

J. W. FAWKES.

Fertilizer.

No. 11,602.

Patented Aug. 29, 1854.

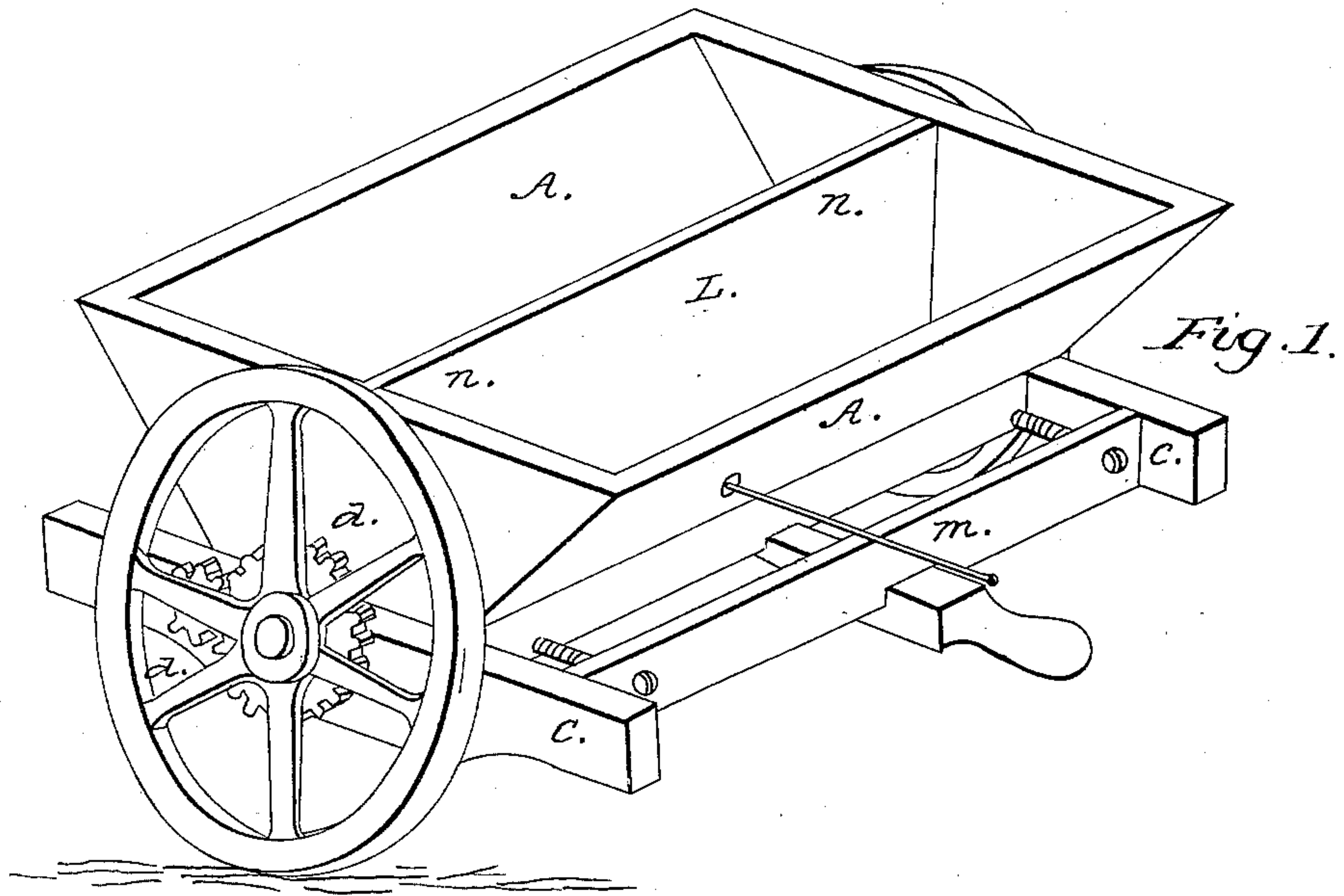


Fig. 2.

