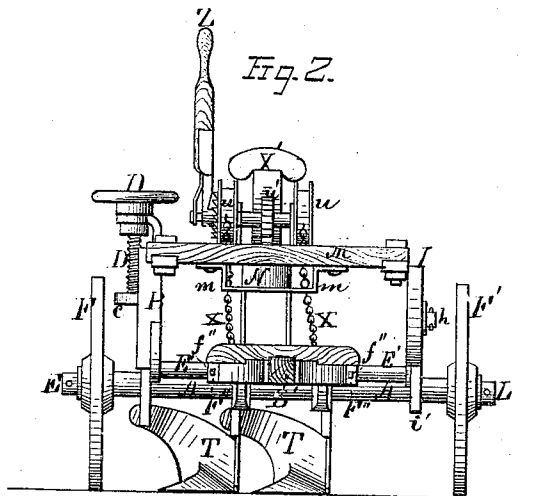
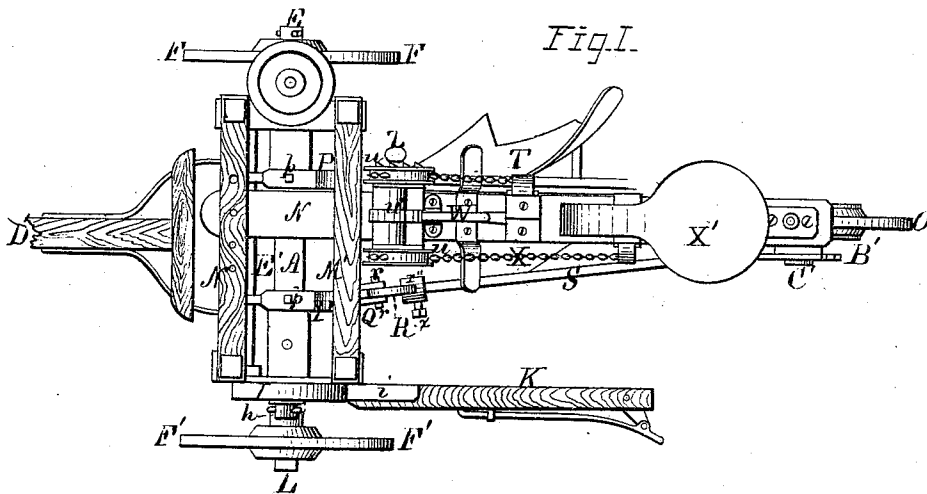


3 Sheets--Sheet 1.

E. A. BEERS.
Gang-Plows.

No. 151,649.

Patented June 2, 1874.



WITNESSES-

James Hutchinson
John R. Young

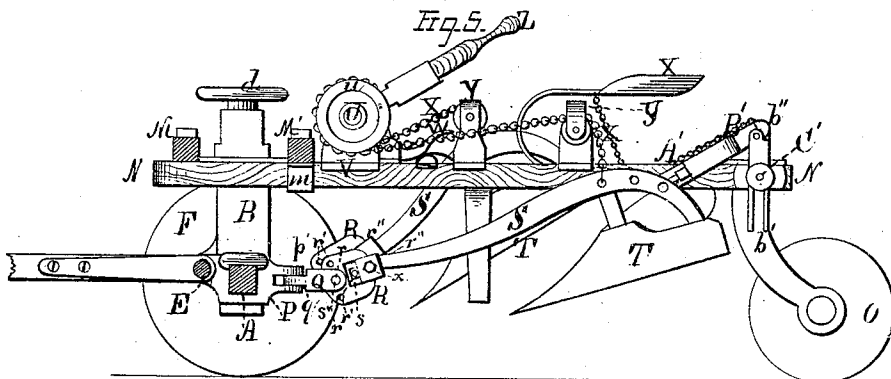
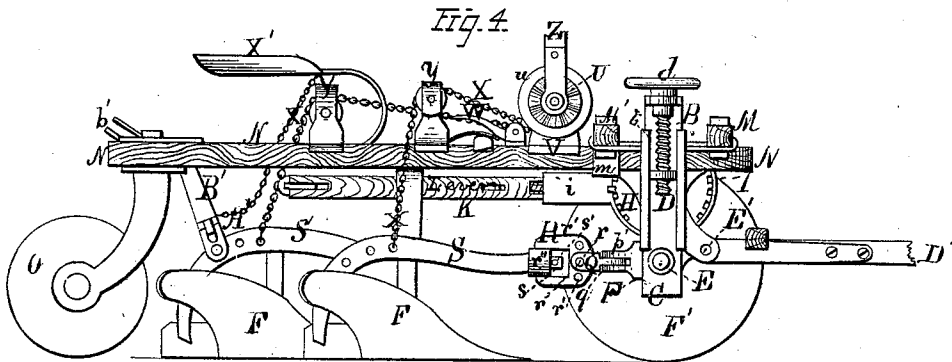
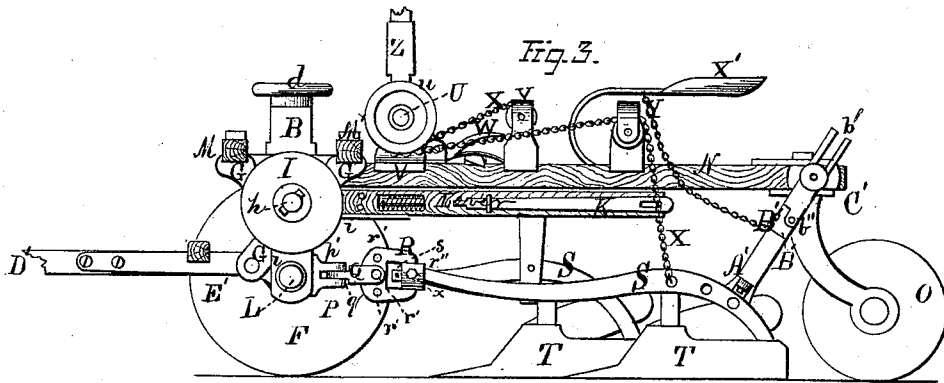
INVENTOR.

