

(No Model.)

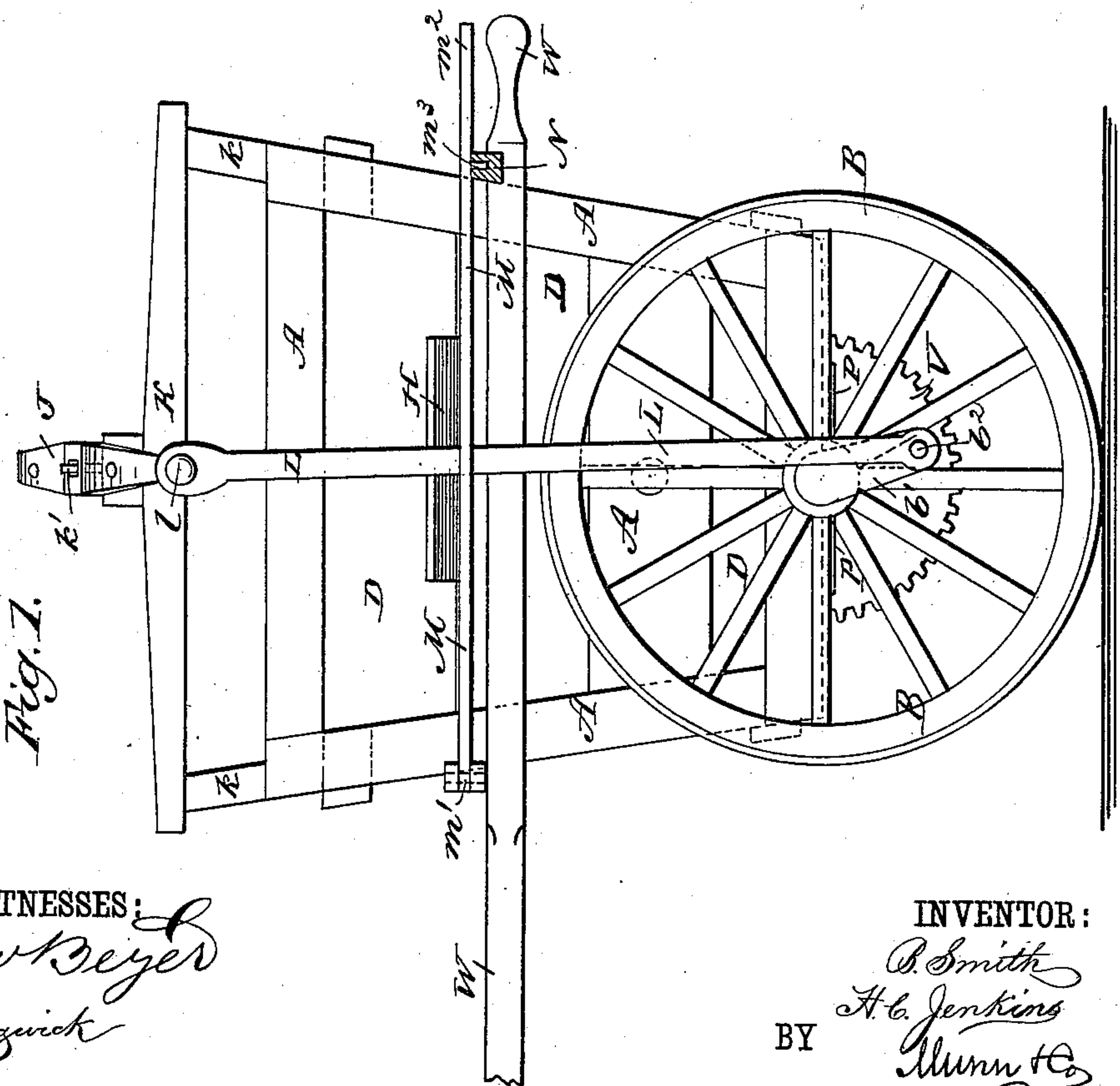
