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(54) **Thick feed baby teat**

Sauger für Kleinkinder für dicke Nahrung

Tétine pour bébés pour nourriture épaisse

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## Description

**[0001]** This invention relates to a teat for use with a baby feeding bottle and more particularly to a teat for dispensing semi-solid rather than liquid feed.

**[0002]** Teats for baby bottles are designed to deliver liquid feed, such as milk, from the bottle to the baby. The baby sucks on the teat to draw the feed through one or more apertures in the end of the teat. Present teats are designed to deliver liquid feed of a watery consistency, such as milk, from the bottle to the baby. However, they do not function with feeds of a much thicker consistency.

**[0003]** In some European countries, mothers feed their babies with a feed which has a much thicker consistency similar to thin porridge. Unfortunately, this semi-solid feed will not pass through a regular teat so the mother has to feed the baby using a spoon which the baby may find difficult to cope with.

**[0004]** It is therefore the object of this invention to provide a teat for use in conjunction with a baby feed bottle, which allows feed of a thicker consistency than milk to be delivered from the bottle to the baby when feeding.

**[0005]** It is known from US-A-3113569 A to provide a baby feeding teat for dispensing semi-solid feed comprising a body portion with a mouthpiece at one end thereof which is elliptically shaped in cross section in its relaxed state so as to have a major axis which is longer than its minor axis, at least one aperture being formed in said mouthpiece.

**[0006]** CH 357 149 A discloses a body leading teat that can regulate the flow rate by different orientation of the slotted apertures in the mouth of a baby.

**[0007]** A baby feeding teat for dispensing semi-solid feed according to the present invention and according to claim 1 is characterised in that the or each aperture is a slot, each slot being oriented to be normal to the major axis of the mouthpiece and dimensioned to allow the passage of semi-solid feed therethrough when the baby sucks on the mouthpiece, the or each slot being dimensioned and arranged on the mouthpiece so that its cross sectional area increases when the baby compresses and sucks on the mouthpiece to draw the semi-solid feed therethrough.

**[0008]** In the preferred embodiment, three slots are provided on the mouthpiece.

**[0009]** Preferably, the slots are parallel to each other.

**[0010]** In the preferred embodiment ribs are formed on the interior surface of the mouthpiece on opposite walls thereof. Preferably, the ribs extend along the whole length of the mouthpiece and they preferably are off-set relative to each other.

**[0011]** The invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a partial cross section of a feeding bottle; Figure 2A is a side view of a teat of the invention for fitting to the bottle of Figure 1;

Figure 2B is a side view of the teat shown in Figure 2A but rotated through 90°;

Figure 3 is a plan view from above of the teat shown in Figures 2A and 2B;

5 Figure 4 is a plan view from below of the teat shown in Figure 3;

Figure 5 is a cross section of a cap used for attaching the teat to the bottle shown in Figure 1; and

10 Figures 6A and 6B are diagrammatic cross sectional views showing the cap holding the teat on the bottle.

**[0012]** The baby feed bottle shown in Figure 1 has a main portion 1 and a neck portion 2 with a rim 6. These portions are generally cylindrical, but the main portion is marginally waisted, as indicated at 3, to facilitate hand holding. The neck has an interrupted screw thread 4 for receiving an annular teat fitting cap 22 (see Figure 5). The cap 22 is used to attach the teat 8 to the bottle 2 and comprises a cylindrical body 22A with an end wall 23 with a central hole 24 in it. The interior of the body 22A is formed with an internal interrupted screw thread 21.

**[0013]** The bottle is made of clear polycarbonate and provided with graduated markings (not shown) indicating capacity, for example up to a full capacity just at the top of the main portion 1 wherein it starts to merge into the neck portion 2 of reduced diameter. The base 5 of the bottle is slightly domed, convexly upwardly, whilst the rim 6 of the bottle neck has a chamfered edge 7.

