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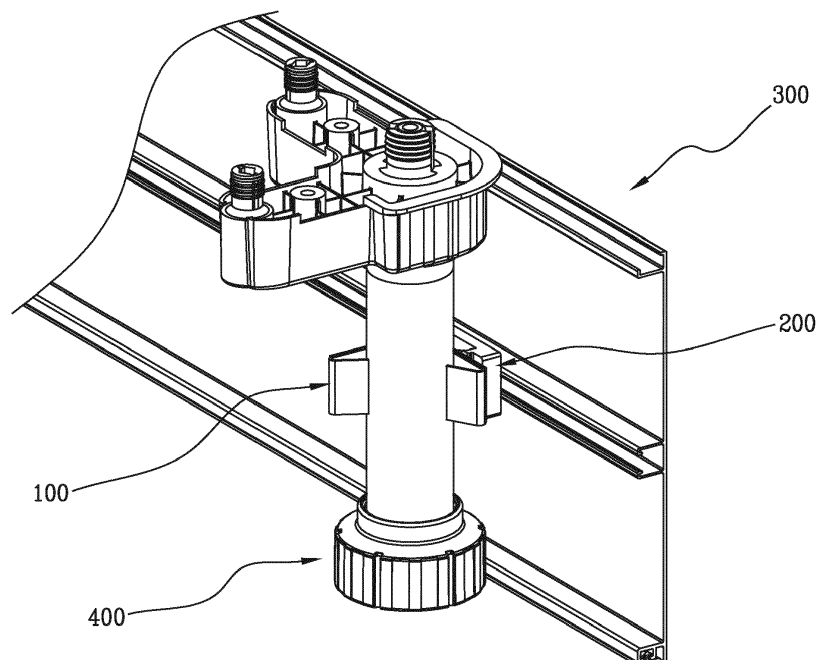
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(54) **A HOOKING SYSTEM FOR COMPENSATING PANELS AND METHOD FOR INSTALLING COMPENSATING PANELS**

(57) A hooking system for compensating panels comprises a hook (100) for support feet (400) having an anchoring portion (110) stably engageable in a reversible way with a preferably cylindrical side surface (411) of a support foot (400) for furnishing elements; and at least one respective component connection (200) having a

connection portion (210) reversibly connectable to a respective compensating panel (300). The hook (100) and the connection component (200) have respective first and second magnetic attraction means (130, 230) mutually engageable to determine a stable connection of the compensating panel (300) to the support foot (400).

Fig.4



Description

[0001] The present invention relates to the field of furniture, in particular the field of furniture for kitchens.

[0002] More specifically, the present invention relates to a hooking system for compensating panels (preferably "baseboards"), an installation method thereof, a compensating structure and a furnishing component.

[0003] In modern kitchens the furnishing components used for arranging cabinets, drawers, built-in appliances and sinks are often equipped with compensating panels, such as skirting boards (commonly referred to as "baseboards"), placed at the lower part of the furnishing component to close the space between the floor and the furnishing component itself.

[0004] In fact, for various reasons the kitchen furnishing components are usually mounted suspended or resting above the floor through the use of support elements, commonly called "feet", to which connection or hooking elements are attached.

[0005] Thus, the baseboard can be used for aesthetic reasons to offer visual continuity between the top of the kitchen and the floor itself and made to match the kitchen furniture, in contrasting colour (e.g. steel-like), or a similar colour to other furnishings present in the environment.

[0006] The baseboard is generally made of plastic, aluminium or wood, or other materials not expressly indicated here, depending on customer requirements.

[0007] Closing the space below the furnishing component prevents the accumulation of dirt and dust under the furniture, moreover ensuring that liquids or other substances cannot be deposited in areas which are hard to reach or clean.

[0008] Some more modern baseboards are also equipped with a lower seal that can ensure a high sealing level against liquid spills on the floor below the furnishing component, thus avoiding possible problems of stagnation and bad odours.

[0009] In order to guarantee the aesthetic, functional and hygienic functions of the baseboard, it is essential that the connection or hooking element is correctly positioned in relation to the feet and firmly anchored to them so that, following any possible blows inflicted by a broom or a cleaning appliance used during floor cleaning operations, or an accidental bump with feet, the baseboard remains in a vertical position and ensures the seal on the floor.

[0010] Furthermore, hooking the baseboard to the foot of the furniture must also allow easily removing, without any effort or damage, the baseboard itself, in case the user would like to clean the area of the kitchen below the furniture. The hooking systems known in the prior art have highlighted several drawbacks primarily related to the installation and removal of the baseboard.

[0011] The most popular traditional systems provide a hook that is installed on the inner surface of the baseboard that remains hidden after installation on the furniture, thanks to which the operator can subsequently hook

the baseboard to the feet of the furniture itself. The hook elastically embraces the stem of the foot and keeps the baseboard fixed in place.

[0012] However, this requires an expensive time-consuming step to centre the hooks at the feet on which the baseboards must be installed, which requires a certain level of precision and experience of the operator. In particular, the difficulty in the installation is tied to the fact that the hook is no longer visible when the baseboard is vertical, and therefore it is necessary to accurately pre-orient the hooks with respect to the baseboards and then, once the baseboard has been placed vertically, manually check if there is a successful connection to the feet.

[0013] It should be noted that the centring of the baseboard must be performed both along the vertical direction so that the hook is almost at the midpoint of the foot, and horizontally, to avoid not being able to connect the hooks to the respective feet.

