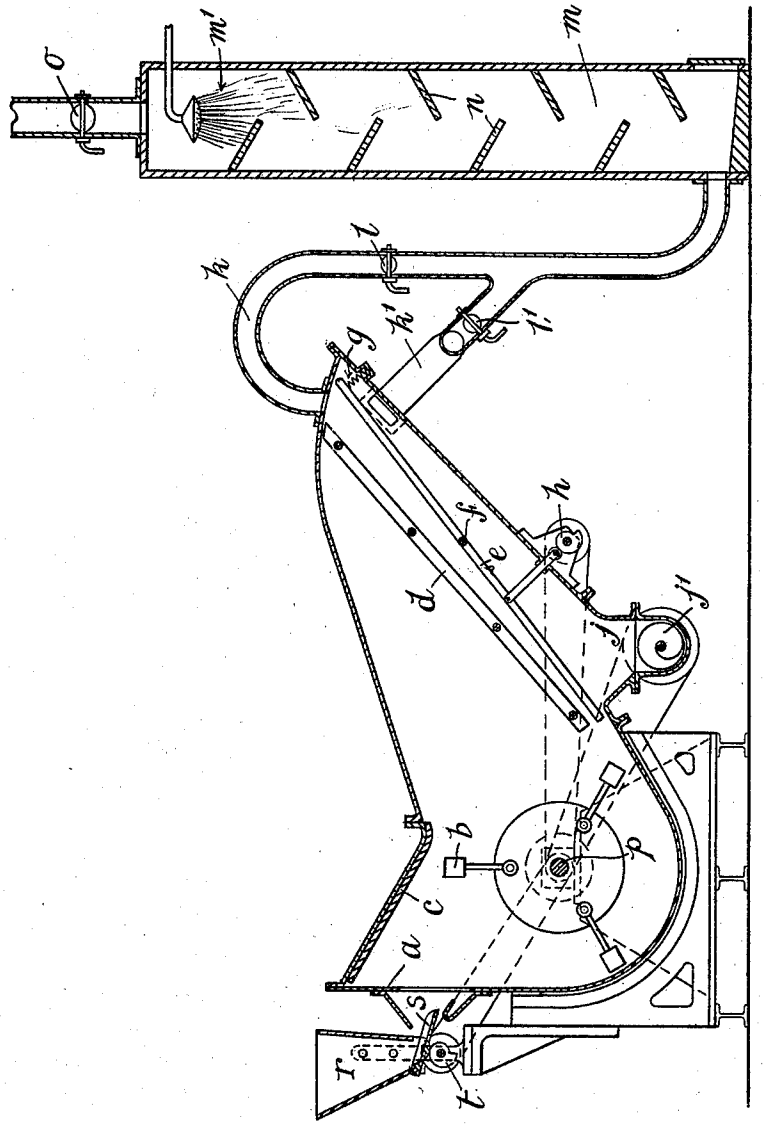
No. 757,069. PATENTED APR. 12, 1904.

J. THAME.

IMPACT ORE PULVERIZER.

APPLICATION FILED MAR. 22, 1903.

NO MODEL.



WITNESSES

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No. 757,069. Patented April 12, 1904.

UNITED STATES PATENT OFFICE.

JAMES THAME, OF LONDON, ENGLAND, ASSIGNOR TO THE OLIVER MILL COMPANY, LIMITED, OF LONDON, ENGLAND.

IMPACT ORE-PULVERIZER.

SPECIFICATION forming part of Letters Patent No. 757,069, dated April 12, 1904.

Application filed March 23, 1903. Serial No. 149,175. (No model.)

To all whom it may concern:

Be it known that I, JAMES THAME, a subject of the King of Great Britain and Ireland, residing at London, England, have invented a new and useful Improvement in and Relating to Impact Ore-Pulverizers, of which the following is a specification.

This invention relates to impact ore-pulverizers in which the ore is pulverized by hammer-head beaters revolving at a high speed, striking the ore and dashing it against an opposing surface; and it consists in automatic means for delivering the graded broken ore of required size in one direction free from dust, while the latter is removed through a distinct delivery-chamber and is collected as fine impalpable dust, which can be separately treated as a slime, but which would have formed a serious disadvantage to the treatment of the graded ore if it had remained mixed with it.

