

(No Model.)

W. C. SALMON.
PULVERIZING MILL.

No. 255,678.

Patented Mar. 28, 1882.

Fig. 2.

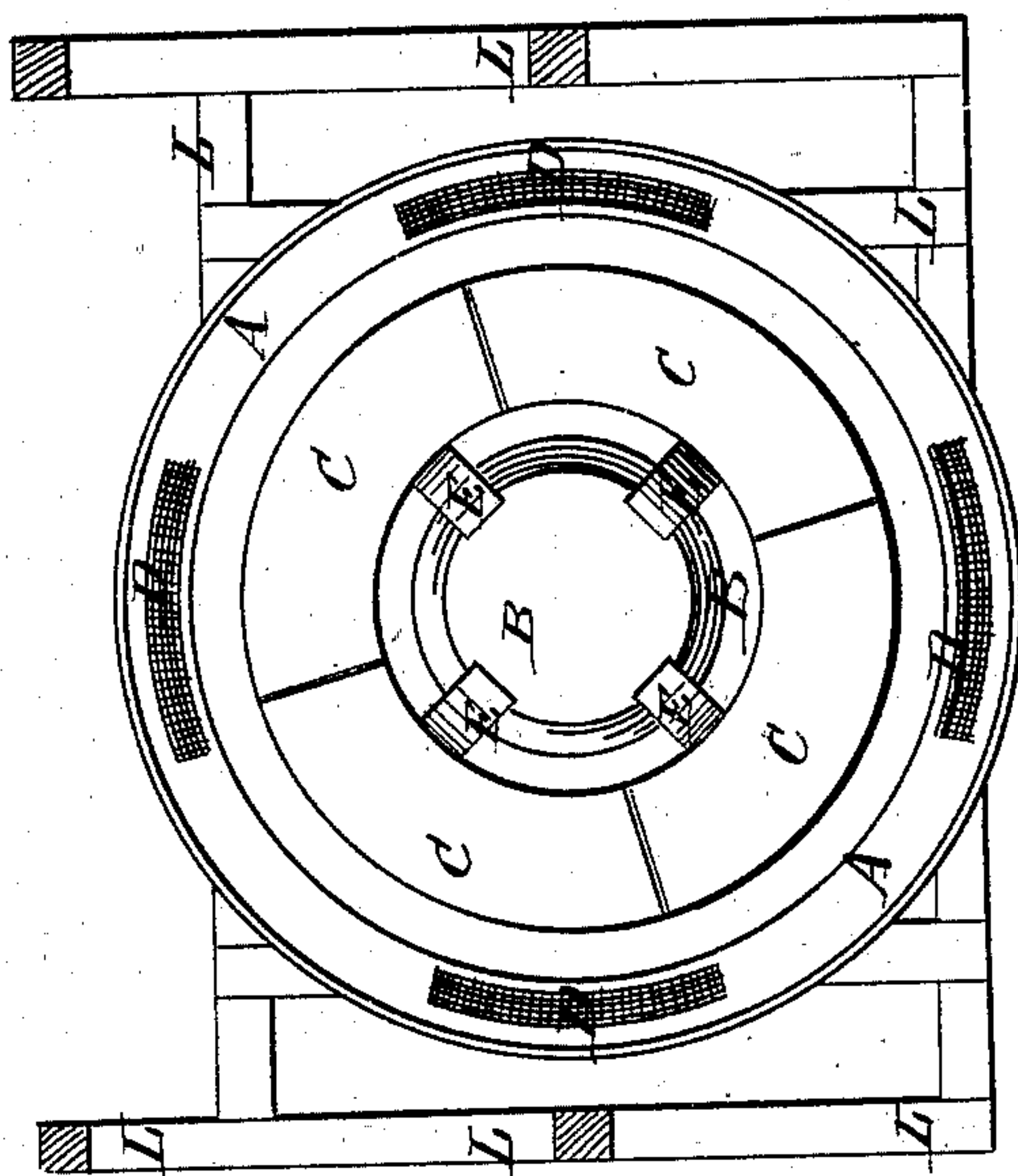


Fig. 1.

