(No Model.) 2 Sheets—Sheet 1.

S. L. ALLEN.

CULTIVATOR.

No. 281,426. Patented July 17, 1883.

FIG. 4.

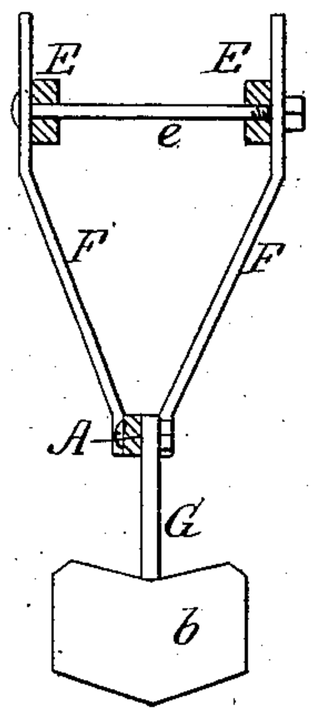


FIG. 1

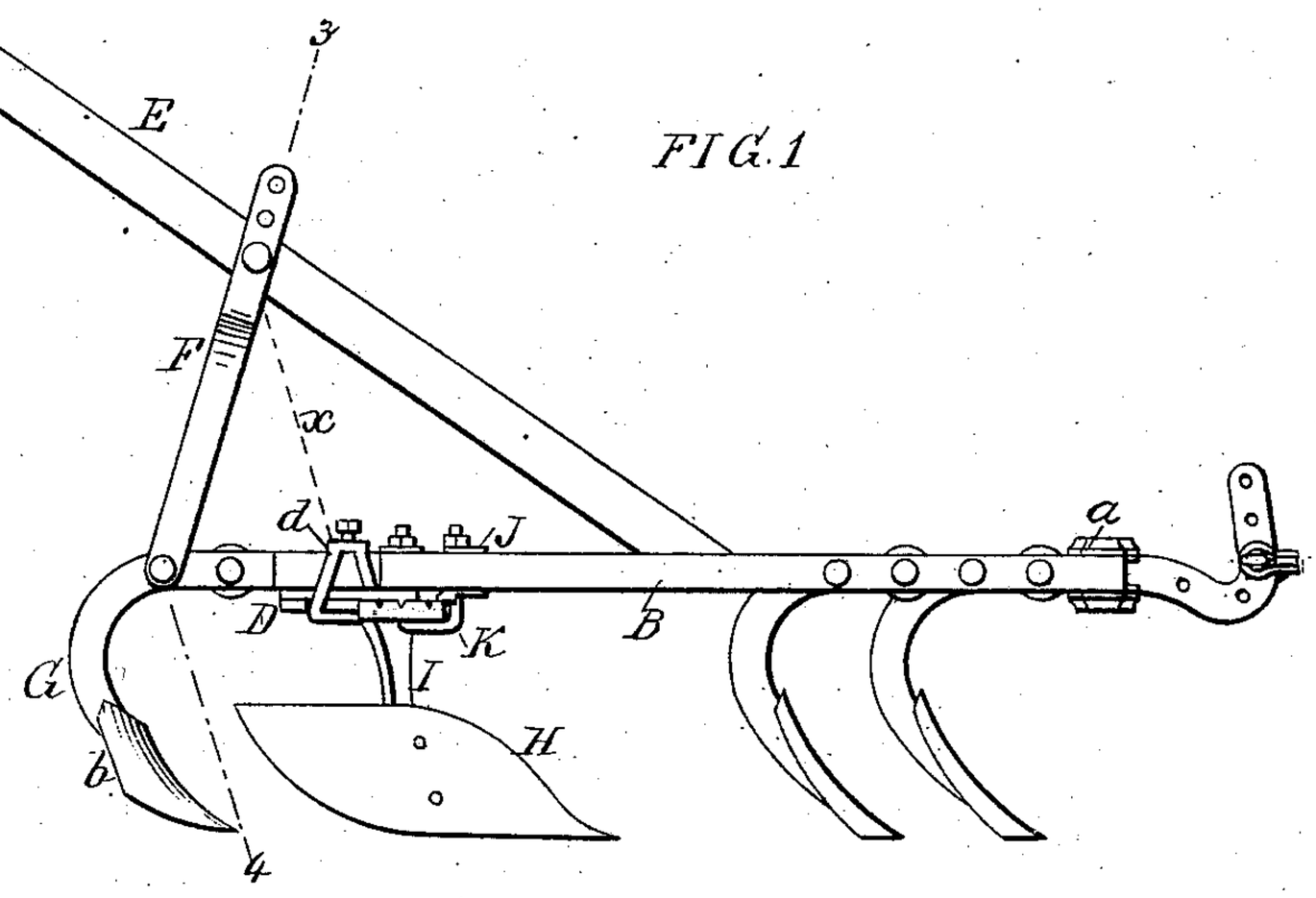


