J. DE RUSH.

Grain Cleaner.

No. 20,196. Patented May 11, 1858.

Fig: 1.

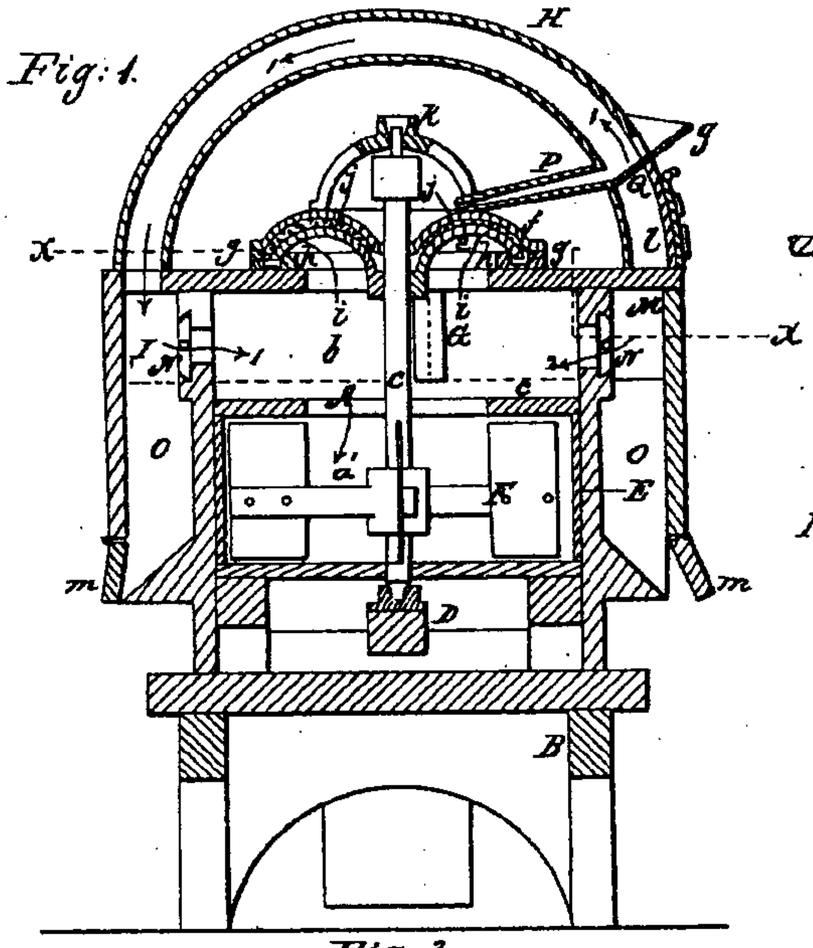


Fig: 4.

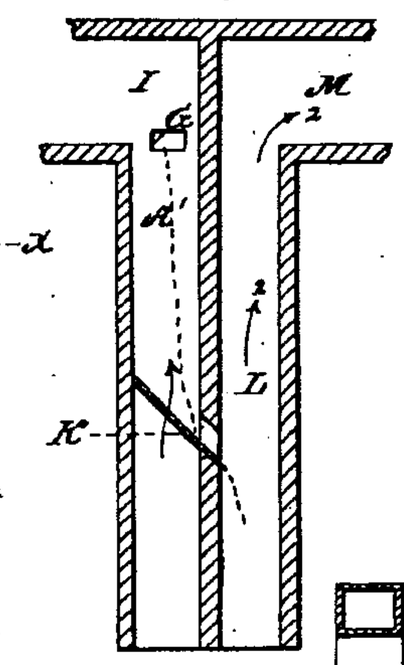


Fig: 2.

