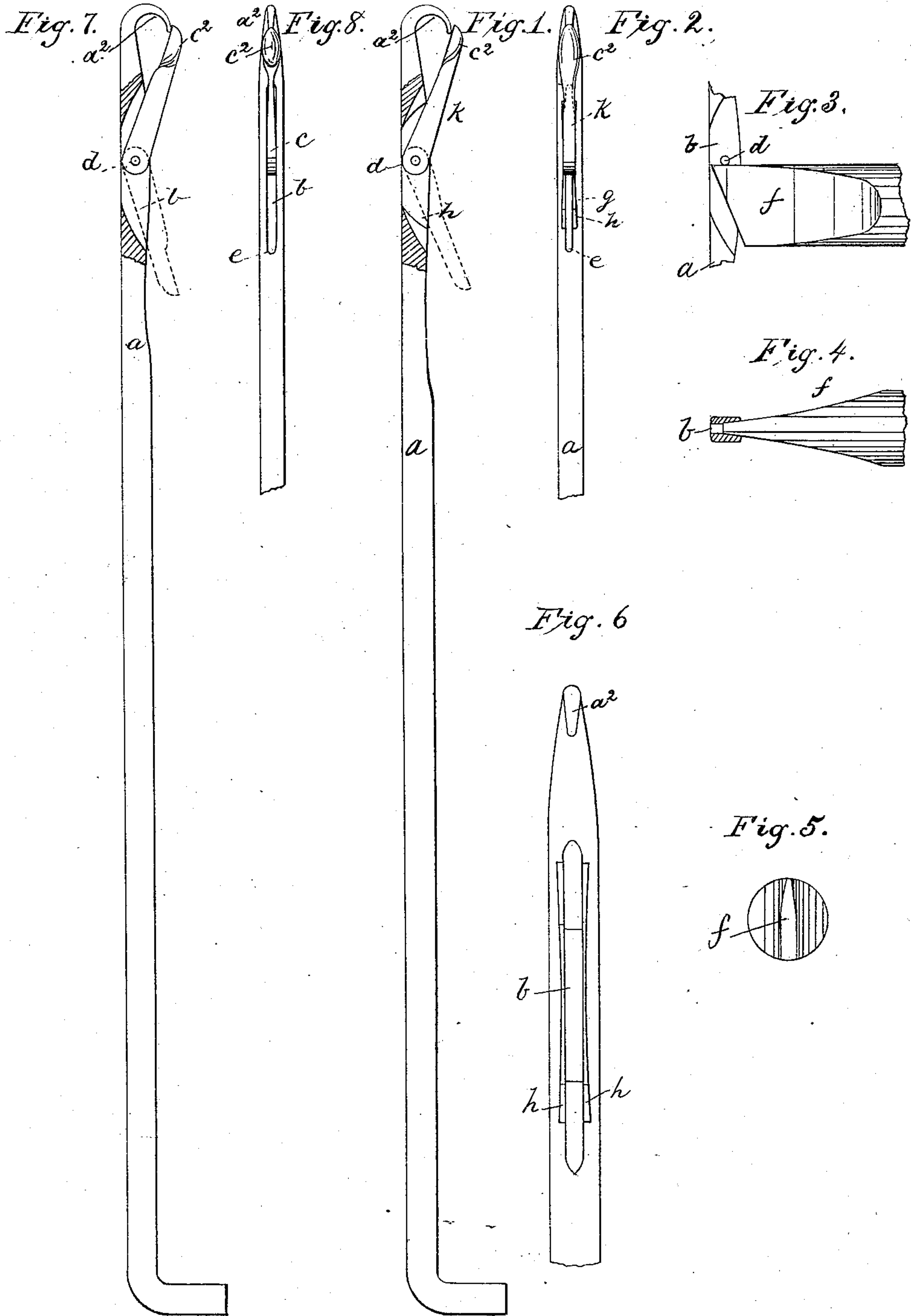


(No Model.)

F. E. GILFORD.
KNITTING MACHINE NEEDLE.

No. 253,860.

Patented Feb. 21, 1882.



Witnesses.
Bernice J. Noyes.
John F. C. Prinkett

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by Crosby & Gregory Attys

UNITED STATES PATENT OFFICE.

FREDERICK E. GILFORD, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR TO
WILLIAM COREY, OF SAME PLACE.

KNITTING-MACHINE NEEDLE.

SPECIFICATION forming part of Letters Patent No. 253,860, dated February 21, 1882.

Application filed September 5, 1881. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK E. GILFORD, of Manchester, county of Hillsborough, State of New Hampshire, have invented a new and useful Improvement in Knitting-Machine Needles, of which the following description, in connection with the accompanying drawings, is a specification.

This invention relates to latched needles, and has for its object improvements in the shape of the latch-receiving groove, whereby the latch is prevented from being wedged or caught in the groove and held too tightly when thrown back upon the shank of the needle.

The majority of latched needles now made have their latch-receiving slits formed by means of a saw, which leaves the walls of the slit parallel. To enable the latch placed in this parallel slit to turn therein freely the butt of the latch is pressed quite thin.

