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LATCH KNITTING NEEDLE AND METHOD OF FORMING

Filed Jan. 8, 1958

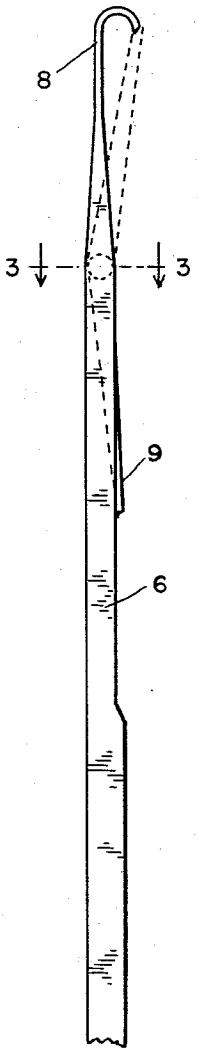


FIG. 1.

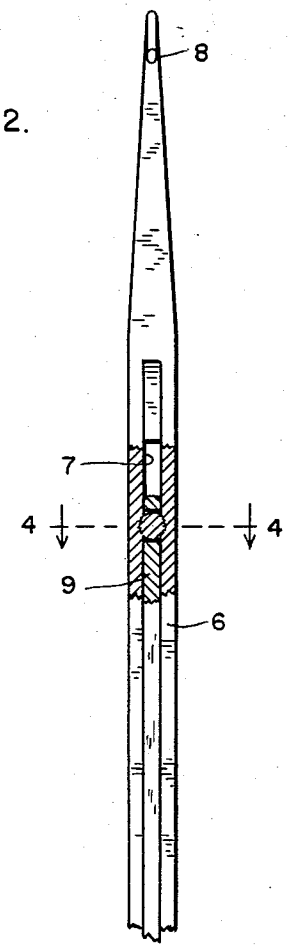


FIG. 2.

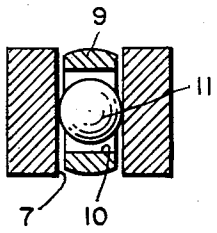


FIG. 3.

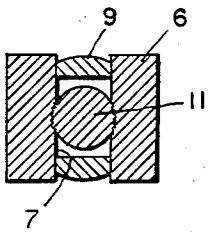


FIG. 4.

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LATCH KNITTING NEEDLE AND METHOD OF FORMING

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6 Claims. (Cl. 66—122)

The invention to which the following specification relates is in an improved latch needle for machine knitting, and in a novel method by which the needle is formed or assembled.

The usual method of pivoting a latch in a knitting needle is to drill the shank of the needle transversely and apply some sort of fastening through the needle transversely. This gives rise to surface irregularities in the flat sides of the needle. There is also the difficulty that such a fastening may become dislodged and make the needle unserviceable.

With this invention it is possible to make a needle which will have continuously flat sides completely devoid of surface irregularities.

One of the objects of this invention is to simplify the structure of the usual latch needle.

A further object of the invention is to make a latch needle in which the sides of the shank are continuous and not weakened by any transverse drilling and furthermore will have no fastening which can be dislodged laterally.

Among the objects of my invention is to simplify production by avoiding the necessity of drilling the sides of the shank.

A still further object of the invention is to provide a better bearing engagement between the retaining member and the latch.

Other objects of the invention will be apparent from the following description of the preferred form as illustrated on the accompanying drawings in which:

FIG. 1 is a side elevation of the improved machine knitting needle;

FIG. 2 is an enlarged front elevation of the same;

FIG. 3 is an enlarged transverse cross-section taken on the line 3—3 of FIG. 1 showing the parts in place but not finally assembled, and

FIG. 4 is an enlarged transverse cross-section taken on the line 4—4 of FIG. 2.

Briefly speaking, the invention consists in providing a fastening or bearing for the latch between the straight sides of the normal slot in the shank of the needle. This is accomplished without drilling the shank transversely or introducing a bearing member which must be driven across the needle and then fastened without risk of projecting.

In carrying out the invention the retaining or bearing member may be distorted so that it increases in diameter and forms a firm pivot on which the latch can move. As thus assembled the retaining member is secured by being welded permanently to the inner side walls of the slotted shank.

