

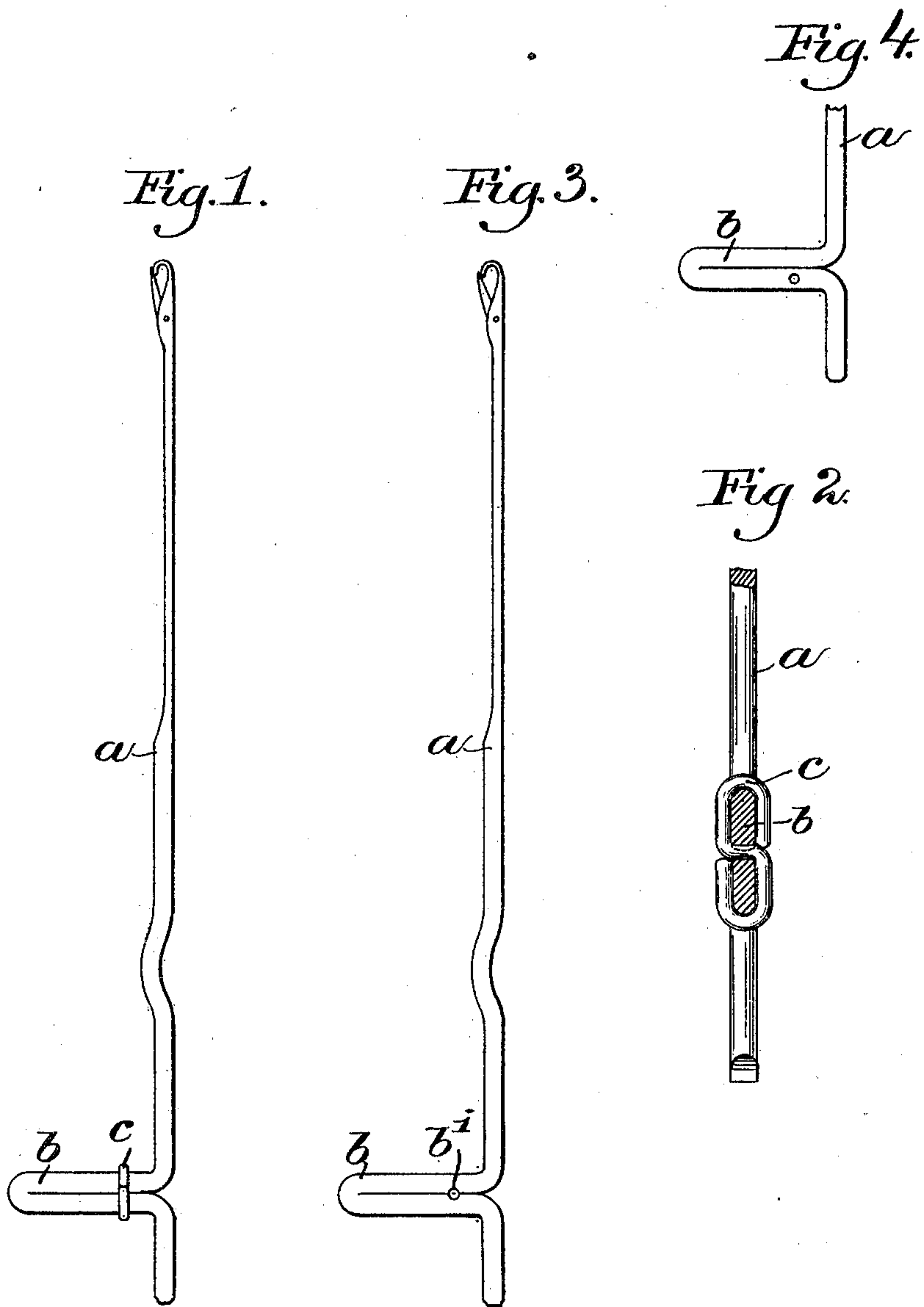
No. 674,893.

Patented May 28, 1901.

S. WOODWARD.
KNITTING MACHINE NEEDLE.

(Application filed June 13, 1898.)

(No Model.)



Witnesses
Louise M. Gowell
A. C. Hammond

Inventor
Stephen Woodward
By Wesley Gregory
attys.

UNITED STATES PATENT OFFICE.

STEPHEN WOODWARD, OF FRANKLIN, NEW HAMPSHIRE, ASSIGNOR TO MAYO
KNITTING MACHINE & NEEDLE COMPANY, OF SAME PLACE.

