Jan. 18, 1944. H. W. HALL 2,339,393

STRENGTHENED PLAYING RACKET

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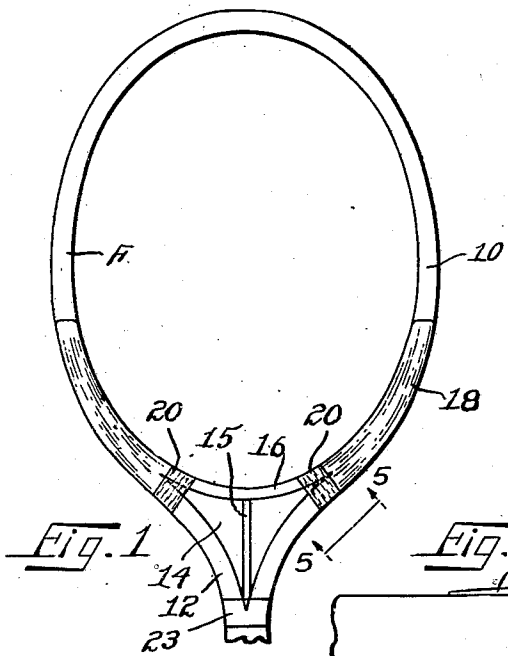


Fig. 1

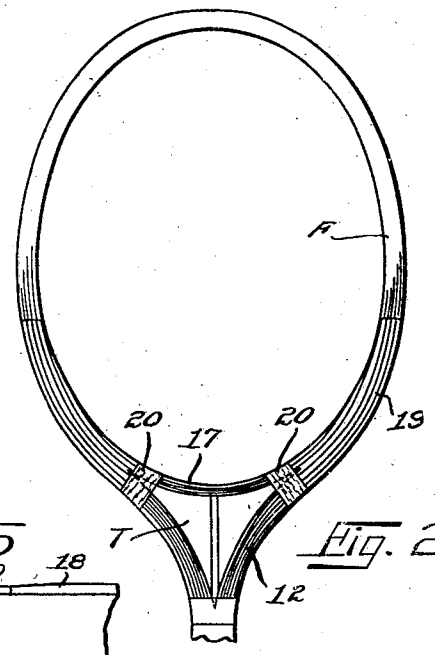


Fig. 2

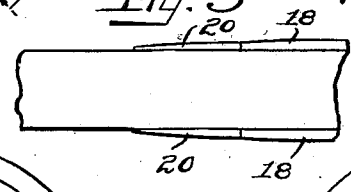


Fig. 5

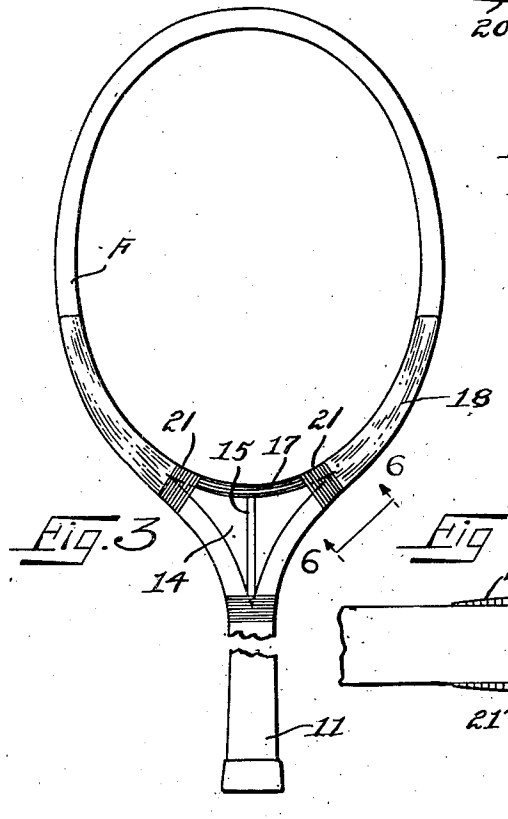


Fig. 3

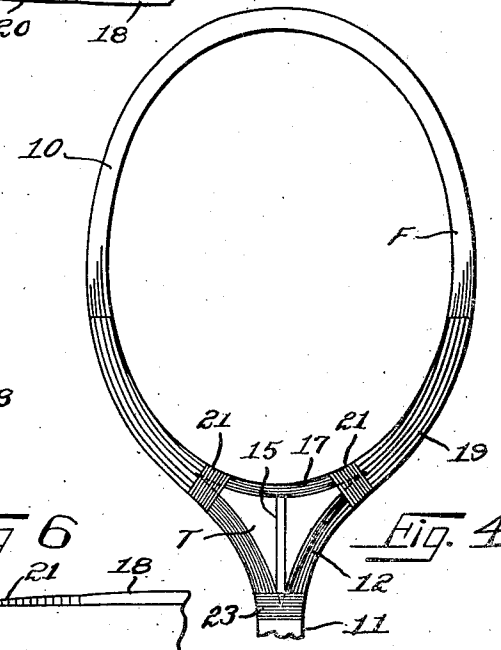


Fig. 4

Fig 6

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STRENGTHENED PLAYING RACKET

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3 Claims. (Cl. 273—73)

