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(54) Closing device for watch-straps, bracelets, jewels and similar.

(57) Closing device for watch-straps, bracelets, jewels and similar comprising a plate (12) and pairs of strips (16) hinged together at one end (14) and coupled at the free end to couplable connecting means. These connecting means comprise two hollow bodies (20) and (42) open on the opposite side and a locking element (30) partially inserted in one of the hollow bodies (20) and maintained projecting from said body by means of elastic means (28), said projecting part (36) being insertable and couplable in the cavity of the second hollow body (42).

The plate (12) and the strips (16) may be divided into at least two elements hinged together.

Alternatively, there may be four elements, a main containing elements and the others becoming gradually smaller so that they may be inserted one in the other.

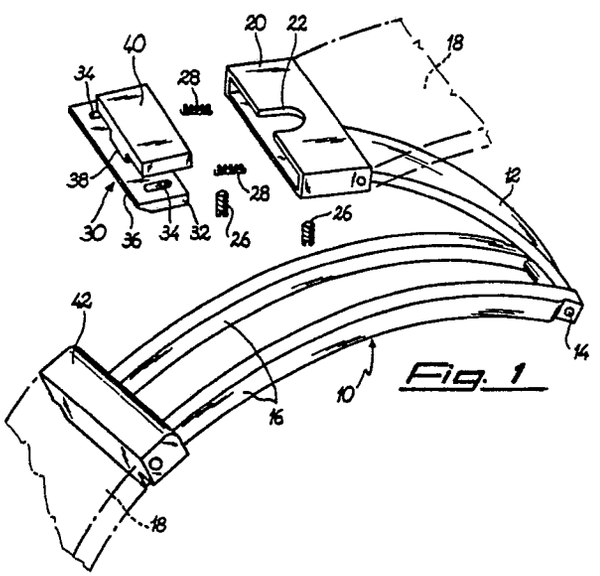

Fig. 1

EP 0 344 620 A1

CLOSING DEVICE FOR WATCH-STRAPS, BRACELETS, JEWELS AND SIMILAR.

The present invention refers to a closing device for watch-straps, bracelets, jewels and similar.

More particularly, the present invention refers to a closing device for watch-straps, bracelets, jewels and similar, of "wrap-over" type, to open which it is unnecessary to separate the ends of the straps.

It also refers to a closing device for watch-straps of wrap-over type, which makes it possible to obtain a perfect adherence and adaptability ot the wrist.

As known, the closing devices of wrap-over type have been designed to overcome the notable problem of the other types of closing devices, with buckle for example, to open which the ends of the strap must be separated, with possible fall of same in positioning phase or following accidental opening.

This problem is particularly notable in the case of wrist-watches; where the need to offer precise guarantees is fundamental and stems from their fragility.

As known, the closing devices for watch-straps of "wrap-over" type generally comprise two plates or strips, curved to adapt themselves to the shape of the user's wrist, which are hinged to each other at one end and, at the other end, are fitted with suitable couplable connecting means to which the strap ends are hinged. In closing phase, said plates or strips are positioned one inside the other, to increase thickness.

The device is opened by pulling apart the two strips or plates to decouple the connecting means, while it is closed by bringing the strips close together again by rotating them round their hinging axis.

When the latter are in contact, a light pressure is exercised on them, to couple and engage the connecting means and therefore the closure of the device.

These closing devices solve the problem of possible accidental separation of the end of the strap, but present some drawbacks. In fact, while the closing operation presents no particular problems, the opening operation is, on the contrary, not easy and immediate.

It is, in fact, difficult to overcome the coupling and engagement strength of the connecting means also due to the fact that, in view of the type of article, the use of connecting means too large for easy grip must be excluded. To open these devices it is therefore necessary to use a fingernail to exercise the necessary traction to release the device.

Another drawback of the known closing devices of "wrap-over" type is that they do not fully meet the basic need for a precise adaptation to wrist conformation. In fact, at the radio-carpal joint, especially when the anatomic structure is minute, the strips or plates, although curved, do not adequately circumscribe the wrist, adhering to it in each point, due to its structural stiffness. This involves a substantially edged contact between the closing device and the bone structure of the wrist, with consequent annoyance or pain. Furthermore, during routine manual activities, the forearm, including the end portion on which the watch is traditionally positioned, slightly modifies its conformation following the contractions of muscles, tendons, torsions of the hand etc. In these conditions one notes the inconvenience caused by the closing device which remains rigid and fails to adapt itself perfectly, each time, to the changed conditions.

