PART II

LEARNING TO MAKE SOCKS ON THE AUTO KNITTER

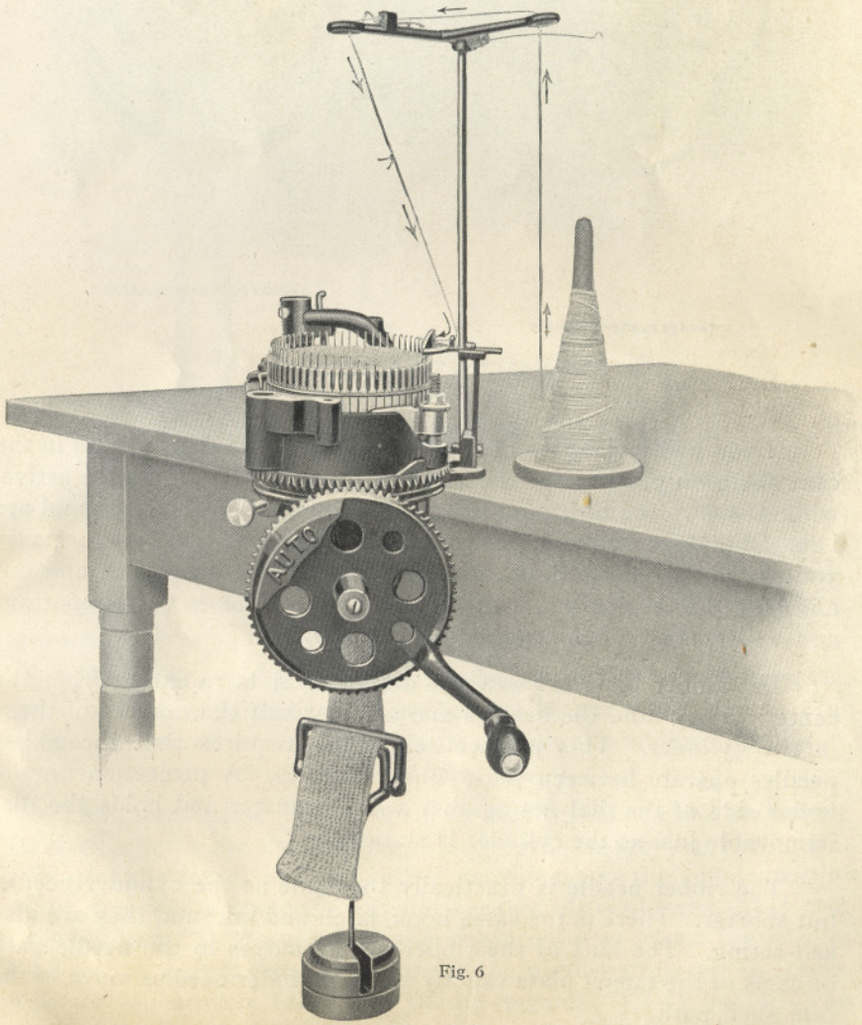


Fig. 6

Note how yarn travels from bobbin to needles. Also how buckle and weights are attached to work.

LEARNING TO MAKE SOCKS ON THE AUTO KNITTER

When you understand the working principles of the Auto Knitter as explained in the preceding pages, these directions carefully studied will enable you to master its operation. Remember that going slowly and learning thoroughly as you go will save you much time and help to make it easy, and that speed comes with practice.

HOW TO START

The knitted work in the machine is tied to the crank wheel (C) to prevent the stitches coming off. Cut this string, taking care not to turn the handle of the machine until you have the yarn in position to feed. Should some of the web have become tangled up in the needles, push it carefully down on the needles so as to free the latches, but leave the stitches on the needles. Then draw down the knitted web with your hand and attach the buckle (O) by drawing the fabric under its frame and over its clamp and hang the weights into the buckle. See Fig. 6.

Remove the ribbing attachment (J-H-G) from the machine and do not attempt to use it until you are thoroughly familiar with plain knitting. Put all loose parts in a safe place until they are needed.

