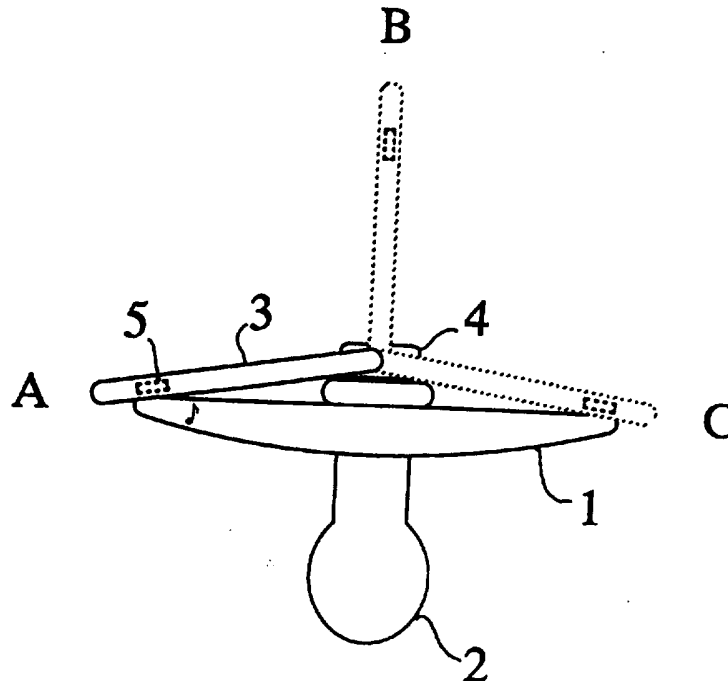




INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification 6 : <b>A61J 17/00</b></p>	<p><b>A1</b></p>	<p>(11) International Publication Number: <b>WO 96/10384</b></p>
<p>(21) International Application Number: PCT/DK95/00352</p> <p>(22) International Filing Date: 1 September 1995 (01.09.95)</p> <p>(30) Priority Data: 1131/94 30 September 1994 (30.09.94) DK</p> <p>(71) Applicant (for all designated States except US): MÜLLER TRADING V. FRANK MÜLLER [DK/DK]; Resenlund 6, 2., DK-2660 Brøndby Strand (DK).</p> <p>(72) Inventor; and (75) Inventor/Applicant (for US only): MÜLLER, Frank [DK/DK]; Resenlund 6, 2., DK-2660 Brøndby Strand (DK).</p> <p>(74) Agent: BUDDE, SCHOU &amp; CO. A/S; Sundkrogsgade 10, DK-2100 København Ø (DK).</p>		<p>(43) International Publication Date: 11 April 1996 (11.04.96)</p> <p>(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TT, UA, UG, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ, UG).</p> <p><b>Published</b> With international search report.</p>

(54) Title: CHILD'S MUSICAL DUMMY AND METHOD OF MANUFACTURING SAME



(57) Abstract

In a child's musical dummy, in which an electronic tune-playing arrangement (not shown) is embedded in the shield (1) and adapted to be controlled from the outside, the main novel feature is that the tune-playing arrangement comprises a magnetically operable contact (not shown), adapted to close the supply circuit to the tune-playing arrangement, when the holding ring (3) is moved to a music position (A), in which a magnet (5) embedded in the ring (3) actuates the contact.

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CHILD'S MUSICAL DUMMY AND METHOD OF MANUFACTURING SAMEFIELD OF THE INVENTION

5 The present invention relates to a child's musical dummy of the kind set forth in the preamble of claim 1.

BACKGROUND ART

10 EP-A1-0,185,614 and GB-A-2,231,274 disclose musical dum-  
mies or comforters, in which the electro-acoustic means  
adapted to play a suitable tune are activated by chewing  
action and changes in the level of ambient light, respec-  
tively. In the former case, the tune-playing means are  
15 controlled - more or less consciously - by the child  
alone, whilst in the latter case, the operative condition  
of the tune-playing means depends on the level of ambient  
light, so that they may easily be started inadvertently,  
when the dummy is placed somewhere with a lower level of  
20 illumination or in total darkness, such as in a handbag.

