(No Model.)

J. P. HUMBLE.

COFFEE MILL.

No. 381,074. Patented Apr. 10, 1888.

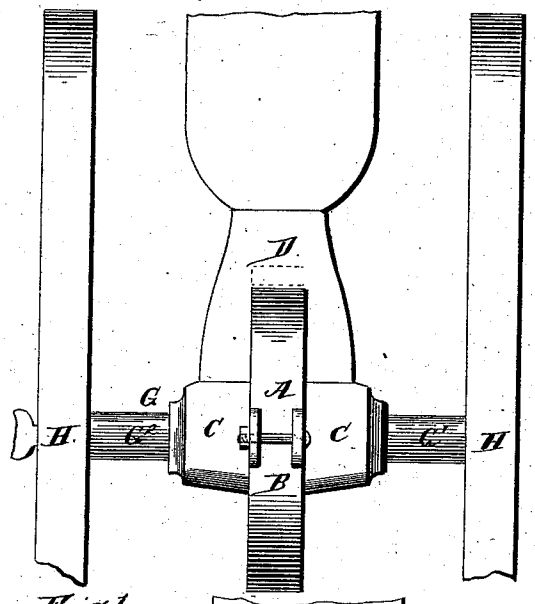


Fig. 1

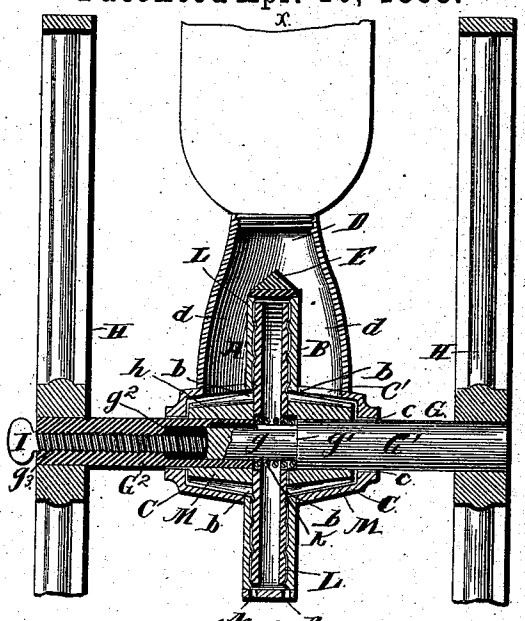


Fig. 2

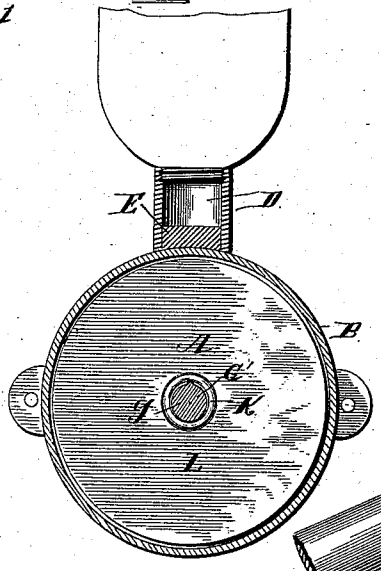


Fig. 3

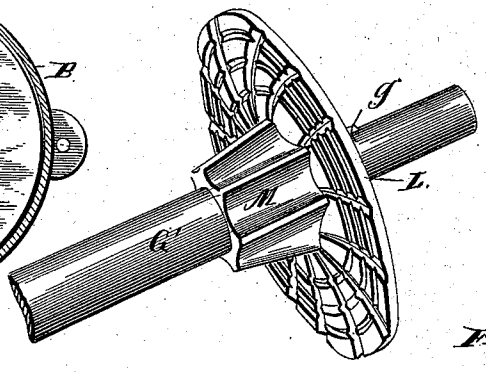


Fig. 4

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UNITED STATES PATENT OFFICE.

JOSEPH P. HUMBLE, OF PLAINFIELD, NEW JERSEY.

COFFEE-MILL.

SPECIFICATION forming part of Letters Patent No. 381,074, dated April 10, 1888.

Application filed July 19, 1887. Serial No. 244,765. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH P. HUMBLE, a citizen of the United States, residing at Plainfield, in the county of Union and State of New Jersey, have invented a new and useful Improvement in Coffee-Mills, of which the following is a specification.

My invention relates to an improvement in coffee-mills; and it consists in a certain novel combination of the grinding-surfaces of the mill and a peculiar arrangement of parts, whereby the said grinding-surfaces are adjusted to vary the degree of fineness or coarseness of grinding, clearly described hereinafter, and specifically pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a side elevation of the mill. Fig. 2 is a vertical longitudinal section of the same. Fig. 3 is a transverse section of the same. Fig. 4 is a detail view of one of the grinding-disks.

Referring by letter to the drawings, A designates the shell or body of the mill, comprising the circular case B, having the large central openings, *b b*, in the sides, covered on the outside by the caps or cone-shaped boxes C C, having bearings *c c* in the ends. The upper sides of the said boxes C C, close to the circular portion of the body, are provided with the apertures C′ C′; and D designates a hopper disposed over the upper side of the said circular body B and having the vertical tubes or ducts *d d*, leading down to and communicating at the lower ends with the said apertures C′ C′. The upper side of the circular case in the center of the throat of the hopper has a block, E, secured thereon, provided with beveled sides slanting in both directions, to divide the coffee or other material which is inserted into the hopper and direct it equally into the two tubes *d d*.

