B. C. WHITE.

Fanning Mill.

No. 46,039. Patented Jan. 24, 1865.

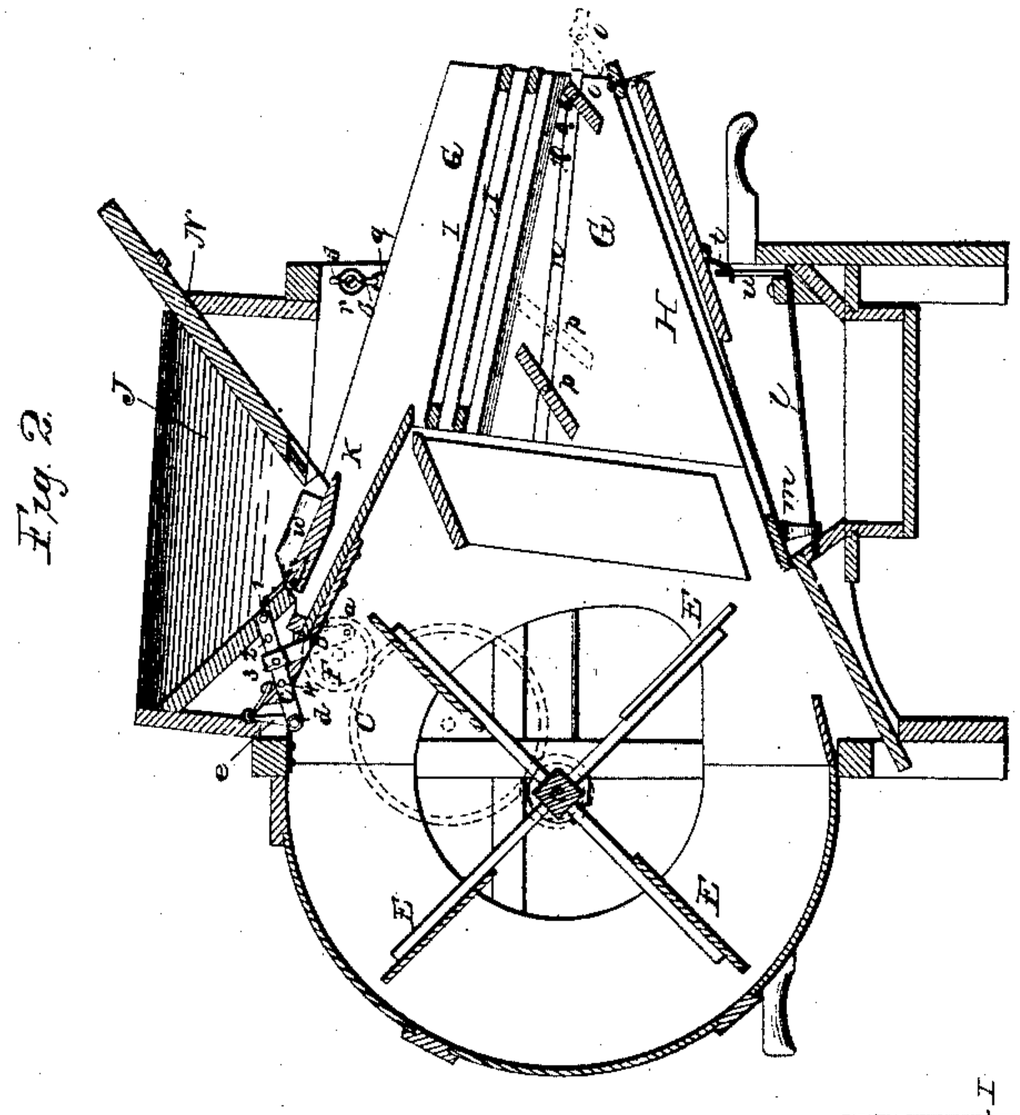

Fig. 2.

