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

(11) EP 1 544 384 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
22.06.2005 Bulletin 2005/25

(51) Int Cl.[7]: **E05B 15/02**, E05B 3/06

(21) Application number: **03425809.5**

(22) Date of filing: **18.12.2003**

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

(71) Applicant: **Frascio S.p.A.**
25070 Lavenone (Brescia) (IT)

(72) Inventors:
- **Benini, Damiano**
  25071 Agnosine (Brescia) (IT)
- **Mora, Giuliano**
  25070 Preseglie (Bresica) (IT)

(74) Representative: **Crippa, Paolo Ernesto**
JACOBACCI & PARTNERS S.p.A.
Piazzale Arnaldo, 2
25121 Brescia (IT)

(54) Structure of connection to a door or the like

(57) A structure of connection to a door or the like, unusually capable of an easy assembly and at the same time high reliability and safety, comprises a base having a thorough opening, said base being adapted for being preassembled to said door or the like, and comprising at least one portion adapted for cooperating with means for coupling said base to said door or the like; a jaw having a thorough opening alignable with said thorough opening of said base and being adapted for being interposed between said base and said door or the like, said jaw comprising at least one elastic arm that protrudes, when the jaw is coupled to the base, beyond said base, said elastic arm comprising a coupling portion; and an intermediate washer, comprising at least one seat adapted for receiving snap-wise said coupling portion of the at least one elastic arm, so as to firmly connect said intermediate washer to said base.

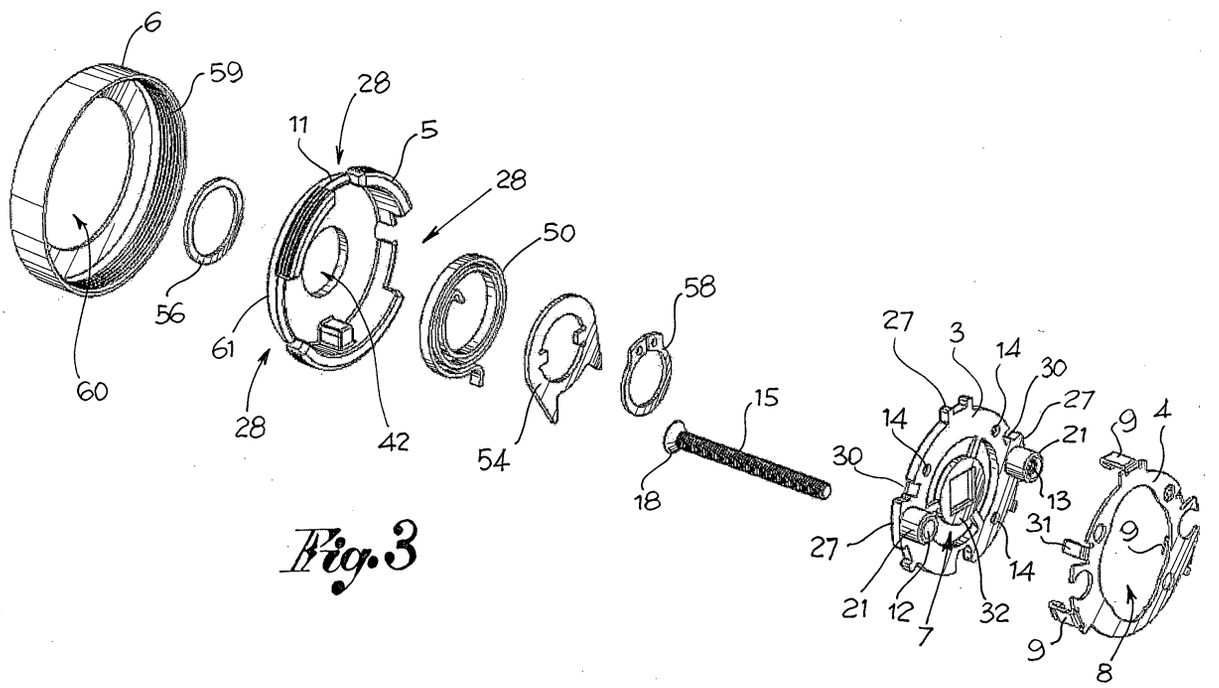


Fig.3

EP 1 544 384 A1

Description

[0001] . The present invention relates to a structure for connection to a door or the like, in particular of the type comprising a base associable to said door and an intermediate washer, for example associable to a handle.

[0002] . EP-A-0 942 121 discloses a washer for door hardware having a main body, exhibiting a central passage opening, for supporting a handle of the door or for covering a lock of the door. Said washer also exhibits a disc-shaped mounting base by which the main body can be engaged on a rest surface. The mounting base is anchorable to the door. An upper screwing ring can be screwed on the mounting base by moving the main body close and against the mounting base, preventing axial movements.

[0003] . This known solution, despite satisfactory in some respects, exhibits some disadvantages.

[0004] . Among said disadvantages, one of the most important is that the handle is kept anchored to the mounting base and therefore to the door basically by the screwing ring that tightens the main body integral to the handle against said mounting base. If said screwing ring, which is accessible from outside the washer, is inadvertently released, if the handle is gripped it may withdraw from the pin, thereby making the gripping person lose his/her balance.

[0005] . Other solutions are disclosed in DE-A-33 33 696, US 5,149,155, DE-A-36 22 672, DE-A-37 10 883, DE-A-28 46 848, DE-A-36 14 952, DE-A-35 07 359, DE-A-43 05 263, US 5,228,798, US 4,597,600, but none of them can ensure an easy assembly to the door or the like, and at the same time, make the fastening reliable.

[0006] . Object of the present invention is that of proposing a structure of connection to a door or the like which should allow obviating the disadvantages mentioned above.

[0007] . This object is achieved by a connecting structure as described in claim 1.

[0008] . To better understand the invention and appreciate its advantages, some exemplifying but nonlimiting embodiments are described hereinafter with reference to the attached drawings, wherein:

[0009] . - figure 1 shows a partly sectioned perspective view of a structure assembled and mounted on a door, according to a first embodiment;

[0010] . - figure 2 shows a section view of the structure of figure 1;

[0011] . - figure 3 shows the inside of a first perspective view with separate parts of components of the structure of figure 1;

[0012] . - figure 4 shows the outside of a second perspective view with separate parts of components of the structure of figure 1;

[0013] . - figure 5 shows the outside of a perspective view of a base;

[0014] . - figure 6 shows the inside of a perspective view of the base of figure 5;

[0015] . - figure 7 shows the inside of a perspective view of a jaw;

[0016] . - figure 8 shows the outside of a perspective view of the jaw of figure 7;

[0017] . - figure 10 shows the inside of a perspective view of an intermediate washer;

[0018] . - figure 11 shows the outside of a perspective view of the intermediate washer of figure 10;

[0019] . - figures 12 and 13 show the outside of perspective views of a washer associated to a spring and a spring holding plate;

[0020] . - figure 14 shows the inside of a first perspective view with separate parts of components of a structure according to a second embodiment;

[0021] . - figure 15 shows the outside of a second perspective view with separate parts of the components of figure 14;

[0022] . - figure 16 shows the outside of a perspective view of a base according to a further embodiment;

[0023] . - figure 17 shows the inside of a perspective view of the base of figure 16 rotated by 180 hexagesimal degrees;

[0024] . - figure 18 shows the outside of a perspective view of a base according to yet a further embodiment;

[0025] . - figure 19 shows the inside of a perspective view of the base of figure 18 rotated by 180 hexagesimal degrees;

[0026] . - figure 20 shows a perspective view in separate parts of an assembly of four mounting structures coupled in pairs to a door.

[0027] . Components are described below with reference to their internal and external side. Internal side means the component side facing the object to which the connecting structure is to be connected, for example a door or the like. External side, on the other hand, means the component side opposed, or facing the opposed side, the object to which said structure is to be connected.

[0028] . Moreover, radial direction means a direction comprised or parallel to the plane of the door or the like, that is, to the coupling plane of the structure to the door or the like. If the component is axial-symmetrical or substantially axial-symmetrical, radial direction means a direction transversal to the symmetry axis or of substantial symmetry of the component.

[0029] . Axial direction means a direction transversal to the plane of the door or the like, that is, to the coupling plane of the structure to the door or the like. If the component is axial-symmetrical or substantially axial-symmetrical, axial direction means a direction parallel to the symmetry axis or of substantial symmetry of the component.

[0030] . As it can be noted in the figures, according to a general form, a structure for connecting to a door 1 or the like, generally indicated with reference numeral 2, comprises a base 3, a jaw 4 and an intermediate washer 5. Preferably, a screw cap ring 6 is associated externally.

[0031] . Said base 3 comprises a through opening 7. Base 3 is adapted for being pre-assembled to said door 1 or the like and it comprises at least one portion adapted for cooperating with coupling means of said base 3 to said door 1 or the like, as will be better described hereinafter (Figures 5 and 6).

[0032] . Jaw 4 comprises a thorough opening 8 alignable with said thorough opening 7 of said base 3. Said jaw 4 is adapted for being interposed between said base 3 and said door 1 or the like. (Figures 7 and 8)

[0033] . Jaw 4 comprises at least one elastic arm 9 projecting beyond said base 3 when the jaw is coupled with base 3. Said elastic arm 9 comprises a coupling portion 10.

[0034] . The intermediate washer 5 comprises at least one seat 11 adapted for receiving said coupling portion 10 of the at least one elastic arm 9 snap-wise so as to firmly connect said intermediate washer 5 to said base 3.

[0035] . According to a first embodiment, said coupling means of base 3 comprise at least one thorough hole 12, 13 and/or 14 adapted for receiving means 15 for connecting base 3 to said door 1 or the like (Figures 3, 5 and 6).

[0036] . Advantageously, said at least one thorough hole 13 is internally threaded and is, for example, adapted for receiving the portion of the connecting means, such as screws 15, coming from an opposed structure 2 and protruding from the thickness of door 1, firmly engaging the two opposed structures to one another and firmly connecting the structure to the door. According to a further embodiment, said at least one thorough hole 14 is adapted for seating a self-threading screw for firmly connecting base 3 to door 1 or the like.

[0037] . Advantageously, said at least one thorough hole are at least two thorough holes 12, 13, preferably diametrically opposed to one another or at opposed sides relative to opening 7 of said base 3.

[0038] . With a further advantage, said at least one thorough hole 12 and/or 14 comprises a flared edge 16 and/or adapted for receiving a head of a screw 18 and/or of a self-threading screw.

