O. BARR.

Sulky Gang-Plow.

No. 211,372. Patented Jan. 14, 1879.

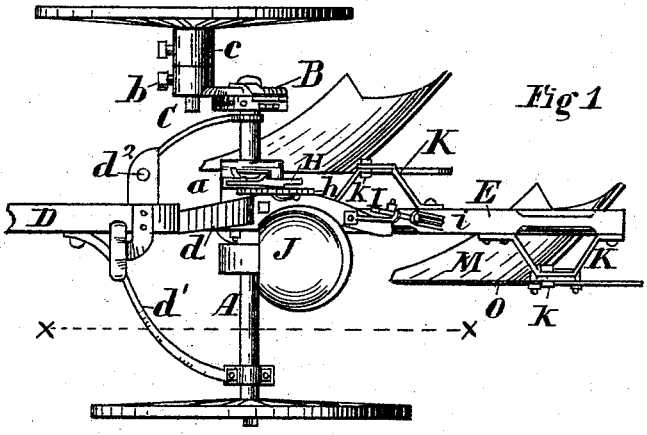

Fig 1

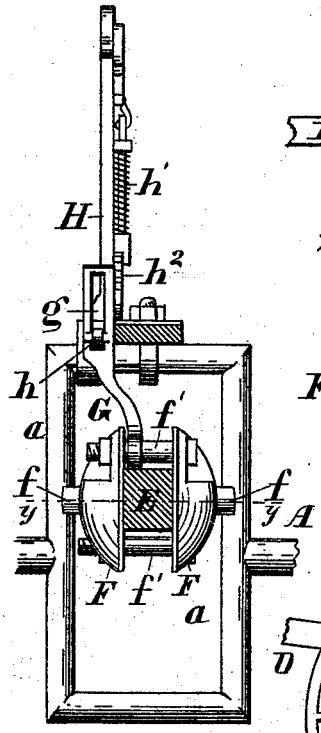

Fig 3

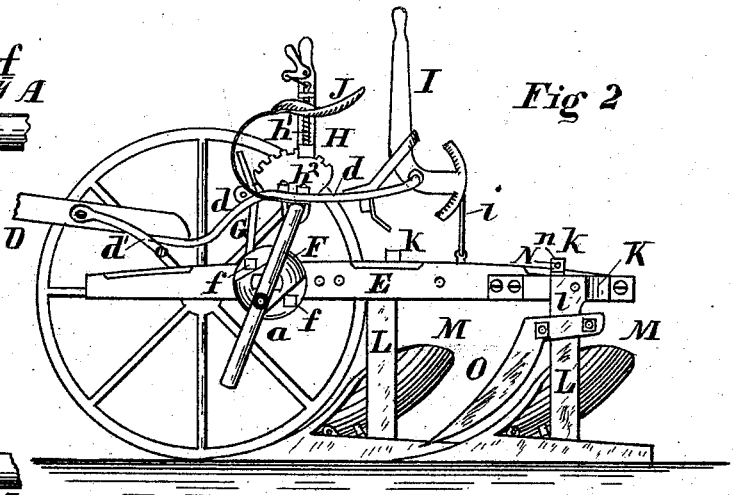

Fig 2

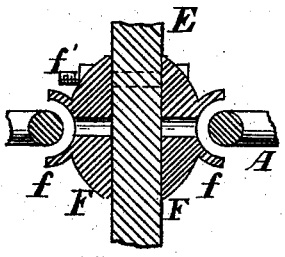

Fig 4

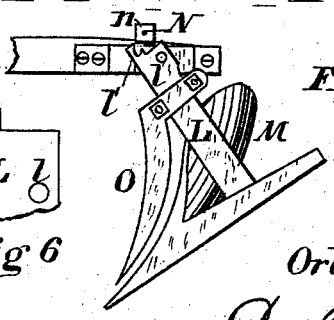

Fig 5

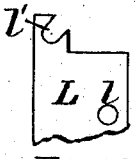

Fig 6

Witnesses

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UNITED STATES PATENT OFFICE.

ORLANDO BARR, OF ELGIN, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE P. LORD, OF SAME PLACE.

IMPROVEMENT IN SULKY GANG-PLOWS.

Specification forming part of Letters Patent No. **211,372**, dated January 14, 1879; application filed February 21, 1878.

