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Thos. Harding.

PATENTED JAN 17 1871

WALKING PLOW.

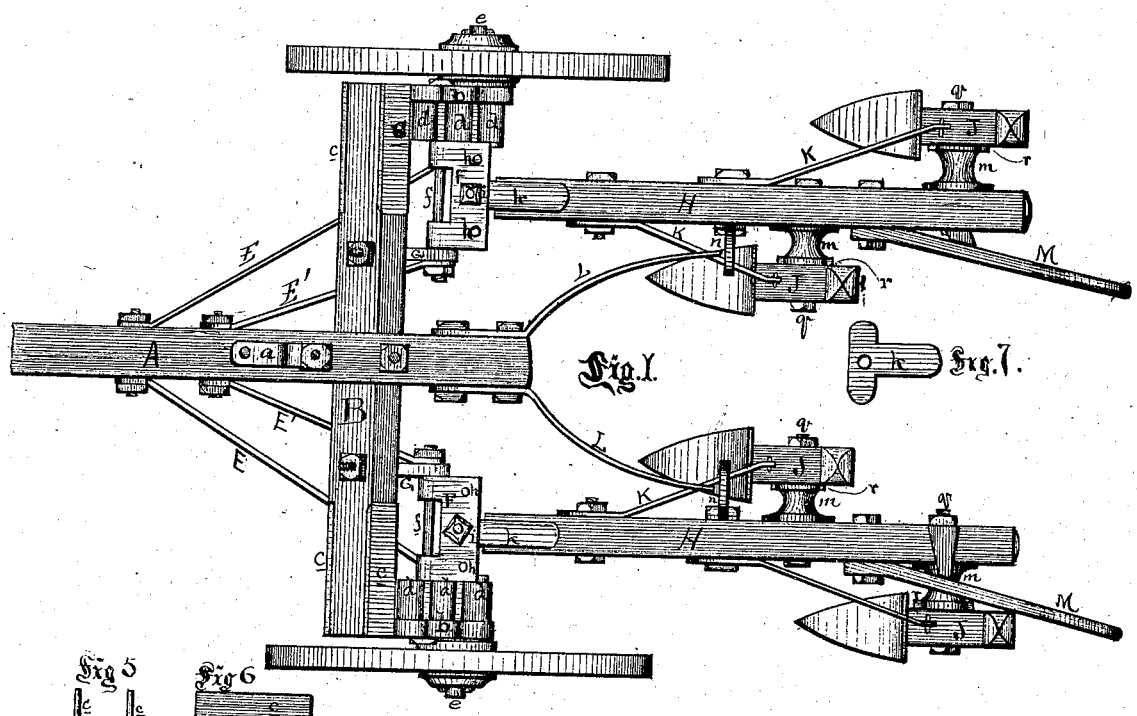

Fig. 1.

Fig. 7.

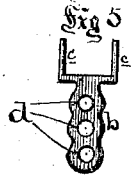

Fig 5

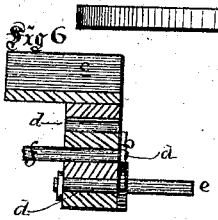

Fig 6

Fig. 3.

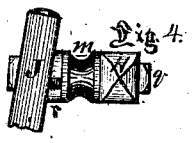

Fig. 4.

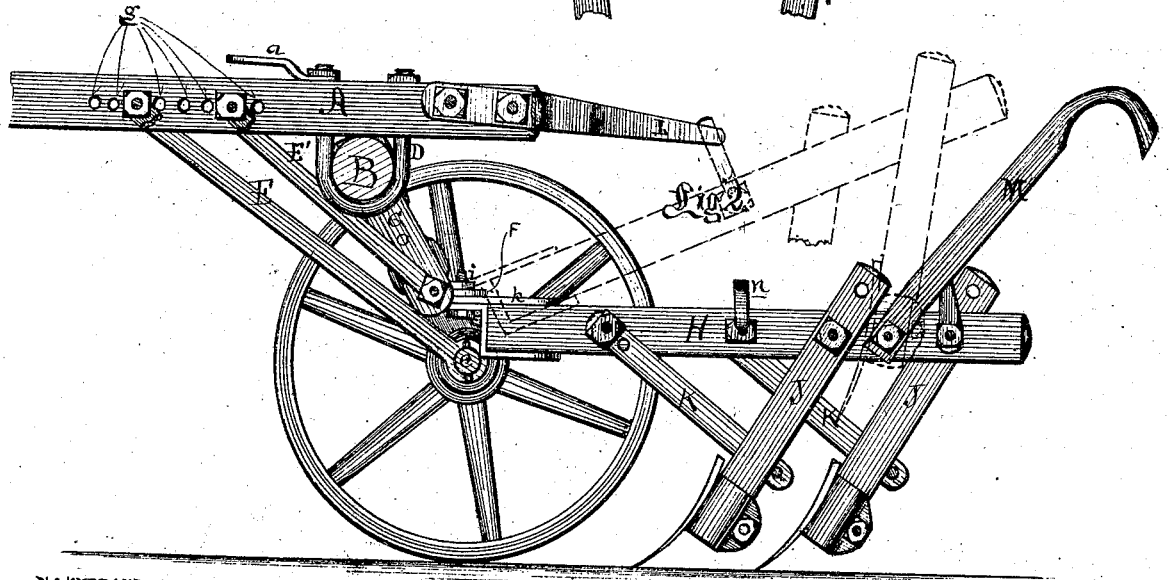

Fig. 2.

