

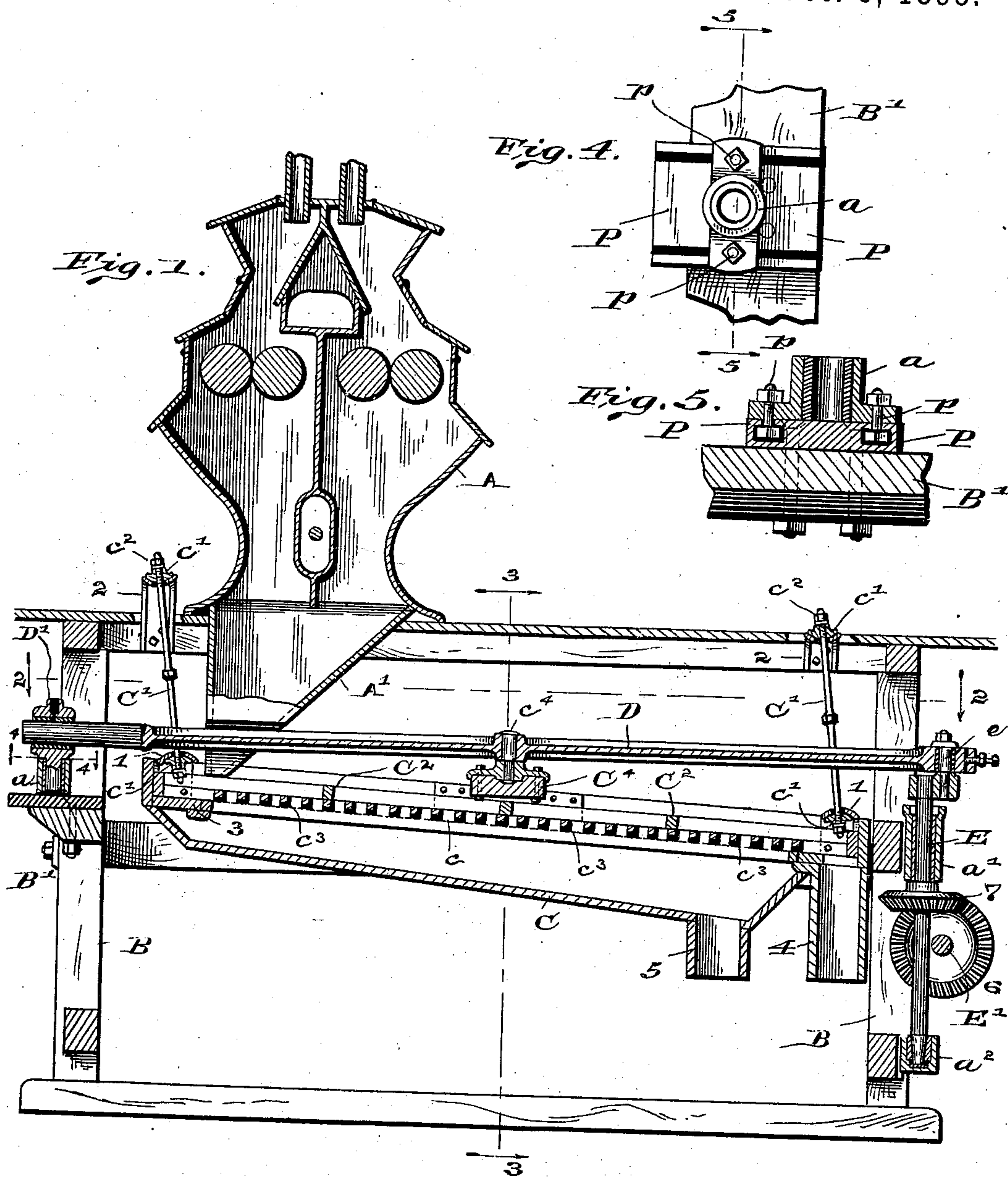
(No Model.)

A. C. BRANTINGHAM.  
SIFTING MACHINE.

2 Sheets—Sheet 1.

No. 547,596.

