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(54) DOOR SEAL, DOOR WITH DOOR SEAL AND METHOD FOR MANUFACTURE THEREOF

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(56) References cited:
EP-A2- 2 055 888
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Description

[0001] The invention relates to a door seal. Such seals are used to seal an opening between the door and a ground surface. Door seals prevent draught passing through under the door, increases fire safety and/or realizes sound insulation.

[0002] For mounting of door seals in doors it is known to make a recess on the underside of the door in which the door seal is then placed. A conventional type of door seal is mounted in the door by means of a number of screws which are screwed through an exterior part of the seal. A drawback of this conventional system is that mounting of the door seal is time-consuming.

[0003] EP 2055888 describes a door seal according to the preamble of claim 1. The mounting means of the door seal of EP 2055888 comprise a leaf spring. One edge of the leaf spring is serrated. The door seal is mounted in the recess in the underside of a door by sliding the door seal in said recess. The serrated edge of the leaf spring prevents movement of the door seal in the direction opposite the sliding movement.

[0004] An object of the invention is to obviate or at least alleviate the above stated problem and to provide a door seal which can be mounted in simple manner in a recess in the underside of a door.

[0005] This object is achieved with the door seal according to the invention, characterized in that the mounting means comprise a resilient tongue extending from the at least one side wall in a direction inclining downward in use.

[0006] The door seal according to the invention can be placed easily in the recess of the door from the underside. During insertion of the door seal into the recess from the underside the inner wall of the recess will press the resilient tongue in the direction of the side wall counter to the spring force of the tongue. The resilient tongue therefore pushes against the inner wall of the recess in the door and thus clamps the housing in the recess.

[0007] Screws are not therefore required for mounting of the door seal in the recess. The door seal according to the invention can therefore be mounted in a door in a very short time. This is a particular advantage in the large-scale production of doors, wherein because of the invention a door seal can be mounted with relatively few operations.

[0008] The term 'door' is understood in the context of the invention to mean a door leaf, i.e. that part which can move relative to a door frame.

[0009] The resilient tongue extends inclining downward. In other words, the resilient tongue has an angle relative to the side wall. The outer end of the tongue points here in downward direction, i.e. in the direction of the sealing body. In use the outer end of the resilient tongue will point in the direction of the ground surface.

[0010] In a preferred embodiment the at least one side wall of the housing comprises a groove and the mounting means comprise a separate, substantially V-shaped element, wherein the resilient tongue forms a first leg of the substantially V-shaped element and a second leg of the substantially V-shaped element is placed in the groove.

[0011] Owing to the V-shape the legs of the V-shaped element can move resiliently relative to each other. The element with resilient tongue can therefore be produced in simple manner. The V-shaped element can be coupled to the housing by placing one of the legs in the groove in the side edge of the housing. Once the door seal has been placed in a recess of a door, the resilience will hold the V-shaped element in the groove.

[0012] In a further embodiment the groove comprises an edge for retaining the second leg of the V-shaped element behind the edge in the groove.

[0013] For placing of the door seal according to the invention in the recess in a door, the second leg of the V-shaped element is placed behind the edge of the groove, for instance by sliding the V-shaped element into the groove from the side of the housing. This achieves that the V-shaped element is also held in the groove prior to being mounted in the door.

[0014] In an alternative embodiment the resilient tongue and the housing are formed integrally and the resilient tongue is formed by a portion cut out of the at least one side wall.

[0015] The tongue is for instance formed by making a portion cut out of the side wall and subsequently bending a part of the side wall so that a resilient tongue is formed.

[0016] In a preferred embodiment according to the invention the resilient tongue has teeth on its outer end so that the tongue can engage in the door.

[0017] The tongue can hereby bite into the inner wall of the recess so that a digging-in effect is achieved. This prevents a vertical displacement of the housing following placing in the recess. The toothed outer end will attach itself particularly well to wooden and plastic doors.

[0018] In a further preferred embodiment a stop is mounted on at least one of the outer ends of the housing for the purpose of blocking sliding of the housing in a longitudinal direction.

[0019] Although the resilient tongue holds the door seal in the recess, wherein vertical displacement is not possible, in some cases a horizontal displacement of the housing is not completely blocked. In such a situation the door seal can be displaced when sufficient force is exerted. Displacement in at least one longitudinal direction is blocked by providing a stop on at least one of the outer ends of the housing.

[0020] In a further preferred embodiment both outer ends of the housing are provided with a stop. This prevents displacement in both longitudinal directions. At least one stop is in that case preferably connected releasably to the housing, for instance by means of a screw. In the case the door seal has to be removed from the door - for instance for maintenance - the releasable stop can be removed, after which the housing can be displaced in the direction of the other stop. Due to the pres-

ence of the resilient tongue some force will be necessary for this displacement. The door seal is for instance tapped out of the door using a hammer.

[0021] In an embodiment of the door seal in which at least one side wall of the housing comprises a groove for receiving a substantially V-shaped element as described above, the stop can be embodied as a stop mountable in the groove. The stop mountable in the groove is preferably embodied as a separate part which can be snapped into the groove.

[0022] The stop is for instance embodied as an element with at least one leg which can be pushed into the groove, and a side surface connecting to and lying substantially at a right angle to the at least one leg. The stop is fixed in the groove by sliding the stop with the at least one leg into the corresponding groove from the end surface of the housing. In the mounted position the side surface of the stop is situated on the end surface of the housing and extends beyond the side wall of the housing and/or beyond the upper side of the housing so that the side surface functions as stop surface for the purpose of preventing sliding of the housing in longitudinal direction. The leg preferably comprises a coupling means for co-action with a corresponding coupling means provided in the groove of the housing. The co-acting coupling means for instance comprise an opening and a protrusion. The protrusion is for instance embodied in the form of a stud. The leg preferably comprises a protrusion which fits into a corresponding opening or recess arranged in the groove of the housing. The leg is for instance embodied as a resilient tongue on which the protrusion is formed so that the stop can be attached to the housing by snapping the protrusion into the corresponding opening in the housing. Two of such stops are for instance provided so that a stop can be mounted in both grooves on either side of the housing.

[0023] The stop mountable in the groove is alternatively embodied as an element with two legs so that each leg can be placed in another of the two grooves on either side of the housing.

[0024] The groove is preferably provided with an edge for the purpose of retaining the stop mountable in the groove behind the edge.

[0025] The invention further relates to a door comprising on its underside a recess in which a door seal as described above is provided.

[0026] In a preferred embodiment a groove is provided in the inner wall of the recess such that the resilient tongue can move back resiliently at the position of a groove in order to hold the housing in the recess.

[0027] In such an embodiment the resilient tongue functions as a kind of hook for holding the housing in the recess. Depending on the shape and dimension of the groove relative to the resilient tongue, the tongue will also have more or less of a clamping action.

[0028] In a preferred embodiment the door has a hinge side for connecting the door to a door jamb via a hinge, and a stop for blocking a longitudinal movement of the housing is mounted only on the outer end of the housing located on the hinge side of the door.

[0029] In normal use the door seal will not be able to move in longitudinal direction. The stop moreover blocks any movement of the housing here in the longitudinal direction away from the hinge side. However, if it is desired to remove the door seal from the door, for instance for maintenance, the door seal can be pushed in the longitudinal direction toward the hinge side. For this purpose the door is opened, after which the door seal is pressed with some force from the door handle side. The door seal is for instance tapped out of the recess with a hammer.

