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(54) **DEVICE FOR CLOSING AN INSPECTION OPENING, AND METHOD FOR INSERTING A DEVICE OF SAID TYPE**

VORRICHTUNG ZUM VERSCHLIESSEN EINER PRÜFÖFFNUNG UND VERFAHREN ZUM EINSETZEN EINER VORRICHTUNG DES BESAGTEN TYPUS

DISPOSITIF DE FERMETURE D'UNE OUVERTURE D'INSPECTION ET PROCÉDÉ D'INSERTION D'UN DISPOSITIF DE CE TYPE

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EP 3 635 195 B1

Description

[0001] The invention relates to a device for closing an inspection opening, and to a method for inserting such a device for closing an inspection opening into a board-like or panel-like structure element of a dry building structure, in which the stated device comprises a frame framing the inspection opening and a closure cover for closing the inspection opening.

[0002] EP 1 516 978 A1 and EP 2 531 669 each disclose a device for closing an inspection opening for dry building. Whereas the device known from the former document is relatively complex to manufacture, the device known from the latter document is kept particularly simple, and is provided in particular for an inspection opening in a ceiling.

[0003] US2010/275519A1 discloses a device showing the features of the preamble of claim 1.

[0004] In the case of the latter device, however, there is the problem that the device is substantially prepared for the first time on the building site during the erection of the dry building structure, that is to say in particular under building site conditions by the personnel present on site. It however cannot be implicitly assumed that the personnel on the building site are specially qualified and trained for dry building. Rather, it is often the case that dry building structures are erected by non-specialist persons. As a result, a situation may arise in which the inspection opening is not prepared precisely enough, for example not at an exact angle, and/or the closure cover is not cleanly prepared or arranged, such that complaints may be made for this reason at a later time.

[0005] The problem addressed by the invention is therefore that of providing a device of the generic type mentioned in the introduction in as simple and inexpensive a manner as possible, the installation of which device on the building site can be adequately performed even by untrained personnel, and at the same time of as extensively as possible specifying proper functioning of said device and of specifying a method for inserting a device of said type.

[0006] With regard to a method, said problem is solved according to the invention in that, for the frame, a board-like or panel-like material is provided which preferably substantially corresponds to the material of the board-like or panel-like structure element, and in that the closure cover and, if provided and/or necessary, possibly at least one further device element are adapted and/or fitted to and/or into the frame already at the factory.

[0007] According to the invention, it is thus particularly advantageously provided that a fully functioning inspection opening with its frame and with a closure cover is manufactured at the factory, which inspection opening merely has to be appropriately inserted into a dry building structure on the building site. This appropriate insertion of the device is in turn considerably simplified in that the material for the frame substantially corresponds to the material of a panel-like structure element into which said

frame is intended to be inserted. Therefore, it is not necessary for the inspection opening itself together with the closure cover thereof to be prepared on the building site, it rather merely being necessary for a simple cutout for the insertion of the frame of the otherwise already professionally prepared device to be provided. This is however readily possible on the building site, and in particular also by untrained personnel, because such a working step, in its essence, does not differ from other working steps during the building of a dry structure..

[0008] The device according to the invention can preferably be kept very simple and limited substantially to the frame and the closure cover. However, in a refinement, it may also be provided that, as a further device element, at least one bracket means for the closure cover is provided on the frame. In particular, it would be possible for the closure cover to be pivotably articulated on the frame by way of at least one bracket means, for example a hinge.

[0009] It may be provided in one refinement that, on the frame, as a bracket means, a case, which runs in encircling fashion around the inspection opening and/or in the inspection opening, for the closure cover is fitted into the frame at the factory. In this way, it is possible in particular to achieve a functionally reliable closure of the closure cover, but also an in particular pivotable attachment of the closure cover. According to the invention, it may additionally or alternatively be provided that a profile is formed into the frame at the factory, which profile borders the inspection opening, wherein it may preferably be correspondingly provided that a profile which is functionally suitable for bordering the inspection opening is provided on the closure cover at the factory. In this way, it is for example possible for an even more accurately fitting and also lightproof, if desired also air-tight or soundproof, closed position of the closure cover to be realized. Such a profile could also be formed in a case, or in the absence of a case, directly in the material of the frame. In a manner compatible with a case, it would be possible for the closure cover to have a closure cover frame.

[0010] Another refinement of the invention is characterized in that substantially gypsum is provided as material for the frame and/or for the closure cover, such as is commonly provided as a material or constituent part of dry building structures, such that the frame and the closure cover can be incorporated into the dry building structure in a technically and visually particularly expedient manner.

[0011] One preferred refinement of the device according to the invention is characterized in that the frame is manufactured from a subregion or a section of a board-like or panel-like structure element. This particularly advantageous refinement of the device according to the invention preferably even eliminates the need for cumbersome and sawing-out or other cutting-out of an opening, which has the potential to be performed incorrectly, for the frame in a panel-like structure element on the building site. Rather, the frame that is prefabricated ac-

according to the invention (together with the closure cover and the inspection opening itself) can be provided as a section of a structure element, for example a plaster board, which thereby merely needs to be connected in the conventional manner to another structure element.

[0012] Another refinement provides that, in the positioning of the cutout and in the external dimensioning of the frame, the spacing of any supports or other profiles of a support structure of the dry building structure are taken into consideration such that said profiles can be utilized for the fixing of the frame. As already presented, it is thus possible for the device according to the invention to be utilized in a familiar manner when carrying out the method, such that the frame according to the invention can be incorporated into a dry building structure using familiar working steps, specifically in an unremarkable manner and by personnel present on the building site using existing means. Here, at least one assembling piece or bar may be incorporated into the support structure for the arrangement of the frame. It is otherwise preferably merely necessary to provide that the frame is smoothed over together with its surroundings.

[0013] In a solution to the stated problem, for which protection is claimed, a device according to the invention for closing an inspection opening for a dry building structure, in particular for a wall or a ceiling, in which the stated device comprises a frame framing the inspection opening and a closure cover for closing the inspection opening, preferably a device provided in accordance with the method wherein the frame is of panel-like form, wherein the material thereof corresponds to the material of a panel-like structure element, for example a plaster board, for a dry building structure, and in that the closure cover and, if provided and/or necessary, possibly at least one further device element are adapted and/or fitted to and/or into the frame already at the factor. Said closure cover is pivotable by pivot pegs on the frame and/or the closure cover, which pivot pegs are insertable into guides, in particular guide tracks, of the respective other element for the pivotability of the closure cover. The device-related advantages that arise from this have already been analogously discussed above on the basis of the method a, such that repetitions at this juncture can be avoided.

[0014] A refinement of the invention provides that, as a further device element, at least one bracket means for the closure cover is arranged on the frame. Said bracket means may in particular be a shaft, an angle bracket or a hinge for the pivotable articulation of the closure cover. Other bracket means are however also conceivable, in particular a catch means for preventing the closure cover, in particular in the case of a ceiling installation, from falling down in an uncontrolled manner and posing an accident risk. A refinement of the invention can for example provide that, as a bracket means, a case, which runs in encircling fashion around the inspection opening and/or in the inspection opening, for the closure cover is fitted into the frame at the factory.

[0015] It may additionally or alternatively be provided

that a profile is formed into the frame at the factory, which profile borders the inspection opening. It is then preferably also possible for a profile which is functionally suitable for bordering the inspection opening to be provided on the closure cover at the factory. This primarily promotes the sealing action desired in each case in the closed position of the closure cover.

