

IN

THE UNITED STATES PATENT OFFICE

PROVISIONAL PATENT APPLICATION

FOR

ILLUMINATED PONYTAIL HOLDER

BY

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1 **STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH AND**
2 **DEVELOPMENT**

3
4 Not Applicable.
5
6

7 **FIELD OF THE INVENTION**
8

9 This invention relates to hair accessories, and more particularly to an illuminated ponytail
10 holder with an interchangeable outer cover.
11
12

13 **DISCUSSION OF RELATED ART**
14

15 Ponytail holders are known in the art for keeping a person's ponytail intact and in place
16 on her head. Such holders take the form of a two-part circular, cylindrical, or conical
17 shape through which the ponytail is inserted and held in place thereby. Some prior art
18 holders have interlacing teeth, such as US Patent 2,445,071 to Kovacs et al. on Feb. 7,
19 1947; US Patent 5,937,867 to Williams on Aug. 17, 1999; US Patent 7,963,289 to King
20 on June 21, 2011; and US Patent 6,311,699 to Horman on Nov. 6, 2001. Such prior art
21 devices may hold a ponytail intact for a while, but throughout the day and with
22 movement of the person's head the ponytail frequently dislodges from a single row of
23 teeth or spikes.

1
2 US Patent 6,089,240 to Chang on July 18, 2000 teaches a hair grip device having two
3 rows of elastic plates that serve to compress the ponytail therebetween. Such a device
4 includes an outer flange that is used to open the device to insert the ponytail, yet the
5 flange is a mechanical contraption that interrupts the outward appearance of the product.
6 Further, with such a device there is no provision for changing the appearance, color,
7 pattern, or other decorative features, which women and girls often desire in order to
8 match a particular outfit, mood or hairstyle. Moreover, once the elastic plates of such a
9 product become worn and ineffective, there is no provision for replacing them without
10 replacing the entire device. So-called “hair cones” and “hair cuffs” sold over the Internet
11 have similar disadvantages.

12
13 None of the prior art ponytail holders include illumination means, and certainly none
14 include means by which the color, brightness, and/or pattern of the illumination can be
15 set, changed or synchronized with similar ponytail holders in the surrounding area. None
16 of the prior art teach a ponytail holder that can have different color, pattern, brightness, or
17 LED distribution based on which cover is used.

18
19 Therefore, there is a need for a device will securely hold a ponytail even with continual
20 movement of the person over the course of a day. Such a needed invention would
21 provide means for quickly changing the outward appearance of the device, and would
22 provide for selectable color lighting effects either in a stand-alone mode or in

1 synchronization with surrounding ponytail holders. The present invention accomplishes
2 these objectives.

3 4 5 **SUMMARY OF THE INVENTION**

6
7 The present device is a ponytail holder for holding the ponytail of a person. A
8 frustoconical shell has a first part and a second part each mutually connected at a hinged
9 edge and positionable between open and a closed positions. Each part has an inner
10 surface and an outer surface, and a clasping edge opposite the hinged edge. The clasping
11 edge of each part is mutually, selectively fastenable to secure the shell in the closed
12 position. Each part has a top edge and a bottom edge that together, when the shell is in
13 the closed position, form a top opening of the shell and a bottom opening of the shell.
14 The bottom edge of each part at least partially covered with an electrically conductive
15 surface.

16
17 Preferably each part of the shell further includes a plurality of freestanding parallel spikes
18 projecting away therefrom, the spikes of both parts of the shell being substantially
19 mutually parallel when the shell is in the closed position. As such the ponytail holder is
20 held in place on the head of the person by the spikes engaging the person's ponytail. A
21 battery is fixed with the shell, each pole of the battery connected to one of the conductive
22 surfaces of each of the bottom edges of each part of the shell.

1 A frustoconical cover is fixable with the shell when the shell is in the closed position.
2 The cover includes an outer surface, an inner surface adapted to abut the outer surface of
3 each part of the shell, a top opening and a bottom opening. The cover includes at least
4 two conductive inward projections proximate the bottom opening of the cover. Each
5 projection is adapted for a snap fit with the bottom edge of the shell to mechanically and
6 electrically secure the cover to the shell.

