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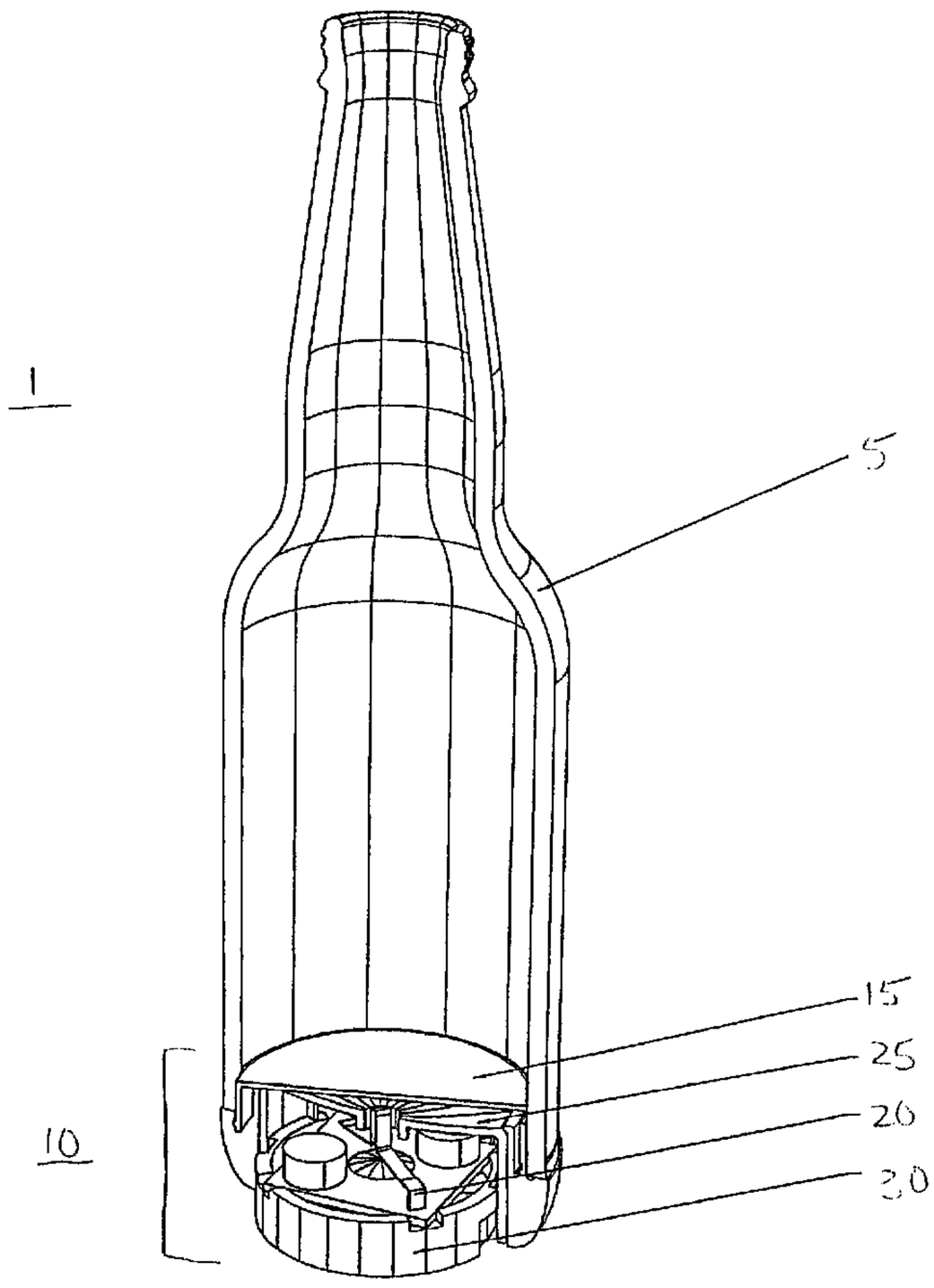

(57) Abrégé/Abstract:
There is described a bottle assembly including a modified bottle with base removed for attaching a plug module to the base of the modified bottle, the plug module containing a pressure sensitive electronic message delivery system which delivers an audible prize winning message and/or music to the consumer upon opening the bottle assembly.

ABSTRACT

There is described a bottle assembly including a modified bottle with base removed for attaching a plug module to the base of the modified bottle, the plug module containing a pressure sensitive electronic message delivery system which delivers an audible prize winning message and/or music to the consumer upon opening the bottle assembly.

BOTTLE WITH ELECTRONIC MESSAGE DELIVERY SYSTEM

FIELD OF THE INVENTION

The present invention relates to devices used for the promotion of consumer products and in particular a bottle assembly for liquids equipped with a plug module that includes a pressure sensitive electronic message delivery system to deliver a prize winning message or music to the consumer upon opening the bottle.

BACKGROUND OF THE INVENTION

Manufacturers of bottled beverages have been in a constant struggle to increase the awareness of their products in a marketplace occupied by many competitors. In order to do so, bottlers have used various promotional techniques, including providing coupons or prizes in association with their beverages.

One method to provide prizes to the consumer while encouraging consumer recognition of the beverage has been to mark the prize winnings on the bottle. For example, the inside of a bottle cap can be marked so that after the cap is removed the prize award is visible to the consumer as an inscription on the cap. This method, however, presuppose that the consumer will read about the contest particulars on the

product package or they rely on the fact that the consumer has been educated elsewhere about the contest.

Various attempts have been made in the past to overcome the shortcomings of using imprinted prize messages as a promotional campaign by instead using container assemblies which provide an audible prize related message.

