

(No Model.)

3 Sheets—Sheet 1.

G. M. HINKLEY.
CIRCULAR SAWING MACHINE.

No. 314,379.

Patented Mar. 24, 1885.

Fig. 1.

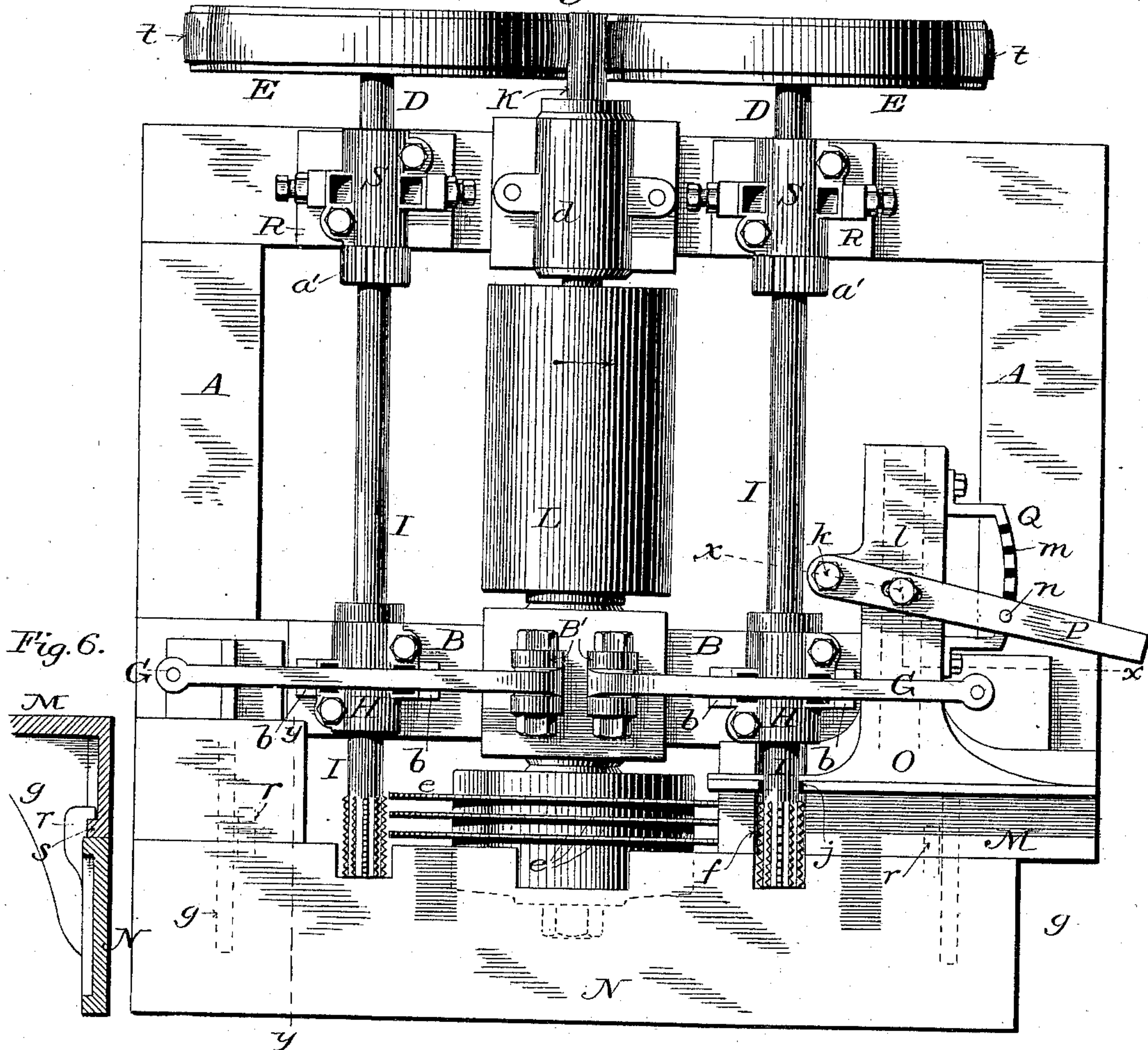
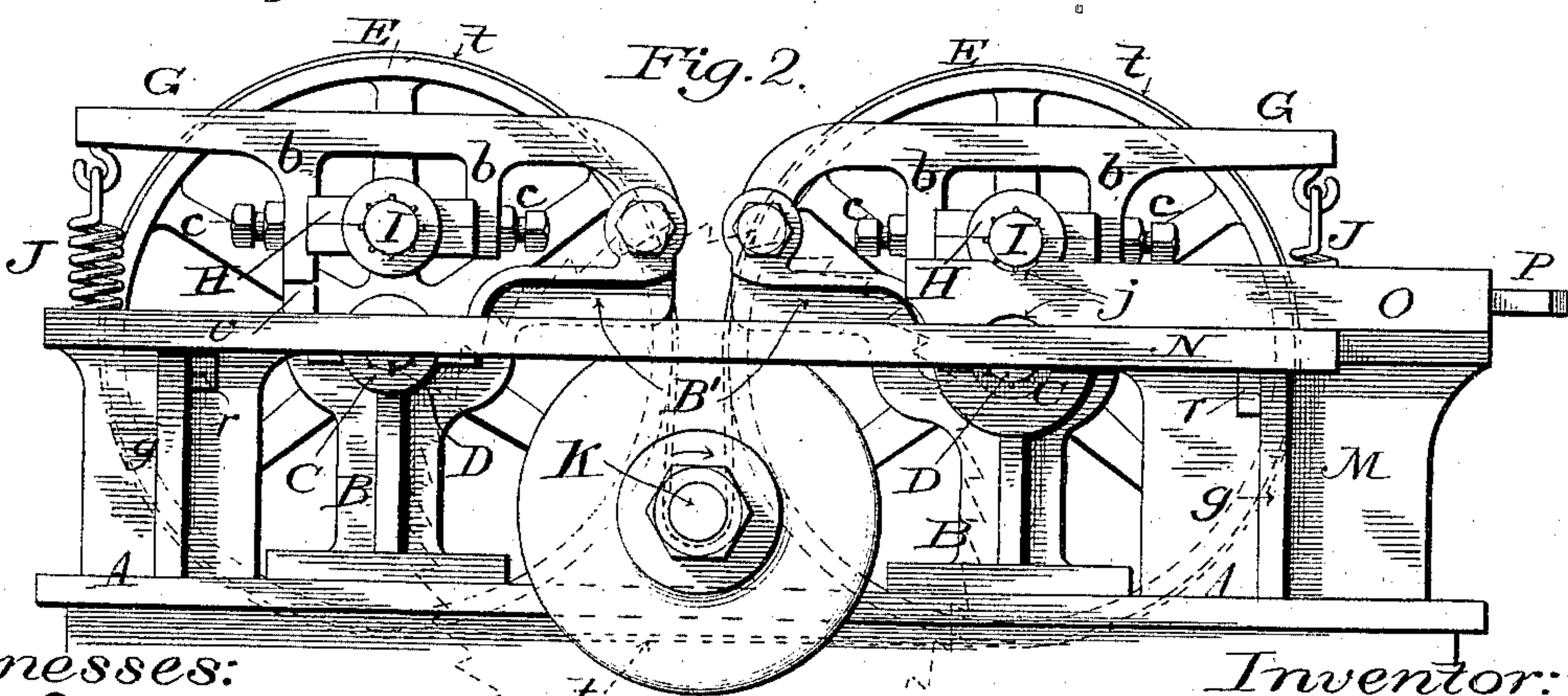


