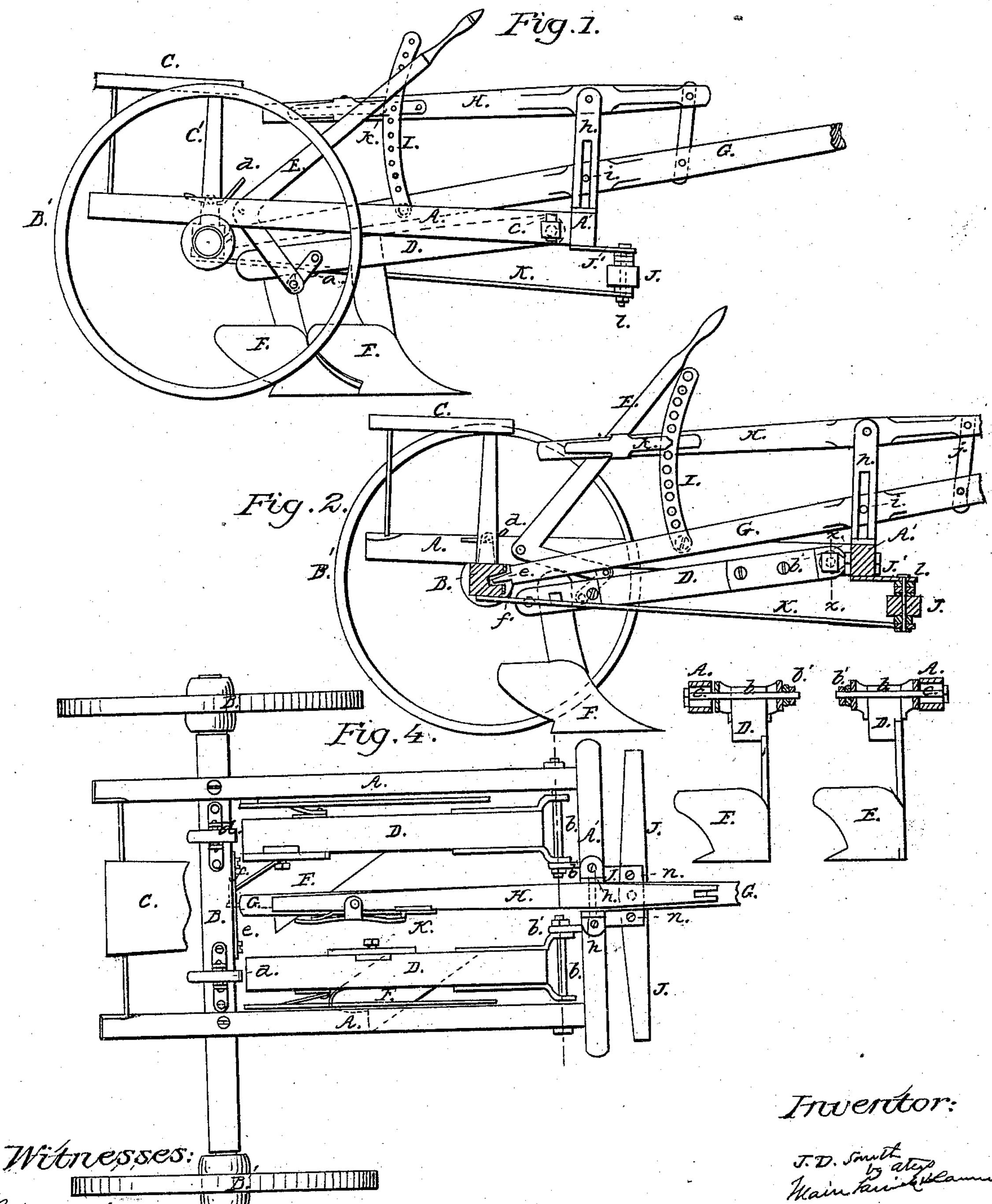
2 Sheets—Sheet 1.

J. D. SMITH.

Wheel Plow.

No. 55,921. Patented June 26, 1866.



Witnesses:

R J Campbell
Edw Schafer

Inventor:

J. D. Smith
by attys
Mason Fenwick & Lawrence

2 Sheets—Sheet 2.

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Fig. 5.