[0030] The invention further relates to a method for manufacturing a door, comprising of providing a door with a recess on its underside and inserting a door seal as described above into the recess from the underside.

[0031] The door and method according to the invention have the same advantages and effects as described above in respect of the door seal according to the invention.

[0032] The recess can for instance be provided by means of milling.

[0033] Further advantages, features and details of the invention are elucidated on the basis of preferred embodiments thereof, wherein reference is made to the accompanying drawings.

- Figure 1 is a cut-away view of a door in which a first embodiment of a door seal according to the invention is provided;
- Figure 2 shows the door seal of figure 1 from another perspective;
- Figure 3 shows a cross-sectional side view of the door seal of figures 1 and 2;
- Figure 4 shows the housing of the door seal of figures 1-3 in detail;
- Figure 5 shows the V-shaped clip of the door seal of figures 1-4 in detail;
- Figure 6 shows a door seal with an alternative clip;
- Figure 7 shows a door according to the invention in which a groove is provided in the recess;
- Figure 8 shows a second embodiment of a door seal according to the invention;
- Figure 9 shows a third embodiment of a door seal according to the invention;
- Figure 10 shows a fourth embodiment of a door seal according to the invention; and
- Figures 11A-B show in detail how a stop is mounted in each groove of the housing in the fourth embodiment.

[0034] Door 2 (figure 1) comprises a recess 4 in which a door seal 6 is placed. Door seal 6 comprises a housing 8, also referred to as 'exterior part', in which a sealing body 10, also referred to as 'interior part', is accommodated. Housing 8 is in this embodiment an aluminium extrusion profile.

[0035] The shown door seal 6 is a so-called drop seal.

That is, sealing body 10 can be displaced in vertical direction as according to arrow A relative to housing 8. This movement is activated by a knob 12 which presses against door jamb 14 when the door is closed. Door 2 is mounted hingedly on door jamb 14, also referred to as door frame. Door 2 can therefore rotate relative to the door jamb 14.

[0036] The distance between knob 12 and housing 8 is adjustable. Knob 12 is provided for this purpose on a bush with internal screw thread screwed onto a shaft with external screw thread. The distance between knob 12 and the housing, and thereby the distance between knob 12 and door jamb 14, can thus be adjusted by means of screwing. Knob 12 can however also be adjustable in other manner relative to housing 8.

[0037] When knob 12 is pressed in, sealing body 10 moves in the direction of the ground surface. As soon as the door is opened, knob 12 is removed from the door jamb and sealing body 10 will move upward again in the direction of housing 8 and here move clear of the ground surface. When the door is closed, the sealing body closes the opening between door 2 and the ground surface on the underside of the door. During opening of door 2 sealing body 10 no longer makes contact with the ground surface so that door 2 can be opened without frictional resistance.

[0038] Drop seals are per se known and a door seal according to the invention can be embodied with any desired drop mechanism.

[0039] Figure 2 illustrates that sealing body 10 comprises a rubber profile 16 and a carrier 18. Profile 16 is attached to carrier 18. Carrier 18 is situated in housing 8. In this embodiment carrier 18 is likewise manufactured from aluminium and comprises close to its lower outer end a number of recesses 20 with outward facing openings for receiving a protrusion 22 of rubber profile 16, also referred to as 'arrowhead'. Arrowhead 22 is pressed into recess 20 and becomes fixedly clamped therein. Carrier 18 is connected movably in a manner not shown to housing 8 for vertical movement relative to the housing on the basis of activation of knob 12.

[0040] Figures 2 and 3 illustrate that a groove 24 in which a clip 26 is placed is provided on the upper side of housing 8. It is noted that the groove can also be provided at another position on side wall 28. Clip 26 is manufactured in this example from spring steel. Clip 26 is alternatively manufactured from another material, for instance a plastic. Figure 3 illustrates that housing 8 comprises two side walls 28 which are connected by a bridge 30 which also holds side walls 28 at a distance from each other. In the shown embodiment grooves 24, in each of which a clip 26 is placed, are provided in both side walls 28. Clips 26 can be connected releasably to housing 8.

[0041] Mounting of clip 26 in groove 24 of housing 8 is shown in detail in figure 4. In this embodiment groove 24 comprises an edge 30 on its underside and an edge 32 on its upper side. In the shown embodiment clip 26 can be pushed from an end surface of housing 8 into groove 24. Edges 30, 32 prevent clip 26 falling out of groove 24 here in the non-mounted situation. Housing 8 can however also be provided without edges 30, 32 or with only lower edge 30 or only with upper edge 32. It is in that case possible, if desired, to dispense with sliding clip 26 in from the end surface, and clip 26 can be placed directly at the desired position in groove 24.

[0042] Clip 26 is substantially V-shaped. Clip 26 is in fact a bent metal plate so that a first leaf 34 and a second leaf 36 are formed (figure 5). Leaves 34, 36 are connected to each other via a bent part of clip 26. Leaves 34, 36 are hereby resiliently movable relative to each other.

[0043] Leaf 36 has a length which is slightly greater than the height of groove 24 so that leaf 36 can be clamped in groove 24. Leaf 36 has a curvature so that, during clamping of leaf 36 in groove 24, the free outer end of leaf 36 can move resiliently relative to the bent part connecting leaves 34, 36. Because leaf 36 can be clamped in groove 24, edges 30, 32 are not strictly speaking necessary to hold clip 26 in groove 24.

[0044] Leaf 34 forms the resilient tongue of clip 26. In the mounted position the free outer end of the resilient tongue points in downward inclining direction. The outer end of tongue 34 is provided with teeth 38 which are made by making a recess in the outer end. Leaf 36 is provided with teeth 38 in similar manner.

[0045] In an alternative embodiment (figure 6) an elongate clip 42 is provided. Clip 42 is provided with teeth 38 by embodying the outer end as sawtooth.

[0046] Figure 7 shows an alternative door according to the invention in which two grooves 44 are provided in recess 4. In the embodiment the grooves 44 of recess 4 are provided on the upper side so as to correspond to the presence of clips 26 on the upper side of housing 8.

[0047] In a further embodiment openings 46 (figure 8) are cut into side walls 28 of housing 8 so that resilient tongues 48 are formed. Although the housing in this embodiment also has a groove 24, this can also be omitted.

[0048] In yet another variant (figure 9) an elongate tongue 48 is formed by cutting into a part of side wall 28.

[0049] The resilient tongues in the embodiments of figures 8 and 9 are formed integrally with the housing. It is however also possible to attach resilient tongues in other manner to the housing. A resilient tongue of spring steel, plastic or other material is for instance manufactured, which tongue is then attached by means of screwing, glueing, welding or in other manner to side wall 28 of housing 8.

[0050] Figures 1 and 2 show stop 50. Stop 50 is arranged on the short side of housing 8 situated during use on the hinge side of door 2. Stop 50 extends beyond the upper side of housing 8 and defines a contact surface facing toward the door. The stop prevents the possibility of door seal 6 sliding in the direction away from door jamb 14, i.e. in the direction toward the door handle. During opening and closing of door 2 a force is exerted in this direction on drop seal 6, which force is absorbed by stop 50. If for whatever reason door seal 2 has to be removed

from door 2, door 2 is then opened and, by exerting sufficient force, door seal 2 can be pushed out of recess 4 in the direction not blocked by stop 50.

