(No Model.)

D. H. RICE.

EGG BEATER.

No. 371,976. Patented Oct. 25, 1887.

Fig. 1

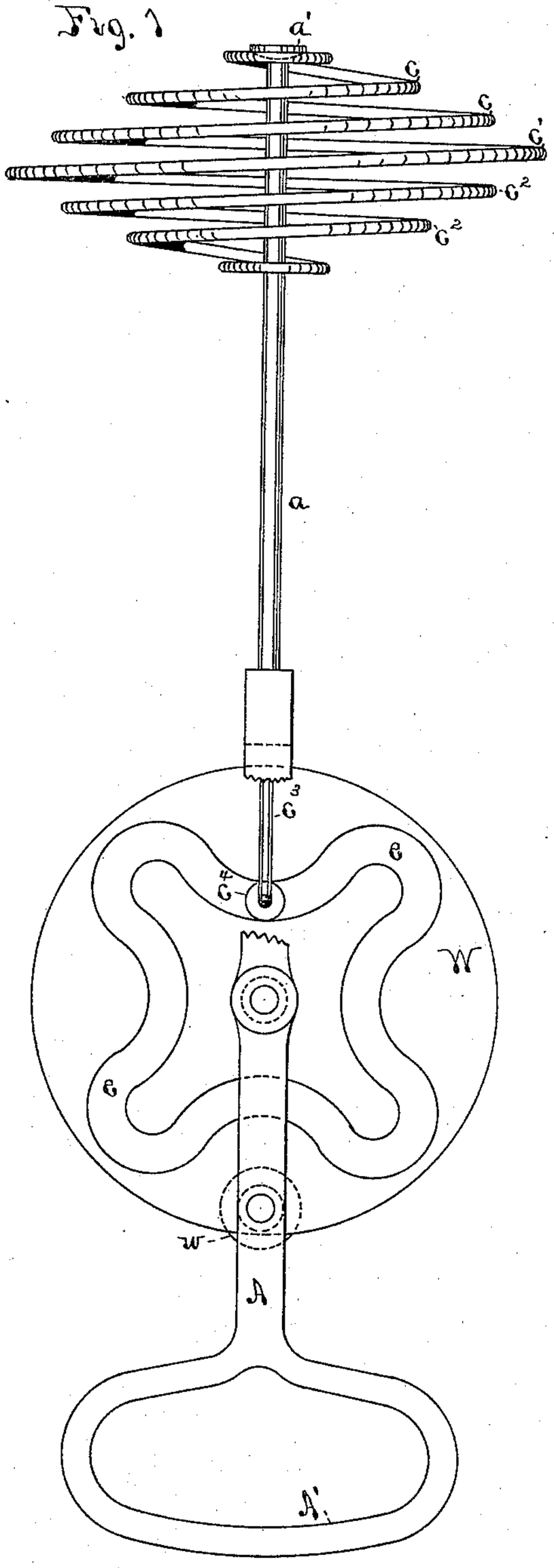
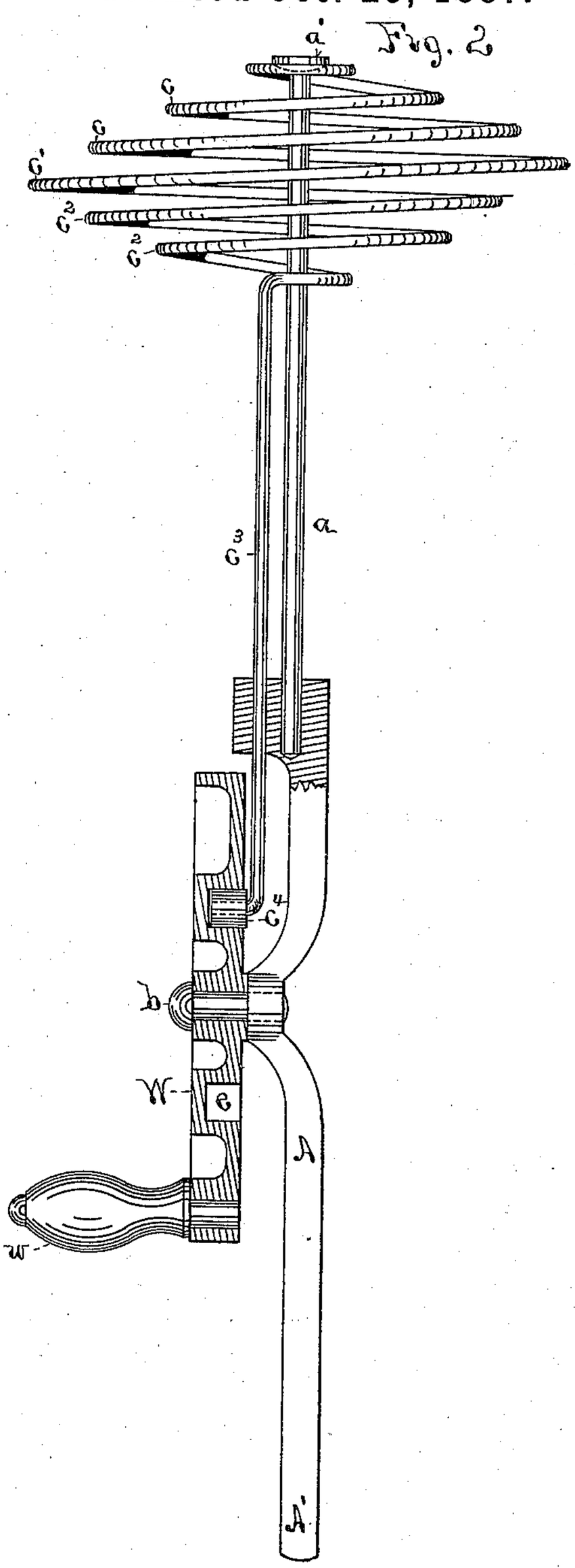


