

(No Model.)

G. JOHNSTON.
ORE FEEDER.

No. 401,034.

Patented Apr. 9, 1889.

Fig. 2.

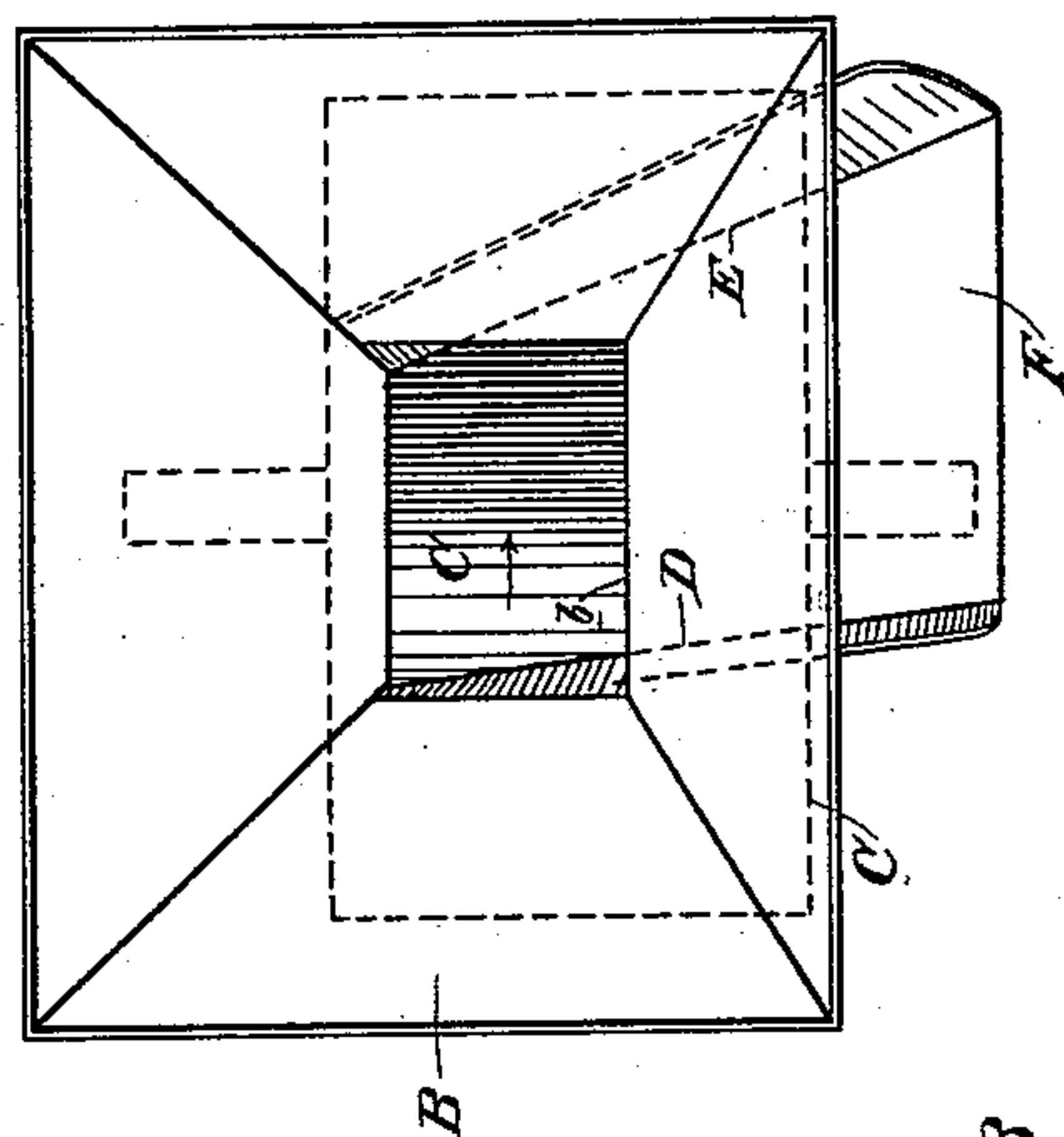


Fig. 3.

