R. W. SCOTT.

LATCH NEEDLE FOR KNITTING MACHINES.

APPLICATION FILED MAR. 18, 1909.

1,039,450. **Patented Sept. 24, 1912.**

Fig. 1

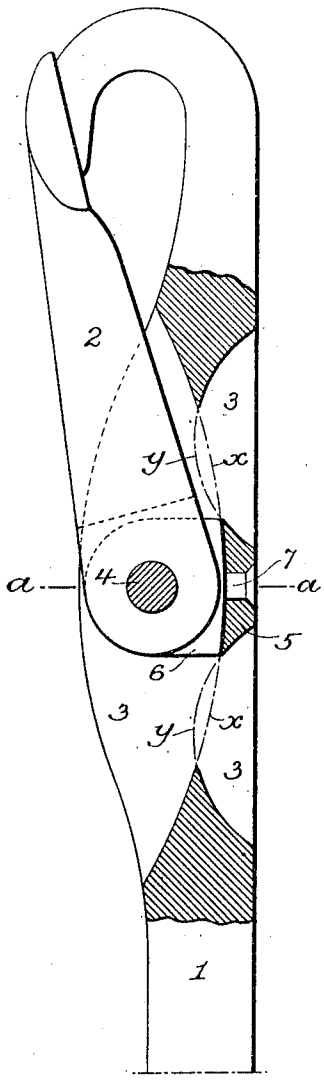


Fig. 5

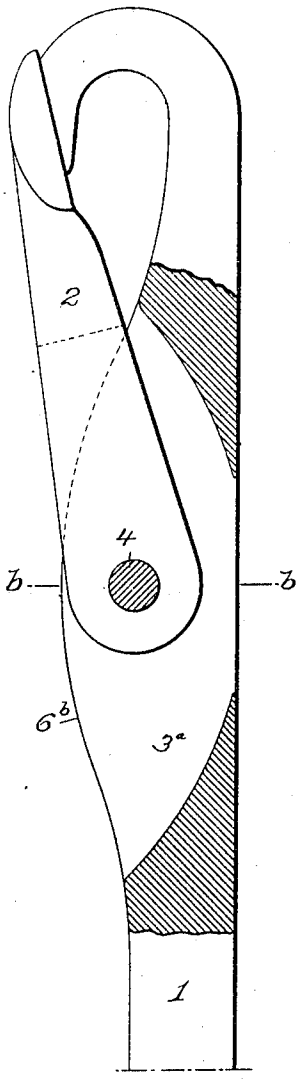


Fig. 6

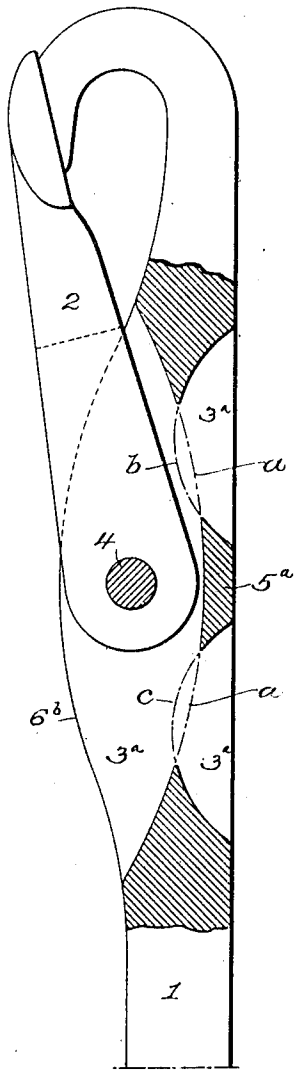


Fig. 2

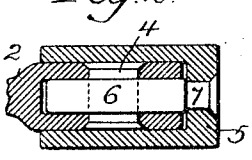


Fig. 3

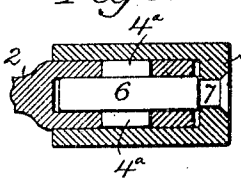


Fig. 4

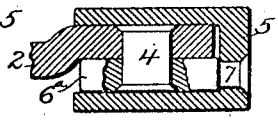
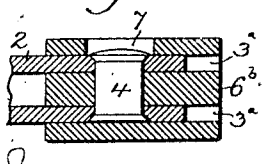


Fig. 7



Witnesses
Hamilton S. Zimmer
Harry L. Smith

Inventor
Robert W. Scott
by his Attorneys
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UNITED STATES PATENT OFFICE.

