

[54] **HAIR PIECE SECURING DEVICE**

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[51] Int. Cl. A61f 1/00, A41g 5/00

[58] Field of Search 3/1; 132/53, 54, 55

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[57] **ABSTRACT**

The hair piece attachment device of the present invention is comprised of an anchor piece which is surgically imbedded in the scalp and an attachment piece which is removably attached to the anchor piece by latching means. The hair piece is connected to the attachment piece. A plurality of the anchor pieces are surgically imbedded in the scalp and a plurality of attachment pieces are attached to the hair piece such that when the attachment pieces are removably attached to the anchor pieces the hair piece will be secured and cosmetically aligned on the individual's head.

11 Claims, 6 Drawing Figures

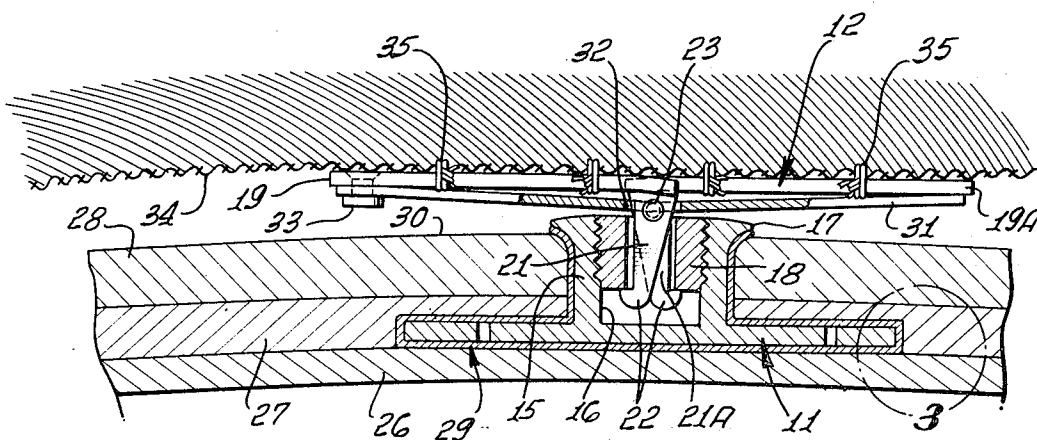


FIG. 2.

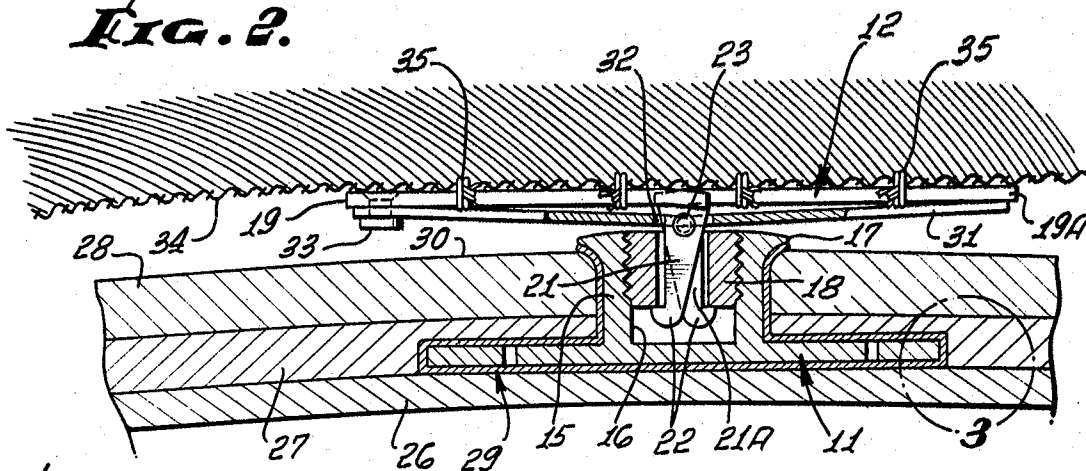


FIG. 1.

