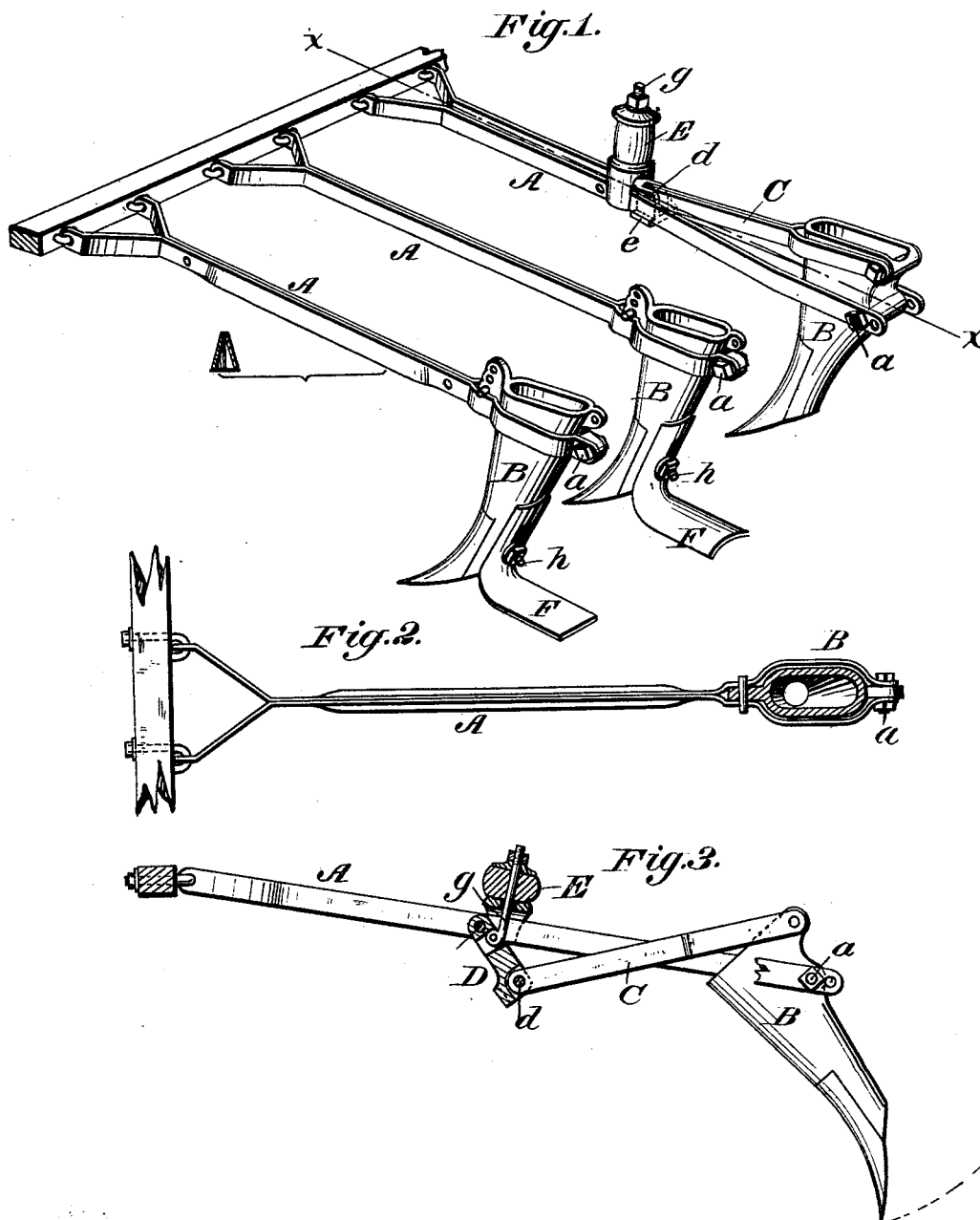


C. O. GARDINER.
Seeding-Machine.

No. 220,526.

Patented Oct. 14, 1879.



Witnesses:
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UNITED STATES PATENT OFFICE.

CHARLES O. GARDINER, OF SPRINGFIELD, OHIO, ASSIGNOR TO P. P. MAST & CO., OF SAME PLACE.

IMPROVEMENT IN SEEDING-MACHINES.

Specification forming part of Letters Patent No. **220,526**, dated October 14, 1879; application filed August 23, 1879.

To all whom it may concern:

Be it known that I, CHARLES O. GARDINER, of Springfield, in the county of Clarke and State of Ohio, have invented certain Improvements in Seeding-Machines, of which the following is a specification.

My invention consists in extending the drag-bar backward and pivoting it to the rear side of the hoe, in order to prevent the latter, when it swings backward, from breaking the feed spout or cup.

The invention also consists in separating the two iron bars which form the drag-bar from each other at one edge, so as to give the bar increased stiffness.

The invention also consists in a peculiar construction and arrangement of yielding devices for holding the hoe to its work.

The invention also consists in minor details, hereinafter described.

Figure 1 represents a perspective view of three drag-bars and hoes constructed in accordance with my invention; Fig. 2, a top-plan view of one of the bars and hoes; Fig. 3, a section on the line *x x*, Fig. 1.

