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*Self
Instruction
Guide*

*To
The Cymbal
Home Knitter.*

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YOUR MACHINE

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THE CYMBAL HOME KNITTER

The Self Instruction Guide

contains all the information necessary to enable the working of the Cymbal Home Knitter to be learned at home without other instructions.

The machine is simple and easily understood, and by following the instructions it is possible to quickly become an expert knitter.

If, however, some point is not perfectly clear, we shall be pleased to answer any questions and solve any difficulty.

If you live in or near London, call at our Showrooms, 90 Borough High Street, S.E.1. Here we have special instruction rooms and instructors in attendance who will give you expert advice or tuition.

IMPORTANT.

Let us introduce **CYMBAL SERVICE.**

It is **free** and **complete**. We have a Staff of Experts for your special benefit, ready to give genuine advice on any point. Write our **SERVICE BUREAU**, mentioning your requirements. We will save you time and anxiety.

Cymbal Knitting is so easy; do not allow a minor difficulty to defeat your object. We cannot help you if you do not get into touch with your

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Trams to Hop Exchange : 12, 14, 28

*The Showrooms are 3 minutes from London Bridge Tube Station and
5 minutes from Elephant and Castle.*



Illustration 1



Illustration 1A

**Keep your Machine in
a Dry Place.**

Self Instruction Guide

to the

Cymbal Home Knitter



When you receive the Machine

Carefully examine the packing case, containing the machine, and if there is no indication of damage, sign the carrier's sheet and add "unexamined" after your name.

If the case bears signs of having been damaged sign for it, and write "damaged" on the receipt, and open at once.

A careful examination of all the parts should be made especially if the case bears signs of damage.

When you unpack the machine, examine it carefully. If you find any breakages either on the machine or parts of the machine, write to us at once. Also write to the carriers and ask them to come and examine the damage. If after examination they tell you to return the broken parts to us, do so at once. **Do not forget to give your name in the parcel or box.** We will then communicate with the carriers and claim. We will at once send you new parts to replace those which you have returned. Do not forget that it is most important to **make a careful examination of all parts, especially if you have found anything broken.**

How to unpack your Machine

1. Remove the lid.
2. Take out the accessories from the top of the box.
3. Pull out nails and screws on the sides of the box (as shown in illustration 1.)
4. Lift the machine out bodily with the piece of timber to which it is screwed.
5. Remove the remaining accessories from the bottom of the box. If the piece of timber to which the machine is screwed is now removed the machine is ready to place on the table.

Diagram 1 illustrates how the machine is set up.

Do not remove the piece of knitted web which will be found in the machine, as this can be used when commencing to practice. See instructions "to thread the machine"

Care should be taken to avoid using wools or yarns that are too thick.

With the 72 cylinder not thicker than 4 ply may be used.

"	84	"	"	"	3	"	"	"
"	108	"	"	"	2	"	"	"

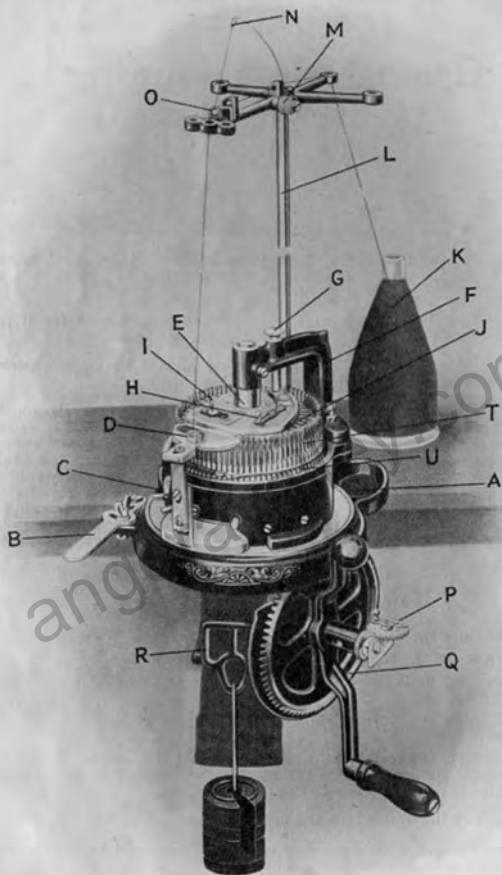


Diagram 1



Diagram 2

BUCKLE TYPE V

This model is sometimes supplied instead of Type marked "R."

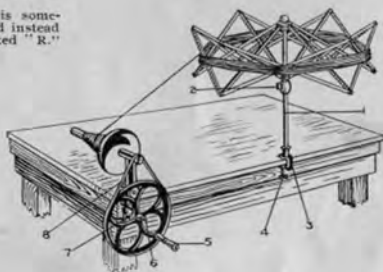


Diagram 3

- | | | |
|-----------------------|---------------------------|-------------------------|
| 1. Swift | 4. Swift Clamp Thumbscrew | 6. Winder Wheel Spindle |
| 2. Wooden Swift Screw | 5. Winder Wheel Handle | 7. Winder Wheel Clamp |
| 3. Swift Clamp | | 8. Leather Driving Belt |

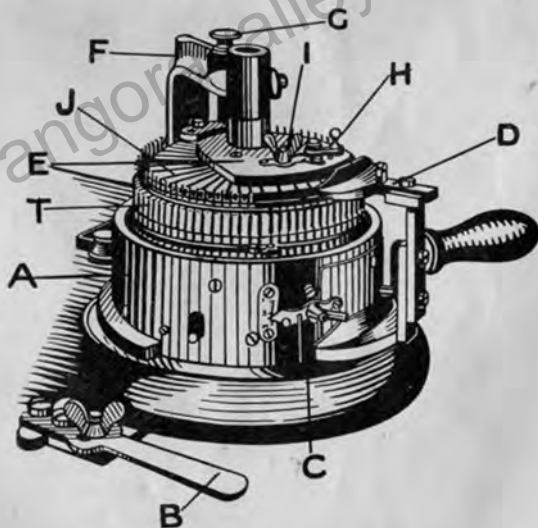




Illustration 2

Instructions for Attaching the Work Buckle

Open the buckle so that the large piece comes over the smaller one (which has a point in centre). Place the work between these, then bring large part towards you, this will then grip the work. Hang weights on small part (point) of buckle.

