T. M. GREGORY.

TOY BALLOON.

APPLICATION FILED MAY 6, 1911.

1,008,641. Patented Nov. 14, 1911.

Fig. 1

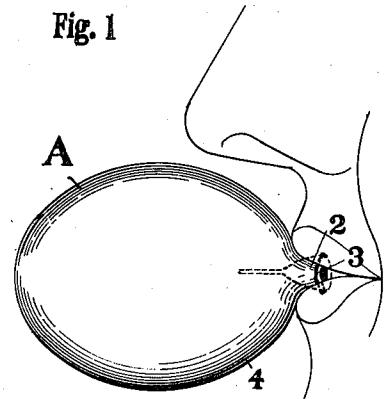


Fig. 4

Fig. 2

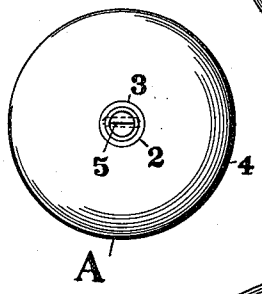
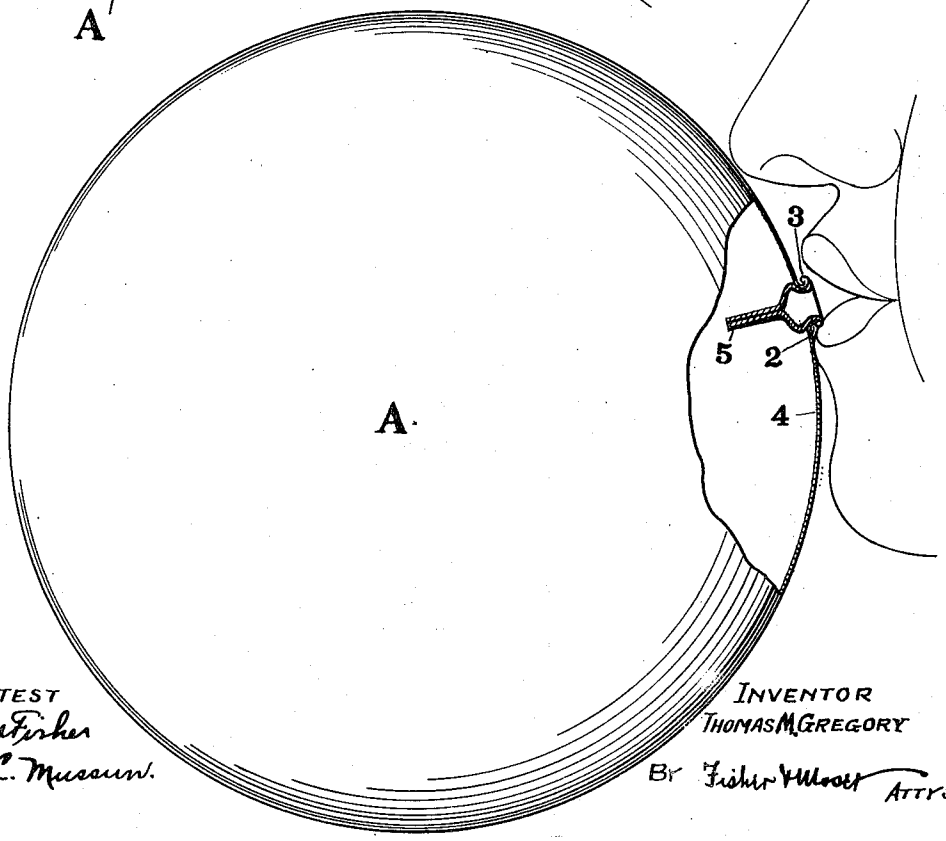


Fig. 3



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TOY BALLOON.

1,008,641. Specification of Letters Patent. Patented Nov. 14, 1911.

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To all whom it may concern:

Be it known that I, THOMAS M. GREGORY, citizen of the United States, residing at Akron, in the county of Summit and State of Ohio, have invented certain new and useful Improvements in Toy Balloons, of which the following is a specification.

My invention relates to toy balloons, and the invention consists in a balloon constructed substantially as herein shown and described and particularly pointed out in the claims.

Two novel features enter into the invention, comprising first the inflation of the balloon and withdrawal and shortening of the mouth piece when sufficient or maximum inflation is attained, and second, the self-sealing of the balloon during and after inflation.

In the accompanying drawings, Figure 1 is a side elevation of the balloon and a profile of a person's face with the nipple of the balloon between the lips to inflate the balloon by blowing it full of air. Fig. 2 is a face or front elevation of the balloon as seen in Fig. 1 and partially inflated. Fig. 3 shows the balloon at maximum inflation and the profile of the person in the same general relation as in Fig. 1 except that in this latter case the balloon has expanded the nipple or mouth piece away from the pursed lips. Fig. 4 is a perspective view of the blank which forms part of the nipple or mouth piece while also performing the function of a valve to effect self-sealing of the balloon during and after inflation.