The object of the present invention is to provide a closing device for watch-straps, bracelets, jewels and similar which eliminates the above problems.

More in particular, the object of the present invention is to provide a closing device for watch-straps of "wrap-over" type, provided with a clip which consents rapid opening of same without the drawbacks of traditional closing devices. Another object of the present invention is to provide a device as defined above which permits its immediate opening with simple means, of limited cost and reduced dimensions to avoid trouble for the user and adapt itself to the aesthetic characteristics of the watch-strap.

A further object of the present invention is to provide a closing device for watch-straps, watch bracelets and similar with jointed arms, for optimal adherence to the substantially oval-irregular profile of the wrist, conforming to it each time to prevent annoying contacts.

The applicant has now found that this and other objects are obtained by means of a closing device for watch-straps, bracelets etc. of wrap-over type in which the clip comprises two hollow bodies, fixed to the respective ends of the strap and equipped on the opposite base to the fixing base of an opening, and a laminar locking element or hook, partially inserted in the opening of one of the hollow bodies and maintained projecting from said hollow body by means of elastic means, said projecting part being coupled in the hollow of the other hollow body, in closing phase.

Another small button fixed onsaid laminar locking element by means of an appendix permits axial displacement of same in release phase.

The closing device of wrap-over type of the

present invention also comprises parallel strips or coupies of strips and plates fixed by hinges to the respective hollow bodies, composed of at least two elements hinged together. Alternatively, said strips or parallel couples of strips may consist of a main box-type containing body comprising a lowered plate and a plurality of elements hinged together, with decreasing dimensions so that they can be inserted one in the the other, each of said elements being equipped with a lowered seat, which, in closing phase, meets the lowered plate of the main body.

The closing device of the present invention may be better understood from the following detailed description in which reference is made to the figures in the enclosed drawings which show a preferred, illustrative but unbinding construction of the same invention, in which:

figure 1 is an exploded perspective schematic view of the closing device according to the present invention,

figure 2 is a schematic view of the longitudinal section of the device in fig. 1 in closed state,

figure 3 is the exploded perspective view of the parallel strips and plates with hinged elements, whose ends are fixed to the two hollow bodies of the closing clip of the present invention,

figure 4 is a perspective view of a variant of the plates and connecting strips of the two hollow bodies indicated in fig. 3,

figure 5 is the exploded perspective view of the connecting device in fig. 4 and

figure 6 is the perspective view in plan of the connecting device shown in figures 4 and 5 in totally closed position.

In the continuation of the present description, solely due to lack of space, reference will be made to the construction of a watch-strap, considering applicable the device according also to the other articles mentioned above.

With particular reference to figures 1 and 2, the closing device for watch-straps, bracelets, jewels and similar of wrap-over type 10 of the present invention comprises a plate 12 generally, if not necessarily, metallic, which is hinged, by a pin 14, to two parallel strips 16, also generally, even if not necessarily, metallic.

The distance between the strips 16 is at least equal to the width of the plate 12, so that it, in the closed condition of the device, may be positioned between said two strips. At the free end of the plate 12 and that of the strips 16 the closing device or clip described below is applied, to which the two branches 18 of the watch-strap shown partially with dashed and dotted line are hinged.

The watch-strap 18 may be of any material, e.g. leather, metal, plastic and similar.

The closing device, i.e. the means which keeps the plate 12 and the strips 16 inserted one in the other as shown in fig. 2, mainly consists of a clip as described below. The clip comprises a first hollow body or groove 20 of essentially parallelepiped shape, which is fixed in any known way to the end of the plate 12 together with a branch 18 of the watch-strap.

The small box 20 is open on the base opposite the hinging base of the branch 18 of the watch-strap and, on the upper face, at the open base, it presents a shaped undercut 22 which, in the constructive form considered, presents the bottom end curved, for example of semi-circular shape. The important dimension of the small box 20 is the width while the height and depth are limited to reduce the bulk of the device to a minimum.

On its lower face, i.e. the one opposite the face provided with undercut 22, the small box 20 presents two threaded holes 24, only one of them visible in figure 2, in which two small screws 26 are screwed, preferably grub screws.

Two small springs 28 are inserted in the small box 20, which form the elastic means for operation of the clip.

In the hollow of the small box 20 a locking element or hook indicated as a whole with 30 is partially housed.

