(No Model.) 2 Sheets—Sheet 1.

L. M. SMITH.

MACHINE FOR CLEANING GRAIN.

No. 345,997. Patented July 20, 1886.

Fig. 1.

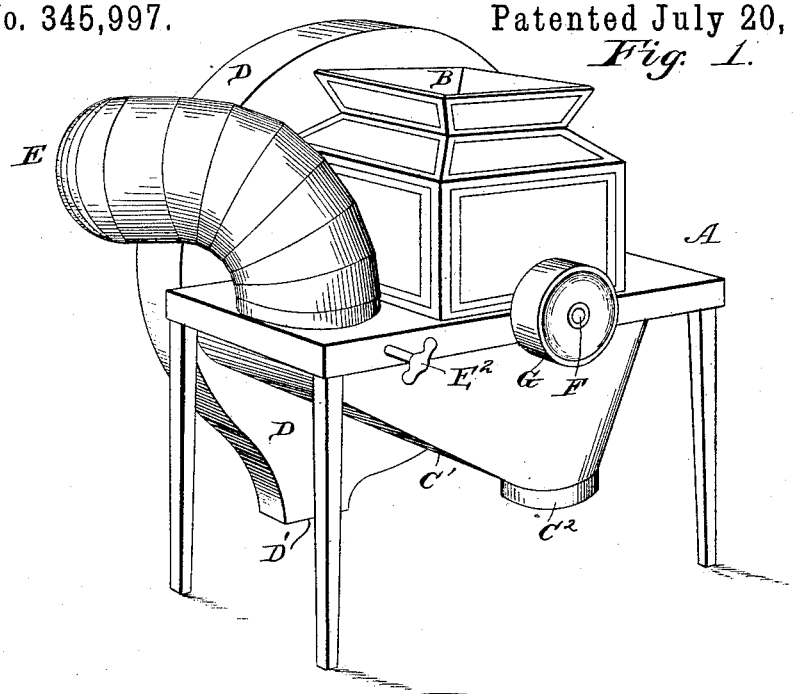
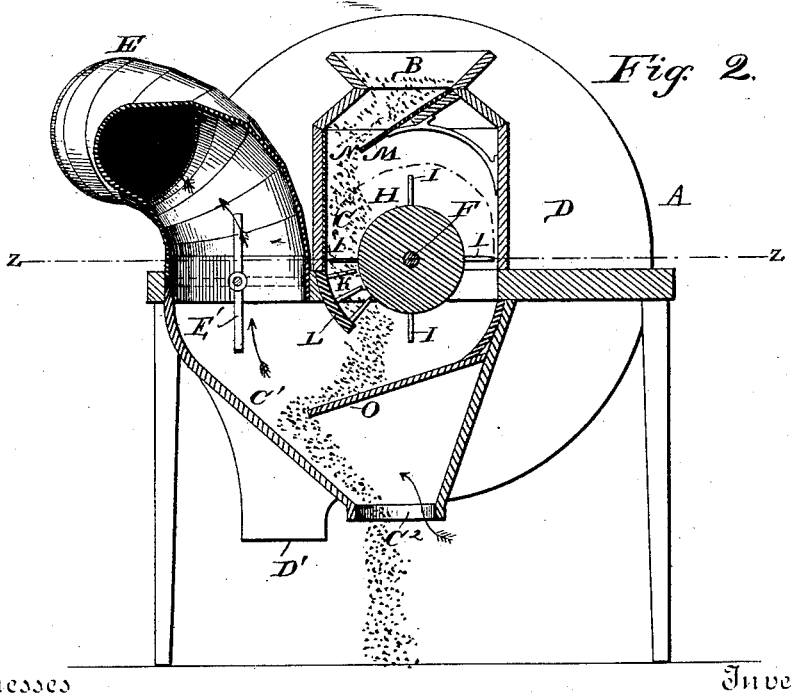


Fig. 2.



Witnesses

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Inventor,

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(No Model.) 2 Sheets—Sheet 2.

