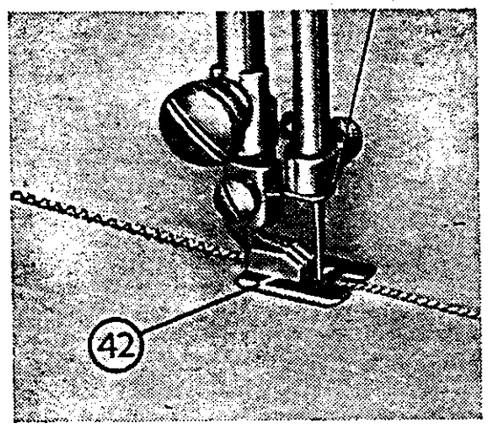


Fig. 22

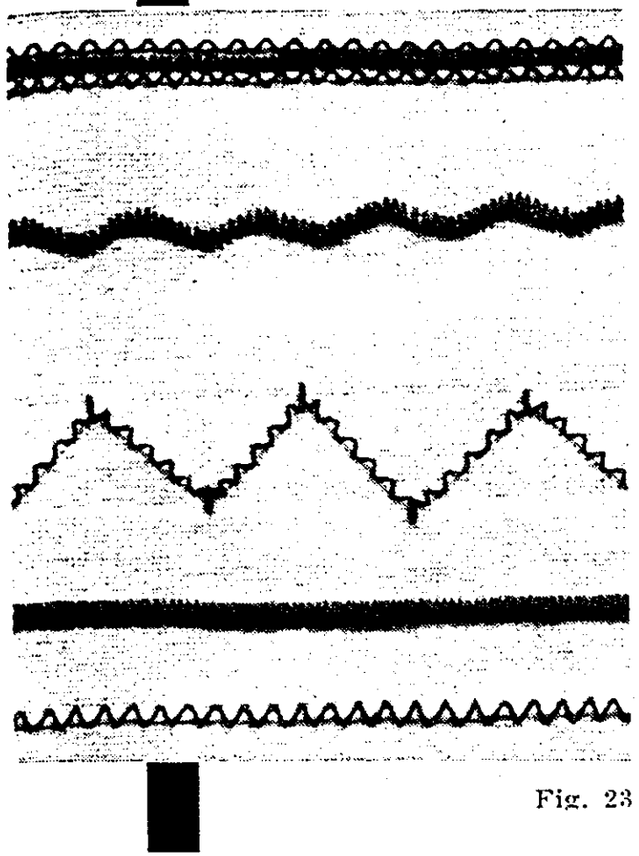


Fig. 23

For this kind of work use the zigzag embroidery presser foot, marked with 1 red stripe. Insert a soft cord into the guide hole of the presser foot and oversew the cord with zigzag stitch. Use mercerized cotton No. 50/2 or 60/2. With coloured cotton, coloured braid or by sewing some rows one next to each other, the effect can be increased still more.

Hemstitches

As you do when hemstitching by hand, draw out the threads of the cloth in the desired width and sew along both edges with zigzag stitch, using the normal zigzag presser foot.

Certain materials are stretched into the embroidery frame. It is then easier, when zigzag stitching the second edge, to get in the same hemstitch bars of the first edge.

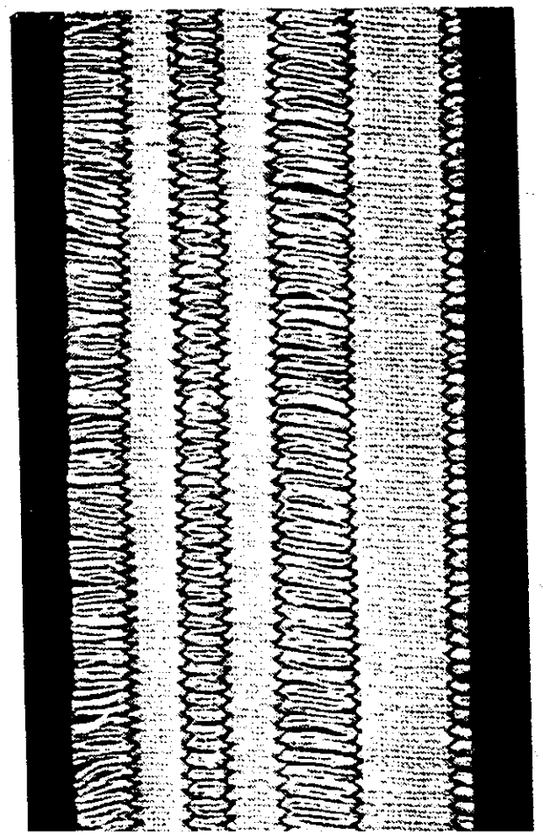


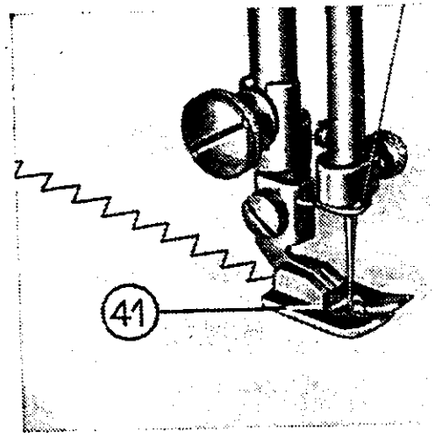
Fig. 24

On the Bernina zigzag sewing machine any ornamental stitch can be made in a really simple manner. According to the desired stitch, place the stitch regulator 5 (Fig. 11) more or less below zero and while sewing, turn the zigzag adjusting lever 7 (Fig. 11) to the right and to the left. After having made a few stitches, one is already acquainted with this kind of embroidery.

For stitches of normal length (samples *a* as per Fig. 32) use the *zigzag sewing* presser foot (Fig. 25).

