

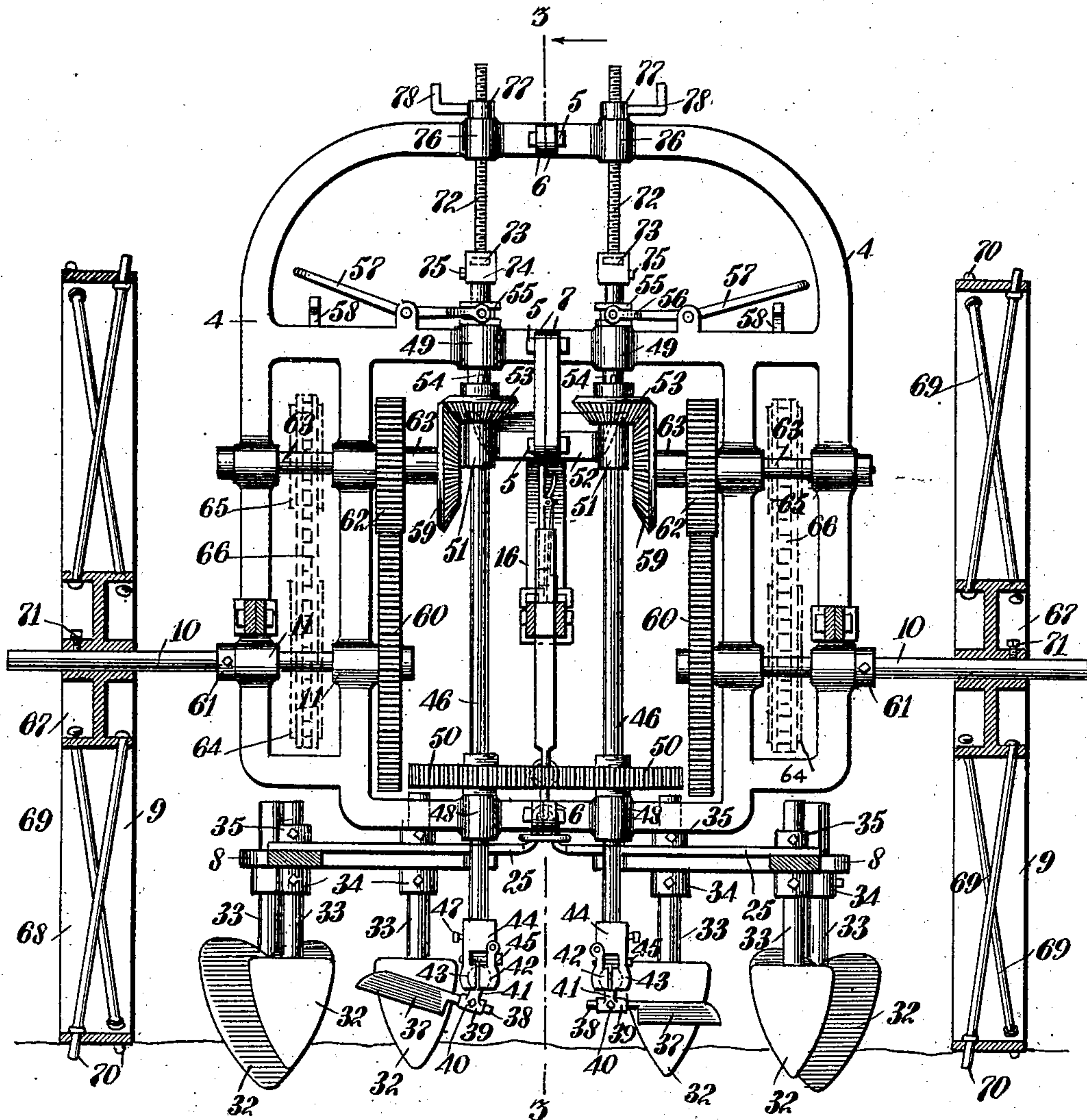
G. C. LACKIE.
 COMBINED COTTON CHOPPER, SCRAPER, AND CULTIVATOR.
 APPLICATION FILED AUG. 23, 1909. RENEWED DEC. 2, 1910.

