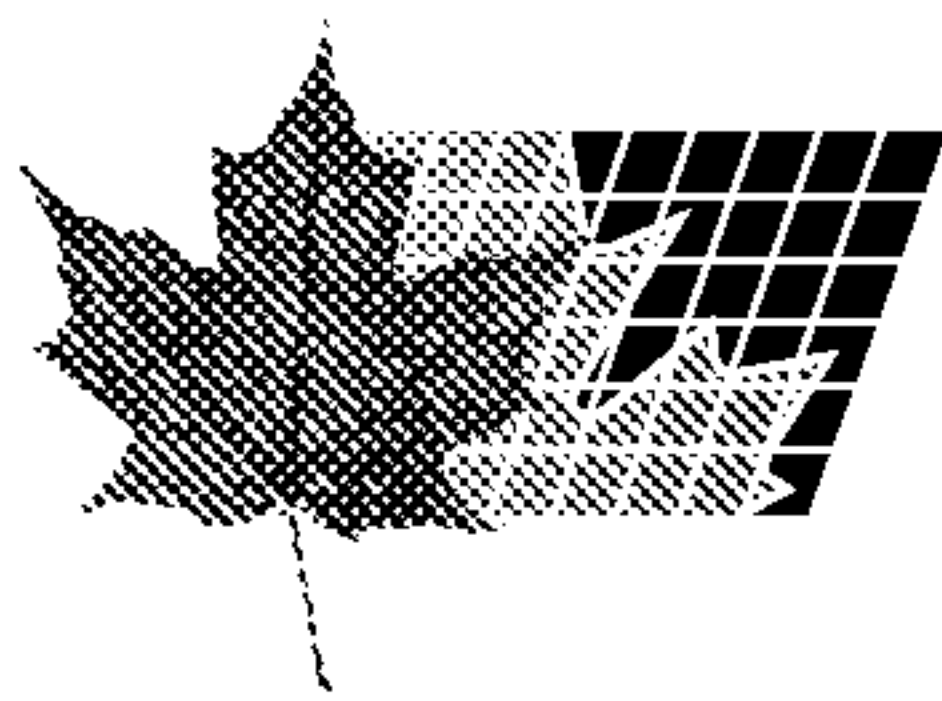




(72) CARGNEL, GIUSEPPE, IT

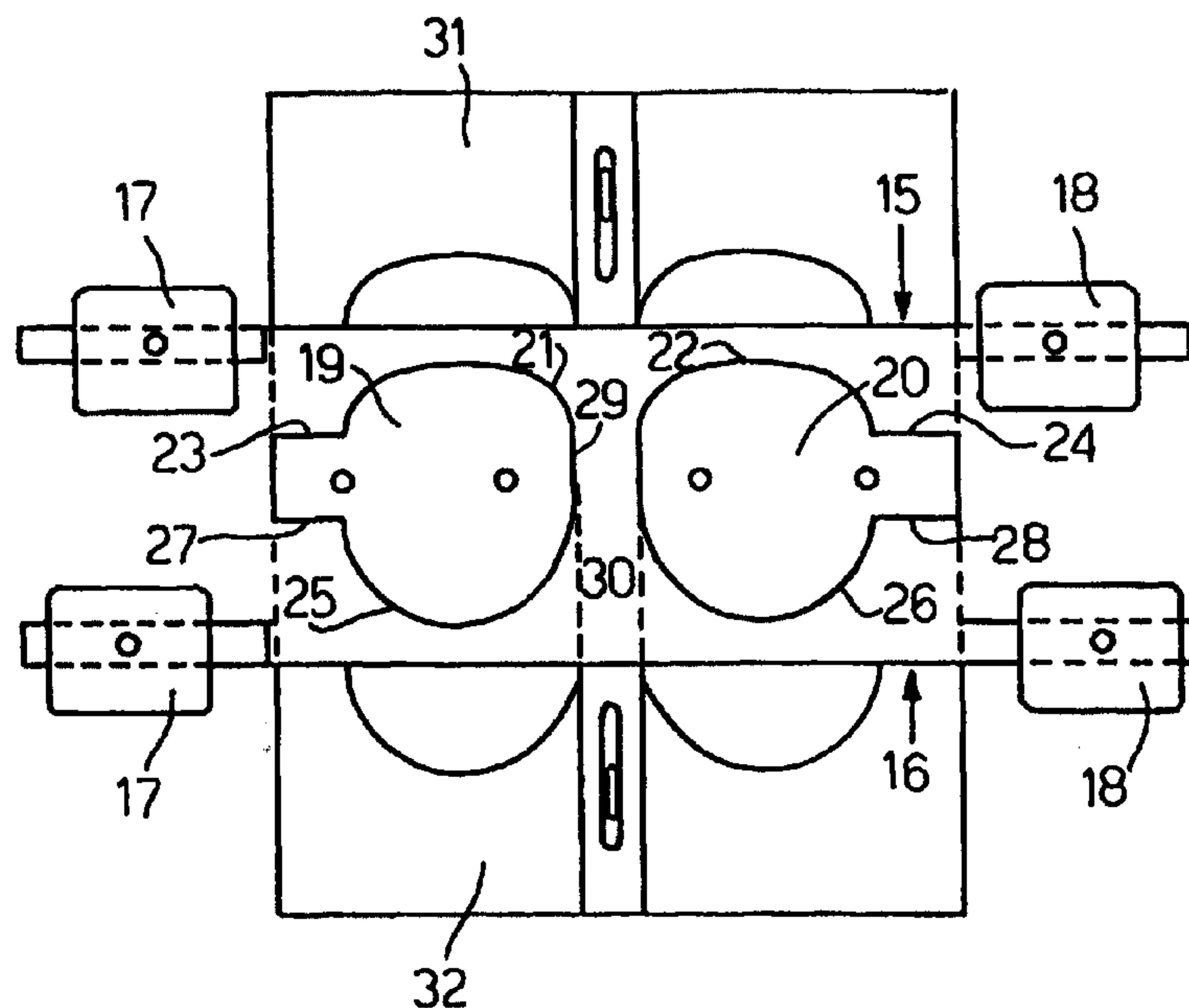
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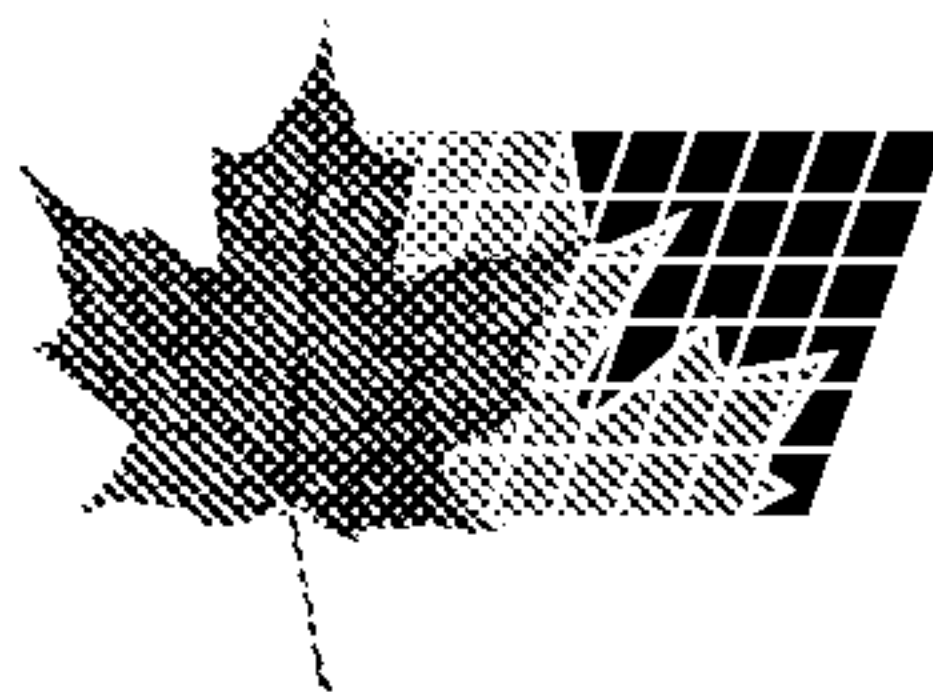
(54) **PROCEDE DE FABRICATION DE LUNETTES OPTIQUES ET
LUNETTES AINSI PRODUITES**

(54) **MANUFACTURING METHOD FOR SEPCTACLES AND
SPECTACLES OBTAINED WITH SUCH METHOD**



(57) Cette invention a trait à un procédé de fabrication de lunettes optiques, lequel procédé repose sur l'emploi d'au moins deux segments de fil profilé (15, 16), métalliques, de préférence, et de gabarits façonnés (19, 20), de même forme que les verres, écrans, filtres et analogue, mais légèrement plus grands que ceux-ci. Dans le cadre de ce procédé, les deux segments de fil profilé (15, 16) sont soumis, successivement, à différentes opérations d'usinage au cours desquelles ils sont ajustés sur les gabarits façonnés (19, 20) de manière

(57) Manufacturing method for spectacles with the use of at least a first and a second portion of profiled wire (15, 16) of preferably metallic material, and shaped means (19, 20) having the same form and a size slightly greater than that of the lenses, screens, filters and the like. Method in which said first and second wire portion (15, 16) are submitted in succession to different operative phases, in which they are adapted around said shaped means (19, 20) so as to form the frame half-portions (33, 34), which are shaped around said shaped



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à former les moitiés de face de monture (33, 34), les gabarits servant à façonner ces moitiés de face de monture à la forme des verres, écrans, filtres et analogue. Ces moitiés de face de monture (33, 34) sont ensuite reliées à leurs branches respectives (50) au moyen de charnières (39, 40) ajustées. Les moitiés de face et les branches (50) sont alors soumises à tous les traitements chimiques de protection appropriés et souhaitables. Ces moitiés de face de monture (33, 34) sont ensuite équipées des verres, écrans, filtres et analogue et les branches (50) sont munies des pièces de finition appropriées. La pièce constituant le nez (59) de la monture est ensuite mise en place sur l'ensemble formé par les moitiés de face (33, 34) et les verres ou écrans ou filtres ou analogue, cette dernière opération rendant les différents éléments solidaires les uns des autres et les assujettissant.

means (19, 20) with the same outline of the lenses, screens, filters etc., in which the frame half-portions (33, 34) are joined to the respective bars (50) through articulation means (39, 40) which are attached to the corresponding frame half-portions, which are submitted, together with said bars (50), to possible adequate protective chemical treatments, and in which the frame half-portions (33, 34) are applied on to the lenses, screens, filters and the like, and the bars (50) are equipped with the respective terminal elements, and afterwards the nose-piece element (59) is applied on to the assembly frame half-portions (33, 34)-lenses, screens, filters and the like, by tightening it together.

