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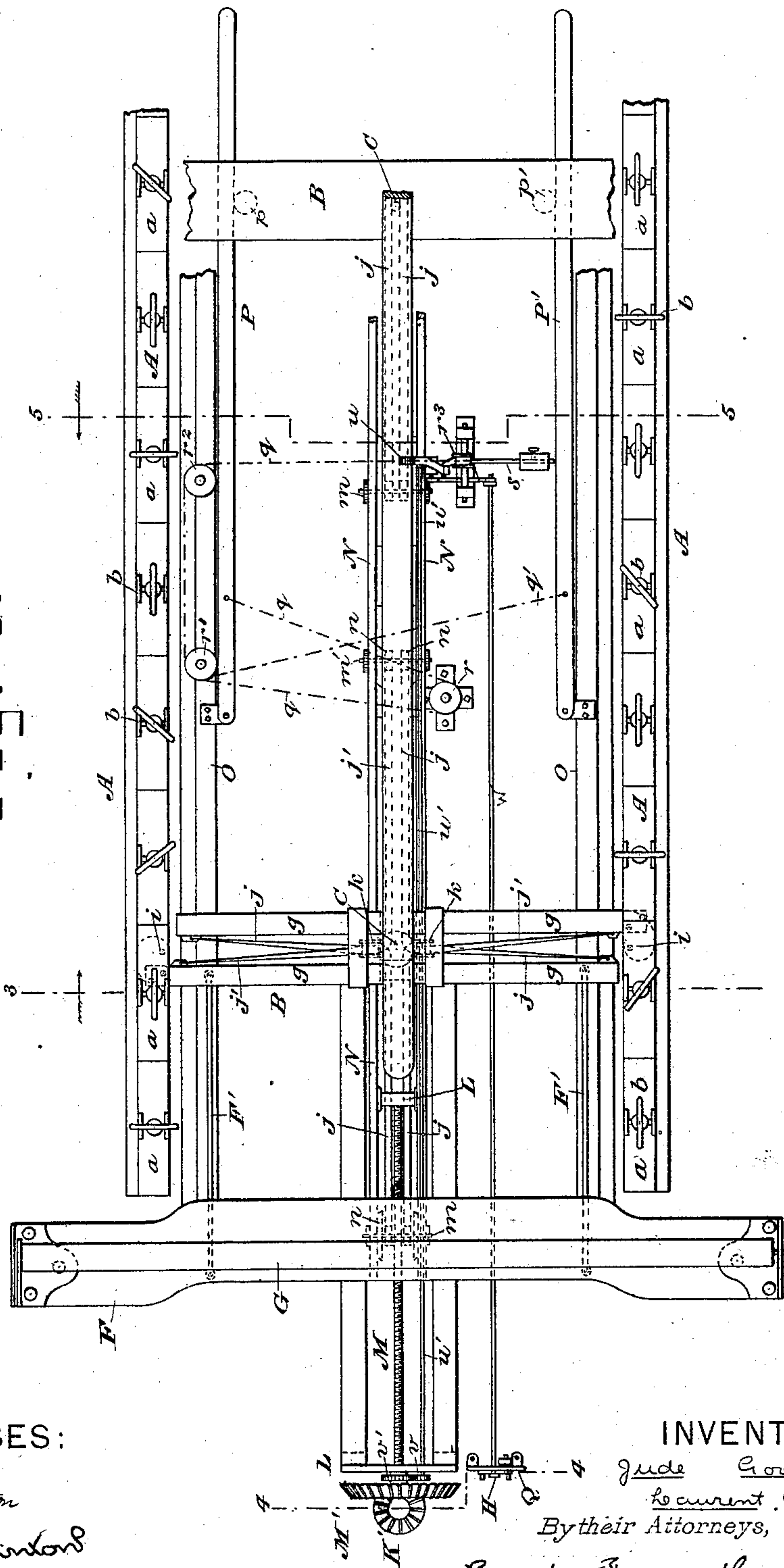
J. & L. GOURDIAT.

MACHINE FOR STRETCHING OR TENTERING WOVEN FABRICS.

No. 280,031.

Patented June 26, 1883.

Fig. 1.



