MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A
APPLICATION FOR A PATENT

Carlo GIBELLO

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hereby apply for the grant of a Patent for an invention entitled

"A HANDLE COVERING FOR TENNIS RACQUETS AND THE LIKE"

which is described in the accompanying complete specification.

(Note: The following paragraph applies only to Convention applications)

This application is a Convention application based on the basic application(s) for a patent or similar protection identified by number, country, and filing date as follows:

67102-A/80
Italy
24th January, 1980

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Dated (d) 15th December, 1980

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AUSTRALIA
Patents Act

DECLARATION FOR A PATENT APPLICATION

In support of the (a) convention application made by (b)

CARLO GIBELLO

(hereinafter called “applicant(s) for a patent (c) for an invention entitled (d)

"A HANDLE COVERING FOR TENNIS RACQUETS AND THE LIKE"

I/Mc (e) CARLO GIBELLO, of Corso Vittorio Emanuele 5, Turin, Italy

do solemnly and sincerely, declare as follows:

1. I am (or, in the case of an application by a body corporate)

2. I am (or, where the applicant(s) is/are not the actual inventor(s))

Recite how applicant(s) derive(s) title from actual inventor(s)

Insert country, filing date, and basic applicant(s) for the/or EACH basic application

(b) Insert country, filing date, and basic applicant(s) for the/or EACH basic application

3. The basic application(s) for patent or similar protection on which the application is based is/are identified by country, filing date, and basic applicant(s) as follows:

Italy
24th January, 1980
Carlo Gibello

4. The basic application(s) referred to in paragraph 3 hereof was/were the first application(s) made in a Convention country in respect of the invention the subject of the application.

Declared at (g) TURIN, Italy
Dated (h) 15th December, 1980

To: The Commissioner of Patents

PHILLIPS ORMONDE & FITZPATRICK
Patent and Trade Mark Attorneys
367 Collins Street
Melbourne, Australia
A covering for the handles of tennis racquets and the like, comprising a series of elastic sleeves of rubber or plastics material which have relatively thin walls and are fitted in succession onto a grip part of the handle in an elastically expanded condition, so as to effect a non-slidable coupling between the sleeves and the grip part.
The following statement is a full description of this invention, including the best method of performing it known to applicant(s):

"A HANDLE COVERING FOR TENNIS RACQUETS AND THE LIKE"
The present invention relates to a covering for the handles of tennis racquets and the like.

Until now, the handles of racquets have been covered traditionally by a helically wound strip of leather provided with small perforations or with other working. The correct application of this leather strip is a rather laborious task which requires a certain manual dexterity, and the provision of a leather cover is rather expensive, both in material and in labour.

Moreover, leather has a disadvantage in that it becomes impregnated with perspiration during play and very quickly becomes slippery, with a serious detrimental effect on the accuracy of the shots made by the user. For this reason the net support posts of a tennis court usually carry a box containing sawdust, or other powdery material, which the tennis players use to dry their racquet handles to reduce their slipperiness.

The repeated cycles of impregnation of the handle covering with perspiration and subsequent drying in the periods when the racquet is not being used, combined with natural ageing, result in rapid drying of the leather cover, which loses its softness, and must be replaced. As a rule, a good tennis player replaces the racquet handle covering many times in each season, at a not insignificant cost.

The use of leather as a covering for racquet handles does not seem to have any other justification than that
of a long tradition, since in many fields leather has been replaced, with economic and functional advantages, by other materials, notably rubber and plastics. These substitute materials, if suitably chosen, would have advantages over leather since they would not become impregnated with perspiration and would be easy to dry. Such materials would not become slippery, would not age (or would at least age more slowly), would generally be less expensive and, moreover, would be washable.

The fact that leather is not essential as a racquet handle covering is demonstrated by the recent practice of winding strips of adhesive towelling, of appropriate roughness, over leather handle coverings to afford a better grip than the leather itself.

A long rubber sleeve in one piece has already been tried as covering for a racquet handle and examples of such coverings can be found in U.S. Patent Nos. 3,614,100 and 4,098,506. Coverings of this type have not been successful, however, because of the difficulty of fitting them onto the handle and because of the wide assortment of different shapes and sizes of such sleeves which would be necessary, given that racquet handles are of various types which differ both in cross-sectional shape and dimensions and in length.

The object of the present invention is to provide a covering for a handle of a tennis racquet or the like, which meets the following requirements:
- the elimination of all the disadvantages of leather coverings;
- extreme ease of fitting, even by a person having limited manual ability, and
- extreme adaptability to all types of racquet handle, even those with differing cross sections and lengths.

