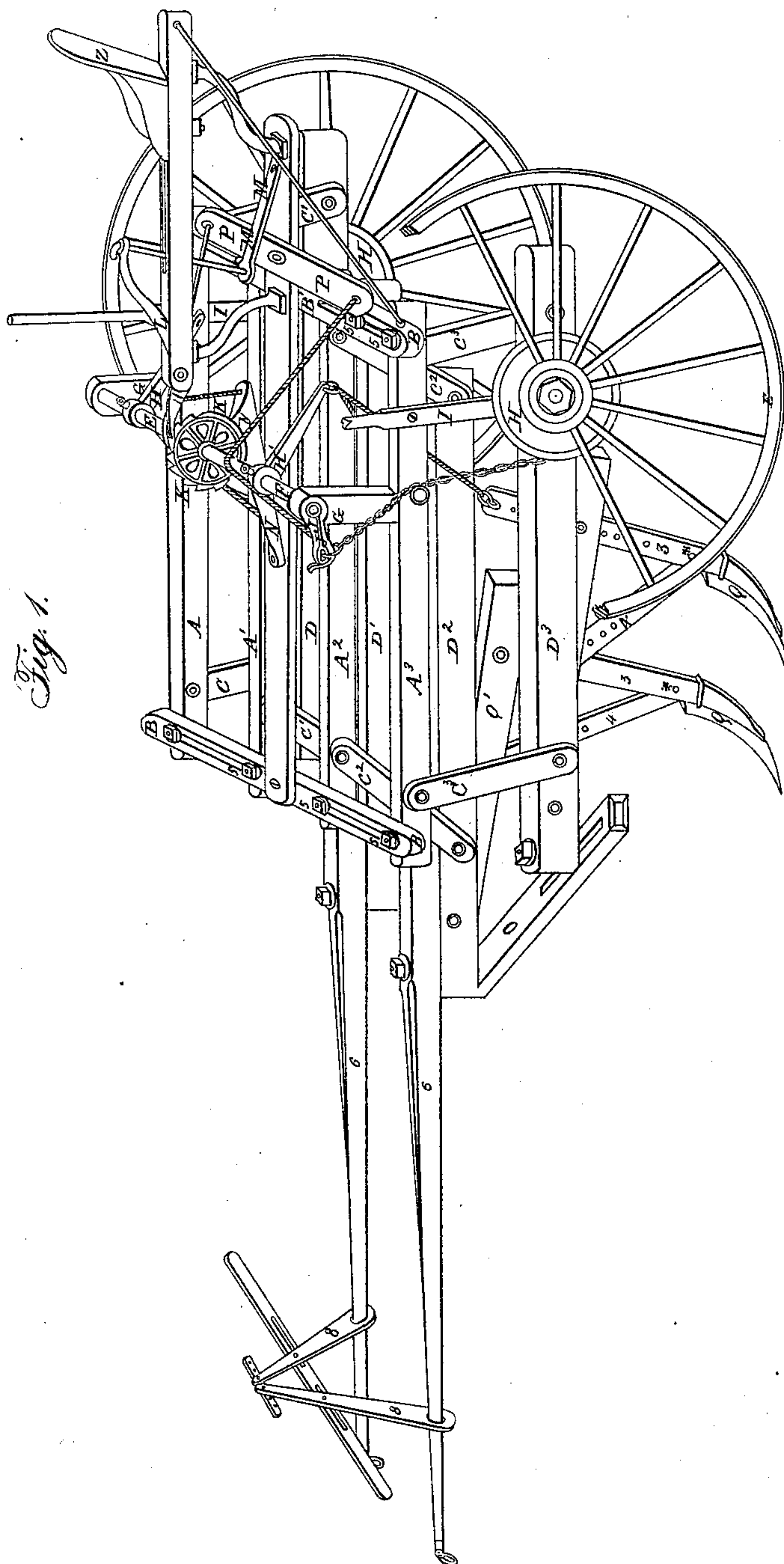


C. W. S. HEATON.

Wheel-Cultivator.

No. 37,474.

Patented Jan. 20, 1863.



