Nov. 10, 1925. 1,560,639

M. L. ANDREWS

REVERSIBLE WHEELED PLOW

Filed July 1, 1920 4 Sheets-Sheet 1

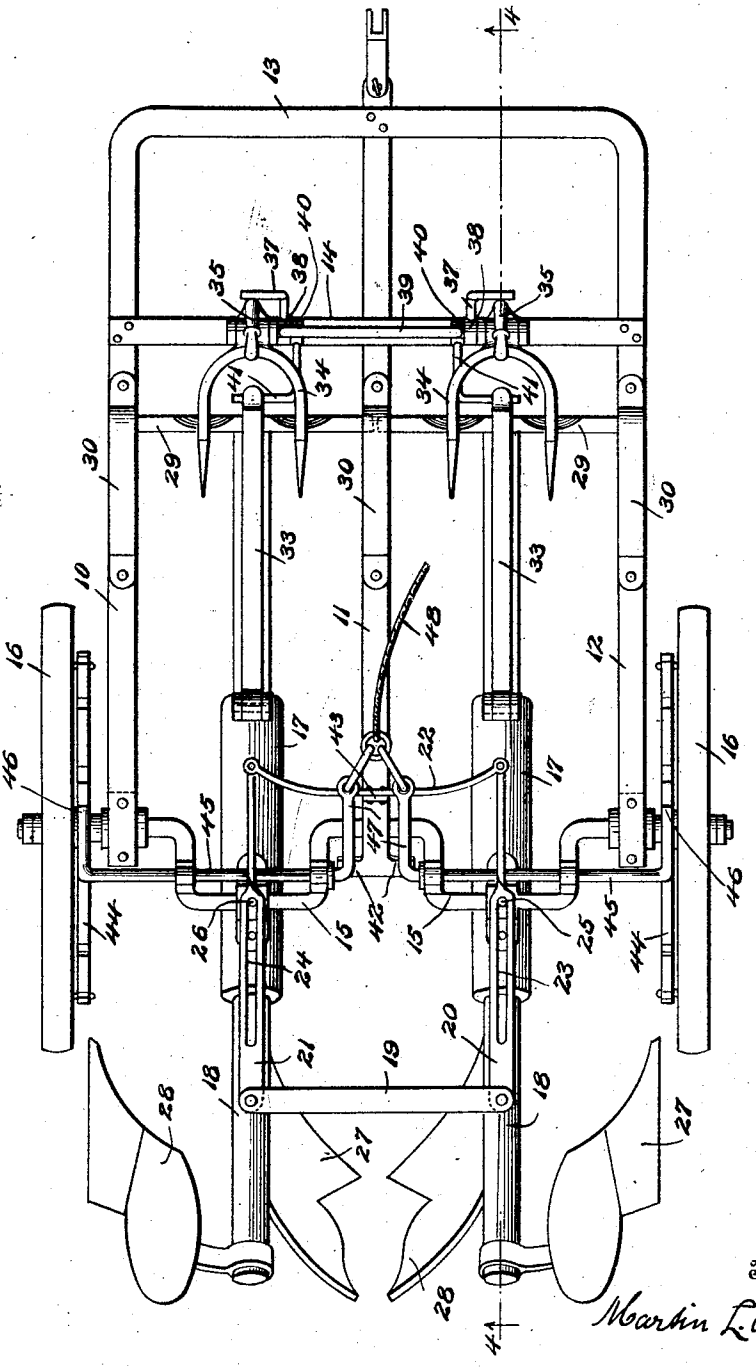


FIG. 1.

