

(No Model.)

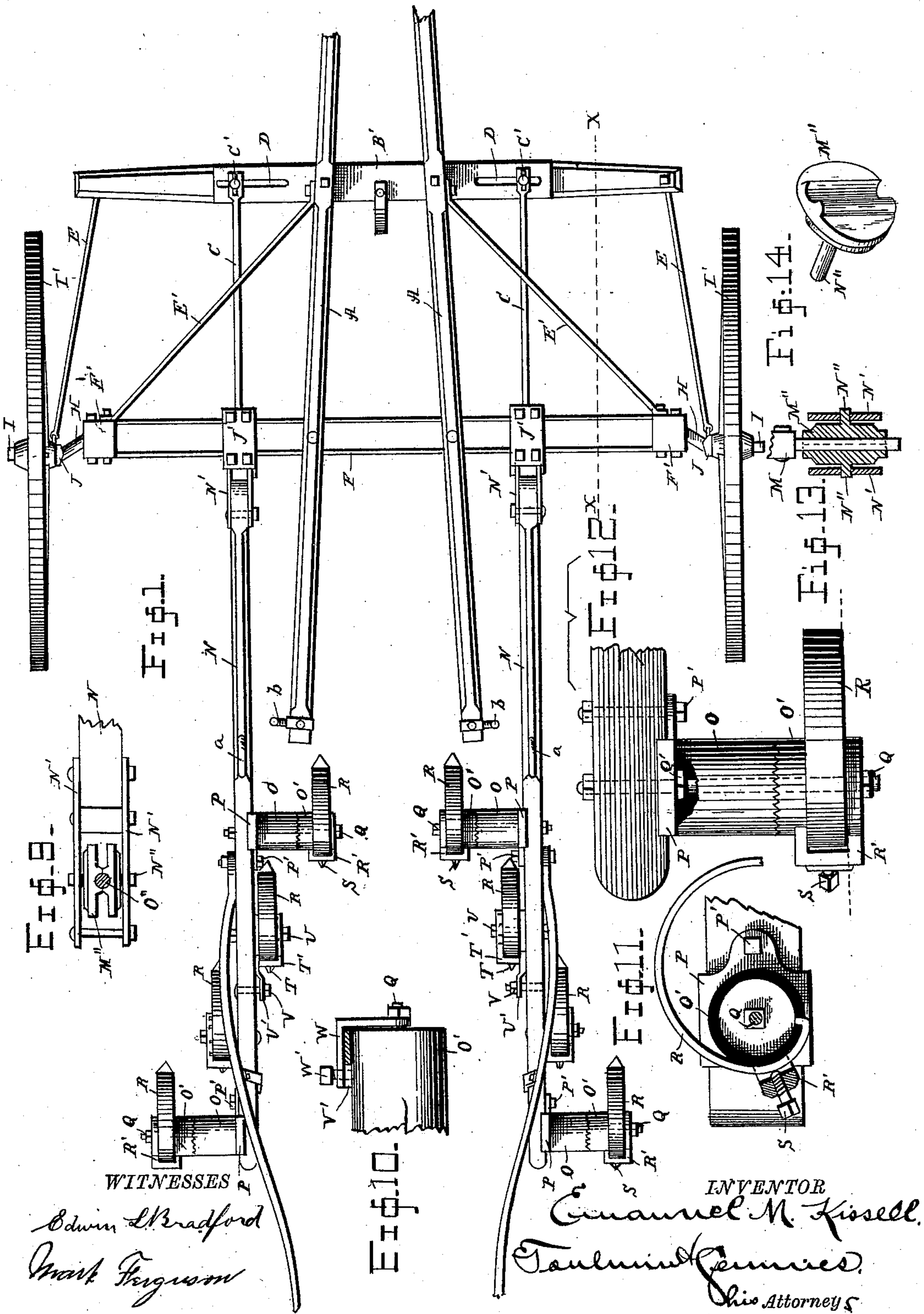
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E. M. KISSELL.

CULTIVATOR.

No. 362,517.

Patented May 10, 1887.



(No Model.)