[0014] To overcome the problem of horizontal alignment, some hooking systems have been equipped with a "comb"-type plate that can be inserted into the rear connection seat of the baseboard, and a hook for the connection of the foot which has a barb on the opposite side. The comb-type plate is equipped with a series of horizontal parallel guides inside which this barb can be hooked. In this way the plate allows to compensate an error in the positioning of the baseboard equal to the length of the parallel guides and at the height of the same, since the barb can engage in any position between the guides. Therefore, the installer has a margin within which he can move along the direction of extension of the guides to realise the connection with the hook.

[0015] However, even with this vertical positioning system the drawbacks related to installation difficulties remain, in particular for the removal of the baseboard (for example, to perform cleaning operations) since the release of the barb from the comb is often difficult, not to mention it is sometimes necessary to leverage the entire baseboard, which is subjected to bending manoeuvres that are at times excessive.

[0016] In this context, the technical task underpinning the present invention is to provide a hooking system for compensating panels, an installation method thereof, a compensating structure and a furnishing component which overcome at least some of the drawbacks of the prior art cited above.

[0017] In particular, the object of the present invention is to provide a hooking system for compensating panels, an installation method thereof, a compensating structure and a furnishing component able to allow a simpler, faster, easy and accurate connection of the compensating panels.

[0018] The defined technical task and the specified objects are substantially achieved by a hooking system for compensating panels, an installation method thereof, a compensating structure and a furnishing component comprising the technical characteristics set forth in one or more of the appended claims. The dependent claims

correspond to possible embodiments of the invention.

[0019] Further characteristics and advantages of the present invention will more fully emerge from the indicative, and thus non-limiting description of a preferred but not exclusive embodiment of a hooking system for compensating panels, an installation method thereof, a compensating structure and a furnishing component.

[0020] This description will be set out below with reference to the appended drawings, which are provided solely for indicative and therefore non-limiting purposes, in which:

- figure 1 shows a perspective view of a hook for support feet according to one aspect of the present invention;
- figure 2A shows a perspective view of a connection component for compensating panels, with some elements hidden in order to highlight others, according to one aspect of the present invention;
- figure 2B shows a perspective view according to a different angle of the connection component of figure 2A;
- figure 3 shows a perspective view of a hooking system for compensating panels according to the present invention, a compensating structure according to the present invention and one foot for furnishing components;
- figure 4 shows a perspective view of a hooking system for compensating panels according to the present invention, a compensating structure according to the present invention and a furnishing component according to the present invention;
- figure 5 shows a perspective view of an angular hooking system for compensating panels according to the present invention, a compensating structure according to the present invention and a furnishing component according to the present invention.

[0021] With reference to the appended figures, a hook for support feet is indicated with the number 100 and reference will be made to it in the following description with the shorthand notation "hook 100".

[0022] A connection component for compensating panels is indicated with the number 200 and reference will be made to it in the following description with the shorthand notation "connection component 200".

[0023] A compensating panel for furnishing components is indicated with the number 300 and reference will be made to it in the following description with the notation "compensating panel 300".

[0024] A support foot for furnishing components is indicated with the number 400 and reference will be made to it in the following description with the notation "support foot 400".

[0025] The support foot 400 can be connected to an item of furniture to define and adjust an elevation between this item of furniture and a floor and, in combination with other similar support feet 100, define and adjust the sup-

port base.

[0026] Preferably, the support foot 400 has a stem 410, preferably cylindrical, and an adjusting element 420 equipped with a section greater than the stem 410 and connected to a terminal end of the stem 410 to be placed resting on the floor and adjust the elongation of the support foot 400. The terminal portion of the stem 410 and a seat inside the adjusting element 420 are respectively threaded to adjust the height of the foot through rotation of the adjusting element 420.

[0027] The object of the present invention is a hooking system for compensating panels, configured to connect a compensating panel 300 to a respective support foot 400.

[0028] The hooking system comprises a hook 100 and at least one connection component 200.

[0029] The hook 100 has an anchoring portion 110 stably engageable in a reversible way with a preferably cylindrical side surface 411 of the support foot 400, in particular of the stem 410.

[0030] Preferably, the anchoring portion 110 is configured to at least partially wrap the side surface 411 when the hook 100 is connected to the support foot 400. In particular, the anchoring portion 110 is configured to embrace more than 50% of the circumference of the side surface 411.

[0031] Preferably, the anchoring portion 110 is elastically deformable in a respective deformation plane to perform a snap anchoring of the hook 100 with the support foot 400 which can be performed simply by pressing the hook 100 against the stem 410.

[0032] Preferably, the hook 100 comprises a folded plate 120, preferably metallic, to define the anchoring portion 110.

[0033] In the embodiment illustrated the plate 120 extends along a prevalent extension line lying in an extension plane, in particular coinciding with the deformation plane of the anchoring portion 110. Furthermore, the sheet 120 is preferably oriented perpendicularly to this extension plane along its entire extension line.

[0034] In more detail, the sheet 120 is folded to at least partially encircle a housing seat "S" for the support foot 400. The housing seat "S" is defined by the hook 100 itself, and in particular by the sheet 120, and comprises the portion of space occupied by the support foot 400 at the hook 100.

[0035] Preferably, the sheet 120 has one or more straight stretches 122, in particular stretches wherein this extension line of the sheet 120 is straight. In the preferred embodiment, the sheet 120 has exactly two straight stretches 122 facing different directions and preferably defining an angle between them of 90°.

[0036] One or both of these straight stretches 122 defines a respective coupling plane 124 between the hook 100 and the connection component 200, in particular at a face thereof turned in the opposite direction with respect to the housing seat "S".

[0037] In particular, orienting at least one of the straight

stretches 122 parallel with the compensating panel 300, it is possible to make a connection of a straight stretch of baseboard (in which case the other straight stretch 122 is not used).