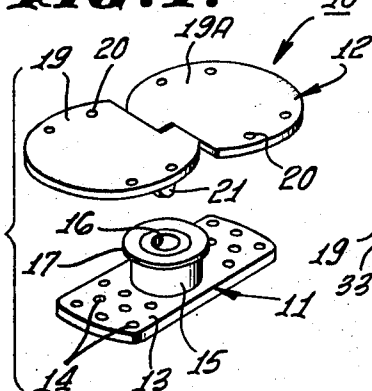


FIG. 4.

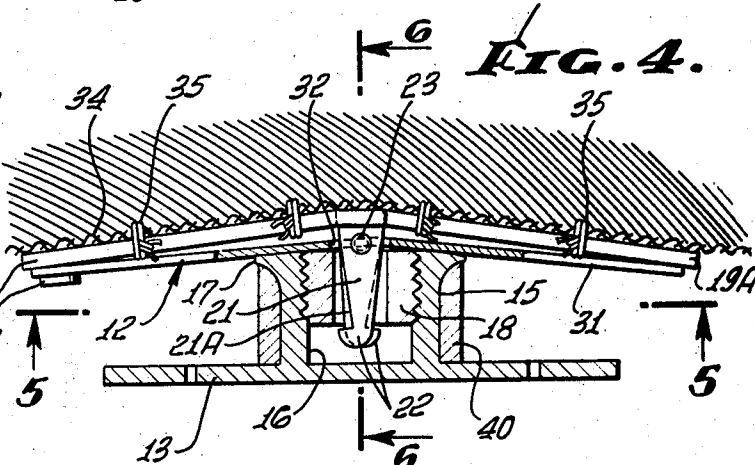


FIG. 3.

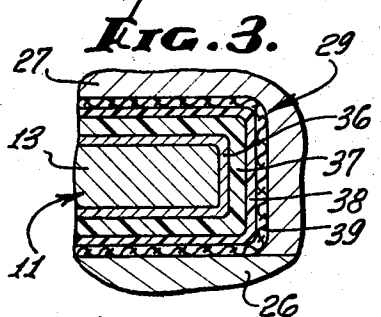


FIG. 6.

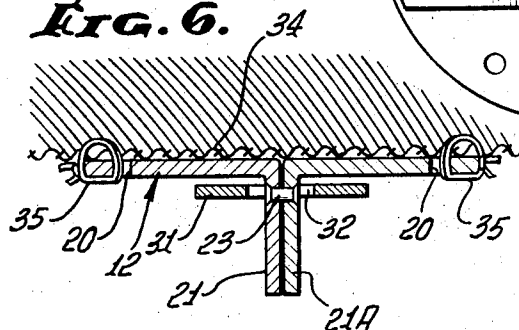
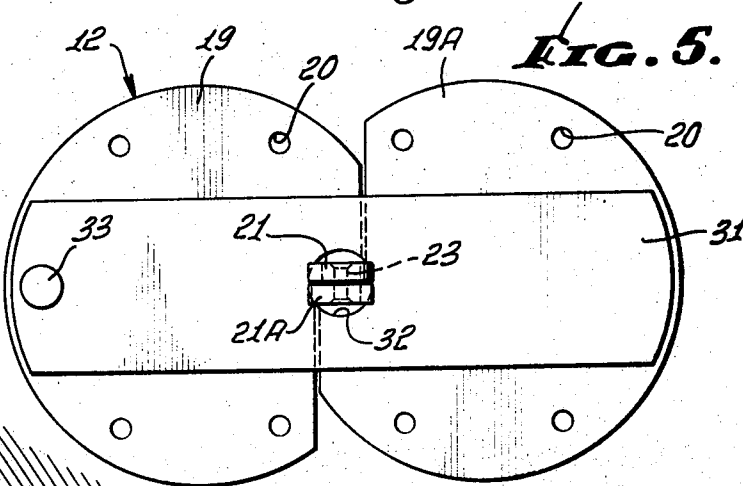


FIG. 5.