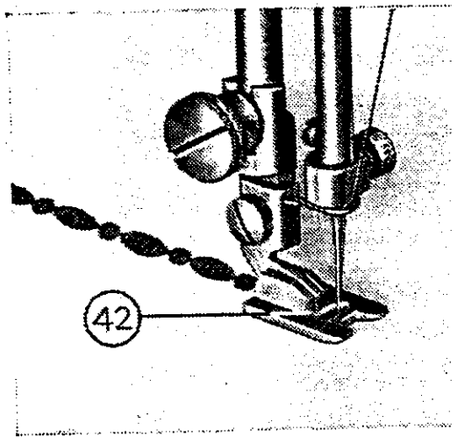
For very short stitches (samples *b* as per Fig. 32) the *zigzag embroidery* presser foot, marked with one red stripe, must be used (Fig. 26). Its bottom side is hollow ground, while the zigzag sewing foot is plain.

Fig. 25



Zigzag *Sewing* Foot

Fig. 26



Zigzag *Embroidery* Foot

Position of needle for left, middle, and right side stitch

Most of all zigzag sewing is done with *the middle stitch*, i. e. when sewing straight forward, the needle will stitch in the center of the stitch hole and when changing over to zigzag stitch, the width of the stitch will be distributed *from the center equally to the right and to the left* (Fig. 27).

For various ornamental stitches, sewing buttonholes, appliques and sewing on buttons, the *left stitch* is used, i. e. when sewing straight forward, the needle will stitch in the left side of the stitch hole and when changing over to zigzag stitch, the width of the stitch will come to lie *from the left to the right side* (Fig. 28).

For further ornamental stitches you can use also the *right side stitch*, eventually in connection with the aforesaid two kind of stitches. In this case, when sewing straight forward, the needle will stitch in the right side of the stitch hole and when changing over to zigzag stitch, the width of the stitch will be formed *from the right to the left* (Fig. 29).

Fig. 27

Middle Stitch: zigzag stitch is distributed from the center equally over both sides

Fig. 28

Left stitch: zigzag stitch is directed from left to right

Fig. 29

Right Side Stitch: zigzag stitch is directed from right to left

To change the position of the needle, use knob 10 (Fig. 19). The three positions (middle, left and right) as per Fig. 27, 28 and 29, are indicated on the scale. Setting said knob to the left, the needle will stitch on the left; setting it in central position, the needle will stitch in the middle and setting the knob to the right, the needle will stitch on the right.

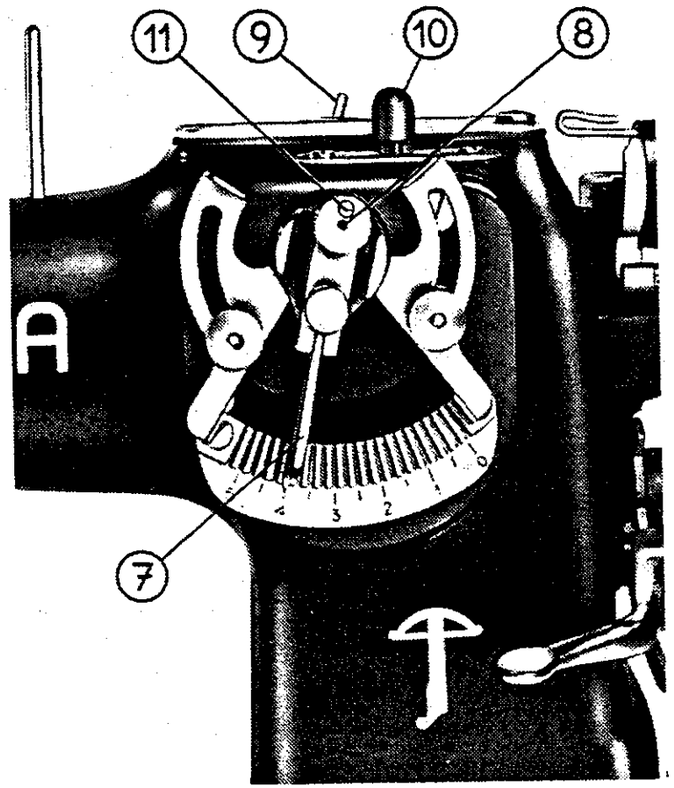
The position of the knob can be changed while sewing. However, when the machine is stopped, knob 10 should be moved only if the needle is not stitched into the fabric.

