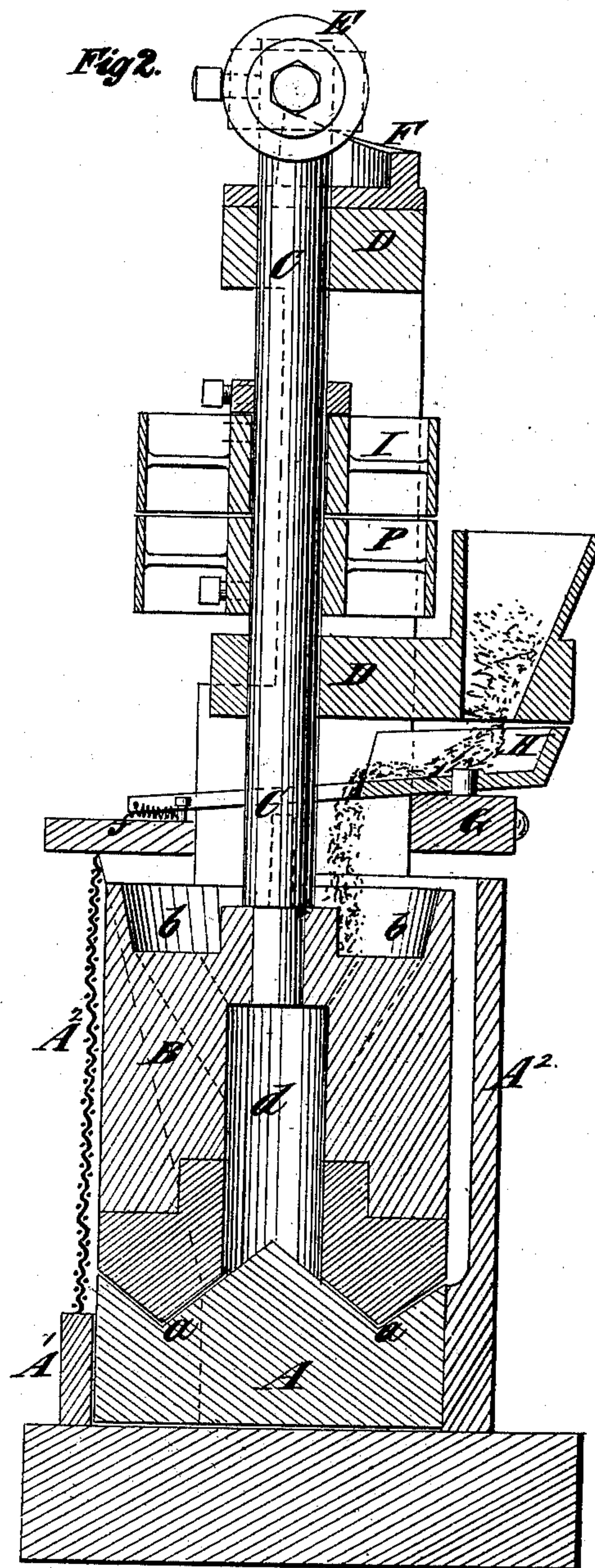
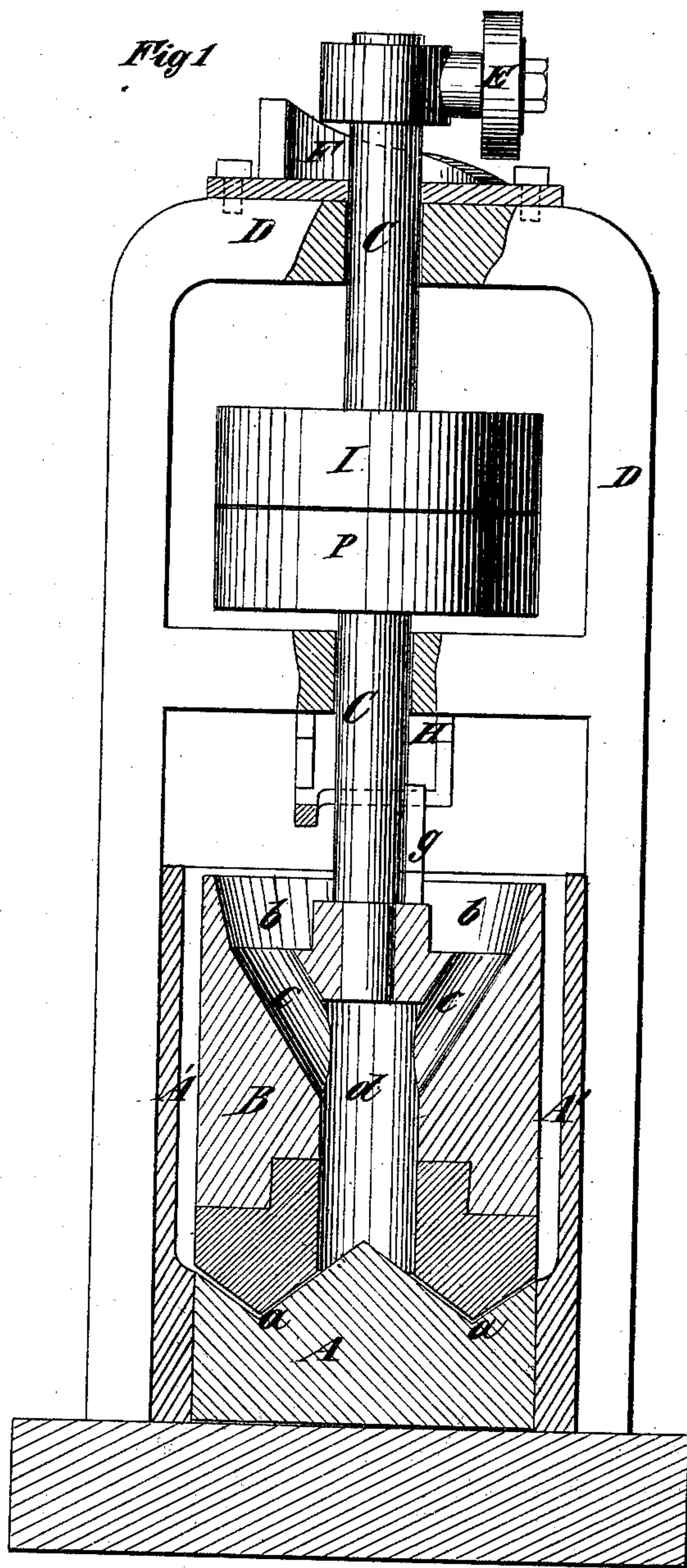


