



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 158(3) EPC

(43) Date of publication:
29.05.2002 Bulletin 2002/22

(51) Int Cl.7: **A63B 49/08, A63B 47/02**

(21) Application number: **00956529.2**

(86) International application number:
PCT/ES00/00333

(22) Date of filing: **30.08.2000**

(87) International publication number:
WO 01/15783 (08.03.2001 Gazette 2001/10)

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

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(30) Priority: **31.08.1999 ES 9902256 U**
31.08.1999 ES 9902257 U

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(54) **IMPROVED RACKET**

(57) The racket or paddle provided for playing tennis and other similar ball games, presents a first improvement consisting in that the handle is determined by two sections (2) and (3) coupled axially between themselves and having means which allow the movement of section (3) respecting section (2) and thus the extension of the handle itself, as well as the locking of sections (2) and (3) both in the position in which they determine a handle

of regular length as well as in its extended position. Another improvement consists in that on one or more sections of the frame or edge of the racket there is mounted, with an independent nature, a means constituted from a base (17) attachable to the edge of the racket, and on its base at the same time there is an adhesive strip (21), by means of which and without the user having to bend over he can collect a ball from the ground putting it within the reach of his hand.

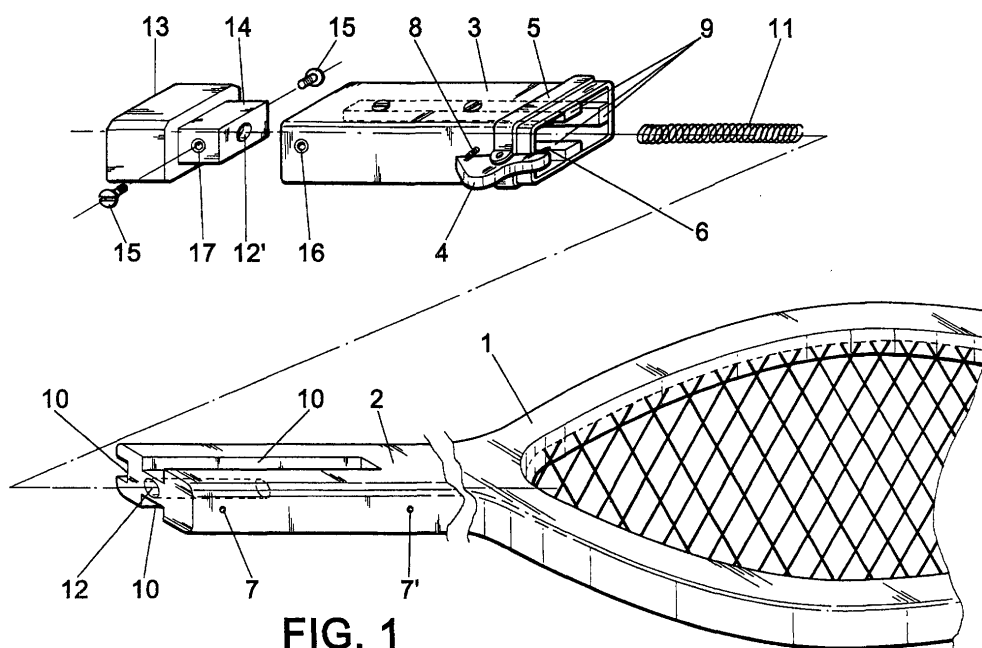
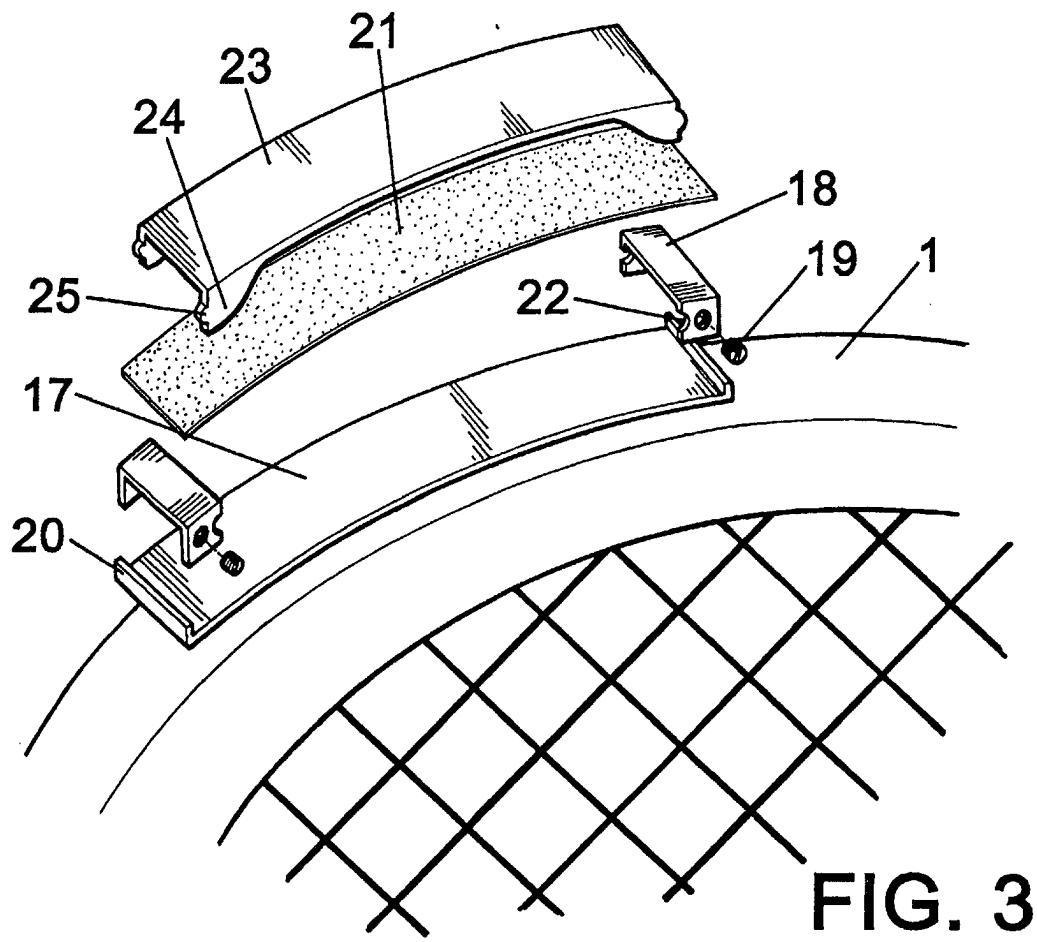


