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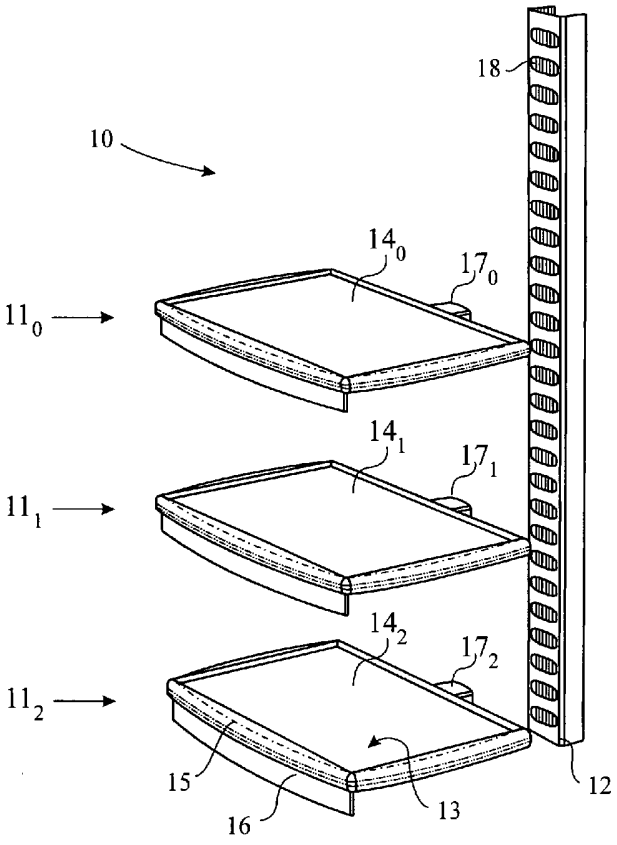

(57) Abstract: An apparatus and method for displaying retail products is disclosed. The apparatus comprises a product tray which itself includes a platform member for supporting one or more products, at least one lighting element and connector means for electrically connecting the lighting element to a power source when the platform member of the product tray is releasably secured to a product tray support.

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PRODUCT DISPLAY

The present invention relates to an apparatus and method for displaying products. In particular, but not exclusively, the present invention provides a highly convenient means for constructing a display stand able to illuminate products on display.

Many different types of product display are known. Typically these consist of shelving units in the form of product trays supported in some fashion and located at various positions in a shop or other retail establishment. Products are hung from the product trays or supported on an upper surface of a platform part of the product trays and customers wishing to purchase the products can remove these from the display.

Many different types of display system are known, however, many of these suffer from the drawback that restocking of the products is an onerous task due to the fact that a user may find it inconvenient to reach parts of the product tray which are to be restocked.

Displays are also known which include one or more light sources to illuminate parts or all of a display matrix. It is known that during an initial installation phase when the display is constructed the provision of lighting can be an onerous task requiring a user to access parts of the display which may be difficult to reach. Also, under some applications, a skilled electrician is required to ensure that the lighting is correctly installed.

It is an aim of the present invention to at least partly mitigate the above-mentioned problem.

It is an aim of embodiments of the present invention to provide a way of displaying products in a versatile manner.

According to a first aspect of the present invention, there is provided an apparatus for displaying retail products, comprising:

a product tray comprising a platform member for supporting one or more products, at least one lighting element, and connector means for electrically connecting said lighting element to a power source simultaneously with said product tray being releasably secured to a product tray support.

According to a second aspect of the present invention, there is provided an apparatus for supporting at least one product tray, comprising:

at least one elongate frame;

a plurality of product tray locating elements disposed longitudinally along at least a portion of said frame; and

an elongate power source comprising at least one power track; wherein

said elongate power source and said locating elements of said elongate frame are arranged to provide power to a product tray simultaneously with said tray being releasably secured to said frame.

According to a third aspect of the present invention, there is provided a method for displaying a plurality of products, comprising the steps of:

locating at least one product tray, at a desired location by releasably securing said product tray to a product tray support; and

supplying power to at least one lighting element of said product tray simultaneously with said tray being secured.

Embodiments of the present invention provide the advantage that power is supplied to a lighting element of a product tray at the same time that the product tray is secured at a desired location. This means that no complex wiring operation is required. Equally, the product display can be assembled without skilled electrician operators being required.

Embodiments of the present invention provide an apparatus in which a product tray for supporting one or more products can be simply connected to a support structure with the motion of mounting the tray actioning connection of an electrical connection to thereby supply power to a lighting element of the product tray. This is a safe and simple process.

Embodiments of the present invention will now be described hereinafter, by way of example only, with reference to the accompanying drawings in which:

Figure 1 illustrates a product tray support and three product trays according to a first embodiment of the present invention;

Figure 2 illustrates the three product trays mounted on the tray support;

Figure 3 illustrates a product tray;

Figure 4 illustrates a product tray support and part of a product tray mounted on the support;

Figure 5 illustrates a product tray and support according to a second embodiment of the present invention;

Figure 6 illustrates a plan view of the product tray shown in Figure 5;

Figure 7 illustrates how a bracket and platform of a product tray engage with a product tray support;

Figure 8 illustrates another view of a product tray mounted on a product tray support;

Figure 9 illustrates the underside of part of a product tray according to a second embodiment of the present invention;

Figure 10 illustrates a detail of Figure 9;

Figure 11 illustrates a cross section through a product tray support;

Figure 12 illustrates a bracket and tray platform;

Figure 13 illustrates a product tray support according to a third embodiment of the present invention;

Figure 14 illustrates a product tray according to the third embodiment of the present invention;

Figure 15 illustrates an electrical connector;

Figure 16 illustrates a cross-section through a product tray support;

Figure 17 illustrates a product tray secured to a support;

Figure 18 illustrates a product tray in accordance with an embodiment of the present invention;

Figure 19 illustrates the underside of the product tray shown in Figure 18;

Figure 20 illustrates a platform of the product tray shown in Figure 18 extended;

Figure 21 illustrates the underside of the product tray shown in Figure 20;

Figure 22 illustrates a cut-away view of a product tray; and

Figure 23 illustrates connection of a product tray and support in more detail.

In the drawings like reference numerals refer to like parts.

Figure 1 illustrates a display for displaying products such as retail items in accordance with the first embodiment of the present invention. The display apparatus 10 includes three product trays 11_0 to 11_2 which may be individually connected to an upright spur 12 which is arranged to support product trays connected to it.

Figure 2 illustrates the three product trays duly located at desired locations after a mounting process.

It will be understood that a broad range of products may be supported by product trays according to embodiments of the present invention. For example retail products of the type purchased by shoppers in a supermarket or department store. The products may be supported on an upper surface 13 of a platform portion of the product tray 11 or may be hung below the platform. As illustrated in figure 1 each product tray 11 includes a platform-like portion 14 which provides a planer substantially horizontal surface on which products can rest. A front edge 15 of the platform supports a display panel 16 upon which advertisements can be placed or the prices of products stocked on respective product trays displayed.

Each product tray also includes a connector 17 which is dimensioned so as to be able to lock the product tray in position through a respective hole 18 in the product tray support 12. The locking process is repeatable so that product trays can be removed an relocated as required.

Figure 3 illustrates the underside of a product tray 11. The platform part 14 of the product tray has a lower surface 30 and has side edging panels 31 which are attached for aesthetic purposes. A rear edge region 32 has a further panel 33 secured to it to improve the look of the product tray. A similar front edge panel (not shown) extends along a front edge region of the platform of the product tray. The display panel 16 extends from the front edge region of the platform. Light emitting diodes (LEDs) 34 are arranged in a row on the underside of the product tray. These lighting elements are arranged to illuminate products or a product tray below

the product tray on which the LEDs are fixed. The LEDs are secured in a strip 35 which enables the LEDs to be easily attached to the product tray during manufacture. By positioning the LEDs close to the front panel 16 illumination from the lighting elements will illuminate the panel which will improve the visibility of any writing or illustrations. The front panel 16 may be made of a transparent or semi-transparent material to aid this process. It will be understood that other types of lighting element, such as conventional light bulbs, may be mounted on the product tray. Also that some adjustment of the position of such lighting elements may be provided so that a user can select what is illuminated.

Power is supplied to the LEDs 34 from a power source connected to the supporting spur 12. Connection to this power supply is made via electrical connectors 36 of the product tray when the product tray is locked in place on the spur 12. The connecting elements 36 are in the form of metal ears which are resiliently biased outwardly. One or more of these connector elements 36 is provided on each product tray. The connector 17 is in the form of a male lug 37 which will fit into the locating holes 18 of the spur. The lug 37 is part of a central casing 38 which may hold control circuitry used to drive signals to the LEDs 34. The circuitry in the casing 38 are connected to the LEDs via an electrical connector 39. The circuitry may control the intensity and/or on/off status of the LEDs or some other parameter.

Figure 4 illustrates internal parts of the casing 38 when a product tray is duly located at a desired locating hole 18 on the spur 12. Part of the spur 12 is shown in figure 4 in cut away format. The lug 37 which forms part

of the connector 17 engages with a back plate 40 which is slotted into a part of the spur 12. This forms a rear part of the spur whilst a front part 41 of the spur supports another part of the connector 17. When the connector 17 is pushed into a respective hole 18 the tray is releaseably secured in position. At that point in time the electrical connectors 36 engage with respective power tracks 42 which run up and down the length of the spur 12. These power tracks are insulated from the frame of the spur 12 via an insulator track 43 and each of these insulator tracks 43 is held in place by elongate housing parts 44 of the frame.

Each connector 36 is resiliently biased so as to constantly push the connector against an abutment surface part of a respective connector 42. In this way power supplied from the power track is constantly supplied to a respective product tray via the connectors 36 which are connected via electrical connection to respective pins 45 at a front end of the casing 38. These pins 45 are arranged to receive a connector part of the connection 39 between the casing and the LEDs to thereby provide power to the LEDs from the power tracks in the support frame. It will be understood that the connectors 45 may be omitted and that thus the LEDs may be connected directly to the resilient connectors 36. As a still further option the circuitry in the casing may be omitted and the LEDs may be connected directly with the contacts 36.

By providing each product tray with a connector 17, which enables the product tray to be simply and firmly secured at a desired position on a support, a very versatile display is provided. In addition by providing an electrical connector 36 which connects with a power source in the support simultaneously with a product tray

being duly located a very simple process is provided for illuminating products on a product tray. The correct assembly of a display can be assessed by a user when constructing the display because if a product tray is not correctly fixed in place the lighting elements on the product tray will not illuminate.

Figure 5 illustrates a second embodiment of the present invention. In this embodiment two upright spurs for supporting product trays are located at a target location where a display is to be made. This may be in a supermarket or other such retail environments. The spurs 50 may be secured to a wall or may be free standing in which case some form of feet may be secured to the upright. Each upright has multiple holes 51 arranged longitudinally along a front of the support. These multiple holes are arranged to receive connecting fingers of a bracket 52 of a product tray 53. The product tray 53 includes two brackets 52 and a platform 54 which is connectable to the brackets so as to enable the platform to slide backwards and forwards along an upper surface of each bracket. Product organising cassettes 55 are arranged side by side on an upper surface of the platform 54. The organising devices are used for carrying small products which may otherwise be difficult to stand or see. Six product organising cassettes 55 are shown in figure 5. A front region of the platform 54 is expanded into a front display region 56 which has a front display panel 57 and further display regions 58 at which advertising or some other indicia associated with the products in a product organising cassette adjacent to that area can be displayed.

Figure 6 illustrates the product tray 53 from above when it is secured at a desired location on the two supports

50. Each product organising cassette 55 includes a slot 60 which can receive a product pusher. These product pushers are well known in the art and act to urge products towards a front region in the direction of arrow A in figure 6. In this way as product are removed by people from a front region of the product tray, replacement items are urged forwardly. This prevents people taking products from the front of the tray and then having to reach towards a back region of the tray.

Figure 7 shows in detail how a bracket 52 may be releasably secured at a predetermined position on an upright by means of hooked fingers 70 which hook over horizontal bars 71 of the support 50. Spaces between the bars 71 thereby provide locating holes 51 between the bars. Each bracket may be pushed in through these holes and then urged downwardly so that the extremes of the fingers 70 lock around the bar. The platform part of the product tray is illustrated in figure 7 in its secured position with the tray pushed backwardly until a locking bar 72 which extends upwardly from an upper surface 73 of the platform of the product tray. By providing a sliding platform the platform may be slid forward into a position illustrated in figure 5 to enable restocking and then slid backwards in the direction of arrow B in figure 7 to lock the platform in place. In this position the platform of the product tray is releaseably secured in a fixed location during sale of products. The platform is locked in place by a bar 72 which engages with a horizontal bar 71 (not shown) immediately above. This is illustrated better in figure 8 which shows a cut away part of a product tray support 50 with multiple horizontal bars 71 and fingers 70 of a bracket 52 duly engaged with the frame. The platform part of the product tray 53 is shown in its product selling position with the

platform urged backwards until releaseably locked in position. At this point in time the bar 72 clicks in place to lock the platform out of sliding position. This is achieved by an abutment between the bar 72 and a lower edge region reason of a respective horizontal bar of the frame 71. If the product tray is to be moved pressure may be exerted to pull the tray forward which disengages the bar 72 from the under side of the horizontal bar without breaking. This enables the platform of the product tray to be repeatably restocked pushed back and locked then pulled out again to be restocked.

