

No. 745,197.

PATENTED NOV. 24, 1903.

G. M. KINGSBURY.

GRAIN DRILL.

APPLICATION FILED JAN. 16, 1903.

NO MODEL.

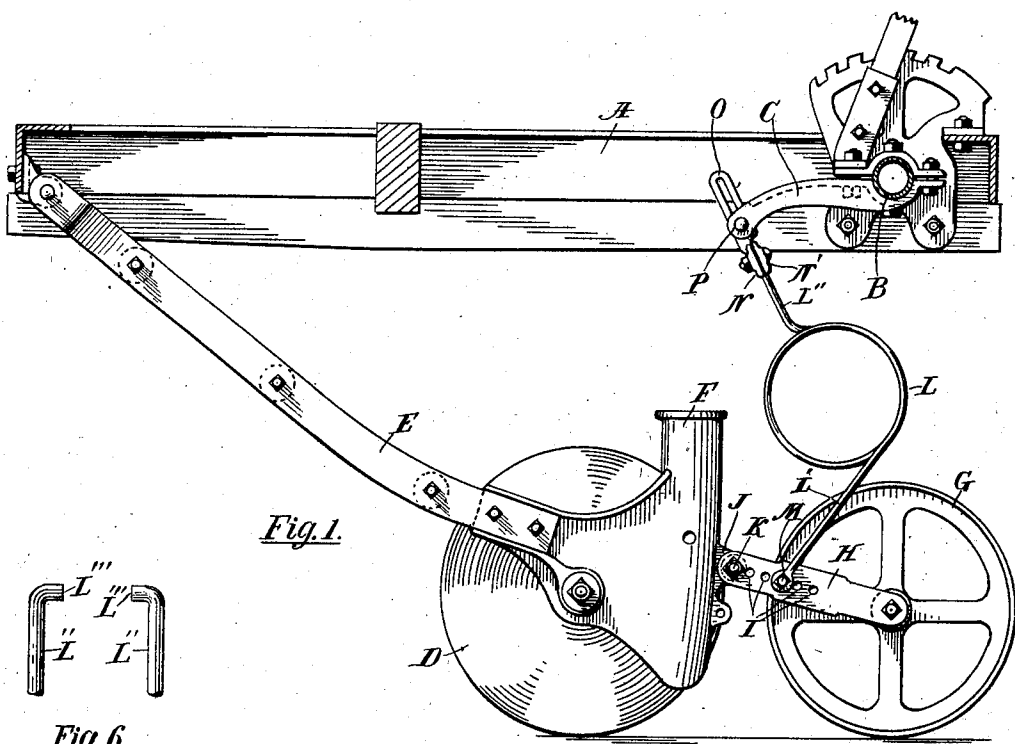


Fig. 1.

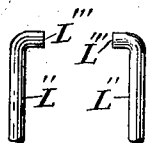


Fig. 6.

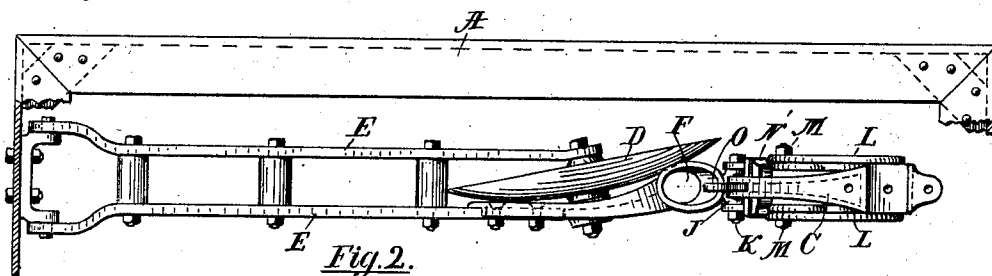


Fig. 2.

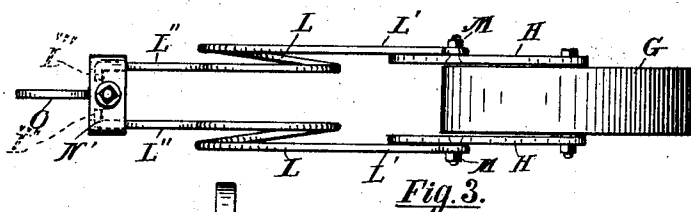


Fig. 3.

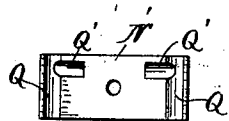


Fig. 5.

Witnesses

Georgiana Chase.
Palmer A. Jones.

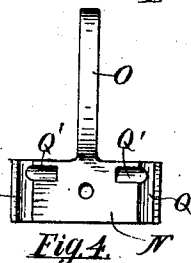


Fig. 4.

Inventor
George M. Kingsbury

By Luther V. Moulton
Attorney

UNITED STATES PATENT OFFICE.

GEORGE M. KINGSBURY, OF CASSOPOLIS, MICHIGAN, ASSIGNOR TO CASSOPOLIS MANUFACTURING COMPANY, OF CASSOPOLIS, MICHIGAN, A CORPORATION OF MICHIGAN.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 745,197, dated November 24, 1903.

