No. 668,252. Patented Feb. 19, 1901.

J. BEALL.

HOMINY MILL.

(Application filed May 28, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

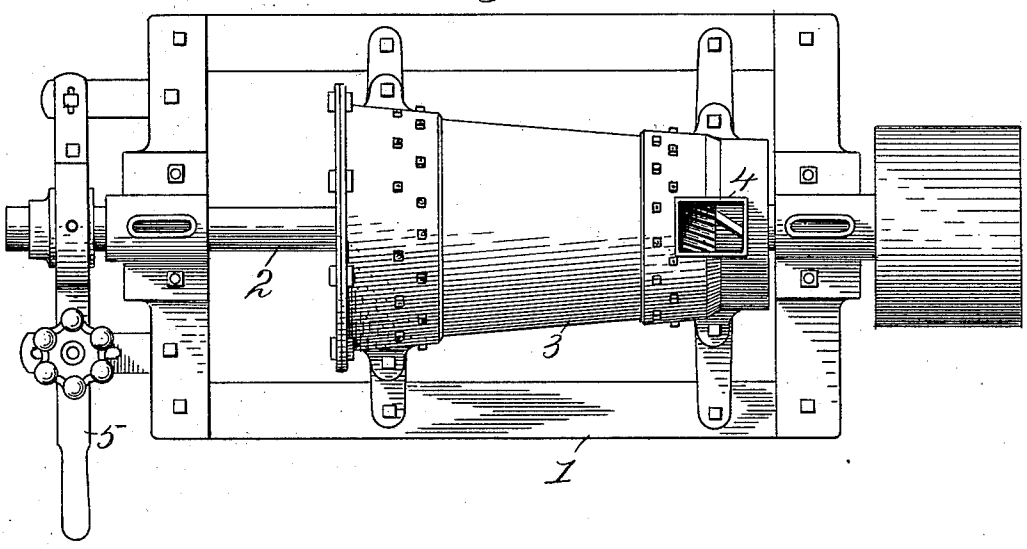
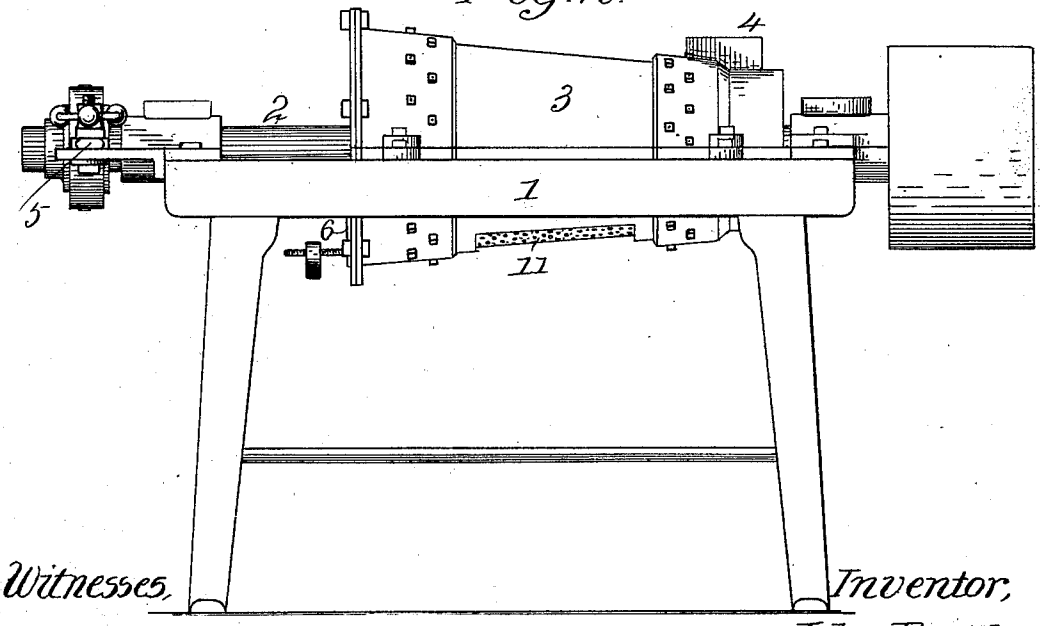


Fig. 2.



