(No Model.)

A. D. ALEXANDER.

GRAIN DRILL.

No. 307,159. Patented Oct. 28, 1884.

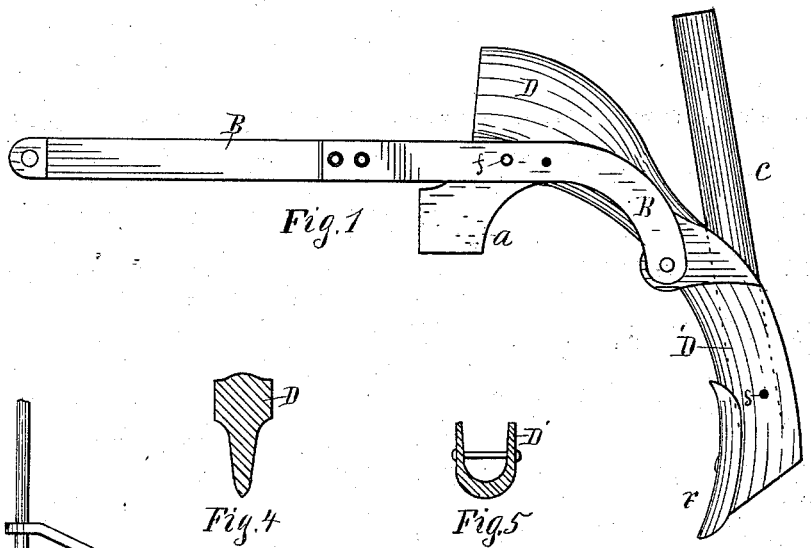

Fig. 1

Fig. 4

Fig. 5

Fig. 2

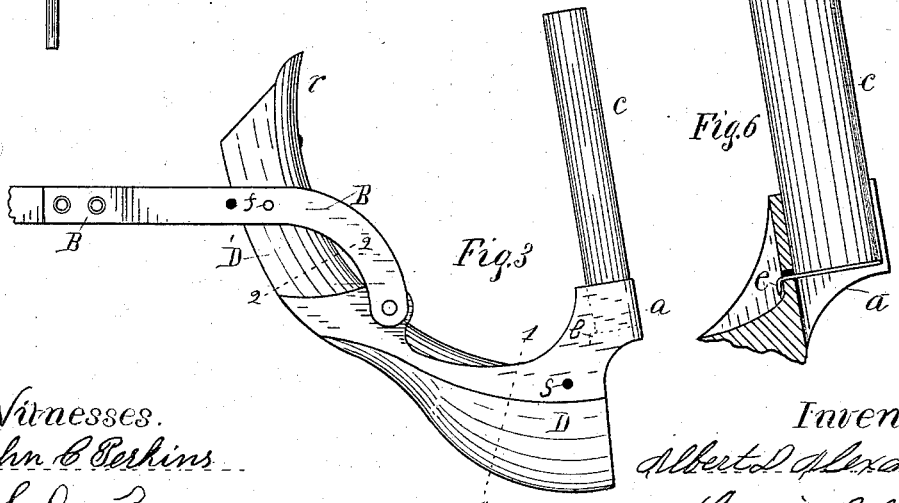

Fig. 3

Fig. 6

Witnesses.
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UNITED STATES PATENT OFFICE.

ALBERT D. ALEXANDER, OF LAWTON, MICHIGAN.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 307,159, dated October 28, 1884.

Application filed July 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALBERT D. ALEXANDER, a citizen of the United States, residing at Lawton, county of Van Buren, State of Michigan, have invented new and useful Improvements in Grain-Drills, of which the following is a specification.

The object of my invention is to construct a reversible combined spike and shoe, hereinafter described and claimed.

In the drawings forming a part of this specification, Figure 1 is a side elevation of a portion of a drill embodying the invention; Fig. 2, a top view of the same; Fig. 3, a broken part of Fig. 1, showing a change in position of the spike and shoe; Fig. 4, a cross-section on line 1 1 in Fig. 3; Fig. 5, a cross-section on line 2 2 in Fig. 3; and Fig. 6 is a broken detail enlarged, partly in section, on a line with the horizontal center of Fig. 2.

Horizontal bars, which are hinged at the forward end to a rod connecting with the wheel-frame, (not here shown,) and extend rearwardly from the wheel-axle in devices in this state of the art, are shown at B. The combined spike and shoe D′ is centrally connected by a pivot with the rear end of bar B.

D is the shoe of this device, and *r* is the spike. The back side of the spike is hollowed out, to receive the grain-tube *c*, Figs. 1 and 5. The back side of the shoe is provided with a portion, *a*, similarly hollowed for a like purpose. The grain-tube *c* is provided at the lower end with a hook, *e*, which is detachably located in a perforation through the spike and shoe ends, Fig. 6. The spike and shoe are provided with holes S S, into which the detachable pin *f* is inserted by passing it through holes in the bar B at proper locations and into said holes S, to detachably lock the spike and shoe in its different adjustable positions. Thus, in Fig. 1, the shoe end D is locked by pin *f*, and the spike end *r* is depressed for use, and the hooked end of the tube *c* is detachably connected with said spike end, as in the construction in Fig. 6. In Fig. 3 the combined spike and shoe D′ has been reversed, the spike end *r* being locked by pin *f* and the shoe end D depressed for use. During this action of swinging the device D′ on its pivot the hook *e* is detached from the spike and detachably connected with the shoe, as in Fig. 6 and dotted position of *e* in Fig. 3.

Such a device is strong, simple, easily adjusted, and causes one machine to perform the work of two.

As many bars B with the device D′ may be used in a complete drill-machine as is desirable.

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

1. The combination of a two-end drill-share, one of said ends being a spike and the other a shoe, centrally pivoted to a supporting-bar, and a grain-tube, said spike, shoe, and grain-tube being adapted for detachable connection at the lower end of the tube, substantially as set forth.

2. The combination, with a supporting-bar provided with the lock-holes and a detachable lock-pin, of the combined reversibly-pivoted spike and shoe provided with the hollow perforated portions, and a grain-tube provided with a supporting-hook for detachably connecting the grain-tube with said hollow portions, substantially as set forth.

3. The pivotally-supported combined spike and shoe, in combination with a grain-tube adapted for detachable connection with said spike and shoe, substantially as set forth.

In testimony of the foregoing I have hereunto subscribed my name in the presence of two witnesses.

ALBERT D. ALEXANDER.

Witnesses:

GEO. D. B. HALL,

C. O. THOMPSON.