

No. 777,788.

PATENTED DEC. 20, 1904.

L. H. IRELAND.
BEET OR COTTON THINNER.

APPLICATION FILED APR. 21, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

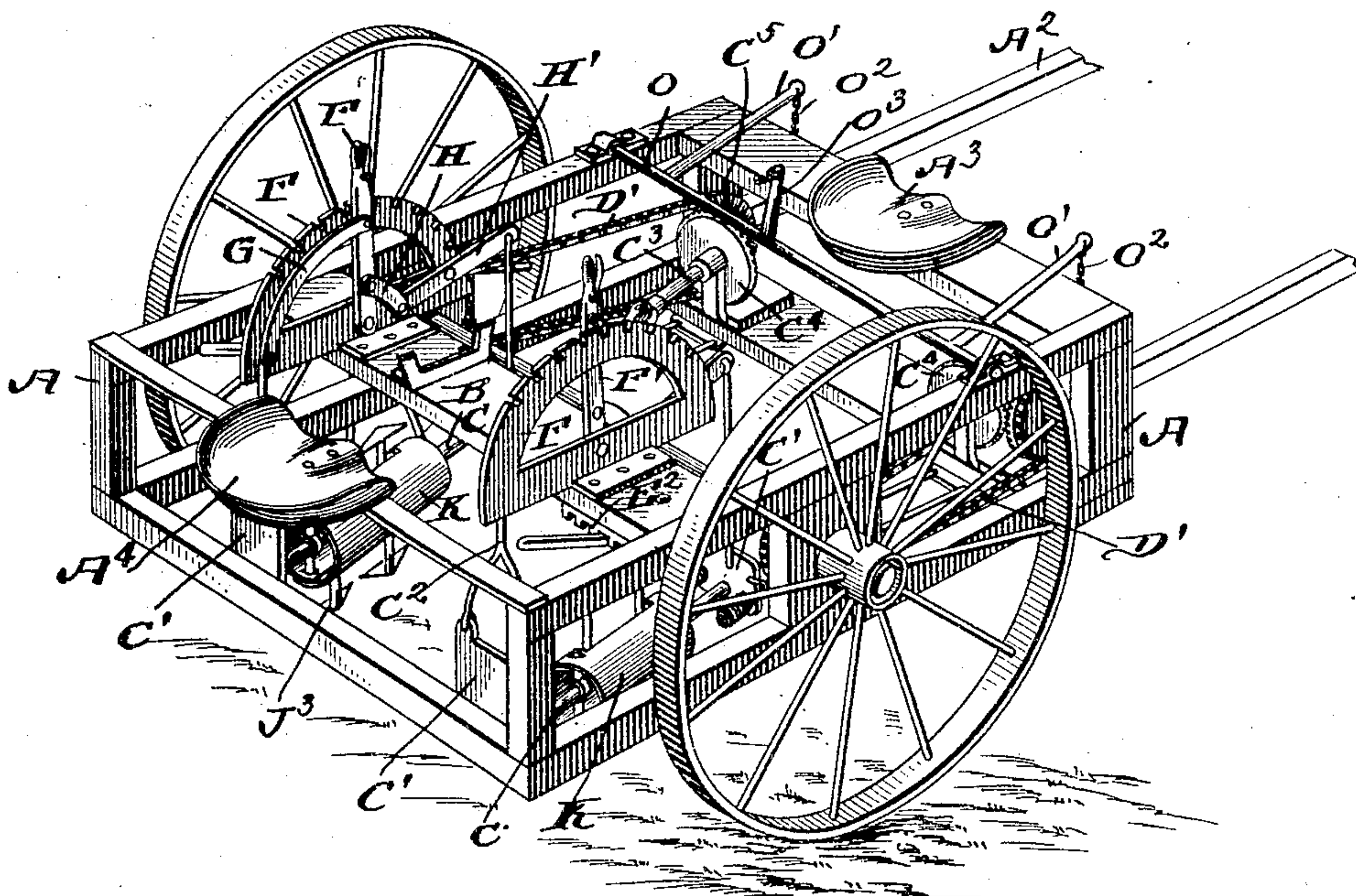
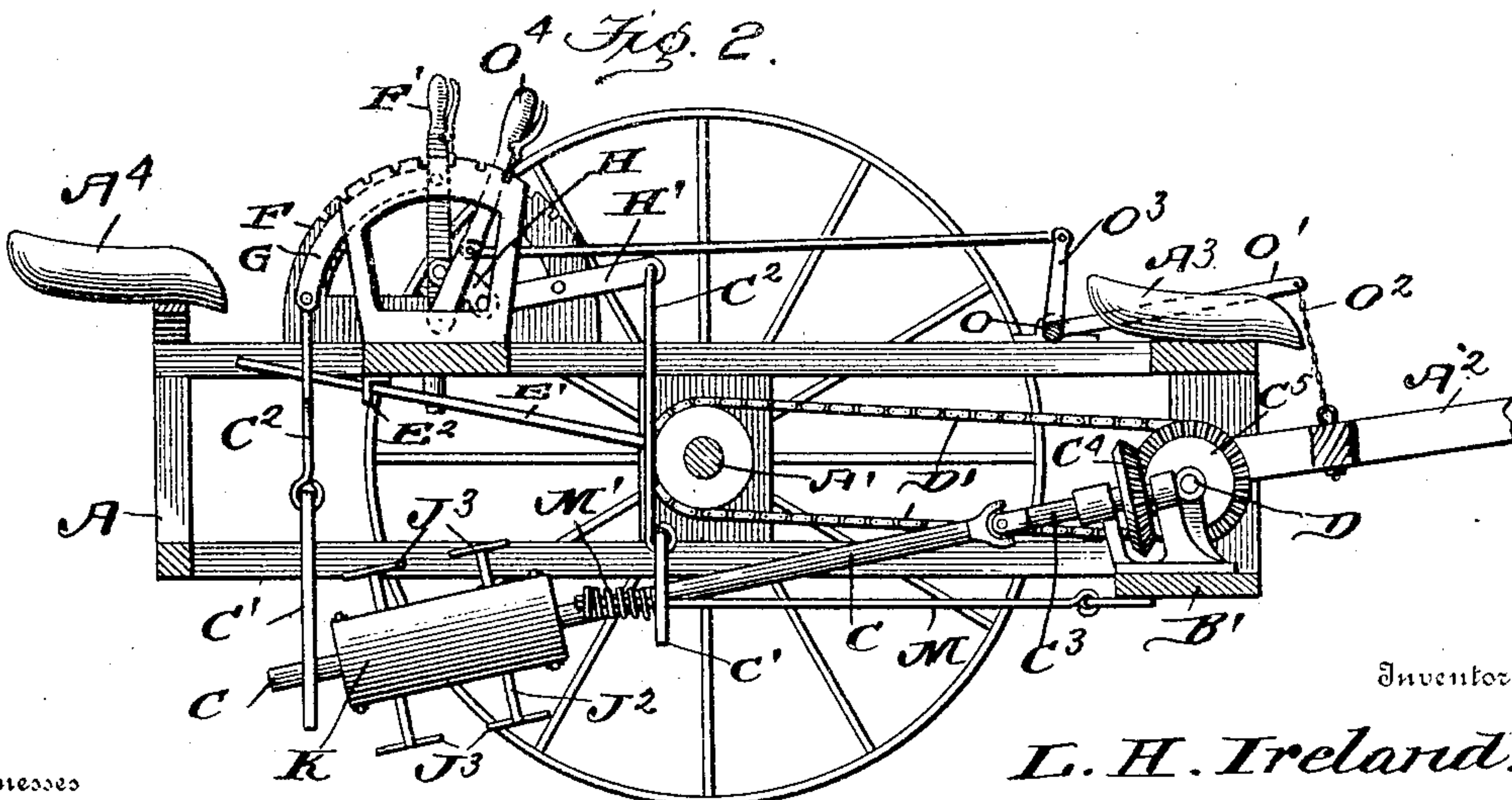


