

No. 667,506.

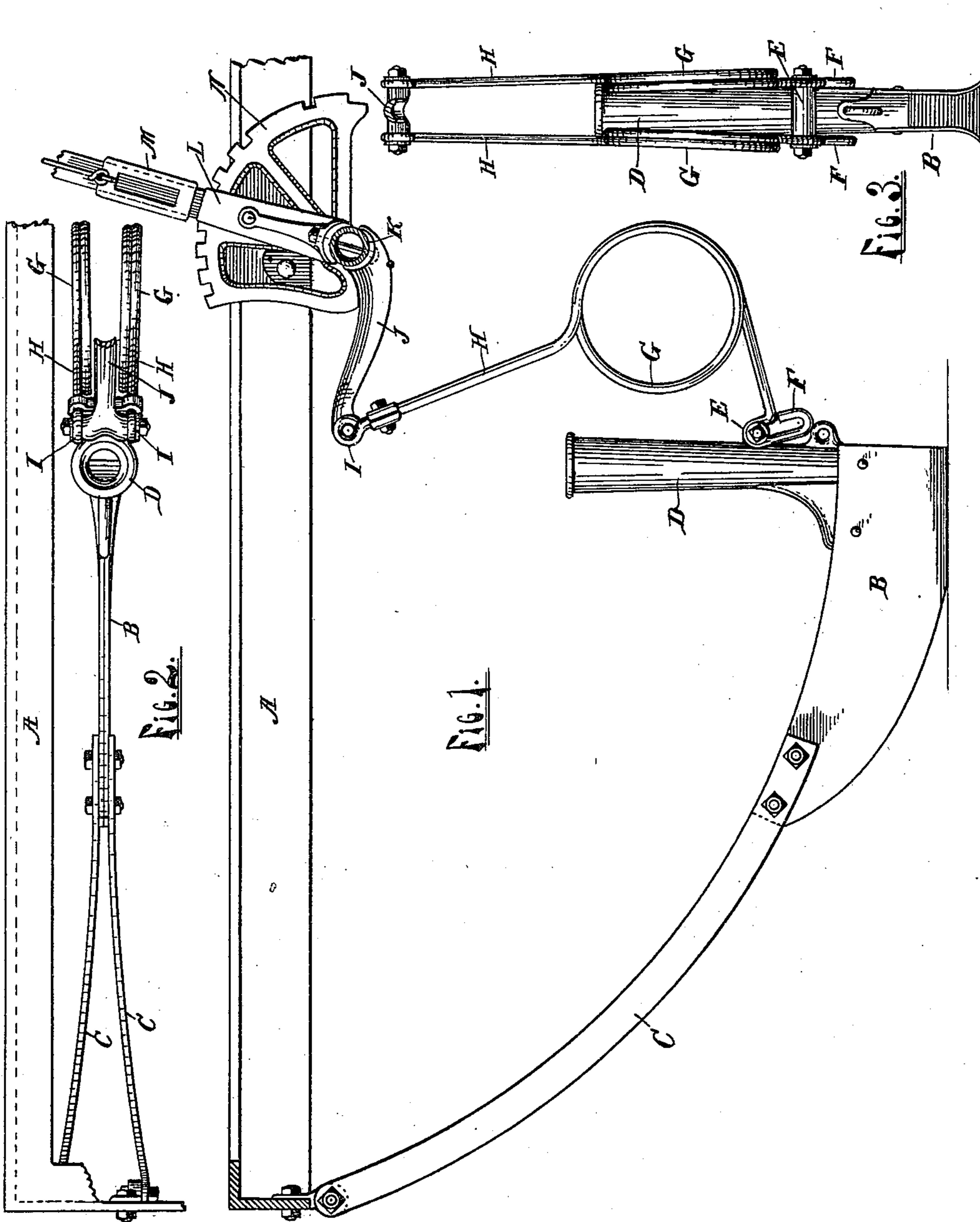
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G. W. DENYES & O. SCHUTT.

GRAIN DRILL.

(Application filed June 11, 1900.)

(No Model.)



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UNITED STATES PATENT OFFICE.

GAYLARD W. DENYES AND OWEN SCHUTT, OF CASSOPOLIS, MICHIGAN.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 667,506, dated February 5, 1901.

Application filed June 11, 1900. Serial No. 19,839. (No model.)

To all whom it may concern:

Be it known that we, GAYLARD W. DENYES and OWEN SCHUTT, citizens 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 we 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.