DISCLOSURE OF THE INVENTION

25 It is the object of the present invention to provide a  
child's musical dummy of the kind referred to initially  
exhibiting improved control facilities, and this object  
is achieved with a child's musical dummy of said kind,  
which according to the present invention also comprises  
the features set forth in the characterizing clause of  
30 claim 1. With this arrangement, the operation of the  
tune-playing means may be controlled by simply moving  
the holding ring towards and away from the music position,  
an action that can easily be carried out by any person  
caring for the child, and also by the child, provided

that the child's motory functions are developed to a sufficient degree.

As will appear from the explanation in the detailed part  
5 of this description, it is possible to give a musical  
dummy according to the present invention substantially  
exactly the same external shape as a conventional dummy.  
Thus, any packages or holders adapted for use with con-  
ventional dummies can be used with musical dummies accord-  
10 ing to the present invention.

The present invention also relates to a method of manu-  
facturing a child's musical dummy according to the in-  
vention, and this method comprises the steps set forth  
15 in the characterizing clause of claim 5. By proceeding  
in this manner, it is possible to manufacture musical  
dummies, the sensitive parts of which are doubly protected  
against fluids entering or leaving, so that any risk of  
corrosion of the sensitive parts or of e.g. battery fluid  
20 leaking out is avoided.

#### BRIEF DESCRIPTION OF THE DRAWINGS

In the following detailed portion of the present descrip-  
25 tion, the invention will be explained in more detail  
with reference to the exemplary embodiment of a child's  
musical dummy according to the invention shown in the  
drawing, in which

- 30 Figure 1 is a side view showing the dummy in the as-  
sembled state ready for use,  
Figure 2 is an exploded view of the dummy shown in  
Figure 1, the holding ring being turned 90°  
to show its shape,  
Figure 3 at an enlarged scale shows the music panel

used in the dummy of Figure 1 prior to encapsulation, and Figures 4-6 show various stages in the process of manufacturing the dummy according to Figure 1.

5

#### DESCRIPTION OF THE PREFERRED EMBODIMENT

The child's musical dummy shown in the drawings comprises the following parts, known per se:

- 10 - a shield 1 of moulded plastic material,
- a hollow teat 2 of rubber or rubber-like material,
- a holding ring 3 of moulded plastic material, and
- a connecting piece 4, in the assembled state shown in Figure 1 interconnecting the previously mentioned parts, so that the parts 1, 2 and 4 are rigidly interconnected, while the holding ring 3 is hinged to the connecting piece 4 so as to be movable between three positions A, B and C.

15

20 In the previously known dummies, the three positions A, B and C have no special significance, except that position B may be termed a pulling position and the positions A and C rest positions - depending, of course, on the orientation of the dummy in the child's mouth.

25

In the dummy according to the present invention, however, position A may be termed a music position, as in this position, it activates an electronic music-producing circuit supplying sound power to a tiny loudspeaker, to be described below.

30

Position C, on the other hand, may be termed a silent rest position, while position B as before is a pulling position.

Embedded in the part of the holding ring 3 most distant from the connecting piece 4 is a permanent magnet 5 adapted to influence the music-producing circuit, when the holding ring 3 is in the music position A shown in Figure 1. The music-producing circuit is part of a music panel 6 that can be seen in Figures 2-6, but not in Figure 1, as in the assembled state of the dummy shown in Figure 1, it is completely embedded in the shield 1.

10

The music panel 6 shown in Figure 3 consists of a flat carrier panel 7, to which the following components are secured and interconnected by conductors drawn in heavy and thin black lines:

- 15 - a battery 8 secured to the carrier panel 7 by a battery holder 9,
- a magnetically operable reed contact 10,
- a music chip 11 in the form of an integrated circuit capable of storing musical signals and, when activated by the battery 8 through the reed contact 20 10, to deliver these signals to
- a loudspeaker 12, preferably in the form of a circular piezo-electric resonant disc inserted in a circular resonant chamber of the same diameter and 25 having a narrow recess, in which the disc rests, forming an air chamber on both sides allowing the disc to vibrate and emit sound.

The carrier panel 7 has a central hole 13 for the connecting piece 4. Additional holes (not shown) co-operating with ventilating holes (likewise not shown) in the shield 1 may be provided to reduce the danger of choking, if 30 the child were to get the dummy in the throat.

