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(54) **Structural connection of door leaf and door frame**

(57) The subject of the invention is the structural connection of door leaf and door frame, the task of which is to ensure diversified thermal insulation depending on the needs while applying the same base profiles of frame and door leaf.

The structural connection of door leaf and door frame, is comprised of a thin-wall frame profile and a thin-wall door leaf profile composed of a dimensional compound profile circumflexing the glazed panel secured at its perimeter with a thermal insulating insert and sealed on one side of the glazed panel with an external panel gasket and with an internal pane gasket pressed by a glazing strip on the other side. The thin-wall profile (3) of the frame (2) has three closed chambers (9), (10), (11),

where the internal chamber (10) has opposite trapezoid sockets (12), (12') for the fixed connection with trapezoid protrusions (13), (13') of the spacers (14), (15) while the thin-wall profile (4) of the door leaf (1) has three closed chambers (16), (17), (18), while the internal chamber (17) has trapezoid sockets (19), (19') for the fixed connection with trapezoid protrusions (20), (20') of the profile spacers (21), (22), while in the space (23) between the door leaf (1) and the frame (2), masking gaskets (24), (24') are located, the profile, trapezoid protrusions of which (25), (25') are inserted into the rhombus-shaped sockets (26), (26') of the profile spacer (15). (21), while between the door leaf (1) and frame (2) closing strips have been placed (8), (8').

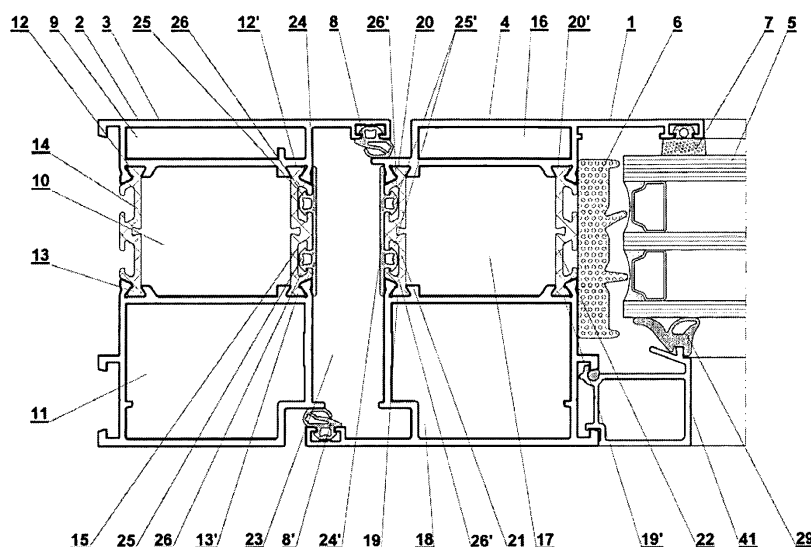


Fig. 1

Description

[0001] The subject of the invention is the structural connection of door leaf and door frame, the task of which is to ensure diversified thermal insulation depending on the needs while applying the same base profiles of frame and door leaf.

[0002] The currently known solutions in aluminum or plastic profile door joinery do not ensure the achievement, in a simple manner, of solutions in terms of diversified thermal insulation for doors and built-in frames with the use of basic construction profiles and accessories.

[0003] The structural connection of door leaf and door frame, comprising of a thin-wall frame profile and a thin-wall door leaf profile composed of a dimensional compound profile circumflexing the glazed panel secured at its perimeter with a thermal insulating insert and sealed on one side of the glazed panel with an external panel gasket and with an internal pane gasket pressed by a glazing strip on the other side is, in accordance to the invention, characterized by the fact that the thin-wall profile of the frame has three closed chambers where the internal chamber has opposite trapezoid sockets for the fixed connection with trapezoid protrusions of the spacers while the thin-wall profile of the door leaf has three closed chambers, while the internal chamber has trapezoid sockets for the fixed connection with trapezoid protrusions of the profile spacers while in the space between the door leaf and the frame, masking gaskets are located, the profile, trapezoid protrusions of which are inserted into the rhombus-shaped sockets of the profile spacer, while between the door leaf and frame closing strips have been placed.

