Instructions

for the use of the

SEWING MACHINE

WHITE

ALL-STITCH ZIG ZAG

German 130 R needle Jafaff

Singer 70-80 & 100 (90)

IMPORTANT NOTICE

In some details, such as needle system and type of sewing light for example, your WHITE ZZ machine may differ from certain illustrations and descriptions you may observe in this book. That is because the manufacturer has made some minor changes in standard production to meet our own specifications. Any such changes, however, do not affect any fundamental parts or functions.

WHITE SEWING MACHINE CORP., Cleveland 1, Ohio, U.S.A.

Dear User

At last you are the proud owner of the much longed for Sewing Machine.

The machine was explained to you in detail, and you were delighted with the many useful and wonderful things performed on this true »Wonder of Engineering«.

Although everything is still quite clear to you, it is possible that in time some of the directions for making the various adjustments may escape your memory — because, we do not suppose you will immediately try your hand at all the different sewing work which your machine can do.

We have therefore prepared this informative Book of Instructions, hoping you will find it helpful.

Before putting your machine to work we advise you to glance briefly at the pages of this book, so that you will have a rough idea of the contents. This will help you when reverting later on to any one chapter.

Your attention is drawn particularly to sections 1, 2 and 6; after reading these carefully you will be thoroughly acquainted with your machine. It will become a living thing to you, placed under your protection and care.

The more you understand the machine the greater will be your appreciation of its scope and capacity.

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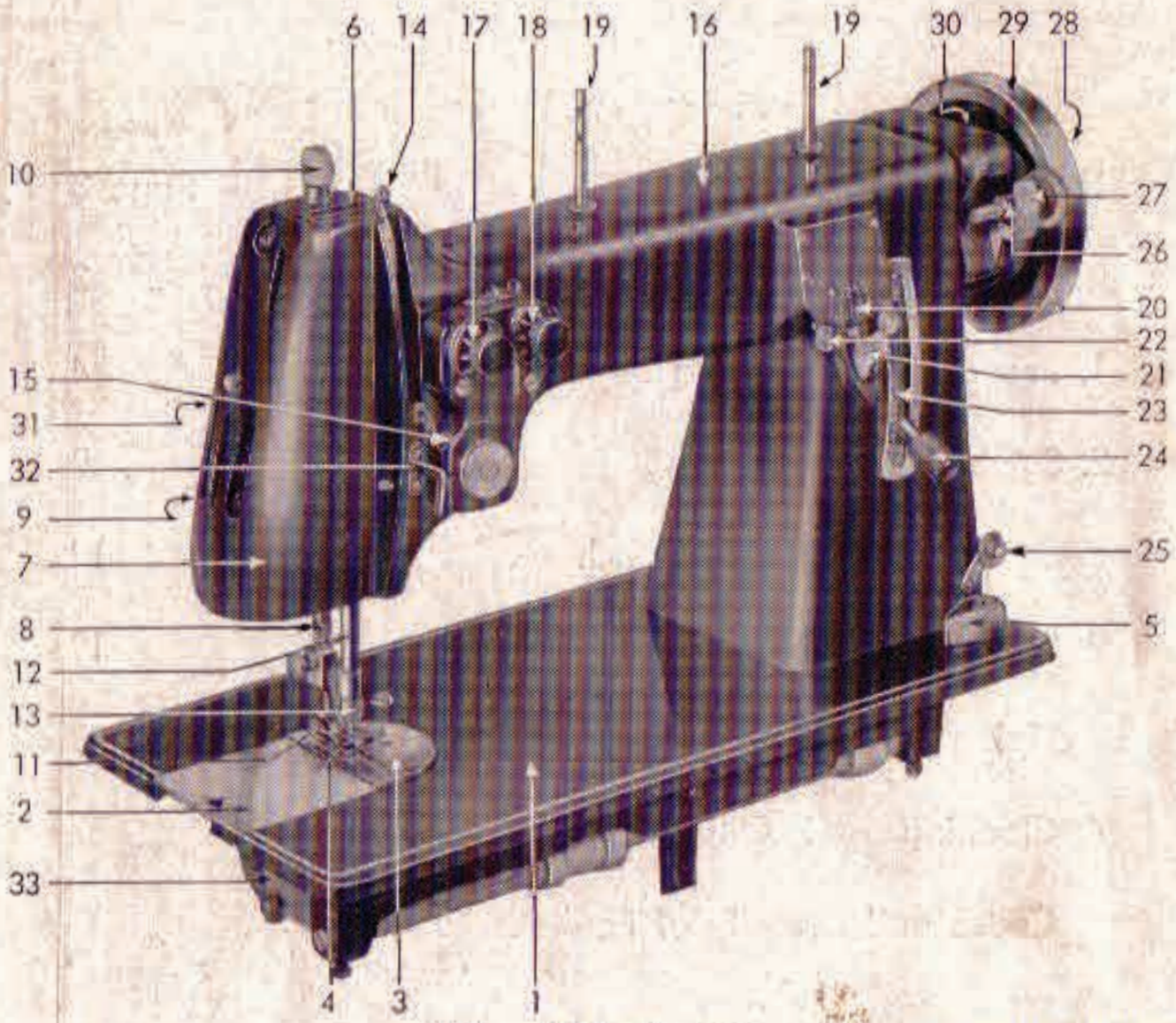

1 Bedplate
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THE SEWING MACHINE HEAD
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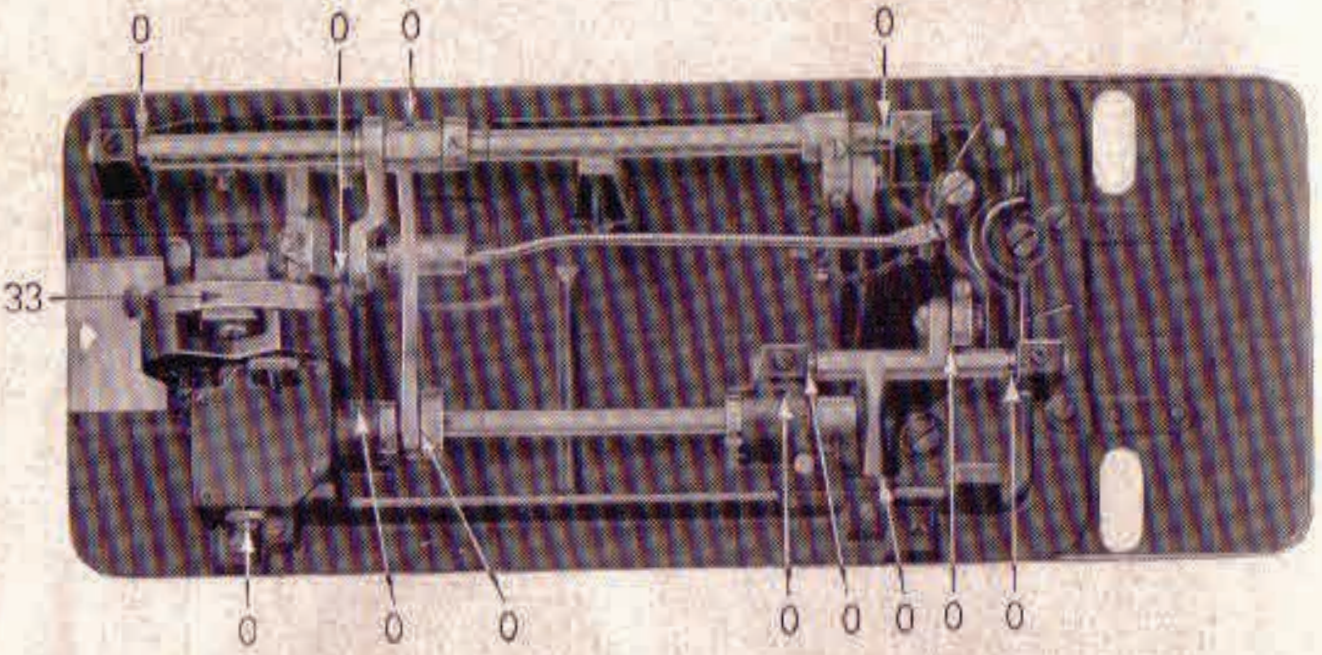
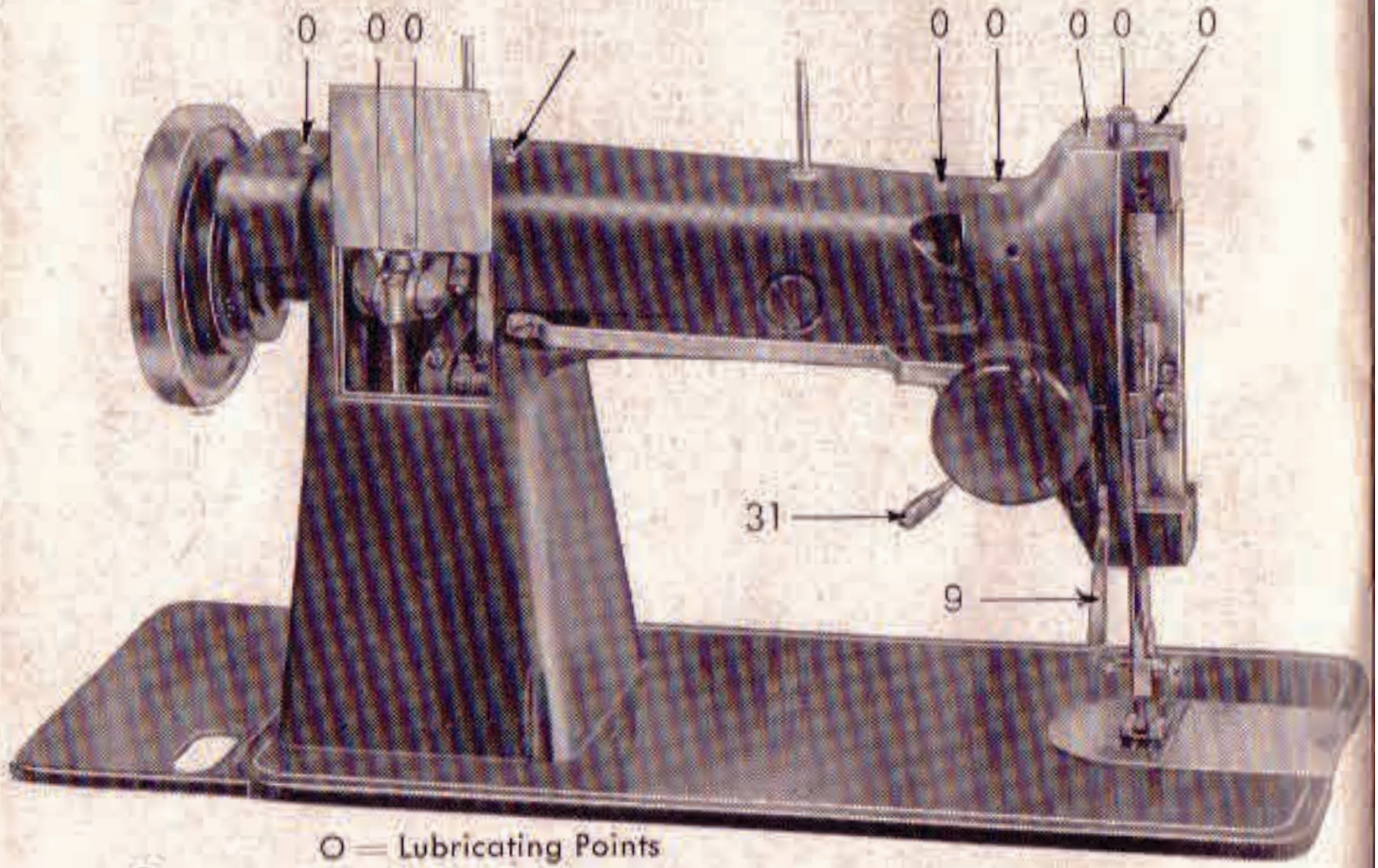


THE SEWING MACHINE HEAD (Rear View)



O — Lubricating Points

IMPORTANT HINTS.