Patented Oct. 8, 1895.



WITNESSES:

H. B. Neely,  
J. A. Walsh.

INVENTOR

Allen C. Brantingham,  
BY  
Chester Bradford,  
ATTORNEY.

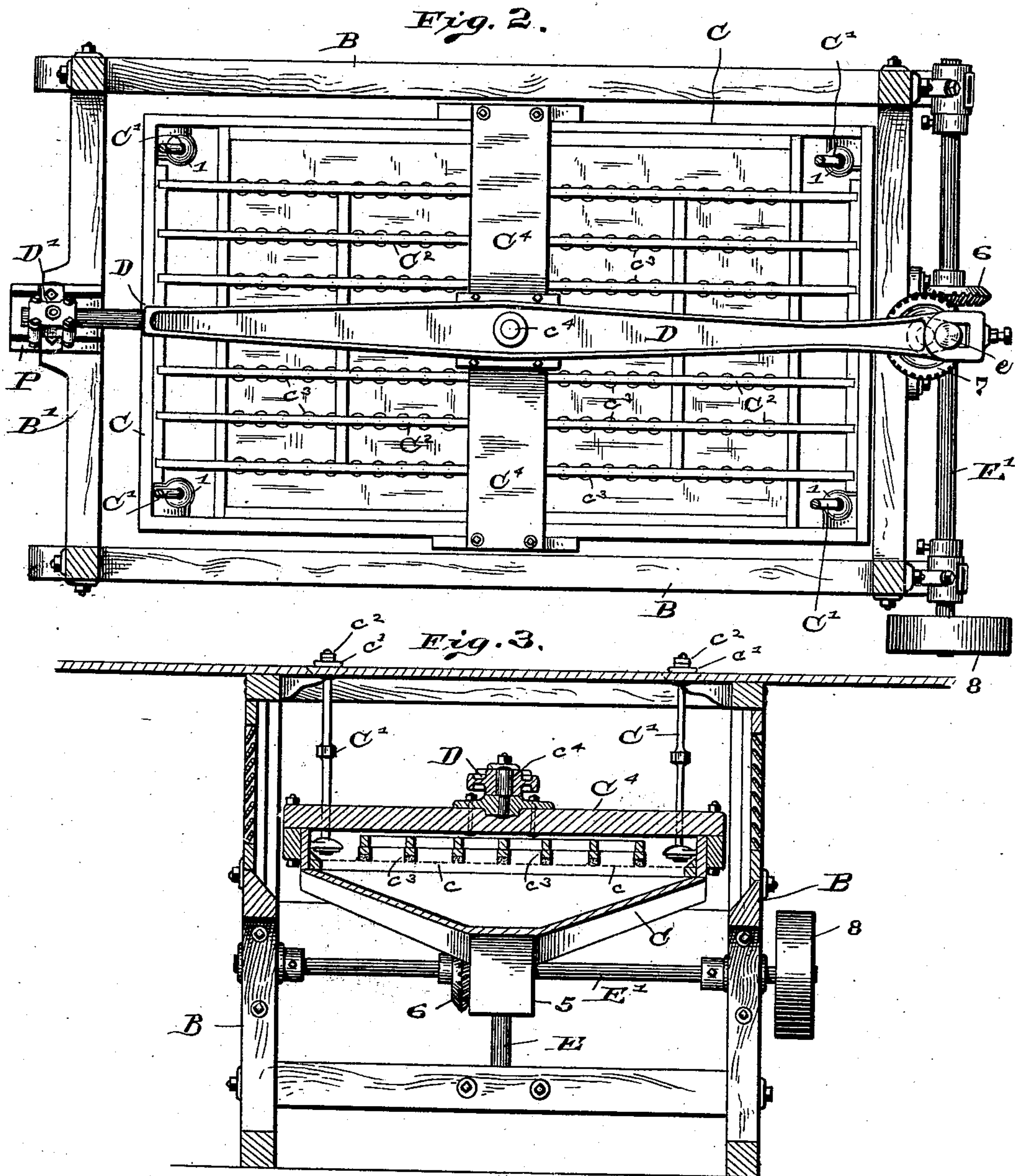
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# UNITED STATES PATENT OFFICE.

