

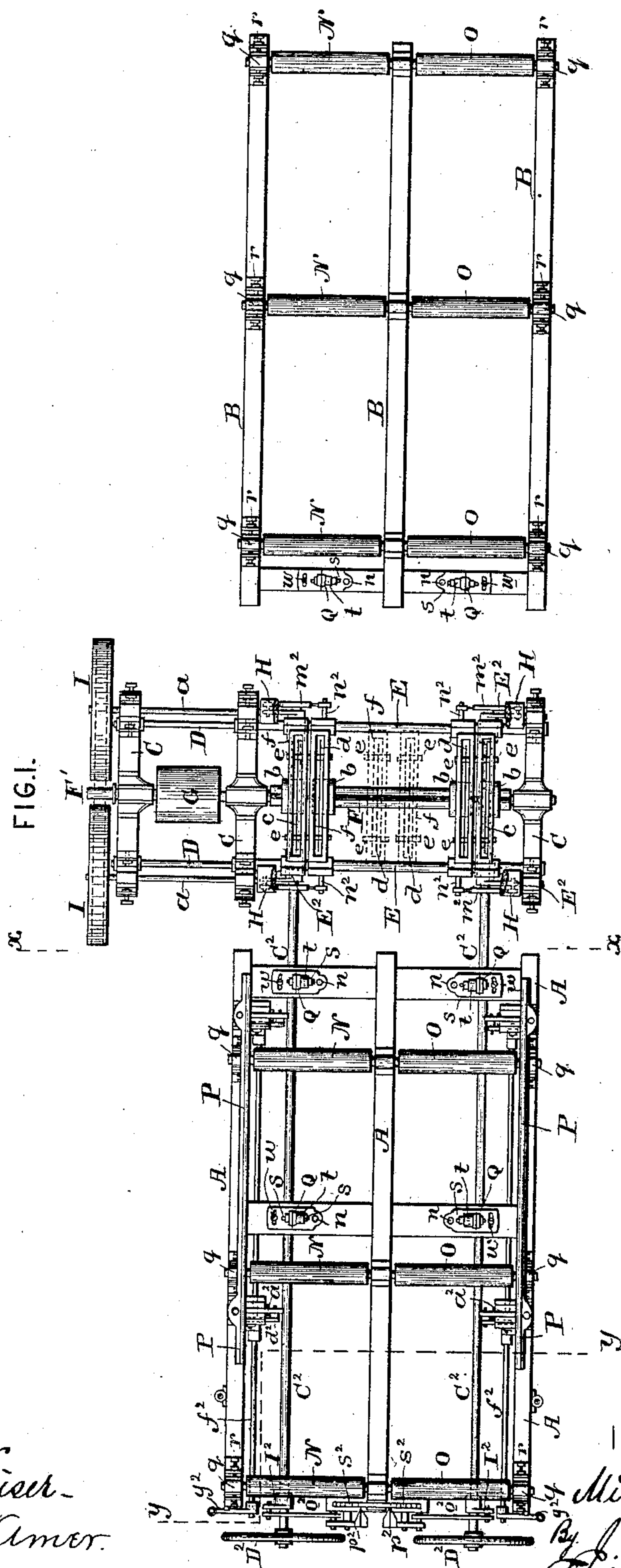
(No Model.)

3 Sheets—Sheet 1.

M. GARLAND.
DOUBLE AND GANG EDGER.

No. 333,847.

Patented Jan. 5, 1886.



ATTEST-
J. Henry Kaiser-
Harry L. Amer.

INVENTOR.

1894
By Michael Garland
J. N. McIntire
Att'y.

(No Model.)

3 Sheets—Sheet 2.

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FIG. 2.

