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C. C. MORRISON.

RACKET FRAME

Filed Feb. 25, 1921

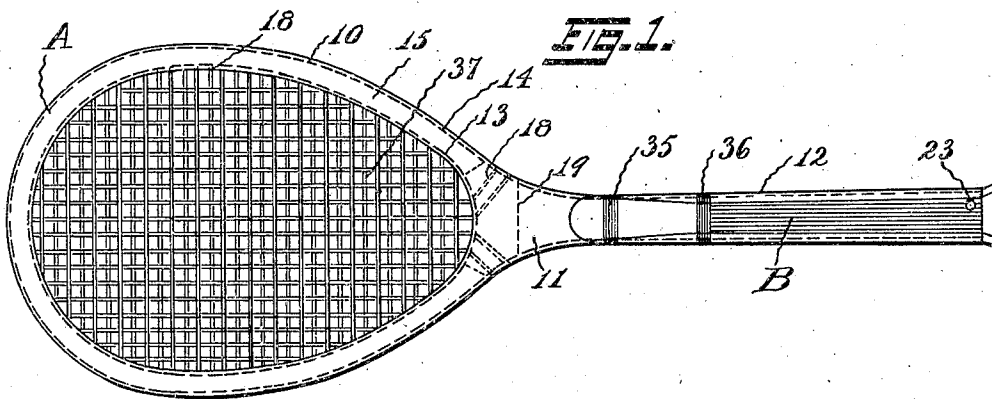


FIG. 2.

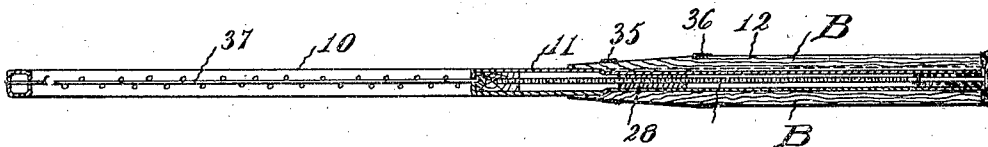


FIG. 3.

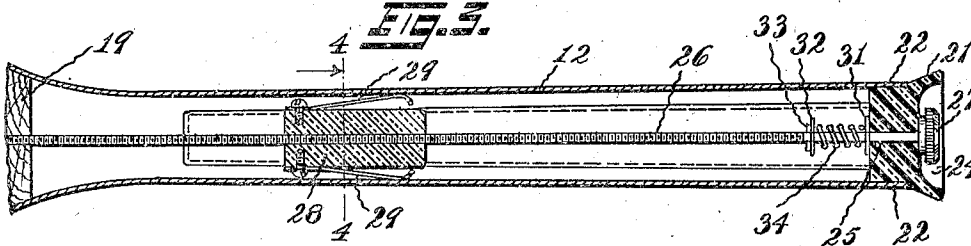


FIG. 4.

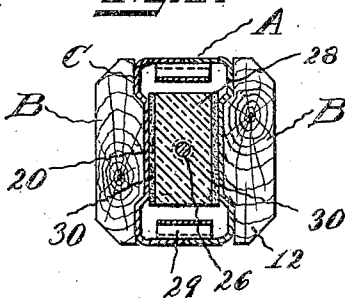
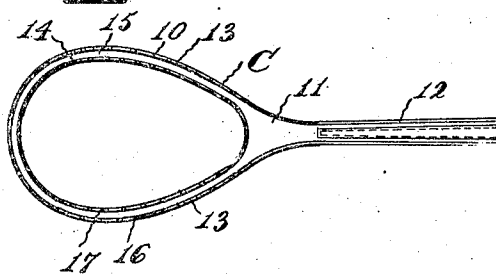


FIG. 5.



Witnesses:

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UNITED STATES PATENT OFFICE.

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RACKET FRAME.

Application filed February 25, 1921. Serial No. 447,679.

My present invention relates to improvements in frames for tennis rackets, squash rackets and the like.

One object of my invention is to provide a tennis racket or squash racket the frame of which will not warp.

Another object is to provide a racket in which the force of the stroke may be increased without increasing the net weight of the racket.

Another object is to provide a racket in which the weight at or towards the elliptical portion or head of the racket may be varied to suit the requirements of the user.

Another object is to provide a racket the frame of which is not liable to dent or injury from dropping the racket, or to injury to the elliptical portion or head due to contact thereof with the ground by a too low stroke.

One feature of my invention is the use of a hollow metal frame.

Another feature is the use of a metal frame of shell construction.

Another feature is the use of a metal frame of shell construction, the shell consisting of two symmetrical parts.

Another feature is the provision of a frame the handle portion of which is hollow for the reception therein of a weight positionable at the will of the user of the racket towards or away from the elliptical portion or head thereof.

These and other objects, features and capabilities of my invention will appear in the course of the following description.

In the accompanying drawings, which show one of the embodiments of my invention, and which form part of this specification,

Figure 1 is a plan view of my invention as applied to a tennis racket.

