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(54) **AN APPARATUS FOR SELECTIVELY DISPENSING AND MIXING HAIR COLORING**

(57) The present invention relates to an apparatus for selectively dispensing and mixing hair coloring. The apparatus allows for an accurate mixing reproducing identical color combination based on a library of earlier color recipe reducing mixing time and the need of disposable hair product containers.

The dispensing and mixing is optimized based on a library of color recipes produced via customers' coloration preferences, such as earlier customers' colorations.

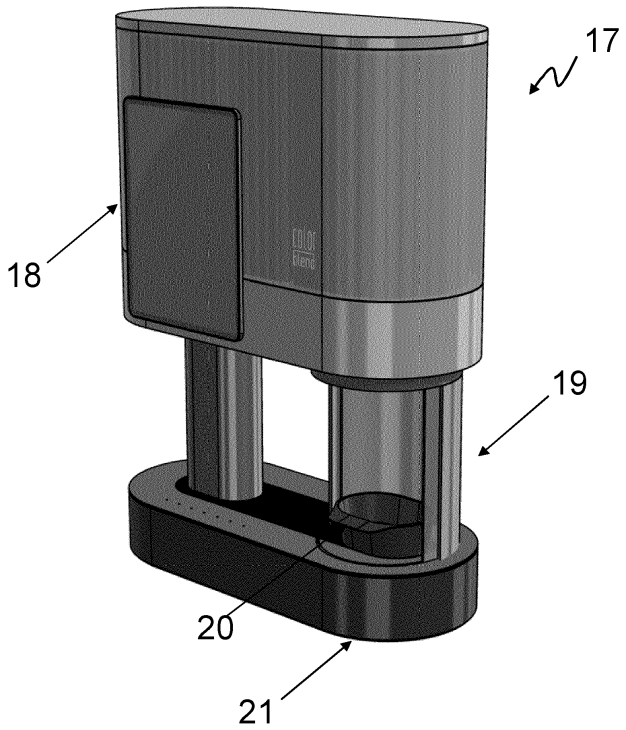

FIG. 3

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to an apparatus for selectively dispensing and mixing hair coloring.

BACKGROUND OF THE INVENTION

[0002] The challenge within the hair coloring industry is that mixing the different color combinations is very time consuming and often inaccurate.

[0003] The mixing is generally made manually by the hairdresser using a weight scale and based on the hairdresser's knowledge of the theory of colors combination. The specific mixture, referred to as color recipe, may therefore different every time is applied due to possible manual imprecision.

[0004] Furthermore, the steps of retrieving the correct recipe, producing the correct color combination and insuring that the combination would not occasionally deviate from the previous mixture are rather time consuming.

[0005] Moreover, typically hair dyes for professional use are delivered to hair salons in color containers, such as disposable color tubes. The color tubes are generally made of aluminum and due to the need of different coloration, come in a large number of different varieties. This produces a large amount of waste of not environmental friendly products.

[0006] Hence there is the need for a more accurate mixing apparatus producing identical color combination based on predetermined color recipes.

[0007] An apparatus for selectively dispensing and mixing hair coloring, which is more accurate in the reproduction of predetermined color recipes and at the same time reduces the need of disposable hair product containers, would therefore be advantageous.

OBJECT OF THE INVENTION

[0008] An object of the present invention is to provide an apparatus for selectively dispensing and mixing hair coloring able to reproduce, using a simple process, identical hair coloring mixtures.

[0009] A further object of the invention may be seen as the provision of an apparatus for selectively dispensing and mixing hair coloring able to adjust the mixing ratio based on the customer's needs, producing a more precise coloration having no deviation from a desired color combination.

[0010] An object of the present invention may also be seen as to provide an alternative to the prior art.

[0011] In particular, it may be seen as an object of the present invention to provide an apparatus for selectively dispensing and mixing hair coloring which is able to adjust the mixing ratio based on the customer's needs which solves the above-mentioned problems of the prior art by having an optimal configuration of hair products containers and means for dispensing, controlling and mixing hair products based on a database of color recipes.

SUMMARY OF THE INVENTION

[0012] Thus, the above-described object and several other objects are intended to be obtained through an apparatus for selectively dispensing and mixing hair coloring, said apparatus comprising: a housing or a frame; at least one hair pigment container or cartridge or tube station mounted within the housing; at least one developer reservoir mounted within the housing and adapted to contain, or hold a container comprising, hair developer; means for dispensing a hair developer and a hair pigment; means for controlling the means for dispensing configured to control preselected quantity of the hair developer and the hair pigment based on a database comprising customers coloration preferences; at least one mixing bowl for collecting and mixing the hair pigment and the hair developer; and, mixing means for mixing the hair pigment and the hair developer collected into the at least one mixing bowl.

[0013] Hair coloring, or hair dyeing, is the practice of changing the hair color.

[0014] Hair coloring is also referred herein as hair products or hair product colors.

[0015] Hair pigment and hair developer are the two main components in hair coloring. The hair pigment in the dye providing the specific desired coloration.

[0016] The hair developer or activator is an oxidant product, generally comprising hydrogen peroxide, having the function of opening up the hair cuticle, which allows the hair dye or pigment to penetrate into the hair achieving significant changes in the color of the hair.

[0017] Unique combination of hair developers and hair pigments provides unique hair coloration.

[0018] The housing may be a frame, such as a metallic frame, inclosing all the several elements of the apparatus for selectively dispensing and mixing hair coloring.

[0019] The apparatus for selectively dispensing and mixing hair coloring comprises at least one container suitable for containing hair pigment. The container may be a cartridge or a tube mounted on a station within the housing, i.e. the apparatus comprises at least one station for hair pigment container, cartridge or tube.

[0020] A station for hair pigment container or cartridge or tube is a location, site or position adapted to accommodate or fit a container or cartridge or tube containing hair pigment, within the housing.

[0021] In some embodiments, the at least one hair pigment container or cartridge or tube station are at least four hair pigment container or cartridge or tube stations.

[0022] In some embodiments, the at least one developer reservoir is adapted to accommodate or fit a container or a cartridge or a tube containing hair developer.

[0023] The at least one developer reservoir is mounted within the housing and adapted to contain, or hold a container comprising, hair developer. The hair developer

may therefore also be contained in a cartridge or tube located within the housing.