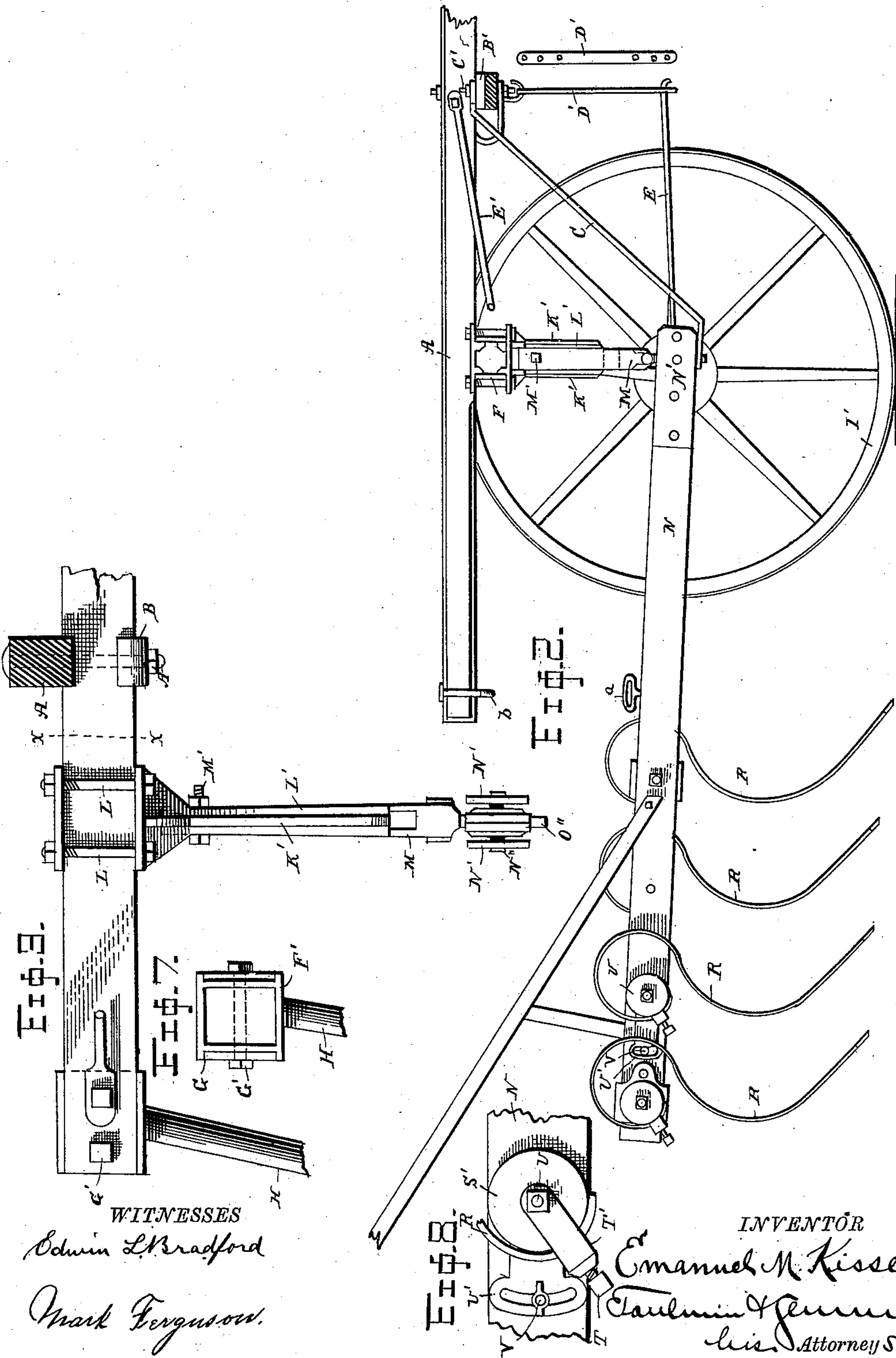
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WITNESSES
Edwin L. Bradford
Mark Fergusson.

INVENTOR

Emanuel M. Kissell
Edwin L. Fergusson
his Attorney S.

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3 Sheets—Sheet 3.

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Fig. 4.

