May 13, 1941. M. RICHTER ET AL 2,242,143

FLAT KNITTING FRAME

Filed Nov. 12, 1937

Fig. 1.

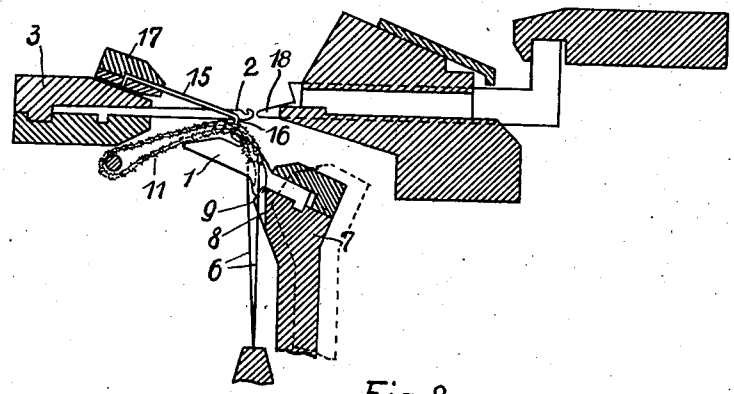


Fig. 2.

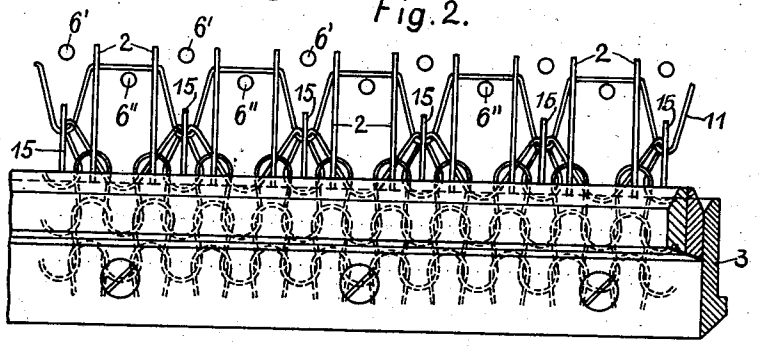


Fig. 3

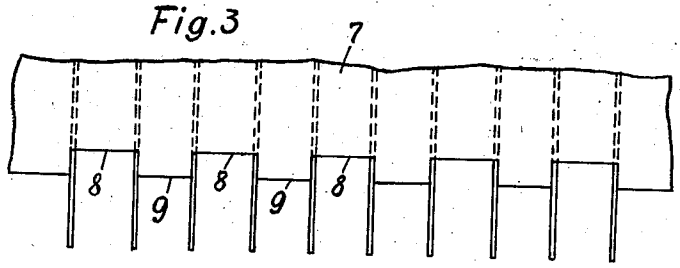
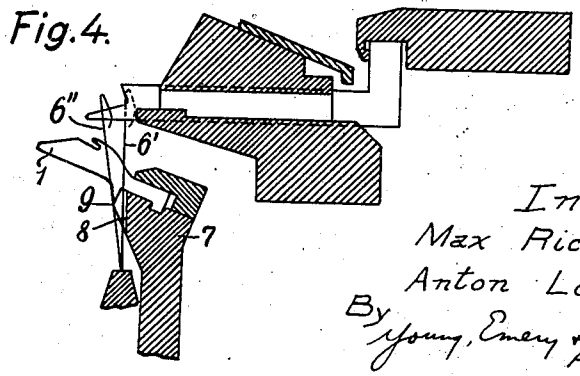


Fig. 4.



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FLAT KNITTING FRAME

Max Richter and Anton Loimann, Chemnitz, Germany

Application November 12, 1937, Serial No. 174,227
In Germany November 16, 1936

4 Claims. (Cl. 66—96)

This invention relates to a flat knitting frame provided with a device for retransferring to the frame needles a selvage previously taken off from them.

A device of this type is particularly important in the production of a double top for stockings. When the first course of a stocking has been knit, it is taken off from the frame needles by catching or holding jacks, whereupon additional courses are worked onto the initial course held by these jacks, which is finally retransferred to the frame needles after the fabric has acquired the necessary length to form a double top. This operation easily produced defects in the goods owing to the failure of the ascending frame needles properly to pierce the initial loops which through the elasticity of the fabric are drawn toward the center thereof and thus extend obliquely to and away from the catching jacks.

To overcome the difficulties created thereby in retransferring to the frame needles a selvage previously taken off from them the invention provides special means on a flat knitting frame for insuring correct piercing of the initial loops by the frame needles. This can be attained for instance by causing those frame needles that are to pierce certain meshes of the initial fabric portion during retransfer of the latter to be moved out of the row of the other frame needles and thereby to be positioned at a greater distance from the presser bar than the others. To obtain the same effect it is further possible uniformly to adjust the initial courses of the double top held by the catching jacks by means of a special bar the needles of which are bent at their front end to facilitate proper engagement of the initial loops of the fabric by the frame needles.

By way of example, one form of the invention is illustrated in the accompanying drawing, in which Figure 1 is a side view of the means for retransferring the initial fabric portion to the frame needles; Fig. 2, a plan showing the adjustment of the frame needles according to the invention; Fig. 3, a plan of the knocking over comb; and Fig. 4 shows the use of the knocking over comb shown in Figs. 1 and 3 for relieving the frame needles after the first thread of a piece of goods has been sunk.

