(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 925 813 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
30.06.1999 Bulletin 1999/26

(51) Int Cl.[6]: **A63C 11/00**

(21) Application number: **98124374.4**

(22) Date of filing: **22.12.1998**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **24.12.1997 IT MO970238**

(71) Applicants:
- **Formigoni, Daniele**
  42100 Reggio Emilia (IT)
- **Partesotti, Alessandro**
  42100 Reggio Emilia (IT)

(72) Inventors:
- **Formigoni, Daniele**
  42100 Reggio Emilia (IT)
- **Partesotti, Alessandro**
  42100 Reggio Emilia (IT)

(74) Representative: **Crugnola, Pietro**
Luppi & Crugnola S.r.l.
Viale Corassori, 54
41100 Modena (IT)

(54) Apparatus for locking a pair of skis

(57) An apparatus (1) comprises a closure body (3) capable of closing a pair of skis (2) one against the other, said closure body (3) being provided at its ends (4a, 7a) with a coupling means (17) capable of placing said body (3) in a stably closed condition in which said closure body (3) is rigid; the apparatus (1) also has a locking means (8) capable of locking said coupling means (17) in, or releasing it from, said closed condition.

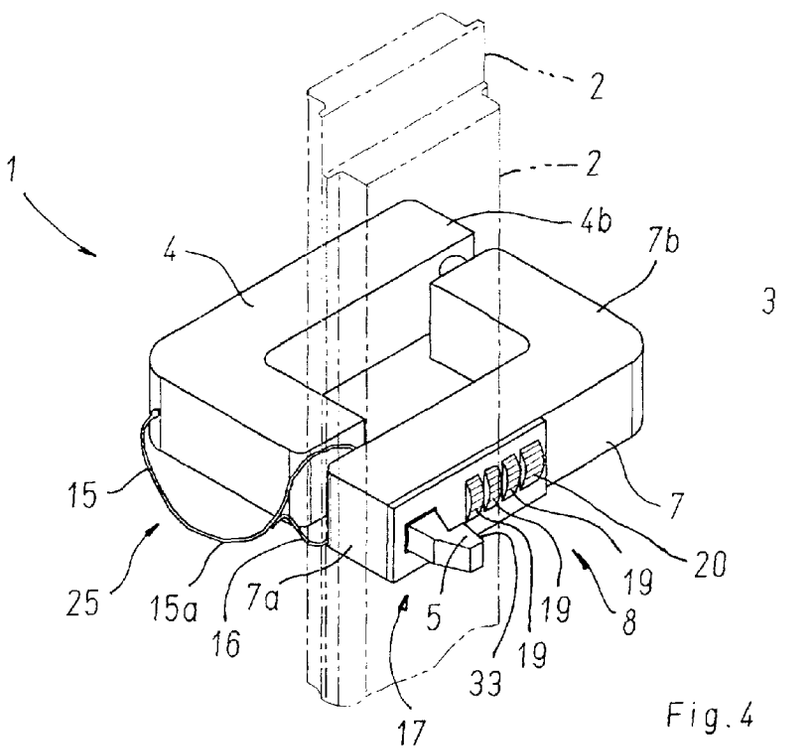

Fig. 4

EP 0 925 813 A2

Description

[0001] The invention relates to an apparatus for locking a pair of skis in a reciprocal position in such a way as to prevent, or at least hinder, the use of that pair of skis by unauthorised persons.

[0002] Prior art includes ski closure straps, for example elastic straps, provided at their ends with coupling elements that engage with each other, allowing the skis to be kept stationary relative to each other when the straps are wrapped around the front and rear ends of a pair of skis, after the bottom faces of the skis (that is the faces that do not carry the bindings) have been placed one against the other. These straps are used to hold the skis steady and to facilitate transport.

[0003] Said closure straps, when fitted on a pair of skis left in a public place, for example during a break, are unable to prevent anyone from freeing the skis in order to steal them from their legitimate owner; this is a particularly frequent occurrence at ski lodges, where skis are left temporarily, for example by inserting one end in the snow or mounting them on racks.

[0004] The aim of the present invention is to provide an apparatus capable of preventing, or at least discouraging, theft of a pair of skis by a third party.

[0005] According to the invention, there is provided apparatus comprising a closure body capable of closing a pair of skis one against the other, said closure body being provided at its ends with coupling means suitable for placing said body in a stably closed condition, characterised in that said closure body is rigid at least in said closed condition and in that said body also has locking means suitable for locking said coupling means in, or releasing it from, said closed condition.

[0006] Thus, the owner of the skis has a system for locking and unlocking the coupling means and can therefore leave the skis on the snow after locking them together stably to discourage theft: although a third party could remove them without freeing them, and transport them for example on his shoulders, this would in any case arouse the suspicion of anyone witnessing the event. Obviously in order for a third party not to be able simply to remove the closure apparatus by sliding it along the skis, the apparatus must be fitted in an appropriate position between the front end of the skis and the boot bindings, or between a pair of front elements and a pair of rear elements of said bindings.

[0007] In a particularly advantageous embodiment, the locking means comprise a numerical combination lock device; this way the owner can lock and unlock the coupling means without using keys or other elements separate from the ski closure apparatus which could be lost or stolen.

[0008] In another particularly advantageous embodiment, an anchor means to secure the ski closure apparatus during use to a stationary element such as a tree or a post is connected to the closure body; this represents a further obstacle to theft of the skis.

[0009] The invention can be better understood and carried out with reference to the attached drawings, which illustrate, purely by way of example, some forms of construction.

[0010] Figure 1 is a deviated and schematic cross-sectional view of an apparatus according to the invention, in closed condition.

[0011] Figure 2 is a schematic view of the apparatus shown in Figure 1, in open condition.

[0012] Figure 3 is a cross-sectional view as in Figure 1, but with the skis clamped together and with the anchoring means arranged in such a way as to secure the closure body to a fixed element.

[0013] Figure 4 is a schematic perspective view of Figure 3.

[0014] Figures 5, 6, 7 and 8 are cross-sectional views like Figure 1, but of further embodiments of the invention.

[0015] Figure 9 is a perspective view similar to Figure 4, but relating to a further embodiment of the invention.

[0016] Figure 10 is a partially interrupted cross-sectional top view of Figure 9.

[0017] Figure 11 is the cross-sectional view XI-XI of Figure 10.

[0018] Figures 12 and 13 are analogous cross-sectional views to that of Figure 11, illustrating operation of said further embodiment of the invention.

