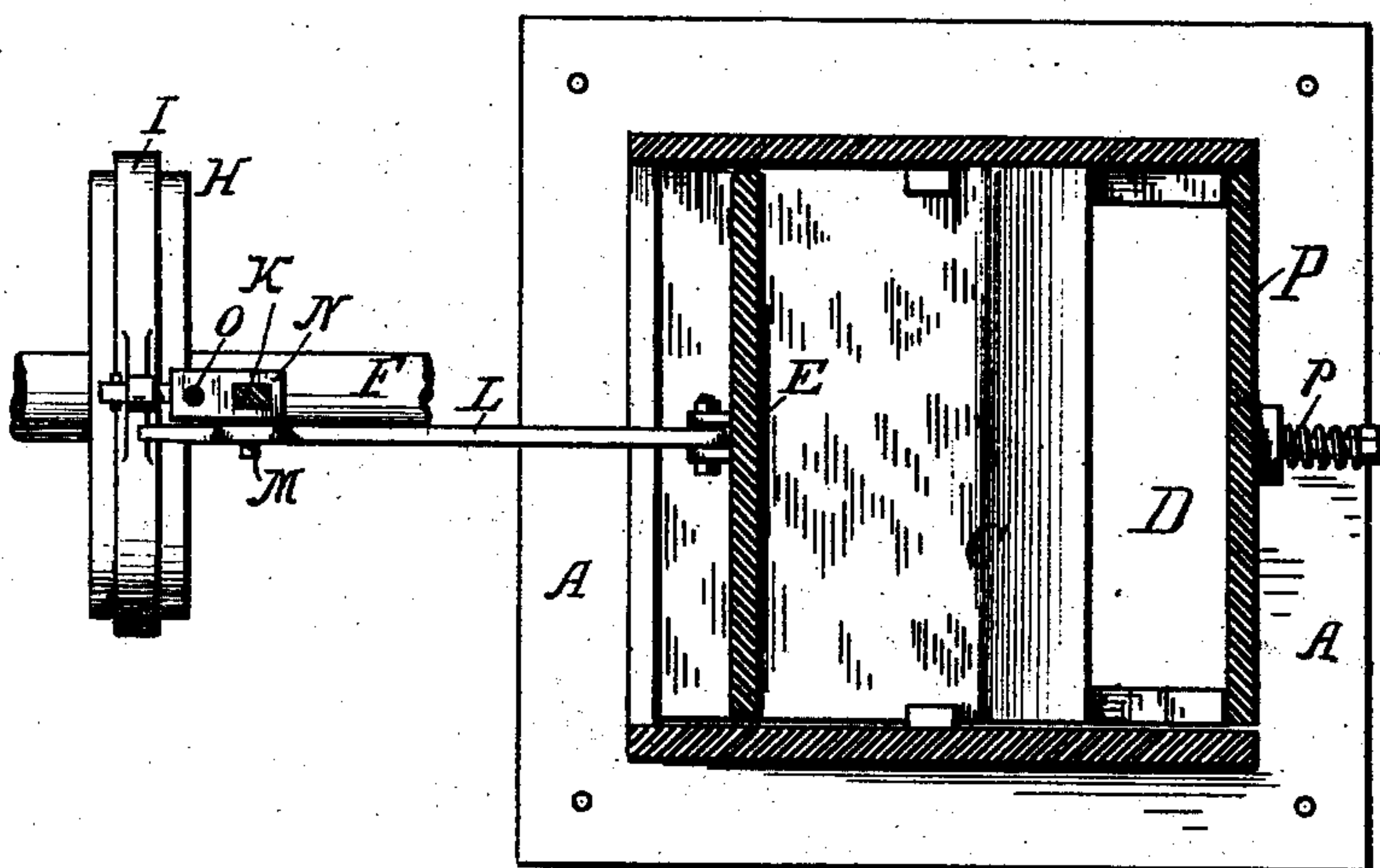
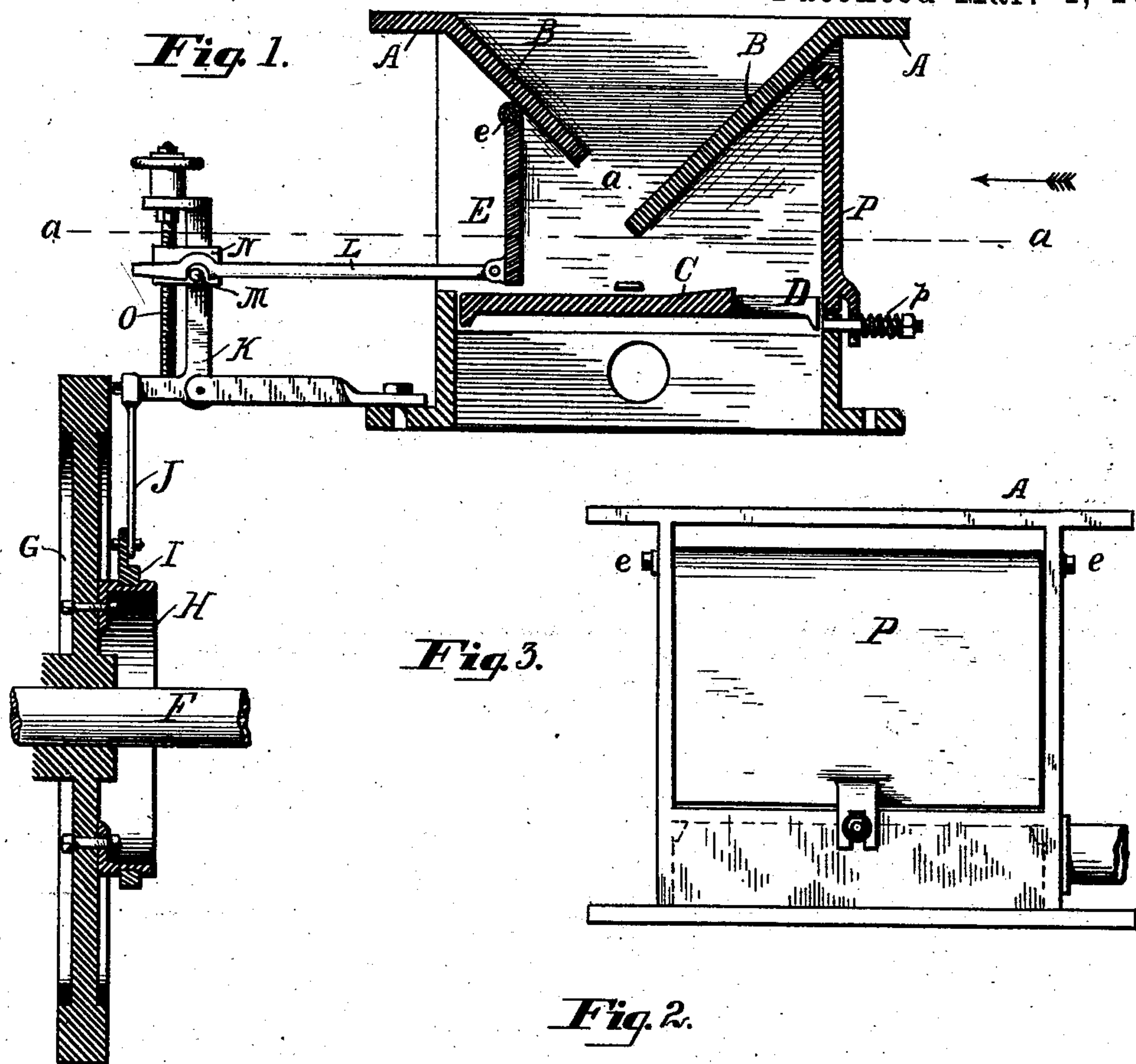