FIG. 1



Description

OBJECT OF THE INVENTION

[0001] The invention refers to improvements applied to rackets and/or paddles for ball games, being of special application for the rackets used for playing tennis, without disregarding its application on paddles used in the ball game of squash, as well as in rackets and/or paddles used in similar games to those referred to.

[0002] One object of the invention is to make it possible, at a certain time, to elongate or extend momentarily and voluntarily the handle of a racket or a paddle, allowing the player to reach during the progress of playing the game certain balls which normally would not be possible to reach.

[0003] Another object of the invention is to facilitate the gathering of the balls from the ground, by means of the racket or the paddle itself allowing the user playing the game to perform said gathering operation in a standing position, that is, without the need of having to stoop his body or bend down to collect the ball from the ground, and without the need of hitting the ball so that it bounces so as to later collect it, as is frequently done.

BACKGROUND OF THE INVENTION

[0004] The playing of paddle games is a traditional custom and there are various modes that, at competition level, have precise rules in the aspects which refer to the singularities of each game, and even the material used, type, size, weight, etc., of the paddles, the shoes, the attire, the place where played, etc.

[0005] On determined occasions or at a moment in the game, it would be desirable that the racket or paddle would have a greater length than that of the rules or as is conventional, with the object of reaching a ball to which it is very difficult or impossible to get to, in order to hit and/or return said ball to the opponent's field or within the specified limits of the playing field. For example, in the case of tennis or even of the game of paddle-ball, it occasionally happens that it is necessary to respond to a "dropped" ball or an excessively "crossed shot," a situation that could at times be resolved if there were available at that moment a racket or paddle of greater length, and although this event would not be admitted today in official competitions, due to existing rules, it is not less true that informal or non-official activities could allow the elongation of the racket and the player could take advantage to resolve some of these events.

[0006] On the other hand, specifically when playing tennis, to gather the balls from the court floor is a frequent task and undoubtedly bothersome and uncomfortable, also causing an unnecessary physical effort, becoming, in the case of some persons with temporary or permanent physical impediments, a clear inconvenience for the practice of said sports. In fact, this task of

gathering balls, especially when the players are not very skillful, supposes a physical effort that can become greater than that corresponding to the game itself.

[0007] Presently and as an only solution to this problem, the action is well-known where the ball is hit with the racket so that, due to a rebound effect, it is sent shooting upwards and is collected in the air by the player, but this type of action obviously requires a skill which not all participants in this type of games posses.

DESCRIPTION OF THE INVENTION

[0008] To avoid and at the same time resolve the expressed problems, a series of improvements have been added to the rackets and/or paddles used in the playing of certain ball games (tennis or others similar).

[0009] More specifically, one of the improvements consists in that the handle of the racket or paddle comprises, at least, two sections axially coupled between themselves but with the ability of relative movement between them, usually being the posterior section the one that moves respecting the anterior section, with this one forming a monopiece elongation with the handle or the body of the racket or paddle.