ALLEN C. BRANTINGHAM, OF TOLEDO, OHIO, ASSIGNOR TO THE NORDYKE & MARMON COMPANY, OF INDIANAPOLIS, INDIANA.

## SIFTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 547,596, dated October 8, 1895.

Application filed November 2, 1894. Serial No. 527,757. (No model.)

*To all whom it may concern:*

Be it known that I, ALLEN C. BRANTINGHAM, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Sifting-Machines, of which the following is a specification.

The object of my present invention is to improve and simplify that class of sifting-machines in which the sifter is given a horizontal gyrating motion while suspended by hangers capable of oscillating to accommodate such motion.

A machine embodying said invention will be first fully described, and the novel features thereof then specifically pointed out in the claims.

Referring to the accompanying drawings, which are made a part hereof, and on which similar letters and numerals of reference indicate similar parts, Figure 1 is a central vertical sectional view of a sifting-machine embodying my said invention and the frame of a roller-mill arranged above it, except that the sectional point is shifted at the hangers to the center of such hangers, thus showing, also, their construction; Fig. 2, a top or plan view of the sifting-machine separately as seen from the dotted line 2 2 in Fig. 1; Fig. 3, a transverse sectional view as seen from the dotted line 3 3 in Fig. 1, and Figs. 4 and 5 detail views illustrating the adjustable bearing.

In said drawings the portions marked A represent the framework of a grinding-mill (a roller-mill is illustrated) arranged to discharge directly into the sifting-machine; B, the framework of said sifting-machine; C, the body of the sifter; D, an operating-bar by which motion is imparted thereto, and E a crank-shaft by which the same is driven.

The mill A may be of any desired form or construction. An ordinary roller-mill is illustrated. A hopper-like receptacle A' is shown below, into which the product of the grinding-rolls falls and by which it is conveyed to the upper end of the sifter C and is there deposited in a long sheet extending substantially across the sifter. The point of this hopper extends just below the sides of the sifter, and at the lower end the central portion is divided to permit the passage of the bar D.

The framework B is of suitable form and construction for the purpose and carries the various bearings necessary for the moving parts of the machine.

The sifter C is preferably rectangular in horizontal outline, as shown in Fig. 2, and is supported by the hangers C', preferably one at each corner, as shown. These hangers I have shown in the form of rods with suitable convex bearing parts  $c'$  on the ends, which rest in concave bearings 1 on the sifter at the lower ends and in similar bearings 2 on the framework at the upper ends. There are nuts  $c^2$  in connection with the hangers C', by which an accurate adjustment may be had or the adjustment varied from time to time. The sifter in its upper portion has substantially perpendicular sides for a short distance, and within these sides, at the point indicated by a line  $c$  made up of short dashes, is a cloth sieve extending over nearly its entire surface. At the upper end of the sifter is the board 3, which receives the greater part of the force of the discharge of the stock from the grinding-mill or ingress spout or hopper, and at the lower end, beyond the sieve, is a discharge-spout 4 for the coarser material which will not pass through the sieve. Below the sieve is the bottom of the sifter, in the form of a flat hopper, which terminates in a discharge-spout 5, from which the sifted material is discharged. Any suitable conveyers or receptacles may be connected to these spouts 4 and 5 in any desired manner; but as these form no part of my present invention they are not shown or described herein. Just above the cloth sieve C is a framework C<sup>2</sup>, which extends substantially all over said cloth sieve and has numerous small bars running from end to end or side to side thereof, and extending downwardly from these bars are small round pins  $c^3$ , the lower ends of which are armed with felt or some other soft substance, and which come into close proximity to or barely touch the sieve-cloth  $c$ . These pins extend into the material passing over the sieve and serve to prevent its accumulating at any one point, but rather act to overturn, disintegrate, and disperse it, although there is no independent motion of the frame which carries them from the main frame of the sifter, the whole moving together



and uniformly. The soft tips of felt or other suitable material prevent any abrasion or wearing of the cloth which would result from wood or other harsh material coming in direct contact therewith, owing to the vibration of the machine.

