No. 674,856. Patented May 28, 1901.

F. H. FOSTER.

ICE CREAM FREEZER.

(Application filed June 14, 1900.)

(No Model.)

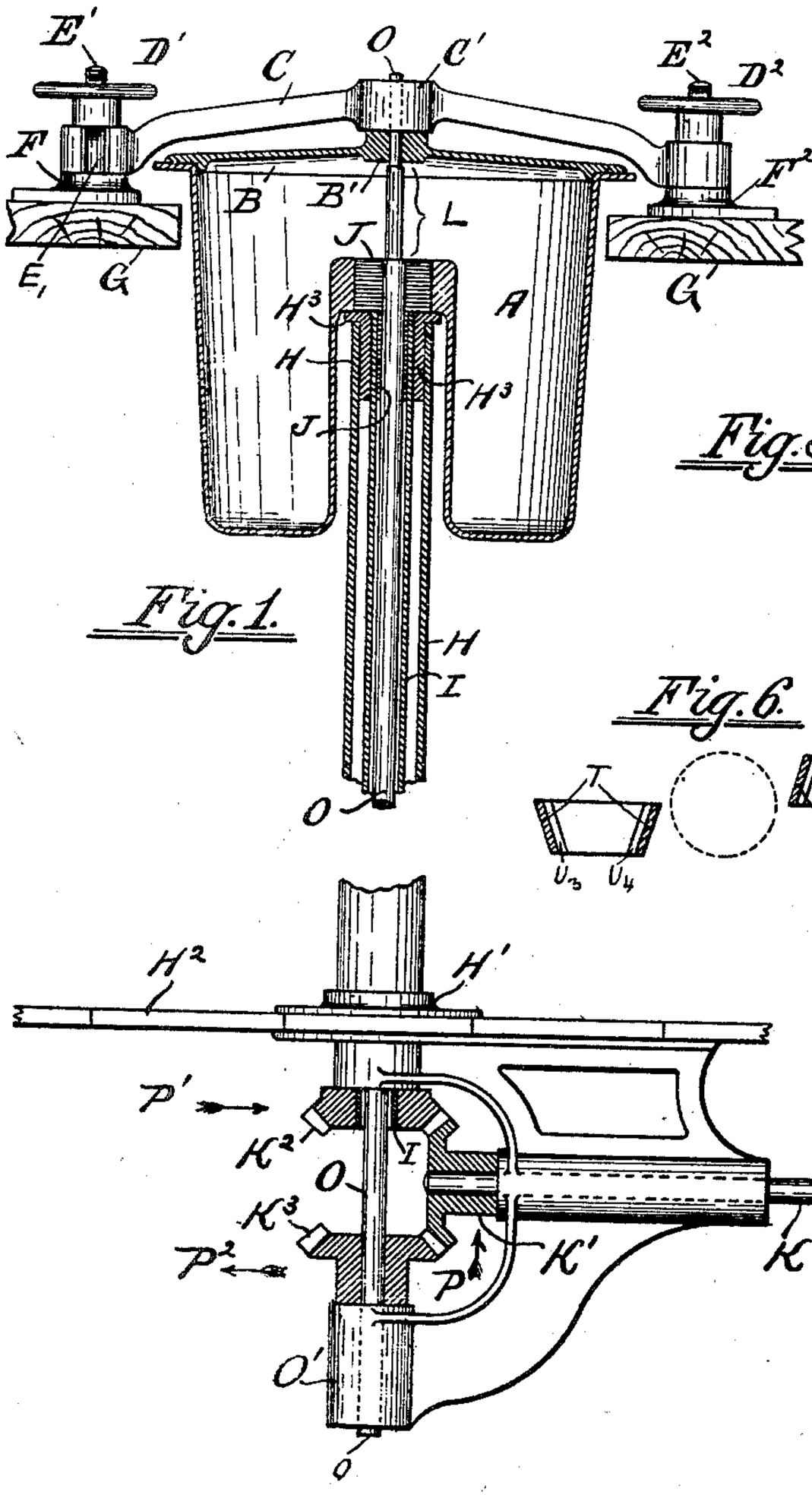

Fig. 1.

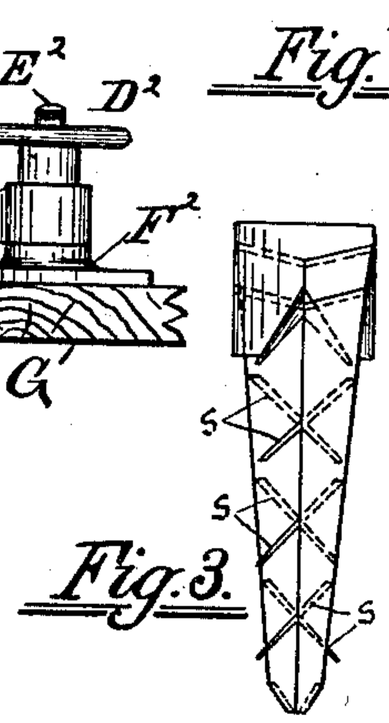

Fig. 3.