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HAIR PIECE SECURING DEVICE

BACKGROUND OF THE INVENTION

The present invention is directed to a means of connecting hair pieces and wigs to living animals. More particularly, the present invention is directed to a means of securing a hair piece to the head of an individual by removable latching means.

Hair pieces and wigs have been utilized by man since the dawn of recorded history. It is well documented that the Egyptians, Greeks and Romans used wigs and hair pieces. From the very beginning, most wigs and hair pieces have been attached to an individual's head by a friction fit. A friction fit is still the most common method of attaching a wig and hair piece today. A friction fit has several disadvantages. For example, a friction fit will not securely attach a wig or hair piece to the individual's head; thus, where an individual wearer is vigorously active such as during a vigorous dance, or horseback riding, the wig or hair piece normally loses alignment and less often, but more embarrassingly, the wig or hair piece is often thrown off the individual's head. Frequently, the wearer also loses the wig or hair piece while scuffling in a crowd or in merely bending over. A further disadvantage of the friction fit arises from the fact that it does not provide adequate ventilation for the scalp. On hot days or during vigorous activity, the wearer can become quite uncomfortable because of the perspiration forming between the scalp and the hair piece. More recently, in an attempt to overcome some of the disadvantages of a friction fit, wearers have been employing adhesive materials such as adhesive liquids and tapes to secure the wig or hair piece to the scalp. This method has not proved very satisfactory, however. For example, when the wig or hair piece are being applied to the scalp the cosmetic alignment must be done accurately prior to the wig or hair piece coming in contact with the adhesive material because once contact has been made, the wig or hair piece cannot be moved to complete the final alignment. Furthermore, the use of adhesive does not overcome the perspiration problem and, in fact, has intensified it because the perspiration becomes entrapped underneath the adhesive material. A more recent innovation which only has limited application has been the weaving of the wearer's natural hair into the wig or hair piece. This is an expensive operation and has not been too successful because it is time-consuming to weave the natural hair, requires periodic adjustment to compensate for the growth of natural hair, requires frequent maintenance and renders it difficult to remove the hair or wig piece.

Another recent innovation which has seen relatively widespread use involves suturing a polytetrafluoroethylene coated skinless steel wire through the scalp to provide a series of exposed loops of wire. The hair piece or wig is attached to the loops by threads. This method provides a way of securely attaching a hair piece to the scalp. However, this method has many drawbacks. The tissue surrounding the metal wire does not heal and the juncture of the wire into the scalp has been found to be the locus of irritation and infection. The loops painfully pull the scalp tissues when a force is exerted on the hair piece; this is especially true when a person moves his head on a pillow while in bed.

SUMMARY OF THE INVENTION

Present invention is directed to a device for attaching the hair piece to the scalp and comprises an anchor member which is surgically implanted in the scalp and an attachment member which is removably attached to the anchor member by removable latching means. The hair piece, in turn, is anchored or secured to the attachment means. A plurality of anchor members are imbedded in the scalp and a like number of attachment members are connected to the hair piece such that when the hair piece is positioned on the scalp and the attachment members are latched in the anchoring members the hair piece is securely attached to the scalp and cosmetically aligned.

It is an object of the present invention to provide a means of securely attaching a hair piece to the human head. More particularly, it is an object to provide a means of securing a hair piece to the human head which will allow the wearer to participate in vigorous activities, water sport and the like without fear of throwing off or destroying the cosmetic alignment of the hair piece on the head.

It is another object of the present invention to provide a means of securing a hair piece which the human head will allow the hair piece to be readily removed or substituted.

