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Every Singer Sewing Machine

Form K1683
(337)
Printed in Gt. Britain

INSTRUCTIONS
FOR USING
INDUSTRIAL HIGH-SPEED
SINGER SEWING MACHINE
No. 103
(ROTATING HOOK)

When requiring
Needles, Oil,
Parts or Repairs
for your Machine

Look for the
Red "S"
There are Singer
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THE SINGER MANUFACTURING CO.

THE IMPORTANCE OF GOOD OIL for SEWING MACHINES



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You cannot expect to get the best stitching results from your sewing machine if it is fitted with an inferior needle.

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INSTRUCTIONS FOR USING INDUSTRIAL HIGH-SPEED SINGER SEWING MACHINE

No. 103
(ROTATING HOOK)

WARNING

It is essential that the machine should be kept well oiled, in accordance with the instructions given on pages 12 and 13 of this book.

Should your machine require overhauling or repair, apply only to a Singer Shop or Singer Salesman, otherwise you will risk its being irretrievably damaged.

THE SINGER MANUFACTURING CO.

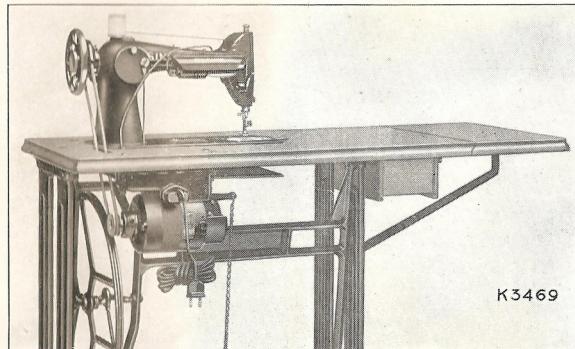
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SEW BY ELECTRICITY

WITHOUT EFFORT

ECONOMICALLY

RAPIDLY



BY USING A SINGER ELECTRIC MOTOR
wearisome foot treadling is entirely eliminated,
resulting in perfect ease and comfort for the worker - the
motor does the work, the operator merely guides the
material.

After dark the SINGERLIGHT throws its light just
where it is needed, enabling the worker to see the stitching
more clearly. Prevents eyestrain and fatigue; saves time
and annoyance when threading the needle.

3

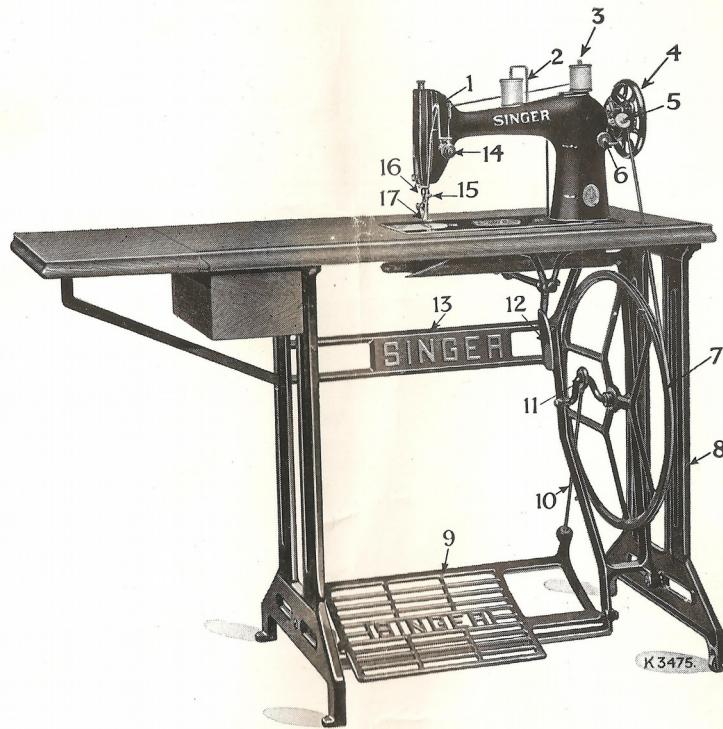


Fig. 2.

- | | |
|-------------------------|----------------------|
| 1. Thread Take-up Lever | 10. Pitman |
| 2. Spool Wire | 11. Band Wheel Crank |
| 3. Spool Pin | 12. Knee Lever |
| 4. Balance Wheel | 13. Brace |
| 5. Bobbin Winder | 14. Tension Discs |
| 6. Stitch Regulator | 15. Needle Clamp |
| 7. Band Wheel | 16. Thread Cutter |
| 8. Leg | 17. Presser Foot |
| 9. Treadle | |

DESCRIPTION

Machine No. 103 has a rotating hook. It is intended for use on a foot power stand and is fitted with reversible feed for back tacking. The length of stitch is adjustable from $1\frac{m}{m}$ to $5\frac{m}{m}$.

Balance Wheel Stop Motion.