[0016] Another refinement of the device according to the invention is characterized in that the material for the frame and/or the closure cover is substantially gypsum. In this way, it is particularly advantageously possible for the device according to the invention to be designed such that it can be integrated in an inconspicuous and related manner into a dry building structure which substantially uses the same or a similar material. In particular, a further refinement of the invention is characterized in that the frame is manufactured from a subregion or section of a panel-like structure element. As already discussed above, this particularly advantageous refinement of the device according to the invention has the effect that said device can be fitted into a dry building structure on the building site preferably even without cumbersome sawing-out or other cutting-out of an opening, which has the potential to be performed incorrectly, for the frame in a panel-like structure element, that is to say in particular in an unconstrained manner and using familiar building methods. It is merely necessary for the frame that is prefabricated according to the invention (together with the closure cover and the inspection opening itself) to be provided as a section of a structure element, which thereby merely needs to be connected in the conventional manner to another structure element, for example a plaster board, and preferably smoothed over.

[0017] As already mentioned with regard to the method according to the invention, it may be provided that, in the external dimensioning of the frame, the spacing of any studs or other profiles of a support structure of the dry building structure are taken into consideration such that the frame can be fixed to said profiles.

[0018] Another refinement of the device according to the invention is characterized in that, on the closure cover, there is arranged a closure cover frame framing said closure cover. A closure cover frame of said type can for example reinforce the closure cover overall, and serve for the attachment or integration of further elements. At the same time, this can be realized in a particularly inconspicuous manner, in that an only narrowly visible frame can be used. In particular in interaction with a case, the closure cover frame can improve the closure - and also the sealing action - of the closure cover.

[0019] According to the invention, the device comprises pivot pegs on the frame and/or on the closure cover, which pivot pegs are insertable into guides, in particular guide tracks, of the respective other element for the pivotability of the closure cover.

[0020] With the device according to the invention, it is thereby surprisingly achieved that the closure cover can be pivoted in a comfortable and reliable manner, in order

to be opened and closed, as soon as it has been inserted into the frame. The closure cover according to the invention can however preferably also be easily completely removed from the frame, for example for the purposes of opening up the inspection opening in the frame even wider and without obstruction if the situation permits this or even makes this particularly desirable owing to the space conditions. In this way, the closure cover can also be very easily exchanged, as a replacement part, or reworked, for example for the purposes of changing its appearance or decoration and adapting this to a changed appearance or decoration of its surroundings in order to make said closure cover less conspicuous. For this purpose, guide tracks may be particularly expedient.

[0021] These advantages are achieved according to the invention in that pivot pegs are insertable into guides, in particular into guide tracks, such that the closure cover is pivotably mounted in the frame. The closure cover or the frame, hereinafter referred to as closure parts, may have the pivot pegs, wherein the respective other closure part then has the respective guides or guide tracks. In principle, it is also possible for a closure part to have in each case one pivot peg and one guide or guide track and for the respective other closure part to conversely also have, in a manner adapted thereto, one guide or guide track and one pivot peg, in such a way that each pivot peg is assigned its guide or guide track. In simple cases, the guide may be an opening, a hole, in particular a blind hole closed off by a base, an eyelet or the like.

[0022] It is preferable, and particularly simple, for the closure cover to have the pivot pegs and for the frame to have the guides or guide tracks.

[0023] The pivot pegs may be the free ends of a continuous pivot shaft, though they may also be formed merely as projecting pivot pegs from the outset.

[0024] A preferred embodiment of the device according to the invention provides that the pivot pegs are integrally formed on the closure cover.

[0025] A case and/or a closure cover frame may be manufactured from all possible conceivable materials which are suitable for this purpose, such as for example metal, wood and so on. It is however preferable for at least one of said elements, preferably both elements, to be manufactured from a plastic. It is thus possible for the pivot pegs to be particularly easily integrally moulded and for the guide tracks to be formed, preferably as guide grooves. The device according to the invention can thus also be designed to be particularly inexpensive, in a material-saving manner, so as to have a low weight, so as to be stable, so as to be reliable, so as to be robust, in high unit quantities, in standardized fashion, so as to be easily transportable, in different colours or with different decoration, and so on.

[0026] Also, with modern plastics, recycling is readily possible in order to realize environmentally compatible sustainability, in particular if only one type of plastic is selected and used.

[0027] For particular stability or for avoidance of dis-

tortion, the plastics parts may for example have reinforcements, ribs, fluting or the like. Visible surfaces can be veneered, coated, for example also chrome-plated, painted, papered, studded, grained, fluted and so on if desired. In particular in dry building, thermal insulation or acoustic damping, for example by means of patterns of holes, may also play a role. The device according to the invention can be incorporated and technically and/or visually integrated in this respect too.

[0028] With the device according to the invention, it is possible - as desired - for the device to either be aesthetically emphasized or to be designed to be particularly inconspicuous, as it were "invisible", wherein the latter alternative is commonly preferred.

[0029] As plastics material, use may be made of a wide variety of plastics, in particular acrylonitrile butadiene styrene copolymer (ABS plastic) or other thermoplastic materials and/or styrene copolymers. Such a plastic can in particular be coated with paint and adhesively bonded.

According to the invention, it is preferable for an adhesive and an additional mechanical fastening to be used for the connection of plastics parts to dry building parts. For mechanical fastening, use may be made of staples, clips, crimps, cramps, pins, rivets or the like. For example, fluting or the like may also be provided in order to enlarge an adhesive area. Staple clips or cramps are preferable to nails, for example, as fastening elements because they form abutment bridges which, in relation to head-like thickened portions, do not penetrate so easily into dry building materials, for example with gypsum constituents, and thereby lose purchase.

[0030] Closure parts, in particular frame parts, may preferably be assembled from segments, for example with corner and/or strip parts, which can be locked together to form frames and to form relatively large longitudinal extents. In this way, it is possible in particular for a small number of different plastics parts to be provided, which can be assembled in a variable manner to form different closure parts, in particular closure parts of different sizes. A small variety of parts can be produced in greater unit quantities, and thus in particular at lower cost.

[0031] Another refinement of the device according to the invention provides, in a manner which refines the invention, that the guide tracks deviate, in terms of their profile, from an orientation orthogonal to the area spanned by the frame (surface normal). This deviation of the guide track from the surface normal results in the closure cover being additionally secured in its end and pivoted position, in particular so as to be prevented from inadvertently slipping or sliding out. Here, the guide tracks may for example have curvatures, though a preferred embodiment provides that the profile of the guide tracks is oriented linearly and obliquely with respect to the frame plane. In particular, in the case of the device according to the invention being mounted in a wall, said oblique slope may run downward, and thus gravitational force can assist the pivot pegs in sliding into and remaining in the guide tracks.

[0032] It may also be provided that the pivot pegs can be locked in an end position in the guide tracks. This may be achieved particularly easily, for example in the case of a plastic which has a certain degree of elasticity being used as material, by virtue of the peg, on its path into the guide track, having to overcome a constriction or other chicane, behind which it then locks. Somewhat more cumbersome locking means with locking balls or the like may self-evidently also be used. At any rate, it would thus be possible for the closure cover to be additionally secured in its end and pivoted position. This may be advantageous in particular in the case of an arrangement of the device in a ceiling, wherein it is however also the case in an arrangement on a ceiling that the mere existence and the nature of the deviation of the guide tracks from the orientation of the surface normals can be expedient.

[0033] Another independent refinement of the invention is characterized in that the pivot pegs are arranged on a centreline of the closure cover.