Another and further object of the present invention is to provide a means of securing the hair piece or wig to the human head which will not require the use of sticky adhesive materials.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the hair piece anchoring device of the present invention;

FIG. 2 is an enlarged cross-sectional view of the device of the present invention with its anchoring element imbedded in the scalp and the attachment element connected to a hair piece;

FIG. 3 is an enlarged cross-sectional view of the anchor element taken over the encircled area of FIG. 2;

FIG. 4 is another enlarged cross-sectional view of the device of the present invention;

FIG. 5 is a bottom view of the attachment element of the device of the present invention taken along line 5—5 of FIG. 4; and

FIG. 6 is a cross-sectional view of the anchoring element of the device of the present invention taken along line 6—6 of FIG. 4.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

Referring to FIG. 1, the hair piece anchoring device 10 comprises anchoring element 11 and attachment element 12. The anchoring element 11 comprises base portion 13 having a plurality of apertures 14, a cylindrical shank portion 15 having a cylindrical bore 16 and an outwardly extending upper edge 17, and a cylindrical sleeve 18 mounted within the cylindrical bore extending part way therein (see FIG. 2). The attachment element 12 consists of two identical plates 19 and 19A. Each plate has a plurality of apertures 20. Extending perpendicularly downward from each plate is a latching strut 21 having an outwardly extending end portion 22 which engages the bottom portion of the sleeve 18 (see FIG. 2). Each strut 21 has a relatively large aperture

near the juncture of plate through which a hinge pin 23 is rotatably secured to connect the two plates 19 and 19A in a hinged relationship.

Referring to FIG. 2, the anchor element 11 is surgically implanted in the scalp tissue above the aponeurosis 27 which lies under the topmost scalp tissue 28. The outer surface of the anchor element 11 is covered with a composite layer 29 which is more fully described below. The anchor element 11 is imbedded so that its outwardly extending edge 17 is even with or extended slightly above the outer surface 30 of the scalp. The attachment element 12 is locked in the anchor element 11. The attachment element also has a leaf spring 31 which is concavely curved. The spring 31 has a central aperture 32 (see FIG. 5) through which the struts 21 and 21A extend (see FIG. 6). One end of the spring is attached to the end portion of plate 19 by a rivet 33; the other end of the spring slidably engages the end portion of the other plate 19A. A hair piece 34 is secured to the attachment element by cords 35 which are around through the aperture 20 of the plate (see FIG. 6).

Referring to FIG. 3, the composite layer 29 comprises an inner layer of a medicinally accepted surgical cement 36, a second interior layer of medicinally accepted adhesive silicon 37, a third interior layer of medicinally accepted surgical cement 38 and an outer layer of a medicinally accepted polyester fiber mesh such as Dacron polyester cloth or mesh 39. When the scalp tissue commences to heal after the anchor element 11 has been surgically inserted in the scalp tissue, the tissue invades the composite layer 29 and forms an integral bond between the tissue and the layer which provides a secure attachment between the anchor element and the scalp.

In an alternative embodiment of the present invention (FIG. 4), the shank, and optionally the base, have an integral layer or deposit of pyrolytic graphite 40 rather than the silicone, polyester mesh layer. The pyrolytic graphite layer is strong, porous, insoluble in, and nonreactive to, body fluids and tissues. When the scalp tissue commences to heal following surgical insertion of the anchor element in the scalp, the tissue grows into the porous pyrolytic graphite layer and forms an integral bond therewith securely anchoring the anchor element in the scalp and forming an excellent seat between the scalp and anchor element for resisting bacterial invasion.

The pyrolytic graphite layer is deposited on the anchor element by wrapping the portion of the element to be pyrolytically graphited with a fabric material rich in carbon atoms, such as rayon or wool. The wrapped element is then heated to between 2,500° F. and 4,000° F. in an inert atmosphere, in the presence of methane gas. After the fabric wrapping has carbonized to pyrolytic graphite, the element is cooled to ambient temperature, and exposed to the air.