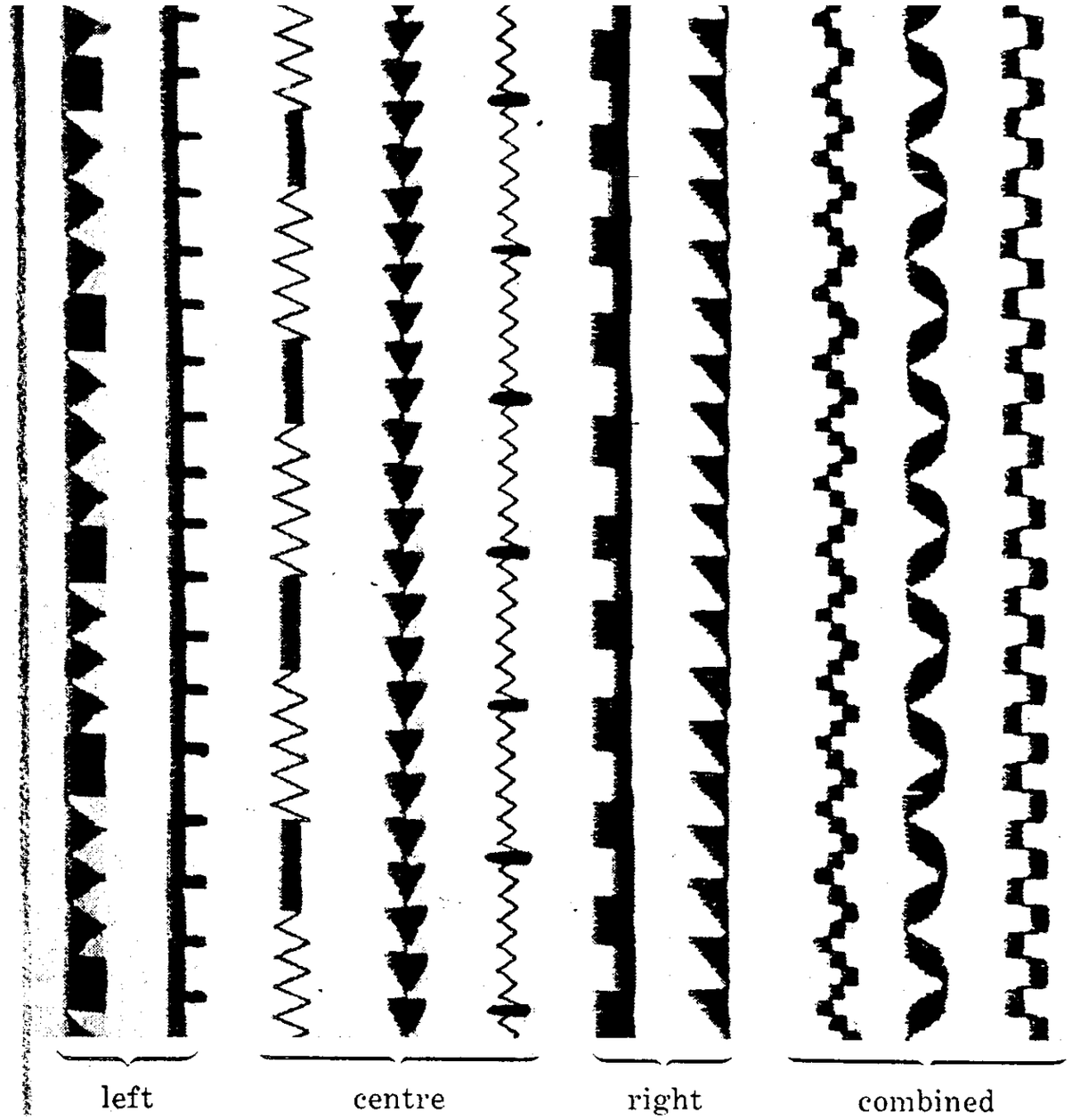
Automatic Fancy Stitches

The Bernina sewing machine class 117 L is equipped with an apparatus that allows to sew fancy stitches automatically.

The use of this apparatus is very simple, as per description on the following page:

Fig. 31





Needle Position

Fig. 30

1. Place zigzag adjusting lever 7, Fig. 31, on zero position; pull knob 8 out and turn it about 90 degrees to the left or to the right.

2. Put lever 9 backwards and the automatic embroidery device will be engaged when the machine is set in motion. Lever 9 will be then straight up.

To change from the automatic fancy stitches to those made by hand, re-adjust the machine as follows:

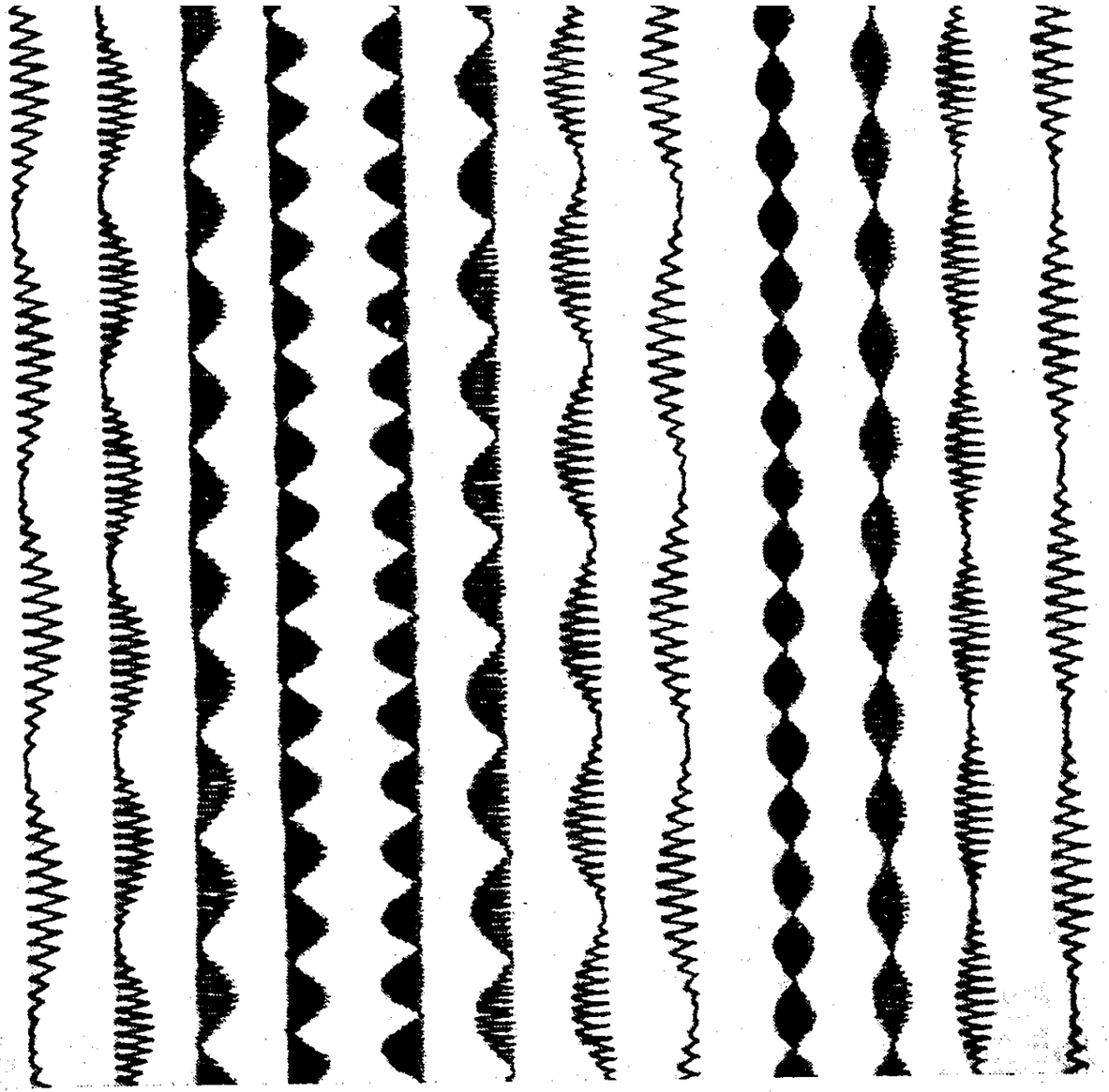
1. Put lever 9 forward.

