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(54) **A PANEL AND A PANEL SYSTEM**

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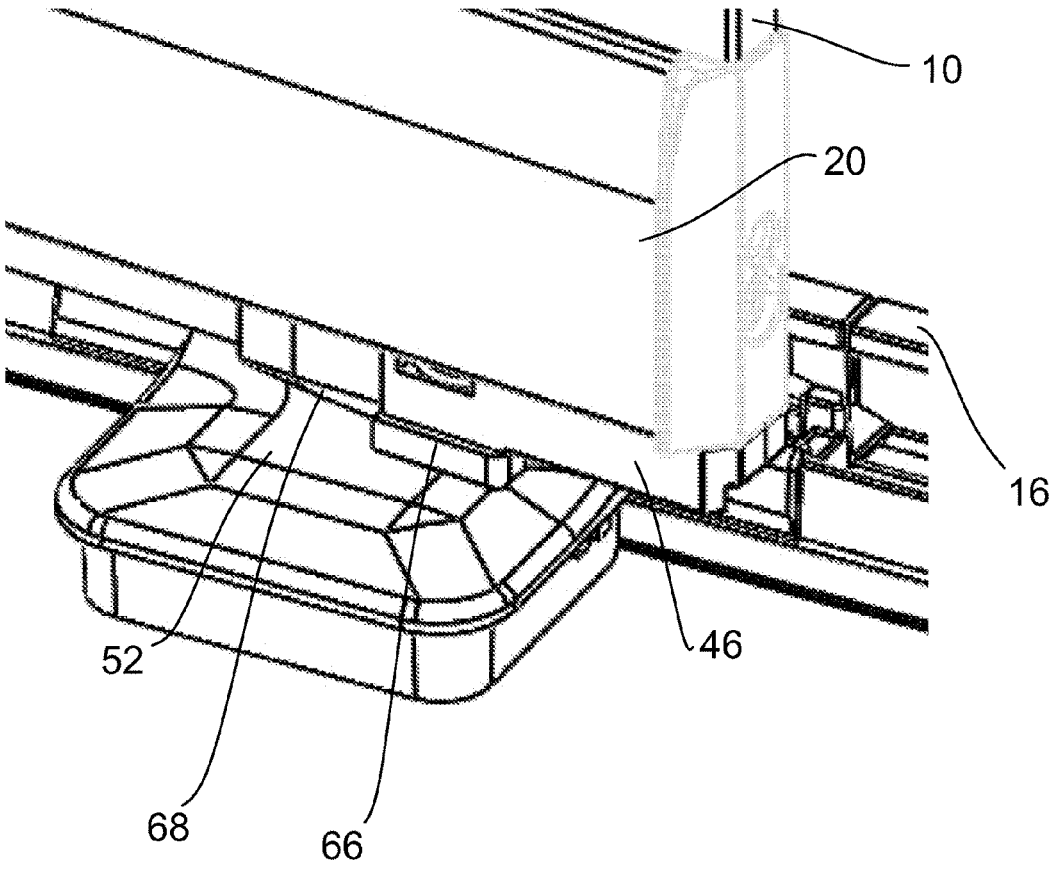
(57) **ABSTRACT**

The panel of the panel system is movable and is intended to be positioned and connected between an essentially parallel lower guide and upper guide of the system in order to move the panel on the lower guide. The panel, for example, its lath, includes at least one claw configured to grip the lower guide, which is connected to the panel so the claw is able to move in the vertical direction when the panel is vertical. When pulled away from the panel, the claw may be attached to the lower guide. The claw tends to retract by itself towards the panel, away from the lower guide, which may include a rail to which the claw is attached and on which the panel may rest as it moves along the lower guide. As an extension of the rail may be an auxiliary rail, including, for example, a guide surface.