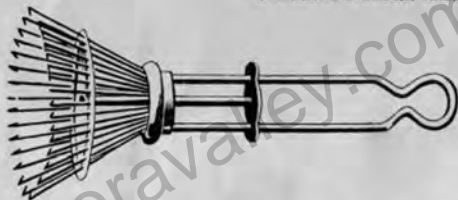
Illustration 2 shows method of attaching buckle.

Use of Accessories



CRESCENT NEEDLE RAISER

SETTER UP



WORK HOOK



HEEL HOOK



Setter-Up.—The above illustration shows the Setter-up closed and is used for setting up new work in the machine, and is fully described in "How to Set Up the Machine Empty."

Work Hook.—This is a useful tool—for unfastening clasp band, raising needles, picking up dropped stitches, etc.

Heel Hook.—This is used for holding down, mostly heel part. A set of weights are placed on the loop to assist in preventing stitches rising on needles. Many workers prefer to hold the work down with left hand and dispense with this.

Crescent Needle Raiser.—This is used for raising the needles in back half of machine when making the heel.

Swift and Bobbin Winder.—Are used as Illustration No. 3.

To Wind Wool, etc., on to Bobbins

Bad winding of wool is a frequent source of uneven work and incidentally of "press offs" which is a loss of time and the cause of much needle breakage.

Do not wind the wool the full length of the bobbin at first.

Begin by winding the wool at the bottom of the bobbin where the bulk of the wool should be wound. As the bobbin fills up, wind gradually up the bobbin in pear shape form until the required quantity is on the bobbin.

The correct winding of wool is very important otherwise correctness of length and evenness of stitch is practically impossible.

Included amongst accessories is a "Swift" expanding wooden frame. This should be clamped to table. **Important.** See table stands firmly to ground. Place hank of wool around the "Swift" and extend it so that the wool is held firmly.

The bobbin winder should be clamped to the other end of the table and the bobbin placed on the spindle. When guiding the wool on to the bobbin it is well (advisable) to allow the wool to run over a piece of white wax held in the left hand. This makes the wool work much easier in the machine.



Illustration 3

Threading Up

Place the bobbin of wool on the table just under one of the arms of the yarn cross, thread wool through same, then through the two centre holes to the front, under the bar of take-up lock, and through ring of same, and down through the centre eye to the Yarn Guide. (See Illustration 4), and through ring and eye of Yarn Guide.

Be careful latches of needles are always down otherwise dropped stitches will occur.

If the web has worked off machine or a number of stitches dropped, run off the work (by turning handle gently and breaking thread) and begin as over.



Illustration 4

Setting Up

Set up your machine by opening up the brass tool referred to—Page 6—and placing inside cylinder in position so that Setter-Up fixes at $\frac{1}{2}$ in. or $\frac{1}{4}$ in. below needles level. Hold by ring (or loop) at bottom of Setter-Up (not by slide). Draw about $1\frac{1}{2}$ yards of wool through Yarn Guide. Then taking hold of wool near Yarn Guide, which should be at back of machine, loop round nearest hook of Setter-Up then round a needle, using every hook of Setter-Up **and every alternate needle**, working from **left to right** (anti-clock). When you work as far as the needles that are down in cylinder, put weights on and bring Yarn Guide to front. Then finish threading machine, putting wool round the first two or three needles again, placing spare end of wool in centre of Setter-Up.

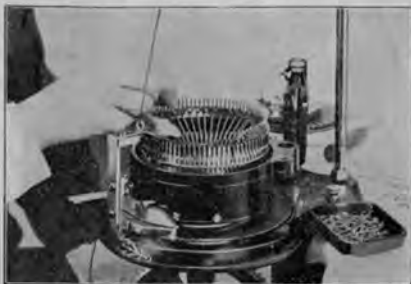


Illustration 5



Illustration 5A

Before proceeding it is important to see that **all latches are down** so that the needle receives the yarn. Turn handle and you will now find yourself knitting plain web. If the work is inclined to ride to top of needles hold down firmly with left hand. The holding merely requires practise. Do not lose heart, practise makes perfect. Remember when once you have set-up work on the "**Cymbal**" you need not repeat this operation—

article upon article may be knitted without commencing afresh—from a child's sock to a Ladies' Costume, by knitting a few rounds of waste cotton between each, afterwards removing waste when work is out of machine. The Worker will doubtless appreciate the saving of time.

Try a Gent.'s Sock; it is so easy.

Set up the machine as for plain knitting, but with only 42 plain (cylinder or long) needles in the cylinder, thus leaving every other groove empty.

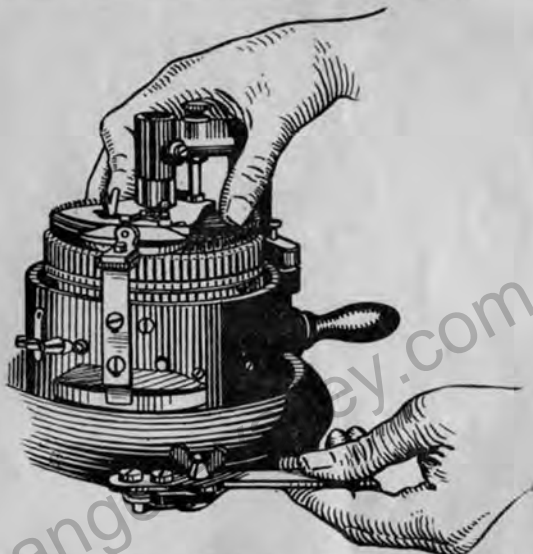
Ribbing

Knit 10—12 rounds in waste before putting on Ribber Attachment.

Next put the ribbing attachments on, carefully noticing that there is sufficient play between the dial and cylinder for the work to pass comfortably through the machine, and in order to adjust the position, if necessary, you simply employ the small screw at the side of the Ribber Arm. When the Ribber Attachment is placed in the machine extreme care must be taken that it not only fits up against the lug inside the Ribber Post, but it must **absolutely lock**.

