

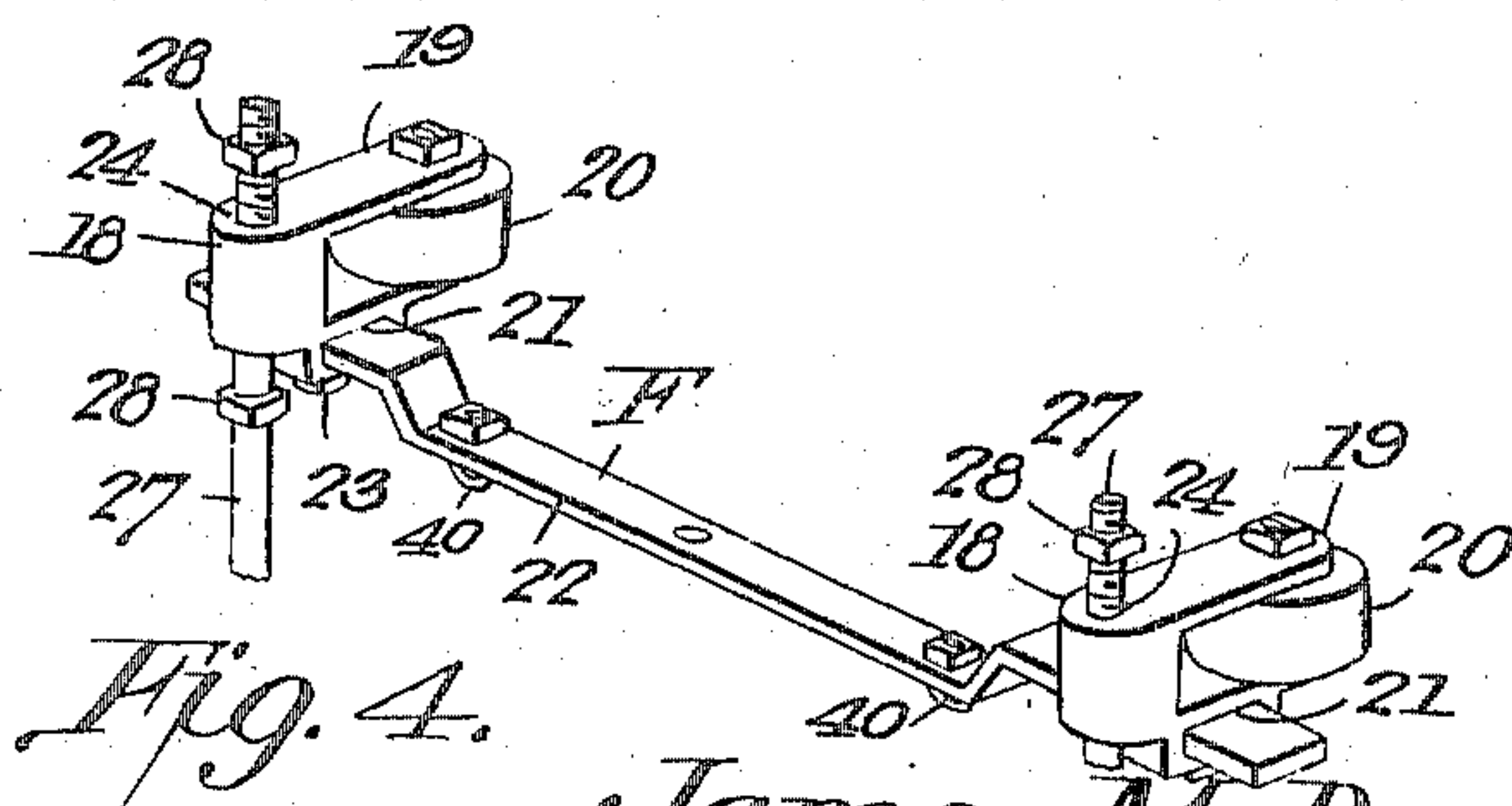