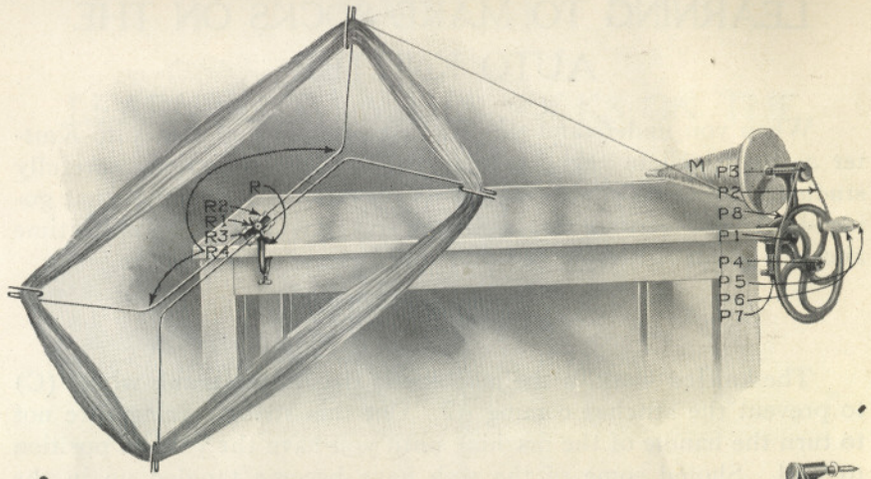
Take the loose end of the yarn and unwind the rounds that are loosely wound around the needles and let this hang until you are ready to knit.

Place the yarn stand rod (K) in the hole in the bed plate (A) at the back, and tighten the screw. Attach the yarn stand top (L) to the top of the rod, so that the eye in the long arm of the top will be directly over the centre of the needle cylinder (F). Tighten the screw in the yarn stand top that holds it to the rod. See Fig. 6.

Do NOT try to use any part of the equipment until you have read directions carefully and are sure you know its use.

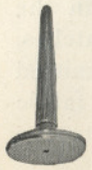
* * * *

Many different cylinders and dials may be used in the Auto Knitter to do a wider range of work. To avoid confusion, however, this explanation of the machine's working principles will mention only the 4½ inch, 60 x 30 outfit, as a basis for all other sizes.

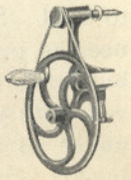


BOBBIN WINDER AND SWIFT

Fig. 7



Bobbin



Yarn Winder

BOBBIN WINDING

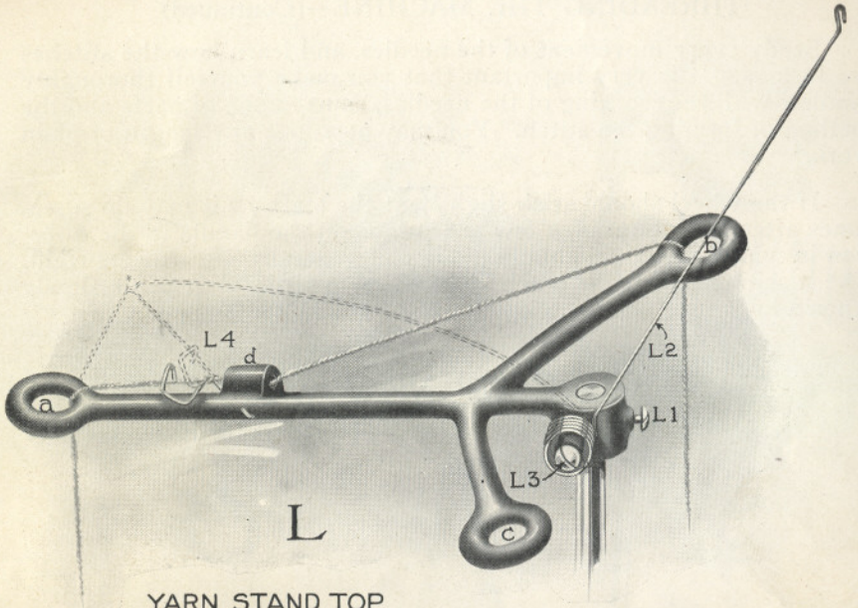
Yarn usually comes in loose bundles called "hanks" or "skeins". These are stretched on a wire frame called a "swift" which revolves on a shaft unwinding the yarn onto a spindle known as a "bobbin". Two or more bobbins are usually wound at one time so as not to interrupt knitting to wind on more yarn.

It is very necessary to learn to wind a good bobbin because the machine operates best when the yarn runs off freely and evenly.