[0004] The variation of the structural connection of door leaf and door frame, comprising of a thin-wall frame profile and a thin-wall door leaf profile composed of a dimensional compound profile circumflexing the glazed panel secured at its perimeter with a thermal insulating insert and sealed on one side of the glazed panel with an external panel gasket and with an internal pane gasket pressed by a glazing strip on the other side is, in accordance to the invention, characterized by the fact that the thin-wall profile of the frame has three closed chambers, where the internal chamber has opposite trapezoid sockets for the fixed connection with trapezoid protrusions of the spacers while the thin-wall profile of the door leaf has three closed chambers, while the internal chamber has trapezoid sockets for the fixed connection with trapezoid protrusions of the profile spacers, while in the space between the thin-wall profile of the frame and the thin-wall profile of the door leaf a central gasket has been placed, the outer part of which has at least two near-triangle sectioned protrusions, which limit the convection of the space, while in the trapezoid sockets of the profile spacers, trapezoid endings of the thermal barrier dividing the closed chambers into at least two parts, have been placed, while at the external part of the thermal barrier a thermal insulating insert has been placed, which adjoins

to the external wall of the frame, while closing strips have been placed between the door leaf and the frame.

[0005] Another variation of the structural connection of door leaf and door frame, comprising of a thin-wall frame profile and thin-wall door leaf profile composed of a dimensional compound profile circumflexing the glazed panel and sealed on one side of the glazed panel with an external panel gasket and with an internal panel gasket pressed by a glazing strip on the other side, is, in accordance to the invention, characterized by the fact that the thin-wall profile of the frame has three closed chambers, where the internal chamber has opposite trapezoid sockets for the fixed connection with trapezoid protrusions of the spacers, while the thin-wall profile of the door leaf has three closed chambers, while the internal chamber has trapezoid sockets for the fixed connection with trapezoid protrusions of the profile spacers, while in the space between the thin-wall profile of the frame and the thin-wall profile of the door leaf a central gasket has been placed, the outer part of which has at least two near-triangle sectioned protrusions, which limit the convection of the space and while at the external part of the thermal barrier an insulating insert has been placed, which adjoins to the external wall of the frame and while on the inside of the internal chamber of the frame and on the inside of the internal chamber of the door leaf and between the glazed panel from the side of the wall aerogel inserts have been placed, while closing strips have been placed between the door leaf and the frame.

[0006] The example subject of the invention has been presented in a drawing in which, in fig. 1 the structural connection of door leaf and door frame has been presented as a longitudinal section through the side part of the door leaf and the frame, in fig. 2 the variation of the structural connection of door leaf and door frame has been presented as a longitudinal section through the side part of the door leaf and the frame, and in fig 3. another variation of the structural connection of door leaf and door frame has been presented as a longitudinal section through the side part of the door leaf and the frame.

[0007] As it has been presented in the drawing (fig. 1), the structural connection of door leaf 1 and door frame 2 is comprised of a thin-wall frame 2 profile 3 and door leaf 1 composed of a dimensional compound profile 4 circumflexing the glazed panel 5 secured at its perimeter with a thermal insulating insert 6 and sealed on one side of the glazed panel 5 with an external panel gasket 7 and with an internal pane gasket 29 pressed by a glazing strip 41 on the other side. Between the door leaf 1 and frame (2) closing strips have been placed 8, 8'. The profile 3 of the frame 2 has three closed chambers 9, 10, 11, where the internal chamber 10 has opposite trapezoid sockets 12, 12' for the fixed connection with trapezoid protrusions 13, 13' of the spacers 14, 15 while the thin-wall profile 4 of the door leaf 1 has three closed chambers 16, 17, 18. The internal chamber 17 has trapezoid sockets 19, 19' for the fixed connection with trapezoid protrusions 20, 20' of the profile spacers 21, 22. In the space 23 between

the door leaf **1** and the frame **2**, masking gaskets **24**, **24'** are located, the profile, trapezoid protrusions of which **25**, **25'** are inserted into the rhombus-shaped sockets **26**, **26'** of the profile spacer **15**, **21**.

[0008] The variation of the structural connection (fig. 2) of door leaf **1** and door frame **2**, is comprised of a thin wall frame **2** profile **3** and door leaf **1** composed of a dimensional compound profile **4** circumflexing the glazed panel **5** secured at its perimeter with a thermal insulating insert **6** and sealed on one side of the glazed panel **5** with an external panel gasket **7** and with an internal pane gasket **29** pressed by a glazing strip **41** on the other side. Between the door leaf **1** and frame **2** closing strips have been placed **8**, **8'**. In the space **23** between the thin-wall profile **3** of the frame **2** and the thin-wall profile **4** of the door leaf **1** a central gasket **28**, **28'** has been placed, the outer part of which **31**, **31'** has at least two near-triangle sectioned protrusions **32**, **32'**, which limit the convection of the space **23**. In the trapezoid sockets **33**, **33'** of the profile spacers **14**, **15**, **21**, **22**, trapezoid endings **34**, **34'** of the thermal barrier **35**, **35'** dividing the closed chambers **10** and **17** into at least two parts, have been placed, while at the external part of the thermal barrier **14** a thermal insulating insert **36** has been placed, which adjoins to the external wall **30** of the frame **2**.

