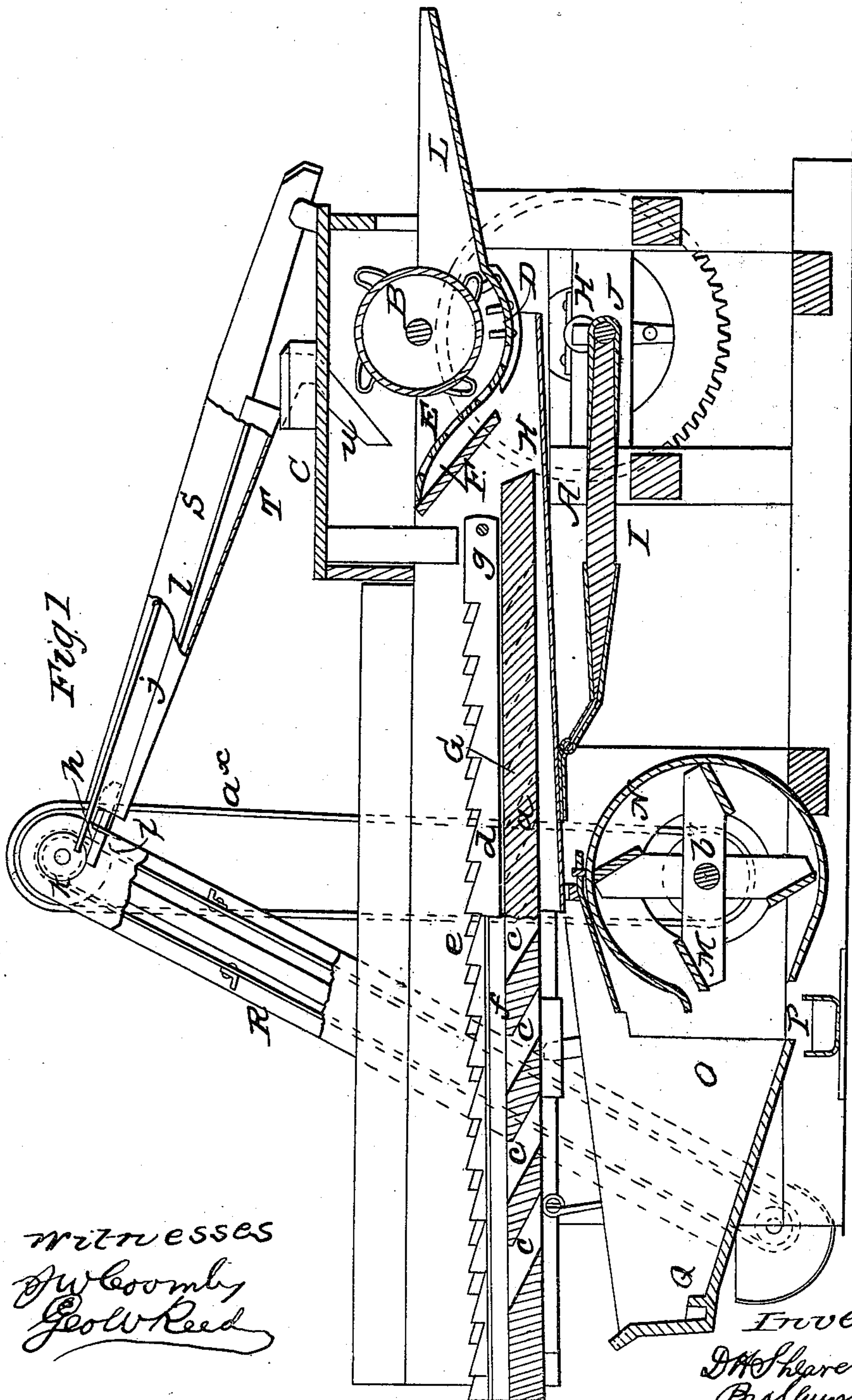


## Grain Thrasher.

2 Sheets—Sheet 1.

No. 41,103.

Patented Jan. 5, 1864.



