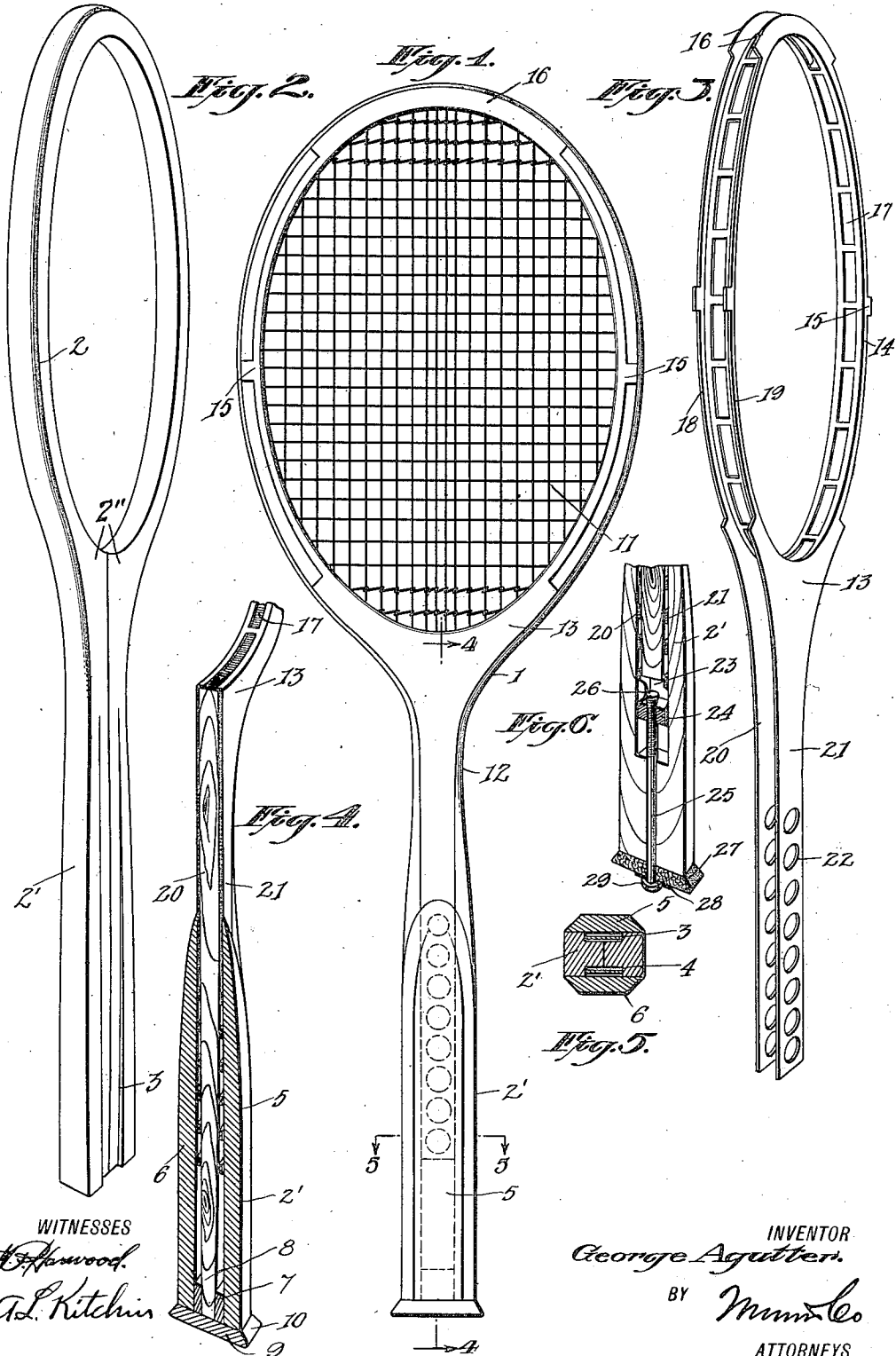


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RACKET.

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Patented June 7, 1921.



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# UNITED STATES PATENT OFFICE.

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## RACKET.

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Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, GEORGE AGUTTER, a subject of the King of Great Britain and a resident of New York city, Forest Hills, borough of Queens, in the county of Queens and State of New York, have invented a new and Improved Racket, of which the following is a full, clear, and exact description.

This invention relates to a tennis racket and has for an object to provide an improved racket wherein means are presented which will materially strengthen the racket without adding weight thereto.

Another object of the invention is to provide an improved reinforcing structure for the head of the racket and at the same time retain the usual resilient effect of the wood frame.

A still further object of the invention is to provide an improved racket having a metallic reinforcing lining for the wood head of the racket arranged in such a manner that the metal reinforcement will overlap part of the head for protecting the same and will interlock with the handle in a yielding manner.

In the accompanying drawing:

Figure 1 is a plan view of a racket disclosing an embodiment of the invention.

Fig. 2 is a perspective view of the wood body of the racket shown in Fig. 1.

Fig. 3 is a perspective view of the reinforcing metal lining embodying certain features of the invention.

Fig. 4 is a fragmentary perspective sectional view through Fig. 1 approximately on line 4-4.

Fig. 5 is a transverse sectional view through Fig. 1 on line 5-5.

Fig. 6 is a fragmentary view similar to Fig. 4 but showing a slightly modified form of the invention.