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By their Attorneys,

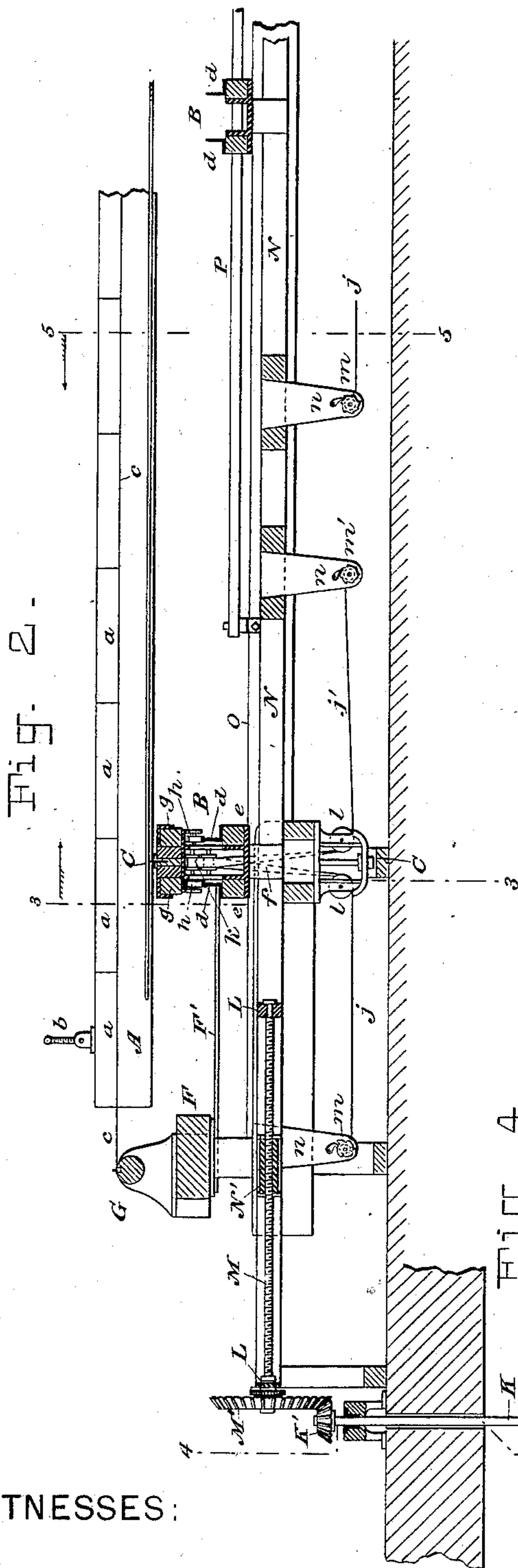
Burke, Braser & Bonnell

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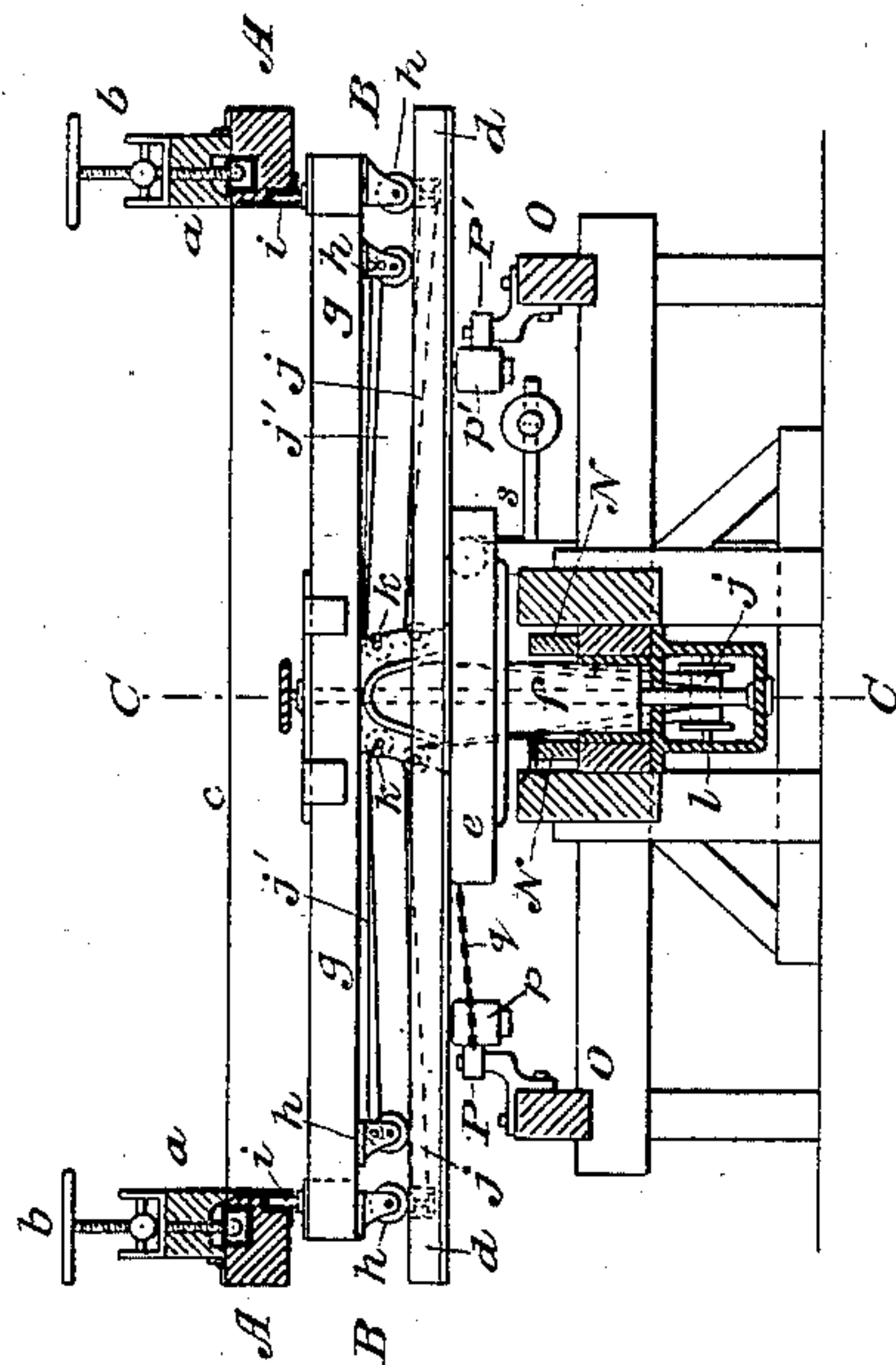
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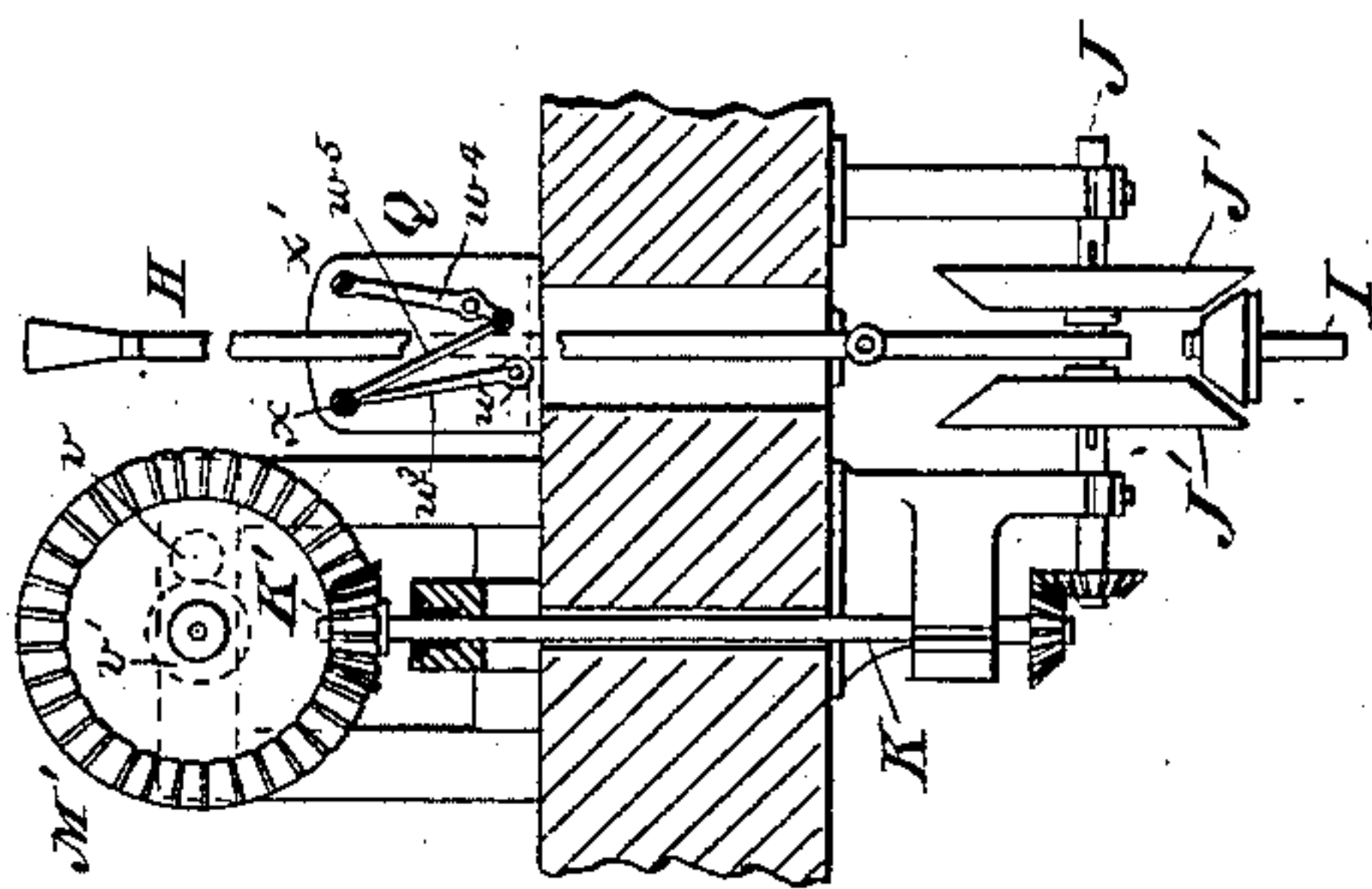
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No. 280,031. Patented June 26, 1883.