This device enables the operator to loosen the balance wheel so that it will revolve freely, without operating the stitching mechanism, while a correct treadle motion is being acquired, and when winding bobbins. To loosen the wheel, hold it with the left hand, and with the right hand turn the stop motion screw over towards you, as shown in Fig. 3.

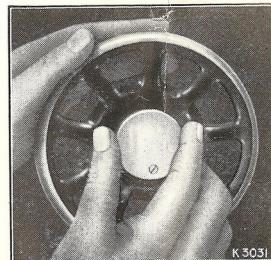


Fig. 3.

To Operate the Treadle Machine.

After loosening the balance wheel, place both feet upon the treadle and turn the balance wheel towards you, at the same time allowing the feet to move freely and lightly with the motion of the treadle. Continue to do this until a regular and easy movement is acquired and you are able to work the treadle so that you can restart the machine without the balance wheel turning in the wrong direction.

When familiar with the working movement, tighten the balance wheel by turning the stop motion screw from you, and place a piece of calico or cloth under the presser foot. Lower the presser foot upon the material by means of the presser bar lifter and again work the machine, without it being threaded, until you have become accustomed to guiding the material.

To Ensure Perfect Action of the Machine.

The balance wheel must always turn over towards you.

Never run the machine with the presser foot resting on the feed without cloth between them.

Do not run the machine when both bobbin case and needle are threaded unless there is material under the presser foot.

Do not try to help the machine by pulling the fabric lest you bend the needle ; the machine feeds the work without assistance.

The slide over the bobbin case should be kept closed.

Thread.

Left twist thread should be used in the needle. Either right or left twist thread can be used in the bobbin.

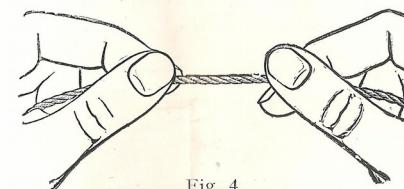


Fig. 4.

Hold the thread as shown above. Turn the thread over towards you between the thumb and forefinger of the right hand; if left twist, the strands will wind tighter ; if right twist, the strands will unwind.

To Remove the Bobbin.

Draw out the slide in the bed of the machine. Reach down with the thumb and forefinger of the left hand, open the bobbin case latch with the thumb and lift out the bobbin case (Fig. 5).

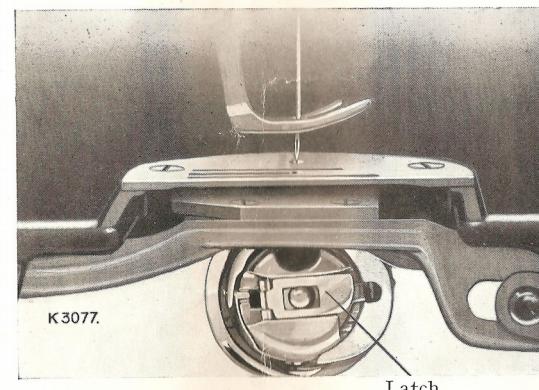


Fig. 5.

While the latch remains open, the bobbin is retained in the bobbin case. Release the latch, turn the bobbin case downward and the bobbin will drop out.

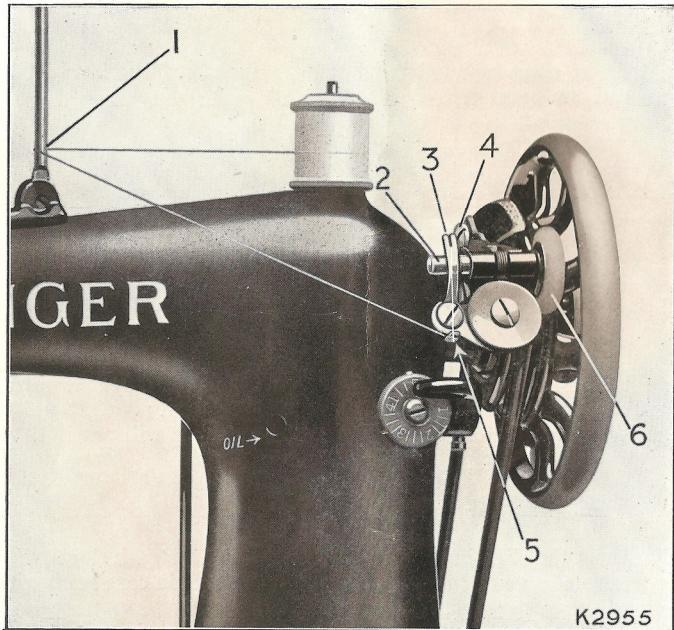


Fig. 6—Winding of Bobbin.

To Wind the Bobbin (See Fig. 6).

