

(19)



(11)

EP 1 927 704 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
04.06.2008 Bulletin 2008/23

(51) Int Cl.:
E04B 9/20 (2006.01)

(21) Application number: **07254634.4**

(22) Date of filing: **29.11.2007**

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

(71) Applicant: **Maiztarkoetexea, SL**
20068 San Sebastian (Guipuzcoa) (ES)

(72) Inventor: **Lopetegui Galarraga, Ignacio**
2008 San Sebastian (Guipuzcoa) (ES)

(74) Representative: **Howick, Nicholas Keith**
CARPMAELS & RANSFORD
43-45 Bloomsbury Square
London WC1A 2RA (GB)

(30) Priority: **29.11.2006 ES 200603062**
15.10.2007 ES 200702692

(54) **Safety fork**

(57) Fork with safety means for fitting continuous false ceilings, in which the sheet-type clamp (4) in the shape of a bridge has, on the side edges of its upper side (4b), pairs of tongues (4f) with a running fit with respect to the fork (1) side walls (1b) in respective vertical guides (1e) which, at their upper end, are angled in an "L" shape forming a horizontal section (1f) in which their height has

a running fit with respect to the thickness of the tongues (4f), so that the said clamp (4) is capable of adopting upper and lower operating positions such that, in the upper position, the clamp (4) is displaced sideways with the tongues (4f) housed in the horizontal sections (1f) of the vertical guides (1e) and the vertical legs (4a) of this clamp (4) are above the level of longitudinal flanges (8a) of a "U"-shaped rolled section (8).

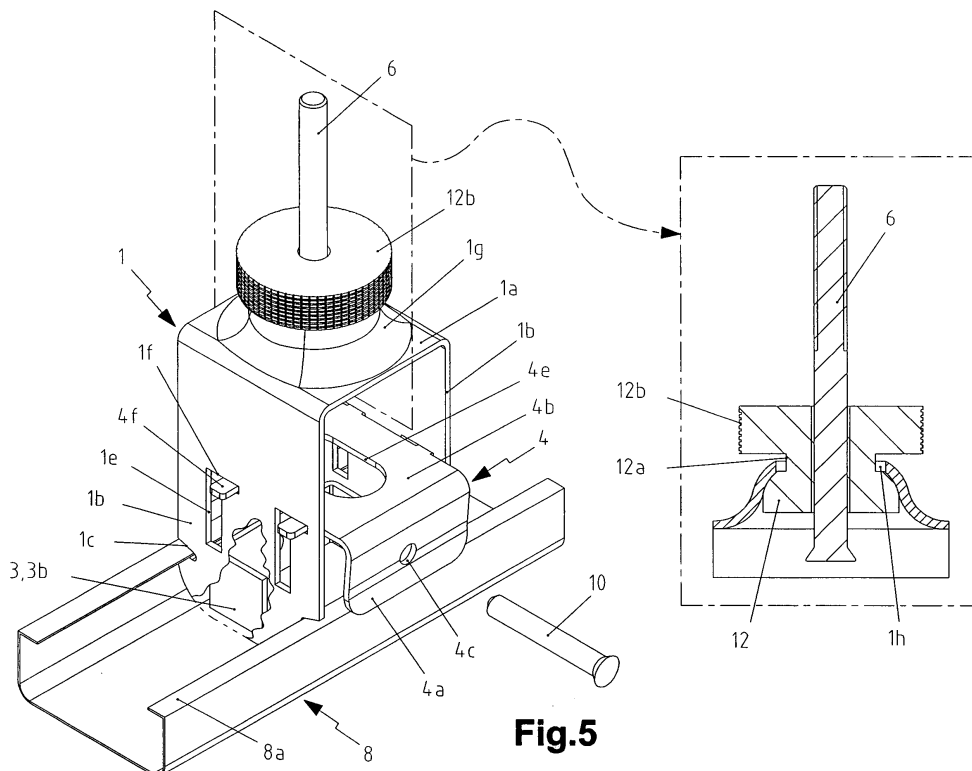


Fig.5

EP 1 927 704 A2

Description**FIELD OF THE INVENTION**

[0001] This invention relates to a safety fork for fitting continuous false ceilings, in particular a fork with a sheet-type body in the form of an inverted "U" with flat walls which consist of an upper horizontal wall and two vertical side walls, the upper wall having a hole for the passage of a threaded rod anchored to the original ceiling of the enclosure and the side walls each having, on their vertical edges, grooves opposite each other for having inserted in them longitudinal opposed flanges of a "U"-shaped rolled section to which are screwed the prefabricated boards with which the continuous false ceiling is made, the fork of which has a prismatic block of an elastoplastic nature which, with a running fit, is inserted between its three walls, which is fitted on a support with a drill hole provided with a central drill hole [sic] aligned with the hole in the upper wall and which extends beyond the edges of the side walls where it forms tabs which rest in a sliding manner on these edges and the side walls of which are joined together by means of a tie provided with a central hole.

[0002] In particular, an object of the invention is a means of safety which ensures the stability of the fitting against the continuous ceiling's being able to fall down due to a defect in construction or fitting or due to a calculation error.

[0003] Another object of the invention is means capable of compensating for defects of inclination of the flat ceiling from which the continuous false ceiling is to be suspended.

PRIOR ART

[0004] The process of fitting a continuous false ceiling consists, firstly, of anchoring the threaded rods to the original ceiling of the enclosure where the continuous false ceiling is being installed; then, the lower end of each rod successively passes through the hole in the fork upper wall, through the elastoplastic block and through the central drill hole in the latter's support, in order for it to be screwed into a nut with which it will be possible to adjust the height so as to obtain the correct levelling of the installation; subsequently, the rolled section is connected by means of an operation which consists, firstly, of inserting one of its longitudinal flanges in the grooves of one single side of both vertical side walls of the fork and, secondly, of pushing upwards so that, due to the elastic nature of the rolled section, there is a widening of the upper opening of the latter until the other longitudinal flange reaches the opposite grooves in the said vertical side walls of the fork and penetrates them; to finish, the continuous false ceiling prefabricated boards are screwed on to the bottom or web of the rolled section.

[0005] The most important and serious problem with this type of fitting is that, when it is loaded with the pre-

fabricated boards, there may be an opening-out of the rolled section and the consequent fall of the false ceiling on to the property and/or persons in the enclosure at the time.

5 **[0006]** A known solution for these purposes is that of Spanish Utility Model U-200001684, in which there is a fork which has, welded between its vertical side walls, a tie provided with a central hole through which it is possible to fit a sheet metal tapping screw which passes through both of the rolled section's sides, so that this screw offers resistance to the opening-out of the section; this solution uses, as a vibration damping element, the conventional 10 rubber block in a circular-generated shape, which is fitted between the fork side walls and has a neck which passes through the hole in the fork's upper wall.

