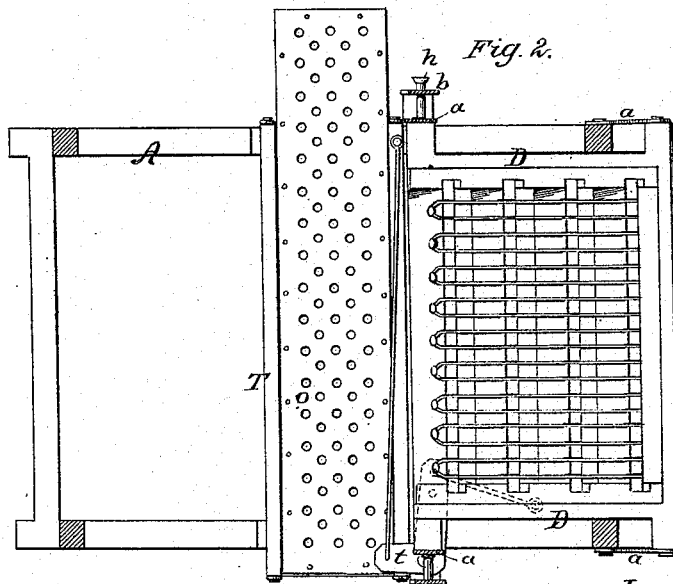
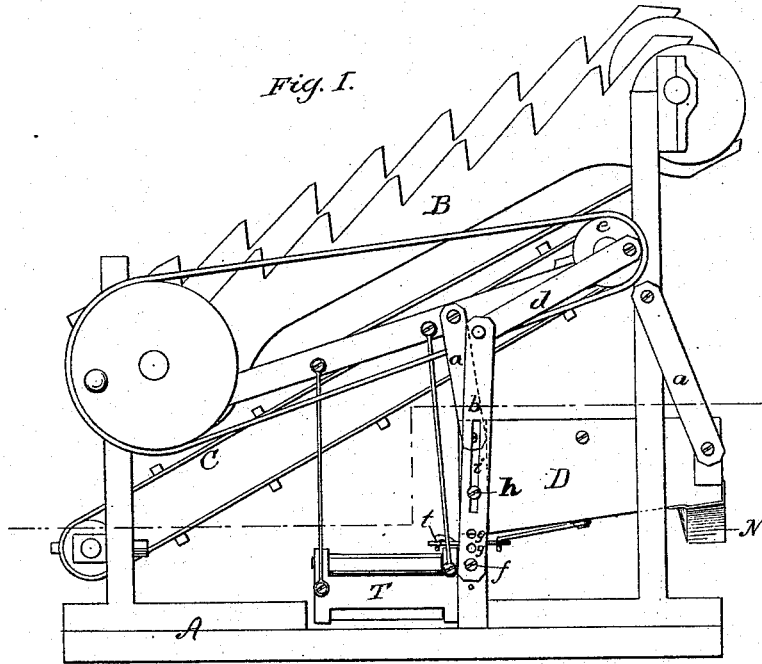


T. J. HUBBELL.
GRAIN-SEPARATOR.

No. 189,938.

Patented April 24, 1877.



Witnesses:

Clarence Poole
R. K. Evans,

Inventor:

T. J. Hubbell
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Fig. 3.

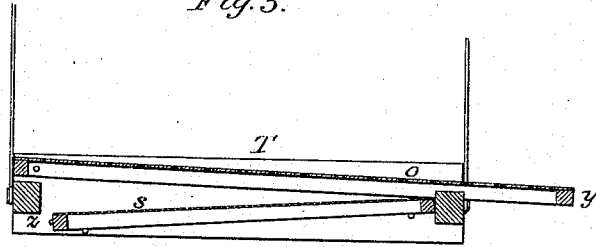
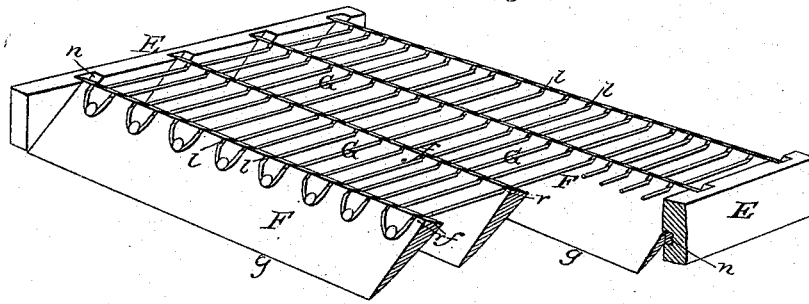


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS J. HUBBELL, OF YOUNTVILLE, CAL., ASSIGNOR OF ONE-HALF OF HIS RIGHT TO JOHN ALLEN BOYLAN, OF CANASERAGA, N. Y.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 189,938, dated April 24, 1877; application filed March 12, 1877.

