F. TYSON.

ICE CREAM FREEZER.

APPLICATION FILED JULY 8, 1911. RENEWED OCT. 16, 1916.

1,227,702. Patented May 29, 1917.

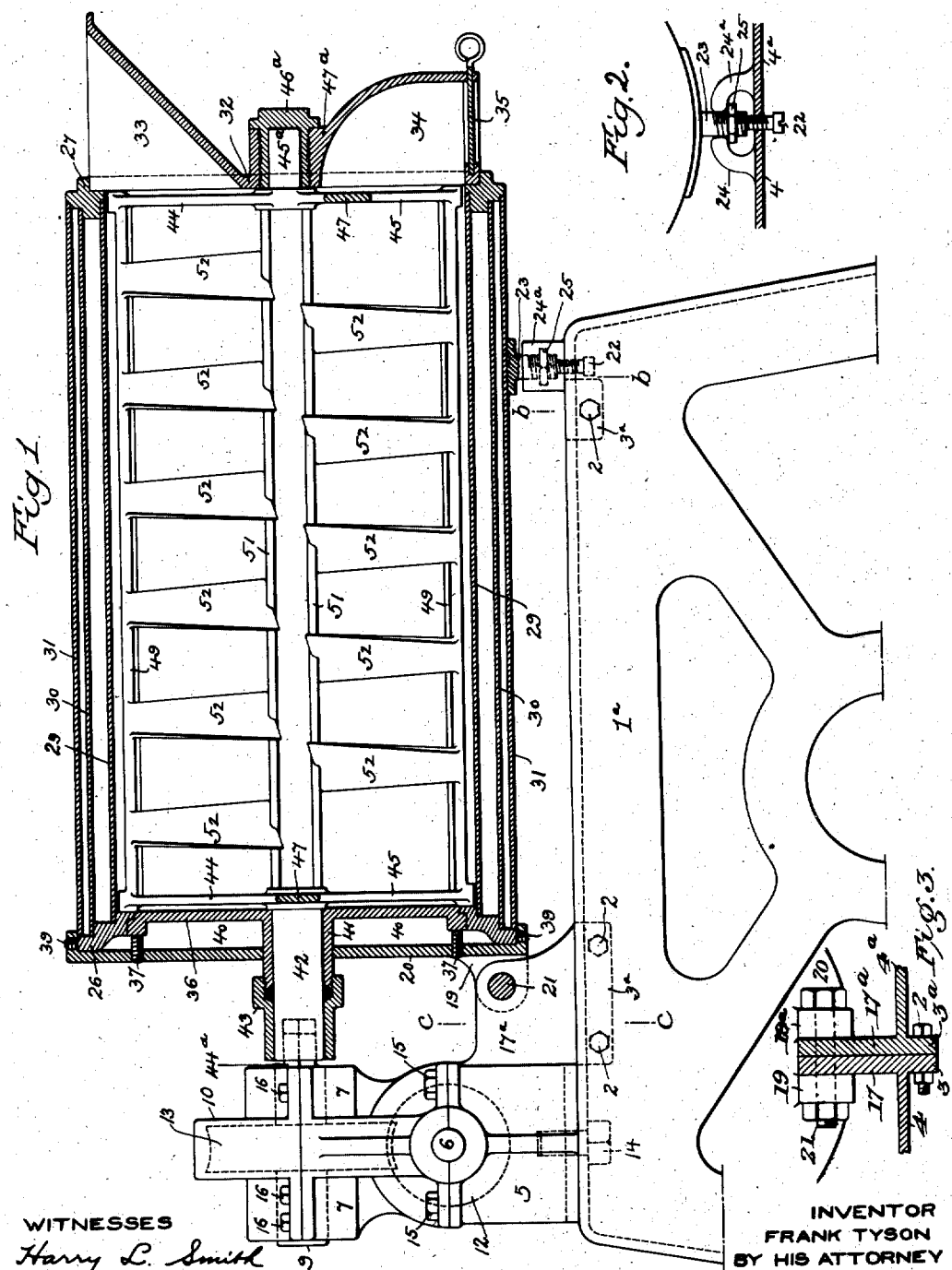


Fig. 1

Fig. 2.

Fig. 3.

WITNESSES

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ICE-CREAM FREEZER.

1,227,702. Specification of Letters Patent. Patented May 29, 1917.

Application filed July 8, 1911, Serial No. 637,439. Renewed October 16, 1916. Serial No. 126,043.

