

(No Model.)

M. GARLAND & A. D. CATLIN.

CIRCULAR SAWING MACHINE.

No. 328,771.

Patented Oct. 20, 1885.

FIG. 1.

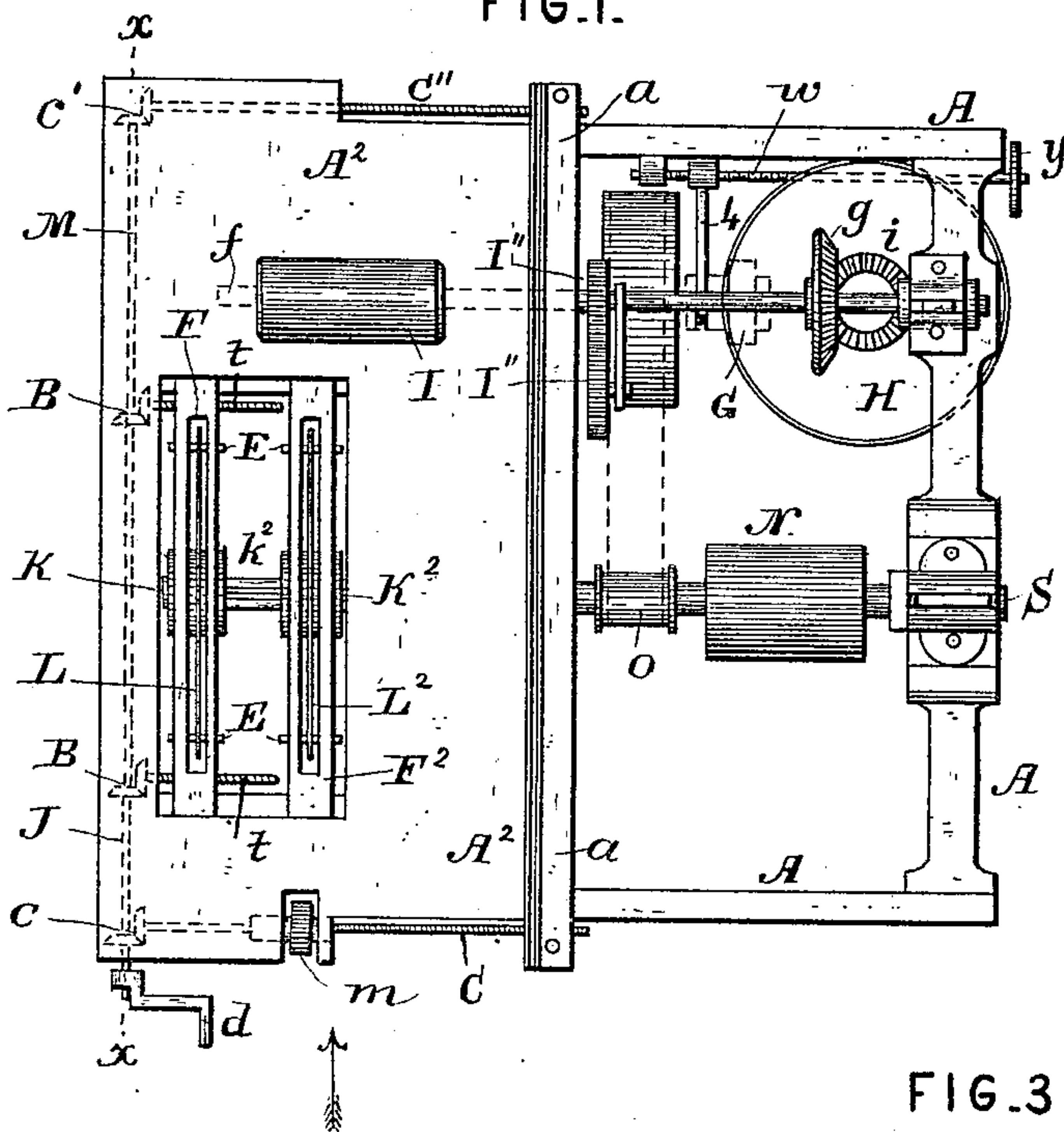


FIG. 2.

