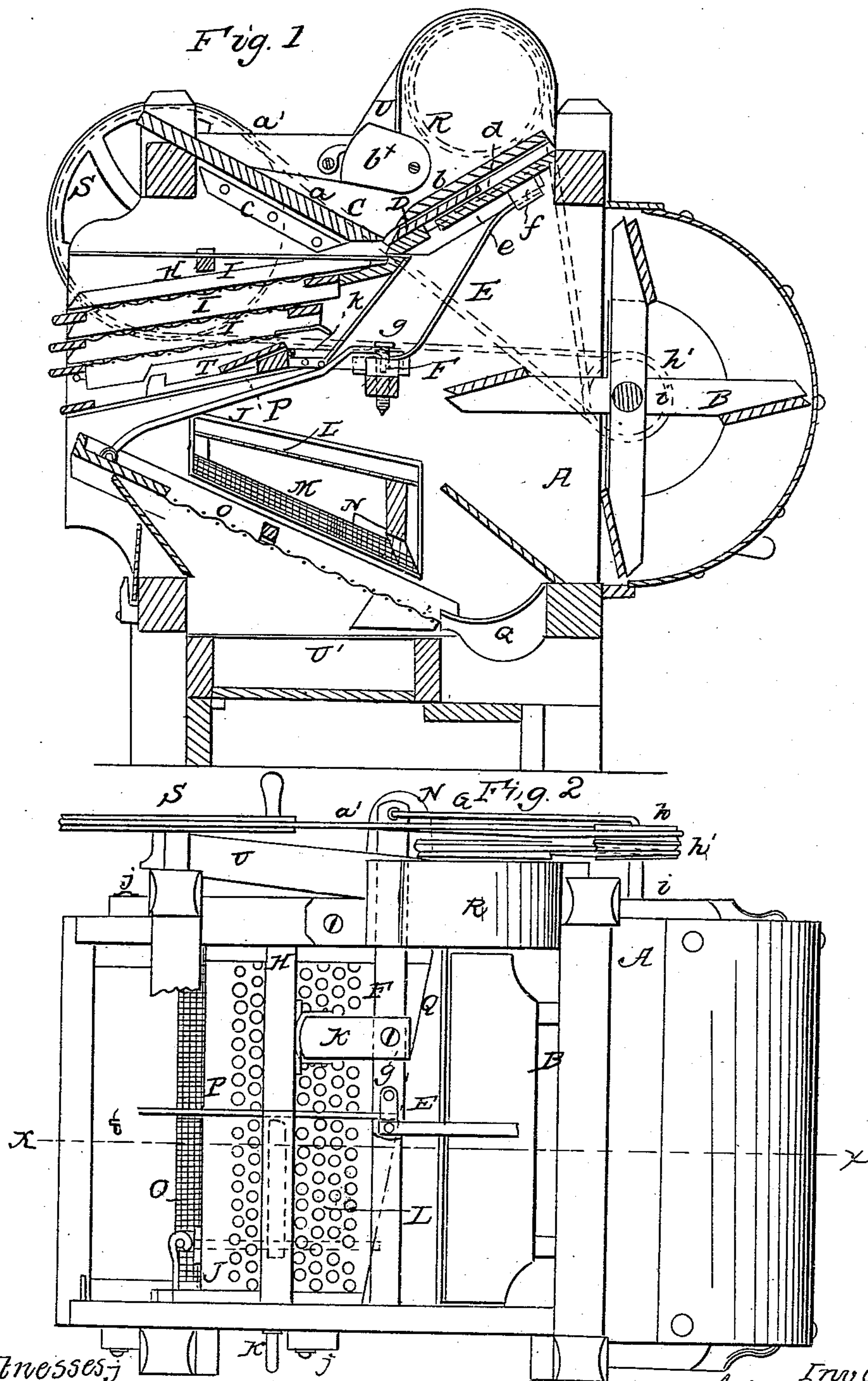


C. KATHAN.
Grain Separator.

No. 36,653.

Patented Oct 14, 1862.



Witnesses:
J. W. Coombs
J. W. Reed

Inventor
Charles Kathan
per Munn & Co
attorney

UNITED STATES PATENT OFFICE.

CHARLES KATHAN, OF HARDIN, IOWA.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 36,653, dated October 14, 1862.

To all whom it may concern:

Be it known that I, CHARLES KATHAN, of Hardin, in the county of Allamakee and State of Iowa, have invented a new and Improved Grain-Separator; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, Fig. 2. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts in the two figures.

This invention relates, first, to an improved means for preventing the hopper from choking or clogging; and it consists in the employment or use of a reciprocating slide placed at one side of the hopper and arranged to operate in connection with the upper shoe of the machine, as hereinafter described.

The invention relates, second, to two separate shoes placed within the case of the machine in reverse inclined positions, one shoe being provided with wire sieves and the other with perforated sheet-metal screws, as hereinafter described, whereby the grain may be properly separated from all foreign substances and oats separated from wheat, as hereinafter fully shown and described.

To enable those skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the case or box, which contains the working parts of the machine; and B is a fan, which may be constructed in the ordinary way. This fan is placed within the case or box A at one end of it, as shown in Fig. 1.