WITNESSES.

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Letters Patent No. 111,056, dated January 17, 1871.

IMPROVEMENT IN PLOWS.

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, THOMAS HARDING, of La Fayette, in the county of Tippecanoe and State of Indiana, have invented a new and useful Improvement in Walking-Plows; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a plan view of my invention.

Figure 2 is a longitudinal vertical section of the same.

Figures 3 and 4 exhibit the mode of securing the desired inclination of the standards.

It is well known that, to secure the most satisfactory action, it is required that the height of the point of draft shall be adjustable to adapt the machine for large or small horses, and also to decrease as much as possible the strains upon the frame when the point of draft is far removed above the axis of the bearing-wheels.

My invention, therefore, consists in the method of adjusting the height of the point of draft by inclining the crank-shaped axle forward, and adjusting the angle of the tongue thereto, as may be required.

It further consists, also, in the method of construction shown in the axle, and in the attachment of the drag-bars or plow-beams thereto; in the method of attaching and supporting the plow-beams.

That others may fully understand my invention, I will particularly describe it.

A is the tongue, to which the team is attached in the ordinary manner, by double-trees, &c., the hammer-strap indicating the point of attachment.

B is the axle, made in the form of a double crank, and having the wheels attached at its ends.

The mode of construction which I prefer is shown in the drawing. I make each end of the axle of a cast iron plate, *b*, forming it with inclosing-flanges, c, at its upper end, to receive the end of the wooden bar which forms the cross-piece of the axle, and with several sockets, *d*, to receive the wrought-iron or steel pins *e f*, upon which the wheels turn and the plow-beams are attached.

The axle is in this way constructed with great strength in proportion to the amount of material employed, and the several sockets *d d* permit an adjustment of the pins up or down.

The axle B is made cylindrical at its central part, as shown in the section fig. 2, and the tongue A is attached to the axle by means of a strap, D, or other equivalent means, to form a joint at that point capable of permitting a relative motion of tongue and axle.

It will appear evident that the height of the tongue above the ground may be raised at pleasure by permitting the axle B to incline more or less forward, as, when the parts B are upright, the tongue would be at its greatest elevation, and adapted to cultivate corn of considerable height; and, when the axle-piece *b* should be inclined forward so as to be horizontal, the tongue would be quite near the ground, and the draft-strain would be direct upon the plow-beams. This latter is an extreme adjustment, and will be seldom or never needed.

The desired relative positions of tongue and axle may be preserved by means of braces E E', or other convenient means, and, if said braces are employed, they may be adjusted by means of holes *g g* in the tongue.

The braces E are attached to the cast-pieces *b*, by means of the wheel-spindles *e*, and therefore a part of the draft-strain is brought almost directly to the wheel-axle pins *e e*.

The pins *f* are extended toward the middle of the axle far enough to receive the draw-plates F, and the inner ends are supported by the brackets G and braces F'.

The plates F are employed so that the draft-point of the plow-beams H can be shifted to or from the center of the axle to make the plows run more or less near to the row of plants. Several holes, *h*, are therefore made in the plate F at the forward end of the plow-beams H. A T-head plate, *k*, is secured, and the coupling-bolt *i* passes through said T-head and through the plate F, and attaches the plow-beam to the axle.

It will be observed that the plates F are capable of motion in a vertical direction upon the bolts *f* as centers, and that the plow-beams H are capable of horizontal motion upon the bolts *i*, as centers, while the lateral extensions of the T-heads will prevent any undue rocking motion of the plows.

The plow-standards J are secured to the sides of the plow-beams H by means of bolts *q*, which pass through both beam and standard, and each standard is set off at the proper distance by the block *m*, which is interposed. These blocks are made so as to present a long foot in contact with the beam, as shown in figs. 1 and 3. No string-brace will then be required to support the outside of the standard.

It is desirable to give the shovels a lateral adjustment, so that they may be set a little further out or in sometimes, as may be desired, and the washer *r*, thicker upon one edge than at the other, is interposed between the block *m* and the standard, and, by shifting the position of the thin edge of said washer, the desired inclination may be given to the standard.

The braces K pass through the center of the standards J near their lower ends, and thus secure a central

draft for the shovels. The front ends of said braces are bolted to the plow-beam in the usual way.

The plow-handles M are set off toward the walking side, as is usual, to enable the driver to walk at one side of the row of plants, and manage both plows conveniently.

When the apparatus is to be transported from place to place, it is necessary to elevate the plows and maintain them so. I have therefore attached to the rear end of the tongue-arms L, and to the side of each plow-beam, a hook, *n*. By raising the plow-beam the hook may be engaged with the arm, and thus support the plows, as shown in dotted lines in fig. 2.

Having described my invention,

What I claim as new is—

1. The axle B, constructed with the cast-iron end pieces *b b*, when said end pieces are provided with sockets *d d* and flanges *c c*, for the purposes described, and the wooden cross-bar, as set forth.

2. In a straddle-row cultivator, the draft-pole A and a double crank-axle B, when jointed together substantially as described, so that said draft pole and axle can be adjusted in height, for the purpose set forth.

3. The combination of the double-crank axle B, tongue A, jointed thereto by means of the strap D, and the braces E, for the purpose of adjustment, as set forth.

THOMAS HARDING.

Witnesses:

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ELI N. COOPER.