

(No Model.)

2 Sheets—Sheet 1.

S. T. HARSHAW.

LOOP CUTTING ATTACHMENT FOR KNITTING MACHINES.

No. 605,873.

Patented June 21, 1898.

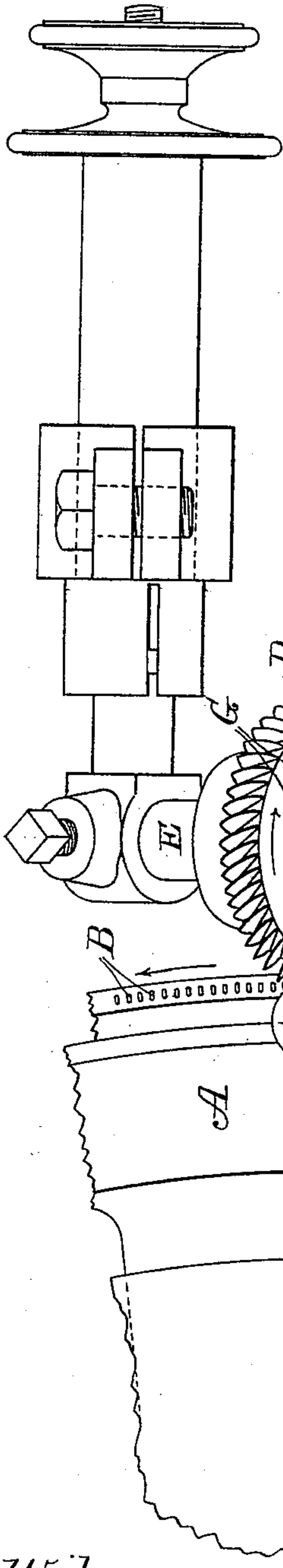


Fig. 1.

