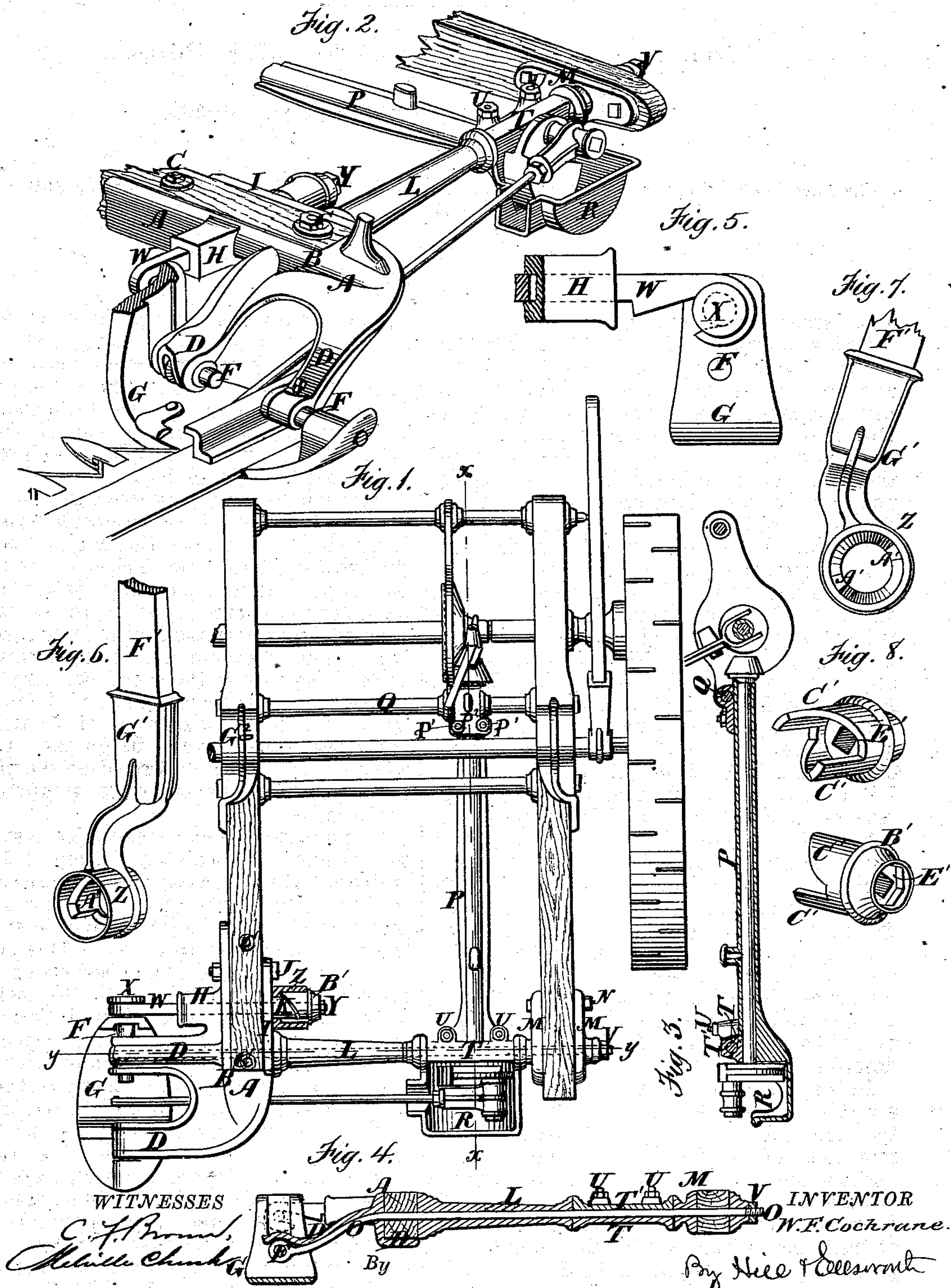


Mowing-Machines.