Fig. 6.



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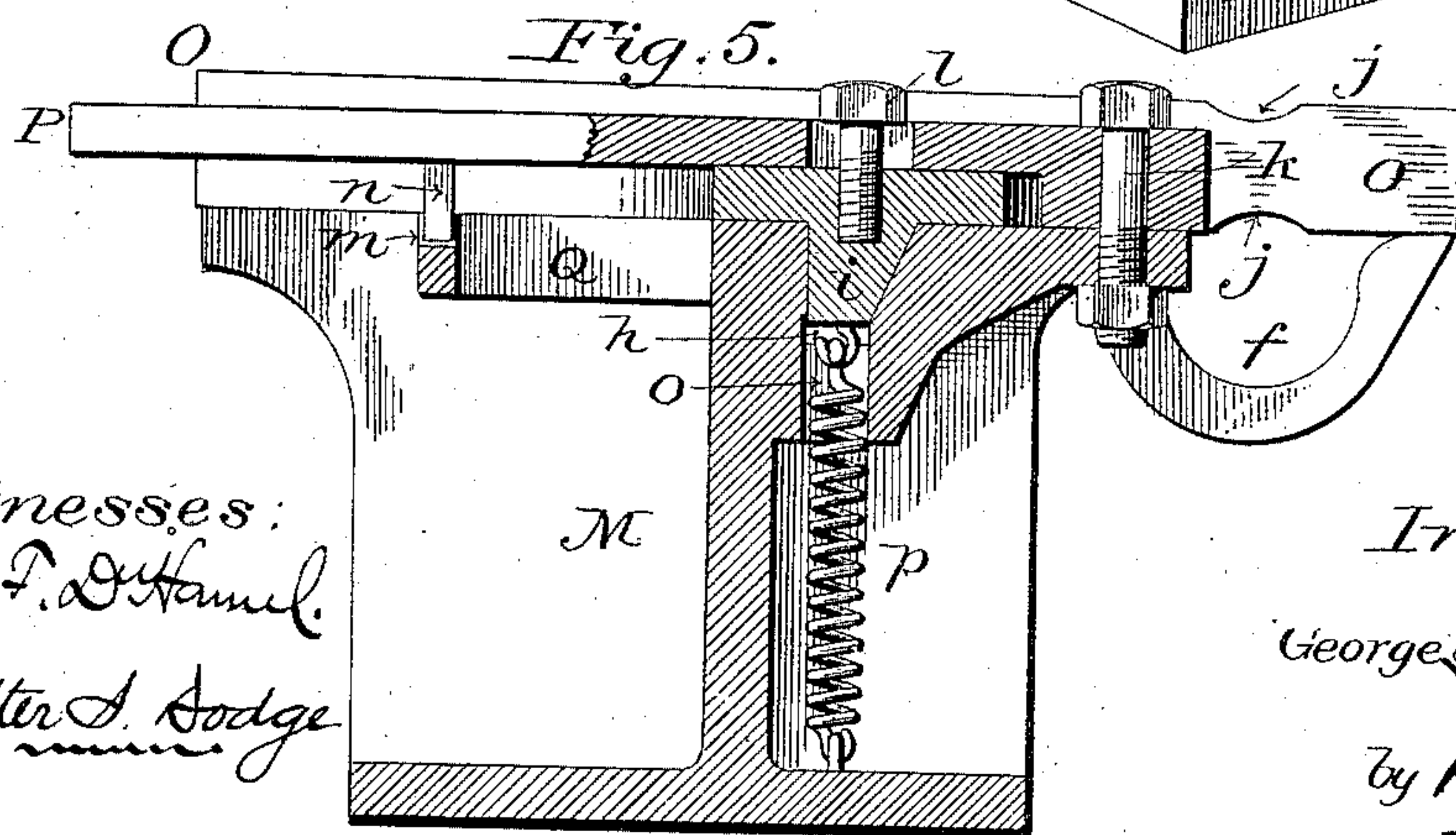
