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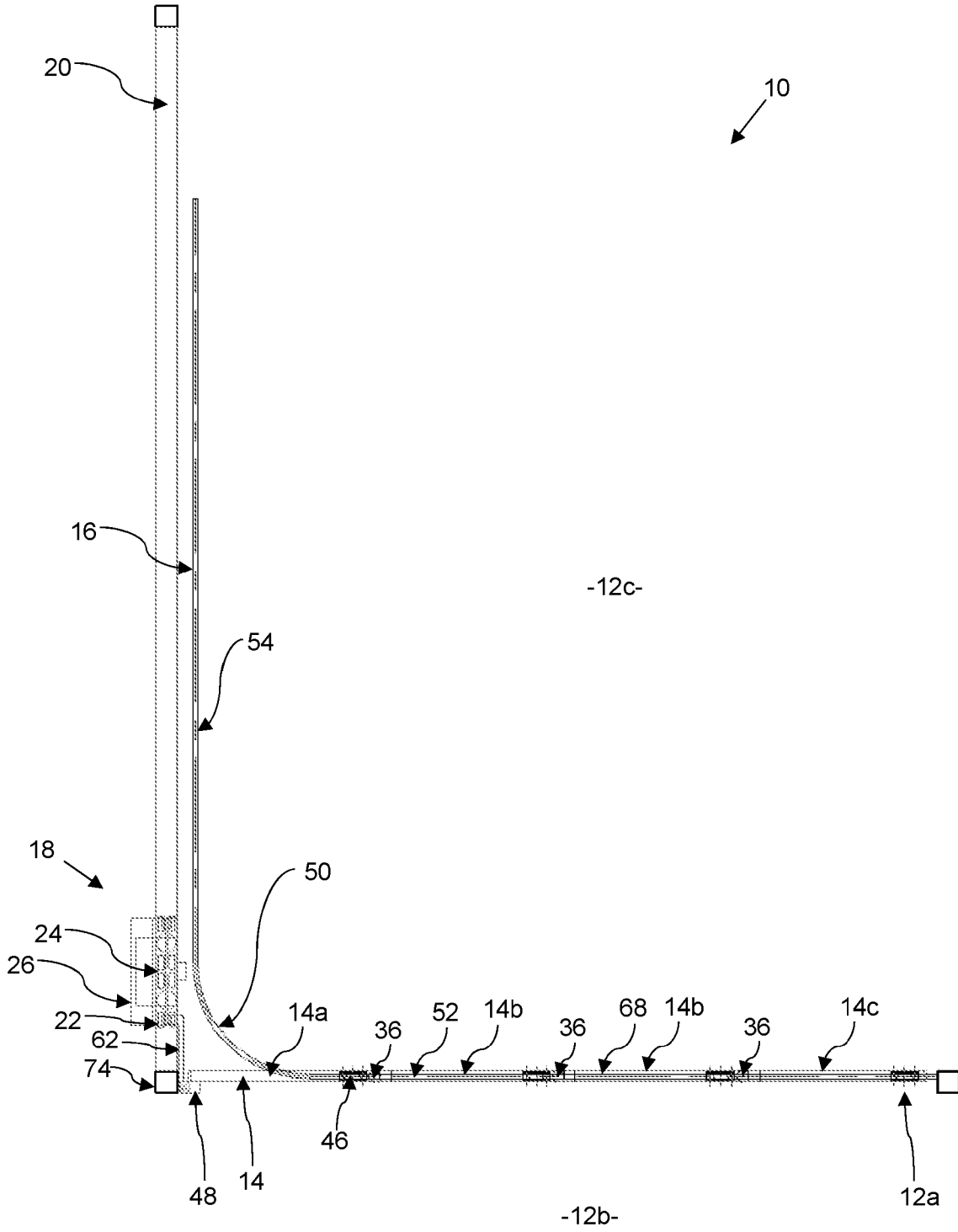
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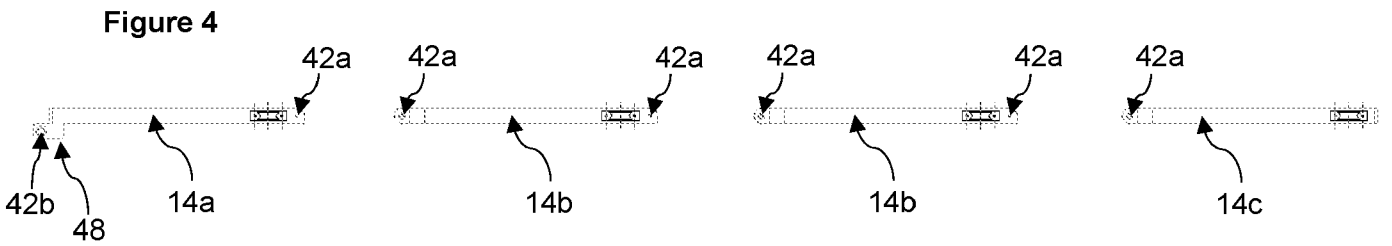
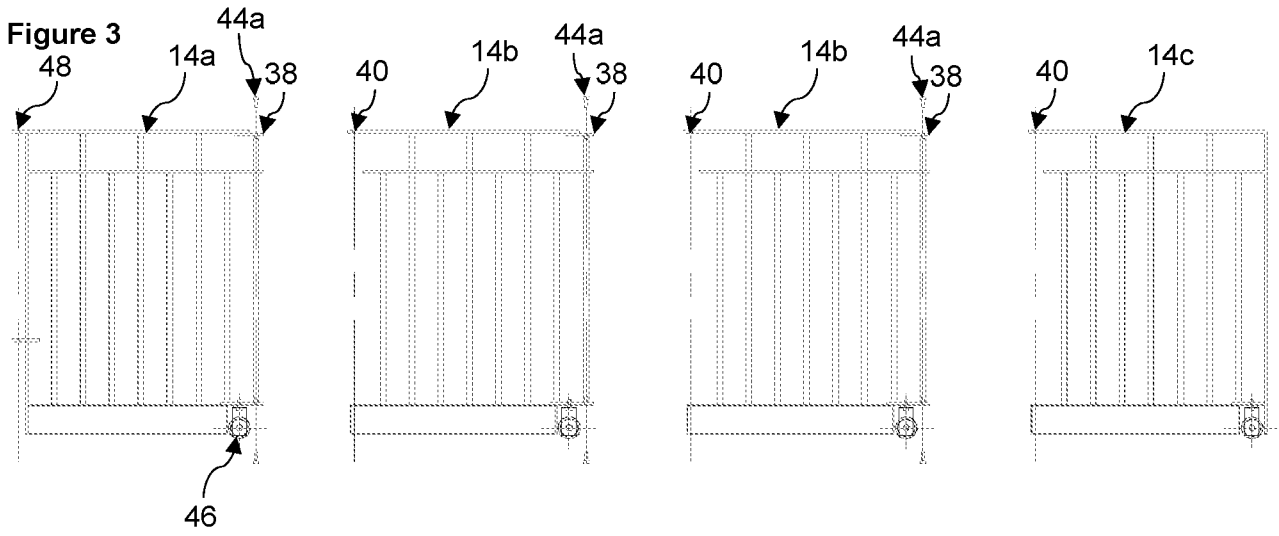
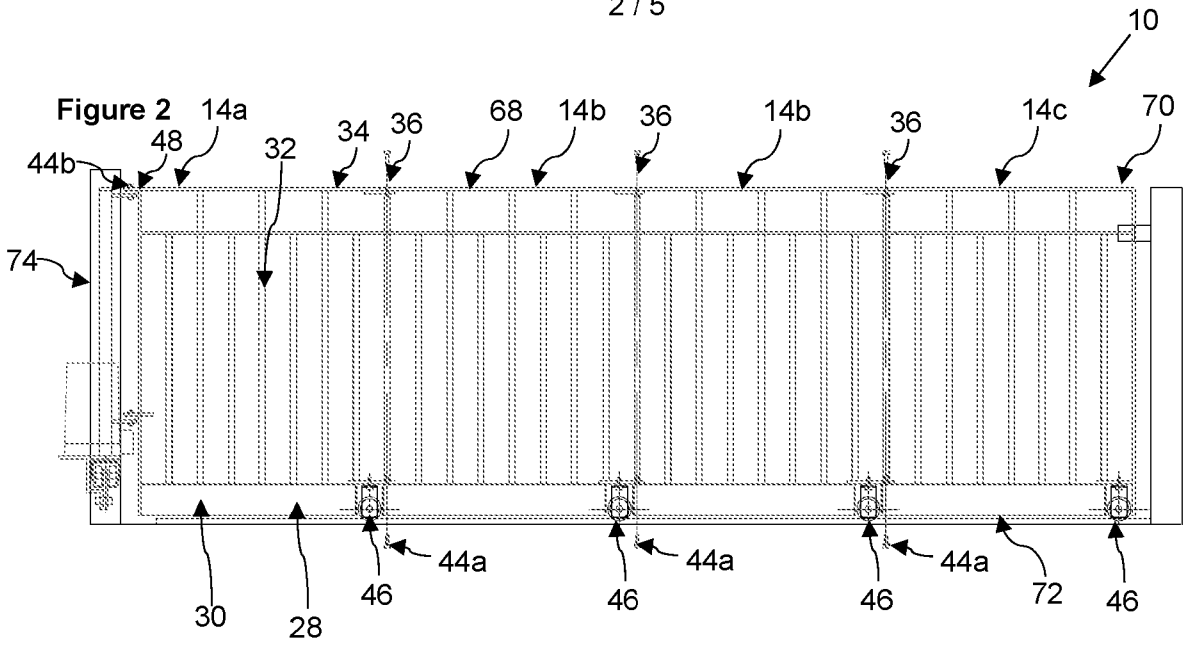
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Figure 1

