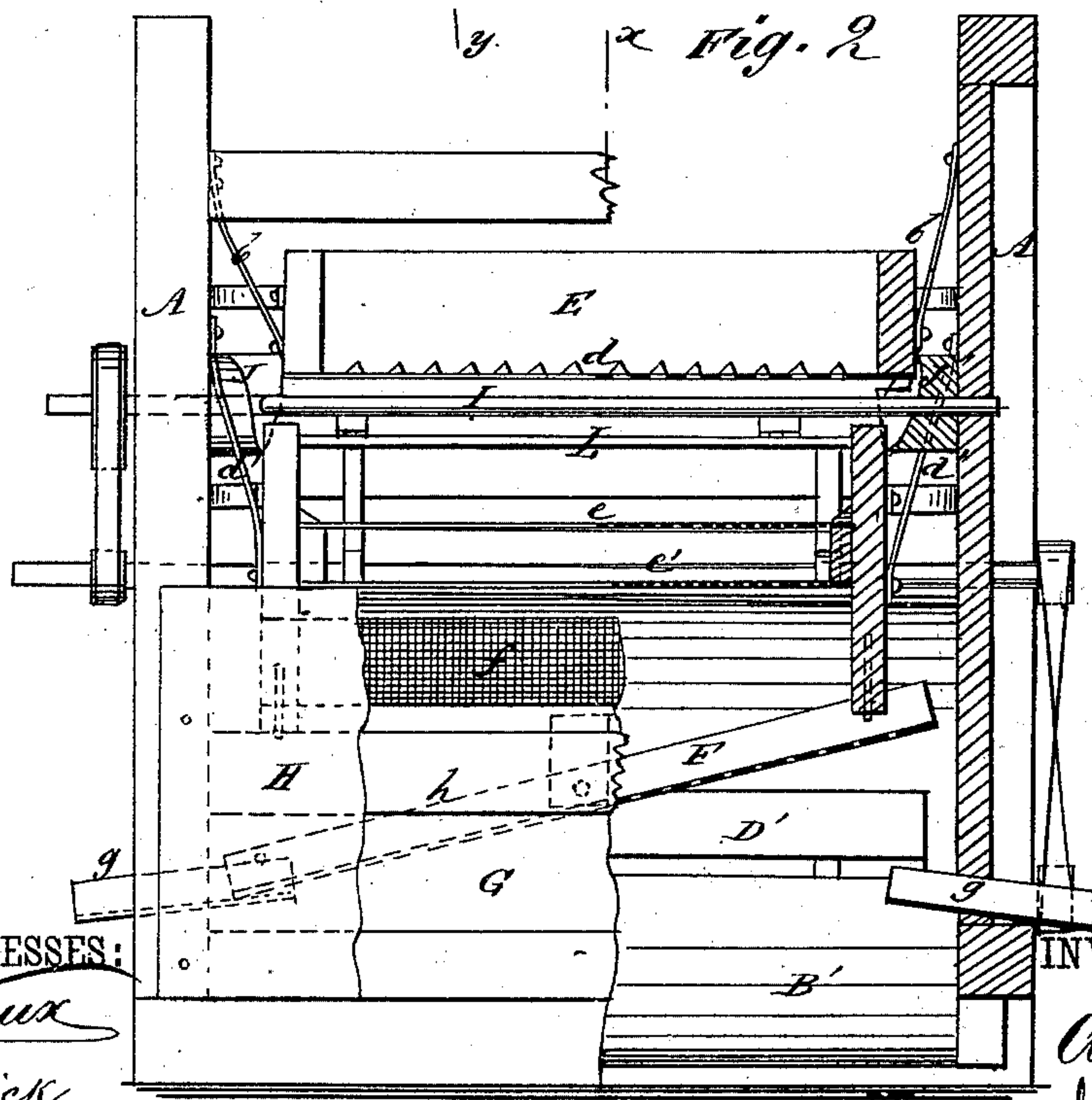
