

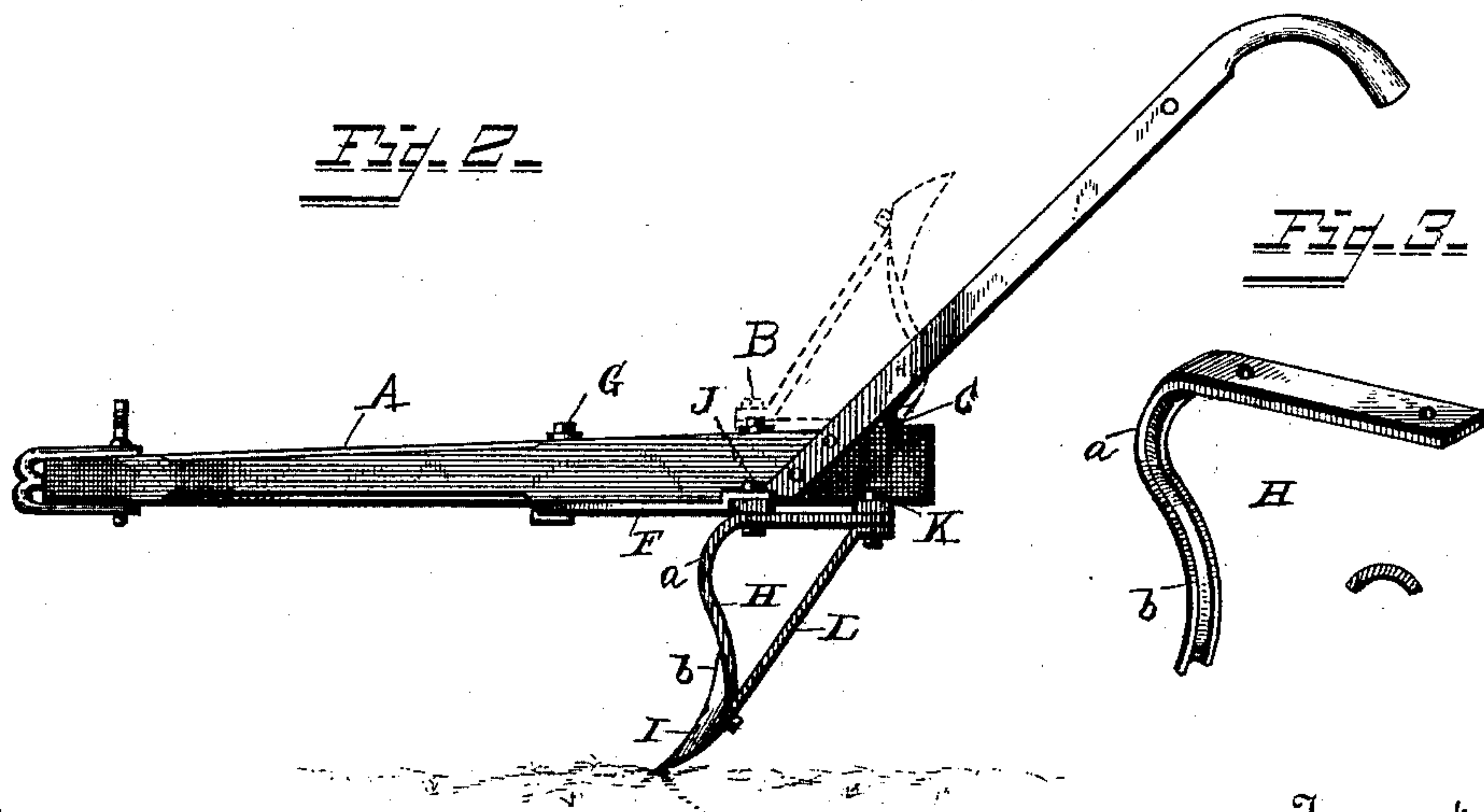
