

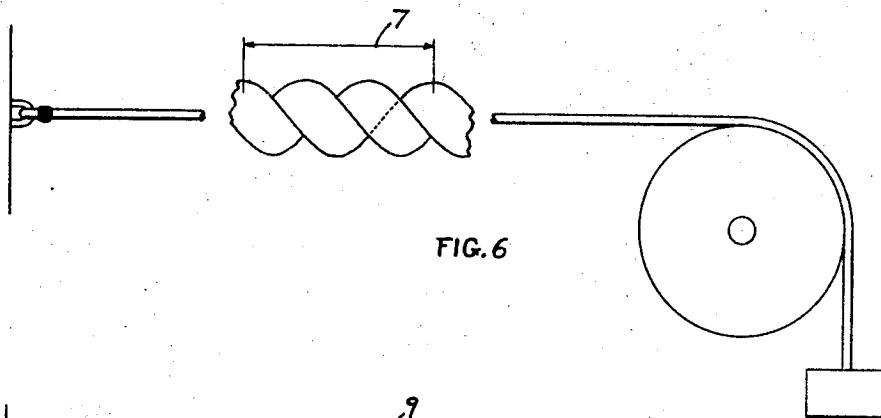
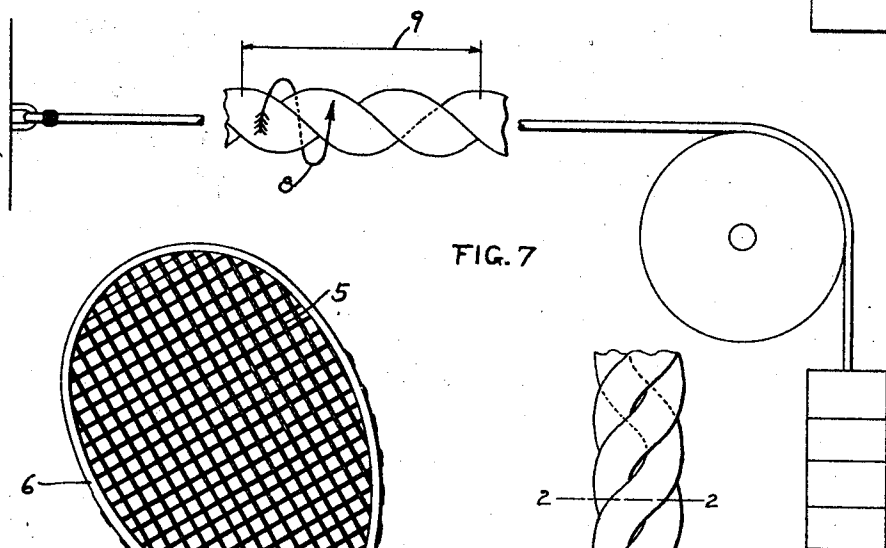
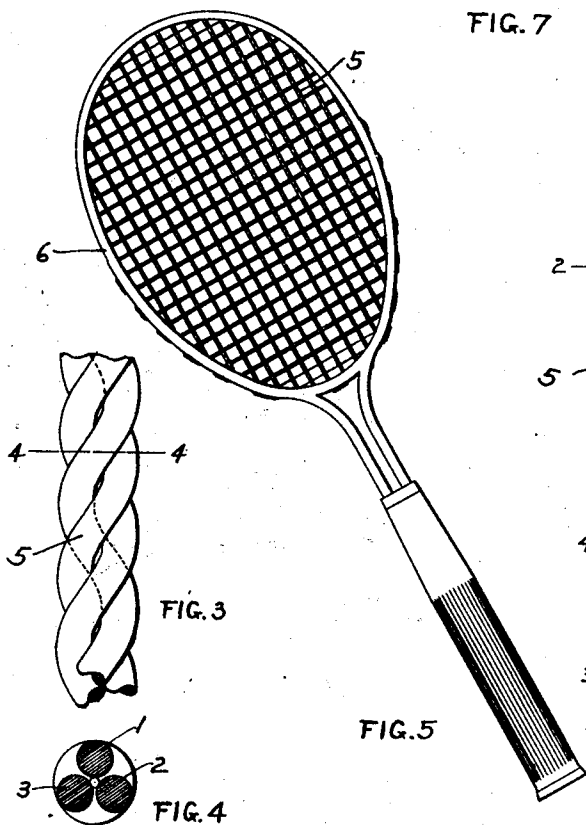
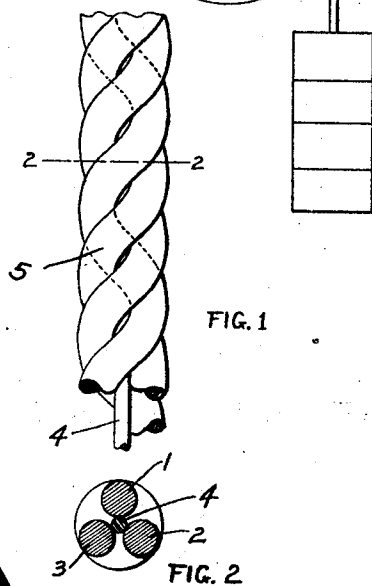
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W. A. LARNED

METHOD OF MAKING ELASTIC METAL STRINGING

Filed July 11, 1923



INVENTOR,
William A. Larned,
BY *Howard P. Smith,*
ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM A. LARNED, OF SUMMIT, NEW JERSEY, ASSIGNOR TO THE DAYTON STEEL RACQUET COMPANY, OF DAYTON, OHIO, A CORPORATION OF OHIO.