When grinding a sawed needle to finish it some of the metal rolls into the slit and forms fins, which contract the width of the slit to such an extent that the latch, when fully thrown back upon the body of the needle, becomes caught or wedged in the sawed slit. These fins act to bind the latch when thrown over upon the body of the needle, and the latch then fails to turn over toward the hooks of the needle with sufficient readiness as the needle descends to draw the new loop in its hook down through the old loop held on its shank below the latch. To lessen the evil effect resulting from these fins it is customary to scour the needles by tumbling. This evil has not been so far overcome but there results great waste of needles.

To obviate the sticking or catching of the latch, I take a punch and punch or cut the sawed slit from the upper side of the needle, partially through and to near the end of the slit, thereby removing or displacing some of the metal at the inner walls of those portions of the needle between which the latch is pivoted and turns. Enlarging the said latch-receiving slits from the latch-pivot toward that end of the said slit nearest the butt of the needle enables the latch, when turned over backward upon the body of the needle to uncover the hook, to drop into a slit, which is of enlarging width,

so that the latch, when so turned back, is not liable to catch or stick in the said slit. By enlarging the width of this latch-receiving slit from near its center, where the pivot of the latch is located backward, nearly to the rear end of the slit, I am enabled to make the latch thicker, thus strengthening the latch and enabling the loop of yarn to be cast over it with the least amount of sudden strain.

My improved latch, when lying upon and covering the hook, does not fall low enough in the slit to be bound or caught therein.

Figure 1 represents in side elevation a latched needle embodying my invention, one wall of the needle, opposite the latch-receiving slit, being broken out, the latch being shown in dotted lines as thrown back; Fig. 2, a top view of the front end of one of my improved needles; Figs. 3 and 4, details showing the punch as being operated to cut or remove a portion of the metal at the inner sides of the walls of the needle bounding the latch-receiving slit; Fig. 5, a view of the lower end of the punch, enlarged; Fig. 6, an enlarged top view of the shank of the needle after the latch-receiving groove has been enlarged by the punch; Figs. 7 and 8, views of a common needle in position and under like condition as in Figs. 1 and 2.

Referring first to the common needle, Figs. 7 and 8, the body *a* of the needle has a slit, *b*, formed by means of a circular saw, for the reception of the latch *c*, which is pivoted at *d* in the said slot. The saw leaves the ends of this slit *b* square; but subsequent grinding results in throwing into the slit a fin which contracts it more or less towards its ends, as at *e*, so that the latch *c*, when turned back on the body of the needle, as shown in dotted lines, Fig. 7, wedges itself into the contracted part *e* of the slit, and being held there by the said fins, fails to move or turn over as readily as it should when subjected to the pull of the usual loop of yarn under it, and the loop of yarn is consequently strained or broken.

In my needle the slit is first sawed in the regular way, as shown in Figs. 7 and 8, after which the punch *f* is forced into the sawed slit, cutting away the inner walls, between which the latch is to rest, and forming an enlarged tapering space, *g*, which widens from the point

where the latch-pivot will be located toward the body of the needle or its butt end, producing preferably a shoulder, *h*, in each wall, as shown in Figs. 2 and 6. The latch *k*, when turned back or on the body of the needle, as in dotted lines, Fig. 1, easily enters this enlarged space and rests on the shoulders *h*. This slit *b* may be enlarged gradually from near the pivot *d* of the latch to the shoulders *h*, the lower end of the punch *f* being of course made of the proper shape in cross-section. I prefer that the slit made by the punch be also enlarged from the pivot *d* toward the hook of the needle.

15 In the common needle shown in Figs. 7 and 8 the latch *c* is tapered from its pivoted end to near the enlarged or spoon part *c*², which rests upon the hook *a*² of the needle, to thus reduce the liability of the latch sticking in the slit *b*. Such reduction in the thickness of the latch, besides weakening it, leaves a very considerable swell between the latch-body and spoon, which strains suddenly, and also makes it harder to cast off the loops.

25 In my improved needle the latch *k* is made thicker and stronger, and its sides are more nearly parallel with the latch *b* of the common needle, the sides of the latch, and the spoon thereof; or, in other words, the latch *k*, Fig. 2, as compared with the latch *b* of the common needle, Fig. 8, is gradually increased in thickness from its pivoted end to the sides of the

spoon, such construction being possible by reason of enlarging the latch-receiving slit from near the pivot *d* toward its end in the direction of the butt of the needle. 35

I claim—

1. As an improved article of manufacture, a latched knitting-machine needle composed of a latch and a body part having the inner portion of its walls cut away to enlarge the latch-receiving slit from near the pivot of the latch toward the end of the slit in the direction of the butt of the needle, whereby the liability of the latch to catch in the said slit is obviated, substantially as described. 45

2. As an improved article of manufacture, a knitting-machine needle composed of the latch *k*, shaped as shown and described to strengthen it and enable the loop on the body of the needle to be cast over the latch without sudden strain, and a body part having a slit widened from the pivot of the latch toward the butt of the needle, and having shoulders upon which the latch may rest when thrown over on the body of the needle to uncover the hook of the needle, substantially as described. 50 55

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

FREDERICK E. GILFORD.

Witnesses:

ALBERT P. BROWN,

GEORGE I. McALLISTER.