[0024] The hair developer and the hair pigment are dispensed through means for dispensing, such as a dispenser.

[0025] Depending on the containment of the hair pigment and the hair developer, the means for dispensing may be different. For example if contained in a tube, means for dispensing the hair pigment and the hair developer may comprise means for squeezing tubes.

[0026] In some embodiments, the means for dispensing comprise one or more pumps.

[0027] The means for dispensing may also comprise one or more outlets, such as nozzles, for dispensing.

[0028] The dispenser may include a plurality of lines or tubing, each line of the plurality of lines having a passageway therethrough, each line communicatively linking one of the plurality of hair pigment containers and hair development reservoir to the dispenser outlets.

[0029] The dispenser may also comprise a control mechanism controlling the one or more pumps.

[0030] The hair color and hair developer are dispensed so as to be combined in a desired ratio so as to form a desired tint when applied on hair.

[0031] Dispensing ratio of hair pigment and hair developer may be 1:1, 1:1.5 or 1:2.

[0032] The means for controlling the means for dispensing is configured to control preselected quantity of the hair developer contained in the at least one developer reservoir and the hair pigment contained in the at least one hair color container or cartridge or tube.

[0033] The control of the dispensing may also control the timing of the dispensing.

[0034] The control of the dispensing may also control the pressure and/or the temperature applied during the dispensing.

[0035] The control mechanism may regulate the operation of the one or more pumps to deliver dosages of hair pigments and hair developer from the plurality of hair pigment containers and hair developer reservoir.

[0036] The control of the dispensing is based on a database comprising coloration recipes and customers coloration preferences, such as earlier customers' colorations.

[0037] The apparatus for selectively dispensing and mixing hair coloring may further comprise a user interface for collecting data on customers' preferences and for sending inputs, or to update, the database.

[0038] The database may be a local database produced by recording data within the apparatus through the user interface.

[0039] The database may also be built upon other customers' information, such as age or favorite dress coloration, provided by the customers or by third parties, through the user interface or other means then the user interface within the apparatus.

[0040] The database may also be a distributed database system comprising a plurality of participating nodes, such as other apparatus and a communication network for supporting data transfer between the participating nodes.

[0041] In some embodiments, the database may be a cloud based database.

[0042] The use of the database allow the user to select a specific coloration of interest and by recording preference and color allowing to reproduce the exact specific coloration in future treatments.

[0043] In some embodiments the apparatus for selectively dispensing and mixing hair coloring further comprises means for removing undesired gas emissions generated by the mixing, when in operation, such as an air suction system.

[0044] Hair salon in which chemical mixing is performed are generally bound to specific air quality requirements.

[0045] The presence of air suction system or a dedicated air ventilation system within the apparatus ensure high air quality thus reducing expenses related to the need of further ventilation system within the hair salon.

[0046] The air suctions system or air ventilation system may be integrated within the apparatus or applied as an external system.

[0047] In some embodiments, the apparatus for selectively dispensing and mixing hair coloring further comprises means for avoiding undesired exposure to the mixing bowl while in operation, such as a rotable door protecting the at least one mixing bowl.

[0048] To improve air quality as well as safety in the environment surrounding the apparatus of the invention means for avoiding undesired exposure to the mixing bowl, while in operation, may be present.

[0049] For example, these means may be a rotating door confining the mixing area that is kept close while mixing occurs and can be subsequently opened to access the at least one mixing bowl at the end of the mixing process.

[0050] In some other embodiments, the means for mixing are magnetic means for mixing.

[0051] For example, magnetic means may comprise a magnetic stirring mechanism having a rotatingly driven driving magnet which drives a magnetic stirrer or bar placed into the mixing bowl.

[0052] In some further embodiments, the means for mixing comprise mechanical means for mixing, such as an impeller.

[0053] In some embodiments, the magnetic means may also be a magnetic driven impeller.

[0054] The means for mixing may also comprise means employing sound energy such as sonication systems.

[0055] A sonication systems will apply sound energy to obtain mixing of the hair developer and the hair pigment in the desired composition.

[0056] In some embodiments, the apparatus for selectively dispensing and mixing hair coloring, further comprises means for heating the hair pigment and the hair

developer in the at least one mixing bowl while mixing.

[0057] The mixing may be further controlled so as to optimize the timing of the mixing to reach optimal blending of the hair products, depending on the temperature of the mixing.

[0058] The apparatus of the invention ensures an accurate color combinations according to customers' preferences, i.e. optimal and correct coloration.

[0059] The apparatus of the invention also allows for reduction of time in producing accurate color combinations.

[0060] Moreover, the apparatus of the invention facilitates hair color products inventory management by reducing the need of large amount of in stock of hair color products.

[0061] As the base colors may be contained in the apparatus and hair pigments may be easily added in low amounts, the apparatus of the invention has also an impact in reducing waste relates to hair coloring, e.g. by reducing the amount of disposable aluminum tubes.

[0062] Easy access to the color recipe based on the database may also allow for production of minimal amount of color blends so as to provide small mixture for customers having the need for minor color applications.

[0063] This has a further advantage in terms of waste management.

[0064] The first and other aspects and embodiments of the present invention may each be combined with any of the other aspects and embodiments. These and other aspects of the invention will be apparent from and elucidated with reference to the embodiments described hereinafter.

BRIEF DESCRIPTION OF THE FIGURES

[0065] The apparatus for selectively dispensing and mixing hair coloring according to the invention will now be described in more details with regard to the accompanying figures. The figures show one way of implementing the present invention and are not to be construed as being limiting to other possible embodiments falling within the scope of the attached claim set.

[0066] Figures 1-8 are schematic illustrations of apparatus for selectively dispensing and mixing hair coloring according to some embodiments of the invention.

DETAILED DESCRIPTION OF AN EMBODIMENT

[0067] Figure 1 is a schematic illustration of an apparatus 1 for selectively dispensing and mixing hair coloring, comprising a housing 6, a station 2 for hair pigments and a reservoir 3 for hair developer.

[0068] The hair pigments and hair developer are dispensed in the desired amount and combination through dispenser 5 into a mixing area 4.

