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(54) Heat insulated door and windows system of adjustable angular turning without thermal break profiles

(57) The invention relates to a thermally insulated door or window system comprising window frame profiles (1) or door frame profiles (2) which are interconnected at adjustable angles in a planar plane. The connection comprises angular turning profiles which do not include thermal break profiles and which consist of inner an outer cover profiles (3,4) and of inner and outer joint profiles (5,6) with thermal insulation material (10) therebetween. The profiles (3,4,5,6) are not mechanically or chemically joined to the thermal insulation material (10).

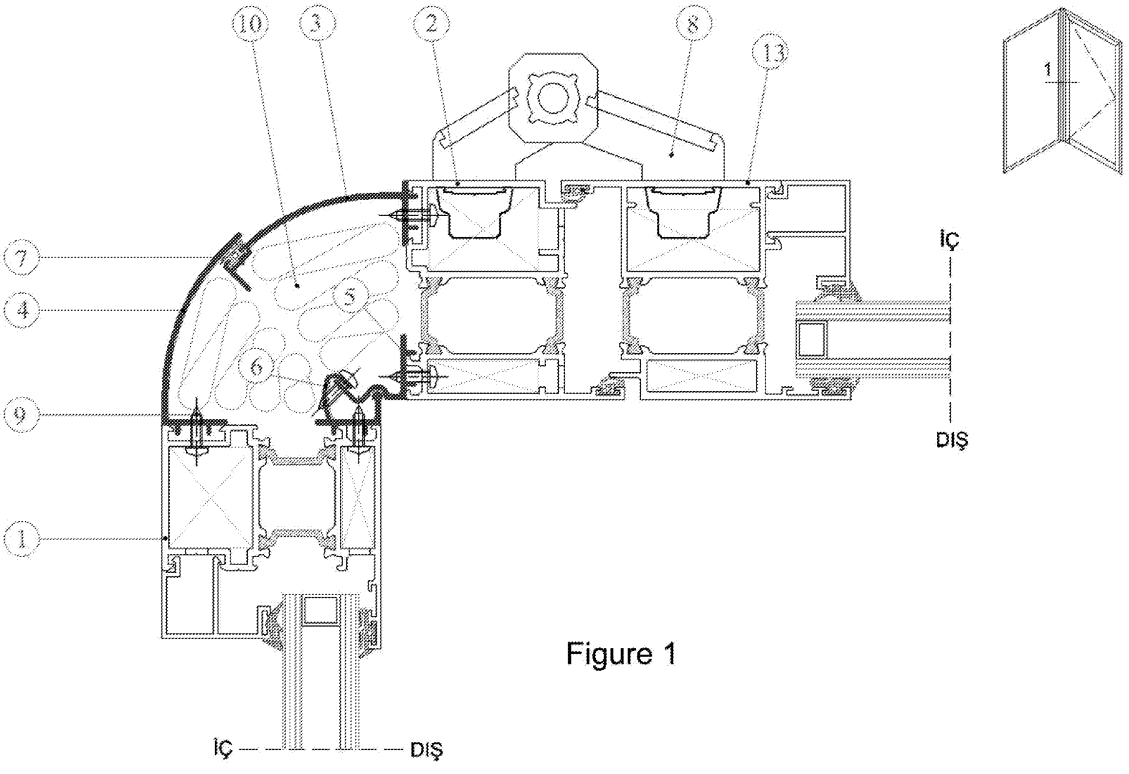

Figure 1

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Description

The Related Art

[0001] The invention relates to heat insulated door and window system, which is capable of the angular turning without thermal break profiles and adjustable.

Background of the Related Art

[0002] From the existing status of the related art, angular turning joints of the heat insulated door and window systems in planar plane is realized by means of

- use of corner turning profiles at fixed angles such as 90º, 135º with thermal break profiles (combined with rigid heat insulation material, door or window turning profiles in a rigid manner mechanically) or
- use of corner turning profiles at fixed angles such as 90º, 135º without thermal break profiles (not having heat insulation material between door and window turning profiles) or
- Use of corner turning profiles with thermal break profiles at adjustable angles.

[0003] The disadvantages of turning profiles mounted at fixed angles when compared to adjustable turning profiles are that it is unlikely to eliminate the disadvantages arising from the building construction tolerances, fenestration production tolerances, fenestration assembling tolerances and angular disadvantages from planar plane at the site pursuant to the project. In addition, it is not likely to change the angle between any two fenestrations in planar lane for any reason when desired. The corner turning profiles without thermal break profiles mounted at fixed angles decrease the heat insulation in corner zones of the two thermally insulated fenestrations.

[0004] The mounting types of the heat insulated or without heat insulation mounted at fixed angles are made in two different ways.

1. turning profiles mounted between two fenestrations,

2. turning profiles, which is the center guide profile for that fenestration at the same time.