Fig. 5.

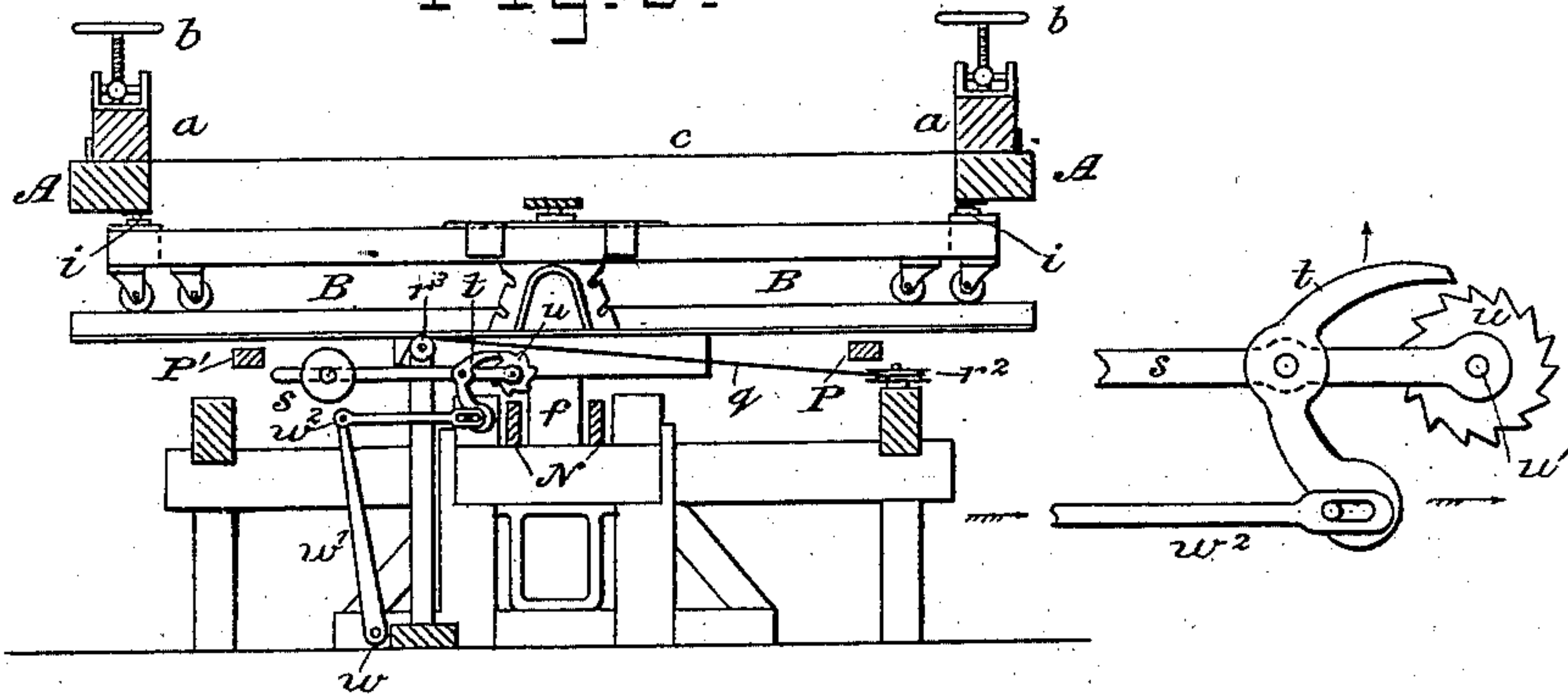


Fig. 6.

