

(No Model.)

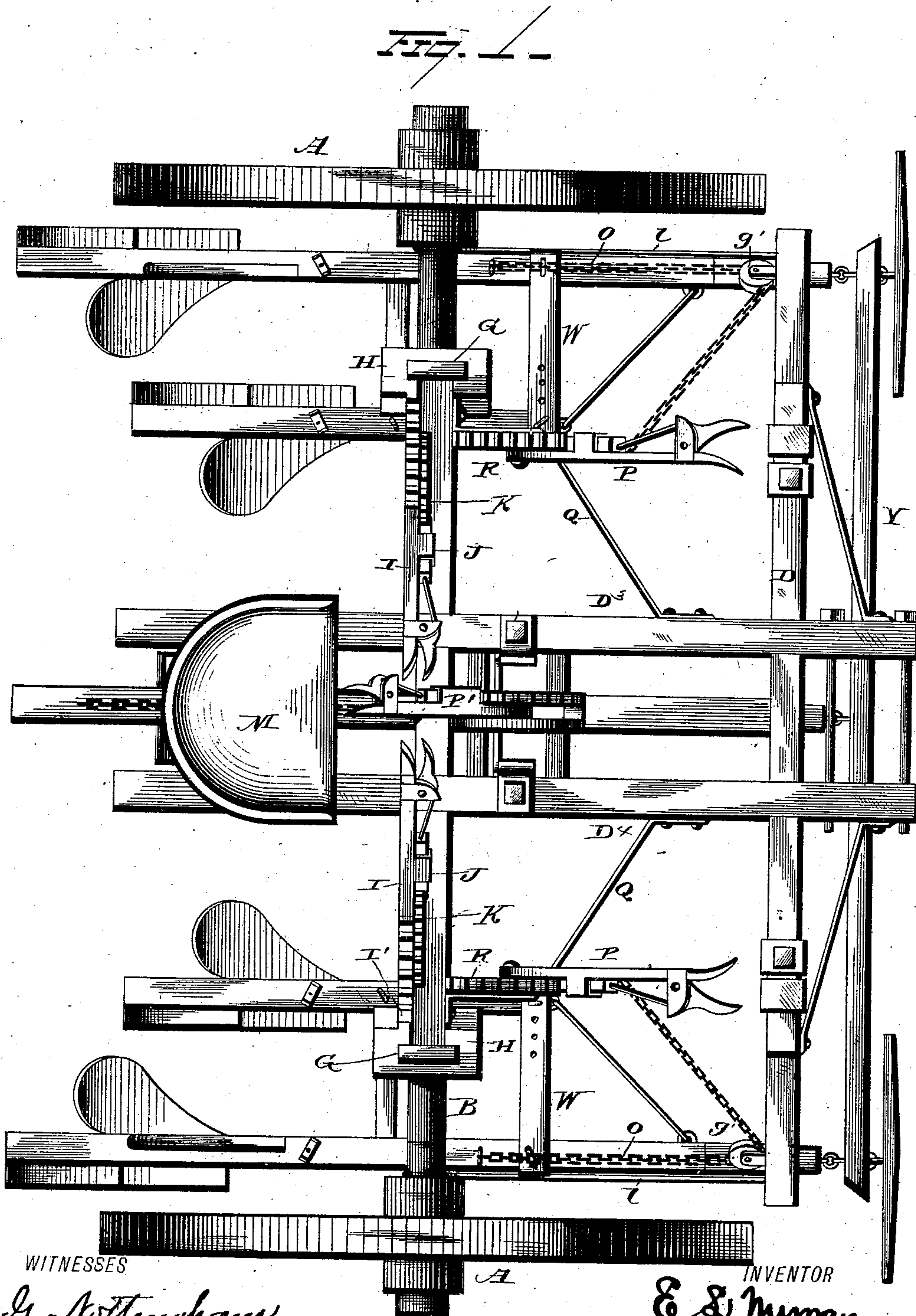
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E. L. MURRAY.

COMBINED WHEEL CULTIVATOR AND PLOW.

No. 272,460.

Patented Feb. 20, 1883.



WITNESSES

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(No Model.)

