

(No Model.)

D. PETERS.
EGG BEATER AND MIXER.

No. 370,406.

Patented Sept. 27, 1887.

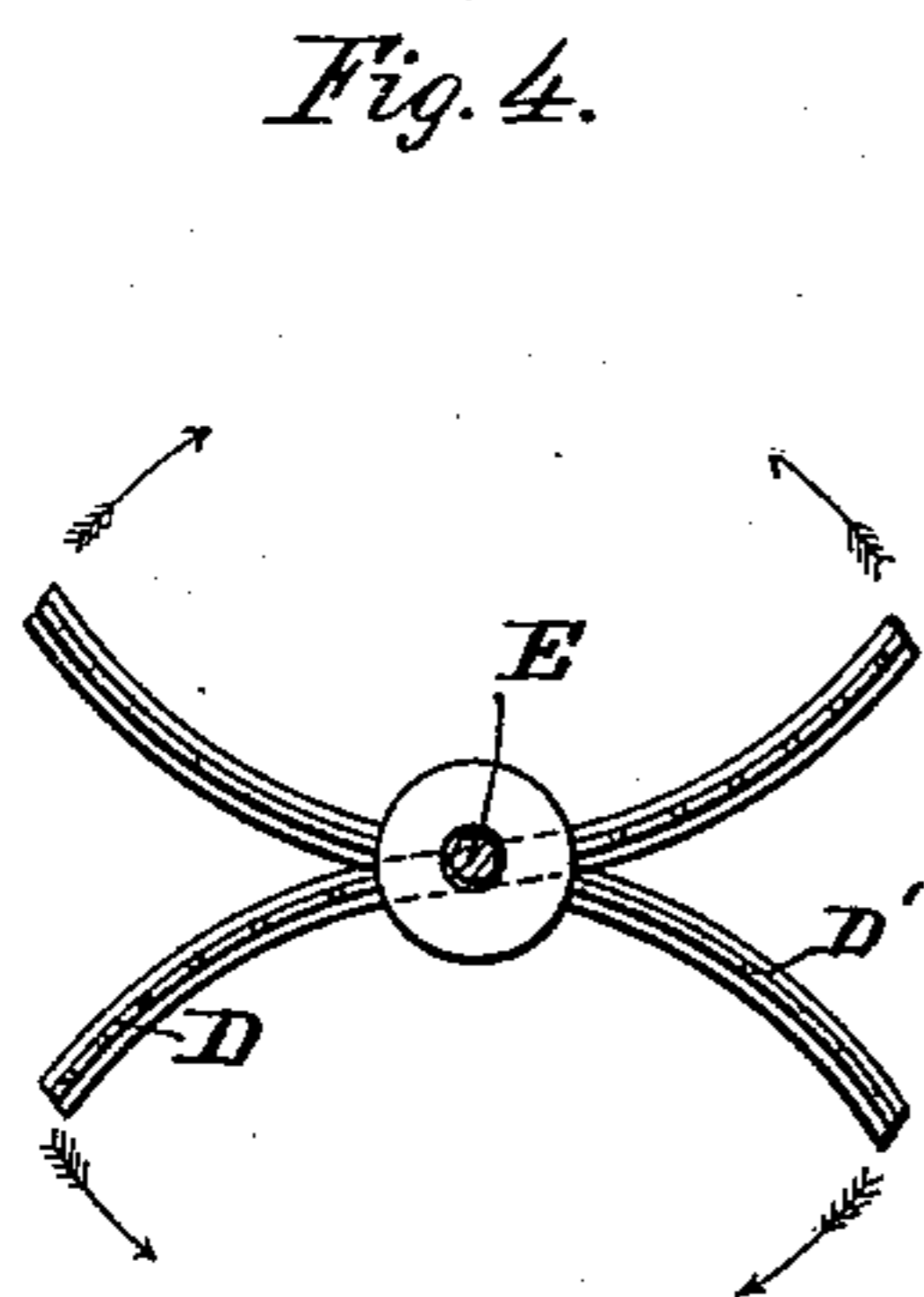