For example, U.S. Patent No. 5,099,232 to James P. Howes dated March 24, 1992 and entitled "PRIZE HOLDING CONTAINER ASSEMBLIES" describes a simulated can that includes an electronic mechanism to inform the consumer by way of audible message that a prize has been won. The electronic mechanism is activated by a switch aligned with the pull tab which is depressed when the pull tab is lifted, thereby closing a circuit including batteries, a micro chip and a speaker to deliver a prize related message. This system provides a prize winning can that is substantially indistinguishable from non-prize bearing product-holding cans.

However, it is readily apparent to those familiar with the beverage industry that there is a distinction between the use of bottles and the use of cans to distribute a beverage. In fact, in Canada, the use of bottles is often preferred on an environmental basis because of the successful bottle recycling program that is in place. The system described by U.S. Patent No. 5,099,232 is unsuitable for bottles largely because this mechanism would be clearly visible in a bottle assembly. In addition, the size of the container assembly is not configured for adaptation into a bottle assembly.

The only attempt to incorporate an electronic prize winning mechanism into a bottle assembly is described by Canadian Patent No. 2,106,528 assigned to Molson Breweries, Canada dated June 20, 1995 and entitled "ELECTRONIC BOTTLE CAP".

This invention discloses a prize related message system in a bottle cap that plays a musical tune when the bottle cap is removed. The electronic mechanism uses a spring switch activated when the cap is removed so that the spring moves between electrically connected posts, closing the circuit and causing a micro chip to deliver an audible message through a speaker. This system is however limited by the size of the electronic message delivery system that can be used within the cap of the bottle. As a result, the voice reproduction is poor and the message is heard in a high frequency unsuitable for many promotions.

Therefore, there still remains a need for a bottle device that uses an electronic message display system to relay a prize winning message with a sound reproduction that is clear and audible that would allow the consumer to receive a clear understanding of the details of the prize winning message solely through the electronic message delivered.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a bottle assembly that uses an electronic message delivery system to produce a prize winning voice reproduction that is clear and has a frequency suitable for listening.

According to the invention, there is provided bottle assembly for use in promoting the sale of liquid beverages by providing an audible message and/or music from the bottle assembly when opened, the bottle assembly being undiscoverable by the consumer prior to retrieving the bottle assembly from a carton, the bottle assembly comprising: a modified bottle, without a bottom; a plug module sealed to the bottom of the modified bottle so that the modified bottle may contain pressurized liquid; an electronic message delivery system contained within the plug module, providing an audible message upon activation; and means for activating the electronic message delivery system; whereby a prize awarding container assembly for promoting the sale of liquid beverages is achieved which is capable of providing the consumer with a prize related audible message and is undiscoverable by the consumer prior to retrieving the bottle assembly from a carton.

According to another aspect of the present invention, there is provided a bottle assembly for use in promoting the sale of liquid beverages by providing an audible message and/or music from the bottle when opened, the bottle assembly being undiscoverable by the consumer prior to receiving the bottle assembly from a carton, the bottle assembly comprising: a modified bottle with a bottomless base; a shell module sealed to the bottom of the modified bottle so that the modified bottle may contain

pressurized liquid, the shell module including a membrane deflectable according to the pressure within the bottle assembly; an electronic message delivery system which is deactivated and activated by the deflection of the membrane; a grill insert that fits inside the shell module and is shaped so as to hold the electronic message delivery system in place within the bottle assembly; and a brace insert which controls the outward deflection of the membrane and which holds the grill insert and electronic message delivery system in place within the bottle assembly.

The bottle assembly disclosed and claimed herein has several advantages. First, the prize winning bottle assembly is undetectable to the consumer while the bottle is in a carton. Second, the electronic message delivery system incorporates a pressure sensitive switch so that the prize winning message is kept secret to the consumer until the bottle is opened. Third, and most important, the electronic message delivery system consists of a printed circuit board, battery, integrated circuit and speaker that is the size of the base of the bottle, the size and composition of this electronic message delivery system ensuring that the prize winning message retrieved from the bottle is clear and audible.

Other advantages, objects and features of the present invention will be readily apparent to those skilled in the art from a review of the following detailed descriptions of the preferred embodiments in conjunction with the accompanying drawing and claims.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present invention will now be described in greater detail, and will be better understood when read in conjunction with the following drawings, in which:

Figure 1 is a partial cross-sectional view of the bottle assembly;

Figure 2 is a partial cross-sectional view of the plug module;

Figure 3 is an exploded view of the plug module;

Figure 4 is a partial top perspective view of the shell module;

Figure 5 is a top perspective view of the grill module; and

Figure 6 is a partial top perspective view of the brace insert.

DETAILED DESCRIPTION OF THE DRAWINGS

Reference is initially made to Figure 1 showing the bottle assembly 1 in a partial cross-sectional configuration. The bottle assembly 1 comprises generally a modified bottle 5, and a plug module 10 that houses an electronic message delivery system which is undiscoverable to the consumer prior to retrieving the bottle assembly 1 from a carton, but is detectable to the consumer prior to opening the bottle assembly 1.

The modified bottle 5 in the embodiment illustrated is a type of beer bottle known in the industry as an AT2 bottle with height of 221.84+/- 1.60 mm. This bottle type is in commercial use as a reflectable beer container in Canada, but it will be understood that the present invention may be

used in association with most other bottle types. Installation of the plug module 10 requires removal of the bottom 15 mm of the modified bottle 5.

As shown in Figures 1 and 2, the plug module 10 comprises a shell module 15 sealed to the bottom of the modified bottle 5 and replacing the bottom of the modified bottle 5, an electronic message delivery system 20 which retains an audible message to be played upon removal of the cap of the bottle assembly 1, and a grill insert 30 and brace insert 25 that maintain the electronic message delivery system 20 intact within the plug module 10.

