Dec. 14, 1965 C. E. WINTERS 3,223,093

VACUUM HAIR CURLER

Filed Jan. 17, 1963 2 Sheets-Sheet 1

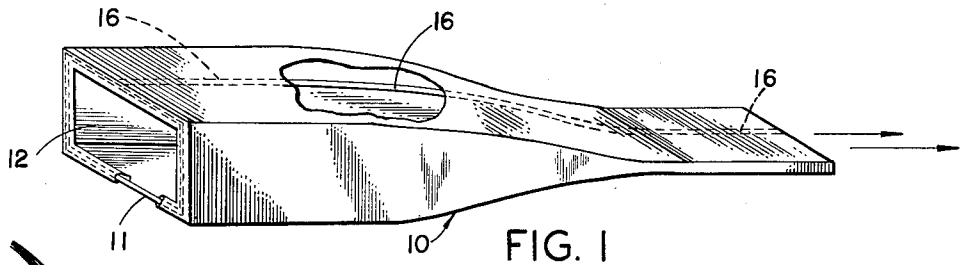


FIG. 1

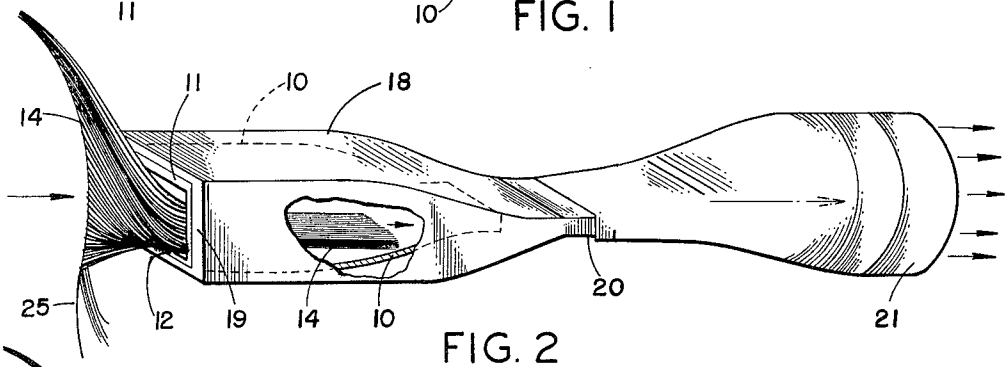


FIG. 2

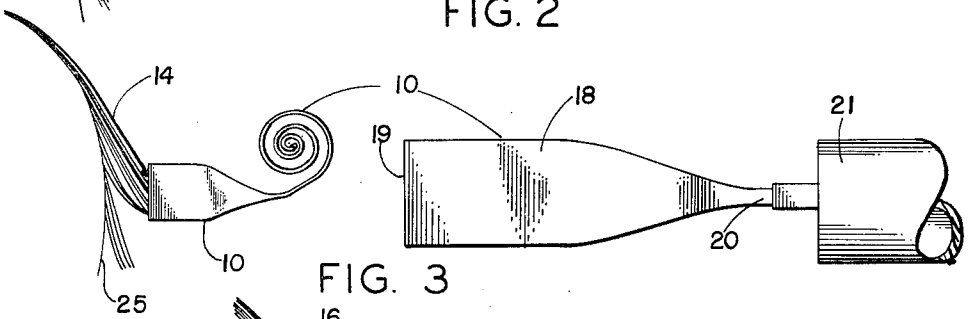


FIG. 3

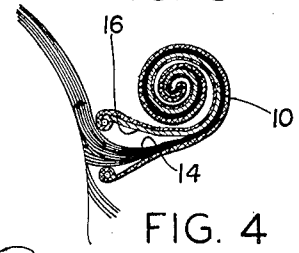


FIG. 4

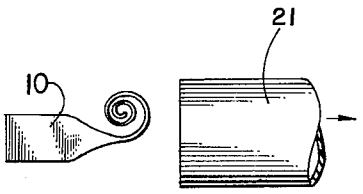


FIG. 6

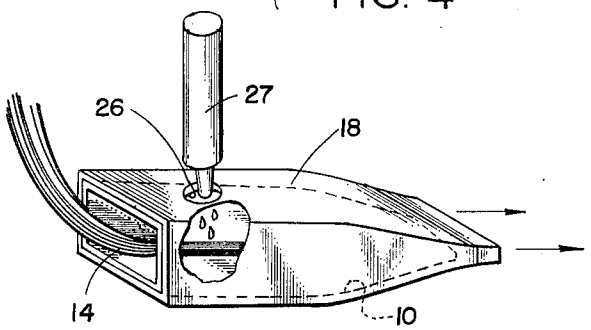


FIG. 5

INVENTOR.
CHARLES E. WINTERS
BY Meyer A Baskin
ATTORNEY

Dec. 14, 1965 C. E. WINTERS 3,223,093

VACUUM HAIR CURLER

Filed Jan. 17, 1963 2 Sheets-Sheet 2

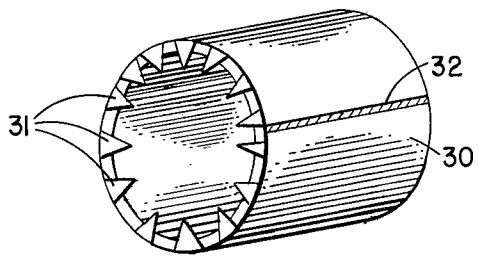


FIG. 7



FIG. 8

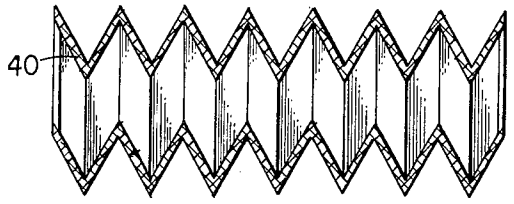


FIG. 9

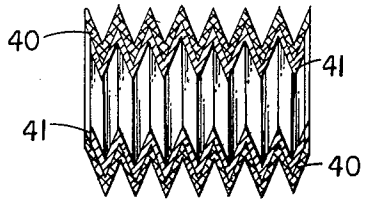


FIG. 10

INVENTOR.
CHARLES E. WINTERS
BY

ATTORNEY

United States Patent Office 3,223,093 Patented Dec. 14, 1965

3,223,093

VACUUM HAIR CURLER

Charles E. Winters, 9430 Jamaica Ridge, Miami, Fla.

Filed Jan. 17, 1963, Ser. No. 252,146
2 Claims. (Cl. 132—38)

This invention relates to a device and process for curling and setting hair, and more particularly to a process and means which is for use in beautifying treatments such, for example, as the so-called cold waving process.

The principal object of this invention is to provide a novel device and process for curling hair which utilizes a vacuum source to position selected hairs in a curling device of novel design.

A further object of this invention is to provide a novel curling device comprising the combination of a fabric hair strand enclosure and built in spring means which causes the enclosure to coil upon itself.

Another object is to provide a novel hair curling device comprising an elongated tube-like member adapted to receive a strand of hair upon application of a vacuum, said tube-like member being normally urged into a compactly rolled coil by built in coil spring means, and a rigid elongated vacuum receptacle member, one end of which is connected with a source