2 Sheets--Sheet 1.

G. MOORE.
Gang-Plows.

No. 158,859. Patented Jan. 19, 1875.

Fig. 2.

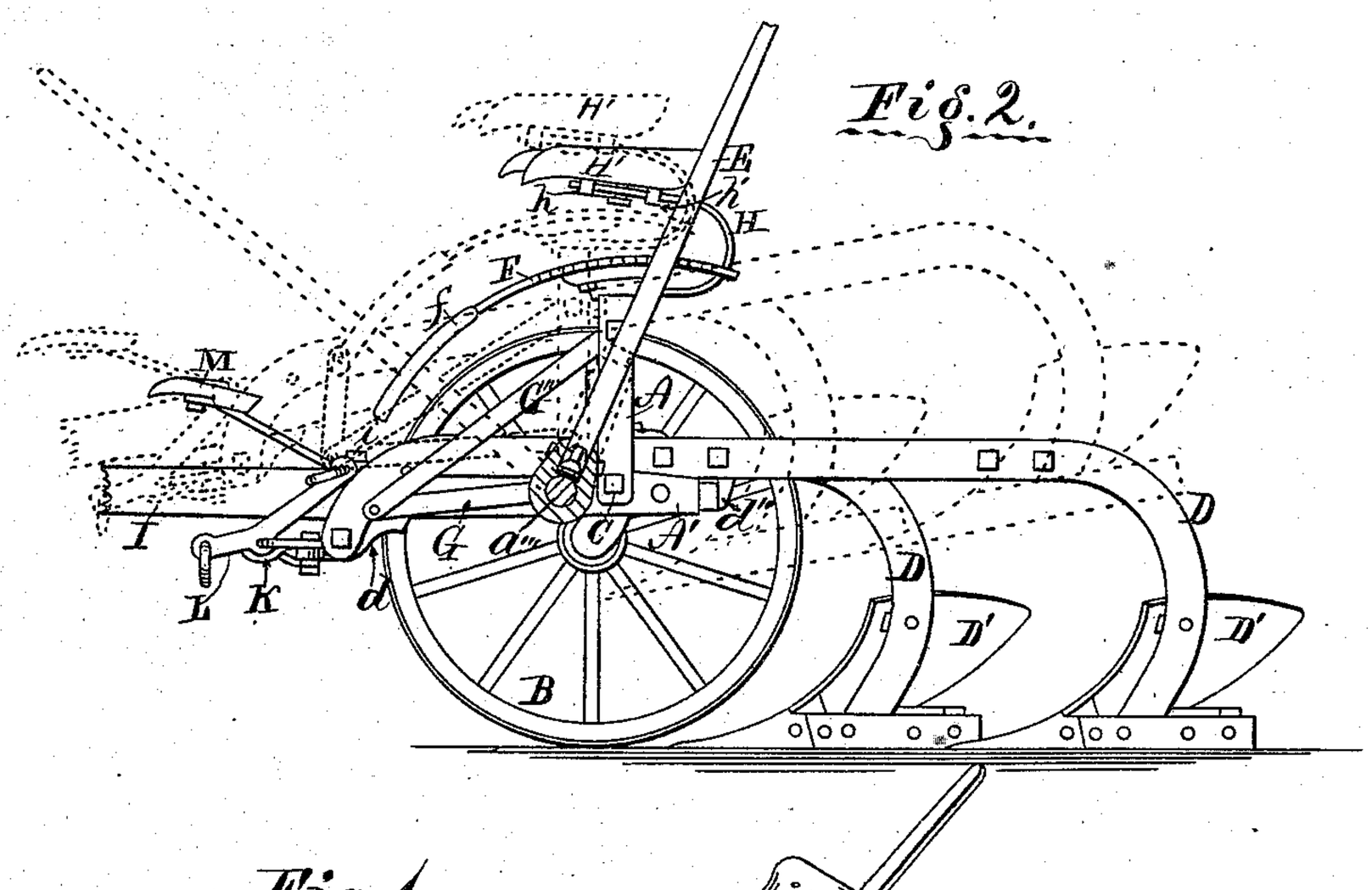


Fig. 1.

