D. L. WELLMAN.

Cultivator.

No. 203,394. Patented May 7, 1878.

Fig. 1

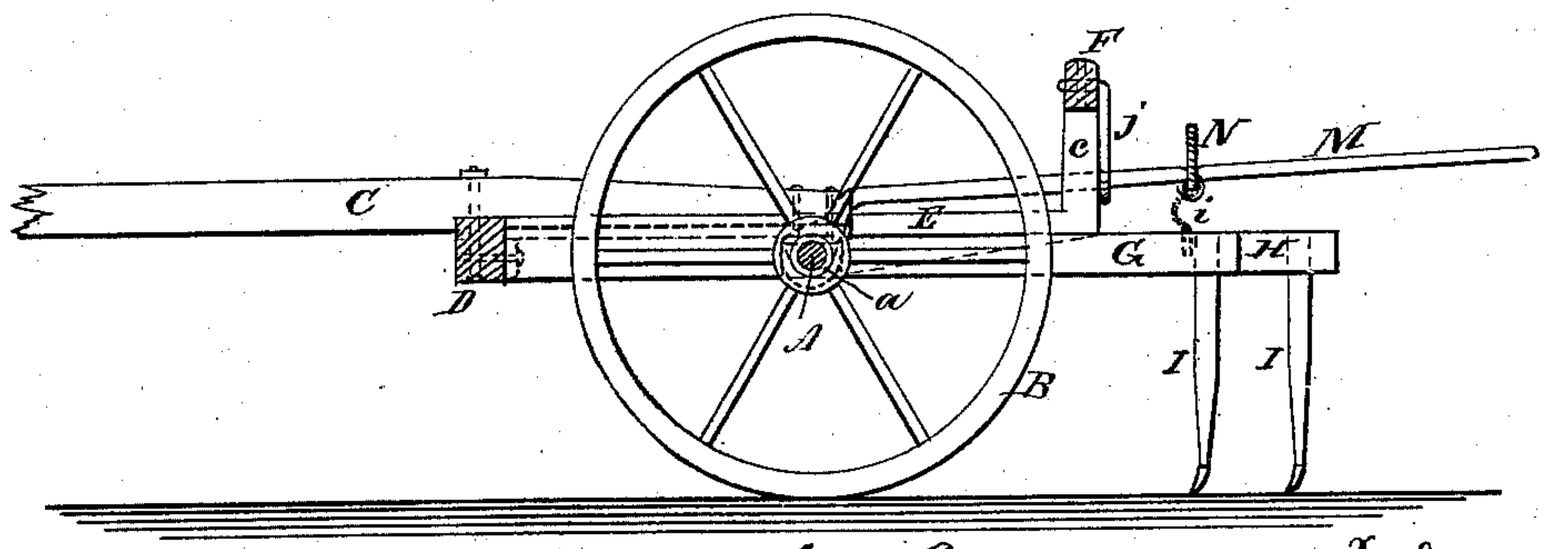


Fig. 2

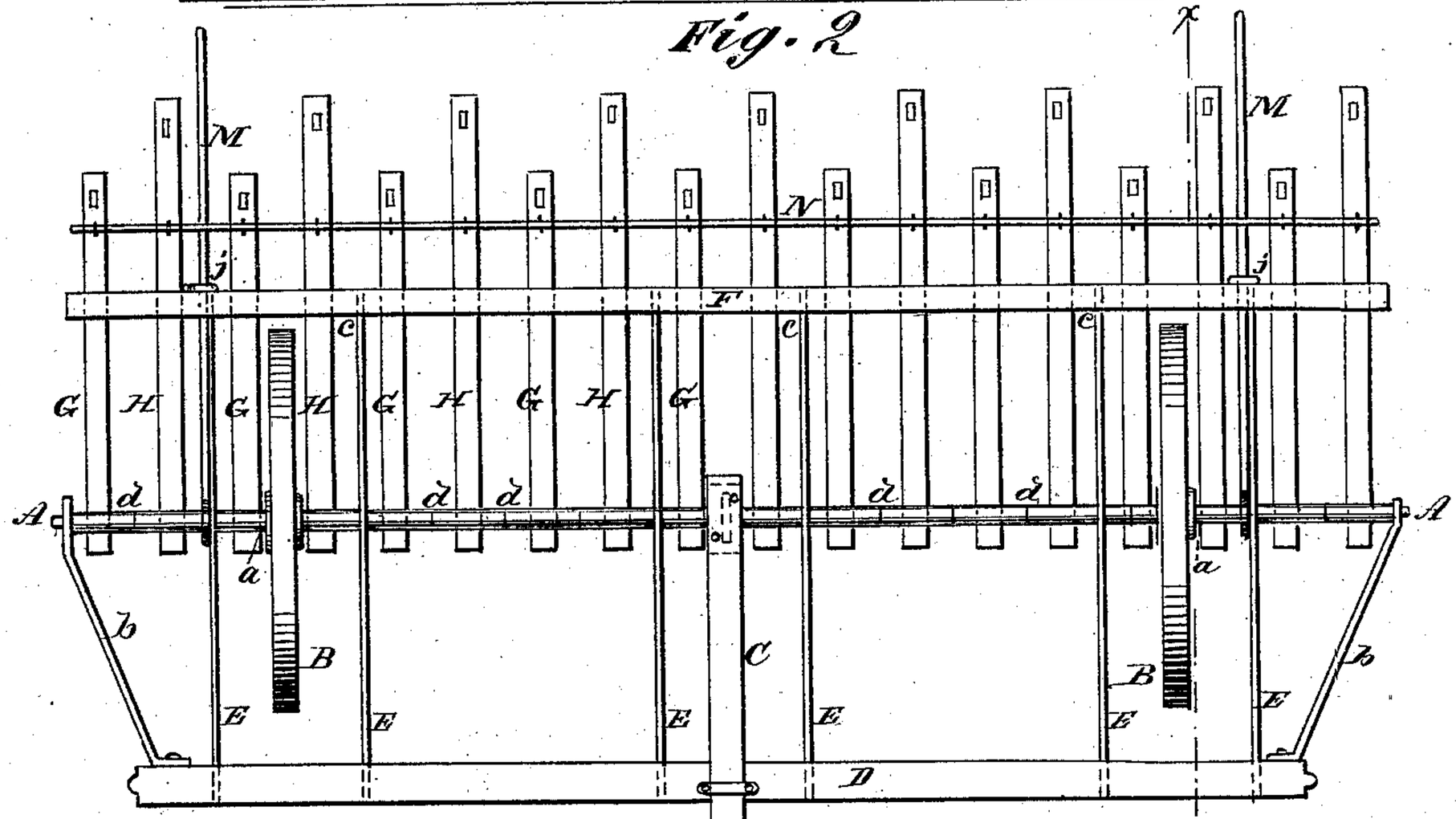


Fig. 3.

