

No. 835,286.

PATENTED NOV. 6, 1906.

H. E. MENIER.  
GRINDING MACHINE.  
APPLICATION FILED MAY 19, 1904.

Fig.1.

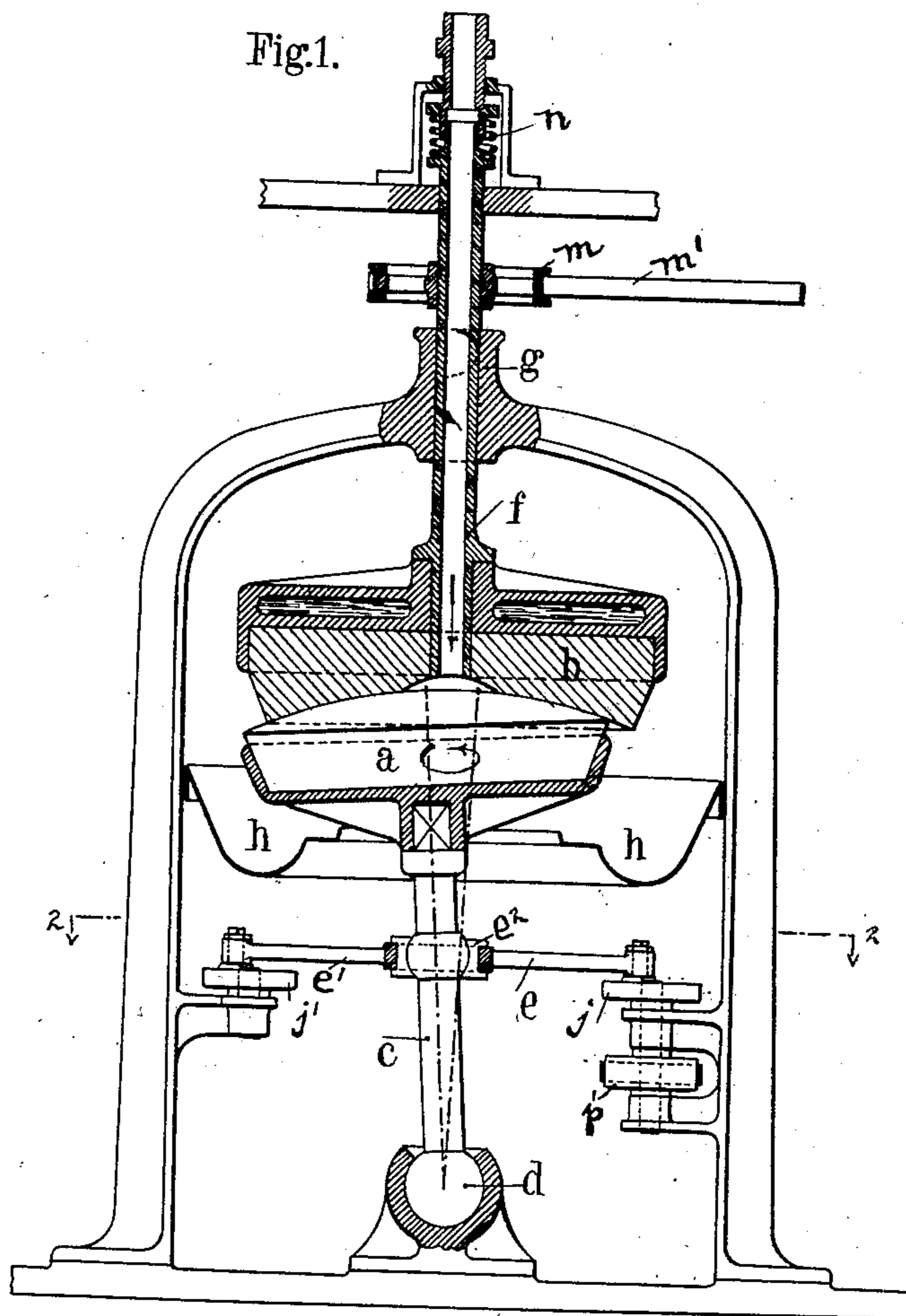
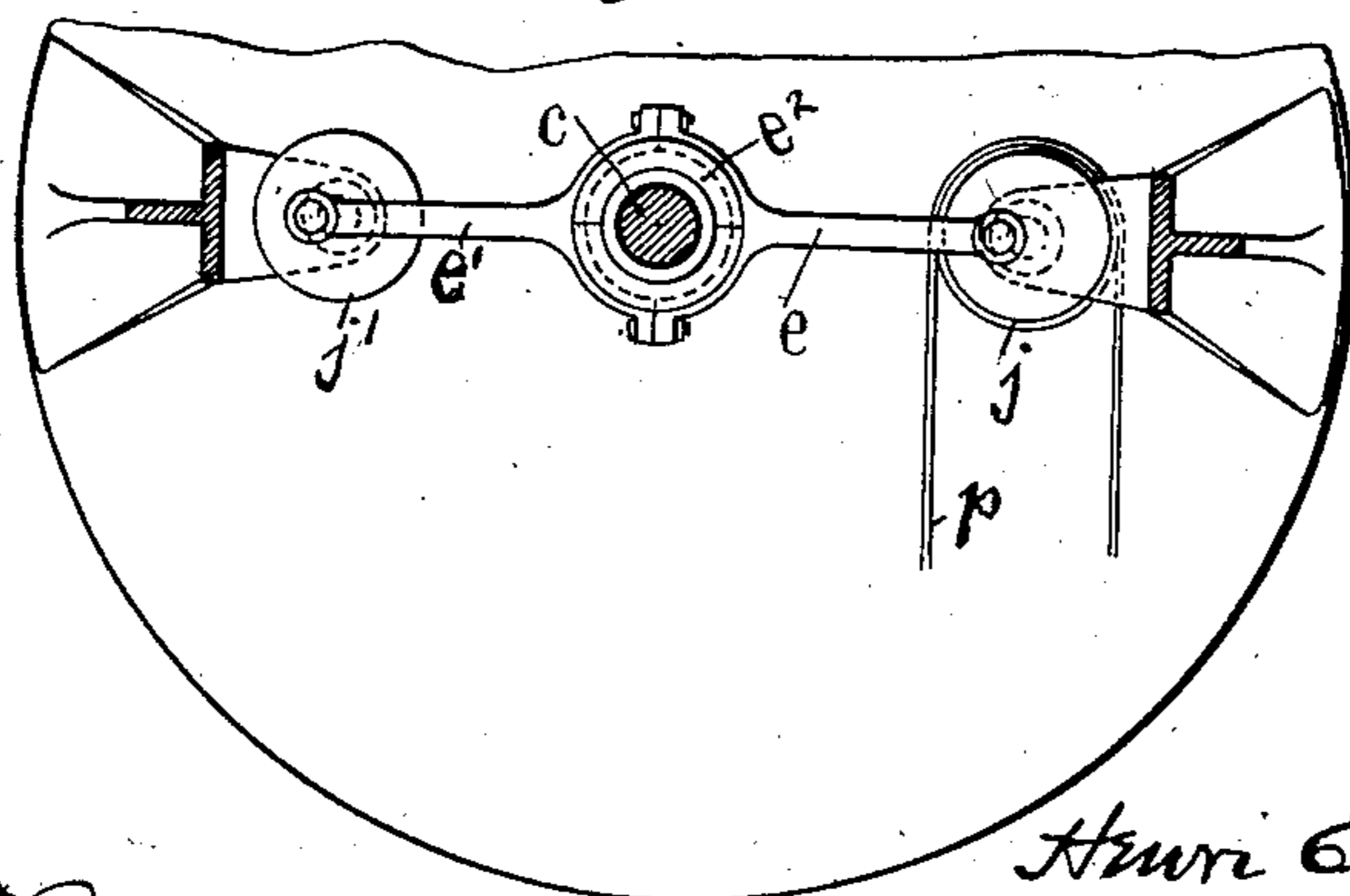


