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(54) **Pitcher for emulsifying milk**

Behälter zum Emulgieren von Milch

Réceptier pour émulsionner du lait

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Description

[0001] The present invention refers to a pitcher for emulsifying milk, in particular for emulsifying that portion of milk that an operator in a bar, cafeteria or simply at home may be willing to emulsify for preparing a cappuccino. As known, the operator uses a jet of water steam for emulsifying the milk and getting the desired cream that then he pours on the coffee contained in a cup.

[0002] Although the term -cappuccino- is known nearly everywhere, it does not appear that it has an English or other non Italian language equivalent. So, it is proper to make clear that cappuccino is a beverage made of express coffee, milk and milk cream, where the latter is just got by the above referenced operation.

[0003] An operator uses currently a conventional pitcher for operating; he treats the milk in the pitcher by a water steam jet ejected from the nozzle provided on purpose in a conventional express coffee maker, with the nozzle plunged into the upper layer of the milk poured into the pitcher, and gives the pitcher such movements as to cause a rotation of the milk, along the pitcher walls, which helps the production of a homogeneous milk cream that he then pours on the coffee that has been previously served into a cappuccino cup. This operation should lead to a good result if the operator is a skilled one, but also in this case the operation often produces a cream on whose surface there are air macrobubbles. These macrobubbles prevent from the desired integration of part of the cream into the coffee and also cause on the cream surface a part of cream not so agreeable because such a part of cream is not homogeneous, silky and enduring as desired.

[0004] A pitcher for emulsifying milk is known from US2909172.

[0005] The invented pitcher obviates said drawbacks. If one looks at the pitcher with its main longitudinal axis in vertical position, the pitcher shows the bottom wall sloping with respect to a horizontal plane, a shape of a truncated cone and rounded inner edges at the bottom.

[0006] If one refers to this pitcher lying on a horizontal plane, on a table for instance, then the pitcher appears as sloping with respect to a vertical line.

[0007] When an operator holds this pitcher in his hand naturally, with its mouth substantially horizontal, then the bottom wall of the pitcher results sloping with respect to a horizontal plane. Experiments, along with tests based on the physical principles relevant to the motion of fluids in turbulent or viscous state gave evidence that said sloping, the truncated cone shape and the rounded edges at the bottom lead the milk subjected to said operation to such a physical condition: the production is reduced of those microvortexes that hinder the homogeneous rotation of the milk in the pitcher, i.e. that rotation that produces a desired milk cream thanks to formation of air macrobubbles.

[0008] Said effect is achieved by a pitcher wherein the bottom wall is sloping with respect to the horizontal plane

by an angle α ranging from 5° to 30° and the shape is tapered towards the top by a taper $1/K$ ranging from 0,20 to 0,40. Sloping α may be of any orientation.

[0009] In said truncated cone shape the inner edges between the bottom wall and the side walls are sensibly rounded and the pitcher side walls may be rectilinear, bent towards inside or outside.

[0010] The main advantage of this pitcher is to provide for an excellent cappuccino even if the operator is not a skilled one.

[0011] The invention will now be described by way of example and with reference to the accompanying drawings in which:

Figs. 1 and 2 are lateral views,

Fig. 3 is a front view,

Fig. 4 is a first cross section according to A - A of fig. 1,

Fig. 5 is a second cross section according to A - A of fig. 1.

[0012] Fig. 1 shows a pitcher 1 in the shape of truncated cone as if the handle 2 is held by an operator so that the mouth appears in horizontal position. The sloping of the bottom wall 3 is of an angle $\alpha = 15^\circ$ and the taper of the side walls is $1/K = (D-d)/L = 0.30$ (D , d , L being indicated in the figure); it is shown that the side walls are slightly bent towards the outside, as they might be bent towards inside, and the inner edges between the bottom wall and the side walls are sensibly round (the curvature radius defining such rounding depends on the size of the pitcher). From the figure the sloping α of the bottom wall appears directed from the spout 4 to the handle 2.

[0013] Fig. 2 shows pitcher 1 put on a table T.

[0014] Fig. 3 shows a pitcher 5 wherein the bottom wall 30 is sloping by an angle $\alpha = 13^\circ$ and is turned by 90° with respect to the sloping illustrated in figures 1 and 2.

[0015] Fig. 4 shows the circular horizontal cross section of pitcher 1 again bearing the handle 2 and the spout 4.

[0016] Fig. 5 shows the oval horizontal cross section of a pitcher 1a again bearing the handle 2 and the spout 4. The handle 2 and the spout 4 may be located at any points of the perimeter, provided the points are opposite, as it is preferably but not absolutely necessary.

Claims

1. Pitcher (1, 5) of truncated cone shape for emulsifying milk to be used for preparing a cappuccino provided with a handle (2) and a spout (4) at the upper rim **characterized in that** the bottom wall (3, 30) is sloping with respect to an horizontal plane by an angle α ranging from 5° to 30° and the shape is of a truncated cone with the side walls tapered towards the top by a taper $1/K$ ranging from 0,20 to 0,40.
2. Pitcher (1, 5) according to claim 1 **characterized in**

that the inner edges between the bottom wall and the side walls are sensibly round.

3. Pitcher (1, 5) according to claims 1 and **characterized in that** has circular horizontal cross section.
4. Pitcher (1, 1a, 5) according to claims 1 and 2 **characterized in that** has oval horizontal cross section

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Patentansprüche

1. Kegelstumpfförmiger Behälter (1, 5) zum Emulgieren von Milch, die für die Herstellung eines Cappuccinos verwendet werden soll, mit einem Handgriff (2) und einem Ausguss (4) an dem oberen Rand, **dadurch gekennzeichnet, dass** die Bodenwand (3, 30) zu einer Horizontalebene um einen Winkel α im Bereich von 5° bis 30° geneigt ist und die Form des Kegelstumpfes mit den Seitenwänden sich zur Oberseite mit einer Verengung 1/K im Bereich von 0,20 bis 0,40 verengt.
2. Behälter (1, 5) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Innenkanten zwischen der Bodenwand und den Seitenwänden spürbar rund sind.
3. Behälter (1, 5) nach Anspruch 1, **dadurch gekennzeichnet, dass** er einen kreisförmigen horizontalen Querschnitt hat.
4. Behälter (1, 1a, 5) nach Anspruch 1 und 2, **dadurch gekennzeichnet, dass** er einen ovalen, horizontalen Querschnitt hat.

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Revendications

1. Récipient (1, 5) en forme de cône tronqué pour émulsifier du lait utilisé dans la préparation d'un cappuccino, comportant une poignée (2) et un bec verseur (4) au rebord supérieur, **caractérisé en ce que** la paroi inférieure (3, 30) est inclinée par rapport à un plan horizontal d'un angle α compris entre 5° et 30°, et présente la forme d'un cône tronqué dont les parois latérales convergent en direction du sommet selon une conicité 1/K comprise entre 0,20 et 0,40.
2. Récipient (1, 5) selon la revendication 1, **caractérisé en ce que** les arêtes intérieures entre la paroi inférieure et les parois latérales sont sensiblement rondes.
3. Récipient (1, 5) selon la revendication 1, **caractérisé par** une section transversale horizontale circulaire.

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