

(No Model.)

4 Sheets—Sheet 1.

A. T. LAWSON & S. DEAR.

TENSION REGULATING DEVICE FOR SPINDLE DRIVING BANDS.

No. 404,917.

Patented June 11, 1889.

Fig. 1.

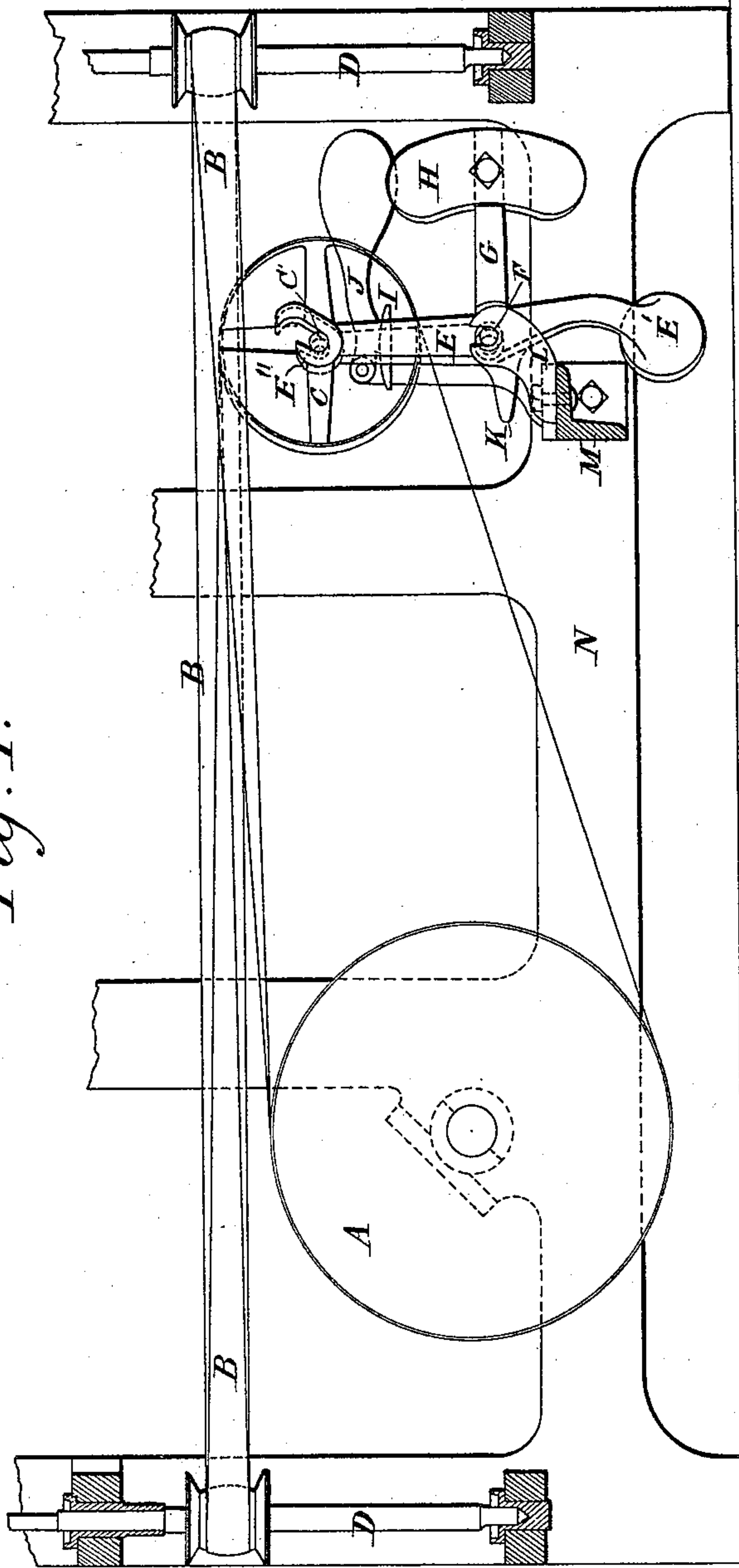
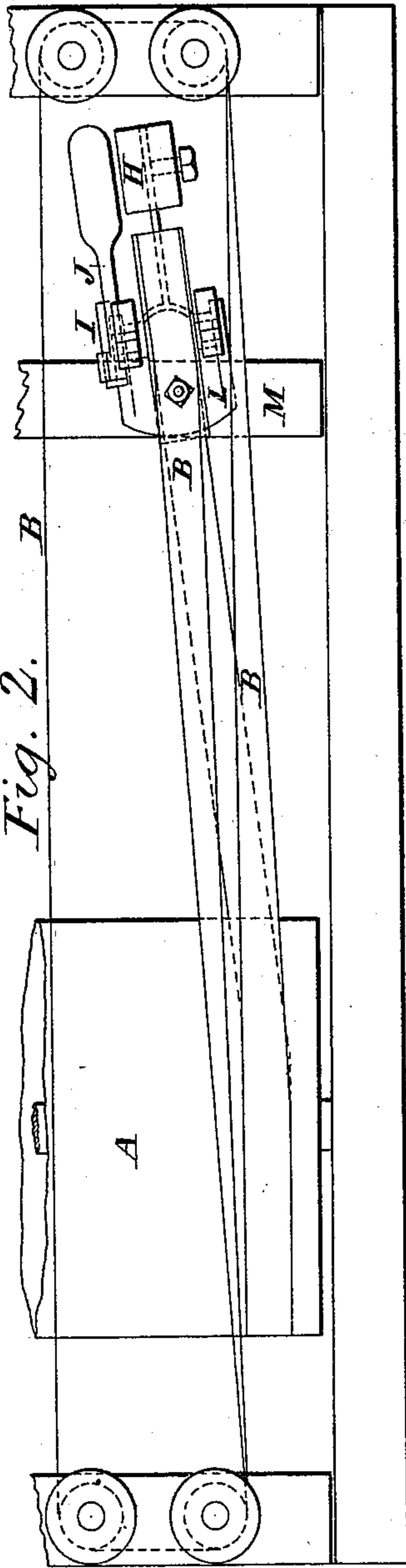


