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(71) Applicant(s):
Stephen Pearl
47 Smithers Lane, East Peckham,
TONBRIDGE, Kent, TN12 5HS,
United Kingdom

(72) Inventor(s):
Stephen Pearl

(74) Agent and/or Address for Service:
Stephen Pearl
47 Smithers Lane, East Peckham,
TONBRIDGE, Kent, TN12 5HS,
United Kingdom

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(56) Documents Cited:
US 4759737 A **US 4601671 A**

(58) Field of Search:
UK CL (Edition X) **A6S**
INT CL **A63H**
Other: **EPODOC, WPI**

(54) Abstract Title: **A movable soft toy**

(57) A soft toy includes a mechanism consisting of a set of bellows or an air bag 1 situated within the body of the toy 2 which is attached to two inflatable shoulder joints 4 by a T-shaped tube 3. When the soft toy is hugged, the bellows are compressed causing air to be displaced to the shoulder joints, thus causing the toy's arms to move inwards towards each other, simulating the action of hugging or clasping. When the pressure is released the arms return to their normal position. Inflatable shoulder joints may also be included.

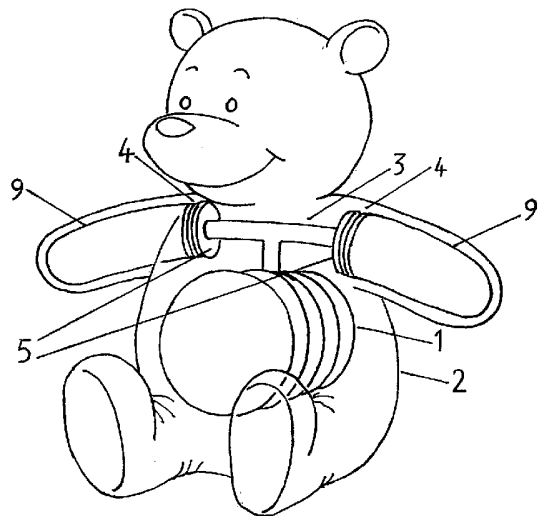


FIGURE 1

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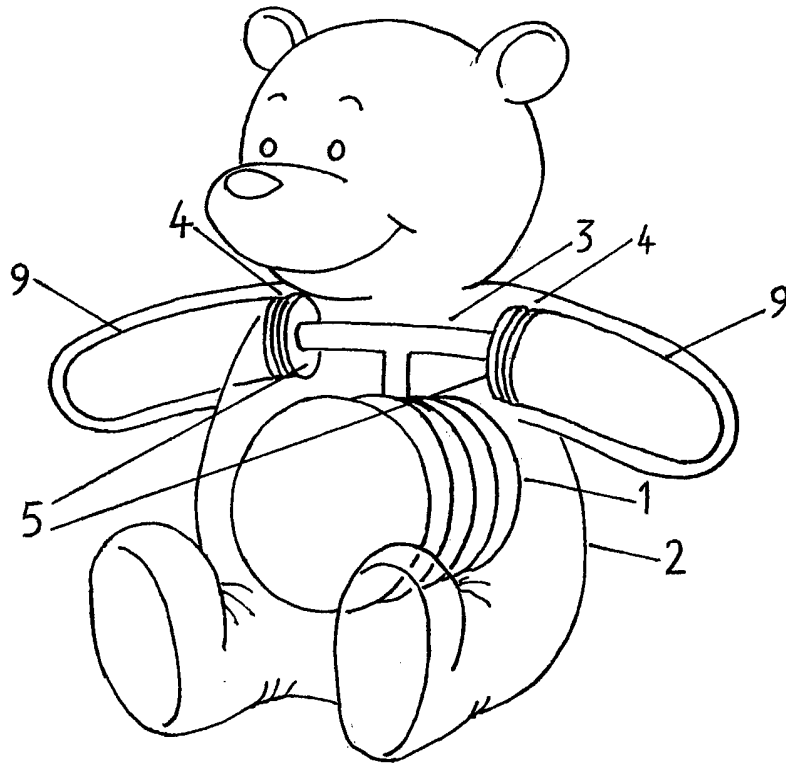


