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(54) **PRIVACY FENCING KIT AND INSTALLATION METHOD**

(57) Clamping element (1, 1', 1") for slats (A) for privacy fencing, comprising a curved elastic fixing sector (2, 2', 2") that can be fixed on a transverse rod (B) of the enclosure grid, a flat elastic support sector (3), which can be inserted into a slat (A) and which has a lower recess (4) on the perimeter edge of which a projection is located, wherein the base (6) of the elastic support sector (3) has a notch (7) that has the same orientation and dimensions as the projection (5), so that the clamping element (1, 1', 1") can be coupled to an identical clamping element (1, 1', 1") engaging its lower recesses (4) and its elastic support sectors (3) being contained in the same plane with its ends (8), located opposite to its base (6), oriented in opposite directions.

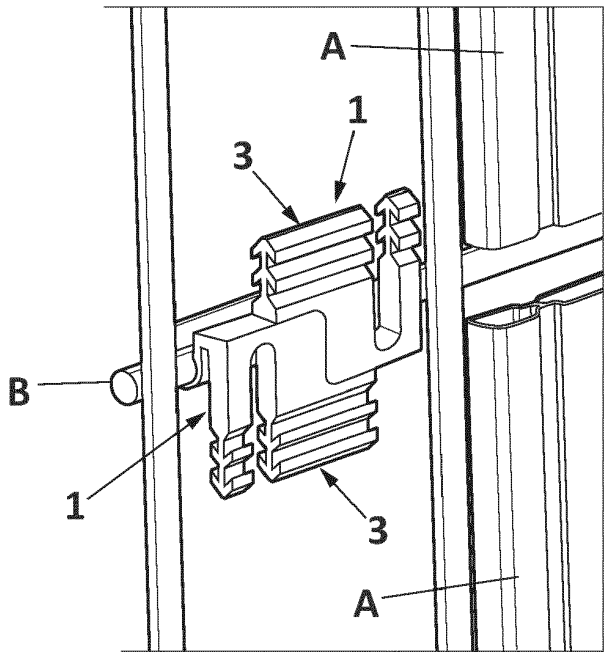

FIG. 6

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Description

TECHNICAL FIELD OF THE INVENTION

[0001] The present invention relates to a privacy fencing kit and a method for its installation, which have application in the construction industry and in architecture, and more specifically in the field of privacy systems for open areas fencing, such as residential, industrial, sports plots, etc., allowing to reduce manufacturing and storage costs of this type of kits since their versatility allows their use in different positions given the possibility of coupling existing between two identical clamping elements according to the invention, with which any privacy height is achieved by combining various kits with a single clamping piece.

BACKGROUND OF THE INVENTION

[0002] At present, privacy kits for open areas fencing, such as residential, industrial, sports plots, etc., are known, since they have the function of being arranged on the perimeter of the area to be closed, preventing the interior from being visible from the outside.

[0003] These fencings comprise a plurality of elements, among which there is an enclosure grid which serves as a structural support for the remaining elements. Since this grid, as previously stated, has a structural function, it is composed of a plurality of longitudinal rods, which once the enclosure is assembled, remain in a vertical position, and transverse rods (B), which once the enclosure is assembled, remain in a horizontal position. Each set of rods is arranged parallel to each other, forming a lattice or mesh in which the rods are welded at the intersection points of the mesh.

[0004] Additionally, to achieve privacy, the fencing comprises a plurality of slats (A), which are usually hollow to reduce their weight and cost, which are supported by the grid and are arranged vertically adjacent to each other. Usually, the height of these slats (A) defines the height of the fencing.

[0005] For fixing or clamping the slats (A) to the grid, the kits comprise elastic elements, usually called retaining or clampling clips, which are pieces that allow the ends of the slat (A) to be clamped, for which they usually have a part that is inserted, at least partially, inside each open end of the hollow slat (A). Likewise, these clips have another part that allows them to be attached to the rods of the grid. In other words, the clips are the pieces that allow the slats (A) to be attached to the enclosure grid.

[0006] As previously mentioned, kits are currently marketed for a certain number of heights, so that each kit is only suitable for a certain fencing height, which is defined by the height of the slats (A), as explained above. Among these heights are the fencing heights of 1.0; 1.2; 1.5; 1.7 and 1.9 meters of nominal height. Each kit is only suitable for your specific height.

[0007] At present, the need to have higher fencing heights is being raised, which means manufacturing a specific kit for a certain height, for example, 2.0 m or higher. However, with the manufacture of kits for these heights a series of problems arise for which two aspects must be taken into account.

[0008] Privacy kits for heights greater than 1.9 m are unusual so there are not usually offered commercially. It must be taken into account that in order to offer them, a company is obliged to be able to provide them in addition to the rest of the standard range, in various colors and widths. Usually a company sells kits in 4 colors and 2 widths for each height, therefore, the manufacturing and storage needs entail having 8 kits available with independent references for each additional height. Therefore, having kits for heights of 2.0; 2.2 and 2.4 m would imply 8 x 3 = 24 kits with independent references with their respective manufacturing and storage costs, all for sales that would be insignificant, although existing, since this type of heights are currently being required by part of the clients. This same problem of availability of references and their storage is not exclusive to the fencing manufacturers, but can be extrapolated to assemblers, large do-it-yourself chains, hardware stores, etc. to which the end user of the kit goes.

[0009] The other problematic aspect that arises is the dimensions of the privacy kit. If the kits are marketed in their specific height, there is the problem of having to handle packages of 2.0; 2.2 or 2.4 meters in length and a significant weight.

[0010] In short, at present there is a need to place on market privacy kits for nominal heights greater than 1.9 m without causing the problems previously mentioned.