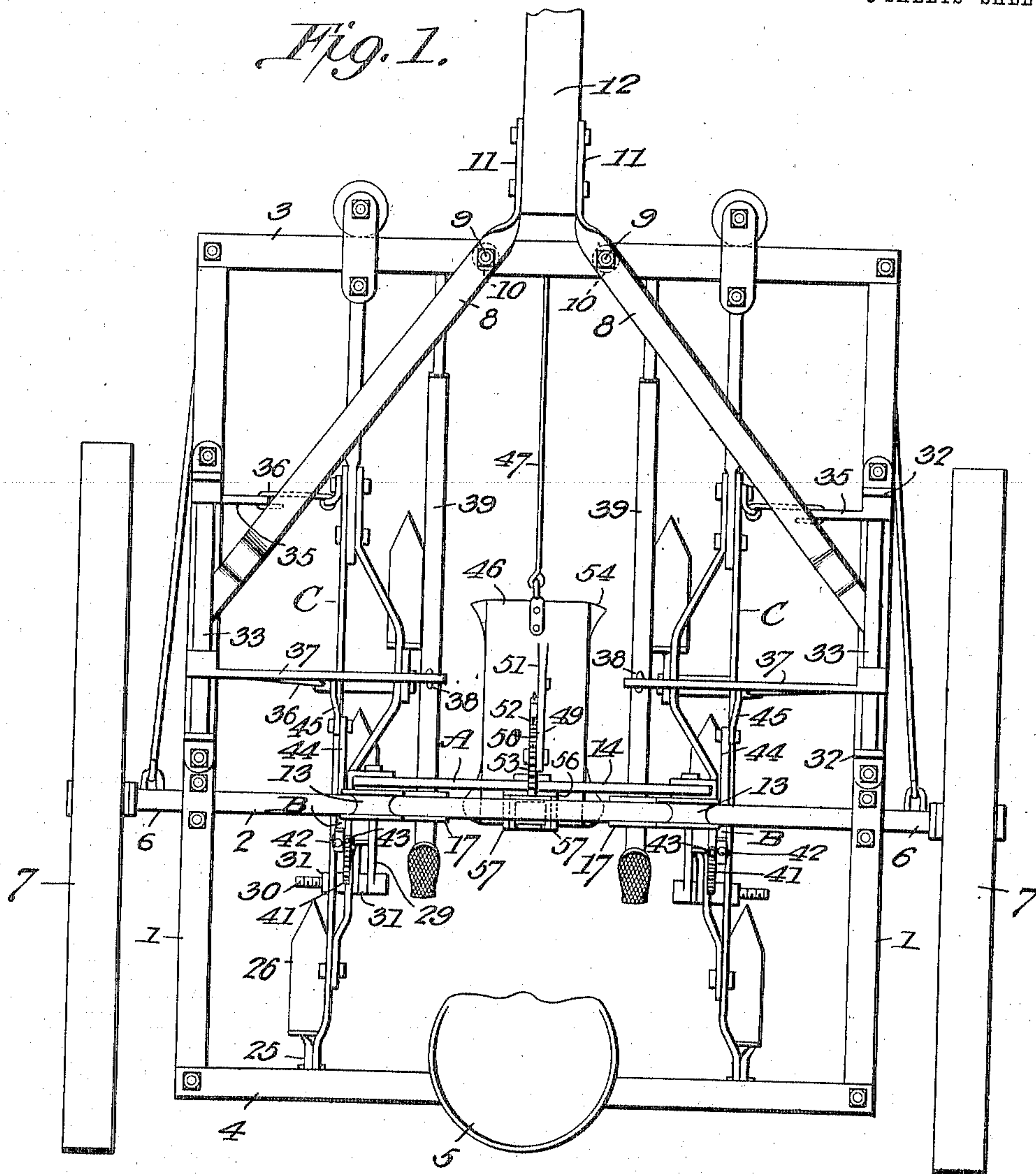
No. 811,133.

