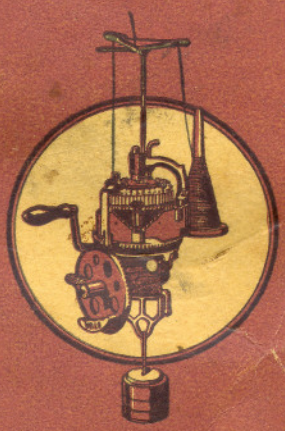
The Auto Knitter Instruction Book



Eighteenth Edition

AUTO KNITTER HOSIERY (Canada) CO., Ltd.
(WEST) TORONTO - CANADA

HOW TO USE THIS BOOK

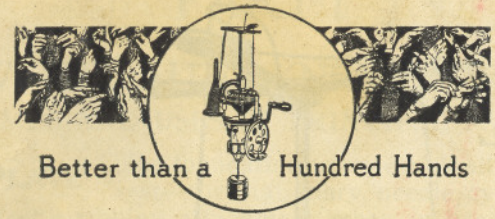
This instruction book has been written for the person who has never seen a knitting machine, knows nothing about knitting of any kind and understands very little about mechanical things. By photographs and drawings everything is made so clear that almost anyone with a little study and application should readily learn to operate the Auto Knitter.

It is absolutely necessary to know the principal parts of the machine and understand how they work in order to use it intelligently. The index of this book makes it easy to instantly refer to any part of the machine or its operation.

Learn first the names of the principal parts, their functions; study carefully the needle action and get thoroughly acquainted with the machine. This should enable you to become a good operator in a very short time.

☞ ***To Save Possible Delay*** ☜

Be sure and
Quote Your Work Number
in all letters to us.



HOW TO UNPACK THE MACHINE

The machine should be unpacked with care so as not to damage any parts, particularly the needles or to disturb the work which is on the machine.

Place the box on a table or bench and remove the lid. Take out the packing material, the weights, and other loose parts and lay them to one side. It will then be seen that the machine is clamped to a wooden cross piece to prevent it moving in transit. Undo the clamp screws, take the machine out and fasten it at once by means of these clamp screws to a bench or table. Carefully clean off all grease, paper, etc., which were used to keep parts from damage and rusting while in transit.

Do not try to operate the Auto Knitter until you are thoroughly familiar with the functions of its parts as described on pages 2 to 7. Beginning with page 8, you will find instructions "How to Make Socks On The Auto Knitter", but until you reach these pages simply study.

DO NOT MAKE ANY ADJUSTMENTS UNTIL YOU HAVE BECOME FAMILIAR WITH THE MACHINE AND ITS PARTS.

