

J. P. MACHEN.

Improvement in Broadcast Fertilizer Distributers.

No. 115,749.

Patented June 6, 1871.

Fig 1

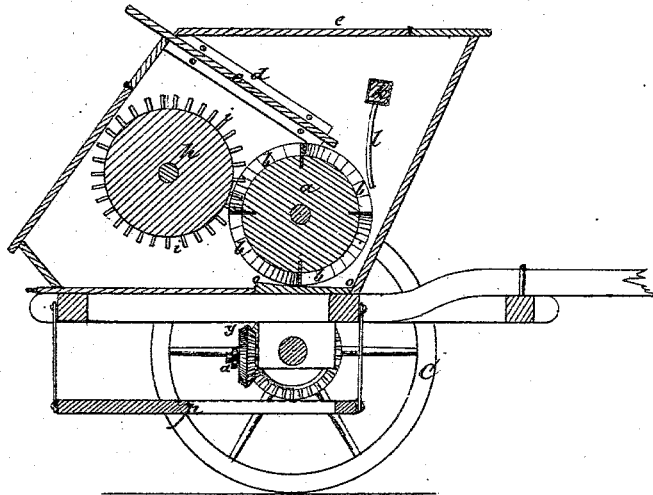


Fig 4

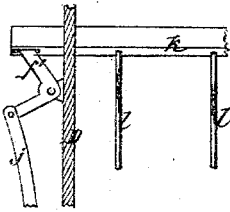


Fig 2

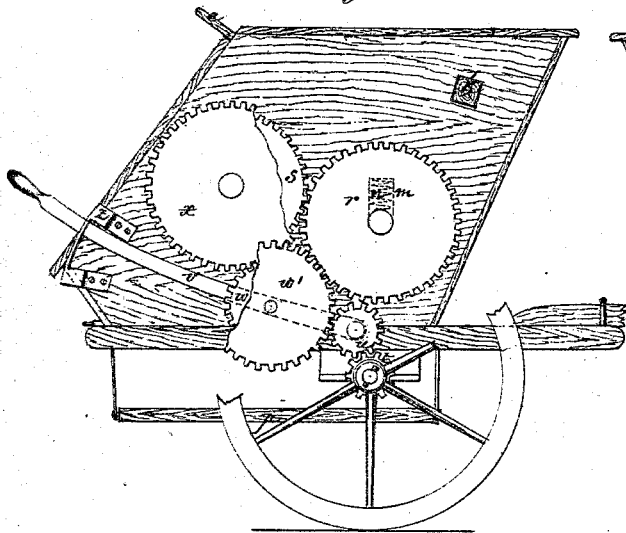
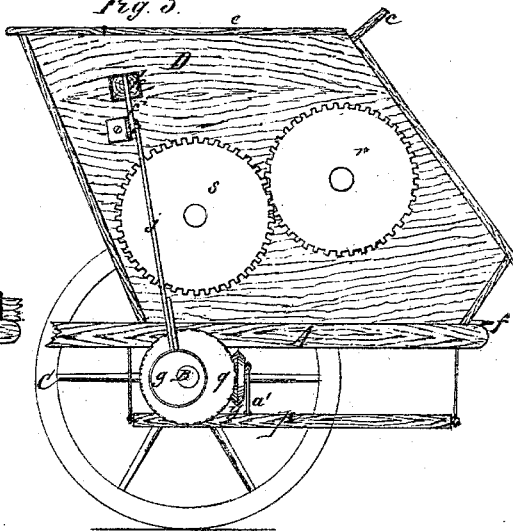


Fig 3



Witnesses:

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# UNITED STATES PATENT OFFICE.

JAMES P. MACHEN, OF CENTREVILLE, VIRGINIA.

## IMPROVEMENT IN BROADCAST FERTILIZER-DISTRIBUTERS.

Specification forming part of Letters Patent No. 115,749, dated June 6, 1871.

*To all whom it may concern:*

Be it known that I, JAMES P. MACHEN, of Centreville, in the county of Fairfax and State of Virginia, have invented a new and Improved Broadcast Fertilizer-Distributor; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawing making a part of this specification, in which—

Figure 1 is a transverse vertical section. Figs. 2 and 3 are elevations of the two ends of the machine; and Fig. 4 is a detached side elevation of part of the mechanism by which the stirring-fingers are operated.

This invention relates to sundry improvements in a machine whereby fertilizers are distributed broadcast upon land, said improvements having special reference to the combination of the distributor, cleaner, sieve, and stirrer, hereinafter mentioned; also to an arrangement whereby hard substances are ejected from the receiver without injury to the distributor.