Then notice that the Ribber Grooves are exactly over the empty cylinder grooves. If not, it is necessary to employ the Ribber Dial Adjuster (marked B on Page 5) by unscrewing the screw and moving the lever to the right or left, whichever way you find necessary, taking care to fasten screw tightly after the grooves are in the correct position.

You next commence at the left hand side of the machine and insert a ribber needle into every ribber groove, taking care that the latch on the needle is open, otherwise you will get dropped stitches.



Should you find any difficulty in getting ribber needles into their grooves, this is remedied by simply turning the handle in the ordinary way, but on no account tamper with the tappet plate.

The driving pin (which is marked G. Page 5) should not be removed until you are ready to make the heel, as this puts the ribber needles out of action. The driving pin should be replaced to make the foot, and again when ready to commence the toe.

First of all the selvedge.

Selvedge

We would advise you to note carefully that two rows in 1 and 1 rib are knitted before touching the Selvedge Lever, and when ready to form the selvedge after the two rows, the selvedge lever should be fixed right towards the far end of the Cam Slot, and not midway (marked H on page 5). Also see Diagram 4, page 10.

After the selvedge is completed please remember to push the lever back to its original position.

In order to ensure firm selvedge use heel spring for the four rows of selvedge.

IN
ACTION



OUT
OF
ACTION



Diagram 4

When separating work the row to be cut through is the one immediately next big stitch on waste end.

Having finished selvedge you start welt, which is usually 1 and 1 rib. Knit about 60 rows. Transfer needles for leg 5 and 1 rib, knit about 60 rows. Transfer

stitches from ribber needles to plain in front of machine only (between half marks). To find half marks, look for a groove on either side of cylinder painted red, so that front of machine is knitting plain; knit 10 rows for ankle. To shape ankle, wool should be used in heel spring.

When the weights have worked down low attach Buckle to web. (Illustration 6 below).

You now come to heel.

Making Heel

Stop the Yarn Guide in front of the machine, as shown in Illustration No. 6.

Find the half marks on the cylinder. (Look for a groove post on either side of the cylinder that has been filed down and painted red; these form the half marks.)

Raise all needles in the back half of cylinder as far as they will go. (See Illustration.

(These are now out of action.) Place wool in heel spring. Take half turn to the right, stopping the Yarn Guide at the back of the cylinder in front of the Yarn Rod. Put left hand through bottom of cylinder and grasp front of work very firmly.

Raise a needle on the right, take one turn to the left, bringing Yarn Guide again in front of Yarn Rod.

Now raise a needle on the left, and take one turn to the right, again bringing

Yarn Guide in front of Yarn Rod and continue working backwards and forwards, raising a needle on each side alternately until only 16 needles remain down in cylinder. Half the heel is then completed and Yarn Guide should now be in front of the machine.

Do not forget to grasp front of work very firmly while making heel or toe.

Making the Second-Half of Heel

Take one turn to the right bringing Yarn Guide in front of Yarn Rod. Push down needle on right, continue working backwards and forwards, pushing down a needle at a time on alternate sides until one



Illustration 6

needle on the right and one on the left side remain raised, in front of red half marks. (Yarn Guide should now be in front of machine.)

It is advisable to have a good practice at plain heels, when you will find it more simple to get into the way of ribbed heels.

Making the Foot

Take wool out of Heel Spring. Push down all needles in cylinder, and see that all latches are down. Now knit length of foot required.

Making the Toe

Stop yarn guide in front of machine, proceed as for heel, following the same instructions, but in the case of the toe, you work right up to the red half-marks and do **not** leave the one needle up each side in front of the red half-marks. When you have finished the toe, push down all the needles, and see that all the latches are down. Take wool out of heel spring. Cut the wool about six inches from yarn guide, and tie on waste cotton of a different colour. Knit a few rounds. Then another sock may be started. Any number of socks can be knitted by just knitting waste wool between each.

Splicing or Strengthening Heels and Toes to Prolong Wear

The wool used for splicing is very fine and is wound on small spools.

Place this on the table under one of the arms of the yarn cross, not in use. Thread through arm and join on to wool with a small knot. Thread wool and splicing through heel spring and commence to knit the heel in the ordinary way.

The splicing spool must rest in an upright position at convenient distance right hand side of yarn arm.

A small quantity of splicing should be purchased with initial supply of wool; 2 oz. of this material is sufficient for use with 2 lb. or 3 lb. of wool. All hosiery for Company's acceptance must be spliced at heel and toe.

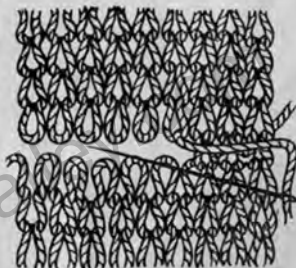


Diagram 5

Grafting the Toe

After taking the socks from the machine (by cutting through the waste), press the toe with a hot iron over a damp cloth. Unravel the waste wool and sock to where the sock commences to unravel the opposite way. Break off the wool, leaving a long enough end to graft with, and with a darning needle take one stitch from the top and one from the bottom of sock at the right-hand side. Then take needle to the top stitch again, and the next stitch—the same at the bottom, and so on. Hosiery is always grafted on the right side. (Diagram 5.)

Notice that each stitch has the yarn passed through it twice. The needle is passed through a ribbed stitch in the same way.



Illustration 7

Points to Remember

(1) Where to oil machine:—

Driving Wheel: Centre hole in the handle, also between the shell and cylinder.

Underneath the Tappet Plate: All round the Ribber and Cams (these are the small pieces of steel which project at either side of the front of the shell).

Do not saturate the parts with oil—use very little. The best lubricant we can suggest is equal parts of machine oil and paraffin.

Once a week is sufficient to oil machine.

(2) **Contract Sock.**

2 rows 1 and 1 rib. (Before touching Selvedge Lever.)

Selvedge Lever in. Knit 4 rows Selvedge. Wool in Spring.

Selvedge Lever back.

60 rows 1 and 1 rib.