A. B. LIPSEY.
Stamping-Mill.

No. 216,198.

Patented June 3, 1879.



Witnesses:

Chander Hall
Thomas E. Birch,

Inventor.

Andrew B. Lipsey
by his Attorney
Edwin H. Brown

UNITED STATES PATENT OFFICE.

ANDREW B. LIPSEY, OF WEST HOBOKEN, NEW JERSEY.

IMPROVEMENT IN STAMPING-MILLS.

Specification forming part of Letters Patent No. **216,198**, dated June 3, 1879; application filed March 11, 1879.

To all whom it may concern:

Be it known that I, ANDREW B. LIPSEY, of West Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Stamping-Mills, of which the following is a specification.

This invention consists in the combination, in a stamping-mill, of a mortar or receptacle for material to be crushed, and a pestle or stamp having an annular cavity at the top, passages leading therefrom toward the center of the pestle or stamp, and a passage leading downward from the latter to the bottom of the pestle or stamp; also, in the combination of a mortar or receptacle for material to be crushed, having in its bottom a groove or cavity, the sides of which incline downwardly toward the center, and a pestle having both a rotary and a reciprocatory motion, and having its face shaped to conform to said groove or cavity; also, in various details and combinations of parts, hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front view and partial longitudinal section of a stamping-mill embodying my improvements; and Fig. 2 is a longitudinal section thereof, taken in a plane at right angles to Fig. 1.