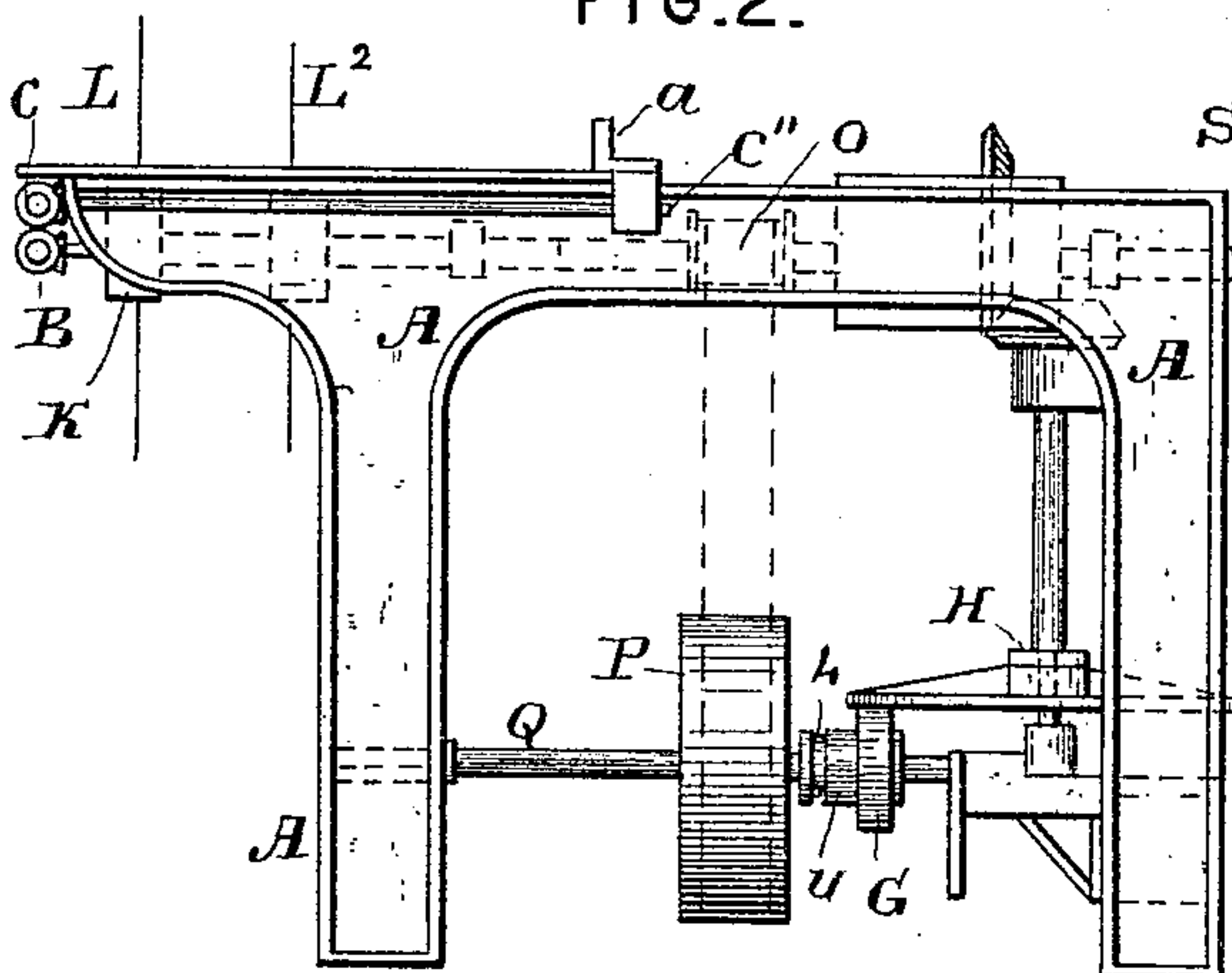


FIG. 3.

