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D. ANTHONY ET AL

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CUSTOM CONDITIONER

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2 Sheets-Sheet 2

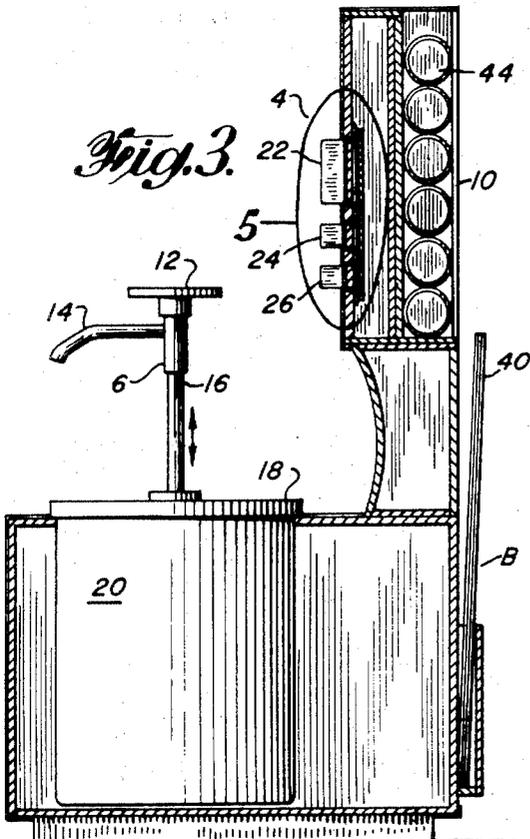
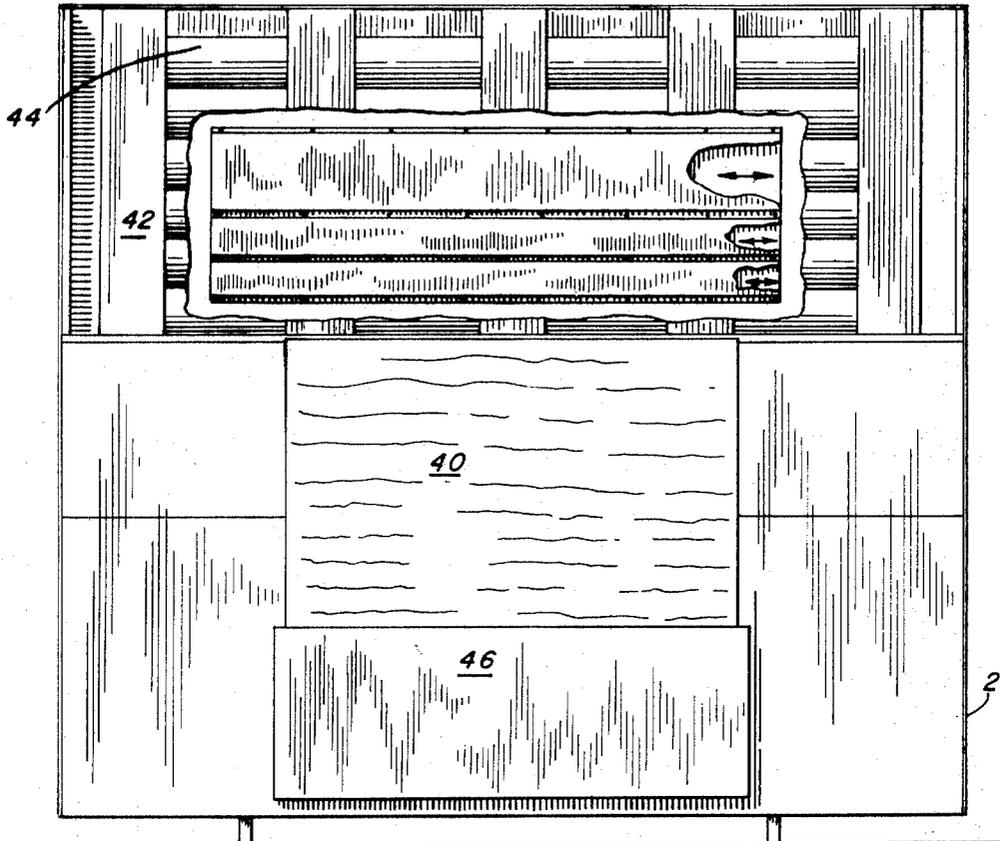


Fig. 4.