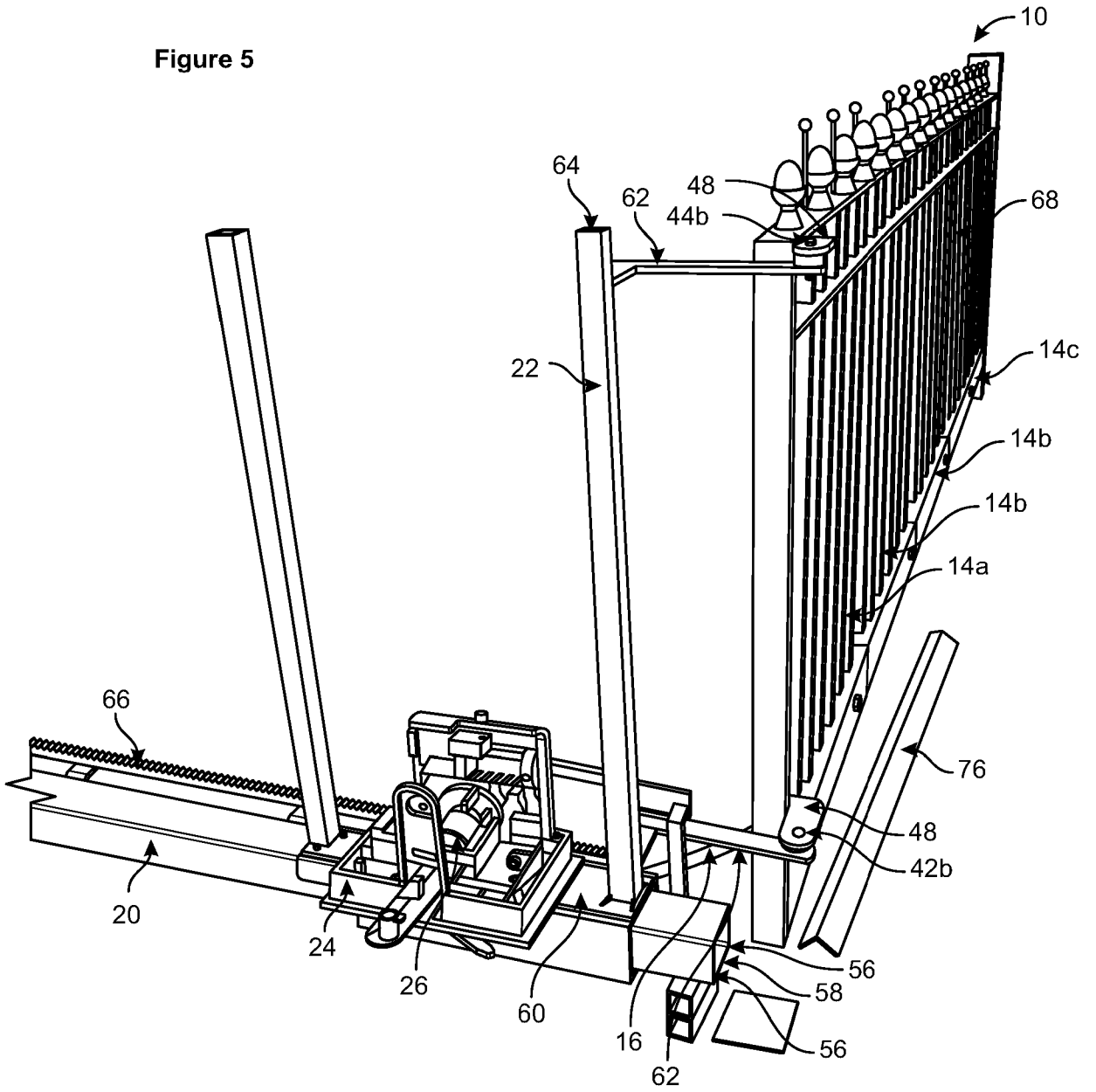


17 12 20



17 12 20

Figure 5



17 12 20

