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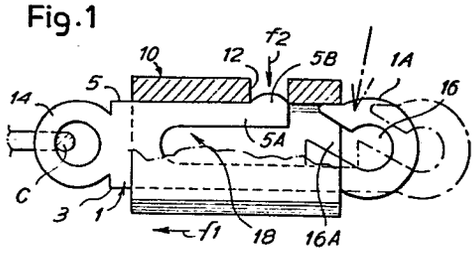
(54) A fastener for a necklace, chain or other jewellery item.

(57) A jewellery fastener has two components only comprising an internal component (1) having one end secured to one end (c) of a jewellery item such as a necklace or the like and forming a hook seating (16) at the other end to engage the other end of the jewellery item, and an external component (10) slidably engaged on the internal component (1) between a closed position with the hook (16) enclosed by the external component (10) and an open position allowing the insertion or removal of the said other end of the jewellery item, the internal component (1) having a resilient arm (5A) with a projection (5B) engageable in a recess (12) in the external component (10) to maintain the fastening in the said closed position.

Fig.1



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This invention relates to a fastener for securing together the two ends of a necklace or for use in similar circumstances on other jewellery items or devices of precious metals.

There are in existence many fastenings for such purposes, some having hook engagement between parts and others relying upon resilience of one or more parts to retain them together. Most known fastenings of this kind are relatively expensive to produce and many are complex in use and they are not always reliable and tend to be accidentally released.

One object of the invention is to provide a simple and economical though also reliably-operating and safe fastener device.

According to the invention, there is provided a fastener for securing the two ends of an item of jewellery characterised by two components; one of which is an internal component (1) having means (14) for securement to one end (c) of the jewellery item and forming a hook (16) to be attached to the other end of the item, the other component being an external component (10) slidably engaged with the internal component (1), between a closed position of the hook (16) and an open position allowing the insertion and removal of the other end of the jewellery item, the said internal component having a resilient arm (5a) resiliently engageable with the external component (10) to hold the fastener in the said closed position.

The internal component can be advantageously produced by means of sheared thin metal sheeting.

Alternatively, the internal component may be made of suitably shaped wire.

In an advantageous form of the fastener, the external component may consist of a tubular sheath, though it may

also be moulded for aesthetic reasons, being achieved by casting or otherprocess. The internal component is developed to form a resilient arm which will resiliently yield and having a shaped projection which will engage in a recess formed internally within the sheath-like external component. The said resilient arm may have an actuating lug for application of pressure so as to fascilitate the opening operation.

In one particular design, an opening which defines the resilient arm forms within the internal component an opening for fixed retention of one end of a necklace, chain or other jewellery item onto the fastener. The jewellery item may thus be secured to the internal component before fitting the external component thereto. The external component may be tubular and flattened and have a recess produced by drilling, shearing, milling or punching, arranged to be engaged by a lug on the resilient arm to retain the fastener in the closed position.

In an practical design, the internal component may be shaped to allow sliding within the sheath-like external component, the sliding movement being prevented in one direction by a link of the jewellery item such as a necklace, chain or the like secured to the fastener. In an alternative arrangement the internal component may have an enlarged part forming a stop against one extreme end of the sheath-like external component. The external component and the internal component may be separately finished (by electro-plating or other), being fitted together subsequently without prejudice to the operation or to the finish.

The invention will now be described by way of example with reference to the accompanying drawings in which;

Fig. 1 shows a part-section external view of a first example of fastener constructed in accordance with the invention,

Fig. 2 is a perspective view of the internal component,

Fig. 3 is a cross-sectional view of the external component,

Fig. 4 is a view of the line IV - IV in Fig. 3,

Figs. 5, 6, 7 and 8 are similar views to Figures 1 to 4 showing an alternative form of fastener constructed in accordance with the invention,

Figs. 9, 10, 11 and 12 are similar views to Figures 1 to 4 showing a further form of fastener constructed in accordance with the invention.

Figs. 13 and 14 are side and end views respectively of a further construction of fastener

Fig. 15 is a cross-sectional view of a further construction of fastener, and

Figs. 16 and 17 are side and end views respectively of a still further construction of fastener in accordance with the invention.

Referring initially to Figs. 1 to 4 a necklace chain or like fastener is shown having an internal component 1 made from sheared thin sheet metal and a sheath-like external component 10. The internal component 1 is provided with two parallel edges 3, 5 serving as guide edges to slidably engage between corresponding internal guide edges 7 and 9 of the sheath-like external component 10. The said external component 10 in this example is of shaped tubular section, simply cut to length, or as rolled. The external component 10 is subsequently machined with a simple milling cutter to form a recess 12 breaking through the edge 9, thereby forming an actuating opening.

External component 10 may alternatively be made by casting

or other processes, with a cavity forming a prismatic guide having moulded as well as formed surface.

