

[54] **METHOD OF STRINGING A GAME RACKET**

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[51] Int. Cl. A63b 51/02, A63b 51/08
[58] Field of Search 273/73 A-73 J, 273/73 R

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Primary Examiner—Richard C. Pinkham

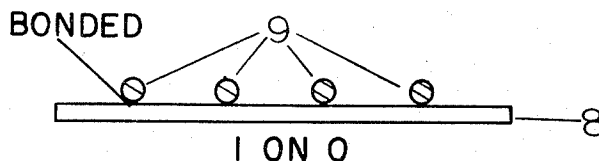
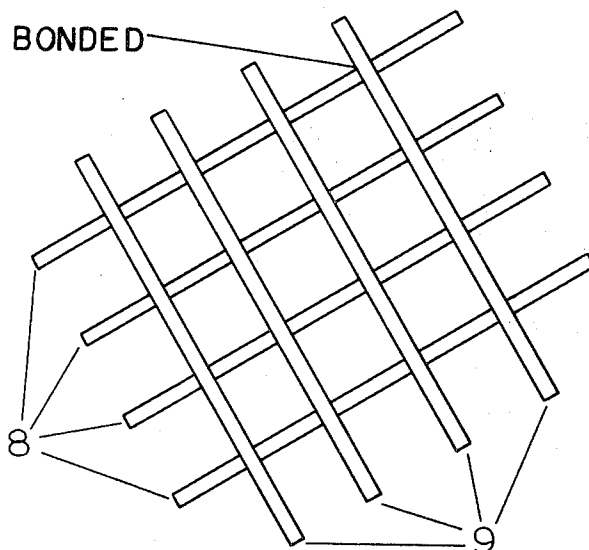
Assistant Examiner—Richard J. Apley

[57]

ABSTRACT

In tennis rackets and the like a faster and more efficient method of stringing racket frames wherein the strings are inserted and tensioned within the frame without interweaving the longitudinal and latitudinal strings. The net thus formed is then consolidated into a unified structure by bonding the longitudinal strings to the latitudinal strings at each point that the longitudinal strings cross the latitudinal strings.