[0010] The movement in the extension direction between both sections of the handle allows for its elongation and it thus allows the player to reach some balls in the process of the game that would be unreachable with the invariable handle.

[0011] The means that allow the movement between both sections of the handle, as well as those of corresponding activation and those that perform the locking in the regular position, comprise a propulsion mechanism, preferably a spring, which tends to permanently push the posterior section backwards, although it maintains its rest position by means of a locking device activated at will by the user himself, with the special singularity that said posterior or movable section may take up, at least, two extreme positions, in which the former remains stably locked by the mentioned locking device, besides having contemplated the possibility of also recovering its original or regular position immediately.

[0012] The combined activation means, by which the extension or retraction of the racket handle is performed, may be materialized by completely mechanical, hydraulic, pneumatic or electrical elements or a combination of these, as long as there is an element that is activated at will by the user, the activation of which consists of the unlocking of the posterior section and its pushing by the propulsion element, to attain the intended elongation of the handle and in fact of the racket or paddle itself.

[0013] Evidently, between both sections of the handle there will be means of complementary guides so that the axial movement in one or the other direction (of elongation or extension and of retraction or return to its regular position) are accomplished without swaying, that is, in a completely rectilinear fashion so that no unadjust-

ing, deterioration, nor a deficient operation occurs.

[0014] In a preferred embodiment, the mentioned guide means may be materialized with longitudinal flanges belonging to one section and complementary grooves provided to this effect on the other section, while the activation means may be materialized completely by mechanical elements, such as a trigger acting as a side button for its activation by the user's finger, to lock and/or unlock the posterior section by means of a clasp belonging to said trigger, and consequently to maintain it in its regular position or allow a push or propulsion backwards by means of a spring located in an axial housing found in both said posterior section as well as in the anterior or fixed section, complementing said posterior section with a supplement in the form of a mounted cover with the ability to become independent at the free end of said section, with that supplement or cover constituting the means of positioning the end with respect to the impulse spring.

[0015] Thus, this improvement applicable to a racket, paddle or similar, according to the invention, allows the player certain possibilities that are not provided by conventional rackets, since by means of the improvement it can be attained at a determined time that a conventional and official racket can be elongated immediately and return to its original position, due to a simple manual activation on the part of the user, so that depending on the materialization of the means provided to this effect, the racket may be complemented at the time of its purchase with a repair and/or corresponding spare parts kit.

[0016] Another aspect of the invention is defined by a second improvement consisting of providing the frame or perimeter of the racket or paddle with a means that makes it possible to collect the ball from the ground by means of the racket itself, with only pressing it against the ball, with this one remaining adhered to said racket or paddle so that the user with his hand may collect said ball from the racket and not from the ground, thus avoiding the need to have to stoop his body or bend down, or to hit the ball so that it bounces, as is habitually done.

[0017] For this, and more specifically, the means that allows to perform said operation is materialized on a base or support, destined to attach to any appropriate place on the edge of the paddle or racket, with the collaboration of a couple of end clamps, which in turn may be attached to the paddle or racket with the collaboration of lock screws or by any other appropriate means, with said base constituting, with any appropriate length, the support for an adhesive element which in turn can be materialized in a sheet attachable by any means to the base, in the attachment of which the end clamps may also collaborate, or it may also be a liquid adhesive that is poured onto the external face of the base, where it later solidifies, with no other condition than such a capacity of adherence for the ball so that it is able to support its weight during the procedure of elevation.

[0018] The structure described is complemented with a cover with the purpose of covering and protecting the

adhesive element during periods of inactivity of the paddle or racket, or simply when the use of the ball collector means itself is not contemplated, and this cover will preferably attach by pressure to the end clamps which in turn attach the base or support to the paddle or racket.

DESCRIPTION OF THE DRAWINGS

[0019] To complement the description that is being made and with the object of assisting to have a better understanding of the invention's characteristics, according to a preferred practical embodiment of it, enclosed as an integrating part of said description is a set of drawings wherein with an illustrative and non-limiting nature the following has been represented:

Figure 1 shows a representation according to an enlarged general perspective of a racket with the means of extension of the racket's handle, all of this according to one of the improvements object of the invention.

Figure 2 shows a side view of the unit represented in the previous figure completely assembled.

Figure 3 shows a sectioned perspective of the means which make it possible to collect the ball from the ground by means of the racket or paddle itself, all of this embodied according to a second improvement object of the invention.

Figure 4, in conclusion, shows a perspective view of the same unit as the previous figure, properly mounted on a tennis racket.

PREFERRED EMBODIMENT OF THE INVENTION

[0020] In the 1st and 2nd figures the means of extension can be observed applied specifically to a racket (1) for playing tennis, the handle of which is determined by two sections coupled axially between themselves, the first of them constituting a prolongation of the racket (1) itself, making up an integrated part of it, and the second as an independent element, so that the section (2) corresponding to the prolongation of the racket (1) is considered as fixed, while the axially coupled section is considered as posterior and mounted with the ability to move to thus attain the extension or elongation of the racket, in other words, the handle.

