

J. L. BRANSON.
KNITTING-MACHINE.

No. 190,952.

Patented May 22, 1877.

Fig. 1.

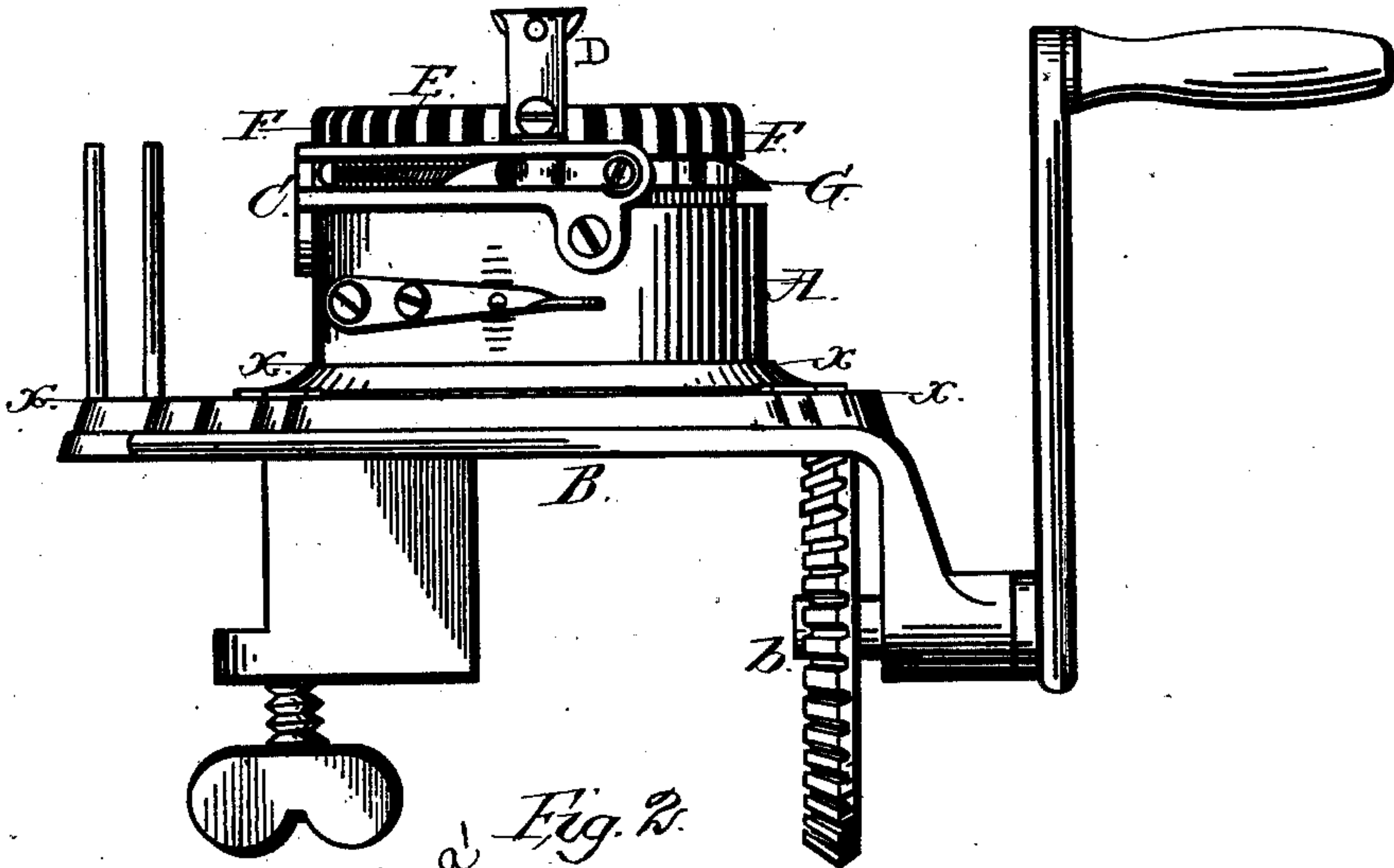


Fig. 2.

