(No Model.)

2 Sheets—Sheet 1.

W. STONEBRAKER.

HOMINY MILL.

No. 285,085. Patented Sept. 18, 1883.

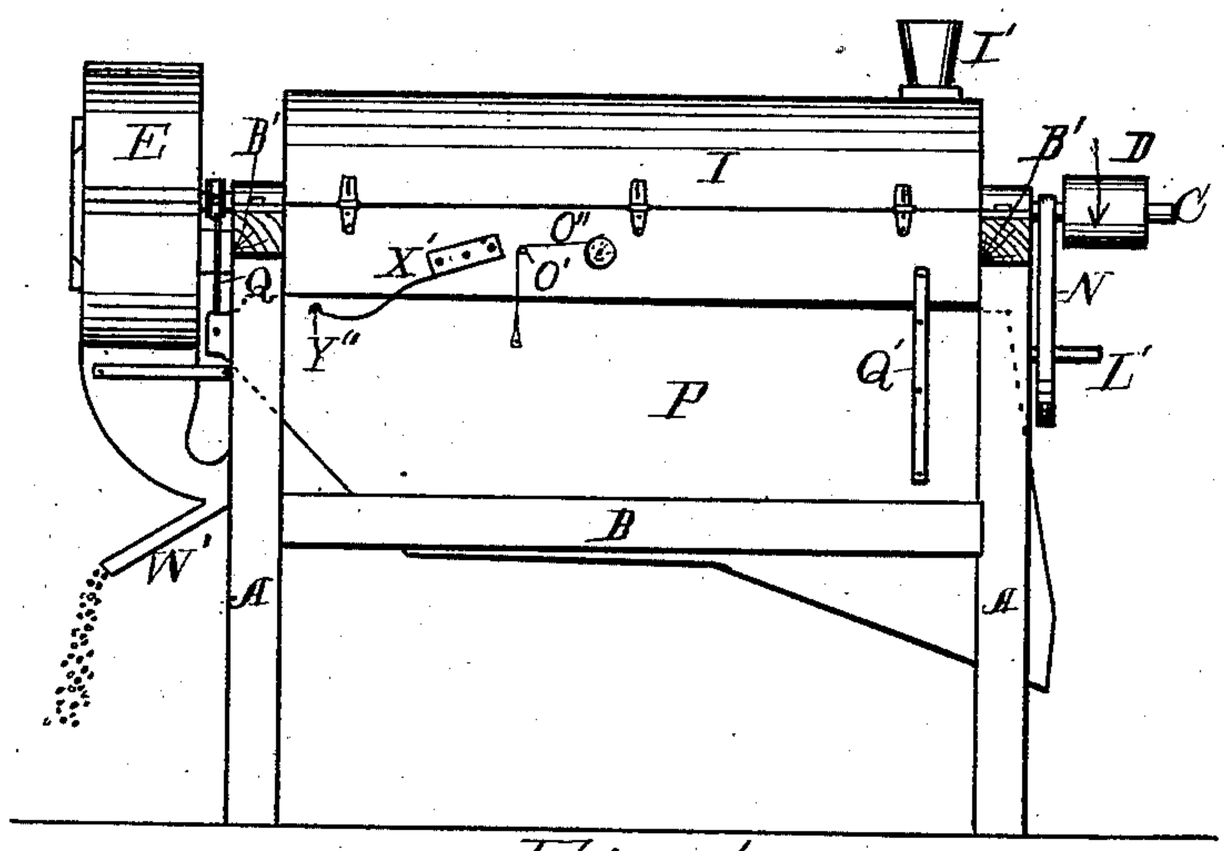

Fig. 1.

