(No Model.)

W. H. MERCER.

GRAIN SEPARATOR.

No. 317,827. Patented May 12, 1885.

Fig. 1.

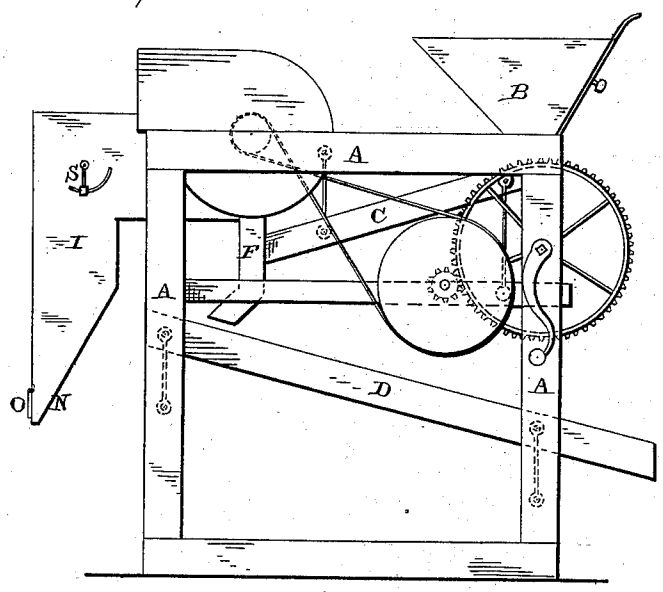


Fig. 2.

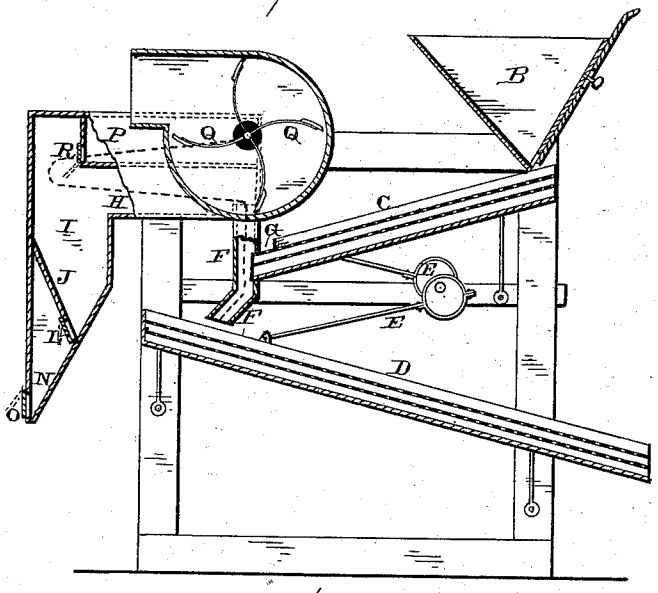
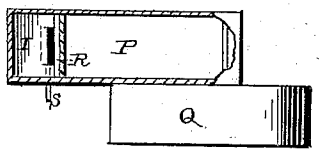


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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GRAIN-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 317,827, dated May 12, 1885.

Application filed January 24, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. MERCER, of Mercer, in the county of Union and State of South Carolina, have invented certain new and useful Improvements in Grain-Separators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in grain-separators; and it consists in the combination of the upper shoe, having a side discharge, the lower shoe, the tube into which the upper shoe discharges, the two air-passages, the receiving-box, with its compartments and valves, a valve placed in the air-passage, and the fan, as will be more fully described hereinafter and claimed.

Figure 1 is a side elevation of a machine which embodies my invention. Fig. 2 is a vertical section of the same. Fig. 3 is a detail.

A represents the frame-work; B, the hopper; C, the upper shoe or set of screens; D, the lower shoe, and E a suitable mechanism for operating the two shoes in the usual manner. All of these parts are of ordinary construction, and hence need not be more fully described here.

The lower end of the upper screen connects with a tube or pipe, F, so that all of the grain which passes through the topmost screen will be discharged from this shoe into the tube or pipe, so as to be acted on by the current of air which flows upward through the pipe toward the fan. All of the coarser particles mixed with the grain as it flows from the hopper, and which cannot pass through the upper screen, are discharged at one side of the shoe, as shown at G, Fig. 2, instead of being allowed to flow into the tube with the grain.

At the top of the vertical tube is connected the horizontal passage H, at the outer end of which is the box I, into which the particles drawn upward by the current of air are dropped. The air being held in a confined condition, the particles drop from their own gravity. This box may either be of the shape here shown, or any other that may be preferred, and is provided with the upper compartment, J, provided with the valve L, and the lower compartment, N, having the valve O. When the box gets full, or it is desired at any time to empty it while the machine is at work, the valve L is opened and then the particles flow into the lower compartment. The valve L is then closed and the particles discharged through the lower valve, O. Two valves are thus used, so that there is no need of interference with the action of the current of air while the machine is at work, as would be the case if the valve were left open, so that air could flow through while the particles are being discharged.

Above the horizontal passage H is a second passage, P, which is connected at its outer end with the fan Q, and at its inner end with the top of the box I by means of a small passage which is controlled by a valve, R. This valve is regulated from the outside of the frame by means of the handle S, so that the force of the current of air can be regulated to suit the kind of grain being cleaned.

All of the heavier grains of wheat drop from the lower end of the tube F upon the screens of the lower shoe, where they are graded, while all of the lighter grains and particles of dust and dirt are drawn up by the suction of the fan and dropped into the box in the usual manner. The upward current of air through the tube while the grain and particles mixed with it are in a confined position causes a much more perfect separation of the light and heavy particles than can be done where the current of air is applied to the under side of the screens, as is sometimes the case.

Having thus described my invention, I claim—

The herein-described grain-separator, comprising the upper shoe, C, having a side discharge, G, the lower shoe, D, the tube F, into which the upper shoe discharges, the air-passages H P, box I, with its compartments and valves, the valve R, and the fan, substantially as shown.

In testimony whereof I affix my signature in presence of two witnesses.

WM. H. MERCER.

Witnesses:

F. A. LEHMANN,

LOUIS F. GARDNER.