

J. P. COMINS.
Amalgamators.

No. 153,049.

Patented July 14, 1874.

Fig. 1.

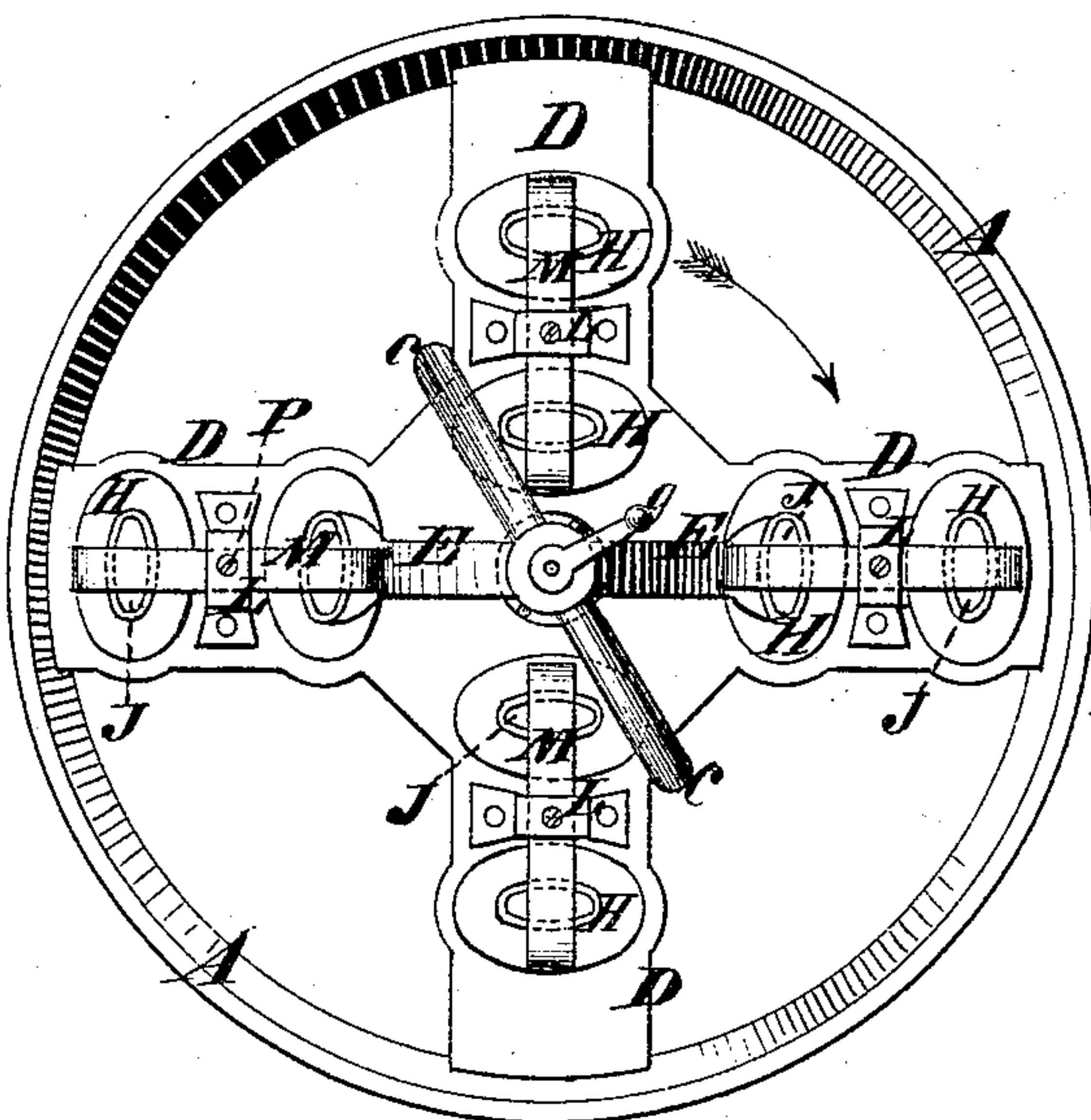


Fig. 2.