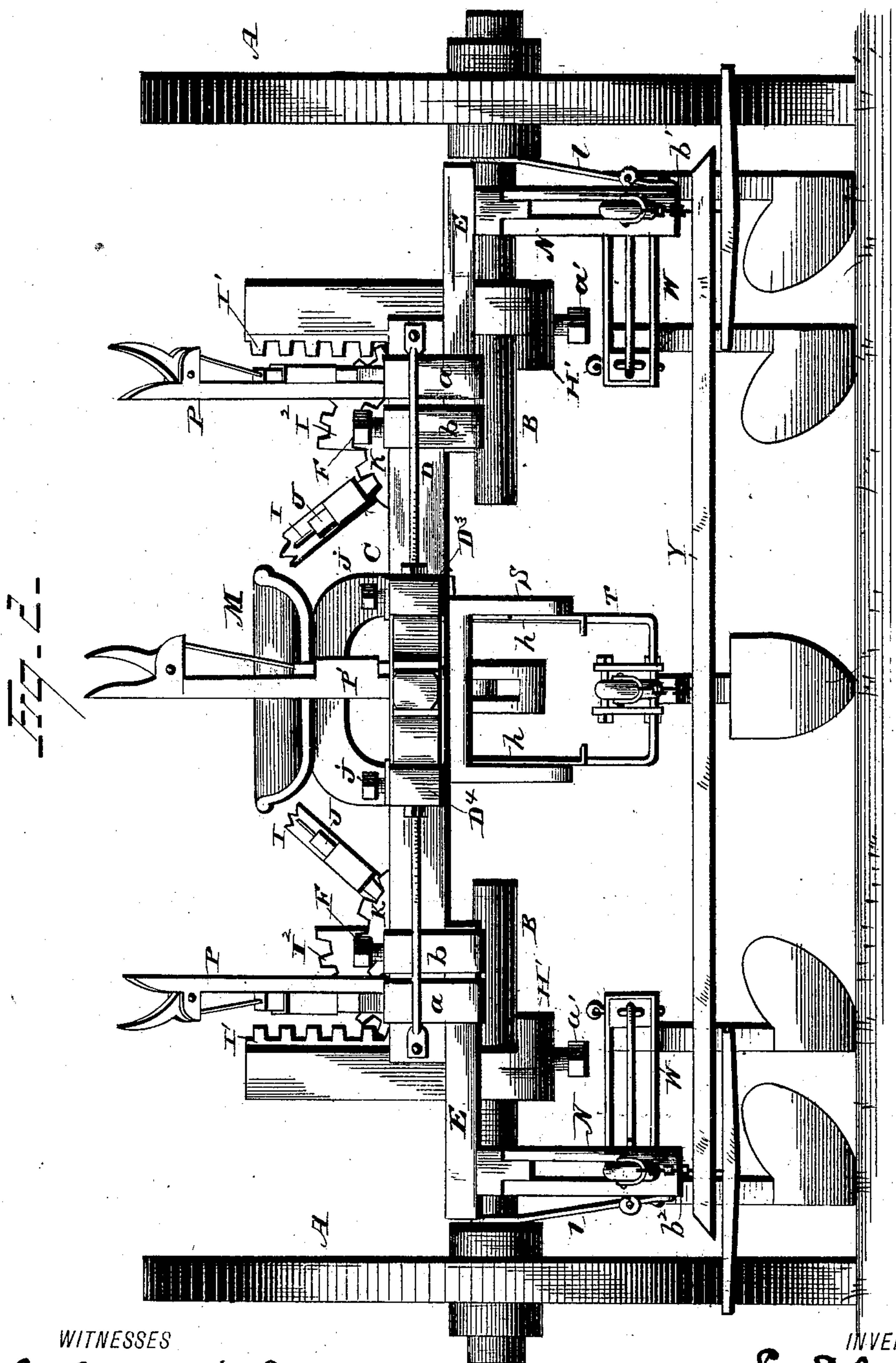
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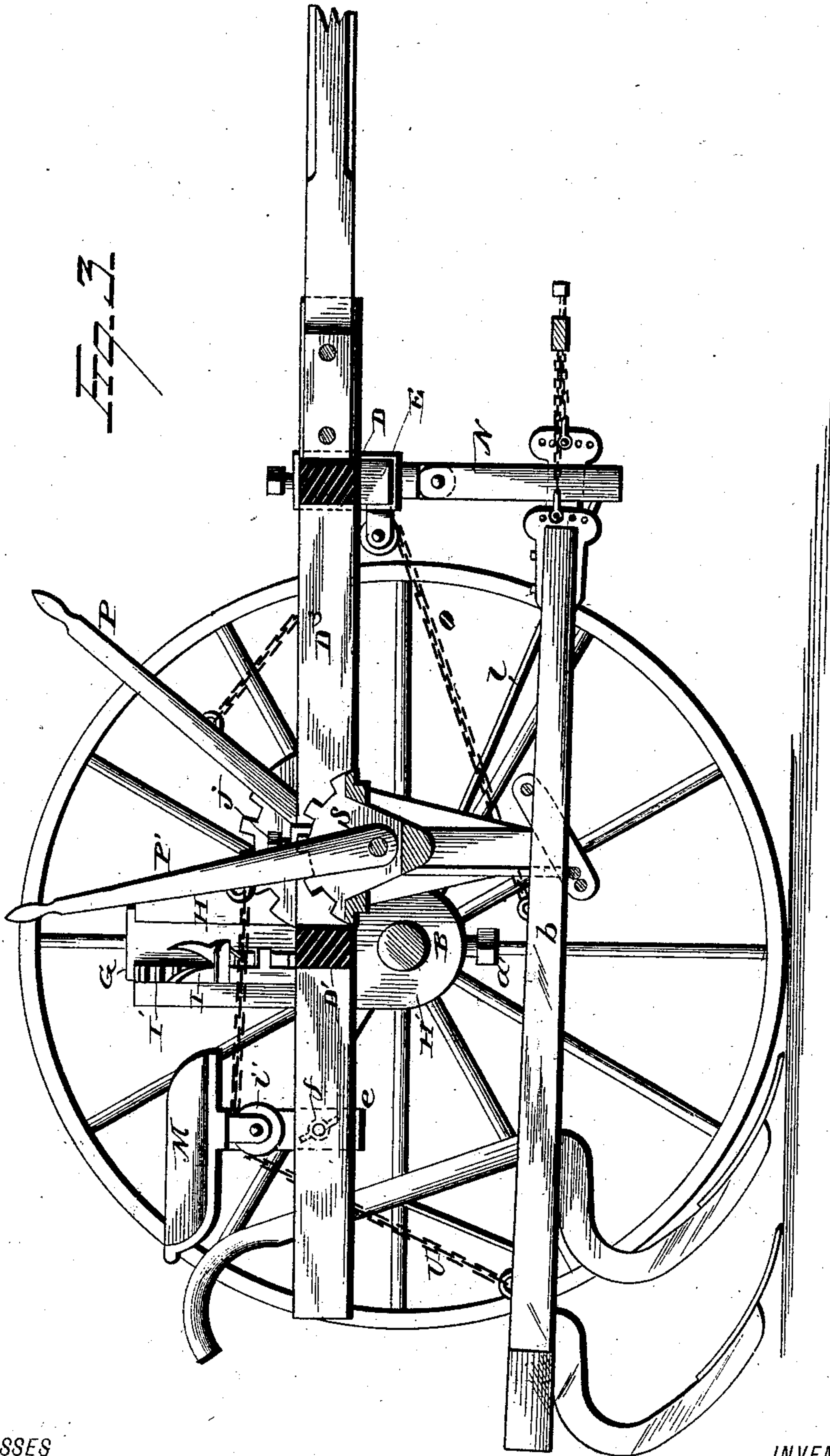