Fig. 2.



Inventor

L. H. Ireland.

Witnesses

Wm. H. Bloude,
Edgar B. McBath.

By

Marshall Brock

Attorney

No. 777,788.

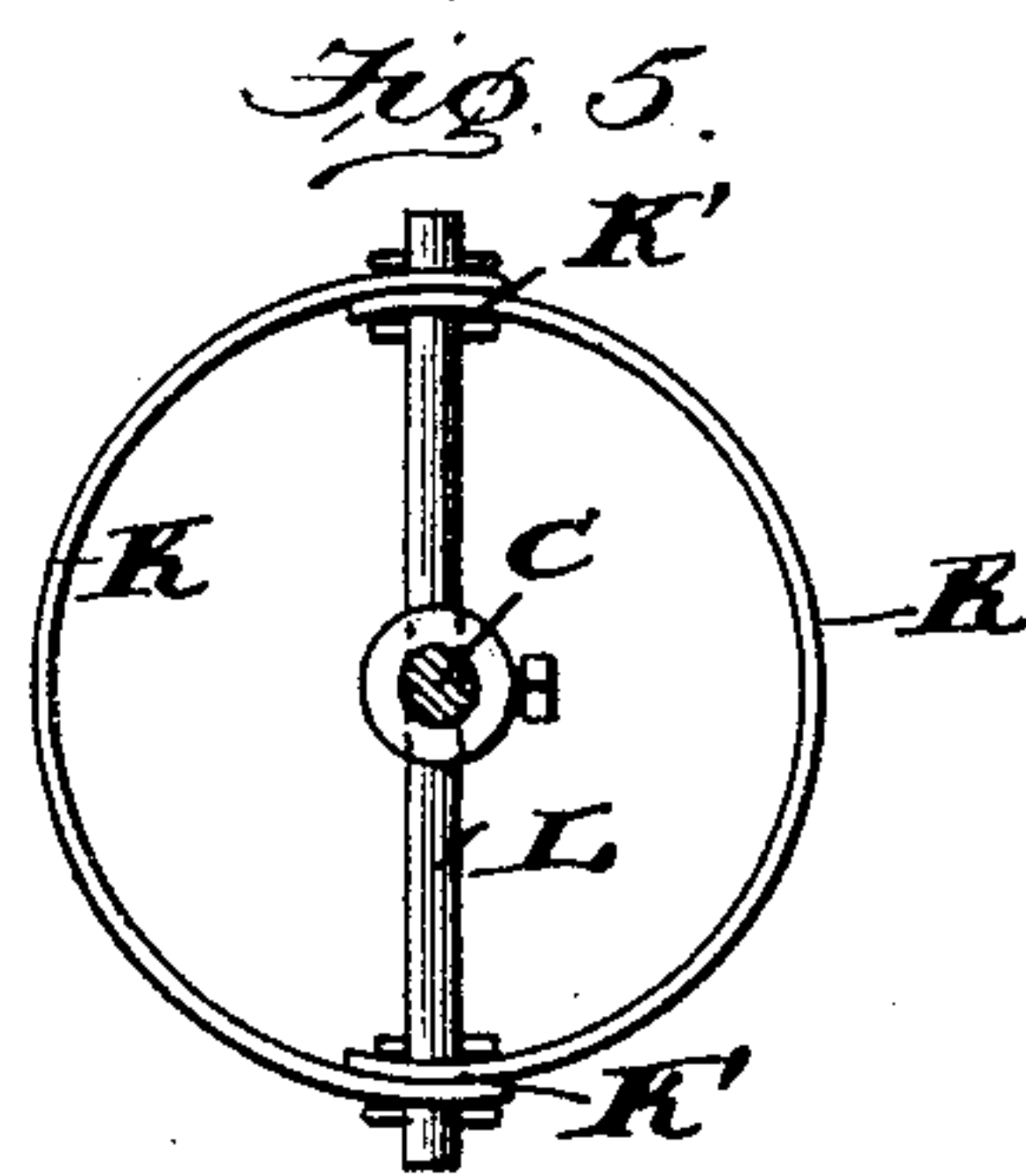