(No Model.)

H. B. FELDMANN.
HOPPER FOR PULVERIZING MACHINES.

No. 294,375.

Patented Mar. 4, 1884.



H. B. Feldmann

WITNESSES:

A. Heuber
John D. Lister

INVENTOR

By his Attorneys
W. C. Hawbridge
Edison Taylor

UNITED STATES PATENT OFFICE.

HERMANN BERNHARD FELDMANN, OF PHILADELPHIA, PENNSYLVANIA,
ASSIGNOR OF ONE-HALF TO STEPHEN P. M. TASKER, OF SAME PLACE.

HOPPER FOR PULVERIZING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 294,375, dated March 4, 1884.

Application filed July 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, HERMANN BERNHARD FELDMANN, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain Improvements in Hoppers for Pulverizing-Machines, of which the following is a specification.

My invention is applicable for general use as a hopper with any class of devices to which hoppers, as such, are applied. It is however especially designed for employment in connection with a certain pulverizing-machine invented by William Henry Thompson, of Islington, county of Middlesex, Kingdom of Great Britain, and patented to him in and by Letters Patent of the United States No. 249,489, dated November 15, 1881, and with certain apparatus, being improvements upon the same, heretofore patented to me and to Stephen P. M. Tasker, of Philadelphia.

The object of my invention is to produce an automatic hopper provided with adjustable feeding appliances of such construction as to be adapted to feed a quantity of material predetermined according to the set of said appliances.

