

(No Model.)

J. A. LOCKFAW.

RICE MILL.

No. 365,191.

Patented June 21, 1887.

Fig. 1

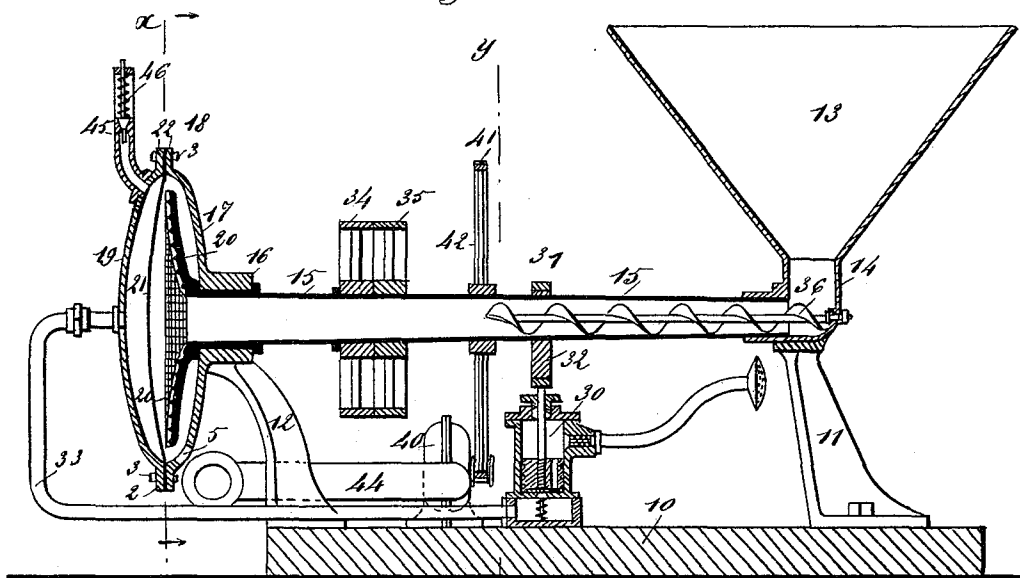


Fig. 2

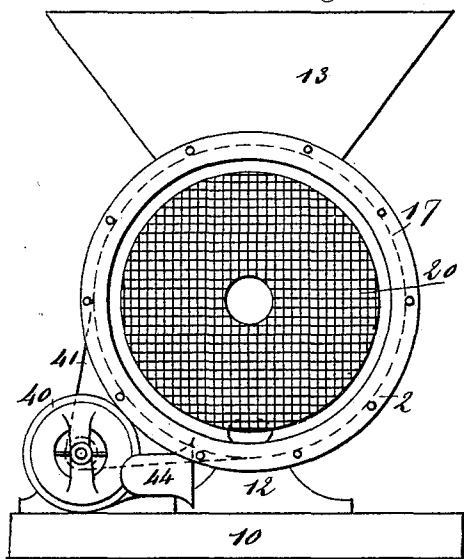
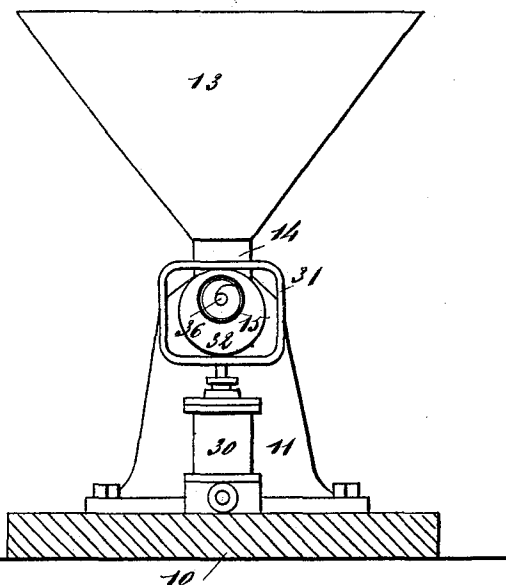


Fig. 3



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RICE-MILL.

SPECIFICATION forming part of Letters Patent No. 365,191, dated June 21, 1887.

Application filed October 14, 1886. Serial No. 216,232. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. LOCKFAW, of Wilmington, in the county of New Hanover and State of North Carolina, have invented a new and Improved Rice-Mill, of which the following is a full, clear, and exact description.

This invention relates to that class of mills employed to separate the grains or kernels of rice from the hulls, the object of the invention being to provide a mill which may be driven directly from the thrashing-machine and to which the rice may be fed in a continuous stream.