Component 1 has an eyelet or ring 14 at one end, serving as a fixed retainer to one of the ends of the necklace, chain or the like, as indicated at C in fig. 1. At the opposing end to that having the eyelet or ring 14, the component 1 has an open ring or hook of enlarged size at 1A, in which a hook seating 16 is formed with an access channel 16A towards the edge 5 of the component. Component 1 has an extensive longitudinal slot 18 extending between and parallel with the edges 3 and 5 and defining two arms 3A and 5A, bounded respectively by the edges 3 and 5, arm 3A connects the eyelet or ring 14 with the hook part 1A forming the hook seating 16, while arm 5A is isolated and free at the end adjacent to the eyelet or ring 14; at the end of the arm 5A an outward projection 5B at the edge 5 is provided for engagement in the recess 12 of the external component 10 the arm 5A with the projection 5B is resilient.

The fastener consisting of the two components 1 and 10 is coupled by inserting into the sheath-like component 10, the end of the component 1 having the eyelet or ring 14. The arm 5b yields resiliently inwards, i.e. towards the arm 3A when the projection 5B has to penetrate into the sheath-like component 10; when the projection 5B reaches the recess 12, the arm 5A moves resiliently outwardly once more so that the assembly takes up the position shown in Fig. 1. In that form the access channel 16A to the hook seating 16 is inside the sheath-like component 10. After fitting the assembly as shown in Fig. 1, the link C of the necklace or the like is attached to the eyelet or ring 14. It is then possible to open the fastener by sliding the sheath-like external component 10 in the direction of the arrow F1 in Fig. 1, overcoming the resistance of the resilient arm 5A with the projection 5B. The sliding of the compdnent 10 in the direction of the

arrow F1 may be facilitated or made possible by application of pressure through the recess 12 upon the projection 5B for instance with the finger nail. The sheath-like component 10 may slide in the direction of the arrow F1 at most by the amount until the end thereof reaches the link C. Permitted travel is sufficient since the access channel 16A is exposed outside the sheath 10 to allow the insertion of the end link of the necklace, chain or the like. Once the moving link is inserted in the hook seating 16, a reverse sliding operation of the sheath-like component 1 is carried out in the direction opposite the arrow F1, the projection 5B dropping into the recess 12 and the access channel 16A being closed so that the hook seating 16 is closed to form a closed ring.

The two ends of the necklace, chain or the like, connected by the fastener are both secured to the internal component 1, which allows sufficient traction resistance. The fastener can only be opened by forcing the external component, 10 to slide against the resilience of the arm 5A with the projection 5B, which can be overcome (providing the projection profile 5B allows it) by means of sliding, or after depressing the projection 5B in the direction of arrow F2 for instance with the finger nail.

In either case the external component 10 remains secured between the hook 1A and the link C after fitting of the fastener. Before fitting of the fastener, component 10 is held on component 1 by the resilient retaining action of the projection 5B.

Figs. 5 to 8 show a similar arrangement to the previous example. The internal component 21 and external component 23 are of similar structure to that of components 1 and 10 component 23 having a recess 32 similar to that at 12 in Figures 1 and 3. The internal component 21 has a hook seating 36 similar to that at 16, with an access channel 36A similar to that at 16A, the seating 36 being formed

at one end 21A of the component 21 and having a width of no greater than the distance between the two guide edges 23 and 25 corresponding to the edges 3 and 5 in the previous example for guiding within edges 27 and 29 of the external component 23 similarly to edges 7 and 9. As a variation in relation to the previous example, a longitudinal slot 38 similar to that at 18 is defined between two arms 23A and 25A formed by the component 21 and having the respective edges 23 and 25. The slot 38 has an opening which is at the end of the resilient arm 25A and is the access channel 36A, so as to allow insertion in the direction of the arrow F3 in Fig. 6, of a link to be secured to the fastener as indicated in C1 in Fig. 5. In this case, instead of the curved projection 5B of the previous example, a sawtooth projection 25B is substituted, allowing insertion of the external component 23 over the internal component 21, with a relative sliding movement of component 23 in the direction of the arrow F4 relatively to component 21. Before placing component 23 on component 21, the link C1 is inserted in the slot 38 as indicated by arrow F3 in Fig. 6, until it engages at the end of the slot 38. After sliding the component 23 over component 21 by flexing of the arm 25A in relation to arm 23A, the tooth 25B is able to reach the recess 32 and drop into it as shown in Fig. 5. In that locked position component 23 is unable to slide in a direction opposite to arrow F4 in relation to the internal component 21. However the external component 23 may be moved from the position shown in Fig. 5 in the direction of arrow F4 in relation to component 21, until the access channel 36A is outside of component 23. The sliding of component 23 is allowed by the slope of the side of the saw-tooth projection 25B, the permitted travel being limited by engagement between component 23 and link C1. Once the link at the other end of the necklace, chain or the like has been inserted through access channel 36A into the seating 36, the external component 23 is moved in the reverse direction to arrow F4 in relation to component 21, until the saw-

tooth projection 25B returns resiliently into the seating formed by the recess 32, preventing any further movement of component 23. The resilient distortion of arm 25A towards arm 23A to allow opening of the fastener is achieved by forcing the two components to slide lengthwise the slope of the saw-tooth projection 25B pushing arm 25A towards arm 23A. Additional pressure with the finger-nail will facilitate this operation.