[0051] In another exemplary embodiment (figure 10) a plastic element 52 which functions as stop is mounted in both grooves 24 on either side of housing 8. In this embodiment elements 52 are embodied in plastic. Elements 52 are alternatively provided from another material, for instance metal. Element 52 comprises a leg 54 (figures 11A-B) which is pushed into groove 24. The outer end of element 52, which is situated in use on the end surface of housing 8, comprises a stop surface 56 lying substantially at a right angle to leg 54. Stop surface 54 extends laterally relative to side wall 28 in a direction at a right angle to the side wall.

[0052] Leg 54 of the stop 52 mountable in groove 28 is provided on its one outer end with a protrusion 58. In the shown embodiment protrusion 58 has a substantially cylindrical form wherein the rear side of the cylinder form is chamfered, but can also be provided according to the invention with another shape. In housing 8 an opening 60 is provided in groove 24 for co-action with protrusion 58 of stop 52. Stop 52 is pushed from the end surface of housing 8 into groove 24, wherein stop 52 is retained in groove 24 by edge 32. By sliding stop 52 in this way in groove 24, protrusion 58 will snap into opening 60.

[0053] The present invention is by no means limited to the above described preferred embodiments thereof. The rights sought are defined by the following claims, within the scope of which many modifications can be envisaged.

Claims

1. Door seal (6), comprising:

- an elongate housing (8) with two side walls (28) and a connecting part (30) which connects the side walls (28), wherein mounting means (26) are provided on at least one of the side walls (28) of the housing (8) for the purpose of mounting the housing (8) in a recess in the underside of a door (2); and
- a sealing body (10) provided at least partially in the housing (8) for sealing a space between the underside of the door (2) and a ground surface,

characterized in that
the mounting means comprise a resilient tongue (34, 48) extending from the at least one side wall (28) in a direction inclining downward in use.

2. Door seal (6) as claimed in claim 1, wherein the at least one side wall (28) of the housing (8) comprises a groove (24) and the mounting means comprise a separate, substantially V-shaped element (26, 42), wherein the resilient tongue (34) forms a first leg of the substantially V-shaped element (26, 42) and a second leg (36) of the substantially V-shaped element (26, 42) is placed in the groove (24).

3. Door seal (6) as claimed in claim 2, wherein the groove (24) comprises an edge (30, 32) for retaining the second leg (36) of the V-shaped element (26, 42) behind the edge in the groove.

4. Door seal (6) as claimed in claim 2 or 3, wherein the second leg (36) has a curvature for the purpose of placing the second leg (36) clampingly in the groove (24).

5. Door seal (6) as claimed in claim 1, wherein the resilient tongue (48) and the housing (8) are formed integrally and the resilient tongue (48) is formed by a portion cut out of the at least one side wall (8).

6. Door seal (6) as claimed in any of the foregoing claims, wherein the resilient tongue (34, 48) has teeth (38) on its outer end so that the tongue can engage in the door (2).

7. Door seal (6) as claimed in any of the foregoing claims, wherein a stop (50, 52) is mounted on at least one of the outer ends of the housing (8) for the purpose of blocking sliding of the housing (8) in a longitudinal direction.

8. Door seal (6) as claimed in claim 7, wherein both outer ends of the housing are provided with a stop (50, 52), wherein at least one stop (50, 52) is connected releasably to the housing (8).

9. Door (2) comprising on its underside a recess (4) in which a door seal (6) as claimed in any of the foregoing claims is provided.

10. Door (2) as claimed in claim 9, wherein a groove (44) is provided in the inner wall of the recess (4) such that the resilient tongue (34, 48) can move back resiliently at the position of the groove (44) in order to hold the housing (8) in the recess (4).

11. Door (2) as claimed in claim 9 or 10 to the extent dependent on claim 6, wherein the door (2) has a hinge side for connecting the door (2) to a door jamb (14) via a hinge, wherein a stop (50, 52) is mounted only on the outer end of the housing (8) located on the hinge side of the door.

12. Method for manufacturing a door (2), comprising of:

- providing a door (2) with a recess (4) on its underside;
- inserting a door seal (6) as claimed in any of

the claims 1-8 into the recess (4) from the underside.

Patentansprüche

1. Türdichtung (6), umfassend:

   - ein längliches Gehäuse (8) mit zwei Seitenwänden (28) und einem Verbindungsteil (30), der die Seitenwände (28) verbindet, wobei Befestigungsmittel (26) an zumindest einer der Seitenwände (28) des Gehäuses (8) zum Zwecke des Befestigens des Gehäuses (8) in einer Aussparung in der Unterseite einer Tür (2) vorgesehen sind,
   - und einen Dichtungskörper (10), der zumindest teilweise in dem Gehäuse (8) zur Abdichtung eines Zwischenraums zwischen der Unterseite der Tür (2) und einer Bodenfläche vorgesehen ist,

   dadurch gekennzeichnet, dass die Befestigungsmittel eine elastische Zunge (34,48) umfassen, die von der zumindest einen Seitenwand (28) in eine im Gebrauch nach unten geneigte Richtung verläuft.

2. Türdichtung (6) nach Anspruch 1, wobei die zumindest eine Seitenwand (28) des Gehäuses (8) eine Nut (24) umfasst und wobei die Befestigungsmittel ein gesondertes, im Wesentlichen V-förmiges Element (26, 42) umfassen,
   wobei die elastische Zunge (34) einen ersten Schenkel des im Wesentlichen V-förmigen Elements (26, 42) bildet und ein zweiter Schenkel (36) des im Wesentlichen V-förmigen Elements (26, 42) in der Nut (24) untergebracht ist.

3. Türdichtung (6) nach Anspruch 2, wobei die Nut (24) eine Kante (30, 32) umfasst, um den zweiten Schenkel (36) des V-förmigen Elements (26, 42) hinter der Kante in der Nut zurückzuhalten.

4. Türdichtung (6) nach Anspruch 2 oder 3, wobei der zweite Schenkel (36) eine Krümmung zum Zwecke eines klemmenden Unterbringens des zweiten Schenkels (36) in der Nut (24) aufweist.

5. Türdichtung (6) nach Anspruch 1, wobei die elastische Zunge (48) und das Gehäuse (8) zusammenhängend gebildet sind und wobei die elastische Zunge (48) durch einen Teil gebildet ist, der aus der zumindest einen Seitenwand (8) ausgeschnitten ist.

6. Türdichtung (6) nach einem der vorhergehenden Ansprüche, wobei die elastische Zunge (34, 48) an ihrem äußeren Ende Zähne (38) aufweist, derart, dass die Zunge in die Tür (2) eingreifen kann.

7. Türdichtung (6) nach einem der vorhergehenden Ansprüche, wobei an zumindest einem der äußeren Enden des Gehäuses (8) ein Anschlag (50, 52) zum Zwecke des Blockierens eines Gleitens des Gehäuses (8) in einer Längsrichtung angebracht ist.

8. Türdichtung (6) nach Anspruch 7, wobei beide äußere Enden des Gehäuses mit einem Anschlag (50, 52) versehen sind, wobei zumindest ein Anschlag (50, 52) mit dem Gehäuse (8) lösbar verbunden ist.

9. Tür (2), umfassend an ihrer Unterseite eine Aussparung (4), in der eine Türdichtung (6) nach einem der vorhergehenden Ansprüche vorgesehen ist.

