Jan. 14, 1958 R. MEYER 2,819,723

HAIR DYEING APPARATUS

Filed May 31, 1955 2 Sheets-Sheet 1

Fig. 1

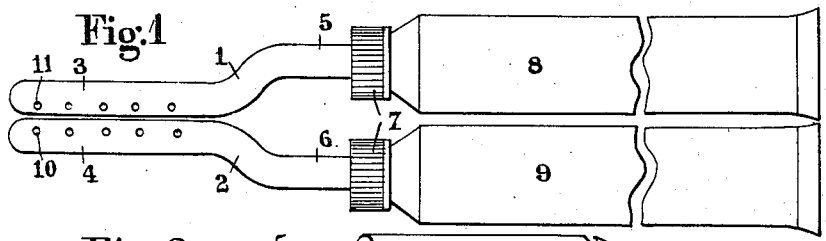


Fig. 2

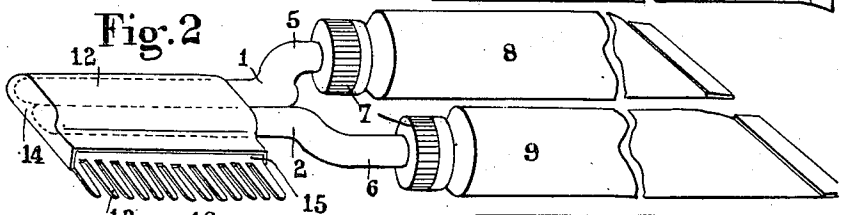


Fig. 3

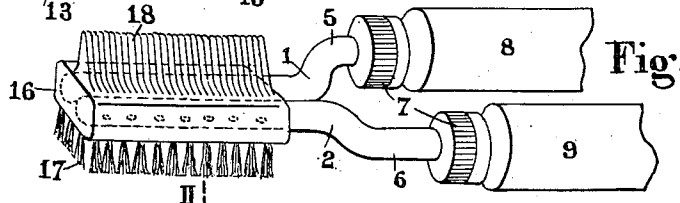


Fig. 4

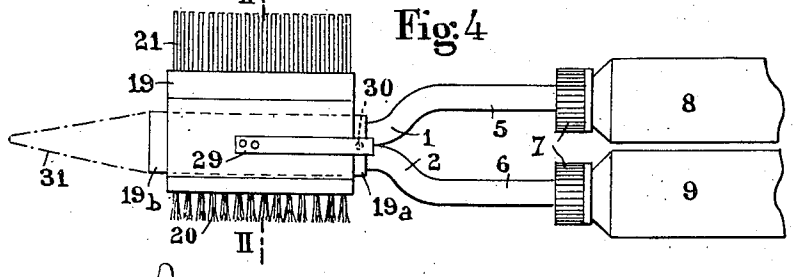
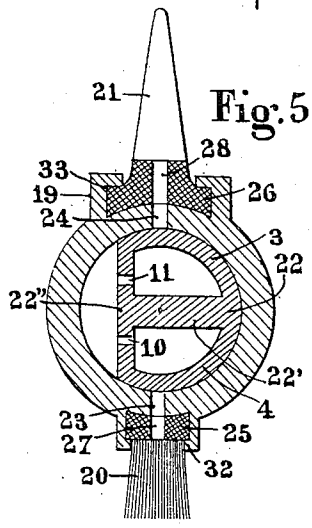


