

W. F. COCHRANE.
Mowing-Machines.

No. 157,795.

Patented Dec. 15, 1874.

Fig. 1.

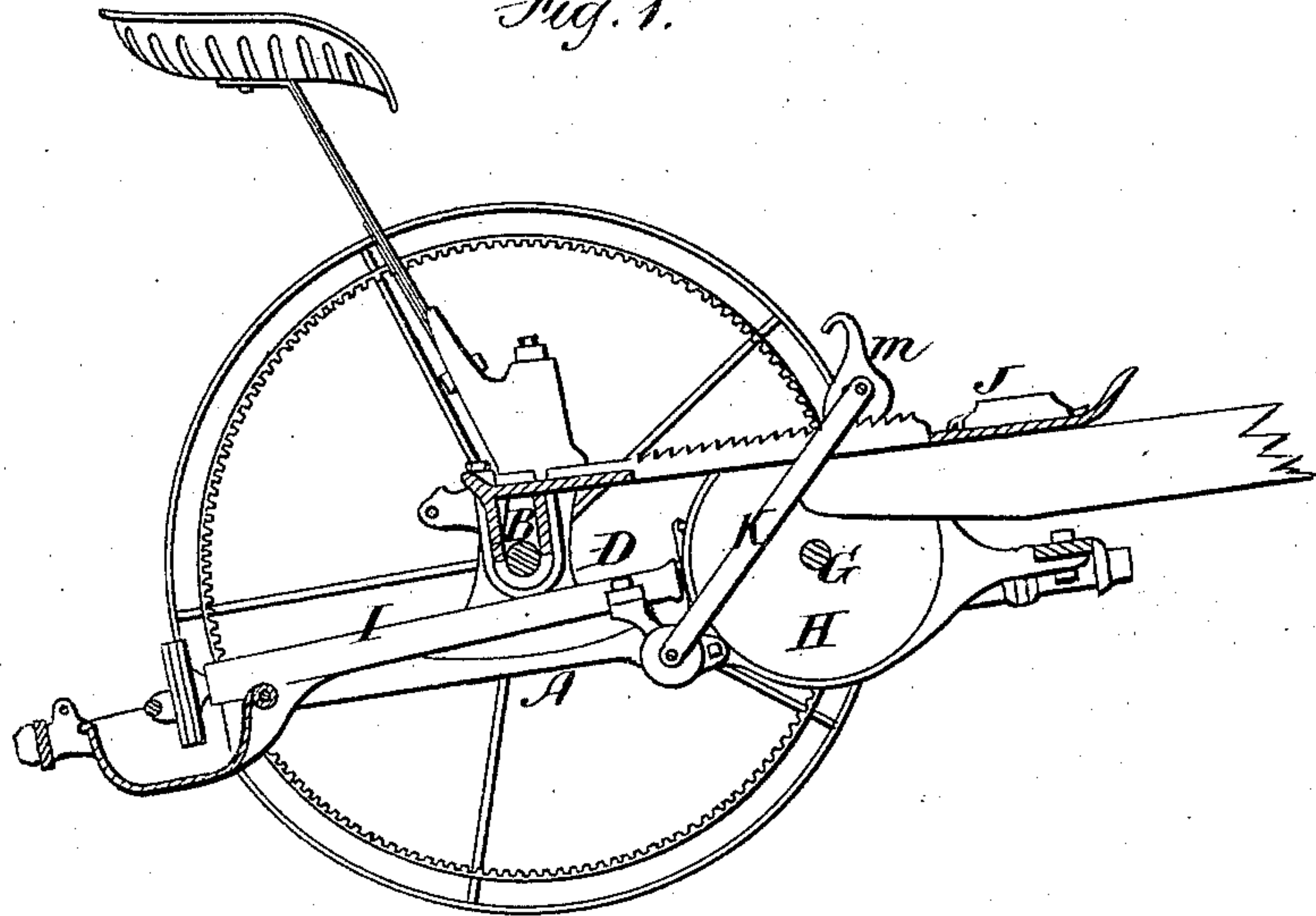
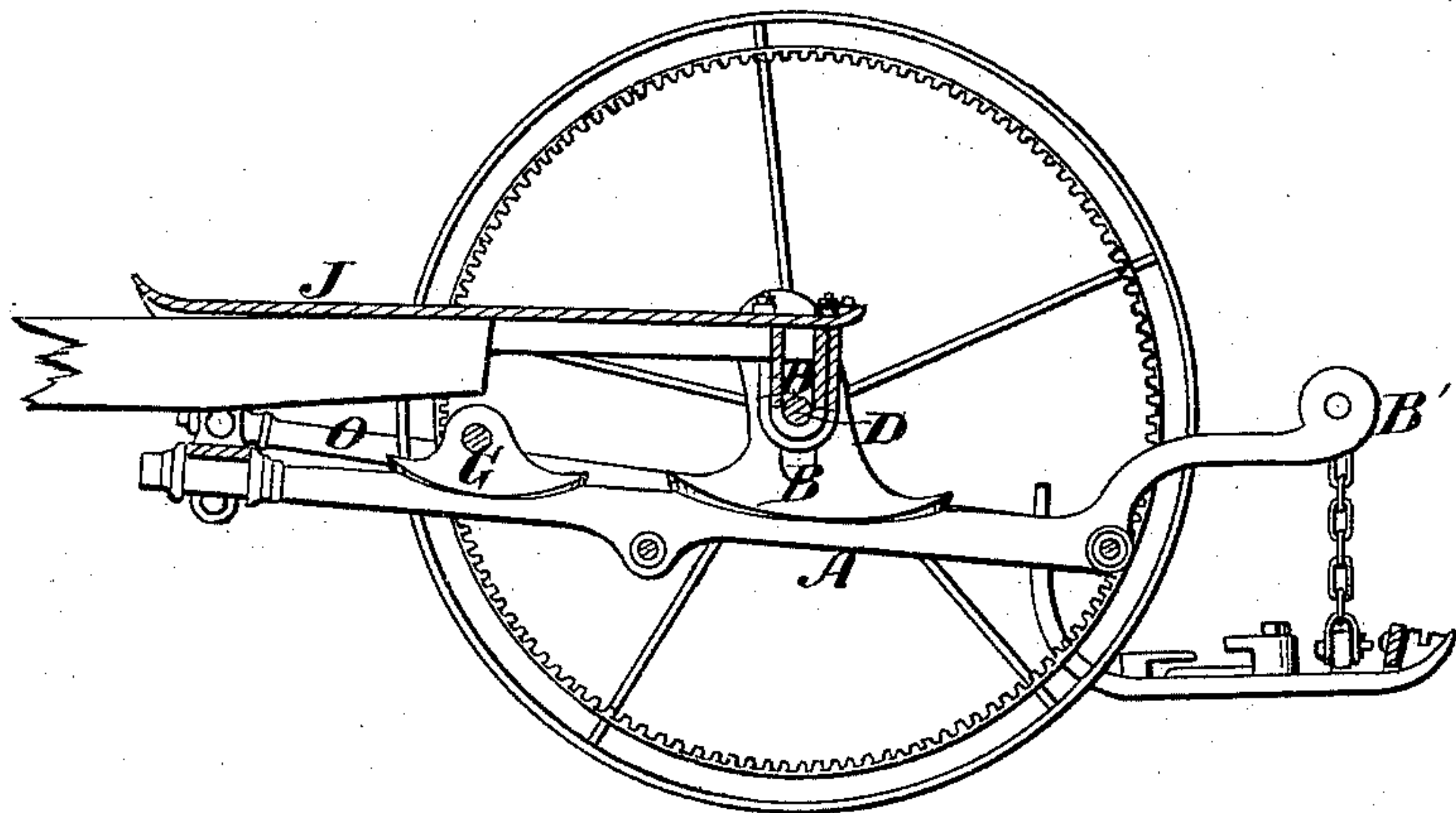


Fig. 2.