Witnesses:

*William A. Fryer*  
*E. W. Turner*

Inventor:

*Charles W. S. Heaton*

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Fig. 3.

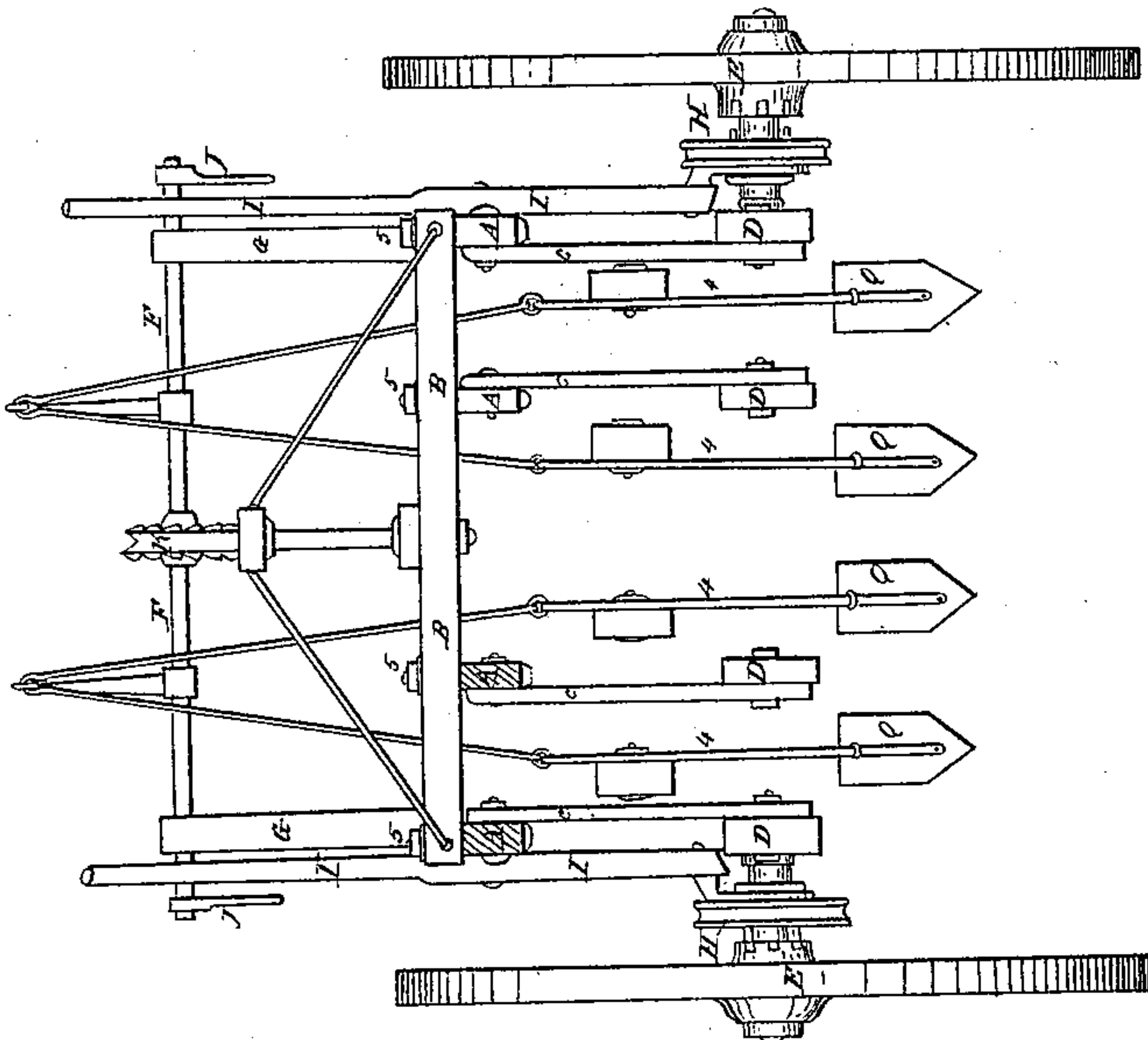
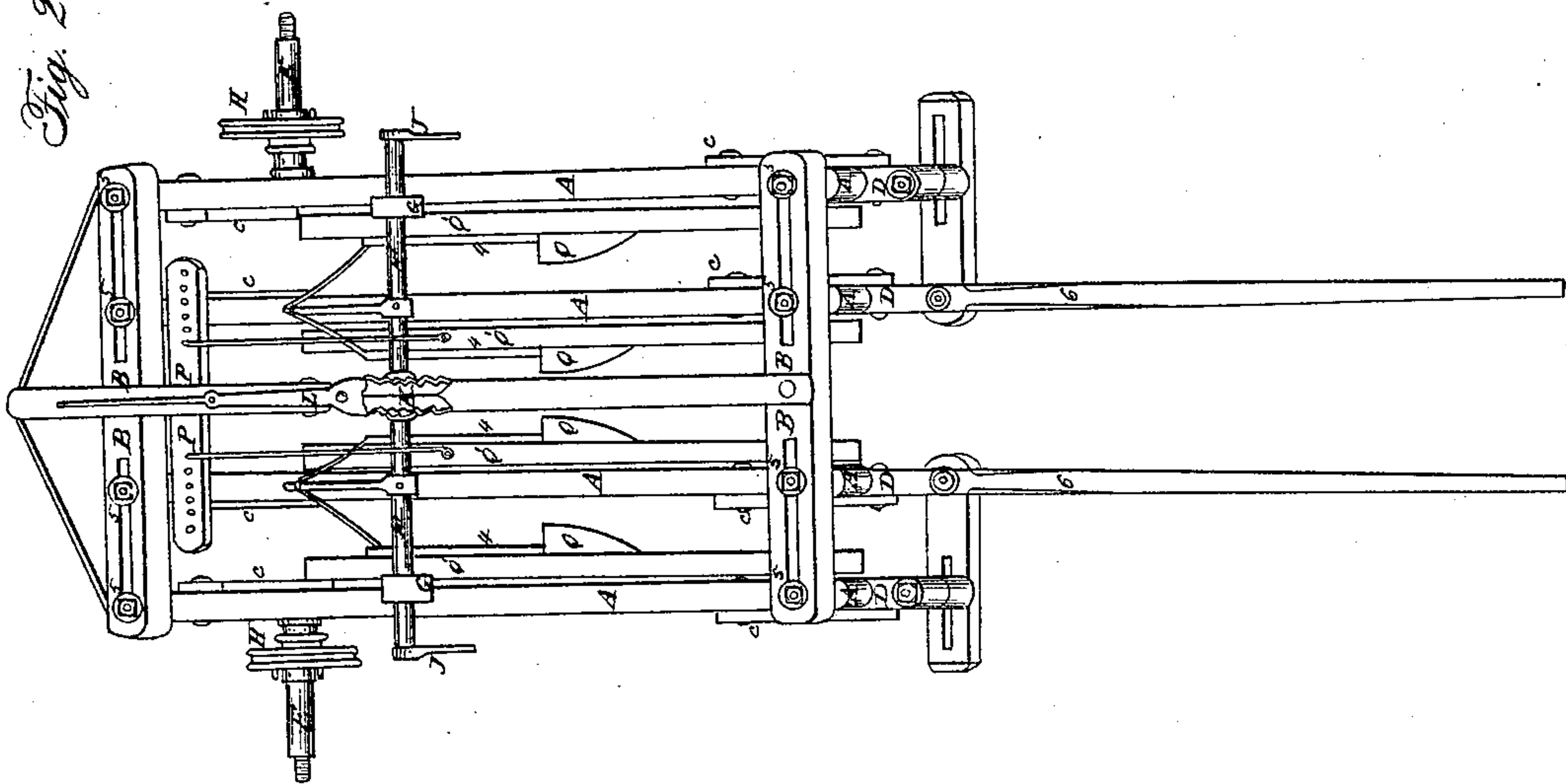


