

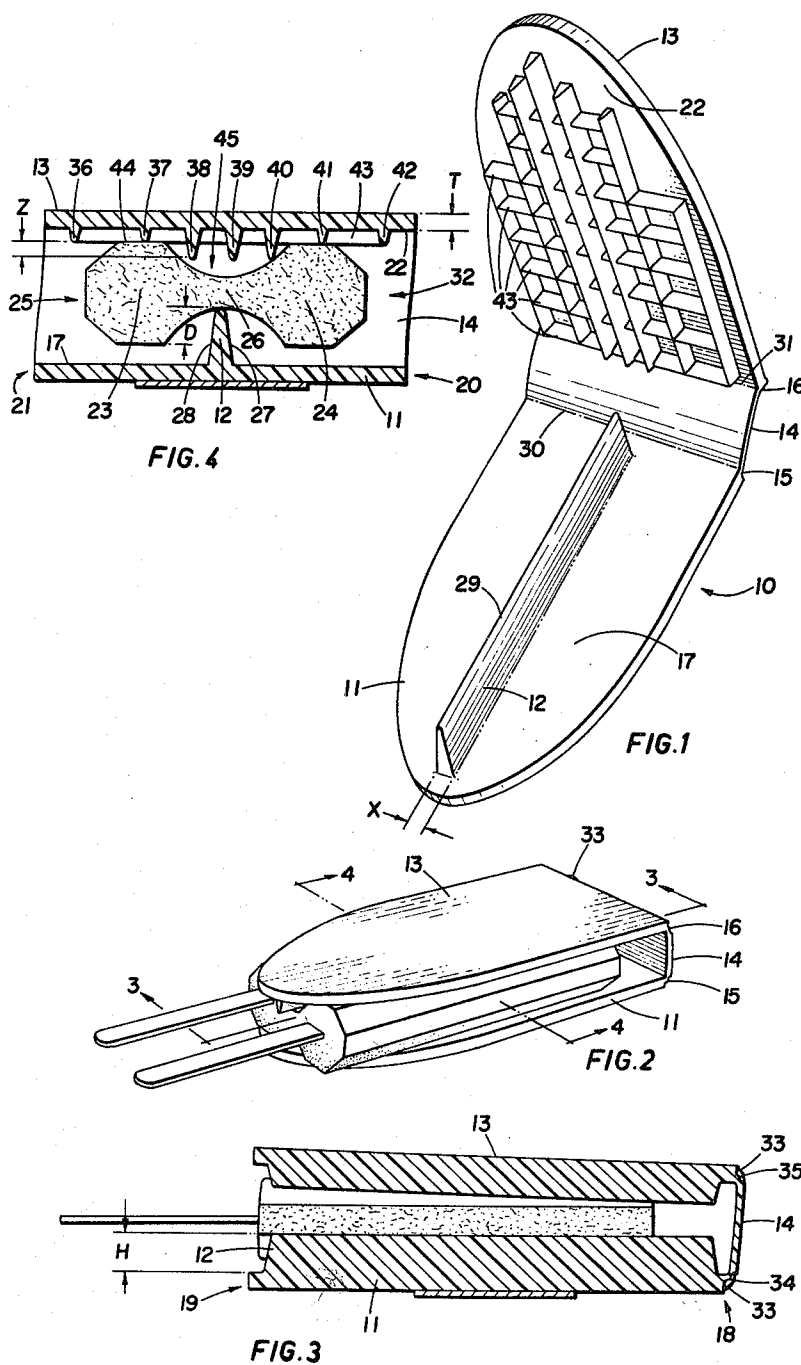
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BREAKING DEVICE FOR FROZEN CONFECTIONARY

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BREAKING DEVICE FOR FROZEN CONFECTIONARY

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This invention relates to a device for breaking a segmented frozen confectionary along a portion therein of reduced section joining said segments.

Frozen confectionaries are available in a variety of forms and in some cases are formed in two segments joined together by a portion of reduced section along which the confection may be split into separate segments. A wooden stick is usually embedded in each segment to facilitate handling of the same for consumption. One of the most popular forms of such segmented frozen confectionary is sold under the trade name "Popsicle" and in this specification such confectionary will hereinafter be so referred to.

Separation of the two segments of the popsicle is usually achieved by a variety of essentially manual methods which are generally inconvenient, time consuming and invariably messy. When the separation is to be effected at home, the most common method is to place a knife edge along the portion of reduced section and then administer a sharp blow to the back of the blade. This method is inherently dangerous particularly when performed by children and often results in the popsicle being split otherwise than intended. When it is required to break the popsicle into two segments away from home, without the usual kitchen facilities, the problem becomes even more acute. In these circumstances the popsicle is either positioned with the portion thereof of reduced section overlaying a sharp edge and struck to effect separation or is simply grasped in the hands and twisted to separate the segments. These methods, too, are unsatisfactory as they are messy and usually result in shattering of the popsicle otherwise than into the desired segments.

