J. M. Armour,

Knitting-Needles.

No. 52,256. Patented Jan. 30. 1866.

Fig. 1.

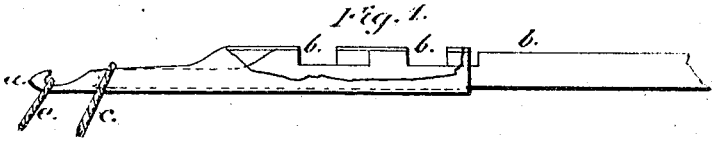


Fig. 2.

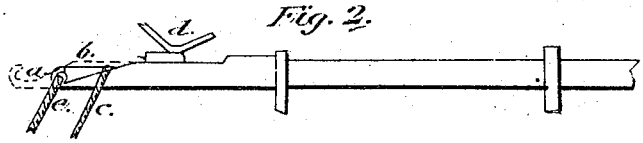


Fig. 3.

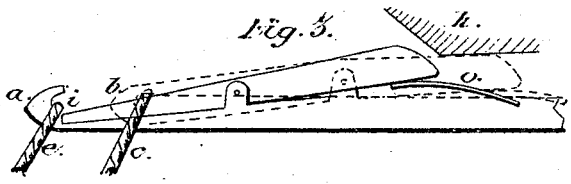
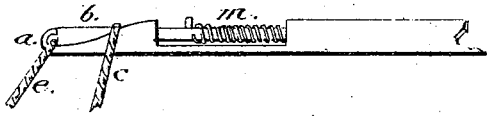


Fig. 4.



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UNITED STATES PATENT OFFICE.

J. M. ARMOUR, OF CRAFTSBURY, VERMONT.

IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. **52,256**, dated January 30, 1866.

To all whom it may concern:

Be it known that I, J. M. ARMOUR, of Craftsbury, in the county of Orleans and State of Vermont, have invented certain new and useful Improvements in Needles for Knitting-Machines; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and to the letters of reference marked thereon.

The nature of my invention consists in a novel mode of constructing a needle for knitting-machines, which shall operate both as a needle for forming a new stitch and also as a stitch-holder or, in other words, providing the needle with a device for securely locking and holding the stitch on the needle.

To enable others skilled in the art to construct and use my invention, I will proceed to describe it.

I first construct a needle with a hook, *a*, at its point or outer end, as shown in the several figures of the drawings. This hook is for the purpose of receiving the thread and drawing it through the loop or stitch previously formed. I then attach to this needle a stitch-holder, *b*, which may consist of a sliding piece fitted either within or upon the body of the needle, as shown in Figs. 1, 2, and 4, and arranged to slide to and fro within or upon the needle.

It will be observed that the front end of the stitch-holder *b* is made of such a width vertically that when it is shoved forward, as shown in Figs. 2 and 4, its upper edge shall come flush with the upper edge of the hook *a*, whereby the thread held by the hook *a* will be securely locked therein, and at the same time the upper surface of *b* will form a bridge upon which the previous stitch or loop may ride off over the hook, and thus be carried over the new stitch, or, in other words, the stich *c* will be held upon the piece *b*, while the new stitch *e* will be drawn through *c* and the latter then thrown off the needle.

Fig. 3 represents a modification of the same device, the holder *b* in that case being pivoted to the needle in such a manner that when down its front end shall rest either in a recess in the shank of the needle or by its side, so that the upper surface of *b* shall come flush with the inner portion or surface, *i*, of the hook *a*, and thereby form a continuous smooth surface, upon which the old or previous stitch *c* may ride up as the needle is thrust forward to receive the thread for forming the new stitch *e*. When this has been done the rear end of the holder *b* is depressed, by which movement its outer end is thrown up, as shown in red, whereby it is made to lock the stitch *e* securely in the hook, and at the same time form a bridge upon which the previous stitch *c* will be made to ride over the new stitch or loop *e* as the needle is drawn back, drawing the stitch *e* through *c*, the latter being thrown off the needle as before.

When the latter style of needle is used a spring, *o*, may be located as shown in Fig. 3, for the purpose of holding the front end of *b* down in position while the needle is being moved forward to receive the new stitch *e*, by which movement of the needle the stitch *c* is shoved up on the needle, as shown. A cam, *h*, may be so located that, when the needle is drawn back after receiving the thread for the stitch *e*, the rear end of *b* shall be depressed thereby, thus throwing up the front end of *b* and completing the operation of drawing the loop *e* through *c* and throwing the latter off, as already described.

When the style of needle shown in Figs. 1 and 4 is used the required motions of the needle and the holder may be given by cams working in the notches *l l*, as shown in Fig. 1.

It will be observed that the notches in the holder *b* are wider than those in the needle, so that if a cam were moving therein it would move the needle forward until the face of the cam should strike against the face of the notch in the holder *b*, when both the holder and the needle would be moved together. In reversing the motion the same result would be produced, the portion containing the small notch being moved first and then both together. The distance that the needle should move first should be sufficient to move it forward until the front end of the holder *b* should be covered by the stem of the needle, so that as the two shall then move forward together, the front end of the holder *b* should form no obstruction to the sliding of the stitch *c* upon the shank of the needle. In reversing the motion of the needle it would first be moved back far enough to bring the inner end of the hook in contact

with the end of holder *b*, and then both would continue the movement backward far enough to draw the loop *e* through *c* and throw the latter entirely off the needle.

In Fig. 4 a spring is shown applied to the holder to move it up and lock the thread *e* in the hook *a*, the remaining movements being imparted by cams suitably arranged.

In Fig. 2 the holder *b* is shown provided with a projection arranged to impinge against a fixed piece, *d*, for the purpose of retarding the movement of *b* while the needle makes the first part of its movement forward to receive the thread for the new stitch *e*, the previous stitch *c* riding up on the needle over the holder *b*, as the needle and holder are both carried forward together during the latter part of its forward movement. On the return movement of the needle the projection of the holder *b* hits against the cam *d*, whereby the movement of the holder is retarded until the hook is brought in contact with it, thus locking the stitch *e* in and forming a bridge upon which the stitch *c* rides off the end of the needle over *e*.

It is obvious that a great variety of mechanical devices may be used to impart to the needles the requisite movements, the foregoing being intended simply to illustrate some of the methods, it being understood that I do not limit myself to these methods.

Having thus fully described my invention, what I claim is—

1. The needle provided with the hook *a*, in combination with the pivoted stitch-holder *b*, having its front end arranged to lay in the recess in the shank of the needle when depressed and to come flush with the upper surface of the hook *a* when raised, as shown in Fig. 3.

2. In combination with the needle and the pivoted stitch-holder *b*, as above described, the spring *o*, to operate the latter, as shown and described.

3. Operating the needle and stitch-holder by arranging them to move or slide longitudinally, and having the latter impinge against a cam or fixed piece, as shown in Figs. 2 and 3, and as herein described.

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