

(No Model.)

2 Sheets—Sheet 1.

F. PHILLIPS.

PLANER TABLE CUSHIONING DEVICE.

No. 350,555.

Patented Oct. 12, 1886.

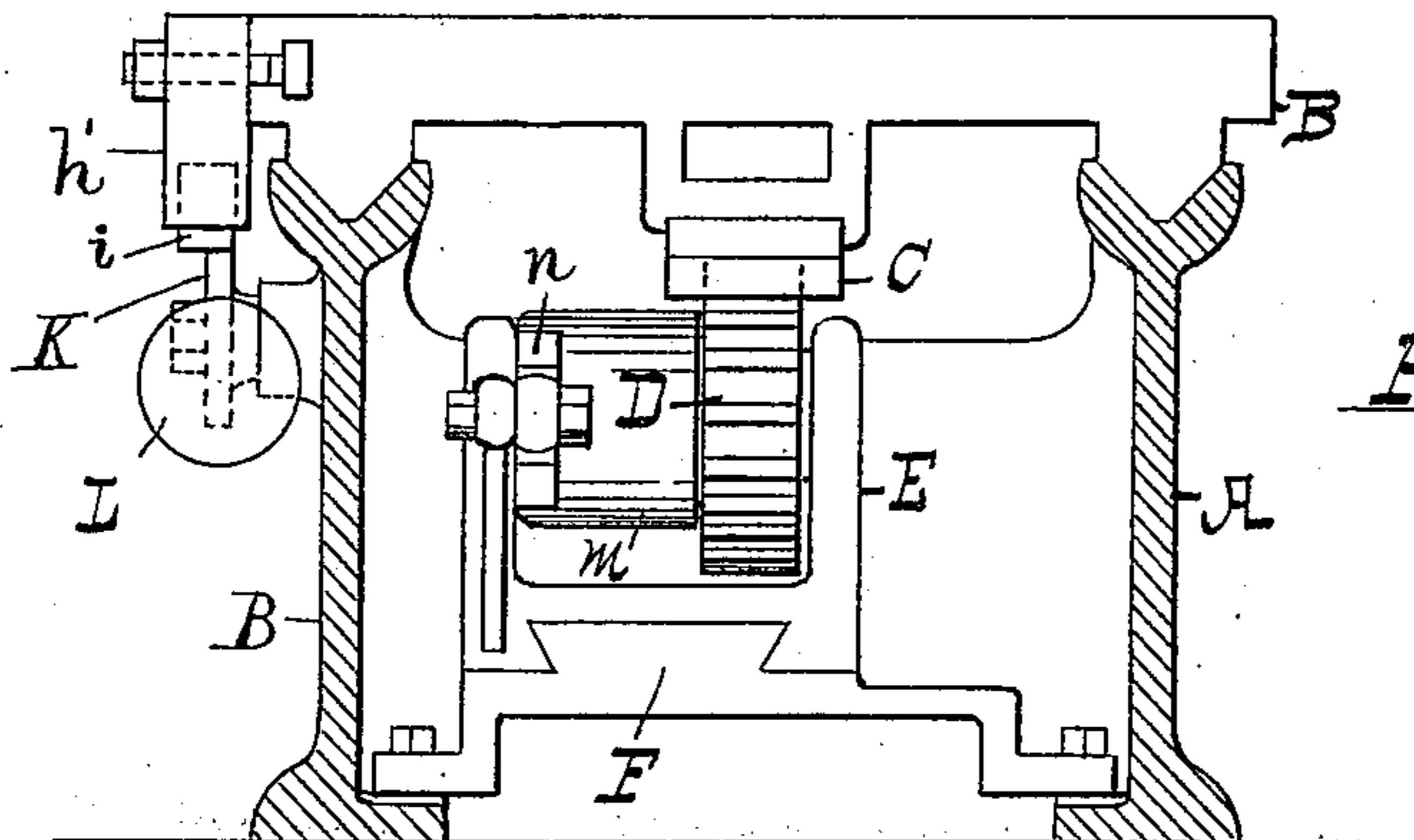


Fig. 1.

