(No Model.)

J. M. P. LYON.

COTTON CHOPPER, SCRAPER, AND HARROW.

No. 397,133. Patented Feb. 5, 1889.

Fig. 1.

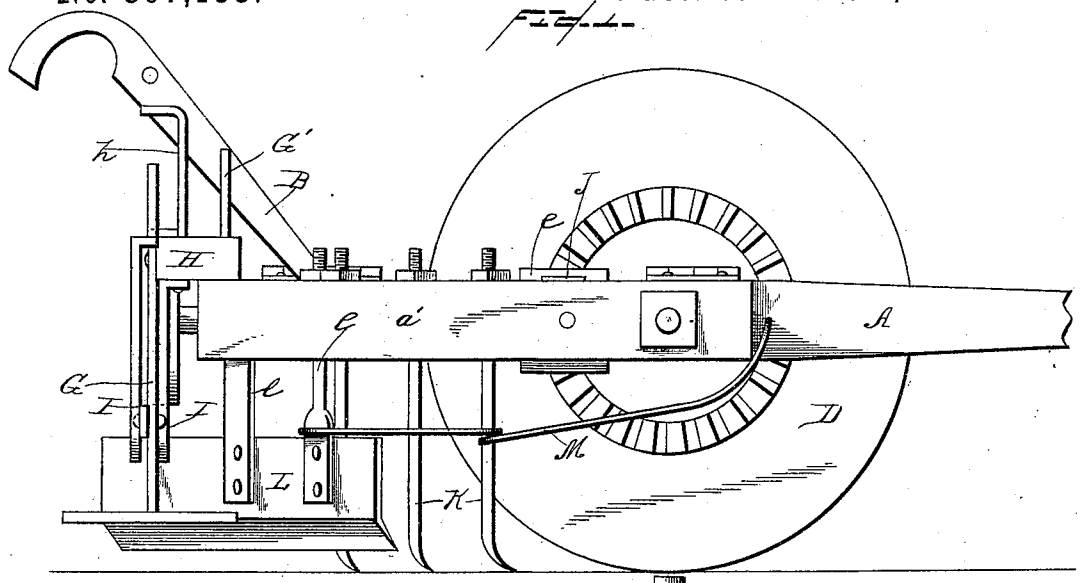


Fig. 2.

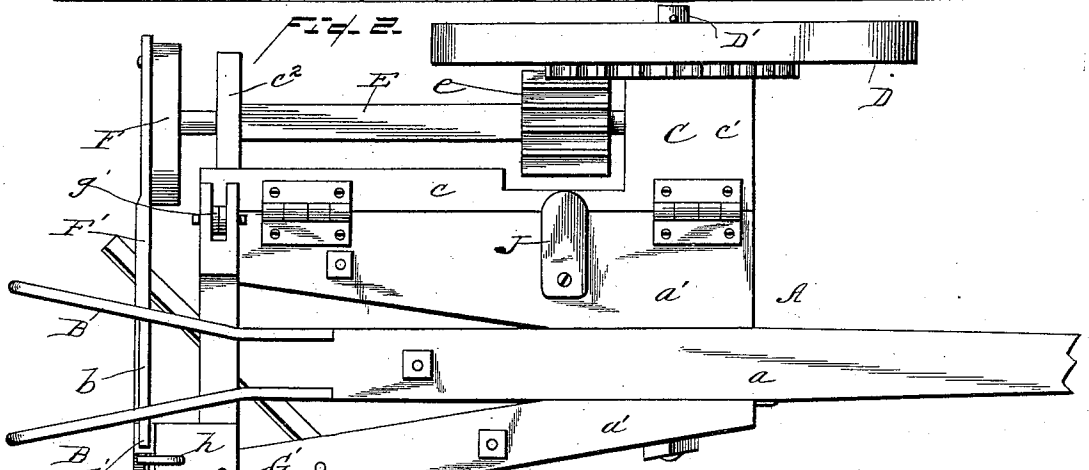
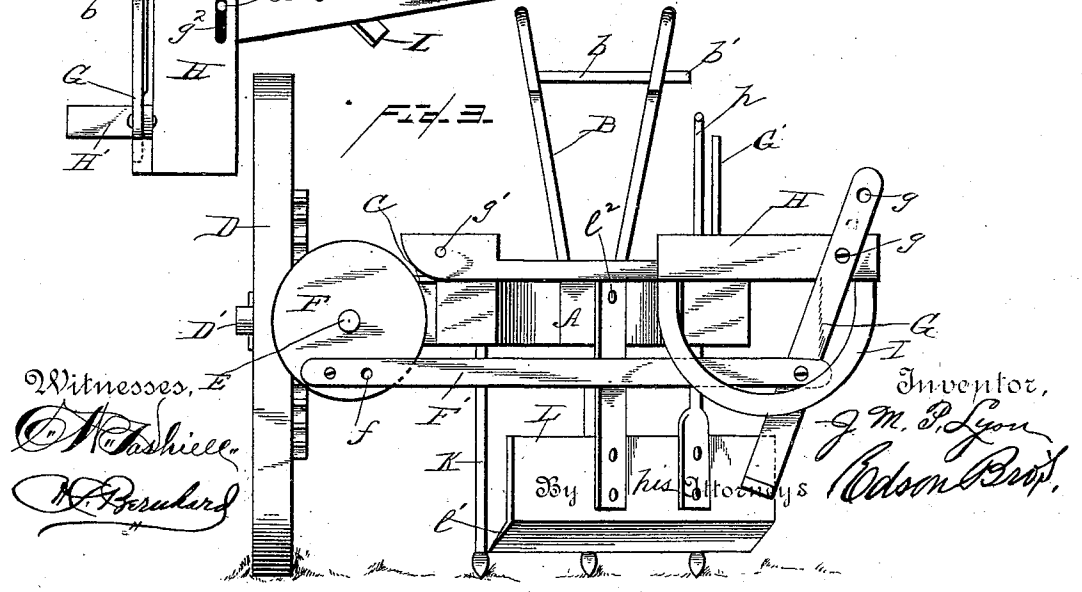


