

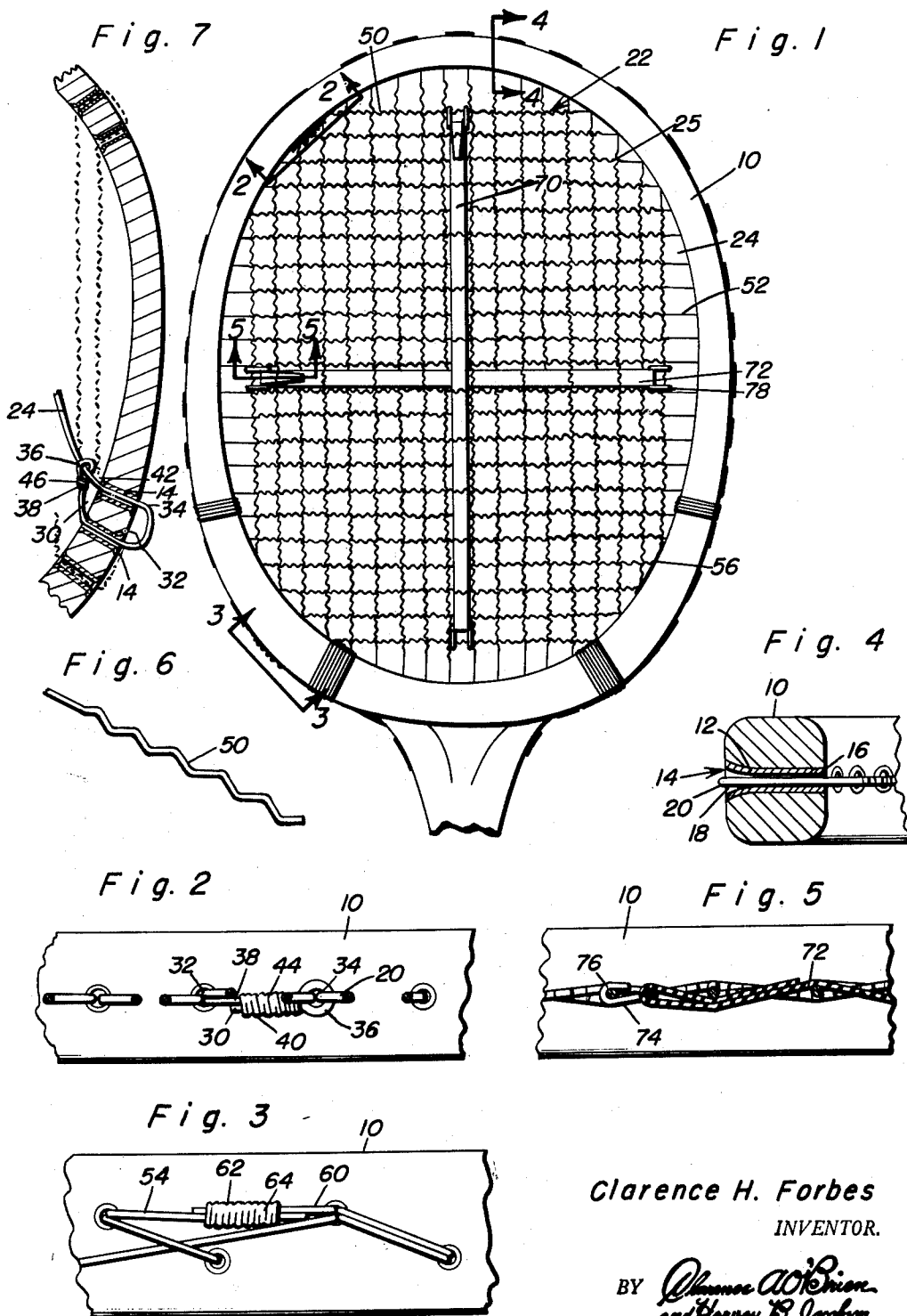
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FLEXIBLE WIRE RACKET

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FLEXIBLE WIRE RACKET

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4 Claims. (Cl. 273—73)

This invention relates to a flexible wire racket and particularly to a resilient metal string to be applied to the usual wooden oval heads of such items as tennis rackets, badminton rackets and the like.