Figs. 9 to 12 show a fastener in which an internal component 41 is shown, also produced by shearing, and a sheath-like external component 43 produced in a similar manner to the corresponding components in previous examples. The external component 43 has an opening or recess 45 similar to those at 12 and 32, as well as a longitudinal slit 47 starting from one of the end of the sheath-like component. The internal component 41 has edges 49, 50 parallel with each other to guide the internal component into the external component 43. The edge 49 is formed by an arm 49A extending to form a hook 41A defining a seating 52 similar to those at 16 and 36, with an access channel 52A between the ends of hook 41A and the end of an arm 50A which defines the edge 50. A slot 54 defined between the two arms 49A and 50A is formed within internal component 41. The arrangement is such that the arm 50A will yield resiliently whereas the slot 54 and seating 52 are accessible from the access channel 52A between the end of hook 41A and the end of the arm 50A. Near the end of arm 50A there is provided with a saw-tooth projection 55 similar to that at 25B but pointing in the opposite direction. A lug 57 is formed at the end of the arm 50A for actuation purposes, this being at a small distance from the projection 55. An eyelet or ring 59 is formed at the opposite end of the component 41 from the hook 41A which provides the seating 52.

The sheath-like external component 43 may be inserted over the component 41 in the direction of the arrow F9 in Fig. 9.

During this operation, the end of the slit 47, reacts upon the back of the projection 55, causing deflection of the arm 50A towards arm 49A, which may be assisted by pressure on projection 57. The movement of the sheath-like component 43 in the direction of the arrow F9 for fitting purposes, ceases when the projection 55 is engaged into the recess 45 and the end of the slit 47 comes to bear against the lug 57, in this way the position shown in Fig. 9 is reached, representing the locked position of the fastener, since the end of hook 41A is inside the component 43. In this position the fastener can be engaged by the end link C2 of the necklace, chain or the like, through the eyelet or ring 59 so as to keep the fastener fixed at that end of the necklace, chain or the like. The closed position of the fastener is secured by the double lock of the projection 55 and the lug 57. It is only by depressing in the direction of the arrow FA on the lug 57, thereby deflecting the arm 50A towards arm 49A, that the sheath-like component 43 can be made to release to slide in the reverse direction to arrow F9 in relation to the internal component 41, when the projection 55 moves inward from the recess 45. Reverse sliding in the opposite direction to arrow F9 is limited by the presence of the link C2 of the necklace, chain or the like, but travel is sufficient since the access channel 52A can be exposed sufficiently to allow the link at the other end of the necklace, chain or the like to be inserted into it. Moving the sheath-like external component 43 in the other direction, that is in the direction of the arrow F9, again locks the two components relatively to one another as the projection 55 engages into the recess 45. These designs provide a double safety measure against accidental opening.

Figs 13 and 14 show a variation on the example in Figs. 1 to 4, wherein the corresponding components and features bear the same reference number with the addition of 60 to each. The slot 78 in this particular case directly forms the seating for link C, without recourse to an eyelet or

ring as at 14. Instead of the enlarged hook 1A, a projecting tooth 61A is provided, preventing the sheath-like external component 70 from sliding in the direction opposite to arrow F1 in relation to the internal component 60.

Fig. 15 shows a similar construction to that in Fig. 13 but with square in place of rounded ends to the internal component, at 78 and 76, for use in securing very flat necklace, chain or bracelet ends. It also has a saw tooth projection.