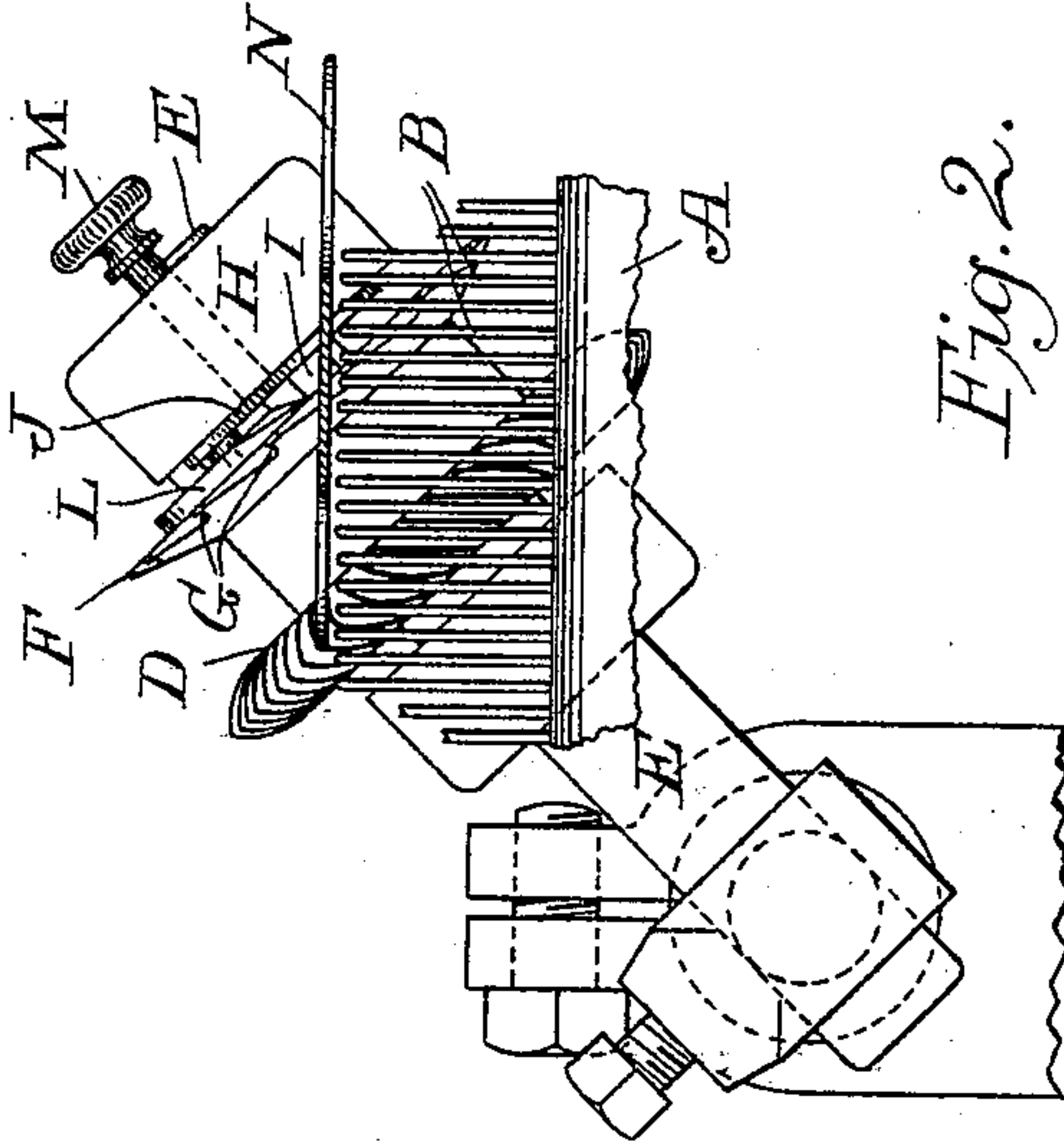


Fig. 2.

