



(12) **EUROPEAN PATENT APPLICATION**
published in accordance with Art. 153(4) EPC

(43) Date of publication:
08.04.2015 Bulletin 2015/15

(51) Int Cl.:
A63C 10/12 (2012.01)

(21) Application number: **13793061.6**

(86) International application number:
PCT/ES2013/070323

(22) Date of filing: **22.05.2013**

(87) International publication number:
WO 2013/175042 (28.11.2013 Gazette 2013/48)

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(71) Applicant: **Bernal Bascuñana, Juan Miguel**
46011 Valencia (ES)

(72) Inventor: **Bernal Bascuñana, Juan Miguel**
46011 Valencia (ES)

(30) Priority: **24.05.2012 ES 201230562**

(74) Representative: **Sahuquillo Huerta, Jesús**
Apartado de Correos, 30
28300 Aranjuez (ES)

(54) **ATTACHMENT FOR SLIDING BOARDS**

(57) The invention comprises: a stationary part connected to the board (1), forming a rotating body, and provided with retaining and fastening means; and a moving part (4) provided with attachment and retaining means for attaching and retaining same in relation to the retaining and fastening means of the stationary part. The retaining and fastening means of the stationary part are formed by peripherally arranged flanges (31) separated from the board, as well as including portions with no flang-

es. The moving part (4) comprises a boot securing means including a cavity (46), which can also rotate, provided with internal ridges (43), said cavity (46) having a diameter approximately equal to that of the rotating body of the stationary part together with the flanges (31), such that the connection between the stationary part and the moving part (4) takes the form of a bayonet coupling obtained by means of insertion and rotation.

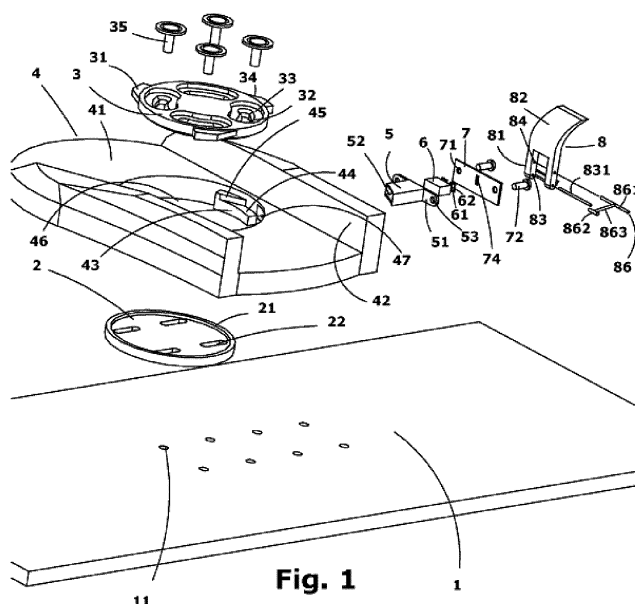


Fig. 1

Description

[0001] This invention consists of a binding for a sliding board, for example for sliding on snow or the boards known as "snowboards", which allow an easy and quick release of the anchoring mechanism located in the boot through a rotation and bayonet clamping mechanism.

[0002] The sport of snowboarding or sliding through the snow on board, requires that both feet of the user are placed immobile on the board, so that the user can perform the required maneuvers while being able to maintain the balance on the board.

[0003] The immobile placement is performed in many different ways. A common way is to have a body embracing the boot as a sandal so that the athlete must sit down in order to place each boot on the corresponding binding; one example is shown in ES 2 357 338.

[0004] ES 2 261 095 describes a release system for ski boots and snowboard bindings, comprising an electronic device with an emitter and a receiver electronic device which performs the opening of the binding. This requires that both the board and the emitter, possibly holding the handle of a ski pole, comprises an energy source, which increases the weight and complexity of the binding.

[0005] ES 2 341 825 describes a magnetic binding device of a boot to a ski board or snowboard. This binding may be unstable when usual skiing or snowboarding impacts occur, for example in jumps, being difficult its separation.

[0006] WO 96/23557 describes an adjustable binding device in angular position.

[0007] ES 2 188 403 describes a binding for snowboards comprising plates with protuberances susceptible of binding to several components installed in the boots' base with binding elements by longitudinal displacement.

[0008] ES 2 330 600 describes an autonomous pneumatic control system securing boots to snowboards or skis by vacuum suction, which requires that the athlete carries a suction pump.

Description of the Invention

[0009] As pointed out previously, this invention is a bond system of a boot to a sliding board by means of an assembly of binding elements (herein referred to as "binding"); snowboard comprises a plurality of perforations on which there is a fixed part with retaining and locking means; consisting of a revolution body, usually a solid disc with many longitudinally elongated holes, allowing longitudinal adjustments of the position of such disc on the holes and; according to the particular embodiment, several holes run along the board allowing different base sites of the disc. Over the mentioned disc there is a second disc also comprising a set of elongated holes forming circumference arches, with which an angular positional adjustment of the disc is possible. The invention also comprises outer projections separated from the

board, and arranged at regular or irregular intervals along the disc periphery. The second disc, once placed over the first one, is fixed to the board by screws running through the corresponding holes of the said discs and those of the board, which are properly positioned before finally being tightened. It is expected that one of the discs includes a projection and the other one a recess in accordance for an appropriate assembly.

[0010] For the fastening of the boot to the board, a support has been designed, which may be susceptible to the binding of the boot or be part thereof, comprising a circular disc according to the second hole. Such gap comprises inner projections of no longer than the distance between the outer projections of the second disc; such inner projections will be located in a lower position, so that when the circular gap of the support is introduced on the second disc, the projections are displayed downwardly.

[0011] At least the second disc or the circular hole is provided with an elastic retaining mean, so that when the insertion and corresponding rotation, bayonet-type, occurs, the binding will be firm, until manual action takes place on such elastic mean by means of, for example, a button or a lever laterally located. Thus a quick and easy binding is achieved, and a quick release if required, allowing a very comfortable and versatile use.

Brief Description of the drawings

[0012] To illustrate the following explanation, we enclose herein, three sheets of drawings in which the essence of the invention is represented in three figures in which:

Figure 1 shows an explosion view of the assembly of elements forming the binding device of the invention;

Figure 2 shows a perspective view of the binding device of Figure 1 mounted on the board;

Figure 3 shows a view of the binding of Figures 1 and 2, in which a first assembly of elements is mounted on the board;

Figure 4 shows a view of a section of the board with the mounted binding;

Figure 5 shows a view of an angled section on the section of Figure 4;

Figure 6 shows a plan view of the binding mounted on the table;

Figure 7 shows a perspective view of a detail of a release component of the binding.

Figure 8 shows a perspective view of a mounted

binding device according with a compact embodiment.

Figure 9 shows a lateral view of the binding device of figure 8.

Figure 10 shows a lateral view of the external binding arc, usually joined to the boot support.

Figure 11 shows a lateral transparent view of the clamping bolt of the binding elements.

Figure 12 shows an upper transparent view of the clamping bolt of figure 11.

Figure 13 shows a perspective view of the clamping bolt before its mounting in the binding device.

Description of preferred embodiment

[0013] As noted above, this invention consists in a binding for sliding boards, particularly designed for snowboards (1). The board has sets of holes (11) arranged linearly, which allow the binding of the invention to be arranged in different positions along the board (1). Over these holes (11) in each of the sets, there is a first disc (2) with holes linearly grooved (22). Thus, the said first disc (2) can be placed in at least three different positions (according to the representation of Figure 1), on the holes of one end, on the holes of the other end or on the set of the central holes; according to the needs, there will be more or less number of holes (11) in the board (1). For an acute adjustment, grooved holes (22) are arranged so that, once the corresponding screws (35) are mounted, the disc can still move to either side until it is fully satisfactory for the user. Preferably, the first disc (2) comprises a peripheral ledge (21).

