US 20120326586A1

(19) **United States**

(12) **Patent Application Publication**

HAEMMERLE

(10) **Pub. No.: US 2012/0326586 A1**

(43) **Pub. Date: Dec. 27, 2012**

(54) **LOCKABLE PULL-OUT GUIDE**

(76) Inventor: **Hermann HAEMMERLE**, Lustenau (AT)

(21) Appl. No.: **13/561,351**

(22) Filed: **Jul. 30, 2012**

Related U.S. Application Data

(63) Continuation of application No. PCT/AT2011/000060, filed on Feb. 3, 2011.

(30) **Foreign Application Priority Data**

Feb. 3, 2010 (AT) ..... A 143/2010

Publication Classification

(51) **Int. Cl.**
A47B 88/16 (2006.01)

(52) **U.S. Cl.** **312/334.44**

(57) **ABSTRACT**

An arrangement includes a drawer and a pull-out guide for the drawer. The drawer has a drawer container and a front panel that can be connected to the drawer container, and the pull-out guide has at least one body rail for fastening to a furniture body and at least one drawer rail, which can be moved relative to the body rail between an open position and a closed position and on which the drawer can be fastened to the pull-out guide. The arrangement also includes a releasable locking element so that, in a locking position, the motion of the drawer rail in the closing direction relative to the body rail can be stopped in an intermediate position before the closed position is reached, and, in a release position, the motion of the drawer rail in the closing direction relative to the body rail can be released.