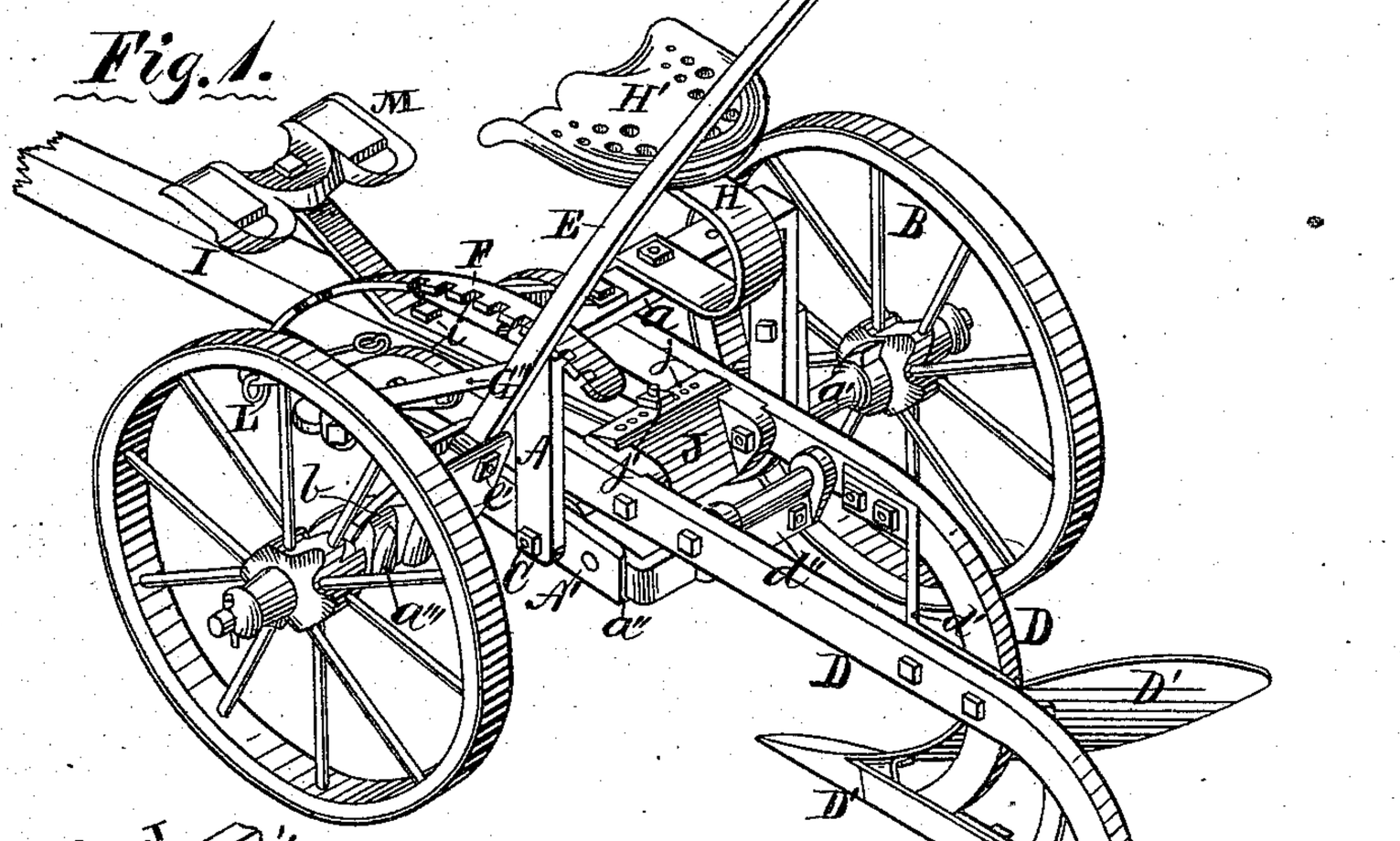


Fig. 3.