15 **[0007]** Another known solution is that which is proposed in Spanish Patent for Invention P-200402817, in which, instead of the sheet metal tapping screw, a means of external clamping of the rolled section's sides is used, which freely slides vertically between the fork's side walls and which is situated in a clamping position due to mere 20 gravitational action; in this case, the vibration damping element is a prismatic block inserted between the fork's side walls and upper wall.

25 **[0008]** Another problem which is present in this type of fitting is that of the lack of horizontality of a flat ceiling to which it is desired to fit a horizontal continuous false ceiling, whether this is due to a defect in the construction of the flat ceiling or because the latter intentionally has 30 a certain inclination.

EXPLANATION OF THE INVENTION AND ADVANTAGES

35 **[0009]** In view of this situation, the solution proposed in this invention consists of there being, with a running fit between the fork's side walls, a sheet-type clamp in the shape of a bridge which determines two vertical legs and one upper side, the vertical legs of which each have 40 holes which are aligned with each other and with the central hole in the tie and the upper side of which, on its side edges, has projections which have a running fit in respective vertical guides which are formed in the fork's side walls, so that the said clamp is capable of adopting upper and lower operating positions such that, in the upper position, the projections are at the upper end of the vertical guides and the vertical legs are above the level of the 45 rolled section's longitudinal flanges whereas, in the lower position, the projections are at the lower end of the vertical guides and the vertical legs are placed on the outside of the rolled section's vertical sides and there is a sheet metal tapping screw which, in this lower position of the clamp, is capable of being met by at least one of the holes in this clamp's vertical legs and by the central hole of the 50 tie, also passing through the corresponding side of the rolled section; in the upper side of the clamp, there is an opening of greater width than a nut screwed on to the lower end of the threaded rod.

[0010] With this advocated constitution, fitting is simple: once the fork is suspended from the rod anchored to the enclosure ceiling, the clamp is held in its upper position; then the rolled section is connected, the clamp is dropped and the sheet metal tapping screw is fitted; finally, the prefabricated boards are fastened to the base of the rolled section.

[0011] With this recommended constitution, it is possible for one means of safety of the type which externally clamps the sides of the rolled section to interact with another means of safety based on a kind of stitching of the rolled section which is carried out by sheet metal tapping screws which pass through it. Indeed, a clamp is now used which, beyond its clamping function, provides in its vertical legs some holes which are also used as a support for the sheet metal tapping screws which have previously passed through the rolled section and the central hole in the tie welded between the fork's side walls, whereby, at the same time, the safety system contributed by the use of sheet metal tapping screws which pass through the rolled section is available.

[0012] This solution offers great safety which, by means of the clamp, prevents the rolled section from opening out. At the same time, the joint action of the clamp with the tie and with the sheet metal tapping screw gives a union of great strength. In addition, emphasis is to be given to the great simplicity and speed of fitting, as the holes in the clamp's vertical legs, together with the central hole in the tie make the aligned placing of the sheet metal tapping screw very easy and fast. The symmetrical design of the clamp means that it does not have a preferred position for fitting, which makes the latter easier. The projections of the side edges of the clamp's upper side, apart from their function of guiding in the vertical guides of the fork's side walls, assists [sic] grasping for taking the clamp to its upper position while the connection of the rolled section to the fork is carried out.

[0013] Another feature of the invention consists of the clamp's vertical legs' having a profile which is slightly convex towards the inside, which gives the clamp a shape reminiscent of the Greek letter omega. This configuration assists better operating adaptation to the rolled section, compensating for dimensional differences which are frequent, depending on who the manufacturer is and taking into account that, due to its nature, this element is not of high precision.

[0014] Another feature of the invention consists of the upper wall's incorporating, in a rigidly fastened manner, a bell with the shape of a one-base spherical segment which has an upper central opening and which, inside, houses, with a running fit, a ball and socket joint which screws along the threaded rod and which emerges from the bell by means of a neck which, with suitable clearance, passes through the said central opening in the bell and which, now outside the bell, widens to form a flat disc, the periphery of which is knurled. This solution gives a considerable degree of adaptation for the eventuality that the flat ceiling has a certain accidental or desired

inclination and the threaded rod is not perfectly vertical and perpendicular to the continuous false ceiling which is sought, due to the ball and socket joint effect which is obtained; at the same time, height adjustment is enabled by screwing along the threaded rod. A variant of implementing this solution consists of the bell's being integral with the upper wall.

DRAWINGS AND REFERENCES

[0015] In order for the nature of this invention to be understood better, in the attached drawings, a preferred embodiment by way of a merely illustrative, non-limiting example is shown.

Figure 1 is a view which shows the fork (1) suspended from the ceiling (7) and in a relative fitting position with respect to a rolled section (8) which has a false ceiling prefabricated board (9). This illustration incorporates a view which is enlarged and in right-angle projection which corresponds to the vertical section of the fork (1) which is given by the axial vertical plane of the sheet metal tapping screw (10) and which shows the fitting in the rolled section (8) with the prefabricated board (9).

Figure 2 is like the section in the detail in figure 1 but showing the clamp (4) in the upper position and with the sheet metal tapping screw (10) not yet being in place.

Figure 3 is the left-hand side view which corresponds to the fork (1) in the enlarged detail in figure 1 but without including the rolled section (8) or the prefabricated board (9).

Figure 4 is the left-hand side view of the fork (1) in figure 1 but without including the rolled section (8) or the prefabricated board (9).

Figure 5 is a perspective view of a fork (1) according to the invention, connected to the rolled section (8), still with the clamp (4) retained in its upper position and in accordance with the preferred embodiment provided with the bell (1g). This illustration incorporates an enlarged detail in right-angle projection which corresponds to the section shown in the perspective view.

Figure 6 is a perspective view of the fork (1) like the one in figure 5 but with the clamp (4) in the lower operating position.

Figure 7 is a view in right-angle projection showing the fork (1) in figure 5 in the transverse direction of the rolled section (8) for the vertical orientation of the threaded rod (6). This illustration incorporates a detail in plan view of the section indicated.

Figure 8 is the upper plan view corresponding to figure 7.

Figure 9 is like figure 7 but showing the threaded rod (6) in an inclined orientation.

Figure 10 is the upper plan view corresponding to figure 9.

Figure 11 is a perspective view which shows a fork (1) according to figures 9 and 10, fitted between the enclosure ceiling (7) and the false ceiling prefabricated board (9).

Figure 12 is the fork (1) in figure 7 fitted in the rolled section (8).

