F. R. Crothers.

Gang Plow.

No. 41,686. Patented Feb. 23, 1864.

Fig. 1.

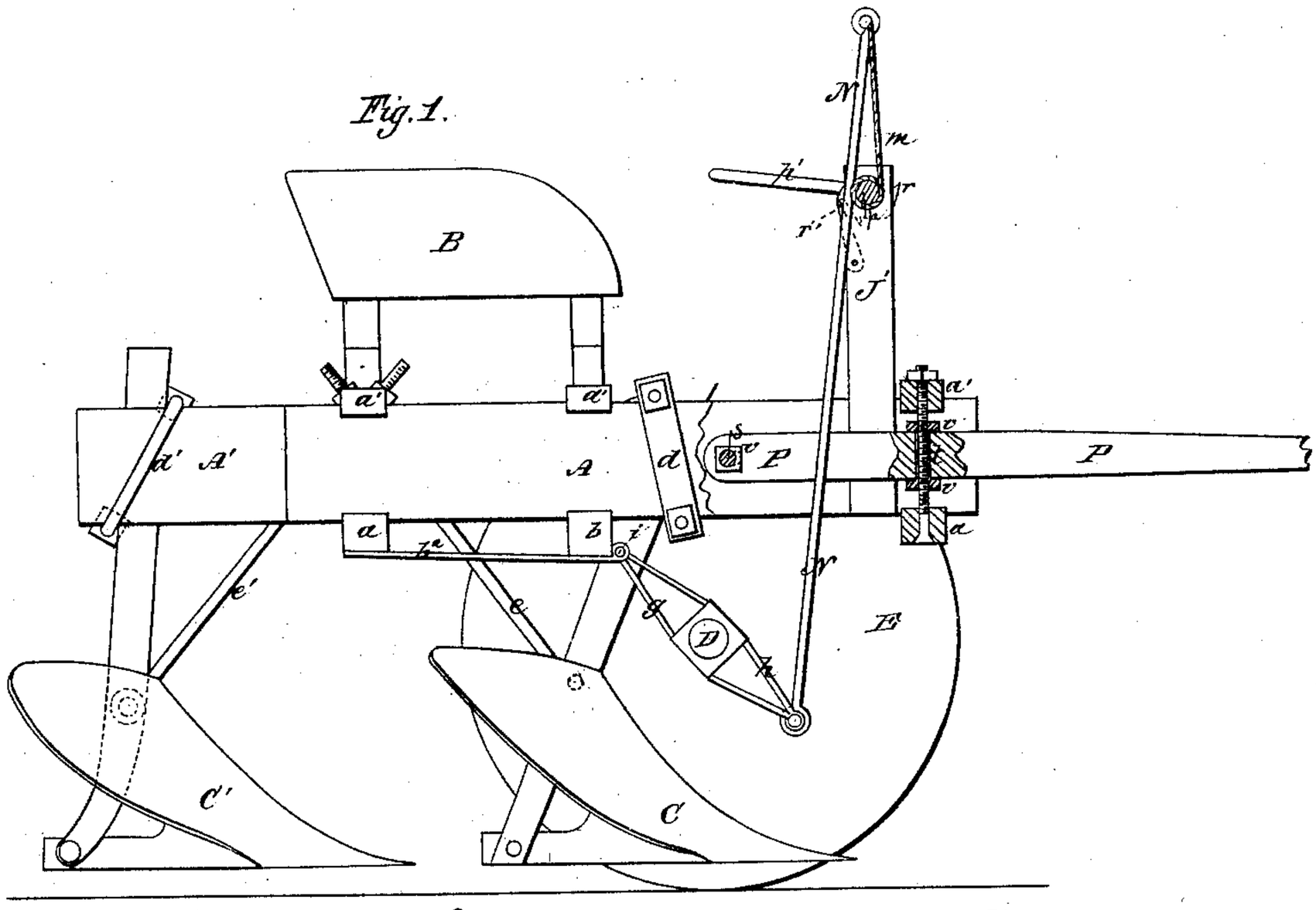


Fig. 2.