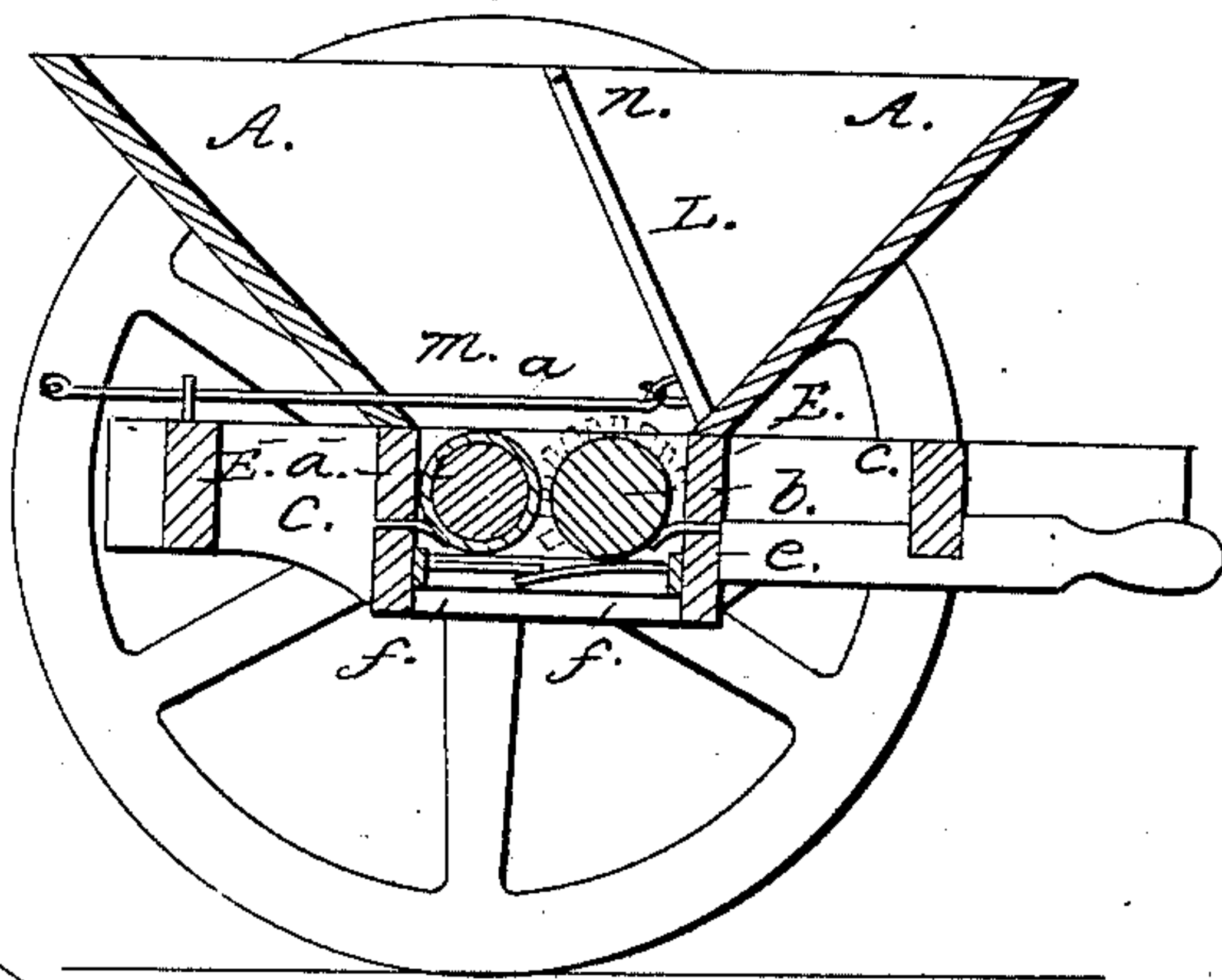