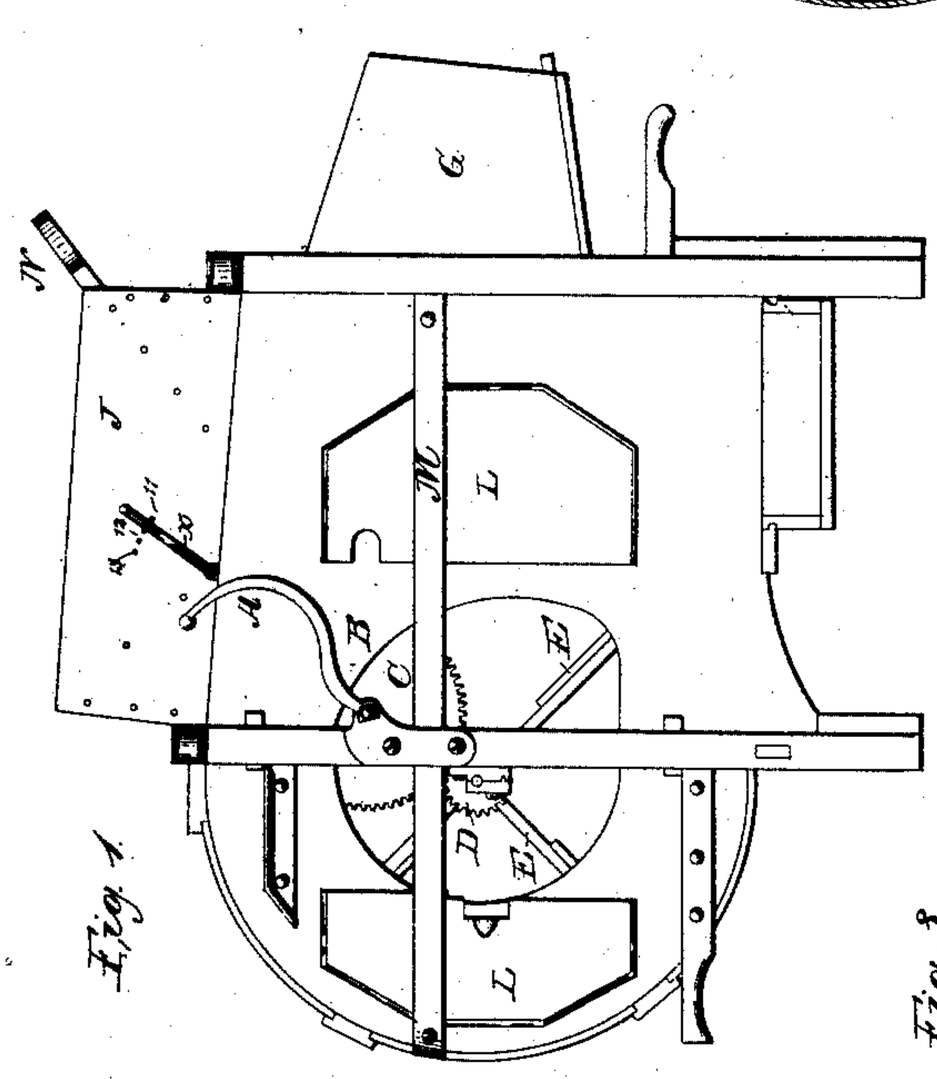

Fig. 1.