Fig. 5



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HAIR DYEING APPARATUS

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Fig. 7

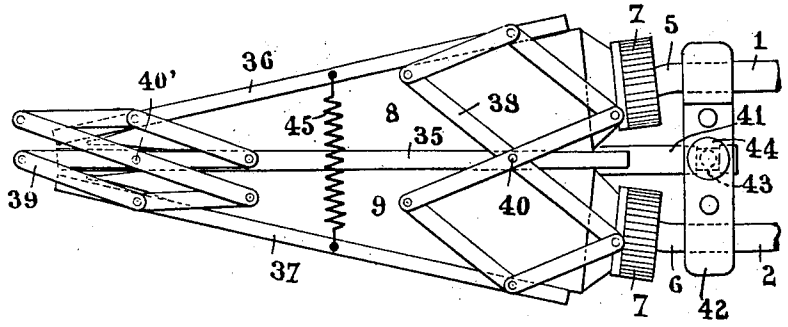


Fig. 8

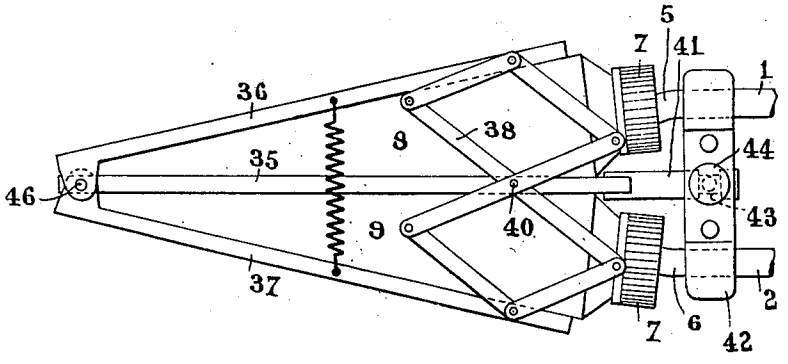
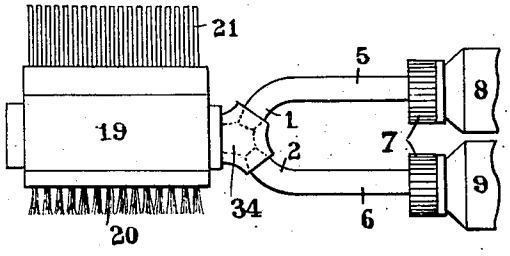


Fig. 6



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2,819,723

HAIR DYEING APPARATUS

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4 Claims. (Cl. 132—116)

The present invention relates to a new and improved method and apparatus for dyeing hair. More particularly, the present invention relates to a new and improved method and apparatus for hair dyeing wherein the hair dyeing substance is activated immediately preceding the application of the dye to the hair.

Most hair dyeing substances in use today are obtained by mixing a latently dyeing substance with an activating substance. For example, an oxidation dye is obtained by mixing an oxidizing agent with coloring matter or a coloring pigment. The coloring action of the oxidation dye occurs only when the coloring pigment has been mixed with the oxidizing agent. The effectiveness of the oxidation dye lasts only a short time after the activating oxidation agent has been added. Therefore, the effective coloring action of the oxidation dye becomes weaker with time.

Accordingly, in practice today the latently dyeing substance and the activating substance are kept in separate containers. The mixture is made by mixing the two substances in a common container in the desired proportion. The oxidation reaction between the coloring pigment and the oxidizing agent starts when these two substances come in contact with each other so that it is apparent that this reaction starts before the mixture is actually applied to the hair. It is apparent, therefore, that the effectiveness of the activated dye becomes smaller and smaller as the activated dye is being applied to the hair. Since application of a coloring dye to a complete head of hair takes a substantial amount of time, the oxidation reaction of the mixture in the common container which continues during this time greatly decreases the strength of the coloring dye.

There are several other disadvantages which are present when the above described conventional methods of hair dyeing are used. For example, oxidation reaction causes the mixture to develop heat. Foam develops over the surface of the mixture and therefore interferes with the proper application of the dye to the hair. A gaseous release occurs and thereby produces an undesired initial pressure if the mixing of the two substances takes place in a closed instead of an open container.

Accordingly, it is one of the objects of the present invention to overcome the above described disadvantages.

Another object of the present invention is to provide a new apparatus for the dyeing of hair.

A further object of the present invention is to provide a new apparatus for dyeing hair wherein the dye is activated as the mixture is being applied to the hair.

Still another object of the present invention is to provide a new and improved apparatus for dyeing hair, which apparatus can be used with several different types of dye applicators.

Another object of the present invention is to provide a new and improved apparatus for dyeing hair which is compact and inexpensive to construct.

