

(No Model.)

3 Sheets—Sheet 1.

W. B. McPHERSON.
AUTOMATIC FEED FOR PULVERIZING MILLS.

No. 535,260.

Patented Mar. 5, 1895.

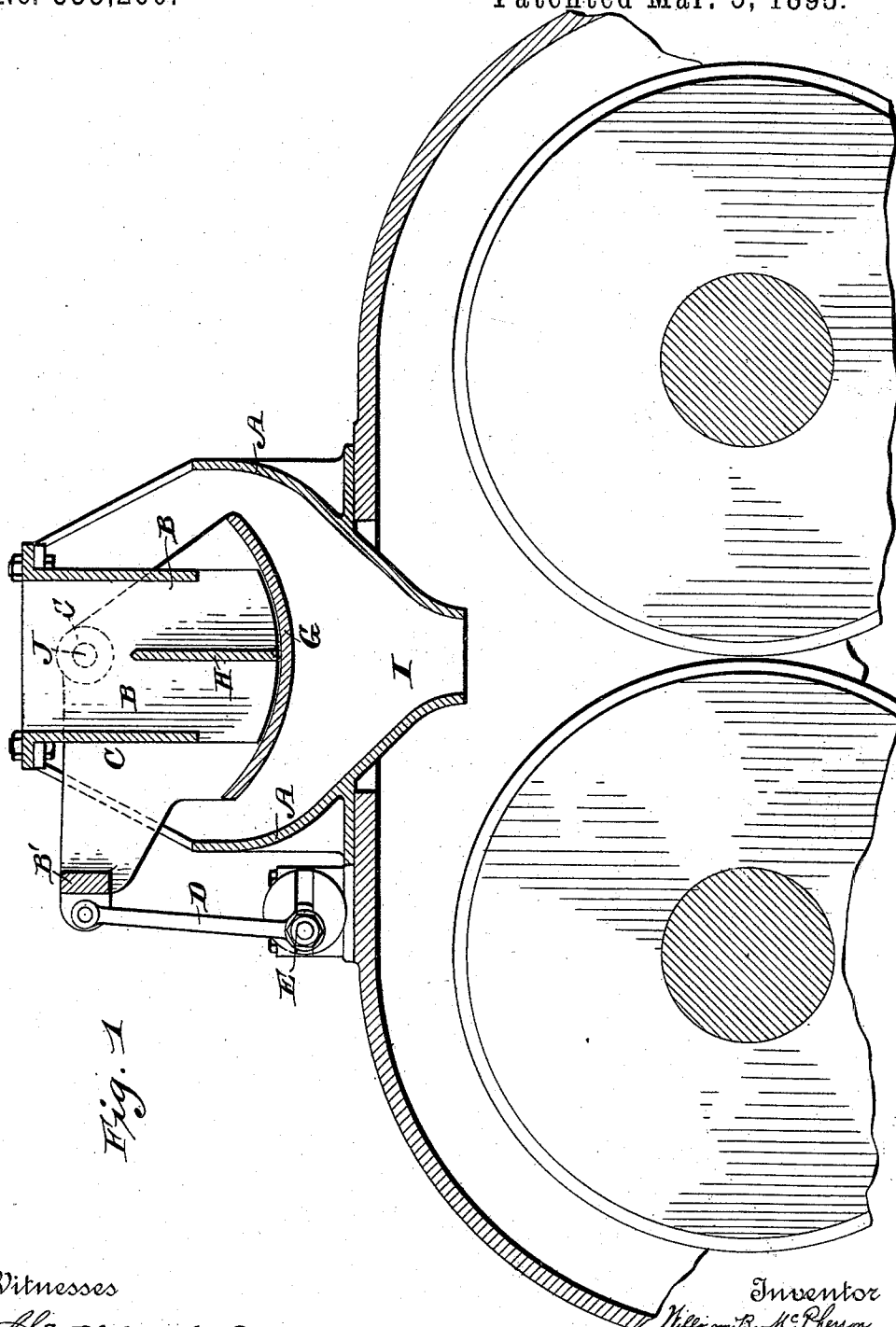


Fig. 1

Witnesses

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his

Attorneys

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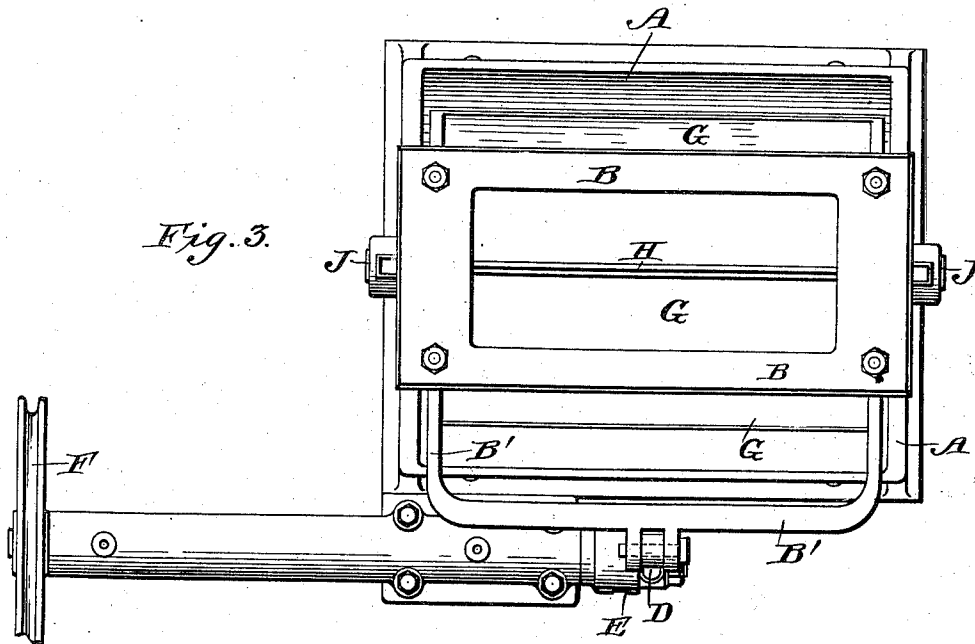