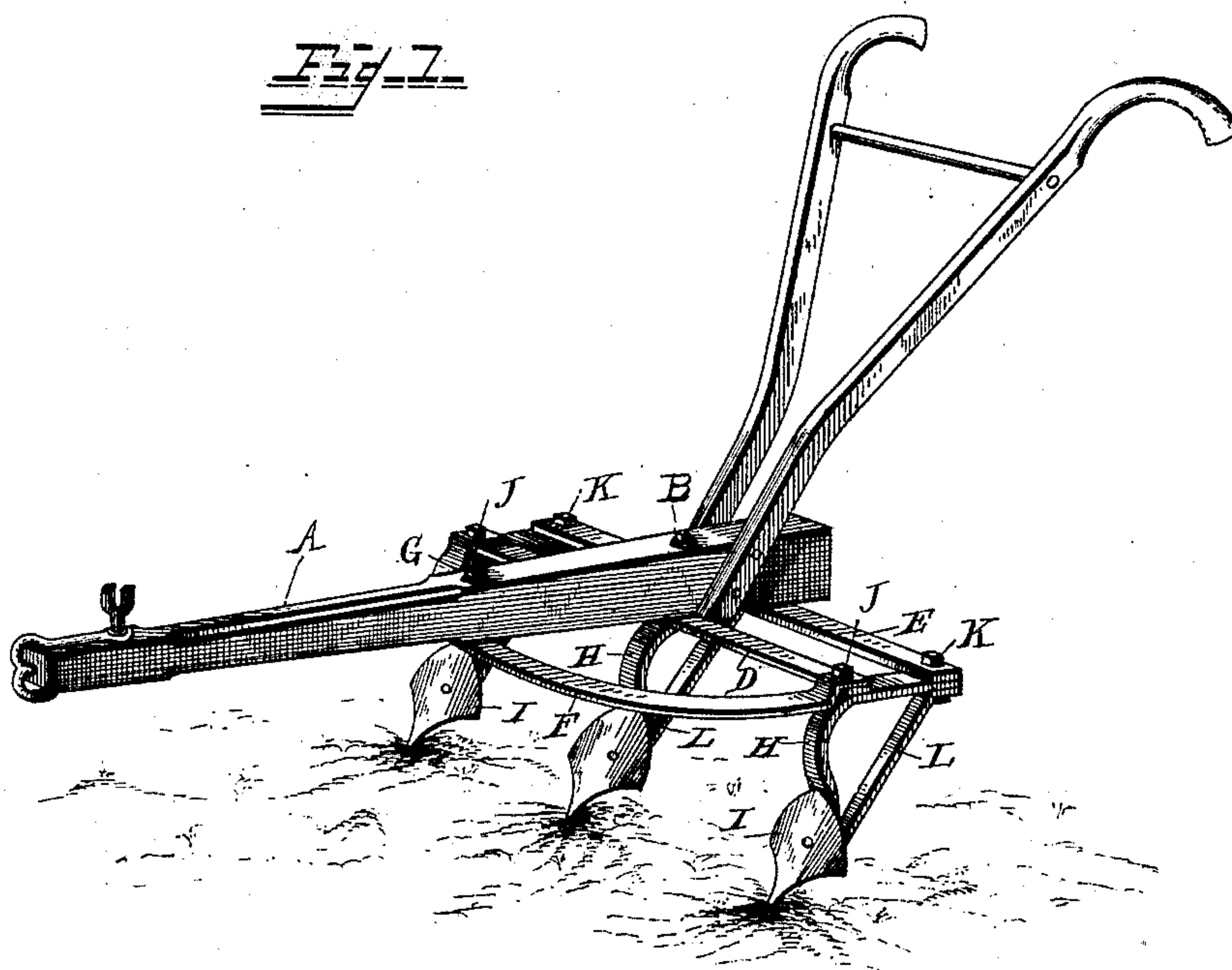
(No Model.)