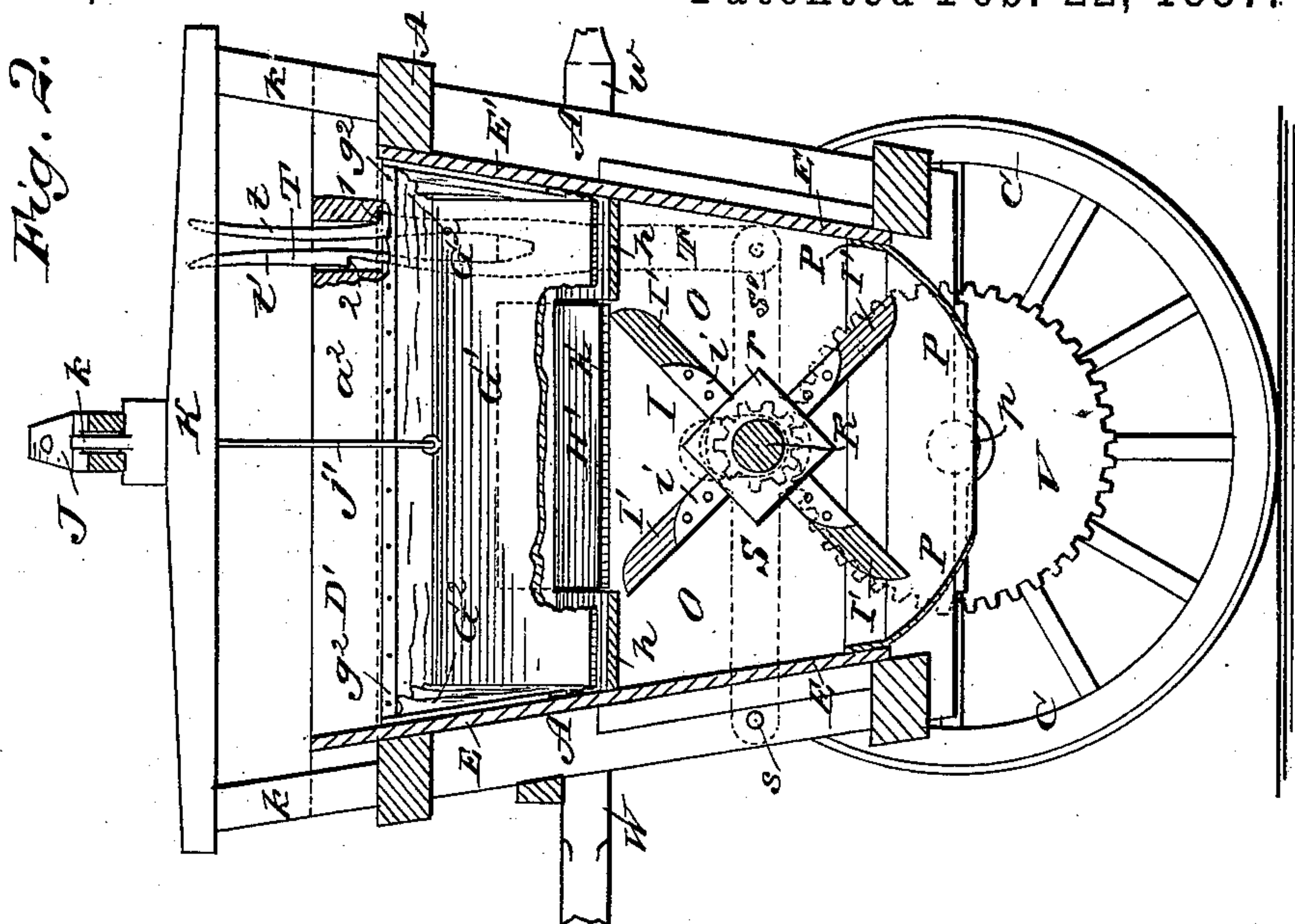
2 Sheets—Sheet 1.