980,803.

Patented Jan. 3, 1911.

3 SHEETS-SHEET 1.

Fig. 1.



WITNESSES

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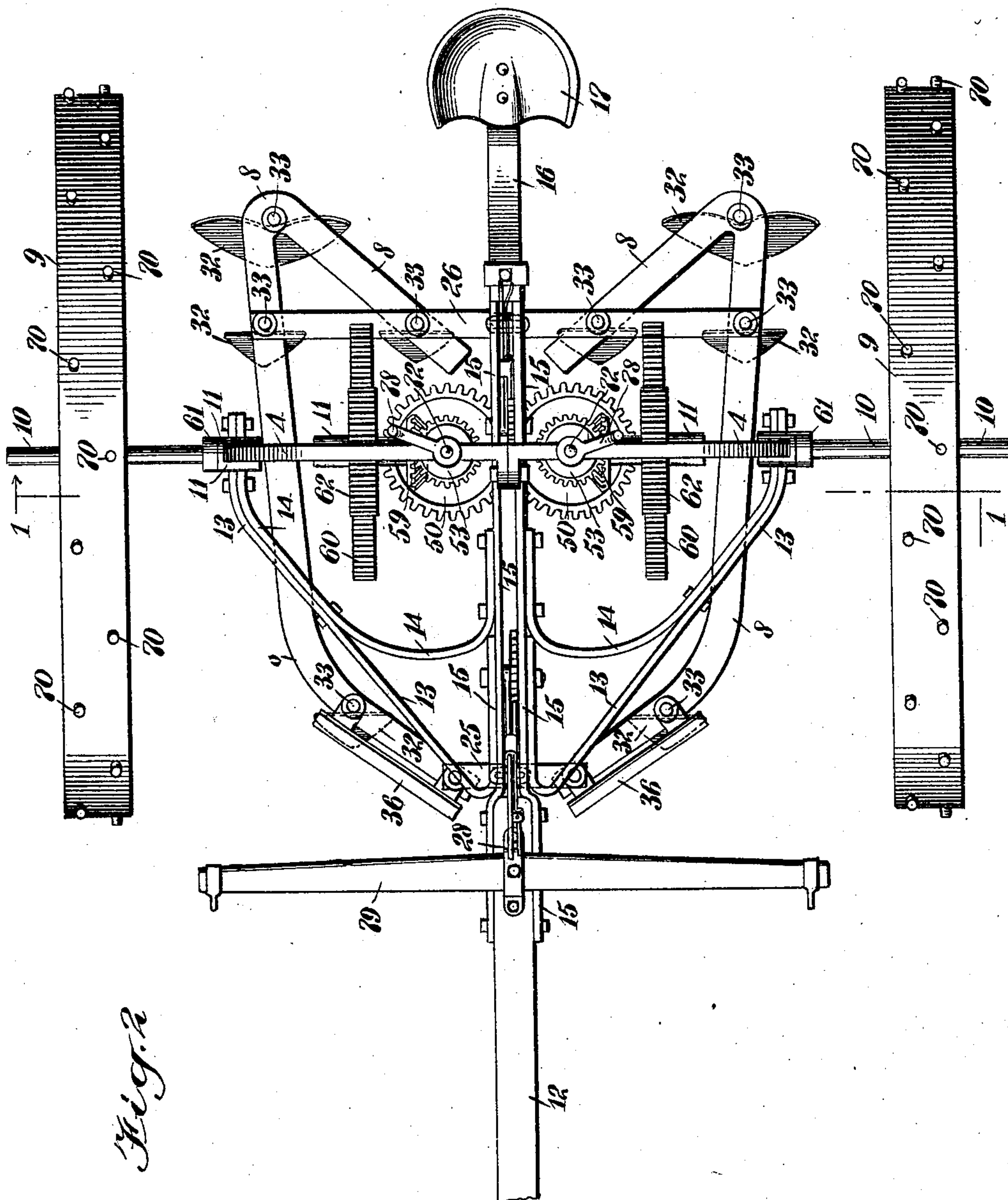


