

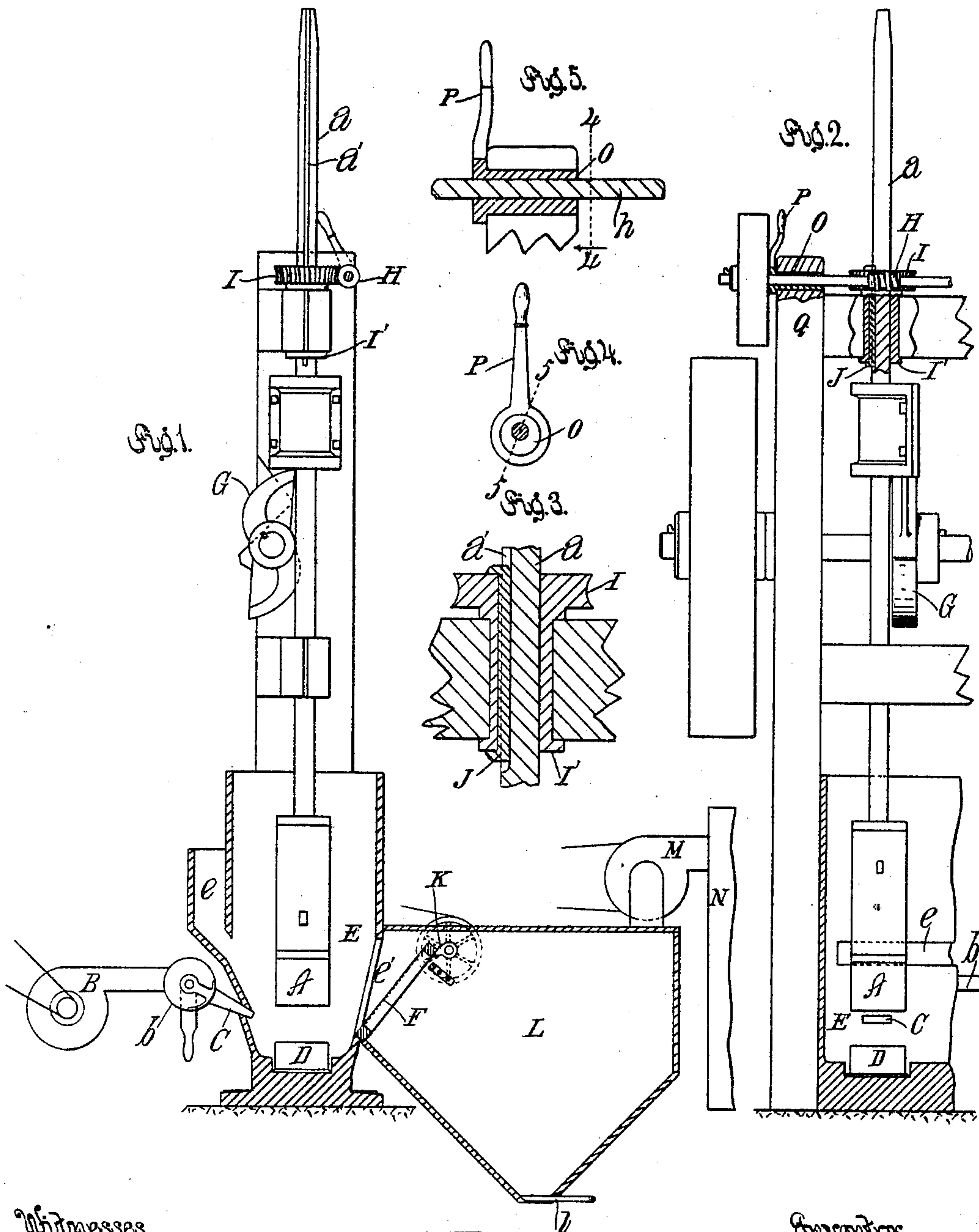
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Patented Sept. 3, 1901.

F. B. PETTENGILL.
STAMP MILL.

(Application filed Nov. 8, 1897.)

(No Model.)



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UNITED STATES PATENT OFFICE.

FREDERICK BARTLET PETTENGILL, OF LOS ANGELES, CALIFORNIA,
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STAMP-MILL.

SPECIFICATION forming part of Letters Patent No. 681,858, dated September 3, 1901.

Application filed November 8, 1897. Serial No. 657,890. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK BARTLET PETTENGILL, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Dry-Process Stamp-Mill, of which the following is a specification.

The object of my invention is to work a stamp-mill in a thoroughly practical manner without the use of water, thus to economically provide dry pulp for dry separators and concentrators.