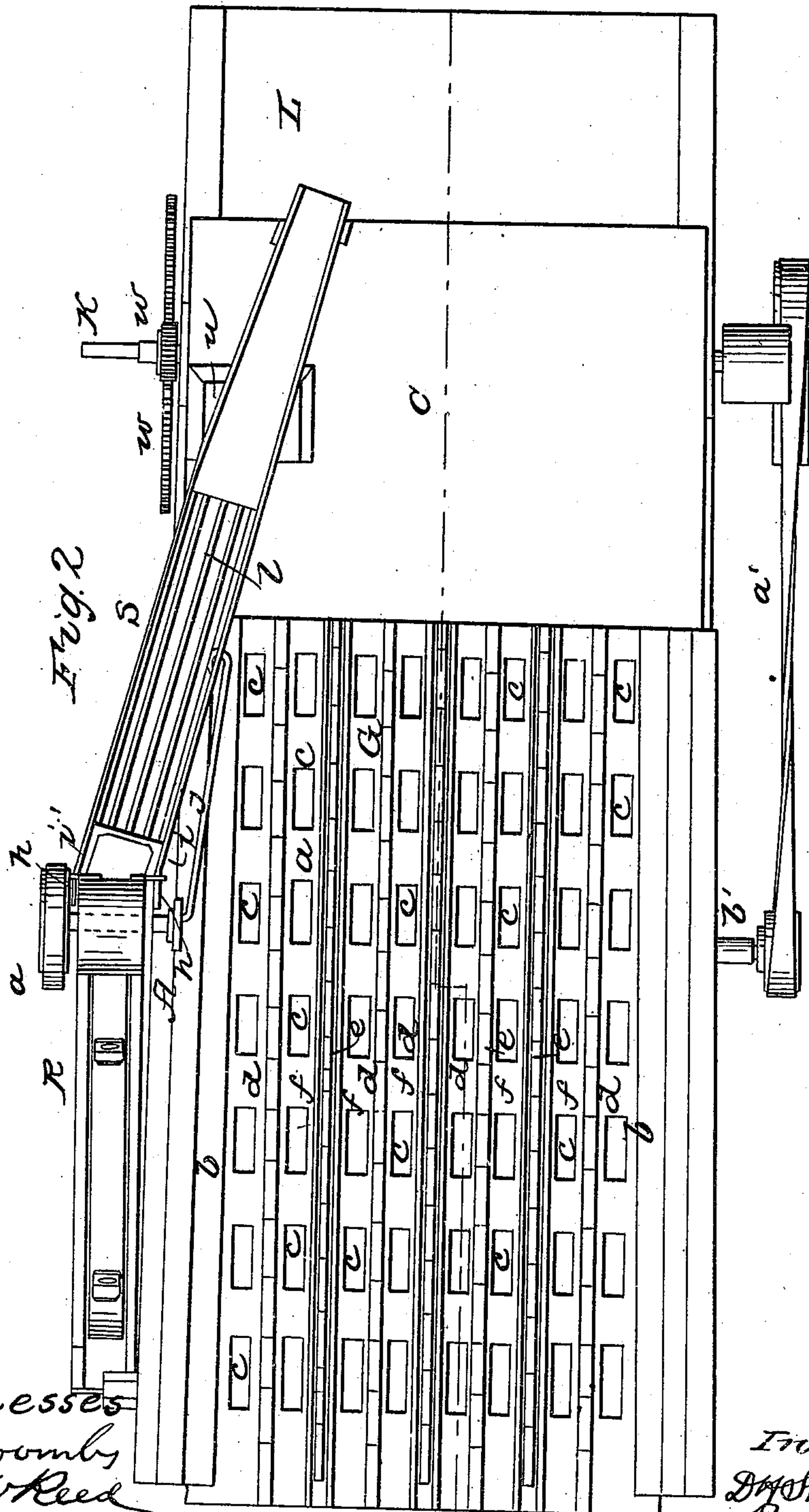
witnesses  
J. W. Coombly  
Geo W Reed

**Inventor.**  
D. H. Searer  
Baltimore, Md.  
Att'y

## Grain Thrasher.

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Witnesses  
J. W. Coombs  
Geo. W. Reed

Inventor  
D. J. Shearer.  
By Munn & Co.  
Attys



# UNITED STATES PATENT OFFICE.

D. H. SHEARER, OF DRAKESVILLE, IOWA.

## IMPROVEMENT IN GRAIN-THRASHERS.

Specification forming part of Letters Patent No. 41,103, dated January 5, 1864.

*To all whom it may concern:*

Be it known that I, D. H. SHEARER, of Drakesville, in the county of Davis and State of Iowa, have invented a new and Improved Grain-Separator for Thrashing-Machines; 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, a plan or top view of the same.

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

This invention relates to a new and improved grain-separating machine for separating grain from straw as the former is thrashed from the latter.

The invention consists in a novel and improved grain-shaking device and chute, and also in an improved arrangement of means for conducting the grain to the shoe, together with an elevator and screen for separating the tailings from the thrashed grain, so that the latter will not be twice subjected to the thrashing operation.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents a framing, which may be constructed in any proper manner to support the working parts of the machine; and B is a thrashing-cylinder, which is placed on the framing A at one end, and is covered by a case, C.

D is a concave underneath the cylinder B; and E is a curved perforated plate, also placed beneath the thrashing-cylinder, and extending forward some distance in front of it and projecting upward to a level with the shaft of the thrashing-cylinder, as shown in Fig. 1.