10. Tür (2) nach Anspruch 9, wobei in der Innenwand der Aussparung (4) eine Nut (44) vorgesehen ist, derart, dass die elastische Zunge (34, 48) sich in der Position der Nut (44) federnd zurückbewegen kann, um das Gehäuse (8) in der Aussparung (4) zu halten.

11. Tür (2) nach Anspruch 9 oder 10 in dem Maß, in dem diese abhängig sind von Anspruch 6, wobei die Tür (2) eine Scharnierseite zum Verbinden der Tür (2) mittels eines Scharniers mit einer Türlaibung (14) aufweist, wobei ein Anschlag (50, 52) lediglich an dem äußeren Ende des Gehäuses (8) angebracht ist, welches sich auf der Scharnierseite der Tür befindet.

12. Verfahren zum Herstellen einer Tür (2), umfassend:

   - Bereitstellen einer Tür (2) mit einer Aussparung (4) in ihrer Unterseite,
   - Einsetzen einer Türdichtung (6) nach einem der Ansprüche 1 bis 8 in die Aussparung (4) von der Unterseite.

Revendications

1. Joint d'étanchéité de porte (6), comprenant :

   - un logement allongé (8) avec deux parois latérales (28) et une partie connexion (30) qui connecte les parois latérales (28), dans lequel des moyens de montage (26) sont disposés sur l'une au moins des parois latérales (28) du logement (8) afin de monter le logement (8) dans un renfoncement situé dans le dessous d'une porte (2) ; et
   - un corps d'étanchéité (10) disposé en partie au moins dans le logement (8) de façon à étancher un espace entre le dessous de la porte (2) et la surface d'un sol ;

   caractérisé en ce que :

les moyens de montage comprennent une languette élastique (34, 48) qui s'étend à partir de la ou des parois latérales (28) dans une direction qui s'incline en service vers le bas.

2. Joint d'étanchéité de porte (6) selon la revendication 1, dans lequel la ou les parois latérales (28) du logement (8) comprennent une rainure (24) et les moyens de montage comprennent un élément séparé sensiblement en forme de V (26, 42), dans lequel la languette élastique (34) forme une première branche de l'élément sensiblement en forme de V (26, 42), et une seconde branche (36) de l'élément sensiblement en forme de V (26, 42) est placée dans la rainure (24).

3. Joint d'étanchéité de porte (6) selon la revendication 2, dans lequel la rainure (24) comprend un bord (30, 32) destiné à retenir la seconde branche (36) de l'élément en forme de V (26, 42) derrière le bord dans la rainure.

4. Joint d'étanchéité de porte (6) selon la revendication 2 ou la revendication 3, dans lequel la seconde branche (36) présente une courbure afin de placer de manière serrée la seconde branche (36) dans la rainure (24).

5. Joint d'étanchéité de porte (6) selon la revendication 1, dans lequel la languette élastique (48) et le logement (8) sont formés d'une pièce, et la languette élastique (48) est formée par une partie découpée de la ou des parois latérales (8).

6. Joint d'étanchéité de porte (6) selon l'une quelconque des revendications précédentes, dans lequel la languette élastique (34, 48) présente des dents (38) sur son extrémité extérieure de telle sorte que la languette puisse venir en prise dans la porte (2).

7. Joint d'étanchéité de porte (6) selon l'une quelconque des revendications précédentes, dans lequel un arrêt (50, 52) est monté sur l'une au moins des extrémités extérieures du logement (8) de façon à interdire un glissement du logement (8) dans une direction longitudinale.

8. Joint d'étanchéité de porte (6) selon la revendication 7, dans lequel les extrémités extérieures du logement sont dotées d'un arrêt (50, 52), dans lequel un arrêt (50, 52) au moins est connecté de manière libérable au logement (8).

9. Porte (2) comprenant dans son dessous un renfoncement (4) dans lequel est disposé un joint d'étanchéité de porte (6) selon l'une quelconque des revendications précédentes.

10. Porte (2) selon la revendication 9, dans laquelle une rainure (44) est disposée dans la paroi intérieure du renfoncement (4) de telle sorte que la languette élastique (34, 48) puisse être repoussée de manière élastique au niveau de la position de la rainure (44) de façon à tenir le logement (8) dans le renfoncement (4).

11. Porte (2) selon la revendication 9 ou la revendication 10 dans la mesure où elle dépend de la revendication 6, dans laquelle la porte (2) présente un côté charnière destiné à connecter la porte (2) à une embrasure de porte (14) par l'intermédiaire d'une charnière, dans laquelle un arrêt (50, 52) est monté seulement sur l'extrémité extérieure du logement (8) qui se situe sur le côté charnière de la porte.

12. Procédé destiné à fabriquer une porte (2), comprenant les étapes consistant à:

- doter une porte (2) d'un renfoncement (4) dans son dessous ;
- insérer un joint d'étanchéité de porte (6) dans le renfoncement (4) à partir du dessous, selon l'une quelconque des revendications 1 à 8.