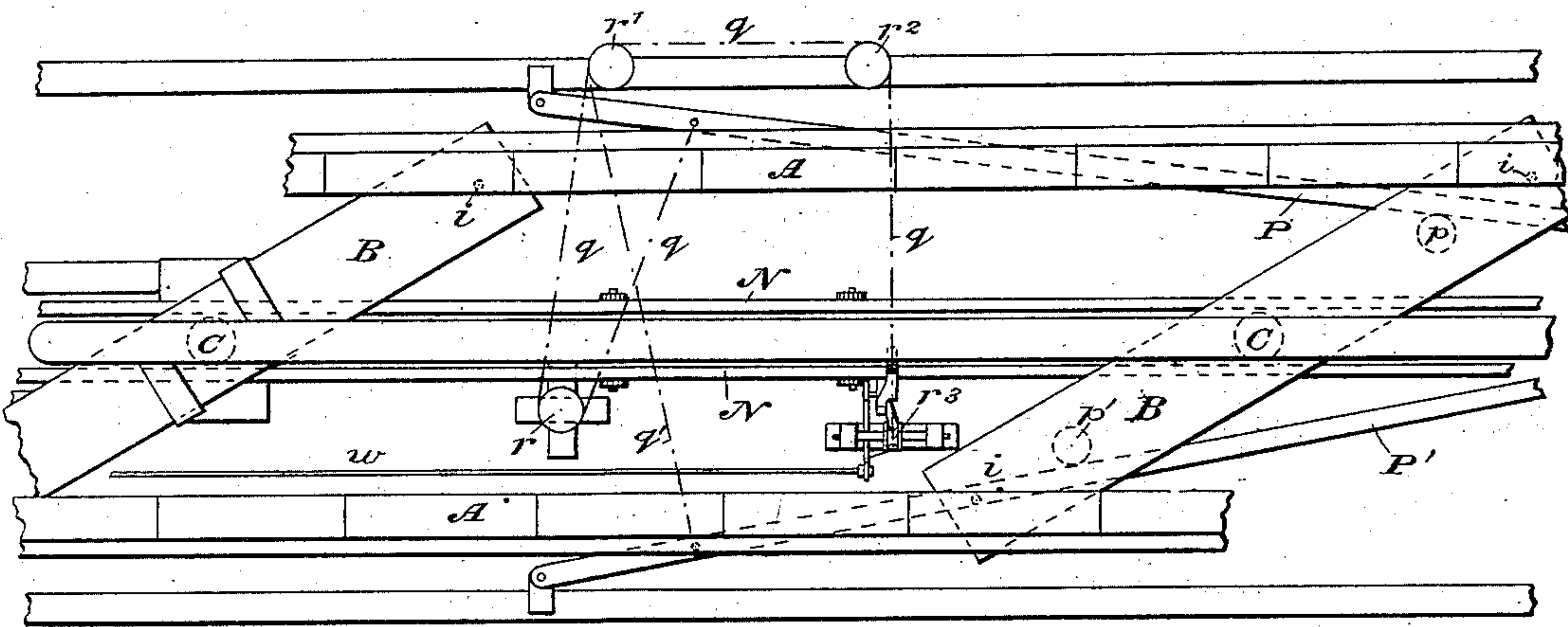
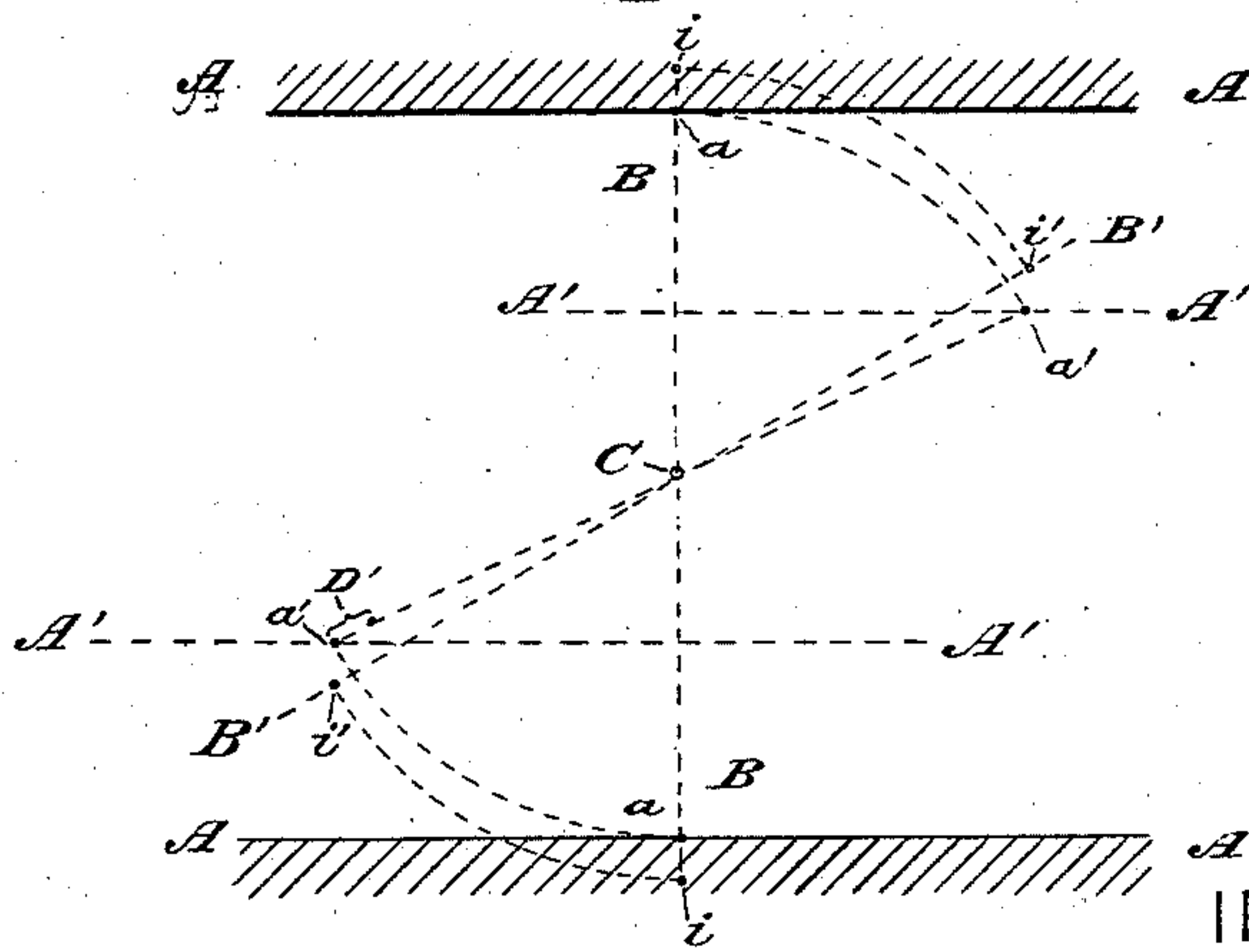


