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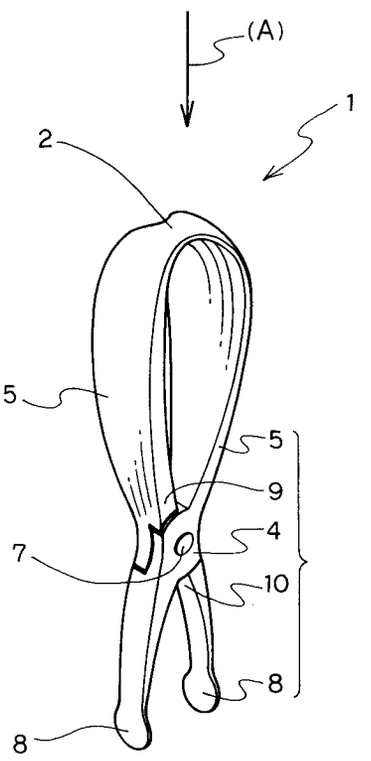
(54) Pincette for an ocular lens.

(57) A pincette for an ocular lens comprises a pair of arm portions (3) which are crossed each other and fulcrumed and continuous via a curved portion (2) having a resilient property side and a stopper (9) which is formed approximately in the crossed portion (4) and contacted with each other when the arm portion is closed.

FIG. 1



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The present invention relates to a pincette for an ocular lens, and more particularly to a pincette which is used on the occasion to deal with an ocular lens such as a contact lens and the like.

The contact lens and the like have hitherto been dealt in such a manner as to be pinched either by a thumb and a finger or by a pincette made of stainless steel or hard material such as acrylonitrile-butadiene-styrene resin (ABS resin) and the like. However, if the contact lens is handled by the above way, the contact lens is often hurt. In view of protection of the contact lens, there is such a pincette, a tip of which is covered with plastics such as polyfluoroethylene resin and the like. The contact lens cannot be handled without being hurt when such a pincette is used.

For this reason, the pincette made of soft material which is substitute for hard material is proposed. Such a pincette has a shape which is the same as general pincette shown in Fig. 7. When the pincette is compared to a lever, each of a fulcrum (a curved portion 51) and a point of application (a tip portion 52 for pinching a lens) is respectively disposed in an end portion of the pincette and a point of force (a glip portion 53) is disposed between the fulcrum and the point of application. A stopper 54 is formed in an inner side of the grip portion 53. Then the pincette is intended not to close exceeding a certain length.

According to the above-mentioned conventional pincette, when the pincette is inserted into a case for storing a contact lens having a mouth of small diameter, the grip portion 53 must be closed to a certain extent (referring to Fig. 8). Accordingly, it is restricted to open and close the tip portion 52 for pinching the lens which is located in the bottom of the case for storage. Then it is very difficult to pinch the lens. When the grip portion 53 is pinched by a finger and a thumb, a stroke of the tip portion 52 becomes longer than that of the grip portion 53. Therefore, it is difficult to perform such a fine work as to deal with the contact lens and the like. The users tend to pinch a portion located in the neighborhood of the tip portion 52 of the pincette when the users perform the above-mentioned fine work. In such a case, there is a probability to damage the contact lens by pressing the tip portion after the stopper 54 which is formed in the inner side of the grip portion 53 is coming into contact with the another side of the grip portion 53.

An object of the present invention is to resolve the above described problems, and to provide such a pincette for an ocular lens that the pincette can take out a lens from a case for storage having a small mouth, prevent the lens from being damaged when the lens is pinched and be easily handled.

According to the present invention, there is provided a pincette for an ocular lens comprising:

(a) a pair of arm portions which are crossed each other and fulcrumed and continuous via a curved portion having a resilient property; and

(b) a stopper which is formed approximately in the crossed portion and contacted with each other when the arm portion is closed.

It is preferable that said pincette is made of a hydrophobic soft material, above all, hydrophobic soft material possible to mold.

It is preferable that a tip portion of said arm portion is thinned.

Further it is preferable that said curved portion has a thinner thickness and a narrower width compared with the arm portion.

A term "ocular lens" used in the present invention is a concept including a contact lens or an intraocular lens.

When the grip portion is pinched by a thumb and a finger against a resilient force of the curved portion, the tip portion is closed. Then, distances between arm portions from the crossed portion to the tip portion are equal each to each. Accordingly, it is easy to take out the lens from the case having a small mouth. Since the stoppers which are formed in the neighborhood of the crossed portion are contacted each other, a force of closing the arms is not transmitted to the tip portion beyond a restriction by the stopper.