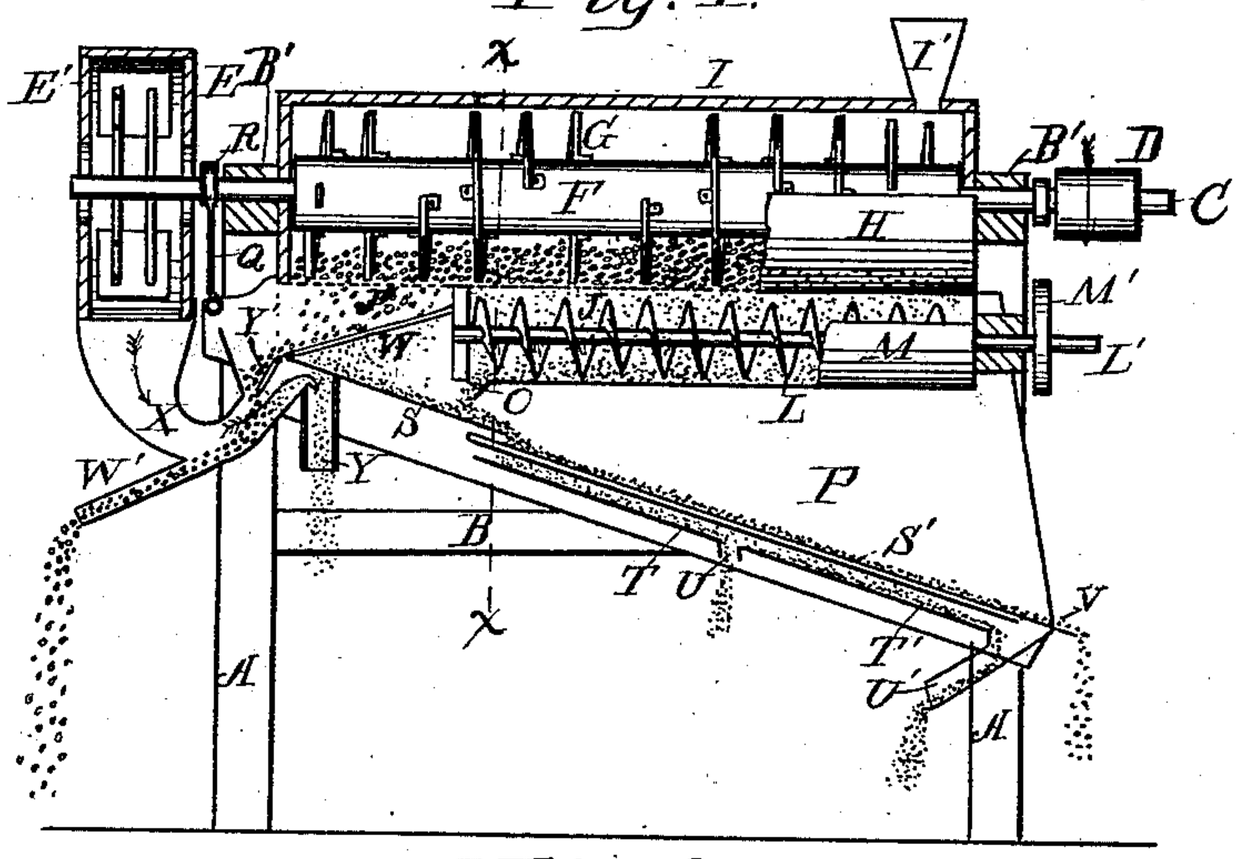

Fig. 2.

Witnesses:

Clara Sugenheim

Alice Brennan

Inventor:

Wm Stonebraker

by D. S. Lork

Atty.

(No Model.)

2 Sheets—Sheet 2

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HOMINY MILL.

