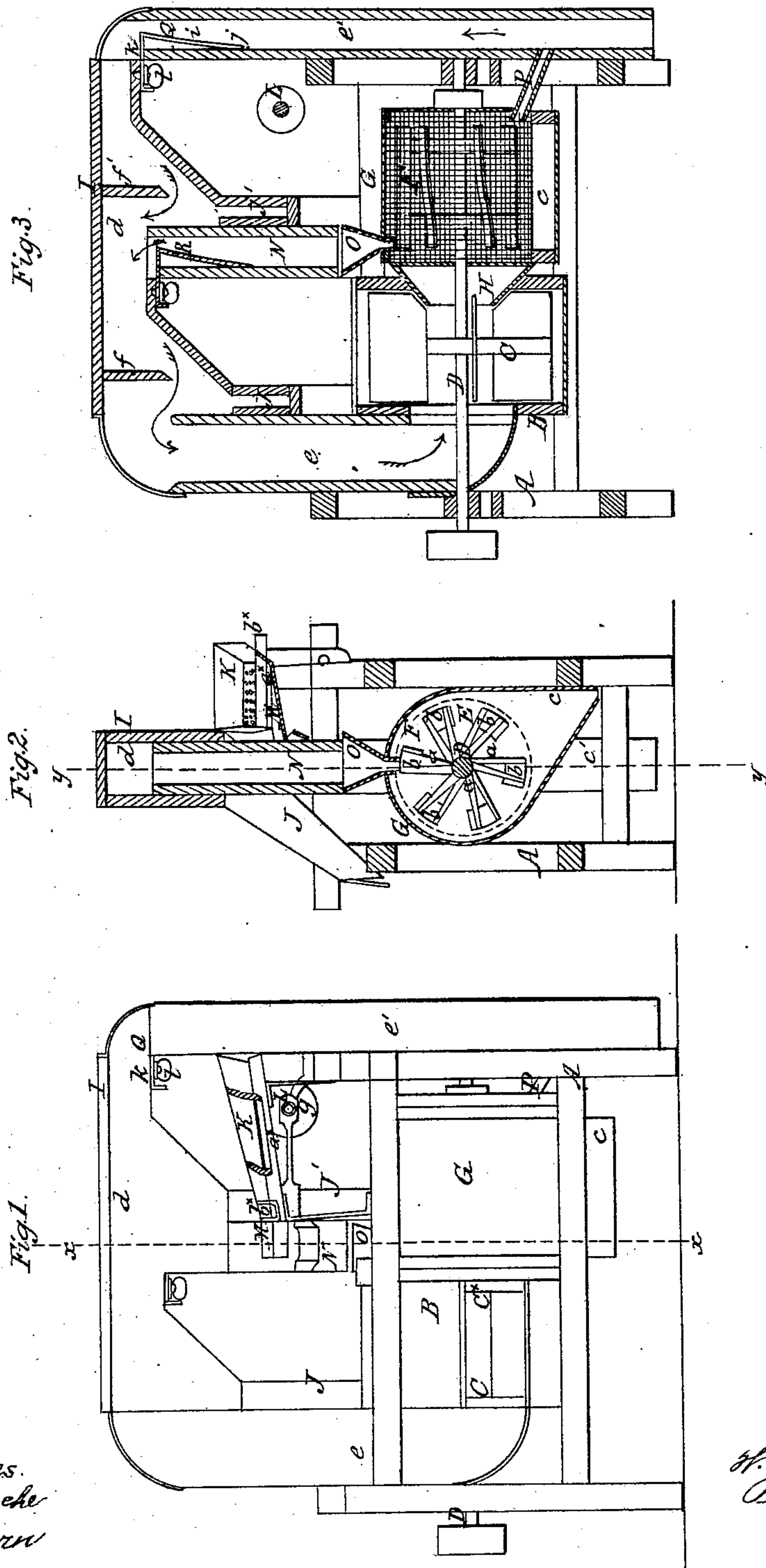


W. W. CONNER.
Smut Machine.

No. 69,634.

Patented Oct. 8, 1867.



Witnesses.
Theo. Tuve
H. W. Conner

Inventor,
H. W. Conner
Per Munn
Atty.

United States Patent Office.

W. W. CONNER, OF NOBLEVILLE, INDIANA.

Letters Patent No. 69,634, dated October 8, 1867.

IMPROVEMENT IN SMUT MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, W. W. CONNER, of Nobleville, in the county of Hamilton, and State of Indiana, have invented a new and improved Smut Machine; and that the following description, taken in connection with the accompanying drawings, hereinafter referred to, forms a full and exact specification of the same, wherein I have set forth the nature and principles of my said improvements, by which my invention may be distinguished from all others of a similar class, together with such parts as I claim and desire to have secured to me by Letters Patent.

This invention relates to a new and improved machine for scouring smut and other impurities from grain, and separating the former from the latter.

The invention consists in constructing and arranging the several parts of the machine in such a manner that the wheat or other grain will, at one operation, or in a single passage through the machine, be subjected to three blasts, one previous to the scouring of the grain, one during the scouring operation, and the other after the grain leaves the scouring device.

The invention also consists in a novel construction of the scouring device, and its peculiar relation with the suction-fan, as hereinafter fully shown and described, whereby the separating operation is performed in the most thorough manner.

The invention further consists in a peculiar construction of the valves for regulating the strength of the blast in the suction-passages, whereby said result may be attained without in the least interfering with the passage of the light foreign substances through the suction-passages. In the accompanying drawings—

Figure 1 is a front view of my invention.

Figure 2, a side sectional view of the same, taken in the line *x x*, fig. 1.

Figure 3, a front sectional view of the same, taken in the line *y y*, fig. 2.