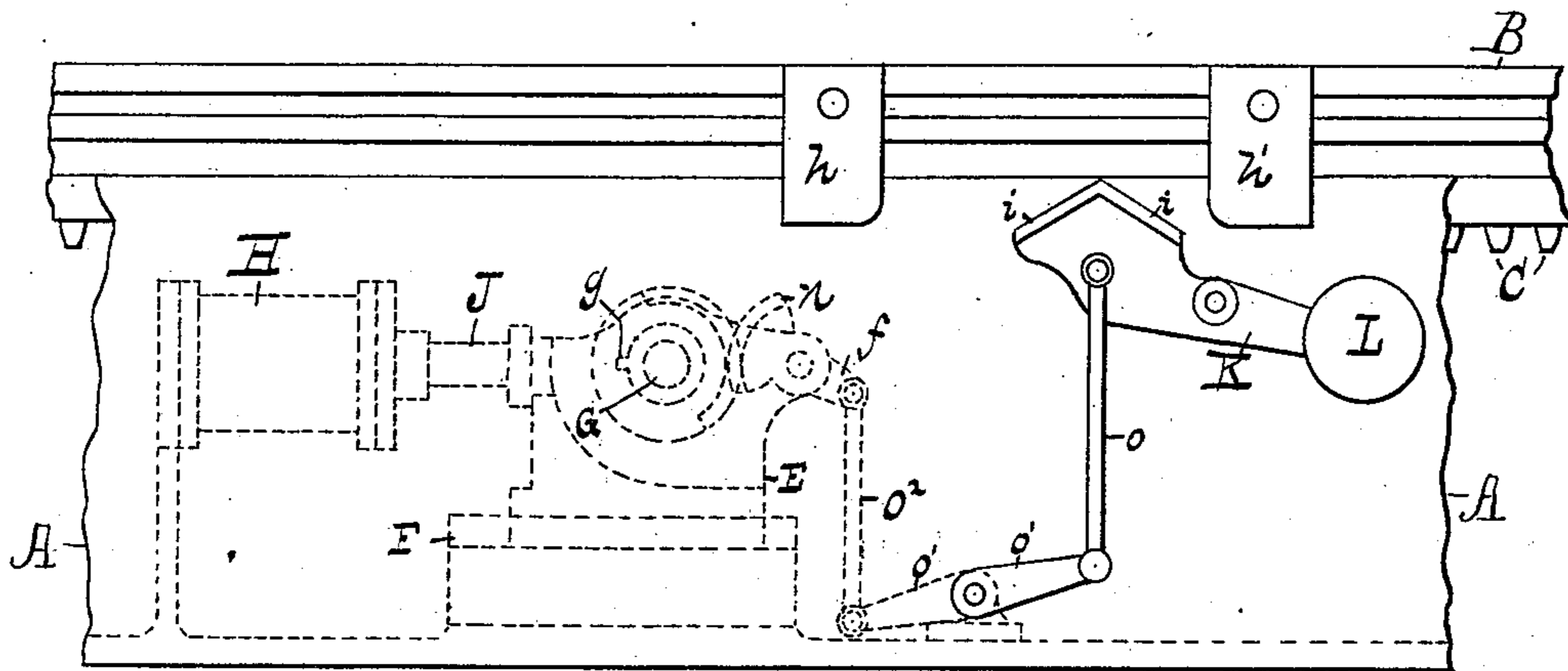


Fig. 2.

