

No. 662,747.

Patented Nov. 27, 1900.

M. F. WALKER.
COTTON CHOPPER.

(Application filed Mar. 15, 1900.)

(No Model.)

2 Sheets—Sheet 1.

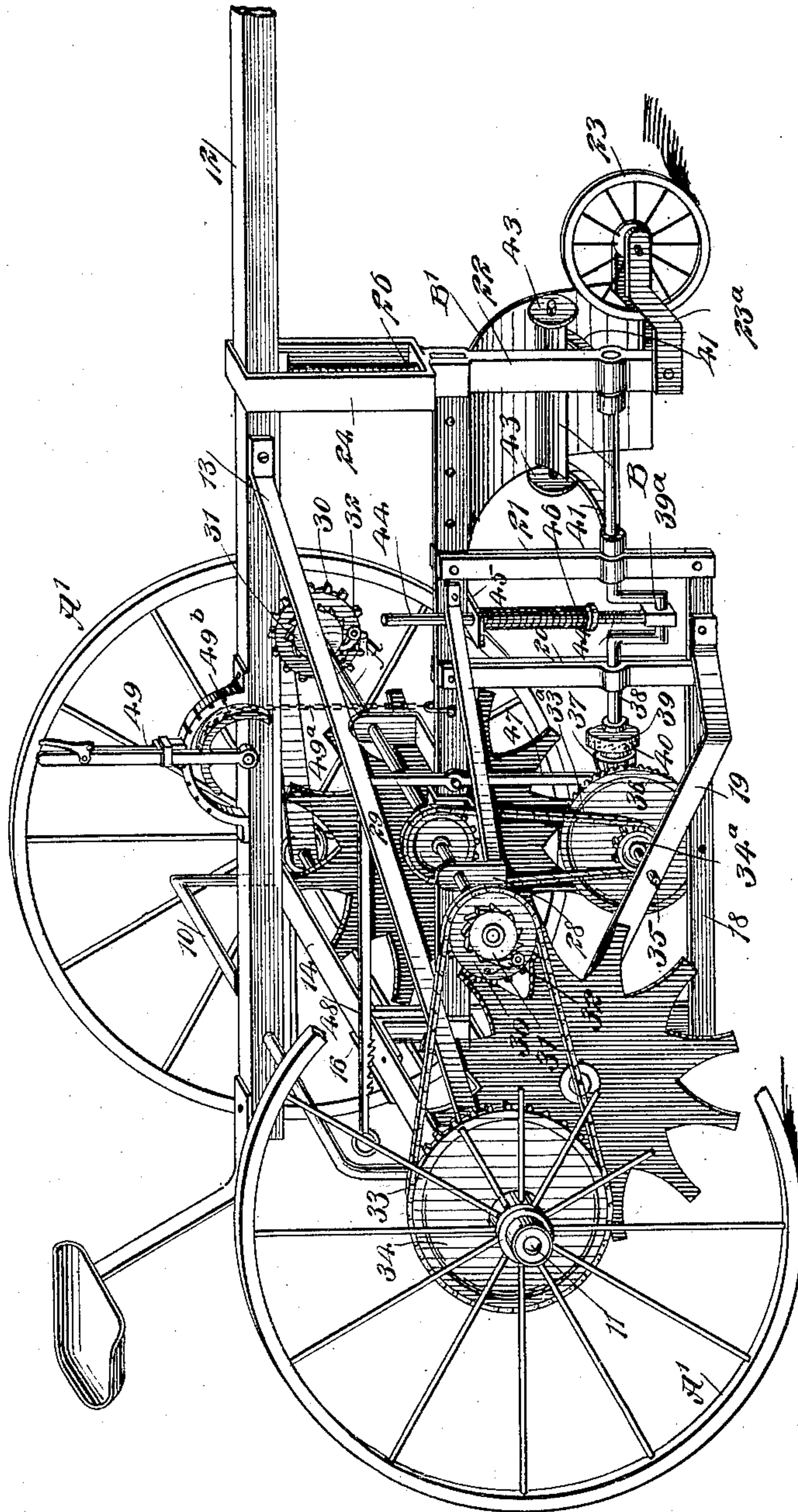


Fig. 1

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2 Sheets—Sheet 2.