[0038] Alternatively, the angled conformation (90°) of straight stretches 122 allows connecting two baseboards together to form a corner. In this case, a first straight stretch 122 is oriented parallel to a first compensating panel 300, while a second straight stretch 122 is oriented parallel to a second compensating panel 300 which is angled with respect to the first (figure 5).

[0039] Furthermore, each straight stretch 122 has a support surface facing the housing seat "S" adapted to abut the side surface 411 of the support foot 400 and cooperate to define the anchoring portion 110.

[0040] Preferably, the hook 110 has two respective end fins 125 that define a lead-in for a snap anchoring of the hook 100 about the side surface 411.

[0041] More specifically, the end fins 125 define respective surfaces converging towards the housing seat "S". They are configured to slide against the side surface 411 to guide an enlargement of the anchoring portion 110 during a pressure of the hook 100 against the support foot 400, constituting an initial step of the snap anchoring.

[0042] Preferably, the end fins 125 further define an abutment against the side surface 411 to achieve, following the engagement of the hook 100 on the support foot 400, the stable anchoring of the hook 100 on the support foot 400.

[0043] Preferably, the end fins 125 are defined by respective end portions of the plate 120, preferably straight, folded towards the housing seat "S".

[0044] Preferably, each end fin 125 is adjacent to a respective straight stretch 122 and the sheet 120 defines a curve at an angle between them, preferably defining an angle comprised between 135° and 175°.

[0045] Furthermore, the hooking system comprises magnetic attraction means 130, 230 interposed between the hook 100 and the connection component 200 to realise a magnetic coupling between the two.

[0046] It should be noted that the term "magnetic attraction means" is intended as comprising different embodiments wherein:

- the connection component 200 comprises a magnetic element and the hook 100 is at least partially made of ferromagnetic material; or
- the connection component 200 is at least partially made of ferromagnetic material and the hook 100 comprises a magnetic element; or
- both the connection component 200 and the hook 100 comprise respective magnetic elements.

[0047] In other words, the magnetic attraction means (130, 230) comprises two parts (of which at least one is magnetic) of which at least one part is connected to or integrated in said hook 100.

[0048] In the preferred embodiment, a first magnetic

attraction means 130 is placed at the hook, preferably comprising a ferromagnetic element 131 for each coupling plane 124.

[0049] In the preferred embodiment, the ferromagnetic element 131 consists of a sheet-shaped metal body, fixed to the respective coupling plane 124 in a parallel position and preferably overlapping it.

[0050] In alternative embodiments not shown, the sheet 120 itself is made of metal and defines such first magnetic attraction means 130.

[0051] Preferably, the hooking system which is the object of the present invention comprises a number of heads 200 equal to the number of ferromagnetic elements 131 (and coupling planes 124) of the hook 100.

[0052] In the preferred embodiment, each connection component 200 comprises a main body 205, preferably polymeric and monolithic.

[0053] Furthermore, each connection component 200 has a connection portion 210, preferably T-shaped, reversibly connectable to a respective compensating panel 300 preferably at a respective fixing seat 310 provided with abutments defined by the same compensating panel 300. In particular, the connection portion 210 is defined by a rear portion of the main body 205.

[0054] Preferably, the connection portion 210 is configured to engage the respective fixing seat 310 when it is oriented according to a first insertion configuration, wherein the horizontal stretch of the T-shaped connection portion 210 does not engage the abutments of the fixing seat 310.

[0055] The connection portion 210 is configured to engage the fixing seat 310 following a rotation of the connection component 200 with respect to the compensating panel 300 from the first configuration to a second anchoring configuration, so as to stably anchor it to the same compensating panel 300. Preferably, this rotation takes place in a plane defined by the compensating panel 300 and around the central stem of the T-shaped connection portion 210.

[0056] The connection component 200 has second magnetic attraction means 230 which can be engaged with the first magnetic attraction means 130 of the hook 100 to determine a stable connection between a compensating panel 300 connected to the connection component 200 and a support foot 400 to which the hook 100 is anchored.

[0057] Preferably, the main body 205 defines, at a front portion thereof, a pocket 225 and the second magnetic attraction means 230 comprises a magnetic member 231, preferably a neodymium magnet, stably housed in the pocket 225 in a removable way. Alternatively, the magnetic member 231 is made in a single piece with the pocket 225 and/or with the inner connection component 200 (and therefore is fixed and unmovable) for example in the case of co-moulding with the connection component 200 itself.

[0058] Preferably, the magnetic member 231 has a disc shape and can be laterally inserted in the pocket

225 according to a movement preferably oriented parallel to the plane defined by the compensating panel 300. The magnetic member 231 is preferably a neodymium magnet.

[0059] In the preferred embodiment, the hook 100 and the connection component 200 are configured to define, in use, a separation distance between the axis of the stem 410 and the compensating panel 300 equal to the radius of the adjusting element 420.

[0060] Preferably this distance is sufficient to allow the compensating panel 300 to rest on the floor when attached to a foot 400 without interfering with the adjusting element 420.

[0061] A further object of the present invention is a compensating structure that comprises one or more hooking systems and a compensating panel 300 of the type described above.

[0062] Preferably, the compensating panel 300 has a substantially T-shaped groove 305, extending along a prevalent extension direction of the compensating panel 300.

[0063] The groove 305 defines the fixing seats 310 and allows adjusting the position of the heads 200 along the prevalent extension direction of the compensating panel 300.

[0064] A further object of the present invention is a furnishing component, illustrated at least in part in figure 4, comprising one or more support feet 400 and a compensating structure of the type described above.

