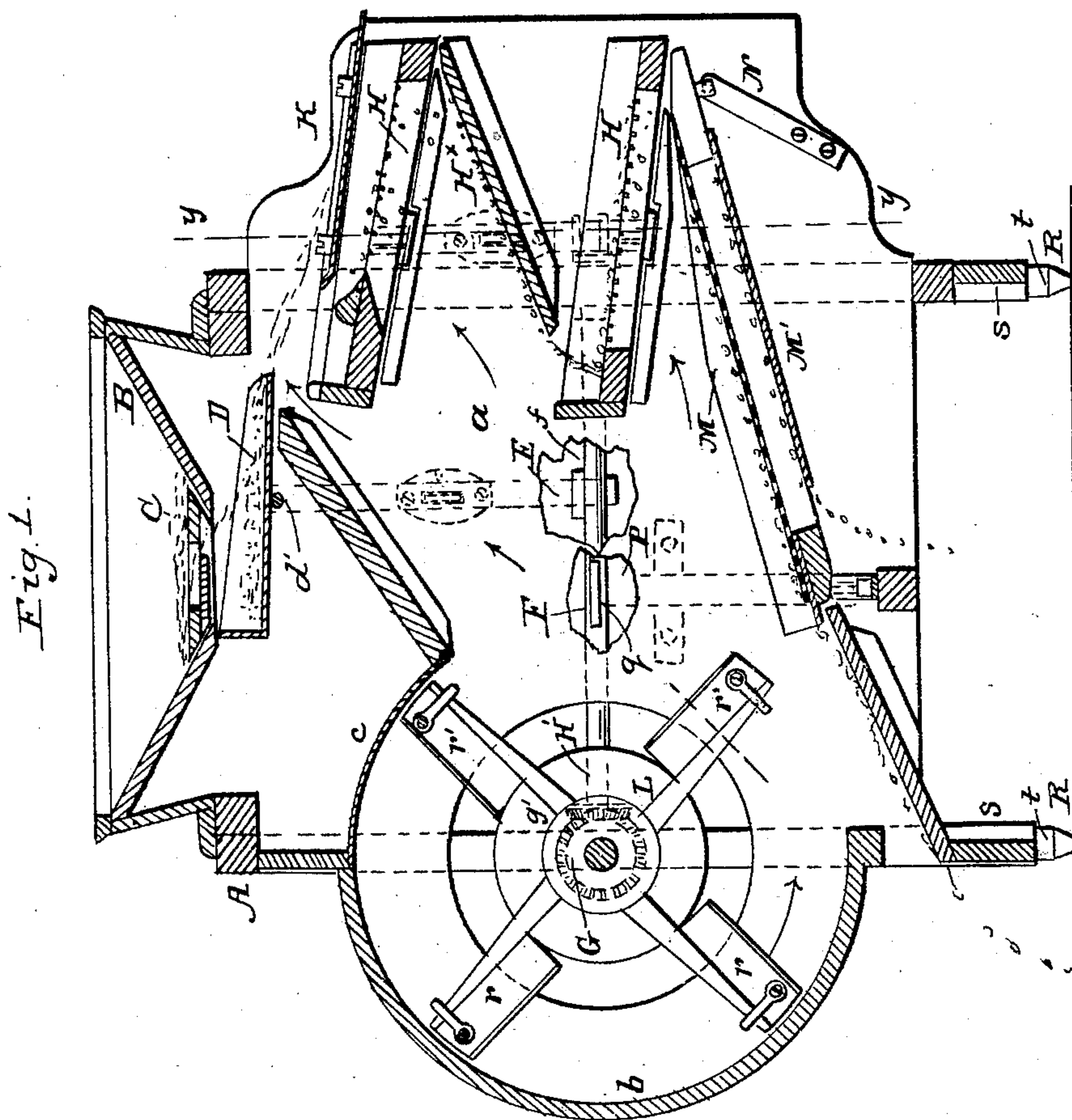


A. ROWE.
Grain Separator.

No. 37,111.

Patented Dec. 9, 1862.



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UNITED STATES PATENT OFFICE.

ANSON ROWE, OF ATALISSA, IOWA.

IMPROVEMENT IN GRAIN-SEPARATORS.

Specification forming part of Letters Patent No. 37,111, dated December 9, 1862.

To all whom it may concern:

Be it known that I, ANSON ROWE, of Atalissa, in the county of Muscatine 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 front view of the same; Fig. 3, a vertical section of the same, taken in the line *y y*, Fig. 1; Fig. 4, a detached view of one of the blades or wings of the fan.

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

The object of this invention is to obtain a grain-separator of simple construction, which will operate more efficiently than those previously constructed and not be liable to get out of repair.

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

A represents the framing of the separator, which is inclosed by sides *a a*, as usual, and having a semi-cylindrical projection, *b*, at its front end, which serves as a fan-case, a curved plate, *c*, being placed within the framing to form a continuation of the case at its upper part, as shown in Fig. 1.

B is a hopper, which is secured upon the upper part of the framing A, and has a slide, C, at its bottom to regulate the feed of the grain to the machine as occasion may require.