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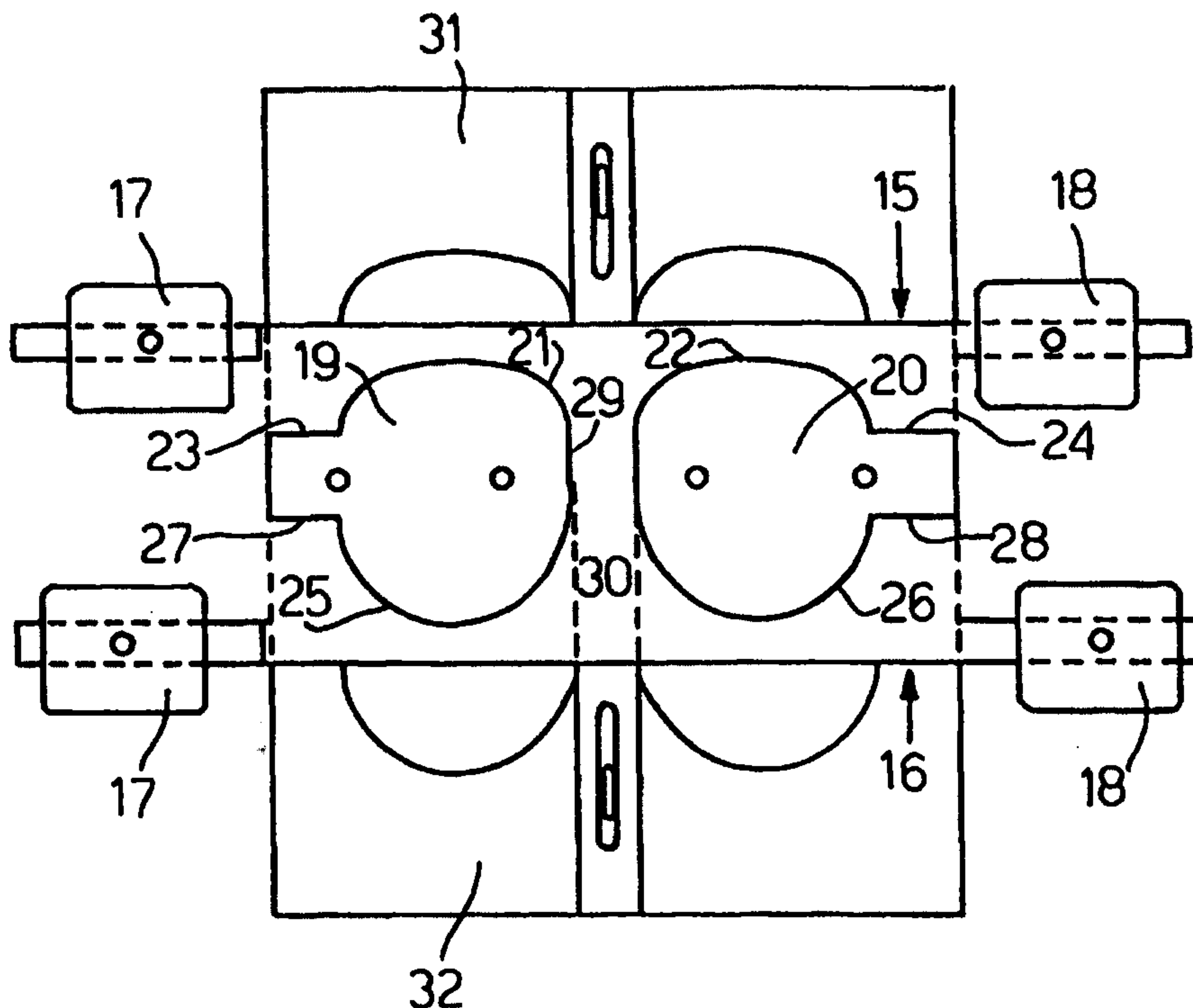
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(21) International Application Number: PCT/EP99/05254 (22) International Filing Date: 22 July 1999 (22.07.99) (30) Priority Data: PN98A000055 24 July 1998 (24.07.98) IT (71)(72) Applicant and Inventor: CARGNEL, Giuseppe [IT/IT]; Vicolo del Mulino, 4, I-32044 Pozzale di Pieve di Cadore (IT). (74) Agent: DALLA ROSA, Adriano; Via S. Vito, 13/B, I-33170 Pordenone (IT).		(81) Designated States: AU, BR, CA, CN, CZ, HU, IL, JP, KR, MD, MX, NO, NZ, PL, RO, RU, SI, TR, US, European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i>

(54) Title: MANUFACTURING METHOD FOR SEPCTACLES AND SPECTACLES OBTAINED WITH SUCH METHOD**(57) Abstract**

Manufacturing method for spectacles with the use of at least a first and a second portion of profiled wire (15, 16) of preferably metallic material, and shaped means (19, 20) having the same form and a size slightly greater than that of the lenses, screens, filters and the like. Method in which said first and second wire portion (15, 16) are submitted in succession to different operative phases, in which they are adapted around said shaped means (19, 20) so as to form the frame half-portions (33, 34), which are shaped around said shaped means (19, 20) with the same outline of the lenses, screens, filters etc., in which the frame half-portions (33, 34) are joined to the respective bars (50) through articulation means (39, 40) which are attached to the corresponding frame half-portions, which are submitted, together with said bars (50), to possible adequate protective chemical treatments,

and in which the frame half-portions (33, 34) are applied on to the lenses, screens, filters and the like, and the bars (50) are equipped with the respective terminal elements, and afterwards the nose-piece element (59) is applied on to the assembly frame half-portions (33, 34)-lenses, screens, filters and the like, by tightening it together.



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**“MANUFACTURING METHOD FOR SPECTACLES AND SPECTACLES
OBTAINED WITH SUCH METHOD”**

The invention refers to a manufacturing method for spectacles, which is capable
5 of producing the component parts of a spectacle frame of a particular
construction, the application of the support bars by means of a quick snap-on
system and the assembling of the lenses in said frame while making use of the
nosepiece as a locking key for the frame-and-lenses assembly, without
employing welding points and possibly also screws.

10 Spectacles manufacturing is a process that is currently carried out by
preliminarily preparing the relative frame, usually made of either plastic
material moulded with some appropriate process such as injection moulding or
cut from sheet stock, or metal from either sheet or wire stock, and then
assembling subsequently such frame with the lenses as well as the support bars
15 and the nosepiece.

Such a kind of manufacturing procedure involves a number of labour intensive,
i.e. manual working phases for both preparing the above cited frame and
adapting and assembling the support bars, the nosepiece and the lenses in the
same frame as well as the need to have at their own disposal :

- 20 1) expensive tools and machinery ;
- 2) skilled and trained workforce for carrying out each particular working phase
in the process ;
- 3) long working times ;
- 4) considerable usage of materials.

Such a kind of manufacturing method therefore turns out to be quite complicated and expensive, while also implying the use of considerable amounts of materials for making the various component parts required by the particular construction.

5 It therefore is a purpose of the present invention to eliminate the drawbacks cited above in the spectacle manufacturing process by providing a spectacle manufacturing method of a semi-automated type that is capable of producing spectacles of different kind, shape and size with

a) few and simple working phases,

10 b) a reduced use of workforce,

c) considerably shorter working times,

d) lower usage of raw materials, auxiliary and secondary materials and products,

e) minimization of any possible type of waste and scrap.

This manufacturing method is obtained with the operational phases that are
15 substantially described, with particular reference to the appended claims of the present patent.

The invention will be understood better from the following description, given solely by way of not-limiting example and with reference to the accompanying drawings in which :

20 - Fig. 1 shows schematically a front view of a first operative phase of the present manufacturing method and a relative tooling employed ;

- Fig. 2 shows schematically a front view of an intermediate product obtained from the present method, on a constructive version thereof, during the second operative phase of the present manufacturing method;

- Fig. 3 shows schematically a plan view of a tooling employed during the second operative phase of the present manufacturing method,
- Fig. 4 shows schematically a front view of an intermediate product obtained in the subsequent third operative phase of the method referred to, in a different constructive version thereof,
- Fig. 5 shows a plan view of the intermediate product of Fig. 4,
- Figs. 6 and 7 show a cutaway front view of the item of one of the component parts employed for the intermediate product of Fig. 4, in two different constructive versions thereof,
- Figs. 8 and 9 show a cutaway plan view of the item of the same component part employed, in two further constructive versions thereof,
- Figs. 10 and 11 show a respective cutaway side view and front view of the same component element of Figs. 8 and 9, in a different constructive version thereof,
- Fig. 12 shows a cutaway side view of the same component element in a further constructive version thereof,
- Fig. 13 shows a front view of another component part employed for manufacturing the spectacles,
- Figs. 14 and 15 show a cutaway side view of the component part of Fig. 10, before and after having been fitted to the product.

The above listed Figures illustrate schematically the various operative phases of the spectacle manufacturing method according to the invention, which is capable of producing in a semi-automated manner spectacles of both innovative and traditional type, that are as usual formed by a frame, a pair of viewing

lenses (in the case of sight glasses) or darkened lenses (in the case of sun glasses), a pair of particular or treated viewing lenses (in the case of protective or sports glasses) as well as a pair of support bars or other spectacle supporting elements provided on the sides or on top of the frame, so as to be able to rest
5 on the ears or the head of each person, along with a single element or a pair or more elements acting as the nosepiece and intended to enable the spectacles to rest on the nose of each person.

In view of producing the above mentioned component parts of spectacles of differing type, form and size, according to the present invention use can be
10 made of at least a thin section bar of preferably metallic material, and particularly but not exclusively aluminium, either of natural type or anodized on its surface, or also light alloys of other materials which have low weight and cost, and moreover is advantageously either notched or chamfered in a conventional manner along a side thereof in a rectilinear direction for the entire
15 length of the section bar, said section bar being available commonly as parts or coils of different length and being cut in advance on portions of the same length, such that to permit to obtain the relative frame as it will be described later.

Furthermore, the method calls also for the bars (arms) and the nose resting elements to be produced separately each time according to the particular
20 models, i.e. special or standard, to be manufactured in accordance with the market requirements, in view of being then able to subsequently apply them on to each spectacle frame forepart manufactured with the considered method in the manner that will be described below. The manufacturing method according to the present invention is carried out by performing a sequence of operative

phases in which at least two wire portions, marked with the reference numerals 15 and 16, are employed, which have either the identical or different length from each other depending on the size of the frame to be obtained, and the end portions of which are inserted and adequately fixed removably in to suitable
5 pairs of centering and locking elements 17 and 18, in a manner that they extend on a horizontal direction and are arranged aligned to each other on the same vertical plane, at a position which is reciprocally superimposed and spaced.

In addition, two pattern or templates 19 and 20, which are separated and aligned horizontally from each other, are interposed in the spacing comprised
10 between the wire portions 15 and 16 so as to shape the wire portions with the same form and a size which is slightly larger than that of the lenses, screens, filters and the like which will be respectively used for each kind of spectacles, in a way that the so shaped portions can be subsequently adapted thereon.