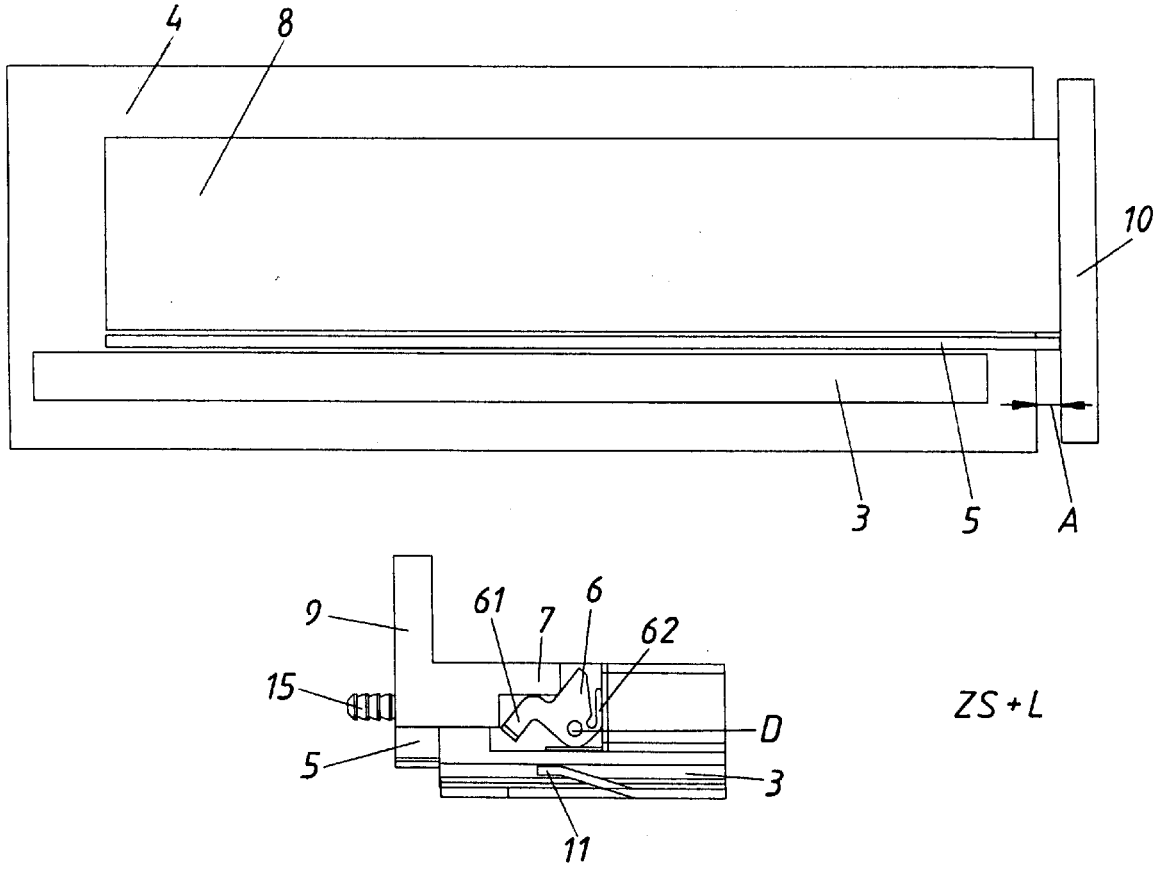


Fig. 1

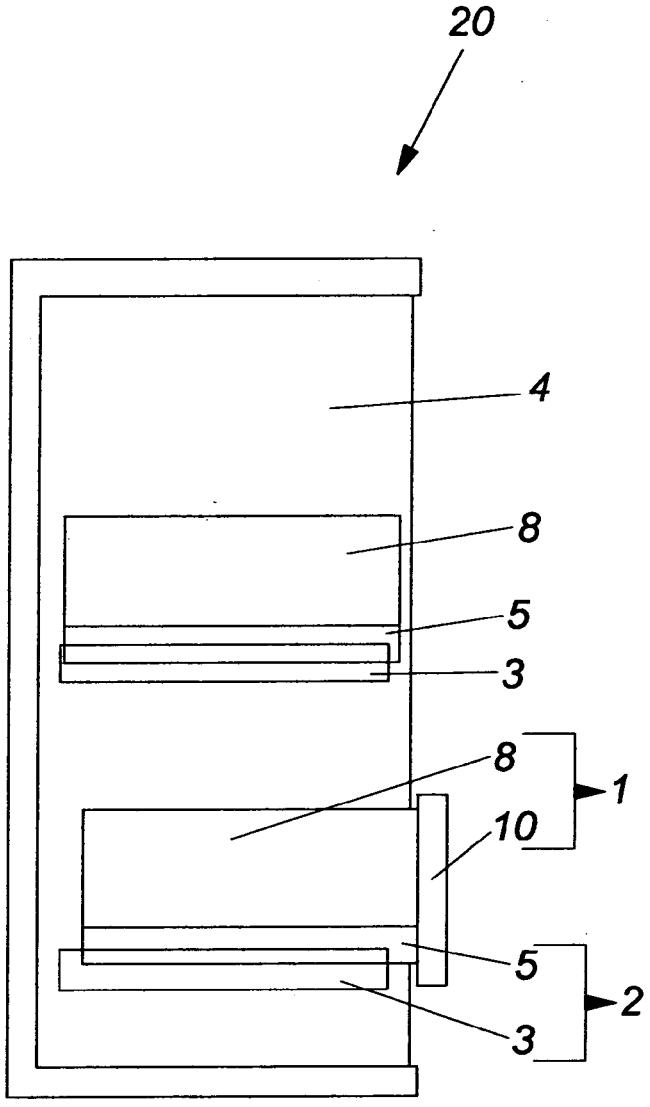


Fig. 1a

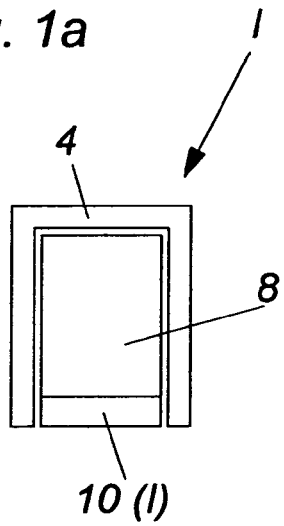


Fig. 1b

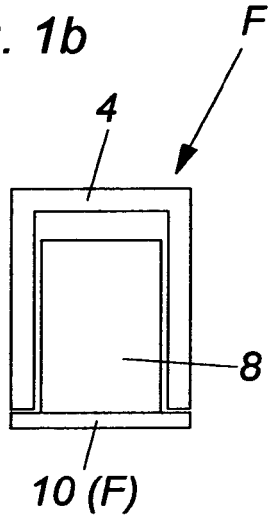


Fig. 2

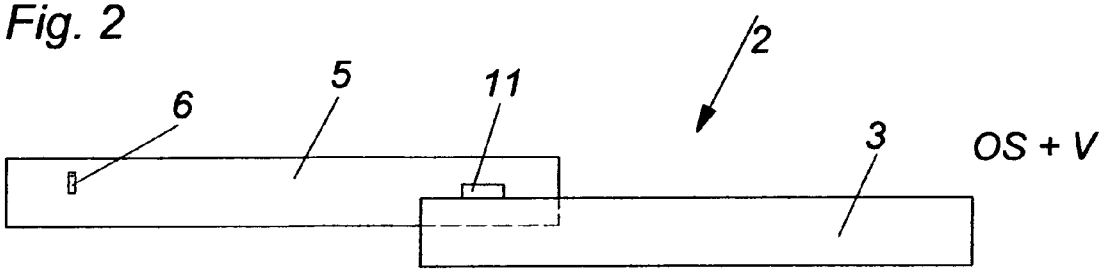


Fig. 3

