4 Sheets

Sheet 1.

J. Burnham.

Cultivator.

No. 74044

Patented Feb. 4, 1868.

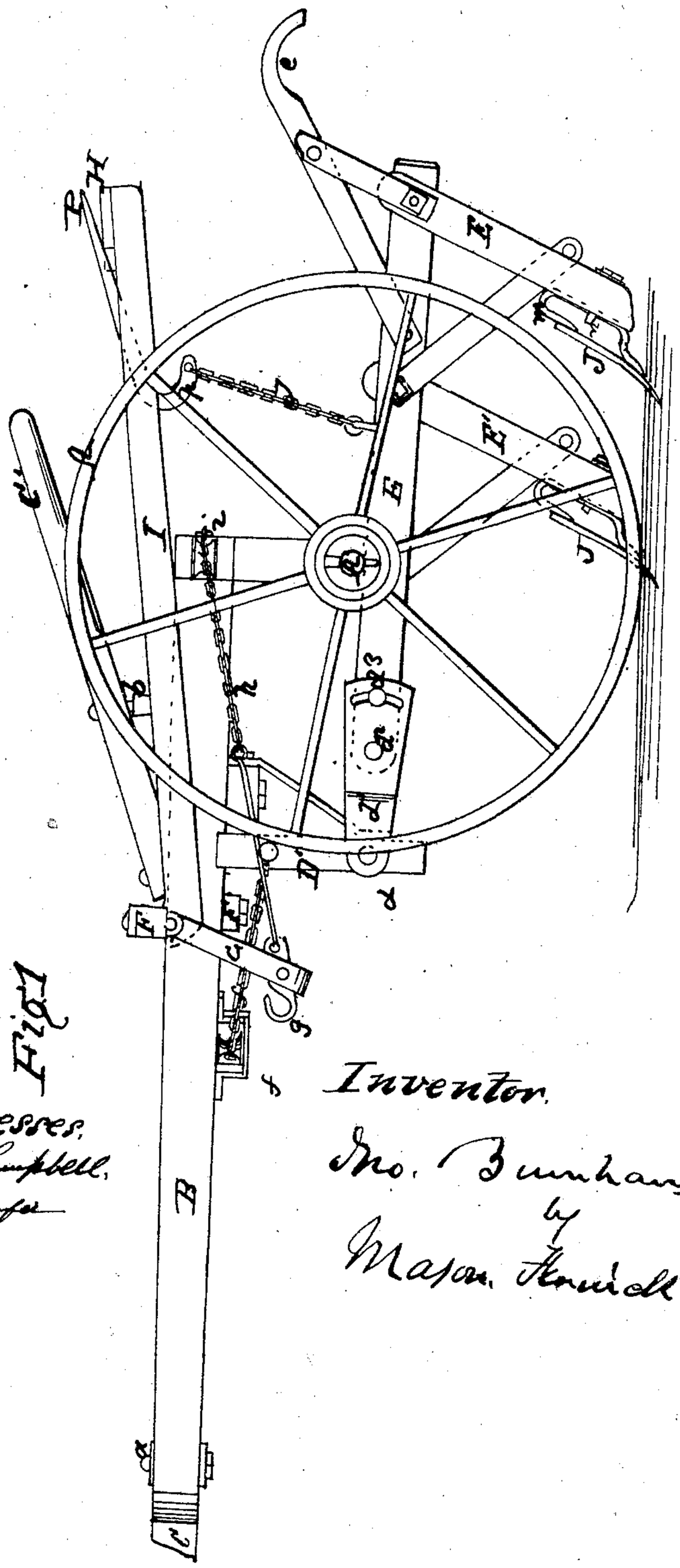

Fig 1

Witnesses.
R. J. Campbell.
Edw. Thayer

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by
Mason, Fennick & Lawrence

2 Sheets

Sheet 2.

J. Burnham.

Cultivator.

No. 74044 Patented Feb. 4, 1868.