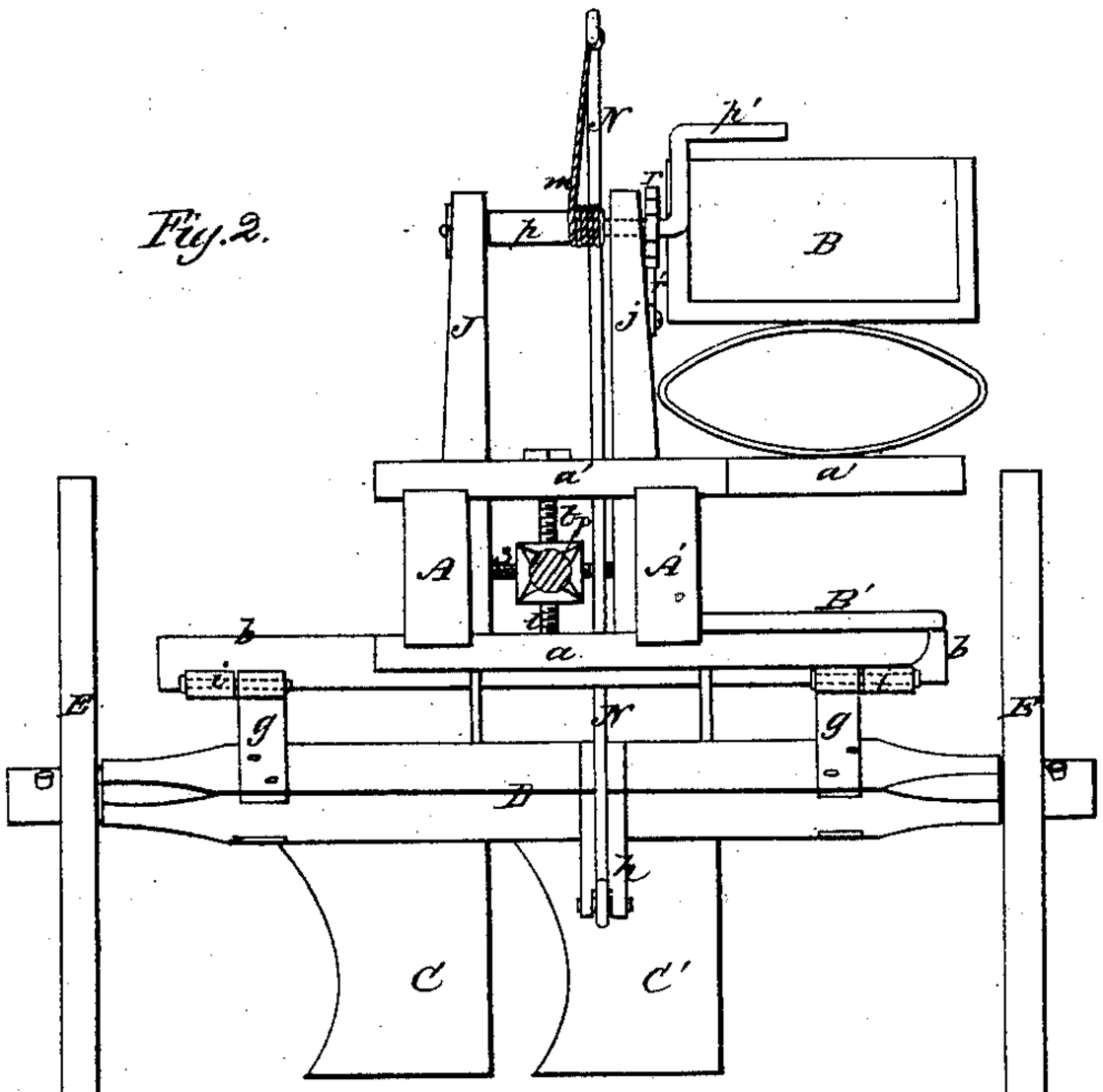


Fig. 3.

