"BADMINTON RACQUET"

This invention relates to a badminton racquet, and particularly to one having a head of characteristic shape.

Conventionally, badminton racquets may be divided into two main groups. A first group known as the Carlton (Registered) type originated in England; this group has an elliptical head. A second group referred to as the Yonex (Registered) type was developed in Japan; this group is modified to have an oval head.

Users of these two types of conventional racquet have discovered that the strung surface, especially in the region close to the top of the head, is limited; in other words, the top is of insufficient width and unnecessary height, and thus no effective and strong hitting is possible in play.

The main object of this invention is to provide a badminton racquet having a head of characteristic shape which is apparently different from conventional racquets.

Another object of this invention is to provide a novel badminton racquet, with a characteristic shape of head to increase the effective hit surface and decrease the ineffective region. Thus the

length of several central strings is almost uniform so as to have a rationalised configuration for practical use.

In accordance with the invention a badminton racquet has a head frame comprising two oppositely positioned arcuate side portions and oppositely positioned top and bottom arc portions, the frame further comprising a pair of top curved corner portions joining the side portions to the top arc portion and a pair of bottom curved corner portions joining the side portions to the bottom arc portion. The strung surface of the racquet defined within the frame has a maximum length, measured along a geometrical central longitudinal axis, in a range of 22.0 to 24.0 cms. The strung surface has a maximum width on a transversely extending axis, selected either from that axis which is identical with the geometrical central transverse axis, or that axis which is spaced downwardly therefrom at most by 2 cms, in a range of 17.5 to 19.5 cms. The length of a perpendicular from the inside mid-point of each of the top and bottom arc portions to a chord drawn between the mid-points of the pair of top corner portions, or respectively to a chord drawn between the mid-points of the pair of bottom corner portions is 0.5 to 2.5 cms. The inside radius of curvature of the respective top and bottom corner portions is from 3.5 to 7.5 cms, the top arc portion

measured along the top said chord having a width from 9 to 11 cms, whilst the bottom arc portion has a slightly narrower width from 8.5 to 10.5 cms. measured along the bottom said chord.

The aforementioned and other features should be better understood from the following description with reference to the accompanying drawing which is a plan view of the characteristic shaped head in accordance with the present invention.

As shown in the drawing, the badminton racquet comprises a frame 1, a T-type connector 2, and a grip (not shown). The embodiment of this invention is characterized by the shape of the head, namely, the configuration of the strung surface, defined by the frame 1 and the connector 2.

The frame 1 comprises a top arc portion 3, a bottom arc portion 4 and opposite curved side portions 5 which are connected with the top and bottom arc portions 3, 4 by corner portions a, b, c and d; d_1 and d_2 are chords perpendicular to a central longitudinal axis L, between inside mid-points R_1, R_2 of corner portions a and b and c and d respectively.

The longitudinal axis L passes through the geometrical centre C while W indicates the transverse axis passing through the geometrical centre C. The maximum length of the strung surface is on the longitudinal axis L, but the maximum width of the same

is on a transversely extending axis W' which is identical with the transverse axis W or spaced apart downwardly from that axis W at most 2 cm, and preferably about 1 cm. The said maximum length is in a range of 22.0 to 24.0 cm, and preferably around 23.0 cm, while the said maximum width is in a range of 17.5 to 19.5 cm, and preferably about 18.5 cm.

The central inside point of the top arc section 3 is at a distance h_1 perpendicular to the chord d_1 in a range of 0.5 to 2.5 cm, preferably from 1.0 to 1.5 cm. The length of the chord d_1 is in a range of 9.0 to 11.0 cm, preferably around 10.0 cm. The curvature radius at R_1 of the respective right-hand and left-hand side top corner portions a and b is in the range from 3.5 to 7.5 cm, preferably around 5.5 cm.

The distance h_2 of the connector 2 along the axis L perpendicular to the chord d_2 is similarly in a range of 0.5 to 2.5 cm, preferably from 1.0 to 1.5 cm. The chord d_2 is slightly shorter than the chord d_1 of the top arc section 3, namely in a range of 8.5 to 10.5 cm, preferably around 9.5 cm. Further, the curvature radius R_2 of respective right-hand and left-hand side bottom corner portions c and d is in the range from 3.5 to 7.5 cm, preferably around 5.5 cm.

With the head specified as mentioned above, the configuration of the strung surface of the badminton racquet according to the present invention is

apparently different from that of a conventional racquet. The essential difference is that the central strings have a uniform length, and the effective hit area is increased while the ineffective region is reduced; thus a great improvement in hit efficiency is achieved.

CLAIMS

1. A badminton racquet having a head frame comprising two oppositely positioned arcuate side portions and oppositely positioned top and bottom arc portions, said frame further comprising a pair of top curved corner portions joining said side portions to said top arc portion and a pair of bottom curved corner portions joining said side portions to said bottom arc portion, the strung surface of the racquet defined within the frame having a maximum length, measured along a geometrical central longitudinal axis, in a range of 22.0 to 24.0 cms and a maximum width on a transversely extending axis, selected either from that axis which is identical with the geometrical central transverse axis, or that axis which is spaced downwardly therefrom at most by 2 cms, in a range of 17.5 to 19.5 cms, the length of a perpendicular from the inside mid-point of each of the top and bottom arc portions to a chord drawn between the mid-points of the pair of top corner portions, or respectively to a chord drawn between the mid-points of the pair of bottom corner portions, being 0.5 to 2.5 cms, the inside radius of curvature of the respective top and bottom corner portions being from 3.5 to 7.5 cms, the top arc portion measured along the top said chord having a width from 9 to 11 cms, whilst the bottom arc portion, has a slightly narrower width from 8.5 to 10.5 cms, measured along the bottom said chord.

2. A badminton racquet as set forth in claim 1, wherein the head has a maximum strung length of 23.0 cm, a maximum strung width of 18.5 cm, a top said perpendicular length of 1.5 cm, a top chord length of 10.0 cm, a top corner portion radius of 5.5 cm, a bottom said perpendicular length of 1.5 cm, a bottom chord length of 9.5 cm, and a bottom corner portion radius of 5.5 cm.

3. A badminton racquet as set forth in claim 2, wherein the head has its maximum strung width on a transversely extending axis spaced apart from the transverse axis passing through the geometrical centre by a distance of 1 cm.

4. A badminton racquet having a head which is shaped substantially as herreinbefore described with reference to the accompanying drawing.