[0034] If the pivot pegs which serve as a pivot shaft are arranged in the vicinity of an edge on the closure cover, said closure cover can preferably, in the case of a wall arrangement, be pivoted upward or pivoted downward inwardly into a space or toward the user, or else can be pivoted open to the left, or in the case of a vertical pivot shaft orientation, to the right or to the left. In the refinement according to the invention for which independent protection is also claimed, the closure cover can be pivoted approximately through 180 angular degrees about a pivot line central with respect thereto, preferably can be opened by means of a pivoting movement of approximately 90 angular degrees. For this purpose, the closure cover may preferably be of mirror-symmetrical form with respect to the pivot axis in order for it to be particularly well-balanced in terms of weight, though it need not imperatively be of mirror-symmetrical form with respect to the pivot axis if so desired for certain reasons, and could for example also have a triangular shape, in the case of which the pivot axis runs parallel to the base. Similar considerations lead to the realization that the pivot axis also does not imperatively need to be arranged exactly centrally, but could also have a certain parallel offset with respect to the centreline. This would for example have the advantage that the surfaces surrounding the device could form an opening stop for the closure cover, and the closure cover could also be held or fixed there.

[0035] Basically, in the case of a structure with a pivot axis on the centreline or close to the centreline, it should be taken into consideration that in each case one section of the closure cover pivots outwards, and another section pivots inwards, during the opening movement. With regard to the arrangement of the pivot axis, it is thus possible, or necessary, for the spatial conditions, in particular free spaces available for the pivoting movement, behind the device to be taken into consideration. In any case, however, an advantage consists in the fact that that section of the closure cover which opens toward the user

can in principle be selectively pivoted down or pivoted up or pivoted to the left or to the right, if the device is arranged in a wall. This may also be advantageous in the case of an arrangement in a ceiling. The pivotability of the closure cover about a centreline or close to the centreline also has the advantage that, for example, no handle or other means for opening the closed closure cover is necessary, it rather being possible for the closure cover to be easily opened or closed in each case by pushing one section or the other section thereof. For locking in the closed position, a slight pivoting movement somewhat beyond the closed position is for example also conceivable, for example if, owing to elasticity of the locking elements, the closure cover springs back into its ultimately to be achieved end position, in which it preferably terminates in a flush manner.

[0036] A further refinement of the device according to the invention is characterized in that the two closure parts have at least one closure setting element which predefines the closed position of the pivoting cover. A wide variety of measures and embodiments are possible for this purpose. One preferred embodiment provides that the closure setting element is in the form of, or comprises, a frictionally engaging element. In a particularly simple manner both in terms of function and in terms of manufacture, such a frictionally engaging element according to the invention assists not only in defining the positioning of the closed position but also in realizing the fixing in the closed position. In the case of the device being formed from plastic, it is possible for mutually functionally interacting friction surfaces to be formed for example on the frame, or on the case thereof, and on the closure cover or on a closure cover frame, for example with studs, grain-ing, fluting or the like, or else merely with areal friction with a certain coefficient of friction.

[0037] It is self-evidently possible for multiple closure setting elements to be provided, for example pairs, of identical or different form. These may be arranged at the free edges of the opening and/or at the pivot-peg-side side edges. Here, the closure setting element, or one or more closure setting elements, may be or comprise a stop element or stop elements. It may additionally or alternatively be provided that the or at least one closure setting element is in the form of, or comprises, a locking or arresting element. This may be realized for example by means of snap-action, locking or detent elements. Particularly simple but reliable snap-action elements can be realized using elastic plastic, for example with a receptacle or guide, which is narrowed in sections, for the locking of a peg. It would be possible for a spring tongue, for example on the frame or on a case, to simultaneously serve as a stop element which projects into the inspection opening and, for the reversible locking of its spring end, to lock in a type of channel of a closing end, which functionally interacts with the spring tongue, on the closure cover or on a closure cover frame. It would self-evidently also be possible for sliding or pivoting latches to be provided.

[0038] As already discussed further above, even in the

case of a device according to the invention provided for a ceiling arrangement, it would be possible, for example by means of the design of the guide tracks, for a separate catch means for the closure cover to be rendered superfluous. However, in a refinement of the invention, it is nevertheless additionally or alternatively possible for at least one catch element for catching the closure cover to be provided on the frame in order to prevent the closure cover from falling in an uncontrolled manner when opened. For this purpose, use may be made of cables, clips, springs, guide rails, articulated and/or telescopic connecting rods or the like.

[0039] An independent refinement of the device according to the invention, for which independent protection is also claimed, is characterized in that a case has a suitable free space for the inlaying of at least one edge, which borders the inspection opening, of the panel-like frame. It is preferable for the case, in its cross section, to have substantially an L-profile which is open for the purposes of receiving the edge of the panel-like frame.

[0040] The respective embodiment according to the invention of the case and of a closure cover frame with an L-profile cross section, in which in each case only the narrow, blade-like edge of an L-profile limb or flank is intended to form the visible edge of the respective L-profile, is particularly advantageous. At the same time, the L-profile limbs, which form said exposed edges, of the L-profiles should face toward one another, that is to say the two respective exposed edges should be parallel to one another and immediately adjacent to one another. This yields numerous advantages simultaneously. The L-profiles can be manufactured inexpensively and in a material-saving manner. They can be arranged in a simple manner and at the same time with a good supporting action or reinforcement action. Furthermore, abutment surfaces of the L-profiles could be roughened or structured in some other way, for example in order to be able to provide improved purchase for an adhesive or plaster.

[0041] The mutually adjacent L-profile limbs have only minimal, inconspicuous exposed edges, but can however at the same time guide one another in an effective manner during the pivoting movement and serve as projection and/or at least functional regions of closure setting elements. The L-profiles can furthermore be of distortionresistant design. Altogether, in a preferred refinement, the closure cover frame may substantially have a structural form similar to the case, wherein it is however for example possible for profile cross sections to be, as it were, of mirror-symmetrical design with respect one another.

[0042] A further refinement of the invention is characterized in that the frame and the closure cover are designed so as to close in a substantially "gapless" manner in their closed position. This may primarily involve a visual seal, though it may also involve a sealing action that goes beyond this, which may if desired be assisted or improved by means of seal elements or labyrinth arrangements or overlaps or the like. In order to achieve a visual seal, it

would also be possible, if necessary, for the mutually adjacent closing surfaces to be of slightly conical form, that is to say for a view through a possibly remaining gap to be obstructed by a mutually parallel oblique profile, without the pivoting movement for the opening of the device being impeded.

[0043] Another refinement of the invention provides that, in their closed position, the frame and the closure cover are aligned flush with respect to one another and in a plane with one another. In this way, the device according to the invention can be arranged and formed in a particularly inconspicuous manner and the panel-like elements can be adapted to the further surroundings.

[0044] At this juncture, it is additionally mentioned that the device according to the invention may also be provided for example for two-layer panelled dry building structures. In the case of the device being inserted into a two-layer panelling of said type, it is possible in particular for an offset or protrusion or the like to be provided between an installation opening for the device or of its frame in one layer and an installation opening of the other layer, whereby any installation gaps are reinforced or covered by an overlap of the second layer.

[0045] In the drawing:

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|----------------|--|
| Figure 1 | shows a perspective plan view of a simple exemplary embodiment of a device according to the invention, |
| Figure 2 | shows a section through the device as per Figure 1 along the dashdotted line denoted A - A in Figure 1, |
| Figure 2A | shows a magnified detail of the device as per Figure 2, |
| Figure 3 | shows a perspective view of L-profile-shaped frame elements of a second exemplary embodiment of a device according to the invention in an open position, |
| Figure 4 | shows another perspective view of the device as per Figure 3, and |
| Figures 5 to 9 | show different detail views of the device as per the preceding Figures 3 and 4. |

[0046] Figure 1 shows a perspective view of a simple exemplary embodiment of a device according to the invention.

[0047] The device according to the invention for closing off an inspection opening in a dry building structure comprises, in the exemplary embodiment illustrated in Figure 1, a frame 18 and a closure cover 19 which can be removed from the frame 18 and which then opens up the inspection opening.

