(19) Canadian Intellectual Property Office / Office de la Propriété Intellectuelle du Canada

An Agency of Industry Canada / Un organisme d'industrie Canada

(11) CA 496289 (13) A

(40) 22.09.1953

(12)

(21) Application number: 496289D

(22) Date of filing: ..

(51) Int. Cl:

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(54) SHUTTLECOCK CONSTRUCTION

(54) STRUCTURE DE VOLANT

(57) Abstract:

This invention relates to the skirts of shuttlecocks of the type that are usually made in one piece. The object of the invention is to prevent some deflection of the skirt when the shuttlecock is travelling through the air at high speed.

Deflection of the skirt can be caused by impact with the racket and by the passage of air, and this invention is devoted to reducing the deflection caused by the passage of air.

A shuttlecock being cone-shaped, in the types hitherto known, the tendency of the air has been to collapse the shuttlecock skirt whilst travelling forward at high speed.

The object of this invention is achieved by incorporating in the skirt of the shuttlecock at least one but preferably a number of aero foils which will tend to expand the skirt of the shuttlecock because of the passage of air as distinct from causing it to collapse.

In practice this is achieved by making up the skirt of a shuttlecock with a series of steps of material with air spaces between them and using the step as the material space for necessary strength.

The material in the step is not of constant thickness and the use of an aero foil section enables an increased effect to be obtained because although the air at some little way from the shuttlecock is travelling horizontally to the direction of flight, near the shuttlecock skirt it is travelling at an angle between that of horizontal to the direction of flight and parallel to the angle of the cone so that the air will swoop over these tiny aero foils and cause the cone to be expanded.

To enable the invention to be clearly understood an example will now be described with reference to the

accompanying drawings in which Figure 1 is a side elevation of a shuttlecock made to conform to this invention, Figure 2 is an end elevation of the same and Figure 3 is a typical aero foil section which can be incorporated in the invention.

In Figure 1 the shuttlecock comprises a skirt (1) a cap (2) a number of aero foil ribs (3) which are connected by the stiffeners (4) and are integral with the ribs.

The disposition of these various parts is shown in Figure 2.

Closely examining Figure 3 which is an enlarged view of the ribs (3) in Figure 1 the angle (b) is the difference between the over-all angle of the cone of the shuttlecock and the angle of the outer surface of the ribs (3) whilst the angle (a) is the angle between the direction of flight and the over-all surface of the shuttlecock.

The air on passing over the aero foil will tend to cause a force in the direction of the arrow X and this will tend to open the shuttlecock.

To get the tool machined properly to permit this series of steps it is necessary that the rims should be machined with their leading edge in the female tool.

It will be understood that the pure aero foil shape shown in Figure 3 is not essential, the main essential being that a series of steps on the outside surface of the shuttlecock with air spaces between them should be formed so that air thrown off one step is forced against another outside surface of one step to inside surface of the next one astern of it and that, of course, the ribs should be integral with the stems.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A shuttlecock comprising a cap and a one piece skirt including stems which are thicker than other parts of the skirt and characterized in that the stems have integral with them at least one rib, the outside surface of which is at a smaller angle than the interior conical surface of the skirt to the direction of flight of the shuttlecock.

2. A shuttlecock as in claim 1 in which there are a number of ribs so sited that air passing over the top surface of one will strike the under-surface of the next succeeding rib.

3. A shuttlecock as in claim 1 in which the outside surface of the rib is disposed outwardly from the outside surfaces of the stems.

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FIG. 1.

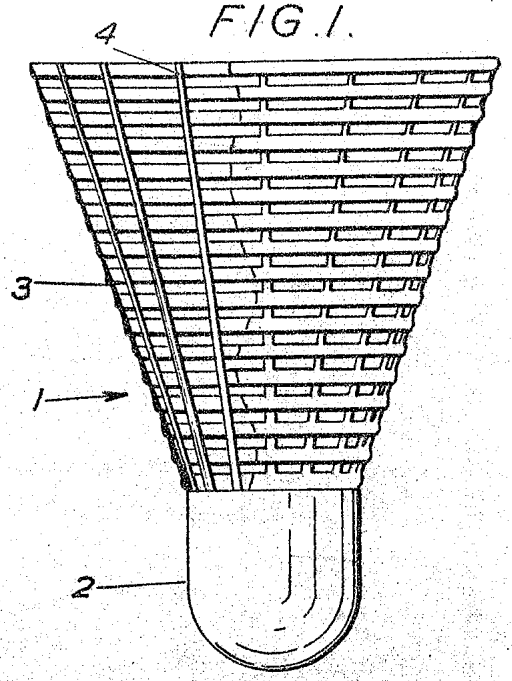


FIG. 2.

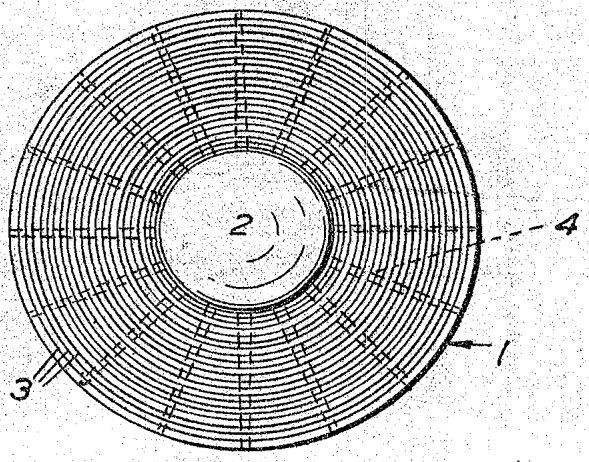
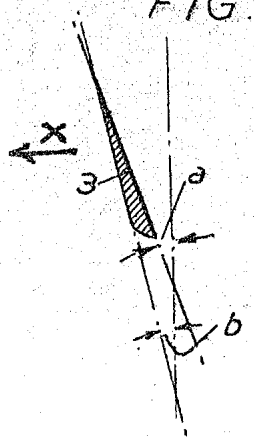


FIG. 3.



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