Dec. 7, 1937. L. DALY ET AL 2,101,132

DEVICE FOR APPLYING MASCARA AND SIMILAR MATERIALS

Filed Nov. 9, 1935

Fig. 8.

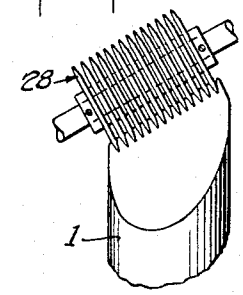
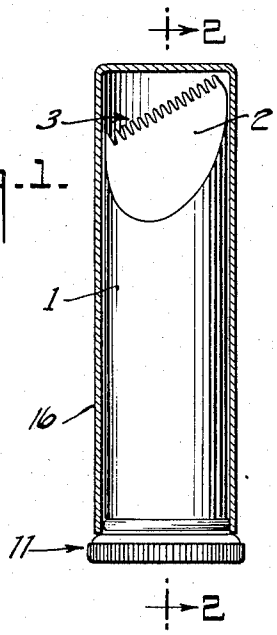



Fig. 1.



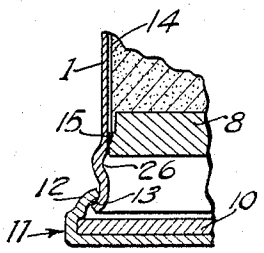




Fig. 2a.

Fig. 2.

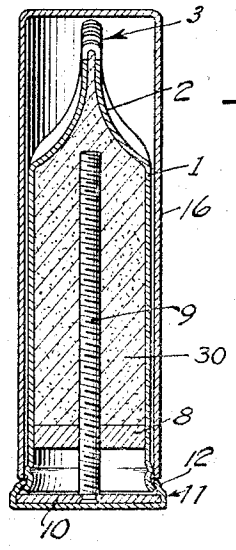
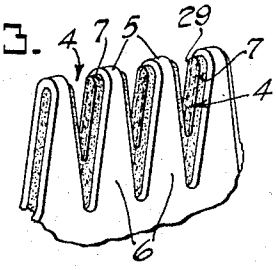



Fig. 3.



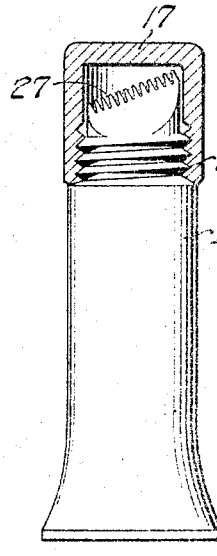
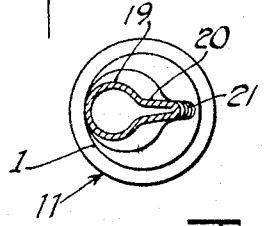




Fig. 4.

Fig. 6.



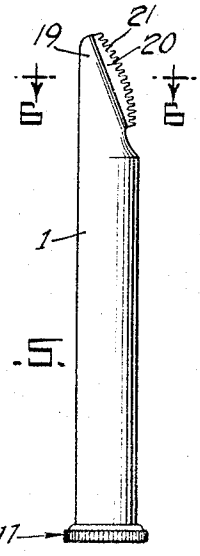




Fig. 5.

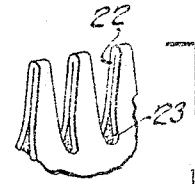



Fig. 7.

INVENTORS
LEWIS DALY
MARGARET CONNASON
BY
ATTORNEY

Patented Dec. 7, 1937 2,101,132

# UNITED STATES PATENT OFFICE

2,101,132

## DEVICE FOR APPLYING MASCARA AND SIMILAR MATERIALS

Lewis Daly and Margaret Johannsen, New York, N. Y.

Application November 9, 1935, Serial No. 48,990

17 Claims. (Cl. 132—1)

This invention relates to devices serving as pencils for applying plastic coloring matter, such as mascara, to the hair forming an eyebrow or eyelash of the user, or to any other desired portion of such user's hair, which material has heretofore been applied in the form of a cake of mascara and small brush, or little pencil composed of a solid body of mascara.