Therefore, it does not happen to damage the lens. Further, the portions except for the grip portion, that is to say, the portions near the tip portion are not pinched by users since the grip portion is clearly defined in such a manner as to be distinguished from the crossed portion. Accordingly, the stoppers near the crossed portion always function effectively.

Further, since the tip portion and the grip portion are formed in such a manner that the crossed portion is located between the tip portion and the grip portion, the stroke of closing the tip portion is shorter than that of pinching the grip portion or the stroke of closing the tip portion is almost the same as that of pinching the grip portion.

Fig. 1 is a perspective view showing an embodiment of the pincette of the present invention;

Fig. 2 is a front view showing a state of closing the tip portion of the pincette of Fig. 1;

Fig. 3 is a front view showing a state before constructing the pincette of Fig. 1;

Fig. 4 is a plan view of Fig. 1 viewed from the dirrection of an arrow A;

Fig. 5 is a perspective view showing a shape of the tip portion of another embodiment of the present invention;

Fig. 6 is a perspective view further showing a shape of the tip portion of another embodiment of the present invention;

Fig. 7 is a perspective view showing an example

of conventional pincette; and

Fig. 8 is a front view showing a state closing the tip portion of a pincette of Fig. 7.

DETAILED DESCRIPTION

The pincette in accordance with the present invention is explained below with reference to the drawings.

A pincette 1 shown in Fig. 1 has such a shape that a belt-like-shaped-plate member is curved and folded. A pair of arms 3 which are continuous via a curved portion 2 are crossed each other and fulcrumed in the neighborhood of the central portion of the pincette. Portions between the curved portion 2 and a crossed portion 4 of the arms 3 define a grip portion 5 of the pincette 1.

Each of the crossed portions 4 of the arms 3 is formed in such a manner that each crossed portion 4 has a face perpendicular to another portion of the arm 3. A hole 6 for a pin is formed in approximately the center of one of the crossed portions (referring to Fig. 3), then the hole 6 inserted by a pin portion 7 is formed in another crossed portion. The pin portion 7 is rotatably fulcrumed by the crossed portion 4. The curved portion 2 of the pincette 1 is biased so that the tip portion 8 can always be opened by means of an elastic force thereof. Then, if the grip portion 5 is pinched, the tip portion 8 is closed. Since the pincette 1 has a crossed portion 4, each distance between arm portions located from the crossed portion 4 to the tip portion 8 is almost the same. Accordingly, the case for storage having the above-mentioned small mouth can be easily inserted by the pincette. Furthermore, since the tip portion 8 is curved in such a manner as to converge (or be inwardly disposed), the lens can be securely retained.

Accordingly, the lens can be easily taken out from the above-mentioned case having a small mouth.

Furthermore, when the pincette 1 is closed, first stoppers 9 (referring to Fig. 3) which are defined in the arms 3 in the upper side (the end portion of the curved portion side) of the crossed portion 4 are coming into contact each other and/or second stoppers 10 which are defined in the arms 3 in the lower side (the end portion of the tip portion side) are coming into contact with each other. Therefore, when the grip portion 5 is pinched strongly enough to exceed the state that the first stoppers 9 are coming into contact with each other, the grip portion 5 is bended and the tip portion 8 is never closed by pinching the grip portion 5. Then, the pinched lens is not damaged.

Further, since the grip portion 5 is defined in such a manner as to be distinguished from the crossed portion 4 which is a distinct portion, the tip portion is never pinched. Then an effect of the stopper is never lost like the conventional pincette.

The pincette 1 in accordance with the present invention is provided with the crossed portion 4 located in the place where a stroke of pinching the grip portion 5 is longer than that of closing the tip portion 8 or the stroke of pinching the grip portion 5 is almost the same as the stroke of closing the tip portion 8. Therefore, it is easy to perform such a fine work as to deal with the lens.

Further, since the arm portion 3 is thinned in the place from the crossed portion 4 to the tip portion 8 (referring to Fig. 3), the arm portion 3 is easily bended and prevents the lens from transmitting the excessive force.

It is preferable that a thickness T of the tip portion 8 is not more than half of the thickness W of another parts of the arm portion 8 (referring to Fig. 3). Furthermore, it is preferable that the tip portion 8 has a round shape (or the tip portion 8 has its edge portions chamfered) so as not to damage the lens even in the case of coming into contact with the lens. Especially, in view of an easiness of producing it is preferable that the tip portion has a disk like shape shown in Fig. 1 or a ring like shape shown in Fig. 5 or a spherical shape shown in Fig. 6. The tip portion 8 has such a size not to be difficult to pinch the lens. Generally, a maximum width of the tip portion 8 is approximately 2 to 10 mm. As shown in Figs. 1 to 4, the width of the curved portion 2 located in the place from the back side is narrowed gradually and the thickness of the curved portion are thinned little by little.