Fig. 2.



Witnesses

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Baldwin, Hopkins & Peyton

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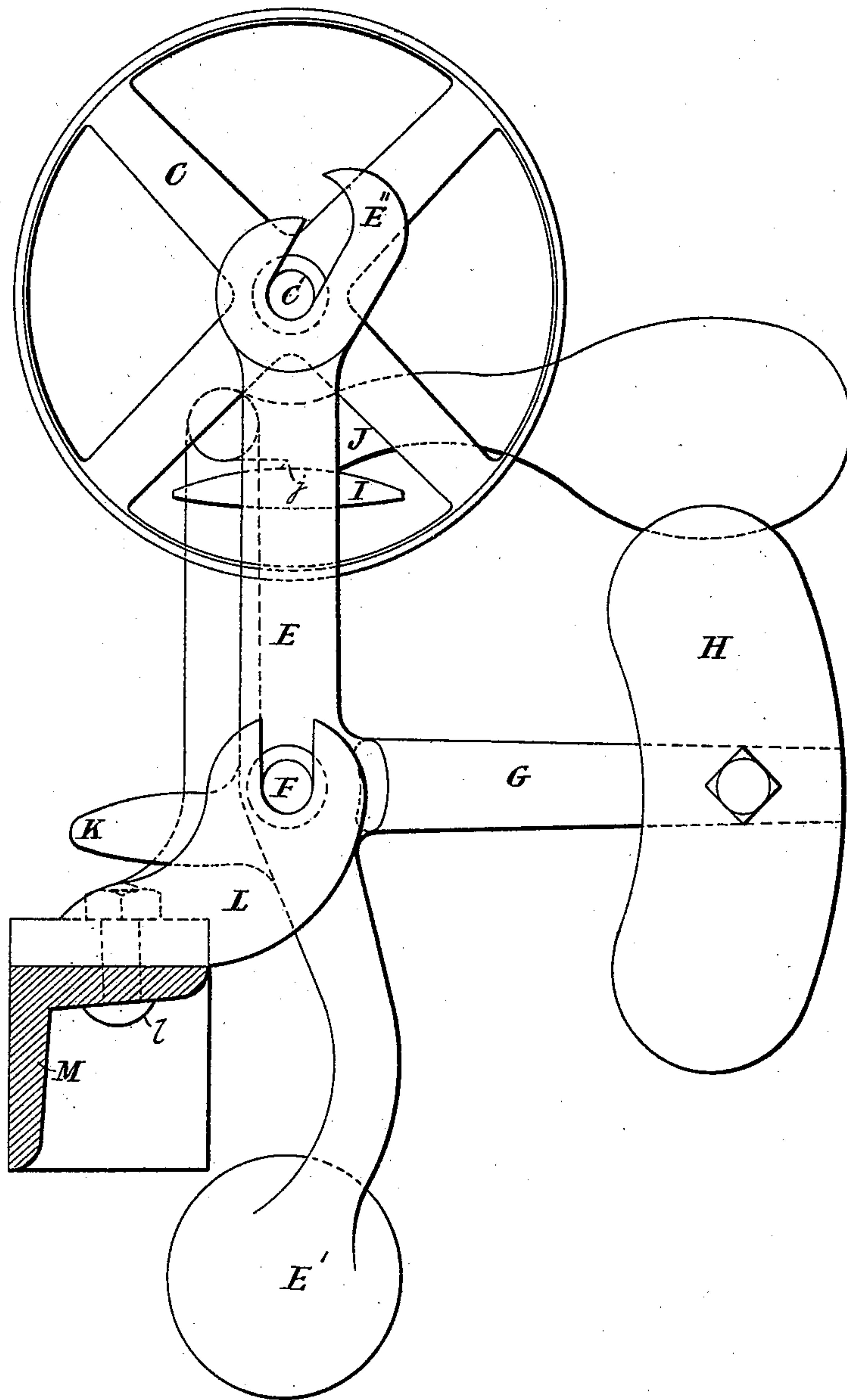
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Fig. 3.