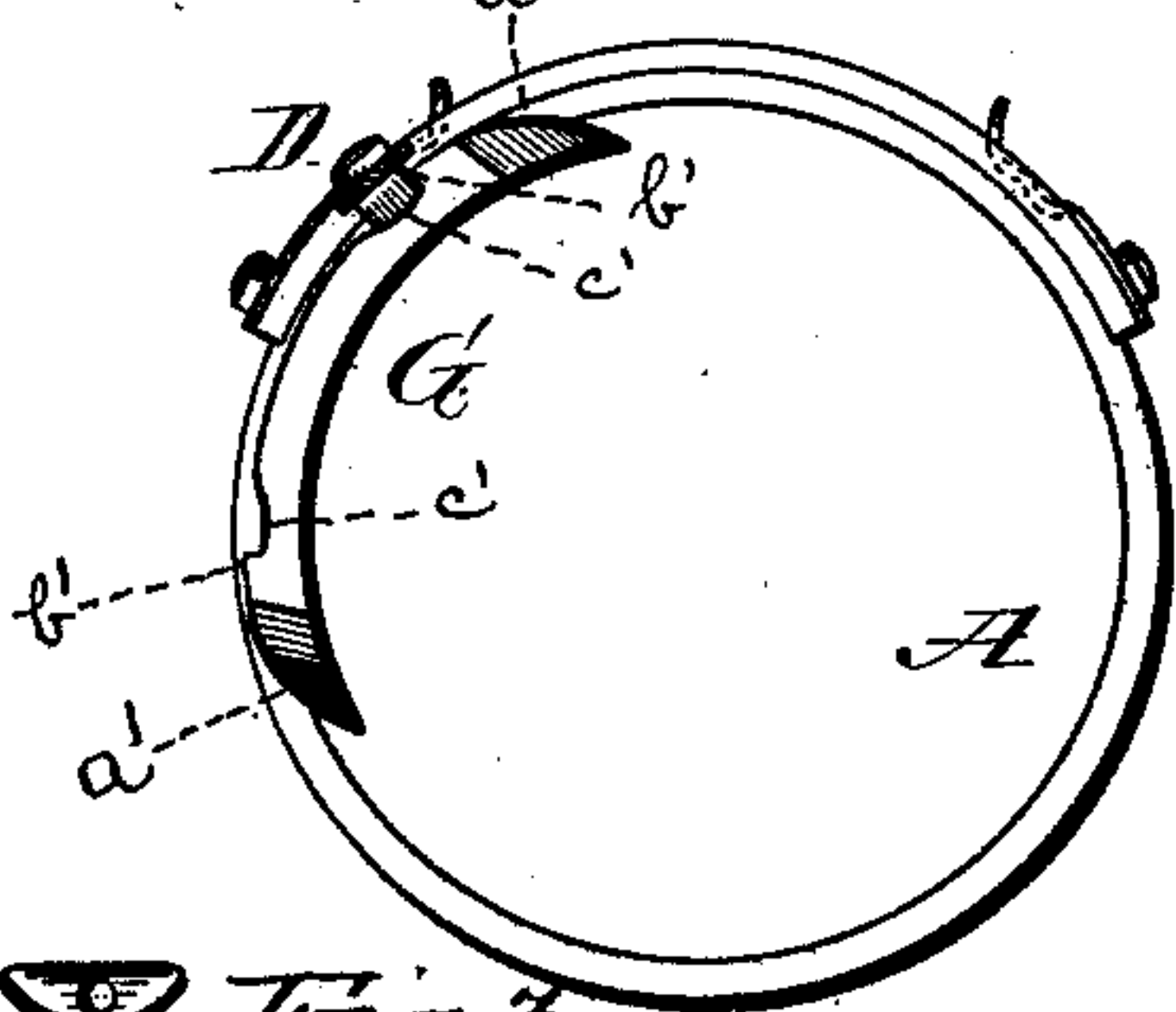


Fig. 4.