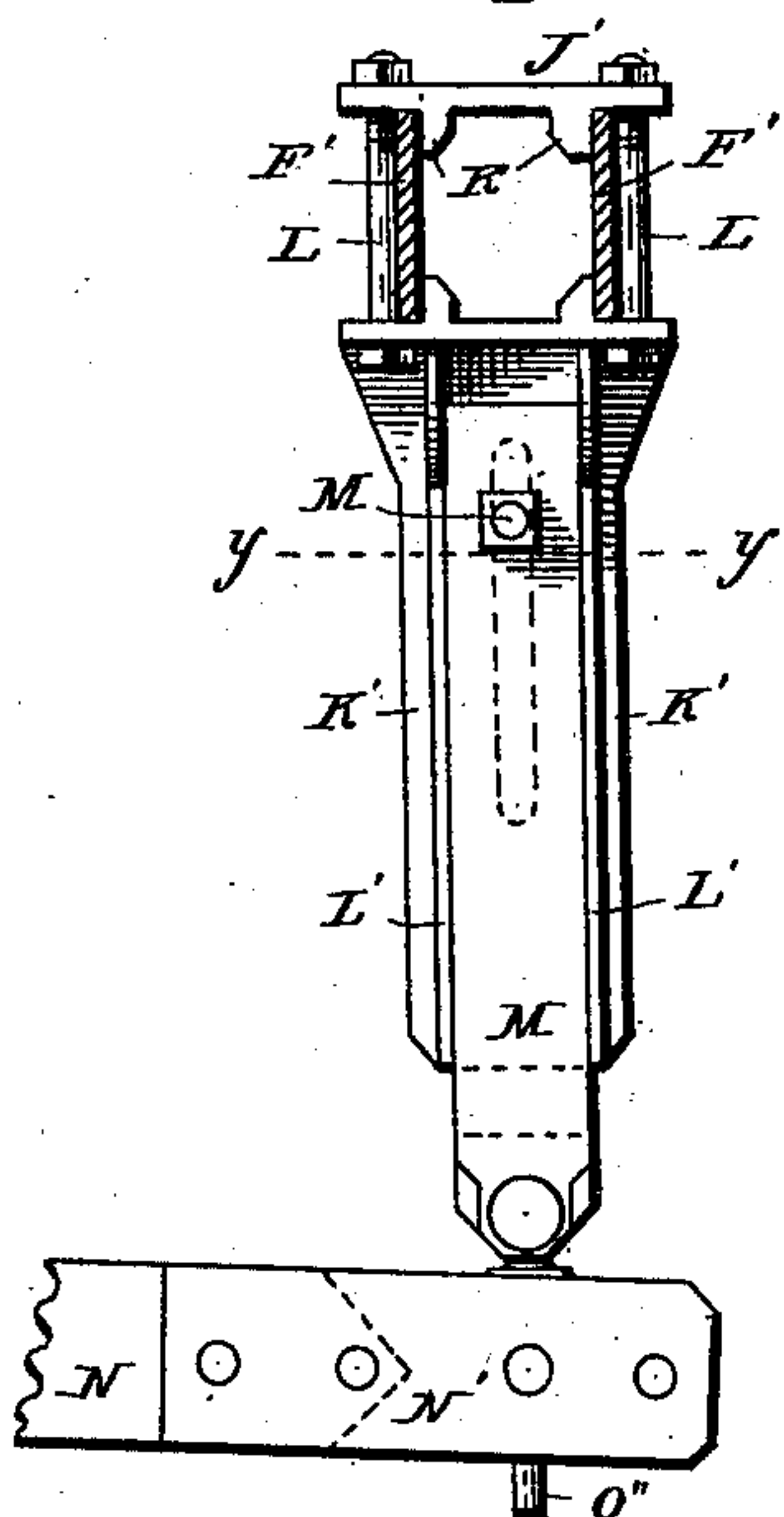


Fig. 5.

