J. W. H. DOUBLER.

Grain-Drill.

No. 46,523. Patented Feb 21, 1865.

Fig. 1.

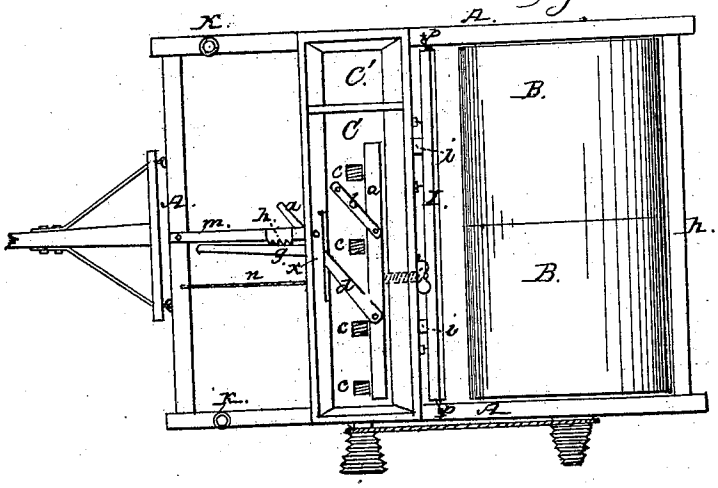


Fig. 3.

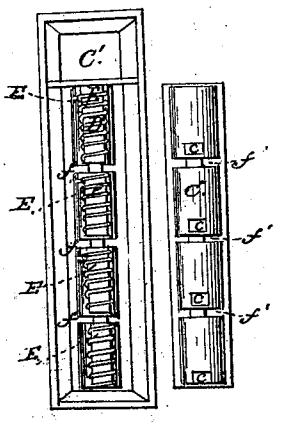


Fig. 2.

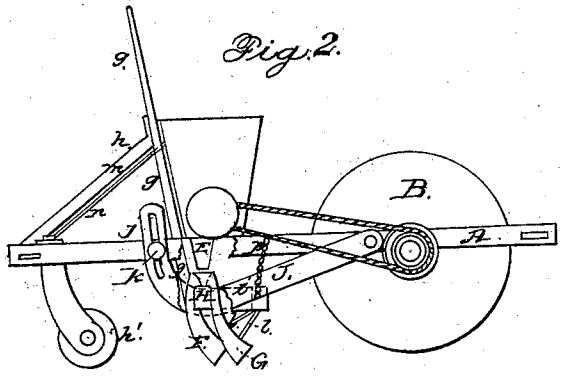


Fig. 4.

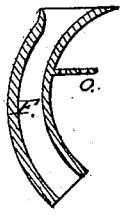
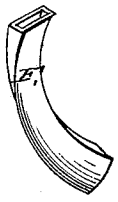


Fig. 5.



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UNITED STATES PATENT OFFICE.

J. W. H. DOUBLER, OF WARREN, ILLINOIS, ASSIGNOR TO HIMSELF AND JOHN E. WYNNE, OF SAME PLACE.

GRAIN-DRILL.

Specification forming part of Letters Patent No. **46,523**, dated February 21, 1865; antedated February 6, 1865.

To all whom it may concern:

Be it known that I, J. W. H. DOUBLER, of Warren, in the county of Jo Daviess and State of Illinois, have invented a new and useful Improvement in Grain-Drills; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and the letters and figures marked thereon, which form part of this specification.

In said drawings, Figure 1 represents a plan or top view of my invention. Fig. 2 is a side view of the same. Fig. 3 is a plan view of the hopper or seed-box, its bottom C being removed; and Figs. 4 and 5 are sectional and perspective views of one of the combined drill-teeth and grain-depositors hereinafter described.

Similar letters of reference in the different figures indicate corresponding parts of my invention.

To enable those skilled in the art to understand how to manufacture and use my improved grain-drill, I will proceed to describe the same with particularity.

A represents the frame of the machine, supported upon the rollers B B and the wheels K K.