METHOD OF MAKING ELASTIC METAL STRINGING.

Application filed July 11, 1923. Serial No. 650,812.

This application is a continuation in part of my application Serial No. 562,718 for an elastic metal stringing, and relates to a stringing which comprises a plurality of
5 wires that are stretched to a blocking point, or a point beyond which the stringing has a maintained elasticity due to the torsional reaction of the wires upon each other.

It is the purpose of this invention to provide a practical elastic metal stringing for tennis rackets and other purposes, by stretching a plurality of wires which have first been wound together, to a blocking point beyond which the stringing, when extended
10 by the impacts of a tennis ball or other force, will absolutely return to its original position by reason of the torsional reaction of the wires upon each other. Short of this blocking point the stringing will gradually
15 lengthen, or become loose, due to the fact that under repeated impacts of the ball the kinks will be straightened out.

When the stringing has been extended or stretched to the blocking point, all the kinks
25 will have been removed, with the result that it will have no permanent elongation beyond that point, but instead will return to the blocking point after each impact of the ball due to the torsional reaction of the
30 wires upon each other beyond the blocking point.

In the accompanying drawings, Figure 1 is a perspective view of an elastic metal stringing made up of three wires after they
35 have been wound together and before they have been stretched to the blocking point. Figure 2 is a cross sectional view of said stringing before it has been stretched to the blocking point, taken on the line 2—2 of
40 Figure 1. Figure 3 is a perspective view of the stringing after it has been stretched to the blocking point. Figure 4 is a cross sectional view of said stringing after it has been stretched to the blocking
45 point, taken on the line 4—4 of Figure 3. Figure 5 is a perspective view of a tennis racket containing the stringing after it has been stretched to the blocking point. Figure 6 is a diagrammatic view showing the lead
50 of the helix of the stringing after it has been inserted in the tennis racket frame. And Figure 7 is a diagrammatic view showing the lead of the helix of the stringing under a load equivalent to the force of the impact
55 of a tennis ball against it.

Throughout the specification and drawings, similar reference characters denote corresponding parts.

Referring to the accompanying drawings for a detailed description of my invention as illustrated therein, the numerals 1, 2 and
60 3 designate three wires, preferably of the best grade of steel and of uniform length and diameter, that are preferably wound around a central core 4 to constitute an
65 elastic metal stringing 5. While I have shown the latter as consisting of three wires, it may be made up of any desired number of them.

The stringing 5 is then cut to predetermined lengths, after which the core 4 is removed to leave a hollow center. The stringing is then stretched to a blocking point. The latter is a point beyond which the
70 stringing has a maintained elasticity due to the torsional reaction of the wires upon each other. If the wires were soldered or fastened together in any manner, so as to prevent any twisting of them, the stringing
75 would have no resiliency; but by virtue of their twisting or torsional action beyond the blocking point, the stringing which these wires comprise will always return to this point after each impact of the tennis ball.

Short of this blocking point the stringing
80 will gradually lengthen, or become loose, due to the fact that under the repeated impacts of the ball the kinks will be straightened out. However, after the stringing has been stretched or extended to this blocking
85 point, all the kinks will have been removed, with the result that it will have no permanent elongation beyond that point. After being stretched to this point, the stringing will have the necessary stiffness, strength
90 and elasticity for the use to which it is put.

The stringing 5 after it has been stretched to this blocking point, is shown drawn to proper tension for play in a tennis racket frame 6 in Figure 5. The stringing is now
100 ready for play, and the change which temporarily takes place in it under the impact of the ball is diagrammatically illustrated in Figures 6 and 7.

The arrow 7 in Figure 6 indicates the lead
105 of the helix of the stringing after it has been stretched to its blocking point. Now when the stringing receives the impact of the ball, the pull exerted upon it, which is represented by the additional weights in
110

Figure 7, will twist it against the helix; in other words, there will be a torsional reaction of the wires upon each other to give the stringing a maintained elasticity beyond its blocking point, the line of force of this torsional reaction being indicated by the arrow 8 in Figure 7.

After receiving the impact of the ball, the lead of the helix of the stringing will be that indicated by the arrow 9 in Figure 7, contracting to the length of the arrow 7 in Figure 6 when the ball has spent its force. Thus it is seen that there will be no permanent elongation of the stringing beyond its blocking point, but that it will return to this point after each impact of the ball

for the reasons hereinbefore given. The stringing therefore becomes practical for tennis rackets and other uses where a maintained elasticity under the action of a force is required.

Having described my invention, I claim:

The method of making an elastic metal stringing, which consists, first, in winding a number of wires around a core, then removing the latter and stretching said wires to a point beyond which they will torsionally react upon each other to give maintained elasticity under the action of a force.

In testimony whereof I have hereunto set my hand this 5th day of July, 1923.

WILLIAM A. LARNED.