E. F. STODDARD.

Spring-Hoe for Grain-Drills.

No. 198,320. Patented Dec. 18, 1877.

Fig. 1.

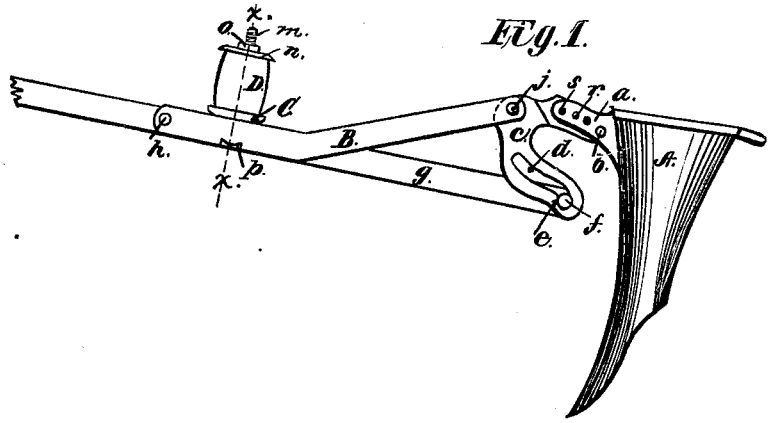


Fig. 2.

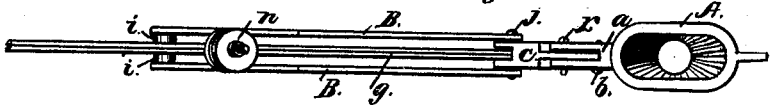


Fig. 3.

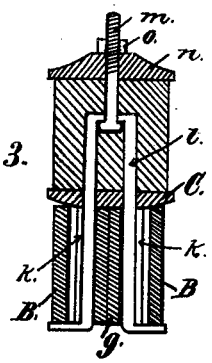
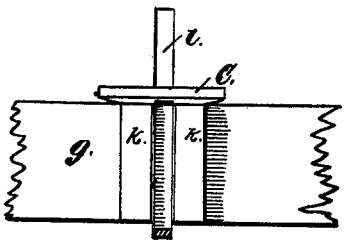


Fig. 4.



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UNITED STATES PATENT OFFICE.

E. FOWLER STODDARD, OF DAYTON, OHIO.

IMPROVEMENT IN SPRING-HOES FOR GRAIN-DRILLS.

Specification forming part of Letters Patent No. **198,320**, dated December 18, 1877; application filed October 29, 1877.

To all whom it may concern:

Be it known that I, E. FOWLER STODDARD, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Spring-Hoes for Grain-Drills; and I do hereby declare the following to be a full, clear, and exact description of the same.

This invention relates to that class of hoes for grain-drills or other seeding implements which are provided with springs and connecting-levers in the place of break-pins, to enable the hoe to yield in encountering obstructions which would ordinarily break the pins, and to reset itself when the obstacle has been passed.

My improvements consist in the application and construction of an adjustable bracket, whereby the pitch of the hoe can be regulated at will without interfering with the relieving devices, and in other details, as will be herewith set forth and specifically claimed.

In the accompanying drawings, Figure 1 represents a spring-hoe with my improved devices in side elevation. Fig. 2 is a plan view of the same. Fig. 3 is an enlarged central sectional view through the line *x x* of Fig. 1. Fig. 4 is a side elevation of the saddle-piece and compression-rod.

A represents the hoe, of ordinary construction, having the slotted and perforated bracket *a*, in which the drag-bar is generally pivoted. Instead of the drag-bar I pivot in the slot of the bracket *a*, at *b*, the curved bracket *c*, Figs. 1 and 2. This bracket has curved pendent arms, in which are coincident segmental slots *d*, with recessed portions, forming shoulders *e*, Fig. 1. Between the curved pendent arms of the bracket *c* is pivoted, by a pin, *f*, the rear end of the drag-bar *g*, of the usual or any suitable construction.

B B are two angular arms or flat metal bars, one upon each side of the drag-bar, to which they are pivoted at *h*, and from which they are separated by washers *i*, as indicated. The rear ends of these arms rest upon the outer sides of the bracket *c*, and are pivoted to it by a bolt, *j*, as shown.

C represents a saddle-piece, consisting of a disk beveled on its under side, and having four downward-projecting arms, *k*, which straddle, in pairs, the drag-bar, as shown in Figs. 3 and 4. This saddle-piece rests on the drag-bar, and forms the seat for the cylindrical rubber spring D. This latter is kept in place by a staple-shaped rod, *l*, from the top of which a bolt, *m*, projects, and passes through a capping-disk, *n*, and clamping-nut *o*, as shown in Fig. 3. The lower ends of the rod *l* are bent at right angles outwardly, and rest in slots *p*, Fig. 1, in the arms B. This rod *l* is also confined between the pairs of arms *k*, which serve as guides to retain it always in a vertical position.

The action of the hoe may be described as follows: When an obstacle is encountered, such as a root or stone, the strain upon the point causes the bolt *f* to be jarred from the shoulders *e* at the lower portion of the slots *d*, and the hoe then turns upon the pivot *j*, the bolt *f* traveling in the slots *d*. As the hoe is bent back the arms B are depressed, thereby compressing the spring D through the medium of the rod *l* and bolt *m*. The location of the rod *l* between the arms *k* always insures the equal and uniform compression of the spring D. The bracket *c*, while pivoted to the bracket *a*, is also rigidly and adjustably secured thereto by a pin, *r*, which is passed through one or the other of the adjusting-holes *s*, Fig. 1, which can be made coincident with holes in the bracket *c*, and by which means the pitch of the hoe can be varied at will without changing the relations of the slots *d* with the drag-bar and arms B; or, in other words, the inclination of the shoulders *e* is always the same, while the pitch of the hoe may be varied at will.

Should any of the connecting-pins or spring devices become broken while in the field, it would only be necessary for the attendant to remove the bracket *c* and pivot the end of the drag-bar between the ears of the bracket *a*, when an ordinary hoe-coupling would be obtained, and the work of drilling be continued.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The bracket *c*, constructed as described, in combination with the hoe A, drag-bar *g*,

and compression-arms B, whereby the pitch of the hoe may be varied at will without changing the relative positions of the other parts.

2. The combination and arrangement, with the drag-bar *g* and compression-arms B, of the rubber spring D, staple-rod *l*, bolt *m*, disk *n*, nut *o*, and saddle-piece C, with its pairs of arms *k*, the whole arranged in the manner and for the purpose specified.

Witness my hand this 17th day of October, A. D. 1877.

E. FOWLER STODDARD.

Witnesses:

P. H. GUNCKEL,

WM. RITCHIE.