17 12 20

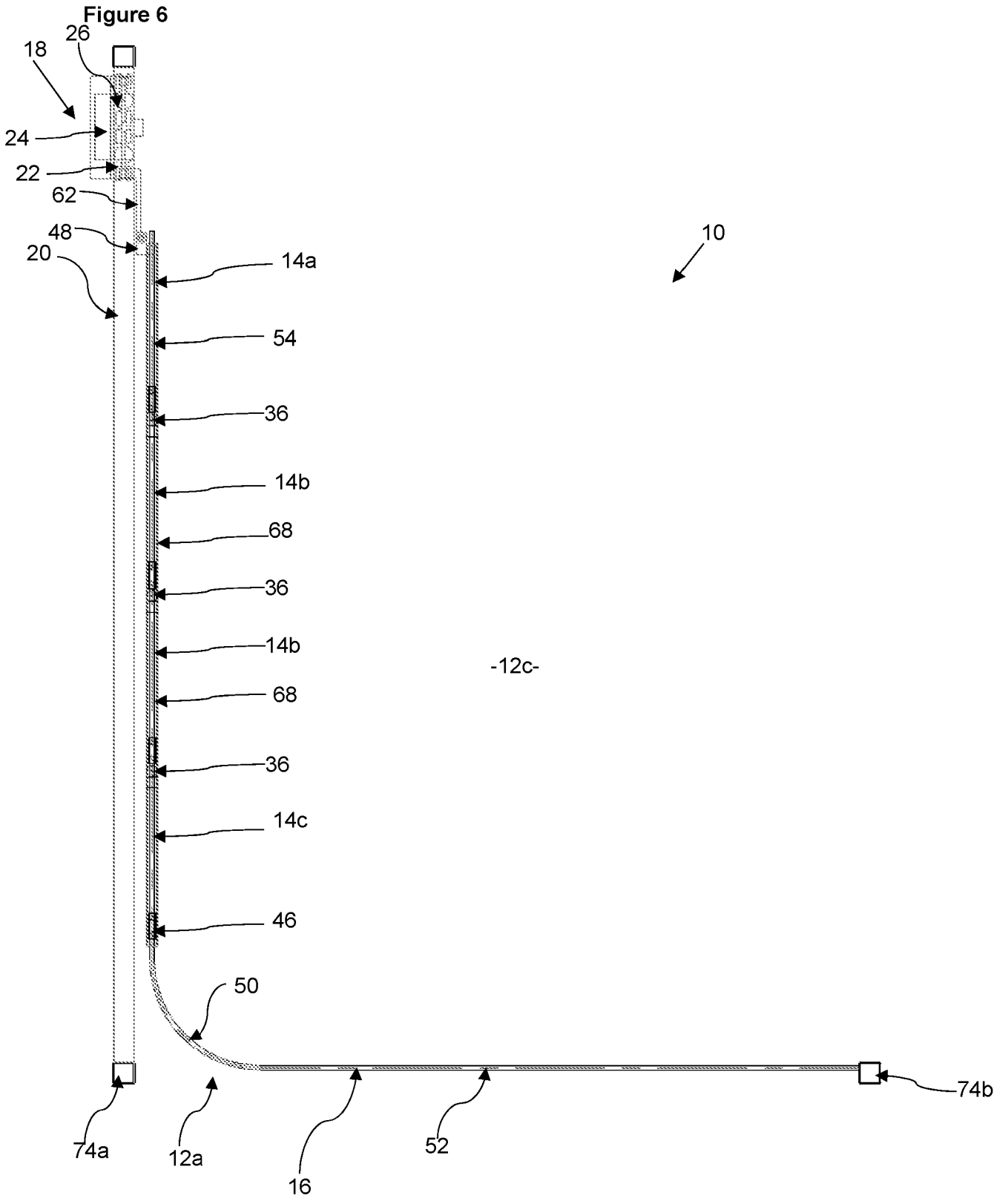
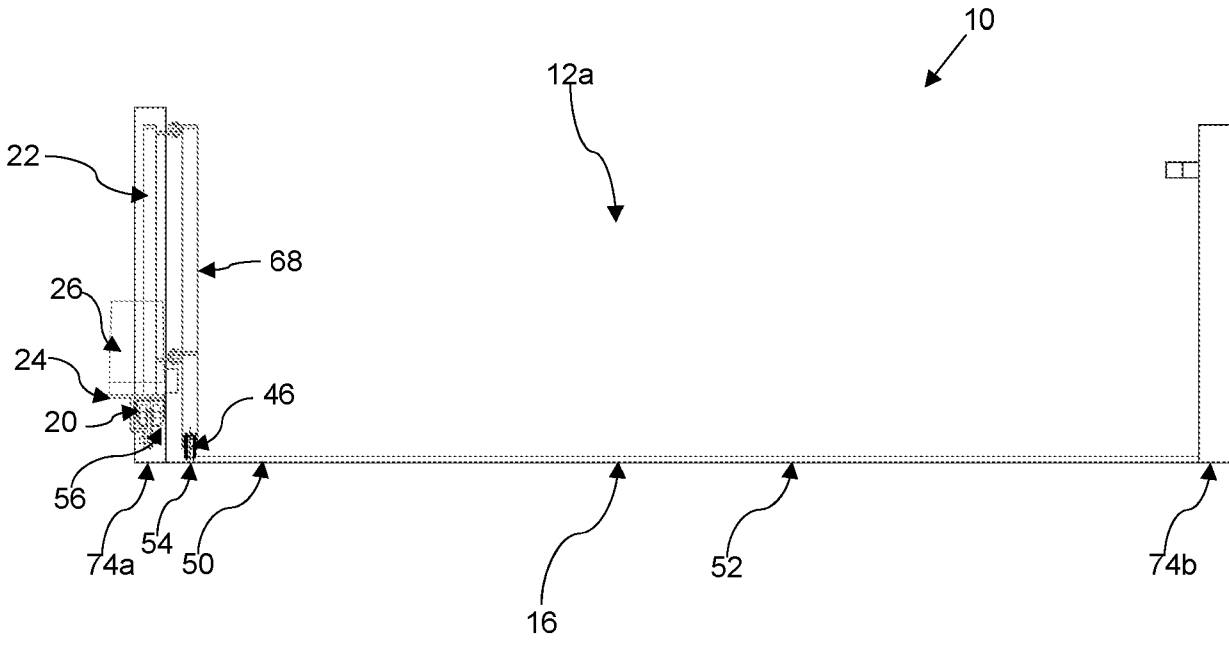