Figure 9 illustrates an under side of the platform portion 54 of the product tray 53 and illustrates how an electrical connection can be made between the product tray and a power source provided by a respective product tray support 50. Two electrical connectors 90 and 91 are fitted to the product tray and secured by securing pins 92. Each conductive element has a respective abutment nose 93, 94 respectively which abut with an electrically conducting contact secured in the product tray support 50. This is illustrated in more detail in figure 10. Referring to figure 10 each electrical connector nose is resiliently biased outwardly. This is may be achieved by using spring metal for the nose. By connecting these end portions of the connectors 90, 91 to a power source power is supplied to the product tray. Remaining ends 95, 96 of the connectors may be connected to other electrical connectors which then run along the platform region of the product tray towards a front region where light emitting diodes 34 are located. These LEDs will illuminate when they are supplied with power to thereby illuminate products or other parts of the display.

As illustrated in figure 9 the underside of the product tray includes a slot 97 which is arranged to receive an upper surface of a respective bracket 52. Bracket engaging ears 98 ensure that the product tray does not fall away from the bracket.

Figure 11 illustrates how power is supplied from a product tray support 50 to a product tray. The product tray support is an elongate spur which extends upwardly. The support 50 includes a rigid substantially C shaped frame made of a rigid material such as plastic. The plastic may be PVC or ABS or some other electrical insulator. Two power tracks 1100, 1101 are held in a spaced apart relationship from the C-shaped frame and each other by an insulated support 1102 which itself is kept in spaced apart relationship from the frame by a connector 1103. The connector, insulating support 1102 and frame 50 may be integrally formed. The electrical conductors 1100 and 1101 extend in an elongate manner along a length of the spur.

The power tracks 1100 and 1101 are provided by respective metal rods having a circular cross section. It will be understood that other shapes of conductive elements may be used. The outer surface of these connectors provides an abutment surface against which the abutment noses of the connecting elements of a product tray may be urged. Each conductive track is held in a cup like support so that each power track is cradled by insulating material. The insulating support 1102 is in the form of a bisected figure of eight.

Figure 12 illustrates the underside of the product tray 54 in more detail and shows how a bracket may be slotted into the groove 97 so that the bracket 52 and platform 54

can slide with respect to each other. The ears 98 of the platform portion of the product tray overlap a thin section 1200 of a body part of the bracket 52. This prevents the bracket separating from the platform. The bracket and platform are manufactured from a material which permits sliding between the ears and portion 1200 of the bracket. Alternatively sliding tracks may be provided to aid the motion.

Figure 13 illustrates a product tray support according to a third embodiment of the present invention. The support 1300 is in the form of an upright substantially C shaped frame 1301 which is manufactured from a rigid insulating material such as plastic. The grill is manufactured from a rigid material such as Aluminium. Steel or other such materials may be used to provide a rigid upright column. The rear part of the C shaped casing is substantially straight so that the overall cross section is generally rectangular. Front portions 1302 extend in a dog leg fashion to partially close an open face of the frame. An elongate grill 1303 is fixed to the front open face of the frame casing 1301. The grill 1303 includes multiple cross beams 1304 which are spaced apart in a substantially horizontal manner. The spacings between adjacent bars provide holes 1305 into which product trays may be slotted. Each bar extends at its end into a panel 1306 which is folded back on itself at a joint region 1307. An end of the panel 1308 abuts with an inner surface of the front dog legged part 1302 of the casing 1301. This prevents the grill from detaching from the frame. Power tracks 1309 and 1310 extend longitudinally along the support 1300. The power tracks are metal rods. These are held in position along the length of the frame by an insulated support 1311 which keeps the power tracks in a spaced apart relationship from each other, the grill

and the main body of the frame casing. The insulating support and frame are integrally formed. It will be understood that these could be separately formed. Likewise the grill is shown as a separate piece. It will be understood that the grill could be integrally formed with the casing.

Figure 14 illustrates the underside of a product tray 1400 according to the third aspect of the present invention. The product tray includes a platform 1401 for supporting retail items on an upper surface. Two brackets (only one shown) 1402 are slidably mounted on the underside of the product tray. The brackets include locating fingers 1403 which slot through the holes 1305 in respective product tray supports 1300. In this way the brackets 1402 may be rigidly secured to a product frame. The platform and front display panel 1404 can then slide backwards and forwards with respect to the brackets to enable products to be located on the platform during a restocking process and then the platform urged against the product tray support to lock the platform in place and simultaneously supply power to light emitting diodes 34 so as to illuminate products or parts of a display below the product tray.

Figure 15 illustrates part B of figure 14 in more detail. In particular figure 15 illustrates a power connector which will engage with the power tracks in a product tray support 1300 when the platform portion of the product tray 1400 is pushed into place. The connector 1500 includes two electrically conducting contacts 1501 and 1502 each of which is formed from a folded metal strip having contact ends 1503 which are connected to other conducting wires in the platform and to the LEDs 34 via control circuitry (not shown) which can control the

on/off sequence of the LEDs to make them flash or may control the intensity with which the LEDs are illuminated. The contacts have a substantially straight central portion 1504 each of which is secured to a respective inner surface of a finger 1505 which extends outwardly from the product tray platform. Each contact strip is folded so back up on itself at a bend 1506 and is folded as to have a ridge which extends outwardly from an inner surface of the finger. The strip is then folded back and another substantially straight section of the strip terminates in a remaining end 1509. The nature of the material is such that the contact surface 158 and ridges 1507 of the contact are resiliently biased so that when urged against respective power tracks a strong connection is provided.

Figure 16 illustrates a cross section through a product tray support 1300 with a product tray platform 1401 duly located by one of the locating holes 1305. As the platform 1401 is pushed backwards in the direction of arrow C in figure 16 the connecting strip of the two opposed contact elements comes into contact with respective power tracks 1309 and 1310. In this way each power track nestles against a curved region 1600 of a respective contact strip. By sliding the platform forward each power track initially contacts the ridge 1507 region of the connector which helps ensure that the power tracks are directed into the open mouth of the connector 1500 defined by the spaced apart fingers. The resilient nature of the spring connector means that as the platform is pushed backwards the surface 1508 of the connector is pushed towards the inner surface of the fingers of the platform. Once past the bent region of the connector the surface 1508 springs in towards the central space between the fingers so as to abut with an

outer surface of the power tracks. Power is therefore supplied from the power track to the platform and thus to the lighting elements of the product tray. This occurs simultaneously with the platform of the product tray being duly located in a position where products are to be displayed.

Figure 17 illustrates a cut away portion of the spur 1300 and shows how the fingers 1403 lock over respective bars of the grill. It will be appreciated that these fingers can be removed by urging the bracket part of the product tray upwards and pulling the product tray away from the support/s. The product tray can then be removed and relocated as often as required at another position. Since the power tracks extend longitudinally along substantially all of the product tray support power can be supplied to a product tray located at any of the positions provided by the locating holes 1305 in the grill of the product tray support 1300. This ensures that separate connectors for attaching to connectors of a product tray are not required. A user can determine when the platform of the product tray is duly located since the LEDs will be illuminated when electrical contact is made to the power tracks. This helps a user constructing the display determine that everything is locked in place. A locking bar (not shown) or some other locking member is provided to engage with a rear edge of one or more of the bars of the product tray support frame to help keep the product tray in fixed relationship with respect to the spur 1300.

Figure 18 illustrates a product tray 1800 which includes a platform portion 1801 upon which products may be directly placed or product holders for holding products may be placed. The product tray is illustrated as being

locked in place on a respective product display support 1802 which provides a single upright spur having locating holes into which a lug 1803 carrying connecting elements 1804 is located. A front edge 1805 of the platform of the product tray is provided to display advertisements or prices or other indicia associated with the products located on the planer substantially horizontal surface of the platform 1803. The front edge 1805 includes a flap which is hingeably secured to the front of the platform. The flap may be opened so that advertising or written indicia may be inserted and then releasably secured in place to avoid tampering.

Figure 19 illustrates the underside of the product tray 1800 and includes a lower surface 1900 of the platform 1801. Figure 19 also helps illustrate the row of LED lighting elements 1901 which will be illuminated by power supplied from power tracks in the support 1802. A handle 1902 is provided to release a locking mechanism which helps retain the product tray in its allocated slot in the upright 1802. In this way when a user duly locates the connectors of the product tray in a desired locating element of the support, such as a hole, the product tray will be secured in place. If the product tray is to be removed, for example, to be located at a different height in the products tray support 1802, the handle 1902 is pulled. The handle is connected to a locking mechanism so as to release the product tray and thus enable its removal.

As illustrated in Figures 18 and 19 slots 1806_{0-3} are formed in the platform member of the product tray. Locating pins 1807_{0-3}, each associated with a respective slot, are provided to slidably run along each respective slot. A top of the element 1807 is larger than the width

of the slot 1806 so that the element 1807 keeps the platform secured to the substantially Y-shaped body 1903 of the product tray. Each fixing element 1807 is secured to this Y-shaped body 1903. In this way, the platform of the product tray can slide with respect to the body 1903 which itself is releasably locked to the central support 1802 by connecting means.

Figure 20 illustrates the platform 1801 of the product tray 1800 in an extended mode during which a user can very conveniently restock products on the platform. As illustrated in Figure 20 in the extended position of the platform the locating fixing elements 1807 are slid to another end of their respective slots 1806.

Figure 21 illustrates the bottom of the product tray illustrated in Figure 20. Here it can be seen that the Y-shaped body 1903 and connected housing for the LEDs 1901 remains in a fixed position with respect to the single support 1802. The platform is, however, pulled forward with respect to the body 1903. This movement is towards a user facing the product tray and support arrangement. Subsequent to filling of the platform, the user will push the platform of the product tray backwards towards the support into a vending position.

Figure 22 illustrates a cutaway portion of the product tray illustrated in Figure 18. The product tray 1800 includes a platform which provides an upper surface on which products or product trays may be located. Slots 1806 are formed in the platform element. The Y-shaped body 1903 is formed from an upper and lower casing 2200 with each part of the casing secured together in a hollow fashion by screws or other securing elements. It will be understood that as an alternative the body may be

integrally formed or may be secured via pop-it type connectors. Inside the Y-shaped body 1903 various electrical connectors 2201 connect wires 2202 which themselves are used to supply power to the lighting element, with power tracks. Figure 23 which shows an exploded image of part of Figure 22 shows the power tracks 2301, 2302 more clearly. Each of these power tracks is connected by a sprung metal ear-like connection 2303, 2304. As the connecting element of the product tray 1800 is locked in place into the support 1802, the electrical connectors are urged against respective power tracks to thus supply power to the lighting elements.

A locking mechanism 2203, which is connected to handle 1902, is also illustrated more clearly in Figure 22. When the handle 1902 is pulled forwards (towards the front edge of the product tray), this urges the locking mechanism away from a locking surface on the product support thus enabling the product tray to be removed or locked in place so as to avoid accidental removal of the product shelf.

Providing a product tray which has a central connection rather than side by side brackets and which can be secured to a single spur upright, leads to the possibility for a wider selection of display orientations. This is because the display makers are not constrained to have to provide two side locating positions.

Also the tray may simply be removed in a one-handed operation by staff.

It will be appreciated that whilst the above described embodiments have been explained with respect to an

upright support frame horizontal frames could be provided in accordance with further embodiments of the present invention. Likewise rather than locating holes for locating product trays at predetermined locations on the product support male extending pins may be provided on the product tray support whilst a connector on a product tray could be a female recess into which respective pins may be duly located.

Throughout the description and claims of this specification, the words "comprise" and "contain" and variations of the words, for example "comprising" and "comprises", means "including but not limited to", and is not intended to (and does not) exclude other moieties, additives, components, integers or steps.

Throughout the description and claims of this specification, the singular encompasses the plural unless the context otherwise requires. In particular, where the indefinite article is used, the specification is to be understood as contemplating plurality as well as singularity, unless the context requires otherwise.

Features, integers, characteristics, compounds, chemical moieties or groups described in conjunction with a particular aspect, embodiment or example of the invention are to be understood to be applicable to any other aspect, embodiment or example described herein unless incompatible therewith.

Embodiments of the present invention have been described here and above by way of example only. It would be understood that modifications to the specifically described examples may be made without departing from the scope of the present invention.

CLAIMS:

1. Apparatus for displaying retail products, comprising:

a product tray comprising a platform member for supporting one or more products, at least one lighting element, and connector means for electrically connecting said lighting element to a power source simultaneously with said product tray being releasably secured to a product tray support.

2. The apparatus as claimed in claim 1 wherein the product tray comprises one or more support member and the platform member is secured to the support member so as to be slideable with respect to the support member.

3. The apparatus as claimed in claim 1 wherein the connector means is arranged to connect the lighting element to the power source only when the platform member of the product tray is secured to the product tray support.

4. The apparatus as claimed in claim 1 wherein said connector means comprises at least one electrically conducting abutment element electrically connected to said lighting element and arranged to abut and thereby electrically contact an electrically conducting abutment surface of the tray support when the tray is releasably secured to the tray support, said abutment surface being connected to the power source.

5. The apparatus as claimed in claim 1 wherein said connector means comprises at least one sliding contact arranged to make sliding contact with an

electrically conducting abutment surface of the tray support when the tray is releasably secured to the tray support, said abutment surface being connected to the power source.

6. The apparatus as claimed in claim 5 wherein said sliding contact is resiliently biased.

7. The apparatus as claimed in claim 4 or 5 wherein said connecting means is connected to said lighting element via control circuitry arranged to selectively supply power to said at least one lighting element.

8. The apparatus as claimed in any proceeding claim wherein said at least one lighting element comprises a plurality of light emitting diodes.

9. The apparatus as claimed in claim 8 wherein said plurality of light emitting diodes comprises a plurality of multi-coloured light emitting diodes.

10. The apparatus a claimed in claim 8 wherein said plurality of light emitting diodes comprises a plurality of high intensity light emitting diodes.