**[0014]** Figures 2A, 2B, 3 and 4 show the configuration of a moulded teat 8 of the invention for use with the bottle of Figure 1. The teat 8 comprises a mouthpiece 11 which is elliptical in cross section and has a shallowly curved surface 10 at its remote end in which perforations 12 are formed. A dormal cap or cover (not shown) of known type is normally fitted on the screw cap 22 to enclose the teat 8, the end surface 10 of the teat contacting the under-surface of the dormal cap to make a seal therewith and prevent feed leaking from the teat 8 until the cap is removed. The perforations preferably consist of three equidistantly spaced open slots 12A-12C spanning the shorter distance across the mouthpiece end, as can be seen in Figure 3. As already mentioned, the mouthpiece 11 is elliptical in plan view rather than circular as in conventional bottle-feed teats, for reasons which will be explained hereafter. The two outside slots 12A and 12C are preferably 5.5mm long whereas central slot 12B is preferably 7mm in length. Each slot 12A-12C is preferably 0.4mm wide. It should be noted that these dimensions are given by way of example only and that the slots could therefore be dimensioned to suit the characteristics of the thick feed to be dispensed.

**[0015]** The teat 8 has a body portion 11A with an annular groove 13 around its base localised immediately above an outwardly extending annular flange 14. The flange 14 has a downwardly depending inner annular lip 15 extending from its undersurface and an outer axially shorter bead or lip 16 to define an annular recess 16A therebetween (see Figure 6A) which receives the upper

edge of the bottle neck 2. The lower half of the inner annular lip 15 has a section 17 which tapers radially outwardly. This section 17 cooperates with the inner surface of the neck 2 and acts as a flap valve when the teat is in use, as will be described later with reference to Figure 5.

**[0016]** A rib 18 is formed on the inside wall of each of the longer sides of the teat mouthpiece 11 between the centre slot 12B and outer slots 12A and 12C, as shown in Figure 4. Each rib 18 extends axially along substantially the whole length of the mouthpiece 11 (see Figures 6A and 6B). The underside of the annular flange 14 and the bead 16 has two pairs of diametrically opposed grooves 19 therein which extend from the outer edge of the flange 14 to the outer wall of the inner annular lip 15 for reasons which will be explained.

**[0017]** The flange 14 is dimensioned to seat on the rim 6 of the bottle neck 2 with the inner lip 15 extending into the interior of the bottle neck with a small clearance from the interior surface of the bottle neck 2. The bead 16 fits around the bottle neck 2 on the chamfered rim 7 and the two pairs of diametrically opposed grooves 19 bridge the top of the rim 6 to allow air to pass from the exterior to the interior of the bottle 1.

**[0018]** Figures 6A and 6B show how the teat 8 is mounted on the bottle neck 2 using the cap 22. Figure 6A shows the annular cap 22 screwed loosely on to the bottle neck. The teat flange 14 and inner depending lip 15 are undistorted, with the lip 15 spaced with a small radial clearance within the neck 2 of the bottle.

**[0019]** Figure 6B shows the effect of screwing the cap 22 onto the bottle neck 2. It can be seen that the inner region 32 of the flange 14 is pressed downwardly due to the axial pressure exerted on the teat by the inner peripheral rim 24A of the cap 22 which is seated in the annular groove 13 on the teat 8. In consequence, the inner depending lip 15 is deformed radially outwardly to engage and seal at 33 with the interior wall of the bottle neck 2. An axial movement of the cap 22 by about 2mm is sufficient to deform the teat from the position shown in Figure 6A to the condition shown in Figure 6B.

**[0020]** The manner in which the inner lip 15 acts as a flap valve, in use, can also be seen from Figure 6B. External air pressure exists on the radially outer side of the lip 15, in the space 34, due to the free passage of air past the interrupted screw threads 21 and the radial grooves 19 in the teat flange 14. Consequently, if pressure in the bottle falls due to feed being sucked out through the teat 8, the lip 15 deforms inwardly away from the inside face of the bottle neck 2, i.e. opening in the manner of a flap valve to let air into the bottle. This minimises risk of teat collapse, even with the relatively large teat of this invention. The flap closes again when the pressure in the bottle has equalised to the pressure outside.

**[0021]** The efficiency of the flap valve action is assisted by the tapered section 17 at the end of the inner lip 15 shown in Figures 2A and 2B, since this helps to ensure that the seal is effected around a circular line, as distinct from a circular band.

