No. 829,404. PATENTED AUG. 28, 1906.

O. F. KIME.

GRAIN CLEANER.

APPLICATION FILED FEB. 18, 1906.

Fig. 1.

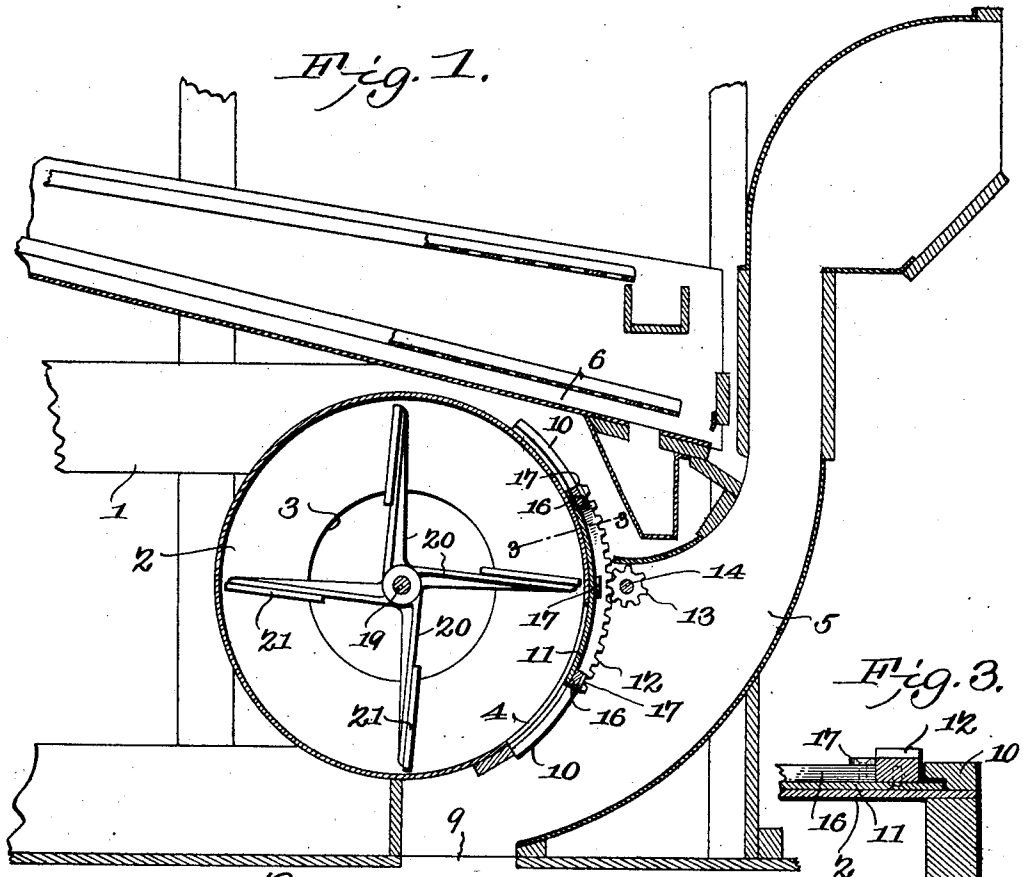


Fig. 3.

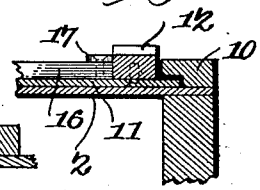
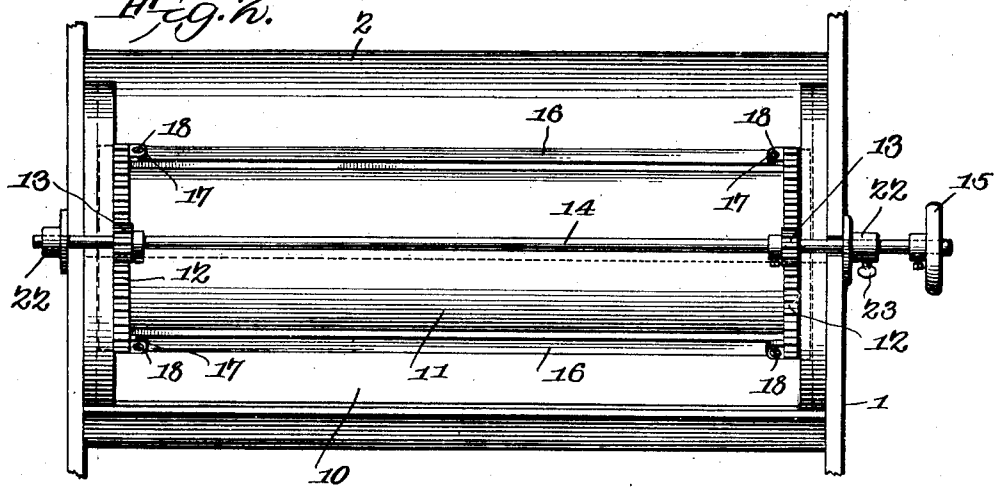


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

ORVILLE F. KIME, OF GALION, OHIO, ASSIGNOR TO FRANK J. PRAME, OF SHILOH, OHIO.

GRAIN-CLEANER.

No. 829,404. Specification of Letters Patent. Patented Aug. 28, 1906.

