United States Patent

[11] 3,582,072

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[54] **RACKET HANDLE**
7 Claims, 10 Drawing Figs.

[52] **U.S. Cl.** ..... **273/73(J)**, 273/73(D)
[51] **Int. Cl.** **A63b 49/08**
[50] **Field of Search** 273/73, 75, 67

[56] **References Cited**

UNITED STATES PATENTS

3,501,148	3/1970	Cheris et al.	273/75
1,937,787	12/1933	Robinson	273/73
3,206,204	9/1965	Lacoste	273/73

FOREIGN PATENTS

974,039	9/1950	France	273/73
430,530	6/1926	Germany	273/73
751,040	6/1956	Great Britain	273/73
1,126,438	9/1968	Great Britain	273/73

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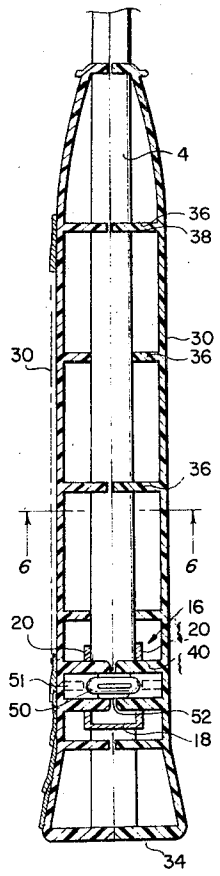
ABSTRACT: A racket for tennis or like games having a metal tubular frame bent to provide a loop and depending handle arms, brace means interconnecting the arms adjacent their lower ends, grip members positionable on the arms to provide a handle structure, the grip members and brace having cooperating stud and stud receiving openings for positioning and holding the grip member, locking means for interconnecting the grip member studs, torsion preventing brace means adjacent the loop and sheathing means on the loop.



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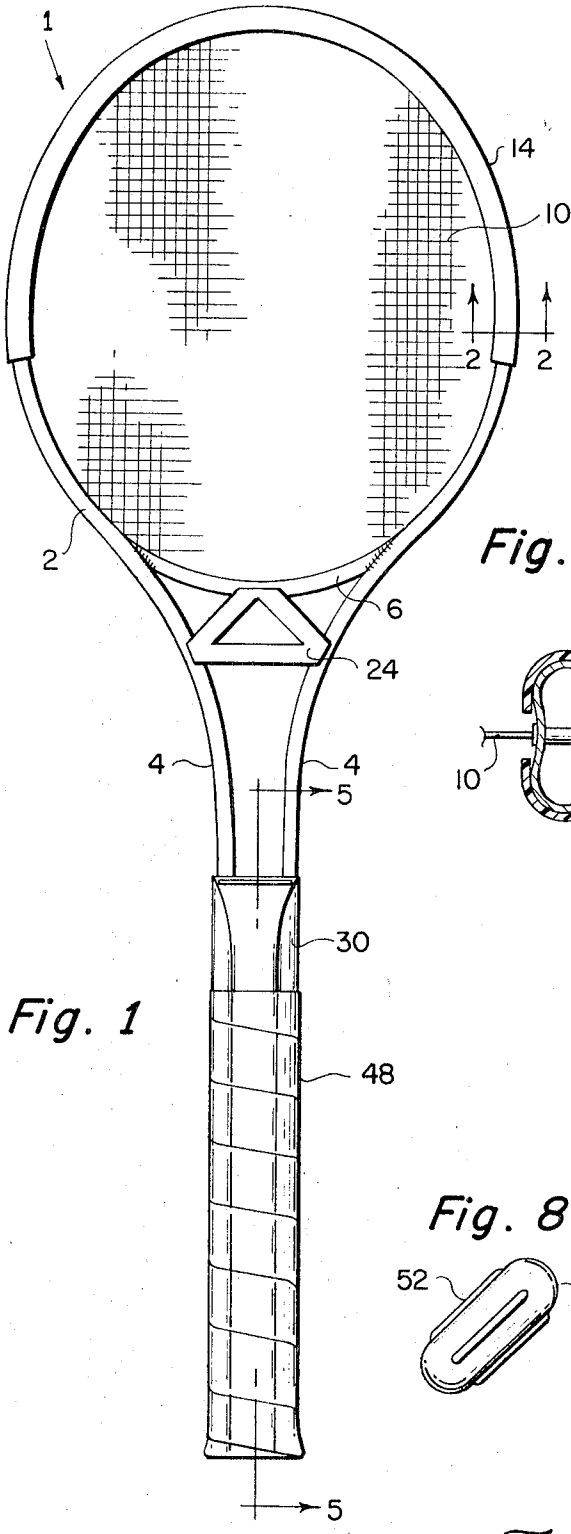

