(No Model.)

J. L. JUDD & H. WIARD.

CULTIVATOR.

No. 305,080. Patented Sept. 16, 1884.

Fig. 1.

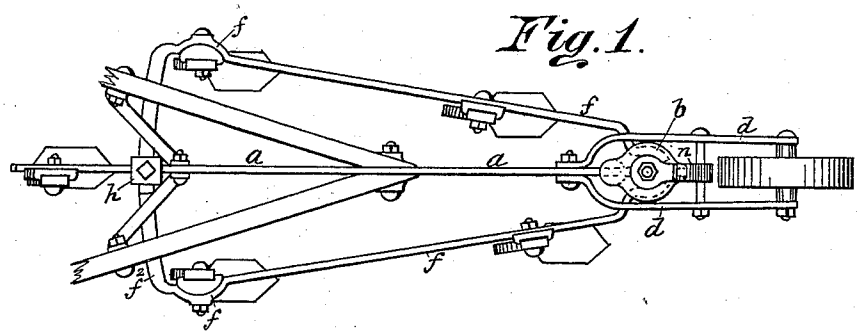


Fig. 2.

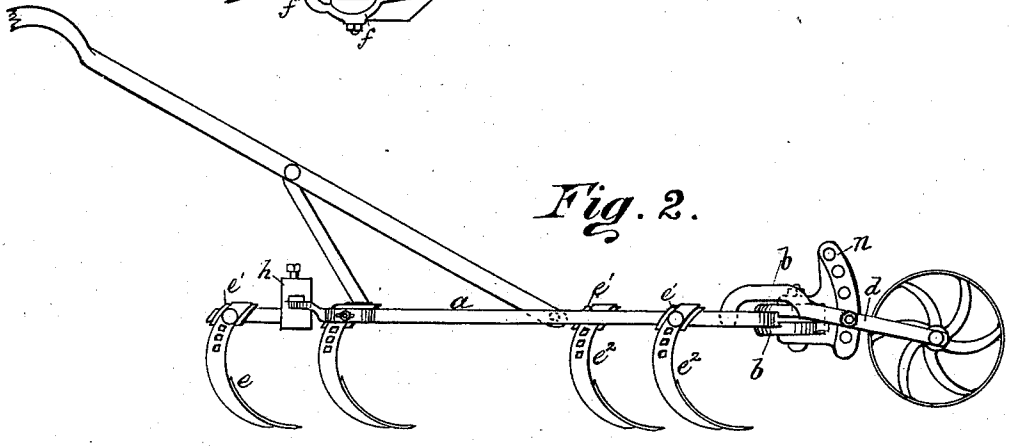
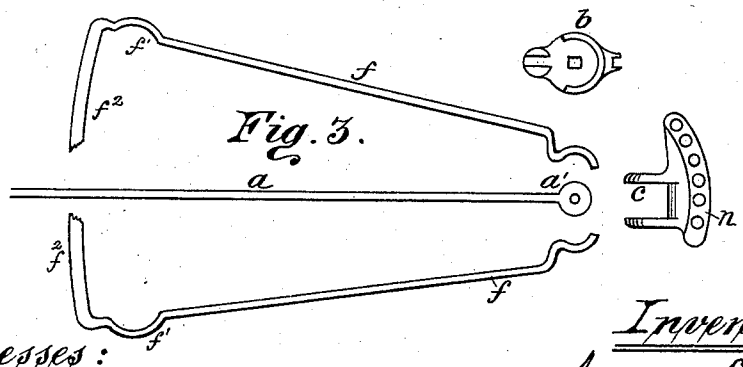


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES L. JUDD AND HARRY WIARD, OF SYRACUSE, NEW YORK.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 305,080, dated September 16, 1884.

Application filed February 4, 1884. (No model.)

To all whom it may concern:

Be it known that we, JAMES L. JUDD and HARRY WIARD, of the city of Syracuse, Onondaga county, State of New York, have invented certain new and useful Improvements in Cultivators, of which the following is a description.

Our invention consists in a new and improved construction of certain parts of a cultivator, the frame of which we make of iron or steel bars, by which improvements we simplify and strengthen the implement and give to the parts greater accuracy, simplicity, and facility of adjustment than cultivators heretofore made. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a top plan; Fig. 2, a side elevation; Fig. 3, the separate parts in detail.

