2 Sheets--Sheet 1.

J. B. SKINNER.

Improvement in Cultivators.

No. 129,759. Patented July 23, 1872.

Fig. 1.

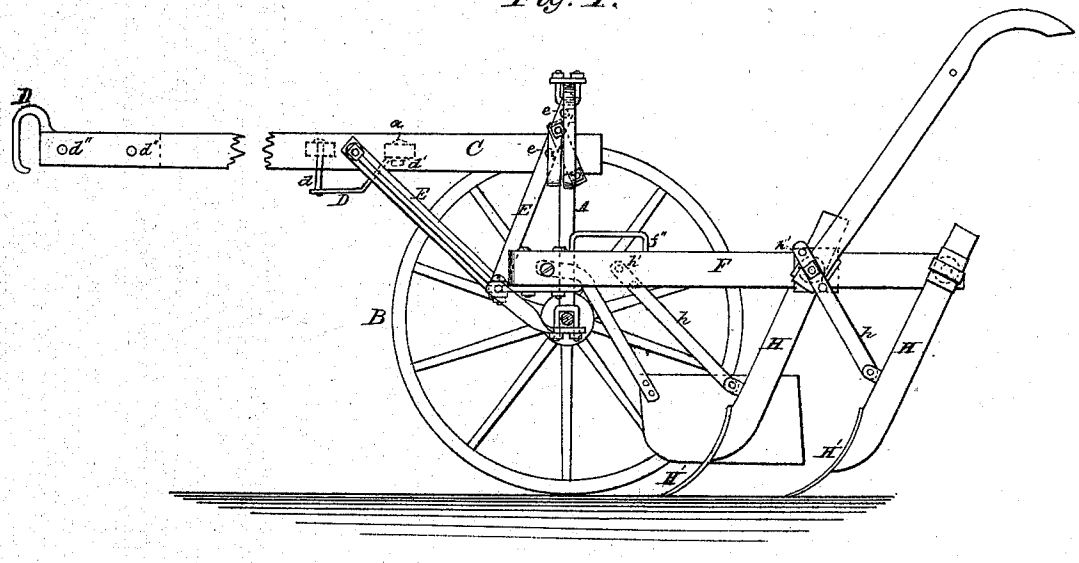
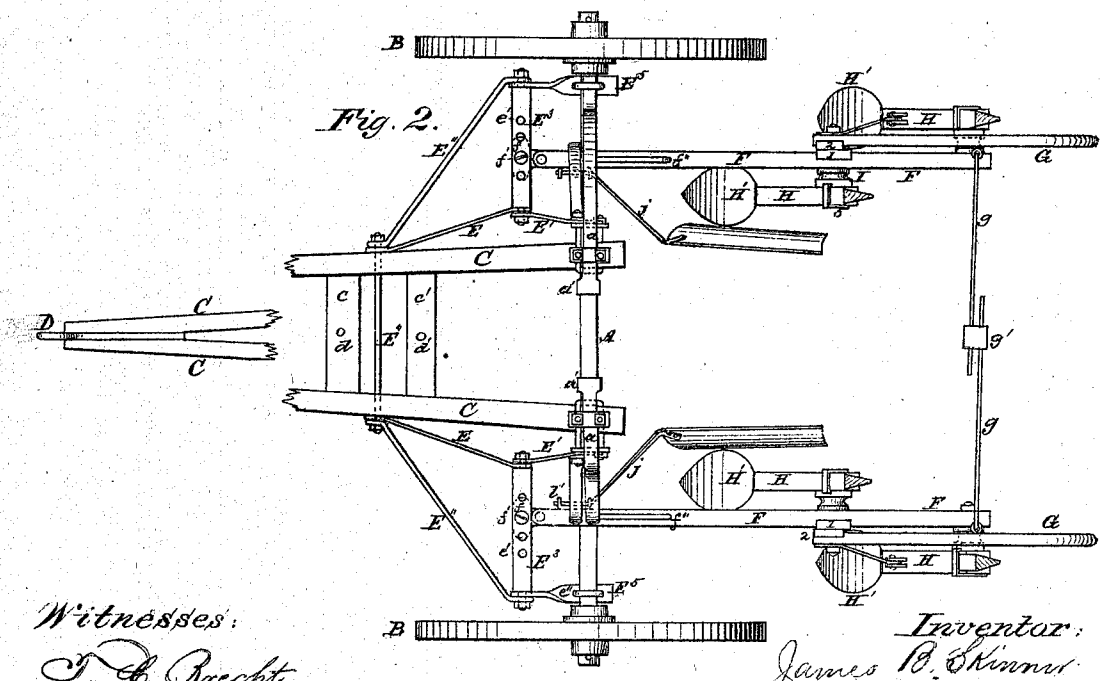


Fig. 2.