2 Claims, 9 Drawing Figures



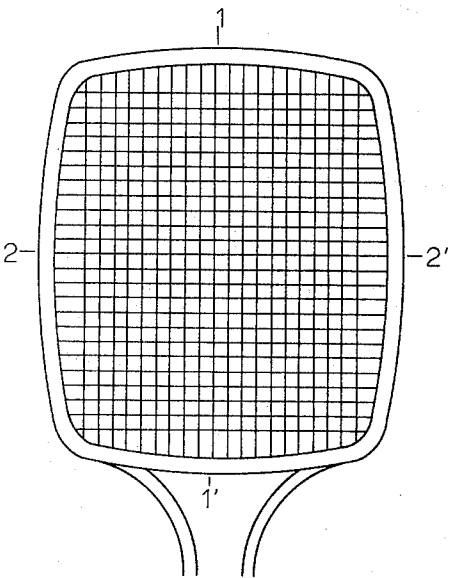


FIG. 1

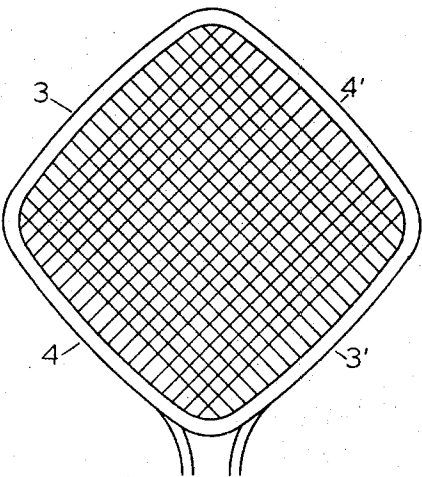


FIG. 2

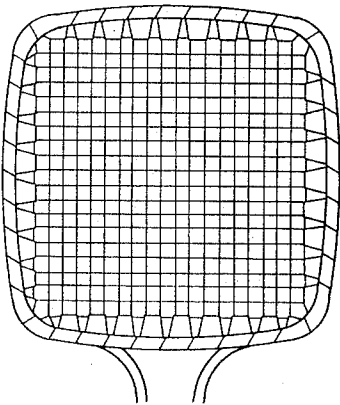


FIG. 3

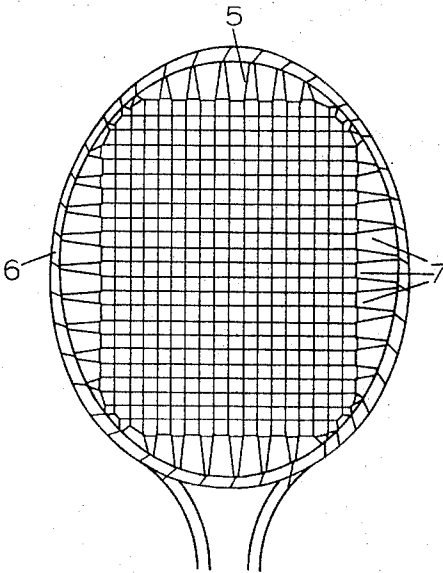


FIG. 4

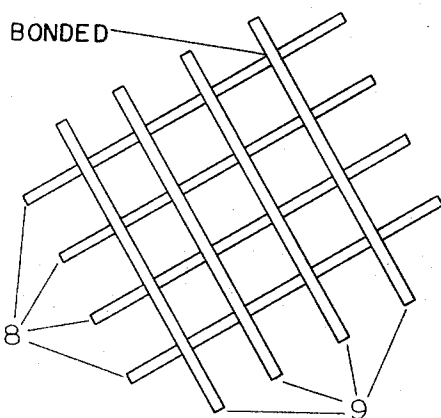


FIG. 5

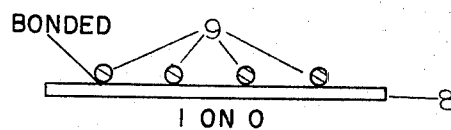


FIG. 6

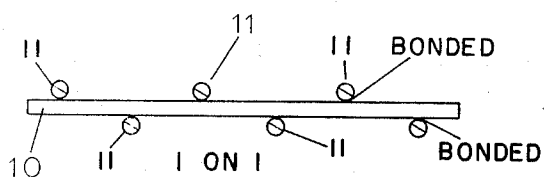


FIG. 7

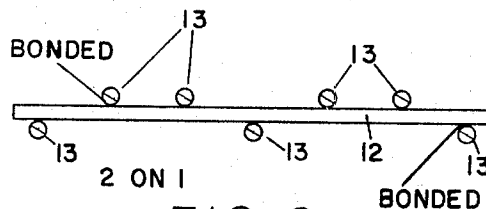


FIG. 8

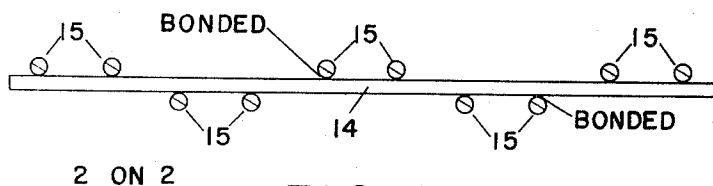


FIG. 9

METHOD OF STRINGING A GAME RACKET

BACKGROUND OF THE INVENTION

1. Field of the Invention

Class 273, Amusement Devices, Games; Subclass 73, Tennis.

