2 Sheets—Sheet 1.

T. V. CARDWELL.

Harrow.

No. 221,664. **Patented Nov. 18, 1879.**

Fig. 1.

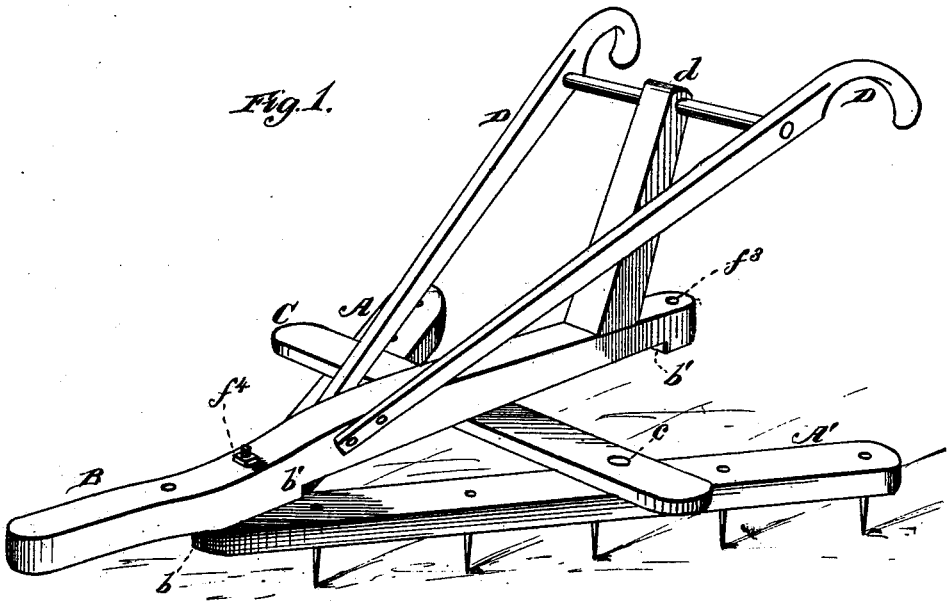
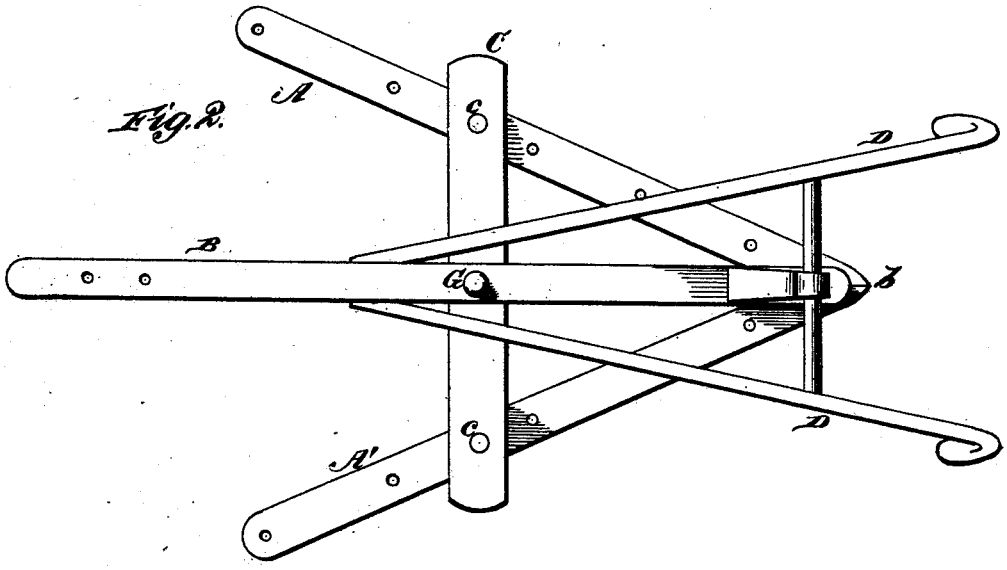


Fig. 2.



WITNESSES

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T. V. CARDWELL

2 Sheets—Sheet 2.

Harrow.

No. 221,664. Patented Nov. 18, 1879.

Fig. 3.

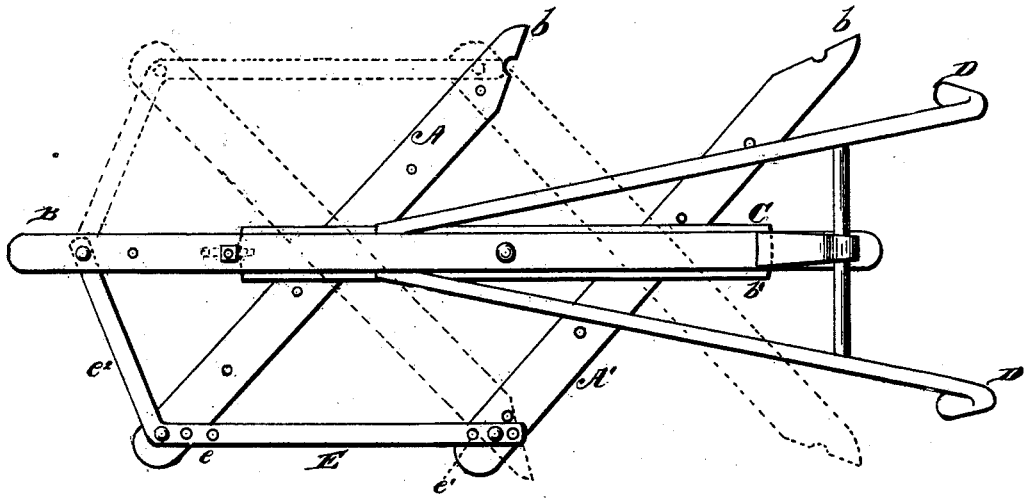


Fig. 4.

