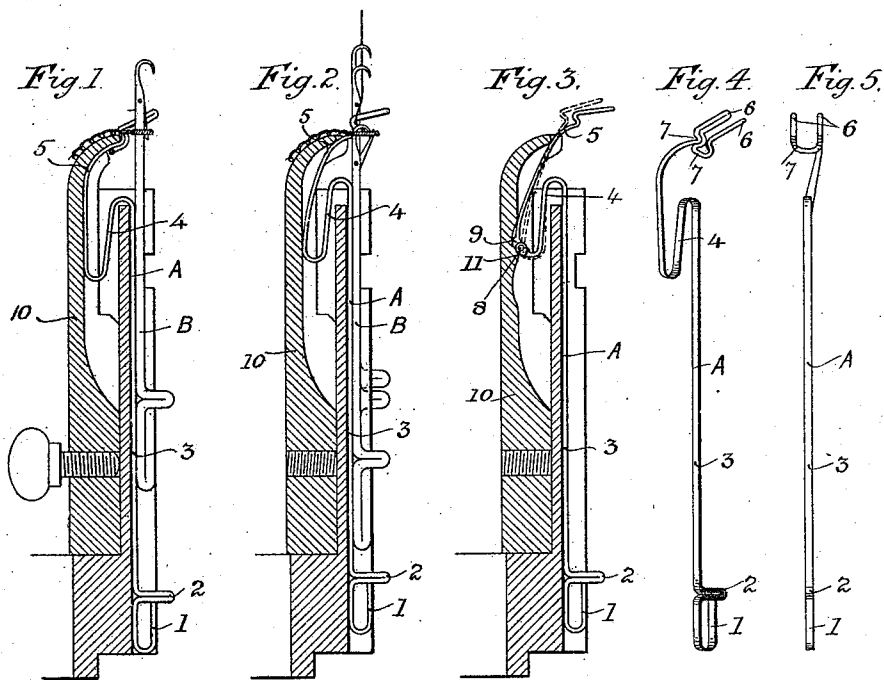


(No Model.)

G. F. STURGESS.
WEB NEEDLE FOR KNITTING MACHINES.

No. 575,012.

Patented Jan. 12, 1897.



Witnesses.
Thomas Scott.
Walter Edwin Sturgess.

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UNITED STATES PATENT OFFICE.

GEORGE FREDERICK STURGESS, OF LEICESTER, ENGLAND.

WEB-NEEDLE FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 575,012, dated January 12, 1897.

Application filed December 30, 1895. Serial No. 573,847. (No model.) Patented in England October 31, 1894, No. 20,835.

To all whom it may concern:

Be it known that I, GEORGE FREDERICK STURGESS, hosier's engineer, a subject of the Queen of England, residing at Overdale, Leicester, in the county of Leicester, England, have invented new and useful Improvements in Web-Needles for Knitting-Machines, (for which I have obtained a patent in Great Britain, No. 20,835, bearing date as of the 31st day of October, 1894,) of which the following is a specification.

The object of my invention is to facilitate the process of knitting.

It consists of a wire instrument resembling in some respects the ordinary knitting-needle with which it works. Its features which are common to the ordinary knitting-needle are the material used, method of making, the stem, foot, tail, and the sliding movement when in action. I therefore call it a "web-needle," in contradistinction to the ordinary knitting-needle.

The nature, features, and scope of my invention will be more fully understood from the following description and drawings. The original drawings are full size.

Figure 1 is a view in section showing the position of the web-needle A in relation to the knitting-needle B and bed, the web-needle being in the down position with the loop of the last course knitted secured in the hooks and having one of its two prongs and hooks cut off. Fig. 2 is a similar view showing the web-needle A with a single prong and hook in a half-elevated position, ready for the thread to be drawn across it. Fig. 3 is a similar view showing the web-needle with a single prong and hook and the extra action gained by the pivot 8, projection 9, and swell 11. The dotted line represents the position in measuring off the thread, as seen in Fig. 2. The full lines show the web-needle fully elevated for the thread to slide into the hook. Fig. 4 is a perspective view of the web-needle with two prongs and hooks. Fig. 5 is a front elevation of same.