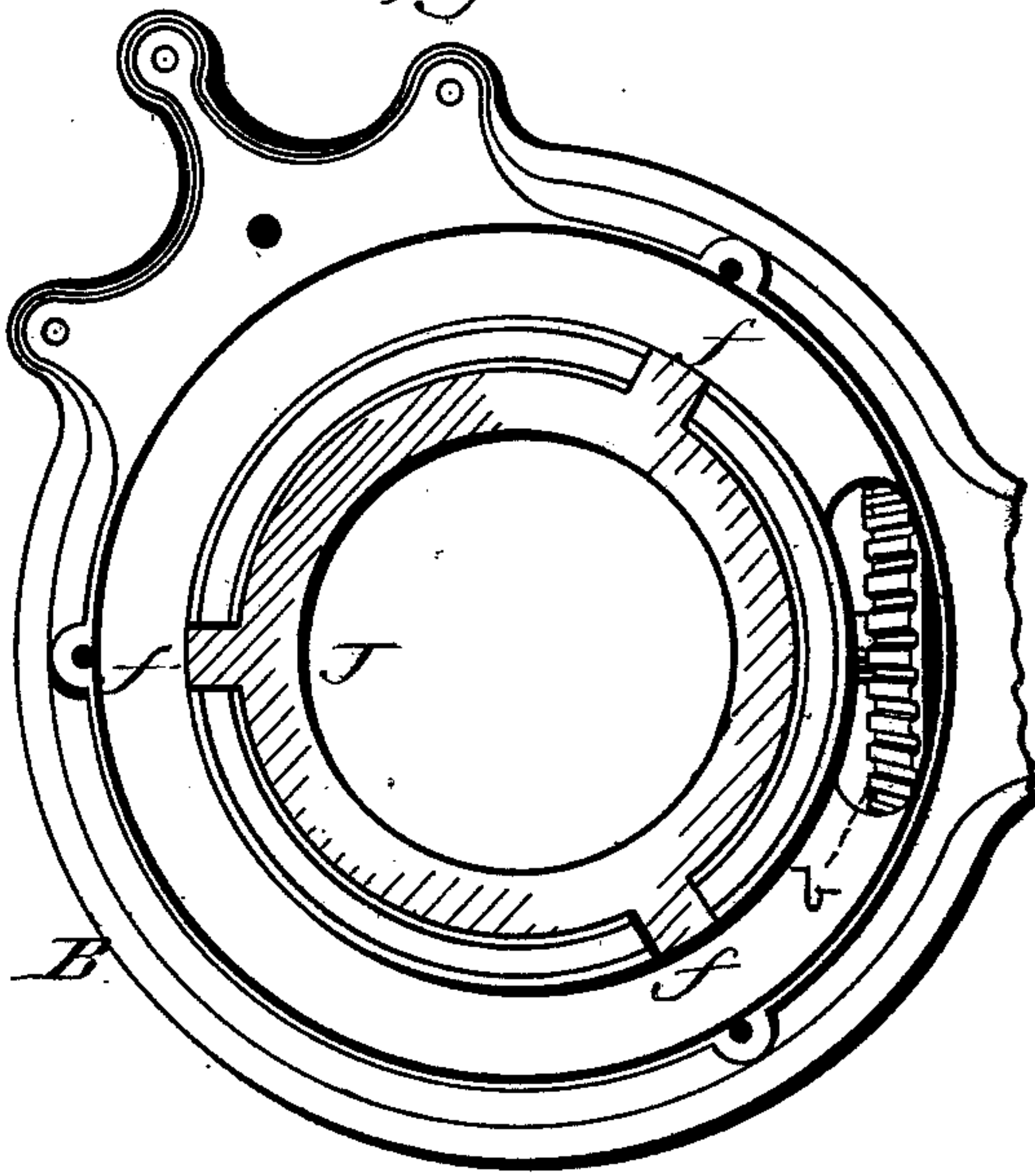


Fig. 3.