The shell module 15 is a cylindrical component that replaces the open end of the modified bottle 5. It is sealed to the bottom of the modified bottle 5 so that the bottle assembly 1 becomes a closed unit that can contain pressurized liquids. As shown in Figure 2, the shell module 15 is adhered to the bottom of the modified bottle 5 by food grade adhesives applied around the rim 16 of the shell module and placed around the bottom of the bottle assembly 6. The food grade adhesive is cured either by a UV curing apparatus or a solvent cure and is intended to act as sealant between the shell module 15 and the modified bottle 5.

As seen more clearly by Figure 4, the shell module 15 is comprised of a membrane 35 and support ring 40. The membrane 35 is preferably a HYTREL™ elastomer membrane approximately 1 mm thick with a 1 mm skirt forming a shallow drum. The membrane 35 provides a means through which the electronic message delivery system 20 is activated and deactivated by converting the internal pressure of the liquid in the bottle assembly 1 to the mechanical movement of deflection of the membrane 35. The support ring 40 is an overmoulded LEXAN™ ring. The support ring

40 forms the bottom section of the bottle assembly 1 and provides inside support for the plug module 10. In a preferred embodiment, the membrane 35 is a food grade thermoplastic elastomer such as HYTREL™ and the support ring 40 is a translucent food grade polycarbonate tinted to match bottles. The membrane 35 and support ring 40 are mechanically and thermally bonded during moulding of the polycarbonate.

As seen by Figure 3, the electronic message delivery system 20 consists of a printed circuit board (PCB) 75 which supports batteries 70, switch 65 and an epoxy coated integrated circuit (not shown). The integrated circuit is bonded directly to the PCB 75 and is covered by a blob of epoxy. The audible program is contained within the integrated circuit and is typically of waveforms of up to 30 seconds. It will be apparent to someone skilled in the art that the integrated circuit will vary depending on the audible message to be played.

The switch 65 is a leaf spring, one end of which is attached to the PCB 75 and the contact side which is positioned against its mating contact. When the bottle is closed and pressurized between 69 and 517 kPa, the membrane 35 is deflected outward, pushing downward and deactivating the switch 65 . Deactivation of the switch 65 opens the integrated circuit retaining the audible message. The switch 65 is activated when the pressure within the bottle assembly 1 is released and the membrane 35 no longer is deflected outward thereby releasing the force of the membrane 35 on the switch 65. When the switch 65 is activated, the integrated circuit closes and the audible message is retrieved.

The electronic message delivery system 20 also contains a speaker 60 which is a

40 mm Mylar clear diaphragm transducer. It has a low profile that is cleared by the PCB 75 when installed. The speaker 60 is designed to be press fitted into the grill insert 30, but may also be bonded to the grill insert 30. The speaker 60 is connected to the PCB 75 by wires.

Referring to Figure 5, the grill insert 30 is a circular support surface with moulded rims 95 and a perforated base 90. The grill insert 30 supports the electronic message delivery system 20 and holds the electronic message delivery system 20 in place.

In a preferred embodiment, the rim 90 contains 4 equally spaced indentations 80 for support of the four corners of the PCB 75. Around the perimeter of the grill insert, there are two opposing bayonet slots 85 which serve to lock the grill insert 30 to the brace insert 25. Referring to Figures 2 and 3, the speaker 60 is pressed into the bottom of the grill insert 30 so that it is not visible to the eye. The speaker 60 may be optionally bound to the perforated base 90. The perforated base 90 allows for sound from the speaker to be heard outside the bottle assembly 1.

As seen in Figure 2, the PCB 75 is pressed onto the top of the grill insert 30 so that the four corners of the PCB 75 are captured by the indentations 80. The PCB 75 is optionally secured by glue or heat swaging to the grill insert 30.

Referring to Figure 6, the brace insert 25 consists of a circular upper portion 45 with a hollowed port 50, a downwardly extending circular rim 100, and two bayonet lugs 105. The brace insert 25 is held within the plug module 10 by inserting the brace insert 25 into the ridge moulded on the inside of the shell module 36 (Figure 4). The

brace insert 25 is adhesed to the shell module 15 before the bottle assembly 1 is filled with liquid and pressurized.

The brace insert 25 holds the grill insert 30 and attached electronic message delivery system 20 to the shell module 15 by matching the bayonet lugs 105 with the bayonet slots 85 of the grill insert 30 so that when the two are twisted together, they can be locked into place thereby forming an intact plug module 10.

The circular upper portion 45 of the brace insert limits the deflection of the membrane 35 and keeps the membrane 35 from unrestricted ballooning. The hollowed port 50 allows the switch 65 to have direct contact with the membrane 35 so as to activate and/or deactivate the electronic message delivery system 20 depending on the pressure within the bottle assembly 1.

In operation, when the contents of the modified bottle 5 are filled with liquid and the top of the modified bottle is crowned with a bottle cap, the bottle assembly 1 acts as pressure vessel. An internal pressure of 69 to 517 kPa causes the membrane 35 to deflect outwards. Deflection is controlled by the upper spherical surface of the brace insert 45. The switch 65 which extends through a port 50 in the brace insert 25 is pushed downward by the force of the membrane 35, deactivating the electronic message delivery system 20 by opening the integrated circuit.

When the cap of the modified bottle 5 is removed, the internal pressure of the bottle assembly returns to normal and the membrane 35 returns to its original shape. The force exerted on the switch 65 is released, closing the integrated circuit and activating the electronic message delivery system 20 and sound program. The sound program runs a predetermined length of time and then repeats for a preprogrammed length of time.

However, it will be apparent to someone skilled in the art that different sound programs can be incorporated at the time of PCB 75 manufacture. The bottle assembly 1 is not reusable unless the bottle assembly 1 is resealed and repressurized.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A bottle assembly for use in promoting the sale of liquid beverages by providing an audible message and/or music from the bottle assembly when opened, the bottle assembly comprising:

a bottle with an open bottom;

a plug module sealed to the open bottom of the bottle so that the bottle may contain pressurized liquid;

an electronic message delivery system contained within the plug module, providing an audible message upon activation; and

switch means for activating the electronic message delivery system;

whereby a prize awarding container assembly for promoting the sale of liquid beverages is achieved which is capable of providing a consumer with a prize related audible message and which resembles an ordinary bottle for the sale of said liquid beverage.