60 rows 5 and 1 rib.

Ankle.—10 rows. Front half machine plain.

Heel.—(Three points to remember):

Needles raised.

Driving pin out.

Wool in spring.

Foot.—60 rows.

Toe as Heel.—(Three points to remember):

5 rows in Sock Wool.

5 rows in Waste Wool.

Join on Sock Wool and change needles to 1 and 1 rib and start next sock as above.

(3) Cover machine when not in use.

(4) Do not allow the inexperienced to tamper with screws or turn handle for curiosity. This may result in serious destruction to any part.

(5) Allowing needles to remain in paraffin and machine oil for a few hours occasionally will prevent rust and stiff latches.

(6) Base of Cylinder must be wiped down frequently with paraffin cloth to avoid the fluff of the wool collecting.

The Ribber Plate also must be cleaned. To do this unfasten Ribber Arm screw in centre of Arm to disconnect Arm from Tappet. When assembling remember **no play must be between arm join and tappet plate.**

Names and Uses of the Various Parts of the "Cymbal" Knitter as Illustrated.

- (a) **CAM SHELL.**—The steel cams are inside this shell which operates the needles. This should be taken off and cleaned periodically as the fluff off the wool collects and impedes the working.
- (b) **RIBBER DIAL ADJUSTER.**—This is necessary for altering the position of Ribber Dial to get the grooves exact so that the ribber needles work in between the cylinder needles. The full use of this is described later.
- (c) **CYLINDER TENSION SCREW AND POINTER.**—On **Cam Shell marked "A"** will be found a pointer—winged nut. This regulates the needles for tight and loose knitting. This pointer has to be raised to tighten the stitch and lowered to loosen same. One point in either direction makes a great difference in tension.
- (d) **YARN GUIDE AND FEED.**—The yarn is threaded through this and feeds the needles as the handle is turned.
- (e) **RIBBER TAPPET PLATE.**—This will be found on the top of Ribber Plate and contains cams that operate the ribber needles. An illustration of this you will find later.
- (f) **RIBBER ARM.**—This holds the Ribber Dial and Tappet Plate and fits in socket on the Cam Shell, as illustrated.
- (g) **DRIVING PIN.**—This is necessary to allow the Tappet Plate to revolve with Ribber Arm, and so operate the ribber needles.
- (h) **SELVEDGE LEVER.**—This is marked H on diagram 1, page 4.
- (i) **RIBBER TENSION.**—The use of this is for altering the Ribber Tension. We advise you not to alter this until you are familiar with the machine as it is already set correctly for the beginner.
- (j) **RIBBER DIAL.**—This contains grooves for carrying the ribber needles for purl knitting and operated by the Tappet Plate.
- (k) **BOBBIN.**—Upon which yarn is wound for use in "Cymbal" Knitter. (For particulars of winding see Illustration 3.)
- (l) **YARN STAND ROD.**—This carries the Yarn Stand Top and screw in back of base of machine.
- (m) **YARN STAND TOP.**—This fixes on the Yarn Stand Rod and through which the yarn is threaded from the bobbin. (See Illustration 6.)
- (n) **HEEL SPRING.**—This is used when making the heel and takes up slack yarn when reversing the machine. (See illustration, p. 4)
- (o) **TAKE-UP LOCK.**—This is a small loose wire attached to yarn stand top and its use is for holding yarn from coming too quickly off bobbin when making heel. (See Illustration page 4).
- (p) **COUNTING DIAL.**—For counting the number of rows when knitting. Place the pointer at "O" when commencing to count.
- (q) **COG DRIVING WHEEL.**—This wheel drives the machine; should be kept well oiled.
- (r) **WORK BUCKLE.**—This is for gripping the work to which you attach weights. Be sure this is fixed correctly or it will not grip.
- (s) **WINGED SCREWS.**—For fastening the machine to the table.
- (t) **LONG CYLINDER NEEDLE.**—For use in cylinder for plain knitting.
- (u) **CLASP BAND.**—This is the spiral band on cylinder fastened with a clasp to keep the needles in position.

Changing Cylinder and Ribber Needles



Illustration 9

To change from Plain Knitting to Plain and Purl

Remove the clasp band from the cylinder. This fastens at the side with a small clasp. Engage the hook of a ribber needle with that of a cylinder needle opposite an empty dial groove and pull upwards, so that the cylinder needle comes out of the groove. Take hold of the foot of cylinder needle with the other hand and with the ribber needle still attached pull downwards, so that the stitch passes on the other needle. Unfasten the needles and place the ribber needle in the dial. When changing from plain to purl care must be taken that the stitch does not pass beyond the latch of the ribber needle, otherwise when the needle is pushed into the groove the stitch will slip off.

Action of Tappet Plate

Illustration 10 shows the action to cams in tappet plate. In this case the cam slide is over to the outer edge, thus putting the needles into action by following the groove between the cams. It will be seen how the needle is pushed out to engage the wool and then drawn back again to make the web.

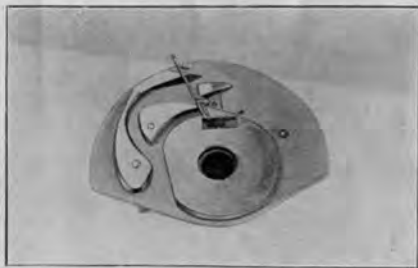


Illustration 10

To change from Purl and Plain to Plain Knitting

Engage the hook of a spare cylinder needle with that of a ribber needle and pull downwards so that the ribber needle is out of the groove. Take hold of the foot of the ribber needle and with the cylinder needle still attached pull upwards so that the stitch passes on to the cylinder needle. Unfasten the needles and place cylinder needle in the empty groove.

Different kinds of ribbing can be made by arranging the needles. For 1 and 1 rib, such as for the top of socks, every other needle should be in the cylinder and every needle should be in the dial.

Three and 1 rib—three cylinder needles and every other ribber needle.

Five and 1 rib (used for leg of sock or stocking for work to be sent in to the Company), five cylinder and one ribber needle (every third ribber needle in use).

