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Il est certifié qu'un brevet européen a été délivré pour l'invention décrite dans le fascicule de brevet, pour les Etats contractants désignés dans le fascicule de brevet.

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(54) FLEXIBLE TEMPLE FOR SPECTACLES

FLEXIBLE BRILLENBÜGEL

TIGE SOUPLE POUR LUNETTES

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Description

Object of the invention

[0001] The invention, as stated the title of the present specification, relates to a flexible temple for spectacles, which provides a number of advantages derived from innovative structural and constitutive characteristics, which will be described in more detail later, that represent an improvement and a novelty within the field of application.

[0002] More particularly, the object of the invention is focused on a temple for spectacles, particularly applicable to spectacles of the type for which the frame is opened by the bridge area and have as a support a part that connects, at the rear of the head, both portions of the frame, said temple having the innovative characteristic to be made up from a flexible structure with specific areas of a different nature at the ends thereof and central portion to provide different degrees of flexibility that favor the bending thereof, to allow its storage and transportation in a conventional-sized case and, in turn, the suitable rigidity for adjustment to the temples on the ears of the wearer.

Field of application of the invention

[0003] The field of application of the present invention falls within the sector of industry dedicated to the manufacture of spectacles or glasses, focusing particularly on the scope of the frames and arms.

Background of the invention

[0004] As a reference to the current state of the art, it should be noted that spectacles of the type that here concerned, consisting of, as stated, spectacles with a frame that is opened and closed ahead, are widely known, using a connector, for example a magnet, and which are held conventionally on the ears of the wearer on both sides of the head with a temple which is a single piece that remains closed at the rear of the head, thus keeping connected both sides of the frame that is separated ahead to put in and take off.

[0005] Said temple, however, formed usually by a piece of plastic material that is connected at the respective ends to a small leg or metal coupling piece which, in turn, connects articulately to the external ends of each of the frame portions including each of the lenses, usually consists of a substantially rigid or semi-rigid part to be able to adjust as a conventional frame resting on the ears of the wearer and thus serve as a support to the frame once connected in the bridge and arranged on the nose.

[0006] The problem of the above temple in said type of spectacles lies in the difficulty to store them in a small case, since said temple is rigid or semi-rigid, although, as it can be the case, is detachable, given that it is a piece that must surround the head of the wearer on its rear portion, occupies a considerable space and, therefore it is not suitable to be bent in a conventional case, but it should be used a case with rather larger size, with the disadvantage of storage that represents for the wearer.

[0007] To avoid said problem, a possible solution is the replacement of the temple by an elastic strap as restraint system, however, said solution makes that for its correct use the band must be adjusted tensioned at the head of the wearer, since otherwise the spectacles are not held. In this case, however, the discomfort is evident, because if it is not of spectacles that are not for sports use, the need of which are tensioned and adjusted to the head of the wearer can produce obvious discomfort as well as disadvantages in hairstyle or if a hat is used. Documents of the prior art showing this kind or similar type of restraint systems are US6253388 B1, GB2182169 A or DE8912492 U1.

[0008] It would be desirable, therefore, having a type of temple for said type of spectacles which, without being elastic in order not to lose the shape and provide the suitable holding, has the necessary flexibility to be able to bent and store it in a case with conventional configuration and dimensions, the objective of the present invention being the development of said temple.

[0009] It should be noted, moreover, that is unaware of any other flexible temple for spectacles having technical, structural, and constitutive characteristics similar to those of the temple here proposed and as claimed. The most similar temples of the prior art are those disclosed in any of WO2011/068559 A1 or DE202006003118 U1.

Explanation of the invention

[0010] Thus, the flexible temple for spectacles proposed by the present invention is configured as a significant novelty within their field of application since, in accordance with its implementation and exhaustively, the objectives previously indicated as suitable are satisfactorily reached, the characterizing details being those that distinguish them, suitably set down in the end claims accompanying the present specification.

[0011] In particular, what the invention proposes is a temple for spectacles that being, as stated above, applicable to spectacles of the type that has a frame that is separated at the bridge area, is essentially configured from a narrow, elongated part, the ends of which have means for coupling to the external ends of each of the parts in which the frame is separated and, in a characterizing way, comprising three clearly differentiated areas consisting of:

- respective areas of semi-rigid character, which correspond to two sections next to the cited the ends of the piece, being suitable to allow the support of spectacles on the temples of the wearer;
- and a central area, that corresponding to the part

thereof that subsequently surrounds the head of the wearer, where the piece that constitutes the temple acquires a character entirely flexible allowing the bending to the extent of being incorporated into a storage bag or case with conventional configuration and dimensions.

