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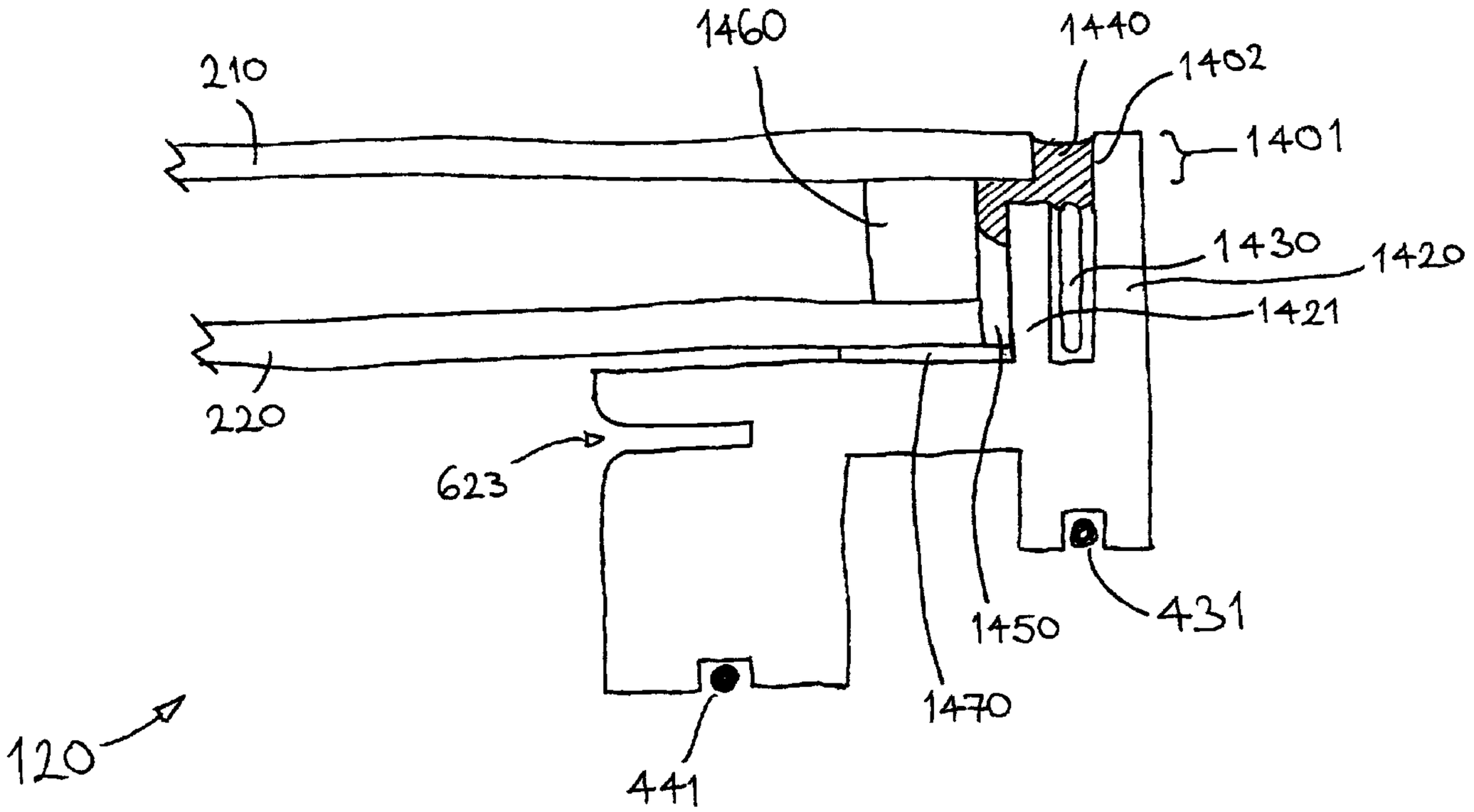


(57) Abrégé/Abstract:
There is disclosed an improved rooflight 100. A first aspect of the rooflight provides a perimeter lip 1401 which protects an edge of a pane 210 of glass from being accidentally chipped or cracked. A second aspect of the present invention provides a channel for a blind 1100, which channel is formed by two cooperating channel sections 1601, 1602. A third aspect of the present invention provides a flashing system 1700. Another aspect of the rooflight 100 provides a water deflector 450 for preventing rain water from impinging directly onto a weather seal between a casement 120 and baseplate 110. Another aspect provides removable linings 610, 620, 1210, 1220 which can be mounted an interior face of the casement 120 and/or baseplate 110. Another aspect provides a slot 1000, for securing flashing 800, 810, which extends around the perimeter of the baseplate 110. Another aspect provides a blind 1101 which is recessed within cavities and a blind runner 1300, thus reducing unwanted transmission of light when the blind 1101 is pulled.

ABSTRACT

ROOFLIGHT

There is disclosed an improved rooflight 100. A first aspect of the rooflight provides a perimeter lip 1401 which protects an edge of a pane 210 of glass from being accidentally chipped or cracked. A second aspect of the present invention provides a channel for a blind 1100, which channel is formed by two cooperating channel sections 1601, 1602. A third aspect of the present invention provides a flashing system 1700. Another aspect of the rooflight 100 provides a water deflector 450 for preventing rain water from impinging directly onto a weather seal between a casement 120 and baseplate 110. Another aspect provides removable linings 610, 620, 1210, 1220 which can be mounted an interior face of the casement 120 and/or baseplate 110. Another aspect provides a slot 1000, for securing flashing 800, 810, which extends around the perimeter of the baseplate 110. Another aspect provides a blind 1101 which is recessed within cavities and a blind runner 1300, thus reducing unwanted transmission of light when the blind 1101 is pulled.

ROOFLIGHT

The present invention is concerned with windows, particularly (but not exclusively) rooflights. Rooflights are windows suitable for installation into roofs. Roofs are often angled (so that rain can run off into guttering) and thus rooflights are typically installed into an angled roof.

The uppermost end (i.e. the end nearest the apex of an inclined roof) of a rooflight is typically referred to as the head end. The sides of a rooflight are typically referred to as jambs. The lowermost end (i.e. the end nearest the gutter of an inclined roof) of a rooflight is typically referred to as the cill (sometimes spelled sill) end.

A rooflight comprises a casement and a baseplate. The casement is glazed and is moveable relative to the baseplate. The baseplate is secured to the roof in which the rooflight is mounted.

A first aspect of the present invention provides a casement with a protective perimeter lip or flange.

A second aspect of the present invention provides a combined lining and guide rail for a blind.

A third aspect of the present invention provides a flashing system for a rooflight.

Another aspect of the present invention provides a water deflector for preventing rain water from impinging directly onto a weather seal between a casement and baseplate. Another aspect provides removable linings which can be mounted an interior face of the casement and/or baseplate. Another aspect provides a slot, for securing flashing, which extends around the perimeter of the baseplate. Another aspect of the present invention provides a blind which is recessed within cavities and a blind runner, thus reducing unwanted transmission of light when the blind is pulled. Some or all of the various aspects may be used in conjunction with each other.

Description of drawings

Embodiments of the invention will be described with reference to the following Figures. For clarity, some features are not illustrated in all Figures. For clarity, in cross section views, only features in the plane are shown (unless stated otherwise).

Figure 1 shows an isometric view of a rooflight and also shows two rafters, one rafter on each side of the rooflight.

Figures 2-5 are primarily concerned with illustrating a water deflector.

Figure 2 shows a cross section of the rooflight of Figure 1 in a vertical plane II-II of Figure 1, along a longitudinal centre line of the rooflight. Figure 2 also shows trimmers which span the rafters of Figure 1.

Figure 3 shows a cross section of the rooflight of Figure 1 in the vertical plane II-II, and shows a casement of the rooflight opened and spaced apart from a baseplate.

Figure 4 shows a zoomed view of a region IV at the head end of Figure 2, and shows primary and secondary water seals and a deflector plate.

Figure 5 shows an alternative embodiment of the region V of Figure 4.

Figures 6 and 7 are primarily concerned with illustrating the way in which a head casement lining and a head baseplate lining are attached to the head end of the casement and baseplate, respectively.

Figure 6 shows a zoomed view of a region VI at the head end of Figure 2, and shows a head casement lining and a head baseplate lining.

Figure 7 shows an exploded view of Figure 6, in which the head casement lining has been separated from the head end of the casement, and in which the head baseplate lining has been separated from the head end of the baseplate.

Figures 8-10 are primarily concerned with illustrating the way in which a jamb flashing and a cill apron are attached to the rooflight.

Figure 8 shows a plan view of the rooflight of Figure 1 (in a direction normal to the plane of the rooflight), and shows a jamb flashing, and also shows a cill apron at the cill end of the rooflight (the rafters of Figure 1 are not shown).

Figure 9 shows a cross section of Figure 8 in a vertical plane IX-IX of Figure 8.

Figure 10 shows a zoomed view of a region X at the cill end of Figure 9.

Figures 11-13 are primarily concerned with illustrating the way in which a roller blind is incorporated within the rooflight.

Figure 11 shows a cross section of the rooflight of Figure 1 in the vertical plane II-II, and shows a roller blind, a blind and a hem bar.

Figure 12 shows a cross section of the rooflight of Figure 1 in a generally vertical plane XII-XII (the plane XII-XII is inclined from true vertical by the same angle as the inclination of the rafters) along a transverse centre line of the rooflight, and shows jamb casement linings and jamb baseplate linings, together with the blind.

Figure 13 shows a zoomed view of a region XIII of Figure 13, and shows a blind runner and retention studs.

Figure 14 shows a zoomed view of a portion of an embodiment of a rooflight having a protective lip; the zoomed view of Figure 14 corresponds to a region XIV of Figure 7.

Figure 15 shows a zoomed view of a portion of an embodiment of a rooflight having a recessed protective lip.

Figure 16a shows a zoomed view of a portion of an embodiment in which a guide rail for a blind is provided by two linings; the zoomed view of Figure 16 corresponds generally to Figure 6 and to the region XIII of Figure 12. Figure 16b shows a more detailed view of a portion of Figure 16a.

Figure 17 shows a view of a flashing system that may be used, instead of the jamb flashing of Figure 8, in an embodiment.

Figure 18 shows a cross sectional through a jamb piece of the flashing system of Figure 17 and also through the baseplate of the rooflight; the view of Figure 18 corresponds generally to region XVIII of Figure 8.

Description of preferred embodiments

Figure 1 shows a rooflight 100 comprising a baseplate 110 and a casement 120. The baseplate 120 comprises a baseplate flange 130 which extends around the perimeter of the baseplate 120 and facilitates mounting of the baseplate 120 to rafters. The rooflight 100 is shown mounted to two rafters 140; the rafters 140 are not part of the rooflight 100 but show how the rooflight 100 is supported by the rafters 140. The rafters 140 are inclined from horizontal by the pitch angle, α, of the roof and thus the rooflight 100 is also inclined from horizontal by α.

In this embodiment, the rooflight 100 is formed from profiles produced by a pultrusion moulding process. The baseplate 110 comprises four lengths of a profile which are joined together by a mitre joint at each corner. The casement 120 also comprises four length of a profile (different from the profile of the baseplate 110) which are joined together by a mitre joint at each corner. In a pultrusion process, glass fibre and thermosetting resin are pulled through a passage in heated metal die to produce a glass-reinforced plastic profile having a substantially constant cross section. The pultruded profile has the same cross section as the passage in the metal die. In alternative embodiments, materials such as aluminium (whether formed by extrusion or by machining) or PVC (polyvinyl chloride) may be used instead or in addition.

As those skilled in the art will appreciate, tiling battens (not shown) typically extend across the rafters. Tiles/slates are mounted above the tiling battens by nailing the tiles/slates to the tiling

battens. The tiling battens are also used to attach roofing felt underneath the tiling battens. Those skilled in the art will also appreciate that the rooflight 100 requires an aperture in the roofing felt and that the roofing felt is sealed to the rooflight 100 (around the perimeter of the rooflight 100) to prevent entry of rainwater through to the interior side of the roofing felt in the region of the rooflight 100.

In this embodiment, the rooflight 100 is double glazed. An alternative embodiment is single glazed. In this embodiment the rooflight 100 is generally rectangular. In alternative embodiments the rooflight is polygonal.

Water deflector

Figure 2 shows a cross section of the rooflight of Figure 1 in a vertical plane II-II of Figure 1. As shown, the head end and casement end of the rooflight are generally symmetric about the transverse plane XII-XII. Figure 2 also shows trimmers 200 which span the rafters 140 of Figure 1. The baseplate flange 130 rests on the trimmers 200 (and on the rafters 140). In this embodiment the casement is double glazed and has an upper pane of glass 210 and a lower pane 220. The panes 210, 220 are bonded to the four profiles which make up the casement 120.

Figure 3 shows a view similar to that of Figure 2 but in which the casement 120 has been separated from the baseplate 110. As those skilled in the art will appreciate, the cill end 300 of the casement 120 may be moved upwards relative to the cill end 310 of the baseplate 310 by using a handle (not shown) or an electric motor mechanism (not shown), optionally in conjunction with one or more gas springs (not shown). Also not shown is a linkage which connects the casement 120 to the baseplate. Suitable handles, electric motor mechanisms and linkages are known to those skilled in the art. In alternative embodiments, the linkage may be replaced with a hinge at the head end between the casement 120 and baseplate 110.

Figure 4 shows a zoomed view of a region IV at the head end of Figure 2. In this embodiment the casement 120 is provided with two recesses 430, 440. The recess 430 extends around the exterior perimeter of the pultrusion profile 420 of the casement 120; the recess 440 extends around the interior perimeter of the profile 420. Each recess 430, 440 is provided with a respective rubber

gasket 431, 441 that is captively retained within its respective recess 430, 440. When the rooflight 100 is closed (so that the casement 120 is flush with the baseplate 110), the rubber gaskets 431, 441 form a substantially watertight seal against mating surfaces 432, 442 of the baseplate pultrusion profile 440. The recess 430, rubber gasket 431 and mating surface 432 form a primary water seal. The recess 440, rubber gasket 441 and mating surface 442 form a secondary water seal.

In this embodiment, when the casement 120 is closed, the casement 120 is spaced apart from the baseplate 110 by 2mm. The rubber gaskets 431, 441 bridge the 2mm gap. The 2mm gap forms, in effect a channel at the split line (the split line is, strictly speaking, planar but at the head end of the rooflight 100 the split plane can be regarded as a split line) which could convey impinging rain drops directly towards the primary water seal.

A deflector plate 450 is mounted to the baseplate 110 (in other embodiments the deflector plate 450 is instead mounted to the casement 120). The deflector plate 450 prevents rain drops from impinging directly on the split line between the casement 120 and baseplate 110, and thus improves the ability of the primary water seal 430, 431, 432 to prevent entry of water into the rooflight 100. In other words, the deflector plate 450 ensures that the kinetic energy of falling raindrops is substantially dissipated before the water encounters the primary water seal. The deflector plate 450 also reduces water entry through the head end of the rooflight 100 when the casement 120 is partially opened.

In this embodiment the defector plate extends the entire width of the casement 120 and overlaps the casement 120 (when the casement 120 is closed) by an overlap distance 460. In this embodiment the overlap distance is 5mm but in alternative embodiments the overlap distance may be any integer in the range 1mm to 40mm inclusive. In this embodiment the deflector plate 450 is made of stainless steel and is attached to the baseplate using adhesive (not shown) and screws 470.