11. The apparatus as claimed in any preceding claim wherein said product tray further comprises a display panel located at a front edge region of said platform member and at least one lighting element is arranged to backlight said display panel when said tray is releasably secured.

12. The apparatus as claimed in any preceding claim wherein said product tray is arranged to support

one or more products resting directly on an upper surface of the platform member.

13. The apparatus as claimed in any one of claims 1 to 11 wherein said product tray is arranged to support one or more products hanging from a lower surface of the platform member.

14. The apparatus as claimed in any one of claims 1 to 11 wherein said product tray is arranged to support one or more products when those products are located in one or more product organising devices, said tray being adapted to locate one or more of said product organising devices on a surface of the platform member.

15. The apparatus as claimed in any proceeding claim wherein said product tray further comprises:

at least one bracket element including securing elements for releasably securing the bracket element to a tray support and a platform member supporting surface arranged to releasably secure the platform member to the bracket element.

16. The apparatus as claimed in claim 15 wherein said platform member is slidably mounted with respect to the bracket element.

17. The apparatus as claimed in any preceding claim further comprising at least one tray support locatable at a target location and including a plurality of product tray locating elements arranged to receive, and thereby locate, at least one product tray.

18. The apparatus as claimed in claim 17 wherein the tray support comprises at least one power track

extending along a length of said tray support for supplying power to any product tray located by said locating elements.

19. The apparatus as claimed in claim 18 wherein a portion of said power track provides an electrically conducting abutment surface.

20. Apparatus for supporting at least one product tray, comprising:

at least one elongate frame;

a plurality of product tray locating elements disposed longitudinally along at least a portion of said frame; and

an elongate power source comprising at least one power track; wherein

said elongate power source and said locating elements of said elongate frame are arranged to provide power to a product tray simultaneously with said tray being releasably secured to said frame.

21. The apparatus as claimed in claim 20 wherein said locating elements comprise a plurality of locating holes each arranged to receive mating portions of a product tray and releaseably secure a product tray at a desired location.

22. The apparatus as claimed in claim 20 wherein said locating elements comprise a plurality of mating pins each extending outwardly from the elongate frame and arranged to mate with a respective at least one locating hole of a product tray to thereby releaseably secure a product tray at a desired location.

23. The apparatus as claimed in claim 20 wherein said at least one elongate frame comprises a pair of elongate frames arranged to be located in an upright position at a target location, and to each support a respective one of two ends of a product tray.

24. Wherein each said elongate frame houses at least one elongate power track.

25. The apparatus has claimed in claim 24 wherein each said elongate frame houses a positive power track and a negative power track.

26. Apparatus as claimed in any one of claims 20 to 25 wherein each said elongate frame comprises an insulating member arranged to electrically insulate said frame from each power track.

27. The apparatus as claimed in claim 21 wherein each locating hole includes a locating element door which is arranged to open to receive a mating portion of a product tray but which at least partially prevents ingress of a finger or dirt when not locating a product tray.

28. The apparatus as claimed in any one of claims 20 to 27 wherein said power supply comprises an AC and/or DC power supply.

29. A method for displaying a plurality of products, comprising the steps of:

locating at least one product tray, at a desired location by releasably securing said product tray to a product tray support; and

supplying power to at least one lighting element of said product tray simultaneously with said tray being secured.

30. The method as claimed in claim 3127 further comprising placing products on said located tray.

31. The method as claimed in claim 23 further comprising placing one or more product organising devices, each holding one or more products, on said product tray subsequent to said step of securing said product tray to the tray support.

32. The method as claimed in claim 29 further comprising the steps of:

releasably securing at least one bracket element to the product tray support; and

releasably securing a platform member of the product tray to the bracket element.

33. The method as claimed in claim 32 further comprising sliding the platform member of the product tray towards the product tray support until the product tray is located at the desired location.

34. The method as claimed in claim 29 or 33 further comprising verifying that a product tray is releaseably secured at said desired location by determining if at least one lighting element on the product tray is illuminated.

35. The method as claimed in claim 29 further comprising placing at least one product tray support in an upright position at a target location prior to said

step of locating at least one product tray via securing said product tray to the product tray support.

36. A method substantially as hereinbefore described with reference to the accompanying drawings.

37. Apparatus constructed and arranged substantially as hereinbefore described with reference to the accompanying drawings.

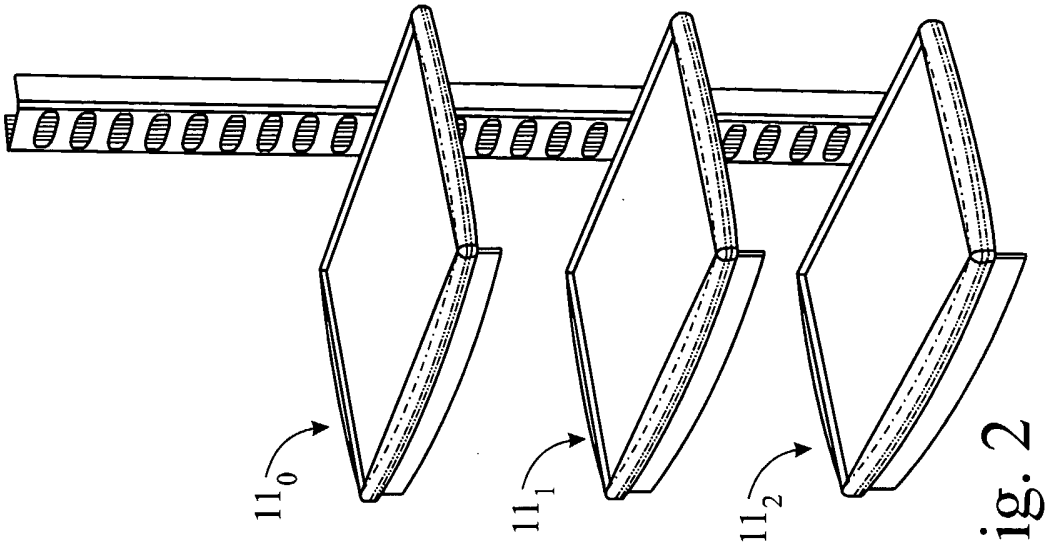


Fig. 2

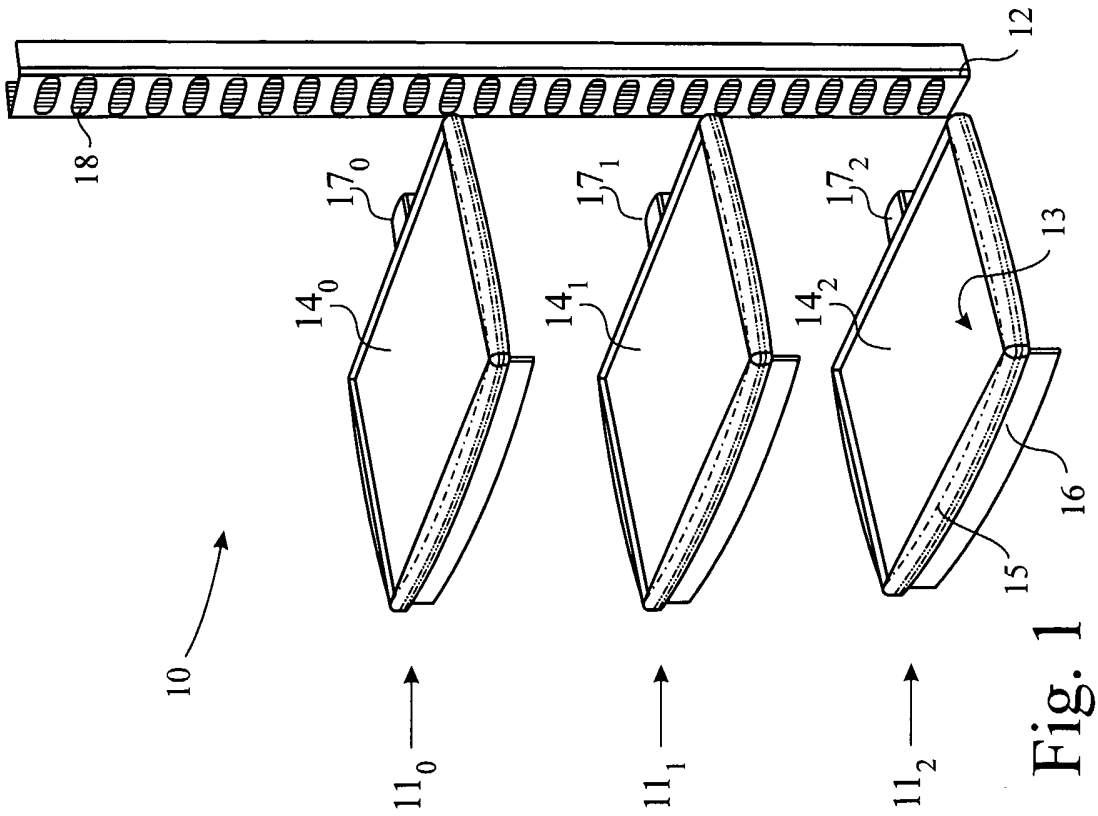
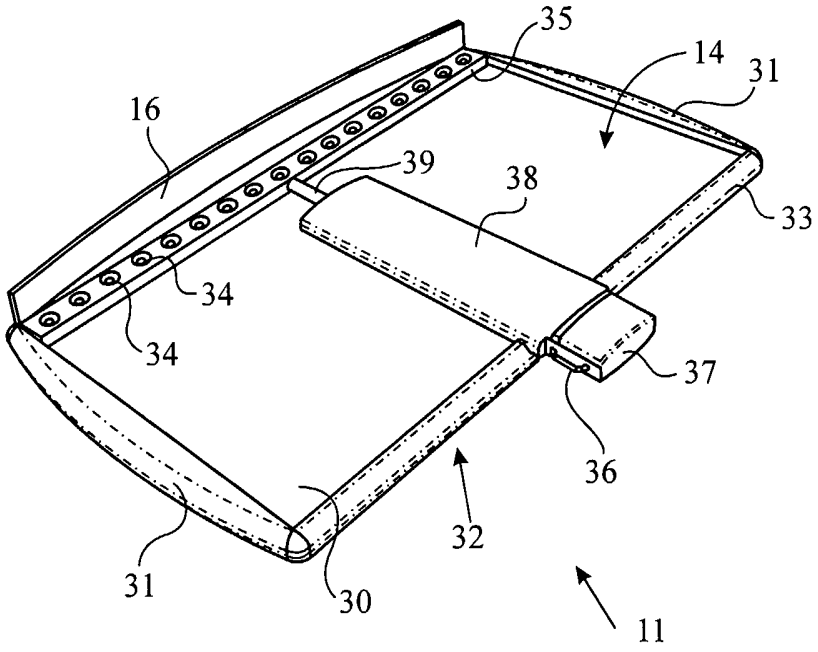


Fig. 1



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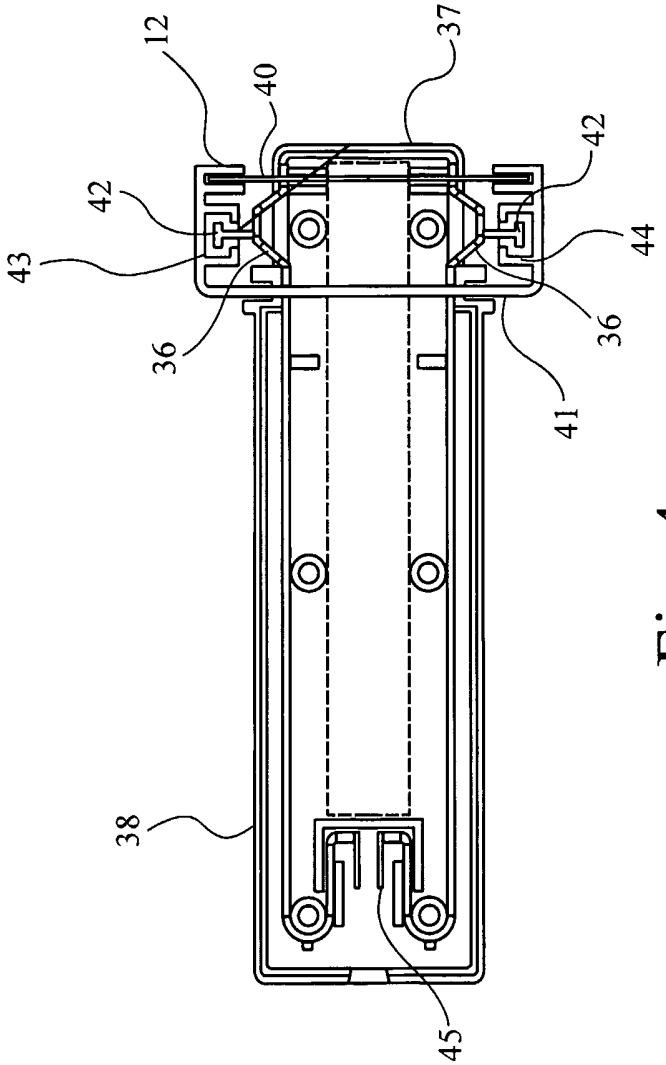

