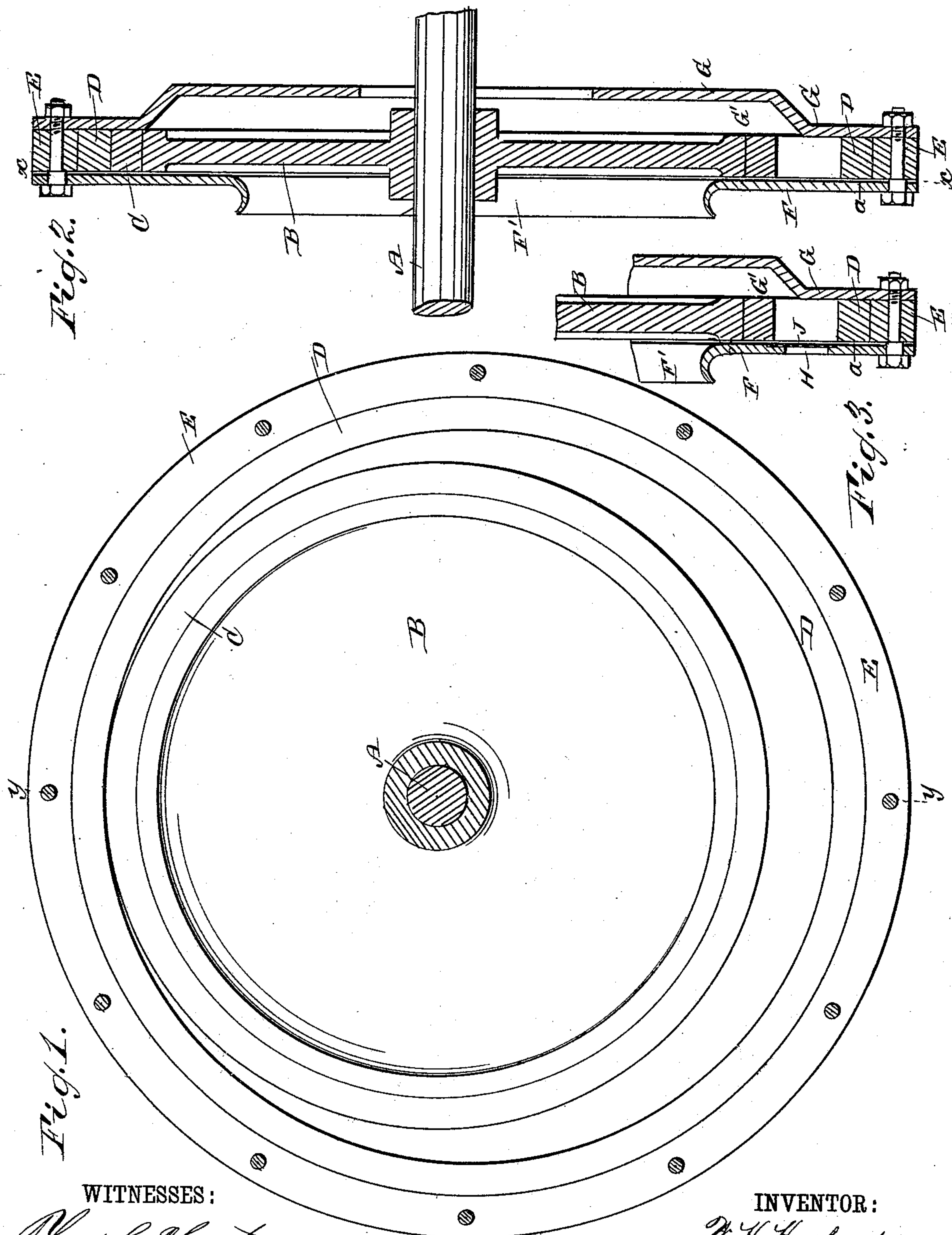


(No Model.)

W. H. HOWLAND.
PULVERIZER.

No. 336,321.

Patented Feb. 16, 1886.



WITNESSES:
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UNITED STATES PATENT OFFICE.

WILLIAM H. HOWLAND, OF ENGLEWOOD, NEW JERSEY.

PULVERIZER.

SPECIFICATION forming part of Letters Patent No. 336,321, dated February 16, 1886.

Application filed May 25, 1885. Serial No. 166,591. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. HOWLAND, of Englewood, in the county of Bergen and State of New Jersey, have invented a new and Improved Pulverizer, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for pulverizing ore and other substances, which machine is simple in construction, strong, and durable.

The invention consists in the peculiar construction and arrangement of parts, as hereinafter fully described, and pointed out in the claims.

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 longitudinal sectional elevation of my improved pulverizer on the line x x , Fig. 2. Fig. 2 is a cross-sectional elevation of the same on the line y y , Fig. 1. Fig. 3 is a sectional view of a part of the same, showing a modification.

On a shaft, A, a disk, B, is mounted, and is provided with a steel rim, C, and is surrounded by a larger steel ring, D, in turn surrounded by a ring, E, connected with the ring D. The rings D and E surround the disk B eccentrically. On one side of the ring E a flat ring, F, or side piece is secured, which has its inner edge, F', turned outward. On the other side of ring E a flat ring, G, is held, which is bulged outward to form annular pocket G'. The ring F has apertures H, over which screens J are secured on the inside, or a very small slit, a , is left between the plate F and the ring E, through which space the pulp can pass.

The ore or other material is conducted into the space between the rings F and G, either dry or mixed with water.

The steel ring D rests upon the steel rim C of the disk B, and thus a meniscus-shaped space is formed between the rim C and the ring D at the bottom. The ore or other material is carried up by the centrifugal force, and crushed between the top parts of the rim C and ring D.

There is no slip between the rim C and the ring D, and the material is crushed by the

pressure or weight of the rings D E on the disk.

The rings D E can have a greater or less weight, according to the nature of the material to be crushed or pulverized.

The coarse material always remains in the pocket at the bottom of the machine, and only the fine pulverized material or pulp is discharged.

The machine can be made any desired size, as circumstances may require.

The machine is very simple in construction, not apt to get out of order, and pulverizes great quantities in a comparatively short time.

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

1. The herein-described pulverizer, consisting of a disk mounted rigidly on the shaft, to revolve with the same, and a ring larger than the disk, surrounding said disk and resting on the rim of said disk at the top, whereby the ring is suspended from the disk, said ring being provided with side plates, substantially as set forth.

2. The combination, with a shaft, of a disk mounted rigidly on the same, to revolve with said shaft, said disk having a steel rim, a ring surrounding the rim of the disk eccentrically, said ring having a steel lining resting on the rim of the disk at the top, and side plates secured to the ring, substantially as herein shown and described.

3. In a pulverizer, the combination, with a disk mounted rigidly on a shaft, to revolve with the same, of a ring surrounding said disk eccentrically and resting on the same at the top, whereby said ring is supported, annular side pieces secured to the sides of the surrounding ring and overlapping part of the disk, one of said side pieces being secured to the side of the ring to leave a very small discharge-space between the adjacent surfaces of the ring and the said side piece, substantially as herein shown and described.

WILLIAM H. HOWLAND.

Witnesses:

OSCAR F. GUNZ,
EDGAR TATE.