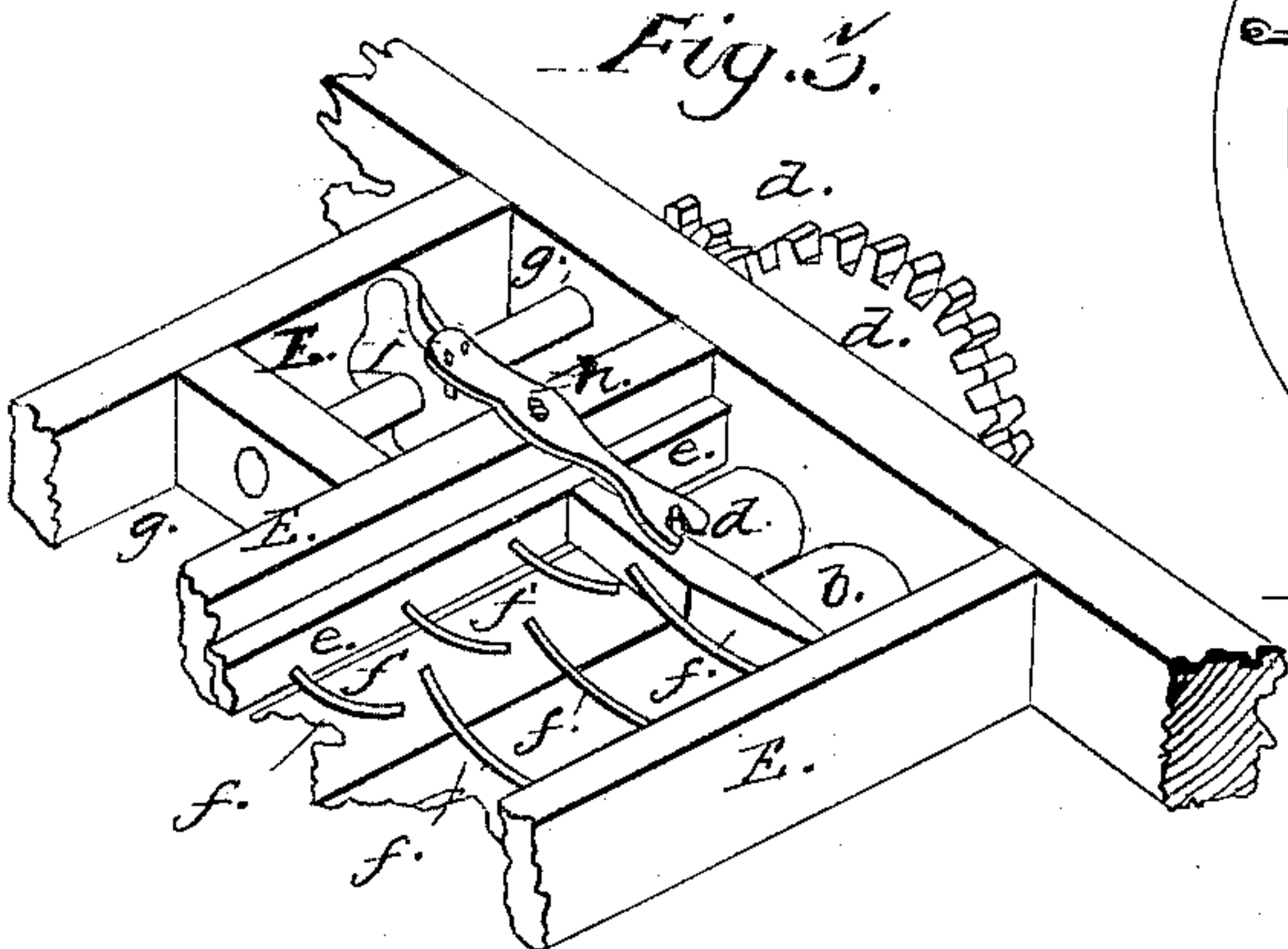