[0069] Figure 2A is a schematic illustration of an apparatus 7 for selectively dispensing and mixing hair coloring.

[0070] The apparatus 7 shows a housing 8 in which all elements are contained.

[0071] The dispenser 11 distributes hair pigment located within the apparatus underneath opening 13 and hair developer located within the apparatus underneath opening 14, through the use of nozzles, into mixing bowl 12.

[0072] The apparatus 7 has also a ventilation features, such as a ventilation grid 10, located on one side of the housing 8.

[0073] The apparatus 7 has also a user interface, such as a control panel 9, for introducing information about customers' preferences and for controlling dispensing and mixing of the hair product.

[0074] Figure 2B is a schematic top view of the apparatus 7 of figure 2A in which the hair pigment holders 16 and the hair developer or base holder 15 are visible underneath the opening 13 and opening 14, respectively.

[0075] Figure 3 is a schematic illustration of an apparatus 17 for selectively dispensing and mixing hair coloring. Figurer 3 shows the apparatus 17 comprising a touch pad 18 having the function of user interface. In apparatus 17, a removable mixing bowl 20 is positioned at the end of the dispenser (not shown). A transparent rotating door 19, showed in the open configuration, ensures protection from undesired exposure to the hair products during the mixing process. Means for magnetic mixing 21 are indicated but not visible as within the housing or frame of the apparatus 17.

[0076] Figure 4 is a further schematic illustration of apparatus 17 of figure 3 showing the touch pad 18, the mixing bowl 20 and the nozzles 22 of the dispenser located within the housing.

[0077] Figure 5 is also a schematic illustration of apparatus 17 of figure 3 in which mixing bowl or mixing tray 20 is equipped with a mixing stirrer or bar 23 to mix or blend hair products within the mixing bowl 20.

[0078] Figure 6 is a further schematic illustration of apparatus 17 of figure 3 showing an air inlet 24 and a suction hose 25 for removing undesired gas generated during the mixing process.

[0079] Figure 7 is a schematic illustration of apparatus 17 of figure 3 in which refill containers 26 for different hair products are shown as lifted from the housing.

[0080] Figure 8 is a further schematic illustration of apparatus 17 of figure 3 in the rotation of the transparent rotating door 19 is shown. Transparent rotating door 19 is closed before the mixing takes place and is kept closed under mixing avoiding undesired exposure during the mixing process.

[0081] Although the present invention has been described in connection with the specified embodiments, it should not be construed as being in any way limited to the presented examples. The scope of the present invention is set out by the accompanying claim set. In the context of the claims, the terms "comprising" or "comprises" do not exclude other possible elements or steps. In addition, the mentioning of references such as "a" or

"an" etc. should not be construed as excluding a plurality. The use of reference signs in the claims with respect to elements indicated in the figures shall also not be construed as limiting the scope of the invention. Furthermore, individual features mentioned in different claims, may possibly be advantageously combined, and the mentioning of these features in different claims does not exclude that a combination of features is not possible and advantageous.

Claims

1. An apparatus for selectively dispensing and mixing hair coloring, said apparatus comprising:

- a housing;
- at least one hair pigment container or cartridge or tube station mounted within said housing;
- at least one developer reservoir mounted within said housing and adapted to contain hair developer;
- means for dispensing a hair developer and a hair pigment;
- means for controlling said means for dispensing configured to control preselected quantity of said hair developer and said hair pigment based on a database comprising customers coloration preferences;
- at least one mixing bowl for collecting and mixing said hair pigment and said hair developer;
- mixing means for mixing said hair pigment and said hair developer collected into said at least one mixing bowl.

2. An apparatus for selectively dispensing and mixing hair coloring according to claim 1, further comprising an user interface for collecting data on customers preferences and for sending inputs to said database.

3. An apparatus for selectively dispensing and mixing hair coloring according to any of the preceding claims, wherein said at least one hair pigment container or cartridge or tube station are at least four.

4. An apparatus for selectively dispensing and mixing hair coloring according to any of the preceding claims, wherein said means for dispensing comprise one or more pumps.

5. An apparatus for selectively dispensing and mixing hair coloring according to any of the preceding claims, wherein said at least one developer reservoir is adapted to accommodate or fit a container or a cartridge or a tube containing hair developer.

6. An apparatus for selectively dispensing and mixing hair coloring according to any of the preceding claims, further comprising means for removing undesired gas emissions generated by the mixing when in operation, such as an air suction system.

7. An apparatus for selectively dispensing and mixing hair coloring according to any of the preceding claims, further comprising means for avoiding undesired exposure to said mixing bowl while in operation, such as a rotable door protecting said at least one mixing bowl.

8. An apparatus for selectively dispensing and mixing hair coloring according to any of the preceding claims, wherein said means for mixing are magnetic means for mixing.

9. An apparatus for selectively dispensing and mixing hair coloring according to any of the preceding claims, wherein said means for mixing comprise mechanical means for mixing, such as an impeller, or means employing sound energy such as sonication systems.

10. An apparatus for selectively dispensing and mixing hair coloring according to any of the preceding claims, further comprising means for heating said hair pigment and said hair developer in said at least one mixing bowl while mixing.