With the above objects in view, the present invention mainly consists of apparatus for dyeing hair including

compressible container means for a latently dyeing substance, compressible container means for an activating substance for the latently dyeing substance, a mixing container connected to the container for the latently dyeing substance and the container for the activating substance for receiving the substances from the same, whenever desired, creating in the mixing containing an activated dyeing substance, means for regulating the relative pressures that can be applied to said compressible container means and dye applicator means connected to and communicating with the mixing container for applying the thus-obtained activated dyeing substance to the hair, enabling thereby, during the period of application of the activated dyeing substance, continuous creation of the same during such period of application in the mixing container immediately preceding application thereof.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 is a plan view of a portion of apparatus constructed in accordance with the principles of the present invention, to which a dye applicator may be added;

Fig. 2 is a perspective view of the apparatus shown in Fig. 1 with a comb dye applicator applied;

Fig. 3 is a perspective view of the apparatus shown in Fig. 1 showing a different dye applicator connected to the apparatus;

Fig. 4 is a plan view of another embodiment incorporating the principles of the present invention;

Fig. 5 is a sectional view of Fig. 4 taken on the line II—II.

Fig. 6 is a plan view of another embodiment of the present invention;

Fig. 7 is an elevational view of a portion of the apparatus constructed in accordance with the principles of the present invention; and

Fig. 8 is an elevational view of another embodiment of the present invention.

Referring now to Fig. 1, a compressible container 8 is shown in which a latently dyeing substance may be stored. A similar compressible container 9 is provided for an activating substance for the latently dyeing substance stored in the container 8. Threadedly connected to the container 8 is a conduit 1 at its end 5 by means of a cap 7. The other end 3 of the conduit 1 has a plurality of openings 11.

A similar conduit 2 is threadedly connected to the container 9 at its end 6. At the other end 4 of the conduit 2 a plurality of openings 10 is provided. The respective openings 10 and 11 are preferably provided to correspond with each other. In operation, the latently dyeing substance in the container 8 and the activating substance in the container 9 may be simultaneously ejected from the respective openings 11 and 10 by compressing containers 8 and 9.

In Fig. 2 a comb 13 is shown connected to the ends 3 and 4 of the conduits 1 and 2, respectively. The comb 13 has a rear portion 14 with a mixing container 12 formed therein. The mixing container 12 is shaped to cooperate with the ends 3 and 4 of the conduits 1 and 2. A slot 15 is provided adjacent the teeth of the comb 13 to permit the mixture formed in the mixing container 12 to flow out alongside the teeth of the comb 13.

In operation, it can be seen that as the comb is used on the hair, activated dye may be applied to the hair merely by compressing the containers 8 and 9. The latently dyeing substance in the container 8 will flow

out through the holes 11 and the activating substance from the container 9 will flow out through the holes 10. An activated dyeing substance will therefore be obtained almost simultaneously with the application thereof to the hair. The dyeing substance accordingly is applied to the hair at the time of its maximum dyeing strength. There is no possibility of a weakened dyeing substance being applied to the hair.

Referring now to Fig. 3, a dye applicator having both a comb portion and a brush portion is illustrated. This applicator includes a mixing container 16 at one side of which is mounted a brush 17 and on the opposite side of which is mounted a comb 18. The embodiment illustrated in Fig. 3 may have slots between the brush 17 and the mixing container 16 or between the comb 18 and the mixing container 16 or both.

In operation, if only the brush 17 has slots for communicating with the interior of the mixing container 16, activator dyeing substance is applied to the hair only by means of the brush 17. When the comb 18 is used, no dyeing substance is applied. On the other hand, if the teeth of the comb 18 have slots communicating with the interior of the mixing container 16, the comb may be used for applying the dyeing substance to the hair.