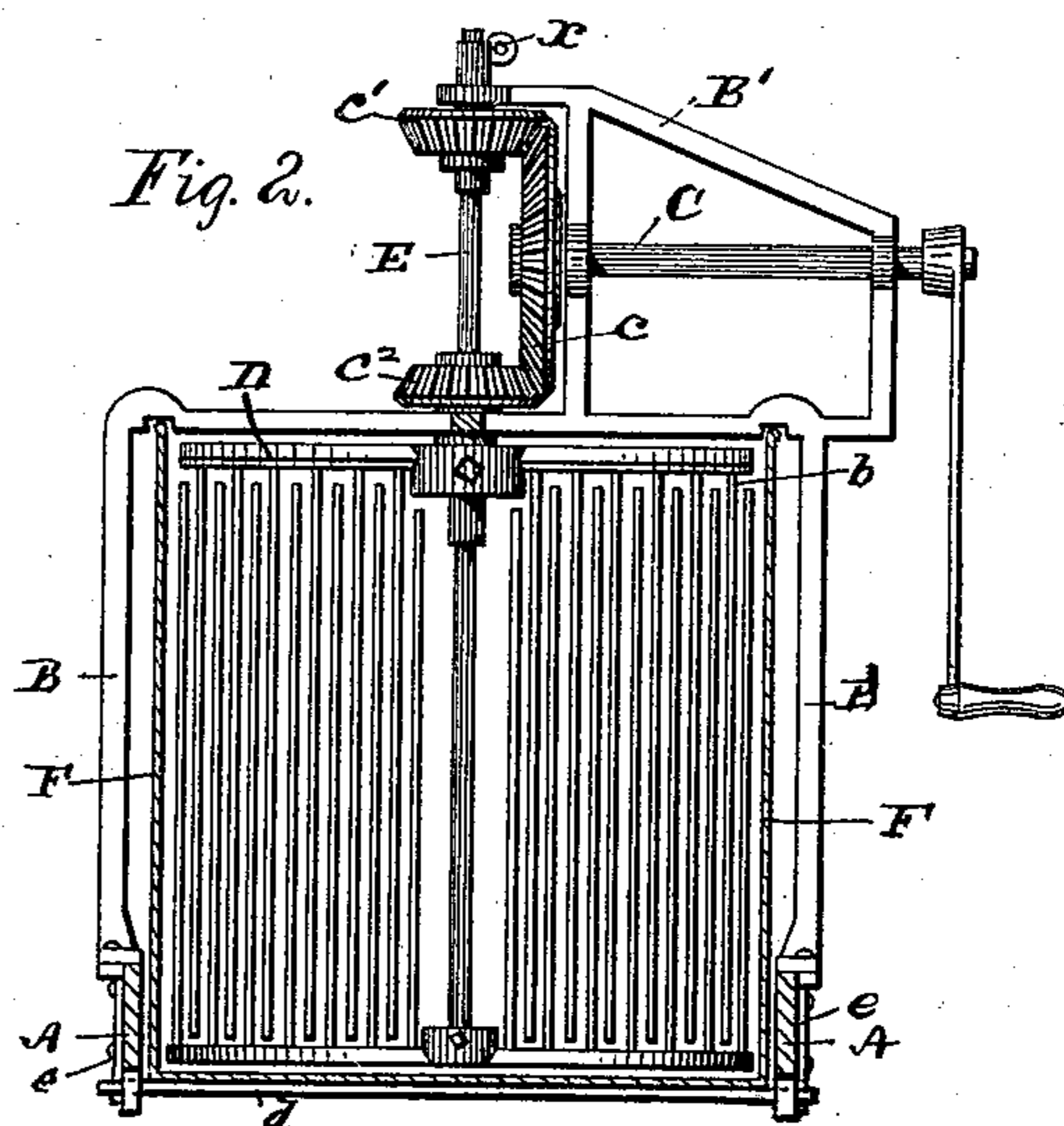
