J. D. MOORE.

GRINDING MILL.

APPLICATION FILED JUNE 12, 1913.

1,081,622.

Patented Dec. 16, 1913.

2 SHEETS—SHEET 1.

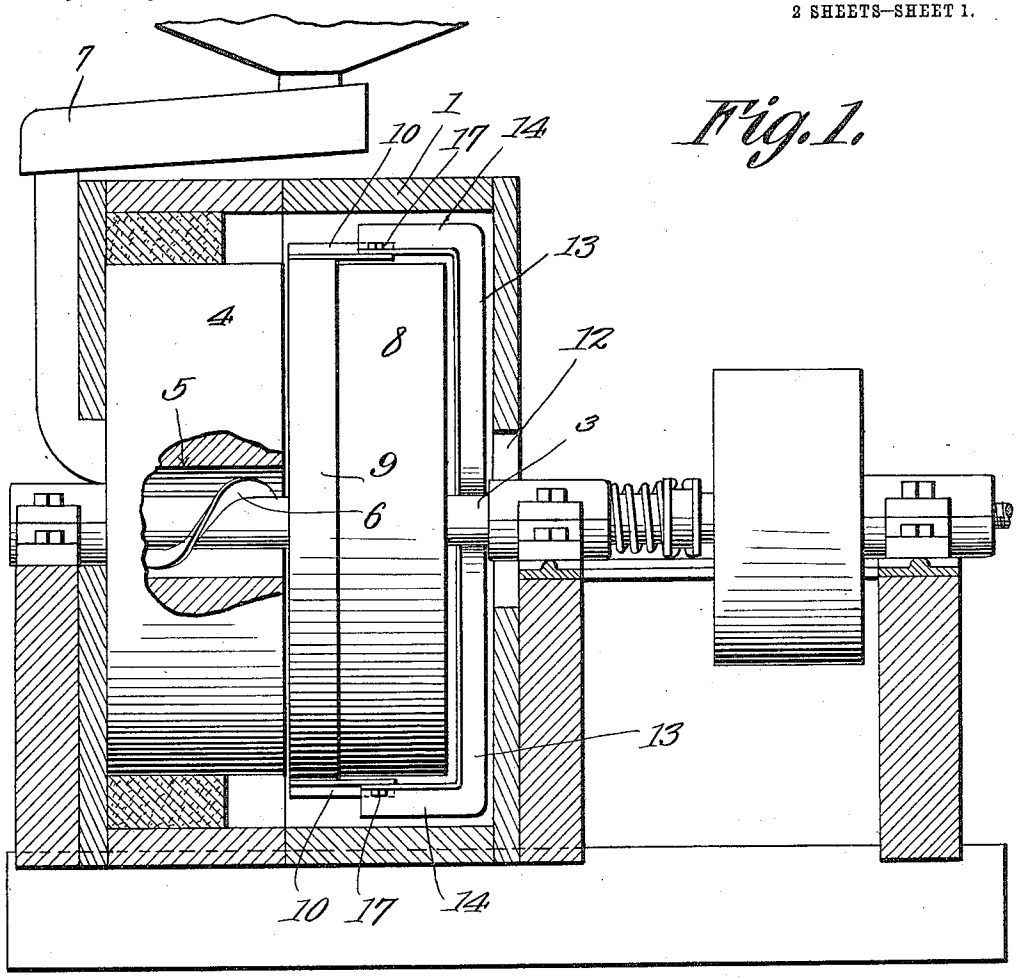


Fig. 1.

Witnesses

J. R. Toomey

S. Willson.

James D. Moore

Inventor,

by C. A. Snow & Co.

