S. A. & C. C. MORGAN.

Harrow.

No. 28,890 Patented June 26, 1860.

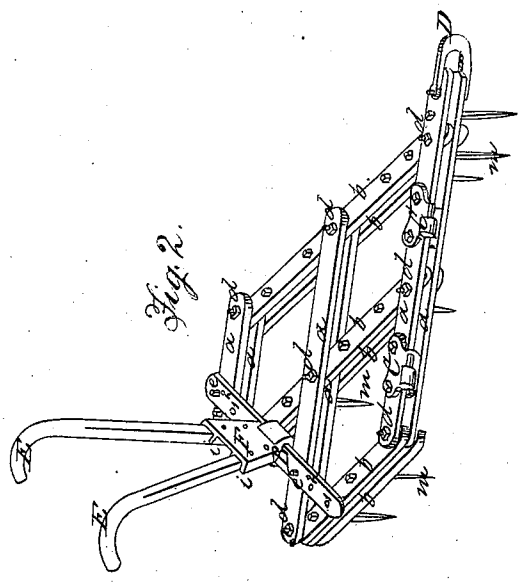

Fig. 2.

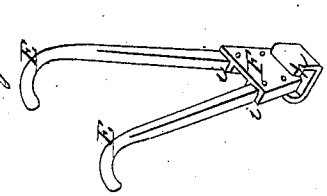

Fig. 3.

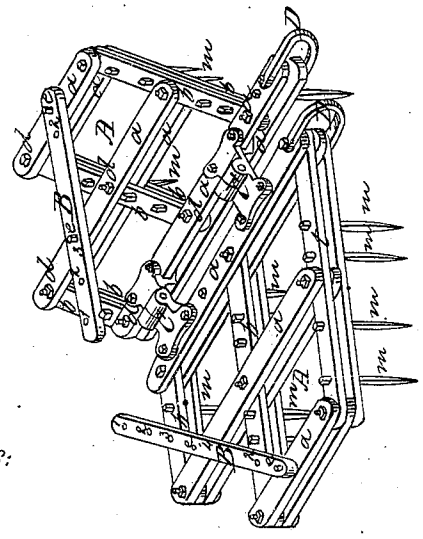

Fig. 1.

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UNITED STATES PATENT OFFICE.

STEPHEN A. MORGAN AND CURTIS C. MORGAN, OF AUBURN, NEW YORK.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **28,890**, dated June 26, 1860.

To all whom it may concern:

Be it known that we, STEPHEN A. MORGAN and CURTIS C. MORGAN, of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Adjustable Detachable Cultivator-Harrows; and we do hereby declare the following to be a full, clear, and exact description of the construction and operation of the same, reference being made to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents, in perspective, the implement as used for a harrow. Fig. 2 represents one part of the harrow detached from the other and as used for a cultivator. Fig. 3 represents a pair of handles and the stock to which they are secured as well as by which they are secured to the segments or parts of the harrow when separated and to be used as cultivators.

Similar letters of reference, where they occur in the several figures, denote like parts of the implement in all the drawings.

We are aware that two or more segments or parts have been hinged together to form a harrow. This we do not claim.

We are also aware that a harrow-frame has been so made as that it could be widened out or contracted in width to suit the circumstances of the case, and that a bar running from front to rear of the harrow has been used for holding the frame in its adjusted position. These we do not claim.

The nature of our invention consists in making a harrow of at least two hinged parts or segments, each segment separately adjustable to make it wider or narrower, and furnished with a transverse bar for holding it in adjustment, said bar also serving the purpose of a connection for the handles, which are used on the separated parts when converted into cultivators, as will be explained.

To enable those skilled in the art to make and use our invention, we will proceed to describe the same, with reference to the drawings.

A A represent two frames, of hexangular form. They are composed of transverse diagonal pieces *a a* and *b b*, pivoted together at their points of crossing each other by pivots *d*, so that they may move upon each other and assume any of the positions within their capabilities of motion. B is a bar furnished with a series of adjusting-holes, 1 2 3, &c., so that by means of pins or bolts *e* it may be bolted to two of the transverse pieces to hold the implement at any adjusted position. These two frames A A are hinged together by a hinge or hinges, *c c*, one-half of each hinge being upon each of the frames, and so that the frames may be readily separated from each other.

D D′ are clevises—one for each segment. When the two segments are used together they are drawn by the clevis D, which keeps the hinged connection together. When separated each segment is drawn by its own clevis.

The implement is used for harrowing, as shown in Fig. 1; but when used as cultivators the segments are detached and a pair of handles, E E, connected to each, so that it makes two harrows or one cultivator, and, whether separated or united, the same capabilities of adjustment are retained.

A convenient way of connecting the handles to the segments is as follows: A casting, F, is made, having flanges or recesses *i* for receiving the handles in it, and a loop or eye, *n*, that will slip over the bar B, so that whatever form may be given to the segment the handle may be placed in a central position or to one side to accommodate the user or avoid walking on the plants. The bar B, extending across the cultivator is the only means of effecting this position of the handles, for if united to the diagonals of the frame they could only go where such pieces go in making the adjustments. If the piece B extended from front to rear of the frame, it would not admit of this arranging of the handles laterally, and hence the reason why we use it as herein represented.

The clevises or points of draft, as shown in Fig. 1, are in advance of the sides of the frames; but the sides may be put in advance of the points of draft, if it is required to do so, the hinging of the pieces *a* and *b* admitting of this range of motion.

The harrow-teeth *m* may be arranged in any of the usual well-known ways, and may be removable to allow the machine, as a cultivator, to straddle or cultivate each side of a row of plants.

Having thus fully described the nature and

object of our invention, what we claim therein as new, and desire to secure by Letters Patent, is—

A harrow composed of at least two hinged and separably-adjustable segments, A A, furnished with adjusting-bars running across the frames, and so that they may be detachable and capable of use, when so separated, as cultivators by applying handles to the adjusting-bar, substantially in the manner and for the purpose set forth.

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