Oct. 20, 1953 B. ULVAD 2,655,925

COMB

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Fig. 1.

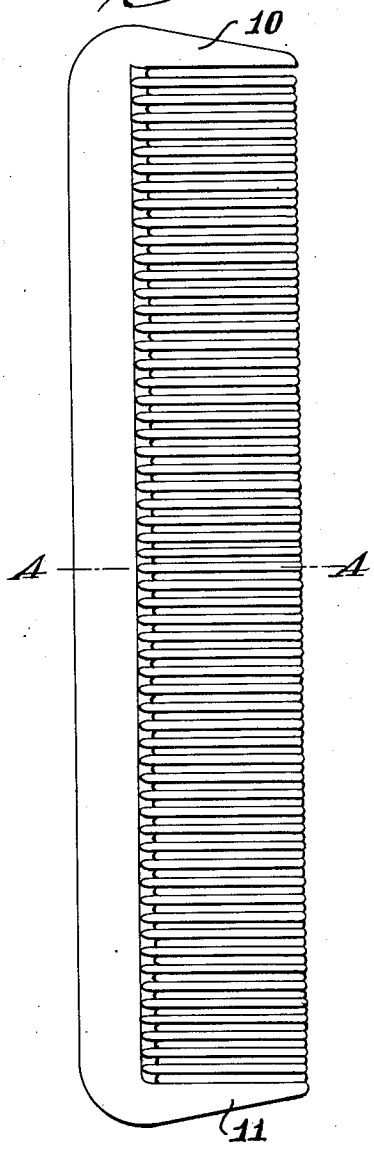


Fig. 2.

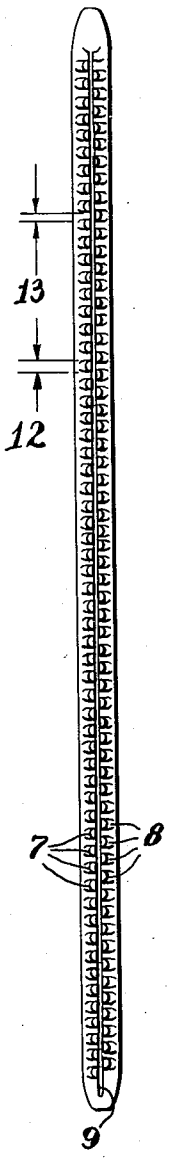


Fig. 3.

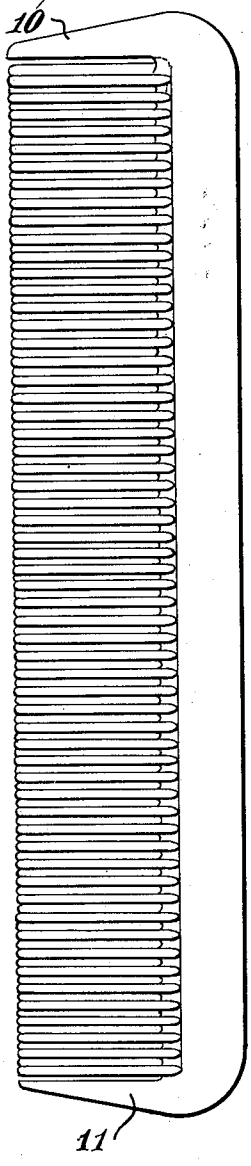
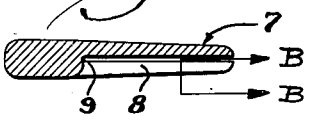


Fig. 4.



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Fig. 5.

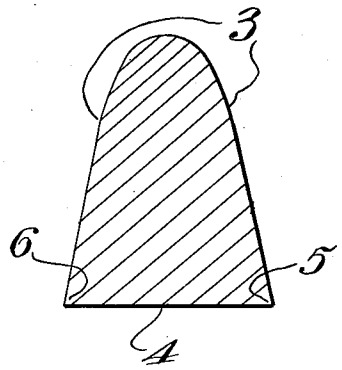
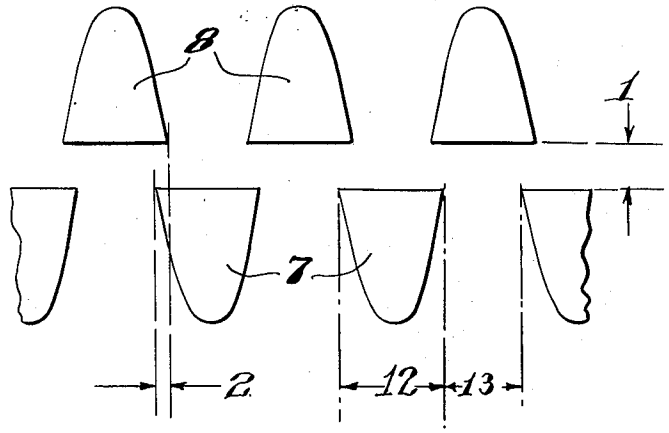


Fig. 6.