The illustration shows how to put together the bobbin winder and swift. From your loose parts take swift holder "R," swift wires, wooden bobbin and bobbin winder "P." Clamp the bobbin winder on one corner of the table and the swift holder on the other corner. Slide swift wires into holder (R-1) and tighten the screw to hold them in place. These wires should be balanced so that when the yarn is unwound the swift will turn steadily and not in jerks. Stretch the skein of yarn on the wires evenly so that it will unwind freely without crossing or twisting.

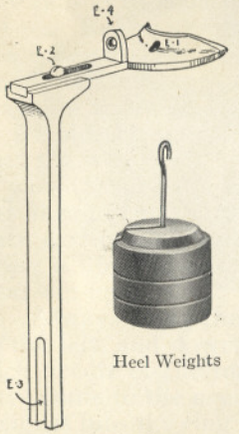
Press the bobbin onto the tapered spindle of the winder. Turn the handle a few revolutions to see that the leather belt is properly fixed and that the bobbin does not wobble on the spindle. Tie the yarn to the bobbin at the bottom where you should commence winding. Fill the bottom gradually, filling toward the top. Wind in the form of a cone with a medium even slope.

The best bobbin is made by moving the left hand sideways back and forth with a movement of about three inches as the hand guides the thread onto the bobbin. This movement should be made quickly. It has the effect of making the yarn cross.



YARN STAND TOP

Fig. 8

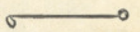


Yarn Carrier

Heel Weights

Take-up Lock

Buckle



Heel Spring

THREADING THE MACHINE

Set a bobbin of yarn directly under the eye of either short arm (b or c) of the yarn stand top. See Fig. 6 and 8. Draw the yarn up through this eye, through the hole in the lug "d" on the long arm, under the take-up lock "L-4" and down through the eye "a" at the end of the long arm, which must be exactly over the center of the cylinder. Draw the yarn through the yarn carrier from the outside through the two holes if you are setting up new work or tie this end to the end of the yarn which you unwound from the needles and wind all slack onto the bobbin. See Fig. 6. (The illustration above shows by dotted lines the position of the heel spring when making heel and toe.

Before turning the handle see that all needle latches are open and pointing down—not straight out—and that the yarn has no slack and will feed evenly. Now you are ready to knit. Turn the handle clockwise (to the right) slowly at first until you see that everything is working properly. Don't fail to have sufficient weights to hold the work down properly. If the machine is blocked and the crank wheel will not turn, it is because the upthrow cams have been thrown out of adjustment in transit. To correct see page 31.

Study every movement of the needles, and learn how the stitches are formed. It is very important that you make yourself thoroughly familiar with the working of the needles, cams, name of parts and the method of forming the stitch. You may now knit any length of plain work.

If the wheel should stick slightly at the start, as it may do sometimes after lying unused, a few sharp taps on the handle in the direction in which the wheel should move will generally put matters right. The machine will work much easier after a little use. Knit slowly when a knot reaches a needle.