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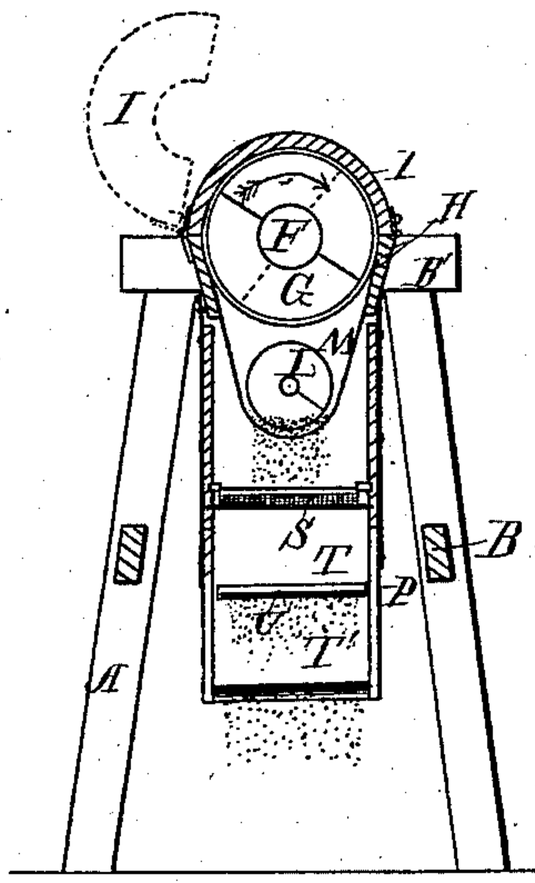

Fig. 3.

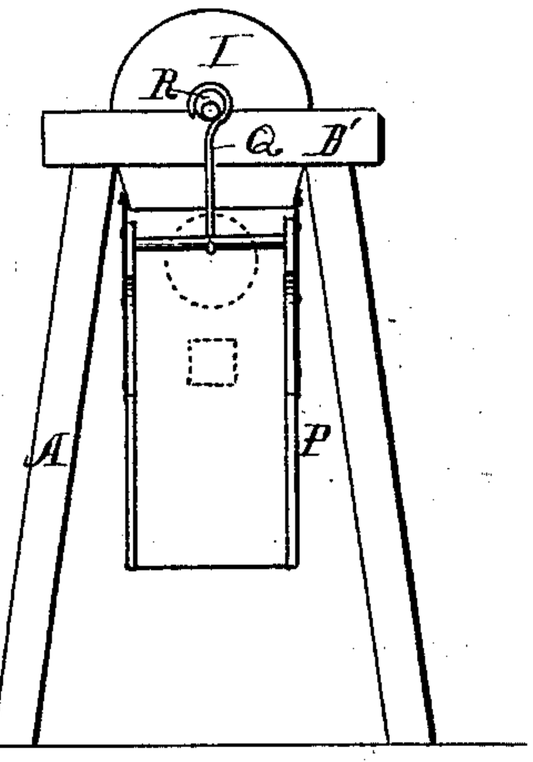

Fig. 4.

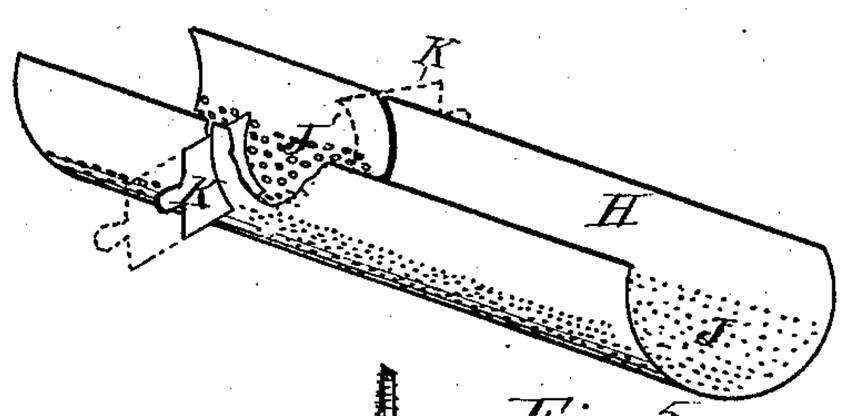

Fig. 5.