Previous devices of crude form for applying hair tonic have sometimes been called "fountain combs", the material being exuded from the tips of the hollow teeth of a comb-like structure.

Our present invention is designed to produce a simple, cheap device of this general character for use in applying plastic material to the hair which will accomplish an even distribution of a thin coating of such plastic material on each hair to be treated, and which can be easily embodied in a small sized, standardized form of tube or other hollow pencil-like structure from one end of which the contents may be caused to exude in small quantities for such purpose.

Also the invention could be applied to the ordinary collapsible tubes for holding tooth paste, and would then distribute thin films of the paste over the sides as well as on the ends of the tooth brush bristles, instead of depositing such material only on the ends of the brush bristles in a thick ribbon, as is done by the ordinary form of collapsible tube container now and for some time on the market.

The underlying concept of our present invention involves the novel idea of utilizing the flattened end of any desired form of tube to form a comb-like structure through the cutting of slots crosswise of the substantially straight edge of such flattened end, thus giving the teeth so formed slotted sides and/or small openings in the tube wall sections between the roots and base portions of said teeth. This slotting operation can be cheaply and quickly done by a rotary multiple-disc saw or milling tool, thus forming a complete series of teeth and small wall-openings intermediate thereof in one operation.

The broad concept above outlined and certain modifications thereof are illustrated in the accompanying sheet of drawings which shows the several best embodiments of our invention at present known to us, as follows:

Fig. 1 is a side elevation of the preferred form of the device with the protecting cap shown in section.

Fig. 2 is an axial cross section on the line 2—2 of Fig. 1.

Fig. 2a is an enlarged sectional detail showing the preferred form of revoluble cap for the lower end of the tube.

Fig. 3 is an enlarged perspective detail showing the preferred form of teeth and material between the same.

Fig. 4 is a side elevation of a form of collapsible tube with our invention applied thereto and a screw protecting cap therefor shown in section.

Fig. 5 is a side elevation of a modification having a cone-shaped tip for the tube along one side of which the comb is formed.

Fig. 6 is a cross section on line 6—6 of Fig. 5.

Fig. 7 is a perspective detail showing a modified form of teeth with openings at the bottom only of each space between the same, and

Fig. 8 shows the preferred method of forming the teeth in a tube end with openings in the walls thereof.

Throughout the drawing like reference characters indicate like parts.

Referring to Figs. 1 and 2, the main body 1 of a tube having a diameter about equal to that of a large sized lead pencil has one end indicated at 2 partly collapsed and creased so as to form an external edge generally indicated at 3 extending across that end of it. Preferably such edge extends at an inclination to the axis of the tube, as shown, though it might run at right angles thereto if so desired for any particular reason. A series of teeth of uniform profile are then formed on that end of the tube as a result of slotting edge 3 crosswise at numerous points. This can most conveniently be done by rotary, multiple-disc saw 28, or by similar milling tool, as indicated in Fig. 8. Such operation leaves a series of cut-out spaces 4, 4, in the narrowed portion of the tube-end with intervening remaining sections 5, 5, of the original edge wall 3 between them. The result is a series of teeth 6, 6, extending across that end of the tube along said edge. Preferably the cut-out portions 4 are generally V-shaped, as shown, though they might have other outlines. If the tube walls have been pinched together tightly along the extreme edge only of the collapsed end portion, the teeth formed as above described will each have V-shaped slots in their adjacent sides as best shown at 7, 7, in Fig. 3. These slots in adjacent tooth walls will, of course, meet at the bottom of the cut-out spaces 4, 4, between the bases of the teeth as also shown.

If, however, the end portions of the tube walls are pinched together farther inwardly from the edge 3, as shown at 22 in Fig. 7, the wall open-

ings will then be limited to the areas 23 confined between the bases of the teeth as shown in that figure of drawing.

In either case gentle pressure on any plastic material filling that end of the tube interior will cause it to exude through all these openings as indicated at 29 in Fig. 3 and at the openings 23 in Fig. 7. Heavier pressure will force out enough material to entirely fill all spaces between the teeth, as indicated at 27 in Fig. 4. Provision can be made in various ways for applying such pressures to the tube contents

For this purpose a piston or plunger 8 is shown in Figs. 2 and 2*a* which can be reciprocated lengthwise of the tube interior by a screw threaded shaft 9 which passes through and engages a threaded opening in such piston. If said screw is fastened at one end in a revoluble plate 10, which is held in a cap for that end of the tube generally indicated at 11, and loosely mounted on the tube end and the screw thread is a left hand one, clockwise rotation of the cap will force the piston toward the toothed end of the tube.