SETTING UP NEW WORK

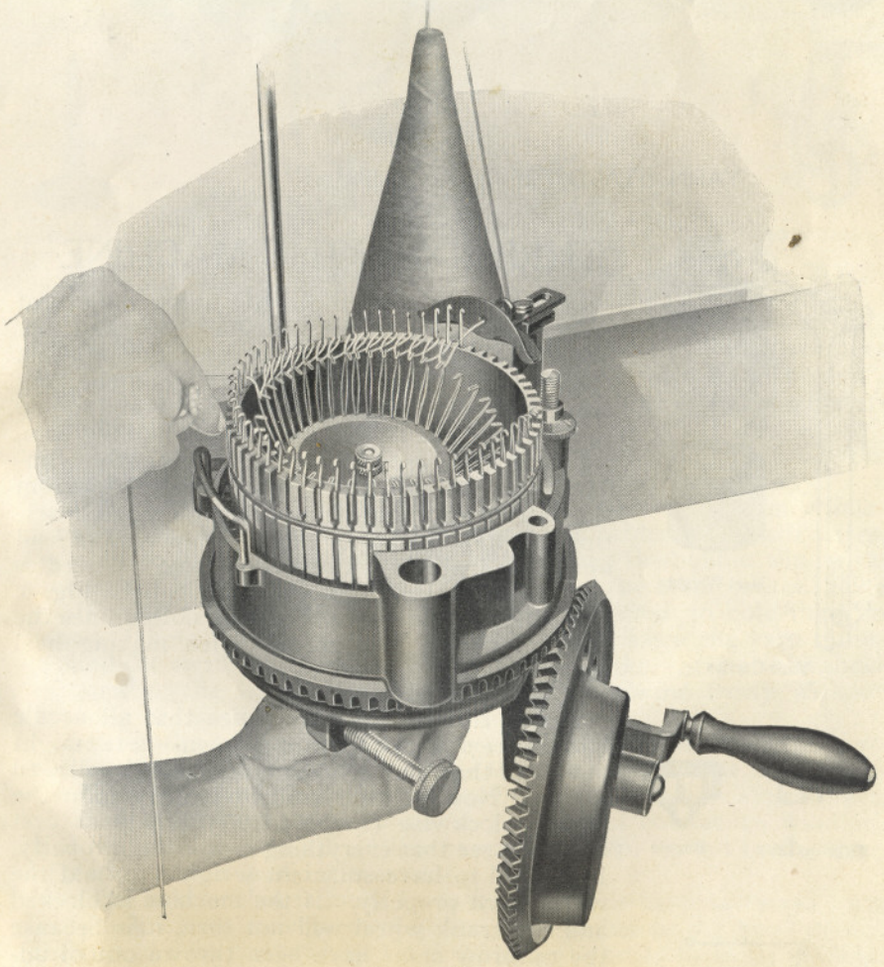
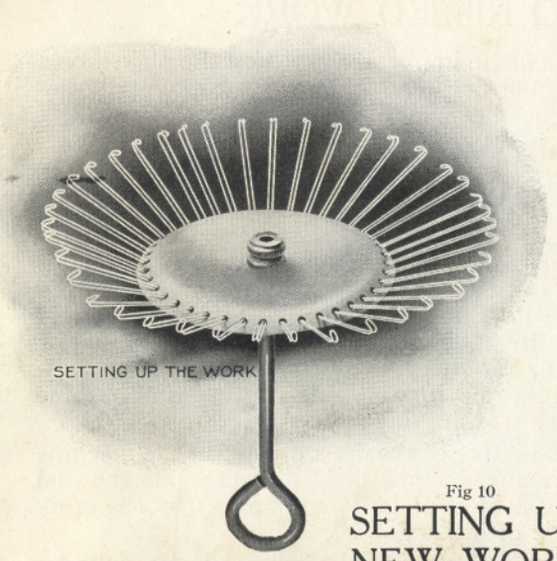


Fig. 9



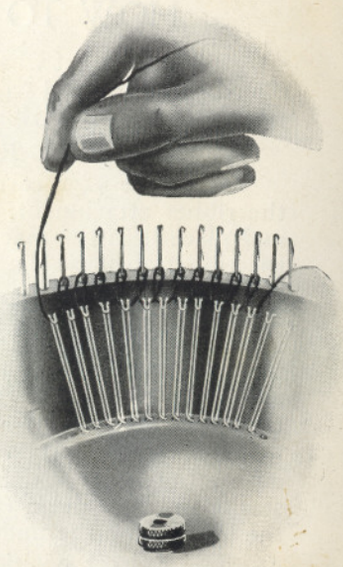


Fig 10

SETTING UP NEW WORK

If the web accidentally runs off the machine or it is necessary for any reason to start new work, you will need to know how to use the set up. Before using this umbrella shaped tool make sure that none of the wires are bent but all stand out at equal distances. See that all needle latches are open and that the yarn carrier is at the front of the machine and thread it as explained in the previous paragraph.

Hold the set-up inside the needle cylinder with the left hand so that the wires rest against it just below the top. Draw about a yard of yarn through the yarn carrier letting it hang down outside the cylinder ahead of the yarn carrier. Now take hold of the yarn close to the yarn carrier; catch it under the nearest set-up hook to the right; then bring it up and around the nearest needle and then down again to the next set-up hook to the right and so on, making a series of loops.

Always bring the yarn around the needle from the right hand side to the left, and down under the next hook of the set-up, until around each needle of the machine and under a hook of the set-up, and you have come to the needles which are down in the cams. Now hook the weights into the ring of the set-up and turn the machine slowly to the right, bringing the needles which are down in the cams up on a level with the other needles. Should you have too much yarn drawn through break off the end. See Fig. 9 and 10.