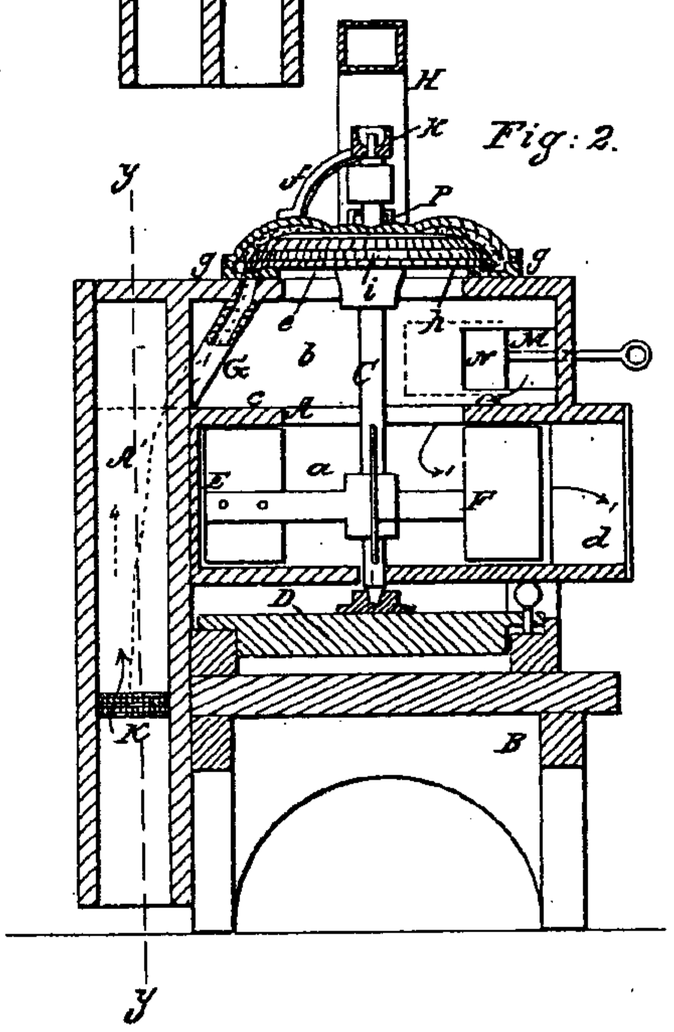
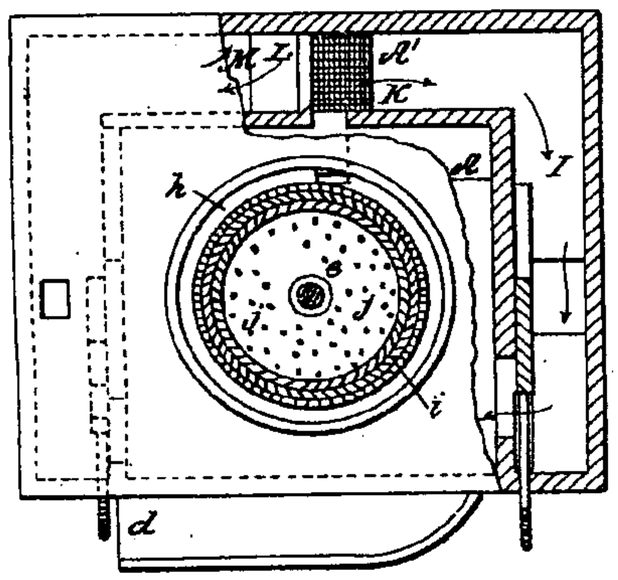


Fig: 3.



UNITED STATES PATENT OFFICE.

JNO. DE RUSH, OF ST. MARYS, OHIO.

GRAIN-CLEANING MACHINE.

Specification of Letters Patent No. 20,196, dated May 11, 1858.

To all whom it may concern:

Be it known that I, JOHN DE RUSH, of St. Marys, in the county of Auglaize and State of Ohio, have invented a new and Improved Grain-Cleaning Machine; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figures 1 and 2, are vertical central sections of my improvement, the two planes of section crossing each other at right angles. Fig. 3, is a horizontal section of ditto, taken in the line *x*, *x*, Fig. 1. Fig. 4, is a vertical section of two of the suction spouts taken in the line *y*, *y*, Fig. 2.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in the employment or use of a beater and scourer arranged relatively with suction spouts and a fan, as hereinafter fully shown and described, whereby a machine exceedingly simple and economical in its construction is obtained, and one that will separate smut, dirt and all foreign impurities from grain in a perfect manner, with a small expenditure of power.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a quadrilateral box or case which is supported by a stand B, or any proper framing, and C, is a shaft which passes vertically through the center of the box A. The lower end of this shaft is stepper in a bridge tree D, which is at the upper part of the stand or framing B. The box or case A, is divided into two parts *a*, *b*, by a horizontal partition *c*, and the lower compartment *a*, has a fan box E, placed within it, the fan F, being fitted on the shaft C. The fan box E, is provided at one side with a discharge spout *d*.