2. Description of the Prior Art

Rackets, such as tennis rackets, because of their oval, bow or round shaped frame, have been strung in such a fashion that the strings on the sides are considerably shorter (an average of 3 to 5 inches shorter) than those parallel strings strung through the center of the frame. This aggravates the "dead" area around the perimeter of the racket frame so that only when consistently hitting the ball in the very center of the racket frame can a lively uniform reactance to the ball be achieved. Balls struck off center where the strings become shorter and shorter do not receive the same reactance as the balls do struck in the center and an erratic performance is obtained. This becomes more pronounced as the distance from the center increases. That variation in reactance, which is due to the differences in the length of the strings, has now been resolved by the applicant's invention.

SUMMARY OF THE INVENTION

A racket, such as a tennis racket etc., is provided whose frame is of such a configuration (preferably convexed square or convexed rectangular) that the variation in length of the longitudinal strings and the variation in length of the latitudinal strings is minimized.

A serrated annular member mounted on the frame of a racket, such as a tennis racket etc., the serrations of such a length that they compensate for the configuration of the racket frame so that the variation in length of the longitudinal strings and the variation in length of the latitudinal strings is minimized.

A method of stringing a racket, such as a tennis racket etc., without interweaving the strings; a method of fastening the strings together at their crossover points by welding or bonding by adhesive. Thus, this invention provides a faster and more efficient method of stringing rackets than the currently time-consuming method of interweaving the strings.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a front view of a convexed rectangular racket frame.

FIG. 2 is a front view of a convexed square racket frame.

FIG. 3 is a front view of a convexed square racket frame provided with an annular member having differential serrations.

FIG. 4 is a front view of an oval or bow shaped racket frame provided with an annular member having differential serrations.

FIG. 5 is a top view of a "1 on 0" stringing pattern.

FIG. 6 is a cross sectional view of FIG. 5.

FIG. 7 is a cross sectional view of a "1 on 1" stringing pattern.

FIG. 8 is a cross sectional view of a "2 on 1" stringing pattern.

FIG. 9 is a cross sectional view of a "2 on 2" stringing pattern.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The sides 1, 1', 2, 2' of the convexed rectangular racket frame shown in FIG. 1 are curved outwardly in the form of an arch. Said sides could also be linear, however, convexed sides are more structurally stable, esthetically pleasing and the variation in length of the longitudinal strings and the variation in length of the latitudinal strings is so minimized as to be negligible. As the ratio of the sides 1, 1' to sides 2, 2' approach equality the longitudinal and latitudinal strings also approach equality until equality is achieved with a convexed square frame as shown in FIG. 2. The sides 3, 3', 4, 4' of FIG. 2 are curved outwardly in the form of an arch but could also be linear. Both the convexed square and the convexed rectangular racket frame shapes achieve a much larger area in the center of the racket where a uniform reactance by the strings is imparted to the ball than is found in conventional oval, bow or round frame shaped rackets. However, oval, bow, round or any other frame shaped rackets can be modified so as to be strung with all the strings of an equal or nearly equal length. FIG. 4 shows such a design. A series of projections consisting of a serrated annular member (these projections could take other forms such as hooks or springs) are mounted generally parallel to the inner periphery of the racket frame 6 as described in U.S. Pat. No. 3,078,098. The improvement, however, lies in the fact that the serrations 7 are of different length (not just spacing) so as to permit all the longitudinal strings to be equal or nearly equal in length and all the latitudinal strings to be equal or nearly equal in length. If desired, the serrations can be lengthened and/or shortened so that the rectangular string pattern approaches or equals a square pattern as shown in FIG. 3. Serrations of different length so that all longitudinal and/or latitudinal strings are of an equal or nearly equal length can be applied equally as well to a racket frame of any cross sectional configuration whether it be oval, round, bow, rectangular, convexed square, convexed rectangular or some other shape.

An additional improvement inherent in the designs shown in FIGS. 1, 2, 3, and 4 is that there are no areas in the frame in which both longitudinal and latitudinal strings must enter the same stringing hole or serration as is now the case in conventional rackets. The racket is now easier to string and the stresses exerted by the strings on the racket frame are more evenly distributed.