[0009] Another variation of the structural connection (Fig. 3) of door leaf **1** and door frame **2**, is comprised of a thin wall frame **2** profile **3** and dimensional a compound profile **4** circumflexing the glazed panel **5** and sealed on one side of the glazed panel **5** with an external panel gasket **7** and with an internal panel gasket **29** pressed by a glazing strip **41** on the other side. Between the door leaf **1** and frame **2** closing strips have been placed **8**, **8'**. In the space **23** between the thin-wall profile **3** of the frame **2** and the thin-wall profile **4** of the door leaf **1** a central gasket **28**, **28'** has been placed, the outer part of which **31**, **31'** has at least two near-triangle sectioned protrusions **32**, **32'**, which limit the convection of the space **23**. At the external part of the thermal barrier **14** an insulating insert **36** has been placed, which adjoins to the external wall **30** of the frame **2** and while on the inside of the internal chamber **10** of the frame **2** and on the inside of the internal chamber **17** of the door leaf **1** and between the glazed panel (**5**) from the side of the wall **27** aerogel inserts **38**, **39**, **40** have been placed.

Claims

1. The structural connection of door leaf and door frame, comprising of a thin-wall frame profile and a thin-wall door leaf profile composed of a dimensional compound profile circumflexing the glazed panel secured at its perimeter with a thermal insulating insert and sealed on one side of the glazed panel with an external panel gasket and with an internal pane gasket pressed by a glazing strip on the other side, **characterized by** the fact that the thin-wall profile (**3**) of

the frame (**2**) has three closed chambers (**9**), (**10**), (**11**), where the internal chamber (**10**) has opposite trapezoid sockets (**12**), (**12'**) for the fixed connection with trapezoid protrusions (**13**), (**13'**) of the spacers (**14**), (**15**) while the thin-wall profile (**4**) of the door leaf (**1**) has three closed chambers (**16**), (**17**), (**18**), while the internal chamber (**17**) has trapezoid sockets (**19**), (**19'**) for the fixed connection with trapezoid protrusions (**20**), (**20'**) of the profile spacers (**21**), (**22**), while in the space (**23**) between the door leaf (**1**) and the frame (**2**), masking gaskets (**24**), (**24'**) are located, the profile, trapezoid protrusions of which (**25**), (**25'**) are inserted into the rhombus-shaped sockets (**26**), (**26'**) of the profile spacer (**15**), (**21**), while between the door leaf (**1**) and frame (**2**) closing strips have been placed (**8**), (**8'**).

2. The structural connection of door leaf and door frame, comprising of a thin-wall frame profile and a thin-wall door leaf profile composed of a dimensional compound profile circumflexing the glazed panel secured at its perimeter with a thermal insulating insert and sealed on one side of the glazed panel with an external panel gasket and with an internal pane gasket pressed by a glazing strip on the other side, **characterized by** the fact that the thin-wall profile (**3**) of the frame (**2**) has three closed chambers (**9**), (**10**), (**11**), where the internal chamber (**10**) has opposite trapezoid sockets (**12**), (**12'**) for the fixed connection with trapezoid protrusions (**13**), (**13'**) of the spacers (**14**), (**15**) while the thin-wall profile (**4**) of the door leaf (**1**) has three closed chambers (**16**), (**17**), (**18**), while the internal chamber (**17**) has trapezoid sockets (**19**), (**19'**) for the fixed connection with trapezoid protrusions (**20**), (**20'**) of the profile spacers (**21**), (**22**), while in the space (**23**) between the thin-wall profile (**3**) of the frame (**2**) and the thin-wall profile (**4**) of the door leaf (**1**) a central gasket (**28**), (**28'**) has been placed, the outer part of which (**31**), (**31'**) has at least two near-triangle sectioned protrusions (**32**), (**32'**), which limit the convection of the space (**23**), while in the trapezoid sockets (**33**), (**33'**) of the profile spacers (**14**), (**15**), (**21**), (**22**), trapezoid endings (**34**), (**34'**) of the thermal barrier (**35**), (**35'**) dividing the closed chambers (**10**) and (**17**) into at least two parts, have been placed, while at the external part of the thermal barrier (**14**) a thermal insulating insert (**36**) has been placed, which adjoins to the external wall (**30**) of the frame (**2**), while closing strips (**8**), (**8'**) have been placed between the door leaf (**1**) and the frame (**2**).

