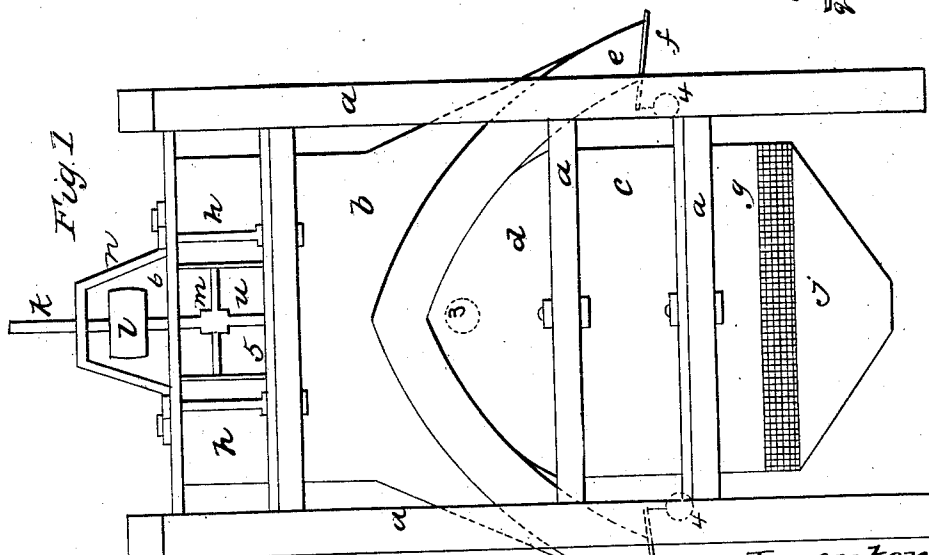
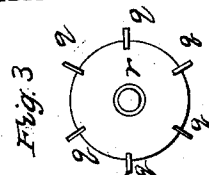
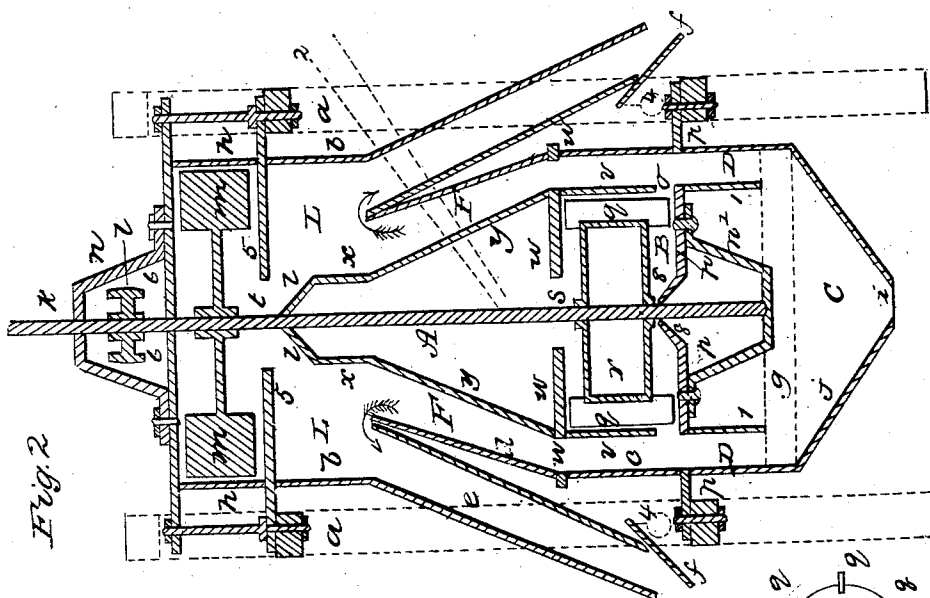


J. BENNER.
Smut Machine.

No. 23,547.

Patented April 12, 1859.



Witnesses
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UNITED STATES PATENT OFFICE.

JACOB BENNER, OF ALLEGHENY CITY, PENNSYLVANIA.

SMUT-MACHINE.

Specification of Letters Patent No. 23,547, dated April 12, 1859.

To all whom it may concern:

Be it known that I, JACOB BENNER, of the city and county of Allegheny, in the State of Pennsylvania, have invented a new and useful Improvement in Smut-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, similar letters referring to similar parts.

The nature of my invention consists in the mechanical arrangement of a suction fan, separating and discharge flues, and a revolving drum furnished with beaters, in connection with receiving, distributing, gathering and eddy chambers, the whole being arranged and combined for the purpose of effectually separating smut and other impurities from wheat and other grain.

In the accompanying drawings Figure 1 is a face view of the smut machine. Fig. 2 is a cut or sectional view. Fig. 3 is a top view of the revolving drum and beaters.