F is an inclined board at the under side of the perforated plate E; and G is a shaker, which is formed of a board, *a*, placed in a slightly-inclined position in the upper part of the framing, and working between guides *b*. The board *a* is perforated with oblique holes *c*, and to the upper surface of the board *a* there are attached longitudinally a series of parallel strips, *d*, the upper edges of which are notched or toothed. Between these toothed strips *d* there are placed similar toothed strips *e*, which,

however, are not attached to the board *a*, but are merely fitted between guides *f*, attached thereto. The back ends of the strips *e* are fitted on a rod, *g*, which is placed transversely in the framing A, and holds the strips *e* stationary.

To the under side of the back part of the board *a* there is attached a short metal plate, H, which moves with the board *a*, and serves as a chute. (See Fig. 1.) This chute is connected by a pitman, I, with a crank, J, on a shaft, K, by which a reciprocating movement is communicated to both the shaker and chute. L represents a feed-plate, on which the grain is placed to be fed to the thrashing-cylinder; and M is a rotary fan, which is placed in a suitable case, N, directly under the front end of the chute H, and in front of the fan-case a shoe, O, is suspended in the usual manner. The inner end of the shoe O is directly over a spout, P, which is slightly inclined, and the outer end has an inclined spout, Q, attached to it, which leads into the lower end of an elevator-box, R. The elevator in this box R may be constructed in the usual manner—to wit, brackets attached to an endless strap. To the upper end of the elevator-box R there is connected an inclined spout, S. This spout has two arms, *h h*, attached to its inner or back end, and said arms work in guides *i* at two opposite sides of the upper end of the elevator-box R. This arrangement admits of a longitudinal play of the spout S, which is given it by means of a rod, *j'*, attached at one end to the spout S and at the opposite end to a cramp-pulley, *k*, at one end of the shaft of the upper pulley of the elevator-belt. The spout S has a screen, *l*, in its bottom, underneath which a box or supplemental spout, T, is placed, the lower end of the latter being over a spout, *w*, in the case C, which covers the thrashing-cylinder, and the lower end of the spout S being over the feed-plate L. (See Fig. 1.)

The crank-shaft K is driven by gears *v* from the shaft *w* of the thrashing-cylinder B, and the fan M is driven by a belt, *a'*, from the crank-shaft K, the elevator being driven by a belt, *a''*, from the fan-shaft *b'*.

The operation is as follows: The grain to be thrashed is fed between the cylinder B and concave D from the plate L, and the grain is thrashed from the straw, the detached grain passing through the curved perforated plate



E and falling upon the chute H, by which it is conveyed to the shoe O. The straw is forced upward over the inner or front end of the plate E upon the board *a* of the shaker G, and the toothed strips *d e* cause the straw to be fed along to the discharge end of the shaker, the strips *d* catching the straw and shoving it along with the forward movement of the board *a*, while the strips *e*, in consequence of being stationary, prevent the straw being carried back during the backward movement of the board *a*. These toothed strips also cause the straw to be well shaken, so as to dislodge the loose grain therefrom, which passes through the oblique perforations *c*, a portion falling on the chute H and a portion falling directly into the shoe O. The shoe O is supplied with the usual screens, and the clean grain is discharged from the machine by the spout P, while the tailings are conveyed by the spout Q into the lower end of the elevator-box R, and are discharged into the inclined spout S, and all good loose grain which may chance to be with the tailings will pass through the screen *l* into the box or supplemental spout T, and will be conveyed into the inclined spout *u*, which deposits it on the perforated plate E in front of the thrashing-cylinder, so that said grain will pass directly down upon the chute H and not be subjected to the action of the thrashing-cylinder, which would break or injure it. The tailings are discharged from the lower end of the spout S upon the feed plate L, and are passed through the ma-

chine a second time, so as to cause the grain to be detached. The inclined board F prevents grain being forced with the straw upon the shaker G.

I am aware that toothed strips have been used on the shakers of separating-machines; but so far as I am aware they have all been arranged to move or work in pairs alternately forward and backward, involving complicated actuating mechanism. I therefore do not claim, broadly, the employment or use of toothed strips; but,

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

1. A shaker for a grain-separating machine, composed of a perforated board, *a*, having parallel toothed strips *d* attached longitudinally to it, in combination with the stationary toothed strips *e*, arranged substantially as and for the purpose set forth.

2. The shaker-spout S, provided with a screen, *l*, and supplemental spout T, arranged to discharge the grain and tailings into the machine, as shown, for the purpose specified.

3. The combination of the shaker G, board F, chute H, fan M, elevator, and shaker-spout S, all arranged to operate as and for the purpose specified.

D. H. SHEARER.

Witnesses:

ISAAC VAN NORDSTRAND,  
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