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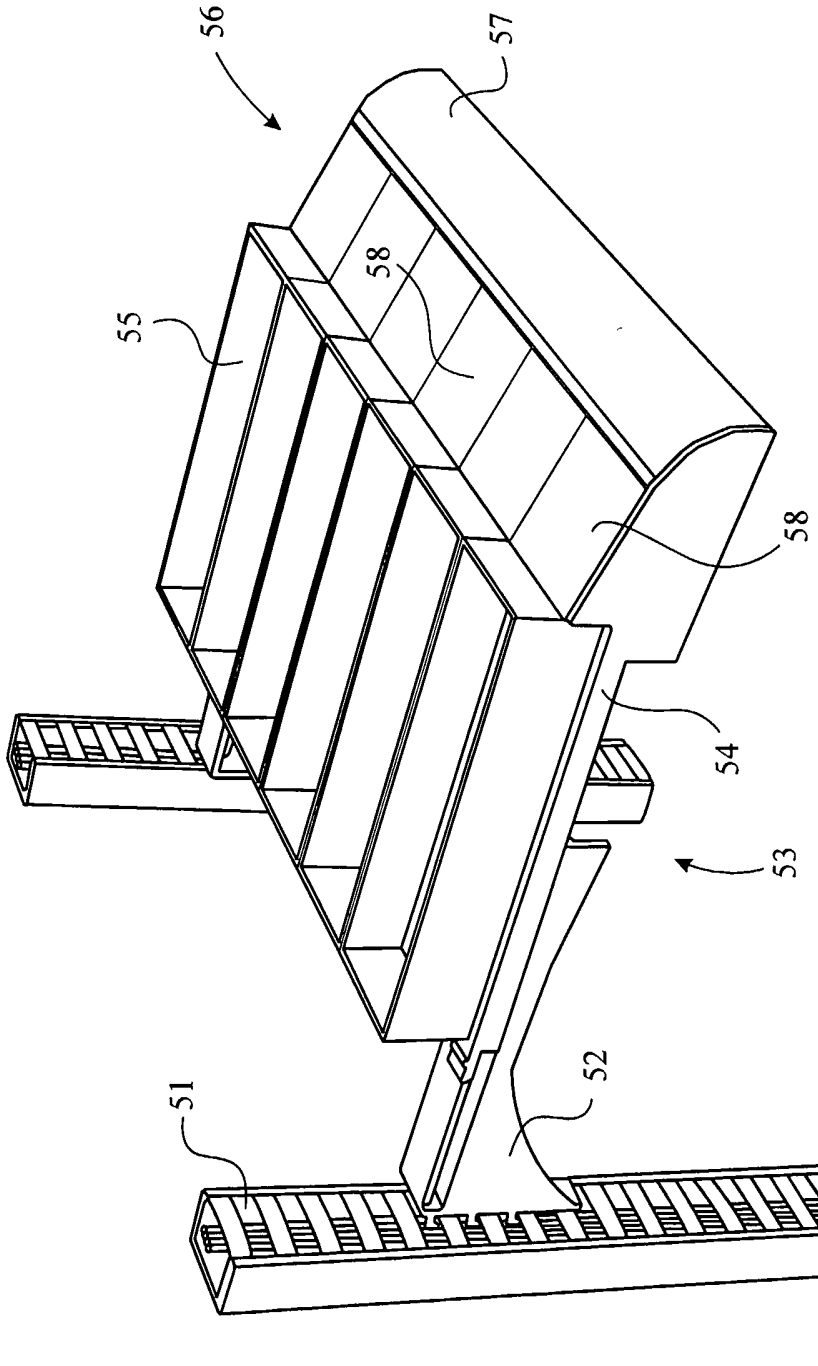

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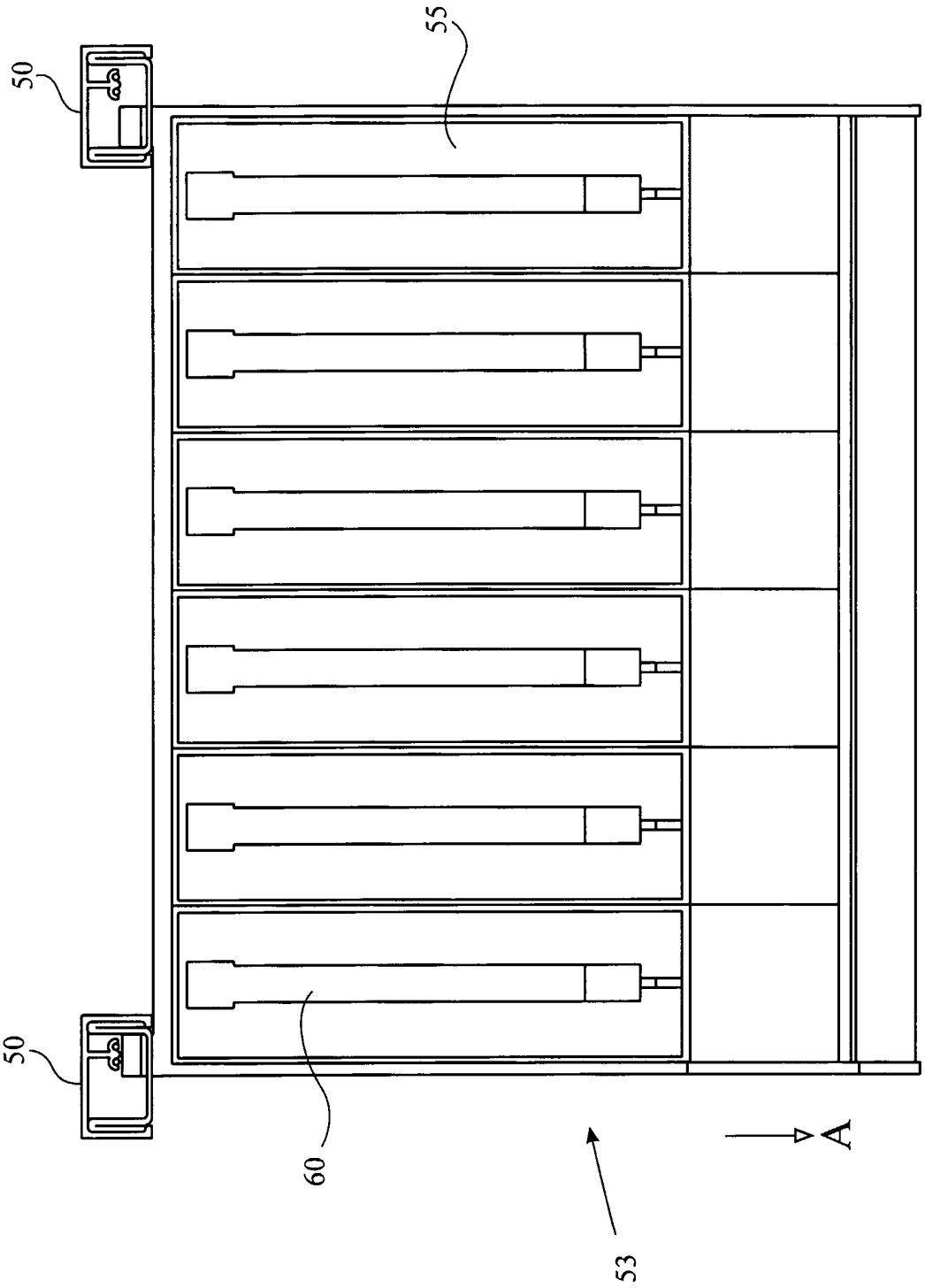

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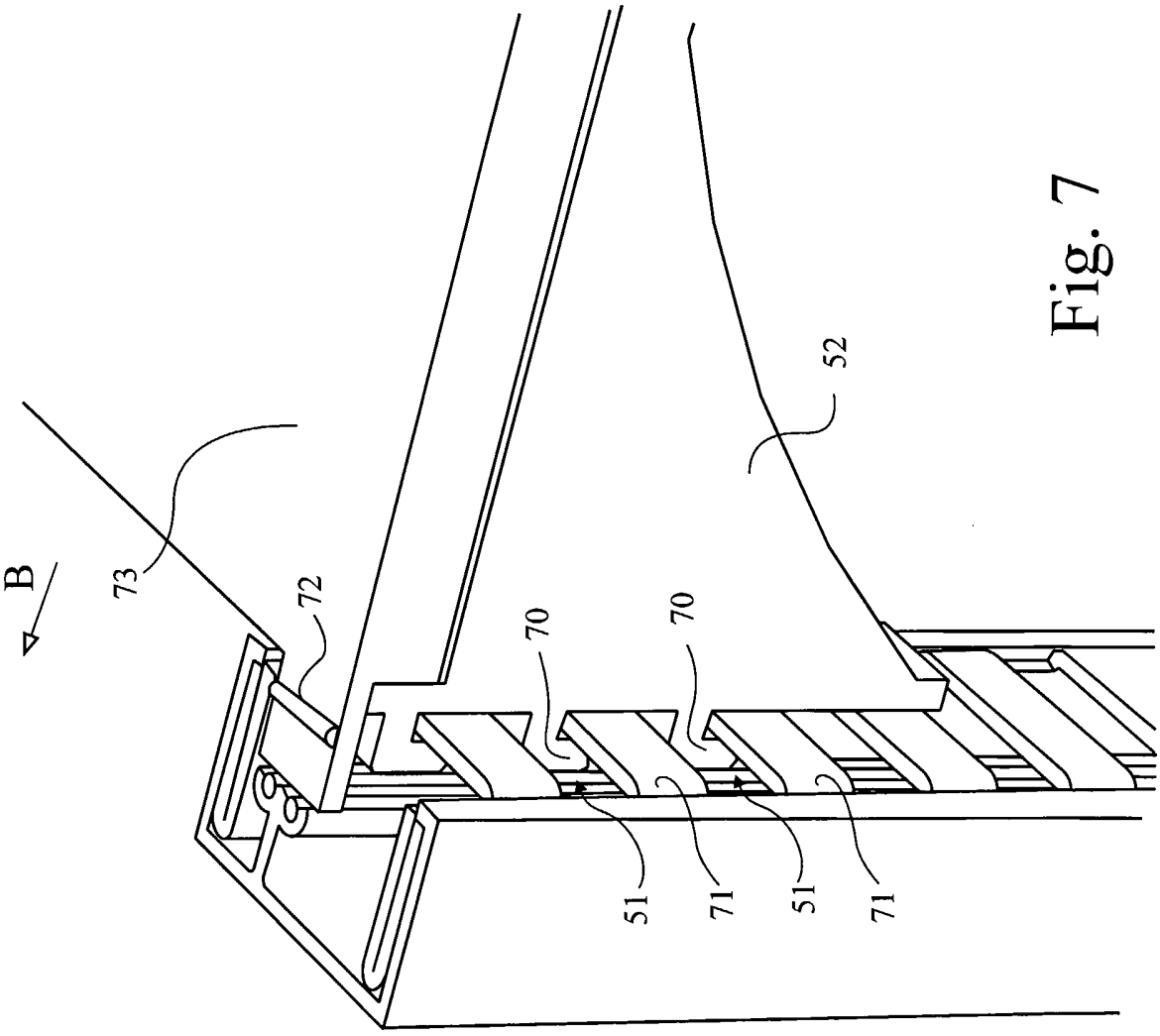
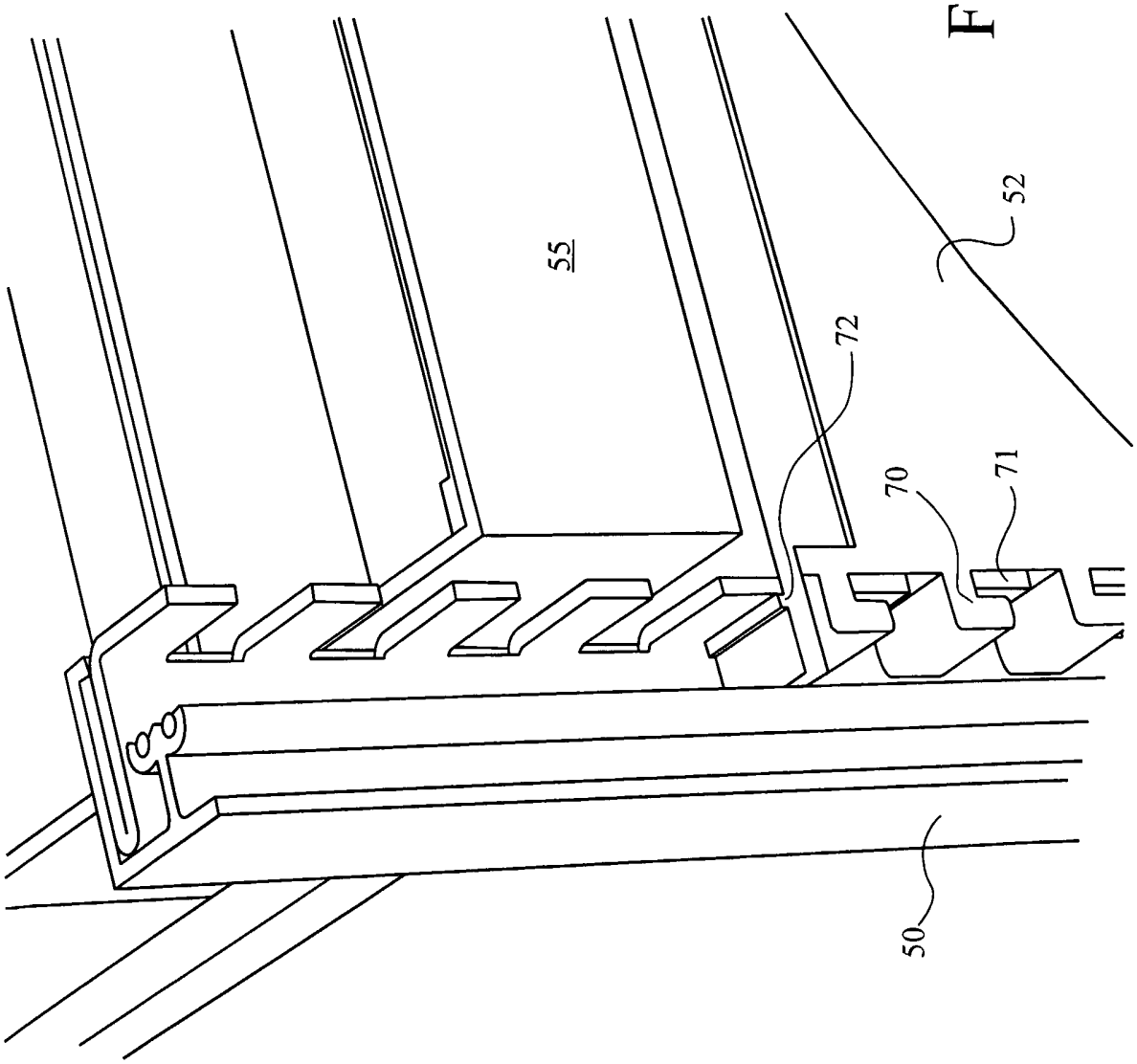