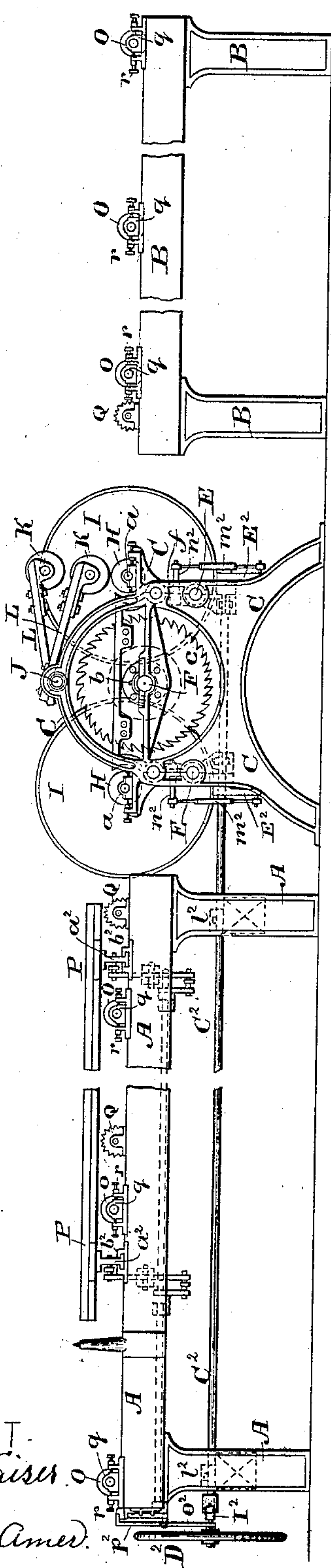
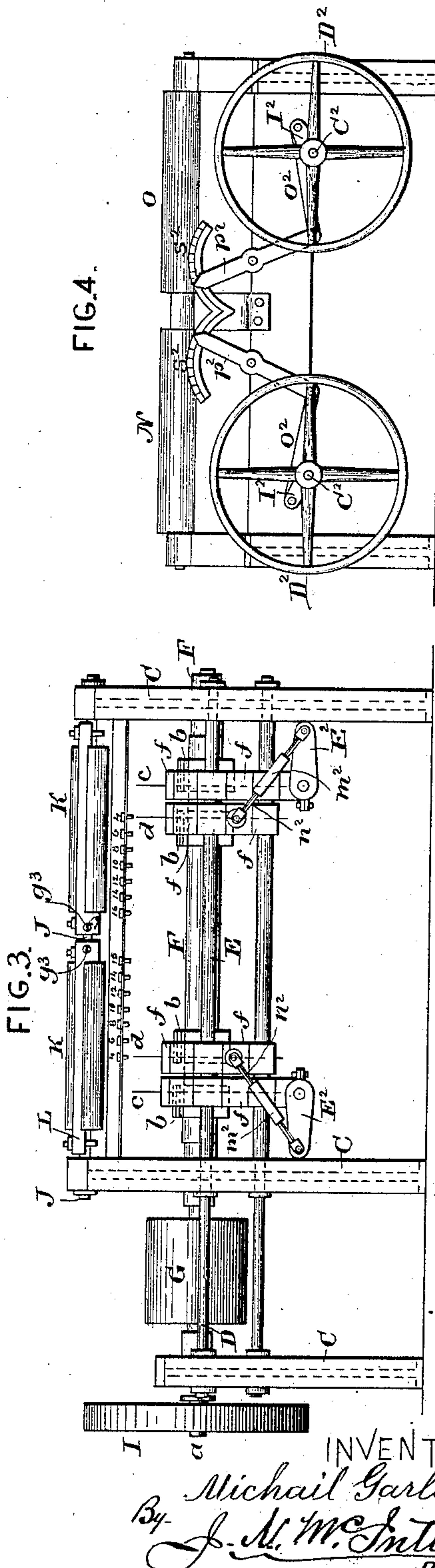


FIG. 4.



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FIG. 5.

