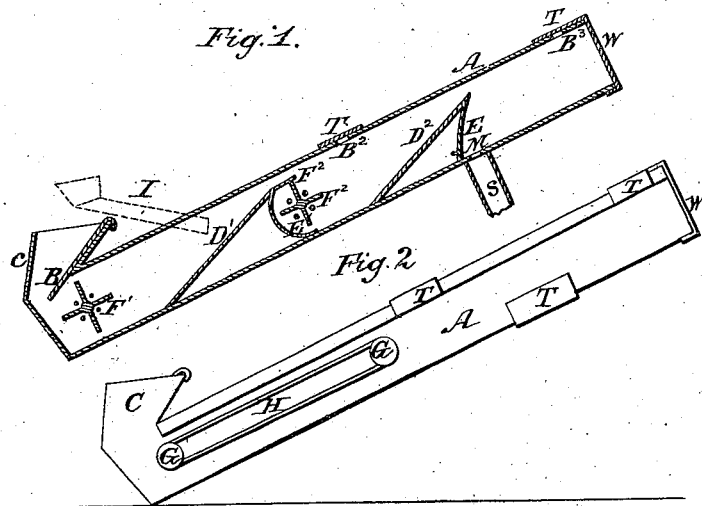


A. Bull.

Smut Mill

N^o 1,474.

Patented Jan. 16, 1840.



UNITED STATES PATENT OFFICE.

AARON BULL, OF CAROLINE, NEW YORK.

MACHINE FOR CLEANING, SCOURING, AND CONVEYING GRAIN, AND COOLING,
BOLTING, AND CONVEYING FLOUR.

Specification of Letters Patent No. 1,474, dated January 16, 1840.

To all whom it may concern:

Be it known that I, AARON BULL, of Caroline, Tompkins county, State of New York, have invented a new and useful Machine for

5 Cleaning Smut from Grain, Elevating Grain, Flour, etc., and Cooling Flour, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

10 Figure 1, section of a machine for cleaning and elevating grain, flour, etc., and also for cooling flour; Fig. 2, side elevation of ditto.

This machine, when used as a smut machine, consists of a hollow trunk A, Figs. 1 and 2 of suitable length, breadth, and height, closed at both ends, the top of said trunk being perforated with a number of oblong apertures B¹ B² B³ for the admission of the grain and the escape of smut and dirt, over one of which openings the hopper C is placed. On the bottom of the trunk are arranged a number of inclosed planes D¹ D², Fig. 1, at suitable distances apart, inclined at an angle of about ten or fifteen degrees with the bottom and extending nearly to the top and then turning down and back in a curve line so as to form a concave E for a revolving fan F² to turn in. Under the hopper and at the elevated end of each inclined plane, except the upper one, is placed a revolving fan F, the axes of which extend horizontally through the sides of the trunk, sufficiently far to receive pulleys G, Fig. 2, for bands H leading from the driving power (manual, horse, or steam) by which they are turned.

The upper inclined plane D² has no fan, but there is an opening M in the bottom of the trunk, at the lower extremity of the concave E² through which opening the cleaned grain descends into a spout S placed below it, which conducts it wherever desired. The upper end of the trunk A when of sufficient length may be left open at W. The apertures B in the top are provided with slides T for closing or opening them at pleasure, being left open when used as a smut machine and closed when used as a flour cooler, etc.

In cleaning smut from grain the grain is put into the hopper C, Figs. 1 and 2, from whence it descends to the trunk A. It is there met by the wings of the first fan F¹, carried around and driven along the trunk

until it meets the first inclined plane D¹, against which it is driven with violence which breaks the smut from it and which is driven out of the trunk through the aperture B² in the top. While the grain falls over the end of the inclined plane on to the second wheel F², which is sheltered from the current of the first wheel by the rising of the inclined plane. The second wheel drives the grain against the second inclined plane D² where the grain is treated in a similar manner, and so on until thoroughly cleaned, when it falls over the end of the last inclined plane and passes through the aperture M in the bottom to the spout S, which conducts it away to any place desired.

For simply conveying grain the apertures B² B³ in the top may be closed by the slides T and the end of the trunk be left open at W. In both operations the machine should be placed in an inclined position, as represented in Figs. 1 and 2. It may, however, be placed in an horizontal position for some purposes.

In using the machine for cooling flour preparatory to bolting it, the flour should be conducted from the mill, or other place, by a spout I represented by dotted lines, into the trunk A and thence driven into the bolt of the common form by the revolving fan F¹. In performing this operation the inclined planes and second and third fans are omitted and the openings in the top and bottom are closed, while the end of the trunk which leads to the bolt is left open.

The flour may be partially bolted with this machine in a large closed room by means of the current of air which drives the finer flour out at the end of the trunk and sends it to a greater distance therefrom while the coarser flour being the heaviest will settle sooner and near the end of the trunk, and thus the flour may be partially bolted without a revolving bolt, in which case the apertures B² B³ in the top and the aperture M in the bottom must be closed and the end W left open.

When the machine is used for scouring wheat the trunk must be made long enough to prevent the current of air from driving the grain out at the end of the trunk, the grain being made to fall over the last inclined plane above and pass out at the opening M in the bottom of the trunk, or the upper end of the trunk must be kept closed

to prevent the escape of the grain. When the flour is to be driven but a short distance only one fan will be needed and no inclined plane.

- 5 The capacity of the trunk should not be too large for the volume of air to be driven through it.

Meal as well as flour may be cooled, bolted and conveyed in this machine.

- 10 What I claim as my invention and desire to secure by Letters Patent is—

The before described mode of cleaning, scouring, and conveying grain; and cooling, bolting, and conveying flour by a current

of air, produced by revolving fans arranged 15 in an horizontal or inclined trunk containing inclined planes for breaking the smut and sheltering the forward wheels from the current of air and apertures for the escape of the smut and apertures for the passage 20 of the grain, flour, etc., as described, the current of air being produced in the mode above described or in any other mode substantially the same.

AARON BULL.

Witnesses:

EDMUND MAHER,
CALVIN BETTS.