A. M. WORD.

HARROW.

No. 390,275.

Patented Oct. 2, 1888.



Witnesses

Albert Speiden
Jno. M. Henderson

Inventor
Arthur M. Word,
By his Attorney,
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UNITED STATES PATENT OFFICE.

ARTHUR M. WORD, OF ROME, GEORGIA, ASSIGNOR TO THE TOWERS & SULLIVAN MANUFACTURING COMPANY, OF SAME PLACE.

HARROW.

SPECIFICATION forming part of Letters Patent No. 390,275, dated October 2, 1888.

Application filed August 24, 1887. Serial No. 217,750. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR MOTT WORD, a citizen of the United States, residing at Rome, in the county of Floyd and State of Georgia, have invented certain new and useful Improvements in Harrows; and I do 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 the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to certain improvements in cultivators or side harrows, and has for its object to combine with an adjustable frame a standard of such form or shape that it can be made not only of the minimum amount of metal and weight, but will also throw the earth in such direction that it and weeds will not clog up the standard.

It has further for its object to so combine the standard with a brace and the frame that strength and durability and simplicity and ease of attachment will result.

For the accomplishment of the foregoing and such other objects and advantages as may result and appear, the invention consists in the construction and the combination of parts, as hereinafter more particularly described, and pointed out in the claim, reference being had to the accompanying drawings, forming a part hereof.

Figure 1 is a perspective of the cultivator. Fig. 2 is a side elevation of the same, showing one of the standards in dotted lines in the position it occupies when the cultivator is used as a double-footed plow for covering. Fig. 3 is a perspective and a horizontal cross-section showing curves in the standard for strengthening the same.

In the drawings, the letter A designates the beam, to which are pivoted by bolts B and C the cross-bars D and E, so that they may turn horizontally. These cross-bars carry the standards, and by them the points or feet of the plow may be adjusted to or from the beam, so as to make them work closer or farther apart. The points are moved to or from the beam by means of the curved bar F, secured to the

frame formed by the cross-bars D and E, and are held to their adjustment by a clamping-bolt, G, which firmly and securely holds the curved bar or rod to the beam.

The parts so far generally described are substantially the same as what are described and shown in the patent granted to The Towers & Sullivan Manufacturing Company, as my assignees, November 9, 1886, No. 352,284, and therefore not claimed.

The standard which receives the foot and at the same time connects the two pivoted cross-bars is designated by the letter H, and extends from the rear cross-bar to the front bar, D, and then curves rearwardly to form a convex breast, *a*, and then forward to form a concave face, *b*, to the lower end of which the foot or tooth I is attached. By forming the standard and attaching it as described it not only braces the connection between the two cross-bars, but the standard itself is made stronger and can be made of very light material, and it throws the dirt to better advantage.

The standards are secured to the cross-bar by the bolts J and K, the bolt J also securing the curved bar F to the front cross-bar. To further stiffen and strengthen the standards, a brace-rod, L, is connected to each, the rod being bolted to the lower rear side of the standard and at its upper end bent laterally, as at *c*, and secured by the same bolt, K, that secures the upper end of the standard to the rear cross-bar, E. By forming the standard as shown, and applying the braces as described, great strength is given to the standard, so that it can be made of comparatively light material, and yet be durable and strong enough to withstand all usage to which it may be subjected.

The brace L not only stiffens the standard H, but also takes the strain partly from the front cross-bar, D, and throws it to the rear thereof through said brace, so that when the standard and its brace are combined with the two cross-bars the strain is not only distributed over the standard, but also partially taken off either of the cross-bars alone and distributed between the two. In such way advantages and results are obtained that do not exist when either the standard and brace are used without the cross-bars or the latter are used

without the former. Such advantages are material in a cultivator of this construction, where lightness is to be combined with strength.

When it is desired to convert the cultivators
5 into a double-footed plow for covering, the middle foot can be detached by simply loosening the bolts which secure it to the beam and cross-bars and placing it on top of the beam in an inverted position, as shown in dotted lines, and
10 securing it thereto by the same bolts that held it beneath the beam for use.

Having described my invention and set forth its merits, what I claim is—

The beam A, having the parallel cross-bars D
15 and E pivotally secured thereto, in combina-

tion with the bar or plate clamped to the beam and connecting the cross-bar and beam together and holding the cross-bars at their adjustment, and the standards H, having the horizontal parts pivoted to the bars D and E and formed 20 with the double reversely-curved upright portion, forming the convex breast *a* and concave face *b*, all substantially as and for the purposes set forth.

In testimony whereof I affix my signature in 25 presence of two witnesses.

ARTHUR M. WORD.

Witnesses:

A. R. SULLIVAN,
R. M. PATILLO.