The invention consists of certain details of construction and combinations of parts, as will be hereinafter explained, and specifically pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a central longitudinal sectional view of my improved rice-mill. Fig. 2 is a view taken on line *x x* of Fig. 1, the view representing the roughened face of the revoluble disk, said disk being shown as arranged within the casing; and Fig. 3 is a cross-sectional view taken on line *y y* of Fig. 1.

In the drawings above referred to, 10 represents the base-plate of the machine, to which there are secured two upwardly-extending standards, as 11 and 12, the standard 11 being arranged directly beneath a hopper, 13, that is formed with an elbow, 14, in which is loosely fitted the end of a hollow shaft, 15, the opposite end of the shaft being supported by a bearing, 16, formed in a section, 17, of a case, 18, said section forming a part of or being rigidly connected to the standard 12. Within the casing 18 is arranged a disk, 20, which is secured to the end of the shaft 15, the outer face of the disk being roughened—that is, formed with ridges, such as appear upon the face of a file, only the ridges in this case are much coarser and larger. Between the outer section, 19, and the inner section, 17, of the casing 18 is arranged a flexible diaphragm, 21, which is preferably made of heavy canvas, the edges of the diaphragm being held between

the flanges 2 of the two sections of the casing by bolts, as 3, being passed through said flanges in order that the two sections of the casing may be held together. An air-pump, 30, having a piston that is provided with a yoke or frame, 31, that is engaged by an eccentric, 32, carried by the shaft 15, is mounted upon the bed-plate 10, directly beneath the shaft, and this air-pump 30 is connected with the chamber formed within the casing 18 by a tube, 33. The column of air in rear of the diaphragm forms an air-cushion therefor, so that the diaphragm may yield sufficiently to prevent the rice from being broken. The diaphragm will therefore be yielding or elastic as well as flexible. Upon the shaft 15 is mounted a fast pulley, 34, and a loose pulley, 35, in connection with which I arrange a belt that is driven by a pulley connected to the thrashing-machine, or to any other proper source of power. A spirally-flanged conveyer, 36, is connected to the elbow 14, and this conveyer extends forward within the bore of the shaft. A fan, 40, driven by a belt, 41, which passes over a pulley, 42, carried by the shaft 15, is mounted upon the bed-plate 10, and this fan is provided with a mouth-piece, 44, through which a blast is delivered in front of an opening, 5, formed in the casing 18.

In operation the rice is fed to the hopper 13, and rotary motion is imparted to the shaft 15 through the medium of a belt passing over its pulley 34. As the shaft 15 revolves, the pump 30 is operated and a supply of air forced within the chamber of the casing 18, which air will act to advance the diaphragm 21 toward the disk 20, so that as the rice enters the chamber within the casing it will be caught between the roughened face of the disk and the diaphragm and the hulls will be stripped from the kernels of the grain.

In order that all undue pressure between the disk and the diaphragm may be avoided, I provide a safety-valve, as 45, which is connected to the chamber of the casing 18, a proper pressure being obtained by regulating the tension of a spring, 46, that is arranged in connection with the valve. As the rice and the hulls that have been stripped therefrom fall downward and out of the casing 18 through

the opening 5, the hulls will be blown off by the action of the fan 40, which, as stated, is driven through the medium of its belt 41.

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

1. In a mill, the combination, with a revoluble disk and a means for delivering grain thereto, of a casing inclosing the disk and a diaphragm dividing the casing in front of the disk, the space in rear of the diaphragm forming an air-chamber to cushion the diaphragm, substantially as set forth.

2. In a mill, the combination, with a revoluble disk and a means for delivering grain thereto, of a casing and an air-cushioned flexible diaphragm in front of the disk, substantially as set forth.

3. In a mill, the combination, with a shaft and a means for imparting a rotary motion thereto, of a disk carried by said shaft, a diaphragm arranged in front of the disk, a casing within which the disk and diaphragm are mounted, and an air-pump connected with the casing, substantially as described.

4. A mill comprising a revoluble shaft, a hopper, a conveyer arranged within the shaft, a rough-faced disk carried by the shaft, a diaphragm mounted in front of the disk, a casing inclosing the diaphragm and disk, an air-pump connected with the chamber of the casing, and an eccentric carried by the main shaft, substantially as described.

5. A mill comprising a hopper having an elbow, 14, a hollow shaft, 15, one end of which is supported by the elbow of the hopper, a spirally-flanged conveyer arranged within the shaft, a casing, 18, a rough-faced disk connected to the shaft 15 and arranged within the casing 18, a diaphragm, 21, mounted in front of the disk, an air-pump arranged in connection with the chamber of the casing, an eccentric carried by the main shaft, and a safety-valve, 45, substantially as described.

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Witnesses:

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