July 11, 1972 S. HIRSHEN ET AL 3,676,276

ENDLESS INFLATABLE DEVICE

Filed Dec. 11, 1969

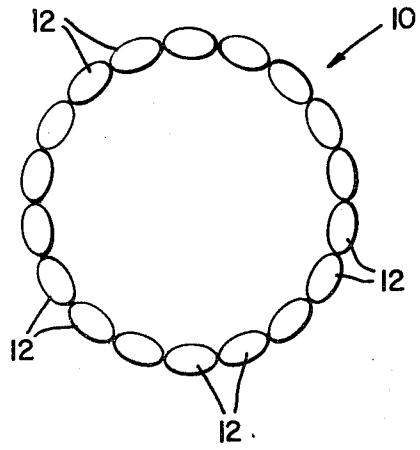

FIG_1

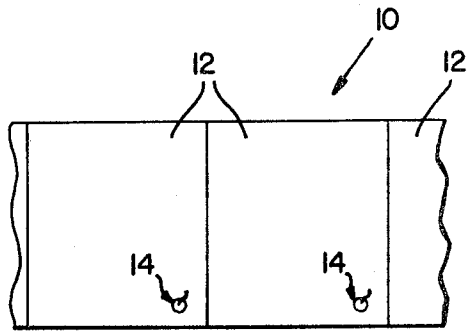

FIG_2

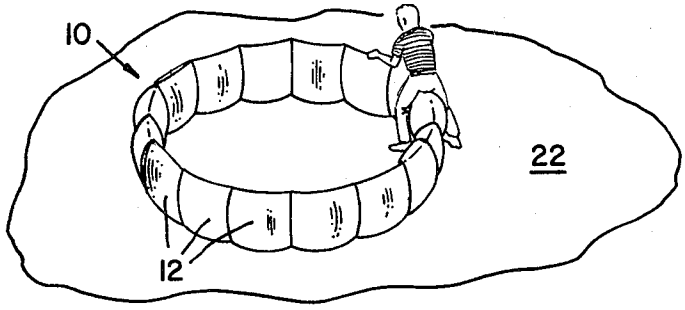

FIG_3

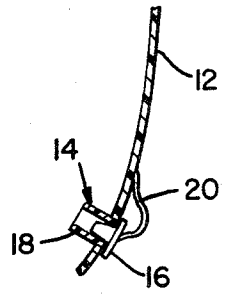

FIG_2a

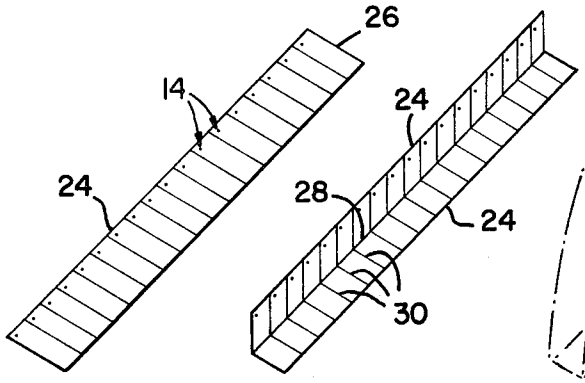

FIG_4

FIG_4a

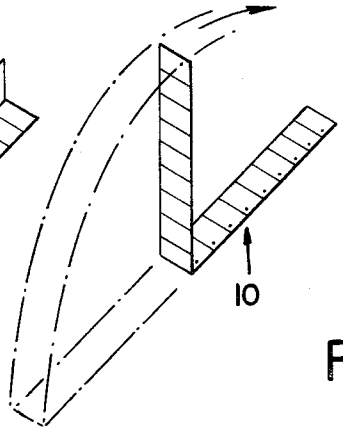

FIG_4b

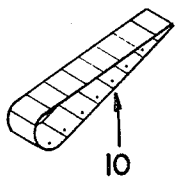

FIG_4c

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United States Patent Office 3,676,276 Patented July 11, 1972

3,676,276

ENDLESS INFLATABLE DEVICE

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Filed Dec. 11, 1969, Ser. No. 884,109
Int. Cl. A63g 31/00
U.S. Cl. 161—17 6 Claims

ABSTRACT OF THE DISCLOSURE

A device comprised of a plurality of inflatable cells arranged in end-to-end relationship to form an endless body with each cell having inflation means to permit the same to be inflated independently of the other cells. The device can be made from an initially flat sheet of a suitable material capable of being heat sealed, such as vinyl or the like.