**[0022]** The open slots 12A-12C of the teat 8 of the invention allow baby feed of a much thicker consistency to be delivered from the teat 8 during feeding. However, they are narrow enough to normally prevent the thick feed from passing through them. By feed of a much thicker consistency, we mean one which has a consistency similar to thin porridge. In order to draw the feed through the slots 12 in the mouthpiece 10, the baby bites on the teat and thereby applies a pressure to the longer sides 20 of the mouthpiece 11 whilst sucking. This pressure/biting action compresses and deforms the mouthpiece 11 to form a longer more elliptical shape in cross section, which has the effect of widening the slots 12 to form larger apertures in the mouthpiece end 10. This allows the viscous feed to pass through the slots and out of the bottle. The ribs 18 on the inner side of the mouthpiece assist in preventing the mouthpiece from collapsing easily under pressure from the baby's mouth whilst feeding.

**[0023]** The teat can be moulded from natural or synthetic rubber, silicone or thermoplastic elastomer.

### Claims

1. A baby feeding teat for dispensing semi-solid feed comprising a body portion with a mouthpiece (11) at one end thereof which is elliptically shaped in cross-section in its relaxed state so as to have a major axis which is longer than its minor axis, at least one aperture being formed in the mouthpiece (11), **characterised in that** the or each aperture is a slot, each slot (12A-12C) being oriented to be normal to the major axis of the mouthpiece and dimensioned to allow the passage of semi-solid feed therethrough when the baby sucks on the mouthpiece (11), the or each slot (12A-12C) being dimensioned and arranged on the mouthpiece (11) so that its cross sectional area increases when the baby compresses and sucks on the mouthpiece (11) to draw the semi-solid feed therethrough.
2. A teat as claimed in claim 1, wherein three slots (12A-12C) are provided on the mouthpiece (11).
3. A teat as claimed in claim 1 or claim 2, wherein the slots (12A-12C) are parallel to each other.
4. A teat as claimed in any preceding claim wherein ribs (18) are formed on the interior surface of the mouthpiece (11) on opposite walls thereof.
5. A teat as claimed in claim 4, wherein the ribs (18) extend along the whole length of the mouthpiece (11).
6. A teat as claimed in claim 4 or claim 5, wherein the facing ribs (18) are off-set relative to each other.

### Patentansprüche

1. Sauger zum Füttern von Kleinkindern für die Abgabe halbfester Nahrung, umfassend einen Körperabschnitt mit einem Mundstück (11) an einem Ende davon, das in seinem entspannten Zustand im Querschnitt elliptisch geformt ist, so dass es eine Hauptachse aufweist, die länger ist als seine Nebenachse, wobei wenigstens eine Öffnung im Mundstück (11) ausgebildet ist, **dadurch gekennzeichnet, dass** die oder jede Öffnung ein Schlitz ist, wobei jeder Schlitz (12A-12C) so ausgerichtet ist, dass er normal zur Hauptachse des Mundstücks verläuft, und so dimensioniert ist, dass der Durchfluss halbfester Nahrung ermöglicht wird, wenn das Kleinkind am Mundstück (11) saugt, wobei der oder jeder Schlitz (12A-12C) auf dem Mundstück (11) so dimensioniert und angeordnet ist, dass seine Querschnittsfläche zunimmt, wenn das Kleinkind das Mundstück (11) zusammendrückt und ansaugt, um halb feste Nahrung herauszuziehen. 5
2. Sauger nach Anspruch 1, wobei drei Schlitz (12A-12C) auf dem Mundstück (11) bereitgestellt sind. 10
3. Sauger nach Anspruch 1 oder 2, wobei die Schlitz (12A-12C) parallel zueinander verlaufen. 15
4. Sauger nach einem der vorhergehenden Ansprüche, wobei Rippen (18) auf der Innenseite des Mundstücks (11) auf gegenüberliegenden Wänden davon ausgebildet sind. 20
5. Sauger nach Anspruch 4, wobei sich die Rippen (18) entlang der gesamten Länge des Mundstücks (11) erstrecken. 25
6. Sauger nach Anspruch 4 oder 5, wobei die einander zugewandten Rippen (18) zueinander versetzt sind. 30

surface en coupe augmente lorsque le bébé comprime et aspire l'embout buccal (11) pour attirer l'aliment semi-solide à travers lui.

