(No Model.) 2 Sheets—Sheet 1.

F. MILLER & L. S. HOGEBOOM.

MACHINE FOR DISINTEGRATING BRAN AND MIDDLINGS.

No. 263,937. Patented Sept. 5, 1882.

Fig. 1.

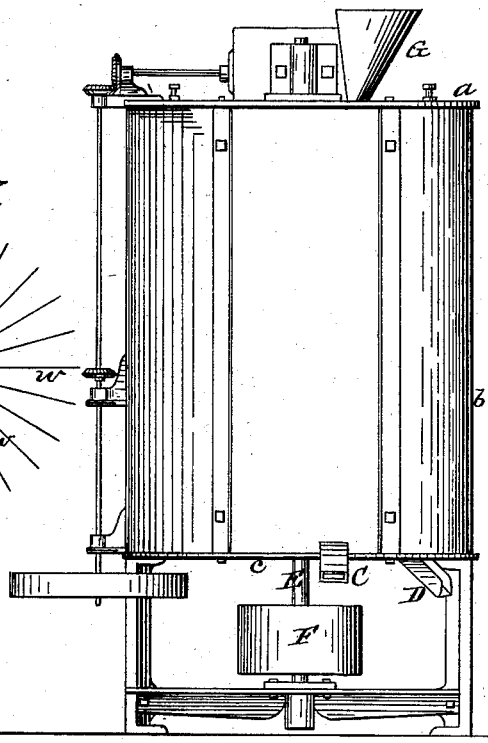


Fig. 3.

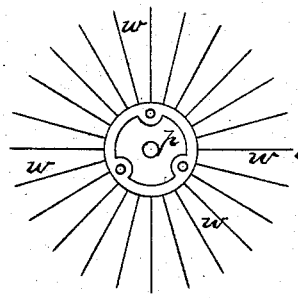


Fig. 5.

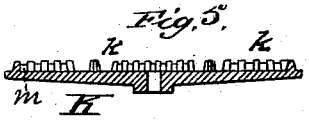


Fig. 4.

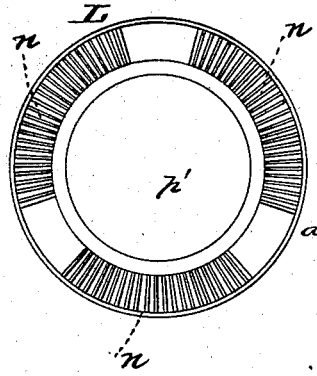
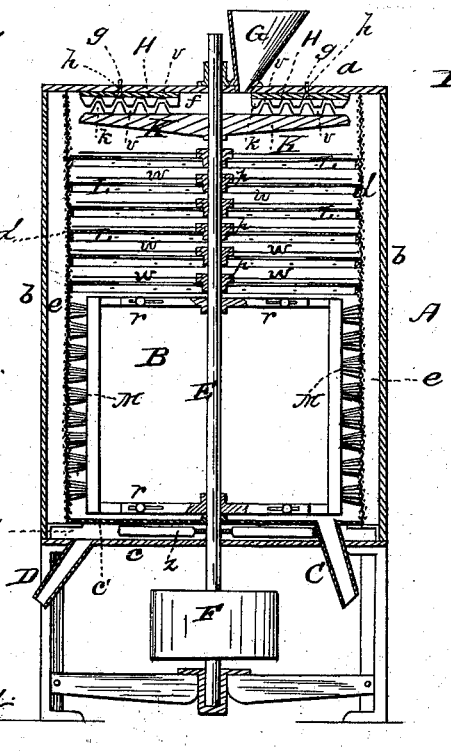


Fig. 2.



WITNESSES

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(No Model.)

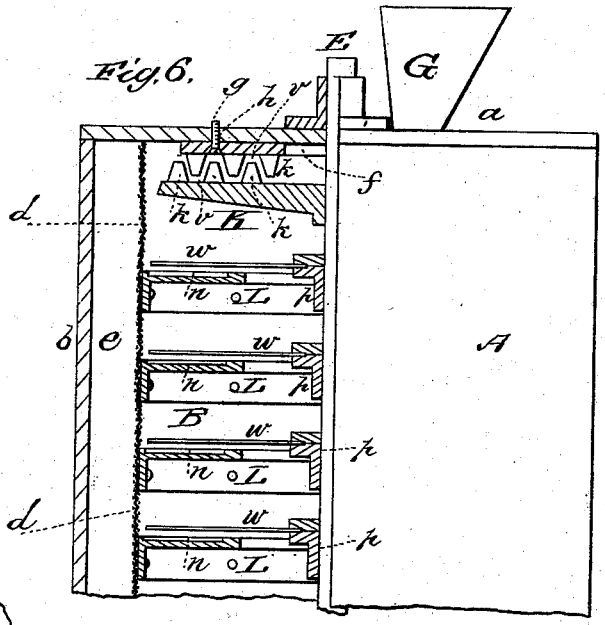
2 Sheets—Sheet 2.