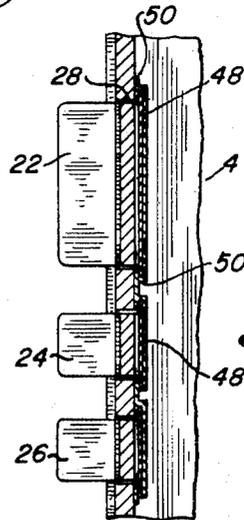


Fig. 5.

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CUSTOM CONDITIONER

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6 Claims

ABSTRACT OF THE DISCLOSURE

This invention relates to a method and device for formulating and dispensing a treatment for the hair. The device includes an assembly of components and comprises a selector chart, a formulating chart, dispensing means, mixing means, and record charts. The device may be used to select a number of factors relative to hair conditioning, which factors when chosen and indicated on the selector chart, will automatically indicate the appropriate formula to be used on an individual having hair with that particular combination of factors. This automatically indicated formula may then be compounded by the device and applied to the individual's hair. The device further contemplates dispensing means for dispensing the correct amount of ingredients according to the indicated formula.

This invention broadly relates to the field of hair treatment. More specifically, the present invention relates to a device for formulating and dispensing a hair treatment solution according to a combination of factors chosen for an individual's hair.

Heretofore, in the field of hair treatment, it has been common to supply hair-conditioning solutions, shampoos, dyes, and other hair-treatment compounds in pre-packaged form. This method of supply has proven unsatisfactory since these pre-formulated conditioners must be compounded on the basis of generic categories. A common category used in formulating hair-conditioning treatments is based on hair color. This, of course, is merely exemplary of the methods previously used to compound and supply hair-conditioning treatments. The disadvantage inherent in these methods of supply is that they do not account for the fact that each person's hair requires a compound which accommodates not only color differences, but also differences in other physical properties of the hair, such as its degree of oiliness, its texture, the presence or absence of dyeing, or bleaching compounds etc.

These present methods of formulation and supply were previously thought necessary due to the prohibitive expense involved in packaging a large number of individually suited hair treatment solutions. It has been considered uneconomical to produce a number of separate formulae, due to the high cost of packaging materials and labor.

Another disadvantage is that in choosing one of the previously supplied pre-formulated conditioning solutions, one was forced to make a subjective determination of which pre-formulated package to use. As has been noted, these pre-formulated packages were usually generically categorized on the basis of hair color or other factors. The subjective determination often led to unsatisfactory results since hair coloring may have been previously applied to the subject's hair, which would render the application of the chosen pre-formulated color categorized hair treatment solution ineffective. This disadvantage extends to all the pre-formulated treatments.

A correlative disadvantage lies in the fact that hair colors and conditions are relative, and the pre-packaged formula necessarily provided an area of overlap. For example, someone with red hair may be characterized as being either a blonde, a brunette, or a redhead, depend-

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ing on the shade of red. Unless this subjective determination coincidentally matched that of the manufacturer, the best results were not obtained. Thus, in applying a pre-formulated hair treatment solution based on a single factor, many people were not satisfied with the results achieved and, as has been noted, this was due to the relative nature of hair conditions, as well as today's common practice of applying dyes or bleaches to the hair to change its condition, which dyes or bleaches render the generic categories inapplicable.

Some hair treatment solutions have been devised which not only compensate for variations in color, but also for the hair conditions, such as the oiliness of the hair, or the presence or absence of dyes or bleaches. However, these pre-formulated treatment solutions suffer from the same disadvantages noted above in that they accommodate only a small number of factors relating to the hair condition and that the formula necessarily involves an area of overlap and a degree of subjectivity which confuses the user and produces ineffective results. These methods are less used due to the great expense involved in making many different formulae.

Another prime disadvantage of known pre-formulated hair solutions lies in the chemical and physical deterioration which occurs in pre-mixed hair treatments. These effects are manifested in the settling of ingredients as emulsions are broken or as crystallization occurs. Evaporation of ingredients may also render the pre-formulated hair treatment solution too strong, or too weak, and thus ineffective. These physical changes and chemical deterioration not only reduce the effectiveness of the treatment, but often produce a deleterious result.

With the disadvantages of the previously used methods of formulating and supplying hair treatment solutions in mind, applicants have devised an apparatus and method which eliminates the above-noted deficiencies and provides a compact, attractive and economical means and method for simultaneously formulating and dispensing hair-treatment compounds according to an individual's requirements.

