

Document made available under the Patent Cooperation Treaty (PCT)

International application number: PCT/GB05/002532

International filing date: 29 June 2005 (29.06.2005)

Document type: Certified copy of priority document

Document details: Country/Office: GB
Number: 0414560.3
Filing date: 29 June 2004 (29.06.2004)

Date of receipt at the International Bureau: 19 July 2005 (19.07.2005)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b)



World Intellectual Property Organization (WIPO) - Geneva, Switzerland
Organisation Mondiale de la Propriété Intellectuelle (OMPI) - Genève, Suisse



PCT/GB2005/002532



INVESTOR IN PEOPLE

The Patent Office
Concept House
Cardiff Road
Newport
South Wales
NP10 8QQ

I, the undersigned, being an officer duly authorised in accordance with Section 74(1) and (4) of the Deregulation & Contracting Out Act 1994, to sign and issue certificates on behalf of the Comptroller-General, hereby certify that annexed hereto is a true copy of the documents as originally filed in connection with the patent application identified therein.

In accordance with the Patents (Companies Re-registration) Rules 1982, if a company named in this certificate and any accompanying documents has re-registered under the Companies Act 1980 with the same name as that with which it was registered immediately before re-registration save for the substitution as, or inclusion as, the last part of the name of the words "public limited company" or their equivalents in Welsh, references to the name of the company in this certificate and any accompanying documents shall be treated as references to the name with which it is so re-registered.

In accordance with the rules, the words "public limited company" may be replaced by p.l.c., plc, P.L.C. or PLC.

Re-registration under the Companies Act does not constitute a new legal entity but merely subjects the company to certain additional company law rules.

Signed

Andrew

Dated 12 July 2005



Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
Newport
South Wales
NP9 1RH

1. Your reference P37272GB

2. Patent application number
(The Patent Office will fill in this part)

0414560.3

29 JUN 2004

3. Full name, address and postcode of the or of each applicant (*underline all surnames*)

Jackel International Limited
Dudley Lane
Cramlington
Northumberland, NE23 7RH

Patents ADP number (*if you know it*)

7204746001

If the applicant is a corporate body, give the country/state of its incorporation

United Kingdom

4. Title of the invention

Teat

5. Name of your agent (*if you have one*)

"Address for service" in the United Kingdom to which all correspondence should be sent (*including the postcode*)

Kilburn & Strode
20 Red Lion Street
London
WC1R 4PJ

Patents ADP number (*if you know it*)

125001 /

6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (*if you know it*) the or each application number

Country

Priority application number
(*if you know it*)

Date of filing
(*day / month / year*)

7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application

Date of filing
(*day / month / year*)

8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (*Answer 'Yes' if:*

- a) any applicant named in part 3 is not an inventor, or
 - b) there is an inventor who is not named as an applicant, or
 - c) any named applicant is a corporate body.
- See note (d))

YES

Patents Form 1/77

9. Enter the number of sheets for any of the following items you are filing with this form.
Do not count copies of the same document

Continuation sheets of this form

Description 4 —

Claim(s) 2 —

Abstract —

Drawing(s) 2 1 2 8 2

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77)

Request for substantive examination (Patents Form 10/77)

Any other documents (please specify)

11. I/We request the grant of a patent on the basis of this application.

Signature

G. V. Roberts

Date 29.6.04

12. Name and daytime telephone number of person to contact in the United Kingdom

Gwilym V. Roberts
Tel: 020 7539 4200

Warning

After an application for a patent has been filed, the Comptroller of the Patent Office will consider whether publication or communication of the invention should be prohibited or restricted under Section 22 of the Patents Act 1977. You will be informed if it is necessary to prohibit or restrict your invention in this way. Furthermore, if you live in the United Kingdom, Section 23 of the Patents Act 1977 stops you from applying for a patent abroad without first getting written permission from the Patent Office unless an application has been filed at least 6 weeks beforehand in the United Kingdom for a patent for the same invention and either no direction prohibiting publication or communication has been given, or any such direction has been revoked.

Notes

- If you need help to fill in this form or you have any questions, please contact the Patent Office on 0645 500505.*
- Write your answers in capital letters using black ink or you may type them.*
- If there is not enough space for all the relevant details on any part of this form, please continue on a separate sheet of paper and write "see continuation sheet" in the relevant part(s). Any continuation sheet should be attached to this form.*
- If you have answered 'Yes' Patents Form 7/77 will need to be filed.*
- Once you have filled in the form you must remember to sign and date it.*
- For details of the fee and ways to pay please contact the Patent Office.*

Teat

The invention relates to a teat, in particular a teat or a nipple for a feeding bottle.

5

Various known teats have been designed to mimic the human breast in operation. One known teat is described in US6645228 and includes a stem and a base. The base has a bulbous region and an areola region from which the stem projects. The bulbous region has an upper region with a progressively thinning wall which acts as a spring element such that as an infant sucks on the teat the areola and stem move back and forth relative to the bulbous region.

10

Various problems arise with this arrangement. Movement of the areola region and stem relative to the bulbous region does not closely mimic the movement of the human breast during sucking. Furthermore because flexibility is provided upon a progressively thinning wall region, the amount of flexing and the point at which flexing takes place is undefined and unpredictable.

15

The invention is set out in the claims. Because the flex region is provided in the areola portion allowing the teat portion and/or areola portion to move towards and away from one another a more natural feeding action is provided. Furthermore because of the inclusion of a plurality of flex channels the point of flexure is clearly defined.