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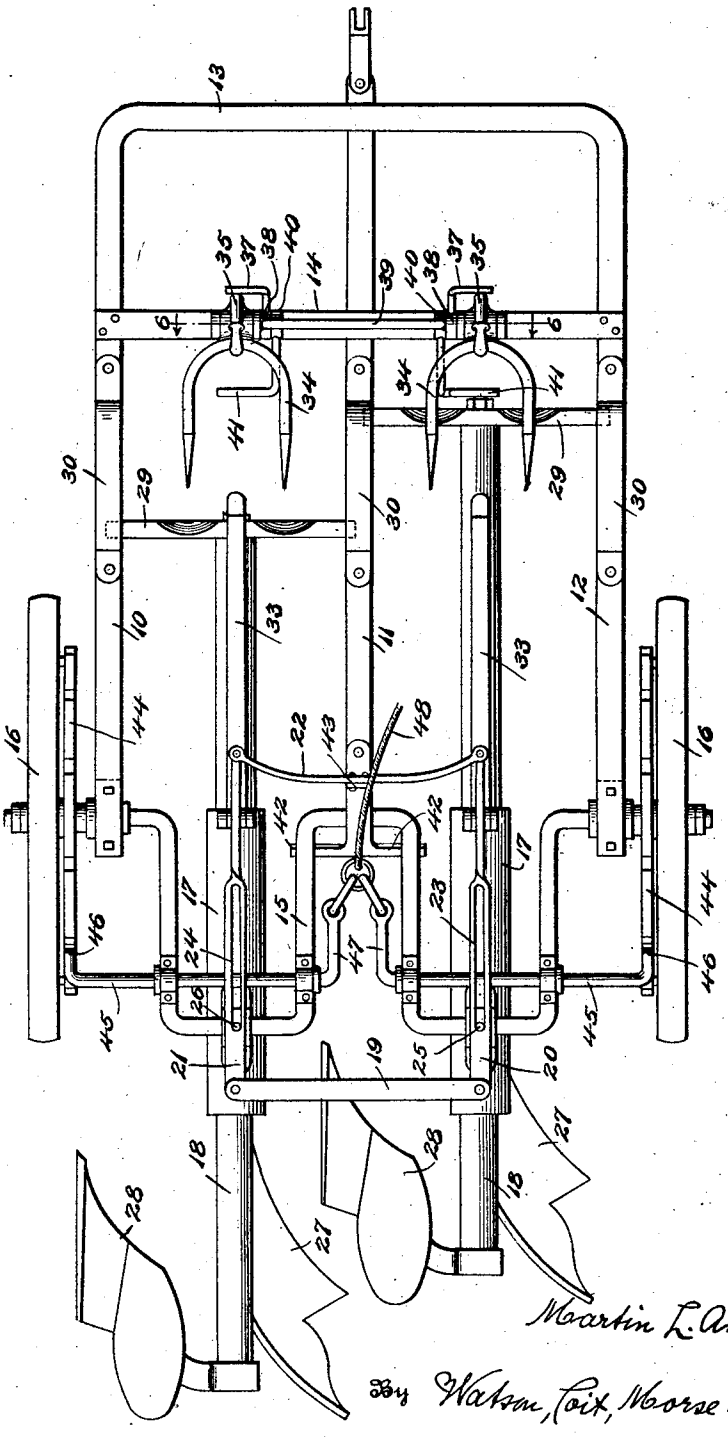


Fig. 2.

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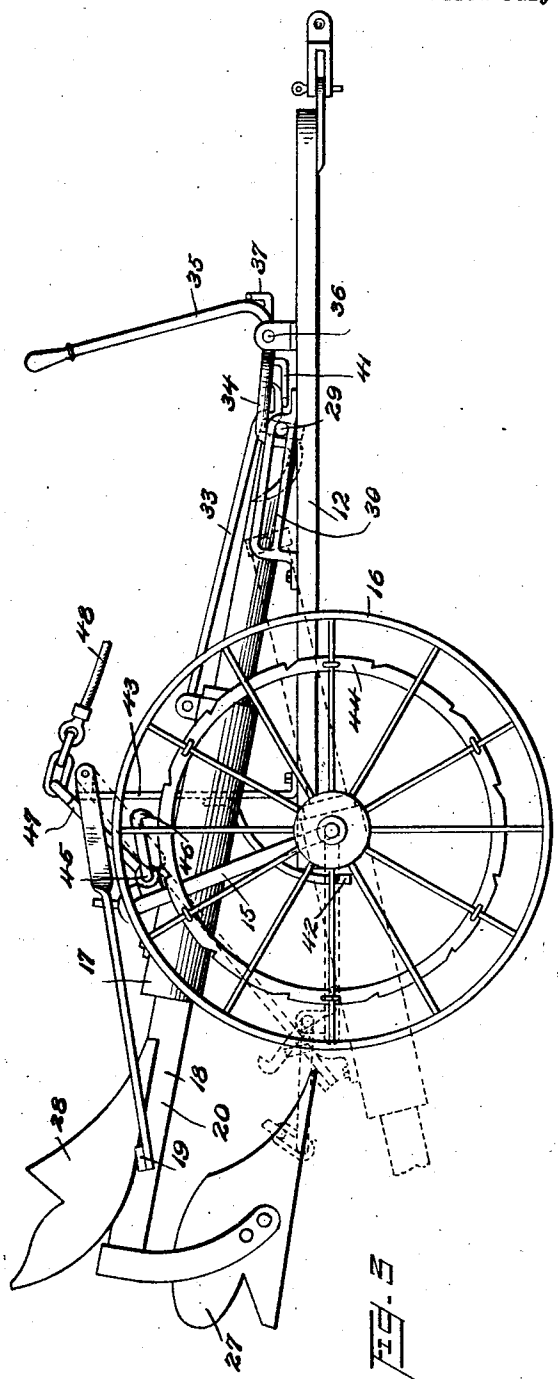