Figure 13 is the left-hand profile of figure 12.

Figures 14 and 15 are like figures 12 and 13 respectively but in relation to the fork (1) according to figure 6.

Figure 15A is an enlargement of detail XI ringed in figure 15.

Figures 16 and 17 are like figures 12 and 14 respectively but relating to the fork (1) version lacking the bell (1g).

Figure 18 is a perspective view of the clamp (4) according to the invention.

Figure 19 is a view in right-angle projection of the right-hand profile of the perspective view in figure 18.

Figure 20 is like figure 6 but relating to the fork (1) version with cylindrical rubber block (13).

13. Cylindrical rubber block.

EXPLANATION OF A PREFERRED EMBODIMENT

[0016] The following references are shown in these illustrations:

1. Fork
- 1 a. Fork (1) horizontal upper wall
- 1 b. Fork (1) vertical side walls
- 1 c. Grooves in vertical side walls (1 b)
- 1d. Vertical guide in vertical side walls (1b)
- 1e. Angled vertical guides
- 1f. Horizontal sections of angled vertical guides (1e)
- 1g. Upper wall (1a) bell
- 1h. Bell (1g) central opening
2. Elastoplastic prismatic block
- 2a. Prismatic block (2) tabs
3. Tie
- 3a. Tie (3) central hole
- 3b. Tie (3) side walls
4. Sheet-type clamp in the shape of a bridge
- 4a. Clamp (4) vertical legs
- 4b. Clamp (4) upper side
- 4c. Hole in vertical legs (4a)
- 4d. Side projections on upper side (4b)
- 4e. Opening in upper side (4b) of clamp (4)
- 4f. Side tongues on upper side (4b)
5. Prismatic block (2) support
- 5a. Support (5) central drill hole
6. Threaded rod
7. Enclosure ceiling
8. Rolled section
- 8a. Rolled section (8) longitudinal flanges
9. False ceiling prefabricated board
10. Sheet metal tapping screw
11. Nut for threaded rod (6)
12. Ball and socket joint
- 12a. Ball and socket joint (12) neck
- 12b. Ball and socket joint (12) knurled disc

5 **[0017]** With regard to the drawings and references listed above, the attached drawings illustrate a preferred embodiment of the object of the invention, relating to a safety fork for fitting continuous false ceilings, which corresponds to a constitution in which the fork (1) has a sheet-type body in the form of an inverted "U" with flat walls which consist of an upper horizontal wall (1a) and two vertical side walls (1b), the upper wall (1a) having a hole for the passage of a threaded rod (6) anchored to the original ceiling (7) of the enclosure and the side walls (1b) each having, on their vertical edges, grooves (1c) opposite each other for having inserted in them longitudinal opposed flanges (8a) of a "U"-shaped rolled section (8) to which are screwed the prefabricated boards (9) with which the continuous false ceiling is made, the fork (1) of which has a prismatic block (2) of an elastoplastic nature which, with a running fit, is inserted between its three walls (1 a, 1 b), which is fitted on a support (5) with a drill hole provided with a central drill hole [sic] (5a) aligned with the hole in the upper wall (1a) and which extends beyond the edges of the side walls (1b) where it forms tabs (2a) which rest in a sliding manner on these edges and the side walls (1b) of which are joined together by means of a tie (3) provided with a central hole (3a).

10 **[0018]** The particular constitution of the invention is illustrated in figure 1. It consists of there being, with a running fit between the fork (1) side walls (1 b), a sheet-type clamp (4) in the shape of a bridge which determines two vertical legs (4a) and one upper side (4b), the vertical legs (4a) of which each have holes (4c) which are aligned with each other and with the central hole (3a) in the tie (3) and the upper side (4b) of which, on its side edges, has projections (4d) which have a running fit in respective vertical guides (1d) which are formed in the fork (1) side walls (1 b), so that the said clamp (4) is capable of adopting upper and lower operating positions such that, in the upper position, the projections (4d) are at the upper end of the vertical guides (1d) and the vertical legs (4a) are above the level of the rolled section (8) longitudinal flanges (8a) whereas, in the lower position, the projections (4d) are at the lower end of the vertical guides (1d) and the vertical legs (4a) are placed on the outside of the rolled section (8) vertical sides and there is a sheet metal tapping screw (10) which, in this lower position of the clamp (4), is capable of being met by at least one of the holes (4c) in the vertical legs (4a) of this clamp (4) and by the central hole (3a) in the tie (3), also passing through the corresponding side of the rolled section (8); in the upper side (4b) of the clamp (4), there is an opening (4e) of greater width than a nut (11) screwed on to the lower end of the threaded rod (6).

55 **[0019]** The functionality of the fork advocated is shown in the simplicity and speed of the fitting operation and in the safety and strength of the fitting, as is gathered from

comparing the pairs of figures 1 (the section)-2 and 3-4. Starting with the fork (1) already being suspended from the ceiling (7) by means of the threaded rod (6) and levelled, the procedure is (figure 3) to take the clamp (4) projections (4d) in the fingers and move the clamp to its upper position to carry out the connection by pushing the rolled section (8), with the result that the longitudinal flanges (8a) are inserted in the grooves (1c) in the fork (1) side walls (1 b); then, fingers are taken away and, due to gravity, the clamp (4) drops (figure 1) and the sheet metal tapping screw (10) can be put in place through the hole (4c) in the clamp (4) vertical leg (4a), through the side of the rolled section (8) and through the central hole (3a) in the tie (3); finally, the continuous false ceiling prefabricated boards (9) are fastened to the base of the rolled section (8). Figures 3 and 4 also show the clamp (4) in its lower and upper positions, in accordance with the respective views from the left-hand side, corresponding to figures 2 and 1.

