

B. D. SANDERS.

Smut Machine.

No. 6,545.

Patented June 19, 1849.

Fig. 1.

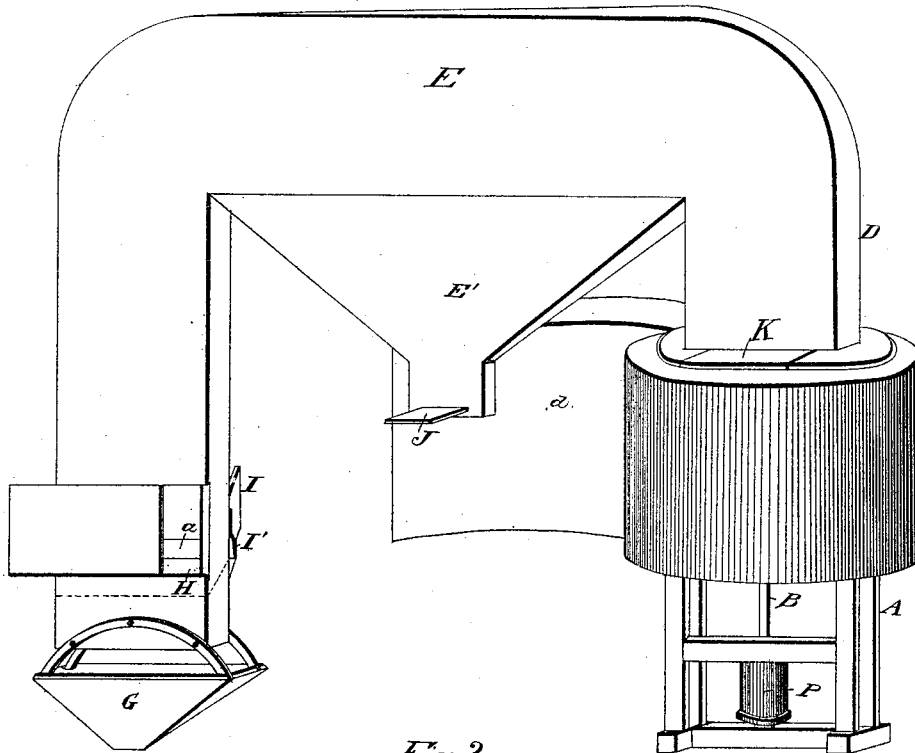
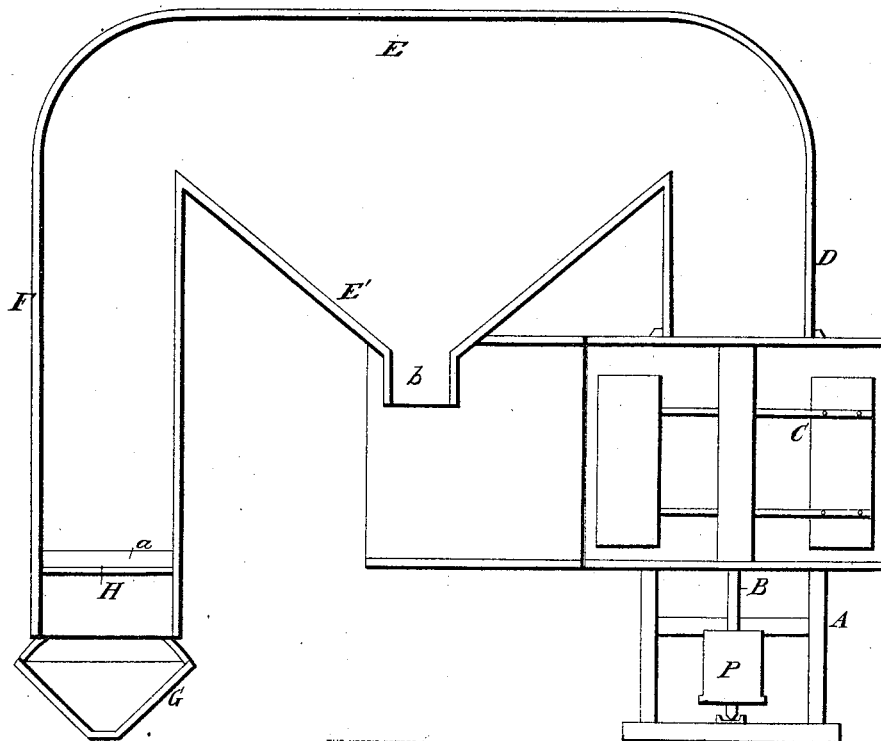


Fig. 2.