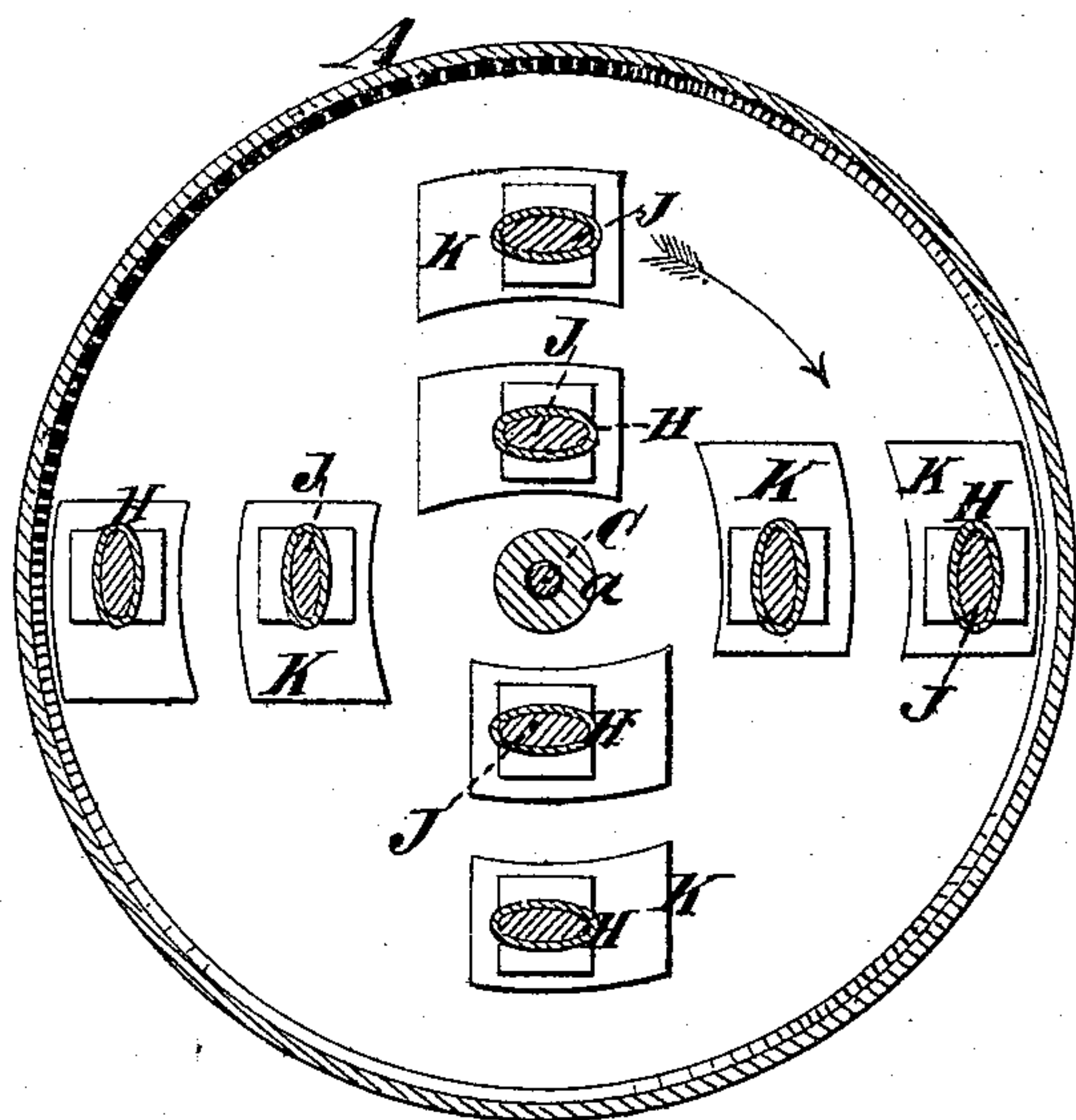


Fig. 3.