Fig. 2

WITNESSES

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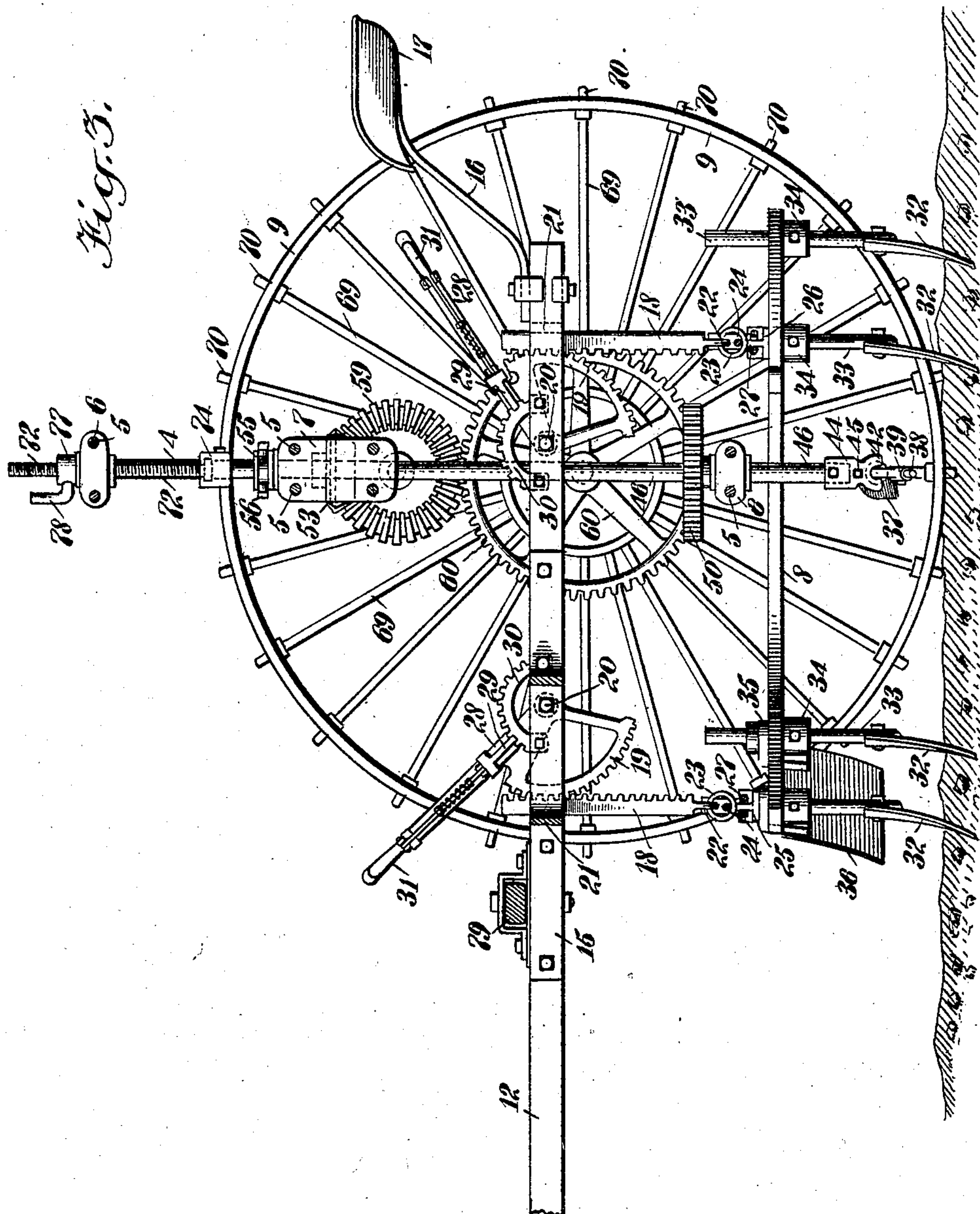
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UNITED STATES PATENT OFFICE.

GEORGE CLAUD LACKIE, OF O. K., MISSISSIPPI.

COMBINED COTTON CHOPPER, SCRAPER, AND CULTIVATOR.

980,803.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed August 23, 1909, Serial No. 514,103. Renewed December 2, 1910. Serial No. 595,327.

