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(54) Mixing machine for dyes and creams

(57) The machine is foreseen for mixing dyes or creams for hair, or other cosmetic products or beauty products, including a pair of rotating drums (6-6'), both of which are equipped with a number of beakers (7) located on their periphery and vertically aligned, each one of which receives a cartridge containing a base product to be mixed. Furthermore, each drum has in its centre a shaft (11), conveniently motorised, that displaces vertically and in controlled fashion a nut (10) that, by means of a radial arm (12), acts on a cone (8) expelling the product through a lower nozzle (22), helped by a valve opening mechanism. A pincer (13) moves the recipient (12) receiver of the mixture towards one or other drum (6-6'), and a computer establishes the dose that should be administered from each one of the products contained in the beakers (12) to the recipient (12), where they are then stirred with the collaboration of a mixer (16).

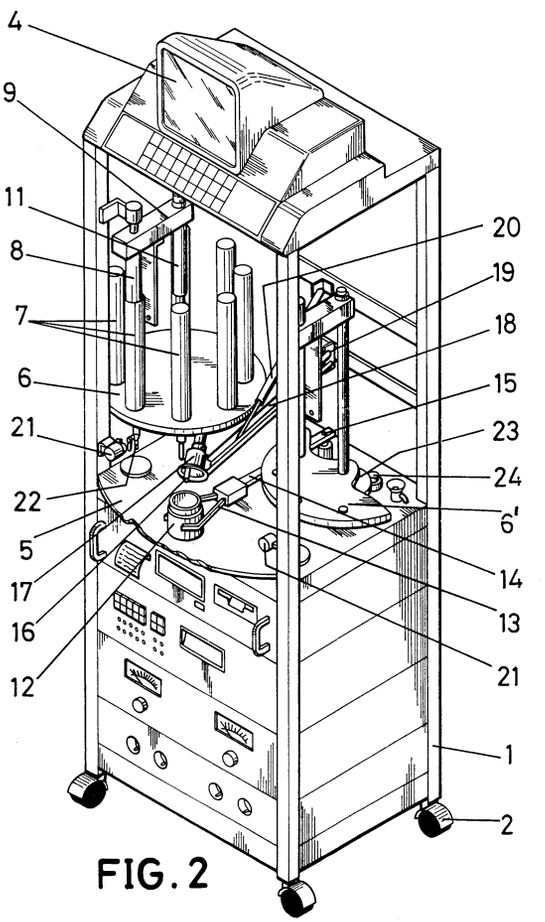

FIG. 2

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Description

OBJECT OF THE INVENTION

[0001] The present invention relates to a mixing machine, especially conceived for obtaining dyes, creams or gels, such as dyes for hair, cosmetic creams or similar substances, with a pre-established formulation that, conveniently stored in a computer associated with the mixing machine itself, allows any mixture to be repeated, with complete accuracy, at any time, that is to say, it achieves a reproducibility in the process, avoiding the need to manually mix such products, with the possibility of changing the proportions and amounts (with minimum and maximum controls).

[0002] This allows, in the specific case of dyes for hairdressing, the client to be provided with the same coloration for the hair, as often as is desired, with this person always attaining the same appearance as he or she always has the same coloured hair, in contrast to what happens at present, where it is difficult to achieve uniform dyes on successive occasions.

BACKGROUND OF THE INVENTION

[0003] As is known, in the field of hairdressing there is a range of basic colours for dying hair. Using mixtures of these basic colours with suitable proportions, a practically unlimited range of colours may be obtained.

[0004] By analogy, creams and any other type of cosmetic product or beauty product based on different components, which participate in the mixture with specific proportions that can be different in each individual case, may be obtained.

[0005] Currently, mixing machines are known, specifically in the field of paints which can be obtained from mixtures of a series of basic colours. However, the use of these machines cannot be extended to the field of mixing dyes or creams, because their capacity for mixing is very limited and their operating accuracy, acceptable in the field of paints, leaves a lot to be desired in the field of hairdressing, cosmetics, etc., where the proportions and elements added should be carefully added and their amounts controlled. Any defect or increase in the proportion of any of the components leads inevitably to the lack of usefulness of this substance.