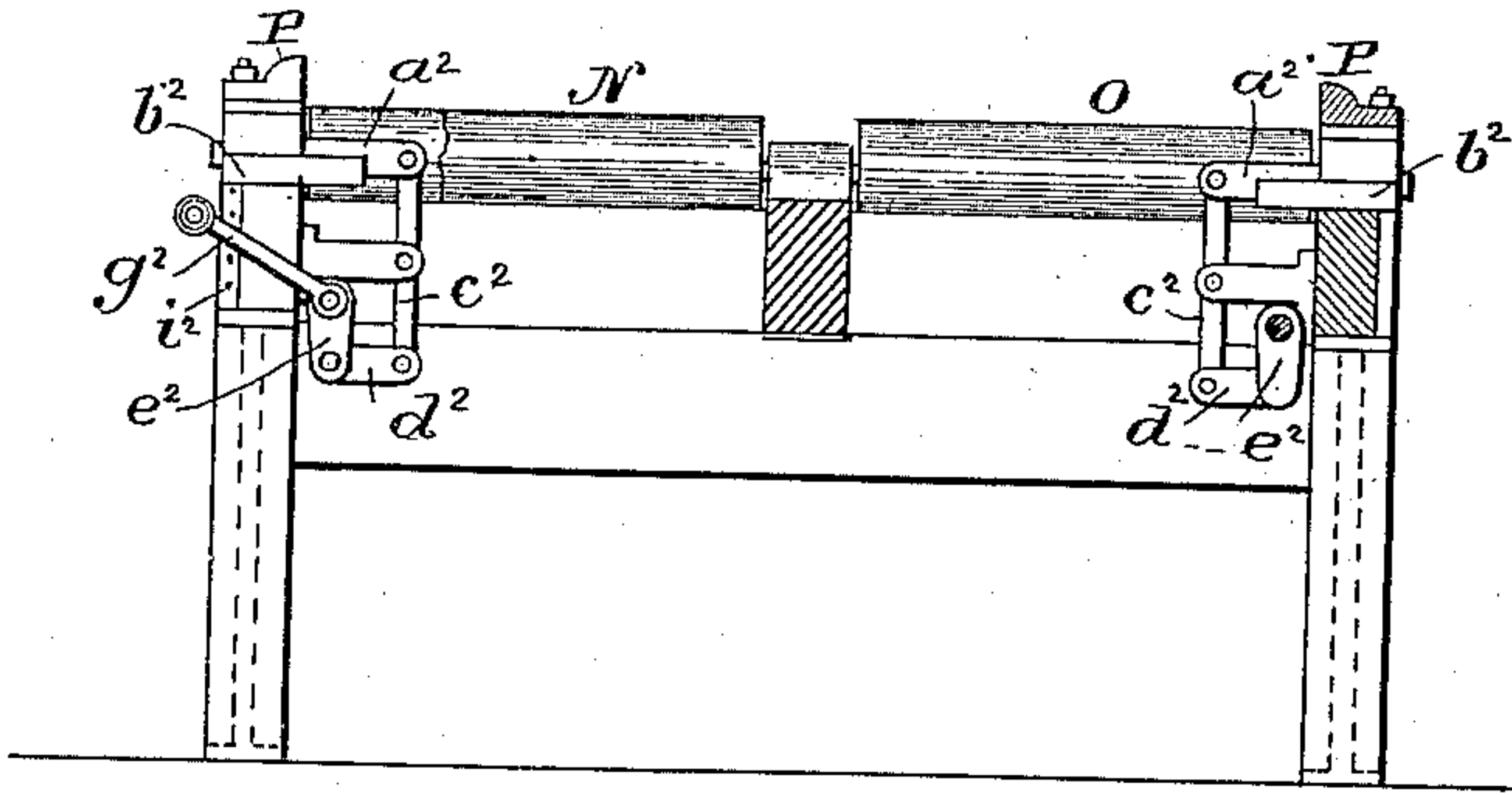


FIG. 6.

