

Knitting Department

THE MANUFACTURE OF KNIT GOODS.

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In the manufacture of fashioned hosiery the fashioning is always effected by narrowing, as the hose is begun at the top of the leg for the legging, and at the wide part of the foot on the footing frame. The actual narrowing course is timed by one of a system of ratchet-wheels and pawls, by means of which the fashioning is repeated after a given number of courses in accordance with the shape desired. The camshaft is moved endways so that a second set of cams control the movements of the needle bar and catch bar, and other cams are brought into action to give the movements to the narrowing mechanism and to rack the screw-boxes. The actual reduction of the width of the fabric is obtained through the agency of the points P, which number six on each selvage. These points have cranked stems, and are carried in tricks in narrowing fingers B, Fig. 11, at 1.

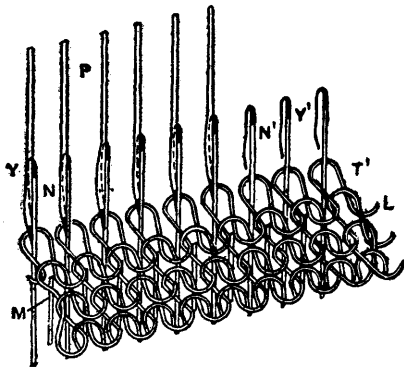


FIG. 12.

All the narrowing fingers for the one selvage are carried on the rod A, and all the fingers for the other selvage on a higher rod not shown. Both rods are moved inwards at the prescribed time usually two needle spaces, but sometimes one, by means of the racking screw-boxes, which also shorten the draw of the carrier rod 28 to a like degree.

The operations are as follows: (1) Removing the six selvage loops on both edges of each division; (2) inward racking of the points whilst the loops are off the needles; (3) delivery of the released loops back to the needles.

The method of removing the selvage loops is shown in Fig. 12. The main camshaft, having been moved endways, presents the fashioning cams to their operating levers, and the point fingers are lowered to the level of the needles.

The needles N are moved towards the points P, so that the beards Y become embedded in the large grooves or eyes in the points, whilst the tips of the points are similarly embedded in the eyes of the needles. At this juncture the needles and points descend as a whole, so that the loops pass first on to the cover of the point, and finally, when the needles descend beyond the level of the knocking-over bits M, on to the stems of the points, clear of the needles. The needles and points are then raised until the points are above the knocking-over bits M the needles being brought laterally away from the points.

The racking of the screw-boxes now takes place, and the points are moved inwards a distance of two needle spaces, so that the released loops are in position for retransferrence. The needles again move towards the points, and the cover is once more effected, while both parts are between the knock-

ing-over bits M. The position is then as shown in Fig. 13. The sinkers and dividers are brought forward to hold down the loops, and the points and needles make a co-ordinated upward movement, so that the loops, retained by the sinkers, pass back on to the needles. Finally, the points rise rapidly away from the still rising needles, the camshaft is moved back so that the knitting-course cams are presented, and the knitting is resumed on the reduced width.

OPERATION OF LEGGING FRAME.

The operator of a hose-legging frame has several hand manipulations to make during the knitting of a set of legs. To commence, the indicators must be set at the correct numbers to ensure knitting on the right width. As the numbers denote the number of leads narrowed, it is evident that 0 represents the maximum width on each side, so that if a frame will knit on a width of 120 leads, and the required size is 110 leads then the screw-boxes must be racked inwards to 5 on each side. Hence the position of indicators for central knitting should be: Total leads—leads in width of leg \div 2.