Figs. 16 and 17 show a variation on the examples in Figs. 9 to 12, in which corresponding components and parts bear the same reference number plus with the addition of 80 to each. In that case the slot 84 is extended to form a seating for the link C32, whereby it can be securely fixed to the fastener and the slot 84 is defined between the two arms 79A and 80A. The arm 79A has an S shaped profile defining the hook 71A of the internal component 71, with a seating 82 for receiving the releasable link C42 at the other end of the necklace, chain or the like; the said seating 82 opens at 82A at the opposite side to the flexible arm 80A which bears the tooth projection 85, engageable in the recess 75. A lug 87 is lodged in and projects through a longitudinal slit, formed by a sloping surface 77. The operation is the same as for the example in Figs. 9 to 12, except for the possibility of inserting the link C32 into the slit 84, before fitting the internal component 81 inside the external component 73 in the direction of the arrow F71. In all the constructions shown here and in other equivalents, a series of advantages can be obtained in relation to known designs, which result in a considerable saving and a significant level of safe operation. The external component may be made with tubular profile with transverse cuts defining the ends and by milling, or some other operation the recess 12, 32, 45, 72 or 75 and slit 47 can be formed. The external component may be made from sheared and pressed sheet metal. The latter case does not exclude actuation of the external

components with an open transverse profile or an annular closed profile. The internal component is also easily produced from easily machined drawn material or even more simply by shearing or other easy operations. The internal component may be made of wire or similar material, particularly in the case of Figs. 5 to 8.

The internal component acts in the manner of a spring with the resilient arm 5A or 25A or 50A and also defines the eyelets or seatings for the end links, both fixed and removable, on the ends of the necklace, chain or the like; on the other hand the external component does not require an eyelet. In the case of Figs. 5 to 8 the necklace, chain or the like may be fitted in a preliminary manner before securing the two components of the fastener. In each case it is possible to proceed with separate easy finishing processing of the two components, without the risk of subsequent operations damaging the surface finish of the components.

The recess 12, 32, 45, 72 or 75 may be made by internal punching, so that the recess is not accessible from the outside, in which case after the fitting of the two components and the welding of the link C1 the two components may no longer be separated.

CLAIMS

1. A fastener for securing the two ends of an item of jewellery characterised by two components one of which is an internal component (1) having means (14) for securement to one end (c) of the jewellery item and forming a hook (16) to be attached to the other end of the item, the other component being an external component (10) slidably engaged with the internal component (1), between a closed position of the hook (16) and an open position allowing the insertion and removal of the other end of the jewellery item, the said internal component having a resilient arm (5A) resiliently engageable with the external component (10) to hold the fastener in the said closed position.

2. A fastener as claimed in claim 1, characterised in that, the internal component (1) is made of sheared sheet metal.

3. A fastener as claimed in claim 1, characterised in that, the internal component (1) is made from a suitably shaped wire.

4. Fastener as claimed in any one of the preceding claims characterised in that, the external component (10) forms a tubular sheath.

5. A fastener as claimed in any one of the preceding claims characterised in that, the external component (10) is moulded for aesthetic reasons, being produced by casting or other process.

6. A fastener as claimed in any one of the preceding claims, characterised in that, the internal component (1) has a projection (5B) on the resilient arm (5A) arranged to engage in a recess (12), in the sheath-like external component (10).

7. A fastener as claimed in any one of the preceding claims, characterised in that the resilient arm (5A) has a projection (5B) which can be resiliently depressed to release for opening the fastener.

8. A fastener as claimed in any one of the preceding claims, characterised in that the said resilient arm (5A) defines within the internal component an opening (38) for fixed retention of one end (c) of the jewellery item upon the fastener.

9. A fastener as claimed in any one of the preceding claims characterised in that, the external component (10) is a flat tube having a recess (12) formed by drilling, shearing or milling, for engagement by a projection (5B) on the resilient arm (5A) to retain the components in the closed position.

10. A fastener as claimed in any one of claims 1 to 6 characterised in that, the internal component (1) is shaped for sliding movement through the sheath-like external component (10), sliding in one direction being prevented in use exclusively by a link (c) on the jewellery item secured at said one end to the fastener.

11. A fastener as claimed in any one of claims 1 to 9, characterised in that, the internal component (1) has an enlarged part (1A) arranged to bear against one end of the sheath-like external component (10).

12. A fastener as claimed in any one of the preceding claims, characterised in that, the external and internal components can be separately finished before being inter connected, without prejudice to their operation or eventual finish.

13. A fastener as claimed in any one of the preceding claims, characterised by a recess inside the external component (10), for engagement by a projection (5B) on the resilient arm (5A), is inaccessible from the outside of that component.