D represents an inclined feed-board, which is placed in the framing A underneath the hopper B, and is hung upon the rods *d d'*—one at each side—one of which, *d'*, passes through one of the sides *a* of the framing, and is connected to the upper end of a lever, E, which has its fulcrum at *e*. This lever is operated by a tappet, *f*, on a horizontal shaft, F, having its bearings at one side of the framing, and operated or rotated by bevel-gears *g*, from the fan-shaft G of the machine. (Shown in Fig. 1.) This lever E when operated gives a lateral vibrating movement to the feed-board D, the rods *d d'* being allowed to slide in their bearings.

H H represent two riddles, which may be constructed in the usual or in any proper way.

These riddles are hung in the framing similar to the feed-board D, having a rod, *h*, attached at one side at about their centers. These rods pass through vertical slots in one side *a* of the framing, and have their bearings in plates I, which may be adjusted higher or lower by means of set-screws *i*. (See Fig. 2.) The opposite sides of the riddles have bars *j* attached to them at points coinciding with the rods *h*, and these bars pass through the side of the framing, and are attached one to the upper end of lever J, and the other to the lower end, as shown in Figs. 2 and 3. The fulcrum of the lever J is at *k*, and the lever J is operated from the shaft F by a tappet, *l*. This arrangement gives a reciprocating motion to the two riddles H H in opposite direction, and by this movement the concussions and jarring attending the lateral vibrating movement of the shoe ordinarily used are avoided, as one riddle in operating counteracts the other, so far as tremor or jars are concerned, for the riddles work independently of each other, and the weight of the grain on them, in consequence of moving with the riddles in opposite directions, cannot exert that powerful tremor and shaking motion which attends the operation of the ordinary shoe having the riddles placed in it, and all moving in concert or bodily together. The bar *j* of the lower riddle H has a spring, *m*, connected to it, which keeps the lower end of the lever J in contact with the tappet *l*—in other words, gives the return-movement to the riddles in the direction reverse to that given by the tappet. Over the upper riddle H there is placed a metallic plate, K, which serves as a cover for said screen, and prevents all light foreign matter from passing upon it. The space between the discharge end of the feed-board D and the inner end of the upper riddle H is sufficiently great to allow the fan L, hereinafter described, to eject said light foreign substances through the said space, and the plate K prevents them from falling on the upper riddle. The latter, therefore, will not be overtaxed nor compelled to perform any but its legitimate work. This is an important feature of the invention, and adds greatly to the efficiency of the machine. Directly below the lower riddle H there is placed a screen or sieve, M, having a chute, M', below it. This sieve is inclined in a reverse di-

rection to the riddles H, as shown in Fig. 1. The outer end of this sieve is provided with pins *n*—one at each side—and these pins are fitted in the upper ends of springs N N, attached to the sides of the framing. The inner end of the screen M rests upon a lever, O, having its fulcrum at *o*. This lever O passes through one side of the framing, and it is connected by a joint with the lower end of a slide, P, which is acted upon at its upper end by a tappet, *q*, on the shaft F. The inner end of the lever O has a spring, *r*, connected to it, which keeps the slide P in contact with the tappet *q*. By this arrangement an up-and-down shake-motion is communicated to the sieve M. The fan L is placed on the shaft G, and is provided with bent blades or wings *r'*. These blades or wings are bent, so as to form an obtuse V, as shown clearly in Fig. 4. The concave surfaces of these fans form their face sides or the sides which force the air from the fan-case, the air entering at each side of the case. On the fan-shaft G, at its center, there is placed a circular disk, H', which is in line with the centers of the blades or wings *r*, and is in contact with them. (See Fig. 1.) This circular disk H' serves as a partition for the fan, and causes the air to be forced through the space between the outer edge of the feed-board D and the inner end of the upper riddle H with an uniform strength from one end of the space to the other. With the ordinary straight-bladed fan the strength of the blast is always greatest at the ends of the fan, gradually diminishing toward the center. This result is obviated by my arrangement and construction of the blades or wings, which draw the air toward the center and cause it to be supplied sufficiently, so that it will be expelled from the fan-case with a uniform

strength throughout the entire width of the latter. This end is an important one with this invention, as it insures all light foreign substances being thrown by the blast on the plate K. The riddles H H may be adjusted at any time, so as to be in a horizontal position transversely by regulating the position of the plates I, adjusting them higher or lower. The feed-board D may also be adjusted in the same way by having one of its rods *d* fitted in a plate arranged like the plates I. Between the two riddles an inclined chute, H^x, is placed.

In order that the machine may be adjusted in a horizontal position when stationary on inclined ground, I have a screw, R, inserted in the lower end of each foot *s* of the framing. These screws have each a square, *t*, on them to admit of a wrench being applied in order to turn the screws, so that each foot may be lengthened or shortened, as circumstances may require.

I would remark that the riddles H, instead of being operated by the levers and tappets, as shown, may be operated by pitmen and cranks, arranged in any proper way.

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

1. The plate K, placed on or over the upper riddle H, and in relation with the feed-board D and fan L, as and for the purpose specified.

2. The combination of the sieve M, riddles H H, plate K, feed-board D, and fan L, arranged for joint operation, as and for the purpose herein set forth.

ANSON ROWE.

Witnesses:

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