When buying oil and needles please always obtain them from a Sewing Machine Expert or preferably from the Suppliers of your machine. Never use just any kind of lubricating oil — if you do, it will clog your machine.

If Repairs are necessary, please let Experts attend to them.

RELATIVE NEEDLE SIZES AND THREAD NUMBERS.

Class of Work	Thread No.	Needle No.
Fine Linen and Cotton Goods	100–60	65–70
Medium weight Linen and Cotton Goods	60–40	70–90
Heavy Woollen Goods, fine Leather, Corsets	40–30	90–110

Before sewing exceptionally fine or very heavy texture materials try out the needle and thread first on a remnant.

For the under thread (Bobbin Thread) always use a slightly softer and finer thread than for the upper thread. For Woollen and Silk Goods you will mostly use Sewing Silk; for work of this kind the upper and under thread should be alike.

The Treadle Mechanism.

Lift the sewing head from its recess, and place the open belt over the balance wheel. Draw both ends of the belt through the holes in the bedplate and recess. The belt end at the back must then be taken between the connecting rod and the band wheel and brought to the front where both ends are hooked together and firmly joined with a pair of pliers. Next, place the belt under the shifter, turn the band wheel over towards you, and let the belt mount the wheel. When this has been done the treadle mechanism of your sewing machine will be ready for use.

When wishing to drop the sewing head out of the way, turn the band wheel over towards you and, at the same time, press the belt to the right so that it will come off the wheel. You leave the belt joined, and when using the machine again you merely replace the belt on the band wheel.

Treadling.

When practising treadling leave the machine unthreaded and, so long as there is no material under the presser foot, the presser bar must be kept in the lifted position, otherwise the teeth of the feed dog will be blunted.

Place both feet upon the treadle. With your right hand turn the balance wheel over towards you, and start treadling with an even rhythm.

Setting the Needle.

Raise the needle bar to its uppermost position. Take the needle between thumb and forefinger of your left hand,

long groove in needle facing you. Now insert the needle into the needle clamp, pushing it up as far as it will go. With your right hand tighten the thumb screw on the needle clamp.

Fitting the Presser Foot.

For all ordinary sewing work and also for zig-zag stitching use the Standard presser foot, No. Z - 343 f.

Take the presser foot with your right hand and push it up into the presser bar, against the screw. First tighten the screw with your left hand, and then drive the screw well home with a screwdriver. All other types of presser feet must be fitted in the same manner.

Upper Threading.

The Zig-Zag Machine is provided with two independent upper thread tensions (Fig. 1). The tension on the left is used for all ordinary sewing work.

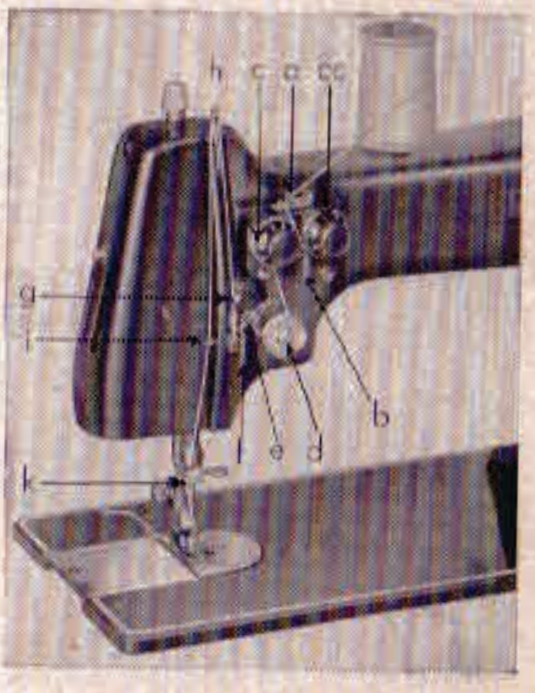


Fig. 1

The thread is drawn from the reel mounted on the spool pin, and taken behind the left eyelet of the guide (*a*), then from right to left under the hook (*b*), from there above and to the left between tension discs (*c*), from right to left around the guide plate (*d*), over the regulator spring (*e*) to left, then under the regulator (*f*) to thread guide eyelet (*g*), then from right to left through the thread take-up lever (*h*), through eyelet (*i*), through needle

clamp eyelet (*k*), and then from front to back through the eye of the needle.
The upper thread tension on the right is used only for special sewing work, e. g. buttonholes in linen. We wish to draw your particular attention to this.
When using the Special tension the thread is drawn through the right eyelet of guide (*a*), then from left to right under the hook (*b*), from left to right between the tension discs (*cc*), and so on, as already explained above. When piping, b o t h thread tensions must be used.

Under Threading.

Removing the Bobbin:

Move the needle to its highest point, and draw the bedplate slide to the left, as far as it will go. You will then clearly see the bobbin case. With thumb and forefinger of your left hand grip the small flap fitted to the bobbin case (Fig. 2). Open the flap and take out the case with the bobbin inside it. Then turn the bobbin case up-side-down, and let the bobbin drop into your right hand.

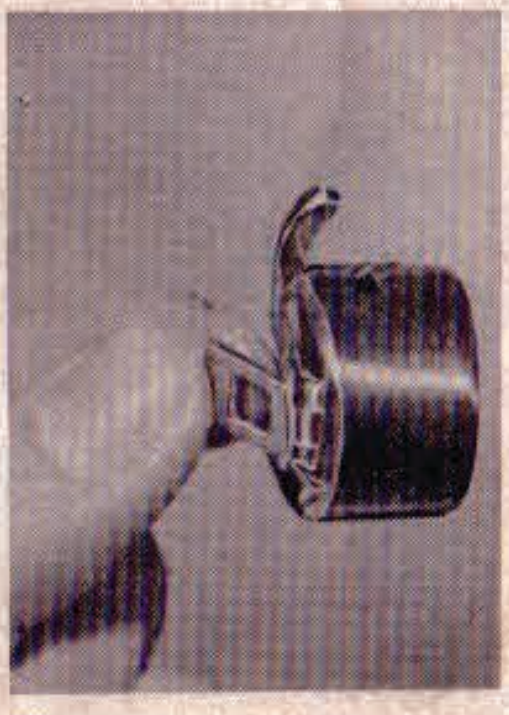


Fig. 2

Before winding the thread on to the bobbin put the sewing mechanism out of action. To do this, hold the balance wheel with your left hand and loosen the stop motion screw (fitted to the centre of the balance wheel) by turning it outwards, as far as it will go (Fig. 3). Next, place the reel on the spool

pin, and draw the thread through eyelet (*a*) — Fig. 4 —, then into guide plate (*b*) and then between the tension discs (*c*), and up to the bobbin (*d*). The end of the thread you wind a few times from front to back around the bobbin, using your left hand for winding.

Fig. 3

Place the bobbin on winder pin, press lever (*d*) and turn the free balance wheel over towards you to set it in motion, and start treadling. An automatic cut-out stops the winder when the bobbin is fully wound. The stop motion screw is then firmly tightened again by screwing it inwards, against the balance wheel.

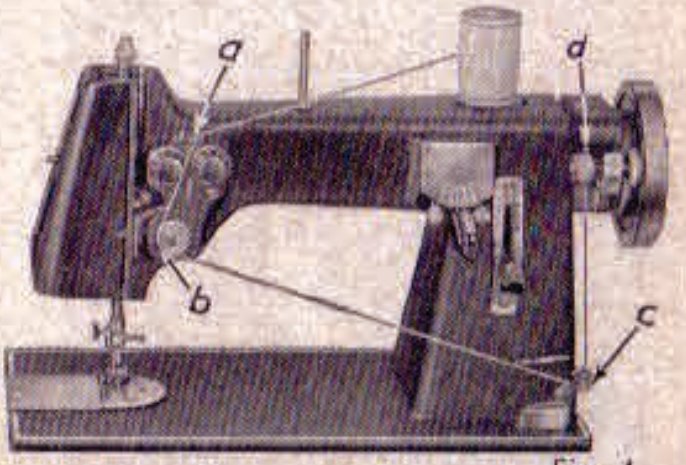


Fig. 4

Replacing the Bobbin in Bobbin Case. (Fig. 5)

Hold the bobbin case with open side facing up, and replace the bobbin with the thread leading from left to right. Then draw the thread into the slot (*a*) and under the tension spring (*b*) through to the small hole (*c*) in the side of the bobbin case.

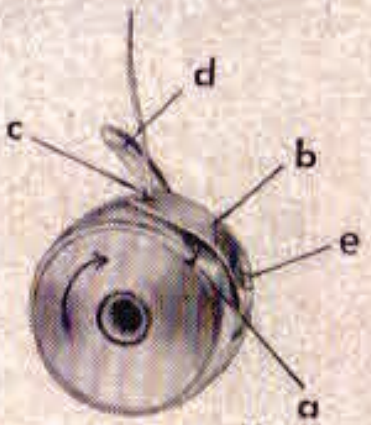


Fig. 5

Replacing the Bobbin Case.

The bobbin case, with bobbin in position, is held with thumb and forefinger of the left hand by the open flap and slid from the front on to the pin in the centre of the hook (Fig. 6). The

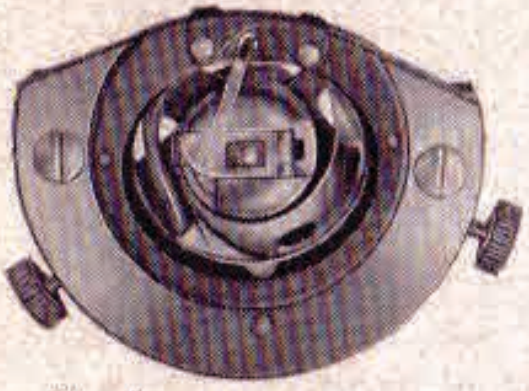


Fig. 6

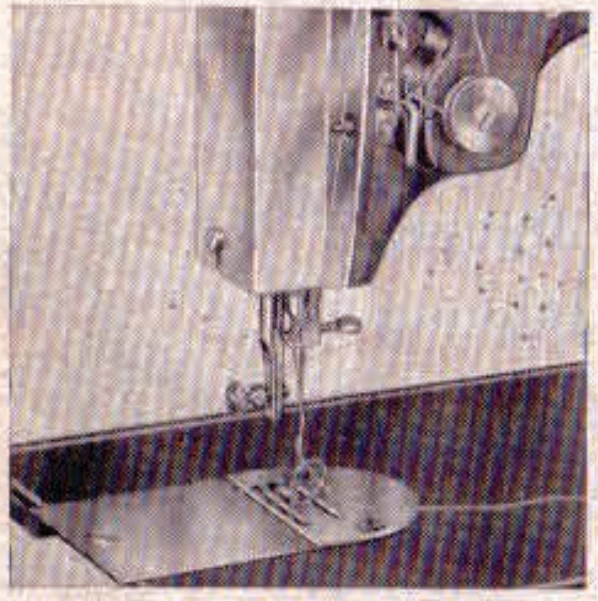


Fig. 7

catch (*d*) — Fig. 5 — must fit into the notch on upper part of the race. Now press the bobbin case down firmly; you will hear a faint click when it is properly positioned.