G designates the horizontal shaft of the machine, to the outer ends of which are secured the power-wheels H, and the said shaft is journaled in the bearings *c c*, formed in the ends of the boxes C C. The said shaft G is formed in two parts—namely, the portion G′, reduced at the inner end to form the shoulder *g′* and the stud or reduced portion *g*, and the hollow portion G^2, having the longitudinal recess g^2 therein and the threaded aperture g^3 in the outer end to receive the adjusting thumb-screw I, which extends a considerable distance through the longitudinal opening in the shaft.

The stud *g* on the end of the shaft G′ is adapted to be passed into the end of the shaft G^2, and a spiral spring, K, is disposed between the shoulder *g′* and the end of the shaft G^2 and coiled around the stud *g*. It will be seen that the tendency of the said spring is to press the said shafts apart. In order to enable the said shafts G′ and G^2 to be turned at the same time—that is, to cause them to move together—a groove, *h*, is formed in the side of the recess g^2, and a corresponding rib or spline is formed on the side of the stud *g* to fit in the said groove. Thus, although the said shafts are capable of longitudinal movement with respect to each other, they will always turn at the same time and with the same speed.

L L are the grinding-disks, secured, respectively, on the inner ends of the shafts G′ G^2, the outer sides of the same being grooved and ribbed concentrically and radially to operate in proximity to the similarly grooved and ribbed inner surfaces of the sides of the circular case, as indicated in Fig. 2.

M M are conical bosses formed on the outer sides of the said disks to fit and operate in the boxes C C on the sides of the case B, the said bosses being provided with ribs and grooves arranged spirally to operate close to the ribbed and grooved inner surfaces of the said boxes.

It will be seen that when the power-wheels of the mill are turned the shafts G′ and G^2, and consequently the grinding-disks attached thereto, will be rotated, and the coffee or other material, which is passed into the hopper D, will pass into the boxes C C, where it will be partially crushed by the coarse grooves and ribs on the contact-surfaces of the bosses and the boxes, and will thence pass into the circular case of the mill and be finely powdered between the outer surfaces of the said disks and the inner surfaces of the case.

N N are small apertures formed in the lower side of the case B, aligned with the spaces between the outer sides of the disks and the sides of the case, and it will be seen that when the coffee or other material has passed between the said disks and the sides of the case and become thoroughly ground it will pass out of the mill through the said apertures N N.

The spring K between the ends of the shafts G′ G² normally presses outwardly, and thus causes the disks to press against the sides of the case with a slighty-yielding, but sufficiently firm, pressure to insure the satisfactory grinding of the material placed between said disks and the case. It will be seen that the inward motion of the disks is limited by the end of the stud *g* striking against the inner end of the set-screw I in the end of the hollow shaft, and consequently, if it is desired to grind the material very fine, the said screw is screwed in, thus forcing the disks closer to the sides of the case, and if it is desired to allow the material to pass through in a coarser state the said screw is partly withdrawn and the disks permitted to yield when the coffee or other material passes between them and the sides of the case.

The construction of this device, as will be seen, is very simple, and the advantage is gained of having two disks operating at the same time, both being fed by the same hopper and grinding with the same rapidity.

Having thus described my invention, I claim—

1. In a coffee-mill, the combination of the case B, having bearings in the sides, the shaft G, comprising the portion G′, having the reduced portion *g* on the inner end, and the portion G², having the recess g^2 therein to receive the said stud, the set-screw I in the end of the portion G², and adapted to bear at the inner end against the end of the reduced portion *g*, and the disks L L, rigidly secured on the inner ends of the said portions G′ G² of the shaft G, respectively, substantially as specified.

2. In a coffee-mill, the combination of the case B, having bearings in the sides, the shaft G′, journaled in one of the said bearings and having the shoulder *g′*, and the reduced portion *g* on the inner end, the shaft G², journaled in the other bearing and having the recess g^2 extending longitudinally therethrough to receive the said reduced portion *g*, the inner side of the said recess g^2 being provided with a groove to receive the rib M on the side of the stud, spiral spring coiled around the reduced portion *g*, between the end of the shaft G² and the shoulder *g′* on the shaft G′, and the thumb-screw I, operating in the threaded opening in the end of the shaft G² and bearing at the inner end against the end of the reduced portion *g*, and the grinding-disks L L, secured on the inner ends of the said shafts and adapted to be turned thereby within the case B, substantially as specified.

3. The combination of the shaft consisting of the hollow shaft G², the shaft G′, having the reduced portion *g* fitting in the hollow portion g^2, and thereby providing the shoulder *g′*, the case, the grinding-disks secured on the inner meeting ends of the shafts G′ G², and the spring coiled around the reduced portion *g* and bearing against the shoulder *g′* and the end of the hollow shaft G², to press the grinding-disks against the sides of the case, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

JOSEPH P. HUMBLE.

Witnesses:
W. F. WILLIAMS,
J. B. COWARD.