A preferred form of a convenient embodiment of my invention is hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a central vertical sectional elevation of a hopper conveniently embodying my improvements. Fig. 2 is a top plan view of the same, section being supposed in a plane on the dotted line *a a* of Fig. 1. Fig. 3 is a front elevation of the hopper viewed from the right hand of Fig. 1 in the direction of the arrow.

In the drawings, A is the casing of the hopper, it being any suitably-shaped inclosing case or frame provided with two convergently-inclined chutes, B, upon which the material is fed, and through an open space, *a*, between which the material is discharged upon a horizontal diaphragm, C, suitably affixed across the casing and constituting the bottom thereof. One side of the horizontal diaphragm is slotted to form the discharge-opening D, through which the material descends into the pulverizing-machine. The arrangement of the two inclined chutes relatively to the diaphragm is substantially such as is shown in the

drawings, and such that the material fed upon the chutes and falling through the open space between them upon the diaphragm deposits immediately in front of the oscillatory feed-plate, whereof hereinafter, and cannot gravitate through the discharge-opening in the horizontal diaphragm until impelled to do so by the action of said oscillatory feed-plate.

The contrivances by which the material is caused to descend through the above-described opening are the following:

E is an oscillatory feed-plate of the breadth of the casing, and suspended free for oscillation upon an axial rod, *e*, framed in the casing. Continued impulses of oscillation imparted to the feed-plate E cause it to advance the material descending through the opening *a* between the chutes upon the horizontal diaphragm, across said diaphragm to the discharge-opening therein, through which it gravitates.

As a convenient device for imparting the oscillatory movement to the feed-plate, I have devised the following contrivance, which may be operated direct from the shaft of the Thompson pulverizer, or in the case of other machines from any motor-shaft.

F is a motor-shaft, preferably carrying a fly-wheel, G, and provided with an eccentric, H, about which is applied an eccentric yoke, I, which is connected by means of a pitman, J, with the lower arm of a bell-crank lever, K, suitably supported from the hopper, the upper arm of which is connected with one extremity of a link or connecting-rod, L, the other extremity of which is pivoted to the oscillatory feed-plate. It will be obvious that a revolution of the eccentric through the instrumentality of the yoke and pitman occasions the vibration of the bell-crank, the consequent reciprocation of the link or connecting-rod, and the oscillatory movement of the feed-plate E.

As a means of conveniently controlling the extent of oscillation of the feed-plate, I have made the point of connection of the link with the vertical arm of the bell-crank adjustable by supporting the link upon a pivot-pin, M, projecting from a sliding sleeve, N, upon the upper end of the bell-crank, the position of which sleeve with respect thereto being controlled by a fixed adjusting-screw, O, swiveled

in the bell-crank and threaded through the sliding sleeve. The position of the pivot-pin with respect to its distance from the fulcrum of the bell-crank lever regulates the extent of throw of the oscillatory feed-plate.

P is a spring-controlled door, which constitutes one of the sides of the casing opposite to the oscillatory feed-plate. The office of this door, which is suspended from an axial rod above, and which below bears against a spiral spring, *p*, is to permit of the discharge of such an accumulation of material, under the very rapid operation of the device, as would be too great to escape through the discharge-opening D.

The operation of the oscillatory feed-plate is to advance a predetermined quantity of material deposited upon the horizontal diaphragm across said diaphragm into the discharge-opening formed therein. The hopper is preferably continuously supplied with material, as its discharging capacity is very great.

Such being a description of a preferred form of my apparatus, it is proper for me to state that other means than the eccentric, bell-crank, and connections may be employed to impart the oscillatory throw to the feed-plate, and that I have simply instanced the arrangement represented as one convenient for the purpose.

I am aware that I am not the first to employ an oscillatory plate in connection with a hopper, broadly considered, and to such device, broadly, I lay no claim.

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

1. In a hopper, the combination of an inclosing-casing, a diaphragm or floor therein provided with a discharge-opening, chutes or kindred devices adapted to direct the deposit of material fed into the casing upon the diaphragm, an oscillatory feed-plate adapted to occasion the feed of a predetermined quantity of material deposited upon the diaphragm to the discharge-opening therein, and means for occasioning the oscillation of the feed-plate, substantially as set forth.

2. The combination, with an inclosing-casing containing convergent chutes, and a diaphragm provided with a discharge-opening, substantially as set forth, of an oscillatory feed-plate; a link, a bell-crank lever, an eccentric yoke, and an eccentric, all substantially as set forth.

3. In combination with a casing for a hopper provided with the inclined convergent chutes and the horizontal diaphragm and the oscillatory feed-plate, the spring-controlled door, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name this 2d day of July, A. D. 1883.

HERMANN BERNHARD FELDMANN.

In presence of—

J. BONSALE TAYLOR,
JOHN JOLLEY, Jr.