Fig. 3

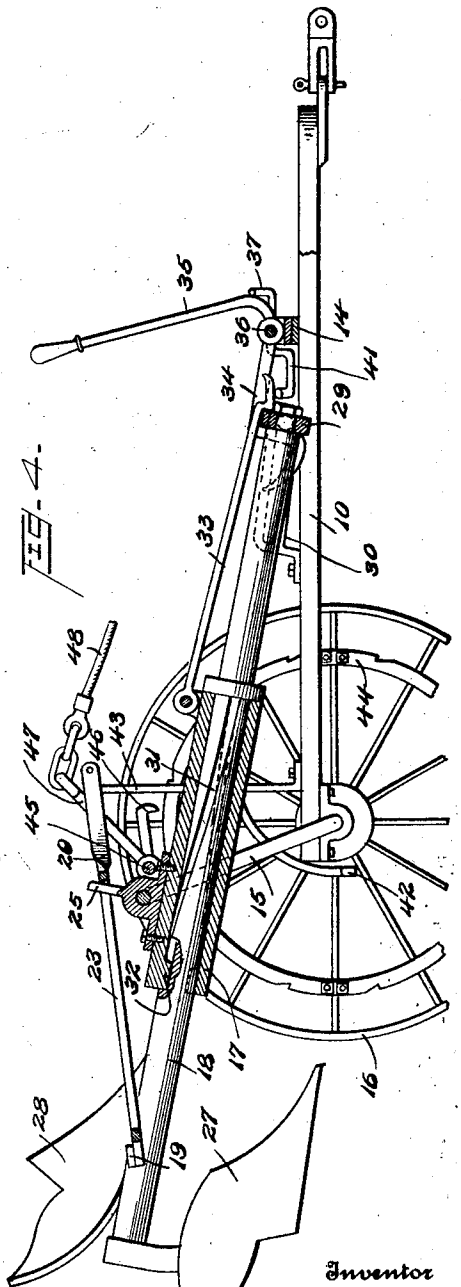


Fig. 4.

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FIG. 5.

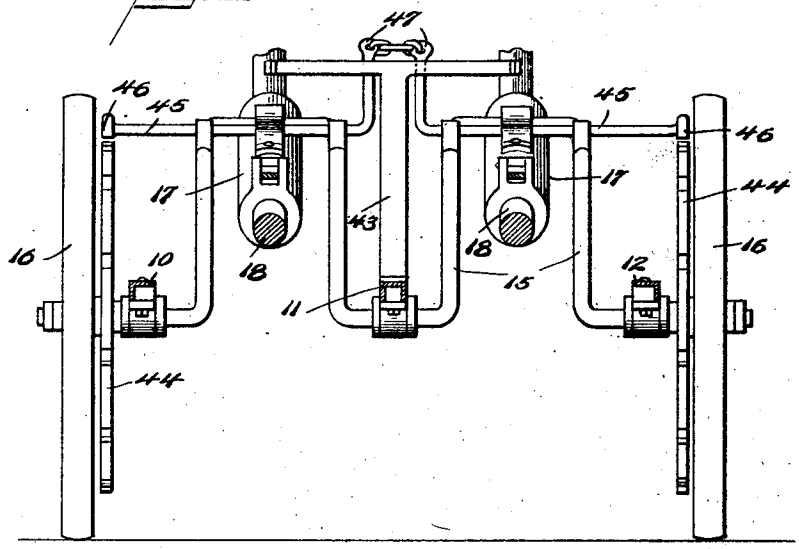


FIG. 6.