The hook 30 consists of a plated body 32 of width lower than or equal to the height of the hollow of the small box 20 so that it can be inserted in same and equipped laterally with two through-holes 34 widened in longitudinal direction in each of which one of the small screws 26 is inserted.

The front edge 36 of the plated body 32 is curved to form an invitation to the insertion of same in the other portion 42 of the clip.

The plated body 32 presents a shaped appendix 30 constructed in a single body with it, suitable to be inserted in the under cut 22 of the first hollow body 20.

The length of the appendix 38 is smaller than the depth of the undercut 22 so that the plated body 32 may slide back and forth with respect to the hollow body 20.

The width and conformation in cross-section of the appendix 38 prevent transversal movements inside the undercut 22 and therefore of the plated body 32 in the cavity of the hollow body 20.

The appendix 38 is equipped in the central part of the free face with a small button 40, obtained in a single piece with said appendix, which is positioned externally and above the hollow body 20 when said plated body 32 is inserted in the cavity of the hollow body 20.

The closing device according to the present invention also comprises a second hollow body or

small box 42 fixed to the ends of the strips 16 to which the other branch 18 of the watch-strap is hinged.

The second hollow body 42 is also open on one base, in particular on that opposite the open base of the first small box 20, so that itcanreceive and couple, as shown in fig. 2, the edge 36 of the plated body 32 which projects from the first small box 20.

The closing device of the present invention is extremely easy to assemble.

First the small springs 28 are inserted in the cavity of the first hollow body 20 then the hook 30, inserting the appendix 38 in the undercut 22 and pressing the small springs 28 in such a way that the threaded holes 24 correspond to the through-holes 34.

The bottom of the hollow of the first small box 20 and the rear face of the plated body 32 may preferably be equipped with suitable seats (not shown in figure) to receive the ends of the springs 28.

The screws 26 are then applied, which are inserted in the passages 34 of the plated body 32.

Assembly of the device is complete.

The plated body 32 is thus partially inserted in the cavity of the first hollow body 20, with the front end 36 maintained outside this cavity by the thrust of the spring 28 and with the possibility of sliding back and forth inside said cavity thanks to the widened shape of the through-holes 34. Each transversal movement of the plated body 32 is blocked by the appendix 38 which fits perfectly into the undercut 22.

From the above description it is evident that both the closing operation and particularly the opening operation of the device is extremely rapid and easy.

Considering in particular the opening operation which was the critical one of tradtional devices, it is sufficient to push back the small button 40 with a finger, as illu lustrated in figure 2, to make the edge 36 leave the plated body 32 from the cavity of the second hollow body 42, overcoming the action of the springs 28 and immediately obtaining the opening of the device.

Also the closing operation of the device is rapid and easy as it is sufficient to bring the two hollow bodies 20 and 42 into opposite position, lightly pressing the small button 40; the springs 28 push the hook 30 towards the outside of the hollow body 20, inserting the edge 36 of the plated body 32 in the cavity of the second hollow body 42. Insertion is facilitated by the curved shape of said edge 36.

The plated body 32 may alternatively have a C-shape with the two lateral branches in contact with the inside lateral walls of the hollow of the second small box 42.

To permit complete, perfect adaptability and adherence of the closing device of the present invention to the wrist profile both in initial positioning phase and following movements of the forearm and hand which lead to continuous modifications of said profile, the plate 12 and two parallel strips 16 in figure 1 may be divided into at least two elements hinged to each other.

In figure 3, the plate 12 is divided into two plated elements 44 and 46 hinged at their ends 48.

Correspondingly, also the two parallel strips 16 are divided into two parts 50 and 52 hinged together at their ends 54. The distance between the parallel strips is such that, in closing phase of the device, the plated elements 44 and 46 are housed in the inner portion delimited by said parallel strips.

This structural layout therefore produces a wrap-over closing device extremely mobile as a whole under the stress determined by anatomical variations, constantly capable of adhering in optimal manner to the wrist profile.

Figures 4, 5 and 6 illustrate a closing device for watches, bracelets or similar which, besides a perfect adaptability and adherence to the wrist profile, offer further advantages of strength and compactness.

