(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number: **0 009 459**
A1

(12) EUROPEAN PATENT APPLICATION

(21) Application number: **79710091.4**

(51) Int. Cl.³: **A 61 J 11/04**

(22) Date of filing: **18.09.79**

(30) Priority: **20.09.78 JP 129848/78**

(43) Date of publication of application: **02.04.80 Bulletin 80/7**

(84) Designated Contracting States: **AT BE CH DE FR GB IT NL SE**

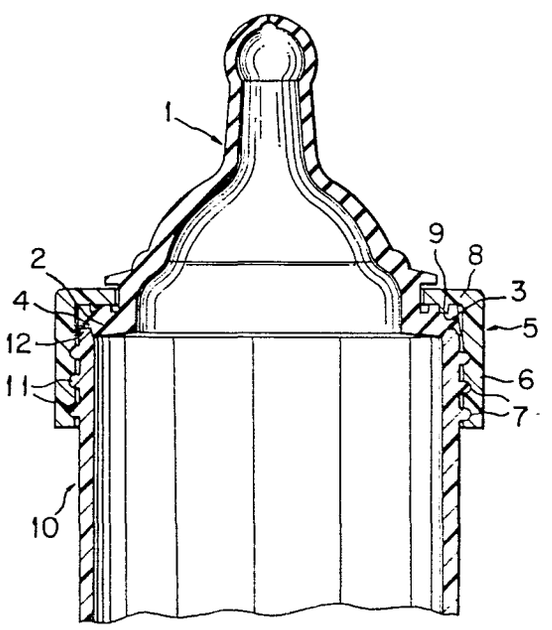
(71) Applicant: **Itoh, Hiroshi, Ohazamimuro 3694-6, Urawa-shi Saitama (JP)**

(72) Inventor: **Itoh, Hiroshi, Ohazamimuro 3694-6, Urawa-shi Saitama (JP)**

(74) Representative: **Lüke, Dierck-Wilm, Dipl.-Ing., Gelfertstrasse 56, D-1000 Berlin 33 (DE)**

(54) Mouthpiece clamping structure in a nursing device (nursing bottle).

(57) This invention relates to a clamping structure for clamping air- tight a flexible rubber mouthpiece (1) with an open end (12) of a receptacle (10) in a nursing device. Specifically, in a clamping structure for clamping a flange (2) for fitting a flexible rubber mouthpiece (1) between an open end (12) of a receptacle (10) and an inside flange (8) of a clamping cap (5) threadedly engaged with the periphery of the end portion (open end 12) of the receptacle (10), the invention relates to the improvement wherein an annular engaging projection (9) provided on the inside flange (8) is engaged with one of annular engaging grooves (3, 4) provided on both surfaces of the mouthpiece fitting flange (2), and the open end of said receptacle (10) is engaged with the other (4).



EP 0 009 459 A1

Mouthpiece clamping structure in a nursing device (nursing bottle)

This invention relates to a clamping structure for clamping air-tight a flexible rubber mouthpiece with an open end of a receptacle in a nursing or feeding device.

A clamping structure has previously been known in which a fitting flange is provided at the base of a rubber mouthpiece, and is clamped with an inside flange of a clamping cap threadedly engaged with the periphery the end portion of the receptacle. The conventional clamping structure, however, has the defect that when the clamping cap is turned for clamping, the fitting flange deviates irregularly and comes out from between the open end of the receptacle and the inside flange of the cap, thus causing a failure of the desired clamping.

It is an object of this invention to improve the mouthpiece clamping structure in a conventional nursing device.

According to this invention, there is provided in a mouthpiece clamping structure in a nursing device for clamping a flange for fitting a flexible rubber mouthpiece between an open end of a receptacle and an inside flange of a clamping cap threadedly engaged with the periphery of the end portion of the receptacle, the improvement comprising an annular engaging projection provided on the clamping surface of the inside flange of said clamping cap and annular engaging grooves provided on both clamping surfaces of said mouthpiece fitting flange, said annular engaging projection on the inside flange being engaged with one of said annular engaging grooves, and the open end of said receptacle being engaged with the other annular engaging groove.

When the mouthpiece fitting flange is to be clamped by turning the clamping cap, the fitting flange is maintained annular in shape by the annular engaging projection of the cap to be engaged with the annular engaging groove on one surface of the fitting flange and the open end of the receptacle to be engaged with the annular engaging groove on the other surface. Thus, the fitting flange is prevented from deviating from the desired clamping position. Furthermore, by the engagement of the annular engaging projection and the open end of the receptacle with the two annular engaging grooves, the air-tightness between the mouthpiece and the end of the receptacle can be sufficiently ensured.

Other objects and advantages of the present invention will become apparent from the following description taken in conjunction with the accompanying drawing.

A preferred embodiment of this invention is described below with reference to the accompanying drawing.

The drawing is a vertical sectional view of the mouthpiece clamping structure of this invention in a nursing device.

Referring to the drawing, a mouthpiece 1 is made of a flexible elastic rubber such as a silicone rubber, and a fitting flange 2 is provided at its annular base, and annular engaging grooves 3 and 4 are provided on both surfaces to be clamped of the flange 2.