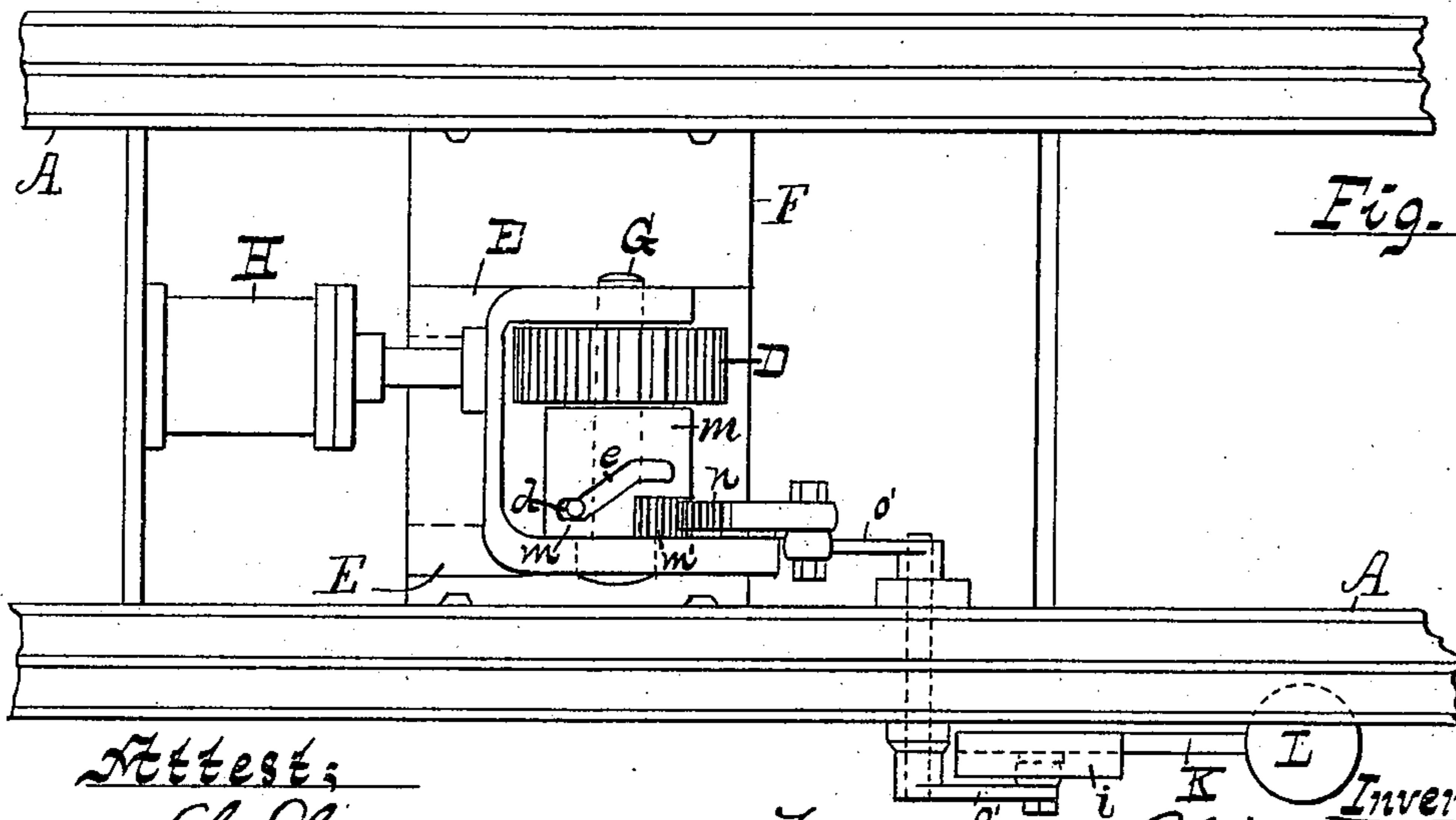


Fig. 3.