Mounting of the turning profiles of the first fenestration, which is the center guide profile at the same time for that fenestration, requires T connection parts in order to assemble it to the second fenestration. In regard to turning profiles mounted between two frames of the fenestration, the first fenestration is mounted to the building and the second is sat into its place and mounted, and the turning profile is only fixed to two fenestrations by means of screws.

[0005] It is not possible to use the same turning profile for the inward opening and outward opening of the thermally insulated fenestration systems, when turning profiles includes the thermal break profiles and it is adjustable for the assembling angle. In addition, the heat insulation zones at the corners, in such types of applications, particularly at 90 degrees, are damaged and such zones constitute poor zones in terms of heat insulation.

[0006] The assembling of two fenestrations in a certain angle gets more difficult due to the variable turning profiles, when we observed the assembling method of the adjustable and heat insulated turning profiles.

Purpose of the Invention

[0007] From the status of the related art, the purpose of the invention is to develop a heat insulated door and window system wherein heat insulated two fenestrations are combined easily at adjustable angles in planar plane, wherein turning profiles do not have mounting difficulties comparing the turning profiles mounted at fixed angels, wherein heat insulated two fenestrations provide heat insulation at corner zones at joints of any angle, wherein heat insulated two fenestrations allow use of the same corner profile for inward and/or outward opening embodiment, wherein corner turning profiles which can fixed or be remained movable at related angles when required.

[0008] Another purpose of the invention is to provide joining of heat insulated two fenestrations at adjustable angles in planar plane. Furthermore, it is aimed to compensate the angular faults seen in the site due to capability of the internal and external cover profiles on each other and at the same time internal and external joint profiles movement on each other and/or inside.

[0009] Another purpose of the invention is to provide heat insulation without failure in heat insulation line at all adjustable angles in corner zones by using additional heat insulation material.

[0010] A further purpose of the invention is to enable inward and/or outward direction of vents opening by means of mounting with help of guiding the turning inner and outer joint profiles to both fenestration profile outer part and inner part and at the same time inner and outer cover profile to both fenestration profile outer part and inner part.

[0011] Another purpose of the invention is to obtain a heat insulated window and door system convertible into fixed turning profiles at related angles when required and having variable angle at corner turning profiles with the capability of fixing the inner and outer joint profiles at the beginning and ending points of the adjustable angle inside each other.

[0012] A further purpose of the invention is to enable the assembling of the thermally insulated two fenestrations at adjustable angle in planer plane without using the two metal turning profiles which is joined with heat insulation material mechanically and/or chemically.

[0013] The structural and characteristic features and

all advantages of the invention will be better understood with the figures given below and detailed description with reference to be made to them and therefore, the assessment should be made taking into consideration the said figures and detailed description.

Description of Figures

[0014]

Figure 1: Detailed representative cross-section of corner of the thermally insulated door and window system, joined at 90º of convex angular, with adjustable turning properties and without thermal break profiles.

Figure 2: Detailed representative cross-section of corner of the thermally insulated door and window system, joined at 90º of concave angular, with adjustable turning properties and without thermal break profiles.

Figure 3: Detailed representative cross-section of inward and outward opening thermally insulated door system in corner, joined at 135 º of angular, with adjustable turning properties and without thermal break profiles.

Figure 4: Detailed representative cross-section of internal and external cover profiles, internal and external joint profiles with adjustable turning properties and without thermal break profiles.

Reference Numbers

[0015]

1. Representative frame profile
2. Representative door frame profile
3. Representative inner cover profile
3.1 Representative bulge
3.2 Representative curved extension
3.3 Representative gasket groove
4. Representative outer cover profile
4.1 Representative bulge
4.2 Representative curved extension
5. Representative inner joint profile
5.1 Representative bulge
5.2 Representative groove
5.3 Representative connection extension
6. Representative outer joint profile
6.1 Representative bulge
6.2 Representative fixing extension
6.3 Representative hook shaped bulge
6.4 Representative ground
7. Representative weatherproof gasket
8. Representative hinge
9. Representative connection screw
10. Representative insulation material
11. Representative adapter profile
12. Representative outward opening vent profile
13. Representative inward opening vent profile

Detailed Description of the Invention

[0016] Figure 1 shows detailed representative cross-section of corner of the thermally insulated door and window system, joined at 90º of convex angular, with adjustable turning properties and without thermal break profiles. As it is seen in the figure, frame profile (1) and door frame profile (2) are joined at 90 degrees convex angle without thermal break profiles by means of inner and outer cover profiles (3, 4) of special geometric shapes manufactured at extrusion presses and internal and external joint profiles (5, 6). Connections of outer cover profile (4) with the frame profile (1) and inner cover profile (3) with the door frame profile (2) are provided by means of connection screws (9).

