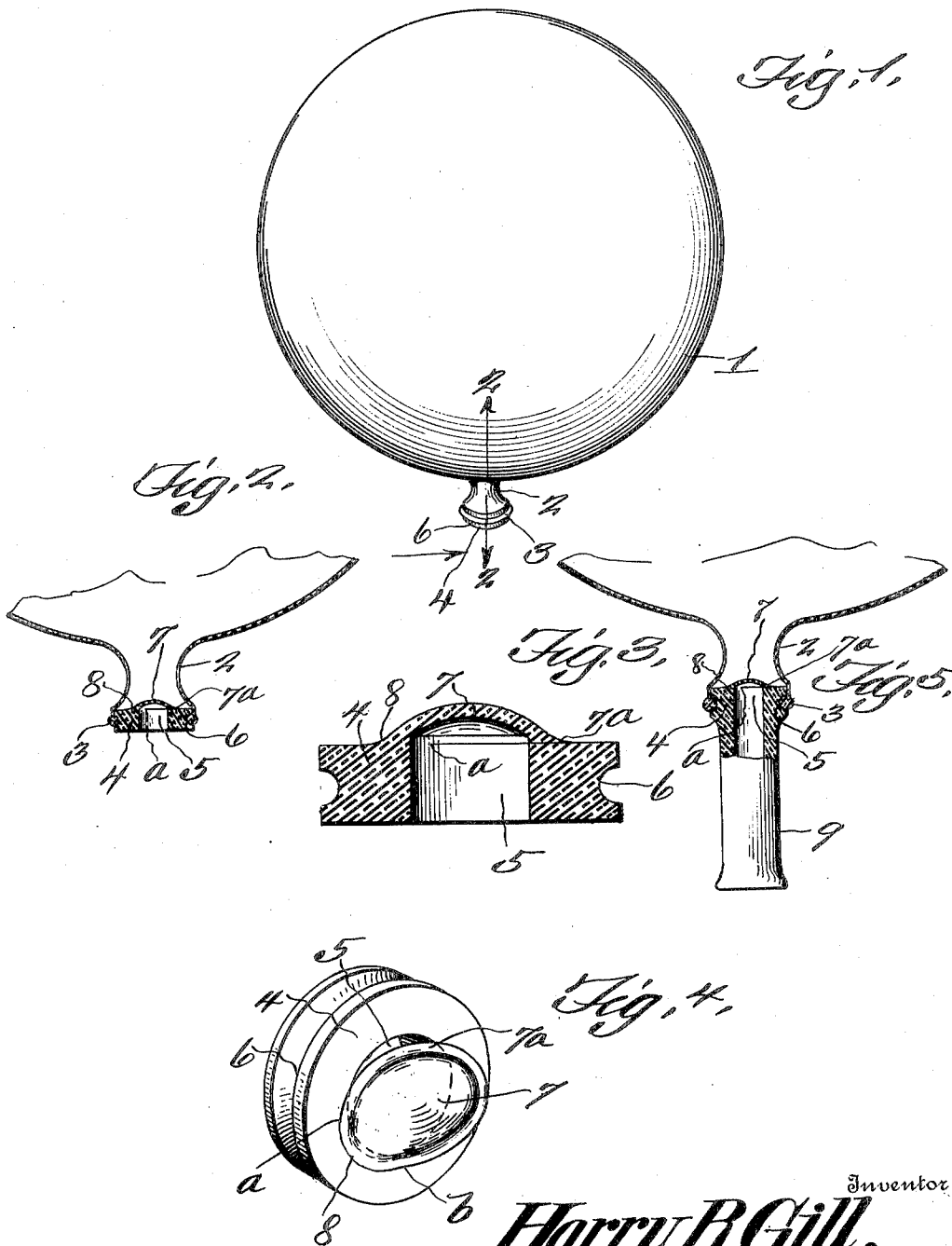


H. R. GILL.
VALVE FOR INFLATING BODIES.
APPLICATION FILED JAN. 29, 1917.

1,315,955.

Patented Sept. 16, 1919.