WITNESSES
C. H. Brown
Oliver Church By

INVENTOR
Wm F Cochrane
Hill & Deane
His Attorneys.

W. F. COCHRANE.
Mowing-Machines.

No. 157,795.

Patented Dec. 15, 1874.

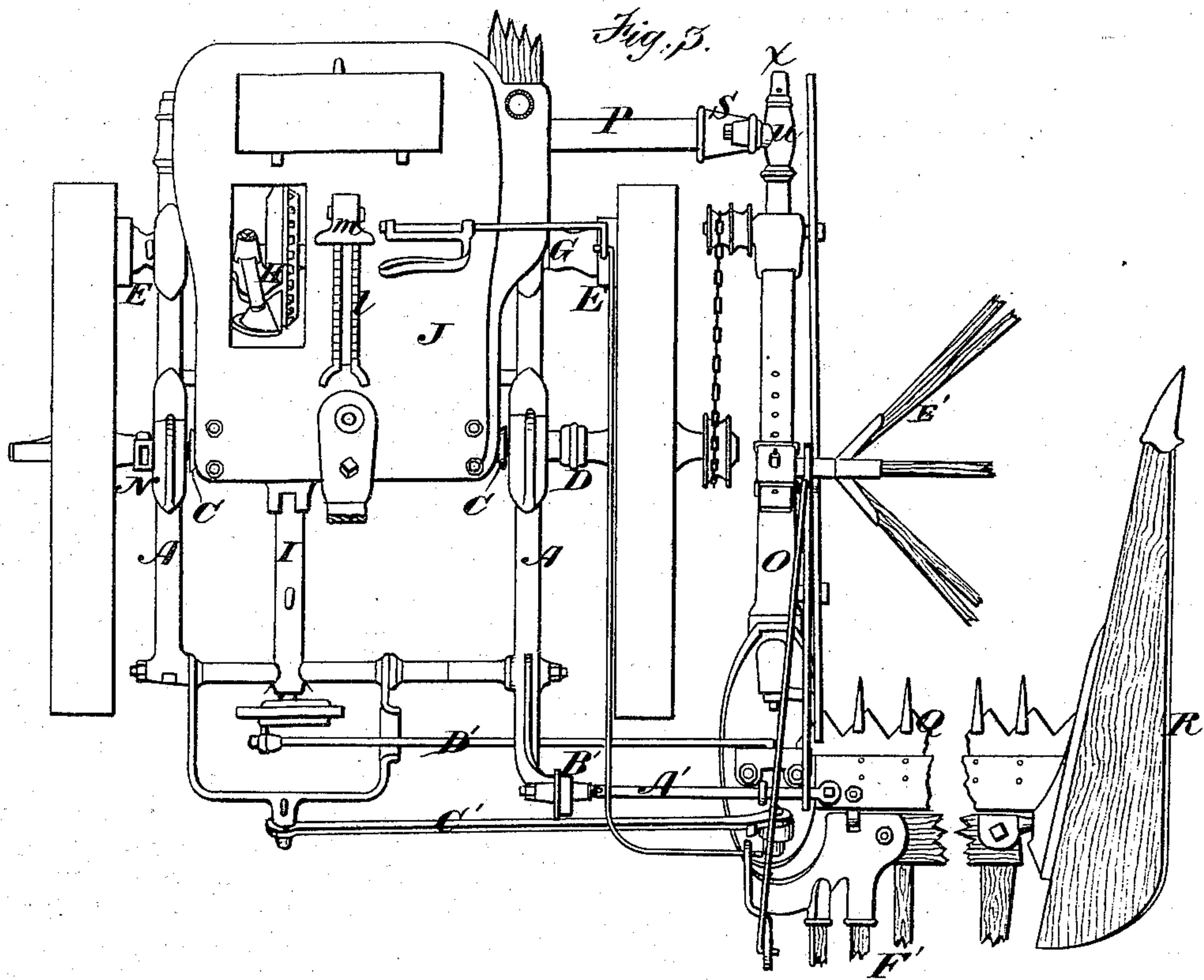


Fig. 4.