[0021] Specifically, said means include an element as a means of activation, which is materialized in the present case by a trigger (4) which can be activated with the finger of the user that is holding the handle of the racket in his hand, and this trigger (4) is mounted with a rocking nature on a ring or clamp (5) located at the end of the handle section (3), near the coupling of its own section (2), with this trigger (4) having on its internal face a clasp (6) that tends to lock into one or the other

slots (7) or (7') established to that effect in the fixed section (2) of the handle, as a consequence that the mentioned trigger (4) is constantly pushed toward that position tending toward the locking of the clasp (6) in the slots (7) or (7') by means of a spring or coil (8) placed

[0022] That is, when the section (3) is coupled to the section (2), the locking and consequent regular position of both sections (2) and (3), is done by the trigger's (4) clasp (6) in the slot (7') of the fixed section (2) of the mentioned handle, while in the extended or elongated position the locking is done by the clasp (6) in the slot (7) of that same fixed section (2), but located in an area near to its free end.

[0023] That movement of section (3) respecting section (2), so that it is straight, that is, without swaying and with complete uniformity, is done based on guiding elements made up of longitudinal flanges provided to that effect internally in section (3) of the handle where they are located and they slide on complementary grooves (10) established to that effect in the fixed section (2) of the handle.

[0024] The impulse or propulsion of section (3) outwards when pressing or activating the trigger (4) on the part of the user, is attained, in the present case, by means of a coil or spring (11) housed in an axial channel (12) established both in the fixed section (2) as well as in the posterior and moveable section (3), with this coil or spring (11) remaining housed in those facing channels or passages (12) of both sections (2) and (3), so that the back end of the mentioned spring is located inside a cavity (12') provided to this effect in a terminal or supplement (13) that is mounted, with an independent nature, on the free end of the posterior section (3), for which this supplement or terminal (13) has a contour the same as that of the end of section (3), but having an internal portion (14) of smaller contour in order to be housed inside section (3), with that internal portion (14) being the one having a cavity (12') where the end of the spring (11) is placed, with said terminal or supplement (13) remaining fixed by means of a couple of side screws (15) that pass through openings (16) of the section (3) itself and that screw into openings (17) established to that effect in the sides of portion (14), as clearly seen in figure 1.

[0025] In this way, in the resting or regular position in which the handle will have its official length, the clasp (6) is locked in the slot (7) of section (2), although the spring is constantly pushing this section (3) outwards, a push which will have a propulsion at the moment when the clasp (6) is unlocked from slot (7'), when pushing the trigger (4), with that section (3) being moved backwards until the clasp (6) reaches the posterior slot (7) and locks into it, thus attaining a greater length or extension of the handle and therefore an elongation of the racket which will be of use at certain times or shots of the game, being able to recover once again its original

position by merely pushing the section (3) in the opposite direction, against the spring's (11) action, until again causing the locking of the clasp (6) into slot (7').

[0026] Figures 3 and 4 show the racket (1) with a second improvement, constituting a means that allows to collect the balls from the ground with the racket itself (1). More specifically, the second improvement consists in that on the frame or edge of the racket (1) a base or support (17) is attached, of any appropriate length and of a width that is adequate for attachment to that edge or frame of the racket (1), in any position selected to that effect, said attachment being fulfilled preferably with the collaboration of a couple of U-shaped clamps (18), which fasten to the mentioned edge of the racket or paddle (1) being placed at the ends of the base (17) itself, which fasten to said racket or paddle with the collaboration of lock screws (19) that not only press the base (17) radially against the racket (1) but they also retain it longitudinally with the collaboration of stops (20) established operatively at the ends of the base (17).

[0027] The base (17) may be rigid, having the curvature of the edge of the racket in the area provided on it for its implantation, but preferably it should be of a flexible nature in order to allow its adapting to the edge of the racket (1) in any area of it, independent from its curvature, which even allows the implanting of various devices on the same racket, in different areas of it. In an analogous way, its length may be variable to cover any area of the edge of the racket (1) that is considered convenient, and it may even have a wider part in its central area, like a spherical crown, with the object of obtaining a greater adherent surface for the ball.

[0028] In any case, the base or support (17) will incorporate its external surface covered with an adhesive (21), which can be materialized in a sheet having adhesive on both sides, to fasten on one side to the base (17) and to fasten on the other to the ball itself. It may be an adhesive that is poured out in liquid form on the base (17), fastening to it when it solidifies and at the same time offering an external face for adherence to the ball, or it may adopt any other type of solution determining an adherent surface capable of fastening to the ball and supporting its weight during the operation of raising toward the user's hand, while at the same time the possibility has also been contemplated that the ball be treated with any of the substances existing on the market enabled to increase its adherence respecting the ball collecting device.