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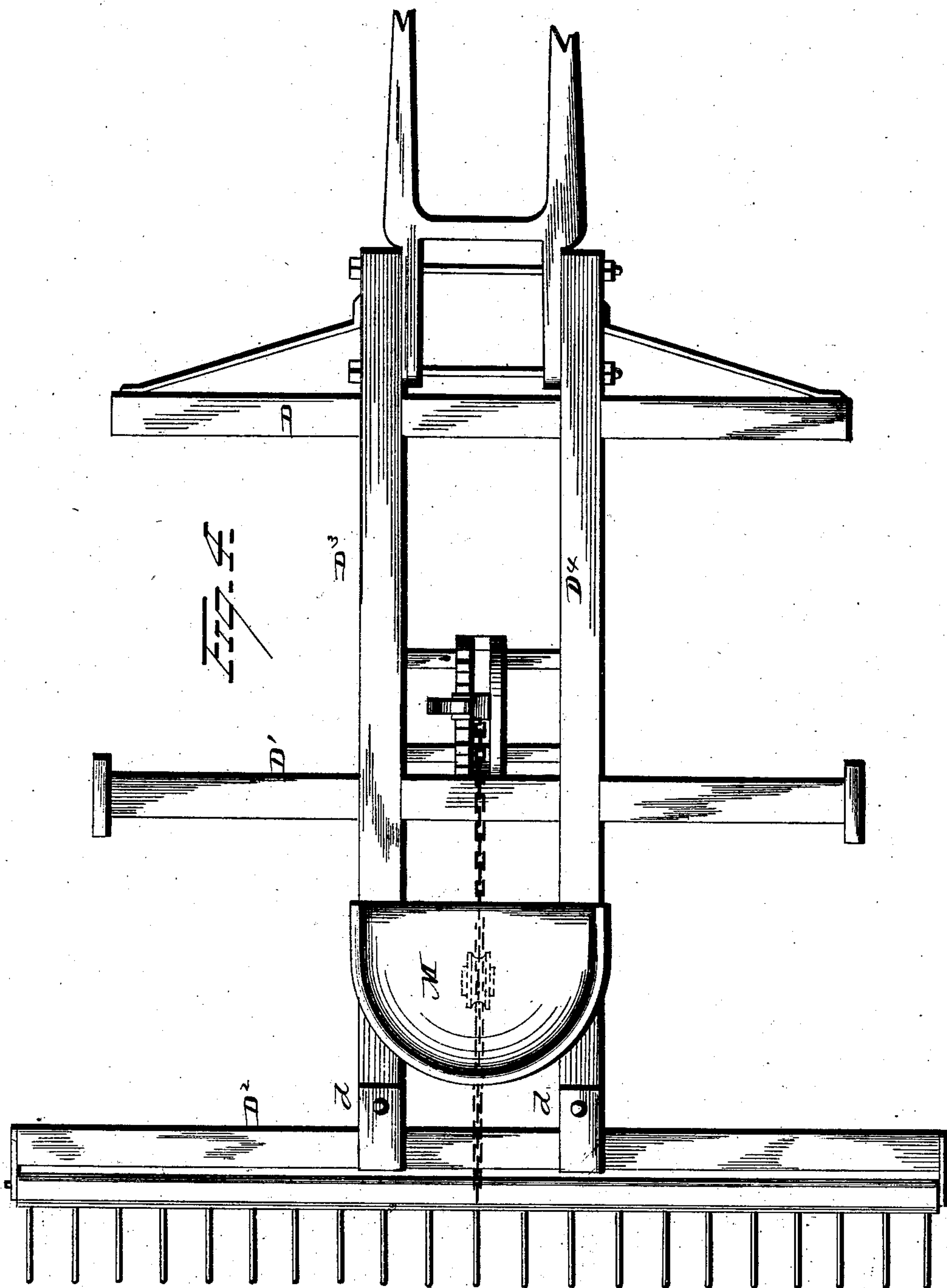
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