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Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a
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- as to the applicant's entitlement to claim the priority of the
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(54) Title: DUAL VALVE INJECTOR ASSEMBLY FOR DISPENSING A FOOD PRODUCT

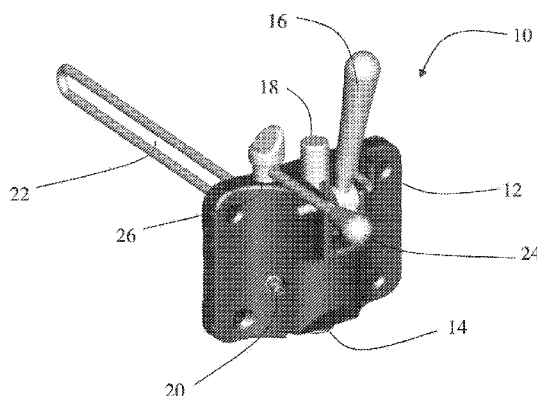


Figure 1

(57) Abstract: A dual valve injector assembly having a base; a passageway in the base for receiving a food product; a first draw valve in communication with the passageway and a first spout, the first spout dispensing the food product at a first draw rate; and a second draw valve in communication with the passageway and a second spout, the second spout dispensing the food product at a second draw rate; wherein the second draw rate is lower than the first draw rate.



DUAL VALVE INJECTOR ASSEMBLY FOR DISPENSING A FOOD PRODUCT

BACKGROUND

[0001] The subject matter disclosed herein relates generally to dispensing food products, and more particularly to a dual valve injector assembly for dispensing a frozen food product at different draw rates.

[0002] Frozen food products, such as soft serve ice cream, may be served in a variety of manners including in a dish, a cone or injected into a confectionery (e.g., a pastry, cupcake, donut). Existing soft serve ice cream machines typically have one spout for delivery of a stylized frozen product onto a cone or dish. To use a single spout machine for injection requires removal of a design ring and the addition of an injector at the spout. Other existing soft serve ice cream machines include a separate barrel that contains the food product for injection and a dedicated injector. A dedicated injector is subject to contamination as the food product remains in the injector between draws. Improvements in dispensing a frozen food product for multiple serving suggestions, including injection, would be well received in the art.

SUMMARY

[0003] One embodiment includes a dual valve injector assembly having a base; a passageway in the base for receiving a food product; a first draw valve in communication with the passageway and a first spout, the first spout dispensing the food product at a first draw rate; and a second draw valve in communication with the passageway and a second spout, the second spout dispensing the food product at a second draw rate; wherein the second draw rate is lower than the first draw rate.

[0004] Other aspects, features, and techniques of the invention will become more apparent from the following description taken in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] Referring now to the drawings wherein like elements are numbered alike in the several FIGURES, in which:

[0006] FIG. 1 depicts a dual valve injector assembly in exemplary embodiments; and

[0007] FIG. 2 depicts a confectionery injector in exemplary embodiments.

DETAILED DESCRIPTION

[0008] Embodiments relate to a dual valve injector assembly for use with a frozen food product dispensing machine, such as a soft serve ice cream machine. It is understood that the dual valve injector assembly may be used with other food products, and embodiments are not limited to frozen food products. FIG. 1 depicts a dual valve injector assembly 10 in exemplary embodiments. The dual valve injector assembly 10 includes a base 12, which is mounted to a freezer door at a rear side of base 12. Baffle rod 22 extends from a rear side of base 12, for positioning within a beater in a freezing cylinder of a frozen food product dispensing machine. A passageway is formed in base 12 to receive the frozen food product from a mixing barrel and distribute the frozen food product to two valves in the dual valve injector assembly 10 as described herein.