Such templates are supported by an associated support (not shown), in a
15 manner to be able to adjust from time to time preliminarily at the required extent the axial spacing therebetween, and such an adjustment in the example referred to is effected by sliding alternately the support of each template in a corresponding rectilinear slot with horizontal extent (not shown), and can be obviously effected also in different manners and such that to achieve always the
20 same function referred to.

These templates are respectively profiled with an upper bent half-portion 21 and 22 which extends at one side with a short rectilinear horizontal portion 23 and 24, and with a lower bent half-portion 25 and 26 which extends at one side with a short rectilinear horizontal portion 27 and 28, identical and coincident with the

corresponding horizontal portion of the associated upper bent half-portion 21 and 22, and at the other side is joined to this latter by means of a respective short rectilinear vertical portion 29 and 30.

Furthermore, these templates are symmetrical to each other in a way that each pair of coincident horizontal portions is turned in an opposite direction with respect to the remaining pair of horizontal portions, and that the vertical portions 29 and 30 are turned towards each other and arranged approached to each other.

In order to permit each wire portion to be adapted on to these templates, it is centered on to these latter in a manner that they insert themselves in the notch or chamfer of said wire portions during the first operative phase of the present manufacturing method.

Finally, always referring to the Fig. 1, it is noted that the wire portions 15 and 16 and the pattern 19 and 20 co-operate with a shaping tool constituted advantageously by at least a die formed by a first upper half-die 31 and a second lower half-die 32, which are respectively situated above the first wire portion 15 and below the second wire portion 16, at a position into contact with the corresponding wires and aligned with respect thereof and the pattern, said first and second half-die being shaped with the same outline of the corresponding upper bent portions 21, 22 and lower bent portions 25 and 26 as well as rectilinear horizontal 27, 28 of the relative pattern 19, 20, and with a flat horizontal outline at the level of the respective vertical portions 29, 30 of said upper and lower bent portions, in this latter case providing for the frame joining piece as it will be described later.

In the first operative phase of the method according to the invention, still referring to the Fig. 1, it is noted that the first and the second half-die 31 and 32 are operated contemporaneously in a known manner, from their starting raised position of Fig. 1 firstly in a relationship approached to each other, with a stroke adjustable with conventional means, in order to enclose closely the assembly wire portions-patterns, thereby providing for shaping of two frame half-portions 33 and 34, which are respectively the upper and lower half-portions assuming the outline of the corresponding upper half-die 31 and lower half-die 32, and thereafter in a relationship moved away from each other by returning back into the position illustrated in Fig. 1, so as the frame half-portions 33 and 34 remained on to the patterns can be extracted from this position and submitted to the subsequent operative phase.

In particular, such an extraction is performed by using either different manual systems or a possible automatic mechanical means of per se known type, which after the frame half-portions have been drawn therefrom provides for arranging them for the subsequent operative phase which will be described.

The following second operative phase of the present method is performed with at least an apparatus shown in the Fig. 3, in order to match the rectilinear outline of the frame to the convex outline of the lenses onto which it will be subsequently fitted, and is called meniscus shaping phase.

This apparatus is composed of a die formed by a first and a second half-die 37 and 38, which are situated at a position opposed from each other and coincident to each other at the level of the two longitudinal sides which are opposite to the frame, and shaped with outlines which are complementary and perfectly mating

to each other, and identical to the outline of the lenses, screens, filters and the like as well as that of the central joining piece.

Moreover, such half-dies 37 and 38 are formed by movable component parts capable of changing the distance between the lenses, screens, filters and the like and being adaptable on lenses, screens, filters and the like with different and variable size and shape.

This die is operated from a starting opened position, evident from the Fig. 3, in which the two half-dies 37 and 38 are opened and arranged for accomodating the frame half-portions therebetween, to a closed position (not evident) in which such frame half-portions are enclosed by the half-dies with consequent shaping at the required outline thereof, and vice versa.

Fig. 2 shows an intermediate product made in a constructive version thereof and shaped of trapezoidal form.

Of course, according to the invention it is also possible to use apparatuses of a kind different than that described solely by way of example, provided that the same involve anyway the carrying out of operative phases identical or similar to those described and claimed in the present patent.

Turning now to the Figs. 4 and 5, it is shown an intermediate product obtained in the subsequent third operative phase of the present method, which product in the example shown is made in a constructive version with a form different with respect to that of Fig. 2, namely a form elliptical instead of trapezoidal one, like that shown in the Fig. 2. In this third operative phase, in particular, the corresponding pairs of rectilinear horizontal portions of the frame half-portions

33 and 34 are joined together without need of weldings, by a respective hinging block 39 and 40, shown in different versions thereof in the Figs. 6-11, which are provided for the bar articulation. In particular, such arms or bars are shaped with an extended rectilinear portion 41 which at its articulation end portion is
5 either bent in the shape of a curl 42, or is shaped rectilinearly in a conventional manner, and these arms or bars are manufactured with different shapes, types and sizes by utilizing apparatuses of traditional kind or are also designed specifically.

In turn, the hinging blocks are shaped as it will be described also by
10 utilizing apparatuses either of traditional kind or designed specifically for the use, and they shall anyway be in all cases such as to be capable of receiving and accomodating the corresponding tenon of the bar.

These hinging blocks are attached in position by means of sticking material of
15 traditional kind such as cements, adhesives, resins or also fixing means also of traditional kind (screws etc.).

In the example illustrated in the Fig. 6, it is noted that each hinging block is constituted by a bush 43 with rectangular shape which can be fitted on to each pair of rectilinear horizontal portions and accordingly is provided
20 with an inner cavity 44 open at a side thereof, so as to enable these horizontal portions to be inserted therein, and closed at the other side thereof by a bottom 45 in which a through hole 46 for the passage of a screw 47 or the like is provided, so as to lock the bush on to the corresponding rectilinear portions.

Moreover, such bush is integral with either a hinge, fixed joint or similar of traditional type, or some articulation members or levers of per se known type (not shown) for the articulation of the corresponding bar.

In the Fig. 7 it is noted that each hinging block is constituted always by a bush 43, adaptable on to the corresponding rectilinear horizontal portions, however in this case it is unprovided with a through hole and a screw and fitted by means of glueing to the same portions.

In the Fig. 8 it is noted that each hinging block is constituted always by a bush 43 with a through hole 46 and a locking screw 47, which bush in this case is shaped with a support structure 48 orthogonal thereto, provided with a transversal stud 49 for the articulation of a corresponding bar 50, which stud is inserted into a corresponding through hole 51 of the same bar.

In the Fig. 9 it is noted that each hinging block is constituted like that of Fig. 8, and differs therefrom in that the bush 43 is unprovided with a through hole and a locking screw, and is glued into position like in the Fig. 7, and that the bar 50 instead of having a through hole 51 is shaped with a curl 42 at the portion thereof which is articulated to the frame, which curl is consequently hooked directly on the transversal stud 49 (tenon hooking system).

In the Figs. 10 and 11 it is noted that each hinging block is provided with a hollow 52, which can be inserted on to each pair of rectilinear horizontal portions of the frame half-portions 33 and 34, and extends towards the user's face shaped as a U configuration, the bottom 53 of the U being turned

outwardly and slightly bent inwardly at its free end portion 54, for the stopping abutment of the bar at the fully opened position thereof.

A tenon-like stud indicated at 55 is fixed by riveting at its ends on the two wings of the U-shaped configuration. The curl 42 of the bar is then hooked
5 pivotably on around said stud with the manoeuvre indicated in Figure 10, which enables the bar to move from the position 10b, as indicated with dotted lines in the cited Figure, and as made possible by the frame 56 before the lenses, glasses etc. are mounted therein, through the position 10a, through the forepart of the spectacle frame, again indicated with dotted line, up to the position 10c
10 indicated with continuous lines, by means of a rotation according to the arrow B.

A dowel 56 fills the U-shaped cavity 58 of the hinging block, thereby reconstituting the convex surface of the curl 42 and adhering thereto, in such a manner as to enable the bar to continuously maintain the position that is
15 each time imparted to it, in particular the position in which it is due to adhere to the user's temples, thereby ensuring that the spectacles themselves remain well-fitting on the head and do not slip down the nose, and furthermore to prevent the same bar from possibly breaking down or breaking loose, even after a prolonged period of use, as this on the contrary
20 tends to occur rather frequently with spectacles of traditional type.

This is effective in enabling the well-known drawback encountered with spectacle bars of usual design, in which the articulated joint thereof can be noticed to gradually work itself slack and loose so that the bars, left in a loosely

hanging condition, are no longer able to keep any stable position and start oscillating freely, to be effectively avoided.

To the purpose of the present invention, the material which the dowel is made of shall substantially be a rigid one.

- 5 In the Fig. 11 it is illustrated another embodiment, wherein the dowel 57 instead of being made of a substantially rigid material is made of elastic material such as rubber, buna, synthetic resins, so that the bar, when the spectacles are applied to the user's face, is able to move elastically from the position 12a (full lines) to the position 12b (dashed lines), while it is the elastic pressure of the now visibly
- 10 deformed dowel 57, which acts as a shock-absorber, that keeps the bar adhering against the head and, therefore, improves the adaptability thereof to the head of the single users, thereby considerably adding to the wearing comfort of the spectacles without having to make use of expensive elastic hinges to reach that aim.
- 15 Obviously, the hinging blocks described by way of example may be made also in different manners, provided that they can join both the frame half-portions without need of weldings, thus without departing from the protection sphere of the invention.

Thereafter, on to the so obtained product there are applied the

20 bars to the hinging blocks, providing for the bar articulation.

These bars 50 are attached in position by means of fixed joints and studs or similar articulation means, in the case in which the frame is provided either with conventional hinges or articulation members or levers of per se known type.

The bar applying operations may be effected either manually or by means of suitable automatic apparatuses. In the subsequent fourth operative phase of the present manufacturing method, the so mutually assembled frame and bars are caused to undergo appropriate chemical treatment processes of a per se known type to protective, cleaning and surface-finishing purposes, adapted to confer the necessary anti-corrosion and resistance properties to the materials used, so as to above all enable them to comply with the existing sanitation and health regulations, as well as to produce the colour, decorating, finishing and general aesthetic effects desired.

10 In this case it is also possible for the protective and finishing treatments to be eliminated from the actual spectacle manufacturing process, preferably by using, during this operative phase of the process, materials that have been subjected to these treatments directly by the suppliers of the same materials, and therefore supplied in such a pre-finished condition to the spectacle manufacturers.

15 In the subsequent fifth operative phase of the present method, the respectively used lenses are then inserted in each frame either manually or automatically by means of appropriate automated equipment.

Upon the lenses having been so inserted, the whole set is pressed tightly together in an appropriate manner, thereby completing the assembly of each type of spectacles.