2. Pull knob 8 out and turn it to the left or to the right until the pin of screw 11 engages the opening of lever 7.

3. Should said pin not enter immediately, then turn lever 7 to the left until the pin will snap in automatically.

The thumb screw, at the center of lever 7, is not to be moved. It serves to disengage the latter, if desired, from the stitch width scale. Turning the thumb screw to the right, lever 7 will no more touch said scale and can be moved freely.

Turning the thumb screw to the left, lever 7 will enter again between the teeth of the stitch width scale.

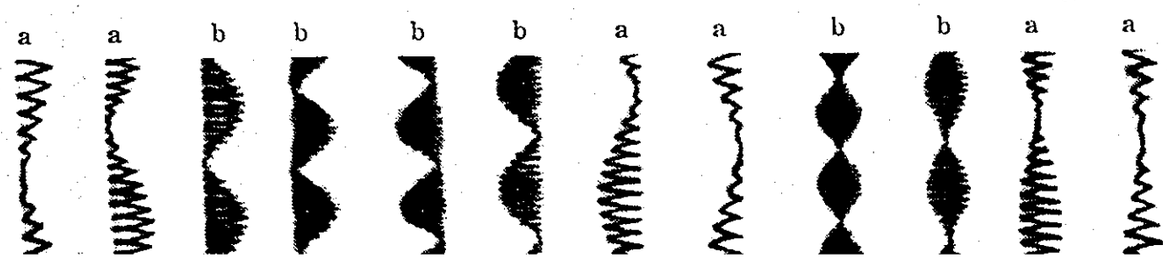


Seams made automatically

a) for normal stitch length use zigzag *sewing* foot

b) for short stitch length use zigzag *embroidery* foot

Fig. 32



Sewing of Buttons

1. Set knob 10, Fig. 31, to the left, so that the needle will stitch *in the left side* of the stitch hole.
2. Lower feed dog by turning lever 4 (Fig. 12) to the left.
3. Insert button presser foot (2 black stripes) and place the button under it, as shown in the above picture.

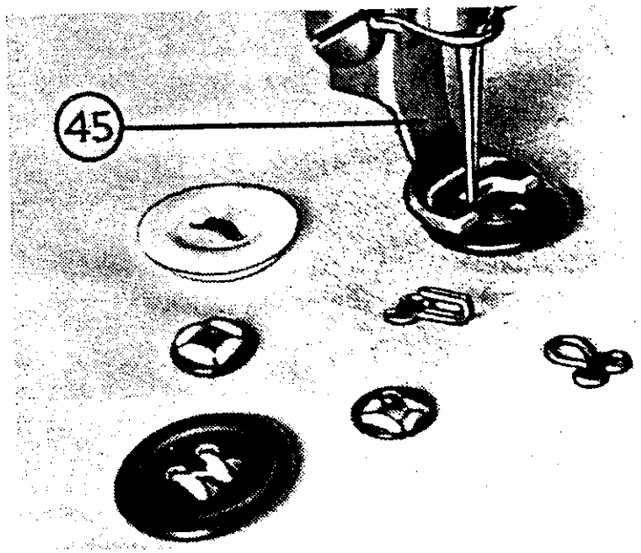


Fig. 33

4. Adjust the width of the zigzag stitch according to the distance between the holes in the button and sew it on by six to eight stitches.
5. To lock the stitch, let the needle in the hole of the button, raise the presser foot, put on zero the zigzag adjusting lever 7 (Fig. 11), lower the presser foot and make some fastening stitches.

In case of four hole buttons, displace the fabric and oversew the remaining two holes by another six to eight stitches.

Buttonhole Sewing

We distinguish three types of buttonholes:

a) the ordinary buttonhole,
b) the braided buttonhole,
c) the raised buttonhole.

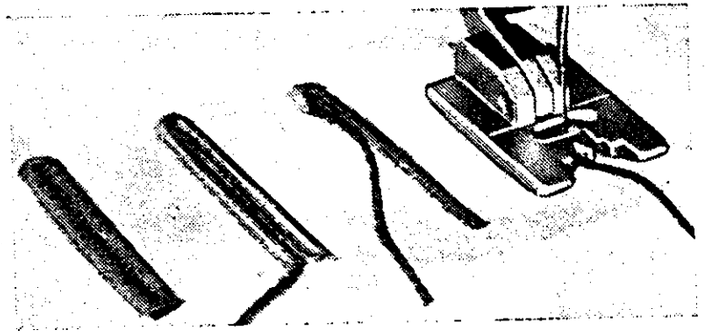
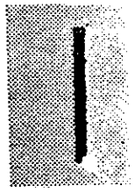


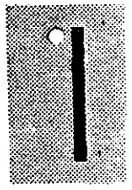
Fig. 34

The *a* and *b* buttonholes are made with normal thread tension. For the *b* buttonhole, a soft cord is laid into the guide of the presser foot (3 black stripes).

