AUTOMATIC DISPENSING DEVICE OF ORIENTABLE CAPSULES FOR HOT BEVERAGES

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ABSTRACT
An automatic dispensing device of orientable capsules for preparing hot beverages is described, comprising at least one storage compartment adapted to accommodate the capsules in open order, the storage compartment being provided with at least one inlet for capsules and at least one plurality of apertures adapted to the oriented exit of capsules. The device comprises means for rotating the storage compartment about a rotation axis in order to facilitate the oriented exit of capsules.
Fig. 4
AUTOMATIC DISPENSING DEVICE OF ORIENTABLE CAPSULES FOR HOT BEVERAGES

[0001] The present invention relates to an automatic dispensing vending device of orientable capsules for hot beverages.

[0002] These beverages are prepared in place and automatically from capsules containing, for example, a freeze-dried version of the beverage type to be achieved, to which hot water is added. The prepared beverages range from bar products, such as coffee or tea, to broth.

[0003] On the market and in the known art, there are different types of devices for supplying capsules to machines for the automatic production of hot beverages. Some require a capsule-by-capsule manual insertion into the loading drawer of the machine for preparing the beverage, others have a storage compartment where the capsules are held in open order, and a quite complicated device is then expected to move the capsules and suitably orient them for being automatically supplied.

[0004] The complication of these mechanisms is unfavorable to a simplified maintenance of the device.

[0005] Therefore, the need for a device which allows to carry out an automated capsule distribution with a simplified maintenance arises.

[0006] Therefore, it is the object of the present invention to achieve a device which allows to carry out an automated capsule distribution with a highly simple structure.

[0007] In accordance with the invention, such an object is achieved by an automatic dispensing machine device of orientable capsules for preparing hot beverages, comprising at least one storage compartment adapted to accommodate the capsules in open order, the storage compartment being provided with at least one capsule inlet and at least one plurality of apertures adapted to the oriented exit of the capsules, characterized in that it comprises means for rotating the storage compartment about a rotation axis to facilitate the oriented exit of the capsules.

[0008] These and other features of the present invention will be more apparent from the following detailed description of a practical embodiment thereof shown by way of non-limiting example in the accompanying drawings, in which:

[0009] FIG. 1 shows a vertical section view of a first embodiment of the device according to the invention;

[0010] FIG. 2 shows an axonometric view of the device in FIG. 1;

[0011] FIG. 3 shows a vertical section view of a second embodiment of the device according to the invention;

[0012] FIG. 4 shows an axonometric view of the device in FIG. 1;

[0013] With reference to the enclosed drawings, specifically to FIGS. 1 and 2, there is shown an automatic dispensing device 1 of orientable capsules 2 for preparing hot beverages, comprising at least one storage compartment 3 adapted to accommodate the capsules 2 in open order. The storage compartment 3 is provided with at least one inlet 4 for capsules 2 and at least one plurality of apertures 5 adapted to the oriented exit of the capsules 2, and means 6 for rotating the storage compartment 3 about a rotation axis 7 in order to facilitate the oriented exit of the capsules 2 are associated therewith. The storage compartment 3 has an exemplary cylindrical shape (alternatively it could also be prismatic) with a main inclined symmetry axis 8. The storage compartment 3 is moved by rotation means 6 associated therewith, e.g., an electric motor. Every plurality of apertures 5 is symmetrically placed and preferably circumferentially distributed about the symmetry axis 8 of the storage compartment 3. The apertures 5 reproduce the volume shape of the capsule 2 in the preferential exit direction.

[0014] The movement of the storage compartment 3 may occur by rotating the same such that the main symmetry axis 8 of the storage compartment 3 coincides with the rotation axis 7 imposed by the motor, or such that there is not coincidence between the two axes.

[0015] By rotating the storage compartment 3, the capsules are moved and those which are oriented as the apertures 5 exit therefrom and fall on a collecting chute 9 associated with every plurality of apertures 5.

[0016] Shutting means 10 for reversibly shutting the plurality of apertures 5, which operate when the respective collecting chute 9 is loaded, and sensors 13 for signaling the reached preset minimum amount of capsules 2 in the chute 9 are advantageously provided.

[0017] The inlet 4 for supplying the capsules may be placed at the side part 10 or top part 12 of the storage compartment 3.

[0018] The storage compartment 3 may advantageously be provided with more than one plurality of outlet apertures 5, in particular with an opposite orientation, for dispensing differently oriented capsules 2 to be used in different machines. Every plurality of apertures 5 is associated with a respective collecting chute 9, sensors 13 for signaling the reached minimum amount, and means 10 for shutting apertures 5.

1. An automatic dispensing device of orientable capsules for preparing hot beverages, comprising at least one storage compartment adapted to accommodate the capsules in open order, the storage compartment being provided with at least one inlet for capsules and at least one plurality of apertures adapted to the oriented exit of the capsules, characterized in that it comprises means for rotating the storage compartment about a rotation axis to facilitate the oriented exit of the capsules.

2. A device according to claim 1, characterized in that the apertures reproduce the volume shape of capsule in the exit direction.

3. A device according to claim 1, characterized in that the storage compartment has a cylindrical or prismatic shape with a main symmetry axis.

4. A device according to claim 3, characterized in that said symmetry axis is inclined.

5. A device according to claim 3, characterized in that said symmetry axis and rotation axis coincide.

6. A device according to claim 3, characterized in that symmetry axis and rotation axis do not coincide.

7. A device according to claim 3, characterized in that every plurality of apertures is symmetrically placed and preferably circumferentially distributed about the symmetry axis of the storage compartment.

8. A device according to claim 7, characterized in that it has a collecting chute associated with every plurality of apertures.

9. A device according to claim 6, characterized in that it has means for reversibly shutting the plurality of apertures, operated when the respective collecting chute is loaded.

10. A device according to claim 1, characterized in that the storage compartment is provided with two pluralities of outlet apertures for dispensing respective pluralities of capsules with the same or different orientation.
11. A device according to claim 1, characterized in that the inlet for capsules is at the top part of the storage compartment.

12. A device according to claim 1, characterized in that it is provided with sensors for signaling the reached preset minimum amount of capsules.

13. A device according to claim 2, characterized in that the storage compartment has a cylindrical or prismatic shape with a main symmetry axis.

14. A device according to claim 4, characterized in that symmetry axis and rotation axis coincide.

15. A device according to claim 4, characterized in that symmetry axis and rotation axis do not coincide.

16. A device according to claim 4, characterized in that every plurality of apertures is symmetrically placed and preferably circumferentially distributed about the symmetry axis of the storage compartment.

17. A device according to claim 5, characterized in that every plurality of apertures is symmetrically placed and preferably circumferentially distributed about the symmetry axis of the storage compartment.

18. A device according to claim 6, characterized in that every plurality of apertures is symmetrically placed and preferably circumferentially distributed about the symmetry axis of the storage compartment.

19. A device according to claim 2, characterized in that the storage compartment is provided with two pluralities of outlet apertures for dispensing respective pluralities of capsules with the same or different orientation.

20. A device according to claim 3, characterized in that the storage compartment is provided with two pluralities of outlet apertures for dispensing respective pluralities of capsules with the same or different orientation.

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