B. SMITH & H. C. JENKINS.

FERTILIZER DISTRIBUTER.

No. 358,171.

Patented Feb. 22, 1887.



WITNESSES:
W. Beyer
C. Sedgwick

INVENTOR:
B. Smith
H. C. Jenkins
BY *Munn & Co.*
ATTORNEYS.

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Fig. 4.

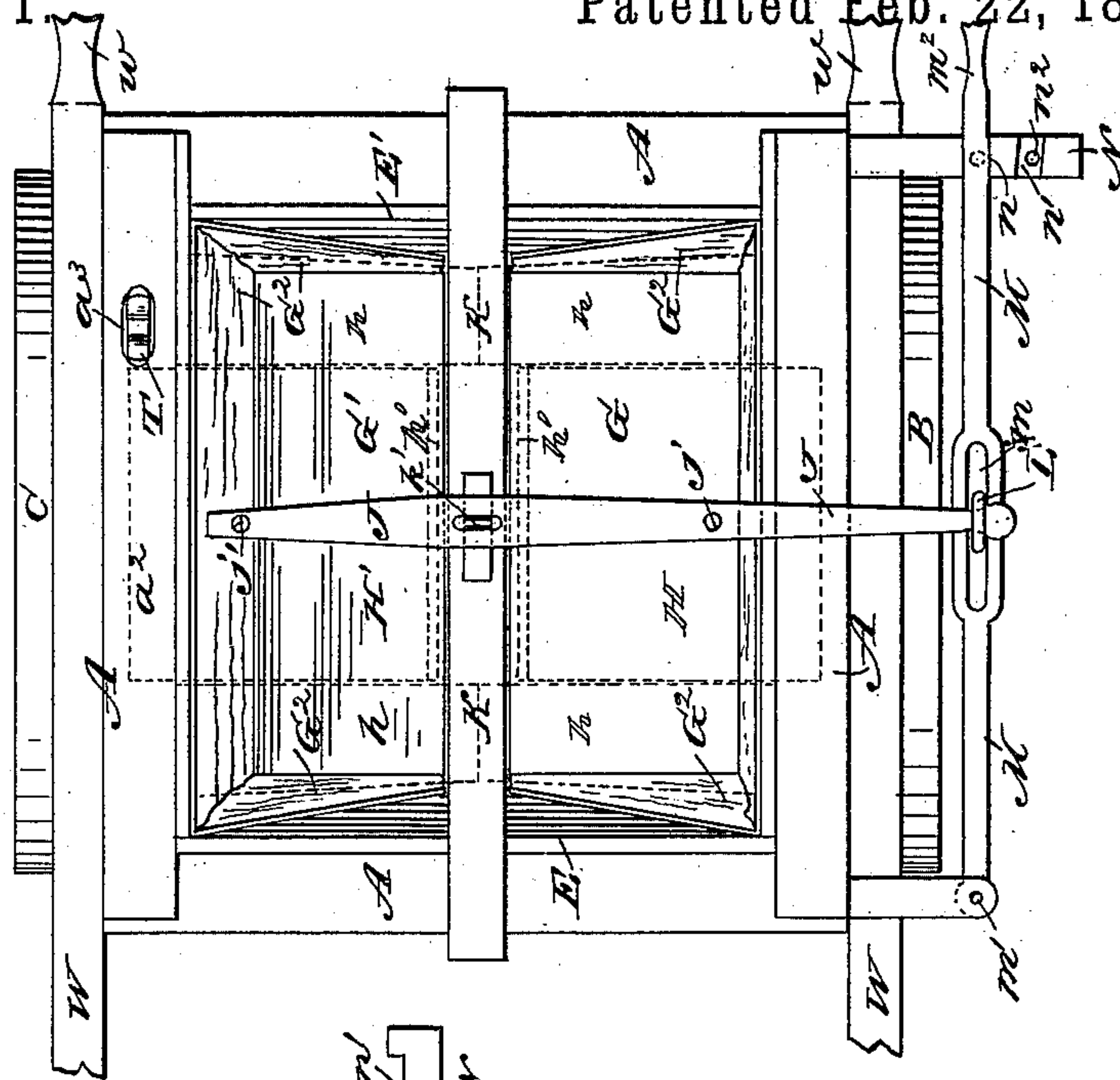
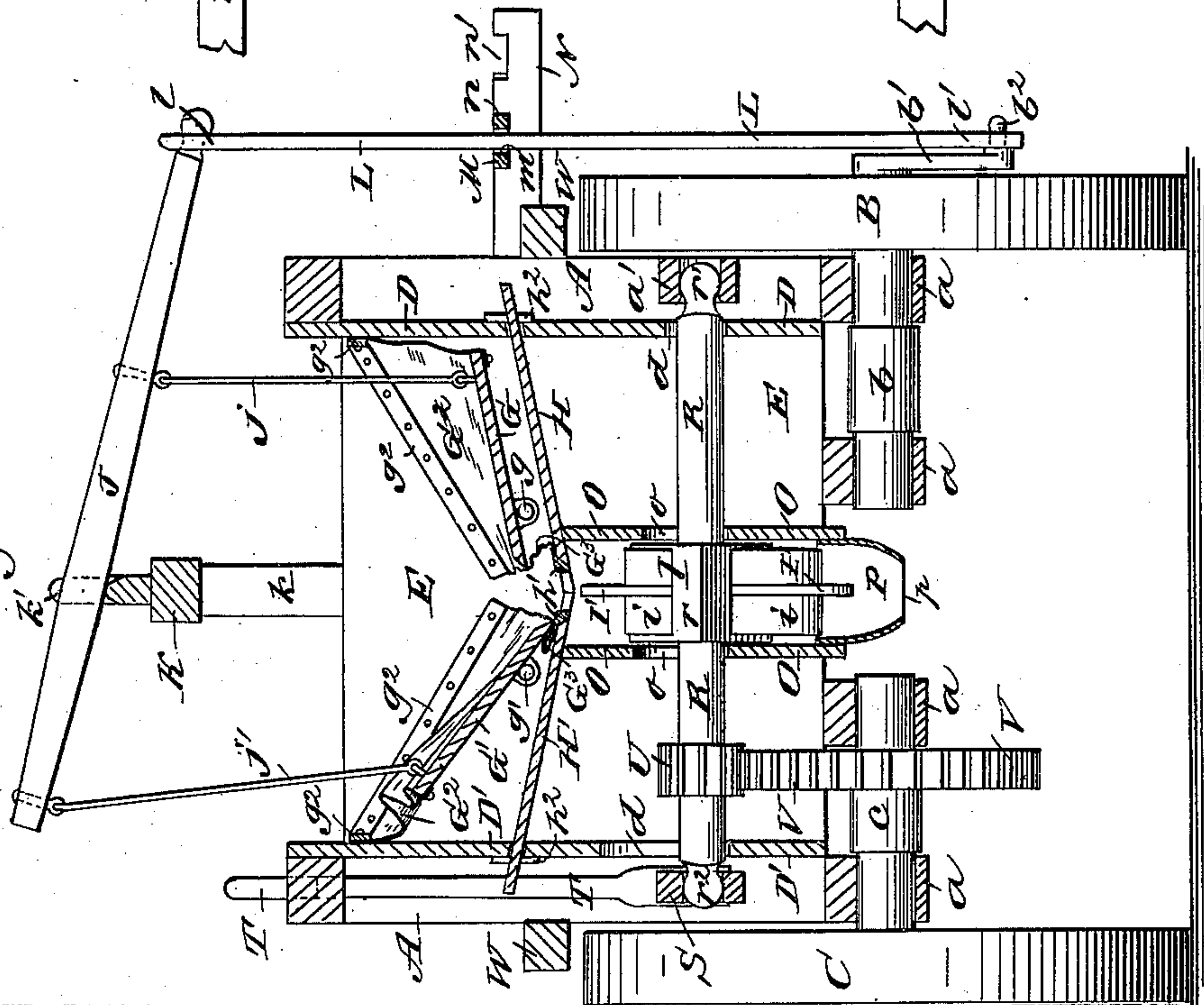


