

# Widget (beer)

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A **widget** is a device placed in a container of beer to manage the characteristics of the beer's head. The original widget was patented in Ireland by Guinness. The "floating widget" is found in cans of beer as a hollow plastic sphere, 3 cm in diameter (similar in appearance to a small table tennis ball) with a small hole in one side. The "rocket widget" (<http://www.wired.com/culture/lifestyle/news/2001/12/49020>) is found in bottles, 7 cm in length with the small hole at the bottom.



Guinness floating widget



Guinness beer bottle widget

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## Background

Draught Guinness, as it is known today, was first produced in 1964. With Guinness keen to produce draught beer packaged for consumers to drink at home, Bottled Draught Guinness was formulated in 1978 and launched into the Irish market in 1979. It was never actively marketed internationally as it required an "initiator" device, which looked rather like a syringe, to make it work.

## Method

Some canned beers are pressurized by adding liquid nitrogen, which vaporises and expands in volume after the can is sealed, forcing gas and beer into the widget's hollow interior through a tiny hole—the less beer the better for subsequent head quality. In addition, some nitrogen dissolves in the beer which also contains dissolved carbon dioxide. It is important that oxygen be eliminated from any process developed as this can cause flavour deterioration when present.

The presence of dissolved nitrogen allows smaller bubbles to be formed thereby increasing the creaminess of the head. This is because the smaller bubbles need a higher internal pressure to balance the greater surface tension, which is inversely proportional to the radius of the bubbles. Achieving this higher pressure would not be possible with just dissolved carbon dioxide, as the greater solubility of this gas compared to nitrogen would create an unacceptably large head.

When the can is opened, the pressure in the can quickly drops, causing the pressurised gas and beer

inside the widget to jet out from the hole. This agitation on the surrounding beer causes a chain reaction of bubble formation throughout the beer. The result, when the can is then poured out, is a surging mixture in the glass of very small gas bubbles and liquid.

This is the case with certain types of draught beer such as draught stouts. In the case of these draught beers, which before dispensing also contain a mixture of dissolved nitrogen and carbon dioxide, the agitation is caused by forcing the beer under pressure through small holes in a restrictor in the tap. The surging mixture gradually settles to produce a very creamy head

## Development

In 1969 two Guinness brewers at Guinness's St James's Gate brewery in Dublin, Tony Carey & Sammy Hildebrand developed a system for producing draught type Guinness from cans or bottles through the discharge of gas from an internal compartment. It was patented in British Patent No 1266351, filed 27 January 1969, with a complete specification published 8 March 1972.

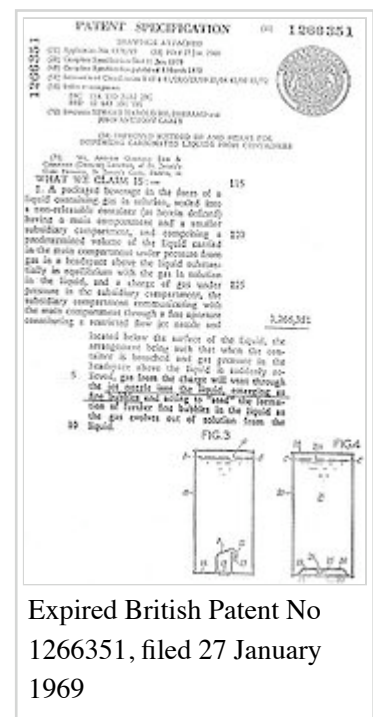
Development work on a can system under Project ACORN focused on an arrangement whereby a false lid underneath the main lid formed the gas chamber. Technical difficulties led to this approach being put on hold, and Guinness instead concentrated on bottles using external initiators. Subsequently, Guinness allowed this patent to lapse and it was not until Ernest Saunders centralised the company's research and development in 1984 that work restarted on this invention, under the direction of Alan Forage.

The design of an internal compartment that could be readily inserted during the canning process was devised by Alan Forage and William Byrne, and work started on the widget during the period 1984–85.

The plan was to introduce a plastic capsule into the can, pressurise it during the filling process and then allow it to release this pressure in a controlled manner when the can was opened. This would be sufficient to initiate the product and give it the characteristic creamy head. However, Tony Carey observed that this resulted in beer being forced into the widget during pasteurisation, which reduced the quality of the head. He suggested overcoming this by rapidly inverting the can after the lid was sealed on. This extra innovation proved successful.

The first samples sent to Dublin were labelled "Project Dynamite", which caused some delay before customs and excise would release the samples.<sup>[*citation needed*]</sup> Because of this the name was changed to Oaktree. Another name that changed was "inserts"; the operators called them "widgets" almost immediately after they arrived on site, a name that has now stuck with the industry.<sup>[*citation needed*]</sup>

The development of ideas continued and more than one hundred alternatives were considered. The blow-moulded widget was to be pierced with a laser and a blower was then necessary to blow away the plume created by the laser burning through the polypropylene. This was abandoned and instead it was decided to gas-exchange air for nitrogen on the filler,<sup>[*1*]</sup> and produce the inserts with a hole in place using straightforward and cheaper injection-moulding techniques.



Expired British Patent No 1266351, filed 27 January 1969

Commissioning began January 1988, with a national launch date of March 1989. This first-generation widget was a plastic disc held in place by friction in the bottom of the can. This method worked fine if the beer was served cold; when served warm the can would overflow when opened. The floating widget, which Guinness calls the "Smoothifier", was launched in 1997 and does not have this problem.

As the widget is a plastic material it can cause problems when the can is recycled. Users of cans containing widgets are often requested to remove them before recycling the can.

## Beer glass widget

The term *widget* can also be used to refer to a laser-etched pattern at the bottom of a beer glass which aids the release of carbon dioxide bubbles.<sup>[2]</sup> The pattern of the etching can be anything from a simple circular or chequered design to a logo or text.

The widget in the base of a beer glass works by creating a nucleation point, allowing the CO<sub>2</sub> to be released from the liquid which comes into contact with it, thus assisting in maintaining head on the beer.

While glass widgets work on any carbonated beverage, the result is considerably less noticeable with bottled or canned drinks, with the best results produced in draught lager or cider.

## See Also

James Davenport

## References

- ↑ Fitzpatrick, Nicholas; John Kuzniarski (3 August 1993). "CA Patent 1320934 - Gas Dissolving Method" (<http://www.wikipatents.com/ca/1320934.html>) . <http://www.wikipatents.com/ca/1320934.html>. Retrieved 2009-11-15.
- ↑ "Widget Glass" (<http://www.probertencyclopaedia.com/cgi-bin/res.pl?keyword=Widget+Glass&offset=0>) . [www.probertencyclopaedia.com](http://www.probertencyclopaedia.com). <http://www.probertencyclopaedia.com/cgi-bin/res.pl?keyword=Widget+Glass&offset=0>. Retrieved 2009-08-28.

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- Carey & Hildebrand, Improved method of and means for dispensing carbonated liquids from containers, UK Patent 1266351, published 8 March 1972 — the original invention behind the modern widget.
- Forage, et al., "*Beverage package and a method of packaging a beverage containing gas in solution* (<http://www.google.com/patents?vid=4832968>) ". United States Patent 4,832,968. 23 May 1989.



Circular widget etched in the base of a standard pint glass



Comparison of bubbles formed in a glass containing a widget (left) and one with a smooth base (right).

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Categories: Beer vessels and serving

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