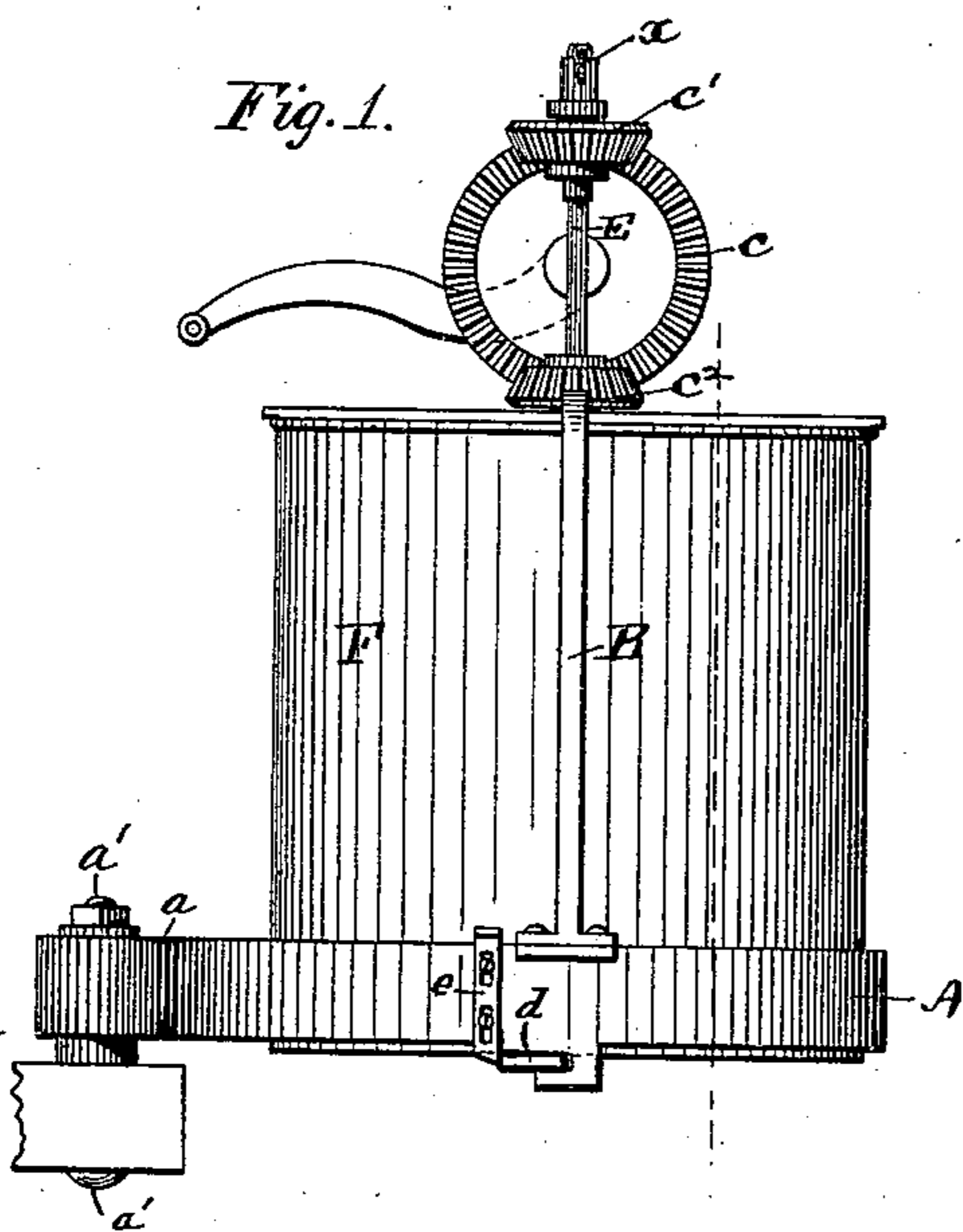
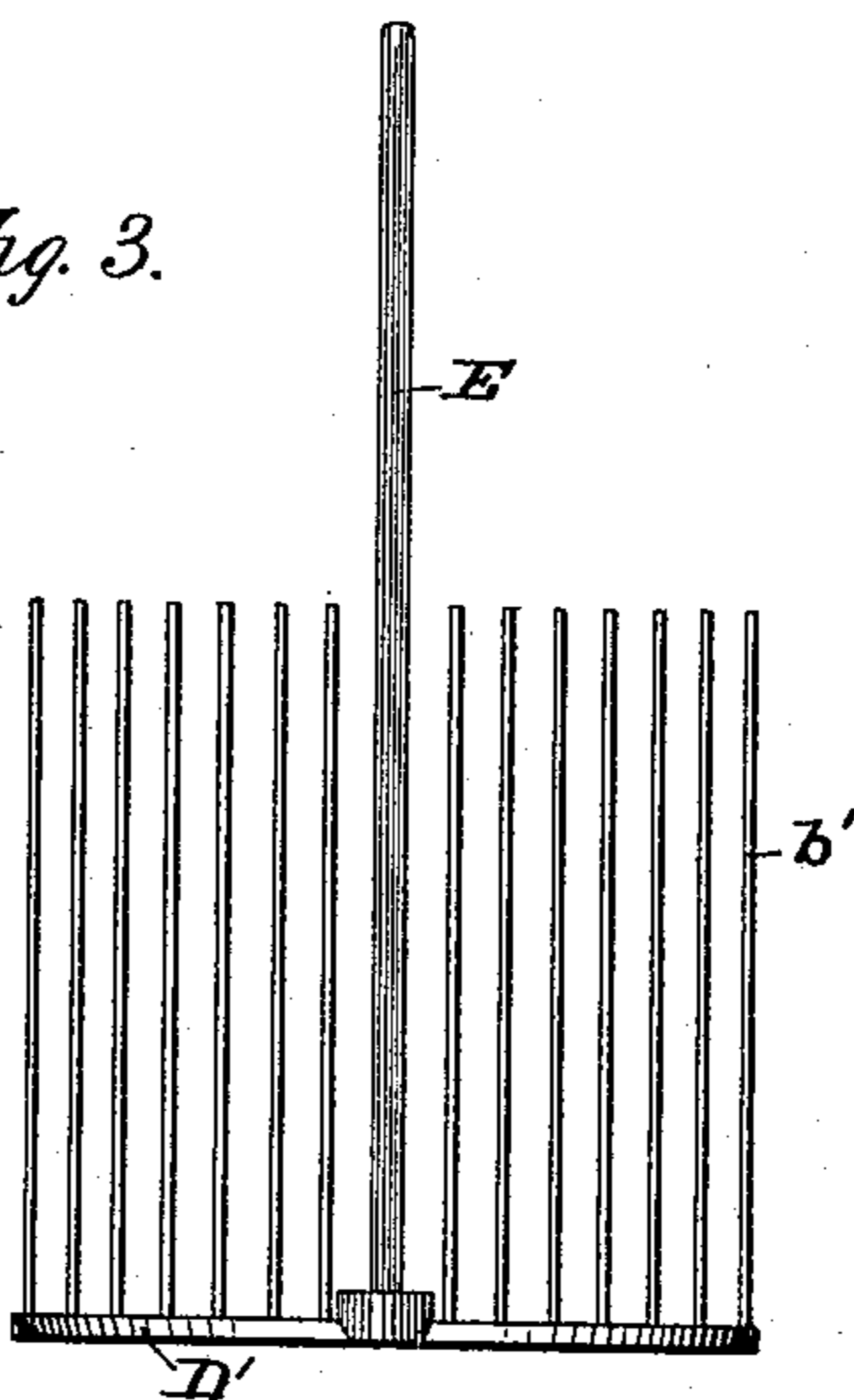


