

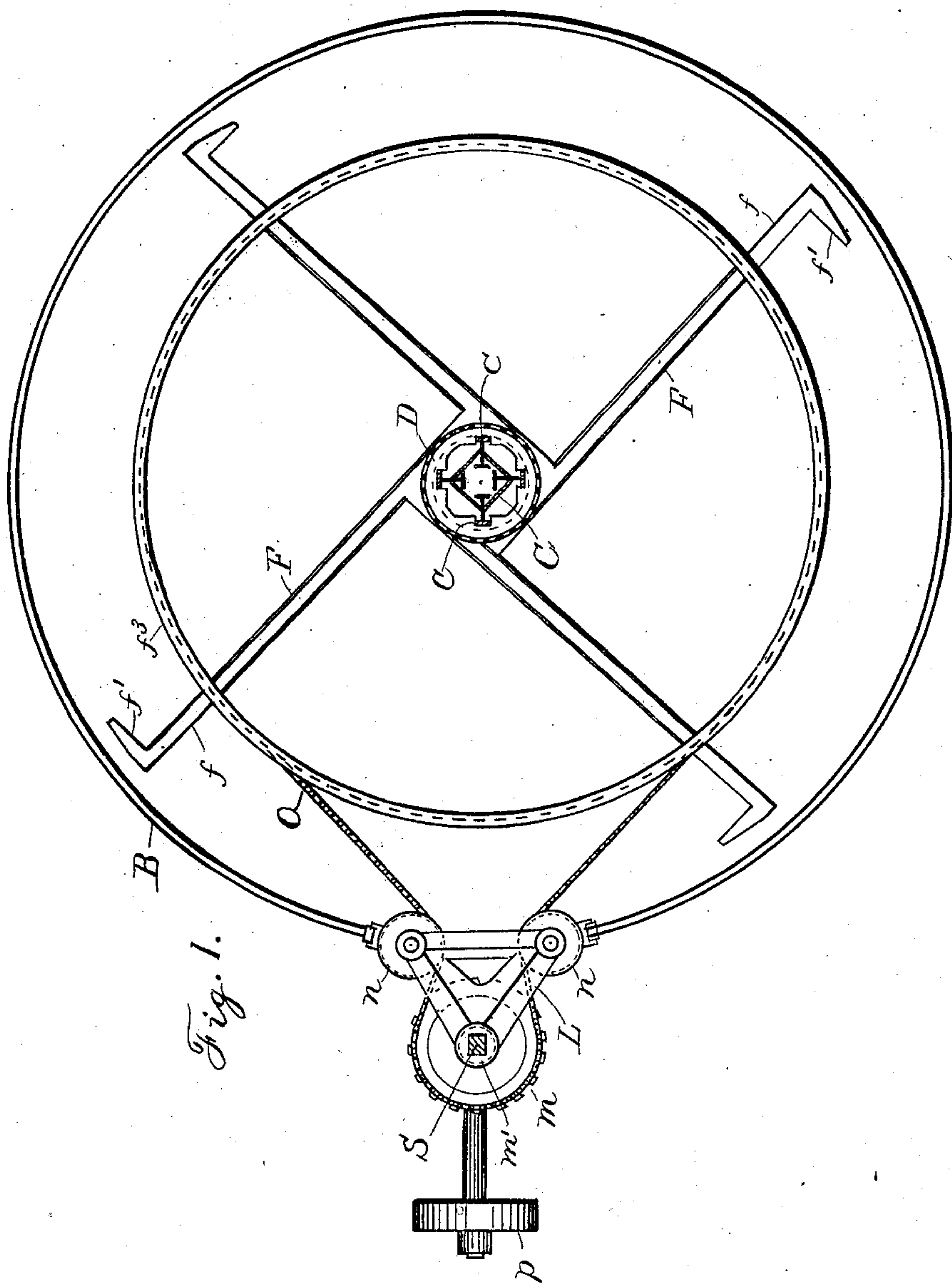
No. 750,241.

PATENTED JAN. 19, 1904.