Fig. 2.



Witnesses:

*Miriam Pryor*  
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Inventor:

*Charles W. S. Heaton*



# UNITED STATES PATENT OFFICE.

CHARLES W. S. HEATON, OF BELLEVILLE, ILLINOIS, ASSIGNOR TO JABEZ I. PIGGOTT AND H. RENTCHLER, OF SAME PLACE.

## IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. 37,474, dated January 20, 1863.

*To all whom it may concern:*

Be it known that I, CHAS. W. S. HEATON, of Belleville, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Cultivators for Growing Crops; 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, forming part of this specification, in which—

Figure 1 is a perspective view, Fig. 2 a plan or top view, and Fig. 3 a rear view, of my improved cultivator.

Similar letters of reference in the several figures indicate corresponding parts.

A A' A<sup>2</sup> A<sup>3</sup> are four beams of a top frame, tied together by two slotted cross-pieces, B B'. D D' D<sup>2</sup> D<sup>3</sup> are four other beams, arranged under the beams A A' A<sup>2</sup> A<sup>3</sup>, and suspended on the same by means of pivoted links C C' C<sup>2</sup> C<sup>3</sup>, as shown. The two sets of beams are allowed by means of the links to approach toward or move apart from one another on a vertical line, after the manner of a parallel rule. The beams are also allowed to approach toward or move apart from one another by means of the slots and set-bolts at 55 55. The lower beams, D D' D<sup>2</sup> D<sup>3</sup>, are further connected in pairs by means of horizontal pivoted links O O', which are slotted so as to give the outer beams, D D<sup>3</sup>, a chance to move back and forward while the beams D' D<sup>2</sup> are being moved in a reverse direction. The slots also allow the beams D D' D<sup>2</sup> D<sup>3</sup> to be moved laterally toward and from one another when a like adjustment is imparted to the beams A A' A<sup>2</sup> A<sup>3</sup>. This construction of the frame enables me to adjust the cultivator teeth or shovels to any desired distance apart. It also enables me to elevate the top frame, A A' A<sup>2</sup> A<sup>3</sup>, to any desired extent, and thus adapt the machine to various growths of crops. It likewise enables me to adjust the inner cultivator shovels or teeth to a position either forward or in rear of the outer teeth or shovels, or vice versa. It also enables me to use short axles E' E' for the propelling and supporting wheels E E to turn upon, as shown.

To the beams D D' D<sup>2</sup> D<sup>3</sup> the beams which carry the shovels, teeth, or mold-boards Q are pivoted by one of their ends, as shown. These shovel-beams are suspended from their loose

rear ends upon a shaft, F, by means of cords which attach to arms H' H' of said shaft. The shaft F has two other arms, J J, arranged diametrically opposite to the arms H' H', and by means of these arms and cords it connects with a clutch-pulley, H, on each of the short axles E', said pulleys being loose on the axles and furnished with pins in their faces so as to slide and gear with the notched hubs of the propelling-wheels E E when operated by the levers I I. When the clutch-pulleys are in gear with the propelling-wheels the cords wind upon them and the arms J J are drawn downward. This causes the shaft F to revolve and raise the arms H' H', and with them the beams which carry the cultivator shovels or teeth. As soon as the shovels are thus raised out of the ground the cords which are hooked in the open slotted heads of the arms J J detach automatically, and thus, if the clutch-pulleys remain in gear, no damage will ensue. To retain the shovels out of the ground a ratchet-wheel, K, and pawl L are provided, as represented.

When it is desired to lower the shovels it can be effected by depressing the pawl L; but if the hands of the driver are employed the foot-lever M can be used. In connection with the ratchet-wheel K a brake, N, is provided, so that when the lever-pawl or the foot-lever M is operated to release the shovels friction shall be produced by the brake on the ratchet-wheel, and thus the descent of the shovels prevented from being sudden.

In case it is necessary to raise only one of the two inside shovels to prevent it from running in contact with a hill of corn which is out of the line of the row, or for any other purpose, the foot-board P P may be brought into use, said foot-board being pivoted at the center of its length and connected by its respective ends to the respective shovel-beams through the agency of separate and independent cords or chains, which pass over the shaft F, as represented. With this arrangement, by pushing forward the right or left leg the shovel is drawn up out of the ground. The labor thus expended is much lighter than if a hand-lever were used. The pushing forward of the leg is also a much more convenient movement to make than pushing downward with the hand, and at the same time it is a more effective way of exerting power while in a sitting posture.