Fig. 3.





# UNITED STATES PATENT OFFICE.

JOSEPH W. FAWKES, OF CHRISTIANA, PENNSYLVANIA.

## IMPROVEMENT IN MANURE AND LIME SPREADERS.

Specification forming part of Letters Patent No. **11,602**, dated August 29, 1854.

*To all whom it may concern:*

Be it known that I, JOS. W. FAWKES, of Christiana, in the county of Lancaster and State of Pennsylvania, have invented new and useful Improvements in Machines for Spreading Lime, Guano, and Fertilizers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, of which—

Figure 1 is a perspective view; Fig. 2, a transverse section; Fig. 3, an inverted view of a portion of the breaking-fingers, &c.

The improvement consists in a simple device added to the hopper, by which the difficulty of spreading lime when moist from a hopper, arising from a tendency to arch therein, is entirely obviated; also, in an admirable contrivance by which lime, guano, or any fertilizer may be completely divided and more perfectly disseminated and applied to the land.

In the accompanying drawings, A A is the hopper, whose bottom is closed by a pair of plain rollers, *a* and *b*. These rollers are actuated by the supporting-wheels by suitable side gear, *d d*, and one of them admits of adjustment, by which the quantity of lime delivered is regulated.

C C are the timbers of the framing, supporting the hopper and journals of the rollers. E E are longitudinal bearers or framing extending between and connecting C C. It is upon these the pulverizer-framing *e e* has a reciprocating movement.

*ff f* are wire rods or fingers inserted in *e e*, observing to place one set slightly below the other, that the chips or trash in the article spread may pass over the rods when it will not go through. These rods are placed so as to alternate with each other.

*g'* is a shaft driven by gear *d d* and carries a hand-wheel, I.

K is a pivoted lever actuated by I and gives the reciprocating motion to the pulverizer or breakers *e e f f*. It will be noticed that the rollers *a* and *b* have scrapers secured to the framing. (See Fig. 2.)

The hopper itself is constructed in the usual manner, but in addition has a swung diaphragm, L, suspended by pivots at *n n*. It hangs in the body of the hopper, and may be secured to either side thereof by a sliding rod, *m*, furnished with a suitable catch or pin.

The manner of using is as follows: The diaphragm L being in position, as seen in Fig. 2,

the hopper is filled with lime on both sides of L, and when the rollers *a* and *b* are thrown in motion the lime is passed between them in a thin continuous sheet. It falls upon the vibrating rods *f f*, and is thus completely broken up into small particles. The advantage gained by this will be more apparent when using lime slightly moist; and it is to prevent the arching when in this condition that the swung diaphragm has been introduced, as it effectually prevents the formation upon the spreading side of the hopper when placed as in Fig. 2. After the lime is all spread, or nearly so, to the left of the figure adverted to the rod *m* is drawn farther out and the lime on the right side faces on the rollers *a* and *b*. There being but one abutment to the arch capable of supporting it, as the angle of L precludes it, there can no difficulty arise, and I am thus enabled to spread moist articles without constantly watching and forcing it down in the hopper to the rollers.

The importance of this improvement will be appreciated when it is considered the quantity of fertilizers that are now spread and the certainty of having it equally distributed on the land.

The adjustment of the rollers in regulating the quantity of lime spread is effected by having the pair of journal-boxes movable by a pair of screws, by which they can be moved and carry with them one roller.

I am aware that a perpendicular sliding diaphragm has been employed to rise or fall, and thus regulate the feed, and that fixed wires have been used both in the hopper and under the feed-cylinders. Therefore I do not claim any of these devices. Neither do I claim the rollers *a* and *b* as such; but,

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

1. Constructing the hopper with a swing diaphragm or dividing-board, L, by which the material intended for spreading is prevented from arching.

2. The arrangement and combination of the moving breakers or pulverizers *f f*, actuated by the device, as substantially described, with the rollers *a* and *b*, for the more effectual distribution of the contents of the hopper.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

Witnesses:

J. W. FAWKES.

EDWARD LAMMEY,

FREDERICK BUSH.