Auto Knitter Hosiery (Canada) Co., Ltd.
Toronto, Canada

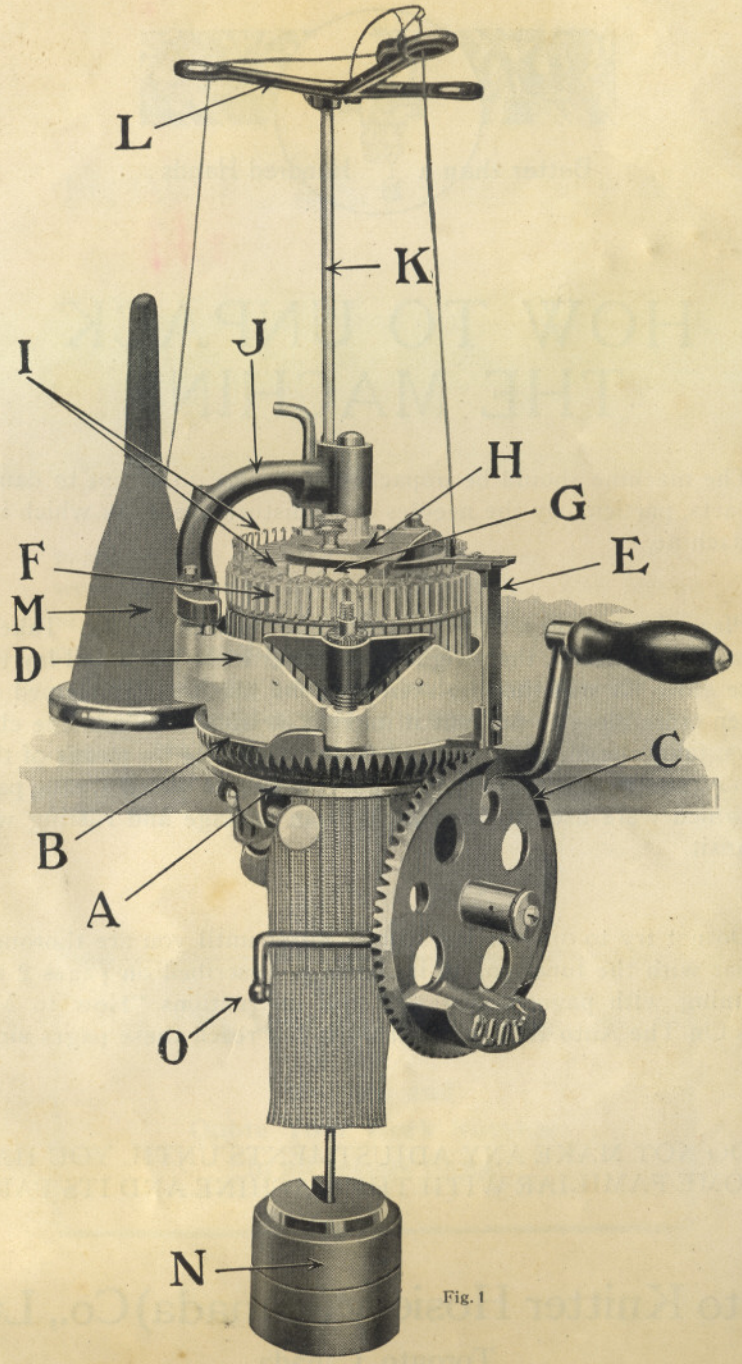


Fig. 1

From time to time mechanical improvements are made which are not necessarily illustrated.

PART I

HOW THE AUTO KNITTER WORKS

NAMES AND USES OF PRINCIPAL PARTS

A BED PLATE The foundation upon which all the other parts rest—the stationary needle cylinder, the cam shell (with ribbing attachment when in use), and the yarn stand. It is secured to the bench or table by thumb screws.

B & C GEAR RING AND CRANK WHEEL The crank wheel attached to the bed plate operates the gear ring which in turn operates all the other parts.

D CAM SHELL The outside shell of the machine containing the needle paths and cams which operate the long needles. It rests on the gear ring which moves it around the needle cylinder.

E YARN CARRIER An upright attached to the gear ring which supplies yarn to the needles as it travels around the cylinder with the cam shell.

F NEEDLE CYLINDER A hollow cylinder, slotted outside to hold the long needles. This cylinder does not move but is stationary.

G RIBBER NEEDLE DIAL A flat disc, slotted on its upper side to hold the short needles which make the ribbing or "purling".

H TAPPET PLATE A plate which rests on the ribber dial and contains the cams governing the action of the ribber needles.

I NEEDLES Steel wires provided with a hook and latch on one end and a projection called the "butt" or "heel" on the other end. When the butt or heel moves the needle out and in by the guidance of a pathway the hook catches the yarn while the latch automatically closes over the hook. This permits the new stitch to be pulled through the last one and the needle to move out again for another stitch. There are two sets of needles—long for use in the cylinder and short for the ribber dial.

J RIBBER ARM A detachable support for the ribber dial and tappet plate. It suspends these parts over the stationary needle cylinder.