According to the present invention this object is achieved by means of a covering which comprises a series of elastic sleeves of rubber or plastics material, which have relatively thin walls and are fitted in-succession onto a grip part of the handle in an elastically expanded condition, so as to effect a non-slidable coupling between the sleeves and the grip part.

With the covering according to the invention, by suitable choice of the elastic material it is possible to eliminate all the above described disadvantages of leather. Moreover, since the sleeves have a length equal only to a fraction of the length of the handle it is possible to fit them in succession on the handle by sliding them in an expanded condition along the handle until they reach their final positions.

Preferably the outer surfaces of at least some of the sleeves have a design in relief so as to give these surfaces a roughness intended to increase frictional grip with the hand. Such designs in relief may be of at least two different types.
The handle covering according to the invention makes it possible to obtain a better grip on a racquet handle than is possible with traditional leather coverings, which have at all points substantially smooth surfaces which are prone to become slippery in use. Moreover, by adopting different designs in relief on different sleeves it is possible to provide the handle covering with different frictional characteristics from one region to another. This concept will be better explained in the detailed description with reference to the drawings.

The invention will be further understood from the following description with reference to the annexed drawings, given by way of non-limitative example, in which:

Figure 1 is a perspective view of a tennis racquet the handle of which is provided with a covering according to one embodiment of the invention;

Figure 2 is a perspective view of some of the sleeves which make up the covering, in a relaxed condition, before their application to the handle;

Figure 3 is a longitudinal section of the initial and end sleeves and of one of the intermediate sleeves shown in Figure 2;

Figure 4 is a transverse cross-section of the intermediate sleeve shown in Figure 3, in which there has been also shown, in broken outline, the transverse cross section of the same sleeve when it has been fitted

5. A covering as claimed in Claim 4, in which the
to the handle of the racquet;

Figure 5 is a transverse cross section taken in the plane indicated by the line V-V in Figure 1;

Figure 6 is a fragmentary side elevation view, partially in longitudinal section, in the plane indicated VI-VI in Figure 1;

Figures 7 and 8 are fragmentary views, similar to Figure 6, showing respective sleeves which differ in certain details from those of the preceding figures, and Figure 9 is a longitudinal section, similar to those of Figures 6 to 8, which shows a modification of the sleeves.

Referring to Figures 1, 5 and 6, a tennis racquet or the like includes a handle having a shaft part M and a grip part H having in section the characteristic shape of an octagon with two principal axes of different length, the cross section of which decreases slightly from the free end of the handle towards the head of the racquet.

The grip part H is covered with a series of sleeves of elastic material (rubber or plastics material) made up of a plurality of consecutive sleeves 10, in this case an initial sleeve 10a, two intermediate sleeves 10b, 10c and an end sleeve 10d.

Referring to Figures 1 to 6, each intermediate sleeve 10b, 10c has a substantially cylindrical form in the relaxed condition, that is when it is not fitted on the handle. The sleeves 10b, 10c have thin walls, with a thickness, for example, in the region of 1.5 mm in the relaxed condition. Their internal circumference, in
the relaxed condition, is in the region of 20-30 per cent less than the perimeter of smallest transverse section of the handle grip part H to be covered. For example, the inner circumference of the sleeves 10b and 10c may be of the order of 95 mm and the said perimeter can be of 115 mm.

Referring to Figures 1 to 3 and 6, the initial sleeve 10a has a substantially frusto-conical shape with a wall thickness which becomes thinner towards the narrow end. The sleeve 10a is intended generally to cover the initial zone of the grip part H of the handle, where the octagonal shape of the latter tapers greatly and becomes rounded to join with the section of the shaft part M of the handle which extends to the racquet head.

At its larger end, the initial sleeve 10a has a transverse section, in the relaxed condition, having substantially the same dimensions as those of the intermediate sleeves. The wall thickness of the initial sleeve 10a tapers to an edge which forms, at the smaller end, a lip having a thickness less than 1 mm in the relaxed condition.

Referring again to Figures 1 to 3 and 6, the end sleeve 10d comprises a substantially cylindrical portion 12 and a substantially frusto-conical portion 14. The portion 12 has, in the relaxed condition, dimensions in transverse section substantially identical
to those of the intermediate sleeves 10b, 10c.