Fig. 3.



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UNITED STATES PATENT OFFICE.

DANIEL PETERS, OF CINCINNATI, OHIO.

EGG BEATER AND MIXER.

SPECIFICATION forming part of Letters Patent No. 370,406, dated September 27, 1887.

Application filed February 26, 1887. Serial No. 229,031. (No model.)

To all whom it may concern:

Be it known that I, DANIEL PETERS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented new and useful Improvements in Egg Beaters and Mixers, of which the following is a specification.

My invention relates to devices for beating eggs and for mixing purposes, its object being to enhance the utility and efficiency of such apparatus in use, and to improve the same in reference to economy and durability of construction, and also with reference to general convenience as to care and use.

To this end my invention consists in the construction and arrangement of a supporting-frame adapted for temporary attachment to the edge of a table or other support, and the combination therewith of a removable beating or mixing vessel adapted to be removed from and inserted in the containing-frame from below, and in the construction and arrangement of the beating and mixing mechanism, whereby a detachable portion of the said mechanism is removed or replaced with the containing-vessel, the construction being such as to greatly facilitate cleansing and general convenience of use.

It consists, also, in the particular construction of the beating mechanism in such manner that the action of the beating-bars is successive instead of simultaneous in relation to each other, and tends to counteract the centrifugal force generated by their action.

Mechanism embodying my invention is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the apparatus complete; Fig. 2, a cross-sectional elevation of the same at right angles to the plane of the elevation, Fig. 1; Fig. 3, a view of the lower set of beating-bars attached; Fig. 4, a plan view of the radial carriers of the beating-bars, showing the echelon relation of the bars in passing each other; and Fig. 5, a cross-section of one of the radial carriers.

Referring now to the drawings, A designates a circular ring, preferably of metal, extended at one side into a loop, *a*, constituting a holding-bracket, by which the entire structure may be pivotally secured by a bolt, *a'*, to the edge

of a table or other support and swing clear of the same when necessary.

To the ring A, at opposite sides, is secured an approximately rectangular vertical frame, B, with an extension, B', at the top at one side to afford bearings for a horizontal driving-shaft, C. The shaft C is provided at its outer end with a crank or pulley for the application of power, and at its inner end with a bevel-pinion, *c*. The latter engages above with a bevel-pinion, *c'*, provided with a hollow hub and retained in a central vertical bearing formed by an upper extension of the frame B', and engages below with a similar bevel-pinion, *c''*, with a hollow hub held in a corresponding vertical bearing formed centrally in the upper cross-bar of the frame B. The gear C thus engages with and rotates the gears *c'* *c''* simultaneously in opposite directions. In order to insert the gears in the frame, the hubs of the pinions *c'* *c''* are sleeves or thimbles separate from the pinions themselves, and after insertion through the bearings and into the pinions the latter are secured to said sleeves or hubs by set-screws.

Upon the lower projecting end of the hollow hub of pinion *c''* is secured a horizontal or radial carrier, D, from which depend at successive distances from the hub perpendicular bars or beaters *b*. The counterpart of these beaters is a similar carrier, D', with perpendicular bars projecting upward and held upon a rigid central shaft, E, which is inserted from below through the hollow hub of pinion *c'* into and engaged with the hollow hub of pinion *c'* by means of a pin or key, *x*, or other conveniently detachable fastening.

