

THOMAS SANDS.

Improvement in Ice Cream Freezers.

No. 124,015.

Patented Feb. 27, 1872.

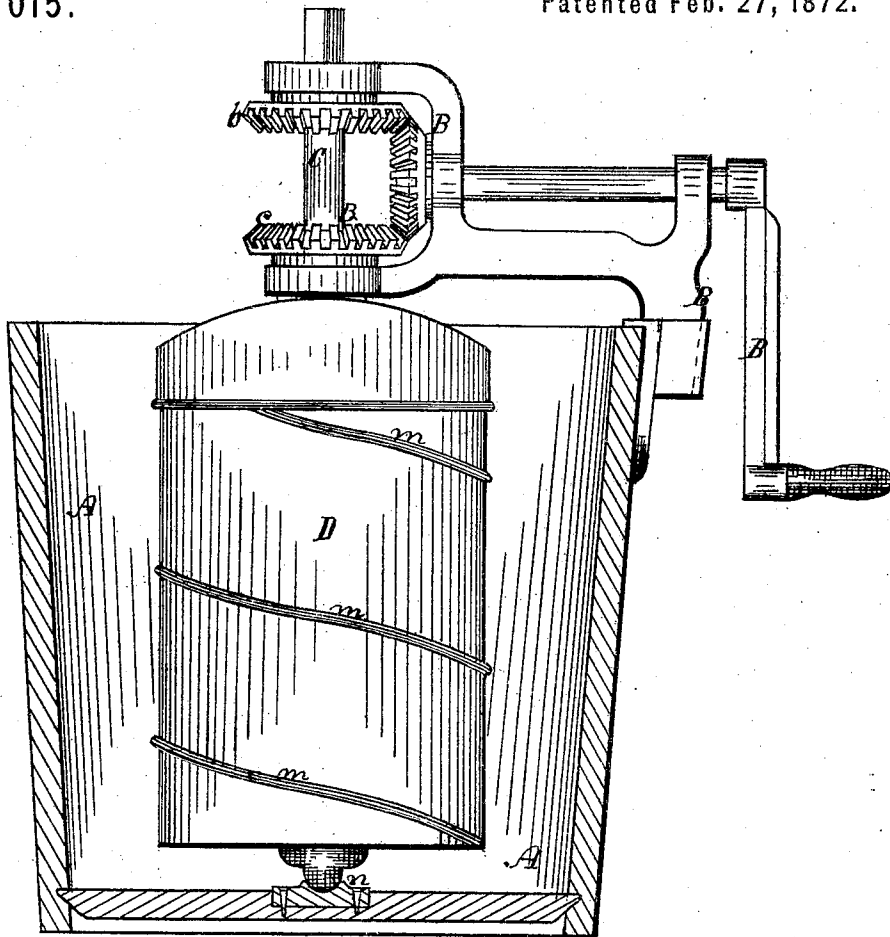
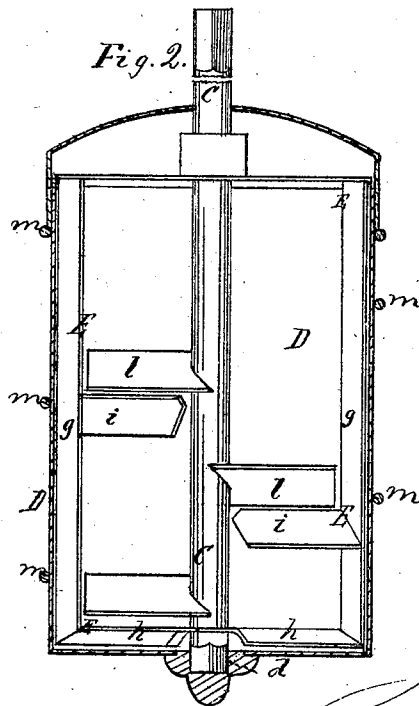


Fig. 2.



Witnesses,
R. D. Smith
D. J. Brown

Thomas Sands
Boyle's Attorney,
J. S. Brown.

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Fig. 3.

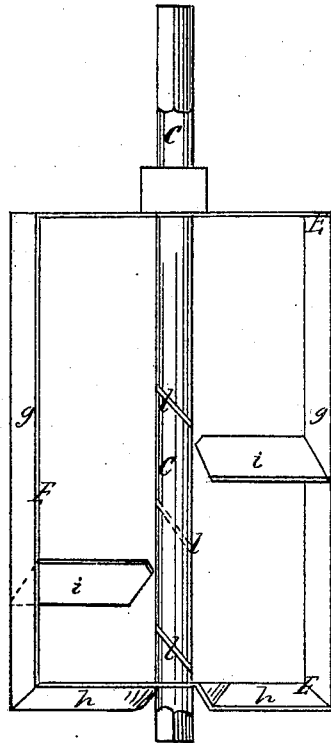
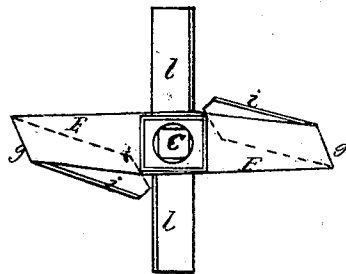


Fig. 4.



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UNITED STATES PATENT OFFICE.

THOMAS SANDS, OF LACONIA, NEW HAMPSHIRE.

IMPROVEMENT IN ICE-CREAM FREEZERS.

Specification forming part of Letters Patent No. 124,015, dated February 27, 1872; antedated February 15, 1872.