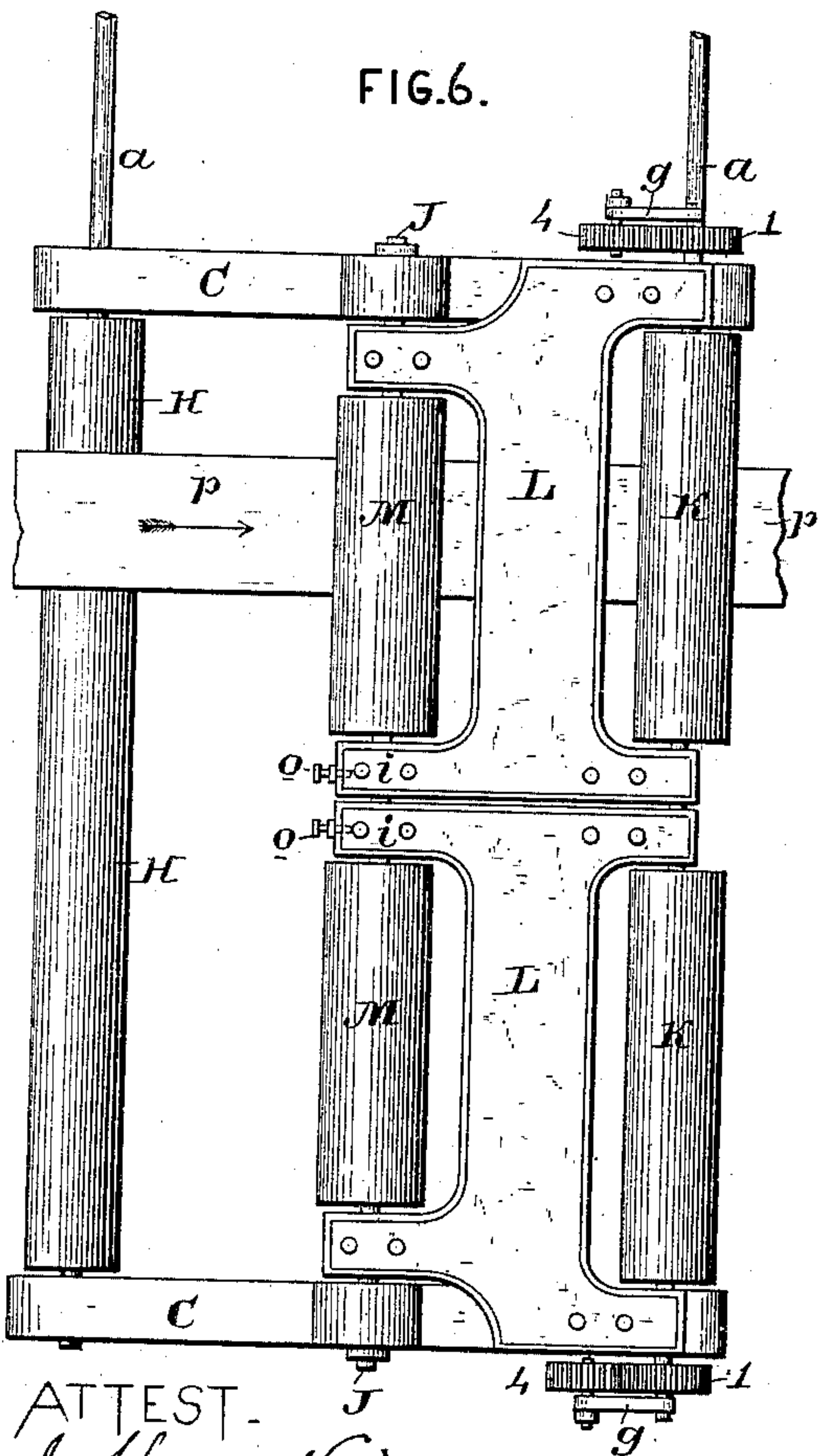


FIG. 7.

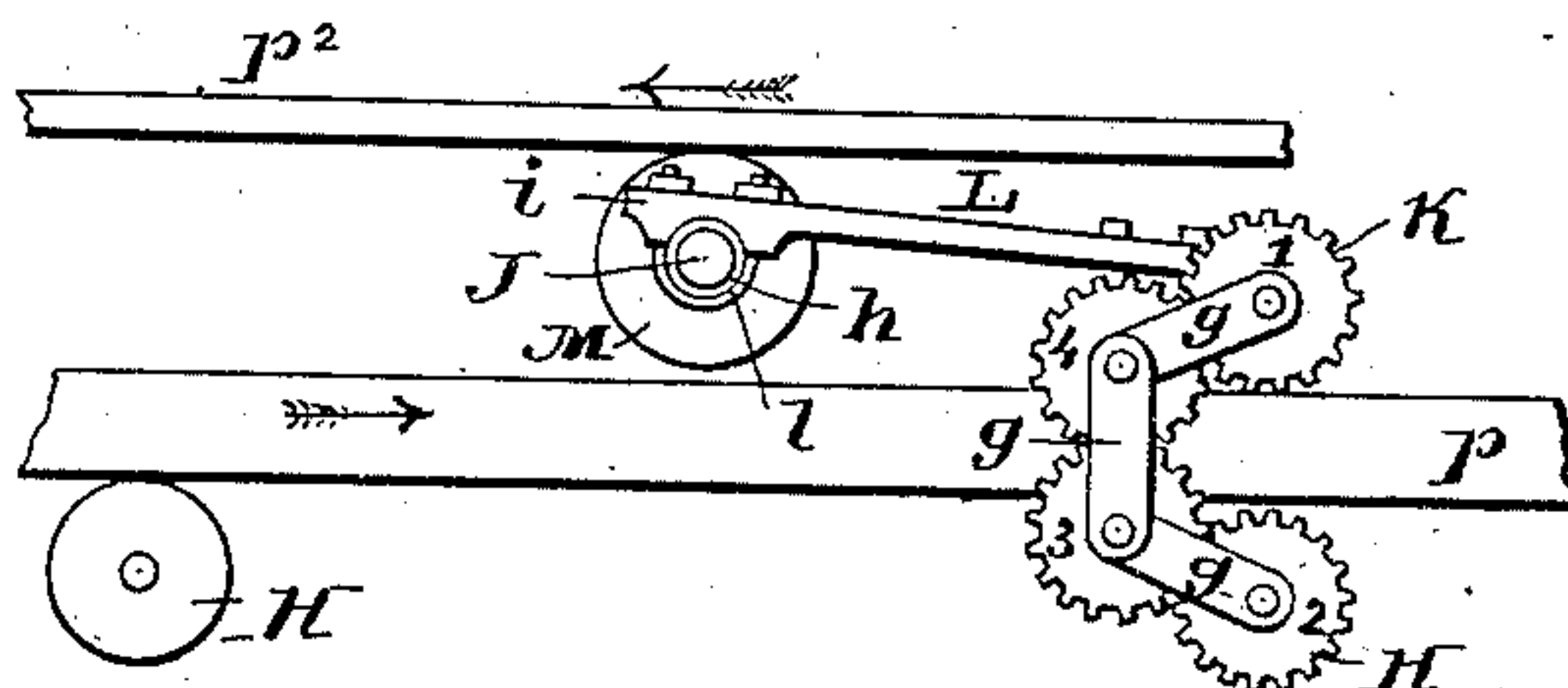
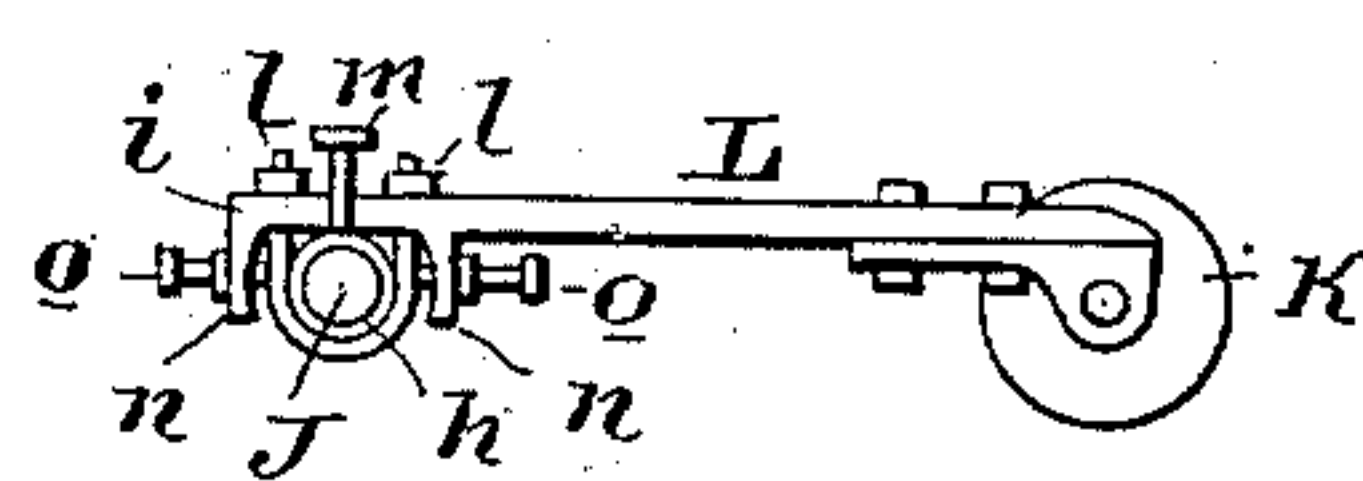