Drawing the Under Thread through Needle Plate.

Hold the end of the upper thread with the left hand, leaving the thread slack. By turning the balance wheel over towards you the needle will travel down and up again to its highest point. In doing so, it will loop the under thread and draw it up through the needle plate. The ends of both threads are then placed under and behind the presser foot, ready for sewing.

2 SEWING

General:

Move the needle to its highest point. Place the material under the presser foot, and then lower the latter with the lever provided. Start sewing. When making the first few stitches hold on to the ends of the two threads, so that they do not get sewn down and obstruct the race.

Do not force the feed, but only guide the material along. Do not allow the needle to move if there is no material under the presser foot.. Before sewing the work, try a few stitches on a piece of material of the same texture.

Adjusting the Length of Stitch.

The machine has in front, on the right, a stitch regulating lever (*a*) — Fig. 8 — to which is fitted a thumb screw (*b*). With this screw the required stitch length can be set on the scale. For making any adjustment, slightly slacken off screw (*c*) by turning it to the left. The more you loosen this screw, the greater the up and down movement of the stitch regulating lever will be, and the stitches will increase in length accordingly. If you require shorter stitches you must set the lever opposite the corresponding graduation marked on the scale, and then slightly tighten the screw (*c*).

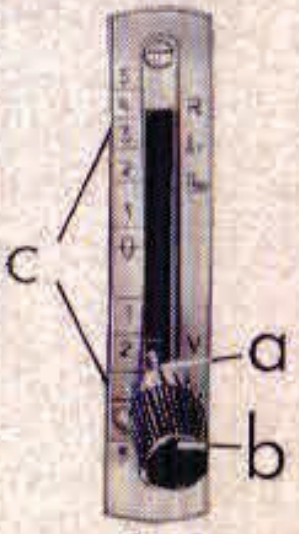


Fig. 8

To reverse the feed, for backwards sewing, slide the lever right up to the top. With the lever in this position the reverse stitch will be the same as the forward stitch.

Adjusting for Lockstitch or Zig-Zag Stitch.

In front, top left-hand side of the machine next to the scale for stitch adjustment, there is another scale (*a*) — Fig. 9 — with the figures O — 4 marked on it. Below the scale is the zig-zag stitch adjustment lever (*b*). A catch (*c*) is fitted to the lever. For locking the lever in position, push the catch to the top; but for adjusting the lever, slide the catch halfway down. The two spring-loaded limit stops (*d*) and (*e*) should be left as far apart as possible. For special work — please note this carefully — both stops can be pushed inwards and locked in position. This adjustment is provided for the following reason: with the catch (*c*) placed halfway, the zig-zag lever can be moved only between the two stops; but when the catch is pushed down completely, the lever, when required, can be moved underneath and beyond the stops, to the extreme left or right. If you intend working with the lockstitch, move the zig-zag lever to „O".

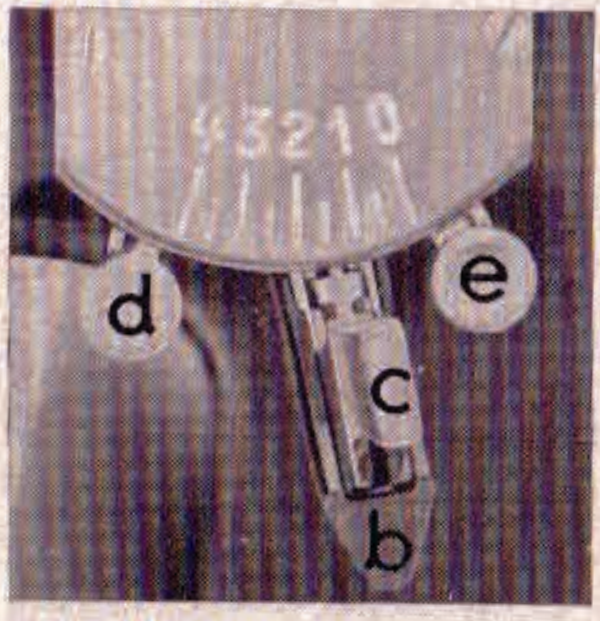


Fig. 9

Zig-zag stitches follow when you have set the zig-zag lever opposite the required number on scale. To increase the width of stitch move the lever from „O" to the left. When the lever is on „4" (which gives 4 mm — almost 3/16" — stitching width) you will sew with the widest zig-zag stitch. For working with the required zig-zag stitch it

is essential that you place the lever opposite the appropriate number on scale.

Altering the Stitch Positioner.

At the back of the machine, on the right, next to the presser foot lifter (viewed from the front), you will find the stitch positioner (Fig. 10). For all normal lock- and zig-zag stitching the positioner is set midway. By moving it either up or down the stitch is placed to the left or right respectively. This adjustment is necessary when working on buttonholes, hole embroidery and certain styles of decorative zig-zag stitching. We shall revert to this stitch positioner later on in this book.

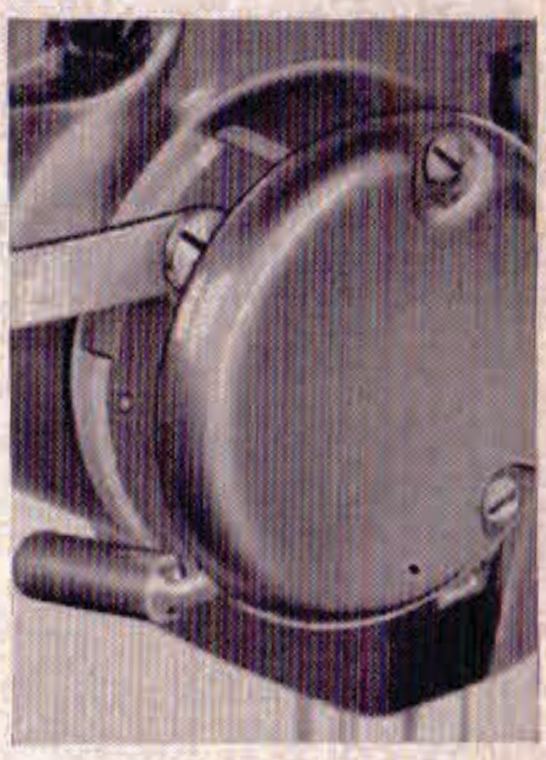


Fig.10

Regulating the Thread Tensions.

The tension on the upper thread can be regulated by turning the thumb nut of the tension discs. Clockwise adjustment will increase the tension; anti-clockwise turning will reduce it. Since you will use for all normal sewing only the upper thread tension on the left, a wrong thread tension must be corrected on that one. But when doing special sewing work you must use and, when necessary adjust, the tension on the right; (please carefully observe the special directions given in this matter). The tension on the under thread is regulated by turning the small screw (*e*) — Fig. 5 — with the aid of a screwdriver.

Here, too, the tension increases when adjusting clockwise, and decreases when adjusting anti-clockwise.
In most cases any incorrect tension will be experienced on the upper thread and, therefore, any alteration to the tension should be carried out there first — and later on the under thread tension, if necessary.
Satisfactory stitching can result only if upper and under thread tensions are correct.
After you have sewn about 10 cm (4") check the stitching on top and underneath .The tensions are satisfactory if both threads are drawn into the fabric equally, and if they lock in the centre of the material (Figur 11). If, on the other hand, stitches loop on the underside of the material (Figur 12) it is a sure indication that the upper thread is too slack, and you must give it more tension by turning the thumb nut to the right. If you find that after adjusting the upper thread tension the loops continue to be formed on the underside of the work, it is possible the underthread has been tensioned too severely, and you must therefore slacken it a little by turning the small screw (*e*) — Fig. 5 — slightly to the left. Loops forming on top of the material may be due to excessive tension on the upper thread; adjust tension by turning the thumb nut to the left.

Fig. 11

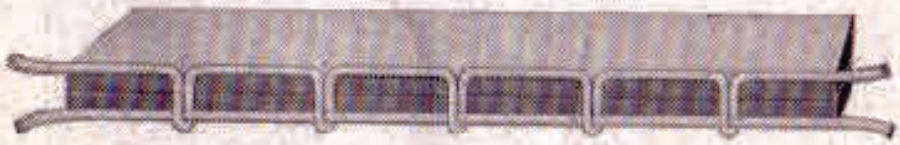


Fig. 12

Fig. 13

Should none of these adjustments correct the stitch forming then, and not before, the underthread must be given more tension by turning the small screw (*e*) — Fig. 5 — to the right.

Regulating the Pressure of the Presser Foot.

The presser foot is set at normal pressure which will be found satisfactory and ensure a steady, reliable feed when working on light and medium weight materials. Only when sewing excepionally heavy or hard materials is greater pressure required. To increase the pressure the adjustment screw on top of the presser bar must be turned clockwise. Anti-clockwise adjustment reduces the pressure.

Removing the Work from the Machine.

Be sure needle and thread take-up lever are in their uppermost positions. Turn wheel by hand if necessary to move them to highest points. Lift the presser bar lever, and draw the material to the back clear of the needle. Now sever the threads, leaving them about 7 cm (say 3") long at the back of the foot; this will obviate unnecessary delay when continuing with the sewing.

Darning — Flat Embroidery — Hole Embroidery — (Madeira Work) — Cord Embroidery — Richelieu Work — Raised Embroidery — Festooning — Monogram Embroidery — Hemstitching — Toledo Work — Grained Work — Net Work — Wool Embroidery.

Adjusting the Machine:

Set the Zig-Zag stitch Adjustment Lever to O, the Stitch Positioner to centre position, and the Stitch Regulating Lever as required for the work in hand. For further particulars see page 10 „Adjusting for Lockstitch or Zig-Zag Stitch".

For all work, including lockstitching, you can use Needle Plate No. 4544 (Fig. 14) which is supplied with the machine and has an oval-shaped needle hole.

For Darning and Embroidery work use Needle Plate No. 4547 (Fig. 15) which has a round needle hole.

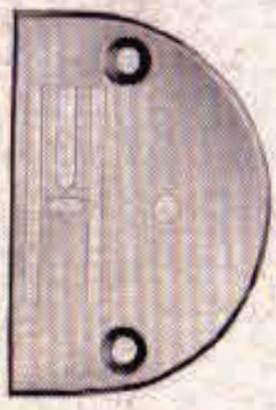


Fig. 14

Fig. 15

Ordinary Lockstitching (*a*):
Standard foot No. Z 343 f.
This foot can also be used for the Zig-Zag stitch.

Ordinary Lockstitching (*b*):
Foot No. Z 1028.
This foot is used for straight stitching only, and for edge-stitching.
You will also use this foot for quilting.

Edge-Stitching:

Foot No. Z 292 with Guide. With the guide you can set the distance from the edge to the line of stitching which, when working on wide and long seams, is of great advantage. This foot is also very suitable for sewing on zip-fasteners; but when doing this kind of work the guide must not be used, otherwise it will be in the way.

