April 20, 1965 A. P. NIEDERBERGER 3,179,412

TORQUE BALL

Filed July 3, 1962

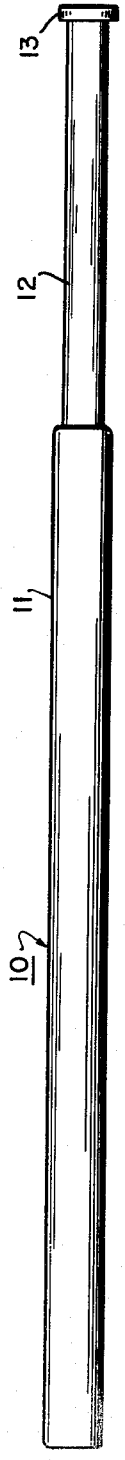


Fig. 1

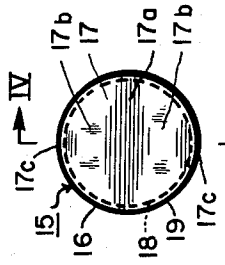


Fig. 3

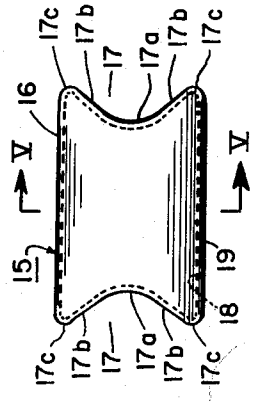


Fig. 2

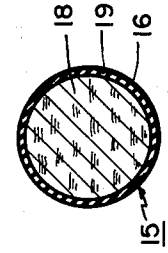


Fig. 5

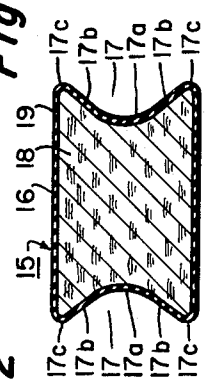


Fig. 4

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TORQUE BALL

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This invention relates to improved game equipment, and particularly, to a new and improved form of ball for use in a game simulating baseball.

The game equipment of my invention is particularly suitable for backyards, small lots, etc., as the space requirements are not great and there is little or no danger of injury to the players or to adjacent windows, etc.

There has been a definite need for a type of ball game that can be played without any danger by young and old alike, that has a definite limitation on the distance that the ball can be hit, but that also, unlike softball, for example, will give a full simulation of a regular ball game and will fully develop the hitting and pitching skill of a regular ball game. That is, the type of ball used should be capable of being thrown in the various ways of a regular baseball with the attendant deception to the batter, and should give the batter the feel and sound evidences of a successful hit.

After many attempts to provide a ball of the type needed, I finally discovered it should be of relatively light weight somewhat resilient material that will stand up under rough usage, it should have a peculiar shape, it should be of a requisite size, and it should have a proper type of surface treatment.

It has thus been an object of my invention to devise new and improved game equipment for the purpose outlined;

Another object has been to develop a ball that will meet the problem involved;

These and other objects will appear to those skilled in the art from the following description.

In the drawings, FIGURE 1 is a reduced longitudinal side view of a preferred form of a bat for use in my game;

FIGURE 2 is a longitudinal side view in elevation of a ball constructed in accordance with my invention; this figure is drawn to actual scale;

FIGURE 3 is an end view in elevation of the ball of FIGURE 2, on the scale of and taken from either end of such figure;

FIGURE 4 is a side section in elevation taken along the line IV—IV of FIGURE 3, showing details of the construction;

FIGURE 5 is an end section taken along the line V—V of FIGURE 2, also showing details of the construction.

In FIGURE 1, I have shown a bat **10** having a cylindrical batting portion **11** that extends longitudinally along its major dimension, a cylindrical handle portion **12** of slightly less diameter, and a lower end flange portion **13**. I have successfully employed a bat having an overall length of about 32 inches, a portion **11** of about 22⅝ inches in length and one inch in diameter, a portion **12** of about 9 inches in length and ⅞ of an inch in diameter, and a portion **13** of about ⅜ inch in width (length) and 1 inch in diameter.

Ball **15** of FIGURE 2 is shown of solid cylindrical form having a continuous lengthwise-extending cylindrical surface area **16** that is transversely-bounded by a continuous curvilinear periphery having an elongated length greater than its diameter, and a pair of opposite, circular ends **17** that are of corresponding construction with respect to each other. It will be noted particularly from FIGURES 2 to 4, that each end **17** has a centrally-disposed depressed portion **17***a* in the nature of a transverse, open-end cross-groove and a pair of opposed and upwardly-outwardly sloped side faces **17***b* that meet or are

joined at the groove portion **17***a*. The faces **17***b* terminate at opposite side portions of the cylindrical surface area **16** or of the longitudinal periphery of the ball at apex edges **17***c*.