To all whom it may concern:

Be it known that I, ORLANDO BARR, of Elgin, in the county of Kane and State of Illinois, have invented a new and useful Improvement in Sulky Gang-Plows, which is fully described in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 represents a plan view of a sulky-plow containing my improvements; Fig. 2, a sectional view of the same, taken on the line *x x*, Fig. 1; Fig. 3, a detail front elevation, on an enlarged scale, showing the construction of the axle with central stirrup and the connection of the plow-beam therewith; Fig. 4, a plan section of the same, taken on the line *y y*, Fig. 3; Fig. 5, a side elevation of the plow and portion of the beam, showing the attachment of the former to the latter; and Fig. 6 a detail of the upper portion of the plow-standard.

My invention relates to the construction of the sulky and the attachment of the plow-beam thereto, and of the plows to the beam, whereby a single beam is employed and a central draft obtained, and the axle may be tilted without disturbing the level position of the plows.

The invention consists in constructing the main axle with double bends in opposite directions, whereby a central closed stirrup is formed in the axle, and adapted to receive and guide the end of the plow-beam without weakening the axle.

It also consists in attaching the plow-beam to the axle by a loose joint, which permits the axle to be tilted at either end without disturbing the level running of the plows.

It also consists in a clamp of particular construction, which embraces the plow-beam, and is adapted to loosely connect the latter to the axle-stirrup.

It also consists in the combination, with the plow-beam, of two levers arranged one in front and the other in rear of the axle, whereby the plow-beam may be raised and depressed at the forward end or tilted up at its rear end.

It also consists in special devices and combinations of devices, all of which will be hereinafter more fully set forth.

In the drawings, A represents the main axle, which is constructed near its central portion with double bends above and below the axle, which together form a closed stirrup, *a*.

I am aware that axles have been made with bends at the middle portion to admit a vertical adjustment of some part; but such bends essentially weaken the axle. I avoid this weakening by making double bends, which together form a closed stirrup, as shown in Fig. 3 of the drawings. The land-wheel is mounted on one end of this axle as usual, and at the other end is a crank-arm, B, attached to the main axle by a device which permits it to be adjusted vertically, but need not be particularly described here, as it is well known in sulky-plows.

The short axle C of the furrow-wheel is inserted in the outer end of the crank-piece B, which is enlarged for this purpose, as shown in Fig. 1 of the drawings. The axle is movable back and forth in its bearing thus formed, and is fastened in any position desired by means of a set-screw, *b*, and by this mode of connecting the furrow-wheel axle with the main axle the furrow-wheel may be adjusted nearer to or farther from the land-wheel, as well as vertically.

A collar, *c*, is placed upon the axle C on the inside of the furrow-wheel, which is also adjustable by means of a set-screw, and serves as a washer to hold the wheel in place upon its axle.

The tongue D is attached to and supported by a bracket, *d*, attached to the upper portion of the axle-stirrup, from which it projects forward and downward, and is braced at its front end on one side to the main axle. A brace, d^1, is also arranged upon the opposite side of the bracket, being attached at one end to the tongue and at its rear end to the main axle, the attachment at the axle being an iron band or rod passing around the axle and up through the brace, with nuts fitted upon its upper ends, which may be loosened to permit the brace to be moved back and forth on the axle. Any other device suitable for this purpose

may be employed to fasten the brace to the axle, provided always it permits the adjustment above described.

The forward end of the bracket *d* is widened to provide for the adjustment of the tongue, two or more holes, d^2, being made in this piece to receive the bolt by means of which the tongue is secured to the bracket. Provision is thus made for a lateral adjustment of the tongue to adapt the plow to be used with either two or three horses, and provision for the movement of the tongue-brace on the axle permits this adjustment to be accomplished without detaching the brace from the tongue.

The plow-beam E is arranged within the stirrup *a* of the axle, its forward end projecting in front of the latter, as shown in Fig. 2 of the drawings, so that the draft-team may be attached directly thereto.

The beam is clasped near its forward end between two clamping-irons, F. These clamps are disk-shaped, one side being convex and the other plane. On the convex surfaces are lugs *f*, arranged at a distance apart a little greater than the thickness of the axle. The clamps are fastened to the plow-beam by screw-bolts *f'*, provided with ordinary nuts, and are arranged within the stirrup of the axle, so that its sides shall be held between the lugs *f* on the respective clamps, as shown in Figs. 3 and 4 of the drawings.

The plow-beam is thus connected to the axle within the stirrup by a loose joint, which permits a certain amount of movement in any direction, and at the same time the sulky is drawn forward by this connection to the beam.

