

PATENT SPECIFICATION

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(54) SHUTTLECOCK

(71) I, PHILIP KING, a Malaysian subject of 27 Jalan Kamuning, Kuala Lumpur, Malaysia, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an improved shuttlecock for use with playing a game known as badminton, and related or derived games.

According to the present invention, there is provided a shuttlecock comprising a striking cap to which is secured a plurality of flexible feathers flaring outwardly from said cap, and a flight speed control device secured to the feathers, the device consisting of a continuous, substantially circular ring having a sawteeth-like outer periphery, each gap between circumferentially consecutive teeth receiving a said feather, the position along the feathers at which the device is secured thereto being so chosen as to cause the shuttlecock to have in use a smooth and straight flight trajectory during which it spins.

The invention is described, by way of example only, with reference to the accompanying purely diagrammatic drawing, in which:

Figure 1 is a plan view of a device for varying the flight speed and/or degree of spin of a shuttlecock according to this invention;

Figure 2 is an elevation, on a reduced scale, of a shuttlecock according to this invention, with the device shown in Figure 1 in position, and

Figure 3 is a plan view of the shuttlecock shown in Figure 2, viewed from the skirt to the cap of the shuttlecock.

Referring to the drawing, the shuttlecock according to this invention comprises essentially three parts: a striking cap 11, a skirt 12 which is secured to the cap 10 and flares outwardly therefrom, and a device 13 by the use and location of which the amount of spin imparted to the shuttlecock, as well as its flight speed and trajectory, can be influenced.

The cap 11 is shaped like known caps of shuttlecocks and may be any material known to be suitable, e.g. cork or rubber.

While the skirt 12, too, may be made of any material known to be suitable, in this invention it is preferred to make it from feathers 14 permanently secured in known manner to a securing portion 15 of the cap 11 so as to form a circular array of feathers. The stems 16 of the feathers are equi-angularly spaced apart along the circumference of the cap portion 15 and the blades 17 of peripherally adjacent feathers overlap, as shown in Figure 2.

Inside the ring of feathers 14, and in engagement therewith is the device 12 which may be made of any suitable material possessing the following characteristics: relative hardness for controlling the shape of the skirt firmly, for protecting the feathers from breaking easily, lightness and high resistance to breaking, bearing in mind the use to which it is intended to be put. It is thought that a synthetic plastics material, such as nylon, may be particularly suitable. The device 13 is fixed to the stems 16 of the feathers 14 by means of any suitable thread or string.

As can be seen best from Figure 1, the device 13 consists of a ring having a substantially circular, smooth inner periphery and a serrated or sawtooth-like outer periphery 18, each tooth comprising two flanks of unequal length and unequal inclination to a radial plane. The substantially V-shaped gap 19 between circumferentially successive sawteeth are arranged to receive a respective stem 16 of a feather 14. The end faces of the ring 13 are preferably planar.

The ring 13 may be secured in position at any desired location along the length of the feathers 14, and the location of the ring 13 will cause the feathers 14—which are, of course, elastic and flexible—to be bent outwardly or to be permitted to move radially inwardly, and consequently the shuttlecock to fly more slowly and faster, respectively. In brief, location of the ring 13 causes a change in the flare of the feathers 14 and at their free ends this change will result in a variation in their angle and extent of

mutual overlap. In play, this will make the shuttlecock 10 spin anti-clockwise (as viewed), and the extent or severity of spin will depend on the angle of the blades 17. The ring 13 will have a normal position about half-way along the length of the skirt in which the shuttlecock 10 will travel along a smooth trajectory.

As can be seen in Figure 3, a gap exists between adjacent feathers. The gap size is determined by or controlled by the shape of the sawteeth of the device 13. The longer flank of each sawtooth is at a predetermined angle to the radial plane passing through the tip of that sawtooth.

WHAT I CLAIM IS:—

1. A shuttlecock comprising a striking cap to which is secured a plurality of flexible feathers flaring outwardly from the said cap, and a flight speed control device secured to the feathers, the device consisting of a continuous, substantially circular ring having a sawteeth-like outer periphery, each gap between circumferentially consecutive teeth receiving a said feather, the position along

the feathers at which the device is secured thereto being so chosen as to cause the shuttlecock to have in use a smooth and straight flight trajectory during which it spins.

2. A shuttlecock as claimed in claim 1 wherein said position is about half-way along the length of the feathers.

3. A shuttlecock as claimed in claim 1 or claim 2 wherein each saw-tooth has two flanks of unequal length and unequal inclination to the radial plane passing through the centre of the ring and the tip of said saw-tooth.

4. A shuttlecock substantially as herein described with reference to and as shown in the accompanying drawing.

T. Z. GOLD & Co.,
Agents for the Applicant,
Chartered Patent Agents,
Staple Inn Buildings North,
High Holborn,
London WC1V 7QB
and
15 Lymington Road,
London NW6 1HX.

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10 As can be seen in Figure 3, a gap exists between adjacent feathers. The gap size is determined by or controlled by the shape of the sawteeth of the device 13. The longer flank of each sawtooth is at a predetermined angle to the radial plane passing through the 15 tip of that sawtooth.

WHAT I CLAIM IS:—

1. A shuttlecock comprising a striking cap to which is secured a plurality of flexible feathers flaring outwardly from the said cap, and a flight speed control device secured to the feathers, the device consisting of a continuous, substantially circular ring having a sawteeth-like outer periphery, each gap between circumferentially consecutive teeth 20 receiving a said feather, the position along 25

the feathers at which the device is secured thereto being so chosen as to cause the shuttlecock to have in use a smooth and straight flight trajectory during which it spins.

2. A shuttlecock as claimed in claim 1, 30 wherein said position is about half-way along the length of the feathers.

3. A shuttlecock as claimed in claim 1 or claim 2 wherein each saw-tooth has two flanks of unequal length and unequal inclination to the radial plane passing through the centre of the ring and the tip of said saw-tooth. 35

4. A shuttlecock substantially as herein described with reference to and as shown in the accompanying drawing. 40

T. Z. GOLD & Co.,
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Staple Inn Buildings North,
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London WC1V 7QB
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15 Lymington Road,
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