FIG. 2

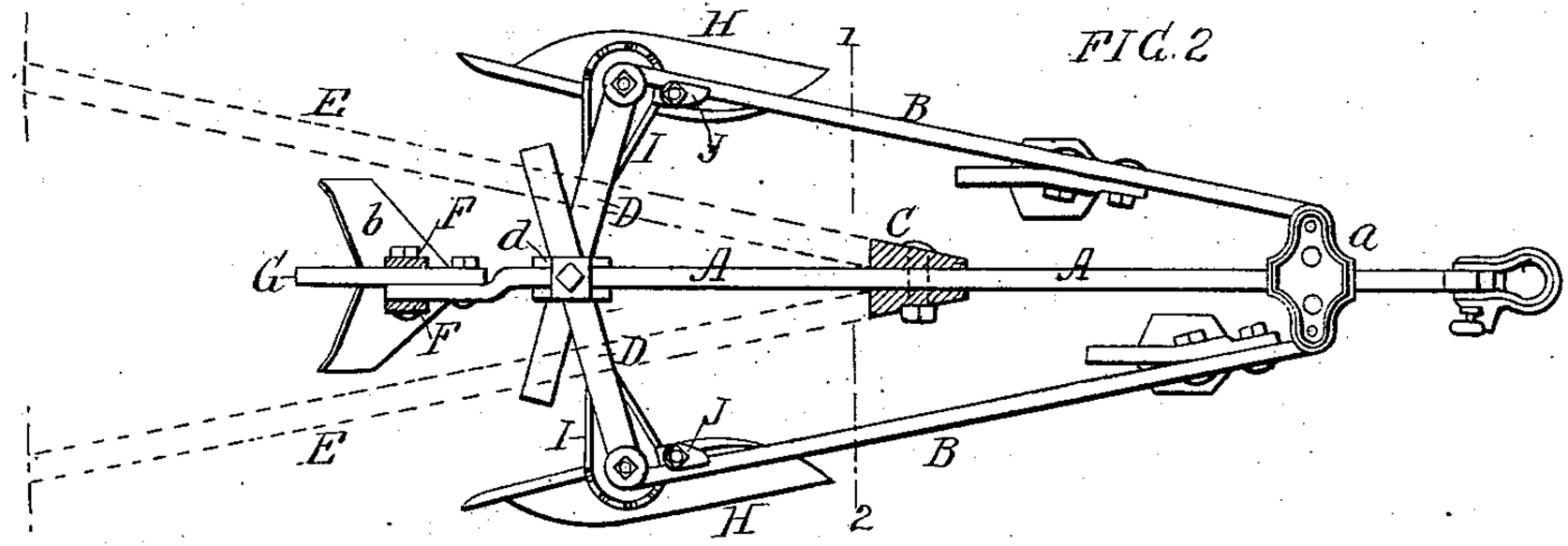
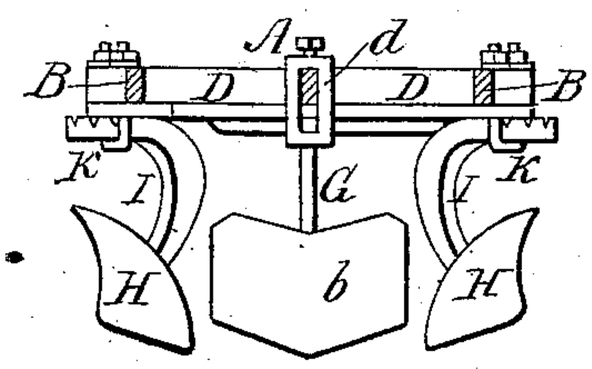


FIG. 3.



WITNESSES:

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Hamilton D. Turner.