To all whom it may concern:

Be it known that I, THOMAS J. HUBBELL, of Yountville, Napa county, California, have invented certain Improvements in Thrashing-Machines; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side elevation. Fig. 2 is a horizontal section on line *x x*. Fig. 3 is a longitudinal sectional view of the supplemental shaker. Fig. 4 is a perspective view of the screen with a portion broken away.

The object of my invention is to provide a thrasher in which the grain is cleaned and made marketable, and without the use of a fanning-mill. It consists, first, in a screen so constructed that any kind of grain can be cleaned by it, whether large or small; and my invention further consists in a peculiar combination of lever-power for operating the shoe, so that the throw of the shoe may be changed without detriment to the other working parts, as hereinafter more fully described and claimed.

In order that those skilled in the art may make and use my machine, I will proceed to describe the manner in which I have carried it out.

In the said drawings, A is the general frame-work, B the straw-shaker, and C the grain-belt, of an ordinary thrasher, the fan being placed in the usual position before the shoe, but not here shown. D D are the sides of the shoe, and are swung on links *a a*, so as to allow an end shake. This shake is given by means of vertical slotted levers *b* at each side of the shoe, connected at their upper ends with pitman *d*, each reciprocated by means of an eccentric attachment to a pulley, *e*, driven by a belt. The lower end of each lever *b* has its fulcrum on a pin, *f*, running into the frame A, and a series of holes, *g g*, allow the throw of this lever to be adjusted by changing its fulcrum. A pin, *h*, passes from the sides of the shoe D, through the slots *i* of levers *b*, and serve to impart motion to the shoe as the lever is thrown back and forth.

The screen I use in shoe D is of very pecu-

liar construction, and is specially shown in Fig. 4. It consists of two side bars, E E, having in their faces diagonal recesses *n n*, raking downwardly toward the face at an angle of about forty-five degrees. Into these recesses fit transverse slats F F, provided with broad upper edges *f f*, and being gradually reduced in thickness until at the lower edge *g g* the slats are of a regular knife-blade or feather-edge. This edge is produced by having the side next the fan a plain surface, rectangular to the upper edge, and the side from the blast is beveled, the two planes meeting to form the edge. In saw-kerfs *l l*, one-quarter inch apart, made in the upper edge of slats F F, and transverse to said slats, are stretched wires G G, and these wires and feather-edged slats form the mesh by which I separate any kinds of grain.

The edges of the slats F project above the wires somewhat, as seen at *r r*, and the edges rake rearwardly, forming riffles, against which the grain is checked, if it should be carried across the screen by entangled straw. This checking enables gravity to carry the grain through the sieve, while the chaff and straw pass on. The blast from the fan, passing in the direction of the arrow, Fig. 4, passes upward between the slats, and is, as it were, steadied by being condensed in passing through the converging sides of the slats, the openings being larger at the feather-edge than at the upper edge. One of the chief causes which choke thrasher-shoes is, that straws, by the force of the blast, break over and remain crimped on the wires or slats. These in turn catch other straws and refuse, and the shoe is clogged. In my construction of sieve, if the end of a straw, in passing endwise along the sieve, drops downwardly across one slat, so that there is danger of cramping around the next slat, the forward end of the straw will strike the incline of the next slat forward, and the blast will lift it over that slat, and so on till it passes beyond the sieve. Actual experiment demonstrates to me that this sieve will screen any kind of grain whatsoever, and with this one screen I am enabled to do the work in a thrasher which ordinarily has to be done by from three to nine different screens.

The grain that fails to reach the chute *N* falls with any refuse that may slip through to the bottom of the shoe, and thence travels to a supplemental transverse shaking-trough, *T*, which is swung in the frame and given a transverse shake by means of a suitable elbow-lever and link-connection, *t*, with the main shoe. This supplemental trough, which acts in combination with the shoe, is constructed of a long perforated zinc screen, *o*, arranged in a box above a shorter fine-meshed wire screen, *s*. These screens rake or pitch in opposite directions. When the grain and refuse pass from the bottom of the shoe onto zinc screen *o*, the refuse passes off and is delivered at end *y*, while the fine grain is caught in the sieve *s*, and is discharged at the opposite end *z*.

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

1. The screen formed of the wires *G* and inclined transverse slats *F*, formed with feather-edges at the under side, and with saw-kerfs at their upper edges, to receive and project above the wires, substantially as herein shown and described.

2. The adjustable slotted lever *b*, pivoted to its frame at its lower end, in combination with the pitman *d*, attached to crank-head *e*, and shoe *D*, provided with pin *h*, as and for the purpose described.

T. J. HUBBELL.

Witnesses:

R. K. EVANS,
GEO. H. EVANS.