June 11, 1935. H. S. MILLS 2,004,446

COMBINED WHIPPER AND SCRAPER FOR ICE CREAM FREEZERS

Filed Aug. 28, 1933

Fig-1

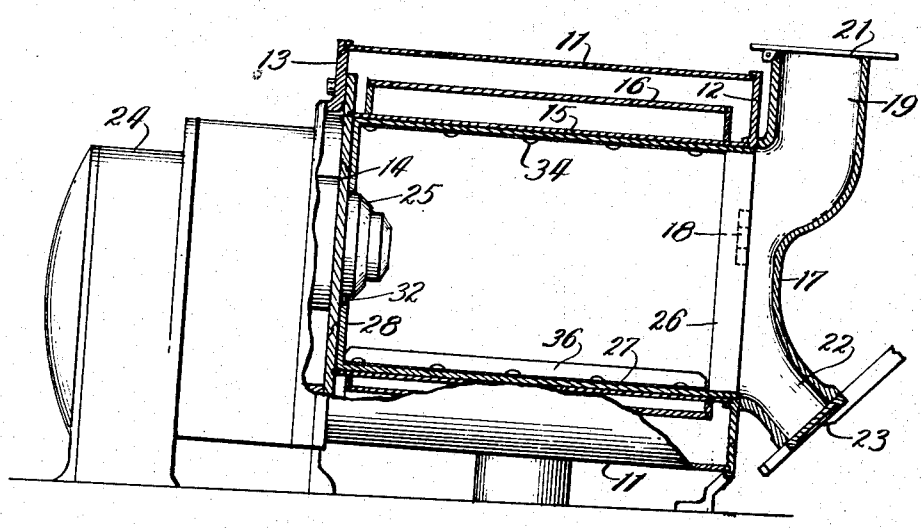


Fig-3

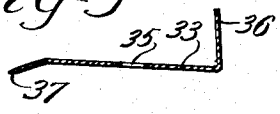
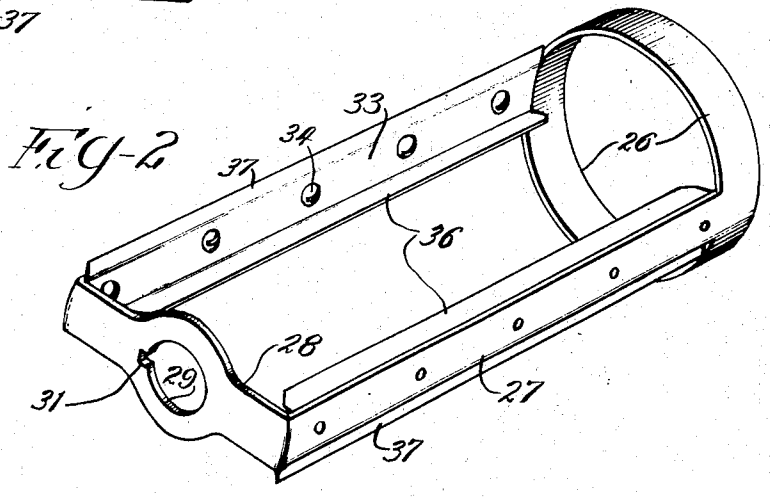


Fig-2



Inventor:
Herbert S. Mills
By:- Carl S. Lloyd
Atty.

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COMBINED WHIPPER AND SCRAPER FOR ICE CREAM FREEZERS

Herbert S. Mills, River Forest, Ill., assignor to Mills Novelty Company, Chicago, Ill., a corporation of Illinois

Application August 28, 1933, Serial No. 687,097

8 Claims. (Cl. 259—9)

This invention relates to ice-cream freezers and has for its principal object the provision of a combination whipper and scraper of improved and simplified construction combining in one part the functions of two or more separate elements of previous constructions and being so designed as to make possible the removal of the cream without withdrawing any of the mechanism from the freezer cylinder, the parts being also particularly easy to clean.

With these and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts, and in the details of construction hereinafter described and claimed, it being understood that various changes in the precise embodiment of the invention herein disclosed may be made within the scope of what is claimed, without departing from the spirit of the invention.

Referring to the drawing:

Fig. 1 is a sectional and elevational view, taken longitudinally, of an ice-cream freezer equipped with a combined whipper and scraper embodying my invention;

Fig. 2 is a perspective view of the combined whipper and scraper element; and

Fig. 3 is a transverse section of one of the blades thereof.

Upon said drawing, which illustrates the best form in which I have thus far contemplated applying the principles of the invention, the reference character 11 indicates the outer shell of a freezer cylinder having end flanges 12 and 13, a rear end wall 14, an inner cylinder 15 surrounded by an eccentric jacket 16 providing an enclosure for the freezing liquid, and a door 17 hinged at 18 to the cylinder 15 and having a lapped joint with the end of said cylinder, being adapted to be held closed by means of thumb screws (not shown). Said door is provided with a filling opening 19 having a cover 21 and with an outlet opening 22 normally closed by means of a movable closure 23.