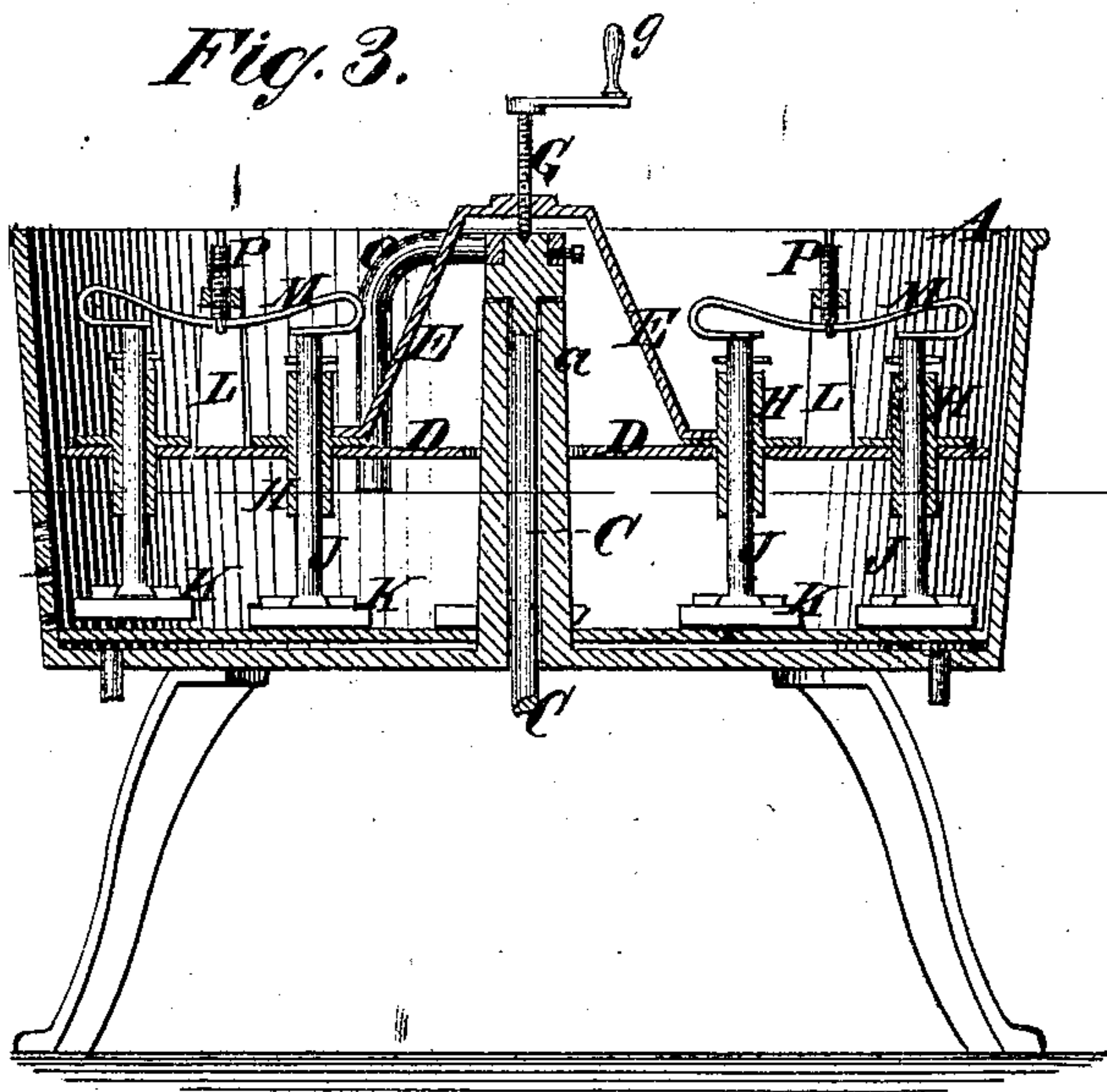


Fig. 4.

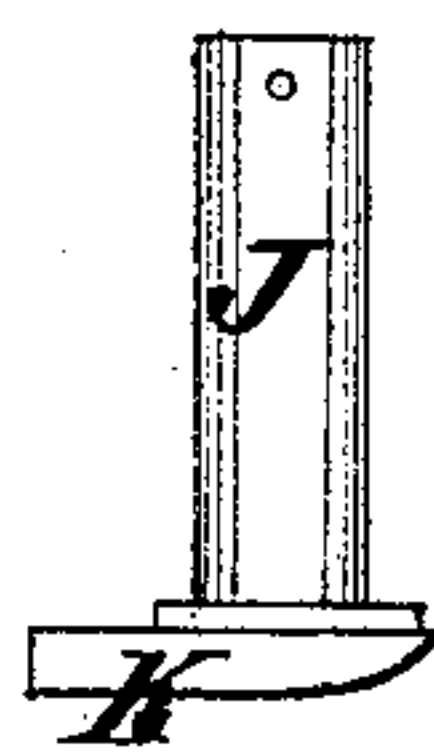


Fig. 5.



Witnesses.

John Becker
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UNITED STATES PATENT OFFICE.

JOHN P. COMINS, OF NEW YORK, N. Y.