This invention relates to playing rackets, and the principal object of my invention is to reinforce the throat member and inside reinforcing piece at the lower portion of the curved bow head of the racket, particularly at the upper corner portions of the throat, in such a manner that the glue joints will not be broken when the longitudinal strings are pulled tight or when subjected to the strains and shocks of severe play.

In pulling the longitudinal strings of a racket tight the curved bow head oftentimes is pulled out of shape so that the inside crescent reinforcing piece or pieces, which extends inside the racket curved bow head across the top of the throat and up the shoulders, is sometimes pulled slightly away from the throat and the glue joints between said inside reinforcing piece and throat, and between said throat and racket main frame, are fractured. This happens despite the fact that pieces of wood are commonly affixed to the face portions of the racket at this point that extend down the shoulders and across the upper portion of the throat, covering the joints between the throat and inside reinforcing pieces. In order to avoid splitting of the wood from the shock of play the grain of the wood used in these pieces runs down the shoulder; so it does not provide the strength or resistance crosswise of the shoulder to prevent fracturing some of the throat joints when the racket is being strung. It is my three-fold object to preserve the needed strength of the usual shoulder face laminations, to add new strength to protect the joints between the said throat and inside reinforcing piece and between the throat and main frame of the racket, and to lighten the racket by omitting the use of any face reinforcements on the throat except at the upper corner portions of said throat.

The foregoing and other objects which will appear as the nature of the invention is better understood, may be accomplished by a construction, combination and arrangement of parts such as is disclosed by the drawing and specification. The nature of the invention is such as to render it susceptible to various changes and modifications, and, therefore, I am not to be limited to said disclosure; but am entitled to all such changes therefrom as fall within the scope of my claims.

In the drawing:

Figure 1 is a front elevational view of a playing racket, shown broken away at the handle, embodying my invention.

Figure 2 is a similar view to Figure 1; but showing laminated shoulder reinforcing pieces, and laminated inside reinforcing pieces extending across the throat.

Figure 3 is a similar view to Figure 1; but showing laminated strengthening members extending across the upper corner portions of the throat.

Figure 4 is a similar view to Figure 1, but showing all of the reinforcing members of laminated construction.

Figure 5 is a fragmentary view of that portion of the playing racket visible between the lines 5—5 of Figure 1 when looking in the direction of the arrows.

Figure 6 is a fragmentary view of that portion of the playing racket visible between the lines 6—6 of Figure 3 when looking in the direction of the arrows.

As illustrated, the main frame F of the racket consists of a curved bow head 10, both sides of which join together at an intermediate or throat portion 12 thereof to continue in the form of a handle 11. In the space between the two parts forming said intermediate portion 12 is a throat member T which may be solid, or consist of two side pieces 14 and a center piece 15 united together, as I have illustrated.

Extending across the top of said throat member T and up both shoulders of said curved bow head 10 is an inside, crescent-shaped, reinforcing member 16 which consists of one piece as illustrated in Figure 1 of the drawing, or it may consist of several laminations 17 as illustrated in Figures 2, 3 and 4.

On the face of the racket and extending up the shoulders thereof are reinforcing laminations 18 which may consist of a single piece of wood as shown in Figures 1 and 3 of the drawing, or may consist of a plurality of laminations 19 united together into a unit as shown in Figures 2 and 4 of the drawing. The grain of the wood in these shoulder reinforcing members extend substantially longitudinally down the said shoulders in order to withstand the shocks of hard play that travel up or down the shoulders of the racket.

It will be observed that there are joints between the throat member T and the intermediate parts 12 of the bow head 10 and also between said throat member T and the inside reinforcing member 16 or 17. When the racket is being strung the tightening of the strings that extend longitudinally of said bow head tend to pull the said inside reinforcing member away from the throat, and sometimes to fracture the joints between the upper corner portions of said throat

member T and said intermediate parts 12 of the main frame. Inasmuch as the grain in the face reinforcing members 18 or 19 extends longitudinally, they do not provide sufficient holding strength to insure against the fracturing of said throat joints and the pulling away of said inside reinforcing members 16 or 17.