No. 158,910.

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UNITED STATES PATENT OFFICE.

WILLIAM F. COCHRANE, OF LA FAYETTE, INDIANA.

IMPROVEMENT IN MOWING-MACHINES.

Specification forming part of Letters Patent No. 158,910, dated January 19, 1875; application filed December 15, 1873.

CASE B.

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 and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a top-plan view of the frame of a harvester, showing my improvements applied thereto. Fig. 2 is a perspective view of the rear end of the frame. Fig. 3 is a longitudinal section of the pitman-shaft pipe-box in the line *x x*, Fig. 1. Fig. 4 is a transverse section of the same in the line *y y*, Fig. 1. Fig. 5 is a detached view, showing the connection of the lifting-hook with the inner shoe of the finger-bar. Fig. 6 is a perspective view of the cam-collar and its operating-lever. Fig. 7 is an edge view of the same, and Fig. 8 represents the cam-thimble in different positions.

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

My invention relates to the construction of harvesters; and it consists in the means for securing the bracket to the rear end of the main frame and bracing the latter to receive it. It also consists in the method of raising and lowering the outer end of the finger-bar, and in the construction and combination of various parts, as I will now proceed to describe.

In the drawings, A is the bracket, cast with a right-angular socket or corner, B, to fit upon the inner side bar of the main frame at its rear end, and to which it is secured by the vertical bolts C. The rear end of the bracket is cast with two lateral arms, D D, curved downward equally, or nearly so, and provided at their ends with holes for the reception of pins F, by which they are pivoted in the same plane to the inner shoe, G, of the finger-bar. This connection forms a hinged or pivoted joint, and permits the rise and fall of the cutter-bar at its outer end, so that it shall conform to the undulations of the ground. The lateral arms D spring from the upper edge of

the bracket, and the metal between them is hollowed out or curved upward, as shown, to produce the necessary vertical space in rear of the main frame for the play of the pitman. The bracket extends rearward sufficiently to carry this space beyond the end of the side bar, and the pitman, therefore, reciprocates across the line of such bar.

This construction produces a greater space for the play of the pitman than could be formed if the side bar extended through and beyond the bracket. The inner shoe, G, of the finger-bar may, therefore, be made flatter, or its main portion curved upon a greater radius, from which construction the following advantages, among others, are derived: first, increased strength in the shoe; secondly, a decrease in the transverse strain of the pitman, and a consequent reduction of friction between the cutter-bar and its guides; thirdly, a decrease of the angle formed by the pitman and cutter-bar, and a consequent greater throw of the latter.

H is a lateral tubular socket, also cast upon the bracket A immediately in front of the lateral arms, for a purpose to be presently described. I is a plate, bolted at J to the inner face of the side bar, which bolt also extends through the bracket, as shown. This plate is cast with two lateral tubular sockets upon the same side—one, K, in line with the socket H on the bracket, and the other, L, forming a long pipe projecting toward the opposite or outer side piece of the main frame. The rear end of this latter piece is clamped between two short cast-metal plates, M, bolted thereto at N. O is a curved eyebolt, passing longitudinally within the front arm of the bracket, where it is held by the pivot F. From the bracket it extends through the inner side piece of the frame, the pipe L, the outer side piece of the frame, and its clamping-plates M, as shown in Fig. 1. P is the pitman-shaft pipe-box, cast with the crank-shield R, and secured at its upper end to the cross-rod Q of the frame. Its lower end is fastened to the eyebolt O by the half-boxes T T' and the bolts U, as shown. By setting up the nut V upon the outer end of the eyebolt, the bracket

