

A. B. JOHNSON.

YARN OR THREAD GUIDE FOR KNITTING-MACHINES.

No. 176,315.

Patented April 18, 1876.

Fig. 1.

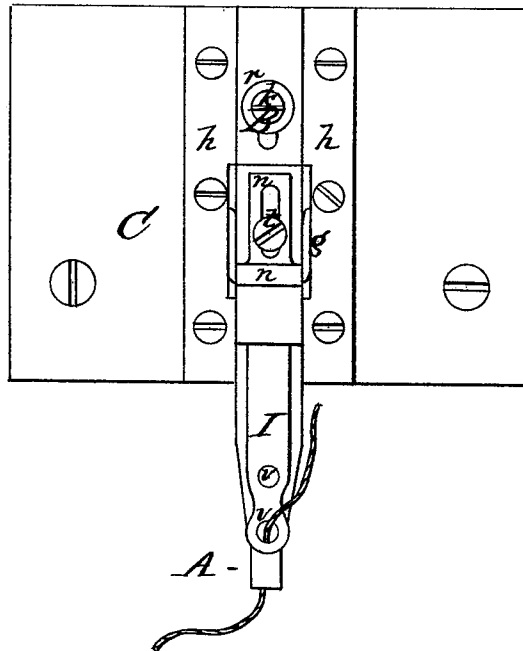
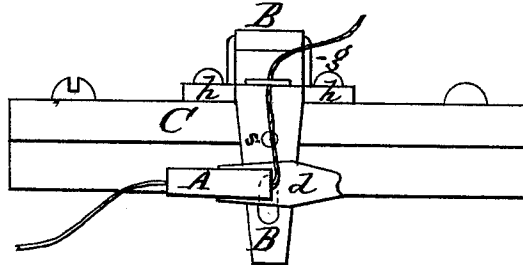


Fig. 2.



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Fig. 3.

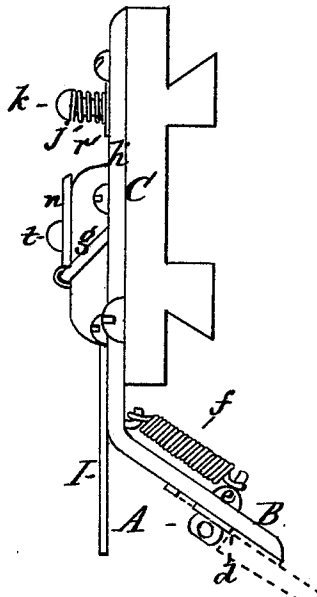
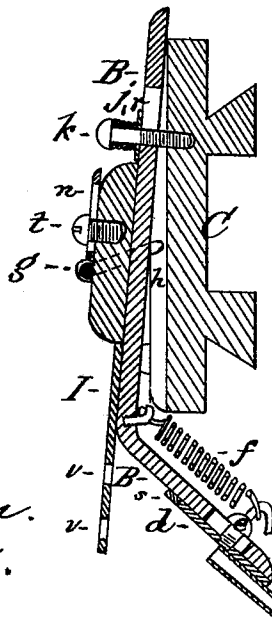


Fig. 4.



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UNITED STATES PATENT OFFICE.

ALFRED B. JOHNSON, OF NEW BRUNSWICK, NEW JERSEY, ASSIGNOR TO
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IMPROVEMENT IN YARN OR THREAD GUIDES FOR KNITTING-MACHINES.

Specification forming part of Letters Patent No. **176,315**, dated April 18, 1876; application filed
October 23, 1875.

To all whom it may concern:

Be it known that I, ALFRED BENJAMIN JOHNSON, of New Brunswick, in the county of Middlesex and State of New Jersey, have made an invention of certain new and useful Improvements in Yarn or Thread Guides for Knitting-Machines; and that the following is a full, clear, and exact description and specification of the same.

In the operation of knitting-machines it frequently happens that a needle or a sinker is broken, and that the contact of one or the other with the yarn-guide causes a further breakage and necessitates the stoppage of the machine for repair. The object of the invention which constitutes the subject-matter of this patent is to render the yarn-guide yielding, so that its nib or beak from which the yarn runs may give way without breakage when it comes in contact with an obstacle, thus obviating the further breakage of the parts of the machine.