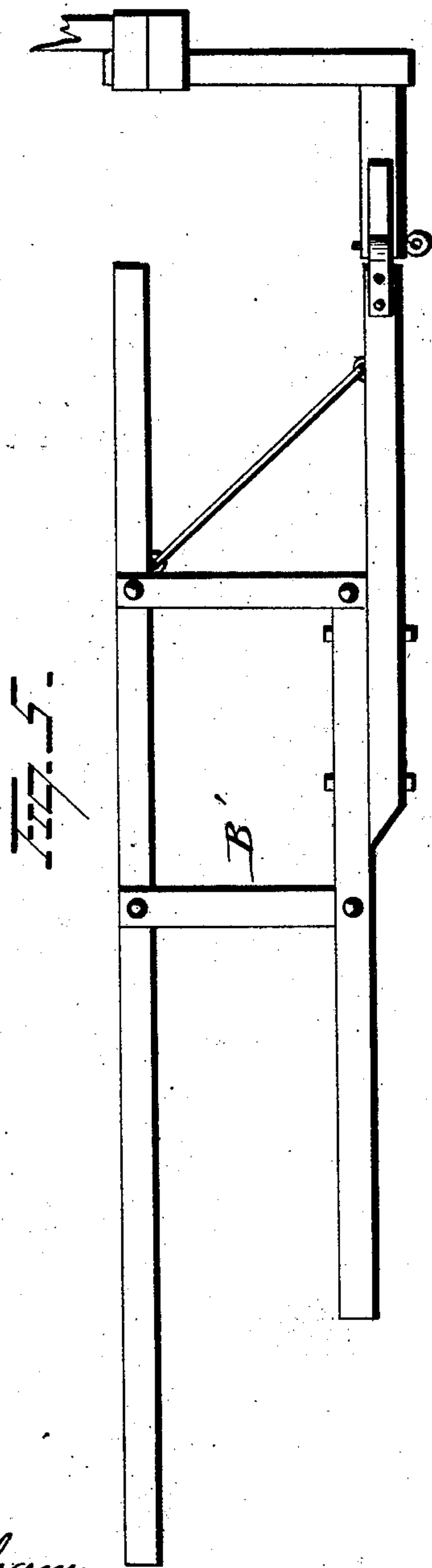
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WITNESSES