In this embodiment, the deflector plate 450 is positioned on the baseplate 110 so that when the casement 120 is closed, there is a substantially zero gap between the deflector plate 450 and the casement 120. In alternative embodiments, the deflector plate 450 is positioned so that when the casement 120 is closed, the deflector plate 450 is spaced apart (in a direction perpendicular to the distance 460) from the casement 120, for example by 2mm.

Figure 5 shows an alternative embodiment of the region V of Figure 4. In this alternative embodiment, instead of using a deflector plate 450, the baseplate 110 is provided with a lip 550 along the head end. In yet other embodiments, the casement 110 is provided with a deflector plate or a lip. In yet other embodiments, the entire exterior periphery of the casement 120 or baseplate 110 is provided with a deflector plate or a lip.

Casement lining and baseplate lining

Figure 6 shows a zoomed view of a region VI at the head end of Figure 2, and shows a head baseplate lining 610 mounted to the head end of the baseplate 110 also shows a head casement lining 620 mounted to the head end of the casement 120.

Figure 7 shows an exploded view of Figure 6. The head baseplate lining 610 comprises a generally "L" shaped bracket 611. A lug 612 of the bracket 611 projects substantially normal to the plane of the head baseplate lining 610. The baseplate profile 410 has a groove 613; the width of the groove is dimensioned to retain the lug 612 by a friction fit. Similarly, the head casement lining 620 comprises a generally "L" shaped bracket 621 having a lug 622; the casement profile 420 has a groove 623.

Although not shown by Figures 6 and 7, in this embodiment the cill end and two jambs of the baseplate 110 and casement 120 are also provided with linings. The head and cill linings are mounted first and then the jamb linings are mounted. The dimensions of the linings are such that the jamb linings lock the head and cill linings in position so that the head and cill linings cannot be removed without first removing the jamb linings.

The various linings close off what would otherwise be open cavities of the baseplate profile 410 and casement profile 420, and therefore prevent access to the cavities. It will be recalled that, for clarity, a handle (having a handle mechanism), an electric motor mechanism, optional gas springs, and linkages have not been shown. In this embodiment, the handle mechanism, electric motor mechanism and linkages are mounted in the cavities of the baseplate profile 410 and casement profile 420. The various linings therefore prevent inadvertent access to the handle mechanism, electric motor mechanism, optional gas springs, and linkages. Access to the handle mechanism,

electric motor mechanism and linkages may be obtained by pulling the appropriate lining to overcome the friction fit between the lug and groove.

The arrangement shown by Figure 7 also allows the linings to be detached for decoration. For example, if a householder redecorates the room into which the rooflight 100 is mounted, the householder may remove the linings and paint the linings so that the painted linings match the colour of the redecorated room.

The embodiment shown by Figures 6 and 7 has separate brackets 611, 612 such that a bracket 611, 612 is provided, in this embodiment, every 20cm along the lining. In this embodiment the grooves 613, 623 are continuous as they are moulded into the baseplate profile 410 and casement profile 420. In alternative embodiments, each lining may be provided with a single bracket that extends substantially the entire length of the bracket.

In yet other embodiments, different methods may be used to detachably mount the linings. For example, magnets may be mounted in the linings and profiles. Alternatively, a hook and loop type fasteners may be used.

In alternative embodiments, either only the baseplate or only the casement is provided with removable linings. In other embodiments, the rooflight comprises a glazed baseplate but does not comprise a casement that is movable relative to the baseplate.

Figure 7 also shows the way in which the upper pane 210 and lower pane 220 of glass are bonded to the casement profile 420. In this embodiment, the upper pane 210 is bonded to the casement profile 420 around the exterior perimeter 700 of the casement profile 420. The lower pane 220 is bonded to the casement profile 420 around the interior perimeter 710 of the casement profile. Thus the upper pane 210 is larger than the lower pane 220.

In an alternative embodiment, the panes 210 and 220 are the same size. In this alternative embodiment, the profile 420 has a perimeter lip which surrounds both the panes 210, 220 and is spaced apart from the panes 210, 220 by a 3mm perimeter gap. The lower pane 220 is bonded to the

profile. A weatherproof seal is formed between the upper pane 210 and the perimeter lip using silicone sealant to bridge the 3mm gap.

Jamb flashing and cill apron

Figure 8 shows a plan view of the rooflight 100 of Figure 1 (in a direction normal to the plane of the rooflight 100), and shows a jamb and head flashing 800 and a cill apron 810 (the rafters of Figure 1 are not shown). The jamb flashing 800 generally has the shape of an upside down "U" and provides, in this embodiment, 30cm of flashing around the two jambs and head of the baseplate 110. The cill apron 810 provides, in this embodiment, 30cm of flashing around the cill of the baseplate 110. In this embodiment the jamb flashing 800 and the cill apron 810 are formed of metal, for example aluminium.

As those skilled in the art will appreciate, lead flashing is conventionally used to integrate a rooflight with, for example, tiles or slates of the roof. The lead flashing guides rain water over the first or so row of tiles downstream of the rooflight. The installation of lead flashing is a skilled operation which increases the cost of installing conventional rooflights.

The cill ends of the jamb portions of the jamb flashing 800 overlap the ends of the cill apron 810 but do not overlap a central portion 820 of the cill apron 810. Once the rooflight 100, jamb flashing 800 and cill apron 810 have been installed into a roof, the jamb flashing 800 is covered by roof tiles/slates and is thus hidden; the central portion 820 of the cill apron 810 is visible as the cill apron 810 overlies a row (or several rows, depending on the size of the tiles/slates) of tiles/slates.

As shown in more detail by Figures 9 and 10, the exterior perimeter of the baseplate flange 130 is provided with a slot into which the jamb flashing 800 and cill apron 810 are received. Figure 8 shows that there are two regions 830 where the jamb flashing 800 overlaps the cill apron 810 within the slot. Figure 8 shows in phantom lines the edges of the jamb flashing 800 and the cill apron 810 within the slot.

Figure 9 shows a cross section of Figure 8 in a vertical plane IX-IX of Figure 8, and shows the rooflight 100 inclined by the angle α.

Figure 10 shows a zoomed view of a region X at the cill end of Figure 9. Figure 10 shows a slot 1000. The slot 1000 is the cill end of the slot which, as mentioned above, extends around the exterior perimeter of the baseplate flange 130. The slot 1000 receives the uppermost end of the cill apron 810. Grub screws 1010 (only a single grub screw 1010 is visible in the vertical plane IX-IX shown zoomed by Figure 10) retain the cill apron 810.

To mount the cill apron 810 to the slot 1000, the slot 1000 is first filled with a sealant such as silicone sealant. The cill apron 810 is then inserted into the slot 1000 and the grub screws 1010 are tightened to secure the cill apron 810. Excess sealant on the top surface 810t of the cill apron 810 is then removed (excess sealant on the bottom surface 810b of the cill apron 810 need not be removed).

The jamb flashing 800 is mounted to the baseplate flange 130 in the same way as the cill apron 810, using sealant and grub screws. The jamb flashing 800 may be mounted to the baseplate flange 130 before or after the cill apron 810 has been mounted (provided that the cill ends of the jamb portions of the jamb flashing 800 overlap the ends of the cill apron 810).

As shown by Figure 10, the opening of the slot 1000 is located at a corner junction of the baseplate flange 130. In an alternative embodiment, the opening of the slot 1000 is moved onto a face 1020 of the baseplate flange 130 (i.e. onto the face from which the grub screws 910 are inserted). In a less preferred alternative embodiment, the opening of the slot 1000 is moved onto a face 1030 of the baseplate flange (i.e. onto the uppermost face of the baseplate flange 130).

In this embodiment, the slot (i.e. including the slot 1000 at the cill end of the baseplate flange 130) is formed in the baseplate flange 130 during the pultrusion moulding process used to manufacture the baseplate profile 410.

As shown by Figure 10, the slot 1000 at the cill end of the baseplate 110 is orientated (that is, when the rooflight 100 is mounted to a sufficiently inclined roof) so that even if the sealant in the slot 1000 degrades, rain water will still be prevented from reaching the bottom surface 810b of the cill apron 810 as the water would have to flow uphill in the slot in order to reach the bottom surface 810b. In an alternative embodiment, the slot 1000 is in the same plane as the baseplate flange 130;

in this alternative embodiment the grub screws are inserted from a face 1040 on the underside of the baseplate flange 130.

Roller blind

Figure 11 shows a cross section of the rooflight of Figure 1 in the vertical plane II-II, and shows a roller blind 1100, blind material 1101 and a hem bar 1102. As shown, the roller blind 1100 is mounted at the head end of the rooflight 100, inside a cavity in the baseplate profile 410. The hem bar 1102 allows a user to readily extend the blind by pulling the blind material 1101 out of the cavity in the baseplate profile 410. As those skilled in the art will appreciate, in alternative embodiments an electric motor may be provided in the cavity in the cill end of the baseplate profile in order to electrically extend and retract the blind.

Figure 11 also shows the head baseplate lining 610, the cill baseplate lining 1110 and cill casement lining 1120 (the cill baseplate lining 1110 and cill casement lining 1120 were not previously shown). As shown by Figure 11 (but for clarity, not shown by Figures 6 and 7), the head baseplate lining 610 and the cill baseplate lining 1120 do not extend to the lower plane of the baseplate 110. A slot shaped aperture 1130 is defined between the head baseplate lining 610 and the bottom plane of the baseplate 110; the aperture 1130 allows the blind material 1101 to leave the cavity in the baseplate profile 410. Similarly, a slot shaped aperture 1131 is defined between the cill baseplate lining 1110 and the bottom plane of the baseplate 110; the aperture 1131 allows the hem bar 1102 to enter the cavity in the cill end of the baseplate profile 410.

An advantage of the rooflight 100 over prior art rooflights is the use of profiles having cavities; the cavities allow components (such as the roller blind 1100) to be mounted inside the frame of the rooflight 100. This avoids obscuring the glazed aperture of the casement 110. Conventional rooflights are manufactured from solid materials such as timber and thus if a roller blind is fitted, the roller blind is mounted to the head end of the baseplate. Ignoring the matter that conventional rooflights do not have baseplate linings, a conventional rooflight would, in effect, mount the roller blind 1100 to the head baseplate lining 610, thus obscuring a portion of the glazed area of the casement and thus reducing the amount of light transmitted through the rooflight.

Figure 12 shows a cross section of the rooflight of Figure 1 in a generally vertical plane XII-XII (the plane XII-XII is inclined from true vertical by the same angle as the inclination of the rafters), and shows jamb baseplate linings 1210 and jamb casement linings 1220, together with the blind. As shown, the jambs of the rooflight are generally symmetric about the longitudinal plane II-II.

Figure 13 shows a zoomed view of a region XIII of Figure 12, and shows a blind runner 1300 and a retention stud 1310. A blind runner 1300 is mounted (using, in this embodiment, a suitable adhesive 1301) to the baseplate 110 on each jamb. A plurality of retention studs 1310 are fitted at intervals along each edge of the blind 1101. The blind runners 1330 each have a constriction 1330 that is smaller than the retention studs 1310. The edges of the blind 1101 are therefore captively retained within the blind runners 1300.

As shown by Figure 13, the jamb baseplate linings 1210 do not extend to the bottom plane of the baseplate 110. For each jamb, a slot shaped aperture 1340 (analogous to the slot shaped apertures 1110 and 1111) is defined between the jamb baseplate lining 1210 and the bottom plane of the baseplate 110, thus allowing the edges of the blind 1101 to enter the blind runners 1300.

Again, conventional rooflights are made from solid materials such as timber and thus, ignoring the matter that conventional rooflights do not have baseplate linings, for a conventional rooflight the blind runners would be mounted to, in effect, the jamb baseplate linings, thus obscuring a portion of the glazed area of the casement and thus reducing the amount of light transmitted through the rooflight.

A further advantage of having the roller blind 1100 and blind runners 1300 mounted within a cavity of the profile 420 is that unwanted transmission of light around the edges and ends of the blind 1101 is reduced. As shown by Figure 11, 12 and 13, unwanted light cannot pass around the edges or ends of the blind 1101 as the profile 420 (in conjunction with the head baseplate lining 610, cill baseplate lining 1120 and jamb baseplate linings 1210) and also the blind runners 1300 form, in effect, a light box. The light box attenuates transmission of light as any light would have to reflect off multiple surfaces in order to escape around the edges or ends of the blind 1101. In some embodiments, a blackout blind is fitted as the blind 1101 and the combination of rooflight 100 and blackout blind is effective in preventing unwanted transmission of light.

Perimeter lip

As was mentioned above in connection with Figure 7, in an alternate embodiment of the rooflight, the profile 420 is provided with a perimeter lip or flange. The perimeter lip/flange provides protection to what would otherwise be the exposed edge of the pane 210. Thus the perimeter lip reduces the risk of accidental damage, such as chipping or cracking, to the pane 210 during manufacture, transport or installation of the rooflight.

Prior art rooflights include a frame which encases the perimeter region of the glazing 210, 220. Such prior art rooflights do not therefore suffer the problem of damage to the edge of the glazing. The rooflight described herein has the advantage of simplified manufacture as it is not necessary to encase the perimeter of the glazing in a frame (i.e. the glazing of the present rooflight is frameless). Instead of using a frame, the glazing is bonded (as described below in more detail) to the casement 120 and then a weatherproof seal is applied between the glazing and the casement 120. Without a protective lip, the advantage of easier manufacturing would be offset by the risk of damage to the edge of the glazing.

Figure 14 shows an embodiment 1400 of a perimeter lip 1401. In this embodiment, the panes 210, 220 are not the same size; the outer pane 210 overlaps the inner pane 220 by 8mm at each edge and thus the outer pane 210 is 16mm wider and 16mm longer than the inner pane 220.

The perimeter lip 1401 is the uppermost portion of an outer upstanding member 1420. An inner upstanding member 1421 is formed 4mm away from the outer upstanding member 1420; the inner 1421and outer 1420 upstanding members are each 5mm thick. The outer 1420 and inner 1421 upstanding members stand up in a plane substantially perpendicular to the panes 210, 220.

Figure 14 shows a portion of a cleat 1430. The cleat 1430 is formed of galvanized steel and in this embodiment has formed in it a 90° bend which is used to hold the mitre joints of the casement 120 secure during manufacture of the casement 120. Screws (not shown) are inserted through the inner upstanding member 1421, through the cleat 1430 and partially through the outer upstanding member 1420 in order to secure the cleats 1430 (although only one cleat in shown by Figure 14, there are a

total of four cleats 1430 per casement 120) to the pultrusion profile 420 of the casement 120. Note that in some embodiments, a total of 12 cleats are used. Figure 16a shows an embodiment in which as well as the four cleats 1430, there are also four cleats 1631 and four cleats 1632. As shown, the cleats 1631 and 1632 are received by respective recesses in the profile of the casement 120.

Silicone 1440 is applied, between the pane 210 and the perimeter lip 1401, as the primary weather seal between the glazing and the profile 420. In this embodiment, the distance from the edge of the pane 210 to an inside face 1402 of the perimeter lip 1401 is 5mm. The distance from the bottom of the pane 210 to the top of the inner upstanding member 1421 is 2mm. The silicone 1440 is applied in a liquid form and covers the cleat 1430 and in this embodiment at least partially fills a cavity 1450.

Figure 14 also shows the configuration of the glazing in more detail. The panes 210, 220 are each 4mm thick and are spaced apart by a spacer bar 1460. As is known to those familiar with double glazing, in this embodiment the spacer bar 1460 has a cross-section of approximately 12mm x 12mm and is attached to the panes 210, 220 by a hot melt adhesive. As is also known to those familiar with double glazing, glazing tape 1470 is used to attach the inner pane 220 to the profile 420. Glazing tape is a type of double sided adhesive tape and, as well as mechanically securing the glazing 210, 220, 1460, provides a secondary weather seal.