[0039] . According to an embodiment, said coupling means of base 3 comprise at least one coupling projection 19 for jaw 4 (Figures from 16 to 18). Advantageously, said projection 19 forms a small edge adapted for seating a seat 20 provided in jaw 4 so as to be embedded in the thickness of said jaw or, in other words, when jaw 4 is seated on base 3, said seats 20 house said small edge projection 19, which does not protrude from the thickness of the body of jaw 4, preventing said projection 19 from resting on door 1 so as to favour a safe and wide rest of jaw 4 on said door 1.

[0040] . According to a further embodiment, said coupling means of base 3 comprise at least one anti-rotational coupling projection 21 with door 1 or the like. Said anti-rotational projection 21 is adapted for being seated in at least one corresponding seat 22 provided into said door 1 or the like (Figure 2).

[0041] . According to an embodiment, said base 3 comprises a disc-shaped element, advantageously, an annular body 23 (figures 5 and 6).

[0042] . Preferably, said base 3 comprises at least one surface 24 adapted for resting on said jaw 4.

[0043] . Advantageously, said base comprises at least one surface 25 adapted for resting on abutment portions 26 of said intermediate washer (Figures 5, 6 and 18, 19, and 10, 11).

[0044] . According to a preferred embodiment, said base 3 exhibits at least one radial projection 27 adapted for geometrically coupling with at least one corresponding window 28 present in said intermediate washer 5, so as to tangentially or circumferentially constrain said washer 5 to said base 3, or, in other words, so as to realise a constraint that locks or prevents the rotation of the intermediate washer 5 around base 3. Advantageously, said at least one radial projection are at least two radial projections 27, for example substantially arranged diametrically opposed. Preferably, said at least one radial projection are at least three projections 27, one of which also functions as orientating element 29 of the coupling between said base 3 and said intermediate washer 4. In other words, the third radial projection 29 forces a fixed angular mounting between said base 3 and said washer 4.

[0045] . According to an embodiment, said base 3 comprise at least one seat 30 adapted for the snap-wise coupling with at least one elastic coupling element 31 provided in jaw 4 and adapted for making said jaw 4 integral with said base 3. Advantageously, said snap-wise coupling seats 30 with jaw 4 are at least two seats 30.

[0046] . As described above, said base 3, according to an embodiment, comprises thorough holes 14 adapted for receiving connecting means, for example self-threading screws, adapted for connecting said base 3 to said door 1 or the like. Advantageously, said thorough holes are at least two holes 14 and, preferably, are three holes 14, for example equally spaced from one another. As described above, these thorough holes can exhibit a flared edge, adapted for fully seating a head of a screw.

[0047] . Going back to the description of the at least one anti-rotational projection 21, said at least one projection advantageously comprises a prismatic body that preferably delimits said thorough hole 12, 13 adapted for receiving connecting means 15 of base 3 to door 1 or the like. As described above, at least one of said thorough holes 13 is internally threaded so as to engage with the threaded stem of a screw seated in an opposed connecting structure (Figure 1). Advantageously, said projection 21 exhibits a flared edge 16 that delimits at least one of said thorough holes 12. Preferably, said at least one coupling projection 21 of base 3 are two projections 21 substantially arranged diametrically opposed.

[0048] . According to an embodiment, said base 3

comprises a centring element 32 into said thorough opening 7 adapted for centring an operating pin 34 for a lock. In other words, thanks to the centring element 32, the mounting of base 3, associated to jaw 4, on door 1 is particularly facilitated. In fact this operation is made particularly easy and at the same time very accurate, seating the centring element 32, preferably exhibiting an opening 35 counter-shaped relative to the section of pin 34, on said pin 34 (Figures 5, 6 and 18, 19 and 1). Advantageously, said centring element 32 is temporarily connected to base 3 by at least one staple 36, adapted for breaking at the first actuation of said operating pin 34. For example, said at least one staple 36 exhibits a peripheral portion of connection to the annular body 23 of base 3 made weaken for an easy breaking upon the first actuation of handle 37.

[0049] . Advantageously, if the structure is used for covering and accessing the lock mechanism, a guiding element 33, for example adapted for guiding a protruding portion of the lock mechanism, is provided into said thorough opening 7 of base 3. In other words, this guiding element 33 is a suitable seat for fitting the base on the portion protruding from the door of the lock mechanism 38 for an easy and accurate mounting (Figure 20).

[0050] . According to an embodiment, said jaw 4 comprises a plate-shaped body 39.

[0051] . Advantageously, the thorough opening 8 of said jaw 4 exhibits a larger width than the thorough opening 7 of base 3, for example so as to not affect the coupling of the base to the operating pin 34 of handle 37, or the coupling of base 3 to the portion of the lock mechanism 38 protruding from door 1 with its plate-shaped body.

[0052] . According to an embodiment, said at least one elastic arm 9 protrudes from the outside edge of said jaw 4 transversally to said jaw body 39. Advantageously, said at least one elastic arm 9 comprises a base 40 jointed to the body of jaw 4 by notches 41 adapted for making the connection of said arm 9 to body 39 of jaw 4 even more flexible. Preferably, said at least one elastic arm 9 comprises a plate-shaped body and advantageously, it comprises a free end forming said coupling portion 10. According to another embodiment, said free end is bent to form an undercut anchoring element.

[0053] . Advantageously, said at least one elastic arm 9 of said jaw 4 protrudes encircling base 3 with an extension adapted for firmly coupling said intermediate washer 5. With a further advantage, said elastic arm 9 of said jaw 4 are a first plurality of elastic arms, for example they are at least two elastic arms 9 and preferably they are three elastic arms arranged equally spaced from one another.

[0054] . As described above, said jaw 4 comprises at least one second elastic coupling element 31 protruding towards base 3 and is adapted for coupling snap-wise said jaw 4 to said base 3. Advantageously, said at least one second elastic coupling element are at least two elements 31.

[0055] . Going now to the description of the intermediate washer 5, it comprises a thorough opening 42. Said thorough opening is, for example, adapted for housing base 43 of a handle 37. Optionally, said thorough opening 42 forms a hole or a seat for a protruding portion of the lock mechanism 38.

[0056] . According to an embodiment, said intermediate washer 5 comprises a glass body 44. Said glass body 44, in assembled conditions, houses said base 3 internally (Figure 1). Advantageously, said intermediate washer 5 comprises a side blanket 45 wherein there is obtained at least one seat 11 foe said at least one elastic arm 9 of said jaw 4, adapted for coupling jaw 4 to washer 5 with said base 3 interposed. Advantageously, said at least one seat 11 for the elastic arm 9 comprises an annular projection (Figures 10 and 11). Said annular projection delimits a rest surface 46 for the coupling portion 10 of said elastic arm 9.

[0057] . According to an embodiment, said intermediate washer 5 comprises a side blanket wherein there is obtained a side window 28 adapted for housing at least one radial projection 27 of base 3 to realise a torsional geometric coupling.

[0058] . According to a further embodiment, said intermediate washer 5 comprises a side blanket 45 comprising an outside threading 47.

[0059] . Advantageously, said intermediate washer 5 houses means 48 adapted for elastically affecting an actuating handle 37 and/or a pin 34 seated into said connecting structure 2 and adapted for connecting handle 37 to a spring latch mechanism 49 (figures 20 and 12, 13).

[0060] . Advantageously, said elastic means comprise a spiral spring 50. Preferably, said spiral spring 50 exhibits a radically inner end 51 associated to the handle pin 34 and/or to base 43 of handle 37, for example housed into a longitudinal notch provided into said base 43 and/or in the pin. Said spiral spring exhibits the radically outer end 52 resting on a projection 53 provided in said intermediate washer 5. As shown in figures 12 and 13, said spiral spring is not in operating conditions. When mounted to base 43 of handle 37, spring 50 is preloaded so as to stress said handle constantly.

[0061] . According to an embodiment, a spring holder plate 54 is associated to said elastic means 48. Said plate 54 can be connected to the handle base 43 and/or to the handle pin 34 so as to be torsionally integral. For example, said plate 54 exhibits radial projections 55 that can be coupled to notches provided on said base 43 of handle and/or in said handle pin 34. Said spring holder plate 54 interacts with said spring rest projection 53 and defines at least one predetermined position for said handle base 43 and/or said handle pin 34, preferably two predetermined positions that determine the rotation stroke of said handle 37.

[0062] . According to an embodiment, a washer 56 is provided externally to said intermediate washer 5 and adapted for abutting against a shoulder 57 of a handle,

so as to facilitate the rotation of handle 37 relative to the intermediate washer 5 (Figure 2).

[0063] . According to an embodiment, structure 2 comprises a snap ring 58 adapted for keeping said spring holder plate 54, said spring 50, said intermediate washer 5 and said washer 56 associated to a handle 37. For example, said snap ring 58 is housed in an annular seat provided in base 43 of said handle 37.

[0064] . To cover washer 5 and the at least one elastic arm 9 that grips said washer externally there is provided a screw cap ring 6 adapted for associating externally to said intermediate washer 5, for example by screwing by its inner threading 59 to the outer threading of washer 5. According to an embodiment, said screw cap ring 6 exhibits a glass body, provided with a thorough opening 60 adapted for coupling with a projection 61 provided into said washer 5 (figures 3 and 4).

[0065] . For further safety, there is provided a dowel 62, that can be operated by a special key 63, and adapted for locking the handle on said pin 34.

[0066] . As it can be seen in figure 20, mounting occurs by assembling the jaw to the base beforehand. The base with jaw is then fastened to the door positioning it with the help of the centring or guiding element provided in the base. Then, the base is fastened to the door by self-threading screws housed in the special holes 14. Optionally, if the base exhibits the anti-rotational projections 21, these are inserted into the special thorough seats 22 provided in the door and the base is fastened by screws inserted into the thorough hole 12 without threading that then protrude from the other side of the door and engage with the threading of the opposed base (Figures 20, 2 and 1).

[0067] . The screw cap ring, washer 56, the assembly formed of washer 5, spring 50 and spring holder plate 54 are fitted on the handle, abutting the outside end 52 of the spring against the special projection 53 of washer. The washer is then fitted on the handle base 43, inserting the radial projections 55 of the spring holder plate 54 and the inside end 51 of the spring into the special notches of the handle base 43, so that the spring is preloaded and the spring holder plate abuts against the special projection 53. The washer 56 washer 5, spring 50, spring holder plate 54 assembly is secured to the handle by the snap ring 58 housed into its seat of the handle base 43.

[0068] . Handle 37 is then sided and coupled to base 3 inserting snap-wise the coupling portions 10 of the elastic arms 9 of jaw 4 on the washer. The handle base 43 is fitted on the handle pin 34.

[0069] . The screw cap ring 6 that had been backed along the handle, is then screwed on washer 5.

[0070] . Finally, dowel 62 is inserted for locking the handle on the pin.

[0071] . Thanks to a structure like the one described it is possible to perform quick and accurate assembly while maintaining a very high level of safety.