A device particularly adapted for splitting a popsicle along the portion of reduced section therein is described and illustrated in applicants' co-pending United States patent application, Serial No. 184,647. This device comprises generally a base plate having an upstanding rib on one surface thereof, two guide posts extending vertically upwards from the said surface and a second plate mounted above the base plate on the two posts for sliding movement therealong toward and away from the base plate. A popsicle positioned between the plates with the rib on the base plate bearing along the portion of reduced section will be split into substantially equal segments upon pressure being exerted on the upper surface of the popsicle through the second plate.

While this device provides tidy and efficient means for splitting a popsicle it is assembled from a number of component parts each requiring a separate mould, the requirement for plural moulds and for assembly being reflected in the cost of the device. Other attempts to provide popsicle splitters have resulted in devices which have been either complex and expensive or simple but otherwise unsatisfactory.

Accordingly it is the object of this invention to provide a simple and inexpensive device for expeditiously and efficiently splitting a segmented frozen confectionary in a desired manner said device being of moulded monolithic construction.

A preferred embodiment of this invention will now be described with reference to the accompanying drawings in which like numerals represent like parts and in which:

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FIGURE 1 is a perspective view of the breaking device in accordance with the invention showing details of construction thereof,

FIGURE 2 is a perspective view of the breaking device in accordance with the invention showing a popsicle positioned therein for splitting.

FIGURE 3 is a sectional view along the line 3-3 of FIGURE 2, and

FIGURE 4 is a sectional view along the line 4-4 of FIGURE 2.

Referring now to the drawings the moulded plastic popsicle breaker 10 is shown to comprise generally a rigid base plate 11, a popsicle cleaving rib 12 formed integrally of and extending across the base plate 11, a rigid pressure plate 13, and a panel member 14 integrally connecting said plates together through hinge strips 15 and 16 and mounting the pressure plate 13 in registration above the base plate 11 for reciprocable movement of the said plates toward and away from one another.

Rib 12 on the upper surface 17 of the base plate 11 is symmetrically located thereon between the ends 18, 19 and side edges 20, 21 and extends substantially vertically upwards from the surface 17 toward the under surface 22 of the pressure plate 13 a distance greater than the depth D of the grooves defined by the segments 23 and 24 of a popsicle 25 and the web 26 joining the segments.

The side surfaces 27 and 28 of rib 12 taper upwardly from plate 11 to form a knife edge 29 for cleaving a popsicle in a manner to be described. In order that the popsicle breaker 10 will be sufficiently strong and durable to withstand prolonged usage under conditions normally attendant upon use thereof by children the root thickness X of rib 12 at the junction thereof with plate 11 is preferably between about one quarter and one half the height H of the rib and not more than about two and one half times the thickness T of plate 11 and in this preferred embodiment the relation between H:X:T is approximately as 5:2:1 respectively. It will be appreciated by those skilled in the art that the above relationship between H, X and T tends to minimize sinking which may occur when moulding a relatively heavy member such as rib 12 onto a thin plate such as 11.

Plate 13 is mounted above plate 11 by a relatively rigid panel member 14 integrally connected through a hinge strip 15 to plate 11 along the lateral edge 30 thereof and to plate 13 through a similar hinge strip 16 along the lateral edge 31 thereof. Hinge strips 15 and 16 are of lesser thickness than plates 11, 13 and panel member 14 to facilitate bending thereat and are sufficiently stiff to support pressure plate 13 above plate 11 in spaced apart overlaying relation to provide a slot 32 between the plates within which a popsicle may be positioned for splitting; plates 11 and 13 are thus movable toward and away from one another about hinge strips 15 and 16.

The popsicle breaker 10 is moulded in flat folded out relation with plates 11, 13 and panel member 14 in substantially one plane and the mould is gated substantially centrally over the portion therein in which panel member 14 is formed. In order to facilitate the flow of plastic from this point across the shallow portions of the mould in which hinge strips 15 and 16 are formed and into the end sections thereof a channel of greater depth than the said shallow portions is formed in the mould across each such shallow portion. These channels result in complementary ribs 33 on the external surface 34 and 35 of hinge strips 15 and 16 respectively which extend across a respective hinge strip and join integrally with panel member 14 and an adjacent panel 11 or 13. Ribs 33 serve to strengthen the hinge strips and enhance the desired stiffness thereof.