Witnesses,
Nora Graham.
Ina Graham.

Inventor,
John Beall.
by L. P. Graham
his attorney

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Fig. 3.

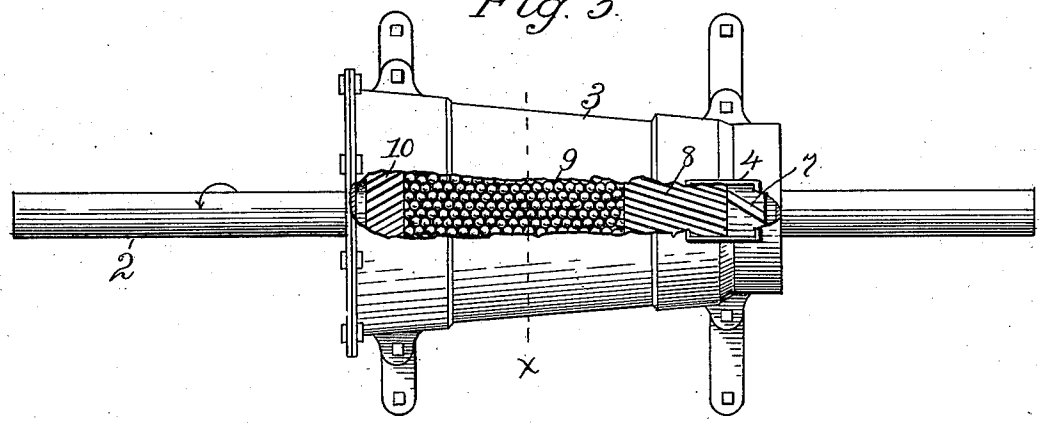


Fig. 4.

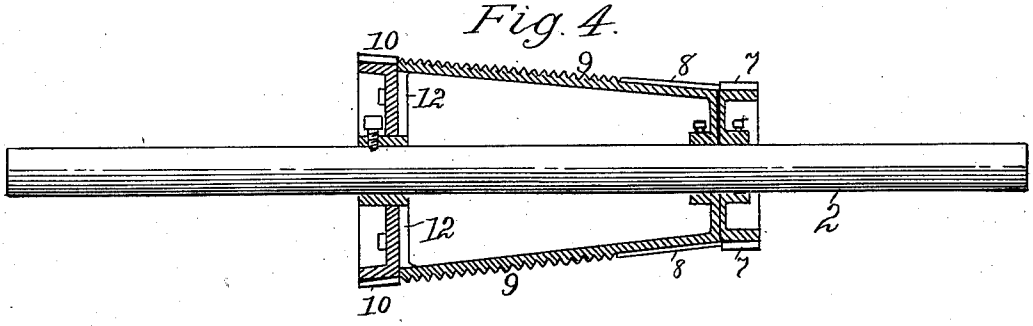


Fig. 5

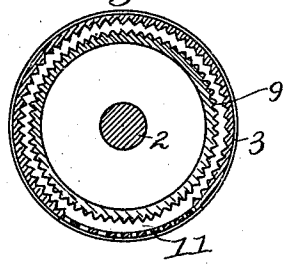
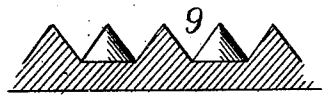


Fig. 6.



Witnesses,
Nora Graham
Ina Graham

Inventor,
John Beall.
by L. P. Graham
his attorney.

UNITED STATES PATENT OFFICE.

JOHN BEALL, OF DECATUR, ILLINOIS, ASSIGNOR OF ONE-HALF TO HUGH CREA, OF SAME PLACE.

HOMINY-MILL.

SPECIFICATION forming part of Letters Patent No. 668,252, dated February 19, 1901.

Application filed May 28, 1900. Serial No. 18,232. (No model.)

To all whom it may concern:

Be it known that I, JOHN BEALL, of the city of Decatur, county of Macon, and State of Illinois, have invented certain new and useful Improvements in Mills for Degerminating and otherwise Treating Cereals, commonly called "Hominy-Mills;" and I submit the following as a full, clear, and exact description of an embodiment of the same.

The invention is exemplified in the structure hereinafter described, and it is defined in the appended claims.