It will be noted that each end **17** is preferably of curved or concave shape, transversely across the cylindrical area **16** and, in this connection, its groove portion **17***a* may have a depth of about ¼ inch with respect to the opposed apex edges **17***c*. In a ball **15** of preferred size, the length from end to end, between apex edges, is about 1⅞ inches, and diameter of the cylindrical surface area **16** is about 1⅛ inches. I employ a cork-like base or core material **18** and a closely-adherent, surrounding, rubberized, smooth-surface, relatively-thin, protective enclosure or coating **19** of substantially uniform thickness that is integral therewith and that provides a shape-retaining, impervious, protective, wear and shock-resistant cover therefor. The cover **19** fully closes-off and fills surface pores of the cork body **18** and encloses its surface areas to define the ball and impart a softened resiliency thereto. The diameter of the cylindrical area may be about 1⅛ inches. Each end **17** is smoothly notched so as to provide a guide surface for receiving the index finger of the hand of a pitcher in throwing the ball. The index finger will extend along the groove of the concave portion at a back end of the ball and the thumb may be pressed against the front portion of the cylindrical side surface **16** to hold the opposite front end portion of the side surface against the second finger of the hand. The ball is thus released and thrown longitudinally of its length axis. It has, by reason of its shape and construction, limited rollability.

The ball **15** of my invention is shown made of a resilient material in the nature of cork which is porous, somewhat brittle and very light in weight and has little strength, although it has a suitable resilience. I determined that a cork ball, in itself, cannot be successfully employed, as it will readily chip and break-up, has not enough body for throwing and hitting, and will give little or no sound evidence when hit by a bat. It will also tend to absorb moisture and produce marked weight variations.

In trying various methods in an endeavor to provide a relatively light-weight and resilient ball by the use of an outer core wrapping, etc., I found that it would not be satisfactory and determined that the problem could only be solved by applying a surface coating which would, itself, be resilient and, at the same time, resist wear, provide smoothness of grip and ball release, fully protect and seal-off the interstices or pores of the cork body, and provide an integral construction that would stand-up under conditions of wear and tear as well as provide a requisite softened resiliency or bounce to the ball. In this connection, I tried various types of paints, applied one and more coatings, and found that a conventional oil-base or water-base type of paint was unsatisfactory. After considerable experimentation, I discovered that a resin type of paint, for example, neoprene in a quick drying solvent and preferably of a white color, would be highly satisfactory.

About two or there coatings of a resilient rubberized type of paint, allowing full drying between each application, were found to provide requisite qualities in the ball. This provides a coating or cover **19** which is not absorbed within the pores of the cork to thus spoil its characteristics but which seals-off the pores of the outer surface, provides a tough and wear-resistant ball and greatly strengthens the cork core **19**. Since the coating **18** is resilient, in itself, it contributes to the playing qualities of the ball and enhances the resilience of the cork to provide a ball having a weight of less than one ounce whose playing characteristics are excellent and that will

have a long period of useful life. I early determined that a wrapping of tape not only tends to deaden the bounce of the ball, but gives difficulties from the standpoint of a tendency to unpeel after a short period of use.

It will be noted that the ball **15** has greater length than width or diameter so as to provide it with an unusual and somewhat erratic type of movement through the air when thrown or hit by a bat. However, a pitcher can learn to accurately control its line of throw. Referring to FIGURE 1 of the drawing, the bat **10** has been found to be particularly suitable for this type of ball to provide an ideal game for small backyard lots without danger of breaking windows and injury to the players.

By providing depressed or grooved ends in the ball as utilized with its particular shape, curves can be thrown without any need for the pitcher to twist his arm. Various types of balls may be thrown such as a slow, a fast, a drop, an out-drop, out-curves, a floater of medium speed, and in-drop or an in-curve. An overhead pitch produces a fast ball with a slight hop or a slow ball, according to the force employed; a sidearm pitch produces a curve; an underarm pitch produces a drop. When the index finger is placed lengthwise along the ball and the thumb is placed in a corresponding position along an opposite side of the ball, a directly overhead pitch produces a drop, an overhand or underhand pitch produces an out-drop, and a sidearm pitch produces an out-curve. When the index and middle fingers are side by side in the direction of ball's circumference (the ball is released with a clockwise turn), an overhand pitch produces an in-drop, and a sidearm pitch produces a sharp out-drop. When the index finger is centered in the middle of the ball's length in the direction of its circumference, a directly overhead pitch produces a floater with a slight hop at medium speed. The curving of the ball **20** in the various pitches is possible without twisting the arm muscles. The shape of the ball, in addition to making possible the various types of throws, limits the amount of its roll on the ground.

A ball constructed in accordance with my invention will produce a definite "crack" when hit similar to that of a baseball. Although as previously pointed out, the weight of the ball is less than one ounce, as slightly increased by the coating, its speed (when pitched or batted) will assume the same relative speed as a baseball. For instance, a long high fly can be "gotten under" and caught by the pitcher acting as a fielder. The relative resiliency of the ball permits grounders or any fly balls to be handled in much the same manner as a baseball.

