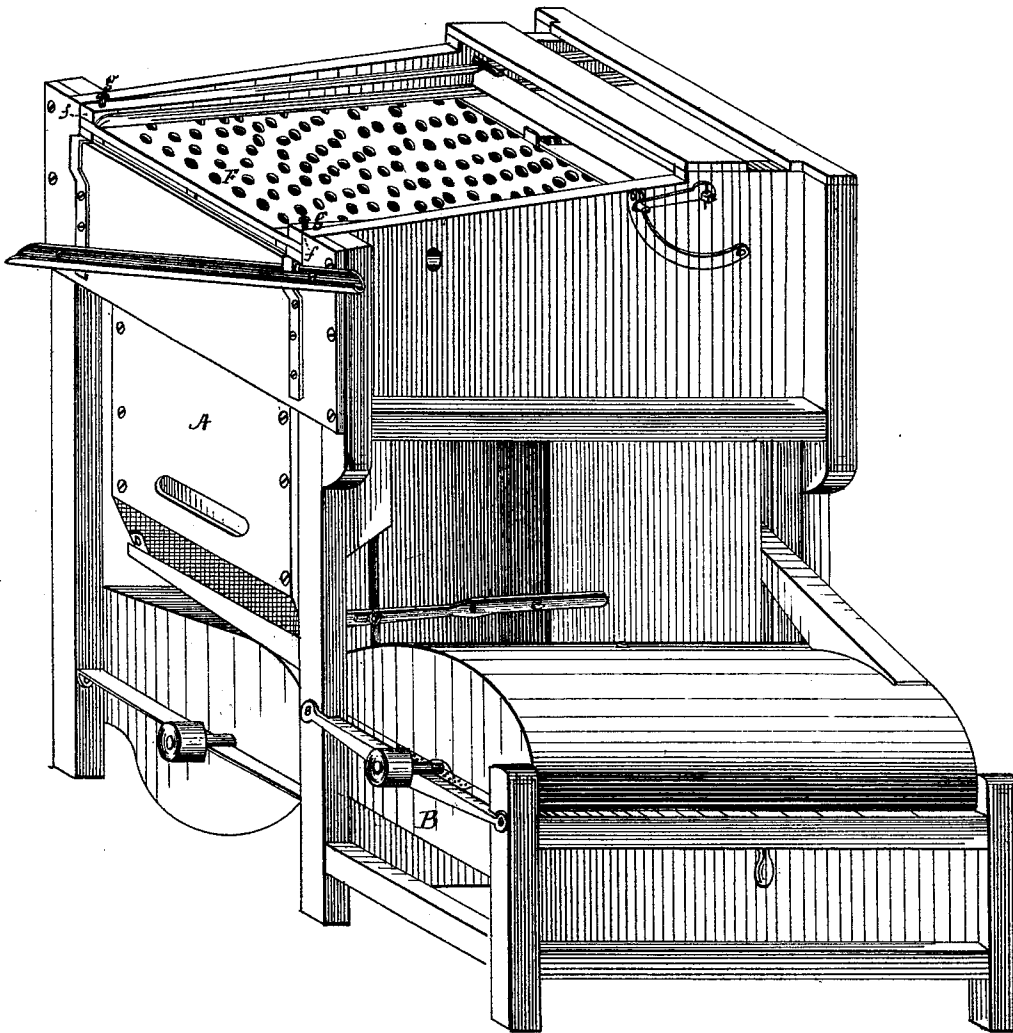


M. DEAL.
SMUT-MACHINE.

No. 176,603.

Patented April 25, 1876.

Fig 1.



WITNESSES—

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Fig 2

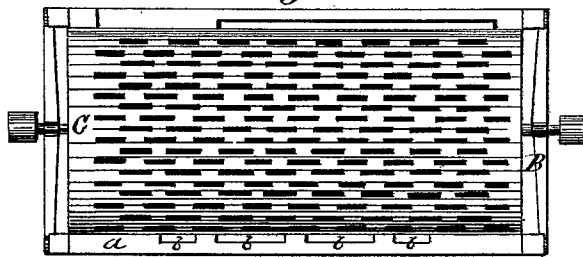
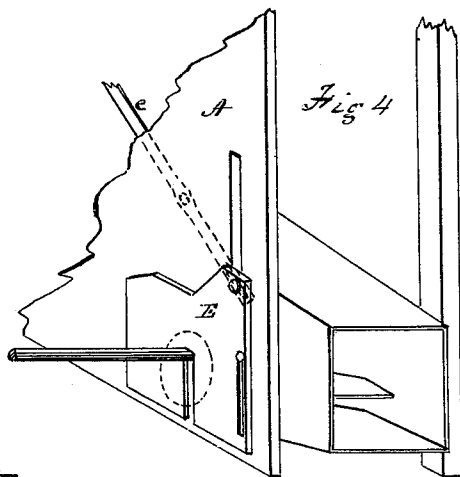
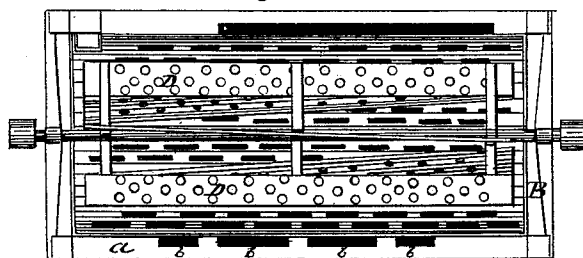


Fig 3



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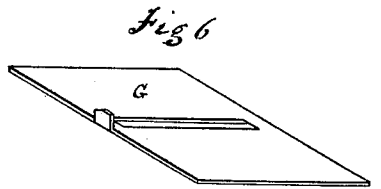
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UNITED STATES PATENT OFFICE.