Figure 2 is a horizontal longitudinal section thereof.

Figure 3 is a fragmental sectional view on a larger scale than Figures 1 and 2.

Figure 4 is a sectional view on the line 4—4 of Fig. 3 on a larger scale than Fig. 3.

Figure 5 is an inside plan view of one of the symmetrical parts of the shell frame.

Similar reference characters denote similar parts throughout the several views.

My tennis racket comprises in its main parts the frame, generally denoted by A, and the grip-pieces B.

The frame A comprises the elliptical portion or head 10, the throat 11, and the handle 12.

The frame A is of metal, preferably aluminum, and is hollow or a shell. In practice I prefer to make the frame A of two symmetrical parts, one of which, denoted by C, is shown in Fig. 5. The symmetrical part C has, at what forms the elliptical portion or head of the frame, an upstanding outer edge 13 and an inner upstanding edge 14, the edges 13 and 14 being connected by a web or bottom 15. The edges 13 and 14 and web 15 are extended from the elliptical portion or head, the edges 13 and 14 converging to form the throat 11 of the frame and then diverging to form the handle 12, and the web or bottom 15 widening out to fill the increased space between the edges 13 and 14 at the throat and handle.

The edges 13 are provided with lacing holes 16 and the edges 14 are provided with recesses 17 therein for forming with similar recesses of the other symmetrical part C lacing holes, when the symmetrical parts are joined together, there being further lacing holes 18, Fig. 1, passing through the edges 13, and through the throat block 19, later described, and through the edges 14.

The web or bottom 15 adjacent to the throat 11 is depressed as shown at 20, Fig. 4, to form a recess for receiving one of the grips B, the other symmetrical part C having a corresponding depression for the other grip B, this depression 20 extending to the end of the handle 12.

The symmetrical parts C are joined at the upstanding edges 13 and 14 by welding or in other suitable manner, thus forming the complete frame.

The throat block 19 is of wood or other suitable material and affords a means for bracing the frame at the throat 11. A butt piece 21 is provided for closing the butt 22 of the frame, this butt-piece being of hard rubber or suitable composition or material, the butt-piece 21 being retained in place by an assembling pin 23 passing through the grips B and through the webs or bottoms 15 of the frame. The butt-piece 21 is recessed as at 24 and has a bore 25 there-through.

The screw threaded rod 26 is disposed within the handle 12, one end of this rod bearing in the bore 25 of the butt-piece and ex-

tending therethrough and provided with a button 27 for turning the rod, the button 27 being arranged so as not to protrude beyond the recess 24 of the butt-piece. The other
 5 end of the rod 26 is journaled in the throat block 19.

The rod 26 carries a threaded weight 28, which is provided on opposite sides with leaf springs 29 suitably secured at one end
 10 to the weight 28 and bearing at the other end against the interior of the edges of the frame, the purpose of the springs 29 being to prevent lateral movement or bending of the rod 26 when the weight 28 is moved thereon,
 15 and also to prevent any rattling due to the weight when the racket is in use. The other sides of the weight 28 are provided with strips 30 of felt or other suitable material which bear against the interior sides of the
 20 depressions 20 to prevent lateral movement of the weight 28 and permit movement of the weight longitudinally on the rod 26. The rod 26 has on it adjacent to the butt-piece 21 a loose stop or washer 31 and an interior
 25 loose stop or washer 32 which is prevented from inward movement on the rod 26 by a pin 33 or other suitable means, a spring 34 being disposed on the rod 26 between the stops 31 and 32 for the purpose of taking up
 30 any longitudinal movement of the rod 26 and preventing rattling from this cause.

The grips B are of wood or other suitable material and are formed to be received in the depressions 20 of the frame and bear
 35 upon the edges of the frame, being held in place by the before mentioned pin 23 and by lashings 35 and 36 passing over the grips and the frame, or they may be held in place by any other suitable means.

40 The net 37, preferably the customary cat gut, is of the usual form, the strings thereof being laced through the lacing holes of the frame in the customary and well known manner.

45 From the foregoing description it will readily be seen that by turning the button 27 the threaded weight 28 may be moved on the screw threaded rod 26 either towards or away from the elliptical portion or head of
 50 the racket to meet the requirements of the stroke of the user of the racket, or may be moved to a substantially neutral position in the handle immediately beneath the hand grip of the user, and may be positioned on
 55 the rod 26, as desired.

I thus provide a ball striking implement, in the present embodiment a racket, which has a striking end and a handle, and having
 60 a longitudinal hollow interior or chamber in which a weight is slidably movable longitudinally of the interior or chamber, this weight being positionable in said interior at the will of the user at any point within
 65 the length of the interior or chamber, whereby the weight at the striking end of the im-

plement may be varied, or the implement may be balanced, to suit the requirements of the user.