PATENTED JAN. 30, 1906.

J. M. DONALDSON.  
CULTIVATOR.

APPLICATION FILED APR. 29, 1905.

3 SHEETS—SHEET 1



Witnesses  
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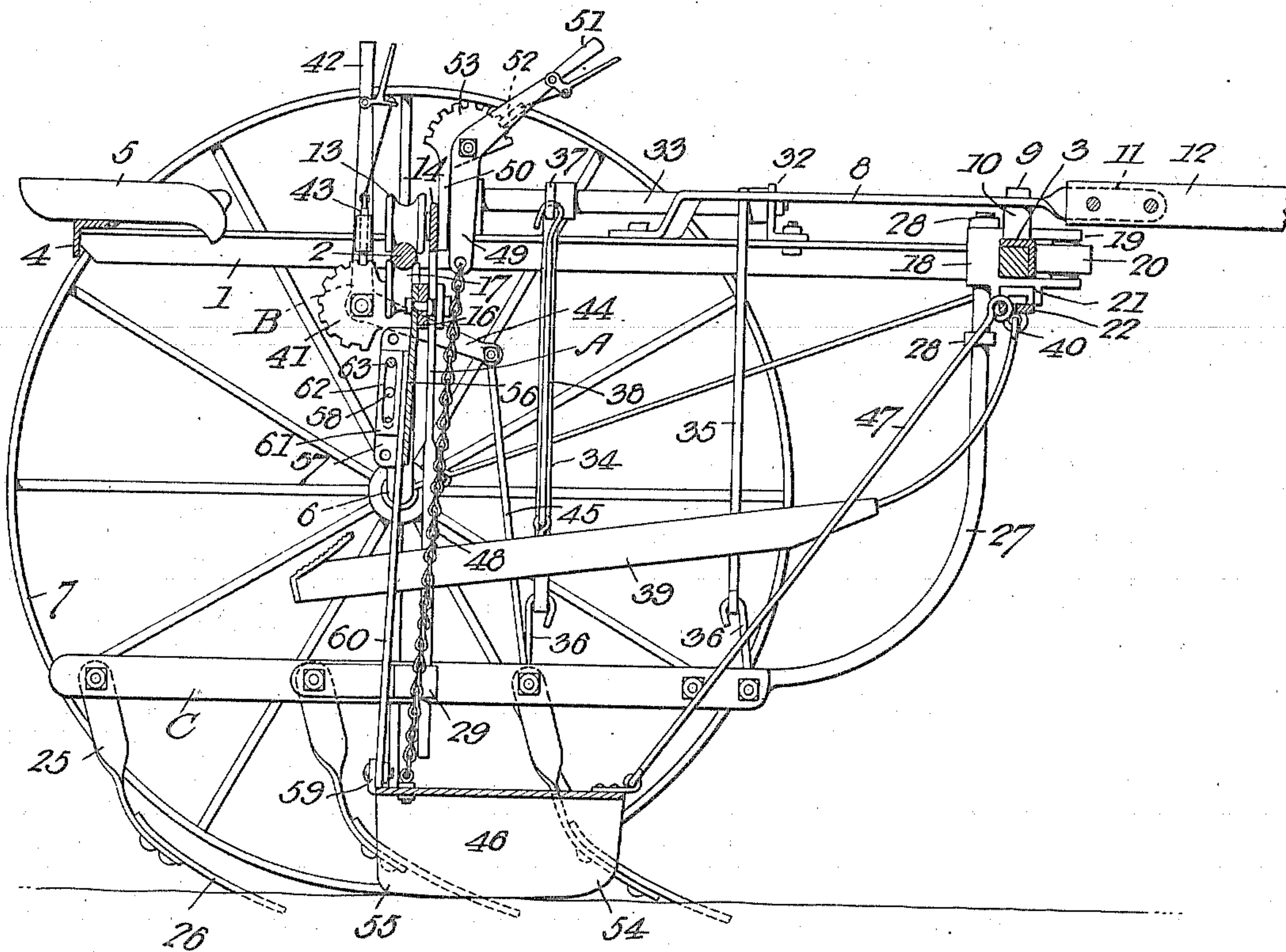


Fig. 2.