[0014] On top of the first disc (2) there is a second disc (3). This disc has a set of grooved holes (32) in the form of an arc of circumference, which are topped at the top by a recess (33) of the same general form, but with greater width than the grooved holes (32). These grooved holes (32) are pierced by the screws (35) with the head clamped in the recess (33). Given the form of arc, it is possible to provide the second disc (3) with the desired rotation position for an adequate comfort of the user, which will subsequently determine the corresponding anchoring position.

[0015] Once the first (2) and the second discs (3) are placed in the correct position, proceed to tighten the screws and leave the fixed part of the binding in a permanent position of the board.

[0016] The second disc (3) includes side flanges (31) on the outer contour of the disc, which, at least in one side, is topped by a beveled portion (34), and also includes other portions of the said contour without flanges.

[0017] The binding further comprises a mobile part (4) which is attached or by any suitable means to the user's

boot. Such mobile portion (4) comprises a support surface (41) and side walls (42). For example, straps for holding the boot may be installed in these side walls. The mobile part (4) comprises a hollow area (46) with an inner diameter which is substantially equal to the outer diameter of the second disc comprising the side flanges (31).

[0018] In some portions of the hollow area (46), there are inner projections (43) comprising an upper surface (44) and a beveled stopper (45). The mobile part (4) is placed on the second disc (3) with a certain rotation angle, so that the inner projections (43) pierce the portions without flanges of such second disc (3). By rotating the mobile portion in the right direction, the projections (43) can remain below the side flanges (31), until the beveled stopper reaches the corresponding beveled portion of the second disc (3), in locking position of the fixed and mobile parts.

[0019] The retainer in a locking position takes place by a latch (6) acting against the action of at least one spring (9). The latch (6) runs through an inner hole (52) formed in one component (5), in turn arranged in a hole (47) transversely practiced in the wall of the hollow area (46); such piece (5) comprises outer binding flanges (51) with perforations (53) for the passage of screws (72).

[0020] The latch (6) consists of an essentially prismatic component, with projections (62) on its outer face which in turn comprise cross-holes (61). In the holes (61) of such projections (62), a first transverse shaft of one component in double "T" (86). The latch (6), the component (5) and the springs (9) are externally supported by a shield (7) provided with holes (71) through which it is fastened by screws (72). The shield comprises a central window (74) allowing the passage of beam (863) connecting transverse shafts (861, 862) of the component in double "T" (86). Respect to the said component in double "T" (86), the first transverse shaft (862), normally shorter than the second transverse shaft (863) is fastened to the holes (61) of the projections (62) and pushed by springs (9) towards the inside of the hollow region (46) of the mobile part (4), the crossbar (863) runs through the window (74) of the shield (7) and the second transverse shaft (861), normally longer than the first one, is secured in the holes (84) of an outer lever (8). The outer lever (8) comprises a pulsation area (82) and a driving area (81), possibly provided with a trim. The driving area comprises holes (84) in which the second transverse shaft (861) is fixed to the component in double "T" (86). Moreover, the lever (8) also comprises second holes (83) in which a shaft (831) is placed, which in turn is fastened on supportive supports (73) to the shield (7) and externally arranged, provided with the corresponding holes for a secure binding of such shaft (831).

[0021] Thus, in a rest position, the latch (6) partially emerges in the hollow area (46) of the mobile part (4) so when such latch (6) is in the use position to prevent the reverse rotation for the extraction of the mobile part relative to the fixed part, for it prevents displacement with respect to the side flanges (31) forcing its introduction

placing the mobile part (4) on the fixed part during rotation the latch (6) is pushed by the beveled portion (34) of the flanges (31), forcing its introduction in the inner hole (52) of the component (5), which will slide along such flange until the end, when the latch will return to the rest position.

[0022] To release, simply retract the latch (6) by oppression the pulsation area (82) of the lever (8), so that the component in double "T" (86) will be stretched and so will the latch (6), thereby allowing rotation of the mobile part (4) and its removal in the correct position.

[0023] In a simplified embodiment, the discs (2, 3) are only one piece, forming a solid assembly and reducing the manufacturing costs.

[0024] According with an optimized embodiment, a locking bar or locking latch (10) is used for the binding. Said locking latch (10) is formed by two parts, an upper part (115) and a lower part (116), between which is defined a gap (12) through which a latch (1251) slides; the upper part (115) supports a shaft (104) supporting a first specie lever, with a push actuator (182) at one end and a countersink hole with a drive shaft (120) of the latch (1251), with a return spring (172) installed inside the hole. At least one part of the locking latch (10) is inserted in a location cutout (49) formed in the disc that forms the mobile part (4) in such a way that can be easily mounted independently of the other elements.

[0025] In summary, a bayonet-type lock with a retaining device when in use position, and releasing means of the retention mean in the locking and releasing phases of the binding.

Claims

1. Binding for sliding board, **characterized by** comprising:

- A fixed part attached to the board (1), which forms a revolution body, provided with means of retention and locking; and
- A mobile part (4) provided with fastening and retention systems to the retention and locking systems of the fixed part; in which the retention and locking systems of the fixed part form fins (31) arranged peripherally and spaced from the board, with portions without fins, and wherein the mobile part (4) comprises a fastening system of a boot, with a hollow area (46), also revolutionary, provided with inner projections (43); wherein the hollow zone (46) has a diameter approximately equal to the revolution body of the fixed part with the fins (31); so that the clamping union between the fixed part and the mobile part (4) is done as a bayonet by insertion and rotation.

2. Binding for sliding board according to claim 1, **char-**

acterized in that the board comprises for each fastening hole assemblies (11) linearly arranged on the fixed portion of each of the fasteners may be secured in different positions along the board (1).

3. Binding for sliding board according to any of claims 1 to 2, **characterized by** a fixed part consisting of two disks, a first disk (2) of separation, and a second disc (3) carrying fins (31).

4. Binding for sliding board according to claim 3, **characterized by** a first disc (2), nearest to the board, (1) which comprises a set of linearly grooved holes (22) aligned with the fastening screws.

5. Binding for sliding board according to claim 3, **characterized by** a first disc (2) comprising a peripheral ledge (21).

6. Binding for sliding board according to any of the claims 3 to 5, **characterized by** a second disc (3) having a number of grooved holes (32) in the form of circumference arc.

7. Binding for sliding board according to claim 6, **characterized by** grooved holes (32) which are surmounted on the upper part by a recess (33) of the same general form but greater width than the said grooved holes (32).

8. Binding for sliding board according to any of the claims 3 to 7, **characterized by** in that the side flanges (31) are arranged on the outer contour of the second disc (3),

9. Binding for sliding board according to any of claims 1 to 8, **characterized by** side flanges (31) which are topped by a beveled portion (34).

10. Binding for sliding board according to any of 10 claims 1 to 9, **characterized by** a mobile part (4) which comprises an attachment surface (41) and side walls (42).

11. Binding for sliding board according to claim 10, **characterized by** comprising fastening straps of the boot in the side walls (42).

12. Binding for sliding board according to any of claims from 1 to 11, **characterized by** some portions of the hollow area (46) which show inner projections (43).

13. Binding for sliding board according to claim 12, **characterized by** the inner projections (43) comprising a top surface (44) and a beveled stopper (45) according to the projections (31).

14. Binding for sliding board according to any of the

claims from 1 to 13, **characterized by** a mobile part (4) comprising a gap (47) formed transversely in the wall of the hollow area (46).