Loosen the balance wheel by turning the stop motion screw over towards you (see Fig. 3), and place a reel of thread on the reel pin (7, Fig. 2). Pass the end of thread around the spool pin (1) then thread the bobbin winder by passing the thread first through the lower eyelet (5) of the thread guide from below and into the notch (3) at its top. Now pass the thread through a hole in the left disc of the bobbin from the inside, and with the left hand press the bobbin on to the spindle (2) and hold. Then with the right hand turn the small pulley (6) until the notch in the right disc of the bobbin is engaged by the small pin in the spindle shoulder. Press the pulley down against the ledge of the balance wheel until the latch retains the winder in position ; hold the free end of the thread and proceed to wind by turning the balance wheel towards you ; then after a few turns break off the end of thread and again operate the treadle, as in sewing, until the bobbin is full. The winder stops automatically when the bobbin is full.

If through any cause the pressure of the rubber ring against the ledge of the balance wheel is insufficient for winding the bobbin, loosen the screw (4) and press the winder lightly until the rubber ring is in contact with the ledge of the balance wheel ; then tighten the screw.

Bobbins may be wound while the machine is stitching.

To Thread the Bobbin Case.

Hold the bobbin in the right hand, with the thread leading on top from left to right, as shown in Fig. 7. Then with the left hand hold the bobbin case and place the bobbin into it.

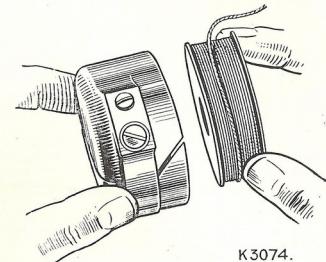


Fig. 7.

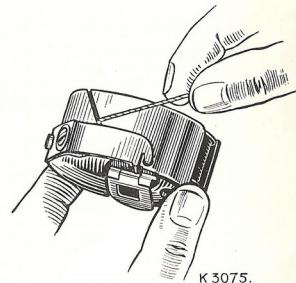


Fig. 8.

With the right hand draw the thread into the slot in the edge of the bobbin case, as shown in Fig .8.

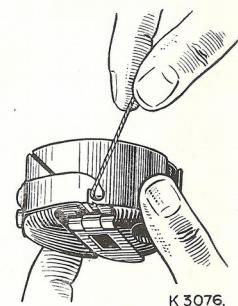


Fig. 9.

To Replace the Bobbin Case.

After threading, hold the bobbin case by the latch, between the thumb and forefinger of the left hand, and replace it on the centre stud of the bobbin case holder, in the position shown in Fig. 5 ; then release the latch and press the bobbin case back until the latch catches the groove near the end of the stud. Allow the end of thread to hang free, and close the slide in the machine bed.

To Set the Needle.

Turn the balance wheel over toward you until the needle bar moves up to its highest point ; loosen the screw in the needle clamp and put the needle up into the clamp as far as it will go, with the long groove in the needle to the left and the eye directly in line with the arm of the machine.

To Thread the Needle.

Raise the thread take-up lever to its highest point by turning the balance wheel over towards you. Place the spool of thread on the spool

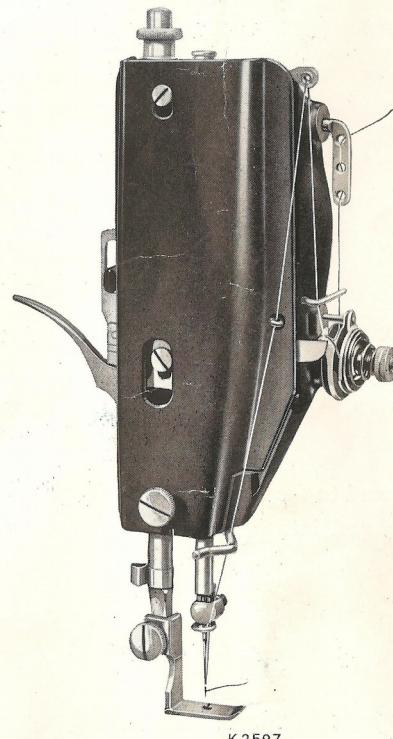


Fig. 10—Threading the Needle.

wire, which can be tilted to the right for the purpose, and pass the end of thread from right to left through the top hole in the thread retainer, then down through the middle hole and out of the bottom hole, as shown in the illustration. Now lead the thread down and around, from right to left, under and between the tension discs, then up under the thread controller spring until it enters the retaining fork of the tension discs. Now pass the

thread behind the thread regulator, and up, from right to left, through the eye of the thread take-up lever, down into the eyelet on the face plate, then behind the wire guide under the face plate and into the thread guide at the lower end of the needle bar, finally passing it, from left to right, through the eye of the needle.

To use larger spools than will go on the spool holder, loosen the screw which fastens the holder to the upper surface of the arm and turn it across the arm ; then turn the spool wire back to hold larger spools.

To Prepare for Sewing.