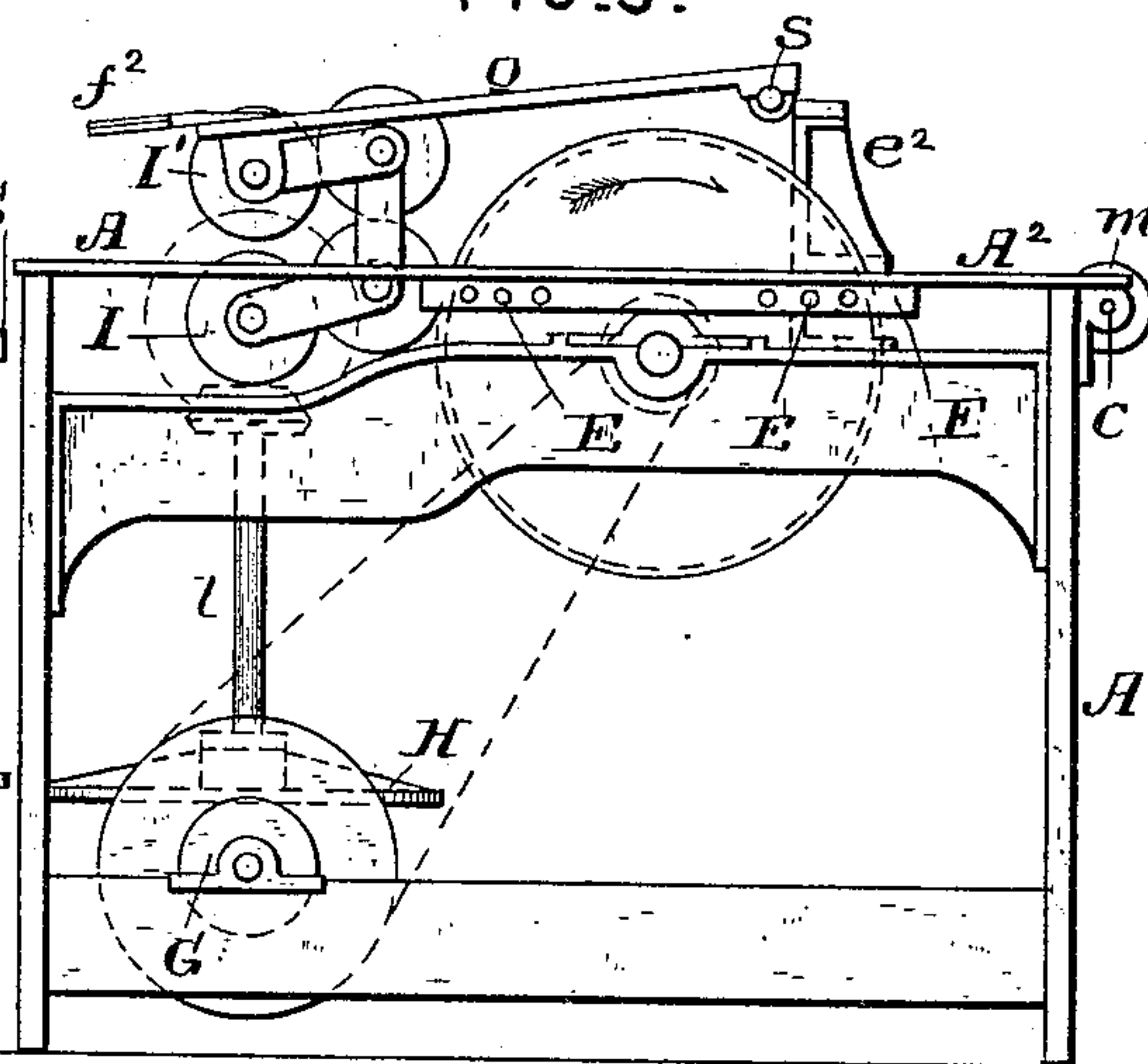
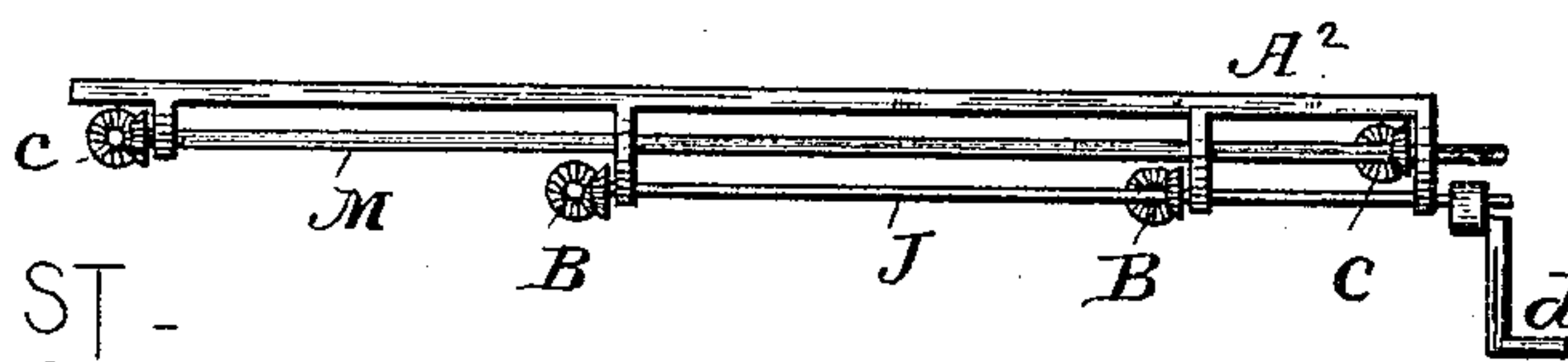


