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J. AROKIASAMY

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SHUTTLECOCK

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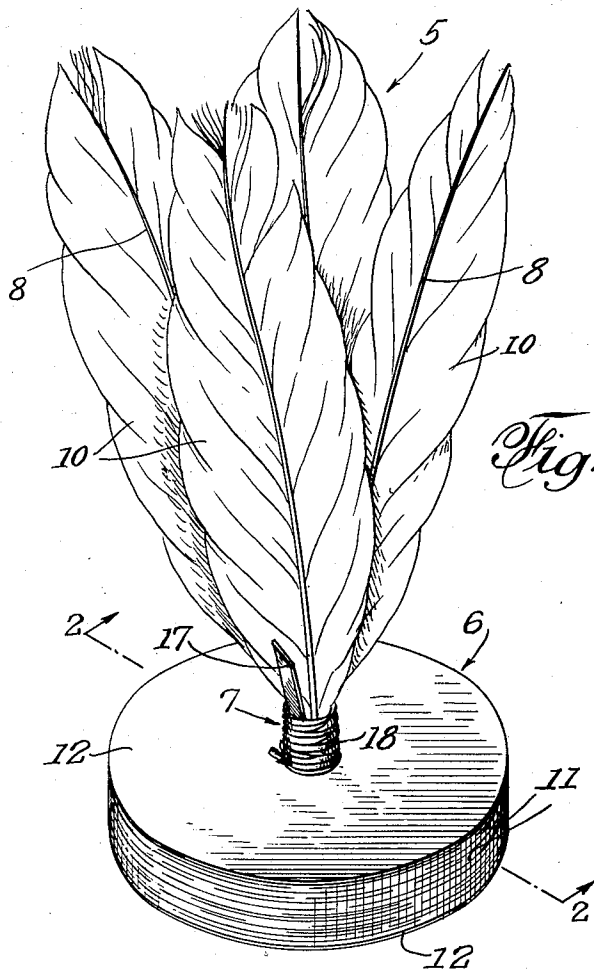


Fig. 1.

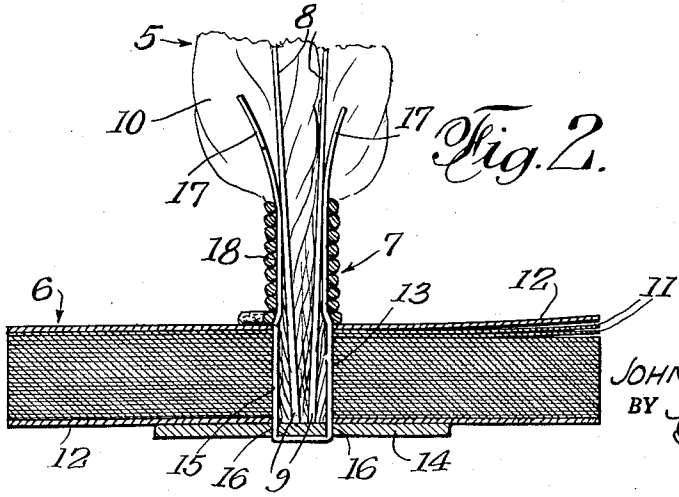


Fig. 2.

INVENTOR.
JOHN AROKIASAMY
BY *E. L. Stratton*
ATTORNEY

1

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SHUTTLECOCK

John Arokiasamy, Los Angeles, Calif.

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4 Claims. (Cl. 273—106)

This invention relates to a shuttlecock construction.

The shuttlecock used in the game of badminton is usually comprised of a cork or similar body into which feathers are stuck in a circular arrangement adjacent the peripheral edge. Such usual shuttlecocks are designed to be struck by battledores (rackets) and to be propelled thereby in the course of a game of badminton.

The present invention contemplates the provision of a shuttlecock that may be struck by portions of the body, for instance, the feet and such other parts as the legs, biceps, etc. Accordingly, an object of the present invention is to provide a shuttlecock that is so constructed, especially the body thereof, that the same may be kept moving in the air between two opposing players or teams of players by being propelled by such portions of the bodies of the players without injury resulting from the force of such contact between the players and the shuttlecock.

Another object of the invention is to provide a shuttlecock that embodies an inexpensive construction and in which the body of the shuttlecock is of such soft and yielding consistency that the same may be safely propelled by striking the same with the portions of the limbs and body of the players of a game in which the shuttlecock is used.

The invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description. However, the drawing merely shows and the following description merely describes, one embodiment of the present invention, which is given by way of illustration or example only.

In the drawing, like reference characters designate similar parts in the several views.

Fig. 1 is a perspective view of a shuttlecock according to the present invention.

Fig. 2 is a slightly enlarged and broken cross-sectional view as taken on the line 2—2 of Fig. 1.

The shuttlecock that is illustrated comprises, generally, a group of feathers 5, a body 6, and means 7 to connect the feathers and the body.