C. F. BUCK.  
SPREADING MACHINE.  
APPLICATION FILED MAY 19, 1903.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

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*A. J. Thiele*

INVENTOR

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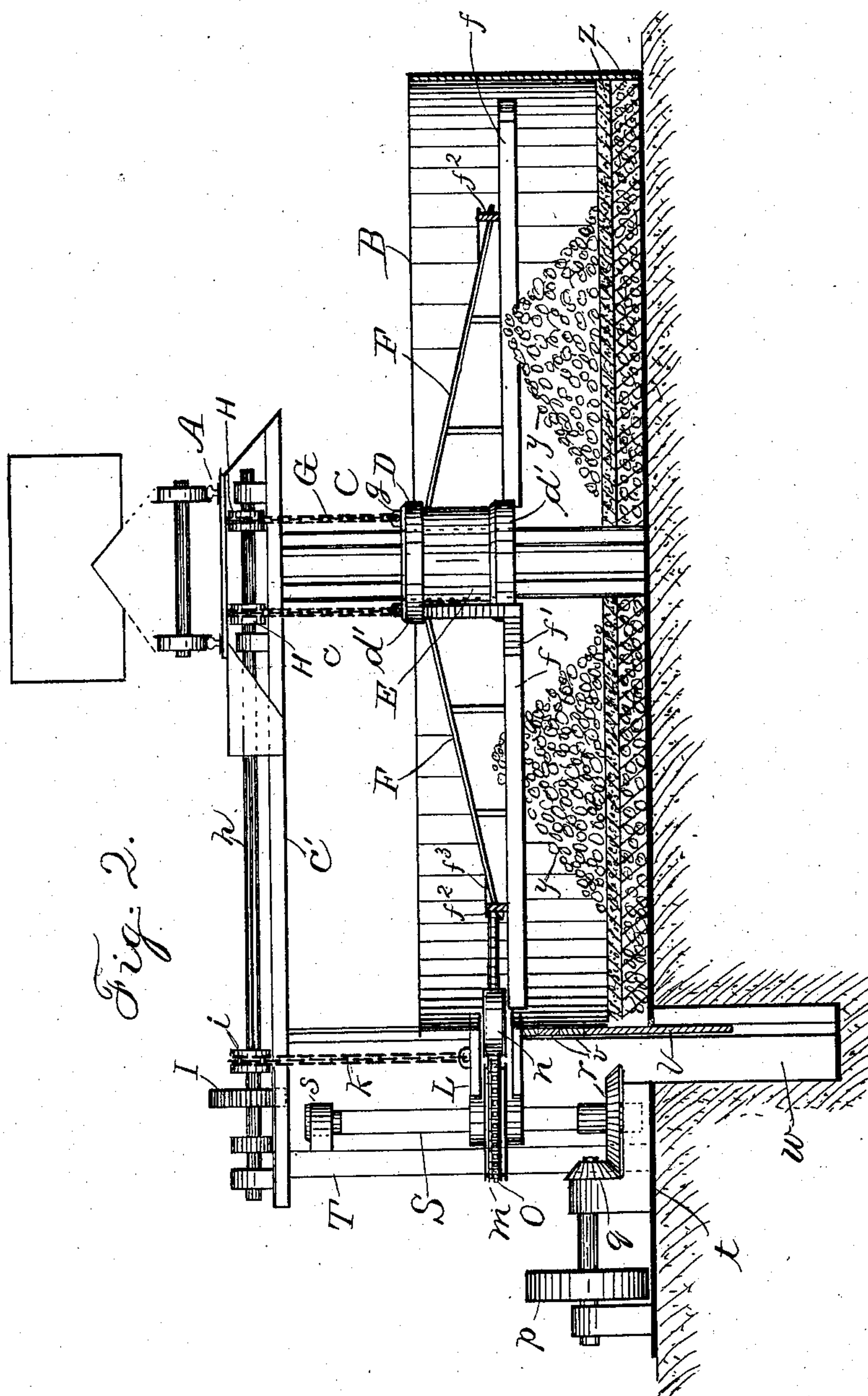
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3 SHEETS—SHEET 2.