The end sleeve 10d is intended to cover the free end part of the handle grip part H as will be seen better below. The frusto-conical portion 14 of the sleeve 10d is intended to cover the free end of the handle and has, as its end opposite that adjoining the cylindrical portion 12, a transverse wall 16 formed by a flange which delimits in said wall 16 a central aperture 18. As can be seen in Figure 6, the enlarged frusto-conical shape of the portion 14 is dictated by the fact that it must cover a conventional end cover piece C, in the form of a truncated pyramid with an octagonal base, normally of plastics material which usually constitutes the end of the handle grip part H.

The aperture 18 serves to reveal the central part of the end piece C which normally carries a mark or other symbol. Moreover, the presence of the aperture 18, which renders the wall 16 incomplete, allows the portion 14 to expand correctly when covering the truncated pyramid form of the end piece C.

To provide the handle with the covering illustrated, there are fitted in succession onto the grip part H, starting from the free end, the initial sleeve 10a, the intermediate sleeves 10b and 10c, and finally the end sleeve 10d. There may be more than two intermediate sleeves, as will be explained further below.

The best technique for fitting the covering is to
slide the initial sleeve 10a along the handle H, maintaining it expanded, until it has reached a more advanced position than that which it is intended that it should occupy. This final position can even be situated, if the user so wishes, further towards the head of the racquet along the shaft part M, thereby allowing an extended handle covering to be formed, for example, for use by tennis players who, for certain shots, have the habit of gripping the racquet with both hands. In this case it may be necessary to use more than two intermediate sleeves and to dispense with the initial sleeve 10a.

Subsequently, using the same technique, the intermediate sleeve 10b is made to slide along the grip part H until it is positioned against the sleeve 10a, and so on. As already indicated, the number of intermediate sleeves used will depend on the required overall length of the covering. The use of two intermediate sleeves 10b, 10c having the lengths specified below, constitutes, however, the most frequent case, inasmuch as it permits coverings of the normal length (about 180 mm) to be obtained, such as would be provided by a traditional covering of wound leather strip.

Once the intermediate sleeves 10b, 10c have been applied the end sleeve 10d is fitted onto the end part of handle grip part H. Normally, the sleeves 10a,
will be advanced further along the handle, beyond their proper final positions. Once the end sleeve 10d has been fitted the sleeves 10a, 10b, 10c are then slid backwards starting from the last, that is to say the sleeve 10c, which will become positioned against the end sleeve 10d, until all the sleeves have been moved into abutment with their neighbouring sleeves.

Finally, if desired, the thin lip of the initial sleeve 10a and the immediately adjacent exposed part of the handle grip part M can be covered with an adhesive strip N (Figure 1).

Given that the sleeves 10 (10a, 10b, 10c, 10d) have transverse cross sectional dimensions less than those of the handle grip part H, they are fitted onto the handle in an expanded condition and are thereafter retained in position by resilient coupling. The relative thinness of the walls of the sleeves allows them to assume the octagonal form of the grip part H, as illustrated in Figure 5. Moreover, the sleeves 10a, 10b and 10c, and the cylindrical portion 12 of the end sleeve 10d, having a thickness of the order of 1.5 mm in the relaxed condition, are stretched circumferentially upon assuming the expanded condition which they take up upon fitting, resulting in a slightly smaller wall thickness which corresponds to the normal thickness of a conventional leather covering. If the sleeves 10
should tend to slide, despite their resilient coupling to the grip part, they can be retained in position by the application of a suitable non-setting adhesive to the handle part H. The sleeves may also be provided with internal longitudinal ribbing 20 (Figure 3) to oppose rotation of the sleeves about the grip part H.

Preferably, the intermediate sleeves 10b, 10c have a length of the order of 50 mm in the relaxed condition. With an inner diameter of the order of 30 mm in the relaxed condition this dimensioning constitutes a good compromise between the ease of fitting of the sleeves to the grip part and the advantage of having a covering subdivided into bodies the length of which is double that of the pitch of the turns of a conventional wound leather covering. This latter advantage will be explained below.

Sleeves having an inner circumference of the order of 95 mm are suitable for use on tennis racquet handles having a size range between size No. 4 and size No. 6. For smaller and greater sizes it is possible to provide sleeves with smaller and greater internal circumferences respectively.

In conclusion, with intermediate sleeves 10b and 10c and with a portion 14 of the end sleeve 10d all having the same diameter, it is possible to cover effectively the range of racquet handle grip sizes in most frequent use.
Referring to Figures 3 and 6, the abutting edges of all the sleeves 10 (10a, 10b, 10c and 10d) are bevelled and preferably rounded in such a way as to define between adjacent pairs of sleeves when fitted in position, an annular groove having, preferably, a V-shape cross-sectional profile with convex sides. In Figure 3 the bevelled edges are indicated 22 and in Figure 6 the grooves which these edges define are also indicated with the same reference 22.

