

(No Model.)

J. T. LUCAS.
GANG OR CULTIVATOR PLOW.

No. 500,405.

Patented June 27, 1893.

Fig: 1.

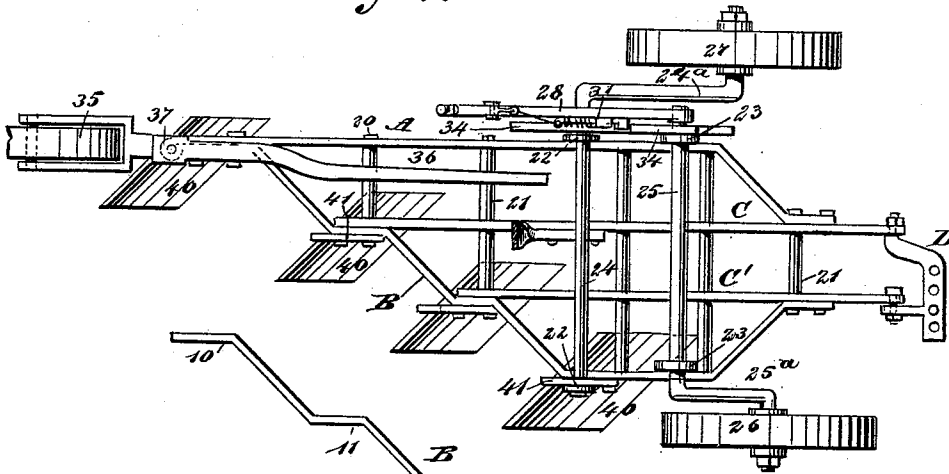


Fig: 2.

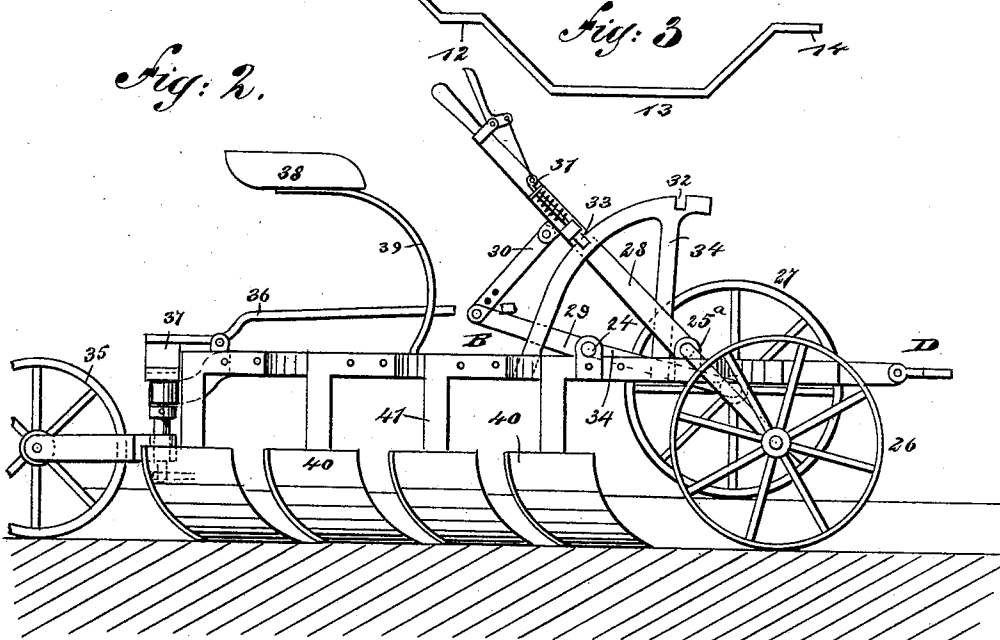
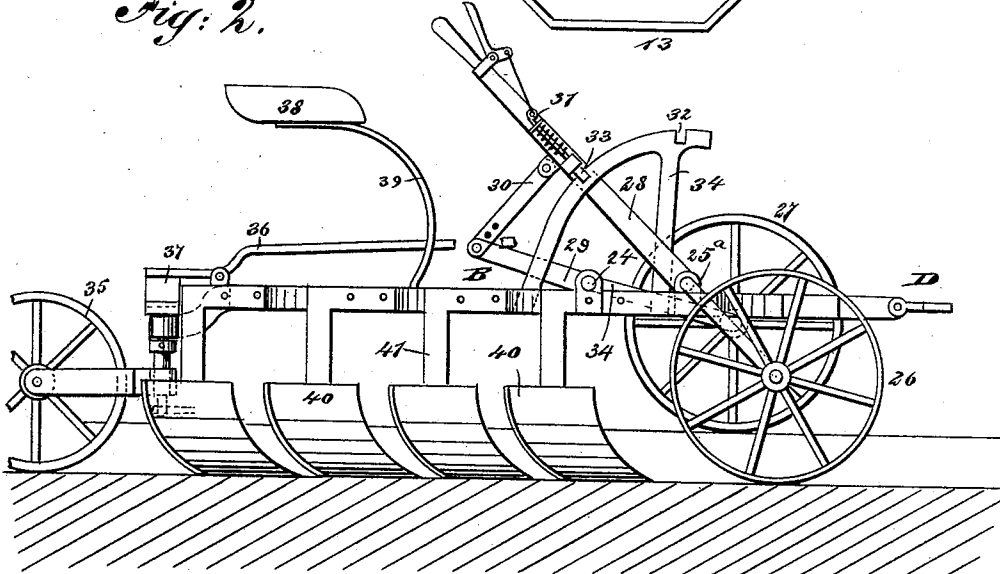