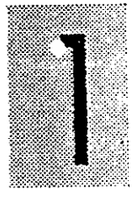
For the *raised buttonhole* the tension of the bobbin thread must be very loose. In order to ascertain the right tension, hold bobbin case suspended by the thread. If the case slips down slightly, the tension is in order. That of the needle thread, however, must be so tight as to allow the *bobbin thread* to appear on the top side of the fabric. For raised buttonholes use only cotton No. 40, mat, 6 ply as needle thread, whereas the bobbin thread must be a very fine cotton (60/2). In case of coloured work, the coloured 2 ply cotton must be on the bobbin, when making raised buttonholes.



Last stitch on the right

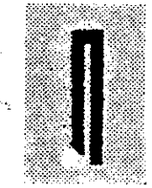


Let needle stitch on the left

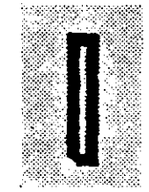


Last stitch on the left

1. Set knob 10, Fig. 31, to the left, so that the needle will stitch in the left side of the stitch hole.
2. Insert buttonhole presser foot, marked with 3 black stripes.
3. Place indicator of stitch regulator 5, Fig. 11, a little under zero position.
4. Set zigzag adjusting lever 7, Fig. 11, on No. 2½. Loosen fastening screw and turn right stop lever 1, Fig. 19, to the left until it comes in contact with lever 7. Fix stop lever 1 in this position by tightening the fastening screw.
5. Set drop feed lever 4, Fig. 11, to the right, as per sewing sign.
6. Then sew the first half of the buttonhole, according to the desired length. The last stitch must be *on the right*. The needle shall be stitches about 1/8 inch into the cloth.
7. Lift presser foot and turn the cloth clockwise half a rotation around the needle. Lower presser foot and let the needle stitch *on the left*. Again the needle shall be stitched 1/8 inch only into the cloth.
8. Set zigzag adjusting lever 7 ont he number corresponding to the width of the complete buttonhole and fix lever 7 with left stop lever 2. Fig. 19. Then bar the buttonhole with somes titches. In order to prevent the cloth from being pushed by the feed dog, the operator should withdraw the material a little. The last stitch must be *on the left*. The needle shall be stitched 1/8 inch only into the cloth.
9. Again set zigzag adjusting lever 7 on No. 2½ and sew the second half of the buttonhole, but a little shorter than the first one. The last stitch must be *on the left*.
10. Set zigzag adjusting lever 7 again on the number corresponding to the width of the complete buttonhole and bar it with a few stitches. Withdraw the cloth again a little, in order to prevent its being pushed by the feed dog. The last stitch must be *on the left*.
11. Set zigzag adjusting lever 7 on zero and sew some fastening stitches, withdrawing the cloth a little.
12. Then, place the work on the wooden block and with the special cutter open the buttonhole between the twoo borders.



Last stitch on the left



Last stitch on the left

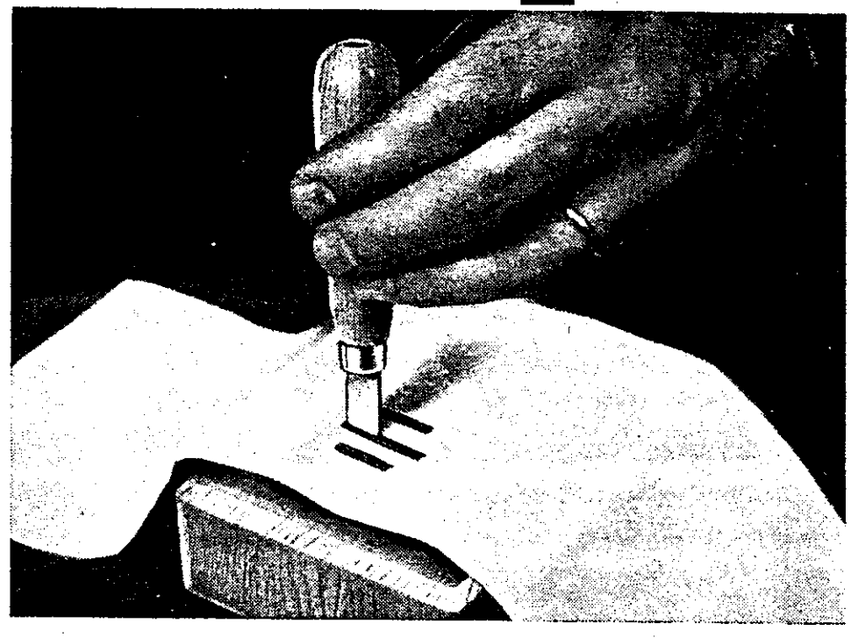


Fig. 35

Appliques

(Use left stitch)

By sewing on scraps of cloth or tulle of different colour, a very nice decorative effect will be obtained.

For such kind of work use preferably the buttonhole presser foot, marked with 3 black stripes.

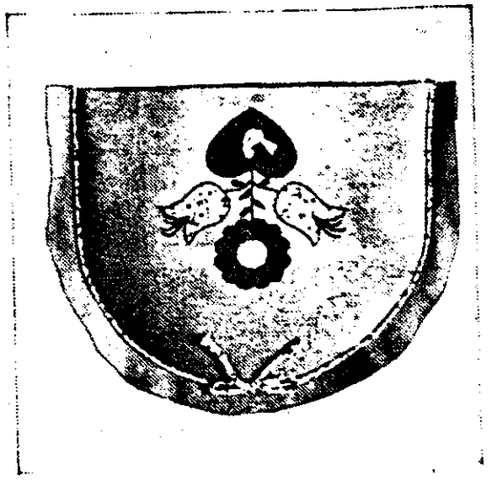


Fig. 36

First apply the design on the *wrong side* of the cloth. Cut out the scrap a little larger than the design, put it on the *right side* of the cloth and fix it with provisional stitches. Then, on the wrong side of the cloth sew along the contours of the design with a narrow (width 1 or 1½), not too short zigzag stitch. Use a thread of the same colour as that of the scrap to be sewn on. Then, remove the provisional stitches and cut the superfluous part of the scrap along the zigzag seam. To finish the applique, sew another zigzag seam over the first one, a little wider (width 2½) and shorter, but this time on the right side of the cloth.

