W. N. HAMILTON.

Grain Drill.

No. 97,394. Patented Nov. 30, 1869.

Fig. 1.

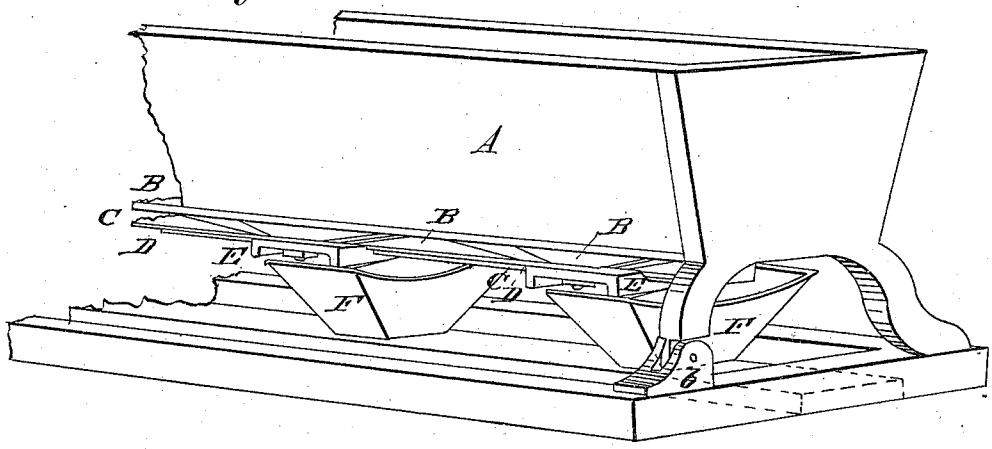


Fig. 2.

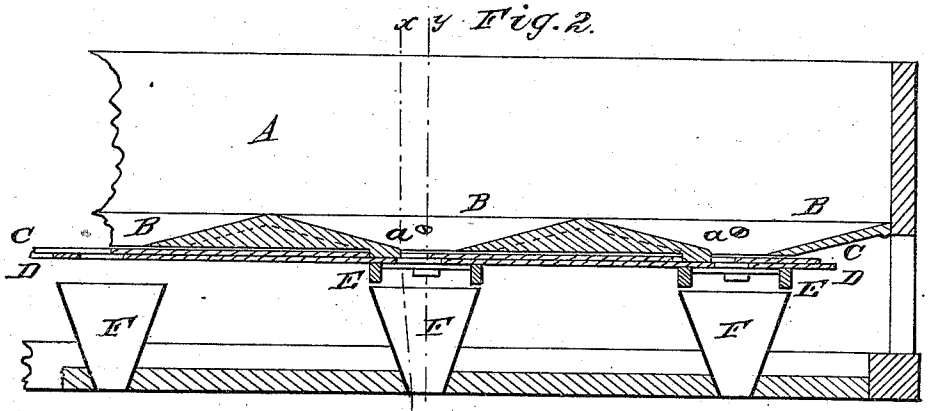


Fig. 3.

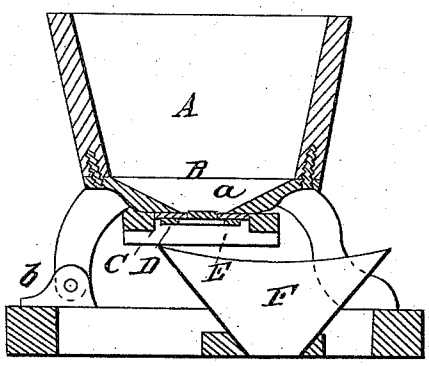
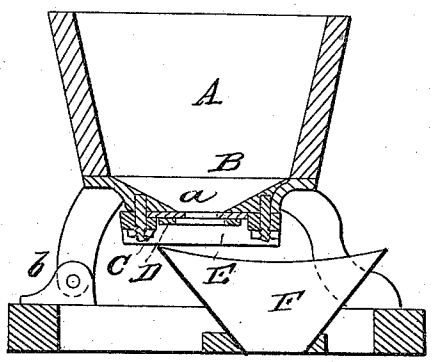


Fig. 4.



