

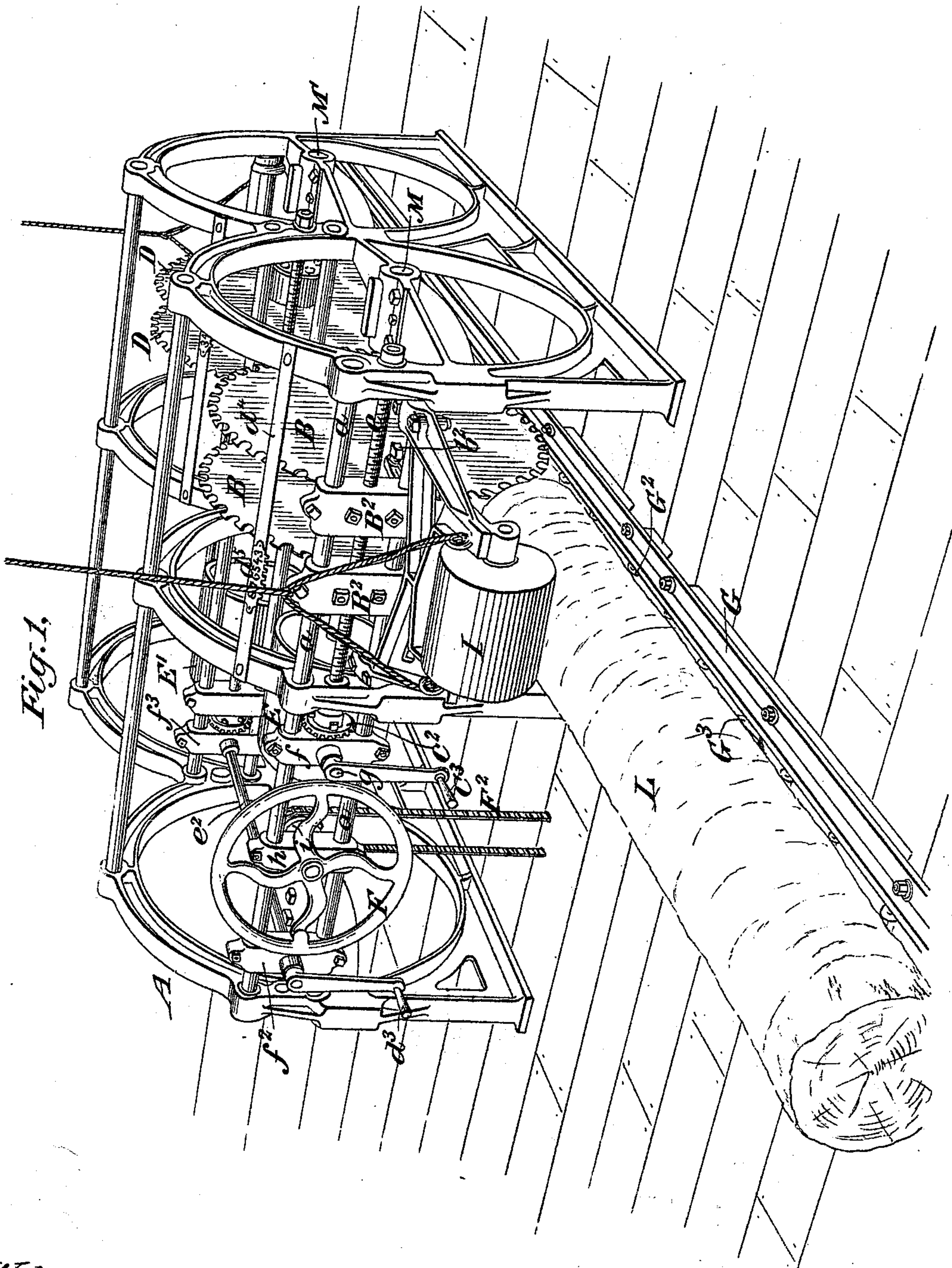
(No Model.)

3 Sheets—Sheet 1.

M. GARLAND.
TWIN CIRCULAR SAWING MACHINE.

No. 518,031.

Patented Apr. 10, 1894.



Witnesses:-
D. H. Hayward
Op. Foxton

Inventor:-
M. Garland
By atty. J. N. Mc Intire

(No Model.)

