

W. P. COLEMAN.

Grinding Mill.

No. 7,679.

Patented Oct. 1, 1850.

Fig. 2.

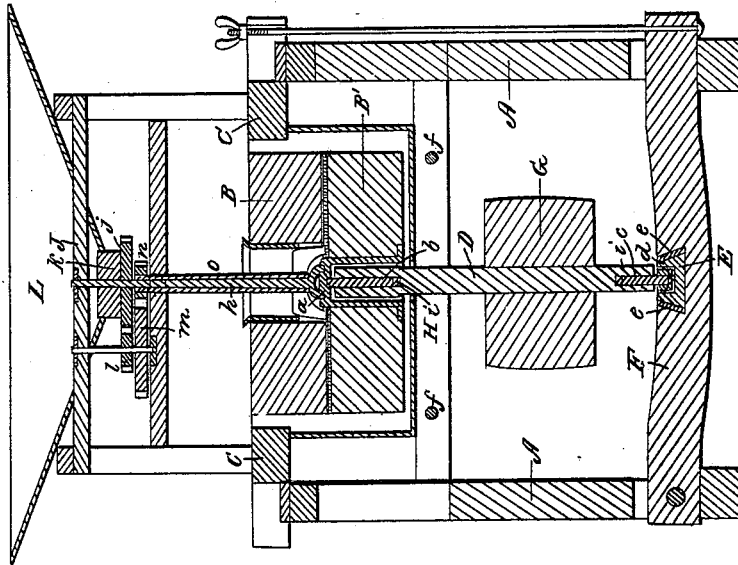
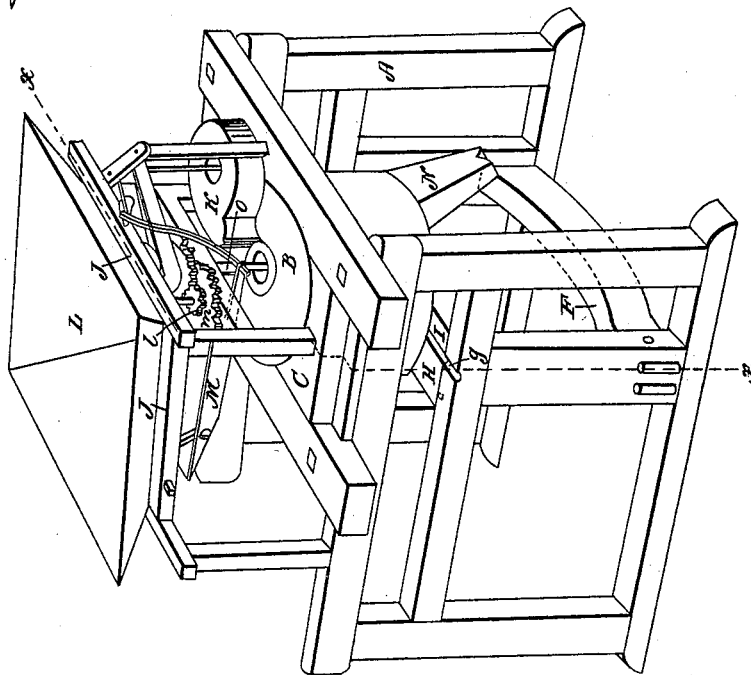


Fig. 1.



UNITED STATES PATENT OFFICE.

WILLIS P. COLEMAN, OF NEW ORLEANS, LOUISIANA.

MILL FOR GRINDING.

Specification of Letters Patent No. 7,679, dated October 1, 1850.

To all whom it may concern:

Be it known that I, WILLIS P. COLEMAN, of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Portable Mills for Grinding Grain, Ores, and other Substances, which I denominate "Coleman's Improved Undulatory Mill," and of which the following is a full, clear, and exact description, reference being had to the accompanying drawing of the same, which makes part of this specification, and in which—

Figure 1 is a view in perspective of my said mill and Fig. 2 a section through the line *x x* of Fig. 1.

My said mill is so constructed and arranged that it may be made either stationary or portable.

