

# GORDON & GOULDTHRITE.

Smut Mill.

No. 7,396.

Patented May 28, 1850.

Fig. 1.

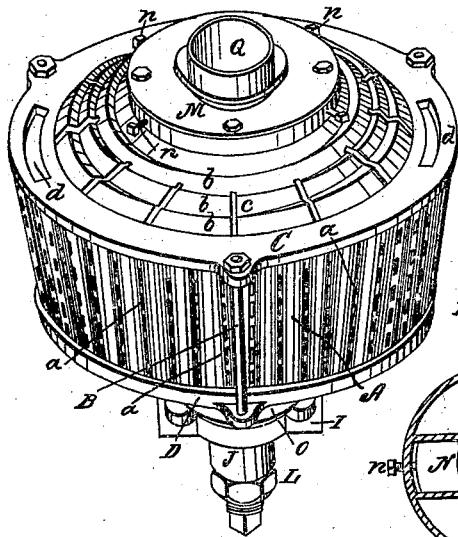


Fig. 2.

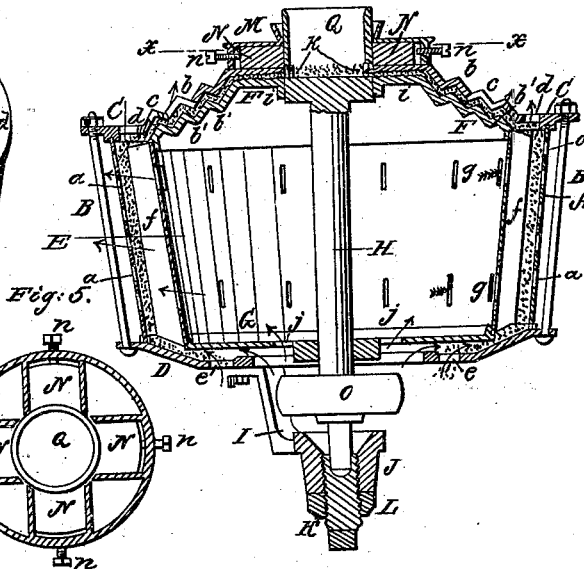


Fig. 3.

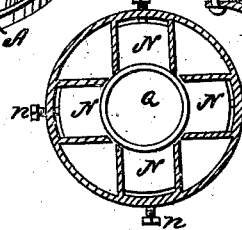


Fig. 4.

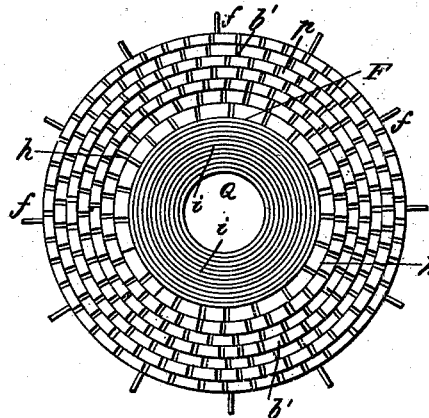


Fig. 5.



Fig. 6.

# UNITED STATES PATENT OFFICE.

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NEW YORK.

## SMUT-MACHINE.

Specification of Letters Patent No. 7,396, dated May 28, 1850.

*To all whom it may concern:*

Be it known that we, CYRUS D. GORDON, of West Martinsburg, and SAMUEL S. GOULDTHRIFE, of Lowville, in the county of Lewis and State of New York, have invented a new and useful Improvement in Smut-Machines for separating and removing the smut, dirt, or other foreign matter from wheat or other grain; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a general view of the machine. Fig. 2 is a vertical section through the center. Fig. 3 is an inverted plan or view of the bottom of the machine. Fig. 4 is a plan of the revolving winged drum. Fig. 5 is a horizontal section through the line *x x* of Fig. 2. Fig. 6 represents on a larger scale a part of the outer casing in section.

Similar letters refer to corresponding parts, in the several figures.

The nature of our invention consists in scouring wheat or other grain between two plates having waved and fluted surfaces. One of these plates is stationary and forms the upper plate of the outer casing of the machine and the other plate forms the upper head of a revolving drum. These plates may be adjusted at any distance apart, according to the nature or size of the grain, so as to break the smut balls, and separate the dirt from the grain without breaking or bruising the grain. The smut, dirt, &c., is carried off through apertures in the outer casing by a current of air which is caused to circulate through the machine by means of the revolving drum. The vertical shaft on which the revolving drum is mounted is provided with a cup into which the grain is fed passing through apertures in its lower part on to the plate of the revolving cylinder by feeding from the center we are enabled to use the entire working surface of the plates, and to take the grain from any direction in the room without moving the machine.

To enable others skilled in the art to make and use our invention we will proceed to describe its construction and operation.

A is the outer casing or curb, the upper diameter of which is greater than the lower.