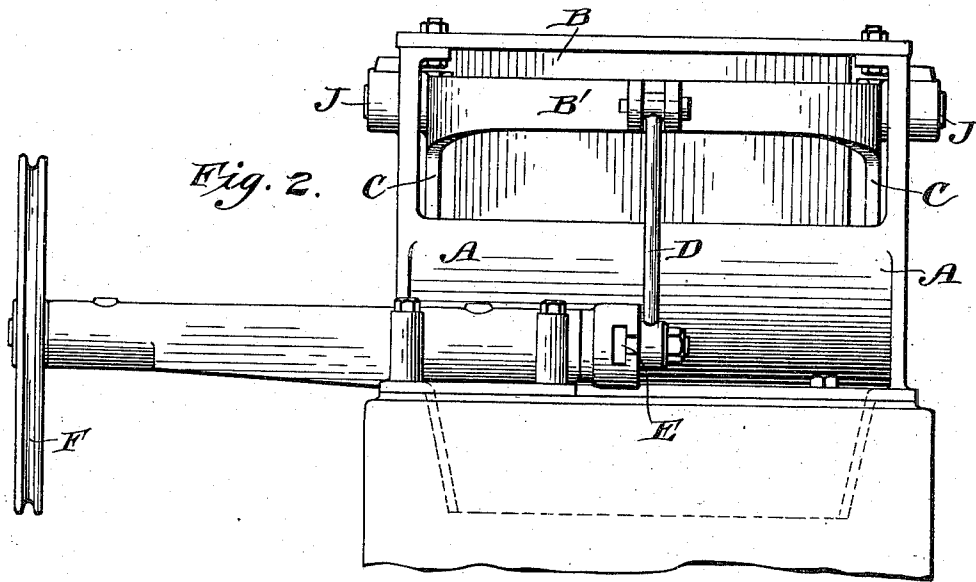
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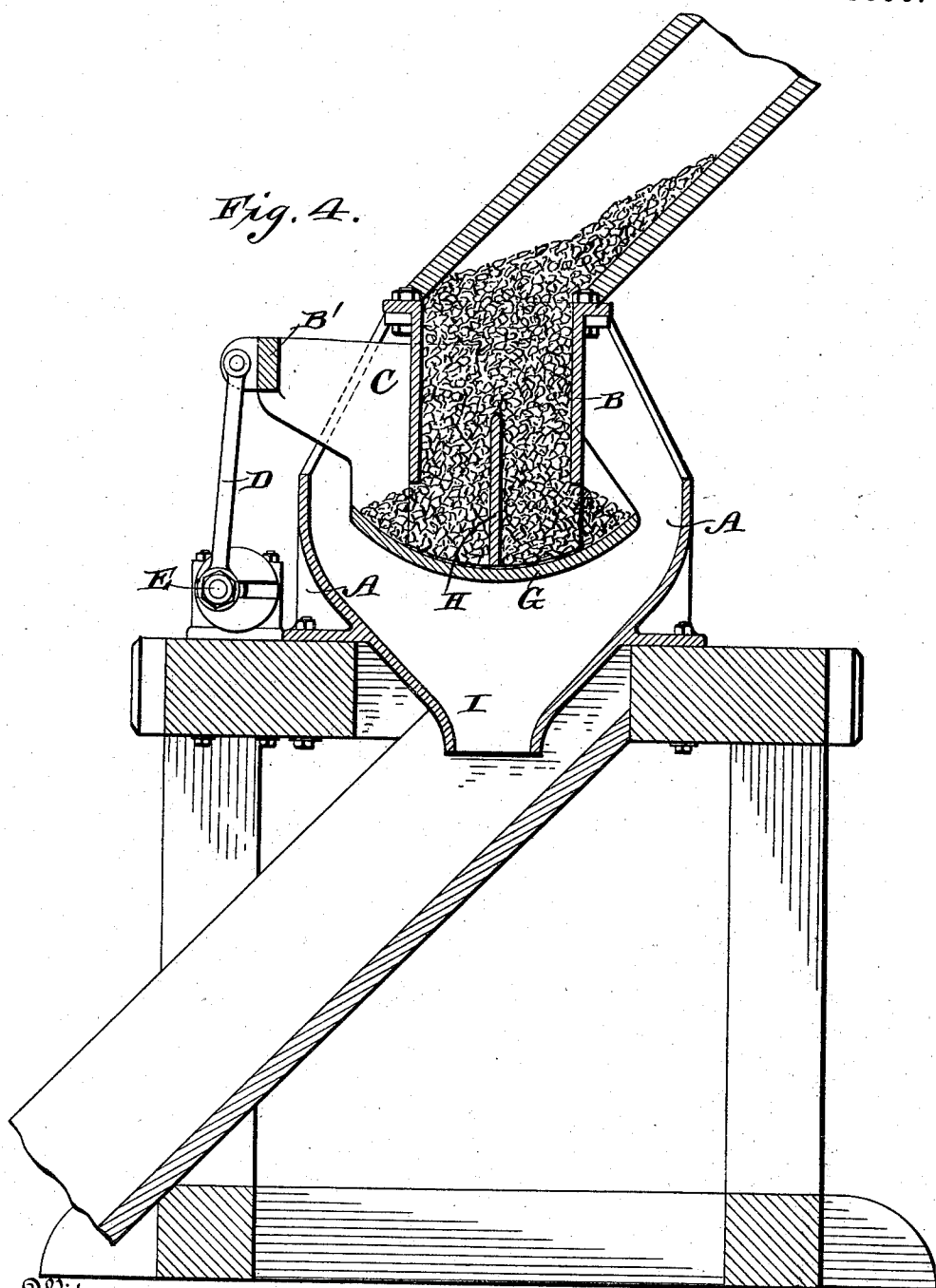
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Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM B. MCPHERSON, OF VICTOR, CALIFORNIA, ASSIGNOR TO THE
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AUTOMATIC FEED FOR PULVERIZING-MILLS.