Figure 7



17 12 20

## Articulate-Gate Apparatus

The present invention relates to an articulate-gate apparatus. The invention further relates to a method of installing an articulate-gate apparatus.

5 Gates are used to selectably close outdoor openings. In other words, gates selectably control access between two outdoor spaces.

One use of a gate is to permit and prevent access from a road to a driveway or carparking area. Conventional gates, when opening or closing, swing across part of the driveway or carparking area. As such, the useable area of the driveway or car parking area is reduced because the area within the swing-radius of the gate is required to be left unoccupied.  
10 This is particularly an issue for carparking areas or driveways in large cities where space is limited.

Articulate gates are known which are formed from sections which transition from a closed condition to an open condition by moving along the plane of an opening. At the end of the opening, the sections articulate around a corner so that part of the gate extends perpendicularly to the opening. However, such gates typically have a rack  
15 mounted along the gate section which is driven by a separate gear or pinion near the front of the gate. The rack is therefore required to articulate and hinges between sections are required to be aligned with the rack and spaced apart from a body or front of the gate section. As such, the gate sections widely separate when articulating which may cause  
20 safety issues, for example creating a risk that fingers become trapped between sections.

This safety issue is typically limited by installing a barrier to the articulating part of the gate. For example, such gates typically have a permanent infill section at the edge of a gate which hides and protects the articulating mechanism in use. However, such infill sections occlude part of the opening which may prevent larger or multiple vehicles from  
25 entering the drive-way or car parking area, particularly in busy city environments for domestic dwellings.

The present invention seeks to provide a solution to these problems.

According to a first aspect of the present invention, there is provided an articulate-gate apparatus for controlling access between outdoor spaces whilst preventing or reducing  
30 a finger trap hazard, the apparatus comprising: a plurality of gate sections hingably

interconnected to each other to form an articulable gate having top and bottom longitudinal edges; at least a majority of the gate sections, when the articulable gate is in a closed condition, being in or substantially in a common plane, and hinges interposed between the said majority of the gate sections forming respective pivot axes which also  
5 lie in or substantially in said common plane; a gate guide which in use is at or adjacent to the bottom longitudinal edge of the articulable gate, the gate guide having at least one arcuate guide portion to enable the articulable gate to travel around a corner; said majority of gate sections, when the articulable gate is in a closed condition, being unsupported at or adjacent to the top longitudinal edge of the articulable gate; a drive  
10 mechanism for driving the articulable gate along the gate guide, the drive mechanism including: a linear drive path which in use is at or adjacent to the bottom longitudinal edge of the articulable gate; a gate-section support element for imparting support at or adjacent to the top and bottom longitudinal edges of the articulable gate; a carriage which is movable on the linear drive path and which supports the gate-section support element;  
15 a motor for driving the carriage on the linear drive path; and wherein the gate-section support element engages one or more of the gate sections and the gate-section support element has at least one projecting arm for hingably connecting to one or more of the gate sections, and/or said one of the gate sections includes a hinge-receiving member which projects from a section body of said gate section, the hinge-receiving member for  
20 receiving a hingeable connection with the gate-section support element.

Gate sections being pivotably connected to each other in this way has the result that a given separation between adjacent gate sections or panels when the sections are articulating and when the sections are coplanar is maintained. As such, the separation between sections preferably does not reduce, or the separation reduces but does not  
25 close entirely. Therefore, if a finger is positioned between said separation, the finger is not trapped when the panels transition between articulating and coplanar states. As such the finger trap hazard is reduced or eliminated. Alternatively, the separation between panels may be generally reduced as compared to conventional articulating gates. This reduces or prevents a finger trap hazard given that a user or member of the public would  
30 not be able insert their finger, or as much of their finger, between hinging panels.

Such an arrangement may require for the drive mechanism to be separate from the gate, due to the difficulty of providing a gate-mounted drive mechanism which can accommodate the articulation of the gate when the hinges are coplanar with the gate sections. As such, a gate-external or ground-mounted drive mechanism is provided via



a carriage moveable on a linear drive path, the gate being driven by the carriage and individual sections being guided around a corner by a gate guide having an arcuate portion. Having support imparted to the top and bottom edges of the gate can prevent or limit the gate from tilting in use, as well as providing resistance to toppling in the instance of a person attempting to climb over the gate. Tilting could cause the gate to dislodge from or jam in the gate guide, especially if the gate guide is a channel. Toppling could result in damage to articles behind the gate, for example cars. Such top and bottom support is particularly required given that a majority of the gate sections are unsupported at a top longitudinal edge when the gate is in the closed condition.

10 The projecting arm and/or the hinge-receiving member which projects from a section body of said gate section allows for the gate-section support element to be spaced apart from the end of the gate, which can allow for the gate to be more easily accommodated and thus not impinge on the drive path.

15 Preferably, the drive mechanism may comprise a rack and pinion, the rack being at, adjacent and/or along the drive path and the pinion being at the carriage. A rack and pinion provide a convenient way of driving the carriage in two directions along the drive path.