Accordingly, it is a primary object of this invention to provide a device which enables a person to select a number of factors relative to hair condition and after this selection, to receive an automatically indicated formula, the ingredients of which may then be dispensed in the indicated proportions from means attached to the selector and indicator means.

Another object of this invention is to provide a device which enables the formulation of hair-treatment solutions "on the spot" and thus eliminates the chemical and physical deterioration inherent in pre-mixed formulae.

Another object is to provide a device which enables each factor influencing the determination of an appropriate formula to be individually selected, thus yielding an individual formula which is best suited for an individual's hair.

Another object is to provide a device for dispensing ingredients which economically uses the ingredients and eliminates time-consuming and costly packaging operations.

Another object is to eliminate defective hair treatment resulting from the application of a formula compounded broadly on a generic basis, which broad formulation accommodates only some of the factors which should be taken into account.

A further object is to provide a device which is simple in operation and which eliminates mixing errors often encountered in mass production techniques.

Still another object is to provide a dispenser for hair-treatment solutions which is compact and convenient to use.

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For a full and complete description of the device and method encompassed by this invention, reference is made to the drawings wherein like numerals represent like elements and wherein:

FIG. 1 is a front elevational view of the conditioner of the present invention;

FIG. 2 is a plan view of the conditioner;

FIG. 3 is a side elevation in cross section taken along line 3—3 of FIG. 2;

FIG. 4 is a rear elevation of the conditioner of the present invention, and

FIG. 5 is an enlarged fragmentary view of the device shown in FIG. 3.

Referring to the drawings, reference numeral 2 generally represents a cabinet housing the individual components of the subject device. A selector chart is indicated at 4 in FIG. 1 and comprises horizontal rows D, E and F. Vertical columns A, B, and C represent a formula indicator 36. Numeral 6 indicates dispensing pumps mounted in the top wall and comprising reservoirs 20 provided with caps 18 thereon. As clearly shown in FIG. 3, the pump mechanism includes a stem 16 having a nozzle 14 and an actuator element 12. The pumps contemplated by the embodiment illustrated in the drawings are of the reciprocating plunger manually operated type as illustrated in U.S. Pat. 2,998,167. However, the invention is not to be considered as limited to this specific illustration and may include any suitable dispensing pump and any suitable pump actuating means.

As shown in FIG. 1, the selector chart 4 comprises a series of horizontal rows indicated as D, E and F. These rows are subdivided into individual sections 34; each section 34 corresponds to a different hair condition influencing the formulation of a hair-treatment solution. For example, row D may correspond to different hair colors and the sections 34 of row D would each have printed thereon the name and/or representation of a separate hair color. Similarly, row E may designate different states of oiliness of the hair, and row F may indicate the hair texture. Each row is provided with a movable element, each movable element including a handle extending out of the plane of the chart and adapted to be manually engaged for horizontal movement. The movable elements are indicated as 28, 30 and 32, and the extending handle elements are indicated respectively as 22, 24 and 26.

At the extreme end of the above-noted horizontal rows is a series of vertical columns shown as A, B and C in FIG. 1. Each column contains a number of openings indicated as 38. In operation, a user moves the movable element of row D to the section 34 corresponding to the color of the user's hair, the movable element of row E to the section corresponding to the oiliness of the user's hair, and the movable element of row F to the section corresponding to the texture of the user's hair.

In the example noted above, a typical breakdown of hair texture may be provided in designating the hair as either coarse, medium or fine; the oiliness of the hair may be designated at either dry, normal or oily; and the hair color may be designated as bleached, tinted or natural. This, of course, is merely illustrative of the concept embodied in the invention and it should be recognized that any number of factors represented by horizontal rows may be accommodated in the device of this invention; also, the number of conditions represented by sections 34 which are provided within each row, may be increased to varying degrees of refinement corresponding to the preference of the manufacturer and/or the user.

When the selections have been made on the selector chart by moving the movable elements to appropriate sections 34 a formula is automatically indicated in the vertical columns provided at the extreme end of the selector chart. This may be accomplished since each movable element 28, 30 and 32 comprises an elongated member which slides in tracks along each horizontal row. This assembly may best be seen by reference to FIGS. 3 and

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5 wherein a back sliding surface 48 is provided for movable element 28 and two edge sliding surfaces 50 are provided for said movable element 28.