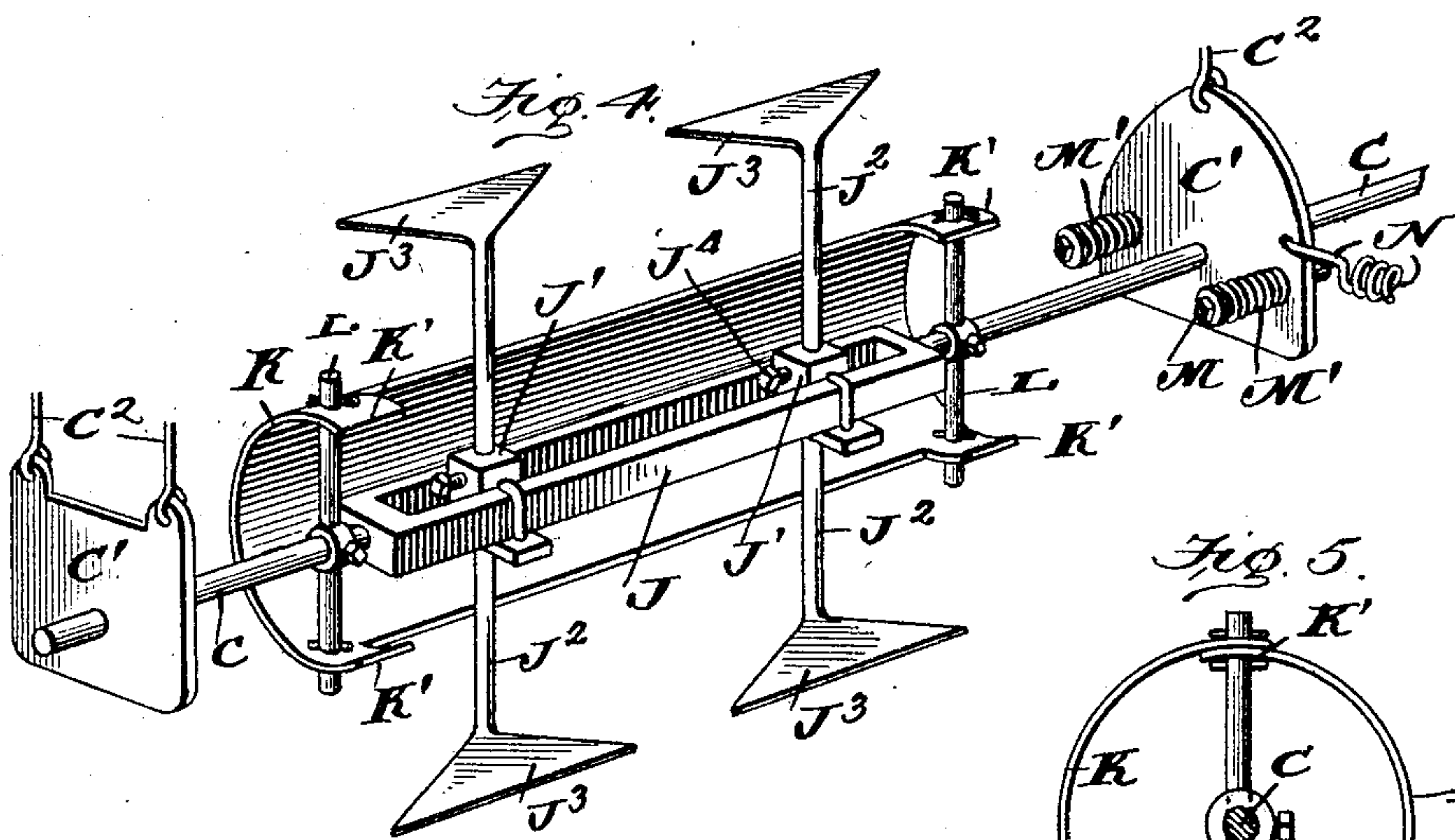
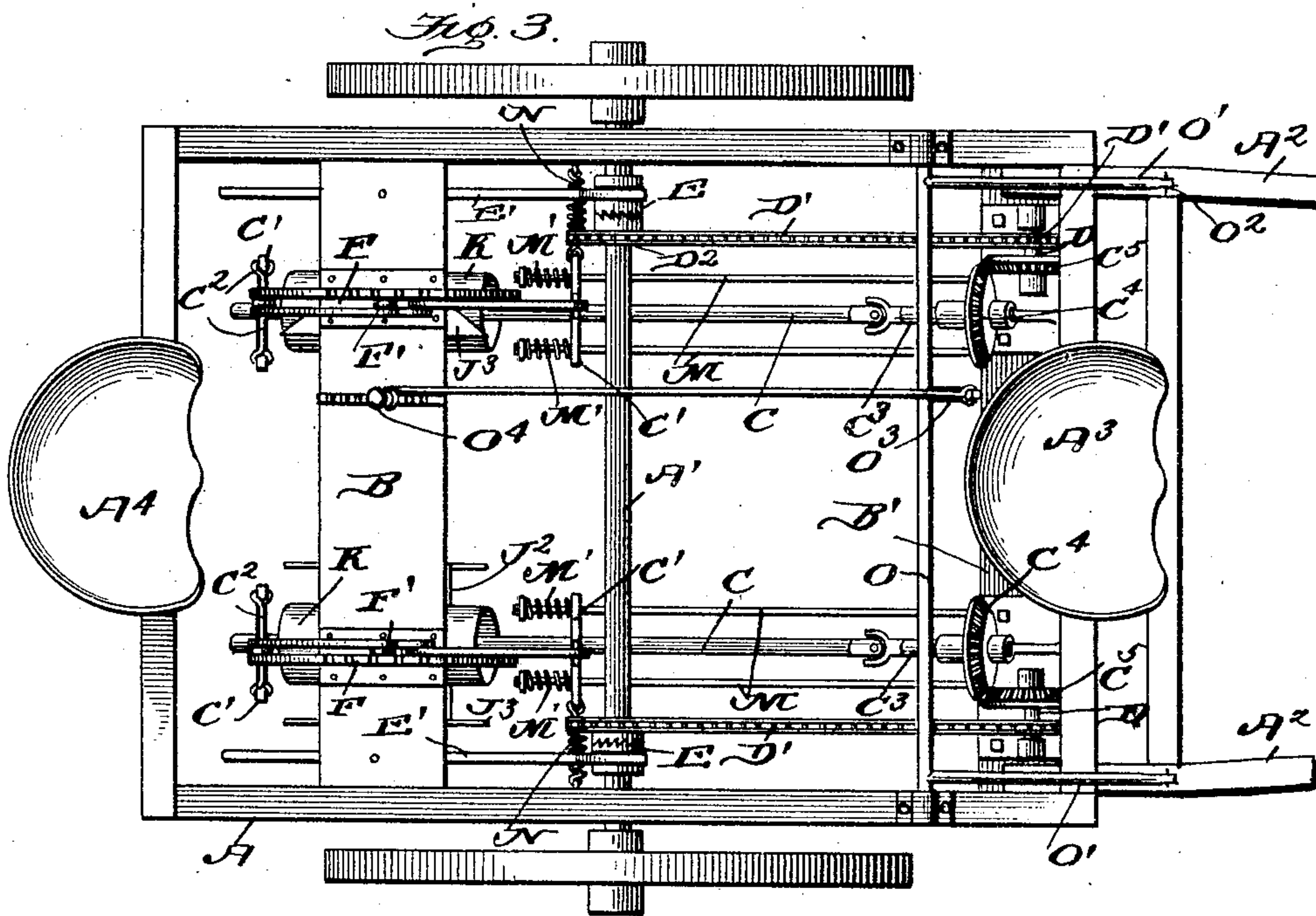
PATENTED DEC. 20, 1904.

