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TOY BALLOON VALVE
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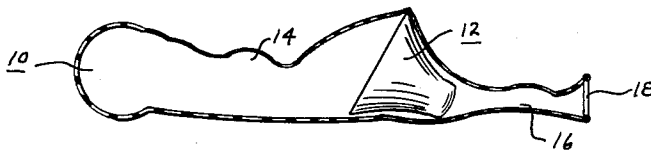


FIG. 1

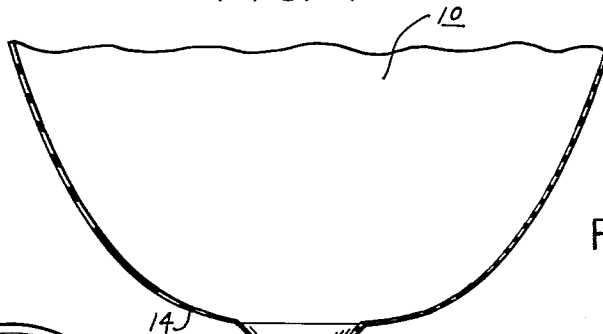


FIG. 2

FIG. 4

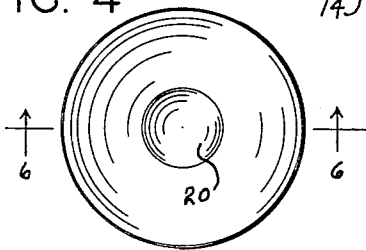
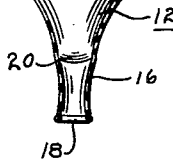


FIG. 6

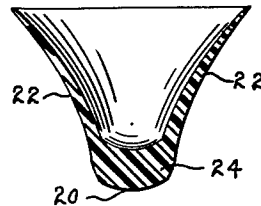


FIG. 3

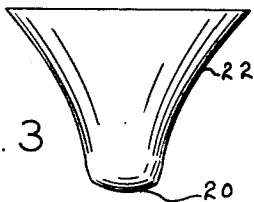


FIG. 5

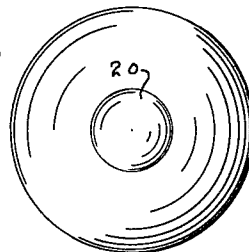
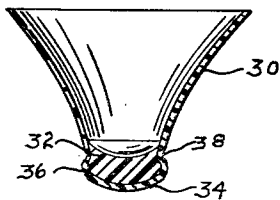


FIG. 7

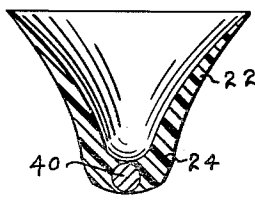


FIG. 8

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TOY BALLOON VALVE

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6 Claims. (Cl. 137-43)

The present invention relates to balloons and more particularly to toy balloons and the like having valves therein for keeping them in an inflated condition.

One of the principal objects of the present invention is to provide a relatively simple and easily operated valve for toy balloons, which can be incorporated in conventional balloons either before or after they have been placed on the market, and which can be used without modification over and over again in balloons of a wide variety of sizes.

Another object of the invention is to provide a valve for balloons and the like which can be readily fabricated and inserted in the balloon and thereafter easily manipulated to close the valve to entrap the gases therein and to open the valve to release the entrapped gases.

Still another object of the invention is to provide a valve for a balloon which will readily seat itself after the balloon is filled with gas, with very little skill being required, and which can safely be used by a child.

A further object is to provide a valve for a toy balloon whereby the balloon can be readily inflated, maintained in the inflated condition, and thereafter easily deflated.

Another object of the invention is to provide a valve for a balloon which can be easily inserted and removed from a conventional toy balloon and which remains in the balloon when it is not being used to entrap the gases therein.

Another object is to provide a valve for a toy balloon which will not easily become accidentally dislodged when the balloon is being handled in its inflated condition.