Fig. 3.



WITNESSES:

Wm. Beyer
C. Sedgwick

INVENTOR:

B. Smith
H. C. Jenkins
BY *Munn & Co.*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

BRYANT SMITH AND HENRY C. JENKINS, OF BROWNSVILLE, ALABAMA.

FERTILIZER-DISTRIBUTER.

SPECIFICATION forming part of Letters Patent No. 358,171, dated February 22, 1887.

Application filed December 1, 1886. Serial No. 220,376. (No model.)

To all whom it may concern:

Be it known that we, BRYANT SMITH and HENRY C. JENKINS, of Brownsville, Jefferson county, State of Alabama, have invented a new and Improved Fertilizer-Distributor, of which the following is a full, clear, and exact description.

Our invention relates to fertilizer-distributors, and has for its object to provide a simple, comparatively inexpensive, and efficient machine of this character, adapted to drop the fertilizer regularly and compactly in drills and upon seeds, and without waste of the fertilizer, and with economy of time and labor of attendants.

The invention consists in certain novel features of construction and combinations of parts of the fertilizer-distributor, all as hereinafter fully described and claimed.

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

Figure 1 is an elevation of one side of the fertilizer-distributor with parts broken away and in section. Fig. 2 is a central vertical longitudinal sectional view of the machine, partly broken away. Fig. 3 is a transverse central sectional elevation of the machine as viewed from the front, and Fig. 4 is a plan view of the machine with parts broken away.

The frame A, which carries the fertilizer-receptacle and distributing devices, presently described, is mounted upon wheels B C, the separate axles *b c* of which are fixed to the wheels, to turn with them, and are journaled in suitable boxes or bearings, *a*, at the under side of the frame. To the inner face of the frame A are fixed opposite side boards or walls, D D', and front and rear boards or walls, E E', thereby providing a casing in which the opposite upper agitators or feed-boards, G G', the opposite feed-regulating slides, H H', and the lower feed-wheel or beater, I, are arranged for operation, as next described.

The feed-boards G G' are pivoted, near one edge, on rods, *g g'*, respectively, to the front and rear walls of the casing, and near their other edges the boards have connected to them the lower ends of hanger-rods *j j'*, the upper ends of which are attached to a lever, J, which

is fulcrumed on a cross-bar, K, supported by uprights *k k* from the front and rear of the main frame A. The lever J is preferably fulcrumed to the bar K by the passage of a pin, *k'*, on the bar, through a slot of the lever, and the points of connection of the rods *j j'* with the lever are about equidistant from and at opposite sides of the lever fulcrum; hence the feed-boards will alternately be lifted and let fall as the lever is rocked vertically by means of a rod, L, connected at its upper end, *l*, to the lever and at its lower end to a crank, *b'*, on the shaft *b* of wheel B; or it may be to a pin fixed in the wheel.

The connection at *l* of the rod L and lever J will allow the lower end, *l'*, of said rod to be moved laterally, and said end *l'* is simply slipped onto a wrist-pin, *b²*, of the crank, which allows almost instant connection of the rod L with the crank or its disconnection therefrom. The rod L passes freely through a slot, *m*, made in a lever, M, which is pivoted at its forward end at *m'* to a cleat or bar fixed to the frame A, and the rear end of this lever M is formed as a handle, *m²*, and the lever is adapted to fit into either one of two notches, *n n'*, made in an arm, N, fixed to the frame A. The lever M preferably has a pin, *m³*, which is adapted to enter a hole made in the base of either notch *n n'*, to lock the lever therein.

It is obvious that when the lever M is set into the inner notch, *n*, and is engaged with the crank-pin *b²*, as in Figs. 1 and 3, the feed-boards G G' will be operated as the machine is moved over the field, and by lifting the lever M from the notch *n*, and moving it outward and setting it into the outer notch, *n'*, the rod L will be disconnected from the crank-pin *b²*, to allow the feed-boards G G' to remain at rest as the machine is being drawn with its load of fertilizer either to or from the place of use, or while the machine is being moved about the field when it is not desired to drop fertilizers, and thereby prevent waste of them.