Fig. 4.

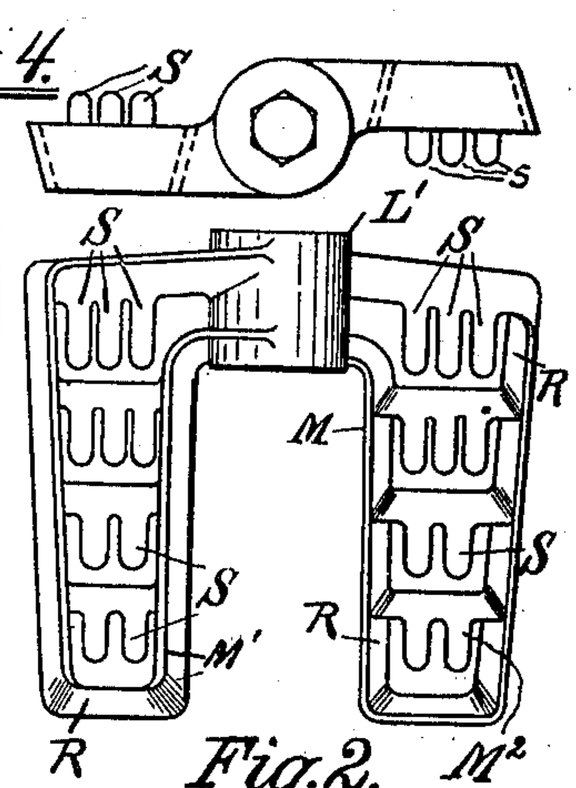

Fig. 2.

Fig. 6.

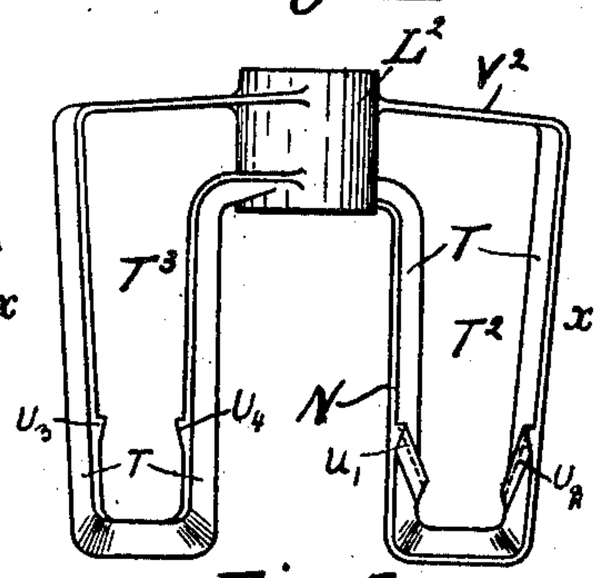

Fig. 5.

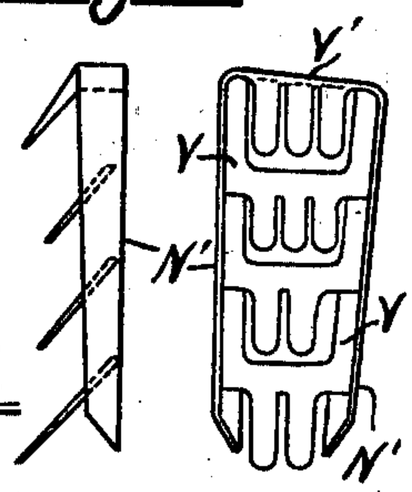

Fig. 8.

Fig. 7.

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UNITED STATES PATENT OFFICE.

FRANCIS H. FOSTER, OF RAHWAY, NEW JERSEY.

ICE-CREAM FREEZER.

SPECIFICATION forming part of Letters Patent No. 674,856, dated May 28, 1901.

Application filed June 14, 1900. Serial No. 20,226. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS H. FOSTER, a citizen of the United States, residing in Rahway, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Ice-Cream Freezers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to ice-cream freezers.

The object of my invention is to provide a freezer that can be operated by some motive power, in consequence of which fact the construction and combination of the different parts that support and rotate the beater will in this class of mechanical devices be found to be entirely novel and, further, designed on such a practical basis that they are easily put together and operated, and being hidden from view cause no uncleanliness or danger from contact with gear-wheels and lubricated parts when in running order. The component elements are very simple in construction, and therefore very cheap to manufacture.