[0065] In the furnishing component, each hook 100 of the compensating structure is stably connected to the side surface 411 of a stem 410 of a respective support foot 400.

[0066] Similarly, each connection component 200 is stably connected to a respective fixing seat 310 of the compensating panel 300, in particular at a connection portion 210 thereof.

[0067] Furthermore, the first magnetic attraction means 130 of each hook 100 engages the second magnetic attraction means 230 of a respective connection component 200 to determine a stable connection of the compensating panel 300 to the support feet 400, preferably so that the distance between the compensating panel 300 and the stem 410 defined by the extension of the connection component 200 and the hook 100 allows the compensating panel 300 to not engage the adjusting element 420.

[0068] A further object of the present invention is an installation method for compensating panels 300 of the type described above.

[0069] This method comprises a preliminary step of preparing one or more hooking systems for compensating panels 300, each comprising a respective hook 100 and at least one respective connection component 200, one or more support feet 400 and a compensating panel 300.

[0070] Preferably one or more of these prepared elements are realised according to that which is described

above.

[0071] Subsequently, the method comprises a step of stably anchoring each hook 100 to a respective support foot 400.

[0072] Preferably this step comprises a pressure of the hook 100 against the stem 410 to activate the snap anchoring described above, so that the anchoring portion 110 of the hook 100 at least partially wraps the side surface 411.

[0073] Subsequently, the method comprises a step of stably connecting each connection component 200 to a respective fixing seat 310 of the compensating panel 300.

[0074] Preferably this step comprises an insertion of the connection portion 210 of the connection component 200 into the groove 305 and a rotation of the connection component 200 from the first configuration to the second configuration.

[0075] Preferably, the method comprises a further adjusting step of the position of the heads 200 along the groove 305 so as to match with a spatial arrangement of the support feet 400.

[0076] Furthermore, the method preferably comprises a step of sliding adjustment of the position of the hooks 100 along the stems 410 so as to adjust their position according to the position of the heads 200 relative to the compensating panel 300.

[0077] Subsequently, the method comprises a step of placing the compensating panel 300 alongside the respective support feet 400, so as to arrange in abutment the second magnetic attraction means 230 of the heads 200 with the first magnetic attraction means 130 of the hooks 100 to determine a stable magnetic connection between the two.

[0078] As has already been explained, this step of placing alongside can envisage the placing of two angled compensating panels 300 alongside the same support foot 400 (at the corner) wherein the second magnetic attraction means 230 of the heads 200 of the two panels 300 is arranged in abutment with the first magnetic attraction means 130 of the two angled straight stretches 122 of the same hook 100 (fig. 5).

[0079] The present invention reaches the proposed object, overcoming the described disadvantages of the prior art.

[0080] Advantageously, the hooking system described allows a convenient and easily adjustable connection of a compensating panel to one or more respective feet.

[0081] Furthermore, the hooking system described allows the easy removal of the compensating panel from the respective feet without having to carry out difficult mechanical unhooking.

[0082] Finally, the mutual straight angle orientation of the coupling planes presented by one of the embodiments of the hook allows easily arranging the compensating panels according to a configuration at right angles.

Claims

1. A hooking system for compensating panels, comprising:

- a hook (100) for support feet (400), having an anchoring portion (110) configured to be stably engageable in a reversible way with a preferably cylindrical side surface (411) of a stem of a support foot (400) for furnishing elements; and
 - at least one respective connection component (200) having a connection portion (210) configured to be reversibly connectable to a respective compensating panel (300);

wherein said system comprises magnetic attraction means (130, 230) arranged between said hook (100) and said connection component (200) and mutually engageable to determine a stable connection of said compensating panel (300) to said support foot (400).

2. The hooking system according to claim 1, wherein said anchoring portion (110) is configured to at least partially wrap said side surface (411) during a connection of said hook (100) to said support foot (400).
3. The hooking system according to claim 2 wherein said anchoring portion (110) is elastically deformable in a deformation plane to perform a snap anchoring onto said side surface (411).
4. The hooking system according to one or more of the preceding claims, wherein said hook (100) comprises a folded plate (120) for defining said anchoring portion (110), said plate (120) at least partially surrounding a housing seat (S) for said support foot (400).
5. The hooking system according to claim 4, wherein said plate (120) has one or more straight stretches (122), each straight stretch (122) defining a respective coupling plane (124).
6. The hooking system according to claim 5 wherein said plate (120) has two straight stretches (122) facing different directions from each other and preferably defining a 90° angle.
7. The hooking system according to claim 5 or 6, wherein said magnetic attraction means comprises a first magnetic attraction means (130) arranged on the hook (100) which comprises a ferromagnetic element (131) for one or both of the coupling planes (124).
8. The hooking system according to claim 7, wherein said magnetic element (131) is a sheet-shaped metal body, fixed to the respective coupling plane (124) in

a parallel position and preferably overlapping with said coupling plane (124).