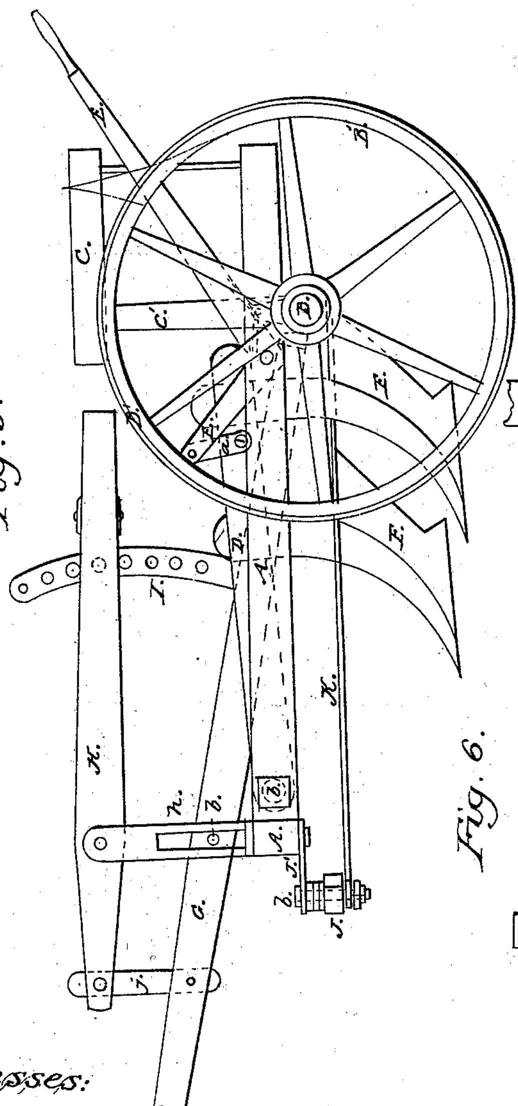
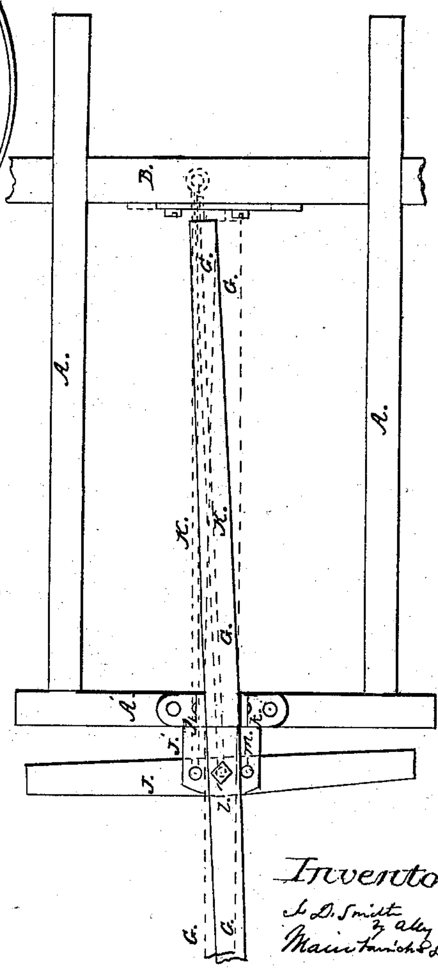


Fig. 6.



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UNITED STATES PATENT OFFICE.

JOSEPH D. SMITH, OF PEORIA, ILLINOIS.

IMPROVEMENT IN GANG-PLOWS.

Specification forming part of Letters Patent No. **55,921**, dated June 26, 1866.

To all whom it may concern:

Be it known that I, JOSEPH D. SMITH, of Peoria, in the county of Peoria and State of Illinois, have invented a new and Improved Gang-Plow; 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 an elevation of one side of the improved gang-plow. Fig. 2 is a longitudinal section taken in a vertical plane through the plow. Fig. 3 is a transverse section taken in the vertical plane through the forward part of the machine, at *x x*, Fig. 2. Fig. 4 is a top view of the machine. Fig. 5, Sheet 2, is an enlarged view of the landside of the machine, showing the plows elevated from the ground. Fig. 6, Sheet 2, is a top view, showing those parts for regulating the draft of the machine.