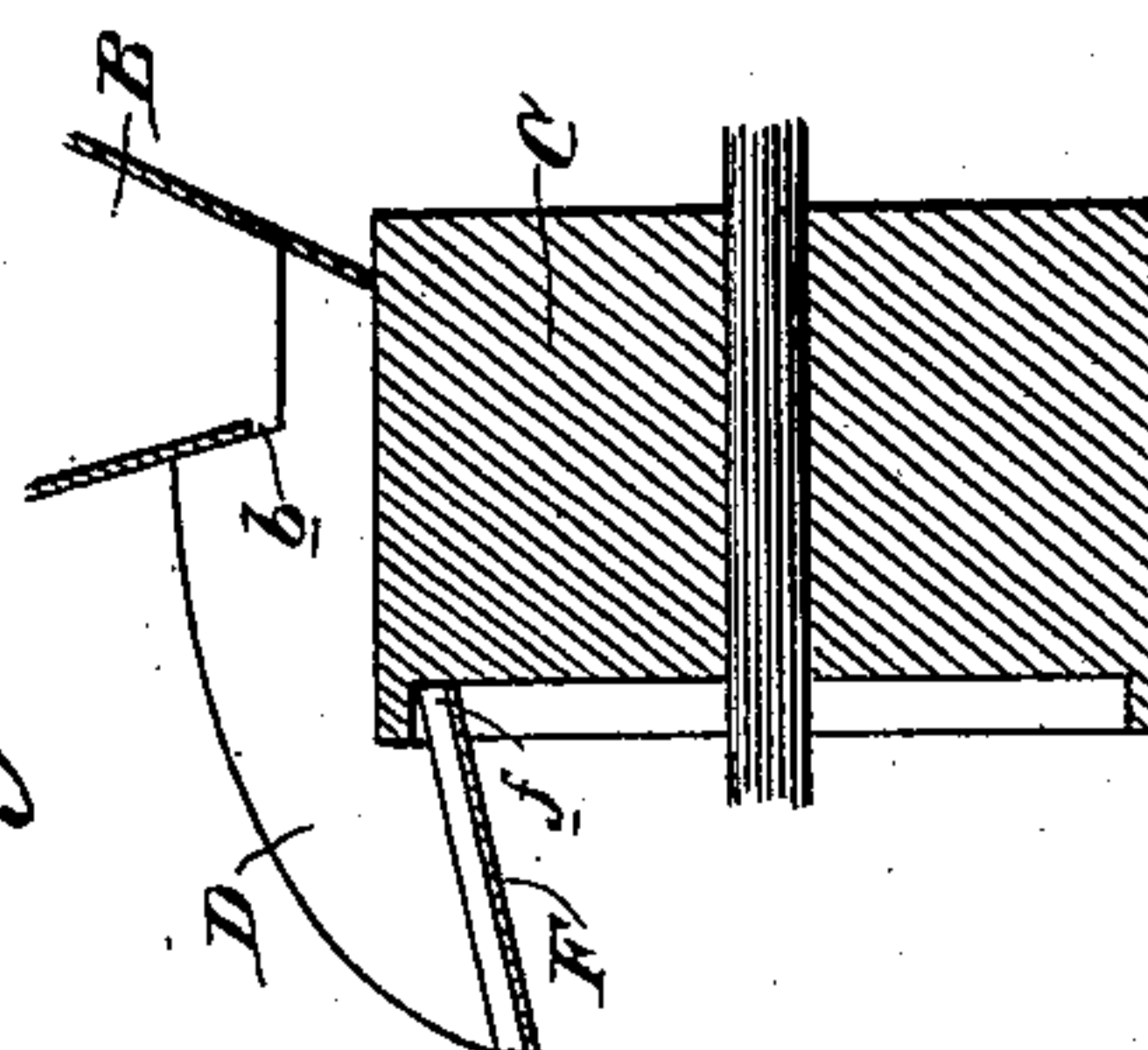