9. The hooking system according to one or more of the preceding claims wherein said hook (100) has two respective end fins (125) defining a guide for a snap anchoring of said hook (100) about said side surface (411), said end fins (125) further defining an abutment against said support foot (400) for performing said snap anchoring.
10. The hooking system according to claim 9, when dependent on claim 4, wherein said end fins (125) are defined by respective end portions of said plate (120) folded towards said housing seat (S) for the support foot (400).
11. The hooking system according to one or more of the preceding claims wherein said connection portion (210) of the connection component (200) is configured to be coupled to a fixing seat (310) provided with abutments defined by the respective compensating panel (300), said connection portion (210) being configured to engage said fixing seat (310) in a first insertion configuration and to engage said abutments following a rotation of said connection component (200) with respect to the compensating panel (300) from the first configuration to a second anchoring configuration so as to stably anchor said connection component (200) to said compensating panel (300).
12. The hooking system according to one or more of the preceding claims, wherein said connection component (200) comprises a main body (205) defining a pocket (225) for a respective magnetic member (231) of second magnetic attraction means (230), preferably a neodymium magnet, stably housed in said pocket (225) in a removable or fixed way.
13. A compensating structure for furnishing components, comprising one or more hooking systems according to one or more of the preceding claims, said compensating structure comprising a compensating panel (300) defining one or more fixing seats (310), each fixing seat (310) allowing a stable and reversible connection of a respective connection component (200) of said one or more hooking systems and a position adjustment of said connection component (200) along a prevalent extension direction of the compensating panel (300).
14. A furnishing component, comprising one or more support feet (400) configured to be connected to an item of furniture for defining an elevation between said item of furniture and a floor, each support foot (400) having a preferably cylindrical stem (410) and an adjusting element (420) connected to an end por-

tion of said stem (410),
 said furnishing component further comprising a compensating structure according to claim 13 wherein each hook (100) is stably connected to a side surface (411) of a respective stem (410) and each connection component (200) is stably connected to a respective fixing seat (310) of the compensating panel (300), the first magnetic attraction means (130) of each hook (100) engaging the second magnetic attraction means (230) of a respective connection component (200) for determining a stable connection of the compensating panel (300) to said one or more support feet (400).

15. A method for installing compensating panels (300) comprising the steps of:

- providing one or more hooking systems for compensating panels (300), each hooking system comprising a respective hook (100) having a first magnetic attraction means (130) and at least one connection component (200) having a second magnetic attraction means (230), wherein said one or more hooking systems are preferably realised according to one or more of claims 1 to 13;
- providing one or more support feet (400), each support foot (400) pressing an adjusting element (420) and a preferably cylindrical stem (410), and a compensating panel (300) defining a fixing seat (310) for each connection component (200);
- stably anchoring each hook (100) to a respective support foot (400), so that said hook (100) at least partially wraps a side surface (411) of said stem (410);
- stably connecting each connection component (200) to a respective fixing seat (310);
- placing said compensating panel (300) alongside said one or more support feet (400) so as to arrange in abutment the second magnetic attraction means (230) with the first magnetic attraction means (130).

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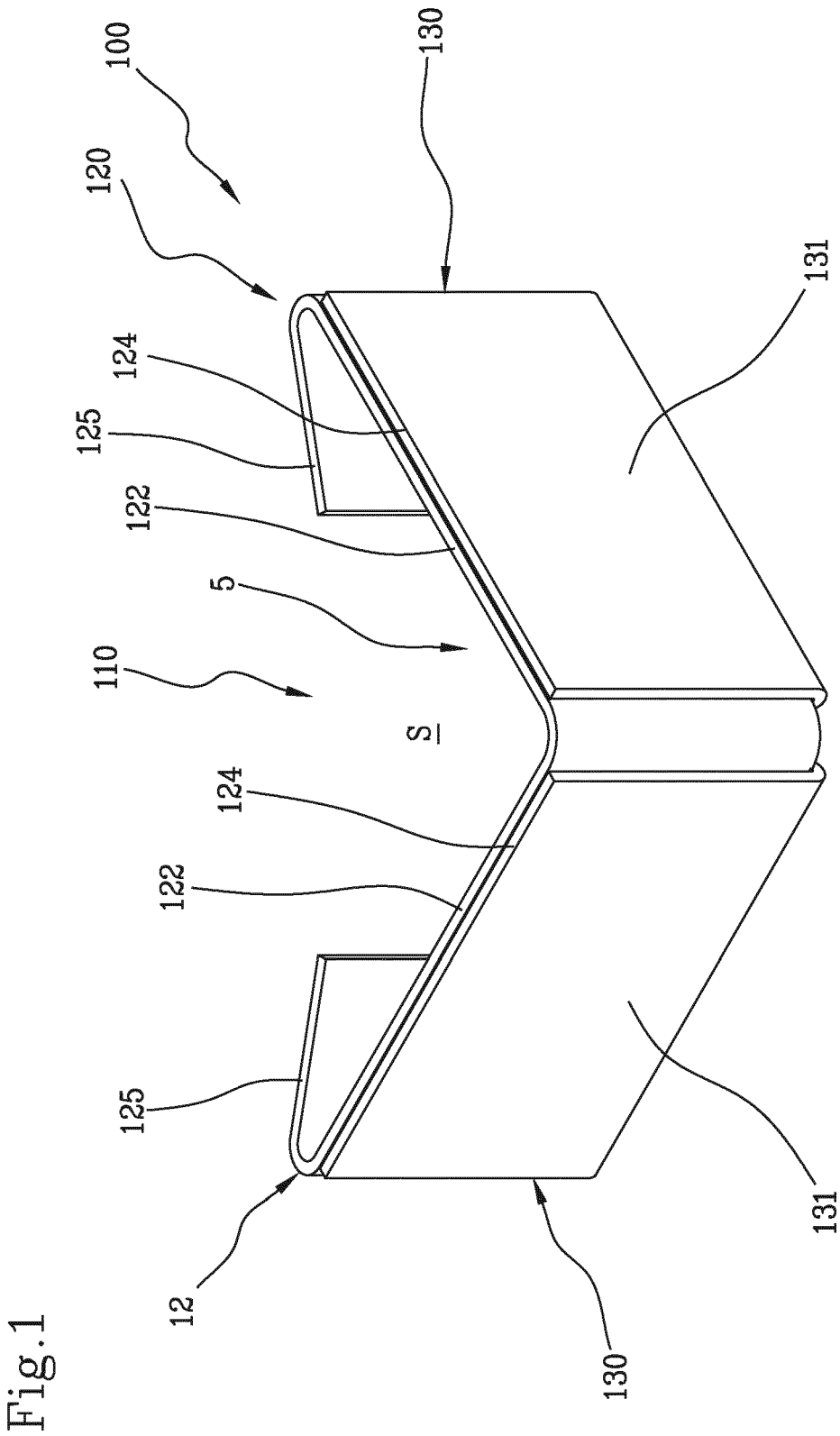