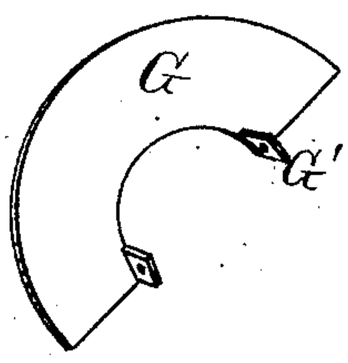

Fig. 6.

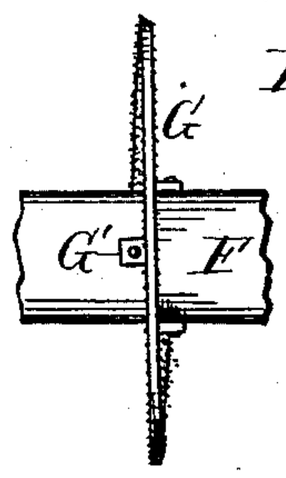

Fig. 7.

Witnesses:
Clara Ingenheim
Alice Brennan

Inventor:
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by J. L. Lorh
Atty

UNITED STATES PATENT OFFICE.

WILLIAM STONEBRAKER, OF HAGERSTOWN, INDIANA.

HOMINY-MILL.

SPECIFICATION forming part of Letters Patent No. 285,085, dated September 18, 1883.

Application filed May 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STONEBRAKER, of Hagerstown, in the county of Wayne and State of Indiana, have invented a new and useful Improvement in Hominy-Mills, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a side elevation of the exterior of the improved hominy-mill. Fig. 2 is a central vertical longitudinal section of the same. Fig. 3 is a cross vertical section through line *x* of Fig. 2. Fig. 4 is an end view of the forward part, with the blast-fan removed. Fig. 5 is a perspective view of the perforated chute. Fig. 6 is a perspective view of one of the blades of the shaft or reel, and Fig. 7 is a side view of a section of the shaft and one of the blades.

The object of the present invention is to construct a durable and efficient hominy-mill. In the operation of this class of machines heretofore it has been found that while they are serviceable in a degree the tendency is to crush or destroy the grain or mutilate it, instead of smoothly removing the shell or coating of the grain. To accomplish this in a satisfactory manner, and at the same time to thoroughly separate the strippings of the grain and grade the same, I first construct a reel, shaft, or cylinder, around which is placed at intervals independent curved blades in a spiral form, or spirally disposed along the cylinder. The cylinder is designed to revolve within a semi-cylindrical or concave shell having perforations and an upper section, which is the cover. The blades on the cylinder have their side surfaces abraded or roughened, similar to a rasp, so that as the corn is placed in the semi-cylindrical shell at one end and the cylinder revolved the spiral form of the blades gradually works the grains to the opposite end of the perforated shell, the abraded surfaces of the blades in the meantime acting as files, thoroughly grinding off the shell, hull, or coating of the grain, the perforations in the semi-cylindrical concave shell permitting the hulls to pass through and be properly graded.

It further consists in having a blast-fan operated by the same shaft that revolves the cylinder and blades, said blast being so directed as to act through the falling hulled grains and thoroughly cleanse the same before leaving the machine; and in addition to this a conveyer is provided, which conducts the hulls and finer particles along to the rear end of the machine and deposits the same on an inclined screen, which separates the whole into two or more grades.

In the accompanying drawings, A A represent the posts of the machine, having the longitudinal beams B B and cross-beams B′ B′, uniting the same in any suitable manner.