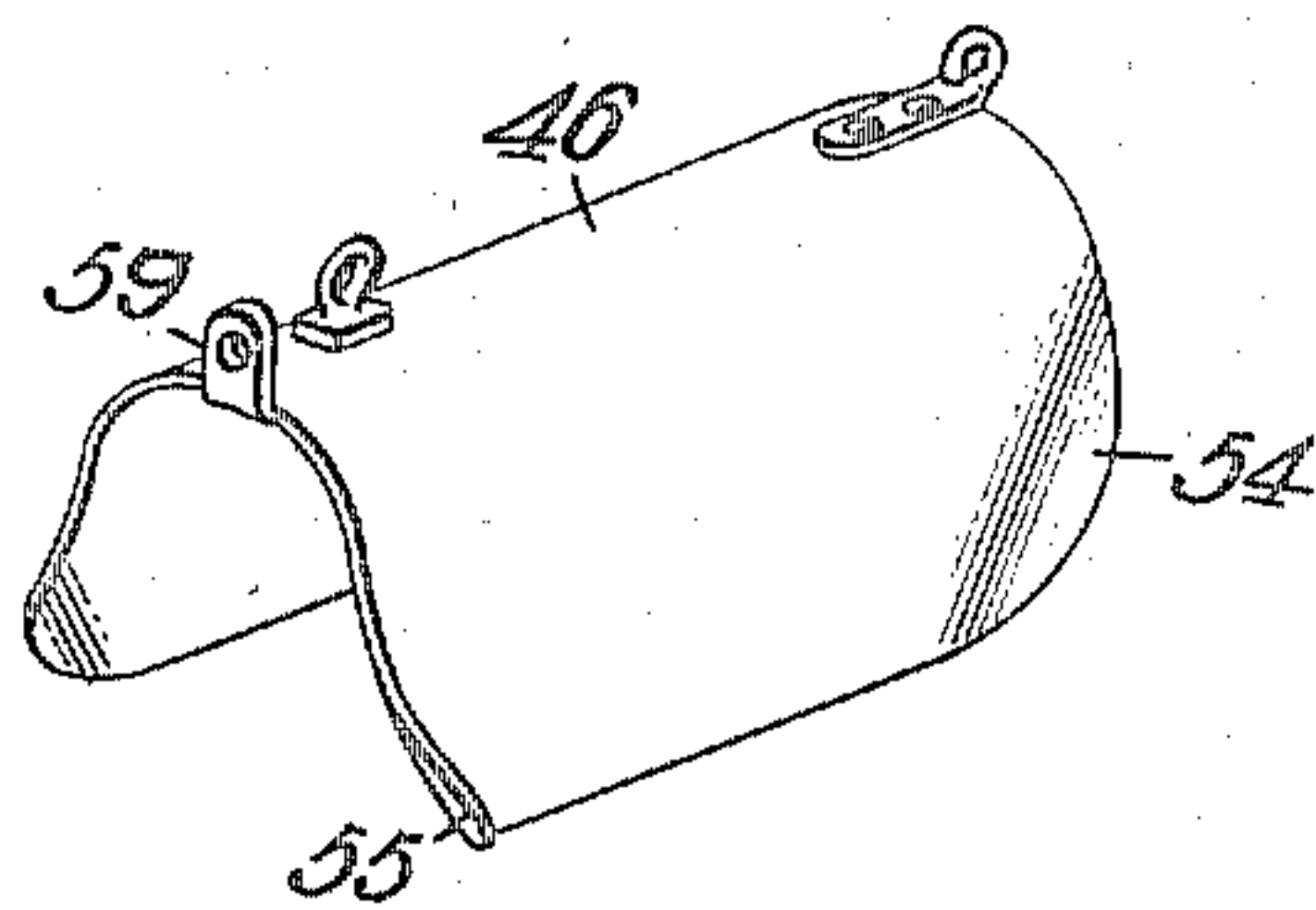


Fig. 5.

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3 SHEETS—SHEET 3.