Fig. 7.



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(No Model.)

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J. & L. GOURDIAT.

MACHINE FOR STRETCHING OR TENTERING WOVEN FABRICS.

No. 280,031.

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Fig. 8.

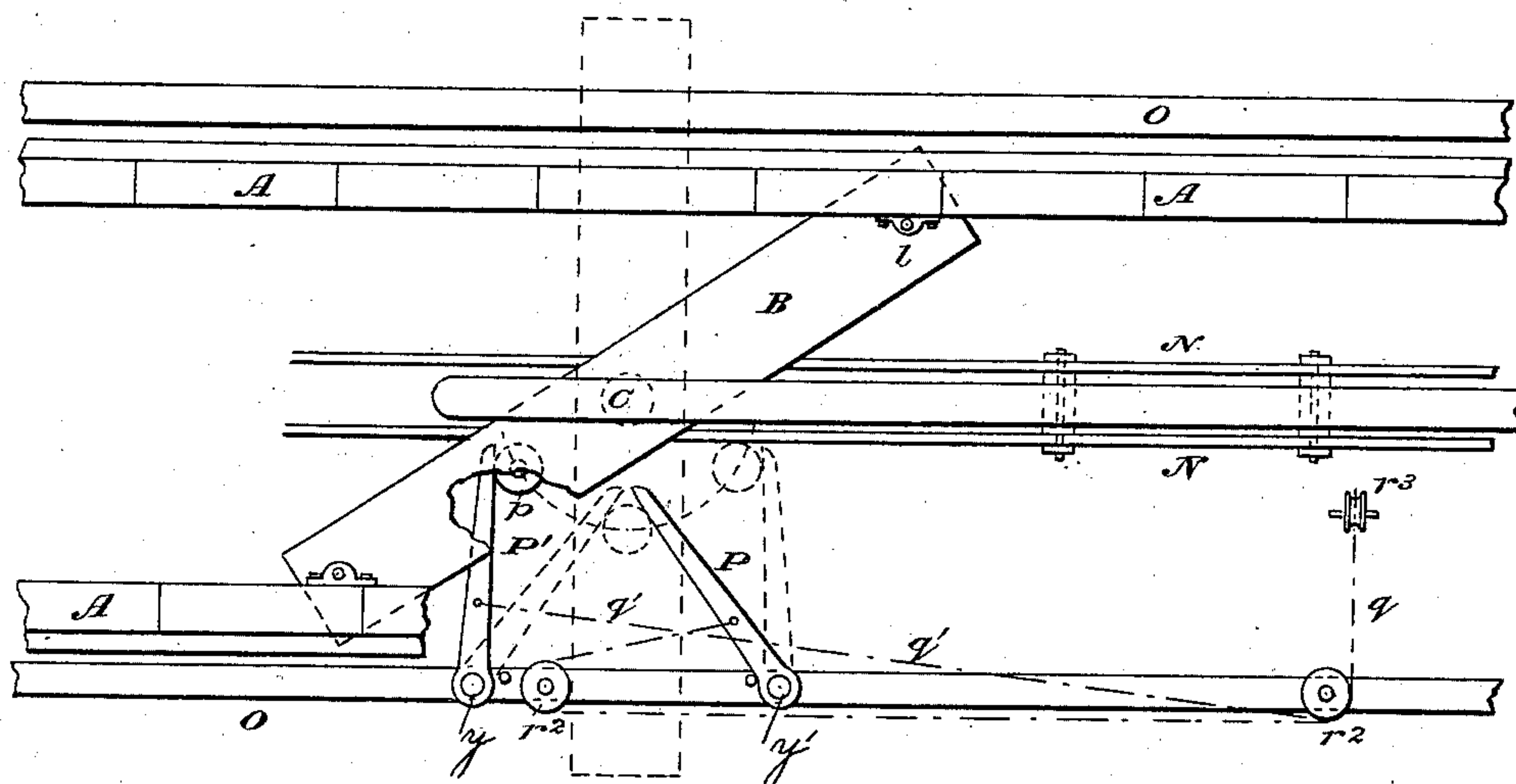
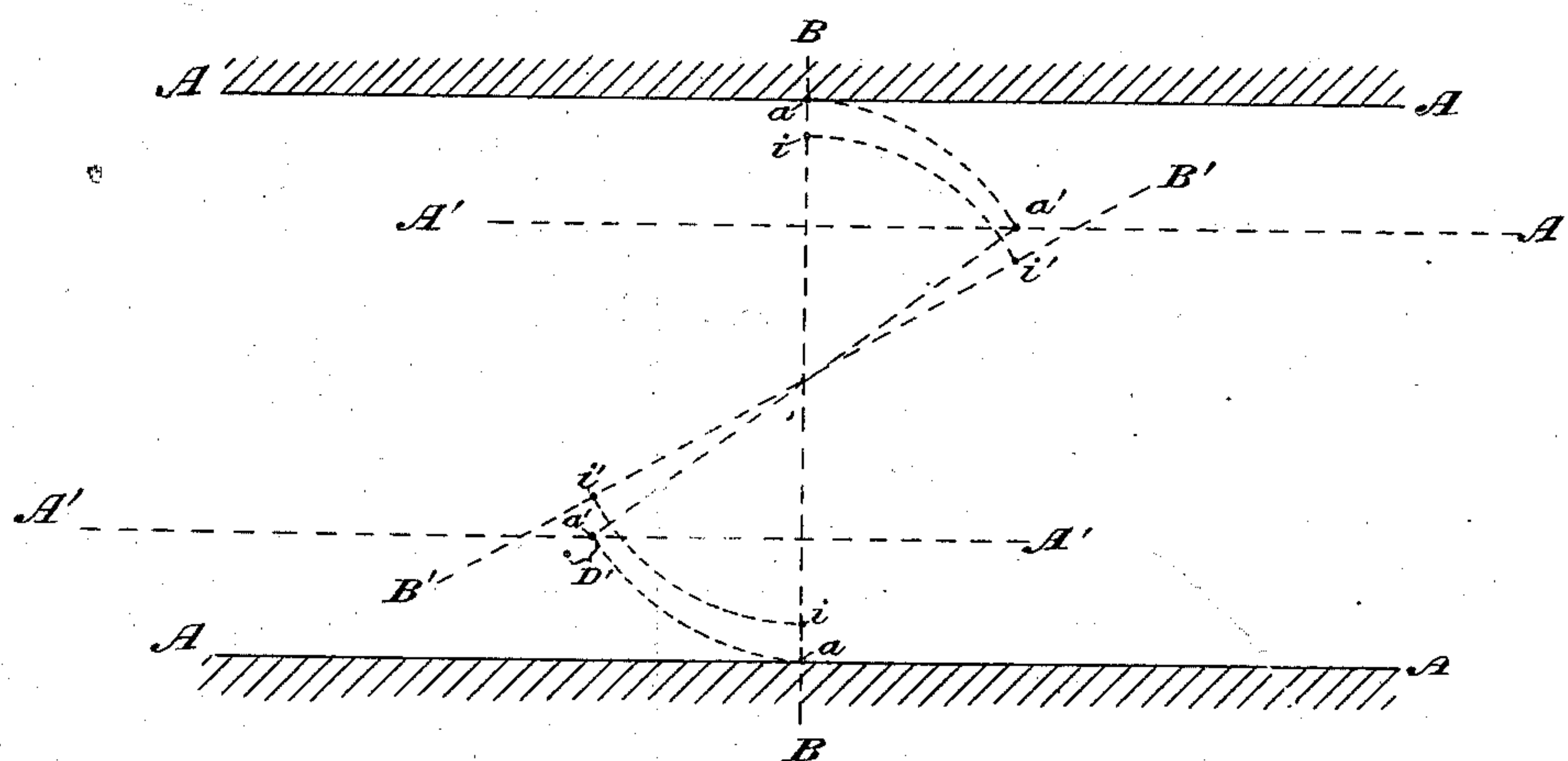


