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COUPLING FOR DETACHABLY CONNECTING THE HANDLE AND NECK
OF TENNIS RACKET SHAFTS AND SIMILAR MEMBERS
Filed March 28, 1932

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Fig. 1.

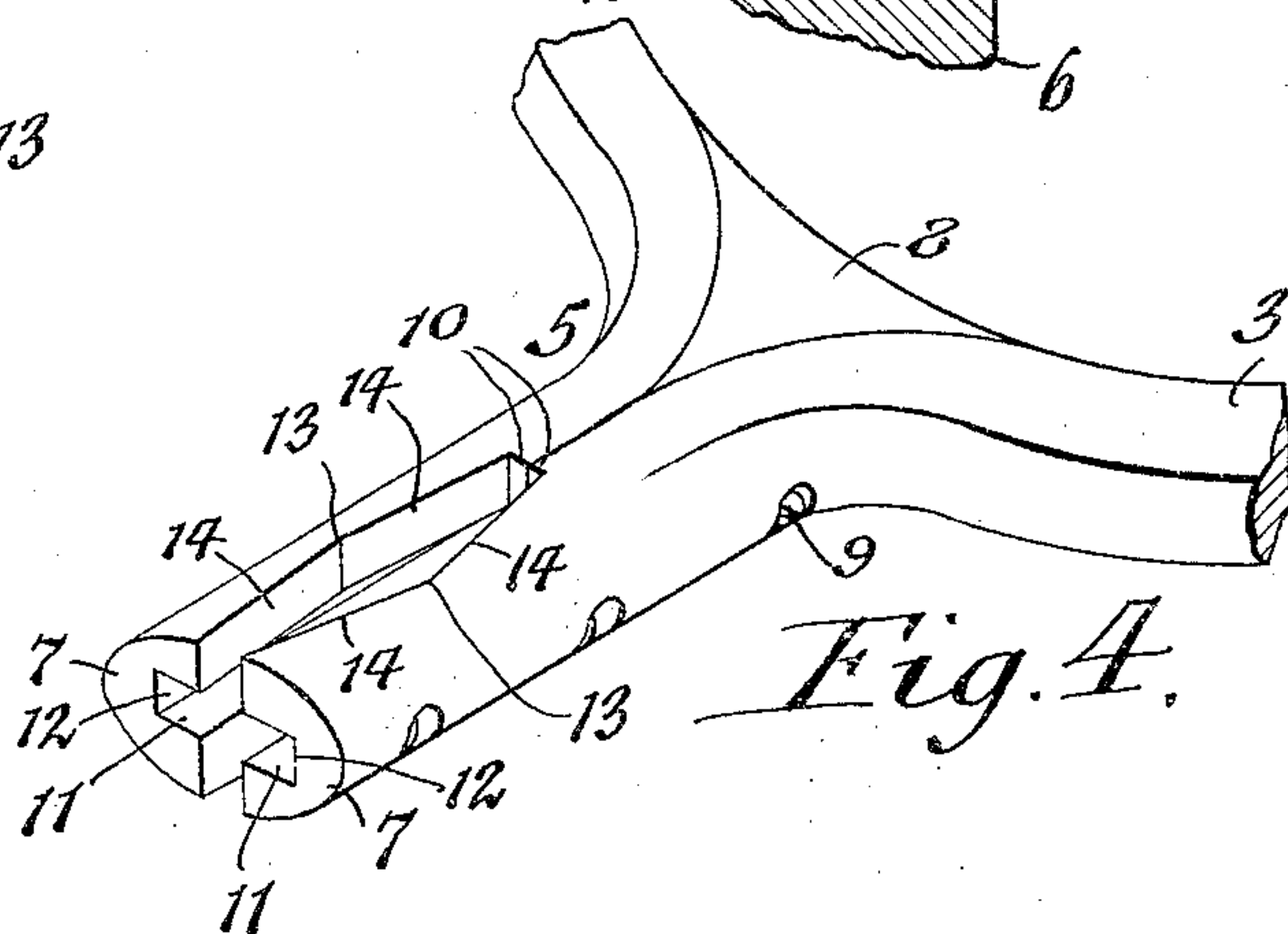
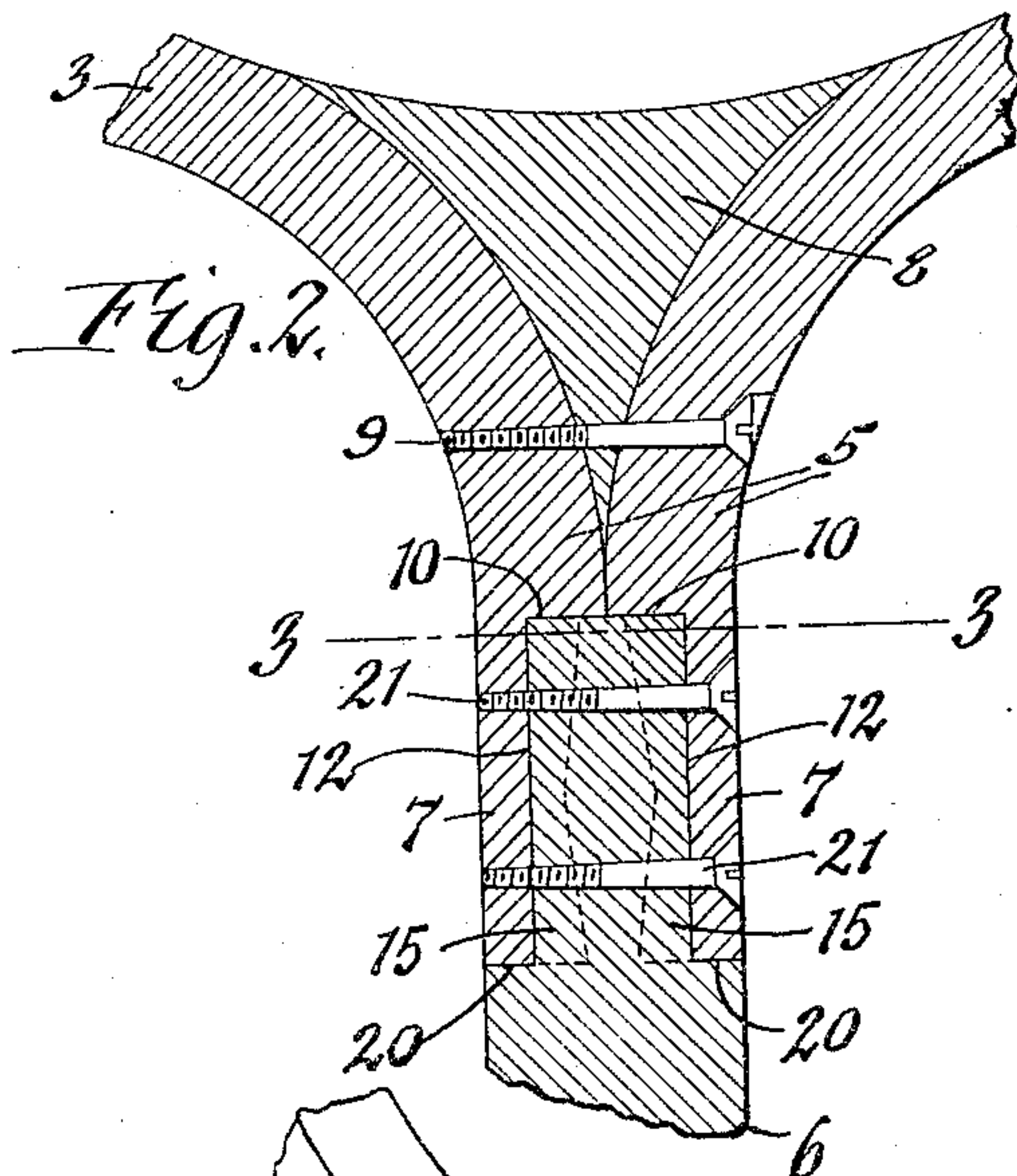