[0020] With regard to the drawings and references listed above, the attached drawings illustrate a preferred embodiment of the object of the invention, relating to a safety fork for fitting continuous false ceilings, which corresponds to a constitution in which the fork (1) has a sheet-type body in the form of an inverted "U" with flat walls which consist of an upper horizontal wall (1 a) and two vertical side walls (1 b), the upper wall (1a) having a hole for the passage of a threaded rod (6) anchored to the original ceiling (7) of the enclosure and the side walls (1 b) each having, on their vertical edges, grooves (1 c) opposite each other for having inserted in them longitudinal opposed flanges (8a) of a "U"-shaped rolled section (8) to which are screwed the prefabricated boards (9) with which the continuous false ceiling is made, the fork (1) of which has (figures 16 and 17) a prismatic block (2) of an elastoplastic nature which, with a running fit, is inserted between its three walls (1a, 1b), which is fitted on a support (5) with a drill hole provided with a central drill hole [sic] (5a) aligned with the hole in the upper wall (1 a) and which extends beyond the edges of the side walls (1 b) where it forms tabs (2a) which rest in a sliding manner on these edges and the side walls (1 b) of which are joined together by means of a tie (3) provided with a central hole (3a). The particular constitution of the invention is illustrated in figure 5. It consists of there being, with a running fit between the fork (1) side walls (1 b), a sheet-type clamp (4) in the shape of a bridge which determines two vertical legs (4a) and one upper side (4b), the vertical legs (4a) of which each have holes (4c) which are aligned with each other and with a central hole (3a) in a tie (3) which connects the side walls (1 b) and the upper side (4b) of which, on its side edges, has pairs of tongues (4f) which have a running fit in respective vertical guides (1e) which, at their upper end, are angled in an "L" shape, forming a horizontal section (1f) in which their height has a running fit relating to the thickness of the said tongues (4f), so that the said clamp (4) is capable of adopting upper and lower operating positions such that, in the up-

per position, the clamp (4) is displaced sideways with the tongues (4f) housed in the horizontal sections (1f) of the vertical guides (1e) and the vertical legs (4a) of this clamp (4) are above the level of longitudinal flanges (8a) of a "U"-shaped rolled section (8), which fit into grooves (1 c) in the fork (1) side walls (1b) whereas, in the lower position, the tongues (4f) are at the lower end of the vertical guides (1e) and the vertical legs (4a) are placed on the outside of the rolled section (8) vertical sides and there is a sheet metal tapping screw (10) which, in this lower position of the clamp (4), is capable of being met by at least one of the holes (4c) in the vertical legs (4a) of this clamp (4) and by the central hole (3a) in the tie (3), also passing through the corresponding side of the rolled section (8). From the constructional point of view, it is provided that the tie (3) be welded between the side walls (1 b) once the clamp (4) has been fitted with its side tongues (4f) inserted in their vertical guides (1e), so that the end result is one of great strength which makes the fork (1) non-deformable and prevents the possibility that the clamp (4) can be removed, which prevents losses during transport and simplifies the operation of fitting to the rolled section (8). In the upper side (4b) of the clamp (4), there is an opening (4e) of greater width than a nut (11) screwed on to the lower end of the threaded rod (6).

[0021] The functionality of the fork advocated is shown in the simplicity and speed of the fitting operation and in the safety and strength of the fitting. Once the fork (1) is suspended from the enclosure ceiling (7) by means of the threaded rod (6), the clamp (4) is situated as illustrated by figures 5, 7, 12, 13 and 16, i.e. in the upper position and with its side tongues (4f) inserted in the horizontal sections (1f) of their vertical guides (1e). Then, it is connected to the rolled section (8), the longitudinal flanges (8a) of the latter being inserted in the grooves (1 c) in the edges of the vertical walls (1 b) by pushing with an elastic jumping motion. Now, the clamp (4) is moved so that the tongues (4f) come out of the said horizontal sections (1f) and so that it can descend to its lower position which is shown by figures 6, 14, 15-15A and 17; in this position, the clamp (4) is trapping the rolled section (8) on the outside. In this respect, another feature of the invention is (figures 18 and 19) that the clamp (4) vertical legs (4a) have a profile which is slightly convex towards the inside, which gives the clamp (4) a shape reminiscent of the Greek letter omega, by means of which, as can be appreciated with greater clarity in figure 15A, a dimensional adjustment function is obtained, which compensates for the size differences which generally occur in the manufacture of the rolled section (8), depending on who its manufacturer is.

[0022] Another feature of the invention is that the upper wall (1a) incorporates, in a rigidly fastened manner, a bell (1g) with the shape of a one-base spherical segment which has an upper central opening (1 h) and which, inside, houses, with a running fit, a ball and socket joint (12) which screws along the threaded rod (6) and which emerges from the bell (1g) by means of a neck (12a)

which, with suitable clearance, passes through the said central opening (1 h) in the bell and which, now outside the bell (1g), widens to form a flat disc (12b), the periphery of which is knurled; in accordance with a preferred embodiment, the bell (1g) is integral with the upper wall (1a).

[0023] For purposes of showing the invention, in figures 5 to 15-15A, the version of fork (1) has been chosen which has a bell (1g), in particular that in which the bell (1g) is integral with the fork (1) itself but, as figures 16 and 17 illustrate, the function assigned to the clamp (4) according to figures 18 and 19 is perfectly compatible with forks (1) without a bell (1g). The knurled periphery of the flat disc (12b) serves to simplify the operation of height regulation by means of screwing on the threaded rod (6).

[0024] The articulating functionality of the version of fork (1) with a bell (1g) is well illustrated by means of figures 9 to 11, showing the capacity which it has for compensating for intentional or accidental differences in the inclination of the enclosure ceiling (7) relative to the horizontal.

[0025] Another embodiment of the invention (figure 20) shows the fork advocated in which the elastoplastic prismatic block (2) has been replaced with an ordinary cylindrical rubber block (13).

[0026] In addition, it is provided that the tie (3) side walls (3b) be welded to the fork (1) side walls (1b) after insertion of the clamp (4) side tongues (4f) in the respective vertical guides (1e) of the fork (1), ensuring dimensional stability and therefore the non-dismantlable nature of the assembly.

