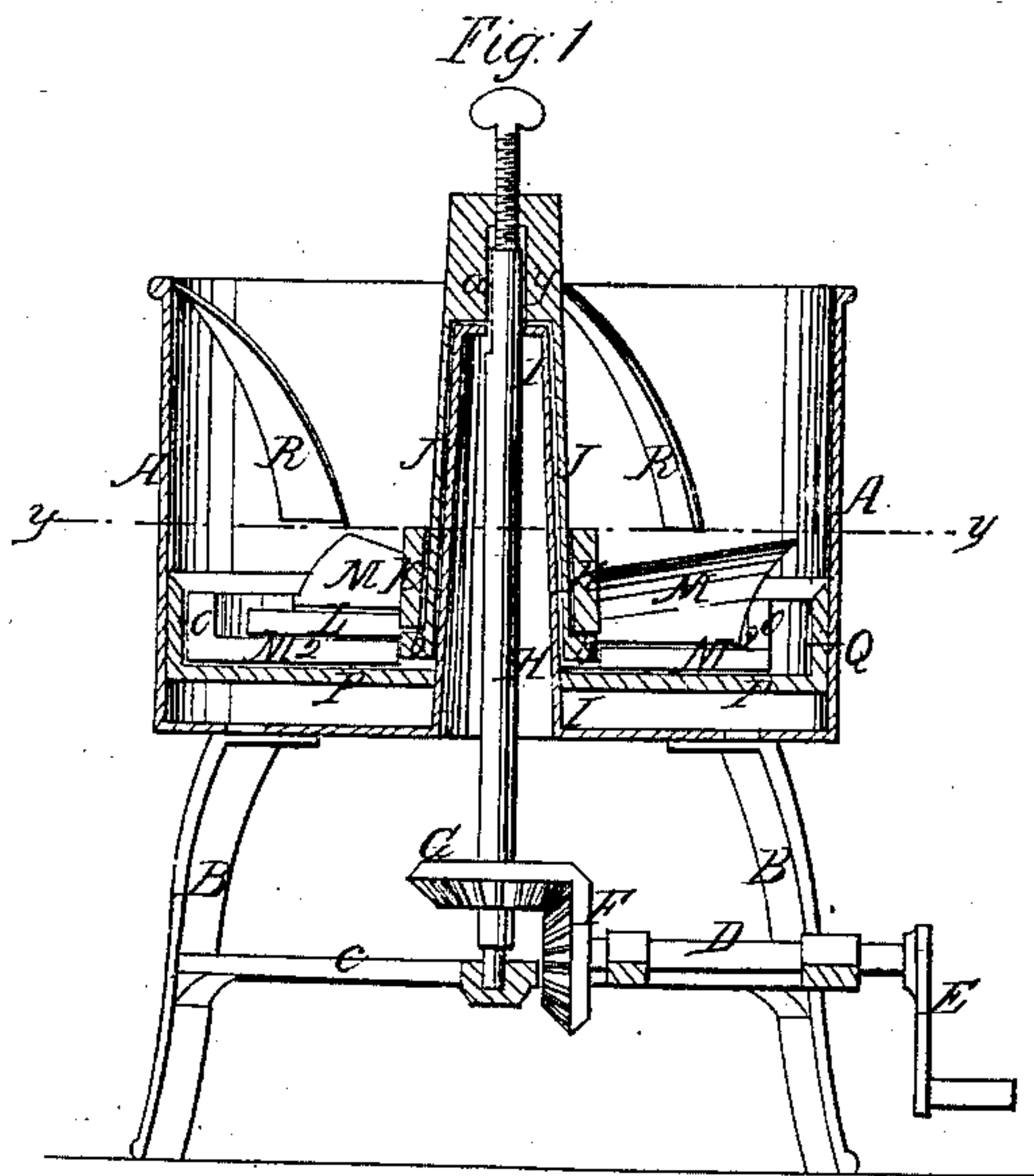


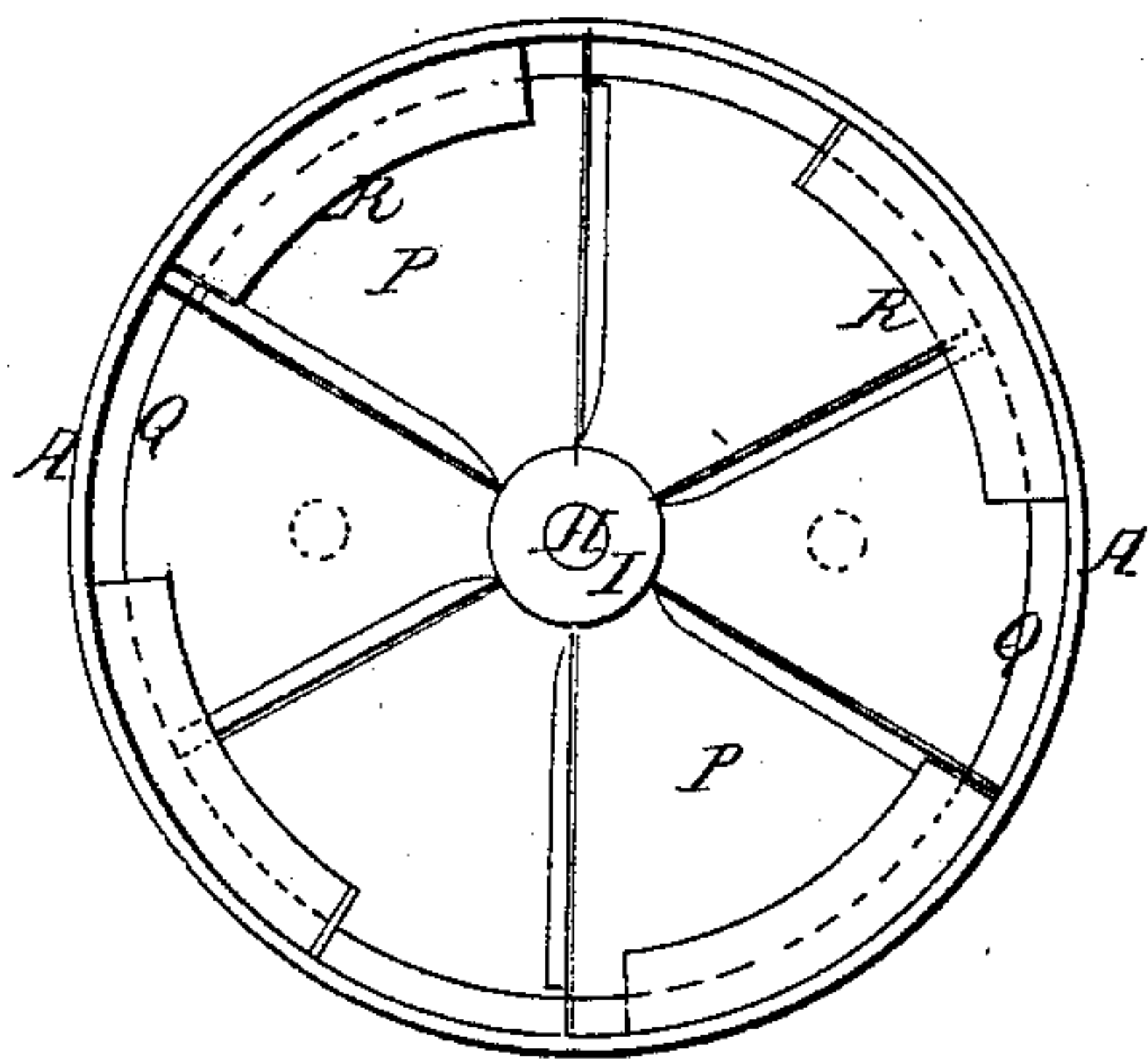
*S. Standish.*  
*Ore Amalgamator.*

*N<sup>o</sup> 61,274.*

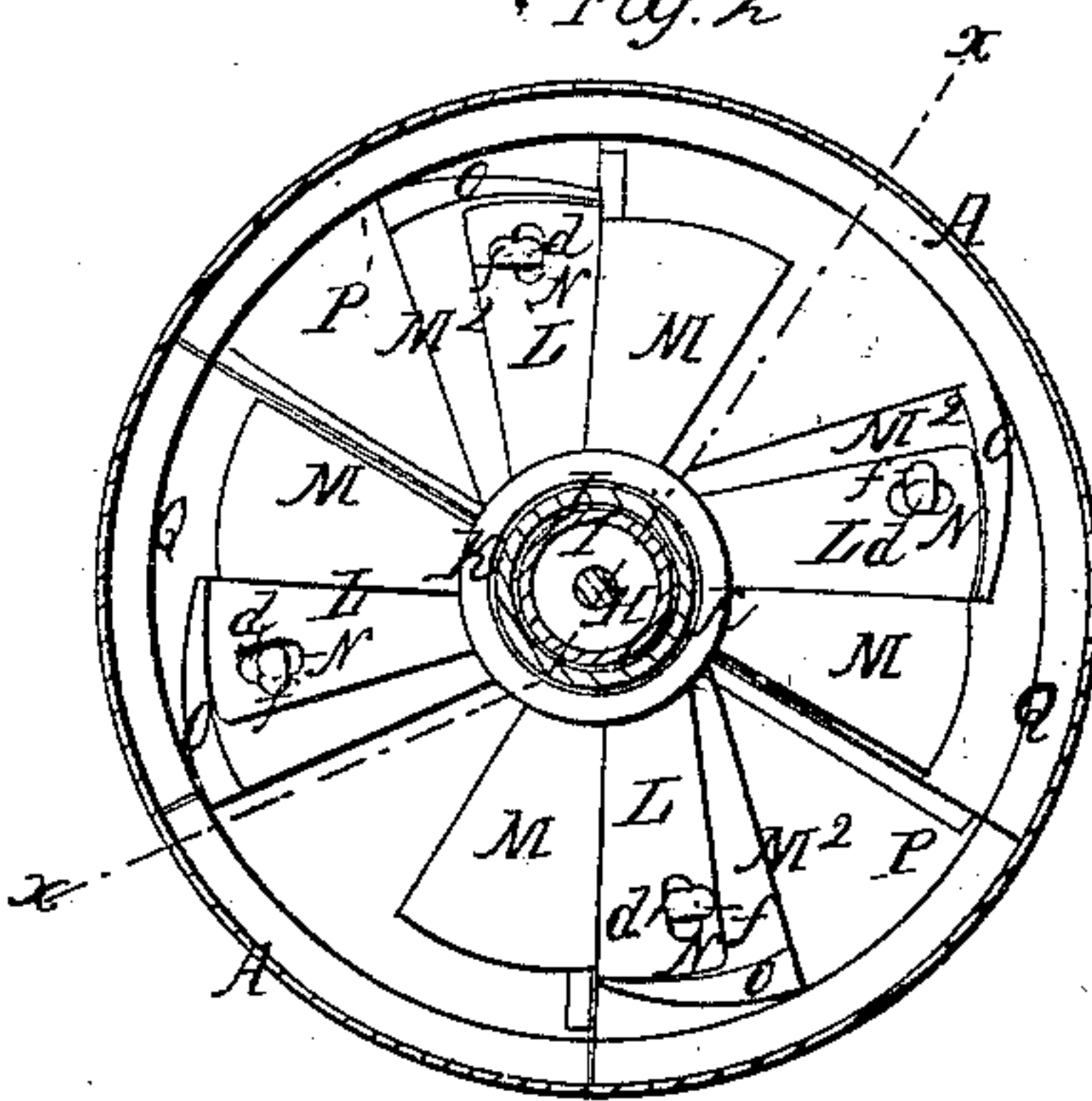
*Patented Jan. 15, 1867.*



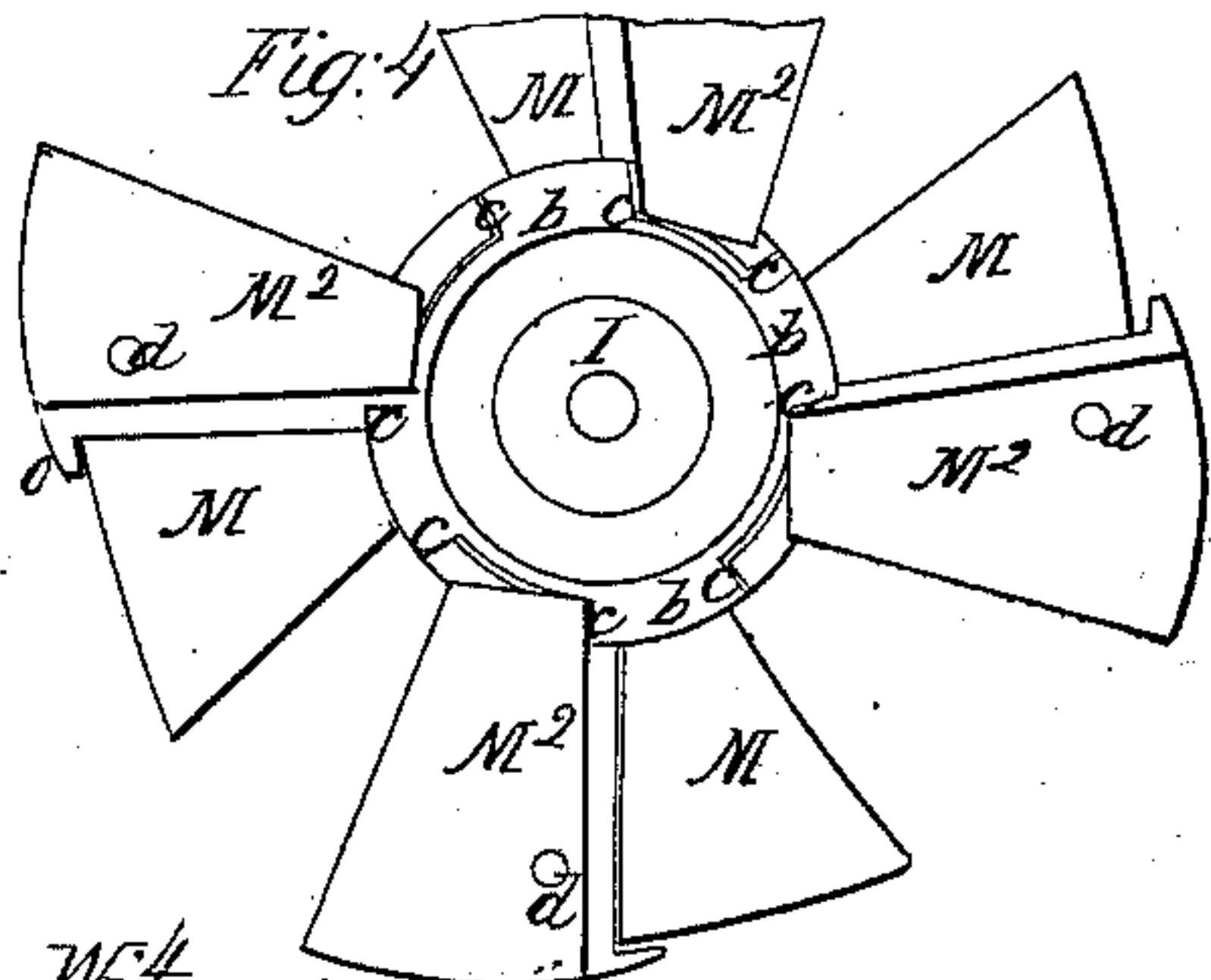
*Fig. 3.*



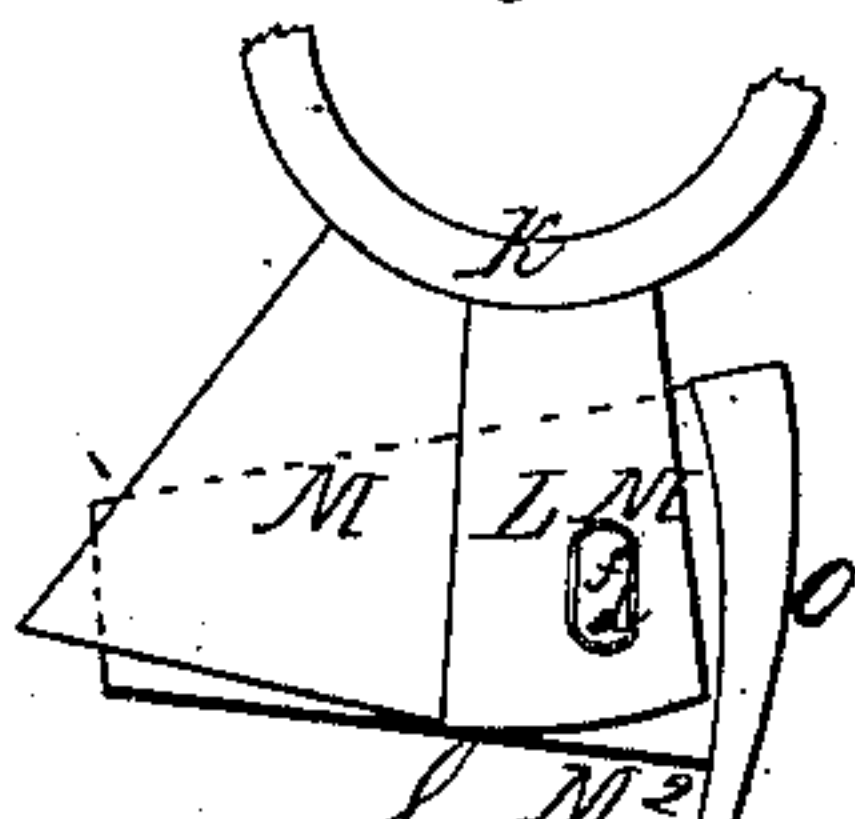
*Fig. 2.*



*Fig. 4.*



*Fig. 5.*



*Witnesses:*  
*J. A. Jackson*  