It should here be stated that the driver's seat is mounted just above and in rear of the several levers employed on the machine, as represented in the drawings at Z, and is adjustable back and forward to balance the weight of the machine.

The shovels or mold-boards Q Q Q Q are arranged separately on the beams Q' Q' Q' Q', and said beams, although pivoted at their front ends only and free to rise and fall according to the unevenness of the ground, are prevented from drawing into the ground too deeply by the adjustable standards 3 and adjustable brace 4.

The standards and the braces are both straight, and to make the adjusting-holes come opposite the holes in the beam and obviate the necessity of making the brace of circular form, I make the standards and braces in two parts or separate from one another, and then joint them together by means of a loosely-fitting pivot, \*, so that the shovel can be adjusted at any angle necessary, and the holes in the brace can be brought always opposite the hole in the beam. This loose joint \* obviates the necessity of making the brace on a part of a circle, and the brace, being straight and presenting a plane edge, is not so liable to choke and catch trash.

6 6 are two poles, which serve to keep the horses at a proportionate distance apart.

8 8 is a jointed stiffener at the forward ends of the poles. It serves to prevent the horses from crowding too closely together, and also to support the weight of the machine on the horses' shoulders. The stiffener is of such construction that it can be contracted or expanded to suit different horses. It may be termed a "combined stiffener and back-yoke," as it connects to the poles and rests upon the horse's back.

It will be observed that I make the poles of an unusual length, and that by stretching the stiffener and back yoke so as to deflect the poles upward the arrangement acts also as a gatherer or deflector to insure the proper presentation of the corn or other crop to the machine clear of the feet of the horses, and also keep the corn from annoying the horses by brushing them in their faces when it is high.

The design of my machine is to cultivate crops of any height, and this is attained by the folding and expanding parallel-rule frame.

If the two inside shovels are wanted forward, (or the two outside shovels,) they can be moved in two ways—to wit, either by moving the shovels themselves on the beams which carry them, or by pushing forward the two beams D D<sup>3</sup>, or pulling said beams backward

and forcing the beams D' D<sup>2</sup> forward and then locking them in that position by a suitable device attached to the frame.

My machine is adjustable in all parts that are required to be adjusted, and yet it is firm and substantial. The draft of the machine is always the same however high the frame may be elevated, and any boy that can drive a team can operate the machine, the hard work of raising the shovels being done by the horses.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. A cultivator-frame folding and expanding vertically on the plan of a parallel rule, substantially as and for the purpose described.

2. The combination of the slotted beams B B, slotted links O O, and vertically folding and expanding parallel-rule frame, substantially as and for the purpose described.

3. The combination of the elevated cultivator-frame A A' A<sup>2</sup> A<sup>3</sup>, the clutch-pulley H, or its equivalent, propelling-wheels E, cross-shaft F, and pendent cultivator-beams Q', substantially as and for the purposes set forth.

4. The combination of the ratchet-wheel, lever-pawl, and brake with the pendent cultivator-beams, substantially as and for the purpose set forth.

5. The combination of the lever M with the pawl, brake, ratchet-wheel, and pendent cultivator-beams, substantially as and for the purpose set forth.

6. The combination of the swinging levers P and pendent cultivator-beams in a machine operated substantially as herein described.

7. Guards or poles 6, in combination with a back-yoke, 8, as set forth, or the equivalent therefor.

8. The poles 6, when applied and used for the purpose set forth.

9. The back-yoke 8, when applied and used as and for the purpose set forth.

10. In a cultivator for cultivating growing crops, and which employs pendent beams Q' and a vertically expanding and folding parallel-rule frame, the combination therewith of the adjustable standard 3 and adjustable brace 4, made in two pieces and with a loose joint, substantially in the manner and for the purpose described.

11. The arrangement together on the same machine of the ratchet-wheel K, the brake N, and foot and hand levers M, L, I, and P, all combined as shown and described.

CHARLES W. S. HEATON.

Witnesses:

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E. W. PRIMM.