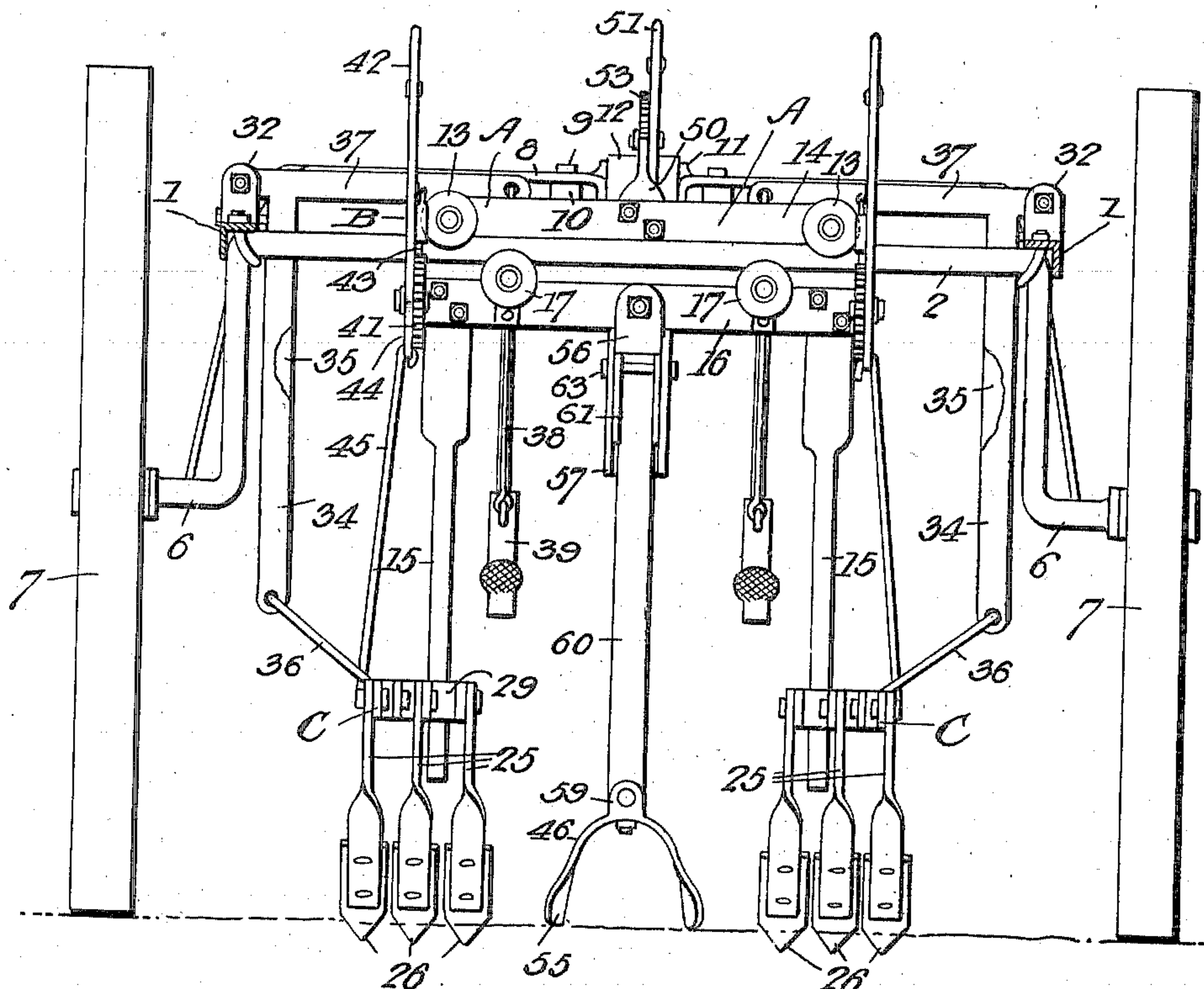


Fig. 3.