At the opposite ends, and the back edge next the casing-boards D D', each of the feed-boards G G' has attached to it a flexible guard-strip of fabric, G², the upper edges of which are held to the casing-boards D D' E E' by strips or cleats *g²*, and whereby the fertilizer cannot escape over the ends and back edges of the feed-

boards onto the feed-slides $H H'$, and the fixed partition-plates $h h$, arranged at each side of the slides, but will be compelled to drop off the front or adjacent edges of the feed-boards at a point directly over the inner or adjacent edges, $h' h'$, of the feed-slides, which are preferably armed with metal plates, as shown in Figs. 2 and 3, to form reactionary cutting or grinding edges, against which the lumpy fertilizer falling from the feed-boards will be crushed or ground finely by the blades I' of the feed-wheel or beater I , journaled below the feed-boards. Along the front edges of the oscillating feed-boards $G G'$ there are fixed one edge of flexible guard fabrics G^2 , the other edges of which are fixed to the forward end parts of the feed-slides $H H'$, just behind their metal-plated edges h' . The flexible guards $G^2 G^3$ not only prevent waste of the fertilizer, but also prevent a clogging of the feed-boards, which would occur were the fertilizer allowed to lodge beneath them.

The feed-regulating slides $H H'$ are fitted into slots of the casing-boards $D D'$, respectively, and rest at their inner parts on top of opposite boards or plates, $O O$, which are fixed to the front and rear casing-boards, $E E'$, and form, with a concaved bottom plate, P , a casing in which the feed-wheel I operates, as presently described. The plates $O O$ also afford a firm support for the inner ends of the partition-plates $h h$, which are fixed to them and to the casing-boards $D D'$.

It is obvious that the slides $H H'$ may be drawn outward more or less, to regulate the size of the opening between their inner edges, $h' h'$, and consequently control the amount of fertilizer allowed to pass from the feed-boards $G G'$ to the feed-wheel. A convenient means of holding the slides in position are pins h^2 , passed through one of a series of holes made through the downwardly-inclined slides and outside of the casing-boards $D D'$, (see Fig. 3 of the drawings;) but any other convenient means of holding the slides in place when set may be adopted.

The feed-wheel I comprises a series of radial arms, i , preferably four in number, and which are fixed in the squared part r of a transverse shaft, R , arranged to support the feed-wheel in the casing $O O P$. To each of the radial arms i of the feed-wheel a knife or cutting-blade, I' , is fixed by bolts or otherwise, and these knives work between the metal-armed edges h' of the feed-boards $H H'$ to crush the fertilizer, as above stated, and carry it downward, to be discharged through the opening p in the bottom P of the feed-wheel case to distribute the fertilizer in a compact line or drill in a furrow over seed planted therein and in proper quantity to stimulate growth and avoid waste.

The shaft R is journaled at one end, r' , in a bearing, a' , fixed to the frame A , and passes through vertically-ranging slots d and o , made in the casing-walls $D D'$ and $O O$, respectively,

and at its other end, r^2 , the shaft has a bearing in a lever, S , which is pivoted at its forward end at s to the frame A , and at its rear end at s' has a pivotal connection with the lower end of a locking-lever, T , the upper or handle portion of which is bifurcated, thereby forming two elastic arms, $t t'$, on which, respectively, are formed shoulders 1 2, adapted to engage the upper and lower faces of a timber, a^2 , of the frame A , said timber having a slot, a^3 , through which the locking-lever passes for a guide to it. On the shaft R there is fixed a pinion, U , which is adapted to mesh with a gear-wheel, V , fixed to the shaft c of the wheel C .

It is obvious that when the lever T is lowered to allow its shoulder 1 to engage or lock beneath the timber a^2 of the frame A , as shown in Fig. 2 of the drawings, the lever S will be lowered to lower the end r^2 of the shaft R and hold the pinion U thereon into engagement with the gear-wheel V , and cause the feed-wheel I to be operated from the wheel C as the machine is drawn along the field, and when the lever T is adjusted so that its shoulder 2 springs out over the top of the frame-timber a^2 the lever S and shaft R will be held raised to lift the pinion U clear of the gear-wheel V , and thus prevent the operation of the feed-wheel I by the advance of the machine, which is necessary to avoid underwear of the distributor mechanism as the machine is moving from place to place. The slots $d o$ in the casing-walls allow the vertical adjustment of the shaft R to disconnect the wheels $V U$ for stopping the feed-wheel, as above described.