[0029] It has also been contemplated that the adhesive (21) may be eliminated when it loses its capacity of adherence and be substituted by another in optimal conditions of use, when the type of adhesive employed so requires it.

[0030] The clamps (18), which in the event of use of an adhesive (21) in the form of a sheet also collaborate in the fastening of it to the base (17), will incorporate in the internal edge of their side flanges little indentations (22) destined to couple by pressure with a cover (23),

of a shape and size adequate to cover the adhesive element (21), protecting it during its inoperational phase, and to that effect said cover (23) will be of an elastic material and will incorporate, corresponding with its vertices, side fins (24) having little protuberances (25) which fit by pressure into the mentioned indentations (22), constituting the means for retaining the mentioned cover (23), so that the elastic deformation of the cover (23) allows access to the protuberances (25), over the indentations (22), in an end mounting situation in which said cover (23) adapts to the adhesive element (21).

Claims

1. Improved racket, being applicable to the types of rackets used for playing tennis, or also paddles for playing ball or similar games, having as its end to attain a greater length of the handle of the racket or paddle, as well as allowing the collection of the ball from the ground with the racket or paddle itself, **characterized in that** the corresponding handle of the racket or paddle (1) consists of, at least, two sections (2) and (3) coupled axially between themselves, one anterior and fixed forming an integral part of the body (1) of the racket or paddle, and another posterior mounted with the capacity of moving with respect to the former to eventually and voluntarily attain at a certain moment an elongation of the handle itself; it has also been contemplated that on the frame or edge of the racket or paddle (1) there are mounted, in an independent way, means for directly collecting the ball from the ground, with said means materialized as a base or support (17), which attaches to the frame or edge of the racket (1).
2. Improved racket, according to claim 1, **characterized in that** it includes an actuator (4) means which is activated manually or in an automatic way at the will of the user, to attain the movement of the posterior section (3) of the handle, said actuator (4) means having means for propulsion and/or retraction of the mentioned posterior section (3), as well as means for locking and/or unlocking the propulsion and/or retraction means themselves.
3. Improved racket, according to claim 1, **characterized in that** the sections (2) and (3) which constitute the handle have complementary guide means to attain a uniform and regular movement of the posterior section (3) respecting the anterior section (2).
4. Improved racket, according to claim 1, **characterized in that** the complementary guide means between both sections (2) and (3) consist of longitudinal flanges provided in one section (3) and complementary grooves provided to that effect in the other

section (2) of the handle.

5. Improved racket, according to claim 1, **characterized in that** the propulsion means which form a part of the actuator (4) means, are susceptible to being activated mechanically, hydraulically, pneumatically or electrically.
6. Improved racket, according to claim 1, **characterized in that** the actuator (4) means consists of a button in the form of a trigger or similar mounted on the posterior section (3) and activated by means of the user's finger, said button having a locking element (6), such as a clasp or similar, which fits into a slot (7) or (7') provided to that effect in the fixed section (2) of the handle.
7. Improved racket, according to claim 6, **characterized in that** the anterior and fixed section (2) of the handle has two slots (7) and (7') for the emplacement of the locking element (6), in the extended position of the posterior section (3) and in the retraction or regular use position, respectively.
8. Improved racket, according to claims 1, 5 and 6, **characterized in that** the propulsion element, susceptible to being activated mechanically, hydraulically, pneumatically or electrically, preferably consists of a coil or spring (11) which is housed in an axial channel established in both sections (2) and (3) of the handle, tending to constantly push backwards on the posterior section (3), said spring (11) being guided by its far end in a cavity (12') provided to that effect in a supplement or terminal (13), as a mounted cover, with an independent nature, on the free end of the posterior section (3) of the handle.
9. Improved racket, according to claim 6, **characterized in that** the actuator (4) is mounted with a rocking nature and with its locking element (6) toward said position, by means of an elastic element or spring (8) which pushes said actuator (4) toward the locking position.
10. Improved racket, according to claim 1, **characterized in that** the base or support (17) constituting the means for allowing the direct collection of the ball from the ground, is susceptible of being attachable to any area of the edge of the paddle or racket (1), based on a support (17) on the face of which is established an adhesive element (21) of adequate characteristics to maintain the ball stabilized on the paddle or racket (1) during the operation of lifting this latter to collect the ball, having optionally contemplated that said ball be treated with any substance adequate to increase its capacity to adhere to the ball collecting means itself.