DESCRIPTION OF THE INVENTION

[0011] A first aspect of the present invention relates to an privacy fencing kit that comprises at least one clamping element for slats (A) for hiding fences, which allows to have an extremely versatile piece that can be coupled to another identical piece, so that they allow longitudinal overlap, that is, in height, of at least two sections of slats (A), so that a greater variety of nominal fencing heights can be obtained without the need to manufacture slats higher than 1.9 m. That is to say, by combining slats (A) of commercially used heights, higher heights can be obtained because the clamping element of the invention, by coupling it to another identical element, allows it to be arranged in an intermediate section of the fences so that two slats (A) can be overlapped, in addition to being able to continue to be used individually to hold the ends of the slats (A) to the transverse rods (B) of the enclosure grid (traditional installation method).

[0012] With all this, in addition to reducing manufacturing costs, given that there is no need to manufacture slats (A) longer than, for example, 1.9 m to obtain enclosures of higher heights, the need and storage costs are reduced in addition to the volume and weight of the kits that would be marketed for those heights.

[0013] For this, the clamping element for enclosure slats (A) that the invention proposes comprises an elastic fixing sector that has a curved configuration and that can be fixed on a transverse rod (B) of a fence. The cross section of the elastic fixing sector has an open curved configuration that covers an arc greater than 180°, so that by means of elastic deformation it allows its coupling to the transverse rod (B), thus remaining clamped in the absence of any other action.

[0014] Likewise, the clamping element comprises an elastic support sector that has a substantially flat configuration, in the sense that it can be contained in a plane considering that it has a thickness equivalent to that of a slat (A), and that can be inserted at one end of a hollow slat (A) in a fence, so that the clamping element once inserted by pressure remains tightly housed in the slat (A). With these two sectors, whose orientation is defined so that the element can be attached to a transverse rod (B), that is, horizontal, and the slat (A) is oriented transversely to said rod (B), that is, vertical, the function for which it is intended is covered, clamping the slats (A) to the enclosure grid.

[0015] So, according to the invention, the elastic support sector has a lower recess on the perimeter edge of which a projection is located, the orientation of which is contained in the plane of the elastic support sector itself. Also, the elastic support sector has a base that is located in proximity to the elastic fixing sector and that has a notch that has the same orientation and dimensions as the projection. In this way, the clamping element can be coupled in a tongue-and-groove way to an identical clamping element by engaging its lower recesses and leaving its elastic support sectors contained in the same plane with its ends, located opposite its base, oriented in opposite directions. The coupling is effected by engaging the projections of each clamping element in the notches of the other element, that is, by engaging the projection of a first clamping element in the notch of a second clamping element by means of a relative movement contained in the plane of the elastic support sectors in a direction coinciding with their orientation, the projections and notches having such a configuration that they cannot be disengaged in any other direction not coinciding with their orientation.

[0016] Among the possibilities contemplated by the invention for the configurations of the projections and notches, it is found that they have a T or cylindrical trapezoidal cross section.

[0017] In this way, the clamping element of the invention allows to overlap two privacy kits and cover an enclosure height greater than that which would be covered in the case of no such overlap. For example, to achieve a fencing with a nominal height of 2.2 m, those of 1.0 and 1.2 m can be overlapped, so that from two standard kits and without the need for any additional element, the desired height is achieved.

[0018] The clamping element, also known as a clip, is a versatile solution, as it allows its installation both individually for the standard kits assembly, called a simple clip, and its installation in a pack of two for the overlapped kits assembly, acting as a double clip in overlay mode. The pack of two is made up of two equal clips fitted through a tongue and groove, which does not exist in the state of the art.

[0019] The invention contemplates three variants that differ in the configuration of the elastic fixing sector.

[0020] In this sense, the possibility that the elastic fixing sector has a semi-cylindrical configuration is contemplated, resulting in a simple and economical solution that fulfills its function, this solution avoids stress concentration since there are no sudden changes in section or thickness that would imply the existence of weak points from a mechanical point of view.

[0021] Likewise, it is contemplated that the elastic fixing sector has an oval transverse configuration with a central widening, this solution allows optimal tightening in a greater range of diameters of transverse rods (B) and stress concentration is avoided since there are no sudden changes of section or thickness that would imply the existence of weak points from a mechanical point of view.

[0022] Finally, it is contemplated that the elastic fixing sector has a semi-cylindrical configuration that affects more than half of its cross section, with a pronounced curvature towards the opposite side of the elastic supporting sector, this solution allows an optimal tightening in a greater range of diameters of transverse rods (B) and stress concentration is avoided since there are no sudden changes in section or thickness that would imply the existence of weak points from a mechanical point of view. Additionally, it has an internally marked transition between the semi-cylindrical sector and a lower flap with which said elastic fixing sector is finished outwards. This solution makes it difficult to extract the transverse rod (B) from the elastic fixing sector of the clamping element.

[0023] Common to all the previous variants, it is contemplated that the clamping element comprises, at the end of the elastic support sector, a plurality of elastic elements inclined in an arrowhead transverse configuration, the inclination being opposite to the end itself, which facilitates the insertion in the slat (A) and makes it difficult to remove it.

[0024] Likewise, it is contemplated that the elastic support sector comprises a longitudinal dividing notch, which is determined by the cross section of the slat (A), so that the section separated by the longitudinal dividing notch is inserted tightly into the corresponding hole defined in the cross section of the slat (A) which results in a greater holding capacity.

[0025] The invention contemplates that the kit comprises at least two clamping elements according to any of those previously described.

[0026] Likewise, according to an embodiment of the invention, the privacy kit comprises at least one slat (A) that can be fixed to the grid by means of at least one clamping element as described above.