Fig. 8.



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UNITED STATES PATENT OFFICE.

JUDE GOURDIAT AND LAURENT GOURDIAT, OF CARARE, FRANCE.

MACHINE FOR STRETCHING OR TENTERING WOVEN FABRICS.

SPECIFICATION forming part of Letters Patent No. 280,031, dated June 26, 1883.

Application filed April 13, 1881. (No model.) Patented in France December 24, 1880, No. 140,359; in England January 4, 1881, No. 49, and in Germany January 26, 1881, No. 14,714.

To all whom it may concern:

Be it known that we, JUDE GOURDIAT and LAURENT GOURDIAT, both citizens of the Republic of France, and residents of Carare, (Rhône,) France, have invented certain new and useful Improvements in Machines for Stretching or Tentering Woven Fabrics, of which the following is a specification.

This invention is the subject of French Letters Patent No. 140,359, dated December 24, 1880, English Letters Patent No. 49, dated January 4, 1881, and German Letters Patent No. 14,714, dated January 26, 1881.

Woven fabrics in general, and particularly cotton, silk, and cotton and silk mixed goods, undergo a process of dressing requiring stretching or tentering, and working in bias direction, for loosening the threads and rendering the fabric uniformly soft and supple. Thus the fabric, impregnated with a suitable dressing, is stretched, while still moist, over a frame or stretcher, both lengthwise and crosswise, the selvages being held by clamps. After the fabric has thus been submitted to a certain amount of tension, it will be necessary to manipulate it so as to render the threads rectilinear and parallel. This result is reached by working the fabric into bias shape in opposite directions alternately while keeping it stretched, so that the weft-threads move one against another, and finally bringing it to a rectilinear position.

This motion is communicated to the fabric by jointing the frame in such a manner that the clamps which grip the selva are made to reciprocate simultaneously in opposite directions. This biasing treatment takes place while the fabric is still damp. After this biasing treatment has been completed, the alternate motion of the clamps may be continued, and the fabric may thus be worked diagonally in opposite directions until it is thoroughly dried; but the motion should be of less extent than during the biasing treatment, although this varies according to the result to be obtained. The object of this operation is the softening of the dressing of the fabric, for if the fabric after the biasing treatment had been arrested and dried in its rectangular position the dressing would be stiff and of a peculiar character.

Our improved machine is illustrated in the accompanying drawings, wherein Figure 1 is a plan view of one end of the machine. Fig. 2 is a vertical longitudinal mid-section thereof. Fig. 3 is a transverse section thereof, cut in the plane of the line 3 3 in Figs. 1 and 2, and looking in the direction of the arrow crossing said lines. Fig. 4 is a vertical transverse section cut in the plane of the lines 4 4 in Figs. 1 and 2, and showing a portion of the machine in end elevation. Fig. 5 is a transverse section cut in the plane of the lines 5 5 in Figs. 1 and 2. Fig. 6 is a fragmentary plan, showing the machine in the biasing position. Fig. 7 is a diagram illustrating the principle of operation of the construction illustrated in the preceding figures. Fig. 8 is a plan similar in character to Fig. 6, but showing a modified construction; and Fig. 9 is a diagram answering to Fig. 7, and illustrating the principle of operation of this modification.