Fig. 2B

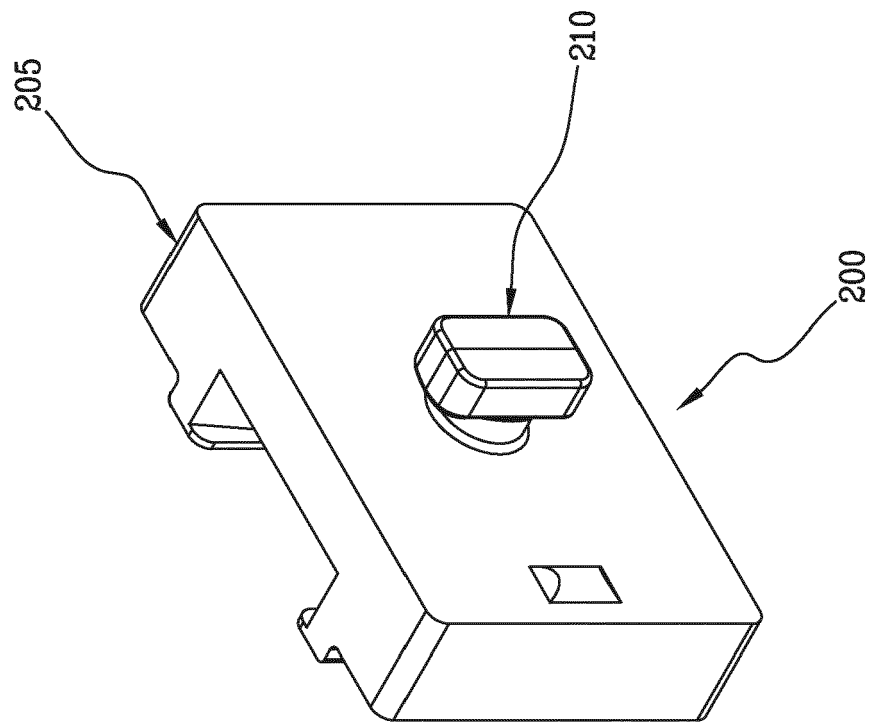


Fig. 2A

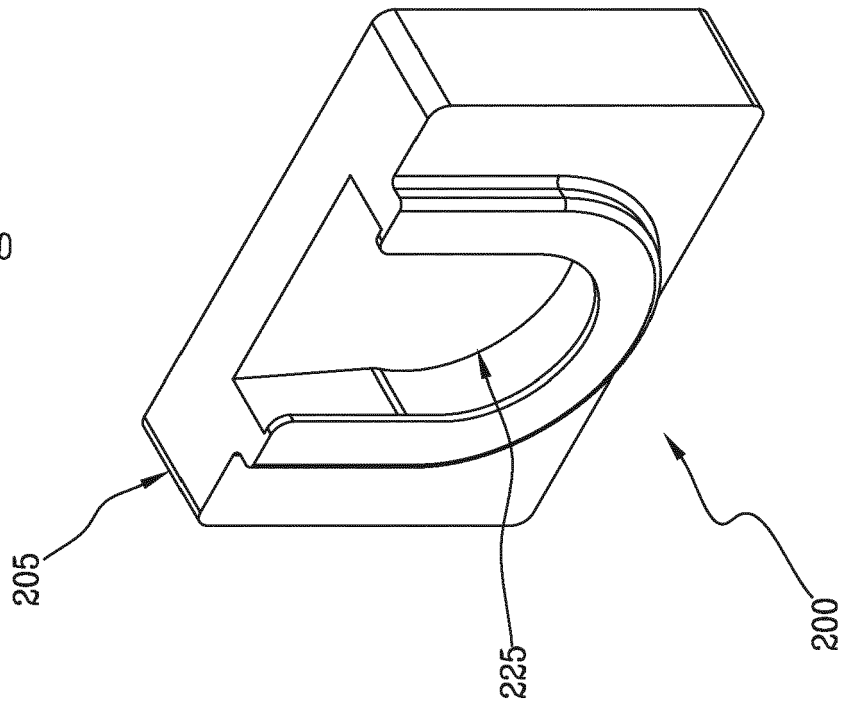