FIGS. 5 and 6 illustrate an improved method of stringing a racket frame that does not require interweaving of the strings. The longitudinal strings 8 are inserted in the frame and the latitudinal strings 9 are inserted in the frame without interweaving them. This particular stringing pattern will be referred to as a "1 on 0" stringing pattern where all the longitudinal strings 8 lie in one plane and all the latitudinal strings 9 lie in another plane.

FIG. 7 illustrates an alternate "1 on 1" stringing pattern. The longitudinal strings 10 lie in one plane and the runs of the latitudinal strings 11 traverse alternately the top and bottom sides of the plane of the longitudinal strings. This produces, in practice, a more stable stringing pattern than the "1 on 0" stringing pattern shown in FIGS. 5 and 6.

FIG. 8 shows an alternate "2 on 1" stringing pattern which provides a different purchase on the ball than the "1 on 1" or "1 on 0" stringing pattern. This purchase can also be varied depending which side of the racket is used to strike the ball. The longitudinal strings 12 lie in one plane and the latitudinal strings 13 in runs of two and in runs of one traverse alternately the top and bottom sides of the plane of the longitudinal strings.

FIG. 9 illustrates a "2 on 2" stringing pattern also providing a slightly different purchase on the ball. The longitudinal strings 14 lie in one plane and the latitudinal strings 15 traverse alternately in runs of two the top and bottom sides of the plane of the longitudinal strings.

Tennis players especially may find the different purchases on the ball provided by the alternate stringing patterns mentioned above very advantageous in ball control and exerting spin on the ball. Other stringing patterns that do not require interweaving of the strings could also be used, such as, a "3 on 1," "3 on 2," "3 on 3" or some other combination.

These improved methods of stringing would be just as effective using any number of strings, from a plurality of longitudinal strings and a plurality of latitudinal strings to one longitudinal and one latitudinal string of sufficient length to provide a plurality of runs within the racket frame.

The strings in any one of the stringing patterns mentioned above can be tensioned in the conventional manner by hand or by stringing machines or a quick and simple method of tensioning the strings can now be used. Both the longitudinal strings and the latitudinal strings are tensioned by working the slack to the outside sides of the frame. In order to get the proper tension it is necessary to do this in several steps, each time getting the strings progressively tighter. By working alternately in tightening the longitudinal and latitudinal strings the tension is applied to the frame in all directions at the same time and the frame is not pulled out

of shape as so often happens when the longitudinal strings are put in and fully tensioned and then the latitudinal strings are put in and fully tensioned.

The net thus formed in any one of the stringing patterns mentioned above are then consolidated into a unified structure by fastening, welding or bonding the longitudinal strings to the latitudinal strings at each point that the longitudinal strings cross the latitudinal strings.

I claim:

1. A method of stringing a game racket, having at least a frame, shaft, handle and strings, which method includes the steps of: inserting and tensioning the longitudinal strings, consisting of a plurality of spaced apart parallel runs of said longitudinal strings, within the frame, so that the longitudinal strings lie in the same plane;

inserting and tensioning the latitudinal strings, including a plurality of spaced apart parallel runs of said latitudinal strings, within the frame on only one side of the plane formed by the longitudinal strings, without interweaving the longitudinal and latitudinal strings; and

bonding the longitudinal and the latitudinal strings together at their cross over points, thereby consolidating the longitudinal and latitudinal strings into a coacting net of strings.

2. In the method of claim 1 including, inserting and tensioning additional latitudinal strings, including a plurality of spaced apart parallel runs of said additional latitudinal strings, within the frame on the side opposite said one side of the plane formed by the longitudinal strings, without interweaving the longitudinal and said additional latitudinal strings; and bonding the longitudinal and said additional latitudinal strings together at their cross over points, thereby consolidating the longitudinal and said additional latitudinal strings into a coacting net of strings.

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