[0048] In Figure 1, by way of example, dashed lines are used to indicate two studs or wall profiles 20 to which the frame 18 can be fastened. For this purpose, the frame 18 is formed as a section of a panel-like structure element, preferably a gypsum based plasterboard, for a dry building structure, such that said frame can be integrated into the dry building structure in the same way as any other conventional panel-like structure element. In particular, in Figure 1, it would be possible above and below the frame 18 for other sections of structure elements to adjoin the wall profiles 20.

[0049] However, according to the invention, the frame 18 has, already from the factory, been provided as a frame for an inspection opening with a closure cover 19 fitted therein, such that the device according to the invention can be shipped in an already finished and functionally reliable state to a building site, and there, the frame 18 merely has to be incorporated into the dry building structure in the same way as any other desired conventional panel-like dry building element, which can also be performed by substantially untrained personnel without the need for said personnel to perform relatively precise work in the region of the inspection opening and of the closure cover.

[0050] A frame 18 according to the invention could also be formed with a smaller width, and could for example surround the closure cover 19 with a uniform frame arrangement. A frame 18 of said type could then be fitted into a recess or cut-out of a panel-like structure element and fastened for example to assembling pieces or bars which extend transversely between the wall profiles 20. According to the invention, even in such an embodiment, it remains the case that the frame 18 with the functional closure cover 19 fitted therein is prefabricated at the factory.

[0051] Figure 2 shows a section through the closure cover 19 and through a part of the frame 18 surrounding said closure cover. In Figure 2, it can be seen in particular that the closure cover 19 and the frame 18 have stepped profiles 21 which fit together and which ensure a sealed closure of the closure cover 19.

[0052] It would be possible for at least one bracket element to be provided for holding the closure cover 19 on the frame 18. Said bracket element could for example be a hinge, an angle bracket, a catch element or a locking means.

[0053] Figure 2A shows a magnified detail of the device as per Figure 2, particularly showing again that the closure cover 19 and the frame 18 have stepped profiles 21 which fit together.

[0054] The following figures illustrate an exemplary embodiment in which one bracket element is formed as a case 1 for the closure cover 19, which case is arranged on the frame 18, and one bracket element is formed as a closure cover frame 2, which interacts with the case 1.

[0055] Figure 3 shows a perspective view of the case 1 and of the closure cover frame 2 of a device according to

the invention in an open position.

[0056] The device according to the invention serves for closing off an inspection opening which is arranged on a frame 18 that is not illustrated in any more detail in Figure 3.

[0057] The case 1 is inserted into the frame 18 so as to be immovable, and the closure cover frame 2 is formed as a frame arrangement of the pivotable closure cover 19 (also not illustrated in any more detail) and, for this purpose, is inserted pivotably into the case 1. The closure cover frame 2 is shown in a slightly open position but not a position of maximum opening. For its opening and closing, the closure cover frame 2 has, on its side profiles 3, pivot pegs 4 which project outward, that is to say toward the case 1, and which are not visible in the illustration of Figure 3. The pivot pegs 4 are inserted into guide grooves 5 as far as an end position. Thus, the closure cover frame 2 and the case 1 are in engagement with one another, and the closure cover 19 can be pivoted about its pivot peg 4, as if about a pivot shaft. Instead of the pivot peg 4, it would also actually be possible for a continuous pivot shaft to be provided, though this could be obstructive in the overall structure, and would involve more material and possibly a further separate component. In the embodiment illustrated, the case 1 and the closure cover frame 2 are manufactured from a plastic, for example in an injection moulding process, and the pivot pegs 4 and/or the guide grooves 5 are in this case jointly integrally moulded or formed at the same time.

[0058] The pivot pegs 4 lie on the centreline of the closure cover 19 (and also of the frame 18), such that the closure cover 19 can be pivoted mirror-symmetrically about a central axis formed by said centreline. The guide grooves 5 in the case 1 run obliquely with respect to the surface normal of the case 1 and of the frame 18. When the pivot pegs 4 have been inserted into the guide grooves 5 as far as their end position, the closure cover 19 can be pivoted as described above, wherein the maximum open position is reached after a pivoting movement through 90 degrees. Altogether, it would be possible for the closure cover 19 to rotate about its pivot pegs 4 if it were not prevented from doing so, as will be discussed in more detail in conjunction with Figure 4.

[0059] For the inspection opening to be opened in a manner entirely unobstructed by the closure cover 19, it is however also possible for the closure cover 19 to be completely removed from the case 1 by virtue of the pivot pegs 4 being pulled entirely out of the guide grooves 5. If the illustrated device according to the invention is inserted into a wall, then the guide grooves 5 preferably lead obliquely downward toward the ends thereof, such that the closure cover 19 is held with its pivot pegs 4 in the case 1 by gravitational force, and the closure cover 19 must, in order to be completely removed from the frame 18, be lifted until its pivot pegs are released from the guide grooves 5.

[0060] In the case of the illustrated device being fitted in a ceiling, the oblique guide grooves 5 would not be

suitable on their own for holding the closure cover 19 in the frame 18. For this purpose, however, it would be possible to use an additional locking means of the pivot pegs 4 in the guide grooves 5 and/or for example a curved form of the guide grooves 5. Also, an additional catch device for the closure cover 19 may be provided on the frame 18, which additional catch device firstly prevents the closure cover 19 from falling down of its own accord, thus preventing accidents, but is secondly designed such that the closure cover 19 can by all means be deliberately or wilfully completely separated from the frame 18.

[0061] The closure cover 19 is furthermore also fixed in its closed position in some other way, as will likewise be discussed in more detail with reference to Figure 4. At this juncture, it is pointed out that, even in the case of an arrangement of the device in a ceiling, the closure cover 19 is held in its closed position in the frame 1 because, owing to the oblique profile of the guide grooves 5, it is in any case not possible for the closure cover 19 to fall vertically downward; rather, in order to slide out, a horizontal movement component would also be necessary, which in the closed position is prevented by the frame 18 itself.

[0062] As can be seen in the illustration of Figure 3, the case 1 and the closure cover frame 2 each have L-profiles with limbs 6, 7 and 8, 9. The L-profiles of the closure cover frame 2 leave open a central opening 10, which is however altogether closed off by the closure cover 19 in the manner of a leaf.

[0063] The limbs 8 of said closure cover frame 2, together with one another, form a cassette box and, together with the limbs 9, form a receptacle, depression or shell into which, for the closure of the opening 10 of the closure cover frame 2, the body (not illustrated in any more detail) of the closure cover 19 can be fitted, which body fills said receptacle or depression of the closure cover frame 2 in accurately fitting fashion, so as to be flush with the free narrow exposed edges 11 of the limbs 8, as a closure cover leaf.

[0064] The case 1 may be fitted by means of its limbs 6 into the frame 18 such that the limbs 7 bear against the panel-like frame 18 and at the same time the free, narrow exposed edges 12 of the limbs 6 terminate flush with that side of the panel-like frame 18 which is situated opposite the limbs 7. For this purpose, the limbs 6 must be dimensioned in a manner adapted to the thickness of the panel-like frame 18. Since, in the closed position, the exposed edges 11 and 12 of the limbs 6 and 8 also terminate flush with one another, it is thus the case in the closed position that the frame 18 and the panel-like closure cover 19 which is surrounded by the limbs 8 of the closure cover frame 2 lie areally in a plane with one another. Therefore, if the exposed edges 11 and 12 are provided as visible edges, and accordingly said exposed edges lie in the respective exposed sides of the frame 18 and of the closure cover 19, then in fact only the two narrow exposed edges 11, 12, which run concentrically with respect to one another in encircling fashion substantially without

a gap, remain visible between the panel-like elements in a wall or ceiling structure.