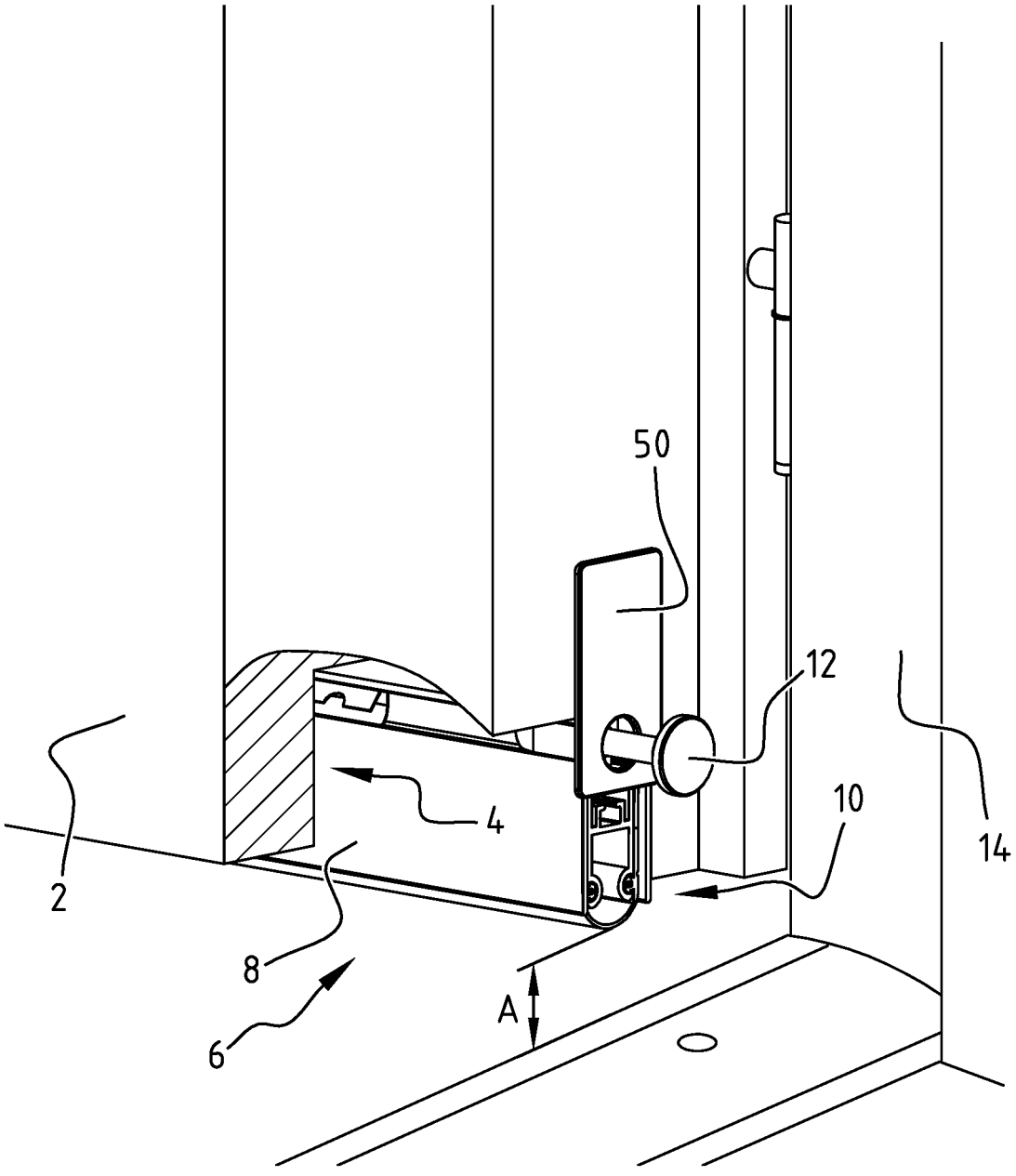


FIG. 1

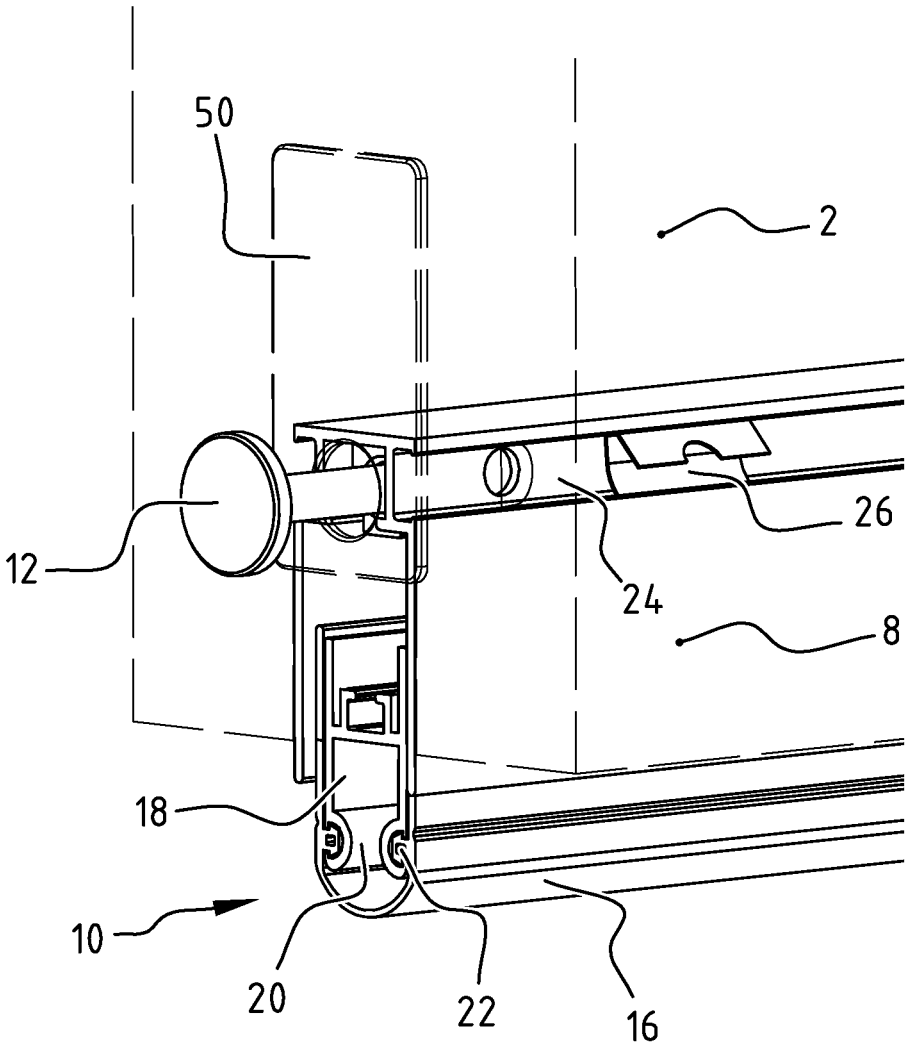


FIG. 2

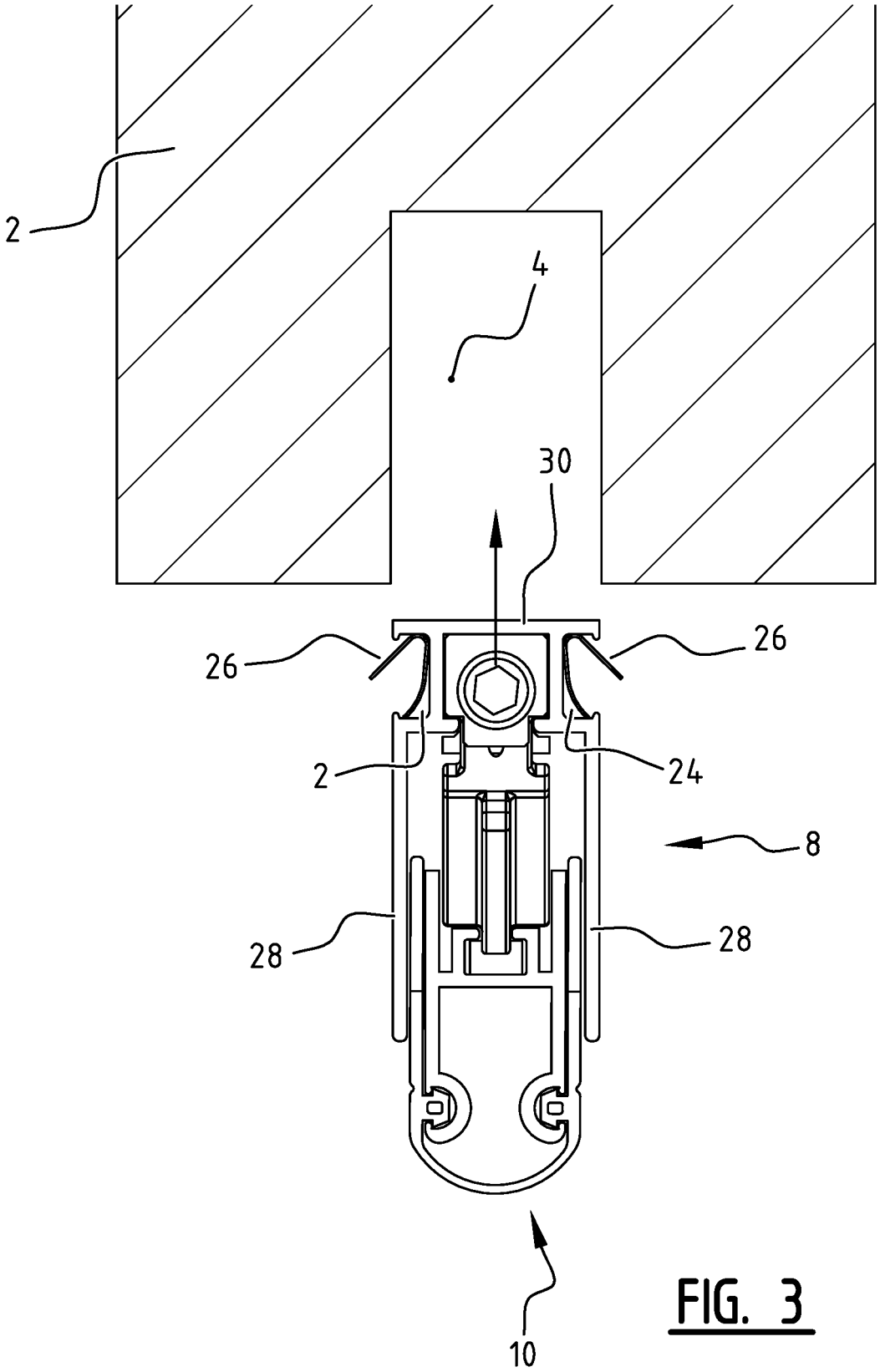


FIG. 3

