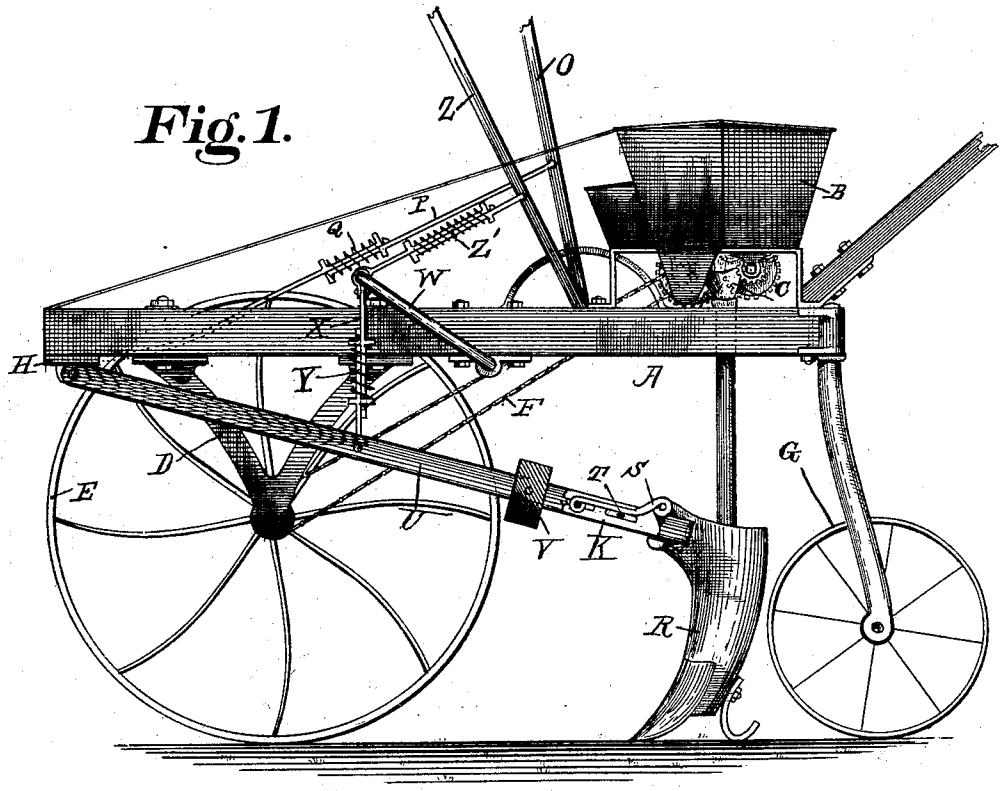
(No Model.) 2 Sheets—Sheet 1.

J. M. FENDER & J. L. RITER.

SEEDING MACHINE.

No. 486,637. Patented Nov. 22, 1892.

Fig. 1.



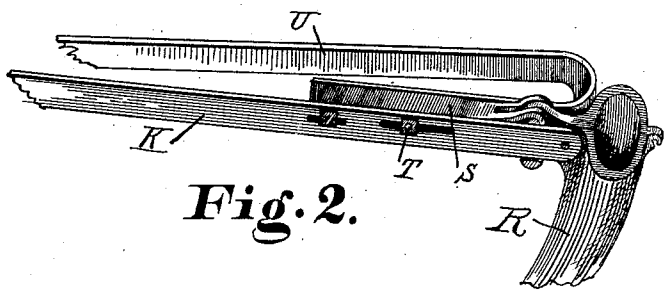


Fig. 2.

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(No Model.) 2 Sheets—Sheet 2.