Attest;

L. Lee.

Henry J. Sheerath,

Franklin Phillips
per Crane & Miller Atty

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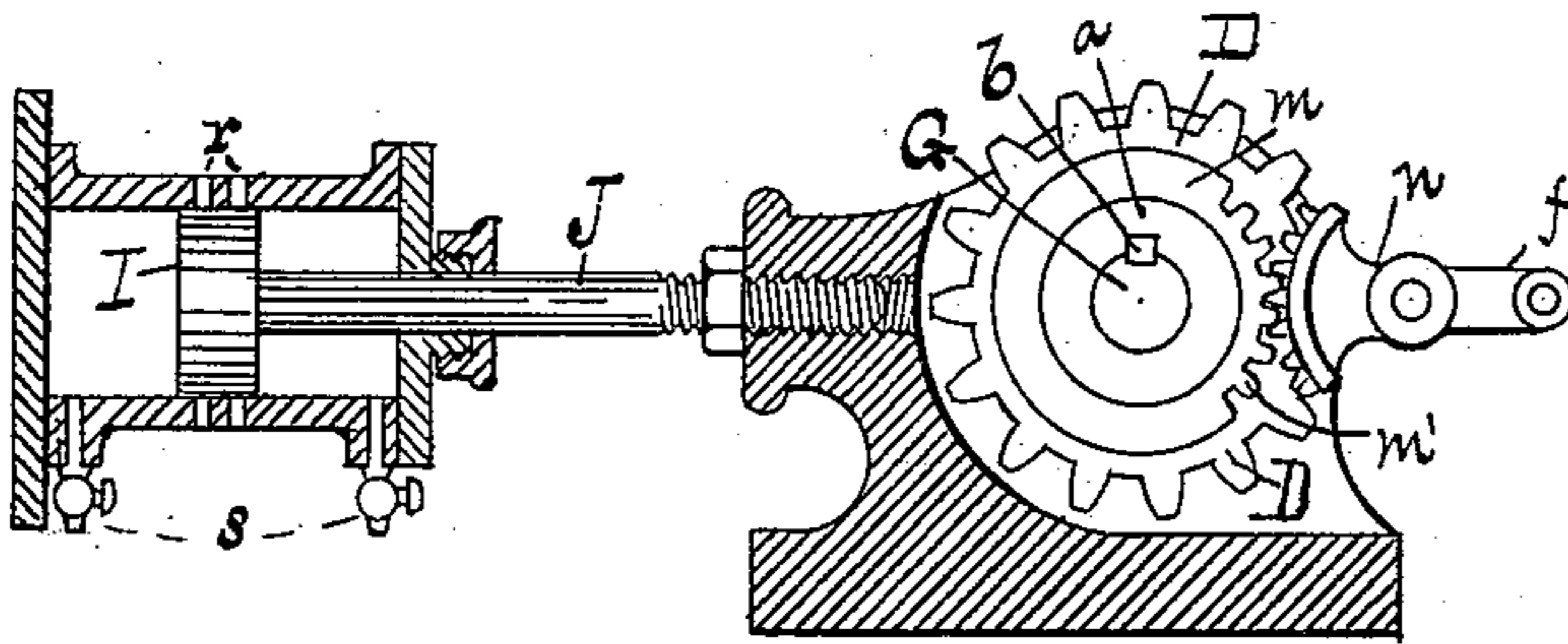


Fig. 4.