In this case use can be made, according to actual needs and utilization scopes, of lenses of various types, shades and hues for either viewing glasses or sunglasses, presentation or advertising lenses, etc., as well as protective lenses

and/or screens of various kind, filters, etc., for use in the most varied areas of application, such as for instance factory shop works, offices, sports and leisure, etc.

Furthermore, the bars are equipped with the related terminal pieces that are
5 available separately and are to this purpose slipped on the same bars, again manually or by means of appropriate automated equipment. The tightening together of each such frame, under resulting locking in position of the lenses, screens, filters etc. used to so complete the spectacles, is carried out by preferably using an appropriate separate clamping piece 59 made of plastic
10 material (see Figs. 13-15), in the form of a central body 60 provided with a rectilinear recess 61 capable of being snap-fitted on to the joining piece 62 of the related frame and fastened on the same piece by means of a counterclamp 63, said clamping piece being further so formed as to feature two side shanks 64 and 65 which extend downwards from said central body and are so shaped as to
15 be capable of fitting on the nose of each person.

It will be appreciated that, instead of using the clamping piece 59 to act as a single nose-resting piece, the possibility also exists for two or more nose-resisting pieces of various type, readily available on the market, to be used to this purpose, which are anyway capable of tightening together the frame
20 either with a similar operation or also with possible fixing means of per se known type, thus without departing from the protection sphere of the present invention.

At this point, the advantages of the spectacle manufacturing method according to the present invention are fully clear and can be summarized as follows :

1. minimization of possible break-down points ;
2. spectacle construction requiring no weldings and possibly without use of screws ;
3. utilization of raw materials that have never or, at most, scarcely been used
- 5 before in spectacle manufacturing (such as aluminium, copper and various alloys etc.) ;
4. use of an articulation joint (tenon) that is totally different from the joints used hitherto ;
5. simplified assembly of the various component parts of the spectacles ;
- 10 6. modular construction of the spectacles allowing for all of the elements thereof to be easily interchangeable, i.e. replaced in a simple, elementary manner (owing to either breakages, adjustments, or even to adaptation to changing fashions or personal requirements) ;
- 15 7. drastic reduction in manufacturing costs of each component part of the spectacles ;
8. elimination of the dependence on particular people for repairs, service or the like, thanks to the easy manner in which the various elements can be replaced (directly assembly by the
- 20 client) ;
9. variation of the models, by interchanging different parts or component parts of the spectacles ;
10. reduction in time and labour requirements as well as in the operative phases needed ;

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11. improved structural strenght of the spectacles, thanks to the complete elimination of the weldings and the possibility to eliminate also the screws or the means equivalent thereto ;
12. lower usage and, therefore, greater savings of the materials used, owing to
5 the utilization of chamfered wire that is used integrally in each frame so produced, so that eliminating scraps ;
13. use of pre-treated materials, thereby doing away with the need for corresponding surface protection and finishing treatments of any kind to be carried out at the factory;
- 10 14. greater safety assured in the various conditions of use.

CLAIMS

1. Manufacturing method for spectacles, each one of which comprising a frame formed by a first and a second half-portion joined with each other through a joining piece, a pair of lenses, screens, filters and the like respectively enclosed by said first and second frame half-portion, a pair of support bars and at least a possible nosepiece element applied on to the same frame, characterized in that it makes use of at least a first and a second portion of profiled wire (15, 16) made of preferably metallic material, and particularly aluminium or light alloys of other materials, adequately fixed to centering and locking means (17, 18), and shaped means (19, 20) having the same form and a size slightly greater than that of said lenses, screens, filters and the like, and to submit in sequence said first and second wire portion (15, 16) to a first phase by means of compression means (31, 32) in which they are adapted around said shaped means (19, 20) so as to form said first and second frame half-portion (33, 34), a second phase (called meniscus shaping phase) in which said first and second frame half-portion (33, 34) are shaped around said shaped means (19, 20) by means of further compression means (37, 38), with the same outline of the lenses, screens, filters etc., a third phase in which said first and second frame half-portion (33, 34) are joined to the respective bars (50) through articulation means (39, 40) which are attached to the corresponding frame half-portions, a fourth phase in which said first and second frame half-portion (33, 34) and said bars (50) are submitted to possible suitable chemical treatments to surface protection, cleaning, finishing purposes in view of conferring them the desired

aesthetical and decorating effects, if such treatments are needed, and a fifth phase in which said first and second frame half-portion (33, 34) are applied on to said lenses, screens, filters and the like, and the bars (50) are equipped with their terminal elements, and subsequently said nosepiece element (59) is applied
5 on to the assembly frame half-portions (33, 34), lenses, screens, filters and the like, by tightening it together.

2. Method according to claim 1, characterized in that said first and second wire portion (15, 16) are advantageously either notched or chamfered along a side thereof in a rectilinear direction for their the size of the
10 frame to be obtained, said wire portions (15, 16) being extended in a horizontal direction and aligned to each other in the same vertical plane at a position which is reciprocally superimposed and spaced, in a manner that said shaped means (19, 20) are interposed in the spacing comprised therebetween.

15 3. Method according to claim 2, characterized in that said shaped means comprise a first and a second template or pattern (19, 20), which are symmetrical and separated as well as aligned horizontally from each other, and reciprocally spaced of an extent equal to the reciprocal distance of said lenses, screens, filters and the like, said distance being
20 adjustable before said first operative phase is carried out.

4. Method according to claim 3, characterized in that said compression means comprise a first and a second half-die (31, 32) respectively situated above said first wire portion (15) and below said second wire portion (16), at a position

into contact with the corresponding wires and aligned with respect to them and said first and second pattern (19, 20).

5 5. Method according to claim 4, characterized in that said further compression means comprise a first and a second half-die (37, 38) situated at a position opposed from each other and coincident to each other at the level of the two opposite longitudinal sides of said first and second frame half-portion (33, 34).

10 6. Method according to the preceding claims, characterized in that said articulation means comprise a first and a second hinging block (39, 40) attached laterally to said first and second frame half-portion (33, 34) by means of either sticking materials such as cements, adhesives and resins of various kind, or fixing means of per se known type, capable of supporting a corresponding bar (50) in an articulated manner.

15 7. Method according to claim 6, characterized in that said hinging blocks (39, 40) are formed respectively by a bush (43) which is integral either with a hinge, fixed joint or the like of traditional kind, or articulation members or levers of per se known kind or also designed specifically, for the articulation of the corresponding bar (50).

20 8. Method according to claim 6, characterized in that each hinging block (39, 40) extends towards the user's face with a U-shaped configuration, the bottom (53) of which is turned outwardly and slightly bent inwardly at its free end (54), thereby forming an abutment for the corresponding bar (50) to stop against when folded into its fully opened position, said hinging block being provided with a tenon (stud) (55) for the related bar (50) to be hooked on to, as well as

a filling dowel (57) for each bar to be enabled to stay in the position imparted to it each time.

9. Method according to claim 8, characterized in that said dowel (57) is made either of a rigid material or of an elastic material such as rubber, buna, synthetic
5 resins or the like.

10. Method according to the preceding claims, characterized in that said first and second hinging block (39, 40) are manufactured with tools that may be either of a traditional or a dedicated type.

11. Method according to the preceding claims, characterized in that each bar
10 (50) is shaped with an elongated rectilinear portion (51), which is bent into a curl-like configuration (42) at its end articulated with said tenon (55) of said frame (47), and is manufactured to different shapes, topologies and sizes with the use of tools that may be either of a traditional or a dedicated type.

15 12. Method according to the preceding claims, characterized in that said nosepiece element is formed by a separate clamping piece (59) that is made of plastic material, shaped with a central body (60) provided with a rectilinear recess (61) capable of being fitted on to said joining piece (62) and fastened thereon by means of a counterclamp (63), as well as shaped with two side
20 shanks (64, 65) which extend downwards from said central body (60) and are so shaped as to be capable of fitting on the nose of each person.

13. Spectacles comprising a frame formed by a first and a second half-portion, a pair of lenses, screens, filters and the like that are respectively enclosed by said first and second frame half-portion, a pair of support bars and at least a possible

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nosepiece element applied on to the same frame, characterized in that they are obtained with the manufacturing method according to the claims 1-12.