A further object of my invention is the construction of three different kinds of beaters, each made with the distinct object in view of suiting different circumstances and constructed to make different sorts of cream. These beaters are very easy of adjustment in the receptacle, as will be seen when they are described in the ensuing description.

In describing my improved freezer I will call attention to the accompanying drawings, where like letters of reference indicate corresponding parts in the different views.

Figure 1 shows a side view of my improved freezer with the receptacle, its power connections, and the floor sectioned through; Fig. 2, a side view of one of my improved beaters; Fig. 3, an end view of the same beater; Fig. 4, a top view of the beater as shown in Fig. 2; Fig. 5, a side view of a modification of the beater shown in Fig. 2; Fig. 6, a sectional top view of the beater shown in Fig. 5 on the line X X; Fig. 7, a side view of a panel that can be inserted in the beater-frame shown in Fig. 5, and Fig. 8 an end view of the panel shown in Fig. 7.

In Fig. 1, A indicates the receptacle containing the material that is to be beaten; B, the cover of such receptacle; C, a yoke that holds the cover in its place, being to that effect secured between the internally-screw-cut hand-wheels D′ and D² and the plates F′ and F², attached suitably to the counter G, which plates have the screw-cut bolts E′ and E² secured in them, the hand-wheels D′ and D² being screwed on the top of said bolts or studs, consequently binding the arms of the yoke C between them, as previously stated.

H indicates a fixed stationary tube secured in a plate H′, which plate is attached to the floor H².

H³ is a bush-bearing resting on the top edge of the tube H, on the upper flange and inside circumference of which bush H³ the means that rotate the receptacle bear. These means are a nut J, to which nut the receptacle A itself is fittingly secured by keys and key-ways, screws, or other suitable mechanical means, and the tube-shaft I, secured by any ordinary fastening means to the nut J. The actual gearing means for revolving the beater and receptacle are, as formerly stated, underneath the floor and consist of the following elements: A driving-shaft K, having a miter-pinion K′ secured to it at one end and having a loose and fast pulley attached at the other end, (not shown in the drawings,) conveys motion from some motive power or other to the two miter-pinions K² and K³. Observing now the beaters respectively indicated by the reference-letters M and N, it will be seen that they can be firmly affixed to the solid shaft O on the part of such shaft lying inside of the receptacle A, (indicated by reference-letter L,) and inasmuch as the shaft O passes loosely through the nut J, the cover B, and has its top bearing in the yoke-bush C′, the beater will be rotated irrespective of and in the opposite direction to the movement of the receptacle A. Reviewing these parts and following the rotation of the miter-pinion by the aid of the attached arrows, this above-described movement can readily be traced. The shaft K, receiving motion from its motive power, will turn, for instance, in the direction of the arrows P, which will result in the

pinion K^2 revolving in the direction of the arrow P′, and as the pinion K^2 is firmly attached to the end of the tube-shaft I and as the said tube-shaft I is through the instrumentality of the nut J in firm contact with the receptacle A said receptacle will be revolved in the same direction as the pinion K^2, and consequently in the direction indicated by the arrow P′. The driving-shaft pinion K′ will simultaneously rotate the pinion K^3 in the direction of the arrow P^2, and as the miter-pinion K^3 is firmly attached to the solid shaft O, which shaft passes loose up through the miter-gear K^2 inside of the tubular shaft I and further passes loosely through the smooth-bored bush J, the cover B, and finally has its upper bearing in the yoke-bush C′ and its lower bearing in bracket-bush Q′, it can be understood that if a beater be firmly secured on the part L inside of the receptacle of the vertical shaft O, then such beater will revolve with the shaft and in the same direction as the miter-pinion K^3—namely, in the direction of the arrow P^2, which is the opposite direction of the arrow P′, and consequently of the receptacle, which was my desired object.

Referring now to my improved beaters M and N and their particular construction as designed by me for this freezer or any other freezer adapted to hold them, it will be observed by looking at Figs. 2, 3, and 4 that beater M is constructed with two "panels," as they might be termed, M′ and M^2, said panels forming an integral part of the bush L′. The sides R of these panels, as can be seen by the shade-lines, are oblique from front to rear, and consequently form what might be called a "funnel" and are furnished with wings S, which wings slant obliquely, respectively, in one panel to the front and in the other to the rear, as best seen in the end view, Fig. 3. The means of attachment between the bush L′ on the beater M and the bush L^2 on the beater N and the part L on the shaft O can in its simplest and probably most practical form be by having the hole in the bushes and the part L of the shaft O correspond in some polygonal-shaped form to each other—as, for example, as shown in the beater M in the top view, Fig. 4, where it is shown hexagonal-sided. The adjustment of the beater in the receptacle is by manipulating the hand-wheels D′ and D^2 so as to loosen the yoke C, removing the said yoke and the cover D and sliding the beater over the top of the shaft O until it rests on the upper flange of the nut J, between said nut J and the lower flange of the cover-bush B′.