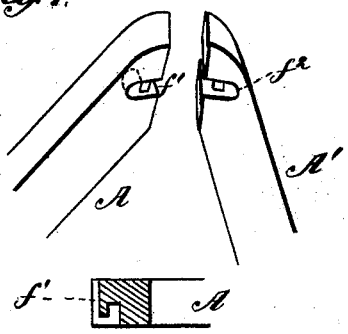
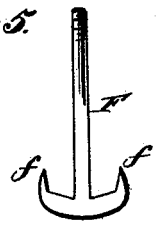


Fig. 5.



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UNITED STATES PATENT OFFICE.

TOLBERT V. CARDWELL, OF ROSE HILL, MISSISSIPPI.

IMPROVEMENT IN HARROWS.

Specification forming part of Letters Patent No. **221,664**, dated November 18, 1879; application filed March 26, 1879.

To all whom it may concern:

Be it known that I, TOLBERT V. CARDWELL, of Rose Hill, in the county of Amite and State of Mississippi, have invented certain new and useful Improvements in Harrows; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of my A-formed harrow, in perspective. Fig. 2 is a plan view of same changed to a V-formed harrow. Fig. 3 is a plan view of the same changed in drawn lines to a two-barred right-hand harrow. The dotted lines represent the same changed to a two-barred left-hand harrow. Fig. 4 is a plan view of the manner of constructing the bars for joining them together. Fig. 5 is an elevation of T-headed bolts used in locking the harrow.

Identical parts in the drawings are designated and referred to by the same letters.

This invention relates to harrows; and it consists in the improvements in the construction of the same, hereinafter fully described, and particularly pointed out in the claims.

A A′ represent the bars of the harrow, which carry the teeth. B represents the draw-beam. C represents the cross-bar of the harrow in the various positions in the combinations formed. D D are the handles, and *d* the supports, which are readily attached to the draw-beam B. E is an angled bar, which attaches to the free end of the draw-beam and to the bars A A, for the purpose of forming the right or left handed side harrows and square harrow, which is provided with two series of holes, *e e′*, for these several purposes.

The T-headed bolt F is provided with two hooks, *f*, which bolt-head and hooks enter from the under side of the bars A A′, and set in the recesses $f\,f'$ and the hole f^2 of the draw-beam when the device is used as an A-harrow, and hole f^3 of the draw-beam when used as a V-harrow.

G is the king-bolt which attaches the draw-beam B to the cross-bar C, and provides a pivot for reversing the direction of draft.

Fig. 1 represents the bolt F, uniting the draw-beam and the converging ends *b b* of the bars A A′, thus forming an A-harrow provided with handles D.

Fig. 2 represents a V-harrow, which is formed by removing bolt F, reversing the draw-beam B, and inserting bolt F in recesses $f\,f'$ and hole f^3.

Fig. 3 represents a right-and-left-handed side harrow, formed by means of the bar E, which is so angled as to hold the bars A A′ in position, as shown, by being attached at the draw-beam and the outer ends of A A′. These bars, being pivoted to the cross-bar at *c c*, they may be set at any desired angle by changing or lengthening the arm e^2 of the bar E. A square harrow may thus readily be made of the parts involved in the side harrows.

Cultivator-teeth may be used instead of common harrow-teeth, thus changing the purposes of the implement from a harrow to a cultivator.

When the device is used as a right or left hand or square harrow, the T-bolt hooks $f\,f$ enter holes in either end of the cross-bar C, which is turned into the recess under the draw-beam, as shown at *b′ b′*.

What I claim as new is—

1. In a harrow, the combination of the bars A A′, constructed as described, in combination with the cross-bar C, the recessed draw-bar B, the T-headed hook-bolt F, and the angle-bar E, constructed and operating together, as and for the purposes substantially as set forth.

2. In a harrow, the combination of the cross-bar C, pivoted at G to the draw-beam B, with the side bars, A A′, pivoted to the outer ends of the cross-bar C, and adapted to be reversed and secured to the draw-beam to form either a V-shaped or an A-shaped harrow, as set forth.

3. In a harrow, the bars A A′, provided with recesses $f'\,f^2$ in their under faces, near one end, said recesses $f'\,f^2$ being adapted to

receive a portion of the shank F and the hooks *f f* of a T-shaped hook, in combination with the draw-beam B, perforated to receive the remainder of the shank F, which is securely held in place by the nut f^4, and the bar C, pivoted to the upper faces of the bars A A′, and to the under face of the draw-beam B, substantially as and for the purposes set forth.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

TOLBERT V. CARDWELL.

Witnesses:
JAMES J. SHEEHY,
W. N. SEVERANCE.