[0009] The dual valve injector assembly 10 includes a first spout 14 for dispensing the frozen food product into a cone or dish. The first spout 14 is oriented to deliver the frozen food product in a generally vertical direction. A first draw handle 16 is used to operate a first draw valve 18 to dispense the frozen food product through first spout 14. First draw valve 18 is in communication with the passageway and dispenses the frozen food product at first spout 14 at a first draw rate of about 1 ounce of frozen food product per second. The construction of first draw valve 18 and size of first spout 14 control the draw rate of the frozen food product. It is understood that the draw rate of 1 ounce per second is an exemplary rate, for a particular food product, and that a variety of other draw rates may be employed with other food products, and other draw valve and spout configurations.

[0010] The dual valve injector assembly 10 includes a second spout 20 for dispensing the frozen food product into a confectionery injector 30, shown in Figure 2. The second spout 20 is oriented to deliver the frozen food product in a generally horizontal direction. A second draw handle 24 is used to operate a second draw valve 26 to dispense the frozen food product at second spout 20. The second draw valve is in communication with the passageway and dispenses the frozen food product at a second draw rate, about 1/4 to 1/8 ounce of food product per second. The second draw rate is lower than the first draw rate to provide more control of the frozen food product when injecting confectioneries. The construction of second draw valve 26 and size of second spout 20 control the draw rate of the frozen food product. It is understood that the draw rate of about 1/4 to 1/8 ounce per second is an exemplary rate, for a particular food product, and that a variety of other draw rates may be employed with other food products, and other draw valve and spout configurations.

[0011] FIG. 2 depicts a confectionery injector 30 in exemplary embodiments. Confectionery injector 30 is a tubular member having a mounting end 32 that snaps or threads on to second spout 20. The exterior of the confectionery injector 30 tapers to an injection end 34 that is intended for insertion into a confectionery for injecting the frozen food product into the confectionery. The confectionery injector 30 may be disposable, so that once one or more confectioneries are injected with the frozen food product, the confectionery injector 30 may be discarded. In exemplary embodiments, the confectionery injector 30 is made from plastic, but may be made from other materials such as aluminum, food grade stainless steel, etc.

[0012] It will be appreciated that embodiments provide several advantages over existing machines. The dual valve injector assembly 10 allows a single machine to be used for injection of confectioneries while still allowing making of cone and dish products. The confectionery injector may be disposable, eliminating drawbacks of the food product sitting in an injector for long periods of time between uses, and possibly spoiling. Alternatively, the confectionery injector may be removed for cleaning or replaced with a cleaned confectionery injector.

[0013] The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. While the description of the present invention has been presented for purposes of illustration and description, it is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications, variations, alterations, substitutions, or equivalent arrangement not hereto described will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the invention. Additionally, while various embodiment of the invention have been described, it is to be understood that aspects of the invention may include only some of the described embodiments. Accordingly, the invention is not to be seen as limited by the foregoing description, but is only limited by the scope of the appended claims.

CLAIMS

1. A dual valve injector assembly comprising:
a base;
a passageway in the base for receiving a food product;
a first draw valve in communication with the passageway and a first spout, the first spout dispensing the food product at a first draw rate; and
a second draw valve in communication with the passageway and a second spout, the second spout dispensing the food product at a second draw rate;
wherein the second draw rate is lower than the first draw rate.
2. The dual valve injector assembly of claim 1 further comprising:
a first draw handle for actuating the first draw valve to supply the food product to the first spout.
3. The dual valve injector assembly of claim 1 further comprising:
a second draw handle for actuating the second draw valve to supply the food product to the second spout.
4. The dual valve injector assembly of claim 1 further comprising:
a confectionery injector for attachment to the second spout, the confectionery injector for injecting the food product into a confectionery.
5. The dual valve injector assembly of claim 4 wherein:
the confectionery injector is disposable.
6. The dual valve injector assembly of claim 4 wherein:
the confectionery injector includes a mounting end that mounts on to the second spout and an injection end for insertion in the confection.
7. The dual valve injector assembly of claim 6 wherein:
an exterior surface of the injector tapers from the mounting end to the injection end.
8. The dual valve injector assembly of claim 1 wherein:
the first spout dispenses the food product in a generally vertical direction.
9. The dual valve injector assembly of claim 1 wherein:
the second spout dispenses the food product in a generally horizontal direction.
10. The dual valve injector assembly of claim 1 wherein:
the food product is a frozen food product.
11. The dual valve injector assembly of claim 1 wherein:
the first draw rate is about 1 ounce per second and the second draw rate is about 1/4 to 1/8 ounce of food product per second.

