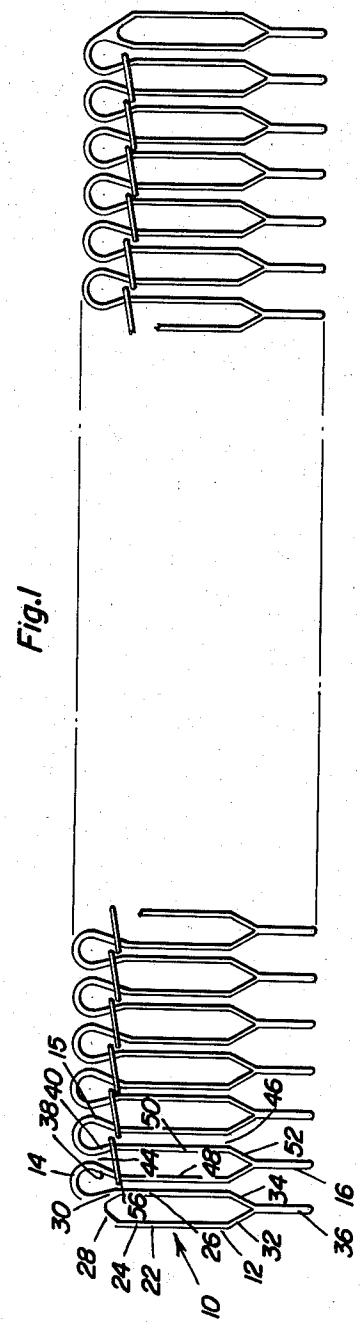
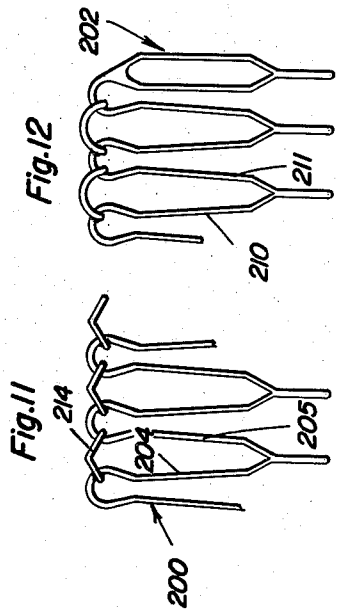
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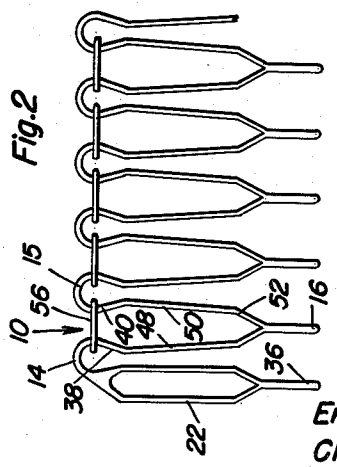
HAIR RETAINER

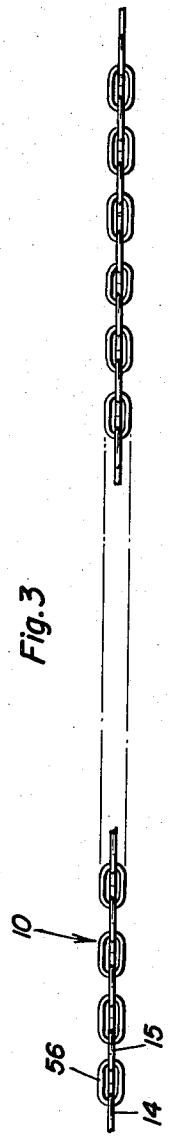
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HAIR RETAINER

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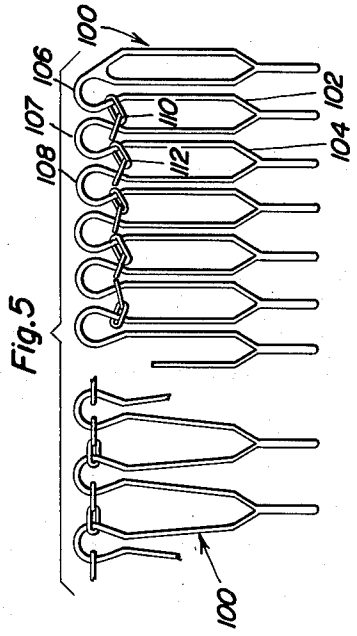