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN M. P. LYON, OF LEEDS, ALABAMA.

COTTON CHOPPER, SCRAPER, AND HARROW.

SPECIFICATION forming part of Letters Patent No. 397,133, dated February 5, 1889.

Application filed May 5, 1888. Serial No. 272,964. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. P. LYON, a citizen of the United States, residing at Leeds, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in a Combined Cotton Chopper, Scraper, and Harrow; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to a combined chopper, scraper, and harrow; and it consists in the combination of devices and peculiar construction and arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims.

Among other things, my invention has for its objects, first, to provide a machine in which the ground-wheel and the devices connected therewith for reciprocating the chopper-hoe can accommodate themselves to any unevenness in the ground while still remaining in their operative positions, and in which the ground-wheel is normally pressed firmly upon the ground to insure the rotation thereof, and thus obviate the liability of the wheel being accidentally thrown where it would cease to operate; secondly, to provide an adjustable fulcrum for the chopper-hoe, whereby it can be elevated or depressed, as circumstances may demand, and, thirdly, to improve the general structure of the machine to promote its efficiency as a chopper, scraper, and harrow, as will be hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a side elevation of a combined chopper, harrow, and scraper embodying my invention. Fig. 2 is a top plan view thereof, and Fig. 3 is a rear elevation of the same.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the main carrying frame of a combined chopper, scraper, and harrow constructed in accordance with my invention. This main frame consists of a central longitudinal beam, *a*, and two side beams, *a'*, arranged on opposite sides of the central beam and firmly united thereto by suitable bolts. One of the side beams is inclined laterally to the central beam, while the other side beam has one side edge thereof cut away in an inclined line, as clearly shown in Fig. 2. To the rear end of the central beam, *a*, are affixed the handles B, which are united and braced by a tie bar or rod, *b*, one end of which is extended beyond one of the handles, as at *b'*, to adapt a hook on the adjustable fulcrum of the chopper-hoe, presently described, to be detachably connected thereto and serve to support the chopper-hoe in an elevated position.

On one side of the main carrying-frame is arranged a supplemental adjustable frame, C, which is pivotally connected to the main carrying-frame to adapt said supplemental frame to move vertically. This supplemental frame comprises a straight bar or beam, *c*, and two bearings, c' c^2, which are rigidly fixed to the bar or beam *c* at opposite ends thereof, the pivotal connection between the main and supplemental frames being effected by means of hinges secured to the beams a' *c;* but it is obvious that this pivotal connection can be made in other ways. To the front bearing, c', of the supplemental frame C is secured a short axle, D', of a large ground-wheel, D, which is adapted to rest on the ground and be rotated by frictional contact therewith as the machine is drawn along. On the inner face of this ground-wheel is formed a series of cogs or teeth, with which meshes a small pinion, *e*, secured on the front end of a counter-shaft, E, which is arranged along the side of the frame C, and is journaled at its ends in the front and rear bearings, c' c^2, thereof. The rear end of this counter-shaft is extended beyond the rear bearing, and a crank-disk, F, is secured thereon, to crank-pin *f* of which is pivotally connected a link, F', arranged at the rear of the machine transversely thereof.