It is very important that the hooks of the set-up should be held a little below the edge of the needle cylinder, and that the yarn is not wound too tightly around the needles so that it will not break in the first round. There are more needles in the machine than there are hooks in the set-up; therefore catch under the same hook twice. You can be guided by keeping the needles and hooks even with each other.

If you have a stitch on every needle and all your needle latches open, you may now commence knitting. If you have missed any of the needles when setting up—see that their latches are open—knit several rounds and you will find that they will take up a stitch.

HOW TO DO RIBBED WORK

Ribbing is just what the name implies—a "rib" on the plain work. To rib—use the dial with ribber needles. They work horizontally between the vertical cylinder needles, making the rib.

TO PLACE THE RIBBING ATTACHMENT IN POSITION

Have the yarn carrier (E) at the back of the machine. Pick up the ribber attachment, holding it by the arch in the ribber arm (J), and place it in the machine. Fig. 1 shows the correct position, with the ribber arm and the ribber arm guide pin (J4) resting in the holes provided in the cam shell (D). The Ribber Arm Height Regulating Screw should rest on the Cam Shell, and the Dial (G) should rest above the cylinder (F) with just space enough between them to allow the knitting to pass between. These parts will fit snug to begin with and may have to be tapped into position, but as you use the machine they will slide in with a nice working fit.

The illustration shows a picture of the dial adjuster in the machine with all obstructing parts removed. The dial adjuster holds the dial stationary in position (just as the cylinder is stationary) by engaging the lug G-1 on the underside of dial. See Fig. 11.

The correct position for dial slots is directly opposite cylinder needles. Move the dial forward with your hand till it presses against the upright. See Fig 11. If the slots are not exactly opposite cylinder needles, adjust the upright forward or backward by means of screw F6. Turn to the left for adjustment backward and to the right for adjustment forward, pressing dial forward at the same time.

When the ribber arm is pressed home the dial should be high enough to allow the web sufficient clearance to pass freely off the needles down between the cylinder and dial. Varying yarns may necessitate alteration in the height of the dial. To raise or lower the dial, turn Ribber Arm Height Regulating Screw (J1) to the right to raise dial, and to the left to lower it.

An alteration in the height of dial may entail adjustment in height of Yarn Carrier (E).

