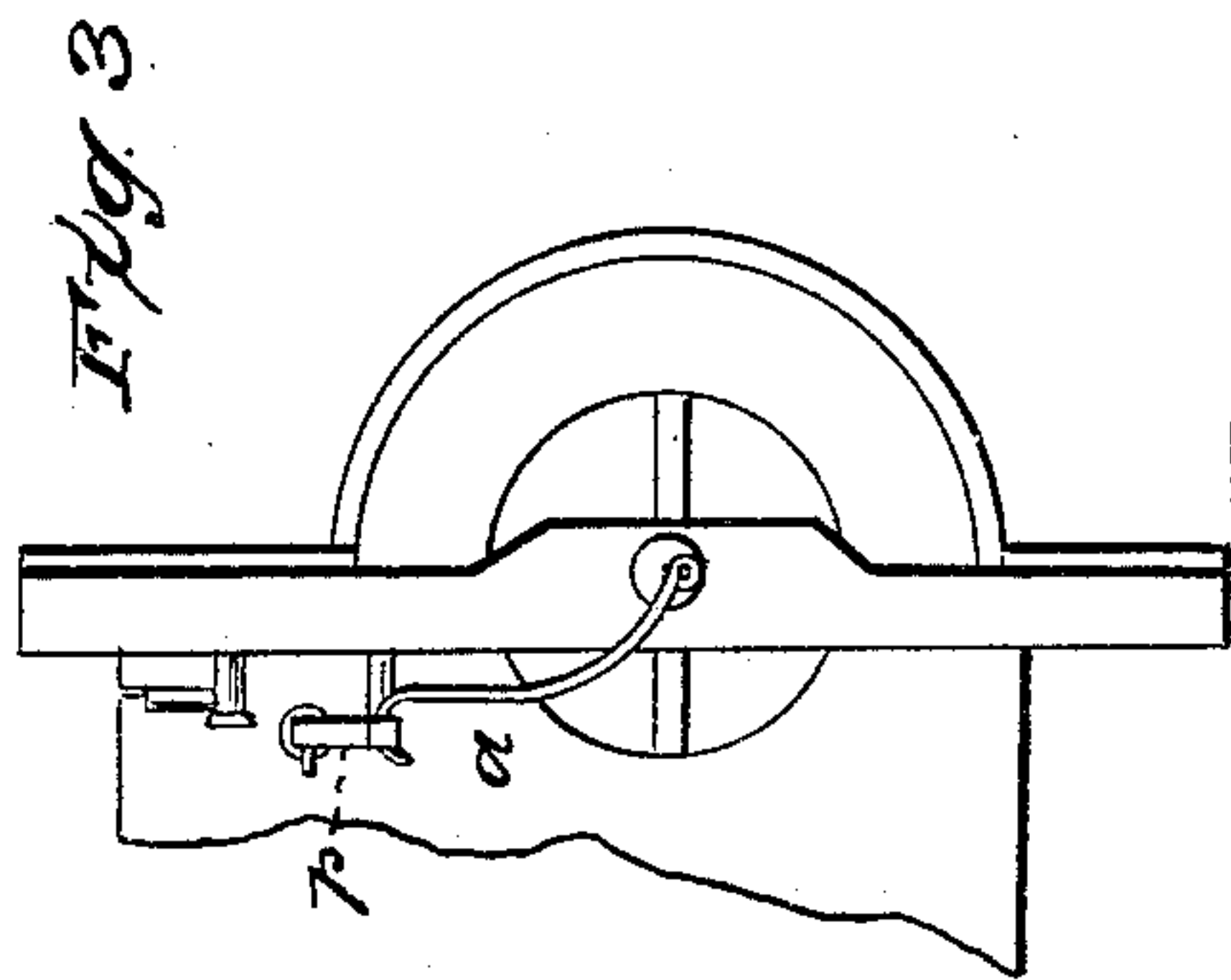
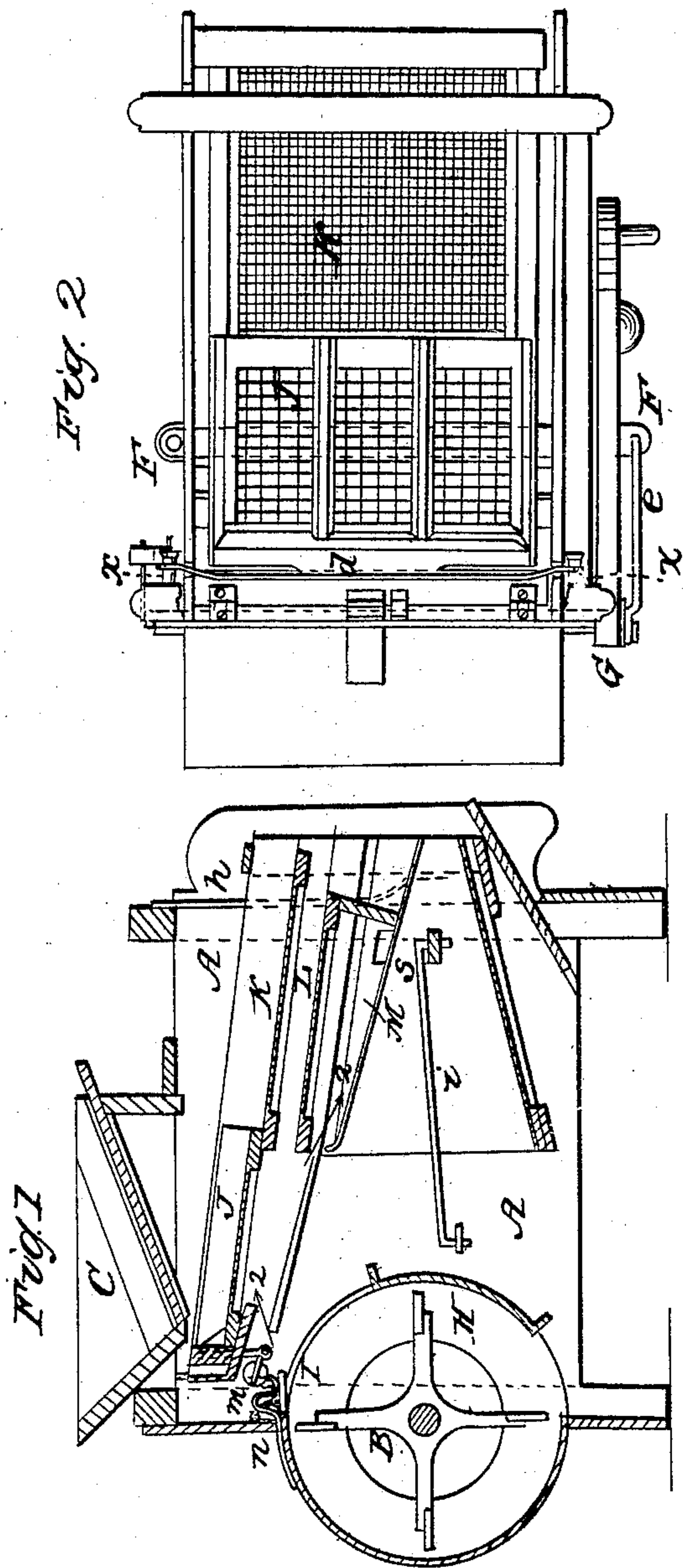