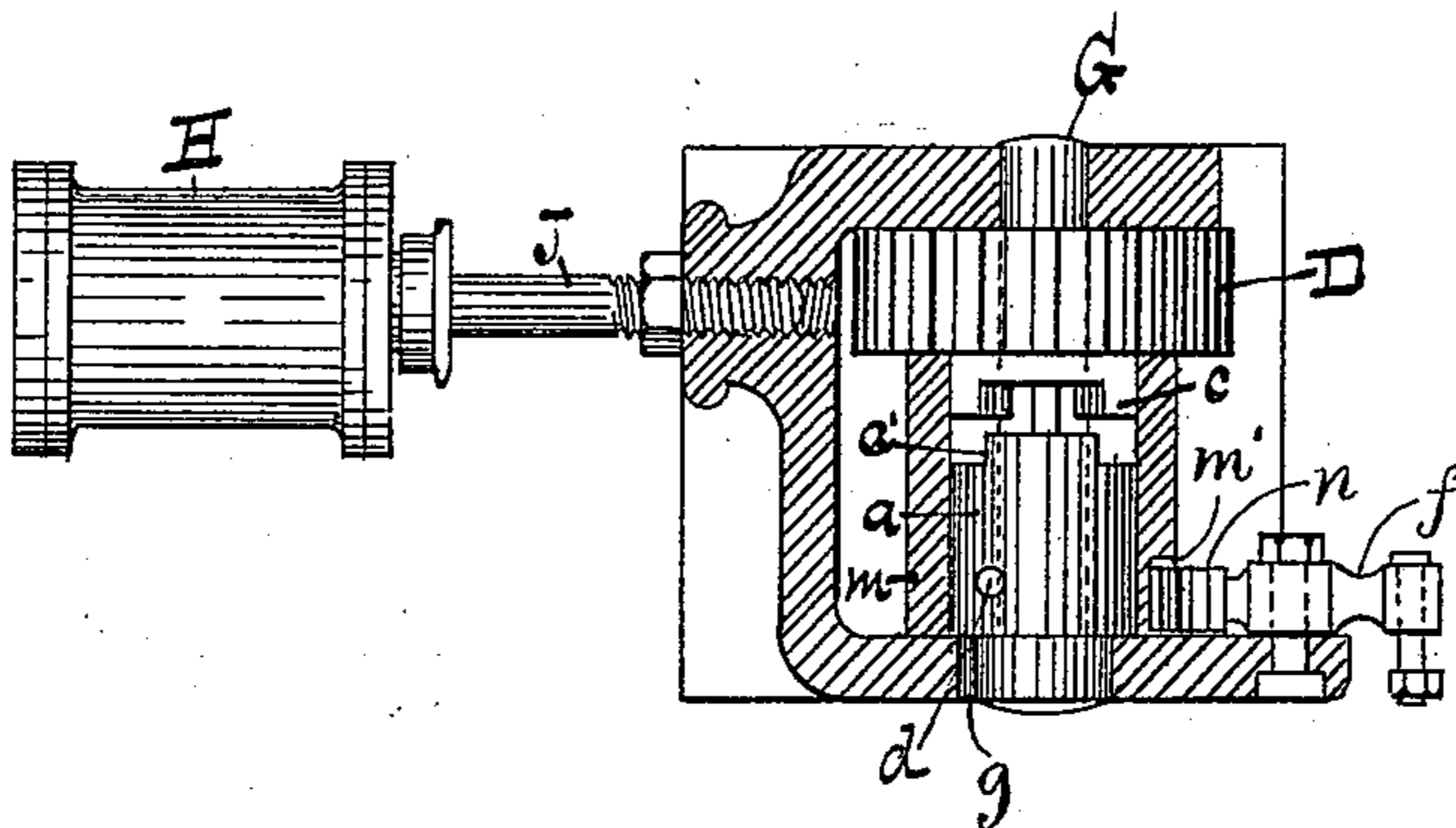


Fig. 5.

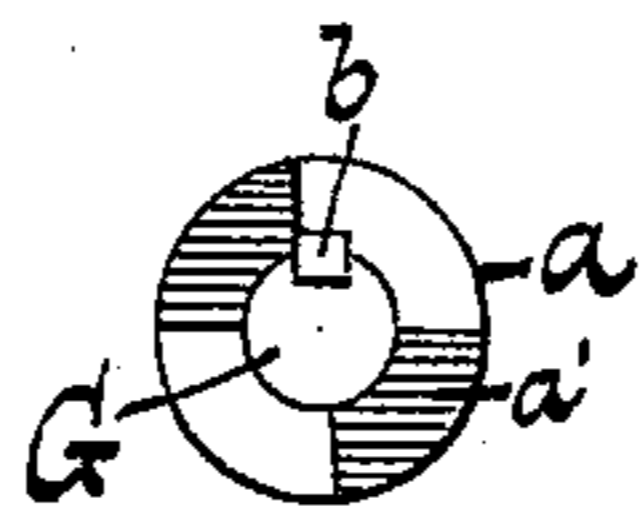


Fig. 6.

