No. 757,708. PATENTED APR. 19, 1904.

S. WOODWARD.

KNITTING MACHINE NEEDLE.

APPLICATION FILED AUG. 21, 1903.

NO MODEL.

Fig. 1.

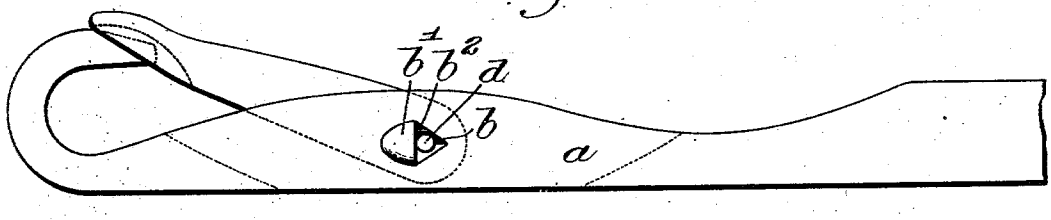


Fig. 2.

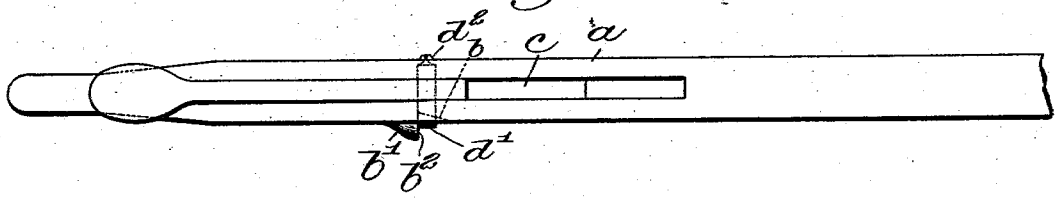


Fig. 3.

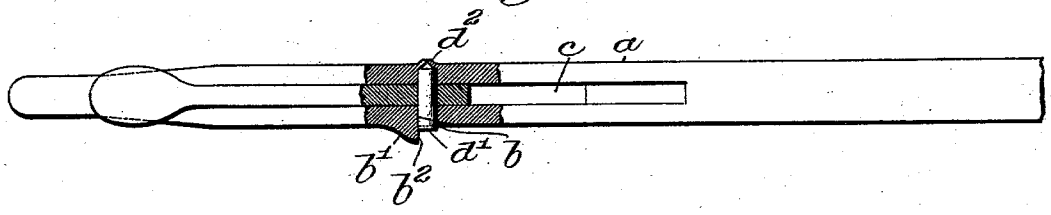


Fig. 4.

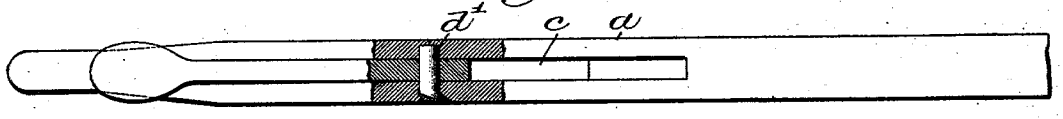
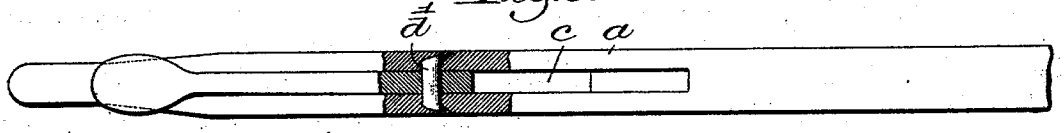


Fig. 5.



Witnesses:
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No. 757,708. Patented April 19, 1904.

UNITED STATES PATENT OFFICE.

STEPHEN WOODWARD, OF FRANKLIN FALLS, NEW HAMPSHIRE.

KNITTING-MACHINE NEEDLE.

SPECIFICATION forming part of Letters Patent No. 757,708, dated April 19, 1904.

Application filed August 21, 1903. Serial No. 170,263. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN WOODWARD, a citizen of the United States, residing at Franklin Falls, in the county of Merrimack and State of New Hampshire, have invented an Improvement in Knitting-Machine Needles, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object to improve the construction of knitting-machine needles, especially as to the means for retaining the latch in the needle whereby the rivet forming the pivot for the latch may be held securely, so that it cannot work loose and project beyond the outer sides of the needle and destroy its usefulness.