INVENTOR

Samuel L. Allen

by his Attorneys

Howson & Howson

(No Model.) 2 Sheets—Sheet 2.

S. L. ALLEN.

CULTIVATOR.

No. 281,426. Patented July 17, 1883.

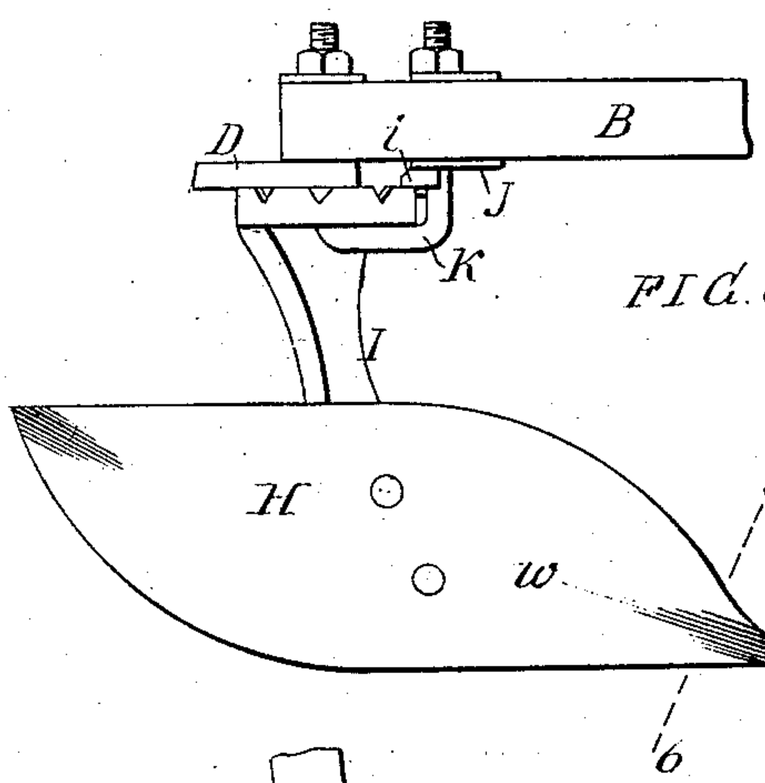


FIG. 6

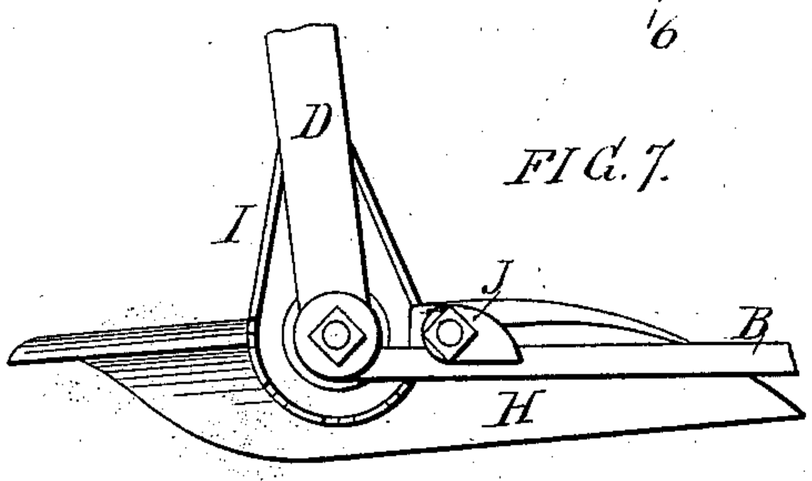


FIG. 7.

FIG. 8.

FIG. 9.