In the several figures, A A are two parallel tentering bars or rails, arranged on opposite sides of the machine and extending, usually, its entire length. These bars face each other, and are provided with suitable means for engaging the selva-edges of the fabric to be treated, either the usual tentering-pins, or, as we prefer, a series of screw-clamps, *a a*, which consist of short bars forced tightly against the surface of the bar A by screws *b b*. The edges of these clamps are preferably even with the edges of the bars A A on the sides of the latter, facing each other, and these edges constitute the clamping-edges or line of attachment to the fabric, the latter being denoted in Figs. 2, 3, and 5 by the line *c*. Beneath the bars A A, and extending transversely from one to the other, are a series of cross-beams, B B, but two of which are shown. These beams are pivoted or fulcrumed on vertical axes C C, located midway between the clamping-edges of the bars A A, and they are capable of vibrating back and forth on these axes to opposite sides of the position shown in Fig. 1. In Figs. 1 and 2 the left-hand beam B is shown in detail, and it is also shown in Fig. 3. We will now describe its construction, the remaining ones being understood to be counterparts of this. The beam is extensible, being constructed of

as before described, effects the separation of the bars A A. On the return motion, and until the rectangular position is reached, the weft-threads are stretched by virtue of the positions of the pivots *i i*. On biasing the frame in the other direction, the other lever, P, is deflected with like results.

The two levers P P' might stand normally parallel to each other and to the rectangular position of the beam B; but the roller *p* would then travel farther along them, their motion would be more variable, and the widening of the fabric would be less uniform.

The pivots *i i* might be placed exactly in the vertical plane of the clamping-edges of the bars A A, in which case the biasing movement would not elongate the weft-threads. The stretching must then be accomplished by a gradual separation of the bars, uniformly proportioned to the speed with which the machine is reciprocated and the extent of obliquity at each reciprocation. For this purpose either of the mechanisms already described may be used, so as to widen on either the biasing or the return movements; or, as we prefer, both these mechanisms may be used, they being independent of each other and each acting on a separate ratchet-wheel, *u*, on the shaft *u'*, whereby this shaft is rotated almost continuously, being rotated by the mechanism shown in Fig. 8 during the biasing motion, and by the mechanism shown in Figs. 1 to 6 during the return to the rectangular position, the two mechanisms working alternately. Thus the widening is gradually effected at both phases of the movement of the machine.

Our machine possesses the advantage over others of its class that by it the widening or stretching of the fabric is effected more rapidly, thoroughly, and uniformly, and may be accomplished either automatically or under the immediate control of the operator.

We claim as our invention—

1. The combination of opposite tentering-bars, to which the selvages of a woven fabric may be attached, with an oscillating frame-work bearing said bars, and means for automatically separating the said bars during the oscillating movement, whereby the fabric is simultaneously biased and stretched, substantially as set forth.

2. The combination of opposite parallel tentering-bars, to which the selvages of a woven fabric may be attached, with oscillating cross-beams pivoted thereto out of the line of the

connection between the bar and fabric, whereby during the biasing operation the weft-threads shall be stretched more at one part of the movement than at another, and means for automatically separating said bars while returning from the stretching to the slacking position of the frame, substantially as and for the purposes set forth.

3. The combination of tentering-bars A A with oscillating extensible cross-beams B B, screw M, means in connection with said screw and operated thereby for extending said cross-beams and thereby separating said bars, gears J' J', connecting mechanism, substantially as described, between said gears and said screw, driving-gear I, and lever H, adapted to bring either of the gears J' J' into gear with the gear I, and thereby rotate the screw M in one direction or the other, substantially as set forth.

4. The tentering-bars A A, extensible oscillating cross-beams B B, screw M, and mechanism intervening between said screw and said beams, whereby the turning of the screw extends the beams and separates the bars A A, in combination with lever P, cord or chain *q*, lever *s*, pawl *t*, ratchet-wheel *u*, and shaft *u'*, geared to the screw M, substantially as set forth.

5. The combination of tentering-bars A A, oscillating extensible cross-beams B B, pivoted thereto and forming therewith an oscillating frame-work, screw M, suitable mechanism, substantially as described, intervening between said screw and said beams, whereby on turning the former the latter are lengthened or shortened, suitable mechanism, substantially as shown, operated by the oscillation of said frame and acting to automatically rotate said screw, with shaft *w*, and means for disengaging said mechanism from said screw upon the oscillation of said shaft in one direction, arm *w*³, fixed to said shaft, lever *w*⁴, rod *w*⁵, pins *x* *x'*, and lever H, whereby on pressing said lever to either side the said shaft will be oscillated in the proper direction and will disconnect said automatic mechanism, substantially as set forth.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

J. GOURDIAT.

L. GOURDIAT.

Witnesses:

H. FESCHOTTE.

MARIE V. LOTZ.

