(No Model.) 2 Sheets—Sheet 1.

H. B. HEBERT.

GRINDING MILL.

No. 530,945. Patented Dec. 18, 1894.

Fig. 2.

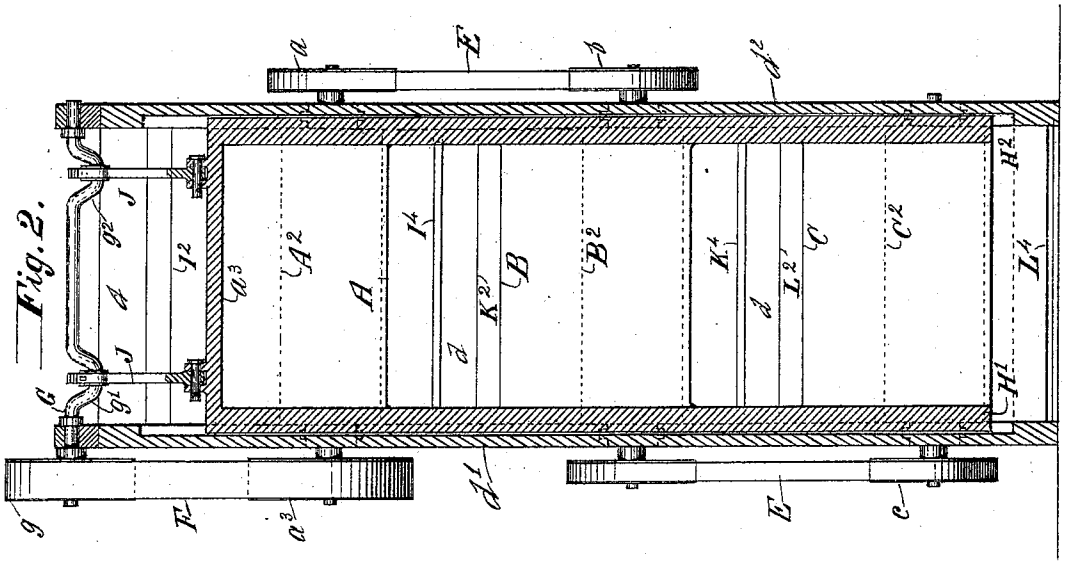
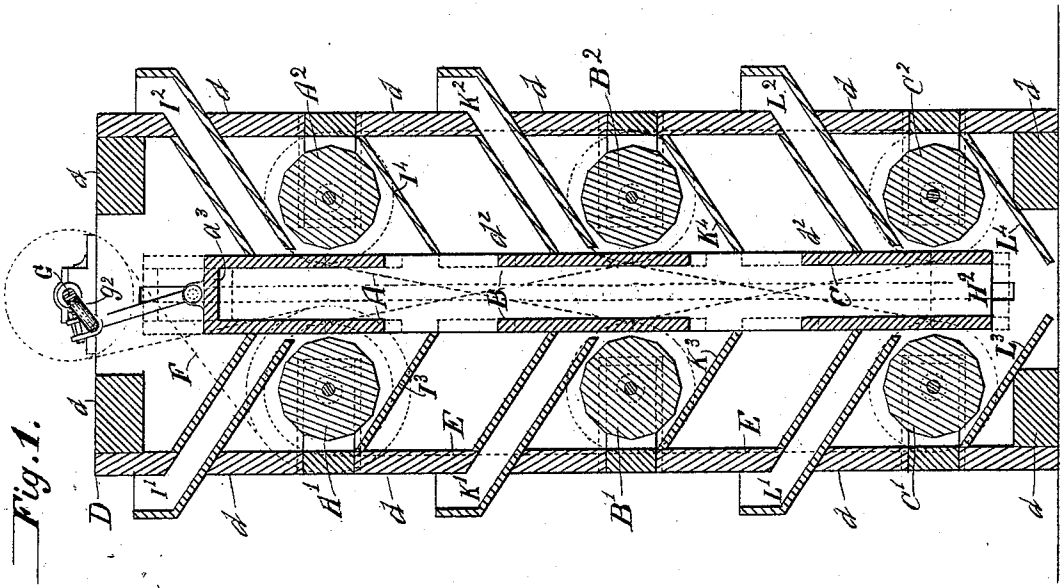


Fig. 1.



WITNESSES:

William A. Pollock

William M. Iliff

INVENTOR

Henry B. Hebert

BY Edwin H. Brown

his ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

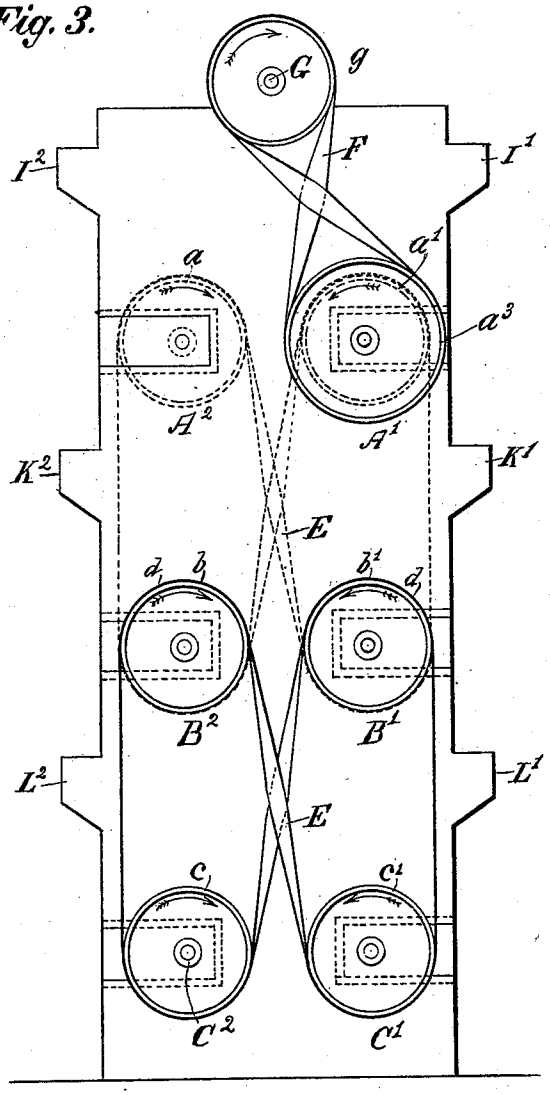
(No Model.) 2 Sheets—Sheet 2.

