coffee beans for a coffee beverage, and a grinder for grinding the metered coffee beans. The coffee bean container and the portioning device are configured in a common container module. The unit has a module receptacle, to which the container module, when in use, can be connected and from which said container module, after use, can be removed. The container module has user-selectable settings of a metered quantity and of a grinding degree, wherein the setting of the metered quantity affects the portioning device and the setting of the grinding degree affects the grinder. The coffee apparatus described therein is for example a coffee machine having a brewing apparatus or a coffee mill, in particular for the preparation of single portions. Depending on the embodiment, it is also suitable for the preparation of double portions. As an alternative or in addition, other embodiments make it possible to prepare multiple portions.

Since the settings with respect to the grinding degree and with respect to the metering are set directly on the container module, said settings are fixedly associated with the kind of coffee beans with which the bean container is filled. Since these settings are taken into account and implemented, without further action on the part of the user, when the container module is connected to the rest of the coffee machine, said settings do not need to be reset on the machine with every renewed use of said kind of coffee. The handling is thus simple and guarantees consistent coffee quality.

Said unit therefore always provides a freshly ground coffee without adversely affecting the aroma. It is possible to change the kind of beans in a simple manner, since merely the container module has to be exchanged. The settings on the coffee machine can be changed in a simple and bean-dependent and user-dependent manner, wherein parameters which have been set once for one kind of coffee no longer need to be set during subsequent use of the machine, even if another kind of coffee has been brewed in between. Since the container module does not need to have any electronic components, it can be produced in a relatively cost-effective manner. In other embodiments, in particular for the gastronomy sector or for machines in a higher price range, the container module also has electronic components.

The container modules described in these two unpublished applications thus have great potential. However, they give too little consideration to how the container modules are filled and stored.

SUMMARY ~~OF THE INVENTION~~

According to an aspect, the present disclosure refers to a unit having a container module, wherein the container module comprises at least one coffee bean container and a portioning device for metering coffee beans, wherein the container module as a whole is configured for connection to a coffee apparatus, wherein said connection makes possible a metered delivery of coffee beans from the container module into a grinder of the coffee apparatus and wherein the coffee bean container is tightly closed prior to the first use and, after an opening operation, has an opening through which coffee beans enter into the portioning device, and wherein, during intended use of the container module with a coffee apparatus, the coffee bean container is arranged over the portioning device, characterized in that the coffee bean container is coupled with the portioning device in a releasable and reconnectable manner, in that a coupling element is arranged around the opening, said element being used for connection to the portioning device, and in that the opening can be closed again when the coffee bean container is separated from the portioning device.

It is therefore an object of the ~~invention~~ present disclosure to optimize the container module.

Said object is achieved by a unit having the features of ~~patent claim 1~~the above aspect.

The unit according to ~~the invention~~an example has at least one container module. The container module comprises at least one coffee bean container and a portioning device for metering coffee beans, wherein the container module as a whole is configured for connection to a coffee apparatus. Said connection makes possible a metered delivery of coffee beans from the container module into a grinder of the coffee apparatus. The coffee bean container filled with coffee beans is tightly closed prior to a first use and, after an initial opening operation, said container has an opening through which coffee beans enter into the portioning device. In this case, during intended use of the container module with a coffee apparatus, the coffee bean container is arranged over the portioning device. The coffee bean container is coupled with the portioning device in a releasable and reconnectable manner. A coupling element is arranged around the opening, said element being used for connection to the portioning device, wherein the opening can be closed again when the coffee bean container is separated from the portioning device.

By virtue of said releasable connection of coffee bean container and portioning device, it is possible for the coffee beans to be provided already in a prefabricated container. Prior to use, the consumer needs merely to establish the connection to the portioning device. In addition, when not in use, it is not necessary for the entire container module to be stored in the refrigerator or at another suitable location. The coffee bean container can be removed from the portioning device again and can be tightly closed by way of its lid until the next use. Furthermore, the portioning device can be used multiple times, even if the coffee bean container is formed as a disposable packaging. However, the coffee bean container can preferably likewise be used several times. By way of example, the container can also be refilled again at a coffee supplier, for example a roaster. Preferably, the coffee bean container is manufactured from a stiff or semi-stiff material. Preferably, the coffee bean container is manufactured from metal, glass or PET. In other examples~~embodiments~~, the coffee bean container has a soft or flexible main body. By way of example, said coffee bean container is a coffee pouch or a bag. The main body is connected to the coupling element in a fixed or releasable manner. By way of example, said coupling element is a threaded ring, which can be fastened

to the coffee pouch or to the bag or has already been fastened, at the point of sale, to the coffee pouch or to the bag.