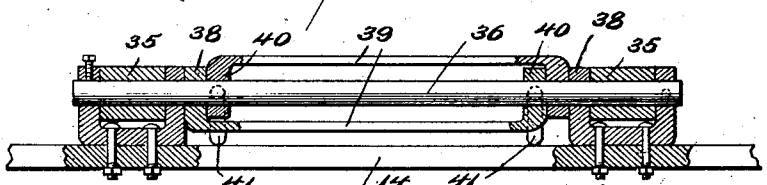
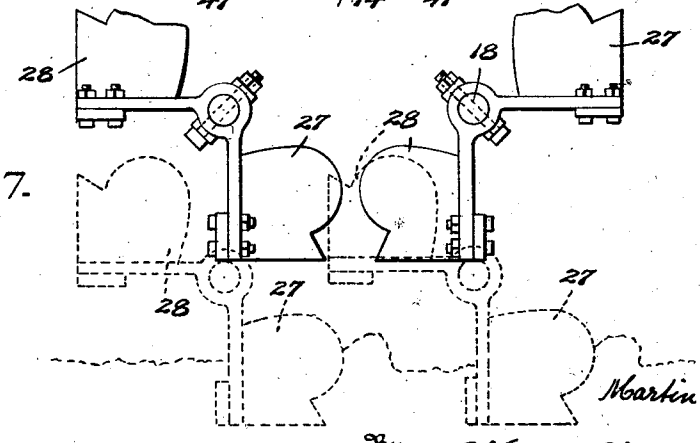


FIG. 7.



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UNITED STATES PATENT OFFICE.

MARTIN L. ANDREWS, OF MILLERTON, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO LUELL J. ROBERTS, OF SABINSVILLE, PENNSYLVANIA.

REVERSIBLE WHEELED PLOW.

Application filed July 1, 1920. Serial No. 393,247.

To all whom it may concern:

Be it known that I, MARTIN L. ANDREWS, a citizen of the United States, and residing at Millerton, Tioga County, State of Pennsylvania, have invented certain new and useful Improvements in Reversible Wheeled Plows, of which the following is a specification.

The general object of the present invention is to provide a plow of the reversible type utilized in plowing back and forth across a field, the successive furrows being parallel and adjacent, in which are embodied improvements rendering the same efficient and convenient in use.

One specific object is to provide a wheeled plow with a plurality of reversible plowing devices. Another object is to provide a plow of this class in which the reversal of the plows at the end of the furrow is brought about quickly and easily, the power necessary being obtained from the horses or tractor employed to pull the same. A further object is to provide such a plow in which the reversal of plow blades is effected by the direct raising and lowering of the plow beams, which may be done quickly, not only at the end of the furrow but at any point therealong if desired. The invention also has for an object the provision of novel structure by means of which the plows are maintained at a constant distance apart in the plowing operation, but which mechanism permits the plows to move in unison from side to side slightly due to inequalities in the ground and to avoid rocks, etc.

The invention may be embodied in various forms and one satisfactory form is disclosed in the following description and in the accompanying drawings, in which:

Figure 1 is a top view of a two-beam plow, the plows being in raised or inoperative position;

Figure 2 is a similar view but showing the plows in lowered or cutting position;

Figure 3 is a side view of the plow;

Figure 4 is a section on line 4—4 of Figure 1;

Figure 5 is a view from the rear, portions of the mechanism being omitted;

Figure 6 is an enlarged section on line 6—6 of Figure 2; and

Figure 7 is a view from the rear of the apparatus showing the plows in raised position in full lines and in lowered or cutting position in dotted lines.

The frame of the plow comprises three longitudinal parallel members 10, 11 and 12 secured together at their forward ends by cross-pieces 13 and 14 and being connected at their rear ends by the axle 15 which passes through bearings in each longitudinal member and is freely rotatable relatively to the frame. Wheels 16 of the usual farm implement type are mounted on the ends of axle 15 and this axle preferably has two U shaped lateral bends or extensions suspended from the horizontal portion of each of which is a sleeve 17. Through each of these sleeves a plow beam 18 extends with a sliding fit.