I provide the machine with shafts W , which are fixed to the sides of the frame A , and to which a horse may be hitched for drawing the machine; or the shafts may be grasped by a man for the purpose. The shafts project at the back of the machine to form handles $w w$, which will be grasped by an attendant to guide the machine and to ease its passage over rough ground.

The machine may be made of any size, a desirable size being that allowing five or six bushels of fertilizing-compost to be carried in one load, and the machine will distribute the fertilizer in drills over from three to five acres of land in one day.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A fertilizer-distributor comprising a frame and casing supported on wheels $B C$, having independent axles $b c$, one or more feed-boards pivoted to the casing and adapted to carry the fertilizer, mechanism, substantially as described, for vibrating the feed-boards by the rotation of the wheel B or its axle, a feed-wheel journaled within a casing having an open bottom and receiving the fertilizer from the feed-boards, and mechanism, substantially as described, for rotating the feed-wheel from the wheel C , substantially as and for the purposes set forth.

2. A fertilizer-distributor comprising a frame and casing supported on wheels B C, having independent axles b c , one or more feed-boards pivoted to the casing and adapted to carry the fertilizer, mechanism, substantially as described, for vibrating the feed-boards by the rotation of the wheel B or its axle, a feed-wheel journaled within a casing having an open bottom and receiving the fertilizer from the feed-boards, mechanism, substantially as described, for rotating the feed-wheel from the wheel C, and feed-regulating slides, as H H', interposed between the feed-boards and feed-wheel, substantially as and for the purposes set forth.

3. A fertilizer-distributor comprising a frame and casing supported on wheels B C, having independent axles b c , feed-boards G G', pivoted to the casing and adapted to carry the fertilizer, a lever, J, connected by rods j j' with the feed-boards G G', respectively, a rod, L, connecting the lever J with a wrist-pin on the wheel B or its axle, a shaft, R, journaled below the feed-boards, a pinion, U, on shaft R, a feed-wheel, I, fitted to shaft R, for rotation within a casing, Q O P, having a bottom opening, p , a lever, S, pivoted to the frame, and in which one end of the shaft R is journaled, a lock-lever, T, connected to the lever S, a gear-wheel, V, on the shaft c of wheel C, and adjustable feed-regulating slides H H', interposed between the feed-boards and feed-wheel, substantially as described, for the purposes set forth.

4. In a fertilizer-distributor, the combination, with a frame and casing supported on wheels, of feed-boards G G', pivoted in the casing, a lever, J, rods j j' , connecting the feed-boards G G', respectively, to the lever J, and a rod, L, connected at one end to the lever J and at the other end to a wrist-pin on one of

the frame-supporting wheels or its axle, substantially as shown and described.

5. In a fertilizer-distributor, the combination, with a frame and casing supported on wheels, of feed-boards G G', lever J, rods j j' , connecting-rod L, and a wrist-pin, b^2 , on one of the wheels or its axle, a lever, M, slotted at m , to receive the rod L, and an arm, N, provided with notches n n' , to receive the lever M, substantially as shown and described.

6. In a fertilizer-distributor, the combination, with a frame and casing, vibrating feed-boards G G', and feed-slides H H', arranged substantially as specified, of flexible guards G³, secured to the feed-boards and feed-slides, substantially as described, for the purposes set forth.

7. In a fertilizer-distributor, the combination, with a frame and casing and vibratory feed-boards, as G G', pivoted thereto and adapted to carry the fertilizer, of flexible guards G², connected to the casing and feed-boards, substantially as described, for the purposes set forth.

8. In a fertilizer-distributor, the combination, with a frame, A, carrying fertilizer, holding, and dropping devices and supported on wheels, of a shaft, R, journaled at one end, r^1 , in said frame, a lever, S, fulcrumed to the frame, and in which the other end, r^2 , of shaft R is journaled, a lever, T, having stop-shoulders 1 2, adapted to engage the frame and connected to lever S, a pinion, U, on the shaft R, and a gear-wheel, V, on the shaft c of wheel C, substantially as shown and described.

BRYANT SMITH.
HENRY C. JENKINS.

Witnesses:

JOHN FARINGTON,
J. PICK BURNS.