J. B. BUSHNELL.

SEEDING-MACHINE.

No. 181,520. Patented Aug. 29, 1876.

Fig. 1.

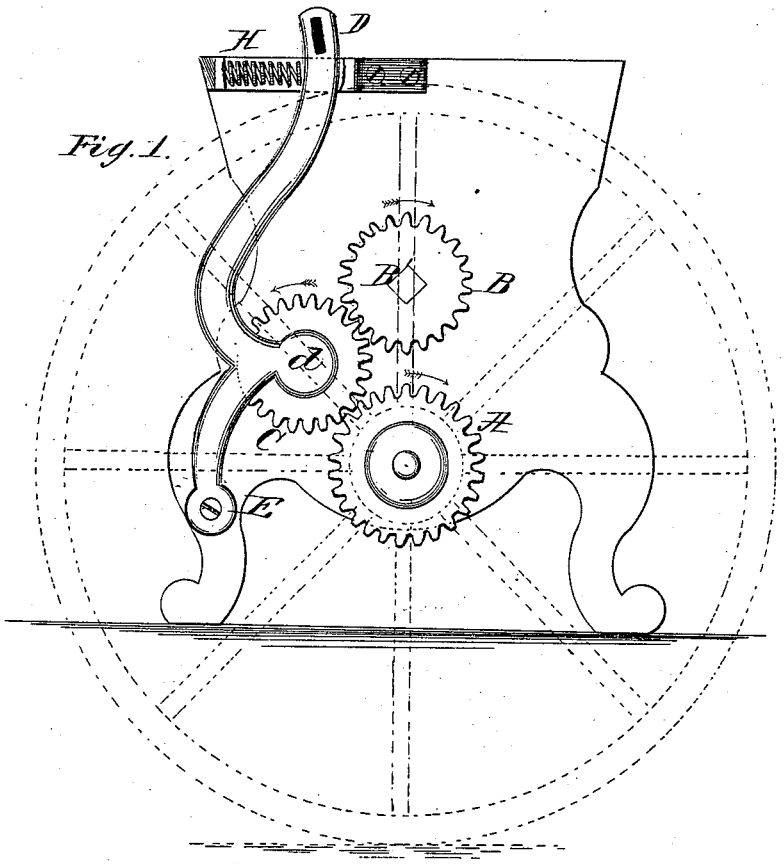
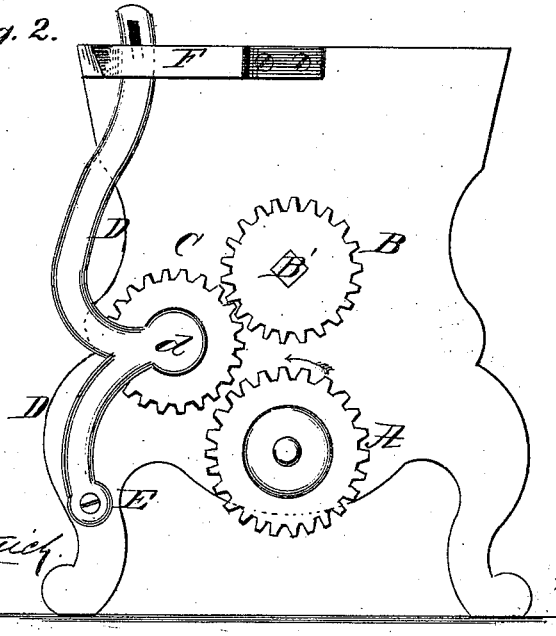


Fig. 2.



Witnesses.
Fred. C. Dieterich.
E. L. Ross

Inventor.
J. B. Bushnell
per
Dewitt C. Allen
Atty.

UNITED STATES PATENT OFFICE.

JOHN B. BUSHNELL, OF FOND DU LAC, WISCONSIN, ASSIGNOR TO WHEEL AND SEEDER COMPANY, OF SAME PLACE.

IMPROVEMENT IN SEEDING-MACHINES.

Specification forming part of Letters Patent No. **181,520**, dated August 29, 1876; application filed July 24, 1876.

To all whom it may concern:

Be it known that I, JOHN B. BUSHNELL, of Fond du Lac, in the county of Fond du Lac and State of Wisconsin, have invented certain new and useful Improvements in Seeding-Machines, of which the following is a full, clear, and exact description, reference being made to the accompanying drawing, forming a part of this specification, and in which—

Figure 1 is a side view of the machine, showing the relative position of the gearing when the machine is in operation. Fig. 2 is also a side view of the machine, showing the relative position of the gearing when thrown out of gear by a reverse movement of the driving mechanism.

