# United States Patent [19]

**Nate, II et al.**

[11] **3,858,245**

[45] **Jan. 7, 1975**


[54] **METHOD OF APPLYING HAIR WITH INDIVIDUAL SUTURES**


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[73] Assignee: **Hair Again Ltd.,** New York, N.Y.



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[21] Appl. No.: **254,438**

[52] **U.S. Cl.** ..... **3/1,** 128/329

[51] **Int. Cl.** ..... **A61f 1/00,** A61l 17/00

[58] **Field of Search** ..... 3/1; 128/329, 330, 335.5



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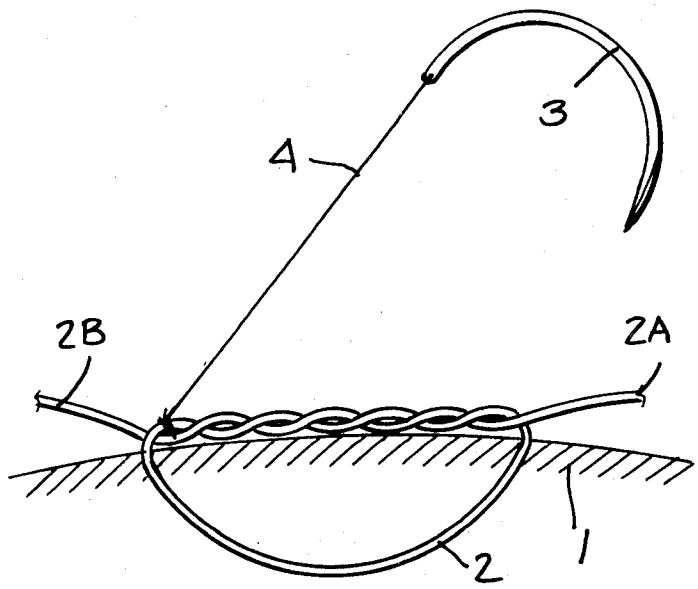
*Primary Examiner*—Channing L. Pace



[57] **ABSTRACT**

A method of applying hair in which individual suture loops are sewn into the scalp and wefts of hair are anchored between or along the sutures. The ends of each suture are secured together by intertwining the end portions and sewing a thin thread through and around the end portions. The suture is a thread made from a synthetic polymer which is impregnated or coated with an inert substance such polytetrafluoroethylene or a silicone. Alternatively, at least the portion of the suture which is embedded in the scalp and is made of any flexible material, is encased in a sleeve in which the suture may slide without irritating the subcutaneous area of the scalp.


**5 Claims, 10 Drawing Figures**



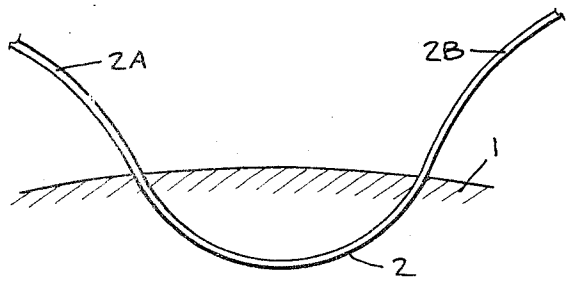



Fig. 1.

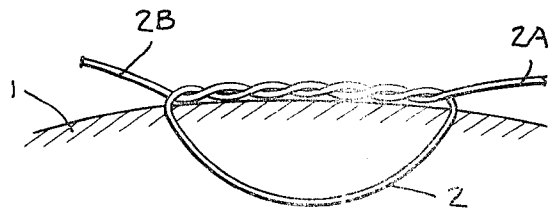



Fig. 2.

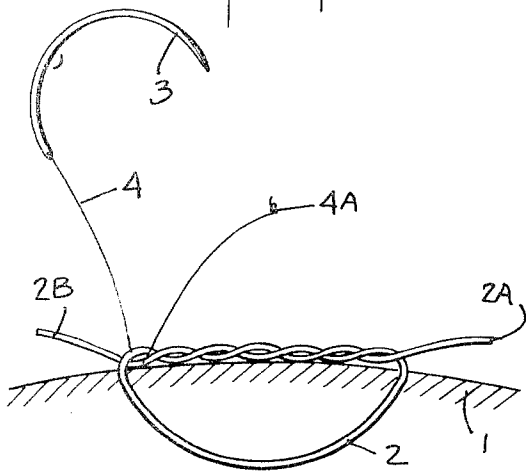



Fig. 3.

