Feb. 16, 1954 R. A. SMITH 2,669,239

FLEXIBLE HAIR RETAINER

Filed May 2, 1951

Fig. 1.

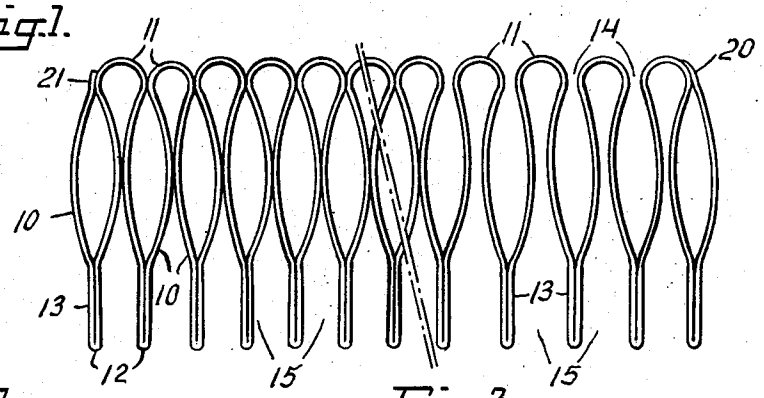


Fig. 2.

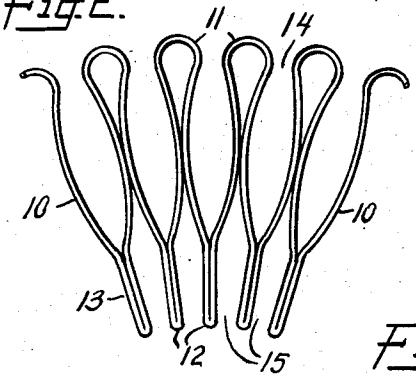


Fig. 3.

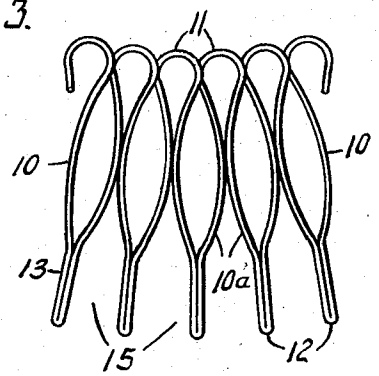


Fig. 4.

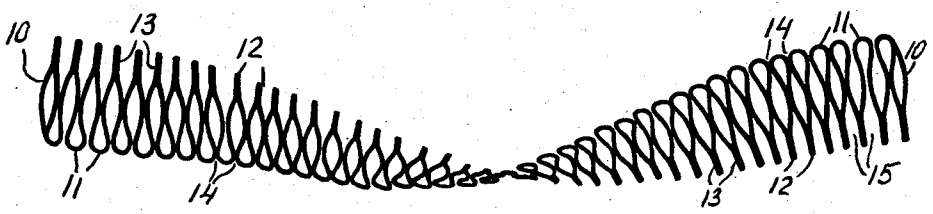
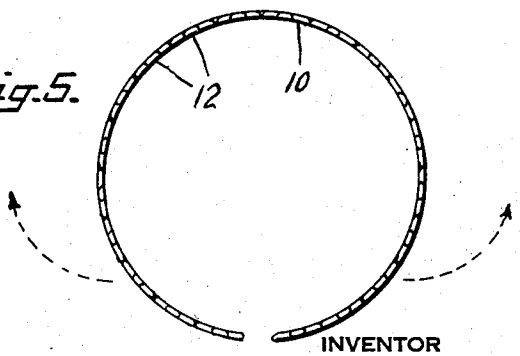




Fig. 6.

Fig. 5.



INVENTOR

ROY ANDREW SMITH

BY

Adams, Forward & McLean

ATTORNEYS

Patented Feb. 16, 1954 2,669,239

UNITED STATES PATENT OFFICE

2,669,239

FLEXIBLE HAIR RETAINER

Roy A. Smith, New York, N. Y., assignor, by mesne assignments, to Feathercombs, Inc., a corporation of New York

Application May 2, 1951, Serial No. 224,157

2 Claims. (Cl. 132—48)

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My invention relates to a novel expandible hair retainer for holding the hair in any desired style which freely expands and contracts in entering the hair and which pliably conforms to the curve of the head or wave but remains virtually invisible while comfortably and firmly holding the hair in any desired position.