IMPROVEMENT IN AMALGAMATORS.

Specification forming part of Letters Patent No. **153,049**, dated July 14, 1874; application filed June 26, 1874.

To all whom it may concern:

Be it known that I, JOHN P. COMINS, of New York, in the county and State of New York, have invented certain Improvements in Amalgamators, of which the following is a specification:

My invention relates to that class of amalgamators in which the grinding and amalgamating is done on the bottom of the pan by plates or shoes fixed to a revolving yoke attached to a vertical shaft driven by bevel-gear beneath the pan.

The invention consists in the combination with the revolving yoke of a series of shoes attached to slides or posts working in guides attached to said yoke, pressure being applied to the upper ends of the slides by means of springs having their tension regulated by screws working in standards arranged on the yoke between the guides, thereby causing a uniform pressure upon all the shoes, and avoiding the inconvenience which would otherwise arise in consequence of the shoes farthest from the center traveling over more surface and wearing more rapidly than those nearest the center.

In the accompanying drawing, Figure 1 is a top view of my improved amalgamator. Fig. 2 is a horizontal section. Fig. 3 is a central vertical section. Figs. 4 and 5 are detail views.

The pan A is made, preferably, of cast metal, in one single piece, and may, if desired, be provided with a false or additional bottom, forming a steam-chamber, into which steam may be introduced from beneath the pan. In the center of the pan is a vertical tubular projection, *a*, which rises to within a suitable distance of the level of the edge of the pan, and forms a bearing for a vertical shaft, C, the lower end of which is provided with suitable bevel or other gearing for driving it. From the upper portion of the shaft C project two arms, *c c*, which extend radially in opposite directions and are curved downward, so as to engage with two of a series of arms, D, which radiate from a common center and form part of the revolving yoke, which may be made of a single piece of metal, in the form of a cross, with an opening in the center somewhat larger than the central tubular projection *a* in the

pan, so as to allow said yoke to revolve readily around said projection *a*. Power being applied to the shaft C through the gearing at its lower end, the arms *c c* engage with the arms D and cause the yoke to revolve around the tube *a*. There may be any desired number of arms D, but, in practice, I have found that four arms equidistant from each other accomplish the desired purpose in a satisfactory manner. From the arms D extends upward a brace, E, in the top of which is an internal thread, in which works a screw, G, the point of which bears upon the upper end of the shaft C. On the upper end of the screw G is a handle, *g*, for turning it. By turning the screw to the right or left the arms D are raised or lowered, and their height above the bottom of the pan is regulated. In the arms D are inserted oval or other shaped tubes, H, extending vertically above and below the arms. These tubes serve as guides for posts J, to the lower ends of which are attached the grinding plates or shoes K. Each of the arms D is provided with two of the guides H and posts J. The guides and posts on those arms which are diametrically opposite each other are farther from the center of revolution than those on the intermediate arms, so that as the arms revolve around the common center the shoes of one arm pass over the spaces not passed over by the shoes of the preceding arm, and nearly the entire space on the bottom of the pan, from the center to the circumference, is passed over by the grinding plates or shoes, and the contents of the pan are thoroughly operated upon by the shoes.

The grinding plates or shoes are made of solid cast metal, and may be attached to the posts J by dovetail, tongue and groove, or any other suitable mode of attachment. The sides of the shoes are curved to correspond with the periphery of the pan, as shown in Fig. 4, and their front ends or edges are rounded or curved upward, as shown in Fig. 5, to facilitate their operation.

On the upper side of each arm D, midway between the tubular guides H, is a vertical standard, L, through the upper portion of which passes a spring, M, the ends of which are turned downward and inward toward each other, and rest upon the upper ends of the

posts J. In the top of the standard L is a screw, P, the point of which bears upon the spring M. By turning the screw to the right or left the pressure of the spring is regulated. If the shoes and posts were rigidly attached to the arms D, the shoes farthest from the center would pass over more surface and wear more rapidly than those nearest the center; but, by means of the springs M and screws P, the pressure is equally applied to both shoes of each arm, and all the shoes bear uniformly upon the bottom of the pan and the contents thereof.

What I claim as new, and desire to secure by Letters Patent, is—

The combination, with the revolving yoke D, of the grinding plates or shoes K, posts J, guides H, and springs M, substantially as and for the purpose shown and described.

JOHN P. COMINS.

Witnesses:

A. H. NONES,

B. W. HOFFMAN.