11. Improved racket, according to claims 1 and 9, **characterized in that** the base or support (17) is materialized in a sheet, preferably flexible, adaptable to the edge of the paddle or racket (1), with any appropriate length, which fastens to this latter with the collaboration of a couple of external clamps (18) which, being U-shaped, couple to the edge of the paddle or racket (1) being placed on the base (17) and they attach to it with the collaboration of lock screws (19). 5 10
12. Improved racket, according to claims 1, 9 and 10, **characterized in that** the adhesive element, which may be applied in liquid phase to the base (17) constituting an adhesive sheet after its solidification, will preferably be materialized as a replaceable sheet (21), having adhesive on both sides, in which case the attachment to the edge of the racket or paddle (1) is performed, aside from the collaboration of the adhesive on its internal face, with the end clamps (18) for attachment of said base (17) to the paddle or racket (1). 15 20
13. Improved racket, according to claims 1, 9, 10 and 11, **characterized in that** collaborating with the ball collecting means constituted from the support base (17), is the protection cover (23) for the adhesive element, of an elastic material, said cover (23) having, in correspondence with its vertices, fins (24) also having little protuberances (25) for fitting by pressure into indentations (22) provided on the clamps (18) of attachment of the base (17) to the frame of the racket or paddle (1), so that said cover (23) is attached at its ends and by means of a temporary and elastic deformity of it to the mentioned end clamps (18). 25 30 35

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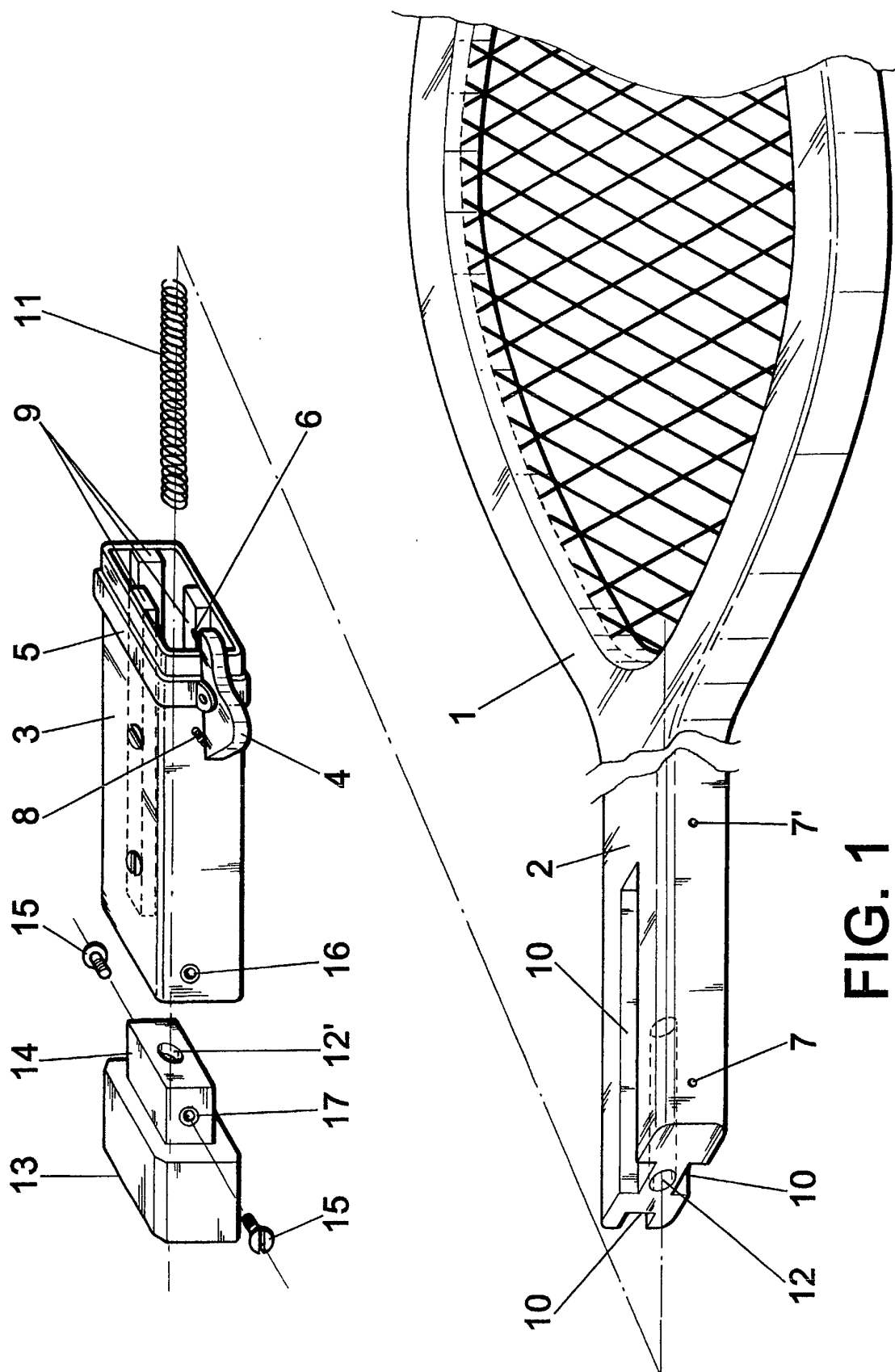