A clamping cap 5 is made of a hard or semihard synthetic resin. An inside flange 8 is provided at one end of a cylindrical body 6 having female screws 7. The inside flange 8 projects toward the center of the body, and on that surface of the inside flange 8 which faces the body 6 and is to be clamped, an annular engaging projection 9 to be engaged with one annular engaging groove 3 of the fitting flange 2 is provided.

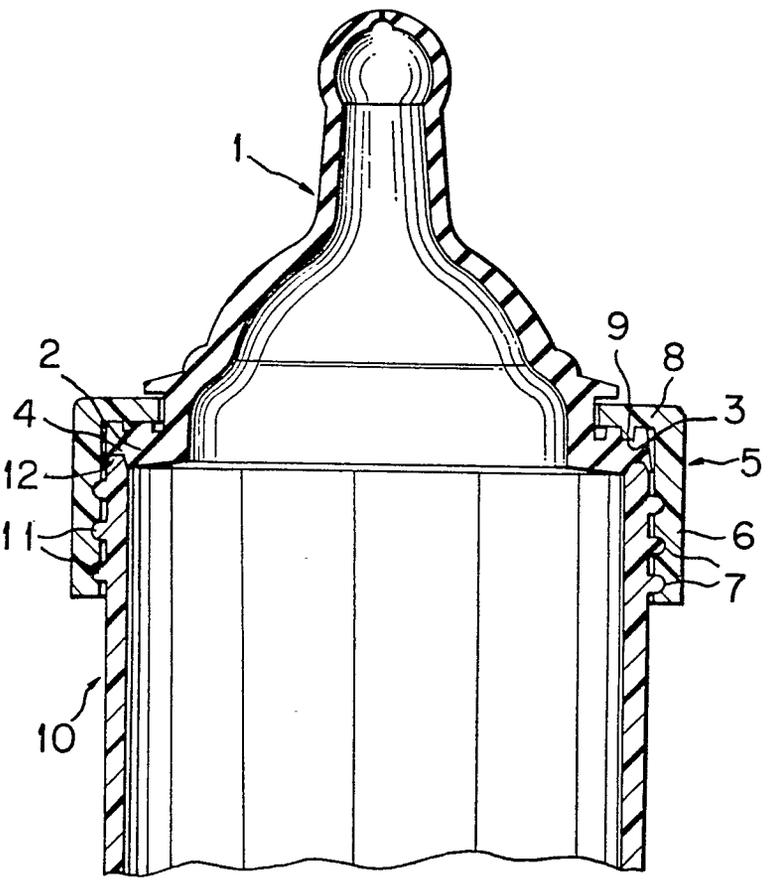
The receptacle 10 is, for example, a cylindrical receptacle having both open ends for a "piston-type" nursing device into which a piston is to be inserted

slidably. Male screws 11 are provided on the peripheral surface of one end of the receptacle 10 to which the mouthpiece 1 is to be secured. This receptacle is made of a hard or semihard synthetic resin.

In securing the mouthpiece 1, the base of the mouthpiece 1 is fitted in the inside flange 8 of the clamping cap 5, and at the same time, the annular engaging projection 9 of the inside flange 8 is engaged with the annular engaging groove 3 on one surface of the fitting flange 2. The cap 5 having the mouthpiece 1 fitted in this manner is then threadedly engaged with the male screws 11 of the receptacle 10, and an open end 12 of the receptacle 10 is engaged with the annular engaging groove 4 on the other surface of the fitting flange. When the cap 5 is further turned in this state, the fitting flange 2 is pressed air-tight between the inside flange 8 and the open end 12 of the receptacle 10.

C L A I M

A mouthpiece clamping structure in a nursing device for clamping a flange for fitting a flexible rubber mouthpiece between an open end of a receptacle and an inside flange of a clamping cap threadedly engaged with the periphery of the end portion of the receptacle, characterized by an annular engaging projection (9) provided on the clamping surface of the inside flange (8) of said clamping cap (5) and annular engaging grooves (3,4) provided on both clamping surfaces of said mouthpiece fitting flange (2), said annular engaging projection (9) on the inside flange (8) being engaged with one of said annular engaging grooves (3), and the open end (12) of said receptacle (10) being engaged with the other annular engaging groove (4).



European Patent Office

EUROPEAN SEARCH REPORT

0009459
Application number

EP 79 710 091.4

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
	GB - A - 829 606 (GUNTER HARTMANN) * fig. 3 *	1
	US - A - 2 942 746 (C.R. PORTHOUSE et al.) * fig. 1 and 2, position 43 *	1
	US - A - 3 530 979 (R.K. MERRILL JR. et al.) * fig. 10 *	1
A	US - A - 3 747 791 (J.P. FOUSER) * complete document *	
A	US - A - 2 599 630 (E. HAIR) * complete document *	

CLASSIFICATION OF THE APPLICATION (Int. Cl.³)

A 61 J 11/04

TECHNICAL FIELDS SEARCHED (Int.Cl.³)

A 61 J 9/00
A 61 J 11/00
B 65 D 53/00

CATEGORY OF CITED DOCUMENTS

X: particularly relevant
A: technological background
O: non-written disclosure
P: intermediate document
T: theory or principle underlying the invention
E: conflicting application
D: document cited in the application
L: citation for other reasons

&: member of the same patent family, corresponding document

X The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Berlin	17-12-1979	BREUSING

EPO Form 1503.1 06.78