

No. 830,582.

PATENTED SEPT. 11, 1906.

C. R. FLEISCHMAN.
INFLATED BALL.

APPLICATION FILED DEC. 28, 1905.

Fig. 1.

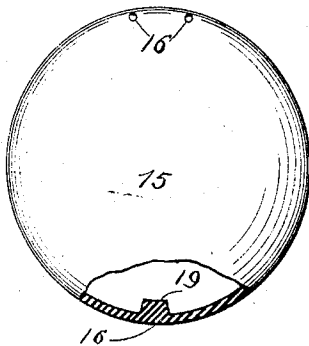


Fig. 2.

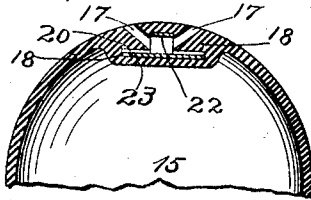


Fig. 4.

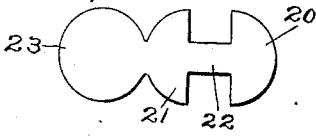


Fig. 3.

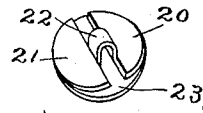


Fig. 5.

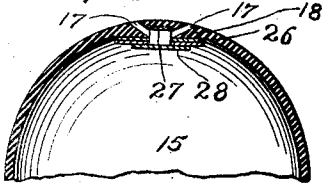


Fig. 6.

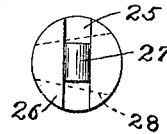


Fig. 9.

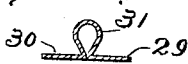


Fig. 7.

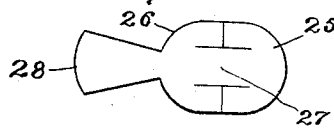


Fig. 10.

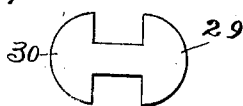
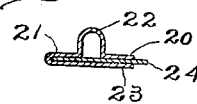


Fig. 8.



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UNITED STATES PATENT OFFICE.

CHARLES R. FLEISCHMAN, OF CHICAGO, ILLINOIS.

INFLATED BALL.

No. 830,582.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed December 28, 1905. Serial No. 293,658.

To all whom it may concern:

Be it known that I, CHARLES R. FLEISCHMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Inflated Balls, of which the following is a specification.

This invention relates to improvements in that type of balls used for playing games of various kinds and for other purposes which are made of soft rubber or other flexible or air-tight material and are inflated to give them the necessary or desired resiliency and rebounding quality; and it consists in certain novel features, combinations, and arrangements of the various parts, as will be hereinafter more fully set forth and specifically claimed.

The objects attained by my present invention are substantially the same as those set forth in my application, Serial No. 240,356, for Letters Patent for improvements in inflated balls, filed on the 9th day of January, 1905, and are as follows: To provide simple and efficient means by which a cord may be readily attached to an inflated ball in such a manner that the air-chamber of the ball will remain air-tight and also to furnish means for reducing to a minimum the possibility of puncturing the air-chamber when the openings for the reception of the cord are formed in the wall of the ball.

Another object of the invention is to so construct the ball that the rubber or wall thereof will be prevented from tearing when the ball is carried with great force or speed the length of the cord to which it may be attached.

A further object is to provide automatic or self-sealing means for closing the punctures made in the ball when inflated or when it is desired to reinflate it after it has become partially deflated from long or excessive use.

Other objects and advantages of the invention will be disclosed in the subjoined description and explanation.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe it, referring to the accompanying drawings, in which—

Figure 1 is a view in elevation of a ball constructed in accordance with my invention, showing a portion of its wall broken away to illustrate the self-sealing means for the punctures made when the ball is inflated.

