

(No Model.)

2 Sheets—Sheet 1.

C. E. NORRIS & E. VERMILYEA.

STRAIGHT KNITTING MACHINE.

No. 248,604.

Patented Oct. 25, 1881.

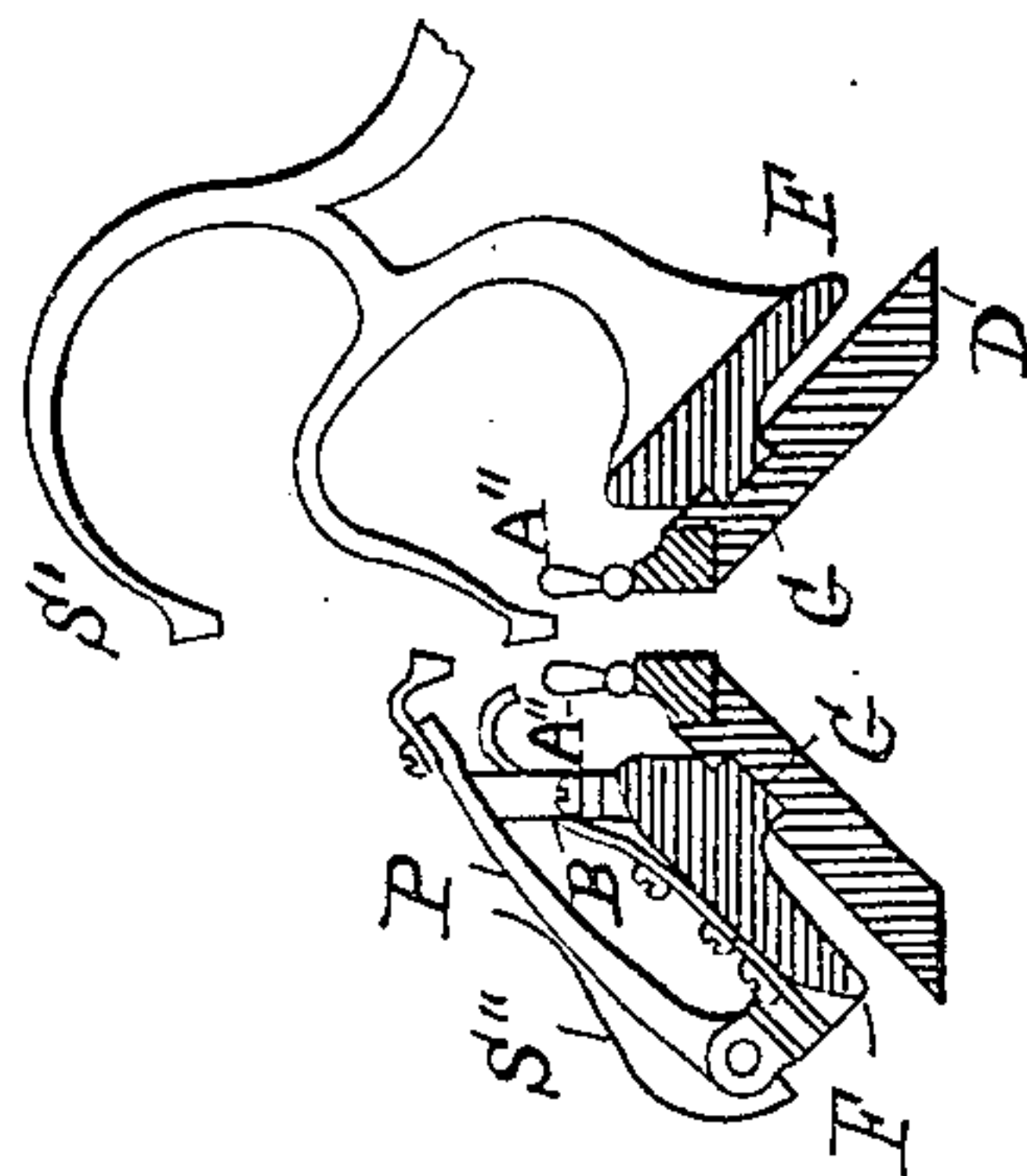


Fig. 3.