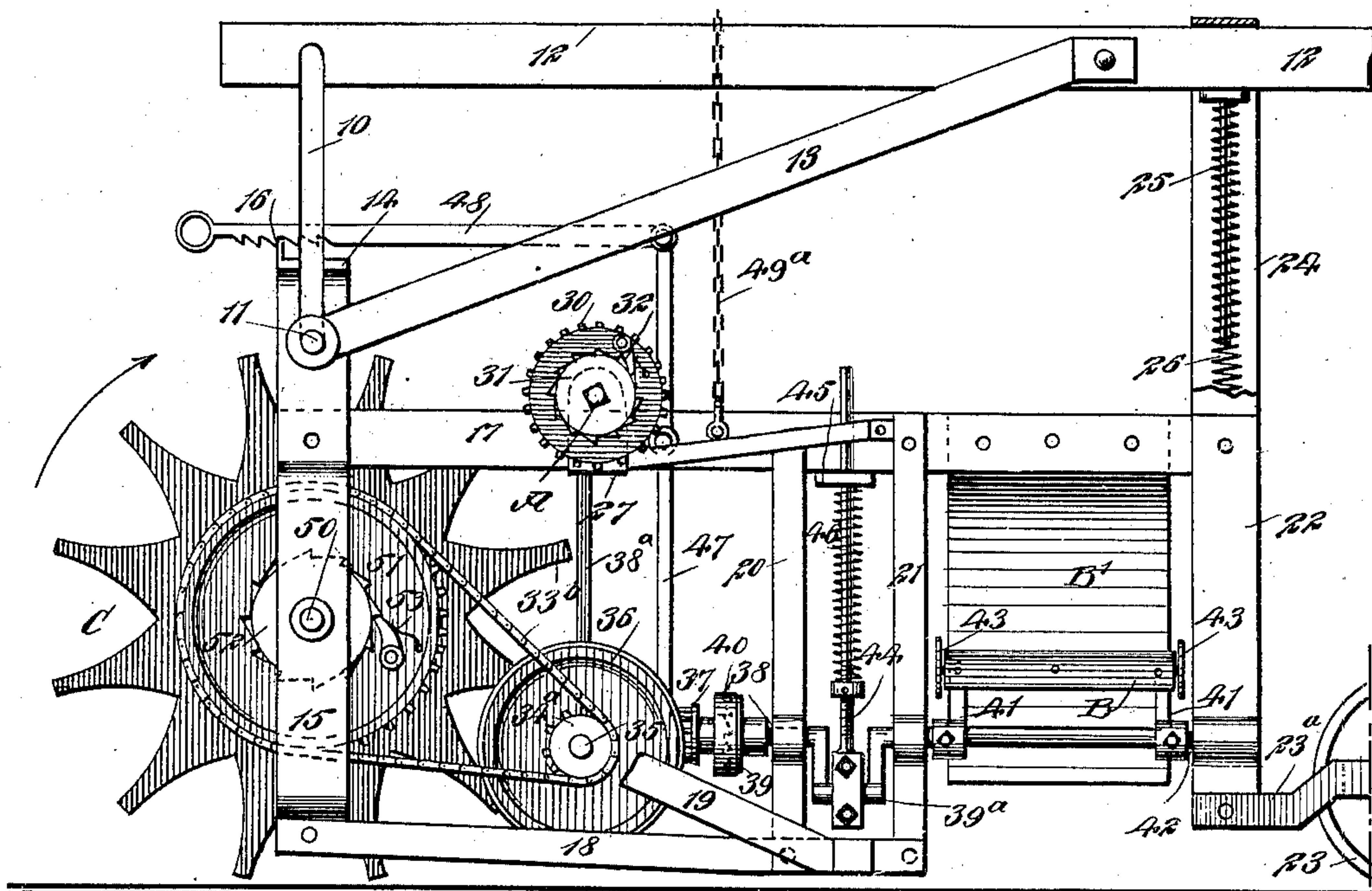


Fig. 2

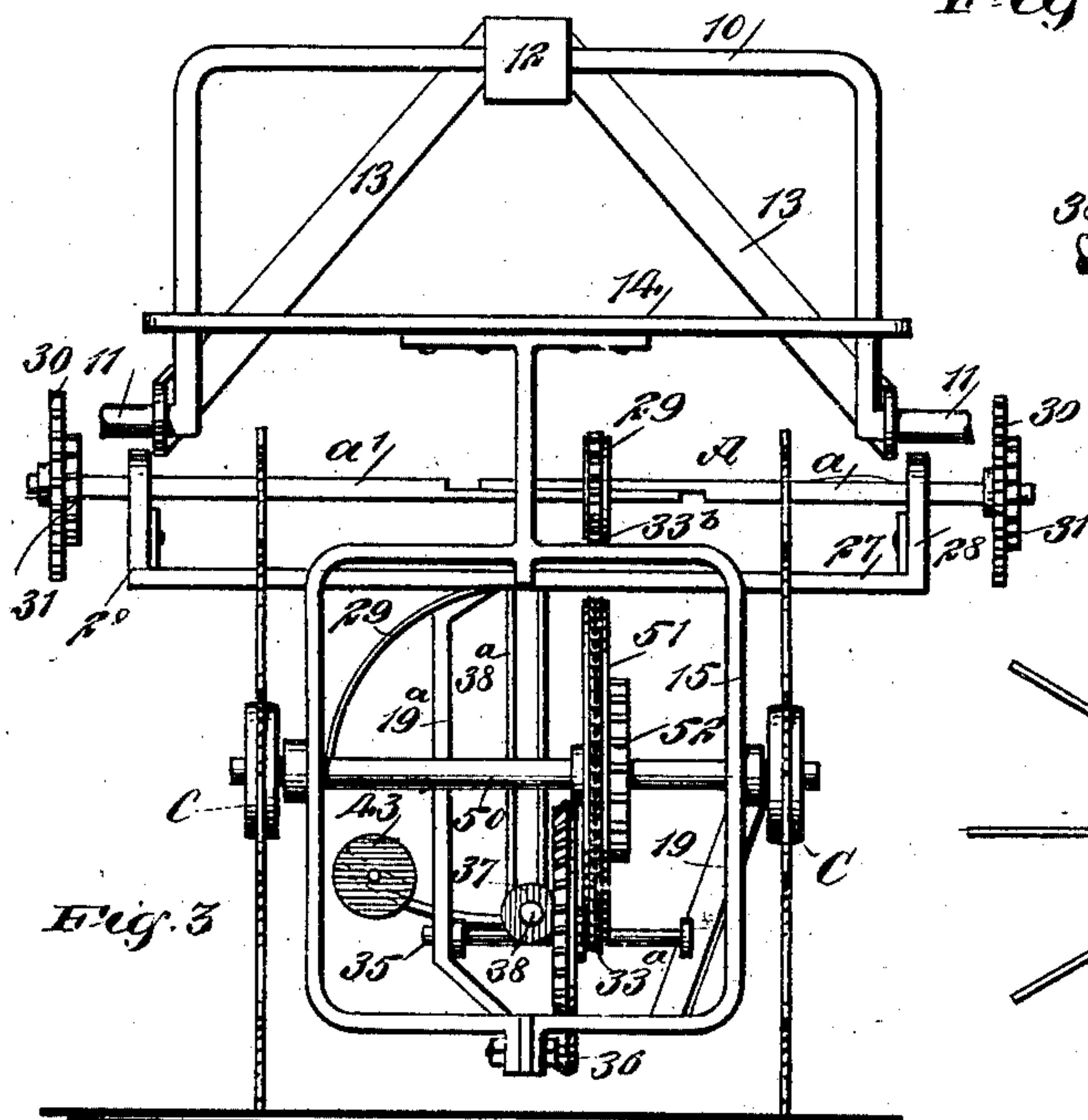


Fig. 3

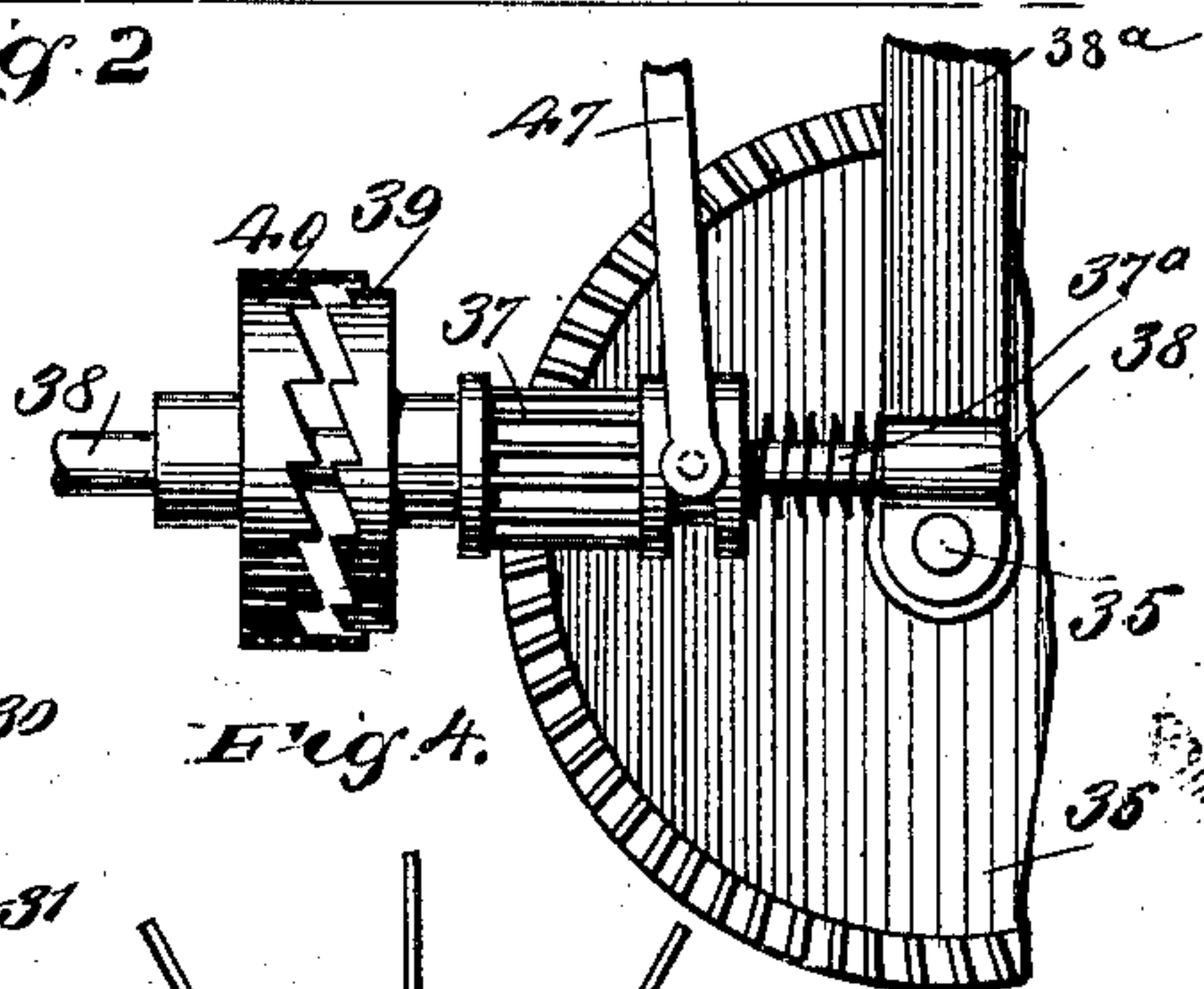


Fig. 4

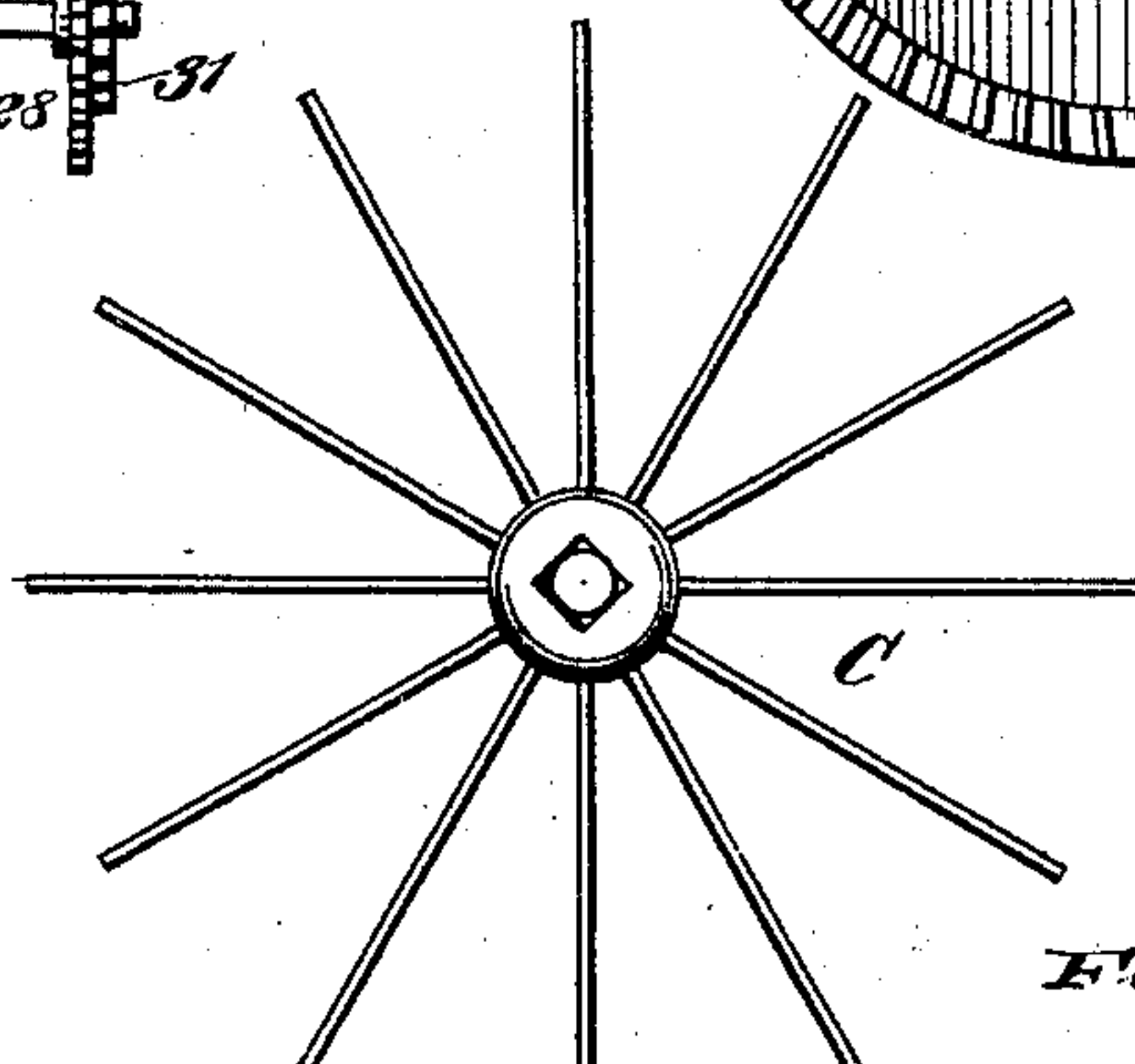


Fig. 5

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Fig. 6

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UNITED STATES PATENT OFFICE.

MILLARD F. WALKER, OF FLATONIA, TEXAS.

COTTON-CHOPPER.

SPECIFICATION forming part of Letters Patent No. 662,747, dated November 27, 1900.

Application filed March 15, 1900. Serial No. 8,777. (No model.)

To all whom it may concern:

Be it known that I, MILLARD FILLMORE WALKER, a citizen of the United States, and a resident of Flatonia, in the county of Fayette and State of Texas, have invented a new and Improved Cotton-Chopper, of which the following is a full, clear, and exact description.

One purpose of the invention is to provide a cotton-chopper which is mounted upon wheels and means whereby the chopping or driving power may be communicated directly from the wheels or through the medium of spurs, which spurs when used are adapted to enter the ground, and the spurs, with the frame carrying the operative mechanism of the machine, are adapted to be raised and lowered, and said spurs may be removed or held idle when the supporting-wheels are employed as drivers.