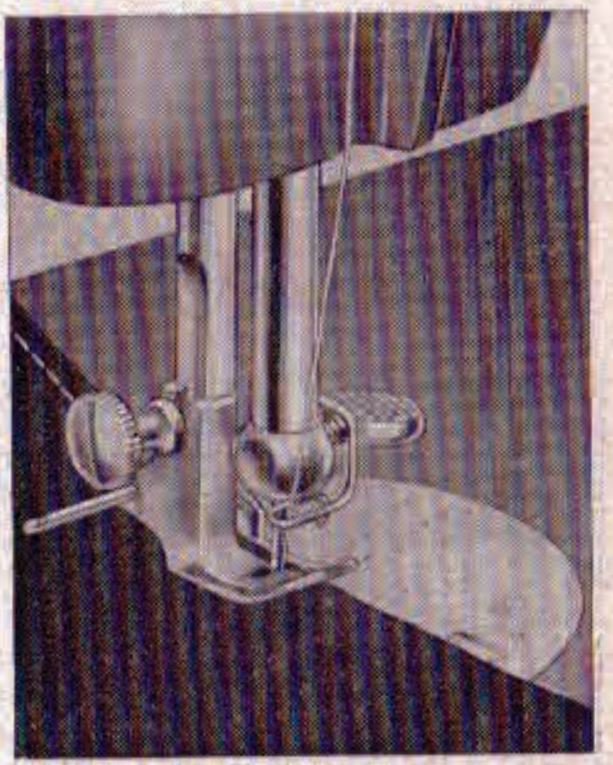


Fig. 16

Narrow Hems:
Foot No. Z 385 and Z 383.
Fold over to the wrong side the edges of the fabric to be joined, making a fold about 1/8" wide (3 mm), and pin the fabric at the start. Then insert the material into the curl of the hemmer where it is automatically turned under. Lower the presser bar, and commence sewing carefully. Allow the material to feed freely into the mouth of the hem-

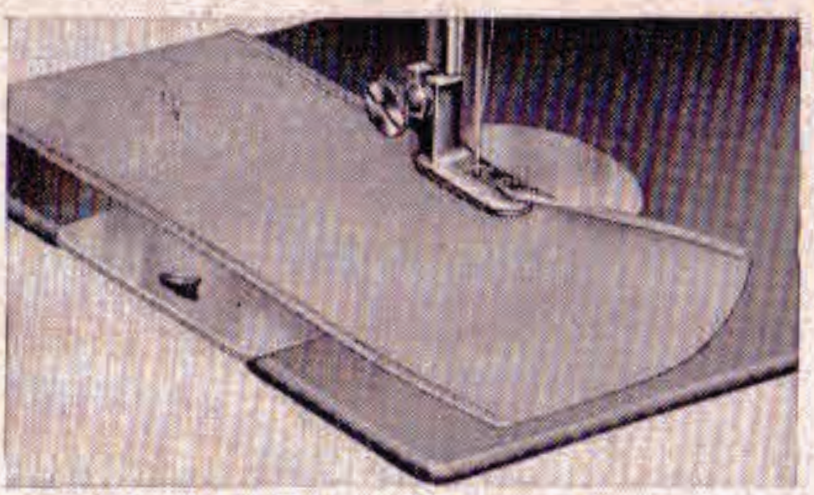


Fig. 17

mer without however over-filling the curl. Foot No. 2 - 283 will, in the same manner, sew also a slightly wider hem. For more details of its further use, see page 23 „Zig-Zag Hem".

Quilting:

Foot No. Z 028, for straight stitching only, or Foot No. 343 f for Zig-zagstitching or straight stitching, with Quilting Guide Z 1194.

First attach the foot, then slide from the back the rounded bow which holds the guide until it is immediately above the foot and encircles it. Now push the straight guide rod from right to left through the holes in the bow, and tighten the screws. Make your first line of stitches, then move the material to the right to give the required spacing between the first and second row. When laying the second row, allow the guide to glide over the first line of stitches, i. e. after you have adjusted it to the required spacing. The second row of stitches is then kept steadily under the

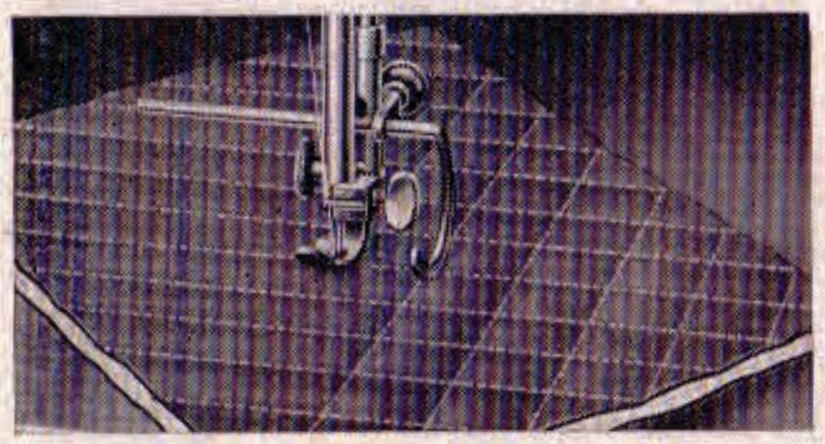


Fig. 18

guide, enabling a uniform distance to be maintained for the third line of stitching, and so on.

Felling:
Lay the two pieces of cloth one over the other, allowing the lower to project abt. 1/8" (3—4 mm) to the right. Pin at the beginning and insert the material into the slotted mouth of the feller. The lower piece of cloth is sewn down flat over the upper piece. Next, open up both pieces of cloth and run the edge once more hrouoht the feller, sewing the edge down flat.

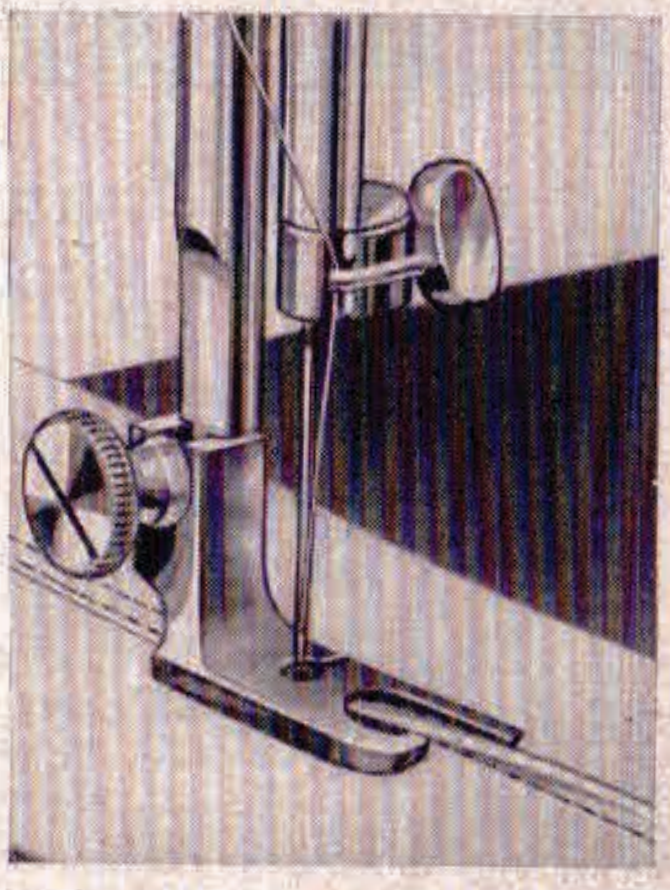


Fig. 19

Ruffling and simultaneous attaching of flounces:
Foot No. 299.
Under and Upper Thread: sewing silk or cotton Ng. 50-60.
Stitch Length: 2-3.
With this foot you can sew on frills or flounces, for instance, when working on curtains. To do this you must first of all hem the curtain and the flounce, using the hemmer (see page 15 „Narrow Hems"). Then you lay the edge of the curtain (right side up) into the slot of the foot; the edge of the flounce (right side up) you place under the foot and, while simultaneously sewing and

Fig. 20

gathering, let it run along with the edge, of the curtain, at abt. 3/8" (1 cm) from the edge. If you wish to make a small heading for the flounce you will achieve the same results by placing the curtain and the flounce wrong side up. Instead of working with the straight stitch you can use the Zig-Zag stitch, size 2—4, for simultaneous ruffling and sewing on.

Decorative Stitching with the Lockstitch:
Standard foot No. Z 343 f.
A stepped pattern of stitches, which can be varied as desired, is obtained by moving the stitch positioner from the centre to the top or to the bottom, respectively (for further details, see page 11 „Altering the Stitch Positioner"). Before changing the stitch the needle must be raised to its highest point. When sewing thin fabrics use copy or tissue paper for backing the material.

Fig. 21

4. SEWING WITH THE ZIG-ZAG STITCH

Adjusting the machine:

Move the Zig-Zag Stitch Width Adjustment Lever to the desired width; the Stitch Positioner usually remains in central position; the Stitch Length Regulating Lever is set according to the work to be done. For further details, see page 10 „Adjusting for Lockstitch or Zig-Zag Stitch". Your attention will particularly be drawn to any deviation

from the directions given.

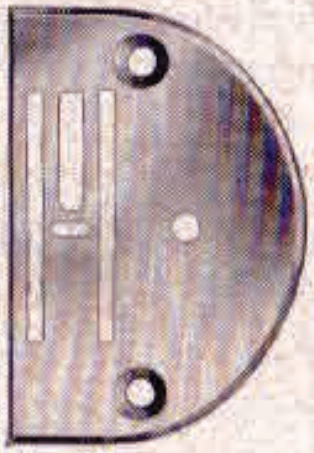


Fig. 22

For all Zig-Zag sewing you must use stitch plate No. 4544, in conjunction with presser feet having oval apertures. (The oval aperture is necessary because when Zig-Zag stitching, the needle moves from the centre to left and right). The thread tensions must not be too strong: when adjusting for stitch size 1 and zig-zag width 4, the upper stitching should appear on the underside of the fabric as small points only.

Ordinary Zig-Zag Stitching:
Standard foot No. Z 343 f.

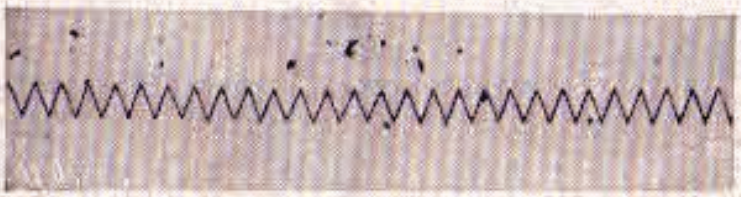


Fig. 23

According to the position of the Zig-Zag Stitch Width Adjustment Lever and the Stitch Length Regulating Lever, zig-zag stitches can be laid up to $\frac{5''}{32}$ (4 mm) wide and up to $\frac{13''}{64}$ (5 mm) long.

Overcasting, Edge-Stitching, Hemming:
Standard foot No. Z 343 f.
The above designations refer to very similar sewing work, viz: sewing the edge of material with zig-zag stitches, to prevent fraying. To do this work, place the edge of the work pointing to the right under the presser foot so that the needle, when stitching to the right, closely passes the edge of the fabric without however touching it. When stitching to the left, the needle will go through the material giving the required sewing width.