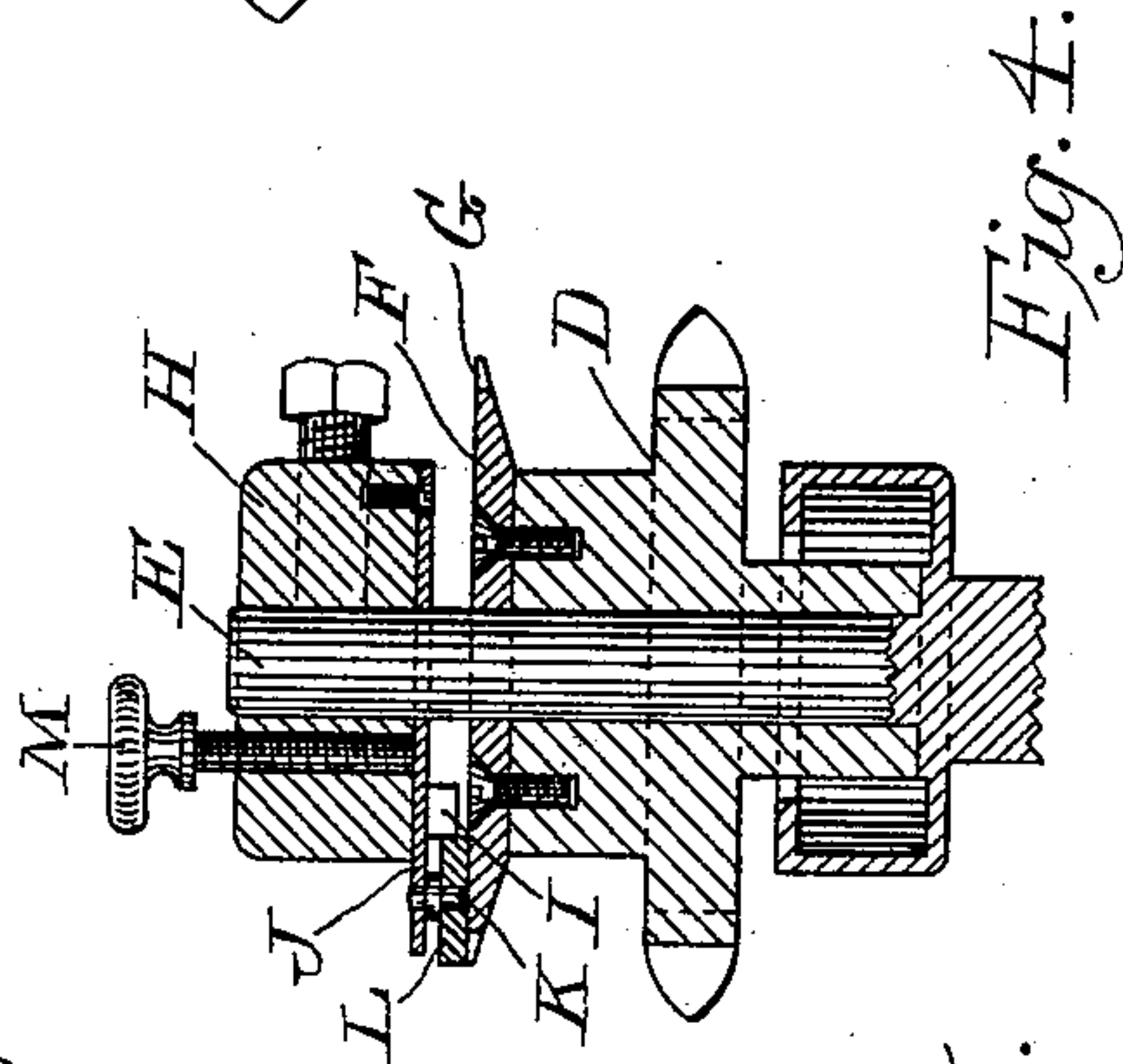


Fig. 4.

