

(No Model.)

W. T. MACKEY.

2 Sheets—Sheet 1.

GANG SAW MILL.

No. 501,799.

Patented July 18, 1893.

Fig. 1

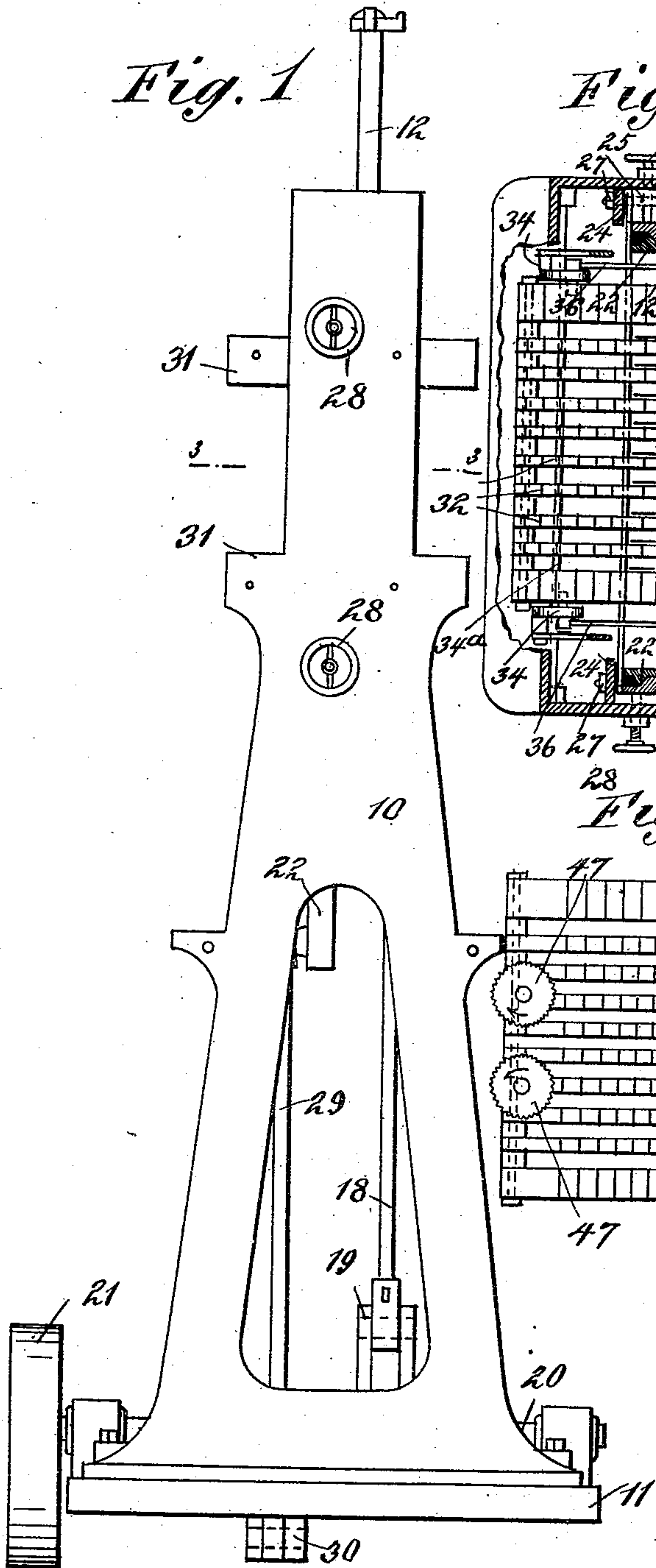


Fig. 3

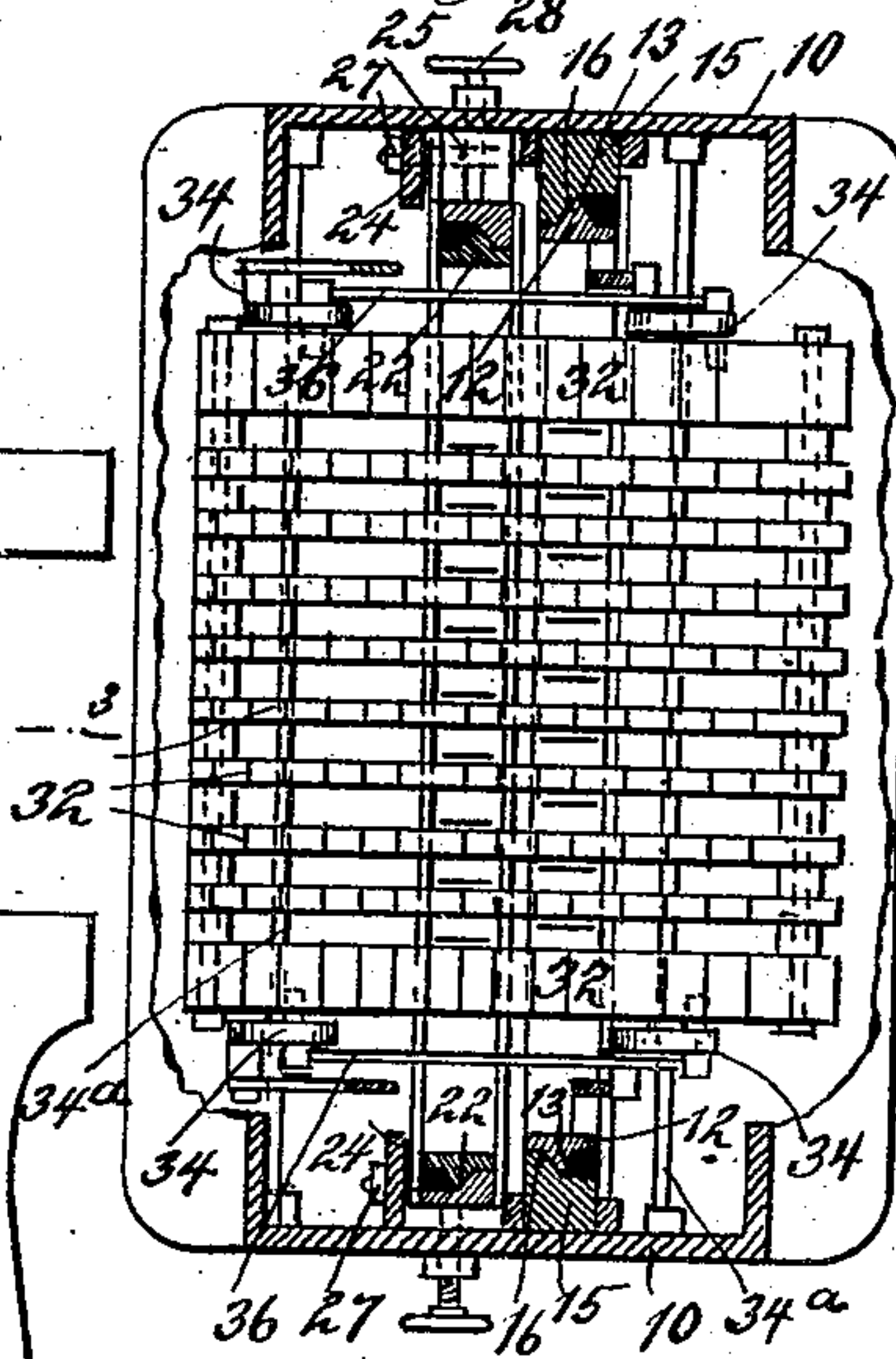