Advantageously, the motor may be at or on to the carriage. In the instance of a pinion on the carriage, this feature allows for the motor to directly drive the pinion.

20 Beneficially, the drive mechanism may be weather resistant. This prevents damage to and/or corrosion of the drive mechanism in adverse weather conditions, such as rain.

In a preferable embodiment, the gate guide may be L-shaped or substantially L-shaped. Therefore, the gate can be guided across the opening and then perpendicularly to the opening. This is convenient if the opening is at or adjacent to the side edge of the outdoor space to be controlled and therefore, in the open condition, the gate can be guided up against a wall or boundary of the space.

25 Optionally, at least one rotatable element may be connected to the articulable gate at or adjacent to the bottom longitudinal edge thereof and receivable by the gate guide. A rotatable element reduces frictional resistance between the gate and the gate guide whilst still being supported by the gate guide or the ground. This therefore reduces the amount of force the drive mechanism needs to impart to the gate.

Additionally, each gate section may include at least one said rotatable element. Each gate section can thus be individually supported on the ground.

Preferably, the rotatable element or one of the rotatable elements may be mounted to a gate section which is proximalmost to the gate-section support element and is mounted at or adjacent to an end of said gate section which is distal to the gate-section support element. This is preferably so that said rotatable element is at an edge of the arcuate guide portion when the gate is in the closed condition. This arrangement allows for the arcuate guide portion to be covered by a moveable gate section, rather than a fixed infill panel. As such the length of opening is maximised.

Advantageously, the gate guide may comprise a rail for receiving the rotatable elements thereon.

Preferably, a width of the arcuate guide portion matches or substantially matches a width of one of the gate sections. As such said gate section, which may be the gate section proximalmost to the gate-section support element, can cover the arcuate guide portion.

Beneficially, a gate section which is proximalmost to the gate-section support element is pivotable relative to the carriage. This assists with the carriage guiding the gate-section support element around the gate guide.

Advantageously, the projecting arm may be configured so that a hinge for hingably connecting to said one of the gate sections defines a pivot axis which is spaced apart from a body of the support in a direction which is neither parallel nor perpendicular with the linear drive path. In a preferable embodiment, the projecting arm may be L-shaped or substantially L-shaped. Optionally, said hinge-receiving member is at least in part non-coplanar with the section body. Additionally or alternatively, the hinge-receiving member may be outboard of the section body.

Such arrangements may allow for the gate to spaced apart from the drive path to prevent impingement thereon.

Beneficially, the drive path may extend perpendicularly or substantially perpendicularly from a plane of the opening. Therefore, the gate may be driven along a wall which may extend perpendicularly to the boundary.

Preferably, the drive path may comprise a track or a rail. This may provide lateral support to the carriage.

In a preferable embodiment, the apparatus may further comprise a post, the drive path being aligned or substantially aligned with the post. This prevents or limits the requirement to include an infill panel, as the drive path is aligned with an edge of the opening.

- 5 A method of installing an articable gate apparatus according to a first aspect of the invention to an outdoor opening between outdoor spaces.

Preferably, the guide may be received within the ground. This prevents or limits damage occurring to the gate guide, for example to prevent cars driving on top of the gate guide. In this instance, the gate guide may include a channel.

- 10 Additionally, the articable gate may only be supported by the ground.

The invention will now be more particularly described, by way of example only, with reference to the accompanying drawings, in which:

- 15 Figure 1 shows a top representation of an embodiment of an articable-gate apparatus according to a first aspect of the invention, a gate of the apparatus being in a closed condition;

Figure 2 shows a front representation of the articable-gate apparatus of Figure 1;

Figure 3 shows a front representation of gate sections of the articable-gate apparatus of Figure 1;

- 20 Figure 4 shows a top representation of the gate sections of Figure 3;

Figure 5 shows a side perspective view of the articable gate apparatus of Figure 1;

Figure 6 shows a top representation of the articable gate apparatus of Figure 1, the gate being in an open condition; and

- 25 Figure 7 shows a front representation of the articable gate apparatus of Figure 1, the gate being in an open condition.

Referring to Figures 1 and 2, an articable-gate apparatus 10 is shown for controlling access through an opening 12a between two outdoor spaces 12b, 12c. The articable-

gate apparatus 10 comprises a plurality of gate sections 14 hingably connectable or connected to each other, a gate guide 16, and a drive mechanism 18 comprising a linear or substantially linear drive path 20, a gate-section support element 22, a carriage 24, and a motor 26.

5 Referring to Figures 2 and 3, each gate section 14 has a section body 28, which is preferably planar or substantially planar. The gate sections 14 may be considered to be gate panels. Here each section body 28 includes a lower crossbeam or footer 30 and a frame portion having a plurality of poles 32 upstanding from the footer 30. A header 34 connects upper ends of the poles 32. However, it will be appreciated that any type of  
10 section body 28 may be considered, for example framework or solid section bodies.

The sections 14 are hingably or pivotably connectable to each other. Preferably the sections 14 are hingably connectable to each other at a pivot axis 36 which is coplanar with a section body 28 of each gate section 14. For example, here there are four gate sections 14 which include a support- or carriage- proximal section 14a which is  
15 proximalmost to the gate-section support element 22, two intermediate sections 14b, and an end section 14c. The support-proximal section 14a and the two intermediate sections 14b each have a support-distal hinge part 38 at or adjacent to a support-distal end thereof. The end section 14c and the two intermediate sections 14b each have a support-proximal hinge part 40 at or adjacent to a support-proximal end thereof. The support-  
20 distal hinge parts 38 and the support-proximal hinge parts 40 are preferably coplanar with the section body 28 of the respective section panel. Each support-distal hinge part 38 is recessed relative to a corresponding support-proximal hinge part 40 of an adjacent section 14. As such the support-proximal hinge part 40 may overlie or overlap the corresponding support-distal hinge part 38 so that the two parts 38, 40 can be hingably  
25 connected. Such a connection may be created via a hole 42a, as shown in Figure 4, extending through both the parts and a bolt or hinge-pin 44a extending through the hole 42a. This forms a hinge and the hinge-pin 44a would define the pivot axis 36. Preferably, adjacent sections 14 are hingably connected by two such hinges. Additionally or alternatively, the support-distal portion may overlie or overlap the support-proximal  
30 portion. Preferably, the end section 14c does not have a support-distal hinge part 38, although it will be appreciated that all the gate sections could be identical.