Claims

1. Safety fork for fitting continuous false ceilings, in particular a fork (1) with a sheet-type body in the form of an inverted "U" with flat walls which consist of an upper horizontal wall (1 a) and two vertical side walls (1 b), **characterized in that**, with a running fit between the fork (1) side walls (1 b), there is a sheet-type clamp (4) in the shape of a bridge which determines two vertical legs (4a) and one upper side (4b), the vertical legs (4a) of which each have holes (4c) which are aligned with each other and with a central hole (3a) in a tie (3) which connects the side walls (1 b) and the upper side (4b) of which, on its side edges, has projections (4d) which have a running fit in respective vertical guides (1 d) which are formed in the fork (1) side walls (1 b), so that the said clamp (4) is capable of adopting upper and lower operating positions such that, in the upper position, the projections (4d) are at the upper end of the vertical guides (1d) and the vertical legs (4a) are above the level of longitudinal flanges (8a) of a "U"-shaped rolled section (8), which fit into grooves (1c) in the fork (1) side walls (1 b) whereas, in the lower position, the projections (4d) are at the lower end of the vertical guides (1d) and the vertical legs (4a) are placed on the outside of the rolled section (8) vertical sides and there is a sheet metal tapping screw (10) which, in this lower position of the clamp (4), is capable of being met by at least one of the holes (4c) in the vertical legs (4a) of this clamp (4) and by the central hole (3a) in the tie (3), also passing through the corresponding side of the rolled section (8).
2. Safety fork for fitting continuous false ceilings, according to claim 1 **characterized in that**, in the upper side (4b) of the clamp (4), there is an opening (4e) of greater width than a nut (11) screwed on to the lower end of the threaded rod (6).
3. Fork with safety means for fitting continuous false ceilings, according to claim 1, **characterized in that** the sheet-type clamp (4) in the shape of a bridge has, on the side edges of its upper side (4b), pairs of tongues (4f) which have a running fit with respect to the fork (1) side walls (1 b) in respective vertical guides (1e) which, at their upper end, are angled in an "L" shape forming a horizontal section (1f) in which its height has a running fit with respect to the thickness of the said tongues (4f), so that the said clamp (4) is capable of adopting upper and lower operating positions such that, in the upper position, the clamp (4) is displaced sideways with the tongues (4f) housed in the horizontal sections (1f) of the vertical guides (1e) and the vertical legs (4a) of this clamp (4) are above the level of longitudinal flanges (8a) of a "U"-shaped rolled section (8), which fit into grooves (1c) in the fork (1) side walls (1b) whereas, in the lower position, the tongues (4f) are at the lower end of the vertical guides (1e) and the vertical legs (4a) are placed on the outside of the rolled section (8) vertical sides.
4. Fork with safety means for fitting continuous false ceilings according to claim 1 and 3, **characterized in that** the clamp (4) vertical legs (4a) have a profile which is slightly convex towards the inside, which gives the clamp a shape reminiscent of the Greek letter omega.
5. Fork with safety means for fitting continuous false ceilings according to claims 1 and 3, **characterized in that**, in the upper side (4b) of the clamp (4), there is an opening (4e) of greater width than a nut (11) screwed on to the lower end of the threaded rod (6).
6. Fork with safety means for fitting continuous false ceilings according to claims 1 and 3, **characterized in that** the upper wall (1a) incorporates, in a rigidly fastened manner, a bell (1g) with the shape of a one-base spherical segment which has an upper central opening (1 h) and which, inside, houses, with a running fit, a ball and socket joint (12) which screws

along the threaded rod (6) and which emerges from the bell (1g) by means of a neck (12a) which, with suitable clearance, passes through the said central opening (1 h) in the bell and which, now outside the bell (1g), widens to form a flat disc (12b), the periphery of which is knurled. 5

7. Fork with safety means for fitting continuous false ceilings according to claim 6, **characterized in that** the bell (1g) is integral with the upper wall (1a). 10

8. Fork with safety means for fitting continuous false ceilings according to claims 1 and 3, **characterized in that** it is provided that the tie (3) side walls (3b) be welded to the fork (1) side walls (1b) after insertion of the clamp (4) side tongues (4f) in the respective vertical guides (1e) of the fork (1). 15