Fig. 4

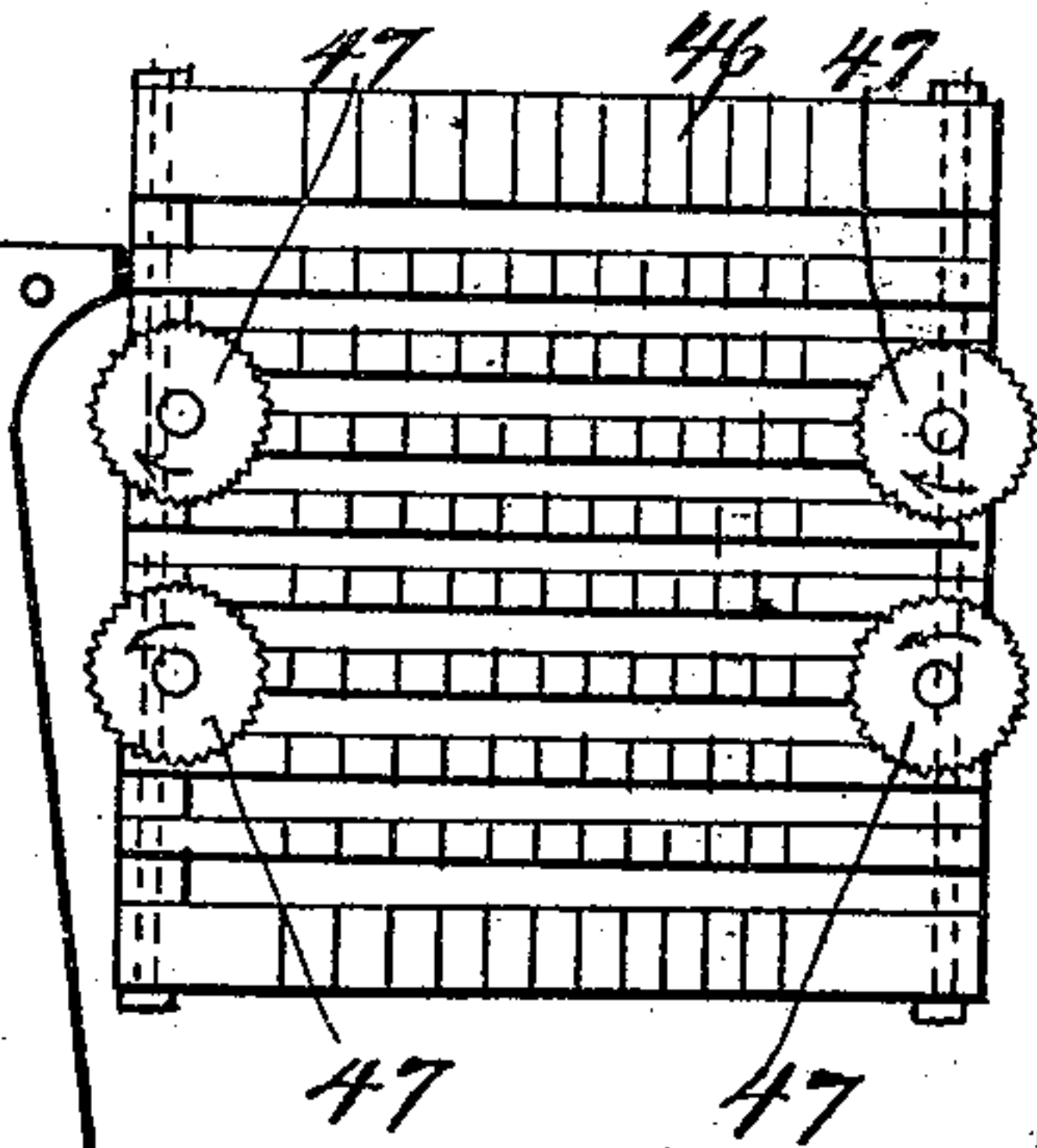
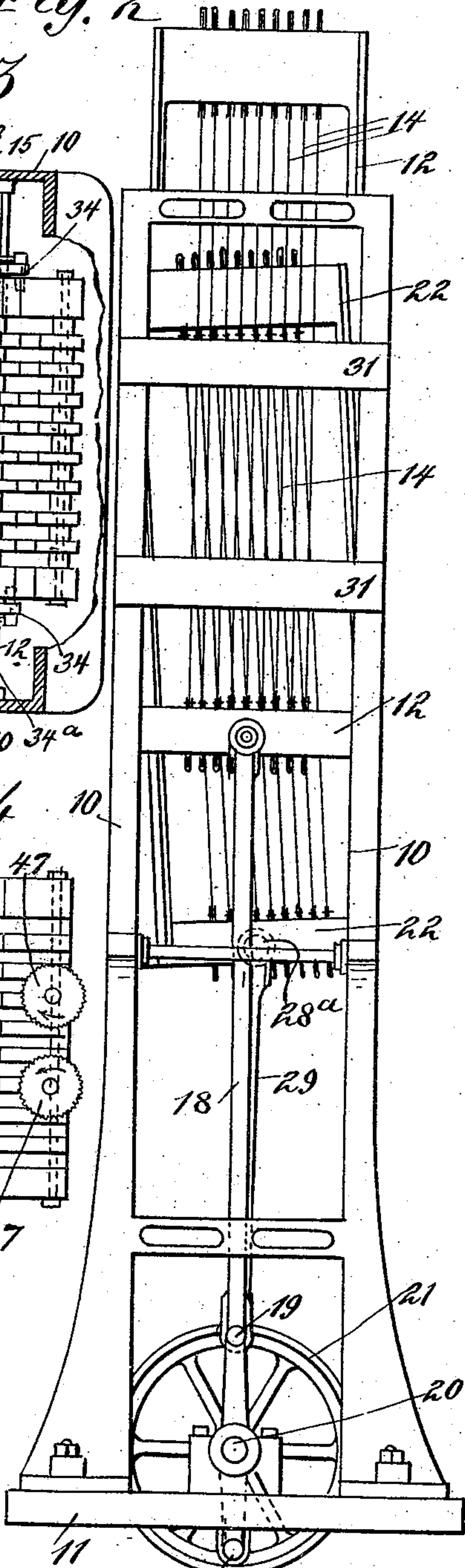


