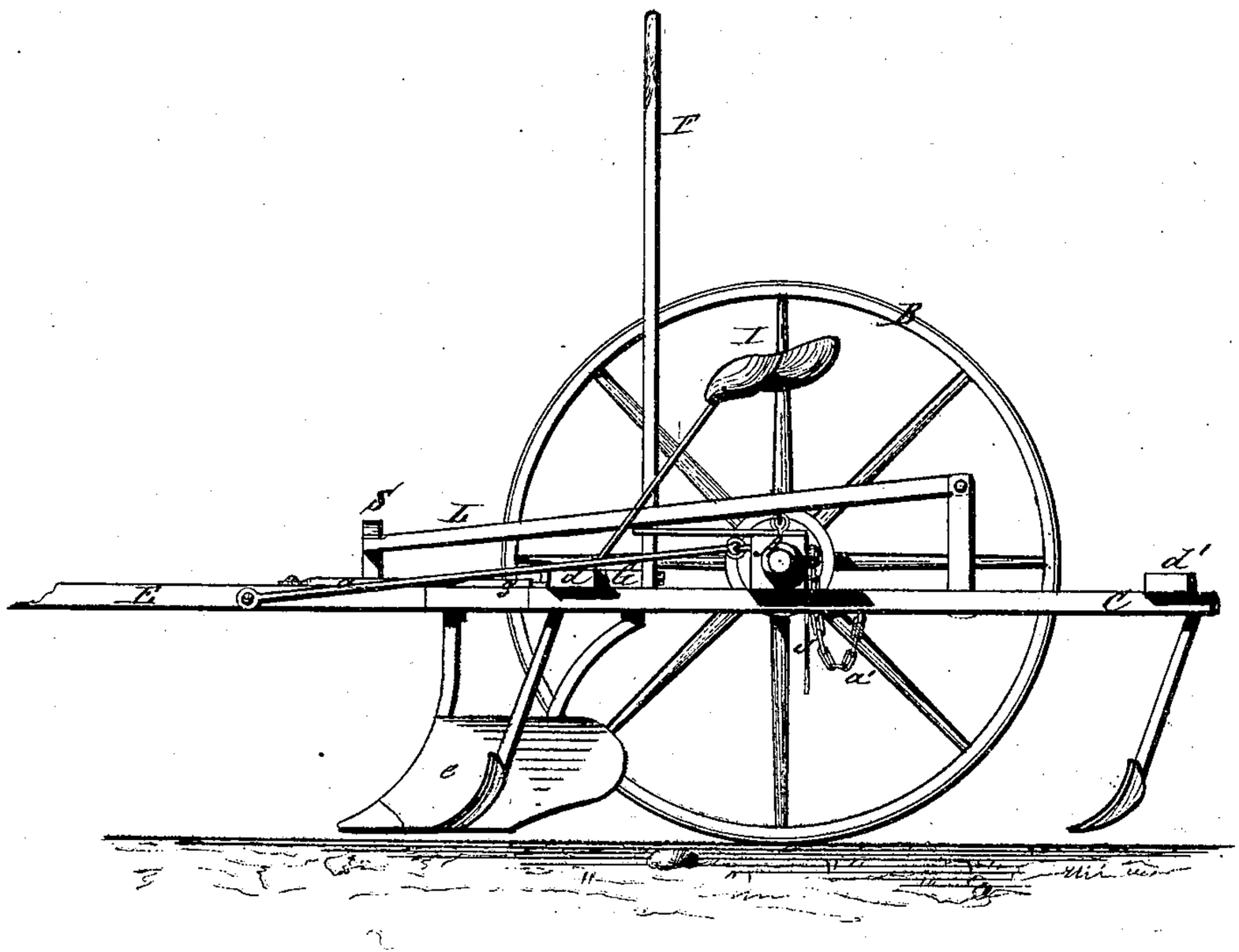
3 Sheets—Sheet 1.

J. ROOT.

Wheel Cultivator.

No. 106,728. Patented Aug. 23, 1870.

