No. 717,087. Patented Dec. 30, 1902.

L. G. FAIRBANK.

SIDEHILL GANG PLOW.

(Application filed Oct. 9, 1902.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

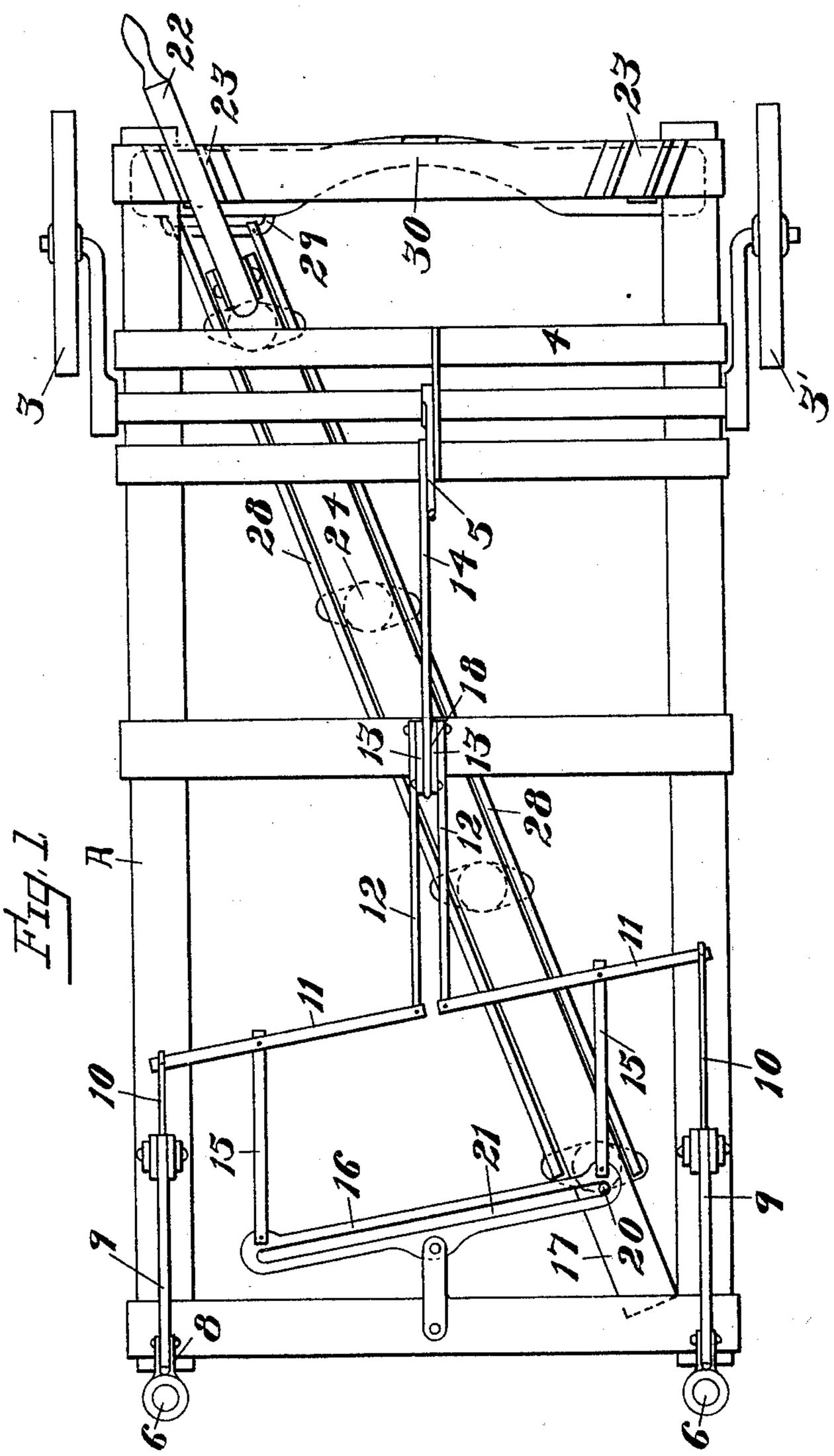

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Fig. 3.