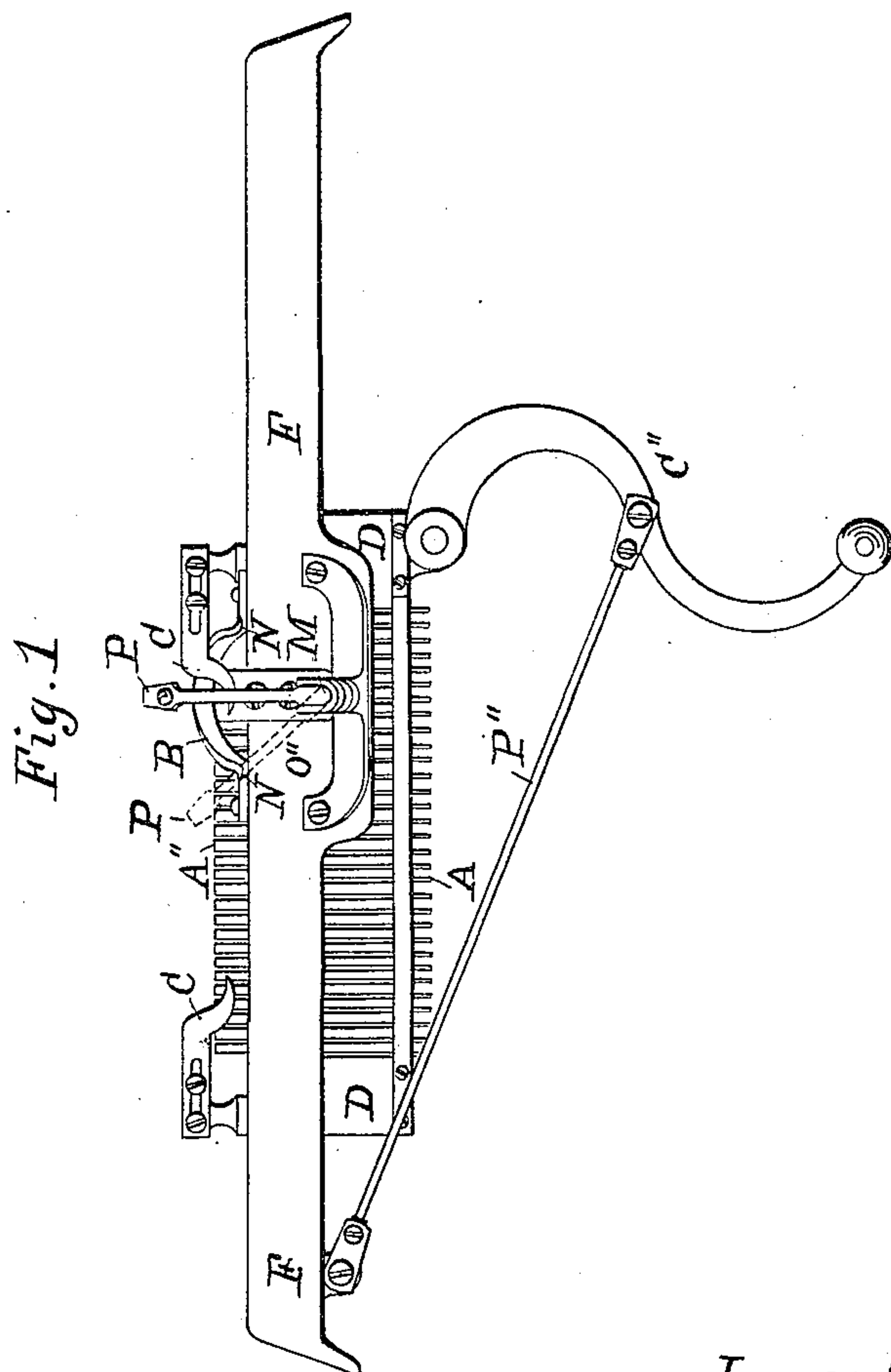


Fig. 1.

Witnesses:

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Clarence B. Carter

Inventors:

Charles Edward Norris
Eugene Vermilyea
by McHagaw
their attorney

(No Model.)