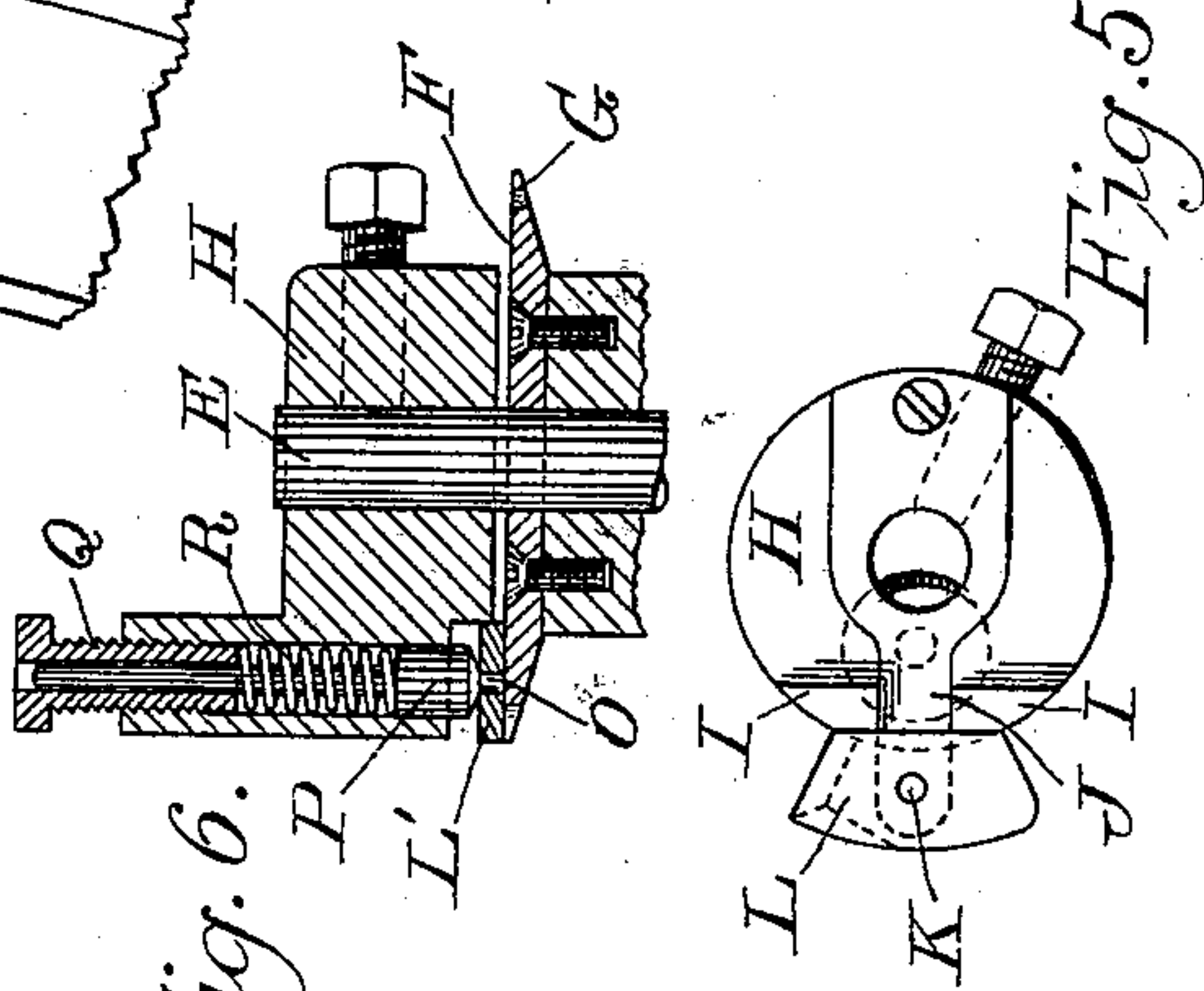


Fig. 5.

Fig. 6.