F. MILLER & L. S. HOGEBOOM.

MACHINE FOR DISINTEGRATING BRAN AND MIDDLINGS.

No. 263,937. Patented Sept. 5, 1882.

Fig. 6.



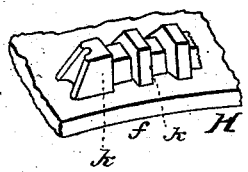
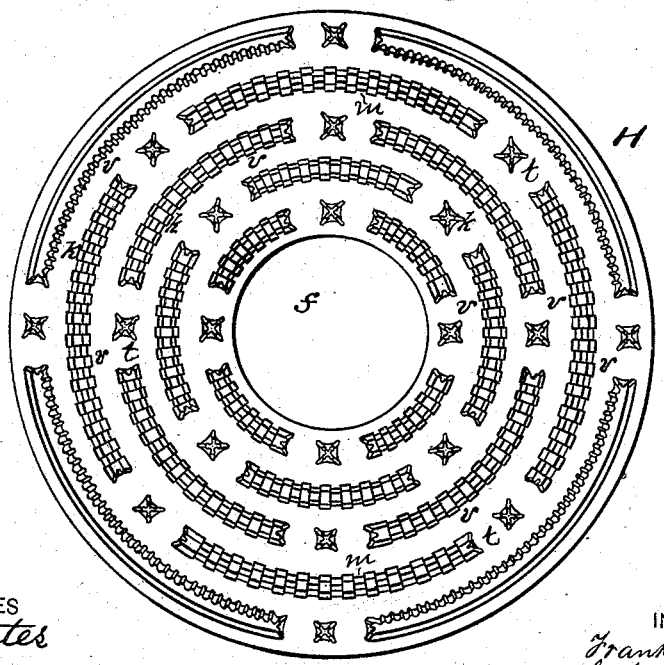


Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANK MILLER AND LEVI S. HOGEBOOM, OF THREE RIVERS, MICHIGAN.

MACHINE FOR DISINTEGRATING BRAN AND MIDDLINGS.

SPECIFICATION forming part of Letters Patent No. 263,937, dated September 5, 1882.

Application filed March 16, 1882. (No model.)

To all whom it may concern:

Be it known that we, FRANK MILLER and LEVI S. HOGEBOOM, citizens of the United States, and residents of Three Rivers, in the county of St. Joseph and State of Michigan, have invented a new and valuable Improvement in Machines for Disintegrating Bran and Middlings; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a side view of our improved machine. Fig. 2 is a vertical sectional view of the same. Fig. 3 is a plan view of one of the whippers. Fig. 4 is a plan view of one of the shelves. Figs. 5 and 6 are detail views, and Fig. 7 is a plan view of one of the disks.

This invention has relation to machines for disintegrating bran and middlings; and it consists in the novel construction and arrangement of parts, as will be hereinafter fully described, and particularly pointed out in the claims appended.

In the accompanying drawings, the letter A designates the case, having a top, *a*, an outer wall, *b*, a base, *c*, and an inner wall or encasement, *d*, of wire-cloth of proper fineness to permit the passage of flour into the flue or space *e* between the wire-cloth wall and the outer wall of the case. The wire-cloth wall or chamber is provided with a bottom, *c'*, which is above the main base *c* of the case, the interspace or chamber between the upper and lower bottoms communicating with the cylindrical flue *e*, which is between the outer wall, *b*, and the wire-cloth wall. From the wire-cloth chamber B a discharging-spout, C, projects through the bottom of the outer casing, and a spout, D, leads from the flue or interspace *e*.

E represents a revolving shaft, arranged vertically and centrally in the case, and provided with suitable bearings, in which it turns. Motion may be communicated by means of a belt passing over the pulley F, which is keyed to the shaft.