Another purpose of the invention is to provide for the proper action of the hoe in all conditions of ground and to insure a proper stroke of the hoe under all conditions.

A further purpose of the invention is to provide a means for automatically regulating the depth to which the hoe shall cut and also to provide suitable means for raising the frame of the machine and stopping the action of the hoe.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

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

Figure 1 is a perspective view of the improved machine, a portion of one of the supporting-wheels being broken away. Fig. 2 is an enlarged side elevation of the machine, the spurs being employed as drivers. Fig. 3 is a rear elevation of the machine as shown in Fig. 2. Fig. 4 is a detail view of a portion of the driving mechanism for the hoe. Fig. 5 is a detail perspective view of a portion of the main driving-shaft of the machine brought into action when the supporting-wheels are used, and Fig. 6 is a side elevation of a modified form of the supporting spur-wheels.

The axle 10 is an arch axle and is provided

with the usual horizontal spindles 11 at its ends. The beam 12 is secured to the axle 10, and braces 13 are usually carried from the spindles 11 to the sides of the beam 12, as shown in Figs. 1, 2, and 3. A cross-bar 14 extends from one limb of the axle 10 to the other, and the said cross-bar supports a loop-frame 15, which frame is at the rear portion of the machine. Upon the upper portion of the cross-bar a lip 16 is usually formed, as shown in Fig. 2, for a purpose to be hereinafter described. A forwardly-extending horizontal bar or beam 17 is attached to the upper portion of the loop-frame 15, and the said bar 17 extends beneath the main beam 12 of the implement, substantially parallel therewith. A lower horizontal bar 18 is attached to the bottom central portion of the loop-frame 15, and side braces 19 19^a extend from the bottom bar 18 in a rearward direction, the rear ends of the said braces being adapted as supports for an axle to be hereinafter described. Upright bars 20 and 21 connect the forward end portions of the bottom bar 18 with the upper intermediate beam 17, as is shown best in Figs. 1 and 2, and an upright 22 is secured to the forward end of the intermediate beam 17, extending downward therefrom, and above the intermediate beam 17 at its front portion a yoke 24 is formed, through which yoke the main beam 12 of the implement freely passes. This main beam 12 is adapted as a draft-beam and may be provided with singletrees or doubletrees, as occasion may demand.

At the bottom of the front upright 22 a forwardly-extending arm 23^a is secured, which is formed at its forward end to receive a forward supporting-wheel 23, and this supporting-wheel 23 is adapted to assist in the regulation of the depth to which the hoe, to be hereinafter described, shall enter the ground. The wheel 23 is held normally in engagement with the ground, being adjustable where it connects with the upright 22, and the wheel is permitted to rise through the medium of a plunger 25, which is made to enter a spring 26, the said spring having bearing against the bottom of a yoke 24, through which the draft-beam 12 passes, and the spring 26 is usually attached to the bottom portion of the yoke in any approved manner, while the upper end

of the plunger 25 is provided with a head that engages with the under face of the draft-beam 12, as shown in Fig. 2. Thus the draft-beam 12, through the medium of the plunger and springs 25 and 26, serves to keep the forward guide-wheel in engagement with the ground and to return it to such engagement in the event it meets with an obstruction and the obstruction has been passed.

10 A cross-bar 27 is secured to the intermediate bar 17, and the said cross-bar is provided with upright sections 28 at its ends. These upright sections serve as journals or bearings for an adjustable driving-shaft A. 15 This adjustable driving-shaft, as shown in Fig. 5, is usually and preferably made in two adjustable sections a and a' , and usually the shaft is square, except at points a^2 , where it passes through the uprights 28 of the cross-bars 27, which portions a^2 are circular, as are preferably the end portions of the shaft. The drive-shaft A is made thus adjustable in order that it may be accommodated to machines of different widths. The two sections a and 25 a' of the shaft are ordinarily coupled and held together through the medium of a pinion 29, which pinion is usually a sprocket-pinion, as illustrated in Fig. 3.

