

(No Model.)

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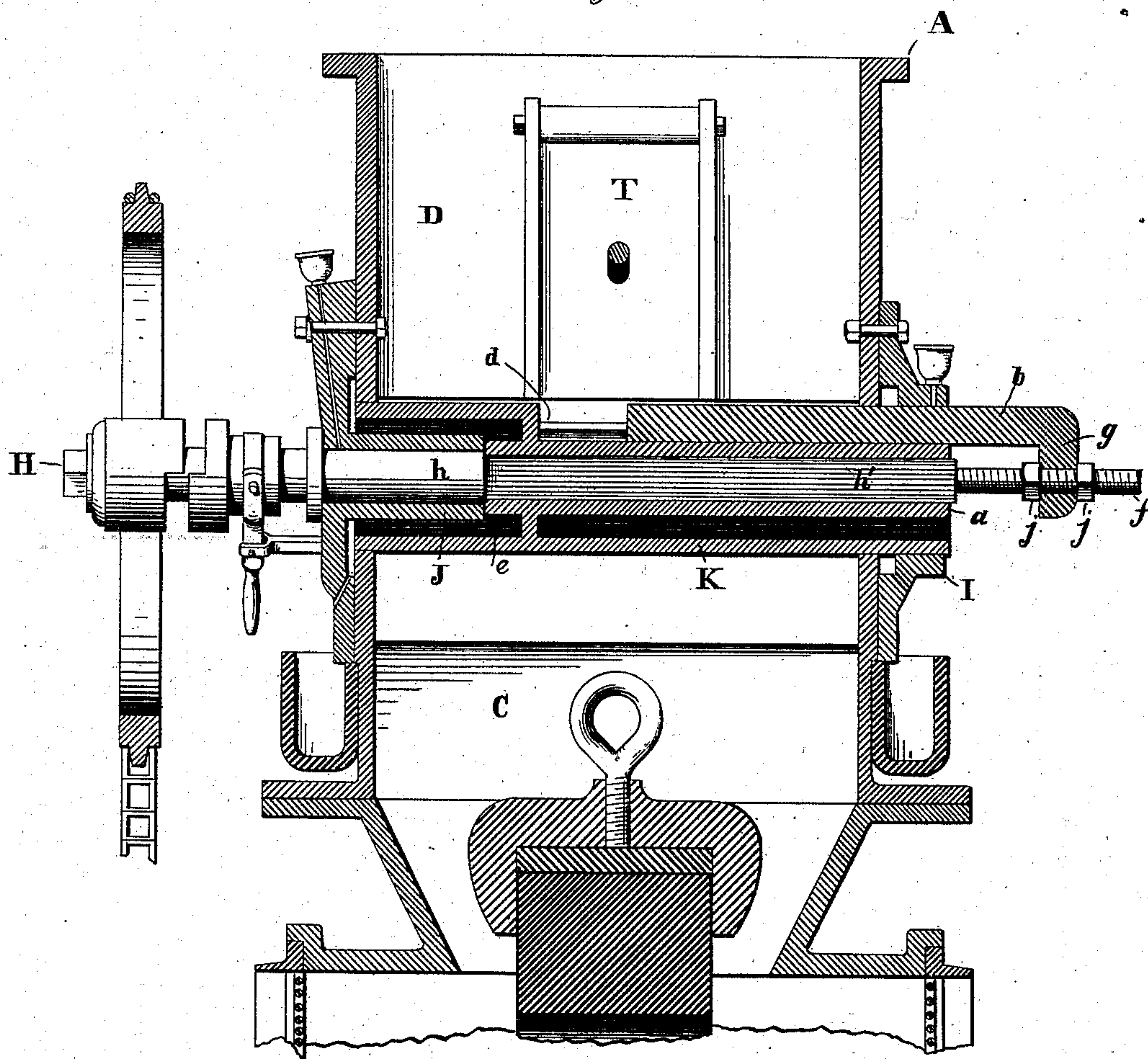
S. P. M. TASKER.

HOPPER FOR PULVERIZING MACHINES.

No. 274,051.

Patented Mar. 13, 1883.

Fig. 1.



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(No Model.)