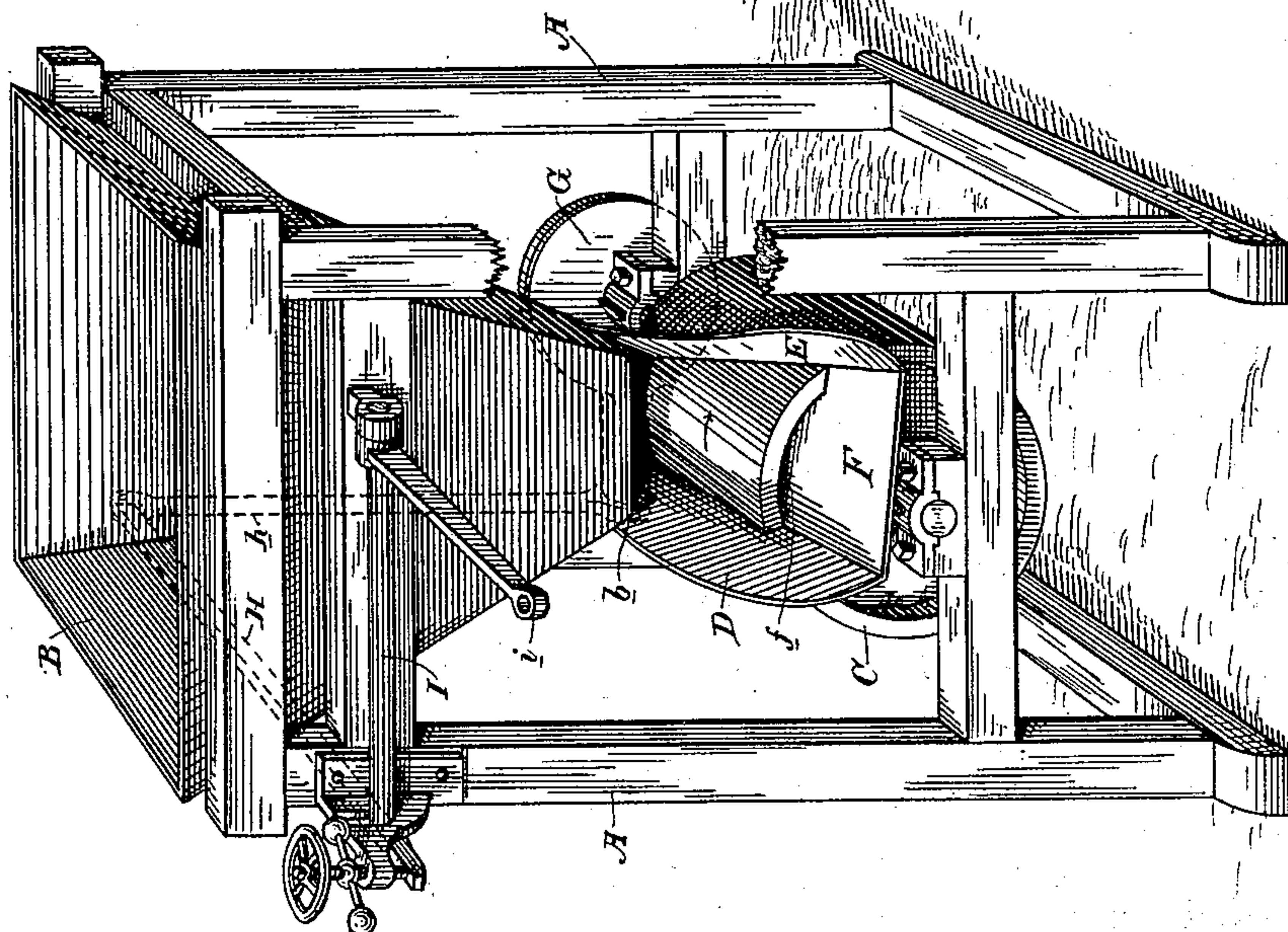