With the left hand hold the end of the needle thread, leaving it slack from the hand to the needle, turn the balance wheel over towards you until

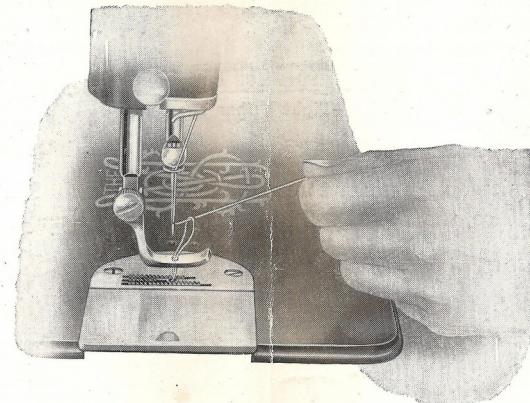


Fig. 11—Drawing Up of Under Thread.

the needle moves down and up again to its highest point, thus catching the under thread ; draw up the needle thread and the under thread will come up with it through the hole in the throat plate (see Fig. 11). Lay both threads back under the presser foot.

To Commence Sewing.

Place the material beneath the presser foot, lower the foot upon it and commence to sew, turning the balance wheel over towards you.

To Remove the Work.

Let the thread take-up lever rest at its highest point, raise the presser foot and draw the fabric back and to the left about two inches ; pass the threads over the thread cutter and pull down lightly to sever them. Leave the ends of the threads under the presser foot.

Tensions.

For ordinary stitching the upper and under threads should be locked in the centre of the thickness of the material, thus :



Fig. 12—Perfect Stitch.

If the tension on the upper thread is too tight, or if that on the under thread is too loose, the thread will lie straight along the upper surface of the material, thus :



Fig. 13—Tight Upper Tension.

If the tension on the under thread is too tight, or if that on the upper thread is too loose, the thread will lie straight along the under side of the material, thus :



Fig. 14—Loose Upper Tension.

To Regulate the Tensions.

The upper tension is released and inoperative when the presser bar is raised, and restored when it is let down ; having lowered the presser bar lifter, turn the small thumb nut (see Fig. 10) in front of the tension discs over to the right to increase the tension or to the left to lessen it.

The tension on the under thread is regulated by the large screw in the bobbin case tension spring ; using the small screw driver, turn to the right to increase or to the left to lessen it.

When the lower tension has been properly adjusted it is seldom necessary to change it, as a correct stitch can usually be obtained by varying the upper tension.

To Change the Length of Stitch.

The length of stitch is regulated by the thumb screw on the front and at the right of the arm, operating in conjunction with the lever between the arm and the belt. Figures denoting from one to five millimetres are marked on the thumb screw and when the figure or fraction is directly under the projecting pointer the machine will make stitches of corresponding length. To shorten the stitch, depress the lever, turn the thumb screw over to the right and raise the lever. To lengthen the stitch, turn the thumb screw over to the left and raise the lever.

To Reverse the Stitching.

Depress to its lowest point the lever between the arm and the belt and proceed as when stitching regularly.

To Turn a Corner.

Stop the machine with the needle at its lowest point. Raise the presser foot and turn the work, as desired, using the needle as a pivot.

To Change the Pressure on Material.

For ordinary sewing it is seldom necessary to change the pressure on the material. To lighten the pressure give the thumb screw on the top of the head of the machine two or three turns to the left. To increase the pressure, turn it to the right. The pressure should be only heavy enough to prevent the material from rising with the needle and to enable the feed to move the work along evenly ; a heavier pressure would make the machine run hard and be of no benefit.

To Sew Flannel or Bias Seams.

Use a short stitch and as light a tension as possible so as to leave the thread loose enough to stand the strain of stretching the goods.

A Stitch to Ravel Easily.

can be had, if desired, by leaving the upper tension so light that the under thread will not draw into the goods but lie straight, as shown in Fig. 14.

To Oil the Machine.

To ensure easy running and to prevent unnecessary wear of the parts which are in movable contact, the machine requires oiling, and if used continuously it should be oiled each day. With moderate use an occasional oiling is sufficient. Oil should be applied at each of the places shown by

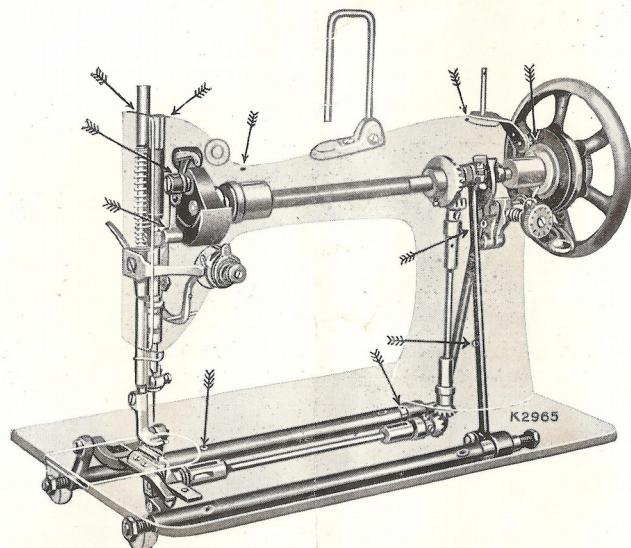


Fig. 15—Points to be Oiled.

arrows on the illustration above (Fig. 15). One drop of oil at each point is sufficient. Oil holes are provided in the machine for bearings which cannot be directly reached.