Fig. 7

Fig. 8



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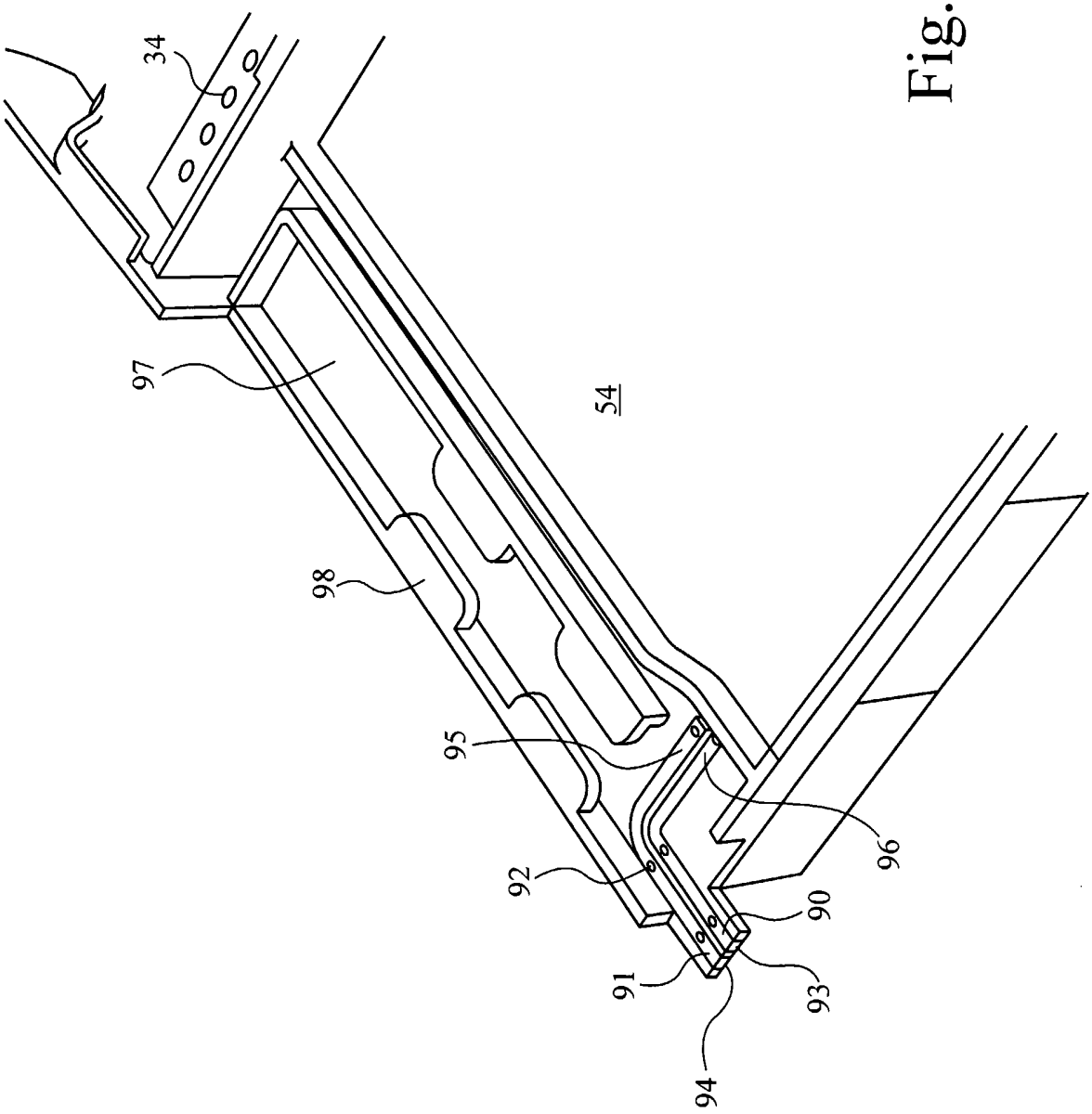

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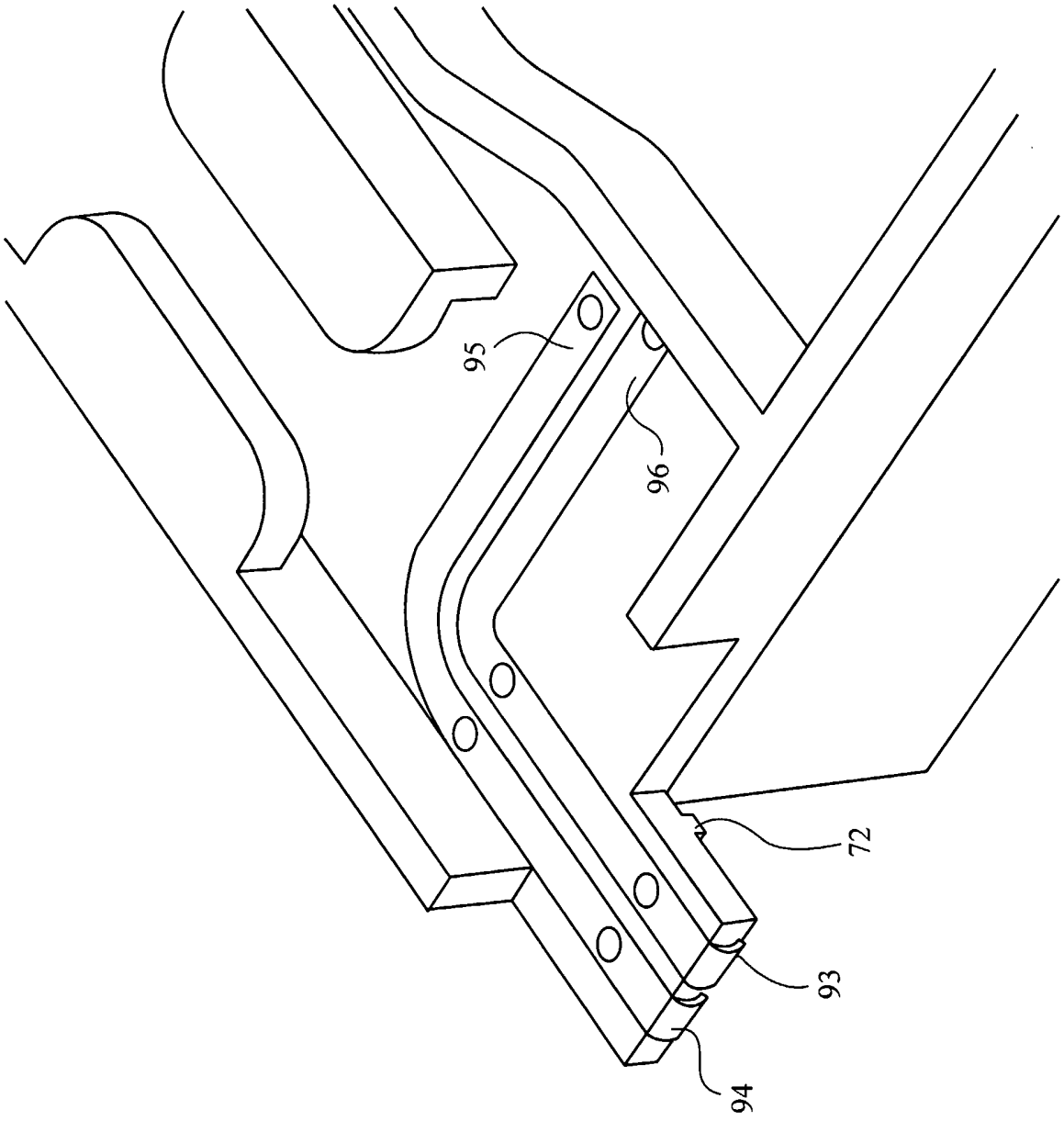

