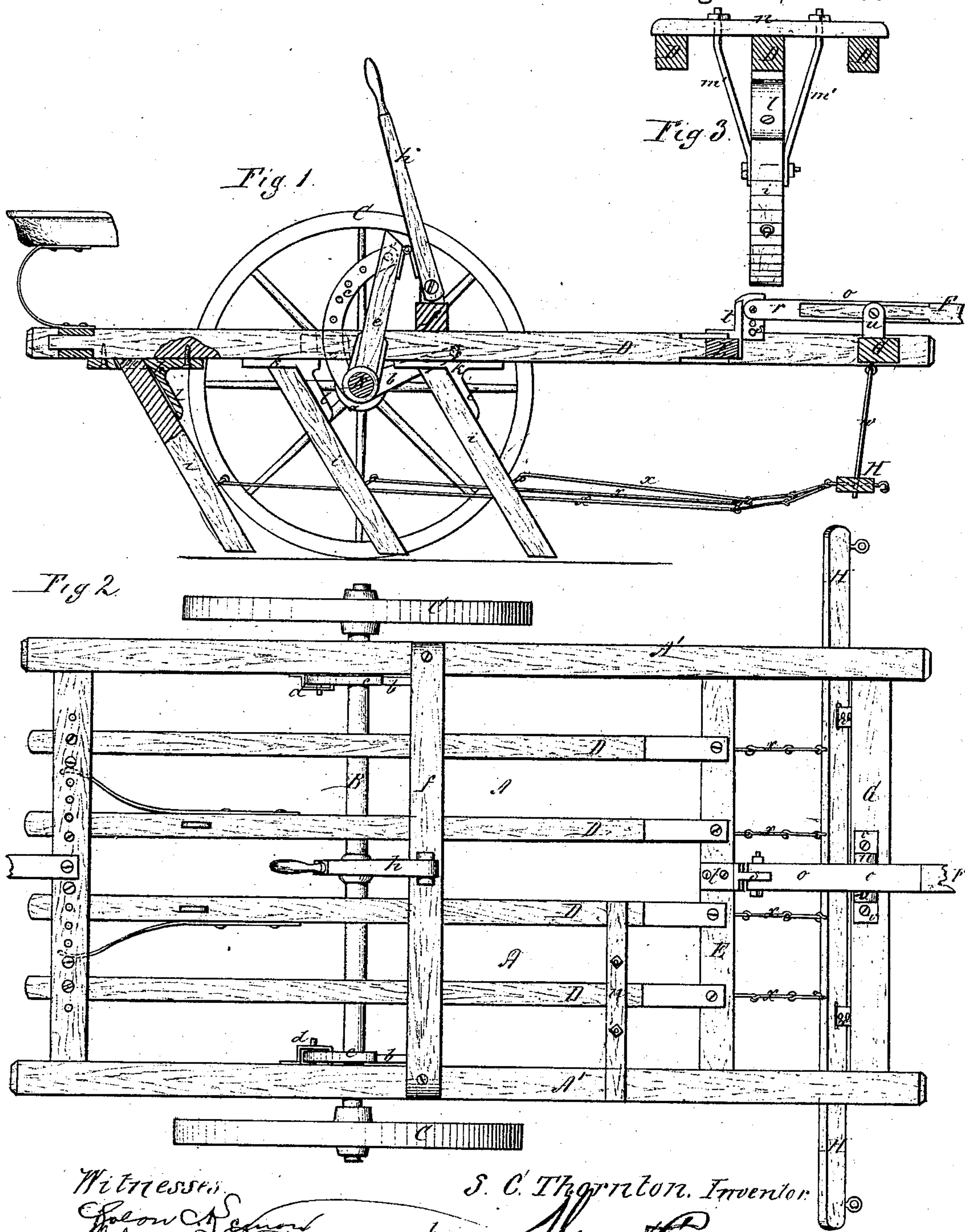


S. C. THORNTON.  
Wheel Cultivator.

No. 106,743.

Patented Aug. 23, 1870.



Witnesses  
Eaton C. S. ...  
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by *[Signature]*  
His Attorneys



# UNITED STATES PATENT OFFICE.

STERLING C. THORNTON, OF MACOMB, TEXAS.

## IMPROVEMENT IN COMBINED GANG-PLOW AND CULTIVATOR.

Specification forming part of Letters Patent No. 106,743, dated August 23, 1870.

*To all whom it may concern:*

Be it known that I, STERLING C. THORNTON, of Macomb, in the county of Grayson and State of Texas, have invented a new and Improved Gang-Plow and Cultivator; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a sectional elevation. Fig. 2 is a plan view; and Fig. 3 is a cross-section, showing the connection with the frame and plow-standard of the braces *m* and cross-bar *n*.

