

No. 613,861.

Patented Nov. 8, 1898.

W. H. KILBOURN.
FEEDING DEVICE FOR SANDERS.

(Application filed Jan. 29, 1898.)

(No Model.)

Fig 1

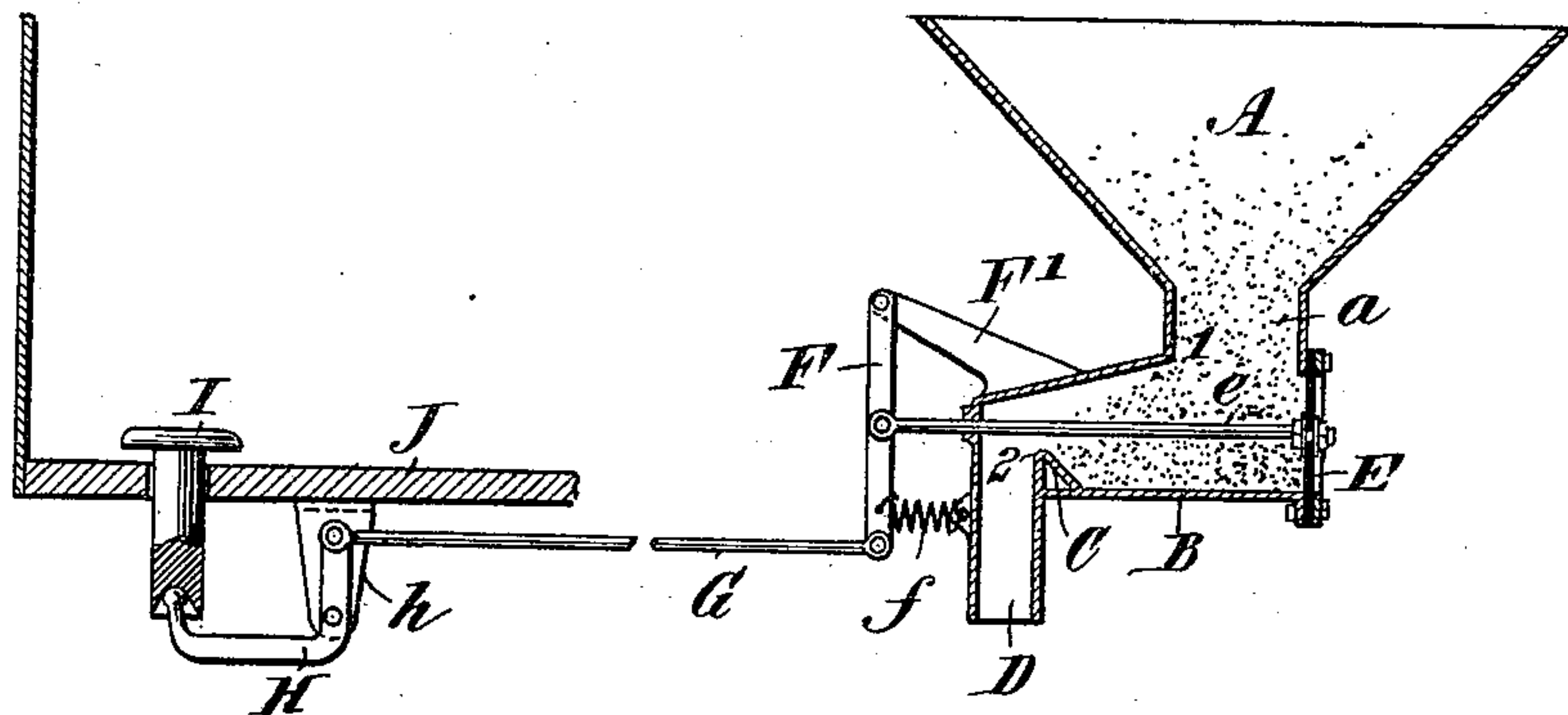


Fig 2

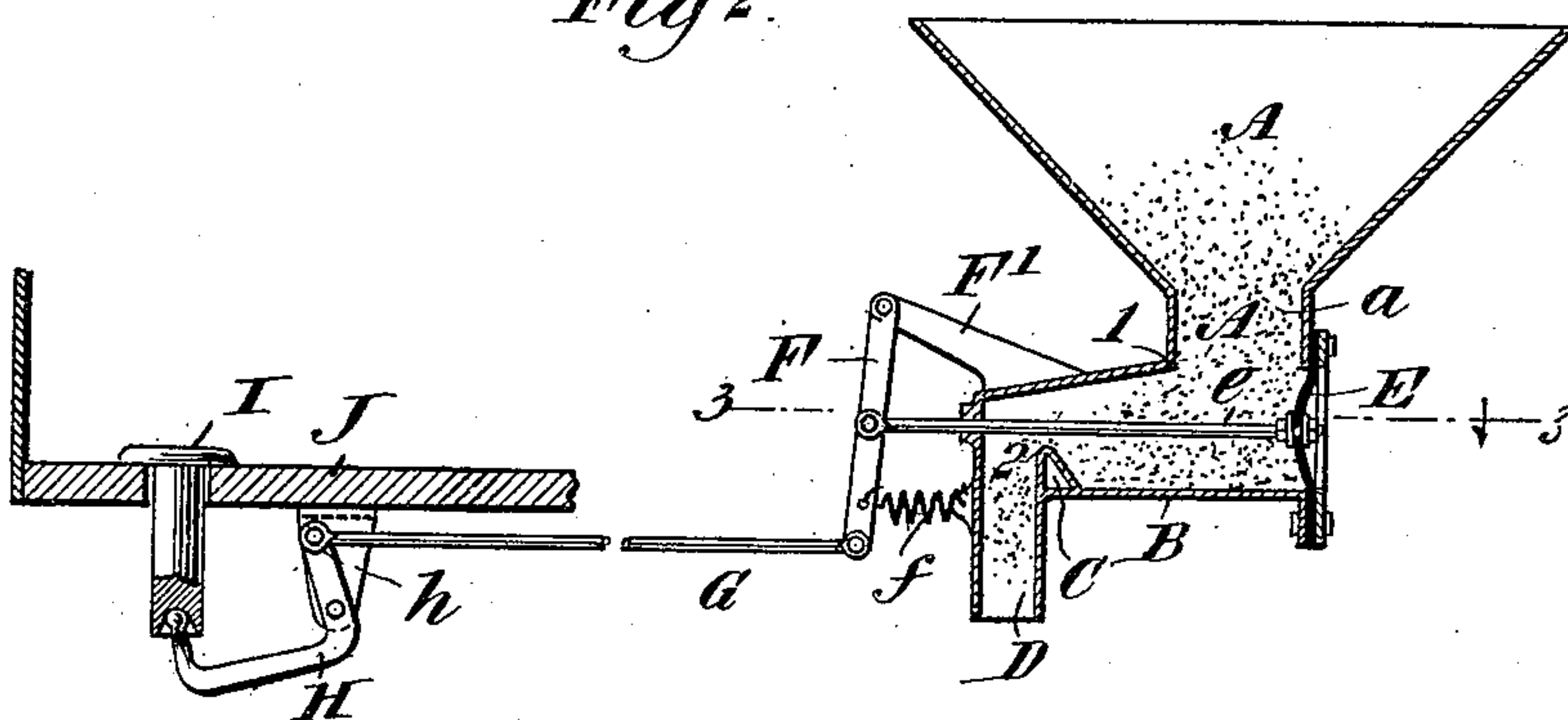
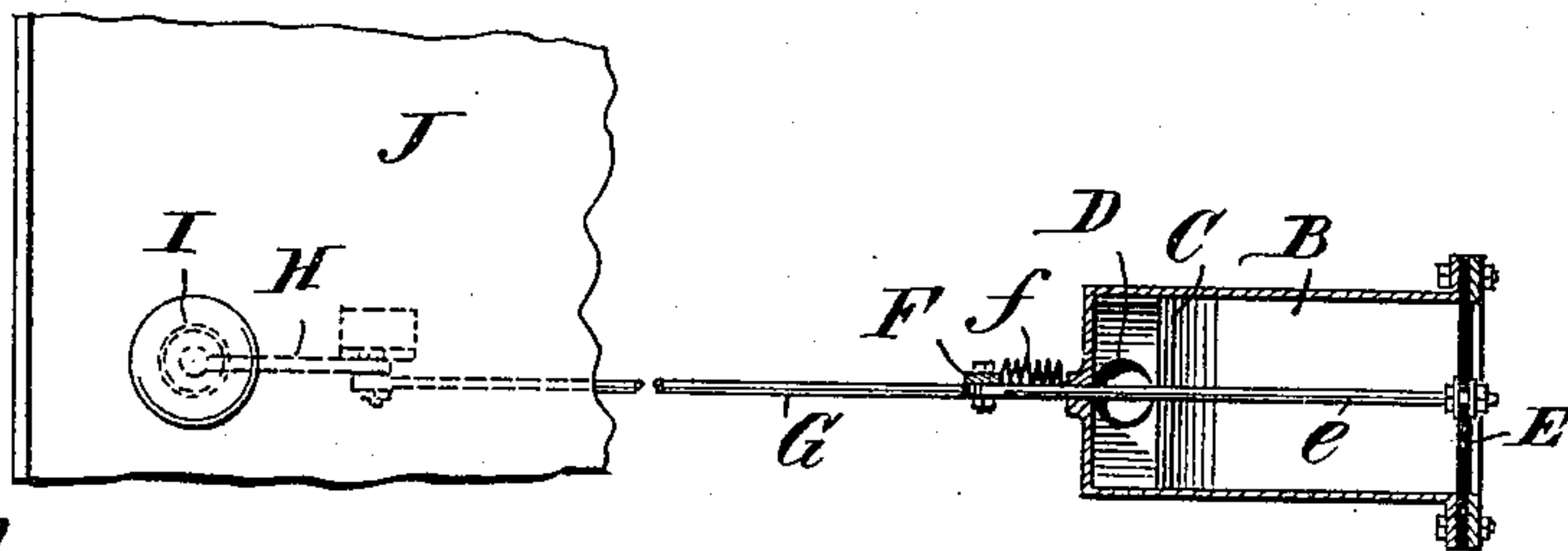