Preferably such cap has an inwardly peened flange 12 which overhangs plate 10 and surrounds the outwardly extending flange 13 on the end of tube 1 loosely so as to permit such rotation. The flange 12 may be peened down on the plate 10, however, with sufficient force to clamp the two together.

Rotation of the cap will then force the tube contents slowly through the openings in the teeth at the other end of the tube in little fins 29, as indicated in Fig. 3 and at the openings 23 in Fig. 7. If a greater quantity is forced out it will completely fill the spaces between the teeth as indicated at 27 in Fig. 4. Usually the friction of the main body 30 of the material in the tube on the piston 8 will be sufficient to prevent its rotation and so ensure its movement when the screw is rotated.

To absolutely prevent any rotation of the piston 8 it may be provided with a radial projection 15 engaging a slot 14 extending lengthwise of the tube interior as shown in Fig. 2*a*.

To protect the comb-like end of the tube when not in use, a cap 16 may then be telescoped over it, and such cap would frictionally engage an outwardly spun ring 26 on tube 1.

Fig. 4 shows a modification in which our invention is applied to the ordinary collapsible tube 1*a* such as has heretofore been used for containing toothpaste and similar materials now in use having one end 18 V-shaped, and the other provided with an external, screw-thread 25, which can be engaged by screw cap 17.

Fig. 5 shows another modification in which the main cylindrical body 1 of the tube provided with the revoluble cap 11 at one end has a cone shaped tip 19 at the other. The latter is creased outwardly at 20 along an element of its cone surface and this creased edge is slotted in the manner hereinbefore described to form teeth which may be disposed along an outwardly curved line 21, as shown.

In manufacturing the articles embodying our invention the teeth 6, 6, are formed in one end of the incompressible tube 1, or of the collapsible tube 1*a*, preferably by a rotary cutter 28, as indicated in Fig. 8, and the interior of the tube filled with the mascara or other plastic material to be applied to the eyebrows or eyelashes of the user. The other end of the tube is then sealed up by spinning the cap 11 over its flanged end 13, after the piston 8 and screw shaft 9 have been inserted, as shown in Figs. 2 and 2*a*, or by flattening that end (if the tube is collapsible) as shown in Fig. 4, and soldering the tube walls together at that end. The protecting cap 16 or 17 is then placed in position and the article shipped to a distributor or user.

When used, the cap 16 or 17 is first removed and then the revoluble cap 11 is slightly rotated, or the collapsible tube 1*a* is slightly compressed between the user's fingers to force out a small quantity of mascara at the other end of the apparatus. In either case more or less of the plastic material exudes between teeth 6, 6, and thereafter when the comb-like end of the tube is drawn along the eyelid or eyebrow or other assembly of hair, individual hairs or small assemblies thereof are drawn between each two of the teeth and through the minute body of mascara which has been there located by the first mentioned operation. As a result each hair is practically coated completely and uniformly with the plastic material and little of the latter is wasted. Cap 16 or 17 is then replaced and the article put in the vanity case or pocket of the user or otherwise put in storage until required again for use.

Among the advantages of the invention may be mentioned low cost of manufacture as distinguished from prior apparatus in which the perforations and recesses in hollow fountain combs previously used for applying hair tonics, &c. had to be drilled or bored or molded, the handy form of the article, the complete coating of each hair around its entire surface, avoidance of waste of the mascara, impossibility of unauthorized refilling, and prevention of escape of the material while the capped container is being handled. Also the original moisture content of the mascara is retained and wetting would be unnecessary, thus avoiding the possibility of infection which occasionally results from the old method of applying the mascara by a small brush and cake of mascara in which the saliva of the user is often used for dampening purposes, and the brush becomes clogged with dust, etc. etc.