Attorneys.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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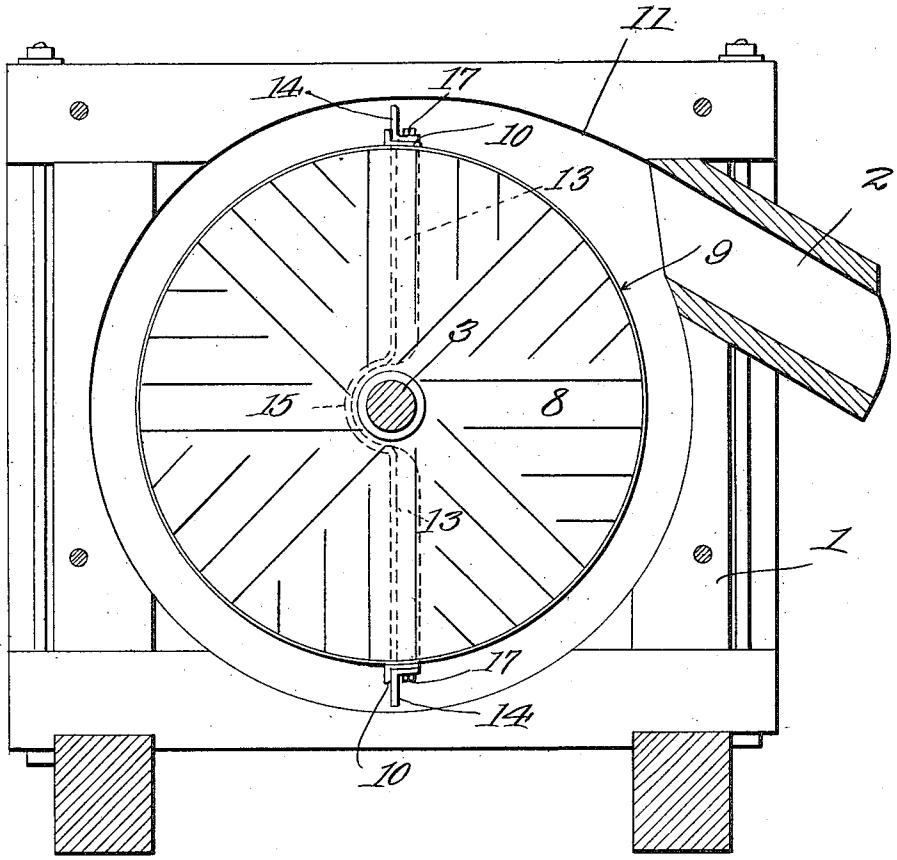
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2 SHEETS—SHEET 2.

Fig. 2.



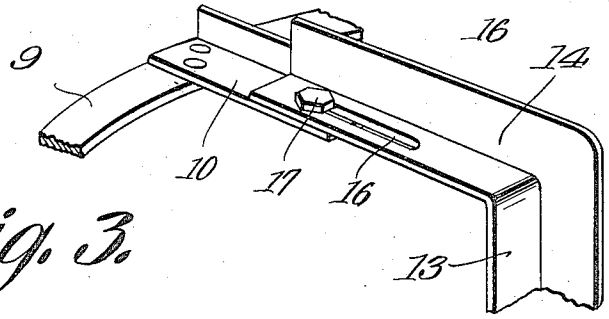


Fig. 3.

James D. Moore
Inventor,

Witnesses

J. R. Timmis

L. Willson.

by C. A. Snow & Co.
Attorneys.

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JAMES D. MOORE, OF NORTH WILKESBORO, NORTH CAROLINA.

GRINDING-MILL.

1,081,622. Specification of Letters Patent. Patented Dec. 16, 1913.

Application filed June 12, 1913. Serial No. 773,258.

To all whom it may concern:

Be it known that I, JAMES D. MOORE, a citizen of the United States, residing at North Wilkesboro, in the county of Wilkes and State of North Carolina, have invented a new and useful Grinding-Mill, of which the following is a specification.

This invention relates to grinding mills of that type utilizing stationary and rotary burs, the grain being supplied to the space between the burs by feeding it through a central opening in the stationary bur. Mills of this character have been provided with blades extending from the periphery of the revoluble burs, these blades serving to elevate the ground material and throw it outwardly through a spout provided for that purpose. The rapid rotation of the movable burs and the blades carried thereby has resulted in the creation of a strong suction through the feed inlet with the result that portions of the grain have often been discharged from the mill before they have been fully acted upon by the burs. In order to eliminate this objectionable construction it has been the practice to provide an air inlet opening back of the revoluble bur. It has been found, however, that where the peripheral blades are employed, portions of the ground material are often thrown laterally from the bur and into the space between the bur and the wall of the mill casing with the result that this ground material escapes through the air inlet and often clogs the inlet to such an extent as to render the operation of the machine inefficient.