Figure 14 shows that the top of the perimeter lip 1401 is flush with the top of the pane 210. In alternative embodiments, the top of the perimeter lip 1401 may be project above the top (i.e. outermost surface) of the pane 210 or may be recessed below the top of the pane 210. For example, the top of the perimeter lip 1401 may either project or be recessed by 1, 2, 3, 4 or 5mm. A disadvantage of a recessed perimeter lip compared to the flush perimeter lip 1401 is that the risk of accidental damage to the edge of the pane 210 is increased. In effect, with a recessed perimeter lip there is a range of angles which could allow an object to impinge on the edge of the pane 210 and crack or chip the pane 210.

In Figure 14, the glazing tape 1470 has a thickness of 9mm which, in conjunction with the 4mm thickness of the panes 210, 220 and the 12mm height of the spacer bar 1460, provides a total height of 29mm. In embodiments which use 6mm thick glass for the panes 210, 220, the thickness/height

of the glazing tape 1470 may be reduced to, say, 5mm to compensate for the increased thickness of the glass, thus ensuring that the top of pane 210 is flush with the top of the perimeter lip 1401.

Figure 15 shows a simplified version of Figure 14 but in an embodiment in which a perimeter lip 1501 is recessed. As shown, there is a range of angles β which allow an object to impinge on the edge of the pane 210. In Figure 15, the outermost portion of the top of the perimeter lip 1501 is laterally 12mm (5mm silicone gap together with, in this embodiment, 7mm (instead of 5mm as was the case for Figure 14) of outer upstanding member 1420) away from the edge of the pane 210. The outermost portion of the top of the perimeter lip 1501 is 3mm lower than the pane 210. Thus there is an angular range of arctan (3/12) = 17° from below and 90° from above which together gives a 17° + 90° = 107° angular range of vulnerability. In an alternative embodiment, the perimeter lip may be spaced 1mm (i.e. 1mm of silicone 1440) from the edge of the pane 210 and may be raised 1mm above the top of the panel 210. In such an alternative embodiment, the edge of the pane 210 is protected from below and thus the total angular range of vulnerability is reduced to arctan (1/1) = 45°. In other embodiments the perimeter lip 1501 and the edge of pane 1501 may be positioned relative to each other so that the total angular range of vulnerability is reduced (from 180°, which is unprotected) to one of: 0°, 15°, 30°, 45°, … , 75°, 90°, 105°, … , 165°.

In alternative embodiments, the cleats 1430 may be dispensed with and a single upstanding member (not shown) may be used to replace the inner 1421 and outer 1420 upstanding members.

In alternative embodiments, the panes 210, 220 may be the same size. However, an advantage of panes 210, 220 of different size is that the cleats 1430 and inner upstanding members 1421 may be recessed under the pane 210.

The protective lip/flange 1401, 1501 is preferably provided on all four sides of the casement 120 (of course, the casement 120 need not be rectangular). In some embodiments, the protective lip 1401 may be provided on some, but not all, side/surfaces of the casement 120.

Integrated Linings and Guide Rail for Blind

Figures 16a and 16b show a zoomed view of a portion of an embodiment in which a guide rail for a blind is formed between two channel sections 1601, 1602. In contrast, in Figure 13 a blind runner 1300 was shown which was attached to the baseplate 110.

The channel sections 1601, 1602 cooperate to form a blind runner which captively retains the retention studs 1310 of blind material 1101. Channel section 1602 is mounted on the baseplate 110 whereas channel section 1601 is mounted to the baseplate lining 610. A roller blind 1100 (not shown in Figure 16) may be mounted inside a cavity of the baseplate profile 410 (not shown in Figure 16). As shown by Figure 16, the two channel sections 1601, 1602 may be identical; in Figure 16 both channel sections are "U" shaped. In alternative embodiments, the channel sections may have different shapes and/or dimensions relative to each other, as long as the channel sections cooperate to captively retain the retention studs 1310. In yet other embodiments, the channel section 1602 may be formed as an integral part of the baseplate profile 410, and/or the channel section 1601 may be formed as an integral part of the baseplate lining 610.

An advantage of Figure 16 over the embodiment shown at Figure 13 is that it is not necessary to string the retention studs 1310 one-by-one into a blind runner 1300. In other words, Figure 16 allows the blind material 1101 to be detached from the baseplate 110, even when the blind material 1101 is partially or completely extended across the panes 210, 220, by opening up the channel that is formed by the cooperation of the two channel sections 1601, 1602. In contrast, with Figure 13 the blind material 1101 must be retracted onto the roller blind 1100.

Flashing system

Figure 17 shows a flashing system 1700 that may be used instead of the jamb flashing 800 shown at Figure 8. The flashing system may be used in conjunction with the cill apron 810 (not shown). The flashing system 1700 guides water along the jambs of the rooflight 100 (not shown) and then diverts this water substantially along paths 1799 towards the centre of the cill apron 810.

The flashing system 1700 comprises two corner pieces 1701, 1702 which, when in use, are mounted at the head end of the rooflight. The corner pieces 1701, 1702 are substantially mirror images of each other. The flashing system 1700 also comprises two diverter pieces 1711, 1712 which, when in use, are mounted at the cill end 300 of the rooflight. The diverter pieces 1711, 1712 are also substantially mirror images of each other. The corner pieces 1701, 1702 are interconnected by a head piece 1720. The corner piece 1701 is connected to the diverter piece 1711 by a jamb piece 1731; the corner piece 1702 is connected to the diverter piece 1712 by a jamb piece 1732. The jamb pieces 1731, 1732 are substantially mirror images of each other.

Figure 18 shows a cross section through the jamb piece 1732 and through the baseplate flange 130; the view of Figure 18 corresponds generally to region XVIII of Figure 8. Also shown is the slot 1000 which extends around the exterior perimeter of the baseplate flange 130.

The jamb piece 1732 is similar to a "U" shaped channel but rotated through 90°. A jamb slot portion 1801, of the jamb piece 1732, fits inside the slot 1000. Silicone sealant (not shown) may be used to seal the jamb slot portion 1801, and hence the jamb piece 1732, to the baseplate flange 130.

Also shown by Figure 18 is roofing felt 1810 (not shown by Figure 17) that is clipped onto the jamb piece 1732. One end of the roofing felt is secured by clips 1820, the other end runs underneath the tiles (not shown), or other roofing material, of the roof into which the rooflight 100 is installed.

Above the roofing felt 1810 is a piece of foam 1830 (not shown by Figure 17). The foam 1810 reduces wind noise by bearing against the underside of the tiles to prevent wind from blowing underneath the tiles. In this embodiment the foam is substantially triangular, with a flat surface positioned on the roofing felt 1810.

Referring back to Figure 17, three pieces (not shown by Figure 17) of roofing felt 1810 are used, one along each jamb and one at the head end of the rooflight. In this embodiment, each diverter piece 1711, 1712 has an angled portion 1720 which acts to divert rainwater flowing down along the jambs towards the centre of the cill apron. In this embodiment, the angled portions 1720 are angled at 45°.

The two diverter pieces 1711, 1712 each have a respective portion 1720 for diverting water onto a cill apron 810 (see Figure 8, nor shown by Figure 17). In this embodiment, the portions 1720 are regions of the diverter pieces 1711, 1712 that are angled at 45° to the jambs of the rooflight 100. In other embodiments, the portions 1720 may have a different angle or alternatively the diverter pieces 1711, 1712 may omit the portions 1720 and so may be similar in shape to the two corner pieces 1701, 1702.

In this embodiment the head piece 1720 and the jamb pieces 1731, 1732 are plastic extrusions; the corner pieces 1701, 1702 and the diverter pieces 1711, 1712 are vacuum formed. At the interfaces between (i) the head 1720 and jamb 1731, 1732 pieces and (ii) the corner pieces 1701, 1702 and diverter pieces 1711, 1712, the corner pieces 1701, 1702 and diverter pieces 1711, 1712 are swollen during the vacuum forming process so that the extrusions of the head 1720 and jamb 131, 1732 pieces may be received inside the corner pieces 1701, 1702 and diverter pieces 1711, 1712.

The flashing system 1700 is modular which allows it to be installed to rooflights 100 of a variety of different sizes. Firstly, an extrusion is cut to the appropriate length to form the head piece 1720 and the jamb pieces 1731, 1732. Secondly, silicone sealant, in the form of a viscous liquid, is inserted into the slot 1000 around the perimeter of the baseplate flange 130. Thirdly, the ends of the head piece 1720 and the jamb pieces 1731, 1732 are then coated with an adhesive or a plastic cement. Fourthly, the head piece 1720 and the jamb pieces 1731, 1732 are then assembled together with the corner pieces 1701, 1702 and diverter pieces 1711, 1712, by pushing them into the silicone and bonding the head piece 1720 and the jamb pieces 1731, 1732 to the corner pieces 1701, 1702 and diverter pieces 1711, 1712.

In an alternative embodiment of the rooflight, the slot 1000 may, instead of being angled as shown by Figure 10, be in a plane parallel to the panes 210, 220. In such an embodiment, the flashing system 1700 may be pre-assembled and then slid, along the slot 1000, from the head end to the cill end 300 of the rooflight.

In an alternative embodiment of the flashing system 1700, the head piece 1720 and the jamb pieces 1731, 1732 are dispensed with, and the corner pieces 1701, 1702 and the diverter pieces 1711, 1712 are made overlong. The overlong corner pieces 1701, 1702 and the overlong diverter pieces 1711,

1712 are arranged to cooperate with each other without requiring the head piece 1720 and the jamb pieces 1731, 1732. Instead, the overlong corner pieces 1701, 1702 and the overlong diverter pieces 1711, 1712 are cut to the appropriate length and glued (or fastened) together. In yet other embodiments, the corner pieces (1701, 1702) and the head piece (1720) are provided as an integrated assembly, for example formed by vacuum forming; such embodiments are suitable for situations where rooflights will tend to have a standard width.

The disclosures of GB 0612413.5, from which the present application claims priority, and of the abstract of the present application, are hereby incorporated by reference.

CLAIMS:

1. A casement (120) comprising:

glazing (210, 220, 1460);

a lip (1401) for protecting an edge of the glazing.

2. A casement according to claim 1, wherein the glazing is frameless.

3. A casement according to claim 1 or 2, wherein the lip and the edge of the glazing are positioned relative to each other so that the total angular range of vulnerability is substantially one of: 0°, 15°, 30°, 45°, … , 75°, 90°, 105°, … , 165°.

4. A casement according to any preceding claim, wherein all edges of the glazing are protected by a respective lip.

5. A casement according to any preceding claim, wherein the lip (1401) comprises an inner (1421) and an outer (1420) upstanding member.

6. A casement according to any preceding claim, comprising one or more cleats (1430).

7. A casement according to any preceding claim, wherein the lip, relative to the glazing, is one of: flush, recessed and protruding.

8. A casement according to any preceding claim, comprising a sealant (1440) between the glazing and the lip.

9. A casement according to any preceding claim, comprising an adhesive between the glazing and the casement.

10. A casement according to any preceding claim, wherein the glazing is double glazed or triple glazed.

11. A rooflight, or window, comprising a casement according to any preceding claim, and a baseplate (110).

12. A baseplate (110) comprising:

a removable lining (610);

first channel means (1601) provided at the lining;

second channel means (1602) provided at the baseplate,

wherein the first channel means and second channel means are arranged to cooperate to provide a constriction for captively retaining a retention stud (1310).

13. A baseplate according to claim 12, wherein the first and second channel means each comprise a "U" shaped channel section.

14. A baseplate according to claim 12 or 13, wherein the first channel means comprises a channel section attached to the lining, and wherein the second channel means comprises a channel section attached to the baseplate.

15. A baseplate according to any one of claims 12 to 14, comprising a roller blind (1100) having retention studs (1310).

16. A rooflight, or a window, comprising a baseplate according to any one of claims 12 to 15 and a casement.

17. A flashing for a rooflight, comprising:

two corner pieces (1701, 1702); and

two diverter pieces (1711, 1712).

18. A flashing according to claim 17, comprising a head piece (1720) between the two corner pieces.

19. A flashing according to claim 17 or 18, wherein the two corner pieces are integrally formed.

20. A flashing according to any one of claims 17 to 19, comprising jamb pieces (1731, 1732) between the corner pieces and the diverter pieces.

21. A flashing according to any one of claims 17 to 20, comprising roofing felt.

22. The combination of a rooflight and flashing according to any one of claims 17 to 21.

23. A kit of parts for assembly as flashing for a rooflight, the kit of parts comprising:

two corner pieces (1701, 1702); and

two diverter pieces (1711, 1712).

24. A rooflight comprising:

a baseplate;

a casement; and

a deflector for preventing water from impinging on a split line between the casement and baseplate.

25. A rooflight according to claim 24, wherein the deflector is provided at a head end of the rooflight.

26. A rooflight according to claim 24 or 25, wherein the deflector is provided around substantially the entire perimeter of the rooflight.

27. A rooflight according to any one of claims 24 to 26, wherein the deflector comprises a strip of stainless steel.

28. A rooflight according to claim 27, wherein the strip is mounted to the baseplate or the casement.

29. A rooflight according to any one of claims 24 to 28, wherein the deflector comprises a lip.

30. A rooflight according to claim 29, wherein the lip is integrally formed with the baseplate.

31. A rooflight according to any one of claims 24 to 30, comprising a primary water seal.

32. A rooflight according to claim 31, wherein the primary water seal comprises:

a recess formed in the perimeter of the casement;

a gasket located in the recess;

a mating surface provided on the baseplate for cooperation with the gasket.

33. A rooflight according to claim 31 or 32, comprising a secondary water seal.

34. A rooflight comprising:

a baseplate;

glazing; and

one or more baseplate linings removably attached to the baseplate.

35. A rooflight according to claim 34, wherein the one or more baseplate linings each comprise at least one lug, and wherein the baseplate comprises a groove for receiving the at least one lug by a friction fit.

36. A rooflight according to claim 35, wherein the one or more baseplate linings each comprise one or more brackets, and wherein the one or more brackets comprise the one or more lugs.

37. A rooflight according to any one of claims 34 to 36, wherein the one or more baseplate linings and the baseplate comprise magnets and/or hook and loop fasteners.

38. A rooflight according to any one of claims 34 to 37, comprising a head baseplate lining, a cill baseplate lining and two jamb baseplate linings.

39. A rooflight according to claim 38, wherein the baseplate linings are dimensioned so that the jamb baseplate linings retain the head and cill baseplate linings.

40. A rooflight according to any one of claims 34 to 39, further comprising a casement movable relative to the baseplate, wherein the casement comprises the glazing.

41. A rooflight according to claim 40, further comprising one or more casement linings removably attached to the casement.

42. A rooflight according to claim 41, wherein the one or more casement linings each comprise at least one lug, and wherein the casement comprises a groove for receiving the at least one lug by a friction fit.

43. A rooflight according to claim 42, wherein the one or more casement linings each comprise one or more brackets, and wherein the one or more brackets comprise the one or more lugs.

44. A rooflight according to any one of claims 41 to 43, wherein the one or more casement linings and the casement comprise magnets and/or hook and loop fasteners.

45. A rooflight according to any one of claims 41 to 44, comprising a head casement lining, a cill casement lining and two jamb casement linings.