Fig.5

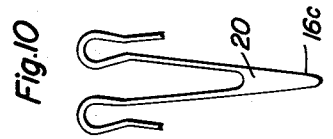


Fig.10

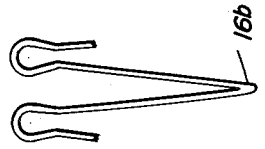


Fig.9

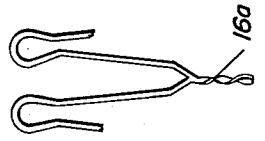


Fig.8

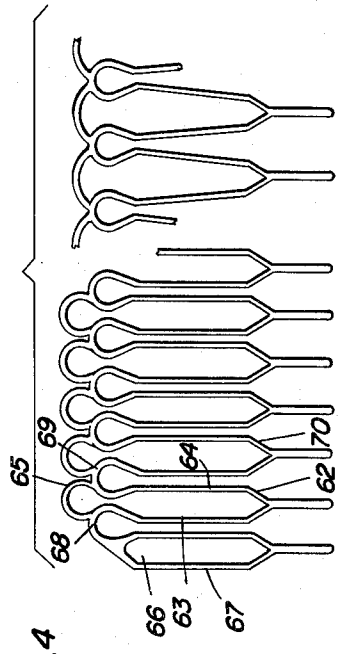


Fig.4

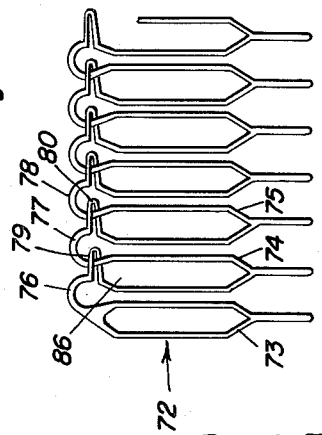


Fig.6

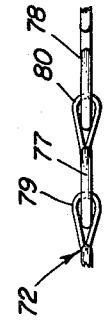


Fig.7

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2,989,058

HAIR RETAINER

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Filed Aug. 1, 1958, Ser. No. 752,643
6 Claims. (Cl. 132—48)

This invention relates to combs and more particularly to expansible combs that are used by ladies to retain their hair in an orderly fashion.

An object of the invention is to provide improvements in hair retainers or combs made of a wire or like material, the improvements being of such a nature as to effectively generate a new comb or hair retainer. Hair retainers of the comb type are quite popular but they have certain difficulties. Among these are the distortion of the comb so that the wire is pulled with such force that the elastic limit of the wire is exceeded. Secondly, the combs or hair retainers break when the spring arches are pulled too far apart. Hair becomes tangled with the comb when this condition exists. Accordingly, in practice of this invention these difficulties are overcome by providing means at the spring arches of the retainer, for limiting the extent of movement of the arches with respect to each other. Not only does this prevent the group of teeth-like elements from obtaining a permanent set when pulled apart, but this also prevents hair from slipping or otherwise moving into the spaces between the tooth-like elements and becoming tangled therebetween.

A further object of the invention is to provide an expansible, reversible and durable hair retainer which is adaptable to all hair, whether thick or thin, copious or sparce. Moreover, the comb can be used as a hair retaining comb or as a comb to arrange the hair neatly and serve the function of ordinary hair combs with a stiff backing and permanently fixed teeth. When put to that use, the comb of this invention is superior because it is capable of deforming to the general shape of the head making contact with the scalp at many points rather than only at one small area as a stiff comb.

The invention is embodied in numerous structural adaptations only some of which are illustrated in the accompanying drawings. In each instance, though, there are some types or some type of mechanical means operatively connected with the tooth-like elements to prevent spreading of the elements with respect to each other beyond a predetermined limit of travel.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is an elevational view of a comb constructed in accordance with the invention, this view showing the comb in the retracted position.

FIGURE 2 is an elevational view similar to FIGURE 1 but showing the comb in the expanded position.

FIGURE 3 is a top view of the comb in FIGURE 1.

FIGURE 4 is a fragmentary group elevational view of a modification of the comb in FIGURE 1, showing the comb in the retracted and an expanded position.

FIGURE 5 is a fragmentary group elevational view of another modification.

FIGURE 6 is a fragmentary elevational view of another modification.

FIGURE 7 is a top view of the comb in FIGURE 6.

FIGURE 8 is a fragmentary elevational view of a modification tooth-like element which can be used in any of the previously described figures.