The method by which this structure is assembled is also believed to be patentably novel in that a closer engagement can be provided between the bearing or retaining member and the shank than is usually the case and the fastening of retaining member by welding produces a better article and one that is more durable.

As shown in the drawings, the needle shank **6** is formed in the usual shape with flat imperforate side walls. It is important that these side walls need not be drilled transversely for a bearing member.

The needle slot is formed longitudinally as at **7** with walls parallel to the flat side walls of the needle proper

and wider than the width of the latch. The needle, of course, is equipped with the usual hook **8**.

A latch **9**, also of usual construction, is provided for pivotal mounting in the shank and engagement with the hook **8** as shown on FIG. 1 in dotted lines.

The latch **9** has a bore **10**. It is to be noted that the width of the latch is noticeably less than the width of the slot **7** expanded as shown in FIG. 3

A retaining member or bearing member is shown by way of example as a hardened metal ball **11**. This ball is larger than the width of the slot **7**. In assembly this will permit the ball **11** to be inserted first in the bore **10** of the latch and the two then slipped into the slot **7**. When so assembled the ball **11** will be held in place frictionally against the inner walls of the slot **7** as shown in FIG. 3.

The final step of assembly consists in pressing the shank **6** as shown in FIG. 4 so that the side walls of the slot **7** are brought into sliding engagement with the latch **9**. This is shown in FIG. 4.

In the operation of constricting the sides of the shank **6**, the ball **11** may be distorted into the form of an ellipsoid as shown in FIG. 4. In the course of this operation the longer diameter of the ball approximates the diameter of the bore **10**. At the same time these sides of the ball are imbedded somewhat. As a result the bearing of the latch on the ball is more like that of a cylindrical bearing than of a spherical bearing.

Simultaneously with the constriction of the shank **6** or even subsequently, welding heat applied transversely through the shank **6** and the ball **11** will serve to weld the imbedded areas of the latter to the inner faces of the shank.

The operations by which the latch is installed within the needle are thus simplified over conventional methods of assembly.

The structure thus provides a needle shank of perfectly uniform flat sides. The fastening between the ball **11** and the shank is permanent and immovable. The ball if distorted provides an increased close bearing fit within the bore **10** of the latch **9**.

While the preferred form of the invention has been thus illustrated, the invention is believed to be subject to extensive variation in materials, proportions and minor details without departing from the scope of the invention as defined in the following claims.

I claim:

1. A latch needle comprising a shank having continuous imperforate flat sides, said shank having a central slot parallel to said sides, a latch having a transverse bore, and a separate deformed ball in the latch bore, permanently attached over an extended area to the side walls of the slot.

2. A latch needle comprising a shank having continuous imperforate flat sides, said shank having a central slot parallel to said sides, a latch having a transverse bore and a separate ellipsoidal retainer in the latch bore, said retainer being attached by its flatter portions permanently over an extended area to the walls of the slot.

3. A latch needle comprising a shank having continuous imperforate flat sides and a central longitudinal slot, a latch having a transverse bore, and an ellipsoidal retainer in the latch bore, said retainer being permanently attached by its flatter portions permanently to extended areas of the inner walls of the slot substantially in the planes of the sides of the latch.

4. The method of assembling a latch needle having a slotted shank and a latch with a bore comprising seating a retaining member in the bore of the latch, spacing the retaining member within the slot of the shank pressing the sides of the shank into firm engagement against the retaining member and expanding the latter into extended bearing contact with the bore.

5. The method of assembling a latch needle having a slotted shank and a latch with a bore, comprising seating a spherical retaining member in the bore of the latch, spacing the retaining member within the slot of the shank, pressing the sides of the shank against the retaining member and welding the retaining member to the inner surfaces of said sides.

6. The method of assembling a latch needle having a slotted shank and a latch with a bore, comprising seating a spherical retaining member in the bore of the latch, spacing the retaining member within the slot of the shank, pressing the sides of the shank into firm engagement against the retaining member and expanding the latter into bearing engagement with the bore of the latch and welding the flattened surfaces of the retaining member to extended areas of the inner side surfaces of the shank.

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