To all whom it may concern:

Be it known that I, FRANK TYSON, a citizen of the United States, and a resident of Canton, Ohio, have invented certain Improvements in Ice-Cream Freezers, of which the following is a specification.

One object of my invention is to so construct an ice cream freezer as to permit access to the cylinder from either end of the same, and a further object is to provide, in the rear head of the freezing cylinder, a dead-air space which serves as a non-conductor of heat.

These objects I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a view, partly in side elevation and partly in longitudinal vertical section, of sufficient of an ice cream freezer to illustrate my present invention;

Fig. 2 is a transverse vertical section on the line *b*—*b*, Fig. 1; and

Fig. 3 is a transverse vertical section on the line *c*—*c*, Fig. 1.

The swinging scraper blades and the fixed longitudinal beater and ejector blades have been removed from the dasher shown in Fig. 1 in order that they may not interfere with the proper illustration of the dasher.

The freezing cylinder and the mechanism employed for imparting rotating motion to the dasher contained therein may be mounted upon a supporting frame which is composed of opposite halves 1^a, secured together by means of bolts 2 passing through lugs 3 and 3^a projecting downwardly from the bed or table members 4, 4^a at the top of the supporting frame, as shown in Fig. 3.

Mounted upon the supporting frame is a support 5 for a transverse shaft 6 which constitutes the primary member of the mechanism for imparting rotating movement to the dasher. The bearings for the shaft 6 are preferably completed by a cap 7 which may also constitute a support for a short longitudinal shaft 9, the bearings for this shaft being completed by a cap 10. The shaft support 5 and cap 7 are recessed, for the reception of that member 12 of the dasher-driving gearing which is carried by the shaft 6, and the caps 7 and 10 are recessed for the reception of that member 13 of said driving gear which is carried by the shaft 9, the gear members 12 and 13 being shown by dotted lines in Fig. 1.

The support 5 for the shaft 6 is preferably secured by means of bolts 14 to the members of the supporting frame, suitable flanges on the cap 7 being secured to like flanges on the shaft support 5, by means of bolts 15, and properly flanged portions on the caps 7 and 10 being secured together by bolts 16.

By reason of this method of construction the bearings for the various shafts of the dasher-driving gear must always bear their proper relation to the supporting frame, the separate members of the latter are much lighter and easier to handle than a frame cast in one piece, and the casting of the frame is simplified and cheapened.

Projecting upwardly from the table members 4, 4^a of the supporting frame are lugs 17, 17^a (Fig. 3) which constitute a bracket fitting between ears 19, 19^a projecting from a carrier disk 20, said ears being pivoted to the bracket by means of a transverse bolt 21.

To a threaded opening in the table members 4, 4^a of the supporting frame, near the forward end of the latter, is preferably adapted an adjusting screw 22, upon which rests a threaded stud 23, depending from the outer casing of the freezing vessel. This stud may be contained between opposite hooked lugs 24, 24^a on the members 4, 4^a of the supporting frame, and be provided with a nut 25 (see Fig. 2).

The rear end of the freezing vessel is, as hereinafter described, carried by the pivoted disk 20 and by proper adjustment of the screw 22 the front portion of said freezing vessel can be raised and lowered until an exact horizontal level of the same have been established, whereupon the parts can be locked in such position by tightening the nut 25 against the undersides of the overhanging hooked lugs 24 and 24^a, as shown in Fig. 2.

The freezing vessel preferably consists of a rear ring 26 and a front ring 27, these rings being connected by means of concentric drums 29, 30 and 31, the innermost drum constituting the outer wall of the freezing chamber, the drum 30 coöperating with the drum 29 to form a brine-circulating chamber around the latter, and the drum 31 coöperating with the drum 30 to form, between the two, an annular chamber for the reception of material which is a non-conductor of heat.

This construction of this portion of the freezing vessel however, forms no part of my present invention.

To the front ring 27 of the freezing vessel is preferably secured a detachable head

32, provided, in its upper portion, with a feed hopper 33, and in its lower portion with a discharge spout 34 having a valve 35, this construction also forming no part of my present invention.

The ring 26 at the rear end of the freezing vessel is preferably closed by a detachable head 36, which may be held in place in said ring by means of set screws 37 bearing upon said head and adapted to threaded openings in the carrier disk 20, as shown in Fig. 1, said carrier disk 20 bearing against the ring 26 and having a flange overlapping said ring and provided with set screws 39 whereby it is secured thereto.

