United States Patent

[11] **3,566,884**

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[21] Appl. No. **830,638**
[22] Filed **June 5, 1969**
[45] Patented **Feb. 3, 1971**
[73] Assignee **Bristol-Myers Company**
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Continuation-in-part of application Ser. No. 818,192, Apr. 21, 1969, now abandoned, which is a continuation of application Ser. No. 615,606, Feb. 13, 1967, now abandoned.

[54] **HAIRWINDER FOR USE IN CURLING HAIR**
2 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **132/33**
[51] **Int. Cl.** **A45d 2/12**
[50] **Field of Search** 132/33, 36.2, 39, 40, 42, 9; 220/67, 79, 80, 73; 219/222

[56] **References Cited**

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ABSTRACT: A hair winder in which a tubular metal cap is inserted into a tubular metal container in spaced relation and wherein the cap has an open end of deformed S-shape which is in contact with the open end of the container, whereby an enclosed space is formed between the cap and container which is filled with a heat-accumulating substance adapted to be melted by heating before the hair winder is used, whereby heat is transferred to an outer curler element surrounding the metal container. An annular double wall metal closing ring of U-shaped section clampingly engages the container and the cap to form a hermetic sealed joint at their contacting open ends and the closing ring has an outer projection to anchor the curler element to the ring.

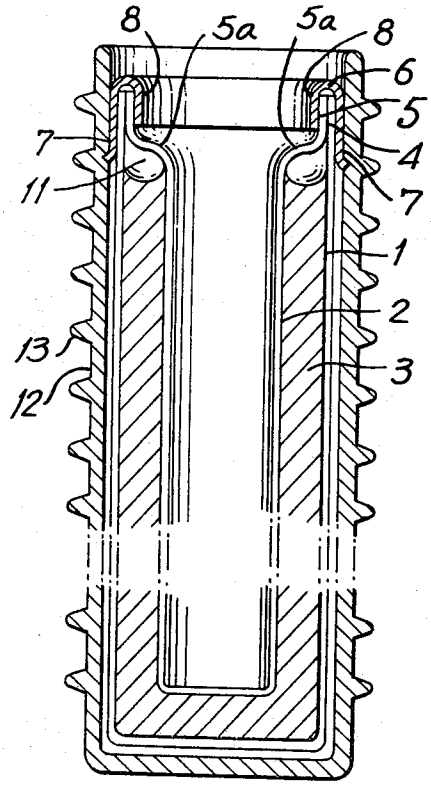


FIG. 2

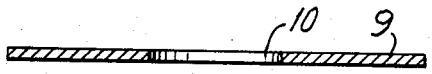


FIG. 1

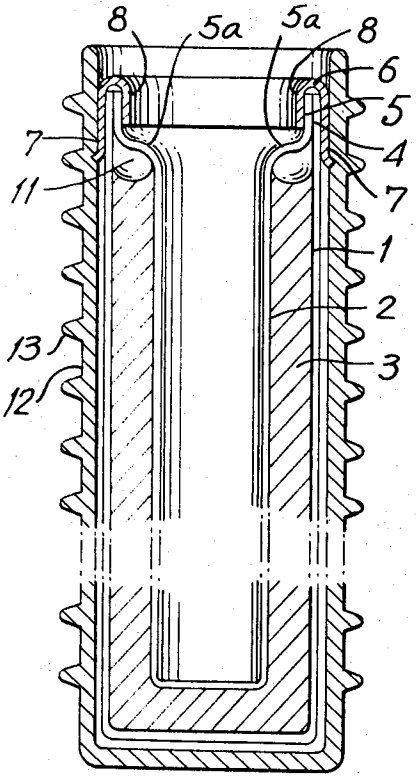


FIG. 3

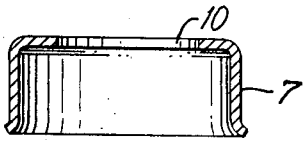


FIG. 4

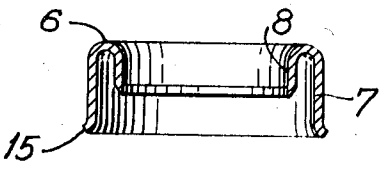
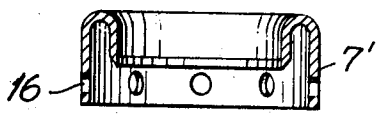