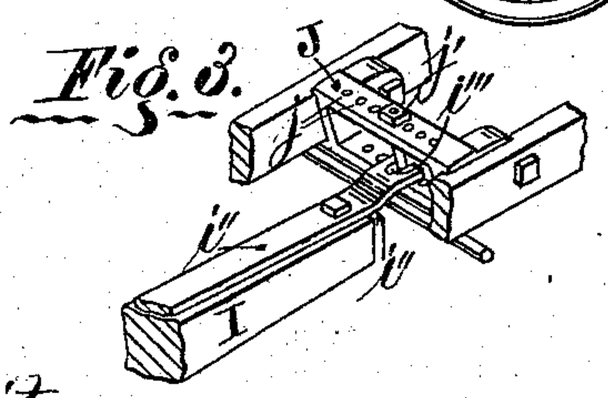
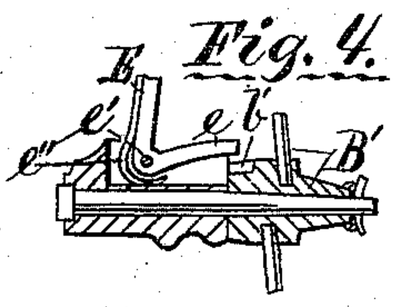


Fig. 4.



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Gang-Plows.

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Fig. 5.

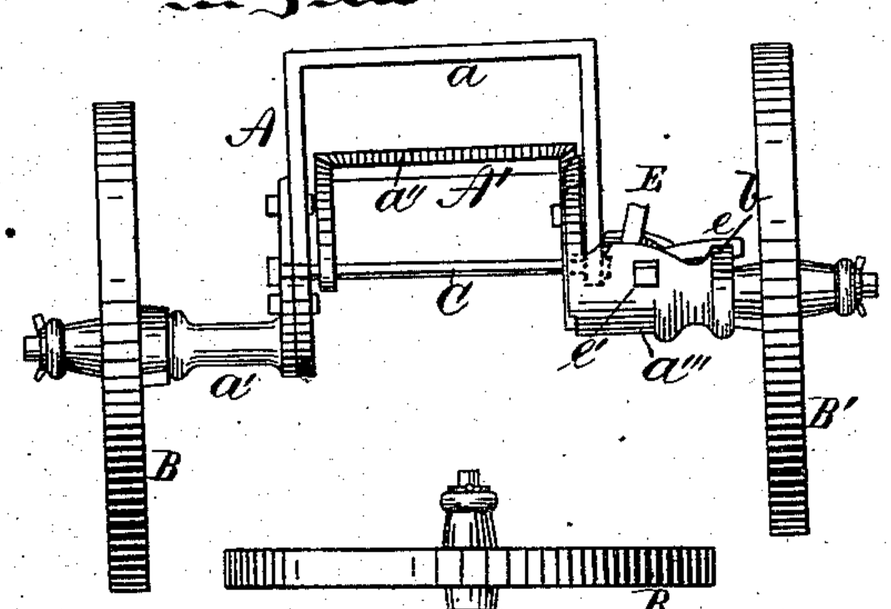


Fig. 6.