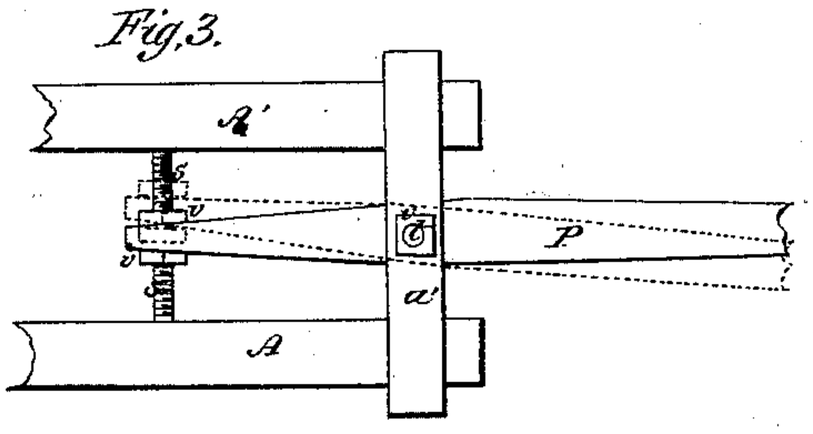
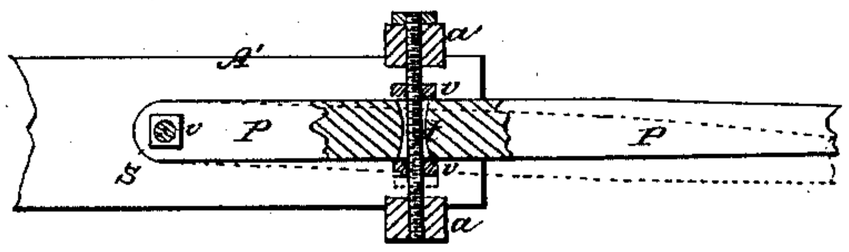


Fig. 4.



Witnesses.
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E. Schafer.

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by his attys
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UNITED STATES PATENT OFFICE.

F. R. CROTHERS, OF SPARTA, ILLINOIS.

IMPROVEMENT IN GANG-PLOWS.

Specification forming part of Letters Patent No. **41,686**, dated February 23, 1864.

To all whom it may concern:

Be it known that I, F. R. CROTHERS, of Sparta, Randolph county, State of Illinois, have invented certain new and useful Improvements in Gang-Plows; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is side elevation of my improved machine with a portion of one beam broken away to show the mode of adjusting the draft-pole. Fig. 2 is a front end view of the machine. Figs. 3 and 4 show in detail the method of adjusting the draft-pole.

Similar letters of reference indicate corresponding parts in the several figures.

This invention relates to that class of gang-plows which are supported on wheels, and in which it is necessary to raise the plows above the surface of the ground in order to transport the machine from one place to another, or to turn the machine at the corners of the field in plowing.

The main part of my invention consists in hinging the axle-tree of the carriage-wheels to the plow beams by means of arms which will allow the axle to move forward and upward, and in operating said axle-tree by means of a windlass and a stiff connecting-rod so applied that the plowman while sitting on the machine can depress the axle and thus elevate the plows above the surface of the ground; or he can bring the plows into operation again by allowing the axle to swing forward, as will be hereinafter described.

My invention consists also in attaching the draft-pole to the forward ends of the plow-beams by means of screw-rods set at right angles to each other in such manner that by the use of nuts applied to said rods the draft-pole can be readily adjusted and also rigidly secured in any desired position, as will be hereinafter described.

To enable others skilled in the art to understand my invention, I will describe its construction and operation.

The frame of the machine, to which the plows are attached, consists of two strong beams, A A′, one of which extends a short distance in rear of the other for the purpose of forming a support for the rear plow. These two plow-beams are securely braced together parallel to each other by means of transverse beams *a a a′ a′*, which, together with a long central beam, *b*, also constitute supports for the driver's seat B, and a foot-board, B′; as shown in Fig. 2. The long intermediate beam, *b*, is securely bolted across the bottom of the plow-beams, and extends out on each side thereof equal distances, receiving the diagonal braces b^2, which greatly add to its rigidity, and which strengthen its projecting ends.