This web-needle comprises tail 1, foot 2, stem 3, spring-bend 4, right and left prongs 6, and hook 7. Each prong has a hook for holding down the loop, if required, but in some machines the web is held down by weights or

other means, in which case the web-needle may only be required to facilitate measuring off the thread. This web-needle slides longitudinally and receives sliding motion from cams just the same as a knitting-machine needle does. Beyond saying that to use the web-needle and knitting-needle together in the manner shown in the drawings, a second cam-track or raceway is provided. There is no need for me to refer to the cams. A similar second cam-track is shown in Letters Patent No. 291,377, dated January 1, 1884; but I confine myself to no particular style of cam-track, of which there are many kinds adaptable. For instance, in applying my invention to machines where there is no room for the web-needle foot underneath the ordinary needle I arrange for the web-needle foot to come out at the side of the knitting-needle on the upper part of the cylinder by cutting off the web-needle stem at the first bend and dispensing with the said stem, in which case the second cam-track would come above the knitting-needle cam-track instead of below, as aforesaid.

The web-needle slides in the needle-bed and the hook of the ordinary needle passes up and down through the prongs of the web-needle. By its construction the upper end, having the prong and hook, is flexible and spring-like, and the hook will hold the loop by a spring-pressure when the web-needle is in its lowest position, but when thrust upward the curve 5 impinges on the under side of the conically-tricked bed 10, (see Fig. 2,) and the hook and prong spring outward to allow of the formation of the loop.

As the thread is drawn down by the ordinary knitting-needle the web-needle rises and in meeting the draw of the knitting-needle measures off the thread which draws across the prongs 6, and as the knitting-needle is casting off its old loop the prong and hook spring outward, allowing the measuring-thread to slide down the slanting prongs 6, forming a new loop in the hooks 7.

To get a sharper action, as is required in coarse machines working heavy yarns, I allow a little oscillation on the pivot 8. The hook end is hinged at the pivot in a manner that the extent of its fall outward is shown

in full lines, Fig. 3. The oscillation is regulated by the projection 9 as it slides over the small swell 11 in the following manner: As the web-needle rises to measure off the thread the spring-bend 4 yields and allows the projection 9 to pass onto the swell 11, (see dotted line, Fig. 3,) when the thread is measured off and the spring-pressure is suddenly released by the projection passing over the swell 11, liberating the pivoted hook, throwing the prongs and hooks outward, (see full line, Fig. 3,) allowing the measured thread to slip down the slanting prongs into the hook 7, when the web-needle descends until the projection 9 comes under the swell 11.

I have shown one way of making and using my invention without attempting to show the many ways of applying it to the various types of machines now in use.

Having now particularly described and ascertained the nature, objects, and methods of my said invention and the manner and means by which the same is to be performed, I declare that what I claim is—

1. A web-needle formed out of steel wire, having provisions whereby the thread is measured off and the loop held by the spring-pressure substantially and for the purposes set forth.

2. A web-needle having a prong to measure off the yarn and a hook for holding the knitted loop by spring-pressure, adapted to slide

longitudinally, substantially and for the purposes set forth.

3. A web-needle having a spring-bend 4, curve 5, prong 6, and hook 7, substantially and for the purposes set forth.

4. A flexible-wire web-needle having a tail 1, foot 2, stem 3, and prongs 6, substantially and for the purposes set forth.

5. A flexible-wire web-needle having a tail 1, foot 2, stem 3, prongs 6, hooks 7, substantially and for the purposes set forth.

6. A flexible-wire web-needle having a tail 1, foot 2, stem 3, prongs 6, hooks 7, and spring-bend 4, substantially and for the purposes set forth.

7. A flexible-wire web-needle having a tail 1, foot 2, stem 3, prongs 6, hooks 7, spring-bend 4, and curved portion 5, substantially and for the purposes set forth.

8. A wire web-needle having a tail 1, foot 2, stem 3, prong 6, hook 7, spring-bend 4, curved portion 5, and pivot 8, substantially and for the purposes set forth.

9. A wire web-needle having tail 1, foot 2, stem 3, prong 6, hook 7, spring-bend 4, curved portion 5, pivot 8, and projection 9, substantially and for the purposes set forth.

Dated this 23d day of November, 1895.

GEORGE FREDERICK STURGESS.

Witnesses:

THOMAS SCOTT,

WALTER EDWIN STURGESS.