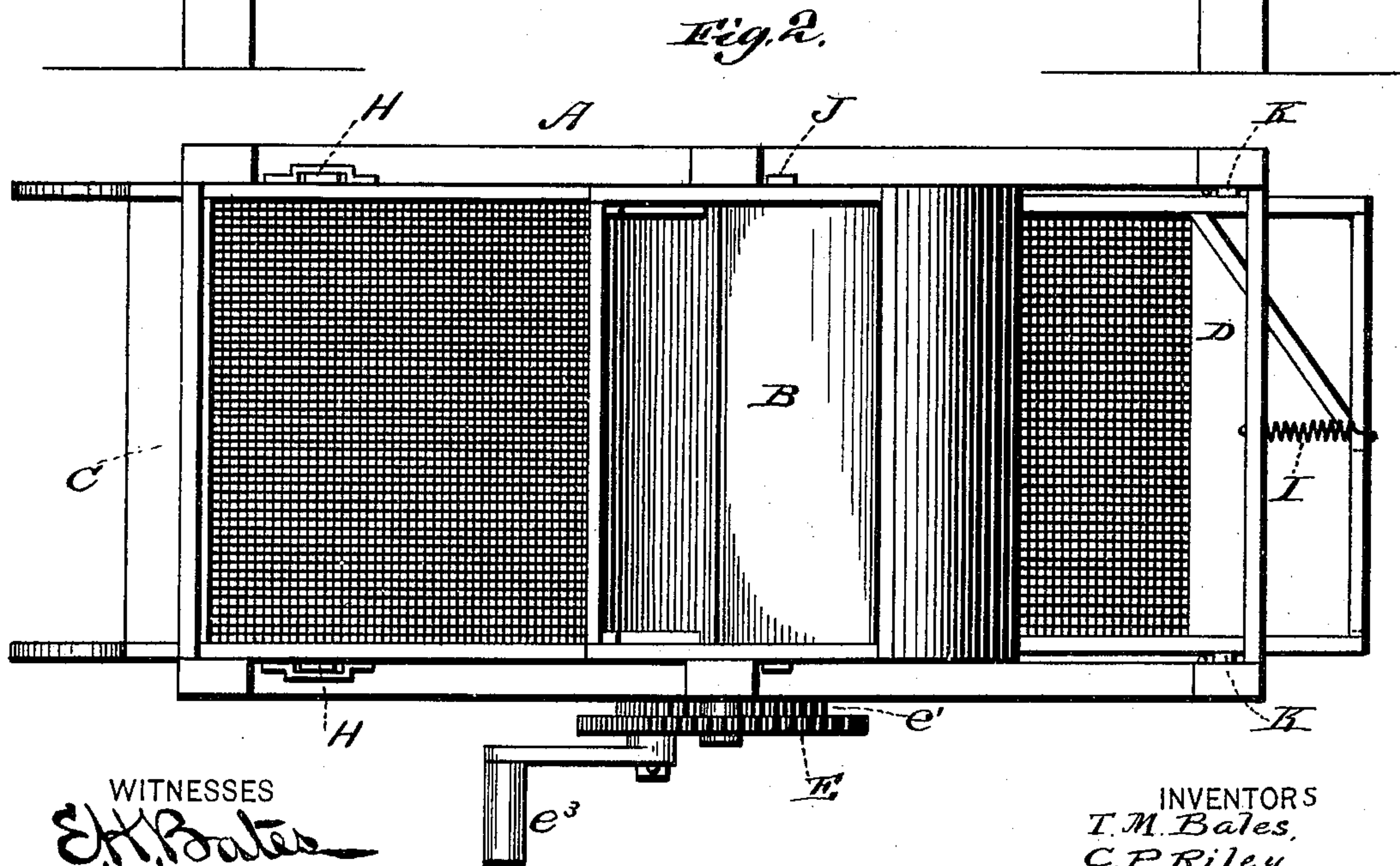


3 Sheets—Sheet 1.

Patented June 30, 1885.