Fig 3



WITNESSES:

Paul J. Foster
H. L. Reynolds.

INVENTOR

W. H. Kilbourn.

BY

Mumford

ATTORNEYS.

UNITED STATES PATENT OFFICE.

WASHINGTON H. KILBOURN, OF GREENFIELD, MASSACHUSETTS.

FEEDING DEVICE FOR SANDERS.

SPECIFICATION forming part of Letters Patent No. 613,861, dated November 8, 1898.

Application filed January 29, 1898. Serial No. 668,462. (No model.)

To all whom it may concern:

Be it known that I, WASHINGTON H. KILBOURN, of Greenfield, in the county of Franklin and State of Massachusetts, have invented a new and Improved Feeding Device for Sanders, of which the following is a full, clear, and exact description.

My invention relates to an improvement in a feeding device for sanders adapted to be used in connection with street and steam railways; and it consists, essentially, of a box or trap located in the sand-conveying pipe, constructed so as to normally prevent gravity-feed of the sand therethrough and having a movable section which when reciprocated tends to raise the level of the sand in the box or trap and cause a portion of it to overflow into the discharge-pipe.

The invention comprises the novel features which will be hereinafter described and claimed.

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

Figure 1 is a cross-sectional elevation through the feeding device. Fig. 2 is a similar view with the parts in a different position; and Fig. 3 is a plan view of the same, partly in section, on the line 3 3 in Fig. 2.