Take out the thumb screw near the lower end of the face plate, raise the plate and slip it off over the head of the screw near the upper end of the plate. Within the space thus uncovered the needle bar and its connecting link, the presser bar and the mechanism that operates the thread take-up, can be seen. Put one drop of oil into each of the oil holes and joints, and replace the face plate.

On the back of the arm is a round plate or cover, fastened by a thumb screw; loosen the screw, turn the plate upward and fasten by tightening

the screw; turn the balance wheel slowly and oil the moving parts inside wherever one part touches another; then turn the cover down and fasten it as before.

The bobbin winder spindle should be oiled through the two oil holes.

To reach the parts on the under side of the bed plate, the machine should be turned back on its hinges, and to do this the latch under the

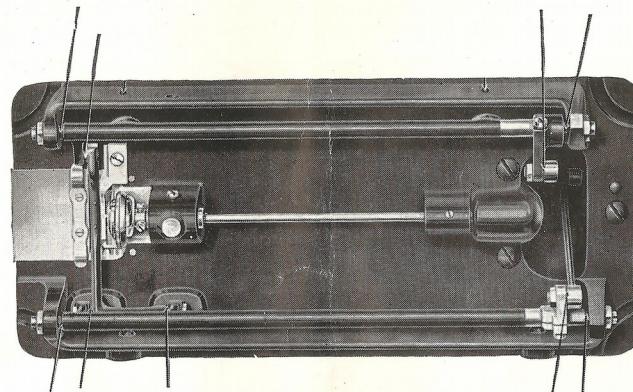


Fig. 16—Oiling Points in Base of Machine.

table securing the machine must be withdrawn and the belt thrown off the band wheel in the stand. The places to be oiled are indicated in Fig. 16, by arrows pointing to oil holes and bearings. After oiling, replace the machine, fasten it by pushing back the latch, and put the belt back into position on the band wheel.

To oil the stand put a drop of oil on the centres upon which the band wheel and treadle work, and on both ends of the pitman rod which connect the treadle with the band wheel.

HINTS.

The Belt.—See that the belt is not too tight; it should always be tight enough not to slip. If too loose remove the hook at one end, shorten the belt and rejoin.

Machine Working Heavily.—If the machine runs hard after standing idle for some time use a little paraffin in the oiling places. Run the machine rapidly, then wipe clean and oil. If it still runs hard it is certain that some bearing has been overlooked in cleaning and oiling.

To Avoid Breaking Needles.—See that the presser foot or attachments are securely fastened by the thumb screw. Do not sew heavy seams or very thick goods with too fine a needle. A large needle and thread to correspond should be used on heavy work (see page 15).

See that the needle is not bent and avoid pulling the material when stitching; either will cause the needle to strike on the throat plate and break.

Breaking of Upper Thread.—If the upper thread breaks it may be caused by :

Improper threading of machine.

Tension being too tight.

The thread being too coarse for the size of the needle.

The needle being bent, having a blunt point, or being set incorrectly.

Breaking of Under Thread.—If the under thread breaks it may be caused by :

Improper threading of bobbin case.

Tension being too tight.

Skipping of Stitches.—The needle may not be accurately set into the needle bar, or it may be blunt or bent. The needle may be too small for the thread in use.

To Prevent Uneven Stitches.—Use smooth thread of left-hand twist in the needle. Thread of right-hand twist will not give the best results.

Needles.

Needles for Machine No. 103 are of Class and Variety 16×231 and are made in sizes suitable for the different sizes of thread commonly used.

When ordering needles, give the **quantity** and **size** required, also the **class** and **variety** numbers separated by \times ; an order for a dozen No. 14 Needles should read :

"One Doz. No. 14 Needles, 16×231 ."

Relative Sizes of Needles and Thread.