FIG. 5



HAIRWINDER FOR USE IN CURLING HAIR

CROSS-RELATED APPLICATION

This application is a continuation-in-part of my streamlined continuation Ser. No. 818,192 filed Apr. 21, 1969 now abandoned which is a continuation of my earlier application Ser. No. 615,606 filed Feb. 13, 1967 now abandoned.

BRIEF SUMMARY OF THE INVENTION

The invention relates to a hair winder for use in curling hair, the said winder being of the kind having a tubular, closed metal container in which at least one of the end surfaces is constituted by a metal cap which closes the container and projects into its interior, which is at least partly filled with a heat accumulating substance caused to melt before the hair winder is used.

Hair winders of the aforesaid kind are known, but they have the drawback that the sealing between the container and the metal cap may develop a leak, due to the high pressure developed by the heat accumulating substance, which pressure may attain values of approximately three to four times that of atmospheric. A leaking hair winder is, as will be appreciated, useless as the leaking substance will foul the hair.

It is an object of the invention to provide a hair winder of the aforesaid type which has no such drawback since it is capable of withstanding heating and cooling numerous times without leaking of the sealing between container and cap.

According to a hair winder of the invention, the free end edge portions of the container and the cap are pressed tightly together to form a hermetical seal by means of a U-shape metal closing ring beaded about the edge portions, said metal closing ring including means for cooperating with a surrounding curler element to anchor the ring with the curler element.

By the above operation, the inner side of the end edge portion of the container and the outer side of the end edge portion of the cap are subjected to a pressure connection. Such a connection has been found to possess greater strength than a container of a suitable material, such as aluminum, or a thickness, for example, 0.3—0.4 mm., which was found, when heated experimentally, to crack before the hermetic sealing between the end edge portions yields to the slightest extent whatever. The anchoring of the closing ring with the surrounding element prevents disconnection therebetween and undesired disassembly during use.

In one embodiment of the invention, the anchoring means is constituted by an outer annular projection on the outer wall of the closing ring which engages the curler element, the latter generally being made of a synthetic plastic material on which the hair is wound.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a longitudinal sectional view through a hair winder according to the invention;

FIGS. 2—4 show, in section, three stages in the process of manufacture of a metal closing ring for the hair winder according to the invention; and

FIG. 5 shows a modified version of a completed closing ring.

DETAILED DESCRIPTION

In the drawing there is shown a tubular metal container **1** in which projects a metal cap **2** which is hermetically sealed with container **1**, as will be described more fully hereinafter. A heat-accumulating substance **3** fills the space between container **1** and cap **2** and the substance **3** is caused to melt by being heated, whereby heat is transferred to a curler element **12** mounted on container **1** in a manner to be described more fully hereafter. In the course of heating substance **3**, a pressure of up to three to four times that of atmospheric is produced in the interior of the container **1**.

The free end edge portions **4** and **5** respectively, of the container **1** and the metal cap **2** are, after the interior of the container is partly filled with the heat-accumulating substance **3**, pressed tightly together by means of a U-shape metal closing ring **6** beaded around the edge portions **4**, **5** to form a hermetic seal thereat. The outer wall **7** of the metal closing ring **6** is firmly pressed against the outer side of the end edge portion **4** of the container, whereas the inner wall **8** of the metal closing ring **6** is firmly pressed against the inner side of the end edge portion **5** of the metal cap so as to produce a mechanical sealing or a kind of pressure welding between the inner and outer surfaces, respectively, of the two edge portions **4** and **5** which are pressed against each other.