The anchor element, after sterilization, such as with ethylene oxide, is inserted in the scalp tissue by conventional surgical techniques. For example, a small incision, approximately 1 to ½ inch in length, is made in the scalp to the surface of the aponeurosis. The incision is separated by standard technique and the upper layers of the scalp are lifted up slightly above the aponeurosis layer. The anchoring element is inserted therein with

the base resting on the aponeurosis. The tissue is then allowed to come together around the remainder of the anchor element, insuring that the tissue and the outwardly extending edge 17 of the anchor element are approximately of the same height. The incision is then sutured and taped and covered with a protective coating or layer until the incision is healed.

A plurality of the anchor elements are surgically inserted in the scalp and allowed to heal. A like number of attachment elements are secured to the hair piece such that when the attachment elements are locked in said anchoring elements the hair piece is cosmetically aligned. The attachment elements are inserted into the anchor elements by positioning the fingers on the hair piece over

forcing them downward (see FIG. 4). This causes the struts 21 and 21A to become aligned and permits the struts to pass through the center bore of the sleeve 18. The fingers are then released permitting the ends of the plates 19 and 19A to spring upward, which causes the struts 21 and 21A to move outwardly causing the end portions 22 to engage the bottom portion of the sleeve 18 to latch the attachment element in the anchor element. The spring 31 biases the end portions of the plates upwardly to insure that the attachment element remains latched in the anchoring element. When the hair piece is to be removed, the fingers are placed on top of the hair piece over the ends of the plates 19 and 19A and pressed downward, to bring the struts 21 and 21A into alignment, and the hair piece is lifted upward pulling the attachment element free of the anchor element.

The operation of the securing device of the present invention is an important characteristic of the present invention. Both the steps of inserting and unlatching the attachment element in the anchor element requires a downwardly directed force that is exerted downwardly against the skull rather than laterally or upwardly against the scalp. The step of removing the attachment element from the anchor element, after the unlatching step, merely requires a slight upwardly directed force to slide the struts 21 and 21A out of the central bore of the sleeve; this step exerts very little force on the scalp. A force exerted on the scalp can create a high degree of pain and possible tissue damage which in turn can become infected or abscessed. Another advantage of the present securing device is that the attachment element can be inserted and released from the anchor element by operations above the scalp. A further advantage of the present device is that the assembled device can be made quite small with a very short overall height and small cross-sectional area.

The relationship of the hair piece, the attachment element, the anchor element in the scalp provide that there is a predetermined space between the top surface of the scalp 30 and the bottom portion of the hair piece 34. This space provides for ventilation of the scalp area underlying the hair piece, permitting air to circulate and dissipate perspiration.

Although this invention has been described in detail with a specific embodiment, it is not intended that the invention be limited to this specific embodiment. For example, other spring means can be employed other than leaf spring to bias the ends of the plates upward.

Other anchoring elements can be employed in this invention. For example, anchoring elements having square or triangular cross-sectional configurations or elements having no planar bases but rather circumferential ridges or radial protrusions for support in the scalp tissue. Similarly, the hair piece can be attached to the plates by means other than a cord or thread. For example, the hair piece can be secured to the plates by an adhesive or glue-like material.

The various elements of the present securing device can be prepared from metal or a rigid polymeric material. Preferably, the elements are prepared from medicinally acceptable surgical metals and plastics.

I claims

1. A device for detachably securing a wig to a human head which comprises:

an anchor element surgically insertable in a scalp with a portion of said element exposed through the scalp;

an attachment element detachably attachable to said anchor element, said attachment element being connected to the wig such that when said attachment element is attached to said anchor element the wig is cosmetically aligned on the head;

a means of detachably attaching said attachment element to said anchor element;

said anchor element including a shank having a base, a central core and a hollow sleeve secured in the core and extending therein forming a shoulder portion in the lower portion of said core;

said attachment element including two plates connected together on a common side in a hinged relationship;

said detachable attaching means including a dog projecting integrally from the common side of each plate into said hollow sleeve, each dog having an angularly extending end portion which is adapted to removably engage the shoulder portion of said anchor element; and

a means on said attachment element for biasing the end portions of said dogs in a locking relationship with said shoulder portion.

