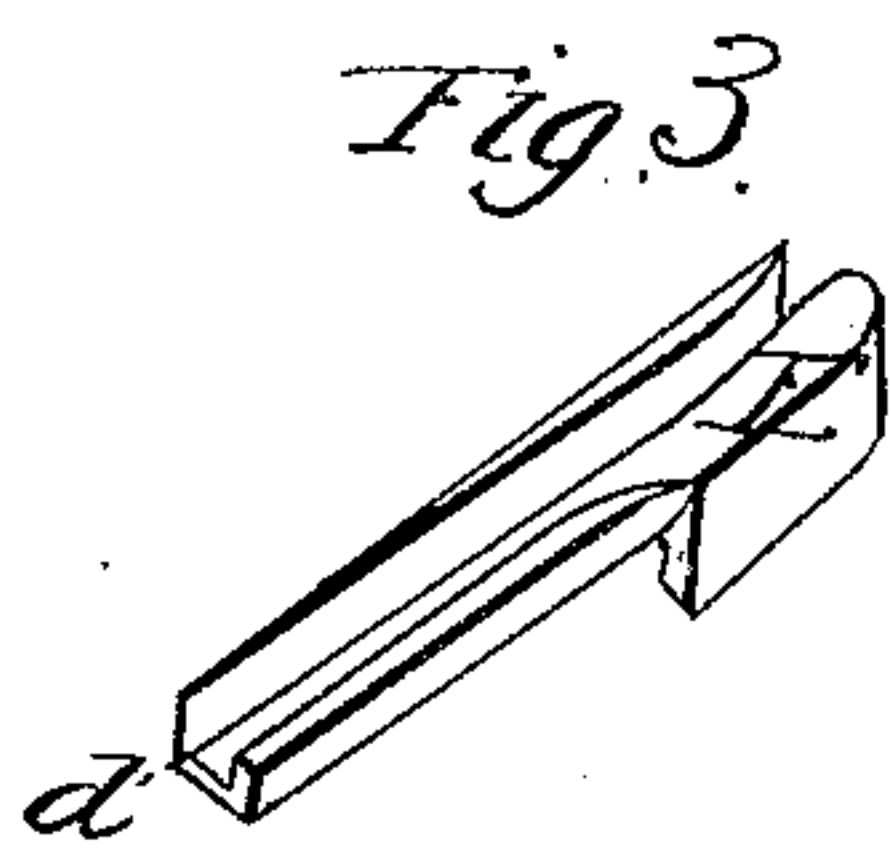
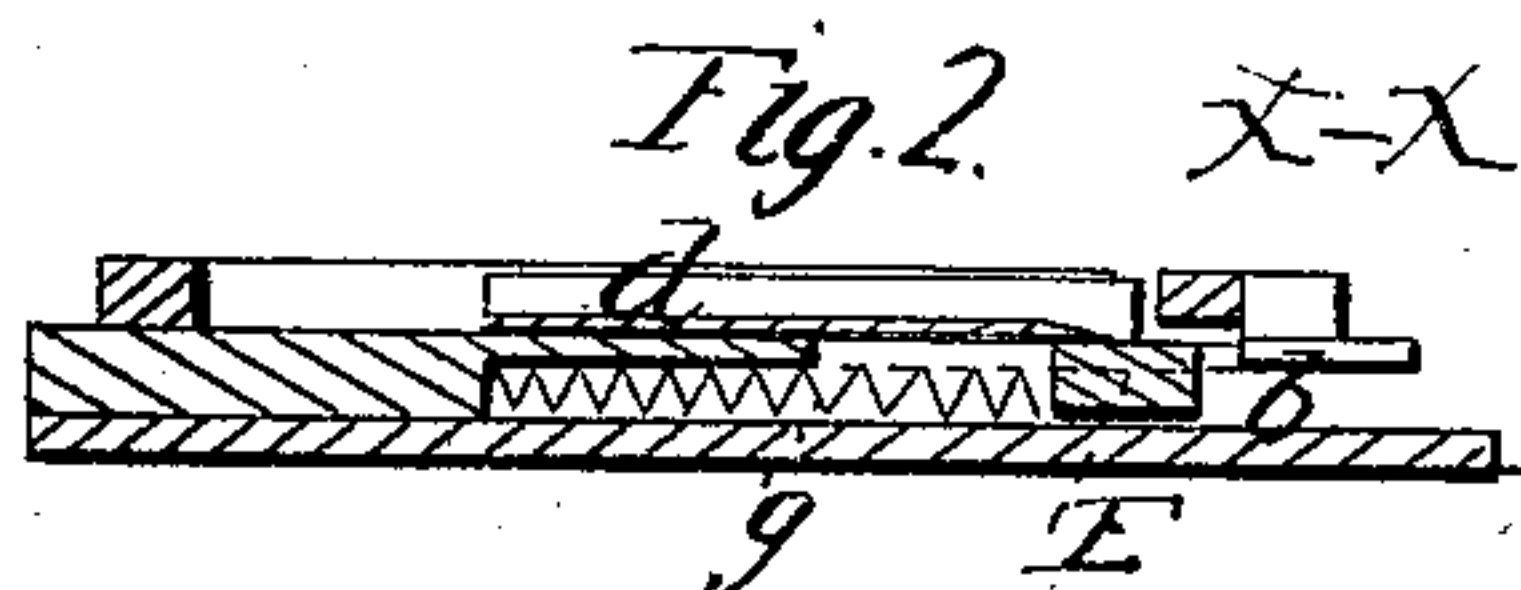