15. Binding for sliding board according to claim 14 **characterized by** the retention in locking position takes place by a pin push (6) acting against the action of at least one spring (9). 5
16. Binding for sliding board according to claim 15, **characterized by** a part (5) including inside the latch (6), the said part (5) inside the gap (47). 10
17. Binding for sliding board according to claim 16, **characterized by** a component (5) comprising outer fastening flanges (51) with perforations (53) for the passage of screws (72). 15
18. Binding for slide board according to any of claims from 15 to 17, **characterized by** a latch (6) consisting of an essentially prismatic component, with projections (62) on its outer face which in turn comprise diagonal (61) holes. 20
19. Binding for sliding board according to any of claims from 15 to 18, **characterized by** an outer lever (8) that activates the latch (6). 25
20. Binding for sliding board according to claim 19, **characterized by** an outer lever in that the outer lever (8) comprising a pulsation area (82) and an operating area (81). 30
21. Binding for sliding board according to claim 20, **characterized by** an enable area comprising holes (84) and second holes (83). 35
22. Binding for sliding board according to any of the claims from 15 to 21 **characterized by** the latch (6), the component (5), and springs (9) externally attached by a shield (7) provided with holes (71) through which it is fastened by means of screws (72); the shield comprises a central window (74) which allows passage of the crossbar (863) connecting the transversal shafts (861, 862) of a 15double "T" component (86). 40 45
23. Binding for sliding board according to claims 21 and 22, **characterized by** the first transversal shaft (862) of the component in double "T" (86) being shorter than 20 the second transverse shaft (863), and is attached in the holes (61) of the projections (62) and pushed by springs (9) towards the inside of the hollow area (46) of the mobile part (4), wherein the crossbar (863) through the window (74) of the shield (7) and the second transversal shaft (861) is fastened in the holes (84) of the outer slab (8). 50 55

24. Binding for sliding board according to claim 23, **characterized by** comprising a shaft (831) secured in the second holes (83), which is in turn fastened in holes performed in supports (73) holding shields (7) and externally displayed.

25. Binding for sliding board according to any of claims from 1 to 13, **characterized by** the mobile part (4) comprising a location cutout (49) of a locking latch (10).

26. Binding for sliding board according to claim 25, **characterized by** the locking latch (10) consisting of two parts, an upper part (115) and a lower part (116), between which is defined a gap (12) through which a latch (1251) slides; the upper part (115) supports a shaft (104) supporting a first specie lever, with a push actuator (182) at one end and a countersink hole with a drive shaft (120) of the latch (1251), with a return spring (172) installed inside the hole.

Amended claims under Art. 19.1 PCT

1. Binding for sliding board, **characterized by** comprising:
 - A fixed part attached to the board (1), which forms a revolution body, provided with means of retention and locking; and
 - A mobile part (4) provided with fastening and retention systems to the retention and locking systems of the fixed part; in which the retention and locking systems of the fixed part form fins (31) arranged peripherally and spaced from the board, with portions without fins, and wherein the mobile part (4) comprises a fastening system of a boot, with a hollow area (46), also revolutionary, provided with inner projections (43); wherein the hollow zone (46) has a diameter approximately equal to the revolution body of the fixed part with the fins (31); so that the clamping union between the fixed part and the mobile part (4) is done as a bayonet by insertion and rotation, and in which the retention in locking position takes place by a pin push (6) acting against the action of at least one spring (9).
2. Binding for sliding board according to claim 1, **characterized in that** the board comprises for each fastening hole assemblies (11) linearly arranged on the fixed portion of each of the fasteners may be secured in different positions along the board (1).
3. Binding for sliding board according to any of claims 1 to 2, **characterized by** a fixed part consisting of two disks, a first disk (2) of separation, and a second

- disc (3) carrying fins (31).
4. Binding for sliding board according to claim 3, **characterized by** a first disc (2), nearest to the board, (1) which comprises a set of linearly grooved holes (22) aligned with the fastening screws. 5
 5. Binding for sliding board according to claim 3, **characterized by** a first disc (2) comprising a peripheral ledge (21). 10
 6. Binding for sliding board according to any of the claims 3 to 5, **characterized by** a second disc (3) having a number of grooved holes (32) in the form of circumference arc. 15
 7. Binding for sliding board according to claim 6, **characterized by** grooved holes (32) which are surmounted on the upper part by a recess (33) of the same general form but greater width than the said grooved holes (32). 20
 8. Binding for sliding board according to any of the claims 3 to 7, **characterized by** in that the side flanges (31) are arranged on the outer contour of the second disc (3), 25
 9. Binding for sliding board according to any of claims 1 to 8, **characterized by** side flanges (31) which are topped by a beveled portion (34). 30
 10. Binding for sliding board according to any of 10 claims 1 to 9, **characterized by** a mobile part (4) which comprises an attachment surface (41) and side walls (42). 35
 11. Binding for sliding board according to claim 10, **characterized by** comprising fastening straps of the boot in the side walls (42). 40
 12. Binding for sliding board according to any of claims from 1 to 11, **characterized by** some portions of the hollow area (46) which show inner projections (43). 45
 13. Binding for sliding board according to claim 12, **characterized by** the inner projections (43) comprising a top surface (44) and a beveled stopper (45) according to the projections (31). 50
 14. Binding for sliding board according to any of the claims from 1 to 13, **characterized by** a mobile part (4) comprising a gap (47) formed transversely in the wall of the hollow area (46). 55
 15. Binding for sliding board according to any of the claims from 1 to 14, **characterized by** a part (5) including inside the latch (6), the said part (5) inside the gap (47).
 16. Binding for sliding board according to claim 15, **characterized by** a component (5) comprising outer fastening flanges (51) with perforations (53) for the passage of screws (72).
 17. Binding for slide board according to any of claims from 1 to 16, **characterized by** a latch (6) consisting of an essentially prismatic component, with projections (62) on its outer face which in turn comprise diagonal (61) holes.
 18. Binding for sliding board according to any of claims from 1 to 17, **characterized by** an existing operating lever (8) of the latch (6).
 19. Binding for sliding board according to claim 18, **characterized by** an outer lever in that the outer slab (8) comprising a pulsation area (82) and an operating area (81).
 20. Binding for sliding board according to claim 19, **characterized by** an enable area comprising holes (84) and second holes (83).
 21. Binding for sliding board according to any of the claims from 1 to 20 **characterized by** the latch (6), the component (5), and springs (9) externally attached by a shield (7) provided with holes (71) through which it is fastened by means of screws (72); the shield comprises a central window (74) which allows passage of the crossbar (863) connecting the transversal shafts (861, 862) of a 15 double "T" component (86).
 22. Binding for sliding board according to claims 20 and 21, **characterized by** the first transversal shaft (862) of the component in double "T" (86) being shorter than 20 the second transverse shaft (863), and is attached in the holes (61) of the projections (62) and pushed by springs (9) towards the inside of the hollow area (46) of the mobile part (4), wherein the crossbar (863) through the window (74) of the shield (7) and the second transversal shaft (861) is fastened in the holes (84) of the outer slab (8).
 23. Binding for sliding board according to claim 22, **characterized by** comprising a shaft (831) secured in the second holes (83), which is in turn fastened in holes performed in supports (73) holding shields (7) and externally displayed.
 24. Binding for sliding board according to any of claims from 1 to 13, **characterized by** the mobile part (4) comprising a location cutout (49) of a locking latch (10).
 25. Binding for sliding board according to claim 24, **characterized by** the locking latch (10) consisting of two

parts, an upper part (115) and a lower part (116), between which is defined a gap (12) through which a latch (1251) slides; the upper part (115) supports a shaft (104) supporting a first specie lever, with a push 15actuator (182) at one end and a countersink 5 hole with a drive shaft (120) of the latch (1251), with a return spring (172) installed inside the hole.

