

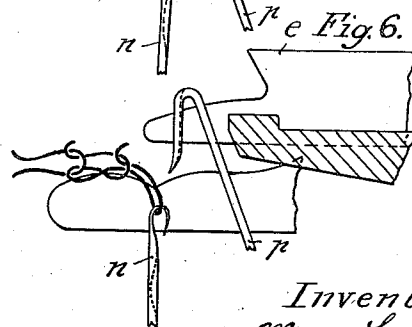
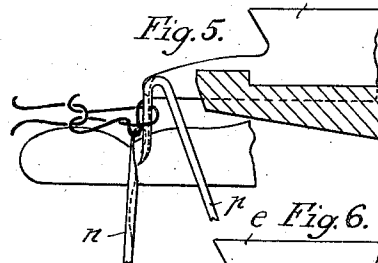
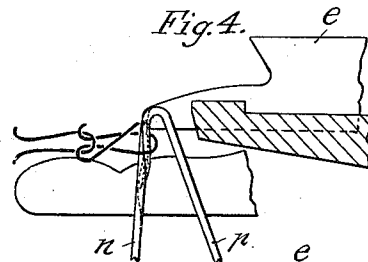
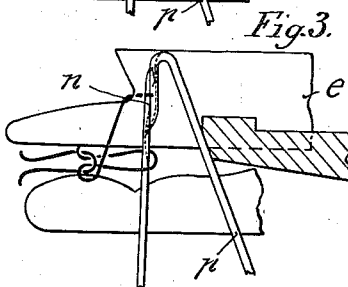
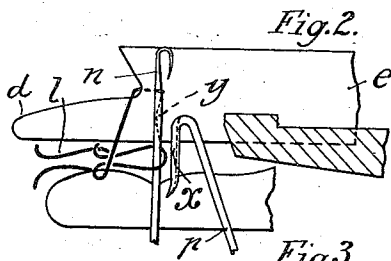
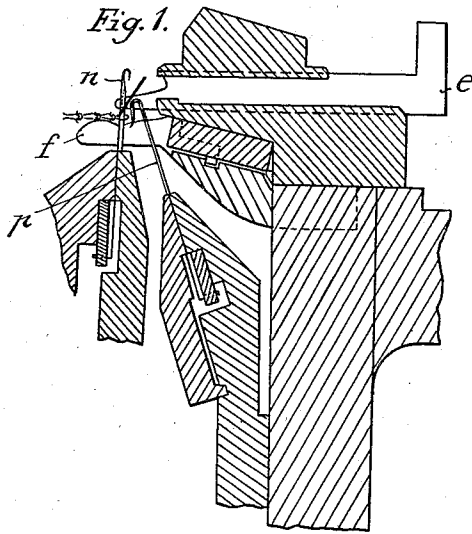
July 15, 1930.

M. LOHS

1,770,578

FLAT KNITTING FRAME

Filed April 7, 1928



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UNITED STATES PATENT OFFICE

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FLAT-KNITTING FRAME

Application filed April 7, 1928, Serial No. 268,275, and in Germany June 7, 1927.

My invention relates to flat knitting frames and more especially to the needles forming part of such machines.

In recent times attempts have been made to improve the flat knitting frames substantially in such a manner, as to increase their output, make the loops finer and render the running of the machine steadier. This is difficult on account of the use of bearded needles and of the presser-bar, for the flexible beard and consequently the length of the needle must not be made below a certain minimum as otherwise it would forfeit the elasticity required for the pressing. Moreover, there is another obstacle to the shortening of the needle, namely the fact that the laying of the threads and formation of loops in the old type of machine must take place below the groove of the needle into which the end of the beard is pressed. Further the distance from the end of the groove to the point at which the sinking of the loop takes place, must be so great as to prevent the upper point or nib of the sinker, from being caught in the groove of the needle, which is easily liable to occur since during the sinking of the loops by the jack sinkers, each two needles are at first slightly pressed against each other by the thread, as is well known.

The present invention offers the means for rendering possible the sinking and the formation of loops even when the needle is shortened to a considerable extent.

It consists in the application and use of a solid needle with a short beard and of a covering point cooperating with it in the formation of the loops. The needle, being solid, i. e. non-perforated, can be made as thin as any ordinary needle. It will further be shown that the movements of the needle bars and the covering-point bars are much shorter than the movements of similar bars in the knitting machines now in use, thus allowing a greater speed of working.

In the drawings affixed to this specification and forming part thereof a device embodying my invention is illustrated diagrammatically by way of example.

In the drawings:

Fig. 1 is a vertical section of the needle

bar showing one of the improved needles and one of the covering points cooperating therewith, the needle and covering point being shown in inoperative position.

Figs. 2-6 illustrate the several parts of the device in different positions.

Fig. 2 showing the making of new loops, the bar carrying the covering points being inoperative.

Fig. 3 shows how the covering point covers the hook of the needle.

Fig. 4 shows the going down of the needle bar and covering point bar.

Fig. 5 illustrates the slipping of the old mesh over the loop, and

Fig. 6 illustrates the formation of the new mesh.

Referring to the drawings, n is the needle and p is the covering point. The covering point is movable toward the needle to close the hook and receive and hold the previously formed loop to assist in knocking over. After the thread has been distributed to the needles by means of the yarn guide and after loops l have been formed by means of the sinkers e (Fig. 2), the covering point p (Fig. 3) moves towards the needle and covers the hook of the same, the hook disappearing in the groove o of the covering point. In order to enable the end of the covering point to disappear also, the needle n is formed also with a small groove y . Now both the needle and covering point move downwardly together and the old mesh thereby slips on to the hook of the covering point (Fig. 4). Hereafter the covering point p moves away from the needle in such manner that the old mesh passes the hook of the needle and a new mesh is formed (Fig. 5). Fig. 6 shows the position of the needle n and the covering point p after a row of loops has been finished. The needle n has been lowered from the position illustrated in Fig. 5 and the covering point p has been raised. The needle and the covering point are now ready to return into the position shown in Fig. 1, for starting another row of loops.

In using a covering point as shown, the sinking of the loops takes place not below the groove y of the improved needle, but

close below the end of the hook. The danger of the crushing of the needles by the nib of the sinker no longer exists, as during its movement, the sinker cannot come in contact with the groove of the needle at all. The groove *y*, which in the improved needle is situated within the range of the nose *d* of the sinker, is not likely to catch on the sinker, as during the laying of the thread, the needles are always between the sinkers. During the knocking over of the loops, the needle moves, it is true, down to below the lead sinkers, during the renewed pushing forward the heads of the needles have to find their way between the lead sinkers. The shortening of the needles ensures that the needles become more stable and that the needle hooks do not break off so easily as in the case of needles having long beards. The shortening of the needles has further the advantage that the fineness of the loop can be increased, and that the needle stroke or travel is considerably shortened, so that the machine can be worked more quickly and its running becomes steadier.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described for obvious modifications will occur to a person skilled in the art.

I claim:—

1. In a machine for knitting plain fabric a needle having a non-resilient hook, a covering point movable toward the needle to close the hook and receive and hold the previously formed loop to assist in knocking over, said needle having a groove, and a downward extension on said covering point adapted to fit in said groove.

2. In a machine for knitting plain fabric a needle having a non-resilient hook; a covering point movable toward the needle to close the hook and receive and hold the previously formed loop to assist in knocking over, said needle having a groove, and a downward extension on said covering point adapted to fit in said groove, said downward extension having a groove adapted to receive the hook of said hooked needle.

In testimony whereof I affix my signature.

MAX LOHS.