H. BOLTHOFF.

Pulverizing Apparatus.

No. 204,945. Patented June 18, 1878.

Fig. 1

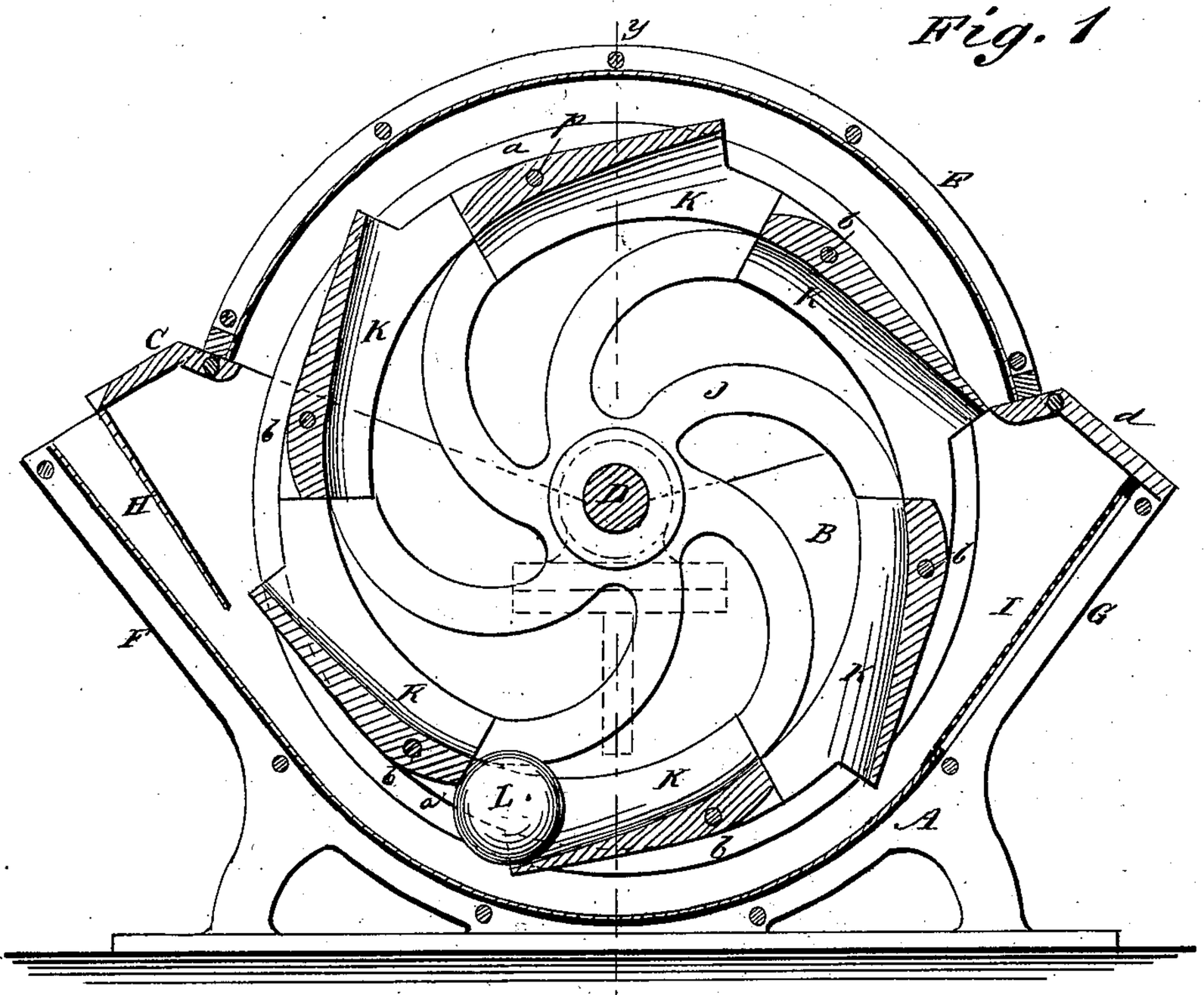

Fig. 2

WITNESSES:

C. Neveux

6. Sedgwick

INVENTOR:

H. Bolthoff

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

HENRY BOLTHOFF, OF CENTRAL CITY, COLORADO, ASSIGNOR TO HIMSELF AND CHARLES F. HENDRIE, OF SAME PLACE.

IMPROVEMENT IN PULVERIZING APPARATUS.

Specification forming part of Letters Patent No. **204,945,** dated June 18, 1878; application filed April 23, 1878.

To all whom it may concern:

Be it known that I, HENRY BOLTHOFF, of Central City, in the county of Gilpin and State of Colorado, have invented a new and Improved Pulverizer, of which the following is a specification:

Figure 1 is a vertical transverse section taken on line *x x* in Fig. 2. Fig. 2 is a vertical diametrical section taken on line *y y* in Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention relates to pulverizers for disintegrating ores and other substances; and it consists in a wheel containing several shoes, arranged at equal distances around its periphery, and arranged tangentially to a circle inscribed within the periphery of the wheel, every such series of shoes being provided with a heavy pulverizing-ball that rolls along the shoes and drops from one to another as the wheel is revolved.

It also consists in a housing adapted to the wheel, and provided with a screen or sieve, and arranged to contain amalgamated-copper plates when the pulverizer is used in wet-crushing.

Referring to the drawing, A is the housing, that contains the crushing-wheel B and supports the journal-boxes C of the wheel-shaft D.

The general form of the housing is cylindrical, and it is provided with a removable cover, E, that is somewhat less that a half-cylinder.

The lower portion of the housing is provided with straight inclined sides F G. In the side F there is a chute, H, through which the material to be pulverized is introduced into the machine, and in the side G there is a screen, I, through which the finely-pulverized material escapes.

The wheel B consists of spiders J, having side flanges *a* at their peripheries for receiving the shoes K, whose inner surface is semicircular transversely and is slightly curved longitudinally. These shoes (six, or more or less) are arranged tangential to a circle inscribed within the periphery of the spiders, and are secured to the spiders by transverse bolts *b*. Wood is interposed between the shoes and the spiders to break the metallic contact and render the machine more durable.

In each series of shoes K a ball, L, is placed, which is of sufficient size to nearly fit the semicircle of the shoes.

Ore or other material to be pulverized is introduced through the chute H, and as the wheel B is slowly rotated the balls roll down the shoes toward the lower side of the wheel, and drop from one shoe to another, thus effecting the pulverization of the material by both rolling and concussion.

In dry-crushing the dust escapes through the screen I, and in wet-crushing the slime escapes in the same manner.

The housing may be provided with amalgamated-copper-plates for accumulating precious metals, and the doors *c d* are provided at opposite sides of the housing for the introduction and removal of such plates.

The advantages claimed for my improved crusher over others now in use are that the balls do not come into contact with each other, and are therefore not liable to the wear common to balls in other forms of ball-crushers, and the crushing is accomplished by both rolling and concussion.

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

1. In a ball-crusher, a number of concave shoes arranged tangentially to a circle, and containing a ball which rolls upon the inner face of the shoes and drops from one shoe to another as the series of shoes is rotated, substantially as herein shown and described.

2. The combination, with rotary crusher, of the case having straight inclined sides F G, chute H, and sieve I, arranged as shown and described, for the purpose specified.

HENRY BOLTHOFF.

Witnesses:
EDWARD A. SPOONER,
FRANK B. HART.