[0019] With reference to Figures from 1 to 4, an apparatus 1 comprises a closure body 3 suitable for closing together a pair of skis 2 after the lower faces of said skis have been placed one against the other; the closure body 3 has a first jaw 4 provided at a first end 4a with a closure element 5 with toothing, constituting part of coupling means 17 which comprises an opening 6 obtained in a corresponding first end 7a, corresponding to the first end 4a, of a second jaw 7, and in which the closure element 5 can be inserted. The second jaw 7 includes numerical combination locking means 8 suitable for locking or unlocking the closure element 5, by respectively engaging or disengaging a tooth 33 on its toothing by way of a bolt 18 which faces the opening 6. The bolt 18 is actuated by a numerical combination system of known type provided with three drum combination elements 19 for selecting a combination of characters, for example numbers, and a button 20 which causes the bolt 18 to withdraw from the opening 6 when a predetermined combination of numbers has been selected. With a second end 4b of the first jaw 4 there is coupled a sliding element 9, which can slide in a cavity 10 obtained in a corresponding second end 7b, corresponding to the second end 4b, of the second jaw 7, allowing the opening 6 to be freed of the closure element 5 and allowing the distance between the first jaw 4 and the second jaw 7 to be varied in order to allow the apparatus 1 to be used with skis 2 varying in thickness within an appropriate interval. Said sliding element 9 is provided, at its free end 9a not coupled to the first jaw 4, with a pin 11 which protrudes transversally relative to the longitudinal slid-

ing direction of element 9 in cavity 10; when the first jaw 4 and the second jaw 7 are moved towards or away from each other, pin 11 slides along a longitudinal guide channel 12 obtained on one wall of the cavity 10 and parallel to the longitudinal sliding direction of element 9 and ending near the corresponding second end 7b. This prevents the sliding element 9 from coming completely out of cavity 10, hence ensuring that the first jaw 4 and the second jaw 7 remain secured together at all times. At the end of the longitudinal guide channel 12 near the corresponding second end 7b, there is located a groove 13 also obtained on the wall of the cavity 10 and lying in an orthogonal plane relative to the longitudinal sliding direction of element 9, pin 11 being able to slide along the groove 13 when the apparatus 1 is in its maximum open position, and the first jaw 4 and the second jaw 7 being able to rotate relative to each other around an axis defined by the longitudinal sliding direction of element 9 inside the cavity 10. Anchoring means 25 for securing the apparatus 1 to a fixed element such as a tree or a post during use are associated to the first jaw 4. The anchoring means 25 comprise a winding roller 14 incorporated in the first jaw 4 near the first end 4a; on said roller 14 there unwinds or winds a strap 15, which issues from the first jaw 4 and is provided at its free end 15a with a loop 16 suitable for being engaged by the closure element 5 before being inserted in opening 6. This way it is possible to keep the apparatus 1 tied to a tree or a post by way of strap 15 when the skis 2 are locked together. The winding roller 14 has a spring that permits automatic winding of the strap 15 when the ring 16 has been disengaged.

[0020] Figure 5 shows a second embodiment of the apparatus according to the invention. This second embodiment differs from the embodiment described above by the presence of a rotation pin 21 which permits rotational coupling of the sliding element 9 with the first jaw 4. This introduces an additional degree of freedom into the apparatus 1, the first jaw 4 and the second jaw 7 being additionally able to rotate with respect to an axis orthogonal to the plane of the cross-sectional view shown in the Figure when the apparatus 1 is not in the closed condition.

[0021] In a third embodiment of the apparatus according to the invention, shown in Figure 6, the coupling means 17 includes a seat 22 obtained in the locking means 8 and capable of receiving one of a plurality of retaining elements 23 located on one side 24 of the closure element 5, oriented towards the locking means 8. The closure element 5 is hinged to the first jaw 4, at the first end 4a thereof. On closing the apparatus 1, the element 5 is rotated relative to the first jaw 4 in such a way that a retaining element 23 is received by the seat 22; the bolt 18 of the locking means 8 thereby engages the retaining element 23, freeing it only after the predetermined numerical combination has been selected. Furthermore, in this embodiment the anchoring means 25 is located at the second end 4b of the first jaw 4.

[0022] A fourth embodiment of the apparatus according to the invention, shown in Figure 7, has a similar coupling means 17 to the one shown in Figure 6; however, the closure element 5 is not hinged to the first jaw 4 at its first end 4a. To free the retaining element 23 of the closure element 5 from the seat 22, after releasing the bolt 18, the first jaw 4, integral with closure element 5, must be rotated around rotation pin 21 (similar to the one shown in Figure 5) located at the second end 4b of jaw 4.

[0023] In a fifth embodiment of the apparatus according to the invention, shown in Figure 8, the second jaw 7 and the closure element 5 are rotationally coupled by way of a rotation pin element 26 which allows closure element 5 either to rotate away from the first jaw 4, thereby allowing the closure body 3 to open for the purpose of freeing or introducing the skis 2, or to rotate towards the first jaw 4, thereby allowing the closure body 3 to close after the skis 2 have been introduced. The first jaw 4 is provided, at its first end 4a, with a male coupling element 27 capable of coupling, when the closure body 3 is in the closed position, with one of a plurality of female coupling elements 28, obtained in one side 29 of the closure element 5, oriented towards the first jaw 4. At the position of the locking means 8, the closure element 5 has a protuberance 30, which projects orthogonally with respect to side 29 and is received, when the closure body 3 is in the closed condition, by a corresponding recess 31 in the locking means 8. In these conditions, the bolt 18 engages the protuberance 30 on one side 32 thereof; if the bolt 18 is released, the recess 31 can be freed of the protuberance 30 by making the closure element 5, with which protuberance 30 is integral, rotate on the rotation pin element 26 away from the first jaw 4.

[0024] The Figures from 9 to 12 show a sixth embodiment of the apparatus according to the invention, in which one of the jaws 4, 7, for example the first jaw 4, has a portion 33 with a reduced cross-section, capable of being inserted in an opening 34 obtained in a plate means 35 to which there is fixed, for example near one side 37, one end of the strap 15, opposite the free end 15a. The opening 34 in the plate 35 has at least one seat 39 capable of being coupled to said portion 33 so as to prevent plate 35 from rotating relative to the first jaw 4.

[0025] The plate 35 is coupled to said portion 33 of the jaw 4 during construction of said jaw so that it cannot be separated from jaw 4 but can slide and rotate relative to it.