[0065] Figure 4 shows the exemplary embodiment of a device according to the invention as per Figure 1 from another perspective, likewise in a slightly open position. Identical structure elements are denoted by the same reference designations as in Figure 3, as is also the case in the subsequent figures.

[0066] In Figure 4, it is possible in particular to see stop elements 13 on the case 1, which stop elements limit the pivoting travel of the closure cover 19 in the closed position by virtue of limbs 9 of the closure cover frame 2 abutting against said stop elements 13 in the closed position of the closure cover 19.

[0067] At the same time, the closure cover frame 2 has, on its corresponding limbs 9, frictionally engaging elements 14 as closure setting elements, which functionally interact with the stop elements 13 in the closed position of the closure cover 19. In particular, it is then the case that the respective edges 15 and 16 together realize frictional engagement.

[0068] Furthermore, it is for example also possible for the closure cover frame 2 to have suitable stop elements on one of its other sides.

[0069] At this juncture, it is also additionally pointed out that the limbs 8 of the closure cover frame 2 or the angle formed between the limbs 8 and 9 must, during the pivoting of the closure cover 19, follow a pivoting radius, that is to say a circular arc, whereas the limbs 6 of the case 1, which are adjacent to the limbs 8 as far as possible without a gap in the closed position, are of planar form. The remaining gap tolerance between the limbs 6 and 8 permits a pivoting movement of the closure cover 19, though the highlighted situation can give rise to sliding friction, which alone can prevent the closure cover 19 from opening of its own accord from its closed position.

[0070] Furthermore, it is pointed out and emphasized at this juncture that a particular advantage of the device according to the invention can lie in the fact that both the case 1 and the closure cover frame 2 can in each case be formed or moulded in one piece with, that is to say so as to incorporate, their respective, possibly different or diverse closure setting elements 13, 14, 15, 16, and can for example be formed inexpensively as injection-moulded parts, composed in particular of a plastic. This does not mean that the case 1 and the closure cover frame 2 could not nevertheless be assembled from segments.

[0071] Figure 5 shows the L-profile-shaped cross sections of the case 1 and of the closure cover frame 2 with its limbs 6, 7 and 8, 9. Placed into said profiles, it is possible to see sections of the panel-like frame 18 and of the panel-like body of the closure cover 19. Furthermore, a further stop element 17 is indicated, which can be recognized in terms of its function in the following Figure 6.

[0072] In particular, Figure 5 also shows the engagement of one pivot peg 4 into a guide groove 5.

[0073] It can likewise be seen in Figure 5 how the exposed edges 11, 12 are adjacent to one another vir-

tually without a gap, and offer little in the way of an exposed surface between the panel-like frame 18 and the panel-like closure cover 19, which in turn are in flush alignment with one another in a plane.

[0074] On the limbs 7, 9, fluting can be seen, which forms in particular an enlarged adhesive area for the adhesive bonding of the case 1 and of the closure cover frame 2 to the panel-like frame 18 and to the panel-like closure cover 19 respectively. Furthermore, the case 1 and the closure cover frame 2 may be mechanically stapled, preferably through their limbs 7, 9, to the panel-like frame 18 and to the panel-like closure cover 19 respectively.

[0075] Figure 6 shows in particular, as already indicated above, the manner in which the stop element 17 forms a stop for the closure cover frame 2 in its closed position.

[0076] Figure 7 shows, in an illustration similar to Figure 6, but in a different region of the device according to the invention, stop elements 13, 14 which are formed differently in relation to the stop element 17 and which simultaneously serve for locking the closure frame 2 in its closed position. For this purpose, the closing element or stop element 13 has an edge 15 in the form of a spring tongue, which edge latches into an indented edge 16 of the closing element or stop element 14.

[0077] Figure 8 shows in particular the oblique profile of the guide groove 5 in the case 1, into which groove a pivot peg 4 is inserted. In the guide groove 5 it is furthermore possible to see a small locking lug or locking constriction, behind which the pivot peg 4 is locked in its end position.

[0078] Figure 9 shows in particular a pivot peg 4 (in relation to Figure 5) once again not in engagement with the guide groove 5.

Claims

1. Device for closing an inspection opening into a panel-like structure element of a dry building structure, in particular for a wall or a ceiling, in which the stated device comprises a frame framing the inspection opening and a closure cover for closing the inspection opening, wherein the frame (18) is of panel-like form, wherein a material thereof corresponds to a material of a panel-like structure element of a dry-building structure, and wherein the closure cover (19) is adapted to the frame (18) already in the factory **characterized in that** the closure cover is pivotable by pivot pegs (4) on the frame (18) and/or on the closure cover (19), which pivot pegs are insertable into guides, in particular guide tracks, of the respective other element (18, 19).
2. Device according to Claim 1, **characterized in that**, as a further device element, at least one bracket

element for the closure cover (19) is arranged on the frame (18).

3. Device according to Claim 2, **characterized in that**, as a bracket element, a case (1), which runs in encircling fashion around the inspection opening and/or in the inspection opening, for the closure cover (19) is fitted into the frame (18) at the factory.
4. Device according to one or more of the preceding Claims 1 to 3, **characterized in that** the material for the frame (18) and/or the closure cover (19) is substantially gypsum.
5. Device according to one or more of the preceding claims 1 to 4, **characterized in that** the frame (18) is manufactured from a section of a panel-like structure element.
6. Device according to one or more of the preceding Claims 1 to 5, **characterized in that**, in the external dimensioning of the frame (18), the spacing of any studs (20) or other profiles of a support structure of the dry building structure are taken into consideration such that the frame (18) can be fixed to said profiles.
7. Device according to Claim 1, **characterized in that** the pivot pegs (4) are integrally formed on a closure cover frame (2).
8. Device according to Claim 7, **characterized in that** the case (1) and/or the closure cover frame (2) are manufactured from a plastic.
9. Device according to one or more of Claims 1, 7 or 8, **characterized in that** the guide tracks are in the form of guide grooves (5).
10. Device according to one of Claims 1, 7, 8 or 9, **characterized in that** the guide tracks deviate, in terms of their profile, from the surface normal of the frame (18) and/or by the case (1).
11. Device according to Claim 10, **characterized in that** the profile of the guide tracks is oriented linearly and obliquely with respect to the frame plane.
12. Device according to one or more of Claims 1 to 11, **characterized in that** a pivot axis runs along a centreline of the closure cover (19).

Patentansprüche

1. Vorrichtung zum Verschließen einer Revisionsöffnung in einem plattenartigen Konstruktionselement einer Trockenbaukonstruktion, insbesondere für ei-

- ne Wand oder eine Decke, wobei die Vorrichtung einen Rahmen, der die Revisionsöffnung umrahmt, und einen Verschlussdeckel zum Verschließen der Revisionsöffnung umfasst, wobei
- der Rahmen (18) aus einer plattenartigen Form besteht, wobei ein Material davon einem Material eines plattenartigen Konstruktionselements einer Trockenbaukonstruktion entspricht, und wobei der Verschlussdeckel (19) bereits werkseitig an den Rahmen (18) angepasst ist, **dadurch gekennzeichnet, dass** der Verschlussdeckel durch Drehstifte (4) an dem Rahmen (18) und/oder an dem Verschlussdeckel (19) drehbar ist, wobei die Drehstifte in Führungen, insbesondere Führungsschienen, des jeweils anderen Elements (18, 19) einführbar sind.
2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass**, als ein weiteres Vorrichtungselement, mindestens ein Halterungselement für den Verschlussdeckel (19) an dem Rahmen (18) angeordnet ist.
3. Vorrichtung nach Anspruch 2, **dadurch gekennzeichnet, dass**, als ein Halterungselement, eine Verkleidung, die in einer umgebenden Weise um die Revisionsöffnung herum und/oder in der Revisionsöffnung (1) verläuft, für den Verschlussdeckel (19) werkseitig in den Rahmen (18) eingepasst ist.
4. Vorrichtung nach einem oder mehreren der vorstehenden Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** das Material für den Rahmen (18) und/oder den Verschlussdeckel (19) im Wesentlichen Gips ist.
5. Vorrichtung nach einem oder mehreren der vorstehenden Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** der Rahmen (18) aus einem Abschnitt eines plattenartigen Konstruktionselements gefertigt ist.
6. Vorrichtung nach einem oder mehreren der vorstehenden Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass**, in der Außenbemaßung des Rahmens (18), die Beabstandung etwaiger Stützen (20) oder andere Profile einer Tragkonstruktion der Trockenbaukonstruktion derart berücksichtigt werden, dass der Rahmen (18) an diesen Profilen befestigt werden kann.
7. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Drehstifte (4) an einem Verschlussdeckelrahmen (2) integral geformt sind.
8. Vorrichtung nach Anspruch 7, **dadurch gekennzeichnet, dass** die Verkleidung (1) und/oder der Verschlussdeckelrahmen (2) aus einem Kunststoff