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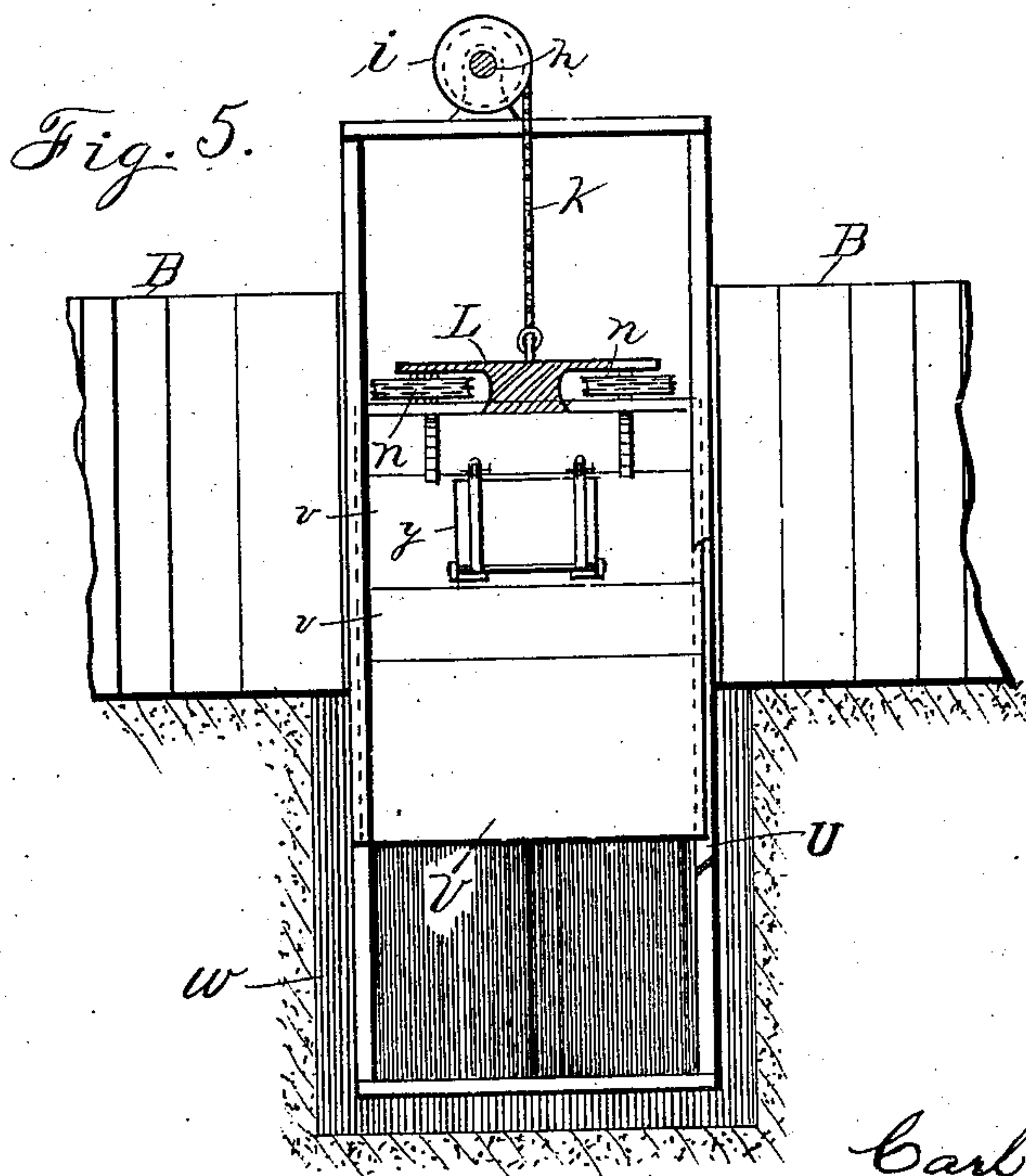
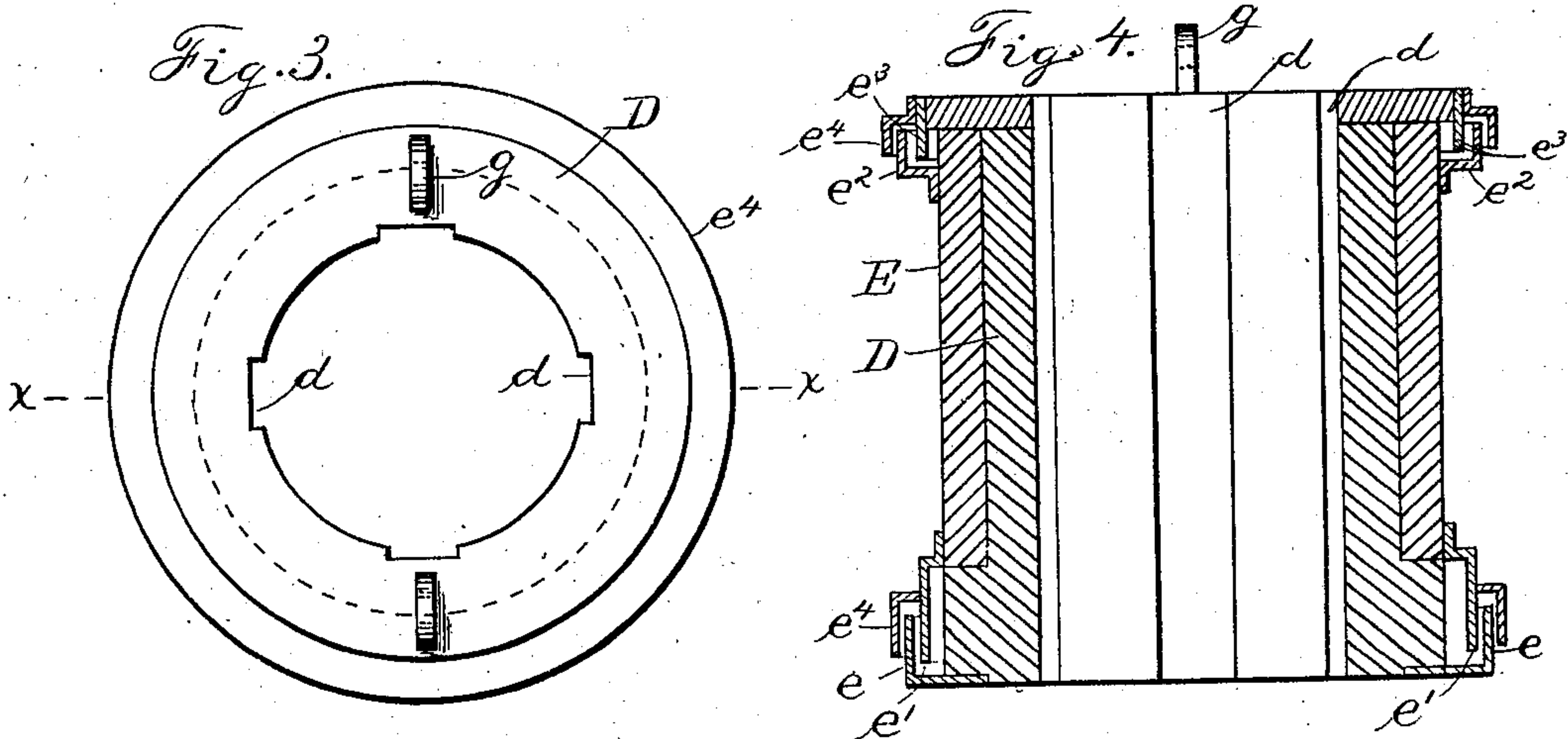
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3 SHEETS—SHEET 3.