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Fig. 4.

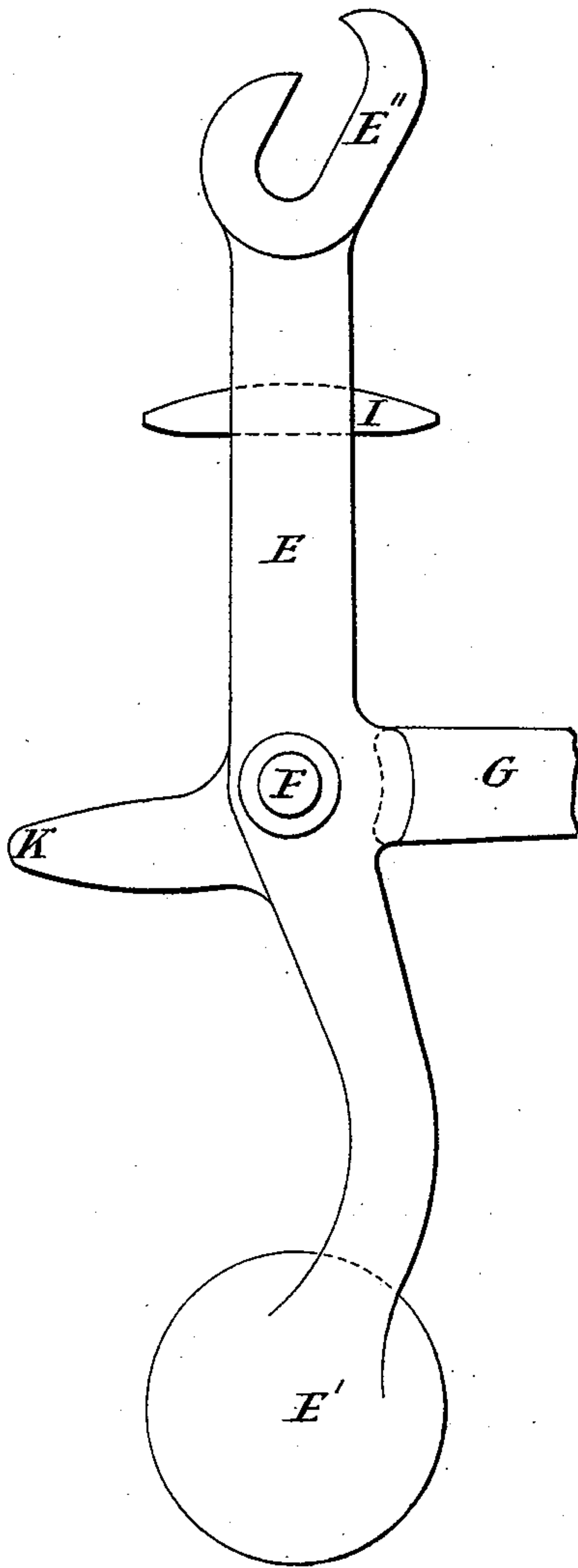


Fig. 5.