[0017] As clearly seen in figure 4, the end point of the outer cover profile contains the bulges (4.1.) These bulges (4.1) provide easy connection of frame profile (1) and outer cover profile (4) by means of guiding of them to each other. Outer cover profile (4) contains curve extension (4.2) providing angular turning and connection feature. Door and window systems which can be connected at different angles and lengths can be obtained by means of changing angle and lengths of the said curve extension (4.2). Similarly, bulges (3.1) have been formed on the end point where inner cover profile (3) is connected to the door frame profile (2). The said bulges (3.1) provide guiding of the door frame profile (2) to inner cover profile (3) so as to ensure an easy connection. Inner cover profile (3) contains a curve extension (3.2) providing angular turning and connection feature. A gasket groove (3.3) has been provided on the end part of the curve bulge (3.2). As seen in figure 1, inner cover profile (3) and outer cover profile (4) contact each other on the area of gasket groove (3.3). A weatherproof gasket (7) is located on the inner part of the gasket groove (3.3) in order to provide weather tightness against the external factors such as water, dust etc. in the contact zone.

[0018] Special geometric shaped inner and outer joint profiles (5, 6) manufactured at extrusion presses are used to combine the frame profile (1) and door frame profile (2) on the corner. (See Figure 4). Such joint profiles (5, 6) contains bulges (5.1, 6.1) facilitating guide of the connection with the frame profiles (1, 2). A groove (5.2) is formed on the inner joint profile (5), wherein the fixing extension (6.2) formed on the outer joint profile (6), engages. Inner joint profile (5) contains a further connection extension (5.3). This connection extension (5.3) enters into a hook shaped bulge (6.3) on the outer joint profile (6) and, at this point, thus connection of inner and outer joint profile (5, 6) can be fixed with each other by using connection screws (9) when required. The connection of

the inner and outer joint profiles (5, 6) to the frame profiles (1, 2) is provided by means of connection screws (9). As seen in figure 1, insulation material (10) is located between the inner and outer cover profiles (3,4) and inner and outer joint profiles (5,6) and heat insulation is provided without failure in heat insulation line. As seen in figure 1, door frame profile (2) is connected to an inward opening vent profile (13) by means of a hinge (8).

[0019] Figure 2 shows detailed representative cross-section of corner of the thermally insulated door and window system, joined at 90º of concave angular, with adjustable turning properties and without thermal break profiles. The special geometric shaped inner and outer cover profiles (3,4) manufactured at extrusion presses as also used in figure 1 and inner and outer joint profiles (5,6) are connected to the frame profiles (1,2). Insulation material (10) is located between the inner and outer cover profiles (3, 4) and inner and outer joint profiles (5, 6) so as to provide heat insulation. Weatherproof gasket (7) is located in the part where inner and outer cover profiles (3, 4) are connected to each other. Inner and outer joint profiles (5, 6) are connected to each other by means of connection screw (9). The connection between the inner and outer cover profiles (3, 4) and inner and outer joint profiles (5, 6) to frame profiles (1, 2) is provided by means of connection screws (9). The only difference between the door and window system shown in figure 2 from the system in figure 1 is that the the frame profiles (1, 2) are connected at concave angle.

[0020] Figure 3 shows detailed representative cross-section of inward and outward opening thermally insulated door system in corner, joined at 135 º of angular, with adjustable turning properties and without thermal break profiles. As seen in the figure, door frame profile (2) is connected to the inner cover profile (3) by means of connection screw (9). Frame profile (1) is connected to the outer cover profile (4) by means of connection screw (9). Weatherproof gasket (7) is located between gasket groove (3.3) of the inner cover profile (3) and otur cover profile (4). The connection extension (5.3) of the inner joint profile (5) is located on the ground (6.4) of the outer joint profile (6) and connected to each other by means of connection screw (9). Fixing extension (6.2) of the outer joint profile (6) enters into the groove (5.2) located on the inner joint profile (5). Insulation material (10) is located between the inner and outer cover profiles (3, 4) and inner and outer joint profiles (5, 6) in order to provide heat insulation. Door frame profile (2) is connected to the inward opening vent profile (13). Frame profile (1) is connected to the outward opening profile (12) by means of an adepter profile (11).