10

15

20

25

30

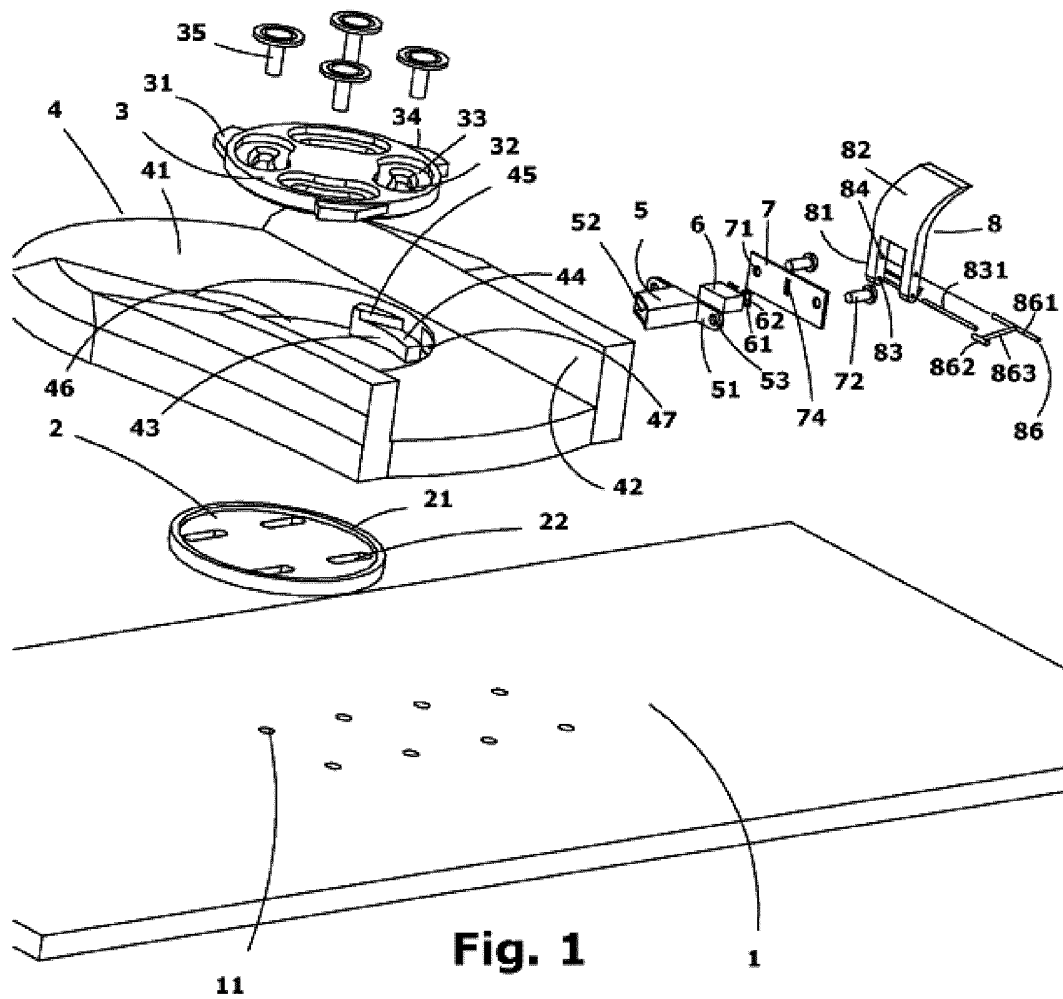
35

40

45

50

55



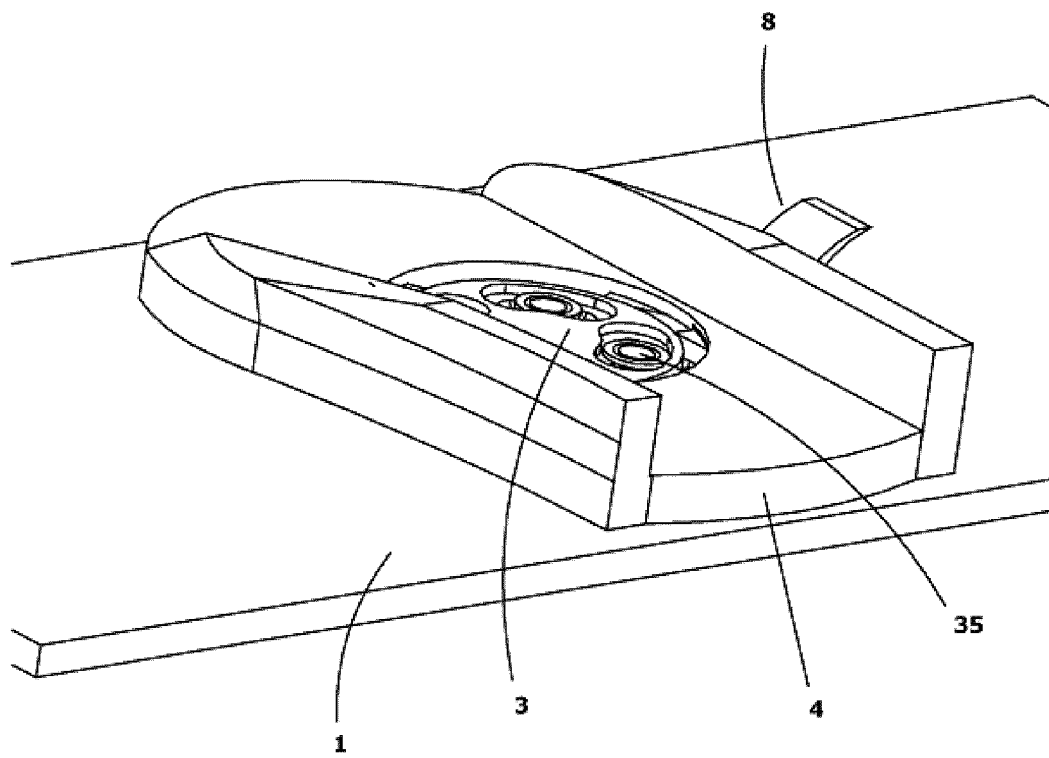


Fig. 2