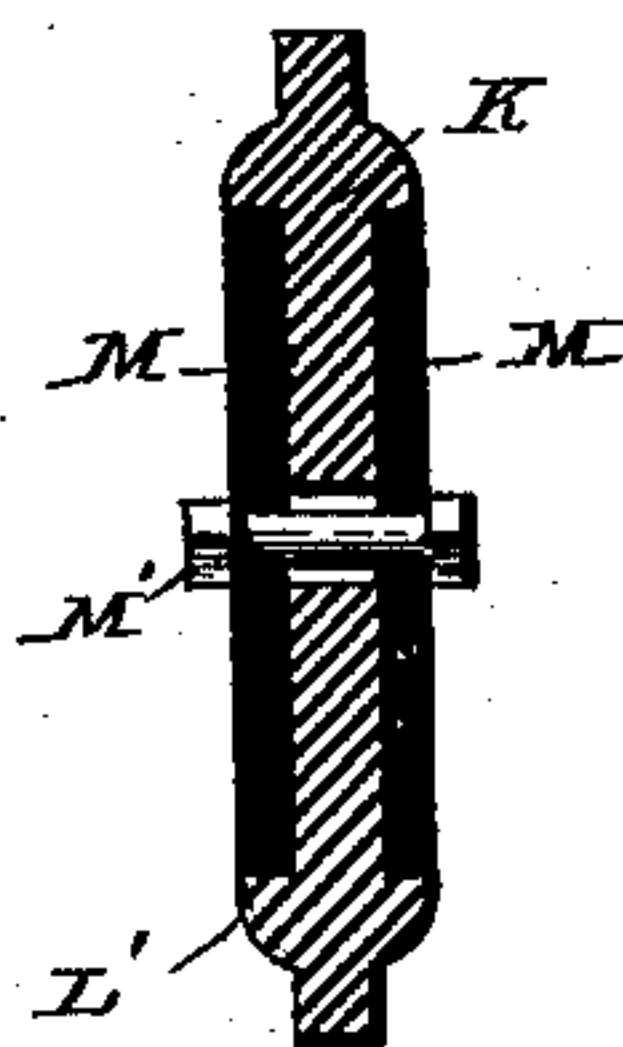
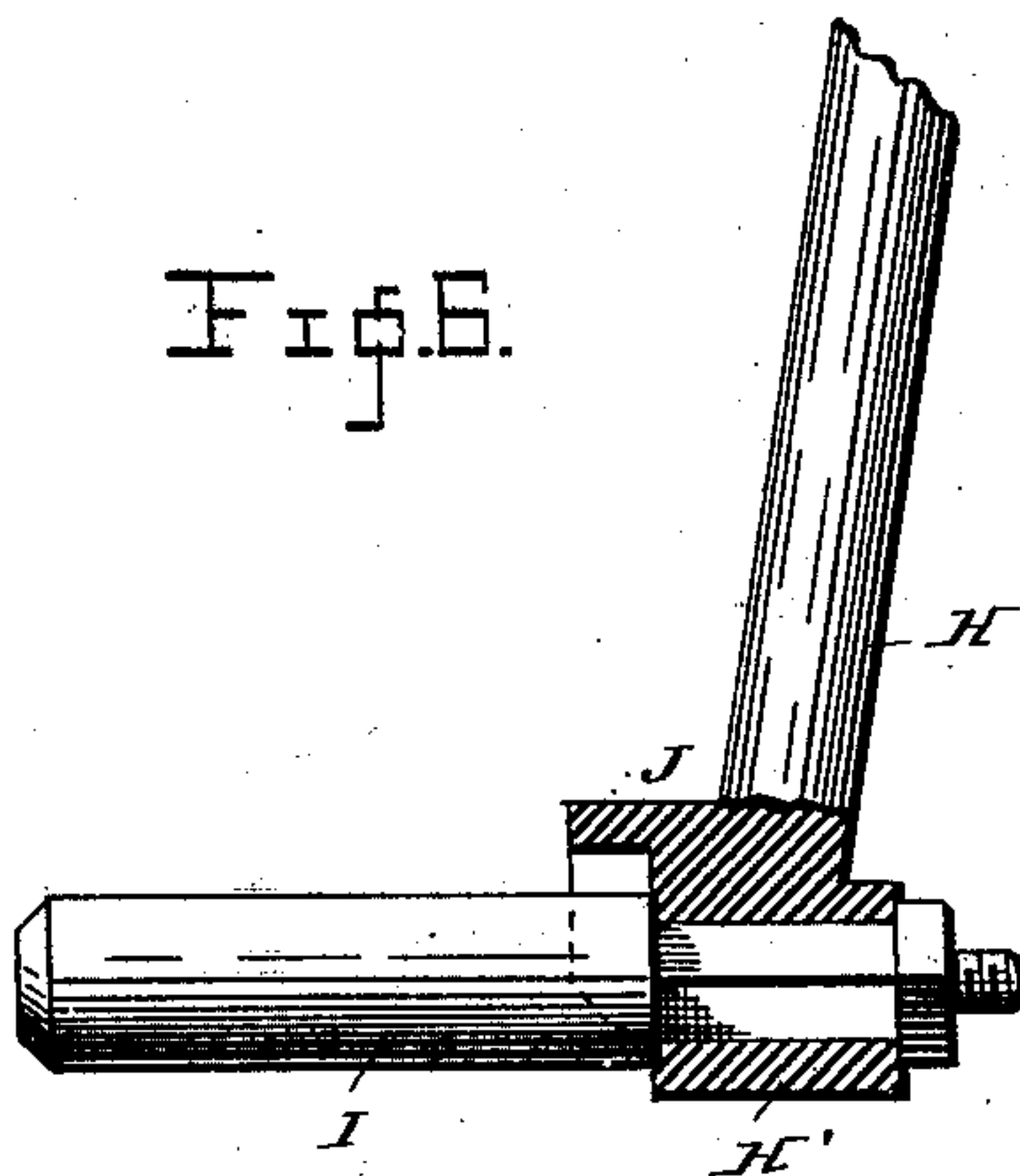


