(No Model.) 2 Sheets—Sheet 1.

F. B. HARVEY.

CULTIVATOR.

No. 457,198. Patented Aug. 4, 1891.

Fig. 1.

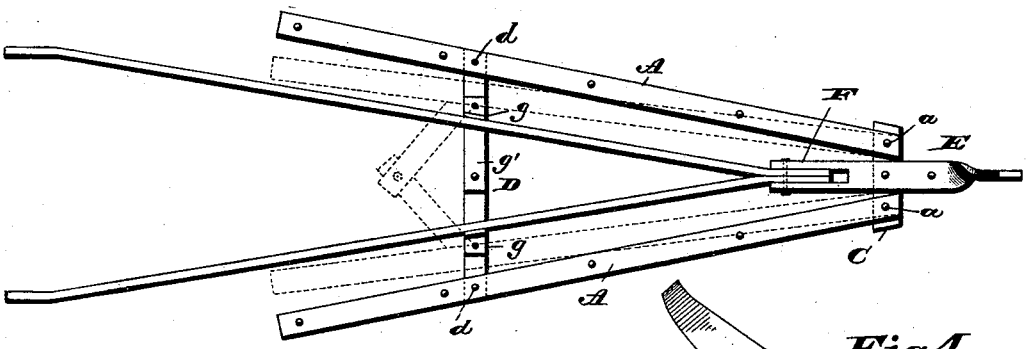


Fig. 4.

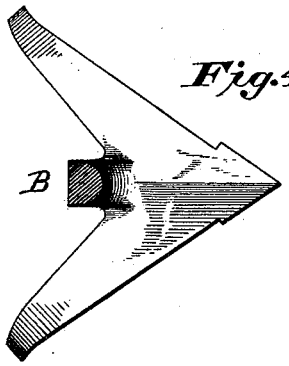


Fig. 2.

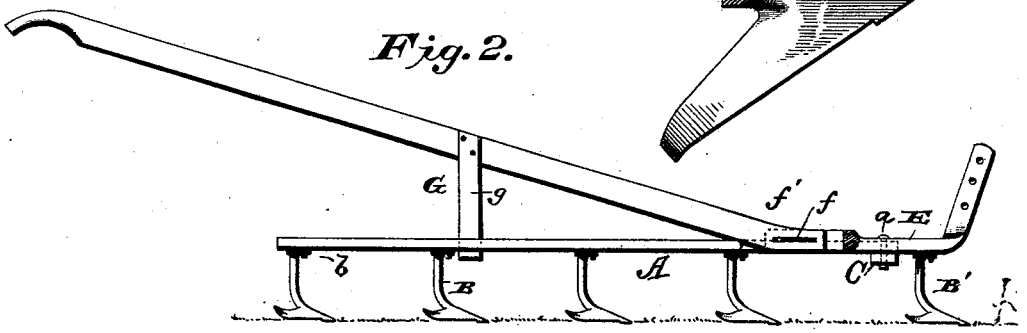
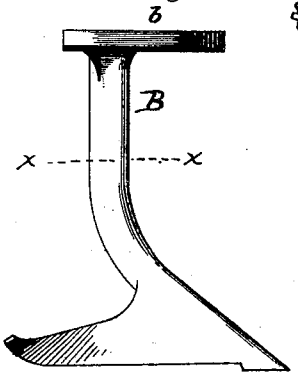
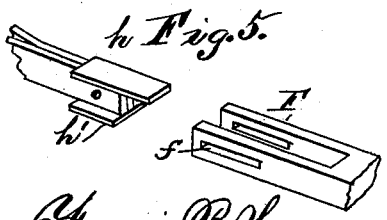


Fig. 3.



h Fig. 5.



Witnesses
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H. L. Beall.

Francis B. Harvey
Inventor

Attorney

(No Model.) 2 Sheets—Sheet 2.

F. B. HARVEY.

CULTIVATOR.