One of the objects of the present invention is to provide the revoluble bur of a mill with supplemental fan blades arranged radially upon the bur and between the bur and the end wall of the casing. These blades serve not only to draw air through the air inlet and into the casing but also serve to throw outwardly any ground material which may escape laterally beyond the peripheral blades on the revoluble bur.

Another object is to provide a fan blade which is adjustable relative to the bur so that, as the bur wears away and it thus becomes necessary to adjust the same toward the stationary bur, the blade of the attachment constituting the present invention can be adjusted relative to the movable bur so as to be maintained in proper relation to the apertured end wall of the mill casing.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a vertical longitudinal section through the mill and showing the burs in elevation. Fig. 2 is a transverse section through the mill, the revoluble bur being shown in elevation. Fig. 3 is a perspective view of one of the peripheral blades, its attaching band and the adjustable blade, only portions of the band and adjustable blade being shown.

Referring to the figures by characters of reference 1 designates the mill casing, the same being provided with a tangential outlet spout 2 such as commonly provided. The drive shaft 3 of the mill extends through the casing and arranged in one end portion of the casing is a stationary bur 4 having a central opening 5 through which the shaft 3 extends, that portion of the shaft within the opening being provided with a spiral 6 whereby grain fed to the opening will be forced through the stationary bur and beyond the active face thereof. The means for supplying grain and the like to the inlet opening 5 has been designated generally at 7 and does not constitute any part of the present invention.

Secured to shaft 3 and within the casing 1 is a revoluble bur 8 designed to coöperate with the bur 4 for the purpose of reducing grain to a finely comminuted state. This bur 8 has a band 9 fitted tightly therearound and secured to the band at desired intervals are L-shaped blades 10. Each blade is extended throughout the width of the bur and it will be apparent that when the bur is rotating at a high speed, as ordinarily, these blades 10 will pick up the ground material and throw it outwardly into the spout 2, attention being called to the fact that the space within the casing and around the bur 8 gradually increases in cross sectional area toward the spout 2, as shown at 11 in Fig. 2.

That end of casing 1 nearest the bur 8 has a large central opening 12 constituting an air inlet, shaft 3 being extended through

this opening. Thus any suction set up by the blades 10 and bur 8 during the rotation thereof, will result in the inflow of air through the opening 12 and, consequently, none of the grain being fed between the burs, will be sucked from between the burs before being properly reduced.

In order that ground material which may be thrown between the bur 8 and the end wall of casing 1 may be prevented from choking the air intake 12 or from dropping through said opening, a supplemental blade is arranged between the back face of the bur 8 and the end wall of the casing. This supplemental blade is preferably formed of a strip of metal L-shaped in cross section and bent to form an intermediate portion 13 and end portions 14. The intermediate portion is offset at its center, as shown at 15, so as to extend around shaft 3 and longitudinal slots 16 are formed in the end portions 14 and are adapted to receive clamping screws 17 extending the blades 10.

It will be understood that during the rotation of the bur 8, not only will the blades 10 be brought into active use in the manner hereinbefore described, but the supplemental blade 13 will draw air through the opening 12 and throw outwardly toward the spout 2, any ground material which may be shifted laterally by the blades 10. Furthermore the supplemental blade creates a greater current of air through the mill so that the ground material is thus more quickly and thoroughly ejected from the casing 1 than would otherwise be true.

It will be apparent that, when bur 8 wears down as a result of use, band 9 can be driven back thereon as ordinarily and by loosening the bolt 16 and shifting blade 13 toward the bur 8 and then again tightening the bolt, the said blade 13 can be kept in proper relation to the end wall of the casing.

What is claimed is:—

A grinding mill including a casing having an air inlet at the center of one end and a peripheral outlet, a stationary bur, a revoluble bur, a band adjustably mounted on the revoluble bur, peripheral blades carried by the band, and a diametrically disposed supplemental blade adjustably connected to the peripheral blades and extending between the revoluble bur and the apertured end of the casing.

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

JAMES D. MOORE.

Witnesses:
WALTER S. COX,
N. H. WAUGH.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."