

(No Model.)

2 Sheets—Sheet 1.

J. BRADLEY.
KNITTING MACHINE.

No. 244,736.

Patented July 26, 1881.

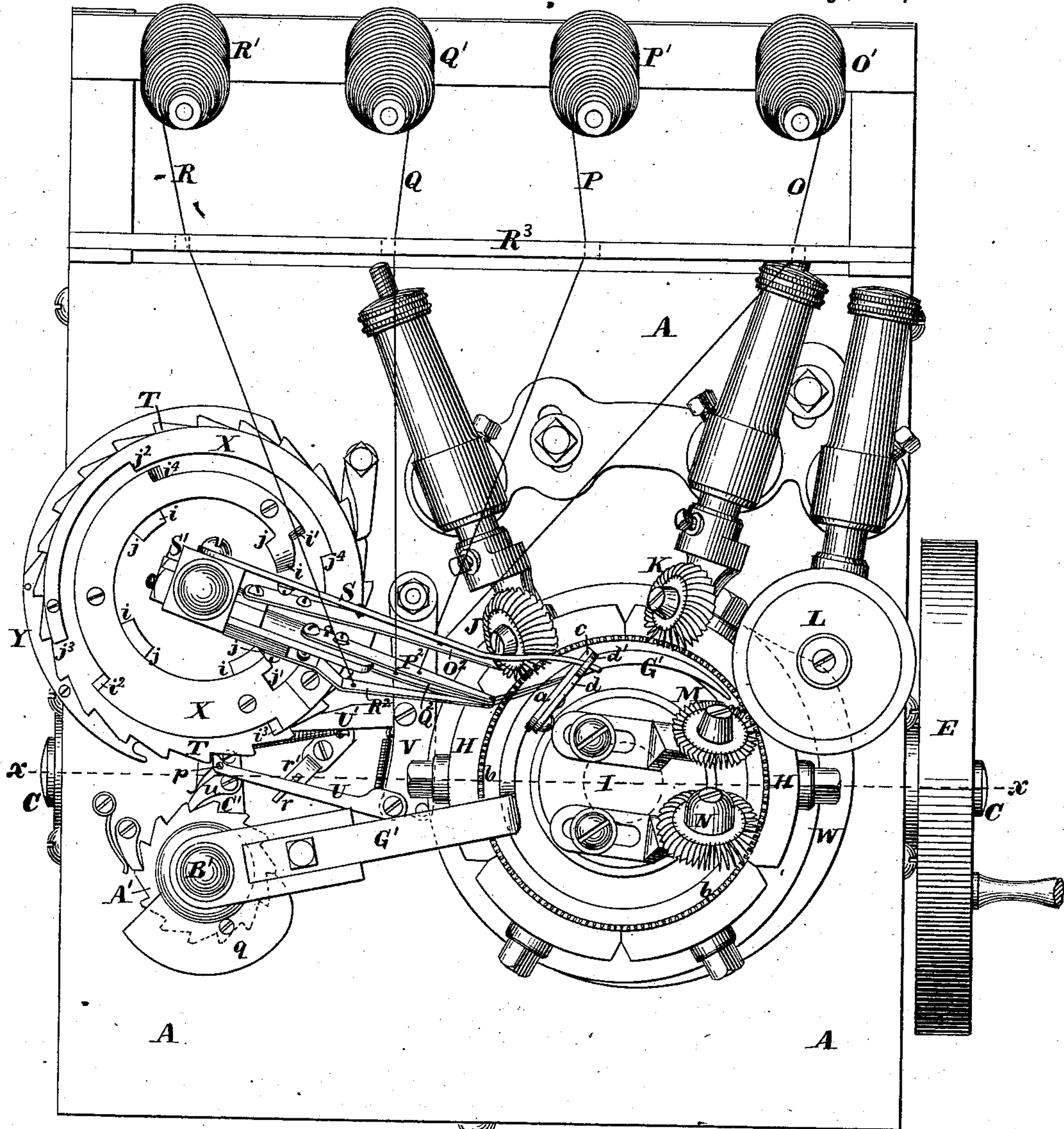


Fig. 1.