The bar D extends longitudinally over the top of the sifter C and is connected to a cross-bar C<sup>4</sup> thereon by a pivot-pin c<sup>4</sup>. At one end said bar is connected to a crank-pin e on the crank-shaft E and at the other end it passes through a pivoted bearing D', mounted in an adjustable bearing a on the frame B. The operation is, as will be readily understood, to cause the sifter to move in an elliptical path, the bar D operating as a pitman in moving it longitudinally and as a lever of the second order in moving it laterally, so that its operating-point, being at about the center, the lateral movement is only about half as much as the longitudinal movement. The relative positions of the attaching-points, and consequently the comparative distance of the longitudinal and lateral movements, I prefer to make adjustable, as thus the operation upon stock of various kinds may be varied as desired. This may be done either by making the bearing a, cross-bar C<sup>4</sup>, or other attaching part so that its position may be shifted. I have shown the bearing a as the movable part and illustrated a means of moving said part in the drawings. In the detail drawings, Fig. 4, which shows the bearings a with the pivoted bearing D' removed therefrom, said bearing a is shown as mounted upon a base-plate P and secured thereto by bolts p, and said plate is in turn secured to the cross-bar B' of the frame B. Manifestly by loosening the nuts on the bolts p the bearings a can be slipped along to any desired point on the plate P and there firmly secured by tightening up said nuts, the heads of which are shown in Fig. 5 as entering appropriate grooved ways therefor in said plate P. Manifestly, however, many other methods of adjustment may be provided without departing from my invention, the particular construction and arrangement shown being only for the purpose of illustrating a means of accomplishing this result.

I have discovered by experiment that the peculiar movement described is of great advantage in a machine of this character. Such tests have demonstrated that with a strictly circular movement the tendency of the stock being treated is to bank up against the sides of the sifter rather than to travel over it uniformly. The elliptical movement corrects this tendency and serves to break up and dis-

integrate instead of consolidate and bank up the stock and aids the work of the pins c<sup>3</sup>.

The crank-shaft E is mounted vertically in bearings a' and a<sup>2</sup> on the framework A, the latter of which is shown as a "step-bearing," and carries the crank or wrist-pin e on its upper end, through which it drives the bar D. It is driven from the shaft E' by means of the gear-wheels 6 and 7, mounted on said shafts E' and E, respectively, as shown, and said shaft E' is usually driven from any suitable source of power (not shown) by a belt running to a pulley 8 thereon.

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

1. The combination, in a sifting machine, with a suspended sifter, of an operating bar extending across the machine and connected thereto at a substantially central point, a driving crank-shaft connected to said bar at one end, and a swiveling bearing in which said bar rests at the other end, whereby said sifter is driven in an oval path and given a greater longitudinal than lateral movement, substantially as set forth.

2. The combination, in a sifting machine, with a suspended sifter, of means for operating the same consisting of a driving bar extending over and across said sifter, and mechanism whereby said bar is driven in a horizontal plane, while the sifter is driven with an unequal gyrating movement, substantially as set forth.

3. The combination, in a sifting machine, with a suspended sifter, of means for operating the same consisting of a bar connected thereto, a driving crank-shaft connected to one end of said bar, a swiveling bearing for said bar at the other end, and an adjustable bearing for said swiveling bearing, substantially as and for the purpose set forth.

4. The combination, in a sifting machine, of a suspended sifter, an operating bar connected thereto at a substantially central point, a driving crank-shaft connected to said bar at one end, and a swiveling bearing for said bar at the other end, the points of attachment between said sifter, said bar and one or more of its connections being adjustable, whereby the elliptical movement described may be varied as desired.

In witness whereof I have hereunto set my hand and seal, at Toledo, Ohio, this 30th day of October, A. D. 1894.

ALLEN C. BRANTINGHAM. [L. S.]

Witnesses:

M. W. PLATT,  
GEO. J. RUDD.