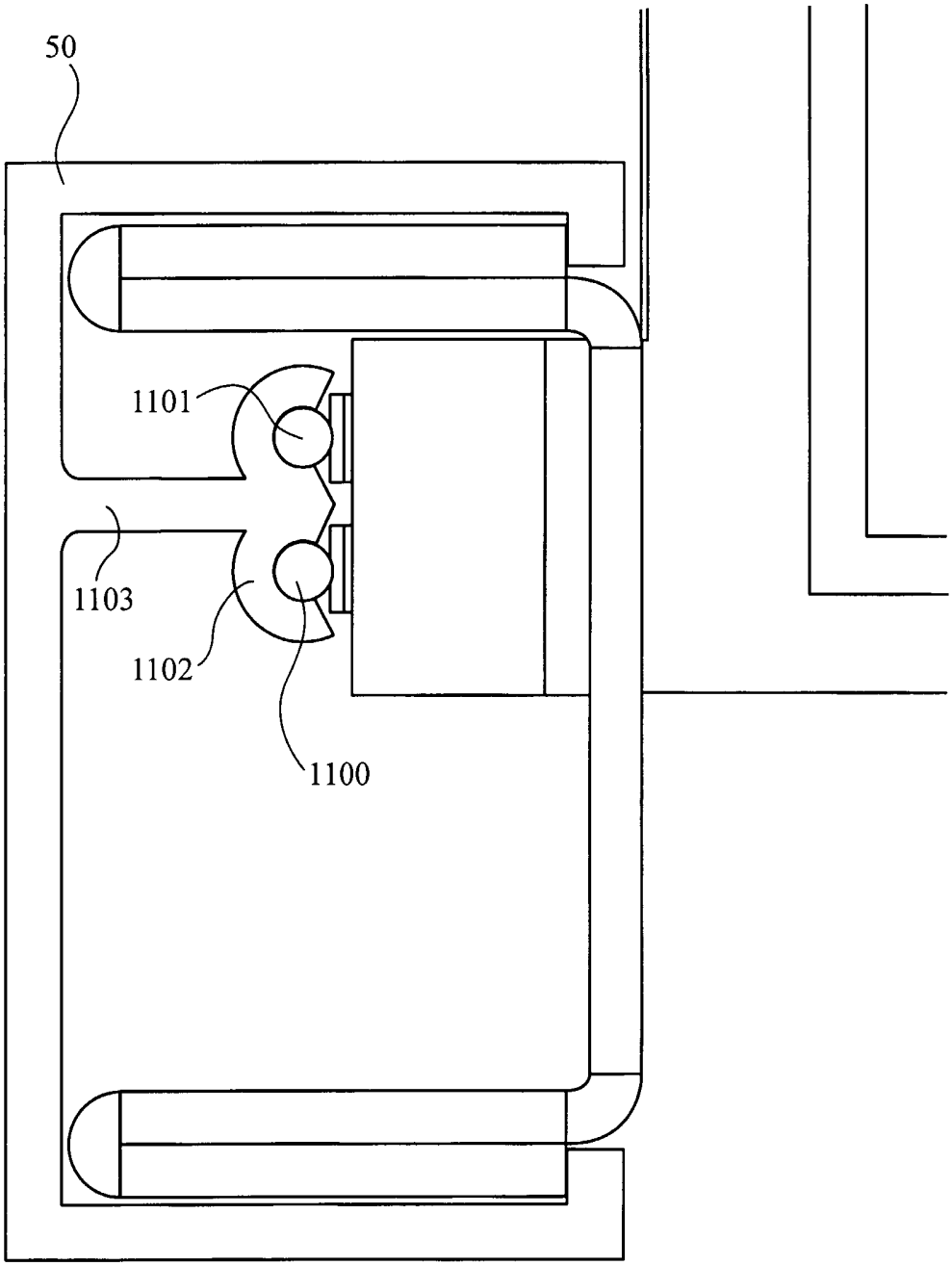

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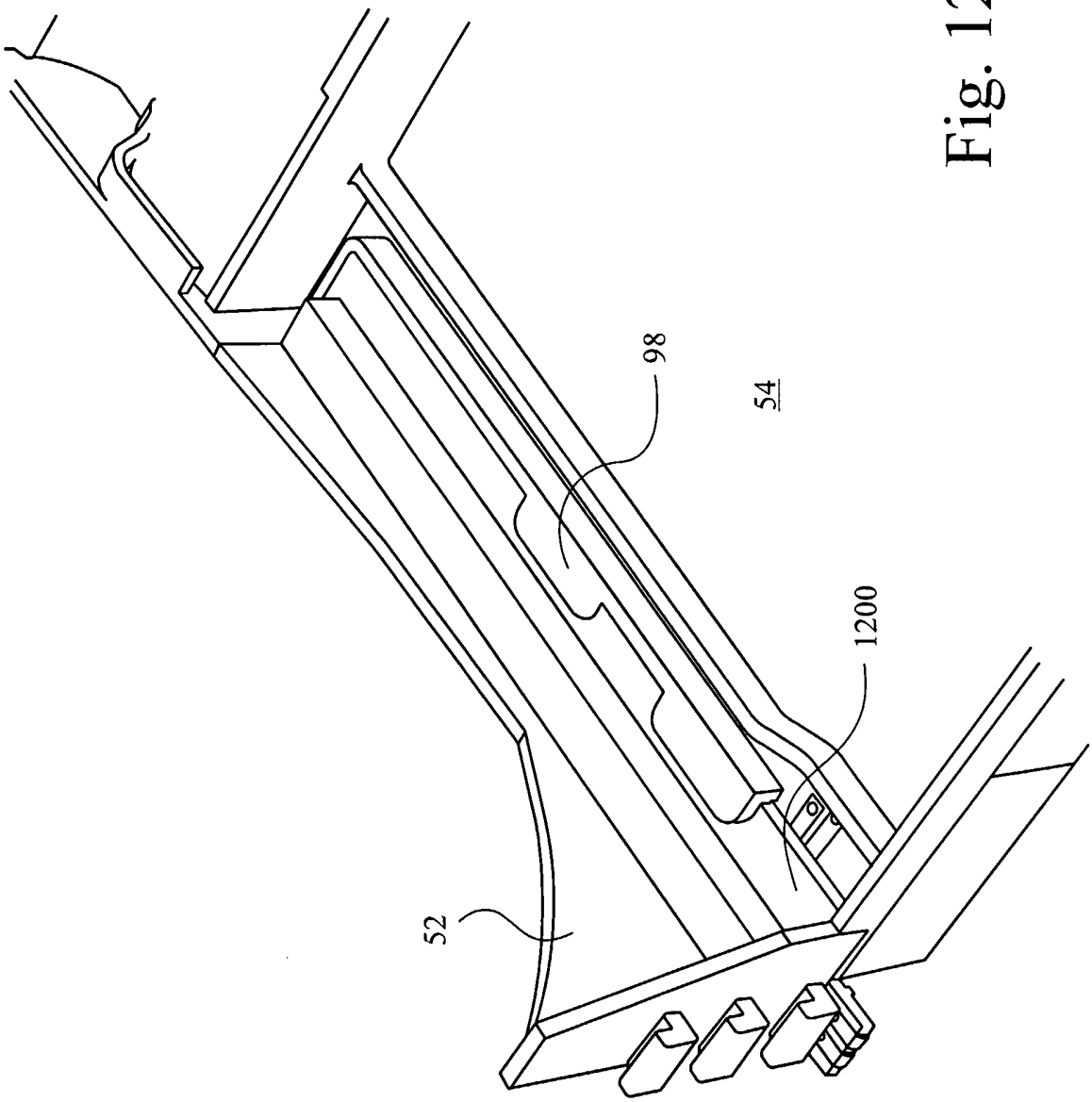
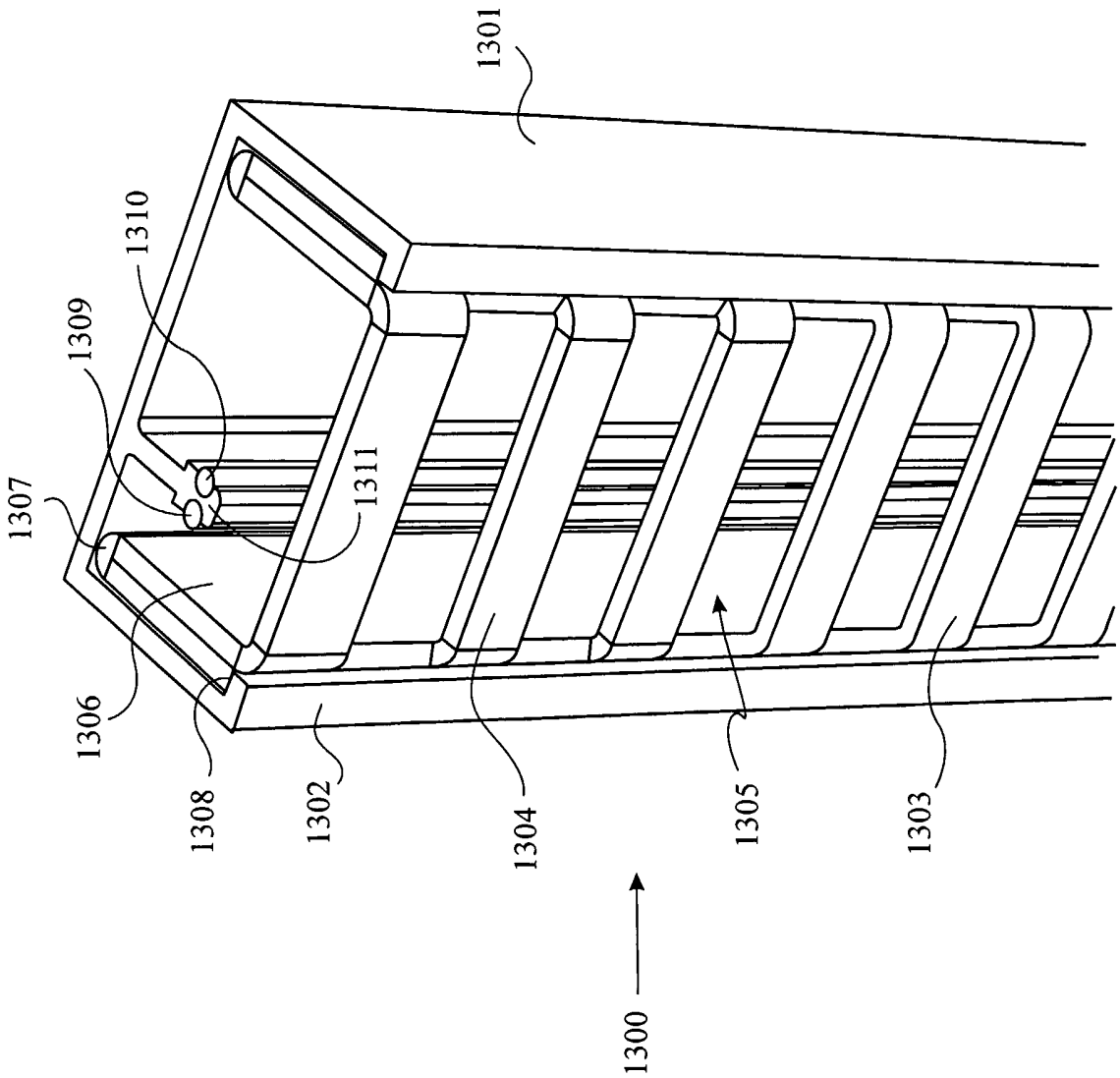


Fig. 12

Fig. 13



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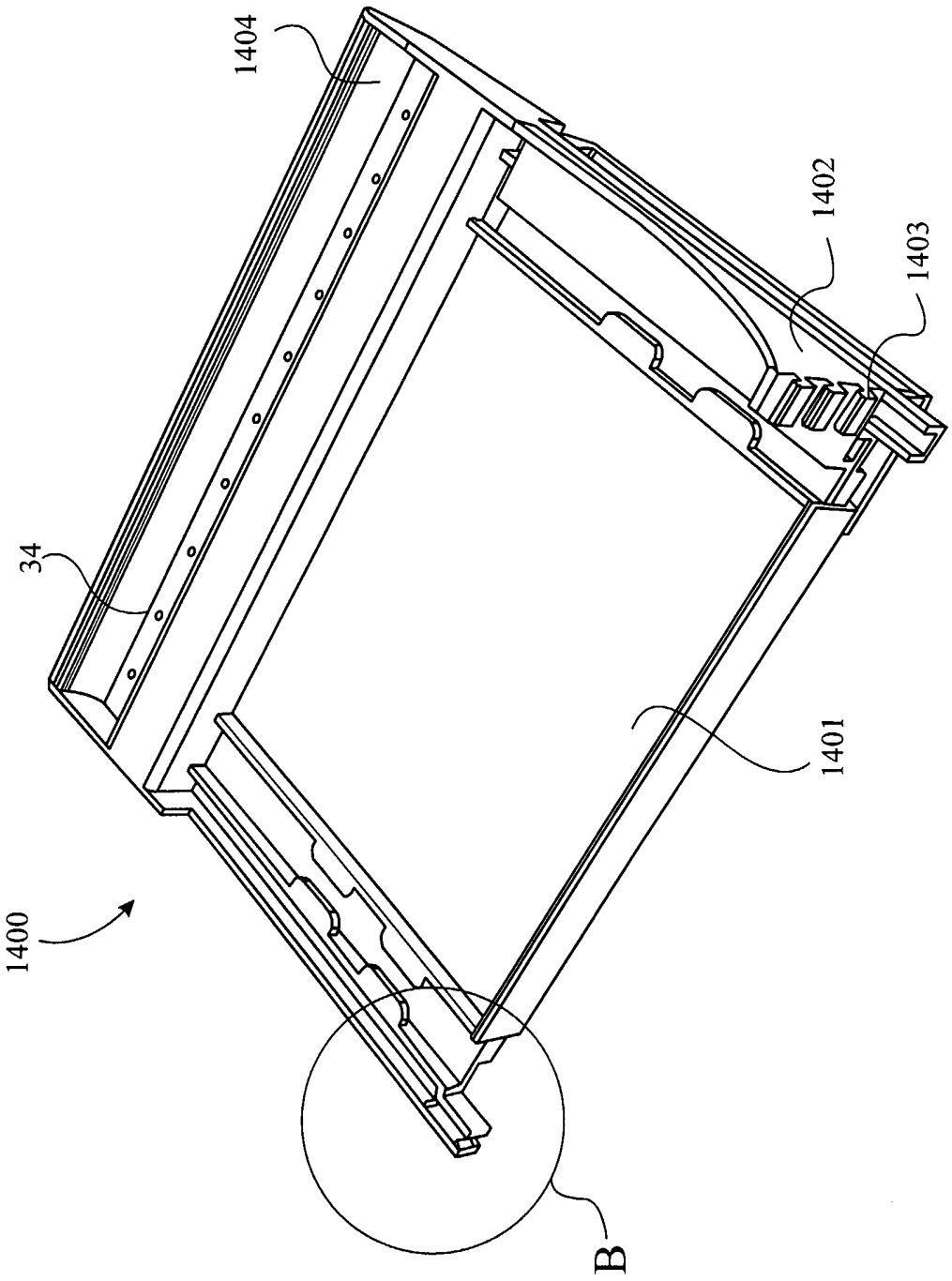

