(No Model.)

C. MALINGS.

TENNIS RACKET.

No. 455,632. Patented July 7, 1891.

Fig. 1.

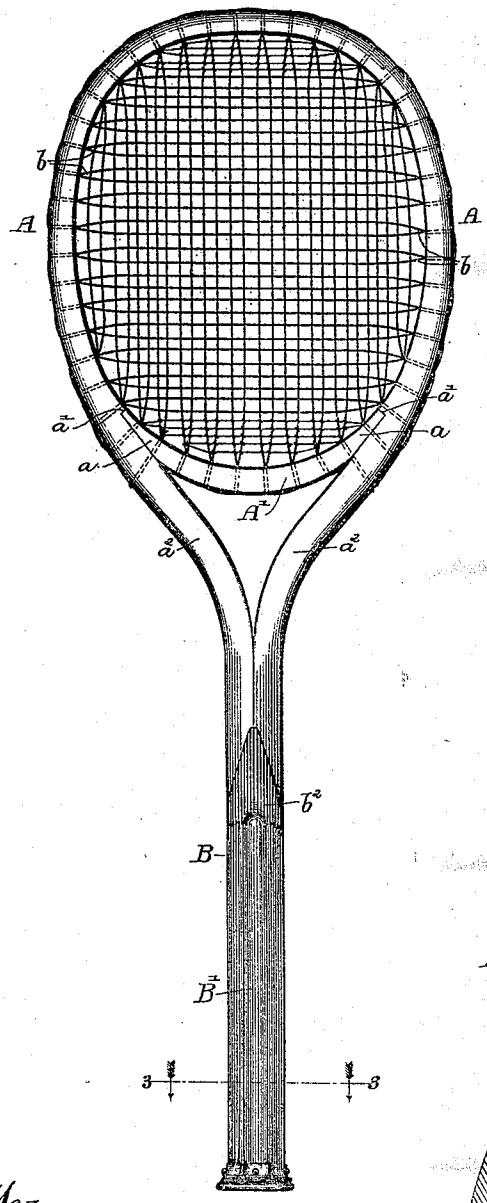


Fig. 2.

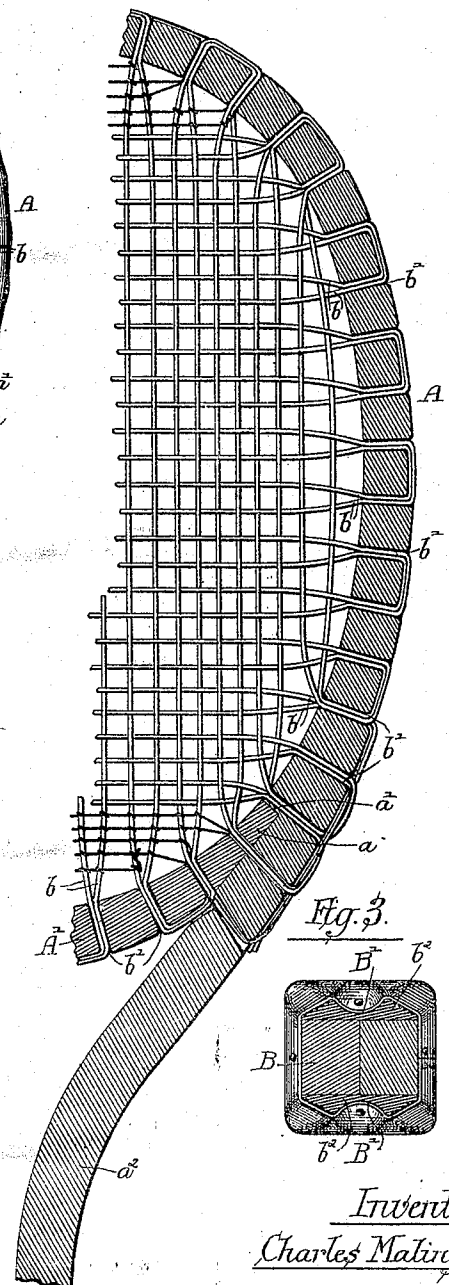


Fig. 3.

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UNITED STATES PATENT OFFICE.

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TENNIS-RACKET.

SPECIFICATION forming part of Letters Patent No. 455,632, dated July 7, 1891.

Application filed June 13, 1889. Serial No. 314,129. (No model.)

To all whom it may concern:

Be it known that I, CHARLES MALINGS, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Tennis-Rackets; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to a novel construction in tennis-rackets, the object being to provide a device of this character that will be stronger and more durable than those heretofore in use, and also one which can be manipulated with a greater degree of certainty.

Heretofore the head or bow of a tennis-racket has been commonly provided with a block, wedge, or similar piece located in the crotch thereof, which is secured to the sides of the bow by means of bolts or pins passed through holes bored therein. These holes being so located have the effect of weakening the sides of the racket at those points, and it has been found by experience that, owing to the presence of said bolt-holes and also the holes through which netting is laced, the weakest part of a racket, and hence the point at which they are most liable to break, is at the bow just above the crotch. The lacing of the bows of rackets has been found objectionable, for the reason that to secure a net having the requisite strength and the meshes of which are of the desired width a single string has been commonly used to lace with, and which is passed through a separate hole in the sides of the bow at each turn. Hence it is necessary to make a large number of holes in the frame at sides of the bow, which obviously lessens its strength. Another objection experienced is that, owing to the shape of the handles of rackets as usually made, it is difficult to obtain a very firm grip thereon, so that the racket is often turned slightly or twisted when a ball is struck to one side of the same, and consequently the stroke given thereby will be uncertain.

To overcome all these objections I make use of the construction shown and described in this specification, by means of which a racket is provided of great strength, durability, and efficiency.