20

Embodiments of the invention will now be described by way of example with reference to the drawings, of which:

25

Fig. 1 is a cross-sectional side view of a teat according to the present invention; Fig. 2a is a side view of the teat of Fig. 1 in use in a first flexed position; and

Fig. 2b is a side view of the teat of Fig. 1 in use in a second flexed position.

Referring firstly to Fig. 1 a teat 10 includes a teat portion 12, a base portion 14 and an areola portion 16 therebetween. A flange 18 extends from the base of the base portion to allow fixing to a feeding bottle (not shown) in any appropriate known manner. The base portion may also include a one-way air-inlet valve of any appropriate type for example an integrally moulded duck-bill valve (not shown). The teat has circular symmetry around an axis A running through the centre of the teat.

10

The areola portion 16 includes a flex region 20 comprising three grooves or flex channels 22 extending around an inner surface of the areola portion effectively forming circular thinned regions parallel/concentric with each other about the axis A and hence surrounding the teat portion. The flex region 20 is generally provided between a transition region 24 separating the base portion 14 and the areola portion 16 and a transition region 26 separating the areola portion 16 and the teat portion 12. The flex region 20 allows flexing of the teat as described in more detail below.

15

The teat can be formed in any appropriate manner, for example compression or injection moulding and formed of any appropriate elastic material such as silicone, latex or thermoplastic elastomer (TPE). Injection moulded silicone provides a particularly desirable degree of elasticity in the teat portion. The teat portion 12 is preferably thinner in cross-section than the remainder of the teat or is co-moulded with a more flexible material to allow additional flexing of the teat portion relative to the teat as a whole. The teat can have a texture such as a skin-like texture moulded or otherwise patterned on to its surface.

25

As shown in Figs 2a and 2b, in operation an infant drinks from the teat mounted on a bottle, the infant's tongue 50 contacting the teat portion 12, the infant's teeth or gums 52 contacting the transition portion 26 and the infant's lips 54 contacting the areola portion 16 generally at the flex region 20. As a result, as the infant sucks on a teat the teat portion and areola portion flex towards and away from one another by virtue of respective collapsing and extending of the flex region around the flexed channels 22. In particular, as can be seen in Fig. 2a, reduced suction on the teat portion 12 towards the base portion 14 relaxes the flexible reduced suction whereas, as shown in Fig. 2b, suction on the teat portion 12 away from the base portion 14 collapses the flexible region 20 extending the teat portion and areola portion away from one another.

The back and forth motion of the teat portion 12 mimics very closely the natural movement of the human breast during suckling or sucking of the infant by effectively allowing the teat to move and stretch as skin moves and stretches. The grooves or channels further visually define an areola area and are placed at an area of the teat which is also a non-bite area. The flexible portion also provides a pumping action on liquid in the bottle as the teat portion oscillates or reciprocates back and forth.

It will be appreciated that the teat can be formed of any material and can be any appropriate shape which may be, for example, non-symmetrical such as a shaped or orthodontic teat or even more closely mimicking the shape of the human breast. Different teat configurations can be provided to grow with different ages of infant. For example the teat portion can be made progressively longer as the age of the infant who will be using the teat increases and/or the texture can be made less prominent, for example ranging from coarse for new-borns through fine to gloss. The flex channels in the flex

region can be of any appropriate profile for example square, semi-circular or triangular in cross-section and can be provided on the inner or outer surface of the teat and in any appropriate number. Instead of providing thinned regions the flexed channels can be formed by a concertina or bellows configurations moulded into the teat or any other appropriate hinge or fold mechanism.

5

Claims

1. A teat comprising a base portion, a teat portion and an areola portion therebetween from which the teat portion extends, in which the areola portion includes a flex region allowing movement of the teat portion and areola portion in a direction towards and away from one another, and in which the flex region includes a plurality of flex channels defining the flex direction.
2. A teat as claimed in claim 1 in which the flex channels comprise grooves formed in the areola region.
3. A teat as claimed in claim 2 in which the grooves surround the teat portion.
4. A teat as claimed in claim 2 or claim 3 in which the grooves are generally parallel with one another.
5. A teat as claimed in any preceding claim in which a first transition area extends between the base portion and the areola portion and a second transition area extends between the areola portion and the teat portion and in which the flex region is provided intermediate the first and second transition areas.
6. A teat as claimed in any preceding claim in which the flex region is provided in a plane generally transverse to the flex direction.
7. A teat as claimed in any preceding claim in which the teat portion material is flexible in the flex direction.

- 5 8. A teat comprising a base portion, a teat portion and an areola portion therebetween from which the teat portion extends, in which a first transition area extends between the base portion and the areola portion and a second transition area extends between the areola portion and the teat portion, the teat further comprising a flex region allowing movement of the teat portion and areola portion in a direction towards and away from one another in which the flex region is provided intermediate the first and second transition areas.
- 10 9. A teat comprising a base portion, a teat portion and an areola portion therebetween from which the teat portion extends and a flex region allowing flexing of the teat portion in a direction towards and away from the base portion, in which the flex region extends in a plane generally transverse to the flex direction.
- 15 10. A feeding bottle including a teat as claimed in any preceding claim.
- 20 11. A teat or feeding bottle substantially as herein described with reference to the drawings.