[0026] When the apparatus 1 is in the closed condition without the skis 2 inserted in it, the plate 35 is in the position shown in Figure 11, with the portion 33 of the jaw 4 inserted in the seat 39, with the side 37 directed towards the inside of the apparatus and the other side 38, opposite side 37, directed towards the outside of the apparatus 1 and positioned in such a way that it does not protrude from the profile of the apparatus. In this sit-

uation, the strap 15 can be positioned inside the apparatus 1, between the jaws 4 and 7.

[0027] In order to insert a pair of skis 2 in the apparatus 1, after placing the apparatus 1 in the open position, the plate 35 is pushed outwards, that is to the left with reference to figure 10, freeing portion 33 of jaw 4 from the seat 39, the plate 35 is rotated by 180° and moved further towards the outside of apparatus 1 until the portion 33 is reinserted in seat 39. In this situation the plate 35 is positioned in such a way that its side 38 does not protrude towards the inside of the apparatus 1, so as not to damage the skis 2 inserted inside it. After placing the apparatus 1 in the closed position with the skis 2 locked inside it, apparatus 1 can be secured to a post, a tree or another securing means by way of strap 15.

[0028] The shape and dimensions of apparatus 1, in all the embodiments illustrated, are chosen in such a way that the apparatus 1 is conveniently pocket-sized and portable.

Claims

1. Apparatus (1), comprising a closure body (3) suitable for closing a pair of skis (2) one against the other, said closure body (3) being provided at its ends (4a, 7a) with coupling means (17) capable of placing said body (3) in a stably closed condition, characterised in that said closure body (3) is rigid at least in said closed condition and in that said closure body has locking means (8) capable of locking said coupling means (17) in, or releasing it from, said closed condition.

2. Apparatus (1) according to claim 1, wherein the shape and dimensions of apparatus (1) are such as to make it easily transportable.

3. Apparatus (1) according to claim 1 or 2, wherein the shape and dimensions of apparatus (1) are such as to allow it to be carried in a pocket.

4. Apparatus (1) according to any one of the preceding claims, wherein said closure body (3) comprises a first jaw (4) provided with a first end (4a) and a second end (4b), and a second jaw (7) provided with a corresponding first end (7a), corresponding to said first end (4a), and a corresponding second end (7b), corresponding to said second end (4b), said first jaw (4) and said second jaw (7) being coupled at said second end (4b) and said corresponding second end (7b) and said coupling means (17) being interposed between said first end (4a) and said corresponding first end (7a).

5. Apparatus (1) according to claim 4, wherein to said second end (4b) there is joined a sliding element (9), which is slidable in a cavity (10) obtained in said corresponding second end (7b).

6. Apparatus (1) according to claim 5, wherein said sliding element (9) is provided, at a free end (9a) not joined to said first jaw (4), with a pin (11), which protrudes transversally relative to the longitudinal sliding direction of said sliding element (9) in said cavity (10).

7. Apparatus (1) according to claim 6, wherein said pin (11) slides along a longitudinal guide channel (12) obtained in a wall of said cavity (10) and parallel to said longitudinal sliding direction and ending near said corresponding second end (7b), wherein there is a groove (13) along which said pin (11) is able to slide.

8. Apparatus according to claim 7, wherein said groove (13) is obtained in a wall of said cavity (10) and lies in an orthogonal plane to said longitudinal sliding direction.

9. Apparatus (1) according to any one of claims 1 to 3, wherein said locking means (8) comprises a numerical combination device capable of locking or unlocking, by way of a bolt (18), a closure element (5) that forms part of said coupling means (17) and is coupled to said first jaw (4) at said first end (4a).

10. Apparatus (1) according to any preceding claims, wherein said coupling means (17) also includes an opening (6) obtained in said corresponding first end (7a) and intended to be closed by said closure element (5).

11. Apparatus (1) according to claim 10, wherein said closure element (5) has a plurality of teeth (33), one of which can be engaged or disengaged by said bolt (18) facing said opening (6).

12. Apparatus (1) according to any preceding claims, and further comprising a rotation pin (21) that permits rotational coupling of said sliding element (9) and said first jaw (4).

13. Apparatus (1) according to any one of claims 1 to 9, wherein said closure element (5) is hinged to said first jaw (4) and has a plurality of retaining elements (23), one (23) of which can be received by a seat (22) obtained in said locking means (8), said bolt (18) being capable of engaging or disengaging said one (23) of said plurality of retaining elements (23) .

14. Apparatus (1) according to any one of claims 1 to 9, wherein said first jaw (4) is rotationally coupled with said sliding element (9) by way of a rotation pin (21) and said closing element (5) has a plurality of

retaining elements (23).

15. Apparatus according to claim 14, wherein one (23) of said retaining elements (23) can be received by a seat (22) obtained in said locking means (8), said bolt (18) being able to engage or disengage said one (23) of said retaining elements (23).

16. Apparatus (1) according to any one of claims 1 to 9, wherein said closure element (5) is rotationally coupled by way of a rotation pin element (26) to said second jaw (7), said closure element (5) being provided on one side (29) directed towards said first jaw (4) with a protuberance (30) which projects orthogonally with respect to said side (29) and is capable of being received, when said closure body (3) is in the closed condition, by a corresponding recess (31) of said locking means (8), said bolt (18) being capable of engaging or disengaging said protuberance (30) on one side (32) thereof.

17. Apparatus (1) according to claim 16, wherein said first jaw (4) is provided, at said first end (4a), with a male coupling element (27) capable of being coupled, in the closed condition of said closure body (3), with one of a plurality of female coupling elements (28), obtained in said side (29).

18. Apparatus (1) according to any preceding claim and further comprising anchoring means (25) to secure said apparatus (1) during use to a fixed element such as a tree or a post.

19. Apparatus (1) according to claim 18, wherein said anchoring means (25) comprise strap means (15) joined to said first jaw (4) and provided at a free end (15a) with a ring (16) that can be engaged by said coupling means (17) before said closure body (3) is closed.

20. Apparatus (1) according to claim 19, wherein said anchoring means (25) also include a winding roller (14) incorporated in said first jaw (4) on which said strap means (15) is unwound or wound, said winding roller (14) being provided with a spring for automatic winding of said strap means (15) once said ring (16) is disengaged from said coupling means (17).

21. Apparatus (1) according to claim 19, wherein one end (36) of said strap means (15), opposite said free end (15a), is fixed to a plate means (35) joined to one of said jaws (4, 7).

22. Apparatus (1) according to claim 21, wherein said end (36) is fixed to said plate means (35) in proximity to one side (37) thereof.