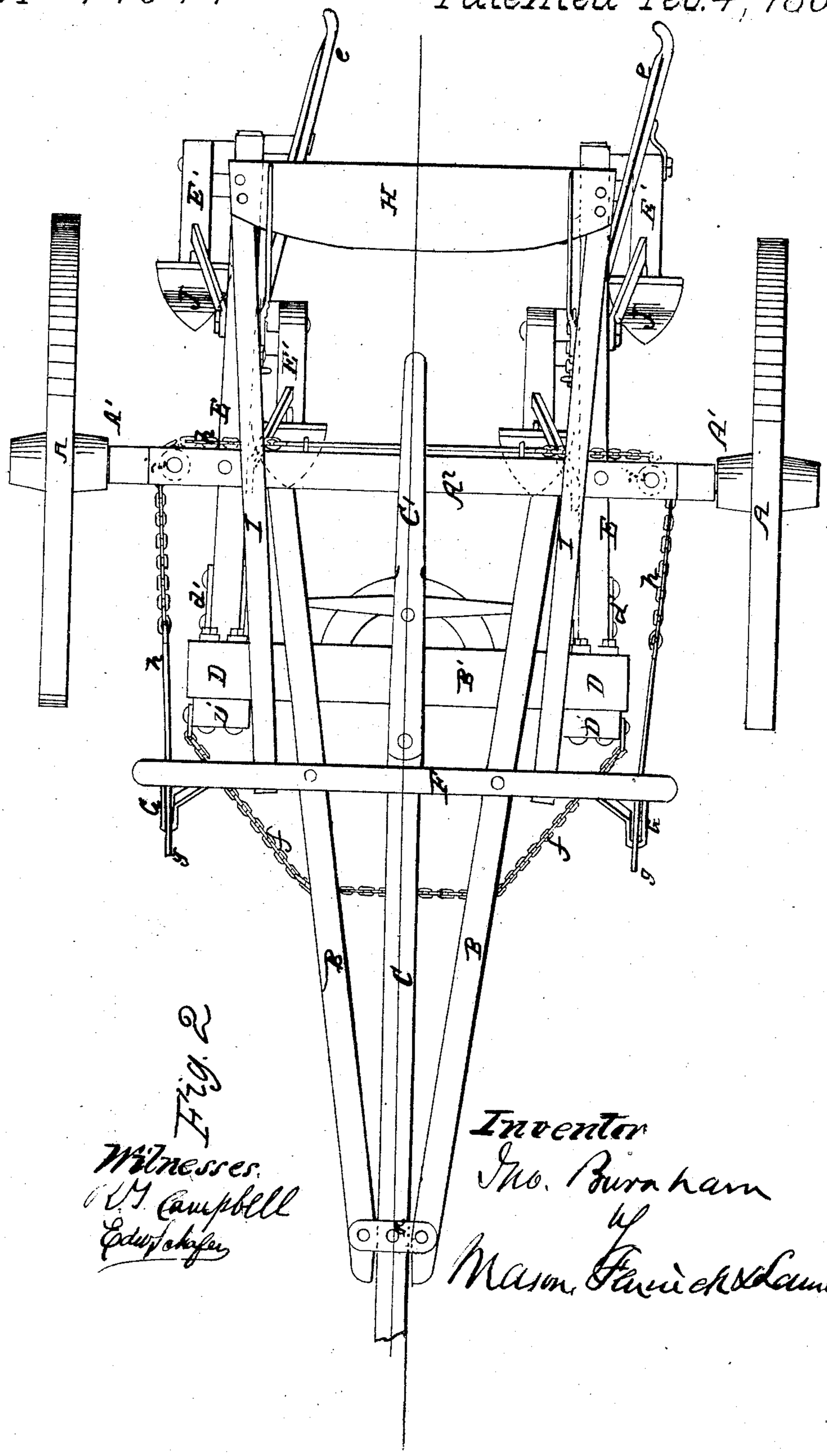

Fig. 2

Witnesses.
W. Campbell
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Mason, Fenwick & Lawrence

4 Sheets

Sheet. 3.

J. Burnham.

Cultivator.

No 74044 Patented Feb. 4, 1868.