The device, indicated as a whole with 60 in fig. 4, is composed of four elements, the first of which is the main containing one and the others have dimensions that grow gradually smaller so that, in closing phase, they fit perfectly one in the other. The main containing element, at one end 56 of which one of the branches 18 of the watch-strap or bracelet is connected, consists of two arms 62 and 62′, substantially parallel, interconnected by the crosspieces 64, and 64′, having preferentially the same thickness as said arms and of a crosstie 66 of smaller thickness. Said main element is hinged to the free end at the next element 70 which has dimensions which permit the insertion in the cavity de limited by the arms 62 and 62′ of the crosspiece 64. Said second element 70 is equipped, along the two arms, with lowered seats 72, which meet the crosstie 66 at closure of the device 60. The following elements follow the same layout: in particular, the element 74 is housed in the hollow delimited by the arms of the body 70 to which it is hinged in 76 by means of the pins; while the end element 78 is hinged in 80 to the previous element 74. Both said elements 74 and 78 present lowered seats, respectively 82 and 84. equivalent to the preceding 72, designed to meet in closure the crosstie 66 gradually more and more towards the inside and centrally. A small cylinder 58, integral to the end opposite that of the hinging 80 represents a suitable seat for connection of the device 60 with one branch of the watch-strap or bracelet (not

illustrated).

From an examination of figs. 5 and 6 one can immediately note the complementary coupling system of the different elements. In particular, fig. 6 shows the arrangement of same with device closed. The arms 62 and 62′ and the crosspiece integrally circumscribe the internal elements 70, 74 and 78 inserted precisely one inside the other, while the thickness of the unit is equal to that of said arms. The abovementioned internal elements meet, through the respective seats 72, 82 and 84, the lowered crosspiece 66 present on the main containing element.

In the windows delimited by the crosspieces 64 and 64′ the connecting means is inserted between the device 60 and the branch of the watch-strap or bracelet 18.

As can be seen, the advantages of the invention are evident, in first place the optimal adaptability of the closing device to the wrist in any condition. The presence of the crosstie 66, which meets the internal elements 70, 74 and 78, also leads to the creation of a particularly reliable, aesthetically valid system, eliminating violent and direct stress on the hinges.

The invention illustrated in the figures for illustrative purposes is subject to many modifications and variants, all within the protective scope of the present invention. For example, the crosstie 66 may be completely or partly conformed in such a way as to determine a slightly elastically forced connection of one or more of the internal elements 70, 74 and 78 equipped with consequently conformed seats.

Similarly, the plates 44, 46 and 78 may be replaced by shaped bars equipped with grooves for precise positioning and/or locking.

Claims

1) Closing device for watch-straps, bracelets, jewels and similar, of wrap-over type, comprising a pair of plates (12) or strips (16) hinged to each other at one end (14) and equipped at the other end with couplable connecting means to which the ends of the watch-strap (18) are hinged, characterized by the fact that said connecting means mainly consist of a clip comprising two hollow bodies (20) and (42) hinged to the respective free ends of the plate (12) and strips (16) and open on the base opposite the hinging one; and a locking element or hook (30) partially inserted in the opening of one of the hollow bodies (20) and kept projecting from said hollow body (20) by means of elastic means (28), said projecting part (36) being insertable and couplable in the cavity of the second hollow body (42).

2) Closing device according to claim 1, characterized by the fact that the first hollow body (20) is equipped, on the upper face, at the open base, with a shaped undercut (22) with curved base, and, on the lower face, with two threaded holes (24); two springs (28) being inserted on the cavity of said hollow body (20).

3) Closing device according to claim 1 or 2, in which the locking element (30) comprises a plated body (32) of width equal to or less than the height of the cavity of the first hollow body (20), laterally equipped with two through-holes (34) widened longitudinally and on the shaped appendix (38) integral to a small button (40); the length of said shaped appendix (38) being lower than the depth of the undercut (22) so that the plated body (32) may slide back and forth with respect to the hollow body (20).

4) Closing device according to claim 2 or 3, characterized by the fact that a pair of screws (26) are applied in the two holes (24) of the first hollow body (20), project in the cavity of said hollow body and cross the through-holes of the plated body (32).

5) Closing device according to any of the previous claims, characterized by the fact that the ends of the springs (28) are housed in suitable seats obtained on the bottom of the hollow of the body (20) and on the rear wall of the plated body (32).

6) Closing device according to claim 3, characterized by the fact that the edge (36) of the plated body (32) is chamfered.

7) Closing device according to any of the previous claims, in which the plate (12) and the two parallel strips (16) consist of at least two elements (44, 46) and correspondingly (50 and 52) hinged together at the end (48) and correspondingly (54).

8) Closing device according to claim 7, in which the distance between the parallel strips is such that the plated elements (44 and 46) are housed in the internal portion delimited by said parallel strips.