Conventional hair retaining means are relatively rigid articles which are pre-shaped or molded to a particular pattern and thus are inherently inflexible in functional form. A great number of hair pins or bobby pins is required to retain a hair wave in place so that it is troublesome and time consuming to set the wave. Moreover, they are relatively easily dislodged from the hair. Conventional combs are plainly visible in the hair and are limited in length because of lack of pliability even if pre-shaped to conform somewhat to the curve of the head.

In my United States Patent No. 2,490,285, I have described a novel hair retainer of such flexibility that it can be bent into any shape and into any plane and can be inserted anywhere and at any angle in a curl and having so little body that when inserted it assumes the shape of the wave or curls desired. The hair retainer of my patent introduced a new idea into the hair retaining art with its capacity for pliably conforming to the shape of the head and the wave and its susceptibility to being bent and twisted in the hair. However, it requires some manual dexterity in application to grip the hair or the curls securely so that it remains anchored in the hair. It requires careful working into the hair in order to close together the ends of the teeth at points where holding is particularly desired and requires somewhat of a twist of the end to anchor the retainer securely in position. Moreover, it primarily depends upon the fineness and flexibility of the material of construction for its characteristic pliability which limits its strength in service and its useful life.

My present invention provides a flexible hair retainer which can be shaped by the wearer to satisfy any hair retaining function, which has improved gripping character and which is easier to apply to the hair. The new retainer is characterized by a structural configuration which provides elasticity and pliability substantially independently of the flexibility or elasticity of the material of construction. The retainer however is constructed of a light, tough, resilient material in order to provide lightness in weight for comfort and increased spring action, and ordinarily it is formed from a continuous strand

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of wire-like material such as spring steel wire or plastic. The strand of light, tough, resilient material is formed into a plurality of toothlike elements which are aligned in a manner providing internal gripping surfaces and which are alternately interconnected at the top and the bottom. The toothlike elements desirably are bow-shaped, with the facing bowed sections connected by a spring arch at the top and the opposed bowed sections joined together at the bottom. In this way, facing bowed sections provide individual pairs of gripping surfaces which are virtually independent of any shaped form of the comb. Advantageously, the lower portions of the opposed bowed sections are pinched together to provide a closed elongated tip. Hence the device comprises a flexible comb formed with a series of alternating structural hinge points representing individual points of spring tension at the top and bottom and which presents an alternating series of openings and connections at top and bottom. The retainer has longitudinal spring action. It is freely expandible and contractable along its longitudinal axis while also being readily responsive to torsional and bending forces from all other directions.

The retainer then can be constructed of wire or other material of sufficient strength that it can accommodate all weights of hair and can be used to attach masses of hair, such as chignons, hats or hair ornaments in place or in intimate attachment to the hairdress while retaining the essential capacity of pliably conforming to the shape of the head. Because of its lightness and lack of bulk, the retainer lies flat against the scalp and holds these articles comfortably in place without noticeable bulge which may mar the appearance of the headdress or cause discomfort to the wearer.

The alternating spring connections and openings at the top and bottom of the comb provide easy spring expansion when the comb is applied to the hair so that the hair enters the comb easily and so that the hair is firmly held over the entire comb length as the comb contracts. The alternating spring connections and openings at the top and bottom of the comb also permit the comb to be freely shaped into any desired form while retaining the gripping action of each individual tooth or toothlike element. Moreover, the alternating series of openings and spring connections at the top provides a broken discontinuous line of hair retaining points which are difficult to see and tend to lose themselves in the hair so that the properly inserted retainer

is virtually invisible. Advantageously, the color of the retainer may be selected to enhance invisibility by matching the hair color.

