

J. AUSTIN.
Plow.

No. 216,592.

Patented June 17, 1879.

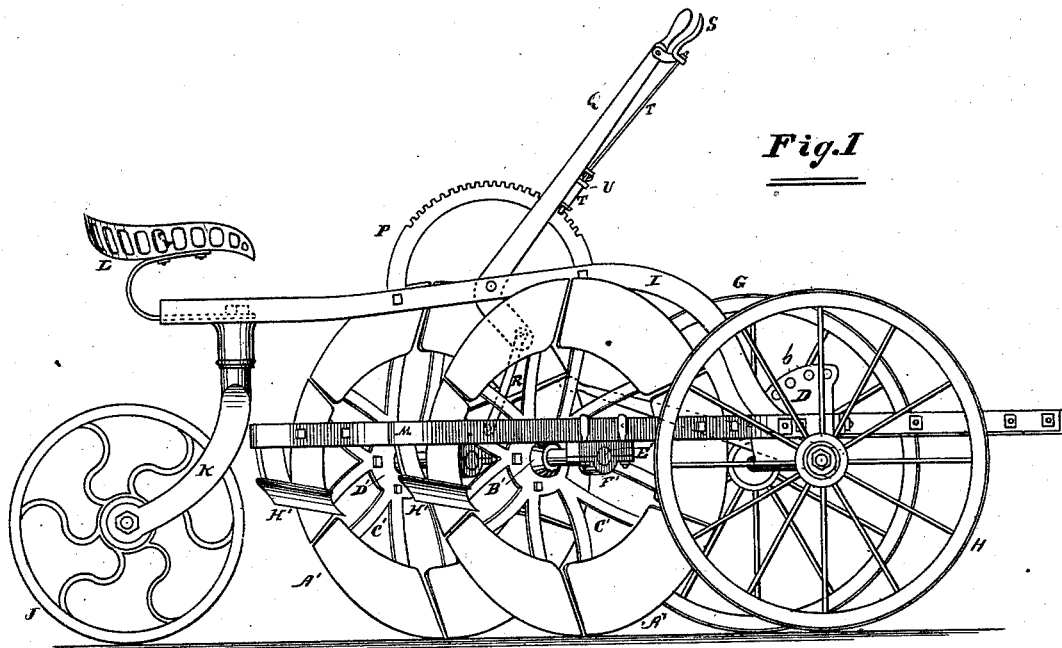


Fig. 1

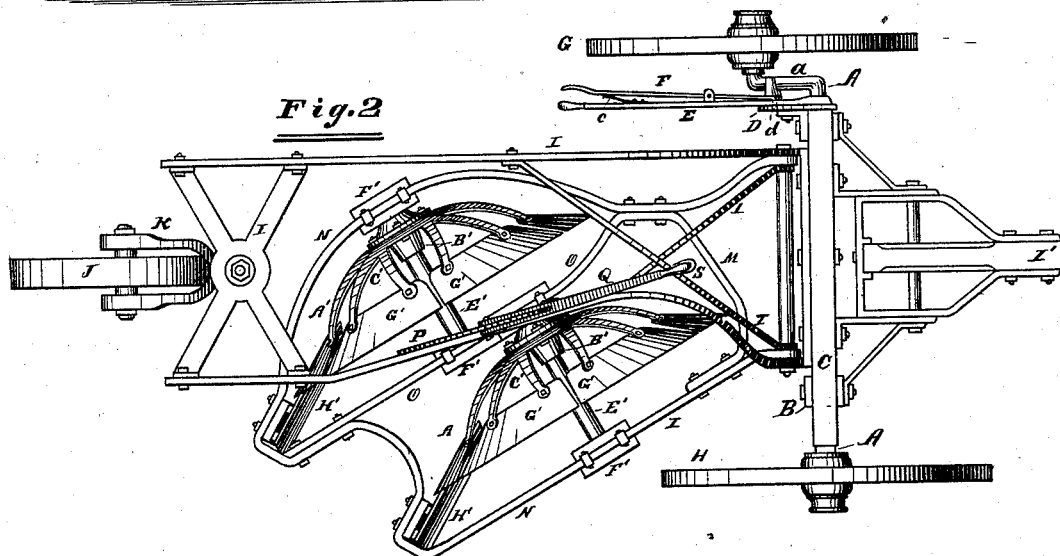


Fig. 2

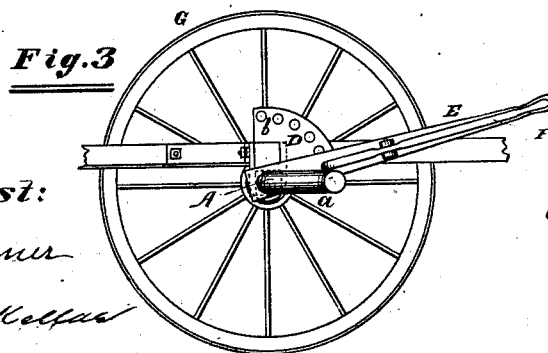


Fig. 3

Attest:

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IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. **216,592**, dated June 17, 1879; application filed January 15, 1878.