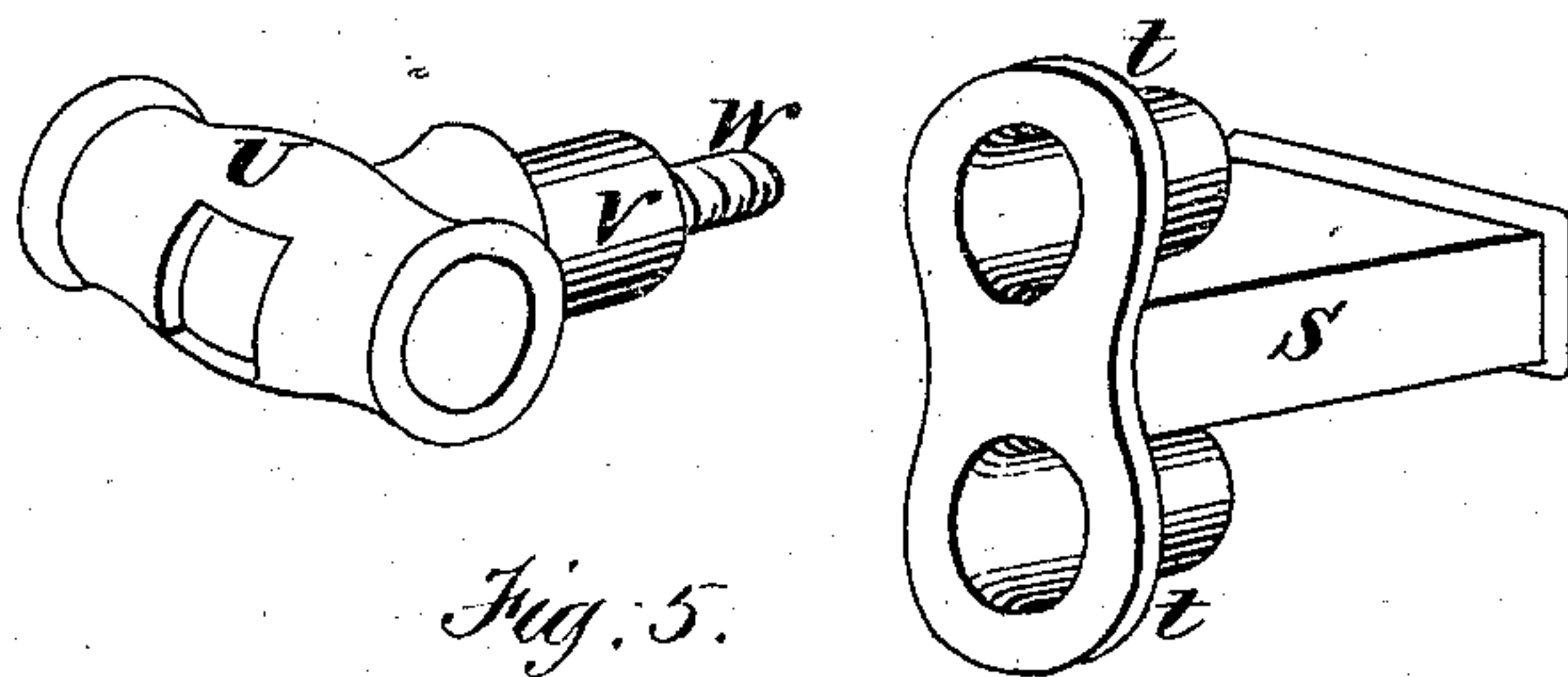