3. The structural connection of door leaf and door frame, comprising of a thin-wall frame profile and door leaf profile composed of a dimensional compound profile circumflexing the glazed panel and sealed on one side of the glazed panel with an external panel gasket and with an internal panel gasket

pressed by a glazing strip on the other side, **characterized by** the fact that the thin-wall profile (3) of the frame (2) has three closed chambers (9), (10), (11), where the internal chamber (10) has opposite trapezoid sockets (12), (12') for the fixed connection with trapezoid protrusions (13), (13') of the spacers (14), (15) while the thin-wall profile (4) of the door leaf (1) has three closed chambers (16), (17), (18), while the internal chamber (17) has trapezoid sockets (19), (19') for the fixed connection with trapezoid protrusions (20), (20') of the profile spacers (21), (22), while in the space (23) between the thin-wall profile (3) of the frame (2) and the thin-wall profile (4) of the door leaf (1) a central gasket (28), (28') has been placed, the outer part of which (31), (31') has at least two near-triangle sectioned protrusions (32), (32'), which limit the convection of the space (23) and while at the external part of the thermal barrier (14) an insulating insert (36) has been placed, which adjoins to the external wall (30) of the frame (2) and while on the inside of the internal chamber (10) of the frame (2) and on the inside of the internal chamber (17) of the door leaf (1) and between the glazed panel (5) from the side of the wall (27) aerogel inserts (38), (39), (40) have been placed, while closing strips (8), (8') have been placed between the door leaf (1) and the frame (2).

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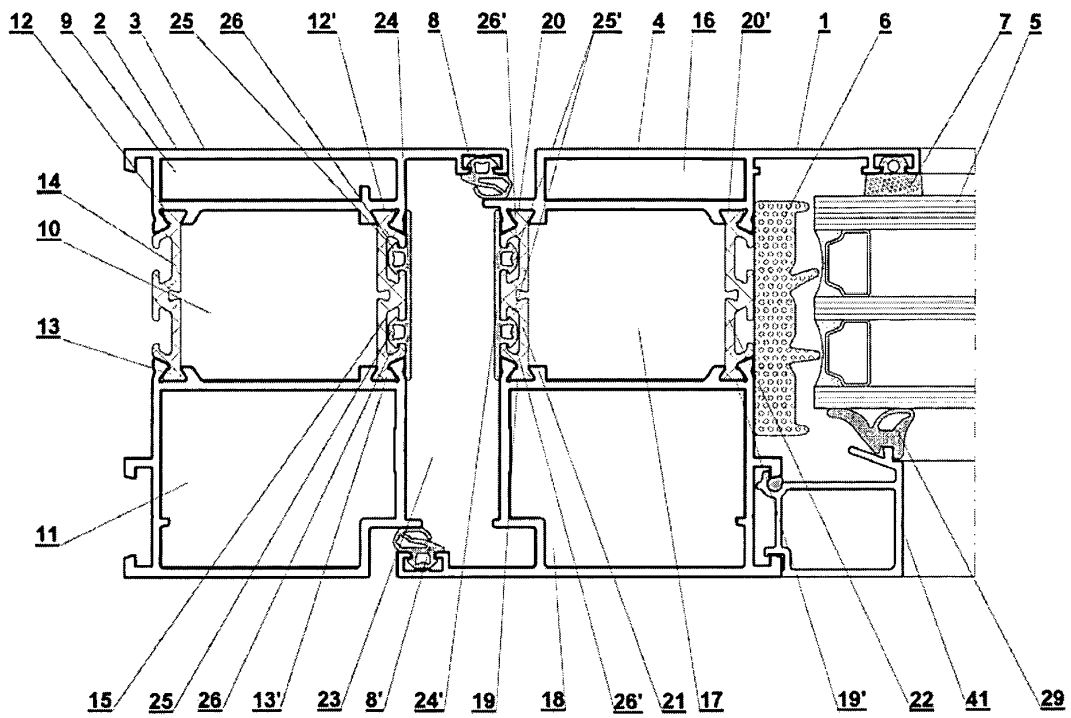


