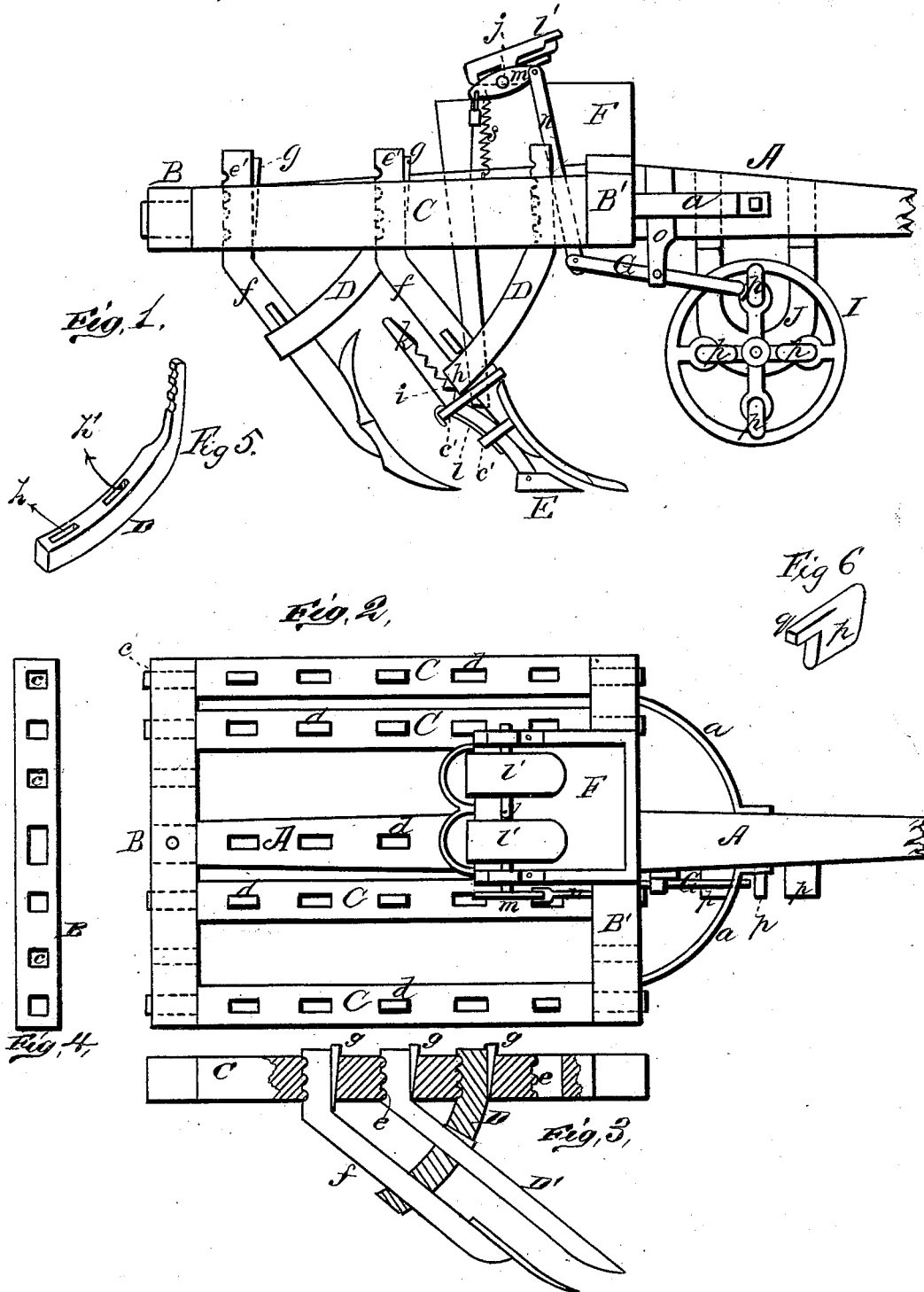


B. F. MORRIS & E. H. AUSTIN.
Cultivator and Seeder.

No. 205,668.

Patented July 2, 1878.



WITNESSES

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BENJAMIN F. MORRIS AND EPHRAIM H. AUSTIN, OF SCOTT'S HILL, TENN.

IMPROVEMENT IN CULTIVATOR AND SEEDER.

Specification forming part of Letters Patent No. **205,668**, dated July 2, 1878; application filed March 16, 1878.

To all whom it may concern:

Be it known that we, BENJAMIN FRANKLIN MORRIS and EPHRAIM HENRY AUSTIN, of Scott's Hill, in the county of Henderson and State of Tennessee, have invented a new and valuable Improvement in Combined Cultivator and Seeder; and we 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 a side view of our invention. Fig. 2 is a top view thereof; and Figs. 3, 4, 5, and 6 are detail views.