2. The bottle assembly of claim 1, wherein the bottle resembles a beer bottle.

3. The bottle assembly of claim 2, wherein the bottle is a bottle with 15 mm removed from the base thereof, whereby the bottom of same is open as aforesaid.

4. The bottle assembly of claim 1, wherein the plug module is further defined as comprising a shell module, a grill in the shell and a brace in the shell, beneath the grill.

5. The bottle assembly defined by claim 4, wherein the shell module comprises a deflectable membrane and support ring therefor.

6. The bottle assembly of claim 5, wherein the deflectable membrane is a moulded elastomer membrane approximately 1 mm thick with a 1 mm skirt forming a shallow drum.

7. The bottle assembly of claim 5, where the deflectable membrane deflects downward when the pressure in the bottle assembly is between 69 and 517 kPa.

8. The bottle assembly of claim 7, where the support ring replaces the bottom of the bottle and forms an inside support for the rest of the plug module.

9. The bottle assembly of claim 7, where the shell module has an inside ridge for supporting of the brace insert.

10. The bottle assembly of claim 9, where the electronic message delivery system is further defined as comprising:

a printed circuit board, PCB, including an integrated circuit programmed to provide the desired audible message;

power means connected to said PCB for powering the integrated circuit;

said switch means being connected to said PCB and power means and being switchable between a deactivated position when the integrated circuit is not powered and an

activated position wherein the integrated circuit is powered to provide the desired audible message.

11. The bottle assembly of claim 10, where the switch means is comprised of a leaf spring with one end attached to said PCB and a contact side positioned against a mating contact on said PCB.

12. The bottle assembly of claim 11 where said power means is a battery connected to said PCB.

13. The bottle assembly of claim 12, wherein the electronic message delivery system further includes a speaker system connected to the PCB.

14. The bottle assembly of claim 13, wherein the speaker system comprises a 40 mm speaker.

15. The bottle assembly of claim 13, where the grill insert is moulded out of a plastic chosen from high impact polystyrene, acrylic or polycarbonate.

16. The bottle assembly of claim 13, where the grill insert has a downwardly depending circumferential wall with rims moulded around the inside thereof to support the electronic message delivery system.

17. The bottle assembly of claim 16, where said grill insert has four equally spaced indentations around its circumference for placement of the PCB.

18. The bottle assembly of claim 17, where the speaker is attached to the bottom of the grill insert.

19. The bottle assembly of claim 18, where the bottom surface of the grill insert is provided with perforations to allow sound from the speaker to be heard outside the bottle assembly.

20. The bottle assembly of claim 19, where the grill insert has two bayonet slots.

21. The bottle assembly of claim 20, where the brace insert is inserted into the ridge of the shell module.

22. The bottle assembly of claim 21 where the brace insert is fitted with two bayonet lugs so that the brace insert can be locked to the grill insert by twisting the plug module when the bayonet slots are inserted into the bayonet lugs.

23. The bottle assembly of claim 22, where the brace insert has a port for the switch to go through so that the switch comes into contact with the membrane of the shell module and is deactivated by the force of deflection of the membrane.