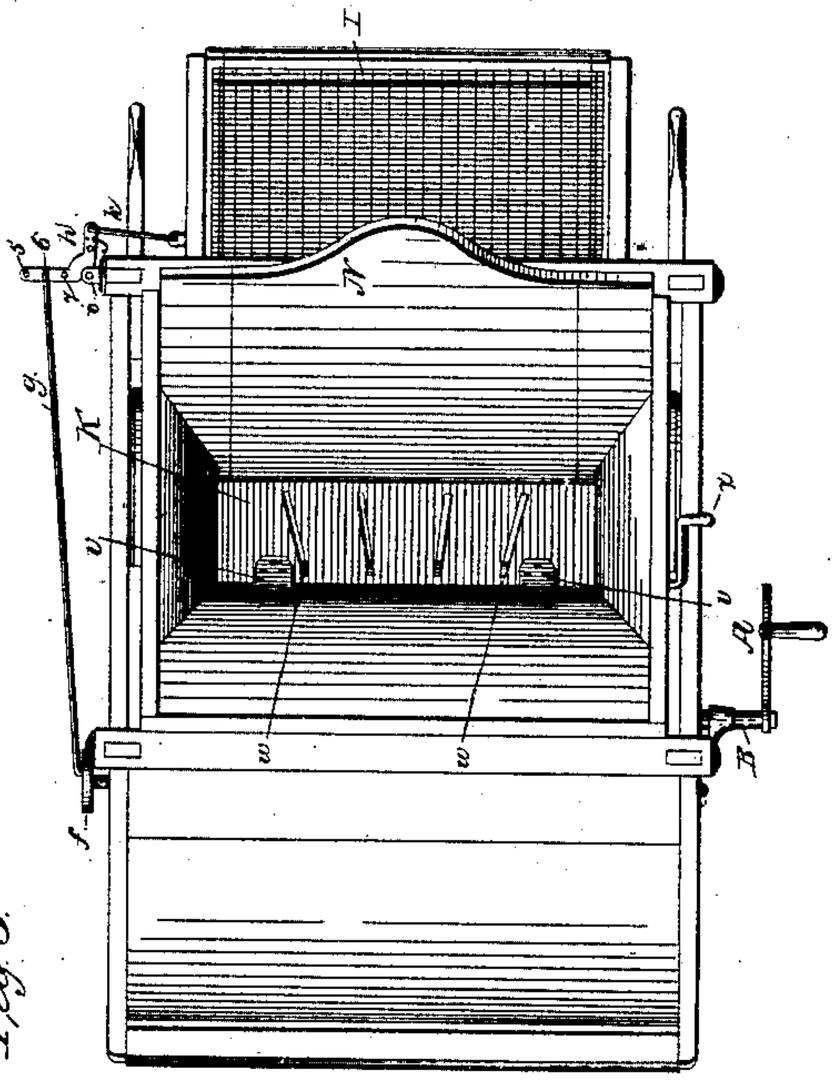

Fig. 3.

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BENJAMIN C. WHITE, OF RICHMOND, INDIANA.

IMPROVEMENT IN FANNING-MILLS.

Specification forming part of Letters Patent No. **46,039**, dated January 24, 1865.

To all whom it may concern:

Be it known that I, BENJAMIN C. WHITE, of Richmond, in the county of Wayne and State of Indiana, have invented certain new and useful Improvements in Fanning-Mills; 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 represents a view from one of the sides of the mill. Fig. 2 represents a longitudinal vertical section taken through the same. Fig. 3 represents a top plan.

Similar letters of reference, where they occur in the separate figures, denote like parts in all the drawings.

My invention consists, first, in the hinged, adjustable, and radially-ribbed feeding-board in the hopper.

It further consists in the devices for giving an end and side motion to the shoe; also, the combination, with the shoe, of a loose screen, which, in addition to the motions it receives from the shoe, has a separate shake or jar motion given to it by an independent device; also, in a movable and adjustable wind-board frame and wind-boards in it for regulating the blast upon the screens above it; and, finally, it consists in hanging or suspending the shoe on wire links attached to a turning hook, upon which the shoe may be raised or lowered, as circumstances may require.

To enable those skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

In its general external appearance my fanning-mill resembles those in general and common use, but its interior arrangement differs therefrom, as I shall explain.

Motion is communicated to the several moving parts by means of a crank, A, upon a short shaft, B, which carries a cogged wheel, C, that works into a pinion, D, on the fan-shaft, and thus gives a rapid motion to the fan E. The wheel C also meshes with a pinion, F, (shown in red lines, Fig. 2,) to a wrist-pin, *a*, on which one end of a connecting-bar or pitman, *b*, is attached, the other end of said pitman being secured to a crank-arm, *c*, on which it can be adjusted, as at 1 2 3 4, to change the length of the throw of said crank-arm and the rock-shaft *d*, to which it is attached. On this rock-shaft *d*, and at about the center (in width) of the machine, there is a crank, *e*, which stands at right angles, or nearly so, to the crank-arm *c* on the opposite end of the rock-shaft *d*, to which crank *e* the shoe G is connected, and by which it receives an end or longitudinal motion. On the end of the fan-shaft there is a crank-wheel, *f*, to a wrist-pin on or in which a connecting-rod, *g*, is attached, the other end of said rod hooking or connecting with a bell-crank lever, *h*, through one or the other of the holes or points 5 6 7, according to the extent of the motion desired to be given by it. This bell-crank *h* is pivoted to the frame of the machine at *i*, and its arm *j* is connected to the shoe G by a link, *k*, which mechanism gives the shoe its side or lateral motion. The advantages of this peculiar mechanism for giving the shoe its compound motion are several: First, it can be adjusted in either or both directions at will; second, it is without jar, and, third, it is noiseless. With a cam for procuring such a gyratory motion these advantages are lost; besides, with a cam, the grit and dust so clog and cut or wear away the parts as to destroy in a short time its usefulness. Near the under part of the shoe G there is a loose screen, H, and by "loose" I mean a screen supported and carried by the shoe and receiving all the motions of the shoe, but capable of receiving another motion in addition to those it receives from the shoe, as follows: A rock-shaft, *l*, hung underneath the shoe, has curved arms *m*, extending both ways from it, which alternately strike the loose screen H at its rear lower end, and thus give it a vertical bouncing motion at that end in addition to the end and side motion it receives from the shoe itself. This bouncing, or, as it is termed by the users, "bobber," motion prevents this screen from becoming foul or clogged. Above the screen H, and between it and the upper screens, I, there is a wind-board frame, *n*, that slides in and out in grooves or on ways, in or on the main frame, as shown by red lines, Fig. 2, and this frame *n* has in it two wind-boards, *o p*, the one, *o*, capable of being shifted on the frame to change its relative distance from the other one, *p*, as well as capable of a change of inclination, as