Various changes could be made in the construction herein shown and described without departing from the scope of our invention so long as the underlying principles of construction and operation are preserved and the modified structure is within the definition of any of the appended claims.

Thus while the drawing shows the full portion of the body of tube 1 and its collapsed portion 2 as being made out of a single, integral sheet of material, this detail of construction is not essential to successful operation of the device.

Having described our invention, we claim:

1. An elongated, thin-walled container for plastic materials which has a relatively small area of its walls adjacent one end cut away at a plurality of points and the intervening portions creased to form a plurality of equally spaced apart, substantially V-shaped, outwardly projecting portions together constituting a comblike row of teeth with openings through some portions of each of the oppositely disposed faces thereof communicating with said container's interior; whereby a comblike structure with attached reservoir is produced, the interior of which reservoir is in communication with each space lying between any two adjacent teeth of the comb.

2. A container such as defined in claim 1, the interior of the imperforate portion of which in communication with said openings is of manually

variable volume; whereby if, after said interior portion has been filled with plastic material its volume is forcibly reduced, portions of the said contents will be extruded into the spaces between such teeth.

3. A container such as defined in claim 1 combined with removable means for capping all said openings.

4. A container such as defined in claim 1, the walls of which are made of a material sufficiently flexible to yield to slight pressure from the hand of a person holding it.

5. An apparatus such as defined in claim 1 in which said container is of tubular form and said series of V-shaped wall portions extend across one end of such tube, combined with a cap adapted to be fastened over said tube end and thereby cover all said wall openings.

6. An apparatus such as defined in claim 1 which is formed of a flexible tube with said plurality of V-shaped projections extending transversely of one end of such tube.

7. An apparatus such as defined in claim 1 which is formed of a flexible tube with said plurality of V-shaped projections extending transversely of one end of such tube, the other end of such tube being closed and partially flattened so as to also have a V-shaped cross section in the plane of its longitudinal axis.

8. The combination of a tube flattened at one end to form two converging wall sections united along a substantially straight outer edge of said tube end with only short, separated portions of such walls along such edge remaining in position, and having substantially V-shaped slots in its wall intervening between said outer edge sections, and means for applying pressure to any plastic material contained in said tube; whereby small quantities thereof will be caused to exude through said slots.

9. A combination such as defined in claim 8 in which said edge is inclined to the axis of the tube.

10. An apparatus such as defined in claim 8 in which said pressure-applying means comprises a piston in said tube and manually operable means for forcing said piston toward said slotted end of the tube.

11. An apparatus such as defined in claim 8 in which said pressure-applying means comprises a piston in said tube and manually operable means for forcing said piston toward said slotted end of the tube comprising a cap revolubly mounted on the other end of the tube and a screw threaded shaft attached to said cap and extending through and meshing with a threaded opening in said piston.

12. An apparatus such as defined in claim 8 combined with a cap adapted to fit over the toothed end of said tube and means for releasably holding it in such position.

13. An apparatus such as defined in claim 8 in which said tube has a screw thread on its outer surface near its toothed end combined with a cap adapted to screw on to said threaded surface.

14. A combination such as defined in claim 8 in which said tube is formed of collapsible material and has its other end closed.

15. An apparatus such as defined in claim 8 in which said tube has a screw thread on its outer surface near its toothed end, the body of said tube being made of collapsible material and terminating in a V-shaped cross section at its other end.

16. As a new article of manufacture a device for applying a film of plastic material to the hair of an eyelash or eyebrow, and for similar purposes, a tube of relatively small diameter shaped to a conical form at one end, an outwardly projecting ridge extending from the base to the point of such cone in a convexly curved outline and being slotted crosswise at uniformly separated points to form a comb the teeth of which have slotted sides to permit any material contained in said conical tube-end to exude under pressure.

17. As a new article of manufacture a device for applying a film of plastic material to the hair of an eyelash or eyebrow, and for similar purposes, a tube of relatively small diameter shaped to a conical form at one end, an outwardly projecting ridge extending from the base to the point of such cone and being slotted crosswise at uniformly separated points to form a comb the teeth of which have slotted sides to permit any material contained in said conical tube-end to exude under pressure.

LEWIS DALY.
MARGARET JOHANNSEN.