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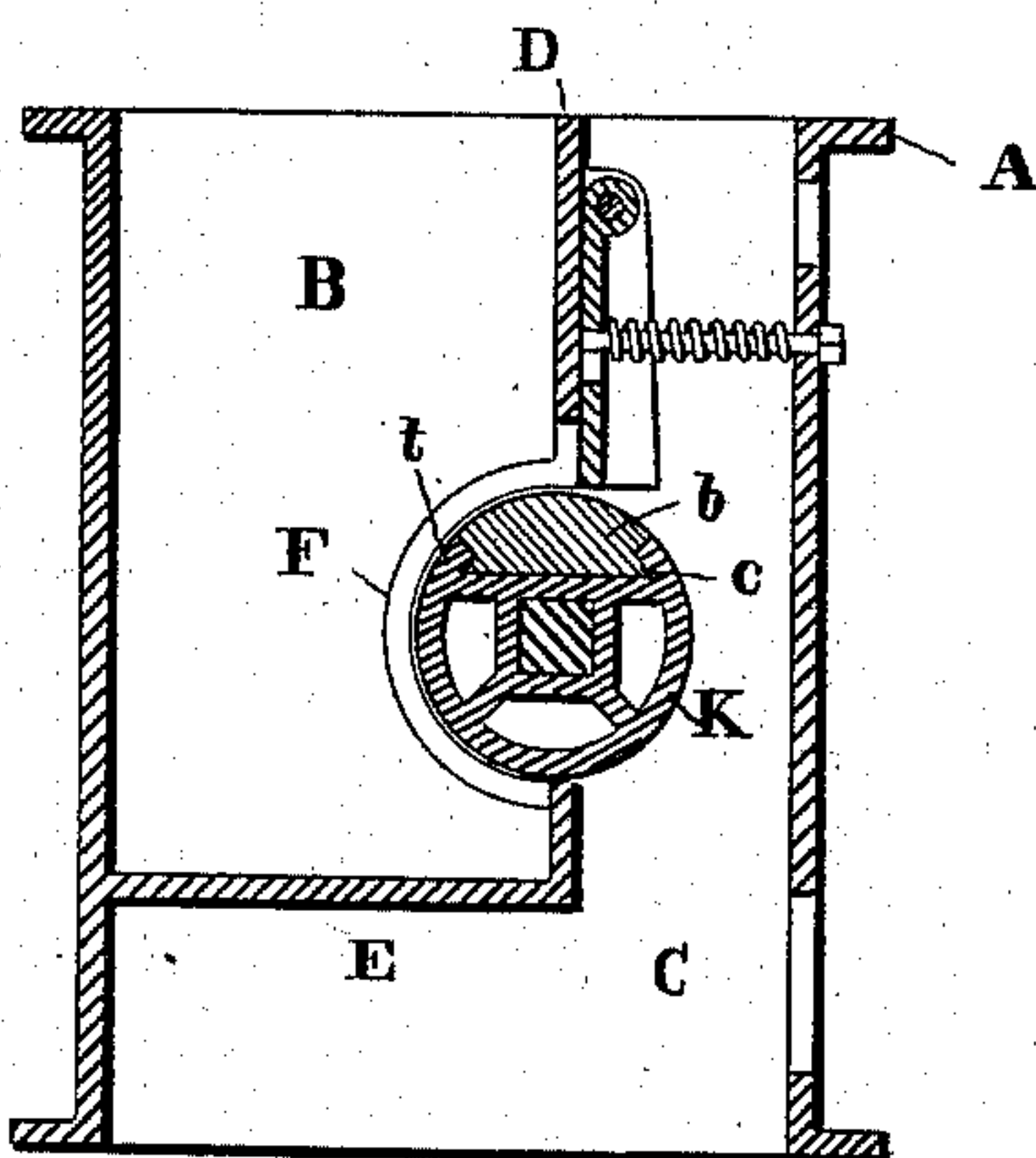
S. P. M. TASKER.