UNITED STATES PATENT OFFICE.

BENJAMIN D. SANDERS, OF HOLLIDAY'S COVE, VIRGINIA.

IMPROVEMENT IN WINNOWING-MACHINES.

Specification forming part of Letters Patent No. 6,545, dated June 19, 1849.

To all whom it may concern:

Be it known that I, BENJAMIN D. SANDERS, of Holliday's Cove, in the county of Brooke and State of Virginia, have invented a new and useful Improvement in the Machine for Cleaning Grain of Chaff, Smut, and other Impurities, which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a perspective view of the machine. Fig. 2 is a longitudinal section through the center of the same.

Similar letters in the figures refer to corresponding parts.

The nature of this invention and improvement consists in conducting the grain through an inclined spout and depositing the same on a sieve or screen inclosed in a vertical spout or trunk communicating with an ordinary fan, and by producing a partial vacuum above said grain to cause the impurities to be drawn into the horizontal part of the trunk, where, by its superior gravity, it is caused to fall through an opening in the bottom of said horizontal part, while the chaff and dust, being too light to bear the draft of air, are drawn through the fan-case and discharged through the longitudinal trunk of the same to any point desired, thus effectually separating the two.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The frame A of this machine is made of an oblong form of suitable size, strength, and material, and is provided with a step at its lower part for the insertion of the vertical shaft B of an ordinary fan C, which is arranged immediately over the same. The case of this fan communicates at its center with a vertical trunk D, made square or round to suit the pleasure of the operator, and is connected at its upper end with the end of a horizontal trunk E of the same form on its upper part and sides, but flaring or hopper-shaped on its lower part E' for the purpose of concentrating the heavier matter taken from the grain. This horizontal trunk E communicates at its opposite end with a vertical trunk F of like dimensions at the upper end to trunk D, and the lower end one-sixth smaller of the trunk

F than the upper end, the trunk F to be made of a square form, the trunk F to be not less from the screen to trunk E than four feet. At the lower end of trunk F is a hopper G for the reception of the clean grain. The hopper G must be attached to trunk F, so as to admit three times the quantity of air that the trunk F will contain.

Inside of trunk F, about twelve inches from the lower end, there is arranged an inclined screen H, composed of about No. 9 wire. The grain passes over this screen into the hopper G, which is fixed under it. There is a space *a* left for this purpose. The grain is conducted to the screen by the spout I. The grain is made to pass slowly over the screen. At the lower end of the spout I' there is a slide-board to regulate the quantity of grain fed into the screen.

J is a slide placed above for the purpose of opening to discharge the heaviest impurities that may be deposited in the hopper E'.

K is another slide or door to an aperture that communicates with the blower, and which can regulate the amount of draft to the same by the area of aperture that may be open.

Operation: The fan C is put in motion by any power that may be used by a band passing around the pulley B on the shaft B. A partial vacuum is formed in the trunk by the motion of the blower, and as there is no way for the air to rush in and fill up the vacuum but through the lower end of the trunk F, it thus passes in a current through the screen H, lifting up the chaff and everything specifically lighter than the clean grain, which passes into the hopper G, while the more heavy matter of the refuse, after being carried up to the top of F and into the horizontal trunk, will fall into the hopper E'. The chaff and light dust will be carried along through the fan-case and conducted out by the spout *d*. The trunk F is gradually enlarged in area from its lower end upward and until it passes over the hopper E', so that as some good grain may be raised by the current up the trunk F to some distance above the center of gravity, owing to the current being confined into a narrow space at the inlet, the said good grain will be apt to fall down again and pass into the hopper G.

What I claim as my invention is—

The trunk F, gradually enlarged from below upward and communicating with the atmospheric current through the screen H, in combination with the hopper E' and the fan placed at the end of the opposite vertical trunk D to separate the chaff and other im-

purities from the grain, in the manner substantially as herein described.

B. D. SANDERS.

Witnesses:

O. BROWN,
R. C. BROWN.