KNITTING-MACHINE NEEDLE.

SPECIFICATION forming part of Letters Patent No. 674,893, dated May 28, 1901.

Application filed June 13, 1898. Serial No. 683,262. (No model.)

To all whom it may concern:

Be it known that I, STEPHEN WOODWARD, of Franklin, county of Merrimack, State of New Hampshire, have invented an Improve-
5 ment 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.

10 My invention relates to knitting-machine needles of the class wherein the heel of the needle is provided with an enlarging or thickening member applied thereto for the purpose of strengthening the needle thereat, and also
15 to furnish a suitable shoulder when required to bear against the wall of a skeleton cylinder to hold the needle in vertical position in its groove in the needle-cylinder. Prior to my invention it has been common to apply to
20 the heel of a needle an enlarging or reinforcing member in the form of an endless ring or collar encircling or surrounding the entire heel and retained thereon merely by compression thereupon or else secured by solder or
25 equivalent means. Both of these methods of securing the collar have been objected to as inadequate to prevent displacement of the collar on the heel. Attempts have also been made to attach a reinforcing-plate by clench-
30 ing a tongue portion or portions thereof into or through an opening in the part of the needle to which the plate is applied, but without success, for the reason that such a mode of securing the plate has been found inadequate
35 and too costly.

The object of my present invention is to provide a needle having an enlarging and reinforcing member applied to its heel in a manner to obviate the objections above referred to.
40 This object I attain by first providing the heel of the needle with a suitable opening—it may be partly in one and partly in the other of said heel members—and then inserting in this opening a wire or strip and bending the two
45 ends thereof, preferably in opposite directions, to embrace the limbs of the heel, and thereby produce the requisite enlargement and reinforcement of the heel.

In the drawings, Figure 1, in side elevation,

illustrates a knitting-machine needle with its heel provided with a thickening or reinforcing member in accordance with my invention; Fig. 2, an enlarged sectional detail; Fig. 3, a view similar to Fig. 1 with the reinforcing member omitted; and Fig. 4, a view similar to
55 Fig. 3, showing the opening in the heel entirely in one member thereof.

Referring to the drawings, the knitting-machine needle *a* is and may be of any suitable or desired construction, it having a usual
60 heel *b*, formed by bending a loop in the shank of the needle. The heel *b* is provided with an opening *b'*, shown in Figs. 1 and 3 as partly in one and partly in the other of the two limbs of the heel and in Fig. 4 as entirely
65 in one of the limbs. The thickening or reinforcing member *c* in the form of a wire or strip—it may be straight, like a stud—is inserted in this opening *b'* and its ends bent, preferably in opposite directions, to embrace
70 the limbs of the heel *b*. As shown in Figs. 1 and 2, the reinforcing member *c* is of such length that when bent as described it completely encompasses the heel, somewhat like
75 a collar, and assumes a configuration closely resembling a figure 8; or it may be made shorter, so that the ends of wire will not meet the middle thereof where the latter emerges from the heel, but will stop short thereof by a
80 distance which may vary as desired, it then assuming more the configuration of a letter S. In many cases it is sufficient if the ends of the wire or band when bent embrace but two
85 of the sides of the respective limbs of the heel. In either case, however, the passing of the wire or strip through the heel, whether between the limbs thereof or through one of the limbs thereof, effectually prevents displacement of the same on the heel, and the
90 bending of the ends of the wire or strip, so as to embrace the limbs of the heel more or less, according to the length of the wire or band, holds the latter in the opening.

It is evident my novel construction possesses great inherent strength yet requires no
95 solder or other equivalent material to retain it in its position.

The wire or strip *c*, while conveniently of

round wire, may have any desired shape in cross-section, either rectangular, oval, or flat, like a band.

My invention is not limited to the particular embodiment shown, as the same may be varied without departing from the spirit and scope of the invention as claimed.

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

1. A knitting-machine needle of the class described having a collar applied to its heel, between the limbs of the heel and embracing such limbs.

2. A knitting-machine needle of the class

described having a collar attached to its heel and between the limbs of the heel, and bent about such heel in the form of an 8.

3. A knitting-machine needle of the class described having a collar applied to its heel, between the limbs of the heel, and bent to embrace two sides of the limbs of the heel and to extend upon a third side thereof.

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

STEPHEN WOODWARD.

Witnesses:

FRANK PROCTOR,
J. R. SARGENT.