[0072] . In particular, the intermediate washer fixed axially to the handle or to the handle pin remains constrained to the base, in turn fixed to the door or the like, also if the screw cap ring is released.

[0073] . A man skilled in the art can make several changes to the description above in order to meet specific requirements, but all fall within the scope of the invention as defined in the following claims.

Claims

1. Structure of connection to a door or the like, comprising:
   - a base having a through opening, said base being adapted for being pre-assembled to said door or the like and comprising at least one portion adapted for cooperating with coupling means of said base to said door or the like;
   - a jaw having a thorough opening alignable with said thorough opening of said base and being adapted for being interposed between said base and said door or the like, said jaw comprising at least one elastic arm projecting beyond said base 3 when the jaw is coupled with the base, said elastic arm comprising a coupling portion;
   - an intermediate washer, comprising at least one seat adapted for receiving said coupling portion of the at least one elastic arm snap-wise, so as to firmly connect said intermediate washer to said base.

2. Structure according to claim 1, wherein said coupling means of the base comprise at least one thorough hole adapted for receiving means for connecting the base to said door or the like.

3. Structure according to claim 2, wherein said at least one thorough hole is internally threaded.

4. Structure according to any one of claims from 2 to 3, wherein said at least one thorough hole are two holes.

5. Structure according to any one of claims from 2 to 4, wherein said at least one thorough hole comprises a flared edge adapted for receiving a head of a screw.

6. Structure according to any one of the previous claims, wherein said coupling means of the base comprise at least one coupling projection for the jaw.

7. Structure according to claim 6, wherein said projection forms a small edge adapted for housing a seat provided in the jaw so as to be embedded in the

thickness of said jaw.

8. Structure according to any one of the previous claims, wherein said coupling means of the base comprise at least one anti-rotational coupling projection with the door or the like, said projection being adapted for being housed in at least one corresponding seat provided into said door or the like.

9. Structure according to claim 1, wherein said base comprises a disc-shaped element.

10. Structure according to any one of the previous claims, wherein said base comprises an annular body.

11. Structure according to any one of the previous claims, wherein said base comprises at least one surface adapted for resting on said jaw.

12. Structure according to any one of the previous claims, wherein said intermediate washer comprises abutment portions.

13. Structure according to the previous claim, wherein said base comprises at least one surface adapted for resting on said abutment portions of said intermediate washer.

14. Structure according to any one of the previous claims, wherein said base exhibits at least one radial projection adapted for geometrically coupling with at least one corresponding window present in said washer, so as to tangentially constrain said washer to said base.

15. Structure according to the previous claim, wherein said at least one radial projection are at least two radial projections substantially arranged diametrically opposed.

16. Structure according to claim 14, wherein said at least one radial projection are three radial projections, one of which also functions as orientating element for the coupling between said base and said intermediate washer.

17. Structure according to any one of the previous claims, wherein said base comprises at least one seat adapted for the snap-wise coupling with at least one elastic coupling element provided in the jaw and adapted for making said jaw integral with said base.

18. Structure according to claim 17, wherein said snap-wise coupling seats with the jaw are at least two.

19. Structure according to any one of the previous claims, wherein said base comprises thorough holes adapted for receiving means for connecting said base to said door and the like.

20. Structure according to claim 19, wherein said thorough holes are at least two.

21. Structure according to claim 19, wherein said thorough holes are three equally spaced from one another.

22. Structure according to any one of claims from 19 to 21, wherein said thorough holes exhibit a flared edge.

23. Structure according to any one of the previous claims, wherein said at least one coupling projection of the base comprises a prismatic body.

24. Structure according to claim 23, wherein said prismatic body delimits a thorough hole adapted for receiving means for connecting the base to the door or the like.

25. Structure according to claim 24, wherein said thorough hole of said at least one projection is threaded.

26. Structure according to claim 24 or 25, wherein said projection exhibits an edge delimiting said countersunk thorough hole.

27. Structure according to any one of the previous claims, wherein said at least one coupling projection of the base are two diametrically opposed projections.

28. Structure according to any one of the previous claims, wherein said base comprises a centring element into said thorough opening adapted for centring an operating pin for a lock.

29. Structure according to claim 28, wherein said centring element is temporarily connected to the base by at least one staple adapted for breaking as said operating pin is first actuated.

30. Structure according to any one of the previous claims, wherein said jaw comprises a plate-shaped body.

31. Structure according to any one of the previous claims, wherein said thorough opening of said jaw has a larger width than the thorough opening of the base.

32. Structure according to any one of the previous claims, wherein said at least one elastic arm protrudes transversally from the outside edge of said

jaw.

33. Structure according to any one of the previous claims, wherein said at least one elastic arm of said jaw comprises a base jointed to the body of the jaw by notches adapted for making the connection of said arm to the jaw body flexible.

34. Structure according to any one of the previous claims, wherein said at least one elastic arm of said jaw comprises a plate-shaped body.

35. Structure according to any one of the previous claims, wherein said at least one elastic arm of said jaw comprises a free end forming said coupling portion.

36. Structure according to claim 35, wherein said free end is bent to form an undercut anchoring element.

37. Structure according to any one of the previous claims, wherein said at least one elastic arm of said jaw protrudes with an extension adapted for firmly coupling said intermediate washer.

38. Structure according to any one of the previous claims, wherein said at least one elastic arm of said jaw are a first plurality of elastic arms.

39. Structure according to any one of the previous claims, wherein said at least one elastic arm of said jaw are at least two elastic arms.

40. Structure according to any one of the previous claims, wherein said at least one elastic arm of said jaw are three elastic arms arranged equally spaced from one another.

41. Structure according to any one of the previous claims, wherein said jaw comprises at least one second elastic coupling element protruding towards the base and adapted for coupling snap-wise said jaw to said base.

42. Structure according to claim 34, wherein said at least one second elastic coupling element are at least two elements.

43. Structure according to any one of the previous claims, wherein said intermediate washer comprises a thorough opening.

44. Structure according to claim 43, wherein said thorough opening is adapted for seating the base of a handle.

45. Structure according to claim 43, wherein said thorough opening forms a seat for a portion of a lock mechanism.

46. Structure according to any one of the previous claims, wherein said intermediate washer comprises a glass body.

47. Structure according to claim 46, wherein said at least one glass body houses said base internally.

48. Structure according to any one of the previous claims, wherein said intermediate washer comprises a side blanket wherein there is obtained at least one seat for said at least one elastic arm of said jaw, adapted for coupling the jaw to the washer with said base interposed.

49. Structure according to claim 48, wherein said at least one seat for the elastic arm comprises an annular projection.

50. Structure according to claim 49, wherein said annular projection delimits a rest surface for the coupling portion of said elastic arm.

51. Structure according to any one of the previous claims, wherein said intermediate washer comprises a side blanket wherein there is obtained a side window adapted for housing at least one radial projection of the base to realise a torsional geometric coupling.

52. Structure according to any one of the previous claims, wherein said intermediate washer comprises a side blanket comprising an outside threading.

53. Structure according to any one of the previous claims, wherein said intermediate washer houses means adapted for elastically affecting a pin housed into said connecting structure and adapted for connecting an actuating handle to a spring latch mechanism.

54. Structure according to claim 53, wherein said elastic means comprise a spiral spring.

55. Structure according to claim 54, wherein said spiral spring exhibits a radically inner end associated to the handle pin.

56. Structure according to claim 54 or 55, wherein said spiral spring exhibits the outside end resting on a projection provided into said intermediate washer.

57. Structure according to any one of claims from 53 to 56, wherein said elastic means are associated to a spring holder plate.

58. Structure according to claim 57, wherein said spring

holder plate interacts with said resting projection and defines a position for said handle pin.

59. Structure according to any one of the previous claims, wherein there is provided a washer arranged outside said intermediate washer and adapted for abutting against a shoulder of a handle.

60. Structure according to any one of the previous claims, wherein there is comprised a snap ring, adapted for keeping said spring holder plate, said spring, said intermediate washer and said washer associated to a handle.

61. Structure according to any one of the previous claims, wherein there is comprised a screw cap ring adapted for externally associating with said intermediate washer to cover the structure.