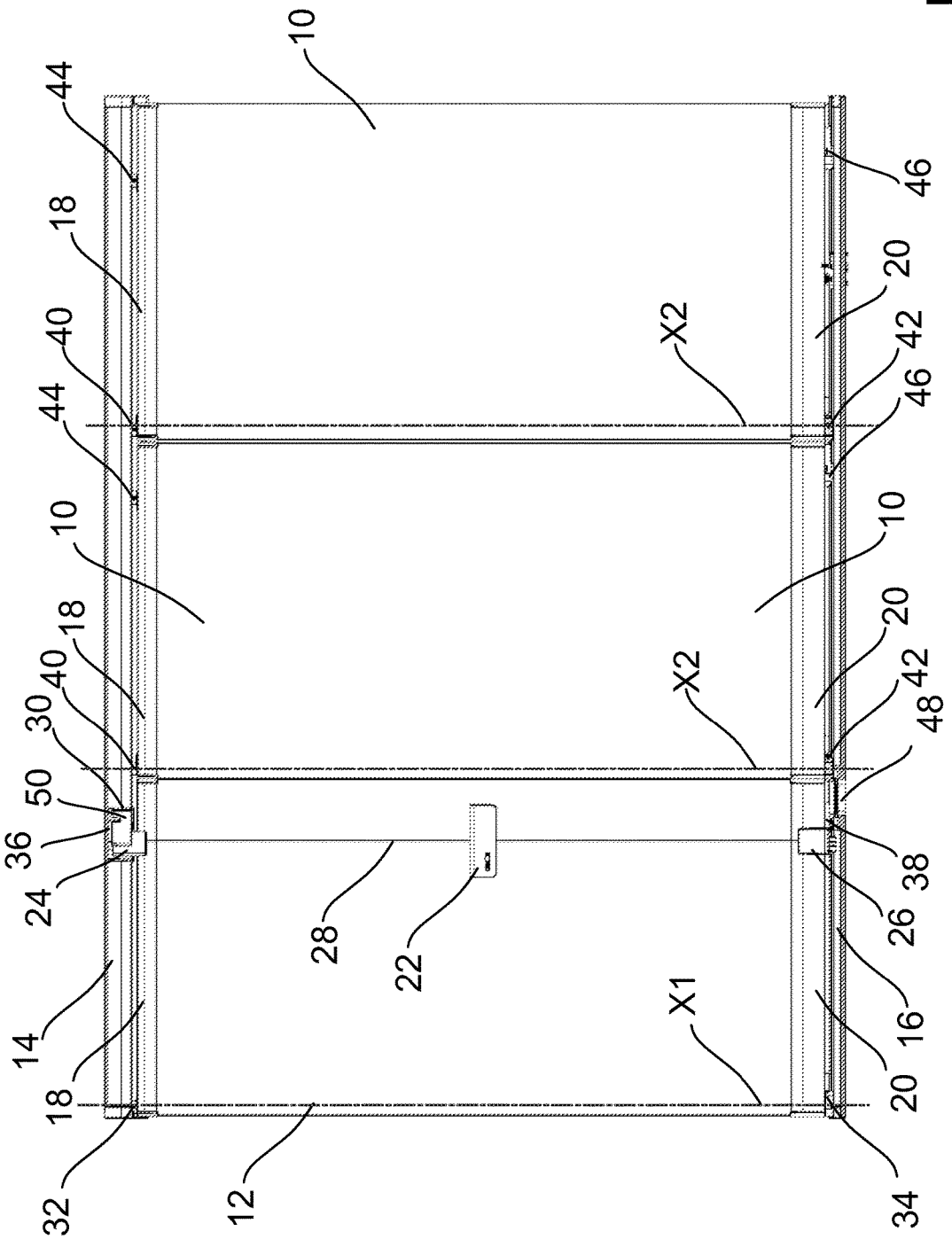

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Fig. 1

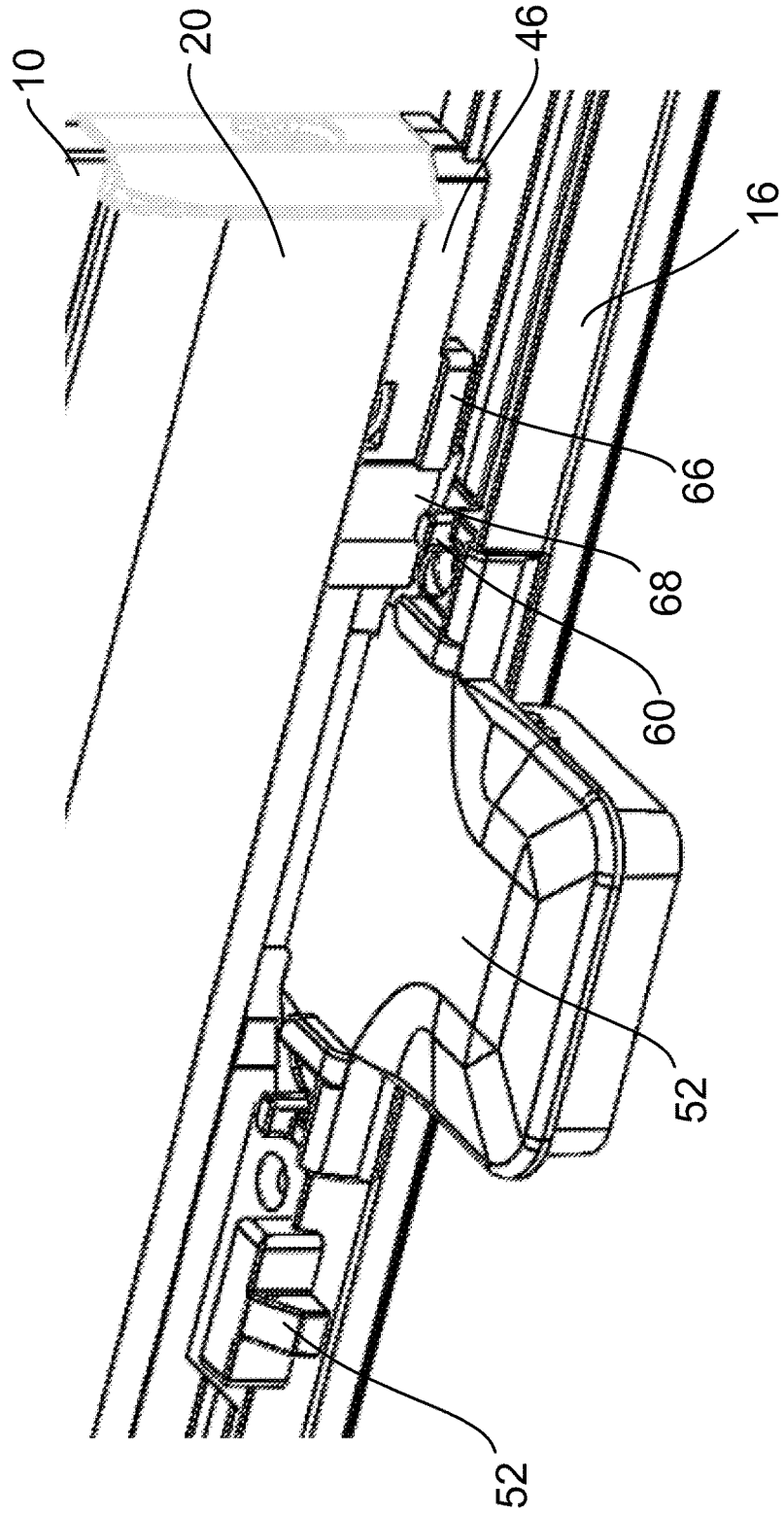

Fig. 2

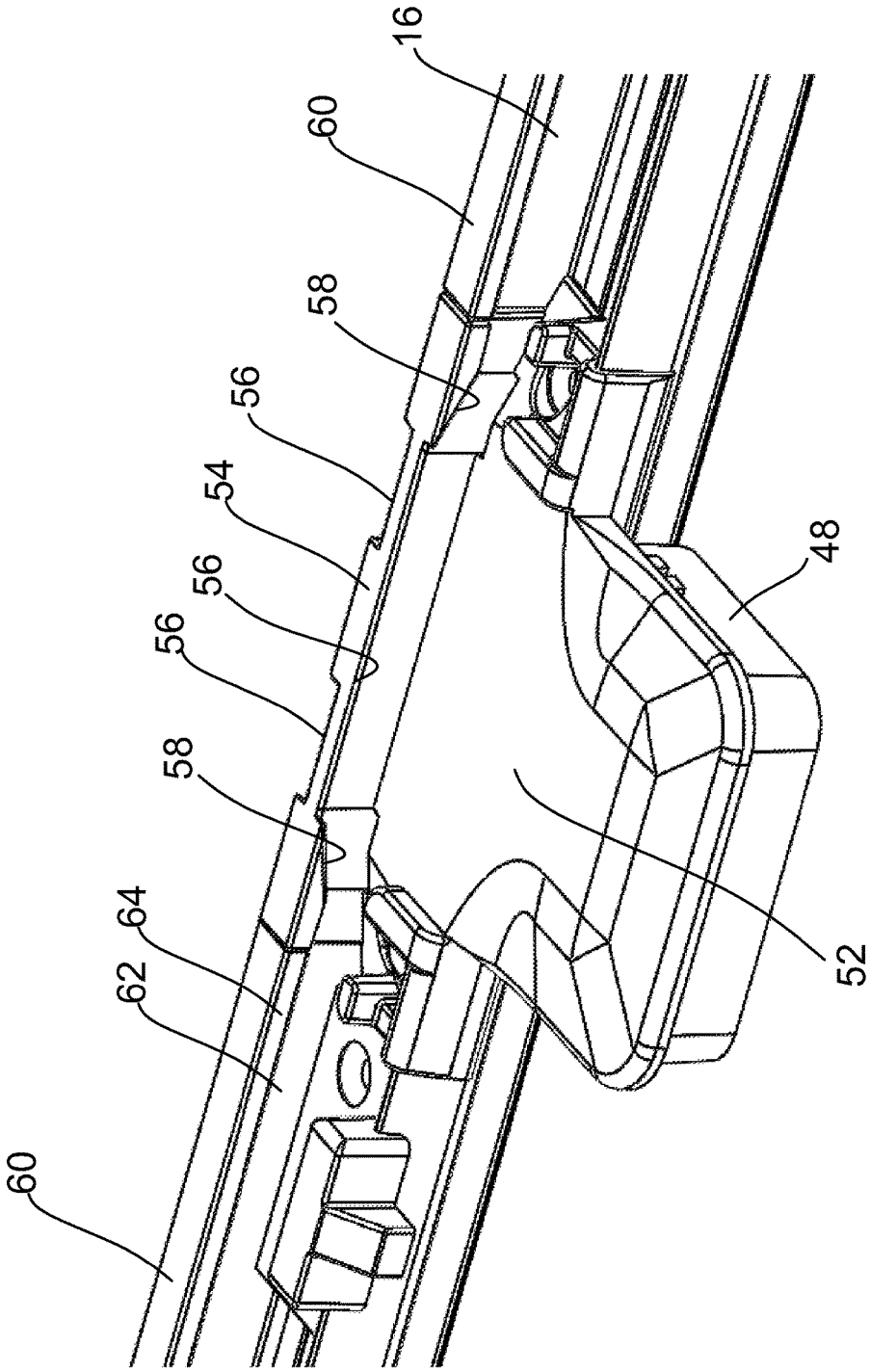

Fig. 3

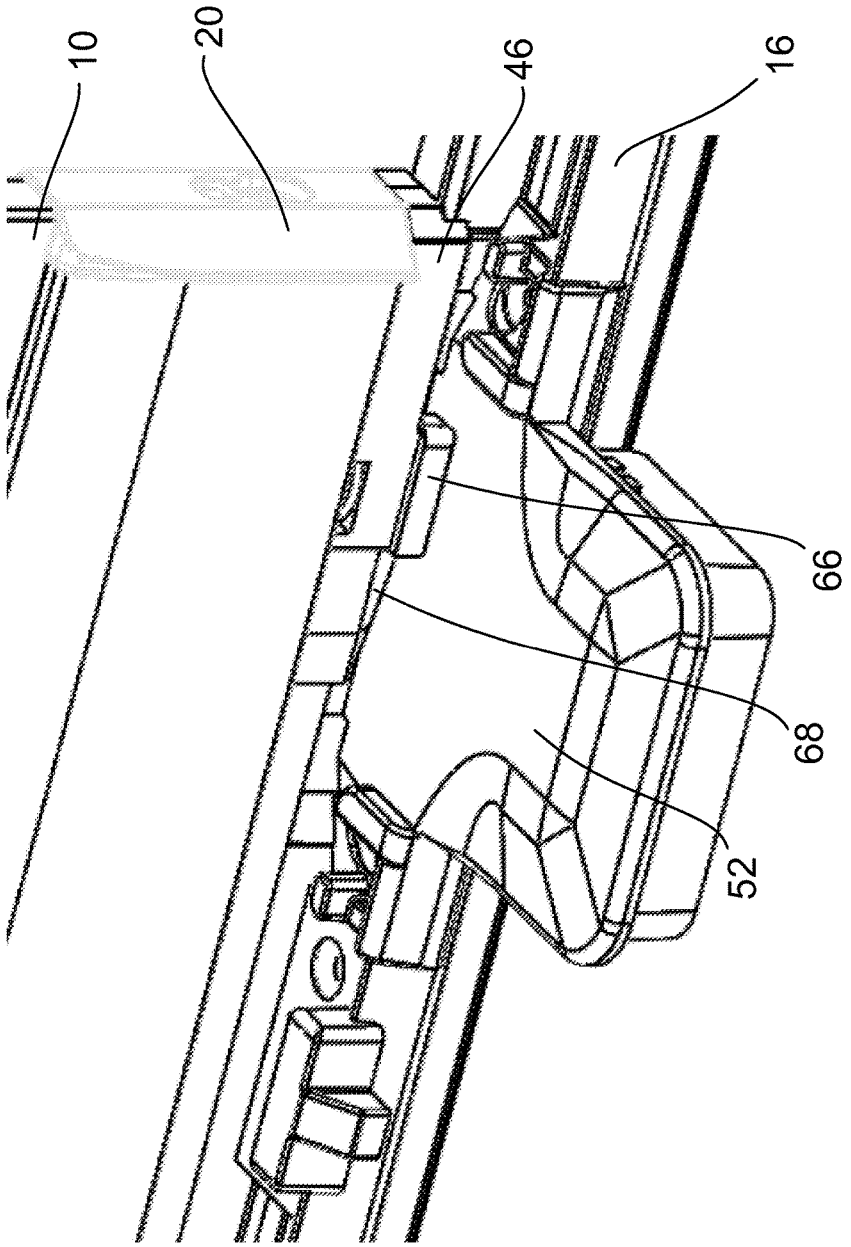

Fig. 4

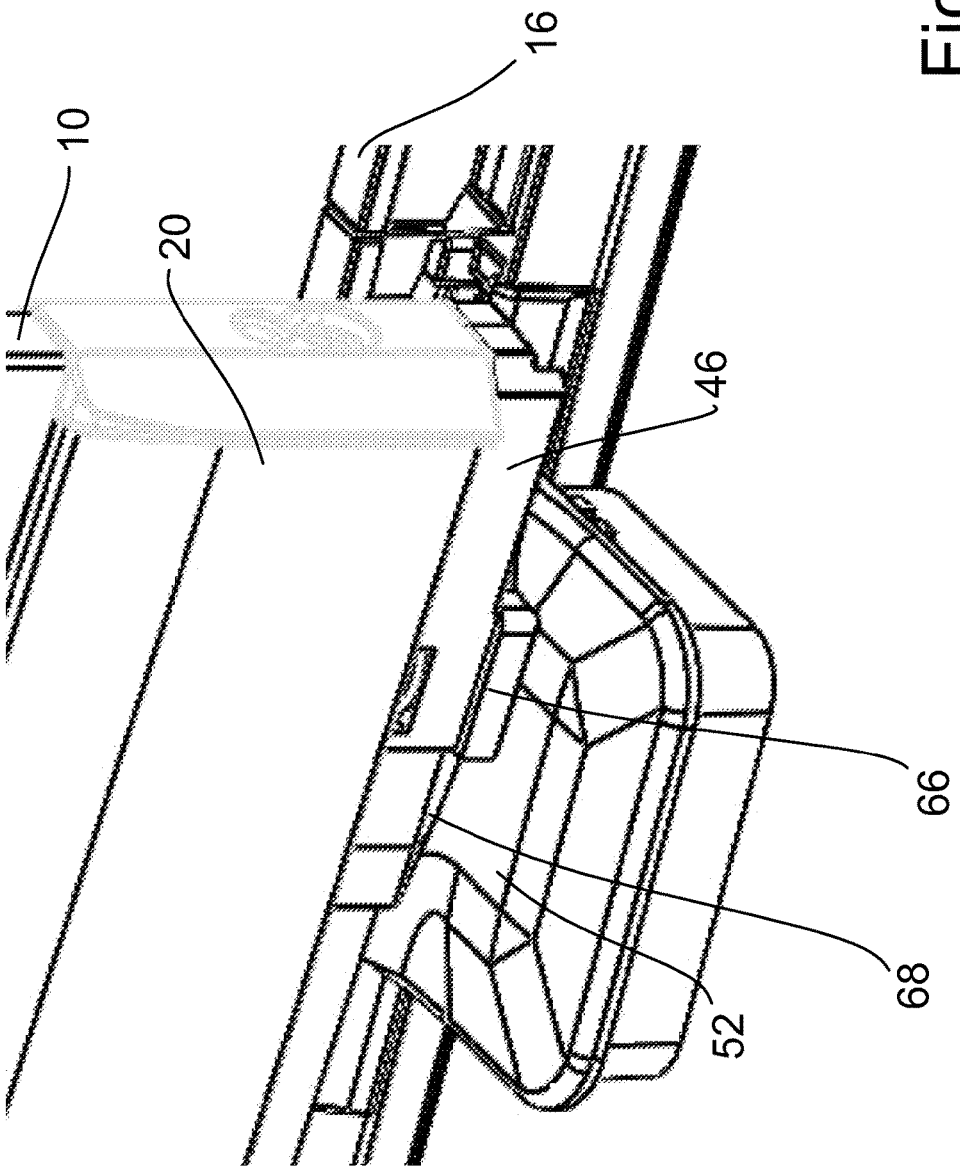

Fig. 5

A PANEL AND A PANEL SYSTEM

OBJECT OF THE SOLUTION

[0001] The object of the solution is a panel system. The object of the solution further comprises a panel of the a panel system. The object of the solution further comprises a lower guide of the panel system.

BACKGROUND OF THE PRESENT SOLUTION

[0002] Different types of panel systems may be incorporated in buildings, for example, in conjunction with the balcony or terrace of a building. These are often panels made of glass or a similar material, several panels being positioned most preferably in succession in a panel system. Panel systems may also be provided inside buildings, for example as walls.

[0003] A panel system typically comprises an upper guide and a lower guide, which may be rails guiding the travelling of the panel and inside or on top of which are one or more hinge elements and/or a control element fixed to the panel. The hinge element and/or control element controls the travelling of the panel, or the panel is suspended on the upper guide by means of them, or the panel rests through them on the lower guide which supports the panel. The hinge element or control element is either stationary or movable along the upper or lower guide with the panel. The panel may be movable along the upper and lower guides by means of the said hinge element or control element. Moving typically takes place manually.

[0004] The upper and lower guides are usually horizontal and fixed, for example, to the structures of the building. The lower guide may be positioned on floor level or higher, for example, on a railing. The panel may be opened and closed by using one or more hinge elements, by means of which the panel turns around a vertical rotation axis. The said openable panel may in addition comprise one or more control elements, by means of which the panel remains closed, and which is allowed to come out of the upper or lower guide to enable the opening of the panel. The upper or lower guide may comprise an opening through which the control element passes, or the control element may be lifted out, for example from the lower profile.