To all whom it may concern:

Be it known that I, THOMAS SANDS, of Laconia, in the county of Belknap and State of New Hampshire, have invented an Improved Ice-Cream Freezer; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing making part of this specification—

Figure 1 being a side elevation of the freezer, the ice-pail or tub, in which it is mounted, being shown in vertical section; Fig. 2, a central vertical section of the cylinder or cream-holder, showing the driving-shaft and beaters also in position; Fig. 3, a side view of the driving-shaft and beaters detached; Fig. 4, a top view of the same.

Like letters designate corresponding parts in all of the figures.

The main purpose of my invention is to produce a machine which will at once freeze the cream evenly from center to circumference of the cream-holder or cylinder, and, without further manipulation, produce an article equal to the best hand-made ice-cream with the celerity and convenience of the best machine; and the leading feature of my invention consists in the construction, arrangement, and operation of two beaters and the cream-holder so as to produce a continual intermixture of the cream from circumference to center and from center to circumference of the holder or cylinder, at the same time lifting and lightening the cream, substantially as hereinafter specified. My invention also consists in a spiral wire, flange, or projection on the outer periphery of the cream-holder in a direction related to the revolving movement of the said holder so as to lift against the ice and salt which crowds around it, and effect thereby a more perfect mixture of the same, keep the holder free in its movement, and also present a convenient means of holding the cylinder securely down in its bearings.

Let A represent the tub or pail, in which the freezer is mounted; B, the operating gear, attached to the tub or pail by entering a socket, *a*, on one side thereof; C, the driving-shaft; and D, the cream-holder or cylinder. The driving-shaft C has a square, or equivalent, formed at its upper end to enter a socket in the upper pinion *b* of the driving-gear, and thus be coupled thereto.

It extends through and turns freely in the center of the lower driving-pinion *c*, which has a tubular hub for the purpose. On lifting the driving-gear from the tub or pail the shaft is withdrawn endwise therefrom, so that the cream-holder is free to be opened. The lower end of the shaft also is square or angular, and fits a socket or depression, *d*, of similar form, in the bottom of the cream-holder, so that the latter is caused to revolve in the same direction as the shaft. A beater, E, has its bearings and turns on the shaft C, it being coupled by a square or angular socket-tenon, *f*, to the lower driving-pinion *c*, so that it turns in the direction opposite to the motion of the driving-shaft and cream-holder or cylinder. The two side bars *g g* of this beater fit as nearly in contact as practicable with the inner peripheral surface of the cream-holder so as to continually scrape the cream therefrom; and the inclination of these thin blade-like bars is oblique to the tangent of revolution in such a direction as to move the cream inward. Also, the lower cross-bar *h* of the beater moves close to the bottom of the cream-holder, and has an inclination so as to continually scrape and lift the cream from the bottom surface. Also, there are thin arms or blades *i i*, one or more on each side, and at different heights secured to the side bars of the beater E, and projecting inward therefrom nearly to the driving-shaft. These beater-arms are laterally inclined from a horizontal plane in such a direction, in relation to the motion of the beater, as to lift the cream continually; and lengthwise they are inclined in directions backward from radial lines, as shown in Fig. 4, so as to force the cream inward toward the driving-shaft C; and, on the other hand, there are arms or blades *l* projecting radially outward from the driving-shaft C nearly to the side bars *g g* of the beater E, and preferably a little above the arms or blades *i i* thereof, respectively. These arms also are inclined laterally from a horizontal plane so as to lift the cream by their revolution; and their radial direction has the effect to force the cream from the center outward to the cylinder. Thus two beaters are formed, one revolving in one direction and the other in the other direction; one forcing the cream outward and the other inward, while both tend to lift and lighten the cream, so that a perfect inter-

mixture is effected. The cream is made fine thereby, and uniformly light and solid, ready to be taken out the moment that the machine ceases to operate. Three movements combine to effect this result—the revolution of the shaft C with its beater-arms; that of the beater E with its beater-arms; and that of the cream-holder or cylinder D in the same direction as the shaft. The latter movement might be dispensed with, and the two beaters, constructed and operating as described, would produce a good result, though not so good as with the revolution of the cylinder, for that acts upon the ice and salt outside, especially with the addition of my other improvement, as follows: This is a wire, *m*, wound spirally around the outer periphery of the cream-cylinder D, about as shown in Fig. 1, in the direction which will cause it to lift against the ice-and-salt packing around the cylinder, so as to create some agitation thereof and better mix the same; also, to diminish the resistance of the ice and salt to the revolution of the cylinder, as well as to hold the cylinder steadily in its lower bearing *n* in the pail or tub. The wire is soldered to the outer

surface of the cylinder. Any equivalent of the wire may be used, such as a thin metallic strip, or a bead raised in the metal of the cylinder.

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

1. The ice-cream freezer, as described, having three parts acting by their own positive motions on the cream—namely, the shaft C with its beater-arms, the cylinder D, and the intermediate beater E revolving in the direction opposite to that of the other two parts—as and for the purpose herein specified.

2. The beater E, with its backwardly-inclined arms or blades *i i*, operating in combination with the shaft C and the beater-arms *l l* thereof, substantially as and for the purpose herein specified.

3. The spiral wire flange or projection *m* around the outer periphery of the cream-holder or cylinder D, substantially as and for the purpose herein specified.

THOMAS SANDS.

Witnesses:

BENJ. C. DRAIN,
HAYES LOUGEE.