2. Tétine selon la revendication 1, dans laquelle trois fentes (12A-12C) sont prévues sur l'embout buccal (11). 35
3. Tétine selon la revendication 1 ou la revendication 2, dans laquelle les fentes (12A-12C) sont parallèles les unes aux autres. 40
4. Tétine selon l'une quelconque des revendications précédentes, dans laquelle des nervures (18) sont formées sur la surface interne de l'embout buccal (11) sur des parois opposées de celui-ci. 45
5. Tétine selon la revendication 4, dans laquelle les nervures (18) s'étendent sur l'ensemble de la longueur de l'embout buccal (11). 50
6. Tétine selon la revendication 4 ou la revendication 5, dans laquelle les nervures se faisant face (18) sont décalées l'une par rapport à l'autre. 55

### Revendications

1. Tétine pour alimentation de bébé destinée à distribuer un aliment semi-solide comprenant une partie formant corps avec un embout buccal (11) à une extrémité qui présente une forme elliptique en coupe dans son état relâché de sorte à avoir un axe principal qui est plus long que son axe secondaire, au moins une ouverture étant formée dans l'embout buccal (11), **caractérisée en ce que** la ou chaque ouverture est une fente, chaque fente (12A-12C) étant orientée pour être perpendiculaire à l'axe principal de l'embout buccal et dimensionnée pour permettre le passage de l'aliment semi-solide à travers elle lorsque le bébé aspire l'embout buccal (11), la ou chaque fente (12A-12C) étant dimensionnée et agencée sur l'embout buccal (11) de sorte que sa 45

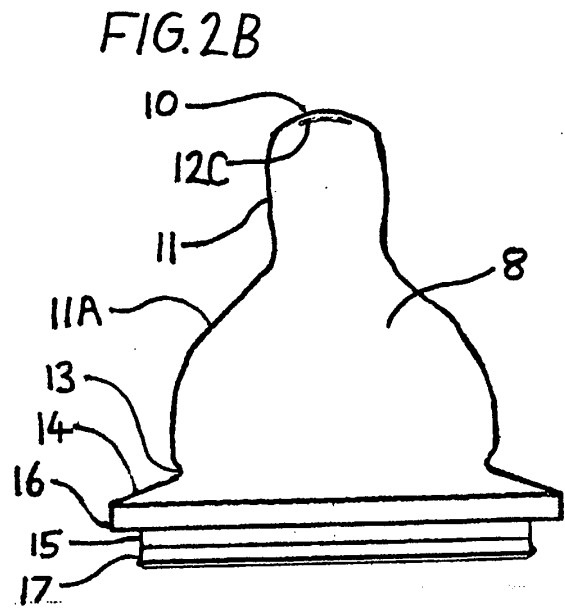
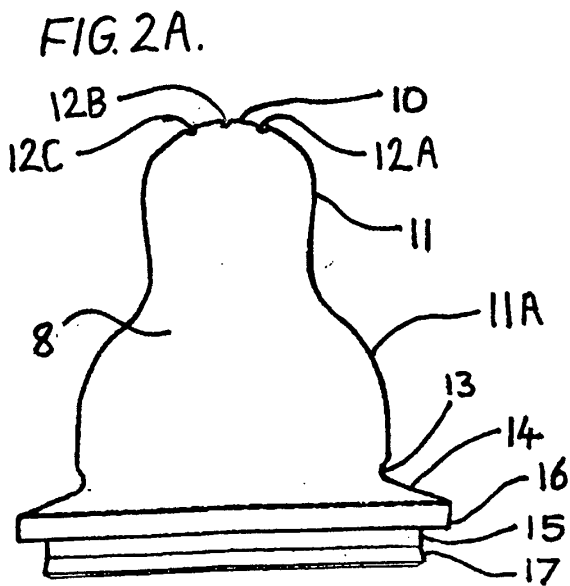
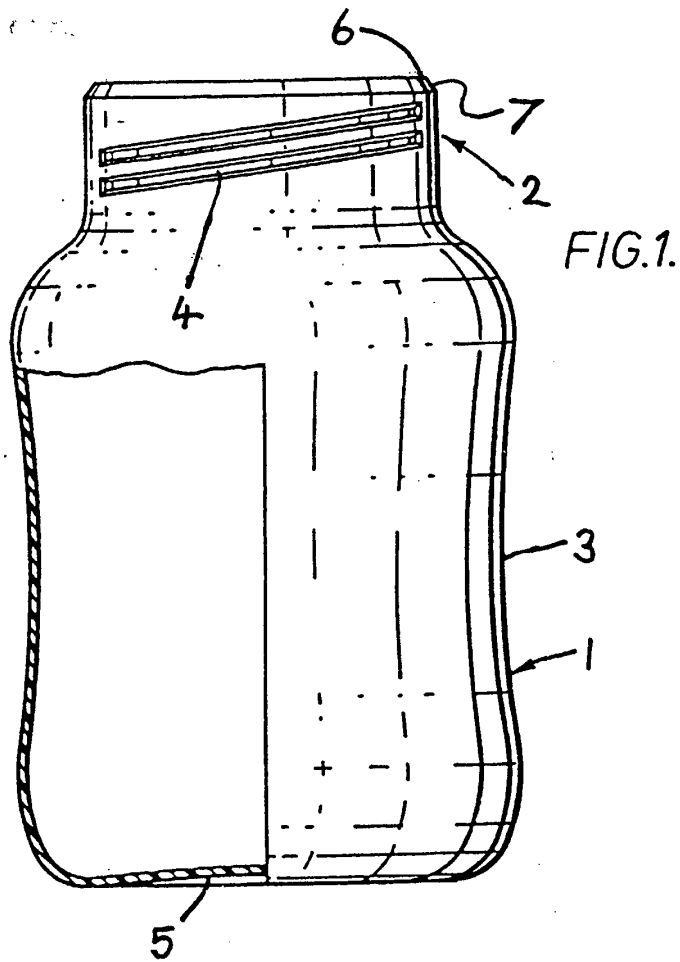