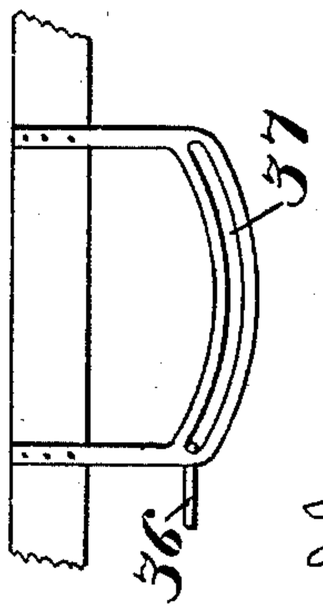
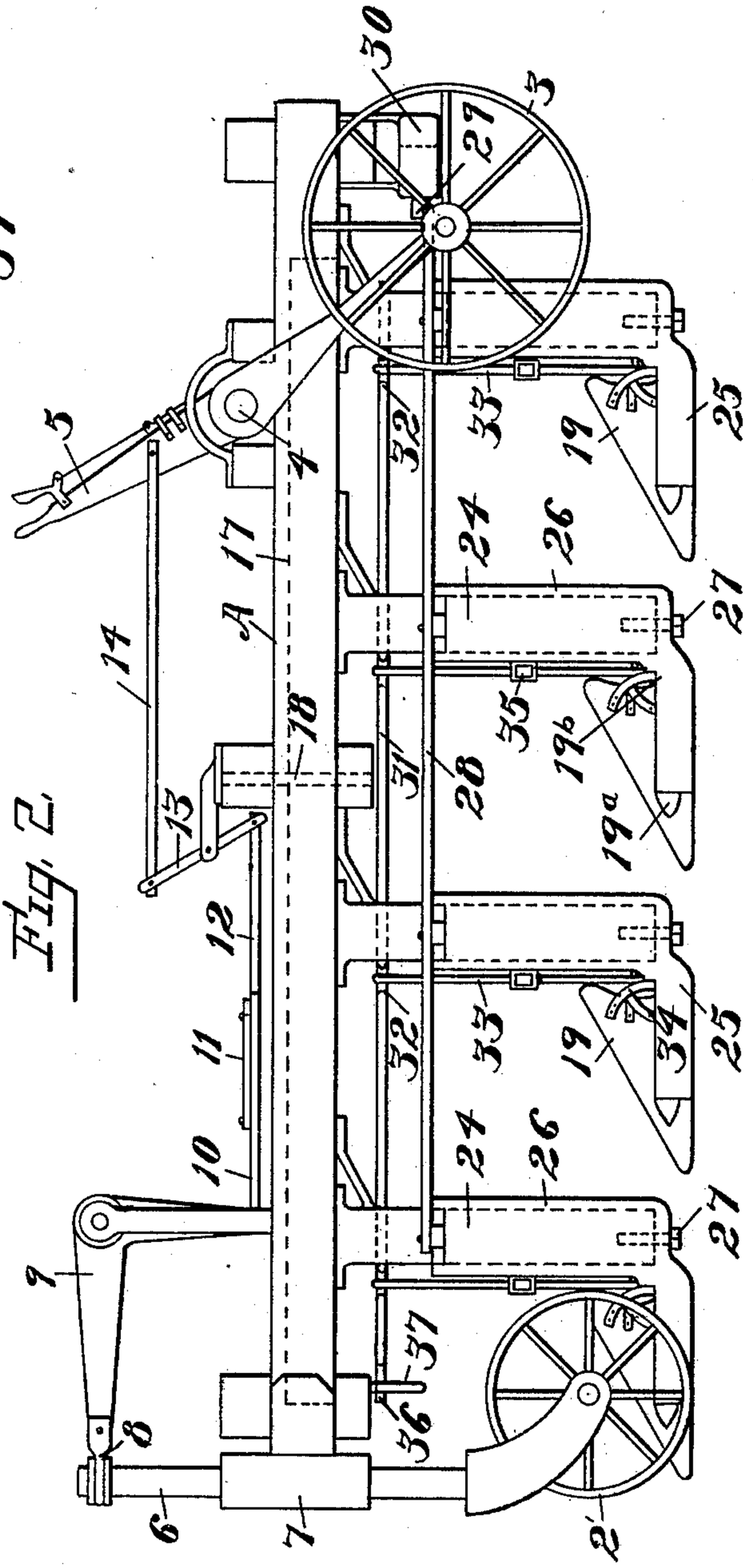


Fig. 2.



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UNITED STATES PATENT OFFICE.

LELAND G. FAIRBANK, OF OAKLAND, CALIFORNIA.