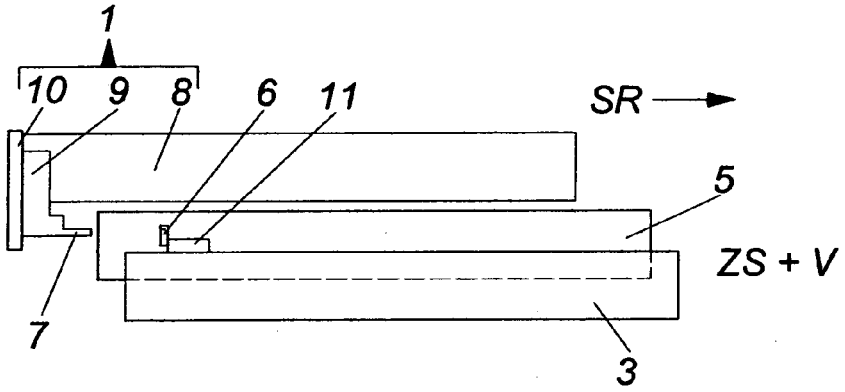


Fig. 4

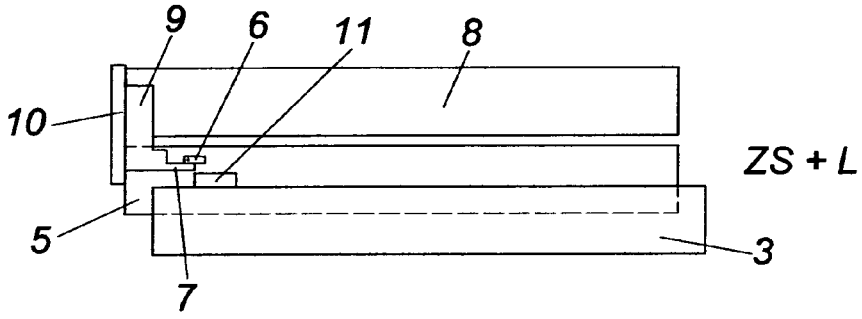
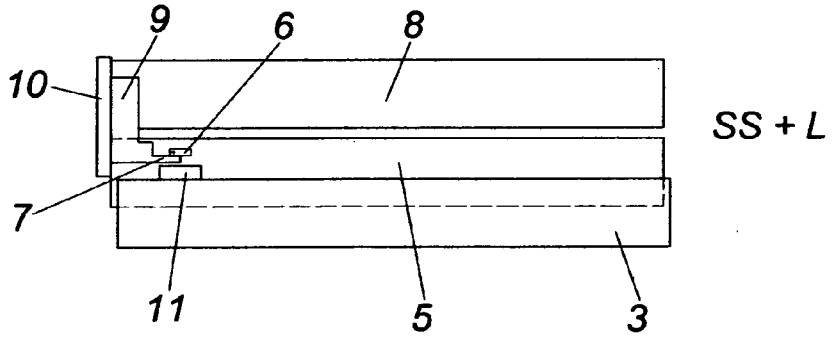


Fig. 5



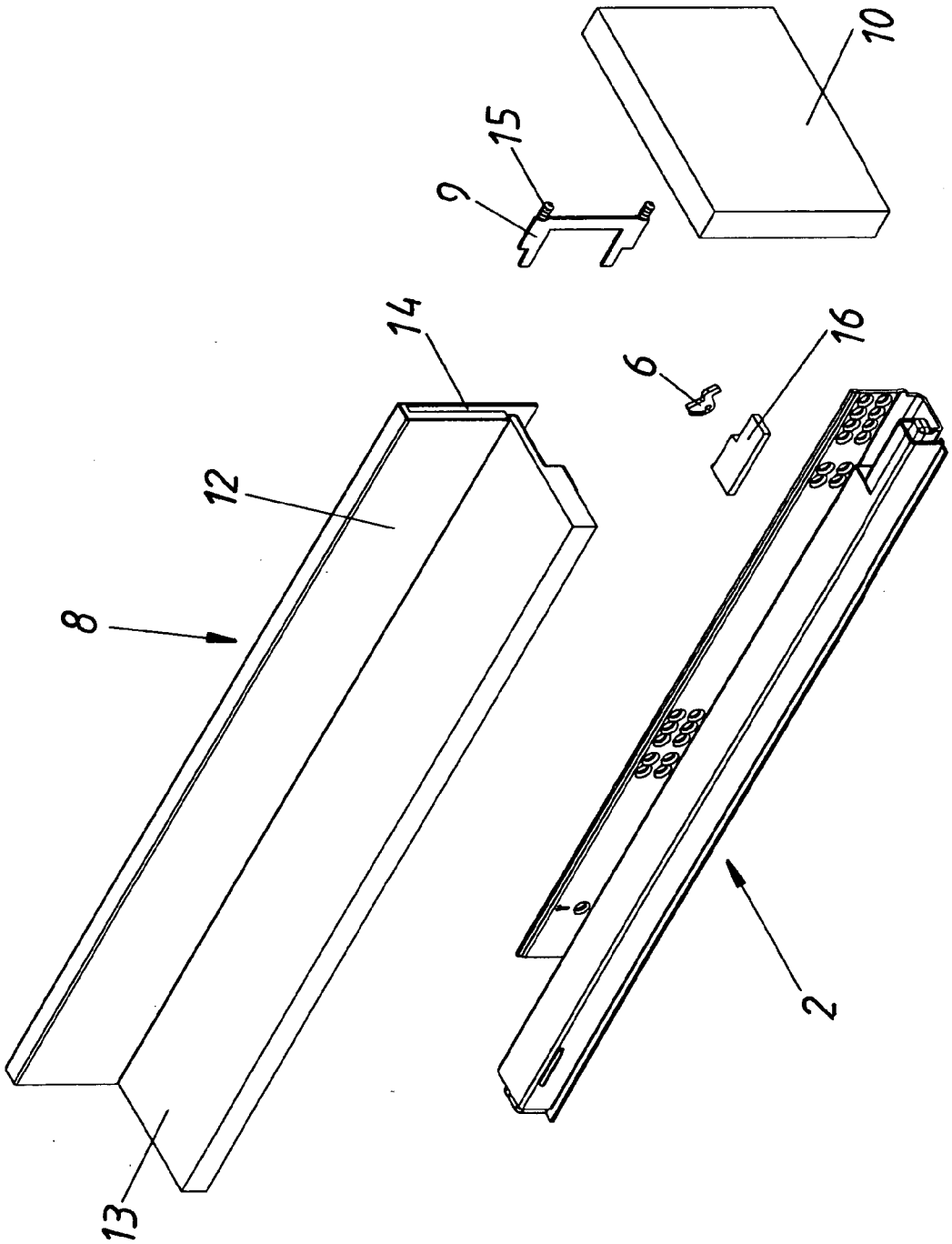


Fig.6

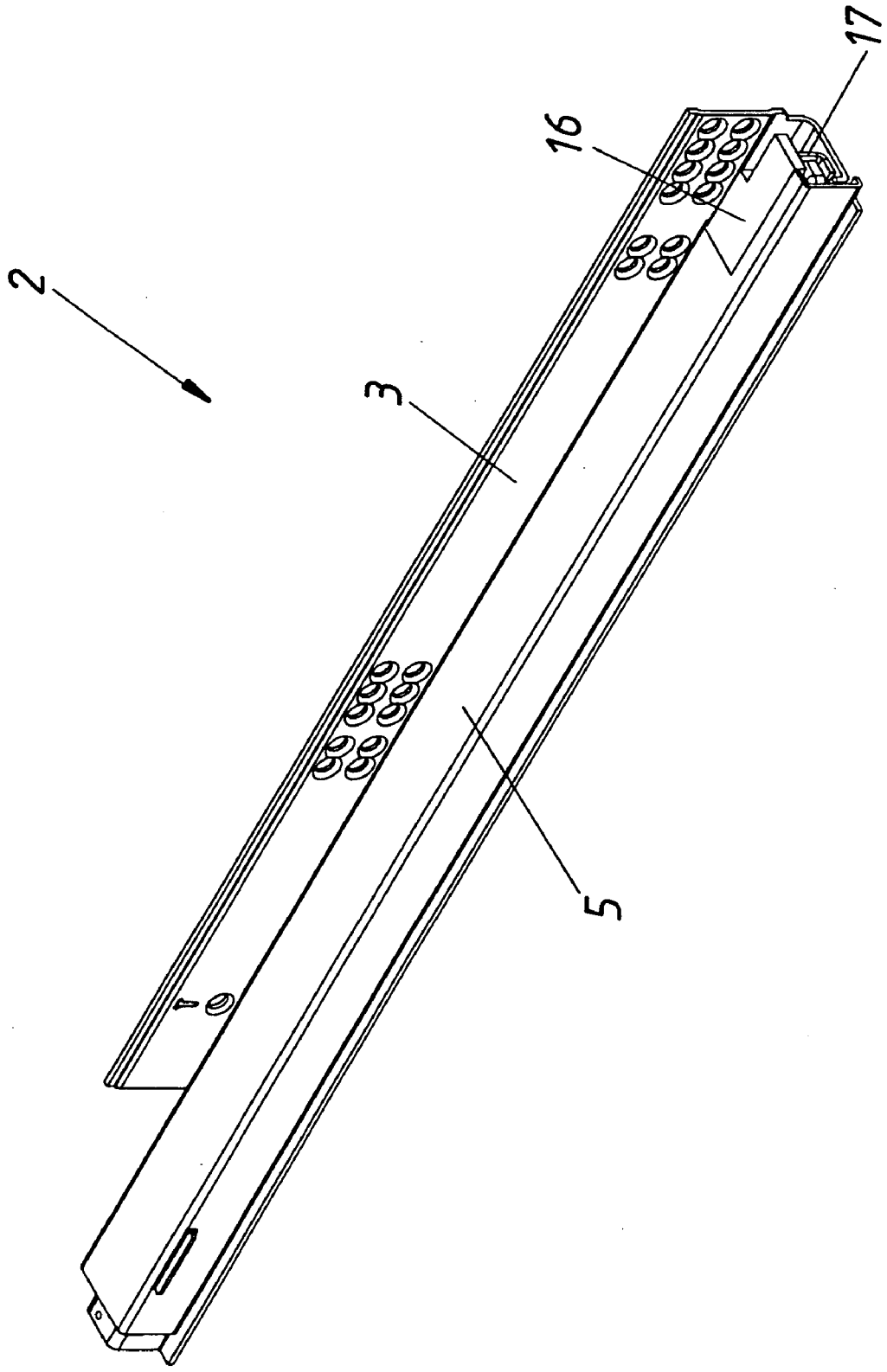
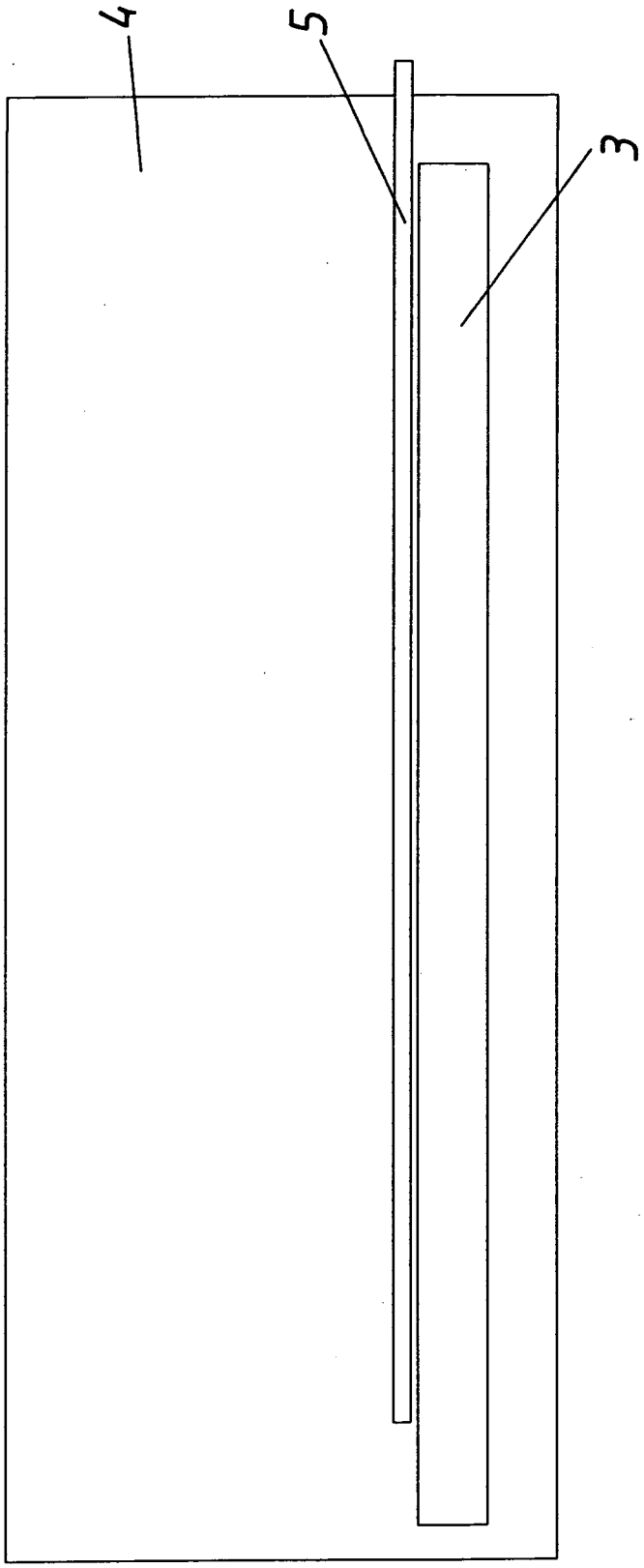