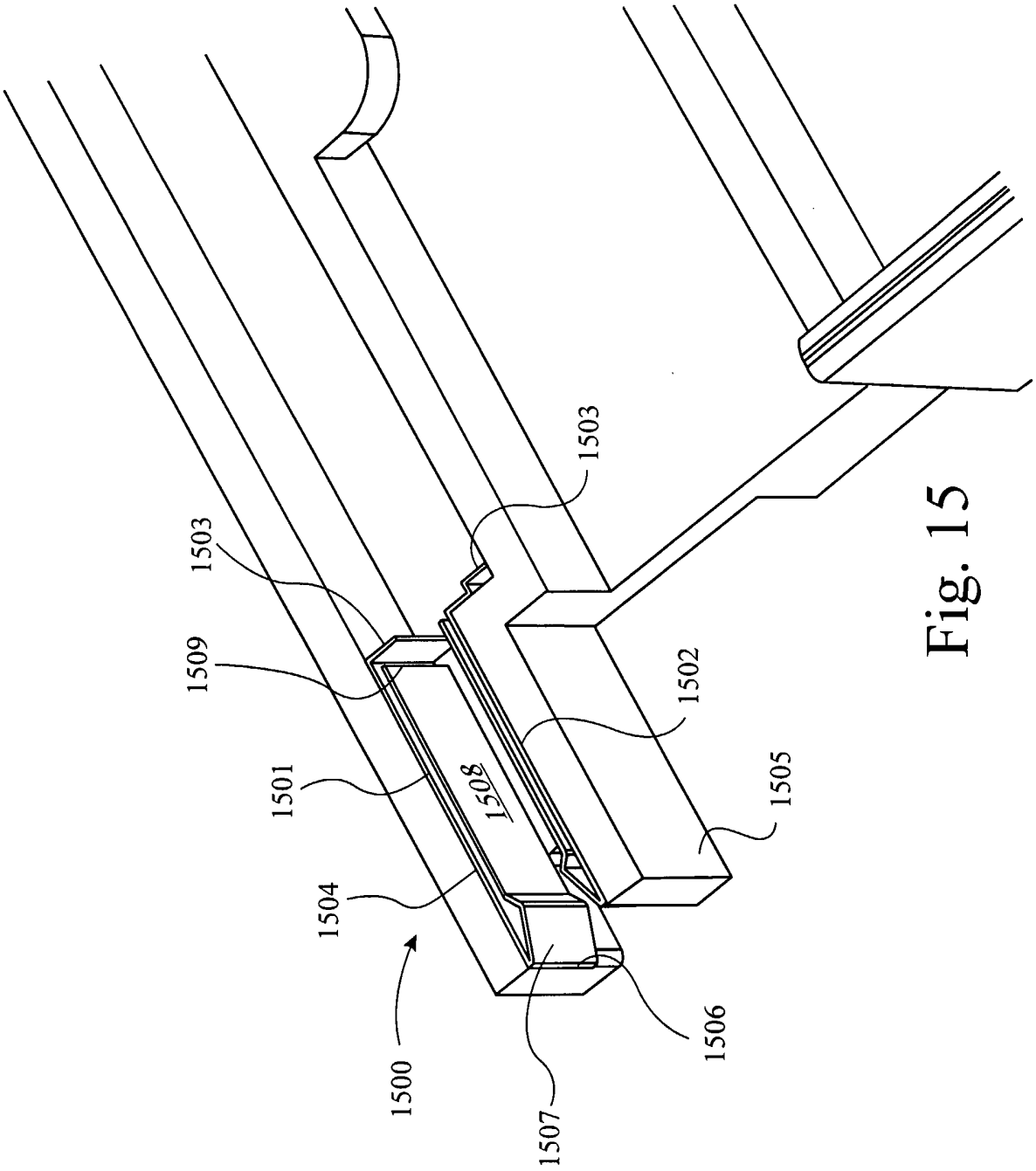

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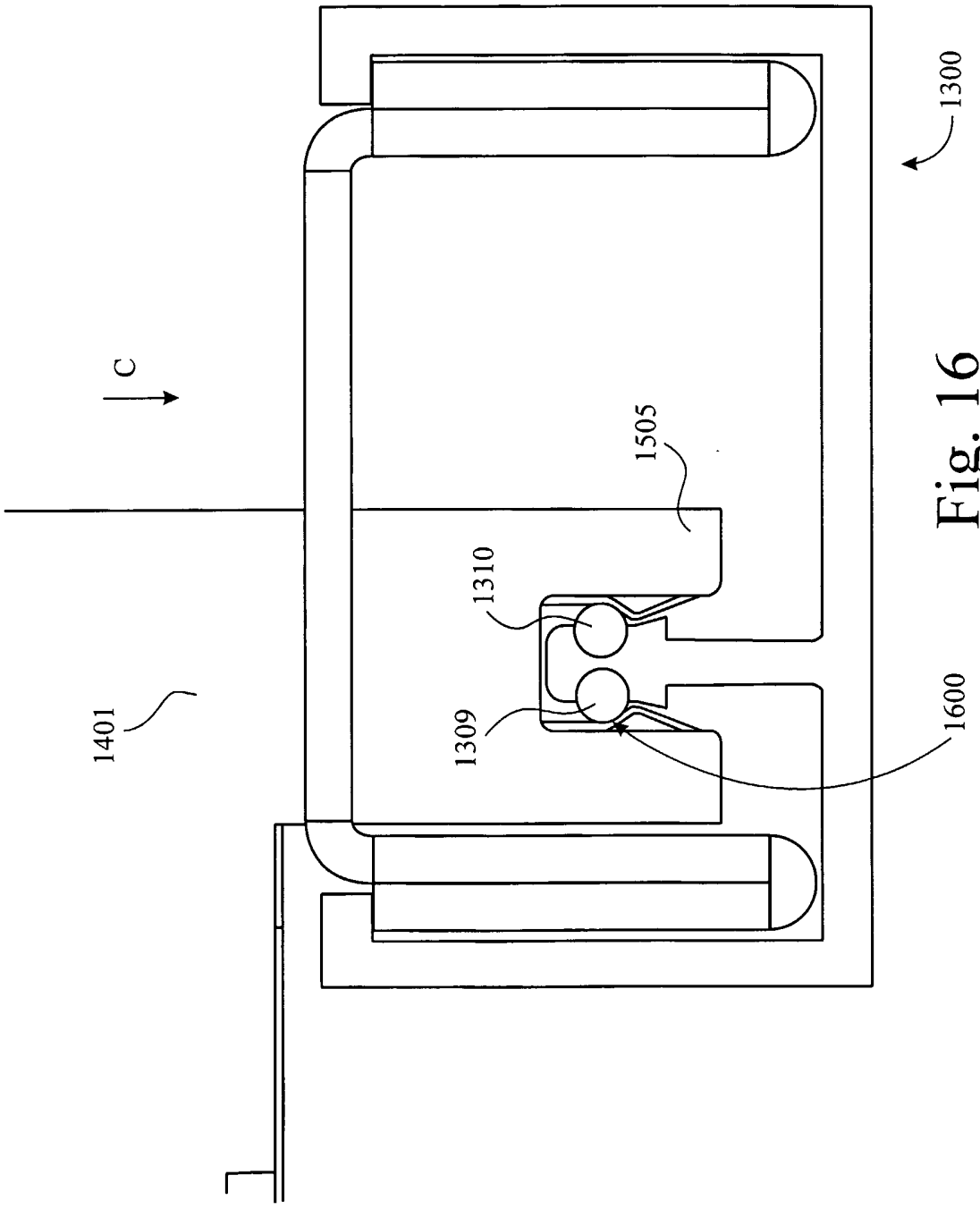

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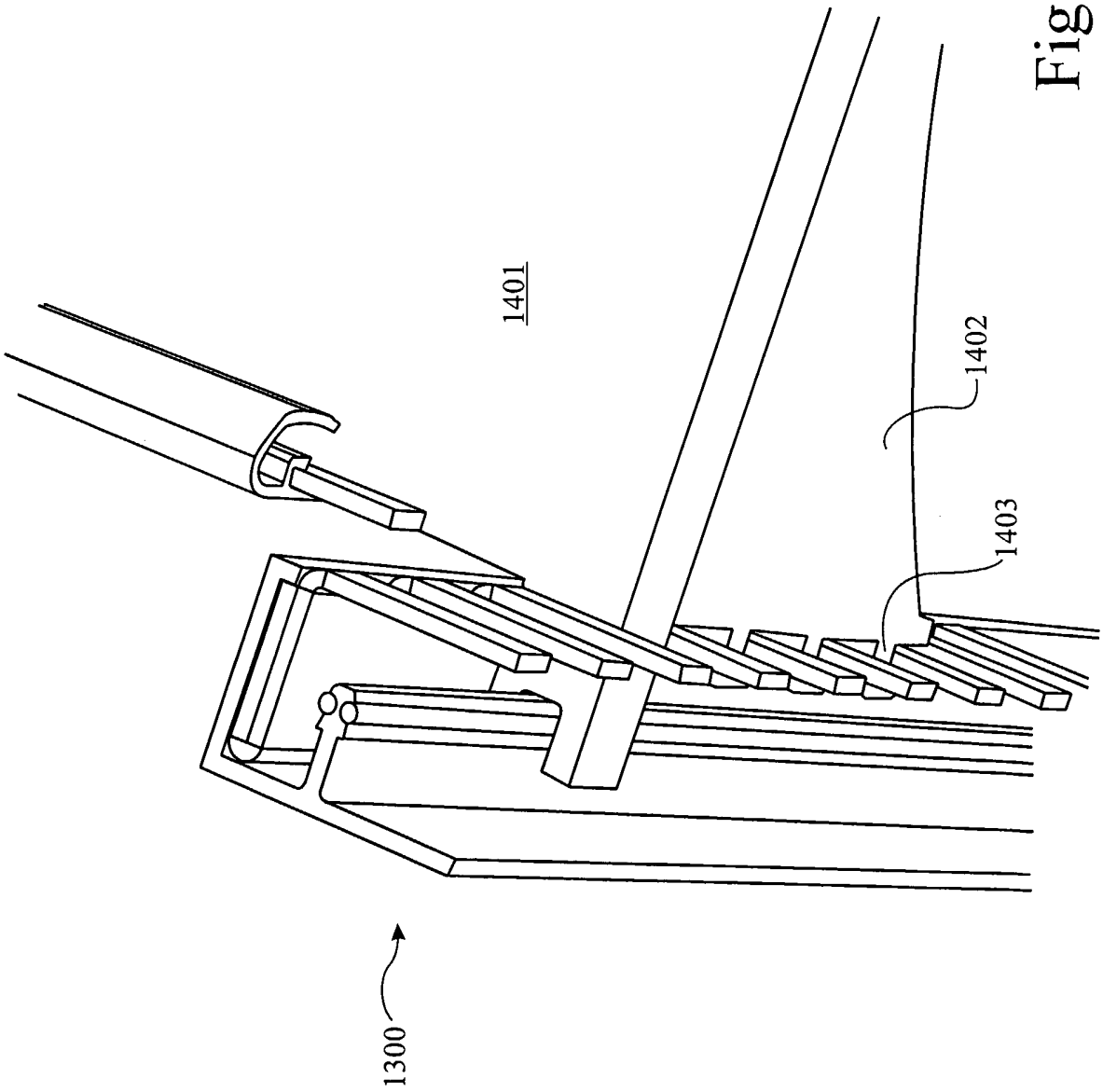

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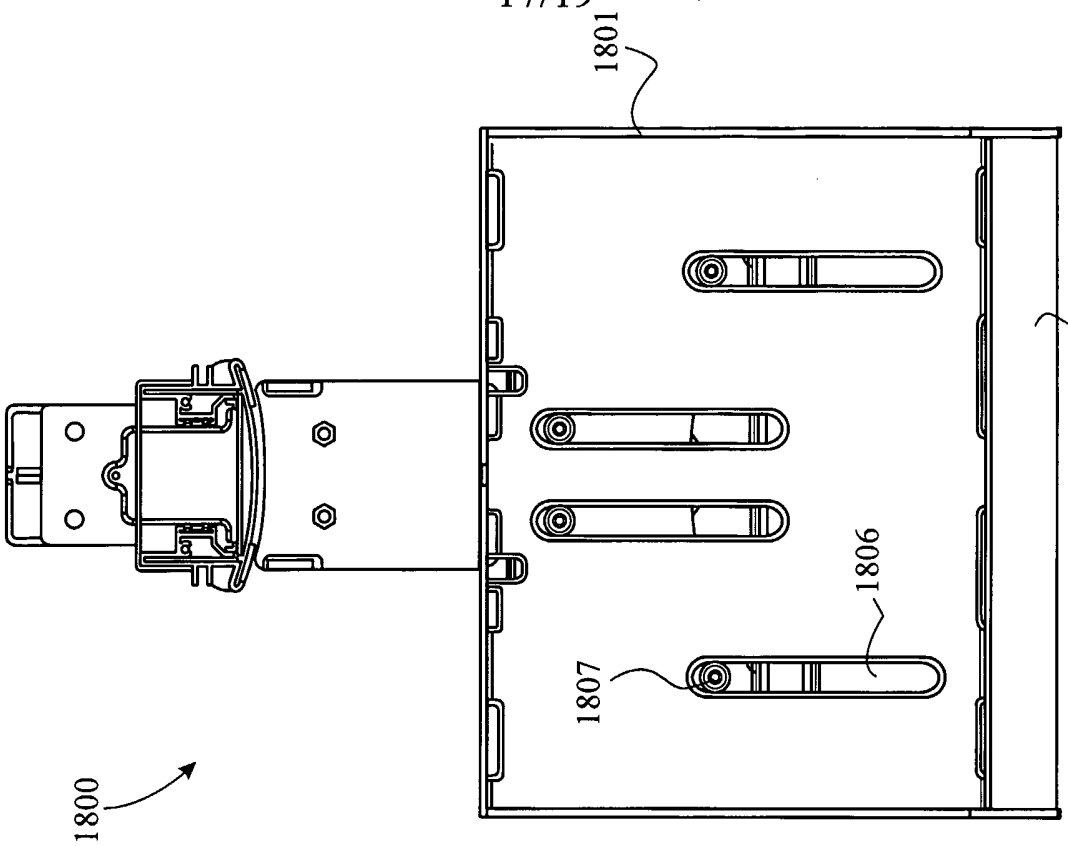
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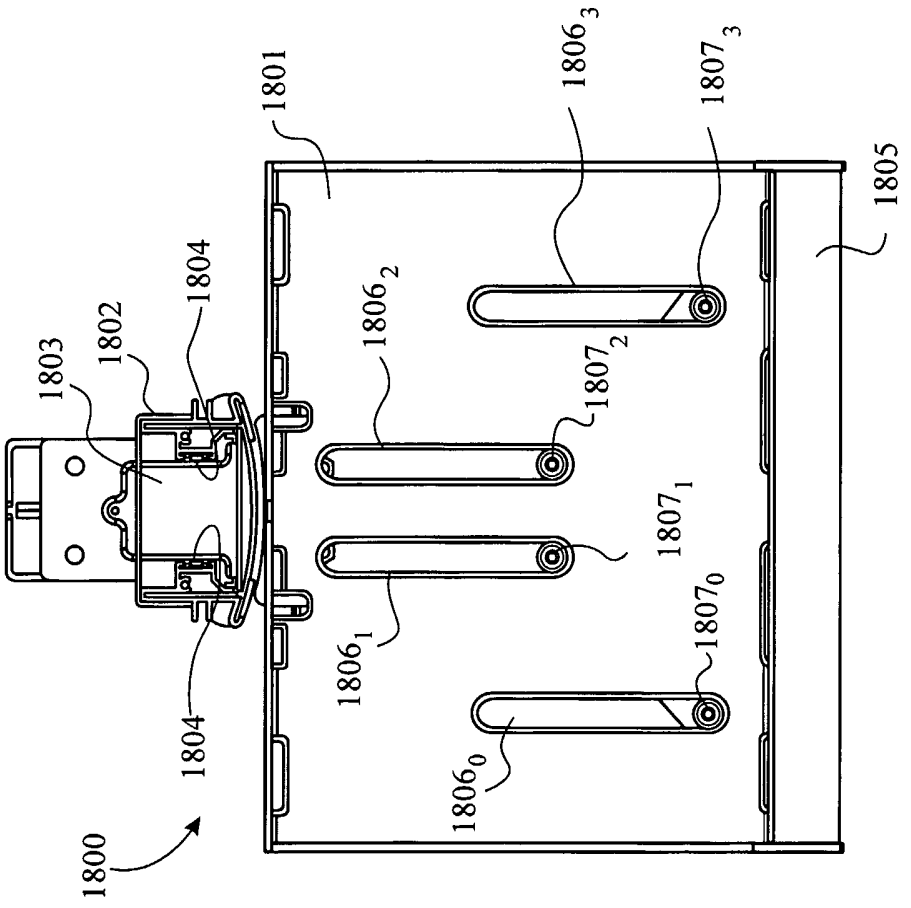
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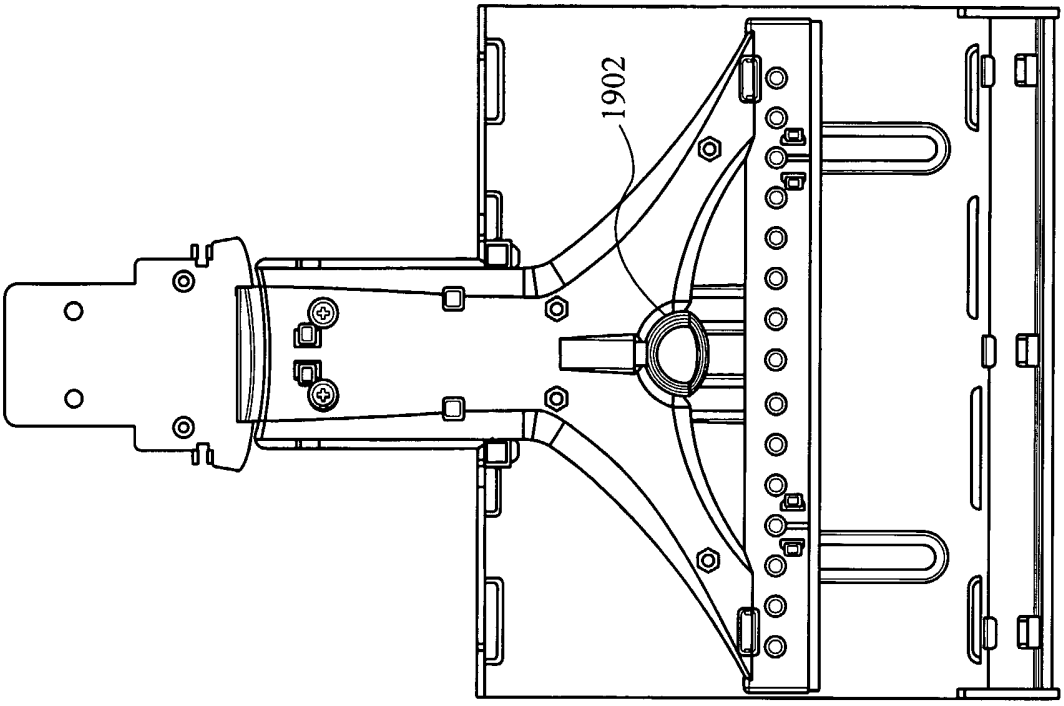
Fig. 18