46. A rooflight according to claim 45, wherein the casement linings are dimensioned so that the jamb casement linings retain the head and cill casement linings.

47. A rooflight comprising:

a baseplate, wherein a slot, for receiving a jamb flashing and/or a cill apron, is defined around the perimeter of the baseplate.

48. A rooflight according to claim 47, further comprising one or more threaded holes, around the perimeter of the baseplate, for receiving one or more threaded fasteners, wherein the one or more threaded holes intersect the slot.

49. A rooflight according to claim 48, further comprising grub screws.

50. A rooflight according to any one of claims 47 to 49, wherein the opening of the slot is located at an edge of the perimeter of the baseplate.

51. A rooflight according to any one of claims 47 to 50, further comprising a cill apron and/or a jamb flashing.

52. A rooflight according to any one of claims 47 to 51, wherein the slot comprises sealant.

53. A rooflight comprising:

a baseplate, wherein a cavity is defined in the baseplate;

glazing; and

a blind, wherein the blind is stowable in the cavity.

54. A rooflight according to claim 53, wherein the blind is provided as a roller blind, and wherein the roller blind is located in the cavity.

55. A rooflight according to claim 54, wherein the roller blind is located at a head end of the rooflight.

56. A rooflight according to any one of claims 53 to 55, wherein the baseplate comprises jambs, wherein a cavity is defined in each jamb, and wherein the edges of the blind are receivable in the jamb cavities.

57. A rooflight according to claim 56, wherein the jambs comprise blind runners and wherein the edges of the blind comprise retention studs.