The parts are proportioned and arranged so that when in position, as indicated in Fig. 2, one series of vertical bars or beaters passes between the opposite series as the upper and lower carriers are rotated in opposite directions by the mechanism described; but in order that the passage of one set of beaters through its counter set may not be simultaneous, and thereby produce undue strains upon the rotating mechanism, I curve the radial supports D D', as indicated in the plan view, Fig. 4, by which the outer bars (those farthest from the shaft E) first pass each other and then the others in succession; and it will be

readily understood from the form of the supports D D' in relation to their rotative direction (indicated by the arrows) that the general tendency of their action is to urge the mass of material centripetally, thus counter-acting to some extent the general centrifugal action of the rotation. The advantage of this construction is, that the resistance of the material to the interpassage of the beaters is distributed more uniformly over the rotative movement of the beating mechanism. As the tendency of albuminous substances and of mixtures generally is to stiffen into a more unyielding mass by the reason of the treatment given, this distribution of the resistance not only renders less power requisite, but relieves the mechanism of undue strains and renders it more durable, besides retaining the mass under treatment in proper relation to the beaters, instead of allowing it, under the influence of centrifugal force, to concentrate at the periphery of the containing-vessel, where the action of the beaters would be very limited.

I form the supports D D' with beveled upper surfaces, as shown in the cross-section in Fig. 5, to facilitate their passage through the material and throw the latter upward.

It will be obvious that the same effect as by curving the supports D D' may be effected by employing straight supports arranged at oblique angles to true radii.

The containing-vessel F is inserted through the ring A from below, and is held by the frame B and supported upon a cross-bar, *d*, passed through suitable recesses at the under side of the ring A and retained by drop-catches *e*, or in any other convenient manner.

To take the device apart, the bar *d* is removed, the pin *x* withdrawn, and the containing-vessel dropped down, carrying with it the shaft E, radial beater-support D', and attached beaters *b'*, leaving all the other parts in position. The beater-support D may also be removed by loosening its set-screw attachment with the hollow hub of pinion *c*². Thus all parts in contact with the material treated are easily separable for cleansing purposes, and are as easily replaceable in the same manner.

The operation of the machine in use has already been clearly indicated.

The entire machine may be detached from its table-support when out of use.

I claim as my invention and desire to secure by Letters Patent of the United States—

1. The beating and mixing apparatus embodying, in combination, an annular base-frame

adapted to be pivotally secured at one side to a table or equivalent support, a containing-vessel detachably inserted into the same from below, a vertical frame carrying the driving mechanism fixedly secured to the base, and concentric vertical shafts actuated in opposite directions by the driving mechanism and interrotating vertical beaters carried upon arms centered upon said shafts, substantially as set forth.

2. In a mixing-machine, the combination of a base-ring, A, provided with an extension, *a*, for pivotally securing the same to a table or other support, a vertical rectangular frame, B, fixedly secured thereto, and having a vertical extension, B', at one side of and above the same, a horizontal crank-shaft, C, journaled through said upper extension and carrying a driving-pinion, *c*, horizontal bevel-pinions *c'* *c*², having detachable hollow hubs journaled in said upper extension, a central vertical shaft, E, passing loosely through the hub of the lower pinion, *c*², and detachably secured in the hub of the upper pinion, *c'*, and radial carriers D D', secured, respectively, to said shaft E and the projecting hub of the lower pinion, *c*², said carriers being provided with vertical interrotating bars *b b'*, substantially as set forth.

3. In a beating and mixing apparatus of the character described, the curved radial beater-supports D D', arranged to carry the outer ends of said supports in advance of the true radial line to secure the interpassage of the beaters successively inward, substantially as set forth.

4. In a beating and mixing machine of the character described, the combination of the annular base, its vertical frame and mechanism carried thereby, and the detachable vertical shaft carrying the lower system of beaters, with the removable containing-vessel, the removable supporting-bar *d*, and the recesses and catches upon the base-frame, whereby, by detaching the central shaft from its engagement with its driving-pinion and removing the bar *d*, the containing-vessel may be dropped down through the annular base-frame carrying the lower beaters and the vertical shaft, substantially as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

DANIEL PETERS.

Witnesses:

L. M. HOSEA,
C. D. KERR.