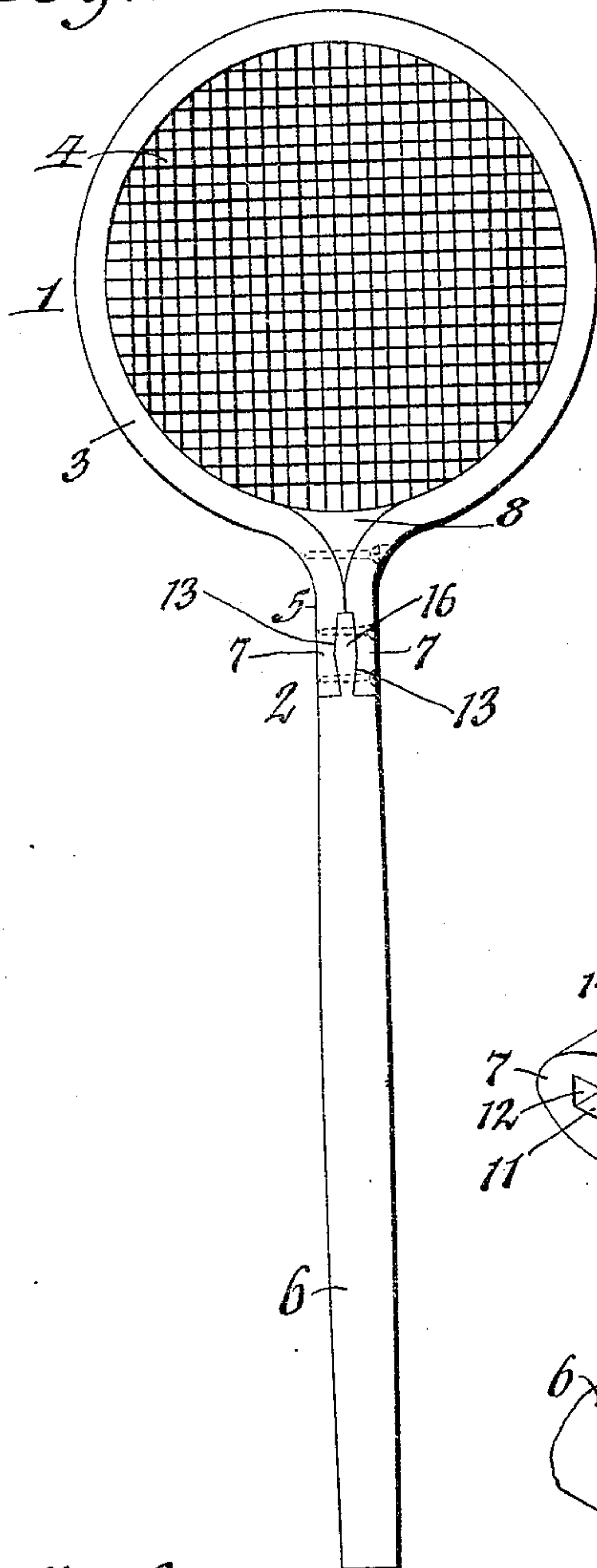
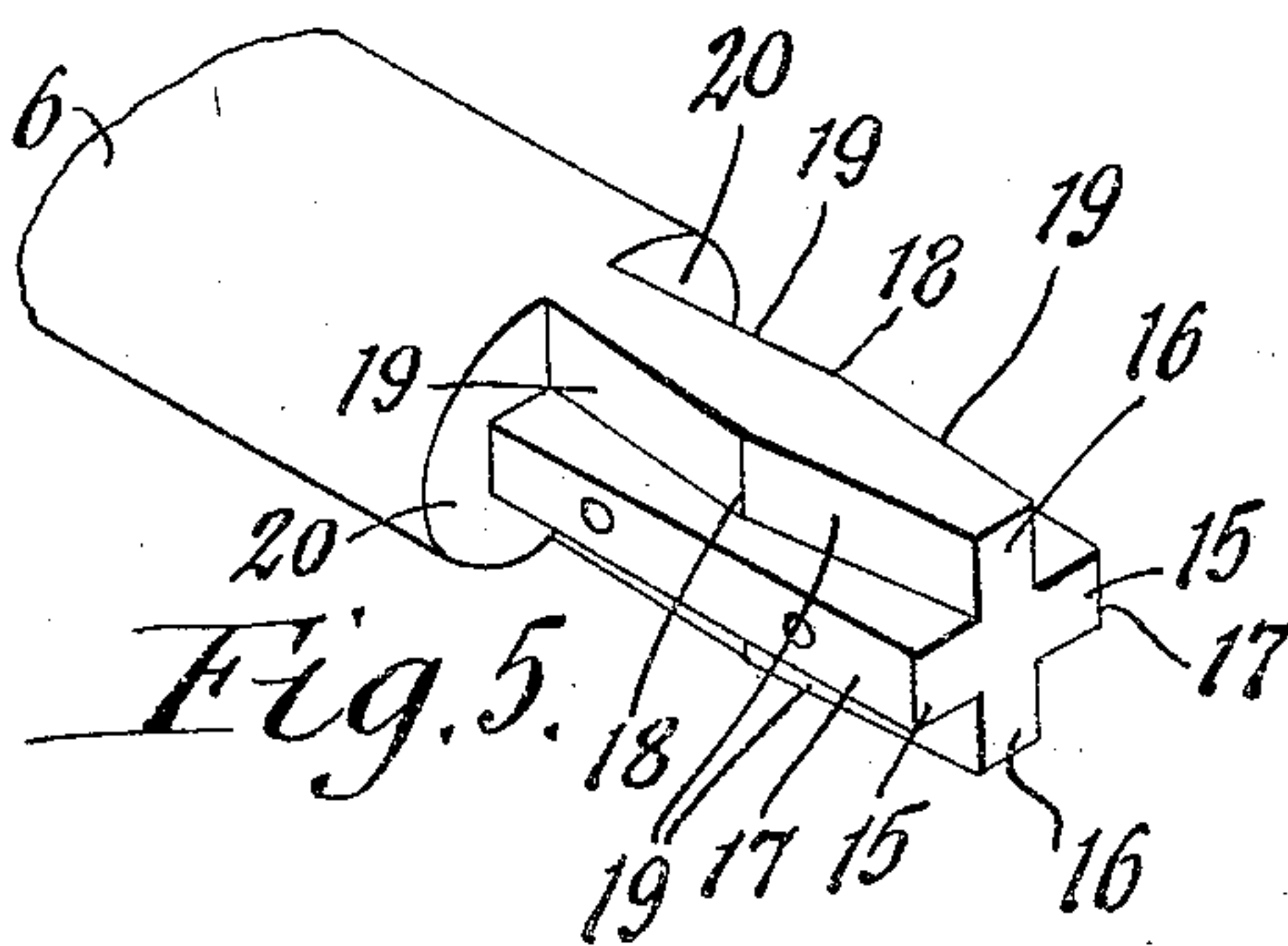
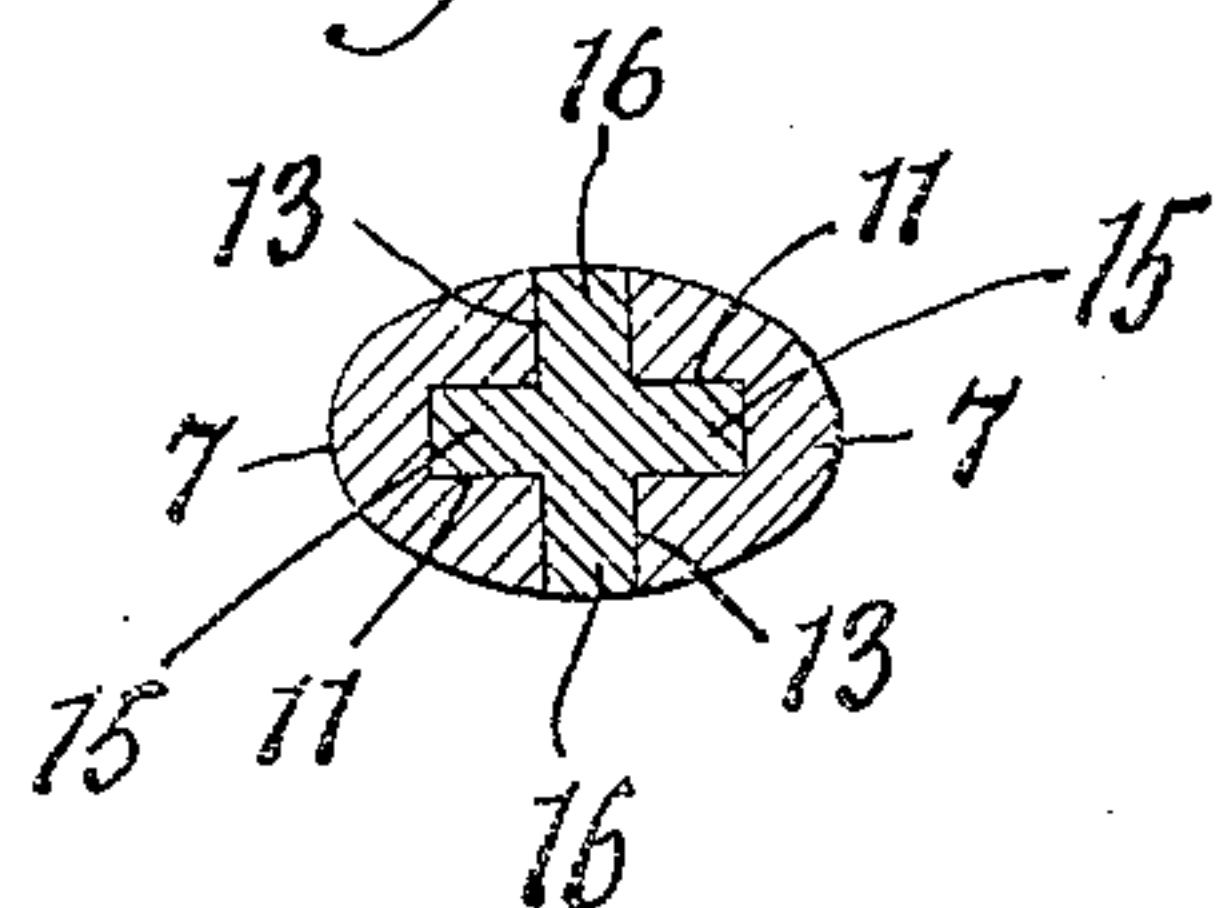