[0027] A second aspect of the invention relates to a method of installation of an privacy fencing kit such as the one previously described. The method comprises coupling in a tongue-and-groove way a first clamping element to a second identical clamping element engaging its lower recesses and leaving its elastic support sectors contained in the same plane with their ends oriented in opposite directions, where the coupling is carried out by engaging the projection of a first fastening element in the notch of a second fastening element by means of a relative movement contained in the plane of the elastic support sectors in a direction coinciding with their orientation.

DESCRIPTION OF THE DRAWINGS

[0028] To complement the description that is being made and in order to help a better understanding of the features of the invention, according to a preferred example of a practical embodiment thereof, a set of drawings is attached as an integral part of said description. For illustrative and non-limiting purposes, the following has been represented:

Figure 1.- Shows a perspective view of an fencing with a privacy kit installed comprising a single section of slats (A) according to those of the state of the art in which the clamping element of the invention can also be used at the lower end.

Figure 2.- Shows a perspective view of the lower position of a first embodiment of the clamping element that comprises the kit of the invention in an enclosure.

Figure 3.- Shows a view like the one in figure 2 with the slat in place.

Figure 4.- Shows a view like the one in figure 1 but of an fencing comprising two sections of overlapped slats, where the clamping elements of the invention are arranged in the intermediate section by coupling two clamping elements to each other, in such a way that they serve to hold the sections that converge at the intersection.

Figure 5.- Shows a perspective view like the one in figure 2 but of the intersection represented in figure 4, where the arrangement in the fencing of two clamping elements coupled to each other can be seen.

Figure 6.- Shows the view of figure 5 from an opposite point of view.

Figure 7.- Shows the view of figure 6 with the slats in place.

Figure 8.- Shows the view of figure 5 with the slats in place.

Figure 9.- Shows a perspective view of the first embodiment of the clamping element of the invention.

Figure 10.- Shows a perspective view of the second embodiment of the clamping element of the invention.

Figure 11.- Shows a cross section of the third embodiment of the clamping element of the invention.

Figure 12.- Shows a perspective view of the third embodiment of the clamping element of the invention, represented in the section of figure 11.

PREFERRED EMBODIMENT OF THE INVENTION

[0029] In view of the figures outlined, it can be seen how in one of the possible embodiments of the invention the clamping element (1, 1', 1") for slats (A) for privacy fencing that the invention proposes comprises an elastic fixing sector (2, 2', 2") that has a curved configuration and that can be fixed on a transverse rod (B) of the fence. The cross section of the elastic fixing sector has an open curved configuration that covers an arc greater than 180° so that by means of elastic deformation it allows its coupling to the transverse rod (B).

[0030] For its part, the fastening element (1, 1', 1") comprises an elastic support sector (3) that has a substantially flat configuration and that has a thickness equivalent to that of a slat (A), being able to be inserted into an end of a hollow slat (A).

[0031] As can be seen in Figures 9, 10 and 12, the elastic support sector (3) has a lower recess (4) on whose perimeter edge a trapezoidal projection (5) is located whose orientation is contained in the plane of the elastic support sector (3) itself. Likewise, the elastic support sector (3) has a base (6) that is located in proximity to the elastic fixing sector (2, 2', 2") and that has a trapezoidal notch (7) that has the same orientation and dimensions that the trapezoidal projection (5). In this way the fastening element (1, 1', 1") can be coupled to an identical fastening element (1, 1', 1") by engaging its lower recesses (4) and leaving its elastic support sectors (3) contained in the same plane with their ends (8), located in opposition to their base (6), oriented in opposite directions, as shown in Figures 5 to 8.

[0032] In this way, the clamping element of the invention allows to overlap two privacy kits and cover a greater fence height than that which would be covered in the case of not overlap them, as shown in figure 4. In this case, no additional element is necessary in the kit, since each kit usually has a closing profile (C) that is placed to finish off the upper end of the fence, so that in the case represented in figure 4, in which two sections are overlapped, the user selects two kits whose sum of heights results in the desired height, so that the closure profile

(C) that is provided with each kit is arranged superiorly and inferiorly in the overlapped fencing, while fixing between the upper and lower section of slats (A) is carried out by means of pairs of clamping elements (1, 1', 1") coupled to each other that are located in the intermediate zone corresponding to the overlap of the two sections. In this way, the clamping elements (1, 1', 1") of both kits are used, without any element being in excess or missing.

[0033] The clamping element (1, 1', 1") also allows individual installation for mounting the standard kit, as shown in figure 1. In this case, there is no overlap of sections, so the clamping elements (1, 1', 1") are not coupled in pairs and are used to fix the lower end of the slats (A) to the corresponding transverse rod (B), while the closing profile (C) is only arranged superiorly and not inferiorly.

[0034] The invention contemplates three embodiments that differ in the configuration of the elastic fixing sector (2, 2 ', 2'').

[0035] In Figure 9, as well as by way of example in the arrangements of Figures 2, 3 and 5 to 8, a first embodiment of the clamping element (1) has been represented, in which the elastic fixing sector (2) has a semi-cylindrical configuration with a lower flap with which said elastic fixing sector (2) ends outwards, to facilitate its insertion into the transverse rod (B) during assembly.

[0036] Figure 10 shows a second embodiment of the clamping element (1') in which the elastic fixing sector (2') has an oval transverse configuration with a central widening, this solution allows optimal tightening in a greater range of diameters of transverse rods (B) given their smooth and curved change in section maintaining a constant thickness, with which stress concentration is avoided since there are no sudden changes in section or thickness that would imply the existence of weak points from a mechanical point of view.

[0037] Figures 11 and 12 show a third embodiment of the clamping element (1") in which the elastic fixing sector (2") has a semi-cylindrical configuration that affects more than half of its cross section, with a pronounced curvature towards the side opposite to that of the elastic support sector (3), this solution allows an optimal tightening in a greater range of diameters of transverse rods (B) given its smooth and curved change of section while maintaining a constant thickness, with which stress concentration is avoided since there are no sudden changes in section or thickness that would imply the existence of weak points from a mechanical point of view. In the same way, this embodiment also presents an internally marked transition between the semi-cylindrical sector and a lower flap with which said elastic fixing sector (2") is finished outwards. This solution makes it difficult to extract the transverse rod (B) of the elastic fixing sector (2") of the fastening element (1").