MARTIN DEAL, OF BUCYRUS, OHIO.

IMPROVEMENT IN SMUT-MACHINES.

Specification forming part of Letters Patent No. **176,603**, dated April 25, 1876; application filed February 26, 1876.

To all whom it may concern:

Be it known that I, MARTIN DEAL, of Bucyrus, Ohio, have invented certain new and useful Improvements in Separators and Smutters, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of a separator and smutter with my improvements attached. Fig. 2 is a plan view of the smutter with the cap removed, showing the slotted cylinder. Fig. 3 is a plan view of the same with the upper half of the slotted cylinder removed. Fig. 4 is a view showing the valve by which to regulate the current of air to suit heavy or light grain. Fig. 5 is a detached view of the double riddle. Figs. 6 and 7 are details of the same.

My invention relates to that class of separators and smutters designed for cleaning wheat, rye, corn, and other cereals; and it consists, first, in the manner of slotting the cylinder of the smutter, and in securing a circulation of air entirely around it; secondly, in the perforated spiral beaters, to secure an additional scouring-surface; thirdly, in regulating the suction of the fan so as to adapt the machine to light or heavy grains.

To enable others skilled in the art to make and use my invention, I will proceed to describe the exact manner in which I have carried it out.

In the drawings, A represents the separator, and B the smutter, the cylinder C of which is made in two sections, so that the upper section may be readily removed for the purpose of being cleaned. The whole of this cylinder is provided with longitudinal slots, as shown Fig. 2, these slots lying as close together as the strength of the metal will admit, and lapping or breaking joints so as to avoid any dead surface, thus securing an effective scouring-surface, which no part of the grain can avoid. When heretofore these slots have been made in a line with the motion of the beaters, the grain would ride along and over them without being subjected to a scouring or scraping process. These slots, as I now make them, are alike around the entire cylinder, whereby I not only secure the greatest

possible scouring-surface, but they afford a means of instant escape of the smut and dirt from the cylinder as soon as removed from the grain, and the surrounding current of air is ready at all points to remove the escaping dirt from the smutter. The lower half of the perforated cylinder is secured to the framework *a* in such a manner as to leave the air-openings *b b* between the cylinder and the framework, thus securing a free circulation of air around the entire cylinder.

I still further increase the cleaning and scouring capacity of my smutter by thickly perforating the spiral beaters D, as shown in Fig. 3. As these beaters are brought in contact with the grain, the edges of the perforations serve to scour the smut or dirt from the grain in its passage through the smutter.

One great defect in separators and smutters, heretofore constructed, has been the fact that a machine adapted to light grain, such, for instance, as buckwheat, could not be used for a heavy grain like corn, and vice versa. The suction for the one would be too heavy or too little for the other. To overcome this difficulty, I place a sliding valve, E, over the air-passage from the separating-chamber into the fan, which is easily operated by the lever *e* or other convenient means. It is evident that as this valve is opened or closed the suction will be increased or diminished as desired, thus rendering the same machine suited to any kind of grain.

Whenever a change of riddle becomes necessary, it is only necessary to release the screws and withdraw the riddle and substitute another, without stopping the machinery. The riddle F is made double, as shown in Figs. 5 and 7, to secure a better separation of the grain from the chaff and filth, as some portion of the latter may possibly pass with the grain through the upper riddle. As a further security for the separation of the grain from the chaff, I make the perforations in the riddle to correspond somewhat with the shape of the grain to be cleaned, thereby obtaining the best possible result.

It is also important to be able to control the feed of the grain through the riddle; and to accomplish this I render the perforated face of the riddle adjustable by means of the slot.

ted sliding plate G, which can be readily drawn down so as to cover as much of the upper part of the face of the riddle as may be desired in regulating the passage of the grain through the slots.

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

1. In a separator and smutter, the cylinder C, provided with overlapping longitudinal slots entirely around it, in combination with the frame *a*, provided with the air-passages *b*, substantially as and for the purpose set forth.

2. The perforated spiral beaters D, in com-

bination with the slotted horizontal cylinder C, substantially as and for the purpose set forth.

3. In a separator and smutter, the sliding valve E, placed over the inner air-passage leading from the separating-chamber into the fan, and provided with the lever *e*, in combination with a suction-fan, substantially as and for the purpose set forth.

MARTIN DEAL.

Witnesses:

HENRY J. DEAL,
HARPER J. WARD,
HORACE I. DEAL.