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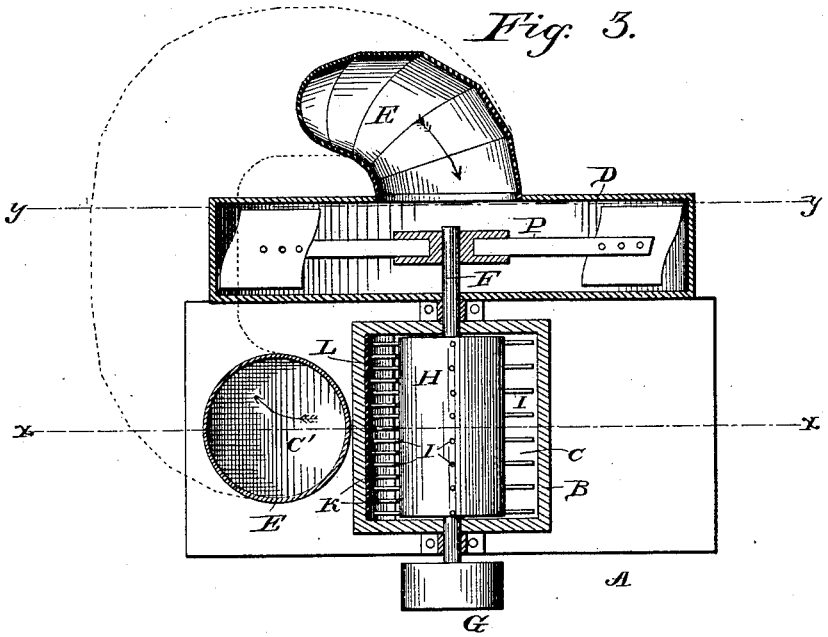
Fig. 3.



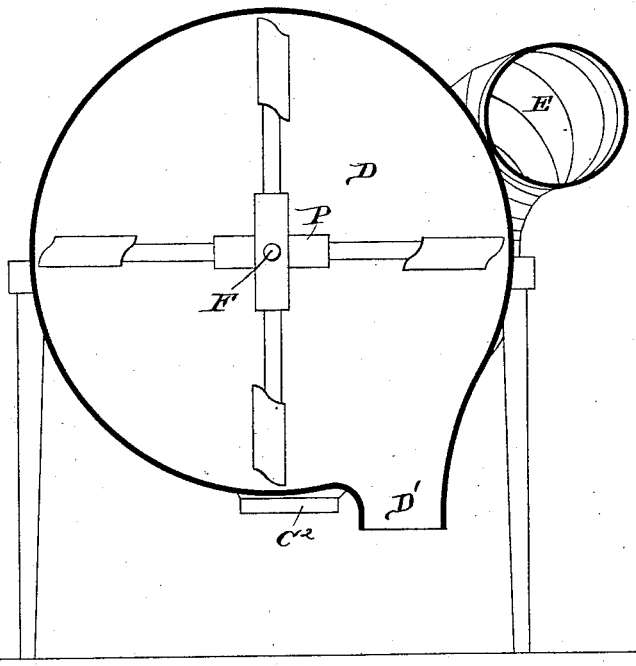


Fig. 4.

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UNITED STATES PATENT OFFICE.

LEWIS M. SMITH, OF CANANDAIGUA, NEW YORK.

MACHINE FOR CLEANING GRAIN.

SPECIFICATION forming part of Letters Patent No. 345,997, dated July 20, 1886.

Application filed March 29, 1886. Serial No. 197,030. (No model.)

To all whom it may concern:

Be it known that I, LEWIS M. SMITH, a citizen of the United States, residing at Canandaigua, in the county of Ontario and State of New York, have invented new and useful Improvements in Machines for Cleaning Grain, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to an improvement in machines for cleaning grain; and it consists in the peculiar construction and combination of devices, that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the drawings, Figure 1 is a perspective view of a machine embodying my improvements. Fig. 2 is a vertical longitudinal sectional view of the same, taken on the line *x x* of Fig. 3. Fig. 3 is a horizontal sectional view taken on the line *z z* of Fig. 2. Fig. 4 is a longitudinal vertical section taken on the line *y y* of Fig. 3.