This invention relates to improvements in inflatable devices of the type suitable for use as articles of furniture, as toys or as other utilitarian structures.

The present invention is directed to an endless body formed of a number of interconnected, independently inflatable cells arranged in end-to-end relationship. The invention is suitable for a number of different uses, such as an article of furniture or as a toy for children and adults alike. The construction of the device permits it to be set up for use in a minimum of time and to be adapted for use in spaces of limited areas. Moreover, the device can be made in different sizes to suit the individual needs of a particular use.

The body is provided with inflation means for each of its cells, respectively, whereby the cells can be independently and selectively inflated and deflated. The flexibility of the material forming the device lends itself to easy storage inasmuch as the device can be rolled into a compact form when it is deflated. The device can be formed from a material which provides a rugged construction to withstand abuse, such as by youngsters during play. Moreover, the material can have an outer surface texture which is not abrasive to the skin, especially when the device is used as a toy or for playing games. When properly inflated, the device will be sufficiently lightweight in character so that it can be moved around from place to place as desired, even though the size of the device may be relatively large, such as the order of 12 feet in diameter.

The primary object of this invention is to provide an endless utilitarian device formed of a number of independently inflatable, pillow-like cells arranged in end-to-end relationship and disposed to permit the device, when the cells are inflated, to be supported on a surface with the cells horizontally disposed relative to each other whereby the device is suitable for any one of a number of different uses, such as an article of furniture, as a toy or the like.

Another object of this invention is to provide a device of the type described wherein each cell has valve means for inflating the same with the valve means disposed in an out-of-the-way location to permit use of the device without any substantial interference from the valve means.

A further object of this invention is to provide an inflatable device of the aforesaid character which can be formed by heat sealing an initially flat sheet of thermoplastic material at a number of substantially parallel locations to define the cells and to provide for the endless character of the device to thereby simplify the construction of the same and to reduce the cost of producing the device.

Other objects of this invention will become apparent

as the following specification progresses, reference being had to the accompanying drawing for an illustration of several embodiments of the invention.

In the drawings:

FIG. 1 is a top plan view of the device made in accordance with this invention;

FIG. 2 is an enlarged, fragmentary, side elevational view of the device showing the locations of the individual inflating valves for the device;

FIG. 2*a* is an enlarged, cross-sectional view of a portion of the device, showing one type of valve for use therewith;

FIG. 3 is a perspective view of another embodiment of the device, showing a fewer number of cells; and

FIGS. 4, 4*a*, 4*b* and 4*c* are schematic views illustrating the manufacture of the device.

One embodiment of the inflatable device of this invention is broadly denoted by the numeral **10** and includes an endless body formed from a plurality of cells **12** which are interconnected with each other in end-to-end relationship to form the body as shown in FIG. 1. The material of device **10** is flexible so that the individual cells, when the same are inflated, have an inherent resiliency which permits them to be depressed when force is applied thereto, such as by a person sitting on one or more of the cells.

Each of the cells **12** is inflatable independently of the other cells. To this end, valve means **14** is provided for each cell **12**, respectively, such valve means being of any suitable construction such as that shown in FIG. 2*a*, wherein the valve member **16** is removably received within a tubular extension **18** communicating with the interior of the corresponding cell **12**. If desired, valve member **16** may have a short, flexible strap **20** secured to the outer surface of the cell to maintain the valve member in the vicinity of extension **18**.

The valve means of each cell can be in any suitable location but, for purposes of illustration, it is shown adjacent to the lowermost extremity of device **10** as shown in FIG. 2 so as to minimize any interference with the enjoyment of the device when the same is used in a manner to be described. Other locations for the valve means can be selected if desired.