9) Closing device according to any of the previous claims 1 to 6, characterized by the fact that it comprises four elements hinged together, a main containing element and the others with gradually smaller dimensions for insertion one in the other.

10) Closing device according to claim 9, characterized by the fact that the main element consists of two arms (62, 62′), substantially parallel, interconnected by two crosspieces (64, 64′) with the same thickness of the arms, and by a crosstie (66) of smaller thickness, the other elements (70, 74, 78) being each equipped with lowered seats (72, 82, 84) which meet the crosstie (66) when the device is closed.

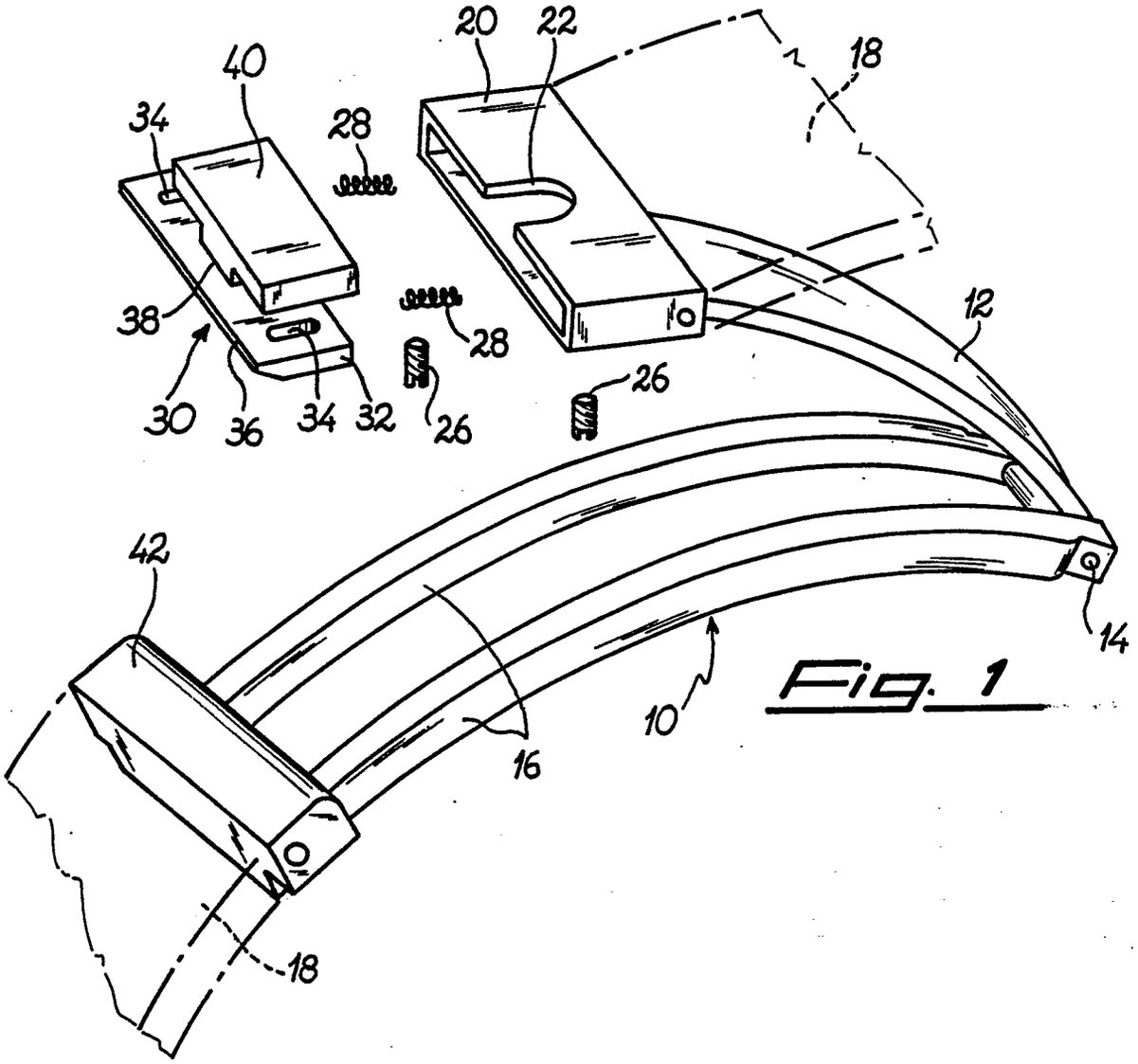
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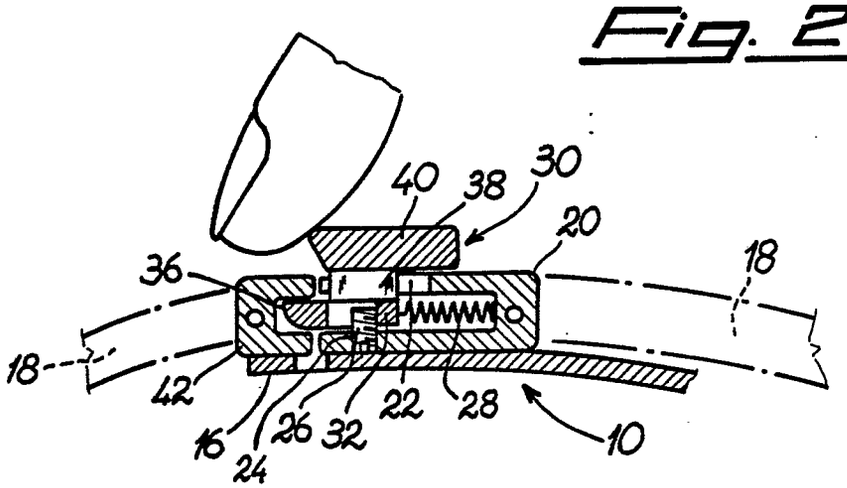
Fig. 1