Similar sliding surfaces are provided for each movable element in each horizontal row. The length of a movable element in each horizontal row is such that when the element is at the extreme left end of a horizontal row, the opposite end of the movable element is in vertical column A. As the movable element slides to the right of FIG. 1, the end of said element moves into adjacent vertical columns B and C. When the movable element is at the last section in the horizontal row, the opposite end of said element will be in the last vertical column. Each row is provided with a movable element having a length corresponding to the element described for row D. The ends of each movable element may be colored so that the portion seen through opening 38 may more readily be visible.

It may thus be seen that as a movable element is moved to the appropriate section 34 in row D, the end of the element will automatically indicate a corresponding opening in a vertical column. Each vertical column is correlated to a dispenser reservoir. As indicated in FIG. 1, vertical column A is related to dispenser pump A, vertical column B is related to dispenser pump B, and so forth there being a dispenser for each horizontal row in this example. The number of openings provided in each vertical column designates the amount of liquid which is to be dispensed from the corresponding pump reservoir in formulating a hair treatment solution.

For example, the device shown in FIG. 1 would be operated as follows: With the movable element of row D at section 1, the end of this element will lie in vertical column B which has two openings, 3 and 5. This indicates that two quantities are to be dispensed from pump B. When manual pumps are used, this will indicate that pump B should be manually depressed twice in formulating the solution. Similarly; element 30 in row E is set at section 7 and its opposite end is in vertical column A which has one opening, indicated as 9. This informs the user that one depression of pump A should be made in formulating the treatment solution. The element 32 of row F is placed at block 11 and its opposite end indicates a single opening 13 in column C. This indicates that one depression of pump C should be made in formulating the treatment solution.

As is seen, the user in the example illustrated in FIG. 1 has chosen a formula composed of one quantity from pump A, two quantities from pump B, and one quantity from pump C. In formulating this solution, a vial 44 is detached from the back of the device for mixing the solution. The vials are arranged in rows as shown in FIGS. 2 and 4. The back of the device is provided with T-shaped members 42 which house a series of columns of such vials 44. The vials contemplated may be of any suitable type but a preferred form is a cylindrical container having a neck of reduced cross-section and a flared lip. The vial is pressed into the nozzle of the pump-type dispenser to receive ingredients dispensed from each pump. The user then shakes the vial to mix the ingredients. Also provided on the back of the device is a compartment 46 shown in FIG. 4 which houses record cards 40. Details of an individual's formulation may be recorded on cards 40 and stored in compartment 46 so that subsequent formulations may be repeated identically.

It should be understood clearly that the example illustrated above is not limiting in any way and the inventive concept embodied by the invention may be utilized with any number of selector charts, formula indicators and pumps.

An alternative embodiment of the invention may comprise the substitution of electrically operated pumps. In such an embodiment, electrical means would record the quantity to be dispensed from a reservoir and an electrically operated pump would be actuated according to this indication. A suitable assembly of automatically op-

erated electrical components is described in U.S. Patent 2,923,438 but this is not limiting in any manner.

Another embodiment could comprise push buttons, or foot pedals which would actuate the dispensing pumps.

In accordance with this invention, pumps which are used are chosen so that an equal quantity will be dispensed each time the actuating lever is depressed. The amount dispensed per actuation will, of course, vary, as desired; but whatever quantity is chosen should be related to the volume of the vials 44 provided with the device. In the examples illustrated in FIG. 1, the maximum number of quantities in a formula will be four so that the vial 44 should have a volume slightly greater than four quantities. In some cases it may be desirable to vary the quantities dispensed by pumps A, B and C. For example, a formula may require a 2:1 ratio between ingredients contained in pumps A and B. Here, the only requirement of this invention is that strict adherence be observed as to the relation of a pump and a vertical column. That is, the first pump of FIG. 1 beginning from the left side of the device is that pump containing an ingredient designated in the first vertical column appearing at the left side of chart 36. To aid in keeping this correlation, when pumps of varying sizes are used, pump A may be colored the same as Column A and this scheme will be repeated for each correlated pump and column.

Although the overall appearance illustrated in the drawings is generally rectangular, other shapes are contemplated. An alternate shape comprises a cylindrical device having a selector chart on the top and dispenser pumps arranged peripherally around the device. The indicator chart would also be provided adjacent the selector chart. Any suitable shape may be utilized without departing from the inventive concept.