SIDEHILL GANG-PLOW.

SPECIFICATION forming part of Letters Patent No. 717,087, dated December 30, 1902.

Application filed October 9, 1902. Serial No. 126,562. (No model.)

To all whom it may concern:

Be it known that I, LELAND G. FAIRBANK, a citizen of the United States, residing at Oakland, county of Alameda, State of California, have invented an Improvement in Sidehill Gang-Plows; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to improvements in plows which are intended particularly for use upon sidehills. Its object is to provide a gang-plow of this character in which the various adjustments of the frame and plows may be effected in the simplest manner possible. It consists of the parts and the construction and combination of parts, as hereinafter more fully described, having reference to the accompanying drawings, in which—

Figure 1 is a plan view of my invention. Fig. 2 is a side elevation of same. Fig. 3 is a view of curved slotted guide.

A represents the main frame of my device, which is here shown as rectangular. The frame is mounted upon the respective front and rear wheels 2 2′ 3 3′ and is propelled over the ground by suitable means. The rear axle 4 is cranked, as shown, and is operated to raise and lower that end of the frame by means of the rack-lever 5. The front vertical axles 6 are slidable and turnable in sleeves 7 on the frame. Suitable connections are provided between the axles 6 and the rack-lever 5, whereby the front and rear axles are moved simultaneously to raise and lower the frame uniformly. These connections are here shown as follows: A link 8 is swiveled to the head of each axle, and each link is pivoted to the end of one arm of a bell-crank lever 9, fulcrumed on the frame. The links are slotted to provide for clearance necessary by the oscillating movement of the levers 9. From the lower end of the other arms of levers 9 extend rods 10, which connect with the transverse rods 11. The latter have their inner ends connecting with rods 12, which attach to the vertically-disposed and centrally-pivoted levers 13. The latter are connected with rack-lever 5 by means of rods 14. The transverse rods 11 connect intermediate of their ends by means of links 15 with the slotted yoke 16, fulcrumed to the front end of the frame. Assuming the yoke 16 to be disposed at right angles to the direction of draft, an actuation of lever 5 will operate upon both front and rear axles simultaneously to raise or lower the frame uniformly.

It will be noted that the front wheels have a narrower tread than the rear wheels. This is for the reason that the front wheels serve alternately as furrow-wheels. When one is acting as a furrow-wheel, the other is acting as a land-wheel, while the rear wheels continually run upon the land. As the furrow-wheel must run on a plane lower by the depth of the furrow than the corresponding land-wheel, some provision must be made to raise and lower the front wheels separately. This is done by oscillating the yoke 16 by means of the gang-beam 17. A movement of this beam about its central pivot 18 moves the yoke to raise or lower one of the front wheels. Simultaneously by the same movement the plows 19 are reversed and also turned horizontally to present their points in right position. First, as to the manner of elevating or depressing a front wheel as it is run upon the land or in a furrow: The beam carries a pin 20, which travels in the guide-slot 21 of yoke 16. The location of the centers of the yoke and beam is such that the pin 20 will in describing its arc travel from end to end of slot 21. This movement of the beam will cause the yoke to oscillate. By reason of links 15 the rods 11 will move in opposite directions about their pivot-points on the ends of the temporarily stationary rods 12 and, transmitting motion through the bell-crank levers 9, will raise one wheel and correspondingly lower the other. By the engagement of the pin with the end walls of the slot the yoke serves to support the beam against whatever strain may be put upon it. The beam is locked in position by means of the lever 22, pivoted to the rear end of the beam, engaging stops 23 upon the frame. Secondly, as to the manner of operating the plows: 24 are standards secured to the under side of beam 17, and 25 are landsides having sleeve portions 26, embracing and turnable on the standards and held thereto by means of the screws 27 passing through the heels of the landsides and screwing into the ends of the standards. The