When oversewing seams make a sufficient number of zig-zag stitches of ample width, without turning under the trimmed edge. When making visible oversewn seams however the trimmed edge must be narrowly turned over and fastened down with a $\frac{3''}{64}$ (1 mm) wide straight stitch. This done, the edge is trimmed neatly. Next you lay close zig-zag stitches of suitable width. Details regarding overcasting the edges of long strips of material are given at the end of the next paragraph dealing with „Overseaming".

Fig. 24

Overseaming:
Standard foot No. Z 343 f, or foot No. Z 295.
Narrowly fold over to the wrong side the edges of two pieces of cloth, and join them neatly together with the zig-zag stitch. The middle of the stitch must be placed exactly over the joining edges of the fabric. Finally trim the sewn down edges close to the line of stitching. Overseaming can also be done with foot No. Z 295 which has two diagonal slots into which the two pieces of material must be fed simultaneously: the right fabric is pushed into the right-hand slot, the left fabric into the left-hand slot, care being taken from the start that the material passes over the front of the foot, then into the slot, and finally below the rear of the foot.

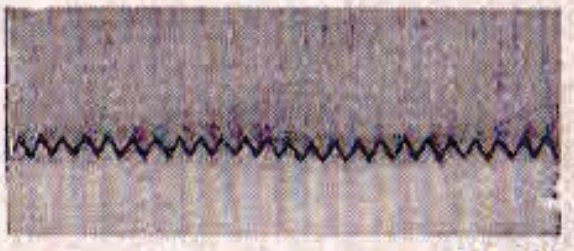


Fig. 25

Long strips of material can very conveniently be edge-

seamed with foot No. Z 295. The edge of the cloth is inserted into the left slot, and the zig-zag stitch will then cover the edge, giving a uniform stitching width without your having to pay particular attention to maintaining even stitching.

Sewing on Lace:
Standard foot No. Z 343 f, and foot No. Z 295.
Lay the lace over the right edge of the cloth, and overcast the edge of the lace with zig-zag stitches of suitable length and width. Then cut off the superfluous material. Lace of curved or sharp-cornered design must first be tacked to the material before sewing down. Materials which fray easily must be lockstitched along the edge, trimmed and then sewn down with the zig-zag stitch.


Fig. 26

For sewing on lace foot No. Z 383 can also be used. Like the hemmer, this foot has also a curl fitted on the left, and is provided with a diagonal slot on the right. The edge of the material is inserted into the curl where it is automatically turned under twice .At the same time the edge of the lace is fed into the slot (when using foo No. Z 295 for „Overseaming", see first page 21 for further details). The zig-zag stitch then sews down the lace direct on to the seam.

Pearl Yarn Embroidery:
Standard foot No. Z 343 f.
For this you must use fine pearl yarn for the under thread, and cotton for the upper. The upper thread tension must

be kept strong, the under tension weak (for further instructions, see page 11 „Regulating the Thread Tensions"). As the pearl yarn embroidery is produced on the underside, the material is placed right side down.

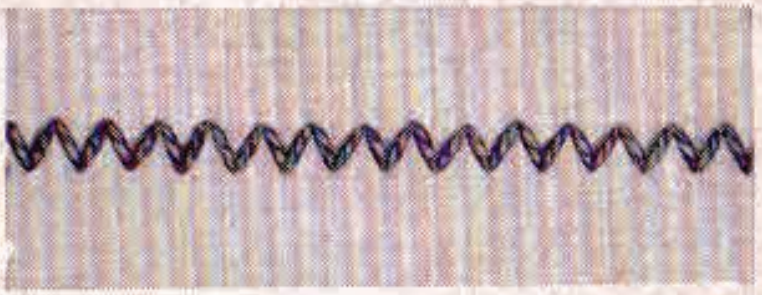


Fig. 27

Zig-Zag Hem:
Foot No. Z 385.
By using this hemmer foot you obtain a narrow zig-zag sewn hem (for further details, see page 15 „Narrow Hems").

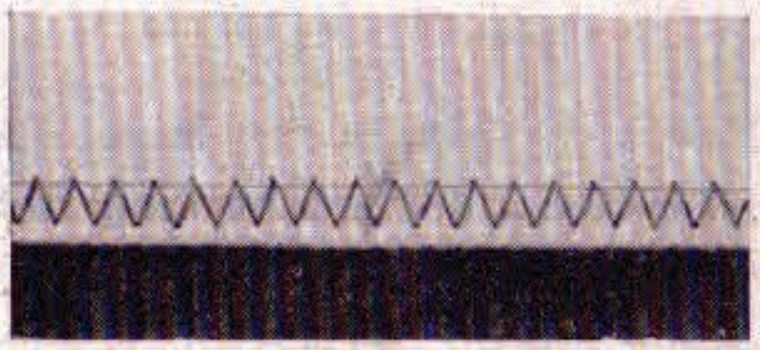


Fig. 28

Shell or Scallop Edging:
Foot No. Z 384.
The full effect of this work is achieved only on very soft and fine texture materials, like georgette or tricot. The material is inserted into the foot as for hemmer No. Z 385, (for further details, see page 15 „Narrow Hems"). With slightly more tension given to both upper and un-

Fig. 29

der thread, (for further details, see page 11 „Regulating the Thread Tensions"), the zig-zag stitch is adjusted for $\frac{5''}{32}$ (4 mm) width and suitable length. The zig-zag stitch encircles the edge, and draws the material in slightly, thus giving the desired wavy effect. The hem is on top.

Roll Hem:
Foot No. Z 382.
Insert the material into the foot as with hemmer No. Z 385, (for further details, see page 15 „Narrow Hems"). Set the zig-zag stitch to 1/8" (3 mm) width, and to the required length. The zig-zag stitch encircles the roll hem, giving a good effect, especially when thread of contrasting colour is used.

Fig. 30

Buttonholes in Linen (as hand-finished):
Foot No. Z 293, with adjustable Slide.
Move the stitch length regulating lever almost to O, i. e. adjust for very short stitches. Slide the stitch positioner to the top. The zig-zag stitch width adjustment

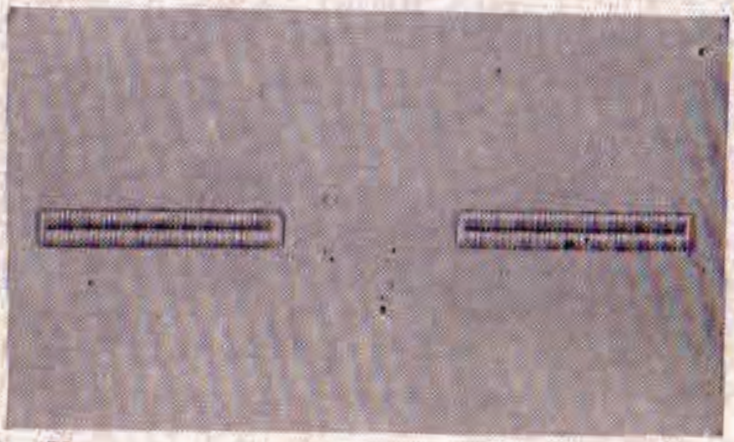


Fig. 31

lever you set against 2, and slide the right-hand limit stop (*e*) — Fig. 8 — close to the lever, and let it lock there into position. It should remain in that position until you have finished your work.

Under thread: twist No. 50;

Upper thread: 4 ply thread, No. 30.

The under thread tension must be weak; the right upper tension must be strong enough to draw the under thread upwards so that straight loop stitches are formed, (for further details, see page 11 „Regulating the Thread Tensions").
Hold the upper thread slack in your hand, and „purl" along the first buttonhole edge. At the end, leave the needle when on the right in the material, and lift the presser bar. Turn the material around to the right until it points in the opposite direction. Make one stitch to the left. Next, move the zig-zag stitch width adjustment lever to half-way position, and move it on to 4, leaving it there unlocked. It remains there, also for the subsequent operations described; (for further details, see page 10 „Adjusting for Lockstitch or Zig-Zag Stitch"). Firmly hold the material and make the first bar by stitching to and fro. Now leave the needle, when on the left, in the material, slide the lever back to 2 against the right-hand limit stop, and sew along the other edge of the buttonhole: when doing this ensure that the first sewn edge lies in the groove under foot on the right, so that the other buttonhole edge will follow parallel in the groove on the left. This completed, leave the needle when on the left in the material, slide the zig-zag width lever back to 4, and make the second bar as described above. Following this, depress the zig-zag lever as far as it will go and move it under the right-hand limit stop (Fig. 8)

back to O. Finally you make a few fastening-off stitches and then slide the lever again on to starting position. Before removing the work from the machine adjust the slide fitted to the right-hand side of the foot to correspond with the length of the buttonhole, and tighten the screw. This setting is for gauging the next buttonhole. Now you slash the centre of the buttonhole, using the wooden base and special knife supplied. Care should be taken to make a clean vertical cut. Slight pressure exerted on the handle of the knife will ensure this.

Buttonholes with Gimp:
Foot No. Z 293, with adjustable Slide.
The directions given for adjusting the machine and for sewing, (see page 24 „Buttonholes in Linen") equally apply here. For under and upper thread use twist No. 50, and gimp thread made from cotton. The upper thread tension should be normal, the under tension a little stronger than usual, (for further details, see page 11 „Regulating the Thread Tensions"). The gimp must be threaded from above into the small eyelet of the presser foot, and then placed to the back of the machine. When sewing the buttonhole allow the gimp to slide through your hand.

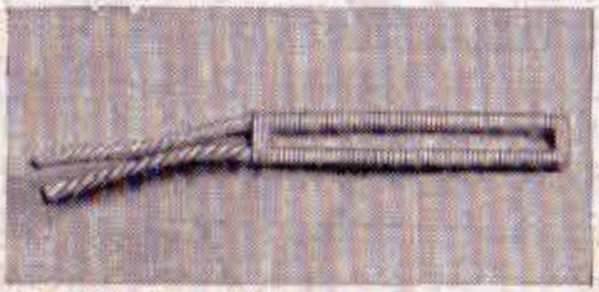


Fig. 32

Sewing on Buttons:
Foot No. 348.
Lower the feed dog by turning button 5 (page 1); move stitch length regulating lever to O; slide stitch positioner to the top, and set the zig-zag width lever to

correspond with the spacing of holes in button. Place the button on the cloth, lower the presser foot and allow the needle to pass through the left hole in button. Stitch 8—10 times from hole to hole. Now move the zig-zag width lever to O, and fasten-off with o few stitches. Remove the cloth from the machine, and cut thread close to the cloth.

Fig. 33

„Piping" Stitch:
Foot No. Z 343 d.
Move stitch length regulating lever almost to O, i. e. use very short stitches. The zig-zag width lever must be set to the required width of piping stitch — usually most effective when $\frac{5''}{32}$ (4 mm) wide. For upper and under thread use cotton No. 50. When making a flat piping stitch, the sewing must be close together, without any gaps.

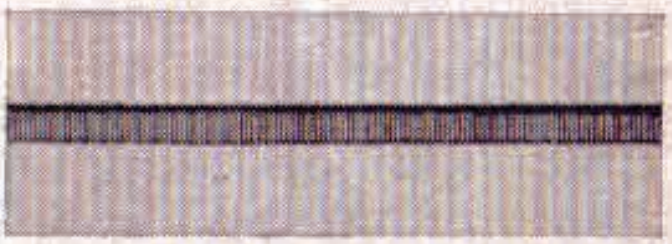


Fig. 34

Various Decorative Stitches:
Foot No. Z 343 d.
With this foot the piping stitch and the zig-zag stitch can be carried out; changing from one to the other while working on the same job is quite easily done. A great variety of stitches of varying width and size can be laid. A few are described here; but you can add many more to these by using your own imagination.