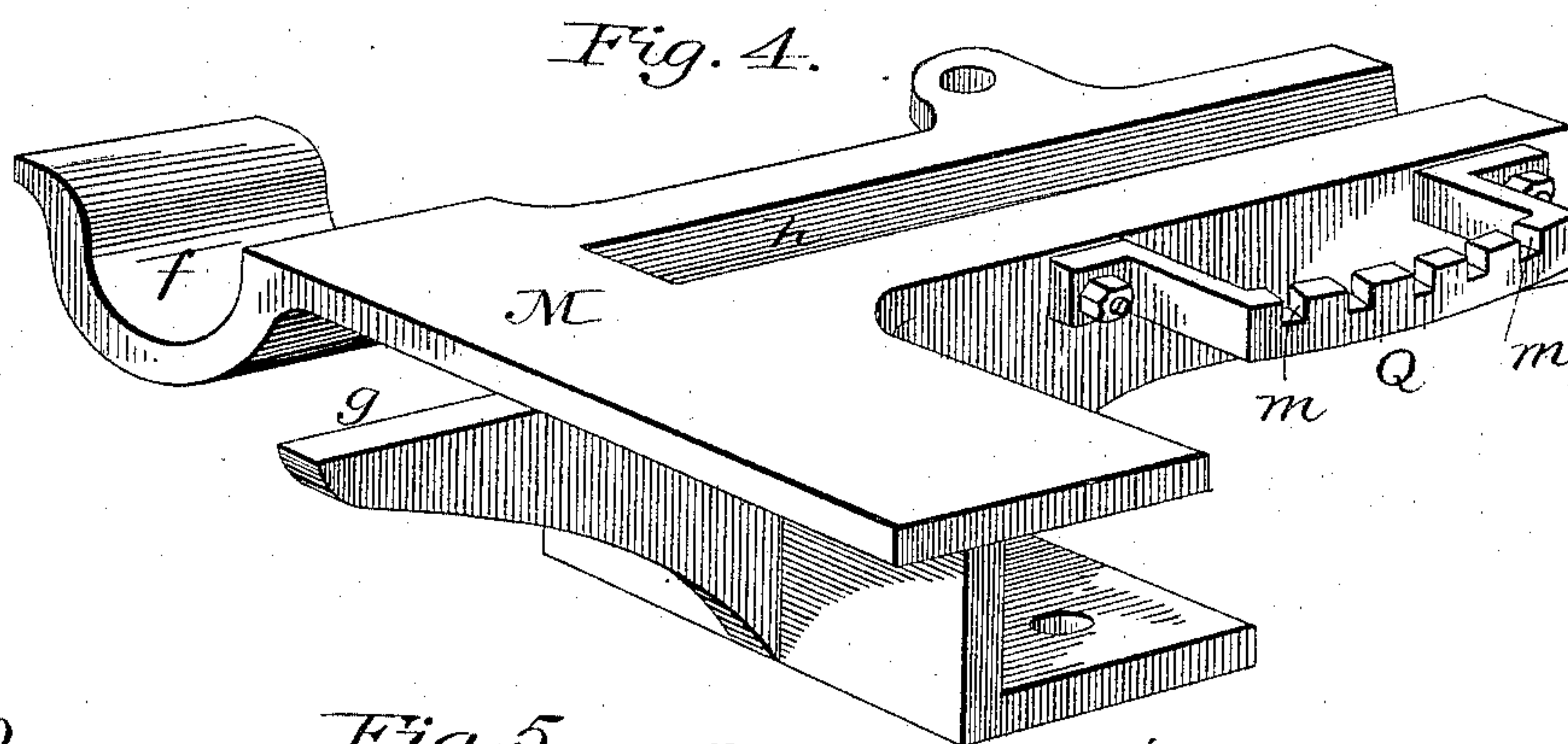
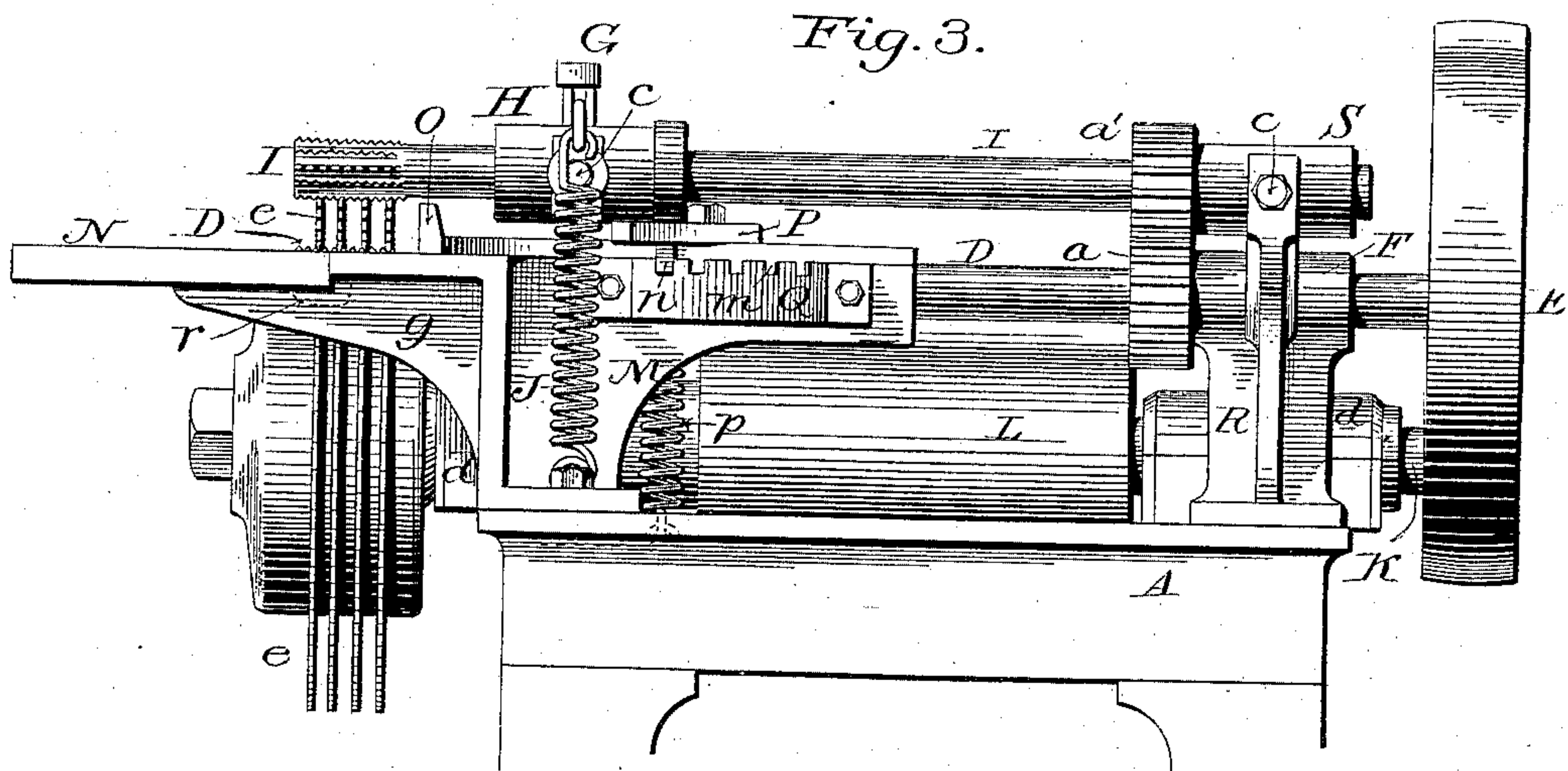