Fig. 7



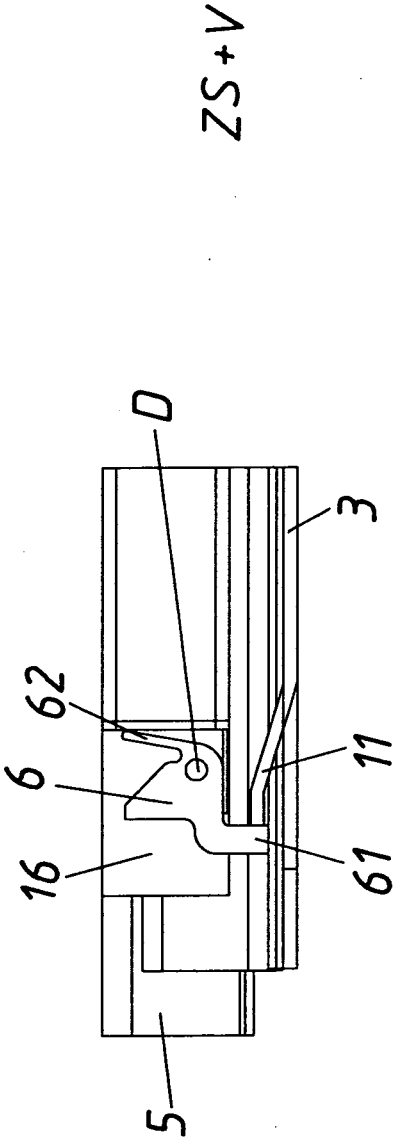


Fig.8

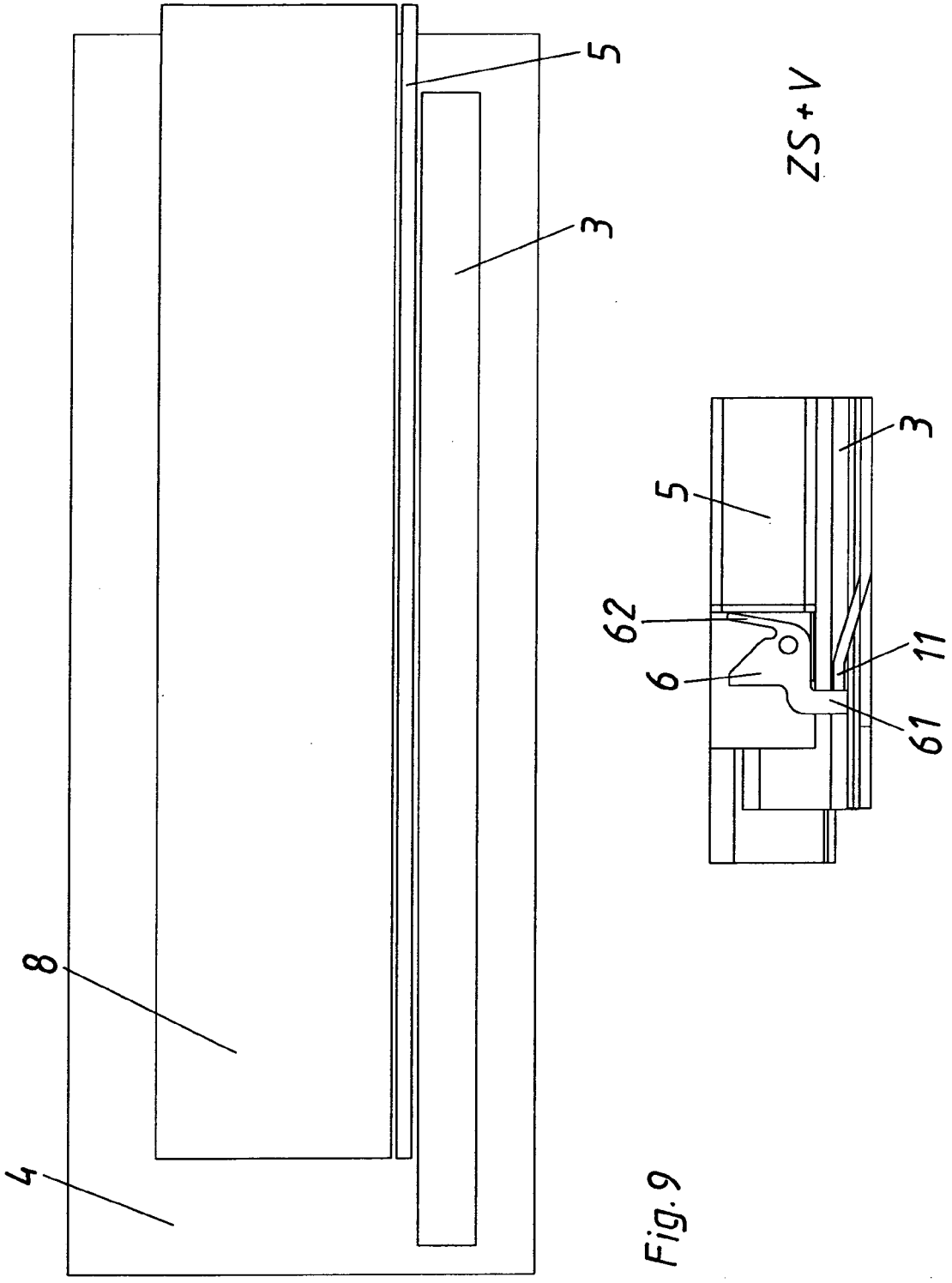


Fig. 9

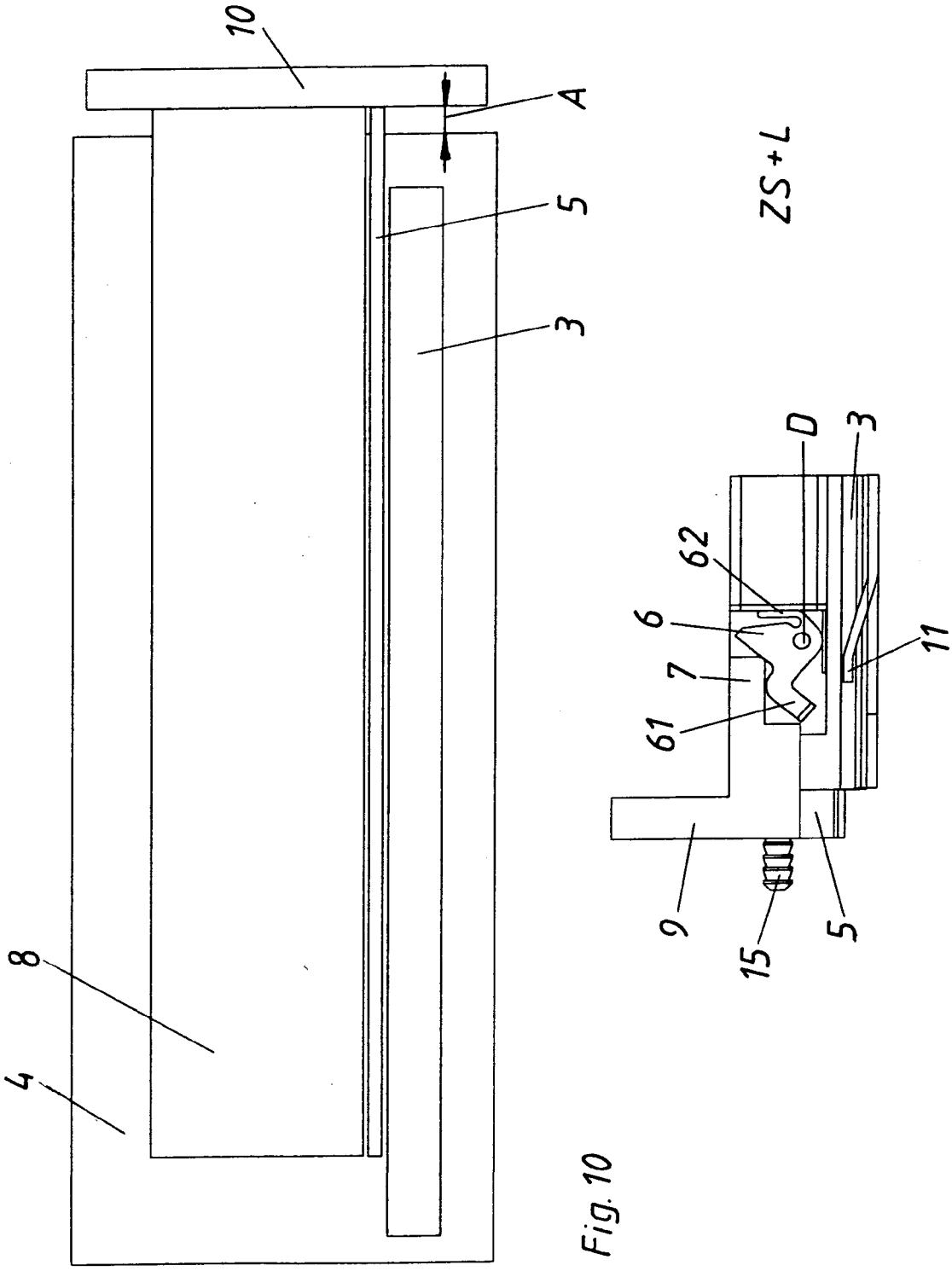


Fig. 10

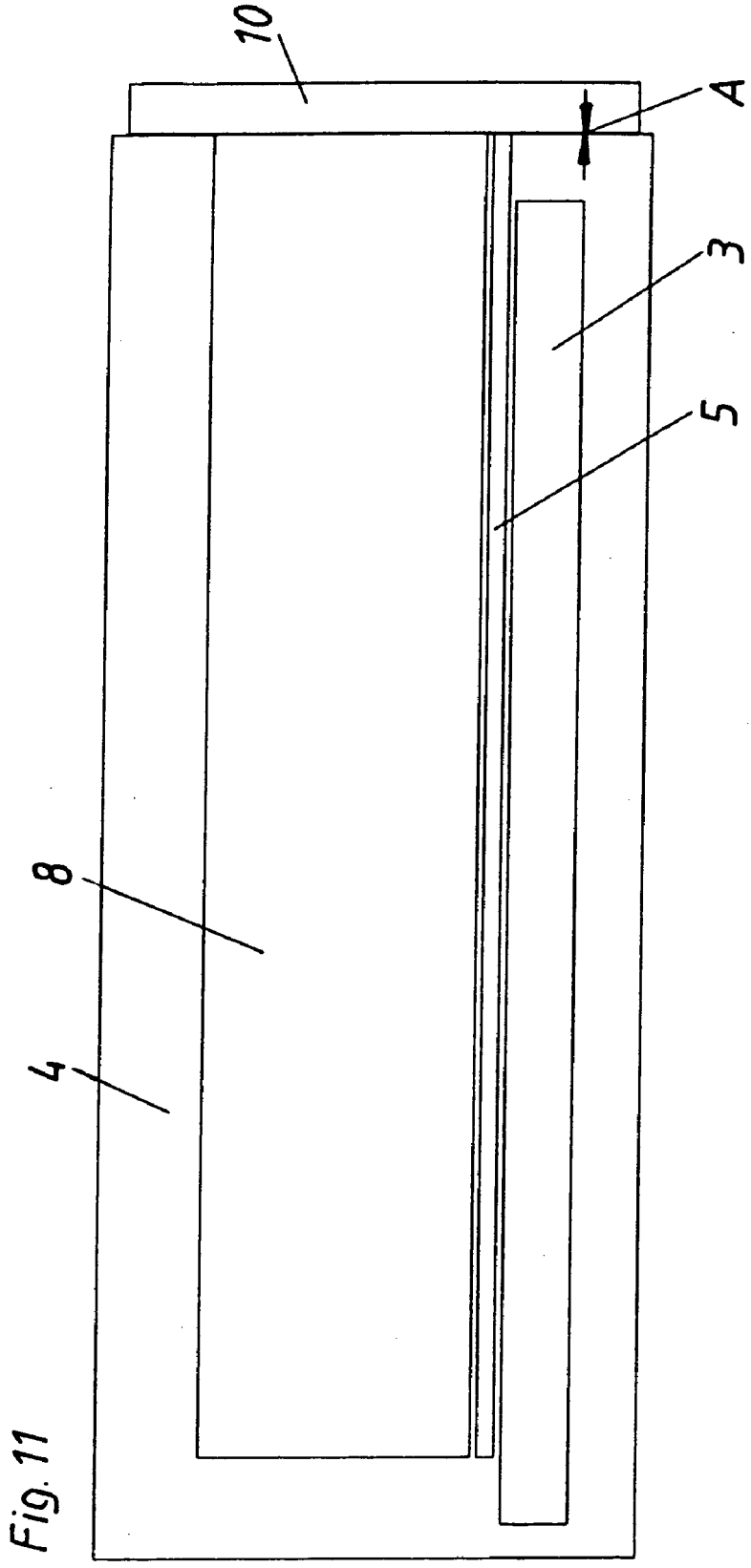


