(No Model.)

2 Sheets—Sheet 1.

T. H. McCRAY.

Rotary Plow.

No. 235,372. Patented Dec. 14, 1880.

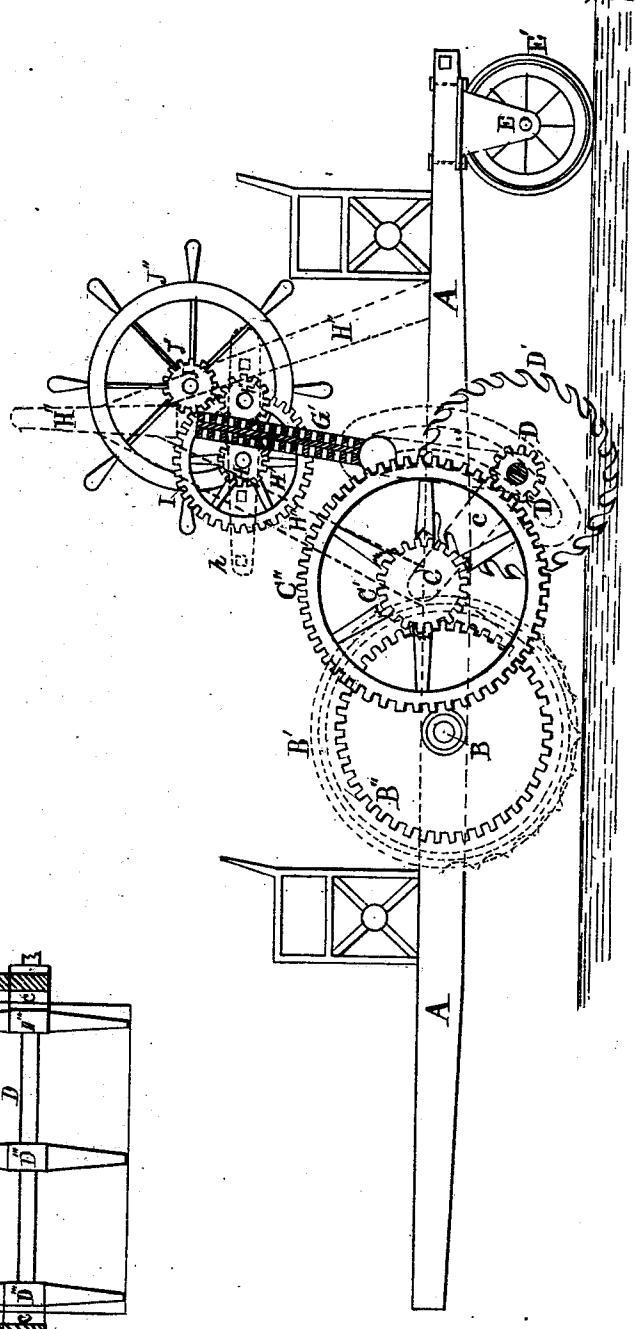


Fig. 1.

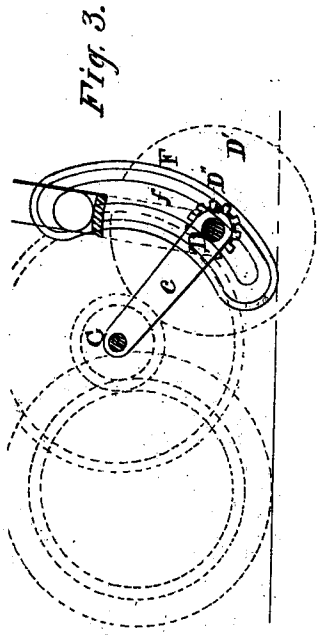


Fig. 3.

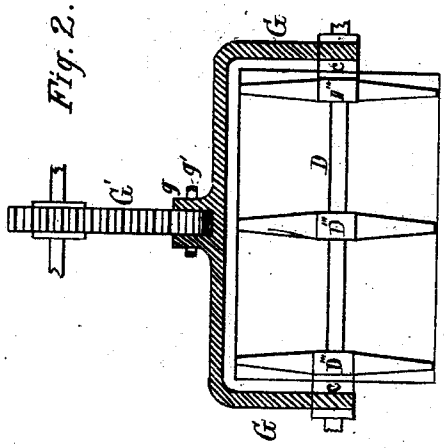


Fig. 2.