Witnesses  
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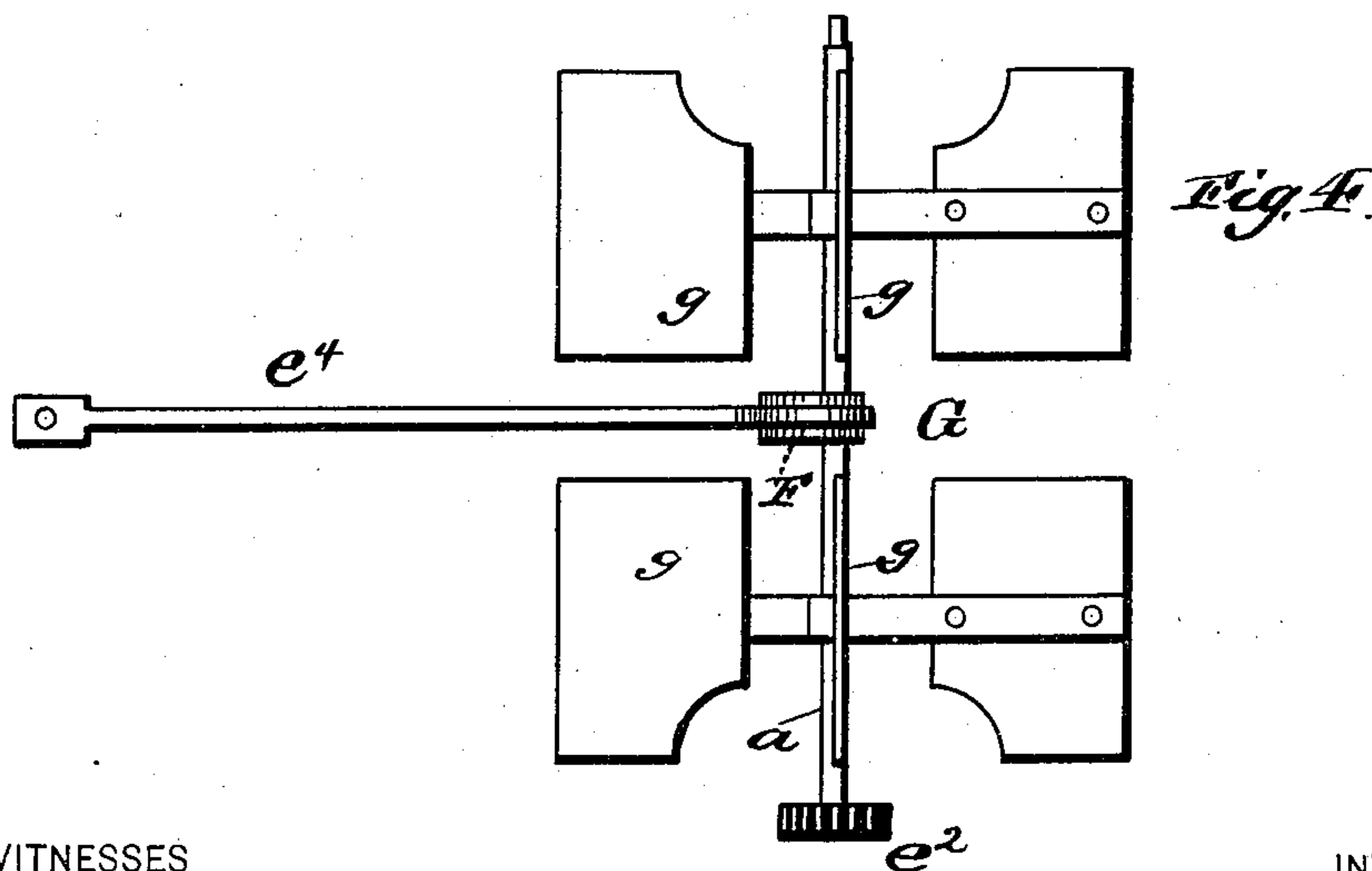
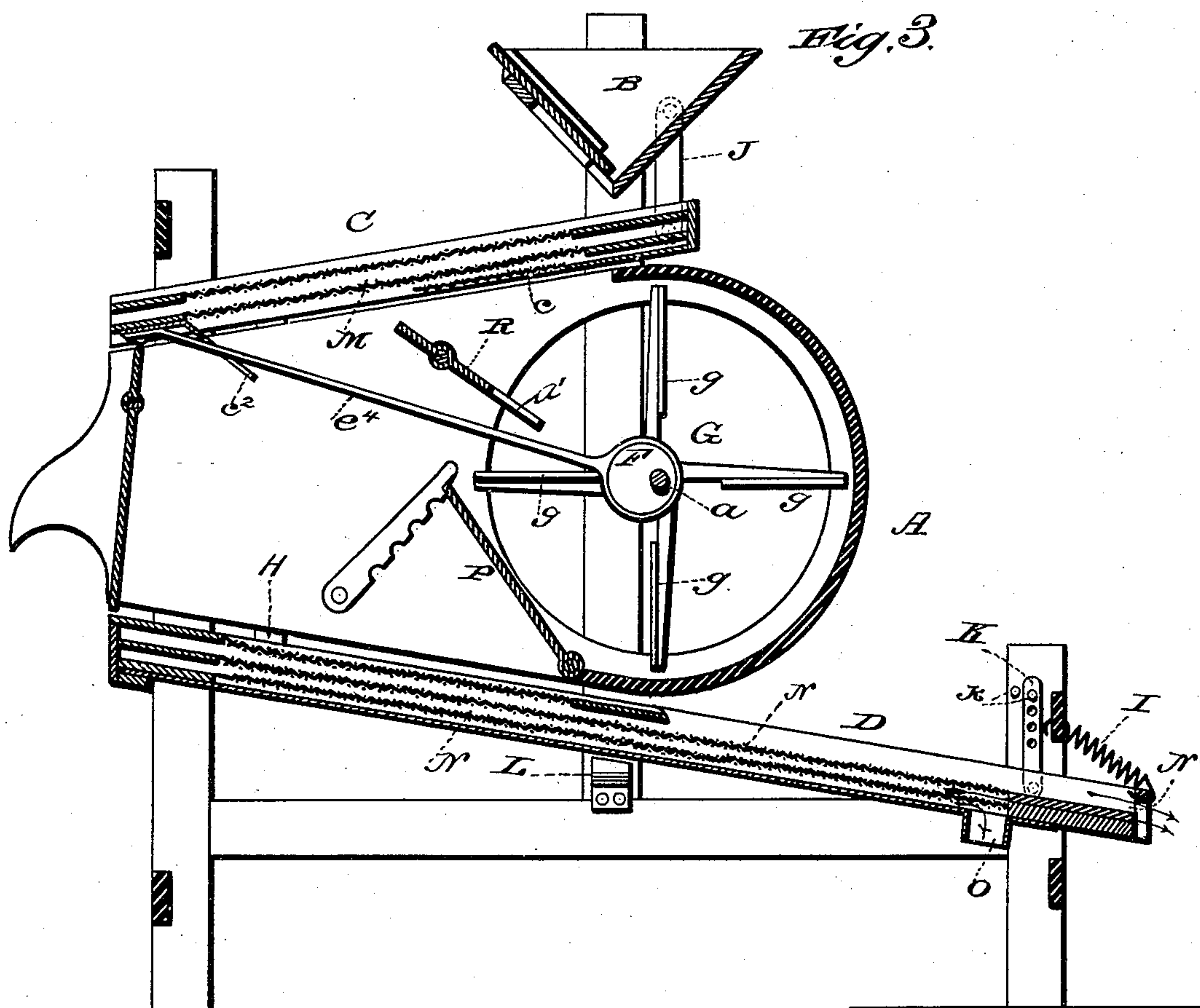
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T. M. BALES & C. P. RILEY. <sup>3</sup> Sheets—Sheet 2.  
FANNING MILL.