Fig. 11

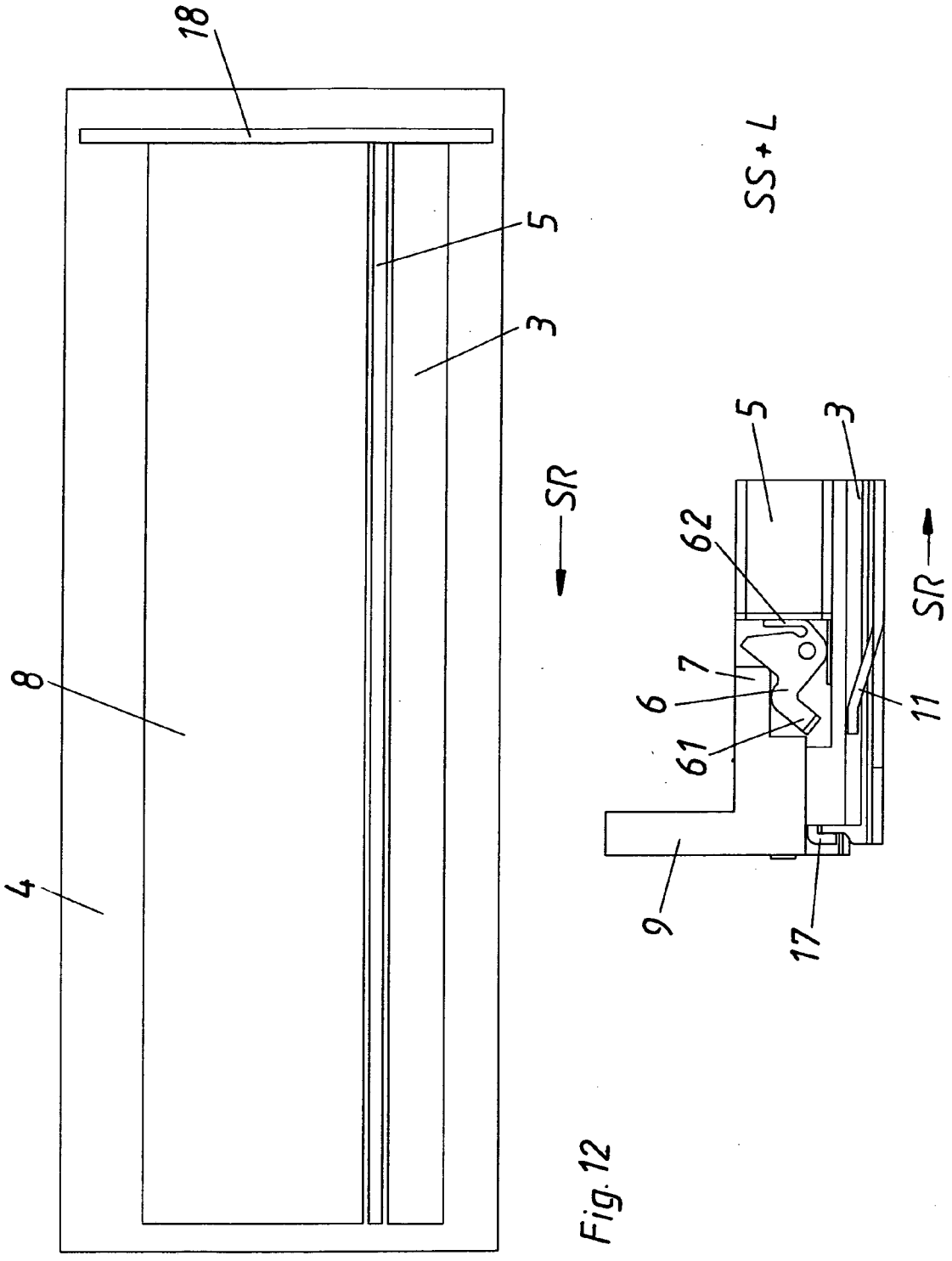


Fig. 12

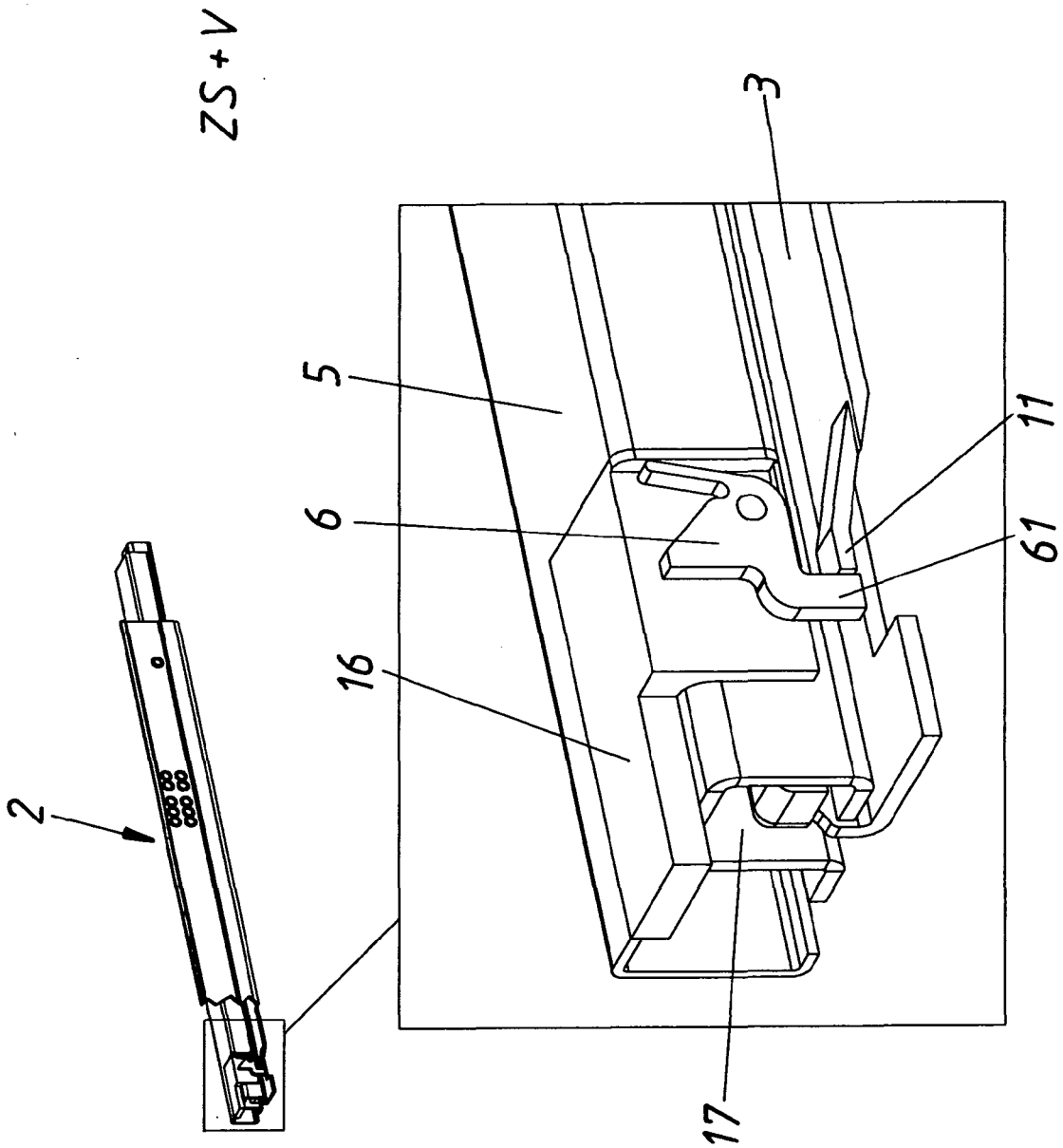


Fig. 13

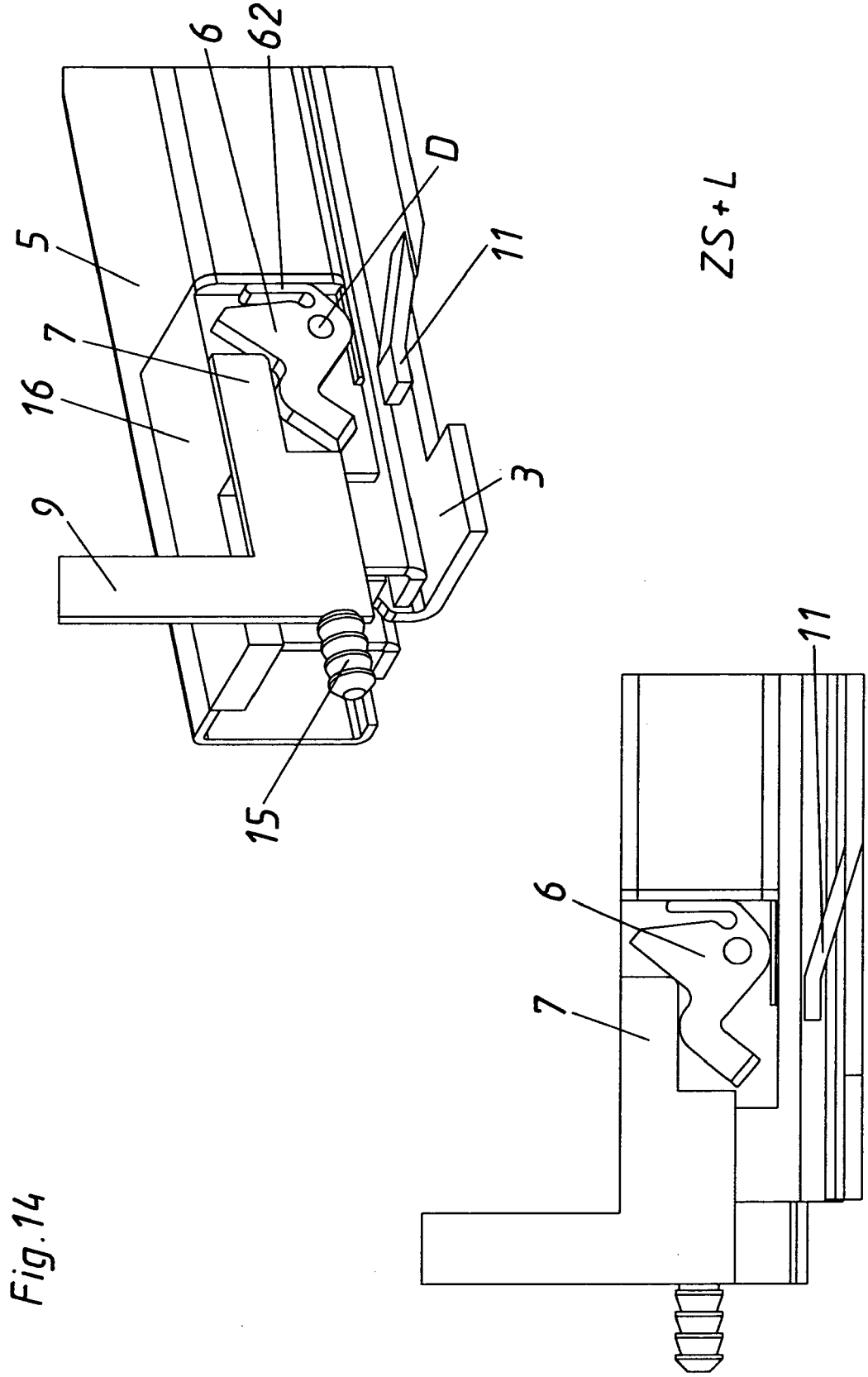


Fig.14

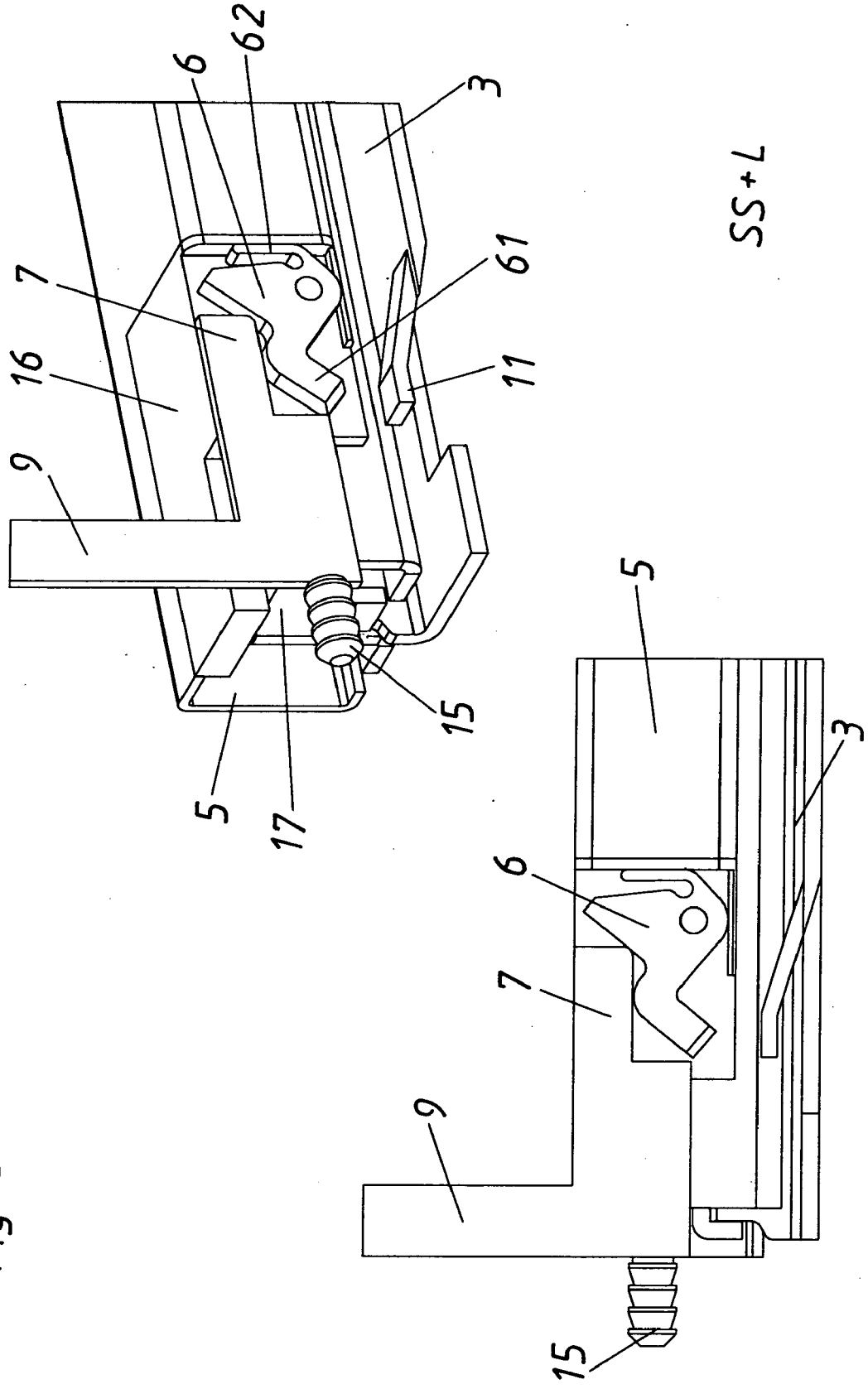