22. Apparatus (1) according to claim 21, wherein said plate means (35) are joined to a portion (33) of reduced cross-section of one of said jaws (4, 7).

23. Apparatus (1) according to claim 22, wherein said plate means are provided with a through opening (34) for said portion (33).

24. Apparatus (1) according to claim 23, wherein said through opening is provided with at least one seat (39) capable of being coupled with said portion (33) in such a way that the plate means (35) is unable to rotate with respect to said portion (33).

25. Apparatus (1) according to any one of claims 21 to 24, wherein said plate means (35) can be moved relative to said portion (33) between a first position in which said plate means does not project towards the outside of the apparatus (1) and a second position in which said plate means does not project towards the inside of the apparatus (1).

26. Apparatus (1) according to any one of the preceding claims, wherein the distance between said first end (4a) and said corresponding second end (7b) is such that said apparatus (1) can be used with skis (2) of any size.

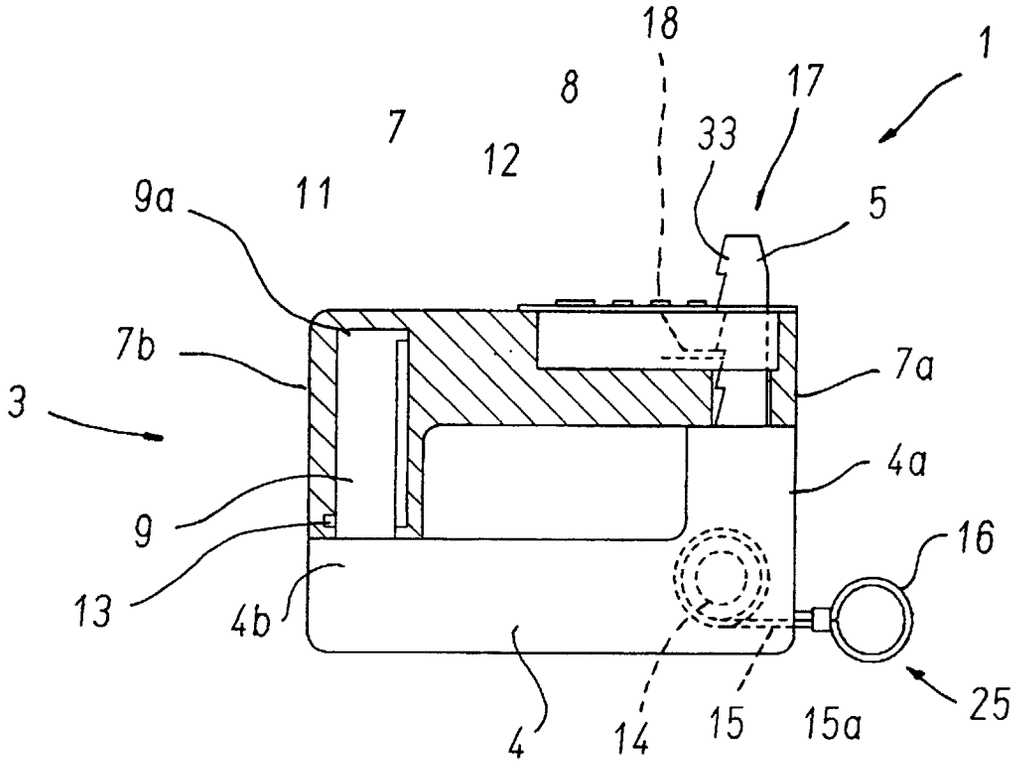
18
1
8
17
7
33
12
5
11
9a
7b
7a
3
4a
9
16
13
4b
25
4
14
15
15a

Fig. 1

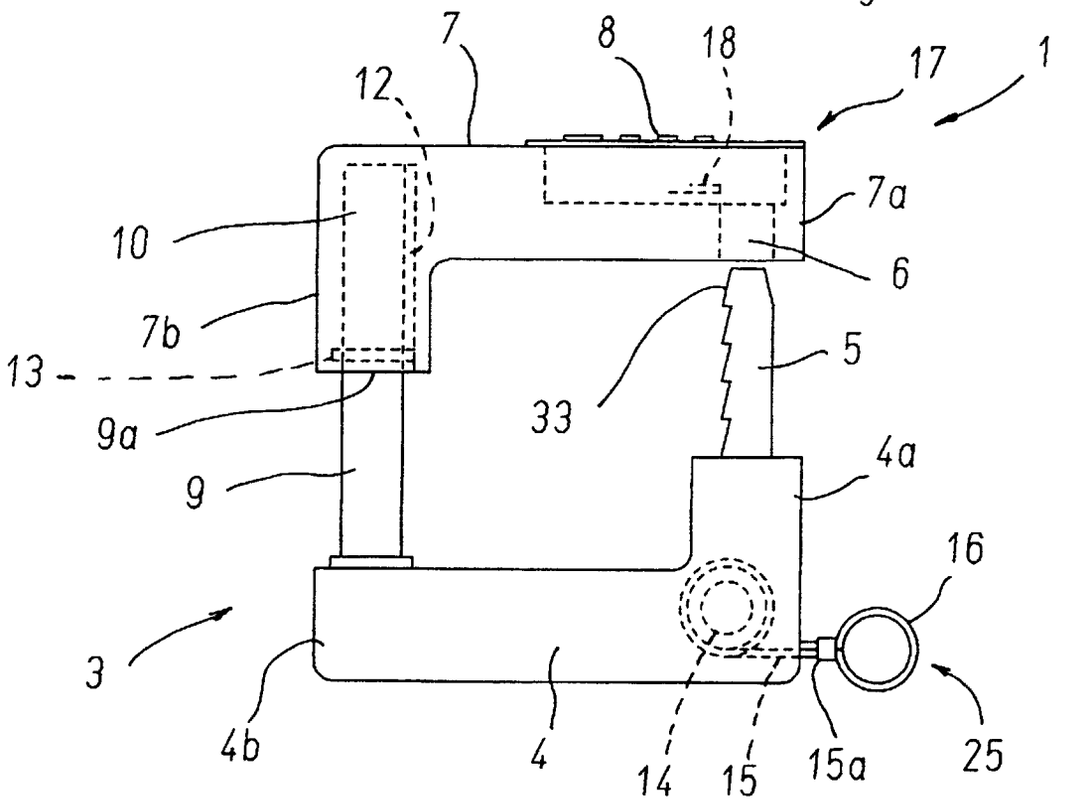
7
8
18
1
12
17
7a
10
6
7b
5
13
33
9a
4a
9
16
3
4b
4
14
15
15a
25