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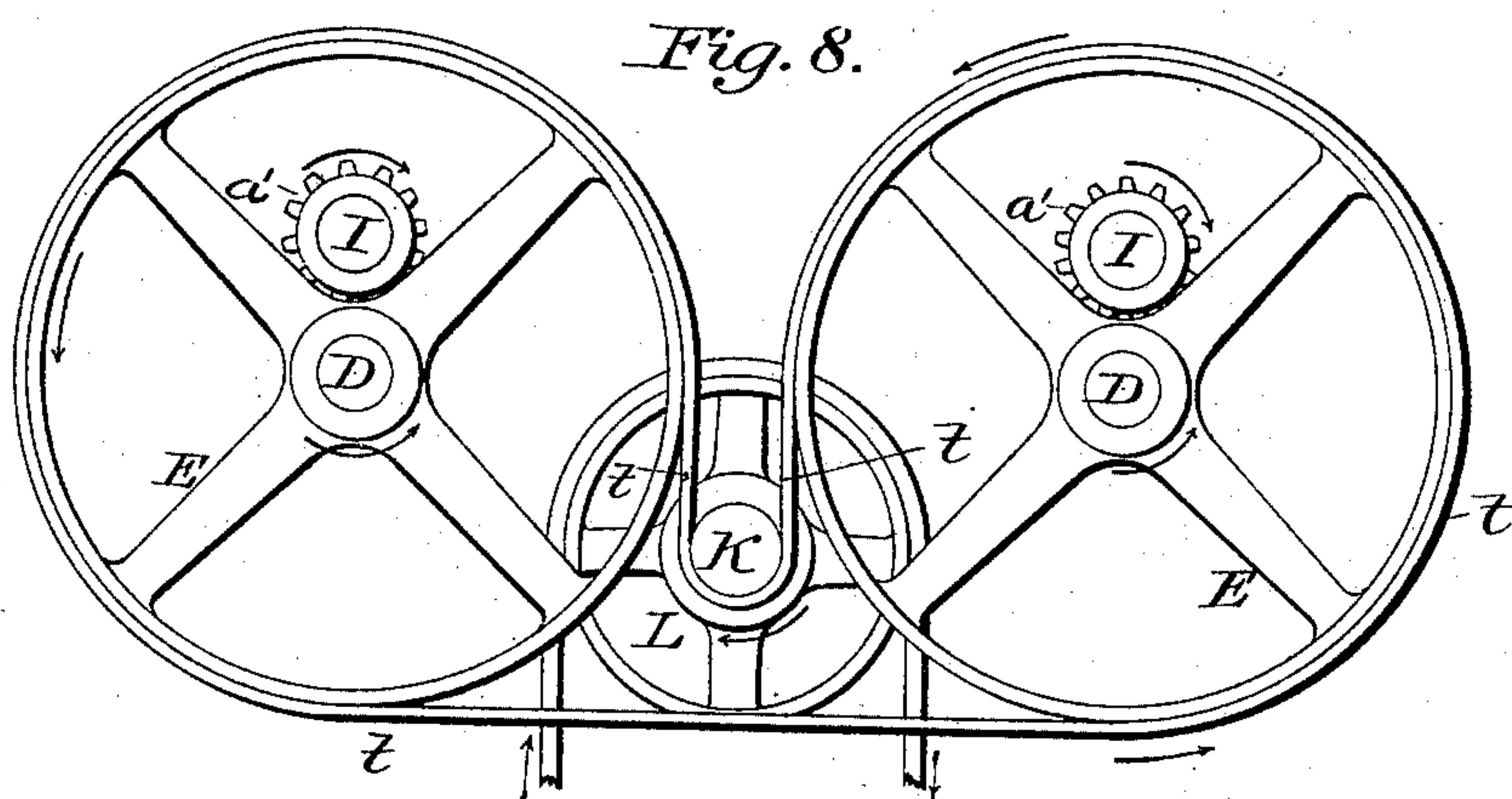
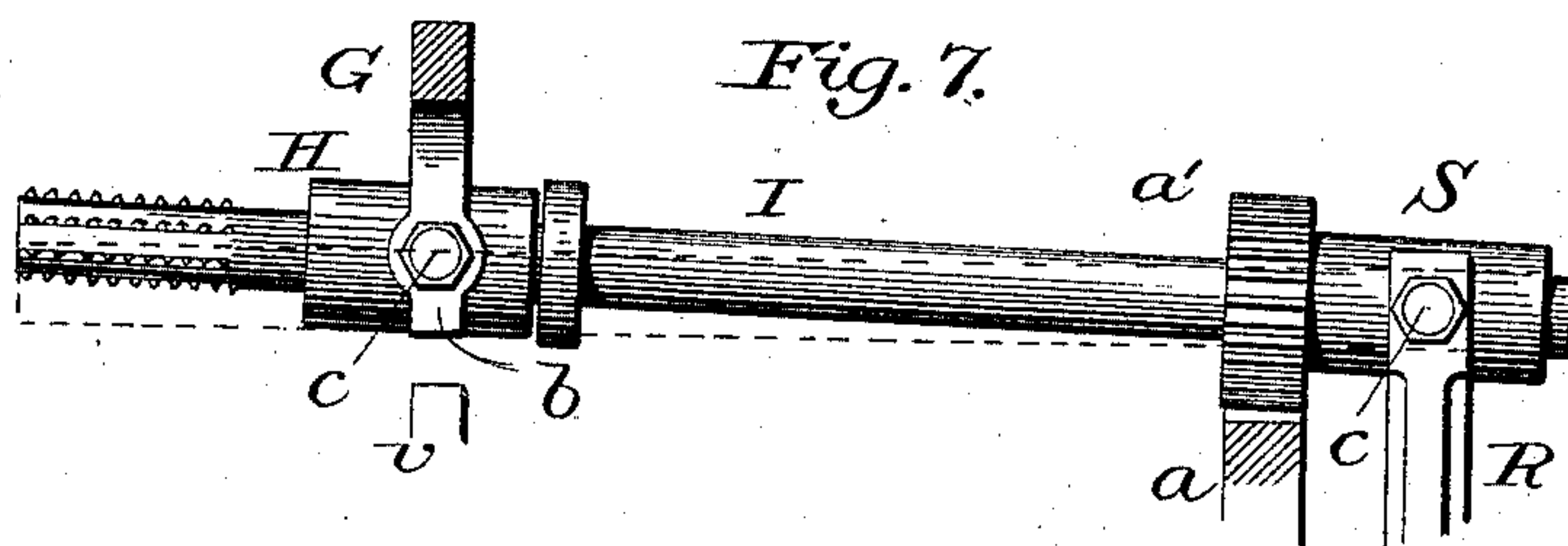
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Patented Mar. 24, 1885.