7
8 A plurality of LEDs, or other lamps as becomes known in the art, are fixed with the
9 cover, each LED being connected with the conductive projections of the cover to connect
10 the LED to the battery when the cover is engaged with the shell. In some embodiments,
11 the shell includes a plurality of recesses in the bottom edge of the shell, each electrically
12 isolated from the others and adapted for mechanically and electrically engaging one of
13 the projections of the cover. Opposing pairs of the recesses provide power from the
14 battery to the LEDs. Optionally in such embodiments, portions of the bottom edge of the
15 shell between recesses are devoid of the conductive surface, such that when the
16 projections of the cover are positioned between recesses of the shell, power from the
17 battery is not supplied to any of the LEDs and the LEDs are in an off state.

18
19 The shell may further include a controller electrically connected between the battery and
20 the opposing pairs of recesses. The controller provides power from the battery to the
21 LEDs through each opposing pair of recesses in a unique way to create a unique lighting
22 effect based on a rotational position of the cover with respect to the shell. For example,
23 one pair of opposing recesses may provide power to the LEDs such that the LEDs flash,

1 while another pair of opposing recesses may provide power to the LEDs such that the
2 LEDs grow in intensity and then fade in intensity. Each LED may be a single color LED
3 or a multi-color LED, the color of the LED being set based on the rotational position of
4 the cover with the shell for example, by connected the LED to power from the battery
5 through different leads of the LED.

6
7 In some embodiments, the controller is further connected with a microphone and adapted
8 to vary the brightness and color of the LEDs based on a predetermined sound level
9 detected by the microphone. Alternately, or additionally, the ponytail holder may further
10 include a wireless receiver for receiving a signal to control the color and brightness of the
11 LEDs. In such an embodiment each LED is separately connected with the conductors to
12 the controller, and the controller can control the pattern and color of the LEDs
13 illuminated based on a wireless signal received by the controller. In this manner a group
14 of the ponytail holders may be synchronized, for example, with a cheerleading squad at a
15 sporting event.

16
17 In some embodiments, in addition to the cover or to the exclusion of the cover, the shell
18 may also include the LEDs each connected with the battery through a switch (or the
19 controller) and a plurality of the conductors. The cover, in such an embodiment,
20 preferably acts as the switch by electrically connecting each of the inward projections,
21 such that when the cover is engaged with the shell, power is connected through the
22 conductors, through the cover, to the LEDs.

1 In such an embodiment, the cover includes non-opaque areas or apertures therethrough,
2 such that light from the LEDs of the shell can be seen through the cover. Such apertures
3 may be circular as illustrated, or elongated slots, or the like.

4
5 The present invention securely holds a ponytail even with continual movement of the
6 person over the course of a day. The present invention provides means for quickly
7 changing the outward appearance of the device, and provides for selectable color lighting
8 effects either in a stand-alone mode or in synchronization with surrounding ponytail
9 holders. Other features and advantages of the present invention will become apparent
10 from the following more detailed description, taken in conjunction with the
11 accompanying drawings, which illustrate, by way of example, the principles of the
12 invention.

13 14 **DESCRIPTION OF THE DRAWINGS**

15
16 FIG. 1 is a perspective view of a person fitting the invention to her ponytail;

17 FIG. 2 is an exploded bottom perspective view of the invention;

18 FIG. 3 is a perspective view of a shell of the invention in an open configuration;

19 FIG. 4 is a side elevational view of the invention, illustrating a cover of the invention

20 being fitted over the shell of the invention;

21 FIG. 5 is a side elevational view of the invention, showing the cover engaged with the

22 shell to power a plurality of LEDs; and

23 FIG. 6 is a bottom plan view of FIG. 5.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Illustrative embodiments of the invention are described below. The following explanation provides specific details for a thorough understanding of and enabling description for these embodiments. One skilled in the art will understand that the invention may be practiced without such details. In other instances, well-known structures and functions have not been shown or described in detail to avoid unnecessarily obscuring the description of the embodiments.

Unless the context clearly requires otherwise, throughout the description and the claims, the words “comprise,” “comprising,” and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of “including, but not limited to.” Words using the singular or plural number also include the plural or singular number respectively. Additionally, the words “herein,” “above,” “below” and words of similar import, when used in this application, shall refer to this application as a whole and not to any particular portions of this application. When the claims use the word “or” in reference to a list of two or more items, that word covers all of the following interpretations of the word: any of the items in the list, all of the items in the list and any combination of the items in the list. When the word “each” is used to refer to an element that was previously introduced as being at least one in number, the word “each” does not necessarily imply a plurality of the elements, but can also mean a singular element.