gefertigt sind.

9. Vorrichtung nach einem oder mehreren der Ansprüche 1, 7 oder 8, **dadurch gekennzeichnet, dass** die Führungsschienen in der Form von Führungsnuten (5) vorliegen.
10. Vorrichtung nach einem der Ansprüche 1, 7, 8 oder 9, **dadurch gekennzeichnet, dass** die Führungsschienen, hinsichtlich ihres Profils, von der Oberflächennormalen des Rahmens (18) und/oder der Verkleidung (1) abweichen.
11. Vorrichtung nach Anspruch 10, **dadurch gekennzeichnet, dass** das Profil der Führungsschienen linear und in Bezug auf die Rahmenebene schräg ausgerichtet ist.
12. Vorrichtung nach einem oder mehreren der Ansprüche 1 bis 11, **dadurch gekennzeichnet, dass** eine Drehachse entlang einer Mittellinie des Verschlussdeckels (19) verläuft.

Revendications

1. Dispositif permettant de fermer une ouverture d'inspection dans un élément de structure en forme de panneau d'une structure de construction sèche, en particulier pour un mur ou un plafond, dans lequel le dispositif mentionné comprend un cadre encadrant l'ouverture d'inspection et un couvercle de fermeture permettant de fermer l'ouverture d'inspection, dans lequel
- le cadre (18) présente la forme d'un panneau, dans lequel un matériau de celui-ci correspond à un matériau d'un élément de structure en forme de panneau d'une structure de construction sèche, et dans lequel le couvercle de fermeture (19) est adapté au cadre (18) dès l'usine **caractérisé en ce que** le couvercle de fermeture peut pivoter au moyen de chevilles pivotantes (4) sur le cadre (18) et/ou sur le couvercle de fermeture (19), lesquelles chevilles pivotantes peuvent être insérées dans des guides, en particulier des rampes, de l'autre élément respectif (18, 19).
2. Dispositif selon la revendication 1, **caractérisé en ce que**, comme autre élément de dispositif, au moins un élément de support pour le couvercle de fermeture (19) est agencé sur le cadre (18).
3. Dispositif selon la revendication 2, **caractérisé en ce que**, comme élément de support, un carter (1), qui encercle l'ouverture d'inspection et/ou qui se trouve dans l'ouverture d'inspection, pour le couvercle de fermeture (19) est monté dans le cadre (18) à l'usine.

4. Dispositif selon une ou plusieurs des revendications précédentes 1 à 3, **caractérisé en ce que** le matériau pour le cadre (18) et/ou le couvercle de fermeture (19) est essentiellement du gypse. 5
5. Dispositif selon une ou plusieurs des revendications précédentes 1 à 4, **caractérisé en ce que** le cadre (18) est fabriqué à partir d'une section d'un élément de structure en forme de panneau. 10
6. Dispositif selon une ou plusieurs des revendications précédentes 1 à 5, **caractérisé en ce que**, dans le dimensionnement extérieur du cadre (18), l'espace-ment des quelconques goujons (20) ou autres pro- 15
filés d'une structure de support de la structure de construction sèche est pris en considération de telle sorte que le cadre (18) peut être fixé auxdits profilés.
7. Dispositif selon la revendication 1, **caractérisé en ce que** les chevilles pivotantes (4) sont formées d'un 20
seul tenant sur un cadre de couvercle de fermeture (2).
8. Dispositif selon la revendication 7, **caractérisé en ce que** le carter (1) et/ou le cadre de couvercle de 25
fermeture (2) sont fabriqués à partir d'un plastique.
9. Dispositif selon une ou plusieurs des revendications 1, 7 ou 8, **caractérisé en ce que** les rampes se 30
présentent sous la forme de rainures de guidage (5).
10. Dispositif selon l'une des revendications 1, 7, 8 ou 9, **caractérisé en ce que** les rampes s'écartent, par 35
leur profil, de la normale à la surface du cadre (18) et/ou du carter (1).
11. Dispositif selon la revendication 10, **caractérisé en ce que** le profilé des rampes est orienté linéairement 40
et obliquement par rapport au plan de cadre.
12. Dispositif selon une ou plusieurs des revendications 1 à 11, **caractérisé en ce qu'** un axe de pivotement 45
s'étend le long d'une ligne médiane du couvercle de fermeture (19).

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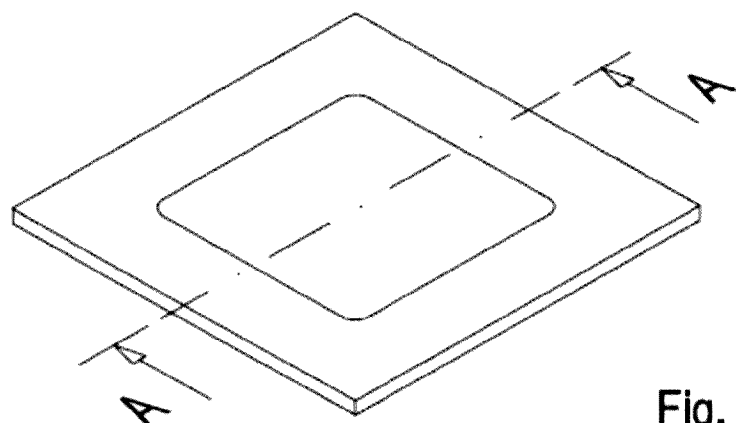