H. B. HEBERT.

GRINDING MILL.

No. 530,945. Patented Dec. 18, 1894.

Fig. 3.



WITNESSES:

J. Littlejohn

Wm. A. Pollock

INVENTOR

Henry B. Hebert

BY Edwin H. Brown

HIS ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

HENRY B. HEBERT, OF NEW YORK, N. Y.

GRINDING-MILL.

SPECIFICATION forming part of Letters Patent No. 530,945, dated December 18, 1894.

Application filed October 7, 1893. Serial No. 487,421. (No model.)

To all whom it may concern:

Be it known that I, HENRY B. HEBERT, of the city, county, and State of New York, have invented a new and useful Improvement in Disintegrating-Machines, of which the following is a specification.

My improvement relates particularly to machines for grinding grain.

I will describe a mill embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a central vertical section of a grinding mill embodying my improvement, the plane of the section being transverse to a number of rolls which are included in the mill. Fig. 2 is a central vertical section, taken on a plane which is parallel with said roll. Fig. 3 is an elevation of a side of the mill which is transverse to the rolls and represents the arrangement of belting for driving the moving parts of the apparatus.

Similar letters designate corresponding parts in the drawings.

A' A^2 B' B^2 C' C^2 designate rolls with their respective shafts, the latter being journaled in bearings preferably fitted to horizontally extending housings, in a frame work D which may be of any suitable construction, and, in the present instance consists of two side pieces d' d^2 cross pieces d the whole forming a tight casing confining materials which are subjected to the action of the rolls. Motion may be imparted to the rolls by means of pulleys, a, a' b, b' c, c' d, d' affixed to journals of the rolls outside the casings and belts E applied to these pulleys as indicated in Fig. 3.

The roll A' has affixed to one of its journals, another pulley a^3 and from the pulley extends a belt F that also passes around a pulley g, affixed to a shaft G. The shaft G may be journaled in the side pieces of the casing, in any suitable manner.

There is a considerable distance between the adjacent faces of the two rolls on the same level. In this space, between the two rolls, are located grinding surfaces formed on plates, whose positions with respect to each other are such as to form a conduit. This is a particularly advantageous construction where a number of rolls are arranged one above the other, because it enables each pair of grinding plates which are lower than the two rolls on the same level to form a conduit for the ground material passing through these rolls. In the present instance, the different plates are secured at their end edges to two slide pieces H' H' which are as wide as the space between each two opposite plates thus forming with the plates a series of rectangular conduits extending vertically and arranged one above the other. The slide pieces H' H^2 are provided with tongues or otherwise fitted into grooves or slide ways, in the slide pieces of the casing. At the upper ends these slide pieces, and the two plates of the upper conduit, are shown as being closed by a cross-piece b^3, to which are pivotally connected the lower ends of links J, whose upper ends are pivotally connected to cranks g' g^2, with which the shaft G is provided.

The shaft G may be constantly driven, so as to give the conduits a vertically reciprocating motion during the operation of the machine.

By fitting the bearings of the rolls in horizontal housings, provision is, of course, afforded for reducing or enlarging the space between the rolls and the conduits.

I' I^2, K' K^2 L' L^2, represent inclined chutes for the introduction of material to be ground. These chutes are severally arranged to properly deposit their material in the space between each roll and its respective grinding surface. The ground material is delivered from each roll into its respective incline I^3, I^4, K^3, K^4, L^3, L^4 and from thence finds its way into the central chute through properly located openings. This latter chute directs to any convenient receptacle located at the base of the machine, all of which is clearly shown by the drawings. It will thus be seen that the ground material, passing from any roll will be deflected from the lower rolls.

Preferably the rolls will be of a form whose cross section at any point normal to the axis will be a regular polygon, of a large number of sides and of uniform diameter. This I deem an important feature of construction.

Power may be applied to any suitable part of the machine, thus for example to the roll C'.

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

1. In a grinding mill, the combination of a

grinding roll, and an opposite conduit, said conduit being provided exteriorly with a grinding surface, and having an opening beyond the grinding surface for the entrance of ground material, substantially as specified.

2. In a grinding mill, the combination of a conduit, having an exterior grinding surface, a roll working in conjunction with the exterior grinding surface of the conduit, said conduit having a vertically reciprocating motion.

3. In a grinding mill, the combination with a conduit provided exteriorly with two grinding surfaces on different sides and suitably arranged openings beyond the grinding surfaces for the entrance of ground material, of grinding rolls opposite these grinding surfaces, substantially as specified.

4. In a grinding mill, the combination of a number of rolls arranged one above the other, a conduit having an exterior grinding surface opposite each roll and an opening beyond each roll, and means producing a relative adjustment between each roll, and conduit.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY B. HEBERT.

Witnesses:
ANTHONY GREF,
WILLIAM M. ILIFF.