Fig. 2

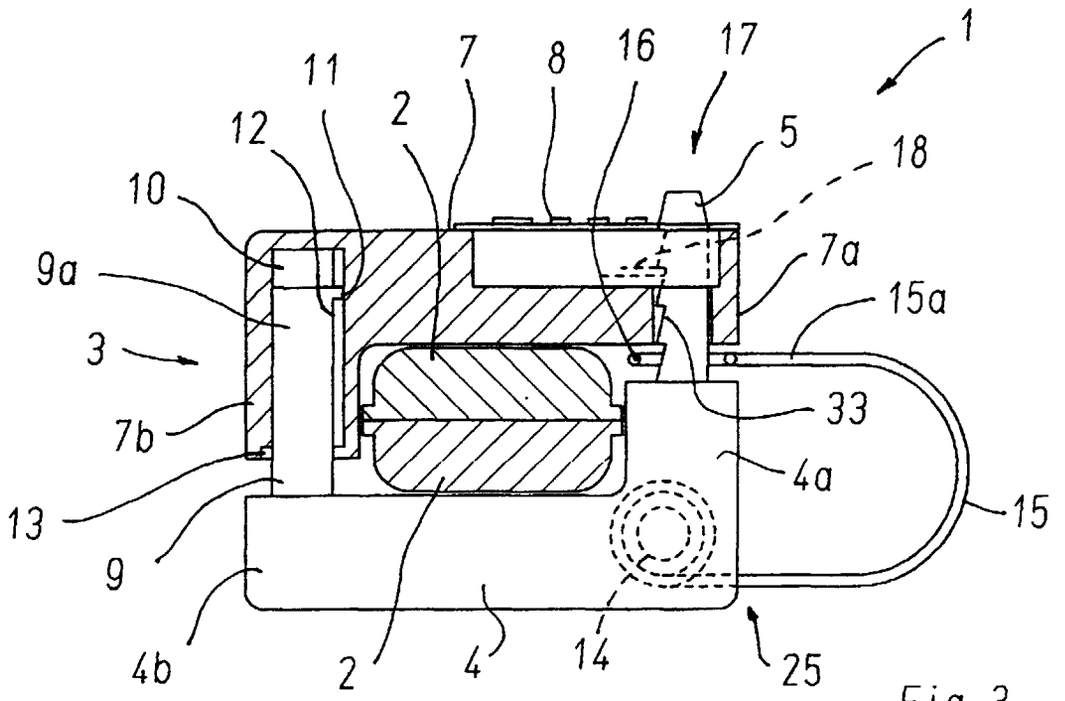
1
11
7
8
16
17
12
2
5
18
10
9a
7a
15a
3
33
7b
4a
13
15
9
4b
2
4
14
25

Fig.3

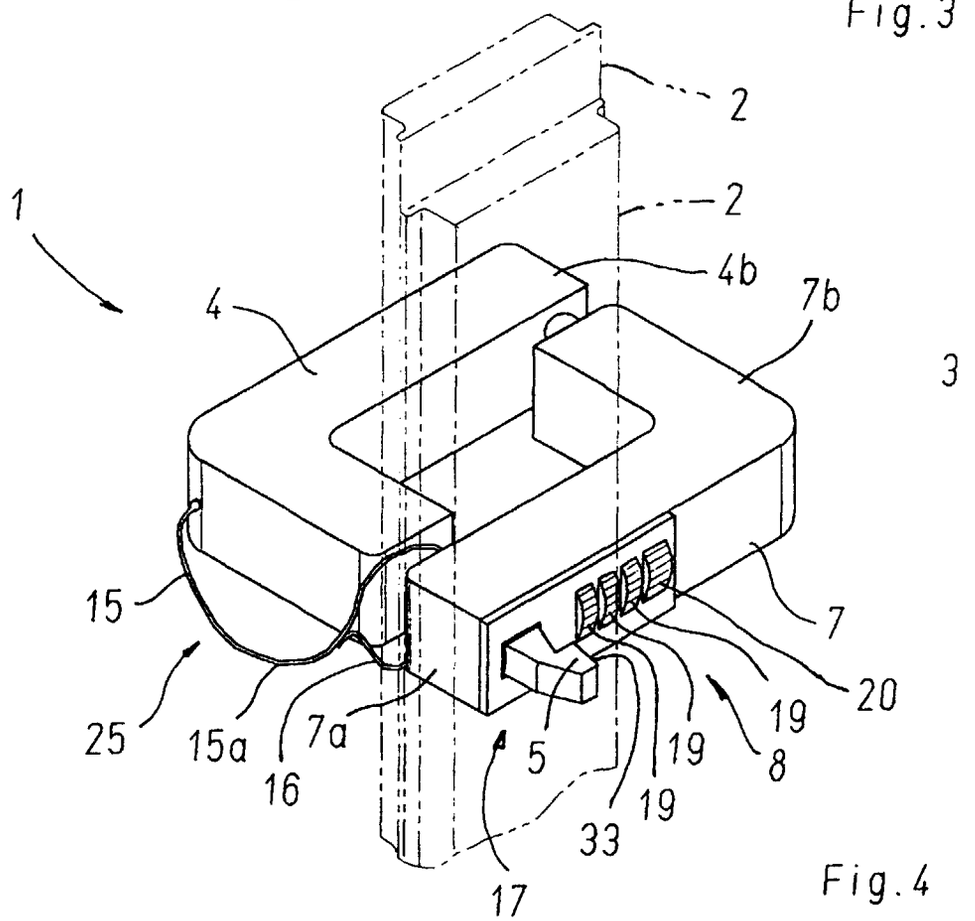
2
2
1
4b
7b
4
3
15
7
20
25
15a
7a
16
5
19
19
8
33
17