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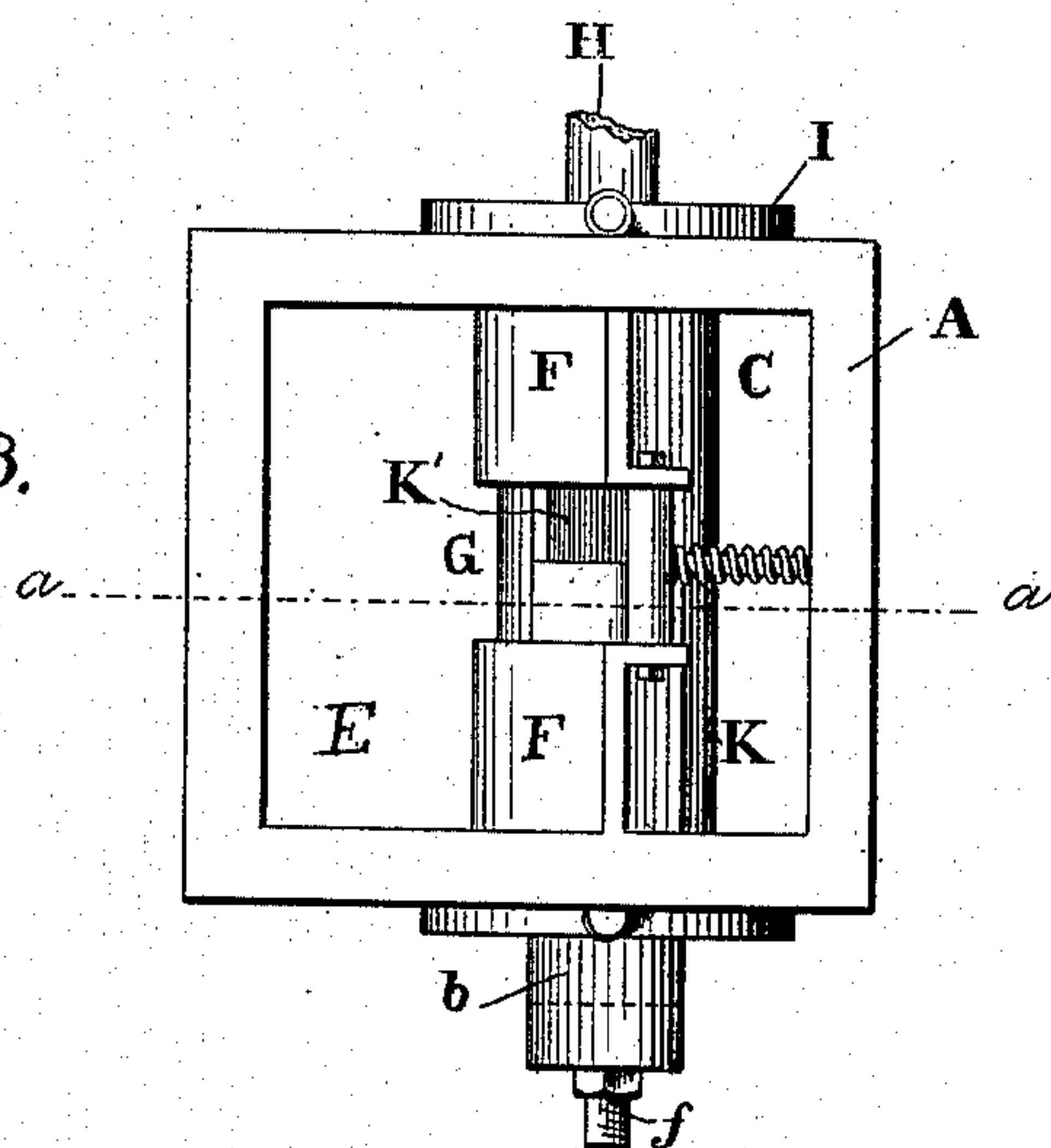
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