FIG. 4.



ATTEST.
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UNITED STATES PATENT OFFICE.

MICHAEL GARLAND AND ABEL D. CATLIN, OF BAY CITY, MICHIGAN,
ASSIGNORS TO THE STANDARD MACHINERY COMPANY, OF SAME
PLACE.

CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 328,771, dated October 20, 1885.

Application filed July 9, 1885. Serial No. 171,068. (No model.)

To all whom it may concern:

Be it known that we, MICHAEL GARLAND and ABEL D. CATLIN, both of Bay City, in the county of Bay and State of Michigan, have
5 invented certain new and useful Improvements in Rip-Saw Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part
10 of this application.

Our invention relates to certain new and useful improvements in that kind of sawing-machines known as "self-feeding" rip-saw or resawing machines, and is more especially applicable (though some of its features may be
15 embodied in any form of rip-saw machine) to that species of rip-saws in which a series of saws is employed for the purpose of ripping one or more boards into boards of narrower
20 width or into scantlings; and our invention consists in the novel features of construction and the new combinations of devices which will be found hereinafter more fully described, and that will be most particularly pointed out and
25 defined in the claims of this specification.

To enable those skilled in the art to which our said invention relates to make and use machinery containing, either partially or wholly, and in one form or another, the several features of improvement devised by us,
30 we will now proceed to more fully explain the construction and operation of a machine embracing our invention, referring by letters to the accompanying drawings, which form
35 part of this specification, and in which we have shown our invention carried out in that form in which we have so far successfully practiced it, and which is the best now known to us.

40 In the drawings, Figure 1 is a top view of one of our improved machines, but with the upper table and its attachments removed. Fig. 2 is a front elevation of the same. Fig. 3 is a side view of the machine with the upper table
45 top feed-roll, &c., in place; and Fig. 4, a detail or partial vertical section at the line *xx* of Fig. 1.

In the several figures the same part will be found designated by the same letter of reference.
50

A is the main frame of the machine, made preferably of cast-iron, and A² the table, formed either of metal or of narrow pieces of wood glued together and surfaced down properly.

Mounted in suitable bearing-boxes in the
55 main frame is the saw-arbor and main shaft S, which receives the necessary power and motion from any suitable motor through the medium of a drive-belt (not shown) banded onto the fast pulley N, and which carries a secondary pulley, O, and the saw-collars K K² of
60 the movable and stationary saws L and L², the said shaft or arbor S being grooved longitudinally, as seen at K², to permit a lateral adjustment of the collar K, as and for a purpose
65 to be presently explained.