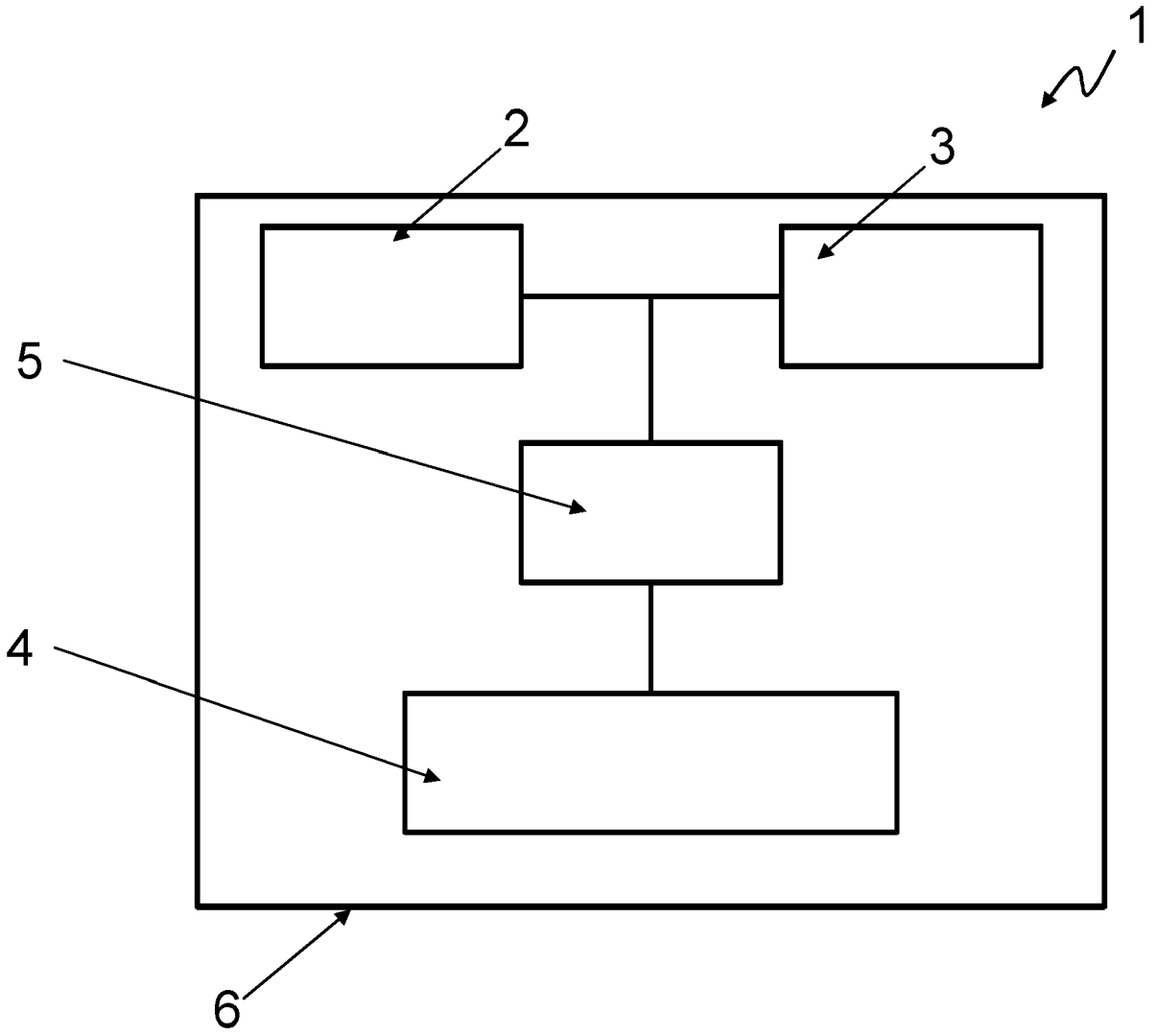

FIG. 1

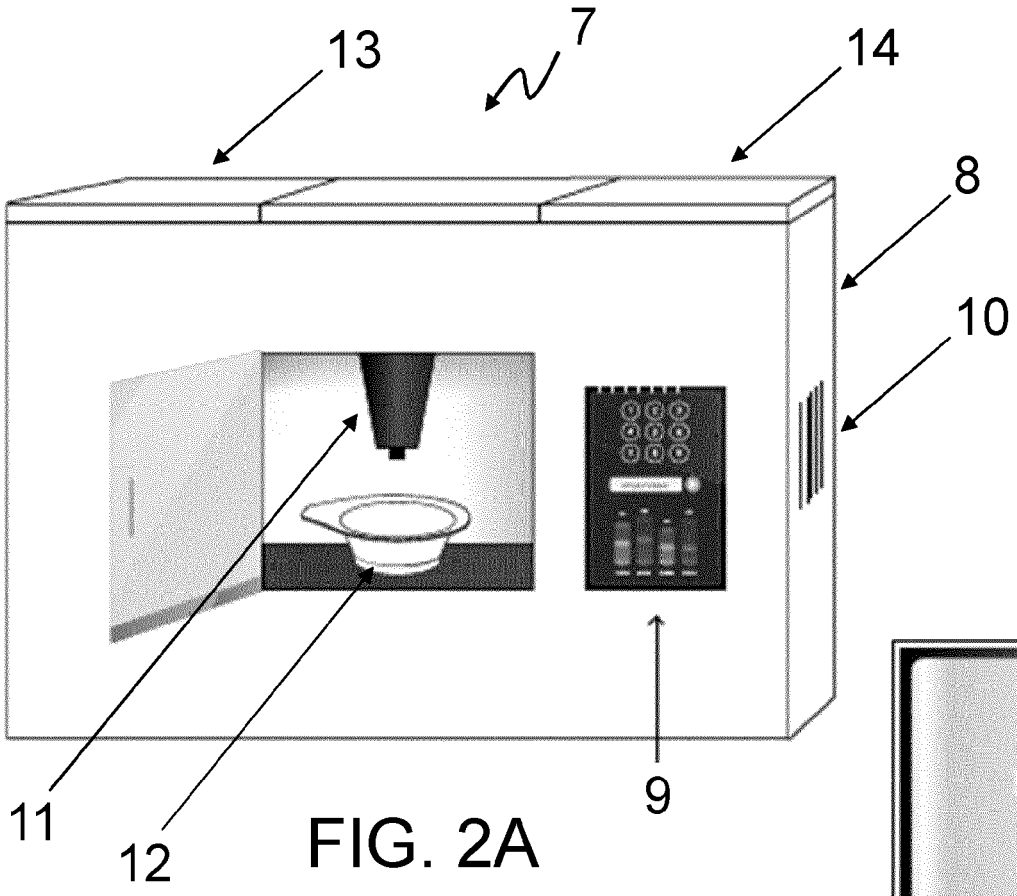

FIG. 2A

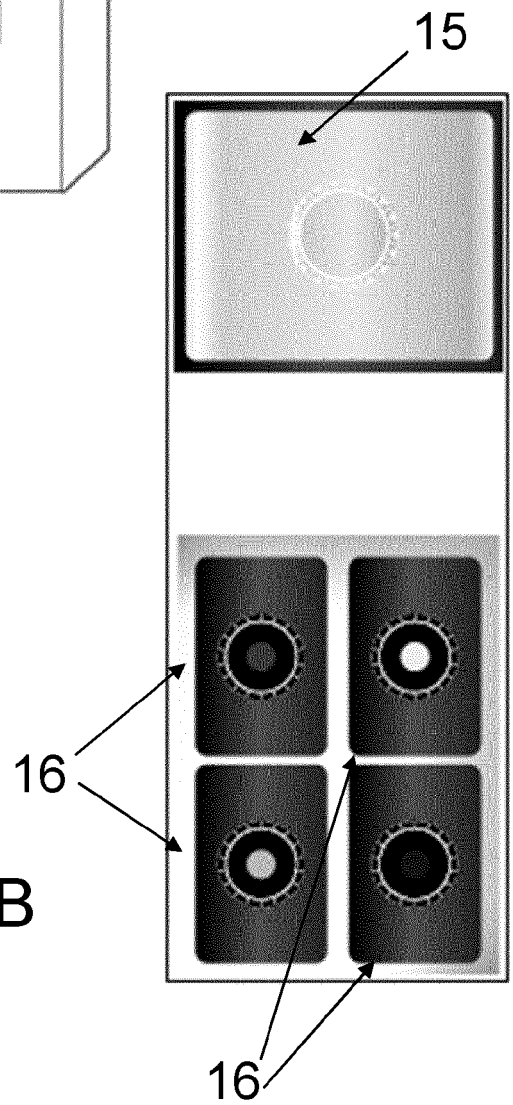