C is a horizontal shaft journaled to the cross-beams B′, and running the entire length of the frame, with the ends thereof projecting beyond the cross-beams, so as to receive on one end a driving-pulley, D, the opposite projecting end being designed to pass through a blast-fan or blower-casing, E, and provided with the fan E′. This shaft C is provided with a drum, F, throughout that portion lying between the journals, and on this drum is placed a number of blades, G, of the form shown in Fig. 6. These blades or wings are in the form of the half-sector of a circle, adapted to fit around the drum, and are slightly spirally disposed around said drum. Each sector is provided with ears G′, which rest against the drum F, and these ears have screw-holes, enabling the blades to be securely fastened by screws to the drum, or to be removed, when necessary, and replaced. Both sides of these blades or wings have abraded surfaces, or are roughened, so that as the drum rapidly revolves and the spirally-inclined blades cut through the mass of grain the abraded surfaces of the blades will file or grind off the hulls.

I do not confine myself to any particular number of blades on the drum, nor to the manner of disposing them thereon; but I prefer that each blade shall be secured to the drum independently of the others, so that as the drum rotates the various blades will pass through the mass of grain in successive strata, and thereby thoroughly come in contact with the whole body of grain. Surrounding this drum and blade is a cylinder, preferably made in two parts, the lower half, H, of the cylinder being stationary, or permanently attached to the frame at the ends, as shown. The arc of this half of

the cylinder is the same as the peripheral arc of the blades G. The upper half, I, of the cylinder is hinged to the lower half, or removably attached thereto, so that the drum and blades may be uncovered when necessary. The front end of the hinged upper half, I, of the cylinder has an opening on top, and is provided with a hopper, I′, into which the grain is fed. The lower or stationary half, H, of the cylinder is perforated its entire length, as shown in Fig. 5. The rear third has perforations, J′, of much larger mesh than the other two-thirds, so that the hulled grain will pass through, it being designed to allow only the hulls and ground grain to pass through the fine meshes J and drop onto the screen. A slide-valve, K, is placed in the lower half of the cylinder at a point preferably between the coarse and fine meshes J′ J, so that the motion of the moving mass of grain can be regulated at will to secure more or less scouring or hulling. It may be preferable to have two of these valves, one on each side of the drum F. These valves are preferably as wide as the diameter of the drum or cylinder F, and are vertically disposed, so that when their inner ends (which are concaved to fit the cylinder) rest against the cylinder, there will be space above and below the valves for the passage of the grain. These valves do not, therefore, at any time wholly check the passage of the grain, but merely retard the movement of the same.

Beneath the shell H, and parallel therewith, is a spiral conveyer, L, which extends rearward two-thirds or more of the length of the drum F, or up to the point in the shell H where the coarse perforations J′ begin. A casing, M, surrounds the conveyer L, and extends up slopingly to the sides of the shell H, so that all the hulls and ground grain in the shell H, as they pass through the perforations J, will fall onto the conveyer. M′ is a pulley on the shaft L′ of the conveyer, and a belt, N, passing over this pulley and over a similar one on the main shaft C, transmits motion to the conveyer L. The rearward end of the casing or shell M has an opening, (closed by a valve, O,) through which the contents of the shell pass. The spindle O′ of the valve passes through the front wall of the machine, and a tension-spring, O″, or other suitable means, attached to the spindle O′, may be employed to adjust, hold, or regulate the valve.

Below the shells H M is a shoe, P, suspended at its rear end by the link Q, and at its rear end to the arms Q′. The link Q extends over an eccentric, R, on the shaft C, so that as the shaft revolves the rear end will be rapidly vibrated. The shoe has an inclined bottom, S, and a screen, S′. Beneath this screen are two inclined floors, T T′, on the same plane, separated from each other, so as to provide an opening, U, between the same. The lower end of the rear floor, T′, is also a short distance above the end of the frame or shoe, so as to provide an opening or passage-way, U′. At the lower end of the screen S′ is an opening, V, for a discharge-spout.

Directly beneath the rear end of the shell H, under the area covered by the large perforations J′, is a forwardly-inclined screen, W, which is designed to receive and convey the hulled grain to the discharge-spout W′, while the perforations of the said screen will permit the hulls to pass through and fall onto the forwardly-inclined table S.