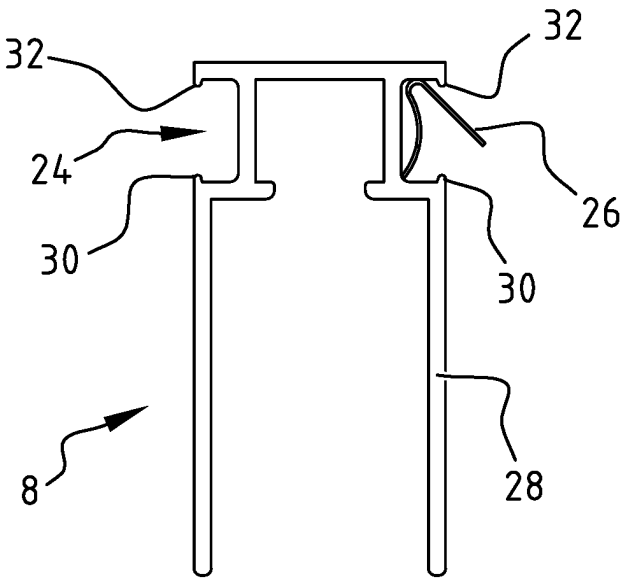


FIG. 4

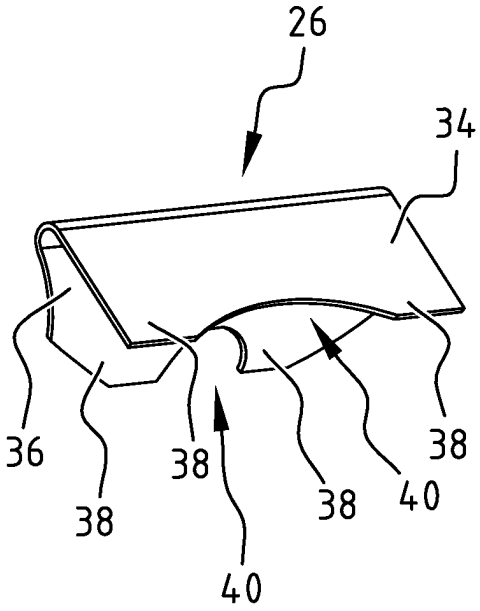


FIG. 5

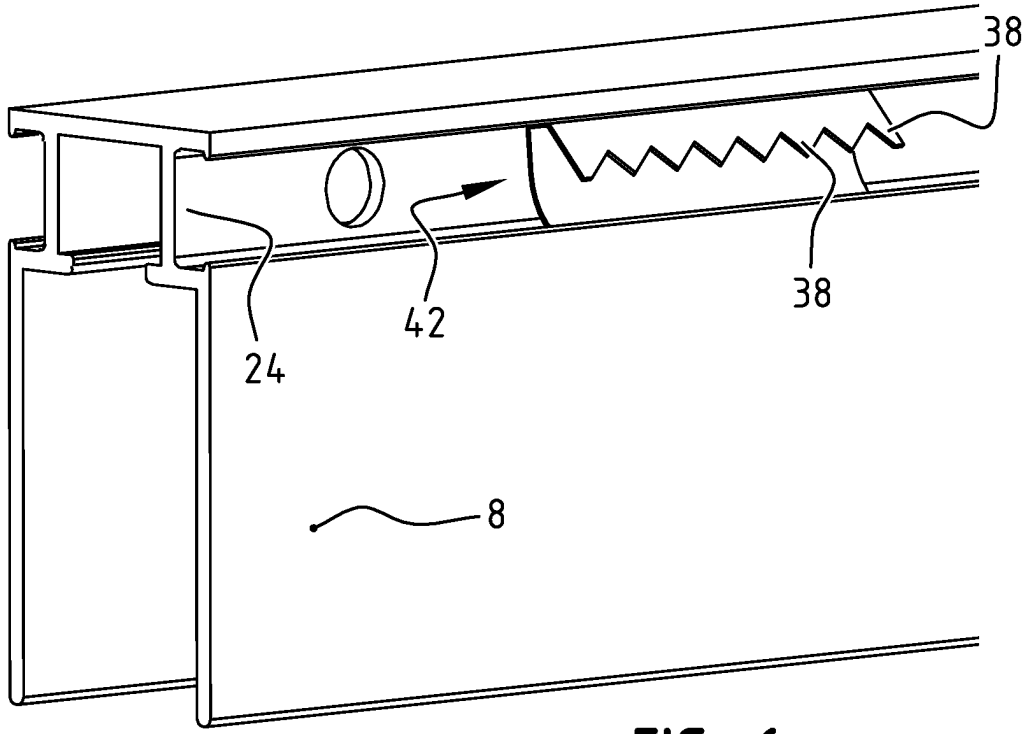


FIG. 6

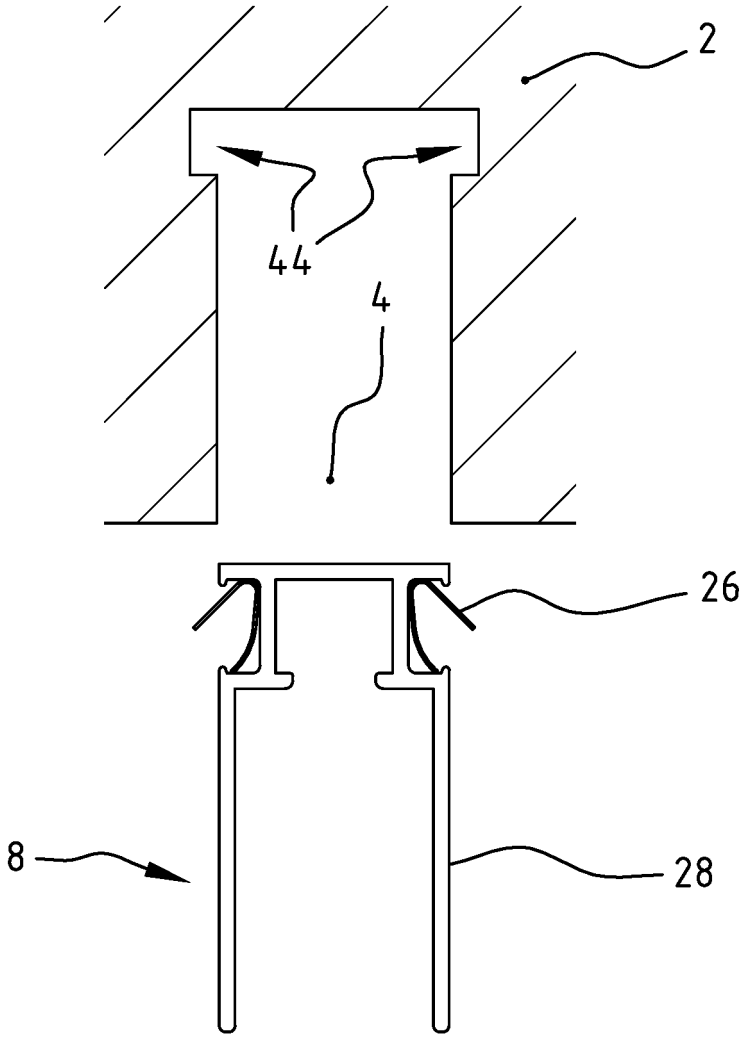