FIG. 8.



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UNITED STATES PATENT OFFICE.

MICHAEL GARLAND, OF BAY CITY, MICHIGAN.

DOUBLE AND GANG EDGER.

SPECIFICATION forming part of Letters Patent No. 333,847, dated January 5, 1886.

Application filed September 3, 1885. Serial No. 176,115. (No model.)

To all whom it may concern:

Be it known that I, MICHAEL GARLAND, of Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Double and Gang Edgers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to certain new and useful improvements in what are known as parallel double "gang-edgers," or machines adapted to saw lengths of lumber into narrower pieces of the same or different widths.

Previous to my invention machines designed to do the same character of work as that for which my improved double gang-edger has been devised have been constructed in various forms; but in all the machines heretofore made there have been found in practice greater or less defects of construction and more or less difficulty or inconvenience in operating them.

My invention has for its main object to provide for use a double gang-edger which shall be very efficient in its operations, easy of management by the operative, and which shall, without involving any mechanisms complicated in structure or liable to derangement, possess the capacity for a ready and perfect adjustment of its working parts, so as to always do perfect work.

To this main end and object my invention consists in the novel features of construction and combinations of devices that will be found more fully described hereinafter, and that will be most particularly defined and pointed out in the claims of this specification.

To enable those skilled in the art to make and use gang-edgers containing either wholly or partially, the novel features of construction which I have devised, I will now proceed to more fully explain my invention, referring by letters to the accompanying drawings, which form a part of this specification, and in which I have illustrated my invention carried out in that form in which I have so far successfully practiced it, and which is the best now known to me.

I will remark at this point that, although the several features of my invention are shown

applied to a double machine, and have been and are used by me in connection with this form of gang-edger, (which is perhaps the most desirable form in use,) most or all of the several parts of my invention are equally applicable to single machines.

In the drawings, Figure 1 is a top view or plan of a double gang-edger made according to my invention. Fig. 2 is a side view or elevation of the same, enlarged. Fig. 3 is a vertical cross-sectional elevation at the line xx of Fig. 1, enlarged. Fig. 4 is an elevation looking at the front end of the machine. Fig. 5 is a partial sectional view at about the line yy of Fig. 1, to show the means for adjusting the edge-guides. Fig. 6 is a detail view showing in top view the drawing feed-rolls and their frame, &c. Fig. 7 is a detail view to show the arrangement together and the operation of the feed-rolls. Fig. 8 is a detail view showing the devices for adjusting the hinged ends of the upper feed-roller frames.