Witnesses:

W. Bailey

Wm. C. Babb

Inventor:

W. N. Hamilton

by A. Pollock

attorney

N. PETERS. Photo-Lithographer. Washington, D. C.

United States Patent Office.

W. N. HAMILTON, OF ODESSA, DELAWARE.

Letters Patent No. 97,394, *dated November* 30, 1869.

IMPROVEMENT IN GRAIN-DRILLS.

The Schedule referred to in these Letters Patent and making part of the same.

To whom it may concern:

Be it known that I, W. N. HAMILTON, of Odessa, in the county of New Castle, and State of Delaware, have invented certain new and useful Improvements in Grain-Drills; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of a portion of the hopper of a grain-drill, made in accordance with my invention.

Figure 2 represents a longitudinal vertical section of the same.

Figure 3 represents a transverse vertical section, on the line *x x*, fig. 2.

Figure 4 represents a like section on the line *y y*, fig. 2.

Heretofore it has been usual to make the bottoms of the hopper-boxes of seed-drills of wood, in which are cut the tapering holes, for the discharge of the grain to the spouts.

The employment of such bottoms is expensive, owing to the hand-labor required in order to properly make and fit them; and, moreover, as they are usually made flat or horizontal, the dust, straw, and other refuse, mingled with the grain, are not discharged gradually and along with the grain, as they should be, but accumulate in the box, which, therefore, must be frequently cleaned out, in order to keep the machine in working order.

To remedy this difficulty, I make the bottom of cast-iron, so moulded as to have gradually-inclined sides around the discharge-opening, thus obviating the difficulty heretofore experienced with regard to the accumulation of dust, &c., for, as the bottom presents inclined surfaces to the grain, the dust and refuse will not accumulate, but will gradually work their way over the inclined bottom, and, along with the seed, through the discharge-opening to which the inclined surfaces of the bottom lead. And again, in forming and shaping the bottom, no labor is necessary, as they are cast in the precise shape required, and nothing remains but to grind or polish them off, if this be found necessary, and to apply them to their boxes. But little metal is required, moreover, to produce them, for they may be made quite thin, and therefore with great economy.

My invention consists in casting, in one piece with the bottom, a cut-off stud or projection, at each of the discharge-apertures in the bottom. This cut-off serves, in connection with the adjusting-slide usually employed in drills, to regulate the amount of grain which is dropped; and it, moreover, may serve as a means to guide and limit the movement of the adjusting-slide.

My invention further consists in combining, with the bottom and the adjusting and cut-off slides usually applied to the same, a series of holding-frames, one of said holders being applied to each discharge-opening in the bottom, and constructed and arranged so that both slides will play easily in the same holder, thus simplifying greatly the construction of this portion of the drill.

I prefer securing the seed-hopper or box to the frame of the machine, by a hinged connection, which will permit the box to be turned over, so as to expose the bottom whenever any portion of the mechanism there located, or any part of the machine immediately under the box, requires to be adjusted or handled for any purpose.

In machines of this class it is usual, for the purpose of conducting the seed from the box, to employ metal tubes attached to the box and frame. In order, however, to use tubes of this kind, and yet to so arrange them as to permit the free movement of the hinged box, as provided for in the preceding paragraph, I use open metallic spouts or funnels, which are attached to the frame of the machine, and have no connection with the box.

With the grain-drill I use a fertilizer-attachment, such, for instance, as described in Letters Patent heretofore granted me; and the grain-box and box for containing the phosphate or other fertilizer are placed side by side.

In order to allow the wheat and phosphate to fall together to the ground, I make the mouths of the open metallic spouts or funnels large enough to come under the discharge-openings in both boxes, so that the grain and phosphate will run down together through the same spout; and I also place the spouts at such distance below the bottoms of the boxes, that it can readily be seen whether the machine is feeding the wheat and phosphate as required.