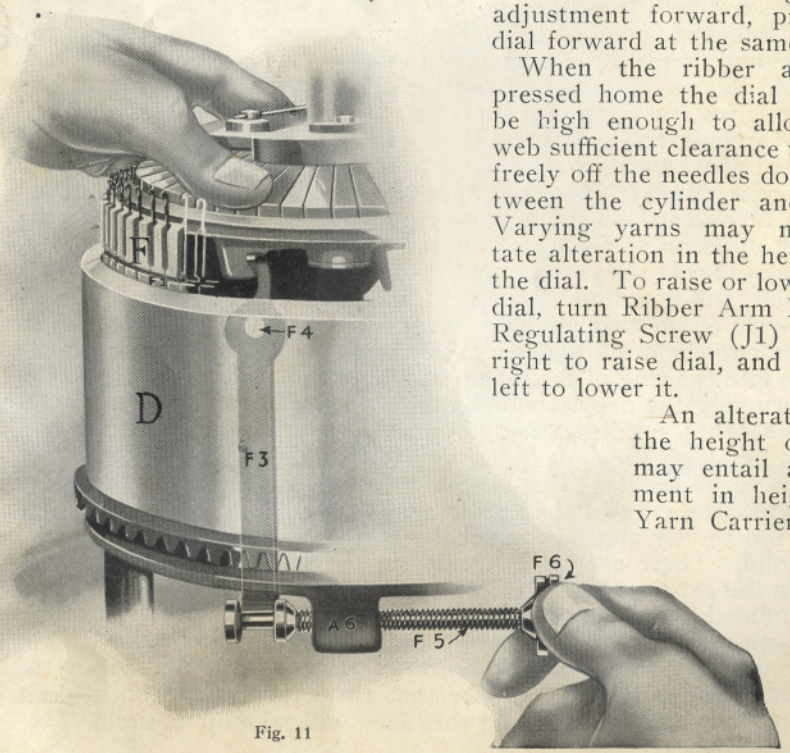


Fig. 11

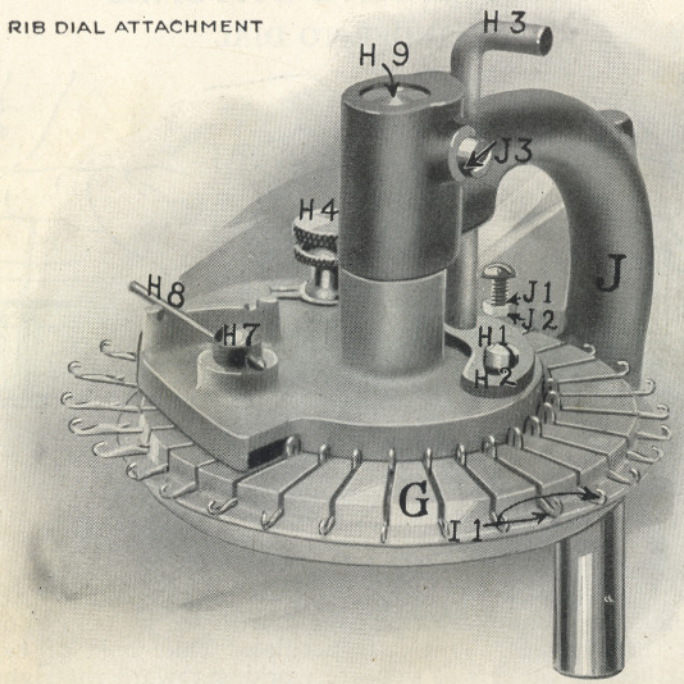


Fig. 12

PUTTING RIBBER NEEDLES IN DIAL

Ribber needles slide into the slots of the dial, heel first, and lie on their back with butt up. They should be pushed in as far as they will go, so that the butt touches the rim of the tappet plate.

The needles can be placed in slots in any part of the dial with the exception of that part which is covered by cams of tappet plate. Slide in the ribber needles commencing at the left hand side and working around toward the right. See that the switch lever H-8 is at the "in" position, to clear the needle path, and that the driving pin H-3 is in place. Have all needle latches open so that needles can take stitches.

A VARIETY OF RIBBED STITCHES

For a 1 and 1 rib, all the ribber needles must be in the dial, but only every alternate needle in the cylinder. The dial must be adjusted so that the ribber needles are opposite the empty cylinder slots. This makes the most suitable cuff for a gentleman's sock.

For a 2 and 1 rib, all the needles must be in both cylinder and dial and the dial must be adjusted so that the ribber needles are exactly central between the cylinder needles.

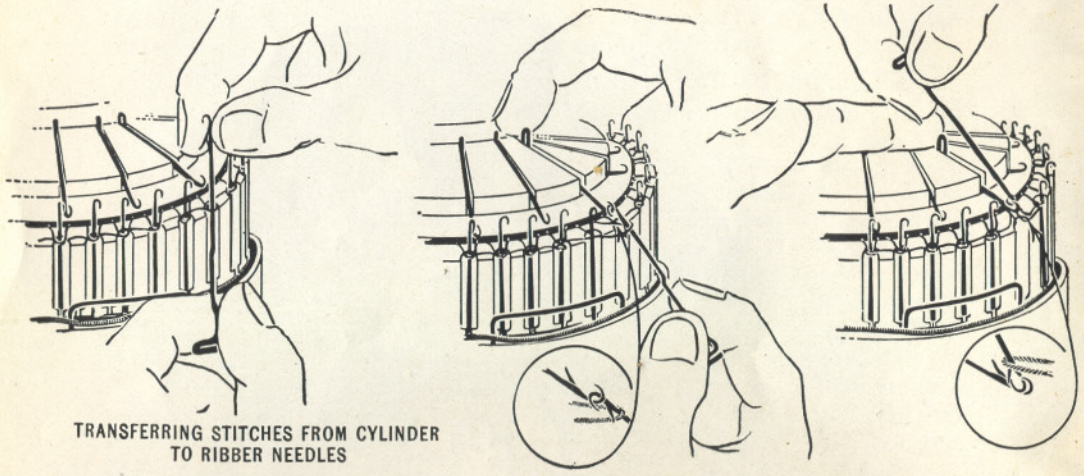
For a 3 and 1 rib, every fourth needle is left out of the cylinder, and every alternate needle out of the dial; adjustment as in 1 and 1 rib. This makes the most suitable leg for a gentleman's sock.