Fig. 2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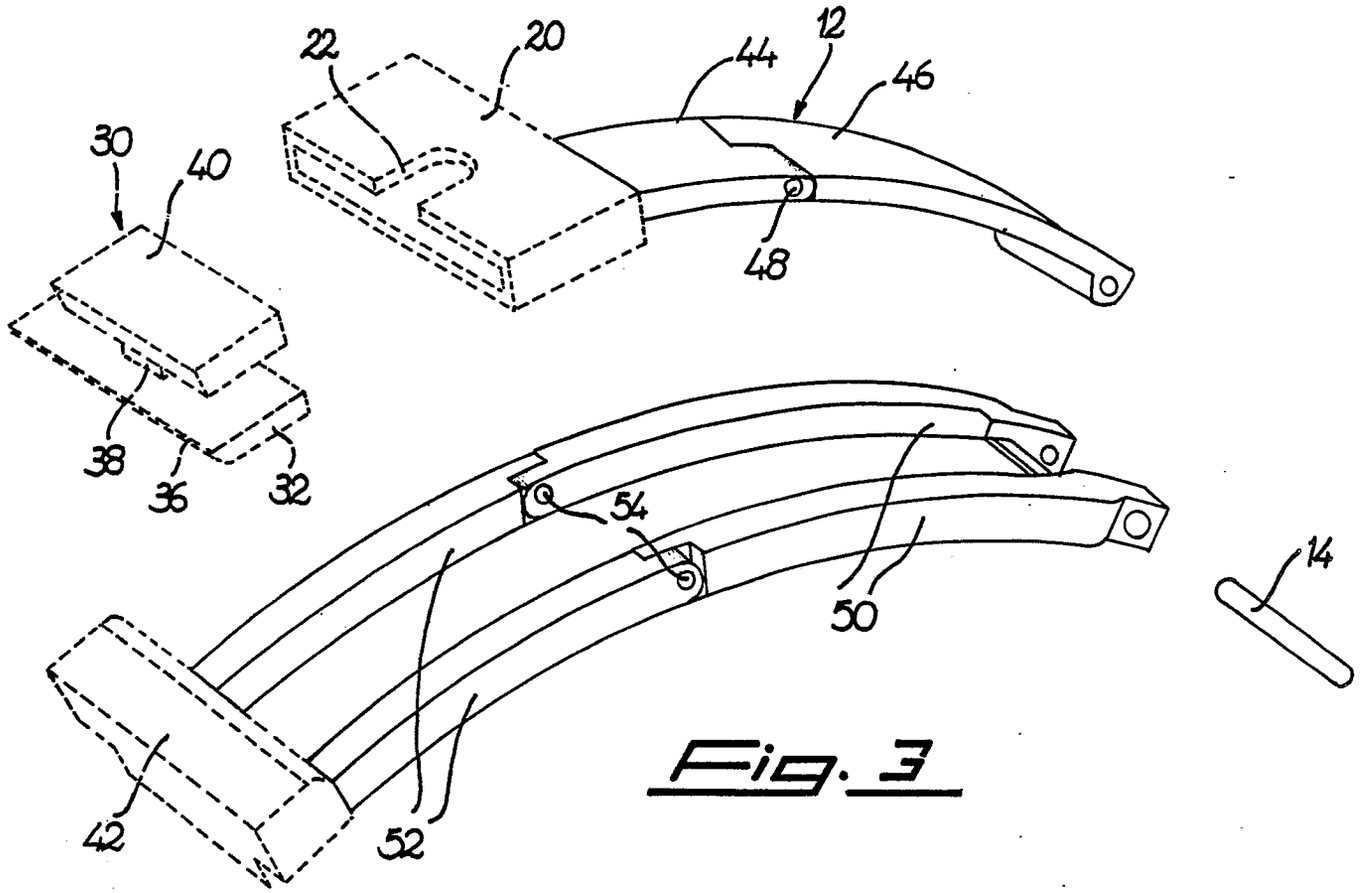
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Fig. 3