*J. L. Service*

*Inventor:*  
*Syracuse Standish*  
*Per Mowrey*



# United States Patent Office.

SYRANUS STANDISH, OF PACHECO, CALIFORNIA.

*Letters Patent No. 61,274, dated January 15, 1867.*

## IMPROVED AMALGAMATOR.

The Schedule referred to in these Letters Patent and making part of the same.

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, SYRANUS STANDISH, of Pacheco, Contra Costa county, State of California, have invented new and useful improvements in Amalgamators; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a vertical section taken in the plane of the line *x x*, fig. 2.

Figure 2, a horizontal section taken in the plane of the line *y y*, fig. 1.

Figure 3, a plan or top view of the amalgamating vessel or pan, with the muller removed or detached therefrom.

Figure 4, an inverted plan view of the muller detached from the amalgamating vessel; and

Figure 5, a detailed view to be hereinafter referred to.

Similar letters of reference indicate like parts.

The present invention consists, first, in providing the rotating muller-shaft with a series of spiral flanges or wings, which, as the muller revolves, cause the pulp to be forced under the shoes, and thus brought into contact with the quicksilver or mercury used; and second, in a novel manner of attaching the shoes to the muller, whereby they are allowed a lateral motion, so that they can adjust themselves to the periphery of the surrounding pan or vessel, and also to the inequalities of its bottom-plate or surface.