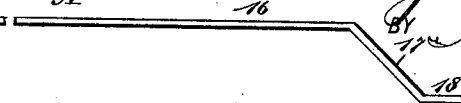
Fig: 3.



WITNESSES:

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Fig: 4.



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GANG OR CULTIVATOR PLOW.

SPECIFICATION forming part of Letters Patent No. 500,405, dated June 27, 1893.

Application filed August 8, 1892. Serial No. 442,446. (No model.)

To all whom it may concern:

Be it known that I, JOHN T. LUCAS, of Centerville, in the county of Klickitat and State of Washington, have invented a new and useful Improvement in Gang or Cultivator Plows, of which the following is a full, clear, and exact description.

My invention relates to an improvement in plows, especially cultivator or gang plows, and has for its object to construct the frame in a simple, durable and economic manner, and to provide shares capable of being reversed and also capable of expeditious and convenient attachment to the frame.

A further object of the invention is to provide a means whereby the shares may be carried down conveniently and readily to the working position, or elevated from the ground so that the implement may be easily carried away from the field.

Another feature of the invention is to provide a means for regulating the depth that the plow shares shall enter the ground, and to make such connections with the rear or guide wheel that the latter may be locked to travel in a straight line only, or be unlocked so that it will at that time have a swivel connection with the frame, thus enabling the implement to be turned around square corners, or squarely around.

The invention consists in the novel construction and combination of these several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the implement. Fig. 2 is a side elevation. Fig. 3 is a plan view of one side beam of the plow frame; and Fig. 4 is a plan view of the opposite side beam.

The frame or body of the implement consists primarily of two side beams A and B, and two intermediate beams C and C'. The right-hand side beam B, is of a zig-zag shape, being bent to form a series of steps designated respectively as 10, 11, 12 and 13, the step 13, being very much wider than the others, and from this step the beam is bent in-

ward to produce a final step 14, which is practically in horizontal alignment with the step 12, as is best shown in Fig. 3. The side beam A, is illustrated in detail in Fig. 4, and this beam is straight for the greater portion of its length, being preferably provided at one end with an eye 15; and the opposite end of the beam extends inward at an angle to the body while the extremity of this portion is carried outward parallel with the body. In order to designate the parts of this beam when it is necessary to describe the connections of the frame, the straight section is designated as 16, and the angular or diagonal portion as 17, while the outer extremity or continuation of the angular portion is designated as 18. In building up the frame the eye 15 of the side beam A, is at the rear end of that beam, and the rear step 10 of the zig-zag side beam B, is bolted to the inner face of the beam A, near the rear end of the latter. Upon the inner face of the step 11 of the zig-zag side beam B, the rear end of the central beam C, is bolted or otherwise secured; and the rear portion of the second intermediate beam C', is secured to the inner face of the step 12 of the zig-zag beam, and both of the intermediate beams extend forwardly between and beyond the forward ends of the side beams, as shown in Fig. 2, the intermediate beam C, being secured to the inner face of the step 18 of the straighter side beam A, and the intermediate beam C' is secured to the inner face of the forward step 14 of the zig-zag side beam B. A series of bolts 20 passes transversely through the side and intermediate beams, connecting and bracing all of the beams, and producing thereby a stiff yet light body or frame; and each bolt carries one or more tubular washers 21, which serve to space the beams properly one from the other.

At the forward wider portion of the frame, at opposite sides, journal boxes 22 and 23, are located. These journal boxes are in transverse alignment, and each set is adapted to journal an axle. There are two axles employed, a rear axle 24 and a forward axle 25. The forward axle at the right-hand side of the frame is provided with an integral crank arm 25^a, upon which a supporting wheel 26, is held to turn; and at the left-hand side of the frame the axle 24, is provided with a simi-