When it is desired that the child's dummy as shown emits musical sounds, preferably of a kind having a calming effect on the child, the holding ring 3 is placed in the music position A - this may be done before or after inserting the teat 2 in the child's mouth. Due to the magnetic attraction from the magnet 5, the reed contact 10 will close, thus supplying power from the battery 8 to the music chip 11, the latter delivering the music through the loudspeaker 12, preferably for a period limited by suitable circuitry in the music chip 11, so that renewed activation is necessary, if more music is desired. At the same time, the said magnetic attraction will exert a retaining force in the holding ring 3, but it is advisable to place the dummy in such an orientation that the holding ring 3 extends downwardly from the connecting piece 4, so that the force of gravity will contribute to holding the ring 3 in the music position A. Another possibility is to arrange the pivot joint between the holding ring 3 and the connecting piece 4 to have a limited degree of friction, so that the holding ring 3 will remain in any set position. The music facility may be omitted by simply turning the holding ring 3 and the connecting piece 4 about the latter's axis relative to the shield 1, so that the magnet 5 is prevented from activating the reed contact 10.

Figures 4-6 illustrate the process of making the music panel 6.

- Figure 4 shows the "naked" carrier panel 7 with conductors and the requisite holes for the battery 8 and the battery holder 9,
- Figure 5 shows the components in place and interconnected as shown in Figure 3, and
- Figure 6 shows the finished music panel 6 with the

components 8, 10, 11 and 12 embedded in corresponding encapsulations 18, 20, 21 and 22, respectively, of which 18, 20 and 22 are also visible in Figure 2.

5 When forming the encapsulation 22 for the loudspeaker 12, care is taken to avoid filling the air chamber on both sides of the piezo-electric loudspeaker disc, as this would compromise the correct functioning of the loudspeaker.

10

After completion of the process, the finished music panel 6 is incorporated in the shield 1, such as by placing the panel in the mould, in which the shield is cast or moulded.

LIST OF PARTS

	A	music position
	B	pulling position
5	C	silent rest position
	1	shield
	2	teat
	3	holding ring
	4	connecting piece
10	5	permanent magnet
	6	music panel
	7	carrier panel
	8	battery
	9	battery holder
15	10	reed contact
	11	music chip
	12	loudspeaker
	18	encapsulation
	20	encapsulation
20	21	encapsulation
	22	encapsulation

C L A I M S:

1. Child's musical dummy of the type comprising
  - a) a plane or slightly curved shield (1),
  - 5 b) a bulbous teat (2) projecting from one side of said shield (1),
  - c) a holding ring (3) hinged to the opposite side of said shield so as to be movable between a first position (A), in which it contacts said shield (1) at a first location, a second position (B), in which it extends substantially at right angles to said shield (1), and a third position (C), in which it contacts said shield (1) at a second location substantially diametrically opposite said first location,
  - 15 d) electro-acoustic means (11,12) for producing and emitting musical sounds, and
  - e) activating means (5,10) for making said electro-acoustic means (11,12) operative or inoperative,
  - 20 c h a r a c t e r i z e d i n
  - f) that said activating means comprise
    - f1) a magnetically operable contact (10) in the power-supply circuit of said electro-acoustic means (11, 12), said contact (10) being adapted to be closed by
    - 25 f2) a magnet (5) secured to or embedded in said holding ring (3), when the latter is in said first position (A).
2. Dummy according to claim 1, c h a r a c t e r -  
30 i z e d i n that said magnetically operable contact (10) is an encapsulated reed contact.
3. Dummy according to claim 1 or 2 and of the kind in which the holding ring (3) is hinged to a connecting

5 piece (4) received in a central opening in the shield (1), c h a r a c t e r i z e d in that the connecting piece (4) may be turned against friction relative to the shield, so that it may be set in different angular positions spaced sufficiently that in at least one of them, the magnet (5) is prevented from activating the contact (10).

10 4. Dummy according to claim 1 or 2 and of the kind in which the holding ring (3) is hinged to a connecting piece (4) received in a central opening in the shield (1), c h a r a c t e r i z e d in that the hinge connection between the holding ring (3) and the connecting piece (4) has sufficient friction to hold the holding ring (3) in any set position relative to the connecting piece (4).