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2 Sheets--Sheet 2.

J. B. SKINNER.

Improvement in Cultivators.

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Fig. 3.

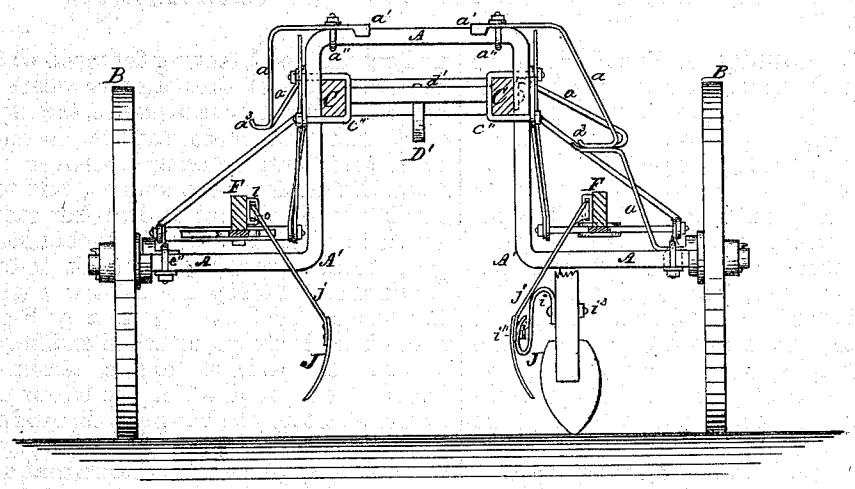


Fig. 4.

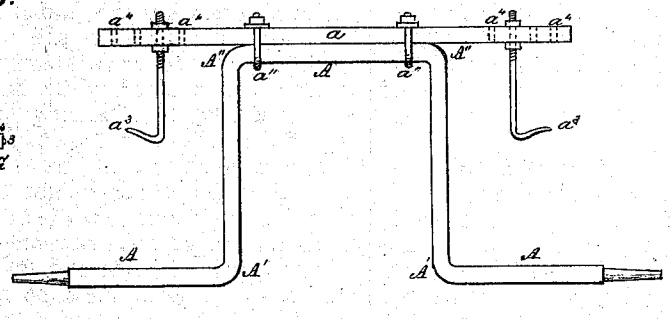


Fig. 6.

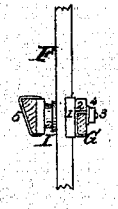


Fig. 5.

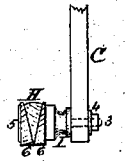


Fig. 9.

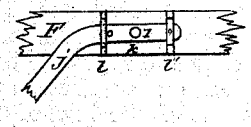


Fig. 7.

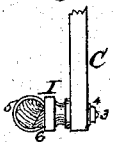


Fig. 8.

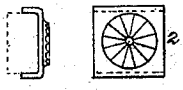
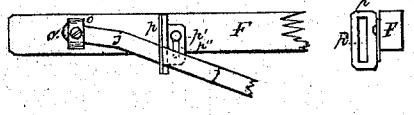


Fig. 10.



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UNITED STATES PATENT OFFICE.

JAMES B. SKINNER, DECEASED, (CHARLOTTE L. SKINNER, ADMINISTRATRIX,) OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **129,759**, dated July 23, 1872.

I, JAMES B. SKINNER, of Rockford, in the county of Winnebago, in the State of Illinois, have made certain Improvements in Cultivators of that class called walking-cultivators, of which the following is a specification:

The object of this invention is to simplify the construction, and thereby make the adjustable parts easier of change in adjustment, and when adjusted more sure to retain its position, more compact in form, lighter in weight, and retain its strength and durability; and it consists in the construction of some of the parts, the arrangement and combination of them and other parts in the implement, to fully carry out the object above stated, as will more fully hereinafter be described.