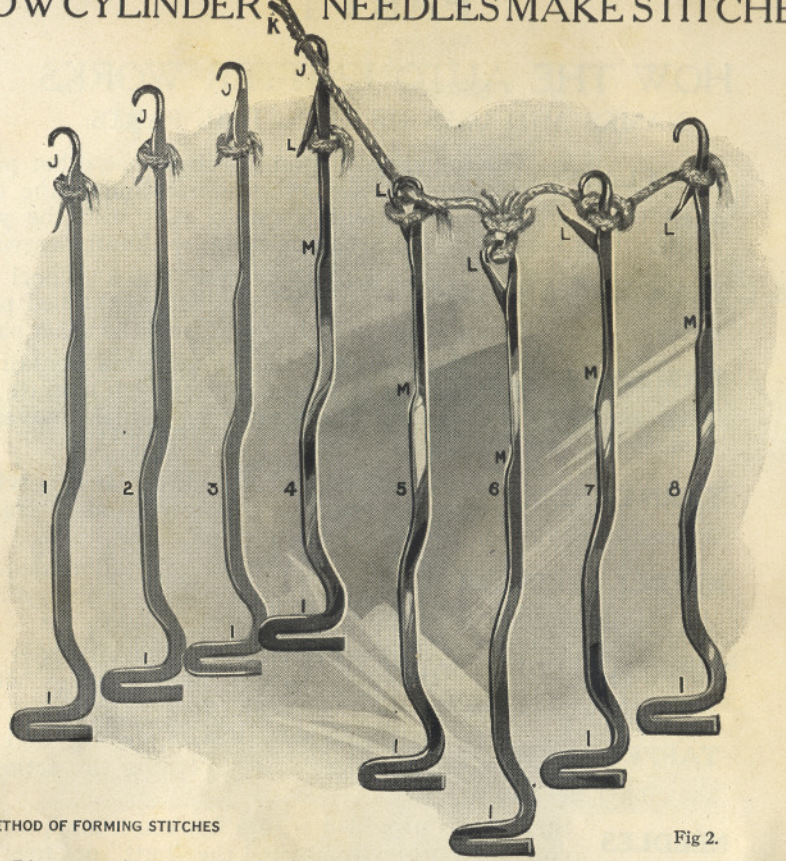
K & L YARN STAND A long rod with several arms containing eyes by means of which the yarn is unwound from the bobbin and fed into the yarn carrier.

M BOBBIN is the wooden spindle to which the yarn is transferred from the skein or hank.

N WEIGHTS with holders to be attached to "set up" or buckle for holding work down close to top of needle cylinder.

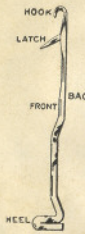
O BUCKLE is the clamp which clasps the work and the weights are attached to it.

HOW CYLINDER NEEDLES MAKE STITCHES



METHOD OF FORMING STITCHES

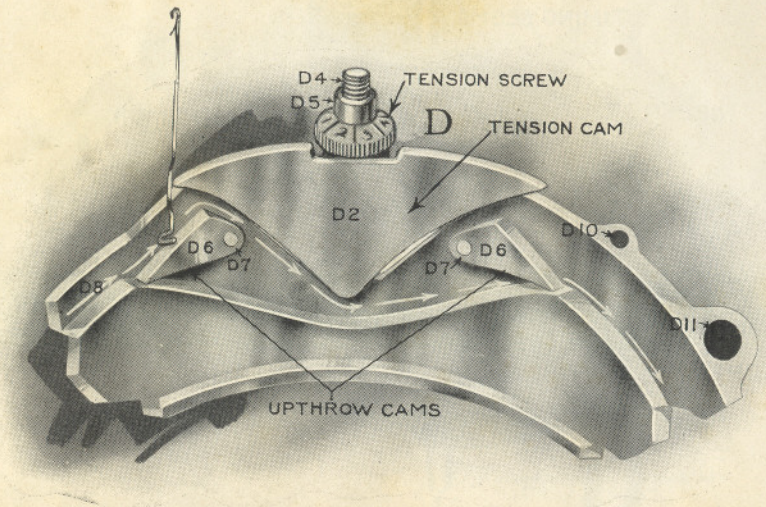
Fig 2.