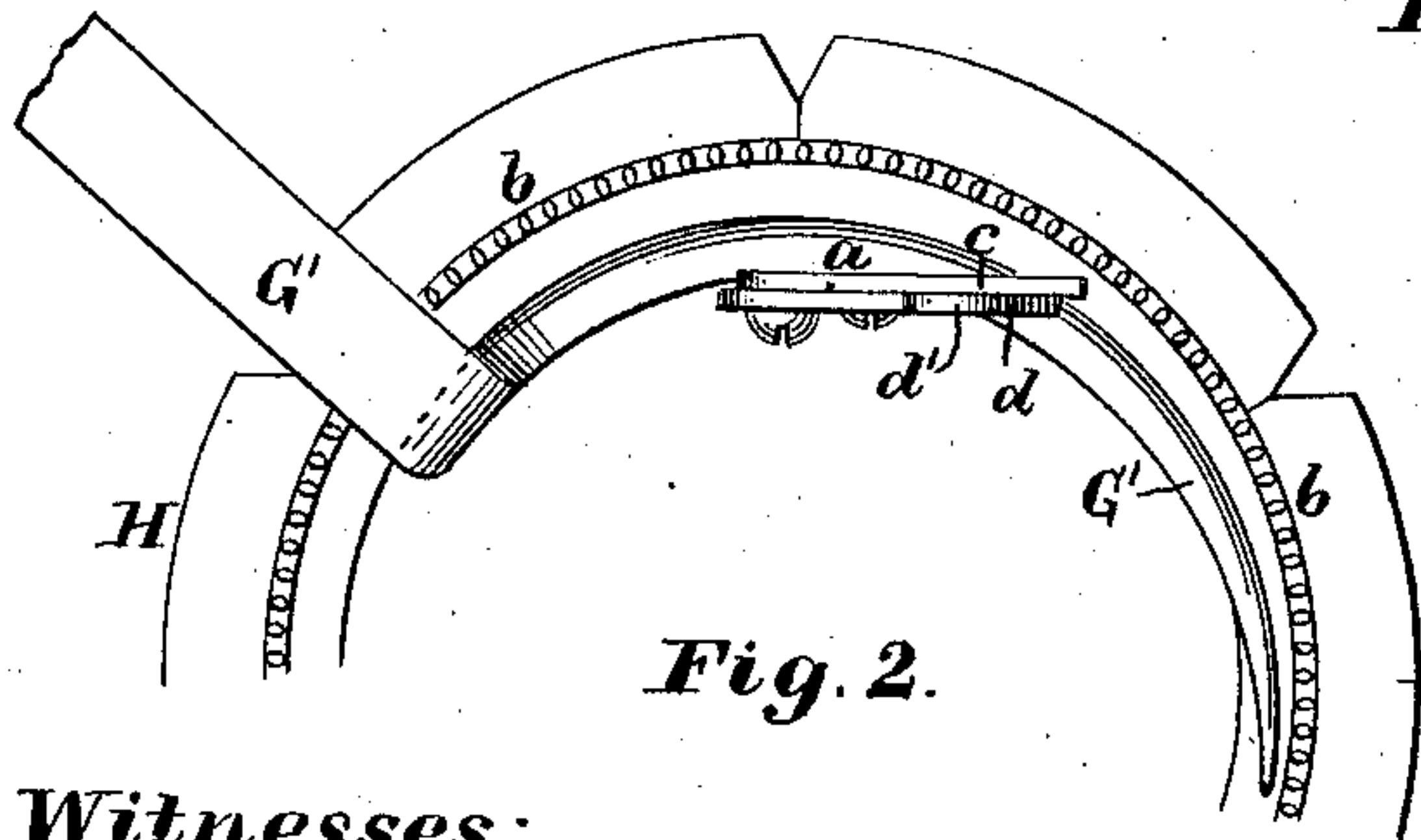


Fig. 2.