seen in red, the holes 8 9 10 admitting of the change of position, while the spring sides of the frame *n* will hold it in its inclination, though a bolt, pin, or any other more positive means of holding it may be used. The wind-board *p* it is not necessary to make changeable in position, though it can be made so if found desirable. This wind-board is, however, adjustable as to inclination, with regard to the screens I, against which it guides and directs the blast or a portion of it; and there may be a bolt or other suitable device attached to the wind-board *p* to hold it in its adjusted position.

The shoe is hung to the frame by wire links *q*, one on each side, and that the shoe may be conveniently raised or lowered, I use a bur, *r*, with hooks *s* upon it of variable lengths, so that to change the height of the shoe the link is unhooked, and the bur turned until the hook of the proper length comes around and the link is hooked onto it.

The rock-shaft *l*, heretofore described, receives its motion from the motion of the shoe G through a connecting-rod or bar, *t*, on the shoe and a crank-arm, *u*, Fig. 2, on said rock-shaft, it being understood that the rock-shaft is supported upon the stationary frame of the fanning-mill.

In the bottom of the hopper J there is a feeding-board, K, hinged, as at *v*, and furnished with radial ribs *w*, for spreading the grain to be cleaned evenly over the whole width of the hopper or screens, and a crank-arm, *x*, united to said hinged feed-board projects through the side of the hopper, and in convenient position for the operator to catch, so that he may give a shake motion to said feed-board when the grain, &c., clogs or hangs thereon, and a series of holes, 11 12 13, &c., admit of adjusting this feed-board so as to admit the grain, &c., in greater or less quantities, as may be desired; or, instead of the holes, and a pin to shift in them for the purpose of adjusting this feed-board, a circular rack or ratchet may be used.

The eyes to the fan-case are made to be opened or closed to regulate the amount of air drawn into them by the fan by slides L, hung upon the horizontal pieces M of the main frame.

A slide, N, in the end of the hopper J may be used, as in the ordinary fanning-mills, for a general adjustment of the opening through which the grain passes onto the screens, but the special adjustment is made by the hinged feeding-board K, which can be changed by the operator without stopping the mill.

Instead of getting the lateral motion of the shoe from the crank-wheel *f* on the end of the fan-shaft, it may be got from the rock-shaft *d* by extending it clear across the frame of the machine and placing a crank-arm upon it, to which the connecting-rod *g* may be attached, and thus simplify the construction by getting both the end and side or longitudinal and lateral motions of the shoe from a single rack-shaft or a single source.

Having thus fully described my invention, what I claim therein as new is—

1. In combination with the feeding-hopper, the hinged, adjustable, and radially-slatted or ribbed feed-board K, operating as and for the purpose substantially as set forth.

2. The combination of the rock-shaft *d* and its crank-arms and the crank-wheel *f*, with their several connections to the first moving power and to the shoe, for the purpose of giving the shoe an end and side or a longitudinal and lateral motion, substantially as and for the purpose described.

3. In combination with the shoe, the loose screen H, having a shake or jarring motion at its rear lower end independent of (but in addition to) the motion it has with the shoe, substantially as described.

4. In combination with the shoe, the adjustable wind-board frame or slides and the adjustable wind-boards therein, as and for purpose described.

5. The hanging of the shoe by means of the wire links and turning hooks, by which it may be raised or lowered to adapt it to the blast or the character of the grain being cleaned, substantially as herein described.

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