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2,614,740

CUP DEPRESSOR

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FIG. 1

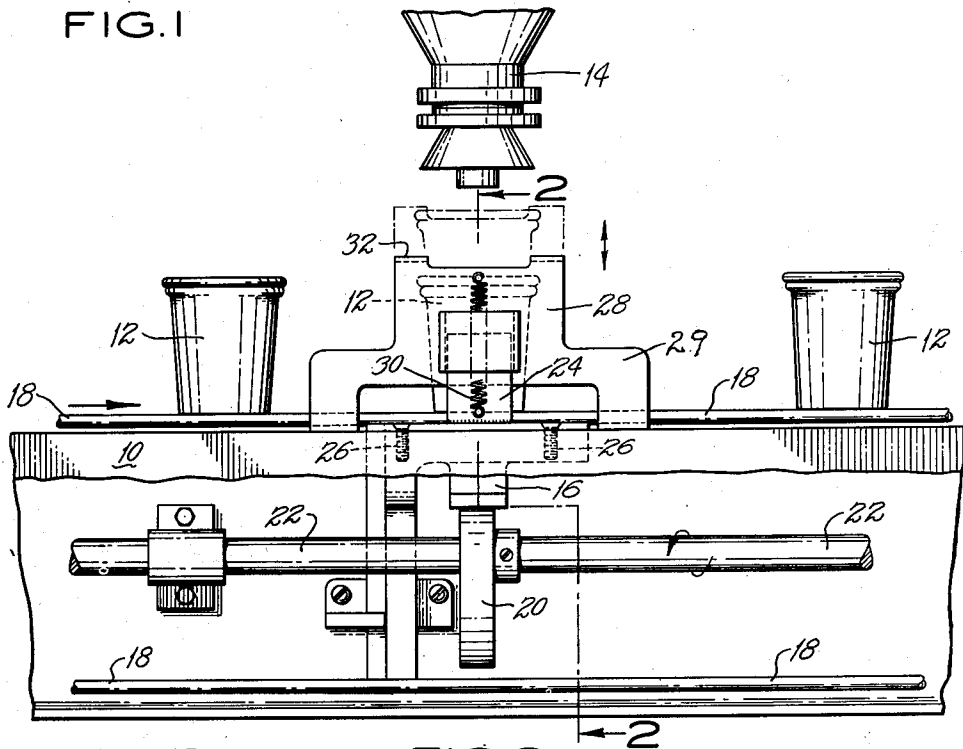


FIG. 2

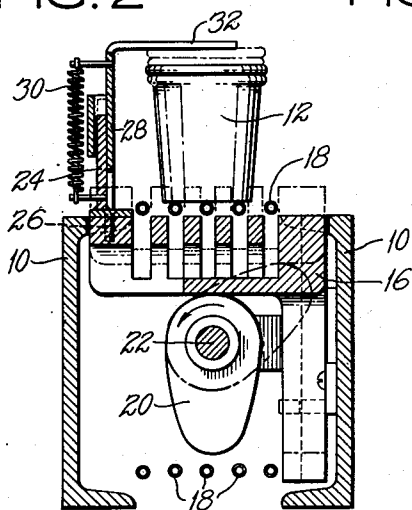
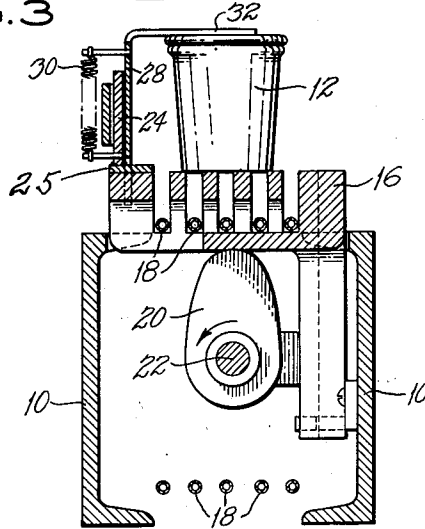


FIG. 3



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CUP DEPRESSOR

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5 Claims. (Cl. 226-93)

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This invention relates to ice-cream filling machines and particularly to an attachment therefor to improve the handling of the cups into which the ice-cream is admitted while in semi-congealed condition.