Fig.4

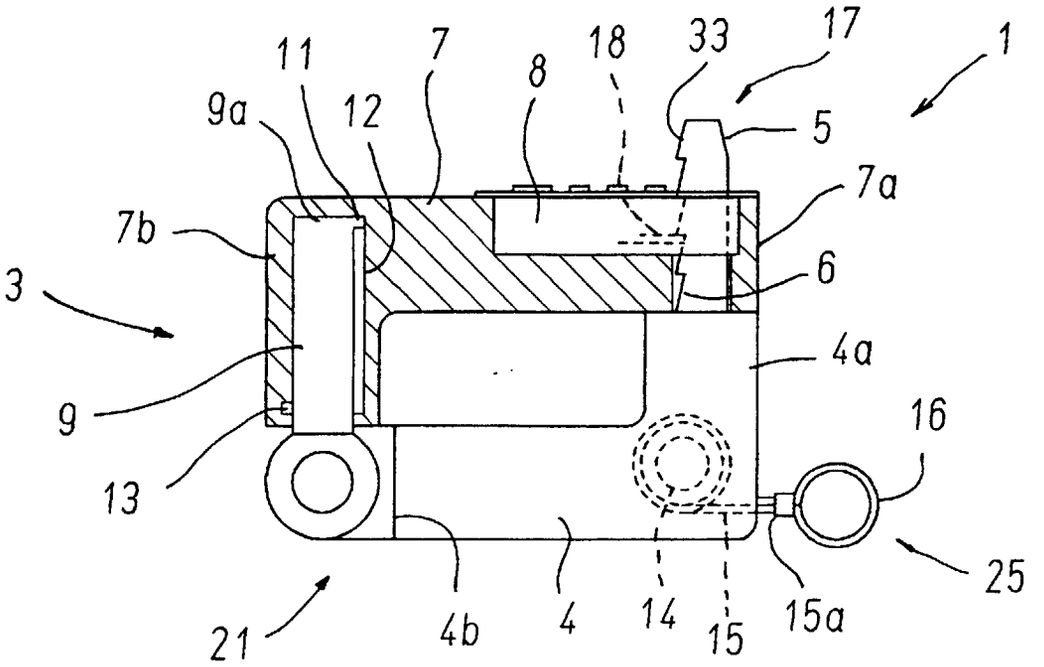
11
7
18
33
17
1
9a
12
8
5
7a
7b
6
3
4a
9
16
13
25
21
4b
4
14
15
15a

Fig.5

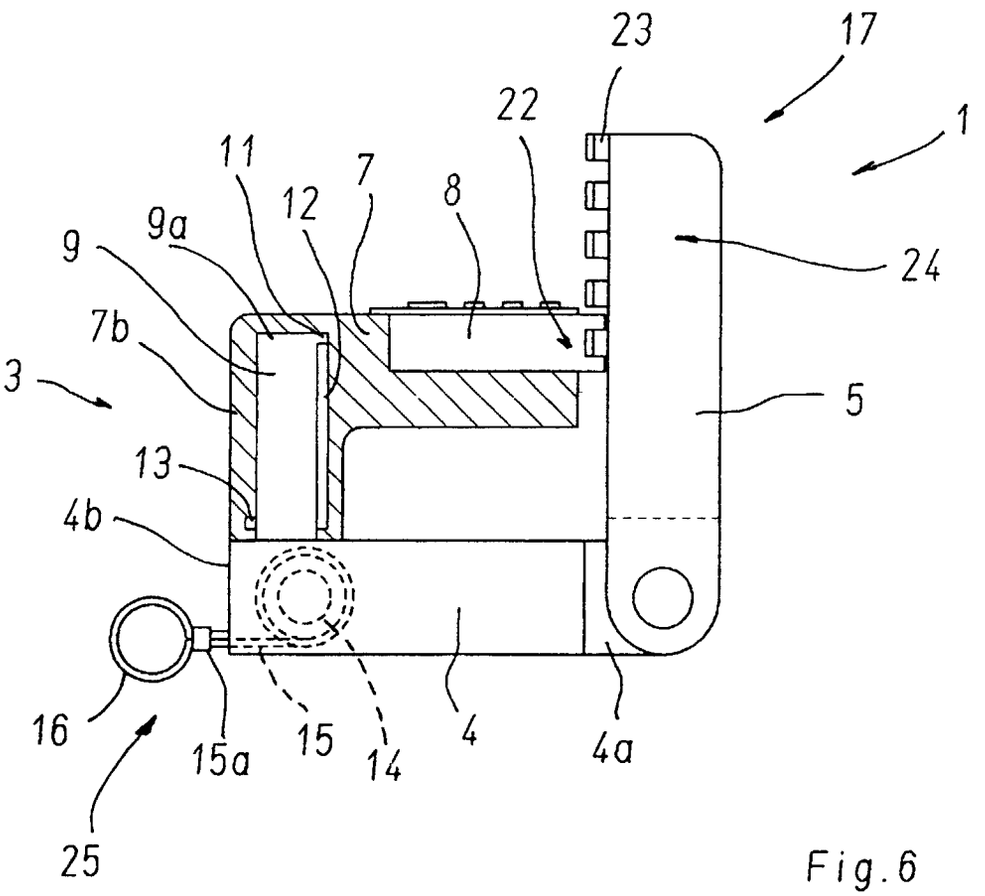
23
17
22
1
11
7
12
8
9a
9
24
7b
3
5
13
4b
16
15a
15
14
4
4a
25

Fig.6

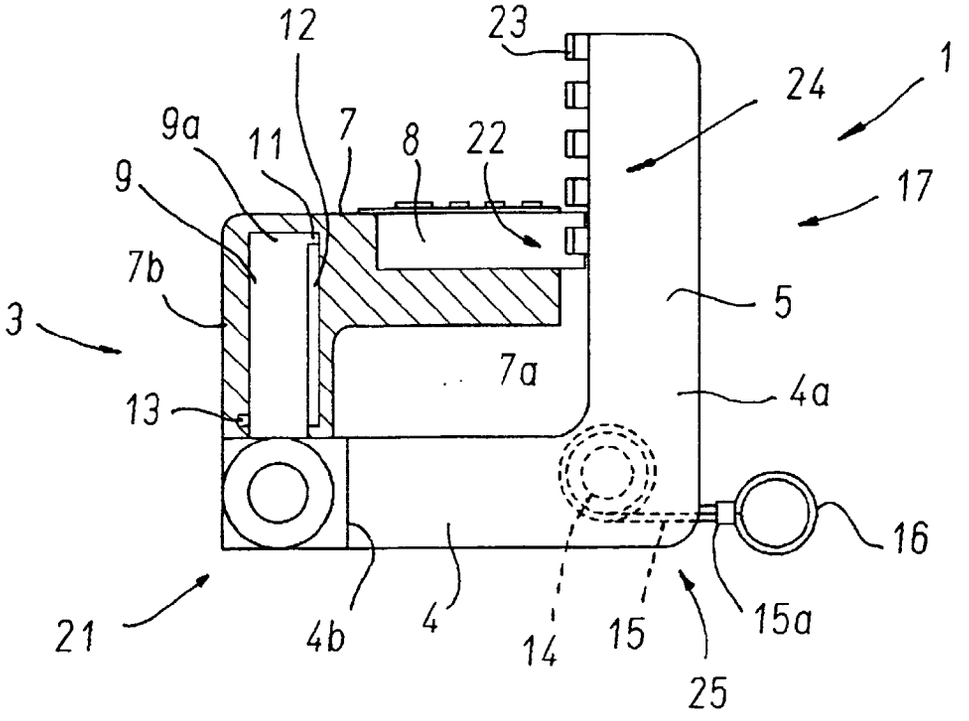
12
23
1
24
9a
11
7
8
22
9
17
7b
5
3
7a
4a
13
16
21
4b
4
14
15
15a
25