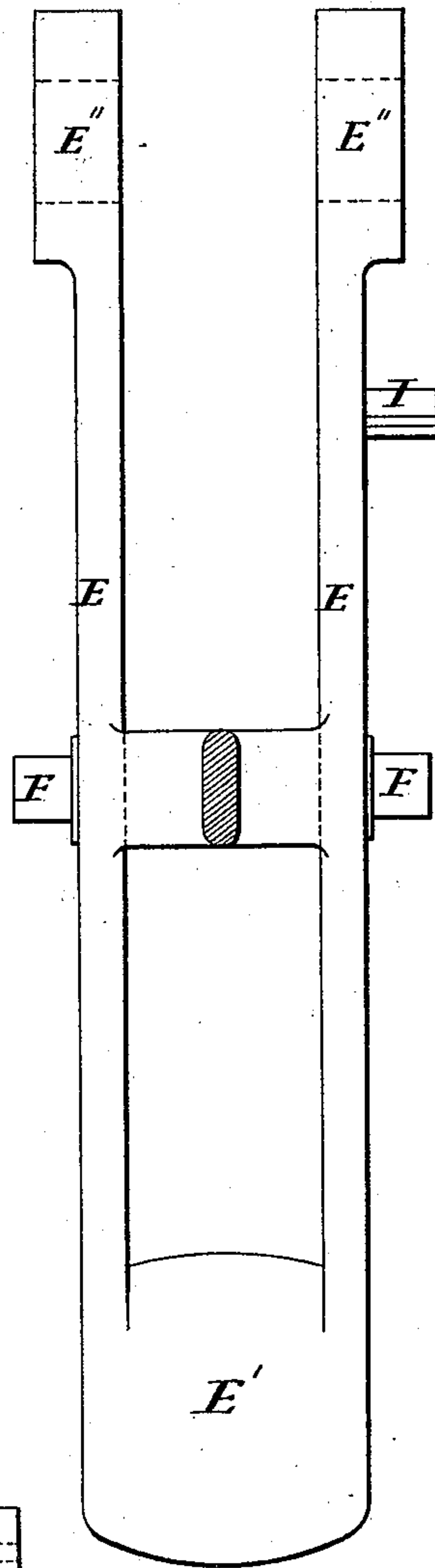
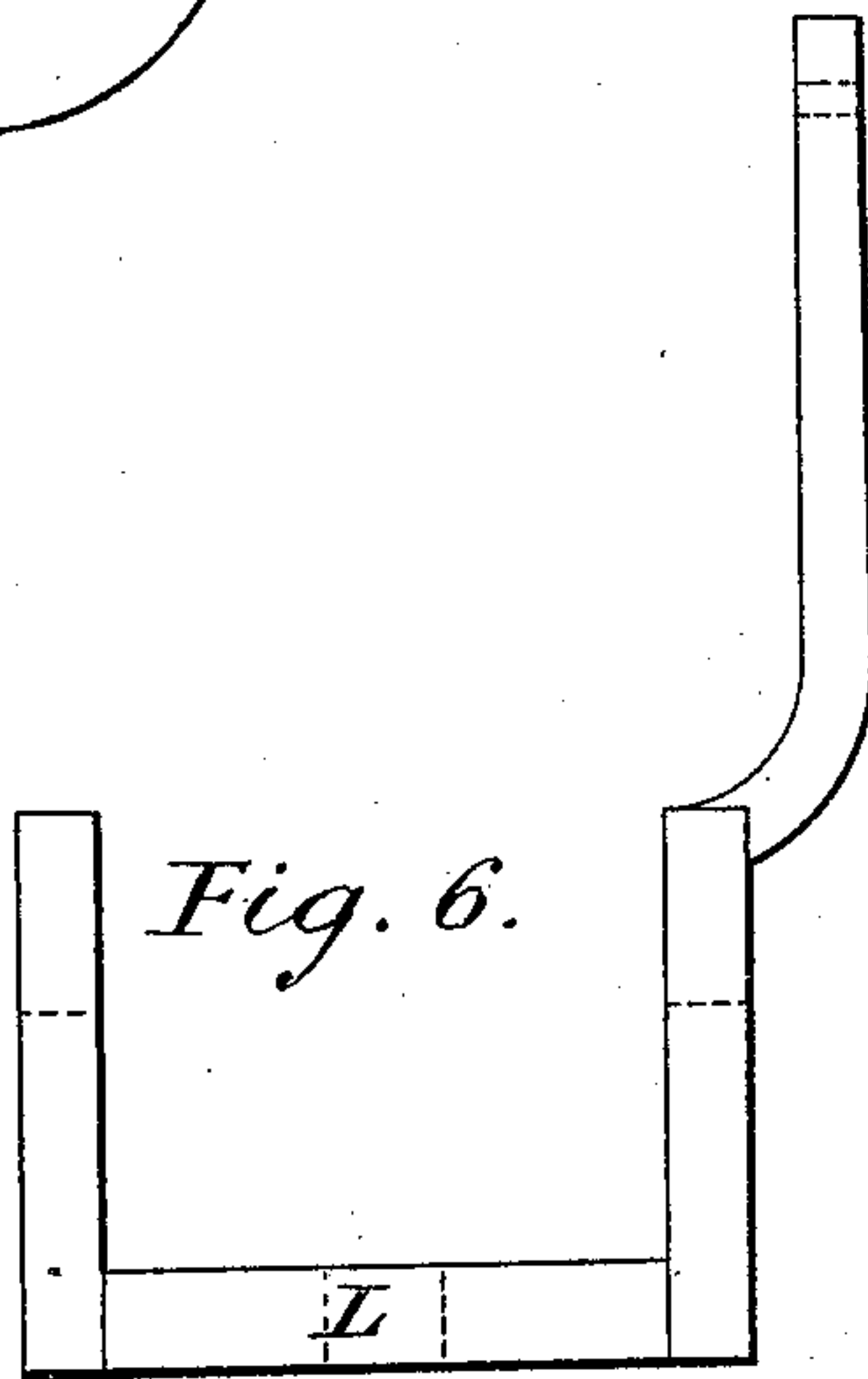


