J. NASH.

Grain Winnower.

No. 31,428. Patented Feb 12, 1861.

Fig. 3.

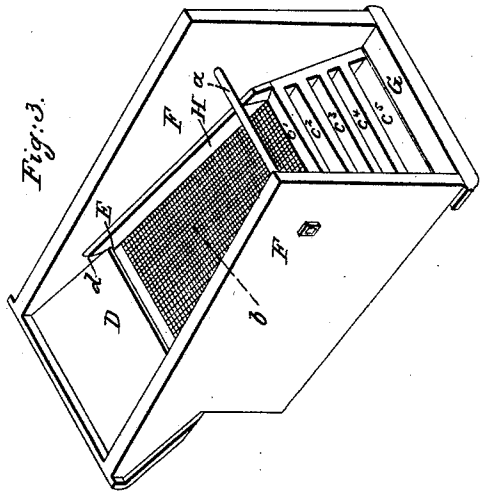
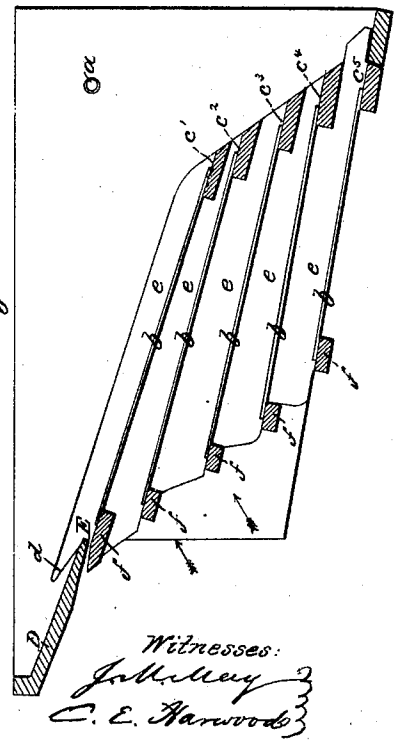


Fig. 2.

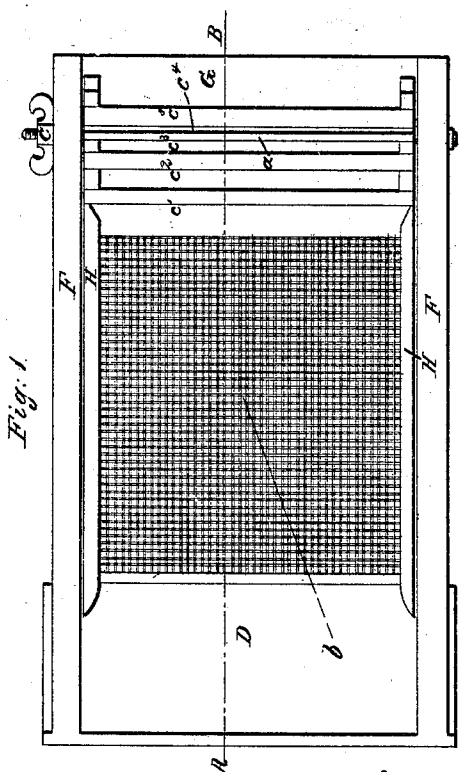


Witnesses:

J. Whitney

C. E. Harwood

Fig. 1.



Inventor:

Jefferson Nash.

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UNITED STATES PATENT OFFICE.

JEFFERSON NASH, OF JANESVILLE, WISCONSIN, ASSIGNOR TO HIMSELF AND ALONZO K. CUTTS, OF SAME PLACE.

GRAIN-SEPARATOR.

Specification of Letters Patent No. 31,428, dated February 12, 1861.

To all whom it may concern:

Be it known that I, JEFFERSON NASH, of the city of Janesville, Rock county, and State of Wisconsin, have invented a new and useful Improvement in a Grain-Separator Especially for Separating Oats from Wheat; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of my invention consists in overcoming the great difficulty of separating oats from wheat, by a peculiarly constructed gang or series of sieves, adjustable to any desired angle in a vibrating shoe of a separator, and tilted outward; the sieves, being made of a uniform texture, that compose a gang.

Figure 1 is a plan, or horizontal view of a vibrating separator shoe inclosing a series or gang of sieves. Fig. 2 is a vertical section of the gang of sieves. Fig. 3 is a perspective view of a gang of sieves in a shoe.

The same letters refer to the same parts in each figure.

F, F, in Fig. 1, are the sides of the vibrating shoe, and are made without grooves or channels for the sieves, or sieve frames, and D, is a cross piece that holds the forward upper corner of the shoe together, and forms the apron that conducts the grain onto the gang of sieves, all the sieves in a gang being substantially of the same size of mesh or texture.