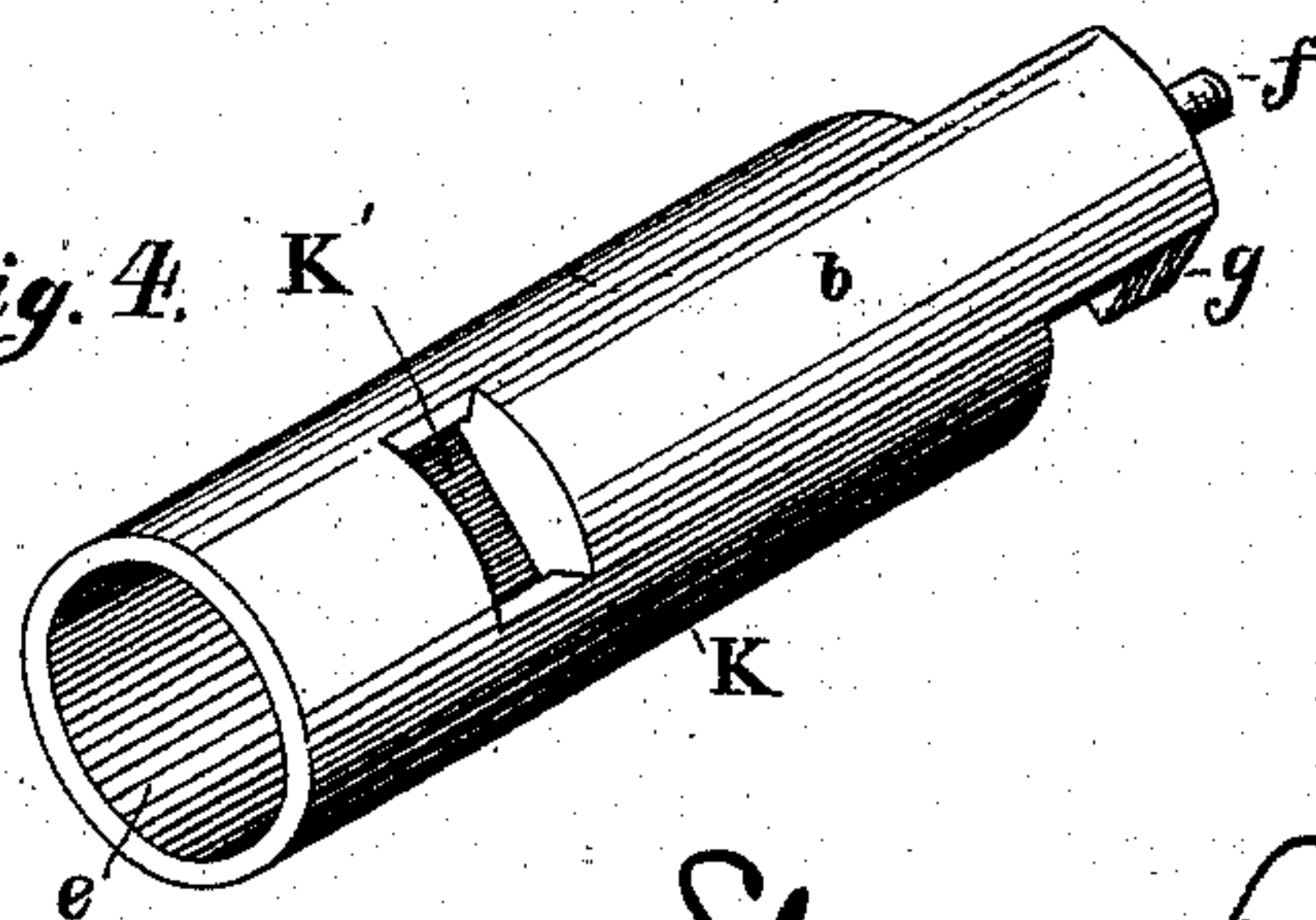
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