Fig. 1

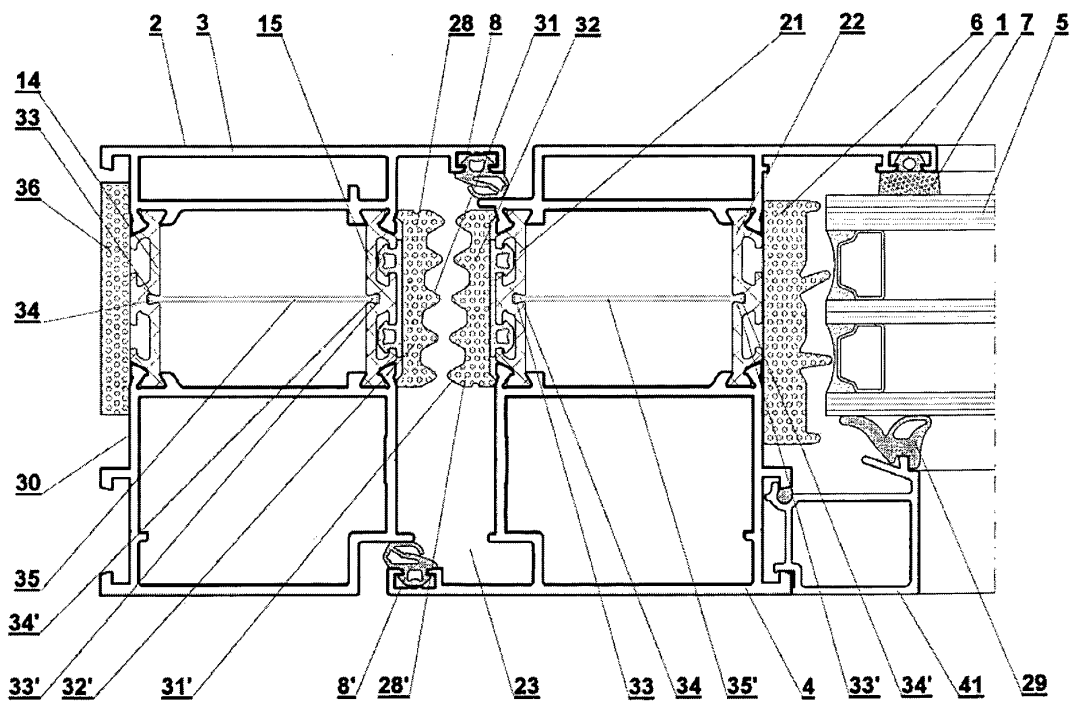


Fig. 2

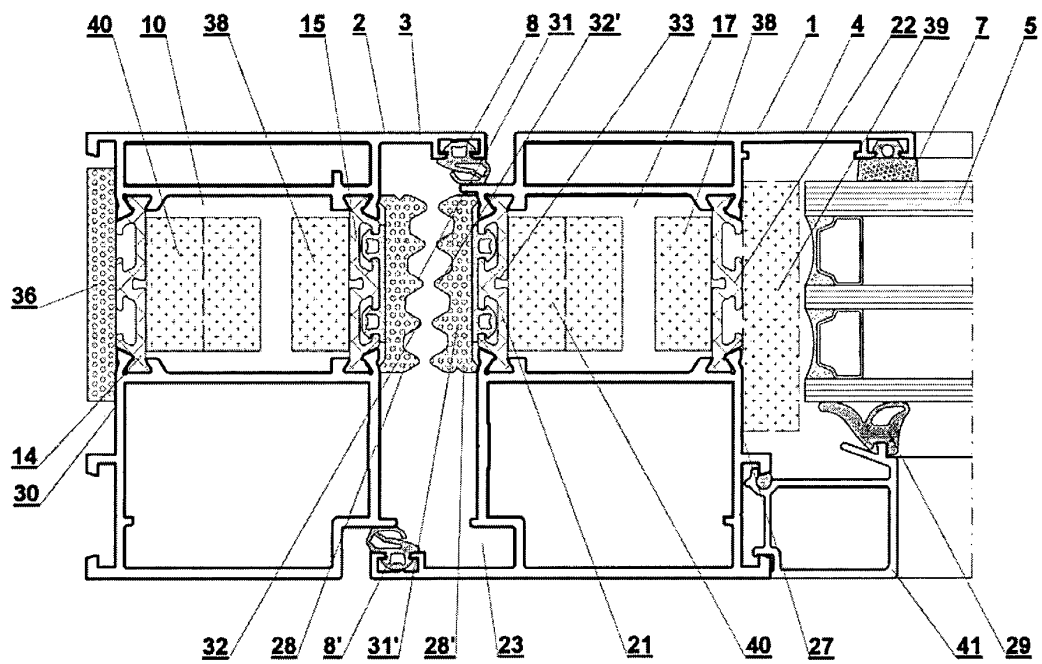


Fig. 3