Edwin A. Beers, by
Grindle and Beane, his Attys

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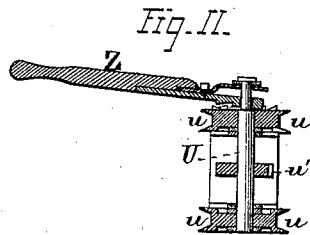
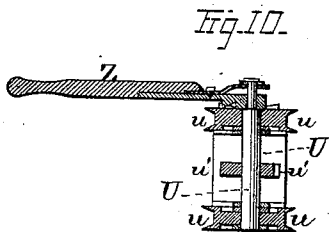
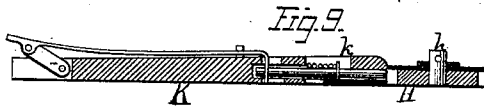
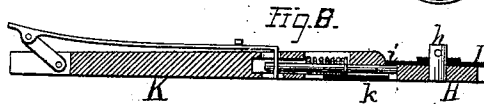
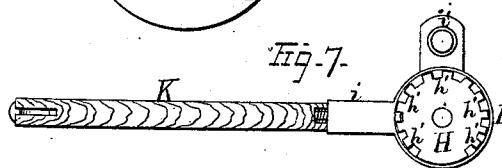
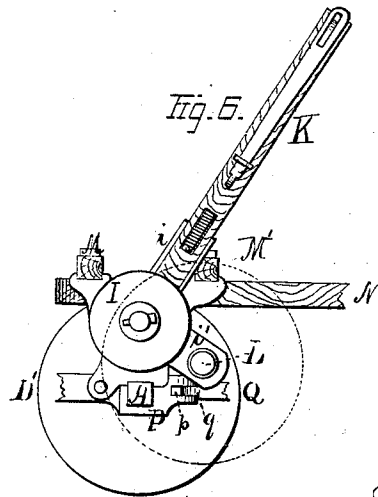
INVENTOR.

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E. A. BEERS.
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WITNESSES=

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 John R. Young

INVENTOR.

Edwin A. Beers, by
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UNITED STATES PATENT OFFICE.

EDWIN A. BEERS, OF SYCAMORE, ILLINOIS, ASSIGNOR OF ONE-HALF HIS
RIGHT TO E. T. NYE, OF SAME PLACE.

IMPROVEMENT IN GANG-PLOWS.

Specification forming part of Letters Patent No. **151,649**, dated June 2, 1874; application filed
February 25, 1874.