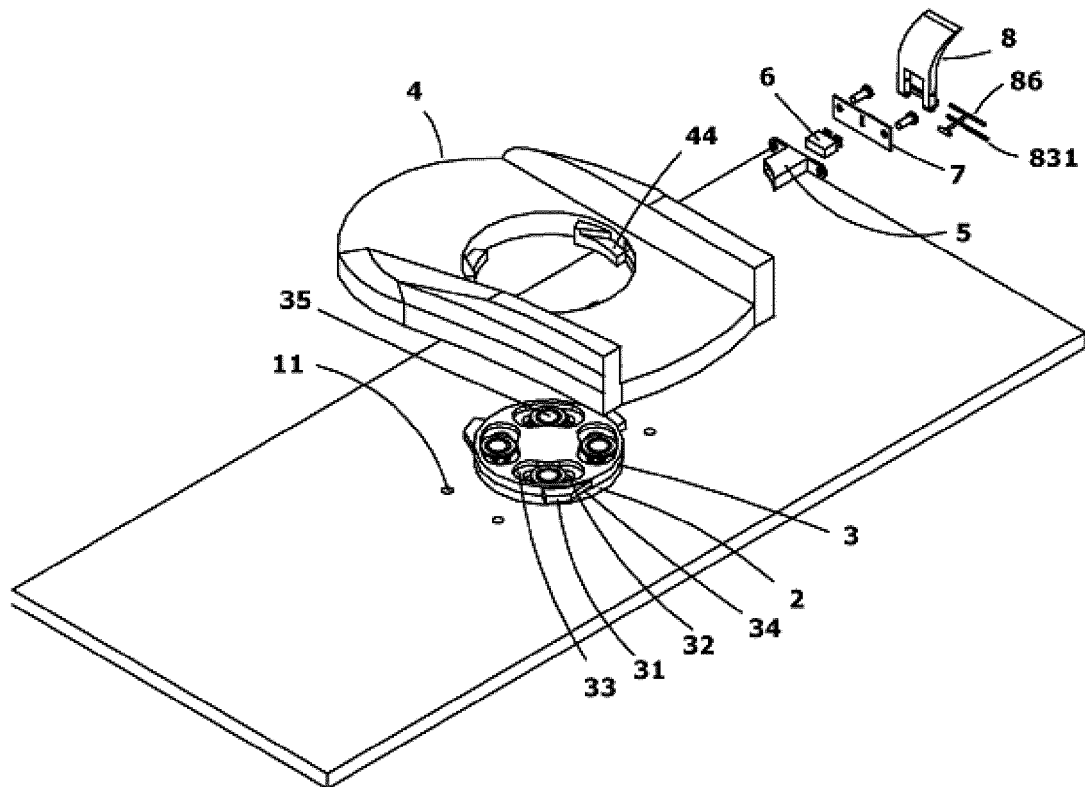


Fig. 3

Fig. 4

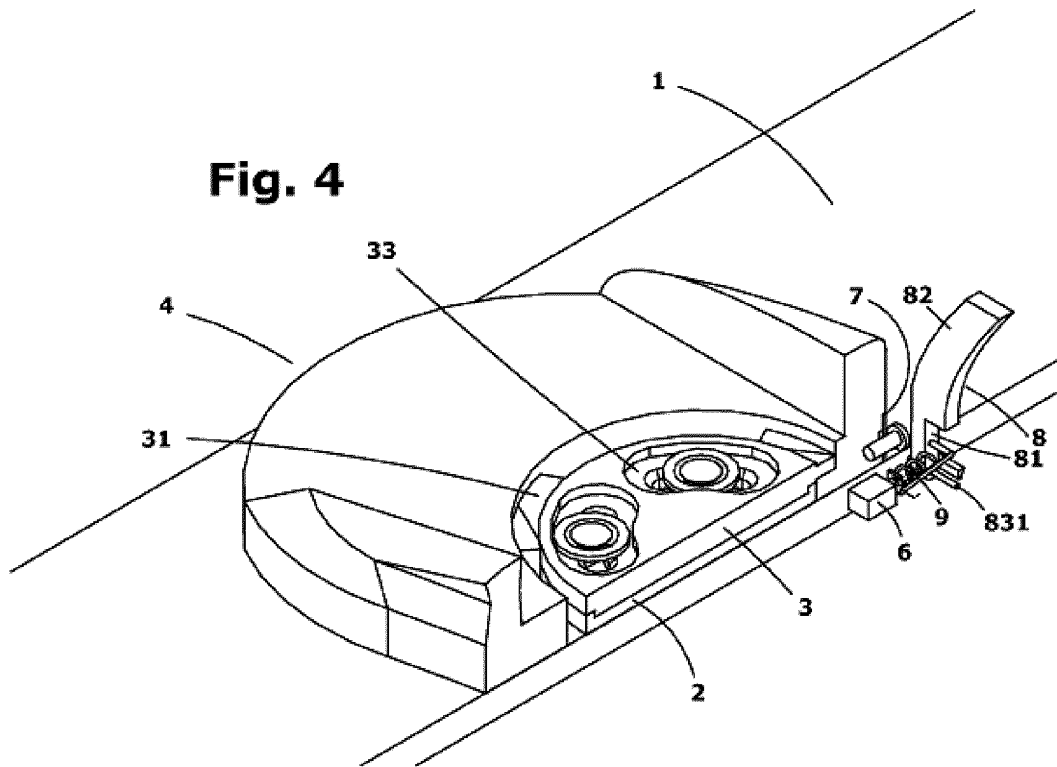
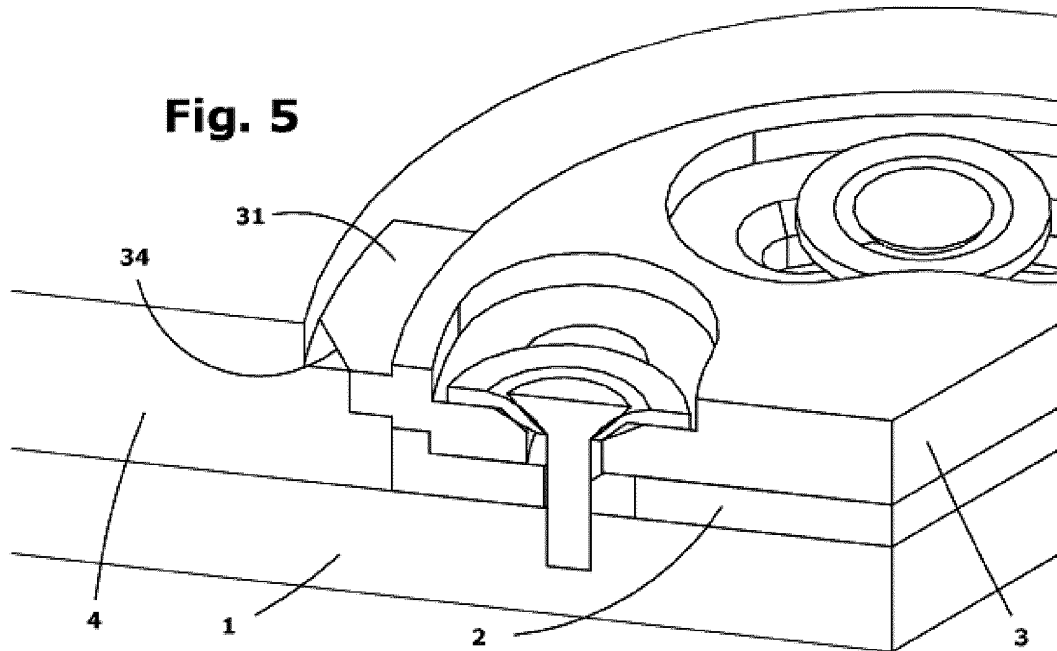