A sprocket-wheel 30 is loosely mounted at 30 each end of the shaft A, and adjacent to each sprocket-wheel a ratchet-wheel 31 is secured to the shaft, the sprocket-wheels being provided with dogs 32, which engage with the teeth of the ratchet-wheels, as shown in Fig. 1, and the teeth of the ratchet-wheels 31 are so disposed that the dogs 32 will turn the said ratchet-wheels only when the machine is being drawn forward.

The spindles 11 of the axle 10 receive supporting-wheels A', which are readily removable from said spindles, and at the hub portion of each wheel A' a sprocket-wheel 34 is secured, which sprocket-wheels are connected by belts 33 with the sprocket-wheels 30 on the driving-shaft A, as is best shown in Fig. 1. Thus it will be observed that the shaft A may be driven from the supporting-wheels of the machine, and motion is communicated from the shaft A to a shaft 35, journaled at 50 the bottom portion of the frame of the machine in the side braces 19 19^a, although other means of support for the said shaft may be provided, and this shaft 35 is fitted with a small sprocket-wheel, made in different sizes 55 to give greater or less speed to the hoe, over which sprocket-wheel a belt 33^a is passed, the said belt being likewise passed over the sprocket-wheel 29 on the drive-shaft A, as shown in Fig. 1. This driving connection is 60 employed only when the machine is operated by means of the sprocket-wheel 34 and the shaft A. The shaft 35 is likewise provided with an attached bevel-gear 36, and the teeth of this bevel-gear mesh with the teeth of a lantern-wheel 37, which wheel is loosely 65 mounted on a shaft 38, which shaft is at a right angle to the shaft 35. The lantern-

wheel 37 is provided at its front end with a clutch-section 39, having a flange which is adapted to engage with a like clutch-section 70 40, also having a flange secured to the shaft 38, the flanges completely covering these sections when locked, and normally the two clutch-sections 39 and 40 are held in engagement by a spring 37^a, mounted upon the 75 shaft 38 and having bearing against the lantern-wheel and a suitable collar on the shaft, as shown in Fig. 4. The shaft 38 is journaled in the uprights 20, 21, and 22, as shown in Figs. 1 and 2, and between the 80 uprights 20 and 21 a crank-arm 39^a is formed in the said shaft, as is also shown in said figures. The hoe B is mounted at the forward end of the shaft 38, and this hoe consists of a blade which is attached to arms 41, 85 one of which arms is secured to the shaft 38, while the other arm is attached to the section 42 of the shaft 38, carried by the forward upright 22, as is also shown in Figs. 1 and 2, and preferably at each end of the blade 90 of the hoe a wheel 43 is mounted, which serves to cut trash or other foreign matter that would be dragged through the row by the hoe and injure the standing plants. The wheels 43 are broader than the hoe and cut 95 deeper. The said wheels likewise facilitate the movement of the hoe along the surface of the ground. The hoe is protected at one side—the side to which it is returned after action—by a hood B', usually suspended from 100 the intermediate beam 17. It may be here remarked that both the shafts 38 and 35 are supported by an additional upright 38^a and that the spring 37^a is located between the upright 38^a and the rear end of the lantern-wheel 37. 105

A rod 44 is pivotally mounted on the crank-arm 39^a, and this rod extends upward and is loosely passed through a bracket 45 from the intermediate beam 17, and a spring 46 is coiled 110 around the rod 44, having bearing against a nut at the bottom of the rod and against the under face of the bracket 45, as shown in Figs. 1 and 2. The bottom of the rod is preferably threaded; but the nut may be adjustably retained thereon by other means. 115 When the shaft 38 has been revolved to operate the hoe B, the crank-arm 39^a will rise and the spring 46 will be compressed, and as soon as the hoe passes the central line the spring 46 will com- 120 mence to act and will quickly throw the hoe in direction of the ground and cause it to strike the same in such manner that any plants in its path will be quickly and cleanly removed, the hoe being further carried by the 125 action of the spring 46 to a point within the hood B'. In the event the spring 46 should fail to act the two clutch-surfaces 39 and 40 will be brought in such binding engagement that the shaft 38 will be compelled to turn 130 and bring the hoe from its active position to the upright position; but while the spring 46 on the regulating-rod 44 continues to act the clutch-surfaces 39 and 40 will simply pass one

another. When it is desired to stop the movement of the hoe-shaft 38, it is done by carrying the clutch-surface 39 from engagement with the opposing clutch-surface 40, and this is accomplished through the medium of a shifting lever 47, pivotally connected in the usual manner with the lantern-wheel 37, and this shifting lever 47 is shown as pivoted upon the intermediate beam 17 of the frame, and as provided with a handle 48, extending rearwardly and having a toothed surface arranged for engagement with the projection 16 from the upper part of the rear portion of the frame, as illustrated in Fig. 2.