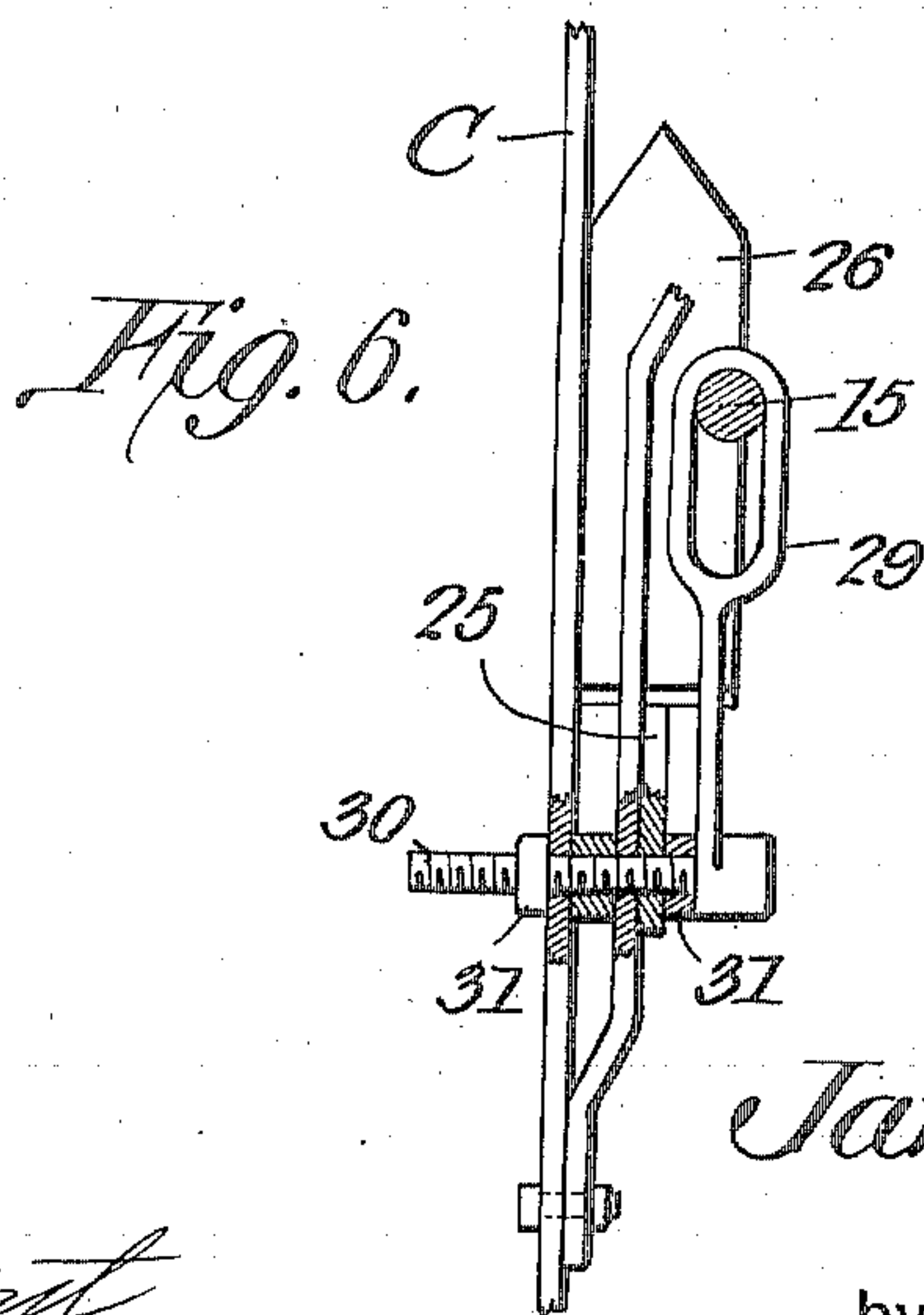


Fig. 6.

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# UNITED STATES PATENT OFFICE.

JAMES M. DONALDSON, OF MARENGO, IOWA.

## CULTIVATOR.

No. 811,133.

Specification of Letters Patent.

Patented Jan. 30, 1906.

Application filed April 29, 1905. Serial No. 258,059.

*To all whom it may concern:*

Be it known that I, JAMES M. DONALDSON, a citizen of the United States, residing at Marengo, in the county of Iowa and State of Iowa, have invented a new and useful Cultivator, of which the following is a specification.

This invention relates to riding-cultivators; and it has for its object to simplify and improve the construction and operation of this class of machines.

Other objects of the invention are to shorten the cultivator-gangs so as to make the machine compact and to adapt it to operate at an equal depth in rolling land; to provide for the vertical adjustment of the cultivator-gangs in such a manner that the front and the rear ends of said gangs shall receive equal adjustment in place of merely tilting the rear ends, as is commonly done; to provide simple means for the lateral adjustment of the cultivator-gangs while the machine is in operation, and to provide improved supporting means for the fender.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes and alterations of various kinds may be made within the scope of the invention and without departing from the spirit or sacrificing the efficiency of the same.

In said drawings, Figure 1 is a top plan view of a cultivator constructed in accordance with the principles of the invention. Fig. 2 is a longitudinal sectional elevation of the same. Fig. 3 is a rear view. Fig. 4 is a perspective detail view of the laterally-adjustable supporting-frame for the front ends of the cultivator-gangs. Fig. 5 is a perspective detail view of the fender. Fig. 6 is a detail view illustrating the adjustable connection of one of the cultivator-gangs with one of the uprights of the arch-frame.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

The frame of the improved cultivator is pref-

erably rectangular in shape, and it comprises side members 1 1, supported upon an arched axle 2 and connected at their front and rear ends by cross-pieces 3 and 4, the latter of which supports a seat 5. The axle is provided in the usual manner with spindles 6, upon which the supporting-wheels 7 are mounted for rotation. Obliquely-disposed brace-bars 8 8 connect the side members 1 with the front member 3 of the frame, said braces being connected with the front member by means of bolts 9, upon which spacing-sleeves 10 are placed for the purpose of supporting the brace-bars above the front frame member 3. The brace-bars 8 have forward extensions 11, between which a tongue or draft member 12 is secured.

The top of the arched axle 2 affords a track which supports a pair of wheels or rollers 13, journaled at the upper corners of an arch-frame A, which may be described as including a top bar 14 and upright side members 15, said side members being connected below the top bar 14 by a transverse member or cross-bar 16, equipped with rollers 17, bearing against the under side of the axle, with which the traveling arch-frame is thus connected, the rollers or wheels being preferably annularly grooved to engage the axle, as will be readily understood.

Upon the front cross-bar of the machine is mounted a traveling carrier-frame F, (see Fig. 4,) said frame including a pair of blocks 18, having forwardly-extending arms 19 constituting clevises, which straddle the cross-bar 3 and between which are journaled rollers 20, engaging the front side of said cross-bar. The blocks 18 are provided with transverse apertures 21, through which extend the ends of a connecting-bar 22, upon which the said blocks are adjustably secured, as by means of set-screws 23. Said blocks are also provided with vertical apertures 24 for the passage of the front ends of the cultivator-beams, as will be presently more fully described.