To provide the necessary reinforcement of said throat joints and also lighten the weight of the racket I provide strengthening or holding face pieces 20 which extend across the faces of said inside reinforcing members 16 or 17 and across the upper corner portions of said throat member T and across said intermediate parts 12 of the main frame thereby tying these parts together. They may be of greater length in the direction across as aforesaid than in a direction down the shoulders of the racket, as illustrated. In an ordinary tennis racket, for instance, said face pieces may measure about ⅞" to 1" across and ⅝" down the shoulder, although the size may be varied considerably.

The grain of the wood in said face holding pieces 20 extends across said throat joints as illustrated in Figures 1 and 2 of the drawing, and when said holding pieces are made of laminations 21 the joints between the laminations likewise run across said throat joints as illustrated in Figures 3 and 4 of the drawing, and preferably the grain too. With such face holding pieces 20, pulling of the longitudinal strings or other longitudinal strain does not split said face pieces or tend to pull them apart, as they can withstand even unusual pulls on them in the same direction as the grain runs.

Said face holding pieces preferably abut against the lower edge of said shoulder reinforcing members 18, and they need extend only a short distance sidewise, leaving the main portion of said throat member T uncovered, as illustrated. Heretofore, it has been considered necessary to have said shoulder reinforcing face members 18 or 19 extend all or nearly all the way across the upper portion of said throat member in an effort to attain sufficient reinforcement for said throat joints, which noticeably added to the weight of the racket in the head. Now, with my face holding pieces 20 or 21 the racket can be noticeably lightened in the head because said holding pieces placed across said throat joints in the upper corner portions of said throat member T are so strong with the grain running crosswise, as shown, that they provide sufficient holding or tying strength for the jointed parts they reinforce even though most of the upper portion of said throat member T is left uncovered.

Said face holding pieces 20 are preferably tapered towards the center of the throat as illustrated in Figures 5 and 6 of the drawing. Their thickness may vary between $\frac{1}{32}$" and $\frac{1}{16}$", or more either way.

At the base of said throat member a small piece 23 reinforces the joints between said throat member T and handle 11.

What I claim is:

1. A playing racket main frame embodying a curved bow head, a handle, and intermediate portions between said bow head and handle, a throat member between said intermediate portions of said frame, a reinforcing member inside the said curved bow head above and united to the top of said throat member, the upper portions of said throat member extending sidewise and terminating in corner portions between said intermediate frame portions and said inside reinforcing member thereby leaving joints between said inside reinforcing member and said frame intermediate portions, wooden strengthening and holding members extending across the faces of portions of said inside reinforcing member and said throat corner portions and said intermediate frame portions, and wooden shoulder laminations on the face of said racket extending down the shoulders to and terminating adjacent said holding members the grain of which extends substantially perpendicular to the grain of said holding members.

2. A playing racket main frame embodying a curved bow head, a handle, and intermediate portions between said bow head and handle, a throat member between said intermediate portions of said frame, a reinforcing member inside the said curved bow head and extending above and united to the top edge of said throat member, the upper portions of said throat member extending sidewise and terminating in corner portions between said intermediate frame portions and said inside reinforcing member and being reduced in width towards said corner portions thereby leaving joints between said inside reinforcing member and said frame intermediate portions, strengthening and holding members extending across the faces of portions of said inside reinforcing member and said throat corner portions and said intermediate frame portions the grain of which holding members likewise extends across as aforesaid, and shoulder laminations on the face of said racket extending down the shoulders to said holding members the grain of which shoulder laminations likewise extends downwardly.

3. A playing racket main frame embodying a curved bow head, a handle, and intermediate portions between said bow head and handle, a throat member between intermediate portions of said frame, a reinforcing member inside the said curved bow head and extending above and united to the top edge of said throat member, the upper portions of said throat member extending sidewise and terminating in corner portions between said intermediate frame portions and said inside reinforcing member and being reduced in width towards said corner portions thereby leaving joints between said inside reinforcing member and said frame intermediate portions, holding members extending across the faces of portions of said inside reinforcing member and said throat corner portions and said intermediate frame portions the grain of which holding members likewise extends across as aforesaid, and shoulder laminations on the face of said racket extending down the shoulders to said holding members the grain of which shoulder laminations likewise extends downwardly, said holding members being longer in a direction across as aforesaid than in the direction said shoulders take and of such size as to leave upper intermediate face portions of said throat member uncovered by said holding members.

HORACE W. HALL.