An object of the present invention is to provide a resilient member pressed against the upper edge of the cup when elevated to be filled with the ice-cream mix, the resilient member serving to force the cup downward when its elevating member is lowered.

In filling individual paper cups for ice-cream sundaes, etc. with ice-cream mixes, particularly when the mixture is partially congealed and viscous, the cup, after being filled, may be held suspended in elevated position by the column of ice-cream mix after its elevating table has been lowered. This prevents forward movement of the cup by the travelling bands to its syrup admitting and/or capping position and interferes with the proper functioning of the machine. The attachment forming the subject matter of this application resiliently forces the cup downward with movement downward of the elevating table by engagement of the resilient member with the upper edge of the cup. In the lower position of the elevating member and cup, the cup moves away from the resilient member and is free to move forward on the travelling bands.

It is therefore a primary object of the invention to firmly support the cup against the elevating member during the filling operation and to resiliently return the cup to its lower and advancing position after it has been filled.

With the above and other objects in view, the invention may include the features of construction and operation set forth in the following specification and illustrated in the accompanying drawing.

In the accompanying drawing annexed hereto and forming a part of this specification, I have shown the invention embodied in a standard form of ice-cream filling machine but it will be understood that the invention can be otherwise embodied and that the drawing is not to be construed as defining or limiting the scope of the invention, the claims appended to this specification being relied upon for that purpose.

In the drawing:

Fig. 1 is a fragmentary front elevation of a standard filling machine showing the present form of cup retaining member in position thereon;

Fig. 2 is a cross sectional view taken on the plane of line 2—2 in Fig. 1, and

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Fig. 3 is a view similar to Fig. 2 showing the elevating member and the cup in another operative position.

In the above mentioned drawing there has been shown but one embodiment of the invention which is now deemed preferable, but it is to be understood that changes and modifications may be made within the scope of the appended claims without departing from the spirit of the invention.

Briefly, and in its preferred aspect, the invention may include the following principal parts: First, a body member attached in fixed position to the elevating member for raising the cup to its filling position; and second, a vertically movable member slidably supported on the body member and having its upper end bifurcated and extending to positions to be engaged by the upper edge of the cup; and third, a spring normally urging the vertically movable member toward its lowermost position relative to the body member.

Referring more in detail to the figures of the drawing there is shown a portion of a filling machine 10 for individual paper cups 12, such as used for ice-cream cups or packaged ice-cream sundaes. Directly below the filling nozzle 14 is an elevating member 16 on which the cup 12 being filled is raised to a position close to the filling nozzle 14. Cups 12 are advanced to the elevating member 16 by means of travelling bands 18 during which movement the cups are in their lower position and have their bottom surfaces in contact with the travelling bands 18. The bands 18 are given an intermittent movement to advance the cups 12 step by step, first to their elevating position below the filling nozzle 14, and thence to syrup filling or cap applying positions (not shown). As the above described machine may be of standard or conventional form it is not thought that further description of its operative parts will be necessary. It will suffice to state that the cups 12 to be filled are first advanced to a position directly below the filling nozzle 14. In that position their forward movement is stopped and the elevating member 16 moves upward carrying with it the cup 12 to a position very close to the filling nozzle 14. In this elevated position the desired quantity of ice-cream mix, in a semi-fluid or congealed condition, is admitted to the cup. The elevating member 16 and cup 12 are then lowered so that the cup again rests on the travelling bands 18 or other advancing means by which it may be advanced to another operative position to add

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syrup or to apply a closure plate to its open upper end.

The elevating movement of the member 16 may be effected in the usual manner as by a cam 20 mounted for rotation on an elongated shaft 22.

