J. C. DELL.

Coffee-Grinding Mill.

No. 227,742. Patented May 18, 1880.

Fig. 1.

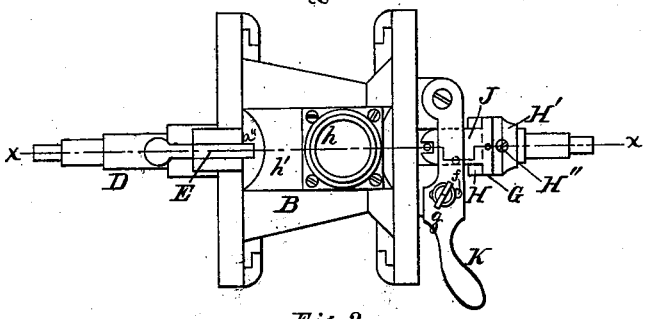


Fig. 2.

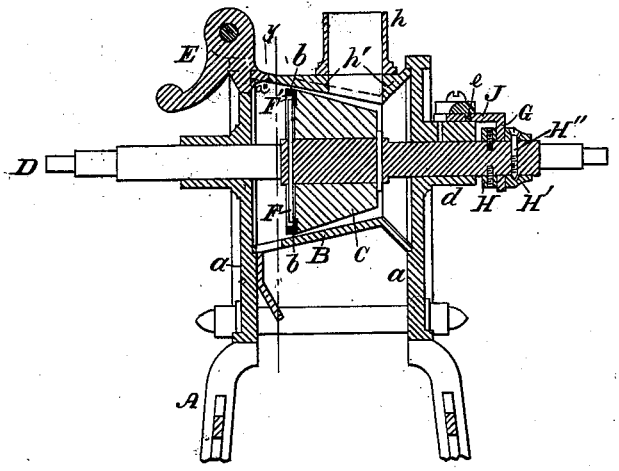


Fig. 3.

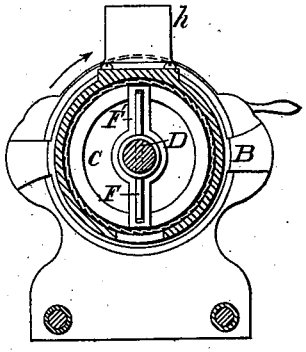
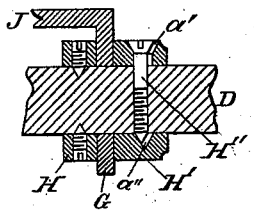


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

JOHN C. DELL, OF PHILADELPHIA, PENNSYLVANIA.

COFFEE-GRINDING MILL.

SPECIFICATION forming part of Letters Patent No. 227,742, dated May 18, 1880.

Application filed January 8, 1880.

To all whom it may concern:

Be it known that I, JOHN C. DELL, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Mills for Grinding Coffee, Spices, &c., which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a top or plan view of the portion of a grinding-mill embodying my invention. Fig. 2 is a central vertical section thereof in line *x x*, Fig. 1. Fig. 3 is a vertical section in line *y y*, Fig. 2. Fig. 4 is a sectional view of a detached portion enlarged.

Similar letters of reference indicate corresponding parts in the several figures.

My invention consists of means, as hereinafter fully set forth, for positively adjusting the burr for fine or coarse grinding while the mill is running or at rest.

It also consists of the yielding connection of the burr and spindle provided with a guard-plate, whereby, when the burr is subjected to extraordinary or injurious strain and the connection yields, the spring is prevented from being worn and losing its power.

It also consists of means for providing for the wear of the sleeve and collars on the spindle.

Referring to the drawings, A represents a stand or frame for supporting the parts of the mill. At the upper end of said stand there rise heads *a a*, between which is clamped the shell or bed B, whose inner face is properly dressed, and within the bed is the burr C, whose spindle or shaft D is mounted on the heads *a a*.

The bed B is loosely fitted or clamped to the heads and adapted to rotate thereon, so that should nails, stones, &c., accidentally enter the bed through the spout with the material to be ground the urn is removed and the bed rotated, thus overturning the spout and permitting the obstacle to drop out or the bed clear itself.