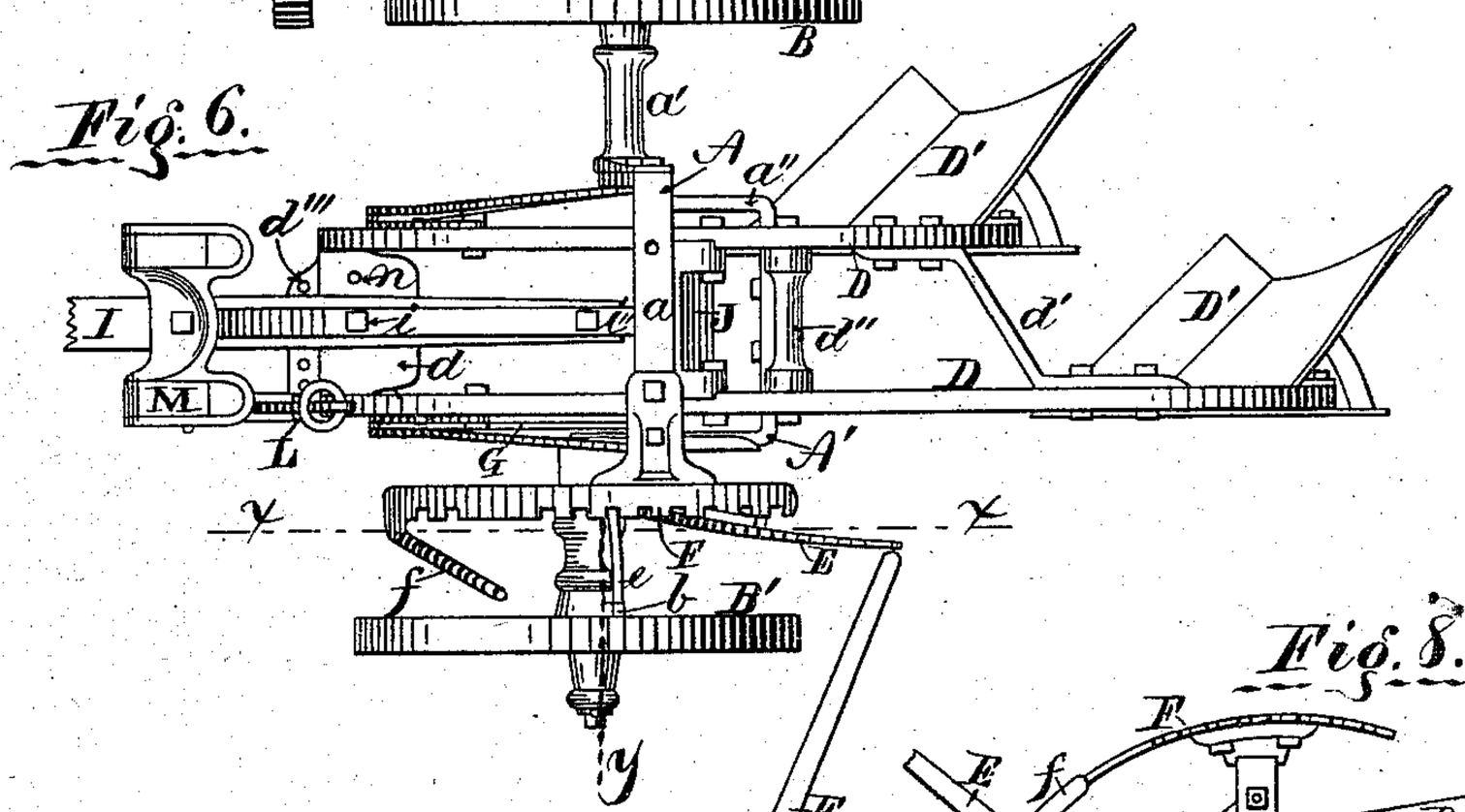


Fig. 8.