58. A rooflight according to any two preceding claims.

1/17

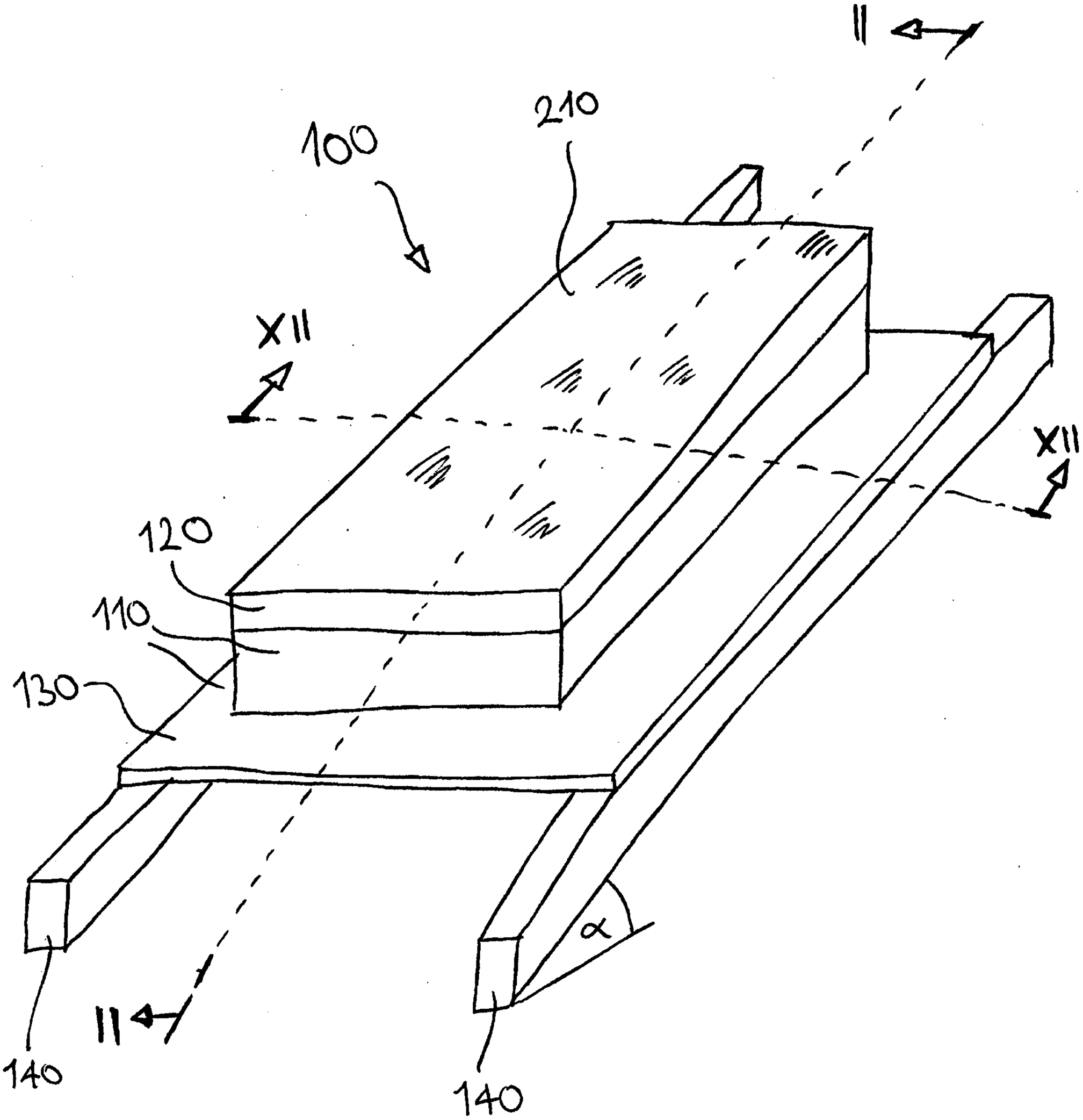


FIG. 1

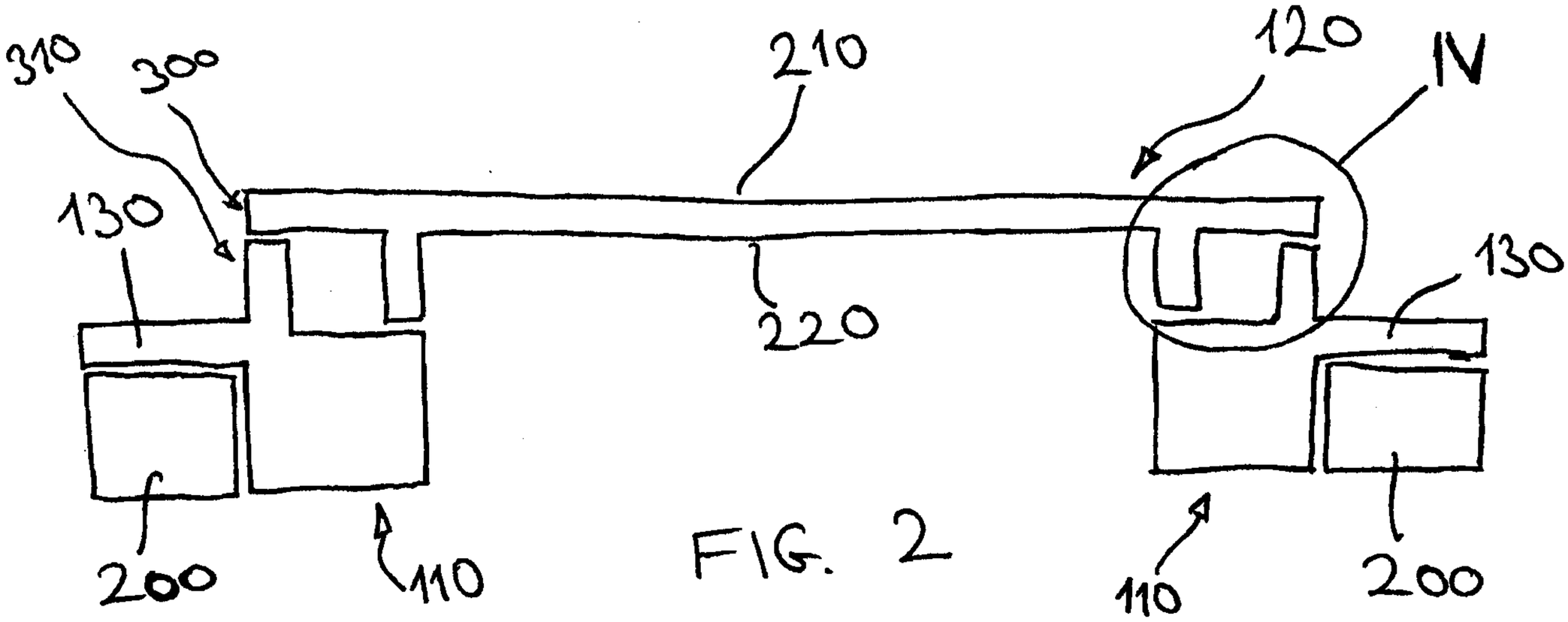


FIG. 2

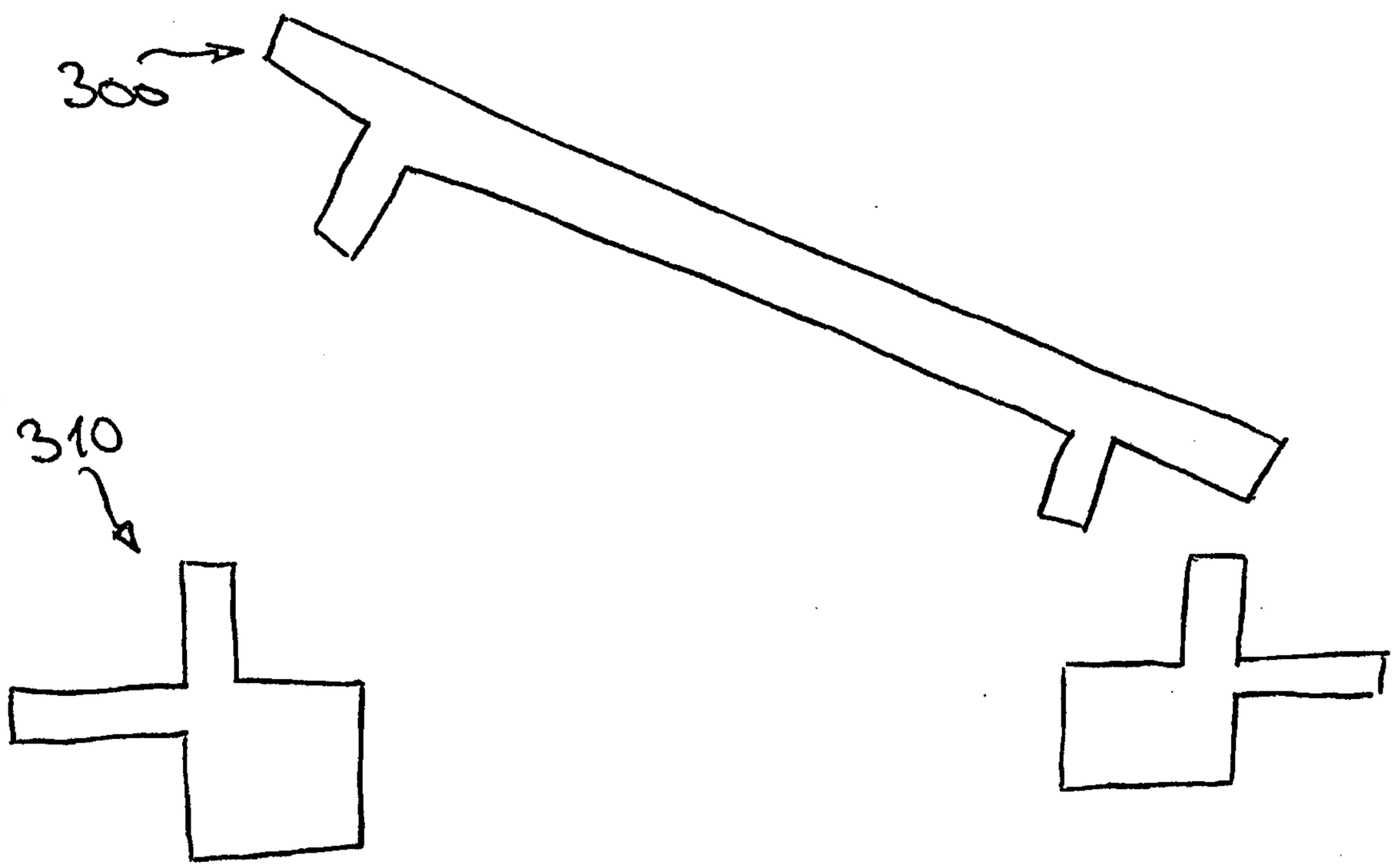


FIG. 3

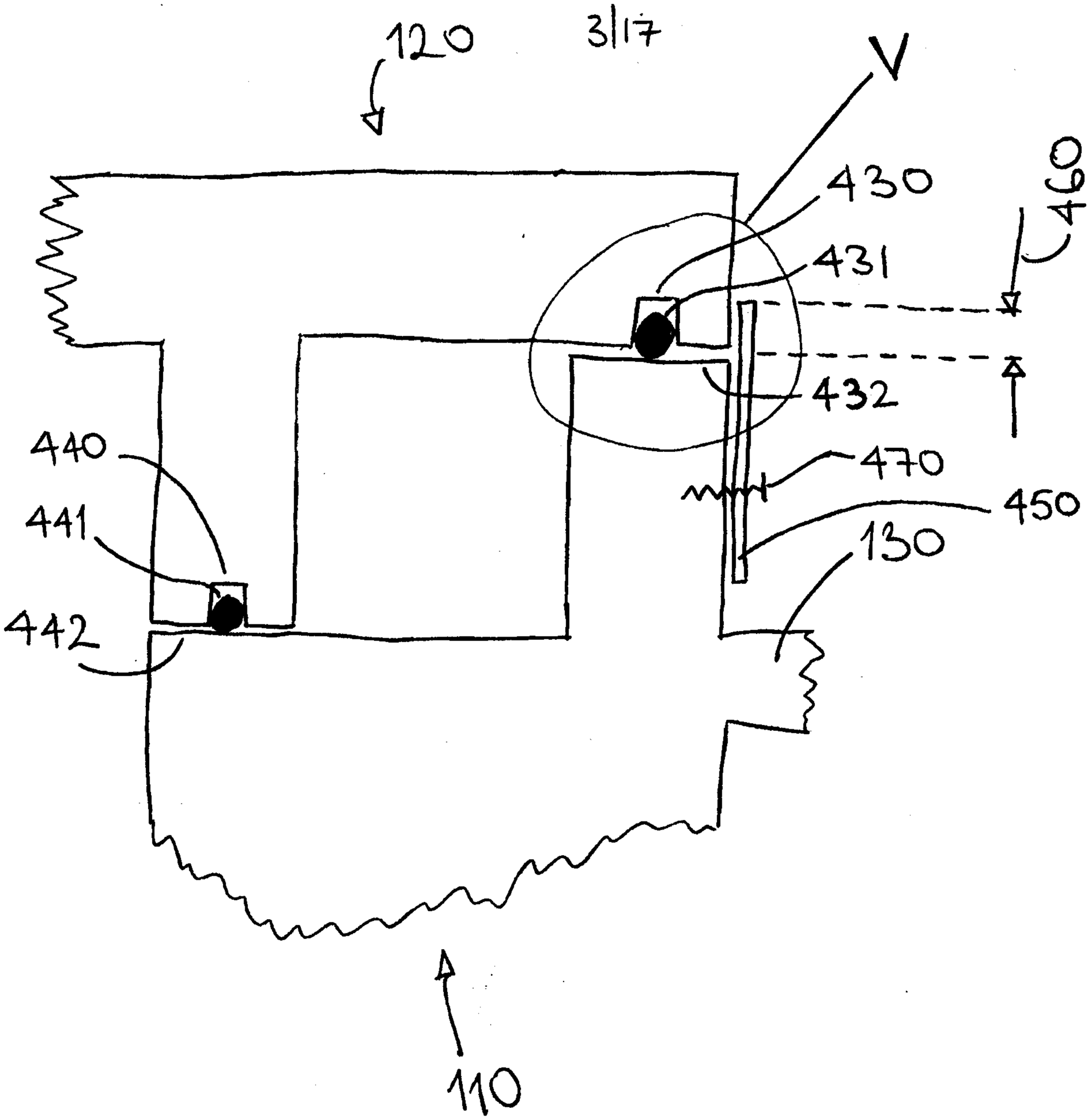


FIG. 4

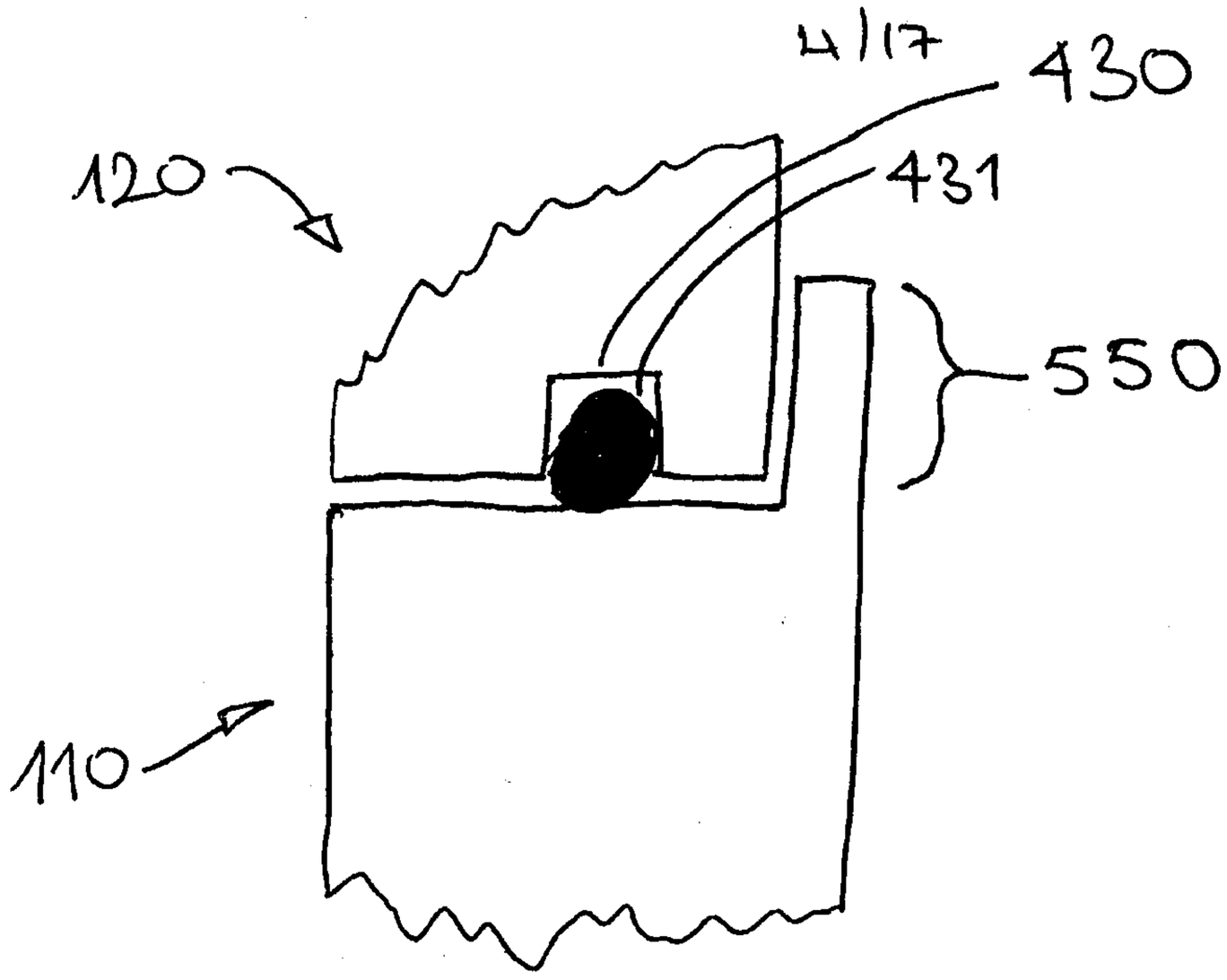


FIG. 5