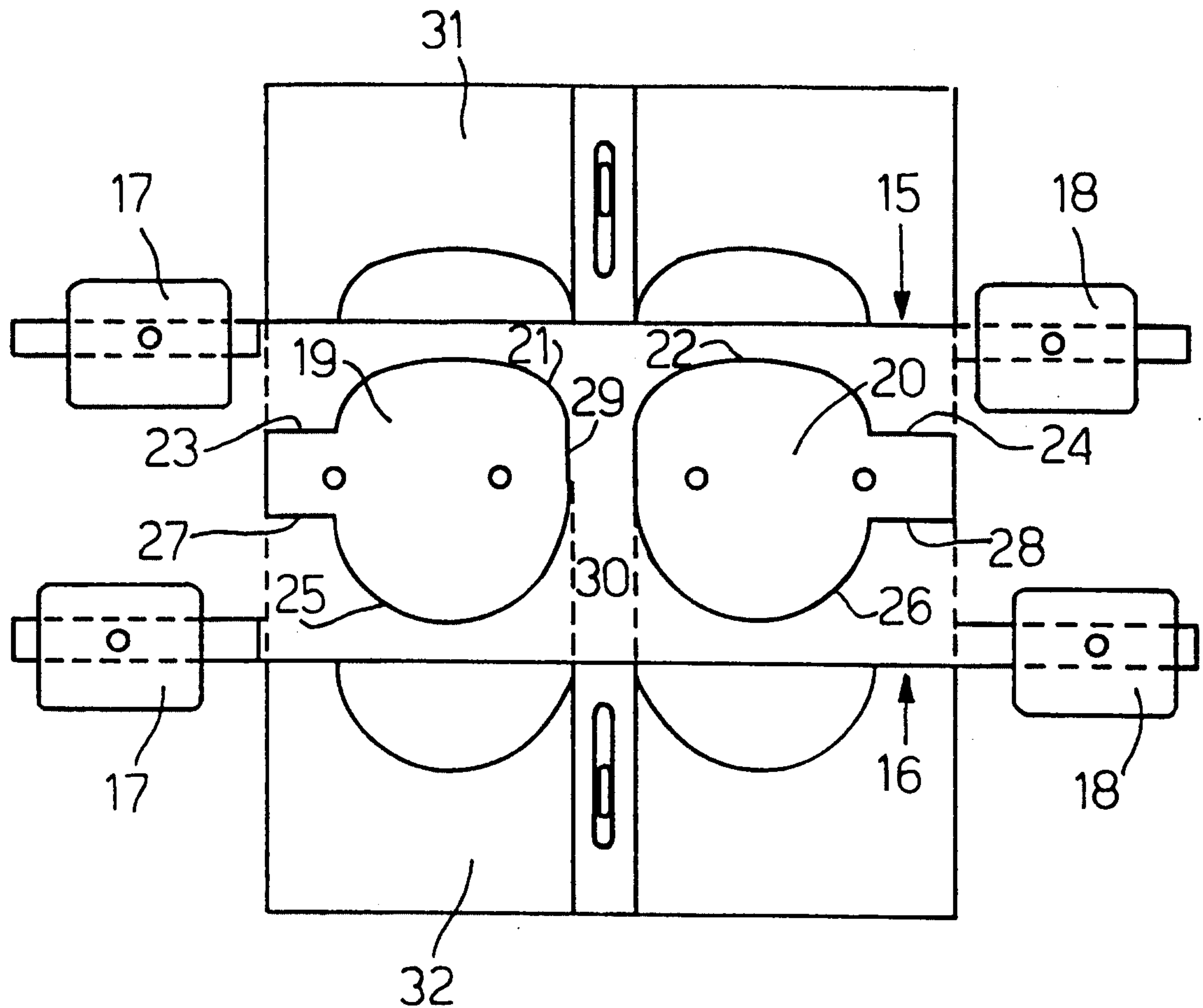


FIG. 1

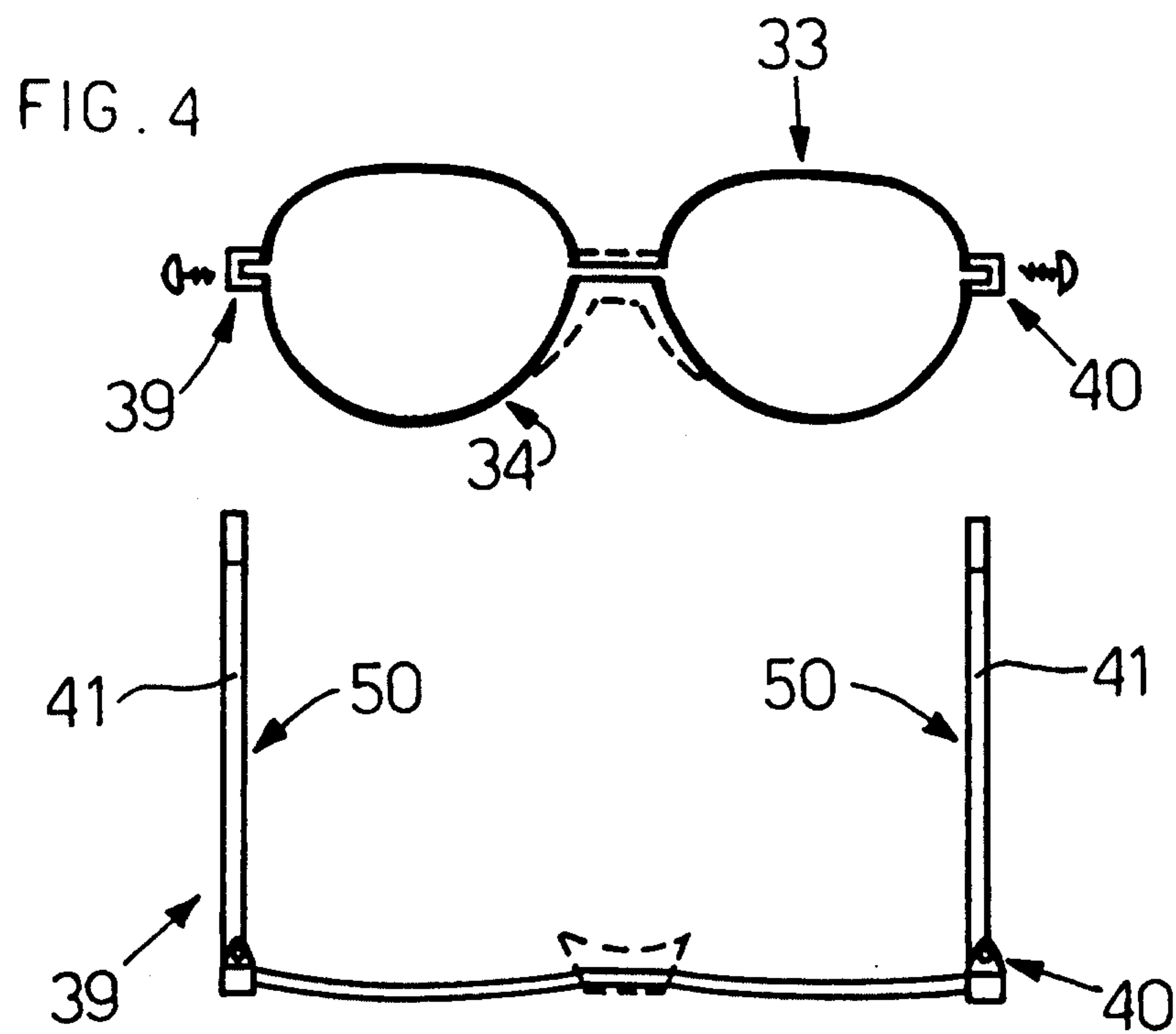


FIG. 5

FIG. 3

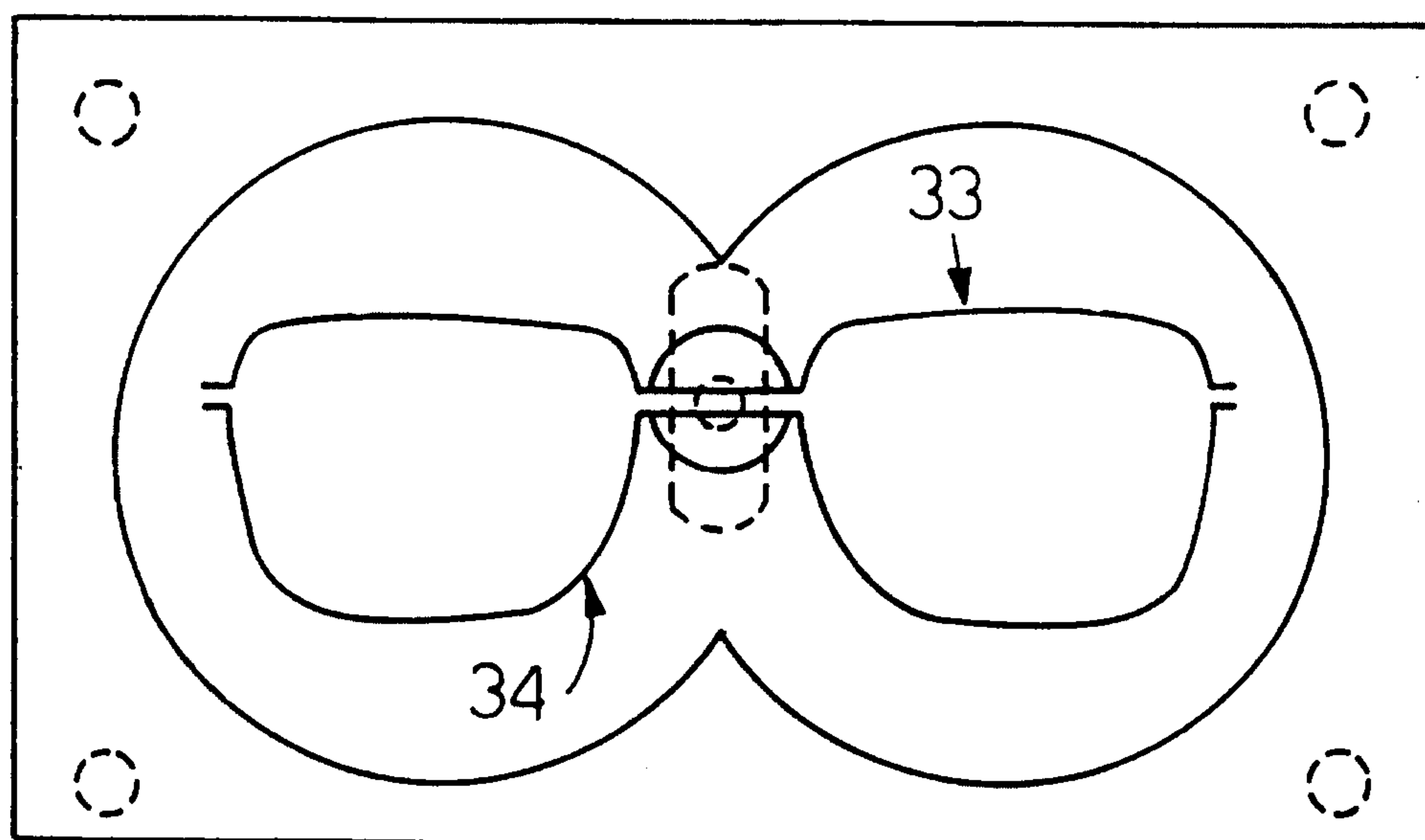
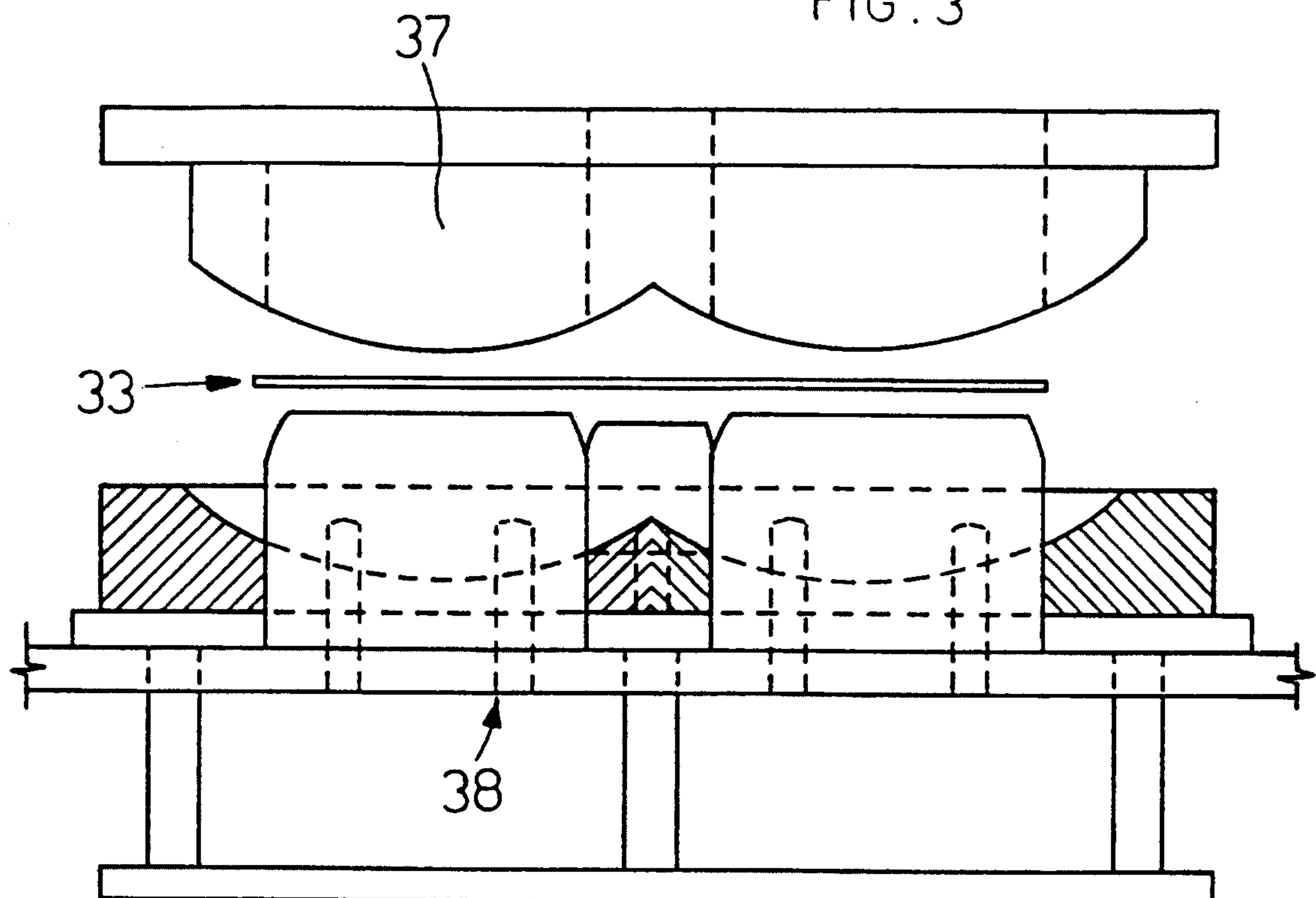