Fig. 2



WITNESSES:

C. Neveu
W. Sedgwick

INVENTOR

W. T. Mackey
BY *Munn & Co*

ATTORNEYS.

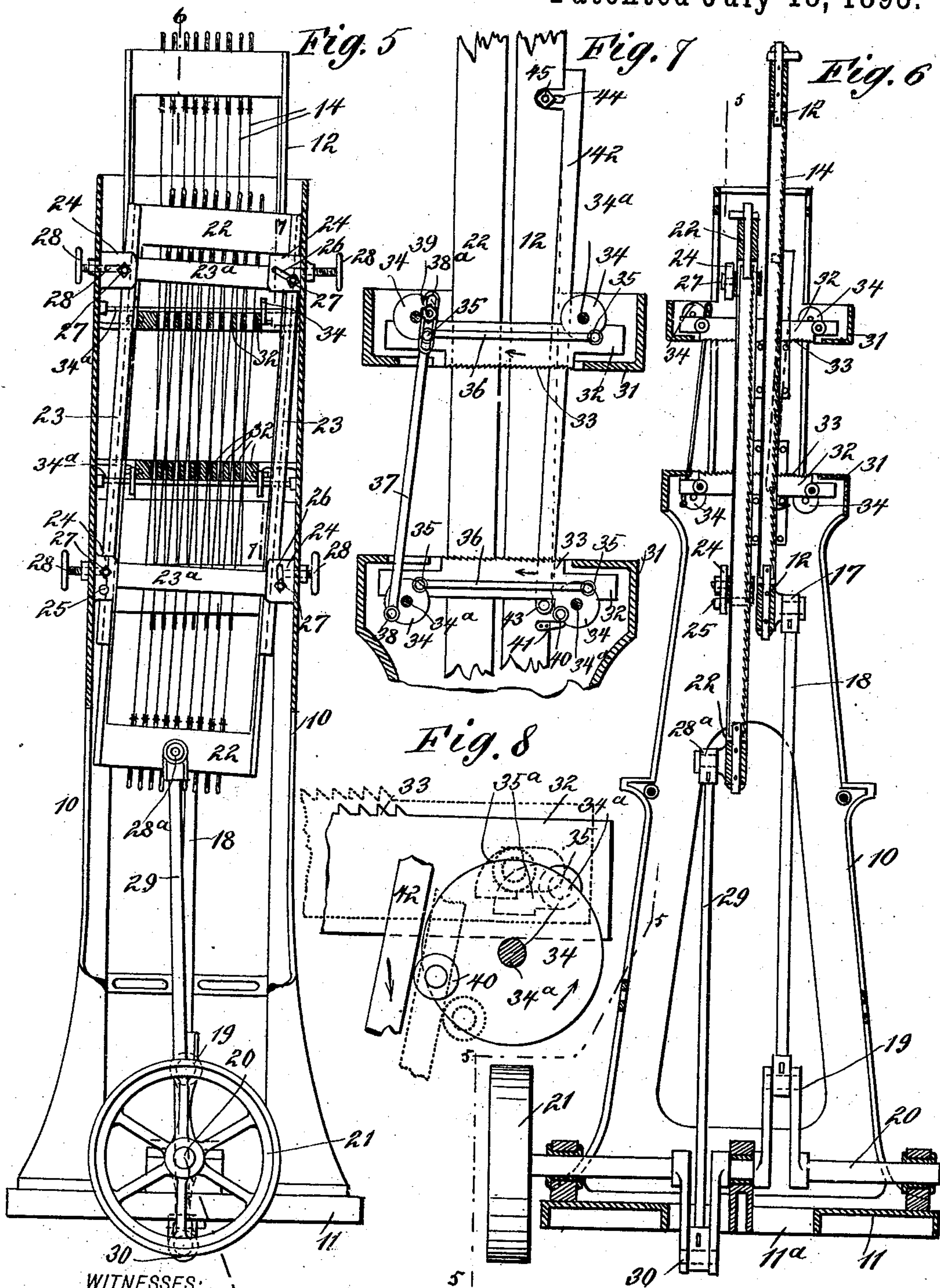
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UNITED STATES PATENT OFFICE.