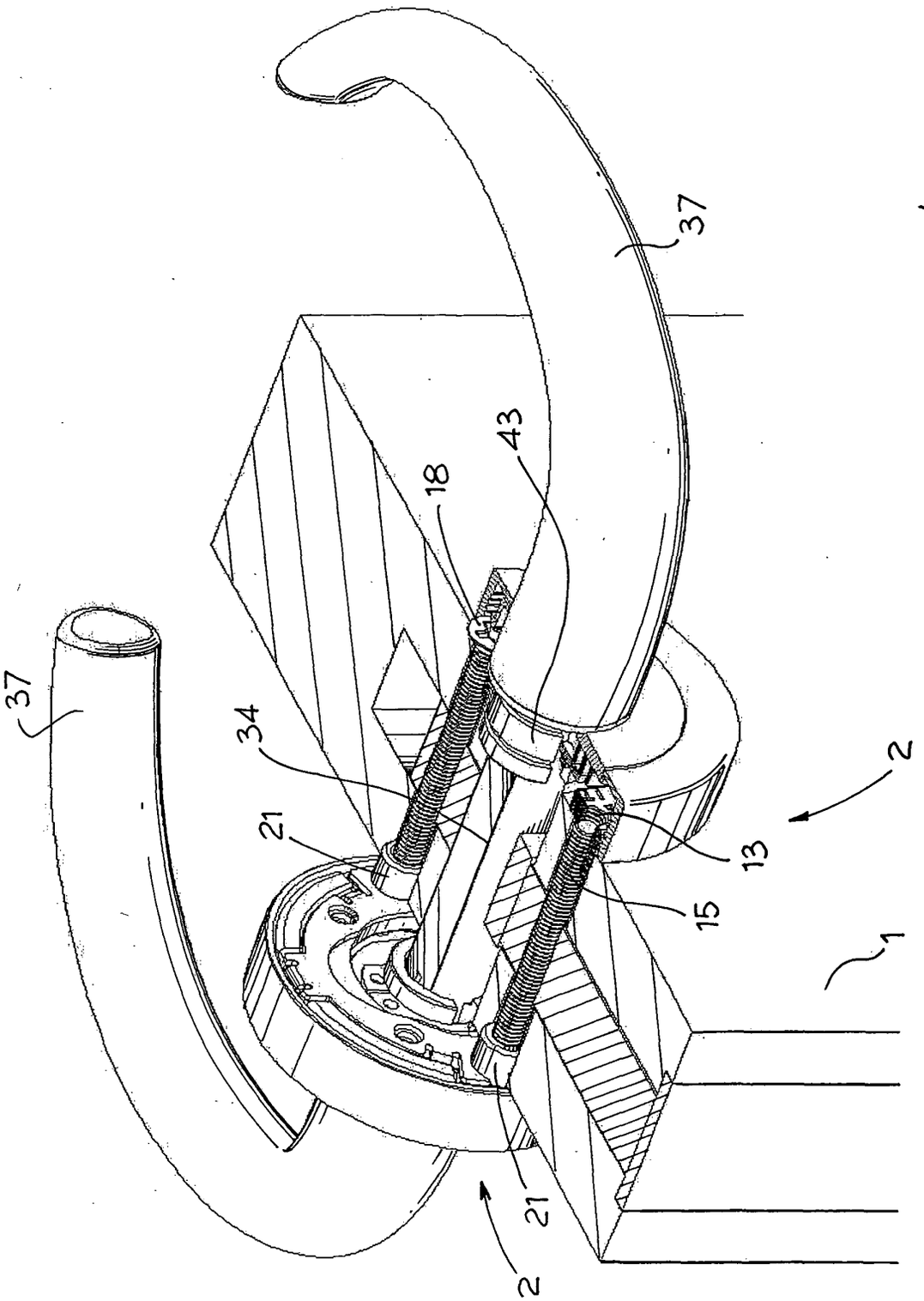


Fig.1

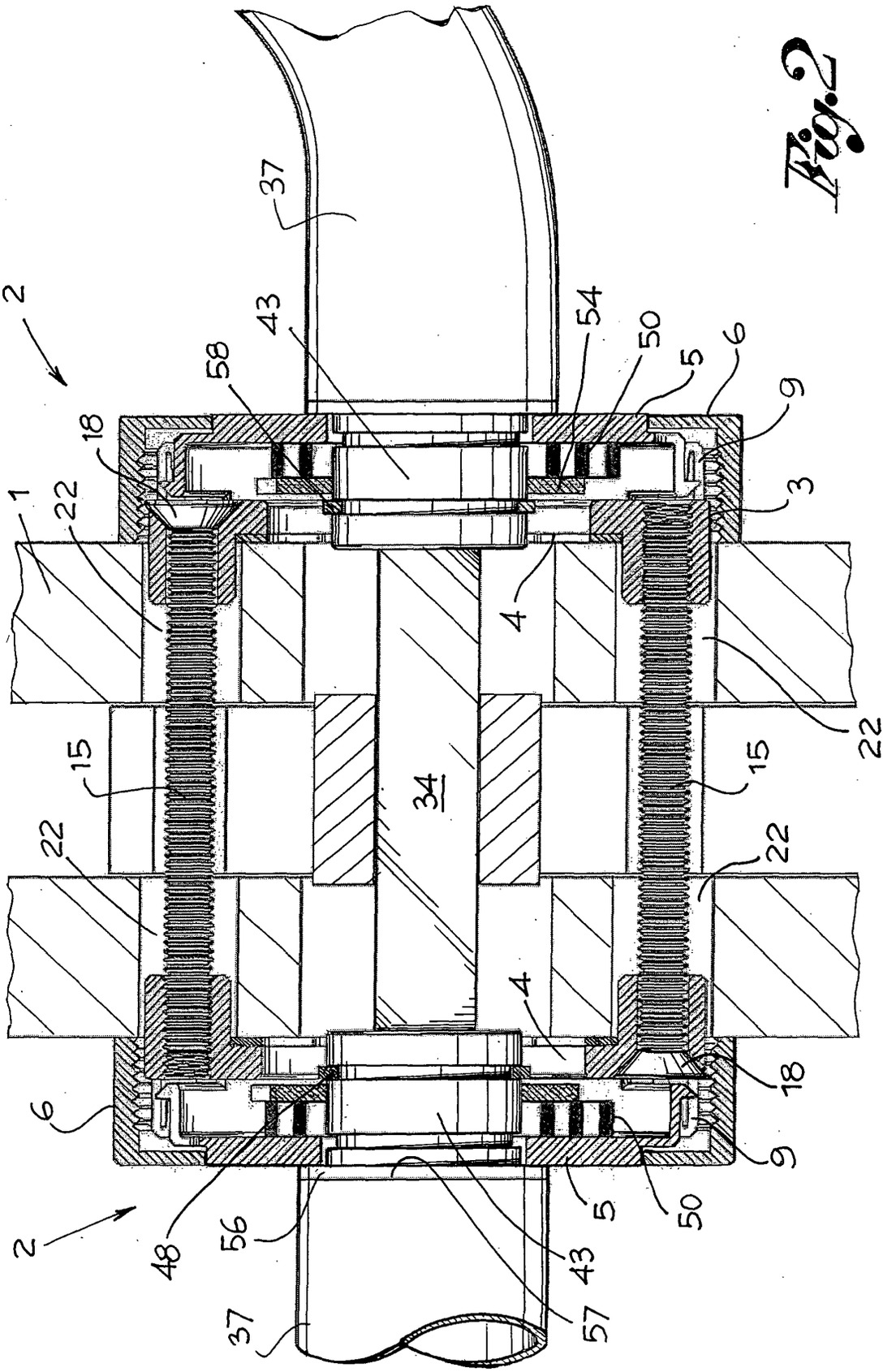


Fig.2

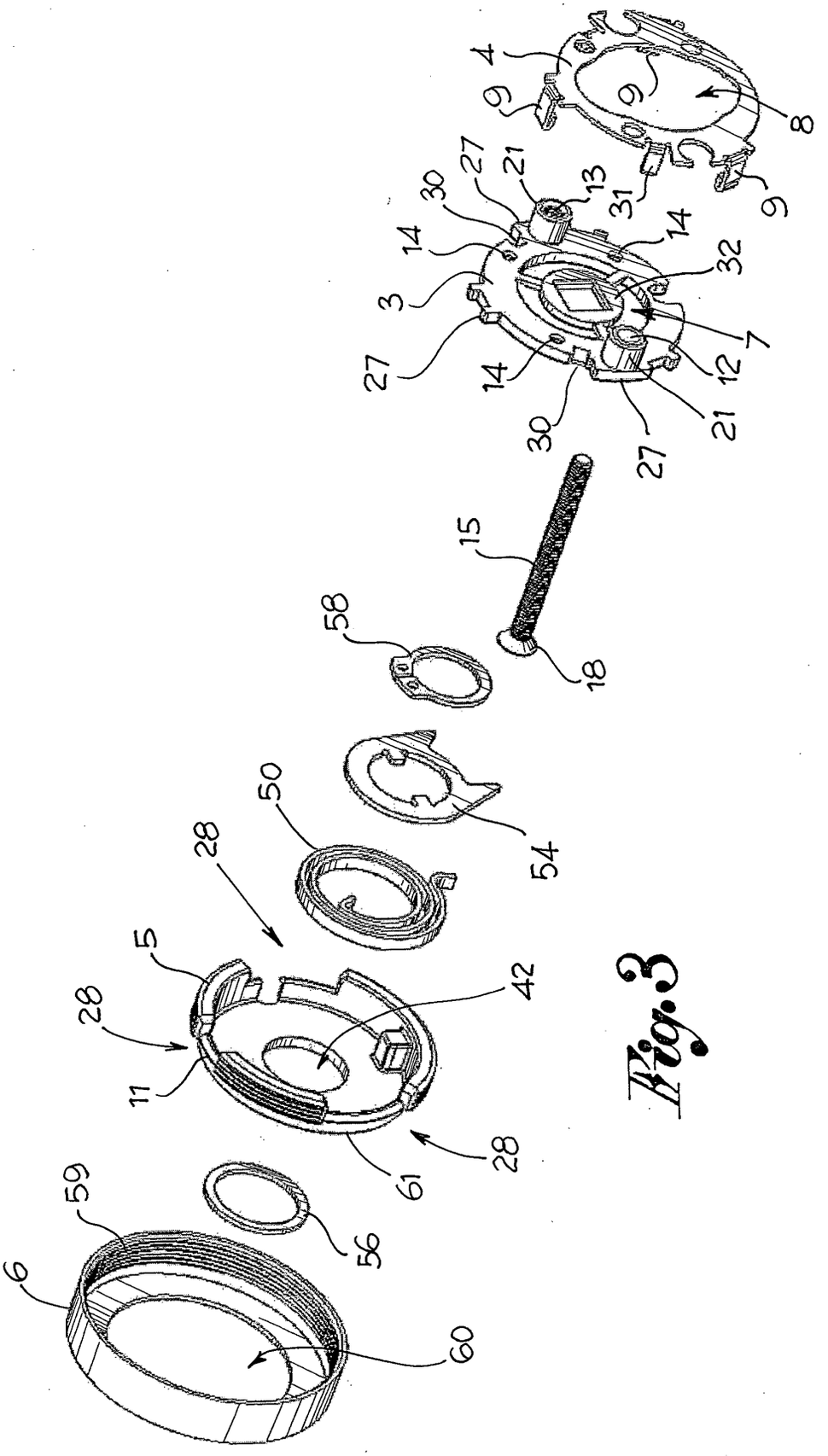

4
9
9
8
9
27
21
13
30
31
14
14
32
3
7
27
14
12
30
21
27
15
58
18
50
54
28
5
42
28
11
61
28
59
56
6
60