The object of my invention is to provide a machine adapted for cleaning wheat, rye, oats, barley, and other grains, and removing all impurities therefrom, and for cooling the grain as it passes through the machine, and thereby preventing it from becoming spoiled.

A represents the inclosing-case, which comprises a hopper, B, a chamber, C, communicating with the hopper, a circular case, D, on one side of the chamber C, and a pipe or flue, E, leading from the center of the circular case D to the lower end of the chamber C. In the side walls of the said chamber is journaled a horizontal shaft, F, which extends through the chamber C and into the circular chamber D, and is provided with an outwardly-extending spindle on which is secured a pulley, G. To that portion of the shaft within the chamber C is secured a roller, H, which is provided with four rows of radial teeth or pins, I, which are arranged equally distant apart on the said cylinder, and pass between similar teeth or pins, K, which project inwardly from the concave L, which latter is arranged at the bottom of the rear wall of the chamber C. The lower side of the hopper is inclined, as at M, and is provided at its discharge end with an opening, N, above the concave; and below the cylinder H, in the chamber C, is located an inclined board, O, which inclines in the same direction as the bottom of the hopper. The lower side of the chamber C is inclined, as at C′, and the said chamber is provided with a discharge-opening, C^2, which is located directly below the inclined board O.

P represents a suction-fan which is secured on the inner end of the shaft F and rotates in the circular case D, thereby creating a draft of air which passes from the opening C^2 through the lower portion of the chamber C, and through the pipe or flue E into the case D, from whence it is discharged through the opening D′, as indicated by the arrows in Figs. 2 and 3.

While the machine is in operation the grain to be cleaned and cooled is fed through the hopper B upon the inclined board M, and discharged upon the roller or cylinder H, and the rapidly-rotating teeth or pins of the said roller, in connection with those which project inwardly from the concave, violently agitate and separate the grains, so as to dislodge all impurities, dirt, or smut therefrom, and the grains are then dropped upon the inclined board O, and from the said board upon the inclined bottom C′ of the chamber C, where they are met by the draft of air which thoroughly winnows, purifies, and cools them. The grains are discharged from the machine through the opening C^2 into any suitable receptacle. During their passage through the machine the grains, as hereinbefore stated, are stirred and agitated violently, causing them to abrade against each other, thereby polishing and brightening them. By thus subjecting the grain to the successive action of the stirring pins or teeth and the draft of air its quality is greatly improved by removing the beard, smut, dust, and dirt therefrom and brightening and cooling it, thereby greatly enhancing its value in the market. The current or draft of air carries the impurities from the grain with it, and it becomes necessary to control the said draft or current in order to prevent it from being strong enough to suck up the grains and discharge them through the opening D′ with the impurities, and thereby cause a loss of grain. This is especially necessary when cleaning grain of slight spe-

cific gravity, such as oats. I therefore provide the flue E with a damper or valve, E′, having a handle, E², by which it may be readily turned in order to partly close the flue.

Having thus described my invention, I claim—

1. The combination of the inclosing-case having the chamber C, provided with the inclined side C′, the discharge-opening, and the inclined board O, the hopper at the upper end of the said chamber, the case D adjacent to the chamber C, the pipe or flue E, leading from the said case to the said chamber, the shaft F, carrying the toothed roller in the chamber C, the exhaust-fan in the case D, and the concave arranged at the side of the cylinder and provided with teeth K, for the purpose set forth, substantially as described.

2. The combination of the inclosing-case having the chamber C, provided with the inclined side C′, the discharge-opening, and the inclined board O, the hopper, the case D, the pipe or flue E, leading from the said case to the chamber C, the damper or valve in the flue E, the shaft F, carrying the toothed roller in the chamber C, the exhaust-fan in the case D, and the concave arranged at the side of the cylinder and provided with teeth K, substantially as described.

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

LEWIS M. SMITH.

Witnesses:

I. WOLVERTON,

A. SCHERMERHAN.