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Patented Oct. 20, 1953 2,655,925

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2,655,925

COMB

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Application May 8, 1952, Serial No. 286,734

4 Claims. (Cl. 132—18)

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This invention relates to combs and more particularly, combs for arranging and curling hair.

Combs have been developed in the past which embody a double row of teeth, each row being relatively adjustable in order to form a staggered arrangement of teeth. Such a staggered arrangement has been used to form, by adjustment of the movable parts, a fine-toothed comb or a coarse-toothed comb, as the user desired, from a single article of manufacture. In all of the staggered-tooth combs known to have been produced in the past, there are movable parts which may, after a period of use, become loose and non-adjustable to such an extent that the comb may be no longer useful.

It is an object of the present invention to manufacture a comb having no movable parts, while, at the same time, having a double row of staggered teeth. It is especially an object of this invention to have the teeth of the comb manufactured with a special configuration and so arranged in a double row that the ordinary procedure of combing the hair produces a waving action on the hair. It is another object of this invention to manufacture a double-toothed comb which permits ease of cleaning dirt particles from between the teeth.

The above objects are attained by forming a comb having two rows of teeth arranged in a staggered fashion, such that a single strand of hair passing through the comb in the normal fashion will be bent, more or less sharply, in first one direction and then in another direction. The teeth preferably have a generally smooth surface on the outside of the comb, that is, the side which an observer would see by looking at the comb broadside. The inside of each tooth has a generally flat surface, thus the comb appears to have a very narrow groove running lengthwise between the two rows of teeth. The teeth in each row are in a staggered and overlapping relationship with the teeth of the other row. The overlapping arrangement is made possible by having the width of each tooth greater than the width of the space between adjacent teeth.

An important feature of this invention is the configuration of the cross section of a tooth. In the preferred embodiment of this invention, each tooth has a cross section which resembles a segment of an ellipse. The important feature of the cross section is that the segmental figure has two relatively sharp angles which are not greater than 90° each. It is preferable that such angles be acute angles having an angular size

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from about 45° to about 85°; and still more specifically, an angle of about 80° has been found to be highly desirable. Various other combinations of lines can be assembled to form figures which would be suitable for the cross section of the teeth of the comb in this invention, the main feature being the necessity of forming two sharp angles, each of which is not greater than 90°.

A more complete understanding of the feature of the comb of this invention may be had by referring to the drawings attached hereto and made a part of this description. Figure 1 is a view of one side of a comb embodying the features of this invention. Figure 2 is a view of the bottom of the comb. Figure 3 is a view of the side of the comb opposite to that shown in Figure 1. Figure 4 is a cross-section view taken at A—A on Figure 1. Figure 5 is a cross-section view taken at B—B on Figure 4. Figure 6 is an enlarged view showing the relationship of the teeth as shown in Figure 2.

By reference to Figures 1, 2, and 3, the general configuration of the comb can be seen. The comb has two rows of teeth, 7 and 8, Figure 1 showing row 7 and Figure 3 showing row 8 as viewed by the ordinary observer looking at the comb. Figure 2 shows the staggered relationship of the two rows of teeth and also shows that each tooth has a relatively flat side facing inwardly, and causing the comb to have the general appearance of having a narrow groove 9 running lengthwise between the two rows of teeth 7 and 8, and extending through the guard teeth, 10 and 11 on each end of the comb. Reference to Figure 4 will show that the inside surfaces of the teeth lie in two parallel planes.

Figures 5 and 6 illustrate the more important features of this invention. Figure 6 shows an enlarged view of the arrangement of the teeth. The flat side of each tooth faces inwardly toward the center of the comb, the teeth being arranged in two rows separated from each other by a distance t, which is a measure of the width of groove 9. In the preferred embodiment of this invention, distance t equals 0.04 inch, however, it has been found that this distance may be any length less than about 0.05 inch depending on the fineness of the hair to be combed, the relative ease or difficulty with which specific varieties of hair are given the curling effect imparted by the comb, the difficulties of manufacturing a comb with smaller and smaller spacing between the teeth, and the difficulty of cleaning the comb having a spacing between rows of teeth which is less than 0.04 inch.