Figure 1

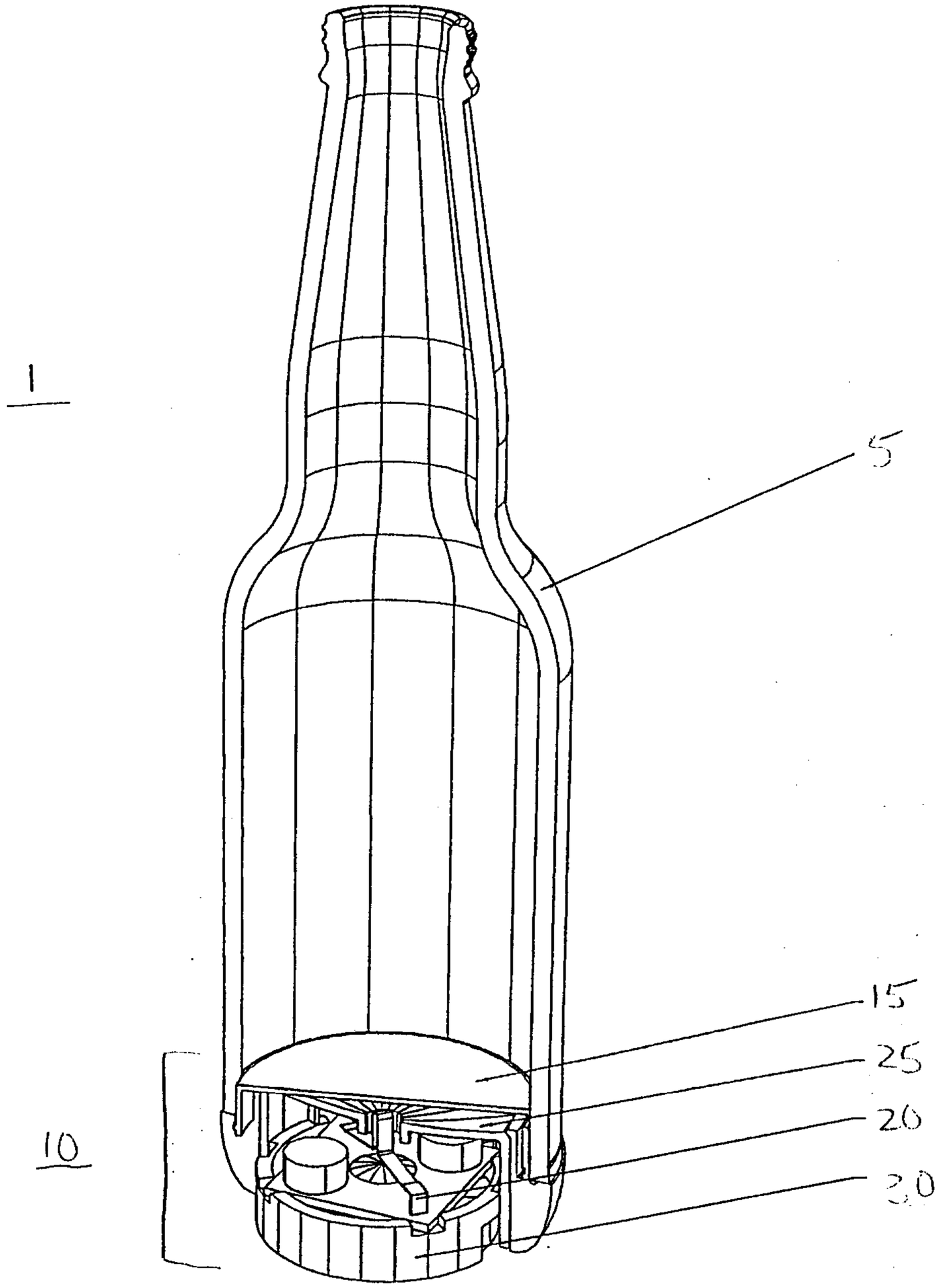

FIGURE 2

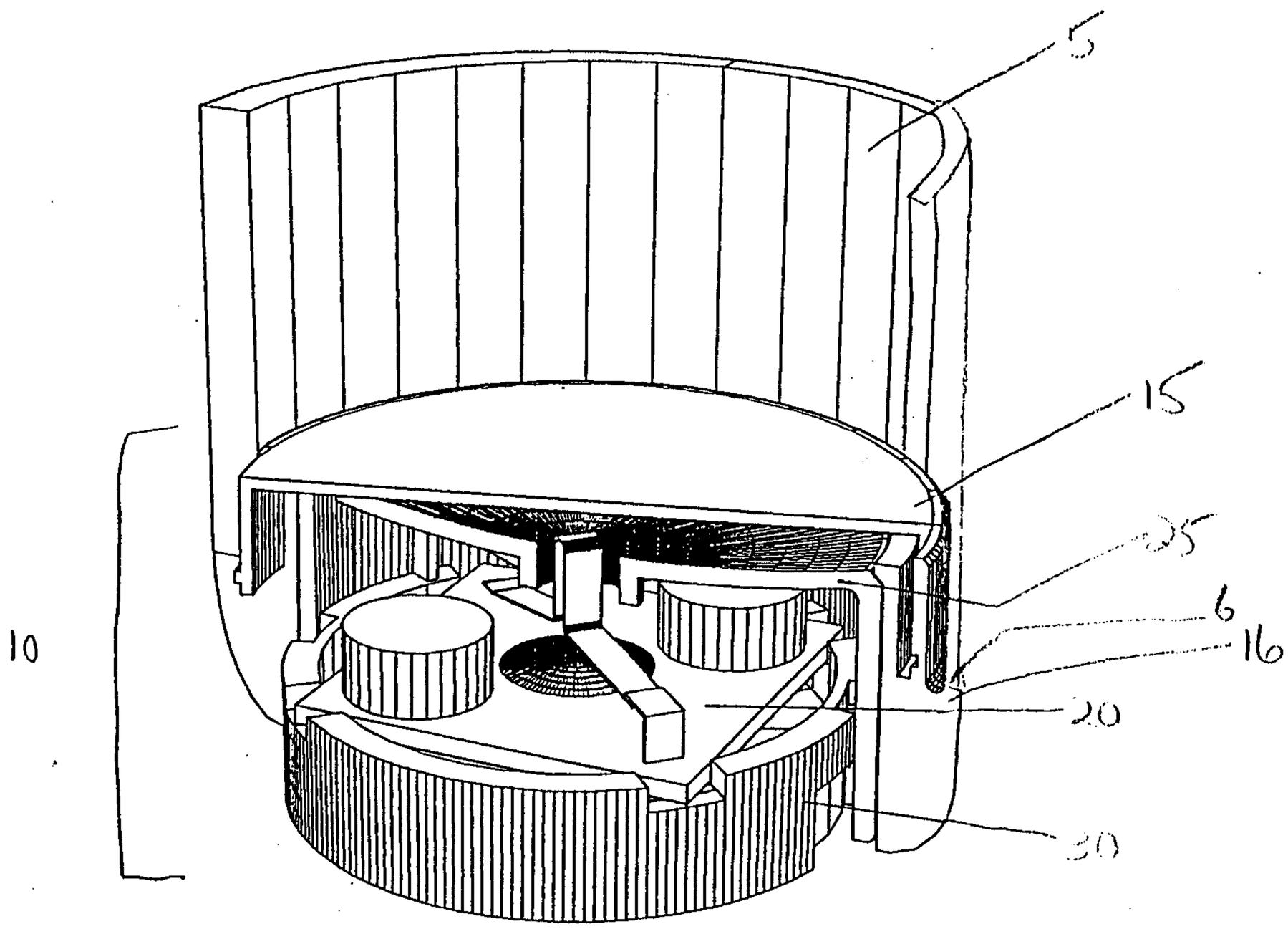

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FIGURE 3.