In the several figures the same part will be found designated by the same letter of reference.

At Fig. 1 I have omitted the top feed-rollers and the frames in which they are mounted, in order not to have obstructed thereby a view of the underlying devices of the machine.

There are, as shown, three separate metallic frames, one of which, A, is placed in line in front of, and the other, B, in rear of, the intermediate frame, C, which latter carries the saw-shaft, feed-rolls, &c., all as will be presently explained. The middle frame or frame-work, C, is composed, as shown, of three cast-iron frame-pieces (see Figs. 1, 2, and 3) bolted together by tie-rods or frame-bars D and E, and this frame carries in suitable bearing-boxes the saw-shaft F, which is driven, as usual, by a pulley, G, banded to the pulley from which the necessary motive power is derived. Said middle frame also carries in suitable bearings the shafts a of two lower feed rollers, H, one in front of and the other in rear of the saws, on which feed-rollers the lumber rests in passing through the machine, the shafts a of said rollers H being provided with pulleys I, which are banded together, so as to cause the rollers H to rotate with the same surface-speed and in the same direction, either one of

said shafts (and its pulley) being driven by suitable means and at the desired speed from a driver, which in the case shown is the pulley F' on the saw-shaft.

On the saw-shaft F are mounted in about the usual manner the collars *b*, which carry the saws, the said collars being splined onto the shaft F, so that while they must turn with the said shaft they may be moved or adjusted lengthwise of the shaft.

There are, as shown, four saws, two of which, *c c*, are designed, after proper adjustment on the shaft F, to work at two given localities, and two others, *d d*, (see Fig. 3,) which are designed to be shifted or moved to different localities, at the pleasure of the operator of the machine, according to the different kinds of work to be done with the machine. Each of the saws is steadied or controlled, as usual, by a set of steady-pins, *e*, in its saw-guide *f*, and each of the saw-guides is mounted at its ends on the tie rods or bars E, as shown, those two of the guides which control the stationary saws *c c* being held in a given position, while those two which control the movable saws *d d* are moved from place to place, and are held in place while the machine is doing any given style of work by means which I will presently describe.

On a centrally-arranged shaft, J, located at the upper part of frame C, are hinged the frames L, in which are hung the adjustable upper feed-rollers, K, (see Figs. 2 and 6,) between which and the rear one of the two rolls H the timber or stuff is drawn through the machine while being acted upon by the saws. Each of these feed-rolls K has its shaft geared at one end to the shaft *a* of the rear one of the lower feed-rolls, H, by a system of spur-gears composed of two cog-wheels, mounted fast, respectively, on the shaft *a* and on the shafts of the rollers K, and two other gears, which act as intermediates, and the journals or studs of which are linked to the shaft *a* and to the shafts of rollers K in such a manner that all four of the gears keep in mesh, whether the rollers K be set farther from or nearer to the lower feed-roll H for the accommodation of thicker or thinner lumber. This arrangement of linked gears for driving the upper adjustable feed-rolls, K, from the lower stationary feed-roll H is best shown at Figs. 6 and 7, where 1 is the gear on the shaft of roll K; 2 is the gear on the shaft of roll H, and 3 and 4 are the two intermediates coupled to each other and to the shafts of rolls K and H by links *g*.

This peculiar arrangement of gears and feed-rolls forms part of the subject-matter of another application for Letters Patent by one Catlin and myself, now pending in the United States Patent Office, and need not be more fully described in my present case, in which no claim is made on it.

I will, however, now describe a novel feature forming part of the subject of this case, which

relates to means for lining up and otherwise adjusting perfectly the upper feed-rolls, K. Instead of having the frames L each simply hinged on the shaft J, I combine them in the said shaft in the following manner, (as the devices are duplicates, a description relative to one frame, L, will answer for both:) The round bar or shaft J has fitted to turn freely on it a sleeve or hollow shaft, *h*, (see Figs. 7 and 8,) and to this sleeve I secure the inner hinged portions, *i*, of the frames L, in the following manner: A yoke or V-shaped device, *l*, clamps the portion *i* of the frame to the sleeve *h*, but in such manner as to permit a slight movement of the legs of the yoke *l* in the holes in the frame, and a set-screw, *m*, passing through the frame, in which it is threaded and bearing against the sleeve *h*, acts in opposition to the clamping device *l* in such a manner that by loosening the nuts on the ends of yoke *l* and turning in the set-screw *m*, the relationship of the frame portion *i* to the shaft J will be varied in one direction, and by a reverse manipulation of the said nuts and set-screw an opposite effect will be produced. Through two ear-like projections, *n*, of the frame pass set-screws *o*, that also bear against the sleeve *h*, but in a line transverse to the direction in which the set-screw *m* acts, and by means of these set-screws *o* the relative position of the frame to the shaft J may be slightly varied in either of two directions (the screw *m* and the nuts of yoke *l* having of course been just slightly loosened) in a manner easily understood by reference to Fig. 8 of the drawings. By these means each of the hinged frames L may be adjusted in various directions, so as to set and hold its roller K in perfect adjustment with the feed-roll H under various changes in the character and thickness of the lumber being passed through the machine, and this peculiarity of construction of this part of my improved machine I consider an important part of my invention.