To the upper part of the shaft C, above the box A, a curved metal plate *e*, is permanently attached, and a similarly shaped plate *f*, is permanently attached to an annular plate or ring *g*, which is secured to an annular trough *h*, attached to the upper surface of the box A.

G, is a spout which leads from the annular trough *h*, into the upper part or spout A′, attached to the box A.

The precise form of the two plates *e*, *f*, is shown in Fig. 1. The lower plate *e* may be described as forming a convex ring, the outer portion of which is corrugated as shown at *i*, and the inner part is toothed as shown at *j*. The upper plate *f*, is inversely of the same form and is toothed and corrugated in a corresponding manner. The upper end of the shaft C, is fitted in a bearing *k*, formed in a bow or curved bar which is attached to the upper side of the plate *f*.

H, is a curved or semi-circular spout attached to the upper surface of the box A. One end of this spout communicates with a horizontal spout I, which is attached to one side of the upper part of the box A, and the opposite end is provided with a slide door *l*. The spout I. communicates with the upper end of the vertical spout A′, which has an inclined screen K, fitted within it, said screen conducting the grain into a vertical spout L, which is placed by the side of spout A. The upper end of the spout L, communicates with a horizontal spout M, which is placed by the side of the box A. opposite to the side where the spout I, is attached. Each spout I, M, is made to communicate with the compartment *b*, of box H, by means of a valve N, shown in Fig. 1. Each spout I, M, communicates with a chest O, see Fig. 1, said chests having inclined ends and provided with flap doors *m*, at the lower ends.

P, is a spout which leads from the spout H to an annular opening $a^{\times}$, at the center of the upper plate *f*. The upper end of spout P, is connected with an inclined screen Q, in the spout H. with which screen a hopper *g*, on the outer side of spout P, communicates.

The operation is as follows: The grain to be cleaned is poured into the hopper *g*, and the shaft C, is rotated in any proper manner. The grain in passing over the screen Q, is subjected to a blast produced in spout H, by the action of the fan F, and all dust, and light impurities are drawn through said spout H, into the compartment *b*. of box A. and into the fan box E. and ejected therefrom by the fan F. through the discharge spout *d*, see arrows 1. The grain thus partially cleaned passes down through the opening $a^{\times}$. between the plates *e*, *f*, where it is scoured by the action of the plates, the corrugations *i*′, and the teeth *j*, aided by the peculiar form of the plates which prevents the too speedy exit of the grain, effectually scouring the dirt from the surface of the

grains and also breaking the smut balls. The scoured grain passes down the spout G, into the spout A′, and falls upon the screen K, into the spout L. The grain in passing down the spout A′, is subjected to a second blast, the smut and dirt passing up through the spout I, into the compartment *b*, and through the fan box E, and the grain is subjected to a third blast in the spout L, the remaining dust, dirt and smut which it contains being drawn up into the spout M, see arrows 2, and through the compartment *b*, into the fan box E. The sound and cleaned grain is discharged from the spout L. The chests O, O, receive chess and light inferior grain the specific gravity of which is too great to be acted upon by the blast, the chess and light grain falling from said chests when accumulating in sufficient quantities to raise the flaps or doors *m*, by gravity.

Having thus described my invention what I claim as new and desire to secure by Letters Patent, is,

The scouring plates *e*, *f*, fan F, and suction spouts A′, L, I, M, H, when combined and arranged relatively with each other substantially as and for the purpose herein set forth.

JOHN DE RUSH.

Witnesses:
S. R. Mott,
James Wilson,
E. J. Burnett.