Fig.1

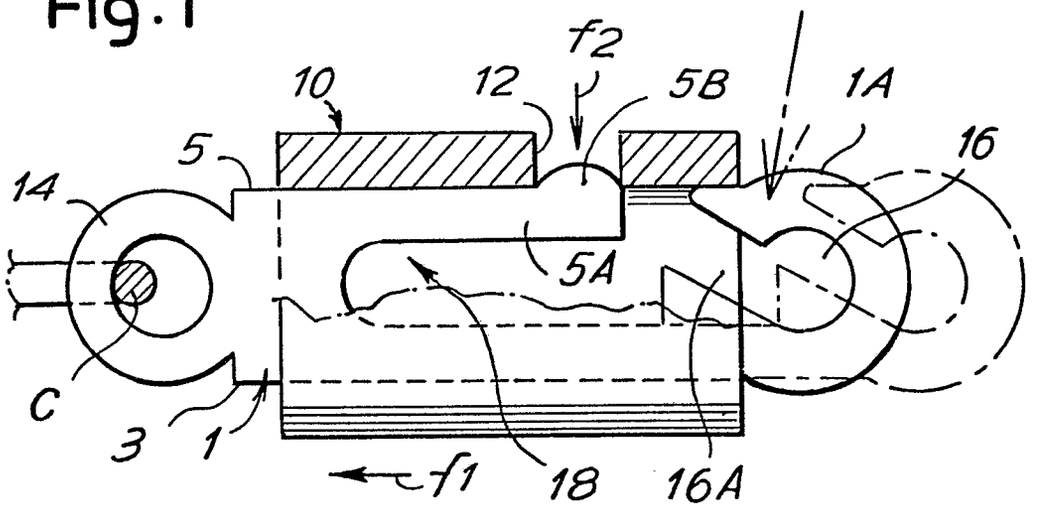


Fig.2

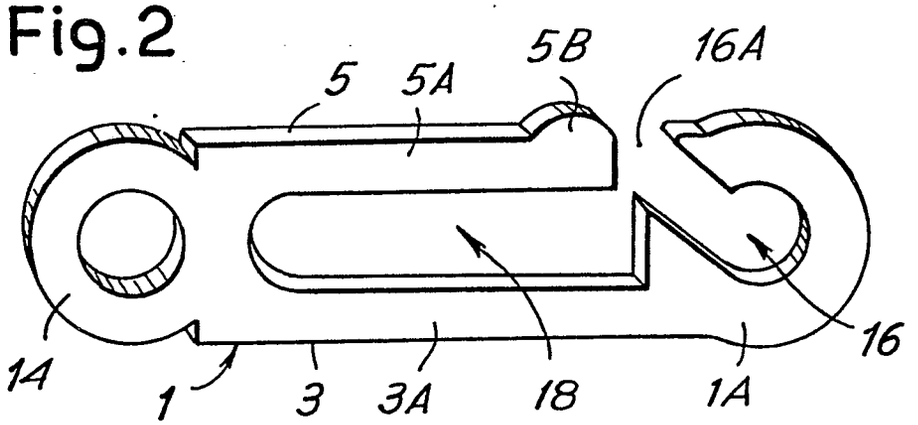


Fig.3

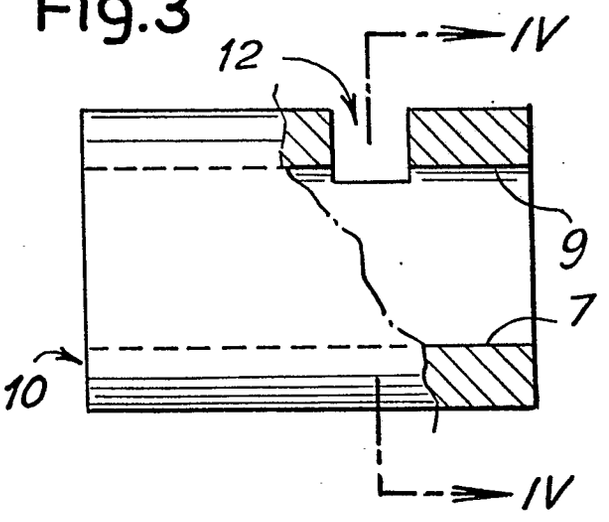


Fig.4

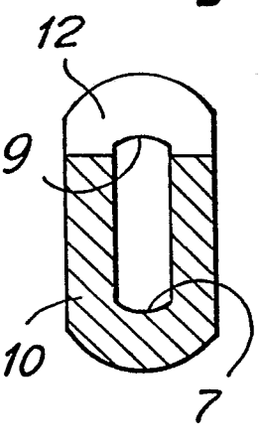


Fig.5

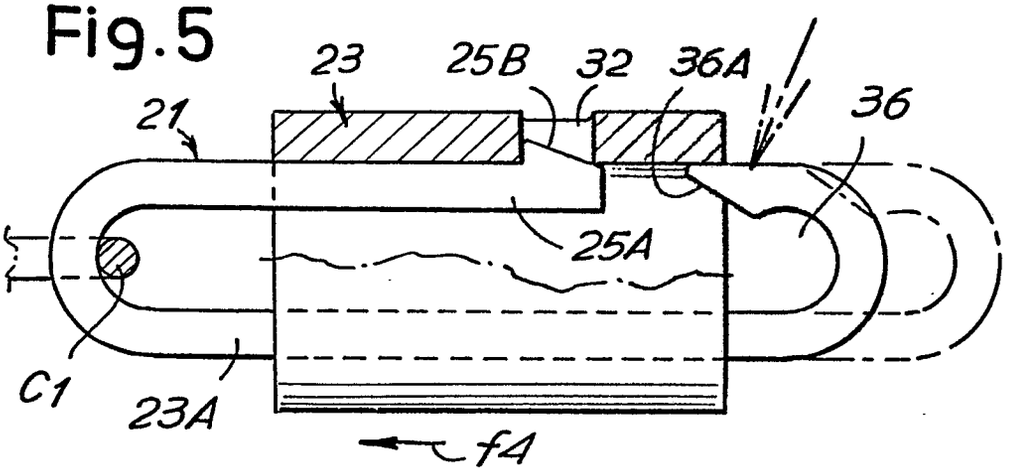


Fig.6

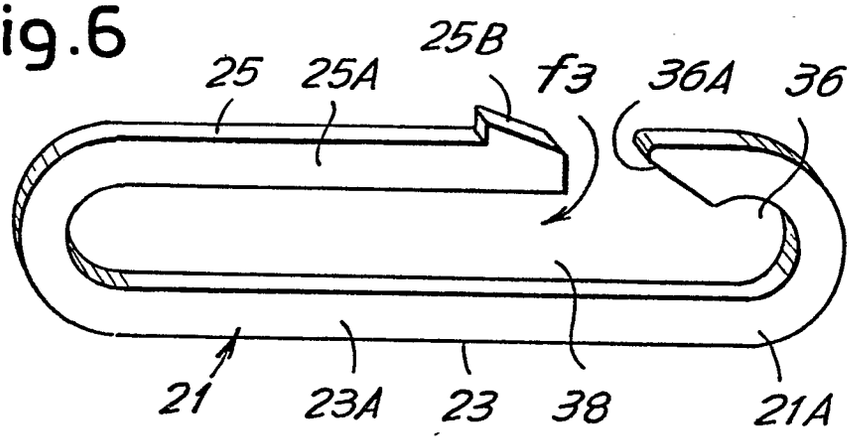


Fig.7

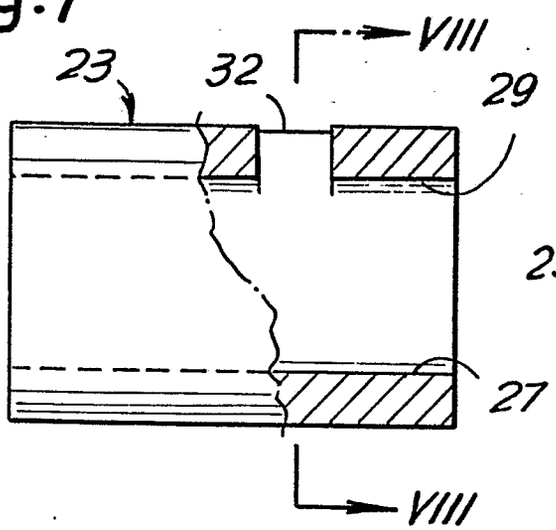


Fig.8

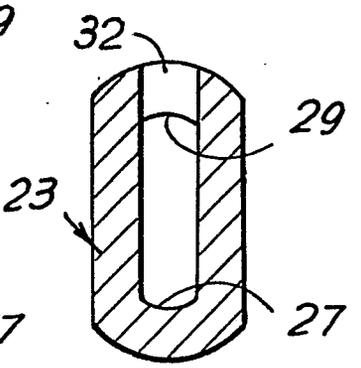


Fig.9

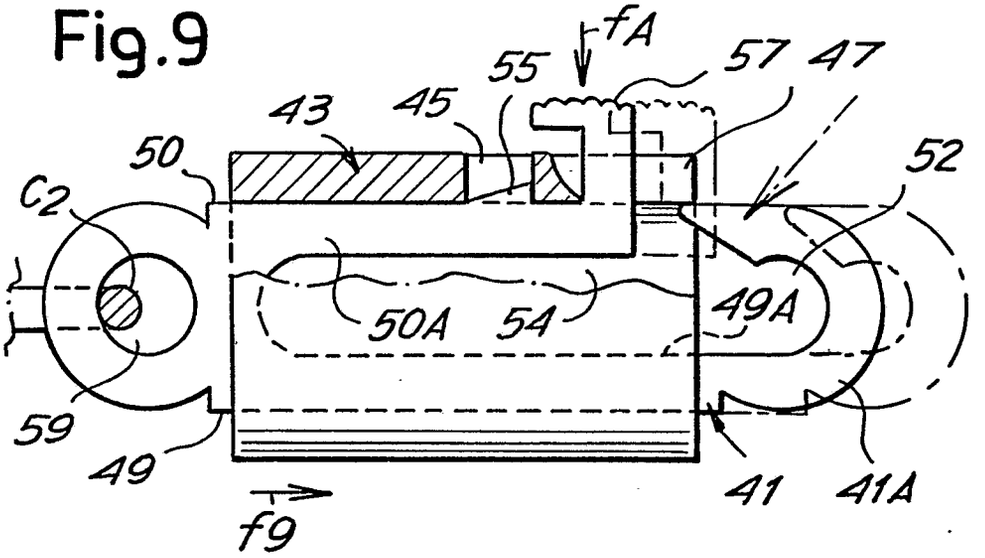


Fig.10

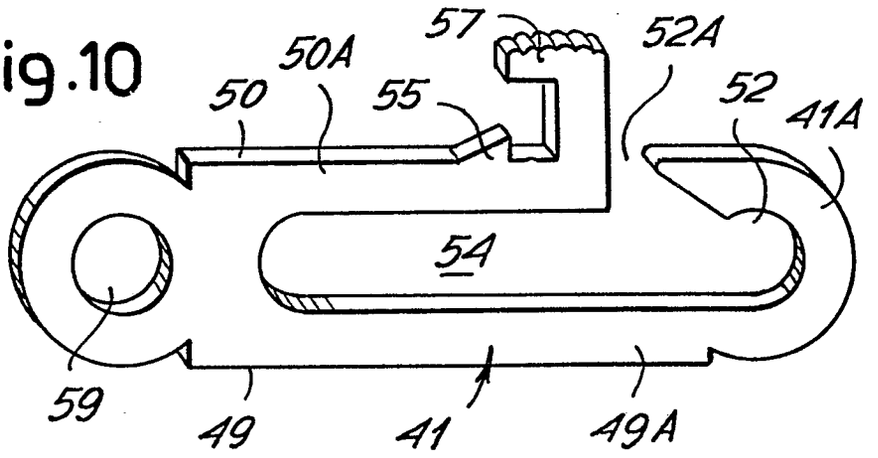


Fig.11