FIGS. 1 and 2 illustrate a ponytail holder 10 for holding the ponytail 15 of a person 14. A frustoconical shell 20 has a first part 30 and a second part 40 each mutually connected at a hinged edge 34,44 and positionable between an open position 50 (FIG. 3) and a closed position 60 (FIGS. 1 and 2). Each part 30,40 has an inner surface 31,41 and an outer surface 39,49, and a clasping edge 36,46 opposite the hinged edge 34,44. The clasping edge 36,46 of each part 30,40 is mutually, selectively fastenable to secure the shell 20 in the closed position 60 about the person's ponytail 15. Each part 30,40 has a top edge 38,48 and a bottom edge 32,42 that together, when the shell 20 is in the closed position 60, form a top opening 70 of the shell 20 and a bottom opening 80 of the shell 20. The bottom edge 32,42 of each part 30,40 at least partially covered with a conductive surface 190. Preferably the shell 20 is formed from a plastic injection molding method as an integral piece.

Preferably each part 30,40 of the shell 20 further includes a plurality of freestanding parallel spikes 100 (FIGS. 2, 3 and 6) projecting away therefrom, the spikes 100 of both parts 30,40 of the shell 20 being substantially mutually parallel when the shell 20 is in the closed position 60. As such the ponytail holder 10 is held in place on the head of the person 14 by the spikes 100 engaging the person's ponytail 15.

A battery 180 is fixed with the shell 20, each pole 181,182 of the battery connected to one of the conductive surfaces 190 of each of the bottom edges 32,42 of each part 30,40 of the shell 20. Alternately, a separate battery pack (not shown) can be tethered to the

1 shell 20 outside of the shell 20, such as within the ponytail 15, or clipped to another part
2 of the head of the person 14.

3
4 A frustoconical cover 90 is fixable with the shell 20 when the shell 20 is in the closed
5 position 60 (FIGS. 4-6). The cover 90 includes an outer surface 99, an inner surface 91
6 adapted to abut the outer surface 39,49 of each part 30,40 of the shell 20, a top opening
7 98 and a bottom opening 92. Preferably the cover 90 is made from a plastic injection
8 molded process.

9
10 The cover 90 includes at least two conductive inward projections 110 proximate the
11 bottom opening 92 of the cover 90. Each projection 110 is adapted for a snap fit with the
12 bottom edge 38,48 of the shell 20 to mechanically and electrically secure the cover 90 to
13 the shell 20. The projections 110 may be at the bottom opening 92 (FIG. 2), or raised
14 slightly upwardly from the bottom opening 92 (FIGS. 4-6) to cause the cover 90 to
15 tighten further on the ponytail 15 and the person's head to inhibit the ponytail holder 10
16 from wobbling on the person's head. A plurality of LEDs 130, or other lamps as
17 becomes known in the art, are fixed with the cover 90, each LED 130 being connected
18 with the conductive projections 110 of the cover 90 to connect the LED 130 to the battery
19 180 when the cover 90 is engaged with the shell 20.

20
21 In some embodiments, the shell 20 includes a plurality of recesses 120 in the bottom edge
22 32,42 of the shell 20, each electrically isolated from the others and adapted for
23 mechanically and electrically engaging one of the projections 110 of the cover 90.

1 Opposing pairs of the recesses 120 provide power from the battery 180 to the LEDs 130.
2 Optionally in such embodiments, portions of the bottom edge 32,42 of the shell 20
3 between recesses 120 are devoid of the conductive surface 190, such that when the
4 projections 110 of the cover 90 are positioned between recesses 20 of the shell 20, power
5 from the battery 180 is not supplied to any of the LEDs 130 and the LEDs 130 are in an
6 off state.

7
8 The shell 20 may further include a controller 140 electrically connected between the
9 battery 180 and the opposing pairs of recesses 120 (FIG. 6). The controller 140 (FIG. 3)
10 provides power from the battery 180 to the LEDs 130 through each opposing pair of
11 recesses 130 in a unique way to create a unique lighting effect based on a rotational
12 position of the cover 90 with respect to the shell 20. For example, one pair of opposing
13 recesses 130 may provide power to the LEDs 130 such that the LEDs 130 flash, while
14 another pair of opposing recesses 130 may provide power to the LEDs 130 such that the
15 LEDs grow in intensity and then fade in intensity. Each LED 130 may be a single color
16 LED 130 or a multi-color LED 130, the color of the LED being set based on the
17 rotational position of the cover 90 with the shell 20 for example, by connected the LED
18 130 to power from the battery 180 through different leads (not shown) of the LED 130.