Similar letters of reference indicate corresponding parts.

A represents a framing, which may be constructed in any proper manner to support the working parts of the device, and B is a cylindrical fan-case placed within said framing, and having a rotary fan, C, placed within it, the shaft D of the fan having a horizontal position, and extending the whole length thereof. The fan C may be of usual construction; and upon the same shaft D there is fitted a rotary beater, E, composed of arms *a* projecting from the shaft, with their outer ends connected by bars *b*, having a slightly oblique or spiral position. (See figs. 2 and 3.) The beater E is encompassed by a screen, F, which may be constructed of wire cloth or other suitable material. This screen is fixed; and it is encompassed by a case, G, between which and the screen a space is allowed, said case having a discharge-spout, *c*, leading from it, as shown clearly in fig. 2. The case G communicates, by means of a funnel-shaped passage, H, with the fan-case B, as shown clearly in fig. 3. I represents a suction-blast spout, composed of a horizontal portion, *d*, which is at some distance above the framing A, and two vertical portions *e e'*, which depend one from each end of the horizontal part *d*, as shown clearly in figs. 1 and 3. The vertical portion *e* of the blast-spout communicates with one side of the fan-case B, and the other vertical portion, *e'*, extends down nearly to the flooring on which the machine rests. From the horizontal portion *d* of the blast-spout two inclined spouts J J' project, the upper ends of said spouts, at their junction with *d*, being of flaring or hopper form, as shown in figs. 1 and 3. Within the part *d* of the suction-spout there are two pendent boards *f f'*, which extend downward a little within the upper parts of the spout J J', as shown clearly in fig. 3. K is a screen, placed on the top of the framing A, and having a reciprocating or vibratory shake motion given it by means of a crank, *g*, and pitman *h* from a shaft, L, motion to which is communicated from the shaft D by a belt or gearing. M is a spout, which leads from the lower end of the screen K into the lower part of a vertical tube, N, the upper end of which communicates with the horizontal part *d* of the blast-spout I; and the lower end of the tube N is directly over a hopper, O, which leads into the screen F. (See fig. 3.) P is a spout, which leads from one end of the screen F into the lower part of the vertical portion *e'* of the blast-spout, as also shown in fig. 3. In the upper part of the vertical portion *e'* of the blast-spout there is a valve, Q, constructed of steel plate bent in right-angular form, and having one part, *i*, secured within *e'*, as shown at *y'*, while the upper part *k* extends laterally through *e'*, and is secured at any

point by a set-screw, *l*, passing through an oblong slot in *k* into the under side of *d*. A precisely similar valve, *R*, is fitted in the upper part of the tube *N*.

The operation is as follows: The grain to be operated upon is discharged into the screen *K*, and the grain passes through the screen, and is discharged by a chute, *a*^x, into the spout *P*, the coarse foreign substance being discharged from the lower end of the screen through a spout, *b*^x. The spout *P* conducts the grain into the tube *N*, where it is subjected to a suction-blast generated by the fan *C*, and the light foreign substances are drawn up through *N* into the horizontal portion *d* of the blast-spout, the heavier portions, such as chaff and shrivelled, imperfect grain, being deflected by the pendent board *f* into the spout *J*, while the lighter portions are, under the strength of the blast, drawn down the vertical portion *e* of the blast-spout into the fan-case *B*, from which it is expelled through a spout or opening, *c*^x. The grain passes from the tube *N* into the hopper *O*, which conducts it within the screen *F*, where it is subjected to the action of the rotary beater *E*. This beater breaks up the smut, and scours it from the grain, and, in consequence of the oblique or spiral position of the bars *b*, feeds it to the discharge end of the screen *F*, from which it passes into the spout *P*, and is conveyed thereby into the lower part of the vertical portion *e'* of the suction-blast spout *I*. The broken or pulverized smut is drawn from the screen *F* into the fan-case *B*, and expelled therefrom by the operation of the fan *C*. Broken grain, and other foreign substances of a similar size, too heavy to be acted upon by the suction-blast, pass through the screen *F*, and are discharged through the spout *c*. The sound grain as it passes into the vertical portion *e'* of the blast-spout is subjected to another blast; and all light foreign substances remaining in the grain are, under the action of the blast, carried up *e'*, through *d*, down *e*, into the fan-case *B*, and discharged through the spout *c*^x. The heavier portions of these light foreign substances will, in striking against the board *f'*, be thrown down into the spout *J'*, and discharged therefrom. Thus it will be seen that the grain is subjected to a very thorough scouring, screening, and winnowing operation, and a complete separation of the foreign substances from the grain effected.

By having the valves *Q R* constructed as described they may be adjusted to regulate the strength of the blast through the suction-blast spout *I* without in the least interfering with the passage of the foreign substances through it, for the parts *i* of said valve within the blast-spout being elastic are allowed to curve or bend so as to form a gradual contraction of the spout, and leave no shoulder or abrupt projection for the substances to strike against and be deflected downward.

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

1. The combination and arrangement of suction-blast spout *I*, consisting of the horizontal part *d*, provided with deflectors *f f'* and vertical portions *e e'*, the discharge-spouts *J J'*, grain-receiving and air-tube *N*, fan-case *B*, communicating with the vertical spout *e*, cylindrical screen *F* within the case *G*, communicating at one end, by the funnel-shaped passage *H*, with the screen *B*, and its other end communicating, by spout *P*, with the vertical spout *e'*, when all are constructed as described, whereby the grain at one passage through the machine is subjected to the action of three distinct blasts of air, as herein set forth.

2. The valves *Q R*, constructed and applied within the suction-blast spout, substantially as and for the purpose set forth.

W. W. CONNER.

Witnesses:

SAM'L H. COLIP,
WILLIAM RANSOM.