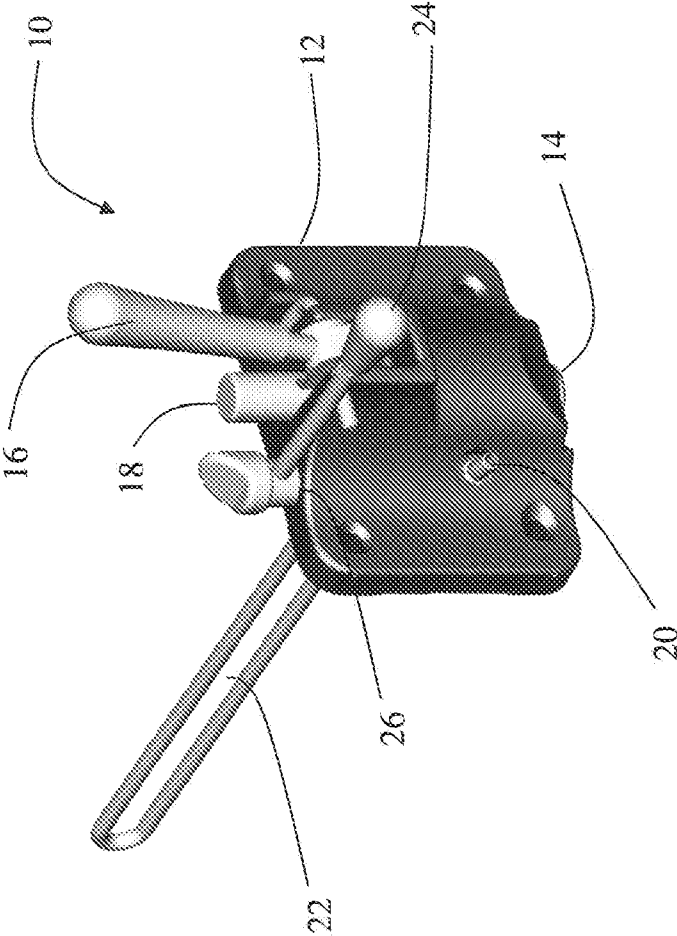


Figure 1

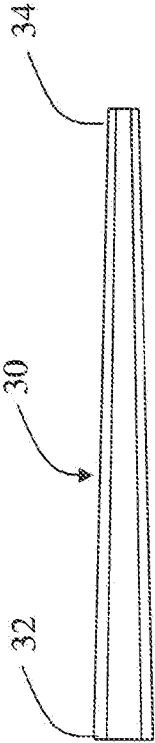


Figure 2

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2012/064046

A. CLASSIFICATION OF SUBJECT MATTER

INV. A23G9/28 F16K11/20 F16K11/22
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A23G F16K A47J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	GB 2 416 755 A (SCOTTISH & NEWCASTLE PLC [GB]) 8 February 2006 (2006-02-08) page 3, line 8 - page 5, line 25 page 10, line 23 - page 11, line 3 page 13, line 16 - line 21 page 14, line 15 - line 17 figures 1-3	1-3,8,9, 11 4-7,10
A	----- US 2003/006254 A1 (ITOU SUKEHIDE [JP] ET AL) 9 January 2003 (2003-01-09) the whole document	1-11
A	----- US 1 800 368 A (TOMLINSON ALFRED E) 14 April 1931 (1931-04-14) the whole document -----	1-11



Further documents are listed in the continuation of Box C.



See patent family annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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