Referring to the accompanying drawings by numeral, 1 indicates a body of wood which is provided with a head 2 of the usual shape but smaller than is commonly found in rackets made completely of wood. The body 1 is also provided with a handle 2' having grooves 3 and 4 formed therein. As indicated in Fig. 2, the body 1 is made from one piece bent and formed as illustrated. At the juncture of the head and handle enlargements or projections 2'' are provided which form what is commonly known as a bridge which receives the strings in the usual man-

ner. In order to present the handle 2' in the proper shape for being easily grasped and to conform to the usual shapes now in common use, gripping strips 5 and 6 are arranged on opposite sides of the handle 2' and are held in place by any suitable means, as, for instance, adhesive. The ends of the grooves 3 and 4 are shown filled with suitable filling blocks 7 and 8 and an end block 9 is connected to the end of the handle to give the usual finish and a flange 10. In forming the head 2, the same is provided with the usual number of holes for receiving the strings 11 and as the strings 11 are of the usual kind, no detailed description thereof will be given. In order to reinforce and stiffen the head 2 and also the shank 12 of the body 1, a metallic reinforcing member 13 is provided as illustrated particularly in Fig. 3. This reinforcing member may be of steel, aluminum or any suitable metal and is preferably comparatively thin so that it will not weigh any more than the weight of the wood removed from the body 1, so that the complete racket, as shown in Fig. 1, will be of the usual weight and also will have the usual balance. The reinforcing member 13 is provided with an elliptical head 14 fitting snugly against the inner face of the head 2 and provided with a number of intermediate overlapping web lugs 15 and a pair of overlapping webs 16 at the outer end of the head. A number of slots 17 are also provided in the head 14 so that the strings 11 may be properly positioned at the same time the parts of the head 14 are rigidly held together in order to brace head 2 and hold the same against warping or against breakage when in use. It will be apparent that the head 14 is also provided with circumferential flanges 18 and 19 which stiffen the head 14 very materially, said flanges slightly overlapping part of the head 2, which head fits tightly between said flanges and head 14 so that there will be no loose motion. The flanges 18 and 19 merge into handle extensions 20 and 21, which are shaped to conform to the shape of the shank 12 and handle 2'. The extreme ends of the handle extensions 20 and 21 are shaped to fit into the slots 3 and 4, in which they are movable, so that when the shank 12 or the head 2 flexes, there will be a slight movement of members 20 and 21. If desired, these members may be provided with a number of apertures 22 for reducing

the weight. It is, of course, evident, that the metallic stiffening or reinforcing member 13 could be stained or colored in any desired manner to agree with the color of the wood of the body 1 and could be otherwise colored without departing from the spirit of the invention. It is also evident that other slight changes could be made by changing the particular shape of the opening 17 and lugs 15 and other parts of the reinforcing member without changing the inventive idea.

In Fig. 6 will be seen a slightly modified form of handle arrangement wherein means are provided to reduce the flexibility of the handle extensions 20 and 21 and to make all the parts rigid. In this construction, the handle 2' is cut away, forming a chamber 23 in which the block 24 reciprocates. This block is welded or otherwise rigidly secured to the ends of the extensions 20 and 21 and is threaded so as to receive the threaded end of screw 25, which screw is also enlarged or upset at 26 so it cannot be disengaged from the block 24, though allowed to be moved back and forth therethrough as it is rotated. The handle 2' is preferably provided with a fiber end 27, though said end could be made of some other material if desired, said end accommodating the metal washer 28 against which the head 29 and screw 25 press. When it is desired to have a very rigid structure and particularly to hold the handle extensions 20 and 21 rigidly in place, screw 25 is tightened by rotation and, consequently, pulls on the block 24 which in turn pulls on members 20 and 21. If at any time it is found that the members 20 and 21 and associated parts are too stiff or rigid, screw 25 may be rotated in a reverse direction or slightly unscrewed. This will ease up on the tension and give the desired resilient effect. It is evident that the screw 25 could be loosened up completely so that the members 20 and 21 will be as free in their movement as in the structure shown in Fig. 4.

I claim:

1. A tennis racket comprising a wood body formed with a head merging into a handle, an encircling head of metal fitting against said wood head, (strings carried by said wood head extending through said metal head, and means for connecting the metal head with the wood handle, said means including an adjustable member for

varying the tension of the connection between the wood handle and the head.

2. In a tennis racket of the character described, a wood head merging into a handle, a metal reinforcement snugly fitting the interior face of said wood head, said metal reinforcement being formed with handle extensions, and adjustable means engaging said handle extensions and said wood handle for adjustably connecting said extensions with the handle.

3. In a tennis racket of the character described, a body having a head and a handle, a metal head snugly fitting against the head of said body and provided with extensions overlapping part of said handle, a connecting member connecting said extension and a screw member extending through said connecting member for adjustably connecting the extensions with the handle of said body.

4. In a tennis racket of the character described, a metal reinforcing member comprising a head, a pair of handle extensions, a threaded member connected with the handle extensions, and a screw fitting into said threaded member.

5. In a tennis racket of the character described, a metal reinforcing member comprising a head provided with a plurality of outwardly extending flanges, each of said flanges having a handle projection at one end of the head and auxiliary protecting flanges at the other end.

6. In a tennis racket of the character described, a reinforcement member therefor comprising a metallic head and metallic handle members, said head having a pair of circumferential flanges adapted to fit flatwise against the opposite side of the head of the racket, each of said flanges having enlargement substantially centrally thereof and adjacent each end, one pair of said end enlargements merging into said handle members.

7. In a tennis racket of the character described a single piece wood head merging into a handle with projections at the juncture of said handle and said head presenting a bridge structure and a single piece reinforcing member for said head and handle comprising a head section snugly fitting the wood head and merging into spaced handle members having enlargements adapted to fit over said bridge.

GEORGE AGUTTER.