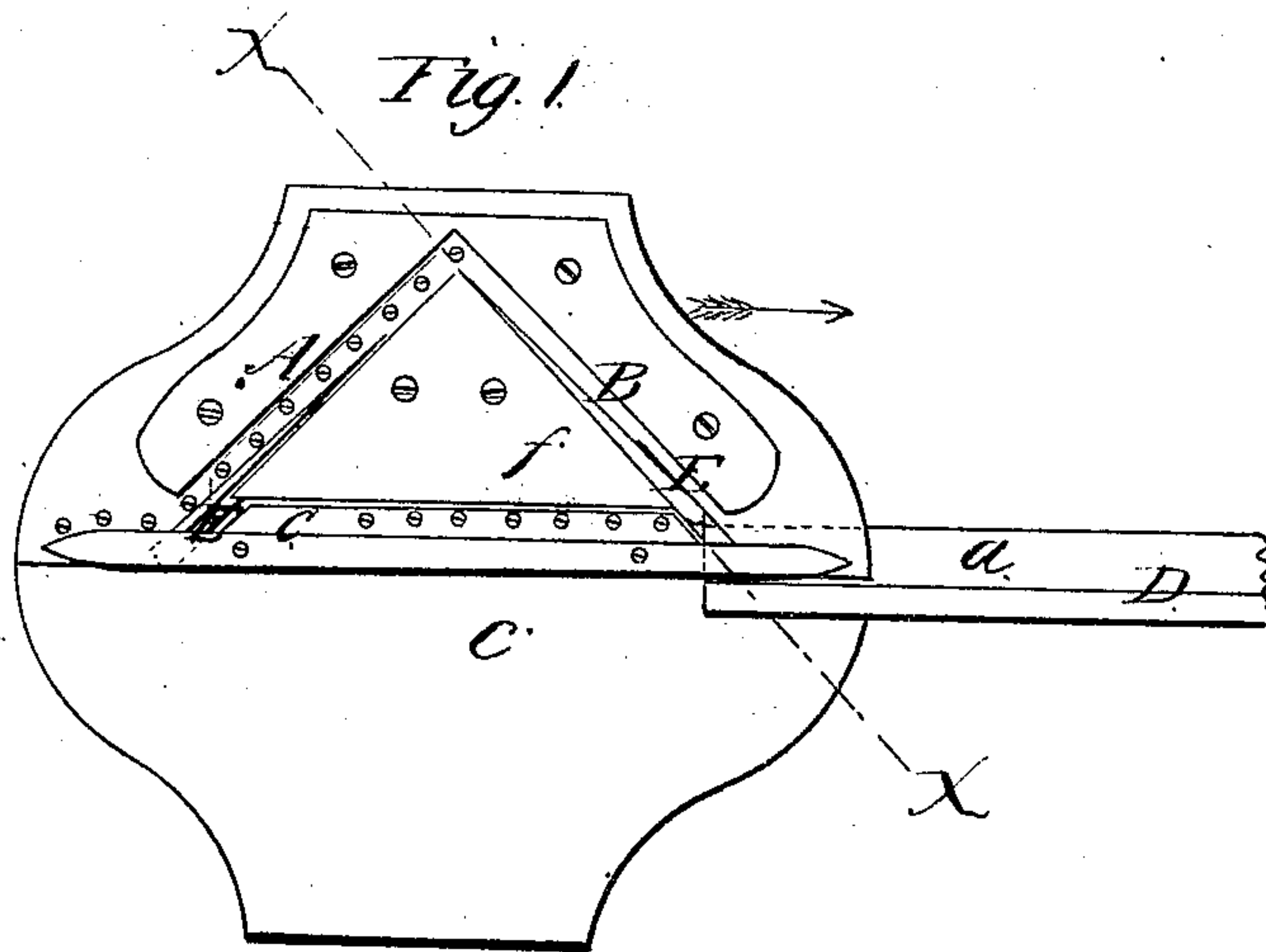