Attest:

Harry L. Ames.
Henry J. Theberath,

Inventor.

Franklin Phillips
per Crane & Miller, Atty

UNITED STATES PATENT OFFICE.

FRANKLIN PHILLIPS, OF NEWARK, NEW JERSEY, ASSIGNOR OF THREE-FOURTHS TO EDWARD L. PHILLIPS, GEORGE H. PHILLIPS, AND WILLIAM E. PHILLIPS, ALL OF SAME PLACE.

PLANER-TABLE-CUSHIONING DEVICE.

SPECIFICATION forming part of Letters Patent No. 350,555, dated October 12, 1886.

Application filed January 26, 1886. Serial No. 189,815. (No model.)

To all whom it may concern:

Be it known that I, FRANKLIN PHILLIPS, a citizen of the United States, residing at Newark, Essex county, New Jersey, have invented certain new and useful Improvements in Table-Cushioning Devices, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This invention relates to an improved means for arresting the movement of a reciprocating table by a yielding cushion; and it consists, essentially, in the combination, with the reciprocating table and a cushion device, of a disk
15 rotated by the rack of the table and movable to and from the cushion, and clutch mechanism for arresting the rotation of the disk and giving it a movement of translation toward the cushion. Such disk is shown herein as a
20 toothed wheel adapted to mesh with the rack of teeth often used for transmitting a reciprocating movement to a planer-table; but the toothed disk is in such case merely an element rotated by the longitudinal movement of such
25 table, and the means for rotating it are immaterial, provided it be actuated by the table, as hereinafter described.

It also consists in means for connecting the table adjustably at different points in its stroke—
30 as by movable dogs—with the clutch mechanism, so as to bring the cushion into action at either end of the variable stroke.

The cushion may be made by a combination of springs, or by a double-acting air-cylinder being constructed, if required, to cushion the movement of the table in opposite directions.

The drawings show my invention applied to the bed and table of an iron-planing machine, where heavy weights are traversed back and
40 forth beneath a tool, and where the momentum of the moving parts commonly exerts a very injurious effect upon the mechanism employed to reverse the movement of the table. In such machines the stroke of the table is variable to
45 suit the length of the work; but none of the reversing devices or mechanism for sustaining the cutting-tool are shown herein, as they form no part of my present invention.

Figure 1 is an end view of the bed and table
50 as shown in Fig. 2 with my improvements at-

tached. Fig. 2 is a side view of the bed and table, each being broken off at its opposite ends, where it would be otherwise extended in an iron-planing machine. Fig. 3 is a plan of the parts with table removed shown in Figs. 55
1 and 2. Fig. 4 is an enlarged view of the disk, the carriage, and a double-acting air-cushion cylinder, the cylinder being cut off to show the air-passages, and one side of the carriage being removed to show the slotted collar and
60 segment more clearly. Fig. 5 is a plan of the same parts, the carriage being shown in section; and Fig. 6 is a view of the inner end of the clutch-hub.

A is the planer-bed; B, the reciprocating table; C, the rack ordinarily used for propelling it; D, a rotating disk provided with teeth to mesh with the rack; E, a carriage mounted upon a slide, F, beneath the rack, and sustaining the disk upon a fixed stud, G, the head of
70 the latter being provided with a key, as at *g*, to hold it firmly from rotation.