of vacuum, and the other end of which is adapted to receive and envelop said tube-like member when it is uncoiled and drawn therein by the vacuum and the provision of suitable means to receive a hair curling or treating fluid and apply it to the hair when it is in straightened out position within the receptacle.

Yet another object of this invention is to provide an inner elongated flexible container which is adapted to receive strands of hair to be curled, which container may be made of paper, fabric or any other desirable flexible material, and of any shape or cross-section, coil spring means operatively associated with said container which normally tends to coil the container about itself, a second outer elongated rigid container of an inside diameter or dimension which is larger than the outer diameter or dimension of the flexible hair container and a source of vacuum which may be readily applied to said second rigid outer container which will cause the inner container to be uncoiled by the suction created by the vacuum and drawn within the outer rigid container, together with the hair to be curled, and access means formed in the second container to apply a liquid hair treating chemical to the hair after it is drawn into the second container.

Another object is to provide a novel, simple, and easily operated method of curling or treating hair comprising of an elongated flexible self coiling hair treating container, which is fabricated of a material which has been pre-impregnated or saturated with such chemicals as are desired for treating a strand of hair, and vacuum means for drawing the strand of hair into the container and straightening the strand of hair out lengthwise within the container while uncoiling the container to an approximately straightened out position, and then releasing the vacuum to permit the container to automatically coil upon itself snugly against the scalp of the head of hair being treated.