To all whom it may concern:

Be it known that I, EDWIN A. BEERS, of Sycamore, in the county of De Kalb and in the State of Illinois, have invented certain new and useful Improvements in Gang-Plows; and 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 a plan view of the upper side of my improved machine. Fig. 2 is a front elevation of the same. Figs. 3 and 4 are elevations of opposite sides of said machine, the plows being dropped to the position occupied while in operation. Fig. 5 is an elevation of the side shown in Fig. 3, showing said plows raised and removed from contact with the ground. Fig. 6 is an elevation of the forward part of the frame of the machine, the nearest wheel being removed so as to show the arrangement of the parts employed for raising or lowering said wheel. Fig. 7 is an elevation of the inner side of the lever used for operating said raising or lowering devices. Figs. 8 and 9 are central longitudinal sections of the same, showing, respectively, the locking-bolt in engagement and released from engagement with the toothed locking-disk. Fig. 10 is a section of the lever and windlass employed for raising the plows, said lever being in engagement with the ratchet-disk of said windlass; and Fig. 11 is a like view of the same, said lever being released from engagement with said disk.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to increase the efficiency and the thoroughness and ease of operation of a wheeled plow; and it consists principally in the means employed for connecting the plow-beams with and rendering the same laterally adjustable upon the axle, substantially as and for the purpose hereinafter specified. It consists, further, in a plow-beam swiveled at its front end within a suitable attachment, and locked in position therein by means of a set-screw, substantially as and for the purpose hereinafter shown. It consists, further, in the means employed for holding the

plow to position within the ground, substantially as and for the purpose hereinafter set forth. It consists, finally, in a pole attached to and made laterally adjustable upon the frame, substantially as and for the purpose hereinafter shown.

In the annexed drawings, A represents the axle of my machine, constructed, preferably, of or from a square bar of iron, and having attached to the furrow-side end a standard, B, that extends vertically upward, and is provided within its outer face with a vertical groove, *b*, which groove receives and contains a corresponding bar, C, and permits the same to be moved therein freely in a vertical direction. At its upper end the standard B extends horizontally outward, and furnishes a bearing for one end of a screw, D, that is swiveled therein. The upper end of said screw is provided with a hand-wheel, *d*, for use in rotating the same, while its lower threaded portion passes through a correspondingly-threaded opening that is provided in an arm, *c*, that extends horizontally outward from the upper end of the slide-bar C, such arrangement of parts enabling the latter to be adjusted to and secured in vertical position. From the outer side of the slide-bar C an axle-arm, E, extends horizontally and laterally outward, and upon the same is journaled a ground-wheel, F, of usual construction. From the opposite end of the axle A a second standard, G, extends upward, and has attached to or upon its outer face a circular toothed disk, H, which latter is provided with a central stud, *h*, that projects horizontally and laterally outward, and furnishes a bearing for and upon which is journaled a plate, I. The plate I corresponds to and incloses the outer face and the periphery of the disk H, and is provided with two radial arms, *i* and *i'*, placed at a right angle to each other, the first of which receives and contains one end of an operating-lever, K, while said second arm, *i'*, is provided with a laterally and horizontally projecting axle-arm, L, upon which is journaled a second ground-wheel, F'. As thus arranged, it will be seen that by moving the plate I upon its pivotal bearing, the relative vertical positions of the axle-arm L and wheel F' will be varied so as to permit

the latter to bear upon the surface of the ground when the machine is in use and the opposite wheel is running in a furrow, or to occupy a position upon a line vertically with said opposite wheel when said machine is passing to or from the field. When adjusted to position the bearing of the wheel *F'* is secured in place by means of a detent, *k*, that works longitudinally within a suitable groove that is provided in the lever *K*, and engages with the notches *h'* of the disk *H*. A spring for holding the detent in engagement with the toothed disk and a hand-lever for releasing the former from engagement with the latter are provided, and operate in the usual manner. At the upper ends of the standards *B* and *G* are attached two bars, *M* and *M'*, which have lines parallel to each other and to the axle *A*. Upon the lower side of the front bar *M* is pivoted one end of a rail, *N*, which from thence extends rearward through a guide, *m*, attached to or upon the lower side of the rear bar *M'*, and upon its rear end is provided with and supported upon a caster-wheel, *O*, of usual construction, said rail, cross-bars, standards, and axle thus forming the frame of the machine. Upon and around the axle *A* are loosely fitted two blocks, *P* and *P*, which are each provided with a central opening that corresponds to the transverse size and shape of the same, and are secured in position thereon by means of set-screws *p* and *p*, that pass inward through said blocks and bear against said axle. Within the rear extended portion of each sliding block *P* is provided a horizontal slot, *p'*, that receives the corresponding tongue *q* of a second block, *Q*, which tongue is pivoted within said slot, so as to permit it and its block to move laterally in either direction. Within the rear end of the block *Q* is provided a vertical slot, *q'*, that receives a clevis, *R*, of the form shown in Figs. 3, 4, and 5, said clevis being connected with said block by means of a pin, *r*, that passes horizontally through the latter and through one of a number of openings, *r'*, provided in said clevis. At the rear end of each clevis *R* is provided a round socket, *r''*, that receives the correspondingly-shaped journal *s* of a plow-beam, *S*, which journal extends through said socket, and is secured in longitudinal position by means of a pin, *s'*, that passes transversely through its forward end. A set-screw, *x*, passing radially through the wall of said socket, bears at its inner end against said journal, and prevents the latter from turning.

