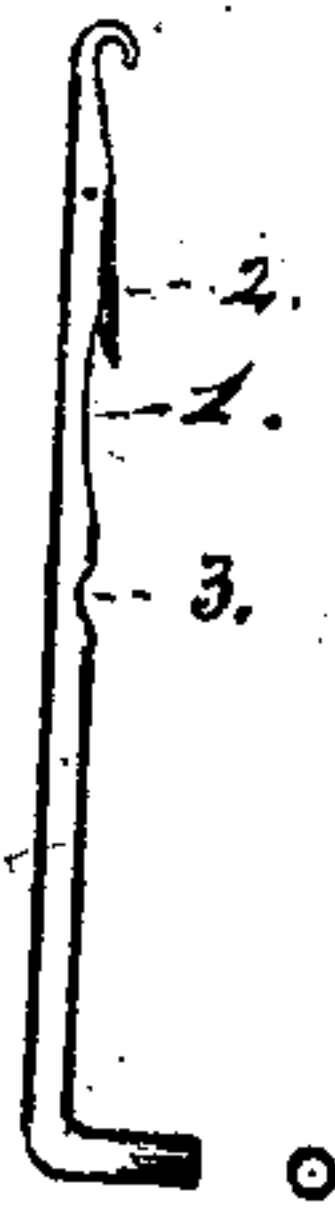


D. BICKFORD.

Improvement in Knitting-Machine Needles.

No. 132,382.

Patented Oct. 22, 1872.



WITNESSES:
H. Bradford,
J. T. Bradford

Dana Bickford, INVENTOR:
by John J. Halsted,
his Attorney.

UNITED STATES PATENT OFFICE.

DANA BICKFORD, OF NEW YORK, N. Y.

IMPROVEMENT IN KNITTING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. **132,382**, dated October 22, 1872.

To all whom it may concern:

Be it known that I, DANA BICKFORD, of the city, county, and State of New York, have invented certain new and useful Improvements in Latch Knitting-Needles; and I do hereby declare that the following, taken in connection with the drawing which accompanies and forms part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

My improvements relate to "latch" knitting-needles; and consist in a peculiar construction of the same.

The drawing illustrates a latch-needle having my improvements.

In the drawing, 1 designates the cut or "slab," and 2 the open latch, the nib or spoon of the latter reaching, as will be seen, just enough beyond the commencement of the cut, and the cut being abrupt enough to leave an angle between the two large enough to insure that the largest yarn that can ever be used in the machine shall run freely under the latch without any danger of splitting the yarn; while, at the same time, the latch itself shall be permitted to lie when open, as nearly as practicable, in a flat position—that is, as nearly as may be parallel with the axis of the needle—so as to allow the newly-formed loop to ride back over the latch without being torn or distended thereby. The cut-away space 1 extends some considerable distance back of the spoon of the latch, so as to permit the yarn of the discharging loop, as the needle is drawn back, to be well flattened down, and to ride as far as practicable in such condition before it passes under the latch. A notch for permitting the needle to be hung up out of action by the mere hold upon it of its own loop is seen at 3. This simple device for performing so important a duty, and whereby an operator can, at will, and at an instant's notice, change the character of the work without using any implement, or removing a needle from the machine, will be readily understood by supposing the circular cylinder of a family knitting-machine to be fully supplied with the needles: if now it be required, in order to make a particular style of fancy work, or to vary the style of goods already in the machine, to throw out of action some of the needles, say every third or fourth or tenth one, as the case may be, in regular order, or in any other order, regular or irregular, each of such needles needs only to be lifted by the

operator until its loop lodges in the notch 3, when it will be permanently held up out of the reach of the cams until it is desired again to bring it into action, which can then be instantly done by simply pushing it down to place again; after which the cams, in their movements, will operate them as before. It will be, of course, understood that the position of the notch relative to the lower end of the needle must be always such that when lifted the butt shall be clear of the cams; and the form and depth of the notch are immaterial, so long as they are sufficient properly to effect the object, and permit the loop to hold the needle suspended.

Instead of the notch 3 on the hooked side of the needle, a notch or notches may be made on other sides of the needle; or a little swell, projection, or bend, or equivalent device may be employed, adapted to accomplish the same purpose.

Needles are generally flattened at their sides, that their shanks may properly play in the grooves of the frame or cylinder, and not turn in their grooves, or, in other words, upon their axes, and so fail to take the yarn and to do their work. This flattening also extends to and includes the butt, the portion of said butt which runs or rides over the cams being also flattened, but without any object, it being simply easy to flatten the whole while flattening the shank. It is found in practice that the sharp edges thus given to the butt rub directly upon the cams and wear them away; and that, in case of extra friction, they also cut the cams and make ruts in them. This makes it also necessary to use a harder character of steel for the cams.

To avoid these bad effects and remedy the difficulty in a simple yet thoroughly practical manner, I make the butt, or such part of it as runs over the cams, cylindrical in cross-section, as seen in the drawing. If desired this cylindrical part may have a friction-roller placed on, still more to lessen the wear.

I claim—

The knitting-machine latch-needle having the cut 1, the notch 3 or its equivalent, and the butt made cylindrical, in whole or in part, substantially as shown and described.

DANA BICKFORD.

Witnesses:

W. BRADFORD,
RD. A. HYDE.