Further objects and advantages of this invention will become apparent from the following description thereof and from the accompanying drawings in which:

FIGURE 1 is a perspective view of the flexible hair strand curler container shown in its straightened uncoiled position;

FIGURE 2 is a perspective view illustrating the hair strand curler container in operative position within the rigid outer container and connected with a vacuum hose;

FIGURE 3 is a diagrammatic exploded view illustrating the three principal parts of the invention including

the flexible hair strand curler container in coiled position enclosing a strand of hair adjacent the head, the rigid outer container and a source of vacuum;

FIGURE 4 is a cross-sectional view of the flexible hair strand container in coiled position with the strand of hair coiled therein, and

FIGURE 5 is a diagrammatic perspective view of the hair strand curler container positioned within the rigid outer container and illustrating means for applying a liquid hair curling or treating chemical;

FIGURE 6 is a diagrammatic exploded view illustrating the application of a vacuum nozzle directly to the flexible hair strand curler;

FIGURE 7 is a perspective view of a cylindrical comb accessory;

FIGURE 8 is a plan view of another, modified form of the coiling wire;

FIGURE 9 illustrates in cross-section a modified form of hair curling device shown in its extended position, and

FIGURE 10 is a cross-section view of the modified form of hair curling device illustrated in FIGURE 9, shown in its contracted position.

Referring now to the invention disclosed in the drawings in detail, in which like parts bear like reference numerals throughout the several views, there is shown in FIGURE 1 a self-coiling hair strand curler **10**, shown in its straightened out uncoiled position. This curler **10** may be made of any desirable flexible material which in one form of the invention may be pre-impregnated or saturated with such chemicals as are desired to facilitate curling of the hair, and otherwise treating the hair for desired gloss, coloring or other conditioning. A light metal, plastic or other frame **11**, may be arranged at the mouth end **12**, to maintain the flexible hair strand container **10** in position to readily receive a strand of hair **14** to be curled, as shown in FIGURES 1 and 2.

A wire coil spring **16** is operatively joined in any suitable manner to the flexible container **10**, throughout its length. Said wire coil spring **16** is of a type which normally coils upon itself, and will roll up the flexible container into a coiled position as shown in FIGURES 3 and 4 when no uncoiling force is exerted upon it.

FIGURE 3 illustrates the flexible self coiling inner container **10** in partially coiled position.

A rigid outer sleeve-like container **18** which may be made of any rigid material such as plastic, metal, or rubber, for example, is provided as shown in FIGURES 2, 3 and 5. Outer container **18** in its preferred form, is larger than the flexible inner **10**, and has an internal diameter or dimension which is adapted to receive container **10** as shown in FIGURE 2.

One end, **19**, of outer container **18**, has a relatively large mouth opening, which is large enough to readily receive inner container **10**, and the other end **20**, is adapted to be operatively connected with a source of vacuum **21**. The vacuum source **21**, may be the hose or intake end of any well known household vacuum cleaner or other vacuum appliance.

When the vacuum is applied it will cause a strong flow of air through the outer container **18** in the direction indicated by the arrows in FIGURES 1, 2 and 3.

The operation of the device is extremely simple and efficient.

The user inserts the coiled curler **10** into the open end **19** of outer container **18**, with the open mouth **12** of the curler facing outwardly, and applies it to the strand of hair **14** to be curled by bringing the open mouth **12** of the curler into close proximity with the ends of the hair strand. The vacuum source **21** is then activated. This immediately causes a strong flow of air through the outer container **18** in the direction indicated by the arrows. The

strong suction created thereby sucks the coiled inner container **10** into the outer container **18**, uncoiling inner container **10** and its coiled spring **16** into the straightened out position illustrated in FIGURE 2. The strand of hair is also sucked into the inner hair container **10** simultaneously as shown, and the hair also assumes a straightened out position. If desired, the flexible material of inner container **10** may be somewhat porous to facilitate the above described action.

After the hair **14**, has been sucked into the inner container **10** sufficiently to lie within the container substantially throughout its length, see FIGURE 2, the vacuum is released. The action of coil spring **16** then rolls inner container **10** into the coiled position against the scalp of the head **25** of the user, as shown in FIGURES 3 and 4.

The quality or character of the curl is determined by the coiling characteristics of the spring **16**. It may be very tight or loose and soft as desired, by varying the degree of tension of spring **16**.

