

JOHN BRADLEY.

Improvement in Knitting-Machines.

No. 126,621.

Patented May 14, 1872.

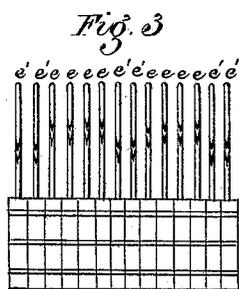
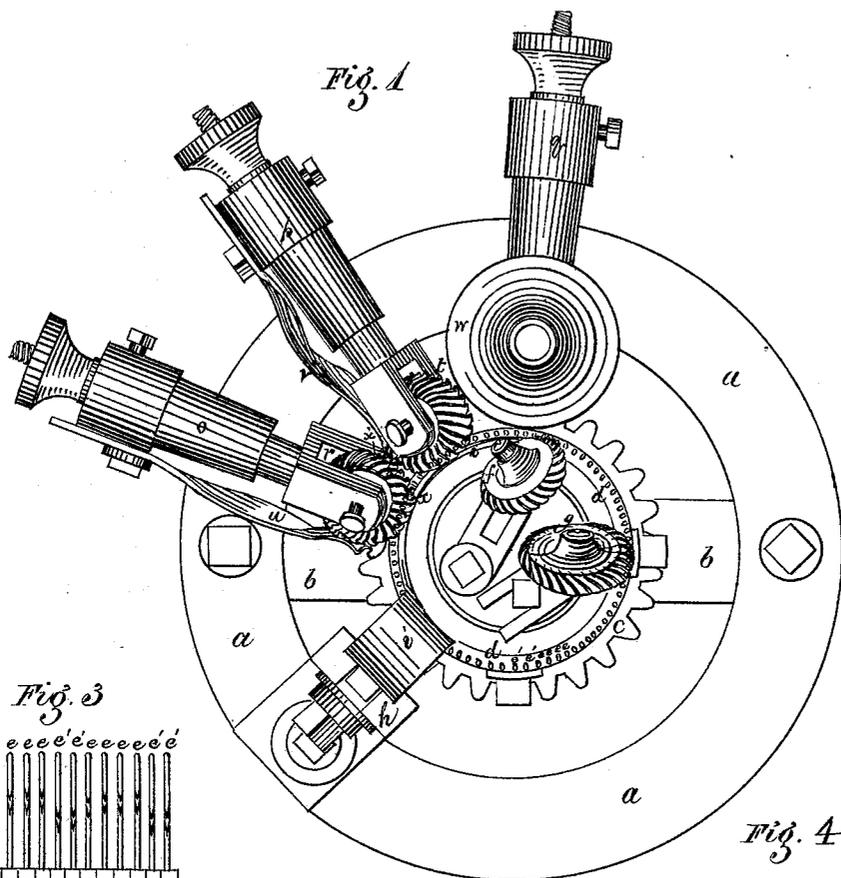


Fig. 4

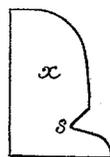
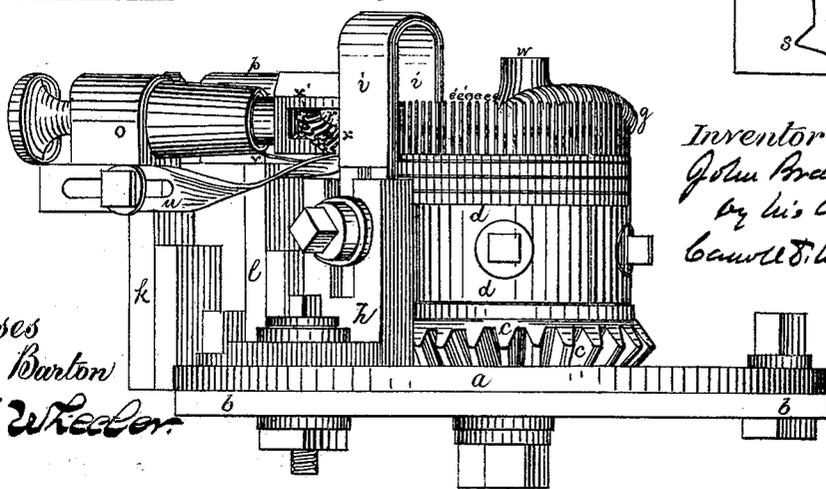


Fig. 2



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UNITED STATES PATENT OFFICE

JOHN BRADLEY, OF LOWELL, MASSACHUSETTS.

IMPROVEMENT IN KNITTING-MACHINES.

Specification forming part of Letters Patent No. 126,621, dated May 14, 1872.

SPECIFICATION.

I, JOHN BRADLEY, of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Knitting-Machines, of which the following is a specification:

Figure 1 of the drawing is a top view, and Fig. 2 is a front view of my improved knitting-machine. Fig. 3 is a projection of the needle-cylinder, showing the arrangement of the short and long beard needles; and Fig. 4 is a view, in detail, of one of the notched teeth of my improved loop-wheel.