Fig. 4

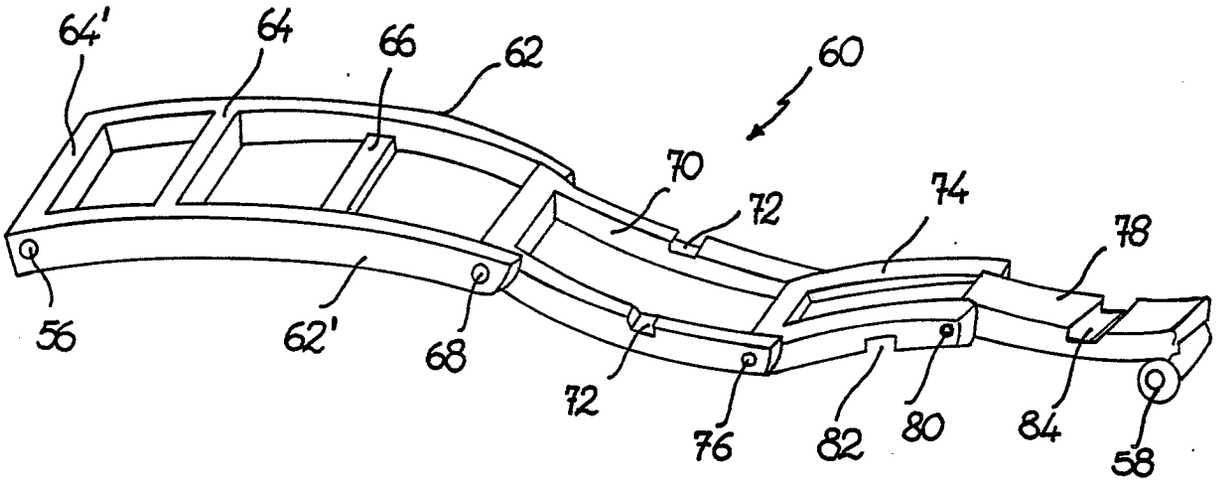
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Fig. 5