The contour of the clamps is such that, in connection with the looseness of the joint, the axle may be tilted at either end without disturbing the level position of the beam and plows, while the beam may be raised and lowered or tilted at either end without obstruction.

A link-rod, G, is hinged at its lower end to one of the clamp-bolts *f'*, and its upper end is provided with a slot, *g*, in which is inserted the lower arm, *h*, of an angular lever, H, being held therein by a pin in its forward end. The slot in the link-rod permits the forward end of the plow-sulky to rise and fall freely within certain limits, and whenever it is desired to raise this end of the plow-beam to throw the plow out of the ground it is accomplished by throwing the lever back sufficiently far to make its lower arm lift the link-rod; and if it is desired to depress the forward end of the beam to force the plows into the ground, it is only necessary to throw the lever forward until the lower arm presses down upon the link-rod in the lower end of the slot therein. The lever H is provided with a spring-pawl, h^1, which engages with an ordinary toothed segment, h^2, which, together with the lever, is mounted upon the upper end of the axle-stirrup.

The bracket *d* is extended in rear of the stirrup, as shown in Fig. 2 of the drawings, and upon this extension is mounted an angular lever, I, to which is attached one end of a lifting cord or chain, *i*, the other end of which is attached to the plow-beam toward its rear end. By means of this lever and cord or chain the rear end of the plow-beam may be raised independently of the forward end. Both levers are arranged within easy reach of the driver sitting on the seat J, so that he can tilt the plow-beam at either end or raise it up bodily without leaving his seat.

A bracket, K, is attached to each side of the plow-beam in rear of axle, one being arranged in front of the other, as shown in Fig. 1 of the drawings, and upon the outer edge of each bracket is a short lug, *k*, projecting upward a little way. The standard L of the plow M is pivoted to the bracket K by a pin, *l*, so as to be free to swing back and forth on this joint. At the upper front corner of the standard is a short projection, with a notch, l^1, as shown in Fig. 6 of the drawings. A bolt, N, is inserted in the lug *k* on the bracket, and is provided with a nut, *n*, on its outer end. When the plow-standard is thrown forward as far as possible this bolt is secured in the notch l', and by turning up the nut *n* the standard will then be secured in position.

It is evident that by properly adjusting the clamping-nut the frictional resistance to the backward swing of the plow-standard may be regulated. It should be so adjusted as to hold the standard in proper position for the ordinary work of plowing, while at the same time if the plow strikes a stone or other obstruction the standard will be released from the clamp and swung backward, as shown in Fig. 5 of the drawings, thereby preventing the breakage of any of the parts.

The colter O is fastened to the plow-standard, as shown in Fig. 5 of the drawings, so that it also swings back with the plow.

The attachment of the plows to the same beam, but on opposite sides thereof, enables me to obtain a direct center draft, and at the same time it simplifies the construction of a gang-plow, and enables the plows to be more easily adjusted and managed by the driver.

The brackets to which the plows are attached must, of course, stand out from the beam, so as to provide for the proper furrow-distance between the plows.

Plows of different width may be employed, in which case the furrow-wheel must be adjusted as already described, so as to give more or less land to the plows.

The lifting devices, as well as other minor features of construction described above, may, of course, be changed without materially modifying the more important parts of my invention, and therefore I do not limit myself to the precise construction and arrangement of all the devices herein described and shown.

It is also evident that the sulky and the means for attaching the plow-beam thereto may also be used with a single plow, if desired.

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

1. In a sulky for plows, the main axle A, constructed with double bends, whereby a central closed stirrup adapted to receive and guide the front end of a plow-beam is provided, substantially as described.

2. The main axle A, bent as set forth to form a closed stirrup, in combination with the plow-beam E, arranged within the stirrup, which serves as a guide and support thereto, substantially as described.

3. In a sulky-plow, the main axle bent as set forth to form a closed stirrup, in combination with the plow-beam, arranged with a loose joint within said stirrup, which serves as a guide and support thereto, whereby the axle may be tilted at either end without affecting the position of the plows, substantially as described.

4. The main axle A, provided with the stirrup *a*, in combination with the clamps F, provided with lugs *f*, which inclose the sides of said stirrup to make a loose joint, and the plow-beam E, substantially as described.

5. The clamping-irons F, having their outer surfaces convex, and provided with lugs or projections *f*, substantially as described.

6. The plow-beam E and clamp F, arranged to move in the axle-stirrup *a*, in combination with the link-rod G, provided with a slot, *g*, coupled to the clamp F, and the lever H, substantially as described.

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Witnesses:
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