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UNITED STATES PATENT OFFICE.

EDWARD L. MURRAY, OF ATLANTA, GEORGIA, ASSIGNOR OF ONE-HALF TO
GEORGE T. PRINGLE, OF CHARLESTON, SOUTH CAROLINA.

COMBINED WHEEL CULTIVATOR AND PLOW.

SPECIFICATION forming part of Letters Patent No. 272,460, dated February 20, 1883.

Application filed May 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWARD L. MURRAY, of Atlanta, in the county of Fulton and State of Georgia, have invented certain new and useful Improvements in a Combined Wheel Cultivator and Plow; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use the same.

My invention relates to improvements in a combined wheel cultivator and plow, the object of the same being to provide a device of this character which will combine simplicity and economy of construction with durability and efficiency in use; and with these ends in view my invention consists in certain details in construction and combinations of parts, as will be more fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improved machine. Fig. 2 is a front view of the same. Fig. 3 is a vertical section view, and Fig. 4 represents the raking mechanism in position, and Fig. 5 is a modification.

A represents the ground-wheels, B the axles, and C the frame. This frame C is composed of the transverse parallel bars D D' D², and the central longitudinal parallel bars D³ and D⁴, the said transverse and longitudinal bars being secured together in the positions shown in any suitable manner. The front transverse bar is provided near its outer ends with the metallic collar *a*, rigidly secured thereto, and extending below the said bar for the reception of the inner ends of the sliding bars E, which latter are also provided with the collars *b*, rigidly secured to their inner ends and extending upward for the reception of the ends of the bar D. By means of these collars *a* and *b* the sliding bars E can be drawn outward or moved inward, when it is desired to increase or diminish the width of the plow to suit existing circumstances, the limit of outward movement of the bars E, however, being regulated by the collars *a* and *b*, which meet when the outward limit has been reached. The sliding bars E are retained in any desired adjustment on the bars D by the set-screws F, which latter are

secured in the collar *b* and bear on the upper surface of the bar D. The central transverse bar, D', supports the entire weight of the frame. This bar D' is provided on its outer ends with the vertical tongues G, which latter slide or move in the boxes H and guide the frame in its up and down movements. These boxes H are provided on their inner faces with an oblong T-shaped slot, in which the tongues G and the extreme ends of the bar D' move. These slots guide and hold the frame from lateral or longitudinal displacement, while the frame with its connected parts are held in vertical adjustment by the segment-wheel I² of the levers I engaging the racks I', the latter being rigidly secured on the boxes H to one side of the T-shaped slot. The levers I are pivotally secured to the bar D', and the teeth of the same engage the rack on the boxes H, and thereby enable the frame, with its attached parts, to be vertically elevated or lowered, or only one side of the frame, as necessity demands. These levers I are retained in their proper positions by the spring-actuated dogs J on the levers I engaging with the segment-rack K, the latter being rigidly secured to the bars D'. The boxes H are sufficiently long to enable the frame to be elevated sufficiently high for all necessary purposes, and are provided near their lower ends with an enlarged hub, H', in which the sliding axles B are secured. These axles B are sufficiently long to enable the wheels to run slightly outside of the sliding bars E when the latter are extended to their utmost limit, and they are securely held in the said hubs or boxes H' by the set-screws *a'*.