Additional objects and advantages will become apparent from the following description with reference to the accompanying drawing, wherein:

Figure 1 is a vertical cross sectional view of a deflated toy balloon, showing my valve in elevation therein;

Figure 2 is a fragmentary vertical cross sectional view of an inflated toy balloon, showing my valve in position in the inner end of the balloon neck to entrap the gases in the balloon;

Figure 3 is an enlarged elevational view of my valve removed from the balloon;

Figure 4 is a top plan view of the valve shown in Figure 3;

Figure 5 is a bottom view of the valve shown in the preceding figures;

Figure 6 is a vertical cross sectional view of my valve taken on line 6-6 of Figure 4;

Figure 7 is a vertical cross sectional view of a modified form of my valve; and

Figure 8 is a vertical cross sectional view of a further modified form of my valve.

Referring more specifically to the drawing, a toy balloon 10 is shown in Figure 1 in its deflated condition and in Figure 2 in its inflated condition and my valve 12 is shown therein in its open and closed positions, respectively. The balloon shown in the drawing may for the purpose of the present description be considered as a

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conventional toy balloon made of rubber and normally selling for a few cents. The balloon consists of a body portion 14 and a neck portion 16 joined integrally with the body portion and having a thickened annular portion 18 at the open end. The balloon and valve shown in Figures 1 and 2 are actual size, though both can be varied over a wide range, the size of the valve being determined by the size of the opening in the balloon neck.

The valve 12 consists of a generally conically shaped member having a rounded small end 20 and curved, outwardly flaring side walls 22, the curvature of the side walls preferably approximating the curvature of the side walls of the balloon at the point of juncture between the neck and body portions. The curved side walls of the valve seat on the correspondingly curved portion of the balloon to form an effective seal when the valve is in its closed position. One of the important features of the present invention is the heavy or weighted small end 20 and the relatively light large end. This relationship is accomplished in the embodiment shown in Figures 1 through 6 by providing a substantially thickened section 24 in the small end 20 and gradually thinning side walls 22 from the small to the large end of the valve, as clearly seen in Figure 6. In the form shown in this figure, the valve is constructed of relatively light and substantially rigid material, such as plastic. Some flexibility is permitted but the valve must hold its general shape when it is seated in the neck of a balloon.

The balloon and valve are fabricated separately and the valve is then inserted through the balloon neck into the body where it can assume any position and location while the balloon is in its deflated condition, as shown in Figure 1. In the use of the balloon and valve combination, the balloon is first inflated in the usual manner to the size desired with the valve lying loosely in the body away from the neck. After the balloon is inflated, the neck is closed near the free end with the user's fingers and the balloon is held with the neck at the bottom. With the balloon in this position, the valve readily falls or slips with the small weighted end downwardly into the inner end of the neck, in the manner shown in Figure 2. As the valve slips into the neck, the air pressure in the balloon forces the valve firmly into the neck with the curved side walls 22 seating in air tight relationship on the adjacent walls of the neck and balloon body. Since the small weighted end 20 is always down, it readily slips into the neck small end first, usually without anything more being required than holding the balloon with the neck in the downward position. However, if the valve tends to stick to the inner surface of the inflated balloon, it can readily be dislodged and moved into the neck by merely tapping the body of the balloon lightly with the finger.

The seal formed between the side walls 22 of the valve and the adjacent inner surface of the balloon effectively prevents the escape of the entrapped gases from the balloon until the valve is intentionally dislodged from the neck. The valve is dislodged by pressing with the thumb and forefinger on the neck directly in contact with the valve. This pushes the valve inwardly and permits the gas to escape and if the neck is turned to one side or to the top, the valve will fall from the neck into the body portion of the balloon. The balloon can be inflated, held inflated, and deflated in the foregoing manner as often as desired. When the valve is not in its closed position in the neck, it remains in the body unless it is intentionally forced through the neck from the balloon.