In the drawings, A represents a funnel or hopper which either forms the reservoir or receives the sand as it comes from the reservoir. This funnel or hopper is connected, by means of a short section *a* of pipe, to the box or trap B. This box or trap may be varied widely in its construction. Its essential features, however, are that it should extend horizontally a sufficient distance, which, taken with the relative location of the edges 1 and 2, being the bottom end edge or overflow of the box, and the upper edge, under which the sand flows to the feeding device, will prevent the sand from flowing through the box by gravity. The bridge C, which extends across the bottom of the box, next to the overflow D, may be omitted, if desired. In this case, however, the box B should extend a greater distance horizontally or the outflow be relatively higher, the location of these parts being such

that the sand flowing under the corner 1 will not flow out through the discharge-pipe D under the influence of gravity alone.

At some point in the outer portion of the box B is provided a movable section which is connected with mechanism by which it may be given a reciprocating motion. As shown in the drawings, this movable section is placed at one end of the box and consists of a flexible diaphragm E. This diaphragm is connected to a rod *e*, which passes through an opening in the opposite end of the box B and is pivoted to a lever F, said lever being pivoted at one end upon an arm F' and by its other end is pivotally connected to a rod G, which rod extends longitudinally of the car and preferably beneath the floor thereof, and is pivoted to a bell-crank lever H, said lever being pivoted upon a bracket *h*, depending from the car-floor.

The free end of the lever H is engaged by a pin I, which projects through the platform of the car, where it may be engaged by the foot of the motorman. This is only one form of operating means for my feeding device. Any other form of operating means desirable may be substituted therefor. The lever F is normally held toward the box B by the spirally-coiled spring *f*.

The operation of my device is as follows: Sand will flow down through the pipe *a* into the box B and will fill the greater part of the space in said box. The relative locations of the points 1 and 2 are such that the incline assumed by the sand under the influence of gravity alone will fail to raise the level of the sand above the overflow edge 2. Consequently so long as the diaphragm E is not operated no sand will be fed through the device. When the diaphragm E is reciprocated under the influence of the operating mechanism, a little of the sand is pushed forward at each reciprocation, so as to raise the level of the sand in the box or trap B and cause it to overflow the edge 2 into the discharge-pipe D. This reciprocating motion of the diaphragm E increases and decreases the volume of the box or trap B. Sand being a semifluid will flow under the influence of the moving diaphragm E. As the direction of least re-

sistance is toward the overflow-pipe D, the sand will be moved in that direction instead of up the supply-pipe *a*.

It is evident that the location of the diaphragm E is immaterial, so long as it is placed in that portion of the box B which is filled by the sand. The essential idea of my device is the movement of the sand due to the compression and expansion of the box B.

I do not claim herein a sand-holding box consisting of four side walls and a bottom, an opening near one end through which sand may pass from said box to the rails of a track, and a bridge-wall extending between said side walls of less height than said last-named walls, as the same forms the subject-matter of a claim in my application filed April 27, 1898, Serial No. 678,985.

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

1. A feeding device for sanders, comprising a box or trap, a supply-pipe opening into said box or trap, and a discharge-pipe placed to receive the overflow from said box or trap, said box being provided with means by which its volume may be rapidly varied, whereby the sand is made to overflow into the discharge-pipe.

2. A feeding device for sanders, comprising a box or trap in the conveying-pipe, adapted normally to prevent the flow of sand there-through, a movable section in said box or trap, and means for giving said section motion, whereby the volume of said box or trap is alternately increased and decreased, substantially as described.

3. A feeding device for sanders, comprising a conveying-pipe having a horizontally-extending portion adapted to prevent gravity-feed therethrough, a section in said horizontal extension being movable to raise the level of the sand and to cause it to overflow into the discharge-pipe, and means for giving said section a reciprocating motion, substantially as described.

4. A feeding device for sanders, comprising a conveying-pipe having a trap or box therein adapted to prevent gravity-feed therethrough, a flexible diaphragm forming a portion of the wall of said box, and means for giving it a reciprocating motion, whereby the sand is made to overflow into the discharge-pipe, substantially as described.

WASHINGTON H. KILBOURN.

Witnesses:

JNO. M. RITTER,
F. W. HANAFORD.