2 Sheets—Sheet 2.

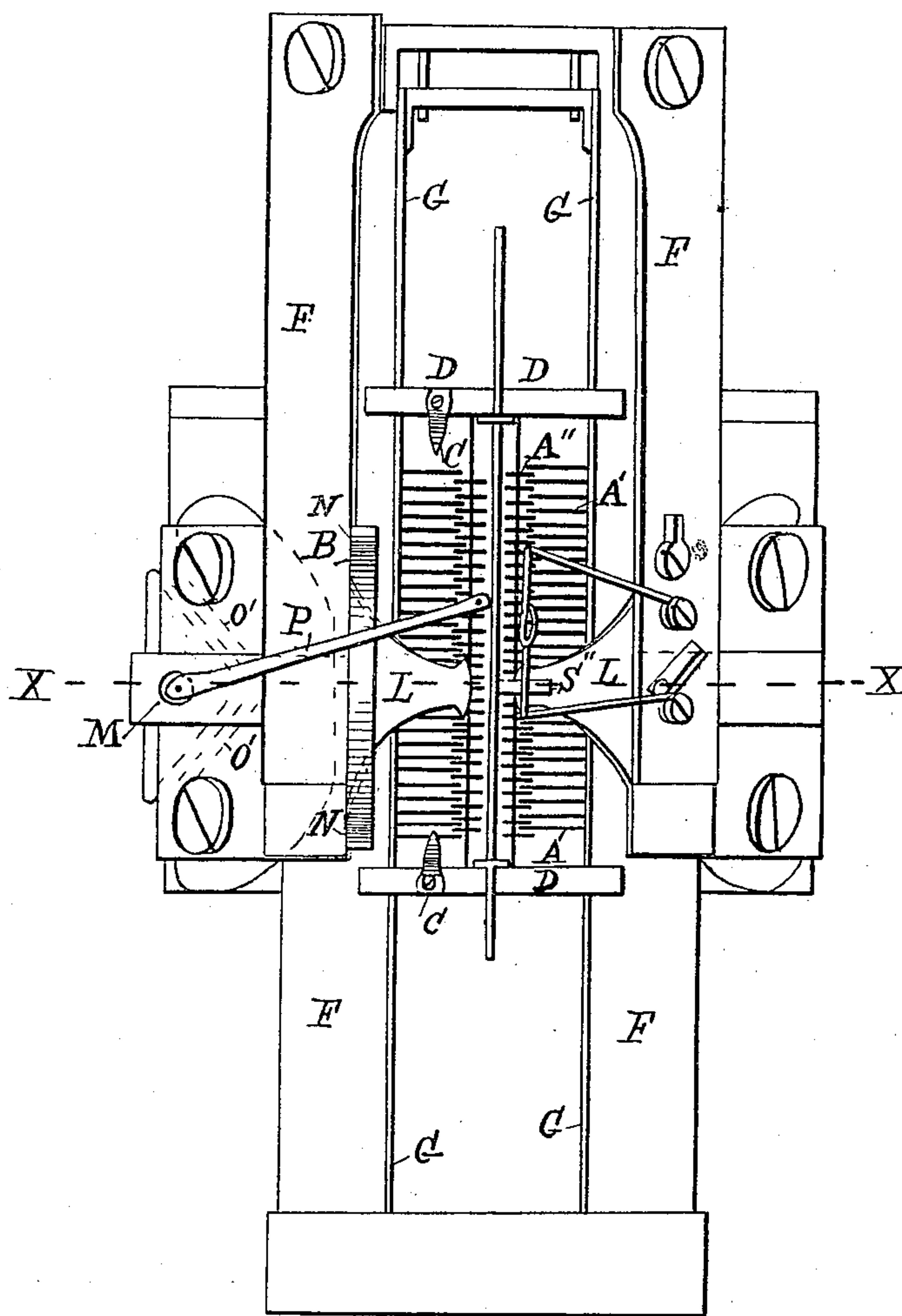
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Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES E. NORRIS, OF MILLBURY, MASSACHUSETTS, AND EUGENE VERMILYEA, OF WATERFORD, NEW YORK, ASSIGNORS OF ONE-THIRD TO EDWARD G. MUNSON, OF WATERFORD, NEW YORK.

STRAIGHT-KNITTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 248,604, dated October 25, 1881.

Application filed September 25, 1880. (No model.)

To all whom it may concern:

Be it known that we, CHARLES EDWARD NORRIS, of Millbury, county of Worcester, and State of Massachusetts, and EUGENE VERMILYEA, of Waterford, county of Saratoga, and State of New York, have jointly invented a new and useful Improvement in Straight-Knitting Machines, of which the following is a specification.

Our invention relates to that class of knitting-machines in which the needles are actuated by means of cams located between the needles and a reciprocating frame which moves along and over the machine-bed containing the needle-guideways and needles; and the object of our invention is to deliver and supply, by means of a mechanism invented by us, a thread of yarn to the machine, so that it will be inclosed in the fabric intermediately, and between the rows of stitches independently of the yarn supplied to form the latter.