WILLIAM T. MACKEY, OF VANCOUVER, CANADA.

GANG-SAW MILL.

SPECIFICATION forming part of Letters Patent No. 501,799, dated July 18, 1893.

Application filed October 3, 1892. Serial No. 447,752. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. MACKEY, of Vancouver, in the Province of British Columbia and Dominion of Canada, have invented a new and Improved Gang-Saw Mill, of which the following is a full, clear, and exact description.

My invention relates to improvements in gang sawmills such as are especially adapted to saw shingles, but which may be adapted to saw other stuff, and the object of my invention is to produce a cheap and simple mill adapted to operate two gangs of saws in such a way as to saw an entire bolt into shingles or other stuff at one operation, and also to provide means for adjusting the independent gangs of saws in relation to each other so that the desired pitch or bevel may be given to the stuff sawed.

To these ends, my invention consists in certain features of construction and combinations of parts which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine or mill. Fig. 2 is a front elevation of the same. Fig. 3 is a sectional plan on the line 3—3 in Fig. 1. Fig. 4 is a plan of a supplementary feed mechanism which may be used in connection with the mill. Fig. 5 is a vertical section on the line 5—5 in Fig. 6. Fig. 6 is a vertical section on the line 6—6 in Fig. 5. Fig. 7 is an enlarged detail vertical section of the mill feed; and Fig. 8 is a diagram of the feed movement.

The mill is provided with a main vertical standard or frame 10, which may be of any approved form and which rests upon a base 11. The standard or frame is open at front and rear, and has at its upper end reciprocating rectangular frames, one, 12, of which, is arranged to slide vertically in the standard. The frame is provided with a gang of saws 14, arranged longitudinally in the usual manner, and the detailed construction of the frame and the manner of fastening the saws therein form no part of this invention, as the saws may be fastened in the most convenient way. The side pieces of the frame have side

strips 13, which when viewed in cross section are of a wedge shape, as shown in Fig. 3, and these abut with inclined wearing faces 16, on the guides 15 which are rigidly and vertically attached to opposite sides of the standard 10. The oppositely-arranged inclined portions of the frame and guides are to enable the wear to be taken up.

The lower end of the frame 12 is pivoted, as shown at 17, to a depending pitman 18, and the latter at its lower end is pivotally connected with a crank 19 on a shaft 20, which shaft is arranged transversely in the lower portion of the frame, and has a suitable driving pulley 21. The base 11 of the frame has a central opening 11^a, which provides for the movement of the crank 19, and also for the crank which moves the oblique frame.