FIG. 7

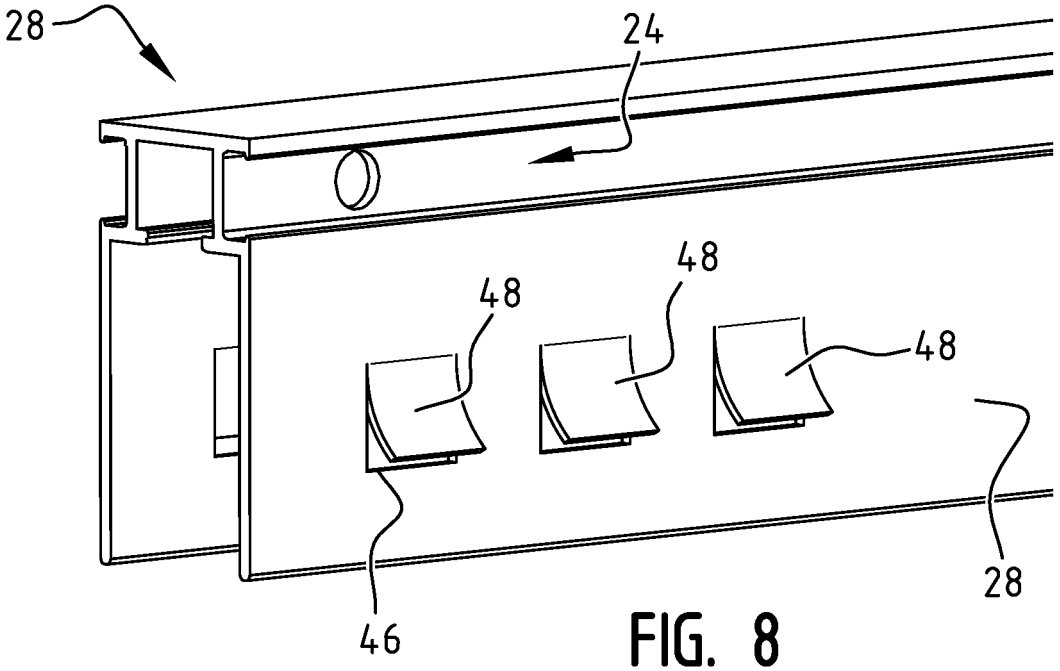


FIG. 8

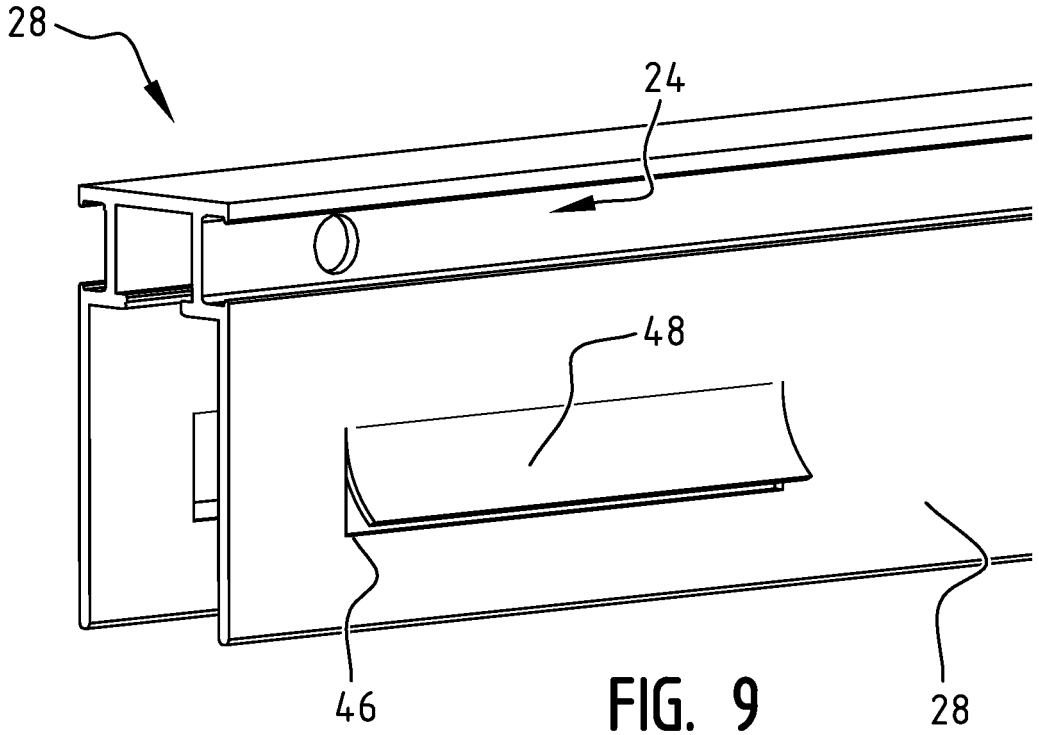


FIG. 9

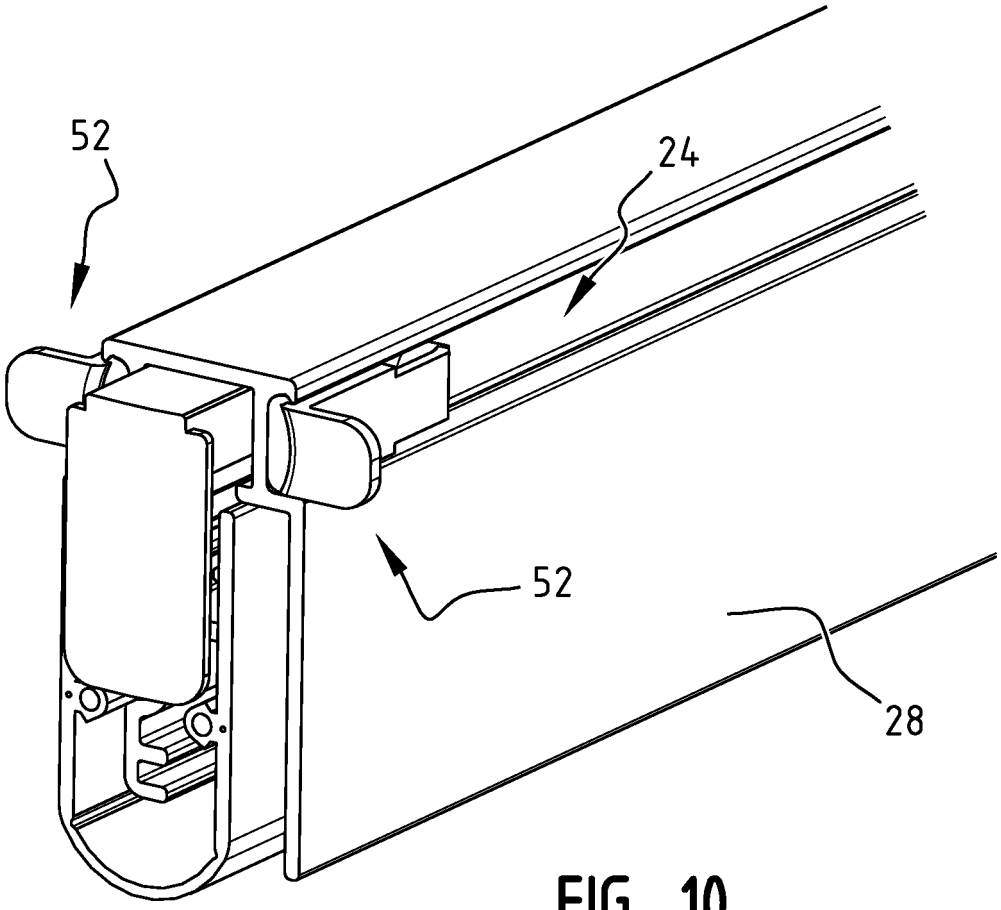


FIG. 10