19
20 In some embodiments, the controller 140 is further connected with a microphone 150 and
21 adapted to vary the brightness and color of the LEDs 130 based on a predetermined
22 sound level detected by the microphone 150. Alternately, or additionally, the ponytail
23 holder 10 may further include a wireless receiver (not shown) for receiving a signal to

1 control the color and brightness of the LEDs 130. In such an embodiment each LED 130
2 is separately connected with the conductors 170 to the controller 140, and the controller
3 140 can control the pattern and color of the LEDs 130 illuminated based on a wireless
4 signal received by the controller 140. In this manner a group of the ponytail holders 10
5 may be synchronized, for example, with a cheerleading squad at a sporting event.

6
7 In some embodiments, in addition to the cover 90 or to the exclusion of the cover 90, the
8 shell 20 may also include the LEDs 130 each connected with the battery 180 through a
9 switch 160 (or the controller 140) and a plurality of the conductors 170. The cover 90, in
10 such an embodiment, preferably acts as the switch 160 by electrically connecting each of
11 the inward projections 110, such that when the cover 90 is engaged with the shell 20,
12 power is connected through the conductors 170, through the cover 90, to the LEDs 130.

13
14 In such an embodiment, the cover 90 includes non-opaque areas 92 (FIG. 2) or apertures
15 94 therethrough, such that light from the LEDs 130 of the shell can be seen through the
16 cover 90. Such apertures may be circular as illustrated, or elongated slots (not shown), or
17 the like.

18
19 Accordingly, a variety of different covers 90 may be available, or included in a kit (not
20 shown) that has the shell 20. The covers 90 are interchangeable and preferably include a
21 variety of appearances and colors. Moreover, each cover 90 may include a unique pattern
22 or set of colored LEDs so that, for example, one cover may include a red-white-and-blue
23 patriotic theme, while another cover includes a Christmas holiday red-and-green theme.

1 Even with the LEDs off (such as if the battery 180 runs low, for example) the outer
2 surface 99 of each cover 90 may include a unique color and/or pattern.

3
4 While a particular form of the invention has been illustrated and described, it will be
5 apparent that various modifications can be made without departing from the spirit and
6 scope of the invention. For example, the LEDs 130 may be alternate light sources such
7 as “illumination wire” or the like. Accordingly, it is not intended that the invention be
8 limited, except as by the appended claims.

9
10 Particular terminology used when describing certain features or aspects of the invention
11 should not be taken to imply that the terminology is being redefined herein to be
12 restricted to any specific characteristics, features, or aspects of the invention with which
13 that terminology is associated. In general, the terms used in the following claims should
14 not be construed to limit the invention to the specific embodiments disclosed in the
15 specification, unless the above Detailed Description section explicitly defines such terms.
16 Accordingly, the actual scope of the invention encompasses not only the disclosed
17 embodiments, but also all equivalent ways of practicing or implementing the invention.

18
19 The above detailed description of the embodiments of the invention is not intended to be
20 exhaustive or to limit the invention to the precise form disclosed above or to the
21 particular field of usage mentioned in this disclosure. While specific embodiments of,
22 and examples for, the invention are described above for illustrative purposes, various
23 equivalent modifications are possible within the scope of the invention, as those skilled in

1 the relevant art will recognize. Also, the teachings of the invention provided herein can
2 be applied to other systems, not necessarily the system described above. The elements
3 and acts of the various embodiments described above can be combined to provide further
4 embodiments.

5
6 All of the above patents and applications and other references, including any that may be
7 listed in accompanying filing papers, are incorporated herein by reference. Aspects of
8 the invention can be modified, if necessary, to employ the systems, functions, and
9 concepts of the various references described above to provide yet further embodiments of
10 the invention.

11
12 Changes can be made to the invention in light of the above "Detailed Description."
13 While the above description details certain embodiments of the invention and describes
14 the best mode contemplated, no matter how detailed the above appears in text, the
15 invention can be practiced in many ways. Therefore, implementation details may vary
16 considerably while still being encompassed by the invention disclosed herein. As noted
17 above, particular terminology used when describing certain features or aspects of the
18 invention should not be taken to imply that the terminology is being redefined herein to
19 be restricted to any specific characteristics, features, or aspects of the invention with
20 which that terminology is associated.