Fig. 3

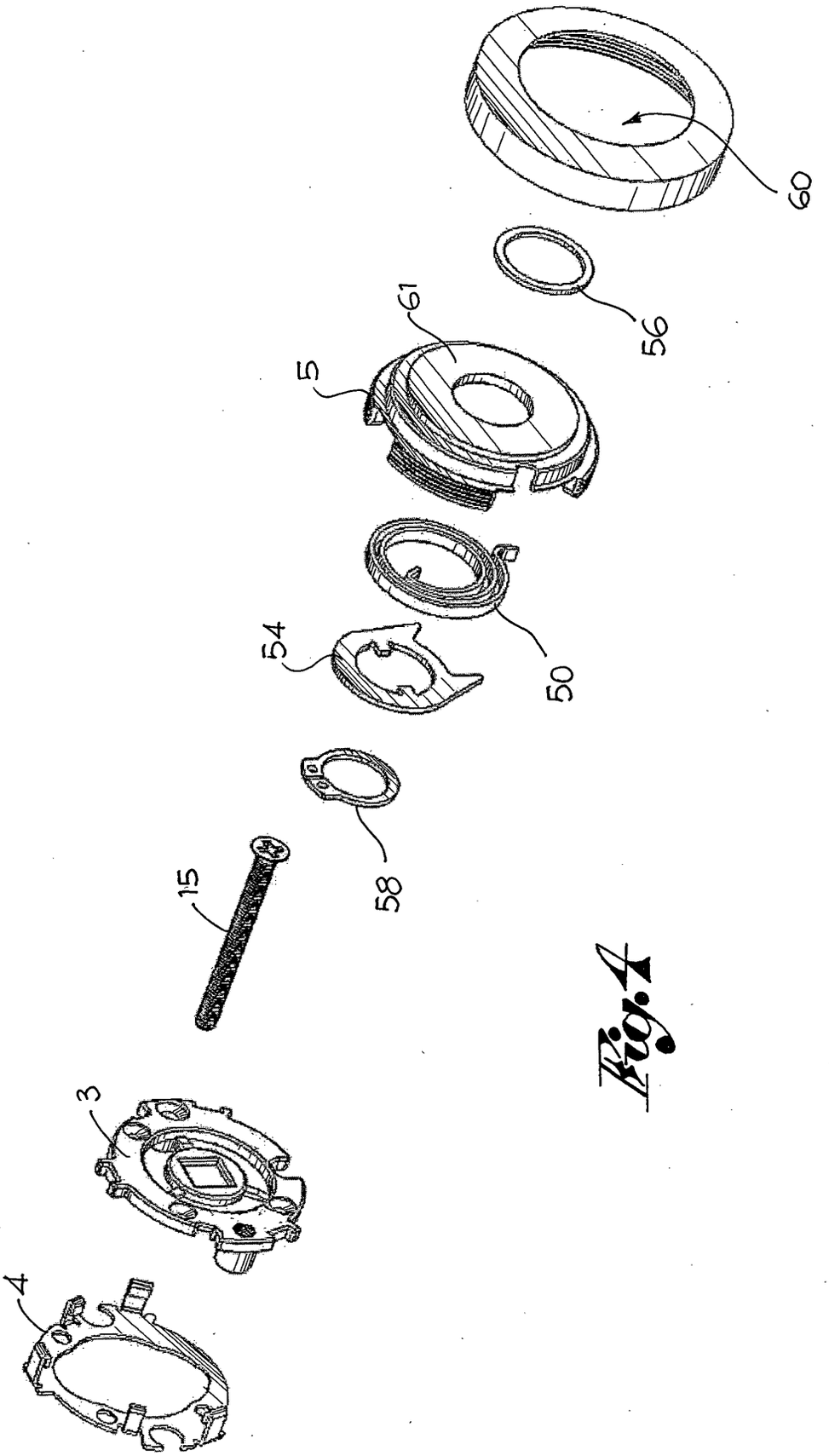


Fig.4

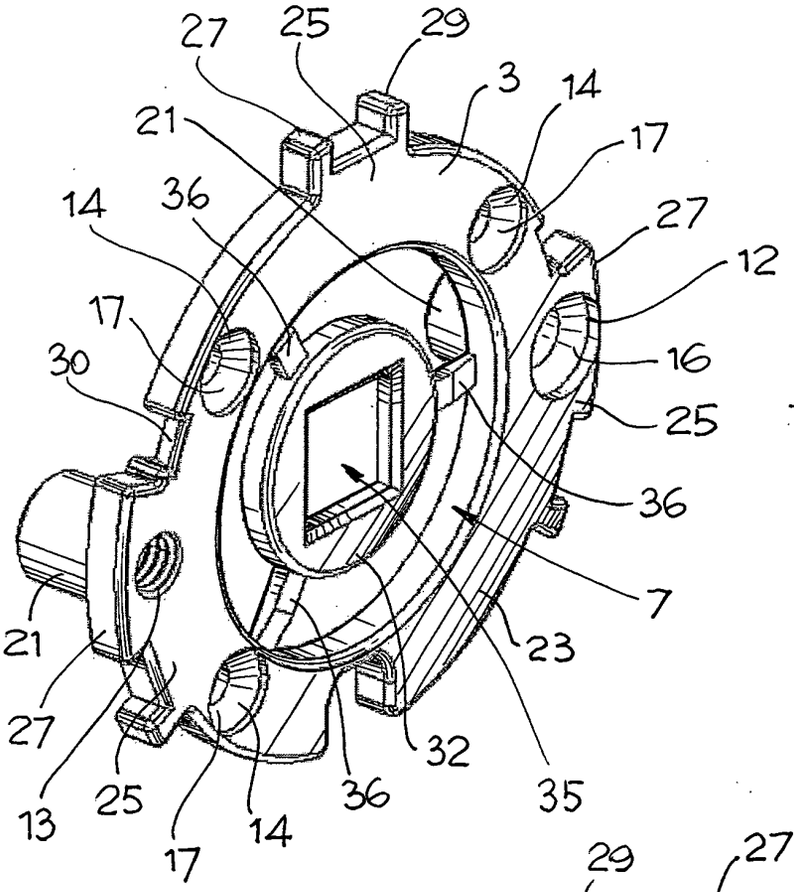

27
25
29
3
14
21
17
14
36
27
12
17
16
30
25
36
7
21
23
27
32
13
25
36
35
17
14

Fig.5

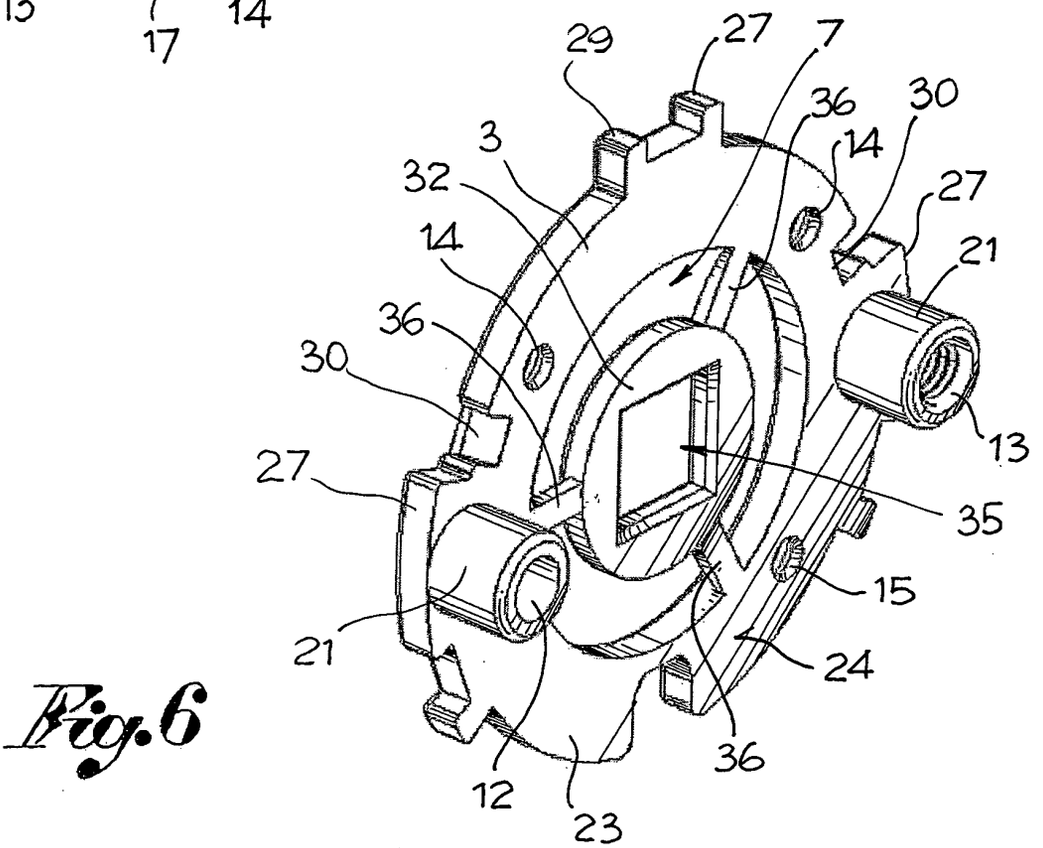

29
27
7
36
30
3
14
32
27
14
21
36
30
13
27
35
15
21
24
36
12
23

Fig.6

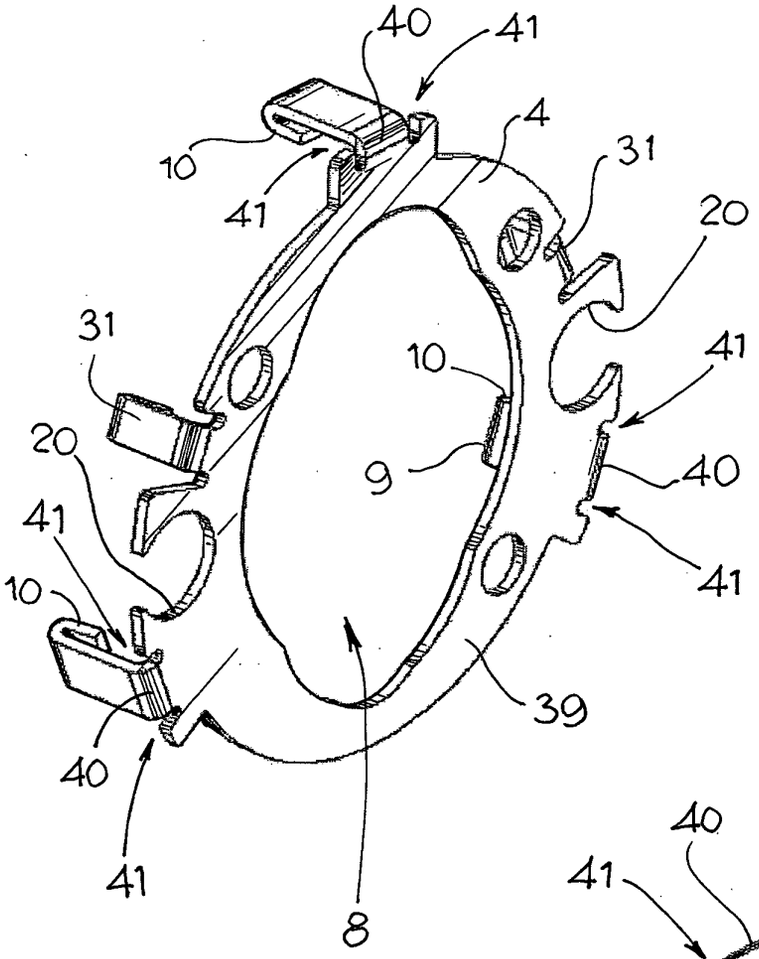

40
41
4
10
41