[0012] The described semi-rigid sections of temple of the invention are made of plastic material, preferably of TR90, consisting of a polymer with memory function, i.e., which allows a degree of flexibility and that, after being bent, always recovers its primitive form, being a material commonly used in frames for spectacles, since due to its lightness properties, high strength and broad color options, is optimal for said use.

[0013] Meanwhile, the central area of the temple is made of a thermoplastic elastomers material, and more preferably, of a thermoplastic polyester elastomer or TPE-E (Thermoplastic Polyester Elastomer).

[0014] The advantage of said material, as well as the rest of thermoplastic elastomers, also referred to as thermoplastic rubbers, are a class of copolymers or a physical mix of polymers (usually a plastic and a rubber) is that they give rise to materials with thermoplastic and elastomeric characteristics. Moreover, while most elastomers are thermosets, thermoplastics are in contrast relatively easy to use in manufacturing, for example, by injection molding. Thermoplastic elastomers also show both advantages typical of rubbery materials and plastic materials.

[0015] Thus, said central area of the temple made of TPE-E has sufficient flexibility to be able to bend the temple without it deforms, and always recovering its original shape without any problems, even if it has been stored bent for a long time inside a very narrow case.

[0016] Therefore, and also in a preferred way, finally it should be noted that the temple is obtained from a double injection process, such that it makes up a single-piece bimaterial element, formed with the cited two sections at its ends made of TR90 and a central area made of TPE-E, which gives the proposed temple, in addition to the described advantage of flexibility in its central area and semi-rigidity in the area of the temples, on the one hand the advantage of high durability and structural strength and, on the other hand, the reduction of manufacturing cost.

[0017] In the light of the above, it is found that the described flexible temple for spectacles represents an innovation of structural and constitutive characteristics unknown so far to this end, reasons which in combination with its practical utility, provide it with enough basis to obtain the exclusivity privilege which is applied for.

Description of the drawings

[0018] In order to complement the description that is being carried out and with the object to help to a better understanding of the invention, a set of drawings is accompanied to the present specification as an integral part thereof, in which, with an illustrative and non-limiting character, the following has been represented:

Figure 1.- It shows a perspective view of a preferred exemplary embodiment of the flexible temple for spectacles, object of the invention, which shows its general configuration and the main comprising parts and elements.

Figure 2.- It shows a perspective view of spectacles with front opening at the bridge area, with the temple of the invention coupled thereto.

Figure 3.- It shows a perspective view of the spectacles shown in the preceding figure, which has been represented with the temple, according to the invention, in bent position, being appreciated that it is suitable for introduction into a conventional-sized case.

Preferred embodiment of the invention

[0019] In light of the previously mentioned figures, and according to the numeration adopted, an example of a preferred and non-limiting embodiment of the flexible temple for spectacles can be observed therein, which comprises the parts and elements which are indicated and described in more detail below.

[0020] Thus, as seen in said Figures, the involved temple (1), applicable for spectacles of the type for which frame (2) is separated at the bridge area (3), is configured from a narrow, elongated part, the ends of which are coupled to articulated connection means that, for example consisting of metal couplings (4) adjustable and insertable through simple pressure at the ends of the temple (1), connect it to the respective external ends of the cited frame (2), and, preferably made from an injection molding process, comprising respective semi-rigid sections (11), that is, with a certain degree of flexibility, corresponding to two sections that include a substantially straight section of the temple at their respective ends and that situate parallel to each other, corresponding to the part at the temples of wearer when this wears spectacles, for the support on the ears thereof, and being suitable for thus allowing the support of the spectacles, and a flexible central area (12), corresponding to the rest of the part, specifically to the portion of the part that subsequently surrounds the head of the wearer, having said central area (12) a higher degree of flexibility than that of the semi-rigid sections (11) and which allows the temple (1) to be bent until the spectacles can be inserted in a conventional storage bag or case, that is, in a way that the bent temple (1) does not project from the space taken up by the frame (2), as shown the Figure 3.