3 Sheets—Sheet 2.

No. 321,270.

Patented June 30, 1885.



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(No Model.)

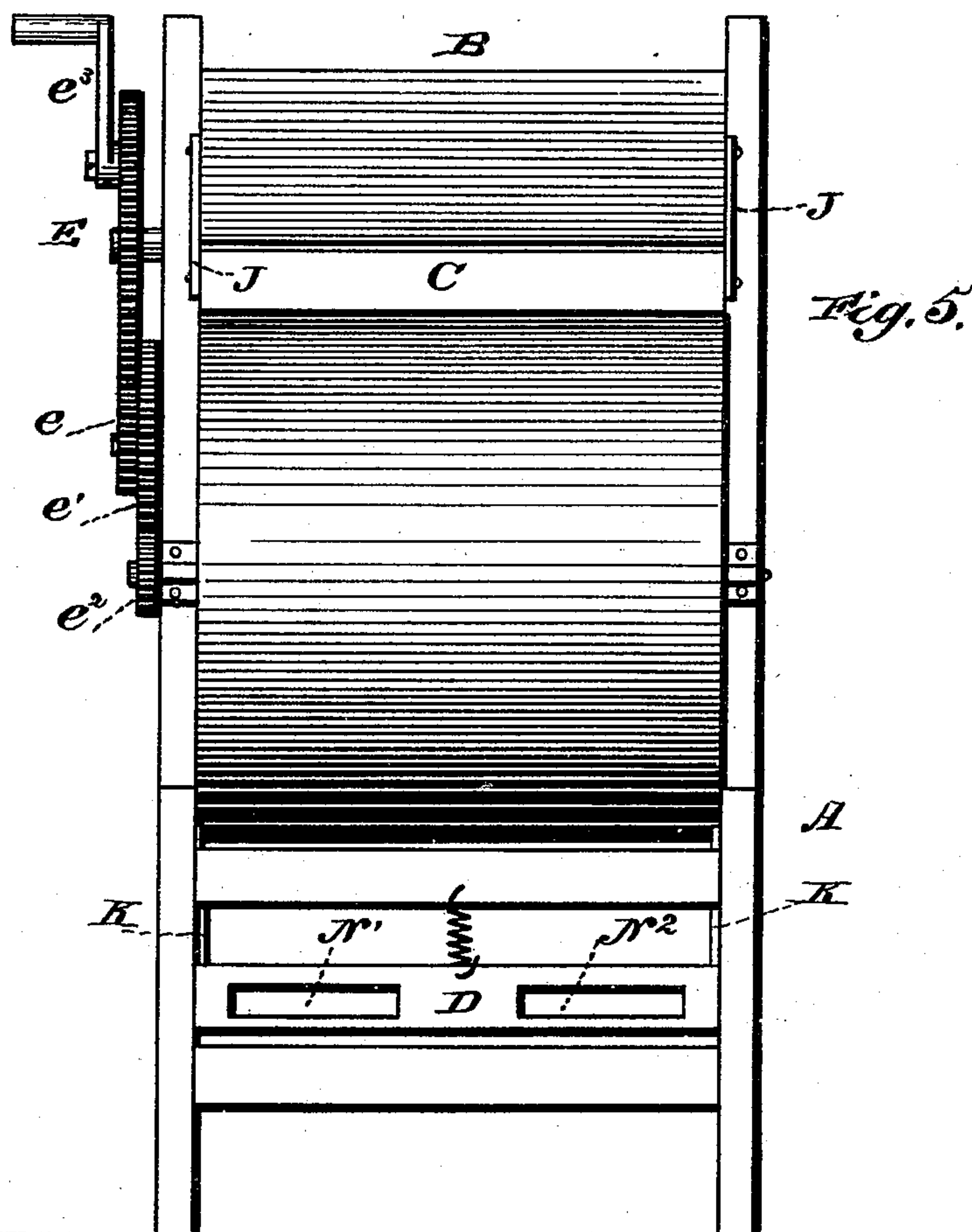
T. M. BALES & C. P. RILEY.

3 Sheets—Sheet 3.

FANNING MILL.

No. 321,270.

Patented June 30, 1885.



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# UNITED STATES PATENT OFFICE.

THOMAS M. BALES AND CHARLES P. RILEY, OF CONNERSVILLE, INDIANA.

## FANNING-MILL.

SPECIFICATION forming part of Letters Patent No. 321,270, dated June 30, 1885.

Application filed November 20, 1884. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS M. BALES and CHARLES P. RILEY, citizens of the United States, residing at Connerville, in the county of Fayette and State of Indiana, have invented certain new and useful Improvements in Fanning-Mills; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings is a side view of a fanning-mill embodying our improvements. Fig. 2 is a plan view. Fig. 3 is a vertical central sectional view. Fig. 4 is a view of the fan and fan-shaft detached from the machine, and of the eccentric and the connecting-rod. Fig. 5 is a front view.

This invention relates to improvements in fanning-mills for separating different kinds of grain or seeds; and it consists in the construction and arrangement of parts, fully described in the annexed specification and pointed out in the claims thereof.

Referring to the accompanying drawings and the letters of reference marked thereon, A represents the frame of the machine, of the usual shape, and having attached thereto the hopper B and the upper and lower shoes or screen-frames, C and D, respectively.