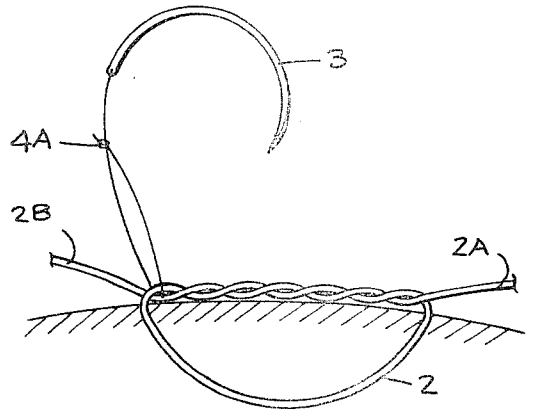



Fig. 4.

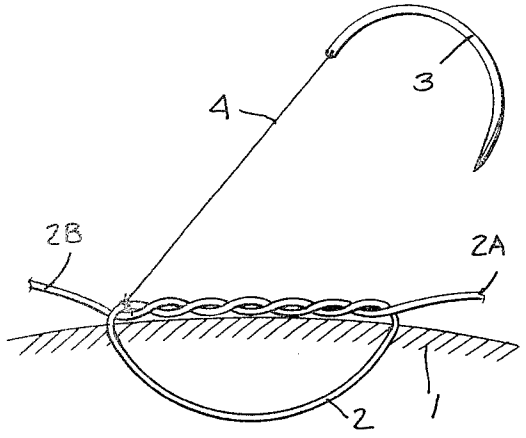



Fig. 5.

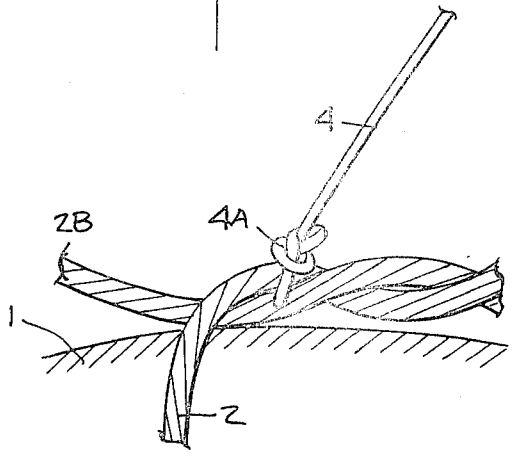



Fig. 6.

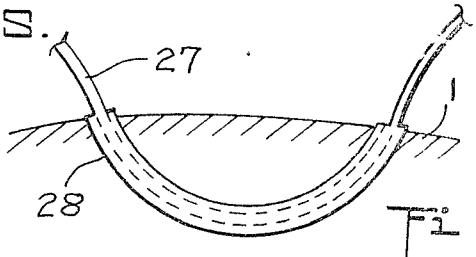



Fig. 10.

Fig. 7.

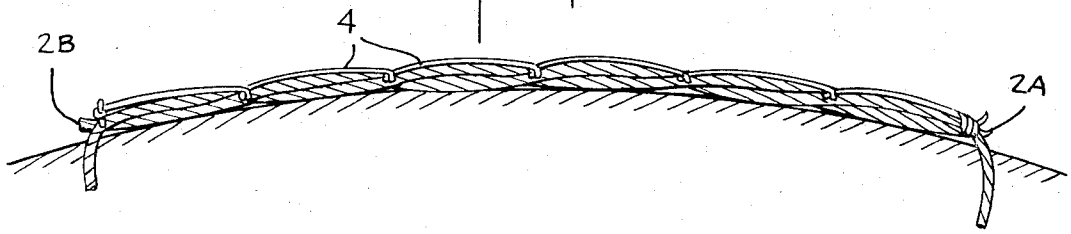



Fig. 8.

