J. P. LOWELL.

Guano-Distributer.

No. 210,462. Patented Dec. 3, 1878.

Fig. 1.

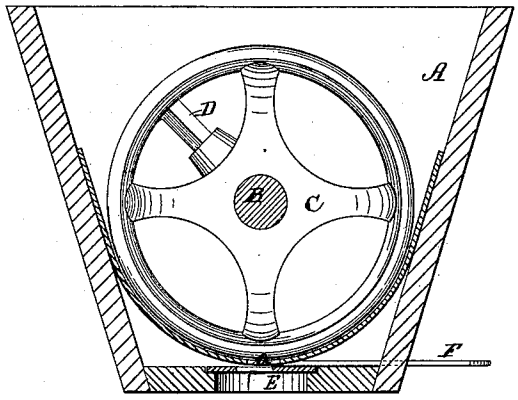


Fig. 2.

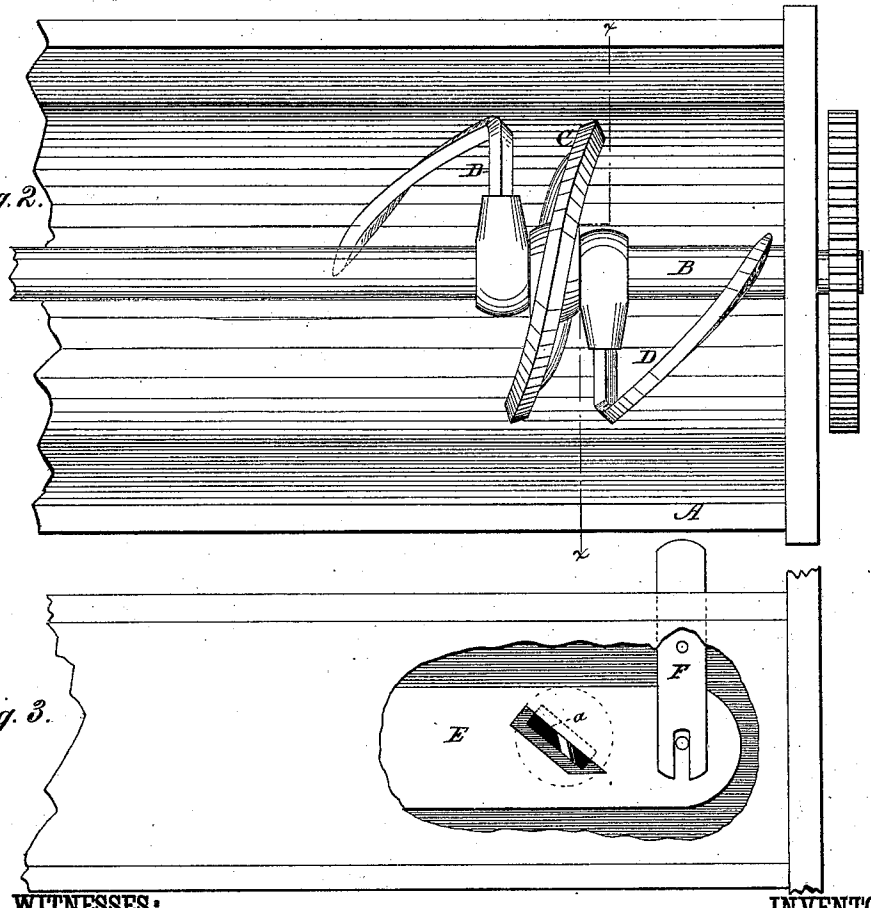


Fig. 3.

WITNESSES:

W. W. Hollingsworth.

Solon C. Kemon

INVENTOR:

James P. Lowell

BY Munn & Co

ATTORNEYS.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES P. LOWELL, OF PURCELLVILLE, VIRGINIA.

IMPROVEMENT IN GUANO-DISTRIBUTERS.

Specification forming part of Letters Patent No. **210,462**, dated December 3, 1878; application filed October 24, 1878.