FIG. 2B

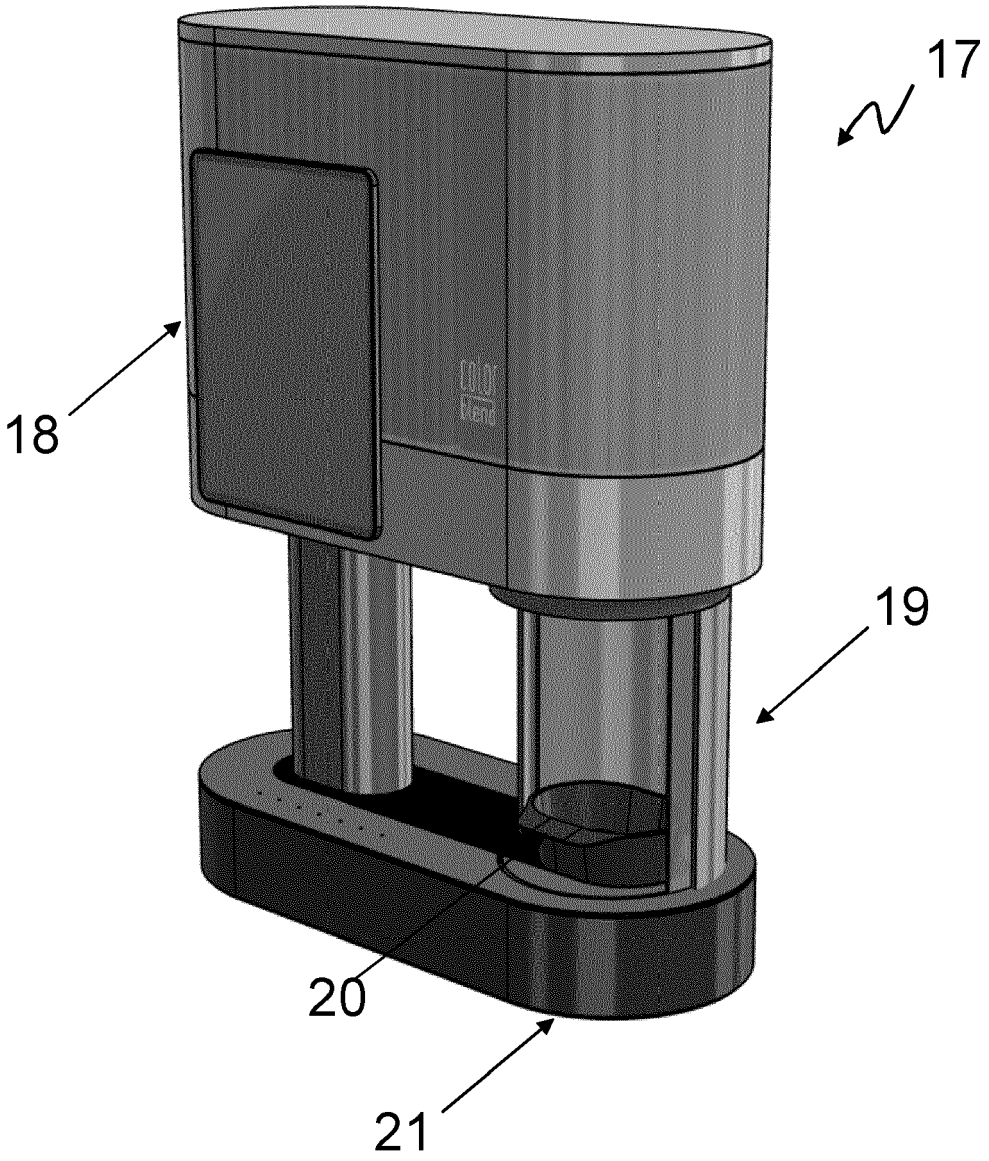

FIG. 3

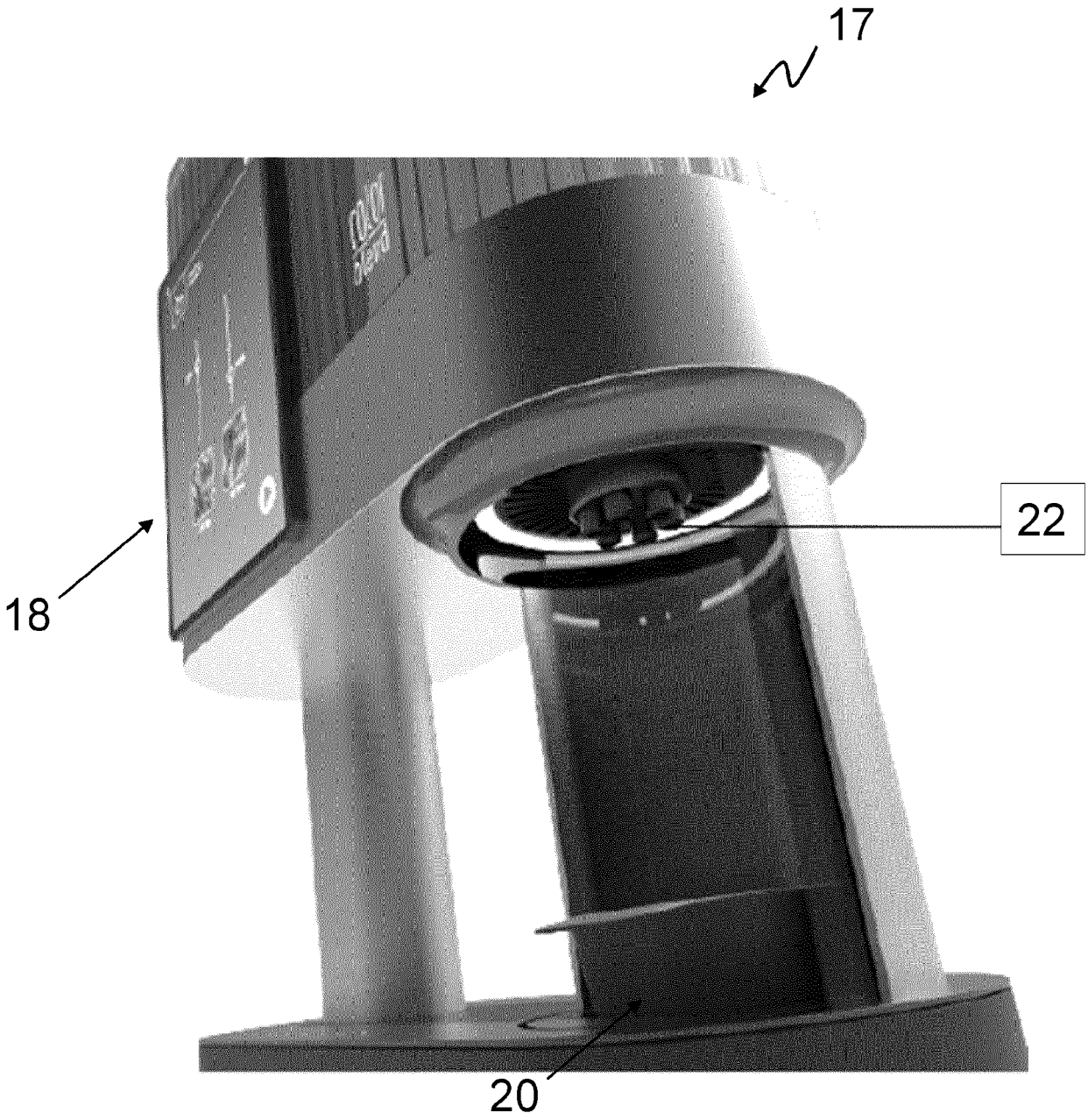

FIG. 4

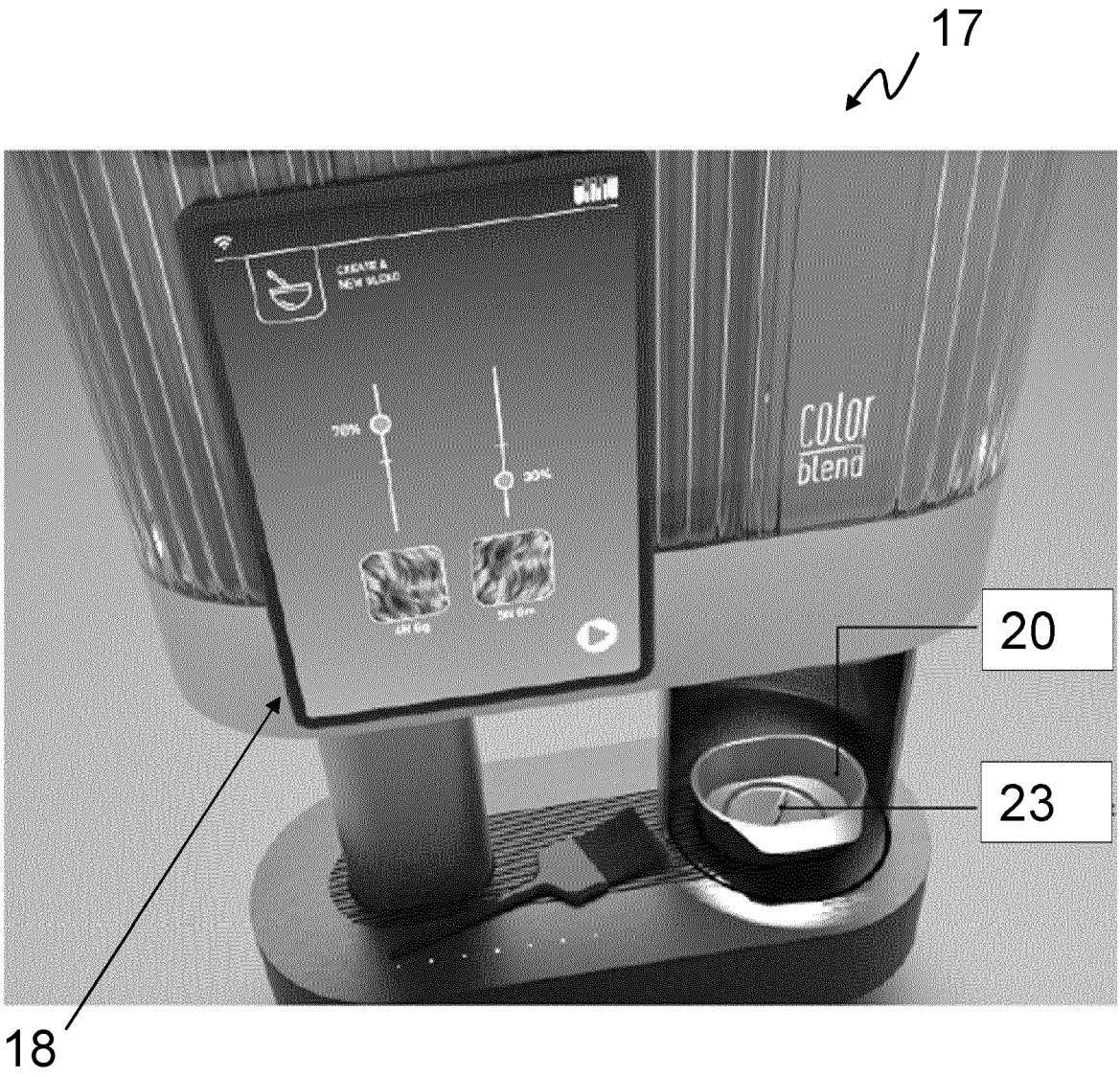