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UNITED STATES PATENT OFFICE.

GEORGE M. HINKLEY, OF MILWAUKEE, WISCONSIN.

CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 314,379, dated March 24, 1885.

Application filed January 30, 1885. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. HINKLEY, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Circular Sawing Machines, of which the following is a specification.

My invention relates to machines for sawing laths; and it consists in a novel construction of the same, as hereinafter set forth.

In the drawings, Figure 1 is a top plan view of the machine, Fig. 2 a side view, and Fig. 3 an end view of the same. Fig. 4 is an enlarged view of a portion of the stationary table or frame; Fig. 5, an enlarged cross-section on the line *x x*, Fig. 1; Fig. 6, a section on the line *y y*; Fig. 7, a view showing the operation of the upper feed-rolls and their boxes, and Fig. 8, a view illustrating the manner of driving the feed-rolls and saws.

This invention is designed more particularly for sawing laths; and it consists in a novel construction and arrangement of the bearings for the upper feed-rolls, in the construction of the guide for the lumber, in a detachable table, and in mechanism for imparting motion to the machine.

A indicates the frame of the machine, of substantially rectangular form, and B B indicate brackets secured to the front side thereof, as shown in Figs. 1, 2, and 3. The brackets B are each provided with boxes C, in which are journaled the lower feed-rolls, D, the rear ends of said rolls being provided with pulleys E, as shown. The rolls D are also provided with gear-wheels *a*, and are supported by brackets R, provided with stationary boxes F between the gear-wheels and the pulleys E. Each of the brackets B is furnished with a laterally-extending arm, B', in which is hinged an overhanging lever, G, said lever being provided on its under side with two depending arms, *b*, between which is held, by set-screws *c*, a box, H, supporting the outer end of one of the upper feed-rolls, I. The outer ends of the lever G are attached to strong spiral springs J, which are attached to the frame A, as shown in Figs. 2 and 3.

K indicates a saw arbor or shaft, extending across the machine parallel with the feed-rolls, and carried at either end in boxes or bearings *d*, and provided between said boxes with an

elongated pulley, L. The shaft K extends outward beyond its boxes *d*, as shown in Figs. 1 and 3, the rear end passing between the pulleys E, while the other end is provided with saws *e* and suitable retaining devices therefor.

M indicates a bracket secured to the frame by bolts or other means, and, as shown in Figs. 4 and 5, provided with a depression or seat, *f*, to give room for the toothed or corrugated end of the feed-roll, the roll extending slightly above the upper face of the bracket, as shown in Fig. 3. The bracket M is provided with an arm, *g*, to support or aid in supporting the removable table N, and with a groove or slot, *h*, having a beveled side or face, as shown enlarged in Figs. 4 and 5.

O indicates a guide which moves over the surface of the bracket M, said guide being of T form substantially, and provided with a depending tongue, *i*, to fit the groove *h* in the bracket M. The guide O is also cut away at top and bottom, as indicated in Fig. 5, to form recesses *j*, to allow it to pass between the upper and lower feed-rolls, as presently explained.

In order to operate the guides, I employ a hand-lever, P, pivoted by a bolt, *k*, to the bracket M, and slotted to receive a bolt or stud, *l*, projecting upward from the slide, as shown in Figs. 1 and 5.

Attached to the bracket M is segment Q, provided with a series of notches, *m*, with which a pin or lug, *n*, on the lever P engages, to retain the lever and guide in any desired position. A slot, *o*, is cut in the bottom of the groove *h* to admit a spiral spring, *p*, attached to the guide O and to the bracket M, to hold the guide down to its seat, as shown in Fig. 5. The brackets R at the rear side of the frame carry at their upper ends pivoted boxes or bearings S, in which the rear ends of the upper feed-rolls are supported, these boxes or bearings S being similar to the boxes H, carried in the overhanging arm G, and supporting the forward end of the upper feed-rolls, as shown in Figs. 1, 3, and 7. The feed-rolls I are provided with gears *a'*, to engage with the gears *a* on the lower feed-rolls, D. The removable table N, as shown more clearly in Figs. 1, 3, and 6, is recessed to allow the ends of the lower feed-roll, D, to project out beyond the width of the saws.

As shown in Fig. 6, and by dotted lines in

Fig. 1, the removable table N is provided with hooks or lugs *r*, which engage with a flange, *s*, on the bracket M, or with a lug on the side of the arm *g* thereof. This construction permits the table N to be removed at will by simply raising its outer edge and disengaging the hooks or lugs *r* from the flange or stud *s*. Access may thus be had to the saws, which can be removed or adjusted without displacing any other parts of the machine. The table N is made to stand flush with the upper face of bracket M, and forms a continuation thereof, as in Figs. 1, 2, 3, and 6.

In order to cause the proper feed of the material, I adopt the construction shown in Figs. 1, 2, and 8. A single belt, *t*, passes from one pulley, E, to the other on their lower sides, thence up over their upper surfaces and down around the lower side of the shaft K, extending between the pulleys E E, as shown in Fig. 8. This single belt *t* causes both the belt-pulleys E to revolve to the left and the shaft K, carrying the saws *e*, to the right. As the pulleys E are connected to and carried by the lower feed-roll shafts, D, it will be seen that the lower feed-rolls, D, will be caused to revolve in such direction as to cause the feed of the material in the proper direction. Motion is communicated to the upper feed-rolls, I, through the gear-wheels *a'*, carried thereby, which mesh with the gears *a* on the shafts D. It will be seen that by the use of one belt the saws and both sets of feed-rolls are caused to revolve in their proper directions and speed.

Motion may be communicated to the belt-pulley L from any convenient motive power.