In my newly-invented stamp-mill I rotate the stamp while it is upon the die, thus to subject the material on the die to a grinding action, and I direct a blast of air in a slanting direction down upon the die, thus to break up any caked mass of material on the die and to stir the material under the stamp and to eventually lift the finer material and carry it outward through an opening provided in the side of the mortar, and said opening has a screen which slants away from the die, so that any coarse material which might be blown onto the screen will roll back into the mortar to again find its way underneath the stamp.

The accompanying drawings illustrate my invention.

Figure 1 is an elevation of my stamp-mill, with the mortar and pulp-box in vertical mid-section to show the interior. Fig. 2 is an elevation, partly in section, showing my invention viewed at right angles to Fig. 1. Fig. 3 is a fragment showing the connection between the stamp-shaft and the bushing and worm-wheel which turns it. Fig. 4 is a detail to show the eccentric for throwing the worm into and out of gear with the worm-wheel. Fig. 5 is a section on line 5 5, Fig. 4.

A indicates the stamp.

B indicates a blower with an air-nozzle C slanting downward to direct a blast of air onto the die D.

E indicates the mortar.

F indicates a screen which slopes upward away from the die and onto which screen the pulp is blown from the die D through the opening *e'* in the mortar.

e is a feed-opening through which the

crushed ore is fed to the stamp. In order to prevent clogging, I provide means for continuously rotating the stamp, thereby to rotate the stamp while it is on the die. Such means is in addition to the ordinary means (such as the cam G) which intermittently rotates the stamp in the common stamp-mill. The means which I employ for continuously rotating the stamp consists of the worm H, meshing with the worm-wheel I, a keyway *a'* being provided in the stamp-shaft *a* and the worm-wheel I and the bushing fastened thereto being connected with the shaft *a* by a spline J.

K indicates a knocker for the screen F.

L indicates the pulp-box, with a door *l* at the bottom to draw off the pulp.

M indicates an exhaust-fan or blower to draw the floating dust from the pulp-box L and discharge it into the dust-room N.

b indicates a valve for controlling the blast of air through the nozzle C.

It is to be understood that this invention can be applied to any number of stamps desired and that all the blast may be taken from the one blower B. *b'* indicates a pipe for supplying other stamps with air-blast from such blower.

A gearing-disconnecting device is provided for disconnecting the stamp-rotating gearing and rendering it inoperative while the stamp is moving up and down.

O indicates a cam, controlled by a lever P, for throwing the worm H into and out of engagement with the worm-wheel.

Q indicates the frame of the machine, in which the cam O and the other parts are mounted.

In practical operation ore is fed through the feed-opening *e* in the mortar E and falls upon the die D. The blower B, exhaust M, stamp A, and knocker K are all put into operation, and the ore is pulverized by the stamp, which rotates while on the die, and thus avoids any liability of caking the ore. The air-blast through the nozzle C carries the powdered ore up to the screen F and that which is fine enough passes into the pulp-box L. The coarser material will roll down the screen into the mortar to be again operated

upon by the stamp. The blower M carries away the free fine particles of flying dust and deposits the dust in the dust-room N. The pulp in the pulp-box can be drawn off as required through the door L. By rotating the cam O the worm can be withdrawn from the worm-wheel I to stop the rotation of the stamp when desired.

It is to be understood that any means for producing a blast can be used and that I do not limit my claim to any particular form of blower or other appliance for producing a blast.

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

1. In a stamp-mill, the combination of a stamp; a mortar with a die at the bottom; a chute to feed ore onto the die; a downwardly-directed air-blast nozzle arranged below the ore-chute to direct an air-blast across the path of the ore and to direct the ore toward the die; an opening being provided just above the path of the blast in the mortar-wall opposite the air-blast nozzle; an outwardly

and upwardly slanting screen in said opening; a dust-box extending downward from said screen and furnished in the bottom with an outlet; means for temporarily closing said outlet; a dust-outlet being provided at the top of the dust-box opposite said screened opening; an exhaust-blower connected with the dust-outlet to draw off the dust from the upper part of the dust-box; and means for shaking the screen.

2. In a stamp-mill, the combination of a stamp; a mortar with a die at the bottom; a chute to feed ore onto the die; a downwardly-directed air-blast nozzle arranged below the ore-chute to direct an air-blast across the path of the ore and to direct the ore toward the die; an opening being provided just above the path of the blast in the mortar-wall opposite the air-blast nozzle; an outwardly and upwardly slanting screen in said opening; and means for shaking the screen.

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