WITNESSES:

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## UNITED STATES PATENT OFFICE.

CARL F. BUCK, OF SALT LAKE CITY, UTAH.

## SPREADING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 750,241, dated January 19, 1904.

Application filed May 19, 1903. Serial No. 157,878. (No model.)

*To all whom it may concern:*

Be it known that I, CARL F. BUCK, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented new and useful Improvements in Spreading-Machines, of which the following is a specification.

The objects of this invention are to spread ores or other materials in a subdivided state, such as coal, wheat, corn, &c.

At ore-smelting plants various kinds of ores are bedded, the bed being made up in several kinds of ores in layers, one above another. At the present time this is done by hand. A level surface is prepared inclosed on all sides, forming a bin, and over this bin runways are prepared. Workmen wheel the ore in barrows and dump it on the floor below, where it is spread out with shovels.

The accompanying drawings illustrate my invention, in which—

Figure 1 is a bin and the mechanism connected horizontally therewith. Fig. 2 is a side elevation of the invention, partly in section. Fig. 3 is an enlarged plan of the top of the axle and hub carrying the spreader-arms. Fig. 4 is an enlarged vertical section of the same on line *x x* of Fig. 3, and Fig. 5 is an enlarged elevation of the tank-door.

My machine is preferably located under a railroad-track A, and consists of a large uncovered tank or bin B, with preferably a concrete bottom. A central vertical frame C, having guides *c c*, stands in the middle of the bin, its upper end being secured to a horizontal beam C', whose other end is supported on a post T. A vertical hollow axle D surrounds the frame C, having interior vertical recesses *d d* to engage the guides *c c* on the frame C. A hub E, carrying radial arms F, rotates on the axle D between the collars *d' d'* on the axle. The arms F are preferably made of metal, and wooden extensions *f f* are secured to the under side of said arms and project lengthwise beyond them almost to the sides of the bin. A short projection *f'* on the end of each extension *f* stands at a right angle thereto.

