B. S CONSTANT.
Grain-Separator.

No. 206,229. Patented July 23, 1878.

Fig 1

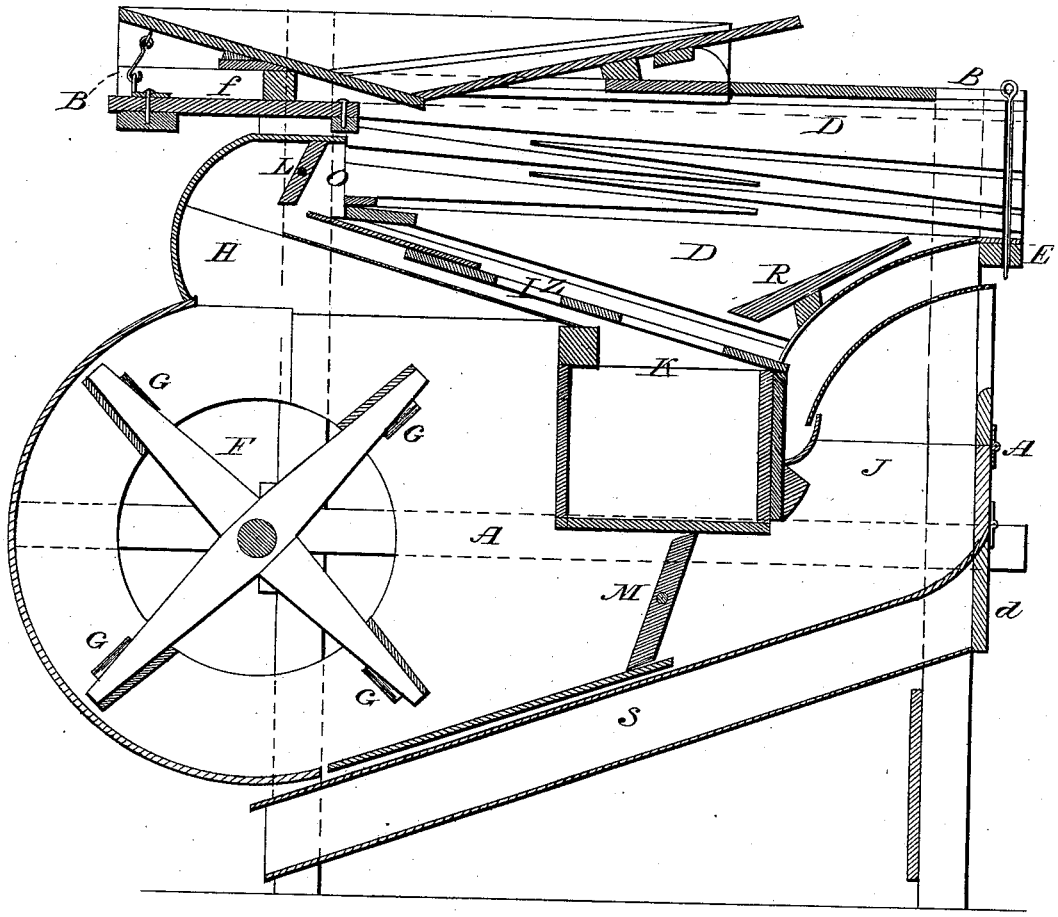
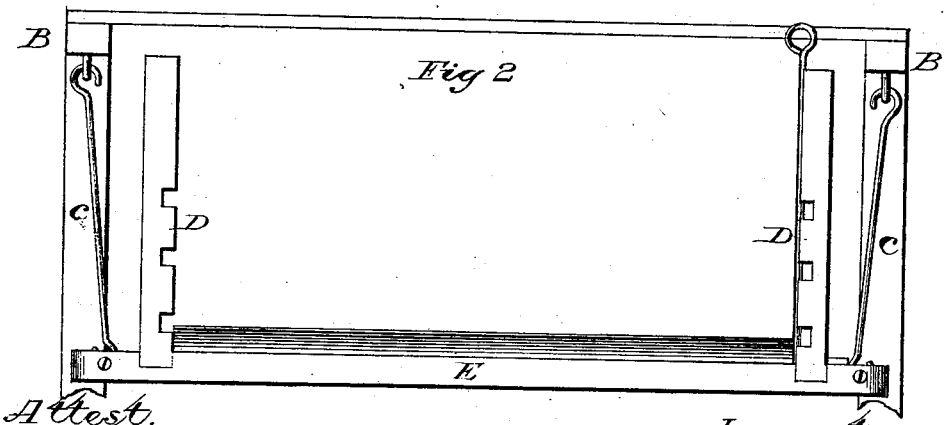


Fig 2



Attest.
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UNITED STATES PATENT OFFICE.