The invention consists in the features of construction and combinations of parts hereinafter fully described, and pointed out in the appended claims.

In the drawings, Figure 1 is a view in side elevation of a tennis-racket constructed in accordance with my invention. Fig. 2 is a detail view, in vertical section, of a portion of the head or bow and the net supported thereon. Fig. 3 is a horizontal sectional view of the handle, taken on the line 3 3 of Fig. 1.

In said drawings, A indicates a head or bow of a tennis-racket, and B the handle thereof, said head and handle being formed in the usual manner by suitably bending a strip of wood into the desired shape and securing their meeting surfaces together by any preferred means to form the said handle.

A′ indicates a curved yoke or cross-piece having tapered end portions *a a*. The said cross-piece is located in the crotch end of the bow A.

a′ a′ are shoulders formed on the inner surfaces of the sides of the bow and adjacent to the crotch end. Said shoulders have abrupt lower walls and taper gradually off to form a continuation of the inner sides of the bow. The ends of the cross-piece are of the same thickness as the said shoulders, so that when the said cross-piece is arranged in position at the lower or crotch end of the bow, with its tapered end portions *a a* secured to the inner faces of the bow, the ends thereof will rest against the shoulders *a′ a′* and the inner face of said cross-piece will form a continuation of the inner sides of the bow. The said cross-piece is preferably glued to the bow, although other suitable means could be employed. It will be noted that in forming said bow the portion thereof from the sides to the handle is made considerably thicker than the top portion of said bow, so as to give the desired

strength, especially at that portion between the shoulders a' and the upper end of the handle, which is indicated by a^2 a^2. It will also be observed that immediately below the points where said shoulders are formed the sides of the bow are even thicker than the upper portion thereof. In lacing the netting upon said bow the strings are passed through holes made in the cross-piece and only pass through the portions a^2 a^2 of the bow at points where said cross-piece is connected therewith.

It is obvious from the foregoing description that owing to the absence of holes in said portions a^2 a^2 the said parts will be materially strengthened and will not be so liable to break as if said parts were provided with holes for the netting and the bolts as usually constructed.

I will now describe my improved manner of forming the netting B, which consists in passing a plurality of strings through one hole and then separating and leading them parallel to each other across the bow. For convenience I have shown and will describe a pair of strings as being passed through a hole, but obviously the number may be increased. b b indicate pairs of strings passed through the holes b' b' in the sides and top portions and the cross-piece A', instead of one, as usually employed. Said strings are interlaced in the usual manner, and the strings of each pair are separated as they come from the hole and then arranged parallel until they cross the bow and are to be inserted in another hole, when they are gradually brought together again. It has been found by experience that the said strings can be separated to form a mesh of the desired thickness at about the third string, which crosses the same at right angles. At points upon the bow between the sides and the top and cross piece, which points would correspond to the corners thereof, two pairs of strings are passed through the holes in the bow, each of which is led at right angles to each other and then separated, as described. From the foregoing description it is manifest that I greatly reduce the number of holes usually formed in the bow for lacing the netting and thus add strength thereto. I have found that the number of holes in the bow is reduced to between one-third and one-half of the number usually formed.

For the purpose of making a racket which can be used with greater accuracy and skill the handle is provided upon the front and rear sides thereof with a longitudinal groove B', which runs the entire length of the handle. The said grooves are adapted more particularly to rest the thumb in when grasping the handle and to give a firm grip thereon to prevent the same from turning or twisting, which it is liable to do when a ball is forcibly struck with one side of the bow, which has the effect of making the aim untrue. In the construction illustrated the said grooves are formed in supplemental side pieces b^2 b^2, which are secured to the front and rear sides of the strips forming the main portion of the said handle.

It will be obvious that the increased thickness of the sides of the bow at the parts a^2 a^2 does not make a racket of this construction heavier than the ordinary racket, owing to the absence of the block and the screws or bolts commonly employed. It has been found by use that in a racket of the construction herein described the weight is better adjusted, which makes it handier and more easily manipulated.

Another advantage gained in a racket of this kind is in the netting—for instance, a mesh having double the number of strings arranged only one-half of the distance apart, as the ordinary mesh can be formed upon a bow which is constructed for the single-string netting, which would make a netting of greatly-increased strength, owing to the greater number of strings, while the bow would be of the ordinary strength. It is obvious that if a bow were laced with a single string and a sufficient number of holes made to make a netting having meshes twice as close as ordinary the sides of the bow would be so weakened thereby as to make it impracticable. Now by making a netting of one-half more the number of strings a less number of holes will be required, which will strengthen the sides of the bow and at the same time form a stronger netting than commonly furnished. If desired, a netting of the same number of strings that are usually employed could be formed, which would only require one-half of the usual number of holes in the bow, and thus make the bow much stronger, but make a netting of the usual strength. It will of course be understood that a netting formed of a greater number of strings will keep taut a longer time, and thus the necessity of having a bow restrung will not occur so often.

I claim as my invention—

1. A tennis-racket comprising a bow formed of a suitable bent piece of wood, the end portions of which are bent and secured together at the handles thereof, the sides of the bow being provided with shoulders a' a' near the crotch end thereof, a curved cross-piece, the ends of which fit said shoulders, the cross-piece being secured therein and presenting its concave side to the netting, and a suitable netting, the strings of which are secured to the cross-piece between the points of connection with the bow, substantially as described.

2. A tennis-racket having a bow provided with a plurality of holes and a net-work com-

posed of single parallel and perpendicular strings interlaced, said holes being separated wider apart than said strings and said strings being gathered together in groups near the margin of the racket, and a group passed through each of said holes, substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

CHARLES MALINGS.

Witnesses:
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HARRY COBB KENNEDY.