J. F. WALTER, Jr.

PAINT-MILL.

No. 187,788. Patented Feb. 27, 1877.

Fig. 1.

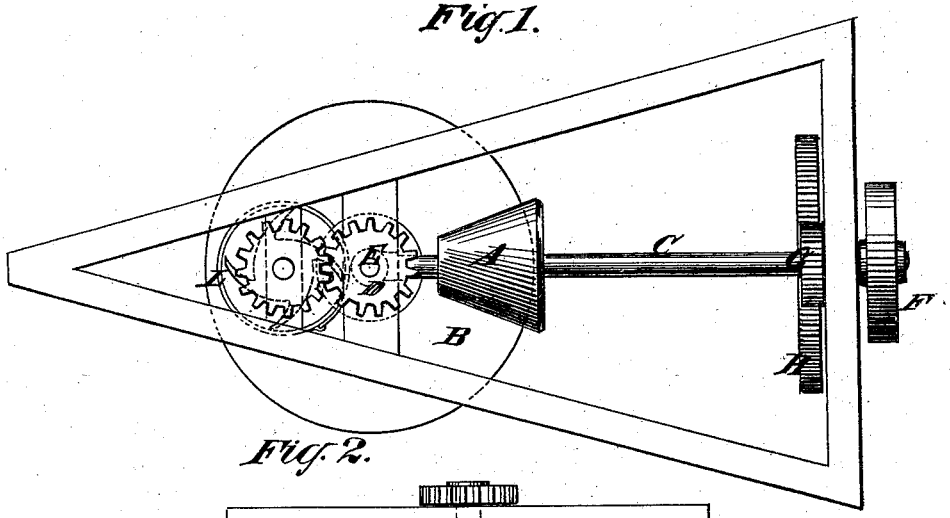


Fig. 2.

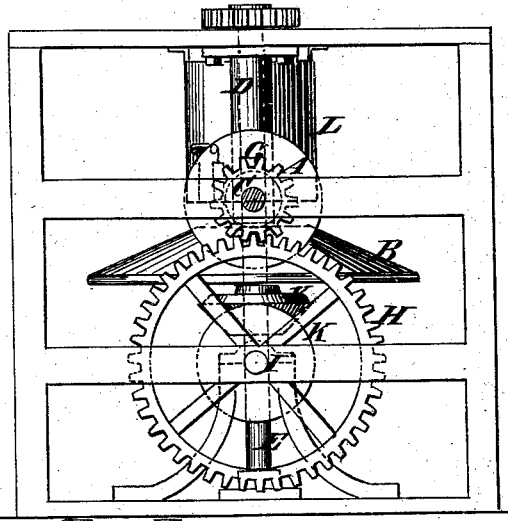
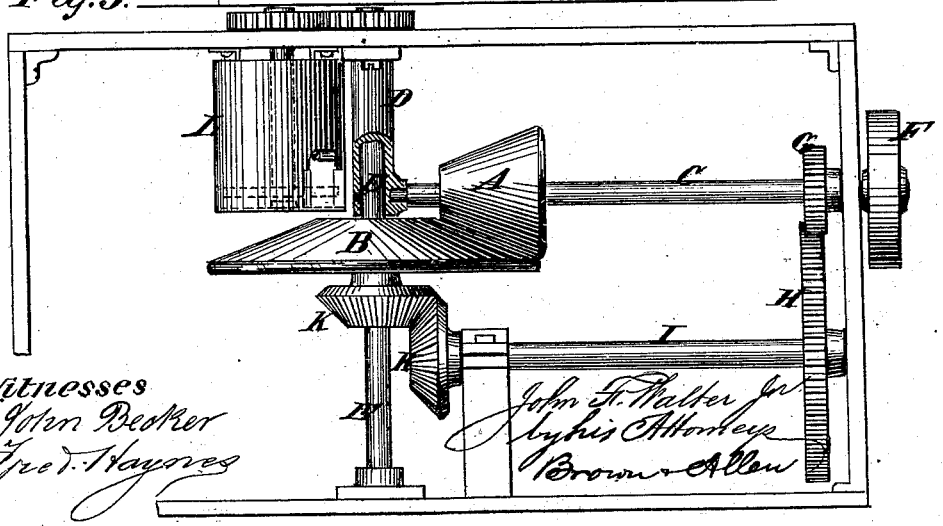


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN F. WALTER, JR., OF BROOKLYN, NEW YORK.