H is an air-cushion cylinder, and I its piston, and J a rod connecting the latter with the carriage.

a is a clutch-hub, fitted by means of a feather, *b*, upon the stud G, and provided with teeth *a'*, to mesh with teeth *c*, formed upon the face of the toothed disk D.

m is a loose collar applied outside of the
80 clutch-hub and teeth *c*, and provided with an inclined slot, *e*, fitted to embrace a pin, *d*, which is projected from the hub *a*. The collar is provided with teeth *m'*, adapted to fit a segment, *n*, which is pivoted upon the carriage E, adjacent to the collar, and provided with an arm,
85 *f*, to receive a vibratory motion from the table B. The toothed disk D being constructed to turn loosely upon the stud G, it is obvious that unless it is engaged with the clutch-hub *a* its
90 rotations would produce no movement of the carriage E. The clutch-hub, being feathered upon the fixed stud G, immediately arrests the rotation of the disk when said stud G is moved longitudinally, so that its teeth *a'* engage with
95 those at *c* upon the face of the toothed disk, and such movement of the clutch therefore operates to lock the disk rigidly to the stud upon the carriage E. When thus locked, the motion of the table is imparted to the carriage
100

and to the cushion-piston I, and the cushion thus becomes effective in checking the motion of the carriage.

The means for actuating the clutch at variable points in the stroke of the table are shown herein as dogs h h' , bolted to the edge of the table, and operating upon opposite inclines, i , formed at the end of a weighted lever, K. The lever K is connected with the segment n by links o o^2 and crank-arms o' , and the weight L serves to hold the clutch-hub a normally away from the disk D, as shown in Fig. 5. The construction therefore permits the toothed disk to rotate idly upon its supporting-stud until the dogs actuate the segment n , and thus move the clutch-hub toward the toothed disk and lock it to the carriage, when, the carriage being dragged thereafter in the direction in which the table happens to be moving, the cushion is brought into operation and quietly arrests the movement of the table.

In the construction shown herein a double-acting cushion-cylinder is shown, with the piston I standing at the center thereof over air-inlets r , to supply air to the opposite ends of the cylinder when the piston is moved therefrom. Each end of the cylinder is provided with a vent-cock, s , which affords an outlet for the confined air, and a means for regulating the force of the cushion.

Springs compressed by the carriage E may be used instead of an air-cushion, and it is also immaterial what means be used to arrest the rotations or to actuate the clutch adjustably by the table if a clutch be used.

It will be seen that the sliding carriage sustains the clutch mechanism, which is thus movable in relation to the cranks o' , which actuate the segment n ; but the link o^2 fully compensates for such construction.

I do not claim herein the combination, with a reciprocating table, of reversing-dogs and a cushion device actuated directly by the dogs,

or of a carriage moved upon the stationary bed and moved by the dogs to actuate the cushion mechanism, as I have claimed the same in my copending application No. 189,814. My present invention differs from such constructions in the interposition of a rotating disk and clutch between the reversing-dog and the cushion device.

Having thus set forth my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the table, of a yielding cushion, a sliding carriage for operating the same, a disk adapted to rotate upon the said carriage, means connected with the table for rotating the disk, and a clutch upon the carriage for arresting the rotations of the disk, as and for the purpose set forth.

2. The combination, with the table, of a yielding cushion, a sliding carriage for operating the same, a disk adapted to rotate upon the said carriage, means connected with the table for rotating the disk, a clutch for arresting the rotations of the disk, and a clutch-shifter actuated by the table at given points in its stroke, as and for the purpose set forth.

3. The combination, with the table, of a yielding cushion, a sliding carriage for operating the same, a disk adapted to rotate upon the said carriage, means connected with the table for rotating the disk, clutch mechanism movable with the carriage for arresting the rotations of the disk, one or more adjustable dogs upon the table, and means operated by the dogs for actuating the clutch, as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

FRANKLIN PHILLIPS.

Witnesses:

JAMES A. THOMSON,
THOS. S. CRANE.