No. 777,431. PATENTED DEC. 13, 1904.

P. F. RANDOLPH.

FERTILIZER DROPPER.

APPLICATION FILED MAR. 4, 1904.

NO MODEL.



Fig. 5

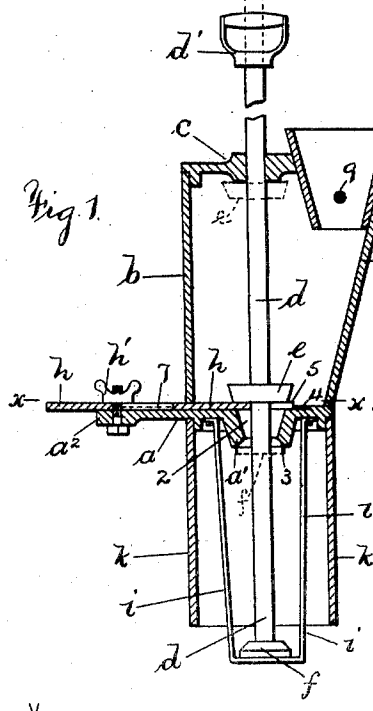


Fig. 1

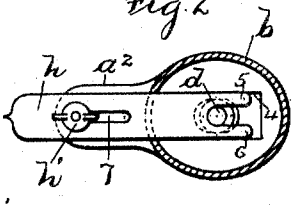


Fig. 2

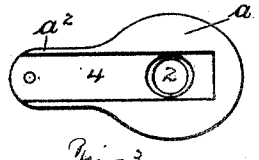


Fig. 3

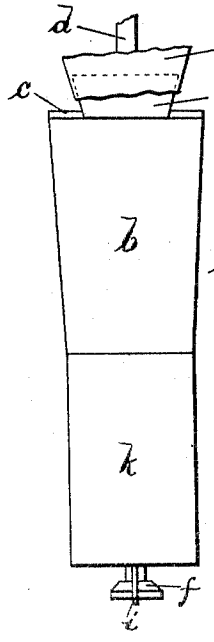


Fig. 4

WITNESSES

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No. 777,431 Patented December 13, 1904.

UNITED STATES PATENT OFFICE.

PETER FITZ RANDOLPH, OF LYNDHURST, NEW JERSEY, ASSIGNOR TO HIMSELF, AND ARTHUR S. RANDOLPH AND WILLIAM A. BUTLER, OF VERONA, NEW JERSEY.

FERTILIZER-DROPPER.

SPECIFICATION forming part of Letters Patent No. 777,431, dated December 13, 1904.

Application filed March 4, 1904. Serial No. 196,485. (No model.)

To all whom it may concern:

Be it known that I, PETER FITZ RANDOLPH, a citizen of the United States, residing at Lyndhurst, in the county of Bergen and State of New Jersey, have invented an Improvement in Fertilizer-Droppers, of which the following is a specification.

My invention relates to the class of fertilizer-droppers particularly adapted for hill-crops and by means of which the requisite or desired quantity of fertilizer may be deposited in each hill.

In carrying out my invention I employ a receptacle for the fertilizer comprising a bottom, sides, and a top, the bottom being provided centrally with a tapering opening. A rod passes through the top of the receptacle and through the opening in the bottom thereof and is provided within the receptacle with a cover-valve for the upper end of said opening, at its lower extremity with a valve adapted to seat in the lower end of said opening, and at its upper extremity with a handle by which the rod is moved vertically and the apparatus carried. A plate is slidably adjustable in the bottom of the said receptacle, and one end thereof is bifurcated to pass around the valve-rod and cover the opening in said bottom to the desired degree, the said plate passing through the side of said receptacle and being provided exteriorly thereof with means for securing the same in position. I also employ a stand depending from the bottom of the receptacle and upon which the dropper rests when placed upon the ground, a skirt secured to the under side of said bottom and surrounding the stand, a sack adapted to be carried by the operator, and a chute leading from the sack to the said receptacle, all of which parts, together with the operation thereof, will be hereinafter more particularly described.

In the drawings, Figure 1 is a vertical section of my improved fertilizer-dropper. Fig. 2 is a sectional plan on the line x x, Fig. 1. Fig. 3 is a plan of the bottom of the receptacle. Fig. 4 is a front elevation of the dropper, and Fig. 5 is a view illustrating the use of the dropper.

Referring to the drawings, the receptacle comprises a bottom a, sides b, and a top c, these parts being made of iron or other suitable material with the sides b preferably oval or tubular in cross-section. A portion of the bottom is also oval, and centrally of this portion the bottom is provided with a depending annular flange a', in which is a tapering opening 2, oval at the top and circular at the bottom, where there is provided an inverted valve-seat 3. This bottom is also provided with an extension a^2 in one direction, and in the upper face thereof there is a recess 4.

d represents a rod which passes through the top c of the receptacle and the opening 2 in the bottom thereof and is provided interiorly of the receptacle with a cover-valve e. To the lower extremity of the rod d is secured a valve f, and to the upper extremity a handle d' is connected.

h represents a plate fitting within the slide-way-recess 4 in the upper face of the bottom of the receptacle, and this plate is bifurcated at one end, providing the finger portions 5 and 6, adapted to pass at either side of the rod d, so as to cover up more or less of the opening 2. The plate h passes through the sides b of the receptacle and is provided with a slot 7, through which and the extension a^2 of the bottom a a clamp-bolt h' is passed, by means of which the plate h may be made fast in any desired position with the opening 2 uncovered to the requisite extent.