The invention consists of certain combinations of mechanical devices which are defined in detail at the close of this specification.

In order that the invention may be fully understood I have represented in the accompanying drawing, and will proceed to describe, a yarn-guide embodying my invention in the best form thus far devised by me, such yarn-guide being applicable to machines of the Kilbourn and Paget class, in which the needles are arranged in a straight horizontal series. The improvement, however, is applicable to other classes of knitting-machines.

Figure 1 represents a front view of the said guide. Fig. 2 represents a view of the under side of the same. Fig. 3 represents a side view of the same, showing, by dotted lines, its normal position relatively to a needle, and by full lines its position when deflected laterally by contact with a needle. Fig. 4 represents a vertical transverse section of the same.

The yarn-guide represented in the accompanying drawings is arranged to be used in a knitting machine, in which the needles and sinkers are carried past the yarn-guide; but the invention may be applied to those machines in which the yarn-guide is carried past the needles and sinkers. The beak or nib A

of the yarn-guide is tubular, and is connected with the shank B, which is connected with the stock C. In order that the nib may yield laterally when it is brought in contact with an obstacle, it is made movable relatively to its shank by being secured to a plate, *d*, which is fitted at its inner side with a stud, *e*, that is received in a slot formed in the lower part of the shank B. The inner end of the stud *e* is hooked onto a spring, *f*, which tends to draw the plate and nib upward; and the upper end of the plate *d* is notched to fit against a pin, *s*, which holds the plate and nib down in its position for delivering yarn, and also holds the nib in its position centrally. As the notch in the upper end of the plate is shallow the contact of the nib, with a slight obstruction, detaches the notched end of the plate from the holding-pin. Consequently, the plate can turn laterally upon the stud *e* as a center to permit the nib to yield, and at the same time the tension of the spring *f* draws the plate and nib upward, so that breakage by the lateral contact of the nib with an obstacle is effectually prevented. When the obstacle is removed the nib can readily be restored by the attendant to its working position by engaging the notched end of the plate *d* with the holding-pin *s*.

In order that the yarn-guide may be permitted to yield bodily to an obstacle which is brought vertically into contact with it, the shank B of the yarn-guide is connected with the stock C by means of a link, *g*, which permits the yarn-guide both to rise and to move outward. The shank is held laterally by means of check-pieces *h h*, which embrace the shank loosely between them. The upper end of the shank is held to the stock by a spring, *j*, which is applied to a stud, *k*, that is secured to the stock C. The shank is slotted, so that it can move freely on the stud *k*, and a washer, *r*, is provided to form a bearing for the spring. By reason of the connection of the guide-shank B with its stock C by the link *g*, and of the loose connection effected by the spring *j*, the nib A is permitted to rise and move outward, and thus yield to an obstacle that would otherwise cause breakage; and when the obstacle is passed the action of gravity, coupled

with that of the link *g*, causes the nib to descend and move backward to its working position. In order that the position of the nib of the guide may be adjusted vertically, the link *g* is not connected rigidly to the shank, but is connected with it through the intervention of a movable bearing, *n*, which is secured to the shank by a screw, *t*, which may be slacked and tightened, so that the link-bearing *n* may be moved to allow the guide-nib to be raised or depressed, and to be secured in the desired position. The shank of the yarn-guide is fitted with a plate, *I*, perforated with guide-eyes *v v*, to make tension on the yarn on its way to the tubular nib.

The invention is not restricted to the peculiar construction of the parts represented in the drawing, as these may be varied as circumstances or the views of different constructors render expedient.

I do not claim, broadly, the combination of a yarn-guide with a hinge, so that it may be vi-

brated by a cam for the purpose of changing positively the working position of its nib; but

I claim as my invention—

1. The combination, substantially as before set forth, of the shank of the yarn-guide, with a movable yielding nib, whereby the said nib is permitted to move independently of the driving mechanism of the guide when the nib meets an obstacle.

2. The combination, substantially as before set forth, of the shank of the yarn-guide, the movable nib, and the spring which acts upon said nib.

3. The combination, substantially as before set forth, of the shank of the yarn-guide, the stock, and the link.

Witness my hand this 11th day of September, A. D. 1875.

ALFRED B. JOHNSON.

Witnesses:

LUCIUS P. PORTER,

HENRY MCMURTRY.