

B. OWEN.
GRAIN-DRILL.

No. 173,809.

Patented Feb. 22, 1876.

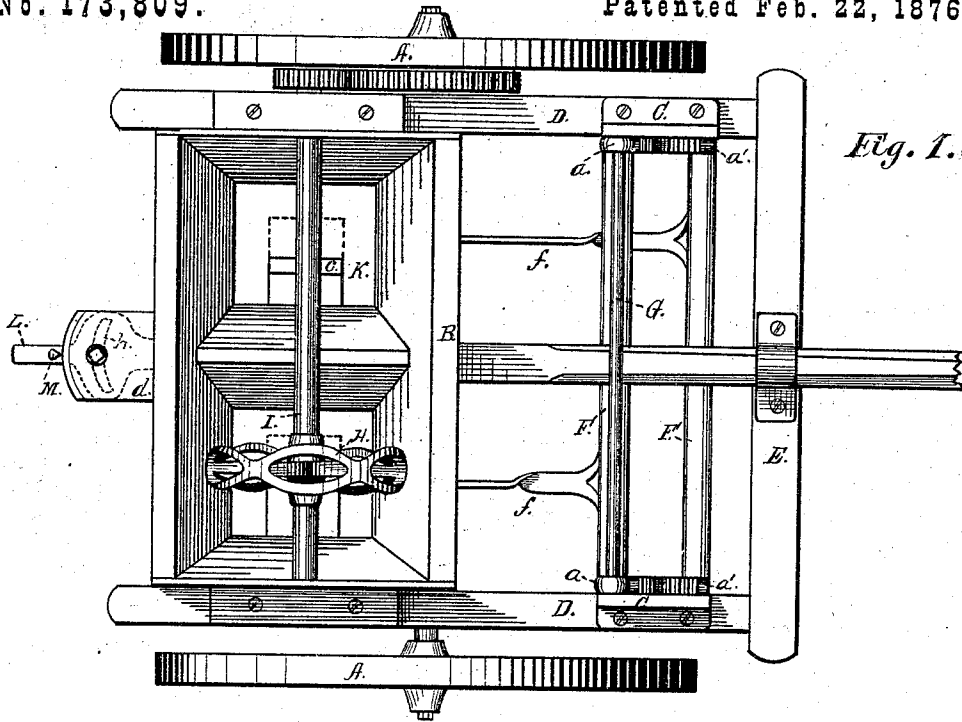


Fig. 1.

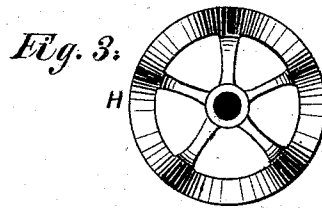


Fig. 3.

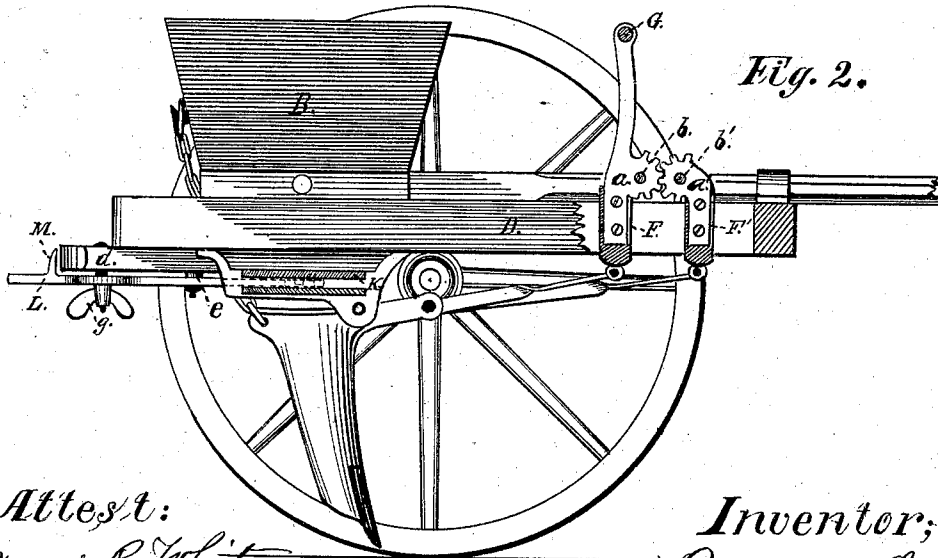


Fig. 2.

Attest:
James P. Whitcomb
Albert Kern,

Inventor;
Benjamin Owen
by Peck & Company
Atty

UNITED STATES PATENT OFFICE.

BENJAMIN OWEN, OF DAYTON, OHIO.

IMPROVEMENT IN GRAIN-DRILLS.