[0006] This means that currently the mixtures for different dyes, creams, etc., are carried out manually and empirically, in accordance with the experience of each individual professional, which makes it almost impossible that when a client comes to dye his or her hair once again, on successive occasions, the same coloration as before is attained.

[0007] An attempt to solve this problem is currently made by using records for each client, on the part of these professionals, but this system, as well as being laborious and annoying, especially when there is a high number of clients, does not assure optimum results in terms of the accuracy of the manual supply of additives to the mixture, and so leaves a lot to be desired. It is also slow to be implemented and very personal for each professional.

DESCRIPTION OF THE INVENTION

[0008] The machine that the invention proposes resolves the problems described above in a fully satisfactory fashion, as it is conceived and structured to achieve any type of cosmetic product or hair product, such as dyes, creams, etc., with a predetermined and set formulation or coloration, that may be repeated on successive occasions, only requiring that the corresponding data is introduced into the computer that assists the mixing machine itself

[0009] More specifically, the machine consists of a pair of rotating drums, equipped with cartridges carrying the said materials located on the edge thereof aligned along the circumference, each valve obviously fitted with a lower valve and a funnel that may form part of the same cartridge or be integrated into the rotating drum and cartridge carrier.

[0010] Complementary to each rotating drum a shaft is established, in central position, whose nut is joined to a radial arm ending in a piston operating on the cartridge itself that is aligned with its direction of action, while at a lower level and corresponding to the said piston, the valve opening mechanism for the cartridge is located in working position.

[0011] A reducing motor that acts on each of the rotating drums, duly controlled, allows alignment at any moment with the discharge zone of the cartridge corresponding to one or other drum.

[0012] More exactly, the cited valve opening mechanism consist of another motor that acts on an eccentric piece with the task of opening or closing the output nozzle or pincers, which remain aligned with the recipient in which the mixture will be made, a recipient which has previously been placed in the machine through the front window of the casing of the machine.

[0013] A mixing device is mounted on a movable arm and can be coupled to the mouth of the recipient by means of a conical piece to stir the mixture, having foreseen that the mixer is applicable under vacuum, so that said mixture is produced without bubbles that might have a negative effect on the final product.

[0014] This mixing device incorporates a special spatula that when it stops rotating due to an order, the spatula falls into the recipient, a cleaning device operates on the input nozzle after the product has been deposited, thus avoiding dripping thereof

[0015] Just as was explained earlier, the data for each client or for each mixture will be input into a computer in such a way that it will be sufficient to introduce the key for each specific formulation entry, in order to obtain exactly the same result on repeated occasions.

[0016] The existence of peripheral decoder has also

been foreseen, which carries out the reading of established codes on the carrier cartridges of the products to be mixture, in such a way that there is no risk of error due to one of the said cartridges being in the wrong place, as, in such an event, not only would the machine detect the anticipated position for the cartridge containing a certain raw material, but also the product in question by means of identification thereof This doser will be adapted to the codes used, which may be bar codes, magnetic codes, identification using chips, etc.

[0017] The machine will be complemented by means of a pincer that supports and transports the recipient from where the mixture is to be made towards positions of dispensing of the products, and associated with the pincer there will be a cellular weighing device that provides the machine with complete information on the amount of product added at any given time. This pincer may be substituted by a centralising ring of the recipient.

[0018] The system is completed with a printer able to print out adhesive labels on which the composition of the mixture as well as the instructions for use are included, a label that can later be stuck to the container that holds the creams.

DESCRIPTION OF THE DRAWINGS

[0019] To complete the description which is being carried out, and with a view to aiding a better understanding of the characteristics of the invention, the present specification, as an integral part thereof, is accompanied with a set of drawings, in which, for illustrative purposes and not limiting, the following has been represented:

Figure 1- Shows a schematic representation in general perspective of a mixing machine of beauty products carried out in accordance with the object of the present invention.