New Sizes of Needles	CLASS OF WORK	Sizes of Cotton, Linen or Silk
9	Very thin Muslins, Cambrics, Linens, etc.	100 to 150 Cotton 00 and 000 Silk Twist
11	Very fine Calicoes, Linens, Shirtings, fine Silk Goods, etc.	80 to 100 Cotton 0 Silk Twist
14	Shirtings, Sheetings, Bleached Calicoes, Muslins, Silk and general domestic goods, and all classes of general work.	60 to 80 Cotton A and B Silk Twist
16	All kinds of heavy Calicoes, light Woollen Goods, heavy Silk, Seaming, Stitching, etc.	40 to 60 Cotton C Silk Twist
18	Tickings, Woollen Goods, Trousers, Boys' Clothing, Corsets, Cloaks, Mantles, etc.	30 to 40 Cotton D Silk Twist
19	Heavy Woollens, Tickings, Bags, Heavy Coats, Trousers, etc. Heavy Clothing generally.	24 to 30 Cotton E Silk Twist 60 to 80 Linen
21	Bags, Coarse Cloths and Heavy Goods.	40 to 60 Linen or very Coarse Cotton

To make a smooth, even stitch with the machine, it is advisable to use good, smoothly finished thread (left-hand twist) that passes freely through the eye of the needle. No other needles will give as good results and satisfaction as those supplied by Singer Shops.

Purchasing of Parts or Needles.

Supplies of parts or needles for the machine can be purchased at any Singer Shop, or ordered by mail; money, or a post office order covering their value, including postage, should be enclosed with the order, which will then receive immediate attention and be promptly filled and forwarded by mail or express.

ATTACHMENTS AND ACCESSORIES
FOR
MACHINE No. 103

Attachments and accessories, as per list below, are furnished with the machine, and instructions for using the attachments are given on pages 17 to 19.

No.	Description.
36838	Hemmer Foot, $\frac{1}{8}$ inch hem
36839	Hemmer Foot, $\frac{3}{16}$ inch hem
36840	Gathering Foot
36554	Presser Foot (narrow)
36837	Feller Foot
55623	Bobbins (five)
25878	Cloth Guide
732b	Cloth Guide Thumb Screw
—	Needles, 16×231 (six)
36570	Oiler filled with Oil
25537	Screw Driver (Machine)
120378	Screw Driver (Bobbin Case Tension)

EXTRA ATTACHMENTS

Extra attachments, as per list below, are not furnished with the machine, but are supplied at reasonable prices when ordered. Instructions for using these attachments are given on pages 20 to 23.

No.	Description.
36559	Hemmer (Adjustable) $\frac{3}{16}$ to one inch wide
36560	Ruffler
36561	Tucker
56127	Corset Foot

The
Foot Hemmer—
Hemming.

Raise the needle to the highest point. Substitute the foot hemmer for the presser foot (see Fig. 17). Clip off the right hand corner of the cloth, so that it will take the roll more naturally; turn up the edge about a quarter of an inch, insert it in the mouth of the hemmer and draw or push it along with the stiletto until under the needle. Then let down the presser bar, and after taking two or three stitches, draw gently on the ends of the threads to help the work along till the feed catches it. In order to produce a smooth, even hem the mouth of the hemmer must be kept just full. The edge of the goods entering the hemmer must be moved to the left to fill the hemmer, or to the right if too full.

Fig. 17 shows also what is known as a bag seam or fell, made by passing the edges of two pieces of fabric through the hemmer together and hemming them down.

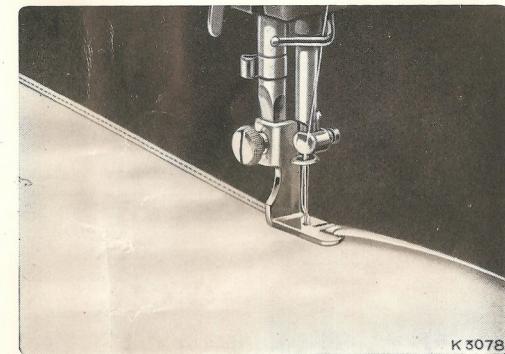


Fig. 17.

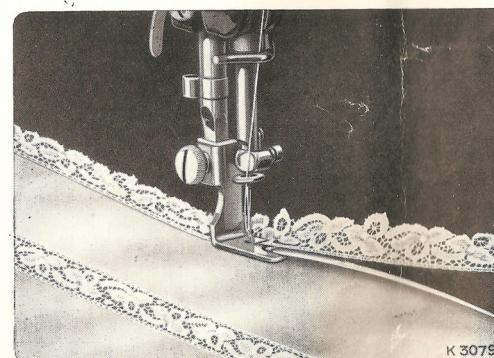


Fig. 18.

Hemming and
Sewing on Lace in
One Operation.

Start the hem, as previously explained, and when it is well started raise the needle to its highest point. Raise the hemmer to relieve the pressure on the hem, then pass the end of the lace through the slot in the side of the attachment and over the hem, as shown in Fig. 18.

Take care that the hem is not displaced in the hemmer, and that the needle goes through both lace and hem. Then let down the presser bar and guide the lace over the front of the hemmer, keeping it well into the slot.

