No. 856,918. PATENTED JUNE 11, 1907.

M. SCHRECK.

GRINDING MILL.

APPLICATION FILED APR. 28, 1906.

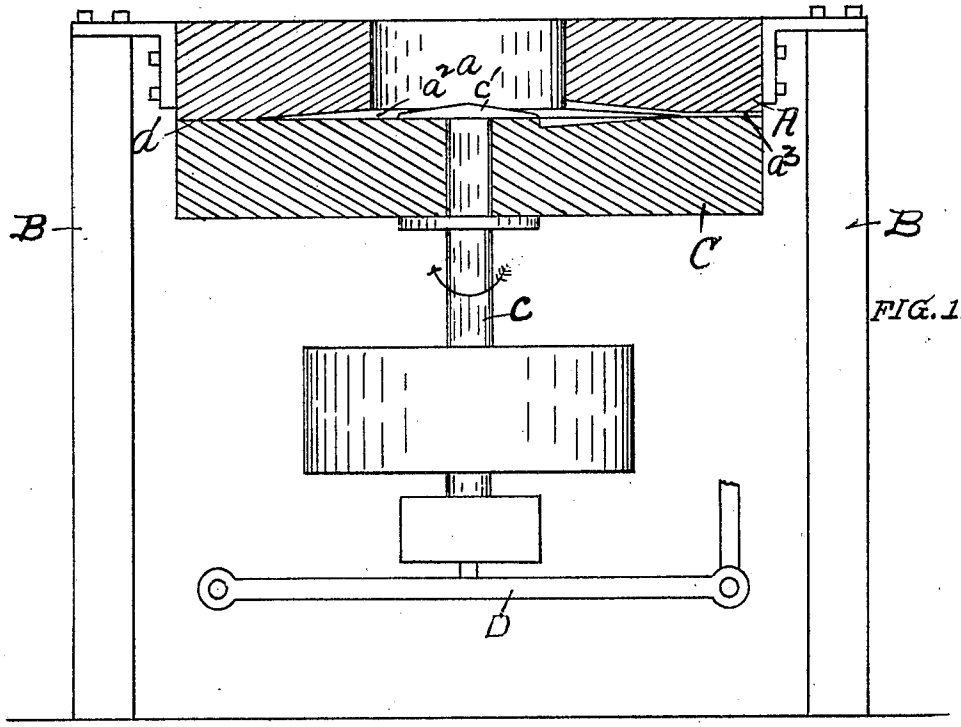


FIG. 1.

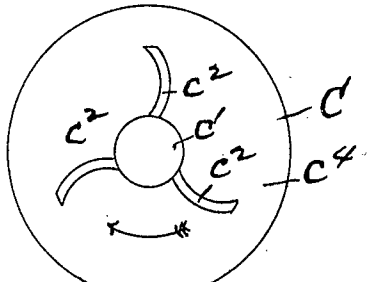


FIG. 2.

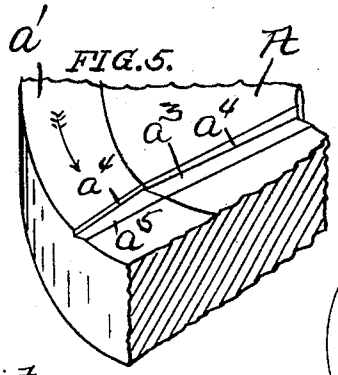


FIG. 5.

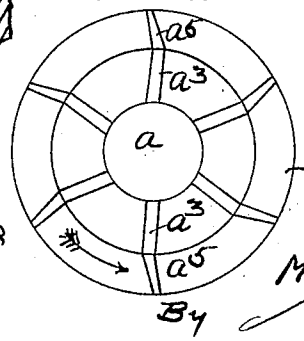


FIG. 3.

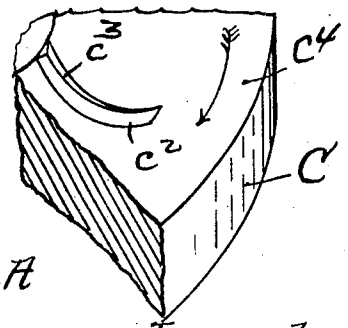


FIG. 4.

Witnesses

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GRINDING-MILL.

No. 856,918. Specification of Letters Patent. Patented June 11, 1907.

Application filed April 28, 1906. Serial No. 314,148.

To all whom it may concern:

Be it known that I, MICHAEL SCHRECK, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Grinding-Mills, of which the following is a specification.

The object of my invention is to provide a grinding mill of improved construction and operation and my invention consists in the combination and arrangement of parts hereinafter described and claimed.