Fig. 2



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DAVID HALL RICE, OF BROOKLINE, MASSACHUSETTS.

EGG-BEATER.

SPECIFICATION forming part of Letters Patent No. 371,976, dated Octobe 25, 1887.

Application filed January 29, 1887. Serial No. 225,898. (No model.)

To all whom it may concern:

Be it known that I, DAVID HALL RICE, of Brookline, in the county of Norfolk and State of Massachusetts, have invented a certain new and useful Improvement in Egg-Beaters, of which the following is a specification.

My improvement relates to beaters for beating eggs and other similar semi-fluid or fluid substances; and it consists in certain new and useful constructions and combinations of the several parts thereof, substantially as hereinafter described and claimed.

In the drawings, Figure 1 is a rear side view of a beater constructed according to my invention, with a portion of the frame broken away to show the construction of the parts. Fig. 2 is a view of the same taken at right angles to Fig. 1, with portions of the frame and operating mechanism in section.

A is the frame of the beater, having at its upper end a loop, A′, for holding the beater by. Projecting from the lower end (when the beater is held in position for operation) of frame A is a shaft or rod, *a*, firmly fixed therein. This shaft is provided with a button, *a′*, at its lower end, which facilitates its resting upon the bottom of the dish containing the eggs and serves as a check to prevent the beater from escaping off of the rod at its part which is coiled loosely around the same, as hereinafter described.

The beater consists of a wire in the form of coils *c*, wrapped around the rod *a* just above the button *a′* at one end, so as to be capable of sliding freely up and down on said wire, and thence carried outward in a succession of the coils *c*, continually larger in size until it reaches and forms the outer and widest coil, *c′*, and thence it is again coiled inward in a helical shape by constantly narrowing the coils c^2 until it comes underneath the frame A, when it is bent so as to pass straight upward through a hole in the frame in the form of a rod, c^3, which at its upper end has attached to it the roller c^4, revolving on a portion of the rod c^3, bent at right angles to it. This roller may, however, have its axis on which it revolves attached to the rod c^3 in any other convenient form. Where the rod c^3 passes through the frame it fits so as to slide up and down freely through the same.

Upon the pivot *b*, fixed in the frame A, a wheel, W, is made to revolve and is provided with a handle, *w*, by which it can be turned. The rear face of this wheel has a cam-groove, *e*, in it into which the roller c^4 fits, so as to force the rod c^3 to reciprocate up and down as the wheel W is revolved and the roller follows the groove. The roller c^4 may be omitted and the pivot on which it turns be fitted directly to groove *e*, if desired, as its function is merely to save friction.