[0005] The hinge element may be configured to lock with the hinge element of the adjacent panel, the upper guide or the lower guide when the panels are open and adjacent to one another. Two or more panels may be open and adjacent to one another in a stack, whereupon a free opening is formed, for example, for airing or access.

[0006] A known panel system is disclosed in publication WO-2014068178-A1.

[0007] In an openable panel of the panel system, a control element on its opening edge, which element is by the lower guide, must be lifted up manually or there is no control element in the said panel. This means that opening the panel also requires lifting the control element, or in the latter case the panel will be unstable and susceptible, for example, to the effect of wind or deformation due to the lacking control element. The lower guide may also support the openable panel and thus the distancing or lifting off of the panel from the lower guide should be prevented.

A BRIEF SUMMARY OF THE SOLUTION PRESENTED

[0008] The panel system according to the solution presented is disclosed in claim **1**. A panel of the panel system according to the solution presented is disclosed in claim **16**. A lower guide of the panel system according to the solution presented is disclosed in claim **19**.

[0009] The panel of the panel system according to the solution is movable. The panel is intended to be positioned and connected between the essentially parallel lower guide and upper guide of the panel system in order to move the panel on the lower guide. The panel, for example, its lath, comprises at least one claw configured to grip the lower guide. The claw is connected to the panel in such a way that the claw is able to move in the vertical direction when the panel is vertical. When pulled away from the panel, the claw may grip the lower guide. The claw will tend to retract by itself towards the panel, away from the lower guide.