For a 4 and 1 rib, all needles are in the cylinder and every alternate needle in dial; adjustment as for 2 and 1 rib.

Other ribs are formed in a similar manner.

TRANSFERRING STITCHES

CYLINDER TO DIAL



TRANSFERRING STITCHES FROM CYLINDER TO RIBBER NEEDLES

Fig. 13

Have your clasp ring holder, which sets in the cam shell, at front of machine and extend clasp ring over it with work hook. You will find that this releases about four needles. Take hold of cylinder needle farthest to the left as you are working toward the right, and draw it up through its stitch until the stitch is below the latch. Then place the hook of the cylinder needle into the hook of the ribber needle immediately above it which must have its latch open. Slide stitch from the cylinder needle over its closing latch onto the ribber needle with its open latch. Transfer in this manner necessary cylinder needles until you have your machine set for the rib desired.

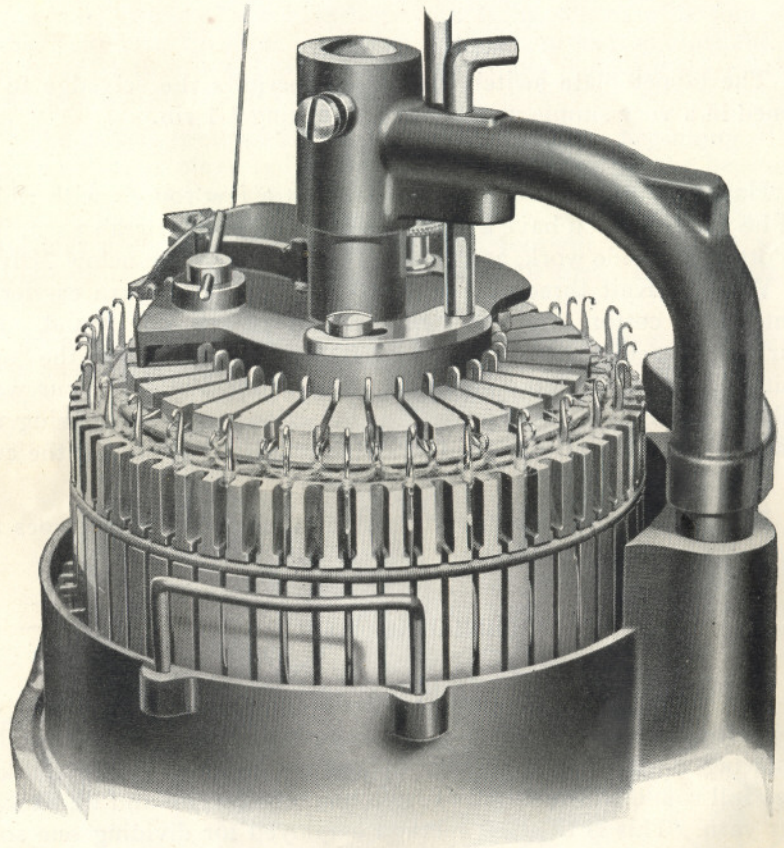
Turn the crank slowly to move the tappet plate forward and clear the way for the remainder of the needles, not forgetting to hold the work down so that the cylinder stitches will continue to knit properly. When you have finished transferring stitches slip clasp ring back.

It will be found that when the ribber is in use it is not necessary to pull the work down as strongly as in plain knitting. In fact, the left hand need do little more than rest on the work, but the pull must be steady, and in a vertical direction. If the pull be to one side, or unsteady or even too strong, it may cause the ribber needles to drop their stitches.

1 AND 1 RIB

If you have a needle in every slot in the dial and a needle in every other slot in the cylinder; that is, one rib needle to one cylinder needle, you are ready to knit 1-1 rib. See that all your needle latches are open and that your yarn is feeding properly, and then proceed to knit. Watch carefully the operation of the dial needles and how they work. You will notice in 1-1 rib that the dial needle works in exact time with the cylinder needle just ahead of it, and that they take their stitches at just the same time. If this is not true, then your ribber needs timing. (page 36).

MACHINE SET FOR 1-1 RIB



THIS ILLUSTRATION SHOWS MACHINE SET FOR 1-1 RIB, READY FOR MAKING CUFF OF STANDARD SOCK.

Fig. 14

Notice that every *other* needle is in cylinder and every needle in dial.