In the modified form shown in Figure 7, the valve is formed in two parts, consisting of an outer wall portion 30 of the same general configuration as the valve shown in Figures 1 through 6, but of uniform thickness, and a

separate weight 32 secured in the internal portion of the small end 34. The wall portion 30 is preferably constructed of plastic material and the weight 32 can be of any suitable material, such as plastic, glass or metal. In this modification an annular bulge 36 and groove 38 are provided near the small end 34, which serve two primary purposes. The groove assists in securing weight 32 in the internal lower end of the valve, and the annular rib causes a slight bulge in the neck of the balloon when the valve is in its seated position and thereby gives an added gripping action for retaining the valve in the seated position. An annular rib similar to rib 36 can be advantageously included in the form shown in Figures 1 through 6.

A further modified form of the invention is disclosed in Figure 8 wherein the valve is formed substantially the same as the first described embodiment, but greater weight is provided in the small end, or the same weight is provided with less plastic material. In this embodiment a lead or steel shot 40 is embedded in the plastic material forming the small end of the valve. The imbalance in favor of the small end may be varied from one valve to another by varying the size of the shot. The remainder of the valve structure is the same as that shown in Figures 1 through 6.

Several variations of the present invention have been described herein, and other changes and modifications may be made without departing from the scope of the invention, including using a variety of different materials for the valve side walls and weight, such as metal.

I claim:

1. A valve for a toy rubber balloon, comprising a flexible tubular member, a relatively rigid hollow valve element having generally frusto-conically shaped side walls composed of plastic material and having a rounded small end, said side walls gradually thinning from said small end to the large end and curving outwardly through most of the longitudinal distance, said side walls engaging the inner surface of the tubular member adjacent one end and forming a seal therewith, the thickness of the material forming the small end being substantially greater than the thickness of the side walls of the valve element for providing a greater weight in the direction of said small end, and an annular rib in said side walls adjacent said small end.

2. A valve for a rubber balloon, comprising a flexible tubular member, a relatively rigid hollow valve element having generally frusto-conically shaped side walls composed of plastic material and having a rounded small end, said side walls gradually thinning from said small end to the large end and curving outwardly through most of the longitudinal distance, said curved side walls engaging

the inner surface of the tubular member adjacent one end and forming a seal therewith, the thickness of the material forming the small end being substantially greater than the thickness of the side walls of the valve element for providing greater weight in the direction of said small end.

3. A valve for a balloon, comprising a flexible tubular member, a substantially rigid hollow valve element having generally frusto-conically shaped side walls composed of plastic material and having a rounded small end, said side walls curving outwardly through most of the longitudinal distance, said curved side walls engaging the inner surface of the tubular member and forming a seal therewith, the thickness of the material forming the small end being substantially greater than the thickness of the side walls of the valve element for providing a greater weight in the direction of said small end.

4. A valve for a balloon and the like, comprising a flexible tubular member, a substantially rigid hollow valve element having generally frusto-conically shaped side walls, said side walls curving outwardly through most of the longitudinal distance, said curved side walls engaging the inner surface of the tubular member and forming a seal therewith, and means forming a weight adjacent the small end of said valve element for providing a greater weight in the direction of said small end.

5. A valve for a balloon, comprising a flexible tubular member, a substantially rigid hollow valve element having generally frusto-conically shaped side walls composed of plastic material having a rounded small end, said side walls curving outwardly through most of the longitudinal distance, said curved side walls engaging the inner surface of the tubular member and forming a seal therewith, and a piece of material heavier than the material of the side walls in said small end.

6. A valve for a balloon, comprising a flexible tubular member, a substantially rigid hollow valve element having generally frusto-conically shaped side walls composed of plastic material having a rounded small end, said side walls curving outwardly through most of the longitudinal distance, said curved side walls engaging the inner surface of the tubular member, a piece of material heavier than the material of the side walls in said small end, and an annular rib in said side walls adjacent said small end.

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