FIG. 1

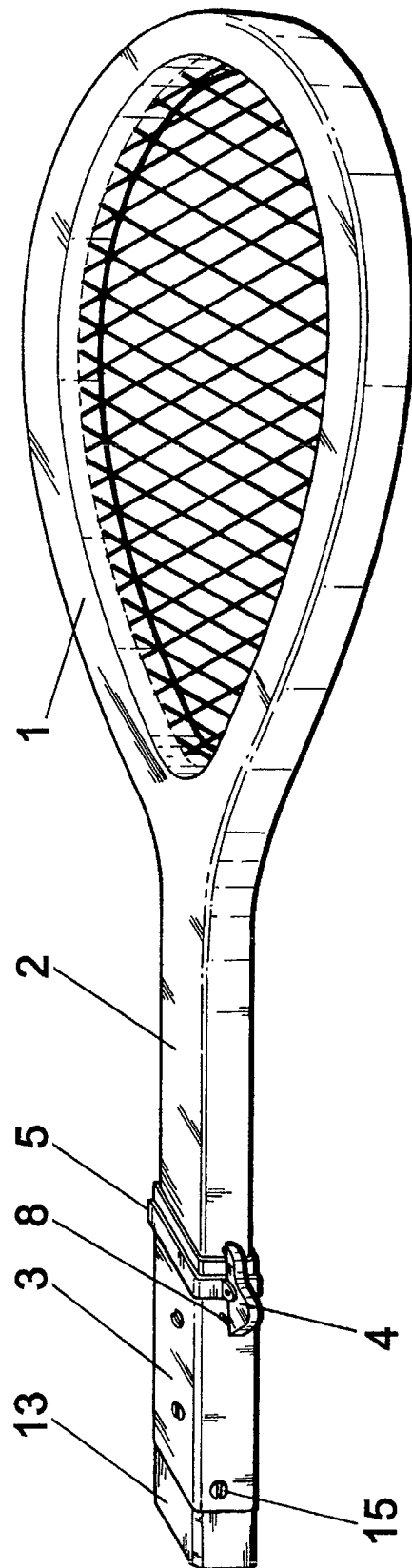
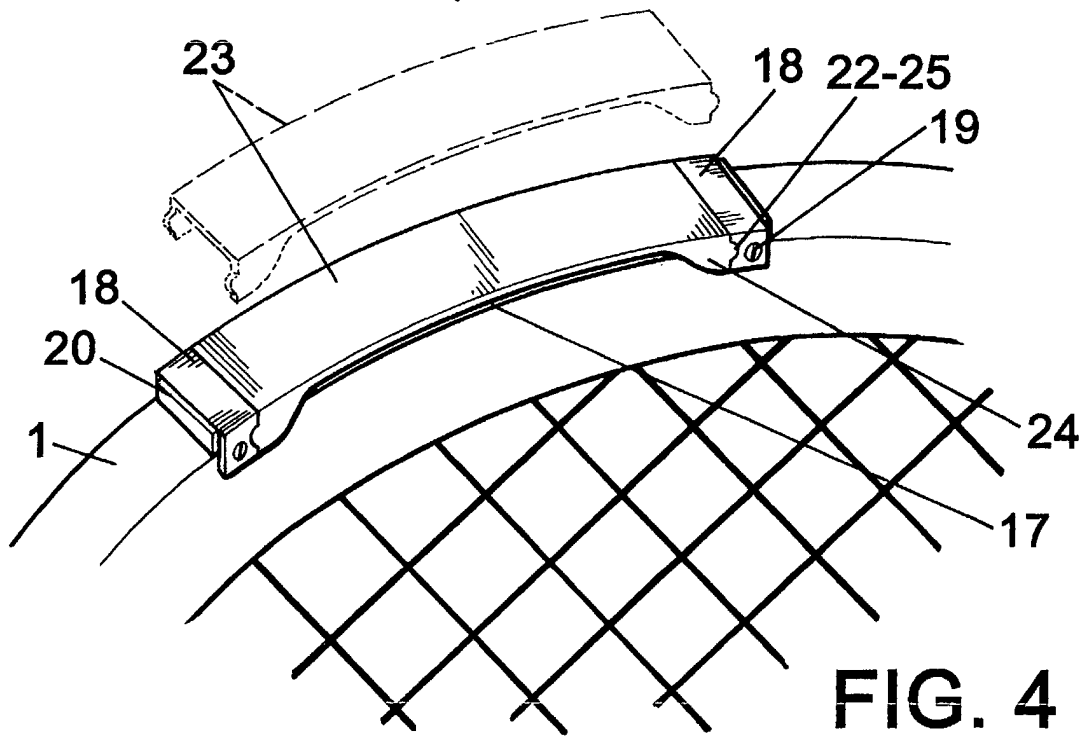
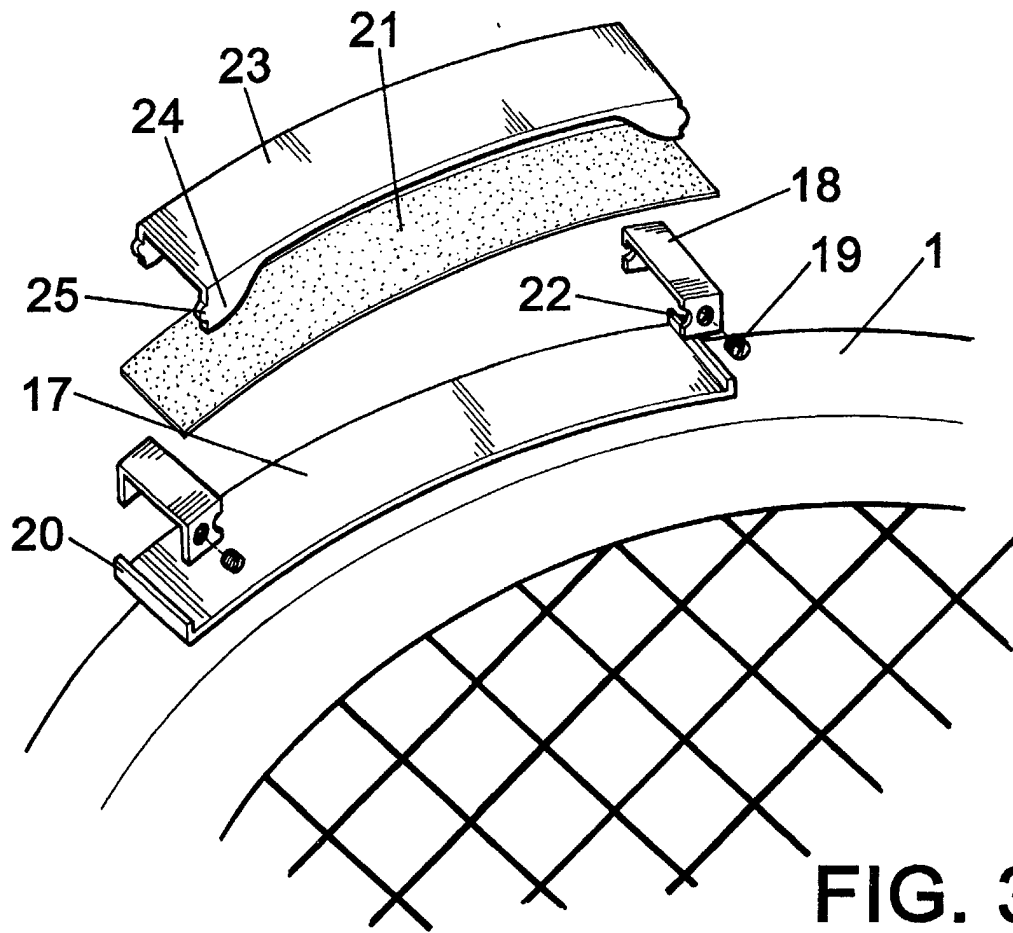