The cultivator-beams, which are generally designated C, are compound beams, preferably constructed of metal and including bars and braces suitably connected and spaced and provided with suitably-disposed standards 25, carrying the earth-engaging blades 26. Said cultivator-beams also include the forwardly and upwardly extending members 27, having vertically-disposed upper front ends, which are guided through the apertures 24 in the blocks 18 and which are provided with stop mem-



bers, such as nuts 28, for the purpose of limiting their vertical movement as may be desired. The compound cultivator-beams also include loop members 29, which are adjust-  
 5 ably connected with said beams, as by means of bolts 30, having adjusting-nuts 31, whereby the rear ends of the cultivator beams or gangs may be laterally adjusted and spaced at various distances apart. The front ends of the  
 10 cultivator beams or gangs may be spaced apart at various distances by properly adjusting the blocks 18 upon the connecting-bar 22.

Supported for oscillation in bearings 32 upon the side members 1 of the frame are  
 15 rock-shafts 33, each of which is provided with a pair of downward-extending arms 34 and 35, the latter located in advance of the former, and each of said arms being connected with the cultivator-beams C by means of links 36.  
 20 The rock-shafts 33 are also provided with lateral inwardly-extending arms 37, the latter having been shown as integral with the arms 34, so as to constitute bell-cranks. Said arms 37 are connected by links 38 with foot-levers  
 25 39, the front ends of which are curved upwardly and are flexibly connected, as by means of links or eyes 40, with the under side of the connecting-bar 22 of the laterally-traveling frame F. It will be readily seen that the op-  
 30 erator occupying the seat 5 and placing his feet upon the foot-levers 39 may very conveniently operate the latter to oscillate the rock-shafts 33, thus causing the cultivator-gangs and related parts, including the arch-  
 35 frame A and the traveling frame F, to move laterally to either side of the machine, where the said cultivator-gangs and related parts will be readily held or retained in adjusted position without exertion on the part of the  
 40 operator. This lateral adjustability of the plow-gangs and related parts is very desirable and of great utility not only in cultivating on the level where the rows of plants happen to be more or less uneven, but especially for  
 45 hillside work, where any tendency for the machine to slide downhill may be very quickly corrected by proper manipulation of the plow-gang, while any tendency on the part of the team to pull out of line may be likewise very  
 50 quickly corrected by properly adjusting the plow-gangs, thus bringing about a side draft which will quickly swing the team back into line.

For the vertical adjustment of the plow-  
 55 gangs the arch-frame A is provided with segmental toothed bracket members 41, concentrically upon which are pivoted bell-crank levers B, having upwardly-extending arms constituting handles 42, which are provided  
 60 with suitably-operated stop members 43, engaging the segment-racks for the purpose of retaining at various adjustments the said bell-crank levers, the forwardly-extending arms of which, 44, are connected with the cultiva-  
 65 tor-gangs by means of links 45, which are

connected about centrally of the gangs, so that the latter may be bodily adjusted in a vertical plane by means of said bell-crank levers, the front ends 27 of the gangs being  
 70 slidable, as hereinbefore described, in the apertures 24 of the block 18, while the guide-loops 29 upon the sides of the cultivator-beams are in like manner slidable upon the vertical side members 15 of the arch-frame A. The plow-gangs, as will be seen, are ca-  
 75 pable of being vertically adjusted independently of one another, which is sometimes particularly desirable, especially for hillside work.

A fender 46 is provided, the same consist-  
 80 ing of a curved shield of inverted-U-shaped cross-section, the front end of said shield being connected by a draft-bar 47 with the connecting-bar 22 of the frame F. The rear end of the shield is connected, by means of a chain  
 85 or other flexible connecting element 48, with one arm of a bell-crank lever 49, which is fulcrumed upon a bracket 50, connected with the arch-frame A, the other arm 51 of said bell-crank lever constituting a handle which is  
 90 provided with a suitably-operated stop member 52, engaging a segment-rack 53 upon the bracket 50, thus retaining the bell-crank lever and the fender, which is connected there-  
 95 with, in any position to which said parts may be adjusted. The fender 46 is provided at its front end with outturned flanges, as 54, so as to give it additional width to straddle the hills of corn. The rear edges of the shield or  
 100 fender are likewise curved outwardly somewhat into the shape of the moldboard of a plow for the purpose of pushing aside from the young plants any stones, clods, or other obstructions that may exhibit a tendency to  
 105 roll in the direction thereof. For the purpose of providing for the vertical adjustment of the fender to any desired initial position the arch-frame A or the cross-bar 16 of said arch-frame is provided with a depending  
 110 bracket member 56, having flanges 57, each provided with a plurality of apertures 58. The fender 46 is provided at its rear end with an upstanding lug 59, with which is con-  
 115 nected an arm 60, provided at its upper end with flanges 61, fitting between the flanges 57, and provided with slots 62, engaging a transverse pin 63, which is adjusted in a pair of the apertures 58 in the flanges 57. The  
 120 downward movement of the fender is thereby limited and determined; but in the event of obstructions being encountered the said fender is capable of riding over said obstructions by reason of the slots 62 engaging the pin 63, as will be very readily understood.