J. M. FENDER & J. L. RITER.

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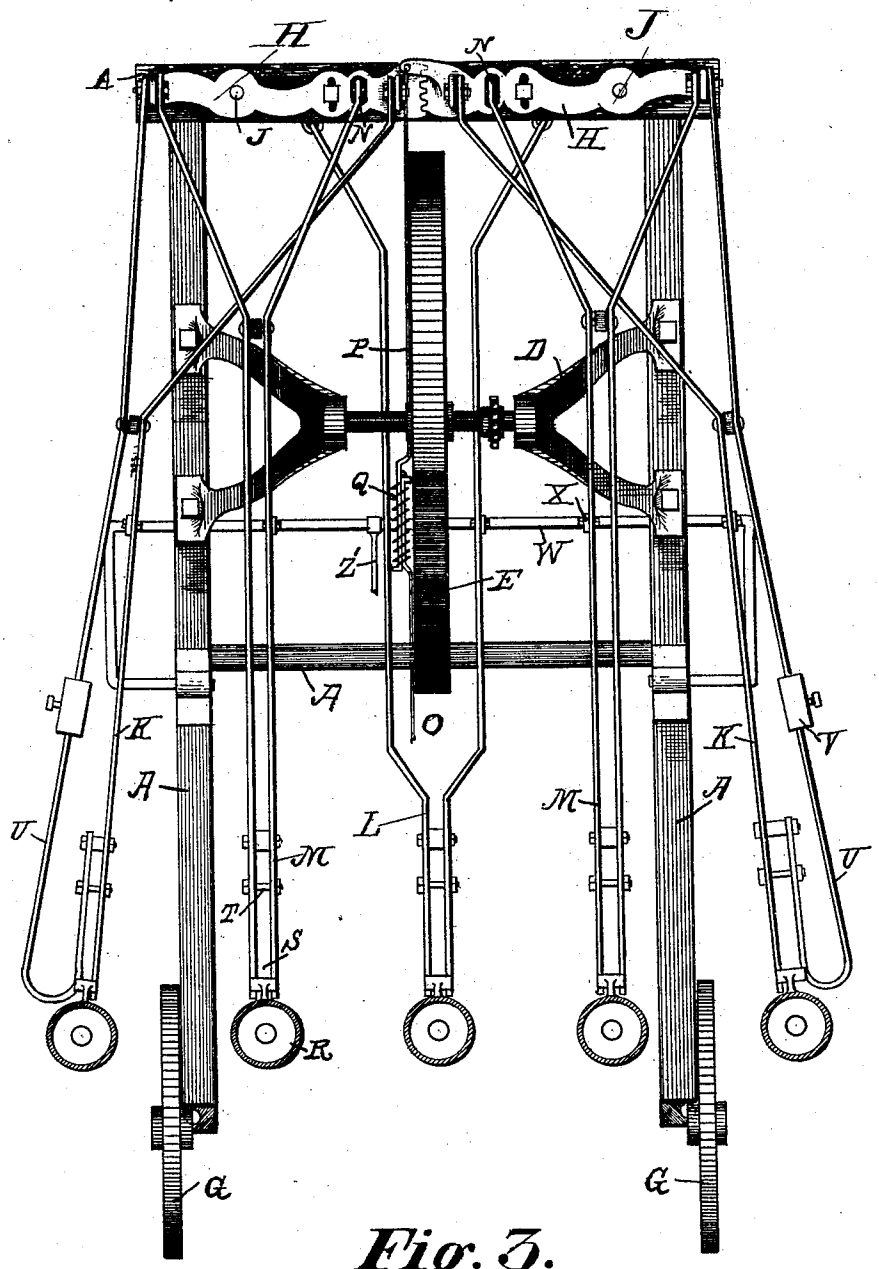

Fig. 3.

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John L. Riter Inventors
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UNITED STATES PATENT OFFICE.

JOHN M. FENDER, OF LIBERTY, AND JOHN L. RITER, OF BROWNSVILLE, INDIANA.

SEEDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 486,637, dated November 22, 1892.

Application filed July 9, 1892. Serial No. 439,499. (No model.)

To all whom it may concern:

Be it known that we, JOHN M. FENDER, of Liberty, and JOHN L. RITER, of Brownsville, Union county, Indiana, have invented certain new and useful Improvements in Seeding-Machines, of which the following is a specification.

This invention pertains to improvements in that class of seeding-machines generally termed "one-horse grain-drills;" and our improvements will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of a seeding-machine exemplifying our invention; Fig. 2, a perspective view of the rear ends of one of the outside drag-bars, showing its method of attachment to the drill-hoes, and Fig. 3 a bottom view of the main parts of the machine.