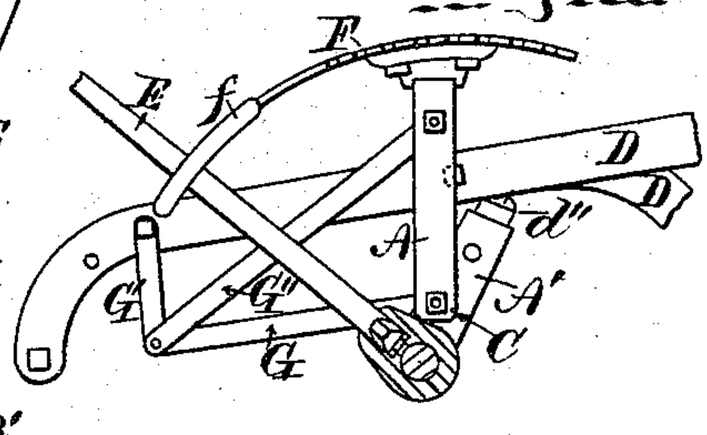
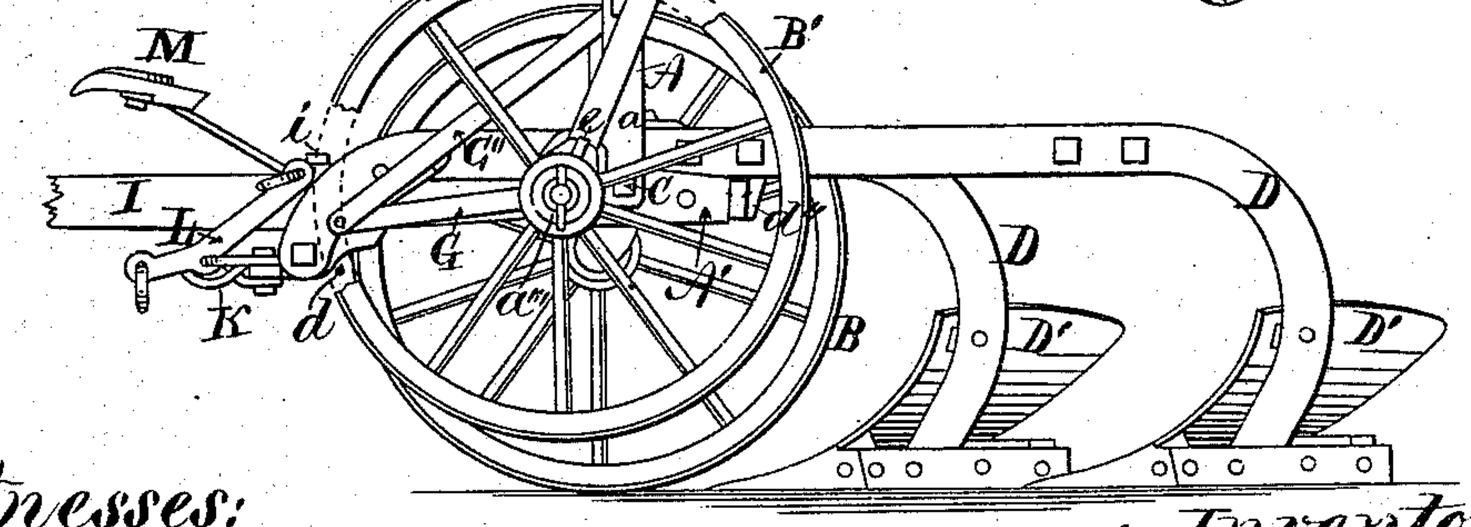


Fig. 7.



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UNITED STATES PATENT OFFICE.

GILPIN MOORE, OF MOLINE, ILLINOIS.

IMPROVEMENT IN GANG-PLOWS.

Specification forming part of Letters Patent No. **158,859**, dated January 19, 1875; application filed October 28, 1874.

To all whom it may concern:

Be it known that I, GILPIN MOORE, of Moline, county of Rock Island and State of Illinois, have invented certain Improvements in Gang-Plows. The following description, taken in connection with the accompanying plate of drawings hereinafter referred to, forms a full and exact specification, wherein are set forth the nature and principles of the invention, by which the same may be distinguished from others of a similar class, together with such parts thereof as are claimed as new, and are desired to be secured by Letters Patent of the United States.

My invention consists in the peculiar construction of the axle in two parts, the arched or bent inner ends of which overlap and are pivoted to each other, one portion being fixed and provided with a ratchet-bar, and the other or movable portion carrying the plow-beams and mechanism for raising and lowering and adjusting the plow. It further consists in the peculiar construction and operation of the lever for raising and lowering the plow, and which may be operated by means of the draft-animals, as hereinafter set forth. It further consists in the arrangement of a series of bars pivoted to each other, to the plow-beams, and to the sections of the axle, so as to hold the elevated part of one section, carrying the driver's seat, in a vertical position, while they permit of free movement of the other parts when the hand-lever is free, and aid in securing rigidity thereof when the hand-lever is engaged with the rack-bar. It also consists in pivoting the tongue to the forward end of the plow-beams, so that it may have a free vertical movement or oscillation, as well as be adjusted laterally to adapt it to different numbers of draft-animals, and its lateral angularity with the beams be adjusted to run the plows to or from the land, all as hereinafter fully described.