As to the first feature of novelty the balloon comprises a hollow body —A— made of thin rubber of pure quality and extreme elasticity which will permit the body to be inflated and expanded to many times its normal diameter. The relative size of the body as it comes from the mold or form is approximately as shown in Fig. 1, and Fig. 3 represents approximately the diameter to which the said body may be inflated with safety. It will also be understood that balloons of this kind are made by the dipping process,—a method now well known. In following this process it is not always possible to obtain walls of uniform thickness, and in that event the balloon is apt to burst when inflated beyond a certain diameter because of inherent weakness at some particular point. In the present instance I seek to avoid bursting of the balloon and possible injury to the person inflating the balloon by positively preventing inflation of the balloon beyond a certain fixed diameter well within the limit of safety. This I accomplish by providing body A with a relatively short tubular nipple 2 having an annular bead 3 at the mouth thereof—both nipple and bead being of rubber and formed integral with the wall 4 of the balloon. The nipple is long enough when the balloon is deflated to provide a mouth-piece which may be inclosed and grasped by the lips to close all around so that no escape of air can occur during early or initial steps of inflation. But, as inflation and expansion of the balloon continue, nipple 2 will also gradually expand at its juncture with body A and become shorter until practically little or no nipple is left, acting in effect to withdraw the mouth-piece from the lips. Consequently, inflation is rendered more and more difficult as the balloon grows larger, particularly as leakage of air from the lips will occur at either side of the nipple at the mouth-line,—the lips finding it difficult to maintain sealed relations with a short round mouth-piece when the expanded rounded body A is also considered. In other words, the shorter the nipple, the greater the difficulty to effect complete lip-sealing relations with the mouth end of the nipple. It must also be remembered that as the ball increases in size a correspondingly greater measure of resistance is offered to lung inflation, or stated otherwise, the operator must exert more and more lung power as the balloon enlarges. I take advantage of this fact by increasing the difficulties of lip-sealing as inflation proceeds,—the object being to prevent over-expansion and bursting of the balloon.

Now, as to the second feature it is obvious that more or less permanent sealing of the balloon must also be provided for if the balloon is to remain inflated to be used as a bouncing ball or toy; otherwise the balloon would collapse when removed from the lips. Therefore, I add a valve member 5 which is self-sealing in effect and also particularly construct this valve member to cooperate with nipple 2 to permit radial expansion and longitudinal shortening thereof during inflation. Thus, valve member 5 comprises a flat tube of rubber (see Fig. 4) wherein the flat sides are permanently in contact except when forcibly separated by

inserting an instrument of any kind therein, such as a toothpick or match, or when expanded into more or less circular form by attachment to a supporting wall such as a mouth-piece or nipple 2 as in this case. That is to say, member 5 is expanded and kept open at one end by making a fixed or homogeneous union with round nipple 2, bead 3 being quite stiff enough to retain a round shape, whereas the other end of said tube is projected into the interior of hollow body A and remains flat, see Fig. 3. Furthermore, member 5 is thicker than body A and of a different grade of rubber, and an air-tight union is effected between the parts by steps involving the use of cement, acid or other means.

When the balloon is inflated more or less, valve member 5 is sealed or held shut by the compressed air within the balloon, said air pressing the flat sides of the tube together. In this connection it must also be remembered that the balloon is made of elastic material and stretched when inflated to cause compression of the air within. When expanded, a balloon as thus constructed will remain inflated for many hours, or even for a longer period if body A is made sufficiently thick in its walls to prevent leakage of air therethrough. As a toy, this balloon has decided advantages over other known balloons on the market, being inflatable and deflatable at the will of the operator and having inherent features to safeguard undue inflation and bursting. Moreover, the self-sealing valve will retain the balloon at any expanded diameter within the limits of safety as herein provided for.

My specification, including the claims is therefore to be construed as broadly as the invention warrants so as to cover all modifications and equivalents adapted to perform like functions and give like results.

What I claim is:

1. A rubber balloon having a nipple formed integral therewith to expand and shorten when the balloon is inflated and provided with a self-sealing valve at the inner end of said nipple.

2. A toy balloon of thin rubber having a relatively short open tubular projection adapted to be further shortened by inflation of the balloon and means to expand the balloon and seal the same when expanded consisting of a piece of flat rubber tubing having its outer end permanently open and fixed in said tubular projection and its inner end normally closed.

In testimony whereof I affix my signature in presence of two witnesses.

THOMAS M. GREGORY.

Witnesses:

R. B. MOSER,

E. M. FISHER.