

(No Model.)

W. B. CHISOLM.

MACHINE FOR MIXING FERTILIZERS.

No. 311,291.

Patented Jan. 27, 1885.

Fig. 1.

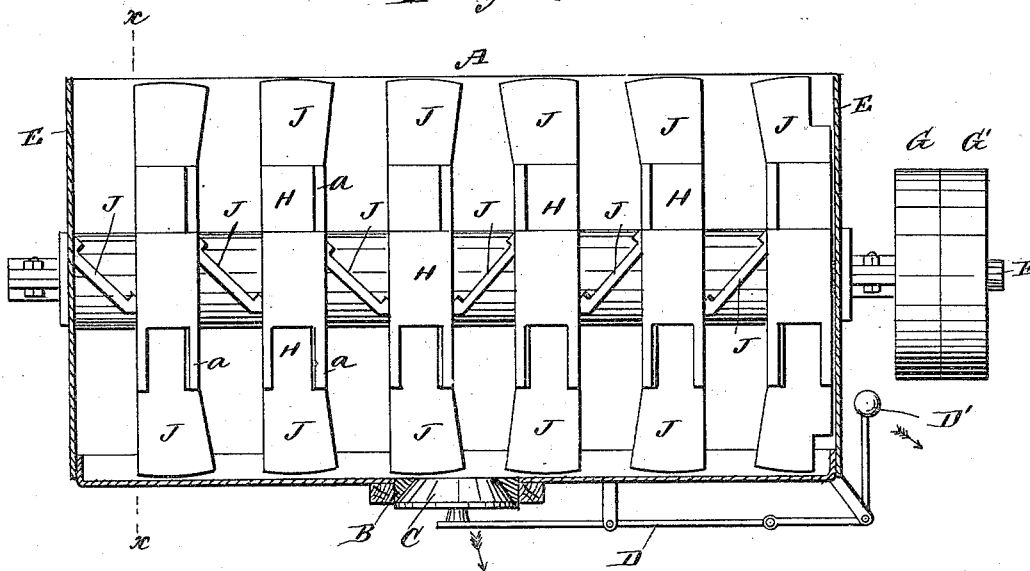


Fig. 2.

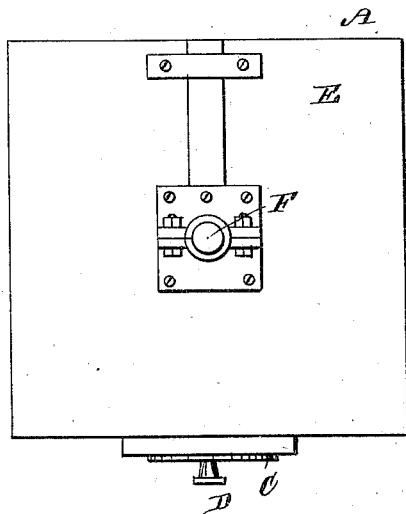
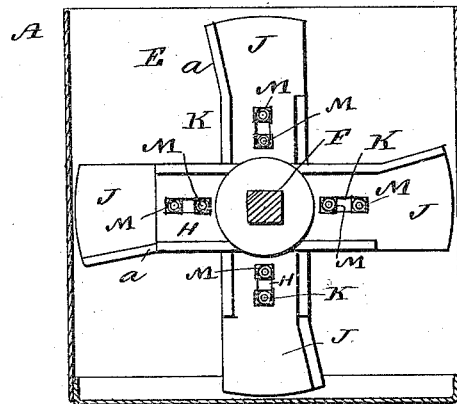


Fig. 3.



WITNESSES:

*Theo. G. Hoster,*  
*C. Sedgwick,*

INVENTOR:

*W. B. Chisolm*  
BY *Munn & Co.*  
ATTORNEYS.

# UNITED STATES PATENT OFFICE.

WILLIAM B. CHISOLM, OF CHARLESTON, SOUTH CAROLINA.

## MACHINE FOR MIXING FERTILIZERS.

SPECIFICATION forming part of Letters Patent No. 311,291, dated January 27, 1885.

Application filed July 11, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM B. CHISOLM, of Charleston, in the county of Charleston and State of South Carolina, have invented a new and Improved Mixing-Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved apparatus for mixing phosphates, cement, ores, clay, &c., either wet or dry.

The invention consists in the construction and arrangement of parts, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a longitudinal sectional elevation of my improved mixing-machine. Fig. 2 is an end elevation of the same. Fig. 3 is a cross-sectional elevation of the same.

A drum, box, or trough, A, made of wood or metal, and either square or circular in cross-section, is provided with an opening, B, in the middle of its bottom, which opening can be closed by a plug, C, secured to one end of a pivoted lever, D, the opposite end of which carries a weight, D', for holding the plug C in the opening B. In the ends E of the box a shaft, F, is journaled, which passes longitudinally through the box, and has fixed and loose belt-pulleys G and G' mounted on one end.

On the shaft F a series of arms, H, are mounted, the arms being arranged alternately at right angles to each other, and the planes of the arms being at angles of forty-five degrees to the longitudinal plane of the shaft.

On the arms H blades or wings J are held, which are flared toward their outer ends. The wings or blades J are each provided with a longitudinal slot, K, through which bolts M are passed, which also pass through the arms H, whereby the blades or wings J can be adjusted on the arms H in such a manner that their outer ends will be a greater or less distance from the shaft. If the ends of the wings or blades wear off, the wings or blades can be adjusted to take up the wear, and so that the ends of the wings will always be close to

the sides and bottom of the box or trough. The blades or wings J on the opposite sides of the center of the shaft F are inclined in opposite directions—that is, they are inclined from the corresponding ends of the box or trough toward the center of the same, so that they carry the material from the ends of the box or trough to the middle and to the discharge-opening B. The wings J and their arms are provided with flanges *a* along the edges, so that the said wings or blades will act as scoops.

The materials to be mixed are passed into the box or trough at the ends, and are carried to the middle of the trough, and are thoroughly mixed and agitated. When the material is mixed sufficiently, the plug C is opened and the material permitted to drop through the opening B.

I am aware that it is not broadly new in mixing-cylinders to provide the blades with slotted extensions and bolts for adjusting them a greater or less distance from the cylinder, and I do not claim such as of my invention.

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

1. The combination, with a trough or box, of a shaft journaled longitudinally in the same, arms formed on the shaft, and blades or wings held adjustably on the arms, the said blades or wings being inclined from the ends toward the middle of the box, substantially as herein shown and described.

2. The combination, with the box or trough A, of the shaft F, the arms H on the same, the wings or blades J, having flanges *a* and slots K, and of the bolts M, substantially as herein shown and described.

3. The combination, with the box or trough A, having a central opening, B, of the shaft F, the blades or wings J, held on the same, which blades are inclined from the ends toward the center, and of the plug C, held on a lever, D, substantially as herein shown and described.

WILLIAM B. CHISOLM.

Witnesses:

I. G. LATHAM,  
LOUIS F. SLOAN,  
G. H. HOPE.