Fig. 5



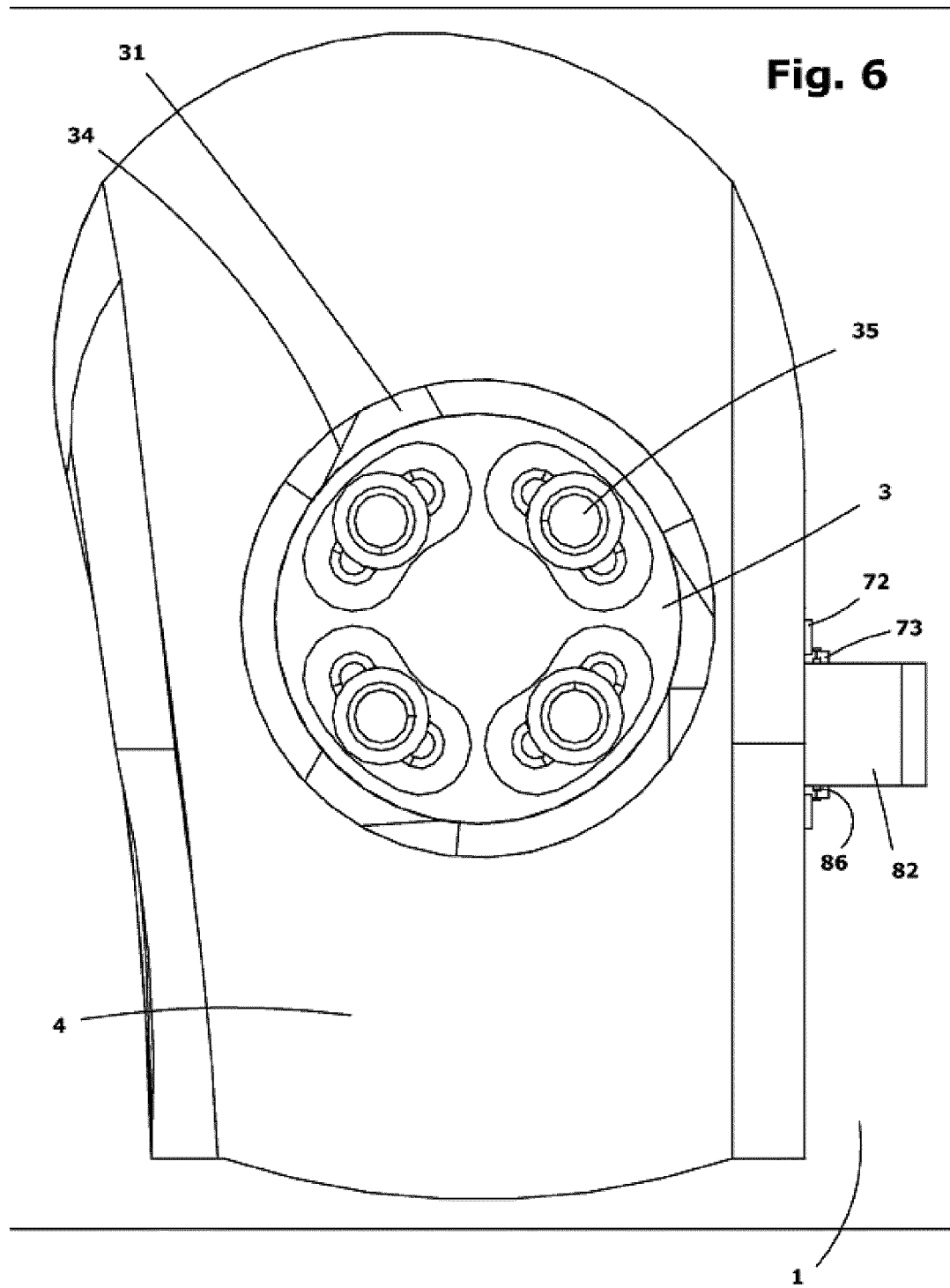


Fig. 7

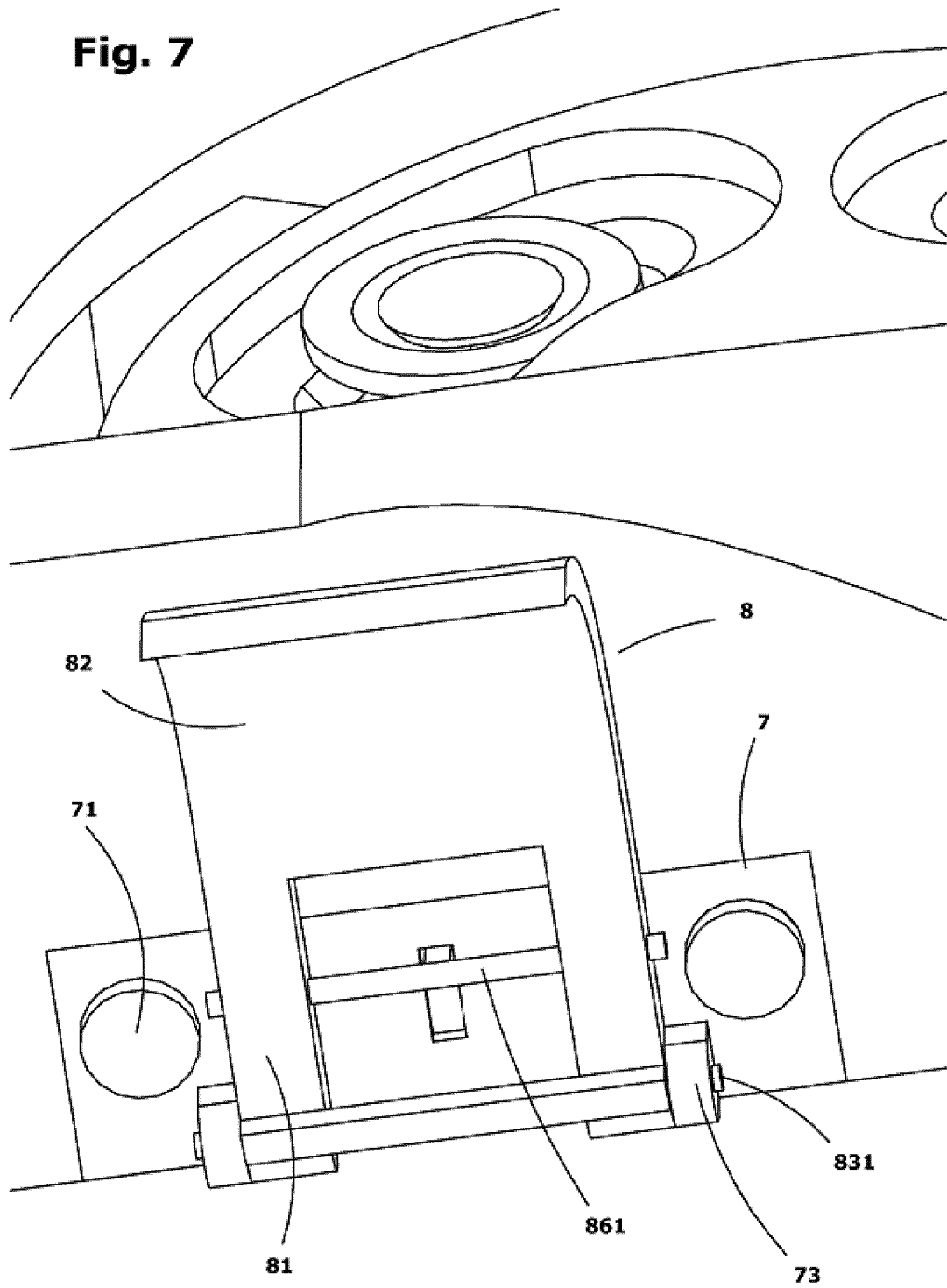


Fig. 8

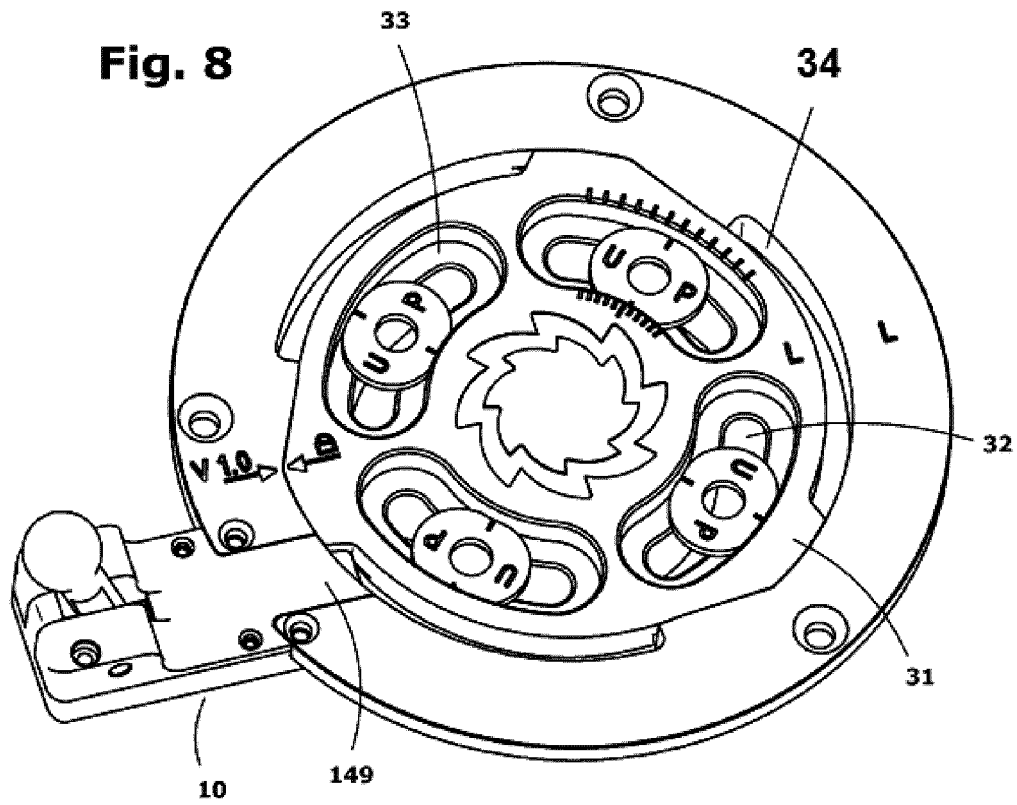
