(No Model.)

O. HOFFMANN.

GRINDING MILL.

No. 309,302. Patented Dec. 16, 1884.

Fig. 1.

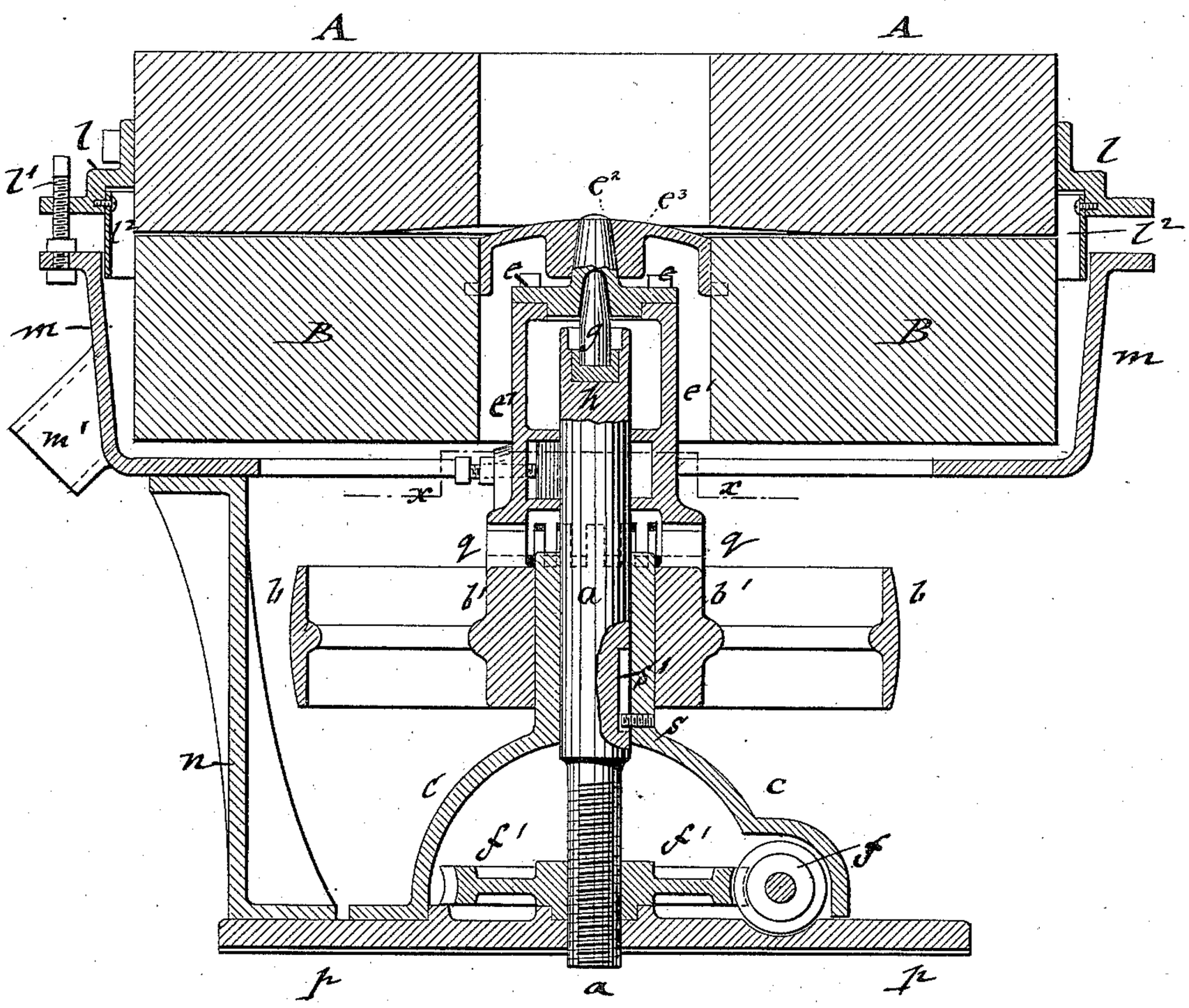
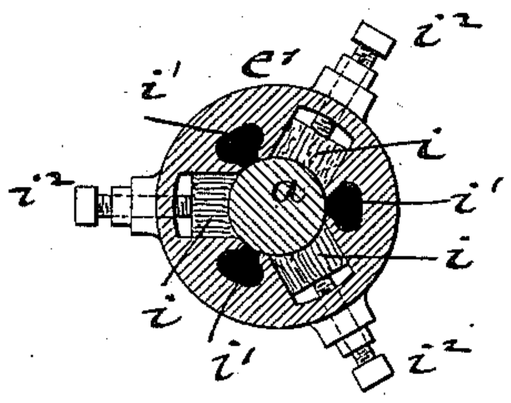


Fig. 2.



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GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 309,302, dated December 16, 1884.

Application filed June 11, 1884. (No model.)

To all whom it may concern:

Be it known that I, OTTO HOFFMANN, of the city and county of St. Louis, and State of Missouri, have invented certain new and useful Improvements in Grinding-Mills, of which the following is a specification.