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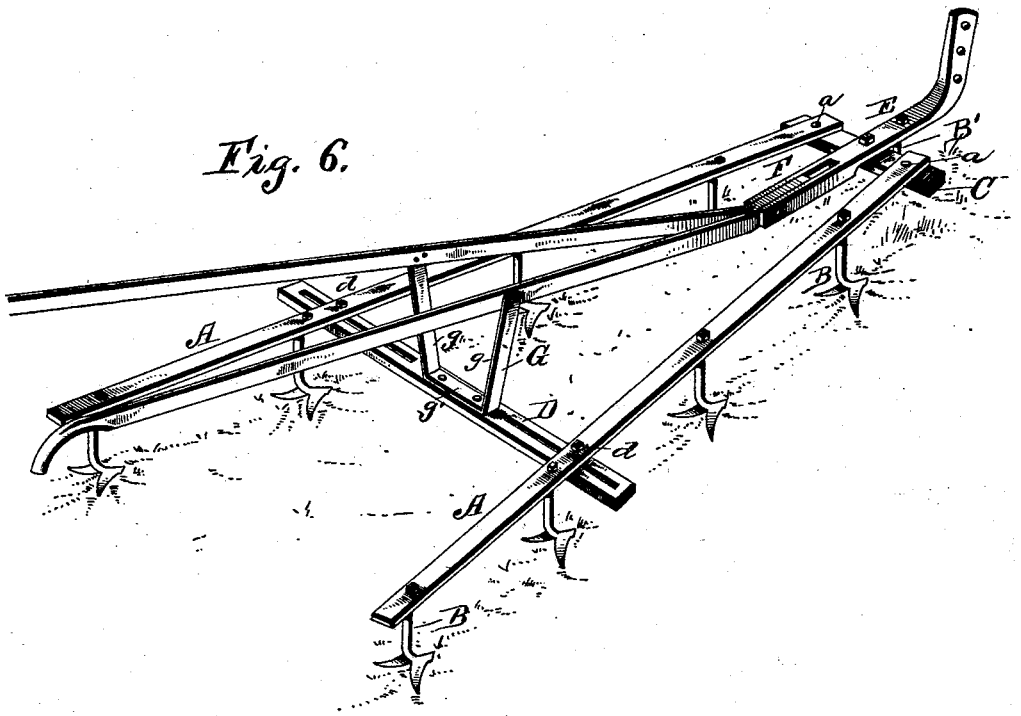
Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANCIS B. HARVEY, OF PICKERING, PENNSYLVANIA.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 457,198, dated August 4, 1891.

Application filed December 18, 1890. Serial No. 375,126. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS B. HARVEY, a citizen of the United States of America, residing at Pickering, in the county of Chester and State of Pennsylvania, have invented certain new and useful Improvements in Cultivators; 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 appertains to make and use the same, reference being had to the accompanying drawings and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in cultivators.

The object of the invention is to provide a cultivator simple in construction, the side bars of which may be adjusted to and from each other, the frame thereof being provided with suitable handles; and my invention consists in the specific construction and combination of the parts, as will be hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan view; Fig. 2, a side view partly in section. Fig. 3 is a side view of the tooth adapted to be used with the cultivator; Fig. 4, a sectional view of the same through the line *x x*. Fig. 5 is a detail perspective view, and Fig. 6 is a perspective view of a modification.

The frame of the cultivator is made up of flat side bars A A, which are provided with a suitable number of perforations through which pass bolts for securing thereto the cultivator-teeth B, said teeth having on the upper ends of the standard forwardly-projecting portions *b*, punctured for the passage of bolts which connect them detachably to the side bars A. The horizontal portion *b* at the upper ends of the standards may be formed with upwardly-projecting webs, which will lie partially over the edges of the side bars; or these horizontal portions may be made flat, so that the teeth can turn slightly upon the securing-bolt. The lower portions of the teeth extend downwardly and forwardly, and have rearwardly-extending wings which terminate in upturned edges, as shown, and are also given a slight twist.