Fig. 1

Fig. 2

Fig. 8

Fig. 3

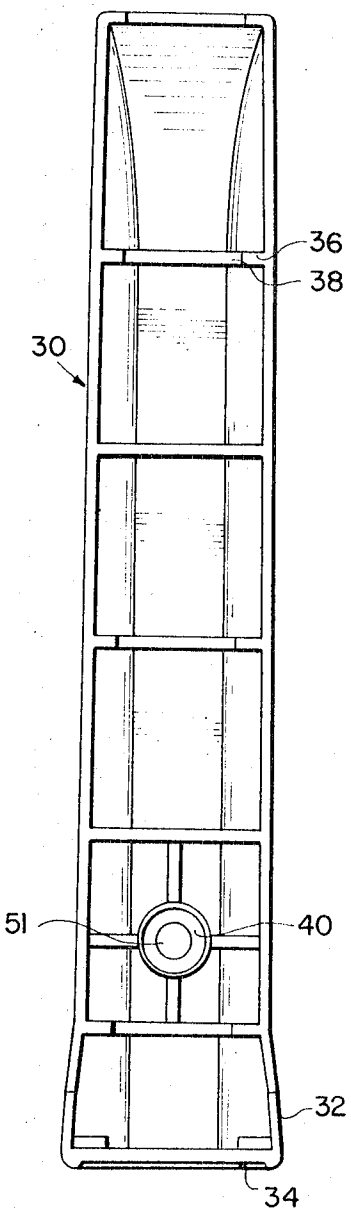

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Fig. 4

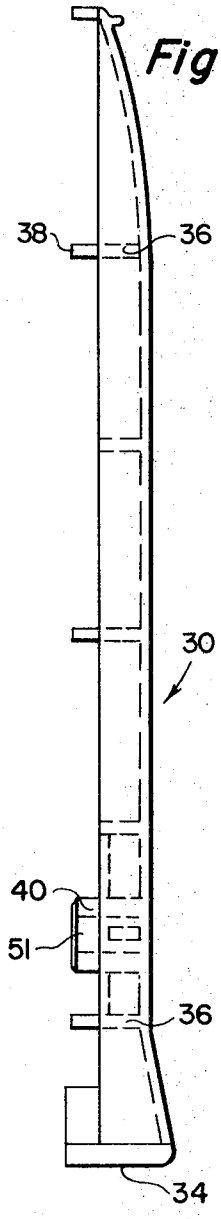


Fig. 5

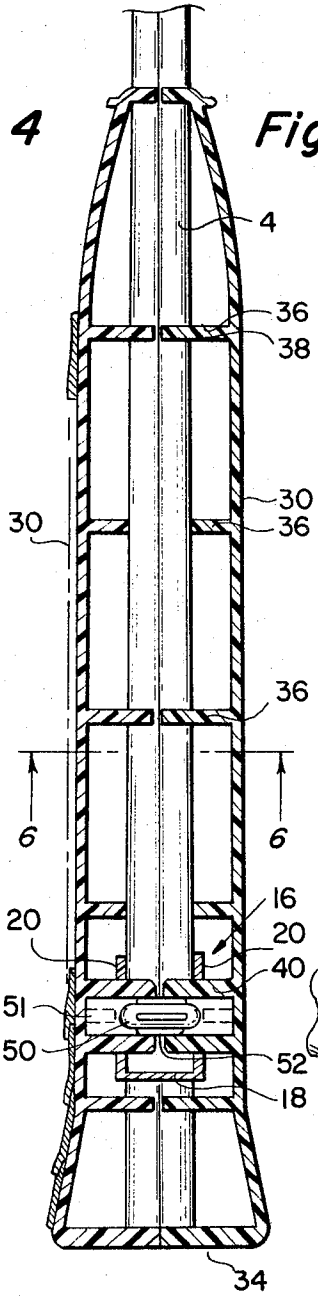


Fig. 6

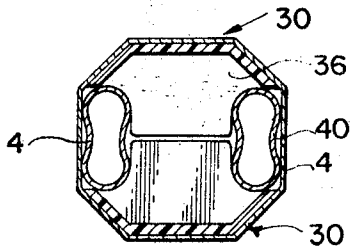
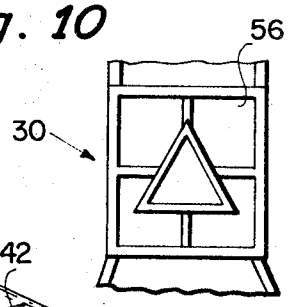