In the drawings, A indicates the main frame of the machine, consisting of two fore-and-aft pieces joined at the front by a cross-piece; B, the usual seed-box secured across the rear end of the frame; C, the usual seed-cups attached to the bottom of the box, one seed-cup for each drill-hoe; D, a hanger projecting downwardly and inwardly from the forward portion of each side piece of the frame; E, the main wheel secured to a shaft journaled in these hangers, the wheel being disposed centrally of the width of the machine; F, a drive-chain for transmitting motion from the wheel E to the seeding devices under the seed-box; G, a pair of wheels supporting the rear end of the frame, one at each side of the machine, which wheels may be caster-wheels or not, as desired; H, a pair of levers pivoted under the front cross-piece of the frame and having their inner ends connected, as by a segment of gear-teeth on each lever, so that the levers will oscillate in unison, the pivots of these levers being located about one-half as far from the outer ends of the levers as from the inner ends; J, the pivots on which the levers H rock; K, the outside drag-bars of the machine, having the usual drill-hoes at their rear ends, each of these outside drag-bars extending forwardly to the front of the machine and there being bifurcated and attached to its appropriate one of the levers H by horizontal pivots, so that the drag-bars are capable of rising and falling at their rear ends; L, the center drag-bar extending forwardly from its drill-hoe and being bifurcated to straddle the main wheel E, the forward ends of this drag-bar being hinged to the front cross-piece of the frame, so that the drag-bar may rise or fall at its rear end; M, the inner drag-bars disposed intermediately between the center drag-bars and the outer drag-bars, these inner drag-bars being bifurcated at their forward ends, the outer member of the bifurcation attaching to the outer end of the appropriate lever H, while the inner member of the bifurcation attaches to the front cross-piece of the frame, the attachments being by horizontal pivots, as in the case of the other drag-bars, so that their rear ends may rise or fall; N, the points of attachment between the inner members of the bifurcation of the inner bar and the front cross-piece of the frame; O, a hand-lever provided with an ordinary detent-segment to serve as a means for adjusting the drill-hoes sidewise to adjust the distance between rows to be planted; P, a connection reaching from this lever to the inner ends of the levers H, this connection being formed in two parts, so that the connection may be extended in length by tensional strain; Q, a spring engaging the two parts of this connection and resisting its extension of length; R, the usual drill-hoes pivoted to the rear ends of the drag-bars; S, a spring, one for each drag-bar, having its forward end bolted to the drag-bar and having its rear end engaging a projection from the drill-hoe forward of the pivot which unites the drill-hoe to the drag-bar, this point of connection between the rear end of the spring and the drill-hoe being slightly above the general horizontal plane of the spring; T, a bolt secured in a horizontal slot in the drag-bar under the spring and forming a fulcrum over which the spring may flex; U, the outer elements of the outer drag-bars, the drag-bars being double, as usual, these outer members extending rearwardly beyond the pivots which unite the drag-bars to the drill-hoes and then turning inwardly and for-

wardly alongside the inner element of the drag-bar and joining with the inner element in supporting the drill-hoe pivot and the supports of the springs; V, a sliding weight adjustable along the portions U of the outer drag-bars; W, a rocker extending across the machine over the drag-bars; X, a two-part connection, one for each drag-bar, extending from the drag-bar up to the rocker W, these connections being so made in two parts that they may shorten their lengths under compression; Y, a spring upon each of the connections X to resist such shortening of the connection; Z, a hand-lever with an ordinary detent segment for raising and lowering the drag-bars, and Z′ a two-part connection, similar to connections X, connecting the rocker W with the lever Z and capable of shortening under compression and similarly provided with a spring to resist the shortening.

The machine is supported by the front wheel and the two rear wheels, and by the drill-hoes when in action. The central drag-bar L has no side motion, only the usual rising and falling motion, and it straddles the main wheel E, and its strains are all central. The drill-hoes are held in normal position with reference to the drag-bars by the springs S; but these springs yield in case of extraordinary obstruction to the hoes and allow the hoes to yield backwardly and then recover their position. The force with which these springs S act may be adjusted by moving the fulcrum-bolts T back and forth in their slots in the drag-bar. The points of attachment between the rear ends of the springs T and the hoes being a trifle above the pivots which unite the hoes to the drag-bars, it follows that the first part of the yielding motion of a hoe will exert an endwise pressure upon the spring T, and that as soon as the rear end of the spring has passed below the general plane of the spring its flexion will be resisted only by the elasticity of the spring. Consequently the drill-hoes will be held in normal position with considerable force by the springs T, but will yield with comparative freedom after some extraordinary obstruction has caused a hoe to spring back a trifle from normal position.

The working depth of the hoes may be regulated by the lever Z, and the entire group of hoes is held down by the strength of the spring on connection Z′, the yielding of which spring may allow the entire group of drag-bars and hoes to rise; but each drag-bar has its own independent connection X with the rocker W, and each of these connections has its springs Y, which springs will be light compared with the spring on connection Z′. The result is that each of the hose may yield upwardly independently, as controlled by springs Y, and that the entire group may yield upwardly, as controlled by spring connection Z′. The outer drag-bars are subject to peculiar vertical strains due to certain rocking of the machine, and the adjustable weights V serve as means for increasing the load upon these drag-bars.