BOSTON S. CONSTANT, OF DENVER, INDIANA.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **206,229**, dated July 23, 1878; application filed March 6, 1878.

To all whom it may concern:

Be it known that I, BOSTON S. CONSTANT, of Denver, in the county of Miami and State of Indiana, have made a new and useful Improvement in Fanning-Mills, of which the following is a description:

This invention relates to and consists in a novel construction of several parts of the fanning-mill, whereby greater length of screen may be obtained, a more substantial shoe produced, a more uniform blast of air secured, and a better application of the air to the grain than has been accomplished heretofore.

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

In the accompanying drawing, making a part hereof, Figure 1 shows a sectional side view of a fanning-mill embodying my invention, and Fig. 2 shows the rear end view of the shoe.

The same letters of reference denote the same parts in all the figures.

A represents the frame. This frame does not differ materially from fanning-mill frames in common use, except as to the cap-rails B B. These rails have a greater projection at the front ends than usual, and also project at the rear ends, so as to form a support for the vibrating arms C vertically over the extreme rear end of the shoe D. These long projecting rails admit the use of a long shoe and long screens. This shoe is constructed mainly like other fanning-mill shoes, excepting that it has a longer tongue, *f*, and is strengthened and supported at the rear end by means of the long cross-bar E. This bar projects at each end beyond the sides of the shoe, and is slotted at the ends to receive the lower ends of the arms C, by which the shoe is suspended. This shoe is vibrated by means of the usual crank-connection, rock-shaft, and link, and needs no further description here.

F represents the fan. This fan is driven by means of the ordinary crank and spur gear, and only differs from fans in common use in that its wings are weighted, as seen at G. These weights are attached to the back of the fans or wings, and may be separately attached and detached, or moved laterally or longitudinally, so as to secure a perfect balance of the fan-blades, and, being plain blocks of cast-iron, are less expensive than a casting supporting all the blades, and serve the purpose of a fly-wheel, and thus aid the operator in moving the crank past the dead-center, and at such points where it is difficult to apply force.

The fan-case is enlarged on the top, so as to form the air-chamber H. Air is driven by the back action of the fan into this chamber, from which it is compelled to escape through the channel O into the front end of the shoe D. Another air-channel is seen at I. This channel receives a direct blast from the fan, passing up the front side of the sand-box K, and through the opening 1 in the bottom of the shoe D into the screens, and then coming in contact with the blast of air from the air-chamber H. The combined action of these two blasts of air affords great assistance to the screens in separating grain and seeds from chaff and other impurities.

J represents a third air-channel. This also has a direct blast from the fan F, passing under the bottom of the sand-box K, thence upward and rearward through a curved channel, and discharging at the rear of the shoe; and it serves to separate the chaff from the coarse and heavy substances that are carried over the screens.

L and M are valves for regulating the blast of air.

R represents a short chute for conducting the sand and fine gravel that may fall through the long screens into the sand-box K. This box works on slides, and may be readily taken out.

I employ the usual assortment of screens, and arrange them relatively to each other in the shoe, substantially as is done in mills in common use, and it needs no further description here.

S represents a box for storing screens when not in use. This box is closed by the door *d*, hinged to the mill at its upper edge. A short section of the air-chamber J is provided with a hinged joint, as seen at A, so that it may

be swung out of the way when it may be necessary to change the screens in the lower part of the shoe.

Having thus fully described my invention, I claim—

1. The combination of rails B B, projecting at front and rear beyond the upright of the mill, the cross-bar E of the shoe, projecting beyond the shoe at each side, and the suspending-links C, substantially as set forth.

2. The combination of the fan F and weights G.

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Witnesses:
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