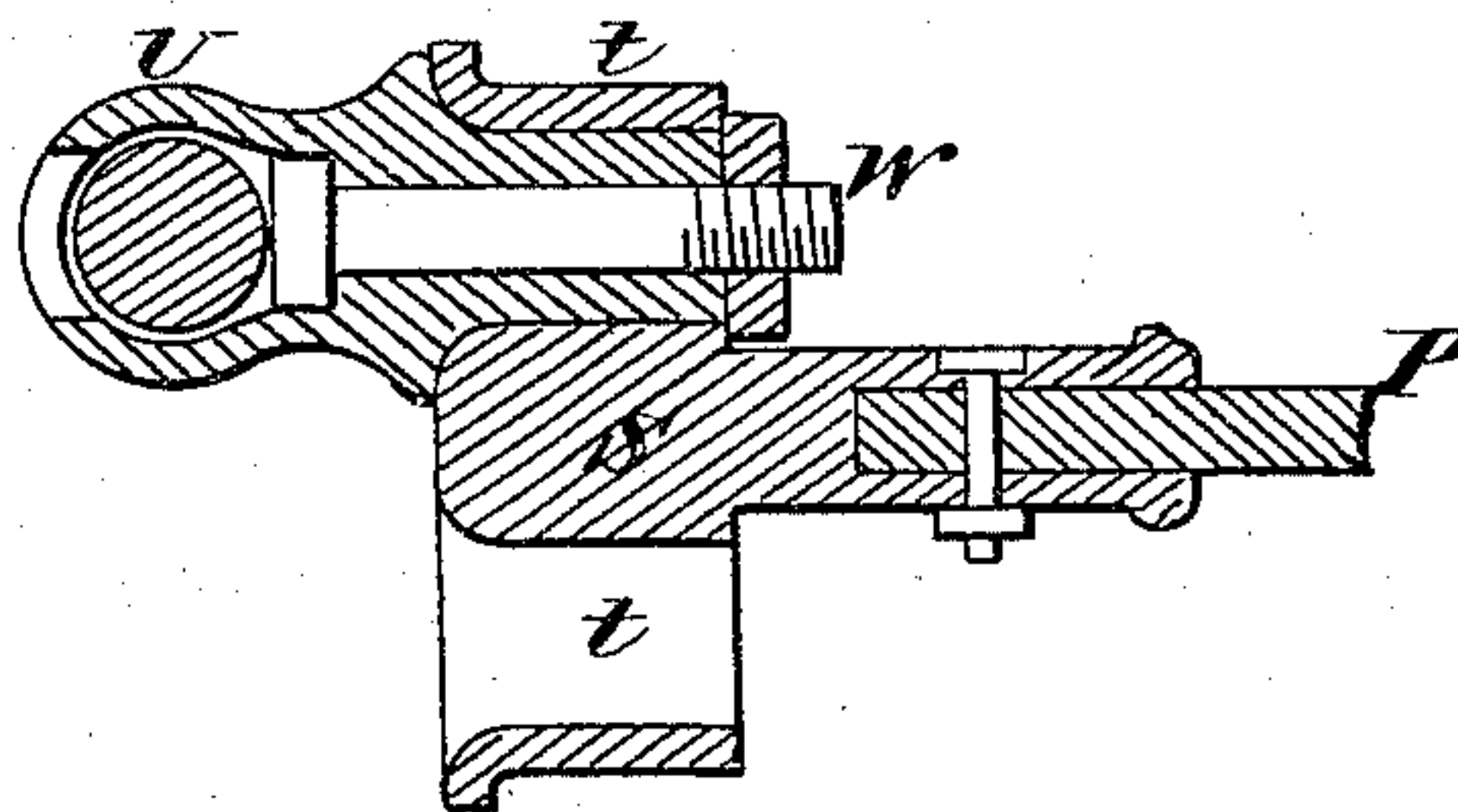