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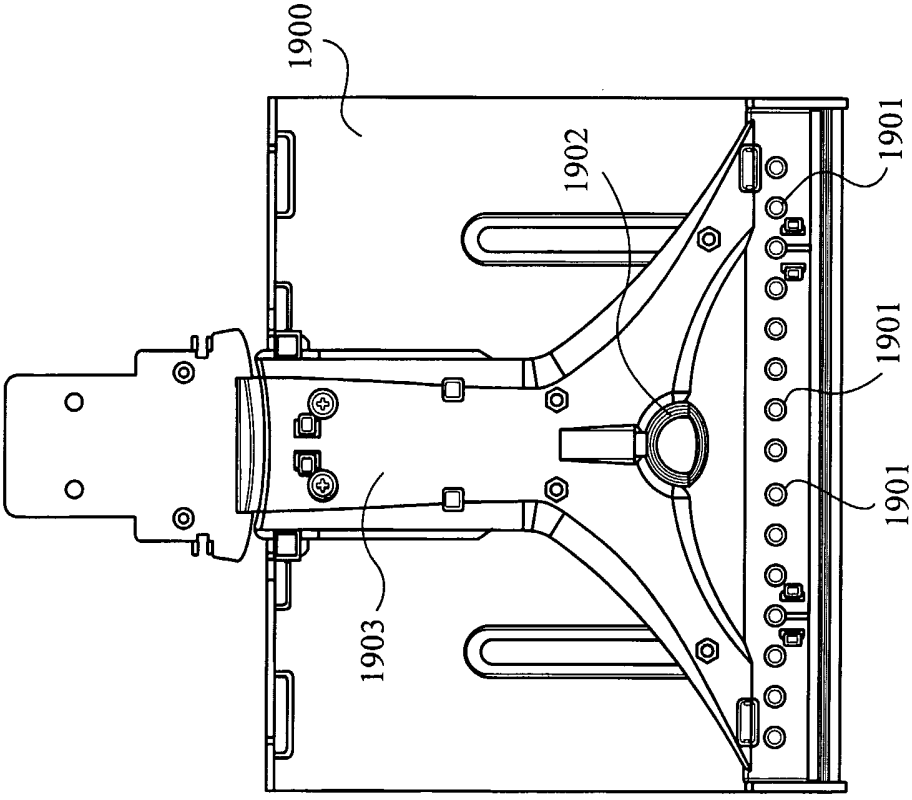

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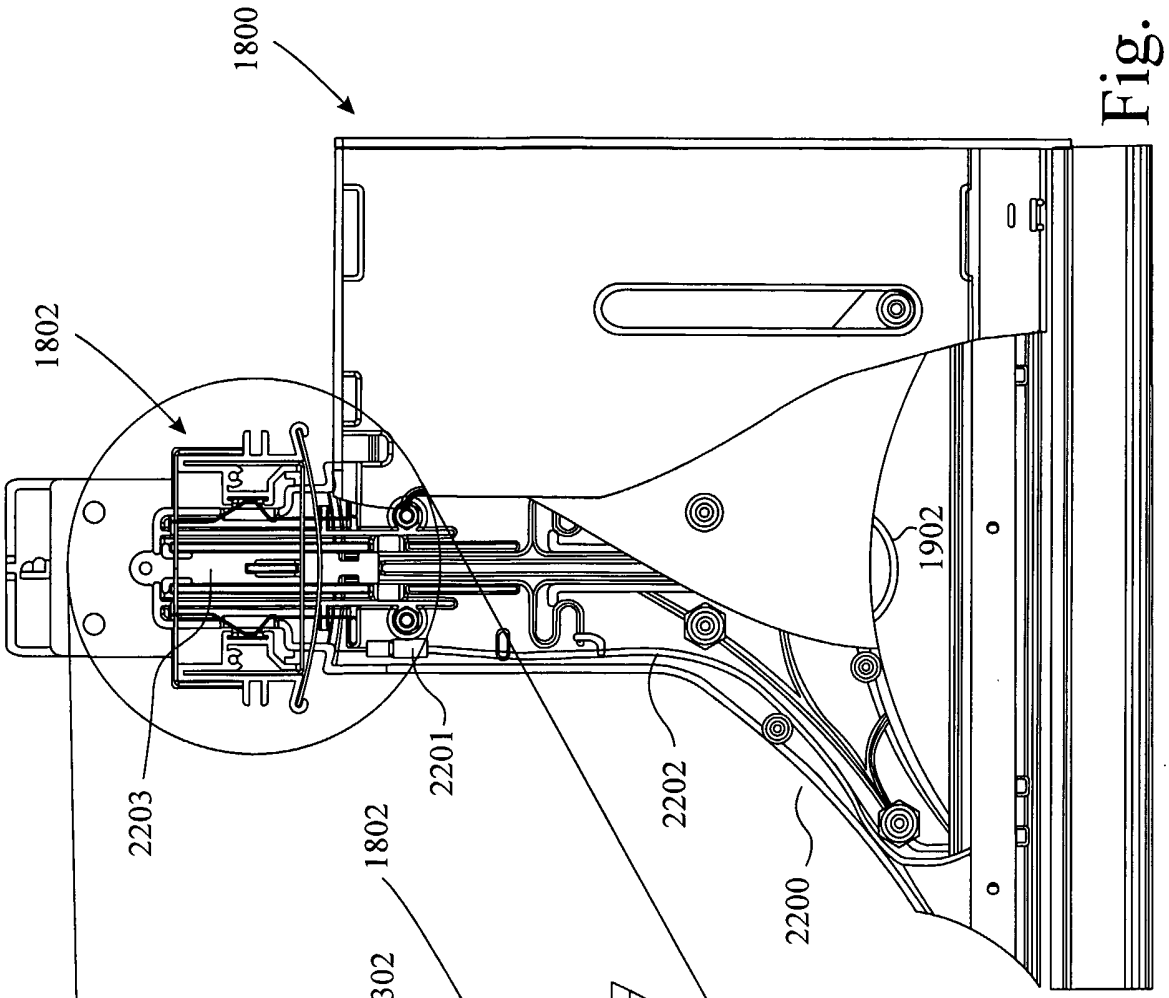

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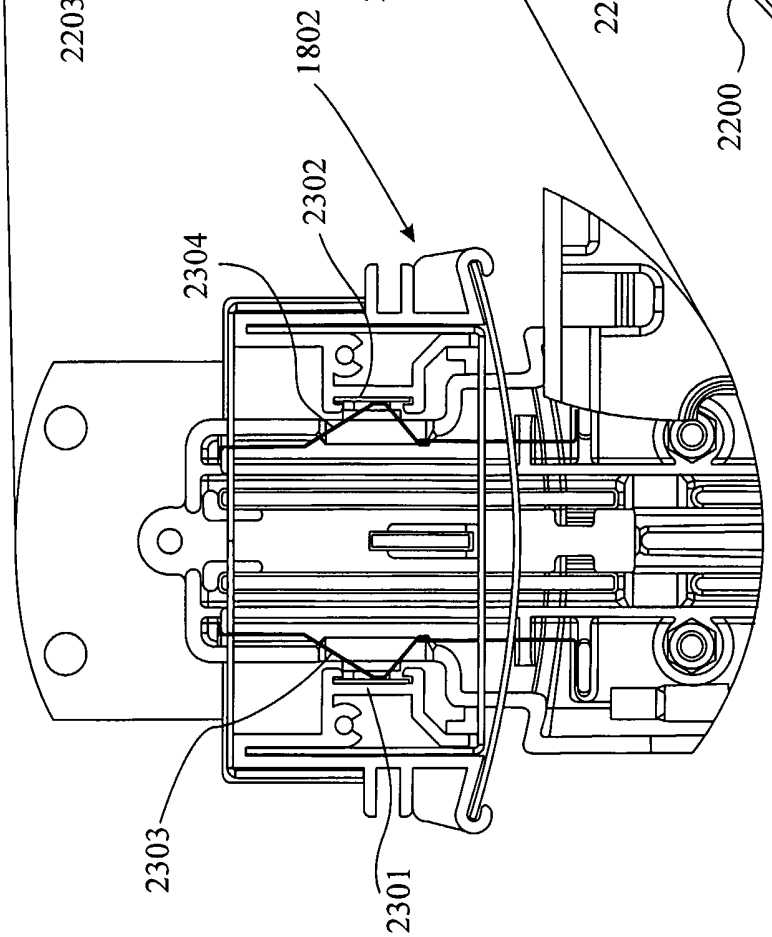

Fig. 23

INTERNATIONAL SEARCH REPORT

national application No
PCT/GB2005/004887

A. CLASSIFICATION OF SUBJECT MATTER
A47F3/00 A47F5/00 A47F11/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
A47F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 222 885 A (HERGER) 17 July 2002 (2002-07-17) abstract -----	1-37
X,P	EP 1 491 835 A (GEMTRON CORPORATION) 29 December 2004 (2004-12-29) abstract -----	1-37
X	US 6 231 205 B1 (SLESINGER BRUCE M ET AL) 15 May 2001 (2001-05-15) abstract -----	1-37
X	US 6 042 244 A (WITKOSKI ET AL) 28 March 2000 (2000-03-28) abstract -----	1-37
	-/--	

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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Date of the actual completion of the international search	Date of mailing of the international search report
28 March 2006	06/04/2006

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Cardan, C

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INTERNATIONAL SEARCH REPORT

national application No
PCT/GB2005/004887

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 758 585 A (LATCHINIAN ET AL) 2 June 1998 (1998-06-02) abstract	1-37
X	US 5 690 415 A (KREHL ET AL) 25 November 1997 (1997-11-25) abstract	1-37
X	FR 2 731 885 A (PIEPSZOWNIK MARC) 27 September 1996 (1996-09-27) abstract	1-37
X	GB 2 272 279 A (JOHN CHRISTOPHER * SHARP) 11 May 1994 (1994-05-11) abstract	1-37
X	DE 38 09 859 C1 (WERBE-TECHNIK, G. HARTMANN KG, 2000 HAMBURG, DE) 2 March 1989 (1989-03-02) abstract	1-37

INTERNATIONAL SEARCH REPORT

Information on patent family members

national application No
PCT/GB2005/004887

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1222885 A	17-07-2002	FR 2819577 A1	19-07-2002
EP 1491835 A	29-12-2004	CA 2471190 A1	25-12-2004
		CN 1576761 A	09-02-2005
		JP 2005019410 A	20-01-2005
		MX PA04006300 A	31-03-2005
		US 2004264160 A1	30-12-2004
US 6231205 B1	15-05-2001	NONE	
US 6042244 A	28-03-2000	NONE	
US 5758585 A	02-06-1998	NONE	
US 5690415 A	25-11-1997	CA 2166569 A1	30-05-1997
FR 2731885 A	27-09-1996	NONE	
GB 2272279 A	11-05-1994	NONE	
DE 3809859 C1	02-03-1989	NONE	