Fig. 1

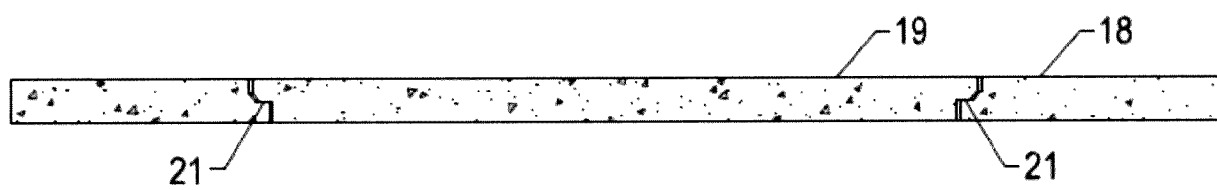


Fig. 2

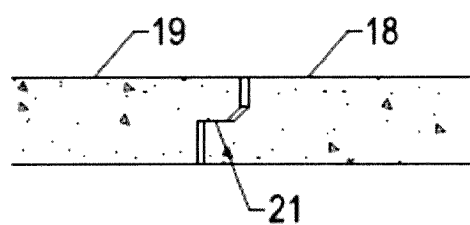


Fig. 2A

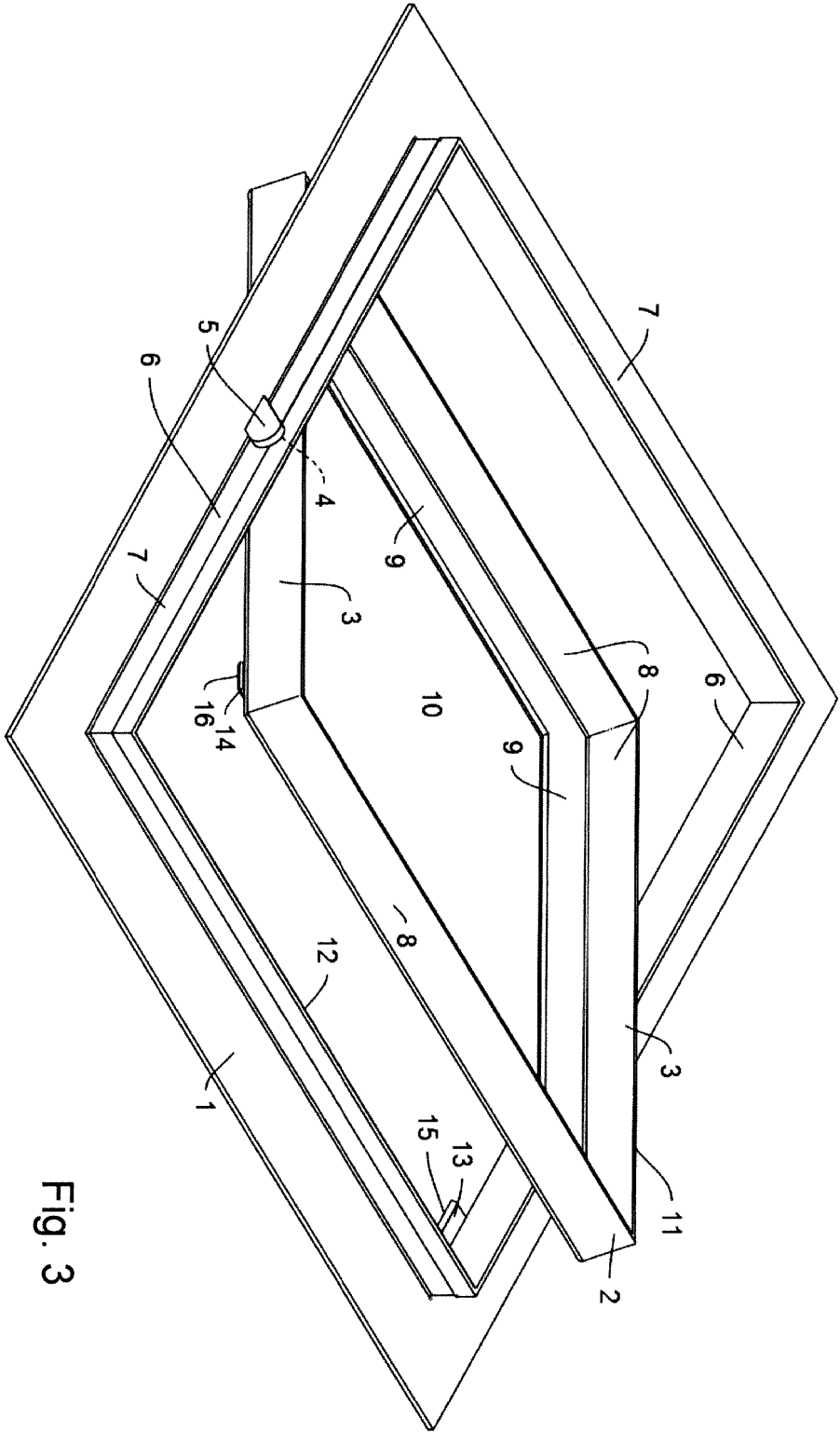


Fig. 3

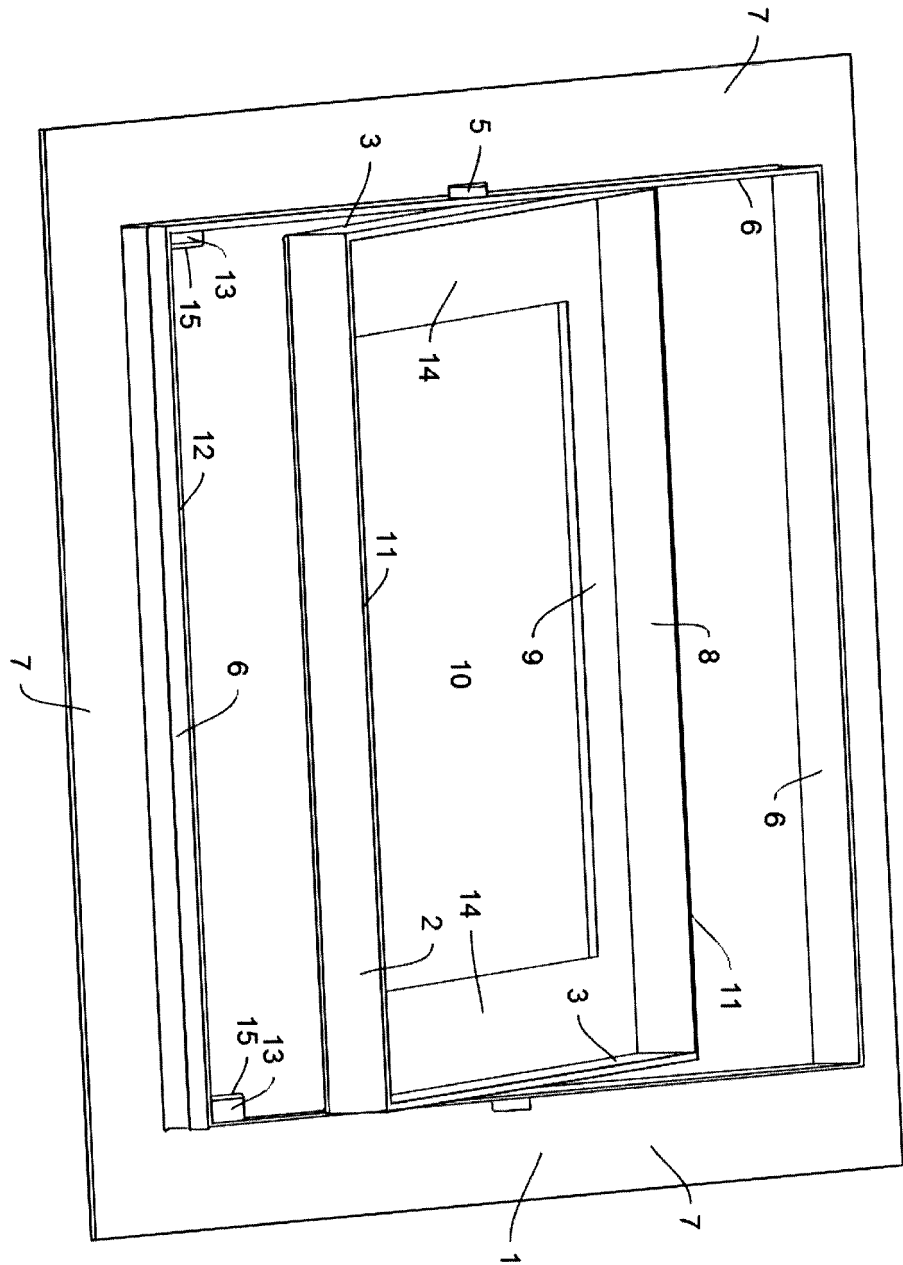


Fig. 4

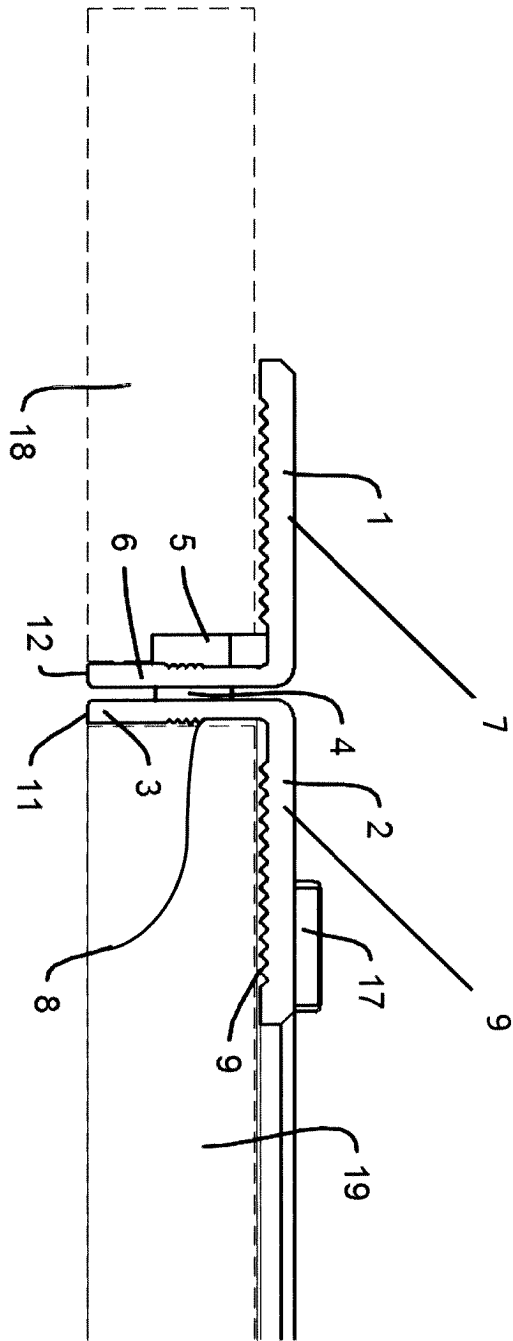


Fig. 5