Fig. 2.



WITNESSES

Paul N. Blair  
Walter Abbott

INVENTOR

BY *Henri Emil Menier*

Howson and Howson  
ATTORNEYS

# UNITED STATES PATENT OFFICE.

HENRI EMILE MENIER, OF PARIS, FRANCE.

## GRINDING-MACHINE.

No. 835,286.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed May 19, 1904. Serial No. 208,731.

*To all whom it may concern:*

Be it known that I, HENRI EMILE MENIER, manufacturer, a citizen of the Republic of France, residing at No. 56 Rue de Chateaudun, Paris, in the Republic of France, have invented certain new and useful Improvements in and Relating to Grinding-Machines, of which the following is a specification.

This invention has for its object a grinding-mill for grinding any suitable material, presenting the advantage of insuring a larger output and more uniform operation as compared with grinding-mills as hitherto constructed.

The characteristic feature of this grinder resides in the fact that the grinding members—millstones in this case—grind one upon the other with a movement which is distinct and independent of the rotary motion which is imparted to one of them.

In the accompanying drawings, Figure 1 is a central vertical section of my improved grinder; and Fig. 2 is a sectional view on the line 2 2, Fig. 1, illustrating the operating mechanism for the lower stone.

*a* represents a millstone with a convex operative surface, and *b* a stone with a concave operative surface, the said millstones fitting exactly one upon the other.

The millstone *a* is mounted at the extremity of a shaft *c*, capable of oscillating at *d* and to which an oscillatory movement is imparted by any suitable means—as a cam, acting at *e*, for example. The oscillatory movement in question is preferably generated by the axis of the shaft *c*, which describes a cone about point *d* as an apex, as will be readily understood from the drawings.

The stone *b* is mounted upon a vertical shaft *f*, suitably guided at *g*, and to which a movement of rotation is imparted by means of any convenient transmission member. The arrangement of the guide *g* is such as to allow the stone complete liberty in the vertical direction, so that it may rest with all its weight upon the stone *a*. The weight of this stone may be increased in any suitable manner. The shaft *f* is tubular and serves for the admission between the stones *a* and *b* of the substance to be treated, which in a more or less pasty condition is forced by means of a pump or other similar appliance connected with the said shaft.

The specific means which may be employed for securing the motions and operation hereinbefore described may consist of a

pulley *m* on the shaft *f*, adapted to be driven by a belt *m'*, while a spring *n* may be mounted against the shaft *f* to exert a downward pressure thereon for the upper stone. The lower stone *a* may have on its shaft *c* the rods *e e'*, secured about the collar *e<sup>2</sup>*, pivotally attached to the eccentrics *j j'* at their opposite ends. Suitable means, such as a strap *p*, may be provided, driving the pulley *p'* on the shaft of one of the eccentrics. The grinding is thus performed by the two surfaces, one of which has a rotary motion on its fixed axis while the other rubs across the first surface with its central axial point traveling across the diameter of the first stone in a line about its fixed axis.

The stones *a* and *b* are of a material adapted for use with the substance to be ground.

The material to be ground, either in a pasty or fluid condition, which is conveyed under pressure to the center of the stones *a* and *b*, is acted upon by these latter, owing to the rotation of the stone *b* upon the stone *a* and escapes at the periphery into an annular receptacle *h*, arranged in such a manner as to permit of collecting it at a single point. The pressure of the stone *b* is suitably regulated for producing the desired grinding effect. In case of obstruction the substance under pressure lifts the stone *b* and automatically produces a clearance. In addition, and this is the important feature of the invention, the oscillatory movement imparted to the stone *a* insures a constant grinding of the two active or operative surfaces which are constantly kept in perfect condition for the work they have to perform, which results in an increased output and greater uniformity in the grinding.

The grinder thus constituted in principle is adapted for the treatment of fluid or semifluid substances of all kinds or those contained in a liquid or semiliquid medium. It may vary in its various constructional details and be constructed in any size and of any suitable materials.

I claim as my invention—

1. A grinding-mill, comprising two stones, the upper one concave and the lower one convex, one rotating on a fixed axis, and the other movable to each side of the center of the surface of the first stone, means for holding the faces of said stones in contact during their motion, and a feed-channel through the center of one of the stones.

2. A grinding-mill, comprising two stones

having their surfaces in contact and fitting each other, and means for rotating one of said stones on a fixed axis, in combination with means for imparting to the second stone  
5 a distinct and independent rotating motion in a circle concentric to the axis of the first of said stones, and a feed-channel through the center of one of said stones.

3. A grinding-mill, comprising two stones  
10 having their surfaces at all times in contact, one having a concave surface and one a convex surface, and one rotating on a fixed axis, and the other having a shaft adapted to travel in a path generating a cone, and a  
15 feed-channel through the center of the upper stone.

4. A grinding-mill, comprising two stones,

one rotating on a fixed axis and the other movable around the surface of the first stone and having its central axial point traveling 20 about the fixed axis of the other, and means for holding the faces of said stones in contact during their motion, in combination with spring means for pressing said stone rotating on a fixed axis against the other, and a 25 feed-channel leading through the center of said stone.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRI EMILE MENIER.

Witnesses:

LEVI CHANDLER,

HARRISON C. COXE.