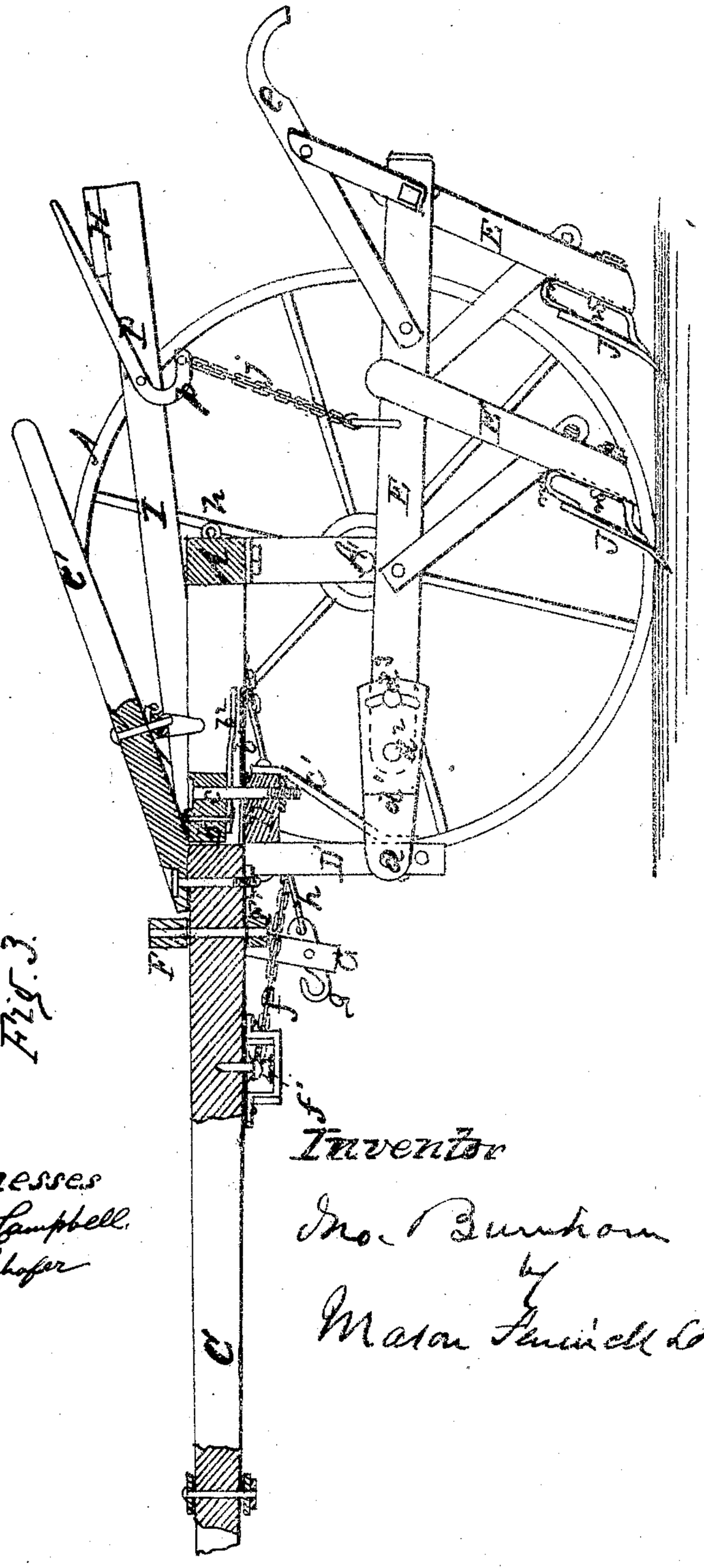

Fig. 3.

Witnesses
R. F. Campbell
Edw. Schafer

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4 Sheets

Sheet 4

J. Burnham.

Cultivator.

No. 74044 Patented Feb. 4, 1868.