PART III

STANDARD OLDE TYME SOCKS

TO FORM A SELVEDGE FOR RIB WORK

The tappet plate switch cam (H-7) permits the selvedge to be formed in a very simple manner when knitting 1-1 rib.

Have the machine set for 1-1 rib. Knit a few rounds with ribber and be sure that you have a stitch on every needle. Break yarn, join on cotton to divide work, as explained in the paragraph below "Dividing Work". Knit three or four rows of cotton, stop yarn carrier at front, break cotton, join on yarn and knit exactly one round. Put your ribber needles out of action by moving switch (H-8) to the "out" position (see page 7) and then knit three rounds holding your work well down. Put the ribber needles in action again by moving the switch to the "in" position, and proceed to knit 1-1 rib as for the cuff.

In moving switch pin, care must be taken to see that it goes the full distance and rests in either the "in" or "out" groove.

DIVIDING WORK

Having knitted a length of practice work, break the yarn near the bobbin and join on some strong white cotton (crochet cotton, or No. 10 sewing cotton will do.) Take up any slackness as before and knit three full rounds. Break your cotton near the bobbin and tie back on your yarn. This is the best method employed for dividing one sock, etc., from another. The garments are afterward separated by cutting and unravelling the cotton, or they may be cut off one by one as they appear below the cylinder, always leaving a sufficient length of work to attach the weights to. By using this method you need never run your work off the machine and you will save yourself the trouble of setting up new work.

THE CUFF OF A STANDARD SOCK

The Selvedge being finished, knit 1-1 rib 5 inches long for the cuff of the sock.

MEASURING WORK

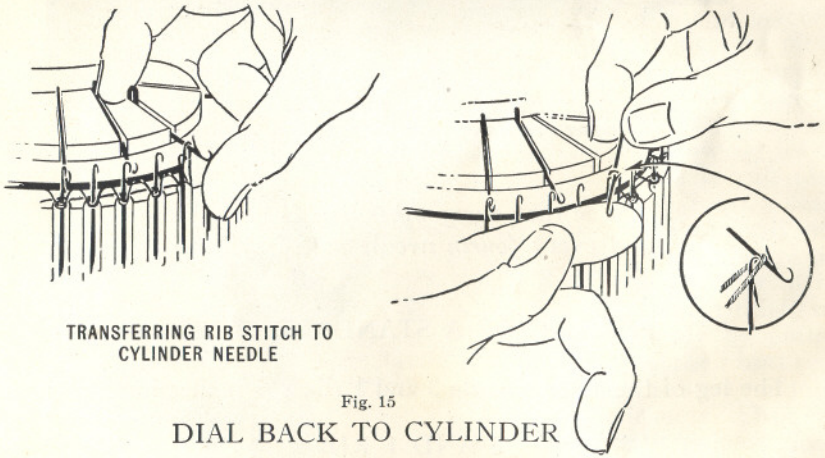
In order that all parts of the sock shall be of the proper length and in the right proportion to each other it is necessary for you to measure the web as it is made. Remember in measuring that the web is naturally stretched somewhat when the weights are on and you must allow for this.

A sure method of measuring work is by means of a foot rule. Hold the rule up inside the cylinder so that it presses against the dial and measure from the dial down. If the ribber is not on the machine measure from the top of the cylinder.

The cuff is measured from the selvedge to the beginning of the leg. The leg is measured from the end of the cuff to the beginning of the heel. The foot is measured from the gore in the heel, along the rib of the foot to the beginning of the toe. See Illustration Page 26. This measurement is 7" and will give a foot measure when toe is knitted of 11" from point of heel to point of toe. The toe is then knitted.

Measurements are sometimes taken by counting the number of rows made, although using the rule is a more certain method. However, if you are using the same weight yarn and the same tension you may find counting rows helpful. Remember though that different weights of yarn and different tensions effect the length of the work.

TRANSFERRING NEEDLES



TRANSFERRING RIB STITCH TO CYLINDER NEEDLE

Fig. 15

DIAL BACK TO CYLINDER

Put in cylinder needle where rib stitch is to be transferred. See page 20. With work hook or just your finger draw out the ribber needle until its stitch is behind the latch. Now hook it into the hook of the cylinder needle below and slide the stitch over the closing latch of ribber needle onto the cylinder needle with open latch. Transfer in this manner as many rib stitches as are desired for next pattern, turning the crank wheel slightly as required to release needles engaged in the cams.