Fig 1



Witnesses.
Edward Wilhelm
Jno. J. Bonner

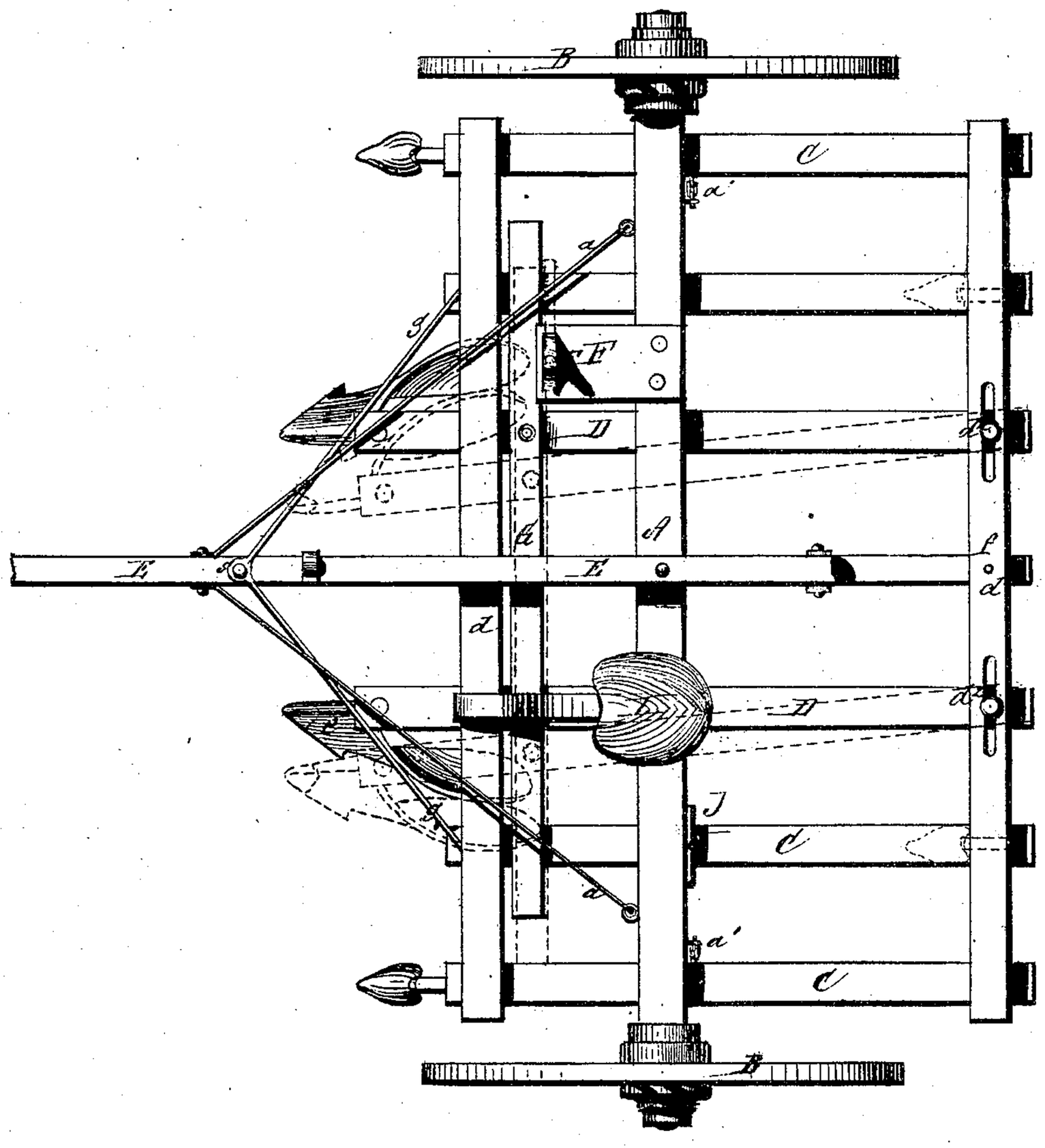
John Root
Inventor.