Like parts in these figures are designated by the same reference-letters.

The frame of our cultivator consists of three metal bars, with their proper attachments. The center bar, *a*, is straight from front to rear, its front end, *a'*, being enlarged and of cylindrical form. (See Fig. 3.) A hole through this forms an eye, through which the clevis-bolt passes. Cap-pieces *b* are fitted onto the bar above and below the eye *a'*, having a rim around the edge, that forms an annular space between the eye and the cap's rim. This is seen at Fig. 3 with the top cap off at *b'*. When these parts are together, the jaws of the clevis *c* (detached in Fig. 3) are slipped on over the caps *b*, which they embrace, and a single bolt is passed down through them, that holds them all together. The clevis *c* is convex on its front edge, extending upward, as shown in Fig. 2, with holes along its convex edge for the draft-clevis. Two arms, *d*, support the cultivator-wheel. They are attached to this clevis by a bolt passing through them and one of the lower holes in the clevis, by shifting which the wheel can be raised or lowered. The rear ends of the bars *d* curve over, and are bolted to the center bar, *a*. To the rear end of bar *a* a tooth, *e*, is attached by a single bolt having a metal piece, *e'*, interposed. This piece is grooved on one side to fit the bar, and on its other face there is a curved recess, into which the curved shank of the tooth *e* fits, and the parts are united by a single square-shanked bolt through holes in them all. The handles are bolted to the center bar, and the braces also, in the ordinary way. (In Fig. 1 they are omitted.) The side bars, *f*, are curved at their front ends, to fit into the annular recess between the caps *b* and eye *a'*. (See Fig. 3.) Beyond this end curve the bar *f* is bent outward, and thence extends backward in a straight line to near the rear end, at which point it has a segmental curve, *f'*, outward. Beyond this the bar is bent nearly at a right angle, and formed into a curved brace, f^2, bent on circular lines, centering at the joint, where they are united with the center bar, *a*, on the same plane. The two braces f^2 lap one upon the other. Following the same curve, they pass through a clip, *h*, embracing the center bar, at which point they are fastened by a set-screw through the clip, which holds the side bars, *f*, at any desired angle to the center bar, *a*. Teeth *e* are affixed to the side bars at any distance from the front end, and adjusted in pitch thereto by means of a metal piece and bolt similar to that by which the tooth *e* is affixed to the center bar, the curved shank and interposed piece permitting the pitch of the tooth to be changed without changing the elevation of the point or its distance from the bar *f*. A segment piece or block fits the concave side of the curve *f'* in the bar *f*, having a recessed seat for the rear tooth to fit, as with the other teeth, by which means the tooth can be adjusted horizontally by slipping the convex piece around the segmental curve in the bar, and vertically by sliding the shank of the tooth up or down. A single bolt passes through holes in these parts that are placed in line to be fastened.

Having thus fully described our improvements in the construction of cultivators, what we claim, and desire to secure by Letters Patent, is—

1. The combination of the center and side bars, the caps *b*, clevis *w*, and central bolt, by which the center and side bars, caps, and clevis are all united, the parts being constructed and combined as and for the purposes specified.

2. The side bars, *f*, and braces f^2, formed in one piece, in combination with the central pivoting-joint of the side bars and the braces curving on a line concentric with said center joint, and fastened by the clip *h*, as and for the purposes specified.

3. The segmental curve *f'* in the side bars, in combination with the pieces *e'*, having curved flanges for adjusting the teeth, in the manner and for the purposes described.

4. The combination of the pieces *e'* and curved shanks of the teeth, for adjusting the pitch of the teeth without raising or lowering their points, in the manner herein described.

5. In a cultivator having expanding side bars and detachable clevis, as described, the cultivator-wheel connected therewith by means of the arms *d*, pivoted at their rear ends to the central bar in rear of the side-bar joints, and adjusted by a bolt passing through a hole in the clevis and the arms *d*, by which they can be raised or lowered, as and for the purposes specified.

In witness whereof we have hereto set our hands.

JAMES L. JUDD.
HARRY WIARD.

In presence of—
C. A. ANDREWS,
W. W. WIARD.