Various kinds of ribbing can be made on the knitting machine, merely by rearrangement of the needles:—

For 1 and 1 rib.—Every other needle in the cylinder and every needle in the ribber dial.

2 and 1 rib.—Arrange the dial so that the ribber needles work between the cylinder needles. When making 2 and 1 rib all the cylinder and ribber needles are in use.

3 and 1 rib.—Three plain or cylinder needles and one ribber needle.

4 and 1 rib.—Arrange dial so that the ribber needles work between the cylinder needles. Have all needles in cylinder, and a needle in every other groove of the ribber.

5 and 1 rib.—Five cylinder needles and one ribber needle.

Some Useful Hints

The Yarn Guide.—Dropped ribber stitches and sometimes dropped cylinder stitches are frequently caused by the Yarn Guide being too high. This can be remedied by adjusting the screws in front and lowering, leaving sufficient space for the ribber needles to pass underneath. If the stitches drop on the cylinder needles only, note if the yarn guide is too far away from the needles; this should be about 1-16th of an inch away. To adjust unfasten screw on top.



Defective Needles

Too great care cannot be taken to see that your needles are straight and operating correctly. A bent latch of a needle may cause a great deal of trouble.

Where to Oil the Machine.—The knitting machine requires frequent oiling, especially when new. The parts that require oiling are: The Cams, Driving Wheel, Ribber Dial; also Cylinder where feet of needles work.

If you find the machine is stiff to turn, it would be advisable to examine the needles to see if any have become bent. These can sometimes be straightened with the fingers; if not replace with a new one.

Ribber Slide Cam

This sometimes works loose, with the result that the ribber needles may be thrown out of action, when in action or *vice versa*. Tighten up the screws on slide cam lever.

Heel Spring

Neglect to place the yarn on the heel spring and under the take-up lock causes the wool to loop and miss the stitches when you come to making the heel.

Tension. Tension on the machine is for tightening or loosening the

stitch (see illustration 11) and each machine is adjusted before leaving our Factory. However, if you find the work rises to the top of the needles in spite of the weights, loosen the tension slightly. To loosen the tension,



Illustration 11

unfasten screw marked C (page 4), and lower pointer. If the work is too loose or too big, tighten tension. Help to keep the work down by holding with the left hand.

Illustration 11 shows the two tension points, ribber and cylinder.

How to Pick up Dropped Stitches

If there are only 1 or 2 dropped stitches it is easier to pick them up after the sock or stocking has been taken out of the machine. For picking up dropped stitches in the machine, take the weights off, put the stitch on the hook of a spare cylinder needle, being careful not to split the wool. Pass the needle through the stitch until it has passed the latch, turn the



Illustration 12

needle a little to the right, work the latch up behind the wool immediately above the stitch; this done proceed to slip the needle slowly back and the latch will catch the wool inside the hook, allowing the old stitch to slip off the needle, thus forming a new one. Repeat this operation until you get to the top, where it is placed on the needle in the cylinder. Illustration 12 demonstrates picking up dropped stitch when sock is out of machine.

Tying up Knots

When you have to tie knots in the yarn you must do so with as small knot as possible. A reef knot, or sailor's knot, is the best. You must not cut the ends, these will work securely in and not be seen in the finished work. When a knot is passing through the knitter turn the handle very slowly.

To change from one Cylinder to another

Remove the ribber. Take the needles out of the cylinder. Unloosen the two screws that keep the cylinder in the machine (these are under the base of the cylinders). Take away the cylinder and put in the one required.

To change the Dial

Loosen the screw on top of ribber arm. The spindle holding ribber dial and tappet plate will now drop out. Take the tappet and dial plates off and put spindle through dial plate required, replacing tappet plate on top, leaving no play between dial plate, tappet plate and bottom of spindle. Re-insert spindle in ribber arm and tighten up screw.

Cymbal Troubles and their Remedies

- 1 IF** when starting the machine the work rises on the needles and it is only held down with great difficulty—look at tension on cam shell C (diagram 1). This should be at No. 5. Lowering this tension slightly will ease a new machine.
- 2 IF** needles are missing their stitches—watch the yarn guide. This may be too high or set too far from needles—the correct setting is about $\frac{1}{16}$ " away from needles.
- 3 IF** machine becomes jammed or fixed, it is probably a needle with a bad latch. Remove the needle that is collecting wool and not throwing the stitch. The collected wool on a defective needle will not allow the needle to pass into the cylinder, and will lock the machine.
- 4 IF** the wool is looping on either side when making the heel—read the directions for threading machine on page 10, make sure that the wool is placed under the bar, on take up lock. If this is correct, tighten

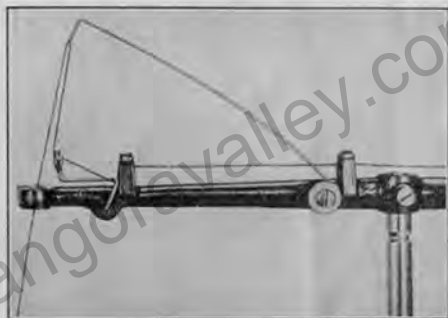


Illustration 13

tension of heel spring by unfastening screw and laying spring back, re-tighten screw. This will have the effect of taking up the yarn more quickly and avoiding looping and missing the first stitches (illustration 13)

- 5 IF** you are getting holes in sides of heel or toe, this is because the work is rising on the needles, on the first half of heel, and causing them to throw the stitch. *Remedy*—see that the work is held down firmly so that the work does not collect on the end needles.
- 6 IF** when starting to rib, the work collects on the needles—watch the ribber plate and see if there is sufficient room for the work to pass into the cylinder. If not, raise plate slightly by adjusting screw in base of ribber arm.
- 7** A jammed machine may also be caused by a broken base of a needle being in the cylinder. *Remedy*—remove cylinder and find broken piece.
- 8** Periodical cleaning is necessary, because of the fluff that collects on base of cylinder and impedes needles working.