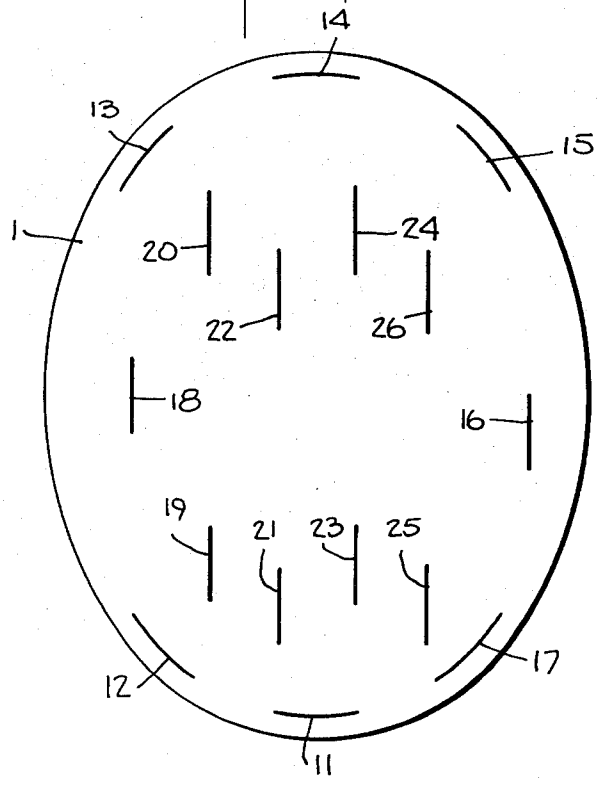
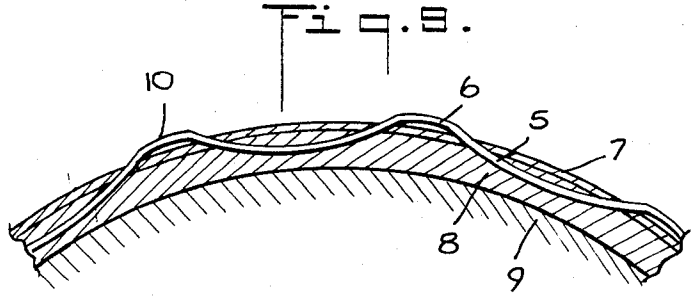



Fig. 8.



# METHOD OF APPLYING HAIR WITH INDIVIDUAL SUTURES

## BACKGROUND

As far back as there are written records, man has sought a "cure" for male pattern baldness. As there is no known way to regrow hair, man has attempted to correct or hide this cosmetic defect. The oldest and still most popular method of hair replacement is the toupee. A major drawback of the toupee is the difficulty in firmly securing it to the scalp; generally the wearer cannot engage in many types of activities, such as swimming. More recently, hair weaving and transplants have been used. Hair weaving has the disadvantage of requiring tightenings every four to six weeks. This can be expensive, time consuming and sometimes painful. Hair transplants have the advantage of the person having his own hair. However, many people are unsuited for transplants because the donor area is inadequate to supply enough plugs to transplant the entire area of alopecia. Suture implantation has been used for the past several years and is becoming increasingly popular. This type of procedure is described in U.S. Pat. No. 3,553,737, by Bauman.

The technique of suture implantation has been improved recently by eliminating the gridwork to which the wefts or strips of hair were attached. The gridwork, acting as a base, was attached to the sutures. The most common technique used today is to sew a teflon-coated, stainless steel suture under the skin of the scalp so that semi-circles of suture material protrude above the skin of the scalp. The continuous suturing technique is used to form a circle in the area of alopecia, and the ends are then welded together. Individual rows of hair are then attached to the gridwork or to the suture material above the scalp. The use of individual wefts of hair attached directly to the sutures without the gridwork, allows access to the scalp for proper cleaning, and prevents undue tension or pulling of the suture. The pulling of the sutures is what can create unnecessary medical complications.

Further improvements in the technique of suture implantation are set forth in copending patent application Ser. No. 180.327, filed Sept. 14, 1971, by Dick, Kurtin and Mann. This application is directed to a suture implanation method using a suture made from a synthetic polymer which is coated or impregnated with an inert substance and integrally fitted with a reverse cutting needle. A series of concentric circles, each of a continuous thread, are intermittently imbedded deeply under the skin of the scalp and exit in a series of small loops over the epidermis. Wefts of hair are then affixed to the sutures.

Despite these recent improvements several difficulties still exist with the suture implantation method, particularly in the technique of embedding the sutures, the attachment of hair on the scalp, and with the type of sutures used.