1 While certain aspects of the invention are presented below in certain claim forms, the
2 inventor contemplates the various aspects of the invention in any number of claim forms.
3 Accordingly, the inventor reserves the right to add additional claims after filing the
4 application to pursue such additional claim forms for other aspects of the invention.
5
6

1 **CLAIMS**

2
3 What is claimed is:

4
5 1. A ponytail holder, comprising:

6 a frustoconical shell having first and second parts each mutually connected at a
7 hinged edge and positionable between open and closed positions, each part having an
8 inner surface, and outer surface, and a clasping edge opposite the hinged edge, the
9 clasping edge of each part mutually, selectively fastenable to secure the shell in the
10 closed position, each part having a top edge and a bottom edge that together form a top
11 opening and a bottom opening, respectively, when the shell is in the closed position, the
12 bottom edge of each part at least partially covered with a conductive surface;

13 a battery fixed with the shell, each pole of the battery connected to one of the
14 conductive surfaces of each of the bottom edges of each part;

15 a frustoconical cover fixable with the shell when the shell is in the closed
16 position, the cover including an outer surface, an inner surface adapted to abut the outer
17 surface of each part of the shell, a top opening and a bottom opening;

18 the cover including at least two conductive inward projections proximate the
19 bottom opening of the cover, each projection adapted for a snap fit with the bottom edge
20 of the shell to mechanically and electrically secure the cover to the shell;

21 a plurality of LEDs fixed with the cover, each LED connected with the conductive
22 projections of the cover to connect the LED to the battery when the cover is engaged with
23 the shell.

1
2 2. A ponytail holder, comprising:

3 a frustoconical shell having first and second parts each mutually connected at a
4 hinged edge and positionable between open and closed positions, each part having an
5 inner surface, and outer surface, and a clasping edge opposite the hinged edge, the
6 clasping edge of each part mutually, selectively fastenable to secure the shell in the
7 closed position, each part having a top edge and a bottom edge that together form a top
8 opening and a bottom opening, respectively, when the shell is in the closed position, the
9 bottom edge of each part at least partially covered with a conductive surface;

10 each part of the shell further including a plurality of freestanding parallel spikes
11 projecting away therefrom, the spikes of both parts of the shell being substantially
12 mutually parallel when the shell is in the closed position;

13 a battery fixed with the shell, each pole of the battery connected to one of the
14 conductive surfaces of each of the bottom edges of each part;

15 a frustoconical cover fixable with the shell when the shell is in the closed
16 position, the cover including an outer surface, an inner surface adapted to abut the outer
17 surface of each part of the shell, a top opening and a bottom opening;

18 the cover including at least two conductive inward projections proximate the
19 bottom opening of the cover, each projection adapted for a snap fit with the bottom edge
20 of the shell to mechanically and electrically secure the cover to the shell;

21 a plurality of LEDs fixed with the cover, each LED connected with the conductive
22 projections of the cover to connect the LED to the battery when the cover is engaged with
23 the shell;

1 the shell including a plurality of recesses in the bottom edge of the shell, each
2 electrically isolated from the others and adapted for mechanically and electrically
3 engaging one of the projections of the cover, opposing pairs of recesses providing power
4 from the battery to the LEDs;

5 portions of the bottom edge of the shell between recesses being devoid of the
6 conductive surface, such that when the projections of the cover are positioned between
7 recesses of the shell, power from the battery is not supplied to any of the LEDs;

8 the shell further including a controller electrically connected between the battery
9 and the opposing pairs of recesses, the controller providing power from the battery to the
10 LEDs through each opposing pair of recesses in a unique way to creating a unique
11 lighting effect based on the rotational position of the cover with respect to the shell; and

12 the shell further including a controller electrically connected between the battery
13 and the LEDs, the controller including a microphone and adapted to vary the brightness
14 or pattern of the LEDs based on a predetermined sound level detected by the microphone.
15

16 3. A ponytail holder, comprising:

17 a frustoconical shell having first and second parts each mutually connected at a
18 hinged edge and positionable between open and closed positions, each part having an
19 inner surface, and outer surface, and a clasping edge opposite the hinged edge, the
20 clasping edge of each part mutually, selectively fastenable to secure the shell in the
21 closed position, each part having a top edge and a bottom edge that together form a top
22 opening and a bottom opening, respectively, when the shell is in the closed position, the
23 bottom edge of each part at least partially covered with a conductive surface;