Referring to the drawing, A is a wooden oblong frame resting on an axle, B, which is mounted in wheels C C, and sustaining the fertilizer-receiver D. Mounted lengthwise of the receiver is a distributor, consisting of a cylinder, *a*, to the exterior of which are secured straight or spiral flanges *b*, which extend nearly to the bottom of the receiver. An inclined removable shelf, *c*, is placed in guideways *d* above the distributor, just in rear of the cover *e*, the office of the shelf being to direct the fertilizer, thrown in when the cover is raised, in front of the distributor, by the flanges *b* of which the fertilizer is drawn under the distributor, and made to fall through the orifice in the bottom of the receiver opened by drawing back the slide *f*. A cleaning-cylinder, *h*, is mounted lengthwise of the receiver parallel with the distributor, said cylinder being provided with a large number of projecting fingers, *i*, which extend between the flanges *b* nearly to the surface of the distributor, and operate to keep the same clear of the fertilizing material that might otherwise clog it. A bar, *k*, is mounted lengthwise of the receiver, parallel with and in front of the distributor, which bar is provided with a series of fingers, *l*, projecting downward, whose function is, when the bar *k* is moved back and forth, to

stir and disintegrate the fertilizer, so that it may readily pass beneath the distributor. To provide against the contingency of the introduction into the receiver of some hard substance of too great size to pass under the distributor when the latter is in its usual position, the journals of the distributor pass through slots *m*, Fig. 2, in the ends of the receiver, in which slots above the journals are placed springs *n*, which press the journals down with a force sufficient to keep the distributor at its work, yet allow it to rise, when necessary, to admit of the passage of such hard substance under it. The bottom of the receiver, directly beneath the distributor, is made with an upper surface, *o*, Fig. 1, that inclines backward and upward. This is to prevent the fertilizer from sliding by its own weight under the distributor when the latter is moving up hill. The fertilizer falls from the receiver upon a vibrating sieve, *p*, that is suspended below the frame A, through and from which sieve the fertilizer is thrown broadcast upon the ground. On the journals of the cleaner and distributor, outside each end of the receiver, are fixed toothed wheels *r s*, which gear together. On the axle B, beneath either set of the toothed wheels, is a pinion, *t*. A toothed wheel, *u*, mounted on a stud that extends horizontally from one end of the frame A, gears with the pinion *t*. A lever, *v*, pivoted at one end to said stud, bears a pinion, *w*, at one side, and outside this a larger toothed wheel, *w'*, which latter wheel engages with the wheel *u*. By sufficiently raising the upper end of the lever *v* the pinion *u* may be made to engage with a second wheel, *x*, placed on the cleaner-shaft outside of the wheel *r*. The connecting in this manner of the two wheels *w* and *x* effects the rotation of the cleaner, and, through the medium of the wheels *r s*, of the distributor also. The speed of the rotation of these two cylinders depends, of course, upon the relative size of the wheels *u* and *n*. The speed of rotation of the pinion *t* being constant, the larger the wheels *u* and *w* the more rapidly will they revolve. Hence, by varying the size of these two wheels the speed of the cleaner and distributor may be regulated according to the material in the receiver, some fertilizer, such as lime, requiring to be distributed more plentifully to the acre than others, like guano.

Consequently in distributing plaster the cleaner and distributor should revolve faster than when distributing guano. A rack, *z*, is secured to the end of the receiver outside the lever *v*, by means of which rack said lever is secured in any desired position. The vibration of the bar *k* is effected by an elbow-lever, *f*, pivoted at its angle to the end of the receiver jointed at its upper end to the extremity of the bar *k*, and at its lower end to the upper extremity of a rod, *j*, the lower extremity of which is secured to the strap of an eccentric, *g*, placed on the axle B. The rotation of the eccentric rocks the lever *f* through the medium of the connecting-bar *j*, and the rocking of the lever vibrates the bar *k*. A bevel-gear, *q*, on the axle B, engaging with the bevel-gear *y*, placed on a stud that extends from the frame A, produces, through the medium

of the connecting-rod *a'*, the requisite oscillation of the sieve *p*. The sieve equalizes the distribution of the fertilizer, which would otherwise fall in rows corresponding with the flanges of the distributor.

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

1. The arrangement of the stirrer *k l*, distributor *a b*, cleaner *h i*, receiver D, and sieve *p*, as described.

2. The arrangement of the slots *m* in the ends of the receiver, the springs *n*, and the journals of the distributor, as explained.

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Witnesses:

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