Fig. 6.



Witnesses

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4 Sheets—Sheet 4.

A. T. LAWSON & S. DEAR.

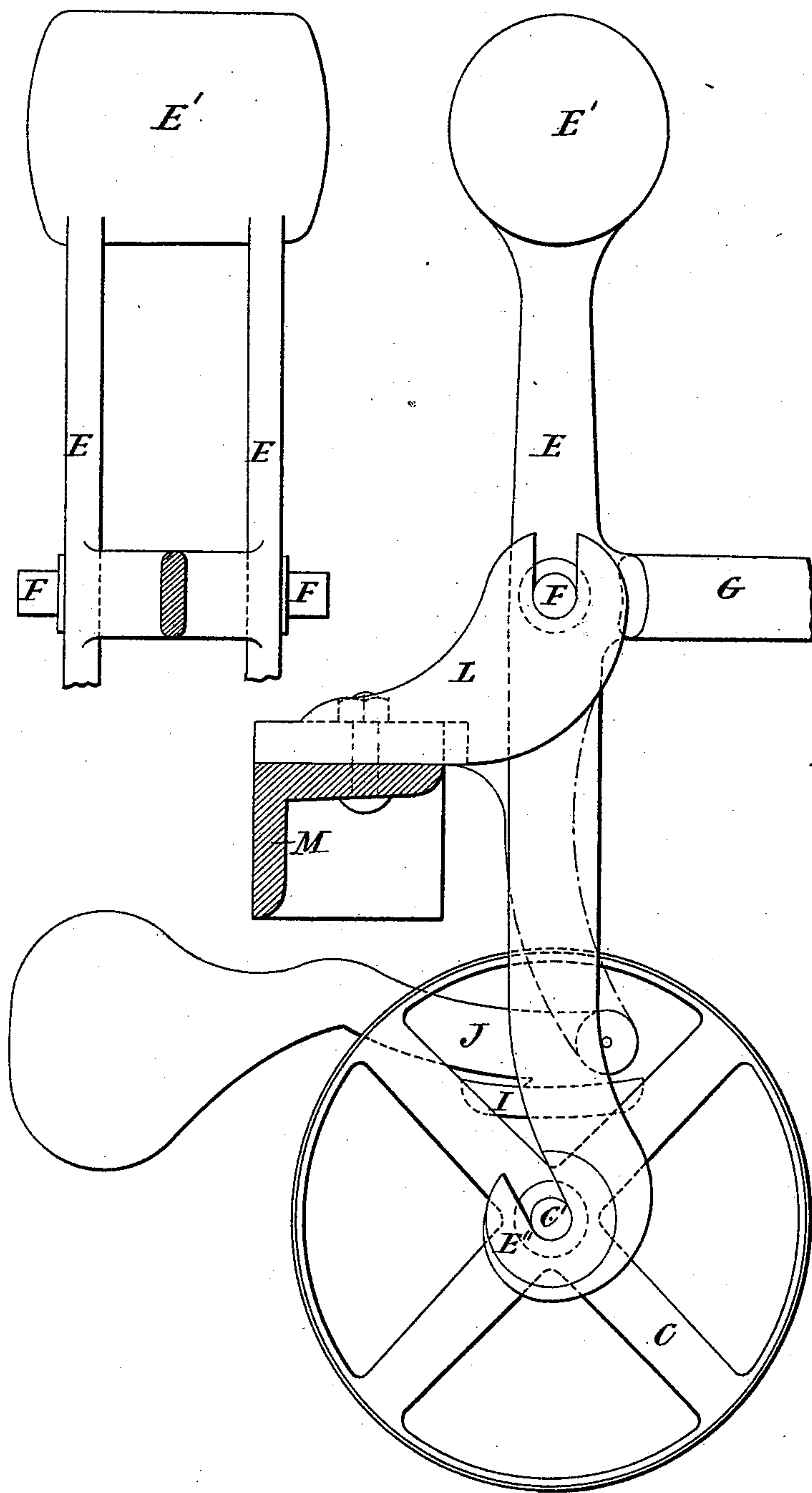
TENSION REGULATING DEVICE FOR SPINDLE DRIVING BANDS.

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Fig. 8.

Fig. 7.



Witnesses

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UNITED STATES PATENT OFFICE.

ARTHUR TREDGOLD LAWSON AND SOMERVILLE DEAR, OF LEEDS, COUNTY
OF YORK, ENGLAND.

TENSION-REGULATING DEVICE FOR SPINDLE-DRIVING BANDS.

SPECIFICATION forming part of Letters Patent No. 404,917, dated June 11, 1889.

Application filed December 13, 1887. Serial No. 257,779. (No model.) Patented in England May 25, 1887, No. 7,604; in France November 26, 1887, No. 187,220, and in Germany December 8, 1887, No. 44,353.

To all whom it may concern:

Be it known that we, ARTHUR TREDGOLD LAWSON, engineer, and SOMERVILLE DEAR, manager, both residing at Hope Foundry, Leeds, in the county of York, England, subjects of the Queen of Great Britain, have invented certain new and useful Improvements in Tension-Regulating Devices for Spindle-Driving Bands, (for which we have received Letters Patent in Great Britain, No. 7,604, of May 25, 1887; in France, No. 187,220, of November 26, 1887, and in Germany, No. 44,353, of December 8, 1887,) of which the following is a specification.

This invention relates to so-called "tension" or "tape" pulleys used more especially in spinning or twisting machines for maintaining an equal tension on the endless driving tapes or bands employed for driving the spindles from a main driving-cylinder, so as to effect a steady and equal driving of the spindles. Each tape is led around its own tension-pulley. The tension-pulley runs loose on a stud or on its own axis in double bearings at one end of an oscillating frame, which is free to rock on an axis at an intermediate point of its length. Normally the frame is maintained in a vertical position with the tension-pulley at the top. The lower extremity of the frame is made heavier to act as a counter-balance. The frame is also formed with a lever-arm standing out horizontally at right angles from it radially to the center on which the frame is pivoted, which lever carries a weight which is adjustable to regulate the amount of tension put on the tape or band. On the vertical upper arm of the frame a segment is formed, and onto this a brake-lever is made to bear to maintain the whole apparatus in working with perfect steadiness. The brake-lever is also serviceable as a catch for holding the frame back while fixing or sewing the tape or band, and after this has been accomplished by raising the lever the tension-pulley falls into its proper position for working or driving and the brake is again in operation. The bracket on which the frame oscillates is fixed onto a rail running longitudinally with the line of spindles in the frame, and can be ad-