A frame 22, which is of the same construction as the frame 12, and is likewise provided with a gang of longitudinal saws 14, is arranged to slide in inclined guides 23, behind the frame 12, so that the saws in the frame 22 will be at a slight angle to the saws in the frame 12. The guides 23 are connected by cross bars 23^a, see Fig. 5, and the guide or guide frame is held against the lugs 24 on opposite sides of the frame or standard 10. The guide frame formed of the connected guides is pivoted near one of its lower corners, as shown at 25, to one of the lugs 24, so that the frame may be adjusted at any necessary angle. The lugs 24 are slotted, as shown at 26, in Fig. 5, and the guide frame has bolts 27 extending through the slots, and by means of these the frame may be fastened in place. The guide frame may be quickly and accurately adjusted by the set screws 28, which project through the sides of the standard or frame 10, and impinge on the guide frame. The inner wearing surfaces of the guide frame and the frame 22, are the same as those of the guides 15 and frame 12 already described.

The frames 22 and 12 are adapted to reciprocate, one going up while the other is going down, and it will be seen that the vertical saws in the frame 12 will split the bolt so as to form a series of straight strips, and the oblique saws will then split these straight pieces so as to give them the necessary shape to form them into shingles.

The lower end of the frame 22 is pivotally

connected, as shown at 28^a, with a depending pitman 29, which is pivoted at its lower end to a crank 30 on the shaft 20. The cranks 19 and 30 project from opposite sides of the shaft 20, and consequently the rotation of the shaft causes the sliding frames to move in opposite directions, one going up while the other is coming down.

At a point opposite the saw frames the standard 10 is provided with horizontal rectangular portions 31, which are arranged one above another and far enough apart to permit any ordinary bolt to be inserted between them, and these horizontal portions 31 act as supports for the upper and lower feed bars 32, which are adapted to move back and forth at right angles to the saw frame, and the bars in the upper support 31 are connected together as also are the bars in the lower support. These feed bars 32 have thickened central portions 33, with teeth on their faces to engage the bolt to be sawed, the teeth on the upper feed bars projecting downward while the teeth on the lower feed bars project upward. The feed bars are adapted to move toward each other to clamp the bolt in place, and are also adapted to reciprocate so as to feed the bolt through the machine.

On opposite sides of the machine and adjacent to the feed bars are cam wheels 34, which are journaled on cross shafts 34^a. The cam wheels are provided with rollers 35, which also serve as cranks, and the adjacent cam wheels on each side of the machine frame are connected by a pitman 36, so that the wheels at front and rear of the machine shall have a similar and co-instantaneous movement. The rear cam wheels opposite the lower feed bars have also cranks 38, which are placed diametrically opposite the rollers 35, and these have upwardly-extending pitmen 37, which at their upper ends are slotted, as shown at 38^a, and the upper ends of the pitmen are fastened to the rear cam wheels by bolts 39. It will thus be seen that the movement of the lower cam wheels will impart a similar movement to the upper cam wheels.

By reference to Fig. 7, it will be noticed that the rollers 35 on the lower cam wheels are placed near the upper edges of the wheels, while the rollers 35 of the upper cam wheels are placed near the lower edges of the wheels; this is to cause the upper and lower feed bars to have a movement toward each other, as described below.

The rollers 35 are held to move in slots 35^a in the adjacent feed bars 32, as shown clearly in Fig. 8, and when the lower cam wheels 34 are turned in the direction of the arrow, see Fig. 8, the adjacent feed bars are lifted upward and thrown forward, but the upper feed bars have a similar movement only they are thrown downward instead of upward.

On the lower front cam wheels 34 and diametrically opposite from the rollers 35, are rollers 40, which are adapted to be struck so

as to tilt the cam wheels by lugs 41 on the frame 12, and the rollers 40 are also arranged in the paths of the plates 42, which plates are pivoted to the side pieces of the frame 12 at their lower ends, and at their upper ends have inwardly-extending slotted lugs 44, which are held to the side pieces of the frame by bolts 45, see Fig. 7. The plates 42, lugs 41 and rollers 40, as well as the cam wheels 34, may be arranged on either one or both sides of the frame as desired; in the drawings they are shown on both sides, see Fig. 3.