To all whom it may concern:

Be it known that I, JOHN AUSTIN, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Rotary Gang-Plows, of which improvements the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a rotary gang-plow embodying my invention; Fig. 2, a top or plan view thereof; and Fig. 3, a side elevation of one of the forward wheels, showing more in detail the means employed to adjust the wheel vertically.

Like letters of reference indicate like parts.

My invention relates to that class of rotary plows wherein are employed one or more vertically-adjustable annular and rotary concavo-convex disks, having cutting-edges lying in vertical planes, and mounted on a carriage and set at an angle to the line of draft, for cutting furrows and turning the soil during the advancement of the carriage.

I aim to improve the construction and operation of plows of this class in certain details relating to the construction of the cutting-edges or annular parts of the disks, to the mode of mounting the disks, to the construction and arrangement of the mold-boards, and to the mode of hanging and controlling the plow-beam.

To these ends my invention consists in making the cutting-edges or annular parts of the disks in comparatively narrow sections, applied to the outer ends of spokes radiating from a hub mounted on an axle set diagonally to the line of draft, and substantially as hereinafter more particularly described and specifically set forth, so that the said sections may be made, applied, and removed with greater facility; in mounting the disks on long axles; in making and arranging the mold-boards to turn the soil from the disks upon the furrows; the combination of the said disks, their pivoted frame, the main frame, and the lifting or adjusting devices, substantially as hereinafter set forth.

In the drawings, A represents the forward axle, one end of which is made crank-shaped, as shown at *a*. This axle is supported freely in the clips or straps B B, which are rigidly

attached to the bolster or cross-bar C. Rigidly attached to the bolster C is the vertically-arranged disk or plate D, perforated in the arc of a circle, as shown at *b b*. E is a lever rigidly attached to the axle A. F is a lever pivoted to the lever E, and resting on the spring *c*. The lower end of the lever F is bent to form a locking-pin, *d*, which passes through an opening in the lever E, and is arranged to enter the holes *b b*. The pin *d* is retained in any of the holes *b b* by means of the spring *c*, and may be drawn therefrom by pressing the upper end of the lever F toward the lever E. The height of the wheel G on the crank end of the axle A may be raised and lowered with respect to the opposite wheel, H, by grasping the handles of the levers E and F, and thus raising or lowering the free end of the lever E. This turns the axle A in its bearings, and consequently the position of the wheel G is correspondingly changed. As soon as the lever F is released the pin *d* will enter a hole, *o*, and lock the axle in its new position.

The wheel G being the land-wheel, and the wheel H the furrow-wheel, it will be perceived that, by adjusting the wheel G in the manner described, the frame or carriage may be made to ride horizontally or without being tilted.

I is a frame, rigidly attached to the bolster C, and supported at its rear end by the caster J, having bearings in the hanger K, which is pivoted to the frame I. L is the driver's seat.

M is a frame, pivoted at its forward end either to the bolster C or to the forward part of the frame I, so that the rear or free end of the frame M may be adjusted vertically. This frame consists of the side bars or rails, N N, and of the central bar or rail, O, all connected to each other, as is clearly represented in Fig. 2.

P is a curved or semicircular plate, notched or toothed on its outer edge, and rigidly attached to the central part of one of the bars or rails of the frame I. Q is a lever, pivoted to the frame I at a point equally distant from each of the notches or teeth in the plate P, or nearly so. The lower end of the lever Q extends from the pivot of the lever in a line at an angle to the remaining part of the lever, as represented by the broken lines in Fig. 1; and R is a connecting-rod, pivoted to the outer end

of the short or lower arm of the lever Q, and also to the central part of the beam or rail O.

