

FIG. 4

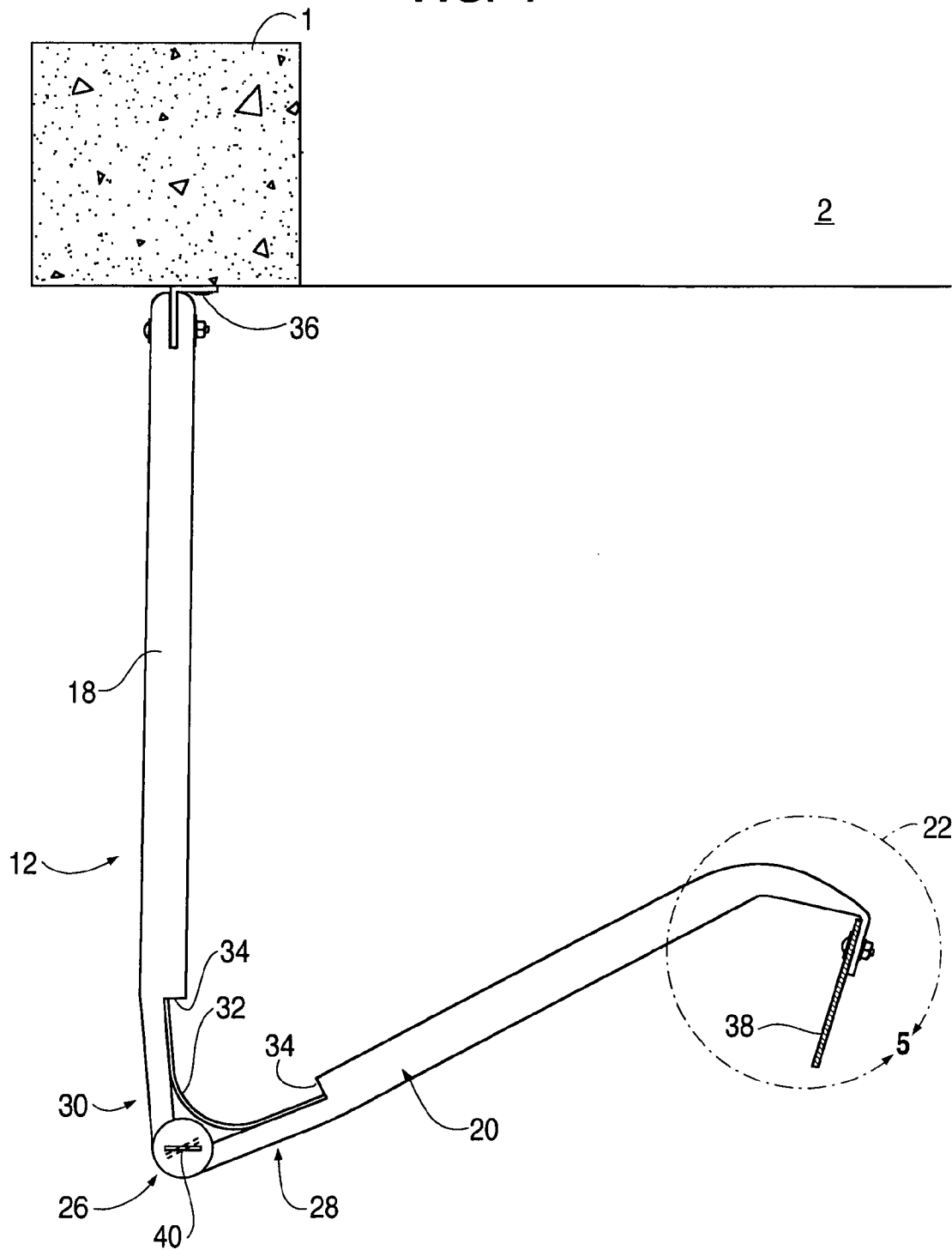