In order to hold the bed during the grinding operation, the spout being in proper position, I hinge to the upper end of one of the heads *a* a weighted latch, E, whose nose or head *a''* unfailingly engages with a notch in the bed. When the latch is released to permit the rotation of the bed it remains hinged or pivoted to the head, and does not rotate with the bed, thus not interfering with any part of the mill or being thereby interfered with.

The burr C, while fitted loosely on the spindle, is connected thereto by a spring, F, which rests on and presses against a guard-plate, F′, inclosing the spindle and entering notches or engaging with shoulders, as at *b*, in or on the adjacent end of the burr, thus holding the burr on the shaft sufficiently secure for all practical purposes. Should, however, any obstacle be caught between the burr and shell or bed, or the burr be subjected to extraordinary or injurious strain, the spring or spring-connection yields, the plate F′ automatically leaving its seat on the burr or runner and relieving the burr. The spindle continues to rotate while the burr remains inoperative, thus preventing injury to the burr or bed. When the obstacle is removed or strain is relieved the spring and plate rotate with the spindle until the plate reaches and engages with the notches or shoulders *b*, whereby the burr is again caused to rotate and render service. As the spring bears against the plate F′ it is guarded and relieved of grinding or wearing action, and thus preserves its power.

The burr is conical and the inner face of the bed conformable thereto, and the spindle is adapted to be moved longitudinally on its bearings, so that the faces of the burr and bed may be brought nearer together or moved farther apart, or rendered adjustable for grinding fine and coarse. In order to impart such longitudinal or adjustable motions to the spindle, I connect to one end thereof a loosely-encircling sleeve, G, which is held between two collars, H H′, fixed to the spindle. Secured to or formed with the sleeve at its upper portion is an arm, J, which is guided on a projection or piece, *d*, on the adjacent head *a*, above the bearing for the spindle. A slot is formed in said arm J, and receives a pin or stud, *e*, projecting from a lever, K, which is pivoted to the piece *d*, and formed with a slot, *f*, receiving a thumb or set screw, *g*, which is fitted to said projection *d*.

It will be seen that when the screw *g* is loosened the lever K may be moved to the right

or left, thus moving the arm J and sleeve G, and causing a corresponding movement of the spindle D, whereby the space between the burr is increased or decreased or adjusted for grinding coarse or fine, as is evident. The screw *g* is then tightened and the burr retains its adjusted position.

It will be noticed that the adjustment of the burr to fine and coarse grinding may be conveniently accomplished while the mill is running without the necessity of stopping the same.

The spout or inlet *h* is supported on a platform, *h'*, which is formed with or secured to the bed B at what may be termed the "upper side" thereof. The bed is of conical form, and the platform produces a flat support for the spout, so that as the opening which in the bed communicates with the spout weakens the bed at the place where the weight of the hopper or urn is necessarily imposed the platform provides a re-enforce at the weak spot and prevents breaking of the bed.

The collar H' is connected to the spindle D by means of a screw, H'', the head and point whereof are unthreaded and conical, and the openings *a' a''* in the collar are respectively larger than said head and point, so that the latter (the head and point) bear against the walls of said opening at what may be termed "one side" thereof. When the collars H H' and sleeve G wear the screw is rotated, the action of the head and point thereof being to force said parts together, thus preventing lost motion of the spindle and preserving the adjustment of the burr; and this adjustable action of the screw may be repeated until its service is exhausted.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The slotted arm J, supported on the projecting piece *d* of the head *a*, and having a sleeve, G, fitted between the collars H H' of the spindle D, in combination with the adjusting-lever K, pivoted to said piece *d*, and provided with a pin or stud, *e*, projecting into the slot of the arm J, substantially as and for the purpose set forth.

2. The burr and spindle, in combination with the spring F and guard F', substantially as and for the purpose set forth.

3. The collar H', with openings *a' a''*, and the screw H'', with conical head and point, in combination with the spindle D, sleeve G, and collar H, said openings *a' a''* being larger than the head and point, respectively, of the screw, substantially as and for the purpose set forth.

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