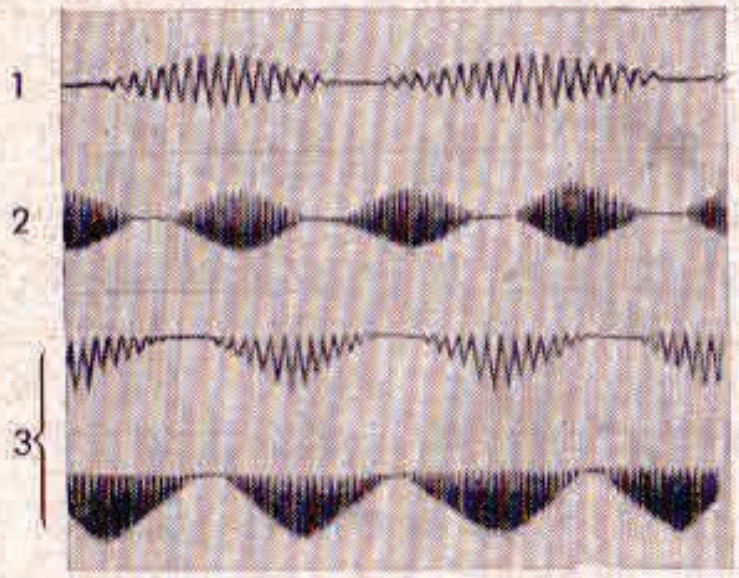


Fig. 35

(1) Move stitch positioner to centre posiion ond stitch length regulating lever to abt. 0.5. Move zig-zag width lever to half way position and while operating machine, with an even rhythm, move the zig-zag width lever to and fro between positions O and 4.

(2) Set stitch length regulating lever as for the piping stitch (see page 27), and follow the directions given under (1).

(3) By moving the stitch positioner either up or down you will obtain a decorative stitch as described under (1) and (2). It will be made in one direction only, either to the left or to the right.

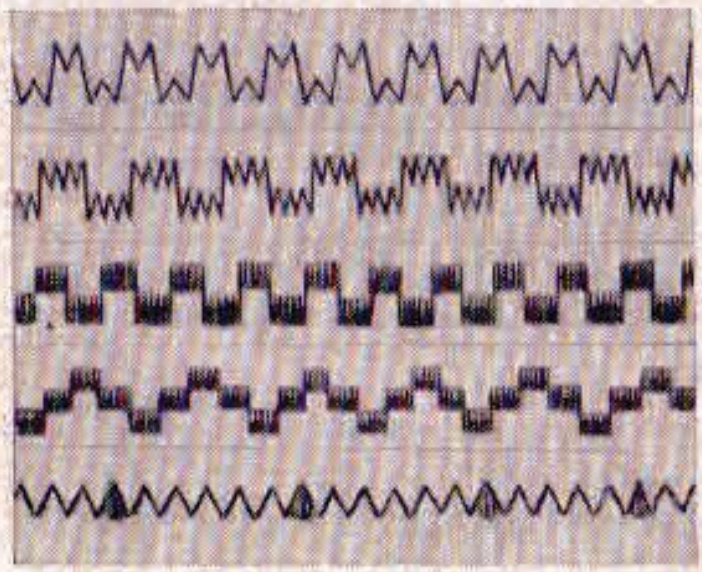


Fig. 36

(4) If you move the stitch positioner alternately to the top and to the bottom you will add to the variety of decorative stitches which can be performed on the machine. Zig-zag and pip-

ing stitches of approximately $\frac{3''}{64}$ to $\frac{5''}{64}$ (1½—2 mm) width will be laid.

(5) You can stagger the $\frac{3''}{64}$ (1½ mm) wide zig-zag or piping stitches by moving the stitch positioner from centre position up, then back to centre, down, back to centre, up, etc. Count the stitches as you make them on either side.

(6) The zig-zag stitch, in any desired width, can be interrupted by turning the drop feed handle (*e*) to the front, thereby lowering the feed and allowing a few stitches to be made on the spot. Here, too, the stitches should be counted: 6—8 zig-zag and 6" on the spot" are recommended for best results.

Applique Work: (*a*) ordinary; (*b*) with gimp: Cording Stitch; Wool and Pearl Yarn Work; Overcasting with Pearl Gimp.

Foot No. Z 349.

Under and upper thread: twist No. 50. Tensions: as for the piping stitch (see page 27). Place the material according to the drawing over the fabric, and sew down with ordinary lock-stitches (use standard foot No. Z 343 f). Thre extending material must be cut off closely behind the stitching. Next the stitch length regulating lever is set almost opposite O, to give very close stitches. The zig-zag width lever is

Fig. 37

Fig. 38

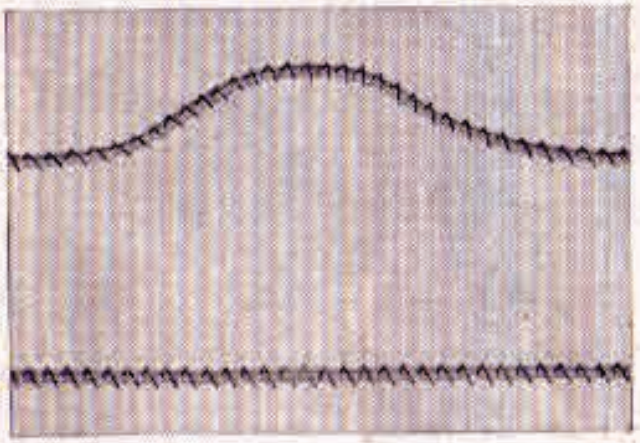


Fig. 39

set on 2 or for a wider stitch, as may be desired.

(a) **Ordinary Applique Work:**

The effect of this stitch is similar to that of the piping stitch.

(b) **Applique Work with Gimp:**

The zig-zag stitch must not exceed $\frac{5''}{64}$ (2 mm) in width. Thread the gimp into the foot before attaching the latter to the machine. Push the threader from the back through the eyelet in the fork of the foot, thread the gimp into the eye of the threader, and draw gimp with threader through to the back. Screw the foot to the machine and commence sewing, allowing the gimp to slide through your hand. In both cases the stitching must completely cover the trimmed edge of the pattern. This foot is suitable for sewing straight or curved seams.

Fig. 40

Cording Stitch:

This is made wih a gimp, as described under (?).

Wool and Pearl Yarn Work:
For wool and pearl yarn work follow the directions given under (*b*). Use any colour gimp you like. Place the zig-zag width lever on 2 and the stitch lengh regulating lever between 0.3—0.5, so that the coloured gimp is visible through the zig--zag stitches.

Overcasting in connection with Pearl Gimp:
This work is carried out as described under (*b*); the adjustment for the zig-zag stitch being done as for working with wool and pearl yarn. It is advisable to fold under the edge of the material and run a seam about $\frac{3''}{64}$ (1 mm) from the edge. Use standard foot No. 343 f and a suitable thread. The superfluous material should be trimmed off close to the line of stitching.

Hole Embroidery (Madeira Work):
Hole Embroidery Plate No. Z 4537 a (for $\frac{7''}{32}$ – 5.5 mm — diameter hole). and No. Z 4537 (for $\frac{5''}{32}$ – 4 mm — diameter hole); Embroidery Hoop; without Presser Foot.

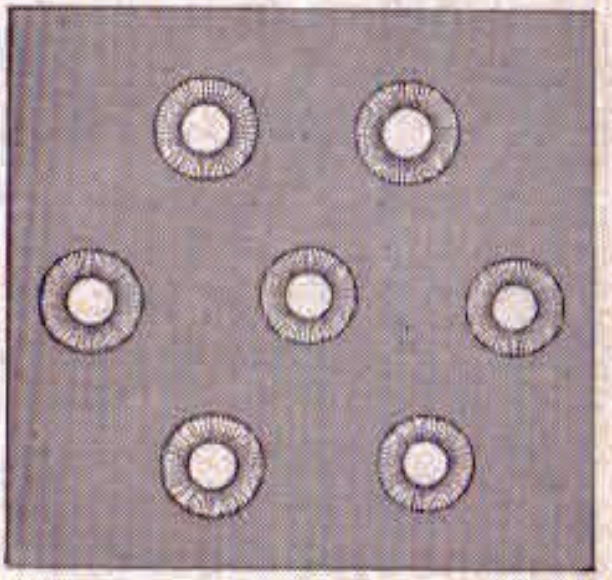


Fig. 41

Move stitch length regulating lever to O and stitch positioner to centre position. Set the zig-zag stitch width adjustment lever on 2—3, and slide the left limit stop against the lever. The feed must be lowered

out of the way by turning the drop feed handle (*e*) — Fig. 5 — to the front .Take the embroidery plate into your hand and insert the small tongue, which is on the curved edge of the plate. Vertically into the hole of the zig-zag stitch plate situated to the right of the needle hole. Now lay the plate down flat and give it a half turn to the left, so that its straight edge lies flush with the edge of the zig-zag stitch plate. Then push the bedplate slide firmly against the hole embroidery plate.

Under and upper thread: twist No. 50.

Stretch the material over the embroidery hoop and make a tiny cross-cut in the material. The cut should be just big enough for the tongue of the embroidery plate to pass through it with the hoop then coming to rest flat on the bedplate. Draw the under thread up and lower the presser bar. Hold both threads with your left hand and make one stitch. When continuing with the sewing place the threads which you hold around the tongue of the plate. With your left hand turn the hoop steadily to the left, and stitch rapidly around the hole. Cut off the threads close to the stitching. Then stitch a second time rapidly, and a third time slowly, around the hole. Now slide the stitch positioner to the bottom, and move the zig-zag width lever to O. Make a few fastening-off stitches, lift the presser bar, remove the hoop from the tongue, and cut off the threads. Set the stitch positioner and the zig-zag lever to starting position for embroidering the next hole.

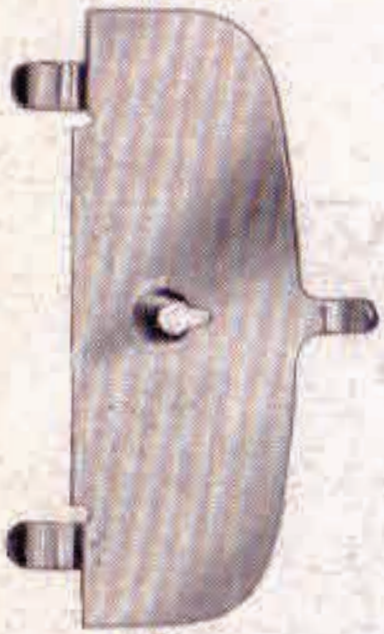


Fig. 42

5. PIPING

Piping Head No. Z 379; Piping Stich Plate No. 4552, with Feeder No. 4815 a; Foot No. 368 (wide), No. 368 a (medium), No. 367 (narrow); 2 Sewing Needles, System 1844 (fl = lefthand needle; fr. = right-hand needle).