When it is desired to raise the entire frame from off the ground, together with the spurs C, as in traveling and in turning at one end of a row, such movement may be accomplished by operating a lever 49, mounted upon the draft-beam 12, as shown in Fig. 1, which lever is provided with the usual thumb-latch adapted for engagement with the ordinary rack and is connected by a chain 49^a or its equivalent with the intermediate beam 17 of the frame, as shown in both Figs. 1 and 2, the chain being usually passed at its upper end over a segmental projection 49^b from the said lever 49. When the sprocket-wheels 34 are removed from the wheels A', the shaft 38 is driven through the medium of the spur-wheels C, which have been brought in engagement with the ground, and the main drive-shaft A is idle. The spur-wheels C may be shaped as illustrated in Fig. 2 or as shown in Fig. 6 and are secured upon a shaft 50, which shaft is journaled in the upright portions of the loop-frame 15 at the rear portion of the machine. The teeth of the spur-wheels C enter the ground when the sprocket-wheels 34 are idle; but when the said sprocket-wheels 34 and shaft A operate together the spur-wheels C may be removed from the machine or are allowed to run idle to better steady the machine, or the spur-wheels may be used in connection with the supporting-wheels when desired. A sprocket-wheel 51 is loosely mounted on the shaft 50 between the spur-wheels C, and said sprocket-wheel is provided with a dog 53, adapted to engage with the teeth of the ratchet-wheel 52, secured to the shaft 50, and the teeth of the ratchet-wheel 52 are so disposed that said ratchet-wheel, with the assistance of the dog 53, will turn the ratchet-wheel 52 only when the machine has moved forward, and driving motion is communicated to the shaft 35, and consequently to the hoe-shaft 38, by simply passing a belt 33^b, as shown in Fig. 2, over the sprocket-wheel 51

on the shaft 50 and over the smaller sprocket-wheel 34^a on the shaft 35.

The machine is intended to be attached to a cultivator, and under no circumstances are the wheels A' removed. The frame is to be adjusted to suit the different styles of cultivators.

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

1. In a cotton-chopper, a shaft, means for driving said shaft, a crank-arm formed upon the shaft, a hoe connected with the shaft, and a tension device connected with the crank-arm, the tension device acting to impart an accelerated downward movement to the hoe, as specified.

2. In a cotton-chopper, a shaft, driving-gears for said shaft, one of which gears is adjustable and provided with a flange-clutch adapted to engage with a second clutch secured on the said shaft, a hoe attached to the said shaft, a crank-arm formed in the shaft between the hoe and the clutches, and a tension device connected with the crank-arm, for the purpose set forth.

3. In a cotton-chopper, spur-wheels arranged for engagement with the ground, a hoe, a shaft to which the hoe is attached, the said shaft being provided with a crank-arm, a driving connection between the spur-wheels and the hoe-shaft, and a tension device applied to the crank-arm of the said shaft, for the purpose set forth.

4. In a cotton-chopper, a shaft, a hoe carried by said shaft, having friction-wheels at its ends, and means, substantially as described, for accelerating the movement of the hoe in direction of the ground.

5. In a cotton-chopper, a hoe, a shaft to which the hoe is attached, a clutch secured to the said shaft, a second spring-controlled clutch loosely mounted on the shaft, a lantern-wheel connected with the loosely-mounted clutch, a shifting mechanism for the clutch, a driven shaft, means for imparting movement to the said driven shaft from the supporting-wheels of the machine, and a gear carried by the driven shaft, the teeth whereof mesh with the teeth of the lantern-wheel, for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MILLARD F. WALKER.

Witnesses:

W. P. MENEFFEE,
E. A. ARNIM.