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

(a) is the frame of the machine, (h) is the outside case of the fan, (b) is the outside case of the discharge flues or pipes and the eddy chamber (L), (d) is the outside case of the coniform flue (F), (c) is the outside case of the separating flue, (j) is the outside case of the gathering chamber, (g) is open or lattice work in the outside casing of the gathering chamber, (k) is a perpendicular shaft to which are attached pulley (l) fan (m) and drum (r), to drum (r) beaters (q) are attached and arranged around it as represented in Fig. 3. The shaft (k) is held in its place by, and has its bearings in yokes (n) and (n¹) which are attached to the plates (6) and (p) as represented in Fig. 2. The part marked by the red lines as seen at (v) Fig. 2 consists of fine open or lattice work the openings in which are smaller than the grain.

(1) is a flange which is attached to or cast on plate (p), (8) is a cone on plate (p), (v) is a discharge opening leading from the distributing chamber (B) into the separating flue (D). This opening is between the bottom of the lattice work (v) and the top of plate (p), (f) are valves which are closed by weights marked (4). The part repre-

sented in Fig. 2 by the red dotted lines marked (2) is used as a supply pipe. It passes through the outside casing (d), flue (F) and cone (y) into chamber (A) and is located in the back of the machine at the point marked (3) in Fig. 1. (y) is the outside case of the coniform receiving chamber (A). The plate (p) divides chamber (C) from chamber (B), plate (w) divides chamber (A) from chamber (B), plate (5) is used as a division plate between the fan and the eddy chamber (L), (6) is the top plate of the fan.

The operation of my improvement is as follows. The driving power is applied to the machine by means of a belt passing around pulley (b), this revolves the fan (m) and the drum (r) with its beaters (q). The grain is fed into the machine through the supply pipe (2) and passes from the receiving chamber (A) through the opening (s) in plate (w) and falls on the upper head of the drum (r), from the head of the drum it is thrown by centrifugal force against the lattice work represented by the red lines at (v) and rebounding comes in contact with the beaters (q), by the action of these beaters the smut and dust is loosened from the grain and driven out through the lattice work into the separating flue (D), where it is carried up through the flue (F) and chamber (L), and through opening (t) in plate (5) into the fan case (h) and out through the mouth (u) of the fan. The grain, and all impurities heavier than the smut fall on plate or floor (p). The suction fan (m) draws a current of air through the lattice work (g) into the flue (D), into this current the grain is thrown from plate (p) through opening (o) in a thin sheet all around the machine; the force of the current of air is sufficient to carry all the screenings and other substances lighter than the grain, up through the flue (D), while the cleaned grain is dropped down into gathering chamber (C) and is discharged through opening (i), a complete separation being made between the grain and all impurities without carrying any of the grain above plate (w). The screenings and other impurities are carried up through the flue (D) into the coniform flue (F), and the current of air striking the straight or perpendicular part (x) at the top of cone (y) forms an eddy in chamber (L); by this eddy the screenings and heavier impurities are

thrown into the discharge flues or pipes (*e*) as indicated by the red arrows, and when the weight of the screenings accumulating in the pipes (*e*) becomes greater than the
 5 weights (4) on valves (*f*) the valves open and the contents of the pipes are thrown out, the valves are then closed again by the weights (4).

It will be observed that it is by the arrangement of the coniform flue (F) in connection with the straight or perpendicular part (*x*) with its conical cap (7) at the top of cone (*y*) that the eddy is formed in chamber (L), by which the screenings and
 10 other foreign matter are thrown into the discharge flues (*e*). It will also be observed that by the use of cone (8) on plate (*p*) the grain as it falls on plate (*p*) will be brought in contact with beaters (*q*) to be
 15 thrown out into flue (D) through opening (*o*). The flange marked (1) on plate (*p*) is used for the purpose of lengthening the separating flue (D) and bringing it down on a line with the top of the lattice work (*q*), so
 20 that the grain as it issues from opening (*o*) may be brought in contact with a strong current of air.

Having thus described the nature, con-

struction and operation of my improvement, what I claim as of my invention and desire
 30 to secure by Letters Patent of the United States is:—

1. The use of plate (*p*) with the cone (8) and the opening (*o*) between the lattice work (*v*) and plate (*p*), when used in connection with the suction fan (*m*), the beaters (*q*) on drum (*r*), and the flues (D), (F) and (*e*) as herein described and for the purpose set forth.

2. The arrangement of the chambers (A), (B), (C) and (L) and the flues (D), (F) and (*e*), when used in combination with suction fan (*m*), lattice work (*v*), opening (*o*), plate (*p*) with cone (8) and beaters (*q*) on drum (*r*), as herein described and
 45 for the purpose set forth.

3. The use of the straight or perpendicular part (*x*) with cap (7) of the casing (*y*) of chamber (A) for the purpose of forming an eddy in chamber (L), as herein described,
 50 and for the purpose set forth.

JACOB BENNER.

Witnesses:

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