I also employ a stand i, preferably made of a small rod depending from and secured to the under side of the bottom of the receptacle, and a skirt k, of sheet metal or other material, of the same shape in cross-section as the receptacle and secured to the bottom thereof in a convenient manner and continuing downward the continuity of the receptacle.

8 represents a funnel extending through the top of the receptacle and secured thereto by a bolt 9 passing through the sides thereof or otherwise, as found most expedient.

l represents a sack, of canvas or other material, adapted to be carried by the operator and to contain the fertilizer or other substance

to be dropped. The sack *l* is provided with a chute *l'*, the lower end of which fits over and is connected to the upper part of the funnel 8, providing a passage for the fertilizer from the sack to the receptacle.

The cover-valve *e* and the valve *f* are so arranged on the rod *d* that when the rod is raised the valve *f* seats on the valve-seat 3 and when the rod is lowered the valve *e* covers and closes that part of the opening 2 which is not covered by the plate *h*.

The dropper is adapted to be carried by the handle *d'* from hill to hill to be planted and to be placed on each hill resting upon the stand *i*, whereupon the handle is lowered and then raised, this movement permitting a certain quantity of fertilizer to be dropped, which is prevented from spreading by the skirt *k*. It will be understood that the fertilizer can only escape during the downward and upward movement of the rod *d* and that the quantity of fertilizer which does escape with each reciprocation of the rod depends upon the extent to which the plate *h* covers the opening 2, and hence may be regulated to the desired quantity. While the fertilizer-dropper is being carried from hill to hill little or no fertilizer can escape.

I claim as my invention—

1. In a fertilizer-dropper, the combination with a sack and chute for the fertilizer, of a receptacle secured to the end of the chute, a rod vertically movable through the receptacle, means adapting the receptacle to be carried when the handle is raised, means acting with the raising and lowering of the handle for closing off and regulating the discharge of the fertilizer and an adjustable device passing into said receptacle and partially over the bottom thereof for regulating the amount of discharge of the fertilizer from the receptacle.

2. In a fertilizer-dropper, the combination with a sack and a chute therefrom, of a receptacle comprising a bottom having an opening therein, sides and a top, means for connecting the receptacle to the end of said chute, a rod passing through the top of said receptacle and through the opening in the bottom thereof, valves fixed in position on said rod, a slidably-adjustable plate mounted in the bottom of said receptacle to cover said opening therein, and means for clamping said plate in position.

3. In a fertilizer-dropper, the combination with a sack and chute for the fertilizer, of a receptacle secured to the end of the chute and having a tapering opening in the bottom thereof, a rod vertically movable through the receptacle, a handle secured to one end of said rod, a cover-valve fixed in position on said rod within the receptacle, a valve also fixed in position on said rod exteriorly of the receptacle and below the same, and means for regulating the extent of the said opening in the bottom of the receptacle for determining the amount of the discharge of the fertilizer.

4. In a fertilizer-dropper, the combination with a sack and chute for the fertilizer, of a receptacle secured to the end of the chute and having a tapering opening in the bottom thereof, a rod vertically movable through the receptacle, a handle secured to one end of said rod, a cover-valve fixed in position on said rod within the receptacle, a valve also fixed in position on said rod exteriorly of the receptacle and below the same, a plate slidably adjustable in the bottom of said receptacle and extending through the sides thereof and adapted to cover the opening in the bottom of said receptacle to a desired degree, and means exteriorly of said receptacle for clamping said plate in position.

5. In a fertilizer-dropper the combination with a sack and chute for the fertilizer, of a receptacle secured to the end of the chute and having a tapering opening in the bottom thereof, a rod vertically movable through the receptacle, a handle secured to one end of said rod, a cover-valve fixed in position on said rod within the receptacle, a valve also fixed in position on said rod exteriorly of the receptacle and below the same, a plate slidably adjustable in the bottom of said receptacle and extending through the sides thereof and adapted to cover the opening in the bottom of said receptacle to a desired degree, means exteriorly of said receptacle for clamping said plate in position, a stand secured to the under side of said receptacle, and a skirt surrounding said stand, substantially as described.

6. In a fertilizer-dropper, the combination with a sack and chute for the fertilizer, of a receptacle secured to the end of the chute and having an opening in the bottom thereof which is elliptical at the upper end and circular at the lower end, a rod vertically movable through the receptacle, a cover-valve fixed in position on said rod within the receptacle, a valve also fixed in position on said rod exteriorly of the receptacle and below the same and adapted to seat in the circular end of the opening in the bottom of the receptacle and means for regulating the extent of the said opening in the bottom of said receptacle for determining the amount of the discharge of the fertilizer.

7. In a fertilizer-dropper, the combination with a sack and chute for the fertilizer, of a receptacle secured to the end of the chute and having an opening in the bottom thereof which is elliptical at the upper end and circular at the lower end, a funnel secured in the upper end of said receptacle and to which the end of the said chute is connected, a rod vertically movable through the receptacle, a cover-valve fixed in position on said rod within the receptacle, a valve also fixed in position on said rod exteriorly of the receptacle and below the same and adapted to seat in the circular end

of the opening in the bottom of the receptacle and means for regulating the extent of the said opening in the bottom of said receptacle for determining the amount of the discharge of the fertilizer.

8. In a fertilizer-dropper, the combination with a sack and chute therefrom for the fertilizer, and a receptacle receiving the fertilizer and means connected thereto for delivering the fertilizer on the ground, of a funnel structure adapted to be securely fastened to the free end of the chute and to pass into an opening in the top of the said receptacle, and means for removably connecting the funnel to the receptacle.

Signed by me this 27th day of February, 1904.

PETER FITZ RANDOLPH.

Witnesses:
A. H. BERRELL,
S. T. HAVILAND.