



# PATENT SPECIFICATION

686.044

Date of application and filing Complete Specification: March 12, 1951

No. 24486/50.

Complete Specification Published: January 14, 1953.

Index at acceptance: —Class 132(iii), S28.

## COMPLETE SPECIFICATION

### An Improvement in Shuttlecock Construction

I, WILLIAM CHARLES CARLTON, of Parkstone Works, Wingletye Lane, Hornchurch, Essex, of British Nationality, 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 the skirts of shuttlecocks of the type that are usually made in one piece by moulding. 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-shape, in the types hitherto known with the exception of the type having formed louvres shown in my copending Application 30,702/49 (Serial Number 670,147) at Figure 3 the tendency of the air has been to collapse the shuttlecock skirt whilst the shuttlecock is travelling forward at high speed.

The object of this invention is achieved by incorporating in the skirt of the shuttlecock at least one aero foil or rib, the angle formed by a line representing the main outside surface of this aero foil with the principal axis of the shuttlecock being smaller than the angle of taper of the cone of the shuttlecock. It is preferable that there should be a number of such ribs or aero foils. For the sake of clarity although the rib may not be of true aero foil section, in this specification the term aero foil will be used and will include "rib" in its meaning.

In practice, a number of these aero foils are incorporated in the skirt of a shuttlecock, and the thick portion of the aero foil provides a convenient means of providing the strength necessary intermediate the stiffeners in the shuttlecock skirt.

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 foils (3) which are connected by the stiffeners (4) and are integral with aero foils.

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

Closely examining Figure 3 which is an enlarged view of the aero foils (3) in Figure 1, the angle (*b*) is the angle formed by the line completing the angle of taper of the cone of the shuttlecock with the line representing the main outside surface (5) of the aero foil (3) whilst angle (*a*) is the angle of taper of the cone of the shuttlecock. The line 6 is a line parallel to the principal axis of the shuttlecock.

It will be understood that the pure aero foil shape shown in Figure 3 is not essential, the main essential of the form of the invention shown in Figure 1 being that a series of approximate aero foil shapes having their outside surface as laid down earlier in the specification should be formed in the skirt of the shuttlecock with air spaces between them, and that, of course, the aero foils should be integral with the stiffeners.

What I claim is:—

1. A shuttlecock comprising a cap and a one piece moulded skirt embodying stiffeners and characterised in that the stiffeners have integral with them at least one aero foil, the angle formed by a line representing the outside surface of this aero foil with the principal axis of the shuttlecock being smaller than the angle of taper of the cone of the shuttlecock.

2. A shuttlecock made substantially in accordance with the above specification and as illustrated in the accompanying drawing.

W. C. CARLTON.

Leamington Spa: Printed for Her Majesty's Stationery Office, by the Courier Press.—1953  
Published at The Patent Office, 25, Southampton Buildings, London, W.C.2, from which copies may be obtained.

[Price 2/8]