$a$  is the main or actuating shaft of the machine, turning in proper bearings fixed to the frame, as shown. The shaft  $a$  is rotated by means of the gear-wheels E,  $e$ ,  $e'$ , and  $e''$  and the crank-handle  $e^3$ , or by other proper mechanism.

F is an eccentric fixed on the shaft  $a$  and reciprocating the eccentric-rod  $e^4$ , fixed at its front end to the eccentric-strap, and at its rear end loosely connected to the rear of the upper shoe, C, as shown.

G is the fan, fixed to and rotating with the shaft  $a$ , and composed of the blades  $g$   $g$ , divided centrally for the passage of the rod  $e^4$ . The blades form, in fact, two similar equal sets on each side of the eccentric.

H H are vibrating straps pivoted at their

centers to the sides of the frame A, and having their upper and lower ends connected, respectively, to the upper and lower shoes in such manner that they will not bind on the shoes when vibrating. By means of these straps, when the upper shoe is reciprocated outward, the lower shoe is reciprocated inward, and the reverse.

I is a coil-spring fixed by one end to the center of the front of the lower shoe, and by the other to the central part of the front of the main frame. This spring aids in returning the lower shoe outward when it has been reciprocated inwardly.

J J are the iron straps, pivoted by their upper ends to the hopper on each side, and by their lower ends to the front corners of the upper shoe. These straps support the front end of the upper shoe.

K K are similar straps, connecting the lower shoe near its corners with the front of the main frame, and act in a corresponding manner to the upper shoe.  $k$  are pins to adjust the straps higher or lower.

The shoes, besides being reciprocated by their straps, have also a tossing motion imparted to them, as the straps J and K are shorter than the arms of the straps H, and consequently lift the ends of the shoes when extended. The grain is thus tossed and evenly spread in passing over the screens and prevented from clogging in the meshes.

L L are knockers attached to each side of the main frame below the lower shoe near its center in such manner that they will strike against the latter when it is reciprocated and will jar the screen.

The upper shoe, C, consists of a frame inclining downward toward the rear end of the machine from the hopper, and having attached to it a very fine screen,  $c$ . This screen is too fine for grain to pass through, and as the latter passes over it the blast lifts the chaff and dust clear of the grain.

$c^2$  is a transverse strip of tin-plate secured within the rear lower end of the frame C and inclining inward and downward therefrom.

M is the screen or screens of the upper shoe, having a transverse bar under the hopper about six inches wide, so that the grain slides



off when dropping from the hopper, and the sticks and straw joints cannot fall upon and stick in the meshes.

N N are the screens of the lower shoe, D, the upper coarser than the lower one, as usual, and intended to deliver, by the opening N', number one grade of wheat, while the lower screen delivers number two grade by the opening N<sup>2</sup>. In cleaning small seed the upper screen delivers clover and the lower screen timothy seed.

O is an opening in the floor of the lower shoe for the delivery of the screenings.

P is a wind-board pivoted or hinged at its lower edge to the main frame at a point corresponding to and a short distance in front of the lowest point of the fan, and R is a wind-board pivoted at the center of its side edges in the main frame vertically above P. This board R is provided with a longitudinal slot, a', for the passage of the rod e<sup>t</sup>. By means of these boards the blast can be cut off from the upper shoe or can be directed upward upon any point of said shoe at pleasure.

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

1. In a fanning-mill, the combination, with the main frame, of the upper and lower screens, the straps, as described, for supporting the same, the drive-shaft a, eccentric F, the rod e<sup>t</sup>, connected at its forward end to the said eccentric and at its rear end to the upper screen-frame, the spring I, connecting the lower screen-frame to the main frame, and means for vertically jarring the screens, substantially as specified.

2. In a fanning-mill, the combination, with the main frame, the upper and lower screens, the drive-shaft, and divided fan, of the eccentric F, rod e<sup>t</sup>, wind-board P, adapted to be adjustably supported with relation to the fan, as shown, and the wind-board R, pivoted and slotted for the reception of the said rod, whereby the direction of the blast may be cut off or varied upon the upper screen, substantially as specified.

In testimony whereof we affix our signatures in presence of two witnesses.

THOMAS M. BALES.  
CHARLES P. RILEY.

Witnesses:

LEWIS W. FLOREA,  
JAMES McCAM.