Referring now to Figs. 4 and 5, a further embodiment of apparatus incorporating the principles of the present invention is illustrated. In this embodiment the end portions 3 and 4 of the conduits 1 and 2, respectively, are made of one partially cylindrical member 22. As can be seen in Fig. 5, the conduits 1 and 2 are separated by a divider 22' within the member 22. The member 22 also has a flat surface portion 22'' in which are located the openings 10 and 11. In this embodiment the mixing chamber 19 is rotatably mounted about the member 22. A brush 20 is removably mounted on the mixing container 19 by the cooperation of a portion 25 of the brush 20 with a groove 32 located on the outer surface of the mixing container 19. On a diametrically opposite portion of the container 19 is mounted a comb 21 which slidably cooperates with a groove 33 located on the outer surface of the container 19.

An indexing arrangement is provided by a leaf spring 29 which has one end 30 that cooperates with an extension 19*a* on the container 19. The member 22 has diametrically opposite outlets 23 and 24 which respectively register with an opening 27 in the brush 20 and an opening 28 in the comb 21.

In the position illustrated in Fig. 5, it is apparent that any of the substances which are emitted from the openings 10 and 11 into the mixing container 19 will be prevented from reaching the outlets 23 and 24 thereof. However, if the member 22 is rotated approximately 90° from the illustrated position in the clockwise direction, it is clear that the activated dyeing substance located between the flat surface 22'' and the inner surface of the mixing container 19 will be able to flow out from the outlet 24 and the opening 28 along the teeth of the comb 21.

If the mixing container 19 is rotated approximately 90° in the counterclockwise direction from the illustrated position, the activated dyeing substance located between the flat surface 22'' and the inner surface of the mixing container 19 will be able to flow out of the outlet 23 and the opening 27 onto the brush 20. It is therefore clear that with the embodiment illustrated in Figs. 4 and 5 it is possible to use the apparatus as an ordinary comb or brush arrangement or to apply the dye simultaneously with the use of the comb or the use of the brush. In Fig. 4 there is also shown a tapered member 31 mounted on the closed end 19*b* of the member 22. This tapered member may be used for parting the hair. The indexing means 29 permits the applicator to be solidly held in the desired position.

It is possible that the mixing container 19, the comb 21 and/or the brush 20 may be formed of one molded integral unit, for example, of plastic. It is also not necessary that the comb and brush be disposed in diametrically opposite portions of the mixing container 19. Instead of a brush or comb, a dye applicator in the form of a sponge may be used. Also, the embodiment shown in Figs. 4 and 5 may include on angularly spaced portions of the mixing container 19 a comb, a brush and a sponge, respectively.

Referring now to Fig. 6, another embodiment of apparatus incorporating the principles of the present invention is illustrated. In this embodiment the conduits 1 and 2 end substantially at their arcuate portions and communicate with the interior of a partially cylindrical member 34 which has a flat surface 22'' such as that shown in Fig. 5. Therefore, in this embodiment the coloring matter from the container 8 and the oxidizing agent from the container 9 are actually mixed in the cylindrical chamber 34 prior to reaching the mixing container 19.

In all these embodiments, the apparatus is provided with means for regulating the flow of coloring matter from the container 8 and the oxidizing agent from the container 9 so that the mixture formed from these component parts contains the desired proportion of the component parts.

One such arrangement is shown in Fig. 7 where a member 35 is mounted between the containers 8 and 9 and may be contiguous with adjacent sides of these containers. At one end of the member 35 is located a rod 41 which is inserted within a separator 42 that keeps the conduits 1 and 2 at a predetermined desired distance from each other. A set screw 44 cooperates with a reduced diameter portion 43 of the rod 41 to fix this rod to the separator 42.

At the opposite side of the container 8 is a compressing member 36. A compressing member 37 is located at the other side of the container 9. A spring 45 normally urges the compressing members 36 and 37 towards each other. Connected at one side of the member 35 and the compressing members 36 and 37 is a lazy tongs device 38 pivoted at its center 40 on the member 35. Another lazy tongs device 39 is located on the same side of the members 35, 36 and 37 but at the opposite ends thereof. Device 39 is also pivotally mounted on the member 35 at the point 40'. A second pair of lazy tongs devices 38 and 39 may be located on the opposite unillustrated sides of members 35, 36 and 37.

In operation, any pressure applied to one of the compressing members 36 or 37, for example, hand pressure, will be transmitted to the opposite compressing member so that equal pressures will be applied to both of the containers 8 and 9, respectively.