At the rear of the freezer cylinder there is a motor 24 adapted to drive a rotatable element 25 through the rear end wall 14 of the cylinder 15 for the purpose of driving the whipper and scraper element which will now be described.

Said element comprises a frame consisting of a ring 26 having integral side bars 27 extending rearwardly therefrom, said bars being connected at their rear ends by means of a cross connection 28 which may also be integral with said bars and said ring. Said cross-connection has an aperture 29 therein having a keyway 31 at one side thereof adapted to receive a key 32 formed on the rotatable element 25 whereby said frame is rotated when the motor 24 is energized. The bars 27 are of arcuate form and, like the ring 26, conform to the inner surface of the cylinder 15 so that said frame may rotate freely therein.

Combined whipper and scraper blades 33 are secured to the inner sides of the bars 27 by means of screws 34 extending through apertures 35 in said blades. The rear edge of each of said blades is turned inwardly at substantially a right angle to provide a whipper element 36 extending toward the center of the cylinder 15 and being adapted to agitate the cream when the frame 26—28 is rotated. The forward edge of each blade extends outwardly at a slight angle and is formed as a knife edge to provide a scraper element 37, adapted to scrape the frozen or semi-solid cream from the inner surface of the cylinder 15, thus keeping the same in motion and facilitating the emptying of the cylinder.

Inasmuch as the usual center shaft and front bearing are dispensed with, the cream may be removed without taking out the whipper and scraper structure. Access may readily be had to the interior of the cylinder either for removing cream which may be frozen too hard to flow out of the outlet opening 22 or for cleaning the parts. For a thorough cleaning, the frame 26—28 may be withdrawn, and, being of such simple construction without the usual rotatable mechanism mounted in the center thereof, it may be easily and quickly cleaned.

The whipper and scraper elements, being formed in one part, or being capable of such formation, may be attached to the bars 27 simply by screws, as indicated at 34, or in other preferred manner, and serve the double function above described, the structure thus being greatly simplified and being inexpensive to manufacture, as well as durable and efficient in operation.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description, and it will be apparent that various changes may be made in the form, construction and arrangement of the parts without departing from the spirit and scope of the invention, or sacrificing all of its material advantages, the construction hereinbefore described being merely a preferred embodiment thereof.

I claim:

1. In a freezer, a combined whipper and scraper comprising a rotatable unit including an angle member positioned adjacent the freezer

cylinder when the unit is inserted therein, said member having a blade adapted to contact with the cylinder wall to scrape the latter when the unit is rotated and a whipper element rigid with said scraper blade extending inwardly from said wall to whip the cream during such rotation.

2. In a freezer, a combined whipper and scraper comprising a rotatable unit including a one-piece angle member positioned adjacent the freezer cylinder when the unit is inserted therein, one part of said member forming a blade adapted to contact with the cylinder wall to scrape the latter when the unit is rotated and another part of said member forming a whipper element extending inwardly from said wall to whip the cream during such rotation.

3. In a freezer, a combined whipper and scraper comprising a rotatable unit including an angle member positioned adjacent the freezer cylinder when the unit is inserted therein, said member having a blade adapted to contact with the cylinder wall to scrape the latter when the unit is rotated and a whipper element rigid with said scraper blade extending inwardly from said wall to whip the cream during such rotation, said whipper element extending substantially at right angles to said blade.

4. In a freezer, a combined whipper and scraper comprising a rotatable unit including a plurality of angle members positioned adjacent the freezer cylinder when the unit is inserted therein, said members each having a blade adapted to contact with the cylinder wall to scrape the latter when the unit is rotated and a whipper element rigid with said scraper blade extending inwardly from said wall to whip the cream during such rotation.

5. In a freezer, a combined whipper and scraper comprising a rotatable unit including an angle member positioned adjacent the freezer cylinder when the unit is inserted therein, said member having a blade adapted to contact with the cylinder wall to scrape the latter when the unit is rotated and a whipper element integral with said blade extending inwardly from said wall to whip the cream during such rotation.

6. In a freezer, a combined whipper and scraper comprising a rotatable unit including an angle member positioned adjacent the freezer cylinder when the unit is inserted therein, said member having a blade adapted to contact with the cylinder wall to scrape the latter when the unit is rotated and a whipper element integral with said blade extending inwardly from said wall to whip the cream during such rotation, said whipper element extending substantially at right angles to said blade.

7. In a freezer, a combined whipper and scraper comprising a rotatable unit including a plurality of angle members positioned adjacent the freezer cylinder when the unit is inserted therein, said members each having a blade adapted to contact with the cylinder wall to scrape the latter when the unit is rotated and a whipper element integral with said blade extending inwardly from said wall to whip the cream during such rotation.

8. In a freezer, the combination with a freezer cylinder of a combined whipping and scraping device mounted for rotation in the cylinder, the scraper element of said device being positioned adjacent the circumferential wall of the cylinder and the whipper element of the device extended from said scraper element toward the center of the cylinder, the cylinder having an open and unobstructed space at the center thereof to facilitate removal of the frozen material.

HERBERT S. MILLS.