L. H. IRELAND.
BEET OR COTTON THINNER.

APPLICATION FILED APR. 21, 1904.

NO MODEL.

2 SHEETS—SHEET 2.



Inventor

L. H. Ireland,

By

Howard Brock

Attorneys

Witnesses

Wm. J. Plouffe,
Edgar B. McBeth

UNITED STATES PATENT OFFICE.

LOUIS H. IRELAND, OF EMPORIA, KANSAS, ASSIGNOR OF ONE-HALF TO
OLIVER M. SHUMAN, OF EMPORIA, KANSAS.

BEET OR COTTON THINNER.

SPECIFICATION forming part of Letters Patent No. 777,788, dated December 20, 1904.

Application filed April 21, 1904. Serial No. 204,233.

To all whom it may concern:

Be it known that I, LOUIS H. IRELAND, a citizen of the United States, residing at Emporia, in the county of Lyon and State of Kansas, have invented a new and useful Improvement in Beet or Cotton Thinners, of which the following is a specification.

This invention relates to a device for thinning out stands of beet and cotton plants.

The object of the invention is a compact and efficient device adapted for adjustment in a variety of ways, provided with fenders or shields to prevent the dirt being thrown on the plants left standing, and adapted to work simultaneously on two rows.

The invention consists in the novel features of construction and combination of parts hereinafter described, particularly pointed out in the claims, and shown in the accompanying drawings, in which—

Figure 1 is a perspective view of my device. Fig. 2 is a central longitudinal section. Fig. 3 is a plan view. Fig. 4 is a perspective view of the cutters, one-half of the fender being removed. Fig. 5 is an end view of the fenders.

In the construction of this device I employ the wheeled frame A, having the axle A', shafts A², and the forward and rear seats A³ and A⁴. A transversely-arranged board B serves as a foot-rest for the operator using the seat A⁴ and also serves as a support for the controlling-levers. A board B' is carried by the front portion of the frame parallel to the board B, but in a lower plane, and this board B' serves as a support for certain beveled gears hereinafter described.

In the drawings I have shown a device for operating on two rows of plants at the same time, the parts on one side of the machine being duplicated upon the opposite side. It will be understood that the device can also be constructed for work on one row only by omitting the duplication of parts, and it is also obvious that a description of the parts operating on one row will be sufficient to enable a clear understanding of the duplicate parts, it being noted that the knives carried by each side of the machine rotate in such a direction

as to cut inwardly and the two cutter-shafts, while duplicates in construction, rotate in reverse directions. Upon each side of the machine, therefore, I suspend a cutter-shaft C, inclining rearwardly and downwardly, the shaft being journaled in plates C', which are suspended by the links C². The shaft C being therefore journaled in swinging bearings has a certain freedom of movement. The forward end of the shaft C is connected by a ball-and-socket joint to a short shaft C³, held in rigid bearing, carried by the board B', and the forward end of the shaft C³ carries a bevel gear-wheel C⁴, which intermeshes with another beveled gear-wheel C⁵, also journaled in suitable bearing carried by the board B'. The last-mentioned gear-wheel C⁵ is mounted on a stub-shaft D, on which is arranged a sprocket-wheel over which runs the sprocket-chain D', driven by the sprocket-wheel D², loose on the axle A', but adapted to be rotated by engagement with the sliding clutch E, which latter is operated by means of the foot-lever E', held in position by the rack-bar E².

The links C² do not connect the plates C' directly to the frame A; but on the board B above the cutter-shaft C, whose movement it is to control, I place the rack-segment F, on which in the usual manner works the pivoted lever F'. One side of this lever carries a quadrant G, having one end secured to the lever F', adjacent the lever-handle, and its opposite and lower end is pivotally connected to one of the links C², supporting the rear plate C'. A short segment H is pivotally connected to the lever immediately above the pivotal point of the lever F', and to the opposite end of this segment H is pivoted an end portion of a link H', pivotally fulcrumed intermediate its ends to the segment F, and to the forward end of the link H' is pivotally connected one of the links C², supporting the forward plate C'. It will be obvious that, if desired, an ordinary chain may be employed to connect the plates C' in place of the link form shown. In practice I prefer to cut the shaft C and to place between the two sections thus formed a rectangular frame J, as there is no necessity for the shaft extending through the

frame. Two blocks J' are slidably held in the frame J , and through a vertical bore in each block extends the shank J^2 of the blades J^3 , each shank carrying a cutting-blade at each end at a right angle to the shank, the blades being turned in opposite directions. The shanks J^2 are adjustable in the blocks J' and are held in their adjusted positions by the set-screws J^4 . A cylindrical fender or shield is formed in two semicylindrical sections K , the marginal portions intermediate the ends being cut away, so that the shanks J^2 will project outwardly between them, leaving overlapping end portions K' . The fender or shield K is held to the shaft by rods L , which pass transversely through the shaft C and through the overlapping portions K' of the fender K . The sections of the fender K are held in place on the rods L by cotter-pins, and the rods L are locked to the shaft by suitable set-screws.

Rods M extend from the front end of the frame A parallel to and on each side of the shaft C and pass through the front plate C' . The rear end portions of these rods are threaded and nuts work thereon, and between the nuts and the rear face of the plate C' are arranged coil-springs M' . By tightening the nuts the tension of the springs on the plate C' can be increased. The plate is also held by a spring N , one end being secured to the side of the plate and the opposite end to the adjacent side of the frame A , the object of this latter spring being to hold the cutter-shaft in position over the row, the rotation of the cutting-blades tending to make the shaft work away from the row of plants in a direction opposite to the pull of the spring N . The rods M not only steady the plate C' , in which the upper portion of the shaft C is journaled, but also serve to hold it in alinement with the row on which the work is being performed. A metal frame O is arranged adjacent the front of the frame, being journaled in the sides of the frame, and has forwardly-projecting arms O' , connected by a chain O^2 to the shafts of the frame A , and an arm O^3 , connected by links to a lever O^4 , mounted on the board B' , by means of which the shafts are raised or lowered.

