July 24, 1956 W. M. GOLASKI 2,755,646

NARROWING ATTACHMENT FOR FLAT KNITTING MACHINE

Filed Aug. 30, 1954

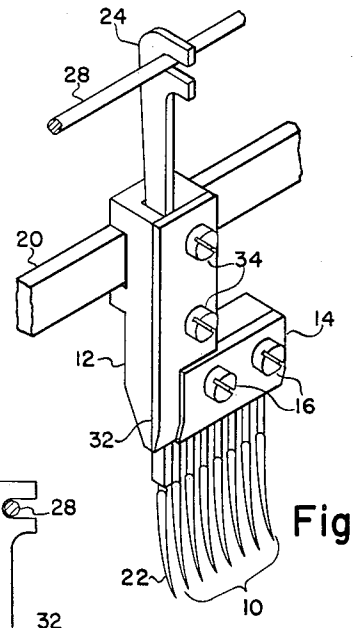


Fig. 1

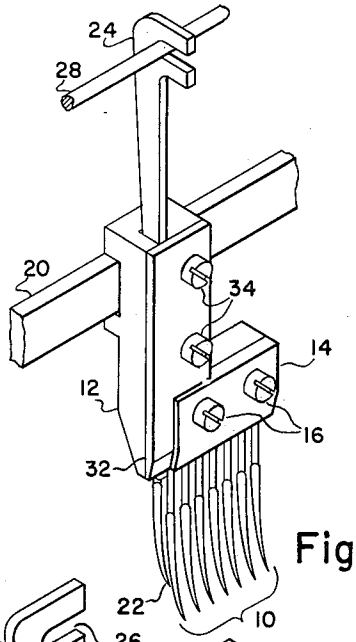


Fig. 2

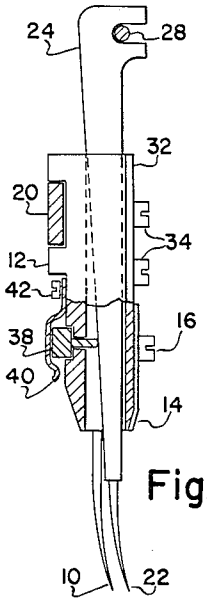
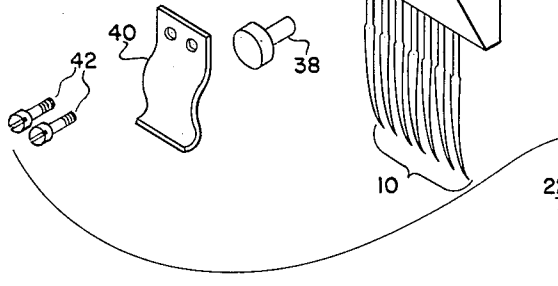
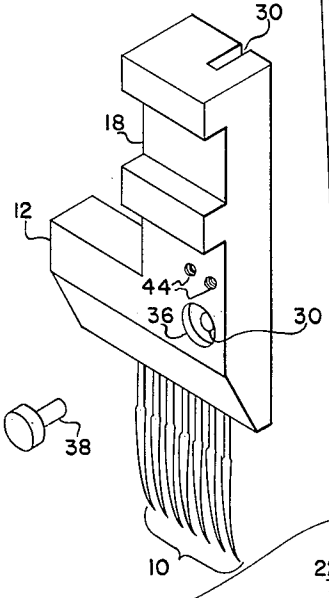


Fig. 4





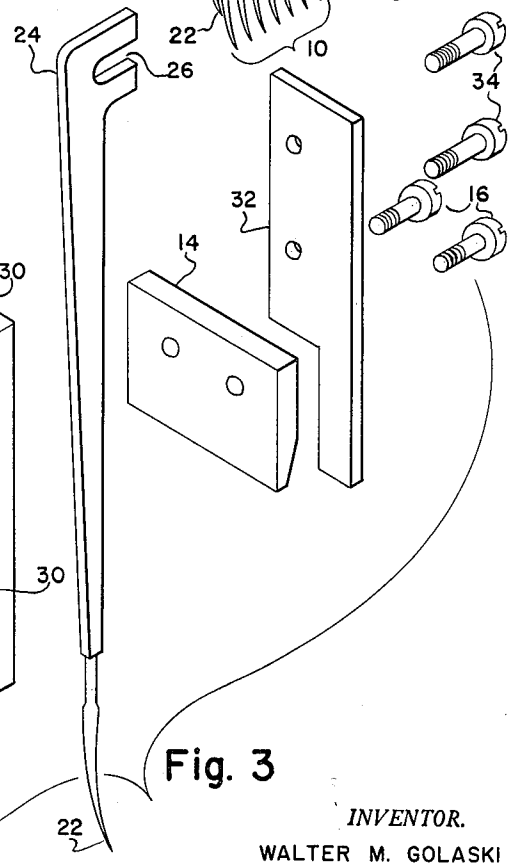


Fig. 3

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NARROWING ATTACHMENT FOR FLAT KNITTING MACHINE

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1 Claim. (Cl. 66—89)

In the knitting of stockings, sweaters and other articles, it is sometimes necessary to narrow the fabric and it is sometimes necessary to widen the fabric. Narrowing the fabric is effected by dropping one or more needles and presents no problem. But, since widening the fabric is effected by transferring stitches outwardly, the needles from which stitches are transferred are left bare. A succession of such needles produces a diagonal line of holes in the body of the fabric which is referred to as a gore.

The gore thus produced is frequently objectionable because of aesthetic considerations or because it weakens the fabric.