During the lowering movement of the elevating member 16 the filled cups 12 may not be lowered simultaneously with the elevating member 16 for the reason that a semi-frozen continuous column of ice-cream mix may extend from the nozzle 14 to the cup that will be sufficiently strong to support the cup and retain the cup in its elevated position after the elevating member 16 has completed its downward movement. Resilient means are therefore provided to urge the cup downward simultaneously with the downward movement of the member 16. These means may comprise a body member 24 having a base 25 secured in any convenient manner as by screws 26 in fixed position to the elevating member 16 for vertical movement therewith. Slidably mounted for vertical movement relative to this body member 24 is the retaining or clamping member 28. This member 28 is guided by means of a central post or plate forming part of the body member 24 and is normally retained in its lowermost position by means of a light helical spring 30 the ends of which are attached respectively to the body member 24 and retaining member 28.

At the upper portion of the member 28 are provided two spaced rearward extending portions 32 adapted to fit over the upper edge of the cup. In the lower position of a cup the arms 32 are slightly above the upper edge of the cup 12. The lateral lower portions 29 of the retaining member 28 extend beyond the sides of the elevating member 16. In the lower position of the member 28, therefore, these ends 29 rest on the fixed or bench portion of the filling machine 10. This lower position of the member 16 holds the member 28 raised above the body member 24 so that there is ample room for the cups 12 to pass below the projections 32. As soon as the member 16 starts to rise, however, the body 24 also rises but the member 28 does not immediately begin to rise but remains in place until the projections 32 engage the cup. After this engagement the body member 24 and the member 28 rise together and maintain a constant light pressure against the cup 12. As soon as the member 16 starts its downward movement the cup 12 follows this downward movement for the reason that the force of spring 30 is exerted on the cup by the projections 32 to hold the cup against the elevating member 16. As soon as the member 16 approaches its lowermost position the cup 12 becomes disengaged from the arms 32 and is free to move with the bands 18 to its next operative position. This is for the reason that the lateral portions of member 28 again engage the fixed or bench part of the machine and prevent further lowering of rearward extensions 32.

I claim as my invention:

1. In a cup filling machine for ice-cream having cup advancing means and an elevating member

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therefor, a body member having a base fixed to said elevating member, a member on said body member and movable vertically relatively thereto, and horizontally extending projections on said slidable member, whereby when said cup is raised by movement of the elevating member, said projections on said slidable member will engage the upper edge of the cup.

2. In a cup filling machine for ice-cream having cup advancing means and an elevating member therefor, a body member having a base secured to said elevating member below the filling nozzle of said machine, a member slidably mounted on said body member and resiliently forced toward its lower position on said base, and means on said slidable member engaged by the upper edge of said cup when said cup is moved to its upper position.

3. A resilient cup retainer for ice-cream filling machines comprising, a cup elevating member, a member mounted in fixed position thereon having a member slidably mounted thereon and having portions engaged by said cup when said cup is raised to its filling position, and a spring having its ends attached respectively to the body member and slidable member, whereby when said cup is lowered by movement downward of the elevating member the cup is resiliently urged downward and maintained in contact with the elevating member.

4. A filling machine for ice-cream cups having a cup elevating member below the filling machine nozzle, a body member mounted on and movable with said elevating member, and a member slidably mounted on said body member having lateral extensions engaging fixed portions of said machine when said elevating member is in its lowest position, said slidable member being normally forced in a position toward its body member, whereby when said elevating member is raised said slidable member will move relative to its body member and engage the upper edge of said cup.

5. A resilient cup retainer for ice-cream filling machines comprising a cup elevating member fixed to a vertically movable part of said machine, a member slidably mounted thereon and supported on a fixed portion of said machine when in its inoperative position, said slidably mounted member having projections engaged by the upper edge of said cup when said cup is raised to its filling position by movement of said elevating member, and means normally urging said slidable member toward its cup engaging position.

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The following references are of record in the file of this patent:

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