G, is a bar that holds the lower rear corner of the shoe together, which allows the upper and rear part of the shoe to be compressed by means of the rod, or bolt, *a*, and thumb screw or nut, C, to hold firmly a gang of sieves in any desired angle with an outward tilt or inclination, between the sides, F, F, of the shoe.

At E, in the forward end of the frame of the gang, is the mouth, *d*, formed by properly shaping side piece, *e*, and cross bar, *f*, to receive the edge of the apron, D, by which a kind of hinge is formed to allow the rear end of the gang to be adjusted in the shoe to any desired angle, where it is held in the shoe by rod, *a*, and the sides F, F, as above described.

C^1, C^2, C^3, C^4, C^5, are crosspieces in the rear, that correspond with crosspieces, *f*, in the front of the gang, and are connected with side pieces, *e*, which, together form the frame of the gang. Between the side pieces, *e*, are placed the edges, *b*, of the sieves, while the front and rear edges of the sieves are fastened to the said crosspieces, C, and, *f*, and the side and crosspieces are nailed, (or otherwise fastened) together, forming a solid frame, without the necessity of tenon, groove or mortise.

The object of placing a bar or crosspiece, *f*, underneath, instead of on the top of the front end of the sieve, is to facilitate and allow the grain to be discharged, or drop from, and pass by the front end of the sieves, to the screen or floor below, thereby reversing the usual method of making sieves by placing a bar or crosspiece across on the upper side of the front end of the sieves to prevent grain from falling off the front end of the sieve.

It will be observed that the front end of the side pieces, *e*, are wider than their rear, so that the angle of each sieve is different from the other relatively to the wind current, and the space between the sieves in front is wider than in the rear, for the purpose of maintaining the force of the wind current the entire length of the sieves, while the position of the sieves relatively to each other is always the same. It will also be observed that the front and rear ends of the sieves, recede, or fall back, from the upper to the lower one—the object of which is, in front (as seen in Fig. 2,) to allow as much wheat as possible to fall to the screen or floor, after being separated from the oats, without having to pass through all the sieves—a portion passing through two, a small portion through three, a smaller portion through four, and a very small portion through all the sieves, for, if the wheat is allowed to remain on the sieves after being separated from the oats the progress of the work is greatly retarded, and the quality of the work less perfect, while the object of receding in the rear (as shown in Figs. 2, and 3,) is, in combination with the outward tilt of the gang, to facilitate the rapid disposal of the oats as soon as separated from the wheat by relieving the sieves, and precipitating the oats from one wide crosspiece, C, to the next, and so on till cast out in the rear of the separator. I do not confine myself to five sieves in a gang, a slightly in-

creased or diminished number of sieves will answer nearly as good a purpose.

The uniformity of mesh or texture (or substantially so) of the sieves, when arranged in a gang, I find important in separating oats from wheat, in enabling me to dispense with a large amount of sieve surface, and expense in manufacturing, as well as economy of room occupied by the separator.

The angle of the sieves relatively to each other in the gang—the uniformity of mesh or texture of the sieves,—the outward tilting of the entire gang, together with the adjustability of the gang in the shoe, to adapt it to the work of separating the oats from the wheat, whether the grain is heavy or light, or in whatever proportion the wheat and oats are mixed, I find, by patient experiment, and large experience in manufacturing, to be the qualities necessary to a thorough and rapid separation of oats and impurities from wheat—qualities not found in the winnowing or fanning mills in common use.

The separation of oats from wheat, by a simple and rapid process has been deemed impossible, although a work of great importance in districts where spring wheat, which is liable to be largely mixed with oats, is raised. Some leading agriculturists sow wheat and oats together for the benefit of the strong oat straw to support the weaker wheat straw—notwithstanding the difficulty of separating the two kinds of grain when preparing them for market. To overcome that difficulty is the object of my invention.

I am aware that a device has been used for converting a horizontal into a vertical blast, as in the patent of, J. Keech and S. Stillwell, patented June 13, 1854. I do not claim the horizontal, vertical or other angle of blast.

I am aware that a patent was issued to M. Grover Aug. 11, 1857 for an improvement the object of which, is to force the air from the center of the fan wheel, thus preventing it being carried around with the wheel, and to discharge the full volume of blast which is created by the fan wings. I do not claim any connection of the wind current or blast as applied in any particular manner in a grain separator.

What I claim as my invention and desire to secure by Letters Patent is—

1. Sustaining a gang of sieves, within the compressible sides of a separator shoe, by means of rod, *a*, or its equivalent substantially in the manner, and for the purpose described.

2. A hinge or joint formed by means of mouth, *d*, of a gang of seives and the edge of apron, D, of a separator shoe when used in adjusting the angle and supporting the front end of a gang of sieves substantially as described.

JEFFERSON NASH.

Witnesses:
J. M. May,
C. E. Harwood.