This snap return spring coiling action is accomplished in a fraction of a second. The entire operation may be done very quickly with little effort on the part of the user.

The tightly coiled and curled up hair within the flexible spring operated container **10** is left in that position until the required time has elapsed to effect the desired curl. The curler **10** is then removed by simply pulling it away from the head **25** and the strand of hair **14** is thus withdrawn from curler **10** and springs back in desired curled position against the head.

If it is desired to apply the hair curling or treating fluid to the strand of hair after it has been sucked into the straightened position shown in FIGURES 2 and 5, an aperture **26** may be formed in one side of the outer container **18** to receive applicator nozzle **27** through which the fluid may be applied.

Many varieties of well known methods of applying the hair treating fluid to the hair may be utilized. Any suitable closures may be employed. CO^2 gas, and other means are contemplated.

If desired the vacuum curling process and self coiling curler device of this invention may be employed without the use of the outer rigid container **18** by using any well known accessory nozzle of a home vacuum cleaner or other portable source of vacuum and applying it directly to curler **10** as shown in FIGURE 6.

It is contemplated, in the use of this invention, that the degree of vacuum to be applied may be varied as desired, that is a high, strong vacuum or a low milder vacuum.

The strength of the coiling action may also be varied as desired by the use of springs having lower or higher degrees of coiling tension. Graded tensions along the length may be utilized such, of example, as faster stronger coiling action at outer end of the spring, and slower milder coiling action at the inner end, or otherwise.

In FIGURE 7 of the drawings there is illustrated an accessory device in the form of a cylindrical comb **30**, having teeth **31** which may be extended inwardly or outwardly and at any angle. These teeth serve to comb or separate the strands of hair **14**, as they are sucked into the curler **10** by the vacuum source **21**. The comb **30** may be operatively associated with the air intake end

19 of outer container **18**, or directly to the open end of a vacuum cleaner appliance nozzle when using the method shown in FIGURE 6, that is, without intermediate outer container **18**.

A modified form of this invention is illustrated in FIGURES 9 and 10. In this form an accordian bellows type hair waving device **40** is substituted for the self coiling hair curler **10**.

The accordian type inner hair container **40** is made of the same flexible material as is used in the self coiling hair curler **10** hereinbefore described and has suitable spring means **41** associated therewith, also as hereinbefore described, which normally contracts and collapses the bellows tightly together under spring tension in the position illustrated in FIGURE 10.

When the vacuum is applied the accordian bellows expands as illustrated in FIGURE 9 due to the strong suction flowing in the direction indicated by the arrows. The hair strand **14** is sucked into the accordian type container **40**. When the vacuum is released spring **41** closes the accordian bellows **40** to the position of FIGURE 10 and the hair is confined and pressed in a position therein which created an even soft beautiful wave.

This invention contemplates the use of various forms of coiling springs, for example, one such as is shown in FIGURE 8, and numbered **36**, is a zig zag form in plan view, and extends over a greater area of the hair curler container. Zig zag spring **36**, is adapted to be coiled in the same manner and for the same purpose as hair coil spring **16** hereinbefore described.

It is also contemplated that wide flat, round or other shape of coiling springs may be used. Several coiling springs arranged in parallel lines may also be utilized.

It is claimed:

1. Apparatus for fixing hair in set positions in the presence of a hair treating chemical including a flexible self-coiling elongated hair strand container, a rigid elongated outer container surrounding and receiving said flexible self coiling hair strand container, and vacuum means operatively associated with the rigid container adapted to create a suction therein strong enough to uncoil the flexible self-coiled hair strand container and draw it into the rigid container and into an extended and substantially straight position, and simultaneously draw a strand of hair into a substantially straight position within the flexible container.

2. Apparatus for fixing hair in set positions as described in claim **1**, wherein means associated with the rigid outer container is provided for applying the hair treating chemical to the hair after it is drawn into the container.

References Cited by the Examiner

UNITED STATES PATENTS

2,433,141	12/1947	McPherson	132—40
2,654,372	10/1953	Stoyanoff	132—38
2,791,225	5/1957	Simmons	132—7
2,811,159	10/1957	Stanton	132—43
2,869,559	1/1959	Moore	132—7
3,078,855	2/1963	Lovret	132—43
3,109,438	11/1963	Work	132—31

RICHARD A. GAUDET, *Primary Examiner.*