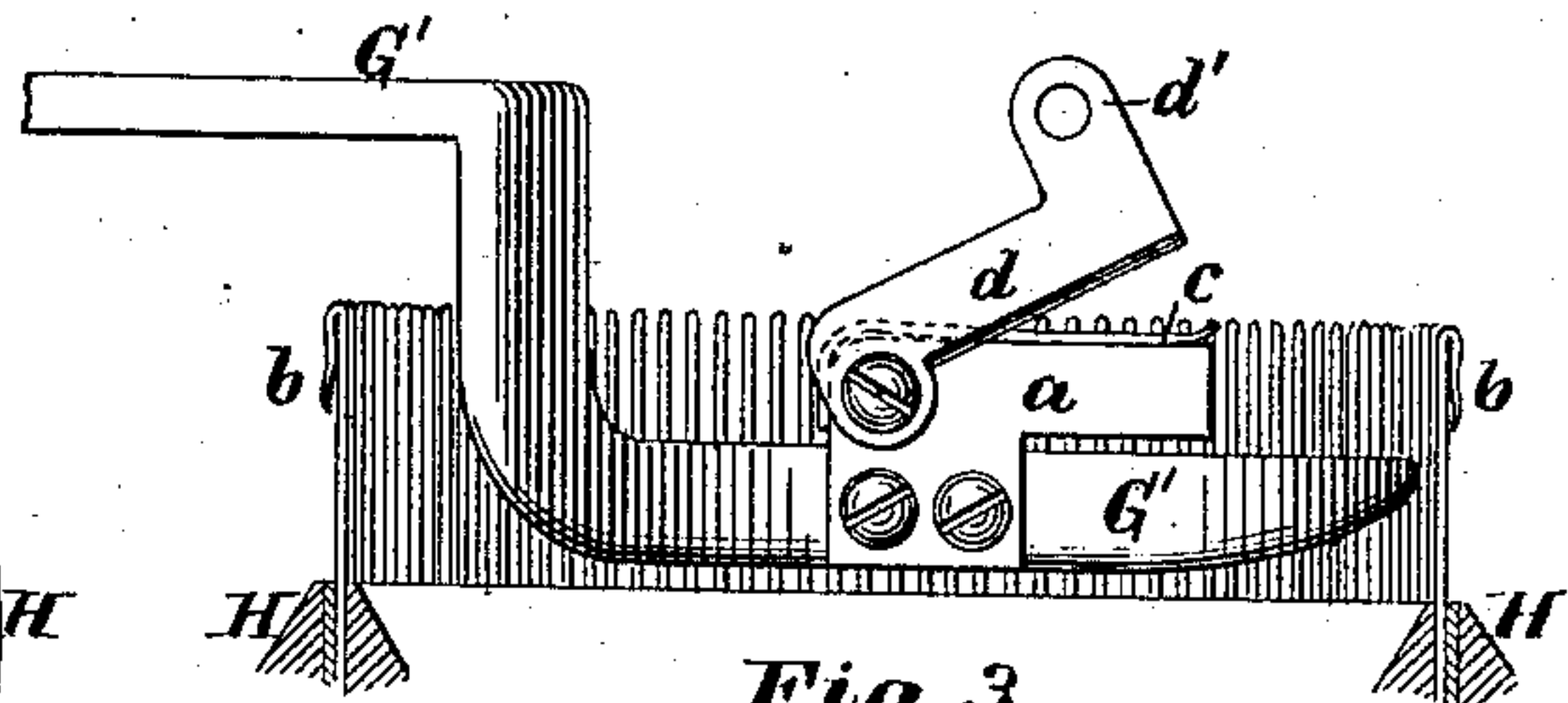


Fig. 3.

Witnesses:

E. A. Hemmenway.
Walter C. Lombard.

Inventor:

John Bradley
by N. C. Lombard
Attorney.