G is the chopper-hoe, arranged in a vertical position at the rear end of the machine, on the opposite side thereof to the ground-wheel and counter-shaft, and the upright shank of this hoe has two or more transverse openings, *g*, formed therein at its upper end, through one of which passes a pivotal bolt to adjustably connect the chopper-hoe to an adjustable bearing, H, carried by the main frame of the

machine. This adjustable bearing is made in the form of a flat bar and arranged transversely across the rear of the machine beneath the handles thereof, one end of the bearing being pivotally connected to the frame A, as at g', and the other free end thereof having a longitudinal slot, g^2, through which passes a vertical guide-pin, G', fixed to the main frame A. A vertical rod, h, is secured to this adjustable bearing, and its upper end is bent to form a hook which is adapted, when the bearing has been elevated on its pivot, to take over the extended end of tie-rod b, and thus support the bearing and the chopper-hoe connected thereto in their elevated positions. The free or unconfined end of the link F' is pivotally connected to the shank of the chopper-hoe at a point above the blade H' of the hoe, and the shank of the hoe reciprocates between guides I, which are fixed to the main carrying-frame A. These guides preferably are flat segmental plates, which are arranged parallel with each other, and between which the shank of the hoe works.

The supplemental adjustable frame C is normally depressed by a spring, J, which is secured to the main frame A and bears upon the adjustable frame, whereby the ground-wheel is normally forced firmly upon the ground, and at the same time this wheel and the frame C can move vertically to accommodate themselves to any unevenness in the surface of the ground.

A series of vertical harrow-teeth, K, are secured to the main carrying-frame A and arranged in a transverse line beneath the same, and in rear of these harrow-teeth is arranged a transversely-inclined scraper-blade, L, to which are secured depending vertical rods l, one of the rods being bolted to the main frame A and the other rod being adjustably connected thereto by a nut, whereby the inclination of the scraper-blade can be varied. At the lower edge of the scraper-blade is an inclined cutting-edge, l', for the purpose of cutting weeds, &c., and the outer end of the scraper-blade is inclined at an obtuse angle to the body of the blade to sweep the weeds, &c., into the space between the rows of plants. The scraper is braced by a rod or wire, M, which is connected at one end to one of the rods l, then bent around one of the harrow-teeth, and finally secured to the main frame A.

The operation of my invention will be readily understood from the foregoing description, taken in connection with the drawings.

I do not confine myself to the relative size and proportion of parts herein shown, nor to the exact details of construction, as I am aware that changes therein can be made without departing from the principle of my invention.

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

1. The combination of a carrying-frame, a supplemental frame pivotally connected thereto and carrying a ground-wheel, a spring for normally depressing the supplemental frame, a counter-shaft journaled in the supplemental frame and geared to the ground-wheel, a chopper-hoe, and devices connecting the chopper-hoe with the counter-shaft, substantially as described.

2. The combination of the main carrying-frame, an adjustable fulcrum pivotally connected at one end to the frame, a vertical fixed guide carried by said frame in juxtaposition to the free end of the adjustable fulcrum for guiding the fulcrum in a direct vertical line, a chopper-hoe pivoted to the fulcrum, and mechanism for reciprocating the hoe, substantially as described.

3. The combination of the main frame, the slotted fulcrum pivotally connected thereto, vertical guide passing through the slot, a chopper-hoe carried by the fulcrum, the guides between which the chopper-hoe reciprocates, and mechanism, as described, for reciprocating the hoe, substantially as set forth.

4. The combination of the main carrying-frame, a supplemental frame pivotally connected thereto and carrying a ground-wheel and a counter-shaft, which are geared together, a spring for normally depressing the supplemental frame, an adjustable fulcrum carried by the main frame, a chopper-hoe pivoted to the fulcrum and connected with the counter-shaft, the vertical harrow-teeth, and a scraper in rear of said teeth having the cutting-lip and angular end, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN M. P. LYON.

Witnesses:
J. T. SELK,
LUTHER L. LYON.