The accompanying drawings represent my improvements applied to a portable mill. This mill is supported by a substantial frame A; the stones are two in number made of any suitable material; their grinding surfaces are made perfectly plane with deep sickle furrows commencing at the center and terminating at the circumference and increasing in width as they recede from the center so as to occupy one half of the face of the stone, the land and furrows being thus rendered equal. The upper stone B is stationary and is supported in a frame C, secured on the top of the main frame A; the lower stone B' is the runner and is suspended by its bale on the cockhead of the spindle, the bale (*a*, Fig. 2) is nearly on a level with the upper or grinding surface of the stone at the point where it rests on the cock head *b*, the center of gravity of the stone is consequently considerably below its point of suspension; by this method of hanging, the stone is forced to run with great steadiness and its speed can be increased while at the same time the quality of the grist is improved. The upper end of the spindle D is made square and fits loosely into the eye of the stone which is of the same shape, the head of the spindle therefore can not turn in the eye and acts as the driver. The spindle is fitted at its upper end with a cockhead *b*, and with a pivot *c* at its lower end, both of the usual form and both fitting into sockets in the spindle, at the inner extremity of which pieces of india rubber *i* or some other elastic substance are placed to prevent the transmission of jars

from the lower part of the frame to the stones, and vice versa; these elastic cushions between the cockhead and pivot, and the bottoms of their respective sockets also prevent them from wearing as rapidly as they otherwise would. The end of the spindle rests in a step E, supported on a bridgetree F, the step being susceptible of a horizontal, and the bridgetree of a vertical adjustment, so as to raise or lower the runner and keep its face parallel to that of the stationary stone.

The step is composed of a block of metal of a dovetail shape which is let into the upper side of the bridge tree F; between each side of this block and the sides of the notch in which it is placed, room is left for a wedge *e, e*, which is fitted therein, the two wedges having their heads in opposite directions, so that by the simultaneous movement of both the wedges in one direction the block E will be moved toward one end of the bridge tree, and by a like movement of them in the opposite direction the block will be moved toward the opposite end of the bridge-tree; the block can also be moved endwise between the wedges toward either one side of the bridge-tree or the other; in this manner the step can be moved for the purpose of adjustment in every direction. On the upper side of the step-block a cavity is formed within which a steel bearing *d* is placed, the upper side of this bearing has a hemispherical cavity formed in it to receive the lower extremity of the pivot of the spindle which is of corresponding shape, at the bottom of this cavity a hole is made though the bearing which communicates with an oil well beneath it; this oil well likewise communicates by a channel with the top of the bearing and hence keeps the pivot well lubricated with oil both from above and below, by which means its durability is increased while its liability to heat from friction is diminished. Near the lower end of the spindle a belt pulley G is secured which is encircled and driven by a belt from a drum on a driving shaft.

The bush of the spindle is formed between the beam H and the cap I, both being notched to a sufficient depth to receive the journal and keep the spindle steady, but not so deep as to allow them to come together, the cap is held against the spindle by means of clamp screws *f f*. On one side of the mill an aperture *g* is made in the frame to

admit of the lubrication of the journal by means of an oiled sponge secured to the end of a stick. This is believed to be the simplest and most effective method of lubricating the journals of mill spindles, the miller is in constant attendance and if he makes a practice of oiling at stated times the spindle will be kept better lubricated than by any of the automatic oilers heretofore adapted, as the latter are continually clogging up though working well at the outset. Immediately above the spindle D is a second spindle *h* which is stepped on and coupled to the bale *a*; the upper end of this second spindle (*h*) is supported in a bearing in the hopper frame J, and has a belt pulley *k* secured to it, from which the fan K is driven by means of a belt. Immediately beneath the pulley *k* a spur wheel *j* is secured to the spindle; this wheel gears into a pinion *l* on a counter spindle having a wheel *m* secured to it which gears into a pinion *n* on the head of a sleeve *o* upon the spindle *h*; by this arrangement the sleeve *o* is driven by the spindle but at a much greater speed; at the lower end of this sleeve a series of radiating arms *p* are placed which by their centrifugal action rapidly force between the stones anything fed into the eye; this is of especial advantage in grinding substances which have a tendency to remain in and clog the eye, as paint, muddy ores, pharmaceutical preparations and other pasty adhesive substances. The hopper L is funnel shaped and is

supported on a frame J; the grain runs from the hopper down into a shoe M, whence it is shaken into the eye of the stone by the damsel or rattle staff which in this instance is formed by the irregular projections on the outside of the sleeve *o*; as the grain falls down from the shoe into the eye it passes through a current of air generated by the fan K; this current of air separates from it any dust chaff or other light impurity with which it may be mixed. In the case of ores the lighter earthy and valueless particles will be blown out while the heavier only will descend into the eye to be ground. The shoe is held more or less tightly against the damsel by the strap *r* which is let out and drawn up by turning the pin.

The stones are surrounded by a curb which has an outlet at the front of the well to which a spout N is affixed through which the product of the grinding is discharged.

What I claim as my invention and desire to secure by Letters Patent is—

The elastic cushion inserted in the bottom of the socket of the cockhead, substantially in the manner and for the purpose herein set forth.

In testimony whereof I have hereunto subscribed my name.

W. P. COLEMAN.

Witnesses:

P. H. WATSON,
I. L. SMITH.