Fig. 2 is a fragmental sectional view of the ball, showing the openings for the cord and also one form of the retaining-disk used for engagement with the attached end of the cord and also for reinforcing the wall of the ball at and around the point of its wall to which the cord is attached. Fig. 3 is a detached perspective view of the disk used in the construction illustrated in Fig. 2. Fig. 4 is a plan view of the blank out of which said disk is formed. Fig. 5 is a central sectional view of a portion of the ball, showing the openings therein for the cord and also a retaining and reinforcing disk embodying a modified construction. Fig. 6 is a plan view of said modified form of disk. Fig. 7 is a plan view of the blank out of which the disk illustrated in Figs. 5 and 6 is formed. Fig. 8 is a sectional view of the disk illustrated in Figs. 2 and 3, showing a piece of soft rubber interposed between its members. Fig. 9 is a sectional view showing another modification in the construction of the retaining and reinforcing disk, and Fig. 10 is a plan view of the blank out of which it is formed.

Like numerals of reference refer to corresponding parts throughout the different views of the drawings.

The ball, which may be made of any suitable size and material, but preferably of soft rubber, is designated in the different views of the drawings by the reference-numeral 15 and is provided at suitable points on its outer surface with indicating-marks 16, which may be in the form of dots, indentations, or slight projections to show where the rubber is to be pierced, so that the cord may be attached to the ball or the latter may be punctured through self-sealing material when it is desired to inflate the ball. At a suitable point a flat retaining-disk, having on its outer surface at its central portion an apertured extension, is located within the ball inwardly from the openings 17 therein, which openings or channels by preference are so made as to converge inwardly in the wall of the ball, which is preferably thickened or reinforced, as at 18, in Figs. 2 and 5 of the drawings. This retaining-disk, which may be of any of the constructions illustrated in the different views of the drawings and hereinafter described, may be embedded in the reinforced or thickened portion of the ball, as shown in Fig. 2, or may be located on the inner surface of the wall of the ball, yet have its apertured extension embedded therein, as shown in Fig.

5 of the drawings. The reinforced portion 18 when employed covers an area which is by preference large enough to embrace or circumscribe the marks 16, which it will be understood are employed for the purpose of indicating where the openings 17 for the reception of the cord are to be made. As the thickened portion 18 will have a tendency to overbalance the ball, I may use as a counterbalance therefor, as well as for the purpose of sealing the puncture or punctures made by a hollow needle or instrument used for inflating the ball, a piece of para, (pure rubber,) 19, which is located diametrically opposite the central portion of the thickened part or reinforcement.

The retaining and reinforcing disk (shown in Figs. 2, 3, 4, and 8 of the drawings) consists of a single piece of sheet metal, which in its blank form is of the shape shown in Fig. 4—that is, it has two semicircular portions 20 and 21, which are united at the middle part of the straight edges with a strip, which when said edges are caused to approach each other, as shown in Fig. 3, will form a loop 22, the bottom of which is closed by means of the flap or circular part 23, which is united to one of said semicircular portions and is adapted to be bent on the dotted line of Fig. 4, so that said circular piece will lie under and against the bottom surfaces of the members 20 and 21, as will be readily understood by reference to Figs. 2 and 8 of the drawings. When a disk of the above-described construction is employed, a thin sheet of soft rubber 24 may be interposed between the circular part 23 and the members 20 and 21, so that the edges of said piece of rubber will be exposed, thus facilitating and rendering more perfect the operation of vulcanizing the retaining-disk in the wall of the ball.

In Figs. 5, 6, and 7 is shown a modification in the construction of the retaining-disk, which consists in forming it of a single piece of material, which has two partially-circular portions 25 and 26, each of which is slightly in excess of a half-circle and are united at the middle portion of their straight edges by means of a strip, which when the portions 25 and 26 are pressed toward each other so that their meeting edges will overlap one another, as shown in Figs. 5 and 6, said strip will form a loop 27 to receive the cord. Connected to one of the members 25 or 26 at its outer edge is an elongated flap or tongue 28, which may be bent on the dotted line of Fig. 7, so that it will lie against the lower surfaces of the members 25 and 26, thus closing the lower end of the loop 27, as will be understood by reference to Fig. 5 of the drawings.