The feathers are natural bird feathers of proper size and number. In this case, the same have a bunched arrangement rather than the circular arrangement of the conventional shuttlecock, as above indicated. The stems 8 of the feathers are somewhat angularly spread from where the quills 9 are bunched or grouped, and the feather barbs 10, therefore, have their normal shape and condition and may function, in the air, to produce the floating movement peculiar to shuttlecocks, generally. While four feathers are shown, the number thereof may vary, as desired.

The body 6 is formed as a flat pile or stack of flexible

2

sheet elements 11 that may be bounded, top and bottom, by flexible sheet elements 12 that may be somewhat thicker and, therefore, somewhat more resistant to accidental flexing than are the sheet elements 11. Sheet elements 12 may also serve to protect the peripheral edges of sheet elements 11 against permanent distortion which may result from excessive impact on the body 6. While shown round, the stack may be octagonal, oval, or other desired shape.

It will be clear that the peripheral edges of the sheets 11 and 12 are free to flex and that they intersupport each other in the nature of a sheaf except that the elements of the sheaf are in laminated or stacked relation, as in a book. Thin paper in the nature of .002 to .004 inch may be used and the same may be of flat form or crimped in the manner of paper used as paper napkins. The latter type is usually called crepe paper. The range of thickness for sheet elements 11, in the nature of .002 to .004 inch, has been found to give the body 6 sufficient durability in addition to the desired resilience and flexibility. As indicated above, the sheet elements 12 may be thicker than the inner sheet elements 11. As for example, a thickness of approximately three times that of the inner sheet elements 11 has been found sufficient to maintain these elements while still preserving their flexibility. The stack thus provided has a central hole 13, as best indicated in Fig. 2.

The connecting means is shown as a piece of flexible material 14 that may advantageously be made of leather and is in flatwise position against one flat face of the stack, a preferably leather strip 15 reeved through two openings or slits 16 in the leather piece and then doubled over to form two ends 17 that are passed through the hole 13. The quill ends of the feathers 5 are entered in said hole between the strip end 17 and an encircling binding or the like 18 is applied around the feathers and strip ends immediately adjacent to the stack 6. Thus, the feathers are joined to the stack in a manner to hold the former in the cluster arrangement shown and tightly connected to the stack in a generally perpendicular relationship with the stack.

Of course, the natural feathers shown may be replaced by artificial feathers or any lightweight means that imparts a floating movement to the shuttlecock. Other thin lamina may be substituted for paper in the formation of the body as, for instance, cellulosic sheets that are not fibrous but rather of solid congealed form. Also, the binding 18, while shown as a wrapping, may comprise a collar of paper or plastic material or other form of quill-encircling band.

It is seen that there has been disclosed a shuttlecock of unique construction that is adaptable as a game "bird" and capable of being kept airborne by striking with the feet, legs, or other portions of the body by two or more opposing players. The body of the shuttlecock is comprised of a plurality of sheet elements of a flexible, inexpensive material arranged in a pile or stack of any desired configuration. The unique construction of the body of the shuttlecock provides a flexible, practical, inexpensive mass which may be struck with various portions of the bodies of the game participants without injury or damage either to them or the "bird." The means for binding the stack of body elements together and simultaneously to the flight feathers results in a shuttlecock of truly unique construction, inexpensive to manufacture, simple to assemble, and simple to repair.

While the foregoing has illustrated and described what is now contemplated to be the best mode of carrying out my invention, the construction is, of course, subject to modification without departing from the spirit and scope of the invention. It is, therefore, not desired to restrict

3

the invention to the particular form of construction illustrated and described, but to cover all modifications that may fall within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A shuttlecock comprising a body formed of a stack of flexible sheets, the stack having a central opening therethrough, a set of feathers arranged in a bunch with the quills thereof entered into said opening, and means residing partly in the central opening and partly thereabove, to bind the sheets together and the feathers to the body.

2. A shuttlecock according to claim 1 in which the binding means includes a flexible piece of material in flatwise engagement with one face of the stack, a strip reeved through said piece of material and having ends passed through the opening in the stack and alongside the feather quills, and a binding element wound around the ends of said strip and the quills and adjacent the stack.

3. A shuttlecock comprising a body formed of a stack of flexible sheets and having a central opening therethrough, a set of feathers arranged in a bunch with the quills thereof extending into said opening from one side

4

of the body and short of protrusion from the opposite side, and means partly in said central opening and partly outside of said one side of the body to bind the sheets together and bind the quills and the adjacent portions of the feathers to the body.

4. A shuttlecock according to claim 3 in which the binding means includes a flat piece of material smaller than the sheets of the stack and in flatwise engagement with said opposite side of the body, a strip reeved through said piece of material and having ends passed through the opening in the body and alongside said quills, and a binding element wound around said ends of the strip and the quills immediately adjacent said one side of the body.

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