My second style of beater N, as illustrated in Figs. 5, 6, 7, and 8, has, similar to the beater M, obliquely-formed sides T from front to rear, as can be partly seen by the use of a few shade-lines and partly by the sectional view in Fig. 6 on the line X X of Fig. 5. Between these sides there is in the case of beater N, as seen in Fig. 5, no panels—simply empty space—which thus becomes a style of beater useful for certain specific materials. If, however, the style of beater similar to M in Figs. 2, 3, and 4 is desired, a loose panel N′ can be fitted into the framework of beater N, the beater N having to that effect two lugs on each side of the frame U′ and U^2 in the side frame T^2 U^3 and U^4 in T^3. As the frame N′ has oblique sides V, corresponding to the oblique sides T in, for instance, the panel T^2, the panel N′ will rest on the lugs and fit snugly against the oblique sides T and can finally be secured at the top by a thumb-screw passed through the upper frame part of the panel and beater-frame (designated in Figs. 5 and 7, respectively, by reference-letters V′ on the panel and with the reference-letter V^2 on the beater.) I have not shown the thumb-screws, as their function can easily be comprehended and easily supplanted with just as simple binding means. I have consequently substantiated in this description what I indicated in my preamble—namely, a simple construction of a revolving receptacle coöperating with a beater having an opposite revolving movement to that of the receptacle, with three different constructions of beaters, but of course only two different styles, M having permanent panels, similar in operation to N with the panels introduced, and N presenting a different style of beater, according to whether it has the panels in it or not.

That smaller details of course can be altered to suit the different circumstances under which my improved freezer can be used will be evident. For instance, the beater might be furnished with more than two wings adjustably secured in the means binding them to the shaft or forming an integral part of such means, according to circumstances, or it might possibly only for certain reasons have only one wing, and, further, that I do not limit myself to any special method of manufacturing these beaters and receptacle nor confine myself to any special material is equally evident; but in the particular design of these beaters and in the arrangement and operative means for rotating the receptacle and beater.

I claim and desire to secure protection by Letters Patent for the following features:

1. The combination in a freezer of a revoluble receptacle, with a beater having one or more wings, removable panels slidably secured in said wings, obliquely-poised rear and front ward pointing tongues forming integral parts of the said panels substantially as and for the purposes described.

2. The combination in a freezer of a revoluble receptacle with a beater having one or more wings, the said beater consisting of a bush forming an integral part with the said wings, slanting side edges furnished in said wings and removable panels secured between said slanting side edges having tongues substantially as and for the purposes described.

3. The combination of a revoluble receptacle mounted on a hollow shaft with a beater

attached to a shaft embraced by said hollow receptacle-shaft, means furnished adapted to connect the beater and its shaft slidably and detachably with each other and a driving-shaft transmitting motion to both said shafts by triple miter-gearing located underneath the receptacle substantially as described.

4. The combination in a revoluble receptacle having a beater, of said receptacle and beater revolved by triple miter-gearing, lying underneath the receptacle, an inside shaft having at one end of the said triple miter-gears and at the other the beater secured to it, an outside hollow shaft embracing said inner shaft and having at its lower end the second of the triple miter-gears secured to it, and at its upper end the receptacle attached to it by means substantially as described.

5. The combination in a receptacle having a beater, both operated by gearing lying underneath them; of the said beater with a shaft having an upper part provided with means that slidably and detachably secure the beater to it, a hollow shaft embracing the beater-shaft, means securing the receptacle to the hollow shaft, a driving-shaft lying underneath the receptacle and beater and triple miter gear-wheels connecting the driving, beater and receptacle shafts substantially as illustrated and described.

6. In a revoluble receptacle, a beater secured slidably and detachably to the upper part of the beater-shaft, said beater consisting of a bush embracing the beater-shaft having one or more wings, a single slanting edge acting as a scraper to the top, bottom and sides of the receptacle and forming with the said bush a wing substantially as is illustrated and described.

In testimony that I claim the foregoing I have hereunto set my hand this 18th day of May, A. D. 1900.

FRANCIS H. FOSTER.

Witnesses:

FREDK. C. FISCHER,

AUGUST M. TRESCHOW.