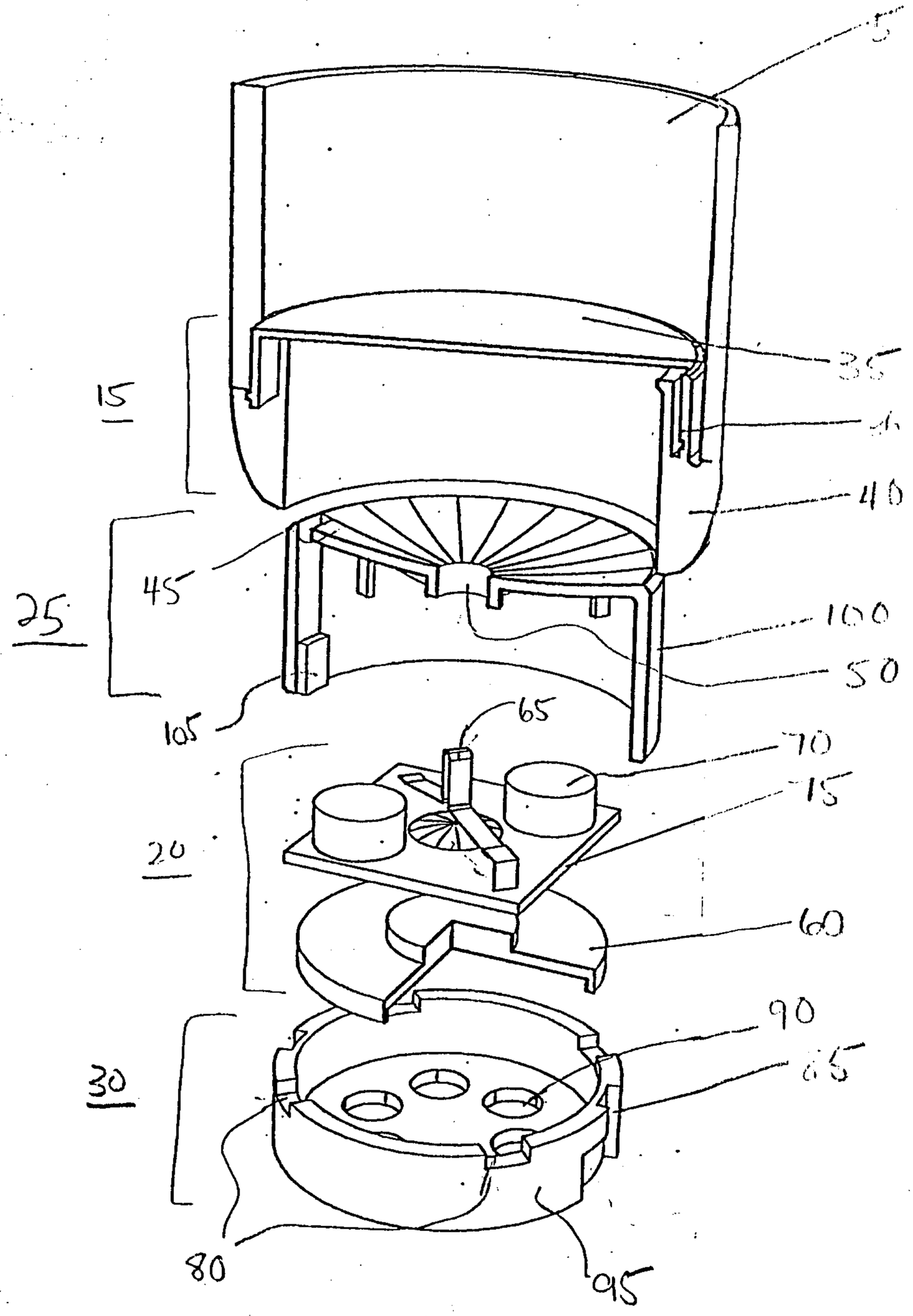

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FIGURE 4