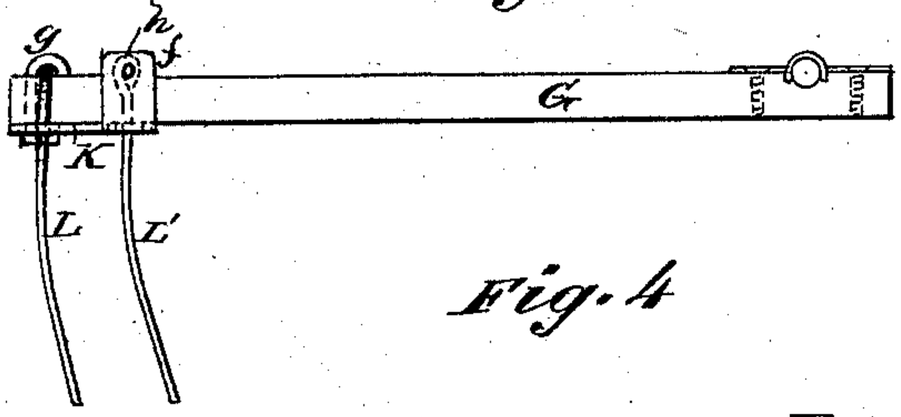


Fig. 4

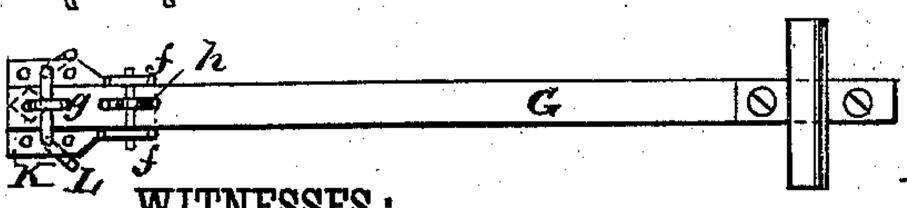


Fig. 5

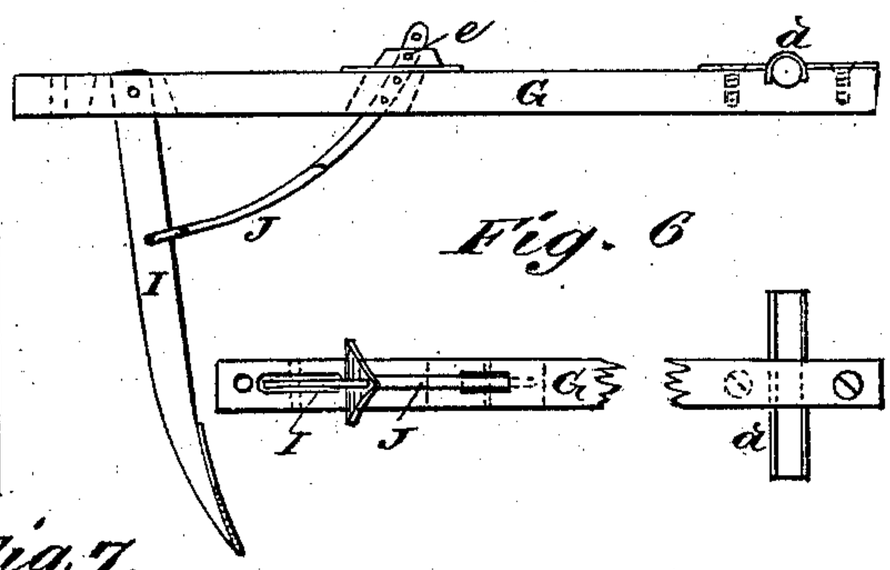
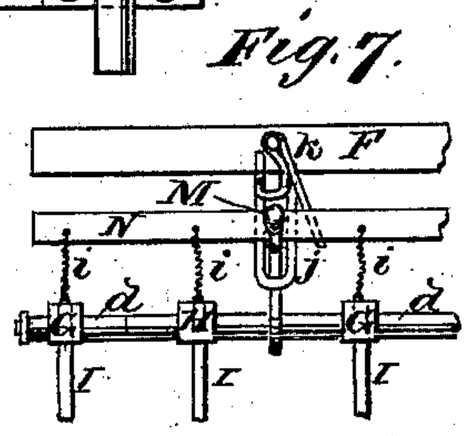


Fig. 6

Fig. 7.



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UNITED STATES PATENT OFFICE.

DAVID L. WELLMAN, OF FRAZEE CITY, MINNESOTA.

IMPROVEMENT IN CULTIVATORS.

Specification forming part of Letters Patent No. **203,394,** dated May 7, 1878; application filed January 19, 1878.