Said simple releasable connection is possible since the coffee bean container does not need to be plugged directly onto the coffee machine or onto the coffee mill. In this case, specifically during the plugging-on operation, the opening would be directed downward in an unprotected manner and the coffee beans would fall out. In the apparatus according to the invention, the coffee bean container, with upwardly directed opening, can be connected to the overturned portioning device, and the assembled container module must only then be turned over for mounting on the coffee apparatus. The opening is then protected by the portioning device, and the coffee beans held in the module.

In a simple ~~embodiment~~example, the container filled with coffee beans is covered, sealed or welded with a film, or closed in some other way. After separation from the portioning device, said container can likewise be closed again. This can in turn be carried out, for example, by adhesive bonding, welding, folding over container edges, or in another manner.

However, in a preferred example~~embodiment~~, the unit has a lid for closing the container. Depending on the example~~embodiment~~, said lid is used for closing purposes only after the first use or already prior to the first use.

In a simple example~~embodiment~~, the lid is a removable air-tight and aroma-tight film. In another example~~embodiment~~, the lid can be pushed back onto the coffee bean container in an air-tight manner. In other examples~~embodiments~~, a second coupling element is present for the tight connection. In preferred examples~~embodiments~~, the coupling element which is used for connection to the portioning device is also used for the tight connection to the lid.

In a preferred example~~embodiment~~, the coupling element is a first thread, and the portioning device has a matching second thread which can be brought into engagement with the first thread. This is a simple, stable and cost-effective type of connection. Preferably, the lid has a third thread which can be brought into engagement with the first thread. This also minimizes the production costs and is also simple to handle.

Preferably, the coffee bean container is of closed configuration, except for the opening.

Preferably, the base which lies opposite is thus closed and cannot be removed in a destruction-free manner. In other examples~~embodiments~~, said base likewise has a removable lid. In a preferred example~~embodiment~~, the container is of substantially circular cylindrical configuration. It preferably has an internal diameter. These configurations make it possible to produce a simple and cost-effective container. Preferably, said container is configured, together with the lid, so as to be stackable. In a preferred example~~embodiment~~, said container has the form of a plain jam jar, wherein the dimensions of said container also correspond approximately to a jar of this kind. The storage capacity thereof is preferably 100 g to 250 g and more preferably about 160 g.

Preferably, the portioning device substantially has a circular cylindrical outer contour. Preferably, the outer contours of the portioning device and of the coffee bean container are aligned, or the coffee bean container has a slightly smaller external diameter.

The portioning device can be configured in various ways. Depending on the example~~embodiment~~, it corresponds to one of the portioning devices known from the prior art. However, it preferably corresponds to a portioning device as has been described and disclosed in the unpublished European patent applications mentioned in the introduction. Said portioning device therefore preferably has a first setting means, preferably a first setting ring, by means of which a metering of the coffee beans can be manually selected. In the interior, said portioning device preferably has a metering chamber for this purpose, which can be varied in terms of its capacity by way of the first setting means.

In a simple example~~embodiment~~, the container module is composed of the coffee bean container and the portioning device. However, in preferred example~~embodiments~~, the container module furthermore has a grinding degree setting device for the selectable setting of the grinding degree. When the container module is connected to the grinder, the grinding degree setting device affects the grinder. The portioning device is preferably arranged between the coffee bean container and the grinding degree setting device. The grinding degree setting device preferably has a second setting means, preferably a second setting ring, by means of which the grinding degree can be manually selected. However, the grinding degree device can also be realized by other means. By way of example, the container module can be provided with an RFID tag with data for the setting of the grinding degree, and the coffee apparatus has a corresponding reader. Different types of grinding degrees setting

devices can be used. Preferably, grinding degree setting devices as have been described in the unpublished EP applications mentioned in the introduction are used. In the variants described therein, manual setting by way of the setting means, in particular the setting ring, is also preferred.

The grinder is preferably designed, and/or is preferably operated, such that, after each grinding operation, it is emptied completely and no ground coffee powder remains in the grinder. Solutions for this are well known and are therefore not described in detail here.

The entire container module preferably has a substantially cylindrical outer contour. If a grinding degree setting device is present, said portion preferably also has said outer contour. This results in a simple, space-saving design, which increases the flexibility in the development of new coffee apparatuses and which makes it possible to store the container modules in a simple manner when they are not in use.

The coffee bean container of such a unit according to the invention is preferably of circular cylindrical and one-piece configuration, having a closed base and having the opening opposite the base. The opening is surrounded by an external thread, and the lid has a matching internal thread.

In another preferred example~~embodiment~~, the coffee bean container is a bag having an edge which surrounds an opening of the coffee bean container, wherein the coupling element has a lower ring for connection to the portioning device and an upper ring and wherein the edge of the coffee bean container, in the open state of the coffee bean container, is held in a clamped manner between the upper and the lower ring.

