This invention relates to an adapter for tennis rackets and is particularly concerned with an adapter for a tennis racket by which the racket may be secured to the extremity of an artificial limb so that an amputee may confidently and competently enjoy and profit by the pleasure and athletic value of a tennis match.

As a result of the war, industrial casualties and accidents of various types, there are estimated to be not less than 25,000 persons in the United States who through amputation are deprived of their tennis playing arm or such portion thereof as will prohibit their satisfactory manipulation of a tennis racket. While many such amputees may through disinclination, age, or from other circumstances exclude themselves from this activity, nevertheless a majority of our amputees, and particularly those casualties of the late war, are young men who are ideal candidates for tennis. Many of these persons have previously been tennis players and would welcome the opportunity of resuming the game. Since tennis may be played by only two contestants and since it involves both vigorous bodily exercise as well as skill and an alert continuous concentration, it is an ideal recreation, exercise and morale building occupationally therapeutic activity.

While it is conceivable that the handle of a tennis racket might be secured to an artificial hand or to present-day holding and manipulating devices which are secured to the extremity of hand, adequate means have not hitherto been found by which the racket could be so securely and effectively be found by which the racket could be securely attached to the handle engaging plate and an angularly distending shank terminating in a threaded portion adapted to be received in threaded engagement with the conventional centrally threaded plate of the extremity of an artificial limb, together with appropriate securing means by which the plate is rigidly attached to the handle. In order to permit adjustment of the angularity of the plane of the racket with respect to the axis of the threaded portion of the artificial limb there is provided a flange on the shank of the adapter together with a resilient washer of substantial thickness, the arrangement being such that as the adapter is screwed into the artificial limb, the washer will be compressed in order to frictionally retain the racket in such adjusted angularity as the player may desire.

Referring more particularly to the drawings, the racket, which is of purely conventional form, is generally indicated by the numeral 10 and includes the conventional head 11 and handle 12 with its grip portion 13. The grip portion of the racket is here shown as of conventional octagonal form. It will be understood, however, that the invention is not confined to a grip portion formed in this exact configuration. It will also be understood that while the present invention is herein disclosed as designed and
adapted for a tennis racket, the present inventive concept is not limited in this respect and various rackets such as for use in connection with the games of squash, badminton, ping pong and similar games, may be provided with adapters formed in accordance with the present invention.

The adapter of the present invention comprises an elongated plate 14, the transverse cross section of which is formed in conformity with the external configuration of the grip portion of the racket. In the present form, the grip portion of the racket being shown as octagonal, the plate 14 is formed to embrace three contiguous surfaces of such formation. Thus the plate 14 is formed with a central flat portion 16 and co-extensive inwardly turned sides 18, the angularity of which with respect to the central portion 15 is in conformity with the angularity of the edges of the octagonal grip portion of the handle of the racket. At either end of the body 18 threaded apertures 17 are provided which are adapted to receive the threaded ends of bolts 18 which extend transversely through the racket, their heads 19 being formed as screw heads to facilitate the threaded engagement of their ends with the plate. Washers 20 are preferably provided in order to secure the ends against undue wear of the grip surface of the racket.

Extending outwardly and downwardly from the plate 14 there is provided a shank 22 which is preferably disposed at an angle of approximately 45 degrees with respect to the plate and is disposed in such manner as to extend downwardly and outwardly with respect to the head of the racket in a plane coincident with a plane extending through the axis of the racket handle. With respect to the angularity of the shank and the plane in which its axis lies, it will be understood that the invention is not limited to the exact angle of 45 degrees here suggested, nor to the location of the axis of the shank coincident with the plane passing through the axis of the handle. However, extensive experience has shown this angularity and disposition of the axis to be preferable when the inventive concept is applied in connection with tennis rackets. An adapter formed in accordance with the present invention for use with other types of rackets may be disposed at other angularities and in planes departing from a plane coincident with the axis of the handle.

The body 23 of the shank here shown is approximately three inches long, although this length also may be varied in accordance with the type of racket to which the adapter is to be applied, and the invention is not restricted to the particular length here suggested. At the end of the body 23 of the shank there is provided a transversely extending rigid and integrally formed flange 24 beyond which the shank is provided with a reduced threaded end 25. Seated over the end 25 and lying against the flange 24, there is provided a rubber or like resilient washer 26 of substantial thickness. The provision of such a washer provides for compression thereof when the threaded portion of the shank is secured in a receiving portion of an artificial limb as will be hereinafter referred to, and thereby such compression provides a constant tension on the threaded connection so as to preclude inadvertent or accidental rotation of the threaded end of the shank with respect to the end of the artificial limb. Thus, an angular adjustment of the racket may be secured and such angular adjustment, which may be a matter of preference of the player, will be retained throughout the play without danger of inadvertent tilting as a result of the impact of the racket with a tennis ball or the like racket and develop such skill as will permit successful competition with less handicapped players. It will further be seen that the present adapter is structurally simple, of few parts, readily applied and removed from a standard racket, and well suited to the demands of economic manufacture. It will, of course, be understood that the invention is not confined to the specific embodiment here shown and that numerous changes, modifications, and the full use of equivalents may be resorted to in the practice of the invention without departing from the spirit or scope of the invention as defined in the appended claim.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

An adapter for a tennis racket having an octagonal handle comprising a plate having a central portion formed to fit one face of the racket handle and a pair of side flanges adapted to fit side edges of the handle contiguous to the face thereof, threaded apertures in said plate, securing bolts extending through said plate, and said elbow extending outwardly from said plate and at an angle thereto and lying in a plane coincident with a plane passing through the axis of the racket handle secured to said plate, a flange on said shank, a coaxial threaded extension of said shank beyond said flange, and a resilient washer mounted on said extension.

CLOVEY LA CROIX.

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