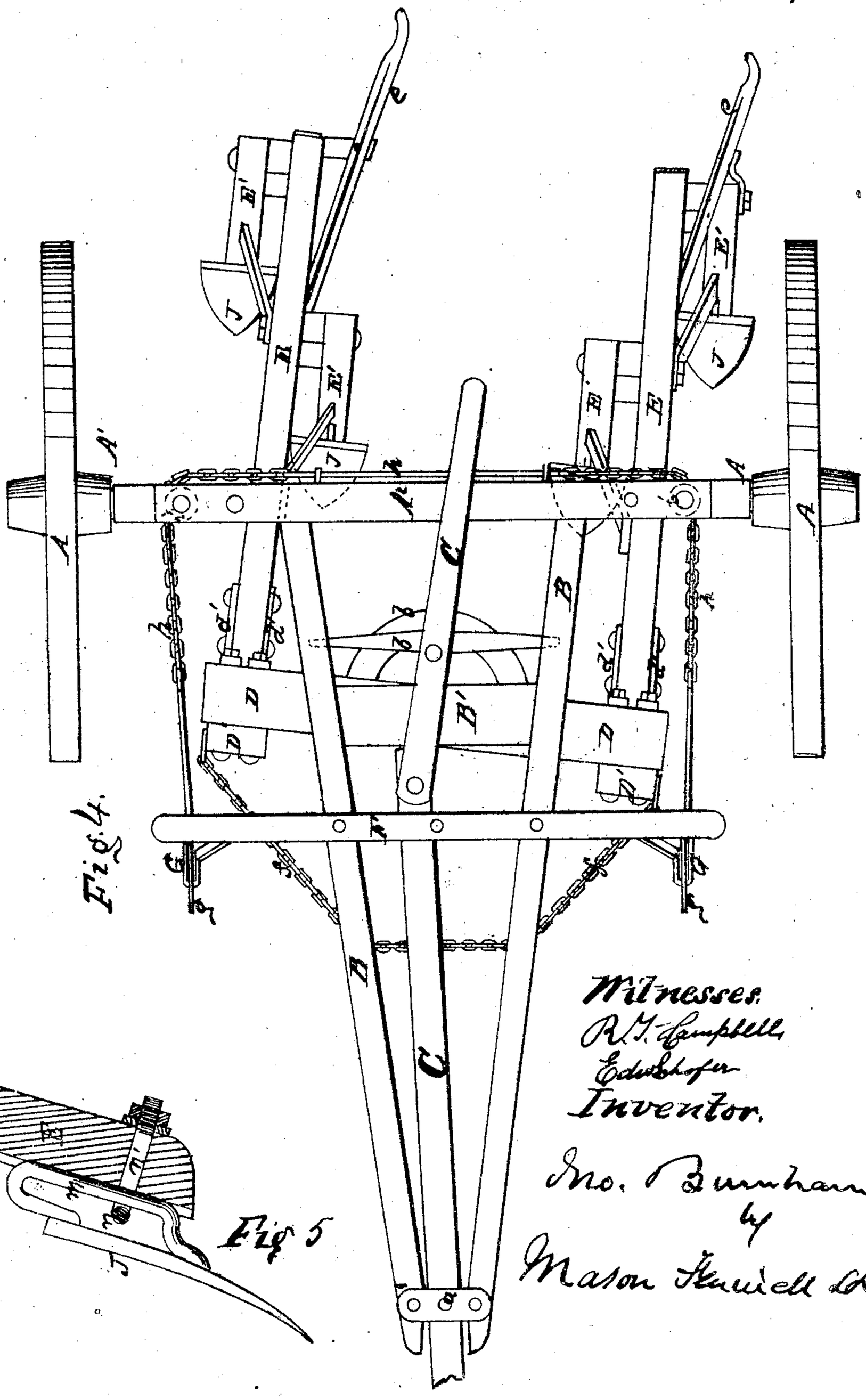

Fig. 4.

Fig 5

Witnesses.
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Edwd Hofer

Inventor.
Jno. Burnham
by
Mason Fennell & Lawrence

United States Patent Office.

JOHN BURNHAM, OF LA SALLE, ILLINOIS, ASSIGNOR TO HIMSELF AND DAVID L. HOUGH, OF THE SAME PLACE.

Letters Patent No. 74,044, *dated February* 4, 1868.

IMPROVEMENT IN CULTIVATORS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN BURNHAM, of La Salle, in the county of La Salle, and State of Illinois, have invented certain new and useful Improvements in Cultivators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, sheet 1, is an elevation of one side of the improved cultivator.

Figure 2, sheet 1, is a plan view of the cultivator.

Figure 3, sheet 2, is a longitudinal section taken in a vertical plane through the centre of the cultivator.

Figure 4, sheet 2, is a plan view of the cultivator, with driver's seat removed and shovel-frame adjusted to one side.

Figure 5, sheet 2, is a sectional view, showing the manner of securing the shovels to their standards.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to certain novel improvements on that class of cultivators wherein the shovels are applied to adjustable beams, which are hung beneath a carriage-frame, and so arranged as to work two rows or ridges at one time.