Further examples ~~embodiments~~ are specified in the ~~dependent claims~~present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

A preferred embodiment of the invention is described below with reference to the drawings, which serve merely for explanation and are not to be interpreted as limiting. In the drawings:

CLAIMS

1. A unit having a container module ~~(M),~~ wherein the container module ~~(M)~~ comprises at least one coffee bean container ~~(10)~~ and a portioning device ~~(2)~~ for metering coffee beans, wherein the container module ~~(M)~~ as a whole is configured for connection to a coffee apparatus, wherein said connection makes possible a metered delivery of coffee beans from the container module ~~(M)~~ into a grinder ~~(4)~~ of the coffee apparatus and wherein the coffee bean container ~~(10)~~ is tightly closed prior to the first use and, after an opening operation, has an opening through which coffee beans enter into the portioning device ~~(2),~~ and wherein, during intended use of the container module ~~(M)~~ with a coffee apparatus, the coffee bean container ~~(10)~~ is arranged over the portioning device ~~(2),~~ characterized in that the coffee bean container ~~(10)~~ is coupled with the portioning device ~~(2)~~ in a releasable and reconnectable manner, in that a coupling element ~~(11)~~ is arranged around the opening, said element being used for connection to the portioning device ~~(2),~~ and in that the opening can be closed again when the coffee bean container ~~(10)~~ is separated from the portioning device ~~(2).~~

2. The unit as claimed in claim 1, wherein the coupling element is a first thread ~~(11, 113)~~ and wherein the portioning device ~~(2)~~ has a matching second thread which can be brought into engagement with the first thread ~~(11, 113).~~

3. The unit as claimed in either of claims 1 and 2, wherein the unit has a lid ~~(12)~~ for closing the container.

4. The unit as claimed in claim 3, wherein the coupling element ~~(11)~~ is used for connection to the lid ~~(12).~~

5. The unit as claimed in claim 4, wherein the lid ~~(12)~~ has a third thread which can be brought into engagement with the first thread ~~(11).~~

6. The unit as claimed in one of claims 1 to 5, wherein the coffee bean container ~~(10)~~ is of closed configuration, except for the opening.

7. The unit as claimed in one of claims 1 to 6, wherein the coffee bean container ~~(10)~~ is of substantially circular cylindrical configuration.

8. The unit as claimed in one of claims 1 to 7, wherein the coffee bean container ~~(10)~~ has a constant internal diameter.

9. The unit as claimed in one of claims 1 to 8, wherein the coffee bean container ~~(10)~~ is manufactured from a stiff or semi-stiff material.

10. The unit as claimed in one of claims 1 to 8, wherein the coffee bean container ~~(10)~~ is a flexible or soft bag and wherein the coupling element ~~(11)~~ has a ring ~~(115)~~ with a thread ~~(113)~~ for connection to the portioning device ~~(2).~~.

11. The unit as claimed in one of claims 1 to 10, wherein the portioning device ~~(2)~~ substantially has a circular cylindrical outer contour.

12. The unit as claimed in one of claims 1 to 11, wherein the portioning device ~~(2)~~ has a first setting means ~~(21),~~, by means of which a metering of the coffee beans can be manually selected.

13. The unit as claimed in one of claims 1 to 12, wherein the container module ~~(M)~~ furthermore has a grinding degree setting device ~~(3)~~ for the selectable setting of the grinding degree, wherein, when the container module ~~(M)~~ is connected to the grinder ~~(4),~~, the grinding degree setting device ~~(3)~~ affects the grinder ~~(4).~~.

14. The unit as claimed in claim 13, wherein the portioning device ~~(2)~~ is arranged between the coffee bean container ~~(10)~~ and the grinding degree setting device ~~(3).~~.

15. The unit as claimed in either of claims 13 and 14, wherein the grinding degree setting device ~~(3)~~ has a second setting means ~~(31),~~, by means of which the grinding degree can be manually selected.

16. The unit as claimed in one of claims 1 to 15, wherein the container module ~~(M)~~ has a

substantially cylindrical outer contour.

~~17. A coffee bean container and lid of a unit as claimed in one of claims 1 to 16, wherein the coffee bean container (10) is of circular cylindrical and one-piece configuration, having a closed base and the opening opposite the base, wherein the opening is surrounded by an external thread (11), and the lid (12) has a matching internal thread.~~

~~18. A coffee bean container of a unit as claimed in one of claims 1 to 16, wherein the coffee bean container (10) is a bag having an edge (101) which surrounds an opening of the coffee bean container (10), wherein the coupling element (11) has a lower ring (115) for connection to the portioning device (2) and an upper ring (115) and wherein the edge (101) of the coffee bean container (10), in the open state of the coffee bean container (10), is held in a clamped manner between the upper and the lower ring (114, 115).~~