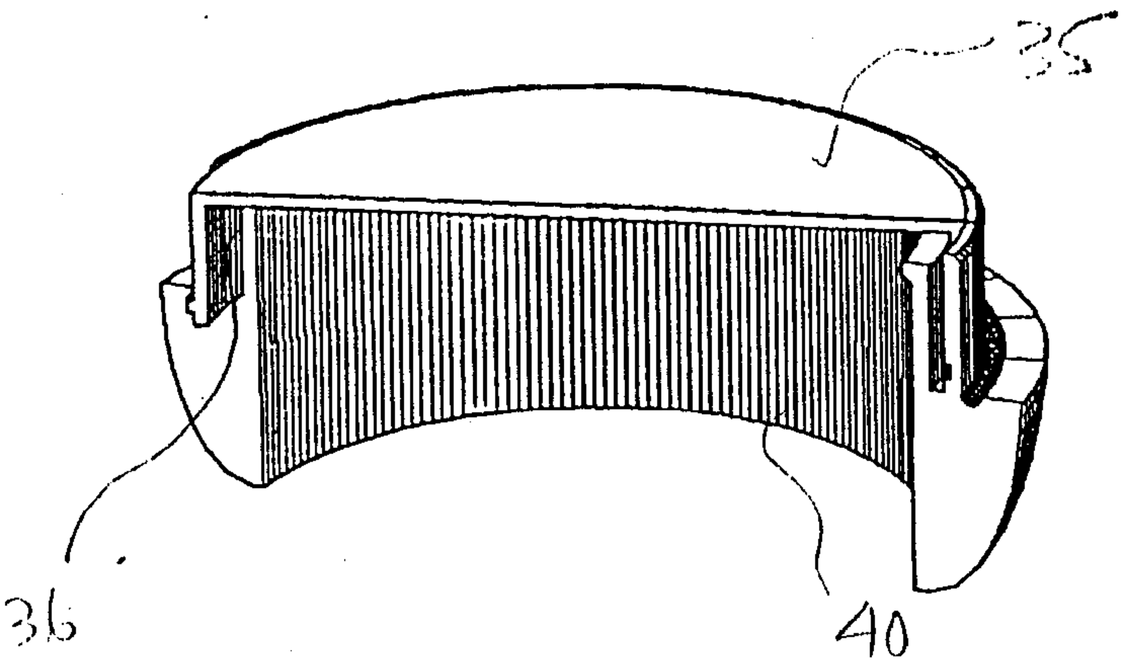


FIGURE 5

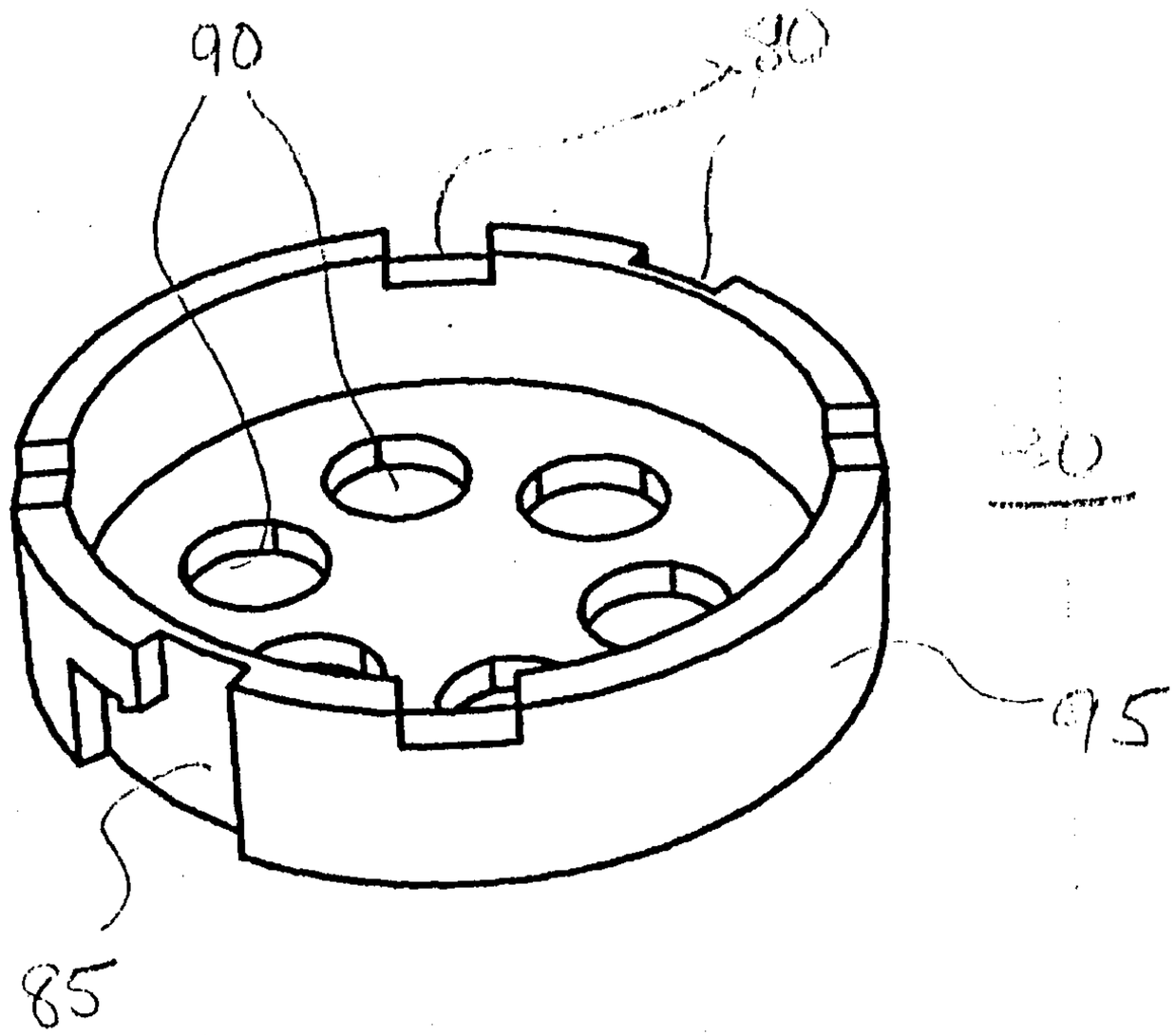
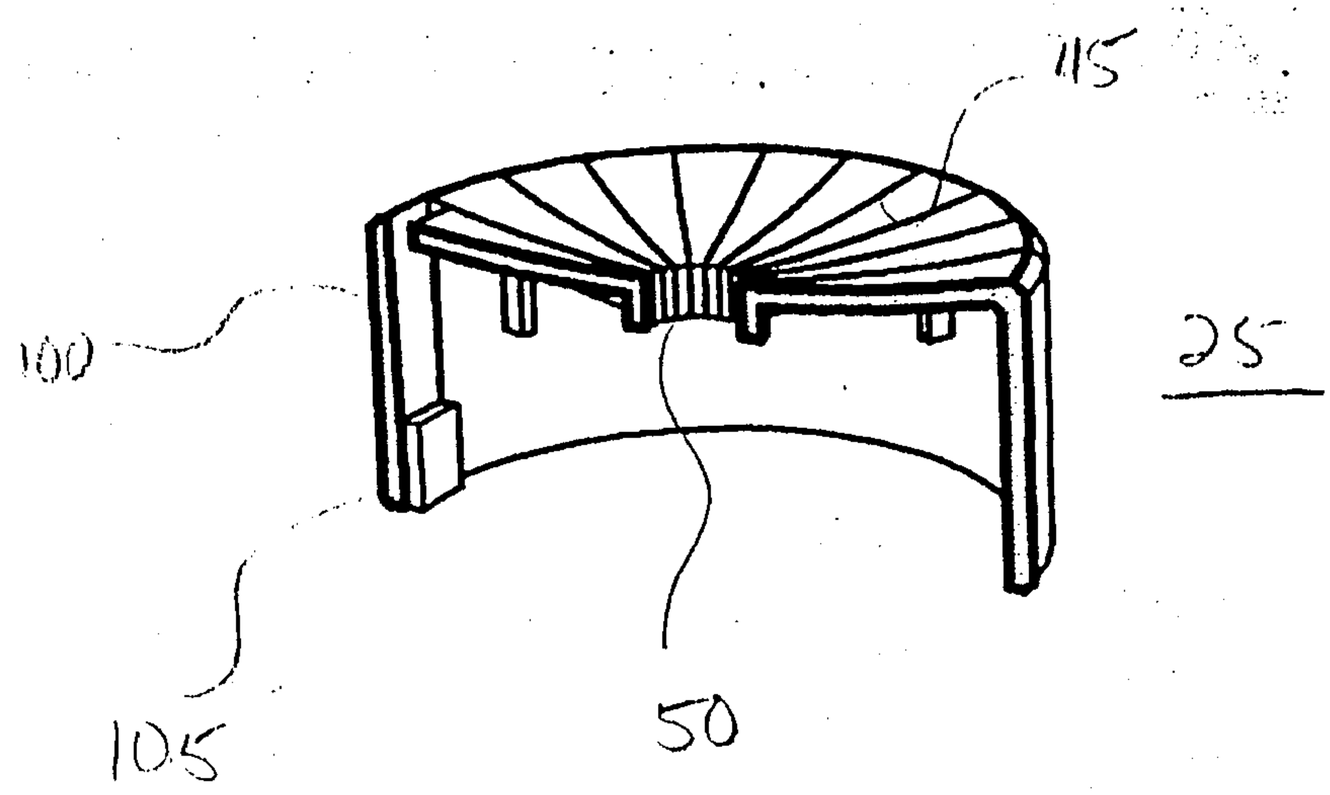