This invention has reference to an improved grinding-mill in which the runner is supported on a stationary spindle and driven by the hub of a power-transmitting pulley; and the invention consists of a grinding-mill the runner of which is supported by its balance-rynd on a center pin of an intermediate guide-cylinder that is connected by a clutch device with the hub of the driving-pulley. The top plate of the intermediate cylinder rests on the cock-head of a fixed spindle which is vertically movable in its step-frame by a worm-gear, so as to adjust the runner toward the bed-stone.

In the accompanying drawings, Figure 1 represents a vertical central section of my improved grinding-mill, and Fig. 2 is a detail horizontal section on line *x x*, Fig. 1.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, *p* represents the bed-plate of my improved grinding-mill, to which are attached vertical standards *n*, for supporting the ring *m*, which is provided with discharge-spout *m'*.

On the flanged upper edge of the ring *m* is supported the stationary upper millstone, A, by an exterior ring, *l*, and screw-bolts *l'*. By means of the set-screws *l'* the millstone A can be adjusted higher or lower, as required.

Between the exterior rings, *m* and *l*, a vertical guard-ring, *l²*, is interposed, which prevents the flour from escaping, and which also admits of the vertical adjustment of the upper ring, *l*.

To the bed-plate *p* is centrally attached a hollow step-frame, *c*, which is of hemispherical form at its base and of cylindrical shape at its upper part. A fixed spindle, *a*, extends through the upper cylindrical part of the step-frame *c*, which spindle can be raised or lowered by an adjusting worm-wheel, *f'*, and worm-shaft *f*, located in the lower part of the hollow step-frame *c*. The spindle *a* is prevented from turning axially by a screw, *s*, which engages a short groove, *s'*, of the spindle *a*. The lower end of the spindle *a* is threaded and guided in a nut of the worm-wheel, *f'*. The spindle *a* is provided at its upper end with a cock-head, *g*, which is secured by a fixed socket, *h*, into the recessed upper part of the spindle. The top plate, *e*, of a guide-cylinder, *e'*, rests by a cock-eye on the cock-head *g*. The lower end of the guide-cylinder *e'* engages by clutch-connection *q* the hub *b'* of a driving-pulley, *b*, which turns loosely on the upper cylindrical portion of the step-frame *c*. The guide-cylinder *e'* is centered on the fixed spindle *g* by means of box-wood or Babbitt-metal bushes *i*, and by intermediate packing, *i'*, located in spaces between the recesses for the spindle-bushes, as shown in Fig. 2. The box-wood bushes *i* are adjusted by means of set-screws *i²*. The top plate, *e*, of the guide-cylinder *e'* is provided with conically-tapering center pin, *e²*, on which is placed the balance-rynd *e³* of the lower millstone or runner, B, said balance-rynd being secured to the millstone in the usual manner. The balance-rynd *e³* is convex at its upper surface, so as to shed the grain or other articles to be ground to the narrow space between the grinding-surfaces of the stones, as shown in Fig. 1.

Rotary motion may be transmitted to the runner by gear-wheels instead of pulley and belt, and the lower stone be used as the bed-stone and the upper stone as a runner.

The advantages of my improved grinding-mill are, first, that the entire mill can be shipped mounted ready for use; second, that the runner is not injuriously affected by the pressure of the belt of the driving-pulley; third, that the horizontal position of the runner can be accurately adjusted by means of the box-wood bushes, so as to perform effectively its work in connection with the upper stone, A; and, finally, that the mill runs better in oil, as all the working parts are inclosed and protected against the settling of dust.

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

1. The combination of a fixed vertical spindle, a step-frame supporting said spindle, a driving-pulley turning loosely on said step-

frame, a guide-cylinder provided with a top plate having a center pin, clutch mechanism for connecting said guide-cylinder with said pulley, a cock-head on the fixed spindle, a runner-stone, and a suitable balance-rynd supporting said stone and turning on said center pin, substantially as set forth.

2. The combination of a fixed vertical spindle provided with a cock-head, a step-frame for supporting said spindle, a guide-cylinder, a driving-pulley, clutch mechanism for connecting said guide-cylinder with said driving-pulley, a top plate provided with a center pin and turning on the cock-head of the fixed spindle, a runner-stone, a balance-rynd supporting said runner and turning on the center pin of the top plate, and a vertically-adjustable bed-stone, substantially as set forth.

3. The combination of the bed-plate *p*, step-frame *c*, having lower arched and upper cylindrical portions, vertical spindle *a*, having threaded lower part, worm-wheel *f'*, having threaded hub engaging the threaded portion of the spindle, worm-shaft *f*, and the pin *s*, and slot *s'*, substantially as and for the purpose described.

4. The combination of the pulley *b*, guide-cylinder *e'*, mechanism for connecting said cylinder with said pulley, adjustable bushes *i*, interposed packing *i'*, and the spindle *a*, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

OTTO HOFFMANN.

Witnesses:

PETER MERKEL,

ROBERT GRUFELT.