[0021] Figure 4 shows detailed representative cross-section of internal and external cover profiles, internal and external joint profiles with adjustable turning properties and without thermal break profiles. These profiles with a special section are manufactured at extrusion presses. The angle and/or length of the bulge and the grooves on these profiles are changed and windows and door systems of different frame thickness at adjustable angles can be obtained. Special geometric shaped profiles (3, 4, 5, 6) providing angular joining of heat insulated door and window systems in planar plane are manufactured at extrusion presses in a manner having grooves convenient for connection of them with door and window frame profiles (1, 2). The fenestrations to be mounted angularly in planar plane are manufactured by use of inward and outward opening vent profiles (12, 13) and adapter profiles (11). Related inner and outer cover and joint profiles (3, 4, 5, 6) convenient for angular joining to both fenestration are screwed and insulation material (10) is located in the space between these profiles (3, 4, 5, 6). Upon mounting of the first fenestration in its place on site, it is moved near the second fenestration and respectively corner turning profiles (3, 4, 5, 6) ceiling and flooring connections and side wall connections are performed. Finally, the glasses are placed in the fenestration and assembling is completed.

[0022] The invention provides assembling of two thermally insulated fenestrations in planar plane at adjustable angles by means of inner and outer cover profiles (3,4) and inner and outer joint profiles (5, 6) in door and window system. Angular failures encountered on site have been eliminated as inner and outer cover profiles (3, 4) can move on each other as well as inner and outer joint profiles (5, 6) can move on and/or inside each other at angularly in planar plane. It differs from the related art in the point that there is no mechanical and/or chemical connection between inner joint profiles (5) and inner cover profiles (3), or outer joint profiles (6) and outer cover profiles (4). The insulation material (10) located in corner turning zones provides heat insulation at all adjustable angles without failure in heat insulation line.

[0023] Mounting of inner joint profiles (5) and outer joint profiles (6) to both fenestration profile outer part and inner part by means of guiding as well as mounting of inner and outer cover profiles (4) to both fenestration profile outer part and inner part by means of guiding provides inward and/or outward opening of the vent profiles (12, 13) of the fenestration.

[0024] Heat insulated door and window system converted into fixed angular turning profile at related angles when required and having moving corner turning profiles by help of fixing the inner joint profiles (5) and outer joint profiles (6) at the beginning and ending of the angle adjustable inside each other.

[0025] The door and window system of the invention provides joining of the heat insulated two fenestrations in planar plane and this joining is realized without using the two metal turning profiles which is joined with heat insulation material mechanically and/or chemically.

[0026] The invention cannot be limited to the representative embodiments given in this part. Alternative embodiments to be developed by persons skilled in the field based on basic factors under protection as specified in claims shall mean violation of the invention.

Claims

1. A door or window system providing connection of two doors or windows at desired angles in planar plane by means of adjustable angular turning profiles and it is **characterized in that** in order to provide joining of fenestrations in planar plane at adjustable concave or convex angles, and said angular turning profiles do not include thermal break profiles, in which angular turning profiles is not joined with the thermal insulation material mechanically and/or chemically, it comprises

   - inner cover profile (3) and outer cover profile (4) of special geometric shapes manufactured at extrusion presses, which eliminates angular failures of the fenestration in planar plane by means of angular movement of the said fenestration in planar plane and provides the angled connection of the fenestration in planar plane by fixing to each other at desired angles, fixed onto the said frame profile (1) and/or door frame profile (2),
   - inner joint profile (5) and outer joint profile (6) of special geometric shape manufactured at extrusion presses, which is fixed to the fenestration desired to be joined, conducts angular movement in planar plane on and/or inside each other and eliminates angular failures of the fenestration in planar plane and are fixed at desired angle to enable the fenestration to give the angular joining in the planar plane.

2. Door and window system according to claim 1 and it is **characterized in that** in order to provide the easy connection of the door frame profile (2) with the inner cover profile (3) by means of guiding of them to each other, bulges (3.1) are formed on the end point of the connection where inner cover profile (3) connects with the door frame profile (2).

3. Door and window system according to claim 1 and it is **characterized in that** inner cover profile (3) comprises a representative curve extension (3.2) providing angular turning of the fenestration and connection.

4. Door and window system according to claim 1 and it is **characterized in that** curve extension (3.2) comprises a representative gasket groove (3.3) and/or any special shaped geometry formed on its end part

5. Door and window system according to claim 1 and it is **characterized in that** it comprises representative bulges (4.1) and/or any special shaped geometry formed on the end point where the outer cover profile (4) is connected to the frame profile (1) for more rigid and easy connection of the frame profile (1) and outer cover profile (4).

6. Door and window system according to claim 1 and it is **characterized in that** outer cover profile (4) comprises a representative curve extension (4.2) and/or any special shaped geometry providing angular turning and connection of the fenestration.

7. Door and window system according to claim 1 and it is **characterized in that** it comprises an insulation material (10) located in the space between the inner and outer cover profiles (3, 4) and inner and outer joint profiles (5, 6) to provide the heat insulation without failure in heat insulation line.

8. Door and window system according to claim 1 and it is **characterized in that** it comprises representative bulges (5.1) and/or any special shaped geometry on the inner joint profile (5) to facilitate connection with the fenestration by means of guiding.