31
20
31
10
41
9
20
40
41
41
10
39
40
41
8

Fig. 7

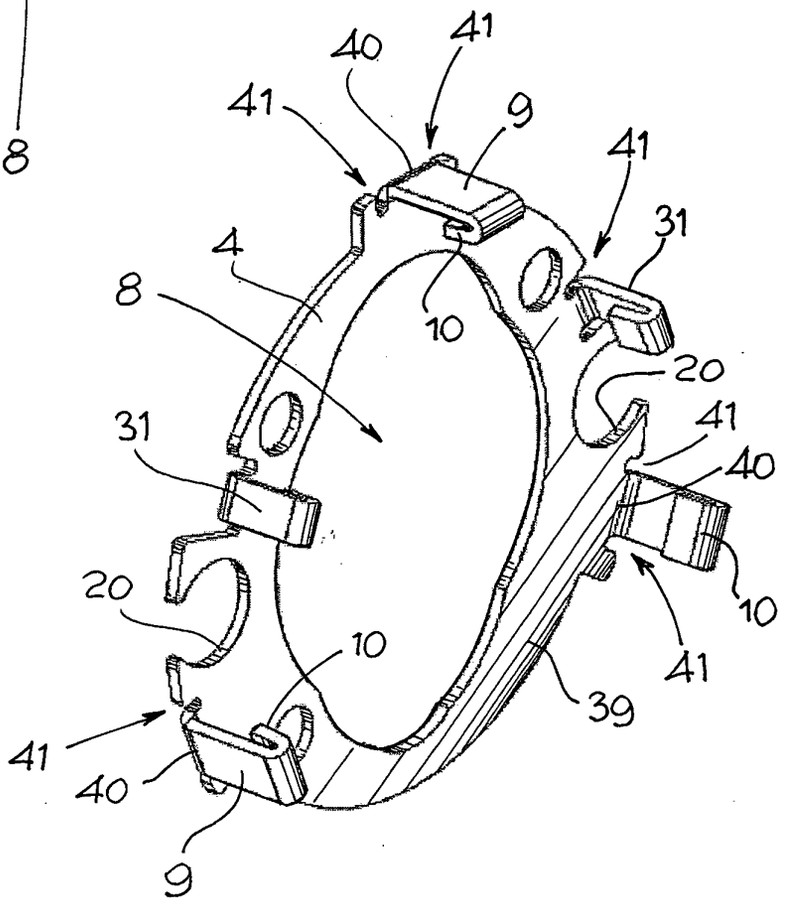

40
41
41
9
41
31
4
8
10
20
31
41
40
20
10
10
41
39
41
40
9

Fig. 8

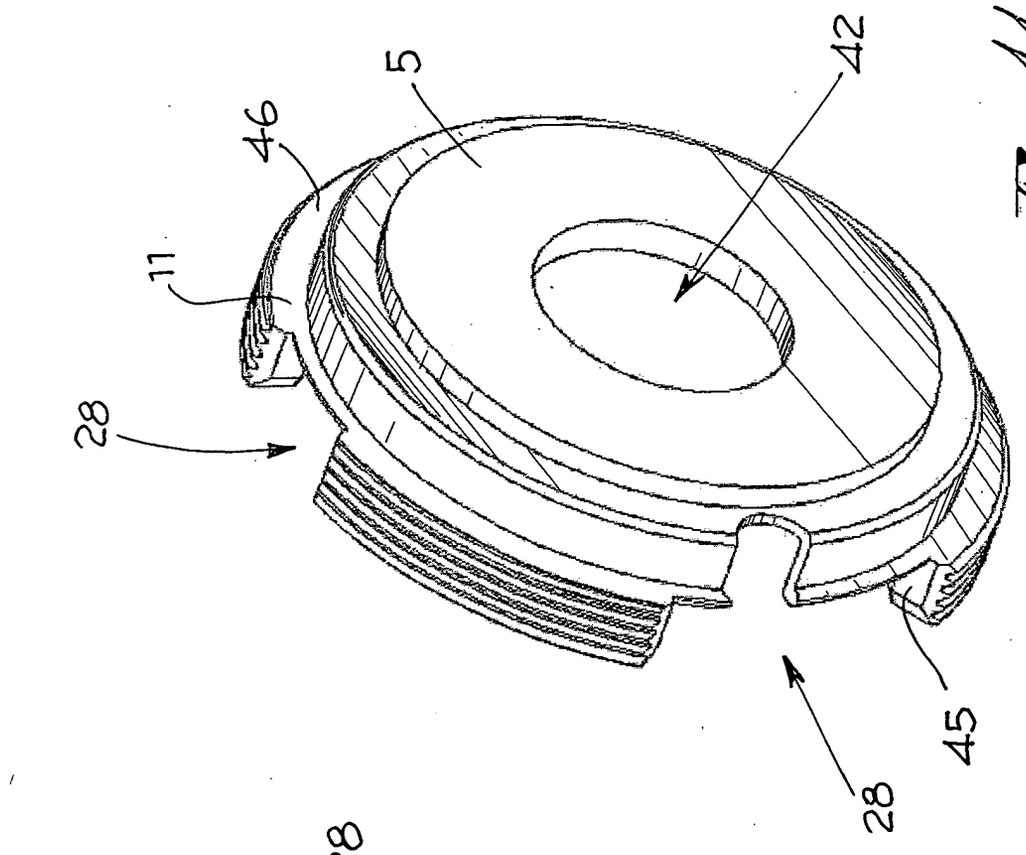


Fig.11

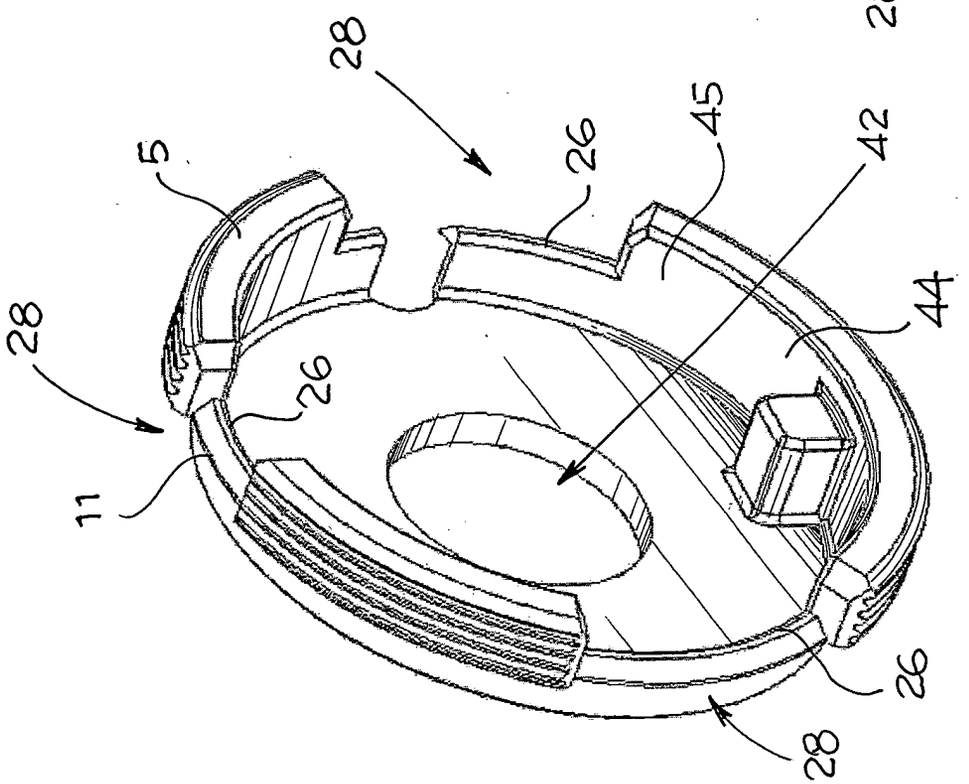


Fig.10

Fig.13

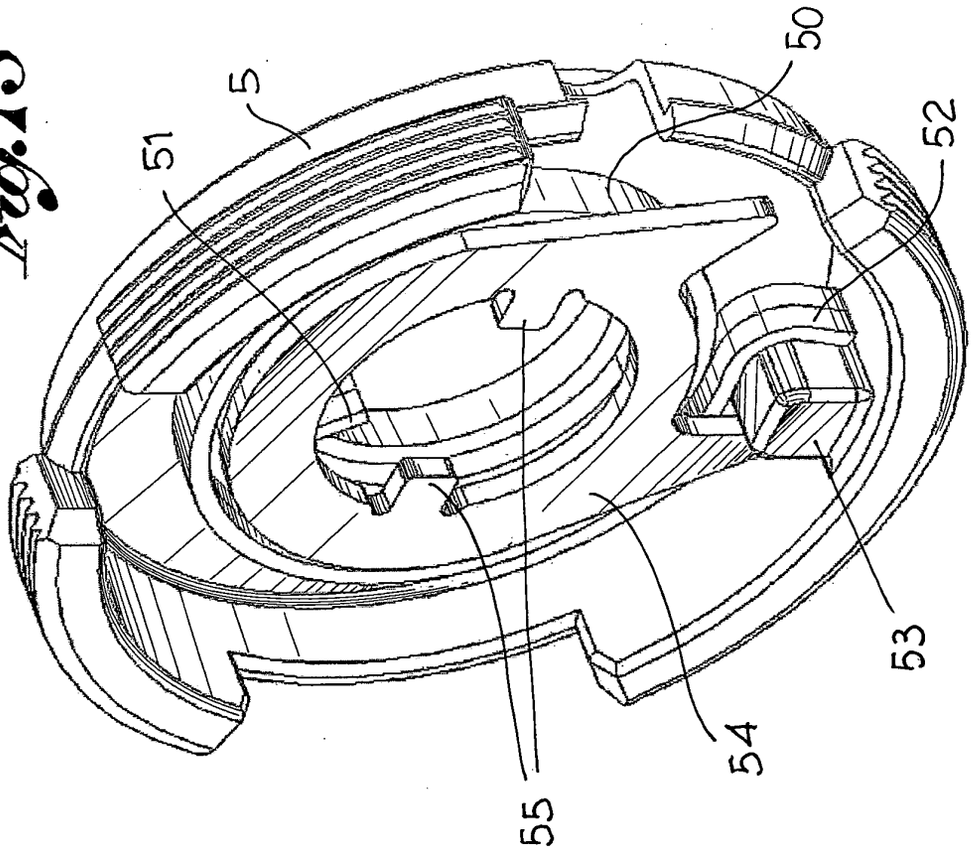
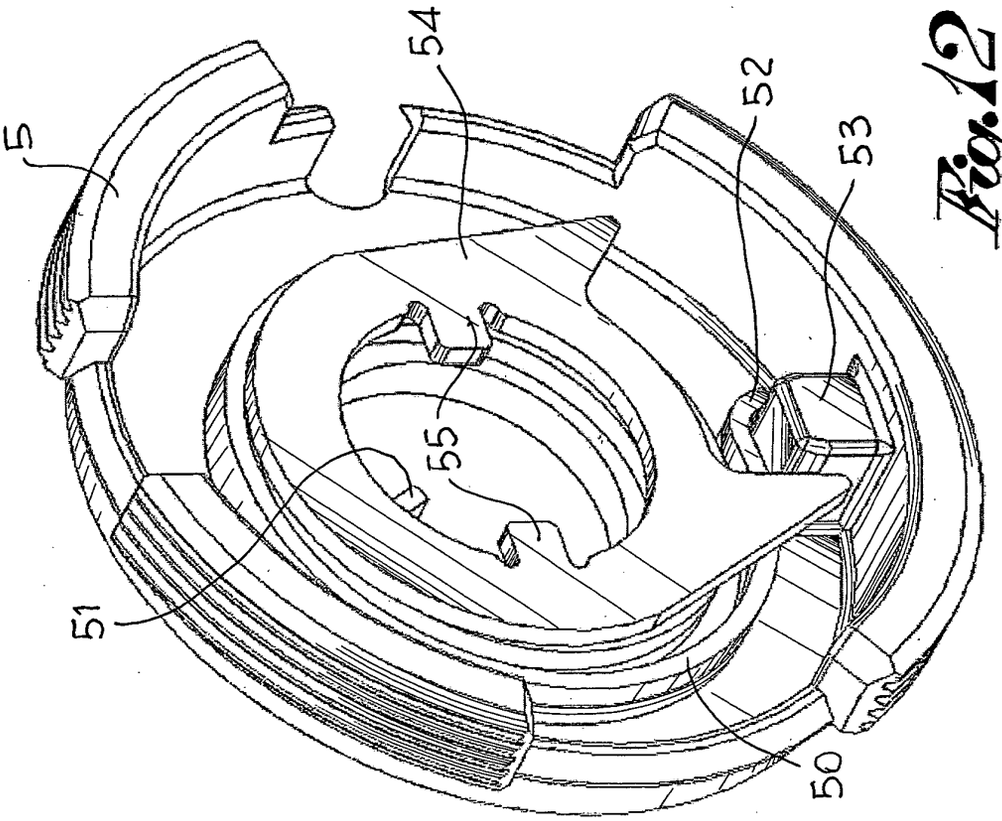