FIGURE 9 is a further modification of the tooth-like element.

FIGURE 10 is a still further modification of the tooth-like element.

FIGURE 11 is a fragmentary elevational view of a further modification of the invention.

FIGURE 12 is a fragmentary elevational view of another form of the invention.

In the accompanying drawings there is shown a comb **10** (FIGURES 1–3) which can be used in many ways. The principal uses, though, are for ladies' headdress and for either ladies or men in arranging the hair prior to setting or arranging it in the ordinary way. In the last mentioned use, the comb would take the place of an ordinary stiff backed comb.

Comb **10** is made of a plurality of tooth-like elements **12** which are alternately interconnected at the top. The adjacent tooth element sides of adjacent elements are connected by arches **14** at the top while the lower ends of the two sides of each element are joined together by being pinched together or otherwise fastened to form elongate tips **16**. The closed portions of these sides at tips **16** can be soldered, brazed or otherwise connected. In this regard FIGURES 8–10 show certain modifications. In FIGURE 8 tip **16***a* is made by twisting the lower ends of the sides of one tooth-like element. FIGURE 9 has tip **16***b* made merely in a V-shape by taking the two sides and shaping them in this way. Tooth tip **16***c* is the same as **16***b* but the center void between the sides of the wire-like material from which the comb is made is filled approximately one-third the way up with a filler **20** that can be metal or plastic or any other substance.

The comb can be made of a continuous wire of any sutable metal or non-metal. The first tooth-like element **22** of comb **10** has a pair of sides **24** and **26** with inwardly angled upper joined parts **28** and **30**. It has inwardly extending lower parts **32** and **34** joined together immediately above the tooth-like tip **36**. The spring arch **14** is joined to the parts **28** and **30** and is integral with the angulated side **38** of the next adjacent tooth-like element which is constructed the same as tooth-like element **22**, except there is an opening **44** between adjacent arches **14** and **15** of adjacent tooth-like elements. All intermediate tooth-like elements of the comb are formed with an opening the same as opening **44** between adjacent arches. At the lower part of the comb, opening **46**, also between adjacent tooth-like elements, provides access to the space between the adjacent sides of each tooth-like element.

The hair being received between adjacent tooth-like elements enables the combs to be engaged in the hair, however, this invention prevents hair from entering too deeply into opening **44**. It can occupy the space between the sides, for instance sides **48** and **50** of tooth-like element **52**. It can only move a short distance between the adjacent arches.

An ordinary comb or retainer of this general type and this comb, because of its construction and the inherent elasticity and resilience of the material of construction, can be readily curved upward or downward in entering anchoring positions in the hair in a manner readily conforming to hair styles.

As shown in FIGURE 1 there is a link **56** held captive

on adjacent parts 38 and 40 of sides 50 and 48 of tooth-like element 52. The link can be slid from tip 16 end of element, over sides 48 and 50 and snapped into loops 14 and 15. The link fits loosely enough so that it can move on the parts 38 and 40, these being respectively one side of the adjacent arches 14 and 15. The link 56 is made of such size that it will not accidentally slip down over sides 48 and 50 when the elements move toward each other, because before this will happen the arches 14 and 15 will contact. In other words, the opening in link 56 is slightly smaller in length than the distance between the outside surfaces of sides 50 and 48. But, since the arches 14 and 15 have much closer upper portions, the link can slide upwardly when the tooth-like elements 52 and 22 are spread as shown in FIGURE 2. The only substantial restraint that link 56 exercises over the tooth-like elements of the comb is longitudinally stretched, twisted or otherwise distorted. There is one link for each pair of adjacent tooth-like elements, each functioning in the same way and for the same purposes. The plurality of links constitute flexible means for constraining the movement of the tooth-like elements and also for closing the passage for the indefinite number of elements that constitute the comb.

The comb 100 in FIGURE 5 is almost identical to comb 10 of FIGURES 1–3. The only difference is found in the construction of the flexible means for constraining the movement of the tooth-like elements, two of which are identified at 102 and 104. Arches 106, 107 and 108 connect the adjacent sides of adjacent elements, and have pairs 110 and 112 of links engaged therewith in place of the single links 56 of FIGURES 1–3. Other than the substitution of pairs of engaged links for individual links, the function, operation and construction of the combs 10 and 100 are the same.