1 a battery fixed with the shell, and a plurality of LEDs fixed with the shell, each
2 LED electrically connected with the battery through a switch and a plurality of
3 conductors;

4 a frustoconical cover fixable with the shell when the shell is in the closed
5 position, the cover including an outer surface, an inner surface adapted to abut the outer
6 surface of each part of the shell, a top opening and a bottom opening, light from the
7 LEDs adapted to shine through the frustoconical cover at non-opaque areas thereof or at
8 apertures therethrough.

9
10 4. A ponytail holder, comprising:

11 a frustoconical shell having first and second parts each mutually connected at a
12 hinged edge and positionable between open and closed positions, each part having an
13 inner surface, and outer surface, and a clasping edge opposite the hinged edge, the
14 clasping edge of each part mutually, selectively fastenable to secure the shell in the
15 closed position, each part having a top edge and a bottom edge that together form a top
16 opening and a bottom opening, respectively, when the shell is in the closed position, the
17 bottom edge of each part at least partially covered with a conductive surface;

18 each part of the shell further including a plurality of freestanding parallel spikes
19 projecting away therefrom, the spikes of both parts of the shell being substantially
20 mutually parallel when the shell is in the closed position;

21 a battery fixed with the shell, and a plurality of LEDs fixed with the shell, each
22 LED electrically connected with the battery through a switch and a plurality of
23 conductors;

1 a frustoconical cover fixable with the shell when the shell is in the closed
2 position, the cover including an outer surface, an inner surface adapted to abut the outer
3 surface of each part of the shell, a top opening and a bottom opening, light from the
4 LEDs adapted to shine through the frustoconical cover at non-opaque areas thereof or at
5 apertures therethrough;

6 the switch including a plurality of recesses in the bottom edge of the shell, each
7 electrically isolated from the others and adapted for mechanically and electrically
8 engaging one of the projections of the cover, opposing pairs of recesses providing power
9 from the battery to the LEDs;

10 portions of the bottom edge of the shell between recesses being devoid of the
11 conductive surface, such that when the projections of the cover are positioned between
12 recesses of the shell, the switch is electrically open;

13 the shell further including a controller electrically connected between the battery
14 and the opposing pairs of recesses, the controller providing power from the battery to the
15 LEDs through each opposing pair of recesses in a unique way to creating a unique
16 lighting effect based on the rotational position of the cover with respect to the shell; and

17 the controller including a microphone and adapted to vary the brightness or
18 pattern of the LEDs based on a predetermined sound level detected by the microphone.

ABSTRACT OF THE INVENTION

A ponytail holder includes a frustoconical shell having first and second parts each mutually hinged to move between an open position and a closed position about the ponytail. The bottom edge of the shell is at least partially covered with an electrically conductive surface. A frustoconical cover is fixable with the shell and includes at least two conductive inward projections each adapted for a snap fit with the bottom edge of the shell to mechanically and electrically secure the cover to the shell. A plurality of LEDs fixed with the cover are connected to the battery when the cover is engaged with the shell. A controller may electrically provides power from the battery to the LEDs in a variety of ways to create a unique lighting effect based on a rotational position of the cover with respect to the shell, a ambient sound level, or a wireless command signal.

