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Astrom

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[54] **BADMINTON BALL**

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Aug. 20, 1974 Sweden 74105644

[52] **U.S. Cl.** ..... **273/61 R;** 273/58 BA; 273/199 A
[51] **Int. Cl.²** **A63B 39/00**
[58] **Field of Search** .... 273/61 A, 58 B, 58 D, 58 E, 273/58 F, 58 BA, 199

[56] **References Cited**

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1,483,165	2/1924	Eaton	273/199 R
1,684,557	9/1928	Saunders	273/61 R
2,597,704	5/1952	Carlson	273/61 A
2,776,139	1/1957	Blamey et al.	273/58 B X

FOREIGN PATENTS OR APPLICATIONS

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152,446	3/1952	Australia	273/58 B

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[57] **ABSTRACT**

A badminton ball which is round and constructed like a shell. The shell consists of a regular, continuous pattern comprising the very body of the ball. The pattern has its character from a great number of substantially symmetrical holes in the shell, the total surface of the holes being at least 40 percent, but not more than 60 percent, of the total limiting surface of the ball. This ball will travel more softly in the air and is very little disturbed by wind conditions at outdoor play. For indoor use, the inner surface of the ball may be lined with a tissue, which makes the ball travel more slowly.

3 Claims, 3 Drawing Figures

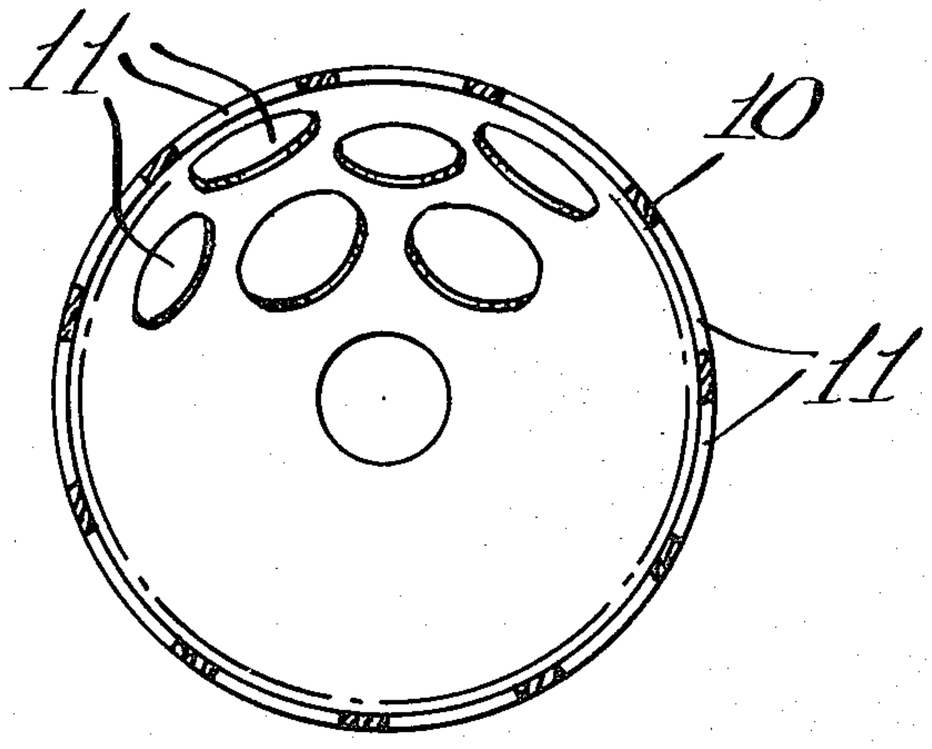


Fig. 1.