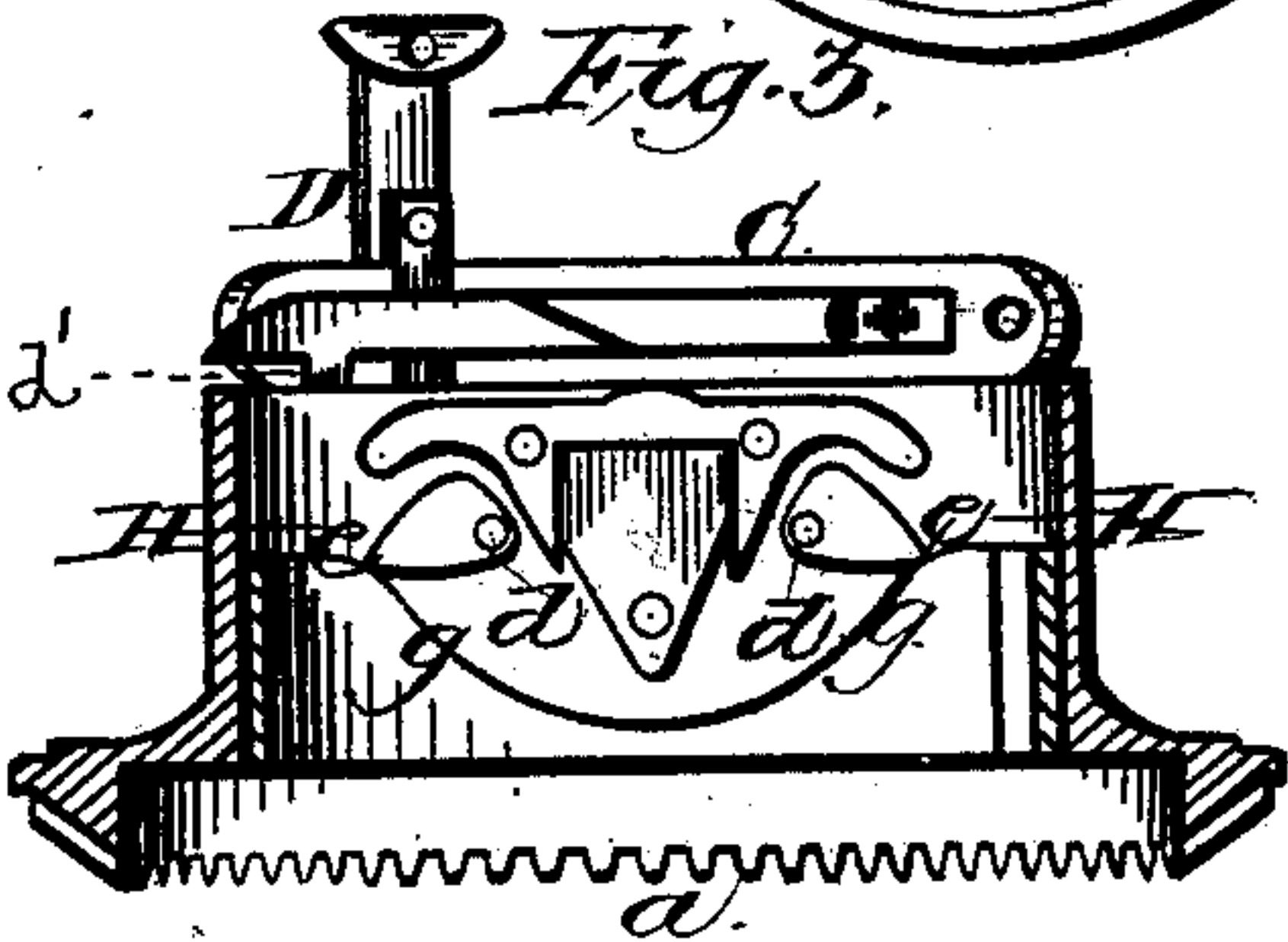
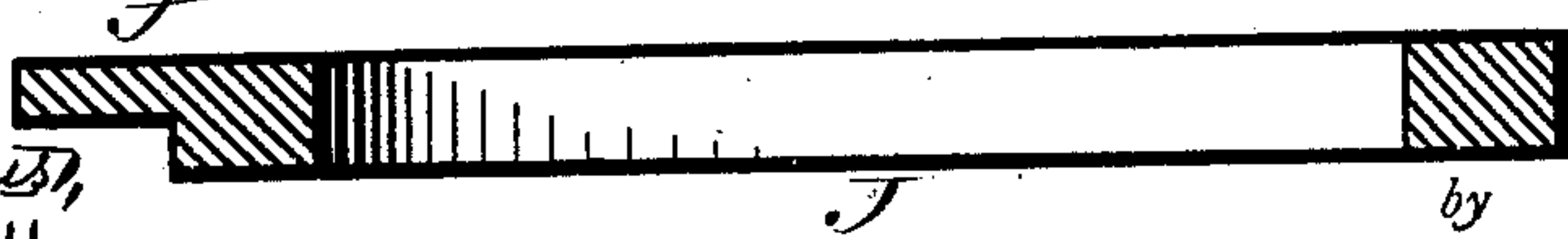


Fig. 5.



Witnesses:

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UNITED STATES PATENT OFFICE

JAMES L. BRANSON, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN KNITTING-MACHINES.

Specification forming part of Letters Patent No. **190,952**, dated May 22, 1877; application filed December 14, 1876.