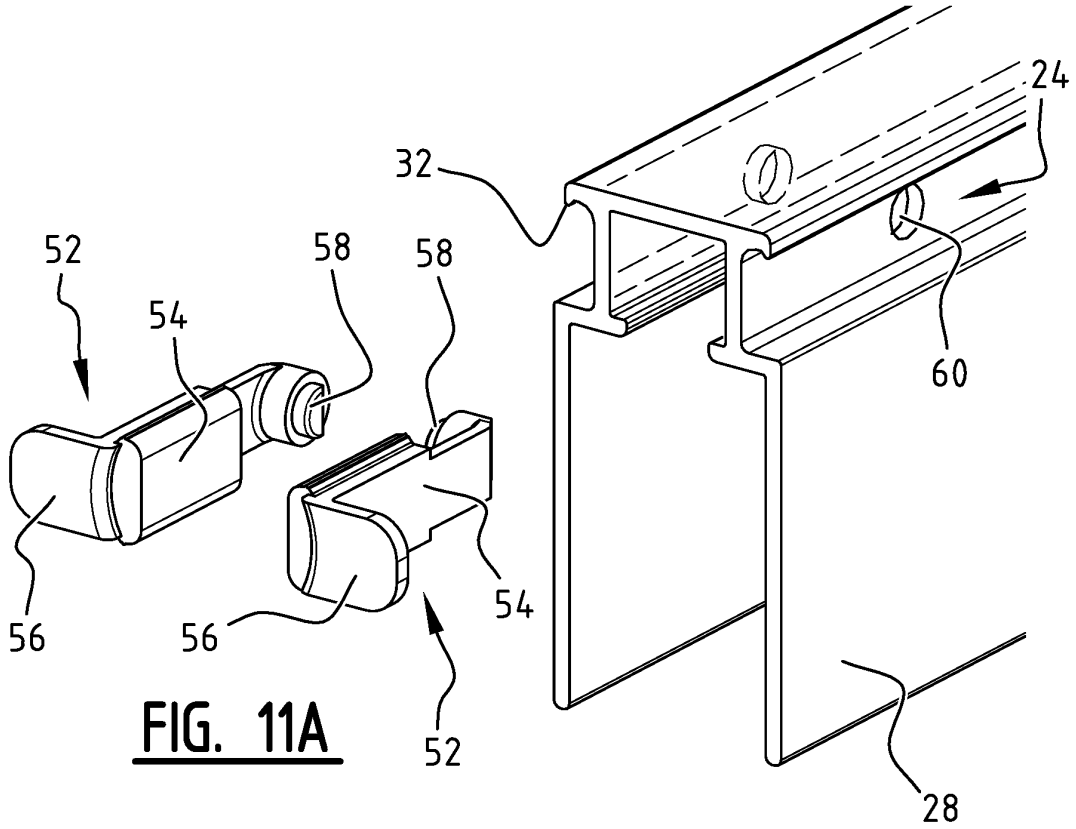


FIG. 11A

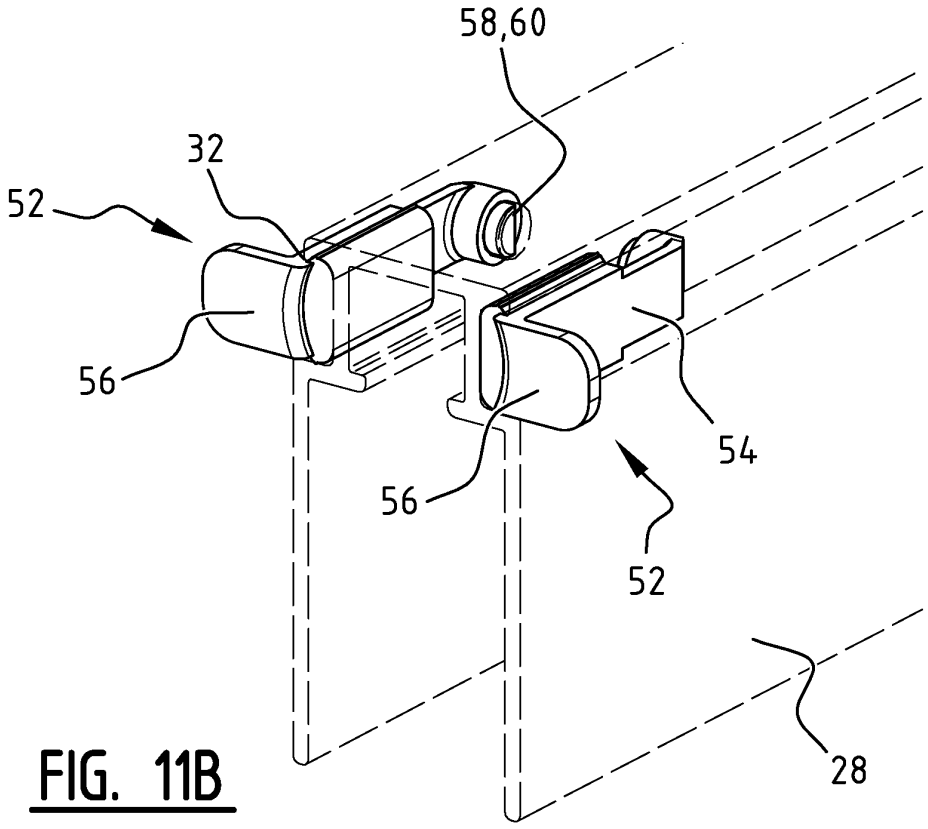


FIG. 11B

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 2055888 A **[0003]**