20 5. Method of manufacturing a child's musical dummy according to any one or any of the claims 1-4, c h a r a c t e r i z e d by the following steps a-c:

25 a) the components of the electro-acoustical means, as well as the associated power supply (battery) and the magnetically operable contact are placed on a carrier panel of substantially the same shape as but somewhat smaller than said shield, and the requisite electrical connections established (Figures 4 and 5),

30 b) the components of the assembly resulting from step a are encapsulated in a liquid-tight and gas-tight manner (Figure 6), and

c) the assembly resulting from step b is embedded in the dummy's shield, preferably by being placed in a mould, in which said shield is cast or moulded.

6. Child's musical dummy according to any one or any

of the claims 1-4, characterized in that it has been manufactured using the method according to claim 5.

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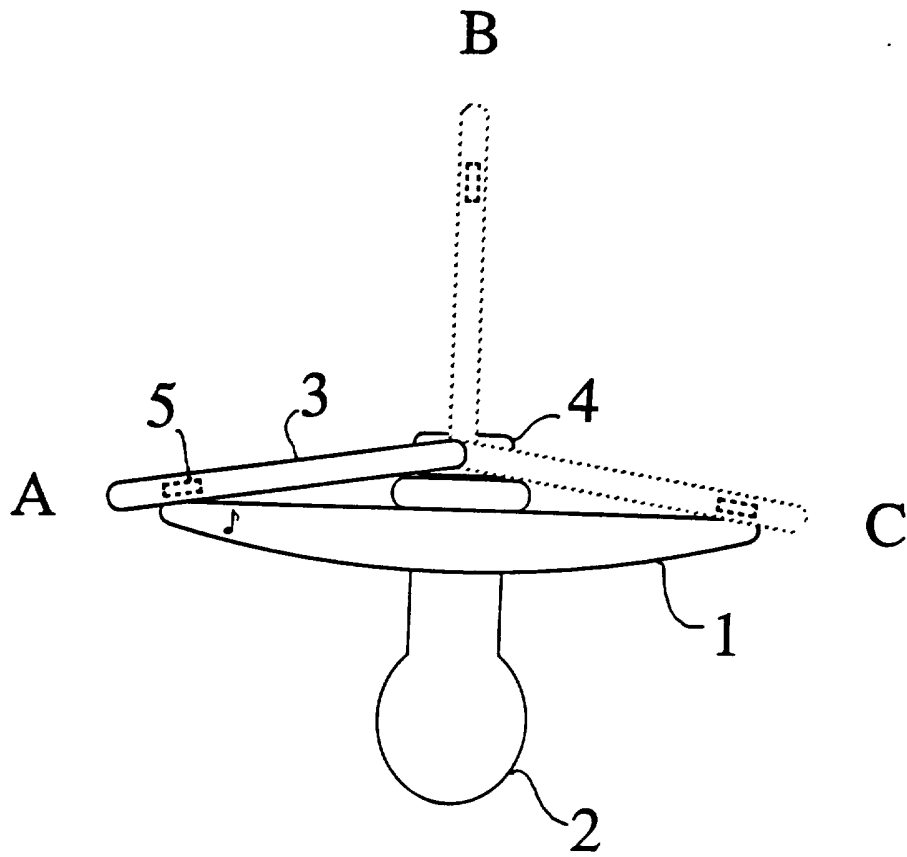