To all whom it may concern:

Be it known that I, GEORGE C. LACKIE, a citizen of the United States, and a resident of O. K., in the county of Tunica and State of Mississippi, have invented a new and Improved Combined Cotton Chopper, Scraper, and Cultivator, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are to provide a machine wherein the cotton may be chopped and the ground cultivated and leveled in the same operation; and to provide means whereby the operations above described may be carried on independently; and to provide a structure for a machine of the character described which is simple, economical and durable.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, in which similar characters of reference indicate corresponding parts in all the views, and wherein—

Figure 1 is a vertical cross section of the machine illustrated in the present drawings, the section being taken on the line 1—1 in Fig. 2; Fig. 2 is a plan view of the machine; and Fig. 3 is a vertical longitudinal section of the machine taken on the line 3—3 in Fig. 1.

The distinctive features are the standing frame 4 which is formed in two sections bolted together at 5—5, the ears 6—6 and the brackets 7—7 being provided to receive the said bolts 5; and the two half heart-shaped harrow frames 8—8. The instrumentalities directly connected and mounted upon the frames 4—4 are those more directly connected with the chopping mechanism, while those instrumentalities which are mounted upon and held in position by the frames 8—8 are those which are used for plowing and scraping the ground. The carrying wheels 9—9 are mounted upon the axle sections 10—10 which are rotatively mounted in bearings formed at the enlargements 11—11 in the members of the standing frame 4. The tongue 12 to which the draft team is secured is mounted upon the frame 4 by means of the hounds 13—13. Extended from the rear of the tongue 12 are the plates 15 between which, at the rearward extension is held the spring 16 upon which the seat 17 is mounted. To steady the structure, there are extended between the hounds 13 and the plates 15, braces 14.

Depending from the plates 15—15 and guided thereby are racks 18—18 each being held in gear-toothed engagement with a quadrant 19, which is pivoted at 20 between the said plates 15. The racks 18 are held from moving out of engagement with the quadrants 19 by the back plates 21—21. At the lower end of the racks 18—18 there is provided on each rack a hook 22 through which is extended a connecting ring 23. The ring 23 is extended through an eye 24 which is formed by extending upward a section of the bars 25—26.

It is by means of the racks 18—18 that the frames 8—8 are raised and lowered. The bars 25 and 26 are fixedly connected to the said frames 8—8, and the ring 23 mounted on the eyelet 24 is secured loosely thereon by the chain link 27 being slipped over the top of the eye 24 prior to fastening the ring 23 therein. When it is desired not to use the scraper and harrow instrumentalities, the frames 8—8 with the scrapers and harrows may be removed from the racks 18—18, by raising the rings 23—23 out of engagement with the hooks 22—22.

When the harrows are being used, they are raised and lowered by means of the levers 28—28, which are provided with spring-actuated detents 29, that strike into the teeth of the quadrants 30 and are held thereby. The detents 29 are raised by means of the hand levers 31 when it is desired to remove the levers 28.

The plow or harrow blades 32—32 are fixedly mounted upon securing posts 33, which are held in position by means of set collars 34—35, the set collars being held in position by suitable set screws; they are raised and lowered to govern the depth to which the plows shall operate below the scrapers 36. The scrapers 36—36 are mounted in inclined positions angularly opposed on each side of the median line of the implement. The object of these scrapers is to level the hillocks in the old or stubble ground. The blades 32—32 are eight in number, four being assigned to each side of the median line of the machine and are mounted in staggered position to operate in different paths.

The choppers are hoe or adz-shaped blades 37—37, from the ends of which are extended handles 38—38. The handles 38 are adjustably mounted within collars 39 and secured therein by set screws 40—40.

Set out from the sides of the collars 39 are extensions 41—41, on the ends of which are provided bolts 42—42 adapted to be held within cup-shaped clamps 43 consisting in a pivoted side adapted to swing upon a head 44 and to be held in position by a bolt 45. The object of the mounting for the blades 37 is to permit the same to be placed in position to operate at an angle such as is shown in Fig. 1 of drawings, where on the left-hand side of the figure as viewed, the blade 37 is inclined to the ground.