To all whom it may concern:

Be it known that I, JAMES P. LOWELL, of Purcellville, in the county of Loudoun and State of Virginia, have invented a new and Improved Guano-Distributer; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention is an improvement in means for distributing guano or other solid fertilizing material.

The improvement relates particularly to the construction of the devices both for stirring the material in the hopper, and thus preventing its becoming aggregated in lumps, and also for causing its free and uniform discharge from the hopper.

It further relates to the form and arrangement of the discharge-opening and the apertured slide for regulating the discharge.

In the accompanying drawing, forming part of this specification, Figure 1 is a vertical transverse section through line *x x*, Fig. 2; Fig. 2, a plan view; Fig. 3, an inverted plan view, part of the bottom of the hopper being broken out.

A indicates a hopper, which will, in practice, be made of any required length, and properly secured upon a truck or traveling frame. The bottom of the hopper is semicircular, or nearly so, and provided with a number of discharge-apertures, *a*, which have the form of an oblong rectangle, and are arranged, for a purpose hereinafter specified, so that their longer diameters are diagonal to the shaft B, which extends longitudinally through the hopper, and has its bearings in the center of the ends of the same.

Skeleton or cam-shaped wheels C, corresponding in number to the apertures *a*, are secured on the shaft B in a diagonal relation thereto, so that as the shaft rotates they will operate as cams and work entirely across the orifices *a*, pushing the fertilizer first in one direction, then the other, and thereby causing its discharge through the orifices. In order to better adapt the wheels for this work, their rims are beveled or V-shaped, and work close to the bottom of the hopper.

On each side of the cam-shaped wheel C, and fixed on the shaft B so as to rotate with the cam, is an arm, D, whose inner part is radial to the shaft and its remaining portion bent laterally, and also curved inward, to coincide, as nearly as practicable, with the contour of the hopper-bottom. That part of the wheels C which is immediately opposite an arm, D, inclines or leans in the opposite direction. Therefore, as the wheels revolve and their lower portions traverse the orifices *a*, the curved portions of the arms D alternateiy approach the latter and draw the fertilizer toward it. In addition to this function of assisting in moving the fertilizer along the bottom of the hopper to effect its discharge, it is obvious that said arms act, together with the cam-wheel as agitators, and disintegrate or break up the lumps and pulverize the material, so that it will discharge uniformly.

The objects aimed at in placing the orifice *a* diagonal to the axis B are, first, to enable the rim of the cam to act in conjunction with the edges of the slot in such a manner as to cut and break up the smaller lumps of fertilizing material; second, that the orifice may be as long and have as great discharge capacity as practicable consistently with the shearing cut, and yet be traversable by the cam.

The orifice is provided with a slide, E, whose aperture is also diagonal to axis B, and the said slide is adjusted lengthwise of the hopper. The aperture in the slide, moreover, corresponds in size to that of the slot *a*. When the slide is adjusted, it narrows the width of the slot *a*, but the length of the latter remains undiminished; hence the shearing cut or oblique action of the cam will be the same under any adjustment of the slide. The latter is operated by a lever, F.

In practice, the shaft will be geared with the axle or one of the transporting-wheels of the truck, on which the hopper is mounted.

I do not claim placing the distributer-wheel diagonally on its shaft, nor providing it with a beveled rim; nor do I claim providing the bottom of the hopper with diagonal slot; but

What I claim is—

1. In a fertilizer-distributer, the combination, with the hopper having the diagonally-arranged discharge-aperture, of a distributer-

wheel, placed diagonally on its revolving axis, so as to operate as specified.

2. The combination of the arms D, which extend first radially from the shaft, and are then bent laterally, and also curved concentrically to the axis, with the cam-shaped distributer-wheel and the discharge-orifice, located beneath said wheel, all as shown and described, for the purpose specified.

3. The combination, with the diagonally-arranged discharge-aperture and the cam-shaped wheel traversing the same, of the slide having a similarly-arranged aperture, as specified.

The above specification of my invention signed by me this 16th day of October, A. D. 1878.

JAS. P. LOWELL.

Witnesses:

SOLON C. KEMON,

CHAS. A. PETTIT.