FIGURE 1

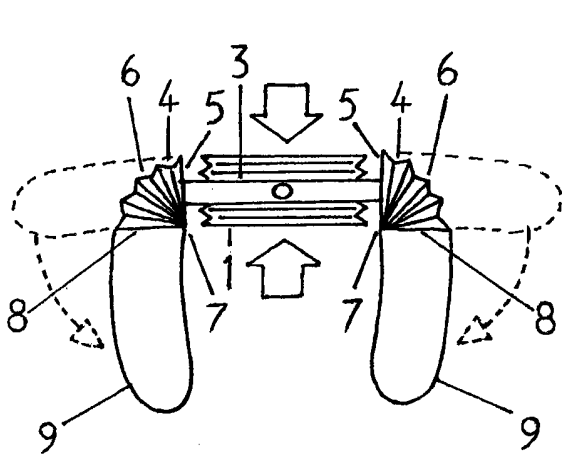


FIGURE 2

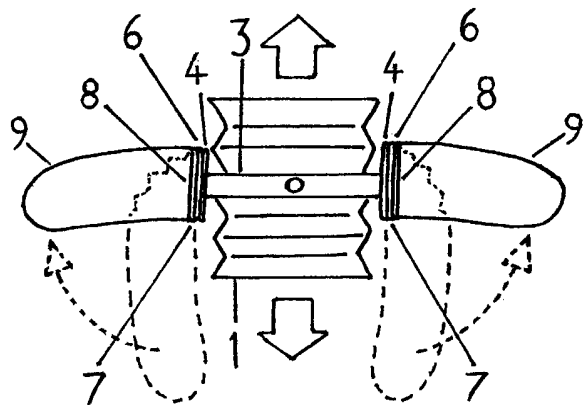
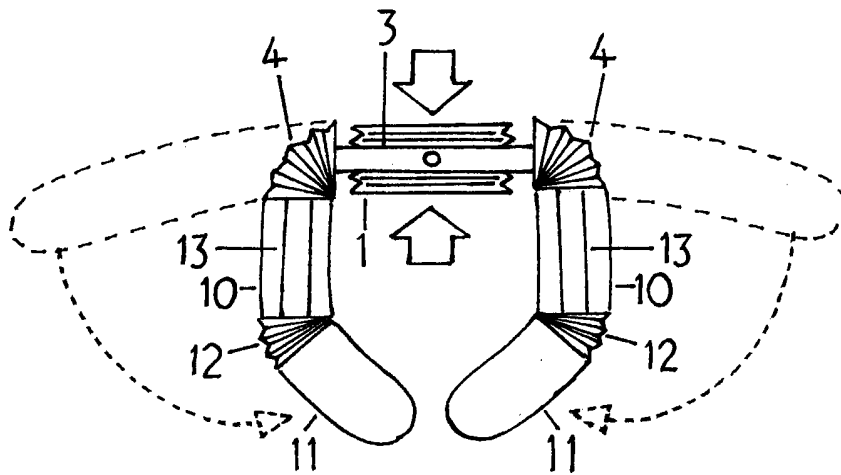
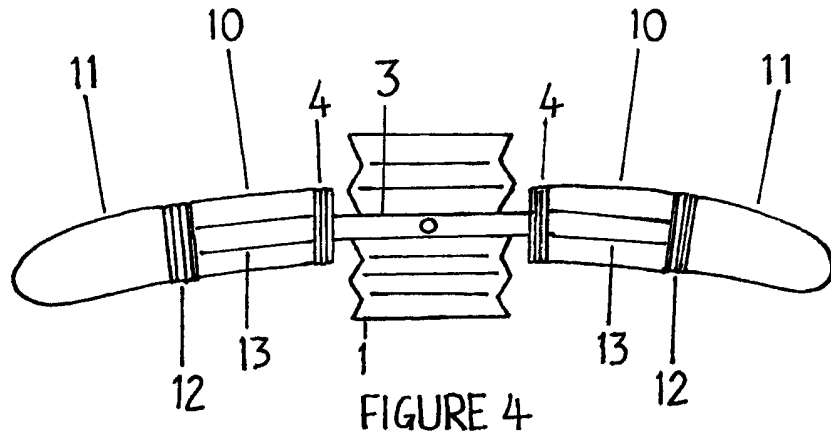


FIGURE 3



SOFT TOY

The invention relates to a soft toy which will give a person who hugs the toy the sensation of being hugged in return.

Many people, most notably children, have a favourite soft toy (often a teddy bear, but also toys representing many other types of animals) which they may sometimes hug for comfort. Unlike hugging another person, hugging a simple soft toy will not result in the sensation of being hugged in return.

An object of this invention is to provide a soft toy which will safely simulate the sensation of being hugged in return when the toy is hugged.

Accordingly, this invention provides a soft toy containing a set of bellows or an air bag in its body, which, when compressed on being hugged, will displace air through a tube into inflatable shoulder joints, and possibly also inflatable elbow joints, causing the arms of the toy to move in a fashion which simulates hugging.

The soft toy could be a teddy bear, or instead represent any other type of animal or character which has arms or front legs suitable for hugging.

The invention will now be described solely by way of example and with reference to the accompanying drawings in which:

FIGURE 1 shows a view of the mechanism (consisting of the bellows, tube and shoulder joints) in relation to its installation in the soft toy;

FIGURE 2 is a section of the mechanism from above to illustrate how it will function when the bellows is compressed;

FIGURE 3 is a section of the mechanism from above to illustrate how it will function when the pressure to the bellows is released;

FIGURE 4 shows a section from above of an alternative embodiment of the mechanism featuring additional inflatable elbow joints;

FIGURE 5 is a section from above of the alternative embodiment of the mechanism referred to in Figure 4 to illustrate how it will function when the bellows is compressed.