This invention has relation to improvements in combined cultivator and seeder.

The nature of the invention consists in certain novel combinations of parts, as will be hereinafter more fully set forth.

In the annexed drawings, the letter A designates the beam of our improved cultivator and seeder, extending centrally through the spaced (preferably metallic) cross-pieces B B', the latter being connected to beam A by means of the metallic braces *a*, and the former being rigidly secured to it in any suitable manner. The cross-piece B' is additionally secured to the beam by means of a through-bolt. The cross-pieces B B' are provided with transverse mortises *c* (two or more in number) upon each side of the beam A, into which are mortised the tenoned ends of the sub-beams C. These latter are parallel to the beam A, and are provided, like it, with a suitable number of spaced slots, *d*, designed to receive the ends of the standards of the plows, cultivator-shovels, or harrow-teeth. The rear vertical wall of each of these slots, or of as many as may be desired, is ratcheted, as shown at *e*, and the upper end of the standard *f* is correspondingly ratcheted, as shown at *e'*. The standard *f* is passed through the slot *d*, and its ratcheted edge engaged with the ratcheted wall of the slot. A wedge, *g*, is driven into the slot in front of the standard, and locks the latter to the sub-beam. By this means the standard may be adjusted to the sub-beam for a greater or less penetration of the shovel,

or harrow-teeth into the ground. The standard is braced against backward displacement by means of an angular stay, D, having an oblique slot, *h*, at its lower end, through which the said standard passes, and having its upper ratcheted end carried up through the second slot *d* in front of said standard, and secured to the sub-beam by a wedge, as above described. The braces D have, at or at about the middle of their length, an oblique slot, *h'*, by means of which a colter, D', may be connected to the shovels or plows. This colter is passed up from below through the slot in the brace and that in the sub-beam between the ends of the standard and of the said brace, and is secured thereto, precisely as above set forth for the standard and brace, by means of a wedge. By this means the brace is made to support both the colter and standard. By loosening the front braces *a* and drawing out the through-bolt, the cross-piece B' may be moved away from the cross-piece B. The sub-beams may then be adjusted to or from the main beam, or one or more detached therefrom or added thereto, as may be requisite for different kinds of work.

Where it is desired to use a subsoiler in connection with the plows, the standard *f* has two or more spaced metallic loops, *c'*, at its rear, and the brace D' an angular tooth, *i*, upon its rear end. The ratcheted shank *k* of the subsoiler is passed upward through the loops, engaged adjustably with the tooth *i*, and secured to the standard by a wedge, *l*, driven through the loops behind the said shank. By loosening the wedge the subsoiler E may be adjusted to penetrate more or less deeply into the soil, the adjustment being maintained by re-applying the said wedge.

When designed to be used as a seed-planter, the main beam carries the opening-shovel and the lateral sub-beams the shovels which cover the seed, the latter being in rear of the former. The seed box or hopper F is on the main beam above the cross-piece B', and has journaled at its upper edge a rock-shaft, *j*, to which are rigidly secured in any suitable manner one or more oblong seed-dippers, *l'*. The shaft *j* has upon one end a cross-arm, *m*, to the front end of which is pivoted a pitman, *n*, that is also pivoted to the weight end of a ver-

tically-vibrating lever, G, having its fulcrum in a hanger, o, depending from the main beam A. The power end of this lever extends beyond the perimeter of a master-wheel, I, rotating upon a spindle or journal on a hanger, J, of the beam A, and provided with tappets p, projecting out therefrom. These tappets are of the general form of a rectangle, and have projecting out from one edge a prismatic shank, q, designed to be received in corresponding apertures in the face of the wheel. This latter is in contact with the ground, and as it rotates the tappets p come successively in contact with the power end of said lever, thereby raising it, rotating the rock-shaft, and causing the dippers to descend into the hopper. Upon ascending, these dippers carry with them a planting of corn and deliver it into the funnel-like end of a dropper-spout, whence it is carried into the furrow behind the opener-shovel. After each dip the dippers are returned to the position shown in Fig. 1 by means of a spring, s, secured at one end to the rear end of the cross-arm and at the other to the main beam, or by means of a depending weight.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a plow-standard having spaced loops c' and a ratcheted brace having a rear tooth, i, of the adjustable subsoil-plow E, having a ratcheted shank, k, and a wedge or key, l, behind said shank, substantially as specified.

2. The combination, with the beam C, a ratcheted plow-standard, f, having spaced loops c', and an adjustable subsoiler, E, having ratcheted shank k, of the slotted brace D, correspondingly ratcheted, and having a rear tooth, i, adapted to engage the ratchets of the shank of said subsoiler, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

BENJAMIN FRANKLIN MORRIS.
EPHRAIM HENRY AUSTIN.

Witnesses:

F. M. AUSTIN,
A. L. WOODWARD.