Sleeves 17 are slidable laterally on the shaft 15 and parallel linkage comprising members 19, 20, 21 and 22 maintains sleeves 17 a constant distance apart, the side members 20 and 21 of the linkage being slotted at 23, and 24 respectively to receive pins 25 and 26 projecting upwardly from sleeves 17. To the rear end of each plow beam is rigidly secured a right hand plow 27 and a left hand plow 28 and to the front end of each beam is secured a crosshead member 29, the ends of each of which are adapted to slide longitudinally of the plow body in slotted members 30, through limited distances. Each of the plow beams is grooved at 31, clearly illustrated in Figure 4, this groove making a quarter turn in its length and having extending downwardly thereinto a lug 32 integral with a non-rotatable sleeve 17. Each beam rotates through 90° when the crosshead attached thereto, and which limits its motion in both directions, is moving from one end of slotted member 30 to the other.

Each of the sleeves 17 is latched to the corresponding crosshead 29 by a pivoted latch member 33 and each of the crosshead members 29 is normally latched to the cross piece 14 by a U-shaped latch member 34 having a handle 35 integral therewith and journaled upon shaft 36, clearly illustrated in Figure 6. Immediately in front of each of arms 35 is one portion 37 of a trip member which comprises arm 37, ring member 38 to which it is rigidly secured, rod 39, ring member 40 to which the rod 39 is rigidly secured, and arm 41 extending rearwardly and passing immediately under the forward end of

one of the latch members 33. The two tripping members are similarly but oppositely formed and each rotates on shaft 36 as an axis when the corresponding lever 35 is moved forwardly. It will be apparent from this description that if the right hand lever 35 is moved forwardly that the right hand crosshead 29 will be released by the latch 34 and the left hand sleeve 17 will be released, its latching member 33 having been raised by the tripping device. If the left hand lever 35 be moved forwardly it will be apparent that the left hand crosshead 29 and the right hand sleeve 17 will be released while the right hand crosshead will remain in position. In Figure 2 is clearly illustrated the position of the parts after the left hand hand lever has been operated.

The plow beams tend to fall by their own weight from the full line position to the dotted line position, Figure 3, rotating the axle 15 rearwardly and downwardly. When the plows are raised and are in inoperative position, however, they will remain in such position until one of the hand levers is operated. Assuming that the left hand hand lever is the one selected it will be seen that the left hand plow beam will fall without moving relatively to its sleeve 17, and hence without rotation. The right hand plow beam has however not been released by unlatching the member 34 and it has merely swung downwardly about the crosshead 29 as a pivot. The right hand sleeve 17 has however moved rearwardly on the plow beam and has caused the same to rotate through 90° as the forward end of the plow beam is pivotally connected to the crosshead 29, thereby causing the plow 27 to fall into operative or cutting position, as shown in Figure 7. In this position one of the plows is positioned a short distance ahead of the other which is desirable. The downward movement of the plow beams is limited by the horizontal bar 42 against which the longitudinally extending portions of the axle strike. This bar 42 is fastened to the vertical post 43 bolted to the center bar 11 of the frame.

As the plows and plow beams are of considerable weight, means is provided for raising them to inoperative position without requiring strenuous work on the part of the operator. This means throws the exertion necessary upon the draft horses or tractor connected to the plow. Rigidly secured to each of the wheels is a notched ring 44 and bolted to each laterally extending U shaped portion of the axle in such manner as to be freely rotatable is a bar 45 having a hooked end 46 in position to engage one of the notches of the ring 44, and having at its inner end an arm 47. To the ends of each of the arms 47 is connected a cord or rope 48 which extends forwardly to a position where it may be conveniently pulled by the operator.

When one of the levers 35 has been manipulated to lower the plows, the hooked arm 46 is thrown rearwardly, as illustrated in Figure 3, and remains in this position until the operator, by pulling on cord 48, throws it forwardly so that it engages one of the notches in the ring 44. As both hooks 46 simultaneously engage rings 44 the axle 50 will be rotated from its substantially horizontal position to its substantially vertical position, lifting the plows from operative to inoperative position and sliding the left hand cross head 29 and the right hand sleeve 17 forwardly until they are again latched in inoperative position as shown in Figure 1. As the plow beams reach their uppermost or final and inoperative position the arms 47 of bars 45 strike cross piece 22 thereby lifting hooks 46 from the notches at the proper time. This is done when the plow has reached the end of the furrow and when the return journey is begun the right hand operating lever is operated to release the plow beams which thereupon fall with the left hand plows in operative position, so that the plow may parallel its former course and yet the furrows be thrown in the same direction.