3 Sheets—Sheet 2.

J. ROOT.

Wheel Cultivator.

No. 106,728. Patented Aug. 23, 1870.



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3 Sheets—Sheet 3.

J. ROOT.

Wheel Cultivator.

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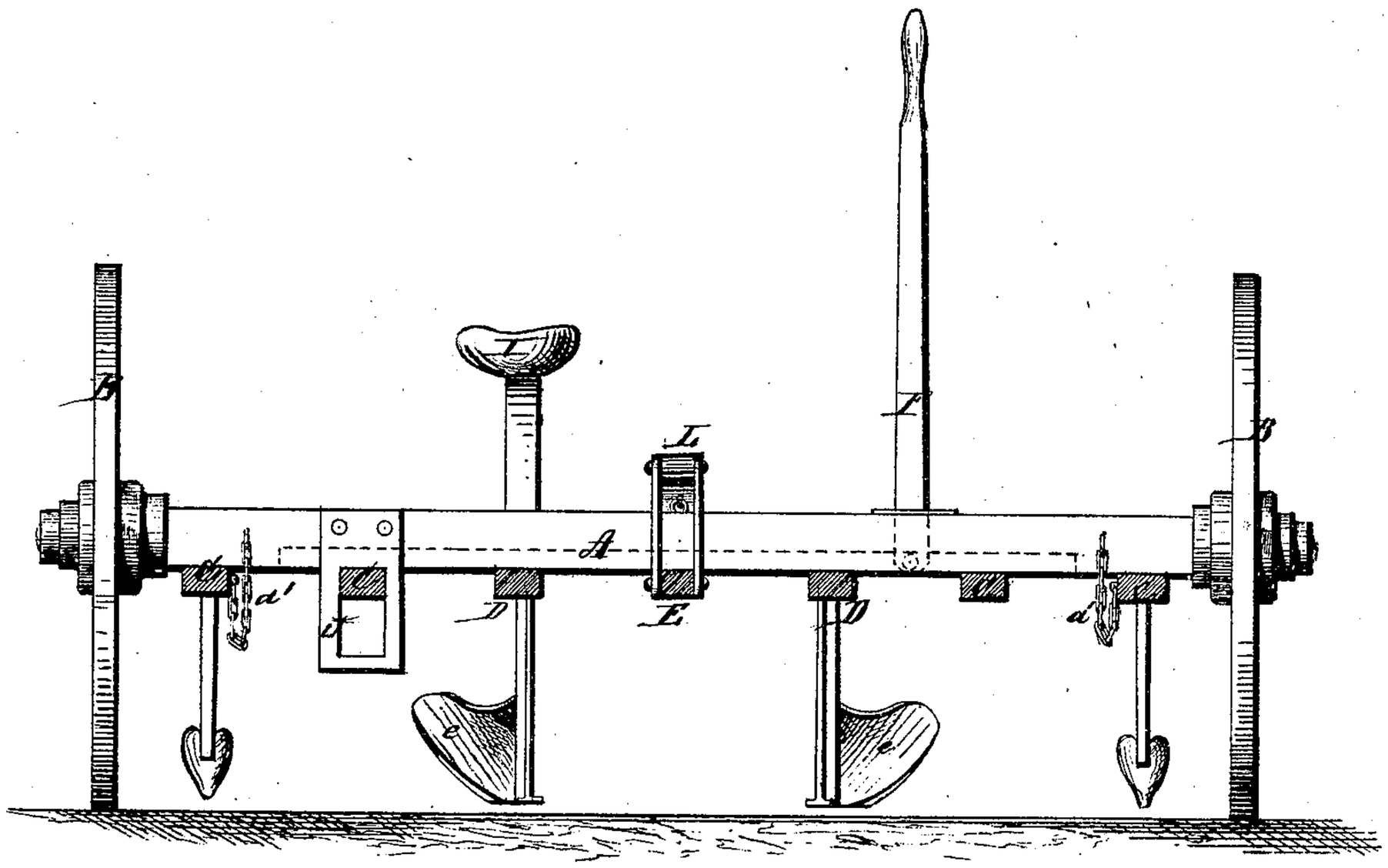

Witnesses,
Edward Wilhelm
Jno. J. Bonner

John Root
Inventor.