This application is a continuation in part of co-pending application Serial No. 115,471, filed September 13, 1949, now abandoned.

In the construction of playing rackets for tennis, badminton and other games utilizing a sort of strung bat it has been customary to provide an oval shaped head preferably of wood and to provide cross-stringings both lateral and transverse constructed of such material as catgut, nylon or other soft string materials. Such material has a relatively short life in actual play so that the upkeep of a racket for a person who does any amount of playing is extremely high.

Also it is found that such soft stringings lose their resilience under many conditions so that they are not fit to play although they are not otherwise in condition necessary to be replaced.

The present invention relates to a metallic wire string in place of the heretofore soft string with the wire string being provided with S-shaped or wave-shaped corrugations at least in that portion intermediate the sides of the frame with the offset lateral corrugations in the plane of the frame so that the string provides a substantially strip-like member. It has also been found that such metallic strings have a ringing sound when struck against a ball or other object and it is also found that this can be deadened by means of a resilient strip interlaced with the wire strings.

It is accordingly an object of the invention to provide an improved racket.

It is a further object of the invention to provide a wire strung racket.

It is a further object of the invention to provide a wire strung racket with wires provided with lateral corrugations in the plane of the racket so that it has effective strip-like effect.

It is a further object of the invention to provide means for preventing a ringing sound of a metallic racket.

It is a further object of the invention to provide a joint for securing wire strands in the frame.

Other objects and many of the attendant advantages of the present invention will be apparent from the following description taken in conjunction with the accompanying drawings in which:

Figure 1 is a plan view of a tennis racket strung according to the present invention;

Figure 2 is a fragmentary sectional view of the side of the racket showing the method of constituting a starting joint as taken along the plane of line 2—2 in Figure 1;

Figure 3 is a fragmentary view of the outside of the racket taken substantially on the plane indicated by the line 3—3 of Figure 1 and showing the method of splicing the wire strands together;

Figure 4 is a section taken substantially along the

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plane indicated by the line 4—4 of Figure 1 and shows the use of a metal sleeve to prevent injury to the wooden frame by the wire strand;

Figure 5 is a fragmentary cross-section taken substantially on the plane indicated by the line 5—5 of Figure 1 and shows the method of connecting a silencing or deadening strip to the strands of a metal racket;

Figure 6 is an enlarged plan view of a portion of a metal string according to the invention; and

Figure 7 is a fragmentary view showing the method of starting the stringing of the strands.

In the exemplary embodiment according to the invention a frame 10 is constructed of wood or other suitable material and is preferably oval in shape as is customary in the heads of tennis rackets. The frame 10 is provided with a plurality of string receiving apertures 12 which are in turn provided with metallic sleeves 14 having a reduced inner end 16 and a flaring outer end 18. A wire strand 20 extends through certain of the sleeves 14 and provides a plurality of parallel longitudinal strings 24. A similar strand 22 likewise extends through certain of the sleeves 14 and provides a plurality of parallel transverse strings 25.

The initial ends of the strands 20 and 22 are provided with loops 36 by bringing the end 30 of the strand 20 or 22 into parallel relation with an intermediate or bight portion 38 of the strand. A wrapping of fine wire 40 is applied to the end 30 and the bight 38 so that the parallel portions are bound tightly together. A filling of solder 44 is then applied to integrally unite the end 30, the bight 38 and the fine wire 40.

In practice it is found that the minimum of distortion in the frame 10 is produced when the longitudinal strings 24 are installed prior to the installation of the cross strings 25. The stringing is therefore started at the corner such as shown at the lower right hand corner in Figure 7. The end of the strand 20 is threaded through the sleeve 14 of the aperture 32 and returned through the sleeve 14 of aperture 34. The end is then threaded through the loop 36 and drawn tight as shown at Figure 2. The successive strings 24 are then placed in position and the strand 20 will be laced through the sleeves to provide a final end 60.

The strand 22 will be started at a different position on the frame 10 from the starting point of the strand 20 and proceed in successive strings 25 with the final end 54 extending through a sleeve 14 adjacent to the end 60.