Instructions for Flat Web

Leave 18 or 20 needles out at the back of the machine. Set up machine in the usual way with waste wool. Join on wool you intend using, knit a row or two backwards and forwards; break wool, leaving 10 or 12 inches. Raise all needles out of action. Make slip knot in end of the wool and pass over one of the needles at the right hand side. Pass wool across back of next needle, round it and across the back of the next needle. The illustration here shows the direction in which the wool should be twisted round the needle. Having placed a loop on each needle, press needles into action, put wool in heel spring, and see that the latches are down and commence knitting.



Instructions for making various types of Garments

Boys' Turnover Ribbed Stockings

Arrange needles for one plain and one purl. Make four rows of selvage by putting the lever forward. After four rounds push the lever back against the stop and continue to turn the handle. Knit one plain one purl for about twelve rounds, stopping with the Yarn Guide in front of the machine. Break off wool and tie on coloured. Knit about seven rounds, making a stripe of coloured knitting. Stop with the Yarn Guide in front. Break off coloured wool and join on stocking wool. Knit about twelve rounds then break off, join on coloured wool and knit another seven rounds. Break off, join on stocking wool and knit sixteen rounds. Stop with Yarn Guide at the back of the cylinder.



Change needles to five plain one rib. Start from the left half mark, continuing round to the right. This means that every third needle will be in the dial, and every sixth out of the cylinder. Knit the length of leg required. Before you turn the heel, transfer the front half of ribber stitches on to additional cylinder needles. Knit ten rounds with tension half point tighter for ankle, then knit heel. Knit length of foot required, and make toe same as heel.

Return needles to action. Remove yarn from heel spring and knit around or so. Break off and tie on waste yarn. Knit a few rounds and stop the yarn carrier at the back. Change needles back to one and one, and knit on the next stocking.

Important: When you change stitches from one needle to another do not forget to remove the clasp band. Replace this after transfer.

By knitting to the above directions for the turnover you should get a turnover of about $4\frac{1}{2}$ inches. This is the length required when knitting stockings of the following lengths:—

Size 5—8in. foot, leg length without turnover	$14\frac{1}{2}$ in.	(full).
6—8 $\frac{1}{2}$ in.	15in.	“
7—9in.	$15\frac{1}{2}$ in.	“
8—9 $\frac{1}{2}$ in.	$16\frac{1}{2}$ in.	“

When knitting the following lengths the turnover should be $4\frac{1}{2}$ in. Seven inch foot, leg length $13\frac{1}{2}$ in. Seven-and-a-half inch foot, leg length 14in. (excluding turnover.)

To obtain the following sizes the number of rounds are:—15 rounds less or more in the leg, and 5 rounds difference in the length of the foot, e.g., if the foot is $9\frac{1}{2}$ in. it may require 155 rounds in the leg

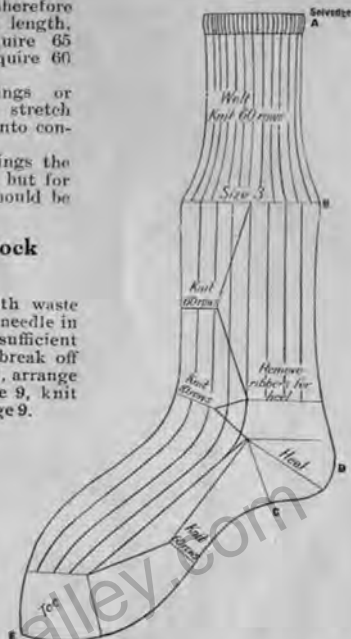
length. A 9in. foot would therefore require 140 rounds for the leg length, the foot for a 9½in. would require 65 rounds. A 9in. foot would require 60 rounds.

Remember: When stockings or socks are pressed they always stretch slightly. You **must** take this into consideration when making.

For 8½, 9 and 9½ inch stockings the tension is practically the same; but for 7, 7½ and 8 inch the tension should be tightened about one point.

Gentlemen's Ribbed Sock (on 84 Cylinder)

Thread up the machine with waste wool or cotton, with every other needle in the cylinder, knit several rounds sufficient to fix ribber into position, then break off waste wool and join on sock wool, arrange needles for 1 and 1 rib, see page 9, knit selvedge as per instructions on page 9.



When selvedge is finished push lever back into original position. Knit 60 rows 1 and 1 rib which should measure 6 ins. Keep work held down in machine with the weights attached, also with the left hand. Now change work to 5 and 1 rib, to do this transfer the stitches from two ribber needles on to two cylinder needles, missing the third ribber needle, thus giving you five cylinder needles, and one ribber needle in action. Now knit 60 rows which makes another 6 ins. bringing the sock to the ankle.

Having finished the leg of your sock, bring the yarn guide to the front of the machine, and change the stitches from your ribber needles between the two half marks in front of machine to cylinder needles thus making your work ribbed on back of machine, which forms the top of the sock, and plain in the front of the machine, forming the ankle, heel, and foot of sock, put wool in heel spring to tighten work to shape the ankle. Now knit ten rows stopping with the yarn carrier in front of machine, raise out of action cylinder needles in back half of machine, remove driving pin from tappet plate, which prevents ribber needles from working, join splicing thread to your wool, page 11, and proceed to turn the heel in your sock, being sure to grip the work firmly with the left hand. Take half turn to the right, stopping the yarn guide at the back of the cylinder, in front of the yarn post. Put in heel hook about half-inch from top, and in centre of work, with hooks one inch apart. Place left hand through bottom of cylinder and grasp both sides of work very firmly. Raise a needle on the right, take one turn to the left, leaving yarn guide again in front of yarn rod. Now raise a needle on the left

and take one turn to the right again bringing yarn guide in front of yarn rod and continue working backwards and forwards raising a needle on each side alternately until only 16 needles remain down in the cylinder, being sure to keep work well held down with the left hand, see instructions for making the heel on page 10. Having finished the first half of heel by decreasing on each row, we commence second half by increasing a stitch on each row. To do this, push a needle down on the right side of machine, see that the latch is open, take a turn to the left bringing yarn guide in front of yarn rod. Push down a needle on the left, see that the latch is open, take one turn to the right bringing yarn guide in front of yarn rod, continue working backwards and forwards pushing down a needle one at a time on alternate sides until one needle on the right and one on the left remain raised in front of red half marks. Yarn guid- should now be in front of machine.