In different classes of operations to be performed by machines of this character it is desired that the choppers shall be presented to the ridges at various angles. The heads 44 are held rigidly upon the vertical shafts 46 by means of set screws 47 extended through the heads 44 and impinging upon the said shafts 46. The shafts 46 are rotatively mounted in the horizontal members of the frame 4, passing through perforations provided in the enlargements 48—48 and 49—49. They are supported in position by the hubs of the gear wheels 50 which are fixedly mounted upon the shafts 46—46. The shafts 46—46 are guided by means of the perforated heads 51—51 formed in the laterally extended arms 52, and resting upon the heads 51 are the miter gears 53—53. The miter gears 53—53 are fixedly mounted upon sleeves 54 splined on the shafts 46, and having fixedly attached thereto the clutch rings 55—55. The rings 55—55 are provided with slots to receive pins set in the yoke arms 56—56 of levers 57—57 provided on opposite sides of the frame 4. It is by means of the levers 57—57 that the clutch rings 55 are raised, lifting with them the miter gears 53—53. The operation of these levers 57 on the opposite sides of the machine is independent, each being operated without reference to the other. If it is desired that either shall remain in the inoperative position, the long arm of the lever 57 is swung under the bracket 58—58 set up from the cross beam of the frame 4, as shown particularly in Fig. 1 of drawings. When the blades 37, 37 are both working it is desirable that they shall work in unison. It is to secure the unison of movement that I provide the wheels 50, 50 which are meshed when the shafts 46, 46 are lowered in operative position. In this position the slippage of one of the wheels of the vehicle does not disturb the order of operation of the blades. When either shaft 46 is raised to lift the blade 37 away from the ground, the wheel 50 carried by this shaft is lifted from engagement with the companion gear. In this position the shaft 46 operating may be independently controlled by the clutch mechanism provided.

It is by means of the engagement or disengagement of the miter gears 53—53 with

and from the miter gears 59—59 that the chopper blade 37 connected with either one or the other of the shafts 46 is rotated. This rotation of the shaft 46 through the interposition of the gears 53 and 59 is as follows: The axle sections 10 are in the construction shown in the present drawings, provided on the inner end with large gear wheels 60—60, the same being fixedly mounted upon the axle sections 10. The axle sections are held in the frame 4 by means of the wheels 60—60 and the set collars 61—61. The wheels 60—60 are secured on the inside of the frame, while the set collars 61—61 are mounted on the outside of the frame. The large gear wheels 60—60 are mounted in toothed engagement with the smaller gear wheels 62—62, thereby increasing the rotative effect of the shafts 63—63 upon which the said wheels 62—62 are fixedly mounted. The shafts 63—63 are suitably mounted in bearings formed in the frame 4, and have likewise fixedly mounted thereon the large miter gears 59—59. By means of this mounting the chain of gears is completed as follows: The gear 60 rotates the gear 62, which rotates the gear 59, which when engaged therewith rotates the gear 53. The gear 53 being mounted upon a sleeve 54 which is secured upon the shaft 46 by means of a feather or spline, the shaft 46 is rotated whenever the gear 53 is rotated. The acceleration of the rate of rotation is proportioned to the gradually decreasing diameters of the meshed gear wheels, changing from the slow rotation of the axle 10 to a fast rotary motion desired on the part of the shafts 46—46. In some instances I prefer to substitute for the gear wheels 60 and 62, sprocket wheels 64 and 65 with the connecting sprocket chain 66. These are shown in Fig. 1 in dotted lines and I wish to be understood as offering the same merely as a modified form of the driving mechanism.

It is desired in machines of the character described, that the carrying wheels shall be simple, and light and strong, and of a construction which if possible avoids the necessity for carrying the same to a blacksmith's shop whenever repair is needed. I have constructed the wheels as shown in drawings with a ring hub 67 and a band felly 68, the hubs connecting the same being formed of rods 69, the ends 70 of which are extended through the felly so as to form gripping studs to engage the ground to prevent the wheel from sliding rather than rotating, and thereby operating the choppers 37. This form of wheel as constructed is light and durable, and repairs can be made there-to without having to remove the wheel to a specially equipped shop. A further desirable feature for a machine of this character is that the same shall be adjustable upon the axle or axle sections on which they are

mounted. In the present construction I extend the axle sections 10—10 as shown in Fig. 1 of the drawings, and provide set screws 71—71 by means of which the wheels 5 are held rigidly upon the axles 10.