Similar letters of reference designate corresponding parts in both figures.

A A¹ A² designate a stationary mortar or receptacle for material to be crushed, shown as composed of a circular bed, A, a semi-cylindrical body, A¹, and a screen, A², at the open front of the latter, through which the crushed material is delivered. The bed A in this instance has in it a circular groove or cavity, *a*, the sides of which incline downward toward the center, so that material falling upon it will have the tendency to fall inward from each side.

B designates a pestle of cylindric form, having a circular crushing-face shaped to conform to the aforesaid groove or cavity *a*, it being inclined downward from each side toward the center. This pestle is supported by a shaft, C, arranged in a frame, D, and is provided at its upper end with an annular cavity, *b*, communicating by passages *c* with a central feed-passage, *d*, whereby material to be crushed is

conducted to the bed A of the mortar. The pestle-shaft C derives a continuous rotary motion through a pulley, P, from a belt, and it also has a reciprocatory motion imparted to it by means of a roller, E, mounted on an arm extending from its upper portion and running on an inclined track, F, having an abrupt end, whereby the shaft and pestle are during their rotation raised from and dropped upon the bed A of the mortar. The pestle is rotated even while in contact with the bed of the mortar, and hence has a grinding or abrasive as well as a pounding action. An idler-pulley, I, is arranged on the pestle-shaft to receive the driving-belt when the pestle is to be rendered inoperative. The pestle may be furnished with a renewable face-plate, and the bed of the mortar may be detachable from other parts, so as to be renewable, as represented.

H designates the hopper, whereby the material to be crushed is supplied. It is pivoted to a supporting-platform, G, in such position that its inner end projects over the annular cavity *b* in the pestle, and it is furnished with an arm, which is held in contact with the pestle-shaft C by a spring, *f*, attached to part of the frame D, and is swung aside by a rib, *g*, on the shaft C, so that it derives a shaking or oscillating motion and delivers its contents freely.

As the pestle-shaft C is set in motion, the pestle is rotated and simultaneously raised and dropped. The hopper is likewise shaken, and the material to be crushed falls upon the pestle, passes through the central feed-passage, and is delivered onto the bed of the mortar. Owing to the incline in the sides of the groove in the bed of the mortar, the material is constantly directed to the center well under the pestle, and is effectually disintegrated by the pounding and grinding action of the latter, its sharp central edge materially assisting. The lighter disintegrated material is blown out through the screen A² by the descent of the pestle, and the heavier falls back to the center and is subjected to the pestle over and over again.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a stamping-mill, the combination of a mortar or receptacle for material to be crushed,

and a pestle or stamp having an annular cavity at the top, passages leading therefrom toward the center of the pestle or stamp, and a center passage leading downward from the latter to the bottom of the pestle or stamp, substantially as specified.

2. In a stamping-mill, the combination of a mortar or receptacle for material to be crushed, having in its bottom a groove or cavity, the sides of which incline downwardly toward the center, and a pestle having both a rotary and a reciprocatory motion, and having its face shaped to conform to said groove or cavity, substantially as specified.

3. In a stamping-mill, the combination, with a mortar or receptacle for material to be crushed, having in its bed or bottom a groove or cavity, the sides of which incline down-

wardly toward the center, of a pestle having both a rotary and a reciprocatory motion, and having its face shaped to conform to said groove or cavity, and a central feed-opening through the pestle itself, substantially as specified.

4. In a stamping-mill, the combination of a mortar or receptacle for material to be crushed, a pestle having an annular cavity at the top, a center feed-passage communicating therewith, and a hopper independent of the pestle for delivering material into the pestle, substantially as specified.

ANDREW B. LIPSEY.

Witnesses:

CHANDLER HALL,
THOMAS E. BIRCH.