Fig. 5.



WITNESSES

C. F. Brown
Melville Chubb By

INVENTOR

Wm. F. Cochrane.
Hill & Selworth
His Attorneys.

UNITED STATES PATENT OFFICE.

WILLIAM F. COCHRANE, OF LA FAYETTE, INDIANA.

IMPROVEMENT IN MOWING-MACHINES.

Specification forming part of Letters Patent No. **157,795**, dated December 15, 1874; application filed March 6, 1874.

CASE E.

To all whom it may concern:

Be it known that I, WILLIAM F. COCHRANE, of La Fayette, in the county of Tippecanoe and State of Indiana, have invented certain new and useful Improvements in Harvesting-Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings forming part of this specification, in which—

Figure 1, Sheet I, is a longitudinal section of the harvester, looking toward the outer driving-wheel. Fig. 2, Sheet I, is a similar section looking toward the inner driving-wheel. Fig. 3, Sheet II, is a top-plan view. Fig. 4, Sheet II, is a perspective view of the sleeve and socket for connecting the drag-bar to the main frame; and Fig. 5, Sheet II, is a transverse section of the same.

Similar letters of reference in the accompanying drawings denote the same parts.

My invention relates to a harvesting-machine, in which the main frame is suspended from the foot-board by an adjustable traction-latch pivoted to the frame at a point between the main axle and counter-shaft; and it consists in the method of jointing the forward end of the drag-bar to the suspended main frame of the machine, as I will presently describe.

In the accompanying drawings, A A are the side pieces of the main frame, enlarged vertically near the center for the formation of segmental slots B, through which the main axle D passes to receive the driving or supporting wheels of the machine. The side pieces are slipped over the ends of the axle and connected by suitable cross-girders, as shown. The frame thus formed is prevented from lateral movement on the axle by collars C, keyed thereto between the side pieces; and these collars are cast with segmental pinions to engage with segmental racks cast on the short arcs of the segmental slots in the side pieces. E E are the driving-pinions, mounted on the ends of a counter-shaft, G, which has its bearings in the side pieces in front of the main axle, so that the pinions shall mesh into the internally-toothed rims of the driving-wheels.

The pinions may be connected to the counter-shaft by spring-pawls, and the driving-wheels revolve on the axle independently of each other, in the usual manner. H is the beveled gearing for communicating motion to the pitman-shaft, which has its bearings in a pipe-box, I, extending longitudinally to the rear of the frame. The counter-shaft and its gearing I designate as the gear-center of the machine, and it is located entirely in front of the main axle. The segmental slots in the side pieces are described upon the arc of a circle whose radius is from the axis of the counter-shaft. The frame therefore is allowed to rise and fall freely upon the axle, turning on the driving-pinions as the center of motion. J is the foot-board or tongue-bracket, carrying the driver's seat and draft-pole, and mounted upon the main axle so as to project forward thereof over the front end of the frame. K is the traction-latch, composed of a short bar pivoted at its lower end to a cross-bolt of the frame between the main axle and gear-center, and extending up through a longitudinal slot, l, formed in the foot-board, where it is pivoted to a clutch-block, m. The clutch-block is formed with ratchet-teeth on one side, to engage with corresponding teeth cast on the foot-board round the slot l, for the purpose of holding the traction-latch at any desired point within the length of the slot. By means of the traction-latch the whole frame is adjustably suspended from the foot-board at a point between the gear-center and main axle, while the segmental slots in the side pieces allow it to rise and fall freely, the axle turning for this purpose as a rock-shaft. N is the operating-lever, attached to the axle to raise and lower the main frame through the medium of the segmental racks and pinions, so that the position of the traction-latch upon the foot-board may be adjusted for the purpose of suspending the frame the requisite distance above the ground. O is the drag-bar, jointed at its forward end to the end of a girder, P, projecting laterally from the main frame in front of the inner driving-wheel. Q is the finger-bar, bolted to the drag-bar shoe, and carrying the divider and grain-wheel R at its outer end, the grain-

wheel being arranged in a line to the rear of the finger-bar.