Figure 2- Shows a perspective similar to that of Figure 1, but in which the machine appears without its upper casing, showing the interior mechanisms.

Figure 3- Shows in enlarged detail, a sectioned side projection, at eye level, of one of the rotatory drums.

Figure 4- Shows, finally, detail of the valve opening mechanism.

PREFERRED EMBODIMENT OF THE INVENTION

[0020] In view of these figures it can be seen how the mixing machine that is put forward is structured, starting from a rolling frame (1), preferably with self-orienting wheels (2) to aid movement thereof towards any point of work, establishing in the lower half of said frame the electronic equipment, to which reference will be made later, while in the upper half and conveniently protected by casing (3), the mechanical elements of mixing are located, finishing above the frame (1) with a surface on which a video screen is established (4) that allows the data of each process to be controlled visually.

[0021] Approximately at the middle level of the frame (1), an operating platform (5) is established, on which, in laterally adjacent positions, two rotating drums (6-6') are located, each equipped with cartridges located on the edges along the circumference (7), containers of the respective products to be mixed, cartridges whose content can be extracted selectively with dose control with the collaboration of a funnel (8), common to all the drum cartridges, a funnel which is associated with a radial arm (9) below the funnel, the arm in turn being associated with a nut (10), which can be vertically displaced along a shaft (11) mounted centrally in vertical sense over the corresponding drum (6).

[0022] The rotating drum (6) will be conveniently motorised, specifically with the help of a motor controlled by the computer which controls the machine as a whole, as will be seen later on, in such a way that in each operative cycle of the machine, and in accordance with the established program, different buckets (7) are aligned with the funnel (8) of one or other drum (6-6'), as well as with the recipient (12) collecting the mixture. The buckets will supply the suitable dose of product measured as a function of the axial displacement of the nut (10) along the shaft (11).

[0023] The correct positioning of the recipient (12) is assured by a pincer (13) or any other appropriate element mounted on an arm (14) which can be laterally about a posterior axis (15), also conveniently motorised, in such a way that said recipient (12) is able to be aligned with the vertical operation of the drum (6), the drum (6'), or the stirrer (16) equipped with a cone (17), which can be coupled to the mouth of the recipient (12) and to which a vacuum can be applied so that the stirring operation is carried out in the absence of air, the stirrer being mounted (16), with its corresponding driving motor, on an arm (18) which can move vertically over its rear end (19) and operated by means of a cylinder or motor (20), as is observed, especially in figure 2.

[0024] This pincer is completed with a weighing cell which informs the machine instantaneously of the amount of each product added, or the machine may lack the said weighing cell as it is not something essential for the functioning thereof

[0025] A pair of cleaners (21) act on the nozzles (22) of the buckets (7), after each dispensing of product with a view to preventing dripping, the nozzle (22) being coupled to an eccentric (22'), conveniently motorised, that allows the opening and closing thereof, specifically the opening of the nozzle that can be found in the vertical drop towards the collecting recipient (12).

[0026] In the sectioned part of the rotating drum (6') of figure 2, it can be observed how the drums (6-6') have a lower toothed crown (23), by which, and with the collaboration of a pinion (24), they are coupled to the movement of the corresponding reducing motor, located in the

lower part of the frame (1), where, as has been stated earlier, the electronic equipment can be found.

[0027] Said electronic equipment consists of a computer with its different peripherals, one of which is the video display screen (4) mentioned earlier. The said computer has a suitable program for storing information corresponding to the different and multiple formulations to be obtained with the also different basic products stored in the buckets (7) and, as a function of such formulations, achieve, in automatic fashion, in the recipient (12), each specific mixture for each specific case.

[0028] In this sense and as has been stated earlier, it is feasible that the machine incorporates a peripheral decoder that identifies the products to be used in the mixture by means of the reading carried out on the cartridges themselves, the machine knowing at every moment, the location and status of each one of the raw materials included in the cartridges.