FIG. 2



INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES 00/00333

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 : A63B 49/08, 47/02 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 : A63B Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPODOC, WPI, PAJ, ECLA, UCLA, OEMPAT		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 3931968 A (HEDBERG) 13 January 1976 (13.01.76) the whole document	1-3,5-7,9,10-12
Y	ES 1000216 U (CAPARROS et al) 16 February 1988 (16.02.88), column 1, line 56-column 2, line 45, figures	1-3,5-7,9,10,12
P,Y	ES 1044212 U (FRANCISCO HERNANDEZ ALTEMIR, S.L.), 16 March 2000 (16.03.00), the whole document	11
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A	US 5516101 A (PENG) 14 May 1996 (14.05.96), column 2, line 20-column 4, line 2, figures	1,8
A	US 3874666 A (ROSS) 01 April 1975 (01.04.75), column 2, lines 5-31, figures	1,10-11
☒ Further documents are listed in the continuation of box C. ☒ Patent family members are listed in annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search 27 November 2000 (27.11.00)		Date of mailing of the international search report 11 December 2000 (11.12.00)
Name and mailing address of the ISA/ S.P.T.O		Authorized officer
Number of fax +34 91 3495304		Telephone No. + 34 91 3495522

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORTInternational application No.
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C. (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/ES/00333

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