Fig.3

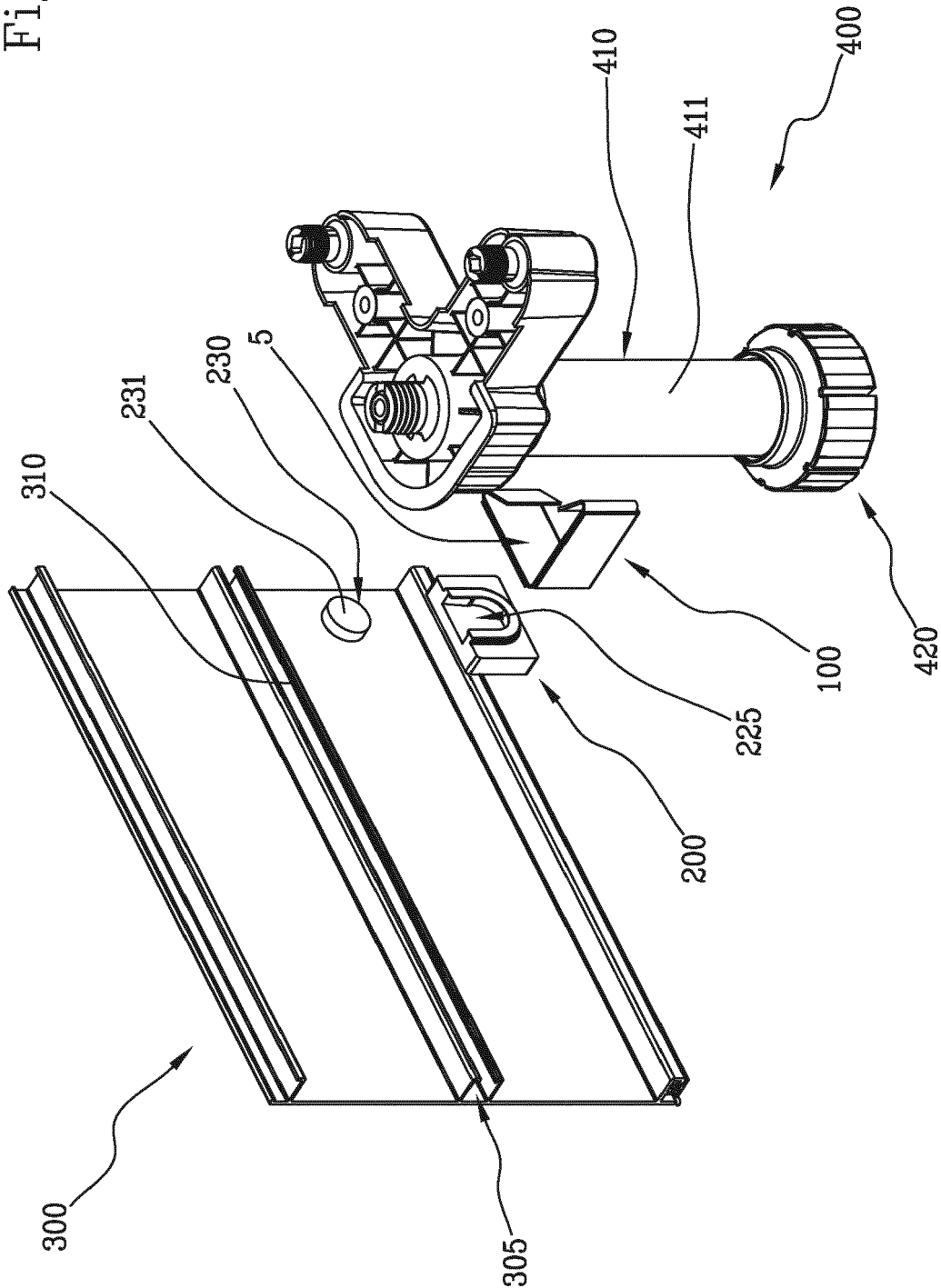
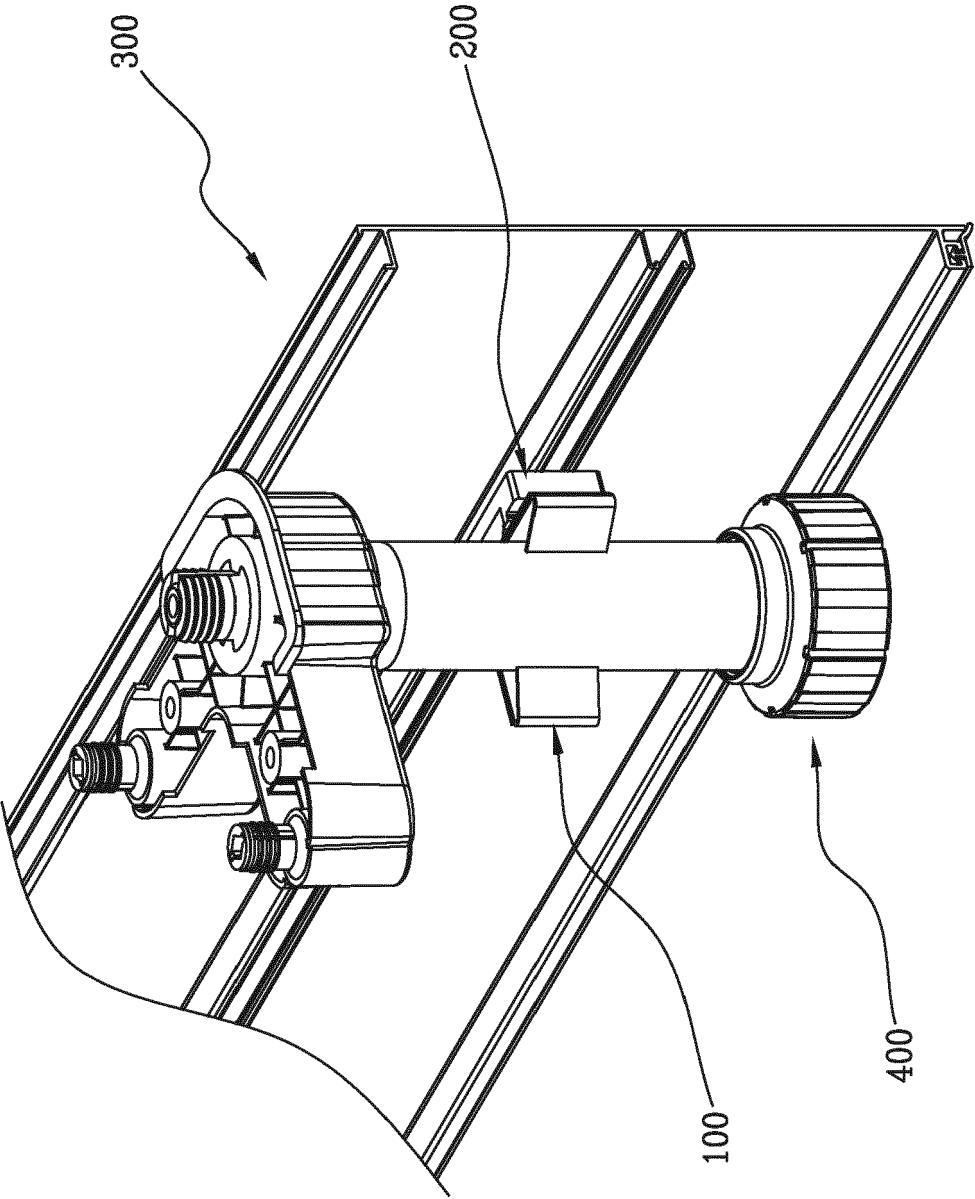