The class of knitting-machines to which our invention is more particularly adapted is that which is illustrated and described in the patent granted to I. W. Lamb, dated September 15, 1863, No. 39,934.

In the accompanying drawings there are three figures illustrating our invention and its application, in all of which the same reference-letters are used to designate the same parts of the mechanism.

Figure 1 shows a side elevation of a knitting-machine containing our improvement. Fig. 2 illustrates a plan view of the same device. Fig. 3 shows a cross vertical section of the same apparatus, taken on the line X X of Fig. 2.

The arrangement of the bed containing the needles, needle-guides, and sinkers forms no part of our invention, and, being of the usual construction of machines of this class, need not be described any further than is necessary to establish their co-operation in connection with our improvement.

The several parts of the device are designated by letter reference as follows:

F denotes the frame caused to reciprocate over the machine-bed D in the sliding ways G G, when actuated by the crank C' and connecting-rod P'.

S' designates the yarn-guide which supplies the yarn from which the stitches are formed, and L L the latch-openers.

The needles and needle-guides are designated at A', and the sinkers or jack-wires at A''.

The parts composing our invention and their connected operation with the machine are designated and described as follows:

When the frame F is caused to reciprocate on the bed of the machine, (designated at D,) the cams (shown by the dotted lines O' O', Fig. 2) engage with the needles, causing them to rise and return to form the stitches, in the usual manner, from yarn fed into the machine from the bobbin through the yarn-guide S'.

At P there is shown a yarn-guide, which is attached to the frame F, and which moves with it when reciprocating, it being pivoted to the frame, as shown at M, so as to oscillate on its pivoted end.

At B there is designated an arc-form bridge, also attached to the frame F, and between the latter and the pivoted yarn-guide P. Upon the outer side of the latter, and arranged to oscillate with it, is constructed the leaf-spring S'', which forces the yarn-guide P against the bridge B, and into the recesses N N, formed at each end of the bridge at its base, when this yarn-guide P is turned down, as shown by the dotted line O'', Fig. 1.

When the machine is to be operated to use our invention, the end of the yarn is passed through the end of the yarn-guide P, and attached to the material being knit upon its edge, and the yarn-guide is then turned down, so as to precede the actuated needles. As the frame moves over and along the bed, the guide preceding the actuated needles deposits and supplies an intermediate thread or yarn below where the stitches are made, and so as to be inclosed by them. When the frame has nearly completed its traverse of the bed, and before it starts to return, the cam C, at the end of the bed D and on the side of the latter next to the bridge, engages with the yarn-guide P, and turns the latter over and along the bridge on its pivotal attachment until it is forced into the recess N upon the opposite side of the bridge, where it is again in position to

move with the frame and deposit the intermediate yarn or thread ahead of the actuated needles, as before. There is a cam, C, at each end of the bed arranged to reverse the yarn-guide P. Thus operated, the mechanism shown and described independently of the yarn forming the stitches supplies an intermediate thread of yarn which is inclosed by the latter, but which does not interfere with the ordinary working of the machine in the least, and which furnishes a very useful means for thickening up such parts of garments being made as are subject to greater wear than other portions.

While we have shown our invention as applied to what is known as the "Lamb" knitting-machine, we do not desire to limit it to the particular machine designated, for it can as an entirety be applied to any straight-knitting machine having a reciprocating frame which actuates the needles to form stitches in a similar manner, and upon which frame and bed the parts composing our invention may be attached to co-operate in substantially the same manner.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination of the frame F, the yarn-guide S', which supplies the yarn from which the stitches are formed, the additional yarn-guide P, which is pivoted to the frame and constructed to move with it, and the stationary cams C C, arranged to reverse the yarn-guide P at each traverse of the frame, as and for the purposes described and set forth.

2. The combination of the frame F, the yarn-guide S', which supplies the yarn from which the stitches are formed, the additional yarn-guide P, pivoted to the frame and constructed to move with it, the bridge B, attached to the frame and having the notches N N formed in it, and the stationary cams C C, arranged to reverse the yarn-guide P at each traverse of the frame, as and for the purposes described and set forth.

Signed at Worcester, Massachusetts, September 22, 1880.

CHARLES EDWARD NORRIS.
EUGENE VERMILYEA.

Witnesses:

M. H. COWDEN,
F. E. HARRIS.