Take wool out of heel spring, push down all the needles in cylinder, see that all latches are open, replace driving pin, break off splicing thread, hold work down firmly in machine, and proceed to knit the foot which is another 60 rows, thus making the foot of sock with toe added to it, 10½ ins. Now proceed to make the toe in exactly the same manner as the heel was done, following instructions on page 11, joining your splicing cotton on to the wool in exactly the same way as when commencing the heel and breaking it off when the toe is finished.

When the toe is finished push all needles down into action again being sure all latches are open, replace driving pin, remove wool from heel spring, knit five rows of sock wool then break off wool, join on waste wool, knit another five rows, break off waste wool, join on sock wool and commence another sock by arranging your needles 1 and 1 rib as at the beginning of your first sock. To close the toe of sock, follow directions on page 11.

Simplified Instructions for Knitting a Sock on the Cymbal Knitter

Join wool on to the end of web left in machine, knit a few rounds then change needles to 1 and 1 rib (see instructions on pages 8 & 9 of instruction book.)

If there is no work in the machine, set up with every other needle out of cylinder. Knit a few rounds, then put on ribbing attachment and put needles in dial for 1 and 1 rib. Make selvedge (see page 9). Knit about 60 rounds for the top of sock (1 and 1 rib.) Change needles for leg (5 and 1 rib), knit about 60 rounds.

Transfer stitches from ribber needles in front of machine (between half marks) so that the front of machine is knitting plain web, and the back 5 and 1 rib. Knit 10 rounds for the ankle. To shape the ankle the wool can be placed in the heel spring instead of altering the tension.

Then knit heel, decreasing in first half till only 16 needles are left in action, then increase to half marks (see page 10 of instruction book).

About 60 rounds is sufficient for the foot.

When completed a sock should measure:—

Top (1 and 1 rib) ...	...	...	6-in.
Leg (5 and 1 rib) ...	...	...	6-in. Complete length of leg from selvedge
Ankle and heel ...	...	...	2½-in. to bottom of heel ... 14½-in.
Foot (from back of heel to end of toe), 10½-in.	The heel and toe measuring 2-in. each half.		

Man's Plain Sock

Arrange needles as directed for the top of a ribbed sock. Instead of changing to three plain one purl, transfer all ribbed stitches on to additional cylinder needles to make a plain leg. Continue to finish sock as directed on page 11.

Ladies' Stocking

(Plain, with Hem at Top)

This stocking can be made on the 84 Cylinder, for which these instructions are given. They can also be made on the 108 cylinder with artificial silk or two-ply wool. Knit two or three inches of waste wool, and tie on stocking wool. Knit about 40 rounds. Remove the weights and raise the work up inside the cylinder. Take the work hook and put back on the needles the stitches of the first round knitted into the stocking wool. (This can easily be seen if the waste wool used is of a different colour.) Take care in putting back on the needle the stitch which is in a direct line with the one which is already on the needle. You will now have two stitches on one needle. Hold the work down in the machine, and turn the handle. You will then have made a hem.



Knit about 100 rounds, then tighten the tension half point, knit a further 100 rounds and tighten tension a further half point and knit 50 rounds, then knit the heel, 60 to 65 rounds are sufficient for a 9-in. to 9½-in. foot.

The length of the stocking when completed should be 29-in. from the hem to the bottom of the heel. For gymnasium hose the length of the leg should be 33-in. If desired, a selvedge can be made for the top of the stocking instead of a hem, in which case it will be necessary to set up for 1 and 1 rib.

Knitting a Child's Sock on Flat Web.

Set the machine up for flat knitting with number of needles in action, according to the size of the sock required. Begin with flat web selvedge as directed on Page 18. Next place the yarn in the heel spring and knit to and fro until you have a piece long enough for the leg. Finish leg by knitting to the left. To make the heel knit half each side. Pull all needles out of action excepting 14 on the left side.

Knit to the right, raise the last needle that was knitted. Work once more to the left, then once to the right, then pull up another needle. Continue to work backwards and forwards lifting a needle at the end of each second row until you have about five needles left. Begin putting the needles into action again just as though you were making an ordinary heel. Push down the needles in the ordinary way. Continue doing this until you have about 13 needles in action. Then push all the needles into action.

Work one row and then repeat for the other half of the heel. When heel is finished continue to knit to and fro as in leg until the web is long enough for the foot of sock; then work the toe in exactly the same way as the heel. When finished, break off sock wool, knit a few rounds of waste wool, then commence another sock. To finish sock off, just press with damp cloth and hot iron, then join sock together at back of leg and under the foot; join toe up in the usual way.

If you wish to make a child's sock on circular web, the 72 cylinder should be used with a tight tension.

How to fashion Football and Cycling Stockings and Ladies' Hose

After knitting the top part of the stocking proceed to arrange needles for 4 and 1 rib, as previously directed. Work the required number of rounds until you get to the part that needs fashioning. To do this, first of all take the ribber needle nearest to the front of the dial as the centre needle. Take the half way marks on the cylinder as a guide, and you will find that the needle you require is the one nearest the centre of these marks. Take out the second cylinder needle at the left of this dial needle. Transfer its loop on to the third cylinder needle. Remove the first cylinder needle into the second empty groove and knit five rounds. Arrange the dial needles so that the ribber needles almost work over the cylinder grooves. Take out and transfer the loop from the fifth to the sixth cylinder needle; count the needles that are at the left of the centre ribber needle. Remove the fourth needle into the fifth and empty groove. For the right side, remove the third cylinder needle from the front empty cylinder groove.

Remove the loop on to the second cylinder needle. Transfer the fourth needle into the third and empty groove and knit five rounds. Continue this decreasing in a similar way on both sides. Next knit five rounds until all needles are changed over to one purl three plain. Adjust the dial forward so that the dial needles work over the empty grooves in the cylinder. Replace band and knit about 50 rounds for the ankle. Stop the Yarn Carrier at the back of the machine. Knit heel, foot and toe in the usual way.