In the accompanying drawings, which illustrate my invention, the similar letters used as marks of reference apply to like parts in all of the figures.

Figure 1 is a perspective view of my improved gang-plow with the tongue partly broken away. Fig. 2 is a side elevation with the axle in section, on the line *x x* of Fig. 6. Fig. 3 is a detached perspective view of the rear end of the tongue and adjacent parts. Fig. 4 is a vertical sectional view of part of one section of the axle on the line *y* at Fig. 6. Fig. 5 is a front elevation of the sectional axle and the supporting-wheels. Fig. 6 is a top or plan view with the driver's seat removed. Fig. 7 is a side elevation with one wheel partly broken away. Fig. 8 is a detail view, hereinafter referred to.

The construction and relative arrangement of the parts of the sectional axle are shown more particularly at Fig. 1, A representing one section, consisting of an elevated rectangular part, *a*, with a horizontally-projecting lower end, *a'*, to form a journal for the supporting-wheel B; and A′ representing the other section, consisting of a rectangular part, *a''*, with a horizontal projecting lower end, *a'''*, to form a journal for the supporting-wheel B′, and for other purposes hereinafter described. The sections A and A′ are pivoted or journaled to each other by a rod, C. D D are two plow-beams, each carrying an ordinary turning-plow, D′, and are connected at their forward ends by a plate, *d*, which is journaled in each beam, so that it may have a free oscillating movement, and are connected at their rear ends by any suitable brace, *d'*, and at their central parts by a plate, *d''*, which is also journaled in the plow-beams, and secured to the rectangular part of the section A′ of the axle, forming the draft-connection between the axle and the plows. E is a hand-lever, its lower end carrying a foot, (see Fig. 4,) the toe *e* of which extends outward past the inner end of the wheel-hub adjacent thereto, and the heel of which is pivoted at *e'* in a suitable recess in an enlargement upon the horizontal end of the section A′ of the axle. *e''* is a spring attached to the heel of the lever E, for the purpose of pressing its upper end back to engage with suitable notches in a ratchet-bar, F, which is carried upon the upper part of the section A, as shown in the drawings. The hub of the wheel B′ is provided with projections or lugs *b*, which engage with the toe *e* of the hand-lever E when the upper end thereof is thrown outward, so that the rotation of the wheel may be made to rotate the section A′ of the axle, thereby raising the

plows, while it carries the upper end of the lever E forward, as shown by dotted lines at Fig. 2, until, striking a diverging arm, *f*, from the ratchet-bar F, (shown at Fig. 6,) the lever is thrown back thereby, the toe *e* released, and the lever-handle thrown into engagement with the forward notches in the bar F, where it will securely hold the plows in the elevated position shown by the dotted lines at Fig. 2.

On each side of the machine is a system of connecting-bars, as follows: A bar, G, pivoted at its rear end to the rod C, and its forward end pivoted to two other bars, G′ and G″, the other end of G′ being pivoted to the forward end of the adjacent plow-beam, while the other end of G″ is pivoted to the upper part of the section A of the axle, as shown more plainly at Fig. 8. The arrangement of the bars G G′ G″ is such as to preserve the section A with its rectangular part in an upright position, thus holding the driver's seat H′, which is mounted thereon, as hereinafter described, in an upright position also, and further aiding in holding the sections of the axle and the plow-beams in their proper and different relative working positions.

H is a bar, its lower end attached to the upper rectangular part of the section A, and its upper end curved forward and pierced with a threaded hole for the set-screw *h*. H′ is the driver's seat, having loops *h′ h′* on its under side, which slip over the upper end of the bar H, and allow the seat to be slid back and forth thereon to balance the machine with varying weight drivers. The position of the seat on the bar H may be fixed by the set-screw *h*. I is the tongue, secured to the plate *d* by a vertical bolt, *i′*, and its rear end extending back, and provided with a rearwardly-projecting plate, *i″*, which has a groove, *i‴*, in its rear end. J is a plate, secured between the plow-beams D D forward of the plate *d″*, its upper and lower edges projecting forward and pierced with holes *j* for the reception of a bolt, *j′*, upon which the grooved rear end of the plate *i″* rests. (See Fig. 3.)