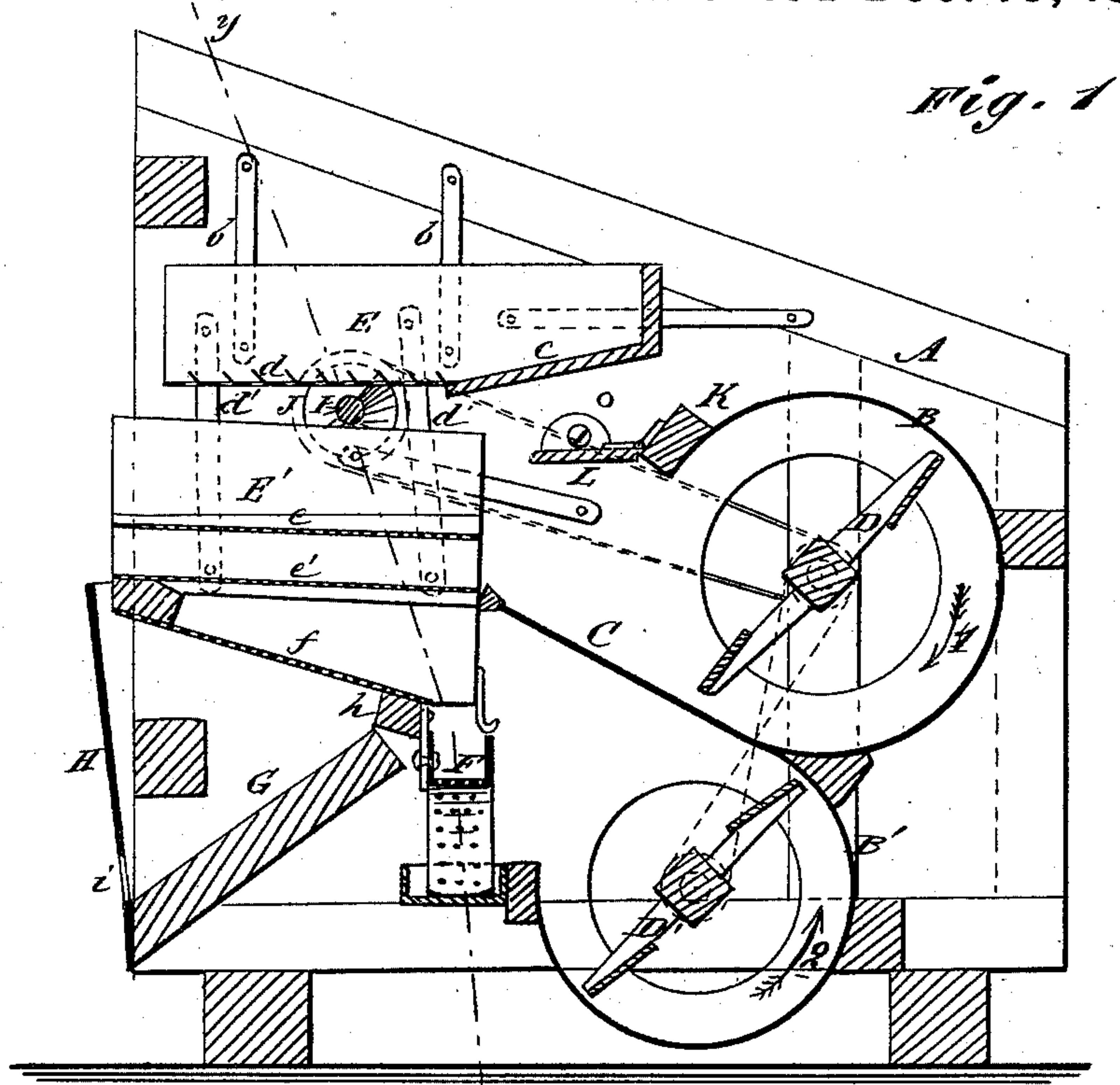