DAVIS & PALMER.

Grain Winnower.

No. 31,591.

Patented March 5, 1861.



witnesses  
C. A. Alexander  
A. A. Yeatman

Inventor  
E. Davis  
A. Palmer

# UNITED STATES PATENT OFFICE.

E. DAVIS AND ALONZO PALMER, OF HUDSON, MICHIGAN.

## GRAIN-SEPARATOR.

Specification of Letters Patent No. 31,591, dated March 5, 1861.

*To all whom it may concern:*

Be it known that we, E. DAVIS and A. PALMER, of Hudson, in the county of Lenawee and State of Michigan, have invented  
5 certain new and useful Improvements in Grain-Separating Machines; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings  
10 and to the letters of reference marked thereon.

The nature of our invention consists in the combination and arrangement in the manner hereinafter described, of those parts which  
15 are particularly set forth.

In the annexed drawings Figure 1 is a longitudinal vertical section. Fig. 2 is a plan view. Fig. 3 is a partial side view.

In the figures A represents an ordinary  
20 grain separating machine case constructed in any of the known and convenient ways. This case is provided with the usual fan case, constructed in the ordinary way with one exception, and that is a section of said  
25 fan case is movable or adjustable section, as shown at H. The object of making this section movable is in order better to control the draft, regulating it at the will of the operator.

30 The shoe in this machine is provided with the usual screens, and is hung in a manner not unknown but is operated in a peculiar manner. This shoe is hung at one end by means of straps *h, h*, while at the other it is  
35 provided with a spring bar *d*, which lies across the machine and rests upon rollers *x, x*. When the shoe is set in motion it is allowed a longitudinal motion by the spring *d*, and also a lateral motion by the spring  
40 playing upon the rollers *x, x*.

Motion is communicated to the shoe from the fan shaft. To one end of the fan shaft is secured eccentrically one end of a rod *a*. The other end of said rod is attached to a  
45 bell crank *p*, which connects with a rod for giving lateral motion to the shoe. The other end of the fan shaft is provided with a pulley, G, to which one end of a rod *e*, is secured eccentrically. The other end of this  
50 rod *e*, is attached to a bar F, which lies under the shoe and across the machine. The bar F, is connected to the shoe by means of a rod *i*, which runs longitudinally of the machine. When the fan shaft is set in mo-  
55 tion a longitudinal motion is communicated

to the shoe by means of the rod *e*, bar F, and rod *i*. When a lateral and a longitudinal motion is communicated as above described the shoe will also have a partially circular motion resulting from the combina-  
60 tion of the other two.

I, represents a trap door at the head of the shoe and opening into the fan case. This door is kept down by means of a spring  
65 *m*, and is raised and adjusted by means of a strap *n*, which is secured to it.

J, K, and L represent three screens of the shoe. Under the screen L, is situated a box M, with an opening *s* in its side. All the  
70 cheat, &c., passing through the screen J, pass down through an opening under screen L, as shown by arrow 2, into box M, and thence out at opening *s*, to the side of the machine  
75 *o*, shown as opening at the head of the shoe into which a draft from the fan may be made to pass. When the section H, is raised so as to direct a draft toward the trap door said door may be raised by the  
80 strap *n*, and the draft will pass under the screen J, in the direction of arrow 1. By closing the trap door and adjusting the section H the draft may be directed in the usual way.

We do not wish to claim all modes of directing the pan draft nor the modes differ-  
85 ing materially from this of operating the shoe in this particular way; but

Having thus fully described our invention what we claim as new and desire to secure by Letters Patent is—  
90

1. The employment in connection with the shoe of the connecting rod *a*, the spring *d*, the rod *e* attached eccentrically to the fan shaft pulley G, the bar F, and the rod *i*,  
95 when arranged as shown by means of which a lateral, a longitudinal and at the same time a partially circular motion is communicated to said shoe substantially as set forth.

2. The arrangement of the sliding section  
100 H, of the fan-case with the trap door I, spring *m*, and strap *n*, for the purpose of directing and regulating the draft at the head of the shoe substantially.

ELIHU DAVIS.  
ALONZO PALMER.

Witnesses:

LORENZO PALMER,  
WM. B. BARRE.