FIG. 3.

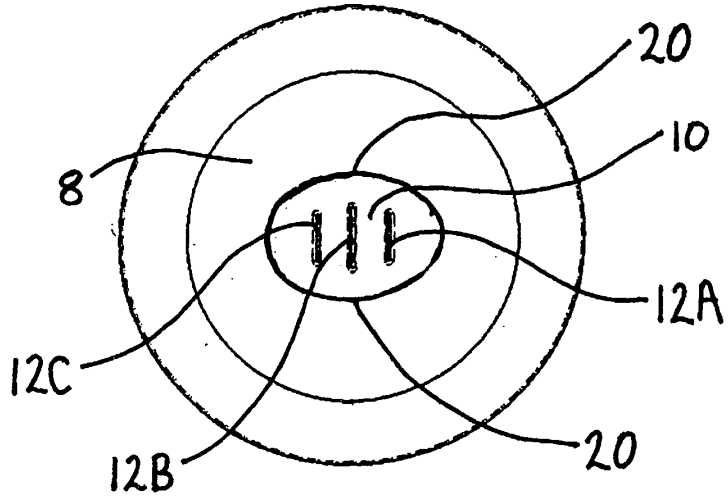


FIG. 4.

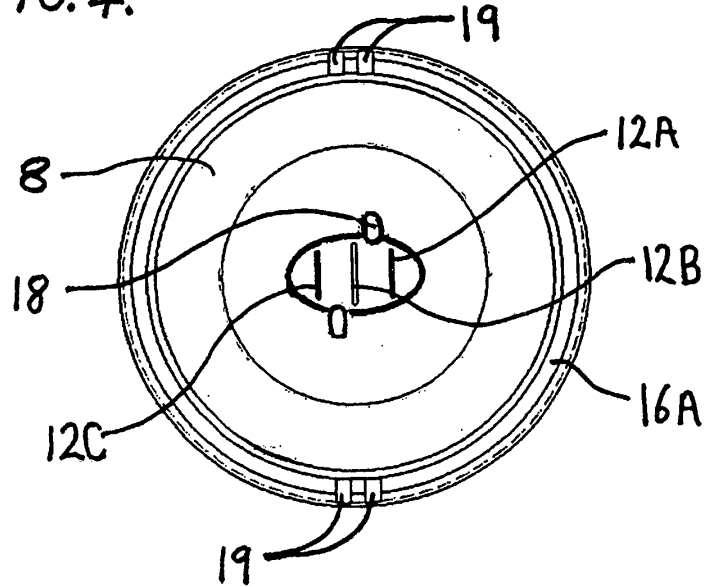


FIG.5.