[0010] The claw prevents the panel from rising off the lower guide or from on top of it, alternatively it restricts the rising of the panel upwards. The claw tends to move upwards by itself and automatically and thus no manual control is required. When retracted, the claw may also be configured so as to settle higher than the lower guide and it will thus not prevent the opening of the panel and, if necessary, the claw will be able to travel over the lower guide. The claw may also prevent the panel from turning or swaying, for example, due to the effect of wind.

[0011] The panel system according to the solution comprises the panel described above and in addition a lower guide and an upper guide, which are essentially parallel and between which the panel is positioned and to which the panel is connected for moving. The lower guide comprises a rail on which the panel is supported when moving along the lower guide. On at least one side of the rail is a flange which is fixed to the essentially vertical web of the rail. The claw is configured to remain under the flange when the panel moves, when the claw is pulled away from the panel. The claw prevents the panel from rising up or falling off the rail.

[0012] The rail described above provides a structure which the claw is able to grip.

[0013] As an extension of the flange may be a guide surface which is directed downwards and inclined with respect to the horizontal direction and the flange. According to an example, when the panel moves in a first direction, the guide surface is configured to force the claw to move away from the panel and under the flange. According to another example, when the panel moves in the opposite, second direction, the guide surface is configured to allow the claw to move towards the panel and out from under the flange.

[0014] In the lower guide of the panel system according to the solution, on which the panel of the panel system is intended to rest when moving along the lower guide, is a rail on which the panel may rest when moving along the lower guide. As an extension of the rail is auxiliary rail on which the panel may also rest when moving along the lower guide.

[0015] According to an example, the guide surface described above is located in the auxiliary rail.