F and F² are respectively the movable and stationary saw-guides, each of which is provided with two sets of guide or steadying pins, E, which operate to hold the saws in place perfectly while running, and one of which (that
70 marked F) has combined with it two adjusting screw-shafts, *t t*, arranged near either end of it and worked simultaneously by means of two sets of bevel-pinions, B B, one each of
75 which sets is keyed fast to one of said screw-shafts *t t*, and the other of each of which sets is fastened to a shaft, J, arranged to turn freely in suitable bearing-boxes near one edge
80 of the table A², as shown, and adapted to be rotated by means of a removable crank-handle or wrench, *d*.

At the same side of the machine, and near to and parallel with the shaft J, is mounted another shaft, M, which, by means of two
85 pairs or sets of bevel-pinions, *c c'*, is connected with two screw-shafts, C and C'', in such manner that by the turning of said shaft M (by means of a wrench or crank-handle, such as seen at *d*) both of the screw-shafts C C'' will
90 be simultaneously turned, and the threaded portions of these two shafts C C'' engage with the guide *a* near either end of the latter, so as to adjust the said guide as may be required for the ripping of the lumber into pieces of various
95 widths.

m is a roller or feeder, composed of a toothed disk having a suitable hub or collar, and set to turn in a plane which is at a slight angle to the face of the guide *a*, (against which the
100

edge of the lumber fed in is placed,) in such a manner that as the lumber fed into the saws by the attendant (in the direction indicated by the arrow at Fig. 1) progresses, the tendency of said feeder m will be to crowd the stuff resting on its toothed periphery toward and keep it snug up against the gage or guide a . This feeder-roll m is arranged about in line with the saw L^2 , so that any cut or mark made by its teeth in the under surface of the board being ripped up will be taken out by the cut or kerf of said saw L^2 . In rear of said saw is arranged, so that its periphery shall project upwardly through and slightly above the top of the table A^2 , the lower one, I , of the two drawing-rolls I and I^2 , that constitute the means for feeding the lumber clean through the machine and discharging the cut strips therefrom. This roll I is mounted fast on a shaft, f , that is driven through the medium of a bevel-gear, g , from a bevel-pinion, i , that is fast on the upper end of a vertical shaft, l , the lower end of which is provided with a friction face-plate, H . The lower surface of this friction-plate or face-pulley H rests on the periphery of and is driven by frictional contact with the pulley G , which is mounted on a horizontal shaft, Q , which gets its motion through its pulley P and a belt passing therefrom to the drive-pulley O of the main shaft S . (See Figs. 2 and 1.)

The pulley G is splined onto its shaft Q , and is formed or provided with a clutch-like collar, u , with which engages an adjusting-arm, 4 , which projects laterally and rigidly from the screw shipper-shaft w , (see Fig. 1) and said shaft is provided with a hand-wheel at y , whereby it may be turned in one or the other direction to effect, through arm 4 , a movement of the pulley G in one direction or the other on its shaft Q , to set said pulley nearer to or farther from the edge of the face-pulley H , for the purpose of driving the latter faster or slower, as desired, and thus running the roll I of the feeding mechanism at a faster or slower speed.

The top table (or over table) o is hinged at s to the upper part of a metallic standard, e^2 , and carries in a suitable hanger, f^2 , which projects from its under surface, near its movable end, a counter feed-roll, I' , which is designed to rest upon the top of the lumber being fed to the machine at a point vertically over that at which the lumber rests upon the upper portion of the periphery of the feed-roll I , and this pair of feed-rolls, between which the lumber passes and by means of which the lumber is pulled through the machine, are driven with the same surface speed or velocity by means of a pair of extension-gears, I^2 I^2 , which are kept always in engagement, respectively, with the gears on the shafts at the upper and lower feed-rolls, I and I' , and with each other by means of a triplex link-connection between the four shafts of the four gears, as best seen at Fig. 3, so that in any position to which the upper feed-roll, I' , may

be adjusted, according to the thickness of the lumber being fed to the machine, the system of gears will always be in perfect engagement.

