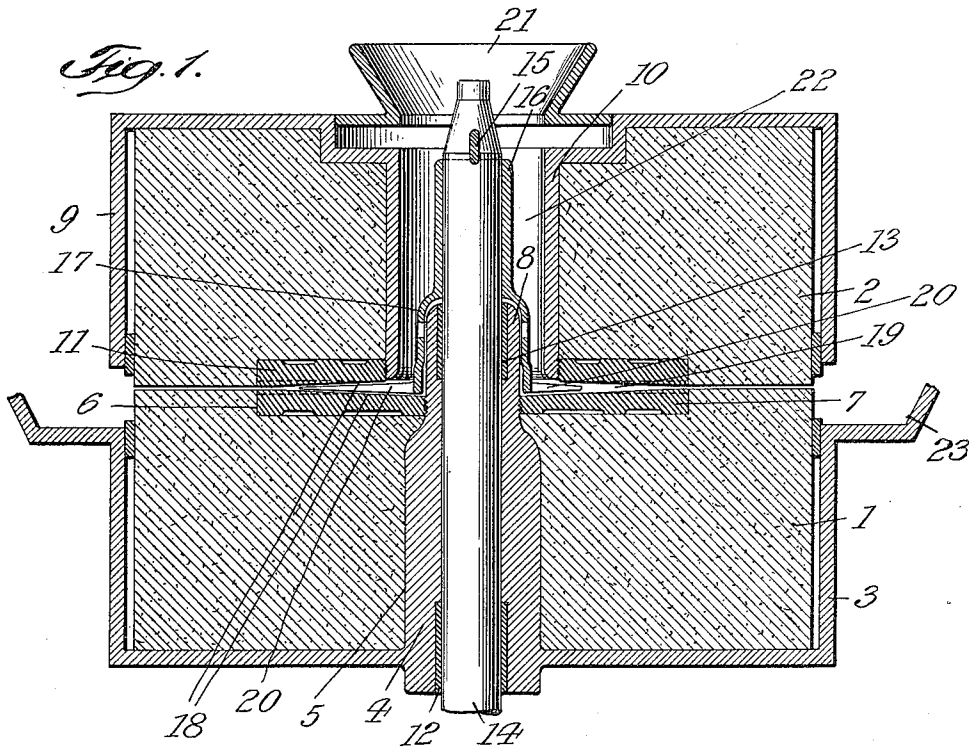
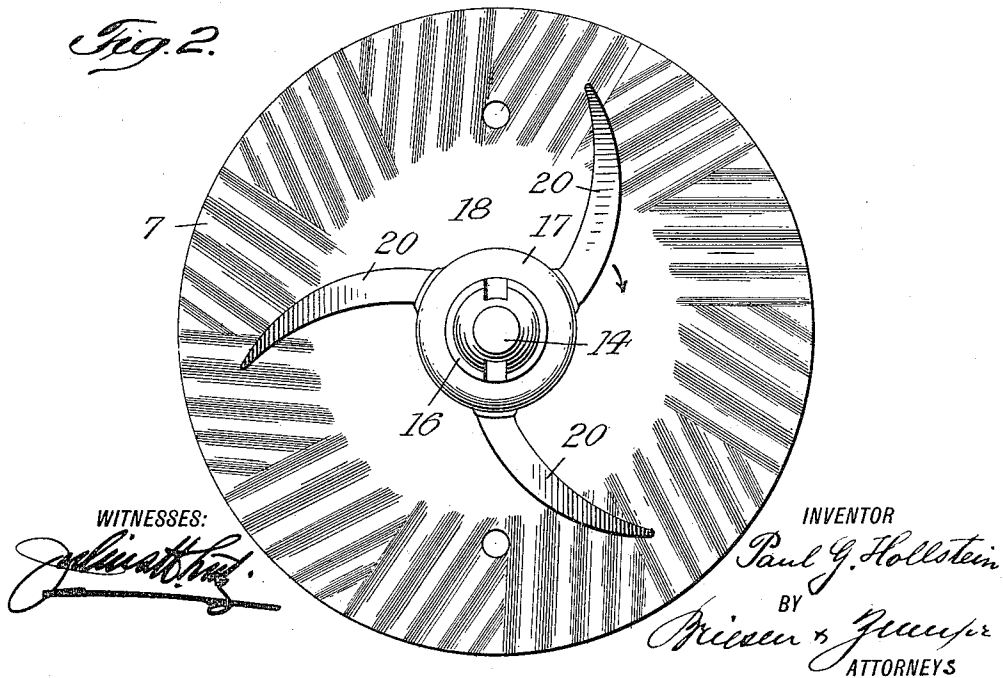


P. G. HOLLSTEIN.
GRINDING MILL.
APPLICATION FILED MAY 15, 1915.

1,153,918.

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UNITED STATES PATENT OFFICE.

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GRINDING-MILL.

1,153,918.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, PAUL G. HOLLSTEIN, a citizen of Germany, and a resident of Carlstadt, county of Bergen, State of New Jersey, have invented certain new and useful Improvements in Grinding-Mills, of which the following is a specification.