Fig.7

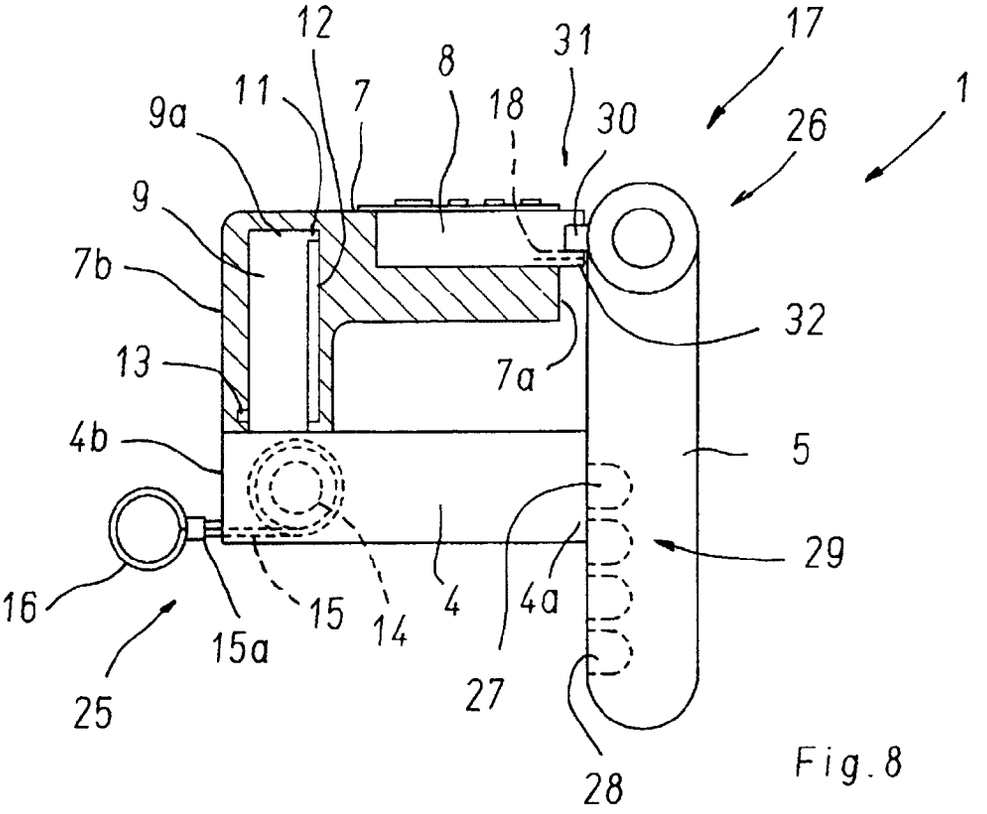
12
31
17
8
11
7
18
30
1
9a
26
9
7b
32
13
7a
4b
5
29
16
15
14
4
4a
15a
27
25
28

Fig.8

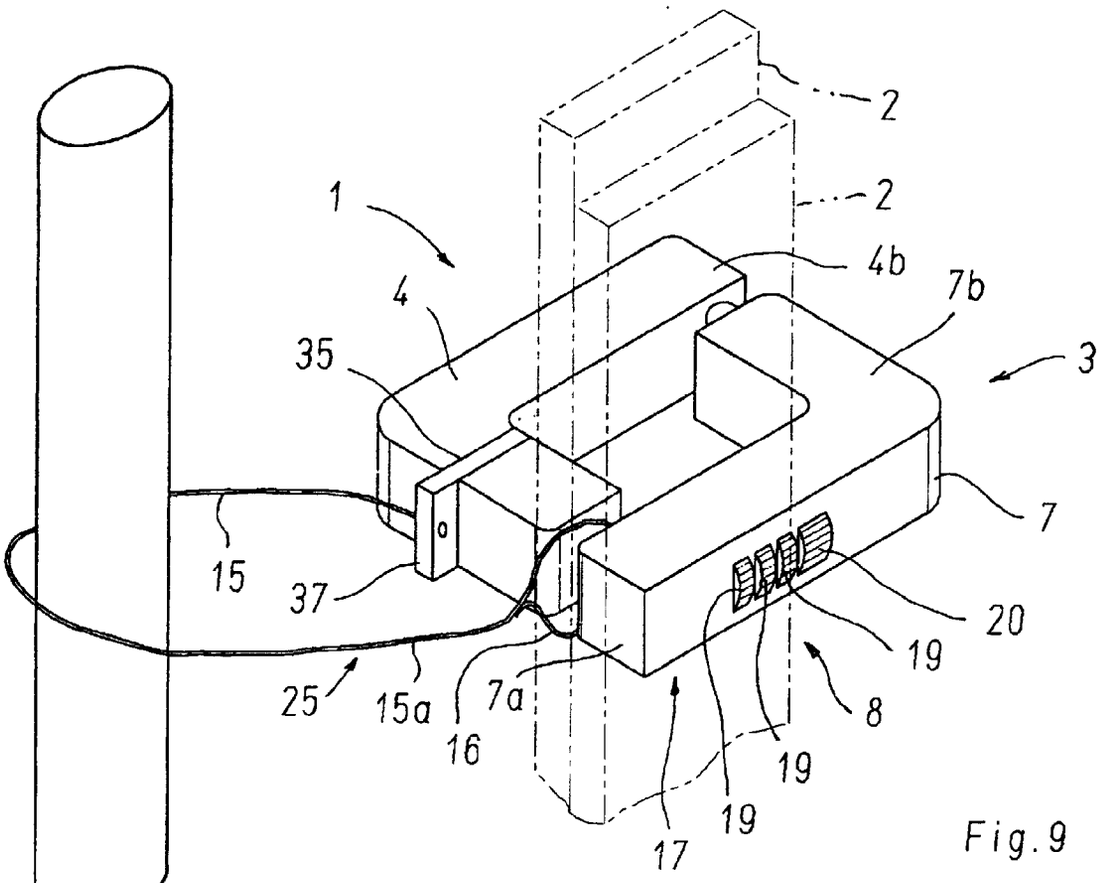
2
2
1
4b
7b
4
35
3
7
15
37
20
19
25
15a
7a
8
16
19
19
17