[0016] By means of the auxiliary rail, a part of the lower guide and its rail can be replaced with a part in which can be formed shapes and structures, such as reductions, which are difficult or expensive to make in the lower guide. The lower guide may thus be an extruded continuous part to which other shapes can be added by means of an auxiliary

rail. To the auxiliary rail may also be connected or fixed other parts, such as a support part or a support surface. The positioning of the different parts with respect to one another and the lower guide is thus facilitated if the parts are already in the same part.

DESCRIPTION OF THE DRAWINGS

[0017] The solution presented is described in greater detail in the following, with reference to the accompanying drawings.

[0018] FIG. **1** shows a front view of a panel system to which the solution presented may be applied,

[0019] FIG. **2** shows a side view of an example of the panel system of FIG. **1**, a lower guide and a panel, to which the solution presented may be applied, and when the panel is moving to a predetermined point and away from it.

[0020] FIG. **3** shows an example of the panel system of FIG. **1**, a lower guide, to which the solution presented may be applied,

[0021] FIG. **4** shows the panel and the lower guide of FIG. **2** with the panel moved to a predetermined point for opening.

[0022] FIG. **5** shows the panel and a lower guide of FIG. **2** when the panel is opening.

DETAILED DESCRIPTION OF THE SOLUTION

[0023] In the Figures, the same or corresponding parts are marked with the same reference number.

[0024] FIGS. **1** and **2** show an example of a panel system to which the solutions presented may be applied.

[0025] The panel system may comprise at least one moving panel **10**, a lower guide **16**, an upper guide **14**, a hinge element **40** fixed to the upper edge of each panel **10** and a hinge element **42** fixed to the lower edge of each panel **10**.

[0026] According to one example, the panel system may further comprise at least one stationary panel **12** which does not move along the lower and upper guides **14**, **16**, a hinge element **32** fixed to the upper edge of each panel **12** and a hinge element **34** fixed to the lower edge of each panel **12**.

[0027] The panel **12** may be opened in such a way that it turns around a vertical rotation axis X1. The rotation axis X1 is perpendicular to the longitudinal directions of the lower and upper guides **14**, **16**. The said rotation axis X1 is furthermore located in the vicinity of one vertical edge of the panel **12**.

[0028] When closed, the panels **10**, **12** are most preferably parallel and positioned in succession in such a way that they form a wall or window or an access opening. The lower guide **16** and the upper guide **14**, which are parallel, are located at a distance from one another and positioned vertically on top of one another. The panels **10**, **12** are located between the lower guide **16** and the upper guide **14** in such a way that the panels **10**, **12** are vertical. The two opposite upright edges of the panel **10**, **12** are vertical and the upper and lower edges of the panel **10**,**12** are horizontal. The lower guide **16** may attach to a railing or a suitable surface, for example the floor. The lower guide **16** may be at least partly embedded in a railing or floor. The upper guide **14** may attach, for example, to a ceiling or other suitable structure.

[0029] The hinge element **32** is located inside the upper guide **14** and allows the panel **12** to be opened. Rotation axis X1 passes through the hinge element **32**. The hinge element **32** may be locked to the upper guide **14**.

[0030] The hinge element **34** is located inside the lower guide **16**, or on top of it, and allows the panel **12** to be opened. Rotation axis X1 also passes through the hinge element **34**. The hinge element **34** may be locked to the lower guide **16**.

[0031] Hinge element **32** and/or hinge element **34** may comprise a shaft journal on which the panel **12** turns. Hinge element **32** and/or hinge element **34** may be configured to lock with the hinge element **40**, **42**, upper guide **14** or lower guide **16** of the adjacent panel **10** when panel **10** is opened and the panel **12** is open.

[0032] According to one example and FIG. **1**, on the upper edge of the panel **10**, **12** may be fixed a lath **18** to which the hinge element **32**, **40** may be fixed, for example, with screws or nuts. On the lower edge of the panel **10**, **12** may be fixed a lath **20** to which the hinge element **34**, **42** may be fixed, for example, with screws or nuts. The lath **19**, **20** forms a part of the panel **10**, **12**, for example, the lower edge or upper edge of the panel **10**,**12**.

[0033] According to one example and FIG. **1**, on the upper edge of the panel **12** may be fixed a lock part **24** which attaches to the upper guide **14** and is at a distance from the hinge element **32**. The lock part **24** can be opened and detached from the upper guide **14** for opening the panel **12**. The lock part **24** is controlled, for example, by means of a pulling cable, chain or wire or the like **28**. To the panel **12** may be fixed a handle part **22**. The handle part **22** may control the lock part **24**, other locking part or other parts of the panel system, for example, by means of the power conveyed by a cable, chain, wire or the like **28**. Moving the handle part **22** opens the lock part **24**. The handle part **22** is, for example a turning or rotating handle or knob fixed to the centre part of the panel **12** or alternatively on the lower edge of the panel **12**, for example on a lath **20**. According to an example, the handle part **22** is a part of the above-mentioned locking part or other above-mentioned part of the panel system.

[0034] According to an example and FIG. **1**, on the lower edge of the panel **12** may be fixed a lock part **26** which attaches to the lower guide **16** and is at a distance from the hinge element **34**. The lock part **26** is controlled, for example, by means of a handle part **22** and a pulling cable, chain, wire or the like **28**.

[0035] The moving panel **10** may be moved along the lower and upper guides **14**, **16**. The panel **10** may, in addition, be opened in such a way that it turns around a vertical rotation axis X2. For opening, the panel **10** may be moved to a predetermined point where, for example, rotation axes X1 and X2, or two rotation axes X2, are close to one another. Rotation axis X2 is perpendicular to the longitudinal directions of the lower and upper guides **14**, **16**. The said rotation axis X2 is furthermore located in the vicinity of one vertical edge of the panel **10**.

[0036] The hinge element **40** is located inside the upper guide **14** and allows the panel **10** to be opened. Rotation axis X2 passes through the hinge element **40**. The hinge element **40** is able to move along the upper guide **14**.

[0037] The hinge element **42** is located inside the lower guide **16**, or on top of it, and allows the panel **10** to be opened. Rotation axis X2 also passes through the hinge element **42**. The hinge element **42** is able to move along the lower guide **16**, for example by means of a roller or wheel.

[0038] Hinge element **40** and/or hinge element **42** may comprise a shaft journal on which the panel **10** turns. Hinge element **40** and/or hinge element **42** may comprise a locking part, by means of which the hinge element **40**, **42** locks with the upper guide **14**, the lower guide **16** or the hinge element **40**, **42** of the adjacent panel **10** when the adjacent panel **10** is opened and panel **10** is open.