[0029] Just as has been mentioned earlier, the operating elements of the machine corresponding to the mechanical system thereof, are normally hidden by the aforementioned casing (3), in which a front window (25) is established to allow direct access to the intermediate position of the pincer (13) for holding the recipient (12), that allows both the introduction thereof and later removal thereof after the mixture has been obtained.

[0030] Therefore, in accordance with one of the fundamental objects of the invention, the computer is able too collect the data for each mixture and therefore for each client, and store them so that in a later session, after a period of time has elapsed, the same mixture can be obtained in the event that it is so desired by the client, and to which effect the computer will control the movements, both of the rotating drums (6) and the dosing shafts (11), so that the appropriate products are dispensed to the recipient (12) and in exact proportions so as to repeat a given mixture, at any time.

Claims

1. A mixing machine for dyes and creams, that is foreseen fundamentally for achieving mixtures of dyes for hair and creams, based on a series of basic components, but which can be used for any other purpose in which the same requirements are demanded, characterised in that it incorporates a pair of rotating drums (6-6'), laterally adjacent, on each one of which there is established cartridges (7) on the edge of the drum aligned along the circumference, in vertical alignment, receptors of the respective products; each rotating drum (6) having a central shaft (11), conveniently motorised for vertically displacing a nut (10) which is associated with a radial arm (9) which finishes at its free end in a piston (8) which can act on, sequentially, all and each one of the different cartridges (7) of the corresponding plate (6-6'), with the particular characteristic that each cartridge (7) emerges below a nozzle (22) which can be opened/closed with the collaboration of an eccentric (22'), conveniently motorised, and collaborating with the rotating drums (6-6') there is a pincer (13) for holding the recipient (12), receiver of the mixture, in place at one or other of the drums and, finally, a mixing device (16), and all this controlled by means of a computer that establishes the operative sequence of the different mobile elements, as a function of the corresponding work program.

2. A mixing machine for dyes and creams, according to claim 1, characterised in that the pincer (13) supporting the recipient (12), has three stable positions about a posterior axis of tilt (15) for its support arm, an intermediate one for receiving the said recipient (12) and for stirring, and two side positions for aligning the recipient (12) with the vertical working axis of the piston (8) of one or other rotating drums (6-6'), also corresponding to the intermediate position of the said pincer (13) to the stirring position for the content of the recipient.

3. A mixing machine for dyes and creams, according to claim 2, characterised in that said pincer is the carrier of preferably a weighing cell that instantaneously informs the machine of the amounts of product added to the container to mix.

4. A mixing machine for dyes and creams, according to the preceding claims, characterised in that the mixing device is mounted on an arm (18), tilting vertically about its posterior end (19) and helped by a cylinder or motor (20), said mixer having a cone (17) coupled to the mouth of the recipient (12), that allows a vacuum to be applied to said recipient prior to the stirring phase, to avoid bubble formation.

5. A mixing machine for dyes and creams, according to the preceding claims, characterised in that each rotating drum has, at the vertical level of work defined by the cone (8), a cleaning device (21) of the corresponding nozzle (22), that prevents dripping of residual product.

6. A mixing machine for dyes and creams according to the previous claims, characterised in that it has a barcode reader able to directly identify the formulation of a mixture by barcodes established on the recipient (12) receiving said mixture, having previously been foreseen the existence of another barcode two readers, on each one of the rotating drums (6-6'), to detect the code of the cartridges containing the raw material, with a view to identifying said cartridges according to their code, as well as according to their position in the beakers (7) containing them.

7. A mixing machine for dyes and creams, according to the preceding claims, characterised in that it has a printer where the adhesive labels are printed with the composition supplied to the recipient as well as possible instructions for use.