Longitudinally extending ribs 36 to 42 inclusive and laterally extending ribs 43 on the undersurface 22 of plate

13 project substantially vertically downwardly from the said surface to provide a grid-like network of gripping elements; the central longitudinal rib 39, substantially directly above rib 12 on plate 11, and the immediately adjacent longitudinal ribs 38 and 40 projecting downwardly past the remaining said ribs on surface 22 a distance Z less than depth D of the aforesaid grooves in the popsicle 25, for a purpose to be described hereinafter. The relationship between the thickness of plate 13 and the depth and root thickness of each of ribs 36 to 40 and ribs 41 should, as with rib 12, be controlled to give strength and durability to the moulded product and to minimize sinking therein, and in this preferred embodiment a satisfactory relationship between the three variables in the order stated for ribs 36, 37, 41, 42 and ribs 43 is approximately 1.5:1:1 and for ribs 38, 39 and 40 approximately 1.5:1:2.

While plates 11 and 13 in this preferred embodiment of the invention are shown to be of generally rectangular spade-shaped configuration and of similar overall size it may in some circumstances, be advantageous and desirable to employ plates of different shapes and size as for example circular plates.

It may be required in some instances to utilize the popsicle breaker to split a popsicle of greater than normal thickness and it is preferable in such cases, in order to obtain a desirable splitting of the popsicle that the popsicle be inserted between the plates as aforesaid with the head end thereof positioned about one quarter to two thirds of the way along the rib 12 from the end of rib 12 adjacent end 18 of the base plate. To limit the insertion of the oversized popsicle between the plates as aforesaid one or more laterally extending barrier ribs may be provided on surface 22 of the base plate projecting upwardly therefrom a distance between about one half and about the full height H of rib 12.

In one method of operation a popsicle 25 having segments 23 and 24 joined together by a web 26 of reduced section is inserted between the plates 11 and 13 with web 26 thereof bearing upon the knife edge 29 of rib 12. As rib 12 projects beyond surface 17 of plate 11 a distance greater than the depth D as aforesaid the popsicle 25 is supported by rib 12 above surface 17. Pressure plate 13 is then pivoted downwardly about hinge strip 16 to bring the gripping elements formed by the ribs on the under-surface 22 of plate 13 into engagement with the surface 44 of the popsicle, the ribs 38, 39 and 40 projecting into the groove 45 of the popsicle to restrict sideways movement thereof while the same is engaged between the plates. Increasing pressure is then applied to plate 13 forcing rib 12 to cleave through web 26 and thereby separate the segments 23 and 24 of the popsicle.

While one preferred embodiment of this invention has been described it will be understood that various alterations in design may be resorted to without departing from the spirit of this invention and the scope of the appended claims,

What we claim is:

1. A one-piece molded thermoplastic device for breaking a frozen confection along a separation groove defined by a portion of reduced section therein comprising: a base plate having upper and lower base plate surfaces and boundary edges; a panel member having boundary edges; a first integral plastic hinge strip flexibly joining said panel member and said base plate together along a portion of their respective boundary edges; said first hinge strip being of reduced section relative to said base plate and panel member; a pressure plate having upper and lower pressure plate surfaces and boundary edges; a second integral plastic hinge strip flexibly joining said panel member and said pressure plate together along a portion of their respective edges; said second hinge strip being of reduced section relative to said pressure plate and said panel member; said first and second hinge strips orienting and locating said pressure plate in overlaying spaced apart relation above said base plate for movement of said plates toward and away from one another for clamping engagement of a confection placed therebetween; a straight elongate rib symmetrically located on the upper surface of said base plate within said boundary edges thereof and projecting substantially vertically upwardly from said surface toward said pressure plate a distance greater than the depth of the separation groove in said confection to seat within a portion at least of said groove and space said confection above said base plate when said confection is inserted between said plates and defining movement spaces on each side of said rib for reception of portions of said broken confection; and a plurality of spaced apart parallel ribs on the surface of said pressure plate parallel and in opposition to said rib on said base plate, said ribs on said pressure plate projecting substantially vertically downwardly therefrom to provide a group of members gripping said confection when clamped between said plates as aforesaid and registering in said separation groove thereof.

2. The device as claimed in claim 1 wherein said first and second hinge strips are each provided with at least one rib which extends transversely across a surface thereof and joins, integrally, with said panel member and an adjacent plate member.

3. The device as claimed in claim 1 including further rib formations on said pressure plate adjacent to said parallel ribs oriented normal to the axis thereof and of reduced thickness in relation thereto.

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