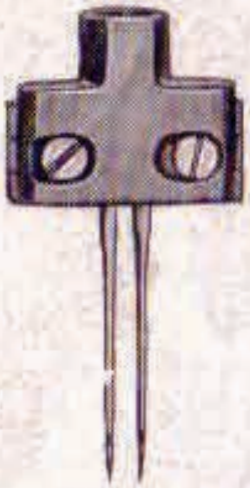


Fig. 43

Fig. 44

Adjusting the machine:
Move the needle to its highest position, slacken off the screw on needle clamp and carefully draw the clamp downwards clear of the machine. Loosen the screws fitted to the front of the piping head (Fig. 43), insert both needles (long groove facing front), and retighten the screws. Then slide the head on to the needle bar, pushing right up before tightening the retaining screw on the right of the head.

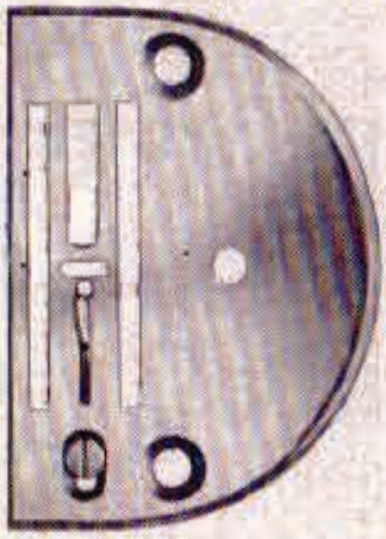


Fig. 45

If you wish to obtain a fairly flat piping stitch, you can use zig-zag stitch plate No. 4544. For a more pronounced plastic effect you must use piping stitch plate No. Z 4552. and feeder No. 4815 a. There are two ways in which a very pronounced effect can be obtained: —
(1) by using a gimp thread; insert the threader vertically into the small eyelet in front of the needle hole in stitch plate. Tilt the sewing head to the back. Thread the gimp

into the eye of the threader and draw the gimp through the hole. Use a good light so that you can see clearly when threading. The small hank of gimp you temporarily deposit in the recess of the cabinet. Now lower the sewing head to its normal position. Place the hank of gimp in your lap from where it will unwind itself as you sew it down with the piping stitch.

(2) by using the piping stitch plate with raised „nose". If you loosen and push forward the small screw in the recess, in front of the groove, the nose will rise from the groove situated in the centre of the toothing which is placed forward of the eyelet for the gimp. When the nose has been adjusted to the required height, retighten the screw. After completing the work, loosen the screw and push it back; the nose will also slide back into the groove. Threads to be used:

For broad piping: sewing silk for upper and under thread.

For narrow piping: twist No. 40—50 for upper and under thread.

Thread tensions: Under thread normal, upper thread a little slacker when working on soft material; but a little stronger when sewing hard texture fabrics. Both upper threads must have the same tension. After making the piping stitch the under thread must appear on the underside of the material as light zig-zag stitches.

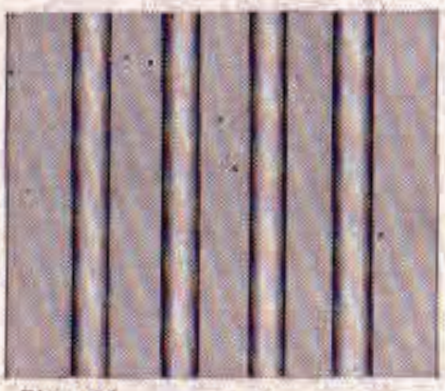


Fig. 46

Theading: Put a reel on each of the two spool pins. The thread from the reel on the right is taken through the rightupper tension in the usual manner, and then down to the needle; the thread from the left reel is taken along

the left upper tension to the left needle, as usual. Therefore, from the tension discs to the eyelets on the head, above the needles, both threads follow the same course.

Adjusting the width of piping:

The piping head is adjustable: the needles can be moved for desired width positions, after the 2 screws on the back of the head have been loosened (Fig. 44).

W i d e piping: the markings on the upper part must be set in line with the inner of the three markings on the under part of the head.

M e d i u m piping: the markings on the upper part must be set in line with the centre markings on the under part.

N a r r o w piping: the markings on the upper part must be set in line with the outer markings on the under part. One of the three feet is then attached; the foot must correspond with the piping width selected. The lockstitches used should not be too large.

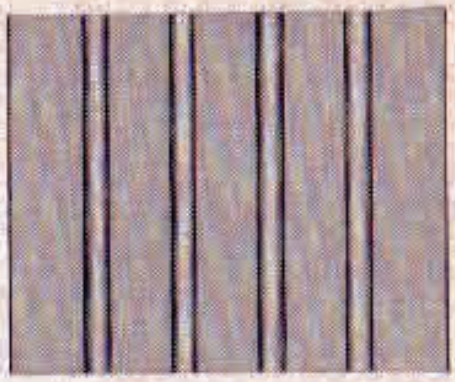


Fig. 47

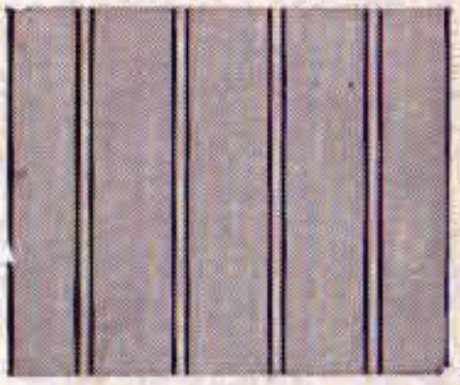


Fig. 48

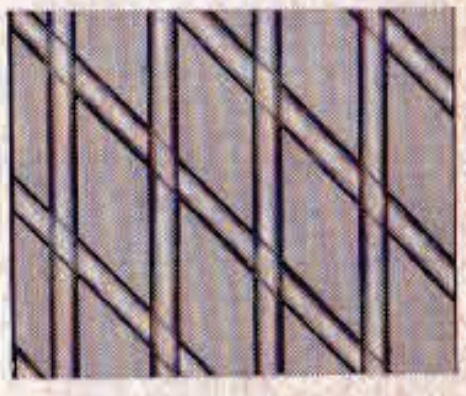


Fig. 49

Upon request and against extra charge we can supply a Special piping foot, No. 367 c, with which the spacing between the piping will be equal to the width of the foot, or narrower, if required.

When producing wide piping running from top to bottom, a slight deviation to one side may be experienced,

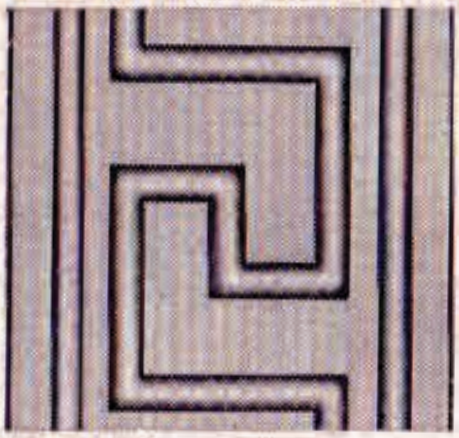


Fig. 50

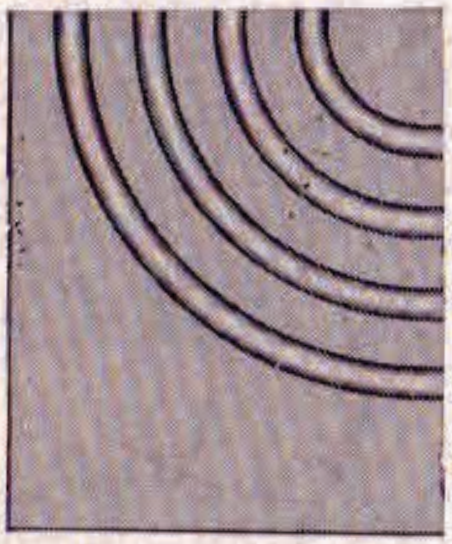


Fig. 51

but this can be avoided: when working on a blouse for instance commence sewing one half from the top. The other half should then be sewn from he bottom.

Piping stitches laid lengthwise can be oversewn with the piping stitch placed crosswise, or diagonally, to give the effect illustrated here. You can also produce any desired curved piping.

If you wish to make cornered piping you must leave the needles in the material, but the points must not penetrate the material beyond the eyes in the needle. Then you raise the presser bar, turn the material into the new direction, lower the presser bar again and continue stitching.

When doing sharp corners turn the material first only half-way; make one stitch, and then complete the turn so that you can continue stitching in the new direction.

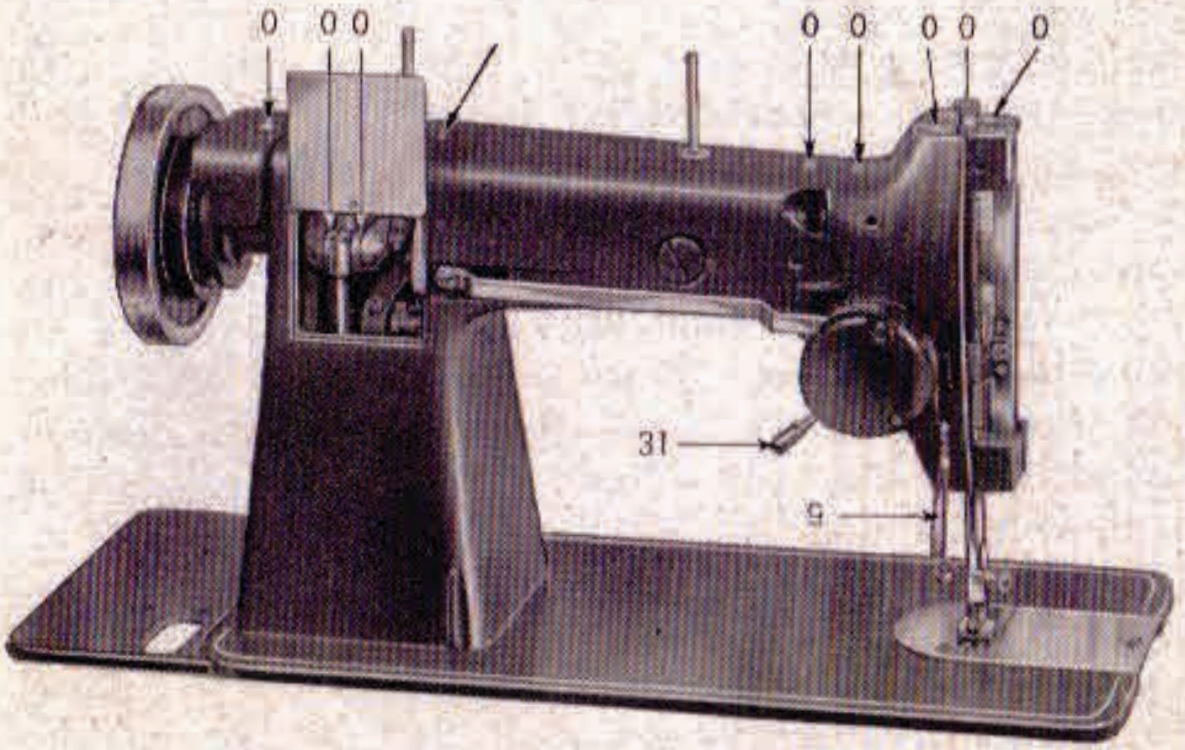
„Cord" piping is obtained by using medium stitches on heavy texture material. To ensure satisfactory results the line of stitching on the right of a new „cord" must be placed quite close to the line of stitching on the left of the previously made „cord".

Decorative piping stitches can be made by using standard foot No. Z 343 f, and the zig-zag stitch (set lever on 2, or 3 at the most). Particularly attractive finishes result when coloured thread is used.