Fig. 15

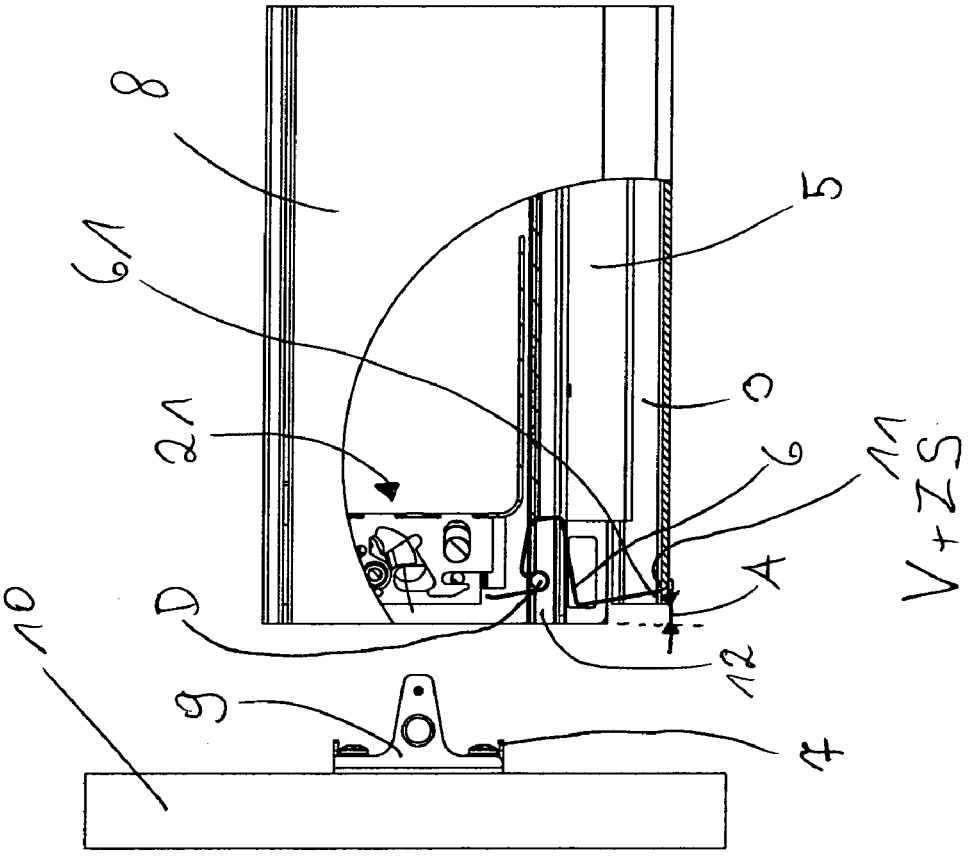


Fig. 16

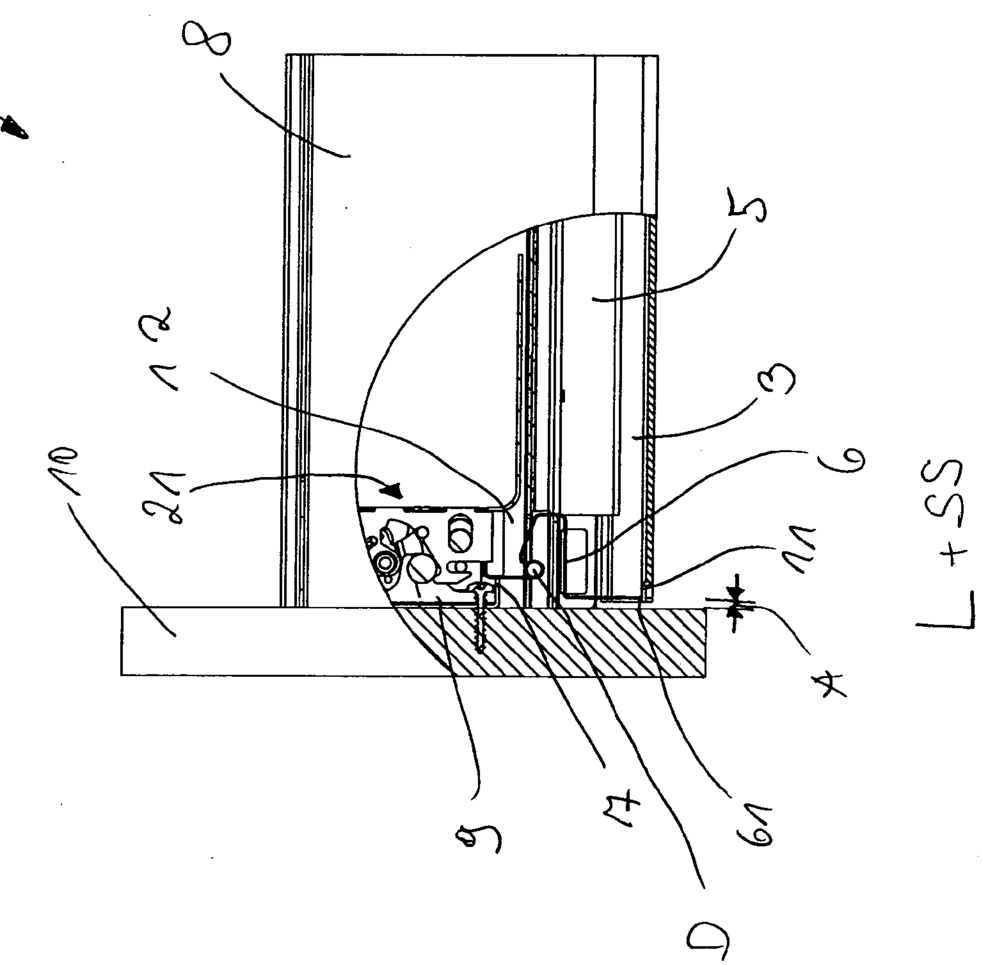


Fig. 17

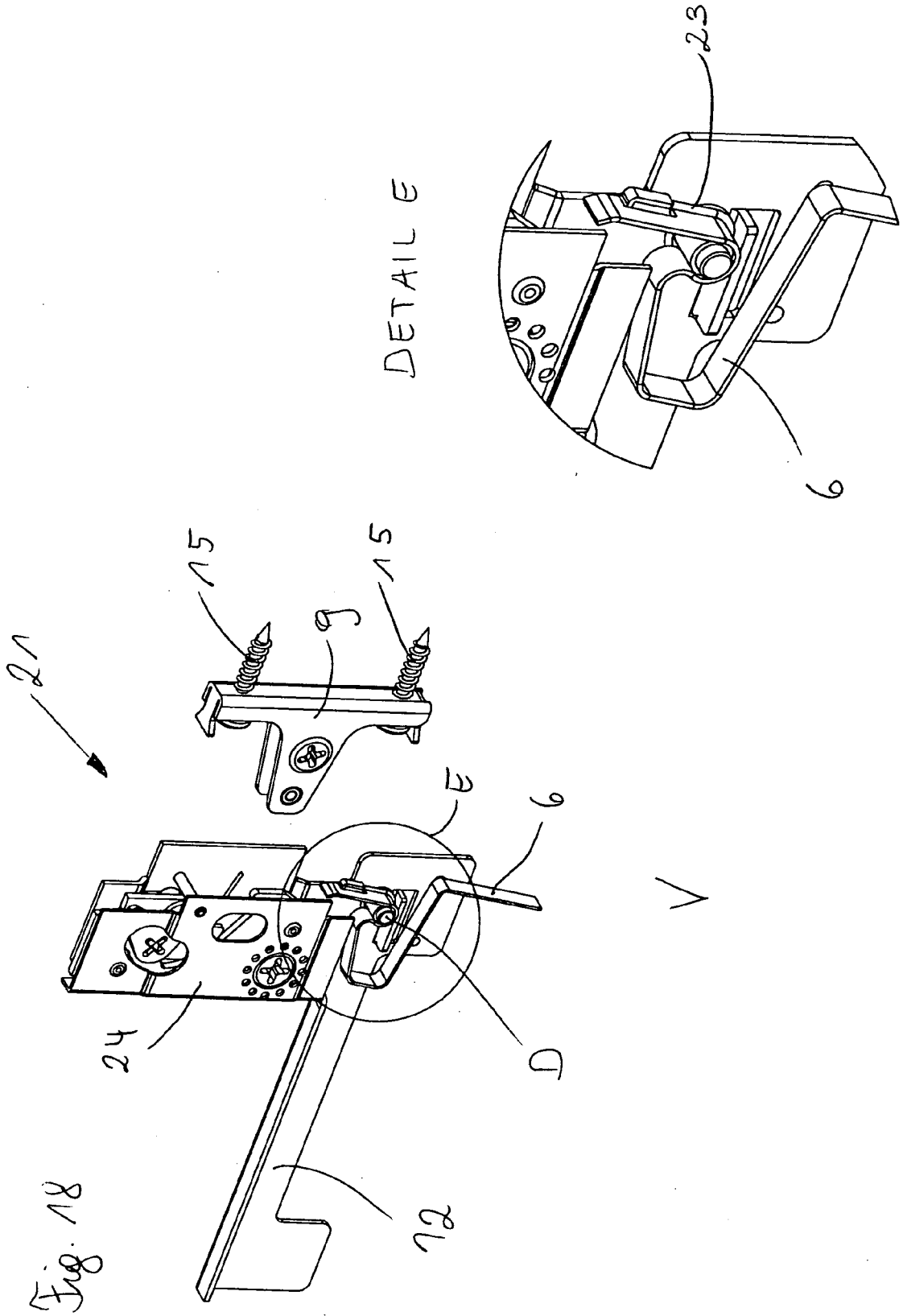
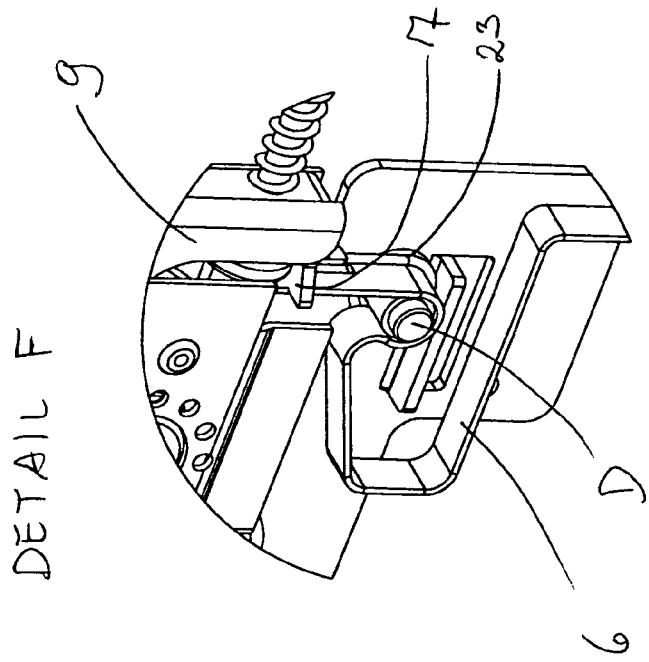