Fig.9

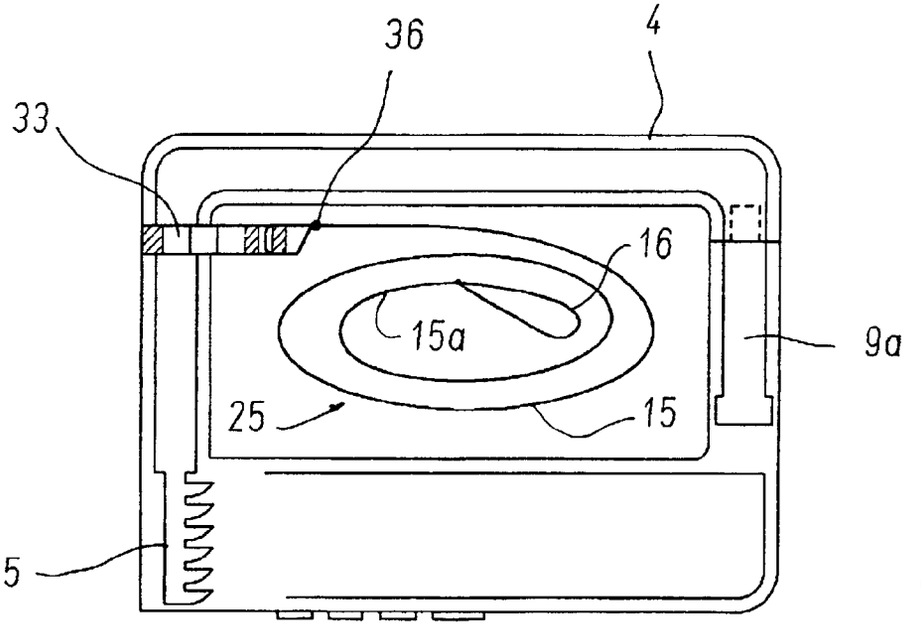
36
4
33
16
15a
9a
25
15
5

Fig.10

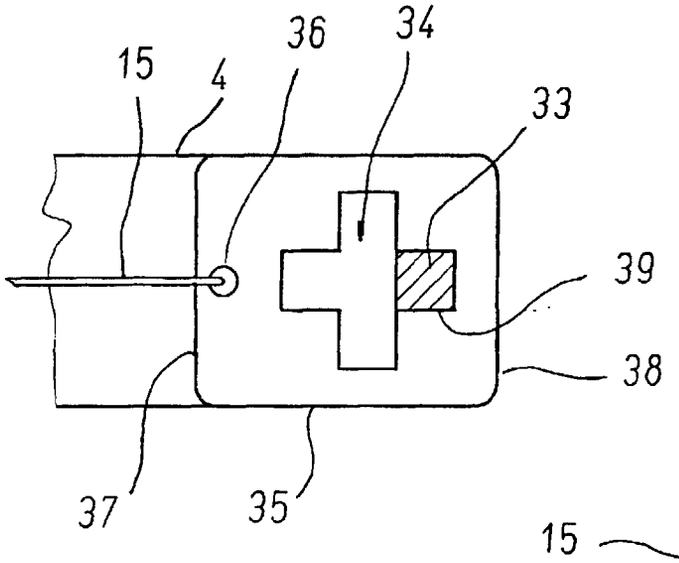

Fig. 11

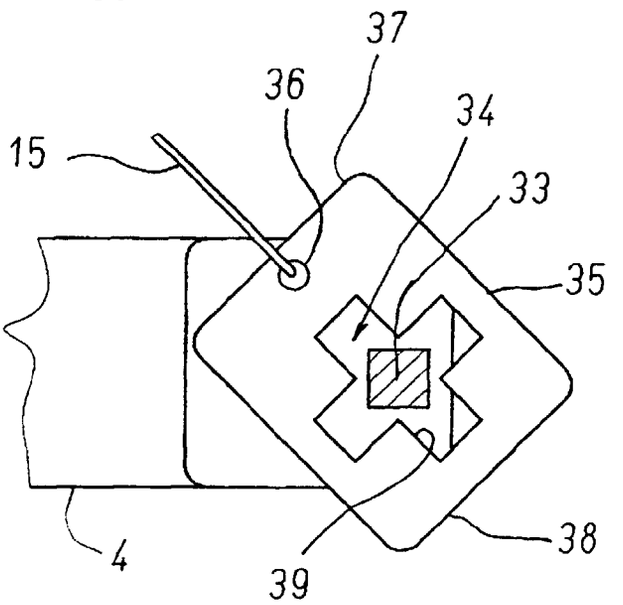

Fig. 12

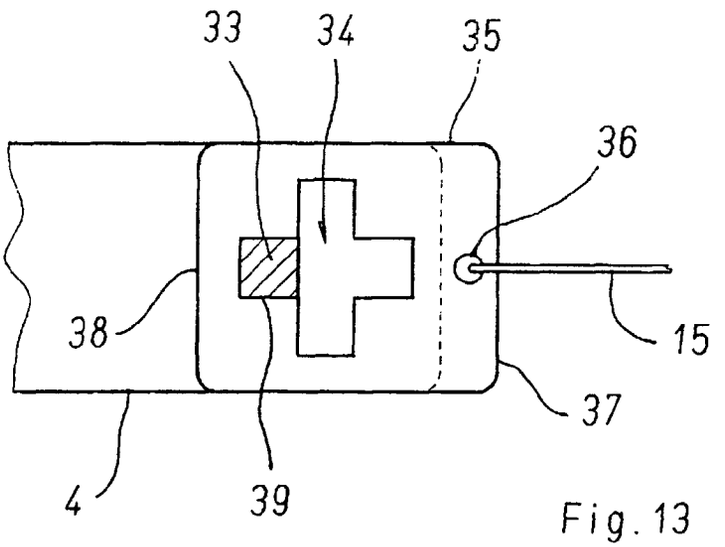

Fig. 13