[0038] Common to all the previous embodiments, the clamping element (1, 1', 1") comprises, at the end (8) of the elastic support sector (3), a plurality of inclined elastic elements (9) in an arrowhead transverse configuration, the inclination being opposite to the end (8) itself, which facilitates insertion into the slat (A) and makes it difficult to be removed from it.

[0039] Likewise, it is contemplated that the elastic support sector (3) comprises a longitudinal dividing notch (10), which, as shown in Figures 5 to 8, is determined by the cross section of the slat (A), so that the section separated by the longitudinal dividing notch (10) is inserted tightly into the corresponding gap defined in the cross section of the slat (A), which results in a greater fastening capacity.

[0040] In view of this description and set of figures, the person skilled in the art will understand that the embodiments of the invention that have been described can be combined in multiple ways within the object of the invention. The invention has been described according to some preferred embodiments thereof, but it will be apparent to those skilled in the art that multiple variations can be introduced in said preferred embodiments without exceeding the object of the invention being claimed.

Claims

1. Privacy fencing kit comprising at least one clamping element (1, 1', 1") for slats (A) for hiding enclosures, wherein said, at least one, clamping element (1, 1', 1") comprises:

- an elastic fixing sector (2, 2', 2") that has a curved configuration and that can be fixed in a removable manner on a transverse rod (B) of the fence, and
- an elastic support sector (3) that has a flat configuration and that can be inserted into one end of a hollow slat (A),

characterized in that

the elastic support sector (3) has a lower recess (4) on the perimeter edge of which a projection (5)is located contained in the plane of the elastic support sector (3) itself, wherein

the elastic support sector (3), at its base (6), located close to the elastic fixing sector (2, 2', 2"), has a notch (7) that has the same orientation and dimensions as the projection (5),

so that the clamping element (1, 1', 1") can be coupled in a tongue-and-groove way to an identical clamping element (1, 1', 1"), engaging its lower recesses (4) and leaving its elastic support sectors (3) contained in the same plane with its ends (8), located opposite to its base (6), oriented in opposite directions,

wherein coupling is carried out by engaging the projection (5) of a first clamping element (1, 1', 1") into the notch (7) of a second clamping element (1, 1', 1") by means of a relative movement contained in the plane of the elastic support sectors (3) in a di-

rection coinciding with their orientation, the projections (5) and notches (7) having such a configuration that they cannot be disengaged in any other direction not coinciding with their orientation .

2. Privacy kit according to claim 1, wherein the projection (5) and the notch (7) of the clamping element (1, 1', 1") have trapezoidal cross section.

3. Privacy kit according to claim 1, wherein the projection (5) and the notch (7) of the clamping element (1, 1', 1") have a T-cross section.

4. Privacy kit according to claim 1, wherein the projection (5) and the notch (7) of the clamping element (1, 1', 1") have cylindrical cross section.

5. Privacy kit according to any of the preceding claims, wherein the elastic fixing sector (2) of the clamping element (1) has a semi-cylindrical configuration.

6. Privacy kit according to any of claims 1 to 4, wherein the elastic fixing sector (2') of the clamping element (1') has an oval transverse configuration with a central widening.

7. Privacy kit according to any of claims 1 to 4, wherein the elastic fixing sector (2") of the clamping element (1") has a semi-cylindrical configuration that affects more than half of its cross section, with a pronounced curvature towards the opposite side to that of the elastic support sector (3), producing an internally marked transition between the semi-cylindrical sector and a lower flap with which said elastic fixing sector (2") is finished outwards.

8. Privacy kit according to any of the preceding claims, wherein the end (8) of the elastic support sector (3) of the clamping element (1, 1', 1") comprises a plurality of inclined elastic elements (9) in an arrowhead transverse configuration.

9. Privacy kit according to any of the preceding claims, wherein the elastic support sector (3) of the clamping element (1, 1', 1") comprises a longitudinal dividing notch (10).

10. Privacy kit according to any of the preceding claims, comprising at least two clamping elements (1, 1', 1").

11. Privacy kit according to claim 10, comprising at least one slat (A) that can be fixed to the grid by means of at least one clamping element (1, 1', 1").

12. Method for the Installation of an privacy fencing kit according to any of the preceding claims, which comprises coupling a first clamping element (1, 1', 1") to an identical second clamping element (1, 1', 1"), engaging their lower recesses (4) and their elastic support sectors (3) being contained in the same plane with their ends (8) oriented in opposite directions, wherein the coupling is carried out by engaging the projection (5) of a first clamping element (1, 1', 1") in the notch (7) of a second clamping element (1, 1', 1") by means of a relative movement contained in the plane of the elastic support sectors (3) in a direction coinciding with their orientation.