FIG. 2

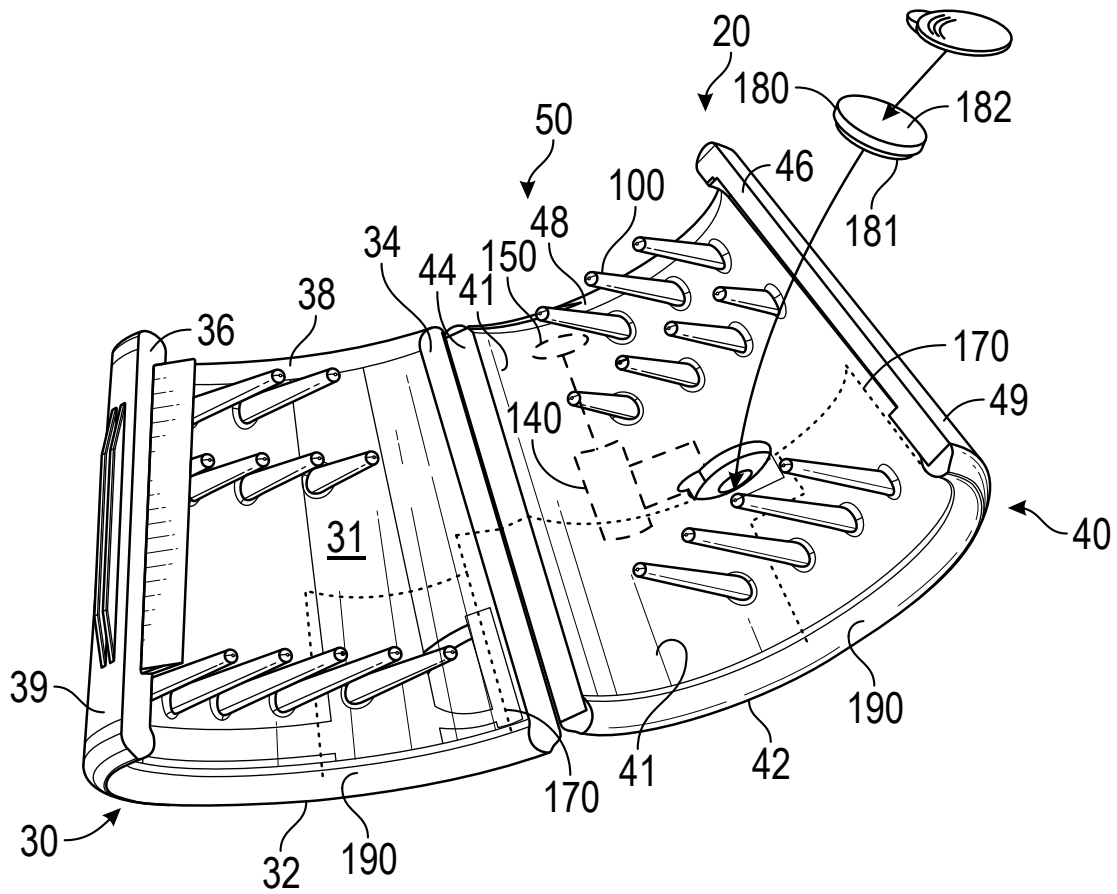


FIG. 3

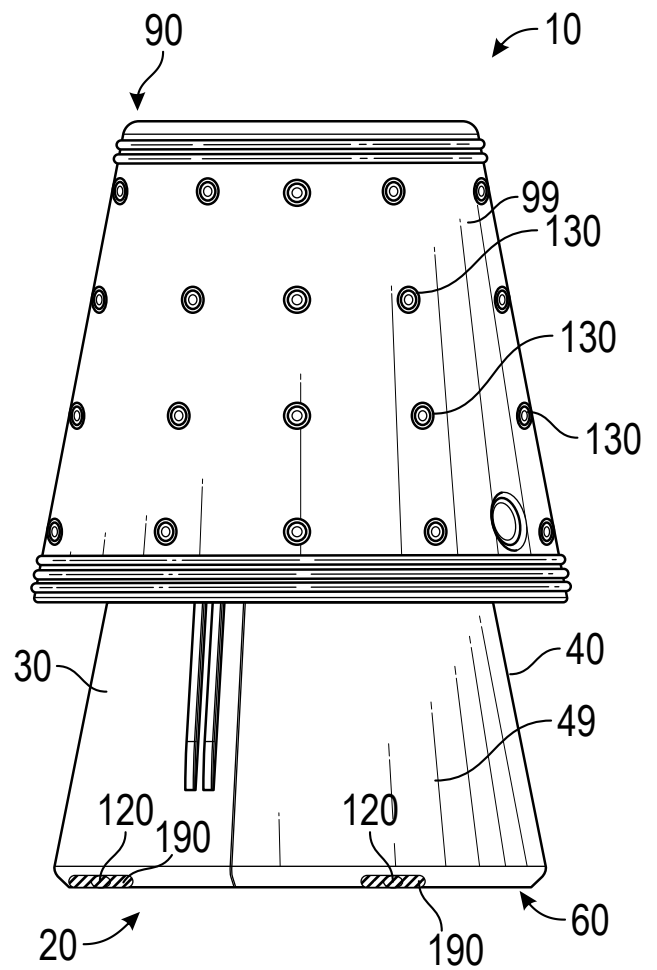