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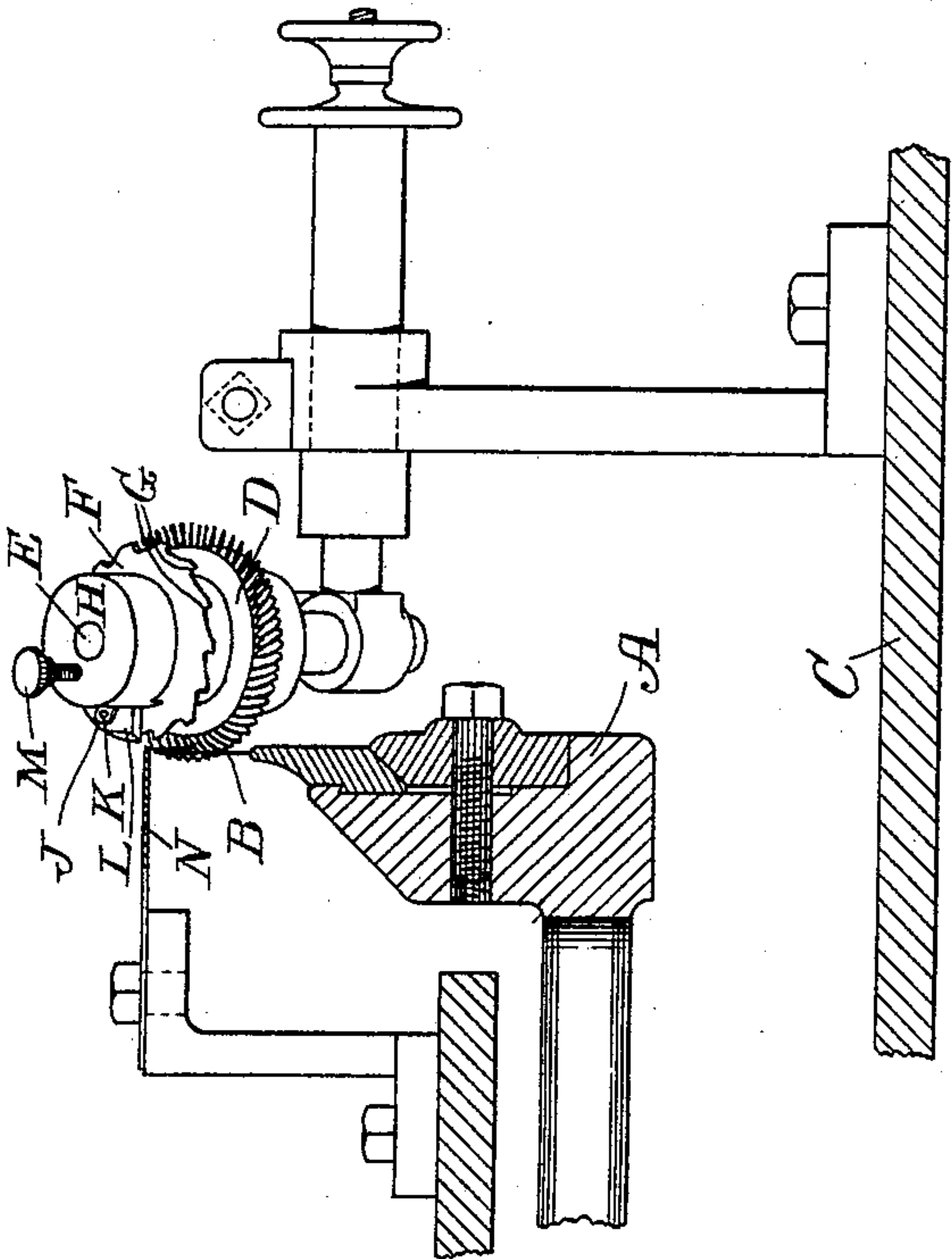