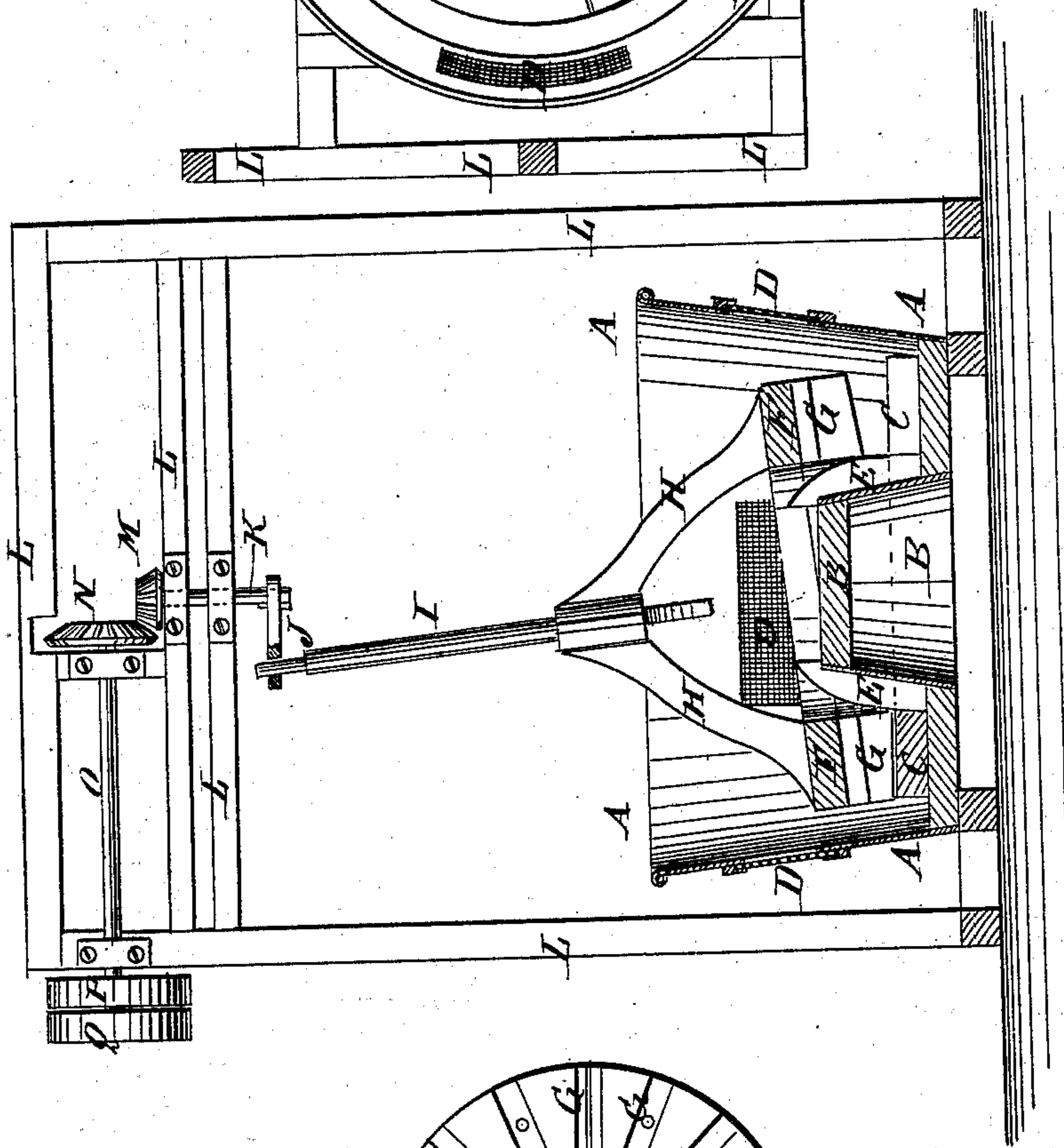