Fig. 18



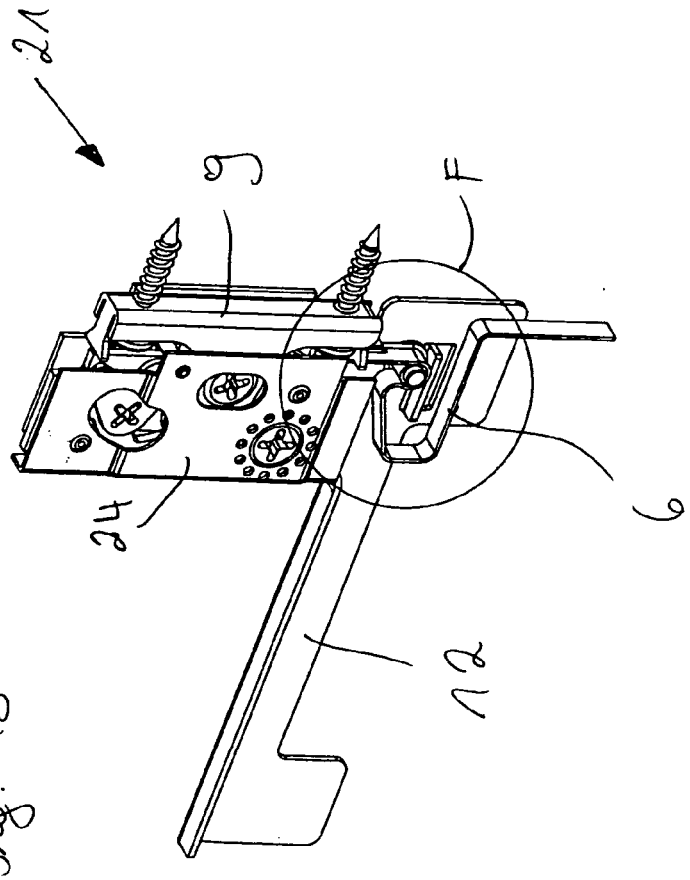


Fig. 19

LOCKABLE PULL-OUT GUIDE

[0001] The invention concerns an arrangement comprising a drawer and an extension guide for the drawer, wherein the drawer has a drawer container and a front panel which can be connected to the drawer container and wherein the extension guide has at least one carcass rail for fixing to a furniture carcass and at least one drawer rail which is moveable relative to the carcass rail between an open position and a closed position and to which the drawer can be fixed with the extension guide, and a releasable locking element by which in a locking position the movement of the drawer rail in the closing direction relative to the carcass rail can be stopped in an intermediate position before reaching the closed position and in a release position the movement of the drawer rail in the closing direction relative to the carcass rail is enabled until reaching the closed position, and an article of furniture having a furniture carcass and such an arrangement.

[0002] In the case of extension guides the drawer rail and the carcass rail in the non-mounted condition are movable relative to each other from a completely open position to a completely closed position. The same applies if such an extension guide is mounted at both sides by way of a carcass rail in a furniture carcass. Fitting or fixing a drawer on the extension guide is possible in the mounted condition of the extension guide, even if the drawer rail is in the closed position relative to the carcass rail—and is thus entirely inward. When inserting the drawer into the extension guide poor accessibility to the drawer rail which is disposed entirely rearwardly or inwardly can lead to problems. Even worse are the problems if the drawer is already inserted and a front panel of a front pull-out arrangement is to be mounted to the drawer container as the front panel butts against the furniture carcass before it in any way moves into a position sufficiently close to the drawer container.

[0003] Such an arrangement is also already known from AT 384 535 B, in which a locking element in the form of a pawl inhibits the movement of the rails relative to each other. In that patent it will be noted that the locking element serves only for making it easier to fit the drawer to the extension guide as the drawer rail cannot reciprocate unimpededly between the open and closed positions.

[0004] In addition DE 33 26 400 A1 shows a drawer mounted on telescopic rails, wherein the movement between the telescopic rails is checked by a lock. In this specification also that lock can only be released by hand. There is not a functional connection in respect of releasing the lock with the fitment of a drawer. The lock serves in particular to lock the inserts mounted on the telescopic rails in a given position, in particular when the telescopic rails are fully pulled out.

[0005] U.S. Pat. No. 4,274,689 discloses a locking element for checking the movement between rails of an extension guide. That locking element serves in particular to provide that the drawer cannot be simply removed in the completely open position as the stop element butts in a recess in the carcass rail. It is only by manual actuation of the member that the arresting position can be released and then the drawer together with the drawer rail can be lifted away from the carcass rail.

[0006] Therefore the object of the invention is to facilitate fitment of the drawer to the extension guide or fitment of the front panel to the drawer container. In particular the invention seeks to provide that in the mounted condition of the extension guide the drawer rail can be easily reached so that fitment of the drawer or fitment of the front panels to the drawer container is possible without any problem.

[0007] That object is attained in conjunction with the feature of the classifying portion of claim **1** by a release element, wherein the locking element can be automatically unlocked by the release element either when the drawer is fixed to the drawer rail or when the front panel is mounted to the drawer container which is already fixed to the drawer rail. In that way it is only when the drawer is fitted to the drawer rail or when the front panel is fitted to the container that automatic unlocking of the movement check as between the drawer rail and carcass rail is effected.

[0008] In principle—to explain the mutually alternative features of the characterising portion of claim **1**—two variants are involved on assembling drawers and when mounting a drawer to an extension guide:

[0009] A first variant accordingly provides that a complete four-sided drawer (rear wall, two side walls and front panel) is already fixedly and finally assembled and that assembled drawer is then fitted on the drawer rail. With that fitment operation, the check on movement between drawer rail and carcass rail is then suitably released so that the drawer rail can move into the completely closed position.

[0010] It will be noted however in accordance with a second variant that it can also be provided that the drawer is not connected in one piece to the extension guide. Rather an initially three-sided drawer (rear wall and two side walls) can be fixed to the "forward looking" drawer rail, in which case the movement check as between the drawer rail and the carcass rail is not yet unlocked. It is only with fitment of the front panel to the rest of the drawer, that is already fixed to the drawer rail, that unlocking of the locking element is effected by the release element and the drawer can be moved into the closed position.

[0011] Prior to unlocking the drawer rail cannot reciprocate unimpededly between the open and closed position on the carcass rail but is prevented from enjoying complete freedom of movement and is stopped at a given location. That means that, when inserting the drawer container or when fitting the front panel, the drawer rail cannot be moved completely rearwardly as far as the abutment, but rather is stopped further forwardly in an intermediate position in which attainable access is enjoyed and thus the drawer or the front panel respectively can be fixed in position without any problem.

[0012] When the extension guides are mounted to a furniture carcass it is often not yet possible to foresee what kinds of drawers are fitted. Particularly when it is not yet known what kind of front panel the drawer has, the maximum closed position of the drawer rail relative to the carcass rail, that is possible during use, is not yet known. If more specifically the front panel is in the form of a front pull-out arrangement, the drawer rail in the operative condition cannot in any way pass into the absolutely closed position as the front panel of the front pull-out arrangement already previously butts against the furniture carcass. If however the front panel is intended for an internal pull-out arrangement, the drawer rail can pass completely into the closed position relative to the carcass rail. If now when fitting the front panel to the drawer container the drawer rail is completely in the closed position with the carcass rail the front panel cannot be in any way fitted to the drawer or to the drawer rail as it is already too far in the furniture carcass. For that reason in a preferred embodiment

of the invention it is provided that the closed position of the drawer rail corresponds to a completely closed drawer and that position of the drawer rail, in which it is lockable with respect to the carcass rail by way of the locking element is just before, preferably between 1 mm and 20 mm before, the closed position.

[0013] In a further preferred embodiment a release element can be arranged on the drawer.

[0014] As already stated the drawer can have a drawer container and a front panel which can be connected to the drawer container by way of a connecting element, wherein in accordance with a quite particularly preferred embodiment the release element can be arranged on the front panel or the connecting element. In that way, it is only when mounting the front panel to the drawer container that is already fixed to the drawer rail, that the locking action is released, and it is only then that the drawer rail can move from the previously locked intermediate position into the closed position. In that way fitment of the front panel is always possible independently of the type of front panel, on the extension guide which is already fitted in place in the furniture carcass. It is only by virtue of the fitting procedure that the locking action is released.

[0015] It can further preferably be provided that the locking element is arranged—movably between a locked position and a released position—on the extension guide, preferably on its drawer rail and has an abutment extension, by way of which the locking element butts in the locked position against a limiting extension of the extension guide, preferably on the carcass rail, and stops the closing movement of the drawer rail relative to the carcass rail. It should not be out of the question that this limiting extension can also be provided on the furniture carcass itself or the locking element acts for example between the drawer container and the carcass rail. In that respect it could be provided for example that the drawer container mounted to the drawer rail without a front panel can never in any way pass into the completely closed position due to the locking element. It is only after fitment of the front panel that that locking action could be removed.

[0016] In general there can be provided two alternative embodiments of the present invention, whereby either the release element butts against the locking element when fixing the drawer to the drawer rail and moves same from the locked position into the released position, or the release element butts against the locking element when connecting the front panel to the drawer container by way of the connecting element and moves same from the locked position into the released position. At any event the second variant is preferred.

[0017] In a further preferred variant it can be provided that the locking element is mounted pivotably to the drawer rail and has a spring acting on the drawer rail, preferably a leg spring, wherein upon unlocking the release element pivots the locking element together with its abutment extension into the released position against the spring force of the spring.

[0018] If the locking element together with abutment extension and spring is in the form of a plastic part which is injection-molded in one piece manufacture is particularly simple and also fitment to the extension guide can be effected in a relatively uncomplicated procedure.

[0019] Protection is also claimed for an article of furniture comprising a furniture carcass and an arrangement as set forth in one of claims **1** through **9**.