A game employing equipment of my invention presents a unique challenge to the batter and pitcher, in that all the curves of a baseball throw plus more (after some experience) are available for outwitting the batter. In batting, the shorter distance of as well as the variety of pitches makes a definite challenge to any hitter. He will, after some experience, acquire a sharp coordination of mind and body in judging pitches and in swinging.

A game employing the equipment of my invention does not require a large playing field, base running may be effected although it is not required, and a minimum of two players is all that is needed; more players may be used as desired for fielding. The arm muscles cannot be twisted as in pitching some baseball curves. In laying out the field, I prefer to use a distance between the pitcher and batter of about 40 feet, but this may be lessened if desired. The basis for a base hit is the distance the ball is hit; for this reason, markers may be placed at various distances along foul lines (and through center as desired) as follows: a rectangular plot with markers placed at about 55 feet from home plate along foul lines and through center for a single base hit, at about 70 feet for a two base hit, at about 85 feet for a three base hit, and at about 95 feet for a home run. Each team may pitch or bat until three "outs" occur in each half inning. Balls and strikes may be decided by mutual agreement in absence of an umpire. "Outs" may be indicated as follows when: a batted ground ball stops or is stopped by the pitcher before it reaches the "single" marker, a batted fly ball caught anywhere, a batted fly ball alighting and stopping before it reaches the "single" marker (ball need not be caught), or a strike out. A double play may be effected if a batted ball is fielded faultlessly (without fumble) before it stops within the "single" area when there are runners on the bases in such position as to be forced; in such event, the most advanced runner and the batter are "out." As to hits, no baserunning is required. For a "single" (advancing a runner only one base), a batted ground ball or fly ball stopping before it reaches the "double" marker is needed. For a "single" advancing a runner two bases a batted ball passing the "double" marker on the ground to any distance is needed. For a "double" (two base hit), a batted ball alighting between the "double" and "triple" (three base hit) markers, regardless of the distance it travels on the ground thereafter, is needed. For a "triple" (three base hit), a batted fly ball alighting between the "triple" and "home run" markers, regardless of the distance it travels thereafter is needed. For a "home run," a batted fly ball alighting past the "home run" marker is needed.

The relative light weight and resilient construction of the ball prevents personal injury or property damage. The cork material gives a softened resiliency with the coating used. The ball does not have the "live" bounce of a rubber ball, but more of a restrained, shock-absorbing resiliency. It will be noted that an important feature of a game ball of my invention is its relatively long throwing axis or length dimension as compared to its height dimension. Another feature is the employment of a shape having rounded surfaces with offset side portions to limit its roll on the ground, to facilitate the throwing operation, to improve deception, and to increase its effectiveness.

An important characteristic is imparted to the ball by reason of the fact that, as shown, it is transversely bound by a continuous curvilinear periphery and has offset portions which limit its rollability.

What I claim is:

1. In a game ball of the character shown and described for use in a modified form of a baseball game, an elongated integral solid body of substantially cylindrical shape of cork-like material; a closely-adherent smooth-surface relatively-thin rubberized protective cover of substantially uniform thickness fully closing-off surface pores of and enclosing surface areas of said body to define a ball; said coating imparting a softened resiliency to said ball; said ball being transversely-bounded by a continuous curvilinear periphery and having a length that is greater than its diameter, and said ball having at each of its longitudinal ends a centrally-disposed transversely-extending open-end groove portion whose sides are sloped towards opposite sides of its longitudinal periphery and define a pair of opposed apex edges along such opposite sides of the periphery.

2. In a game ball as defined in claim 1 wherein said protective cover comprises painted-on solidified layers of resin paint in the nature of a neoprene base paint.

3. In a game ball as defined in claim 1 wherein said groove portion, said sides and said apexes at each end of said body are smoothly-curved to fit with and receive the index or middle finger of the hand of a pitcher therein.

4. In a game ball as defined in claim 1 wherein, the protective cover comprises a plurality of solidified painted-on layers of a rubberized paint, and such protective cover constitutes the full outer covering for said solid body.

5. In a game ball of the character shown and described for use in a modified form of baseball game, an elongated integral solid body of substantially cylindrical shape of cork-like material; a smooth-surface relatively-thin rubberized protective cover of substantially uniform thickness fully closing-off surface pores of and enclosing surface areas of said body, said coating being closely adher-

ent to said body and imparting a softened resiliency to said body to define a ball; said ball being transversely-bounded by a continuously-curvilinear periphery and having a length that is greater than its diameter, said ball having at each of its longitudinal ends a centrally-disposed elongated cross-extending open-end depressed portion for receiving therealong the finger of the hand of a pitcher to guide it in its flight and to impart, along with its cylindrically-elongated shape, an eccentric type of movement when thrown or batted.

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