By inspecting Fig. 3, it will be observed that the drill-hoes are equal distances apart. By moving lever O forwardly, the inner ends of levers H are moved forward and the two outside drill-hoes are moved closer together, the outside drag-bars rocking with the levers H. At the same time the inner drag-bars M are moved inwardly by the rocking of the levers H. If the inner drag-bars moved inwardly the same distance as the outer drag-bars, then the distance between the outer drill-hoes and the intermediate drill-hoes would not be altered, and the object is to maintain equal distances between all the seed-rows, no matter what that distance may be. It will be observed that as the inner members of the bifurcations of the inner drag-bars are connected, not to the levers H, but to the front cross-piece of the frame, those drag-bars will move sidewise only half the distance moved through by the outer drag-bars. It follows that the simple movement of the lever O adjusts the distances between seed-rows and maintains the distance equal between all the rows.

When the implement is in use, obstructions like standing corn are liable to exert inward pressure upon the outside drag-bars. These drag-bars, while of ordinary stiffness, might spring inward some, either one outside drag-bar or both, and thus interfere with the equality of distance between seed-rows, and this would happen if the levers H after adjustment were made rigid, but spring Q represents the rigidity of the adjustment of the levers H, and it follows that any force acting inwardly on either one of the outside drag-bars and moving that drag-bar inwardly will cause the other outside drag-bar and the two inner drag-bars to move inwardly, also, and in proper proportionate degree, so that at all times the distance is equal between the several seed-rows, and when the disturbing obstruction is passed, the drill-hoes will return to the side position for which they are adjusted.

We claim as our invention—

1. In a seeding-machine, the combination, substantially as set forth, of a frame, a driving-wheel mounted in hangers fixed under the forward end of said frame at the center of its width, a pair of wheels under the rear of the frame at its extremity of width, a rank of drill-hoes disposed across under the frame between said forward and rear wheels, and drag-bars connecting said drill-hoes with said frame forward of the plane of the axis of said driving-wheel.

2. In a seeding-machine, the combination, substantially as set forth, of a frame, a wheel under the forward portion of said frame at its center of width, a pair of wheels under the rear portion of said frame at its extremes of width, an odd number of drill-hoes arranged in a rank disposed below said frame between said forward and rear wheels, a drag-bar attached to the center one of said hoes and ex-

tending forward of and straddling said front wheel and connected with the front part of said frame, and drag-bars engaging the other hoes and extending forward of and outside said front wheel and connected with the front portion of the frame.

3. In a seeding-machine, the combination, substantially as set forth, of a drag-bar, a drill-hoe pivoted thereto, a spring having its forward end attached to said drag-bar and having its rear end connected with said drill-hoe forward of the pivot uniting the drill-hoe to the drag-bar, and a sliding fulcrum-bolt secured in said drag-bar under said spring.

4. In a seeding-machine, the combination, substantially as set forth, of a drag-bar, a drill-hoe pivoted thereto, a spring attached at its forward end to said drag-bar and attached at its rear end to said drill-hoe forward of and above the pivot uniting the drill-hoe to the drag-bar, and a fulcrum supported by the drag-bar below the intermediate portion of the spring.

5. In a seeding-machine, the combination, substantially as set forth, of a frame, a central wheel under the front of the frame, two side wheels under the rear of the frame, a rank of drill-hoes across under the frame between the front and rear wheels, drag-bars connecting the hoes with the forward portion of the frame, and sliding weights upon the outside drag-bars only of the rank of drag-bars.

6. In a seeding-machine, the combination, substantially as set forth, of a rank of drill-hoes, drag-bars connecting said hoes with the front portion of the frame of the machine, a rocker disposed across over all the drag-bars, independent spring connections between said rocker and the several drag-bars, and a spring connection from said rocker to a rigid abutment supported by the frame of the machine.

7. In a seeding-machine, the combination, substantially as set forth, of a frame, outside drill-hoes, inside drill-hoes, a pair of connected levers pivoted to the forward portion of the frame, drag-bars engaging said outer drill-hoes and connected with said levers, and drag-bars engaging said inner drill-hoes and bifurcated at their forward ends, one member of the bifurcation being attached to the appropriate one of said levers, and the other member of the bifurcation being attached to the forward portion of the frame.

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