2. The device as defined in claim 1 wherein said shank includes a medicinally acceptable polyester fiber mesh exterior covering about its base and sides.

3. The device as defined in claim 1 wherein said shank includes a porous pyrolytic graphite layer about its sides.

4. A device for detachably securing a wig to a human head which comprises:

an anchor element surgically insertable in a scalp with a portion of said element exposed through the scalp;

an attachment element detachably attachable to said anchor element, said attachment element being connected to the wig such that when said attachment element is attached to said anchor element the wig is cosmetically aligned on the head;

a means of detachably attaching said attachment element to said anchor element;

said anchor element including a cylindrical shank having a substantially flat base, outwardly extending upper edges, a cylindrical central core communicating with the top of said shank and a cylindrical sleeve extending part way into said core from

the top of said shank, the bottom of said sleeve forming a shoulder in the lower portion of said core;

said attachment element including two substantially flat plates, each of said plates having inner and outer edges and a dog descending downwardly, substantially perpendicular to said plate, from the inner edge, each dog having an angularly extending end portion adapted to detachably engage said shoulder and to provide means for detachably attaching said attachment element to said anchor element, said plates being adjacently aligned along their inner sides in a substantially planar relationship;

an axle secured to the upper portions of said dogs for pivotally connecting said dogs, the longitudinal axis of said axle being parallel to said inner edges; and

a leaf spring having a central hole for receiving said dogs and upwardly extending ends biasing the outer ends of said plates upwardly and the end portions of said dogs outwardly to engage said shoulder, one end of said spring being secured to the outer end of one plate, and the other end of said spring slidably engaging the outer end of said other plate.

5. A device for detachably securing a wig to a human head which comprises:

an anchor element surgically insertable in a scalp with a portion of said element exposed through the scalp;

an attachment element detachably attachable to said anchor element, said attachment element being connected to the wig such that when said attachment element is attached to said anchor element the wig is cosmetically aligned on the head;

a means of detachably attaching said attachment element to said anchor element;

said anchor element including a shank having a central core of minor diameter in its upper portion and major diameter in its lower portion separated by a shoulder portion;

said attaching element having two plates, each of said plates having a first side and a descending arm adapted to be slidably engaged in said core, said plates being positioned in a side-by-side relationship along their first sides in substantially planar alignment, the lower end of each of said arms being adapted to removably engage said shoulder portions in a latching relationship; and

means for connecting said arms in their upper portions in a pivotal relationship with the pivotal axis parallel to the first sides.

6. The device as defined in claim 5 wherein each of said arms descends from the first side at substantially right angles to said plate, the lower end of each of said arms having an outwardly extending portion adapted to engage the shoulder portion of said shank in a latching relationship.

7. The device as defined in claim 6 wherein each of said plates has an outer side opposite the first side, and said attachment element includes means for biasing the outer sides of said plates upwardly and the lower ends of said arms outwardly to detachably latch said attachment element in said anchor element.

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8. The device as defined in claim 5 wherein said anchor element includes a medically acceptable polyester fiber mesh structure covering the base and sides of said shank.

9. The device as defined in claim 5 wherein said anchor element includes a porous pyrolytic graphite layer about the sides of said shank.

10. A device for detachably securing a wig to a human head, comprising:

an anchor element comprising a substantially flat base surgically insertable in a scalp and an up-standing central shank adapted to be exposed through the scalp;

said shank being tubular and having therein a downwardly facing shoulder;

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an attachment element having means for securing the wig thereto;

said attachment element having latching means insertable into said shank and engageable with said shoulder for securing said attachment element to said anchor element; and

releasing means responsive to a downward force on said attachment element for disengaging said latching means from said shoulder.

11. The device of claim 10 wherein said latching means comprises pivotally interconnected dogs and said releasing means comprises plates respectively connected to said dogs.

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