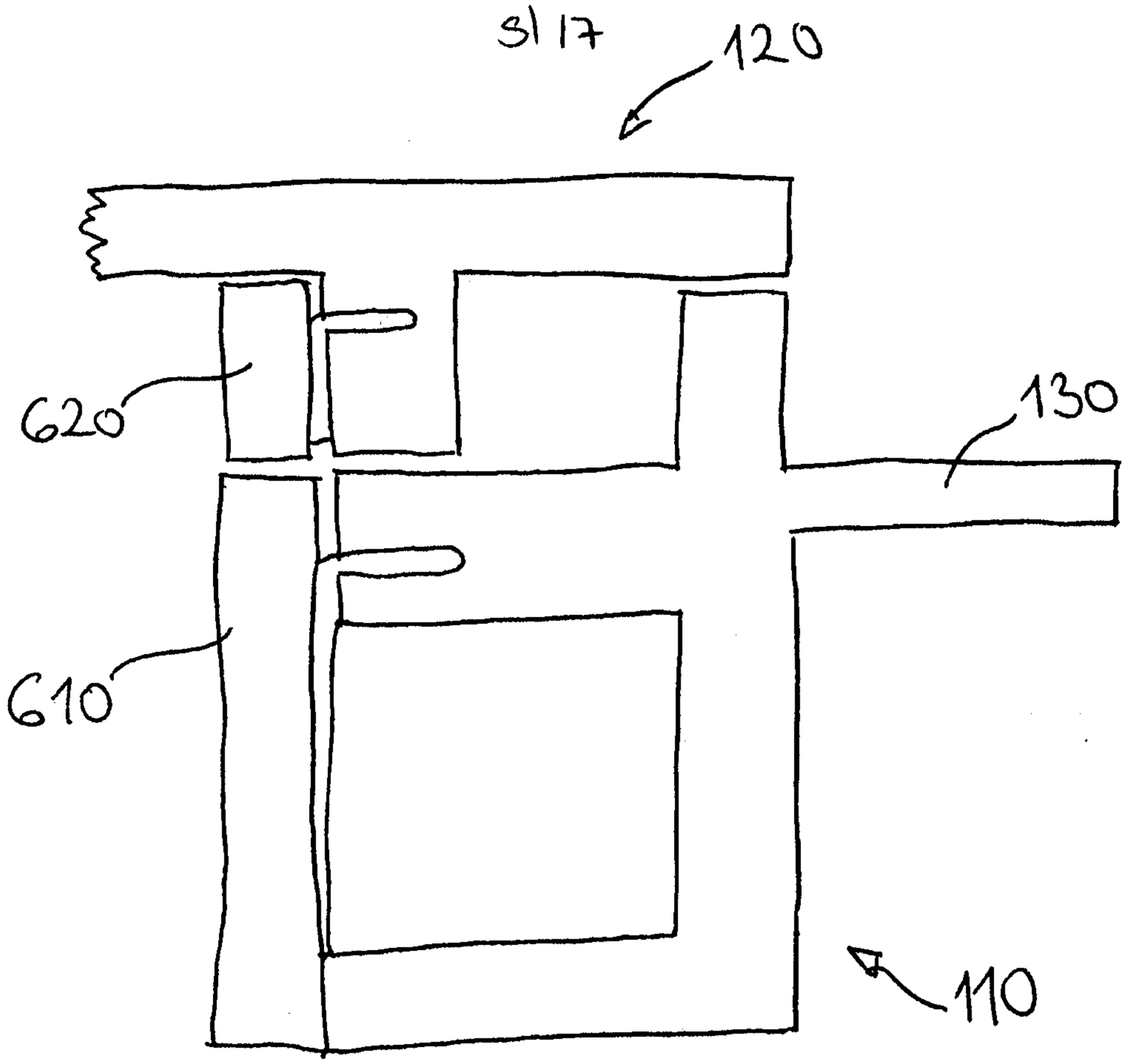


FIG. 6

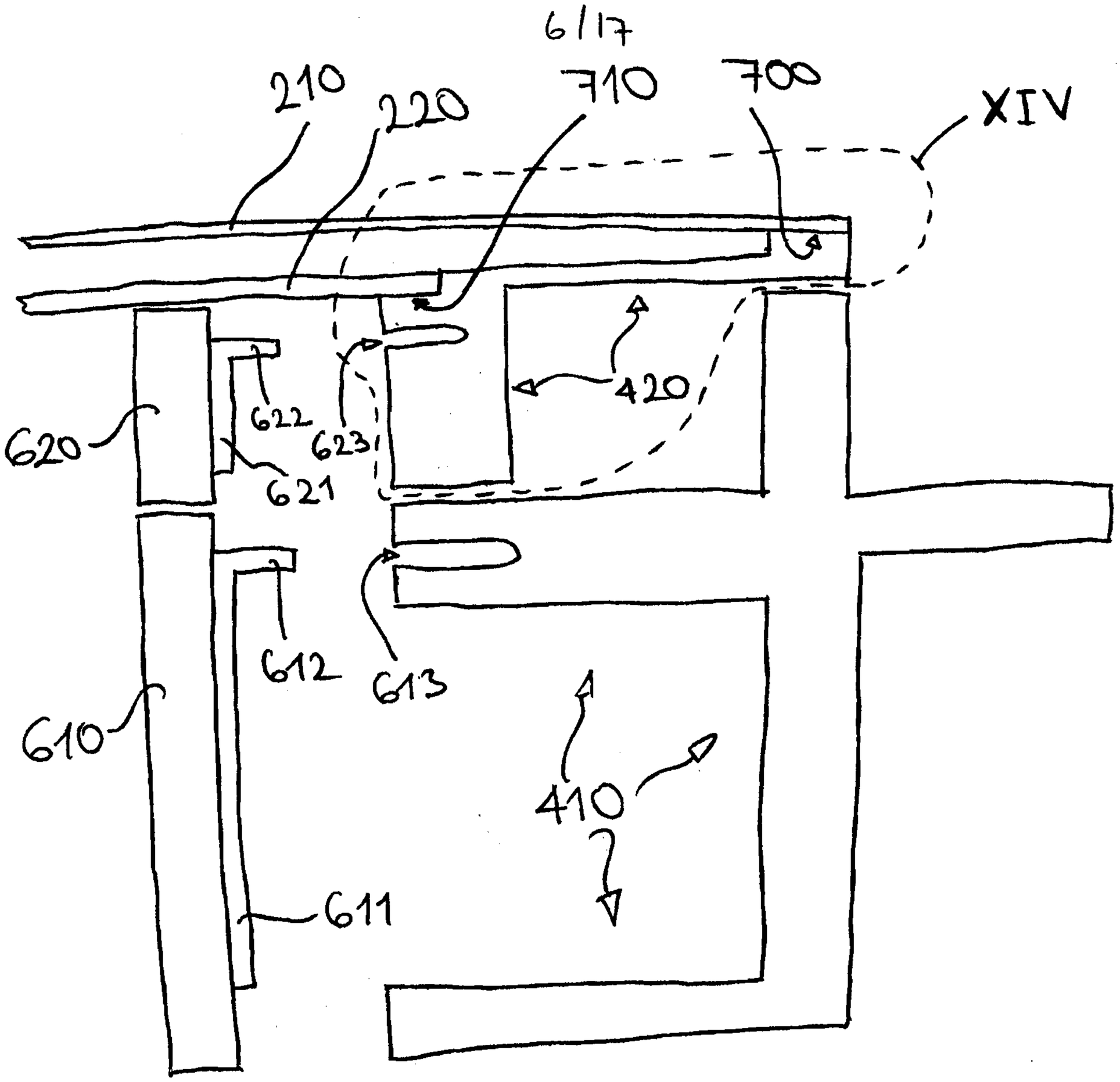


FIG. 7

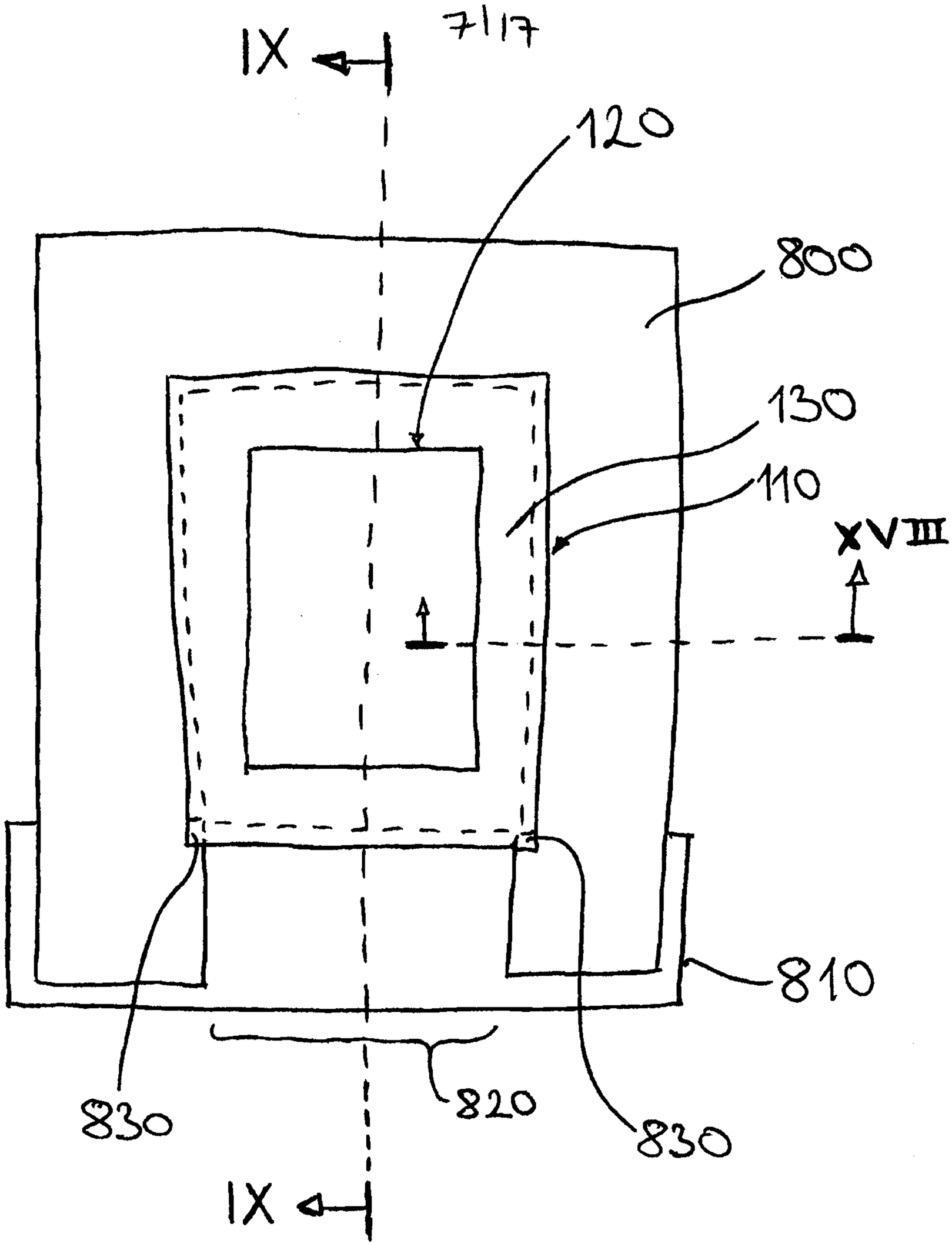


FIG. 8

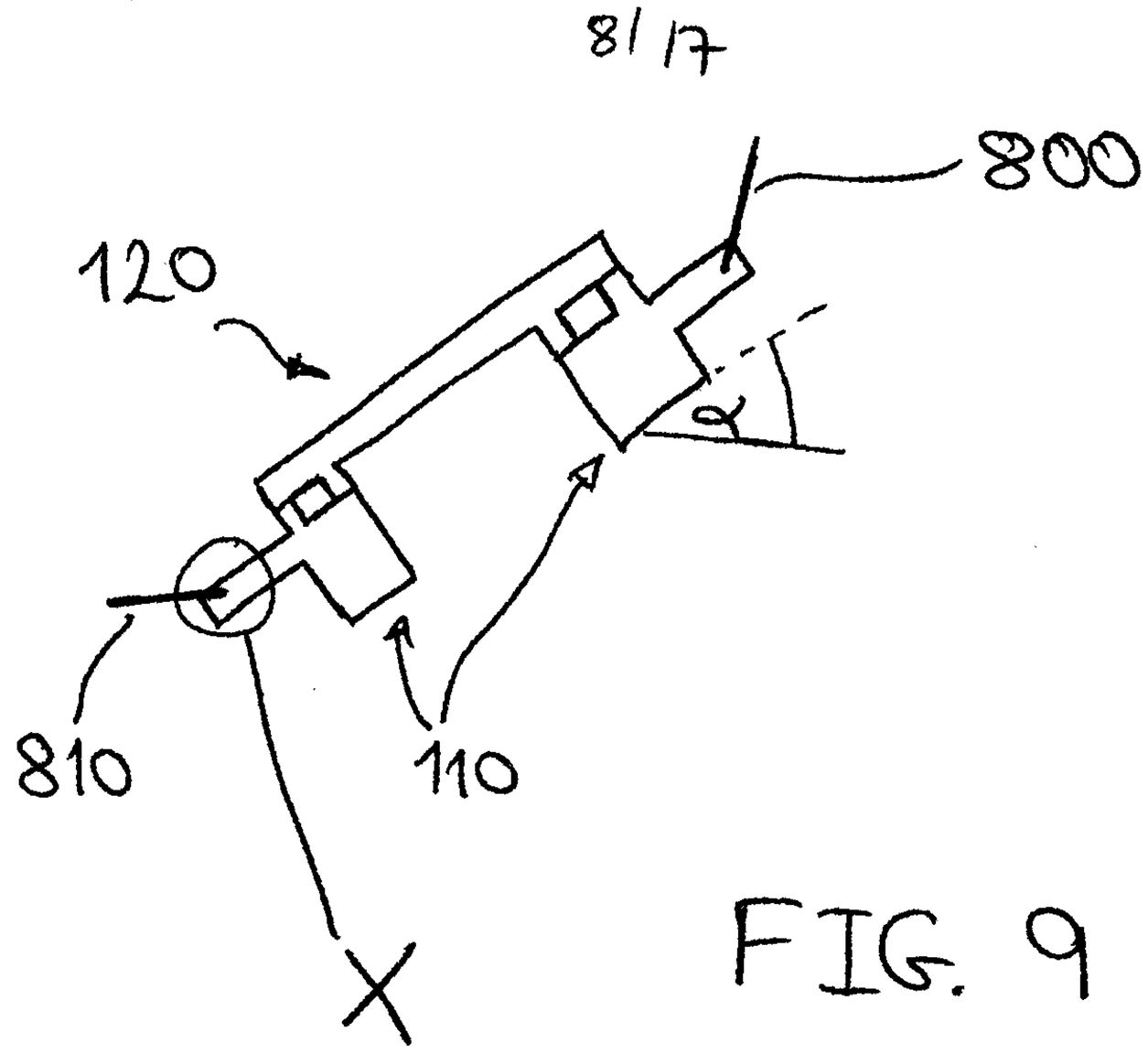


FIG. 9

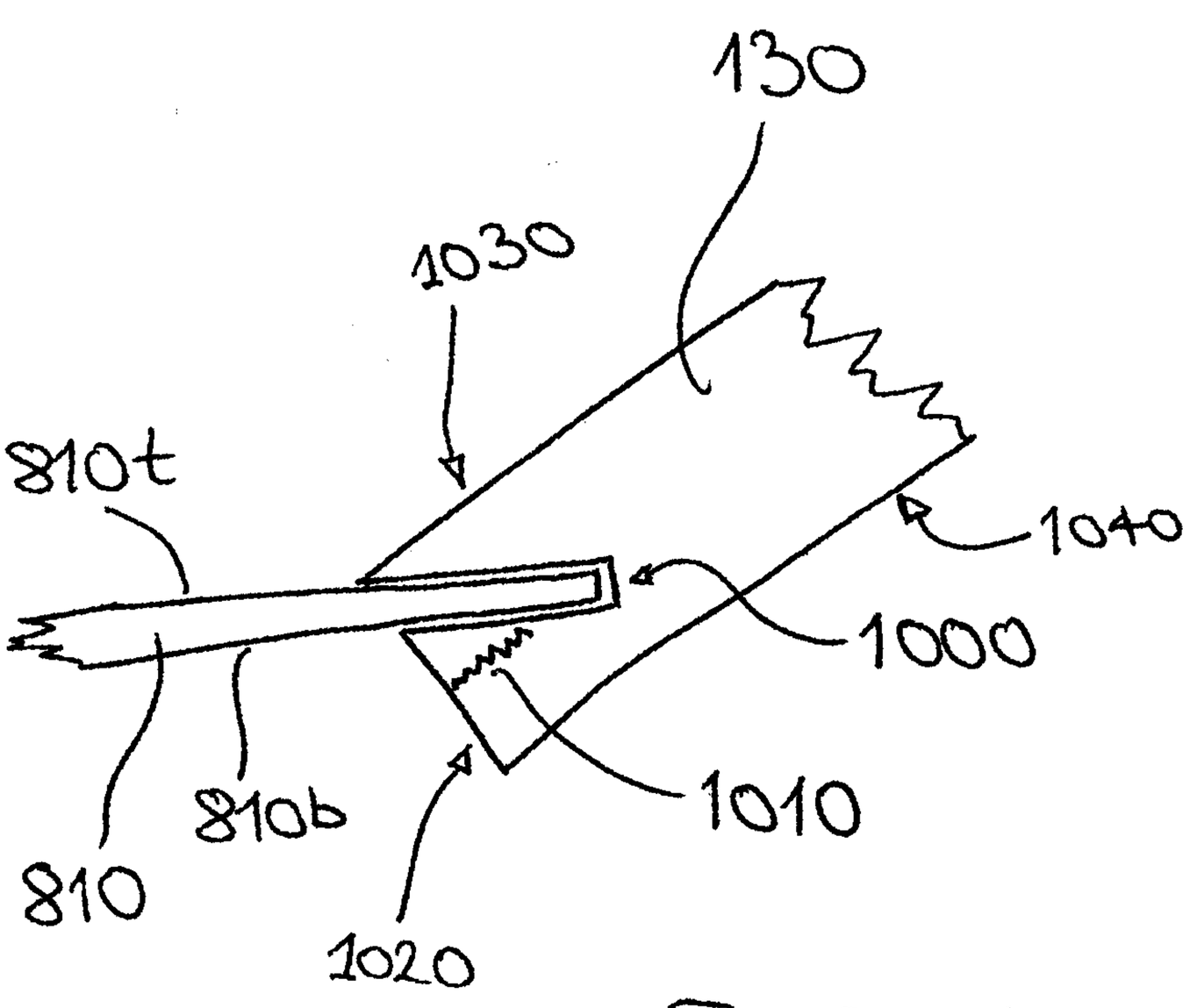


FIG. 10

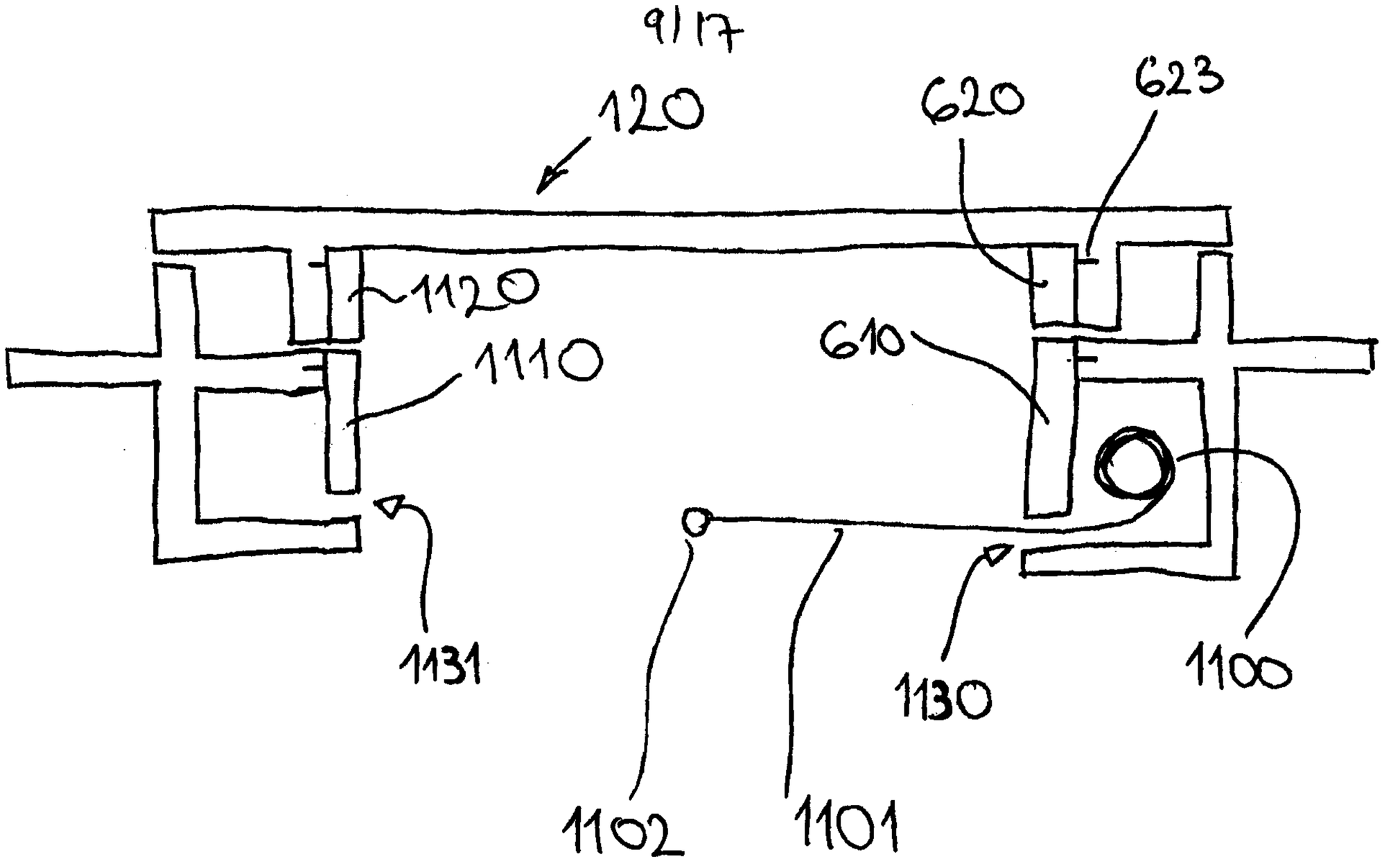


FIG. 11

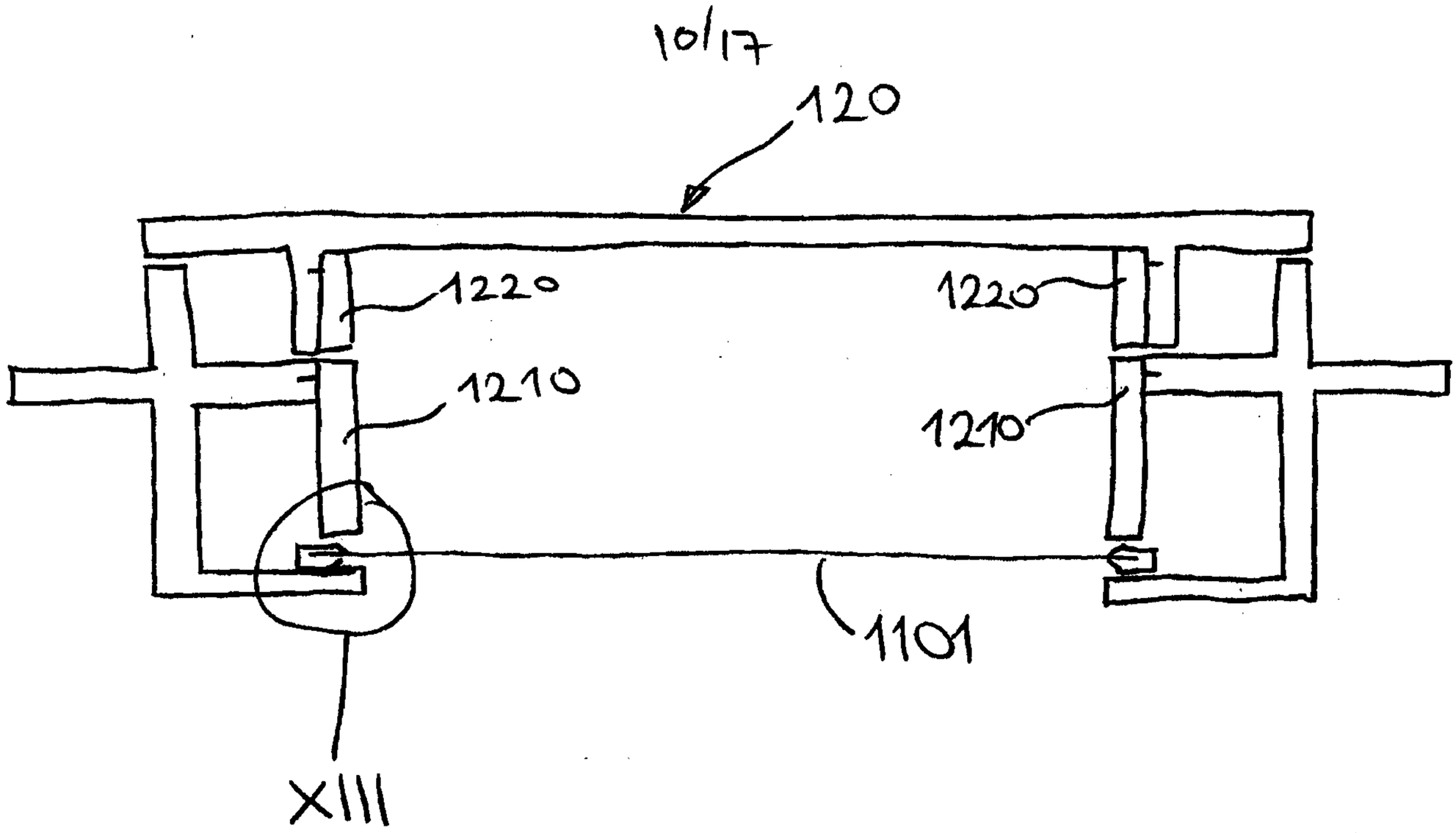