The side bars A A are connected at their forward ends by bolts *a a* to a cross-piece C, and at a suitable distance from the front ends of the bars is a cross-piece D, which may have end slots to receive bolts *d* for adjusting laterally the side bars A A. When it is not desired to provide a slotted cross-bar, the cross-bar D may be made of two pieces connected to each other so as to swing upon the bolts *d*. Between the front ends of the side bars A A, to the cross-piece C, is secured a bar E, the front end thereof being extended upward and provided with a series of perforations for attaching the draft-clevis or whiffletree thereto. This bar E, between the upturned portion thereof and the front cross-piece C, has a perforation for attaching the front tooth B′ thereto, and the rear end of this bar is preferably bifurcated, as shown at F, and provided with a horizontal slot *f*, through which passes a bolt *f′*, which secures the ends of the handle-bars movably within the bifurcated portion of the bar E. The handles are of ordinary construction and are secured together at their front ends, said handles being secured upon the bar or bars D by a frame G, made up of a single piece of flat metal bent to form two upwardly-extending members *g* and a horizontal portion *g′*, which is bolted or otherwise secured to the cross-bar D. Through the upper end of the handle-support G passes a bolt having threaded ends, which secure the handles to the upwardly-extended portions thereof. This construction I prefer to use in connection with a straight cross-bar D, having slots, as herein set forth; but when a jointed bar is used the upwardly-extending portion of the handle-supporting frame B can be bent at right angles and bolted to the members of said bar D, and the bar D may be provided with bolt-holes to receive extra teeth. With either construction it is obvious that when the side bars, which carry the majority of the teeth, are moved inwardly or outwardly, the handles will have to move in unison therewith; otherwise the parts would be practically rigid; and, as it is desirable that the central portion should be rigidly supported, I provide for this necessary movement by permitting the said handles to move in the bifurcated portion of the bar E; and, though I have described said bifurcated portion of the bar as being provided with a slot, it is obvious that I may em-

ploy in lieu thereof plates *h h'*, secured to the end of the handle-bars, as shown in Fig. 5, which can be clamped upon the bifurcated portion of the bar E by a bolt. As all the draft comes upon this bar D, it is desirable that the plates *h h'* should be bolted securely or fixed immovably upon the cross-piece C or be made integral therewith.

In cultivators of this class the common construction is to provide a central longitudinal bar to which the handle-bars and draft-frames are rigidly secured, and connect thereto in a suitable manner laterally-adjustable side bars; but this construction I consider objectionable, as a central longitudinal bar means only additional weight and expense, as obviously the teeth secured thereto will all be on a line with each other, and the same result is fully accomplished by the tooth B'.

The frame hereinbefore described is made up of flat metallic bars, which can be readily shaped by an ordinary blacksmith, and the construction is simple and inexpensive.

It will be obvious that the bolts for connecting the bars to each other may also be used for securing in place the teeth B.

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

1. The herein-described cultivator, consisting of two side beams A A, provided with cultivator-teeth, said side beams being adjustably connected to each other near their rear ends by means of a bar D, standards *g*, attached to said bar and to the handle, a central draft-bar E, having a perforated upturned forward end and a bifurcated rear end, a cross-bar carried thereby, and bolts *a* for connecting the forward ends of the side beams thereto, the parts being organized, substantially as shown, so that the forward ends of the handles will be held in sliding engagement with the draft-bar and in fixed engagement with the bar D.

2. In a cultivator, the combination of the side beams A A, a short central draft-bar E, bifurcated at its rear end and provided in front of said bifurcated end with laterally-projecting portions to which the front ends of the side beams are pivoted, a cross-bar D, having straight end slots through which bolts pass for rigidly connecting the side beams thereto, a handle-support G, rigidly connected to the cross-bar D and to the handles, the forward ends of said handles being held in sliding engagement with the rear end of the bifurcated draft-bar, substantially as shown, and for the purpose set forth.

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

FRANCIS B. HARVEY.

Witnesses:
C. H. HOWELL,
E. M. BROWNBACK.