18

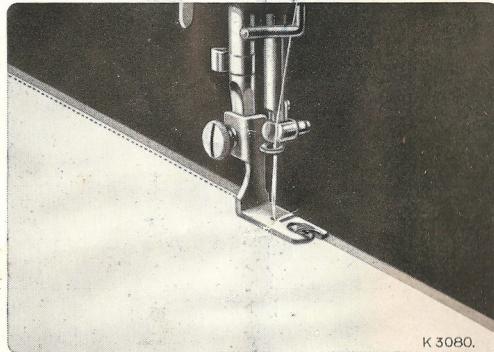


Fig. 19.

K 3080.

The Foot Hemmer—Felling.

The two pieces of cloth to be felled should be laid together, wrong side out, the edge of the under piece being a little farther to the right than the upper piece. Stitch them together, using the hemmer as a presser foot, the front end of the hemmer forming a guide for the edges of both pieces, the upper piece being guided by the inside and the under piece by the outside of the projecting front of the foot hemmer (see Fig. 19). Then open the work out flat, wrong side up, with the edges standing up straight. Next take the edges, near the beginning of the first seam, in the right hand and the ends of the threads in the left hand and draw the edges into the hemmer, which will turn them as in hemming, and guide straight to ensure a perfect fell (see Fig. 20).

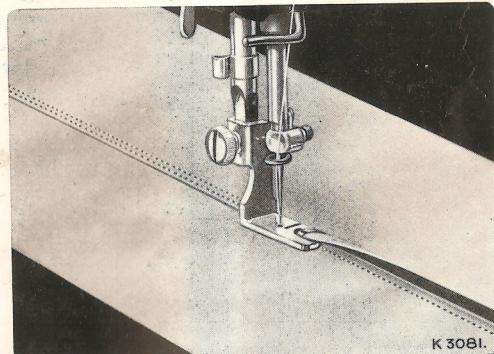


Fig. 20.

K 3081.

19

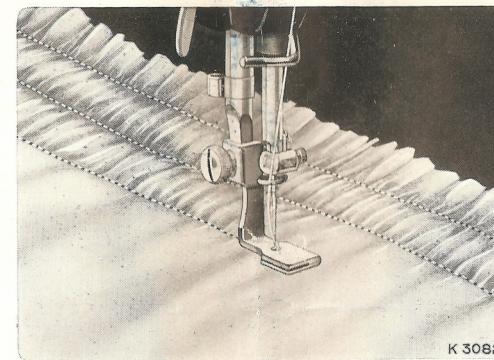


Fig. 21.

K 3082.

Gathering or Shirring Foot.

Substitute the gathering or shirring foot for the presser foot. Tighten the upper tension and lengthen the stitch to secure the desired fullness. This foot is very useful in the manufacture of garments as the gathers in material can be drawn at will with the same facility as hand sewing, making it convenient when cuffs, wrist bands and waist bands are to be sewn on. Stiff material can be handled more satisfactorily when the stiffening is rubbed out.

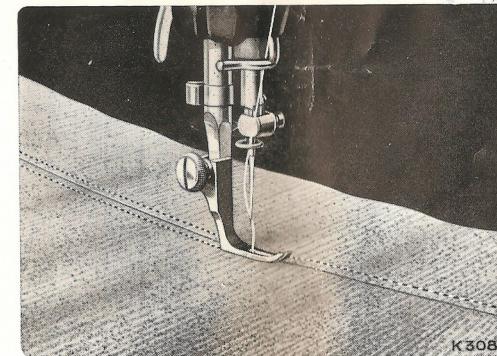


Fig. 22.

K 3083.

The Narrow Presser Foot.

The narrow presser foot is made for use in tailoring, and the operator will find this a great advantage when it is necessary to stitch close to the edge of seams of clothing and for other similar work (see Fig. 22).

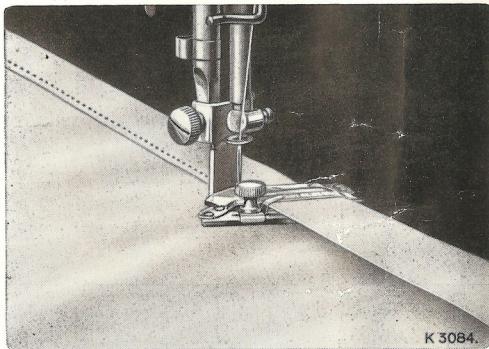


Fig. 23.

screw on the hemmer and moving the slide to the right or left until the hem so turned is of the desired width. Enter the edge of the cloth into the hemmer and draw it back and forth until the hem is formed, stopping with the end under the needle. Lower the presser bar and commence to sew, being careful to so guide the cloth as to keep the hemmer full. Felling can also be done with the adjustable hemmer by following the instructions on page 18.

The Adjustable Hemmer —Wide Hemming.

To make a hem more than one inch wide take out the thumb screw in the hemmer and remove the slide and pointer. Fold and crease down a hem of the desired width; pass the fold under

the extension at the right of the hemmer and the edge into the folder, as shown in Fig. 24, and proceed to stitch the hem.