The operation of the feed mechanism in connection with the saws is as follows: A bolt is placed in the machine between the horizontal supports 31, so as to be engaged by the upper and lower feed bars 32. As soon as the mill is started, the frame 12 moves downward and the frame 22 upward, the saws of the frame 12 coming first into contact with the bolt. The instant the frame starts, the plates 42, which are placed at an inclination, as shown in Figs. 7 and 8, strike the rollers 40, thus tilting the cam wheels 34 in the direction of the arrow in Fig. 8. This movement causes the several cam wheels above and below the bars to be moved in the manner above described, and the lower feed bars are moved upward and forward, as shown in the diagram Fig. 8, while the upper feed bars move downward and forward so that the bolt is clamped firmly in place and at the same time advanced against the saws. At the return movement of the frame 12, the lugs 41 strike the rollers 40, and tilt the cam wheels and move the feed bars back to their normal position, and this action takes place at each stroke of the frame 12, the bolt being given a step-by-step movement and advanced each time against the saws.

The frame 22 may be arranged in a vertical position if desired, so that the saws in said frame will be at points half way between the saws in the frame 12, and the bolt may thus be sawed into staves of uniform thickness. When long stuff is sawed in this way, a feed mechanism similar to that shown in Fig. 4 may be used, in which a frame 46 is provided with oppositely-arranged feed wheels 47, adapted to impinge upon the stuff and haul it through the mill.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination with the vertically reciprocating saw frame of a second reciprocating saw frame, parallel guide bars between which said second frame reciprocates and means for adjusting the said guide bars to a vertical or oblique position to change the pitch of the second saw frame, substantially as set forth.

2. A gang sawmill, comprising a vertically-reciprocating saw frame having a gang of saws therein, a second reciprocating frame held to move opposite the first frame and hav-

ing gangs of saws arranged obliquely with respect to the first saws, and means for adjusting the pitch of the second saw frame, substantially as described.

5 3. A gang sawmill, comprising a supporting frame or standard, a vertically-reciprocating saw frame held to move in rigid guides in the standard and having a gang of saws secured therein, a second reciprocating frame
10 provided with a gang of saws and held to move opposite to the first frame, the second frame being inclined laterally, and a crank mechanism for actuating the frames, substantially as described.

15 4. A gang sawmill, comprising a supporting frame or standard, a vertically-reciprocating saw frame held to move in rigid guides in the standard and having a gang of saws therein, an inclined guide frame held in front
20 of the saw frame, a screw mechanism for adjusting the inclined frame laterally, and a second saw frame provided with a gang of saws and held to slide in the inclined guide frame, substantially as described.

25 5. The combination with a vertically reciprocating saw frame, of the transverse upper and lower connected feed bars connected for simultaneous movement toward and from
30 each other to clamp and release the block and also movable in the direction of their length to feed the block and mechanism for actuat-

ing the said bars from the saw frame, substantially as set forth.

6. The combination, with the reciprocating saw frame, of the oscillating cam wheels arranged adjacent to the frame, means for tipping the cam wheels back and forth by the reciprocating of the frame, oppositely arranged feed bars adapted to be clamped upon a bolt, and an operative connection between the feed
40 bars and the cam wheels whereby the movement of the cam wheels will force the two sets of bars toward each other and feed them forward and back, substantially as described.

7. The combination of the reciprocating saw
45 frame, the oscillating connected cam wheels arranged adjacent to the frame, the feed bars connected with the cam wheels whereby said sets will be forced toward each other and fed forward and back by the movements of the
50 cam wheels, contact rollers journaled on the cam wheels, an inclined plate secured to the saw frame and adapted to engage the cam wheel rollers and tilt the cam wheel, and a lug carried by the saw frame and adapted to
55 engage the roller and throw back the cam wheel on the return stroke of the saw frame, substantially as described.

WILLIAM T. MACKEY.

Witnesses:

E. M. CLARK,
C. SEDGWICK.