This invention relates to a novel grinding mill provided with a central inlet for the material to be comminuted and comprises more particularly novel and effective means for gradually and uniformly guiding or feeding the material centrally introduced between the bed and runner toward the periphery thereof.

The invention further comprises other novel features of construction more fully pointed out in the appended specification and claims.

In the accompanying drawing:—Figure 1 is a vertical central section through a grinding mill embodying my invention, and Fig. 2 an enlarged plan view of the shaft and co-operating parts.

My improved mill comprises essentially a lower stationary millstone or bed 1 and an upper rotary millstone or runner 2, although it is obvious that the relation between bed and runner may be reversed if so desired. The bed 1 is shown to be tightly fitted into a casing 3 constituting part of the mill frame and provided with a central upwardly extending bearing 4 that is accommodated within a corresponding bore 5 of bed 1. Into an upper recess 6 of bed 1 is closely fitted a disk 7 made of steel or similar hard material, the upper face of said disk being flush with the upper face of bed 1. Disk 7 is provided with a threaded central bore by means of which it is tightly screwed upon the reduced threaded neck 8 of bearing 4. In similar manner, the runner 2 is shown to be tightly fitted into an inverted cup-shaped casing 9 provided with an inner stepped sleeve 10. At its bottom, runner 2 is provided with a central recess into which is closely fitted a metallic disk 11 which is screwed upon the threaded lower end of sleeve 10. Within lower and upper bushings 12, 13 of bearing 4 and neck 8 respectively is rotatably mounted an upright driving shaft 14 that receives rotary motion at its lower end in suitable manner. Diametrically through the upper preferably coniform end of shaft 14 extends a traverse 15 that

engages sleeve 10 and thereby transmits rotary motion to the runner 2. To the upper end of shaft 14 is firmly secured an elongated collar 16 provided at its lower end with a bell-shaped hood 17 that loosely surrounds neck 8.

The opposed faces of disks 7 and 11 are corrugated to facilitate the breaking up of the grain, cocoa beans, etc., preparatory to the grinding operation proper which is performed between the opposed faces of the millstones surrounding the disks 7 and 11 respectively. The opposed faces of said disks are gradually ground down or chamfered toward the center as at 18 to form an intermediate annular clearance 19 of wedge-shaped cross section. This clearance accommodates a number of correspondingly tapering curved arms 20 that form part of hood 17. The curvature of these arms should be such that they have the tendency to gradually feed the material to be ground toward the periphery of the disks 7 and 11, said material being admitted through a hopper 21 into the annular passage 22 formed between sleeve 10 and hood 17. Owing to the tendency imparted to the material by arms 20, of gradually moving toward the periphery of disks 7 and 11, the material located between the opposed outer annular faces of the millstones proper is in turn pushed toward the periphery of said stones to be continuously discharged in the desired ground condition into a suitable receiver 23.

It will be seen that owing to the provision of the feed arms 20 on the rotating hood 17 the material centrally admitted is evenly fed outward so that a clogging of the mill is prevented and an effective and uniform grinding operation is insured. Owing to the positive feed of the material toward the periphery of the mill thus obtained, it is obvious that the output of ground material may be made to always reach the full grinding capacity of the mill.

I claim:—

1. A grinding mill composed of a lower bed having a cylindrical central recess, an upper runner having an opposed cylindrical central recess, corrugated metallic disks accommodated within said recesses and forming an annular clearance therebetween that gradually increases in height toward the center of the disks, a rotary shaft carrying the runner, and tapering curved arms se-

cured to said shaft and accommodated within said clearance.

2. A grinding mill comprising a bed having a central recess, a runner having a central recess, corrugated disks accommodated within said recesses and having opposed chamfered faces to form an inner annular clearance of wedge-shaped cross section therebetween, and tapering curved arms revoluble through said clearance.

3. A grinding mill comprising a bed provided with a central recess, a runner provided with a central inlet passage and a surrounding recess, corrugated disks accommodated within said recesses and having opposed chamfered faces to form an inner annular clearance of wedge-shaped cross section therebetween, and tapering curved arms revoluble through said clearance.

4. A grinding mill comprising a centrally apertured bed having an upper recess, a runner provided with a central inlet passage and a lower recess, a bearing accommodated within the bed-aperture, a shaft engaging said bearing and extending into the inlet passage, means for operatively connecting

said shaft to the runner, corrugated disks accommodated within said recesses and having opposed chamfered faces to form an inner annular clearance of wedge-shaped cross section therebetween, and tapering curved arms carried by the shaft and extending into said clearance.

5. A grinding mill comprising a centrally apertured bed having an upper recess, a runner provided with a central inlet passage and a lower recess, a bearing accommodated within the bed-aperture, a neck on said bearing that extends into the inlet passage, a shaft engaging said bearing and protruding beyond the neck into said inlet passage, means for operatively connecting the shaft to the runner, corrugated disks firmly seated within said recesses and having opposed chamfered faces to form an inner annular clearance of wedge-shaped cross section therebetween, a collar fast on the protruding shaft-end, a hood on said collar loosely surrounding the bearing-neck, and tapering curved arms extending from said hood into said clearance.

PAUL G. HOLLSTEIN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."