Accordingly, as elastic force of the curved portion 2 to open the pincette is little and it is easy to control the force of the thumb and finger when the users deal with the pincette. As a material of the pincette 1, it is preferable to employ such a hydrophobic soft material as not to easily become dirty. For instance, polyethylene, polybutadiene, polypropylene, polyester, urethane elastomer, silicone elastomer and the like can be employed.

If the grip portion is provided with a serrated or warty antislipping portion so that the thumb and the finger do not slip when the pincette is handled, the pincette can be still more easily handled.

Since the users can adjust to open or close the tip portion by using the pincette of the present invention without being effected by the size of the mouth of the case, the lens can be easily taken out from the case and can be easily controled by the thumb and the finger without adding unnecessary force to the lens which is a pinched article. Therefore, the pincette in accordance with the present invention is very easy to be deal. Further, the pincette has such an advantage that an injection molding is easily performed since the pincette has

a simple shape.

Though several embodiments of the invention are described above, it is to be understood that the present invention is not limited to the above-mentioned embodiments, and various changes and modifications may be made in the invention without departing form the sprit and scope therof.

Claims

1. pincette for an ocular lens comprising:
(a) a pair of arm portions which are crossed each other and fulcrumed and continuous via a curved portion having a resilient property; and
(b) a stopper which is formed approximately in the crossed portion and contacted with each other when the arm portion is closed.

2. The pincette of Claim 1, wherein said pincette is made of a hydrophobic soft material.

3. The pincette of Claim 1, wherein a tip portion of said arm portion is thinned.

4. The pincette of Claim 1, wherein said curved portion has a thinner thickness and a narrower width compared with the arm portion.

