

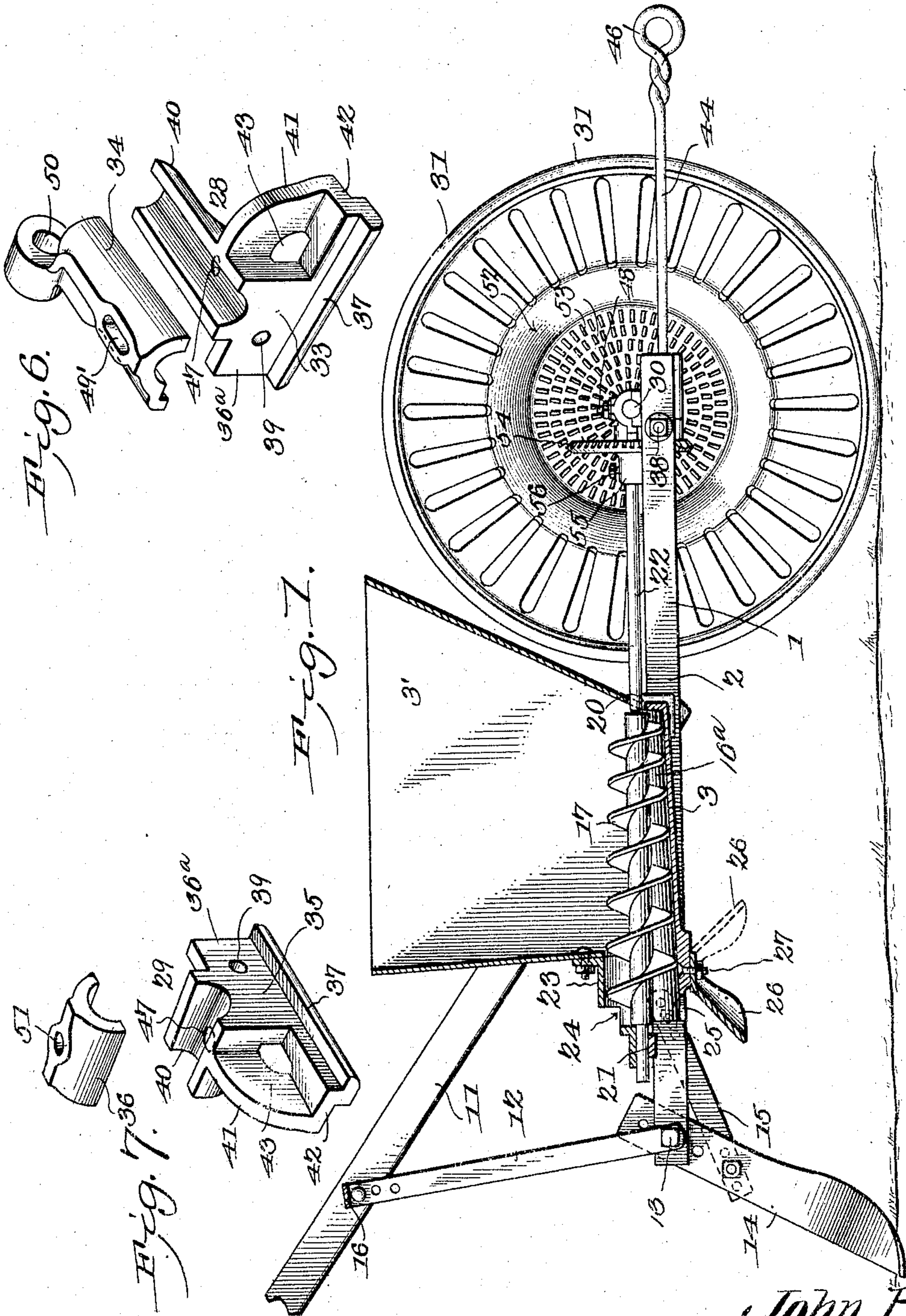
No. 778,440.

PATENTED DEC. 27, 1904.

J. BLUE.
FERTILIZER DISTRIBUTER.

APPLICATION FILED SEPT. 30, 1904.