Fig. 3.

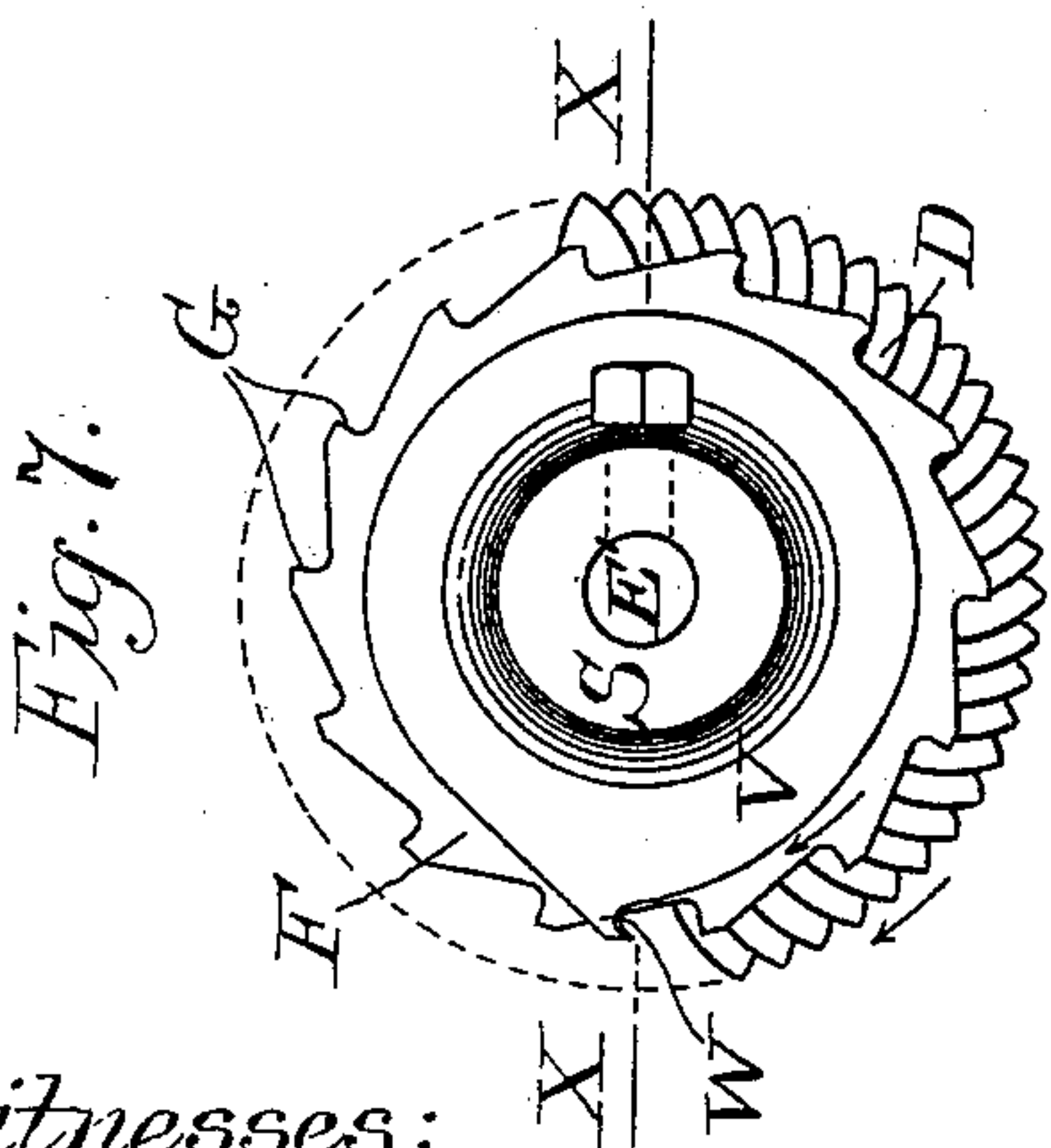


Fig. 7.