[0039] The panel **10** may in addition comprise a control element **44** attached on the upper edge of the panel **10**, for example, to a lath **18**. The control element **44** is located inside the upper guide **14**, able to move along the upper guide **14**, and at a distance from the hinge element **40**. While inside the upper guide **14**, the control element **44** keeps the panel **10** closed. The upper guide **14** may comprise an opening **30** allowing the control element **44** to exit from the upper guide **14** and to detach from the upper guide **14** in order to make the opening of the panel **10** possible. The opening **30** may be situated under the lock part **24**. By the opening **30** may be located an upper control unit **50** which supports the control element **44** exiting from and returning to the upper guide **14**.

[0040] The panel **10** may comprise a control element **46** fixed to the lower edge of the panel **10**, for example to a lath **20**. The control element **46** is located inside the lower guide **16**, or on top of it, so as to allow the control element **46** to move along the lower guide **16**. The control element **46** is at a distance from the hinge element **42**. The control element **46** moves along the lower guide **16**, for example, by means of a roller or wheel. The control element **46** is allowed to detach or distance itself from the lower guide **16**, thus enabling the opening of the panel **10**.

[0041] The lower guide **16** may comprise a support part **48**. A support part **48** fixed in place adjacent to the lower guide **16** supports an opening panel **10** which has been moved to a predetermined point for opening the panel **10**. The support part **48** is then at a distance from the hinge element **42** of the opening panel **10**.

[0042] The panel **10** may comprise a support **66** fixed to the lower edge of the panel, for example to a lath **20**. The opening panel **10** is supported by means of the support **66**. The support **66** is at a distance from the hinge element **42**. Through the support **66**, the panel **10** rests, for example, on the lower guide **16** or the part fixed to it which forms a part of the lower guide **16**.

[0043] The support **66** may be fixed to the panel **10** or under the lath **20**. The support **66** may be a part of the control element **46**. The support **66** is allowed to detach or distance itself from the lower guide **16** when the panel **10** is opened. The support **66** is fixed to the panel **10** or lath **30** rigidly or immovably, or the support **66** may be locked into a position where it is immobile.

[0044] The support part **48** may comprise a support plane **52** which extends sideways from the lower guide **16** and on top of which the panel **10** slides when the panel **10** is opened sideways. The panel **10** rests on the support plane **52**, for example, through the support **66**. The support part **48** or support plane **52** supports the panel **10** while the panel **10** is being opened.

[0045] Once the panel **10** has opened to the predetermined extent, which depends on the length of the support part **48** or support plane **52**, the panel **10** or the support **66** moves away from on top of the support part **48** or support plane **52** when the panel **10** is opened further. By means of the support part **48** or support plane **52** the falling of the panel **10** is prevented and it is ensured, for example, that the hinge element **40** locks to the upper guide **14** or to the hinge element **40** of the adjacent panel **10**.

[0046] The panel **10** or the support **66** moves on top of the support part **48** or support plane **52** both when the panel **10** is being closed and when the panel **10** is being moved in the direction of the lower guide **16**, when the panel **10** is moved to a predetermined point for opening the panel **10**.

[0047] The top surface of the support part **48** or support plane **52** may be inclined. One or more edges of the support part **48** or support plane **52** may have an inclined surface which guides the panel **10** or support **66** onto the support part **48** or support plane **52**. The top surface **48** of the support part **48** or the support plane **52** is at a height at which the panel **10** rises when the panel **10** or support **66** moves onto the support part **48** or support plane **52**, or the panel **10** remains at the same height irrespective of whether the panel **10** or support **66** is on top of the support part **48** or support plane **52** or off it.

[0048] According to an example, the support **66** extends vertically lower than the panel **10** and the lath **20**. The support plane **52** also extends lower than the panel **10** and the lath **20**. The support **66** then slides along the support plane **52** and the panel **10** and lath **20** are able to pass over the support plane **52** when the panel **10** slides past the support plane **52**.

[0049] According to an example, the lower guide **16** comprises a rail **60** on which the panel **10** rests when it moves along the lower guide **16**. The hinge element **42** and the guide element **46** rest on the rail **60** when they move along the lower guide **16**.

[0050] According to an example, the support **66** extends vertically lower than the upper surface of the rail **60**. The structure of the control element **46** or the support **66** may settle against one side of the lower guide **16** or rail **60**, or close to it, and prevent a closing or closed panel **10** from swaying or moving over the lower guide **16** or the rail **60** to the opposite side of the lower guide **16** with respect to the opening direction.

[0051] According to an example, when the rail **60** is in its position of use, for example, horizontal, on one side or two opposite sides of the rail **60** is a flange **64** which is fixed to the essentially vertical web **62** of the rail **60**. The rail **60**, including the flange **64**, and the web **62**, is elongated and the flange **64** extends in the longitudinal direction of the rail **60**. The flange **64** may be located on the upper edge of the web **62** or lower. The flange **64** extends sideways from the web **62** and has a downwards directed lower surface.

[0052] According to an example, the flange **64** and the rail **60** have a joint upper surface. The lower surface of the flange **64** is located vertically lower than the upper surface of the rail **60**. The hinge element **42** and the control element **46** may rest on the above-mentioned joint upper surface.

[0053] According to an example, a part of the rail **60** of the lower guide **16** is replaced with a separate part, a so-called auxiliary rail **54**, on which the panel **10** or the hinge element **42** and the control element **46** may rest as it moves along the lower guide **16**. The auxiliary rail **50** is an extension of the rail **60**. According to an example, on at least one side or two opposite sides of the auxiliary rail **54** is a flange **64** which is fixed to the essentially vertical web **62** of the rail **54**. The flange **64** extends sideways and has a lower surface. According to an example, the flange **64** and the auxiliary rail **54** have a joint upper surface. The lower surface of the flange

64 is located vertically lower than the upper surface of the auxiliary rail 54. The hinge element 42 and the control element 46 may rest on the above-mentioned joint upper surface.

[0054] A part of the rail 60 of the lower guide 16 at the support plane 53 is replaced with an auxiliary rail 54, in such a way that the upper surfaces of the rail 60 and auxiliary rail 54 are extensions of one another and at the same height. A hinge element 42 moving along the lower guide 16 is capable of moving from on top of the rail 60 onto the auxiliary rail 54, over the auxiliary rail 54 and further onto the rail 60. According to an example, depending on the positioning of the control element 46, the control element 46 moving along the lower guide 16 is also capable of moving from on top of the rail onto the auxiliary rail 54.

[0055] The lower guide 15 rail 60 has, for example, an opening in which the auxiliary rail 54 may be positioned. According to an example, the support part 48 and the auxiliary rail 54 are fixed to one another or the auxiliary rail 54 is a seamless part of the support part 48.

[0056] According to an example, the flange 64 on one side of the rail 60 or auxiliary rail 64 is located on the same side of the rail 60 or auxiliary rail 54 as the support part 48 or support surface 52.