If you will examine a piece of knitted wear closely, you will see that it is only a succession of slip knots. You can cut it anywhere and it will unravel into a single piece of yarn. That is all there is to plain knitting—making slip knots. This is the principal operation of the Knitting Machine.

For this purpose each needle in the machine is made with a hook and latch. Follow the illustration which shows progressively each step of the needle in making a stitch. When the hook catches the yarn the latch is automatically closed over the hook by the previous stitch pushing the latch up. The position of the needle in 1 to 5 illustrates this. Positions 6 to 8 show how the latch permits the new stitch to be pulled through the previous one and how the needle in rising forces the yarn to push down the latch and permits the stitch to slide out of the hook. One slip knot or stitch is now completed and the needle is ready for the next stitch. Thus the stitches are made by the raising and lowering of the self-acting needles. One row of stitches is made at every revolution of the cam shell around the needle cylinder. Although there are many needles in the cylinder, only one needle makes a stitch at a time. Two or three needles ahead of it always have stitches in process of completion but only one needle at a time actually finishes a stitch. Needles work as rapidly as the machine is turned.

HOW THE CAM SHELL OPERATES THE CYLINDER NEEDLES



INSIDE VIEW OF SECTION OF SHELL SHOWING CAMS AND NEEDLE PATH

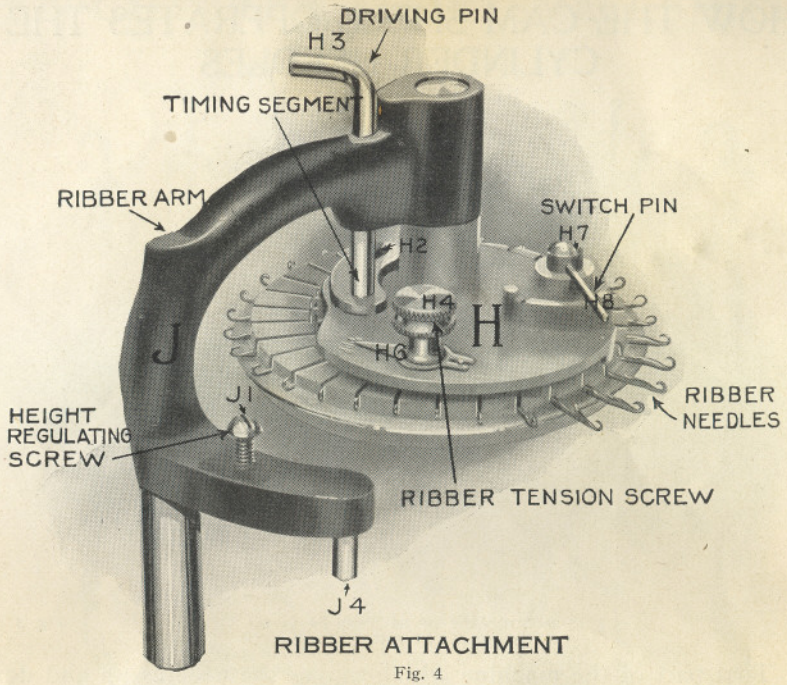
Fig. 3

That part of the machine which moves the needles up and down in their slots in the cylinder is called the cam shell because it is a shell containing the cams or needle paths. You will notice in Figure 2 that there is a projection on the lower end of the needle called the "heel" or "butt." Just as there must be a flange in trolley wheels to fit the tracks so the needle has to have this butt in order to travel in the needle path or track.

Only that part of the cam shell path (D) which raises and lowers the needles is shown in the illustration, Figure 3. The three cams which take care of raising and lowering the needles (one D 2 and two D 6 make a sort of hill and valley path for the needles. The illustration shows a needle travelling uphill on the first D6 cam. When it reaches the top, cam D2 will send it downhill and it then rises on a gentle slope up-in-under the second D6 cam, after which it travels all the way around the cam shell before again entering the cams. Both D6 cams swing on pivots so that when operating the cam shell in the opposite direction the opposite cam will do the raising of the needles. Tension cam D2 is movable up and down to regulate the length of stitch or knitting tension. The lower this cam is, the longer the stitch, while the higher it is the shorter the stitch because the cam's position determines to what depth the needles shall travel.