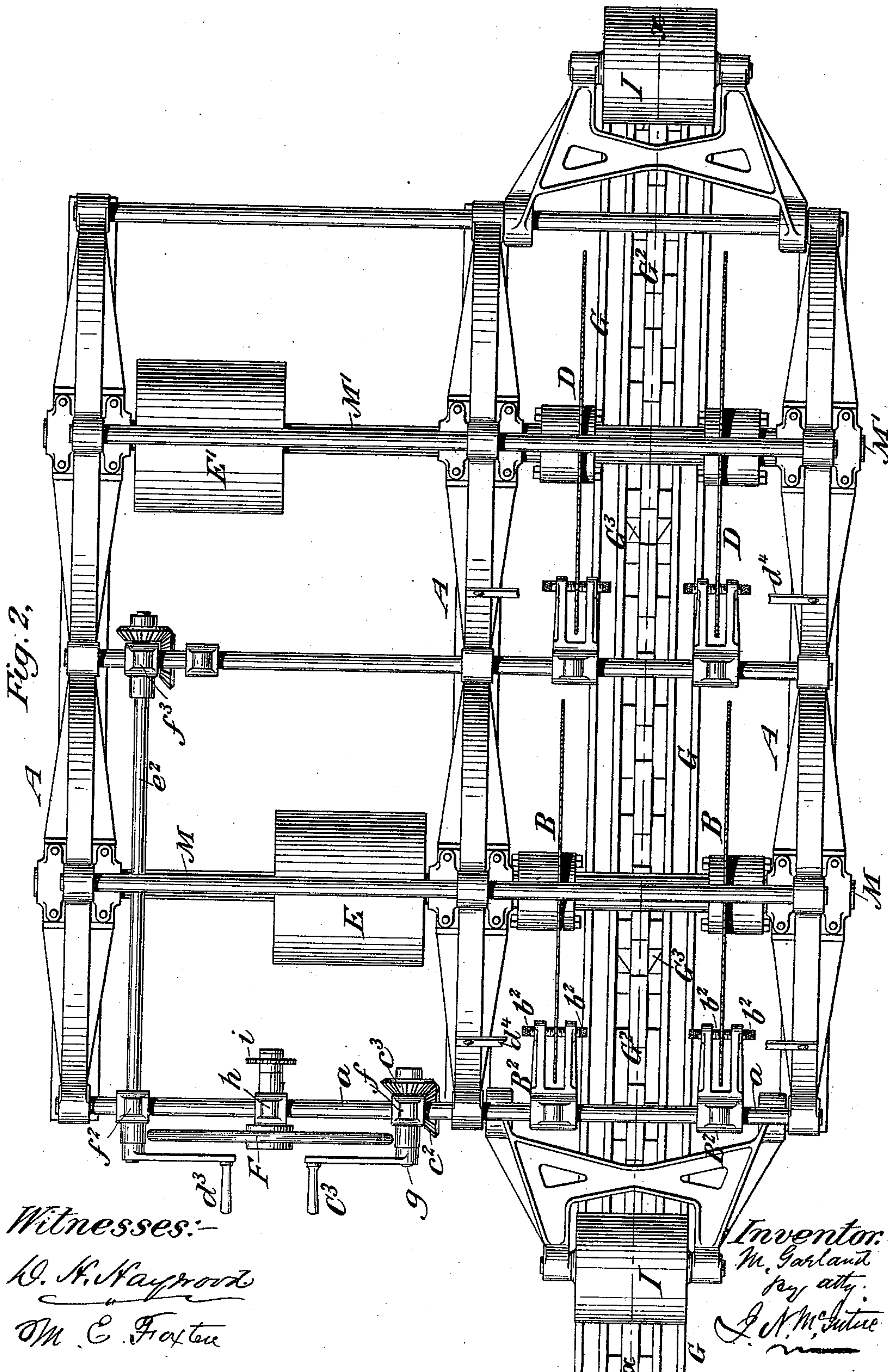
3 Sheets—Sheet 2.

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TWIN CIRCULAR SAWING MACHINE.

No. 518,031.

Patented Apr. 10, 1894.