9. Door and window system according to claim 1 and it is **characterized in that** it comprises a representative groove (5.2) and/or any special shaped geometry formed on the inner joint profile (5).

10. Door and window system according to claim 1 and it is **characterized in that** it comprises a representative connection extension (5.3) and/or any special shaped geometry formed on the inner joint profile (5).

11. Door and window system according to claim 1 and it is **characterized in that** it comprises representative bulges (6.1) and/or any special shaped geometry formed on the outer joint profile (6) so as to facilitate connection to the fenestration by means of guiding.

12. Door and window system according to claim 1 and it is **characterized in that** it comprises representative fixing extension (6.2) and/or any special shaped geometry formed on the outer joint profile (6) in a manner enabling entering of it into the groove (5.2).

13. Door and window system according to claim 1 and it is **characterized in that** it comprises a representative hook shaped bulge (6.3) and/or any special shaped geometry formed on the outer joint profile (6).

14. Door and window system according to claim 1 and it is **characterized in that** it comprises representative ground (6.4) and/or any special shaped geometry formed on the outer joint profile (6) where the connection extension (5.3) exists in frame of joining of the fenestration at 135º angle.

15. Door and window system according to claim 1 and it is **characterized in that** no mechanical and/or

chemical joining operation is made between the inner joint profile (5) and inner cover profile (3) or outer joint profile (6) and outer cover profile (4).