Each of the sections 14 here comprise a rotatable element 46, such as a wheel, caster or ball, for engagement with the ground and/or the gate guide 16. The rotatable element

46 is preferably at an in use lower portion of each gate section 14. Each rotatable element 46 may be pivotably connected to the associated section 14, although it will be appreciated that it may be fixedly attached. A lower surface of the rotatable element 46 preferably extends below the footer 30 of the corresponding gate section 14, and/or each gate section 14 may include a cut-out to accommodate the rotatable element 46. Whilst each section 24 is described as having a rotatable element 46, it will be appreciated that rotatable elements 46 may not be included and instead sliding surfaces may be used. Alternatively, only some or one of the gate sections 14 may have a rotatable element 46, for example only the end section 14c may have a rotatable element 46, with the other sections 14 supported between the end section 14c and the gate-section support element 22. However, each section could have multiple rotatable elements 46. One of the rotatable elements 46 is preferably mounted to the support-proximal section 14a at or adjacent to the support-distal end thereof.

Referring to Figures 4 and 5, the support-proximal section 14a preferably has at least one hinge-receiving member 48 which projects or extends from the section body 28 of the support-proximal section 14a. Here there is one hinge-receiving member 48 at or adjacent to an upper and lower end of the support-proximal section 14a. The hinge-receiving member 48 is for receiving a pivotal connection between the support-proximal section 14a and the gate-section support element 22. The hinge-receiving member 48 is at least in part non-coplanar with the section body 28. In other words, the hinge-receiving member 48 extends out of a lateral plane of the section body 28. Here the hinge-receiving member 48 extends forwards out of the plane of the section body 28. The hinge-receiving member 48 additionally extends so that it is outboard of the section body 28. In this way it projects beyond the support proximal end of the section body 28. As such, the hinge-receiving member 48 is L-shaped or substantially L-shaped, although it will be appreciated that the hinge-receiving member 48 may be straight or linear and extend at an angle to the plane of the panel body. The or each hinge-receiving member 48 preferably has a hole 42b at an end thereof for receiving a hinge-pin 44b or a bolt.

Referring again to Figure 1, the gate guide 16 has at least one arcuate guide portion 50 to enable the gate sections 14 to travel around a corner. The arcuate guide portion 50 may be comprised of a curve or a plurality of angularly off-set straight sections 14. Whilst described as arcuate, it will be appreciated that this may not necessarily be the case. Here the gate guide 16 is L-shaped, or substantially L-shaped, with an opening section 52, which in use extends across the opening 12a, and a rear section 54, which in use

extends away from and at an angle to the opening 12a. Here the opening section 52 and the rear section 54 are straight or linear and are preferably perpendicular to each. However, it will be appreciated that the two sections 14 may not be perpendicular to each other and may be at a non-perpendicular angle to each other.

- 5 The gate guide 16 may comprise a rail or track on which the rotatable elements 46 may be mountable and rollable along. Alternatively, the gate guide 16 may comprise a channel or groove in which the rotatable elements 46 are positionable to guide the gate sections 14 along. If the gate guide 16 comprises the channel, then the channel may include a plurality of bristles, brushes or other covering element to prevent or limit debris,  
 10 such as leaf litter, from entering the channel whilst still permitting the rotatable elements 46 to travel therethrough.

- The drive mechanism 18 is for driving the gate sections 14 along the gate guide 16. The drive mechanism 18 is weather resistant, for example the motor 26 or other components of the drive mechanism 18 may have water-proof coverings and/or be formed from  
 15 corrosion resistant materials. The linear or substantially linear drive path 20 is preferably a track or a rail on which the carriage 24 is moveable. Alternatively, the linear drive path 20 may be a channel or may simply comprise the surface of the ground, the path of movement of the carriage 24 on the surface of the ground defining the linear drive path 20.

- 20 The carriage 24 may have rotatable elements, such as wheels or ball bearings, for moving along and/or mounting to the linear drive path 20. Alternatively, the carriage 24 may have a bearing surface which is slideable along the rail.

- As shown in Figure 5, the linear drive path 20 may comprise an elongate hollow tubular element having at least one planar surface 56, and preferably two planar surfaces 56,  
 25 extending along at least a majority of a length of the tubular element for receiving the rotatable elements of the carriage 24 there on. The tubular element may have a slot 58 extending through a lower surface thereof, preferably between the planar surfaces 56, through which part of the carriage 24 may be received so as to allow the rotatable elements 46 to be positioned on the planar surfaces 56. The carriage 24 preferably  
 30 otherwise has a U-shape or substantially U-shaped body for receiving the elongate hollow tubular element and has an upper support surface 60 for receiving the gate-section support element 22 thereon.

The gate-section support element 22 is preferably mounted to a forward or gate-proximal end of the carriage 24. Here the gate-section support element 22 is elongate and may be considered to be a post or pillar. The gate-section support element 22 is preferably pivotably or hingably connectable to or engageable with at least one of the gate sections 14, and preferably the support-proximal gate section 14a.

The gate-section support element 22 preferably has at least one projecting arm 62 or connecting arm for pivotable or hingeable connection with the support-proximal gate section 14a. The projecting arm 62 is preferably L-shaped or substantially L-shaped such that it projects from an elongate body of the gate-section support element 22 and then extends in a direction parallel or substantially parallel with the linear drive path 20. As such an elongate body of the gate-section support element 22 and the support-proximal gate section 14 are preferably spaced apart from each, and/or are misaligned from each other in a direction parallel with the linear drive path 20. Whilst an L-shaped projecting arm 62 is described, it will be appreciated that the projecting arm 62 may instead be linear or straight and may project at an angle to the linear drive path 20. Here there are two projecting arms 62, one at each of the upper and lower ends of the gate-section support element 22. Each projecting arm 62 has a hole 42c at an end thereof for receiving a hinge-pin 44b or bolt therethrough.

The gate-section support element 22 is supported from a lower surface thereof, and thus preferably has a free upper end 64, although it will be appreciated that it may be supported additionally from above. The gate-section support element 22 may be free-standing, although it may alternatively have bracing members.