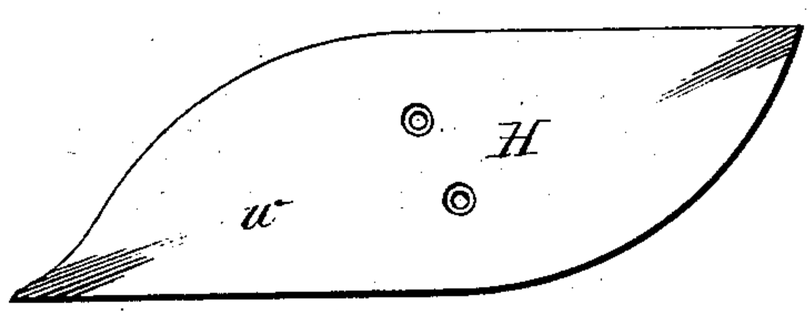
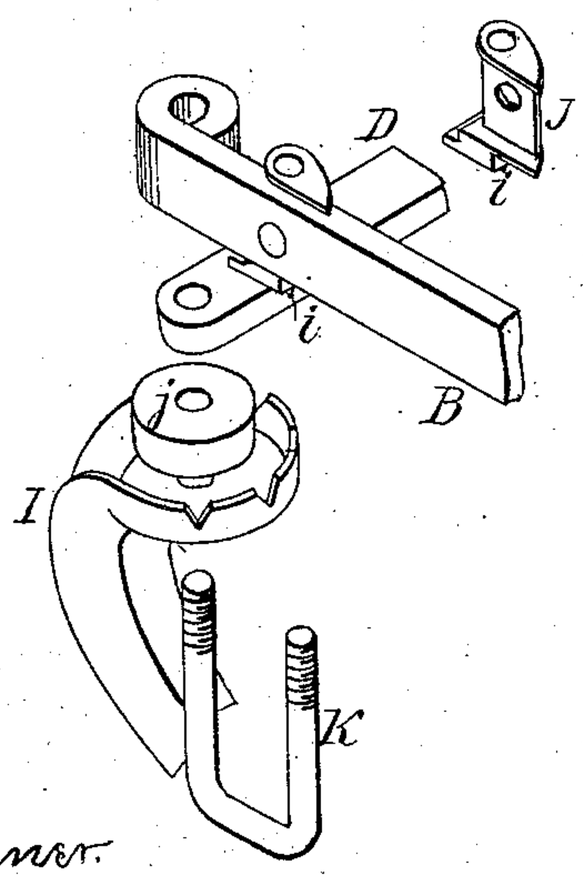


FIG. 5.



WITNESSES:
Hamilton D. Turner.
David Williams.

INVENTOR:
Samuel L. Allen
by his Attys
Howson & Sons

UNITED STATES PATENT OFFICE.

SAMUEL L. ALLEN, OF CINNAMINSON, NEW JERSEY.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 281,426, dated July 17, 1883.

Application filed March 9, 1883. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL L. ALLEN, a citizen of the United States, and a resident of Cinnaminson, Burlington county, New Jersey, have invented certain Improvements in Cultivators, of which the following is a specification.

My invention relates to certain improvements in cultivators, the said improvements, which are fully described hereinafter, having for their objects the strengthening of the share-like blades of the cultivator, and the construction of simple and economical devices for connecting the arms which carry the share-like blades to the frame, so that they can be readily adjusted thereon and secured after adjustment.

In the accompanying drawings, Figure 1, Sheet 1, is a side view of a cultivator made according to my improvements; Fig. 2, a plan view showing the handles by dotted lines; Fig. 3, a transverse section on the line 1 2, Fig. 2; Fig. 4, a transverse section on the line 3 4, Fig. 1; Fig. 5, Sheet 2, perspective views of detached portions of the machine, drawn to an enlarged scale; Fig. 6, a side view of part of the machine; Fig. 7, a plan view of Fig. 6; Fig. 8, a sectional view, drawn to a still larger scale, on the line 5 6, Fig. 6; and Fig. 9, a view of the share-like blade in a position the reverse of that shown in Fig. 6.