The object of the present invention is to knit a straight-up stripe of different colors, either plain or mixed, by one machine, without varying or stopping its operation, or damaging its needles. My improvements consist, principally, in so arranging and forming certain mechanical devices connected with a knitting-machine, to be more fully described hereafter, as to throw a thread or loop over the ends of a series of long-beard needles placed on a circular head of the machine, alternately between a series of short beard needles, and operating with the other usual devices of a knitting-machine, so as to produce a straight upright stripe in the stocking or other article manufactured.

a a a in the drawing represent a circular plate or rim of a knitting-machine, having a cross-bar, *b b*, on which works a gear-wheel, *c*, carrying a circular head, *d d*, which contains a series of long-beard needles, *e' e'*, arranged alternately between a series containing a larger number of short-beard needles, *e e e e*; the number of beard needles in each series being arranged according to the width of the stripe desired. Operating on the inside of the needles *e e e e e' e'* is a landing-wheel, *f*, and a knocking-over wheel, *g*. Attached to the plate *a a a* is a standard, *h*, in which is held the end of an adjustable curved push-back, *i*, which extends up over and partly around the inside of the needles *e e e e e' e'*. Attached to the plate *a a a* are proper standards *k l*, (the other not shown in the drawing,) supporting adjustable star-boxes *o p q*. The star-box *o* supports a loop-wheel, *r*, having teeth *x x'* diagonally curved on the edge, and a portion of which, agreeing with the number of long-beard needles *e' e'*, are notched or

recessed, and formed with a nib at the bottom, as shown at *s* in Fig. 4, and are placed in a series alternately between a series of curved diagonally-shaped teeth, which are formed as usual with a nib at the bottom, and have no notch or recess. The number of the notched or recessed teeth *x* and the number of the usual nibbed teeth alternating with each series, depends on the width of the stripe required, though generally two notched or recessed teeth are placed between four common nibbed teeth, and the long and short beard needles *e' e'* and *e e e e* are arranged to correspond in number, respectively, with the notched teeth *x* and common nibbed teeth *x'*. The star-box *p* supports a loop-wheel, *t*, formed with diagonally-curved teeth with a nib projecting from the lower portion of each face, as usual. Each of the loop-wheels *r* and *t* is provided with a guide, *u* and *v*, for the purpose of guiding the thread into the wheels. The star-box *q* supports a presser-wheel, *w*, which presses the beards of the needles *e' e' e e e e* in, while the landing-wheel *f* places the loops on the beards of the needles.

The operation of my improvements is as follows: Power being applied to the machine, the thread, inserted in the guide *u*, is conducted by the loop-wheel *r* under the four, or other number, short-beard needles *e e e e*, and the notched or recessed teeth *x* carry a loose loop over the two, or other number, long-beard needles, *e' e'*, thus partly finishing the stripe. The other loop-wheel, *t*, which is supplied with a thread of another color from that carried by the loop-wheel *r*, takes up the space left by the notched or recessed teeth *x*, and carries its thread under all the beards of the needles *e' e' e e e e*, thus completing the stripe.

In knitting-machines of similar description heretofore in use only one loop-wheel and a dividing-wheel is used in making a plain stocking; and, in order to form stripes in knitting, a certain number of teeth have been formed with plugs between each, and arranged alternately between a number of unplugged teeth, so as to press the needle-beards in as they passed the teeth, which arrangement is objectionable on account of the frequent breaking of the needle-beards; and the article formed thus is made with a long loose thread or loop

at the back, causing, in a stocking, great annoyance to the wearer; besides, by the method heretofore in use, a stripe of only one color is produced, while by my improvements a single colored or mixed stripe is perfectly furnished.

In my invention the above objections are obviated, first, by doing away with the pressure of the loop-wheels *r* and *t* on the needles *e' e' e' e' e'*, my wheels *r* and *t* being so arranged that their teeth are run between instead of, as in the machine above referred to, being plugged so as to press against and break the needles; and secondly, by the action of my extra loop-wheel *r*, provided with its guide *u*, which throws a loop over two needles, instead of throwing a long loop over four needles, as heretofore, thus making a short loop and bringing the thread straight and firm at the back. By my improvements I am enabled to perform as much work, and as easily, with fancy stripes, as is done by any ordinary plain-knitting machine, no readjustment, alteration, or stopping of the machine being necessary to introduce plain, colored, or mixed stripe-work on the plain body of the article manufactured.

Having thus fully described my improvements, what I claim as my invention, and desire to have secured to me by Letters Patent, is—

1. A knitting-machine provided with loop-wheels *r* and *t* and guides *u* and *v*, the loop-wheel *r* having a series of diagonally-curved teeth, *x*, formed with a notch or recess, *s*, placed alternately between a series of diagonally-curved teeth formed with nibs, and operating, in connection with a series of short-bearded needles, *e e e e*, arranged alternately between a series of long-bearded needles, *e' e'*, attached to a circular head, *d d*, and with the other usual devices connected with the machine, so as to form either a plain or mixed colored upright stripe in a stocking or other article, substantially as specified.

2. The loop-wheel *r*, formed with a series of teeth, *x*, having a diagonally-curved edge, with a notch or recess, *s*, at its lower portion, the said teeth *x* being arranged alternately between a series of diagonally-curved nibbed teeth, substantially as specified.

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

JOHN BRADLEY.

Witnesses:

CARROLL D. WRIGHT,
SAML. M. BARTON.