STEPHEN P. M. TASKER, OF PHILADELPHIA, PENNSYLVANIA.

## HOPPER FOR PULVERIZING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 274,051, dated March 13, 1883.

Application filed November 22, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, STEPHEN P. M. TASKER, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain  
5 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  
10 hoppers, as such, are applied. It is, however, especially designed for employment in connection with a certain novel pulverizing-machine invented by William Henry Thompson, of Islington, county of Middlesex, Kingdom of  
15 Great Britain, and patented to him in and by Letters Patent of the United States No. 249,489, dated November 15, 1881.

My invention also relates to and is an improvement upon a certain hopper invented by  
20 Hermann Bernhard Feldmann, of Philadelphia, application for patent for which was filed in the United States Patent Office November 6, 1882.

The object of my invention is to construct  
25 an automatic hopper, substantially of the character invented by Feldmann, which is provided with adjustable feeding appliances of a mechanically different construction from those employed by Feldmann, but which are yet,  
30 equally with his, 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  
35 and claimed.

In the accompanying drawings, Figure 1 is a central vertical front sectional elevation of a hopper conveniently embodying my improvements, and set in place upon the feeding-chute  
40 of a pulverizing-machine. Fig. 2 is a central vertical side sectional elevation taken on a plane projected on the line *a a* of Fig. 3. Fig. 3 is a top plan view of the same. Fig. 4 is a view in perspective of the pocket-cylinder as  
45 constructed by me.

Similar letters of reference indicate corresponding parts.

It is proper to premise that my hopper, so far as the casing and compartments therein go,  
50 is of precisely the same construction as that of Feldmann's, and that my improvements reside in an improved construction of the pocket-

cylinder, whereby the adjustment of the area of the pocket is readily controlled. For a better understanding of my improvements it is  
55 necessary to redescribe such features of the device as are of Feldmann's invention. Confining myself now to such features—

A is the casing of the hopper, it being any suitably-shaped inclosing-case, divided into a  
60 receiving-chamber, B, and a discharging-chamber, C, which latter is supposed in communication with the apparatus to be fed. This division is conveniently effected by means of a vertical diaphragm, D, and a horizontal dia-  
65 phragm, E, which connect as shown. The vertical diaphragm is horizontally divided to form a horizontal slot of the breadth of the casing, and the slot is provided with two semi-cylindric shells, F, which are set sufficiently apart  
70 to form between them a vertical slot or opening, G, through which the material fed into the receiving-chamber passes, by means of the revolving pocket, to the discharging-chamber, as hereinafter explained. 75

H is a driving-shaft, horizontally journaled in the casing by means of a tubular gland, J, and connected with the casing in such position as to cause the setting of the pocket-cylinder K, with which said shaft is equipped, to  
80 the extent of half the breadth of the latter within the semi-cylindric shells, as clearly shown in Fig. 2. The pocket-cylinder K, in the construction of which this invention resides, is in Fig. 4 shown detached from its  
85 shaft and removed from the machine, and consists, essentially, of a metal cylinder, to which the letter K has been applied, and which is axially provided with a hollow bushing or sleeve, *a*, conformed to and adapted to slide  
90 over that extremity of the shaft which is squared, as indicated by the letter *h'*, so that when slid over it said pocket-cylinder revolves as a connected whole with said shaft. Through-  
95 out approximately three-quarters of its length the pocket-cylinder is longitudinally channeled or recessed down to the central bushing, as well indicated in the drawings. This channel is longitudinally bounded by tongued  
100 sides *t*, and a slide, *b*, is fitted within said recess by grooves *c* along its sides, conforming to the tongues in the channel. This slide is adapted to completely fill the recess in the pocket-cylinder, and is externally conformed



to the periphery of said cylinder, so that when in place therein it completes that portion of the cylindric contour of said cylinder which is destroyed when the channel is formed.

5 *d* is an annular web formed within the pocket-cylinder, against which the channel terminates at its inner end. The pocket *K'* is formed within the recess between the web referred to and the inner extremity of the slide, 10 and is of course graduated in extent by the movement of the slide in or out. Thus, for instance, when the slide is completely in the recess, there is no pocket, and as the slide is withdrawn a pocket is formed, the area of 15 which is proportionate to the extent of such withdrawal. The pocket constitutes a scoop or take-up.

The shaft *H* is cylindric throughout that portion of its length, *h*, which finds a bearing 20 in the tubular gland *J*, and beyond that portion the extremity of said shaft *h'*, as stated, is square or of other angular sectional outline, and is fitted within the bushing or sleeve of the pocket-cylinder, which bushing is, as 25 stated, conformed to the external conformation of the squared extremity of the shaft, so as to be free to slide lengthwise upon said shaft, but to be compelled to rotate in fixed connection therewith. The outer extremity 30 of the pocket-cylinder, or that extremity the exterior contour of which is completed by the slide, is journaled in the bearing *I*, applied to the side of the hopper. The inner extremity of the pocket-cylinder is made hollow, as at *e*, 35 as well indicated by Figs. 1 and 4, and is fitted to surround the tubular gland.