Witnesses:-

W. H. Kaybrook

Wm. C. Foxtree

Inventor:

Mr. Garland

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L. N. M. Future

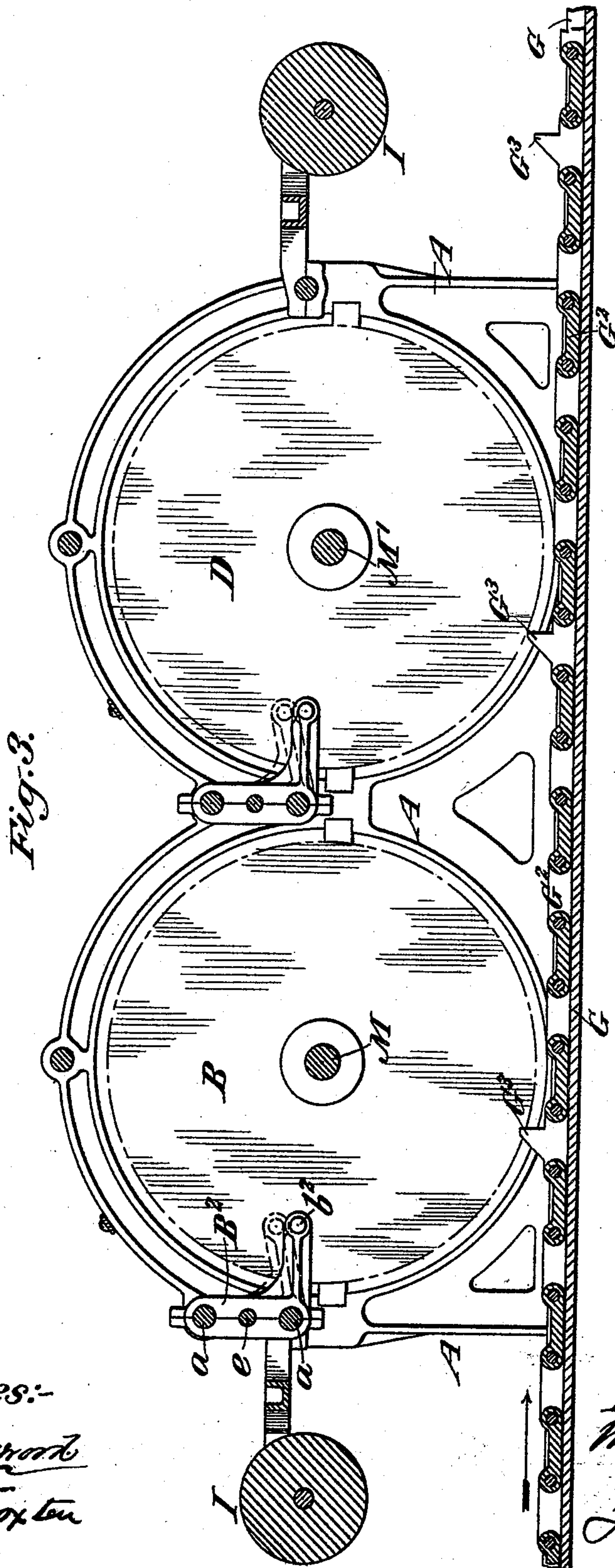
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TWIN CIRCULAR SAWING MACHINE.

No. 518,031.

Patented Apr. 10, 1894.



Witnesses:-

B. H. Hayward

Chas. E. Foxton

Inventor:-
M. Garland
Per atty.
J. N. McEntire

UNITED STATES PATENT OFFICE.

MICHAEL GARLAND, OF BAY CITY, MICHIGAN.

TWIN CIRCULAR SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 518,031, dated April 10, 1894.

Application filed November 27, 1893. Serial No. 492,051. (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 a certain new and
5 useful Improved Twin Circular Sawing Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this
10 specification.

Previous to my invention, what are known as twin circular sawing machines have been made, in which two saws arranged in parallel vertical planes have been used, to first simultaneously slab off opposite sides of the
15 log, fed through the machine, and to subsequently saw off two boards at once, by an adjustment of the saws closer together.

I propose to provide for use a twin circular
20 machine in which a series of twin saws operate, at one run of the carriage, to simultaneously slab off both sides of the log, and also saw off two boards; thus greatly increasing the "out put" of the mill in a given time, or
25 with a given number of runs of the log-carriage.

My invention also has, for a further object, to provide for use a machine which, while it will serve the purposes just above mentioned,
30 will also work very efficiently, and so that boards of various thicknesses can be cut at the same time; and to these main ends and objects, my invention consists in the novel combinations of devices which will be hereinafter fully described, and which will be
35 found most particularly pointed out in the claims of this specification.