Having adjusted the width, the operator depresses the slack course lever with his foot and puts in the welt bars, catches the sinker loops of this course, hooks the drawing-off bands on to the welt bars, and attaches the weight. Two inches or more are knitted and the frame is stopped, needle bars brought out one notch, welt rods put in, welts turned over, weight attached, and welt bar removed. Knitting is

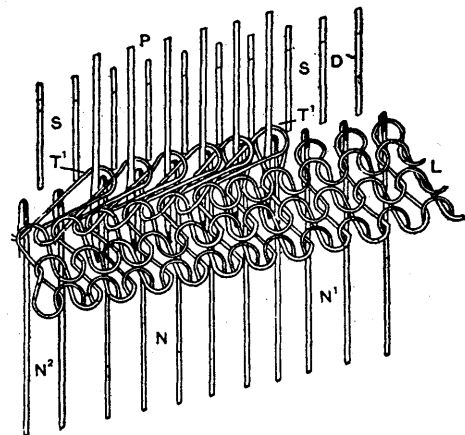


FIG. 13.

recommended, and continued straight for the leg portion of the hose to the length desired.

At this juncture the operator puts the screw-box clawers and the timing-wheel pawl into action, so that the narrowing for the calf occurs at the correct intervals. As the narrowing continues, the operator must again observe the position of the indicators on the screw-boxes, so as to throw out the timing wheel pawl when the correct number of narrowings have been put in.

Straight knitting is continued for the ankle, splicing carriers put in for high-splicing the heel parts, and lengths measured at intervals, so that the frame can be stopped for the purpose of introducing the divisional carrier guides for the heel and instep parts. To do this the operator unlocks the heeling carriers, puts on the friction, readjusts the stops on the screw-boxes, so that the heeling carrier rods are dependent upon the racking of the screw-boxes on the outer selvages, lifts up the central stops for limiting the draw of

the legging carrier rod, and the knitting is now continued in three separate selvaged portions.

Just before the finish of the divisional knitting the operator throws in the timing-wheel pawl and shapes the heel parts by putting in a few narrowings, makes a slack course for linking, and presses off the heel parts, changes all stops and rods back to their old positions, and racks in the screw-boxes, so that the knitting, although continued on the same width in the one division, can be narrowed. Straight fabric is made for the foot or instep portion, narrowings put in for the toe, slack course for linking, and the blank is pressed off, and the whole of the operations repeated for the next set.

THE FOOTING FRAME.

The legging blanks are linked at the heel parts, which operation will be described later, and the inner parts of the heel sections put on to transferring points, so that the footing frame may receive the work quickly by a simple transferring movement from points to the needles, instead of the machine being idle while the selvage loops are put direct onto the needles. The operator transfers the blank to the needles puts in action the timing-pawl and racking clawker for the gusset narrowings, throws out the pawl for the straight knitting, introduces the correct pawl for toe narrowings, and finally makes a slack course and presses off. Assistants are required for keeping the frame supplied with the legging blanks, as the operator is unable to cope with the putting on of the selvage heel loops in the short time that the machine is making the foot.—*Textile Manufacturer, Manchester, Eng.*)

This take-up attachment may conveniently be made of wire as shown and comprises a standard secured by a screw or otherwise to a plate, and affording a horizontal pivot for a coiled wire lever. This lever has at one end a thread-guiding arm, and at the other end an arm which is adapted to be acted on by a bent wire finger. When this finger is raised the thread guiding arm will be raised to take up the slack of the thread.

When a knitting operation is terminated as by the completion of a half-hose, the yarn guide F is lifted away from the needles by its thrust bar, the yarn is severed by the cutter and the end is clamped automatically under the clamp. When at the beginning of the next knitting on this machine, as in the case where a ribbed cuff has been transferred to the needles, and the latch ring with its parts is lowered to its normal horizontal position, and the yarn guide F is dropped to the yarn-feeding position shown in Fig. 4, there will be more or less slack in the yarn. That slack is liable to be such that the yarn will curl over the needle tops as indicated in Fig. 4 and consequently the needles will fail to take the yarn. By providing the take-up devices and actuating them at the moment when the appropriate needles are to take the yarn for the new knitting operation, the yarn X is drawn into the path of the needles, which then proceed with the knitting.