The drive mechanism 18 further comprises a rack and pinion mechanism for moving the carriage 24 along the linear drive path 20. Here the rack 66 extends along or parallel to the drive path 20 and is here adjacent and mounted to the rail. The pinion is at or on the carriage 24 and is interdigitable with the rack 66 when the carriage 24 is positioned on the linear-drive path 20.

The motor 26 is preferably on or at the carriage 24 and is configured to rotate or drive the pinion. However, in the absence of a rack and pinion mechanism, it will be appreciated that the motor 26 may directly drive the wheels of the carriage 24 so as to move the carriage 24 along the linear drive path 20. Alternatively, the motor 26 may not be on the carriage 24, for example being at an end of the drive path 20 distal to the opening 12a. In this instance, the carriage 24 may be driven by a drive chain or other

actuation means, which is in turn driven by the motor 26. The motor 26 may be battery powered, or may be connectable to a mains power supply, for example via flexible conductors. The motor 26 is preferably a reversible motor 26 so that the pinion can be rotated in either direction, and therefore move the carriage 24 along the rack 66 in either longitudinal direction. Whilst a motor is described, it will be appreciated that a motor may not be included, and the gate may be manually powered, for example.

In use, to install the gate apparatus 10, the gate sections 14 are hingably interconnected to each other to form an articable gate 68 having a top longitudinal edge 70 and a bottom longitudinal edge 72. A longitudinal extent of the gate 68 preferably corresponds to or matches a length of the opening 12a to be controlled.

The gate guide 16 is installed by positioning the opening section 52 so that it extends across the plane of the opening 12a and the rear section 54 extends away from the plane of the opening 12a. Preferably, the gate guide 16 may be received below ground level, although it may be mounted to the ground.

The gate sections 14, and thus the gate 68, is installed by mounting the rotatable elements 46 to the guide 16. Therefore, the gate guide 16 is in use at or adjacent to the bottom longitudinal edge 72 of the articable gate 68.

The rail or track which defines the linear drive path 20 is positioned spaced apart from, adjacent to and parallel to the rear section 54 of gate guide 16. The track is positioned at or adjacent to the ground and/or at or adjacent to the bottom longitudinal edge 72 of the articable gate 68. Here the track is slightly above ground level, for example by 100 mm, although it will be appreciated that the track may be at ground level, below ground level to hide the mechanism as much as possible, or alternatively be at or adjacent to the top longitudinal edge 70 of the articable gate 68.

In the instance that the gate apparatus 10 comprises a gate post 74a, which is preferably fixed at or adjacent to an end of the opening 12a proximal to the drive path 20, the linear drive path 20 is preferably aligned with or received behind said gate post 74b. The gate may also comprise a further gate post 74b, at or adjacent to an opposing end of the opening 12a. The gate apparatus may additionally comprise a ramp 76 for allowing vehicles to more easily traverse the opening section 52 of the gate guide 16.



The carriage 24 is mounted to the rail so that the gate-section support element 22 is proximal to the gate 68 and the pinion engages the rack 66. The gate-section support element 22 is configured to impart support to, at or adjacent to the top and bottom longitudinal edges 70, 72 of the gate 68. Here this takes the form of pivotally connecting or mounting the hinge-receiving member 48 of the support-proximal gate section 14 to the projecting arm 62 of the gate-section support element 22., for example via passing a hinge-pin 44b or bolt through the corresponding holes 42b, 42c. This pivotal or hingeable connection is between, and preferably spaced apart from, the gate 68 and the gate-section support element 22. As such, the pivotal connection is proximal to a line or plane defined by the linear drive path 20 as compared to the gate 68.

In use, a closed condition of the gate apparatus 10 may be defined by at least a majority of the gate sections 14 being in or substantially in a common plane. Said common plane is preferably the plane of the opening 12a or a plane parallel to said opening 12a. As such, the gate 68 extends across at least part of and preferably the whole opening 12a. Preferably, in the closed condition, all the panel sections 14 are coplanar in the closed condition. The hinges which interpose or interconnect the gate sections 14 preferably lie in or substantially in said common plane. The rotatable element 46 on the support-proximal section 14a is preferably at the arcuate guide portion 50, for example being at the edge of the arcuate guide portion 50, when the gate 68 is in the closed condition.

The gate 68 may then be moved and articulated to the open condition so access is permitted through the opening 12a. This may be achieved by activating the motor 26 so that it drives the pinion along the rack 66 at the drive path 20 from the opening-proximal end to the opening-distal end. The movement of the carriage 24 causes the support-proximal section 14a to pivot relative to the carriage 24 and be pulled along the gate guide 16. Thus, the support proximal section moves along the arcuate guide portion 50 of the guide and around a corner to transition from an opening-parallel condition to an opening-non-parallel or opening-perpendicular condition. The movement of the support proximal section is such that it pulls the adjacent panel along the gate guide 16 and pivots relative to it at the connecting hinge. Given the positioning of the hinge, the separation between sections does not reduce, does not reduce significantly, or reduces less than typical articulating gates. As such a finger trap hazard is reduced or prevented.

Each subsequent gate section 14, being pulled by an adjacent gate section 14 and ultimately by the carriage 24, thus in turn transitions around the arcuate guide portion 50

of the guide 16 from the opening-parallel condition to the opening-non-parallel or opening-perpendicular condition. The open condition of the gate 68 is preferably defined when all the gate sections 14 are coplanar and in the opening-non-parallel or opening-perpendicular condition. Thus, the rear section 54 of the gate guide 16 is long enough to  
5 accommodate all of the gate sections 14 together. However, it will be appreciated that not all the sections 14 may be in the opening-non-parallel or opening-perpendicular condition when the gate is open.

To close the gate 68, the motor 26 may be operated in the return direction so that the carriage 24 moves towards the opening 12a. This movement of the carriage 24 pushes  
10 the gate 68 along so that the sections 14 move around the arcuate guide portion 50 of the gate guide 16 and onto the opening section 52 of the gate guide 16 so that the sections 14 are in the opening-parallel condition.

Whilst the gate-section support element is described as being a separate post to the gate and/or the closest gate section, it will be appreciated that the gate-section support  
15 element may be integral with one of the gate sections. In this instance, the gate-section support element may be pivotable or rotatable about an axial direction thereof and may be within the common plane.

Although the gate section support is described as imparting support at or adjacent to a top and bottom of the gate, it will be appreciated that the gate-section support may in  
20 fact impart support to the gate at other locations. For example, from a vertically central location or across the entire or a majority of the end of the gate.