The rear transverse bar, D², is removably secured to the rear ends of the bars D³ and D⁴ by the clasps *d*. This bar is about the same length as the front bar, and has secured to it an ordinary hay-rake. This attachment is secured in position when it is desired to convert the sulky into a horse hay-rake, and when so used the plows and cultivators, as the case may be, are removed. The two longitudinal bars D³ and D⁴ run centrally throughout the entire length of the frame, and project slightly in front of the same, for the purpose of securing a double or single draft tongue or shafts there-to. The driver's seat M is removably placed

on these bars, and is adapted to be moved longitudinally, and be secured thereon in any position best suited for the work being done. This seat is provided with the two straps *c*, one of which is slightly bent under the bar D^3 , while the other remains vertical throughout its entire length. A set-screw, *f*, passes through each strap and secures the seat in position. This construction enables the seat to be removed from the bars or moved and secured to any position best suited for the purpose. The sliding bars *E* are each provided on the outer ends with the depending slotted swinging arms *N*, to which the side plows or cultivators are adjustably secured. These arms *N* are pivotally secured to the bars in any desired manner, and are strengthened by the braces *l*, and prevented from moving unnecessarily thereby when plows or cultivators are secured thereto. These arms *N* are provided with registering perforations throughout their entire length, by means of which the plow-clevises are secured in any desired degree of vertical adjustment.

The side plows or cultivator-beams, as the case may be, are secured to the free ends of the chains *O*. These chains *O* pass forward under the pulleys *g'*, secured to the sliding bars, and backward over the same to the hand-levers *P*. These hand-levers *P* are pivotally secured to the angular braces *Q* on opposite sides of the frame, and are each provided with a spring-actuated dog adapted to engage the segment-racks *R* and hold the levers in position. By moving these levers forward the plows are lowered to the ground, and by moving them backward the plows are elevated. The central lever, *P'*, by means of which the central plow or cultivator is regulated, is pivotally secured in the slotted V-shaped box *S*. This box *S* is rigidly secured to the hangers *h*, and is provided with the depending swinging yoke *T*. This central lever, *P'*, is also provided with a spring-actuated dog, while the box *S* is provided with the segment-rack, with which the said dog engages. The lever *P'* is connected to the free end of the chain *U*, which latter passes over a roller, *i*, secured to the bottom of the seat, and thence downward to the plow or cultivator beam. By moving this lever forward the central plow or cultivator is elevated, and by moving it rearward the implement is lowered.

The side cultivators, *b b'*, which form a part of my invention, are especially adapted for this style of sulky; but I consider myself at liberty to use plows, harrows, rakes, &c., therewith, as described, without departing from the spirit of my invention. These cultivators *b b'* are adapted respectively for the right and left hand sides of the sulky, and each is provided with one long beam, by means of which it is connected to the sulky, and one short beam, both beams being provided with any number of teeth or sweeps. The two beams are connected together by the straps or cross-bars *W*, which latter are provided with perfo-

rations throughout a portion of their lengths, by means of which the beams are moved nearer to or farther apart, as desired. The straps or cross-bars are rigidly secured to the long beams, and the short beams are removably secured therein by pins.

The central cultivator is of ordinary form, and is pivotally secured to the depending yoke in any ordinary manner. The box *S*, to which this yoke is secured, is removably held in position on the under side of the bars $D^3 D^4$ by the straps *h*, which latter are of sufficient length to extend above the tops of the bars D^3 and D^4 , where they are turned outward, so as to overlap the said bars. Set-screws *j* pass through these straps and firmly bind the bars $D^3 D^4$ between the bent upper ends of the straps *W* and the upper surface of the sides of the box, and thereby clamp the latter firmly in position. The straps *h* continue downward to the bottom of the hangers and they then turn inward and toward each other and form a limit of forward movement of the yoke *T*.