M are idler-rolls arranged to turn freely about the axis of shaft J, and which are very useful in returning imperfect stuff that may have been run through the machine. The use of these idlers is illustrated at Fig. 7, where *p*² represents a piece of lumber being returned or shoved back (by an operative) to the source from which it was fed into the machine, while *p* represents a piece of lumber passing through between the feed-rolls during the sawing operations.

The frame A is provided, as shown, with two sets of horizontally-mounted rollers, N and O, (preferably three in each set,) on which the lumber is placed to be fed to the saws, and which constitute, virtually, the feed-table of the machine. Each of these rollers has the journal at its outer end working in an adjustable box, *q*, that is moved to and held in slightly different positions laterally by means of set-screws *r*, arranged as clearly shown. (See Figs. 1 and 2.) By these means the rollers N

and O can each be lined up laterally to run lumber in perfectly and support it just right while it is being fed in.

P are the edge-guides, against which the edges of the pieces of lumber are placed and held, and which serve to guide the edges of the piece being sawed up, and thus serve to gage the width of the strip sawed off from the edge of the lumber. Each one of these edge-guides is adjustable laterally by means of a combination of devices (that I will presently describe) which operates to move the guide at both ends at once, and evenly and positively, through the medium of a single device manipulated by the operative of the machine.

Q are a series of liners arranged two at each side of the frame A, and consisting each of a small toothed disk or saw-like device, which operates against the under surface of the piece of lumber fed through the machine and exerts a tendency to keep the edge of the lumber snug up against the edge-guide P. These liners Q are set slightly oblique to the line of the edge-guides, and as the lumber resting slightly on them rotates them they act to keep the lumber up against the guides.

Such devices for the purpose just mentioned will be found in the machine made the subject of an application by myself and one Catlin, now pending in the United States Patent Office; but in that case there is no means provided for varying or regulating the degree of obliquity of the toothed disks.

In the present case the disks Q have their studs or journals s mounted to turn freely in the upwardly-projecting portions t of metallic stands that are pivoted at their inner ends, as seen at n, Fig. 1, to the top of the frame A, and that swivel laterally on said pivoted points, being secured in place by clamping-bolts w. The edge-guides P have each two foot-pieces, a^2 , or transverse shoes, that engage with and work within suitable guideways, b^2 , made fast to the top of frame A, and to a projecting portion of each of said shoe-pieces a^2 is pivoted the upper end of a lever, c^2 , (see Fig. 5,) the lower end of which is pivoted to a link, d^2 , that is coupled to the outer end of a crank, e^2 , that is made fast to a rock-shaft, f^2 , which runs nearly the whole length of frame A, and that is provided at that end which projects slightly beyond the front end of the machine with a crank-handle, g^2 . This crank-handle is provided with a catch lug or pin that springs into one of a series of holes or depressions, i^2 , in the end of frame A, (see Fig. 5,) to hold the handle, and thus the rock-shaft and its connections in any one position to which it may be turned. By these means the operator, by simply manipulating the crank-handles, (which are located within easy reach,) can move either of the edge-guides P at pleasure and evenly to any one of several positions, and there set it to suit the kind of work it may be desired to do.

I have usually made the degree of adjust-

ment of the guides P (in the manner just explained) such as to cut all the way from four to eight inches from the edge of the lumber with either of the stationary saws c; but of course the extent of adjustment may be made more or less without changing the principle of this feature of my invention, the gist of which rests in the means for adjusting the edge-guide with a positive parallel motion by the turning merely a single rock-shaft through the medium of a hand-crank located at the front end of the machine, (where the operator has to stand.)

I will now explain the means by which each of the movable saw-guides is operated, and as the devices for operating them are duplicates (situated at opposite sides of the machine) a description of one set of these devices will answer for all.