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

The object of this invention is to so construct a gang-plow that each plow-beam can be elevated or depressed independently of the other by the attendant while sitting upon the carriage, said plow-beams being pivoted to the frame of a two-wheel carriage, in front of the axle-tree thereof, so that lateral strain upon the landside of the plows will be resisted mutually by the carriage-wheels and the team, between which the plows are located, as will be hereinafter described.

Another object of my invention is to provide for adjusting the ends of the transverse pivot-bolts by which the plow-beams are attached to the forward part of the carriage-frame, for the purpose of leveling the soles of the plows when the machine is used for hillside plowing, as will be hereinafter described.

Another object of my invention is to provide for supporting the plows and the rear ends of their beams directly upon the axle-tree of the carriage-frame, to which the forward parts of the beams are attached, employing for said purpose gravitating-catches, which will of themselves catch and sustain the plows when elevated to the proper height, as will be hereinafter described.

Another object of my invention is to provide for regulating side draft on the machine by means of an adjustable clevis-rod and an adjustable draft rod or pole, by means of which former the team is caused to draw from the axle of the plow-carriage and always in a line parallel to the draft-pole, whatever may be the angle of the line of draft, 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 to which the plows are attached consists of two longitudinal beams, A A, which are secured to the axle-tree B near their rear ends, and connected together at their front ends by a transverse beam, A′. This frame is mounted upon two transporting-wheels B′ B′, and provided with a driver's seat, C, which is supported by a post, C′, at its front end, upon the axle-tree B, and by two rods at its rear end upon the rear extensions of the beams A A.

By this arrangement of driver's seat the driver can throw his weight directly upon or in rear of the axle-tree at pleasure, and thus he can, to some extent, relieve the horses' necks from the weight of the forward part of the machine.

The plow-beams D D are pivoted at their front ends to the front part of the carriage-frame, as shown in the drawings, and extending back from this point nearly to the axle-tree. These beams are connected to levers E E by means of links *a a*. The long arms of the levers E extend up to a position where they can be grasped by the attendant upon the seat C. The short arms of said levers are at or nearly at right angles to their long arms, and both levers are pivoted to the frame-bars A in such manner that when the plows are down in working position these levers will incline backward, as shown in Figs. 1 and 2.

The beams D D are connected to the front part of the frame A A′ by means of transverse rods *b b*, which pass through vertical slots through the beams A A, and through eye-bearings *b′ b′* projecting from the cross-bar A′, as shown in Figs. 3 and 4. The eye-bearings are of sufficient size to allow the outer ends of the bolts or rods *b* to be adjusted up or down in the slots *c c*, thus giving to them more or less lateral inclination, and as the soles of the plows F F are in planes parallel to said

bolts *b*, these plows can be leveled and adapted for hillside or level plowing by adjusting the rods *b*, as above set forth.

The rods *b*, by which the plow-beams are pivoted to the frame of the machine, allow said beams to rise and fall freely at their rear ends, so that the rising and falling motions of the carriage-frame caused by the wheels passing over elevations will not materially change the positions or pitch of the plows.

When the rear ends of the plow-beams are elevated to a certain height by means of the levers E E they will be caught and supported upon the forward ends of pivoted catches *d d*, which catches are arranged upon the axle B, as shown in Figs. 1, 2, and 4. The rear ends of these catch-levers project out from their pivot-bearings, and serve as treadles by which the driver, while sitting upon his seat, can trip the plow-beams and allow them to drop down so as to bring the plows into working position. The forward ends of the lever-catches A A being the heaviest, they will fall when the plow-beams are lifted above them, and thus come under said beams, so as to support them in the elevated position.

The draft-pole G has a pin, *e*, projecting from its rear end and entering a hole in a laterally-adjustable plate, *f*, which plate is secured to the front side of the axle-tree B. By means of the plate *f* the rear end of the pole G can be adjusted laterally either to the right or left, the pin *e* always preserving the connection of the pole and plate.