Vests and Undergarments, in Flat Web

Set up on the 108 cylinder, at tension 8, and knit up length required for all garments to be made. After taking from Knitter, press under damp cloth with a hot iron, and cut to any pattern the wearer desires.

About 5 ozs. of vest wool for long vest.

About 6 ozs. of vest wool for Ladies' Knickers.

About 8 ozs. of vest wool for Cami-bockers.

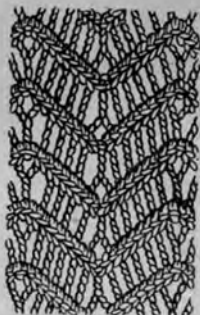
The garments can be trimmed with Lace or Crochet as preferred.

Costumes, Dresses, Coats, and all Outer Garments

The cylinder for these garments depends upon the texture of the wool or silk used. For fine silk or wool the 108 cylinder should be used. For 3-ply wools or Shetland Floss use the 84 cylinder, and for 4-ply wools and thick silk use the 72 cylinder.

Set up on whichever cylinder you require and knit up the wool or silk. Take from machine, press and cut in exactly the same way as for underwear. If you just remember these few items you will soon discover that you can make almost any garment, from a sock to an evening dress.

		£	s.	d.
Dress, 1½lbs.	cost		15	0
Coat, 1½lbs., ¼lb. silk			17	6
Little Girl's Frock, ¼lb., trimming silk 2ozs. ..			5	0
Jumper Suit, 1½lbs.			12	6
Silk Suit, 1 lb. art silk			10	0
Breechete Suit, 1½lbs.			8	6
Vest, 3ozs.			1	3
Child's Cardigan, 5ozs.			2	0
Baby Set, 1½lbs			10	0
Costumes, 2lbs.			1	0



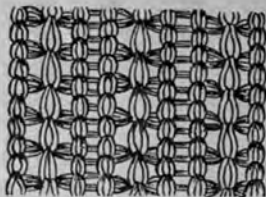
FANCY STITCHES

Herringbone Pattern

Set up with all needles in cylinder. Transfer stitch from every other needle to needle on right. Knit one round, transfer loops to needles on right. Repeat six times. Then transfer loops to needle on left for six rounds, and so on until length required is obtained.

Lace Pattern

Set up with every other needle in cylinder. Raise every other needle out of action. Knit three rounds, put needles into action, knit one round, then raise same needles again and so on.



Vests

(Circular Mesh Method)

Although it is possible to shape the article on the machine, we do not recommend this plan in preference to ordinary circular web cutting to the required shape, as shaping garments on the machine necessitates a considerable amount of needle changing, decreasing and increasing, etc., and is scarcely worth while. Working in 2 and 1 ribbed style at a fairly loose tension on the circular plan produces quite a good width of mesh (two pieces being sufficient for the average size adult) which may be shaped quite easily, and if well pressed when removed from the machine there is no fear whatever of the stitches unravelling.

Ladies' Anklets

First of all begin by making a selvedge in 1 and 1, afterwards—
 30 rows 1 and 1 rib. (Colour if preferred.)
 30 rows plain.
 10 rows before the heel—at tighter tension proceed to heel.
 Foot to the required length.

Price List of Spare Parts of the Machine.

A.	Cam Shell	..	...	...	£1 15 0
B.	Ribber Dial Adjuster (Crescent)	...	...	...	7 6
D.	Yarn Guide and Feed @ 3/6 each part	...	...	...	7 0
E.	Tappet Plate	...	...	...	15 0
F.	Ribber Arm	...	...	...	13 0
G.	Driving Pin	...	...	...	1 0
K.	Bobbins	...	...	...	6
L.	Yarn Stand Rod	...	...	...	3 0
M.	Yarn Stand Top	...	...	...	2 6
N.	Heel Spring	...	...	...	1 6
O.	Take-up Lock	...	...	...	1 6
P.	Counting Dial	...	...	...	10 0
Q.	Cog Driving Wheel	...	...	...	7 6
R.	Work Buckle	...	...	...	2 0
S.	Wing Screw	...	...	...	1 0
U.	Clasp Band	...	...	...	2 0
	Assorted Screws	...	...	...	3
	Bed Gear Ring	...	...	...	7 6
	Bed Plate ...	...	...	...	1 15 0
	Belt for Winder	...	...	...	1 0
	Bolts (Handle)	...	...	...	1 0
	Bolts (Drive)	...	...	...	3 6
	Bottle of Oil	...	...	...	9
	Buttons ...	...	...	...	2
	Centre-pin for Ribber	...	...	...	2 0
	60 Cylinder and Dial ...	...	...	...	3 0 0
	72 Cylinder and Dial ...	...	...	...	3 0 0
	84 Cylinder and Dial ...	...	...	...	3 5 0
	108 Cylinder and Dial ...	...	...	...	3 15 0
	Cylinder Repairs	...	...	...	7 6
	Handle for Machine	...	...	...	1 6
	Heel Hook	...	...	...	2 0
	Needles (Cylinder and Ribber)	...	per doz.	...	2 0
	Needle Tray	...	...	...	2 6
	Oil Can ...	...	...	...	9
	Setter-up ...	...	...	...	5 0
	Set of Weights	...	...	...	5 6
	Shell Cam ...	...	...	...	6 0
	Shell Take-up Cams	...	...	...	1 6
	Swift ...	...	...	...	5 0
	Swift Clamp	...	...	...	3 6
	Thumb Screws (Iron)	...	...	...	8
	Work Hook	...	...	...	1 0
	Winder Clamp	...	...	...	4 6
	Winder Wheel	...	...	...	4 0
	Wooden Handle	...	...	...	6
	Wing Nuts...	...	...	...	6

Price List of Pressing Boards.

Boys' T.O.T. Pressing Boards, 7 $\frac{1}{2}$ "	8" 8 $\frac{1}{2}$ "	...	2/- each
"	9" 9 $\frac{1}{2}$ "	...	2/3 "
Gym Hose " Pressing " Boards	...	...	2/6 "
Ladies' Stocking Pressing Boards, 9 $\frac{1}{2}$"	...	...	2/6 "
Men's Half Hose Pressing Boards	...	...	1/9 "