SPECIFICATION forming part of Letters Patent No. 535,260, dated March 5, 1895.

Application filed September 20, 1894. Serial No. 523,618. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM B. MCPHERSON, a citizen of the United States, residing at Victor, in the county of San Bernardino and State of California, have invented certain new and useful Improvements in Automatic Feeds for Pulverizing-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an automatic feeder for Cornish rolls, or other mechanism for grinding or pulverizing ore or other substances; and its objects are to provide a very simple and effective mechanism which will insure a uniform feed of the substances, and provided for varying the quantity fed in a given time, accordingly as required.

My improvement will be fully understood from the following specification and claims, together with the accompanying drawings, forming part of the specification, in which—

Figure 1. is a vertical transverse section of my improved feeder, as applied for feeding to the rolls of a Cornish mill. Fig. 2. is a side elevation of said feeder; Fig. 3. a plan view of the same. Fig. 4. represents the mechanism as applied for feeding upon an inclined conductor which may lead to any type of pulverizer.

A in the drawings represents a main, shell-like frame, open at top and bottom, and having a bulged form intermediate its top and bottom, and being closed against lateral escape of the products being fed, from near the middle of its height to its bottom, and above this closed portion is open sidewise in order to be light, and also for a purpose presently described. This frame is so constructed and provided with flanges that it is adapted for being mounted upon a suitable support, and secured by bolts passed through its outer lower flange; and also for having the outer flange of a pendent magazine B secured, by bolts, to its upper inner flange.

The magazine B is formed with a central

web H which is, preferably, about half the height of the magazine, and with discharging passages on opposite sides.

C is an auxiliary oscillating frame, consisting of two end lever like portions which pass through one of the side openings of the main frame, and are connected by a longitudinal, pivoted bar B'; and a base plate, preferably, of concave form. This frame is connected by pivot ends J to the frame A, so that its base plate shall just clear the lower edge of the magazine during the oscillations of the frame C.