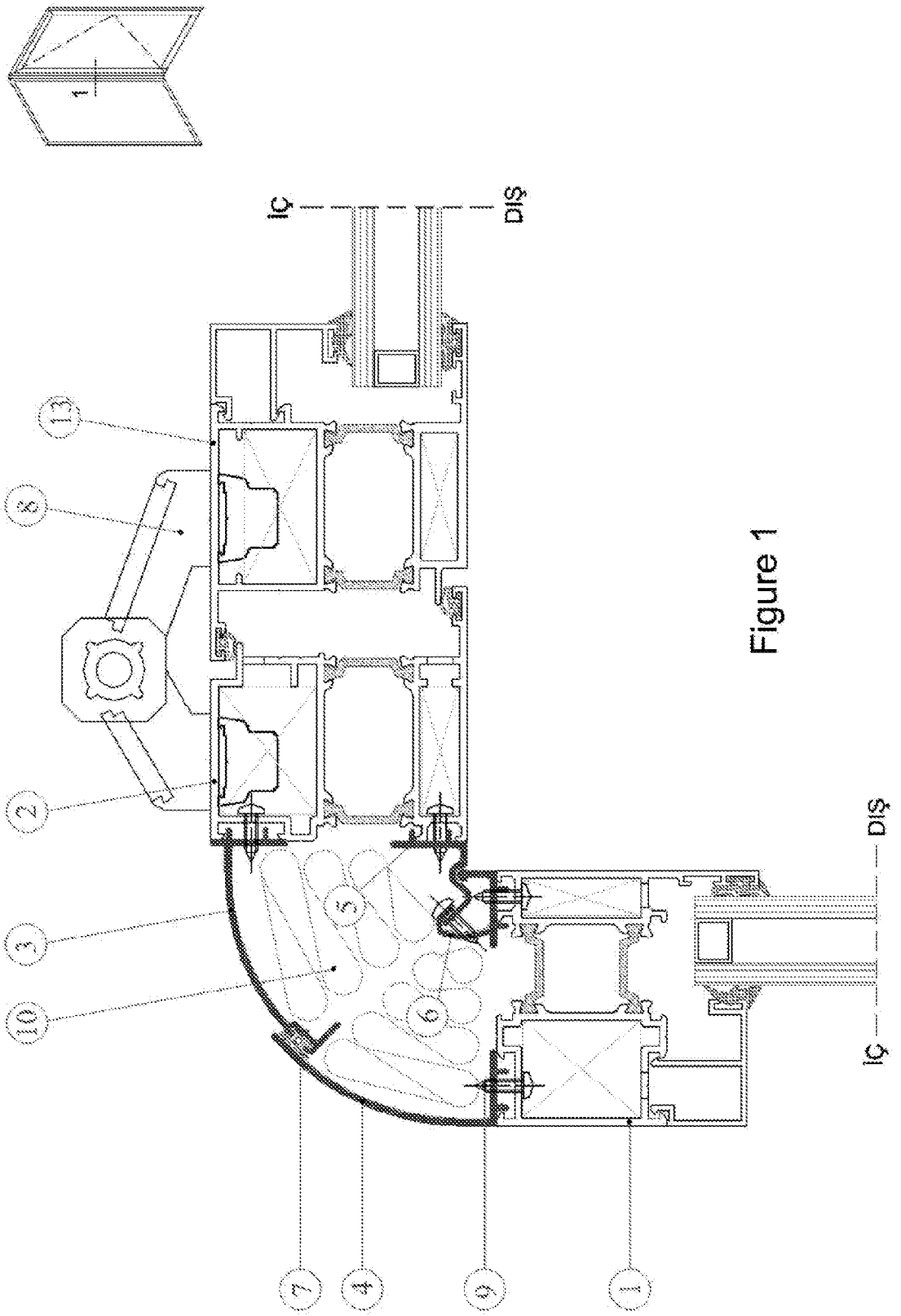

Figure 1

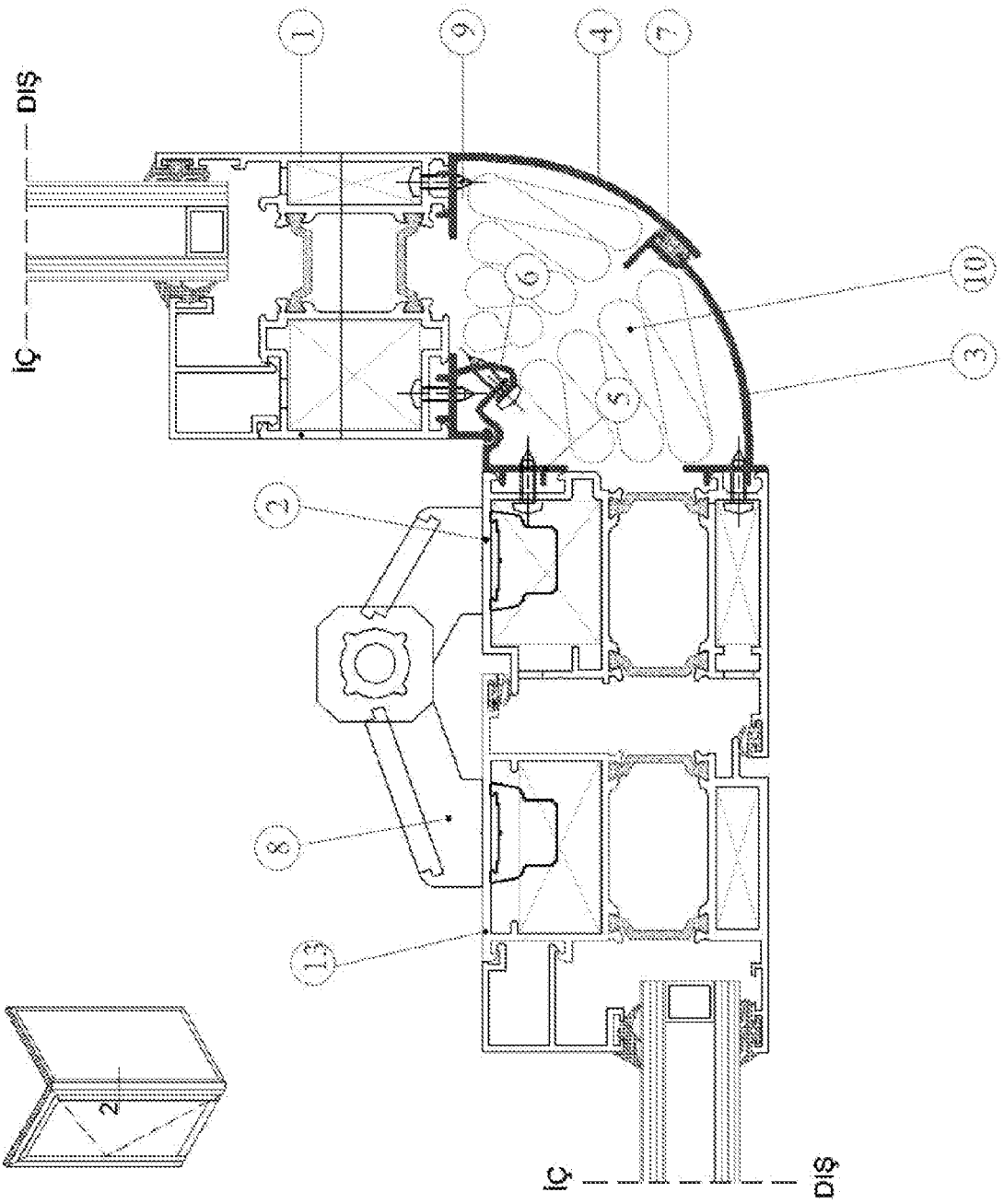

Figure 2

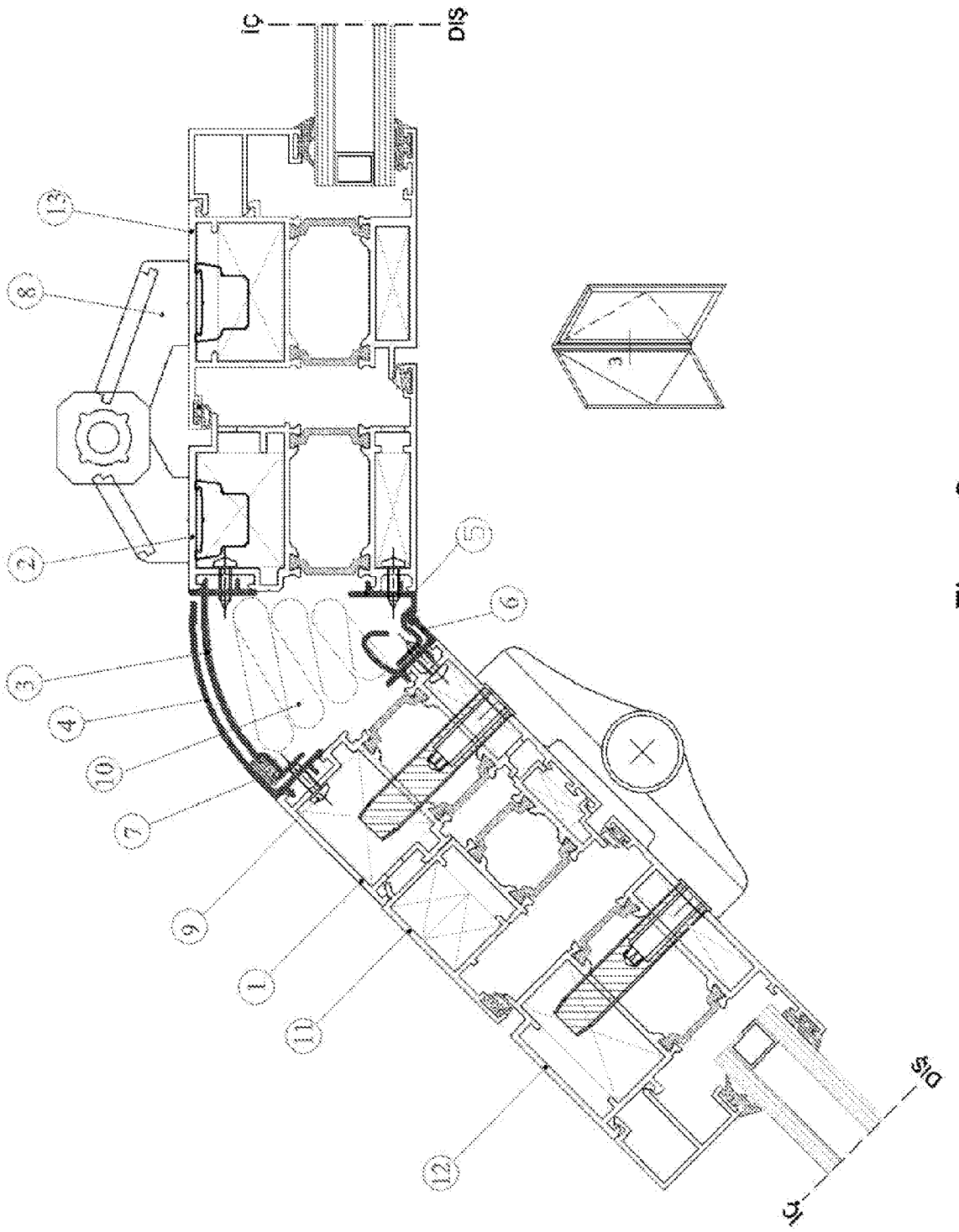

Figure 3

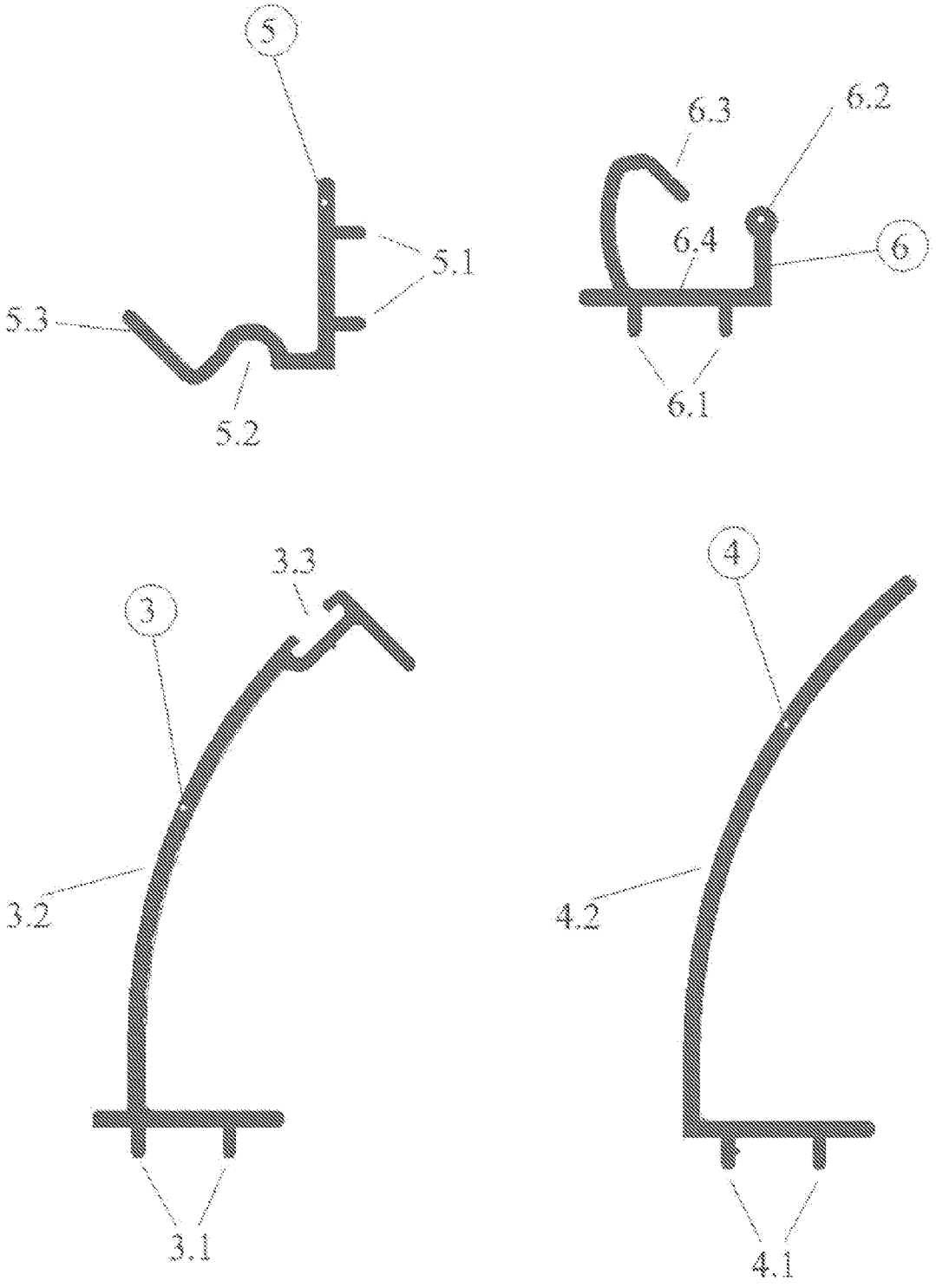

Figure 4

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PARTIAL EUROPEAN SEARCH REPORT

Application Number EP 08 10 0811

which under Rule 63 of the European Patent Convention shall be considered, for the purposes of subsequent proceedings, as the European search report

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	GB 2 194 274 A (KLIL IND LTD) 2 March 1988 (1988-03-02) * page 1, line 71 - page 2, line 13; figures 1-5 * -----		INV. E06B1/36 E06B1/60
A	GB 2 273 123 A (VELOC LIMITED [GB]) 8 June 1994 (1994-06-08) * the whole document * -----		
A	US 3 210 808 A (NEAL CREAGER BILLY) 12 October 1965 (1965-10-12) * figures 1,5 * -----		