The amount of overlap of opposing teeth is shown by distance 2. The amount of overlap is determined by a balance between the desire to have a comb which can be pulled through the hair with ease, and the desire to impart a curling effect to the hair by sharply bending the hair under tension; the former desire being accomplished by making distance 2 smaller and the latter desire is accomplished by making distance 2 larger. Distance 2 must always be less than one-half the width of a tooth as measured along the long axis of the comb. The magnitude of distance 2 may be from about 0.01 to about 0.05 inch; the preferred magnitude being about 0.0115 inch. A particularly good value for distance 2 is 0.0115 inch, which means that, measured in the direction of the long axis of the comb, the width of any tooth, 12, exceeds the distance between adjacent teeth, 13, by 0.023 inch.

Fig. 5 represents the cross section of a single tooth of the comb taken at B—B on Figure 4. The essential feature of this cross section is that the inside surface 4 meets the outside surface 3 in angles 5 and 6 which are no greater than 90° in magnitude. In the preferred embodiment of this invention outside surface 3 is a smooth curved surface and inside surface 4 is a flat surface; the two surfaces 3 and 4 meeting and forming two sharp corners 5 and 6 whose angular measurements are each about 80°. Surfaces 3 and 4 may be made with various other configurations, so long as corners 5 and 6 are sharp and have an angular magnitude of not greater than 90°; and preferably not less than 45°.

A particularly good comb for imparting a curling action to hair has been found to be one with corners 5 and 6, as shown in Figure 5, each having the same angular magnitude of about 80°; and, combined with such corners, distances 1 and 2, as shown in Figure 6, should have magnitudes of about 0.04 inch and about 0.0115 inch respectively.

The comb of this invention is made, as previously described, with a space between the two rows of teeth which has the appearance of a narrow groove and which, in the preferred embodiment of this invention, is approximately .04 inch wide. This groove permits easy cleaning of the comb, since the groove extends through the guard teeth on either end of the comb. Besides forming a cleaning space, the flat side of the teeth which form the boundaries of the groove, perform a curling action on strands of hair as they pass through the comb by sharply bending the hair, first in one direction and then in a direction at approximately 90° to the first direction. It is important, in effecting the curling action on the hair, that the inside corners of each tooth, around which the hair strands are bent, be sharp. Such sharp corners must be precisely formed on each tooth from the root of the tooth to its end.

The outside of the tooth, which in the preferred embodiment of this invention, is a curved surface may take on any smooth shape which will guide strands of hair towards the center of the comb.

The comb of this invention has been described as a one-piece comb having no relatively adjustable parts. It is not meant that this type of comb can only be made as a single piece, but, rather, it is intended to emphasize that it is advantageous to manufacture this comb as a unitary, non-adjustable article, because there will be no moving parts which will jam or otherwise become useless by failure of the device connecting the two or more movable parts.

The amount of overlap and the spacing between rows of teeth may be varied in order to bend strands of hair more sharply, and thereby to impart a curling action on hair which does not easily respond to treatment by the comb described in the preferred embodiment of this invention. It has been found that an overlap of opposing teeth of approximately .01 to .02 inch, preferably 0.0115 inch, combined with a spacing between rows of teeth of approximately .04 inch are sufficient to impart a waving effect on ordinary hair when subjected to a combing action by the comb of this invention. By increasing the overlap or by decreasing the spacing between rows of teeth or by a combination of these two variables, a sharper bending action may be given to strands of hair passing through the comb and thereby produce a greater curling action on the hair.

I claim:

1. A one-piece comb for curling hair which comprises two rows of teeth; the teeth in one row being in a staggered and overlapping relation to the teeth in the other row; each tooth having an outside surface and an inside surface which meet in two sharp corners, said corners having an angular magnitude of not greater than 90°; said corners of each tooth lying in one of two substantially parallel planes along the comb, said parallel planes being less than 0.05 inch apart.

2. The comb described in claim 1 in which the outside surface of each tooth is a smooth curved surface and the inside surface of each tooth is a flat surface.

3. A one-piece comb for curling hair which comprises two rows of teeth; the teeth in one row being in a staggered and overlapping relation to the teeth in the other row; each tooth having a smoothly curved outside surface and a flat inside surface meeting in two sharp corners which have an angular magnitude of from about 45° to about 85°; said flat inside surface lying in one of two parallel planes along the lengthwise axis of the comb; said planes being separated from each other by about 0.04 inch.

4. The comb described in claim 3 in which said angular magnitude is 80°, and in which the width of a tooth exceeds the space between adjacent teeth by approximately 0.023 inch measured on a line along the inside surfaces of the teeth of one row at the root of the teeth.

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