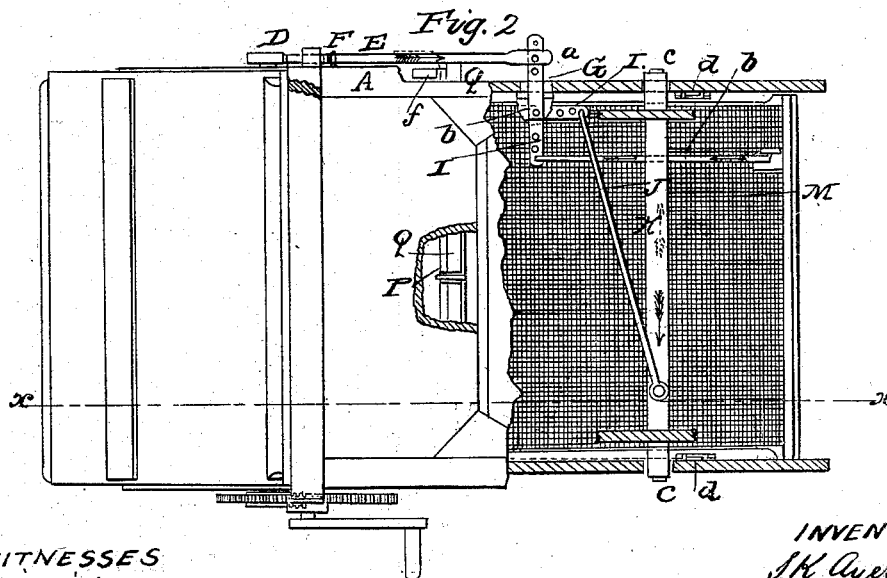
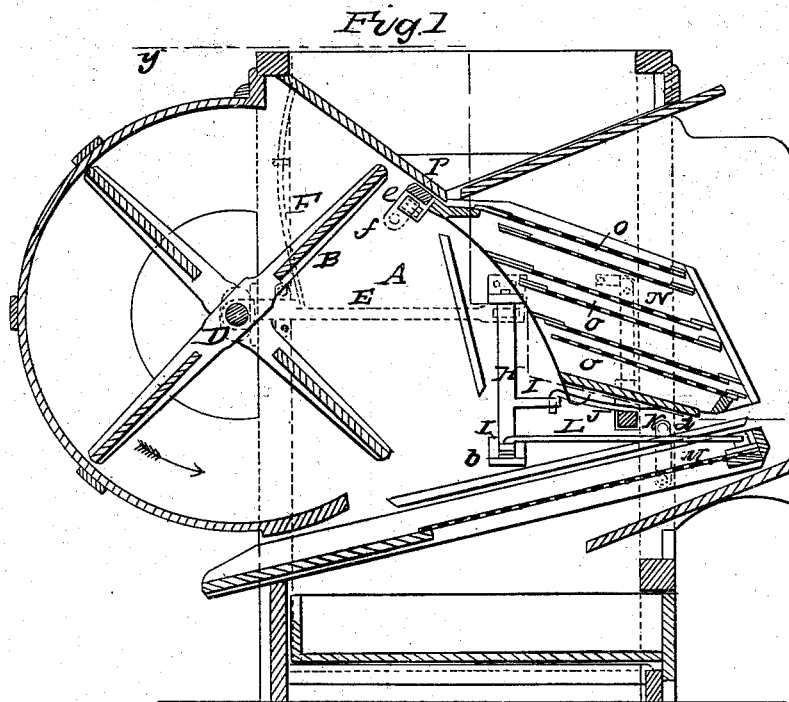


## Grain Separator.

No. 48,233.

Patented June 13, 1865.



WITNESSES  
Milledwington  
Theo. Trach

INVENTOR  
J. H. Ayers  
per Wm. H. H.  
attys

# UNITED STATES PATENT OFFICE.

S. K. AYRES, OF DELTON, WISCONSIN, ASSIGNOR TO HIMSELF AND B. A. WILDER, M. D., OF SAME PLACE.

## IMPROVED GRAIN-SEPARATOR.

Specification forming part of Letters Patent No. 48,233, dated June 13, 1865.

### *To all whom it may concern:*

Be it known that I, S. K. AYRES, of Delton, in the county of Sauk and State of Wisconsin, have invented a new and Improved Grain-Separator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, a plan sectional view of the same, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new and improved grain-separator for separating impurities from thrashed grain, and also for separating oats from wheat.

The invention consists in a novel and improved means for operating or communicating a shake motion to a shoe containing a series of screens, and, also, in a novel arrangement of said screens within the shoe, as well as in the manner of hanging the shoe and a screen below it, as hereinafter fully shown and described, whereby the device is prevented from becoming choked or clogged and made to operate far more efficiently than the ordinary separators in use.

A represents a case which contains the working parts of the device, and which may be constructed in the usual way.

B is a blast-fan, arranged as usual, and having at one end of its shaft C a cam, D, which is of oval or elliptical form and works against one end of a rod, E, said rod having a spring, F, acting upon it, which keeps the rod E in contact with the cam D.

The opposite end of the rod E is connected by a pin, *a*, with an arm, G, which projects horizontally from an upright shaft, H, which works in bearings *b b* at the inner side of the case. This shaft H also has two arms, I I', projecting horizontally from its lower part at right angles with each other.

The arm I has one end of a rod, J, connected to it, the opposite end of said rod being at-

tached to a horizontal bar, K, to the ends of which springs *c c* are attached to the bar K, being allowed to slide or work freely in a longitudinal direction.

To the arm I' one end of a rod, L, is attached, the opposite end of said rod being connected to the upper and outer part of an inclined screen, M, which is suspended within the case A by two short vertical rods, *d d*, one at each side, which admit of a short rapid movement being given said screen without unnecessary play or momentum.

N is a shoe, which contains a series of screens, O. This shoe is provided at its rear end and upper part with a rod, P, which extends back from its center, and is bent down at its outer end to form a hook to lap over a bar, Q, the latter being placed transversely in the case A, and having one end passing through an oblong slot, *e*, in one side thereof, and held in position by a button, *f*. The lower edge of the shoe N rests on the bar K.

The screens O are arranged in pairs, the spaces between the pairs being considerably greater than the spaces between the screens of each pair. (See Fig. 1.) The object of this is to effect a separation between oats and wheat, the oats attaining a vertical position in passing through a screen, and when two screens are near each other they will retain that position and pass through the whole series. The wide spaces between the pairs of screens afford an opportunity for the blast generated by the fan B to change their position and prevent that result.

The shoe N has a rapid shake motion communicated to it by means of the oval cam D, spring F, rod E, shaft H and I, rod J, and bar K, and a quick shake movement is also communicated to the screen M from shaft H by the rod L and arm I', by which the screens are effectually prevented from becoming choked or clogged.

The shoe N may be readily detached from the case at any time by turning the button *f* and letting down the bar Q, so as to free the rod P from said bar.

I claim as new and desire to secure by Letters Patent—

1. The combination of the oval cam D, the spring F, rod E, shaft H, arms I I', and rods J L, for the purpose of operating the screens and giving a shake motion to the same, as set forth.
2. The hanging or suspending of the shoe N on the adjustable bar Q by means of a hook-

arm, P, and vibrating or reciprocating bar K, as set forth.

S. K. AYRES.

Witnesses:

S. F. NEWMAN,  
J. M. HULBERT.