S is a short lever, pivoted to the upper part of the lever Q, and T is a bolt or locking-bar, pivoted to the lever S and passing through the guide-plate U, the latter of which is rigidly attached to the lever Q. The lower end of the bolt T is adapted and arranged to engage the notches or teeth on the plate P, and may be held to this engagement by means of a spring. By drawing the upper end or handle of the lever S toward the handle of the lever Q the bolt T will be drawn from its engagement with the plate P, and the lever Q may then be moved back and forth. This back-and-forth movement will, as will be perceived, result in raising or lowering the frame M, and when this frame is thus properly adjusted it will be held in its position by the lock bar or bolt T as soon as the lever S is released. As will be hereinafter explained, the frame M carries the rotary plow-disks, and the object of adjusting this frame in the manner described is to cause the disks to run deep or shallow, according to the depth of furrow desired.

A' A' are the rotary plow-disks. These disks consist of the hubs B' B', from which extend the radial arms or spokes C' C'. In practice these arms or spokes may extend from an annular disk, D', bolted to a flange on the hub. The hubs B' B' are rigidly attached to the axles E' E', journaled in the bearings F' F', applied to the bars or rails N N and O of the frame M. G' G' are the working or cutting blades of the disks A' A'. The parts G' G' form an annular rim, made in sections, each part G' being applied to the outer ends of a pair of spokes, C' C', as represented.

Each disk A' A', as a whole, is concavo-convex in form, and the concave faces are set in the same direction and toward the furrow side of the implement. The disks are also set in planes which bisect the line of draft, as represented in Figs. 1 and 2. One disk is also set a little to the rear of the other, as shown.

It will be observed that the bearings of the inner ends of each axle are a considerable distance apart, thus firmly supporting the disk and preventing rocking or tilting. It may also be stated that the spokes may be made straight, the parts G' G' being dish-shaped or flaring.

H' H' are mold-boards, attached to frame M and extending across the rim of the disks A' A', as is clearly shown in Fig. 1. I' is a tongue, which may be applied to the carriage in any suitable way.

When the implement is drawn forward the disks A' A' are rotated by reason of their contact with the soil. They also cut and scoop up the soil until the latter either falls off the disks by gravity or is scraped off by the mold-boards H' H'. In either case a furrow is made

and the soil is turned much the same as by an ordinary plow.

The adjustment for the land-wheel and for the depth of furrows should be made in the manner already described. The caster-wheel should also ride against the land-side of the furrow cut by the rear disk, to prevent the plow from being thrown around by the action of the disks.

It will be perceived by referring to Fig. 1 that the forward part of the frame I is arched up to clear the disks A' A', and that both frames are light and adapted to receive the parts carried by them.

By making the rims of the disks A' A' in sections, as shown and described, any part, when injured or too much worn, may be replaced with facility by a new section, thus avoiding the necessity of providing a whole new disk in such cases. The sections may also be removed in order to be sharpened.

By making the parts H' H' in the form, or so as to approximate the form, of mold-boards, instead of in the form of mere scrapers, the soil is not only scraped from the disks at the proper time, in case it clings thereto, but is also turned as by means of the ordinary mold-board.

For many purposes only one disk need be employed.

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

1. The rotary plowing-disks A' A', one or more, consisting of the annular concavo-convex dish-shaped or flaring working or cutting blades G' G', made in sections, removably applied to the outer ends of radial arms or spokes, in combination with one or more axles arranged at an angle to the line of draft, and journaled in a vertically-adjustable beam or frame mounted on draft-wheels, substantially as and for the purposes specified.

2. The rotary plowing-disks A' A', one or more, consisting of the annular concavo-convex dish-shaped or flaring working or cutting blades G' G', made in sections, removably applied to the outer ends of radial arms or spokes, in combination with and rigidly applied to a long axle, E', set diagonally to the line of draft, and having double bearings in a vertically-adjustable frame or beam mounted on draft-wheels, substantially as and for the purposes specified.

3. The rotary plowing-disks A' A', one or more, consisting of the annular concavo-convex dish-shaped or flaring working or cutting blades G' G', made in sections, removably applied to the outer ends of radial arms or spokes, and set diagonally to the line of draft, in combination with the mold-boards H' H', having convex faces arranged in, or nearly in, contact with the concave faces of the said disks or blades, the said disks and mold-boards being applied to a vertically-adjustable frame

carried on draft-wheels, substantially as and for the purposes specified.

4. The combination, in a rotary plow mounted on draft-wheels, of the frame M, pivoted or hinged at its forward end to the forward part of the carriage and carrying the rotary plowing-disk A' A', one or more, mounted rigidly on the long axles E' E', set diagonally to the

line of draft and journaled in double bearings in the said frame, and the lifting devices connected to the frame M, substantially as and for the purposes specified.

JOHN AUSTIN.

Witnesses:

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D. J. MACKELLAR.