Application filed February 19, 1906. Serial No. 301,871.

To all whom it may concern:

Be it known that I, ORVILLE F. KIME, a citizen of the United States, residing at Galion, in the county of Crawford and State of Ohio, have invented a new and useful Grain-Cleaner, of which the following is a specification.

This invention relates to grain-cleaning devices such as are generally known as "fanning-mills" and to devices generally where a rotary fan is utilized for the purpose of producing a blast, the object of the invention being to equalize the force of the blast throughout the length of the fan-casing.

Other objects of the invention are to simplify and improve the construction and operation of this class of devices.

With these and other ends in view, which will readily appear as the nature of the invention is better understood, the same consists in the improved construction and novel arrangement and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the accompanying drawings has been illustrated a simple and preferred form of the invention, showing the same applied to a grain-cleaning machine or fanning-mill of ordinary construction, it being, however, understood that no limitation is necessarily made to the precise structural details therein exhibited, but that changes, alterations, and modifications within the scope of the invention may be made when desired.

In the drawings, Figure 1 is a vertical longitudinal sectional view taken through a fanning-mill equipped with the invention and showing only as much of the fanning-mill as is necessary to enable the invention to be understood. Fig. 2 is a detail view in elevation of a portion of the fan-casing. Fig. 3 is a transverse sectional view of a portion of the side of the fan-casing and parts adjacent thereto.

Corresponding parts in the several figures are indicated throughout by similar characters of reference.

1 designates the frame or casing of a fanning-mill of ordinary conventional construction.

2 is a fan casing or chamber which is provided with an air-inlet 3 and with a discharge slit or aperture 4, which may be of any desired dimensions and which communicates with the throat 5, into which grain is discharged from the shoe 6, as usual. The throat has a curved breastplate 8, over which the clean grain is discharged through an aperture 9 in the bottom of the casing. Dust, chaff, and the like are discharged through the upper end of the throat 5.

The fan-casing is provided at the ends thereof with guide-cleats 10 for a curved closure 11, which is concentric with the fan-casing and which is adapted to close the slit or discharge-aperture 4 of the latter. The closure 11 is provided at the ends thereof with rack-segments 12, meshing with pinions 13 upon a shaft 14, supported in suitable bearings in the casing of the machine and having a handle, as 15, whereby it may be conveniently manipulated. The edges of the closure 11 are provided with stiffening or reinforcing strips 16, of wood or metal, whereby said closure, which will be usually constructed of sheet metal, will be suitably stiffened and reinforced. The rack-segments 12 have been shown as provided with perforated lugs 17 for the passage of fastening means, such as bolts or rivets 18, whereby they are connected with the closure and with the reinforcing-strips. A shaft 19, supported for rotation centrally in the fan-casing, is provided with a fan of ordinary construction, including radial arms 20 and wings 21.

It has been proved by actual demonstration that air entering a cylinder, such as a fan-casing, at the ends thereof and discharged through a longitudinal opening in the cylinder by means of a fan rotating within the latter will form a column that is somewhat stronger in the center than at the ends. This has been obviously seriously objectionable in machines such as fanning-mills used for cleaning grain and like substances for the reason that by using a current sufficiently strong to effect a thorough cleansing valuable material would be carried off with the refuse, while by lowering the intensity of the current the cleansing process would be non-effective. Various ways have been devised to overcome this objection, but with no great success. I have found that by properly regulating the area of the discharge slit or aperture of the fan-casing the pressure within the latter would be equalized, thus creating

an air current or blast of equal intensity throughout the width of the casing, low pressure, created by low-speed rotation of the fan, requiring but a small discharging area, while high pressure, caused by high-speed rotation of the fan, naturally requires a larger discharge area. Said discharge area may be very easily and accurately gaged by the improved closure of the present invention, which being concentric with the fan-casing will not at any time project into either the throat of the machine or into the fan-casing, thereby interfering with and practically defeating the accomplishment of the ends of the invention. One of the bearings 22 of the shaft 14 has been shown as provided with a thumb-screw 23, adapted to press against the shaft for the purpose of retaining the latter and the closure operated thereby in adjusted position.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of this invention will be readily understood by those skilled in the art to which it appertains.

The construction of the improved device is extremely simple, and it may with little difficulty and a small expense be installed upon fanning-mills and other machines of a similar nature where its presence shall be deemed desirable.

Having thus described the invention, what is claimed is—

1. A cylindrical fan-casing having an air-inlet and a discharge-aperture in the side thereof, a closure bent upon the same arc as that of the fan-casing, strips located at the upper and lower edges of said closure, segment-racks attached to said closure and being connected with said strips, and an operating-shaft supported for rotation and having pinions meshing with said racks.

2. A cylindrical fan-casing having an air-inlet and a discharge-aperture in the side thereof, guide-cleats adjacent to the ends of the discharge-aperture, a closure supported at its ends in said cleats and being bent on the same arc as the fan-casing, segmental racks attached to the closure and being located in close proximity to said guide-cleats, a shaft supported for rotation and having pinions meshing with said racks, strips located at the edges of the closure and connecting said segment-racks together.

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

ORVILLE F. KIME.

Witnesses:
J. W. McCARRON,
D. E. ZIMMERMAN.