The metal closing ring **6** is as shown in FIGS. **2—4** made of a flat metal disc **9**, preferably of brass, which in a first stage of the manufacturing process is punched out as indicated in FIG. **2** to provide a hole **10** and subsequently in another stage of the manufacturing process the disc is deformed to form a circular sleeve with a cylindrical wall which constitutes the outer wall **7** of the metal ring and finally in a third stage of manufacture the sleeve is again deformed to form a cylindrical wall constituting the inner wall **8** of the metal ring. An annular outwardly projecting portion **15** is formed at the lower edge of the outer wall **7** in any of the above three stages. The projecting portion **15** is adapted to engage a curler element **12**, as will be explained later.

Before the metal closing ring is mounted, the container **1** is filled with the heat accumulating substance **3**, preferably in melted condition, and the metal cap **2** is inserted in the filled container until its end edge portion **5**, which is formed as a ring **5***a* of S-shaped cross section, is enclosed by the end edge portion **4** of the container to form a preliminary assembly and closure of the container. The amount of heat-accumulating substance **3** filled into the container is so measured in advance as to leave a small air space **11** in the interior of the container when the cap has been mounted in the container to provide for the possibility of expansion of the heat-accumulating substance.

The finished metal closing ring shown in FIG. **4**, is then in a final stage of manufacture placed above the two preliminarily joined end edge portions **4**, **5** and the walls **7**, **8** of the ring are, by means of a ring rolling or similar working method, forcibly pressed against each other as to establish hermetic sealing between the end edge portions **4** and **5**.

The hair winder, as illustrated in FIG. **1**, is provided with the outer curling element **12** of plastic with outside corrugations **13** for retaining a hairlock (not shown) to be curled and for protecting the user from coming into direct contact with the outer surface of the metal container **1**. The outer surface of element **12** suitably reaches a temperature of about 60° C. during the use of the device.

The outer curling element **12** must be anchored to the assembly of the container **1**, cap **2** and ring **6**, in order to prevent disconnection therebetween which will render the hair winder useless. In order to achieve the anchoring, lower end of wall **7** of ring **6** is locally flared or bent outwardly to form the projection **15** which engages the curling element **12** to secure the ring **6** in curling element **12**. The lower outer edge of wall **7** forms a flared edge on projection **15** for engaging element **12**. Generally, the curling element is cast on the assembled container, cap and ring and thus the projection **15** becomes embedded in the plastic curling element.

In FIG. **5** there is shown a modified embodiment of the ring which employs as a means for anchoring the curling element **12** to the ring, a plurality of holes **16** in wall **7'**. The cast plastic material of curling element **12** fills the holes to secure the curling element on the wall **7'** of the ring.

I claim:

1. A hairwinder for use in curling hair comprising a tubular hair curler element with external corrugations thereon, a tubular metal container member within the curler element and having a closed end and an open end, a tubular metal cap member having a closed and an open end, said cap member projecting into said container member in spaced relation therewith such that the open ends of the members are at sub-

stantially the same level, one of said members being deformed at its open end to contact the other of said members at its open end whereby an enclosed space is formed between the members, a heat-accumulating substance in said enclosed space adapted to be melted by heating whereby heat is transferred to said curler element before the hairwinder is used, and an annular double wall metal closed ring of U-shape section and including an outer wall in contact with the container member and an inner wall in contact with the cap member to form a hermetic sealed joint at the contacting open ends of the members, said metal closed ring including means cooperating with said hair curler element to permanently anchor said ring with the hair curler element and said anchoring means comprising an outwardly projecting portion on said ring is embedded in said hair curler element.

2. A hairwinder as claimed in claim 1, wherein said outwardly projecting portion extends annularly on said outer wall at the free edge thereof.

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,566,884 Dated March 2, 1971

Inventor(s) Arne Bybjerg Pedersen

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

On the cover sheet [45] "Feb. 3, 1971" should read -- Mar. 2, 1971 --.

Signed and sealed this 30th day of November 1971.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Acting Commissioner of Pat