In order that the invention may be the better understood, it will now be described in reference to the accompanying drawing, which represents a machine in longitudinal vertical section.

To carry this invention into effect, the upper part of the casing *a*, forming the opposing surface, against which the ore is impacted from the hammer-beaters *b*, is provided with detachably-attached armed breaker-plate *c*, the lower point of which is so arranged as to admit free travel of the broken ore toward a parallel barred grate *d*, known as a "grizzly," for stopping the larger fragments and toward a screen *e* behind it, arranged to jig under the impact of the ore automatically or by suitable mechanism. The larger unbroken ore after striking the grizzly *d* drops back to the revolving beaters *b*, and the smaller stuff with the dust impinges on the screen *e*. This screen *e* is delicately balanced on trunnions *f*, situated on a line passing through the center of gravity of the screen, the impact-ore being by the arrangement or shape of the upper casing received upon its upper part. This upper part of the screen *e* rests upon spring-recoil buffers *g*, which thus tend to give an automatic jigging motion to the screen under impact. Should it be necessary, the automatic jigging can be supplemented by the action of a cam and connections *h*, driven from the main axle *p*. The stuff not penetrating the screen *e* is thereby quickly detached and falls by gravity back to the beaters *b*, and the graded stuff passing through the screen *e* (which action is greatly accelerated by the jigging action of the screen) falls and is delivered and collected from a hopper *j* at the bottom of the casing, having a worm conveyer *j'*, if desired.

The revolving hammer-beaters *b* are so arranged as to area and as to velocity that they pass with the stuff through the grizzly *d* a considerable volume of air at sufficient velocity to float and blow off the finer dust from the pulverized ore between the grizzly and the screen *e*, such dust being carried off both from the front and back of the screen by suitable pipes *k k'* from the upper part of the casing situated between the grizzly *d* and the screen *e* and at the back of the screen or in other convenient position. Valves *l l'* are arranged in the pipes *k k'* to regulate the air-current through each pipe. The dust is thus passed by the air-blast into a collecting tank or chamber *m*, provided with baffles *n* and water sprays *m'* for the laying of the dust, which is then available for special treatment as slimes. The collecting-tank *m* has a vertical exit-pipe *n'*, controlled by an adjustable valve *o*, should it be desired to give a small back pressure in the collecting tank or chamber. By this separation of the dust from the bulk of the crushed ore for separate treatment the graded ore collected from the screen is clean and free from dust forming slimes in wet working, which would be disadvantageous in after operations on the ore or which would be lost by washing for their removal. The powerful blast removing dust from the impact side of the screen also aids in keeping the same unclogged and preserves its full efficiency.

The ore is fed into the machine with a certain amount of regularity by a feed device *r*, having a jigging-tray *s*, operated by a cam motion *t*, driven from the main axle *p*.

Having described this invention, what I

claim, and desire to secure by Letters Patent, is—

1. In a pulverizing-mill, the combination with a casing, rotary beaters mounted therein, and means for feeding the material to said beaters, of a screen within said casing, delivery-outlets in the casing at the front and back of said screen for the dust, and a delivery-receptacle beneath said screen adapted to receive and deliver the graded material, substantially as described.

2. In a pulverizing-mill, the combination with a casing, rotary beaters mounted therein and means for feeding the material to said beaters, of a "grizzly" within said casing a screen behind said "grizzly" orifices in the casing for the delivery of dust by the current of air set up by the beaters and a gravity delivery device under the screen for the graded material, substantially as described.

3. In a pulverizing-mill, the combination with the casing, rotary beaters mounted therein, of a "grizzly" mounted in said casing, a screen behind said "grizzly," dust-delivery orifices on either side of said screen, an independent delivery device for the graded ore and a settling-chamber connected to the dust-delivery orifices adapted to collect the dust for further treatment, substantially as described.

4. In a pulverizing-mill having revolving beaters, in combination, a screen pivoted in the delivery-casing on an axis passing through or near the center of gravity of said screen, a resilient buffer supporting the upper end of said screen and permitting a rocking motion only, means for imparting a rocking motion to said screen and a delivery-chamber below the screen for the graded material, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

JAMES THAME.

Witnesses:
RICHARD A. HOFFMANN,
CHARLES CARTER.