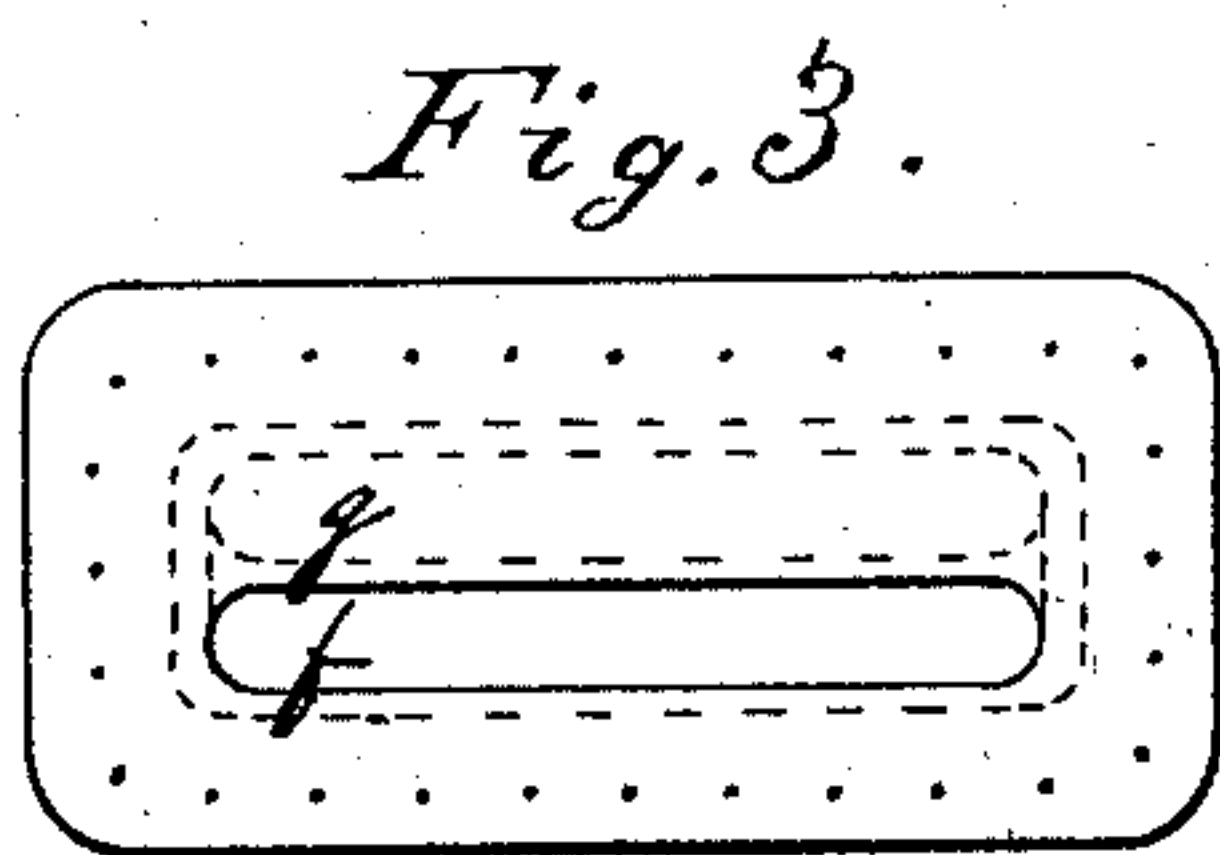
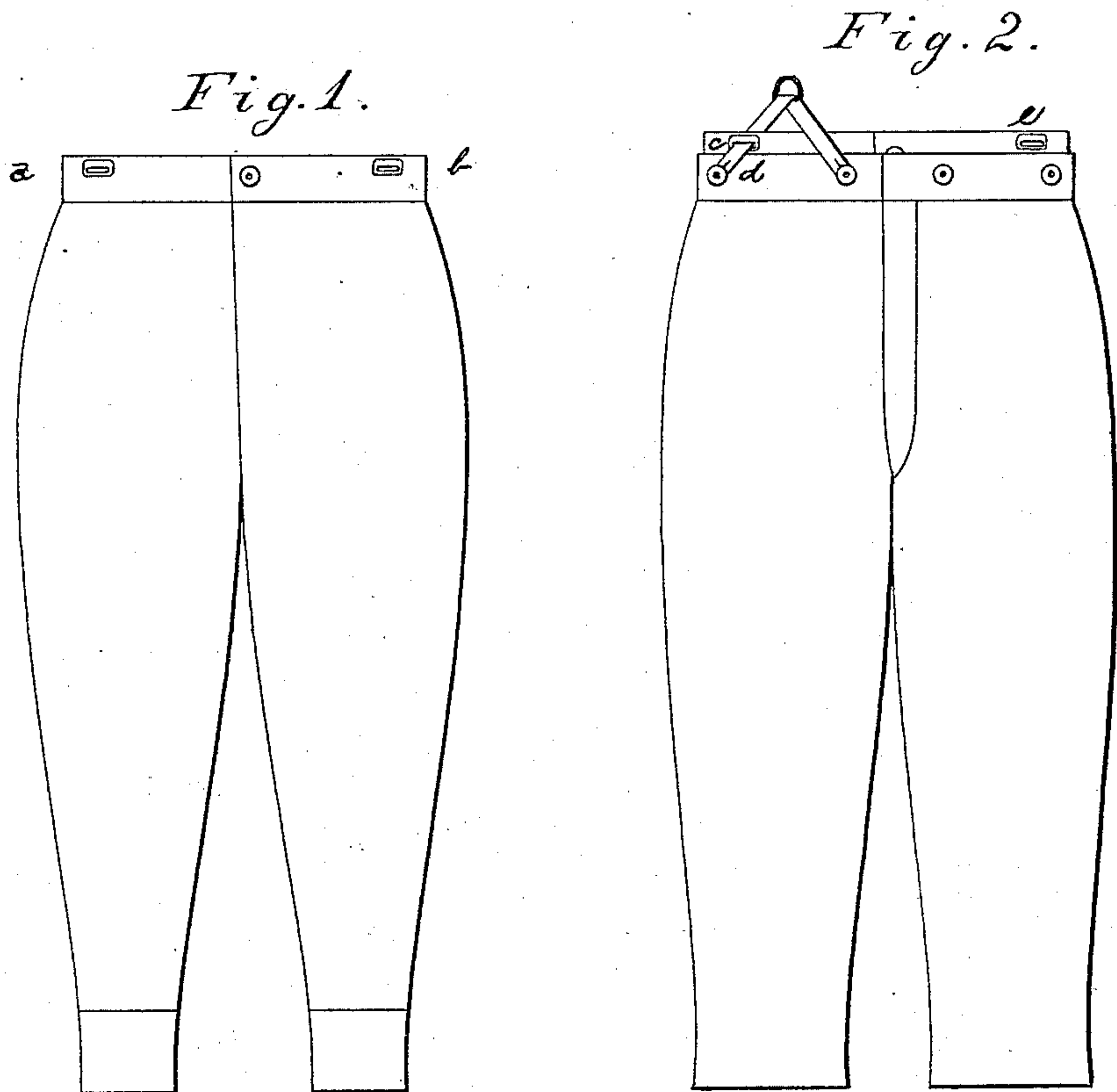
(No Model.)

A. M. GREEN.

METALLIC EYELET FASTENING FOR DRAWERS.

No. 280,032.

Patented June 26, 1883.



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Attorney.