In FIGURE 4 the tooth-like elements 62 are identical in every way to the tooth-like elements described more fully in connection with FIGURE 1. The varied parts of the comb in FIGURE 4 are the means by which to constrain the movement of the sides 63 and 64 of element 52 and all other sides of all other elements of the comb. The illustrated means consists of a single elastic and flexible member 65 attached at one end to arch 68 and at the other end to the adjacent arch 69. The elongate means are connected to the arches through the length of the comb, and these means function for the same purpose as the links shown in FIGURES 1 and 2. When the comb is stretched, the elongate flexible means of FIGURE 4 flex permitting the comb to expand (see right section of FIGURE 4) but only to a limited extent. At the same time the passage between adjacent arches is closed against the entry of hair.

Comb 72 (FIGURES 6 and 7) has a plurality of adjacent tooth-like elements, such as elements 73, 74 and 75. Each is joined with the next adjacent element by arches 76, 77 and 78. However, the means constraining the movement of the elements with respect to each other and operatively connected with the arches to close the passage 86 between the two sides of each element are fixed to the arches. Loops 79 and 80 on arches 76 and 77 are typical. A fragment of the sides of the tooth-like elements at the upper ends thereof, have laterally extending loops integral with the arches. Each loop encircles a part of the adjacent arch, for instance loop 79 encircling the side of arch 77 opposite from that side which has loop 80 in it. Then, loop 80 similarly encircles a part of arch 78.

In use, the embodiment of FIGURE 6 functions in a manner identical to the functioning of the embodiment of FIGURES 1 or 5. Each embodiment of the invention regulates expansion, by constraining the movement of the adjacent tooth-like elements and thereby considerably reduces, if not completely prevents, breakage and distortion beyond the elastic limit of the comb. This applies whether the comb is made of metal or plastic or any other suitable material.

The combs 200 and 202 in FIGURES 11 and 12 are very satisfactorily used in the same way as the previously described combs. These combs combine features of those in FIGURES 4 and 6 by having the means for constraining the movement of the sides 204 and 205 (FIGURE 11) and the sides 210 and 211 (FIGURE 12) slidable at one end and fixed at the opposite side.

Comb 200 has several loops which represent the constraining means; typical loop 214 is an elongate loop which is fixed at one end, as by soldering, to the arch at the top of side 204. The opposite end of loop 214 has the arch at the top of side 205 passed through it. The difference between combs 200 and 210 is in the shape of the limbs when viewed from the side. The loops of FIG. 11 are inverted V-shaped, and the loops of FIG. 12 are curved.

Since the comb expansion is constrained, the invention makes it practical to use the comb for straightening the hair that is, as a substitute for a stiff comb. This can be with or without a handle or handle substitute.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A flexible hair retainer which is readily conformable to the curvature of the head and to the shape of the headdress, said hair retainer comprising a plurality of adjacent tooth-like elements, each element having a pair of sides and a tip at the lower ends of the sides, the adjacent sides of two elements defining a hair entering passage which is open at the tip ends of said elements, means constituting substantially an arch at the opposite ends of said adjacent sides and joining said adjacent sides, said arch having parts which are angled outwardly and upwardly, and movable means connecting adjacent arches constraining the movement of said sides of a single tooth-like element when said sides of said single tooth-like element are moved away from each other.

2. The retainer of claim 1 wherein said sides of a single tooth-like element are spreadable to thereby open the space between adjacent arches, and said constraining means extending across the space between adjacent arches to prevent entry of the hair into one end of the passage between said sides of said single tooth-like element.

3. The retainer of claim 2 wherein said constraining means are closed links that are slidable on said adjacent sides of adjacent arches.

4. The retainer of claim 2 wherein said constraining means consist of loops fixed with one side of one of said adjacent arches and encircling the adjacent side of the adjacent arch with said adjacent side of the adjacent arch confined in said loop.

5. The retainer of claim 2 wherein said constraining means are a single elongate member attached to one of said element arches and secured to the side of the adjacent arch.

6. In a flexible hair retainer, the combination of a plurality of tooth-like elements disposed in a row, each of said elements including a pair of spaced side portions connected together at one end thereof, arched portions connecting together the side portions of adjacent elements in the row at the relatively opposite end of the side portions, said elements and said arched portions being formed from resiliently flexible material whereby the length of the row of elements may be extended by application of tension thereto, and means for limiting the extension of the row of elements when under tension, said means comprising loops disposed adjacent said arched portions and spanning the side portions of the respective elements with a limited movable facility whereby the side portions of the elements

may be spread apart under tension only to a predetermined degree.

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