The plows C C′, which may be of the common form for breaking up the soil, are attached to their respective beams by means of clips *d d′*, which embrace the upper ends of the plow-standards and the plow-beams, and also by means of inclined brace-rods *e e′*, which are secured at their upper ends to the rear transverse brace-beam, *a′*, by means of nuts applied on each side of this beam.

D represents the axle-tree, and E E the carriage-wheels on the ends thereof. Near the extremities of this axle-tree I rigidly attach two arms, *g g*, which project at right angles therefrom, and have eyes formed on their ends, which receive pins or staples *i i*, that are secured to the bottom of the bar *b*, thus forming strong hinge-connections of the axle with the frame of the machine. The hinged arms *g g* are of such length that when the axle-tree is at its lowest point with respect to the beams A A′ the plows will be considerably elevated above the surface of the ground, and when the axle is thrown up to its fullest extent the plows will descend to their greatest desired depth in the ground. On the opposite side of the axle-tree to the hinged arms *g g*, and at the middle of this axle, an arm, *h*, is rigidly attached, and to the outer extremity of this arm the lower end of a stiff rod, N, is pivoted. The upper end of the rod N projects up some distance above the beams A A′, and has a strong rope or chain, *m*, attached to it, which is carried down and passed around the transverse drum or shaft *p*, which has its end bearings in two posts, J J′, that project up perpendicularly from the forward ends of the plow-beams, as shown in Figs. 1 and 2. The upper end of rod N is thus carried above the windlass or shaft *p*, so that by turning this shaft by means of crank

p' the axle D will be pushed downward and the entire frame, together with the plows, elevated.

On one side of the standard J', and keyed to the crank-shaft p, is a ratchet-wheel, r, and pivoted to the standard below this wheel is a pawl, r', which on being engaged with the ratchet keeps the plows from running deeper into the ground than is desired, and also holds the plows out of the ground when it is desired to turn the machine or to transport it from one place to another. When the plows have been lowered to run a certain depth the shaft or windlass-drum p is locked by means of the ratchet and pawl, as above described. The plows will now run at this depth, they being held down by the stiff rod N, which prevents the axle-tree from rising.

The draft-pole P is attached to forward ends of the plow-beams A A by means of two screw-bolts, s t, that pass through said pole at right angles to each other and receive nuts v v on each side of the pole, as clearly shown in Figs. 3 and 4. The screw-rod s passes through both beams A A' in a transverse direction, and also through the rear end of the pole P and receives nuts on each side of it. This bolt allows the forward end of the pole to be adjusted vertically and the rear end to be adjusted laterally. In advance of screw-bolt s is another screw-bolt, t, which passes through the middle of the two transverse beams a a', and through the draft-pole P, and receives nuts v on each side of this draft-pole. By loosening the nuts on bolt t the draft-pole can be adjusted vertically, and by loosening the nuts on the rear bolt, s, the front end of the draft-pole can be adjusted laterally. When the pole has been properly adjusted the nuts are set up tightly against it, and it is held rigidly in its place. In practice it will not be necessary to loosen but two nuts in adjusting the pole either laterally or vertically.

In the operation of my machine in the field it will probably be necessary to back the machine a short distance before the plows can be elevated above the surface of the ground. The object of this backing is to run the plows out from under the sod, so that there will be less resistance in lifting the plows up.

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

1. Hinging the axle-tree to the frame of the machine, so that the former will swing forward of its hinge-connection, in combination with the thrusting connecting-rod N, cord or chain m, and windlass p, all applied and operating substantially as described.

2. The use of a stiff rod, N, in combination with a windlass, p, and a hinged axle, D, operating substantially as and for the purposes described.

3. The manner of attaching the draft-pole P to the plow-beam, substantially as and for the purposes described.

F. R. CROTHERS.

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