Stock being fed between the upper and lower rolls, D I, and motion being communicated to them as described, the guide O is moved by lever P to any desired position (but always in line with the cut of the saws) to vary the width of cut or to feed narrow or wide lumber, as required. In thus moving over the table the guide has to pass between the feed-rolls, and would be injured thereby were it not for the recesses *j*, cut in the upper and lower faces of the forward end of the guide, as shown in Figs. 2 and 5, which allows the guide to be moved backward or forward, as desired, without interference.

The upper feed-rolls, being hung or supported as above explained, readily adjust themselves to the inequalities in the thickness of the stock fed between them, the journal-boxes rocking upon pivots and thereby preventing any cramping or binding of the roll-journals, the descent of the levers G, and consequently the approach of the upper and lower feed-rolls.

It is apparent that weights may be substituted for the springs J, though the springs are preferred.

I am aware that self-adjusting feed-rolls are common to many forms of wood-working machines, and therefore make no broad and general claim thereto.

In order to limit the downward movement

of the overhanging arm G, I provide the bracket B with an upwardly-extending arm, *v*, upon which the depending arms *b* on the arm G rest, as shown in Fig. 2.

Having thus described my invention, what I claim is—

1. In a sawing-machine, the combination of a frame, a lower feed-roll mounted in stationary bearings in said frame, and provided with a gear-wheel, and an upper feed-roll carried at one end in a swiveled box journaled in a stationary bracket secured to the frame and at its other end in a similarly-swiveled bearing carried in a lever pivoted to the frame, gear-wheels connecting the upper and lower rolls, and a spring connecting the pivoted lever and frame and tending to hold the upper roll down to its work, as set forth.

2. In a sawing-machine, the combination of a frame, a lower feed-roll mounted in stationary bearings therein, and an upper feed-roll geared to the lower roll and having one end carried in a bearing swiveled in a stationary frame and its other end carried in a bearing swiveled in a swinging frame, to allow of a free vertical movement of the upper feed-roll.

3. In a sawing-machine, the combination of a frame, A, upright bracket B, secured to the front side of said frame and provided with lateral extension B', lower feed-roll, D, box C for said roll mounted in the bracket, arm G, pivoted to the bracket B to allow a vertical movement of the arm, upper feed-roll, I, and box H for said roll, carried by and swiveled in the arm G, as and for the purpose set forth.

4. In a sawing-machine substantially such as described, the combination of frame A, provided with a saw-arbor, saw, and feed-roll, and bracket M, rigidly secured to said frame, and provided with a depression in its face beneath the feed-roll to afford room therefor, and extending beyond said roll to support the material close to the saw, substantially as shown and described.

5. In a sawing-machine, the combination of frame A, provided with a saw-arbor and a saw, bracket M, secured to said frame, and provided with a beveled groove, *h*, guide O, mounted upon said bracket, and provided with a beveled tongue, *i*, to fit and move within the groove *h*, and hand-lever P, pivoted to the bracket M and to the guide, as shown, whereby said guide can be adjusted instantaneously to any desired position.

6. In a sawing-machine, the combination of a frame provided with a saw or saws and feed-rolls, bracket M, secured upon the frame, and provided with groove and slot *o* in the base of said groove, guide O, having tongue *i*, moving in said groove, and spring *p*, connecting the guide and bracket, whereby the guide is held firmly to its seat in the bracket.

7. In a sawing-machine constructed substantially as shown and described, the combination of frame A, arbor K, provided with saws *e*, brackets M, securely fastened to the upper side thereof, and provided with supporting-

arm *g* and lug or flange *s*, and removable table *N*, provided with hooks *r*, to engage the lug or flange *s*, as and for the purpose set forth.

5 8. In a sawing-machine constructed substantially as described and shown, the combination of frame *A*, bracket *M*, secured thereto, as shown, upper and lower feed-rolls, *D I*, and guide *O*, adapted to be moved over the surface of and guided by the bracket *M* between the
10 rolls *D I*, and having its forward edge notched on its upper and lower faces, as shown, whereby it may be moved the entire width of cut without coming in contact with the feed-rolls.

9. In a sawing-machine, the combination of

a frame, *A*, a driving-shaft, *K*, journaled therein and carrying the saws, lower feed-rolls, *D*, journaled in the frame, provided with belt-pulleys *E* and gear-wheels *a*, upper feed-rolls, *I*, provided with gear-wheels *a'*, adapted to be driven by the gear-wheels on the lower feed-
20 shaft, and belt *t*, extending around both pulleys *E* and the shaft *K*, whereby the proper motion and speed are given to the feed-rolls and the saws.

GEORGE M. HINKLEY.

Witnesses:

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