The blast-fan E, located on the rear end of the machine, has its blast-pipe X on the lower side curved forwardly, uniting with the grain-discharge tube W′, midway between the ends of the latter, so that the merging of the tubes X W′ forms a U-shaped tube, with the grain-discharging branch leading out from the lower side. The discharge-tube Y, for the blast, communicates with the upper end of the inner limb of the U-shaped tube, so that when the hulled grain passes down past the valve Y′ into the U-shaped tube X, and thence down to and out the discharge-tube W′, the air from the blast-fan passes up through the falling grain in the opposite direction and escapes through the discharge-tube Y. A valve, Y′, at the upper end of the tube X, serves to regulate the flow of the grain.

It is evident that only a small portion of the air from the fan will escape upwardly through the opening formed by the valve Y′, the bulk of the air being forced through the tube Y. The valve Y′ is regulated and held adjustable by means of a spring, X′, on the outside of the machine, which coacts with the spindle Y″ of the valve.

The operation of the device is as follows: Motion is imparted to the shaft in the direction of the dart. This, through the intermediary mechanism, imparts motion to the shoe P to the conveyer L and to the blast-fan E. The grain is fed into the hopper I′, and passes down into the shell H. The blades having the abraded surfaces, rapidly passing through the mass, come in contact with and strip the hulls from every part of the grain, and, owing to the spiral inclination of the blades, gradually move the mass of grain rearwardly and over the finely-perforated shell, the hulls meanwhile passing down through the perforations J into the conveyer L, by which they are carried forward and deposited on the inclined shoe-bottom S, and thence down over the screen S′, and discharged at V. As the hulls pass over the screen S′ the finer particles pass through the perforations of the upper half of the screen and fall onto the upper floor, T, and are collected at the discharge-tube U. The coarser particles pass through the perforations of the lower half of the screen and fall onto the lower table, T′, and are discharged at the tube U′. The largest or coarsest particles, of course, pass over the sieve and out through the discharge-tube V. In the meantime the hulled grain passes through the perforations J′ of the shell

H onto the coarse screen W beneath, so that all foreign matter or small imperfect grains may pass through and be received by the inclined floor S. The grain itself passes over the valve Y′ and down into the U-shaped tube. The blast at the same time passes upwardly through the falling grain, and this thoroughly cleanses the same from all impurities, discharging the same through the tube Y, while the grain passes down and is discharged through the tube W′.

What I claim as new is—

1. In a hominy-mill, the revolving drum having thereon at intervals the independent half-sectors spirally inclined, and with both faces abraded or roughened, in combination with the semi-cylindrical permanent shell, having large and small perforations, substantially as herein set forth.

2. In a hominy-mill, the semi-cylindrical shell H, having along two-thirds of its length fine perforations and along its remaining length coarse perforations, and the valves K between the line of said fine and coarse perforations, in combination with the rotating drum having the spirally-inclined blades, substantially as herein set forth.

3. The combination of the drum having thereon the spirally-inclined roughened blades, and the perforated shell H, having the large and small perforations, as shown, with the casing M and conveyer L beneath said shell and parallel therewith, substantially as and for the purpose herein set forth.

4. The combination of the drum having thereon the spirally-inclined roughened blades, and the semi-cylindrical perforated shell having the large and small perforations, as shown, with the rearwardly-inclined sloping screen W and the vibrating shoe having the screen S′, divided sloping floors T T′, and separate discharge-spouts U U′ V, substantially as herein set forth.

5. The combination, in a hominy-mill, of the drum having thereon spirally-inclined roughened blades, and the perforated semi-cylindrical shell H, having the large and small perforations, with the sloping screen W, the U-shaped discharge and blast nozzle X, and the blast-fan E, substantially as herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of April, 1883, in the presence of witnesses.

WILLIAM STONEBRAKER.

Witnesses:

WILLIAM P. KNODE,

JOHN M. LOUTZ.