Thus in the case of the intermediate sleeves 10b, 10c which have a length of about 50 mm, these sleeves have midway along their length grooves 24 having a profile similar or identical to that of the grooves defined by the bevelled edges 22.

The presence of the grooves 22 and 24 gives the player gripping the racquet a sensation comparable to that given by the transition between adjacent turns of a leather covering. This sensation is further increased by the fact that, with intermediate sleeves of about 50 mm in length, the distance between successive grooves 22, 24, 22, 24 is in the region of 25 mm, that is to say equal to the width of the leather strips commonly used in conventional coverings.

The transition zone between the two sections 12, 14 of the end sleeve 10d preferably also has a similar intermediate annular groove 26.

A similar grip sensation can be obtained with the
configuration illustrated in Figure 7. In Figure 7 the adjacent ends of the sleeves have an annular groove 28 formed in their outer surface immediately adjacent their edges. As can be seen from Figure 7, in the fitted condition each transition zone between one sleeve and a neighbouring sleeve is characterised by a pair of grooves 22 closely adjacent one another. Likewise, if the intermediate sleeves are made with a length of about 50 mm, these can have a groove or a pair of grooves such as 28 midway along their length.

Again, a similar grip sensation can be obtained by forming at the ends of the sleeves an outwardly projecting annular rib 30 (Figure 8). In the case of sleeves of about 50 mm in length, a similar rib can be formed midway along their length. The ribs such as 30 serve to improve the grip of the hand, resisting longitudinal sliding.

A series of sleeves intended to form a single covering may be formed from sleeves which are all of the type shown in Figures 3 and 6, or all of the type shown in Figure 7 or Figure 8. Alternatively the various types of sleeve can be utilised together, as desired.

The use of intermediate sleeves shorter than 50 mm is not excluded. In this case the length of such sleeves will conveniently be in the region of 25 mm to simulate, by means of their bevelled edges, such as 22, by means of their grooves such as 28 or by means of their
ribs such as 30, the joints between the turns of a wound leather strip covering.

The choice of elastic material for the sleeves 10 is left to those skilled in the art, and can be a mixture of rubber or a plastics material as appropriate. The only requirements which these materials must satisfy, apart from the correct elasticity so that they will hold themselves in position well, is resistance to wear and ageing, as well as washability. The material can be coloured in various shades, thus offering the possibility not only of adopting a covering with single desired colour, but also of forming a multi-colour covering with sleeves or bodies of different colours as desired.

The outer surfaces of at least some of the sleeves may be substantially smooth to offer a sensation to the touch similar to that of leather. However, the material of the sleeves themselves may be provided with externally roughened surfaces (for example grooved, ribbed or sculptured), having particular characteristics.

Thus in Figures 1, 2 and 6, the portion 12 of the end sleeve 10d has close circumferential ribbing for strongly resisting longitudinal slipping of the hand, and widely spaced longitudinal ribbing for opposing, at least to some extent, relative rotation between the hand and the handle. The intermediate body 10c has a dense network or chequering of oblique ribbing for
opposing, in equal measure, both sliding and rotation at the point where the palm of the hand grips the handle most firmly. The other intermediate body 10b, nearer the head of the racquet, has close longitudinal grooves for ensuring a good grip of the thumb and of the fingers against rotation.

In Figures 1, 2 and 6 there have also been shown smooth annular faces 32 on the various sleeves, on which writing or symbols in relief can be provided.

The possibilities of choice of the designs in relief of the outer surfaces of the sleeves, and likewise the disposition of the various designs along the covering, are practically unlimited. As well as improving the grip, the designs in relief have the advantage of offering a dryer grip to the hand, inasmuch as the grooves of the design constitute drainage channels for perspiration. It is, moreover, foreseeable that sleeves with designs in relief would offer a fresher grip sensation due, on the one hand to the formation of an air space between the covering and the hand and, on the other hand, to the projections behaving, to a certain extent, as cooling fins.

In the modification shown in Figure 9, each sleeve 10 has, at one end, an inwardly rebated edge 34, that is an edge rebated with respect to the outer surface of the sleeve 10. At its other end each sleeve 10 has an outwardly rebated edge 36, that is an edge rebated with respect to the inner surface of the sleeve 10.

The sleeves 10 are all fitted onto the grip part H of the racquet in such a manner that the outwardly
The use of leather as a covering for racquet handles does not seem to have any other justification than that

rebated edge 36 of each sleeve overlaps the inwardly rebated edge 34 of the adjacent sleeve. The combined thickness of the two superposed edges 34, 36 is substantially equal to the wall thickness of the current portion of each sleeve 10 between its two edges 34, 36, so as to form, as it were, a straight splice joint between the adjacent sleeves, as shown.