ROBERT W. SCOTT, OF LEEDS POINT, NEW JERSEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO SCOTT & WILLIAMS, INCORPORATED, OF CAMDEN, NEW JERSEY, A CORPORATION OF NEW JERSEY.

LATCH-NEEDLE FOR KNITTING-MACHINES.

1,039,450. Specification of Letters Patent. Patented Sept. 24, 1912.

Application filed March 18, 1909. Serial No. 484,158.

To all whom it may concern:

Be it known that I, ROBERT W. SCOTT, a citizen of the United States, residing in Leeds Point, Atlantic county, New Jersey, have invented certain Improvements in Latch-Needles for Knitting-Machines, of which the following is a specification.

The object of my invention is to so construct a latch needle for knitting machines as to prevent the cutting or tearing of the knitting yarn, which, in the ordinary latch needle, is frequently caused by a rivet end projecting beyond the side of the needle. This object I attain in the manner hereinafter set forth, reference being had to the accompanying drawing, in which—

Figure 1 is a vertical sectional view on an enlarged scale of the upper portion of a latch needle constructed in accordance with my invention; Fig. 2 is a horizontal section on the line *a*—*a*, Fig. 1; Figs. 3 and 4 are views similar to Fig. 2, but illustrating other embodiments of my invention; Figs. 5 and 6 are views similar to Fig. 1, but illustrating still other embodiments of the invention, and Fig. 7 is a horizontal section on the line *b*—*b*, Fig. 5.

1 represents the stem of the needle and 2 the latch which is free to swing in a central slot 3 formed in said stem, the latch being pivotally mounted upon a transverse pin 4. This pin usually extends through openings in the side walls of the slot 3 and is riveted at its opposite ends with the idea of retaining it in place and causing it to perform the additional function of laterally retaining the side walls of the slot. In the operation of the machine, however, lateral pressure is sometimes exerted upon the projecting portion of the latch, as by knots or enlargements upon the knitting yarn, and this lateral pressure, augmented by the leverage, acts through the medium of the pivot end of the latch to force apart the side walls of the slot 3, thereby stretching or deforming the rivet so as to loosen the same and permit it to project at one or both ends beyond the said side walls when the latter assume their normal position on the withdrawal of the pressure upon them, and such projecting portion of the rivet has a cutting or tearing effect upon the knitting yarn.

The slot for the reception of the latch should extend completely through the stem of the needle in order to provide clearance for the particles of lint which enter the slot and which, in the absence of such clearance, would accumulate in the slot and in time interfere with the proper operation of the latch. Ordinarily, therefore, the slot is formed in the needle stem by means of a saw or like cutting tool, forming a kerf extending completely through the stem from front to back.

In carrying out my invention in the production of those forms of my improved needle shown in Figs. 1 to 4, I form in the front of the needle stem a kerf which does not extend completely through said stem, such kerf being indicated by the dotted lines *x* in Fig. 1, and in order to provide the proper clearance, I then form in the back of the stem kerfs as indicated by the dotted lines *y* in Fig. 1, these latter kerfs being of such size and so located as to leave a body of metal 5 at the back of the slot, and preferably immediately behind the pivot end of the latch. This body of metal constitutes a bridge, integral with the side walls of the slot, and thus serves to prevent or lessen the liability to deflection of said side walls by any lateral pressure exerted thereupon by the pivot end of the latch whether such pressure arises from lateral strain upon the outer projecting portion of the latch, or from any other cause. In addition to the performance of this function the bridge 5 provides a support for a web or block 6 to which the latch is pivoted, said web being secured to the bridge in any desired manner, preferably by means of a stem 7 passing through an opening in the bridge and riveted to the latter.