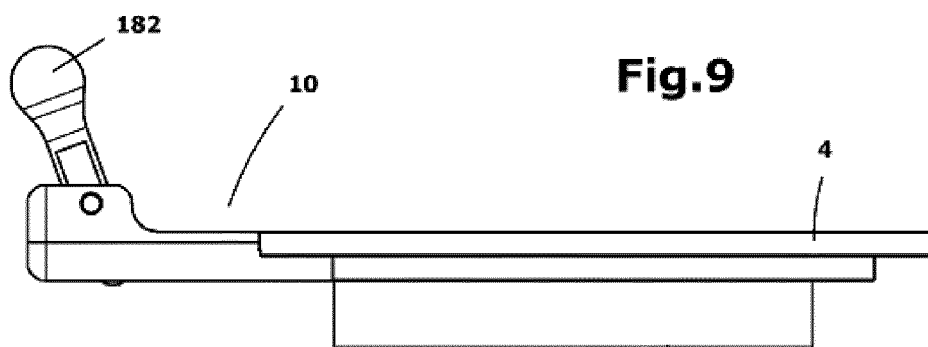
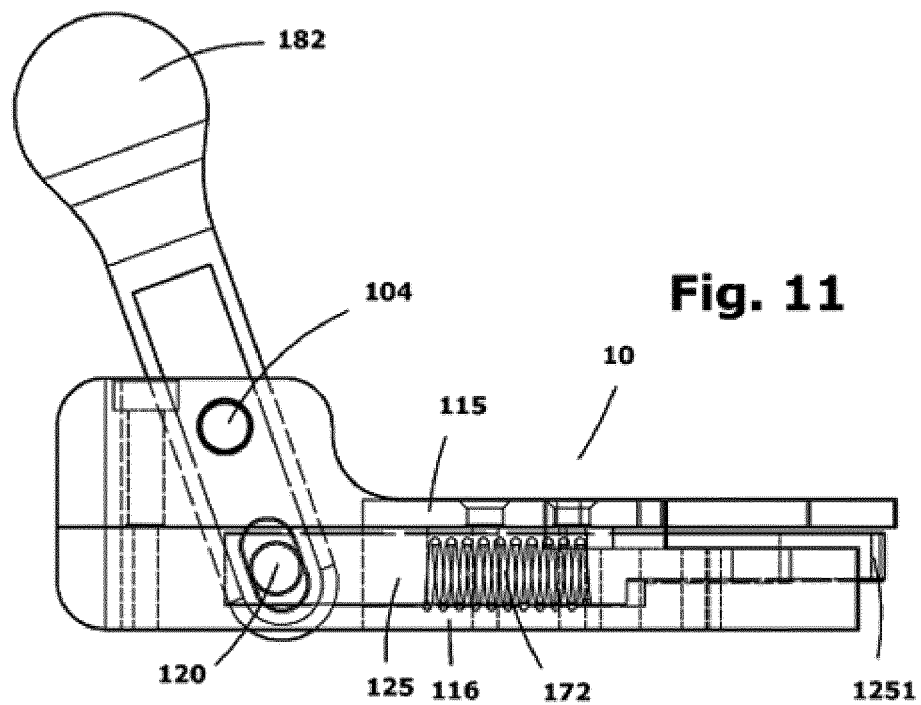
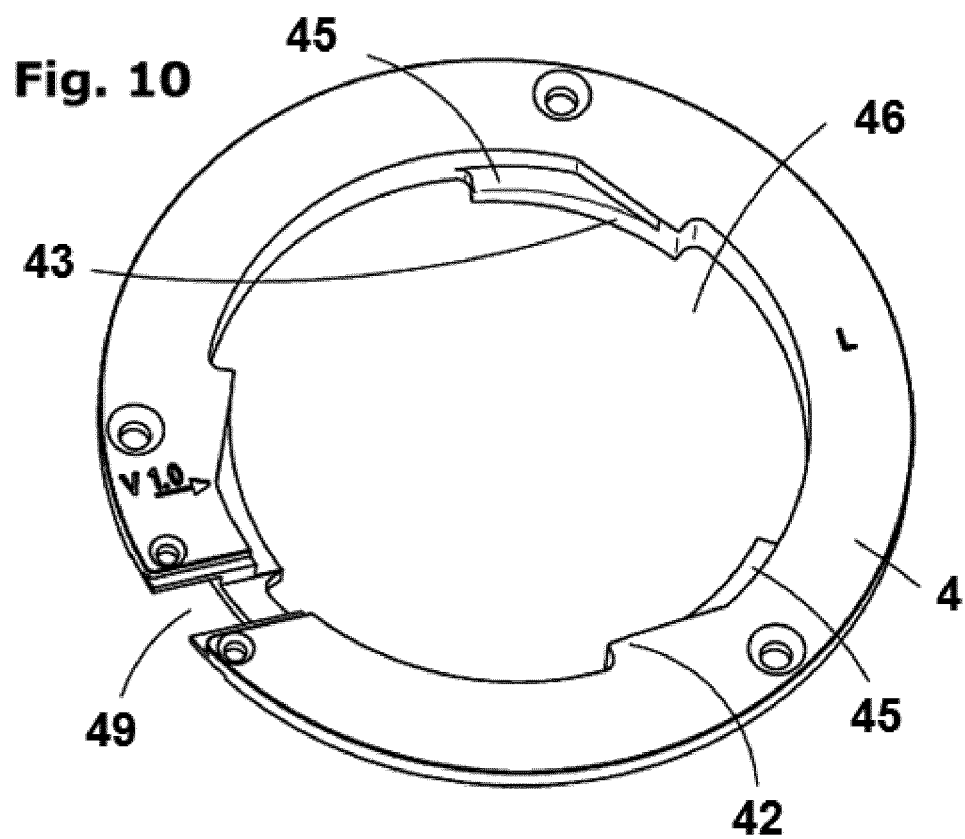