The splice joints help to prevent the mutual displacement of the sleeves along the grip part of the racquet.

Finally it should be noted that the elastic material of the covering, being necessarily provided with certain softness, affords a shock-absorbing effect between the tennis player's hand and the racquet, with a reduction in the vibrations driving from the shock between the ball and the racquet head.
THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A covering for the handles of tennis racquets and the like, comprising a series of elastic sleeves of rubber or plastics material which have relatively thin walls and are fitted in succession onto a grip part of the handle in an elastically expanded condition, so as to effect a non-slidable coupling between the sleeves and the grip part.

2. A covering as claimed in Claim 1, in which the outer surface of at least one of the sleeves has a relief pattern to give the surface a roughness which increases the friction with a user's hand.

3. A covering as claimed in Claim 2, in which the relief has at least two different patterns.

4. A covering as claimed in Claim 1, Claim 2, or Claim 3, in which the series includes at least two intermediate sleeves which are substantially cylindrical in their relaxed condition, and an end sleeve which is fitted onto the free end of the grip part, and includes a portion which, in the relaxed condition is substantially cylindrical and has a cross-sectional shape corresponding to that of the intermediate sleeves and a portion which, in the relaxed condition, is substantially frustoconical and which, when fitted surrounds and grips elastically an end cover of the grip part.
has been also shown, in broken outline, the transverse cross section of the same sleeve when it has been fitted

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5. A covering as claimed in Claim 4, in which the frusto-conical portion has a transverse wall at its free end which, when fitted, covers an end wall of the end cover.

6. A covering as claimed in Claim 5, in which said transverse wall comprises a flange which defines a central aperture in the wall.

7. A covering as claimed in any of the preceding claims, in which the covering further includes an initial sleeve which forms the end of the covering nearest the racquet head, said sleeve, in the relaxed condition, having a substantially frusto-conical shape and having at its larger end a cross-sectional shape corresponding to that of the intermediate sleeves.

8. A covering as claimed in Claim 7, in which the initial sleeve has a wall thickness which decreases progressively towards its smaller end.

9. A covering as claimed in any one of the preceding claims, in which the intermediate sleeves have lengths of the order of 25 mm or multiples thereof, and have annular surface features which, in the fitted condition, are spaced from each other by the order of 25 mm.

10. A covering as claimed in any of the preceding claims, in which the sleeve edges which are adjacent each other in the fitted condition are bevelled to define annular grooves between adjacent sleeves.
11. A covering as claimed in Claim 10, in which the bevelled edges are rounded.

12. A covering as claimed in Claim 10 or Claim 11, in which the intermediate sleeves have lengths of the order of 50 mm, and have a central annular groove with a profile which corresponds to that of the groove formed by the bevelled edges.

13. A covering as claimed in Claim 12, in which the end sleeve has an annular groove corresponding to that of the intermediate sleeves.

14. A covering as claimed in any one of Claims 1 to 9, in which each sleeve has an outwardly-projecting annular rib at each of its ends.

15. A covering as claimed in Claim 14, in which the intermediate sleeves have lengths of the order of 50 mm, and at least one central annular rib similar to that at their ends.

16. A covering as claimed in Claim or Claim 15, in which the projecting ribs are rounded.

17. A covering as claimed in any one of claims 1 to 9, in which each sleeve has an annular groove formed in its outer surface immediately adjacent each end.
18. A covering as claimed in Claim 17, in which the intermediate sleeves have lengths of the order of 50 mm and at least one central annular groove similar to that adjacent each end.

19. A covering as claimed in any of the preceding claims, in which the sleeves have wall thicknesses of between 1 mm and 2 mm.

20. A covering as claimed in any of the preceding claims, in which each sleeve has, at one end, an inwardly rebated edge and, at the other end, an outwardly rebated edge intended to overlap the inwardly rebated edge of an adjacent sleeve, the combined thickness of two rebated edges in the overlapping condition being substantially equal to the wall thickness of the portion of each sleeve between the two edges thereof.

21. A covering for the handles of tennis racquets and the like, substantially as herein described with reference to, and as shown in, the accompanying drawings.

DATED: 24th December, 1980

CARLO GIBELLO
By his Patent Attorneys:
PHILLIPS, ORMONDE AND FITZPATRICK

[Signature]
a conventional leather covering. If the sleeves 10