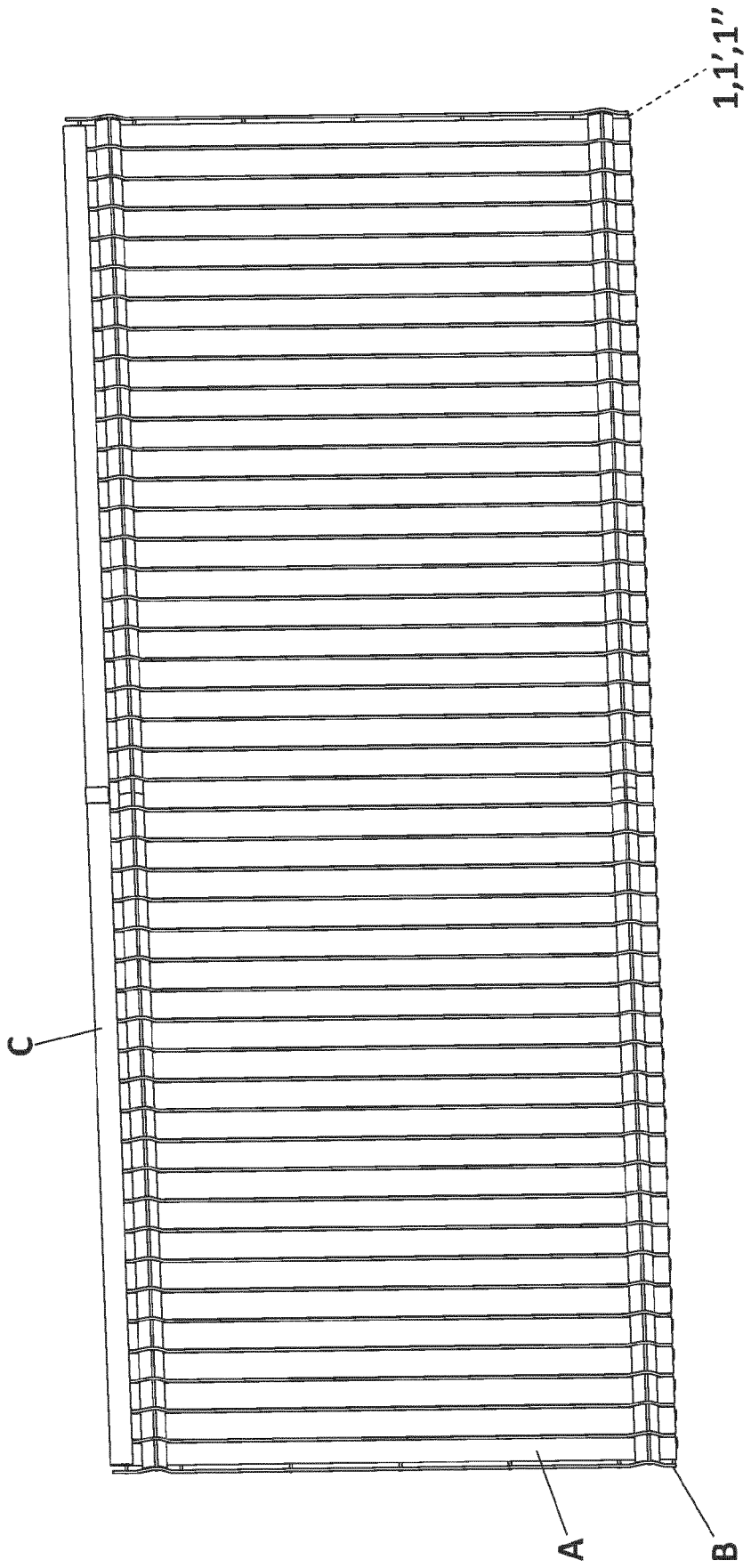

FIG. 1

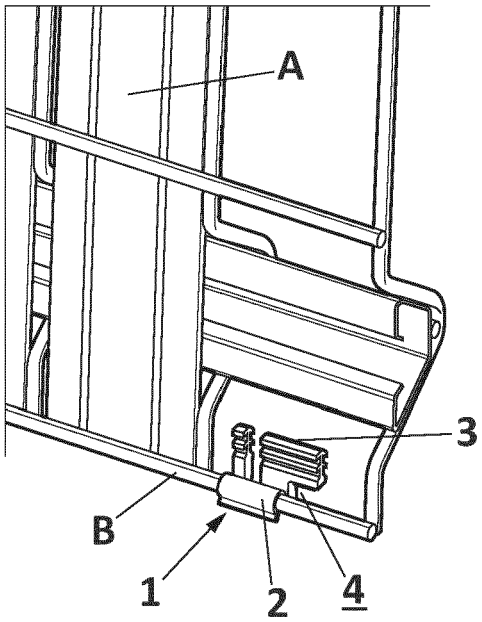

FIG. 2

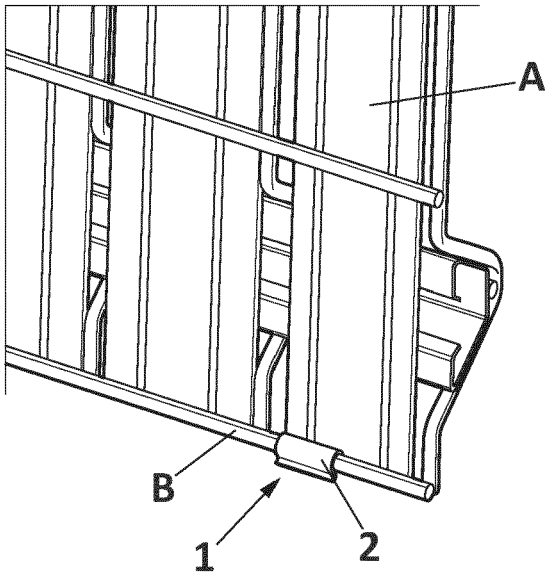

FIG. 3

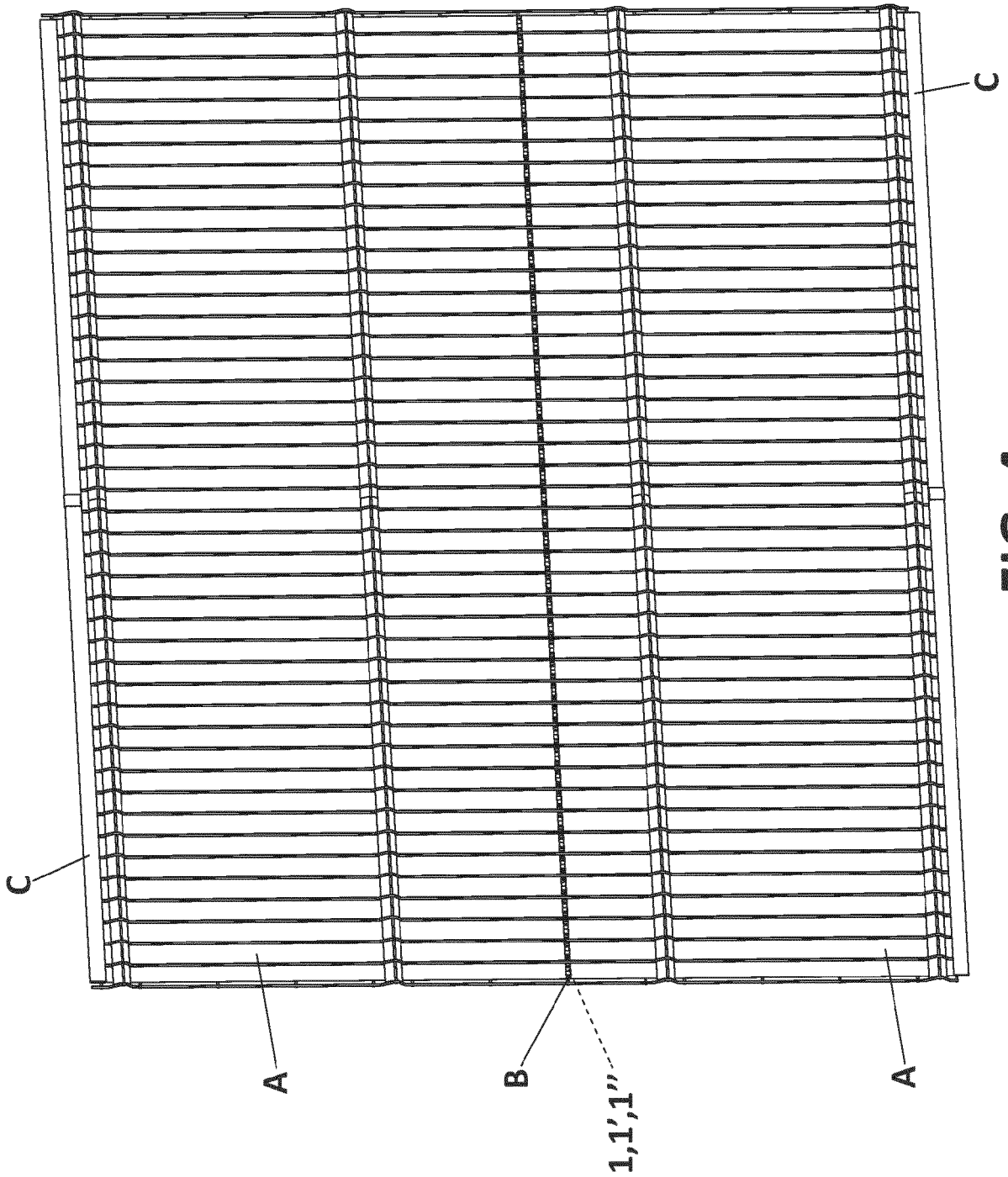

FIG. 4

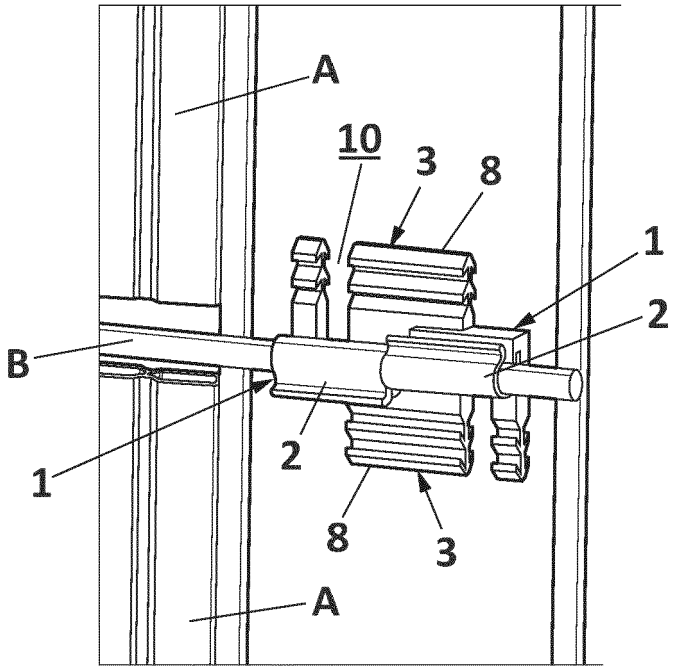

FIG. 5

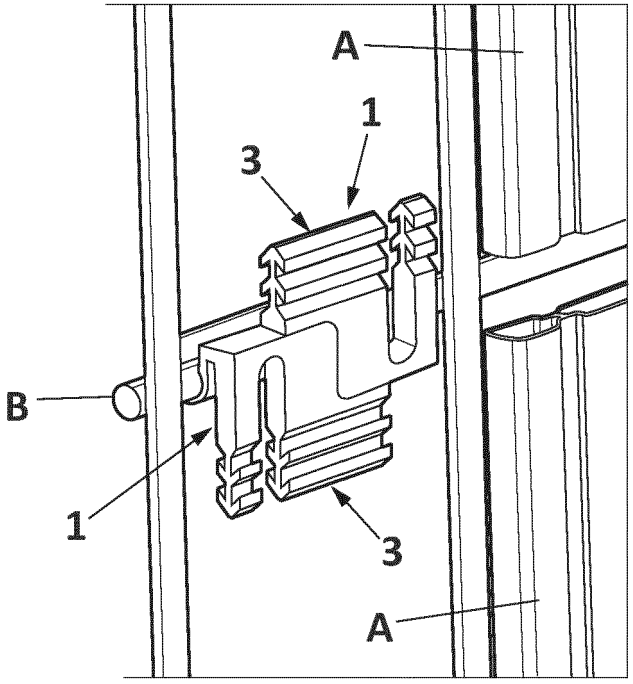

FIG. 6