To enable those skilled in the art to which my invention relates, to make and use machines containing, either wholly, or partially,
40 my improvements, I will now proceed to more fully describe the latter, referring by letters to the accompanying drawings which form part of this specification, and in which I have
45 shown a machine embracing the several features, or parts, of my invention, and carried into effect in that form in which I have so far successfully practiced the same.

In the drawings, Figure 1 is a perspective
50 view of my improved machine. Fig. 2 is a plan, or top, view of the same. Fig. 3, is a detail vertical section, at line x, x , of Fig. 2.

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

A is the main frame work of the machine, in which are mounted all the working parts, except, of course, the log-carriage, and its operative mechanism which are arranged, about
55 as usual, with the track, or chain race G located as seen; the driving mechanism of the endless carrier chain G^2 being beneath the floor on which the track G and saw frame A are supported, and, hence, not seen in the
60 drawings.

On the main frame A are mounted, in suitable journal boxes, two mandrels, or saw shafts, M and M'; on which are mounted, respectively, the two sets of saws (or the twin
65 circulars) B, B, and D, D, and each of said shafts is provided, as shown, with a drive-pulley, E and E'.

L is a log, shown as properly placed on the track G, on which it is carried along by the carrier-chain G^2 ; one of the dogging teeth, or
75 devices, G^3 of which (that engage with the lower surface of the log) is seen at Fig. 1; all in about the usual manner of a twin circular; while I is the binding roll, made and mounted so as to operate in the well known
80 manner.

Running transversely of the main frame A, and securely fastened to the forward portion thereof, are two round bars, a, a , on which
85 are mounted two sliding blocks B^2, B^2 , each of which carries a pair of inwardly projecting guide pins b^2 , between which pins runs one of the saws B, and by which said saw is laterally held and guided during its rotation.

On the forward part of the frame-work A
90 is also mounted, in suitable journal boxes, a rotary screw shaft e , the thread of which engages with female threads in the blocks B^2, B^2 (through both of which said screw shaft passes), and which is provided, at one end, as
95 shown, with a bevel gear c^2 , that meshes with a bevel pinion c^3 on the inner end of a short crank shaft g , that is arranged in a block, or stand, f , secured to the cross-bars a, a , of the machine, and that is provided with a handle
100 C^3 , all as clearly shown. By turning this handle around in one, or the other, direction, the screw shaft e is revolved, and by its rotation, the blocks B^2, B^2 are caused to slide (on the

bars a, a), and are moved, with a uniform motion, either nearer together, or farther apart, according to the direction in which the shaft e is revolved. This movement of the
 5 guide-blocks B^2 , B^2 operates, through the medium of the two pairs of guide pins b^2 , to adjust the forward saws B, B , and set them, either nearer together, or farther apart.

In practice, I have used a screw shaft e having four threads to the inch, so that four
 10 turns, or revolutions, of the crank handle C^3 effects a movement, or lateral adjustment, of each saw B , one inch.

In order that the attendant may readily set
 15 the saws with exactitude, I arrange a cross-bar at d^4 , that is provided with an index d^5 , the points, or teeth, of which are say, one inch apart, and which project toward the teeth of one of the saws, and so as to come tolerably close thereto when the saw may be set
 20 in a vertical plane coincident with that in which any one of the index points lies. As the two saws are forced to move always to the same extent, though in opposite directions, it follows that when one saw may be moved a
 25 given distance, by the index, the other one will be adjusted to precisely the same extent, and, hence, when one of the saws B' is set to cut, or saw off, an inch board from that side of
 30 the log on which said saw operates, the other saw will be set to cut an inch board from the other side of the log. Each pair of guide-pins b^2 is composed of two set screws mounted in a pair of arms, so that by the turning
 35 of these screw pins each saw may be set, to start with, in exactly the proper position, and each will be held and guided laterally at a point a short distance inside of the toothed periphery of the saw, and a little way above the
 40 upper edge, or line, of the kerf cut by the saw.

On the bars a, a , is mounted, as shown, another stand, or block, h , which is provided with a rotatory arbor, on the inner end of which is made fast a chain wheel i , and the
 45 outer end of which is provided with a hand-wheel F . And by means of said hand-wheel to rotate the sprocket-wheel i , the attendant is enabled, through the medium of the endless chain F^2 that passes down through the
 50 floor, and is banded on to a wheel not shown, to control, or regulate the mechanism by which the log is fed through the machine.