It is therefore an object of this invention to provide improved techniques and materials for the suture implantation method of affixing hair to the scalp. This and other objects are set forth in detail in the accompanying specification and drawings.

## THE INVENTION

This invention is directed to the technique of inserting a series of single-loop discontinuous sutures in the scalp for the subsequent attachment of wefts of hair to the sutures. This technique entirely or substantially eliminates the use of a continuous suture sewn into and out of the scalp several times to form a series of exposed loops. The present invention is made possible by the method of securing the ends of each suture in a firm manner which does not leave an uncomfortable knot on the surface of the scalp. After insertion of the suture in the scalp the free ends of the suture are intertwined and sewn together with a very fine thread. Wefts of hair are then attached to the exposed portions of the sutures. In an alternative embodiment of this invention at least the portion of suture which is embedded in the scalp is encased in a sleeve in which the suture may slide without irritating the subcutaneous area of the scalp.

The invention is described in greater detail in conjunction with the accompanying drawings.

FIGS. **1** through **7** show the various states for the insertion and securing of a suture in the scalp.

FIG. **8** shows an overall view of a scalp having a number of sutures therein.

FIG. **9** illustrates the prior art use of a single thread to form loops for the attachment of hair. FIG. **10** illustrates a suture within a sleeve.

The method of this invention is carried out as follows.

A plastic sheet of conventional construction and addapted to receive markings from a marker is placed over the scalp of an individual. The bald area is outlined on the plastic sheet. The plastic sheet is then removed and markings on it are used to determine the manner in which sutures and wefts which will be subsequently placed on the individual's head. The pattern of the suture is dictated by the area of baldness and the hair style decided upon by the individual.

A local anesthetic (such as Xylocaine) is injected into the scalp and the sutures are placed into the scalp. A cutting needle and thread of the type disclosed in copending application Ser. No. 180,327 is inserted into a scalp **1**, and the thread **2** is then severed leaving the free ends of the suture **2A** and **2B** exposed above the scalp (FIG. **1**). The free ends of the suture are intertwined several times throughout the line extending from the two points where the suture enters and exists from the scalp. These points are normally spaced about **1** inch (FIG. **2**). A fine needle **3**, having a sharp point, is attached to a very thin nylon thread **4**, which is knotted at end **4A**. The needle is inserted through the body of the intertwined sutures near the exit or entry point of the suture on the scalp (FIG. **3**). The needle **3**, preferably passes though the body of each of the intertwined sutures, but does not pass through the scalp. The needle is threaded through the loop formed by the knot at **4A** in the fine nylon thread. The needle is firmly pulled while holding on to the sutures and the threaded nylon forms a secure looped knot around the sutures (FIG. **5** and the enlarged cross section FIG. **6**). These steps are then repeated several times across the intertwined suture. When the other end of the intertwining is reached the process is repeated a few times in the same area of the intertwined suture and the excess thread in then cut off. Finally, the free ends of the suture which have not been intertwined are severed from the remainder of the suture. The resultant suture (FIG. **7**) is then ready to be used as an anchor loop for the attachment of wefts of hair.

FIG. 8 illustrates a scalp 1, having inserted therein a number of sutures 11 through 26, each of said sutures secured in the manner described above. Numerous wefts of hair are then affixed to the sutures. Usually no more than the end of one weft is directly affixed to each suture. However, individual wefts may be affixed to more than one suture. The pattern of baldness of course dictates the pattern of the sutures and the wefts thereon. For the example of FIG. 8 a hairline weft may be secured to sutures 12, 11 and 17. A particular weft may be secured at one of its ends to a suture and the other end of said weft may be affixed to an adjacent weft. For example, one weft may be secured at its midpoint to suture 18 and the front end of the weft may be secured to the front hairline weft at a point in the vicinity of suture 12. The back end of such weft would be affixed to the back hairline weft at a point between sutures 13 and 14.