And it should be understood that there may be modifications of and variations in my invention without departing from the spirit
 70 thereof or exceeding the scope of the appended claims.

Having thus described my invention, I claim:

75 1. A racket comprising, a metal frame of shell construction having a head, a throat, and a handle; a net for the space within the confines of the head; a brace-block for the throat; a butt-piece for the open end of the
 80 handle provided with a bore; a screw-threaded rod journaled at one end in said brace-block and engaging at its other end in said bore of the butt-piece and extending there-
 85 through and having on the extended end means for turning the rod; a threaded weight carried by said rod and movable thereon longitudinally of the rod; grip-
 90 pieces for the handle; and means for securing the grip-pieces to the handle; the handle being provided with depressions on the exterior thereof for receiving the grip-
 95 pieces; and the head, throat and brace-block being provided with lacing holes for the net.

2. A racket comprising, a metal frame of
 100 shell construction having a head, a throat, and a handle; a net for the space within the confines of the head; a brace-block for the throat; a butt-piece for the open end of the
 105 handle provided with a bore; a screw-threaded rod provided at one end in said brace-block and engaging at its other end in said bore of the butt-piece and extending there-
 110 through and having on the extended end means for turning the rod; a threaded weight carried by said rod and movable thereon longitudinally of the rod; means for prevent-
 115 ing lateral movement of the weight and rod when the weight is moved and preventing rattling of the weight in the handle; means for taking up longitudinal movement of the
 120 rod and preventing rattling of the rod; grip-pieces for the handle; and means for securing the grip-pieces to the handle; the handle being provided with depressions on the ex-
 125 terior thereof for receiving the grip-pieces; and the head, throat and brace-block being provided with lacing holes for the net.

3. A racket frame comprising a pair of
 130 symmetrical members, comprising a web; upstanding edge portions on said web each joined at the edges only to the edges only of the other member; lacing holes adjacent to the web in the outer upstanding edge por-
 135 tion; and lacing recesses along the joining edge of the inner upstanding edge portion.

4. A racket frame comprising a pair of similar symmetrical members comprising a web of substantial racket outline; upstand-
 140 ing inner, outer and side edge portions joined

at the edges, in the plane of symmetry of the racket, to the edges of the other member to form a complete racket frame; lacing holes in the outer edge portions adjacent to the said webs; and lacing recesses on the inner edge portion along the said junction edge.

5 5. A racket frame comprising identical sheet metal members joined at the edges only to form a tube, each member being substantially continuously U-shaped in cross-section, the outer leg of each having a row of holes cut therein, the inner leg of each having a row of recesses let in along the edge, said holes and recesses forming a staggered lacing means.

6. In combination, a racket; a weight adjustable thereon; and sound deadening means secured to the weight.

7. In combination, a racket having a handle; a weight movable axially of the handle; and felt secured on said weight to prevent rattling of the weight.

8. In combination, a racket having a hollow handle; a threaded rod journalled axially of the handle; a weight having an axial threaded bore received on said rod; felts secured on respectively opposite sides of said weight and engaging said handle to prevent rattling of the weight.

9. In combination, a racket; a threaded rod journalled axially of the handle; a weight having a threaded bore received on said rod; and means yieldably pressing the rod longitudinally.

10. In combination, a racket having a handle shell; a butt piece in the butt of the shell; a threaded rod journalled in said piece and disposed axially of the handle; a weight having an axial threaded bore received on said rod; a washer secured on said rod near the butt piece; and a spring compressed on the rod between said washer and piece to prevent rattling of the weight.

11. In combination, a racket; a weight adjustable longitudinally of the racket; and springs secured on respectively opposite

sides of said weight and engaging said racket to prevent rattling of the weight.

12. In combination, a racket having a handle shell; a threaded rod journalled axially of the handle; a weight having an axial threaded bore received on said rod; and leaf springs secured on respectively opposite sides of said weight and engaging said shell to prevent rattling of the weight.

13. In combination, a racket having a hollow handle; a threaded rod journalled axially of the handle; a weight having an axial threaded bore received on said rod; and means secured on said weight and engaging said handle to prevent rattling of the weight.

14. In combination, a racket having a hollow handle; a threaded rod journalled axially of the handle; a weight having an axial threaded bore received on said rod; and means secured on respectively opposite sides of said weight and engaging said handle to prevent rattling of the weight.

15. In combination, a hollow racket handle of thin sheet metal having impressed panels throughout the handle; and separated grips having raised panels fitted in said impressed panels.

16. In combination, a tubular racket handle having impressed panels throughout; and separated grips having raised panels fitted in said impressed panels.

17. In combination, a racket shell having impressed panels throughout the handle leaving marginal faces at the sides of the panels; and separated grips covering said faces and having raised panels fitted in said impressed panels.

18. In combination, a tubular racket handle of approximate rectangular cross-section having wide side faces having impressed intra-marginal panels throughout leaving wide margins; and separated grips covering said margins and having raised panels fitted in said impressed panels.

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