FIG. 2

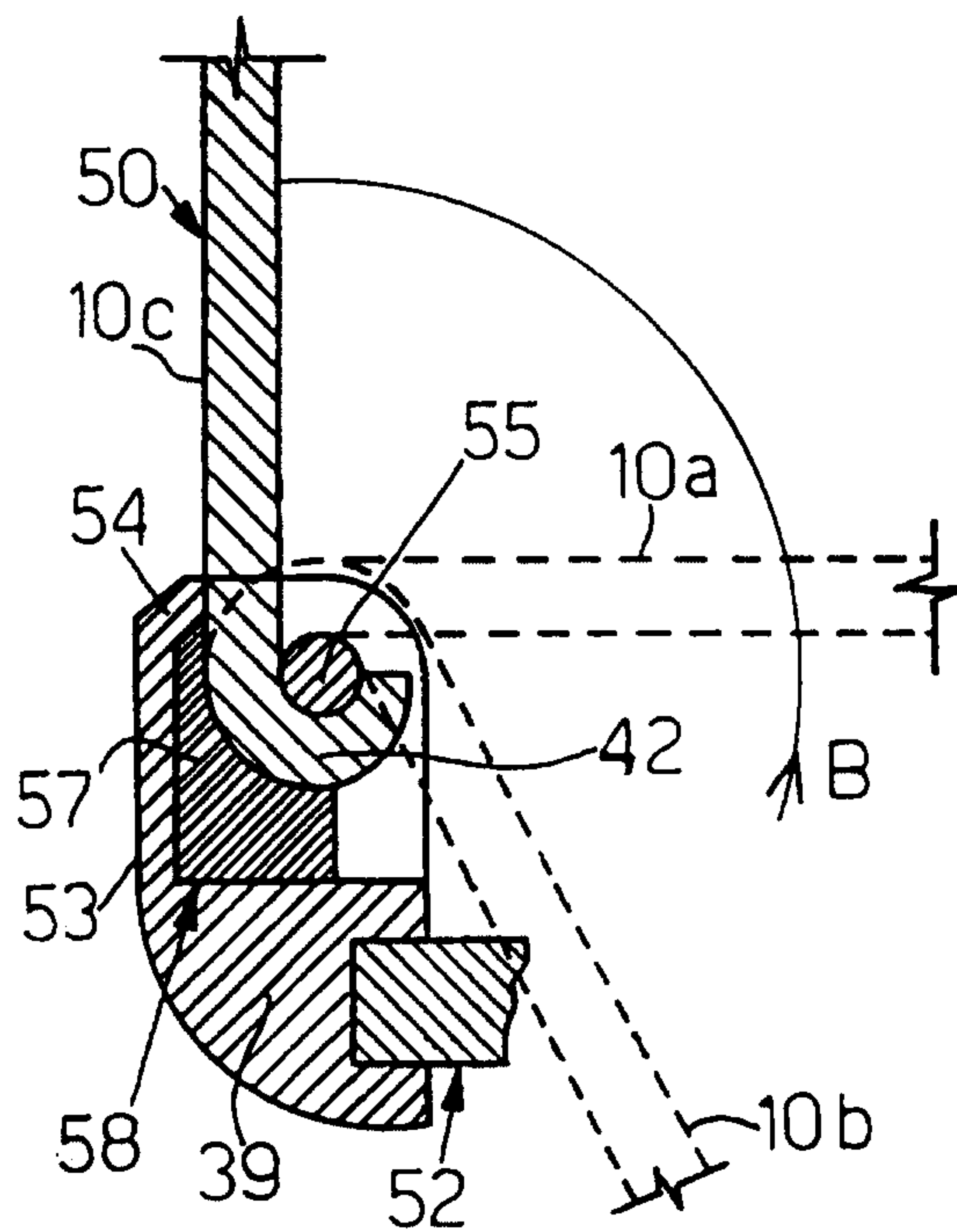


FIG. 10

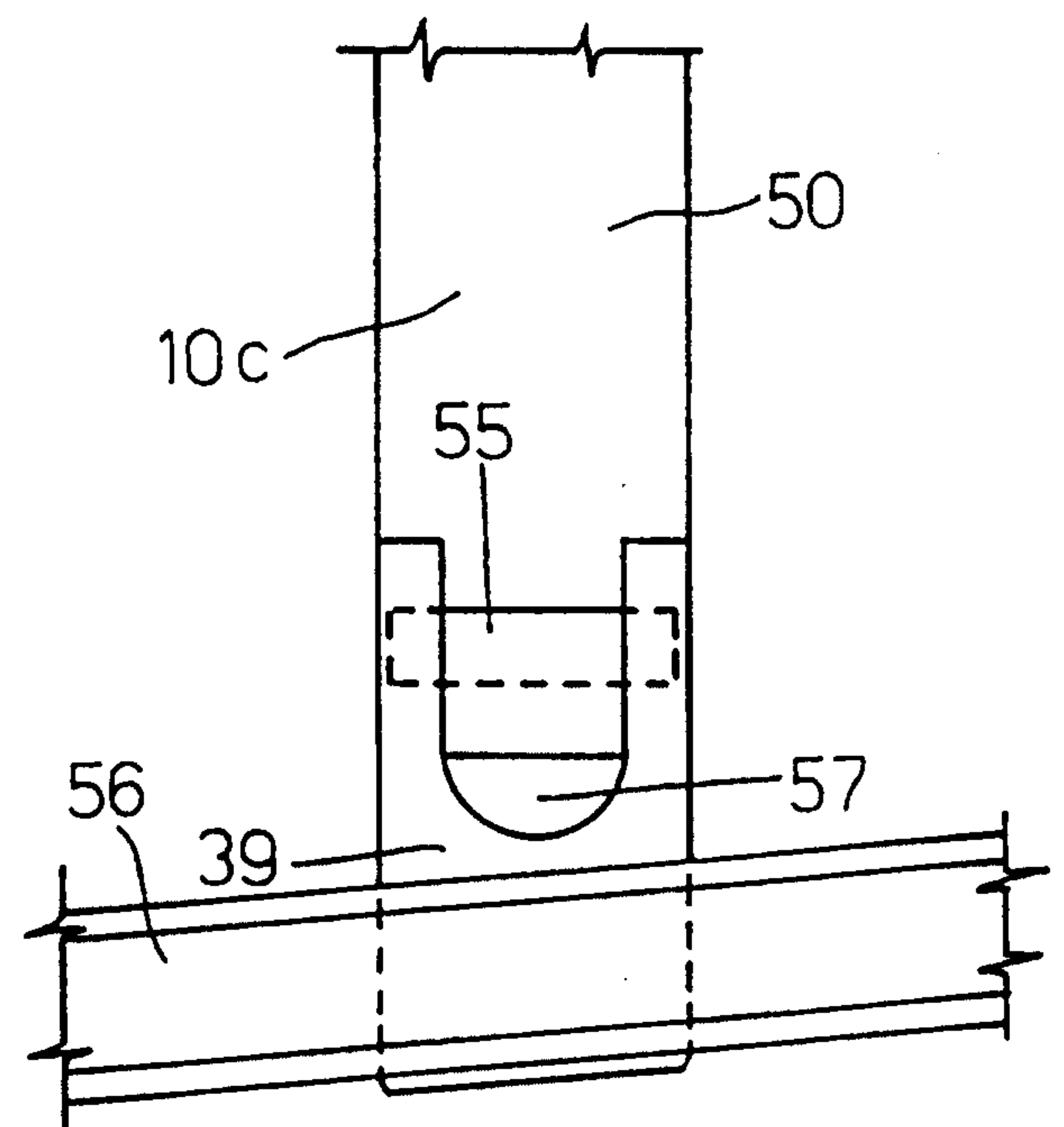


FIG. 11

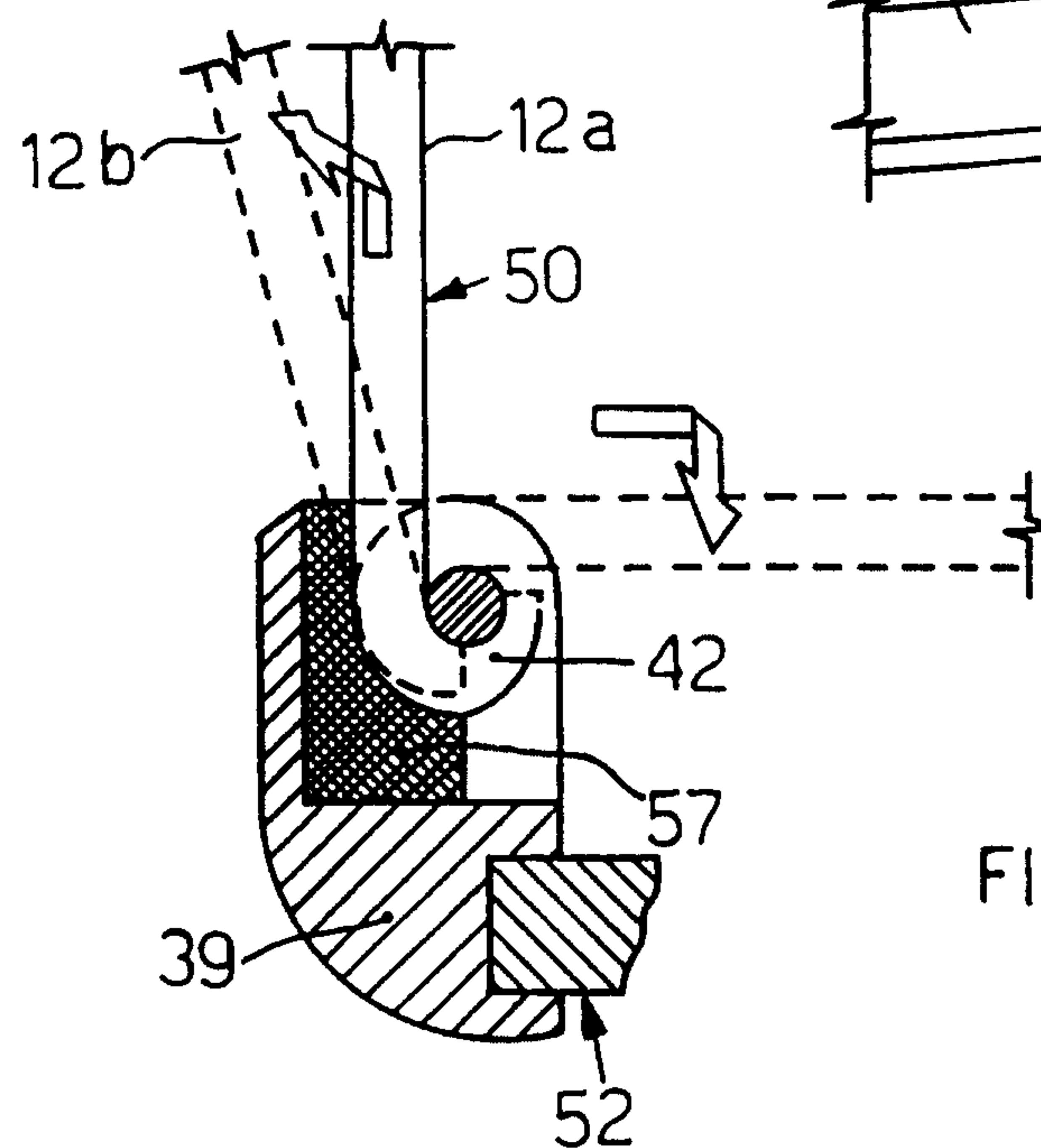