To enable others skilled in the art to understand and use my invention, I will now proceed to describe more fully the manner in which the same is or may be carried into effect, by reference to the accompanying drawings.

A represents the seed-box.
B, the cast-metal bottom.
C, the adjusting-slide.
D, the cut-off slide.
E, the holders.
F, the open metallic spouts.

The thin iron bottom is cast with discharge-openings, as seen in figs. 2, 3, and 4, the surface of the bottom being formed so as to slant on all sides toward the openings, thus forming, in effect, a series of shallow funnels, in the lower part of which the openings are situated. When thus formed, there is no extended horizontal surface upon which the refuse matter can

accumulate, but the grain and dust, &c., are all carried forward gradually over the inclined surfaces to the openings through which they are discharged.

On one of the sides of each opening is cast a cut-off projection or lip, *a*. These cut-offs project below the bottom, as shown plainly in fig. 2, and fit in slots or openings made in the adjusting-slide, thus serving to guide and determine the movement of the slide. The adjusting-slide fits closely against the openings, and the size of the discharge-apertures is regulated by adjusting the slide, so that the ends of the slots formed in it shall be at the proper distance from the front ends of the cut-off projections or lips.

The two slides C D are placed together, the former against the bottom of the box, and the latter against the former, and both are maintained in position by means of the frames or holders E, one of which is applied and secured to the bottom, under each opening. The two slides fit in the same holder, and are capable of being moved freely, endwise, in either direction, the one for the purpose of adjusting the size of the discharge-aperture, the other for closing the aperture entirely whenever desired.

The mechanism for operating, and the mode of operation of these slides, are too well known to require description.

The use of one holder to receive, support, and maintain the two slides, at the same time leaving them free to play, is advantageous in many ways, as it not only simplifies the construction of this portion of the machine, but admits of the parts being more easily adjusted or detached than has been practicable heretofore.

The front feet of the box are hinged, at *b*, to the frame of the machine, as shown plainly in the drawings. The advantage of this hinged connection between the box and the frame is apparent, for the box can be turned over so as to expose the bottom and all the parts connected therewith, which can be then got at without any difficulty; and it also admits of access being had to that portion of the mechanism attached to the frame, which would otherwise be covered and hid by the box. The box can also be detached with great ease, and removed from the machine whenever desired. If the hopper-box of the fertilizer-attachment, hereinbefore referred to, be attached to the box, it will, of course, move with it.

The metallic spouts, when the box is hinged, are secured only to the frame of the machine, as shown in the drawings, and have no connection with the box. They are arranged under the openings in the boxes, in the usual manner, and, as seen in figs. 3 and 4, are made large enough to receive also the phosphate from the fertilizer-box, which is placed in rear of the grain-box, so that the grain and phosphate run through the same spout to the ground. The spouts are placed a suitable distance below the box, so as to leave between them and the bottom of the box an opening, through which it can be readily ascertained whether the machine is dropping the required quantity of grain and phosphate.

Having now described my invention, and the manner in which the same is or may be carried into effect,

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

1. A cast-iron bottom, for the seed-boxes of grain-drills, formed substantially as shown and described.

2. The metallic bottom, when cast with a cut-off projection or lip at each discharge-opening, substantially as shown and set forth.

3. The combination of the cut-off projection or lip, cast on the bottom of the seed-box, and formed as specified, with the slotted adjusting-slide, substantially as herein described.

4. The employment, in combination with the adjusting and cut-off slides, of the frames or holders, applied and secured to the bottom of the seed-box at the discharge-openings, under the arrangement described, so that the slides, while held in and maintained by said holders, shall be free to slide back and forth upon each other, as and for the purposes set forth.

5. The combination of the hinged seed-box, with the large open spouts supported upon the frame of the machine, and arranged under and at suitable distance from the discharge-apertures in the feed-box, substantially as and for the purposes shown and set forth.

In testimony whereof, I have signed my name to this specification, before two subscribing witnesses.

W. N. HAMILTON.

Witnesses:

A. POLLOK,

WM. H. MCCABE.