[0021] The semi-rigid sections (11) of the ends of the temple of the invention are made of plastic material, preferably polymer TR90, and the flexible central area (12) is made of elastomer material, preferably thermoplastic polyester elastomer or TPE-E, the temple (1) having been obtained from a double injection process, in a way

that makes up a single-piece bimaterial element, made up of the cited two sections at its ends of TR90 and a central area of TPE-E.

[0022] Having sufficiently described the nature of the present invention, as well as the way of putting it into practice, it is not considered necessary to further extend its explanation for any person skilled in the art to understand its scope and the advantages derived therefrom, stating that, within its essence, it can be put into practice in other embodiments which differ only in detail from the one indicated by way of example, and which are also covered by the protection which is sought provided that its fundamental principle is not altered, changed or modified.

Claims

1. FLEXIBLE TEMPLE (1) FOR SPECTACLES, particularly applicable to spectacles of the type for which the frame (2) is separated at the bridge area (3) and the flexible temple (1) being of the type that is configured from a narrow, elongated part, wherein the ends of the elongated part are configured to be coupled to articulated connection means that connect it with respective external ends of the cited frame (2) and which is closed at the rear of the head, is **characterized in that** said narrow, elongated part is made up from a flexible structure with three specific, clearly differentiated areas of a different nature, at the ends thereof and central portion, comprising:

   - respective semi-rigid sections (11), that is with a certain degree of flexibility, suitable for allowing the support of the spectacles on the temples of the wearer, wherein the semi-rigid sections (11) are made of polymer plastic material, and corresponding to the two sections that include a substantially straight section of the flexible temple (1) at their respective ends and are situated parallel to each other, corresponding to the part of the temples of the wearer when wearing the spectacles; and
   - a flexible central area (12), corresponding to the rest of the part, that is, to the portion of the part that subsequently surrounds the head of the wearer, wherein said central area (12) is made of thermoplastic elastomer material and has a higher degree of flexibility than that of the semi-rigid sections (11) and which allows the temple (1 to be bent until the spectacles can be inserted in a conventional storage bag or case, and in a way that the bent flexible temple (1) does not protrude from the space taken up by the frame (2),

   wherein the flexible structure allows the temple not to lose the shape and provide a suitable holding.

2. FLEXIBLE TEMPLE FOR SPECTACLES, according to claim 1, **characterized in that** the semi-rigid sections (11) of the ends of the temple are made of TR90, and the flexible central area (12) is made of thermoplastic polyester elastomer.

3. FLEXIBLE TEMPLE FOR SPECTACLES, according to claim 2, **characterized in that** it has been obtained from a double injection molding process and makes up a single-piece bimaterial element.

4. FLEXIBLE TEMPLE FOR SPECTACLES, according to any of claims 1-3, **characterized in that** the articulated connection means that connect the respective external ends of the frame (2) to the temple (1), consist of metal couplings (4) adjustable and insertable through pressure at said ends of the temple (1).

Patentansprüche

1. FLEXIBLER BÜGEL (1) FÜR EINE BRILLE, insbesondere anwendbar auf eine Brille des Typs, bei dem der Rahmen (2) an dem Stegbereich (3) getrennt ist und der flexible Bügel (1) von dem Typ ist, der aus einem schmalen, länglichen Teil gestaltet ist, wobei die Enden des länglichen Teils gestaltet sind, um mit gelenkigen Verbindungsmitteln gekoppelt zu werden, die es mit jeweiligen äußeren Enden des genannten Gestells (2) verbinden, und das an der Rückseite des Kopfes geschlossen ist, **dadurch gekennzeichnet, dass** das schmale, längliche Teil aus einer flexiblen Struktur mit drei spezifischen, deutlich unterscheidbaren Bereichen von unterschiedlicher Art an den Enden davon und dem Mittelabschnitt gebildet ist, umfassend:

   - jeweilige halbsteife Abschnitte (11), d. h. mit einem gewissen Maß an Flexibilität, die geeignet sind, die Abstützung der Brille an den Schläfen des Trägers zu ermöglichen, wobei die halbsteifen Abschnitte (11) aus einem Werkstoff aus polymerem Kunststoff hergestellt sind, und den beiden Abschnitten entsprechen, die einen im Wesentlichen geraden Abschnitt des flexiblen Bügels (1) an ihren jeweiligen Enden einschließen und sich parallel zueinander befinden, entsprechend dem Teil der Schläfen des Trägers, wenn er die Brille trägt; und
   - einen flexiblen zentralen Bereich (12), der dem Rest des Teils entspricht, d. h. dem Abschnitt des Teils, der anschließend den Kopf des Trägers umgibt, wobei der zentrale Bereich (12) aus einem Werkstoff aus thermoplastischem Elastomer hergestellt ist und ein höheres Maß an Flexibilität als die halbstarren Abschnitte (11) hat, und es ermöglicht, dass der Bügel (1) ge-