In the drawing, Figure 1 represents a side view of the implement; Fig. 2, a top view; Fig. 3, a rear view without the standards and plows; Fig. 4, a back view of the axle with a modification of the construction seen in Fig. 3. Figs. 5, 6, and 7 show a cross-sectional view of the manner of attaching the plow-standards to the beams; and Fig. 8 shows the flanged rose-plates that secure the handles to the beams at any angle. Fig. 9 shows the details of the flanged plate to limit the vibration of the shields, and Fig. 10 shows another mode of limiting the vibration of the shields in a vertical direction.

A is the axle, extending for a distance inside of the hub of the wheels in nearly a horizontal direction to points A′, when it bends upward at or nearly at a right angle to the horizontal parts to points A″, where it has an intermediate elevated part that is horizontal, and forms the main support to the rear end of the tongue and the vibrating beams that carry the plows. B B are the wheels as common in cultivators. C C are the two parts or frame that form the tongue, coming together at their forward ends, with the hook D inserted between them, and clamped to the upright parts of axle A by means of inclined screw-clamps C″ that surround both the axle and the parts C of the tongue, and by which the tongue is adjusted to different heights on the axle, either to adjust the draft or to adapt it to the height of the corn. By this construction of the screw-clamp staple none of the wood of the two limbs of the tongue is cut away and thereby weakening it, or allowing water to get into any hole and rot the wood, leaving the wood whole, and no chance to let the water or weather in to cause rot, and, by consequence, the implement is stronger and more durable. *c* and *c′* are cross-girts, framed on and between the two parts C that form the tongue; and to cross-girt *c′* the double-tree or draw-bar strap D′ is secured by bolt *d′*, while the bolt or hammer *d* goes through cross-girt *c*, the double-tree, and forward end of strap E′. Hook D is secured to the tongue by bolts *d″*. *a a a*, Fig. 3, are metal bars or straps, attached to different portions of the axle or tongue, terminating in hooks a^3, and upon which the beams that carry the plows may be hung and suspended when the plows are not in use or being transported from place to place. The bars *a* that are upon the top of the axle are made to slide and be adjusted upon the axle, have flanges *a′* at their inner ends, dropping downward on each side of the axle, to prevent their getting out of position on the axle, and are clamped to the axle when adjusted at their proper place by the screw-staple clamps *a″*. A modification of the mode of attaching the hooks to hold up the plow-beams is to attach the bar *a* to the side of the tongue and have it bent in proper shape to form the hook a^3, while another modification is shown by attaching the bar *a* to the top of the axle near the inside of the wheel-hub, and bending it in the shape to form the hook a^3 at the proper height to suspend and hold the plow-beams, while in Fig. 4 is shown another form of construction, and where bar *a* is straight and clamped fast to the top of axle A by means of the clips or screw-clamps *a″ a″*, while there are several adjusting-holes, a^4, through the bar *a*, near its ends, into which the hook a^3 can be secured and adjusted to accommodate the width of the plow-beams. E E are suspending and adjusting braces, having adjusting-holes *e* at their upper ends, which receives one of the legs of the screw-clamp that holds the tongue to the axle, and upon which they can be adjusted by changing to different holes in the braces E, which, at their bottom ends, are attached to the inner ends of the horizontal bars or brackets E^3, and by which the height of the bracket E^3 is adjusted to be at the proper height above the axle, as well as to allow of the adjusting the tongue C upon the axle, to be higher or lower,