C represents the bottom of the hopper or seed-box, and is provided with the holes *c*, through which the grain falls upon the spiral distributer D, which lies directly beneath.

a represents a longitudinal adjustable slide, arranged upon the bottom C, as shown, the arm *b* being pivoted at one end to the slide and at the other end to C, so as to allow a free motion about those points. The lever *d*, provided with a fulcrum at *x*, is also attached at one end to the slide *a*, as shown. With this arrangement the operator, by grasping the end of the lever *d* outside the hopper, can readily adjust the said slide so as entirely or partially to close the openings *c*, and thus prevent the grain from escaping either wholly or in part, as may be desired. As the size of the openings *c* should vary with different species of grain, the proper adjustment can easily be made with the set-screw *e*, thereby adjusting the slide *a* so as to make it cover so much of the holes *c* as would make them of the proper size for the kind of grain to be sown.

C, is a box at one end of the hopper, in which such tools may be carried as might be needed to correct temporary derangements in the machine in the field.

In Fig. 3 is shown the construction of the spiral distributer D, the bottom C being removed and placed upside down, so as to show the construction of the lower side thereof. The distributer D, as will be observed, is divided into as many distinct sections as there are apertures *c*, although all are attached to and revolve with the same central shaft. The different sections aforesaid lie in semicircular grooves separated from each other by the partitions *f*, which are provided at the center with a collar or bearings to support the shaft of the distributer. In the bottom of each of the grooved compartments aforesaid, and at the opposite end thereof from that where the grain is admitted upon D, are tubes E, through which the grain passes to be deposited in the ground. The construction of the lower side of C is precisely similar to the bed of the distributer just described, so that when the same is properly adjusted the partitions *f'* lie upon the partitions *f*, thus making each section and compartment wholly separate and distinct, so that no grain passes from one into another. Thus the grain entering through either aperture *c* passes along in the direction of the red arrows and goes out through the corresponding tube E in the same compartment. By this arrangement the quantity of grain deposited in each drill is always equal and uniform; and, furthermore, when this construction is employed the drills can be placed much nearer each other than when the ordinary continuous spiral is used. E, in Fig. 2, represents one of the series of tubes which are in the bottom of the hopper, as aforesaid.

H represents an end view of a beam passing across the machine under the tubes E, each end of which is supported in suitable bearings in the curved and slotted arm J, a similar device being attached to each side of the machine, a reciprocating rotary motion being allowed to the said beam. To this beam H the drills F G are attached, as shown—that is, alternately upon the front and rear of the beam. The upper ends of the drills, F, arranged upon the front side of H, are curved back, so as to

come directly under the alternate tubes E, while the upper ends of those arranged upon the rear of H are curved forward for a similar reason, and thus the mouths of all the hollow drills lie in one line and under the tubes E. To the beam H the lever *g* is attached, so that by throwing the lever forward or backward the drills may be adjusted to run at the required depth, or may be thrown up entirely clear from the ground to allow the passage of unusual obstructions. As this adjustment causes the upper ends of the drills to oscillate backward and forward to a certain extent, the passages through said drills are enlarged or funnel-shaped at the top, so that the grain will always fall into the drill, and, passing through the same be properly deposited in the ground. The fronts of the curved drills F and G are provided with a sharp edge, so as to cleave through lumps of earth or other similar obstructions, and thus deposit the grain in a continuous line, instead of passing over said obstruction and leaving a space where no grain would grow. These drills are firmly and strongly fastened to H and braced by the rods *l* to I. I is a beam parallel to H and framed to it by the cross-ties *i i*. It is supported at each end by the chains *p* from the frame A, so as to prevent the drills from being forced forward when the machine is moved backward. By the alternate arrangement of the drills upon the adjustable beam H, which is also adjustable vertically by means of the slotted arm J and set-screw *k*, it is evident that the lower ends of those on the front form a line some in advance of those attached to the rear. This arrangement greatly facilitates the passage of obstructions between the drills, as the space between the alternate drills, F is very wide, and anything passing through between the drills F would by an oblique movement also go through between any two of the drills G.

Having described my improved grain-drill, I will now specify what I claim as new therein and desire to secure by Letters Patent:

1. The hollow drills F G, constructed, arranged, and operating as and for the purposes herein specified and shown.

2. The combination of the drills aforesaid with adjustable bar H and lever *g*, arranged and operating substantially as and for the purposes shown and described.

3. In combination with the above, the parallel bar I and the chains *p*, arranged and operating as and for the purposes set forth.

4. The curved arms J, provided with the slot *j* and set-screw *k*, arranged as and for the purposes specified.

5. Providing the spiral distributer D with the several bearings *f f'*, so as to divide the same into separate compartments, substantially as and for the purposes herein delineated and set forth.

J. W. H. DOUBLER.

Witnesses:
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