While device **10** can be of any desired size, it is contemplated that a representative set of dimensions for the device includes a diameter of approximately 12 feet, a height of approximately 24 inches and, in the embodiment shown in FIG. 1, there will be eighteen cells **12**. FIG. 3 illustrates a second embodiment of the device and is illustrative of the fact that the device can be of any number of cells **12**. For instance, the device of FIG. 3 has thirteen cells **12** which form a ring-like body of interconnected cells.

In use, device **10** is disposed on a supporting surface **22** in the manner shown in FIGS. 2 and 3, with the cells being horizontally arranged with respect to each other. The lowermost extremity of each cell is substantially coextensive with that of adjacent cells so that the device will generally be stable when supported on surface **22**. The device can be used as an article of furniture, such as back supports for one or more persons disposed within the confines of the device and sitting on surface **22**. The compressibility of the various cells provides a comfortable backrest while allowing an individual to stretch his arms in either direction and rest his arms on the upper extremity of the device in a somewhat reclining manner since the upper extremities of the cells are substantially coextensive with each other.

Another use of the device is as a toy permitting youngsters or others to straddle the device, to bob up and down, or to perform other acts, such as playing a game

on or about the device. FIG. 3 illustrates an individual disposed in straddling relationship on the device wherein the feet of the individual are on the floor, thus permitting a bobbling action, if desired. In such a case, the compression and expansion of an individual cell is independent of that of adjacent cells so that the effects of compression and expansion are not transmitted through the body of the device to other cells.

The device can be used in other ways from that shown or described herein. After use, the device can be deflated and rolled into a compact form for storage or transit.

One way of constructing device **10** is illustrated in FIGS. 4, 4*a*, 4*b* and 4*c* wherein a flat sheet of flexible, plastic material, such as vinyl or the like, is cut to size and provided with an individual valve means **14** at a location thereon corresponding to a particular cell, the valve means being located along one side edge **24** of sheet **26** which corresponds to the lowermost extremity of the device when the latter is in use on a supporting surface. The sheet is then folded in half along a fold line **28** as shown in FIG. 4*a* and then the side edges of the sheet are heat-sealed together as are the two halves of the sheet at a number of longitudinally spaced, transversely extending locations, denoted by transverse lines **30**, to form the individual cells **12**. Any suitable heat source can be applied to the sheet to effect the heat seal at the various locations thereon.

Following the formation of the various cells, the sheet is then folded in the manner shown in FIG. 4*b* such that the ends of the same become contiguous with each other. Another heat sealing step is then performed to seal the ends of the sheet together to thereby form the device as shown in FIG. 4*c*. The device is then ready to be inflated and any suitable inflating means can be used or in lieu of such means, an individual can inflate each cell individually, if desired.

We claim:

1. A utilitarian device comprising: a plurality of independently inflatable cells coupled in contiguous end-to-end relationship to form a ring-like body when the cells are inflated of a size sufficient to permit a youngster to straddle the device; and valve means for each cell, respectively, for inflating the same independently of the other cells of the device.

2. A device as set forth in claim **1**, wherein the device has a generally lowermost extremity, the valve means of each cell being adjacent to said extremity.

3. A device as set forth in claim **1**, wherein each cell has a generally uppermost extremity and a lowermost extremity, said extremities of each cell being generally coextensive with the corresponding extremities of the cells adjacent thereto.

4. A utilitarian device comprising: an endless body including a plurality of interconnected cells arranged in contiguous end-to-end relationship with the cells being out of fluid communication with each other, said body having a lowermost extremity; and inflation means for each cell, respectively, the inflation means being disposed adjacent to said lowermost extremity for inflating the corresponding cell independently of the other cells.

5. A device as set forth in claim **1**, wherein said device in the deflated state is a substantially flat sheet and is composed of a thermoplastic material.

6. A device as set forth in claim **4**, wherein said body in the deflated state is substantially a flat sheet and is composed of a thermoplastic material.

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PHILIP DIER, Primary Examiner

U.S. Cl. X.R.

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