ABSTRACT: A tennis racket having string apertures in the frame and string holding elements positionable in the apertures. The string holding elements are composed of bent wire and have two distinct ends. One end is formed into a lug and is placed in the frame aperture. The other end is a hook which is secured to the lug end of an adjacent string holding element.
RACKET AND STRING HOLDING ELEMENTS

BACKGROUND OF THE INVENTION

The present invention has for object improvements in racquets, for tennis or similar games, of which the frame is made up with relatively thin elements, such as metal tubes or profiles.

The mounting of the strings on the frames of racquets of this type presents a difficult problem. The thinness of the walls of the frame prohibits, in practice, the strings simply being passed through holes made in the frame, as is done with wooden racquets, because these strings would quickly be cut by the walls.

SUMMARY OF THE INVENTION

The present invention allows this problem to be solved by attaching the strings to the frame through the medium of thin elements, hooked into small holes made in the frame, and the strings passing round them.

These thin elements can be made up by means of a steel wire or other adequately strong and rigid material. They can be simple or multiple and can each be used for hooking in one or several strings.

In order to limit the number of holes to be made in the frame two successive hooking elements can be combined so that each of them shall be hooked on the one hand to the frame and on the other hand to the next element. This provides for a ring of hooking elements right round the frame, which ensures a great suppleness in the stringing.

Whatever the form of execution adopted, there is only need for the piercing of tiny holes which only cause a minimum of weakening in the frame. Moreover, if the frame is tubular, these holes are only pierced in one wall of the tube, which is only weakened very little thereby.

DESCRIPTION OF PARTICULAR EMBODIMENTS

The description which will follow with reference to the attached drawing, given by way of nonlimitative example, will bring about a good understanding of how the invention can be carried out, the details which arise as much from the drawing as from the text being, of course, part of the said invention.

FIG. 1 is a perspective view of one form of hooking element;
FIG. 2 is a part view, in plan with a cutaway, of a racquet having hooking elements of the type of those shown in FIG. 1;
FIG. 3 is a view similar to FIG. 2 but showing hooking elements of another shape;
FIGS. 4 and 5 are perspective views of hooking elements with two hooks;
FIG. 6 is a part view in plan and with a cutaway of a racquet having a hooking element with a single foot but a double head.

In the form of embodiment shown in FIGS. 1 and 2, the hooking elements are made up using a wire of sufficiently strong material such as steel or an appropriate metal alloy.

This wire is bent twice (at 2 and 3) in its central part, to an angle of the order of 60° to 75°, for example.

The end portion appertaining to bend 2 finishes in a step 4 followed by a lug 5 substantially parallel to the part of the wire contained between the two bends.

The other end portion of the hooking element finishes in a hook 6 directed at first laterally, almost at right angles to the general plane of the hooking element, and then towards the end which the lug 5 finishes.

As shown in FIG. 2, a tubular frame 7 of the racquet is pierced on its inner wall only by holes 8 exactly big enough to allow the lug 5 to pass.

The distance between two adjacent holes 8 is such that when the hooking elements are in place, the hook 6 of one of the elements 1 passes between the step 4 of the succeeding element and the wall of the frame 7. The elements 1 can be positioned one by one by engaging the lug 5 of an element through the hook 6 of the element already positioned, and then putting the lug in the hole 8. This positioning can be accompanied by a slight elastic deformation of the elements, which automatically takes up the play liable to be produced.

Thus, one by one, around the frame, the hooking elements keep one another in place, without its being necessary to make more than one hole 8 for each element 1. It should be pointed out that, if the frame is tubular, only the inner wall 7a need be pierced. The weakening of the frame is minimal.

The strings 9 pass respectively in the bends 2 and 3 of the hooking elements 1 in differing directions according to the position of the element on the frame.

Naturally, the dimensions and the shapes of the elements 1 can be adapted to the demands of the stringing.

FIG. 3 shows a variant of the hooking element more particularly intended to be placed in the portions of the racquet situated between the major axis and the minor axis of the frame, at a spot where certain strings change direction at right angles to form longitudinal and transversals.

The middle portion of the element 1 has a reentrant indentation 10 placed between the bends 2 and 3. Otherwise the hooking element is similar to that shown in FIGS. 1 and 2. Again there are in particular the step 4, the lug 5 and the hook 6. The indentation 10 can be sufficiently large to bear on the frame 7 when the element has been put in place. The strings 9 pass into the bends 2 and 3 either at an angle of 90° or at a different angle, according to the demands of the stringing.

In FIG. 4 a simpler element 1 is shown. This has at each end a lug 11 bent back nearly to 90° relative to the general plane of the element. It is necessary to provide in the frame two holes per element for the hooking-in of these.

The hooking element of FIG. 5 is similar to that of FIG. 4, from which it differs only by the presence of a central indentation 10.

FIG. 6 shows a hooking element including a stem 12 finishing, at one side, in a hooking lug 5, intended to be engaged in a hole 8 of the frame 7 and on the other side a double-hooked head 13 through which the string 9 passes to be retained and positioned.

It is self-evident that modifications can be made to the methods of embodiment which have just been described, particularly by substituting equivalent technical means, without this causing departure from the body of the present invention.

What is claimed is:
1. A racquet wherein stringing is held in a frame by a plurality of elements retained in position between the stringing and the frame, each element being hooked into at least one hole in at least one inner wall of the frame, and each element receiving and positioning at least one string of the stringing each element having two ends, at one of the said ends a lug serving to hook it into a hole in the frame and, at the other of said ends a hook by which it is engaged onto the adjacent element.
2. A racquet according to claim 1 wherein on the side on which it has the lug, the hooking element has a step in which the hook of the next element is placed.
3. A racquet according to claim 1 wherein on the side on which it has the lug, the hooking element has a step in which the hook of the next element is placed, the middle part of the hooking element being indented to provide, on each side of such indentation, a string receiving and positioning portion.
4. A racquet according to claim 3 wherein the indentation is sufficiently large to bear on the frame when the element is in place.

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