Fig. 3.



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UNITED STATES PATENT OFFICE

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COUPLING FOR DETACHABLY CONNECTING THE HANDLE AND NECK OF TENNIS RACKET
SHAFTS AND SIMILAR MEMBERS

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This invention relates to a detachable coupling which is more particularly intended for removably connecting the shaft and head of a tennis racket, although the same may also be advantageously employed for detachably connecting other members.

Heretofore the heads of tennis rackets in common use have had their frames made in one piece with the shafts and this necessitated replacing the entire racket when the shaft was broken thus involving considerable expense when such an accident occurred.

The present invention proposes making the handle and neck of the shaft of separable material and connecting the same by a coupling which permits of readily replacing a broken handle by a new one and thus avoid loss of the entire racket.

It is the object of this invention to provide a coupling for this purpose which is simple and strong in construction, and capable of being readily and easily assembled and disassembled, and which will rigidly and reliably hold the racket shaft and head or other members in a definite position relatively to each other so as not to interfere with the accuracy of the tennis racket when playing with the same and also save the cost of replacing the head.

In the accompanying drawing:

Figure 1 is a plan view of a tennis racket equipped with my invention.

Figure 2 is a fragmentary longitudinal section, on an enlarged scale, of the throat portion of a tennis racket showing the adjacent parts of the shaft or handle and the head or frame connected by the coupling device which embodies my improvement.

Figure 3 is a cross section taken on line 3—3 Fig. 2.

Figure 4 is a fragmentary perspective view of the frame and neck of the tennis racket constructed in accordance with my invention.

Figure 5 is a similar view of the shaft or

handle incorporating features of this improved coupling.

In the following description similar characters of reference indicate like parts in the several figures of the drawing.

The general organization of the tennis racket shown in the accompanying drawing, as an example of one use for my invention, comprises a head 1 which is adapted to strike the ball, and a shaft 2 whereby the racket is manipulated. The head consists of an annular frame or rim 3 which is formed by bending a strip of wood and cross strings 4 connected with the frame and extending across the space within the same.

The shaft consists of a neck 5 formed on the frame and a handle 6 connected with the neck. The neck is preferably formed by extending laterally the two ends of the strip of wood which forms the head frame so as to form two parallel jaws 7, 7 which latter are connected with each other at their inner ends and also secured to opposite sides of a throat piece 8 by means of a screw 9 or other suitable fastenings. The outer ends of the jaws are separated from each other by an intervening socket which has its inner end or bottom closed by corresponding transverse shoulders 10 formed on the opposing parts of the jaws. The socket between the jaws is preferably constructed in the form of a cross two branches or recesses 11 of which have the form of longitudinal grooves arranged horizontally opposite each other in the central parts of the opposing inner sides of the jaws and the other two branches 13 of the socket having the form of vertical longitudinal slots which are arranged opposite each other and extend from opposite sides of the grooves to the periphery of the jaws of the neck. In the bottom 12 each of the grooves 11 is plane throughout its length but each side of the slots is made V-shaped or deeper at its center and inclined from this

center toward opposite ends of the respective slot, as shown at 14.