Fig.9





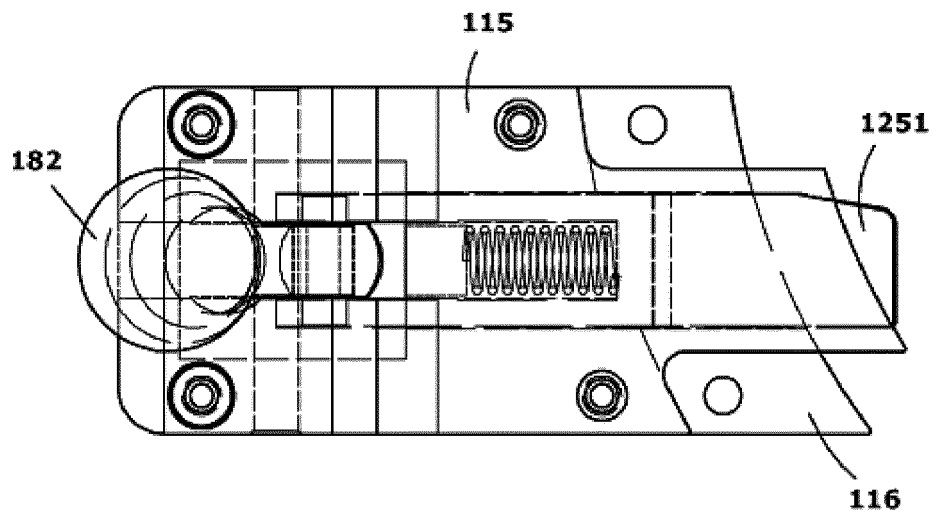


Fig. 12

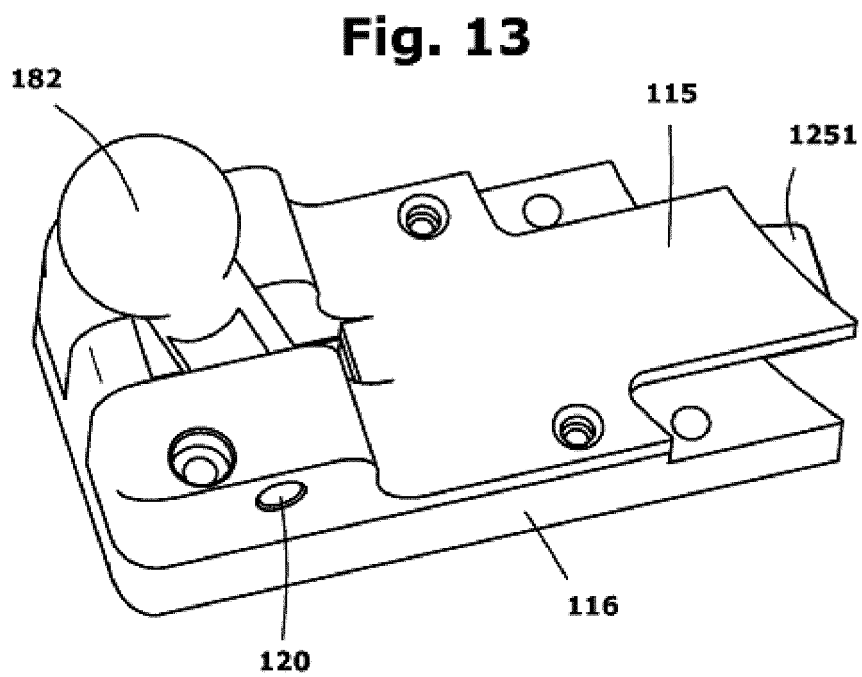


Fig. 13

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES2013/070323

A. CLASSIFICATION OF SUBJECT MATTER

A63C10/12 (2012.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A63C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC, INVENES, WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5520405 A (BOURKE LYLE J) 28/05/1996, column 1, line 52 - column 5, line 44; figures 1 - 8.	1-14
A	US 2005006876 A1 (DODGE DAVID J) 13/01/2005, paragraphs[0015 - 0021]; figures 1 - 4.	1, 15-26
A	US 2010109289 A1 (WISCHHUSEN RENE ET AL.) 06/05/2010, paragraphs[0050 - 0072]; figures 1 - 21.	1-26
A	US 5906388 A (NEILEY ROGER T) 25/05/1999, column 2, line 40 - column 12, line 63; figures 1 - 11.	1-26

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance.

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure use, exhibition, or other means.

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
27/09/2013Date of mailing of the international search report
(02/10/2013)

Name and mailing address of the ISA/

OFICINA ESPAÑOLA DE PATENTES Y MARCAS
Paseo de la Castellana, 75 - 28071 Madrid (España)
Facsimile No.: 91 349 53 04Authorized officer
E. Álvarez Valdés

Telephone No. 91 3498419

Form PCT/ISA/210 (second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/ES2013/070323

C (continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of documents, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5284066 A (WEISS JONATHAN) 08/02/1994, column 1, line 40 - column 4, line 17; figures 1 - 9.	1-26
A	US 3936063 A (SITTMANN BRIGITTE) 03/02/1976, column 1, line 4 - column 2, line 60; figures 1 - 5.	1-26
A	US 5354088 A (VETTER DENNIS A ET AL.) 11/10/1994,	1-26
A	US 6022041 A (DAILEY MATTHEW ROBERT ET AL.) 08/02/2000, column 1, line 65 - column 8, line 5; figures 1 - 9.	1-26
A	US 6283491 B1 (BUSH DUANE ET AL.) 04/09/2001, column 2, line 7 - column 5, line 27; figures 1 - 9.	1-26

Form PCT/ISA/210 (continuation of second sheet) (July 2009)

EP 2 857 074 A1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/ES2013/070323

Patent document cited in the search report	Publication date	Patent family member(s)	Publication date
US5520405 A	28.05.1996	NONE	
US2005006876 A1	13.01.2005	AT502557 A1 US6460871 B1 US6742801 B1 US6354610 B1 US6267391 B1 US5957480 A US5755046 A US6050005 A US5941555 A JP3027085U U WO9622137 A2 WO9622137 A3 EP0972545 A1 EP0972545 B1 EP0857499 A1 EP0857499 B1 EP0788819 A2 EP0788819 A3 EP0751806 A1 EP0751806 B1 DE29622828U U1 DE29619372U U1 DE972545T T1 DE69616838T T2 DE69608119T T2 DE69607683T T2 DE69607454T T2 AU5131796 A AT408617B B ATA900196 A US6126179 A	15.04.2007 08.10.2002 01.06.2004 12.03.2002 31.07.2001 28.09.1999 26.05.1998 18.04.2000 24.08.1999 30.07.1996 25.07.1996 03.10.1996 19.01.2000 07.11.2001 12.08.1998 03.05.2000 13.08.1997 08.10.1997 08.01.1997 12.04.2000 12.06.1997 26.06.1997 17.08.2000 29.05.2002 23.11.2000 07.09.2000 07.09.2000 07.08.1996 15.06.2001 15.06.2001 03.10.2000
US2010109289 A1	06.05.2010	US7918477 B2	05.04.2011
US5906388 A	25.05.1999	US6135486 A WO9830292 A1 JP2001513662 A EP0964727 A1 AU5820598 A	24.10.2000 16.07.1998 04.09.2001 22.12.1999 03.08.1998
US5284066 A	08.02.1994	US5553516 A	10.09.1996
US3936063 A	03.02.1976	ATA573374 A JPS5037529 A DE2335473 A1	15.08.1975 08.04.1975 30.01.1975
US5354088 A	11.10.1994	USRE36800E E WO9421339 A1	01.08.2000 29.09.1994
US6022041 A	08.02.2000	NONE	
US6283491 B1	04.09.2001	NONE	

Form PCT/ISA/210 (patent family annex) (July 2009)

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- ES 2357338 [0003]
- ES 2261095 [0004]
- ES 2341825 [0005]
- WO 9623557 A [0006]
- ES 2188403 [0007]
- ES 2330600 [0008]