Referring to the drawing, the initial loops of the fabric 11 during the production thereof are held by the hooks of the catching jacks 2 secured to the member 3. If the frame needles 6 continue as hitherto to form a straight line during retransfer of the initial fabric portion, their heads will not always enter the initial loops of the fabric in the desired manner. It can be observed that trouble easily arises particularly at the side parts of each section, since the tension of the fabric causes the initial loops to be drawn toward the center thereof.

In order to avoid defects in the fabric produced thereby the frame needles 6, according to the invention, are arranged in two rows, as shown in Fig. 2, in such manner that the needles 6' which during retransfer of the initial fabric portion do not have to take up any loops of the latter are nearer to the presser bar 18 than the needles 6'' to which the initial loops are to be retransferred. This different adjustment can be simply effected by forcing the needles 6' out of the row of the other needles 6'', for instance by employing special pressure jacks of known type which below the knocking over sinkers 1 are pressed against the front side of the frame needles 6'. The same end can be attained, however, in a still simpler manner by constructing the front edge of the knocking over bar 7 like a comb, as indicated in Fig. 3, so that in every other space 8 between the sinkers 1 the front edge stands back farther than in the intermediate spaces 9. If prior to the ascent of the frame needles 6', 6'' a knocking over bar of this kind is brought into the position relative to the needles as shown in Fig. 1, i. e. moved a short distance away from the facing bar, the needles 6' which have not to take up any initial loops will remain in their original position whilst the intermediate needles 6'' will be forced in forward direction out of the row of the other needles and will therefore be capable of taking up the initial loops of the double top 11 in proper manner, as shown in Fig. 2.

The knocking over bar 7 described can be used not only during retransfer of the initial fabric portion from the catching jacks to the frame needles but also in the production of the first course of loops for adjusting the frame needles when the initial loop has to be knocked over from every other frame needle. As Fig. 4 shows, only the needles 6' are pressed while the needles 6'' are not subjected to the influence of the presser bar. In this way the knocking over bar described can be employed wherever, for any reasons, certain frame needles are to be freed from the meshes arranged thereon, as the projections and comblike notches in the bar can be distributed as required.

To facilitate the correct engagement of the initial loops of the retransferred fabric edge by the frame needles an auxiliary bar is preferably employed which comprises a plurality of needles 15

having their front ends 16 bent down and their rear ends secured to the bar 17 wherein only half as many needles 15 are provided as catching jacks 2 or frame needles 6, since the needles 15 have to do only with the initial loops in every other space between the catching jacks 2.

When the initial loops of a fabric portion have to be retransferred to the frame needles 6, the downwardly bent front edges 16 of the needles 15 are pressed into the initial loops, held by the catching jacks 2, of the fabric portion to be retransferred, whereupon the bar 17 in the manner indicated in Fig. 1 is placed against the bar 3 which holds the catching jacks 2. To permit adjustment of the bar 17 relative to the bar 3 suitable means, such as projecting pins on the top side of the bar 3 and corresponding perforations of the bar 17, may be provided. It would further be possible to provide instead guides on the bar 3 for the bar 17 and a spring pull by which the bar 17 is drawn back and the loops 11 are tensioned without any risk. The front ends of the needles 15 may also be hooked instead of being bent off downwardly, in which case the curvature should not be too small to insure reliable catching and holding of the loops to be tensioned.

We claim:

1. A flat knitting frame comprising frame needles, catching jacks for retransferring to the frame needles the initial loops of a selvage previously taken off therefrom by the catching jacks, a presser bar, and means situated within range of each second frame needle for compensating the lateral stress of the loops and for ensuring proper piercing of the initial loops by the frame needles to compensate for the oblique pull of the initial loops upon tensioning of the fabric, said frame needles, intended to pierce during retransfer of the initial fabric portion certain loops of the latter, being positioned so as to be farther away from the presser bar than the other frame needles.

2. A flat knitting frame comprising frame needles, catching jacks for retransferring to the frame needles the initial loops of a selvage previously taken off therefrom by the catching jacks, jack sinkers, a knocking over bar, and means situated within range of each second frame needle for compensating the lateral stress of the loops and for ensuring proper piercing of the initial loops by the frame needles to compensate for the oblique pull of the initial loops upon tensioning of the fabric, the different positioning of the frame needles being effected by means of the knocking over bar disposed on the side of the hooks of the frame needles and the front edge of said knocking over bar having notches which for this purpose is moved away a certain distance from the sinker bar.

3. A flat knitting frame comprising frame needles, catching jacks for retransferring to the frame needles the initial loops of a selvage previously taken off therefrom by the catching jacks, a knocking-over comb, and means situated within range of each second frame needle for compensating the lateral stress of the loops and for ensuring proper piercing of the initial loops by the frame needles to compensate for the oblique pull of the initial loops upon tensioning of the fabric, the knocking-over comb, movable in forward and backward direction, on the edge facing the frame needles below the knocking over edge being provided with projections or comblike notches in such manner that the frame needles opposite the projections are forced out of the row of the other frame needles by the forward motion of the knocking-over comb.

4. A flat knitting frame comprising frame needles, catching jacks for retransferring to the frame needles the initial loops of a selvage previously taken off therefrom by the catching jacks, an auxiliary needle bar, and means situated within range of each second frame needle for compensating the lateral stress of the loops and for ensuring proper piercing of the initial loops by the frame needles to compensate for the oblique pull of the initial loops upon tensioning of the fabric, uniform positioning of all initial loops of a double top during retransfer to the frame needles being effected by causing the initial loops held by the catching jacks to be tensioned transversely to the row of frame needles by the auxiliary bar, the needles of which are bent downwardly at their front ends.

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