A. FUGEL.  
Grain-Separator.

No. 222,688.

Patented Dec. 16, 1879.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

ALEXANDER FUGEL, OF CLAYTON, CALIFORNIA.

## IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. **222,688**, dated December 16, 1879; application filed July 17, 1879.

*To all whom it may concern:*

Be it known that I, ALEXANDER FUGEL, of Clayton, in the county of Contra Costa and State of California, have invented a new and Improved Grain-Separator, of which the following is a specification.

The invention consists in the means hereinafter described for imparting motion to the upper and lower shoes of a grain-separator.

In the accompanying drawings, Figure 1 is a vertical cross-section of the improvement on line *x x*, Fig. 2; and Fig. 2 is a sectional end elevation, the section being taken on line *y y*, Fig. 1.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the outer casing of the separator, in the rear part whereof, which adjoins the thrasher, are two cylindrical shells, B B', open on the side toward the screens, the former being located in the upper part of the casing, and the latter below, on the level of the floor, the two being separated by a partition, C, supported in an inclined position between the side walls of the case.

In the shells, on suitable shafts or gudgeons, are placed fans or blowers D D', respectively, connected through pulleys on the ends of the shafts by crossed belts, so that they will revolve in opposite directions—D in the direction of arrow 1, and D' in that of arrow 2.

In the upper part of the case, forward of the fan, is suspended by hangers *b* a rectangular box, E, open at the rear end and closed at the other, from whence an inclined bottom, *c*, extends part of the length of the box, and joins a sheet-metal bottom, *d*, provided with perforations and sharp fingers or teeth projecting toward the open end of the box, forming thus a combined straw carrier and screen.

Below box E is another box, E', suspended by hangers *d'*. This box is provided with two horizontal screens, *e e'*, and below these a screen or bottom, *f*, of fine wire, inclined from the outer end of the box to which it is fastened to the inner end, where it terminates just over a perforated or screen spout, F, pivoted at the middle of its length, so that it

will swing down and join either one or the other of the spouts *g g*, passed through the sides of the case, so as to deliver the grain to either side, as may be desired.

Beneath the inclined screen *f* is an outwardly-inclined floor, G, fixed between the sides and cut off from the pivoted spout F by cross-bar *h*. The lower end of this floor abuts against the tail-piece H, having an opening, *i*, at the lower part for the tailings and the screenings falling on the floor G to pass out of it.

Between the boxes E E' is journaled a shaft, I, on one end whereof is a pulley belted with the pulley on the gudgeon or shaft of upper fan, D, so as to move in unison therewith. On this shaft, on either side, between boxes E E' and the sides of the apparatus, are fixed cams J J', having their operating-faces turned to opposite sides of the shaft, so that the face of the cam J bears against the adjacent side of box E, and that of J' against E', as shown. The purpose of the cams is to vibrate the two sets of screens; and the arrangement is such that when the upper set moves to the right the lower is moved to the left, and so on.

The cross-bar K, to which the forward upper edge of shell B is fastened, has hinged to it a deflector, L, to change the direction of the blast from the fan D, deflecting it down on and over screens *e e'*, or up through screen *d*, as may be desired.

The operation of this invention is as follows: The straw, chaff, and grain from the thrasher fall down on floor *c* of box E, thence pass to metal bottom *d*, which carries the straw and unthrashed heads off to the elevator, while the grain falls through the perforations in *d*, and, by the force of the blast from D, is relieved of its chaff, which is blown out through the open end of the screen-box, while the grain, falling on screen *e*, passes through screens *e e'*, and is freed from oats and other offal; thence, falling on inclined screen *f*, it passes over the same into the pivoted trough F, and thence passes to one of the troughs or spouts *g*, and thence into the sacks. In its progress over inclined screen *f* and through the perforated trough it is cleaned from cheat and other fine seeds, and is delivered from the spouts thoroughly cleansed.

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

1. The combination, with box E, of the shaft I, provided with cams J J', arranged in contact with said box, on each side thereof, as and for the purpose described.

2. The combination, with boxes E E', arranged one below the other, of the shaft I,

between the two boxes, and having cams J J', arranged to embrace the edges of said boxes and impart to them reciprocation in opposite directions, as specified.

ALEXANDER FUGEL.

Witnesses:

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