In Figs. 9 and 10 is shown still another modification in the construction of the retaining-disk, which consists of a piece of sheet metal of the blank form shown in Fig. 10, which has two semicircular portions 29

and 30, united at the middle of their straight edges by means of a strip, which when the straight edges of the portions 29 and 30 are forced together, as shown in Fig. 9, will form a loop 31, having its bottom portion closed.

From the foregoing and by reference to the drawings it will be readily understood and clearly seen that by employing a disk of any of the constructions above set forth and locating it in or against the wall of the ball so that the loop or apertured projection on the disk will be located between the indicating-marks 16 and inwardly therefrom in such a manner that the open ends of the loop or projection will be presented toward the indicating-marks a cord may be passed through the openings 17 and the loop where it may be secured. In forming the openings 17 in the wall of the ball it is evident that the various means for closing the inner or lower portion of the loop will prevent the instrument used for forming said holes puncturing or piercing the air-chamber of the ball. It will also be understood that as the loop or apertured projection of the disk is embedded in the wall of the ball and the latter, as well as the loop, is vulcanized in or to the rubber the loop will be filled with rubber through which the instrument used for forming the openings 17 will pass, thus leaving a sufficient quantity of rubber in the lower portion of the loop to hermetically seal the lower or inner portion of the loop when the disk is located on the inner surface of the wall and not embedded therein, as shown in Fig. 5 of the drawings. It is obvious that the disk when in place will contact with a considerable area of the wall of the ball and that when the cord is attached thereto the strain will be removed directly from the rubber or wall and will be distributed around its point of connection and be sustained directly by the loop or apertured projection of the disk. As the loop is closed around the opening therein, in one instance by means of the flap or circular portion 23 lying under the parts 20 and 21 and the open end of the loop, and in another instance by the flap or tongue 28, lying under the open end of the loop 27, and in the other instance by the straight edges of the parts 29 and 30, which edges are placed in juxtaposition, it may be properly called by the seemingly paradoxical term a "closed apertured projection."

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a ball, of a disk secured to the wall thereof inwardly from its outer surface, said disk having a closed apertured projection on its outer surface, substantially as described.

2. The combination with a ball having a pair of spaced-apart indicating-marks on its outer surface, of a disk secured to the wall thereof inwardly from its outer surface, said

disk having a closed apertured projection on its outer surface and embedded in the wall of the ball between the indicating-marks thereon, substantially as described.

5 3. The combination with a ball having a portion of its wall reinforced, of a disk embedded in said reinforced portion of the wall and provided on its outer surface with a closed apertured projection, substantially as described.

10 4. The combination with a ball having a portion of its wall reinforced, of a disk embedded in said reinforced portion of the wall and provided on its outer surface with an apertured projection, and a piece of self-sealing material located on the inner surface of the wall of the ball diametrically opposite the reinforced portion thereof, substantially as described.

15 5. The combination with a ball having a pair of openings in its wall, of a disk secured to the wall inwardly from the openings thereof and having a closed apertured projection on its outer surface, the aperture of said pro-

jection communicating with said openings, 25 substantially as described.

6. The combination with an inflated ball having a portion of its wall reinforced and provided with a pair of externally-open openings, of a metallic disk embedded in said reinforced portion of the wall and provided on its outer surface with a closed-apertured projection, the said openings adapted to communicate with the cavity of the said projection, substantially as described. 30

7. The combination with a ball, of a disk secured to the wall thereof inwardly from its outer surface, said disk consisting of two portions united at their straight edges by an outwardly-projecting loop, and a flap connected to one of said portions and lying under said portions to close the inner end of the loop, substantially as described. 35 40

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