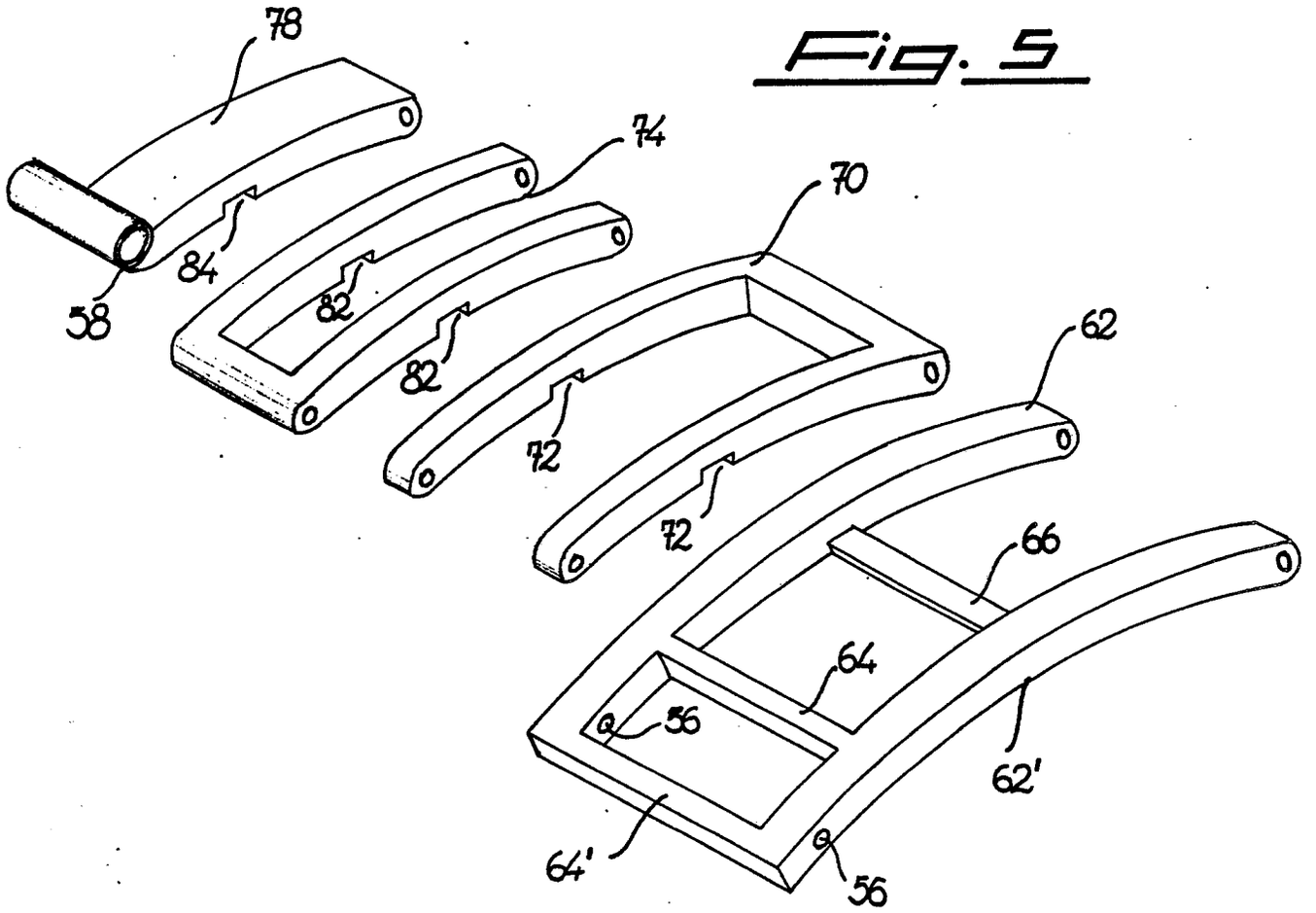
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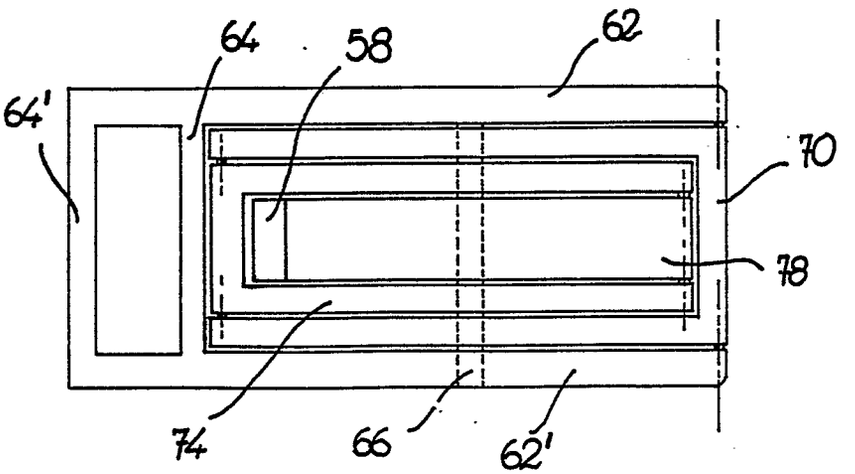
Fig. 6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EUROPEAN SEARCH REPORT

Application Number

EP 89 10 9470

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.4)
A	US-A-2333048 (A. O. SCHOENINGER) * the whole document *	1	A44C5/24 A44C5/20
A	CH-A-660674 (V. CHIRAZI) * the whole document *	9	
A	CH-A-646852 (J. PAOLINI)		
A	US-A-3345705 (K. GAUPP)		
A	FR-A-2478970 (LASCOR)		

TECHNICAL FIELDS SEARCHED (Int. Cl.4)

A44C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	02 AUGUST 1989	GARNIER F.M.A.C.

CATEGORY OF CITED DOCUMENTS

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