It is formed of stout sheet iron and corrugated or fluted. It is provided with slots or apertures *a, a, a*, and is firmly held by bolts B, B, B, between the stationary circular plates C, and D, which are grooved to receive it. The upper stationary plate C, has a series of waves *b, b, b*, concentric to it and is provided with slots *c, c, c*, radiating from the center and intersecting the waves *b, b, b*. These slots *c, c, c*, are to allow the exit of the dirt, but are not large enough to allow the grain to pass out.

The plate C, is further provided with larger concentric slots or apertures *d, d, d*, near its outer circumference.

The lower stationary plate D, is provided with a large circular aperture at its center and with other concentric slots or apertures *e, e, e*.

E, is the revolving drum which is of strong sheet iron of the form of the inverted frustum of a cone being smaller at its lower end. It is provided with wings *f, f, f*, and slots or apertures *g, g, g*.

F, is the circular plate forming the head of the revolving drum which is provided on its upper surface with a series of concentric waves *b', b', b'*, corresponding with those *b, b, b*, on the under side of the stationary plate C. These waves are provided with grooves or flutes *h, h, h*, radial to the center. *i, i, i*, are circular concentric grooves in the plate F; the under side of the stationary plate C, is also provided with grooves or flutes corresponding with those *h, h, h*, and *l, l, l*, on the plate F.

G, is the lower circular plate or bottom of the revolving drum. It is provided with apertures *j, j*.

H, is the vertical shaft which carries the revolving drum being fitted and keyed or suitably secured in the plates F and G.

I, is a yoke which is bolted to the under side of the plate G, and carries a boss J, in which is inserted a screw K, having a recess in its upper end forming a step-bearing for the lower end of the vertical shaft H. The screw K may be screwed up or unscrewed to raise or lower the revolving drum and regulate the space between the plates C and F. The boss J, has a recess on its upper side forming an oil cup.

L, is a set or jam nut for the purpose of tightening and securing the screw K in any

required position. The upper end of the shaft H forms a hollow cylinder or cup Q and is provided with apertures *k, k*.

M, is a box bolted or otherwise secured to the upper surface of the stationary plate C.

N, N, N, N, are four blocks of brass or other suitable metal sliding in guides in the box M, and are capable of being pushed toward the center of the box by screws *n, n*, *n, n*, passing through female screws in the box M. The blocks N, N, N, N, form the guides of the upper end of the shaft H, and are the means of adjusting the said shaft in a vertical position.

O, is the driving pulley on the shaft H, and is driven by an endless band P. The outer casing together with its upper and lower stationary plates, may be supported in any convenient manner on the floors of the mill or building in which the machine is worked.

The operation is as follows: Motion being communicated to the revolving winged drum by means of the band P, and pulley O, the grain is fed into the cup Q and as it (the cup) revolves the grain will pass out by the apertures *k, k*, and between the stationary plate C, and the upper plate F of the revolving drum and will pass between the concentric grooves *i, i, i*, and over and between the waves *b, b, b*, and *b', b', b'*, and between the grooves or flutes *h, h, h*. Whereby the smut balls will be broken and the dirt, &c. separated from the grain, and should any oats become accidentally mixed with the wheat the hulls will be broken and separated. By the revolutions of the circular winged drum E, the circle described by the lower ends of the wings being smaller than that described by the upper ends and the annular space between the drum and the outer case being smaller at the lower part, a current of air will be caused to circulate through the large circular aperture in the plate D, and also through the slots *e, e*, in the said plate and will pass upward in

the direction of the arrows shown in Fig. 2, of the drawings between the drum and the outer casing. It will also pass through the apertures *j, j*, in the lower revolving plate and through the slots *g, g, g*, in the drum E, into the said space between the drum and the outer casing. The greater part of the dirt will be carried by the said current of air out by the slots *c, c, c*, intersecting the waves *b, b, b*, in the stationary plate C, while the white caps and other light matter too large to pass out at *c, c, c*, will go out at the larger apertures *d, d*.

After the grain has been passed between the plates C, and F by the revolution of the drum it will fall over the edges of the plate F to the bottom stationary plate G, of the outer casing and will pass out by the apertures or slots *e, e*, the current of air through the slots *g, g, g* in the drum having carried out the remaining dirt through the apertures or slots *a, a, a*, in the outer casing A the said apertures not being large enough to allow the grain to pass out.

What we claim as new in our invention and desire to secure by Letters Patent, is

1. The combination of the cup Q, with the shaft H for the purpose of receiving the grain and conducting it all around between the plates C, and E, as herein described.

2. The adjustable bearing or guide for setting the the shaft H vertical, consisting of the box M, the blocks N N N N and the screws *n n n n*, constructed and arranged as herein set forth.

3. The circular revolving winged and slotted drum E in combination with the scouring plates C and E in the manner substantially as described, producing a current of air for carrying off the smut, dirt, and other foreign matter.

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Witnesses:

L. KNOX,

W. H. STEPHENS.