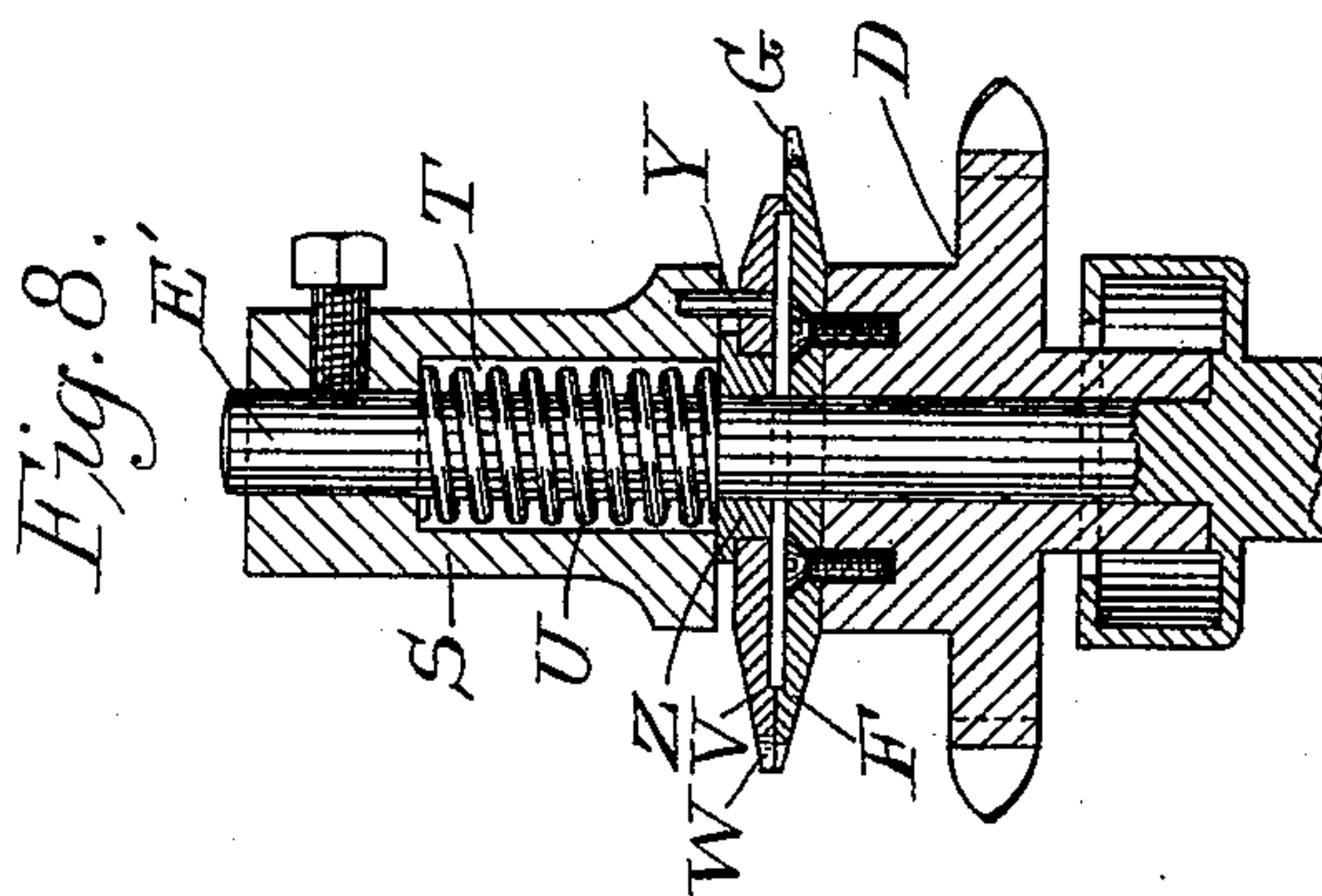


Fig. 8.

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UNITED STATES PATENT OFFICE.

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LOOP-CUTTING ATTACHMENT FOR KNITTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 605,873, dated June 21, 1898.

Application filed November 26, 1897. Serial No. 659,811. (No model.)

To all whom it may concern:

Be it known that I, SETH T. HARSHAW, a citizen of the United States, residing at Lansingburg, in the county of Rensselaer and State of New York, have invented a new and useful Loop-Cutting Attachment for Knitting-Machines, of which the following is a specification.

My invention consists in providing knitting-machines on which knit plush or other similar goods are made with a cutting mechanism by which loops formed in the secondary or backing thread will be automatically cut to produce on the surface of the goods a soft fleece-like finish that will closely resemble chenille or plush without increasing the cost of production of the goods.

In the accompanying drawings, which are herein referred to and form part of this specification, Figure 1 is a plan view of my invention applied to an old and well-known form of knitting-machine, only a part of the latter being shown; Fig. 2, a rear elevation of my invention, showing a small portion of the needle-cylinder; Fig. 3, a side elevation, on a reduced scale, of my invention with parts of the knitting-machine shown in vertical section; Fig. 4, a central vertical section of my loop-cutting mechanism detached from the knitting-machine, parts of the same being shown in side elevation; Fig. 5, an inverted plan view of a stationary cutter and the hub to which the same is attached; Fig. 6, a vertical section of a modified form of my invention; Fig. 7, a plan view of another modification of my invention; and Fig. 8, a vertical section of Fig. 7 at the line X X, showing the stationary spindle in side elevation.

As represented in the drawings, A designates the cylinder of a knitting-machine, B the needles secured in the upper part of the cylinder, and C the knitting-machine table, and it should be understood that all of said parts being old and well known form no part of my invention.

D is a toothed wheel having teeth arranged at an angle to the axis of said wheel, and when preferred said wheel may be made in a manner usual in making burs of knitting-machines or in any other suitable manner. The teeth of said wheel are adapted to engage in

the spaces between the needles B, so that the rotations of the cylinder A will impart motion to the wheel D. The latter is fitted to rotate on a stationary spindle E, that is arranged at an angle that will bring the teeth of the wheel D into vertical positions when said teeth are engaged with the needles B. A rotary cutter F is secured to the upper face of the wheel D, so that said cutter will be revolved by the wheel, and the periphery of said cutter F is provided with a series of hook-shaped teeth G, which have cutting edges and are spaced apart to conform to the positions of the loops formed on the fabric produced by the knitting-machine—that is to say, the smaller the loops and the closer they are arranged the nearer together the teeth G should be spaced. A stationary hub H is secured to the upper part of the spindle E, whereon it remains in a fixed position. The lower face of said hub is provided with a pair of stops I, that are spaced to allow a leaf-spring J to lie in the space, as shown in Fig. 5. The inner end of the spring J is secured to the hub H, and the opposite end of the spring after passing between the stops I extends beyond the periphery of the hub and is provided with a spur K, which depends from the lower face of the spring. A stationary cutter L engages on the spur K, which retains the cutter L in position, and the spring J presses the cutter L down upon the upper face of the rotary cutter F; but in order to obtain a proper contact between the cutters F and L to insure a positive cutting of the threads of the loops an adjusting-screw M is arranged to bear upon the spring J. The cutter L is arranged slightly above the upper end of the needles B, so as to lie in the path of the loops formed on the fabric, said cutter being arranged to cut each loop near the middle of the latter, thereby producing a standing thread at each end of the loop, and said standing threads being of a uniform length produce a uniform finish on the cloth that will closely resemble chenille or plush, and in order that the fabric may be maintained in position to insure the engagement of the cutter L with said loops a shield or guard N is arranged between the axis of the cylinder A and the axis of the wheel D, so that said shield will bear against the inner