In order to eliminate the gores, it has been proposed to take stitches from a previously completed course and to stretch and hang them on the needles which are left bare by the outward transfer of stitches in a subsequent course. The stitches thus spread cover the holes which would otherwise appear in the body of the fabric.

An example of the manner in which this spreading and transferring of the stitch can be carried out is disclosed in Patent No. 2,330,681 issued to A. J. Cobert, on September 28, 1943. According to the disclosure of the Cobert patent, each narrowing finger is provided with the usual main transfer points and with an auxiliary transfer point which is independently movable downwardly, and then laterally of the plane of the main transfer points so that, when the narrowing fingers dip the main transfer points into the fabric to pick up the stitches to be transferred outwardly in any given course, the auxiliary transfer point can be lowered and can be simultaneously pushed out of the line of the main transfer points so as to engage a stitch in a previously completed course. The subsequent upward and lateral movement of the narrowing fingers which serves to transfer the stitches also stretches the stitch picked up from the previous course by the auxiliary transfer point and hangs it on the needle left bare by the outward transfer of the stitch carried by said needle.

The object of this invention is to produce improved means for mounting and operating the auxiliary transfer point referred to.

The nature of the invention will be understood from the following specification and the accompanying drawing in which

Fig. 1 is a perspective view of a narrowing finger provided with an auxiliary transfer point, the same being shown in its lowermost, or effective position.

Fig. 2 is similar to Fig. 1 but shows the transfer point in its raised, or ineffective position.

Fig. 3 is an exploded view showing details of construction.

Fig. 4 is a view partly in section and partly in elevation showing details of construction.

Since the manner in which the auxiliary transfer point is used, and, since the necessary conventional parts of a flat knitting machine are shown and described in the above mentioned Cobert patent, it is not necessary in the present

application to show or describe these parts. Therefore the structure and assembly of only one of the narrowing fingers provided with an auxiliary transfer point according to my invention will be described.

As will be seen from the drawings, a conventional narrowing finger includes a number of main, or conventional transfer points **10** the upper ends of which are clamped between opposite plates **12** and **14** which are secured together by screws or the like **16**. The plate **12** is provided with a horizontal recess **18** for engaging a bar **20** which is moved up and down by a cam, not shown. When the bar **20** is lowered, the main transfer points **10** engage stitches in the course being currently knit and, when the bar **20** is moved up, the stitches engaged by the points **10** are lifted above the fabric. Subsequent movement of the narrowing finger laterally outwardly brings the points **10** into registration with the needles on to which the raised stitches are to be transferrd. This is the conventional widening operation and it need not be described in greater detail.

In order to provide for picking up a stitch from a previously completed course and for stretching it and placing it on the needle in a subsequent course which was left bare by the outward transfer of a stitch therefrom, I provide each narrowing finger with an auxiliary transfer point **22** which is provided with an elongated shank **24** the upper end of which is provided with a recess **26** adapted to engage a bar **28** which is also moved up and down by a cam, not shown. The shank **24** of the auxiliary transfer point **22** is adapted to slide freely in slot **30** in plate **12**. The depth and width of slot **30** are greater than the width and thickness of the shank **24** of the auxiliary transfer point. The plate **32** is secured to the back wall of plate **12** by screws **34**.

The front wall of plate **12** is provided with an opening **36** which leads to slot **30** and in which is loosely placed a plug **38**. A flat spring **40** is secured to plate **12** by screws **42** which engage tapped holes **44**. The function of light spring **40** is to press against plug **38** so as to force the reduced end of the plug into slot **30** and against the shank **24** of the auxiliary transfer point. This results in continuously, yieldably biasing the auxiliary transfer point out of the plane of the main points, or to the offset position shown in Fig. 4. With auxiliary transfer point **22** thus constantly pushed rearwardly the width of one course, or the length of one stitch, it follows that when the narrowing finger is lowered, the main narrowing points **10** will engage the stitches to be transferred laterally outwardly and auxiliary transfer point **22** will engage a stitch in the previously completed course.

When the narrowing finger is raised above the fabric, the knitting needles are moved forwardly into contact with the lower portions of the narrowing points and then upwardly so as to pick up the stitches from the narrowing points. This conventional forward movement of the needles into abutment with the narrowing point is depended upon to push the auxiliary transfer point which is carrying a stitch from the previous course back into line with the fixed narrowing points so that the stitch from the previously completed course will be in alignment with the stitches being transferred in the subsequent course. Upon disengagement of the knitting needles from the points carried by the narrowing finger, the auxiliary transfer point will automatically be pushed rearwardly preparatory to a repetition of the operation.

What I claim is:

A narrowing finger for use in connection with a flat knitting machine of the type which includes a first vertically reciprocable bar, and a second vertically reciprocable bar, said narrowing finger including a front plate and a back plate, pendent main transfer points clamped between said plates, there being a recess in said front plate

for engaging said first bar whereby said narrowing finger is raised from or lowered toward, and is moved laterally with respect to the fabric being knit, an auxiliary transfer point, a shank extending upwardly from the upper end of said auxiliary point, there being a vertical slot formed in the front plate of said narrowing finger, said slot being of a greater width and depth than the width and thickness of said shank, whereby said shank is freely movable, vertically and laterally in said slot, means at the upper end of said shank for engaging said second bar whereby said auxiliary transfer point may be raised and lowered concomitantly with the raising and lowering of the main

transfer points, there being an opening formed in the front plate of said finger leading to said slot, a plug loosely fitting in said opening and projecting into said slot, and a spring mounted on said front plate and bearing on said plug for normally biassing said auxiliary point out of the line of said main points.

References Cited in the file of this patent

UNITED STATES PATENTS

2,330,681 Cobert ---------- Sept. 28, 1943