The nature of my invention consists in attaching the cultivator-beams to supports, which depend from the extremities of a horizontally-movable cross-beam, by means of independent pivot-joints, which will firmly hold the plough-beams at the desired distance apart, but allow their rear ends to rise and descend freely, said cross-beam being centrally pivoted to a two-wheeled carriage with elevated axle, and attached to a swinging draught-pole in such manner that, by means of a hand-lever, or by means of handles on the plough-beams, these beams can be swung to the right or to the left, and the ploughs made to follow the rows or plants under cultivation, as will be hereinafter described.

The invention also consists in suspending the plough or shovel-beams from eccentric-levers, which are applied to a removable driver's-seat frame, so that a person sitting upon said frame can raise or depress the ploughs or shovels; and in combining with such arrangement stilts or handles upon the plough-beams, so arranged that a person walking behind the machine can control the movements of the ploughs or shovels with the same facility that a person riding upon the machine can, as will be hereinafter described.

The invention also consists in attaching the shovels to their standards by means of clamping eye-bolts, applied to the standards, and looped bars applied to the backs of the shovels, whereby a rigid fastening can be effected, which will admit of a vertical and a lateral adjustment of said shovels at pleasure, as will be hereinafter described.

The invention further consists in a novel arrangement of a draught-chain, whereby the entire draught is thrown upon the extremities of the axle of the carriage, and the animals which are hitched to the ends of such chain are relieved from undue weight upon their necks, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

In the accompanying drawings, A A represent two transporting-wheels, which are applied to short axles A^1 A^1, projecting from the ends of an elevated axle-tree, A^2. The short axles are secured to rectangular brackets, in such manner that the axle-tree is considerably elevated above the axis of the transporting-wheels, as shown in the drawings.

To the front side of the axle-tree A^2, two long hounds B B are secured, which project, in converging lines, some distance in front of the axle-tree, and have pivoted between their front ends a draught-pole, C. This pole, C, is connected to said hounds by means of a vertical pivot, *a*, passing through two transverse brace-plates, which are secured to the top and bottom sides of the hounds at their front ends, thereby allowing the draught-pole to vibrate laterally. To the rear extremity of the draught-pole C, the front end of a hand-lever, C′, is pivoted, which lever has its fulcrum upon a longitudinally-vibrating bridge, *b*, that extends across the space between the hounds B, and is pivoted at its ends to these hounds, in rear of a cross-brace, B′. By thus pivoting lever C′ upon a longitudinally-movable bridge, it will be seen that the rear end of the draught-pole can be moved laterally toward the right or left, by means of said lever.

Beneath the hounds B, and in front of the axle-tree A^2, is a horizontal transverse beam, D, carrying pendants, D′ D′, upon its extremities. This beam, D, is pivoted, at the middle of its length, to the cross-beam B′ by a vertical pin, *c*, which pin is sustained by means of a semicircular bearing-plate, b^1, and a slider, b^2. The two pendants D′ are securely sustained against backward strain by means of braces *c′ c′*, and to these pendants the longitudinal plough-beams E E are attached by means of transverse pivots *d d*. These pins, *d*, pass through holes made horizontally through the pendants, and through the forward ends of connecting-plates d^1, which are secured to the front ends of the plough-beams E, as shown in the drawings. Each plough-beam E has two

plates d^1 secured to it, by a transverse pivot-pin, d^2, and a clamping-bolt, d^3, the latter passing through oblong slots that are concentric to the axis of pin d^2, and thereby admitting of the adjustment of the beam E, so that the ploughs can be given more or less pitch, as may be found necessary.

There may be several holes made transversely through the pendants D′, for receiving the pivot-pins *d d*, and allowing of the vertical adjustment of the front ends of the plates d^1, and, if desirable, several holes may be made longitudinally through the swing-beam D, near its ends, for receiving the bolts which secure the pendants D′ to said beam, and admiting of the lateral adjustment of the plough-beams.

The two plough-beams E E extend back in rear of the axle-tree A^2, and each beam has a handle, *e*, secured to it, so as to incline to one side, as shown in figs. 2 and 4, to be used by a person walking behind the machine, when the driver's seat is removed. Each plough-beam E has two standards, E′, secured to it, one in advance of the other, so as to work both sides of a row at the same time, and upon said standards shovels or plough-blades are secured, as shown in the drawings.

A chain, *f*, is secured fast to the draught-pole C, near its rear end, the ends of which chain are passed around pulleys *f′*, upon the lower edges of the hounds B, and thence carried back, and secured firmly to the pendants D′, or to the extremities of the vibrating beam D. This chain serves as a brace for the pendants D′ and beam D, but its chief object is to connect the tongue C to the beam D, so that by vibrating the hand-lever C′, the rear ends of the plough-beams can be adjusted to the right or left, and the ploughs or shovels made to follow irregular lines or rows of plants.