Witnesses

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HARRY R. GILL, OF ASHLAND, OHIO.

VALVE FOR INFLATING BODIES.

1,315,955.

Specification of Letters Patent. Patented Sept. 16, 1919.

Application filed January 29, 1917. Serial No. 145,299.

To all whom it may concern:

Be it known that I, HARRY R. GILL, a citizen of the United States, residing at Ashland, in the county of Ashland, State of Ohio, have invented a new and useful Valve for Inflating Bodies; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to an improved valve for holding toy rubber balloon and various other expansible bodies inflated with air.

As one of the objects of the invention, it is the aim to provide an improved "all-rubber valve" to be engaged by the contracted neck of a rubber balloon and provided with a check valve flap to be held closed by the air in the balloon, thereby holding the balloon inflated.

A further object of the invention is to provide a yieldable member having an opening therethrough and provided with a check valve flap to be held closed by the air in the balloon to hold the balloon inflated, said yieldable member adapted to be depressed edgewise, whereby the check valve flap may be thrown open to deflate the balloon.

A further object of the invention is to provide a disk shaped member having a central opening and provided with an annular groove in its peripheral edge to be engaged by a bead about the marginal edge of the neck of the balloon, there being a check valve flap connected to the inner face of the disk member to be held closed by the air in the balloon to hold the balloon inflated, said check valve flap adapted to be thrown open by inserting an instrument through said opening, to deflate said balloon.

In practical fields, the details of construction may necessitate alterations falling within the scope of what is claimed.

The invention comprises further features and combination of parts, as hereinafter set forth, shown in the drawings and claimed.

In the drawings:—

Figure 1 is a perspective view of a bal-

loon, showing the all-rubber disk valve applied to hold the balloon inflated.

Fig. 2 is a sectional view on line 2—2 of Fig. 1.

Fig. 3 is an enlarged detail sectional view of the disk valve.

Fig. 4 is a perspective view of the disk valve, showing the same on an enlarged scale.

Fig. 5 is a detail view, showing one face of the disk extended to form a stem.

Referring more especially to the drawings, 1 designates a toy rubber balloon, which may be any suitable shape or dimensions, when inflated or deflated. This balloon is provided with a contracted neck 2, the marginal edge portion of the outer mouth of the neck is provided with a bead 3. A member 4 (which may be of any suitable shape, or of any suitable desirable dimensions, and may be constructed of any suitable material) is provided. This member is preferably constructed disk shaped and of any suitable yieldable material, and is provided with a central opening 5, which may be of any suitable shape, or of any suitable diameter. The peripheral edge is provided with an annular groove 6, preferably semi-circular in cross section, and may be any suitable width and depth, whereby the bead 3 of the marginal edge of the opening of the neck 2 may fit therein snugly, and owing to the elastic tension of the bead, the bead will be held tightly in the groove or channel, thereby holding the disk or member 4 in position in the neck. In constructing this member 4, one face of the same is provided with a bulged or convexed comparatively thin wall 7 which covers one end of the opening 5 and the inner face of this wall is curved concentric with the curvature of the outer face of the wall, as shown clearly in Figs. 2 to 5, inclusive. When the bead 3 is engaging the annular groove 6, the convexed wall 7 protrudes inwardly of the neck 2 of the balloon, as shown in Figs. 2 and 3, clearly. This wall, where it is adjacent one face of the member or disk 4 is cut away or sev-

ered from the disk or member 4, substantially its complete circular contour, that is, with the exception of a slight connection, as at 8, from *a* to *b*, thereby allowing the flap or bulge wall to be swung or moved inwardly of the neck, using the connection 8 as a hinge.