Witnesses:
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Per Wm. R. Singleton,
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(No Model.) 2 Sheets—Sheet 2.

T. H. McCRAY.

Rotary Plow.

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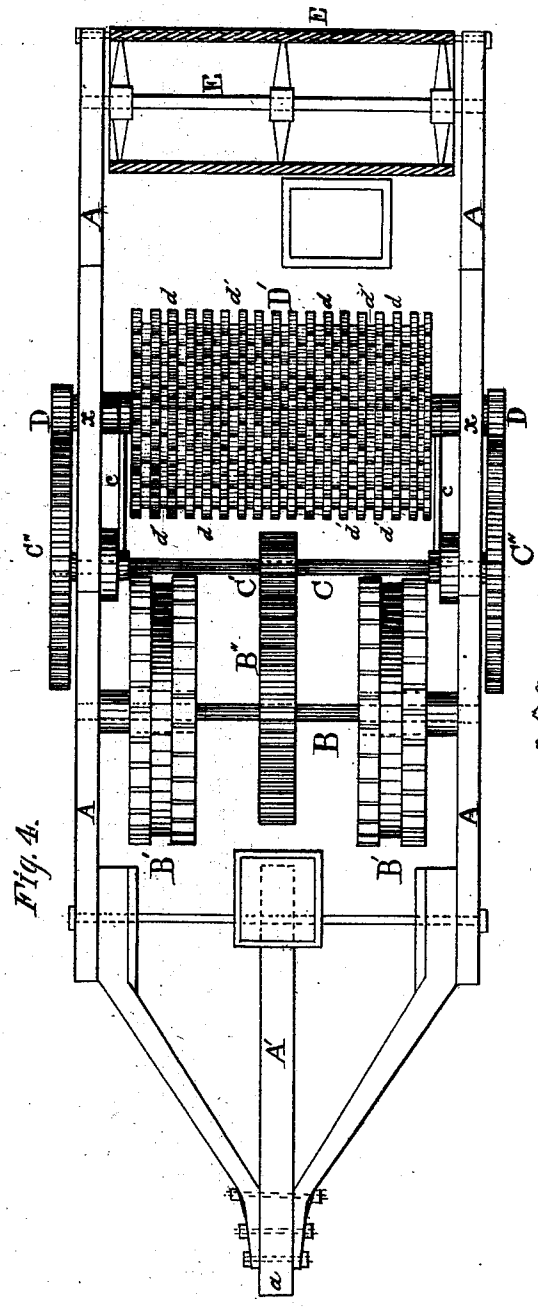


Fig. 4.

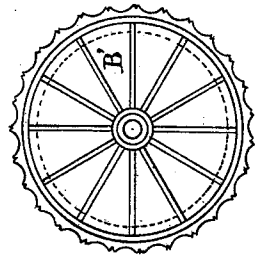


Fig. 5.

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UNITED STATES PATENT OFFICE.

THOMAS H. McCRAY, OF TYRONZA, ARKANSAS.

ROTARY PLOW.

SPECIFICATION forming part of Letters Patent No. 235,372, dated December 14, 1880.

Application filed July 8, 1880. (No model.)

To all whom it may concern:

Be it known that I, THOMAS H. McCRAY, of Tyronza, in the county of Cross and State of Arkansas, have invented certain Improvements in Rotary Plows, of which the following is a specification.

This invention relates to improvements in rotary plows; and it consists in certain devices for elevating and depressing the shaft of the plow-cylinder, which will be hereinafter more fully described, and set forth in the claim.

In the drawings, Figure 1 is a longitudinal vertical and sectional elevation. Fig. 2 is a section of a part of Fig. 4, showing, in elevation, the centers of the plow-cylinder and the stirrup. Fig. 3 is a view of the lever and guides by which the vertical movement of the plow-cylinder is regulated. Fig. 4 is a plan view of the machine. Fig. 5 is a side elevation of the driving-wheel.