is clamped to the frame, and the rear end of the latter stiffened to afford the requisite bracing for the bracket. W is a hook catching over a headed pin, X, projecting from the up-turned front of the shoe G above the pivotal points F. The squared shank of this hook extends through the inner side bar of the frame and through the sockets H K, and its inner end receives a nut, Y, beyond the tubular socket K, as shown. The head of the pin X is made broad to furnish a lateral bearing for the hook, and prevent it from turning. Z is a collar, cast with two internal cams, A'; and B' is a thimble, cast with two similar cams, C', in continuation of its length. The thimble fits within the collar, so that the cams A' C' shall impinge against each other, and both are then placed upon the socket K, as shown, the collar bearing against the bracket A or inner side piece of the frame. The thimble is cast with a square internal bearing-surface, E', fitting upon the projecting end of the hook-shank, to prevent it from turning thereon, and is held in place by the nut Y, while the collar turns freely upon the thimble and socket K as bearing-surfaces, its movements being restricted only by the pressure of the cams against each other. For the purpose of turning the collar, it is cast with an angular socket to receive the operating or hand lever F', as shown. The thimble is also cast with a hexagonal or other angular recess in its outer end to receive the nut Y, and hold it from turning off the hook-shank by the jar of the machine.

The collar and thimble, constructed as above described, form a double lifting-cam, whose function is to turn the shoe G on its pivots F, and swing up the outer end of the cutter-bar for passing over obstructions when the machine is set up and operating as a mower. To effect this movement the hand-lever F' is thrown forward, turning the collar upon the thimble and socket K, and causing the cams A' C' to impinge against each other, which impingement or pressure moves the thimble longitudinally upon the socket, and pulls the hook W toward the main frame. Inasmuch as the hook engages the shoe G above the pivots F, the whole cutter-bar and shoe form a lever, whose fulcrum is at the pivots F. Therefore, the inward pull upon the hook turns the shoe upon these pivots, and throws up the outer end of the cutter-bar. After the obstacle has been passed, the operator again lowers the cutter-bar by the hand-lever. If it is desired to hold the cutter-bar in an elevated position, the hand-lever is hooked to or under a catch, G², affixed to the inner side bar of the frame, as shown in Fig. 1.

When the machine is set up as a harvester, the additional weight of the dropper and other necessary attachments to the cutter-bar render the latter too heavy to be raised by the

double cams. The collar Z and its hand-lever, therefore, being no longer required, are removed from the machine. The point to which the outer end of the cutter-bar shall fall below the plane upon which the driving-wheels of the machine run, whether as a reaper or mower, is determined by adjusting the position of the nut Y upon the hook-shank, so that the latter shall have a greater or less longitudinal play.

In order that the shoe G shall oscillate upon its pivots F without being obstructed or impeded by the lifting-hook, the opening in the latter is made in the form of a segment, whose arc is described upon a radius from the center of such pivots. This allows the cutter-bar to rise and fall freely in passing over the ground, and without clamping the pin X within the lifting-hook, or wearing it out by undue friction.

I do not limit myself to the use of the lifting-hook and cams in connection with the bracket A and its attachments, nor in connection with the frame described, as I intend to use them with other brackets, or without any bracket whatever, and upon harvester-frames of various forms and construction. Neither do I limit myself to the use of the bracket A upon the frame described, as I intend to apply it to many different kinds of harvester-frames.

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

1. The bracket A, cast with the lateral socket H, for the passage of the lifting-hook W, substantially as described.
2. The eyebolt O, extending longitudinally, under the front arm, D, of the bracket, from the frame of the machine to the pivot of such bracket-arm, substantially as described, for the purpose specified.
3. The double lifting-cams and the lifting-hook, in combination with the main frame and inner shoe of the finger-bar, for raising and lowering the outer end of the latter, substantially as described.
4. The lifting-hook W, passing through the bracket and inner side bar of the main frame, to catch over the headed pin X upon the up-turned front end of the shoe G, substantially as described, for the purpose specified.
5. The combination of the nut Y and sliding cam B' with the angular shank of the lifting-hook W, for adjusting the cam on the hook, substantially as described, for the purpose specified.
6. The cam-thimble B', cast with an angular recess in its end to receive the nut upon the lifting-hook, and prevent it from casually turning thereon, substantially as described.

WM. F. COCHRANE.

Witnesses:

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N. K. ELLSWORTH.