At the forward end of the frame the pole G is again supported between two perpendicular slotted standards, *h h*, by means of a guide-pin, *i*, projecting from said pole and entering the slots in said standards. The pin *e* should be of sufficient length to allow the forward part of the pole G, to be raised or lowered, or rather to allow the front end of the frame to be moved up or down, without detaching the end of the pole from the laterally-adjusting plate *f*. To the upper ends of the standards *h* a lever, H, is pivoted, the short arm of which is connected by a link, *j*, to the pole G in front of the frame, as shown in the drawings. The long arm of lever H extends back nearly to the driver's seat, and is again connected to the pole G by means of a sector, I, and a latch, *k*, which latter has a pin projecting from it and entering one of several holes that are made through the sector I. By grasping the rear end of lever H and releasing this lever from the sector I the driver can elevate or depress the forward part of the frame A A′, the forward end of the pole G being supported by the team. The object of thus adjusting the frame is to regulate the depth at which the plows are to run in the ground by increasing or diminishing the inclination or pitch of the plow-points. The spring-catch *k* will enter the holes in sector I and secure the frame in the desired position after adjusting it, as above set forth.

While each plow is perfectly free to rise or fall, or allow the frame to rise or fall, both plows can be adjusted by the lever H, whether the machine be at rest or in operation. The attendant can, at any moment during the operation of plowing, elevate one or both plows free from the ground, so as to pass over stumps, stones, or other obstructions.

The team is hitched to a double-tree, J, which is pivoted, by means of a bolt, *l*, to a plate, J′, projecting from the front beam, A′. The bolt *l* passes through one of several holes, *m*, in plate J, and also through the eye which is formed on the forward end of a draft-rod, K, which rod extends back and is pivoted to the bottom of the axle-tree B on one side of a longitudinal central line drawn through the frame A A of the machine. Said attachment is on the right-hand side of said line, as shown in Fig. 6.

The pole G is attached at its forward end to the necks of the horses, but the traces are hitched to the double-tree J, which is partly sustained by the rod K. In this way the draft comes upon the forward part of the frame and upon the axle-tree B. The line of draft will always be in a line with the said rod K.

The front end of the rod K can be adjusted more or less to the right or to the left by moving the bolt *l* into one or the other of the holes which are through the plate J, and in this way the line of draft can be brought nearer to or set farther from the land-wheel, or that wheel which moves upon the unplowed land.

It is important to have the pole G in a line parallel to the line of the rod K, and as this rod is adjustable, as above set forth, the rear end of the pole G is also made adjustable, so that it can be set toward the right or left, according as the rod K is adjusted at its forward end.

It will be seen by reference to Fig. 5 that I employ no landside-plate on the plows F F, and hence get rid of considerable friction which would attend the use of such plates. This I am enabled to effectually do by arranging the plows and their beams in front of the axle B of the transporting-wheels, so that lateral or side thrust or strain upon the plows will be resisted by the transporting-wheels at one end and by the pole G against the horses at the other end of the machine. These two points of support will effectually prevent the plows from leaving the land.

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

1. In a sulky gang-plow, arranging the gang of plows between the forward and the rear points of support of the carriage-frame to which said plows are attached, when they are free to rise and fall independently of each other, substantially as described.

2. Pivoting the forward ends of the plow-beams D D to the carriage-frame by means of rods *b b*, which are adjustable at their outer ends in slots *c c*, for the purpose of leveling the plows, substantially as described.

3. The combination of the vibrating plow-beams D, which are pivoted to a carriage-frame at a point which is in front of the transporting-wheels, with a device which will admit of the forward part of said frame being elevated or depressed at pleasure, substantially as described.

4. In combination with plows which are arranged in advance of the axle-tree B, and pivoted so as to be capable of rising or falling, the gravitating-catches *a a*, or their equivalents, substantially as described.

5. The arrangement of levers E E, vibrating plow-beams D D, and catches *a a*, substantially as described.

6. Providing for adjusting the forward end of the carriage-frame for regulating the pitch of the plows by means of draft-pole G and lever H, substantially as described.

7. Connecting the rear end of the pole G to the axle B by means of a pin, *e*, and a laterally-adjustable plate, *f*, substantially as described.

8. The adjustable draft-rod K, arranged and applied to the plow-carriage so as to operate substantially as described.

9. The combination of a pole, G, which is adjustable at its rear end, with a draft-rod, K, which is adjustable at its front end, substantially as described.

Witness my hand in matter of my application for a patent for improved gang-plow.

J. D. SMITH.

Witnesses:
R. T. CAMPBELL,
EDW. SCHAFER.