It should be recognized that the essential relation of quantities dispensed and quantities indicated in the formula indicator is ultimately controlled by the programmer, or manufacturer. The invention is not limited to any specific program. The programmer for selector chart 4 of FIG. 1 will choose a desired number of factors and a desired number of conditions representing subdivisions of those factors. The factors are arranged on the selector chart and as illustrated in FIG. 1 may represent horizontal rows on said chart. Then the optimum formula is devised for each possible combination of conditions and arranged on the indicator chart by means of the vertical columns shown in FIG. 1. Each vertical column has a number of openings and each opening indicates a depression of the actuating lever of the pump corresponding to that column. Any number of conditions may be accommodated by this device, and any quantitative relationship between the indicator and the dispenser may be devised in the manner noted above.

The device of the present invention is adapted for use by males or female. The treatments dispensed may include any hair-conditioning preparations, permanent waving solutions, setting lotions, shampoos, and hair-coloring preparations. The hair-coloring preparations may be, for example, non-oxidizing type tints or temporary rinses.

The machine of this invention should be distinguished from known dispensing machines which are adapted to receive a predetermined formula fed into the machine by means of push buttons, control knobs, or punched cards, and which machine then dispenses and mixes a number of ingredients according to the pre-set formula. On the contrary, the machine of the present invention does not depend on a particular device used to feed a pre-determined formula, nor the means to dispense such ingredients. The present machine combines a programmed selector chart which allows "on the spot" formulation of solutions and which, upon operation, automatically indicates the correct formula for a particular combination on the selector chart. Subsequently, ingredients may be

dispensed from reservoirs contained within the device, according to the automatically indicated formula, directly into a mixing vial.

As indicated hereinabove, one suitable modification of this device embodies electrically operated pumps actuated by electrical signals received from relays connected to the points 38 on the indicator chart 36. The selector chart would preferably remain manually operated in such a modification and each pump would be operated separately as the area on the indicator chart is touched, but none would be actuated until the entire selector chart has been operated.

The device of FIGS. 1 through 5 may be formed from any suitable material. However, white, high impact styrene with a front panel of laminated vinyl plastic, is preferred. Other suitable materials may include any plastic, glass or fiberboard. When the device embodies an automatic or electrically operated dispenser, a suitable material, contemplated is a lightweight aluminum sheeting. The bearing surfaces 48 and 50 provided for the slideable indicators and charts 4 and 36 may comprise a low friction plastic such as Teflon, or other low friction material.

Having described our invention, we claim:

1. Apparatus for formulating and dispensing a hair treatment solution which contains a plurality of ingredients, comprising in combination dispensing means for dispensing the ingredients of the solution, comprising base, side, back and top walls, a plurality of separate compartments and a plurality of pumps mounted in said top wall, each of said compartments containing different ingredients which constitute the solution; selector means mounted onto said dispensing means comprising a chart having a plurality of sections, each section corresponding to a different condition of the hair, said selector means being adapted to select a plurality of conditions relating to the hair; and indicator means mounted onto said dispensing means and adapted to automatically indicate the formula of a solution appropriate for treatment of hair having the selected plurality of conditions, said indicator means comprising a chart having a plurality of sections, each section corresponding to different quantities of different ingredients contained in the solution.

2. The apparatus of claim 1 wherein said selector means chart has movable means mounted thereon, said movable means comprising a plurality of slidably movable elements adapted to designate the selected conditions.

3. The apparatus of claim 1 wherein the movable means has handle portions and extensions at points removed from said handle portions.

4. The apparatus of claim 4 wherein the extensions of said movable means serve to indicate ingredients and quantities of said ingredients which are to be used in formulating a solution for treating hair having the selected conditions.

5. The apparatus of claim 3 wherein the extensions of said movable means move across the indicator means and rest at a point indicating ingredients and quantities of said ingredients.

6. The apparatus of claim 3 wherein the dispensing means is adapted to be actuated by the indicator means.

References Cited

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G. E. McNEILL, Assistant Examiner

U.S. Cl. X.R.

**UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION**

Patent No. 3,527,236

September 8, 1970

David Anthony et al.

It is certified that error appears in the above identified patent and that said Letters Patent are hereby corrected as shown below:

Column 2, lines 55 and 56, "indivual's har" should read -- individual's hair --. Column 6, line 47, "1" should read -- 2 --; line 50, "4" should read -- 3 --.

Signed and sealed this 16th day of March 1971.

(SEAL)

Attest:

Edward M. Fletcher, Jr.

Attesting Officer

WILLIAM E. SCHUYLER, JR.

Commissioner of Patents