The bar B' of the auxiliary frame is connected by means of lugs thereon about midway of its length, to a pitman D which is connected to and actuated by an eccentric E on a shaft carrying a driving pulley F.

Under the construction and arrangement described and shown, the base plate G of the swinging frame C forms the feed supporting bottom of the magazine, and the central web H divides the interior chamber of the magazine B into two compartments for a short distance above its lower edge, and thus the body of the feed is divided into two bodies or masses at the lower part of the magazine, and one portion thereof discharges through an opening in the right side of the magazine, and the other portion through an opening in the left side of the magazine.

The dividing web by being made of less height than the magazine enables a column of the substance being fed to collect in the magazine above the upper edge of the web and consequently a columnar impactment of the substances being fed takes place in the magazine and the substances are fed out uniformly by the aid of the web, and by reason of such impactment and the oscillations of the frame C. The feed supporting base plate G is made of such a width with respect to the bottom of the magazine B, that it extends on each side, beyond the edges of said magazine, when the frame is resting in its normal position, and thus, when said magazine is filled with broken stone or other

material to be reduced or pulverized, the angle from the bottom edge of the magazine to the edge of the bottom G is such, that there remains sufficient room of said supporting base plate, beyond the edge of the magazine, to keep in place and support such material as passes out of the discharge passage of the magazine when the swinging frame is in its normal position of rest.

The base plate G might be made flat on its upper surface, but in such case it would have to be made wide enough to have its edges extend far enough beyond the edges of the pendent magazine to prevent the feed from discharging from the magazine before the frame C commences to oscillate.

The machine may have any suitable construction of devices for increasing or decreasing the extent of the throw of the eccentric, pitman and auxiliary frame, but it is preferable to effect the adjustment by means of a slot cut diametrically across the face of the wheel carrying the eccentric or wrist pin.

Operation of the machine: From the foregoing description it will be seen, that when the eccentric E is rotated, the auxiliary frame is oscillated and that this movement causes the web H to force the ore or other material from the concave base plate G, first on the right and then on the left side of the magazine; the fed material discharging in each instance from the edge of the base plate opposite to the direction to which the frame is swung at the time. As fast as the feed passes off the base plate, a further supply settles down on both sides of the web H, and passes outside upon the extended portions of the concave base plate. Only a portion of the substances being fed, is crowded off from each side during a total revolution of the eccentric; and when it is desired to decrease or increase the amount discharged in a given time, it can be effected by changing the position of the eccentric or wrist pin in the manner hereinbefore set forth.

The substances fed are caught by the lower central portion of the shell-like frame A, and thereby directed or conducted to the desired point, either directly upon the Cornish rolls, or into a chute which will conduct it into the machine by which it is to be reduced.

The novel and simple construction of the main, or shell-like frame, and of the oscillating frame, together with the arrangement of the magazine, and the means for oscillating

the frame, enable me to provide a very simple yet effective feeder for mills and other reducing machines.

What I claim as my invention is—

1. A mill feeder comprising in combination, a main shell frame contracted at its upper and lower ends, open at both ends and provided with means for attachment to a supply magazine and a suitable support; a swinging auxiliary frame having a pivoting extension on one of its sides, and a base plate, preferably concave; a magazine constructed with base side openings a central web which extends down from about the middle of its height to the base plate or nearly so, and means arranged on one side of the feeder for oscillating the base plate, substantially as described.

2. In a mill feeder, a main shell frame open at both ends and contracted at its upper and lower ends; an oscillating auxiliary frame, consisting of end plates, a base plate, preferably concave, and a pivoting extension; a pendent magazine constructed with base side discharge openings a central web which extends down from about the middle of the height of the magazine to the base plate or nearly so, and adjustable means for oscillating the auxiliary frame with different lengths of throw, substantially as described.

3. A mill feeding mechanism, comprising a suspended oscillating plate, preferably concave; a shell frame forming a conducting chute, and suitably supported, and a pendent magazine having a central web below its upper edge and arranged above said oscillating plate, said web dividing the lower portion of the magazine into two compartments, while the upper portion forms a complete circular chamber, substantially as described.

4. In a mill feeder, the combination of the magazine having the vertical central web, below its upper edge and dividing the lower portion of the magazine into two compartments, while the upper portion remains a complete circular chamber, a concave oscillating plate G connected by end portions to a pivoting extension B' on one side, and a suitable frame substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

WILLIAM B. McPHERSON.

Witnesses:

E. J. D. LAWS,
WM. S. RIDDELL.