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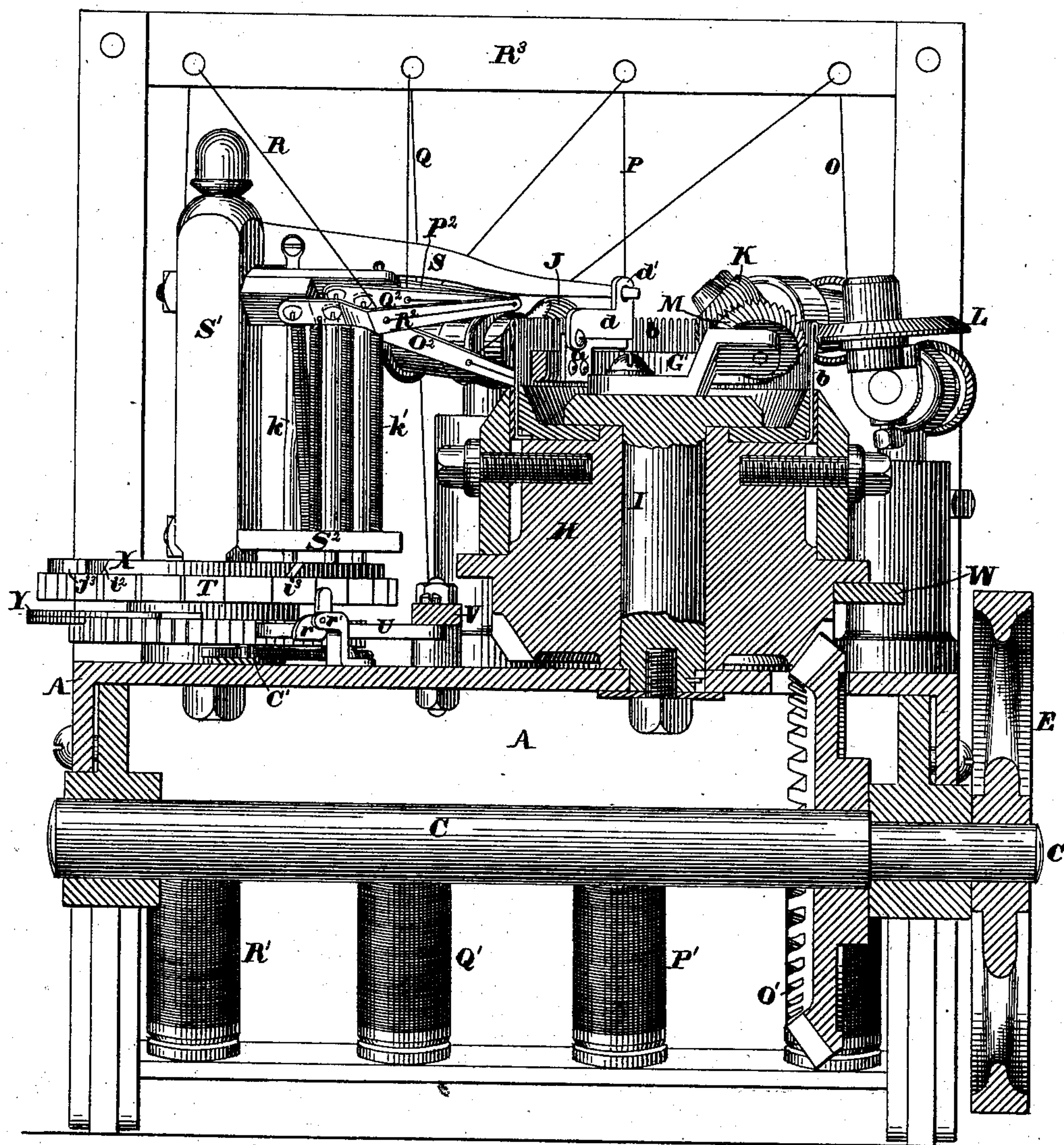


Fig. 4.

Witnesses:

E. A. Hemmenway.
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UNITED STATES PATENT OFFICE.

JOHN BRADLEY, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO LOWELL
KNITTING MACHINERY COMPANY, OF SAME PLACE.

KNITTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 244,736, dated July 26, 1881.

Application filed January 24, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN BRADLEY, formerly of Nottingham, England, but now of Lowell, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Knitting-Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

10 My invention relates to that class of knitting-machines in which a circular series of barbed needles arranged to rotate about a common axis work, in combination with a series of co-
operating wheels the blades or teeth of which
15 engage with the circular series of needles and two or more vibrating yarn-guides carrying yarns of different colors, for the purpose of knitting striped goods, and especially to the devices for severing the yarn that is thrown out
20 of action and holding its severed end, and is an improvement upon the devices for that purpose shown and described in Letters Patent No. 227,213, granted to me May 4, 1880, and in another application filed by me September
25 4, 1880; and it consists in combining the severing-shears and the spring for holding the severed ends of the yarns with or mounting said devices upon the "push-back," as will be further described.

30 Figure 1 of the drawings is a plan of a machine embodying my invention. Fig. 2 is a plan of the push-back with the severing and holding devices attached thereto, and illustrating their relation to the circular series of needles; and Fig. 3 is an elevation of the same. Fig.
35 4 is a vertical section of the machine on line *x x* on Fig. 1.

A is the table or bed of the machine, supported upon suitable legs. (Not shown.)

40 C is the driving-shaft, having mounted thereon the driving-pulley E and a bevel-gear wheel, (not shown), which engages with a corresponding bevel-gear wheel mounted on the head H, which has its bearing upon and revolves about
45 the shaft I, and has secured to its upper end a series of barbed or spring needles, *b*, as shown. Around this circular series of needles are arranged in the usual manner the well-known "working-wheels" J, K, L, M, and N, which co-

operate with the needles to form the stitch and 50 perform the several steps in the manipulation of the yarns which constitute knitting.