plows or shares 19 are pivoted to the landsides, as shown at 19^a 19^b, and are turnable from side to side in a manner well known in the art, according as the furrow is to be turned to the right or left. The landsides must be always parallel with the line of draft irrespective of whether the beam 17 is swung to one side or the other of the frame. The sleeves are connected by the rods 28, which extend parallel with the plow-beam 17, and these rods are attached to a pivoted footpiece 29, which moves along the rigid cam or guide 30. According as the beam is turned in one direction or the other piece 29 is oscillated to reciprocate the rods 28 oppositely and turn the landsides into proper position. The plowshares are reversed simultaneously with the movement of the beam and the turning of the landsides by the following means: A shaft 31 passes through each of the standards 24 and is supported thereby. This shaft is cranked, as at 32, and links 33 connect these cranks with arms 34 upon the shares. The links 33 have each a swivel-joint 35 to permit of the movement of landsides about their pivots. The shaft 31 has a crank extension 36 at one end which is adapted to be engaged by a curved slotted guide 37, Fig. 3, secured to the frame, so that when the beam 17 is oscillated from side to side the crank will be swung correspondingly back and forth and will operate through the cranks 32, links 33, and arms 34 to turn the shares on their pivots. In operation whenever the end of a furrow is reached the plow is turned around by the simple movement of lifting the lever 22 to disengage the stops 23, and turning the beam till it stands on the other diagonal of the machine the relative positions of the wheels 2 2′ will be reversed, the landsides will be automatically alined, and the plowshares reversed, so that as the plow travels back over the land the furrows will be turned uniformly with the furrows previously turned.

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

1. The combination in a gang-plow of a frame supported upon wheels, means by which said wheels may be simultaneously raised and lowered in relation to said frame, reversible plows arranged in gangs, and means independent of the first-mentioned means by which the front wheels are alternately raised and lowered to serve as furrow-wheels.

2. The combination in a gang-plow of a frame supported upon wheels, a plow-beam extending lengthwise of the frame and centrally pivoted so that its opposite ends move in reverse directions, reversible plows arranged in gangs upon said beam, and means including oppositely-reciprocable rods carried by the beam for effecting the reversal of the plows during the lateral swinging movement of the beam.

3. The combination in a gang-plow of a main frame, land and furrow wheels supporting said frame, a plow-beam pivoted near the center of its length, plows carried by the beam, and means including rods at opposite sides of the beam and oppositely reciprocable to effect the reversal of the plows.

4. The combination in a gang-plow of a frame having front and rear wheels, said rear wheels having a transversely-extending cranked axle, said front wheels having vertical axles slidable in sleeves upon the frame, connections between said front and rear axles whereby they may be operated in unison to raise and lower the frame, a pivoted plow-beam, reversible plows upon said beam, and means by which the front wheels are alternately raised and lowered by the oscillation of said beam.

5. The combination in a gang-plow of a frame having front and rear supporting-wheels, a pivoted plow-beam, a slotted oscillating yoke and connections between said yoke, said beam and said front wheels whereby the latter are alternately raised or lowered to serve as land or furrow wheels on the oscillation of said beam.

6. The combination in a gang-plow of a wheel-supported frame, a plow-beam pivoted at about the middle of its length, standards secured to said beam, landsides having sleeves to embrace and turn on said standards, and oppositely-reciprocable rods carried by the beam and engaging the sleeves to reverse the landsides.

7. The combination in a gang-plow of a wheel-supported frame, a plow-beam pivoted at about the middle of its length, standards secured to the beam, landsides having sleeves to embrace the standards, and means engaging said sleeves to reverse the landsides during and by the movement of the beam.

8. The combination in a gang-plow of a frame, a beam pivoted intermediate of its ends, standards on said beam, reversible plows turnable about said standards, and connections between said beam and the plows by which the latter are reversed and turned about the standards simultaneously with the oscillation of said beam.

9. The combination in a gang-plow of a wheel-supported frame, a centrally-pivoted beam, means for locking said beam in position upon the frame, standards on said beam, reversible plows having landsides with sleeves turnable about said standards, a shaft extending lengthwise of the frame and carried by said beam and movable therewith, said shaft provided with cranks at 32, connections between said cranks and the plows, and means engaging said shaft to rock the latter to reverse the plows according as the beam is oscillated.

10. The combination in a gang-plow of the character described, of a frame mounted upon front and rear wheels, said front wheels adapted alternately to serve as furrow and

land wheels, connections between the axles of said wheels by which the frame may be raised and lowered, a centrally-pivoted beam, standards on said beam, reversible plows turnable in a horizontal plane about said standards, and means by which said plows are reversed, turned about said standards and the relative position of the front wheels as land or furrow wheels reversed, simultaneously with the oscillation of the plow-beam.

In witness whereof I have hereunto set my hand.

LELAND G. FAIRBANK.

Witnesses:
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ALBERT M. MEADS.