20

25

30

35

40

45

50

55

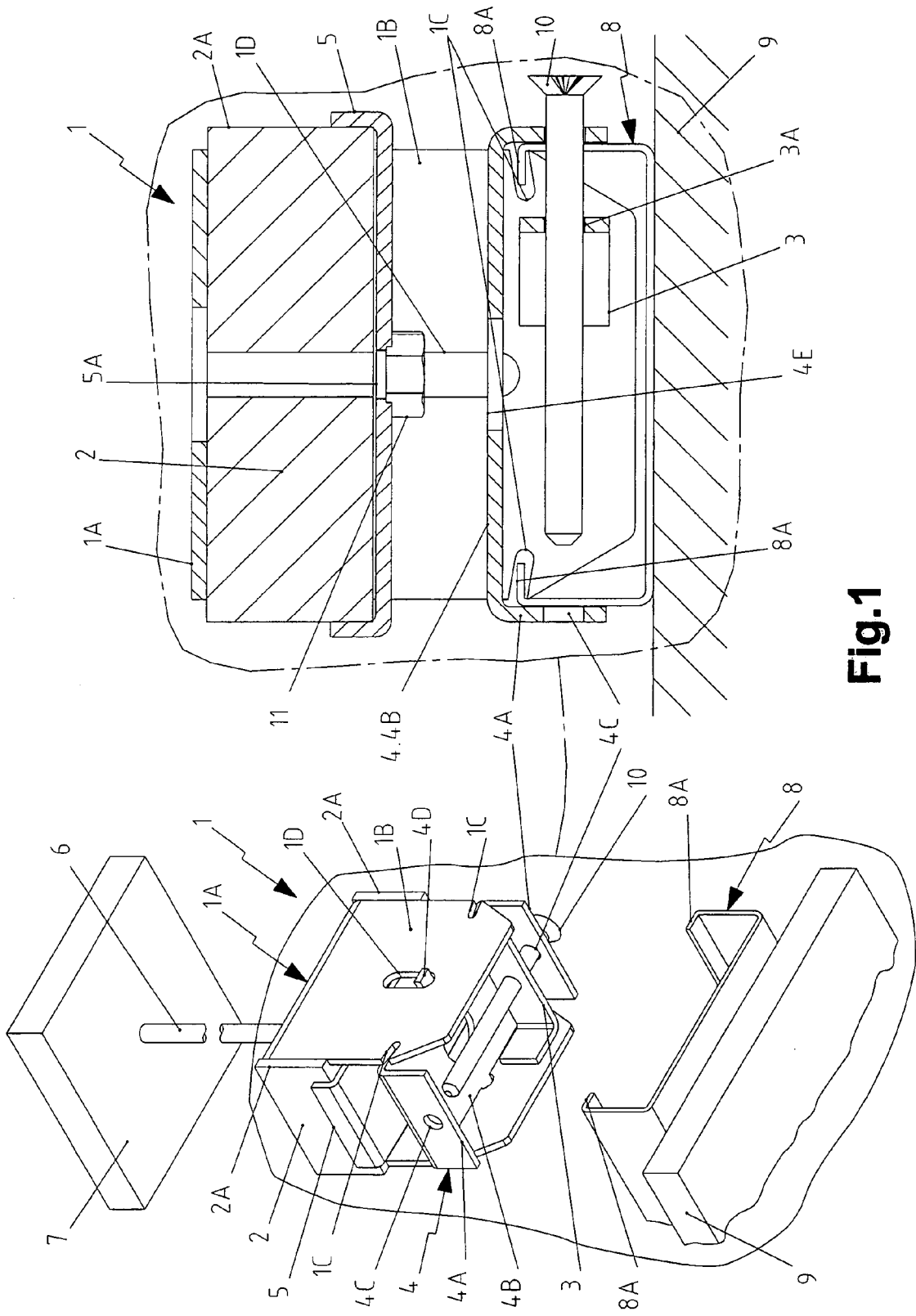


Fig.1

Fig.2

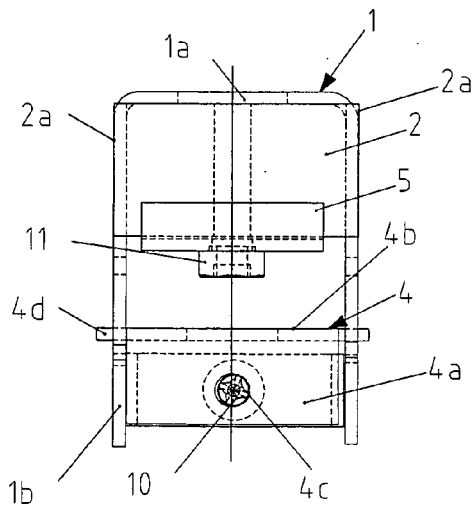
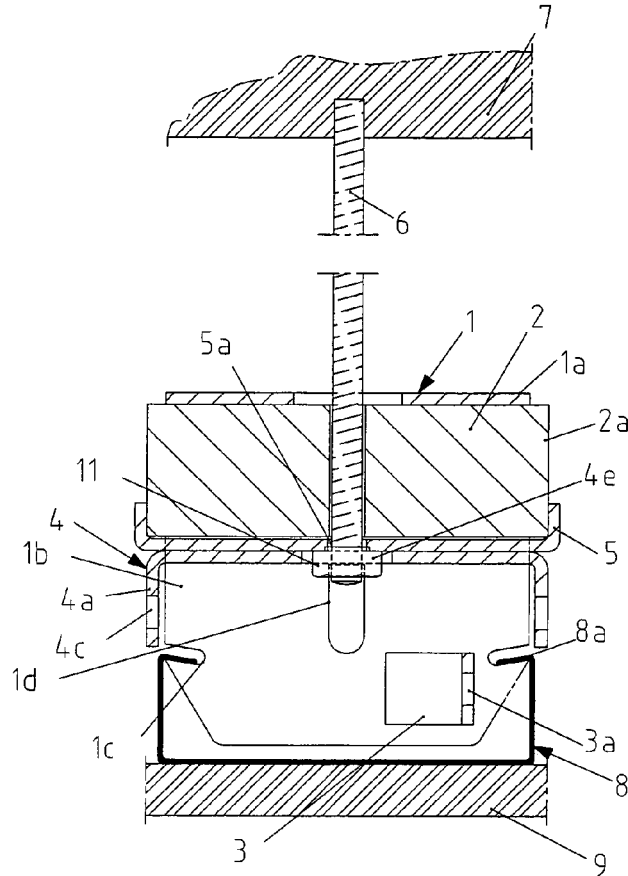