Fig. 1.



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UNITED STATES PATENT OFFICE.

GEORGE JOHNSTON, OF SAN FRANCISCO, CALIFORNIA.

ORE-FEEDER.

SPECIFICATION forming part of Letters Patent No. 401,034, dated April 9, 1889.

Application filed August 3, 1888. Serial No. 281,875. (No model.)

To all whom it may concern:

Be it known that I, GEORGE JOHNSTON, of the city and county of San Francisco, State of California, have invented an Improvement in Ore-Feeders; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of ore-feeders in which a feeding device is located under and receives its ore from a hopper and is operated by connections with the machine to which it supplies the ore; and my invention consists in the novel arrangement of hopper, horizontal rotating cylinder, and fixed feed-scraper, which I shall hereinafter fully describe.

The object of my invention is to provide an ore-feeder the discharge or feed from which shall be uniform and regular, and whose operation will require but little exercise of power.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my ore-feeder. Fig. 2 is a view looking down into the hopper. Fig. 3 is a section through the cylinder.

A is the frame or stand of the feeder, carrying in its top the hopper B.

C is a rotary cylinder or roller mounted transversely on the frame—that is to say, having its axis parallel with the sides of the hopper. This cylinder is located horizontally under the mouth of the hopper, the back wall of said hopper coming down well onto the surface of the cylinder. Connected with the bottom of one side of the hopper is a fixed guide-flange, D, extending over the surface of the cylinder to its front end, and at a slight angle with the plane of its axis. Connected with the bottom of the other side of the hopper is a scraper or feed flange, E, which extends over the surface of the cylinder to its forward end and at an angle with the plane of the axis of said cylinder.

F is a discharge-plate, which is connected or formed with the projecting ends of the two flanges, having, preferably, a small lip, *f*, extending into the recessed end of the cylinder, in order to form a close joint. The front wall of the hopper at its bottom is cut out to form the discharge-opening at *b*. The cylinder is

given a rotary motion, either continuous or intermittent, as the case may be, according to the machine with which it is connected, by any of the ordinary means now in use. To illustrate this I show one form of connections in which G is a clutch-disk on the end of the cylinder-shaft.

H is a pivoted lever connected at one end by the link *h* with an arm of the disk.

I is a rock-shaft connected with the lever and having a crank-arm, *i*, which is adapted to be struck, either directly or indirectly, by a tappet (not here shown) of the stamp-stem of the battery with which the ore-feeder is connected.

The operation of my feeder is as follows: The ore passes down through the mouth of the hopper and rests upon the horizontal cylinder. The rotary motion of the cylinder carries the ore against the inclined scraper or feed-flange E, which serves a purpose similar to that of the thread of a screw, carrying the ore forward on the cylinder and directing it into the discharge-plate F at its end. The ore is kept on the cylinder by the guide-flange D on the other side. But a small portion of ore at one time can fall down upon the cylinder, and the cylinder being horizontal the ore cannot run down it by gravity to any great extent, but must be fed off directly by the scraper-flange. This results in a uniform and regular feed, and as but a stated quantity of ore can come from the hopper the service to the cylinder is regular and but small power is required to impart to it the necessary movement, nor is there any liability to choke or clog.

Having the cylinder C horizontal I find to be advantageous in preventing the ore from rolling down over and from it, as it would have a tendency to do were the cylinder mounted at an inclination. Being horizontal, the feed is wholly dependent upon being carried against the fixed scraper, and therefore is more uniform both in its passage from the hopper (for only a certain amount can come from the hopper onto the horizontal cylinder) and in its discharge from the cylinder.

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

1. In an ore-feeder, the combination of the hopper, the horizontal rotary cylinder mounted under the mouth of the hopper, with its axis parallel to the side thereof and to the flow of the material, the fixed scraper or feed flange extending from one side of the hopper over the cylinder to its forward end and at an angle with the plane of its axis, the fixed guide-flange extending from the other side of the hopper over the cylinder to its forward end and at an angle with the plane of its axis, and the discharge-plate between the projecting ends of the two flanges and at the end of the cylinder, substantially as herein described.
2. In an ore-feeder, the combination of the hopper, the horizontal rotary cylinder mounted under the mouth of the hopper with its axis parallel to the side thereof and to the flow of the material, said cylinder having a recessed end, the fixed scraper or feed flange extending from one side of the hopper over the cylinder to its forward end and at an angle with the plane of its axis, the fixed guide-flange extending from the other side of the hopper over the cylinder to its forward end and at an angle with the plane of its axis, and the discharge-plate between the projecting ends of the two flanges and at the end of the cylinder, said discharge-plate having a lip extending into the recessed end of the cylinder and forming a close joint, substantially as described.

In witness whereof I have hereunto set my hand.

GEORGE JOHNSTON.

Witnesses:

S. H. NOURSE,
H. C. LEE.