FIG. 12

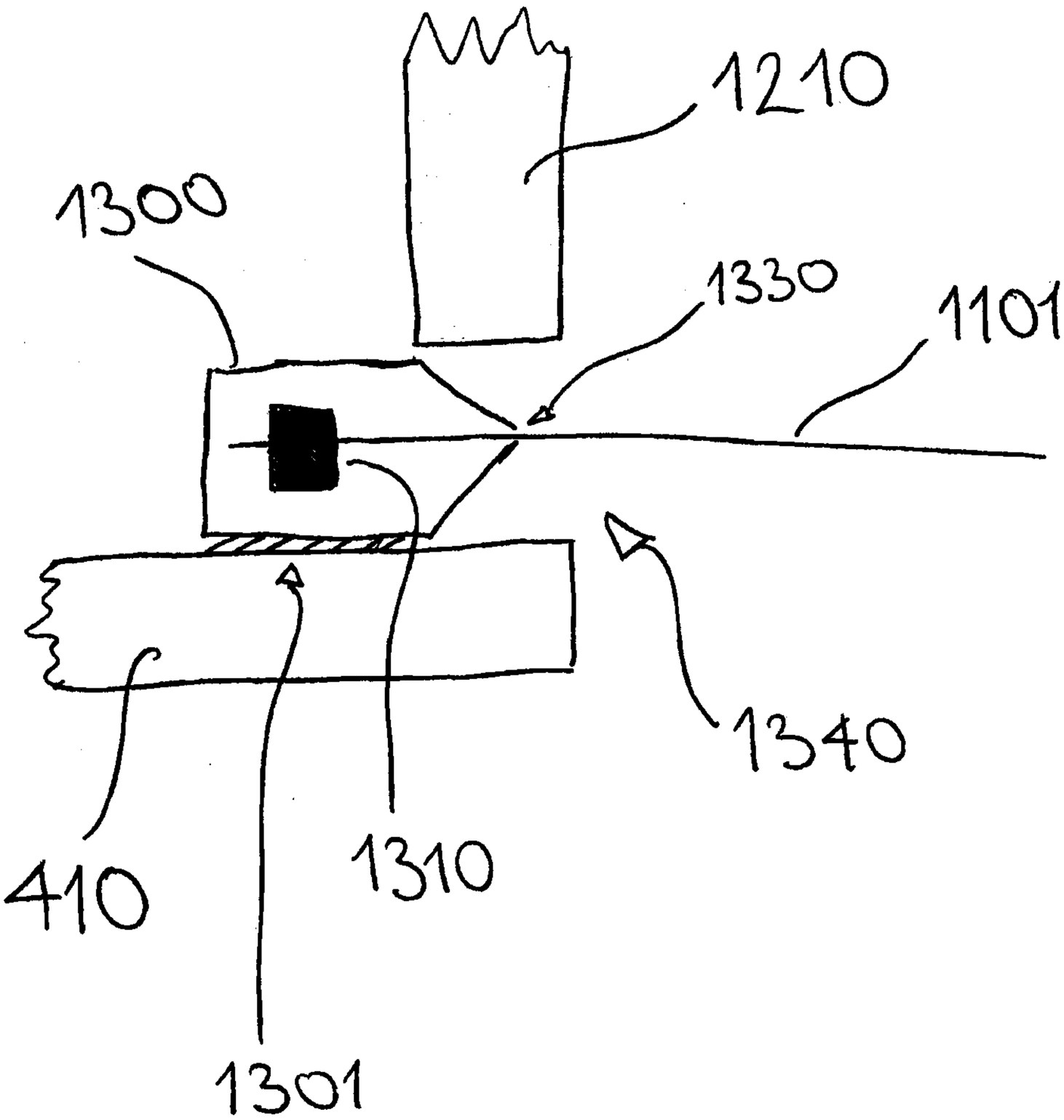


FIG. 13

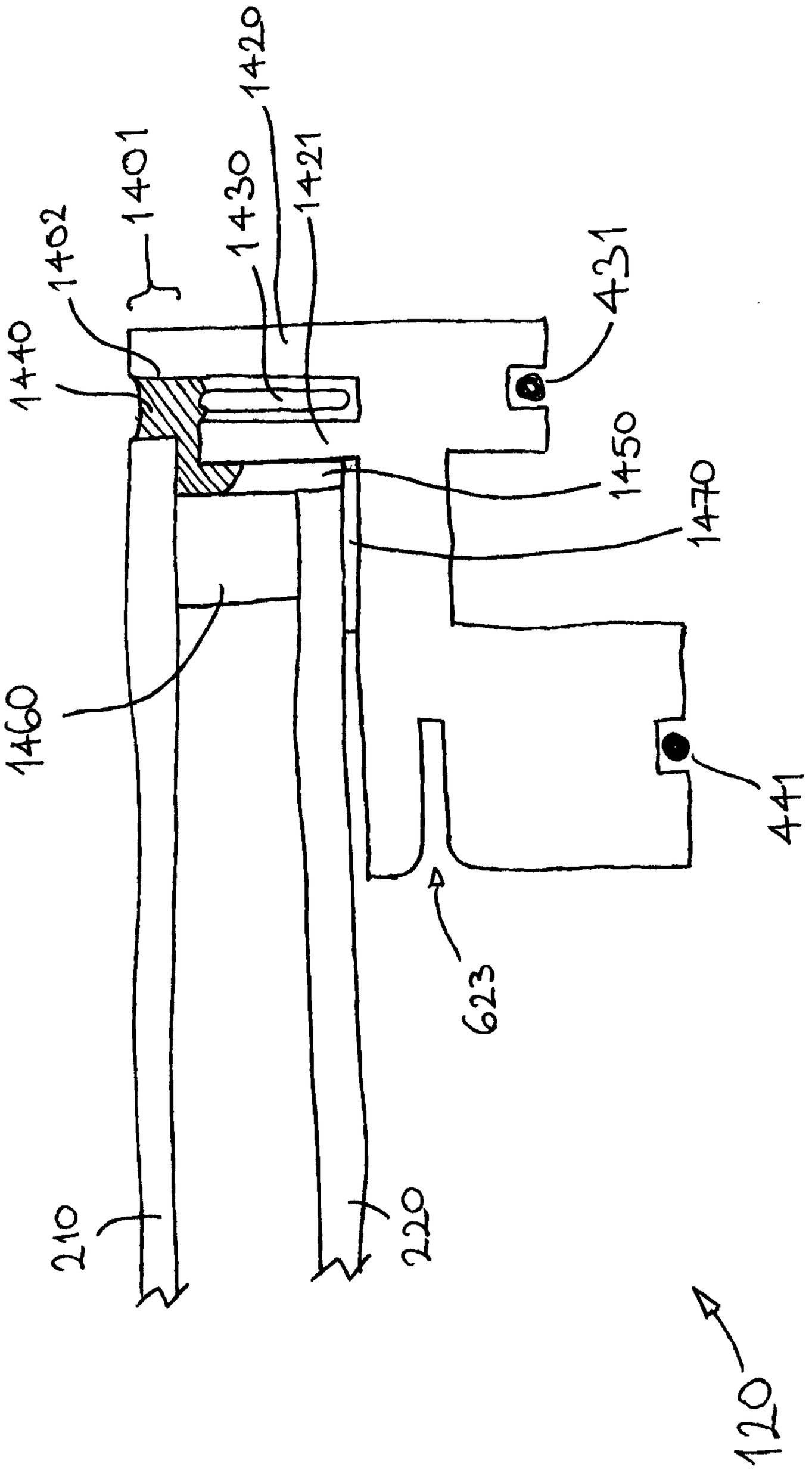

1420
1401
1402
1430
1421
1440
431
1450
1470
1460
623
441
210
220
120

FIG. 14

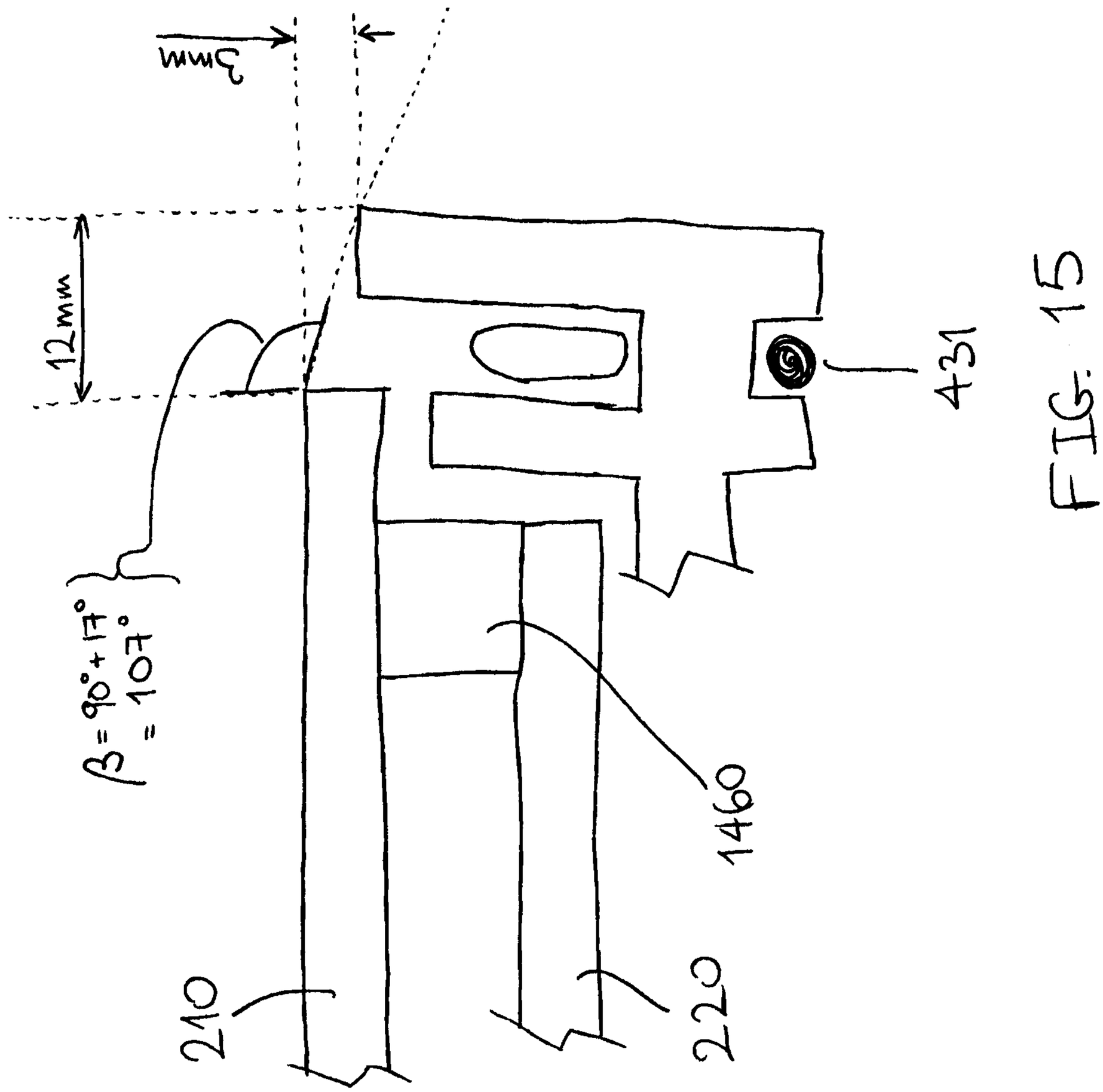


FIG. 15

14/17

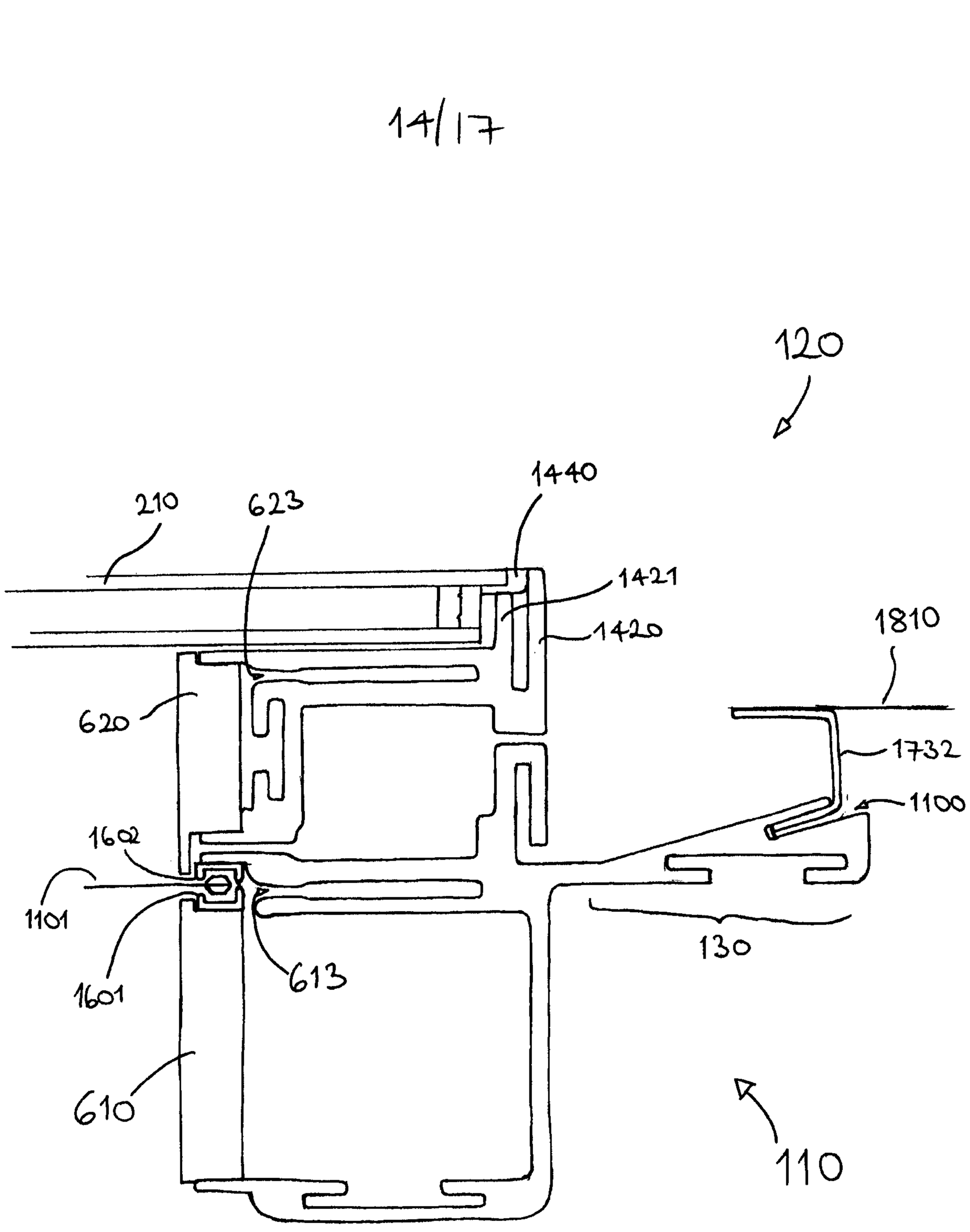

120
1440
210
623
1421
1420
1810