side of the fabric slightly above the upper end of the needles B, whereby the fabric will be pressed outward to positively bring the loops in contact with the cutting edge of the cutter L, and the movement of the fabric, which is effected by the motion of the cylinder A, automatically effects the cutting of the thread.

In the modification of my invention shown in Fig. 6 the flat spring shown in Figs. 4 and 5 is dispensed with, and the stationary cutter L', like the one shown in Figs. 1, 2, 3, 4, and 5, will be held by a point O, that may be formed on the end of a spindle P, which is carried in the bore of a sleeve-shaped adjusting-screw Q, which bears against a spring R, which rests upon a hub on the spindle P; but when preferred the spindle P may be dispensed with, and in such case the spring R will be arranged to bear directly on the upper face of the stationary cutter L', and the reduced end of the adjusting-screw Q will be extended to engage with the stationary cutter and retain the latter in place.

In the modification shown in Figs. 7 and 8 the wheel D and the rotary cutter F are in all respects like those shown in Figs. 1, 2, and 3, so that no further description of them will be required. The stationary spindle E' is extended upward, and a hub S is secured upon the upper part of it. The lower part of said hub is provided with a chamber T, which contains a spring U, which surrounds said spindle, and a stationary cutter V of a practically disk-like form and provided with one or more hook-shaped teeth W, having cutting edges which coact with the teeth G of the rotary cutter F to cut the loops on the fabric. The spring U presses the stationary cutter closely down upon the face of the rotary cutter F, and a spur Y, fixed in the lower end of the hub S, engages in a suitable opening in the stationary cutter V and prevents the latter from moving from its position. Preferably the center opening of the stationary cutter V is of greater diameter than the spindle E', and a flanged annulus Z fits into the opening of the stationary cutter V and receives the pressure of the spring U to keep the cutters F and V in cutting contact with each other.

It should be understood that in all forms of my invention herein shown and described the loop-cutting mechanism should be arranged to make a cut at or closely adjacent to a radial line in respect to the knitting-cylinder and so that a loop will be divided at or near its middle, so as to produce at each end of the severed loops a series of standing threads that will practically be of uniform lengths, thereby producing a plush-like surface on the goods without increasing the cost of production.

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

1. A loop-cutting mechanism for knitting-machines consisting of a rotary cutter and a stationary cutter, means for actuating said rotary cutter in a line that is radial in respect to the center line of the knitting-cylinder, and adapted to sever each loop at, or near, the middle of the latter, as and for the purpose specified.

2. In a knitting-machine, the combination, with a knitting-cylinder and a shield or guard held in a stationary position and extended beyond the line of the needles of said cylinder, of a loop-cutting mechanism provided with a stationary cutter and a revoluble cutter operated by the knitting-cylinder; the said loop-cutting mechanism being arranged to sever the loops on a line that is radial to the center of the knitting-cylinder and so that the separation will practically be at the middle of the loop, as and for the purpose specified.

3. In a loop-cutting mechanism, the combination of a rotary cutter provided with a series of peripheral cutting-teeth, a stationary cutter adapted to engage successively in the loops formed by the knitting-machine, means for actuating said rotary cutter to effect the cutting of the loops at, or near, the middle of the latter, and means—substantially as set forth—for maintaining said cutters in facial contact, as herein specified.

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Witnesses:

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