Whilst described as controlling access between outdoor spaces, it will be appreciated that the gate could be used to control access between an outdoor space and an indoor space, or two indoor spaces. As such the gate may be considered to be a door.

25 It is therefore possible to provide an articulable gate which can reduce or prevent a finger trap hazard. The gate sections are unsupported at an upper edge thereof, and/or the top longitudinal edge of the gate is free. Gate sections are pivotably connected to each other at a point which is coplanar with at least one of the corresponding gate sections. In this way, the separation of adjacent gate panels when hinging is maintained or equal, or  
30 substantially maintained or equal, as compared to a coplanar state. This reduces or prevents a finger trap hazard. This may require for the drive mechanism to be positioned externally to the gate, due to the difficulty of providing a drive mechanism which can

accommodate the articulation of the gate when the hinges are coplanar with the gate sections. As such, a gate-external drive mechanism is provided via a carriage moveable on a linear drive path, the gate being driven by the carriage and individual sections being guided around a corner by a gate guide having an arcuate portion.

- 5 The words 'comprises/comprising' and the words 'having/including' when used herein with reference to the present invention are used to specify the presence of stated features, integers, steps or components, but do not preclude the presence or addition of one or more other features, integers, steps, components or groups thereof.

- 10 It is appreciated that certain features of the invention, which are, for clarity, described in the context of separate embodiments, may also be provided in combination in a single embodiment. Conversely, various features of the invention which are, for brevity, described in the context of a single embodiment, may also be provided separately or in any suitable sub-combination.

- 15 The embodiments described above are provided by way of examples only, and various other modifications will be apparent to persons skilled in the field without departing from the scope of the invention as defined herein.

## Claims

1. An articable-gate apparatus for controlling access between outdoor spaces whilst preventing or reducing a finger trap hazard, the apparatus comprising:

5 a plurality of gate sections hingably interconnected to each other to form an articable gate having top and bottom longitudinal edges;

at least a majority of the gate sections, when the articable gate is in a closed condition, being in or substantially in a common plane, and hinges interposed between the said majority of the gate sections forming respective pivot axes which also lie in or substantially in said common plane;

10 a gate guide which in use is at or adjacent to the bottom longitudinal edge of the articable gate, the gate guide having at least one arcuate guide portion to enable the articable gate to travel around a corner;

said majority of gate sections, when the articable gate is in a closed condition, being unsupported at or adjacent to the top longitudinal edge of the articable gate;

15 a drive mechanism for driving the articable gate along the gate guide, the drive mechanism including:

a linear drive path which in use is at or adjacent to the bottom longitudinal edge of the articable gate;

20 a gate-section support element for imparting support at or adjacent to the top and bottom longitudinal edges of the articable gate;

a carriage which is movable on the linear drive path and which supports the gate-section support element;

a motor for driving the carriage on the linear drive path; and

25 wherein the gate-section support element engages one or more of the gate sections and the gate-section support element has at least one projecting arm for hingably connecting to one or more of the gate sections, and/or said one of the gate sections includes a hinge-receiving member which projects from a section body of said gate section, the hinge-receiving member for receiving a hingeable connection with the gate-section support element.

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2. An articable-gate apparatus as claimed in claim 1, wherein the drive mechanism comprises a rack and pinion, the rack being at, adjacent and/or along the drive path and the pinion being at the carriage.

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3. An articable-gate apparatus as claimed in claim 1 or claim 2, wherein the motor is at or on to the carriage.
4. An articable-gate apparatus as claimed in any one of the preceding claims,  
5 wherein the drive mechanism is weather resistant.
5. An articable-gate apparatus as claimed in any one of the preceding claims, wherein the gate guide is L-shaped or substantially L-shaped.
- 10 6. An articable-gate apparatus as claimed in any one of the preceding claims, further comprising at least one rotatable element connected to the articable gate at or adjacent to the bottom longitudinal edge thereof and receivable by the gate guide.
- 15 7. An articable-gate apparatus as claimed in claim 6, wherein each gate section includes at least one said rotatable element.
- 20 8. An articable-gate apparatus as claimed in claim 6 or claim 7, wherein the rotatable element or one of the rotatable elements is mounted to a gate section which is proximalmost to the gate-section support element and is mounted at or adjacent to an end of said gate section which is distal to the gate-section support element, so that said rotatable element is at an edge of the arcuate guide portion when the gate is in the closed condition.
- 25 9. An articable-gate apparatus as claimed in any one of claims 6 to 8, wherein the gate guide comprises a rail for receiving the rotatable elements thereon.
- 30 10. An articable-gate apparatus as claimed in any one of the preceding claims, wherein a width of the arcuate guide portion matches or substantially matches a width of one of the gate sections so that the arcuate guide portion is coverable by the gate section.
- 35 11. An articable-gate apparatus as claimed in any one of the preceding claims, wherein a gate section which is proximalmost to the gate-section support element is pivotable relative to the carriage.

- 5 12. An articable-gate apparatus as claimed in any one of the preceding claims, wherein the projecting arm is configured so that a hinge for hingably connecting to said one of the gate sections defines a pivot axis which is spaced apart from a body of the support in a direction which is neither parallel nor perpendicular with the linear drive path.
13. An articable-gate apparatus as claimed in any one of the preceding claims, wherein the projecting arm is L-shaped or substantially L-shaped.
- 10 14. An articable-gate apparatus as claimed in any one of the preceding claims, wherein said hinge-receiving member is at least in part non-coplanar with the section body.
- 15 15. An articable-gate apparatus as claimed in any one of the preceding claims, wherein the hinge-receiving member is outboard of the section body.
- 20 16. An articable-gate apparatus as claimed in any one of the preceding claims, wherein the drive path extends perpendicularly or substantially perpendicularly from a plane of the opening.
- 25 17. An articable-gate apparatus as claimed in any one of the preceding claims, wherein the drive path comprises a track or a rail.
- 30 18. An articable-gate apparatus as claimed in any one of the preceding claims, further comprising a post, the drive path being aligned or substantially aligned with the post.
19. A method of installing an articable gate apparatus as claimed in any one of the preceding claims to an outdoor opening between outdoor spaces.
20. A method as claimed in claim 19, wherein the guide is received within the ground.