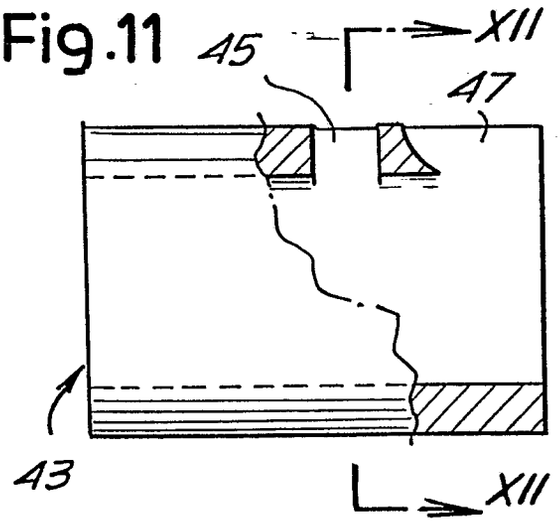


Fig.12

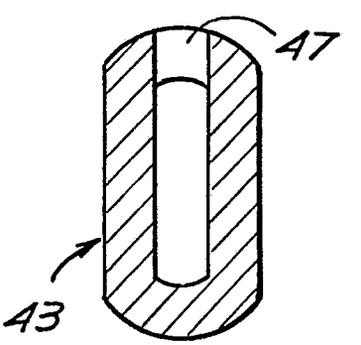


Fig.13

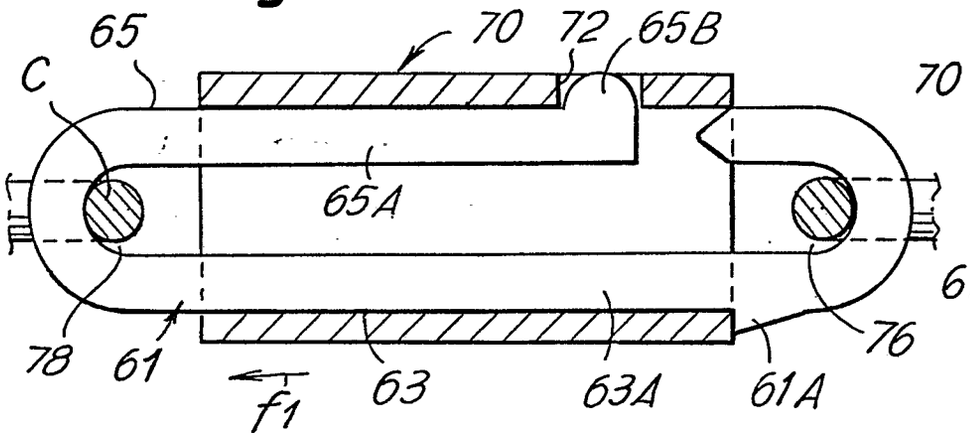


Fig.14

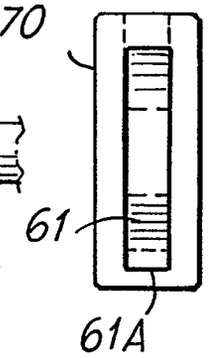


Fig.15

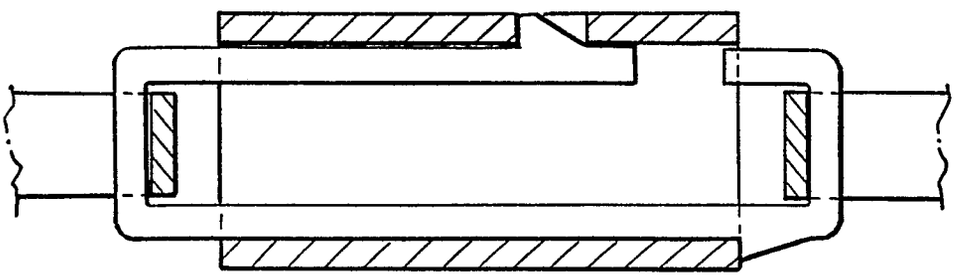


Fig.16

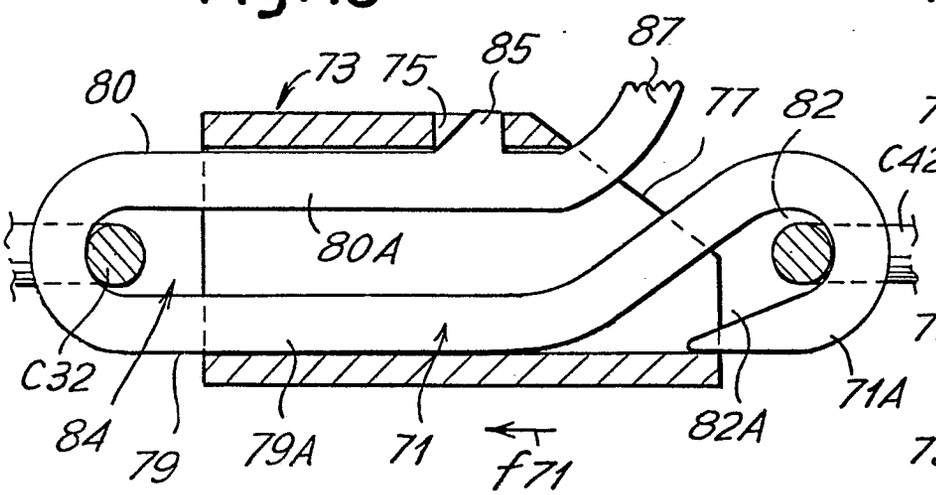
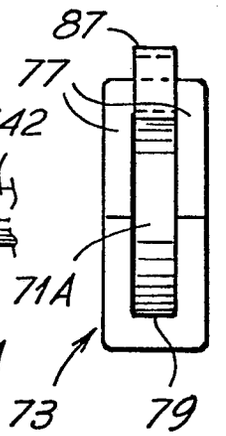


Fig.17



European Patent Office

EUROPEAN SEARCH REPORT

Application number

EP 81 83 0219

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. 