In the general operation of the machine it will be understood that after having set the guide a and the adjustable saw-guide F in the requisite positions, the attendant starts the board or lumber by placing its leading end on top of the table at the locality where the toothed disk m is located, and with the edge of the board against the guide a pushes the stock forward through the action of the saws until its leading end shall have passed by them, and come into the bite of the upper and lower drawing-rolls or feeders, I and I' , which perform all the necessary feeding operations by drawing the lumber through the machine, a little toothed disk, m , which, as before explained, is set in a plane slightly oblique to the line of travel of the lumber, operating to crowd or press the board as it passes through laterally toward and so as to hold it snugly against the guide a .

It will be seen that by the arrangement of the leading-rolls to pull the lumber from the rear of the saws, (instead of using feed-rolls to push the lumber in,) the feeding mechanism not only operates to insure the proper holding down of the board while being sawed, but also feeds the stuff by positive draw-feed until after the sawing operation shall have been wholly completed, and then finally discharges the tail end of the sawed material from the machine.

In order to rip up the stuff into strips of any desired width, the operative, by the application of the crank-handle d to the end of the shaft M , rotates said shaft in one direction or the other, so as to adjust the guide a through the medium of the screw-shafts C and C^2 , and the two pairs of beveled pinions c c' to any desired position relative to the saws; and he then, by the application of the said crank-handle d to one end of the shaft J , turns said shaft in one direction or the other, so as to laterally move or adjust the saw-guide F , through the medium of the screw-shafts t t and the two pairs of beveled pinions B B , to any desired position relative to the stationary saw-guide F^2 , the collar K of the adjustable saw being free to move endwise of the saw shaft or arbor by reason of its splined attachment to said shaft, as hereinbefore described.

Each of the saws L L^2 is steadied within the plane in which it is desired to rotate by means of two sets of steadying-pins, which are adjusted and set with their inner ends barely in contact with the opposite sides of the saw, each pair of said steadying-pins being located, preferably, nearly level with or slightly above the horizontal plane in which the saw-shaft is located and at points diametrically opposite on the saw, or nearly so, so as to hold the saw steadily at nearly opposite points and close or near to its periphery or toothed edge.

Of course many modifications may be made

in the mere details of construction without essentially changing the principle of our improved machine or substantially altering its novel mode of operation, and, if deemed expedient, there may be more than one adjustable saw or saw-guide with a duplication of the means for setting and holding the additional guide in place, should it be deemed expedient to run more than two saws in the gang.

10 Having now so fully explained the construction and operation of our improved rip-saw machine that those skilled in the art can make and use our invention, what we claim as new, and desire to secure by Letters Patent, is—

15 1. In combination with the saw or saws and a pair of drawing feed-rolls arranged in rear of the saw or saws, an edge-guide, *a*, and a toothed disk or saw-like feeder, *m*, arranged obliquely to the edge-guide in front of the saw
20 or saws, and operating, as specified, to crowd the lumber being drawn through the machine toward and against the said edge-guide, all substantially as hereinbefore set forth.

25 2. In combination with the feed-table and the saw or saws, an edge-guide, *a*, and a mechanism, substantially such as shown and de-

scribed, operating to move said edge-guide transversely to the direction in which the lumber is to be fed through the machine and by positive movement at each end of the guide 30 by the application to the said mechanism at one point only, of a motive power for actuating it, substantially as hereinbefore set forth.

3. In combination with the feed-table, an adjustable edge-guide for the board, and a stationary rip-saw, one or more adjustable saw-guides provided with one or more saws the collar or collars of which is or are mounted to move endwise of the saw-shaft, and a mechanism, substantially such as described, operating 35 to move the said saw-guide or saw-guides simultaneously and positively at each end by the application of a power for actuating said mechanism at one point only, substantially as hereinbefore set forth. 40 45

In witness whereof we have hereunto set our hands this 18th day of June, 1885.

MICHAEL GARLAND.
ABEL D. CATLIN.

In presence of—

W. J. McCORMICK,
THOMAS BARRY.