FIG. 12

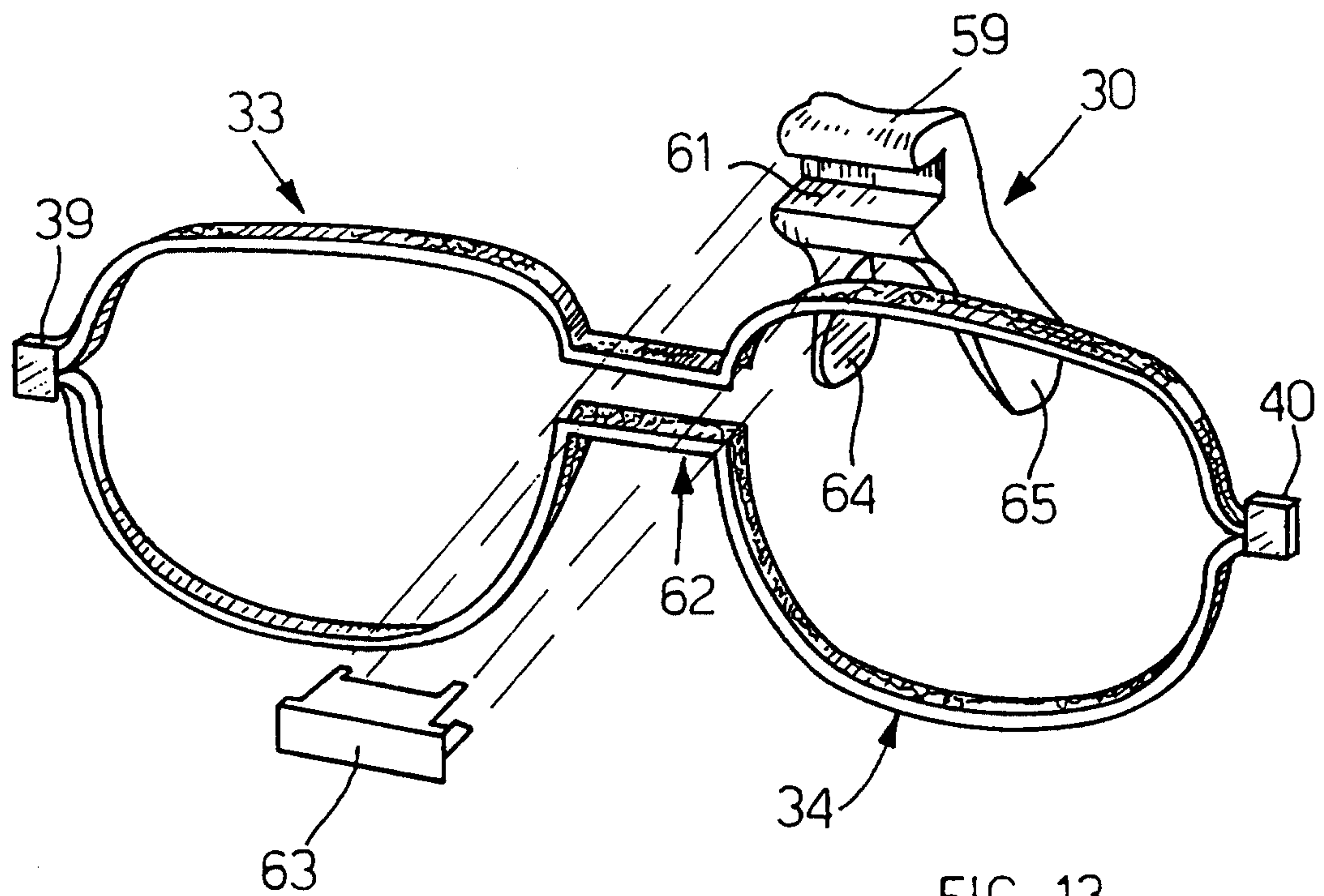


FIG. 13

FIG. 6

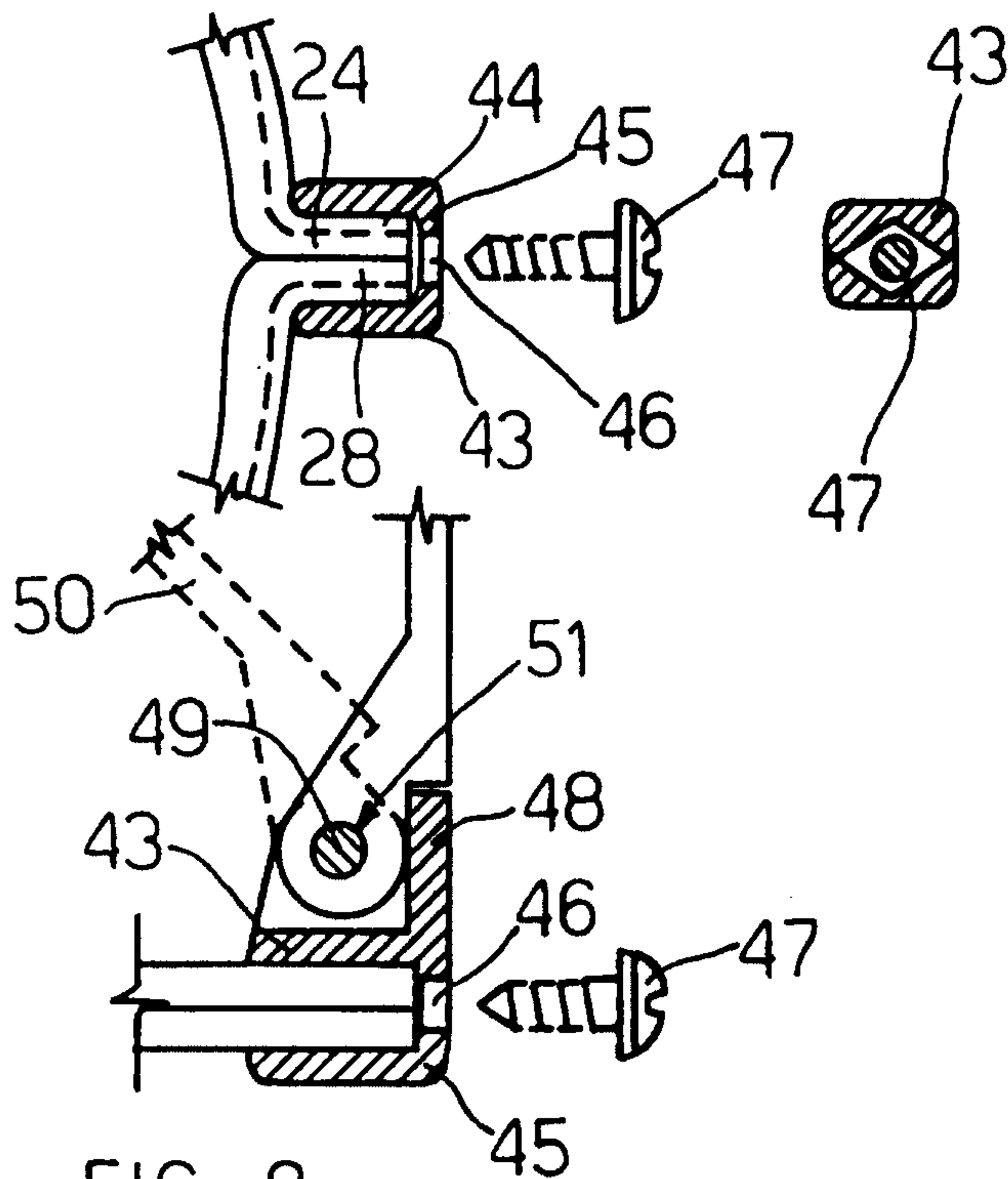


FIG. 7