bogen werden kann, bis die Brille in eine herkömmliche Aufbewahrungstasche oder ein herkömmliches Aufbewahrungsetui eingesetzt werden kann, und auf eine Weise, dass der gebogene flexible Bügel (1) nicht aus dem von dem Rahmen (2) eingenommenen Raum herausragt, wobei die flexible Struktur ermöglicht, dass der Bügel nicht die Form verliert und einen geeigneten Halt bereitstellt.

2. FLEXIBLER BÜGEL FÜR EINE BRILLE, nach Anspruch 1, **dadurch gekennzeichnet, dass** die halbsteifen Abschnitte (11) der Enden des Bügels aus TR90 hergestellt sind, und der flexible zentrale Bereich (12) aus thermoplastischem Polyesterelastomer hergestellt ist.

3. FLEXIBLER BÜGEL FÜR EINE BRILLE, nach Anspruch 2, **dadurch gekennzeichnet, dass** er aus einem Doppelspritzgussverfahren erhalten wurde und ein einstückiges Element aus zwei Werkstoffen bildet.

4. FLEXIBLER BÜGEL FÜR EINE BRILLE, nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** die gelenkigen Verbindungsmittel, welche die jeweiligen äußeren Enden des Rahmens (2) mit dem Bügel (1) verbinden, aus Metallkupplungen (4) bestehen, die durch Druck an den Enden des Bügels (1) einstellbar und einführbar sind.

Revendications

1. BRANCHE SOUPLE (1) POUR LUNETTES, en particulier applicable aux lunettes du type pour lesquelles la monture (2) est séparée au niveau de la zone du pont (3) et la branche souple (1) étant du type qui est configuré à partir d'une partie étroite et allongée, dans laquelle les extrémités de la partie allongée sont configurées pour être couplées à des moyens de raccordement articulés qui la raccordent aux extrémités externes respectives de la monture citée (2) et qui est fermée à l'arrière de la tête, est **caractérisée en ce que** ladite partie étroite et allongée est constituée d'une structure souple avec trois zones spécifiques clairement différenciées de nature différente, à ses extrémités et à sa partie centrale, comprenant :

   - des sections semi-rigides respectives (11), à savoir avec un certain degré de souplesse, adaptées pour permettre le support des lunettes sur les branches du porteur, dans laquelle les sections semi-rigides (11) sont constituées de matière plastique polymère, et correspondant aux deux sections qui comportent une section sensiblement droite de la branche souple (1) à leurs extrémités respectives et sont situées parallèlement l'une à l'autre, correspondant à la partie des branches du porteur lors du port des lunettes ; et
   - une zone centrale souple (12), correspondant au reste de la pièce, à savoir, à la partie de la pièce qui entoure ensuite la tête du porteur, dans laquelle ladite zone centrale (12) est constituée d'un matériau élastomère thermoplastique et a un degré de souplesse plus élevé que celui des sections semi-rigides (11) et qui permet à la branche (1) d'être pliée jusqu'à ce que les lunettes puissent être insérées dans un sac ou étui de rangement classique, et de manière à ce que la branche souple pliée (1) ne dépasse pas de l'espace occupé par la monture (2), dans laquelle la structure souple permet à la branche de ne pas perdre la forme et de fournir un maintien approprié.

2. BRANCHE SOUPLE POUR LUNETTES, selon la revendication 1, **caractérisée en ce que** les sections semi-rigides (11) des extrémités de la branche sont constituées de TR90, et la zone centrale souple (12) est constituée d'élastomère thermoplastique de polyester.

3. BRANCHE SOUPLE POUR LUNETTES, selon la revendication 2, **caractérisée en ce qu'**elle a été obtenue à partir d'un procédé de moulage par double injection et constitue un élément bi-matière monobloc.

4. BRANCHE SOUPLE POUR LUNETTES, selon l'une quelconque des revendications 1 - 3, **caractérisée en ce que** les moyens de raccordement articulés qui raccordent les extrémités externes respectives de la monture (2) à la branche (1), sont composés de raccords métalliques (4) réglables et insérables par pression auxdites extrémités de la branche (1).