The construction, as shown in the first three figures of the drawings, represents the device as arranged to plow a wide row, throwing the earth from the plants. If it is desired to throw the earth on the plants, it is necessary to change the position of the cultivators *b' b^2*, moving the left to the right, and vice versa. When this is necessary supplemental beams can be attached to the short beams of the cultivator, and thereby lengthen them sufficiently, as shown in Fig. 4, to enable them to be secured in the depending arms *N*. Other style of plows and cultivators can be secured in place of those shown and described, and answer all the necessary purposes, it not being necessary to especially adapt them for the sulky. When the machine is widened at its front end the axles are also pulled outward an equal distance and secured so as to enable the plows to run in a direct line. The width of the frame can be decreased to its shortest limit, and one large single breaking-plow be secured thereto, without inconvenience or trouble.

The front ends of all the plows or cultivators are connected to the draft-bar *Y*, which latter is provided with as many single or double trees as there are horses. When only one small plow or cultivator is in operation only a single-tree need be used, and this can be secured to the clevis of the plow or cultivator, as the case may be.

Where a rake is used, as previously described, it is elevated by the central lever, and kept in a depressed position by a foot-lever, or by any suitable means.

The plows or cultivators can be removed without inconvenience or trouble and new ones substituted therefor in a short space of time. Another advantage in the use of this construction is that both sides or only one side of the machine can be elevated at pleasure. As the plows swing on their respective chains the driver can regulate their position with his feet as or before he lowers them.

In all the cases above described, excepting when the rake is used, the draft is applied directly to the ends of the beams; but when the rake mechanism is placed in position the draft is applied directly to the ends of the horizontal bars.

My machine is constructed of metal and wood, the rigid bars being constructed of wood, while the levers, axles, and boxes are made of suitable metal.

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

1. The combination, with the central transverse beam of the sulky-frame, provided at each end with a vertical tongue and near each end with a segment and lever, of a segment-rack secured upon said beam and means for engaging the lever with the rack, boxes each provided with a T-shaped slot, in which the vertical tongues of the beam move, and with a rack-bar with which said segments engage, and axles adjustably secured in the lower ends of the boxes, substantially as set forth.

2. The combination, with the front transverse bar of the frame and the sliding bars or extensions secured thereto, the said latter being provided with depending arms, of the adjustable axles, and braces connecting the said axles to the said depending arms.

3. The combination, with the front transverse bar of the frame and the sliding bars or extensions secured thereto, the said latter being provided with slotted depending arms in which the plow or cultivator clevises are adjustably secured, of the adjustable axles, and braces connecting the said arms and axles, substantially as described.

4. The combination, with the front transverse bar of the frame, provided near its opposite extremities with metallic collars, of the sliding bars or extensions provided on their outer ends with depending slotted arms, and provided on their inner ends with metallic collars, and set-screws for holding the sliding bars in position on the transverse bar, the whole being arranged and adapted to operate as shown.

5. The combination, with front transverse bar and the two sliding bars, the latter being

provided with depending slotted arms in which the plow or cultivator clevises are adjustably secured, of the draft-bar the rear face of which is connected to the plows or cultivators, while the front face thereof is provided with double or single trees for the attachment of the team.

6. The combination, with the adjustable axles, the front transverse bar, and the sliding bars or extensions adjustably secured thereon, the latter being provided on their rear faces with pulleys and on their lower faces with depending slotted arms in which the cultivator or plow clevises are adjustably secured, of the plows or cultivators, and a chain or rope passing over the said pulleys and removably connecting the said plows or cultivators with suitable levers for raising and lowering the said plows or cultivators.

7. The combination, with the parallel longitudinal bars, of a box adjustably supported between said bars, an operating-lever fulcrumed in said box, a central plow or cultivator the front end of which is connected directly to the draft-bar, and a chain or rope connecting the said lever to the plow-beam, substantially as set forth.

8. The combination, with the two parallel longitudinal bars of the frame, of a box adjustably supported between said bars, an operating-lever fulcrumed in said box, a central plow or cultivator whose forward end is connected to the draft-beam, a seat provided with a pulley on its under side, and a chain passing over said pulley and connecting said lever and plow or cultivator, substantially as set forth.

9. The combination, with the central lever and the adjustable box, constructed substantially as described, in which the said lever is pivoted, of a yoke pivotally secured to the said box and adapted to be secured to the plow or cultivator beam, and a chain connecting the said lever and plow or cultivator beam, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

EDWARD L. MURRAY.

Witnesses:

J. C. OLMSTED,

E. W. MARTIN.