Fig. 37

Pintucking

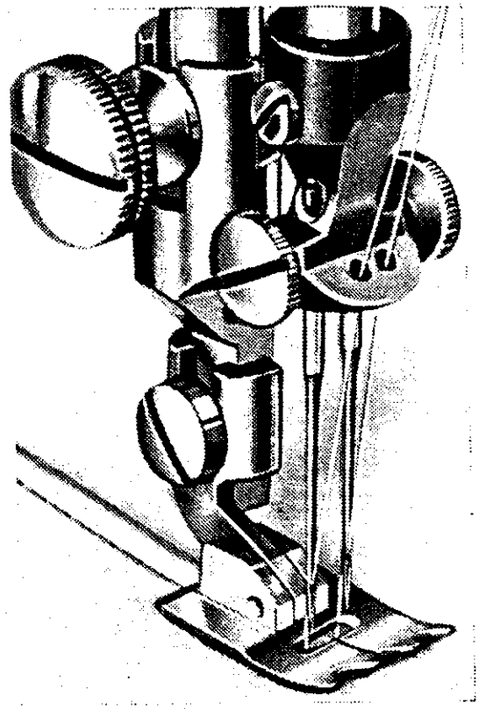


Fig. 38

The complete pin-tucking device, which is excluded from the normal accessories, consists of the following parts:

3 twin-needle holders for pin-tucks of about 2, 3 and 4 mm width, respectively.

3 pin-tuck presser feet with 3, 5 and 7 grooves respectively.

1 cover plate with spool pin and auxiliary thread tension.

1 bridge with tongue.

1 cord guide.

1 threader for cord.

When pin-tucking set the machine as follows:

1. Set knob 10 in central position, so that the needle will stitch *in the middle* of the stitch hole.
2. Place zigzag adjusting lever 7, Fig. 31, on zero position.
3. Remove ordinary needle holder and replace it with twin-needle holder. The guide-pin of the needle bar must enter into the slit made on the right of the twin-needle holder.
4. Insert the pin-tuck presser foot that corresponds to the distance between both needles.
5. Thread the machine as per Fig. 39, namely:

Put one of the thread spools on the right arm pin, carry thread through upper eyelet of the left arm pin and thread the machine as per description on page 15 (Fig. 8).

The double needle clamp has two guide holes and each thread is to be carried separately through one of the holes, as per Fig. 38.

The normal thread tension is fitted with double sided tension discs. Be sure that the threads are carried separately between said tension discs.

The needles must be threaded *from front to rear.* Take care that the long groove of both needles is facing the operator.

the auxiliary tension is necessary in order to regulate the threads in an independent way.

The tension of top and bottom threads is adjusted according to the nature of the fabric and the desired form of the pin-tucks.

If a soft cord is inlaid in the pin-tucks, carry the cord with the threader from underneath the bed plate through the cord guide located next to the rotary hook and through the special hole in the needle plate. To fix the

Fig. 39

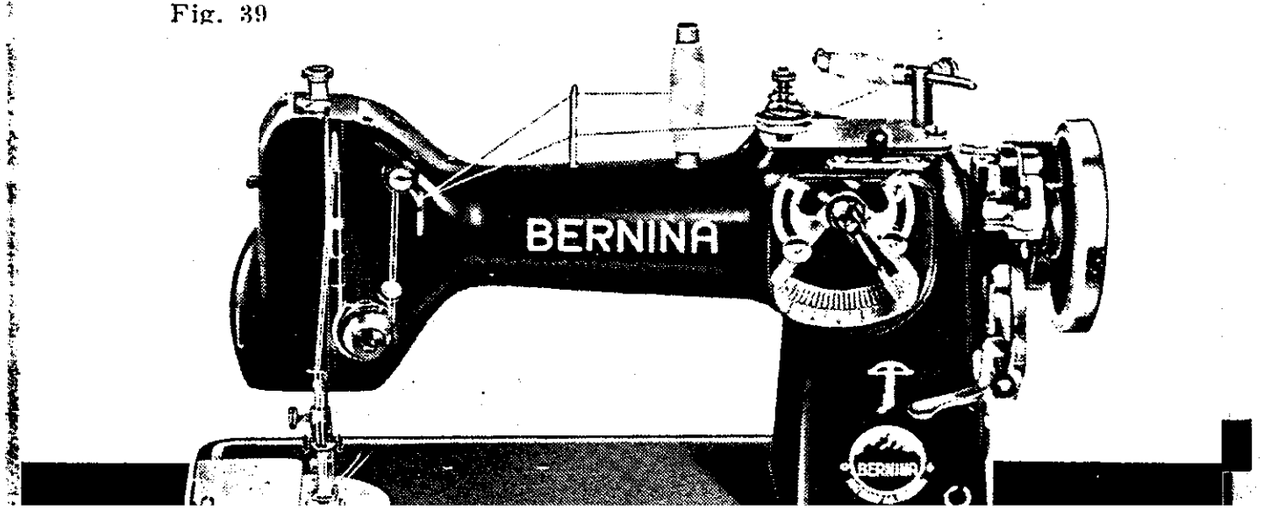
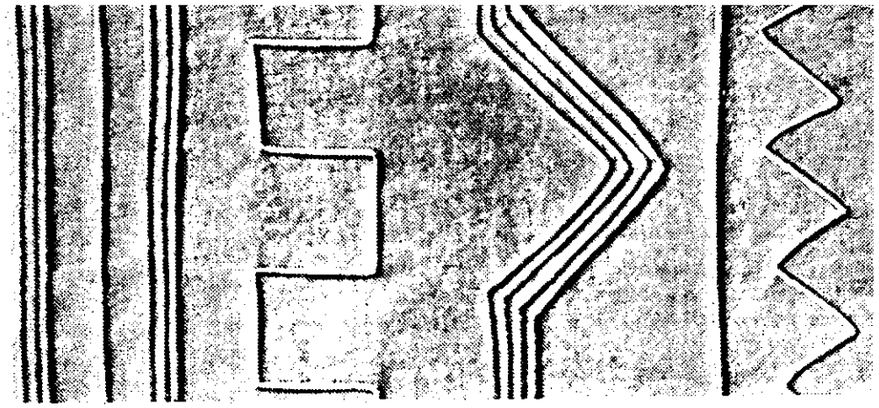