Davis, Blakeslee & Allen.

Straight Knitting Mach.

No. 101,106.

Patented Mar. 22, 1870.



Witnesses:

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United States Patent Office.

ANTHONY G. DAVIS AND CHARLES W. BLAKESLEE, OF WATERTOWN, AND ALPHEUS N. ALLEN, OF WESTVILLE, ASSIGNORS TO "THE CHAPIN KNITTING-MACHINE COMPANY," OF NEW HARTFORD, CONNECTICUT.

Letters Patent No. 101,106, dated March 22, 1870.

IMPROVEMENT IN KNITTING-MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that we, ANTHONY G. DAVIS and CHARLES W. BLAKESLEE, both of Watertown, Litchfield county, Connecticut, and ALPHEUS N. ALLEN, of Westville, New Haven county, in the same State, have invented certain Improvements in Knitting-Machines; and we do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of our invention sufficient to enable those skilled in the art to practice it.

In the United States patent, No. 79,897, granted to Blakeslee, Beecher, and Davis, July 14, 1868, there was employed a detachable "automatic traveler," which was operated by a projection on the needle-actuating cam-plate, this movement of the traveler along a toothed rack reducing the number of needles brought into action, and gradually lessening the range of traverse of the cam. In that patent the needle-actuating cam had a groove which was always open, and in its traverse in either direction the needles necessarily were elevated in regular succession by the rising inclination of the groove. As a consequence, and because there was no provision by which the needles upon which the cam was acting at the end of its traverse could be kept out of the incline, it became necessary at the end of the traverse, and before reversing the movement of the cam, to carry the yarn by hand or by a hook over a number of needles, more or less; otherwise the work would be imperfect, and leave a small hole or gap at the end of each shortened course; and it was also necessary to carry the yarn by hand around the point of the needle.

Our present invention consists in a novel construction of traversing-cam to be used in combination with an "automatic traveler," the cam being made with a self-closing gate for each groove, these gates, in their normal position, closing a horizontal groove which communicates with and connects the two inclined grooves, either gate being opened to admit into the horizontal groove the butts of the desired number of needles, and to prevent their being elevated when not wanted.

Figure 1 is a plan of our invention.

Figure 2 is a cross-section in the line $x x$ of fig. 1.

Figure 3 is a detailed view, showing the sliding gate.

A and B indicate the inclined grooves of the traversing cams; and

C, the horizontal one.

D represents a gate-lifter, to be secured to and to project from the automatic traveler, so that it may engage with the cam and come in contact with a self-closing sliding gate, E.

The portion a of this lifter is made of such thickness as to adapt it for readily entering the groove b made for it in the cam-plate c .

The gates E are so constructed that, in their movements up and down, in the act of opening or closing the horizontal passage C, they shall be steadied against any danger of lateral displacement, and for this purpose we have shown them made with a groove, d , to receive a rib on the under side of plate f .

A coiled spring, g , lying in a cavity into which it is compressed, rests against a shoulder on the gate, and thus exerts a constant pressure to force it downward, to keep the lower passage closed until opened at the proper period by the pressure caused by the striking of the lower and outer side of the gate against the end of the lifter.

When the gate is thus lifted, the further movement of the cam in the same direction in which it has been moving, compels the remaining needles which shall come under the action of the cam to enter the horizontal groove, inasmuch as they cannot ride up the inclined groove, as the gate no longer is in position to guide them upward. The effect of lifting the gate is, therefore, to break the regular line of march, and allow the butts of those needles which have entered the inclines to pursue their accustomed route until the cam has reached the end of its traverse, while the butts of those needles in the rear of the break file in succession into the straight groove.

The traveler, when struck, will, as described in the above-named patent, be shifted the distance of one tooth upon the rack, as the cam reverses its traverse, and each side of the machine is adapted for a traveler.

It will now be seen that, with the present invention, there are never any useless, non-acting needles elevated so as to be in the way of the one upon which the last stitch of the course was made; that nothing is needed to be done by hand in the act of reversing; that no needles need to be removed from their grooves for any purpose; and the yarn held by the needle upon which the last stitch or loop was formed is, upon the commencement of the reverse movement, merely turned partially around upon that needle, without in the slightest altering its relation to the stitch already made, or to the one next to be made; and that no gaps or holes are left in the fabric. As a consequence, much time is saved and a better fabric produced, and there is no need of stopping at the end of a traverse before reversing.

It will also be observed that by our construction of cam the needles may be thrown out of action at any desired portion of or position in the line of needles,

and also that this takes place while the process of knitting is going on; and, unlike that class of cams which have provision for closing the entire groove, so that the particular cam so closed becomes inoperative, our cam operates to throw needles out of action on the same side of the machine, and at the same time that it is doing its full duty in causing other needles to do their work.

We claim the combination with the traversing needle-moving cam of self-closing slides, operated during the traverse of the cam by a projection on a traveler,

to divert from the rising groove of the cam a portion of the needles, substantially as shown and described.

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