To all whom it may concern:

Be it known that I, JAMES L. BRANSON, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Knitting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation of the knitting-machine embodying my invention. Fig. 2 is a top view of a portion thereof, partly sectional. Fig. 3 is a transverse vertical section thereof, the needle-cylinder removed. Fig. 4 is a top view below line *x x*, Fig. 1. Fig. 5 is a section of a detached portion.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to improvements in knitting-machines; and it consists of a sliding bar adapted to reverse the yarn-carrier from one end of the yarn-carrier holder to the other end thereof.

It also consists of an annulus removably fitted to the bed-plate, whereby said bed-plate is adapted to support cam-cylinders and needle-cylinders of various diameters, and work of different size may be produced.

Referring to the drawings, A represents the cam-cylinder, which is mounted on the bed B, and formed with or carrying a gear-wheel, *a*, which meshes with a gear-wheel, *b*, on the driving-shaft, whereby power may be communicated to the said cylinder to rotate the same. To the cylinder A there is secured a holder, C, for the yarn-carrier D, and within the said cylinder there is located the needle-cylinder E, which has vertical grooves for the needles, as is well known.

The ribs at the upper end of the cylinder E project horizontally outward, as at F, and under the projections there rides a sliding bar, G, which is of curved form, with a nose, *a'*, at each end, shoulders or stops *b'* and recesses *c'* near each end and upon the outside thereof, and a lug, *d'*, centrally on its under side. This bar G is located against the inner face of the lower portion of the yarn-carrier

D, and extends either way therefrom around the cylinder, and it rests on the upper edge of the cam-cylinder, the shoulder of one of the noses engaging with the yarn-carrier as the latter rests in one of the recesses adjacent thereto, so as to be carried therewith during the rotation of the cam-cylinder.

To the inner face of the cam-cylinder, in the cam-groove thereof, there are projecting pins *d*, on which are fitted wing-cams H, which are so hung that they will fall by their own gravity below the terminations of the ledge *e*. The needles will be elevated over one cam, and they pass out under the other cam of the opposite side.

J represents an annulus, which is fitted in the central opening of the bed B, and is suspended from the walls thereof by lugs *f*, which project laterally from the annulus, and enter grooves formed on the bed. The needle-cylinder is supported on the annulus, which occupies a portion of the central opening of the bed, thus contracting said opening; and it will be seen that by removing the annulus said opening will again possess its full space, whereby a larger cylinder may be applied, thus adapting the bed for interchangeable cylinders for production of work of different sizes.

It will also be seen that in knitting flat web or the heel and toe of stockings the lug on the under side of the sliding bar will engage the heel of the first of the needles elevated out of action, which will stop it from moving. The yarn-carrier, however, continues its motion until it engages the other shoulder on the outside of the sliding bar. This stops its motion; but the machine still revolves until the yarn-carrier is forced from under the spring, which holds it at one end of the carrier-holder, to and under the other spring at the opposite end of the same, when it is ready to be moved in the opposite direction, whereupon the like result is again produced.

The projections F of the needle-cylinder, under which rides the sliding bar, prevents the latter being raised out of place when it engages the heels of the needles.

It will be noticed that the sliding bar is held in place by the lug on its lower side resting on the upper edge of the needle-cylinder,

by its outer surface resting against the inner edge of the yarn-carrier, by its upper edge resting under the projections of the needle-cylinder, by its inner surface resting against the outer surface of the needle-cylinder.

By the use of gravitating-cams, springs or weights therefor are dispensed with, and there is simplicity of parts and ease and reliance of operation.

In my former patent springs are employed for drawing down the cams on the ledge; but they cause the cams to press with so much rigidity that the needles, in passing under them, are injured, and the sweep-cam *g* is cut away by friction of the needles in lifting the wing-cams. Furthermore, where the wing-cams rest on the ledge, anything that prevents their resting closely down on the ledge will cause the needles to catch on the point of the wing-cams and stop the operation of the machine.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The sliding bar *G*, in combination with the needle-cylinder, having projections *F* overhanging said bar, the cam-cylinder, and thread-carrier, substantially as and for the purpose set forth.

2. The combination, with the bed-plate, of the annulus *J*, formed with one or more projections upon its periphery, whereby it is supported upon the upper face of the bed-plate, and adapted to receive and hold needle-cylinders of different diameters, to the full diameter of the annulus and its projections, substantially as and for the purpose set forth.

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Witnesses:

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