C is a hopper, which is on the top of the case or box A, and is constructed in the usual way—to wit, of two inclined sides, *a b*, one of which, *a*, is movable, it being fitted between guides *c c* to regulate the discharge of the grain, the other, *b*, being stationary.

Underneath the stationary sides *b* of the hopper there is placed a slide, D, which rests or works on suitable guides, *d*. This slide D extends the whole width of the hopper C, and it has a bar, *e*, secured to its under surface, the back end of which is fitted in a guide, *f*. (See Fig. 1.) To the bar *e* there is secured a rod, E, which extends obliquely downward,

and is attached to the inner end of a lever, F, having its fulcrum at *g*, the outer end of said lever being connected to a rod, G, which is attached to a pulley, *h*, on the fan-shaft *i*, at some distance from the center of the former. From this description it will be seen that as the lever F is vibrated on its fulcrum *g* an up-and-down movement will be given the slide D; and this slide is so placed as to work below the lower edge of the fixed side *b* of the hopper. The grain, therefore, at the lower part of the hopper, or at its discharge-orifice, is prevented from being choked or clogged, the movement of the slide D effectually preventing it.

H represents a shoe, which is placed within the case or box A, and is suspended from the sides thereof by elastic metal straps *j*, or any other means which will admit of a lateral movement of the shoe. This shoe H is provided with a series of sieves, I, placed one underneath the other, and having an inclined position, as shown in Fig. 1. The lateral shake motion is given this shoe from the lever F by connecting the latter with the former by means of a bar, *k*.

Underneath the shoe H there is another shoe, J, the latter being attached to the former by a bar, K, at each side, one of which is shown in Fig. 2. The shoe J, therefore, it will be seen, has the same lateral movement as the shoe H, and the latter is provided with a perforated sheet-metal screen, L, and with a wire sieve, M, below it. The screen L and sieve M are inclined in a reverse direction to the sieves of the shoe H, as shown in Fig. 1. The shoe H has a discharge-orifice at one side of it, at its back part to, allow the grain that cannot pass through the sieve M to pass into a discharge-spout, N.

Directly below the shoe J there is placed an inclined sieve, O, which is inclined in the same direction as the sieve M and screen L. This sieve O has an up-and-down shake motion given it by means of a rod, P, which is connected to the upper part of sieve O and to the inner end of lever F.

Within the case or box A there is placed a trough, Q, which conducts the grain from the lower sieve O into the lower end of an elevator-box, R, attached to one side of the box or case A. The elevators may be constructed in the usual way, and they are driven or oper-

ated by a bolt from a pulley, *h'*, which is by the side of the pulley *h* on the fan-shaft *i*, and motion is communicated to the fan-shaft *i* by a belt, *a'*, from a driving-pulley, *S*.

Underneath the lower sieve *I* of the shoe *H* there is placed a movable board, *T*. (Shown in Fig. 1.) By adjusting this board underneath the lower sieve *I* the discharge of the grain from the shoe *H* may be regulated as desired.

When the machine is in operation, the grain passes down from the hopper *C* upon the uppermost screen of the shoe *H*, the good grain (wheat) passing through the screens *I*, while the light foreign substances are expelled from the case or box *A* by the blast from the fan *B*, the coarse heavy impurities passing off from the lower ends of the screens. The lighter and inferior wheat passes through the screens *I* near their lower ends and falls upon the upper part of the screen *O*, the better portions of the wheat passing into the trough *Q*, and by the latter conveyed into the elevator-box *R*, the elevators conveying it upward in box *R* and discharging it through a spout, *U*, or throwing it again into the hopper *C*, the latter result being attained by shoving aside a flap, *b'*, at the side of the hopper. The best portion of the wheat passes through the screens near their upper and inner parts, and this good portion falls on the screen *L*, which separates oats from it, the wheat passing through the screen *L* and falling upon the sieve *M*, the superior portion not passing through *M* and being discharged at one side of the machine by means of the spout *N*. The oats pass from

the screen *L* into the trough *Q*, and thence into the elevators, to be again passed through the machine, if desired. The fine foreign substances pass through the sieve *O* into a receptacle, *U'*, below it.

The movable or adjustable board *T* performs an important function, as it enables a greater or less portion of the wheat from the screens *I* to fall upon the screen *L*, as circumstances may require. If the grain be very inferior, the board *T* is so adjusted as to allow but a small portion of the grain which is only superior to fall upon the screen *L*, and if the grain is of a superior quality a larger portion is allowed to fall upon said screen. Thus the screen *L* and sieve *M* of the shoe *J* is never overtaxed, and the work is always thoroughly performed.

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

1. The slide *D*, placed underneath the fixed side *b* of the hopper *C*, arranged and operated substantially as shown, for the purpose herein specified.

2. The two shoes *H J*, provided, respectively, one with the sieves *I* and the other with the screen *L*, and sieve *M*, and connected together so as to be operated simultaneously by the same mechanism, in combination with the fan *B* and adjustable board *T*, all arranged as and for the purpose herein set forth.

CHARLES KATHAN.

Witnesses:

R. M. CRANFORD,
SILAS DAYTON.