The cam shell travelling around the needle cylinder makes what is called a "needle wave." That is, the rising and falling of the needles as the cams engage them one after another all around the cylinder resembles a wave.

The ribber arm which supports the ribbing attachment sets in a socket in the cam shell. It revolves with the cam shell thus operating at once both the cylinder and ribber needles.



RIBBER ATTACHMENT

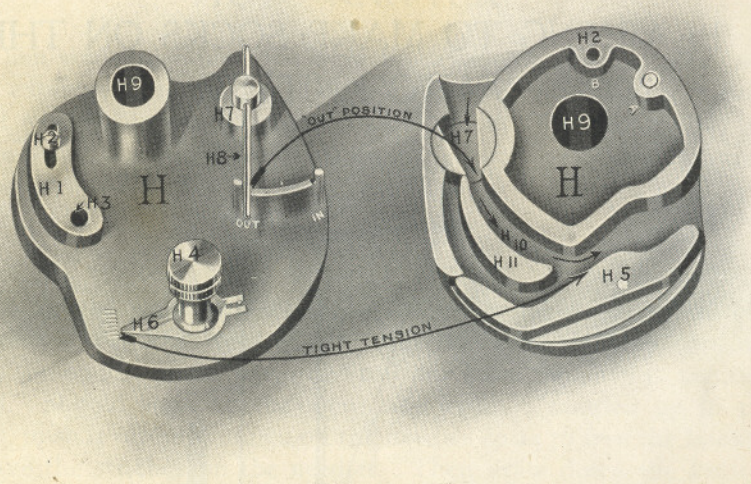
Fig. 4

HOW THE RIBBER WORKS

The ribbing attachment—ribber arm, tappet plate and dial—perform the same work horizontally that the cylinder and cam shell do vertically. They work in unison in order to produce the ribbing or "purling" which forms the top of the sock. That is why the ribbing attachment is made to set in the cam shell so that when it turns it operates both sets of needles at the same time.

The ribber arm "J," from which are suspended the tappet plate and dial, is adjustable to different heights by set screw "J-1." This is one of several adjustments which enables the ribbing needles to work in harmony with the cylinder needles.

The tappet plate "H" (Figure 5) corresponds to the cam shell. Its needle paths are flat instead of circular as in the cam shell. But they give the same "hill and valley" movement to the ribber needles as the cam shell gives to the cylinder needles. It is likewise fitted with a tension cam "H-5" regulating the distance out to which the needles shall go. A switch cam "H-7" throws the needles in or out of action. Another adjustment called the timing segment (H-1) enables you to regulate the exact time at which the needles shoot out to take the stitch so that they operate simultaneously with the cylinder needles. The pin "H-3" causes the tappet plate to revolve with the ribber arm over the dial containing the needles.



TAPPET PLATE—UNDERNEATH

TAPPET PLATE—TOP VIEW

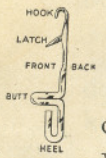


Fig. 5

If you will look again at Figure 4 you will see that, just as in the cam shell, only a part of the needles, those at the front, are active, while those to the right and left are not engaged in the cams and are idle. Study the two views of the tappet plate well until you are sure you understand how these cams guide the ribber needles in and out and how the tension and switch cams work. This is very important and will make its operation easier for you.

The ribber dial "G" is a flat disc with slots radiating from the center. They hold the needles and are just half the number of those in the cylinder. This is because purling requires that the ribber needles operate between the cylinder needles. A projection on the under side of the dial fits against a dial adjuster and holds the dial immovable just as the cylinder is stationary.

The ribber needle is practically the same as the cylinder needle, but shorter. There is the same hook, latch and butt and they are also self-acting. The butt of the ribber needle moves in the needle path or cams of the tappet plate exactly as the cylinder needles move in the cam shell path.

* * * *

The ribber needles make their stitches in the same manner but work horizontally in and out instead of vertically up and down.