The first part of my invention consists in extending the drag-bar A backward and connecting it by a pivot-pin, *a*, to the rear side of the hoe B. The essential feature is the location of the pivot at the rear side of the hoe, and the form and construction of the bar and the hoe are immaterial, and may be modified as desired, provided the rear location of the pivot is retained.

Hitherto it has been customary to locate the pivot at the front side of the hoe, or, in exceptional cases, at the side of the same, and in practice it has been found that, in operating on rough and stony ground, the hoes are frequently raised and turned backward so far that their upper ends encounter the feeders and spouts and break them. By locating the pivot at the rear side of the hoe this action is prevented and the breaking of the spout or feeder by the hoe rendered impossible.

In the drawings each drag-bar is represented as consisting, as usual, of two bars arranged side by side, the rear ends being separated and carried past opposite sides of the hoe. Two of the hoes shown are provided with the

ordinary wooden break-pin to hold them in position, and the other provided with spring-connections, which may be of any suitable character.

Metal drag-bars, as ordinarily constructed, consist of two bars, made in a thin flat form, and secured for the greater portion of their length directly and flatly against each other, side to side. In practice it is found that bars thus constructed must be made of quite heavy iron, in order to give them the required stiffness and resistance against lateral flexion. In order, therefore, to give the bars the required stiffness without using heavy metal, I arrange the two small bars of which they are composed nearer together at one edge than at the other—or, in other words, give them a divergence from each other toward one edge—the best arrangement, and that which I generally use, being to bring the two in contact along their upper edges and separate them at the lower edges, as shown in the detached sectional view in Fig. 1.

At their ends the bars may be flattened together and united by rivets, as shown; or they may be secured by introducing A-shaped blocks between them and securing them thereto.

A drag bar or beam constructed of two inclined or diverging bars, as above described and shown, possesses far greater stiffness and rigidity than any other of equal weight.

I am aware that curved beams for mold-board plows have been cast complete in one piece of a U form in cross-section, and also that such beams have been made by bending a wrought-iron plate lengthwise through the middle into an inverted-U form, flanging the lower edges, and riveting a cross-plate thereto, and I lay no claim to such method of construction, the same being much more expensive than my plan and illy adapted for use in connection with cultivator-beams.

The use of the two bars avoids the necessity of the extra rolling and bending of the metal, permits the ends to be separated and bent laterally, as required, and avoids the expense of the useless metal connecting the edges of the side portions or plates.

When spring-connections are to be employed to retain the hoe in position, I make use of the

arrangement shown in Fig. 3 and on the right hand in Fig. 1. The drag-bar is pivoted to the hoe at some distance below its top, and a pivoted arm or brace, C, extended forward from the top of the hoe between the two sides of the drag-bar to a pivot, *d*, by which it is connected to the rear end of a swinging link, D. This link is pivoted at its forward end in the middle of the drag-bar, and is provided at its rear end with side ears, *e*, which strike against the under side of the drag-bar and check the upward movement of the link while its pivot *d* is still slightly below a line connecting the two other pivots. This arrangement holds the link slightly off the center, so that it can yield when the spring, hereinafter described, has been overcome.

The spring E is made of rubber and seated on a stirrup secured to the drag-bar, and bears on its top a washer and nut, from which a rod, *g*, extends downward through the center of the spring to a pivot on the link. When the hoe meets a dangerous resistance the strain causes the brace C to urge the link D downward until the spring yields, whereupon the parts assume the position shown in Fig. 3 and the hoe swings backward. When the resistance ceases the hoe is automatically brought back to its original position.

As a means of regulating the depth to which the hoes enter the ground, I employ on the rear side of each hoe a gage-plate, F, one end of which is extended backward to travel upon the surface of the ground, while the other is turned upward, slotted, and adjustably secured to the hoe by means of a bolt, *h*, as shown.

The rear end may have its under side flat, angular, convex, or concave in cross-section.

When this gage is used the hoe may be given such shape as to enter the ground readily and shape the furrow to the best advantage without danger of its entering too deep.

I am aware that pivoted yielding hoes have been held to their work by means of rubber

springs acting through intermediate levers and links, and that these devices have been constructed and arranged in many different forms, and therefore I make claim only to the special construction and arrangement shown and described herein.

Having thus described my invention, what I claim is—

1. A hoe or drill tooth pivoted at its rear side to a drag-bar, substantially as described and shown.

2. The combination of a drag-bar and a hoe or drill tooth encircled by and pivoted at its rear side to said bar.

3. The improved drag-bar, consisting of two separate bars of iron arranged side by side, and connected firmly with each other near the ends, the forward ends being separated and spread apart, and the middle portions of the bars between the points of connection being arranged with a divergence from each other, as shown and described.

4. In a drag-bar, the combination of two flat longitudinal bars having in cross-section a divergence from each other, as described and shown.

5. The drag-bar composed of the two flat metal bars secured directly together at or near their ends, but separated at one edge between said points of union.

6. The combination of the drag-bar, the hoe pivoted at a point below its upper end to the bar, the brace C, pivoted to the upper end of the hoe and extended thence forward and downward, the link D, provided with the side stops and pivoted at its forward end to the drag-bar and at its rear end to the brace C, and the spring E, seated above the drag-bar and connected by the rod to the link, as shown.

CHARLES O. GARDINER.

Witnesses:

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