Referring now to Fig. 8, the compressing members 36 and 37 are pivotally mounted about the pin 46 journalled in the member 35. As before, pressure applied to one of the compressing members 36 or 37 is transmitted in equal amounts to other compressing members so that the containers 8 and 9 are compressed equal amounts.

The activated dye substances may be formed by using a latently dyeing substance and mixing with it a reducing agent. In other types of dyes, oxidizing agents are mixed with the latently dyeing substance.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of application devices differing from the types described above.

While the invention has been illustrated and described as embodied in a method and apparatus for dyeing hair, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for vari-

ous applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be secured by Letters Patent is:

1. Apparatus for dyeing hair comprising, in combination, compressible container means for a latently dyeing substance; compressible container means for an activating substance for said latently dyeing substance; a mixing container connected to said container for said latently dyeing substance and said container for said activating substance for receiving said substances from the same when both said compressible container means are compressed, creating in said mixing container an activated dyeing substance; means for regulating the relative pressures that can be applied to both said compressible container means; and dye applicator means connected to and communicating with said mixing container for applying the thus-obtained activating dyeing substance to the hair, enabling thereby, during the period of application of said activated dyeing substance, continuous creation of the same during such period of application in said mixing container immediately preceding application thereof.

2. Apparatus for dyeing hair comprising, in combination, compressible container means for a latently dyeing substance; compressible container means for an activating substance for said latently dyeing substance; a fixed member mounted between both said compressible container means and continuous with one side of each of said compressible container means; a first compressing member adjacent the other side of one of said compressible container means; a second compressing member adjacent the other side of said other compressing container means; means for normally urging said compressing members toward each other; means connected to each of said compressing members and said fixed member for transmitting a predetermined portion of any pressure applied to one of said compressing members to the other of said compressing members; a mixing container connected to said container for said latently dyeing substance and said container for said activating substance for receiving said substances from the same when said compressible container means are compressed, creating in said mixing container an activated dyeing substance; and dye applicator means connected to and communicating with said mixing container for applying the thus-obtained activated dyeing substance to the hair, enabling thereby, during the period of application of said activated dyeing substance, continuous creation of the same during such period of application in said mixing container immediately preceding application thereof.

3. Apparatus for dyeing hair comprising, in combination, compressible container means for a latently dyeing substance; compressible container means for an activating substance for said latently dyeing substance, a fixed member mounted between both said compressible container means, a first compressing member adjacent one of said compressible container means, a second compressing member adjacent said other compressing container means,

means connected to each of said compressing members and said fixed member for transmitting a predetermined portion of any pressure applied to one of said compressing members to the other of said compressing members a mixing container connected to said container for said latently dyeing substance and said container for said activating substance for receiving said substances from the same when said compressible container means are compressed, creating in said mixing container an activated dyeing substance; and dye applicator means connected to and communicating with said mixing container for applying the thus-obtained activated dyeing substance to the hair, enabling thereby, during the period of application of said activated dyeing substance, continuous creation of the same during such period of application in said mixing container immediately preceding application thereof.

4. Apparatus for dyeing hair comprising, in combination, compressible container means for a latently dyeing substance; compressible container means for an activating substance for said latently dyeing substance; means for regulating the relative pressures that can be applied to both said compressible container means; a first conduit communicating at one of its ends with one of said container means; a second conduit communicating at one of its ends with the other of said container means; a rotatably mounted mixing container having an interior portion communicating with said conduits at their other ends for receiving said substances from said container means when said compressible container means are compressed creating in said mixing container an activated dyeing substance, said mixing container having a first and a second outlet for respectively communicating with its interior portion when said mixing container is rotated; a brush mounted on said mixing container adjacent said first outlet thereof and communicating therewith; and a comb mounted on said mixing container adjacent said second outlet thereof and communicating therewith, said comb and said brush each respectively forming a dye applicator for applying the thus-obtained activated dyeing substance to the hair when said mixing container is rotated so that its respective outlet communicates with the interior portion thereof.

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