justed to the required angle for the tapes or bands to run from the cylinder to the spindles. The oscillation of the frame in one direction is limited by its weighted end coming against this rail, and in the opposite direction by a heel or arm projecting from it striking against the rail. In the event of the tape or band breaking and the frame swinging suddenly forward, the pulley is prevented from being thrown out from the slots in which its axes turn by these slots being made hook-shaped.

A modification of this invention can be made by inverting the oscillating frame. The tension-pulley will thereby be mounted on the lower part and the top part made to act as a counter-balance with all the other parts made to correspond.

In the accompanying drawings, Figure 1 is an elevation, and Fig. 2 a plan, of apparatus constructed as above described. These figures also show so much of a spinning or twisting frame as is necessary to show the position of the apparatus when applied to such machines. Fig. 3 is an enlarged elevation of the tension-pulley and the oscillating frame which carries it. Figs. 4 and 5 are separate elevations of the oscillating frame. Fig. 6 is a front elevation of the bracket in which the frame oscillates. Figs. 7 and 8 are enlarged elevations of the oscillating frame inverted. This construction is a modification of the construction shown in the other figures.

Similar letters of reference designate corresponding parts in all the figures.

A is the main cylinder of a spinning or twisting frame, from which all the spindles in the machine are driven.

B is one of the tapes or bands used for driving the spindles, each band being made to drive four spindles, as shown by the drawings, Figs. 1 and 2, as is usual.

C is the tension-pulley, running loose on its axis C' in double bearings E'' on the top of the oscillating frame E. This frame is hung on pivots F, and its weight and the weight of the pulley C are balanced by the weighted arm E'.

G is another lever-arm extending horizontally from the frame radially to the pivots F.

H is an adjustable weight, which can be

fixed upon the arm, either farther from or nearer to the pivot, for regulating the tension put upon the tape or band B.

I is a segment fixed to one side of the frame E.

J is a weighted lever-arm resting on this segment, and acting as a brake to prevent the frame from oscillating too rapidly. This lever-arm J is provided with a tooth *j*, which enables it to act as a catch engaging with the end of the segment I to hold the frame back when it has been moved to the farthest extent of the travel allowed to it in a direction toward the driving-drum A, and is in this way serviceable for holding the frame when fixing or sewing on a new tape or band.

K is a heel or projection upon the frame E.

L is a forked bracket carrying the pivots of the frame E, which bracket is fixed to the rail M, which extends from one end to the other of the frame of the machine. The bracket L is preferably secured to the rail M by means of a pivot-bolt *l*, so that it may be adjusted to the required angle for the tapes or bands to run from the cylinder to the spindles.

The extent to which the frame E turns in either direction is limited in one direction by the heel K coming against the rail M, and in the other direction by the weighted arm E' coming against this rail.

The way in which the tape or band is led around the driving-cylinder A, tension-pulley C, and spindles D is as usual, and is clearly shown by the drawings.

Having now particularly described and as-

certained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. In mechanism for maintaining a uniform tension on the endless driving-tapes of spinning, twisting, and other machinery, the combination of the tension-pulley over which the endless tape is passed, the vertical frame mounted on pivots and carrying this pulley, said frame having the horizontal arm extending radially from the pivots and carrying a weight, and the curved segment fixed thereto and the weighted lever resting upon it to retard its movements.

2. In mechanism for maintaining a uniform tension on the endless driving-tapes of spinning, twisting, and other machinery, the combination of the tension-pulley over which the endless tape is passed, the vertical frame mounted on pivots and carrying this pulley, said frame having the horizontal arm extending radially from the pivots and carrying a weight, and the curved segment fixed to the arm, and the weighted lever resting upon it to retard its movements and serve as a catch to hold back the pulley from pressing against the band when the bracket has been moved to the end of its traverse away from the band.

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Witnesses:

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