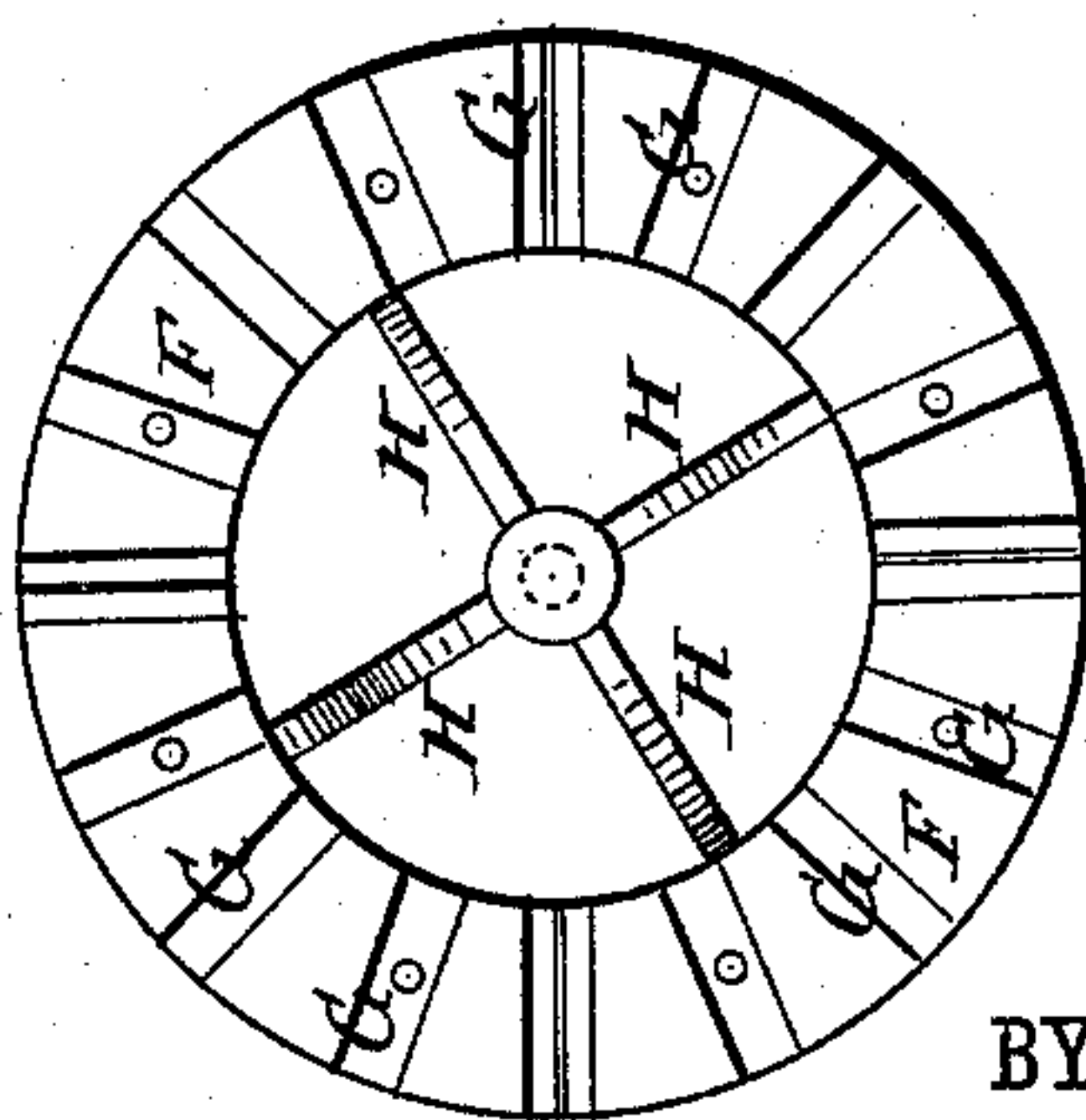