Specification forming part of Letters Patent No. **173,809**, dated February 22, 1876; application filed June 26, 1875.

To all whom it may concern :

Be it known that I, BENJAMIN OWEN, of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Grain-Drills; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to that class of drills in which the hoes are adjustable, so as to be shifted from a straight to a zigzag line, or vice versa; and my improvement consists in the arrangement of, and mechanism for, operating two pivoted bars, to which the drag-bars are attached; also, in a distributing-wheel for forcing the grain into the spouts; and in an adjustable gage-slide, as will be herewith described, referring to the accompanying drawings, in which—

Figure 1 is a plan view of a grain-drill provided with my improvements. Fig. 2 is a side elevation of the same with a wheel removed and a portion broken away to show a sectional view of the shifting devices. Fig. 3 is a side view of my improved agitator or distributing-wheel.

Like letters of reference indicate corresponding parts.

To the usual frame-work of a drill are attached, in the customary manner, the supporting-wheels A and seed-box B. C C represent two bearing-blocks securely bolted to the side beams D, near the front cross-bar E. Parallel to this bar, and just in its rear, are the adjustable cross-bars F F', to which the drag-bars *f* are attached alternately, one-half to the bar F and the remainder to the bar F'. The bars are supported and held in place by the metal arms *a a'*, Fig. 2, which are securely bolted to their ends, and pivoted at *b b'* to the bearing-blocks C. By reference to Fig. 2 the shape of these arms is clearly shown, provided at their tops with segments of pinions which engage with each other, so that one bar cannot be moved without the other. The arms *a* extend upward above the frame of the drill, and are connected by a cross-piece, G. By means of this cross-piece the driver can have perfect control of the shifting mechanism without leaving his seat, and can operate it with his feet, the bar serving also as a brace.

It will be noticed that, by having the ad-

justable bars connected and so arranged that the one cannot be moved without the other, and when moved they approach or recede from each other—that is, move in opposite directions—very little power is required to keep them in any desired position, for, as the draft upon the hoes is equal, the same force is exerted upon the bars equally, and tends to keep them in whatsoever position they may have been placed. Should, however, any unequal strain occur, the foot of the driver upon the bar G is sufficient to counteract it.

H represents my distributing-wheel, which is so constructed as to form a constantly-acting agitator and a direct force-feeder. These wheels are keyed upon the shaft I, and revolve in the bottom of the seed-box, just over the apertures leading to the spouts. Fig. 3 shows a side elevation of this improved agitator, which is composed of a hub with radially-projecting arms or spokes, supporting a periphery of the shape shown in Fig. 1. The outside edges of the periphery consist of what might be termed bulging-ribs, or, more correctly, a series of double convex arms between each spoke of the wheel with an elliptical opening between each pair. By means of the irregular shape of the wheel the grain in the seed-box is kept in constant agitation, and a sufficient quantity forced through the aperture into the spout without any liability of crushing the kernels.

An important feature of my invention is the arrangement of the gage-slide K, Fig. 1, in connection with the above-described agitating-wheel, and a registering-index by which the quantity of grain to be drilled can be regulated; though I lay no claim to the slide or index independently. The slide is so arranged that the aperture opens from the side of the distributing-wheel toward the center of its periphery. By this means, and by the employment of the particularly-constructed agitating device, when but a small quantity is to be drilled the forcing-power of the wheel is very slight, as the aperture is near its outer edge and not in the center, where it would be subjected to the full power exerted by the wheel. The opening is represented by *c*, and the dotted lines show the position of the slide when fully opened.

L, Figs. 1 and 2, is a rearwardly-extending arm or lever, pivoted to the beam *d* at *e*, Fig. 2, and connected to the gage-slide by means of a pin, *f*, working in a slot in the lever. A thumb-nut, *g*, confined in a segmental slot, *h*, Fig. 1, is used as a clamp to hold the lever in any required position when the gage-slide is regulated.

M is a pointer, used as an index, with a graduated scale upon the end of the beam *d*, by which the quantity of grain to be drilled can be regulated with pleasure.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination and arrangement of the bars F F', arms *a a'*, and cross-bar G, where-with the driver, by means of his foot, is enabled to shift the hoes at will and retain them in any desired position, substantially as described.

2. The distributing feed-wheel H, having its periphery composed of a series of double concavo-convex arms, forming an elliptical opening between each pair, substantially as described.

3. In combination with the herein described feed-wheel, the gage-slide K, and the bottom of the seed-box, the slide being arranged to open the aperture from the side toward the center of the periphery of the distributing-wheel, substantially as and for the purpose specified.

Witness my hand this 23d day of June, A. D. 1875.

BENJAMIN OWEN.

Witnesses:

J. P. WHITMORE,
CHAS. M. PECK.