The pivot end of the latch is formed so as to embrace this web 6, and the pivot pin 4 passes through the web and through the opposite members of the fork and is preferably riveted down upon the latter, as shown in Fig. 2, although a simple pin may be employed if desired, or the latch may be pivotally mounted upon studs 4^a projecting from the opposite sides of the web 6 and adapted to openings in the opposite members of the forked end of the latch, as shown in Fig. 3, the latch, in either case, being pivotally mounted upon the web before the insertion of the latter into the slot 3, and, when the construction shown in Fig. 3 is

adopted, the fork being spread, and, after the introduction of the web 6 and its stud 4^a, being then contracted so as to cause said studs to enter the openings in the members of the fork, or, instead of forking the pivot end of the latch, the latter may only be deflected laterally to a slight extent, so as to occupy one side of the slot 3, alongside of a pivot web 6^a which occupies the other side of the slot, the pivot pin 4 being either a simple pin or a rivet, as desired.

Instead of hanging the latch to a pivot web secured to a bridge at the back of the slot, as shown in Figs. 1 to 4, I may, in some cases, locate in the center of the slot, a pivot web 6^b constituting an integral part of the needle stem, the slot being formed by narrow saw kerfs 3^a one on each side of said web, as shown in Figs. 5 and 6, the web being embraced by the forked end of the latch and the pivot pin being introduced through an opening 7 in one of the side walls of the slot and riveted by means of a tool passing through said opening.

If it is desired to connect the central web 6^b to the side walls of the slot by means of integral bridges 5^a, the side members 3^a of the slot may be formed by saw kerfs *a*, *b* and *c*, as shown by doted lines in Fig. 6, instead of by a single kerf, as shown in Figs. 5 and 7.

The needles shown in Figs. 1 to 4 are preferred to those shown in Figs. 5, 6 and 7, since in the former needles there is no opening in either of the side walls of the slotted portion of the needle stem, and hence no possible opportunity for the cutting or tearing of the knitting yarn by the projecting end of a pivot pin or rivet.

The bridge 5 may be separate from the needle stem and secured thereto by brazing, welding, or the like, and when the pivot web is secured to said bridge by riveting, said rivet is never subjected to such strain as to deform or loosen it, and even if it was the projecting end of the rivet would not be in position to contact with and cut or tear the knitting yarn.

I claim:—

1. A knitting machine latch needle having a stem with slot extending through the stem from front to rear, a pivot web contained in said slot but less in width than the same, whereby it permits a free passage through the slot, and a latch pivotally mounted upon said web.

2. A knitting machine latch needle having a stem with slot extending through the same from front to rear, a pivot web contained in said slot but less both in length and in width than the same whereby it permits a free passage through the slot, and a latch pivotally mounted upon said web.

3. A knitting machine latch needle having a stem with slot extending through the same from front to rear, a bridge in the rear of said slot but less in length than the same, a pivot web secured to said bridge and less in width than the slot, and a latch pivotally mounted upon said web.

4. A knitting machine latch needle having a slot extending through the same from front to rear, a bridge in the rear of said slot but less in length than said slot, a pivot web secured to said bridge and less both in length and in width than the slot, and a latch pivotally mounted upon said web.

5. A knitting machine latch needle having a stem with slot extending through the same from front to rear, but having imperforate side walls, a pivot web contained in said slot but less in width than the same whereby it permits a free passage through the slot, and a latch pivotally mounted upon said web.

6. A knitting machine latch needle having a stem with slot extending through the same from front to rear and having imperforate side walls, a pivot web contained in said slot but less both in width and in length than the same, whereby it permits a free passage through the slot, and a latch pivotally mounted upon said web.

7. A knitting machine latch needle having a stem with slot extending through the same from front to rear and having imperforate side walls, a bridge connection between said walls at the rear of the slot, said bridge connection being less in length than the slot, a pivot web secured to said bridge and less in width than the slot, and a latch pivotally mounted upon said web.

8. A knitting machine latch needle having a stem with slot extending through the same from front to rear and having imperforate side walls, a bridge connection between said walls at the rear of the slot, said bridge connection being less in length than the slot, a pivot web secured to said bridge and less both in length and in width than the slot, and a latch pivotally mounted upon said web.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ROBERT W. SCOTT.

Witnesses:
HAMILTON D. TURNER,
KATE A. BEADLE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."