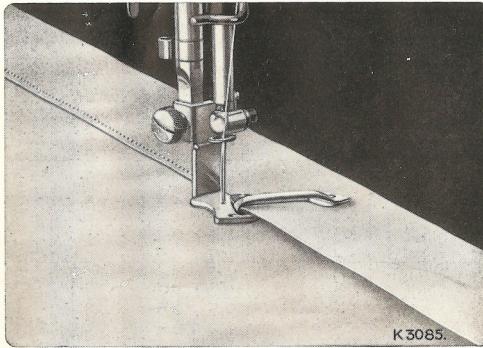


Fig. 24.

Ruffler—Ruffling.

Remove the presser foot and attach the ruffler in its place, connecting the lever with the needle clamp, as shown in Fig. 25.

To make a ruffle or plait, place the material between the lower or separator plate and the ruffling blade. Push backward until the material is slightly beyond the needle, then lower the presser bar and proceed to sew.

To make a finer gather, shorten the stroke of the ruffling blade by turning the regulating thumb screw on the lever to the left and shorten the stitch. To make a fuller gather or plait, lengthen the stroke of the lever by turning the regulating thumb screw to the right and lengthen the stitch. By varying these adjustments many pleasing varieties of work can be accomplished with the ruffler.



Fig. 25.

Ruffler—Ruffling Between Bands.

Place the lower piece of material below the separator plate, the piece of material to be ruffled under the ruffling blade and over the separator plate, and the upper piece of material over the ruffling blade, as shown in Fig. 26.

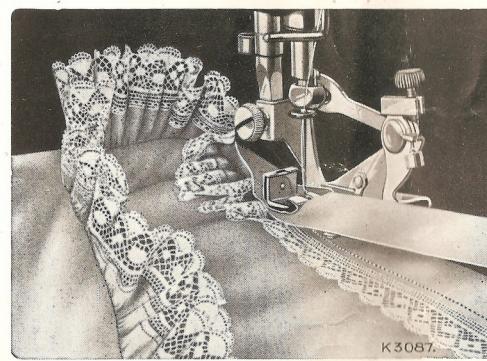


Fig. 26.

To Ruffle and Sew on.

Place the band below the separator plate, the piece to be ruffled between the separator plate and the ruffling blade, and proceed. Oil the wearing parts of the ruffler before using.

Caution.—The ruffler should never, under any circumstances, be operated without cloth between the blades.

The Tucker.

Fasten the tucker to the presser bar in place of the presser foot. The width of the tuck is determined by the scale of figures nearest the needle, which shows in eighths of an inch the distance of the edge of the fold from the line of stitches.

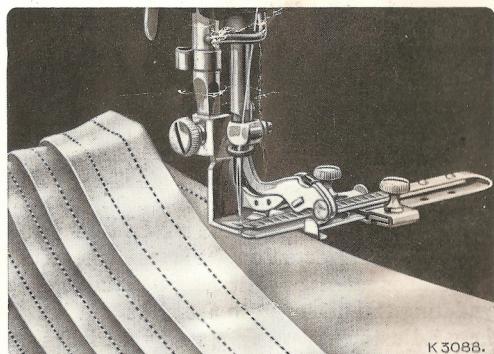


Fig. 27.

Crease down the first fold by hand; pass the folded edge between the spring and marker nearest you and back under the presser foot; draw to the right against the guide; lower the presser bar; see that the lever for the needle clamp to strike is in its backward position, then proceed with the first tuck.

The crease for the next tuck is determined by the scale nearest the operator, and this is set by the line in front of the needle hole in the presser foot; for blind tucks without spaces, set both scales at the same figure; to make spaces between the tucks, move the front scale farther to the left until the desired space is obtained.

When making the last tuck the lever, upon which the needle clamp strikes while tucking, should be raised to its highest point; while it is in this position no crease for a succeeding tuck is made upon the goods.

The Corset Foot.

This is a presser foot having the needle hole at its extreme right edge and is specially adapted for the making of corsets. It will be found convenient for stitching close to the edge of material, as shown in Fig. 28.

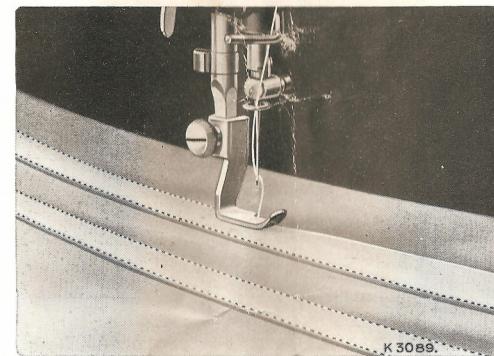


Fig. 28.

This foot is also useful for other varieties of work where it is necessary to stitch close to the edges of fabrics.