Fig. 10



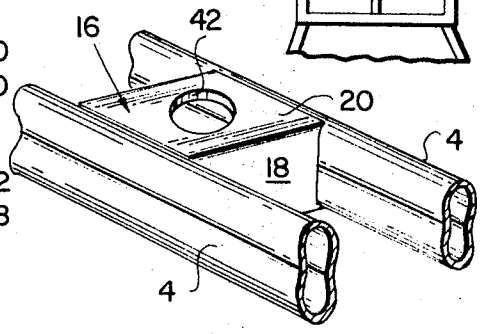
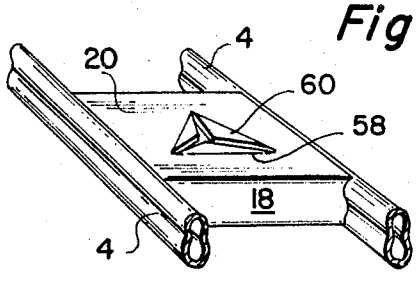


Fig. 7

Fig. 9



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RACKET HANDLE

The invention disclosed herein is an improved racket for tennis, badminton, squash, or other like games.

More specifically, the racket is of the type having a frame made from a metallic tube and including a handle structure having mirror image grip members, preferably made of a plastic material.

The above-described racket is well known, and the object of the invention herein is to provide improvements which make the racket more durable, increase its accuracy, provide a positively positioned grip, and increased protection for the outer rim of the stringing, while also reducing damage to playing courts.

The above is accomplished by improved bracing of the frame, cooperative interengaging means on the grip members and one brace to positively position the grips, and by sheathing the frame over the outer rim of the strings in the area most subject to damage.

The foregoing and other objects and advantages herein will be understood from the description when read in conjunction with the drawings wherein;

FIG. 1 is a full face view of the racket;

FIG. 2 is a sectional view of the racket frame on 2–2 of FIG. 1;

FIG. 3 is a view of a grip member showing the interior thereof;

FIG. 4 is a side view of the grip member of FIG. 3;

FIG. 5 is a sectional view on 5–5 of FIG. 1;

FIG. 6 is a sectional plan view on 6–6 of FIG. 5, but showing a full cross section;

FIG. 7 is a fragmentary perspective view showing the lower frame brace;

FIG. 8 is a perspective of a locking pin;

FIG. 9 is a view similar to FIG. 7 showing a modified brace; and

FIG. 10 is a fragmentary view of a grip member modified to cooperate with the brace of FIG. 9.

The racket includes a frame 1 of suitable metal tubing bent to form the loop portion 2 and depending handle arms 4. The loop portion 2 is completed by an arcuate throat member 6 having its ends welded to frame member 1. As seen in FIG. 2, the tubular member has an irregular contour and is substantially a figure eight in cross section, thus providing opposed center line channels. The channels are of such depth that the grommets 8, which are passed through spaced openings provided for the stringing 10, may have their ends upset and lie below the outer periphery of the frame to either side of the channel.

Associated with the frame 1 is a sheathing 14, having a length to cover at least the upper half of the loop 2, and a width to cover the exterior of the frame from adjacent one face of the stringing to adjacent the other face of the stringing as seen in FIG. 2. The sheathing 14 is made of a suitable flexible plastic and in cross section is an ellipse having a slot along one center line, and an interior dimension to hug the exterior channel of the frame. With this construction the sheathing spans the exterior channel of the frame, and overlies and protects the outer rim of the stringing 10. The sheathing, by providing a smooth outer contour, further protects the court in the sense that the rackets irregular contour digs and scrapes it when it hits the playing court. The sheathing 14 may be removed and replaced, and an incidental advantage is that it may be given a similar color to the handle wrapping.

Herein the handle arms 4 are interconnected adjacent their lower ends by a transverse cross brace 16, shown as a U member having a rectangular base 18 and opposed spaced rectangular vertical brace members 20. The peripheral end edges of the U are welded to the adjacent arm, and the end edges of the base 18 have the same contour as the arm members 4. As is seen, the vertical brace members 20, and side edges of the respective arms 4 lie in or close to the same plane, and with the arms 4 and the brace 16 defining a box structure providing a maximum of rigidity.