FIG. 1

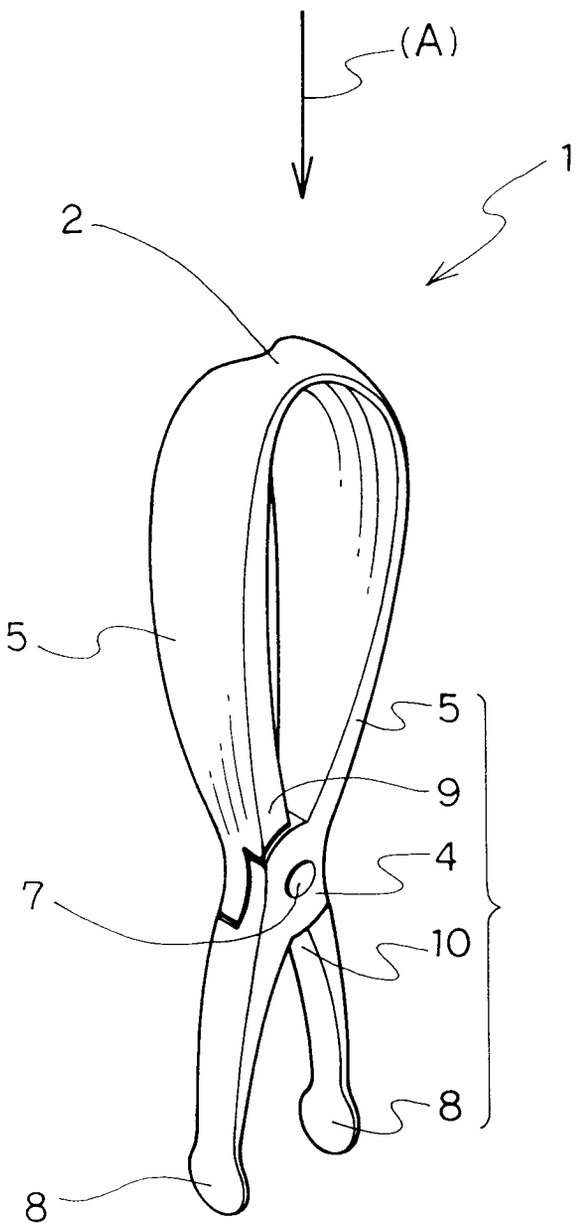


FIG.2

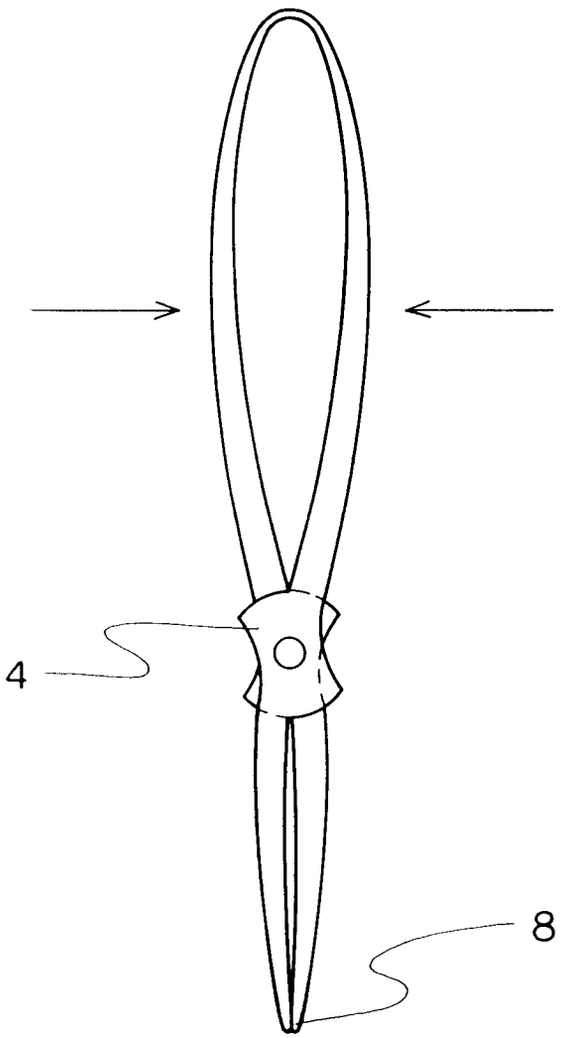


FIG. 3

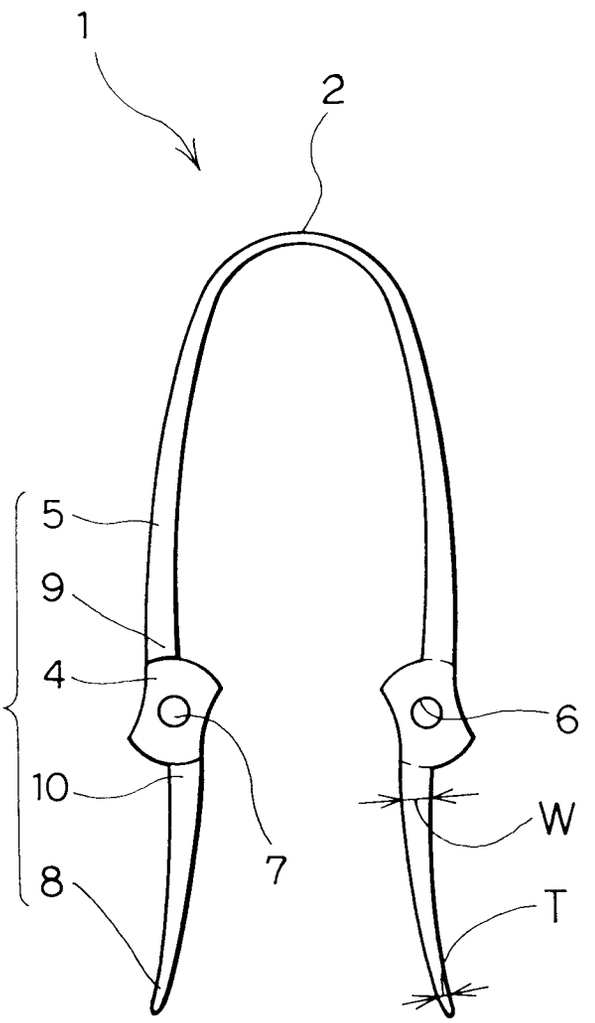


FIG. 4

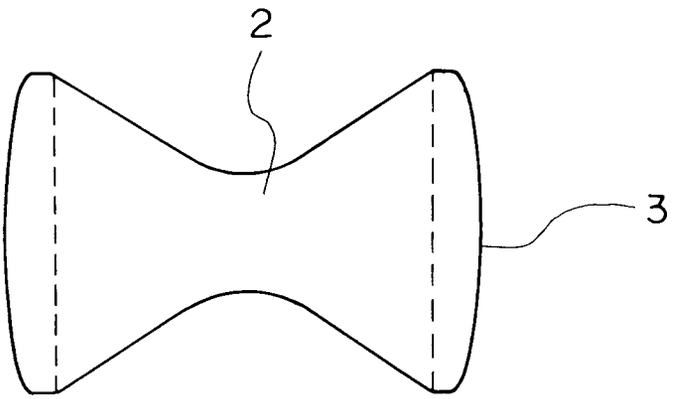


FIG. 5

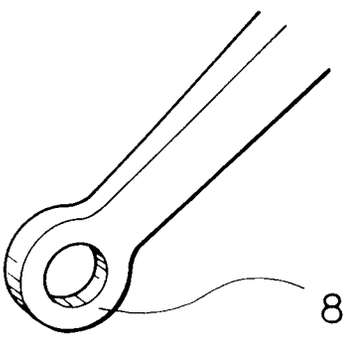


FIG. 6

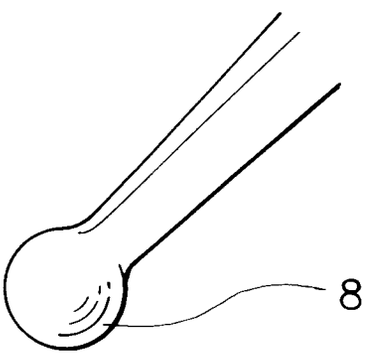


FIG. 7
PRIOR ART

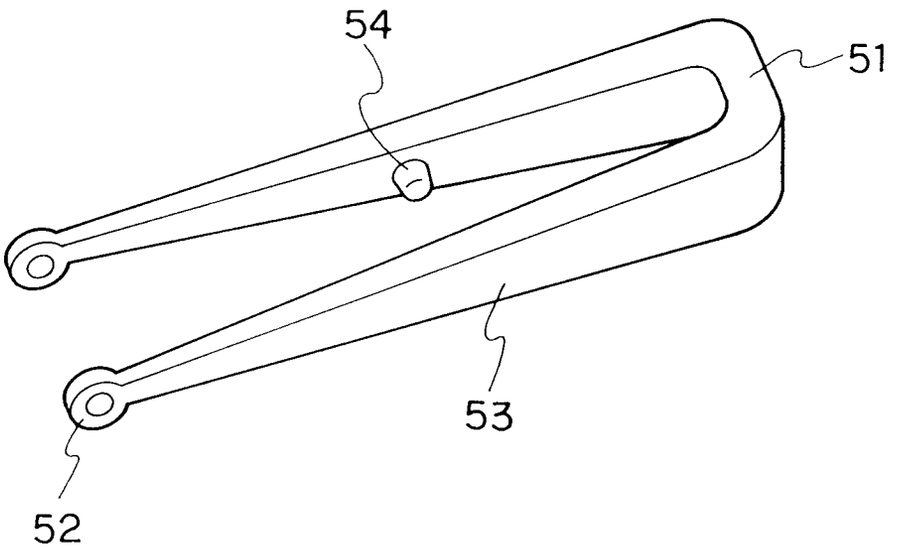
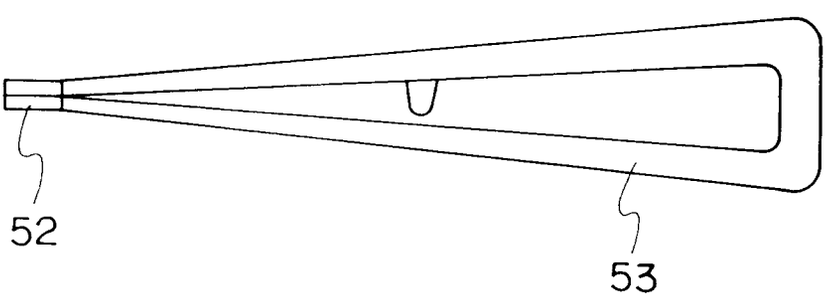


FIG. 8
PRIOR ART



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EUROPEAN SEARCH REPORT

Application Number

EP 91 12 2357

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Y	DE-A-1 603 752 (P. DREES) * page 2, last paragraph - page 3, paragraph 1; figures 1,2 *	1,3	B25B7/00 B25B9/00
Y	FR-A-2 387 731 (G. YGFORS) * page 2, line 19 - page 3, line 4; figure 1 *	1,3	
A	US-A-4 192 204 (M. FELDMAN) * column 2, line 64 - column 3, line 29; figures 1,2 *	1-3	
A	WO-A-7 900 327 (AMERICAN HOSPITAL SUPPLY CORP.) * page 6, line 21 - line 28; figure 6 *	2	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)
B25B A61F A61B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	02 APRIL 1992	VIBERG S.O.

CATEGORY OF CITED DOCUMENTS

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