620
1732
1100
602
1101
130
613
1601
610
110

FIG. 16a

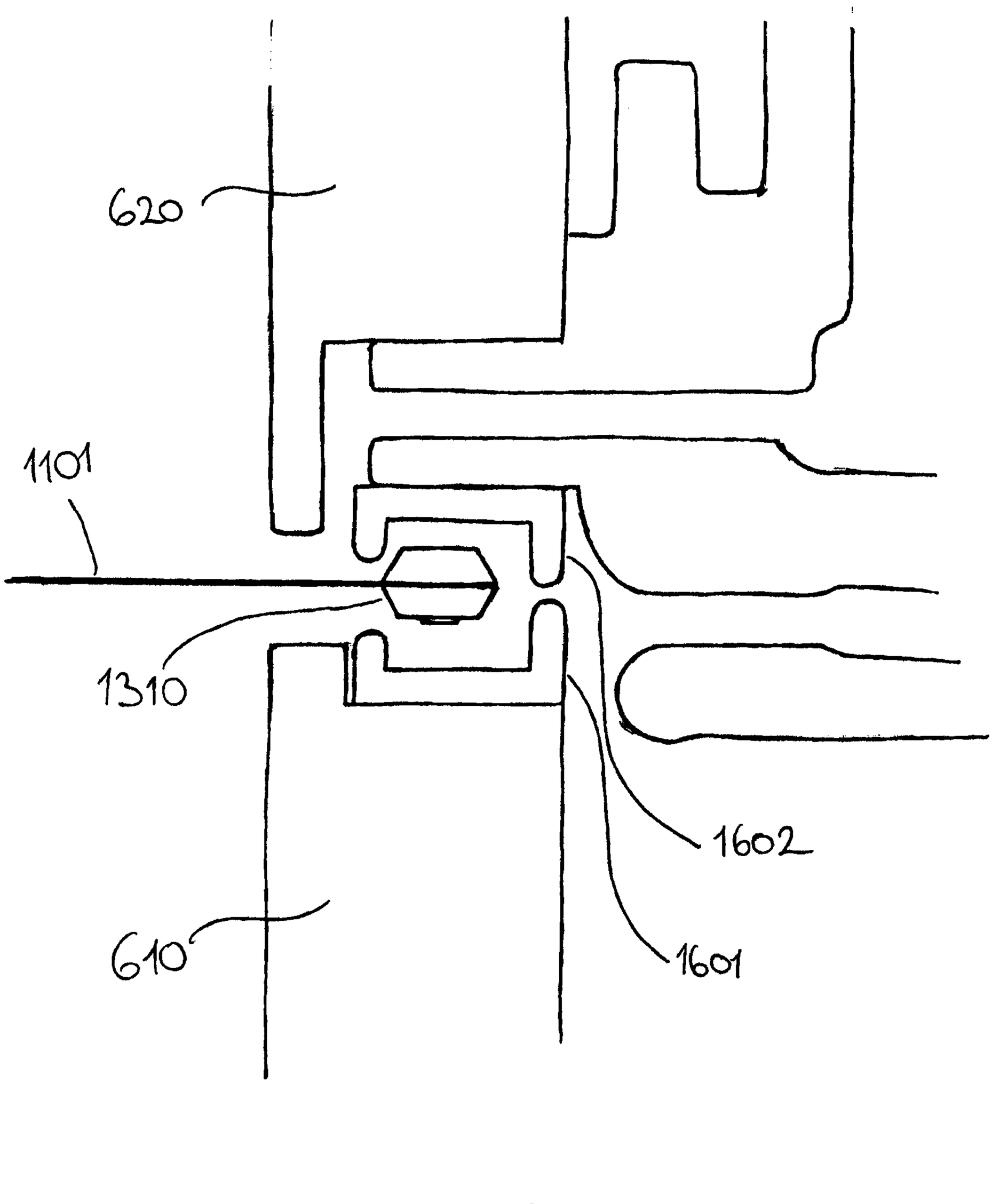


FIG. 16b

16/17

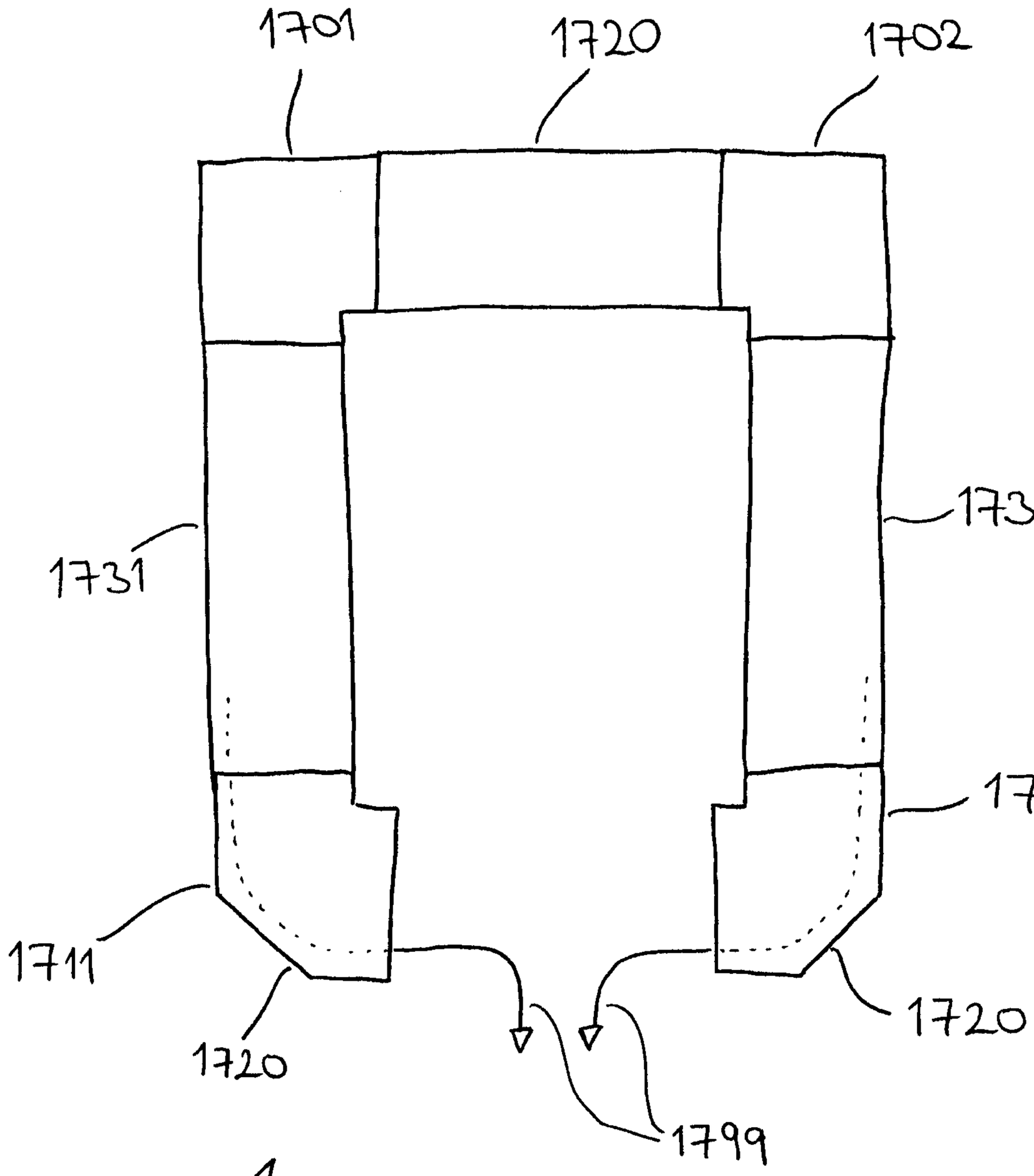


FIG. 17

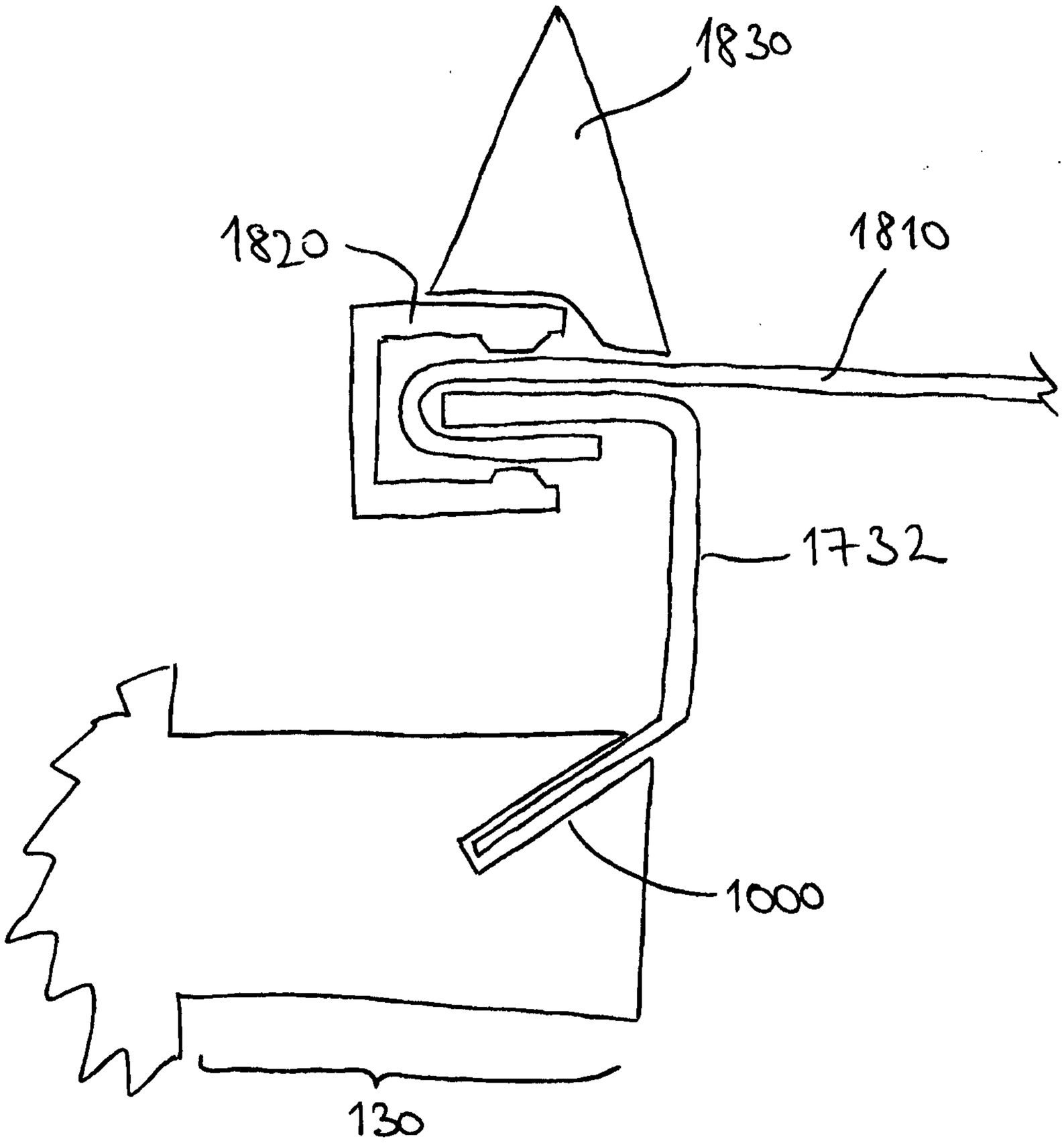
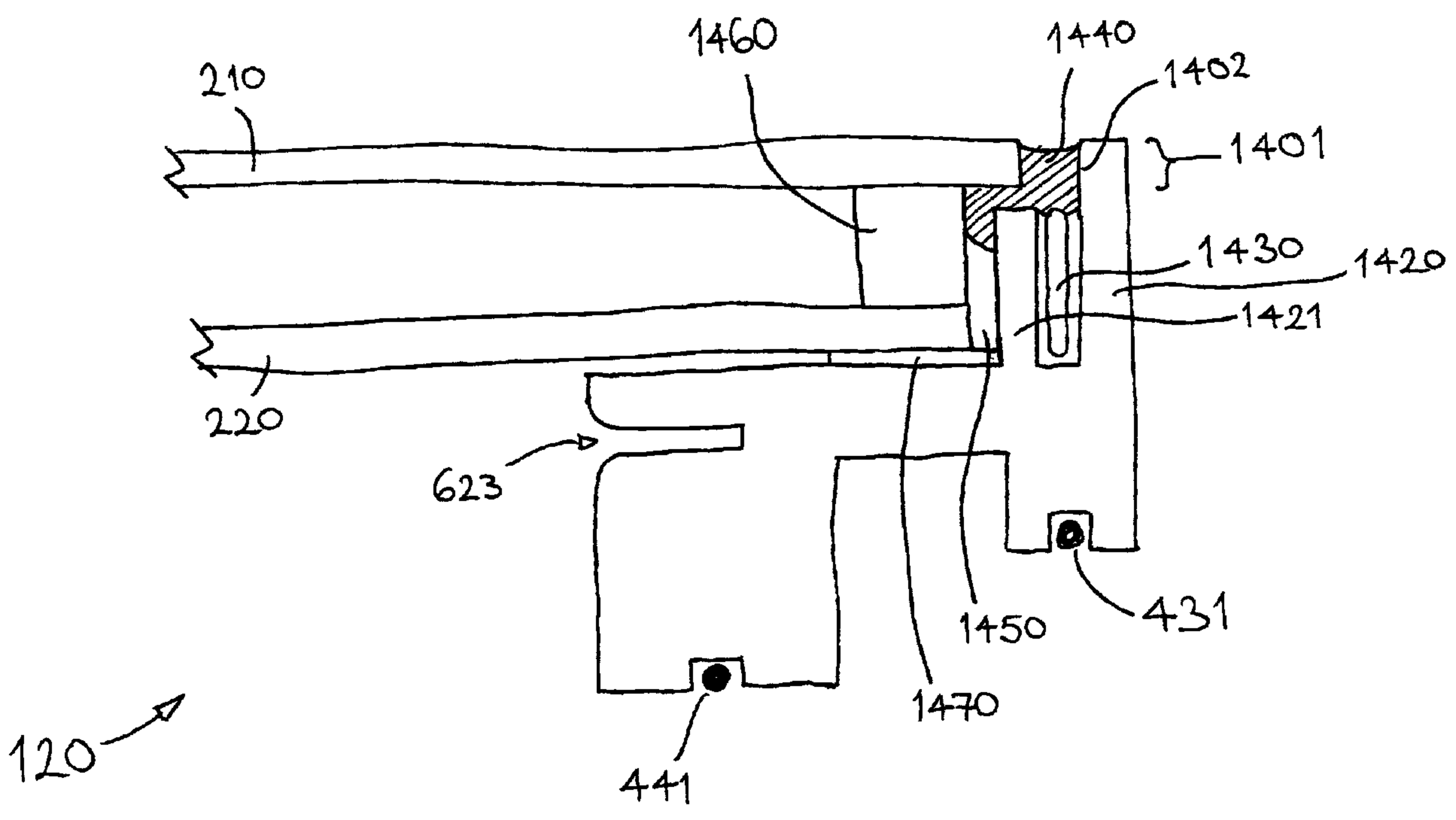


FIG. 18


1460
1440
1402
210
1401
1430
1420
1421
220
623
1450
431
1470
441
120