It will be seen that the reciprocation of the rod c^3 continually reciprocates the turns of the upper conical coil, c^2, through itself and the outer coil, *c′*, and it also reciprocates the turns of the lower coil, *c*, through themselves and the outer coil because it is found in practice that the central part of the lower coil continually vibrates up and down on the rod *a* above the button *a′* as the wheel W is revolved. The vertically-opposite turns of the upper and lower coils, c^2 and *c*, also continually vibrate toward and away from each other and act in opposition to each other in beating up the egg, and the vibration of the outer coil, *c′*, also assists the operation. By thus using two coils, *c* and c^2, joined at their outer circumference in the ring or coil *c′*, I therefore obtain a fourfold operation of them past and against their several parts. By having the rod c^3 reciprocate up and down in a right line I obviate any necessity of having the upper coil, c^2, impinge strongly on the rod *a*, and its consequent friction, and also prevent any twisting or bending of the wire of the rod or coils, such as would occur if the rod were connected eccentrically to a crank or disk, and I prevent any abrasion of the hands of the user from the presence of the teeth on the wheel W.

As the wire coils *c* c^2 are yielding and elastic all around the central rod, *a*, they cannot be bent out of shape or broken, as if they were connected to the rod by any rigid fastening, and their durability is increased thereby. The rod *a* in this operation serves as a guide to prevent the parts of the coils twisting out of their proper paths with relation to each other, and is essential to keep both coils in proper form individually and in proper relation to each other while vibrating.

It will be observed, also, that this beater will fit into the bottom of a round or flat bowl or dish equally well, as it has the capacity to ac-

commodate the movements of its coils to either without injuring or impairing its operation, as the central rod holds and guides the coils only in the center of the dish, and the coils will conform themselves to the dish of any shape.

It will be observed that it is not absolutely essential to the operation of the beater part of my device that both coils c and c^2 shall be of helical form, although I consider that construction preferable, as any other form may be employed which will enable them to conjointly operate substantially as described.

What I claim as new and of my invention is—

1. An egg-beater consisting of a supporting-frame and handle, the depending guide-rod a, connected thereto, the dasher mounted axially on said guide-rod composed of two opposite wire coils, c c^2, joined at their outer parts, and the piston-rod c^3, attached to the free end of one coil and adapted to reciprocate said opposite coils toward and away from each other in the direction of their common axis and around said guide-rod, substantially as described.

2. An egg-beater consisting of a supporting-frame and handle, the depending guide-rod a, connected thereto, the dasher mounted axially on said guide-rod, composed of two opposite wire coils, c c^2, joined at their outer parts, the piston-rod c^3, attached to the free end of one coil and adapted to reciprocate said opposite coils toward and away from each other in the direction of their common axis, and operative mechanism connected to said rod c^3, adapted to reciprocate the same, substantially as described.

3. An egg-beater consisting of a supporting-frame and handle, the depending guide-rod a, connected thereto, the dasher mounted axially on said guide-rod, composed of two opposite wire coils, c c^2, joined at their outer parts and both sliding on said guide-rod, and the piston-rod c^3, attached to the free end of one coil and adapted to reciprocate said opposite coils toward and away from each other in the direction of their common axis, substantially as described.

4. An egg-beater dasher consisting of the opposite coils, c c^2, connected together at their outer parts, one of said coils being a volute and provided with the rod c^3, attached to the inner and smaller part of one of said coils and extending outwardly therefrom in the direction of the common axis of said coils, and the frame and guide rod a, having button a' at its lower end, and passing freely through said coils, substantially as described.

5. An egg-beater consisting of a frame having the depending rod a, a coiled-wire dasher arranged to reciprocate up and down around said rod, the rod c^3, connected to said dasher at one end and extending upward through a sleeve-bearing in said frame, in which it is adapted to reciprocate longitudinally, and the wheel W, provided with cam-groove e and adapted to reciprocate said rod c^3 and dasher, substantially as described.

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