It is to be noted that before the flap or bulged wall 7 is severed from the body of the valve, the convexed surface of the flap gradually curves and merges into one face of the body of the valve. The cut or sever is made on a plane absolutely flush with one face of the body of the valve, in which case the gradual curvature of the flap or bulged wall is provided with a thin tapering marginal edge portion 7^a which is sufficiently flexible, particularly adjacent the extreme marginal edge of the flap, whereby, the pressure of air within the balloon when inflated will act upon this thin tapering marginal edge portion 7^a, and insure the closing of the valve or flap. This thin tapering marginal edge portion 7^a is clearly shown in Figs. 3 and 4. When the disk or member 4 is in the position, as shown in Figs. 1 and 2 clearly, whereby the bead 3 may engage the groove 6, it is possible to insert the disk and the part of the neck in the mouth, and then by blowing, the flap or bulged walls or flapped valve 7 may be unseated and thrown inwardly of the neck 2, thereby inflating the balloon. After the balloon has reached the desired size the back pressure of the air in the balloon, owing to the contracting tendency of the elastic material of the balloon, the valve will be held closed. If the disk or member 4 is constructed of suitable yieldable material, such as rubber or the like, it is possible to depress the disk or member 4 edgewise, that is, from diametrically opposite sides, which will cause the opening 5 to become so elongated and so spread the thickness of the disk as to cause the flapped valve or convexed wall 7 to unseat, allowing the escape of the air and deflating the balloon. However, should the disk or member 4 be constructed of non-yieldable material, it is possible to insert an instrument into the opening 5, so as to engage the inner surface of the wall or flapped valve 7, causing it to disengage from its seat, allowing the balloon to be deflated. In Fig. 5, one face of the disk or member 4 is extended to form a stem 9, so as to facilitate blowing the balloon to the desired size. It is to be understood that there is no limit to the dimensions size and shape for the disk valve or member 4.

The invention having been set forth, what is claimed as new and useful, is:—

1. A toy balloon having a tubular neck or mouthpiece integral therewith, a disk mem-

ber adapted to be removably inserted and retained in said neck and provided with an opening, and a self-closing valve integral with said member for closing said opening, said self closing valve having a thin marginal edge portion, tapering in cross section toward the outer marginal extremity of the valve, and adapted to closely contact with one face of the disk member as a result of the high pressure of air within the inflated balloon.

2. A toy balloon having a tubular neck or mouthpiece integral therewith, the lower marginal edge of said mouth piece having an integral bead, a member having a central opening and adapted to be removably inserted in the open end of the mouthpiece and provided with an annular groove to removably receive said bead, whereby the member may be retained in the mouthpiece, said member having a self-closing flap valve integral therewith for closing said opening, said self closing valve having a thin marginal edge portion, tapering in cross section toward the outer marginal extremity of the valve and adapted to closely contact with one face of the disk member as a result of the high pressure of air within the inflated balloon.

3. A toy balloon having a tubular mouth piece integral therewith, a yieldable disk member having a central opening and adapted to be removably inserted and retained in said mouthpiece, and a yieldable flap valve integrally carried by said member for closing said opening and being concavo-convex, whereby, upon crushing the yieldable member edgewise, said valve will become unseated, said yieldable flap valve having a thin marginal edge portion, tapering in cross section toward the outer marginal extremity of the valve, and adapted to closely contact with one face of the disk member as a result of the high pressure of air within the inflated balloon.

4. A toy balloon having a tubular mouthpiece, the lower marginal edge of said mouthpiece having an integral bead, a rubber disk member having a central opening and provided with an annular groove in its marginal edge, and adapted to be removably inserted in the open end of the mouthpiece, whereby said bead may removably engage the groove, and a rubber flap valve integrally carried by said disk member for closing said opening, said valve being concavo-convex, whereby, upon crushing said rubber member edgewise at right angles to the integral attachment of the valve, said valve will become unseated, said rubber flap valve having a thin marginal edge portion, tapering in cross section toward the outer marginal extremity of the valve, and adapted to closely contact with one face of the disk

member as a result of the high pressure of air within the inflated balloon.

5 A toy balloon composed of a body of thin elastic rubber having a neck of similar material, a valve removably inserted in the neck and composed of a flat circular disk of rubber having sufficient inherent stiffness to hold the neck of the balloon distended, said valve having on its inner side a boss which
10 is slit transversely part way across the same

forming a flap, and a passageway extending through the body to the slit.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HARRY R. GILL.

Witnesses:

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