This invention consists of sundry improvements in a machine that may serve the purpose either of a gang-plow, or, the position of two of the plows having been changed, of a cultivator, said improvements to increase the general efficiency of the apparatus.

In the drawings, A is a rectangular framework, B the axle, and C C the wheels on which said frame is mounted.

Inclosing the axle B, near each wheel, is a tubular box, *a*.

*b* are arms projecting one from each box, to the outer ends of which arms the side pieces of the frame A are pivoted.

*c* are curved arms projecting upward, one from each box *a*.

*d* are sockets secured to the inner sides of the pieces A' of the frame, through which socket the curved arms *c* pass.

*e* is an arm projecting upward from the middle of the axle B.

*f* is a bar attached crosswise of the frame A, and upon the upper side of the same.

*h* is a lever pivoted at one extremity between lugs springing from the upper side of the cross-bar *f*, and connected by a hinge with the upper end of the arm *e*, which forms the fulcrum of said lever. If the latter be drawn downward, it elevates the frame A, which is guided, as it rises, by the curved arms *c*. The frame may be set at any required height above the axle. The object of thus varying the elevation of the frame A is to set the plows, which are connected with said frame, at the proper depth in the soil.

The connection of the plow-standards *i* with the frame A is effected by head-pieces *k*, which are secured to the under side of the parallel bars D, that extend from the front cross-piece, E, to the rear one within the side pieces, A', of

the frame, and are each cast with an inclined plate, *l*, against the rear side of which the front of the upper part of the standard *i* is supported, and with an orifice, *m*, back of the plate *l*, through which the head of the standard passes. The standards *i* and their plows are all arranged in a line diagonal of the frame A, as is customary in gang-plows.

To convert the plow into a harrow it is only necessary to set the front two standards back on the bars D opposite the two rear ones, which is easily done by unscrewing the head-pieces *k* and screwing them on again.

In order to strengthen the connection between the standards *i* and the frame A, there are to each standard two braces, *m'*, one at each side, screwed at their lower ends to the standard and passed at their upper ends through a cross-bar, *n*, which sits on the bars D, the bar *n* being drawn down as tightly as desired on the parallel bars by nuts on the upper ends of the braces *m'*.

F is the tongue, whose rear end enters the space between the branches *o o* of the metal block *r*, which is pivoted at its rear extremity to the vertical flange *s*, which stands out from the plate *t*, that is attached to the front side of the cross-piece E.

*u u* are lugs springing from a plate, *v*, screwed to the upper side of the foremost cross-piece, G, between which lugs the tongue is pivoted. A vertical series of orifices is made in the flange *r*, through either of which the pin may pass which joins the tongue to the flange. In this way the tongue may be raised or lowered, in order to adapt it to the size of the draft animals.

H is a double-tree that hangs beneath the cross-piece G, supported by bars *w w*, in each of which is made a series of holes, through which pass the pins that connect the double-tree with the bars, the holes admitting of the placing of the double-tree at a greater or less distance above the surface of the earth.

*x* are rods by which each standard *i* is connected with the rear side of the double-tree H.

To the front side of the double-tree the single-trees are attached, by which the draft animals are connected with the apparatus.

The staples by which the rods *x* are fastened to the standards *i* are placed as low as practicable, in order to bring the point of resistance as near as possible to the earth, which posi-

tion, it is well known, reduces resistance to its minimum. Moreover, the draft upon the standards at this point counteracts the downward strain of the tongue upon the necks of the animals, having a tendency to raise the plows out of the earth. This tendency is greater the lower the double-tree is hung on the bars *w*.

This method of attaching the draft animals directly to the plow-standards at the lowest practical point obviates the principal objection now brought against gang-plows—viz., the great resistance they offer to the draft.

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

1. The frame *A*, axle *B*, radial arms *b*, curved arms *c*, lever *h*, and fulcrum-post *e*, said lever and fulcrum-post being located on the central line of the frame and operating to raise both

sides of the latter equally at the same time, and all the parts specified being arranged with reference to each other, as described.

2. The braces *m'*, standard *i*, cross-bar *n*, and frame *A*, the said cross-bar being placed upon the said frame, and all the parts specified being arranged with reference to each other, as described.

3. The frame *A*, standards *i*, rigidly attached to the frame, double-tree *H*, bars *w*, and rods *x*, the latter connecting the double-tree directly to the standard *i*, and all the parts specified being arranged with reference to each other, as described.

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Witnesses:

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