In seeding-machines heretofore constructed, upon reversing the motion of the machine for any desired purpose, it has been necessary to throw the machine out of gear by mechanism under the control of the driver, except in machines provided with a clutch or clutches. Both of these plans have serious objections—the first involving the loss of much time, or crushing the seed if the feed-wheels are permitted to revolve backward; the second plan usually allowing the machine to pass over considerable ground in resuming the forward movement before the points of the clutch or clutches arrive in position to rotate the feed-wheels, thus leaving the space passed over without seed. The object of my invention is to overcome these defects; and the invention consists in the combination of three gears, the intermediate gear being mounted upon a pivoted lever having its fulcrum above or below the axis of the intermediate gear, so that said gear, when in working position, will be between and in the rear of the driving-gear, and the gear communicating motion to the feed-wheels, whereby the weight, or its equivalent, and position of said intermediate gear keep it always in mesh with the driving-gear when the machine is in working position, and which is thrown out of gear by the reverse motion of the driving-gear, in connection with the resistance produced by the operating mechanism through the medium of the gear communicating motion thereto.

A in the drawing represents the driving-gear, secured to the main axle, upon which the carrying-wheels are mounted. B represents the gear for operating the main shaft B′, upon which the feeding devices or other operating mechanism is mounted. C represents the intermediate gear, for transmitting motion from the driving-gear A to the gear B. D represents a pivoted lever, having its fulcrum, in the present instance, at E on the frame of the machine. The lever D is provided with a projecting piece or prong, *d*, extending outward and toward the gears A and B, and upon which the intermediate gear C is mounted, so that said gear, when in working position, will be between and in rear of the driving-gear and the gear communicating motion to the feed-wheels or other operating mechanism. The main portion of the pivoted lever D extends upward, and has its free end working in a guide, F.

By the above-described arrangement of gearing, the weight and position of the intermediate gear keeps it always in mesh with the driving-gear when the machine is moved forward or in working position; but it is quickly thrown out of gear by the reverse movement of the driving-gear (upon a backward movement of the machine) when the least resistance is produced by the operating mechanism through the medium of the gear communicating motion thereto; and said intermediate gear will automatically and immediately resume its working position with said driving-gear upon a forward movement of the machine.

I do not wish to confine my invention to the pivoted lever having its fulcrum below the axis of the intermediate gear, as the same result can be produced by having the fulcrum of the pivoted lever above the axis of said intermediate gear. Nor do I wish to confine myself to the precise form of lever herein shown, as the projecting piece or prong upon which the intermediate gear is mounted may be dispensed with, if desired, and the lever made circular in form, so as to bring said intermediate gear, when mounted thereon, in the same relative position as when the projecting piece or prong is used. Other forms of levers may be used, if desired, the form of which would depend upon the relative positions of the ful-

crum of the lever and the axis of the gear mounted thereon, whereby the weight and position of the intermediate gear would keep it always in mesh with the driving-gear when the machine is in working position, or upon the construction of the frame of the machine upon which the pivoted lever is fulcrumed.

An equivalent means for producing the same result as the weight of the intermediate gear is the use of a spring for holding said gear, when mounted upon a pivoted lever, always in mesh with the driving-gear when the machine is in working position.

It will be observed that one end of the lever is free to move in the guide F in either direction desired, and it is therefore necessary, when transporting the machine, to have some suitable mechanism applied to this end of the lever, for throwing and holding the machine out of gear; and in order to overcome the friction of such mechanism, a spiral spring, H, is secured within the guide F, so as to bear against the pivoted lever, whereby said spring has a tendency to start said lever forward when it is desired to throw the machine in gear.

I claim as my invention—

The combination, with the driving-gear A and gear B, of the intermediate gear C, mounted upon a pivoted lever, whereby the weight, or its equivalent, and position of said intermediate gear automatically keeps it always in mesh with the driving-gear when the machine is in working position, and which is thrown out of gear by the reverse motion of the driving-gear, in connection with the resistance produced by the operating mechanism through the medium of the gear-wheel communicating motion thereto, substantially as described.

JOHN B. BUSHNELL.

Witnesses:

DE WITT C. ALLEN,

E. L. ROSE.