O, P, Q, and R are yarns of different colors wound upon the bobbins O', P', Q', and R', respectively, from which they are led through 55 eyes in the bar R³, and thence through eyes in the yarn-guiding levers O², P², Q², and R², respectively.

S is the lever for operating the yarn-severing shear-blade, and having its fulcrum on the post 60 S', which also forms a bearing for the ratchet-wheel T, and another, (not shown,) which are acted upon by the pawls U and U', respectively, to impart to said wheels intermittent rotary motions of different speeds. The lever S has 65 pivoted thereto the pendent rod *k*, the lower end of which has a bearing in the arm S² projecting horizontally from the post S', and is acted upon to raise the lever S by the cam X, said lever being moved in the opposite direc- 70 tion by the action of gravity, assisted by the tension of the spring *k'*, all as shown in Fig. 4.

V is the lever which carries the pawls U and U', and is moved about its fulcrum by the 75 cam W.

X is the pattern-cam secured upon the upper surface of the ratchet-wheel T, and provided with the inclines *i*, *i'*, *i*², *i*³, and *i*⁴ and offsets *j*, *j'*, *j*², *j*³, and *j*⁴; and Y is a cam secured 80 upon another ratchet-wheel beneath T, but not shown in the drawings, which acts upon the pin *p*, set in the under side of the pawl U, to throw said pawl out of action with the wheel T.

A' is a third ratchet-wheel mounted upon a bearing formed on the base of the post B', and 85 having secured to its upper surface the cam *q*, which acts upon the elbow-lever *r*, pivoted in the stand *r'*, to throw the pawl U out of action with the wheel T, said wheel A' being intermittently rotated about its axis a distance 90 equal to the length of one of its teeth at each revolution of the ratchet-wheel that is beneath T by means of a pin set in the under side of said wheel acting upon the free end of the lever C', which has its fulcrum upon the post B' 95 and carries the pawl *u*, which engages with the teeth in the periphery of the wheel A'.

So far the machine is constructed substan-

tially as shown and described in my previous application filed September 4, 1880, and therefore needs no further description here.

G' is the "cloth-presser" or push-back, constructed in the usual manner and secured to the top of the post B'.

To the inner side of the curved portion of the push-back G' is secured the lower cutter-blade, *a*, which extends upward therefrom to a height but a short distance below the upper ends of the needles *b*, and has secured upon its upper edge the leaf-spring *c*, between which and the blade *a* the yarns are drawn when they are thrown upward by their guides and out of action with the stitch-wheel, and by the pressure of said spring said yarns are held after being severed until they are again thrown into action with the stitch-wheel by the downward movement of their guides.

To the blade *a* is pivoted the blade *d*, provided at its movable end with the eye *d'* to receive the end of the lever S, by which it is vibrated about its pivotal bearing.

It will be obvious upon careful examination that, with the severing and holding devices mounted upon the push-back within the circle of the needles, the yarns must be thrown above the stitch-wheel and needles in order to throw them out of action, and hence the necessity of the change in the form of the holding device.

The spiral spring used in my patent of May 4, 1880, before named, was found to be impracticable in connection with these devices, and the

leaf-spring *c*, applied directly to the cutter-blade and co-operating therewith to hold the yarn by pressing it between the two, has been found to work well.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination, in a knitting-machine, of a series of needles arranged to revolve about a common center, two or more yarn-guides carrying yarn of different colors, a push-back, a fixed cutter-blade and a movable cutter-blade, both mounted upon and supported by said push-back, a leaf-spring mounted upon one of said cutter-blades, and mechanism for intermittently vibrating said movable cutter-blade, substantially as described.

2. The combination of a circular series of barbed or spring needles, a stitch-wheel co-operating therewith, two or more vibrating yarn-guides, a cam or cams arranged to operate said yarn-guides and to carry the yarns above the stitch-wheel to throw them out of action, a fixed cutter-blade, a movable cutter-blade, mechanism for intermittently vibrating said movable cutter-blade, and a leaf-spring secured by one end to one of said cutter-blades, substantially as and for the purposes described.

Executed at Boston, Massachusetts, this 7th day of January, A. D. 1881.

JOHN BRADLEY.

Witnesses:

W. E. LOMBARD,
E. E. CHANDLER.