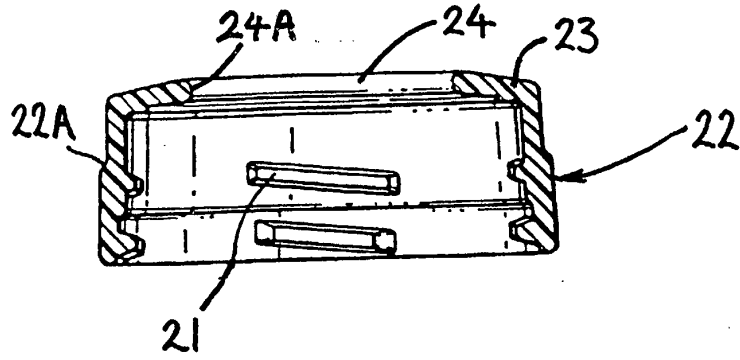


FIG.6A.

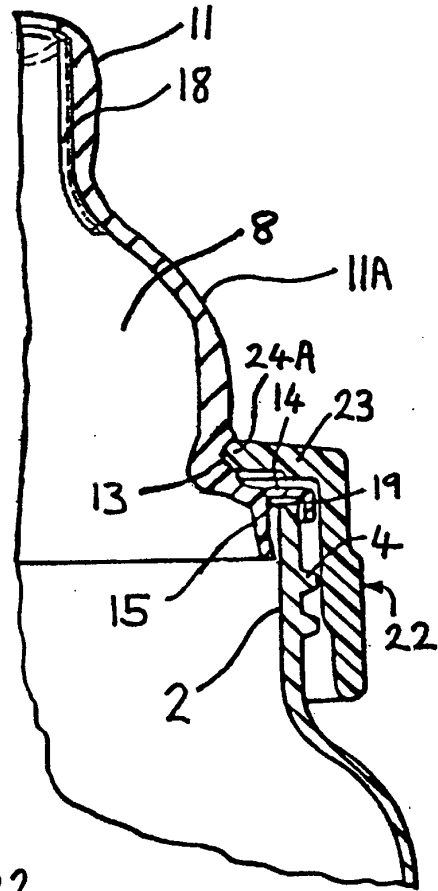
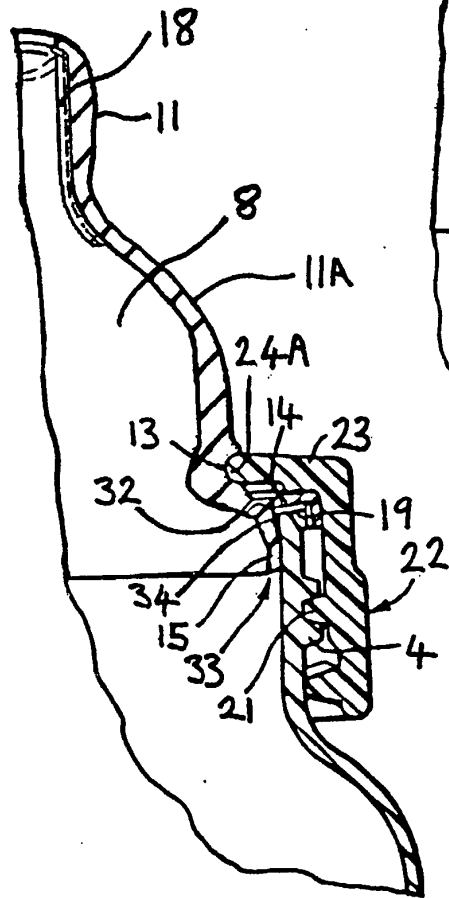


FIG.6B.



**REFERENCES CITED IN THE DESCRIPTION**

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