The invention enables a single operator to easily and conveniently plow a field on a steep hillside, and puts no burden upon him in the manipulation of the reversing plows other than that of operating levers 35 and cord 48. The device is inexpensive and not liable to become out of order in any manner. The invention may be made in a variety of forms of which that form disclosed is representative, and is not limited in its scope to this exact design.

Having thus described the invention what is claimed as new and desired to be secured by Letters Patent is:

1. In a plow of the class described, a wheeled frame, a rotatable and vertically movable plow beam, right and left hand plows secured to said beam, and connections including a sleeve through which the beam extends with a sliding fit, between said beam and frame, whereby the beam may be rotated as it moves downwardly to bring either plow into operative position.

2. In a plow of the class described, a wheeled frame, a rotatable, vertically movable, and longitudinally movable plow beam, right hand and left hand plows secured to said beam, and connections between said beam and frame whereby the former may be moved vertically and longitudinally and at the same time rotated, to bring either plow into operative position.

3. In a plow of the class described, a wheeled frame, a crosshead having a limited sliding movement relatively to said frame,

a plow beam having one end rotatably secured to said crosshead, right and left hand plows secured to said beam, and means connecting said beam and frame intermediate the crosshead and plows whereby the beam is given a rotary movement as it moves longitudinally with the crosshead, for the purpose set forth.

4. In a plow of the class described, a wheeled frame, a crosshead having a limited sliding movement relatively to said frame, a plow beam having one end rotatably secured to said crosshead, right and left hand plows secured to said beam, and means, including a sleeve connected to the frame and receiving the beam with a sliding fit, securing the beam to the frame intermediate the crosshead and plows, whereby the beam is given a rotary movement as it moves longitudinally with the crosshead, for the purpose set forth.

5. In a plow of the class described, a wheeled frame, a crosshead having a limited sliding movement relatively to said frame, a plow beam having one end rotatably secured to said crosshead, right and left hand plows secured to said beam, and means including a non-rotatable member, connecting said beam and frame intermediate the crosshead and plows whereby the beam is given a rotary movement as it moves longitudinally with the crosshead, said beam and nonrotatable member having mutually engaging portions one of which is spiral shaped for effecting the rotation of the beam.

6. In a plow of the class described, the combination with a wheeled supporting frame, of two plow beams supported thereon, each beam being mounted for rocking movement in a vertical plane about a horizontal axis, rotatable about its longitudinal axis and also movable in the direction of its axis, right and left hand plows secured to each beam, and means normally retaining said beams in elevated position, said means comprising two manually operable levers, the operation of one of which permits both plow beams to fall by gravity with the right hand plows in operative position and the operation of the other of which permits both beams to fall with the left hand plows in operative position, one plow beam moving axially a greater distance than the other in each falling movement.

7. In a plow of the class described, the combination with a wheeled supporting frame, of two plow beams supported thereon, each plow beam being mounted for rocking movement in a vertical plane about a horizontal axis, and rotatable about its longitudinal axis, right and left hand plows secured to each beam, means normally retaining said beams in elevated position, said means comprising two manually operable levers, the operation of one of which permits both plow beams to fall by gravity with the left hand plows in operative position, the operation of the other of which permits both beams to fall with the right hand plows in operative position.

8. In a plow of the class described, the combination with a wheeled supporting frame, of two plow beams supported thereon, each plow beam being mounted for rocking movement in a vertical plane and also movement in the direction of its axis, right and left hand plows secured to each beam, and means normally retaining said beams in elevated position, said means including two latches normally holding each plow beam, and two manually operable latch releasing devices, the operation of either latch devices resulting in the release of three of said latches whereby the plow beams are allowed to fall with either two right hand or two left hand plows in operative position, depending upon the releasing device operated.

In testimony whereof I affix my signature.

MARTIN L. ANDREWS.