Application filed January 16, 1903. Serial No. 139,261. (No model.)

To all whom it may concern:

Be it known that I, GEORGE M. KINGSBURY, a citizen of the United States, residing at Cassopolis, in the county of Cass and State of Michigan, have invented certain new and useful Improvements in Grain-Drills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in grain-drills; and its object is to provide improved means for producing a yielding downward pressure on the disk and the presser-wheel and to provide the same with certain new and useful features, hereinafter more fully described, and particularly pointed out in the claims.

My invention consists, essentially, of the arrangement and combination, with the disk, the presser-wheel, and the lifting-arm of a grain-drill, of the construction and arrangement of the connecting-springs movably and adjustably connected thereto, as will more fully appear by reference to the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying the invention; Fig. 2, a plan view of the same with parts omitted; Fig. 3, a detail of the presser-wheel and spring; Figs. 4 and 5, enlarged details of the spring-clamp, and Fig. 6 the same of the upper end of the springs.

Like letters refer to like parts in all of the figures.

A represents a portion of the frame of the machine; B, the adjustable rock-shaft; C, an arm projecting from the rock-shaft; D, a disk cultivator to open the furrow; E, the draw-bars of the cultivator; F, a spout to deposit the seed in the furrow; G, the presser-wheel to follow the disk and cover the seed. These features are herein as usually constructed, and the remainder of the device is so constructed that a shoe, draw-bar of the same, and a spout such as shown in Patent No. 667,506 to Denyes and Schutt, dated February 5, 1901, may be substituted, upon which construction as therein shown this invention constitutes an improvement, such im-

provement consisting of the means of attaching and connecting the springs as follows:

L is the middle portion of the spring, formed in a suitable coil and having a downwardly-extended arm L', adapted to attach either to a lug J on the back of the spout F or to adjustably attach to the draw-bars H for the wheel G by means of suitable bolt M inserted in one of the series of holes I in the draw-bars. Said draw-bars are arranged at each side of the wheel G and extend from the journal thereof to a lug J on the spout, to which they are pivotally connected by a bolt K. By adjustment of the point of connection of the springs to these draw-bars the relative pressure upon the disk D and wheel G may be properly determined. These springs L have also upwardly and forwardly projecting arms L'', inserted in a suitable clamp N and N', which clamp is provided with a link or slotted arm O, projecting rigidly upward and slidably engaging the pivot-pin P in the end of the arm C, whereby there is a limited freedom of movement in this connection to permit the wheel G and disk D to rise and fall freely within this limit.

The upper ends of the arms L' are turned inward, as at L'', and suitable vertical grooves Q and lateral grooves Q' to receive these ends are formed in the clamp N and N', whereby the ends are secured from slipping or turning in the clamp.

It will be observed that the lower ends of the arms L' can be readily attached without change either to the draw-bars H or the lug J on the spout F. Thus the wheel G and its draw-bars H can be readily detached and the device operated without the same. So, also, the draw-bars E and disk D may be displaced by the draw-bars, shoe, and spout shown in the patent before cited and the device operated without change of any other part. These changes are found to be very convenient, adapting the device for various uses, as the shoe is sometimes preferable to the disk for certain purposes, and it is often desirable to dispense with the presser-wheel G in such machines.

Having thus fully described my invention,

what I claim, and desire to secure by Letters Patent, is—

1. In a grain-drill, the combination of an adjustable rock-shaft, an arm projecting from the same, a clamp, a rigid slotted arm projecting upward from the clamp and slidably engaging a pivot in the arm, and a spring fixed in the clamp at one end and adapted to be attached to a draw-bar at the other end.
2. In a grain-drill, springs having their upper ends bent at right angles, a clamp having grooves to fit the bent ends of the springs, means for vertically adjusting and supporting the clamp, and means for connecting the lower ends of the springs to the draw-bars.
3. In a grain-drill, a vertically-adjustable arm having a pivot, a clamp having vertical and horizontal grooves, a rigid slotted arm on the clamp and slidably engaging the pivot, springs bent at right angles at their upper ends and inserted in the said grooves of the clamp, and means for pivotally and detachably connecting the lower ends of the springs to draw-bars.
4. In a grain-drill, the combination of a

vertically-adjustable arm having a pivot-pin, a link slidable on the pin, a clamp attached to the link and having vertical and lateral grooves to receive the spring, a spring having bent ends inserted in the grooves, and a middle coil and oppositely-projecting arms, a vertically-movably spout having attached means for opening a furrow, draw-bars pivotally attached to the spout, a presser-wheel attached to said bars, and means for adjustably attaching the springs to the bars.

5. In a grain-drill, springs each having a middle coil, and oppositely-projecting arms, a clamp attached to said springs, a link on said clamp, a vertically-movable arm and a vertically-movable spout, means for slidably attaching the link to the arm, and means for attaching the ends of the springs to the spout.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE M. KINGSBURY.

Witnesses:

ULYSSES S. EBY,
CLARENCE HAEFNER.