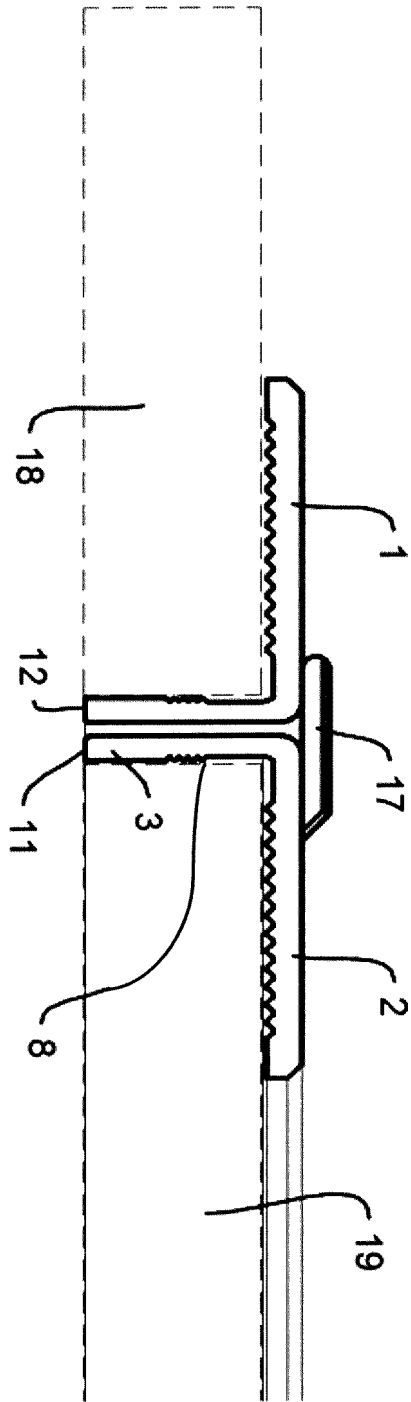


Fig. 6

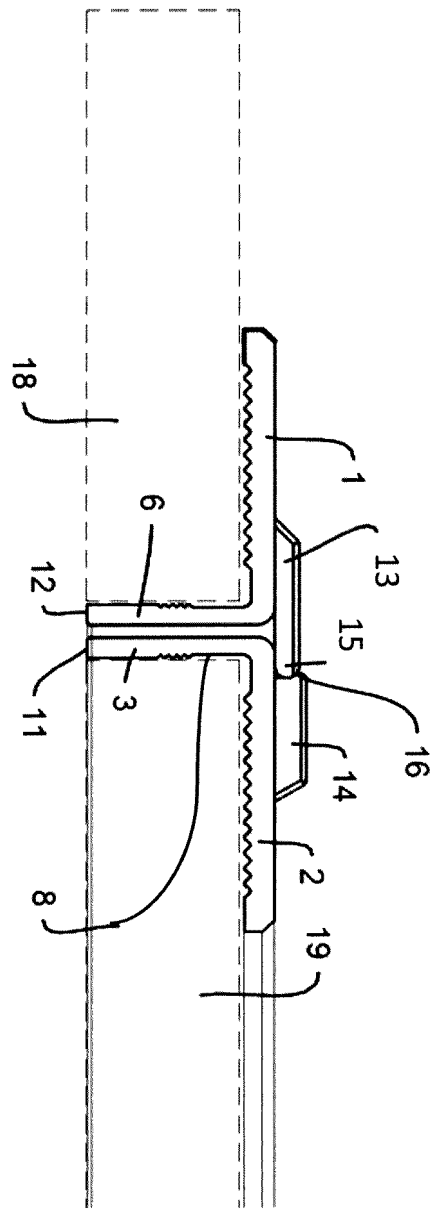


Fig. 7

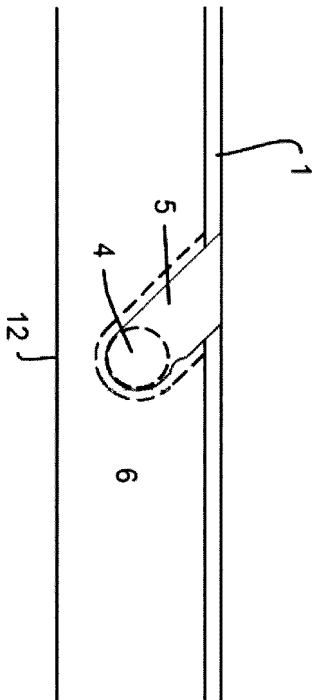


Fig. 8

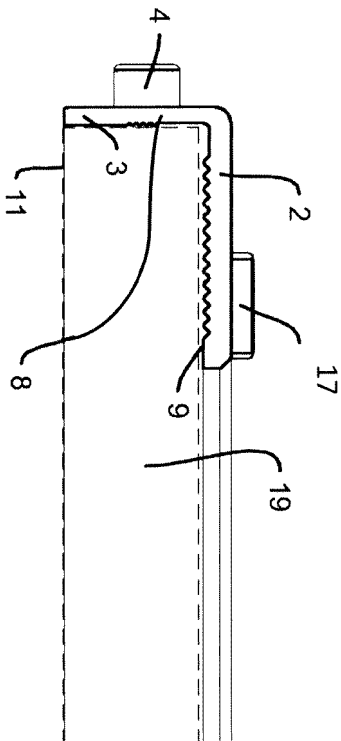


Fig. 9

REFERENCES CITED IN THE DESCRIPTION

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