as circumstances may require. E′ E′ are draft-braces, and used, in connection with braces E, to sustain the inner end of the horizontal bar E^3. E″ E″ are also draft-braces, connected to the braces E′ at their upper ends, and to the tongue C by means of the bolt E^4, and to the outer ends of the horizontal bars E^3. E^5 E^5 are bars, clamped fast near their rear ends to axle A by clips or screw-staples e'', and their forward ends are fast to the outer ends of the horizontal bar or bracket E^3, and, in conjunction with braces E″, support the outer end of the said horizontal bar E^3. Bars or brackets E^3 have adjusting-holes e' through them, whereby the forward ends of the plow-beams or drag-bars can be adjusted to be at different widths apart. F F are the plow-beams or drag-bars, hinged at their forward ends to the brackets or horizontal bars E^3 by means of plates f, that are bolted fast to the beams, and bolt f', which goes through the plates and the bar or bracket, and by putting the bolts in different holes in the bar E^3 the forward ends of the plow-beams will be adjusted in their distance apart, as may be desired. The hinging the plow-beams to the horizontal bar E^3 brings the plow-beams above the axle, and by having the bar E^3 forward of the axle and high enough to have the beams work freely above it, gives greater freedom of motion to the beams as well as brings the line of draft on the tongue nearer to the top line of the plow-beams, and having the horizontal beams connected to the tongue by the braces removes the strain of the drawing the plows from the axle to the tongue, which greatly relieves the axle from strain and gives a more direct line of draft to the plow-beams. The hinge-plates f may be constructed to be on both sides of the horizontal bar E^3, as seen on the right hand in Fig. 3, or but a single plate, and working in a slot in bar E^3, as seen on the left hand of said Fig. 3. f'' f'' are staples or eyes on the top side of the plow-beams F for the purpose of hooking into hooks a^3 when the plows are to be raised to be above the ground for transportation or other purposes when not in use, which is accomplished by raising the rear ends of the beams high enough to hook the staples or eyes f'' onto hooks a^3. G G are handles by which the beams and plows are guided. g g are adjusting-rods, attached at their outer ends to the plow-handles G by an eyebolt, and their inner ends pass through a center nut, g', in separate holes, and by which the beams and plows can be adjusted as to their width apart by the sliding of the rods through the center nut, when they can be held by a holding-screw or other secure device; or the rods g may freely slide through the nut g' when desired. The handles G are attached to the beams F by means of flanged rose-plates 1 and 2, as seen in Figs. 6 and 8. Plate 1 is constructed so that the flanges on its opposite sides will embrace and fit on the plow-beams F, and has on its outer side radial corrugations or ribs and a bolt-hole in its center, while plate 2 is similarly formed, and the flanges on the opposite sides fit on and embrace the plow-handle closely, and the side of this plate that comes in contact with plate 1 is also radially corrugated or ribbed so as to engage the corrugations or ribs of plate 1, and the screw-bolt 3 that passes through the beam when the nut 4 is turned hard up will hold the handle G at any desired elevation or angle desired with relation to the beams F. H H are the plow-standards, having the plows H′ H′ secured at their lower ends by any known means. h h are adjusting-braces, hinged to the standards in any approved manner with a safety break-pin, and going to the beams F, and to which they are bolted. These braces have a number of holes, h', at their upper ends, so that by having the bolts changed to go through different holes in the braces the angle of the standards will be changed as may be desired. I is a nut or block interposed between the beam F and plow-standard H, with a plane face parallel with the side of the beam, and against which the plane side of the standard bears, is slotted to receive the eye 5 of bolt 3, and a hole centrally through it, in which the eyebolt goes to pass through the beam F and be held by the nut 4. The top part of the plow-standards that goes through the eyes 5 of bolts 3 is of irregular form, but must present a plane side to bear upon the face of nut I, while the other sides may be constructed as seen in Fig. 6. This construction of a flat plane surface on the standard to bear upon the face of the holding nut or block is necessary in order to prevent the standard, with the plow, from turning, as it is liable to do when a round stem is used, as it does not require anything like the strain on the eyebolt to hold the standard and its plow permanently in any desired angle, and so as to throw the earth more or less from the plow-line on one side or the other. When it is necessary to change the angle of the plow the construction may be as seen in Fig. 5, where the bearing-face of the standard is against an incline or wedge-block, 6, which will turn the standard and plow either to the right or left, as desired; and if a square right-angled eye, 5, is used, two wedge-blocks, 6, may be used, as seen in Fig. 5. Any number of variations of the angle which the plows shall have can be produced by the use of the wedges against the plane side of the standard, even to the putting of the two or more wedges 6 between the nut I and the bearing-face of the standard when the nut 3 is turned up, and the standard and plow securely held at the desired position. A round eyebolt can also be used with the wedge 6 by making one side of the round part of the standard H flat and inserting the wedges 6 between it and the nut I, as seen in Fig. 7; and the angle of the plow can be changed by reversing the wedge from the position seen in said Fig. 7. The standards with their plows are interchangeable, or the standards and plows on one beam