[0057] On one side or two opposite sides of the rail 60 or auxiliary rail 54 is a flange 64 which may be tapered over at least one predetermined length. The tapered section 56 of the rail 60 or auxiliary rail 54 is narrower than the section of the flange 64, rail 60 or auxiliary rail 54 preceding the beginning and/or end of the tapered section 56. According to an example, the tapered section 56 is located entirely in the auxiliary rail 54 and does not, therefore, extend to the rail 60.

[0058] According to an example, the flange 64 of the rail 60 or auxiliary rail 54 located on the same side of the rail 60 or auxiliary rail 54 as the support part 48 or support surface 52 is tapered.

[0059] As an extension of the flange 64 of the rail 60 or auxiliary rail 54 may be a guide surface 58 which is directed downwards and is inclined with respect to the horizontal direction and the flange 64, for example, with respect to the lower surface of the flange 64.

[0060] The guide surface 58 rises and ends at the end of the flange 65, to the beginning of the tapered section 56 or to the end of the tapered section 56. One guide surface 58 may be located at the beginning of the tapered section 56 and another guide surface 58 at the end of the tapered section 56. There may be guide surfaces 58 on both sides of the rail 60 or auxiliary rail 54 in conjunction with the end of the flange 65 or the tapered section 56.

[0061] According to an example, one or more guide surfaces 58 are located entirely in the auxiliary rail 54 and do not, therefore, extend to the rail 60.

[0062] The panel 16 or lath 20 may further comprise a claw 68 which is configured to grip the lower guide 16, the rail 60 or the auxiliary rail 54. The claw 68 prevents a closed panel 10 from rising off the lower guide 16, the rail 60 or the auxiliary rail 54, or prevents the panel 10 from rising upwards.

[0063] The claw 68 is connected to the panel 10 or lath 20 movably in such a way that the claw 68 is able to reciprocate, that is, move away from the panel 10 or lath 20 and towards the panel 10 or lath 12. The claw 68 moves essentially in the vertical direction when the panel 10 is vertical in its position of use. When the lower guide 16 comprises a rail 60 or an auxiliary rail 54 which the claw 68 grips and the claw 68 is pulled down, the claw 68 extends lower than the rail 60 or auxiliary rail 54 in the vertical direction. The claw 68 is fitted in the panel 10 or lath 20 in such a way that it tends to pull upwards towards the panel 10 or lath 12 and away from the lower guide 16. According to an example, to the claw 68 is connected a spring which is located in the panel 10 or lath 20, and by the force of which the claw 68 is continuously pulled upwards.

[0064] According to an example, the claw 68 comprises a structure which extends downwards from the panel 10 or lath 20 and rotates past the flange 64 and under the flange 64 and is able to settle, for example, against the lower surface of the flange 64. The claw 68 is then pulled down and the end of the claw 68 is against the lower surface of the flange 64. As the panel 10 moves, the end of the claw 68 is able to move along the lower surface of the upper guide 64. At the end of the claw 68 may be an inclined, wedge-like shape or guiding surface.

[0065] According to an example, the claw 68 is located on the same side of the rail 60 or auxiliary rail 54 as the tapered section 56. According to an example, the claw 68 is located on the same side of the rail 60 or auxiliary rail 54 as the support part 48 or support surface 52. Thus, when the claw 68 is pulled up, the claw 68 may extend lower than the upper surface of the rail 60 or auxiliary rail 54 in the vertical direction.

[0066] The claw 68 is at a distance from the hinge element 42. The claw 68 may be a part of the control element 46. The claw 68 is located in the panel 10 or lath 20 at a point which settles in front of the flange 64 ending in the tapered section 56 or in front of the guide surface 58 when the panel 10 closes. The said point is, for example, at the support surface 52 of the support part 48 or at the auxiliary rail 54.

[0067] According to an example, the claw 68 is forced to move downwards and guided to grip the lower guide 16, the rail 60 or the auxiliary rail 54 by utilising one or more of the guide surfaces 58 described above. In addition to this, the guide surface 58 allows the claw 68 to move upwards and to detach from the lower guide 16, the rail 60 or the auxiliary rail 54. The claw 68 or the end of the claw 68 is then able to move through the tapered section 56.

[0068] The guide surface 58 is fitted to a predetermined point and height, where the guide surface 58 may settle into contact with a moving, retracted claw 68, for example, with the end of the claw 68. The claw 68 then moves with a panel 10 which is closed and moves in a first direction, in which direction the guide surface 58 also descends. The claw 68 slides along the guide surface 58 which, due to wedge-like activity, forces the claw 68 downwards and guides the claw 68 under the flange 64 in the lower guide 16, the rail 60 or the auxiliary rail 54. When the panel 10 moves or is stationary and closed, the claw 68 remains under the flange 64 and prevents the panel 10 from rising. When the panel 10 moves in the opposite second direction, the same guide surface 58 allows the claw 68 to retract upwards by itself and to detach from the lower guide 16, the rail 60 or the auxiliary rail 54.

[0069] According to an example, the end of the claw 68 slides along the guide surface 58 and the lower surface of the flange 64.

[0070] According to an example, the panel 10 or the lath 20 comprises two of the claws 68 described above, which are located on opposite sides of the lower guide 16 structure,

the rail **60** or the auxiliary rail **54**. One of the claws **68** is located on opposite side of the lower guide **16**, the rail **60** or the auxiliary rail **54** with respect to the support part **48** or support surface **52**. Thus, when the claw **68** is retracted upwards, the claw **68** extends downwards in the vertical direction, to the level of or higher than the lower guide **16** structure, the rail **60** or the auxiliary rail **54**. The said claw **68** is thus able to move over the lower guide **16** structure, the rail **60** or the auxiliary rail **54** with the opening panel **10**, and the claw **68** will not prevent the opening of the panel by settling against the lower guide **16** structure, the rail **60** or the auxiliary rail **54**. When the said claw **68** is retracted upwards, the claw **68** may extend lower than the upper surface of the lower guide **16** structure, the rail **60** or the auxiliary rail **54** in the vertical direction.

[0071] According to a first example, the two claws **68** described above, which are located on opposite sides of the lower guide **16** structure, the rail **60** or the auxiliary rail **54**, are connected to each other and move together and simultaneously. According to another example, the claws **68** are connected to each other in such a way that when one of the claws **68** moves downwards, it forces also the other claw **68** to move at least downwards. In the above-mentioned first and second examples, one of the claws **68** is forced to a height, where, when the panel **10** moves, the said claw **68** may settle against the guide surface **58** or under or below the flange **64** in the rail **60** or auxiliary rail **54**, as described above.

[0072] The upper guide **14** and/or the lower guide **16** or the lath **18** and/or lath **20** are, according to one example, made of aluminium or an aluminium alloy, and have a continuous or elongated in shape. It is also possible to use other materials and metals.

[0073] The hinge element **32**, **34**, **40**, **42** or the control element **36**, **38**, **44**, **46** or support part **48** or auxiliary rail **54** or support **66** or claw **68** is most preferably a piece made of plastic material but other materials, such as metal, may also be used.