6. CLEANING AND OILING

To keep the Sewing Machine at a high pitch of efficiency, good care must be taken of it. Mere dusting of the machine surface will not suffice. Fluff, thread ends and dust settle in the working mechanism, where they combine with the lubricating oil, and gradually form into small lumps, thus interfering with the smooth effortless running of the machine.

It is necessary therefore to give all parts specified hereafter a regular thorough cleaning. Never use for cleaning metal instruments, such as scissors, screwdrivers or needles; if you do, you may accidentally damage the delicate sewing mechanism. It is best if you take a small wooden stick, point it and wrap round the point a piece of soft smooth cloth.



Figur 52 0 = lubrication points

After you have wiped all parts clean, oil them. Use only best quality sewing machine oil which contains neither resin nor acid, and is crystal-clear. A few drops, at the right places, will prove adequate.

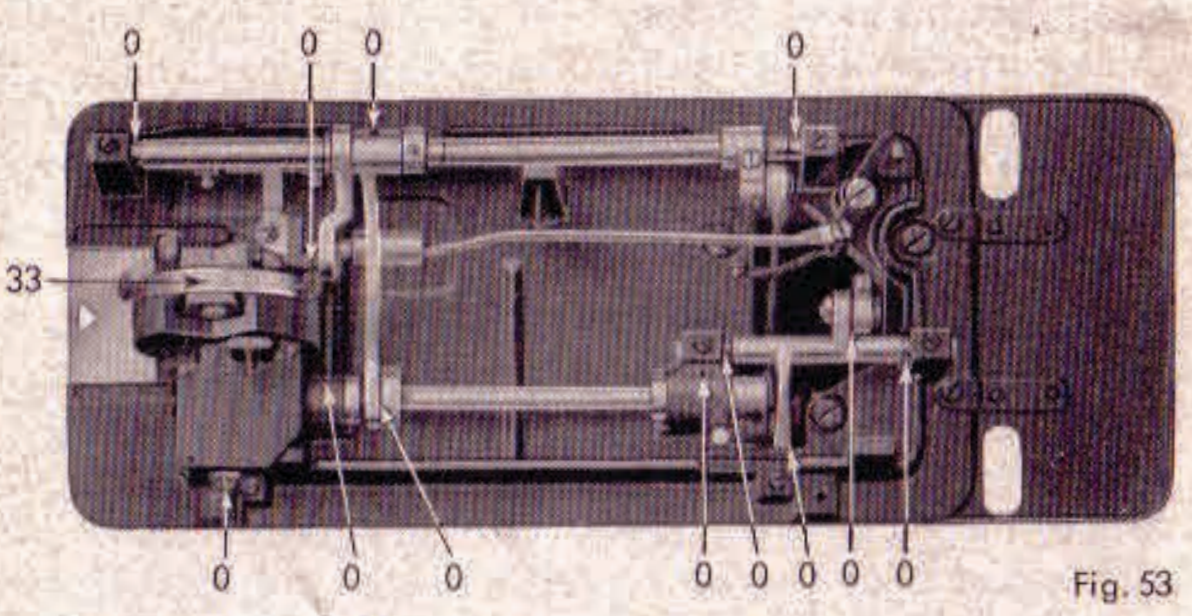


Fig. 53

When you have done this, treadle the machine rapidly for a minute (without thread in the sewing needle, and with presser foot lifted), so that the oil may reach every working part of the mechanism. Then let the machine stand idle for a short while; before working with it again, carefully wipe away all superfluous oil.

If the machine has not been used for any length of time, or if you have used it continuously, rendering thorough cleaning necessary, apply first of all a few drops of paraffin to the lubrication points. Next, treadle the machine rapidly (see above), wipe all parts, and then apply a film of fresh oil.

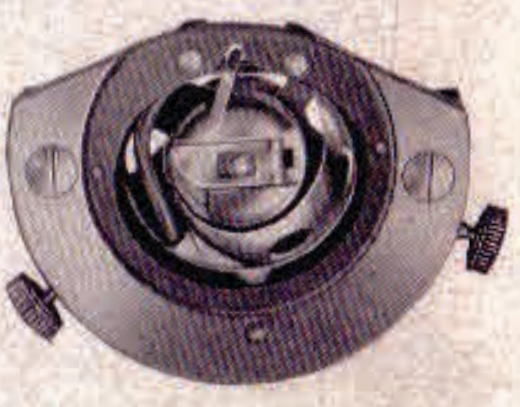


Fig. 54

All points marked on the adjacent illustrations should be

cleaned and oiled in proper sequence (do not forget to retighten the parts after you have attended to them):—

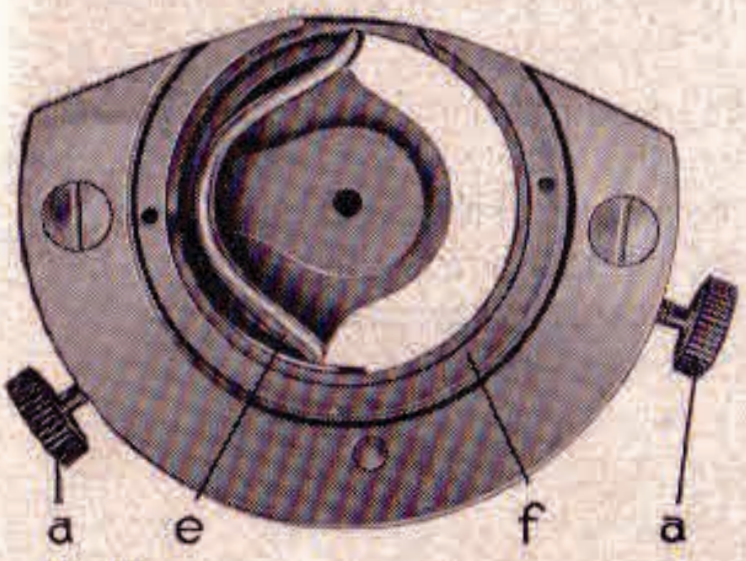


Fig. 55

(1) **The Machine Head** (Fig. 52), after loosening the retaining screw and removing the head cover plate.

(2) **The Arm** (Fig. 52), after loosening the screw and swivelling the nickelled plate at the back upwards.

Fig. 56

(3) **The Stitch Plate,** after loosening the retaining screws and removing the plate.

(4) **The Shuttle Race** (Fig. 54) and 55), after lifting the needle bar to its highest point, removing the belt from the band wheel, tilting the machine head over to the back, and loosening both knurled screws (*a*). The race ring (*b*) and the sewing hook (*d*) can then be lifted out together. Clean the race, the ring and the hook with a piece of soft cloth.

Fig. 57

When replacing the sewing hook make sure that it lies in correct relation to the hook driver (*e*) — see Fig. 55 — Next, replace the race ring (*b*) into the race (*f*),

ensuring that the locating pins of the former are correctly inserted into the holes provided in the latter for this purpose. Finally retighten the two knurled screws (*a*).

In addition to the above, you must also lubricate all other places indicated on the illustrations, making sure that after oiling all parts are properly replaced.

Apply also a few drops of oil to all working parts of the band wheel and treadle mechanism, where friction takes place.

7. CAUSE AND REMEDY OF FAULTS

PLEASE ALWAYS REMEMBER: many faults can be remedied merely by CLEANING and OILING your machine.

Machine works heavily:

(1) Thread ends and fluff are clogging the shuttle race — Remove all obstructions.
(2) The driving belt is too tight or too slack — lengthen or shorten it, or use a new one.
(3) Certain working parts of the mechanism are dry, causing severe friction — apply a few drops of oil.
(4) The working mechanism is dirty — thoroughly clean all parts affected.
(5) Unsuitable grade of oil has been used — wash it away with paraffin, dry carefully, and lubricate with suitable fresh oil.

Machine is noisy:

(1) Thread ends and fluff are clogging the shuttle race — Remove all obstructions.
(2) Certain working parts of the mechanism are dry, causing severe friction — apply a few drops of oil.
(3) A component part has worked itself loose — retighten it with a screwdriver.

Upper Thread breaks:

(1) Inferior quality knotty sewing thread breaks easily — use a better quality.
(2) The needle is too fine for the thread or fabric — change the needle for a thicker one (see Page 3: Relative Needle Sizes and Thread Numbers).
(3) The upper thread tension is too strong — loosen the

tension (see Page 11: Regulating the Thread Tensions).

(4) The needle is wrongly inserted, or bent — straighten or change it (see Page 4: Setting the Needle).

(5) The eye of the needle has a knife-edge — change the needle.

(6) Dirt and fluff are interfering with the free movement of the feed dog, causing intermittent feeding of the material — unscrew needle plate, and thoroughly clean the feed.

(7) The bobbin case has developed a rough edge, and catches the thread — take out the case, and consult a sewing machine expert.

The Under Thread breaks:

(1) Inferior quality knotty sewing thread breaks easily — use a better quality.

(2) The tension on bobbin case is too strong — loosen it (see Page 11: Regulating the Thread Tensions).

(3) The tension on bobbin case is too weak — increase the tension (see Page 11: Regulating the Thread Tensions).

Stitches are skipped:

(1) The needle has been set either too high or too low, or it may be bent — straighten or change it (see Page 4: Setting the Needle).

(2) The needle is too thin or too thick — change it, or use a different thread (to correspond with the requirements as detailed on Page 3: Relative Needle Sizes and Thread Numbers).

(3)The thread curls owing to its being unsuitably spun and glossed for your purpose — change the thread.

(4) The needle used is not of the proper system — Obtain the correct needle from the suppliers of your machine.

The Needle breaks:

(1) The needle is wrongly inserted or bent — straighten or change it (see Page 4: Setting the Needle).

(2) The needle is too fine for the thread or fabric — change the Needle for a thicker one (see Page 3: Relative Needle Sizes and Thread Numbers).

(3) The upper thread tension is too strong — loosen the tension (see Page 11: Regulating the Thread Tensions).

Faulty Feeding:

(1) Dirt and fluff are interfering with the free movement of the feed dog, causing intermittent feeding of the material — unscrew needle plate, and thoroughly clean the feed.

(2) The stitch regulating lever is too free, allowing the stitch to alter on its own accord — swivel the nickelled plate at the back of the regulating lever upwards, and tighten the screw a little.

The Material puckers:

(1) Upper and under tension are too tight — loosen them (see Page 11: Regulating the Thread Tensions).

(2) The pressure exerted by the presser foot is too great — reduce the pressure by adjusting the screw on top of the presser bar (see p. 1/10 and: Regulating the Pressure of the Presser Foot, Page 13).

(3) The presser foot is wrongly fitted — reset it to its correct position (see Page 5: Fitting the Presser Foot).

Uneven Stitching:

(1) The thread is not of uniform size, or it is too thick — use a different thread.

(2) The tension is wrong — adjust it (see Page 11: Regulating the Thread Tensions).
(3) Upper and under thread are being drawn unequally owing to a dirty tension disc or clogged bobbin case clean the parts where necessary.
(4) The needle is either blunt or bent — insert a new needle.
(5) The bobbin has been wrongly inserted into the bobbin case — take out the bobbin, and then put it back again into its case, the right way (see Page 7: Replacing the Bobbin Case).

In all cases where faulty working of the sewing machine cannot be rectified by your following the above-stated directions, please consult the Suppliers of your machine. They will always be glad to help you.