Fig.3

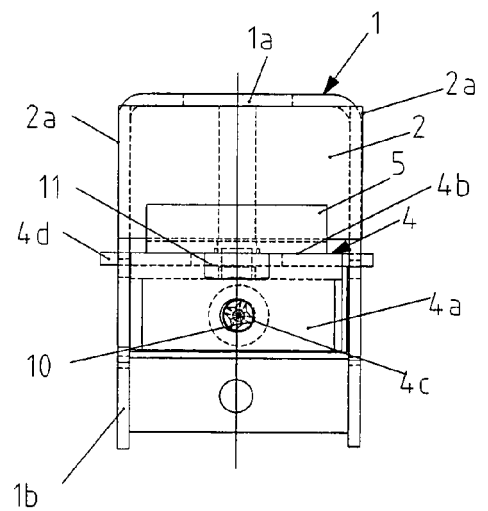


Fig.4

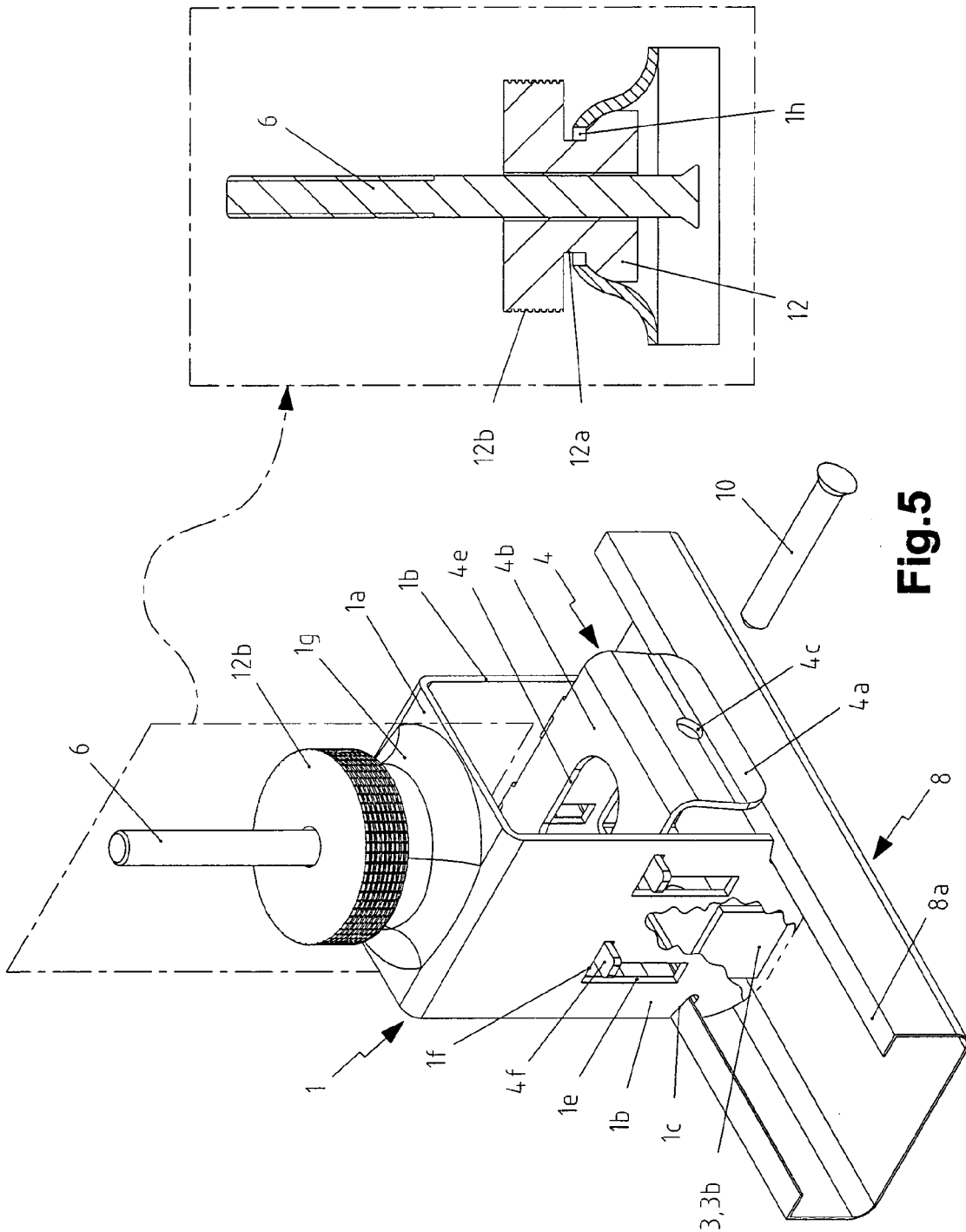
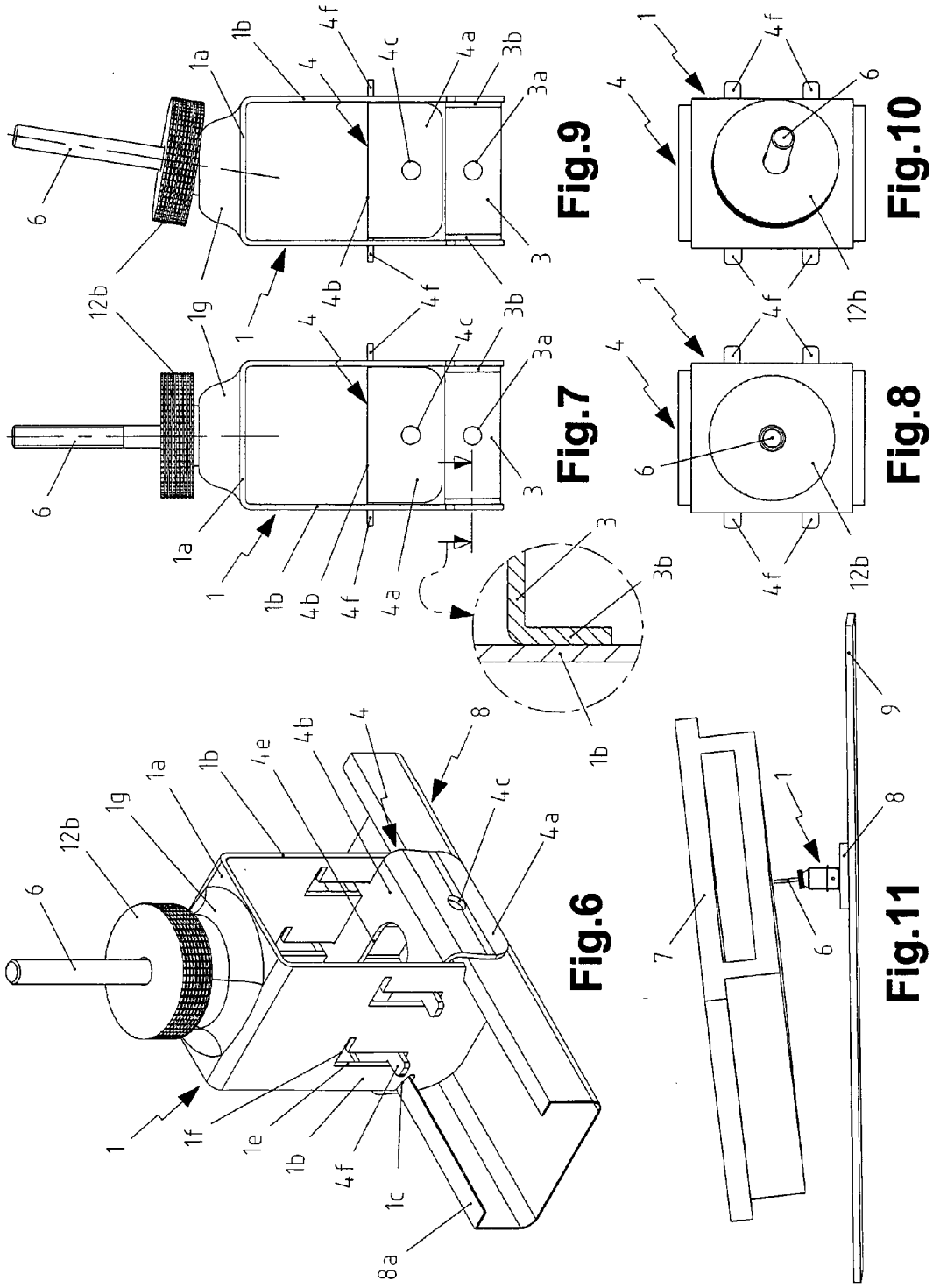