3)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	GB - A - 247 444 (J.J. MORSE) * Page 2, lines 24-107; page 3, lines 17-94; claims, figures*	1,3,6, 7,8,10	A 44 C 11/02
X	FR - A - 392 235 (E. CHENEBLE) * The whole document *	1,3,6, 7,8,9, 11,12	
X	FR - A - 499 037 (E. JARDIN) * The whole document *	1,6,7, 8,9	TECHNICAL FIELDS SEARCHED (Int.Cl. 3)
A	US - A - 1 771 427 (G.H.WATERHOUSE) * Page 1, lines 53-100; page 2, lines 1-48; figures *	1,2,4, 10	A 44 C
A	US - A - 1 405 227 (FRANK WIEGAND) * Page 1, lines 61-104; page 2, lines 1-88; figures *	1,5,7	
A	DE - C - 961 227 (A.E. HESTER-MANN) * The whole document *	1,4,6, 9,13	CATEGORY OF CITED DOCUMENTS
A	FR - A - 1 503 850 (GAY FRERES)		X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons
A	FR - E - 86919/FR - A - 1 397 361 (GAY FRERES)		
PX	EP - A - 0 029 410 (A. BRENTINI) * The whole document *	1,4,6, 7,8,10	
X	The present search report has been drawn up for all claims		&: member of the same patent family, corresponding document

Place of search	Date of completion of the search	Examiner
The Hague	04-02-1982	GARNIER