lar crank arm 24^a, and upon it a supporting wheel 27, is mounted. The two axles are parallel, as is best shown in Fig. 1, and the wheels are in transverse alignment. Each wheel, however, is carried by a separate axle, and each axle at opposite sides of the frame is provided with a crank arm to carry the wheel, as the frame is to be raised or lowered by moving the crank arms of the axles upward or downward. This is accomplished through the medium of a hand lever 28, said lever being securely fastened to the straight end of the forward axle 25, preferably, so that when the lever is carried forward or backward its axle will be turned and its crank arm carried upward or downward. It is necessary that there should be concerted action between the two axles, and that both axles should be operated by the same lever; therefore a crank arm 29 is projected rearwardly from the bent end of the axle 24, the arm serving in the capacity of a lever, and the said arm is adjustably connected with the main lever 28 by means of a link 30, provided at one end with a series of apertures, through either one of which the pivot pin may be passed. By increasing or decreasing the length of the link 30 between the crank arm or auxiliary lever and the main lever, the shares of the plow may be made to enter the ground more or less deeply. The main lever 28, is provided with a thumb latch 31, adapted to enter two notches 32 and 33, produced in a rack 34. When the lever is in the lower notch the wheels will have been raised to a position admitting of the plows entering the ground to perform their work; when the thumb latch of the lever 28 enters the top notch 32, the supporting wheels 26 and 27, are forced downward a sufficient distance to cause the shares to clear the ground, and when the frame is in this position the machine can be taken from the field.

In addition to the front supporting wheels 26 and 27, a single rear wheel 35, is employed. This rear wheel is really a caster wheel, and it is held to turn in the eye 15 of the side beam A. It is only desirable that the wheel should act as a caster wheel when the implement is to be made to turn corners, and when acting at that time as a pivot wheel it materially assists in the manipulation of the implement and enables the driver to turn a square corner expeditiously and with ease. At other times it is desirable that the rear wheel should travel straight ahead, in a furrow only; therefore, a lever 36, is fulcrumed upon the frame, provided with a cap or socket 37, which fits over the upper end of the shank of the caster wheel bearing; and when the cap is over the shank the caster wheel can not turn in direction of either side, but must travel straight ahead; when, however, the lever 36, is pressed downward, which may be done by the driver's foot, the cap 37, is disengaged from the shank of the caster wheel

bearing and the wheel is free to turn in a complete circle if necessary. The lever 36, is ordinarily made spring-controlled, the spring acting to normally hold the lever in locking position with the caster wheel. The driver's seat 38, is mounted upon the body or frame in such position that the hand lever 28 and foot lever 36, are within convenient reach. The seat is ordinarily supported by a spring 39, which is secured by bolts to any desired beam in the structure of the frame. Thus the position of the seat may be changed as may be demanded in different kinds of work, as, for instance, to bring more or less weight over certain portions of the implement. The free ends of the intermediate beams of the frame are connected by a clevis D, to which the beam is to be attached. The plows employed are reversible; that is, they have an upper and a lower cutting surface, so that in the event one surface should become blunt or broken the share may be reversed and a perfect cutting surface be placed in position for work.

The shares are attached to the frame through the medium of standards 41. These standards are of angular or L-shape, the vertical members of the standards being secured by clips or otherwise to the backs of the shares, while the upper or horizontal members of the standards are bolted, or otherwise secured, one standard to each step 10, 11, 12 and 13 of the zig-zag side frame B.

It will be observed that this implement is exceedingly light, it is exceedingly simple in construction and is capable of being manipulated in a convenient manner, and can be taken from the field with but little trouble or can be placed in position for work with equal ease. The draft of the implement is also exceedingly light, and it will be understood that any form of share may be used in connection with the frame that the character of the soil to be worked and the nature of the furrow to be made may demand.

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

1. In a gang or cultivator plow, the combination, with the body frame thereof, said frame comprising side pieces one of which is zig-zag or stepped, intermediate longitudinal beams and transverse rods connecting the beams, of a pivot wheel located at the rear of the frame, and a lock lever fulcrumed upon the frame and having at its rear end a cap engaging the shank of the bearing of the wheel, whereby when the cap is disengaged from the shank the wheel acts as a caster wheel, and when the cap is in engagement with the shank of the wheel the wheel can not have side movement, as and for the purpose set forth.

2. A gang plow or cultivator comprising a frame one side of which is stepped, and plow shanks connected with the stepped portion of the frame, a caster wheel located at the rear

of the frame, a lock lever controlling said wheel, axles journaled upon the frame and provided at opposite ends with crank arms carrying supporting wheels, a lift lever provided with a thumb latch and secured to the straight end of the front axle, a rearwardly extending arm 29 projecting from the rear axle at its crank end and adjustably connected with the main or hand lever, and a rack having recesses adapted to receive the thumb latch of the hand lever, as and for the purpose set forth.

3. A gang plow or cultivator consisting in a body frame of skeleton construction and having one of its sides formed in a series of steps, plow shanks attached to the stepped faces of the frame, reversible plow shares carried by the shanks, of a caster wheel located

at the rear of the frame, a lock lever engaging with the shank of the wheel and engaging the wheel, parallel axles journaled upon the frame, each axle at opposite ends being provided with a crank arm, supporting wheels mounted upon the crank arms of the axles, a hand lever secured to the straight end of the front axle and provided with a thumb latch, the bent end of the rear axle, and having an adjustable link connection with the main lever, and a rack recessed to receive the thumb latch of the main lever, all combined and operated substantially in the manner and for the purpose specified.

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Witnesses:

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