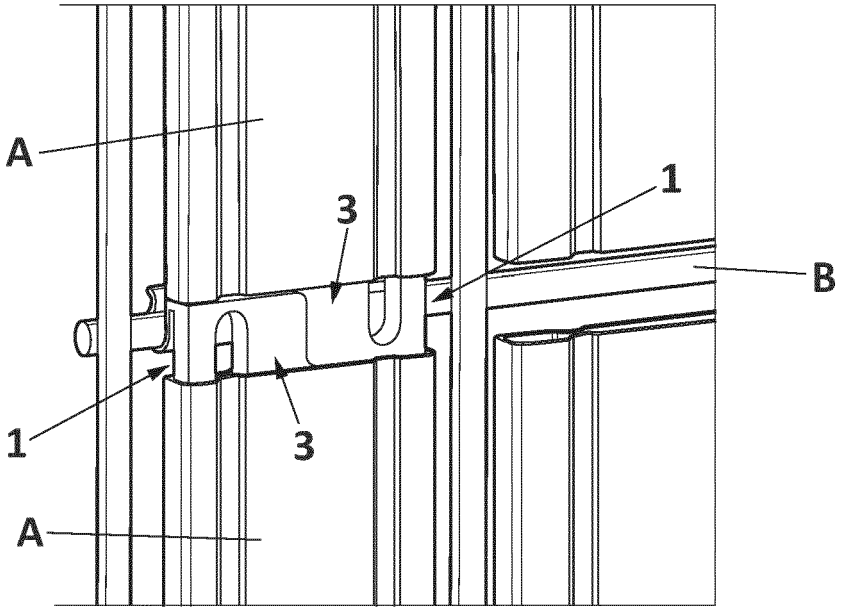

FIG. 7

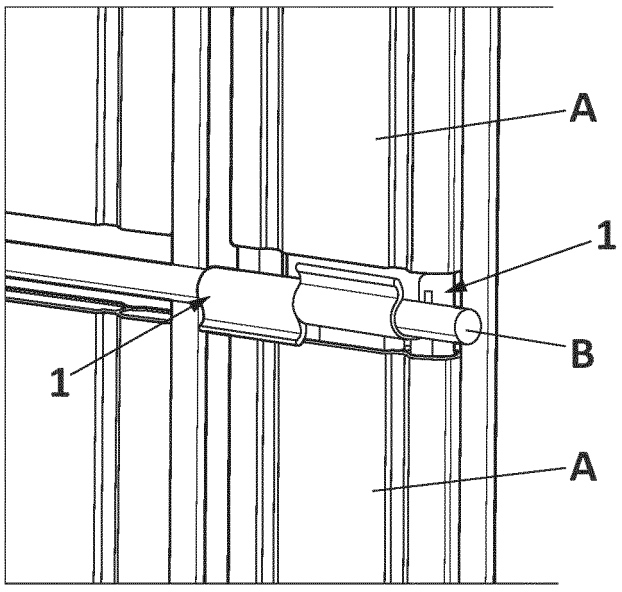

FIG. 8

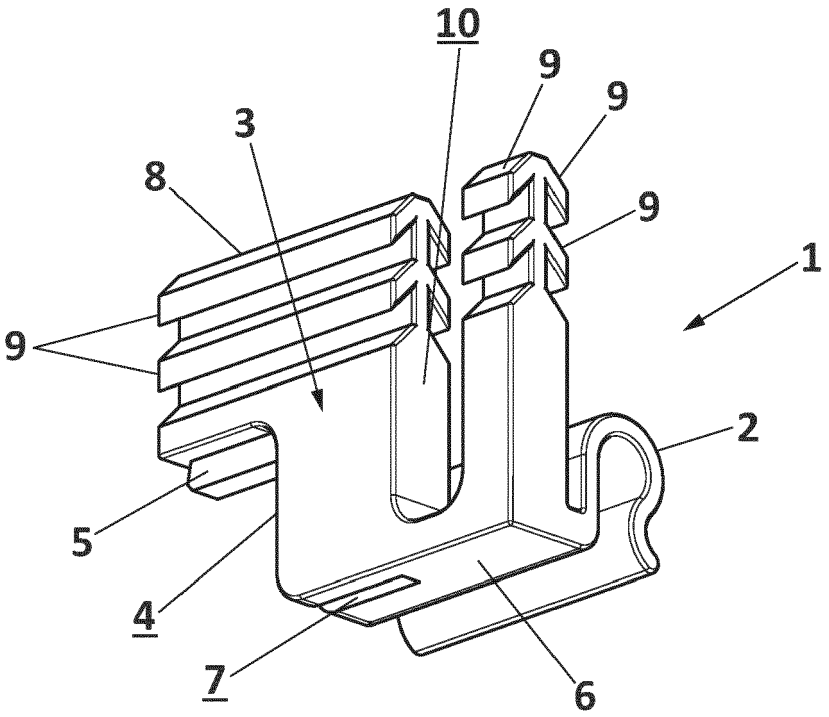

FIG. 9

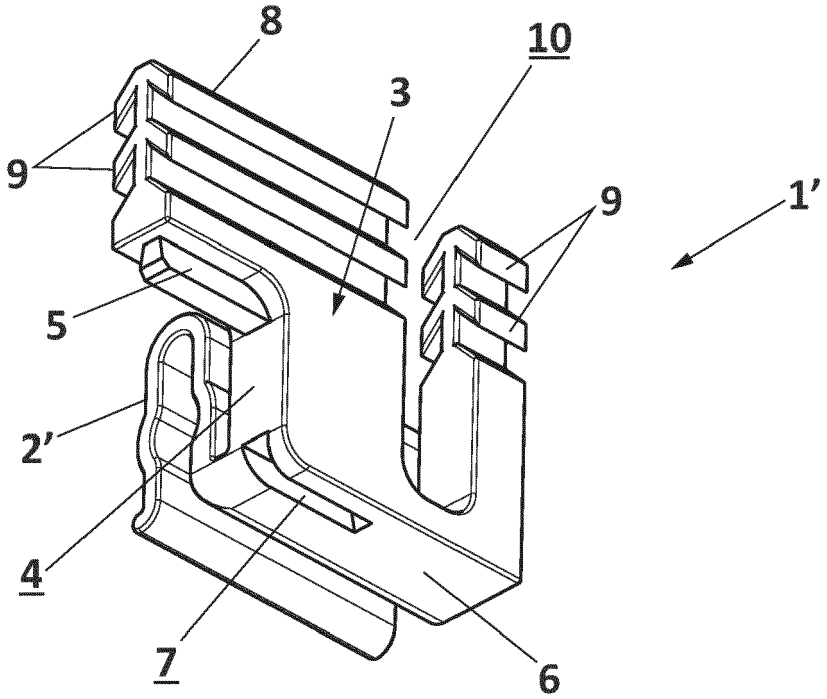

FIG. 10

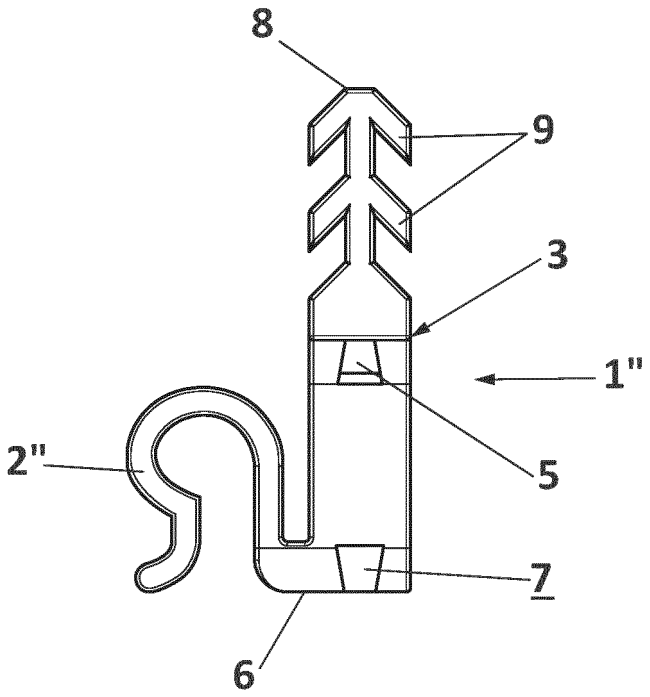

FIG. 11

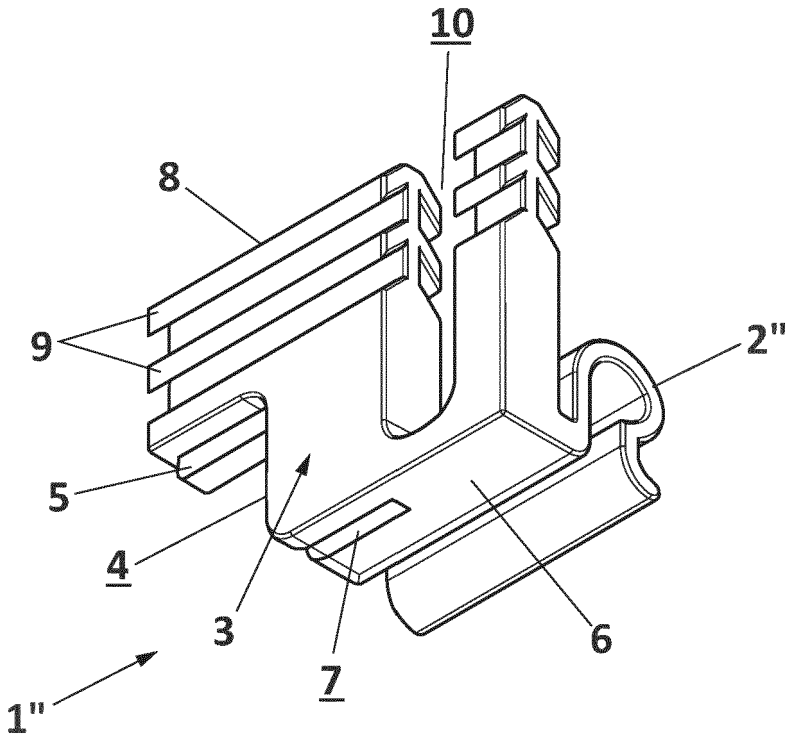

FIG. 12

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EUROPEAN SEARCH REPORT

Application Number
EP 21 38 2454

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	EP 2 924 193 A1 (GEN MIJ VOOR PLASTIEK INTERNATIONAAL NV [BE]) 30 September 2015 (2015-09-30) * claim 1; figures 1-8 * -----	1-12	INV. E04H17/16
A	EP 3 492 675 A1 (CLOVISION [FR]) 5 June 2019 (2019-06-05) * claim 1; figures 1,2,3,8 * -----	1-12	

TECHNICAL FIELDS SEARCHED (IPC)

E04H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	8 October 2021	Rosborough, John

CATEGORY OF CITED DOCUMENTS

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