The axle D is moved vertically by means

of chains G, attached to eyes *g* on said axle. Said chains G pass over wheels H H, keyed on a shaft *h*, which is actuated by mechanism through wheel I. The shaft *h* is journaled in bearings on the beam C'. On the same shaft *h* is a wheel *i*, carrying a chain *k*, which extends downward outside of the bin and is attached to a horizontal frame L, which carries a sprocket-wheel *m* and two idle wheels *n n*. A continuous chain O passes around a groove *f<sup>2</sup>* on a band *f<sup>3</sup>*, which encircles the ends of the arms F F. The sprocket-wheel *m* is actuated by power through the drum *p*, bevel gear-wheels *q* and *r*, and the shaft S, whose upper end has a bearing at *s* on the post T, its lower end and the adjacent mechanism having a base-support at *t*. The shaft S is angular except at its journal-bearings, and the hub *m'* of the sprocket-wheel *m* is also angular and fits loosely upon it. The revolution of the shaft *h* raises or lowers the hub E and the frame L, and the revolution of the sprocket-wheel *m* rotates the band *f<sup>3</sup>* and the arms F F. A vertical slot U at the side of the bin permits the descent of the frame L and the chain O. This slot U is closed by a vertically-sliding door V, attached to frame L, said door entering the pit W in its lower positions. The upper portions of the door V are made removable in sections *v v*, to be taken out when the bin is to be emptied. The arms F may be made either straight or curved, as desired.

To prevent the material from getting into the hub E, I provide a liquid-sealed dust-guard composed of an annular groove *e* around the bottom of the axle to be filled with water or other liquid, into which extends the lower edge of a band *e'*, attached to the lower edge of the hub E. At the upper joint the groove *e<sup>2</sup>* is attached to the hub, and the band *e<sup>3</sup>* encircles the upper collar of the axle. Both grooves *e e<sup>2</sup>* are overlapped and protected from above by shelves or roofs *e<sup>4</sup> e<sup>4</sup>*.

In operation the hub E and frame L are elevated and the material is dumped into the bin from the car above. It will form in piles, as *y y*. The arms F are then caused to rotate, and the hub and frame L are gradually



lowered until the material is spread out evenly in the bin, as at *z*. The hub and frame are then hoisted and the operation is repeated. The projections *f'* on the ends of the pieces *f* prevent the material from sliding off and piling up against the bin. To empty the bin, remove a section of the door *V* and continue the revolution of the arms, at the same time lowering the hub and frame *L*. This pushes the material out to the periphery of the bin and forces it through the opening *U*, already described.

I do not limit myself to mechanism operating the arms *F F* which requires an opening *U* in the tank, because a system of cords and pulleys may be used to move the arms, which would transmit the power over the side of the bin; but the connection shown is preferred.

Having described my invention, what I claim is—

1. A spreading-machine comprising a vertical frame having exterior vertical guides, an axle having interior recesses to engage said guides and vertically movable on said frame, a hub on said axle, horizontal arms on said hub and means to raise and lower and to rotate said hub and arms as specified.

2. In a spreading-machine having arms carried by a hub on an axle which is vertically movable on a frame, a cross-beam at the top of said frame properly supported, a horizontal shaft having bearings mounted on said cross-beam, wheels keyed on said shaft, chains carried by said wheels, eyes on said hub to which said chains are attached, and means to

revolve said shaft whereby the said hub is raised and lowered for the purpose specified.

3. In a spreading-machine a bin, a central vertical frame therein, arms carried by a hub on an axle which is vertically movable on said frame, a band around the outer ends of said arms, an exterior groove on said band, a continuous chain in said groove passing through a vertical slot in said bin and around a sprocket-wheel, and means to actuate said sprocket-wheel, for the purpose herein set forth.

4. In a spreading-machine having a bin with vertically-movable revolving arms therein and a vertically-movable frame carrying part of the arm-revolving mechanism, a vertical door in said bin fixed to said frame and vertically movable therewith for the purpose described.

5. In a spreading-machine a vertical axle having collars at its upper and lower edges, a hub on said axle between said collars, an exterior annular groove *e* on the lower edge of said axle, a band *e'* on said hub whose lower edge enters said groove, an annular groove *e''* near the upper edge of said hub, a band *e'''* on the upper collar of said axle whose lower edge enters said groove *e''*, and roofs to overlap said grooves substantially as herein set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CARL F. BUCK.

Witnesses:

Mrs. JESSE JAMES,  
THOMAS S. HARLAN.