The joint of the drag-bar is constructed in the following manner: S is a socket bolted to the end of the girder, and cast with two conical thimbles, *t*, one over the other. U is a short sleeve, cast with a hollow journal, V, upon one side, to enter one of the conical thimbles, where it is held by the bolt and nut W. The sleeve is further cast with an opening through one side, in line with the hollow journal, and with a squared internal recess at the base of the latter. The bolt is passed through this opening into the journal, and its head enters the squared recess, to prevent it from turning while the nut is being tightened. The combination of the bolt and journal forms a strong pivot-fastening for the forward end of the drag-bar. The through-bolt of the drag-bar is fitted in the sleeve, and prevented from slipping out by the conical washer and pin *x*, as shown. By this construction of the joint the drag-bar has a radial movement on the hollow journal, and a rocking movement within the sleeve, while the conical form of the thimbles permits the necessary play of the joints.

A' is the extension-bar, bolted firmly to the upper side of the drag-bar shoe in rear of the cutter, and extending inward behind the main frame, where it is suspended by a chain from the outer end of a bracket, B', which projects upward and to the rear of the frame, at or near the inner corner.

By the employment of the drag-bar and extension-bar for connecting the cutting mechanism to the suspended flexible main frame, such frame and cutting mechanism are adapted to oscillate upon an axis extending obliquely through them from the traction-latch to the grain-wheel, the degree of oscillation being regulated by the operating-lever and the adjustment of the traction-latch, while the oscillations are guided by the driving-pinions and the segmental slot in the frame.

C' is the radius-bar, pivoted at one end to the rear of the frame, parallel, or nearly so, with the pitman-shaft, and at its opposite end to the drag-bar shoe, in rear of the extension-bar, and in line with the axis of the drag-bar. The radius-bar acts as a back brace for the drag-bar and cutting mechanism, and, by oscillating about a point in line with the center of motion of the pitman D', the throw of the latter, and the consequent movement of the cutter through the guards, are rendered uniform during the oscillations and various adjustments of the cutting apparatus and main frame.

E' is the reel, supported by a post upon the drag-bar, and driven from the main axle of the machine. F' is the dropper, provided with the grain-rod used therewith.

These several parts may be of the kind ordinarily employed, or they may be of the special construction for which I have applied for Letters Patent.

When the machine is in motion, the upward movement of the main frame at its front end is limited by contact with the outer side of the draft-pole or tongue-bracket, to prevent the rear end from dropping too low; but the weight of the latter is partially taken up by the downward pull of the driving-wheels upon the pinions. The preponderance of weight, however, is at the rear end. The oscillations of the frame and cutting apparatus about the oblique axis, above described, permit them to ride freely over obstructions, whether in the path of the frame or cutter-bar, and the jointed connection of the drag-bar and extension-bar with the suspended frame permits the cutting apparatus to follow the undulations of the ground.

By lengthening or shortening the chain of the extension-bar, the cutting mechanism is raised or lowered independently of the main frame, for the purpose of carrying it above the plane of the frame, for cutting very tall grain, or for dropping it below the plane of the frame when the machine is operating upon very uneven ground.

By operating the lever N the frame is raised or lowered through the traction-latch, and the cutting mechanism may be rocked on the oblique axis to raise the shoe of the drag-bar over an obstruction, or depress the point of the divider to enter a hollow or gather lodged grain.

Having thus fully described my invention, what I claim as new is—

1. The thimble-socket S *t* and the journal-sleeve and bolt, for jointing the forward end of the drag-bar to the front girder of the main frame, substantially as described.

2. The socket S, cast with the conical thimbles *t*, one over the other, substantially as described.

3. The sleeve U, cast with the hollow journal V, the opening through the side in line with the journal, and the square internal recess at the base of the journal, substantially as described.

WM. F. COCHRANE.

Witnesses:

E. A. ELLSWORTH,
N. K. ELLSWORTH.