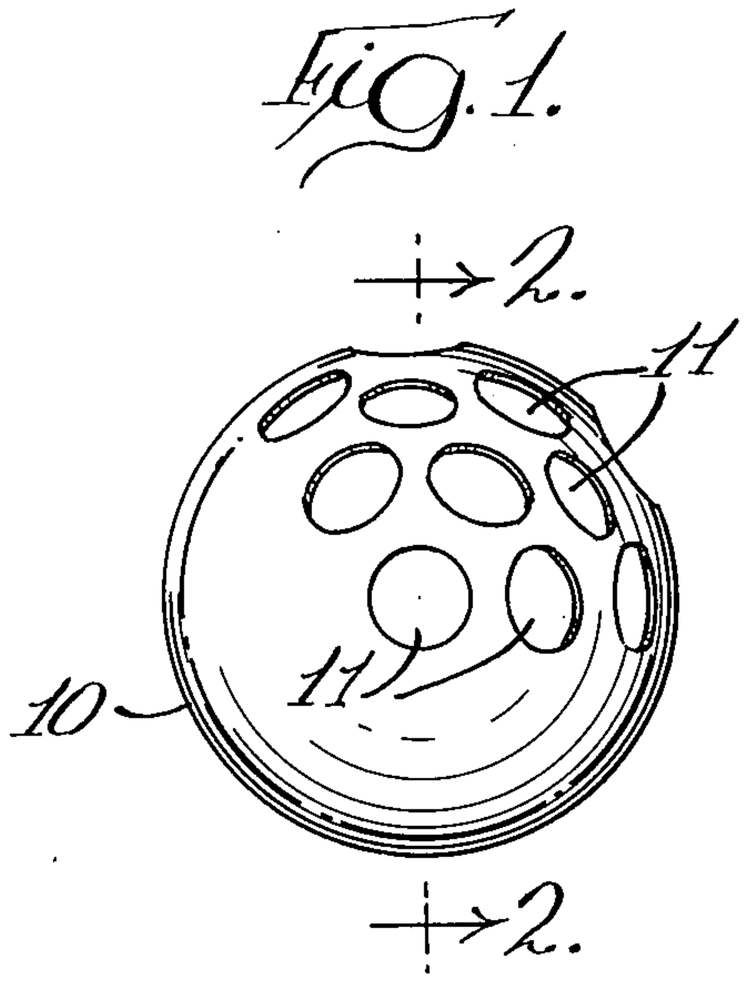


Fig. 2.

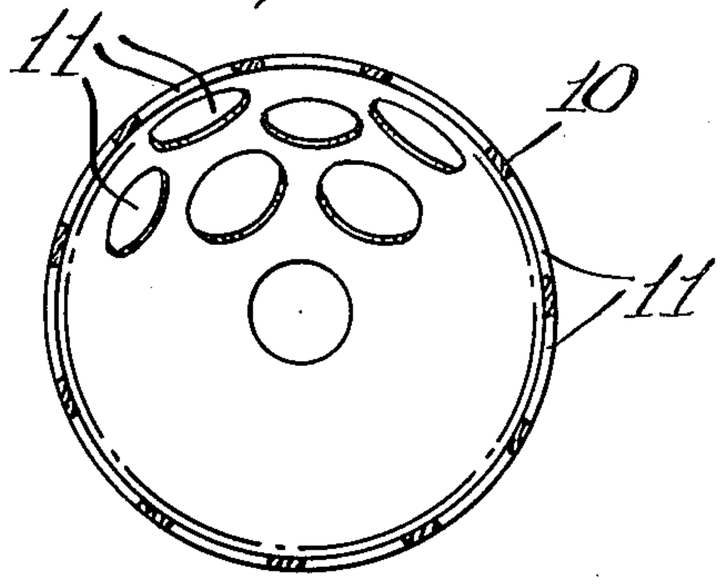
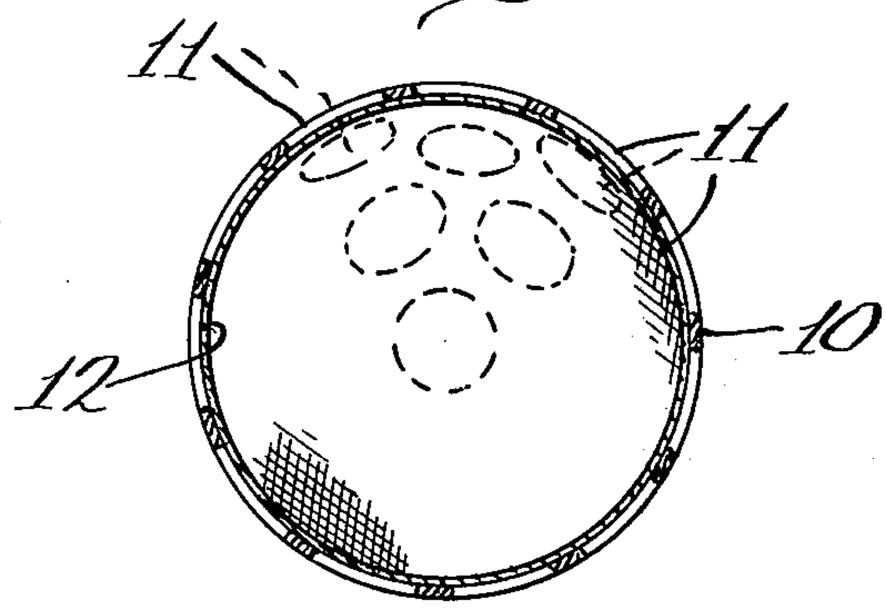


Fig. 3.



BADMINTON BALL

This invention relates to a round, perforated, hollow ball, which can be used with certain ball plays, particularly those played with a racket, such as tennis, table tennis and especially badminton, preferably outdoor badminton.