Fig. 40



cord guide, use the two left screws that hold the gear case cover.

In order to obtain very strong pin-tucks, use the bridge with tongue, which is fixed on the needle plate in the same way as the darning plate.

For very fine pin-tucks or in case that the distance between the needles is too large or too small, eccentric needles can be used instead of the ordinary needles 287 WH.

The needle that is eccentric towards the left is called: 287 FER. The needle that is eccentric towards the right is called: 287 FE. With the help of these eccentric needles it is possible to obtain the intermediate distances from 2, 3 and 4 mm.

Be sure that also the eccentric needles are inserted with the long groove facing the operator.

Fancy stitches made with double needle

When using a double needle holder and the ordinary zigzag sewing presser foot, it is possible to obtain parallel double fancy stitches, which result very nice if cotton of different colour is used. The double needle holder of 2 or 3 mm needle distance allows to make yet a small zigzag movement. It should be only so large that neither on the left nor on the right one of the needles will strike the presser foot or the needle plate. Therefore, zigzag lever 7, Fig. 11, should be changed from 0 position a little only to the left.

English Embroidery

The complete English embroidery device, which is excluded from the normal accessories, consists of the following parts:

1 eyelet needle plate.

3 eyelet slides with bolts for holes of 2, 3 and 5 mm diameter respectively.

1 presser foot.

3 hollow punches with 1½, 2 and 3 mm punching holes.

1 punching block.

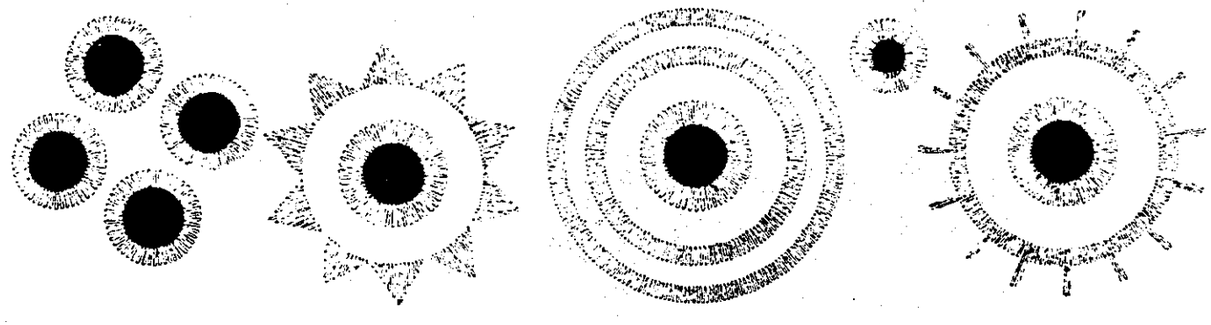
For this kind of embroidery set the machine as follows:

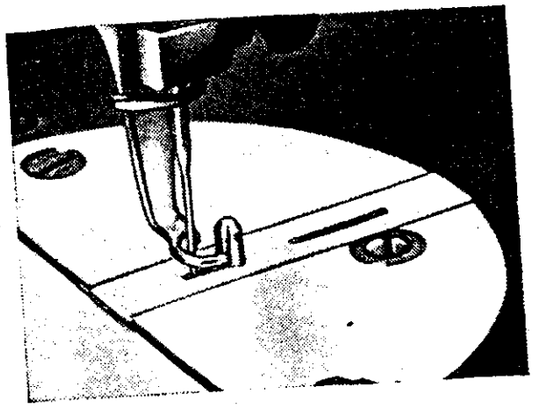
1. Set knob 10, Fig. 31, to the left, so that the needle will stitch *in the left side* of the stitch hole.
2. Lower feed dog by setting lever 4, Fig. 12, to the left, as per darning sign.
3. Insert eyelet needle plate with the desired slide.

Both for top and bottom threads use embroidery cotton No. 60–80, 2 ply. Tension of bobbin thread must be a little stronger than tension of needle thread, so that looping of both threads will take place of the under side of material. It is necessary to use the embroidery frame. Be sure that material is firmly stretched into said frame. For this purpose wrap round the outside ring of the frame stripes of cloth, which will help to stretch the fabric better and at the same time will protect it.

Only now, with the puncher, make the holes in the fabric on the punching block. The holes are previously designed on the material. Now put the material under the presser foot and let the bolt of the slide enter into the hole. As already mentioned, use the *left side* stitch only. Adjust the slide of the needle plate in such a way that the needle, *when stitching to the right*, will stitch just over the border of the fabric *in the slit* of the bolt. Whenever the width of stitch is changed, adjust the position of the slide as explained. Then treadle the machine in a regular way and at the same time turn the embroidery frame

Fig. 41





Position of slide
for English embroidery

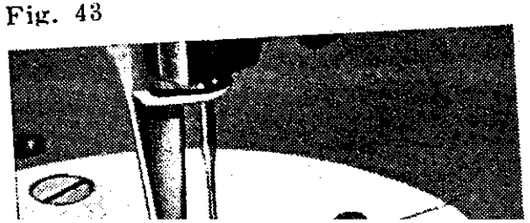
Fig. 42

clockwise about 3 or 4 times round the bolt also with regular speed. Then place zigzag adjusting lever 7, Fig. 11, on zero position and fasten the embroidery with a few stitches, which are to be parallel to the embroidery stitches in order to remain invisible.