To all whom it may concern:

Be it known that I, DAVID LEWIS WELLMAN, of Frazee City, in the county of Becker and State of Minnesota, have invented a new and Improved Cultivator, of which the following is a specification:

Figure 1 is a side elevation of my improved cultivator, taken on line *x x* in Fig. 2. Fig. 2 is a plan view. Figs. 3 and 4 are detail views of a harrow-tooth adapted to my improved cultivator. Figs. 5 and 6 are detail views of one of the cultivator-teeth, and Fig. 7 is a detail view of the catch for holding up the drag-bars.

Similar letters of reference indicate corresponding parts.

The object of the invention is to provide a cultivator which may be made of any required width without impairing its strength or making it unduly cumbersome and heavy.

Referring to the drawings, A is a rod or axle, which is supported by wheels B, in the hubs of which are secured sleeves *a*, that are fitted to the axle. A tongue, C, is attached by clips to the center of the axle. The wheels B are located at about two-thirds the distance from the center of the axle to its ends.

A transverse bar, D, is secured to the tongue C parallel to the axle A, and its ends are secured by braces *b*, that are attached to it and to the ends of the axle. Bars E are attached to the bar D, and are apertured to receive the axle A, by which they are supported. These bars E are arranged at right angles to the axle, and also to the bar D, and their rearwardly-projecting ends *c* are turned upward at right angles and attached to a bar, F, which is parallel to the axle A.

Bars G H are connected with the axle A by means of clips *d*, which are bolted to the bars, and are of sufficient width to keep the bars the proper distance apart. These clips embrace the upper half of the axle, the lower half being received in a semicircular notch in the bars.

The portion of the clip that projects beyond the sides of the bar extends downward a little below the center of the bar, to insure a firm bearing and prevent the bars from swinging laterally. The bars G are shorter than the bar H, and the short and long bars are placed in alternation.

A cultivator-tooth, I, is pivoted in a mortise in the rear end of each bar, and is supported by a curved brace, J, that extends upward through a mortise in the bar, and is apertured to receive a wooden pin, *e*, which breaks and releases the cultivator when it strikes a solid object, thereby preventing the breaking of the tooth.

The length of the axle and the location of the supporting-wheels are so proportioned that upon each side of the tongue the proportion of teeth supported by the axle outside of the wheel to the number of teeth supported by the axle between the wheel and tongue is as one to two, or in about that proportion. For example, in the present case there are on each side of the tongue, between the tongue and wheels, six bars, and upon the overhanging end of the axle there are three bars. This proportion of inside and outside bars is maintained in every size of implement, excepting when the number of hoes cannot be divided by three, when the proportion may be changed.

When the implement is used as a harrow the bars G H are fitted as shown in Figs. 3 and 4. To the rear end of the bars a plate, K, having ears *f*, is attached. The edges of the plate project beyond the sides of the bar, and the ears *f* project a short distance beyond the top of the bar.

A forked harrow-tooth, L, straddles the rear end of the bar G or H, and projects downward through holes in the plate K, and is firmly clamped by a hook-bolt, *g*. In front of the forked harrow-tooth L a single tooth, L′, having an eye, *h*, formed in its upper end, is inserted in the mortise made in the bar G or H, and is secured in place by a pin that passes through the ears *f* and through the eye *h*.

The teeth I drag on the ground when the cultivator is in use, and when it is desired to move it from place to place the teeth are raised by means of the levers M, that are connected with the bar N, which bar is connected with the bars G H by means of chains *i*. The levers M are guided by long staples *j*, that project downward from the bar F, and are supported, when raised, by the hooks *k*, which are pivoted to the bar F.

A cultivator made in the manner described is strong and light, at the same time being efficient and inexpensive.

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

In a wheel-cultivator, the axle A, having its wheels laterally adjustable thereon, and carrying a series of drag-bars, G H, arranged on both sides of said wheels, in combination with the tongue and frame C D E, the elevated cross-bar F, the lifting-frame N, levers M, guides *j*, and hooks *k*, substantially as shown and described.

DAVID L. WELLMAN.

Witnesses:
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