Figure 1 is a side view, much enlarged, of the hooked end of a knitting-machine needle with a pit and hole bored therein in accordance with my invention. Fig. 2 is a plan view with a rivet inserted. Fig. 3 is a like view with part of the body of the needle and latch broken out to show the position of the rivet. Fig. 4 is a view like Fig. 3, but with the rivet overturned and its end overlapped by part of the stock of the body of the needle; and Fig. 5 is a view of a needle like Fig. 4 with the exception that a countersink was formed in both sides of the body of the needle.

In accordance with my invention in its simplest form I make by a punch or other suitable tool in one side of the body of the needle where it is flattened a countersink b, the metal displaced in this operation being represented at b'. The countersink, however formed, will present a wall b^2, standing substantially at right angles to the length of the needle-blank. I insert a drill in the countersink next the wall b^2 and drill into the needle-body at right angles to the length of the blank, making a hole d for the rivet d', the drill being stopped just as it passes through the blank far enough to raise a bur d^2, this bur when subsequently the rivet, with one end in the hole, is hammered down pressing back and acting in holding the rivet in place, as shown in Fig. 4. After drilling the hole the blank may be cut longitudinally by a saw to form a slit c, in which may be inserted the thin inner end of the latch c', and the pointed end of the blank may be bent to form a hook, as shown in Figs. 2 and 3. After inserting the inner end of the latch in the slit c I insert in the drilled hole the rivet d', the rivet being also extended through the latch and ending, preferably, in the burred end of the drilled hole. (See Fig. 3.)

To enable the rivet to be retained in the needle and hold the latch, I may press or hammer over the stock b^2 thrown up by making the countersink and in so doing crowd the rivet over into the bottom of the countersink, (see Fig. 4,) the rivet protruding from the countersink for only such a distance that it may be overturned and covered sufficiently by the stock b^2 when pressed or hammered over onto the rivet to hold the rivet in place. The opposite end of the rivet is held by the inturned upset burred part of the stock made as described.

Viewing Fig. 1, it will be seen that a small portion of metal b' is thrown out by the action of making the countersink; but it will be understood that a countersink may be made in other ways, so as to leave a wall b^2 at right angles to the length of the body of the needle without leaving the projecting metal b'.

In case the projecting metal b' is presented, as I prefer, the hole for the rivet will be drilled in the countersink close to the wall b^2. I may, if desired, form a countersink and shoulder at both sides of the needle-body. (See Fig. 5.) Forming one countersink and wall at one side of the needle-body makes a very desirable needle, one that will stand up to its work and in which the latch will be held securely in the body of the needle, so that it cannot possibly work out to catch onto the thread or yarn.

In my construction of latch-needle I obviate the usual countersinking of the outer ends of the drill-hole to receive the rivet. Such countersinks leave the body of the needle with a very thin edge completely surrounding the rivet, which fails to afford the necessary strength to withstand the strain on the rivet.

In my invention the rivet is turned or bent over in one direction into the elongated countersink, as indicated in Fig. 4, and is not up-

set and headed, as customary in knitting-machine needles.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A knitting-machine needle comprising a body provided at one side with a countersink having a wall substantially at right angles to the length of the needle and drilled close to said wall, a latch, a rivet inserted in the drilled hole of the body, the end of the rivet being turned over into the countersink and the wall of the countersink being flattened down.

2. A knitting-machine needle comprising a body provided at one side with a countersink having a wall substantially at right angles to the length of the needle and drilled close to said wall, a latch, and a rivet inserted in the drilled hole of the body, the end of the rivet being turned over into the countersink and upset therein the wall of the countersink being pressed or hammered to overlap one end of the rivet.

3. A knitting-machine needle comprising a body provided at one side with a countersink and presenting a wall substantially at right angles to the length of the needle, said body having a hole drilled therethrough close to said wall, a latch, and a rivet the end of which is bent over and upset in said countersink, a portion of the body of the needle overlapping the bent outer end of the rivet.

4. A knitting-machine needle comprising a body provided at one side with a countersink, a rivet having its end in said countersink and held therein by a portion of the metal at the side of the needle overlapping the end of said rivet in said countersink.

5. A knitting-machine needle comprising a body provided at one side with a countersink, and at its opposite side with a hole presenting a burred edge, a rivet one end of which enters the hole having the bur, the other end of which stands in the countersink, the bur when thrown backwardly in confining the rivet in the needle engaging the rivet at one end, the upturned metal of the countersink when depressed overlapping the end of said rivet in said countersink.

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

STEPHEN WOODWARD.

Witnesses:

EDWARD L. WELCH,

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