The frame-work of the machine is illustrated in Figs. 1, 2, 3, and 4, Sheet 1, and consists, mainly, of the central bar, A, the inclined side bars, B B, the stays D D, handles E E, and diagonal braces F F, all being made of rolled wrought-iron or steel. An eye is formed at the front end of each of the inclined bars B B, and the eye of each bar is hinged to a cross-piece, *a*, preferably composed of two plates clamped to the central bar, A. To the rear end of bar A is secured a curved arm, G, carrying the central and rear cultivator-tooth, *b*. The two stays D D are hinged one to the rear end of one of the side bars and the other to the rear end of the other side bar, in the manner described hereinafter, the stays passing through a clamping device, *d*, which need not be minutely described, as it forms no part of my present invention. It will suffice to remark that the stays may be set free when the inclination of the side bars has to be altered, and may be firmly secured to the central bar after adjustment. The two handles E E are bolted to the central bar at *c*, Fig. 2, from which point they diverge, as indicated in that figure by dotted lines. The diagonal braces are secured at their lower ends to the central bar—that is, at the point where the curved arm G, carrying the central and rear cultivator-tooth, is secured to the said central bar—preferably by one of the bolts which secure the arm G to the said bar, the upper ends of the braces being secured one to one handle and the other to the other handle by a bolt, *e*. The upper ends of the braces are secured to the handles midway, or thereabout, between the opposite ends of the same, from which point the braces take an inclined course downward and outward to a point as near as possible to the end of the frame. By thus connecting the braces to the frame at a point where the latter is subjected to the greatest strain—that is, directly above the tooth *b*—I am enabled to use a much lighter central bar than if the lower ends of the braces were connected to the bar, say, at the usual point, as indicated by the dotted line *x* in Fig. 1. These stays, inclined rearward from the handles to the rear end of the frame, insure perfect steadiness and rigidity, and result in economy of material.

The frame carries two share-like blades, H H, which are made and applied to the frame in the manner which I will proceed to describe, reference being had to Figs. 5, 6, 7, 8, and 9, Sheet 2.

Referring in the first place to the perspective views, Fig. 5, where the upper end of the arm I for carrying one of the share-blades is shown, together with a portion of one of the side bars, B, and part of one of the stay-rods, it will be seen that the rounded upper end or head of the arm has several notches, into any one of which will fit a locking projection, *i*, on a block, J, which is bolted or riveted to one side of the bar B. In the present instance the arm I is made of struck-up steel, and its rounded head is bounded by a flange in which are the aforesaid notches, so that in securing the bar B and stay-rod D together a filling-piece, *j*, will be required for lodgment in the hollow head of the arm; but if the latter be made solid, of wrought-iron or steel, the filling-piece may of course be dispensed with.

For securing the several parts together I prefer to use a duplex or staple-like bolt, K,

one leg of which passes through the head of the arm I, through the stay D, and side bar, B, the other leg passing through the block J. When the nuts of the two legs are tightened, the whole of the above-mentioned parts will be firmly secured together, and there can be no turning of the arm I, as it is retained by the projection *i* on the block J; but the share-like blades have at times to be adjusted laterally, in which case it becomes neeessary to loosen the nuts of both legs of the duplex bolt so far that the upper end of the arm I will be released from the control of the projection *i*, when the arm can be turned, and the blade thus caused to assume a different inclination, the nuts being then tightened, and the projection *i*, being contained in a notch other than that which it previously occupied. Two separate bolts might be used in place of the duplex bolt; but the latter is preferred on the score of economy. It is not essential, moreover, that the block J should be adhered to; but there must be a retainer, *i*, on the side bar for entering a notch in the upper end of the arm.

Turning to the share-like blade, as shown in Figs. 6, 7, 8, and 9, it will be observed that it is indented on one side, so as to form a projection on the opposite side, the indentation being preferably made in the face of the blade, and extending from the extreme point, where it is largest, to about the point *w*, where it gradually disappears and merges into the blade. By the rib thus formed, the blade is strengthened where it is most likely to bend—that is, at and near the point—both ends of the blade being thus strengthened. When one point of the blade has become worn, the blade can be reversed, so that the other point shall come into play; or the blade can be adjusted to the position shown in Fig. 9. This adjustability of the blade, however, forms no feature of my invention.

I claim as my invention—

1. The within-described share-blade for cultivators, the same being indented at one side, so as to form a strengthening-rib extending from the point to the body of the blade, and merging into the same, substantially as described.

2. The combination of the arm I and its notched head with the side bar, B, having a retainer adapted to the notches, and with a bolt or bolts for securing the several parts together, substantially as specified.

3. The within-described arm I, made of struck-up steel, and having a head bounded by a notched flange, in combination with a retainer on the frame of the machine, substantially as specified.

4. The combination of the arm I and its notched head, the stay D, and side bar, B, having a block, J, provided with a projection adapted to the notches in the head of the arm, with the staple-like bolt K, one leg of which passes through the head of the arm, through the stay, and through the side bar, the other leg passing through the said block J, all substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL L. ALLEN.

Witnesses:

HARRY L. ASHENFELTER,

HARRY SMITH.