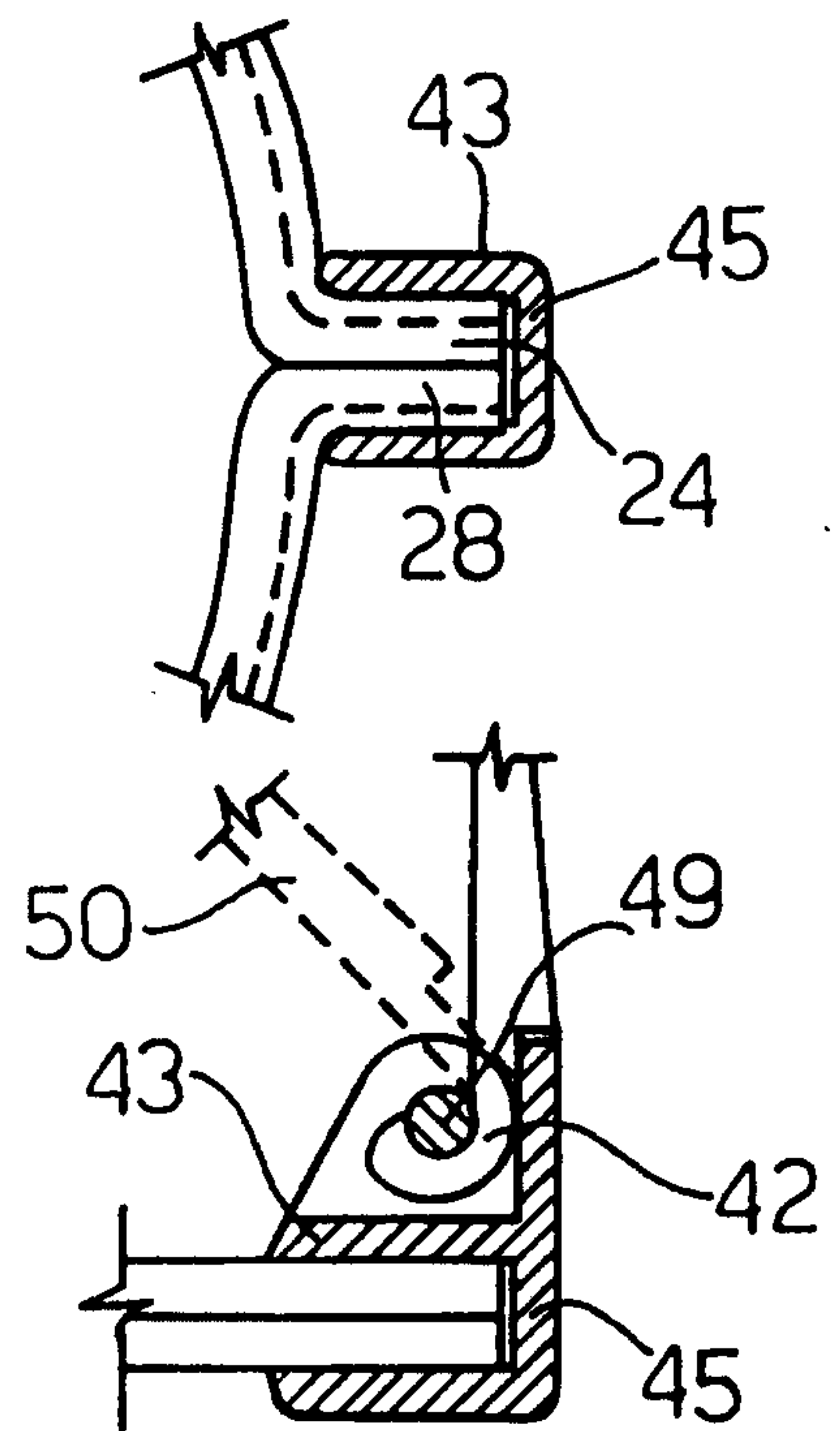


FIG. 8

FIG. 9

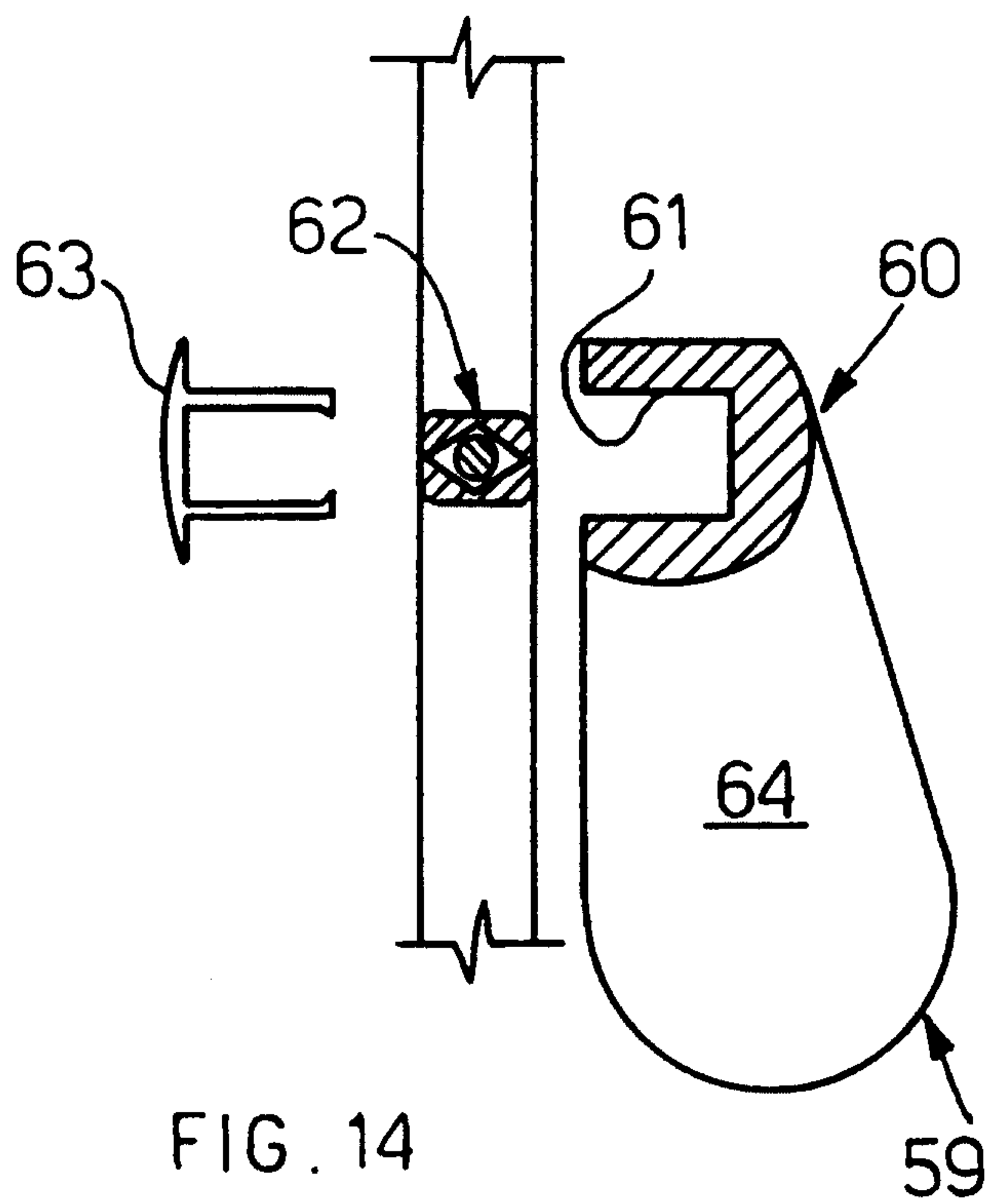


FIG. 14

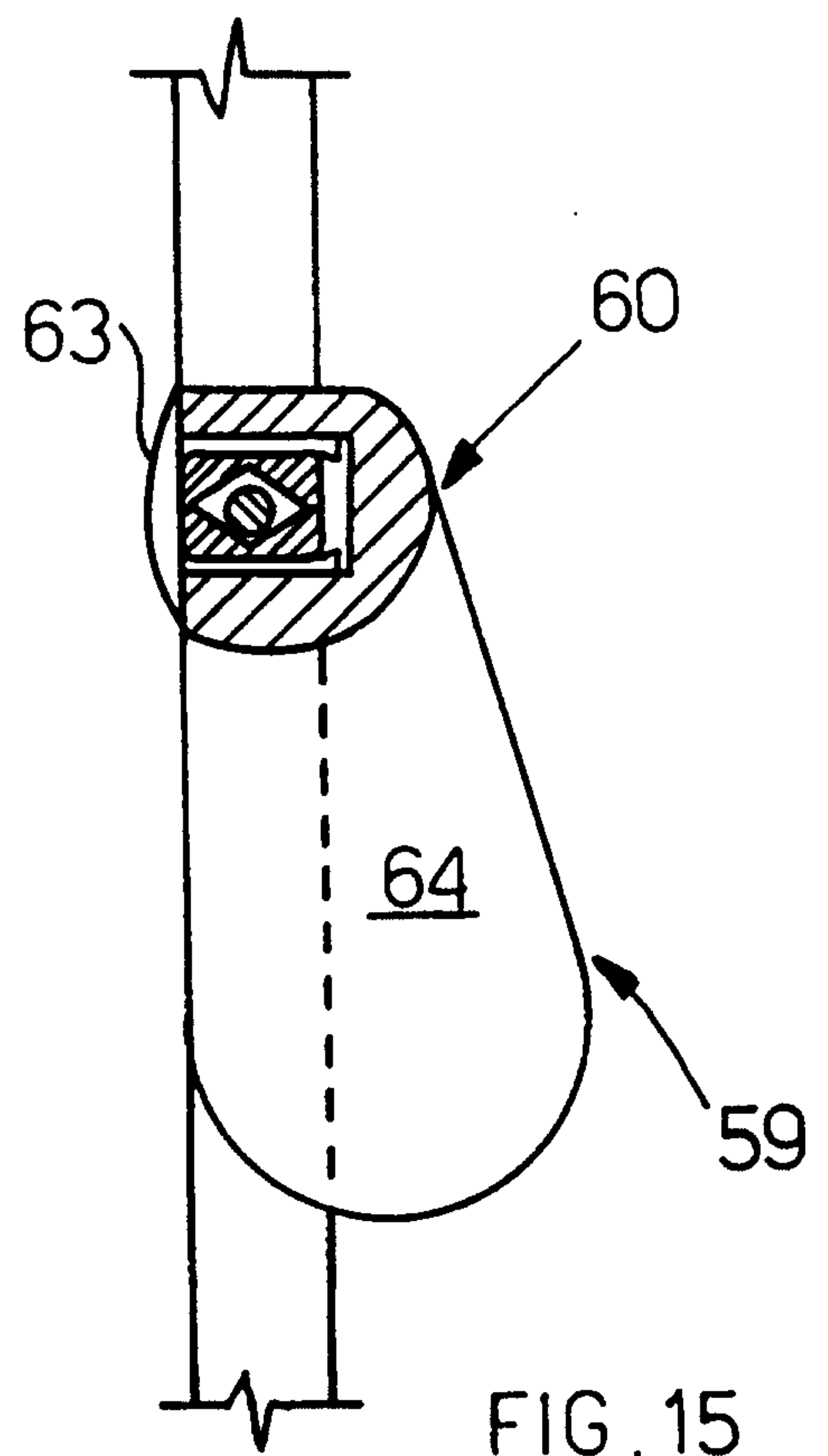


FIG. 15