FIG. 4

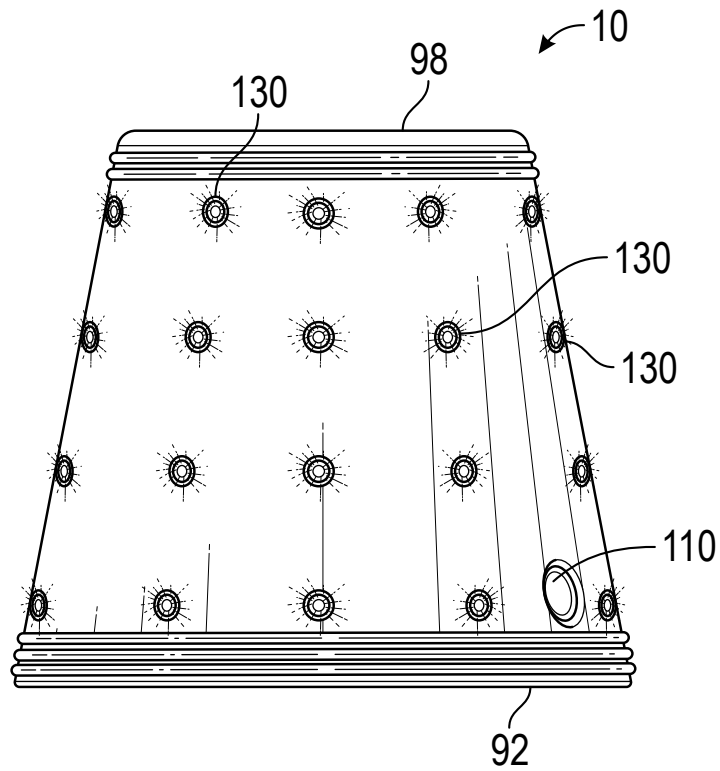


FIG. 5

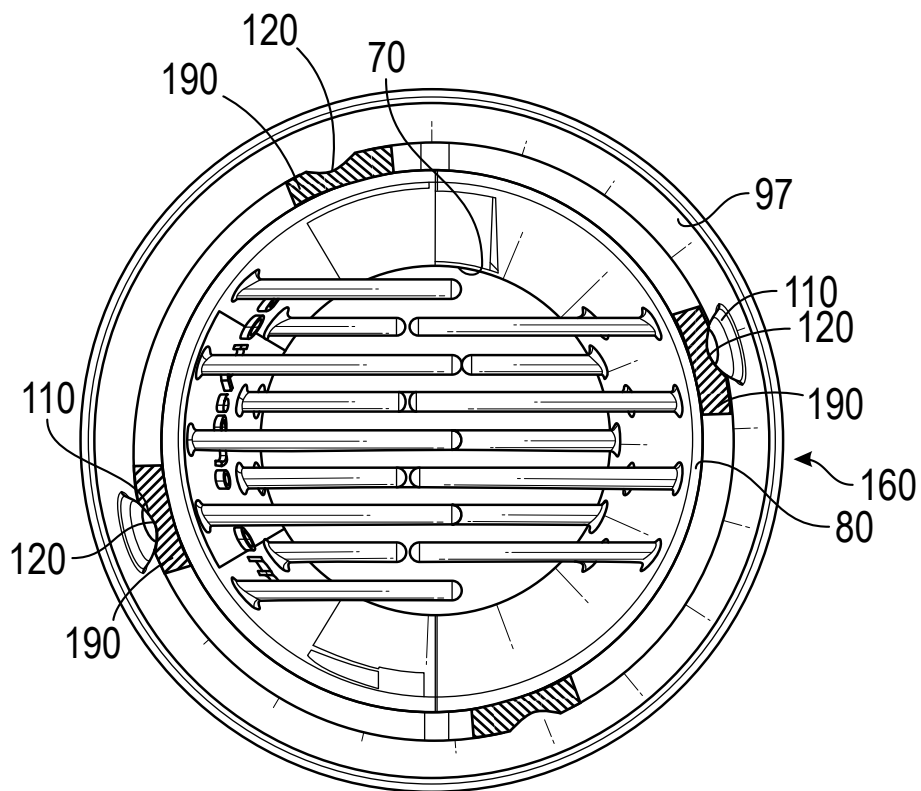


FIG. 6