The shafts 46—46 may be raised or lowered so as to change the operative position vertically of the blades 37—37. This is accomplished by means of the elongated screws 72—72. To receive the heads 73 of the set screws the shafts 46—46 are provided with socket ends 74—74 which are fixedly secured to the said shafts 46 by means of the set screws 75. This mounting permits the 15 heads 73 to rotate within the sockets 74. The screws 74 are rotatively extended through perforations provided in the enlarged bosses 76—76. On the upper sides of the said bosses 76—76 are formed seats for the crank nuts 77—77 which are tapped to conform to the set screws 72 and are provided with crank extensions 78—78, where- 20 by the said nuts may be rotated. With the rotation of the nuts 78—78 the screws 72—72, and with them the connected shafts 46—46, are raised and lowered with reference to the ground, carrying the blades 37—37 closer or removing them farther from the surface of the ground.

Having the machine constructed as above described, the operation of the same is as follows: The harrow frames 8—8 with the various instrumentalities connected there- 30 with being in position and the team secured to the double trees 79, the wheels 9—9 are adjusted laterally with reference to the ridges and furrows between. This having been accomplished so that the wheels track in the furrows, the nuts 77—77 are rotated 40 until the blades 37—37 are disposed at the proper height with reference to the ridges in which the cotton is planted. The levers 28—28 are then manipulated until the frames 8—8 are at the proper height for the operation of the harrow blades 32—32 and the scrapers 36. In this position, the team 45 is started operating to perform the triple operation of scraping, chopping and harrowing the ground. At any time in the course of operation, if it becomes desirous 50 that the choppers on the one or the other side of the machine be discontinued, the driver sitting in the seat 17 may, by reaching forward and depressing the long end of either of the levers 57, 57, raise the gears 53, 53 out of operative engagement with the miter gears, 59, 59 suspending the rotation of either of the shafts 46, the gears 50 hav- 55 ing first been thrown out of mesh as herein- after described. Should the driver observe

that the choppers are not working at the proper height, or desire to change the height of either one, this may be accomplished by operating the nuts 77, it not being necessary 65 that the driver should leave the seat 17 in order to do this. By continuing the rotation of the nuts 77 the choppers may be lifted out of the ground. Again, should it be desired that the frames 8 be adjusted vertically with reference to the ground or 70 lifted entirely therefrom, this may be accomplished by throwing the levers 28—28 so as to raise the racks 18—18, lifting the frames 8—8 or lowering the same as the case may be. 75

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

1. A cotton chopper, comprising a vertically disposed frame, a carrying axle for 80 said frame, a plurality of vertically disposed shafts having bearings in said frame, chopper blades adjustably mounted on said shafts to extend horizontally therefrom, traction wheels adapted to rotate the said 85 carrying axle, transmission mechanism to rotate said shafts in harmony with said axle, and a plurality of clutch mechanisms arranged one on each of said shafts adapted to be independently operated to connect and 90 disconnect either of said shafts and transmission mechanism.

2. A cotton chopper comprising a vertically-disposed frame; a carrying axle for said frame embodying separated short sec- 95 tions journaled in said frame; a plurality of vertically disposed shafts having bearings in said frame; chopper blades adjustably mounted on said shafts to extend horizon- 100 tally therefrom; traction wheels mounted upon said axle to rotate the same; a plurality of short shafts mounted in said frame parallel with and removed from said axle sections; transmission gearing embodying gear wheels proportioned to vary the rela- 105 tive speed of said short shafts and axle sections; transmission gearing between said short shafts and said vertically disposed shafts embodying meshed beveled gears; and a plurality of clutch mechanisms ar- 110 ranged one on each of said shafts to operate and connect the said beveled gears.

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

GEORGE CLAUD LACKIE.

Witnesses:

J. P. WITHERS,
E. E. ROACH.