By reference to the drawings it will be observed that the pocket-cylinder is of sufficient diameter to fill to the extent of half its breadth 40 the semi-cylindric shells of the vertical diaphragm. When the driving-shaft and pocket-cylinder in their combined relationship are introduced into the hopper, they are journaled in such relation to the case and semi-cylindric 45 shells formed in the vertical diaphragm thereof that the common axis of the shaft and of the pocket-cylinder coincides with the axis of the semi-cylindric shells and lies in the plane of the vertical diaphragm, all as well represented in the drawings. When introduced in 50 this position, and when motion of rotation has by any suitable means been applied to the driving-shaft, the latter and the pocket-cylinder rotate together as a connected whole.

55 In Feldmann's invention adjustment as to area of the pocket is made by moving the pocket-cylinder itself lengthwise with respect to the shaft, or from side to side with respect to the casing. I control the area of the pocket 60 by the movement of the slide only without moving the pocket-cylinder, thereby securing such advantages as are incident to stability of parts and to a pocket which is *per se* of variable area, as opposed to a pocket which is of 65 invariable area, and which is moved with respect to an opening of a fixed size. The movement of my slide in no wise affects the revolu-

tion of the pocket-cylinder. The pocket proper, *K'*, in the set of parts represented in the drawings, is adjusted at one-half its full capacity, the slide being set so that its inner end is in line with the center of the opening *G* between the semi-cylindric shells. 70

Material to be fed is introduced into the receiving-chamber of the hopper, and the revolving pocket, through the cylinder and its shaft, 75 is caused to rotate, with the result that the material fed is taken up or caught by the pocket, and in such quantity as the latter is set to contain is in the revolution thereof carried through the vertical opening between the 80 shells into the discharging-chamber and therein discharged in the same manner as in Feldmann's device.

If the slide be moved to the right hand of 85 the drawings, so that its end coincided with the inner extremity of the right-hand shell, (reference being made to Fig. 1,) the discharging or feeding capacity of the hopper would obviously be twice that represented in the 90 drawings.

When it is desired to feed a predetermined quantity less than that contained by a pocket of the full breadth of the opening, the slide is moved to the left hand, or inwardly, so as to 95 form a pocket of the exact capacity desired. This lateral adjustment of the slide is conveniently accomplished by means of an adjusting-screw, *f*, affixed to and projecting from the squared extremity of the shaft, the said 100 screw passing through a downwardly-projecting flange, *g*, formed on the outer extremity of the slide, and the adjustment being effected by means of nuts *j*, threaded upon the screw on both sides of the flange, as shown in Fig. 105 1. By the manipulation of the nuts the slide can be moved either in or out and set in any position.

*T* is a spring-controlled door, designed to open automatically should the pocket take up 110 a substance larger than it can discharge without such opening, it being a device invented by Feldmann, and described in his application for patent.

Having now described the construction of 115 a form of parts conveniently embodying my invention, I desire to state that many minor mechanical changes may be made in the construction and arrangement of the parts without departing from the principles of construction had in view. Thus, for instance, the pocket-cylinder may be feathered upon the shaft 120 instead of being conformed to a shaft the extremity of which is not of circular outline.

Having thus described my invention, I 125 claim—

In a hopper, the combination of an inclosing-casing, a vertical diaphragm provided with a horizontal opening and with two semi-cylindric shells so disposed as to leave an open 130 space between them, a horizontal diaphragm, a pocket-cylinder provided with a longitudinal channel or recess in which is fitted a slide adapted to completely fill the recess, and ex-



ternally conformed to the periphery of said  
cylinder, a central shaft upon which said  
pocket-cylinder is fixedly mounted, and by  
which it is revolved, and means for moving  
5 the slide of said cylinder sidewise with respect  
to the opening between the semi-cylindric  
shells, substantially as and for the purposes  
specified.

In testimony whereof I have hereunto signed  
my name this 20th day of November, A. D. 1882.

STEPHEN P. M. TASKER.

In presence of—

J. BONSALE TAYLOR,  
JOHN JOLLEY, Jr.