IMPROVEMENT IN PAINT-MILLS.

Specification forming part of Letters Patent No. **187,788**, dated February 27, 1877; application filed July 1, 1876.

To all whom it may concern:

Be it known that I, JOHN F. WALTER, JR., of Brooklyn, in the county of Kings and State of New York, have invented an Improved Mill for Grinding Paints and other Substances; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, which forms part of this specification.

My invention relates to mills which may be used for grinding paints or other materials, either in a wet or dry state; and my invention consists in the combination, with a lower conical grinder and a smaller conical grinder, arranged at right angles to the lower grinder, and both revolving at different speeds, of a feeder for delivering the substance to be ground at the crowns of the conical grinders, when, by centrifugal force, it is fed toward the outer edges of the grinders, the object of which will be hereinafter set forth. The invention also consists of certain other features, which will be fully hereinafter described.

Such mills, as heretofore constructed, require frequent dressing, with consequent expense and delay, and, when operating, they become heated, which injures the product. Moreover, expansion, caused by heating, causes binding, and, consequently, greater expenditure of power to drive such mills, and as such heating and expansion also obstruct the free delivery of the product, the grinders frequently require to be separated so much that they do not grind sufficiently fine, allowing the passage of too coarse particles; and often the grinders require to be stopped and the mill opened to allow the same to cool before the work can proceed. These disadvantages are either wholly or to a great extent removed in my improved mill.

Figure 1 in the accompanying drawing is a top view of the aforesaid mill. Fig. 2 is an end view, and Fig. 3 is a side view, of the same.

A and B are the two conical stones or grinders, formed of any suitable material. The lower stone, B, is of considerably greater diameter than the upper one, A, and the beveled or mitered faces of said grinders are presented to each other. The lower stone B has preferably much less circumferential velocity than the upper stone A; but this relation may be reversed, it being essential only that either of the stones should have a surface travel sufficiently greater than the other to afford the required rubbing between said stones of the material to be ground. The grinder A is fixed to the shaft C, which has one bearing in the frame of the machine, and its other bearing in the hollow hanger D, which descends from, and is attached to, an upper cross-bar of the frame, and which also serves as a bearing for the vertical shaft E, upon which is fixed the lower stone B. The upper stone A is revolved by the application of power to the pulley F. A spur-wheel, G, on the shaft C meshes with the larger spur-wheel H on a third shaft, I, which, through the bevel-gears K, Fig. 3, revolves the stone B at a considerably less surface velocity than that of the stone A.

The material to be ground being fed to the higher part of the stone B, as hereinafter described, the higher surface velocity of the stone A causes such material, by the action of centrifugal force, to feed along toward the outer edges of both the stones or grinders, this action causing the delivery of the ground material to be free and rapid, and also causes the material, while grinding, to pass many times between the stones. The material is fed to the stones from the feeder L, in which revolves a distributer, which assists in the uniform supply of the substance to be ground to the said stones, the said material being fed to the highest part of the lower stone through an opening in the side of said feeder, and the said distributer being driven by gearing attached to its shaft and the top of the shaft E. It will also be seen that the material is fed to the highest operative part of both the stones.

The application of the principle of construction of the mill may be extended by using two or more upper conical grinders of smaller diameter than the lower one, and running at a higher speed; and I do not confine myself to a single upper grinder, having successfully and advantageously used more than one such grinder, impelled by suitable gearing interposed between the shaft of the pulley F and said upper grinders.

I claim—

1. The combination, with the lower conical grinder B and the conical grinder A, arranged upon and at right angles to the lower grinder, and both revolving at different speed, of a feeder constructed and arranged to deliver the substance to be ground at the crowns of the conical grinders, whereby it is, by centrifugal force, fed toward the outer edges of both grinders, substantially as and for the object specified.

2. The combination, with the shafts C and E, of the conical grinders and the hollow hanger D, containing bearings for both of said shafts.

Witnesses: JOHN F. WALTER, JR.
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