Between the carrier disk 20 and the head 36 is thus formed a dead-air space 40, which interferes with the transmission of the heat to the contents of the freezing chamber or brine-circulating chamber from outside of this end of the freezer.

Attempts have been heretofore made to form a dead-air space at the rear end of the freezing vessel by casting a hollow head thereon, but such attempts have not been successful because, owing to the large area of the core necessary to be employed in making such a casting, and because of the lifting action of the metal thereon when the mold is being poured, it has been found impossible to properly anchor such core in position in the mold. By reason of the construction which I have adopted, no coring of the parts is necessary, and a dead-air space of any desired size can readily be formed. Another advantage arising from this construction is that the cylindrical portion of the freezing vessel can be readily removed from the pivoted carrier disk 20 when desired and the rear head 36 can also be readily detached from the body of the freezing vessel in order to permit access to the rear end of the freezing chamber.

The head 36 has a central hollow sleeve 41 projecting through a central opening in the carrier disk 20 and constituting a bearing for the spindle 42 of the dasher with which the freezing vessel is provided, said sleeve 41 also carrying the follower 43 of a stuffing box for preventing leakage of material around the spindle 42.

At its outer end the spindle 42 has a recess for the reception of the driving end 44^a of the shaft 9, said driving end being of square or other equivalent shape in cross section, as shown in Fig. 1.

The opposite spindle 45^a of the dasher is adapted to a bearing in a plug 46^a which is screwed into a boss or hub 47^a on the front head 32, or said dasher may be otherwise rotatably mounted at its outer end, as desired.

The dasher has, at each end, a frame which is rigidly secured to or formed in one piece with the respective spindle 42 or 45^a and each of these frames has arms 44 and 45 those of one frame being in line longitudinally with those of the opposite frame.

Rigid longitudinal bars 49 connect the arms 44 and 45 of one of the frames to the corresponding arms of the opposite frame, whereby a dasher of great longitudinal rigidity in its outer portion is produced, longitudinal rigidity of the central portion of the dasher being secured by means of rods 51 which extend from one frame to the other, as shown in Fig. 1, each of these rods being rigidly secured at each end to its corresponding frame of the dasher.

Extending from each of the bars 49 to the corresponding rod 51 are a series of radial beater blades or vanes 52, these vanes being rigidly secured to or cast in one piece with the bars 49 at their outer ends and resting at their inner ends upon the rods 51, to which they may be secured by soldering, brazing, or otherwise, so as to prevent longitudinal displacement of said inner ends of the vanes.

To those skilled in the art of making mechanism of the class described, many alterations in construction and widely differing embodiments of my invention will suggest themselves, without departing from the spirit and scope thereof. My descriptions and disclosures herein are purely illustrative and are not intended to be in any sense limiting.

I claim:

1. The combination, in an ice cream freezer, of a supporting member, a swinging carrier pivotally mounted on said supporting member, a freezing vessel detachably mounted upon said carrier but free to swing therewith, and a removable head at that end of said freezing vessel which is mounted upon the carrier.

2. The combination, in an ice cream freezer, of a supporting member, a swinging carrier pivotally mounted thereon, a freezing vessel detachably mounted upon said carrier, and a removable head at that end of the vessel which is mounted upon the carrier, said head being within the limits of the end of the vessel whereby the mounting is effected.

3. The combination, in an ice cream freezer, of a freezing vessel having a rear ring, a head seated in said ring, and a carrier to which said ring is detachably connected and from which it can be removed in order to permit access to said head.

4. The combination, in an ice cream freezer, of a freezing vessel having a ring at its rear end, a head seated in said ring, and a carrier to which the ring is detachably connected, said carrier having means for bearing upon the head and maintaining the same upon its seat in the ring.

5. In an ice cream freezer, the combina-

tion of a freezer having a ring at one end, a head arranged to engage said ring, and a member to which said ring is detachably connected to permit access to said head.

6. In an ice cream freezer, the combination of a freezer having a ring at one end, a head arranged to engage said ring, and a member to which said ring is detachably connected to permit access to said head, said ring being constructed and arranged to hold the head and member spaced from each other.

7. In an ice cream freezer, the combination of a freezing vessel having a ring at one end, a head engaging said ring, and a member to which said ring is detachably connected, said member having means for engaging the head to maintain it against said ring.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FRANK TYSON.

Witnesses:
KATE A. BEADLE,
HAMILTON D. TURNER.