C^2 is a shaft, which runs the whole length of frame A, and also through the frame C, being mounted to turn freely in bearing-boxes l^2 on the frame A, and in the stationary saw-guides of the frame C. This shaft C^2 is provided at its forward end with a hand-wheel, D^2 , and at its rear end is provided with a crank, E^2 , the free end of which is coupled to one end of a short pitman, m^2 , the other end of which is pivoted to a stud, n^2 , projecting from one end of one of the movable saw-guides f. (See Figs. 1, 2, and 3.) Some distance from the rear end of said shaft C^2 there is keyed fast on it another crank in like manner connected by a pitman, m^2 , to a stud projecting from the other end of the same movable saw-guide, so that any hocking or turning movement of the said shaft C^2 in either direction will operate, through the media of the two cranks and their connections, to simultaneously and evenly move both ends of the said saw-guide in one or the other direction. By these means it will be seen either of the movable saw-guides can be adjusted at pleasure by the operator by simply turning in one or the other directions one or the other of the hand-wheels D^2 .

To enable the operator to gage or determine the extent of adjustment of the movable saw-guides, the forward end or portion of each shaft D^2 is provided with a crank, I^2 , from the free end of which extends a pitman, O^2 , that is coupled, as shown, to the lower end of a lever-arm, p^2 , the upper end of which serves as an index or pointer to a graduated-scale arc, s^2 , secured to the front end of frame A, and from which the operator can see exactly how much he may be moving either of the saw-guides while turning either of the hand-wheels D^2 . It is, however, very useful and convenient to have some means of seeing at a glance the positions of the movable guides relatively to the stationary saws when about to feed lumber into the machine, and for this purpose I provide the middle upper bar of the frame C with a series of pendent pointers, numbered, respectively, 6, 8, 10, &c., which nearly touch the edges of the saws d, (when set immediately beneath them,) and by sighting these pointers

and the movable saws the operator can not only tell exactly what width the machine stands adjustable to cut, but with great accuracy set the movable saws exactly right.

5 All these peculiarities of construction I consider very useful features or parts of my invention. The frame B, like frame A, is provided with two sets of idler-rolls, N and O, which, like the rolls in frame A, are adjustable
10 to set them properly in line, and said frame B carries also two liners, Q, that, like those on frame A, are adjustable, but which are out of line with them, and thus guide the cut lumber. The relationship of all the frames is
15 such and the placement of the three liners Q on each side of the machine is such, as shown, that all three will at same time act simultaneously on a piece of lumber about twelve feet long.

20 The three frames A, B, and C may be either all bolted to one bed-plate or floor-piece, or they may be otherwise held in place and in the proper relationship.

Having sufficiently described the construction and operation of my improved double
25 gang-edger to enable any one skilled in the art to make and use machines containing either partially or wholly the several separable features of invention devised by me, what I claim
30 as new, and desire to secure by Letters Patent, is—

1. In combination with the stationary saw of a gang-edger, a movable saw-guide and a mechanism for adjusting the latter, composed,
35 essentially, of a rock-shaft and cranks connected by means of pitmen to both ends of the saw-guide, all substantially as and for the purposes hereinbefore set forth.

2. In combination with the stationary and
40 movable saws of a gang-edger, and means for adjusting the movable saw-guide, the depending pointers located above and in close proximity to the upper portions of the peripheries of the saws, and by means of which the opera-
45 tor can sight the condition of the machine

with reference to the kind of work it may be set to do, all substantially as hereinbefore set forth.

3. In a gang-edger, the combination, with the edge-guide arranged to move bodily and
50 laterally, of a rock-shaft and cranks thereon, suitably connected, as specified, to said edge-guide, near the ends of the latter, a suitable handle for turning said rock-shaft, and means
55 for locking said handle in place, all substantially in the manner and for the purpose hereinbefore set forth.

4. In combination with a frame carrying an upper feed-roll geared to a lower feed-roll, and the shaft or bar to which said frame is hinged,
60 means for adjusting said frame relatively to the said shaft or bar, for the purpose of effecting a relative adjustment of the said upper and lower feed-rolls, all substantially as hereinbefore set forth.

5. In combination with the hinged frame L, which carries an upper feed-roll, and the shaft or bar J, to which said frame is hinged, an idler-roll, M, mounted to turn freely upon
65 said shaft or bar, for the purpose of facilitating the return through the machine of defective lumber, all as hereinbefore set forth.

6. In combination with the feed-table, edge-guide, drawing feed-rollers, saws, and receiving-table of a gang-edger, a series of three or
75 more liners, Q, arranged to have two come in front of and one in rear of and out of line with the saws, as set forth.

7. In combination with the edge-guide, a liner or liners, Q, composed each of a toothed
80 disk mounted in a swiveled stand, and thus adapted to have its degree of obliquity varied, substantially in the manner and for the purpose hereinbefore set forth.

In witness whereof I have hereunto set my
85 hand this 22d day of August, 1885.

MICHAEL GARLAND.

In presence of—

A. S. STEWART,

W. J. McCORMICK.