In addition to the lower brace 16 there is provided an intermediate transverse brace 24 which also interconnects the arms 4. The brace 24 is positioned adjacent, but below the loop throat member 6, and in the preferred embodiment it is substantially triangular, having its base corners respectively secured to the arms 4, and its apex to the throat 6. The brace 24 adds strength by overcoming the inherent tendency of the arms 4 to spread, and also prevents the torsional twist which often occurs when the ball is struck by the racket to one side of the vertical center line.

Two identical grip members 30 generally of the type disclosed in Lacoste U.S. Pat. No. 3,206,204 cooperate with arms 4 to complete a handle structure. Each grip has a body of trapezoidal cross section, ending in an enlarged boss 32 and bottom wall 34. Each grip further has a plurality of vertically spaced transverse positioning webs 36 which abut against the outer edge of the frame arm members 4, and the lowermost, the center, and two uppermost webs have extensions 38 which project inwardly between the arm members 4.

Herein each grip member includes an inwardly projecting positioning stud 40, of cylindrical construction with an upwardly facing open end. The stud 40 is receivable in a circular opening 42 in the lower brace member 20. The outer diameter of stud 40 and the diameter of brace opening 42 are such that an interengaging fit results. The stud and brace cooperate and constitute the sole means necessary to accurately position the grip and hold it in position, assuring that no lost motion occurs therebetween, thus eliminating the need for other retaining means.

With the grip members mounted in position on arms 4, the handle structure is completed by spirally wrapping a strip of leather 48, or other material therearound in the conventional manner. The strip of material 48 and sheathing 14 may be of like color to give the racket a distinctive appearance.

As previously stated the studs 40 and cylinders have an inwardly facing central bore 51. When the grips are made of plastic, or other material having a certain degree of ready penetrability, a positive locking means 50 may also be used. The means 50 is a metal pin having reduced ends, an outside diameter receivable in the bore 51 of the of the stud 40, and radially extending elongated sharp edge ribs 52 of greater diameter than the bore. Upon assembly the reduced ends of the pin are positioned in the bores 51 of the opposite studs and upon forcing the grips together, the pin ribs 52 will cut into the inner surface of the stud bore providing a rigid connection therebetween. The weight of the pin 50 may be varied to increase the weight of the racket.

Referring to FIGS. 9 and 10 the stud 56 is polysided and shaped as an isosceles triangle, and the brace 20 has a similarly shaped opening 58. However, in forming the opening 58 the metal is cut to provide the three isosceles triangular tabs 60, each secured at its base to the periphery of opening 58. The tabs 60, upon insertion of the stud are bent inwardly providing spring securing means which engage the exterior surfaces of the stud 56. The polysided stud will accurately position the grip members relative to the arms 4 and the extensions 38 of the webs 36 may be omitted, again allowing for compensation in weight or balance. These weight changes may appear insignificant, but it is well known that very minor variations in weight may be desirable by players who are very proficient in the game, and these changes may be readily accomplished.

It is understood that changes may be made, as for example, two sets of studs could be used, a different cross section of frame provided, or the periphery of the circular brace opening could carry spring fingers all without departing from the patentable subject matter defined in the claims hereof.

What I claim is:

1. In a racket of the type having a metal frame bent to provide a loop and depending arm members and an arcuate brace closing the loop, the improvement comprising,

a. a transverse brace member interconnecting the arms adjacent the lower ends thereof, the brace member having openings therethrough; and

b. opposed handle grip members each having an inwardly extending stud received by and lockingly interengaged within said brace openings to accurately position and hold the grip members in said position;

c. the respective dimensions of the brace openings and studs being such that the brace openings and studs interengage and constitute the sole means necessary to accurately position and hold the grip members.

2. The racket defined in claim 1 wherein each stud has a central bore and further including a locking pin positioned in the stud bores for interconnecting the studs.

3. The racket as defined in claim 2 wherein said locking pin includes integrally connected and radially extending elongated edge ribs of greater cross sectional dimensions than the internal dimensions of the stud bores whereby upon assembly the ends of the pin are positioned within the stud bores and upon forcing the grip members together, the ribs cut into the inner surfaces of the bores to provide a rigid connection therebetween.

4. The racket defined in claim 1 wherein the brace openings and the studs are polysided.

5. The racket defined in claim 1 wherein the brace openings are circular and the studs are cylindrical.

6. The racket defined in claim 1 wherein the periphery of each brace opening is provided with an inwardly projecting securing spring member, which engages the outer surface of the stud.

7. The racket as defined in claim 1 wherein said brace member is substantially U-shaped in cross section and wherein said brace openings are aligned with each other.