FIGURE 6.



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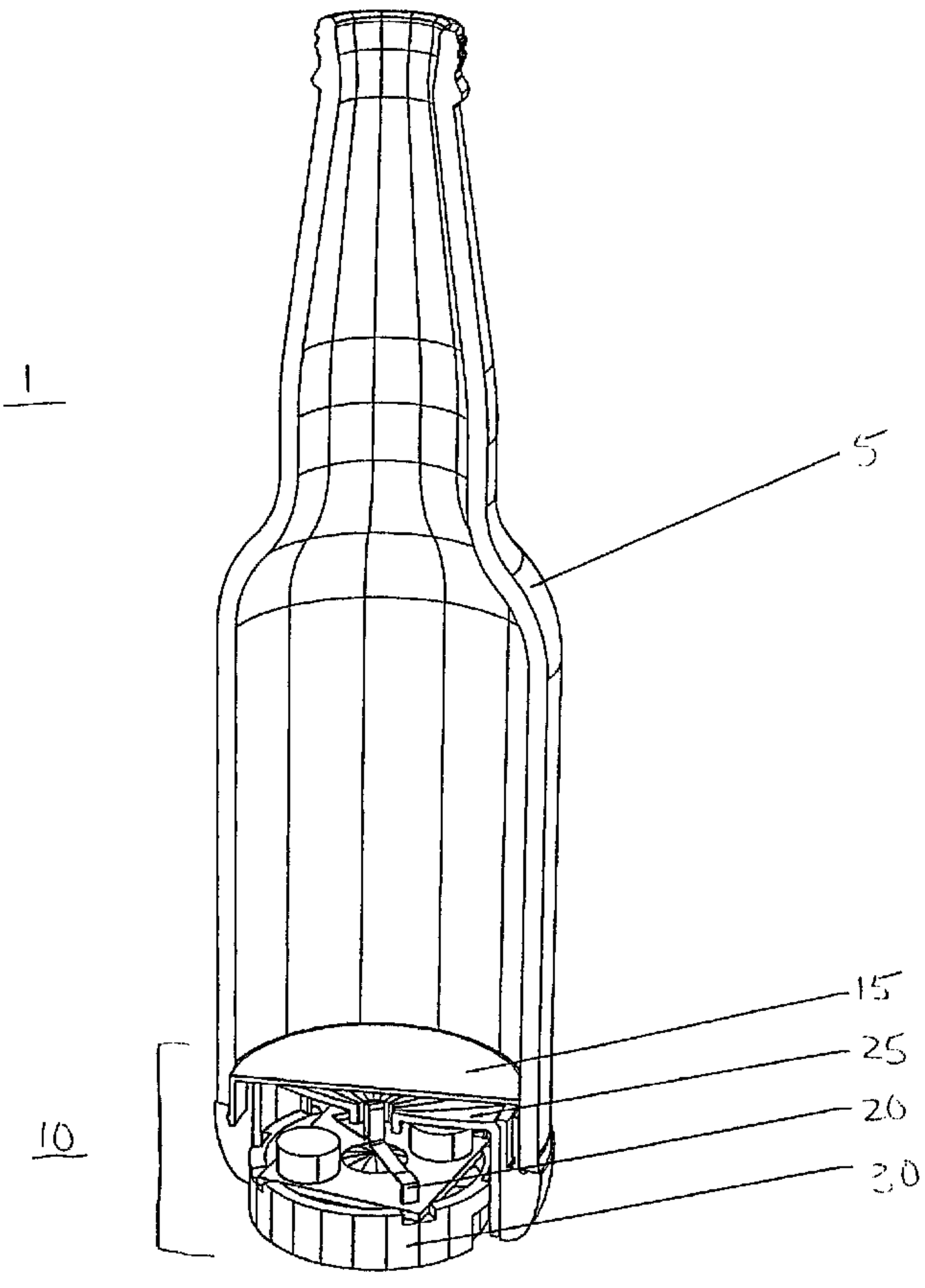
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