2 SHEETS—SHEET 1.



Witnesses
E. F. Stewart
Wm. Bagger

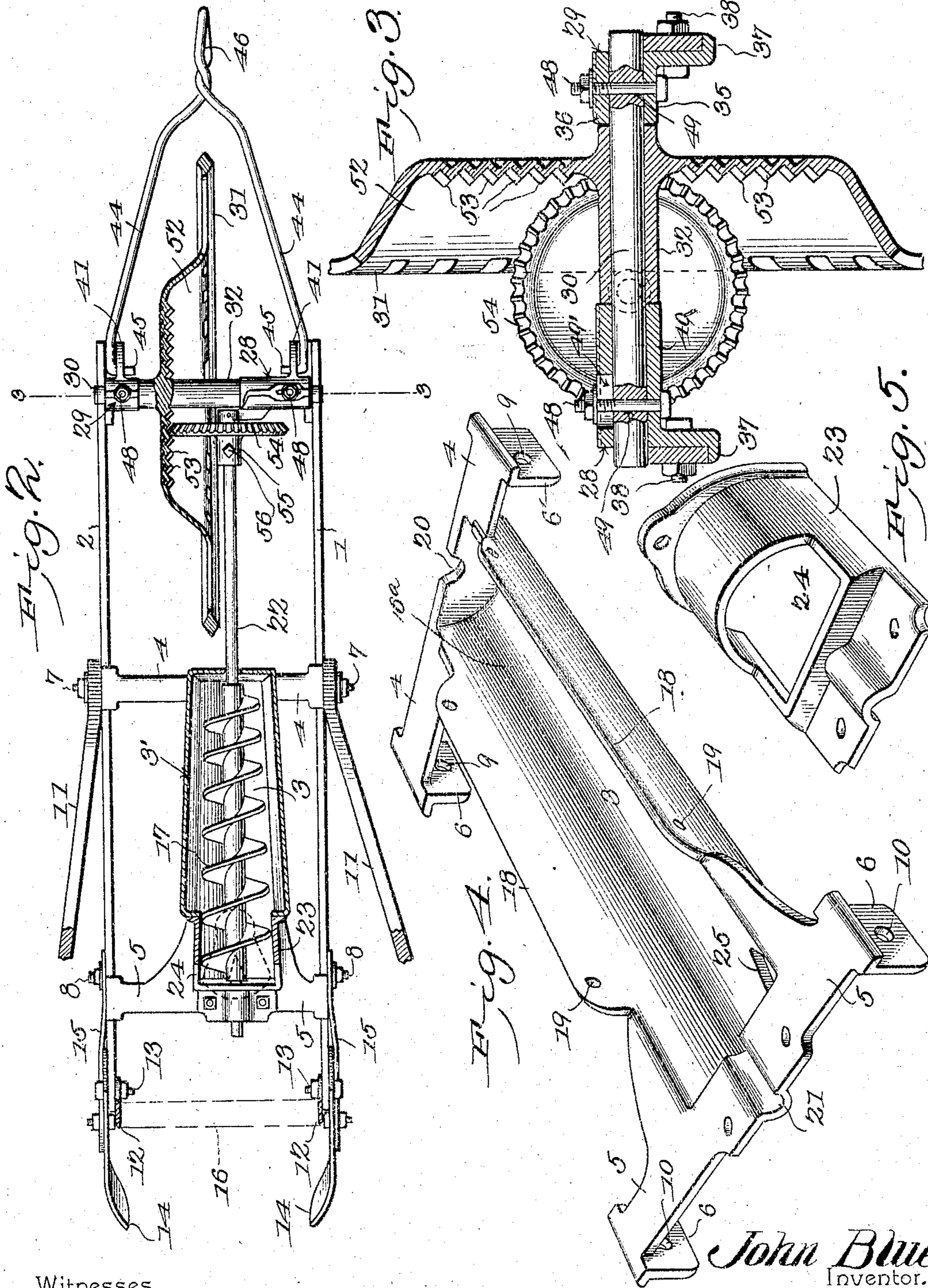
John Blue,
Inventor.
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UNITED STATES PATENT OFFICE.

JOHN BLUE, OF LAURINBURG, NORTH CAROLINA.

FERTILIZER-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 778,440, dated December 27, 1904.

Application filed September 30, 1904. Serial No. 226,679.

To all whom it may concern:

Be it known that I, JOHN BLUE, a citizen of the United States, residing at Laurinburg, in the county of Scotland and State of North Carolina, have invented a new and useful Fertilizer-Distributor, of which the following is a specification.

This invention relates to fertilizer-distributors of that class which are provided with a screw feed, and the object of the invention is to simplify and improve the construction of this class of devices.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of embodiment of the invention, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes and modifications may be made within the scope of the invention and without departing from the spirit or sacrificing the efficiency thereof.

In said drawings, Figure 1 is a sectional elevation of a fertilizer-distributor constructed in accordance with the principles of the invention. Fig. 2 is a horizontal sectional view of the same. Fig. 3 is a vertical transverse sectional view taken on the line 3 3 in Fig. 2. Fig. 4 is a perspective view of the casting which constitutes the bottom or trough of the hopper in which the feed-screw revolves. Fig. 5 is a perspective view of a cap or covering for the rear end of said casting. Figs. 6 and 7 are perspective detail views of the supporting members for the shaft upon which the transporting-wheel is journaled.