The handle of the shaft is provided at its front or inner end with a shank which fits 5 the socket of the neck and is detachably secured thereto. This shank is preferably cross shaped in transverse section and comprises two horizontally extending side wings or ribs 15 arranged opposite and two vertical 10 cal wings or ribs 16 arranged opposite each other and extending upwardly and downwardly from opposite sides of the inner edges of the side wings 15 and at right angles thereto. Each of the side wings has a plane vertical 15 outer edge 17 and each of the vertical wings 16 is provided on its opposite vertical sides with V-shaped surfaces each of which is highest at the middle, as shown at 18, and has inclined faces 19 which slope 20 from the high central parts 18 to the low end parts at the inner and outer ends of the shank.

When assembling the handle of the shaft with the neck on the head the wings of the 25 handle are placed in line with the grooves and slots of the socket in the neck and then the shank is pushed lengthwise into the socket until the front end of the shank engages the bottom of the socket and the shoulders 20 of the handle on opposite sides of the shank engage with the outer ends of the jaws, as shown in Figs. 1 and 2. As the front ends of the upper and lower wings 16 of the shank enter the socket of the neck 35 the outer ends of the jaws of the latter are spread apart by the wedge action of the diverging front inclined surfaces on these vertical wings, which spreading of the jaws is permitted due to the resilience of the same 40 and the flexible connection of these jaws with the frame or rim of the head.

This spreading action of the jaws continues until the widest parts of the vertical wings on the shank have passed the front or 45 outer ends of the jaws, after which the latter will gradually contract until the opposite V-shaped sides of the vertical wings register with the correspondingly shaped sides of the slots in the jaws at which time the latter 50 again contract. After the shank has been thus fully inserted in the socket of the neck these members are drawn tightly together by means of screws 21 passing through the jaws and shank or other suitable fastening. 55 When the shank and jaws are thus fastened together the cooperating inclined surfaces thereof hold the handle and neck securely against lengthwise movement in either direction relatively to each other due to the 60 wedge action of the cooperating V-surfaces thereon.

Turning of the handle and neck relatively to one another is also prevented due to the circumferential interlocking effect produced 65 between these parts by engagement of the

plurality of shank wings which are arranged at an angle relatively to each other and engage with the plurality of shoulders formed by the sides of the grooves and slots in the neck. The handle and neck of the racket 70 are thus immovably connected with each other and render the shaft as rigid as though the same were made in one piece, thereby insuring absolute accuracy in the use of the racket and avoiding any misplays which 75 otherwise might occur.

Moreover, this coupling permits of readily replacing a broken handle with a new one and thereby enables the same head to be used continuously and effects a considerable economy. 80

Although three screws are used one for connecting the jaws with each other and the throat piece and two for connecting the jaws with the shank of the handle, it is to be understood that the number of such screws may be varied to suit requirements, for instance the screw passing through the throat piece as well as that passing through the upper end 90 of the shank in which case the screws passing through the lower ends of the jaws are relied on solely for holding the frame in a closed position and fastening the neck and handle of the shaft together. 95

I claim as my invention:

1. A coupling for detachably connecting two members, one of said members having a neck provided with two jaws which have their opposing sides constructed to form a socket comprising a plurality of branches, 100 two of said branches having the form of grooves which are formed in the central parts of said jaws and two others of said branches having the form of slots arranged at right angles to said grooves and extending 105 from opposite sides of the latter to the periphery of said jaws, the other member having a shank comprising a plurality of wings arranged to form a cross in transverse section, two diametrically opposite wings of 110 said shank engaging said grooves and the other two diametrically opposite wings of said shank engaging said slots, the opposite sides of said slots between the jaws being V-shaped and the opposite sides of the wings of 115 the shank engaging with said slots being correspondingly V-shaped.

2. A coupling for detachably connecting two members, one of said members having a neck provided with two jaws which have 120 their opposing sides constructed to form a socket comprising a plurality of branches, two of said branches having the form of grooves which are formed in the central parts of said jaws and two others of said 125 branches having the form of slots arranged at right angles to said grooves and extending from opposite sides of the latter to the periphery of said jaws, the other member having a shank comprising a plurality of wings 130

arranged to form a cross in transverse section, two diametrically opposite wings of said shank engaging said grooves and the other two diametrically opposite wings of said shank engaging said slots, the opposite sides of said slots between the jaws being V-shaped and the opposite sides of the wings of the shank engaging with said slots being correspondingly V-shaped, and fastening screws passing transversely through said jaws and shank.

In testimony whereof I hereby affix my signature.

ERIC L. HEDSTROM.