This arrangement, it will be seen, will allow the tongue to oscillate with the plate *d*, the grooved plate *i″* playing freely up and down on the bolt *j′*, which at the same time holds it securely laterally, and thus furnishes facilities for adjustment of the plows to or from the land by changing the bolt *j′* in the series of holes *j*, to regulate the lateral angularity of the tongue to the beams. The forward side of the plate *d* is pierced with a series of holes, *d‴*, by which an ordinary clevis, K, for hitching a horse on each side of the tongue, may be attached thereto, or a three-horse clevis, L, and their lateral position thereon be adjusted as desired, to adjust the plows to land.

The rear side of the plate *d* is pierced with holes *n*, by means of which the tongue may be centrally located between the beams, for use with two or four horses—two to the clevis K and two to the forward end of tongue—and be located nearest right-hand plow-beam for use with three horses. M is a rest for the driver's feet, mounted on the tongue I.

The operations of my invention are deemed obvious from the foregoing description, from which it will be seen that the draft is directly from the forward ends of the plow-beams; and, further, that when four horses are used, as hereinbefore described, with two of them hitched to the end of the tongue I, the freedom of the tongue to oscillate vertically, as herein described, will prevent all undue strain on the tongue, and affecting the running of the plows arising from ascending and descending grades in the line of progression, and from other irregularities of surface.

The method of raising the plows up out of the ground, and above the surface, for the purpose of turning, for transportation, or other purposes, by means of the draft and rotation of the wheel, and also the method of securing the plows in said elevated position, is already described herein. It will further be seen in the same connection that the depth of plowing may be adjusted by fixing the position of the lever E in the series of rear notches in the rack-bar F, and that whenever the lever E is engaged in either of said notches it serves as a lock to secure a rigid connection between the sections of the axle, and between the axle and plow-beams.

Figs. 2 and 7 (full lines) show the plows down into working position, the right-hand wheel B in a horizontal plane with the bottom of the furrow, in the open last-made one of which it runs, and the left-hand wheel B′ elevated and running on the unplowed land.

It will also be seen by reference to the same Figs. 2 and 7 that the point of attachment of the beams D to the section A′ is in a horizontal plane above the centers of the wheels B B′; hence, that the draft forward on the beams will tend to rotate said section A′ upward and forward, and thus exert a lifting force on the plows D′, which will offer a constant resistance to the tendency of plows to draw downward by sustaining the pressure of the dirt from forward and above, and reduce the bottom friction thereby to a minimum.

I claim as new—

1. The axle constructed in two parts, the bent or arched inner ends of which overlap and are pivoted to each other, the fixed portion A carrying the ratchet-bar, and the movable portion A′ carrying the plow-beams and mechanism for raising, lowering, and adjusting the plows, substantially as and for the purpose set forth.

2. The hand-lever E, constructed as described, with a foot on its lower end, and arranged to operate with the lugs *b* on the hub of the supporting-wheel, and with the ratchet-bar F, sectional axle A A′, and plow-beams D D, substantially as described, and for the purpose specified.

3. The rack-bar F, constructed as described, with a diverging arm, *f*, arranged to operate

with the hand-lever E, lugs *b*, sectional axle A′ A, and plow-beams D D, substantially as and for the purpose specified.

4. The bars G G′ G″, arranged to operate with the sectional axle A A′ and plow-beams D D, substantially as described, and for the purpose specified.

5. The combination of the tongue I, pivoted plate *d*, and fixed plate J, the tongue secured to the plate *d*, so as to oscillate vertically and made adjustable laterally, substantially as and for the purpose set forth.

GILPIN MOORE.

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LUCIUS WELLS, Jr.