A	DE 20 2004 005206 U1 (REHAU AG & CO [DE]) 3 June 2004 (2004-06-03) * figures 1,2 * -----		
A	EP 1 061 229 A (ALFRED BOHN GMBH & CO KG [DE]) 20 December 2000 (2000-12-20) * figure 12 * -----		
			TECHNICAL FIELDS SEARCHED (IPC) E06B E04B

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search	Date of completion of the search	Examiner
Munich	16 March 2009	Knerr, Gerhard

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
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INCOMPLETE SEARCH
SHEET C

Application Number
EP 08 10 0811

Claim(s) not searched:
1-15

Reason for the limitation of the search:

The claims are so unclear that a meaningful search relating to subject-matter claimed cannot be performed.
It is not clear from claim 1 which parts are present in the "door or window system" (e.g. do the door of windows form part of the system). Futhermore, it is not clear from the claim what is meant by the feature "of special geometric shapes", as no shape is described (this also relates to dependent claims 4 to 6 and 8 to 14 containing the expression "special shaped geometry"). Claim 1 refers (line 14) to "said frame profile or said door frame profile", although no frame profile is mentioned before.
Thus, a search was done related to the subject-matter described in the description with reference to the drawings, to which subject-matter claims may be drafted later in the procedure.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 08 10 0811

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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16-03-2009

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82