Previously used badminton balls of "feather ball" type are beset with a plurality of shortcomings, e.g. they are very sensitive to the influence of winds, which makes it almost impossible to play outdoors with this type of ball, when it is blowing and, makes the play difficult or gives any of the players favours at weather conditions, when sudden gusts of wind appear; badminton balls, at which the previously used feathers have been replaced by a net structure of plastic, have a low tear resistance and the net structure of the ball will be easily broken. Furthermore, conventional badminton balls have a more complicated shape, and therefore it is more difficult and expensive to produce them than a round, hollow ball.

A hollow, round ball, in whose limiting surface a plurality of holes are symmetrically arranged, has been described in the U.S. Pat. No. 2,597,704. The ball described therein is intended for use in practice of golf strokes in short ranges and has been designed so that it will only travel about 20 m when subjected to a drive from a golf club. The other motion characteristics will be substantially uninfluenced and rather than the ball will have a soft travel, "slicing" or the like will be accentuated. The ball showed therein has a hole surface being less than 20 percent of the total surface of the ball, and there is no mention in that patent whatsoever that a bigger hole surface should make such a ball suitable for other purposes. In practical tests it has moreover been found that the travel of the ball according to said patent will increase to at least 30 m at a strike with a badminton racket, which makes it unsuitable for badminton, where a travel of maximum 15 m is desired.

Thus there has been a need of a ball, which is influenced by wind and gusts only to a small extent and which has further an even and soft travel.

The invention is illustrated in the accompanying drawings in which:

FIG. **1** is a side elevational view of a ball embodying the invention with only some of the holes shown for ease of illustration;

FIG. **2** is a central sectional view taken substantially as indicated along the line **2—2** of FIG. **1**; and

FIG. **3** is a central sectional view of an alternative embodiment.

This invention relates to a ball, which is round and constructed as a shell **10.** The shell **10** consists of a regular, continuous pattern comprising the very body of the ball. The pattern has its character from a great number of substantially symmetrical holes **11** in the shell, the total surface of the holes **11** being at least 20 percent of the total limiting surface of the ball. Now it has surprisingly been found that the ball will travel more softly in the air and is very little disturbed by wind conditions at outdoor play.

The total surface of the holes is preferably not more than 60 percent of the total limiting surface of the ball. Of course the properties of the ball are not only dependent on the surface of all the holes but also on the

weight and diameter of the ball, and the values of these magnitudes can thus be chosen so that a ball having a soft travel of maximum 15 m and, moreover, is almost uninfluenced by different wind conditions is obtained. Such a ball has appeared to be especially suitable as badminton ball. The design of the holes is of course of no decisive importance but they can be round, oval, square, triangular, or have any other possible design. However, it is convenient to use round holes.

The shell limiting the ball is preferably very thin, e.g. within a range from 1–2 mm. The thickness of the shell can of course be varied depending on desired mechanical strength of the ball and on the numbers and size of the holes. Each hole should not be too big relative to the total surface of the holes, as it has been found that a great number of small holes will provide a ball with better properties than when a small number of big holes is used.

The weight of the ball is of course of importance for its properties. At badminton play the weight of the ball should preferably be maximum 8 g, and the ball has conveniently a weight of 1–8 g, especially 2–7 g. A ball having a weight of more than 8 g has properties making it unsuitable as a badminton ball, but such a ball can be suitable as a tennis ball.

The ball has preferably a diameter of 30–60 mm. According to an especially suitable embodiment of the invention the diameter of the ball is not less than 45 mm, as a ball is then obtained, which in motion gives a visual perception of a surface that is as big as a conventional badminton ball in motion.

A suitable ball according to the invention has a total hole surface of 50 percent, a diameter of 50 mm and a weight of 4 g. For a ball with a total hole surface of only 20 percent of the total limiting surface the diameter and the weight should preferably be reduced to 40 mm and 2–3 g respectively in order that the properties of the ball should not be deteriorated.

The ball can be prepared according to conventional technique for production of hollow plastic articles, e.g. by injection moulding, preferably two halves of the ball first being produced, which are then welded together. Accordingly the material should be a thermoplastic resin, e.g. polyethylene. Of course moulding and following welding of the ball halves, as disclosed in the patent mentioned above, can be used.

Certainly the ball is mainly intended for use with badminton play outdoors, but can of course also be used indoors. According to the alternative embodiment the ball for indoor use is provided with a tissue **12** on the inside, it being achieved that the ball travels more slowly.

What I claim is:

1. A hollow, perforated, round ball for use in playing badminton, comprising a thin shell wherein a great number of holes are symmetrically arranged in a regular, continuous pattern, the total area of the holes being at least 40 percent of the total ball defining surface.

2. The ball as claimed in claim **1,** wherein the total area of the holes is 50 percent of the total ball defining surface.

3. The ball as claimed in claim **1** wherein the total area of the holes is no more than about 60 percent of the total ball defining surface.

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