In the drawings forming part of this specification, Figure 1 is a plan of a mill constructed in accordance with my invention. Fig. 2 is a side elevation of the mill. Fig. 3 is a plan of the shaft, concave, and cylinder or cone, the wall of the concave being broken away to expose the cone. Fig. 4 is a longitudinal section through the cone. Fig. 5 is a cross-section on the line x in Fig. 3. Fig. 6 is a detail section through a fragment of the cone, showing the conformation of the conoidal protuberances that form the principal feature of the grain-treating part of the mill.

The frame 1 is of any desired construction. The shaft 2 is journaled in the frame. It extends through the shell or concave 3, and it carries the cone or cylinder. The concave has a hopper-opening at 4, and it is preferably provided with a hinged door or flap at 6 to prevent the grain discharged from the mill from scattering excessively. A lever 5 provides means for adjusting the cone, so as to vary the distance between the perimeter of the cone and the internal surface of the concave. The cone is provided at its receiving end with ribs or corrugations, forming feeding-inclines. At its discharge end it has ribs or corrugations inclined in a direction to retard the grain, and between its ends it is provided with a set of conoidal protuberances set with their bases in close proximity one to another. The primary feeding-ribs are shown at 7, secondary feed-ribs are shown at 8, the conoidal protuberances are represented at 9, and the retarding-ribs are shown at 10. The part of the cone on which the ribs 7 are formed is preferably cylindrical, and the surfaces 8, 9, and 10 are in a substantially continuous taper or approximate gradual increase of diameter. The parts 8 and 9 are cast in one piece, with a solid plate at the small end and a spider at the large end, and the part 10 is cast with a continuous imperforate plate that fits against the spider and forms a closure for the large end of the cone. By this means the core-sand may be discharged through the spider 12 and the end be afterward closed to exclude grain from the interior of the cone. The concave 3 has ribs or protuberances on its inner surface that coact with the protuberances of the cone to degerminate and scour the grain, and its lower surface is preferably perforated, as shown at 11, to permit the discharge of small particles.

The shaft and the cone are rotated in the direction indicated by the arrow in Fig. 3. Grain is fed into hopper 4 and is forced by the inclined ribs 7 and 8 into the space between the conoidal protuberances 9 and adjacent parts of the concave. The forcing action of inclines 7 and 8, together with centrifugal action resulting from the taper of the cone, carries the grain gradually through the protuberant space and into contact with the reversely-inclined retarding-ribs 10. The retarding-ribs do not act to stop the passage of the grain through the mill, but they hold the grain until there is a sheet of uniform or approximately uniform thickness throughout the protuberant space and until the grain has been fully treated by the protuberances. The ribs 7 are feeders. The ribs 8 are supplementary feeders, and they also perform to some extent the initial steps in breaking and degerminating, the ribs 10 having a scouring effect on the grain passing them; but the protuberant surface 9 may be relied on to perform substantially all the operations needed to break, degerminate, and scour the grain.

The efficiency of the conoidal protuberances depends in part on their shape, in part on their correlation, and in part on their active or stroke-like action on the grain. The points or salient parts of the cones tend to break the grains and remove the germ, the rounded surfaces act to denude and scour the broken grain, and the V-shaped spaces between cones provide interstices through which particles of varying size may be forced and each receive treatment on two sides si-

multaneously. The ribs or protuberances of the concave contribute somewhat to the breaking, degerminating, and scouring action of the protuberances of the cone; but their principal function is to passively coöperate with the active action of the cone by holding the particles against free rotation with the cone and by forming obstructions against which the particles strike and rebound into contact with the protuberances of the cone.

I claim—

1. A cone or cylinder for hominy-mills and the like having a feeder at one end, a retarder at the other end and an intermediate surface of contiguous conoidal protuberances, substantially as described.

2. A cone or cylinder for hominy-mills and the like having on its receiving end a set of inclined feeding-ribs, on its discharge end a set of reversely-inclined retarding-ribs and throughout the intermediate space a set of contiguous conoidal protuberances, substantially as described.

3. A cone or cylinder for hominy-mills and the like having a feeder at one end, a retarder at the other end and an intermediate surface of conoidal protuberances, substantially as described.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

JOHN BEALL.

Witnesses:
C. J. HARTLY,
L. P. GRAHAM.