It will be seen that the connection of the plow-beams with the axle gives to them perfect freedom of lateral and vertical motion, while, by means of the swivel-connection between each beam and its clevis, the plow *T*, attached to the rear end of said beam, can be turned so as to throw the soil to a greater or less distance. Should a plow strike a root or other obstruction, the set-screws will permit the beam to turn so as to disengage said plow before the strain becomes sufficient to cause

any of the parts to break. The width of the furrows is regulated by the adjustment of the blocks *P* and *P* upon the axle, said blocks being capable of movement within the limits required by the widest and narrowest furrows. The plows are raised, when not in use, by means of the following-described mechanism: A shaft, *U*, is journaled within suitable bearings *V* and *V*, that are attached to or upon the upper side of the rail *N*, and is provided at each end with a grooved wheel, *u*, and at its center with a toothed wheel, *u'*, with the latter of which a spring-pawl, *W*, is caused to engage. To each wheel *u* is attached one end of a chain, *X*, that from thence extends rearward over a pulley, *Y*, journaled within a suitable support attached to the rail *N*, and has its opposite end attached to or upon a plow-beam, *S*, at or near the longitudinal center of the plow *T*.

As thus arranged, it will be seen that by rotating the shaft *U* the chains *X* and *X* will be wound upon or unwound from the wheels *u* and *u*, and the plow-beams and plows correspondingly raised or lowered. The shaft *U* is turned forward, so as to raise the plows, by means of a lever, *Z*, that is pivoted upon its end, and is provided with a suitable detent, that engages with corresponding teeth that are formed upon the contiguous face of the wheel *u*, while to lower said plows it is only requisite that the detent *W* should be released from engagement with the ratchet-wheel *u'* by a slight pressure of the operator's foot. To hold the plows in vertical position when in the ground, I pivot loosely to the rear end of either or both plow-beams *S* a short bar, *A'*, within the rear end of which I swivel one end of a second bar, *B'*, the opposite end of which latter is provided with an open slot, *b'*, that enables it to pass over a stud or pin, *C'*, that projects laterally outward from the rear end of the rail *N*, the length of said slot being such as to cause its inner end to bear upon said pin when said plow is in the desired position, and resist in a direct line of the upward pressure of the latter. A head upon the outer end of the stud *C'* holds the slotted bar *B'* in lateral position. In order that the bar *B'* may offer no obstacle to the elevation of the plow when necessary, a knuckle-joint, *b''*, formed at its longitudinal center, permits said bar to fold together and assume the position shown in Fig. 5. The weight of the brace-bar *B'* is sufficient to keep its joint in position when the plows are in use, and when it is necessary to raise the latter said jointed center must be raised until its pivotal bearing is thrown out of line with the ends. To effect this result I attach a small chain to the jointed center of said bar, and extend it upward and forward within convenient reach of the driver. The pole *D'* is pivoted at its rear divided end to or upon a rod, *E'*, that is secured at its ends within suitable lugs, which extend forward from the lower ends of the standards *B* and *G*, said rod being parallel with the axle *A*.

The length of the rod E' between its end bearings is much greater than the width of the rear end of the pole, so that the latter may be adjusted in either direction, as much as may be requisite, in order to vary the line of draft. When adjusted to place the pole is secured in lateral position by means of two collars, F'' and F'', that are placed upon opposite sides of the ends of said pole, and are held in place by suitable set-screws f'' and f''. A seat, X', attached to the rail N, completes the machine, the operation and advantages of which have been sufficiently set forth.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In combination with the plow-beams S and S and laterally-adjustable blocks P and P, provided with the slots p' and p', the tongued and slotted blocks Q, q, and q', and the clevises

R and R, substantially as and for the purpose shown.

2. A plow-beam swiveled at its front end within a suitable attachment, and locked in position therein by means of a set-screw, substantially as and for the purpose set forth.

3. In combination with the plow-beam S, hinged at its front end, the bar B', pivoted at one end to the rear end of said beam, jointed at its longitudinal center, and provided at its rear end with a longitudinal slot, b', which embraces the pin C', substantially as and for the purpose shown and described.

In testimony that I claim the foregoing, I have hereunto set my hand this 7th day of February, 1874.

EDWIN A. BEERS.

Witnesses:

O. S. HOLCOMB,
EDWARD WAITE.