At least that portion of the strand 22 extending across from side to side of the frame 10 is provided with corrugations 50 which lie in the plane of the frame 10. While the entire wire strand may be provided with the corrugations 50, it is frequently desirable to provide the corrugations only on the playing surface, or on the portions between the sleeves 14 embedded in the apertures 12 so that the portions within the sleeves 14 are substantially straight and uncorrugated. Frequently, it is desirable to provide the straight portions as shown at 52 between the transverse strands and the racket member.

In order to secure the ends 54 and 60 together the wrapping of fine wire 62 is provided about the parallel ends to draw them into close contact with each other after which a layer of solder 64 unites wire 62 to the ends 54 and 60 to provide a substantially continuous firm joint therewith. By providing the loops at the beginning ends of each of the strands and joining the other ends together at a meeting point a substantially continuous wire strand for the entire racket is formed.

The wire strings are of such dimensions that they will readily hold their shape under the impact, but also of

such dimensions that they possess some resiliency in contact with the ball, shuttle-cock or other object.

In the utilization of the wire strung rackets it is found that the rackets give off a ringing sound when contacting with the ball. In order to eliminate this ringing sound a deadening material is applied to the racket in order to prevent vibration thereof. For this purpose strips of material such as rubber or the like 70 and 72 are interlaced with the transverse and longitudinal strands, respectively. The rubber-like strip 72 is provided with ends 74 and 78 which are preferably U-shaped members having hook-like ends 76. The strip 72 is applied to an end 74 by going around the bight of the U-shaped member and being united back on itself by cementing vulcanizing or any other suitable connection. One end 74 is connected to the longitudinally extending strand at one side of the frame and member 72 is interlaced with the longitudinally extending strands under considerable tension so that the opposite fastener 78 may be attached to the outside strand at the opposite side of the playing surface. The longitudinally extending strip is provided with ends similar to the ends 74 and 78 and likewise placed under tension between the first and last of the transverse strands. The elastic rubber-like material applied to the wire strands has a vibration deadening effect thereon and reduces the vibration which produces the undesirable noise and at the same time the rubber-like material may give added resilience to the wire strung racket.

It will be noted that the corrugations 50 all lie in the plane of the frame 10 so that the strings have a substantial width or ribbon-like effect so that the entire surface presents a flat face to the ball being struck.

While for purpose of exemplification a presently preferred embodiment of the invention has been shown and described according to the best present understanding thereof, it will be apparent that changes and modifications may be made in the construction and arrangement of the parts thereof without departing from the true spirit and purpose of the invention.

Having described the invention, what is claimed as new is:

1. A playing racket comprising a wood frame having spaced string receiving apertures therein, resilient wire strings mounted through said apertures and protecting sleeves secured in said apertures, said string being provided with spaced lateral bends in the plane of said frame, said bends being arranged all in the same plane whereby said strings are substantially flat surfaces.

2. A playing racket comprising a non-metallic continuous frame, said frame being provided with string receiving apertures, resilient wire strings mounted through said apertures and extending in parallel transverse and parallel longitudinal relation, that portion of the strings extending across the frame being provided with S-shaped bends, said bends lying in the plane of the frame, the transverse strands being constituted as a continuous metallic wire, said bends being arranged all in the same plane whereby said strings are substantially flat surfaces.

3. A playing racket comprising a non-metallic continuous frame, said frame being provided with string receiving apertures, resilient wire strings mounted through said apertures and extending in parallel transverse and parallel longitudinal relation, that portion of the strings extending across the frame being provided with S-shaped bends, said bends lying in the same plane with said plane being the plane of the frame, the transverse strands being constituted as a continuous metallic wire, the ends of said wire being looped with the end lying parallel to and in contact with another portion of the loop, a wrapping of fine wire about the parallel portions, said parallel portions and said wrapping wire being soldered together.

4. A playing racket comprising a non-metallic continuous frame, said frame being provided with string receiving apertures, resilient wire strings mounted through said apertures and extending in parallel transverse and parallel longitudinal relation, that portion of the strings extending across the frame being provided with S-shaped bends, said bends lying in the same plane with said plane being the plane of the frame, a resilient rubber-like strip interlaced transverse to said parallel strings, metallic hooks secured to said strips, said hooks engaging the first and last strings of the series.

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