Our invention relates to improvements in grain-drills, and more particularly to that class known as "shoe-drills;" and its objects are to provide improved means of applying spring-pressure to each shoe separately and independently, to provide for allowing each shoe to act independently of the spring-pressure, to provide for simultaneously raising the shoes out of action, to simplify and cheapen the device, and to provide the same with certain new and useful features hereinafter more fully described, and particularly pointed out in the claims.

Our invention consists, essentially, in the construction and arrangement of the spring in connection with the rocker-arm, shoe, and tube or hopper, as hereinafter more particularly described, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of a device embodying our invention; Fig. 2, a plan view of the same with parts omitted, and Fig. 3 a rear elevation of the same.

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

A represents a portion of the main frame of the machine, B one of the shoes, it being understood that the machine contains a series of the same, and D a tube extending upward from the rear of the shoe, it being understood that the machine is provided with suitable means for supplying grain or seed to these tubes.

C represents the drag-bars pivoted to the frame at the forward ends and attached to the shoes at the rear and permitting free vertical movement of the shoes. At the rear of each tube and near the bottom thereof is a transverse boss E, to which are pivotally se-

cured by a suitable bolt the lower ends of the springs, which springs are provided with transversely-elongated links F, slidably engaging the said bolts. The springs extend thence rearward and upward, and to increase their flexibility are coiled at G, near the middle and in vertical planes, and extend thence upward and forward to points nearly above their lower ends, where they terminate in eyes I, pivotally engaging suitable lateral projections on the end of a rocker-arm J, attached to a rock-shaft K, extending across the machine and provided with one such arm for each shoe B. Said rock-shaft is rotative in suitable bearings and adjusted and held by means of a lever L, having a latch M engaging a suitable sector N. The springs are shown arranged in pairs for each shoe; but it is obvious that a single spring would be operative.

From the foregoing description the operation of our device will be readily understood. By adjusting the lever forward the arm is depressed and the spring will yieldingly press the shoe into the soil. By adjusting the lever backward to a middle position the spring is inoperative and the bolt plays freely in the elongated link F, the shoe operating by gravity alone. By adjusting the lever farther backward the spring will yieldingly support the shoe and partially neutralize the action of gravity and cause it to run shallower, and by turning the lever further still to the extreme back position the shoes will be suspended clear of the soil by means of the springs and thrown wholly out of action. The springs thus act in both directions from the normal or non-tension position, which tends to avoid changing the "set" or form of the springs and keeps them longer in good order. It will further be observed that the structure is very simple and consists of but few parts of easy construction, the connection between the arm and tube or shoe consisting of but two continuous flexible rods of suitable metal.

Having thus fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a grain-drill in combination with a vertically-adjustable support, and a verti-

cally-movable shoe, means for connecting the same consisting of a continuous flexible rod, bent to form an eye at one end and bent to form a horizontally-elongated link at the other end, substantially as described.

2. In a grain-drill in combination with a vertically-adjustable arm, and a vertically-movable shoe, each having lateral projections, continuous flexible rods, having eyes at one end engaging the projections on the arm, and transversely-elongated links at the other end engaging the projections on the shoe, said rods also being bent near the middle, substantially as described.

3. In a grain-drill, in combination with a vertically-adjustable arm and a vertically-movable shoe, a continuous flexible rod, formed at one end into an eye, and formed at the other end into a transverse link, and coiled in substantially a vertical plane, and pivotally connected to the arm at one end, and slidably connected to the shoe at the other end, substantially as described.

4. In a grain-drill, the combination of an adjustable rocker-arm, a vertically-movable shoe, a tube projecting upward from the shoe, a flexible rod pivoted to the arm at its upper end and extending rearward, and coiled at the middle portion, and attached at the

lower end to the tube, substantially as described.

5. In a grain-drill, in combination with a vertically-adjustable support and a vertically-movable shoe, a spring attached to the support at the upper end, extended thence rearward and downward, and coiled near the middle, and thence extending forward, and provided with a vertically-elongated link slidably connected to the shoe, substantially as described.

6. In a grain-drill, a shoe having drag-bars pivoted to the frame, a tube extending upward from the rear of the shoe and having a transverse boss and a bolt, springs having transversely-elongated links slidably engaging the bolt and extending rearward, and thence coiled in vertical planes and thence extended upward, and provided with eyes at the upper end pivotally engaging a rocker-arm mounted on a rock-shaft having a lever, latch, and sector, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

GAYLARD W. DENYES.
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Witnesses:

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