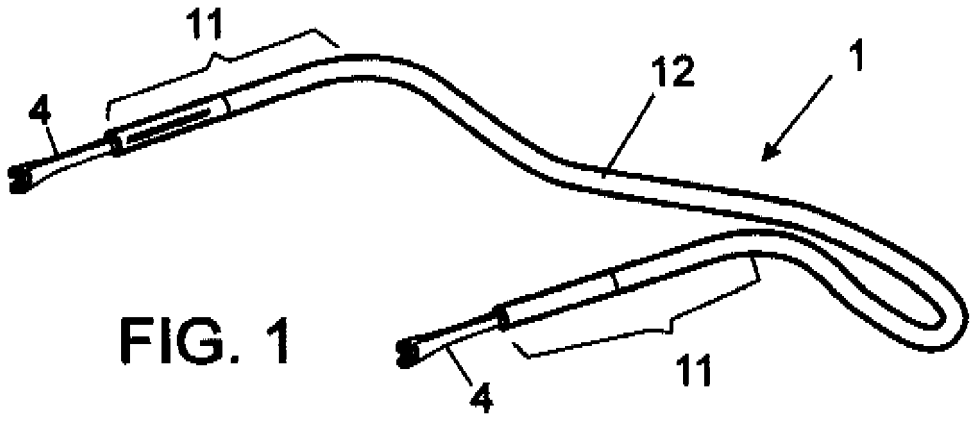

FIG. 1

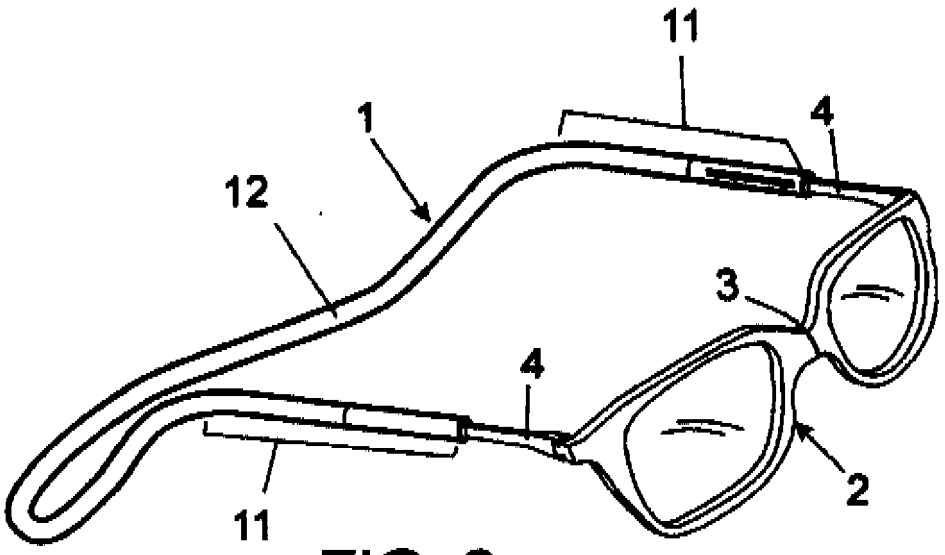

FIG. 2

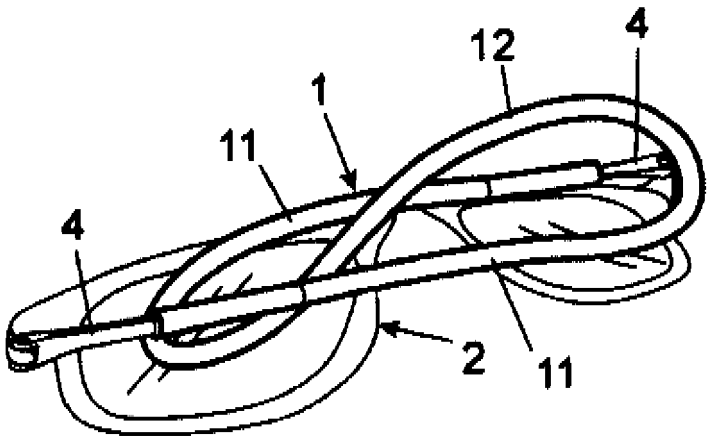

FIG. 3

REFERENCES CITED IN THE DESCRIPTION

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