[0020] Further details and advantages of the present invention are described by means of the specific description with reference to the embodiments by way of example illustrated in the drawings in which:

[0021] FIG. **1** shows a diagrammatic view of an article of furniture together with extension guides and drawer,

[0022] FIG. **1***a* diagrammatically shows an internal pull-out arrangement from above,

[0023] FIG. **1***b* diagrammatically shows a front pull-out arrangement from above,

[0024] FIGS. **2** through **5** show the procedure when fitting a drawer to the extension guide,

[0025] FIG. **6** shows an exploded view of parts of the drawer and the extension guide,

[0026] FIG. **7** shows an extension guide,

[0027] FIGS. **8** through **12** show diagrammatic views of the position of the rails relative to each other and the respective position of the locking element,

[0028] FIGS. **13** through **15** show 3D and side views of the extension guides in the region of the locking element, and

[0029] FIGS. **16** through **19** shows views of an alternative embodiment of the locking element.

[0030] FIG. **1** shows an article of furniture **20**, an extension guide **2** being mounted to the furniture carcass **4** in the upper region. Of that extension guide **2** the carcass rail **3** is mounted to the furniture carcass **4**. The drawer rail **5** is displaceably mounted on the carcass rail **3**, the extension guide **2** being shown here in the closed position SS. It can already be seen that fitment of a front panel **10** to a drawer container **8** fixed to the drawer rail **5** is no longer possible as they are moved too far into the furniture carcass and the distance between the front panel **10** and the drawer container **8** is too large. That can be seen in particular also from FIG. **1***a* showing an internal pull-out arrangement I. In that case the drawer container **8** and therewith the drawer rail **5** are already in the completely closed position SS in the furniture carcass **4**. Fitment of a front panel **10** for a front pull-out arrangement F would no longer be possible in that position SS as that front panel **10** (as in FIG. **1***b*) already butts against the furniture carcass **4** before reaching the closed position SS.

[0031] In that respect FIG. **2** shows how the parts of the extension guide **2** are disposed in relation to each other in the open position OS. The locking element **6** is arranged on the drawer rail **5**. The limiting extension **11** is disposed on the carcass rail **3**. The locking element **6** is shown in the locking position V.

[0032] FIG. **3** shows the drawer rail **5** in the intermediate position ZS relative to the carcass rail **3**, wherein the locking element **6** butts against the limiting extension **11** and allows no further movement in the closing direction SR. In that position ZS a drawer **1** comprising a drawer insert **8**, a front panel **10** and a connecting element **9** disposed therebetween can be fixed to the drawer rail **5** without any problem independently of the front panel type F or I.

[0033] When then as shown in FIG. **4** the drawer **1** has been fixed to the drawer rail **5** and the release element **7** of the connecting element **9** has moved the locking element **6** into the release position L the complete movement in the closing direction SR until the closed position SS is reached can be continued (FIG. **5**). Locking of the drawer **1** to the extension guide **2** can be effected by known latching or fixing devices.

[0034] FIG. **6** shows a portion of the drawer container **8** which substantially comprises a drawer frame structure **12** and a drawer bottom **13** comprising for example wood. Pro-

vided in the end region of the side wall of the drawer frame structure **12** is a receiving opening **14** in which the front panel **10** can be fixed by way of the connecting element **9**. The connecting element **9** is fixed in the front panel **10** by way of fixing extensions **15** (for example pegs). In addition FIG. **6** shows an extension guide **2** to which the locking element **6** can be mounted for example by way of a mounting insert **16**.

[0035] FIG. **7** shows the assembled extension guide **2** comprising a drawer rail **5**, a carcass rail **3** and the mounting insert **16** fitted to the drawer rail **5**. Depending on the respective design of the extension guide **2** there can also be a third rail (central rail **17**).

[0036] The position of the drawer rail **5** relative to the carcass rail **3** is diagrammatically shown in each case at the top in FIGS. **8**, **9**, **10** and **12**, with the closing direction SR pointing towards the left whereas the closing direction SR is towards the right in the respective lower views of the locking region.

[0037] FIG. **8** diagrammatically shows at the top the position of the drawer rail **5** relative to the carcass rail **3** in the intermediate position ZS, wherein the locking element **6** is in the locking position V as shown in the lower view. In that case the abutment extension **61** of the locking element **6** butts against the limiting extension **11** of the carcass rail **3**.

[0038] In FIG. **9** the drawer container **8** is then fixed to the drawer rail **5** which is in the intermediate position ZS.

[0039] In FIG. **10** the front panel **10** is mounted to the drawer container **8**, mounting being made possible by the spacing A in the intermediate position ZS between the end of the drawer container **8** and the furniture carcass **4**. If the drawer rail **5** were already completely in the closed position SS then the front panel **10** would already butt against the furniture carcass **4** before reaching the drawer container **8**. As can be seen in the view in the lower part of the Figure connecting the front panel **10** or its connecting element **9** to the drawer container **8** causes movement of the release element **7** against the locking element **6** whereby that locking element is rotated about the pivot point D against the force of the spring **62** which bears against the drawer rail **5**, whereby the abutment extension **61** can no longer butt against the limiting extension **11** and the locking element **6** thus moves into the release position L in that intermediate position ZS whereby the entire drawer rail **5** (see FIG. **12**) can be moved in the direction of the closed position SS.

[0040] In FIG. **11** the closed position between the drawer rail **5** and the carcass rail **3** has admittedly not yet been reached, but nonetheless there is already an end position for the drawer **1** by virtue of the front panel **10** butting against the furniture carcass **4**. In that case the end of the drawer container **8** and the front side of the furniture carcass **4** are substantially in the same vertical plane (the spacing A is minimal).

[0041] In comparison FIG. **12** shows when it is not a front panel **10** of a front pull-out arrangement F but an internal pull-out arrangement front panel **18**, that is mounted to the drawer container **8** of the drawer **1**. In this case a release element **7** can be provided in the same manner on the front panel **18** of the internal pull-out arrangement I.

[0042] FIGS. **13** through **15** show once again in 3D views and side views the region of the extension guide **2** in which the locking element **6** butts against the limiting extension **11** (FIG. **13**) or unlocking is effected by the release element **7** (FIG. **14**) and the closed position SS is reached after unlocking (FIG. **15**).

[0043] FIG. **16** shows a side view of a drawer **1** comprising a drawer container **8** and a front panel **10**. The drawer container **8** has a drawer frame structure **12** by way of which the drawer **1** is fixed to a drawer rail **5** of an extension guide **2**. A locking element **6** is fixed to the drawer frame structure **12** by way of a pivot point D in pin form and in the locking position V butts with an end formed by the abutment extension **61** against the carcass rail **3** and its limiting extension **11**. In that way the drawer rail **5** together with the drawer **1** fixed thereto is removed from the closed position SS by the spacing A and a further movement of the drawer **1** in the closing direction SR is checked. The locking position V can thus be determined by the locking element **6**.

[0044] In comparison FIG. **17** shows the release position L which is achieved by the front panel **10** together with the connecting element **9** fixed thereto (forms the front panel-side part of a front fitment **21**) being mounted to the drawer frame structure **12** (more specifically to the container-side part **24** of the front fitment **21**). In that case the release element **7** formed by an extension of the connecting element **9** butts against an end of the locking element **6** so that said locking element **6** rotates about the pivot point D against the force of a spring **23** and thus the other end (abutment extension **61**) of the locking element **61** is released from the limiting extension **11** of the carcass rail **3**. In that way the spacing A is minimized and the drawer rail **3** or the drawer **1** can move into the closed position SS.

[0045] FIGS. **18** and **19** with the details E and F respectively show perspective views of only the front fitment **21** in the locking position V and the release position L respectively.

1. An arrangement comprising a drawer and an extension guide for the drawer, wherein the drawer has a drawer container and a front panel which can be connected to the drawer container and wherein the extension guide has at least one carcass rail for fixing to a furniture carcass and at least one drawer rail which is movable relative to the carcass rail between an open position and a closed position and to which the drawer can be fixed with the extension guide, and a releasable locking element by which in a locking position the movement of the drawer rail in the closing direction relative to the carcass rail can be stopped in an intermediate position before reaching the closed position and in a release position the movement of the drawer rail in the closing direction relative to the carcass rail is enabled until reaching the closed position, characterised by a release element, wherein the locking element can be automatically unlocked by the release element either when the drawer is fixed to the drawer rail or when the front panel is mounted to the drawer container which is already fixed to the drawer rail.

2. An arrangement as set forth in claim **1**, wherein the closed position of the drawer rail corresponds to a completely closed drawer and that position of the drawer rail, in which it is lockable with respect to the carcass rail by way of the locking element is just before, preferably between 1 mm and 10 mm before, the closed position.

3. An arrangement as set forth in claim **1**, wherein the release element is arranged on the drawer.

4. An arrangement as set forth in claim **3**, wherein the drawer container can be connected to the front panel by way of a connecting element, the release element being arranged at the front panel or the connecting element.

5. An arrangement as set forth in claim **1**, wherein the locking element is mounted to the drawer, preferably at the drawer frame structure thereof and preferably rotatably, and has an abutment extension, by way of which the locking element butts in the locked position against a limiting extension of the extension guide, preferably on the carcass rail, and stops the closing movement of the drawer rail with the drawer fixed thereto relative to the carcass rail.

6. An arrangement as set forth in claim **1**, wherein the locking element is arranged—movably between a locked position and a released position—on the extension guide, preferably on its drawer rail and has an abutment extension, by way of which the locking element butts in the locked position against a limiting extension of the extension guide, preferably on the carcass rail, and stops the closing movement of the drawer rail relative to the carcass rail.

7. An arrangement as set forth in claim **6**, wherein when fixing the drawer to the drawer rail the locking element is movable by the release element from the locked position into the released position.

8. An arrangement as set forth in claim **6**, wherein when connecting the front panel to the drawer container by way of the connecting element the locking element is movable by the release element from the locked position into the released position.

9. An arrangement as set forth in claim **6**, wherein the locking element is mounted movably, preferably rotably, to the drawer rail and has a spring bearing against the drawer rail, preferably a leg spring, wherein upon unlocking the release element moves and preferably rotates the locking element together with its abutment extension into the released position against the spring force of the spring.

10. The arrangement as set forth in claim **6**, wherein the locking element together with the abutment extension and the spring is in the form of a plastic part which is injection-molded in one piece.

11. An article of furniture comprising a furniture carcass and an arrangement disposed in the furniture carcass as set forth in claim **1**.

* * * * *