FIG. 5

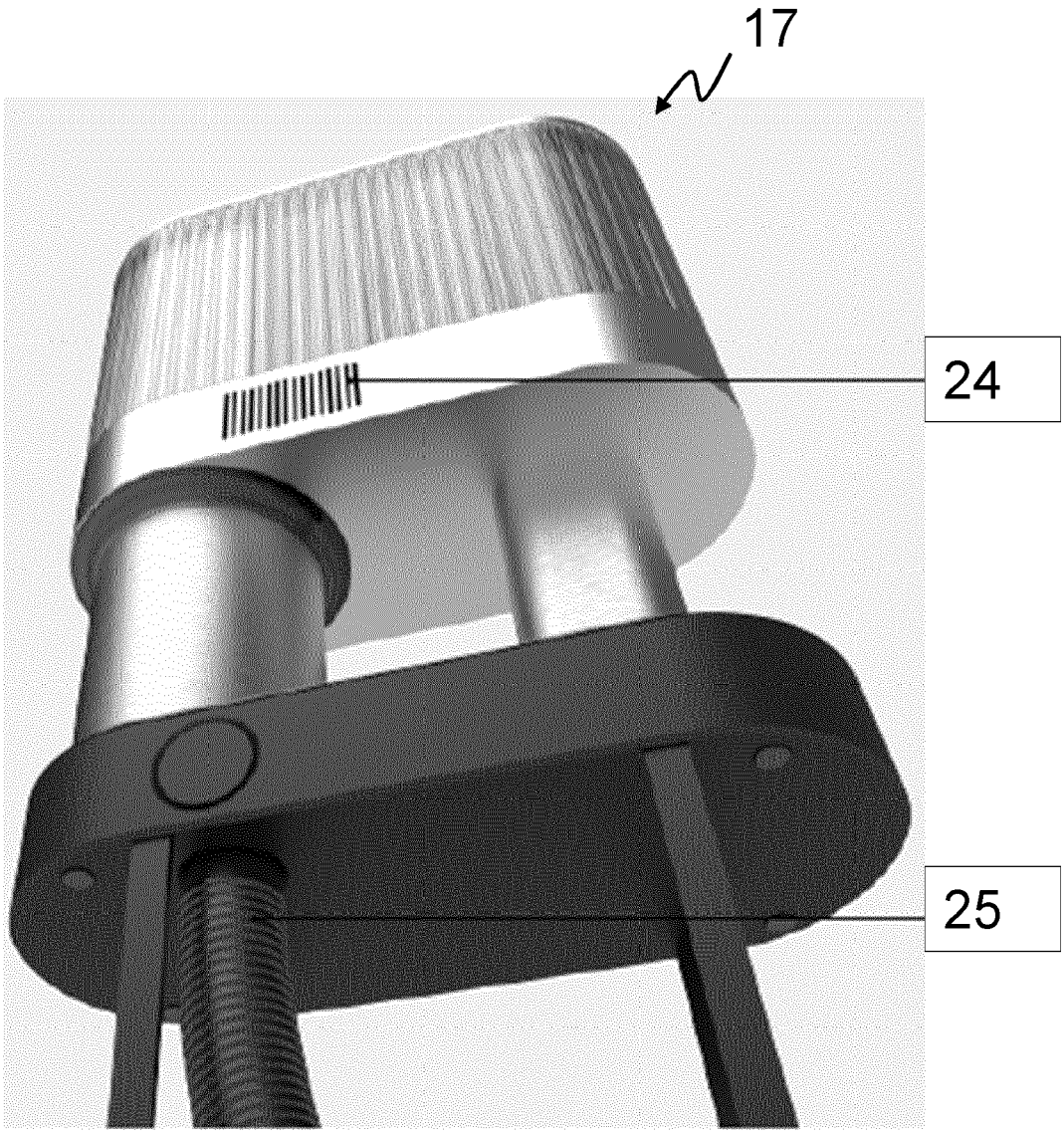

FIG. 6

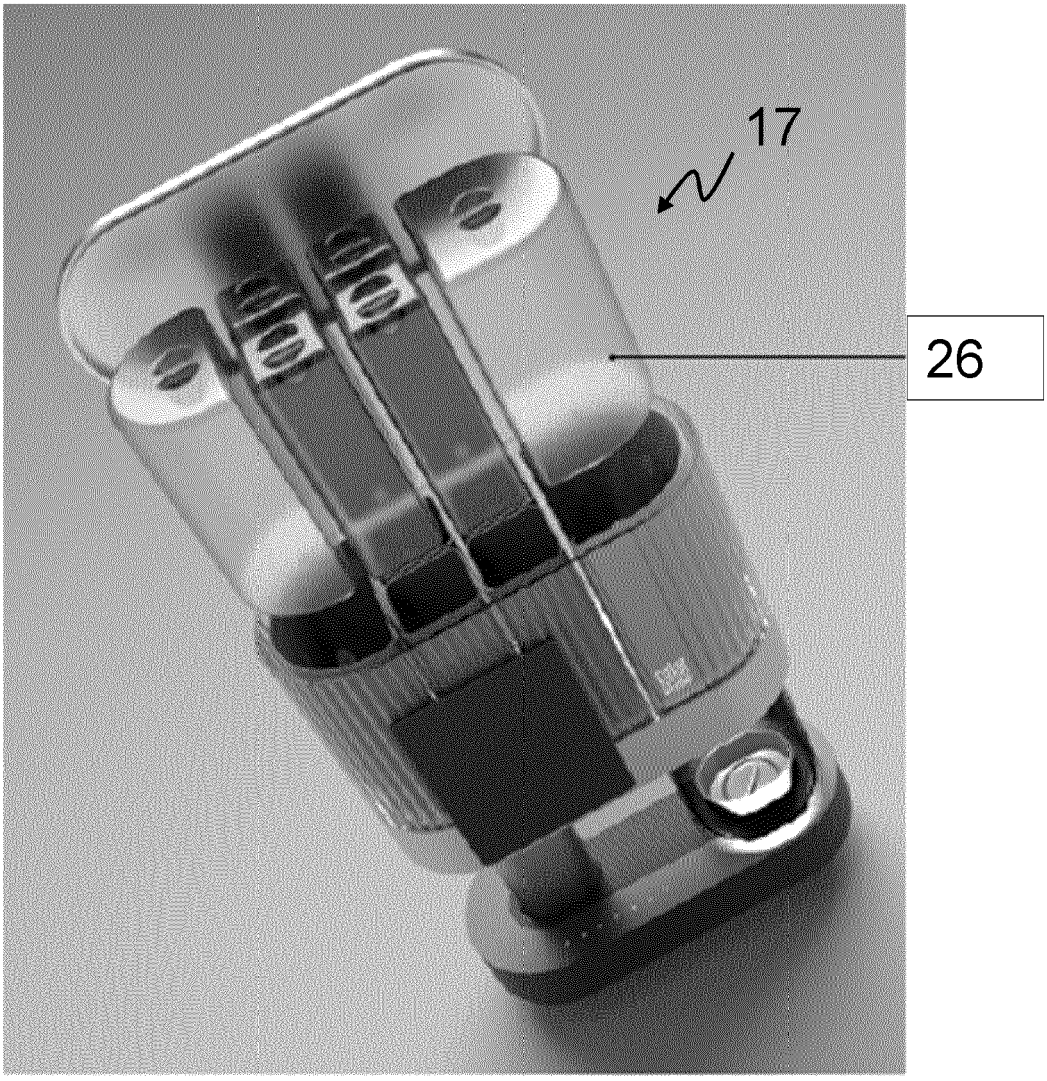

FIG. 7

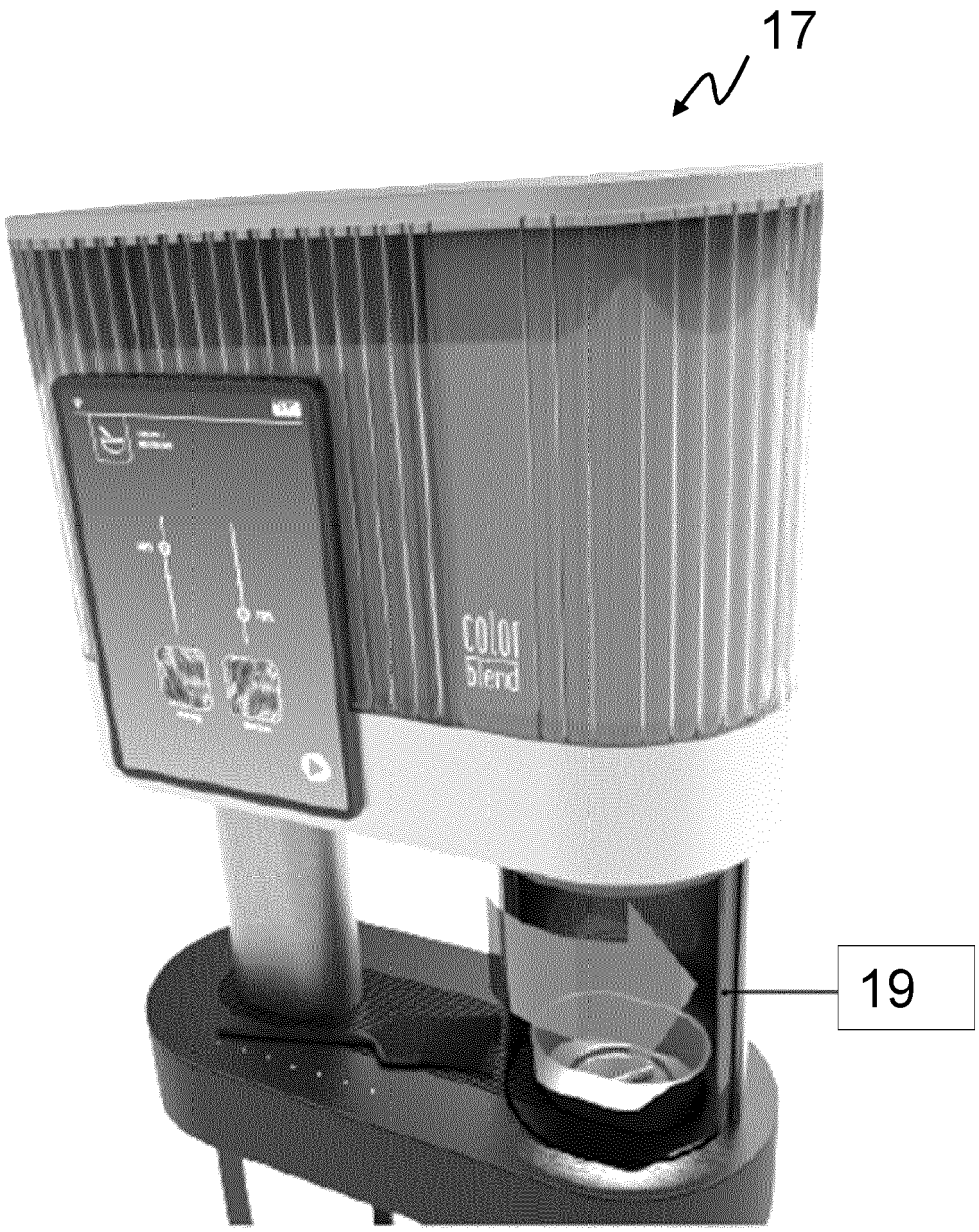

FIG. 8

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EUROPEAN SEARCH REPORT

Application Number
EP 22 16 3231

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 August 2022	van de Beek-Duijker

CATEGORY OF CITED DOCUMENTS

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