My invention will be further described by reference to the accompanying drawings of which Figure 1 is a side elevation of an example of the novel hair retainer of undefined length. Figures 2 and 3 illustrate side elevations of portions of the retainer showing how the retainer bends readily upward or downward in terms of longitudinal axis. Figure 4 is a reproduction of a photographic illustration of an example of the new hair retainer which has been bent first through 90° and then through 180°. Figure 5 is a plan view of one commercial form of the retainer seen from below. Figure 6 illustrates by means of dotted lines several typical positionings of the retainers in the hair.

In Figure 1, the retainer may be seen to comprise a plurality of bow-shaped toothlike elements 10 which are alternately interconnected at the top and bottom. The facing bowed sections are connected by spring arches 11 at the top, while the opposed bowed sections are joined together at the bottom, as at 12. The lower portions of the bowed sections are pinched or closed together at the bottom to form a plurality of elongated tips 13. Advantageously, the closed portions 13 are brazed or otherwise filled in to avoid catching and pulling loose strands of hair when the teeth are withdrawn from the hair.

Because of the series of alternating openings 14 and spring arches 11 at the top and the corresponding series of openings 15 and points of spring tensioned connection 12 at the bottom, the new retainers are pliable and freely flexible and extensible in all directions. Thus the retainer of Figure 1 is freely and elastically expansible along its length. Also as shown in Figure 1, it is desirable to smooth down the free ends and braze them to the preceding bowed section as indicated at 20 rather than leaving a loose sharp end as suggested at 21. If desired, the terminal ends may be turned over slightly and brazed to the preceding bowed section to present a smooth easily soldered joint.

As indicated in Figures 2 and 3, the new retainers are readily curved upwardly or downwardly in entering and anchoring portions of the hair and in a manner readily conforming with symmetric or abrupt changes in the curvature of the hair wave. It should be noted that the individual gripping surfaces of the facing bowed sections 10a are relatively undisturbed by the curvature of the comb. The pliability and elasticity of the retainers are illustrated in Figure 4 which shows that the retainer can be placed in position in the hair with the toothlike elements at various angles to the scalp, with part of the retainer flat against the scalp and with other portions twisted into various angles and planes to accommodate particular curvatures of the hair wave or to perform particular hair retaining functions.

Although the retainers of my invention may be produced in variable lengths for variable functions, ranging from 3 tooth pieces up to lengths long enough to encircle extensive portions of the head, one desirable commercial form for marketing the retainer of particular utility is illustrated in Figure 5. The retainer of Figure 5 is made in pre-shaped circular form of smaller size than the natural curvature of the head so that the retainer in flattened position tends to cling to the head rather than exhibit a tendency to spring to a straight open position. It should be emphasized however that these effects are relatively small and do not interfere with the free flexibility and free longitudinal expandibility and contractability which characterize the retainer.

In Figure 6, several typical methods of positioning the retainers to perform various functions in maintaining the hairdress are illustrated. The position of each of the retainers is indicated by the dotted lines since the retainers after insertion into the hair and shaping to conform with the desired hair style would be virtually invisible.

I claim:

1. A flexible hair retainer which is readily conformable to the curve of the head and to the shape of the hairdress comprising a continuous strand of light, tough resilient material formed into a plurality of bowshaped toothlike elements having closely aligned internal surfaces and which are alternately interconnected at top and bottom by spring tensioned connections, in which the facing bowed sections are connected by a spring arch at the top and the opposed bowed portions are joined at the bottom, and which is characterized by springlike expandability and contractability along its top and bottom longitudinal axis and by capacity to bend and twist freely in any direction and in any plane.

2. A flexible hair retainer which is readily conformable to the curve of the head and to the shape of the hairdress comprising a continuous strand of light, tough resilient material formed into a plurality of bowshaped toothlike elements which are alternately interconnected at top and bottom, in which the facing bowed sections are connected by a spring arch at the top and the opposed sections are joined together at the bottom in the form of a closed elongated tip, and which is characterized by springlike expandability and contractability along its top and bottom longitudinal axis and by capacity to bend and twist freely in any direction and in any plane.

ROY A. SMITH.

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