W. H. JOHNSON.

TENNIS RACKET.

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1,100,244.

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Fig. 1.

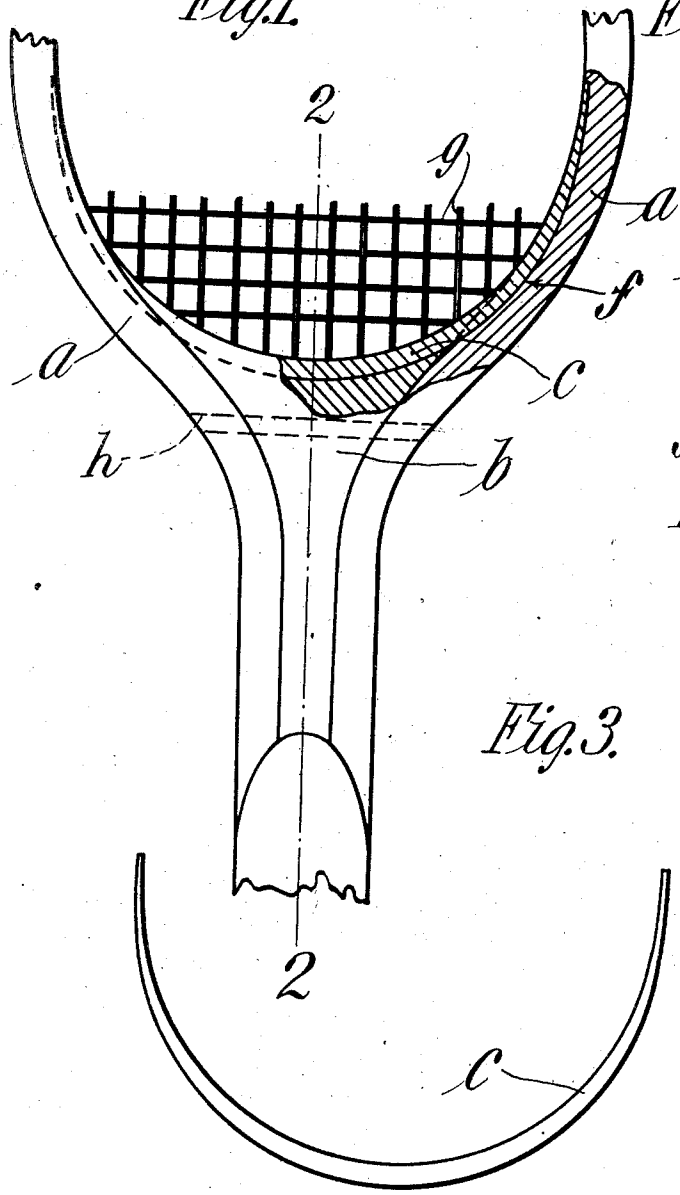

Fig. 2.

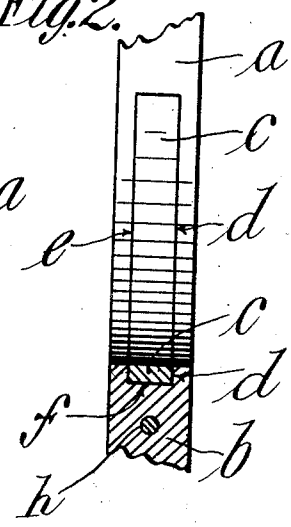

Fig. 3.

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TENNIS-RACKET.

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To all whom it may concern:

Be it known that I, WILLIAM H. JOHNSON, residing in the city of Springfield, county of Hampden, and State of Massachusetts, have invented certain new and useful Improvements in Tennis-Rackets, of which the following is a specification.

This invention relates to improvements in tennis rackets and more particularly to reinforcing means in rackets wherein a single strip is bent to form an oval frame and the ends thereof extended to form a handle.

An object of this invention is to provide a means for bracing the frame forming strips together and to the wedge shaped filling block usually provided at the crotch of the frame.

A second and particularly important object is to so apply this bracing means that the joints (which are usually glued) are not visible on the face of the racket and consequently are not exposed to the weather. It is a well-known fact that a glued joint, after short exposure to the action of the elements, soon weakens. In tennis racket construction the weakening of the glued joint of the bracing strip is vital to the life of the racket for when this joint loosens the bent frame soon splits and breaks.

Briefly my invention consists in setting and fastening a bent strip into recessed or grooved portions of the bent frame and the wedge shaped filling block respectively, in such a manner that the strip is flush with the edges of the frame and wedge members. Thus the joints are on the interior edge of the frame where they are not ordinarily exposed to the action of the weather. A further advantage of such a construction lies in the provision of a greater surface for adhesive contact as three surfaces of the strip are glued instead of one, thereby resulting in a stronger joint.