fig. 1

2/4

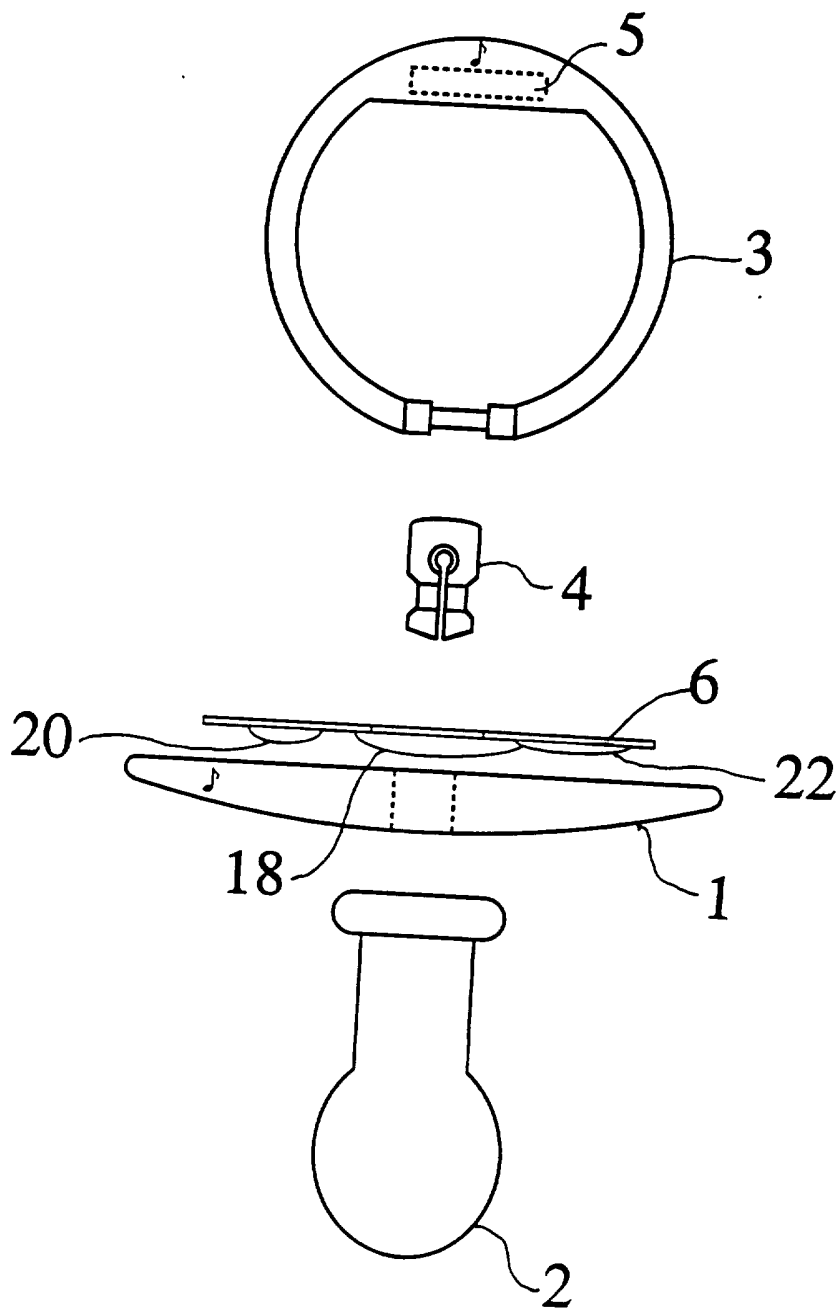


fig. 2

3/4

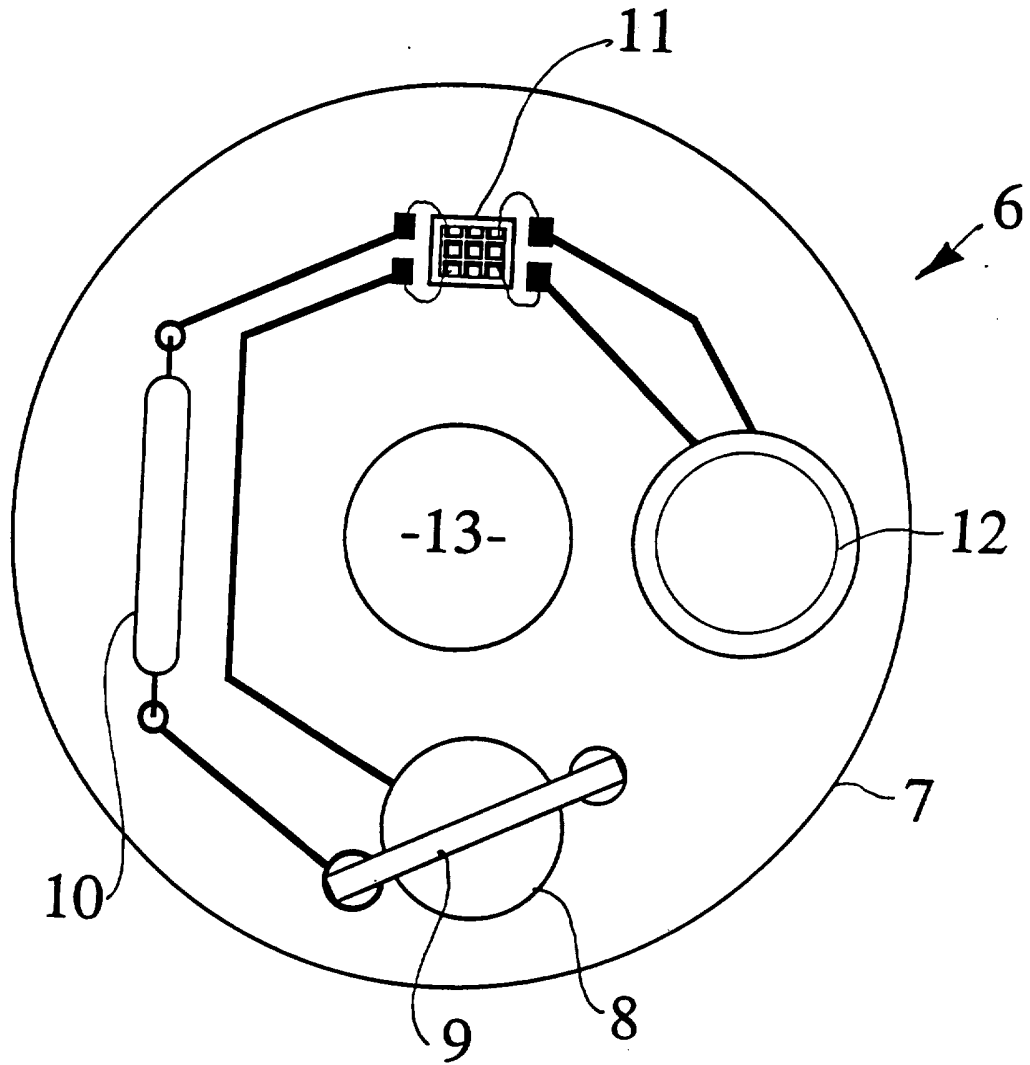


fig. 3

4/4

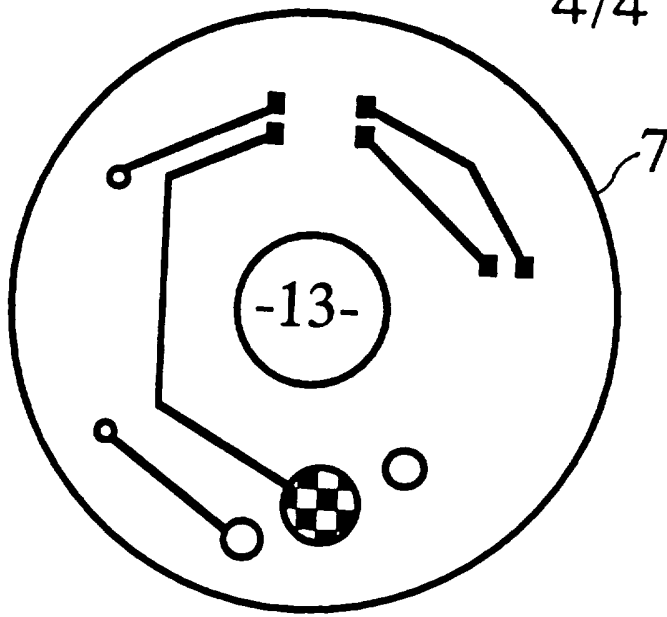


fig. 4

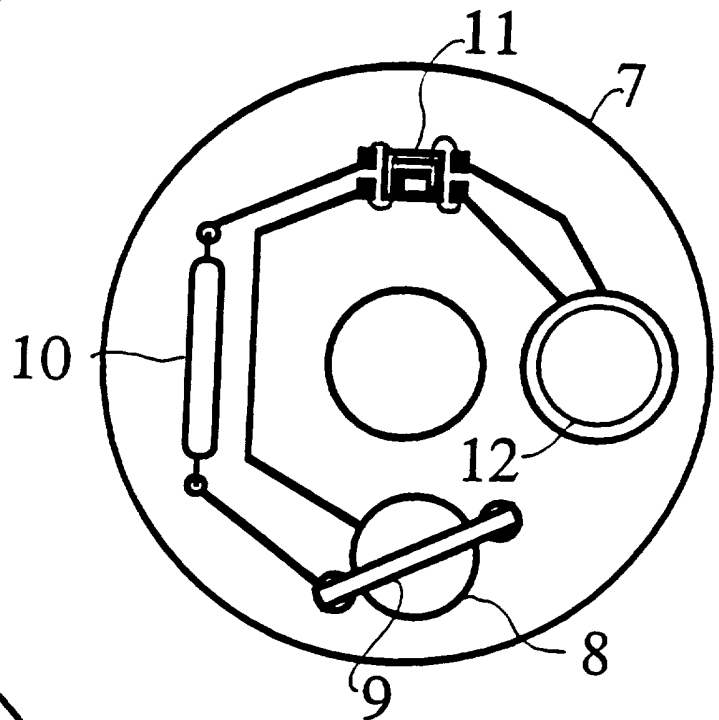


fig. 5

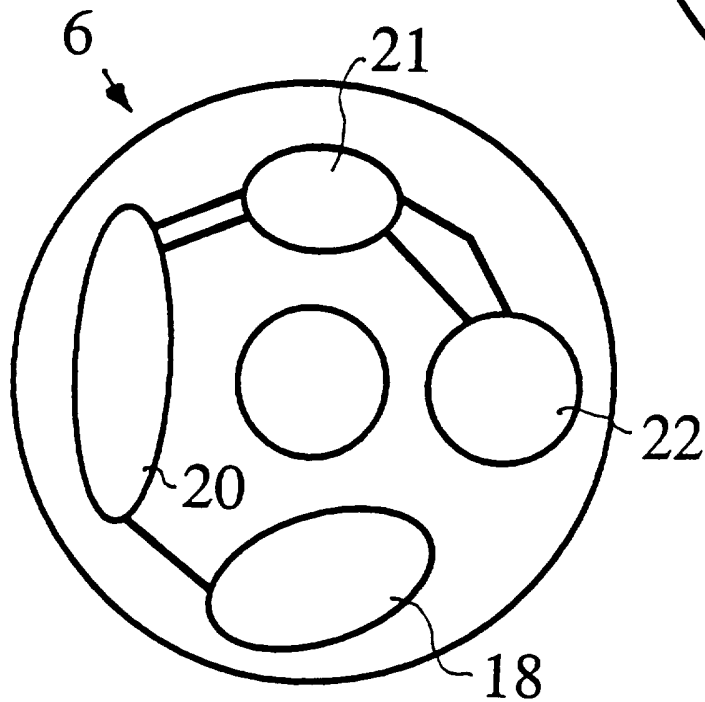


fig. 6

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/DK 95/00352

## A. CLASSIFICATION OF SUBJECT MATTER

IPC6: A61J 17/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC6: A61J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

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## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2231274 A (PETER DIMITROS POULLOS), 14 November 1990 (14.11.90), figures 1-3, claims 1-8 --	1-5
A	EP 0185614 A1 (INTERNATIONAL CUSTOMS ESTABLISHMENT), 25 June 1986 (25.06.86), figures 1-6, claims 1-15 --	1-5
A	EP 0536636 A1 (JONG-HYUN, SHIN), 14 April 1993 (14.04.93), figures 1-4, claims 1 och 2 -- -----	1-5

 Further documents are listed in the continuation of Box C. See patent family annex.

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Date of mailing of the international search report

23 -01- 1996

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

11/12/95

International application No.

PCT/DK 95/00352

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB-A- 2231274	14/11/90	NONE	
EP-A1- 0185614	25/06/86	SE-T3- 0185614 CA-A- 1188947 JP-A- 61168359	18/06/85 30/07/86
EP-A1- 0536636	14/04/93	KR-B- 9403617 US-A- 5292335	25/04/94 08/03/94