A is a strong frame-work, made either of wood or metal, and of such proportions as will sustain all the other parts of the machine, and has a tongue, A′, in the front end, to which the animals for moving it are to be attached. Across this frame A are the shafts B C D E. Near the middle and rear thereof there is a steeple-frame, H″, erected to sustain parts of the machinery for elevating the plow-cylinder, as will be hereinafter described.

On shaft B are fastened the two main driving-wheels B′ B′, and at its middle a large spur-gear wheel, B″.

On the shaft C is a pinion-wheel, C′, which meshes with spur-gear B″. Also, at each end of shaft C is a spur-gear wheel, C″ C″, on the outside of frames A A.

On shaft D is placed the cylinder-plow D′, which will be explained hereinafter. On the outer ends of shaft D are placed pinion-wheels D″ D″ to mesh with C″ on shaft C.

On shaft C are arms *c c*, which are shown in solid lines in Fig. 3. One end is pivoted on shaft C, and the other on shaft D.

Curved guides F are secured to the side frames, A A, and are curved on the radius from shaft C as a center. Within their grooves *f f* the shaft D of the plow-cylinder moves freely. Fig. 3 is designed to show this arrangement of the lever *c* and the curved guide F, with its groove *f*.

Over the plow-cylinder D′ there is a stirrup-frame, G, in which the ends of the cylinder-shaft D are supported. On the middle of stirrup G there is an eye, *g*, in which is pivoted the lower end of a rack, G′, which is operated by a pinion-wheel, H′, on a shaft, H, supported on arms *h h*, extending from the steeple-frame H″. On shaft H there is a spur-gear wheel, I, which meshes with and is driven by a pinion, J′, on a shaft, J, which is supported in the steeple-frame H″. On said shaft J there is a steering-wheel, J″, and convenient to it is a seat for the pilot, who regulates the vertical movement of the plow-cylinder as follows: By turning the steering-wheel J″ motion is communicated through gears J′ to I and H′, which latter operates upon the rack G′ to raise or lower the stirrup G, and with it the plow-cylinder D′.

On the back of rack G′ are cogs, which mesh in an "idler-wheel," *h″*, to sustain the rack in its vertical position.

The plow-cylinder is made up of plates or rings *d d′*, which are held in position on shaft D by the centers D‴ and by bolts which extend through them all from end to end, and are securely screwed up from the two ends of the cylinder. Each plate or ring has projecting saw-teeth *d d′*, as shown in Fig. 1, and these teeth are so arranged that they do not line with each other, except in alternate plates or rings, so that the teeth cannot clog, and yet, as the faces of the teeth travel in the same planes vertically, all the ground is cut up.

At the rear end of frame A is a wheel, E′, on shaft E, to sustain that part of the machine on the ground and roll the earth evenly after the rotary plow.

The front driving-wheels, B′ B′, as seen in Figs. 4 and 5, are made with the width of their peripheries in three sections. The two exterior ones are serrated or scalloped. The interior one is cylindrical. By this arrangement the serrated sections take hold upon the unplowed ground, and the cylindrical part prevents the wheel from sinking too far into the

ground. This construction of these wheels does not form a part of my invention, but it is the manner in which I prefer to make them.

When the machine is moved by animal-power, which is to be applied to front end of the tongue A′, (shown cut off at *a*,) the motion forward of the driving-wheels B′ will cause spur gear B″ to rotate and set in motion shaft C, gears C″, and rotate the plow-cylinder D′ and cut up the ground as it rotates, the rotary motion being much faster than its movement forward. The depth of the cutting is regulated by the steering-wheel J″, as hereinbefore described.

If necessary, steam-power may be applied to pull or drive the machine in place of animals.

What I claim, and wish to secure by Letters Patent of the United States, is—

In a rotary plowing-machine, the combination of the steering-wheel J″, intermediate gear and pinion wheels, H′ I J′, the double-cogged rack-bar G′ and idler-wheel *h*″, to sustain the rack-bar, and the stirrup in which the shaft of the plow-cylinder is sustained, all constructed and arranged substantially as and for the purpose described.

THOMAS H. McCRAY.

Witnesses:
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THOMAS BATES.