[0074] According to one example, the panel **10**, **12** is made of tempered glass. It is also possible to use other glass materials and sheet-like materials. The panel **10**, **12** is preferably transparent, but opaque panels can also be used.

[0075] The solution presented is not limited only to the alternatives and examples shown in the accompanying Figures or specifically disclosed in the foregoing description, or to which reference has been made in the description. The features disclosed in the foregoing may be combined and implemented in various combinations.

[0076] The different embodiments of the solution are disclosed in the accompanying claims.

1. A panel system, wherein the panel system comprises:

a panel which is movable and vertical; and

a lower guide and an upper guide which are essentially parallel and between which the panel is positioned and to which the panel is connected for moving;

wherein the lower guide on which the panel rests when moving along the lower guide, and on at least one side of the rail is a flange which is fixed to an essentially vertical web of the rail, extends sideways from the web and has a lower surface which is directed downwards;

wherein the panel comprises a claw which is configured to grip the lower guide to prevent the panel from rising or lifting off from the rail;

wherein the claw is connected to the panel in such a way that the claw is able to move vertically when the panel is vertical, wherein the claw is fitted in the panel such a way that the claw tends to retract upwards away from the lower guide towards the panel by itself and grips the lower guide when pulled down away from the panel; and

wherein the claw is configured to remain under the flange and to move along the lower surface of the flange while the panel is moving and the claw is being pulled down away from the panel.

2. The panel system according to claim **1**, wherein the claw comprises a structure which extends downwards from the panel past the flange under the flange and settles against the lower surface of the flange.

3. The panel system according to claim **2**, wherein the claw comprises an end which settles against the lower surface of the flange.

4. The panel system according to claim **1**, wherein the flange extends in a longitudinal direction of the rail and extends sidewards from the web.

5. The panel system according to claim **1**, wherein the flange comprises a tapered section which is narrower than a section of said flange that is preceding either the beginning or the end of the tapered section, or both.

6. The panel system according to claim **1**, wherein the rail comprises a guide surface as an extension of the flange, which guide surface is directed downwards and inclined with respect to a horizontal direction and the flange.

7. The panel system according to claim **6**, wherein when the panel moves in a first direction, the guide surface that is fitted to a predetermined point and height is adapted to settle into contact with the claw that is moving with the panel; and wherein the guide surface is configured to force the claw that is moving along the guide surface to move down away from the panel and to guide the claw under the flange.

8. The panel system according to claim **7**, wherein when the panel moves in a second direction that is opposite to the first direction, the guide surface is configured to allow the claw to move upwards towards the panel and away from under the flange for detaching from the lower guide.

9. The panel system according to claim **1**, wherein the claw extends vertically lower than an upper surface of the rail both when the claw is pulled out and when the claw is retracted.

10. The panel system according to claim **1**, wherein the rail has an auxiliary rail as an extension of the rail on which auxiliary rail the panel is adapted to rest when the panel moves.

11. The panel system according to claim **5**, wherein the rail has an auxiliary rail as an extension of the rail on which auxiliary rail the panel is adapted to rest when the panel moves and in which auxiliary rail the tapered section is located.

12. The panel system according to claim **6**, wherein the rail has an auxiliary rail as an extension of the rail on which auxiliary rail the panel is adapted to rest when the panel moves and in which auxiliary rail the guide surface is located.

13. The panel system according to claim **10**, wherein a support part is fixed adjacent to the lower guide, which support part is adapted to support the panel that is opening and which panel has been moved to a predetermined point for opening the panel; and

wherein the support part and the auxiliary rail are fixed to one another or the auxiliary rail is a seamless part of the support part.

14. The panel system according to claim **13**, a support is fixed to the panel by means of which support the panel that is opening or closing is supported on the support part and which support slides along the support part when the panel opens or closes.

15. The panel system according to claim **1**, wherein the claw is a first claw and the panel comprises a second claw on opposite side of the lower guide with respect to the first claw which second claw is configured to grip the lower guide, and

wherein the second claw is connected to the panel in such a way that the second claw is able to move vertically when the panel is vertical, wherein the second claw is fitted in the panel such a way that the second claw tends to retract upwards away from the lower guide towards the panel by itself and grips the lower guide when pulled down away from the panel, and

wherein the first claw is configured to force the second claw to move down away from the panel when the first claw is moving down away from the panel.

16. A panel suitable for use in a panel system, the panel being movable and intended to be located and connected between a lower guide and a upper guide of the panel system for moving the panel on the lower guide, wherein the lower guide and the upper guide are essentially parallel;

wherein the panel further comprises a claw which is configured to grip the lower guide, and

wherein the claw is connected to the panel in such a way that the claw is able to move vertically when the panel is vertical, wherein the claw is fitted in the panel such a way that it tends to retract upwards away from the lower guide towards the panel by itself and grips the lower guide when pulled down away from the panel.

17. The panel according to claim **16**, wherein the claw is a first claw and the panel comprises a second claw on opposite side of the lower guide with respect to the first claw which second claw is configured to grip the lower guide, and

wherein the second claw is connected to the panel in such a way that the second claw is able to move vertically when the panel is vertical, wherein the second claw is fitted in the panel such a way that the second claw tends to retract upwards away from the lower guide towards the panel by itself and grips the lower guide when pulled down away from the panel, and

wherein the first claw is configured to force the second claw to move down away from the panel when the first claw is moving down away from the panel.

18. The panel according to claim **16**, wherein a lath is fixed on a lower edge of the panel to which lath the claw is movably connected and by means of which lath the claw is fixed to the panel.

19. A lower guide of a panel system, on which lower guide a panel of the panel system is intended to rest when the panel is moving along the lower guide,

wherein the lower guide comprises a rail on which the panel may rest when moving along the lower guide, and

wherein the lower guide comprises an auxiliary rail as an extension of the rail, on which auxiliary rail the panel may also rest when the panel is moving along the lower guide.

20. The lower guide according to claim **19**,

wherein on at least one side of the rail is a flange (**64**) which is fixed to an essentially vertical web of the flange extends in a longitudinal direction of the rail and extends sidewards from the web and which flange has a downwards directed lower surface;

wherein the flange has a guide surface as an extension of the flange, which guide surface is directed downwards and is inclined with respect to a horizontal direction and the flange;

wherein the flange comprises a tapered section which is narrower than a section of the said flange that is preceding either the beginning or the end of the tapered section, or both; and

wherein the tapered section is located in the auxiliary rail.

21. The lower guide according to claim **20**, wherein a support part is fixed adjacent to the lower guide, which support part supports the panel that is opening and has been moved to a predetermined point for opening the panel, and

wherein the support part and the auxiliary rail are fixed to one another or the auxiliary rail is a seamless part of the support part.

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