FIG. 9 shows the prior art type of suture implantation in which a continuous suture 5 is embedded below the dermis 7 into the connective tissue 8 over the bone area 9. The suture 5 enters and exits from the scalp and forms a series of loops, such as 6 and 10. Each suture normally forms a circle of loops on the scalp. The suture may have a length of 30–36 inches. Although this continuous-suture technique has been very useful, the present invention of discontinuous loops provides several advantages. Ocassionally a sensitive area may develop at some point on the scalp. With the continuous-suture technique, whenever tension is applied to the suture, such as by hair combing, the tension force travels along the suture and will aggravate the sensitive area of the scalp. In the present invention this chain-effect does not exist and a sensitive area may more readily be isolated, treated and relieved. Moreover, if a complication arises, a particular suture may be removed and the sensitive area treated without the need to disturb other areas of the scalp. The use of discontinuous loops also reduces the possibility of infection spreading from one area to another, which may occur along a continuous suture.

Another advantage of the present invention is that the individual loops may be placed exactly where needed and thus relatively fewer loops and reduced surgery results. With the continuous suture encircling the scalp the suture spanned certain areas where it was not necessary to support hair. The excess use of the suture was needed in order to complete a circle and join the ends of the suture. Thus it was conventional to have about 50 loops, in about four or five circles. For a comparable area of baldness it is now possible to use only about 20 loops and to place each exactly where needed. This is preferable both medically and aesthetically. The surgical procedure can be accomplished in about one-half of the time previously required and the possibility of complications is accordingly reduced.

In accordance with this invention the suture implanted in the scalp is made of a synthetic polymer which is coated or impregnated with an inert substance. Examples of synthetic polymers suitable for this purpose are: polyesters (Dacron), silicones (Silastic) and polyolefins such as polypropylene. The inert substance is a polymer of a halogenated olefin such as polytetrafluoroethylene or a silicone resin. The preferred suture has been found to be a Dacron polyester impregnated with tetrafluoroethylene (Teflon). A suitable size for the suture is about No. 1 or 2 gauge. The previously used stainless steel sutures are stiff and difficult to work with. The ends of the sutures are normally joined by a welding technique which leaves exposed metal areas on the scalp which can result in irritation and possibly infection. Even with previous synthetic sutures, bulky knots were necessary to join the ends of the sutures since such material has a tendency to become untied because of the smooth and resilient nature of the materials used. These knots were also aesthetically unsuitable. In the present invention, the synthetic sutures are only intertwined and thus remain flat on the scalp. The thread used to maintain the intertwined suture ends together may be any very fine inert thread. An example is a thin gauge preshrunk nylon thread.

In a further embodiment of this invention, (FIG. 10) the suture 27 may be encased in a sleeve 28 of an inert material such as a silicone. This allows the suture to move within the sleeve when tension is applied to the hair without irritating the subcutaneous area of the scalp. The sleeve may be along the length of the suture initially. After insertion into the scalp the sleeve portion which extends out of the scalp may be removed or substantially removed leaving a minor amount (one-eighth inch to one-fourth inch) of the sleeve exposed above the scalp.

The wefts of hair may be made of synthetic and or natural hair affixed or threaded onto a support in a conventional manner. In an improved embodiment the hair may be supported on the strips of a silicone. This may be accomplished by "punching" the hair through a silicone sheet and applying a silicone medical adhesive to the underside of the sheet to secure the hair in place. The silicone sheet may then be cut into strips or wefts of the desired size and secured to the sutures as described herein.

This invention has been described in terms of specific embodiments set forth in detail. Alternative embodiments will be apparent to those skilled in the art in view of this disclosure, and accordingly such modifications are to be contemplated within the spirit of the invention as disclosed and claimed herein.

We claim:

1. The method of applying hair wefts to a portion of a scalp which comprises

inserting synthetic polymeric sutures below the dermis of the scalp leaving the ends of the sutures exposed above scalp, each suture being inserted once in the scalp;

for each such suture, intertwining its exposed end portions together and sewing a thin thread through and around said end portions, comprising passing said thread through and around said interwinded suture at several spaced places between the points of entry and exit of the suture from the dermis and knotting said thread at each such place, and

affixing hair wefts to the exposed portion of said sutures.

2. The method of claim 1 comprising removing any excess suture substantially beyond that between said entry and exit point.

3. The method of claim 1 in which said suture to be inserted below the dermis is movably within a sleeve of an inert polymer and after said inserting of said suture and sleeve at least substantially removing said sleeve from the portions of said suture exposed above the scalp.

4. The method of claim 3 wherein said sleeve is a medically-compatible silicone polymer.

5. The method of claim 1 wherein the wefts comprise hair supported in strips of silicone.

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