As shown in Figure 1, the mechanism comprises a set of bellows 1 which occupies most of space inside the soft toy's body 2. Unless it is compressed, this set of bellows will naturally adopt the fully expanded position, due either to the nature of the material it is made from, or alternatively due to the action of a spring in the bellows. A T-shaped tube 3 leads from the bellows to a pair of inflatable shoulder joints 4 which have their inner surfaces 5 fixed in place within the toy's shoulders. As shown in Figure 2, these shoulder joints have flexible corrugated rear surfaces 6, which can

extend when the shoulder joints are inflated, and flexible front surfaces 7, which cannot extend in the same way as the rear surfaces, due either to having smaller corrugations, or to a flexible strap or some other means of restraining the expansion being attached across the front surfaces. Attached to the outer surfaces 8 of these shoulder joints are the internal structures of the toy's arms 9, which are slightly curved and made of a dense but soft material such as foam latex, allowing the arms to maintain their shape but yield to pressure.

As shown in Figure 2, when the body of the soft toy is squeezed as a result of being hugged, air is displaced from the compressed bellows 1 through the T-shaped tube 3 and into the inflatable shoulder joints 4. When the shoulder joints 4 are inflated, the toy's arms 9 are caused to move inwards towards each other in a fashion which will give the sensation of being hugged to the person holding the soft toy.

As shown in Figure 3, when the person stops hugging the soft toy, the bellows 1 will return to the expanded position, drawing the air back down the T-shaped tube 3 and out of the inflatable shoulder joints 4, which will cause the arms 9 to move outwards away from each other again.

A safety feature of this design is that the pressure applied by the arms of the soft toy when simulating the action of hugging is directly controlled by how much pressure the person holding the toy applies when hugging the toy. Thus if the arms start to apply more pressure than the person feels comfortable with, the person will instinctively release some of the pressure which he or she is applying to the body of the toy, which will cause the air pressure in the shoulder joints to decrease and therefore reduce the pressure being applied by the toy's arms.

Figures 4 and 5 show an alternative embodiment in which the internal structures of the toy's arms are split into two sections 10 and 11 in each arm, with these sections connected to each other by inflatable elbow joints 12, which are of a similar design to the inflatable shoulder joints. Tubes 13 run from each of the shoulder joints 4 through the interior of each of the upper arms' internal structures 10 to the elbow joints 12. As shown in Figure 5, when the set of bellows 1 is compressed, air is displaced through the T-shaped tube 3 into both shoulder joints 4, and then further displaced through the tubes 13 into both elbow joints 12. This causes the arms to bend at the elbow joints 12 as well as moving inwards towards each other, which will more closely emulate the sensation of being hugged for the person hugging the toy.

A further alternative embodiment would feature an air bag similar to that used in a bag valve mask resuscitation device, which returns to its expanded position once the pressure which has been applied to it is released, in place of the bellows, with all other components as described above.

CLAIMS

1. A soft toy which, when hugged or squeezed, will give the person holding the toy the sensation of being hugged by the toy, due to air from a set of bellows or air bag in the toy's body being displaced into inflatable shoulder joints (and also possibly elbow joints), causing the toy's arms or front legs to move in a manner which simulates the hugging action.
2. A soft toy according to Claim 1 which has a safety feature causing the toy to reduce the pressure applied in the hugging action if the person holding the toy reduces the pressure he or she is applying whilst hugging or squeezing it.
3. A soft toy according to any of the above claims which may be a representation of any type of animal or character, and of any external design.
4. A soft toy according to any of the above claims which can be produced in a variety of different sizes to suit a variety of sizes and ages of person.
5. A soft toy substantially as herein described above and illustrated in the accompanying drawings.

CLAIMS

1. A soft toy which, when hugged or squeezed, will give the person holding the toy the sensation of being hugged by the toy, due to air from a set of bellows or air bag in the toy's body being displaced into inflatable shoulder joints (and also possibly elbow joints) which have greater freedom of expansion on their rear surfaces than on their front surfaces, causing the toy's arms or front legs to move forwards and inwards towards each other in a manner which simulates the hugging action.
2. A soft toy according to Claim 1 which has a safety feature causing the toy to reduce the pressure applied in the hugging action if the person holding the toy reduces the pressure he or she is applying whilst hugging or squeezing it, due to the bellows or air bag having the property of expanding towards the fully expanded position when any of the pressure which has been applied to it is released, due either to the resilient nature of the material which the bellows or air bag is made from, or alternatively due to the action of a spring within the bellows or air bag.
3. A soft toy according to any of the above claims which may be a representation of any type of animal or character, and of any external design.
4. A soft toy according to any of the above claims which can be produced in a variety of different sizes to suit a variety of sizes and ages of person.
5. A soft toy substantially as herein described above and illustrated in the accompanying drawings.



For Innovation

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Examiner: Mrs Margaret Phillips

Claims searched: 1-5

Date of search: 22 August 2006

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1-4	US 4759737 A (FERENCZI) Whole document
A	-	US 4601671 A (DEMARS) Whole document

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

A6S

Worldwide search of patent documents classified in the following areas of the IPC

A63H

The following online and other databases have been used in the preparation of this search report

EPODOC, WPI