United States Patent Office.

JOHN ROOT, OF HARTLAND, NEW YORK.

Letters Patent No. 106,728, *dated August* 23, 1870.

IMPROVEMENT IN CULTIVATORS

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

I, JOHN ROOT, of Hartland, in the county of Niagara and State of New York, have invented certain Improvements in Corn-Cultivators, of which the following is a specification.

My improvements relate to what is known as a straddle-row-wheeled cultivator, which is composed of a main frame, provided with cultivator-teeth, and with two plows, which straddle the row that is being cultivated.

The invention consists in the combination and arrangement with a vertically-adjustable frame and laterally-adjustable plow-beams, of guide-stirrups, angle-braces, and operating levers, by which the plows may be conveniently adjusted, both laterally and vertically.

In the accompanying drawing—

Figure 1 is a longitudinal elevation of a machine, showing my improvements;

Figure 2 is a rear-end elevation; and

Figure 3, a plan view thereof.

Like letters of reference refer to like parts in each of the figures.

A is the axle on which the wheels B B are mounted.

The main frame consists of four bars, C C C C, carrying the cultivator-teeth, as shown in the drawing, and of two cross-pieces, *d d*^{1}, connecting said bars in front and rear.

The tongue E, which runs through the center of the main frame, is rigidly attached thereto by means of bolts *f* and braces *g*.

The main frame is steadied in front by braces *a a*, running from the tongue to the axle and rear of the latter by one or more guide-stirrups, J, as will be hereinafter more fully described.

Chains *a*$'$ *a*$'$ hold the frame at the required distance below the axle when the machine is working.

The beams are pivoted, at *d d*, to the rear cross-piece *d*^{1} of the main frame, and carry near their forward ends two plows, *e e*, which are made exchangeable, so that they can be set either to plow a hill or to throw the earth outward.

By means of a hand-lever, F, arranged in convenient distance from the driver's seat, I, and connecting-bar G, attached to the plow-beams D D, the latter may be made to assume any position to the right or left from their normal position between the rigid bars of the main frame and the tongue, and the plows be made to follow the irregularities in the rows without interfering with the general movement of the machine. This construction affords at the same time an efficient means to prevent clogging up of the plows in grassy ground, as a single movement of the hand-lever F will relieve them.

The holes *d*^{2} *d*^{2} are slotted, so as to allow of varying the distance between the plow-beams D D at their rear ends whenever it is necessary to employ a supplementary set of plows, for the insertion of which holes are provided in said beams.

To prevent the lateral motion of the frame, which not unfrequently interferes with the free movement of the wheels, I employ one or more slotted guide-stirrups, J, fastened to the axle, through which pass the bars of the frame in such a manner that a free vertical movement of the frame is allowed, while any lateral movement is rendered impossible, as clearly shown in the drawing.

The raising and lowering of the frame are effected by means of the foot-lever L, pivoted to the axle, and connected to the tongue near the center of gravity of the frame, in rear of the axle.

The forward end may be engaged with a hook, *s*, or other device, to keep it in place when the frame is elevated.

The employment of a foot-lever enables the driver to operate it and the lever F at the same time without interfering with the management of the reins in guiding the horse. Hence the advantage of requiring only one attendaut to operate a first-class machine is added to the advantages already mentioned, viz: the adjustability of the plows and the steadiness of the frame.

What I claim as my invention is—

1. The combination of the adjustable frame C C *d d*^{1}, draft-pole E, jointed brace-rods *a*, axle A, guide-stirrup J, and operating lever L, all arranged and operating substantially as hereinbefore set forth.

2. The combination of the laterally-adjustable plow-beams D, vertically-adjustable frame C C *d d*^{1}, connecting-bar G, and lever F, arranged and operating as herein shown and described.

JOHN ROOT.

Witnesses:

EDWARD WILHELNY,

JNO. J. BONNER.