In the drawings Figure 1, is a vertical section of a grinding mill embodying my invention; Fig. 2, a top plan view on a reduced scale of the lower or running stone; Fig. 3, a bottom plan view, on a reduced scale, of the upper or stationary stone; Fig. 4, a perspective view of a portion of the lower stone and Fig. 5, a perspective view of a portion of the upper stone.

The upper or stationary stone A is mounted in a suitable frame B and is provided with a central opening a through which the material to be ground is fed. On its bottom the stone A is provided with a grinding face a' contacting with the lower or running stone C which is rotatably mounted on shaft c. The central portion or bosom of the stone A is slightly concaved to provide a space a^2 between it and the lower stone. At intervals the lower face of stone A is provided with grooves a^3 radiating from opening a. These grooves have an abrupt wall a^4 on the side from which the material to be ground is fed thereto by the action of the lower stone. From wall a^4 the grooves a^3 gradually decrease in depth until they terminate flush with the surface of stone A, and gradually decrease in depth outwardly until they reach the grinding face after which they are of uniform depth. The portions of grooves a^3 lying in grinding face a' are inclined away from the direction from which material is fed thereto and their outer ends are made narrower than their inner ends. The arrows on Figs. 3 and 5 indicate the direction of feed of the material between the stones.

The lower or rotating stone C is secured upon shaft c by means of a central eye or boss c' which is conical in shape. The upper face of the stone is horizontal and is provided with curved grooves c^2 having abrupt walls c^3 on their carrying sides. From walls c^3 these grooves gradually decrease in depth until they terminate flush with the surface of the stone and they gradually grow shallower as they recede from the center until they terminate at their ends flush with the inner edge of grinding face c^4, thus leaving the grinding face unbroken by grooves. The shaft c is mounted upon a lever D by means of which it may be adjusted to carry stone C toward and away from stone A, as will be readily understood by those skilled in the art.

In operation, stone C is slowly rotated and material to be ground, such as white lead mixed with oil or water, is fed to the stones through opening a. As opening a is considerably larger than eye c', there is ample room for the material to flow off of eye c' and pass to grooves c^2 in the lower stone. Here the curved shape of grooves c^2 tends to force the material outwardly while the abrupt walls c^3 serve to carry the material. Thus it will be seen that the material will be gradually forced outwardly to the grinding faces a' and c^4. The spaces a^2 between the concave bosom of the stone A and the horizontal face of stone C furnishes room for the outward feed of the material and the circulation of air to keep the stones cool.

The grooves a^3 extending over the bosom and grinding face of stone A insure a free feed of the material and the circulation of air, while the ungrooved grinding face c^4 of stone C insures that no material shall pass through the stones without being thoroughly ground. By making the upper face of stone C horizontal, I obtain a construction in which the material to be ground is influenced by gravity and the grooves in the stone permitted to exert their influence thereon, unhindered. Owing to the fact that the abrupt wall a^4 of grooves a^3 is on the side from which material is fed thereto by the action of stone C, the material to be ground readily passes therefrom to the faces of the stones and the inclined outer ends of the grooves tend to facilitate the feed and draw air between the grinding faces to cool the stones. By making the outer ends of the portions a^5 of grooves a^3 narrower than the inner ends, too rapid discharge of the ground material is prevented.

This machine is especially adapted to the grinding of paints, white lead, starch or any substance of a liquid nature or mixed with a liquid.

The upper stone may be rotated if desired and the lower stone remain stationary.

While I have illustrated and described the preferred construction for carrying my in-

vention into effect, this is capable of modification without departing from the spirit of the invention. I therefore do not wish to be limited to the exact construction shown in the drawings, but

What I claim as new and desire to secure by Letters Patent is:—

1. In a grinding mill, the combination of a stationary stone having a central opening and a concaved bosom, said stone having grooves therein the outer ends of which are inclined and narrower than at their inner end, and a rotatable stone having a horizontal upper face provided with curved grooves.

2. In combination with an upper stationary stone having a central opening and concaved bosom, with radial grooves therein the outer ends of which grooves are inclined and narrower at their outer than at their inner ends, a rotatable stone having a plain grinding face and curved feed grooves, said feed grooves decreasing in depth until they merge into said grinding face.

3. In a grinding mill an upper stone having a central opening and a series of radial grooves having their outer ends angularly disposed and of less width than the remainder of said grooves, and a lower stone having a grinding face and a conical boss extending in said opening of the upper stone and curved feed grooves leading from said boss outwardly and terminating at the grinding face of said lower stone.

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Witnesses:
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