Corresponding parts in the several figures are indicated by like characters of reference.

The frame of the improved machine is composed of right and left side beams 1 2, which are preferably made of heavy strap-iron of suitable dimensions and placed on edge.

3 designates a casting which constitutes the

bottom of the hopper 3', said casting being provided at its front and rear ends with laterally-extending arms 4 4 and 5 5, said arms being provided near their extremities with depending flanges 6, adapted to abut upon the inner sides of the side beams 1 2, the extended ends of the arms 4 and 5 being adapted to rest upon the upper edges of said side beams, with which the casing is securely connected by means of transverse bolts 7 8, for the passage of which perforations 9 10 are formed in the flanges 6, corresponding perforations being formed in the side pieces 1 2, as will be readily understood. It will be seen that when these parts are assembled the side pieces will be connected and spaced apart by means of the casting 3.

Handles 11 are provided, the lower ends of which are mounted upon the bolts 7, said handles being supported by means of braces 12, the lower ends of which are connected with the side beams by means of bolts 13. The latter bolts also serve to support the covering-shovels 14, which are connected by means of braces 15 with the bolts 8. The upper ends of the braces 12 are connected by means of a cross-piece 16, with which they may be integral, as will be understood by reference to the drawings.

The casting 3 has a trough-shaped depression or recess 16^a, extending longitudinally therethrough, said recess being tapered in the direction of its front end to form a seat or casing for the feed-screw 17, which is of frusto-conical form and the pitch of which increases from the small front end and in the direction of the large rear end or base. This is for the purpose of enabling the material fed by the screw to become loosened as it passes rearward to the discharge end, thus preventing choking.

The casing 3 is provided with flanges 18, having perforations 19, to which the hopper 3', which is preferably constructed of sheet metal, may be bolted or otherwise secured.

The front and rear ends of the trough or casting 3 are provided with bearings 20 and 21 for the shaft 22, which carries the feed-screw, said shaft being extended in a forward

direction between the side beams of the frame. A cap 23 is provided, which constitutes a half-box for the rear end of the shaft 22, said cap being bolted upon the rear end of the casting 3 and provided with an opening 24, affording to the operator a plain view of the guano or fertilizing material which is being delivered through a smaller opening 25 in the bottom of the trough. Under this delivery-opening a distributor 26 is mounted upon a bolt 27, which distributor may when desired be turned to the position shown in dotted lines in Fig. 1 when it shall be desired to deliver the fertilizing material in a steady stream to the furrow instead of scattering it over a larger area.

28 and 29 are a pair of boxes secured, respectively, to the right and left beams of the frame and supporting the shaft 30, upon which the transporting-wheel 31 is journaled, said transporting-wheel being provided with a hub 32, rotatably engaging said shaft. The boxes 28 29 each include a lower and an upper half, (designated, respectively, 33 34 and 35 36.) The lower halves 33 and 35 are substantially alike, except that they are in right and left patterns, each of said halves including a wall member 36^a, having at its lower edge a flange 37 adapted to engage the adjacent beam, with which each of said wall members is connected by means of a bolt 38, for the passage of which a perforation 39 is provided. Each of these lower members is also provided with an inwardly-extending half-box 40 for the reception of the ends of the shaft 30. Each of the half-boxes 40 has a forwardly-extending web 41, connected with the adjacent wall member by a flange 42, said webs and flanges coöperating to form recesses at the inner corners of which openings 43 are formed in the webs and related parts. It will be observed that when these castings are secured in position upon the beams by means of the bolts 38 the recesses bounded by the webs 41, the flanges 42, and the beams will serve to accommodate the rear ends of a draft-yoke 44, which are bent to form hooks 45, extending through the openings 43, and thereby firmly connected with the castings and the frame-beams. The said draft-yoke is twisted from an iron rod of suitable dimensions, the same being twisted to form an eye 46, which is disposed in a vertical plane and which serves for the convenient attachment of the draft.

The half-boxes 40 of the members 33 and 35 are provided with perforations 47 for the passage of bolts 48, which extend through perforations 49 in the shaft 30 and through openings in the upper members or half-boxes 34 and 36. The opening in the half-box 34, which is designated 49', is in the nature of a slot, which enables the said half-box to be moved longitudinally of the axis of the shaft 30. Said half-box is provided at its inner end with an eye 50, which forms a bearing for the front end of the screw-carrying shaft