Fig. 6.



WITNESSES

Edwin L. Bradford
David M. Oliver

INVENTOR

Emanuel M. Kissell,
By Edmund J. Gennep
his Attorney.

UNITED STATES PATENT OFFICE.

EMANUEL M. KISSELL, OF SPRINGFIELD, OHIO.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 362,517, dated May 10, 1887.

Application filed September 15, 1886. Serial No. 213,645. (No model.)

To all whom it may concern:

Be it known that I, EMANUEL M. KISSELL, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in wheel-cultivators; and it consists in certain points of construction hereinafter set forth.

In the accompanying drawings, forming a part of this specification, and on which similar letters of reference indicate the same or corresponding features, Figure 1 represents a plan view of my improved cultivator; Fig. 2, a view on the line *xx* of Fig. 1, showing the machine generally in side elevation; Fig. 3, a view looking at the rear of a portion of the main frame, showing one of the axle-arms and a hanger; Fig. 4, a sectional view of the main frame on the line *xx* of Fig. 3, and showing a hanger and tooth-beam in side elevation; Fig. 5, a sectional view of a hanger, taken on the line *yy* of Fig. 4; Fig. 6, a detail view of an axle-arm and an axle-spindle; Fig. 7, a detail view of the axle-arm and its head; Fig. 8, a detail side elevation of a portion of a tooth-beam, showing the manner of adjusting the tooth; Fig. 9, a partial plan and partial sectional view of one of the tooth-beams and hangers; Fig. 10, a view showing a modified manner of securing the teeth; Fig. 11, a partial side and sectional view of one of the tooth-connections and a portion of a tooth-beam; Fig. 12, a plan view of a portion of one of the tooth-beams and of a tooth-connection and tooth; Fig. 13, a sectional view of the connection between the hangers and the tooth-beams, and Fig. 14 a detached perspective view of one member of the coupling.

The letter A designates the bars, which usually unite near their forward ends and form the tongue, and which are mounted upon the main frame and secured thereto by means of a bolt, A', and a clip-iron, B, as seen in Fig. 3. These bars carry a cross-beam, B', to which the braces C are adjustably attached by means of bolts C' and slots D, and from which depend the strips D', which serve to support the

forward ends of the draft rods E, as seen more clearly in Fig. 2. To the tongue-bars are also attached the oblique braces E', while all of these braces and the draft-rods are connected with the main frame and the tooth-beams and the axle-spindle, respectively.

The main frame consists of the bars F, preferably of metal, placed edgewise and fitted at either end to the cast or malleable iron heads F', which are formed with seats G, for the reception of said bars F, and within which they are secured by transverse bolts G', as seen more clearly in Fig. 7. These heads are connected in any convenient manner with downwardly-extending axle-arms H, the lower ends of which are constructed, as seen in Fig. 6, with a sleeve, H', to receive the shank (preferably angular in cross-section) of the spindle I, upon which is mounted a supporting-wheel, I'. The extreme end of the shank of the spindle is screw-threaded and a nut is applied, whereby the connection between the shank and the arm is made strong, yet detachable. The sleeve is provided with a flange, J, which acts like the usual sand-guard.

At suitable points on the main frame are fitted metal plates J', having shoulders K, against which the bars F are placed. Beneath these plates is fitted a stationary portion, K', of the hangers, the upper ends of which are fashioned after the manner of the plates J', and by means of bolts L these hangers and plates are secured firmly to the bars F'.