I am aware that there are rackets in common use in which the bent frame members and the wedge-shaped filling block are braced together by a member very similar to my own. However, in this construction, the width of the bracing strip is equal to the thickness of the frame, the strip being merely laid on and not set in and the glued joint is thus exposed to the weather. Moreover, as this strip is not set into a recess or groove the surface for adhesive connection to the frame and wedge is less than with my construction and consequently the structure is not as strong.

I am also aware that some tennis rackets have been provided with a small thin strip inserted in the wedge shaped block which extends into and connects to some extent with the bent frame. The bracing effect exerted between the frame and the wedge by such a strip is questionable. My invention provides an inserted strip which extends not only through the wedge-shaped block but also for a considerable distance along the bent portion of the frame members thereby exerting a positive and efficient bracing action.

In the accompanying drawings which form a part of this specification, Figure 1 is a partial plan view of a tennis racket embodying my invention. Fig. 2 is a sectional view taken on the line 2—2 of Fig. 1, and Fig. 3 is a detail view of the bracing strip.

Referring to the drawing, the strip *a* is bent in the form of an oval frame, which is provided with the usual lacings *g*. The lower ends of the strips *a* extend downwardly and are joined together to form a handle. The portions of strips *a* adjacent the crotch of the frame are separated by a substantially wedge-shaped filling block *b* of the usual construction. In my invention I provide in the upper face of the wedge *b* and in the inner faces of the strip *a*, adjacent the crotch a recess or groove rectangular in cross section having the surfaces *d*, *e*, and *f* as clearly shown in Fig. 2. This recess or groove is deepest in the center of the wedge *b* and gradually tapers to a shallow recess as it nears its end in the frame forming strips *a*. A strip *c* bent as shown in Fig. 3, is set into this recess and is glued to the wedge *b* and frame member *a* on the surfaces *d*, *e*, and *f*. The portion of greatest thickness of strip *c* is at its center portion from which it gradually tapers to conform to the depth of the recess in the block and frame, as shown in the assembled view in Fig. 2.

It is to be noted particularly that as the strip *c* is narrower than the strip *a* and is set into the strip *a* and wedge *b* the only visible joints are those of the faces *d* and *e*. As these joints are not on the face of the racket but on the interior edges of the frame, they are protected from the weather which causes the glue to disintegrate and the strip

to loosen. Furthermore, the strip *c* is adhesively connected on three faces instead of one as is the usual construction. Consequently this strip *c* is joined to members *a* and *b* in a positive and substantial manner. Obviously a strip *c* so applied and secured in place increases the strength and life of the racket over the ordinary construction referred to above.

It will be seen from this construction that I have produced a tennis racket that embodies great strength by reason of the fact that the set-in tapering strip extends a considerable distance in opposite directions from the block, up onto the inner side of the frame. It should also be borne in mind that this set-in bracing strip *b* is only exposed to the elements at two glue joints, and that the strip is inclosed on three of its sides. It will also be seen that, by inserting the pin *h* through the wedge-shaped filling-block *b*, the racket is made very much stronger as the pin tends to retain the block in position at all times, and further that the inserted brace-strip *c* will be, in a measure, relieved of so much strain thereon as will be readily understood.

What I claim is:

1. In a tennis racket, the combination with a frame, of a wedge in the crotch of said frame, said frame and said wedge being provided with a recess or groove therein, and a substantially semi-circular shaped strengthening strip located in said recess, said strip connecting and bracing the frame to the wedge as described.

2. In a tennis racket, the combination with a frame, of a wedge-shaped filling block in the crotch of said frame and formed with a groove therein, a strip set into the groove in said frame and wedge, the thickness of said strip being greatest in the portion set into said wedge and tapering in the portion set into said frame.

3. In a tennis racket, the combination with a frame, of a wedge in the crotch of said frame and a strip set into said wedge and into said frame, said strip being substantially semi-circular in form, of greatest thickness in the central portion and tapering at the ends thereof, and extending a considerable distance in opposite directions from the wedge up the inner sides of the frame.

4. In a tennis racket, the combination of a frame, a block, each being formed with a registering groove therein and a strengthening strip located in said grooves extending in opposite directions from the grooved block up the opposite inner sides of the frame, as described.

5. A tennis racket, comprising in combination with the frame thereof formed with grooves in its inner surface, a grooved filling block, the said grooves being tapered in opposite directions from the filling block, together with a bent insert piece secured to and located in the grooves and flush with the top surface of the block and the inner surfaces of the frame, said insert piece extending a considerable distance in opposite directions from the block up the inner surface of the frame for the purpose of strengthening the frame at its point of attachment to the handle, substantially as described.

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