22. The opening in the half-box 36, which is designated 51, is a simple perforation or bolt-hole.

The transporting-wheel or traction-wheel 31 is provided with a central dished part 52, at the bottom of which are formed a plurality of concentric series of teeth 53, each of which series is adapted to mesh with a pinion 54, carried adjustably upon the front end of the shaft 22, said pinion having a hub or collar 55, provided with a set-screw 56, whereby it may be secured upon the shaft in any position to which it may be adjusted in engagement with any one of the concentric series of teeth. It is obvious that by this arrangement the speed of the feed-screw-carrying shaft may be regulated, since by placing the pinion in engagement with the teeth near the center of the traction-wheel a slow motion will be obtained, while by moving the said pinion in the direction of the periphery of the traction-wheel the speed will obviously be increased, owing to the greater number of teeth in the outer concentric series. It will also be readily seen that by simply loosening the bolt whereby the half-box or member 34 is secured the said half-box may be moved in an outward direction, thereby disengaging the pinion from the gear-teeth upon the traction-wheel, and hence throwing the screw feed mechanism temporarily out of operation.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood.

It is preferred to make the feed-screw of frusto-conical or tapering shape and with threads of a differential pitch, as shown—that is, the distance between the threads is increased with the increasing diameter of the body of the screw—this being an important feature, for the reason that the fertilizing material engaged thereby will thus be loosened and disintegrated as it is conveyed in the direction of the rear or discharge end. By dishing the traction-wheel and locating the circumferential series of gear-teeth at the bottom of the dished portion it is possible to bring the feed-screw-carrying shaft nearer the longitudinal center of the machine than would otherwise be convenient or possible, a single traction-wheel being employed, as shown. The casting which constitutes the bottom of the hopper and the casing for the feed-screw serves to connect and assemble the parts of the frame in a simple and effective manner. Likewise the castings or boxes which serve to support the shaft upon which the traction-wheel is journaled also serve for the attachment of the draft-yoke in a very durable and efficient manner. The means for throwing the feed-screw into and out of gear is operable, as shown, by simply loosening a single bolt, which permits the half-box or slide having the eye which constitutes the

bearing for the front end of the feed-screw-carrying shaft to be adjusted to the desired position.

Having thus described the invention, what is claimed is—

1. In a fertilizer-distributor, a screw-casing having laterally-extending arms provided with depending flanges at a short distance from their extremities, frame-beams connected with said flanges, a feed-screw within the casing, and a cap connected detachably with the rear end of said casing and having an opening therein.

2. In a fertilizer-distributor, a screw-casing having a discharge-opening at its rear end and provided at its front and rear ends with bearings, a feed-screw-carrying shaft journaled in said bearings, and a cap constituting a half-box for the rear bearing and having an opening communicating with the rear part of the casing.

3. In a fertilizer-distributor, a screw-casing, side pieces connected with and spaced apart by said casing, a feed-screw-carrying shaft having bearings at the front and rear ends of said casing and extended forwardly, a pinion mounted adjustably near the front end of said shaft, a transverse shaft supported between the side pieces, and a traction-wheel revoluble upon said shaft, said traction-wheel having a central dished portion and, at the bottom of said dished portion, a plurality of concentric series of gear-teeth adapted to mesh with the adjustable pinion.

4. In a fertilizer-distributor, a traction-wheel having a central dished portion and a plurality of concentric series of gear-teeth at the bottom of said dished portion, in combination with a feed-screw-carrying shaft supported at an angle to the axis of the traction-wheel, and a pinion adjustable upon said shaft and adapted to mesh with the gear-teeth of the traction-wheel.

5. In a fertilizer-distributor, a frame hav-

ing side pieces, boxes connected with said side pieces, a shaft secured in said boxes, a traction-wheel revoluble upon said shaft and having a plurality of concentric series of gear-teeth, a slidable top member for one of the shaft-supporting boxes having an eye forming a bearing, a feed-screw-carrying shaft having one end supported in said bearing, and a pinion on said shaft.

6. A frame, boxes connected with the side members of said frame, a shaft supported in said boxes, a traction-wheel upon said shaft, a slidable top member for one of the shaft-supporting boxes having an eye forming a bearing, a driven shaft having one end supported in said bearing, and means for transmitting motion from the traction-wheel to the driven shaft.

7. In a device of the class described, a frame, boxes connected with said frame, said boxes having webs and flanges coacting to form recesses with openings at their inner corners, a traction-wheel-carrying shaft supported in said boxes, and a draft-yoke having hooked ends engaging the recesses of the boxes, the hooks extending through the openings at the inner corners of the recesses.

8. In a fertilizer-distributor, a feed-screw having threads of a pitch, and with the distance between the threads, increasing in the direction of the discharge end.

9. In a fertilizer-distributor, a feed-screw of tapering or frusto-conical form having threads of a pitch, and with the distance between the threads, increasing in the direction of the discharge end.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JOHN BLUE.

Witnesses:

JAMES W. NORTH,
THOMAS J. GILL.