The section K' is provided with vertical ribs L' on either side, and between these ribs are fitted the respective members of the movable section M of the hanger. The section K' is slotted and the members of the section M are bored, and a bolt, M', serves to secure them together in any adjusted position. This adjustment regulates the height of the forward ends of the tooth-beams. The slots seen in the upper ends of the braces C in Fig. 1 admit of this adjustment of the tooth-beams.

The letter N designates the tooth-beam, the same being preferably constructed of wood, and being provided at their forward ends with metallic plates N'. These plates have holes, in which are fitted the pintles N'' of the coupling-disks M'', the inner faces of which have semi-circular vertical grooves. The lower ends of

the sections M of the hangers are constituted of king-bolts O'', which fit the semicircular grooves in M''. By this means a universal joint is constructed between the tooth-beams and the hangers, which admits of the vertical and lateral adjustment of the beams. Secured to these beams are two sets of teeth, one set being placed some distance from the beams and the other set closer. The former are secured by means of the metallic cylinders divided into sections O and O', the section O having flanged plates P, which embrace the upper and lower edges of the beams and are secured by bolts P'. The adjacent ends of these sections have ratchet-teeth and are held together by a through-bolt, Q, which also carries a jam-nut, Q', to assist in holding the plate P to the beam. The section O' is provided with a slot, into which extends the fixed end of the spring-tooth R, while a bracket, R', is mounted on the bolt Q and provided with a set-screw, S, which binds against the tooth and holds it to the section O', as seen more clearly in Fig. 11. The ratchet-teeth between the sections admit of these adjustments with respect to each other, so as to vary the position of the teeth with respect to the ground. The inner teeth of the other sets are fitted upon cylinders S', and held thereto by set-screws T, which pass through the brackets T', mounted upon the bolt U, which also serves to hold the cylinder to the beam.

The bracket is provided with a slotted wing, U', and by means of a bolt and nut, V, as seen in Fig. 8, the cylinder may be adjusted and secured so as to vary the position of its tooth with respect to the ground.

In Fig. 10 I have shown a modified way of connecting the teeth of the section O' with the cylinder, consisting in providing that section with a lug, V', to which is bolted one end of an L-shaped clamp, W, by a bolt, W', the other end of the clamp being mounted on the bolt Q. The tooth is slipped between the clamp and the cylinder and bound firmly when the bolt W' is screwed down. Each tooth carries the usual handle, and each is provided with an eye-bolt, a, adapted to hang down upon the hook b, carried by the rear ends of the beams A, for the purpose of sustaining the tooth-beams when not in operation.

It will be observed that by my improved construction the whole machine is rendered light and strong and the parts of small and durable construction.

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

1. In a cultivator, the combination, with the main frame consisting of bars placed edgewise, the axle arms having each at their upper ends a head provided with a seat for the reception of said bars, bolts to bind the bars to the seats, and at their lower ends a sleeve, and the axle-spindles fitted to said sleeves and secured therein.

2. In a cultivator, the combination, with the main frame constructed of edgewise-placed bars, of a shouldered plate, a stationary hanger-section constructed similarly to the plate, bolts securing the plate and section to the bars, the movable section adjustably connected with the stationary section, and the tooth-beams flexibly connected to the movable section.

3. In a cultivator, the combination, with a stationary section, of a hanger provided with ribs at either side and slotted, of an adjustable section of a hanger divided into members fitted, respectively, between said ribs and bored, and a bolt to secure said sections together.

4. In a cultivator, the combination, with the tongue, its cross-beam and the slotted brace secured thereto, of a main frame, the adjustable hangers, and the tooth-beams secured to the hangers, the braces being also secured to said hangers and movable with the up and down adjustments of the hangers.

5. In a cultivator, the combination, with the tooth-beam, of a cylinder consisting of two sections having ratchet-teeth, one of said sections being provided with a flange-plate secured to the beam and the other with the slot, the tooth fitted into said slot, the through-bolt binding the sections together and to the beam, the bracket carried by said bolt, and the set-screw carried by the bracket and adapted to bind the teeth.

In testimony whereof I affix my signature in presence of two witnesses.

EMANUEL M. KISSELL.

Witnesses:

CHARLES E. MORRIS,
A. A. YEATMAN.