Fig. 3.



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WILLIAM C. SALMON, OF PORTLAND, OREGON.

PULVERIZING-MILL.

SPECIFICATION forming part of Letters Patent No. 255,672, dated March 28, 1882.

Application filed November 7, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM CUTLER SALMON, of Portland, in the county of Multnomah and State of Oregon, have invented certain useful Improvements in Pulverizing-Mills, of which the following is a full, clear, and exact description.

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

Figure 1 is a sectional side elevation of my improvement. Fig. 2 is a plan view of the stationary part of the mill, the frame being shown in section. Fig. 3 is a face view of the pulverizer.

The object of this invention is to facilitate the pulverizing of ores, cements, bones, and other substances that are required to be reduced to a powder.

The invention consists in a pulverizing-mill constructed with a vessel having a central projection on its bottom, forming a ring-chamber, a sectional ring-die in the bottom of the ring-chamber, and screen-covered openings in its sides for the escape of the pulp, and a ring-shaped pulverizer having radial dies upon its lower side, which work on the ring-die. A driving mechanism connected with the pulverizer gives a wabbling movement thereto. Guide-blocks attached to the central projection of the vessel cause the centering of the pulverizer while being operated, as will be hereinafter fully described.

A represents a tub or vessel, which is made with flaring sides and of any desired capacity. In the center of the bottom of the vessel A is formed a raised portion, B, made in the shape of a truncated cone, so as to form a ring-chamber in the lower part of the vessel A. In the bottom of the ring-shaped chamber of the vessel A is placed a die, C, made in ring shape and in sections, as shown in Fig. 2, so that it can be readily removed when worn and replaced with a new die. In the middle part of the sides of the vessel A are formed openings, in which are secured wire-gauze screens D, to allow the pulp to escape when it has been reduced to a suitable fineness. The outflowing pulp is designed to be received in a ring-trough placed beneath the vessel A, but which is not shown in the drawings.

To the inclined sides of the central projection, B, are attached blocks E, the outer sides of which are inclined or curved, as shown in Fig. 1, and which are designed to serve as guides to center the pulverizer while being operated.

F is the pulverizer, which is made in ring shape and of such a size as to work freely in the ring-chamber of the vessel A.

To the lower side of the pulverizer F are attached radial dies or shoes G, to crush the ore or other substance against the lower or stationary die, C. The dies G are secured detachably to the pulverizer F by bolts or screws, so that they can be readily replaced with new ones when worn.

To the upper side of the pulverizer F is attached an arched frame or spider, H, in the center of which is formed a screw-hole to receive the lower end of the shaft I. The upper end of the shaft I works in a hole in the outer end of the crank J, attached to the lower end of the short vertical shaft K, which revolves in bearings attached to the frame L in such positions that the shaft K will be directly over the center of the vessel A.

To the upper end of the shaft K is attached a beveled-gear wheel, M, the teeth of which mesh into the teeth of the beveled-gear wheel N, attached to the inner end of the horizontal shaft O. The shaft O revolves in bearings attached to the frame L, and to its outer end are attached a fast pulley, P, and a loose pulley, Q, to receive the driving-belt. The mill can be driven from any convenient power.

The ore or other substance to be pulverized is designed to be coarsely crushed in a stamp-mill or other crushing-mill before being introduced into the vessel A.

With this construction, as the mill is operated the pulverizer F will be wobbled by the revolution of the crank J, so as to bring the dies G successively in contact with the substance placed upon the dies C, and the said substance will be crushed and pulverized by the weight of the said pulverizer.

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

1. In a pulverizing-mill, the combination, with the ring-shaped pulverizer F, provided with radial dies G and means for giving a wab-

bling movement thereto, of the vessel A, provided with the central projection, B, having curved blocks E attached to its sides, and the die C in the bottom of the said vessel, substantially as and for the purpose set forth.

2. In a pulverizing-mill, the combination, with the ring-shaped pulverizer F, provided with the radial removable dies G, the spider H, the shaft I, the crank J, and the driving mechanism of the vessel A, having screen-covered

openings in its sides, and provided with the central inclined projection B, having curved blocks E attached to its sides, and the ring-shaped die C in its bottom, substantially as and for the purpose set forth.

WILLIAM CUTLER SALMON.

Witnesses:

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