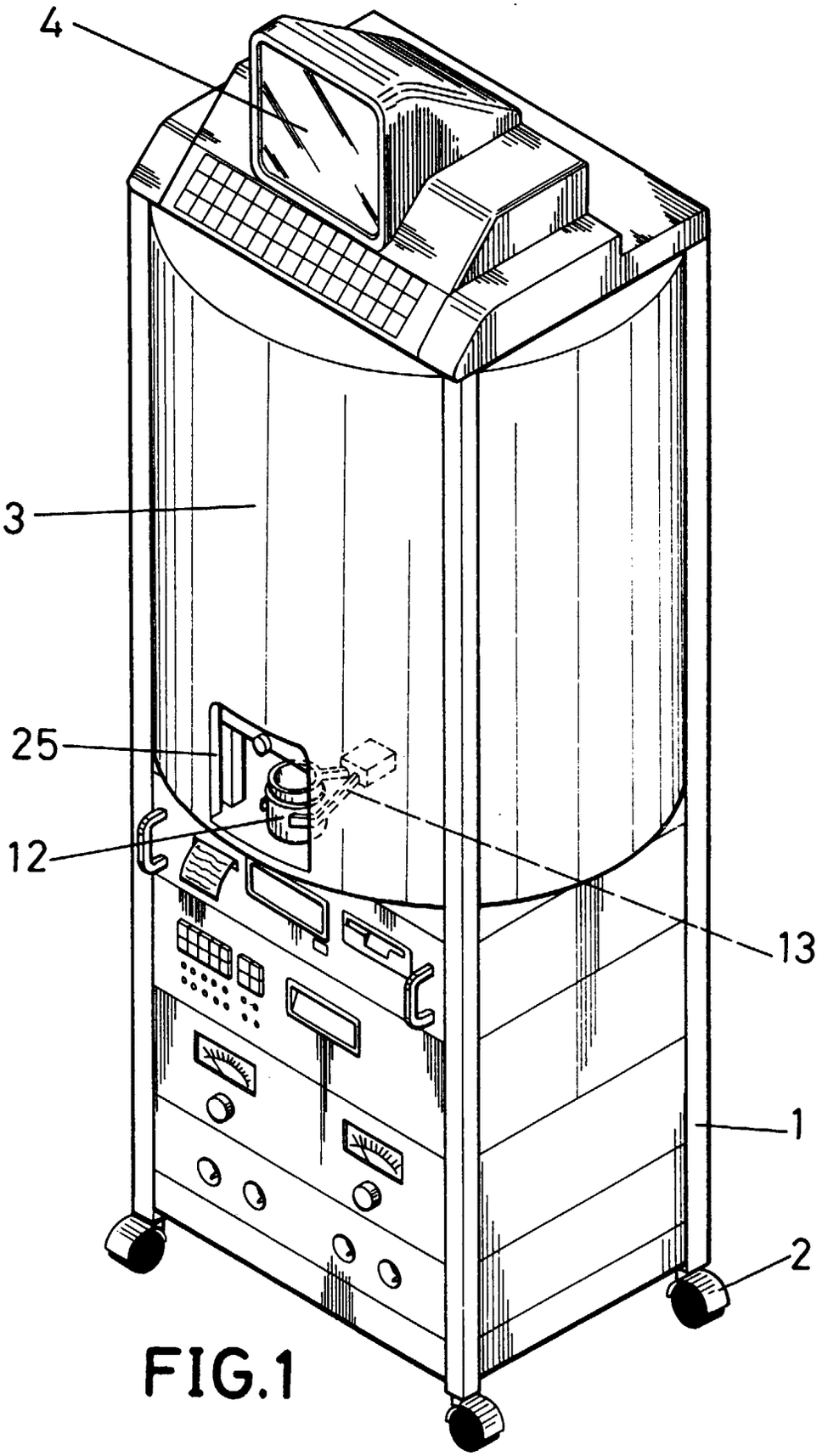

FIG.1

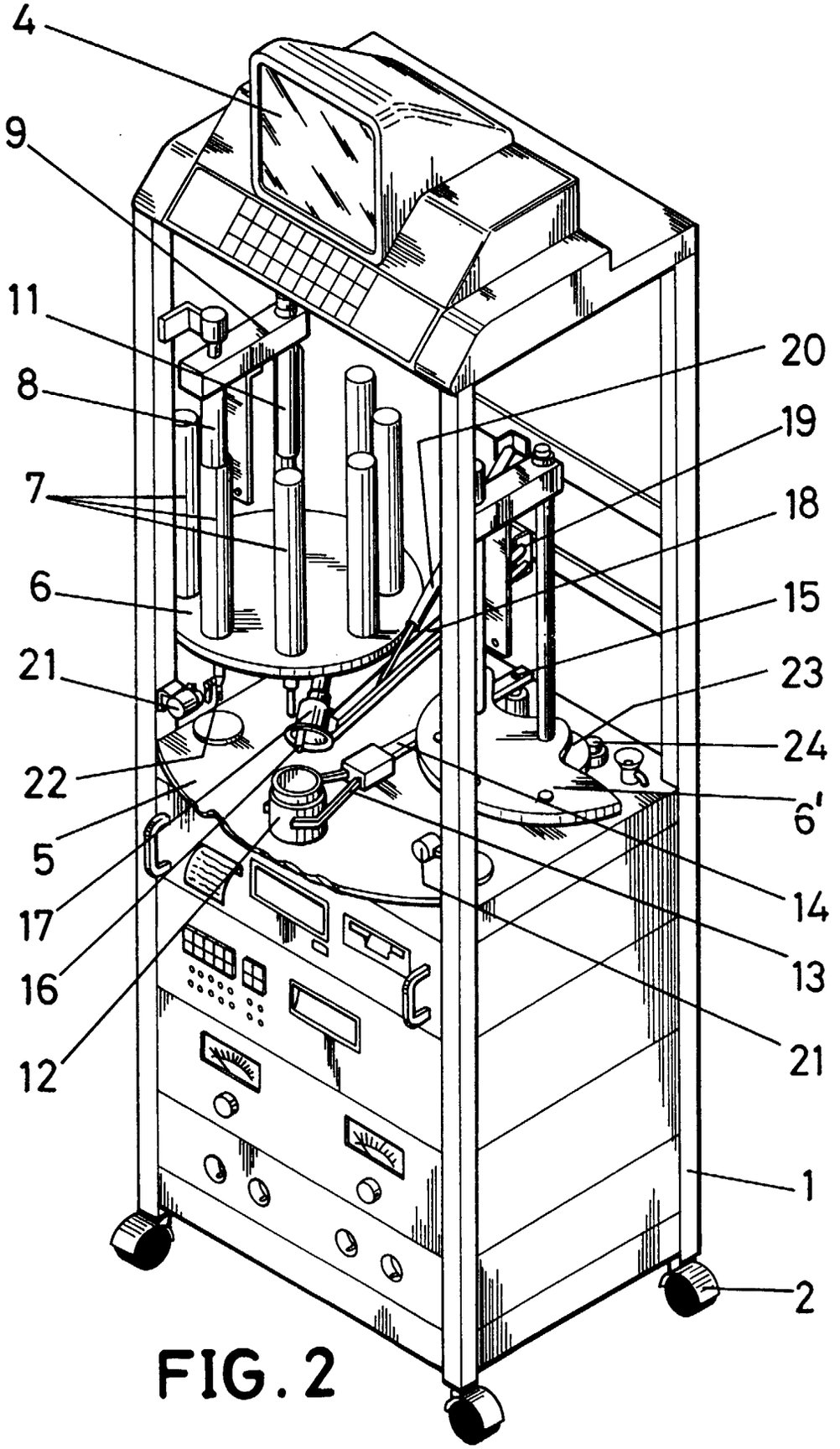

FIG. 2

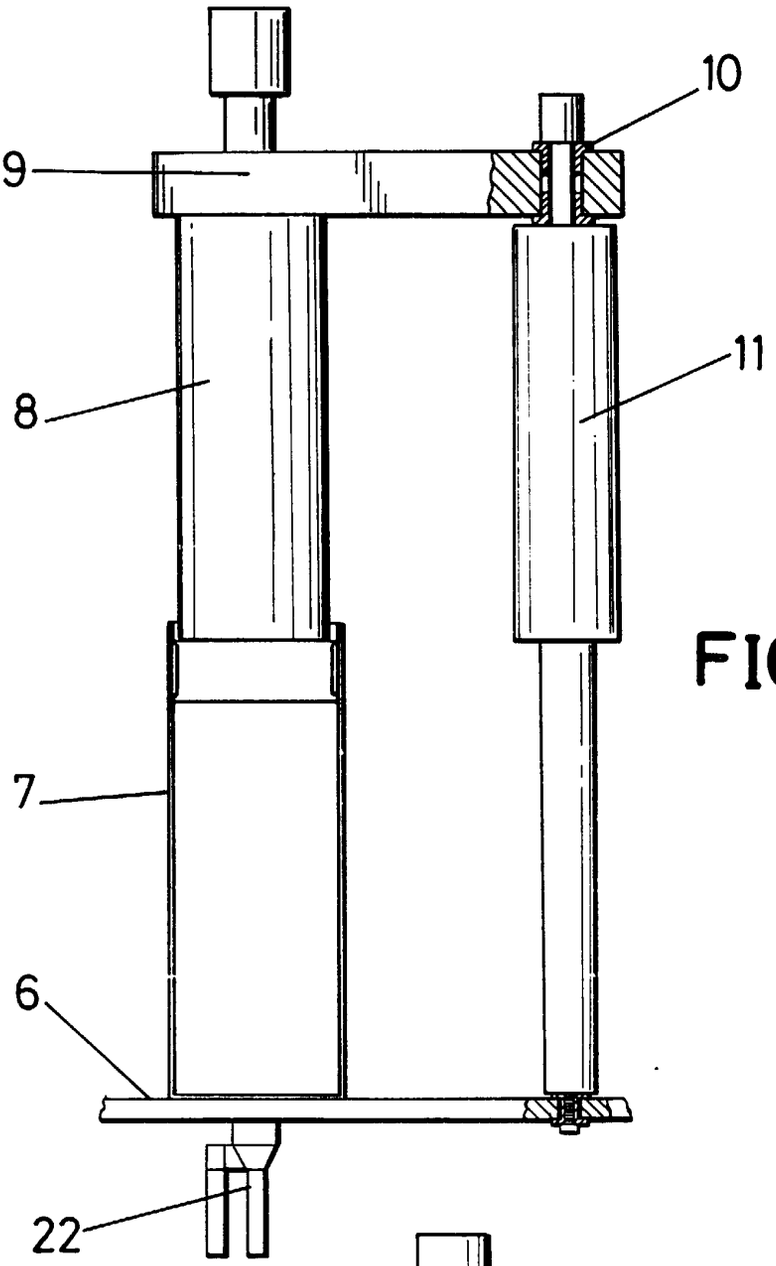

FIG. 3

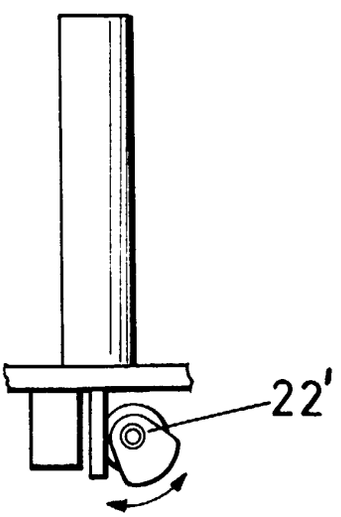

FIG. 4

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Application Number
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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
BERLIN	27 March 2000	Cordero Alvarez, M

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