From the foregoing description, taken in  
 125 connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains.

The general construction of the improved 130



cultivator is simple and inexpensive. The cultivator-gangs are shorter than is ordinarily the case, thus producing a light draft and much facilitating the adjustment of said gangs in various directions, and consequently much facilitating the work required to be performed by the operator.

A very important feature of the invention resides in the bodily vertical adjustment of which the cultivator-gangs are capable and whereby the several earth-engaging blades are compelled to enter into the soil to the same depth, which is not possible or practical when, as is usually the case, the vertical adjustment of the cultivators is accomplished by merely tilting the beams or gangs.

Having thus described the invention, what is claimed is—

1. In a riding-cultivator, a wheel-supported arched axle, a frame supported upon said axle and having a front cross-bar, a traveling frame engaging said cross-bar and including clevis-blocks having wheels engaging the cross-bar, a connecting-bar upon which said clevis-blocks are adjustably mounted, and securing means for said blocks; the latter being provided with vertical apertures in which the front ends of the cultivator-gangs are movably supported.

2. In a riding-cultivator, an arched wheel-supported axle, a frame supported upon said axle and having a cross-bar, a traveling frame including a pair of adjustably-connected clevis-blocks having vertical apertures and provided with rollers engaging the cross-bar of the main frame, a traveling arch-frame supported upon the axle-arch and having depending vertical members, cultivator-gangs having upwardly and forwardly extended front ends movable in the vertical apertures of the clevis-blocks of the traveling frame, and loop members adjustably connected with the cultivator-gangs and slidably engaging the vertical members of the traveling arch-frame.

3. In a riding-cultivator, the combination with suitable supporting means, of a plurality of laterally-movable frames, cultivator-gangs engaging said frames for bodily vertical adjustment, and means for effecting lateral adjustment of the frames and cultivator-gangs.

4. In a riding-cultivator, the combination with suitable supporting means, of a plurality of laterally-movable frames, cultivator-gangs engaging said frames for bodily vertical adjustment, means supported upon one of said frames for effecting such vertical adjustment, and means for effecting lateral adjustment of the frames and cultivator-gangs.

5. In a riding-cultivator, a main supporting-frame, rock-shafts supported for oscillation upon the side members of said frame, each of

said rock-shafts being provided with a plurality of depending arms, a plurality of laterally-movable frames, cultivator-gangs engaging said frames for bodily vertical adjustment, links connecting the arms depending from the rock-shafts with the cultivator-gangs, and means for oscillating the rock-shafts.

6. In a riding-cultivator, a main supporting-frame, rock-shafts supported for oscillation upon the side members of said frame each of said rock-shafts being provided with a plurality of depending arms and with a lateral inwardly-extending arm, a plurality of laterally-movable frames, cultivator-gangs engaging said frames for bodily vertical adjustment, links connecting the arms depending from the rock-shafts with the cultivator-gangs, foot-levers connected with one of the laterally-movable frames, and links connecting said foot-levers with the lateral inwardly-extending arms of the rock-shafts.

7. In a riding-cultivator, a main supporting-frame, rock-shafts supported for oscillation upon the side members of said frame each of said rock-shafts being provided with a plurality of depending arms, a plurality of laterally-movable frames, cultivator-gangs engaging said frames for bodily vertical adjustment, links connecting the arms depending from the rock-shafts with the cultivator-gangs, means for effecting lateral adjustment of the cultivator-gangs with relation to the laterally-movable frames, and means for oscillating the rock-shafts.

8. In a riding-cultivator, an arched axle and a main frame supported thereon, a laterally-movable arch-frame supported upon the axle-arch, a laterally-movable traveler-frame supported upon the main frame and including a pair of clevis-blocks and a connecting-bar with which said clevis-blocks are adjustably connected, cultivator-gangs having upwardly-extending members in slidable engagement with perforations in said clevis-blocks, guide-loops adjustably connected with the cultivator-gangs and slidably engaging the vertical members of the laterally-movable arch-frame, rock-shafts supported for oscillation upon the side members of the main frame, arms depending from rock-shafts near the front and rear ends of the latter, links connecting said depending arms with the cultivator-gangs, and means for oscillating the rock-shafts.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JAMES M. DONALDSON.

Witnesses:

CHARLES I. DENZLER,  
BRUCE ROYAL.