Movement of the levers F' will raise or lower the plates C' , thus adjusting the angle and distance from the ground of the cutter-shaft C , and it is understood that the blades J^3 on the right-hand side of the machine cut or rotate to the left and those on the left-hand side rotate to the right.

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

1. The combination with a wheeled frame, of a rotatable shaft swingingly carried by the said frame, said shaft being downwardly and rearwardly inclined, a lever adapted to adjust the angle of inclination of the said shaft, cutting-blades carried by the shaft, and a cylin-

drical shield carried by the shaft, as and for the purpose set forth.

2. A device of the kind described comprising a shaft downwardly and rearwardly inclined, vertically-movable bearings for the said shaft, a rectangular frame carried by the shaft, adjustable cutting-blades carried by the frame, means for rotating the shaft and frame, and a cylindrical shield carried by the shaft and inclosing the frame.

3. A device of the kind described comprising a wheeled frame, plates swingingly suspended below the said frame, a rotatable shaft journaled in the said plates, means for moving the plates vertically, adjustable cutting-blades adapted to rotate with the shaft, a stub-shaft connected at its rear end by a universal joint to the forward end of the first-mentioned shaft, a bevel gear-wheel on the forward end of the stub-shaft, a stub-shaft at right angles to the first-mentioned stub-shaft, a sprocket-wheel on the last-mentioned stub-shaft, a bevel gear-wheel on the said stub-shaft adapted to mesh with the beveled gear of the first-mentioned stub-shaft, and means connecting the said sprocket-wheel with the axle of the wheeled frame.

4. A device of the kind described comprising a wheeled frame, a rotatable shaft carried by said frame and arranged below and longitudinally with reference to the frame, means for rotating the shaft, the said shaft being cut, a rectangular frame interposed between the sections of the cut shaft, oppositely-angled cutting-blades having a connecting-shank, said shank being adjustably held by a block and the block being slidably held by the frame, as and for the purpose set forth.

5. A device of the kind described comprising a wheeled frame, a rotatable shaft suspended below and lengthwise of the frame, means for raising and lowering one end of the shaft, a rectangular frame carried by the shaft, a block having a vertical bore slidably held in the said frame, and a cutting-blade having a shank adjustably secured in the bore of the block.

6. The combination with a wheeled frame, a rotatable inclined shaft pivotally suspended below the frame, means for moving vertically one end of the shaft, a rectangular frame carried by the shaft, blocks carried by the rectangular frame and adapted to slide therein, a plurality of cutting-blades arranged in pairs, the blades of each pair being connected by a shank, said shank extending through the bore of one of the blocks and adapted to slide therein, means for locking the shank in position in the block, and a shield formed in semicylindrical sections and supported from the shaft, said shield inclosing the rectangular frame and blocks, as and for the purpose set forth.

7. The combination with a wheeled frame having a segment thereon, a lever adapted to

work on the said segment, a quadrant carried
by one side of the lever, a short segment ar-
ranged on the opposite side of the lever and
pivotaly connected to the lever at a point be-
5 low the quadrant, plates, links connecting one
plate to the free end of the quadrant, links
connecting the other plate to the free end of
the pivoted segment, a rotatable cutter-shaft
 journaled in the plates, cutting-blades carried
10 by the shaft, and means for rotating the shaft.

8. A device of the kind described compris-
ing a wheeled frame, plates depending below
the frame, a cutter-shaft journaled in the
frame, rods arranged upon each side of the

cutter-shaft and parallel thereto, said rods be- 15
ing secured at one end to the front of the
frame and having their rear end portions ex-
tending through one of the plates, said rods
being threaded adjacent their rear ends, nuts
adapted to work on said end portions, coil- 20
springs arranged on the rods between the nuts
and plates, a spring secured to one side of the
said plate and to the side of the frame, and
means for rotating the cutter-shaft.

LOUIS H. IRELAND.

Witnesses:

M. M. SUDDOCK,
G. G. ROBINSON.