can be changed to and be attached to the other. J J are shields for protecting the plants from being covered or having too much earth thrown upon them by the plows. *j j* are the draw bars or rods that connect them to the beams F, and are so bent as to have such connection above and forward of the axle A, giving them more freedom of vertical vibration; and in order to limit this vertical vibration three methods are shown, as seen in Figs. 3, 9, and 10. *i* is a bent bar, having a slot in that end that is secured to the shovel-standard H by bolt i^3, for the purpose of adjustment as to its vertical position. Above the slot it curves over and toward the center of the implement, and downward the proper distance, when it again bends upward parallel with the downward bend for a sufficient distance to form a slot or loop, *i'*, when it bends over and touches the other part of the rod, thus forming the loop *i'*. *i''* is a bent bar, bolted fast to shield J, at its forward end bent out from the shield the full thickness of bar *i*, and there parallel with the outer side of the shield, and the back end left free. This bar *i''* is inserted into loop or slot *i'*, when the forward end of the draw-bar *j* is pivoted to the beam C in such manner that the shield will freely vibrate vertically, while the loop or slot will limit the vibration of the shield by the bar *i''* striking against the top or bottom of the loop or slot *i'*, as seen in Fig. 3. *k* is a plate with projecting flanges *l l'* at its forward and rear ends, and having slot *o* through each flange. The bent draw-bar *j*, that is bolted to the upper forward end of the shield, is bent to pass through the slots, which are longer than the draw-bar is wide; and then the draw-bar *j* is pivoted centrally between the flanges by the bolt 7, that secures that and the plate *k* to the beam C, which limits the vertical vibration of the shield by the draw-bar striking at either the top or bottom end of the slot in the flanges, as when the bottom edge of the bar *j* strikes the bottom of the slot in the rear flange the top edge of the bar will strike against the top of the slot in the forward flange; and if the shield rises to have the top edge of the bar strike the top of the rear slot, the bottom edge of the bar will strike on the bottom of the slot in the forward flange, as seen in Fig. 9. Another mode of limiting the vertical vibration of the shield J is shown in Fig. 10, where the draw-bar *j* is bolted or pivoted to beam F by means of cap *o* and bolt *o'*. *p* is an adjustable slotted and flanged plate, bolted to beam F by screw-bolt *p'* in slot *p''*, having a flange at right angles with the beam, with a vertical slot, p^3, therein, through which goes the draw-bar *j;* and when the plate *p* is bolted fast to the beam F the draw-bar is free to vibrate the length of the slot p^3, as the ends of the slot will stop the bar from further vibration in either direction. The plate *p* can be adjusted on beam F to allow the draw-bar *j* to be higher or lower, as desired, by the screw-bolt *p'* in slot *p''* of plate *p*.

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

1. The beams F, pivoted or hinged at their forward ends to horizontal and adjustable bars or brackets E^3, forward and above the axle A, in the manner and for the purpose substantially as described.

2. The combination of the frame or tongue C C, braces E, E', E'', and E^5 with the horizontal and adjustable bar or bracket E^3, all constructed and arranged in the manner and for the purpose described.

3. The combination of the horizontal bar or bracket E^3, having adjusting-holes *e'* therein, with the pivot-plates *f*, pivot pin or bolt *f'*, and beam F, substantially in the manner described.

4. The plow-standards H, having the irregular form shown in Figs. 2, 5, and 6, with the plows H' attached thereto, and secured to the beam of a cultivator by means of the faced nut I, eye 5, screw-bolt 3, and screw-nut 4, substantially in the manner and for the purpose described.

5. The plow-standard H, shaped as above described, and wedge 6, in combination with the faced nut I, eye 5, screw-bolt 3, and screw-nut 4, substantially as described and shown.

6. The flanged rose or corrugated plates 1 and 2, handles G, screw-bolt 3, and nut 4, in combination with the beams F, in the manner substantially as described.

7. The shields J, draw-bars *j*, and bent bar *i''*, in combination with the adjustable bent and slotted bar *i*, constructed and operating in the manner substantially as shown and described.

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