J. WORICK.
Grain-Separator.

No. 201,080. Patented March 5, 1878.

Fig. 1

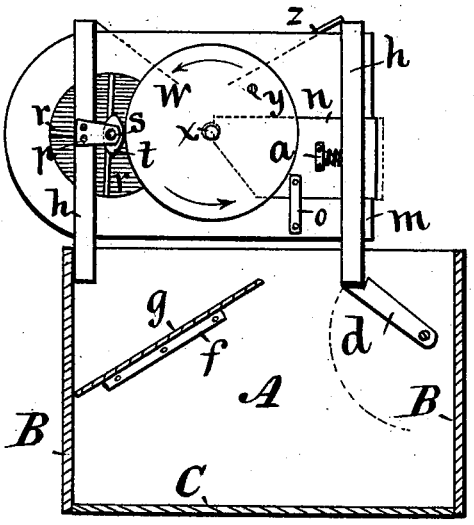
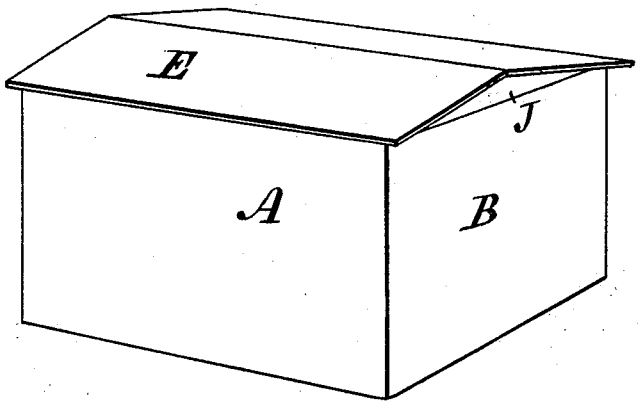


Fig. 2



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UNITED STATES PATENT OFFICE.

JEREMIAH WORICK, OF AMES, IOWA.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **201,080**, dated March 5, 1878; application filed December 5, 1877.

To all whom it may concern:

Be it known that I, JEREMIAH WORICK, of Ames, in the county of Story and State of Iowa, have invented an Improved Fanning-Mill or Grain-Separator, of which the following is a specification:

The object of my invention is to reduce the size and expense of a portable grain-cleaning machine, and to form and construct it in two parts, in such a manner that the base upon which it is mounted and operated will serve as a grain-receptacle when the machine is in use, and as a packing-case and protector when not in use.

It consists, first, in the manner of mounting, arranging, and combining a rotary fan and vibrating sieve and screen carrier, and transmitting motion to the same by means of friction or brush wheels; second, in a box-form base and packing-case, in combination with the operative machine, all as hereinafter fully set forth.

Figure 1 of my drawing is a side elevation of my machine, and illustrates its construction and operation. Fig. 2 is a perspective view of my combined machine-base and packing-case, inclosing and protecting the mechanism when not in use.

A is one of the wooden sides of my box-form base. B B represent end pieces. They are rigidly joined to the sides A and a corresponding bottom, C. They may vary in width, as required, to form a base to correspond with the width and capacity of the operative mechanism combined therewith.

d is one of the props, pivoted to the inside of the box near its rear corners, to serve as supports upon which to rest the rear corner-posts of the machine-frame when the mechanism mounted upon said frame is in operation.

f is one of the cleats, fixed at the front ends of the sides in an inclined position, to form a support for a removable board, *g*, which board, in combination with the end of the box-form machine-base, forms a receptacle to receive and retain the screenings separated from the grain.

h h are corner-posts of the machine-frame, to the insides of which posts the sides *m* are rigidly fixed in any suitable way.

n represents a section of the rear portion of the sides *m* cut or severed therefrom, to form the sides of the vibrating frame that carries the sieves and screens required to receive, shake, and separate the grain as it is passed through the machine.

o represents a small bar, pivoted in a vertical position to the outside of the stationary side *m* at its lower end, and to the outside of the vibrating screen-carrier *n* at its top end. A bar, *o*, on each side of the machine thus serves to support the vibrating screen-carrier in a suspended position.

p represents one of the fan-journal bearers, fixed to the front posts *h*.

r r represent a series of radial fan-arms, carrying vanes. They are rigidly connected to the fan-shaft, whose journaled ends or gudgeons *s* rest and revolve in the bearers *h*.

t represents one of the duplex eccentrics or cams fixed upon the ends of the rotating fan-shafts.

w is a friction or brush wheel, preferably made of hard wood. One of these wheels is rigidly fixed to each projecting end of a rotating shaft, *x*, that has its bearings formed in or attached to the mating vertical edges of the fixed sides *m* and their vibrating sections *n*.

y is a crank-handle attached to the wheel *w*.

z represents the feed-slide in the grain-hopper, formed in the top of the machine.

a represents a spring, fixed to the sliding section *n* of the side *m*, to engage the stationary post *h*. One of these is used on each side of the machine, to aid in imparting a vibrating motion to the screen-carrier.

E J in Fig. 2 represent a removable roof-form cover, secured on top of the box-form base A B C when the machine is dismounted and packed therein and ready for transportation, or to be stored away and protected for future use.

In the practical operation of my invention, when properly mounted on its box-form base, the crank-handle *y* attached to one of the driving brush-wheels *w* is seized by hand, and the wheel turned. Both brush-wheels being rigidly fixed on the same shaft, they move simultaneously, and each one engages one of the duplex eccentrics or cams rigidly fixed to the ends of the axle of the rotating fan, and, by means of friction, imparts a rotary motion to

the fan. The eccentrics are only six inches in circumference and the driver-wheels seventy-two. Hence the fan makes twelve revolutions every time the brush or driver wheels make one; and every time the fan and duplex eccentrics make a half-revolution they crowd the brush-wheels, and their axle acts to push the vibratory screen-carrier in the same direction. The springs *a* are thereby compressed, and as quick as the rearward pressure ceases they push the screen-carrier forward again. A reciprocating vibratory motion is thus imparted to the suspended screen-carrier and its sieves and screens—two forward and two backward—every time the duplex eccentrics and fan make one revolution. The screen-carrier therefore makes four motions every time the duplex eccentrics make one revolution, and, as the eccentrics make twelve revolutions every time the brush-wheels make one, it is apparent that the screen-carrier and its sieves jointly make forty-eight distinct motions every time the operator turns the crank around one time, and that a rapid vibrating motion for shaking grain and a rapid rotary motion for fanning the grain are thus readily and simultaneously produced to accomplish the results contemplated in the operation of a fanning-mill.

I claim as my invention—

1. The fan-axle *s*, having fixed eccentrics or cams *t*, and placed in fixed bearings, the friction-wheels *w*, rigidly fixed to an axle, *x*, and the suspended vibrating screen-carrier *n*, arranged and combined to operate substantially as shown and described, for the purposes set forth.

2. The box-form base A B C, having adjustable props *d*, fixed cleats *f*, and a removable cover, E J, and thereby adapted to support a grain-separator, and to receive the graded matters therefrom while in operation, and to inclose and protect the same when not in use, substantially as shown and described.

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