A visual inspection of Fig. 1 will make clear the fact that when the log L is first fed through
 55 the machine, the twin saws B, B , (being properly set) will cut two slabs from the opposite sides of the log, and it will be understood that when these saws shall have been properly adjusted they will, at each successive run of the
 60 log L through the machine, cut off boards. But, as already explained, another pair, or set, of saws D, D , are arranged in rear of those marked B, B , and this second set of saws, it will be understood, is adjusted, or set, always to cut
 65 inside of the lines, or planes, in which the forward set cuts; so that, as the log L runs through the first time, the twin saws B, B ,

slab off the sides, and the saws D, D , cut off two boards (say inch boards for instance); then when the log runs through the second
 70 time, each set of saws having been first properly set, or adjusted (closer together) the saws B, B , will cut off two boards, and the rear set D, D , will cut two more boards, so that during this run of the log four boards will be cut
 75 off, and so on, until the log shall have been sawed up into boards, leaving, however, a two inch board at the middle of the log.

The rear set of saws D, D , are similar to those marked B, B , and the mounting, adjusting, mechanism, &c., are all the same. As, however, they are at the rear of the machine, a long shaft, or arbor e^2 , that carries at its inner end the bevel pinion that engages with the gear of the rear screw shaft, extends forward from the stand f^2 , and, having its forward portion journaled in a similar stand, or
 80 block, f^3 , is provided with a hand crank d^3 , by means of which the attendant can effectuate the adjustment, or setting of the rear saws,
 85 as conveniently as that of the front pair, which he controls by means of the crank handle C^3 , as heretofore explained.

By means of the two sets, or pairs, of saws B, B , and D, D , arranged as herein shown and
 95 described; and an adjusting mechanism combined with each set, as described, the machine is rendered capable of cutting, from the opposite sides of the log, more boards, at one run of the log-carrier, than could be cut by a
 100 single "twin circular," and, at the same time, may be run so as to cut a thick and a thin board at each side of the log.

By having the saws clear the log-carrying chain, as shown, I am enabled, with my machine, to saw up closer to the center of the
 105 log than was possible in machines made, as heretofore, with either the log-carriage, or the carrier-chain (as the case might be) arranged at such height, as to pass between the lower
 110 portions of the two saws. In such case as the carrier chain alone is about five and a half inches wide, the saws could never cut closer together than about six inches. In my machine the saws cut kerfs above (though extending down close to) the upper part of the
 115 carrier-chain, and, hence, can cut very close up to the center of the log.

The combination with each saw of the guide-pins arranged to hold the saw at a point just
 120 in rear of where it is cutting, I deem important, as thereby the machine is rendered efficient and perfect in its operation, so far as the action of the saws is concerned.

Of course, the log may be fed, or carried, by a carriage, driven by a steam feed cylinder in the well known manner, in lieu of by the chain shown working in a race, or log chute, without departing from the principle of my improved machine, and other modifications, as well as variations of details may be made without changing its novel mode of
 125 operation. I do not, therefore, wish to be restricted to the precise forms shown, so long
 130

as the machine contains what I have pointed out as its essential novel characteristics, chief among which are, the series of pairs of (or twin) saws, arranged to cut one set in rear of another; the arrangement of the saw mandrels above the log, so that the log carrier-chain, or device, need not pass between any two saws; the guidance laterally of the saws as they enter, or cut, into the log; and having each pair, or set, of saws adjustable, by means of a separate saw setting mechanism.

Having now so fully explained my novel construction of twin circular sawing machines that those skilled in the art can make and use machines containing, either wholly or partially, the separable features of my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the two pairs of circular saws, arranged to cut, one pair in advance of the other, and the saws of each pair on opposite sides of the log; and separate, or independent, setting-mechanisms; each operating to set the saws of one pair; all substan-

tially in the manner and for the purposes hereinbefore set forth.

2. In a twin-circular sawing machine of the type herein shown and described, the combination, with a suitable frame-work; and shafts on which to mount them, of a series of sets of circular saws operating simultaneously upon the log to be cut up from the time its leading end comes into contact with the second set of saws until its tail end passes beyond the action of the first set, and arranged so that the saws of each set cut simultaneously at opposite sides of the log, and in vertical planes; and so that the saws of the several sets cut one set in advance of another but in different planes; all substantially in the manner and for the purposes hereinbefore set forth.

In witness whereof I have hereunto set my hand this 15th day of August, 1893.

MICHAEL GARLAND.

In presence of—

GEO. WATKINS,
EM. TOMPKINS.