Fig.4



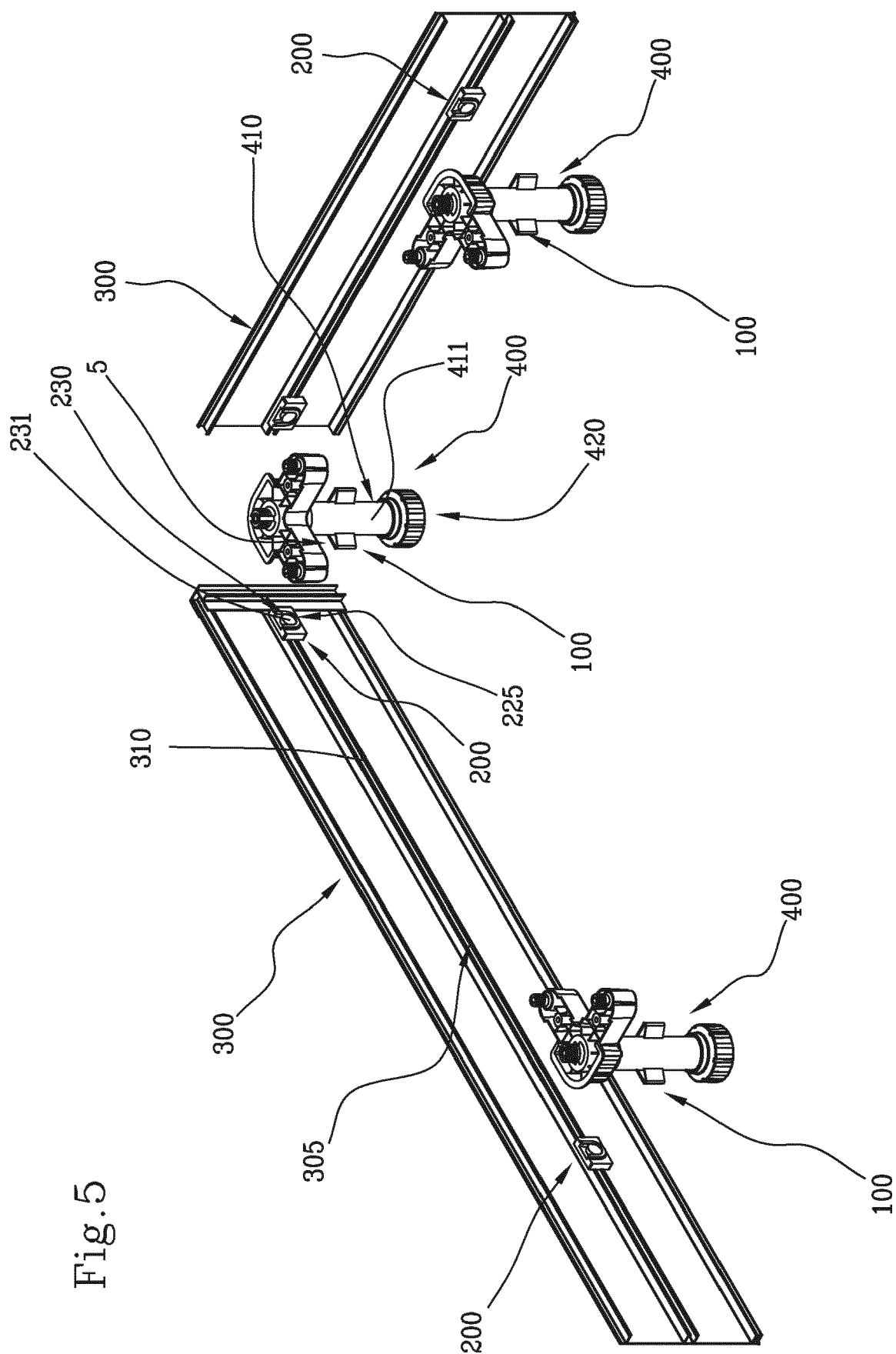


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 19 18 8435

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	EP 1 362 530 A1 (SCILM SPA [IT]) 19 November 2003 (2003-11-19) * paragraph [0014] - paragraph [0045]; figures 1-4 *	1-8,11, 13-15	INV. A47B95/00
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			TECHNICAL FIELDS SEARCHED (IPC)
			A47B
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 November 2019	Examiner Kohler, Pierre
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EPO FORM 1503 03/02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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04-11-2019

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