Fig.5



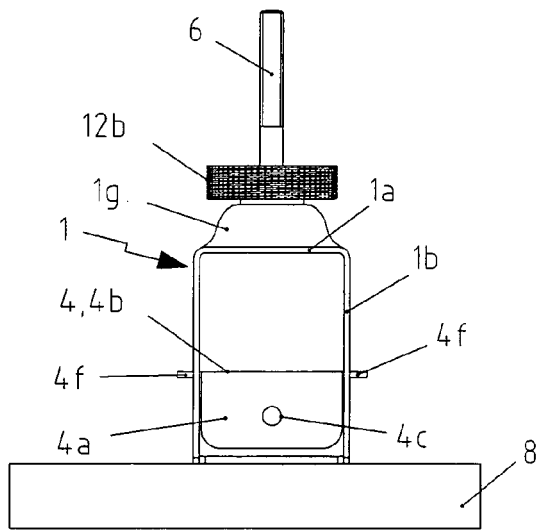


Fig.12

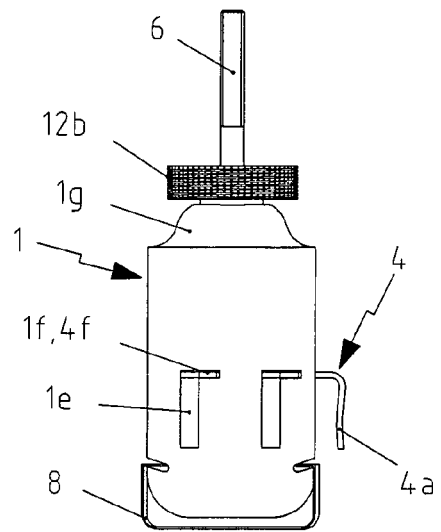


Fig.13

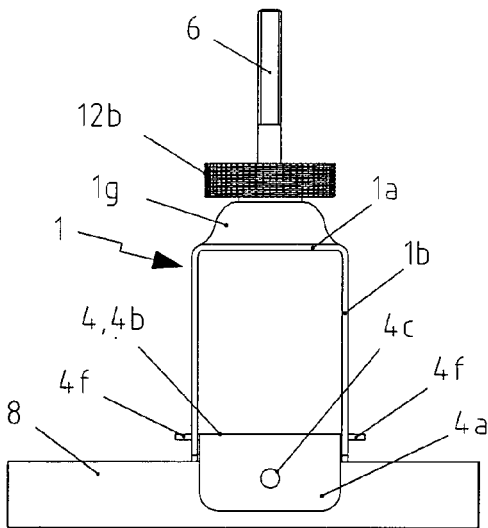


Fig.14

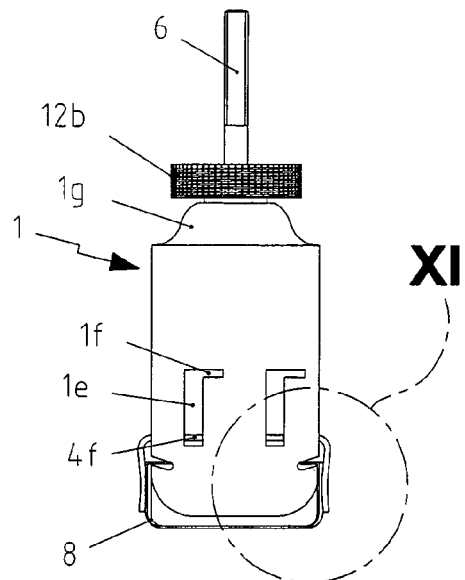


Fig.15

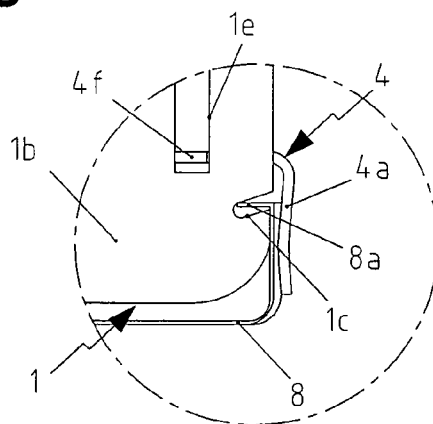


Fig.15A

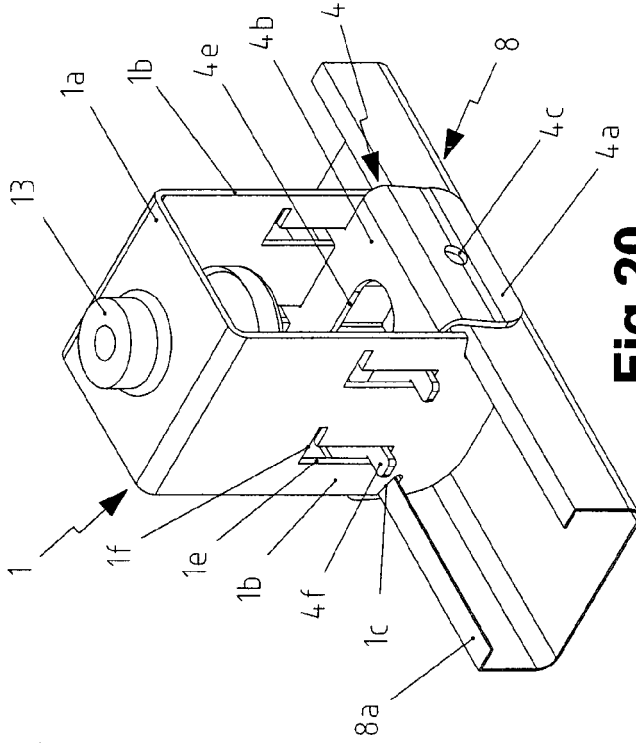


Fig. 20

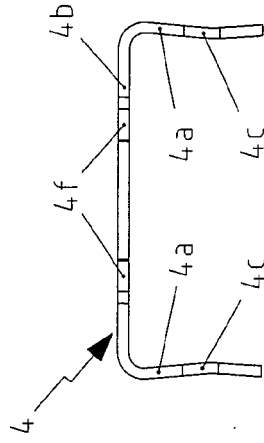


Fig. 19

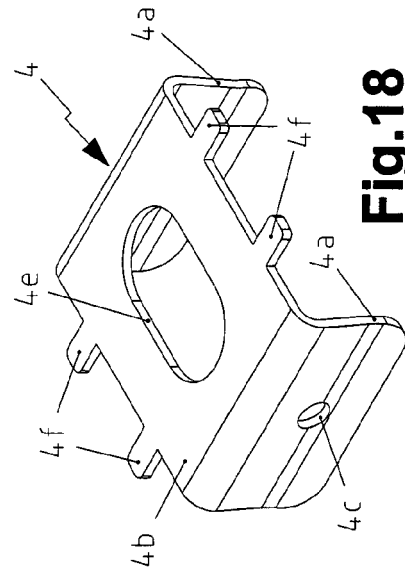


Fig. 18

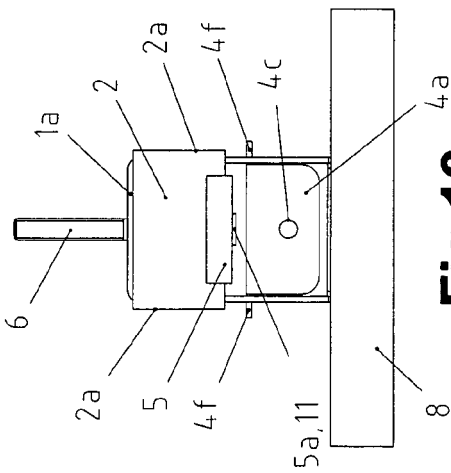


Fig. 16

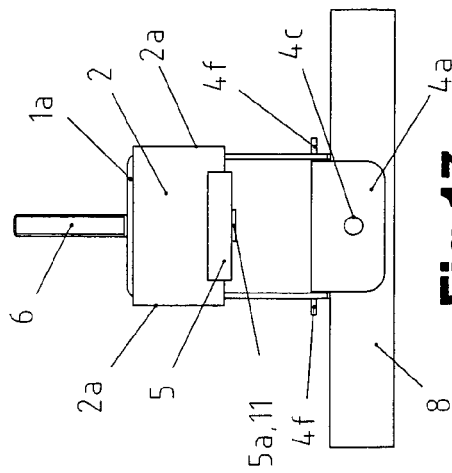


Fig. 17

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 U200001684 [0006]
- ES P200402817 [0007]