Inserting the slide of the needle plate in the opposite sense, the bolt can be used as center for making circular embroideries, as per Fig. 43. In this case, the needle stitches in the longer slit of the slide.

When varying the width of stitch or the speed in turning the embroidery frame or when using cotton of various colours, very nice samples of embroidery are obtained. As a rule, make the holes of the same size one after each other, in order to avoid a too frequent change of the slides in the needle plate.

Fig. 43



Position of slide
for circular embroidery

Useful Hints

We list below various possible causes of slight troubles which can be easily remedied.

Top thread breaks

Inferior grade of needle, roughly polished.
Needle is not inserted in the needle bar correctly; long groove in needle must frace *the operator.*
Needle size is not suitable for material to be sewn and thread used.
Wrong threading of the needle. Thread needle from front to back.
Poor quality thread with knots.
Top thread tension is too tight.
Thread passages are not smooth and need repolishing.
Needle hole in throat plate is damaged by the needle and needs repolishing.
Thread regulating spring 4, Fig. 8, is broken.

Bottom (bobbin) thread breaks

Bottom thread tension is too tight.
Bottom thread not properly wound on bobbin.
Bobbin crushed, and jamming.
Needle hole in throat plate is damaged by the needle and needs repolishing.

Faulty stitches

Wrong needle. Use system 287 WH only.
Low-grade needle, roughly polished.
Long groove of needle is *not facing the operator.*

Needle is not pushed right up in the needle bar.
Needle size is not suitable for the thread used.
Presser foot is not lying well on the throat plate.
Use of wrong presser foot. Never use zigzag embroidery foot (1 red stripe) for ordinary zigzag stitching.

Needle breaks

Needle is bent.
Needle clamp screw is not sufficiently tightened.
Needle is too fine for material to be sewn and thread used.
Top thread tension is too tight.
During sewing, the work is drawn backwards too much so that the needle comes in contact with the throat plate.

Irregular seams

Remnants of thread, etc., have collected between the thread tension discs.
Remnants of thread have collected under the bobbin case tension spring.
Bobbin crushed and jamming.
Bottom thread is not finer than top thread.
Race of rotary hook needs oiling. See Fig. 3.
Sewing cotton is of irregular thickness.

Fabric is curled

In most cases this is due to too tight thread tension (regulate tension as per directions on page 17).
When sewing jersey material, never draw fabric to the rear, otherwise the jersey will be curled. It is better, on the contrary, to push the jersey a little while sewing.

Machine is running hard

This may happen after a longer period of rest of the machine in a *damp room* or if poor oil has become resinous. In such a case, inject paraffin into all the oil holes, run the machine for a while, until all residues of oil are dissolved. Repeat this operation until all resinous oil is swept out of the bearings. In serious cases of resinification, the machine is to be dismantled and cleaned by a sewing machine mechanic.

If the machine works smoothly, when turning the balance wheel, but very heavily when treadling, the tension of the driving belt is too tight.

Rotary hook is blocked

Owing to incorrect handling of the machine, thread may get jammed in the rotary hook and block the machine. Unthread the needle, turn backwards the machine head and remove all visible parts of thread from the rotary hook. Now oil the hook race slightly (Fig. 3) and allow the oil to act on the jammed threads for one or two minutes. Then turn the handwheel backwards and forwards a few times. By this movement the jammed thread ends will be cut to pieces and they can now be removed.

Never slacken the hook screws, nor take off the rotary hook. Neither should you ever use screwdrivers, scissors etc. for the removal of threads from the rotary hook, which is tempered and therefore very sensible. Otherwise you risk to damage some part of it.

How to prevent thread jamming in the hook

The thread jamming in the rotary hook is always due to wrong manipulation, for not having observed one of the following points:

1. Handwheel is not turned *in the right direction*. Turn it always towards you.

2. Before beginning to sew, bring up the bobbin thread and place it, together with the needle thread, to the rear of the presser foot. Whilst the first few stitches are being sewn, hold both threads between the thumb and forefinger of the left hand.

3. After each sewing operation, be sure that take-up lever is at its highest point.

4. When turning a corner, bring take-up lever to its highest point, then stitch slightly into the material with the needle point, lift the presser foot and then only turn the fabric round the needle, using it as a pivot.

5. When the machine is not used, needle should be unthreaded and a little piece of cloth laid under the presser foot.

Standard Accessories supplied with Model 117L Bernina Zigzag Sewing Machine

Part No.		
	On the Machine:	
1015	1 presser foot prolongation	
1602	1 presser foot for zigzag sewing, hinged	
	In the Accessory Box:	
1709	1 presser foot for embroidery and braiding	1 red stripe
862	1 lap hemmer (feller)	
863	1 edger with quilter guide	
865	1 wide hemmer	
885	1 roll hemmer, suitable also for shell roll hemming	2 red stripes
1126	1 button presser foot	2 black stripes
1125	1 buttonhole presser foot	3 black stripes
1147	1 buttonhole cutter	
1164	1 wooden block	
1210	1 darning foot	
1145	1 darning plate	
1143	6 bobbins, one of which in the bobbin case	
176	1 screwdriver, medium size	
178	1 small screwdriver	
5414	1 oilcan	
	1 envelope with assorted needles system 287 WH	
	Further Accessories:	
715	1 bed plate prolongation	
	1 instruction book	
	Available against Extra-Charge:	
851	presser foot for plain sewing, hinged	
866	ruffler	
	pin-tucking device	
	English embroidery device	
1449	darning apparatus for stockings	
1484	darning and embroidery frame	