To the top of the case is attached, near its central portion, a hopper, G, by means of which the bran is fed to the machine.

H indicates a non-revolving and adjustable disk, having a central opening, *f*, which is located near the top of the case, being secured thereto by adjustable connections, usually consisting of screws *g*, which extend upward through the top, engaging threaded perforations *h* therein. Below this stationary disk is a revolving disk, K, which is keyed to the shaft E. These disks H and K are arranged with their ribbed and toothed faces toward each other, and are designed to disintegrate and rub the bran, which is fed to them by the hopper through the central opening, *f*, in the upper disk. The operating-faces of these disks are formed with concentric circular series of arc-shaped ribs or elongated teeth *k*, the sides of which are beveled toward each other, giving the rib-teeth a wedge form, truncated or flattened along their highest portions, but corrugated along these edge-faces, as indicated at *m*. The walls or bevels, the ends, and the corrugations of these rib-teeth are rounded, as they are not intended to have a cutting-action, but are designed to disintegrate by rubbing. In order to render this rubbing action more effectual, the disks are made in pairs or sets, the circular series of teeth *k* of one disk working in the circular interdental spaces or valleys *v* of the other, as indicated in the drawings. The disintegrating action can be increased or diminished, according to requirement, by adjusting the upper or non-revolving disk closer to or farther from its fellow disk on the shaft.

The disintegrated products falling from the edge of the lower disk as it revolves, or discharged therefrom, falls on the corrugated ledges or shelves L, which are located around the wall of the inner case, one above another. These ledges are radially corrugated or ribbed, as indicated at *n*, and are provided with openings *p'*, through which the products fall from one shelf or ledge to another. As the case is cylindrical in form, these shelves are circular.

Acting in connection with the corrugated shelves L are the elastic wire whippers, or radial wires or strips *w*, which are secured to the revolving shaft by means of hub-plates *p*. In

passing over the corrugations of the shelves these whippers beat the material lying thereon, loosening the flour and middlings from the bran particles. From the series of shelves the products fall into the lower portion of the case, where the rotating brushes operate upon them in the manner of the brushes or ordinary bran-dusters.

The brushes M are connected to the shaft by means of arms *r*, which are slotted, so that the brushes can be adjusted outward. From the brushes the flour and middlings pass out through the meshes of the wire-cloth and down the interspace or flour-flue between the wire-cloth and the outer wall, while the bran falls down and is discharged through the spout C.

To the shaft, below the brushes, and between the inner and outer bottoms of the case in the chamber *e'*, are attached the arms *z*, which revolve with the shaft and serve to throw the flour from the flue *a* outward and through the discharging-spout D. At the same time these discharging-arms *z* act as fan-blades, creating suction and drawing air with the flour and middlings through the wire-cloth or inner case, keeping the cloth open and clean. The case may have a knocker attached when desirable, a spring-actuated knocker being preferred.

It will be observed that the circular channels *v* of the disintegrating-disks communicate with each other by short passages *t*, between the ends of the rib-teeth, so that the bran passes from one channel to the next until the skirt of the disk is reached.

Having described this invention, what we claim, and desire to secure by Letters Patent, is—

1. In a bran-cleaning machine, the combination of the upper stationary and lower revolving disintegrating-disks, H and K, having the circular and concentric series of arc-shaped teeth corrugated on their edges, as at *m*, and separated by the passages between the ends of the teeth, and by the circular spaces *v*, between the series of teeth, which spaces are connected by said passages, substantially as specified.

2. In a disintegrating and cleaning machine, the combination, with the wire-cloth inner wall, *d*, the upper adjustable disintegrating-disk, H, the corrugated ledges L, around the inner wall, and the flue *e*, outside the wire-cloth, of the revolving disintegrating-disk K, the revolving whippers *w*, the revolving brushes M, and the revolving dischargers *z*, substantially as specified.

3. In a disintegrating and cleaning machine, the combination, with the disintegrating-disks H and K, of the inner wire-cloth wall, *d*, the corrugated wall-ledges L, the revolving whippers *w*, revolving brushes M, and revolving dischargers *z*, and the vertical shaft E, to which the revolving parts are attached, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

FRANK MILLER.
LEVI S. HOGEBOOM.

Witnesses:
STEPHEN KELSEY,
WM. W. BURROWS.