A, in the drawings, represents the amalgamating-pan or vessel, which, in the present instance, is made of a cylindrical shape, and is supported upon four legs B, across and between which, below the bottom of the pan A, is a horizontal frame, C, having a short shaft, D; hung horizontally in bearings of the same, with a crank handle, E, upon its outer end, and a bevel gear-wheel, F, upon its inner end, that interlocks with a similar bevel gear-wheel, G, upon the lower end of a vertical shaft or spindle, H, extending up through the centre of the vessel and turning at its upper end in bearings of the upper end of a centre conical-shaped or upright standard, I, of the bottom of the pan A, and at its lower end in the centre of the horizontal transverse frame C of the supporting legs B. The centre vertical shaft H projects above the upright I of the pan, and at such end is slotted in the direction of its length, with which slot the lip or rib *a* upon the inside of the socket in the upper portion of a conical-shaped sleeve or casing, J, is engaged, when such sleeve or casing is placed over and upon the centre upright I of the pan A. At the lower end of the hollow sleeve J are a series of projections, *b*, at equal distances apart, both ends or sides, *c c*, of which are bevelled or angular shaped. With these projections *b* of the sleeve J, corresponding-shaped notches, *c*, in the loose collar or ring K, fit. This collar or ring K is provided with a series of horizontal radial arms, L, at equal distances apart, one edge of each of which is provided with an upward projecting spiral-shaped flange or lip, M, which series of flanges are all similar to each other, and extend in the same direction about their common centre collar K. In each of the radial arms L is a short slot, M, extending in the direction of their lengths, in which slots, by means of studs *d* having an eccentric-shaped head, *f*, flat shoe plates M<sup>2</sup> are hung, one to each arm L, each of which shoe plates is provided at its outer end with a similar spiral or curved-shaped lip or flange, *o*, that extends above and beyond the upper surface of the radial arms, as plainly shown in the drawings. Around the interior of the vessel or pan A, extending from its bottom plate upwards, is affixed a collar or band or ring, Q, against the inner surface of which the spiral or curved-shaped flanges of the shoe plates M<sup>2</sup> bear, as their common collar, to the arms of which they are hung, as above explained, is revolved. Within the interior of the vessel or pan A are arranged, at equal distances apart, a series of vertical spiral or curved-shaped stationary floats or flanges, R R, the number of which corresponds to that of the radial arms or shoe plates of the common centre collar or ring K.

From the above description of the manner in which the several parts composing my improved amalgamator are arranged with regard to each other and connected together, it is plainly apparent, that if the driving-shaft D is revolved by turning its crank-handle E, or in any other proper manner, the muller, consisting of the radial arms L, with their flanges, of the amalgamator will be thus rotated, stirring and agitating the pulp within the pan, and by the spiral-shaped flanges or wings M of such muller forcing the pulp down and under the shoes M<sup>2</sup> and into contact with the mercury or quicksilver used; and furthermore, that by the manner in which M<sup>2</sup> the shoes are attached or hung to the muller shaft arms L they are susceptible of a lateral motion, thus adjustin

themselves to the sides of the encircling ring or collar O of the pan or mill A, as well also to any inequalities which there may be in the surface of the bottom plate P; the flanges upon the outer ends of the shoes M<sup>2</sup> causing a grinding force to be brought to bear upon the pulp between them and the inner encircling band or ring Q.

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

1. The spiral-shaped flanges or lips M of the rotating muller arms L, substantially as and for the purposes specified.
2. The shoes M<sup>2</sup> hung to the muller arms L, so as to be susceptible of a lateral play upon such arms, substantially as and for the purpose described.
3. The shoes M<sup>2</sup> having spiral-shaped flanges or lips O upon their outer ends, as and for the purpose set forth.

Witnesses:

SYRANUS STANDISH.

J. F. CHELLIS,

H. G. JACKSON.