Fig.12



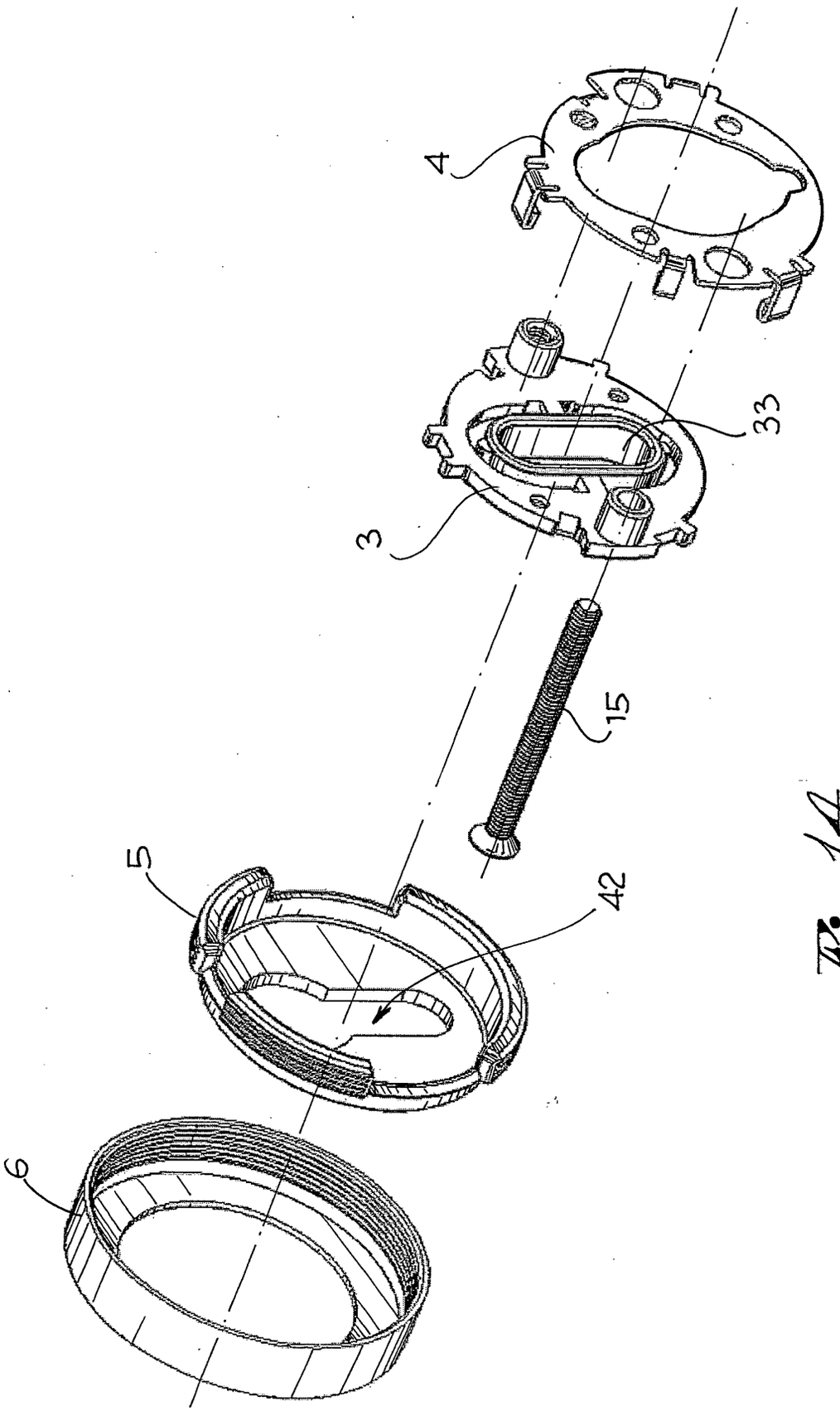


Fig. 14

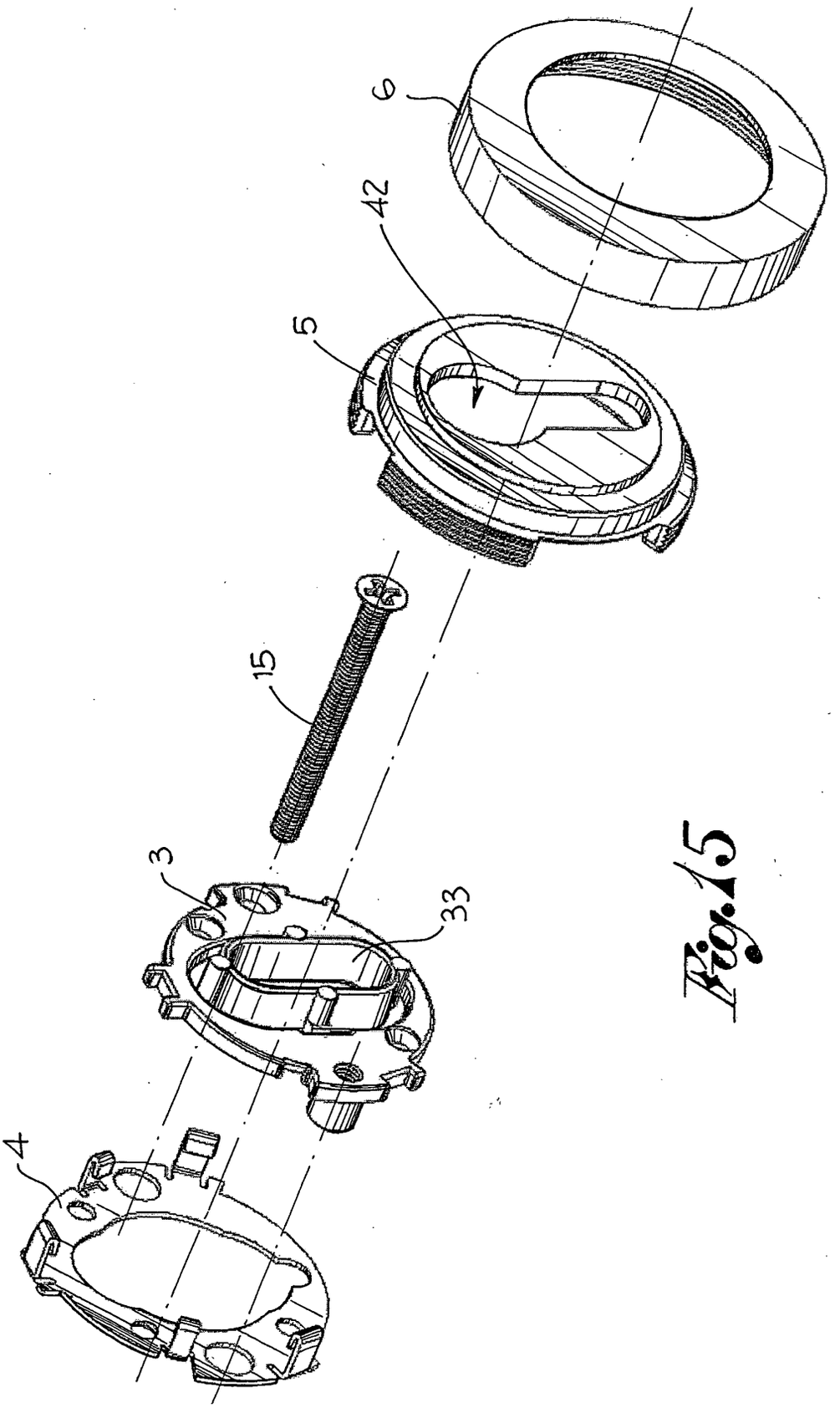


Fig.15

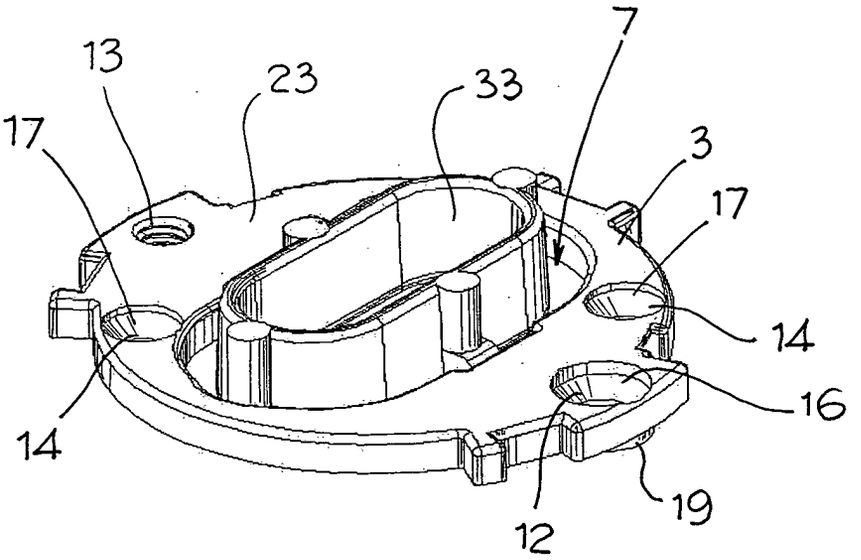


Fig.16

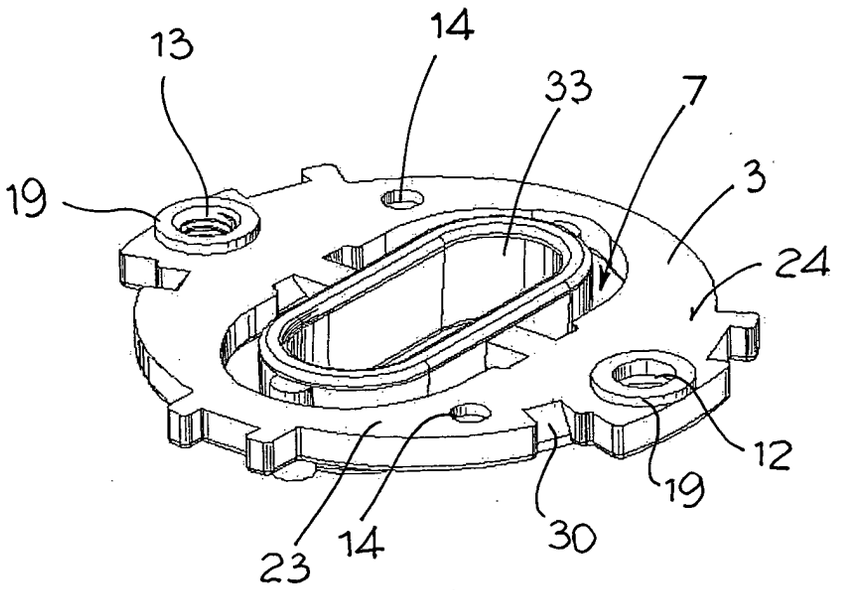


Fig.17

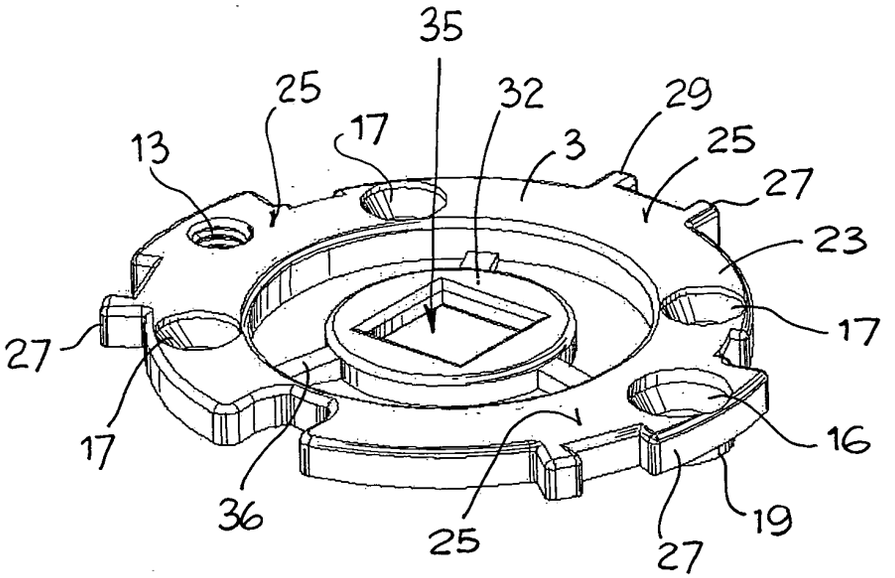

35
25
32
29
17
3
25
13
27
23
27
17
17
16
36
19
25
27

Fig.18

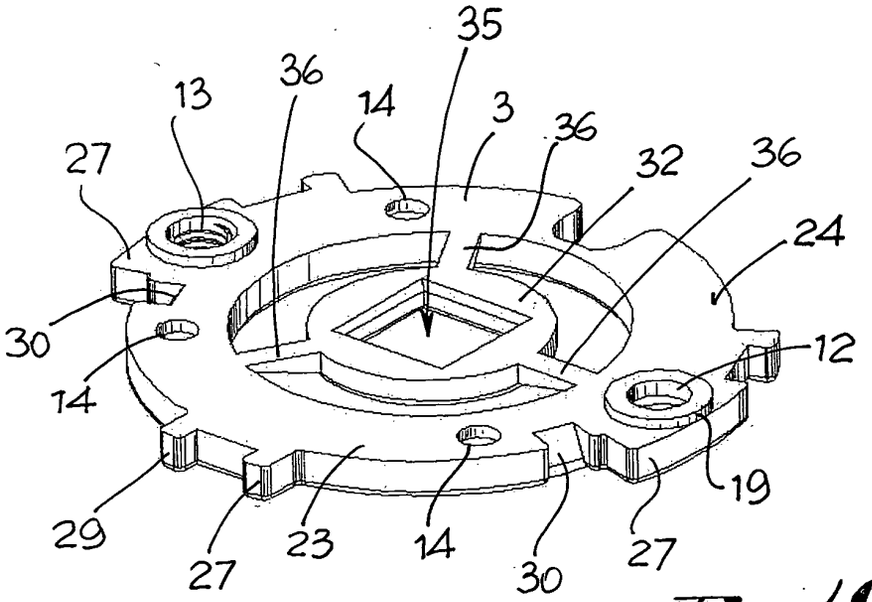

35
36
13
14
3
36
27
32
36
24
30
12
14
19
29
27
23
14
30
27

Fig.19

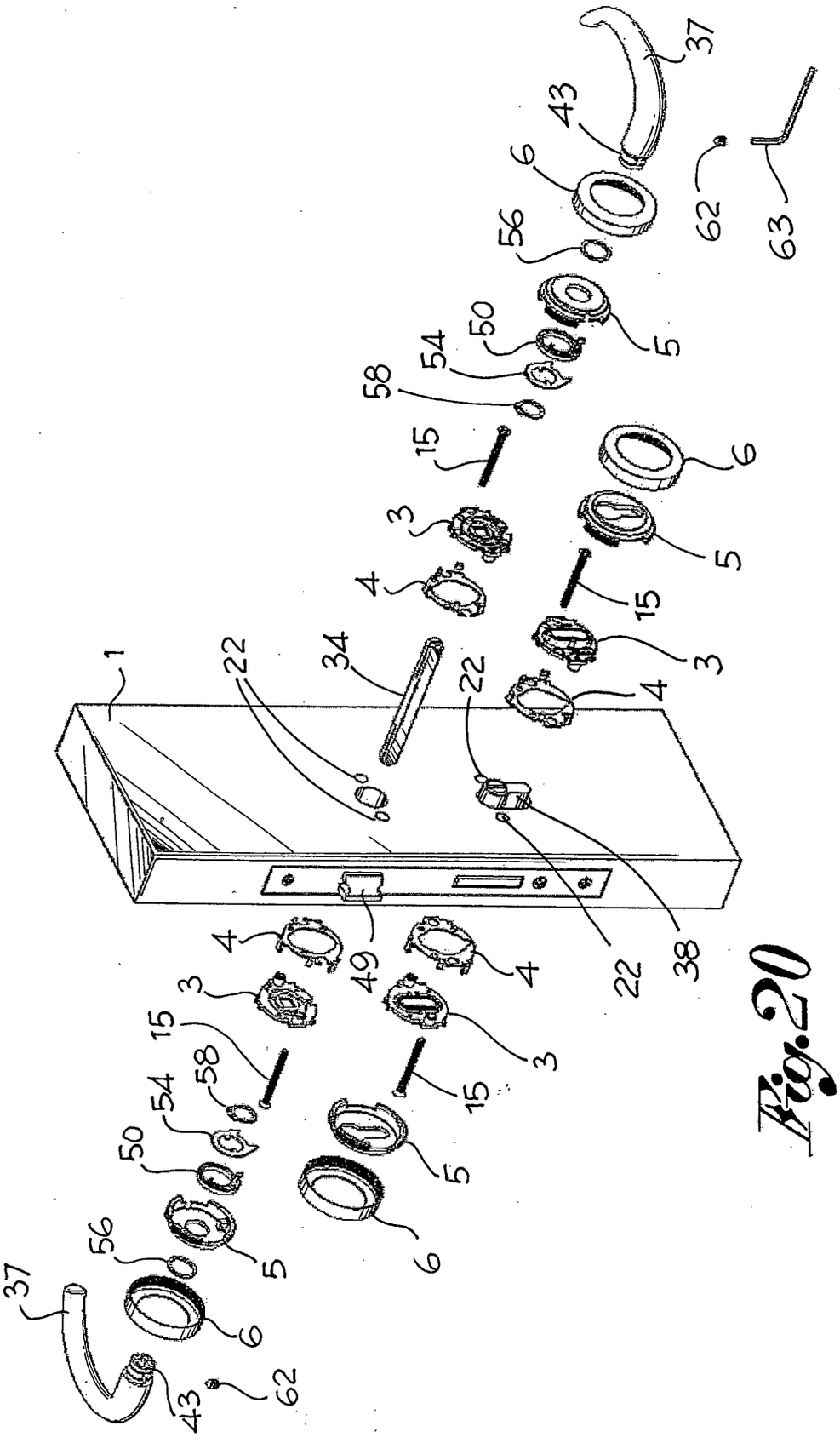


Fig.20

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 42 5809

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.7)
X	DE 202 09 493 U (FSB FRANZ SCHNEIDER BRAKEL GMBH & CO) 29 August 2002 (2002-08-29) * the whole document *	1-45, 48-51, 59-61	E05B15/02 E05B3/06
A		46,52,53	
A	FR 2 794 786 A (BEZAULT SA) 15 December 2000 (2000-12-15) * figures *	1	
A	EP 0 942 121 A (KARCHER GMBH & CO) 15 September 1999 (1999-09-15) * the whole document *	1-61	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

E05B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	9 June 2004	Van Beurden, J

CATEGORY OF CITED DOCUMENTS

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

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 03 42 5809

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

09-06-2004

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 20209493 U	29-08-2002	DE 20209493 U1	29-08-2002
FR 2794786 A	15-12-2000	FR 2794786 A1	15-12-2000
EP 0942121 A	15-09-1999	DE 19809251 A1	09-09-1999
		AT 199430 T	15-03-2001
		DE 29823510 U1	01-07-1999
		DE 59800495 D1	05-04-2001
		EP 0942121 A1	15-09-1999

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82