The rear portion of the draught-pole C moves between two horizontal cross-beams F F′, which are bolted to the hounds B, as shown. The uppermost beam, F, extends out some distance from each side of the hounds, and has longitudinally-swinging pendants G G, pivoted to its lower side, near its extremities. These pendants, G, are constructed so that they will be sustained against lateral strain, and to each pendant, near its lower end, a coupling-hook, *g*, is pivoted by a transverse pin, as shown in figs. 1 and 3. The hooks *g* are connected together by means of rods and chains *h*, the latter of which pass around horizontal grooved pulleys *i i*, applied to slots made through the ends of the axle-tree A^2, as shown in the drawings. The whiffle-trees, to which the horses are hitched, are attached to the hooks *g g*, so that both horses draw on the flexible connection *h*.

The driver's seat H is located in rear of the axle-tree, and over the plough-beams E, and it is supported upon two longitudinal beams I I, which are attached at their front ends, beneath the cross-beam F, by means of vertical pins projecting down from said beam, and entering holes made vertically through these seat-beams. The cross-beam F holds the ends of the seat-beams I down, and the axle A^2 supports them, as shown in figs. 1 and 2. The two plough-beams E are suspended from the seat-beams I, by means of chains *j j*, which are attached to hooks on said beams, and to eccentric-levers P P, on the inner sides of the seat-beams. By detaching chains *j j* from the hooks on the beams E, the driver's seat, and its beams I, can be removed from the machine. The levers P P have hooks or eccentrics *p p* formed on their shortest arms, to the ends of which hooks the upper ends of chains *j j* are attached. When the ploughs or shovel-blades are in operation, the long arms of levers P rest upon the driver's seat, and when it is desired to raise the ploughs out of action and hold them up, the levers P are pressed forward until their long arms rest upon the top of axle-tree A^2, when the chains will hang in front of the axes of the levers.

The shovels or plough-blades J have loops *m* secured upon their back surfaces, which are received by means of eyes *n* upon the ends of bolts *n′*, as clearly shown in fig. 5. The eyes or hooks on the ends of the screw-bolts *n′* are made so that by screwing up the nuts on these bolts the straight portions of the loops *m* will be drawn tightly into recesses formed in the front sides of the beams E′, thus securing the shovels rigidly to these beams. By loosening the nuts on bolts *n′*, the shovels may be adjusted vertically, or turned, so as to throw more or less earth about the roots of the plants.

It will be seen from the above description, first, that both horses are hitched to the same flexible connection *h*, and draw from the ends of the axle-tree A^2, thereby equalizing the draught, and removing considerable weight and strain from the necks of the horses; second, the ploughs or shovels can be moved laterally, by means of a vibrating-lever acting directly upon the draught-pole, which is attached to the beam to which the plough-beams are pivoted; third, the machine is adapted for being operated by a person walking behind it, and having hold of the plough-handles, as well as by a person mounted upon the driver's seat; fourth, the draught is all upon the elevated axle-tree; and lastly, the plough-beams can be raised free from the ground and held up, when the machine is not in operation.

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

1. In combination with the elevated axle-tree A^2, hounds B, pivoted draught-pole C, and lever C′, having a movable fulcrum, I claim the pivoted beam D, having the plough-beams secured to its extremities, or to pendants applied thereto, said beam being connected, by means of a chain, to the draught-pole, substantially as described.

2. In combination with a pivoted beam D, arranged and operated as described, and provided with pendants upon its ends, I claim the plates *d′ d′*, having the plough-beams attached to them, substantially as described.

3. The flexible draught-connection *h*, secured to swinging pendants G G, at its ends, and passed around the axle-tree A^2 longitudinally, substantially as described.

4. The removable driver's seat H, applied to the carriage, and supported thereon, substantially as described, in combination with levers P, suspension-chains *j*, beams E, and pivoted cross-beam D, substantially as described.

5. The attachment of the plough-blades or shovels J to their standards, by means of loops *m* and clamping-eye or hooked bolts *n′*, substantially as described.

JOHN BURNHAM.

Witnesses:

C. S. MILLER.

W. BANCROFT.