FIG. 5

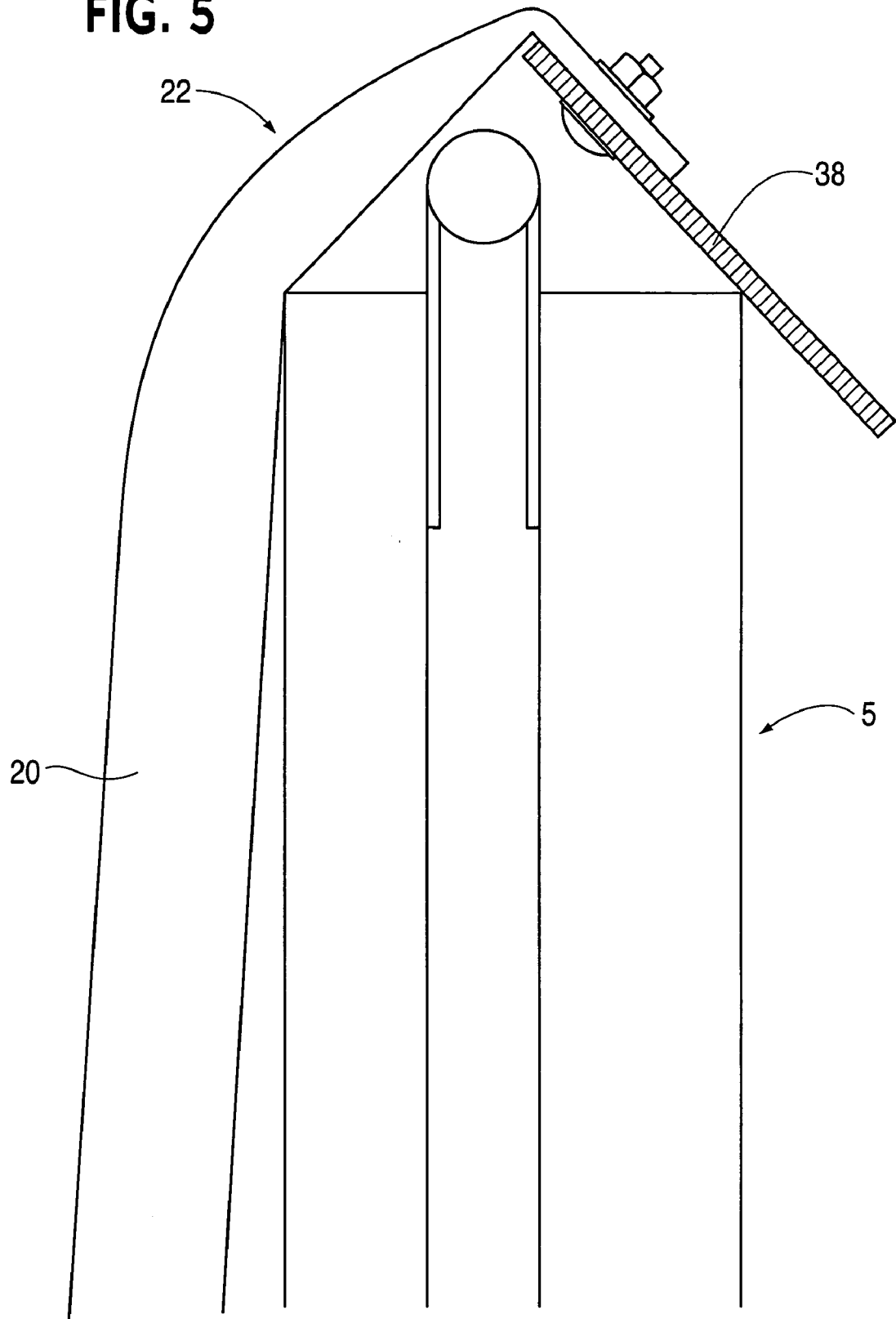


FIG. 6

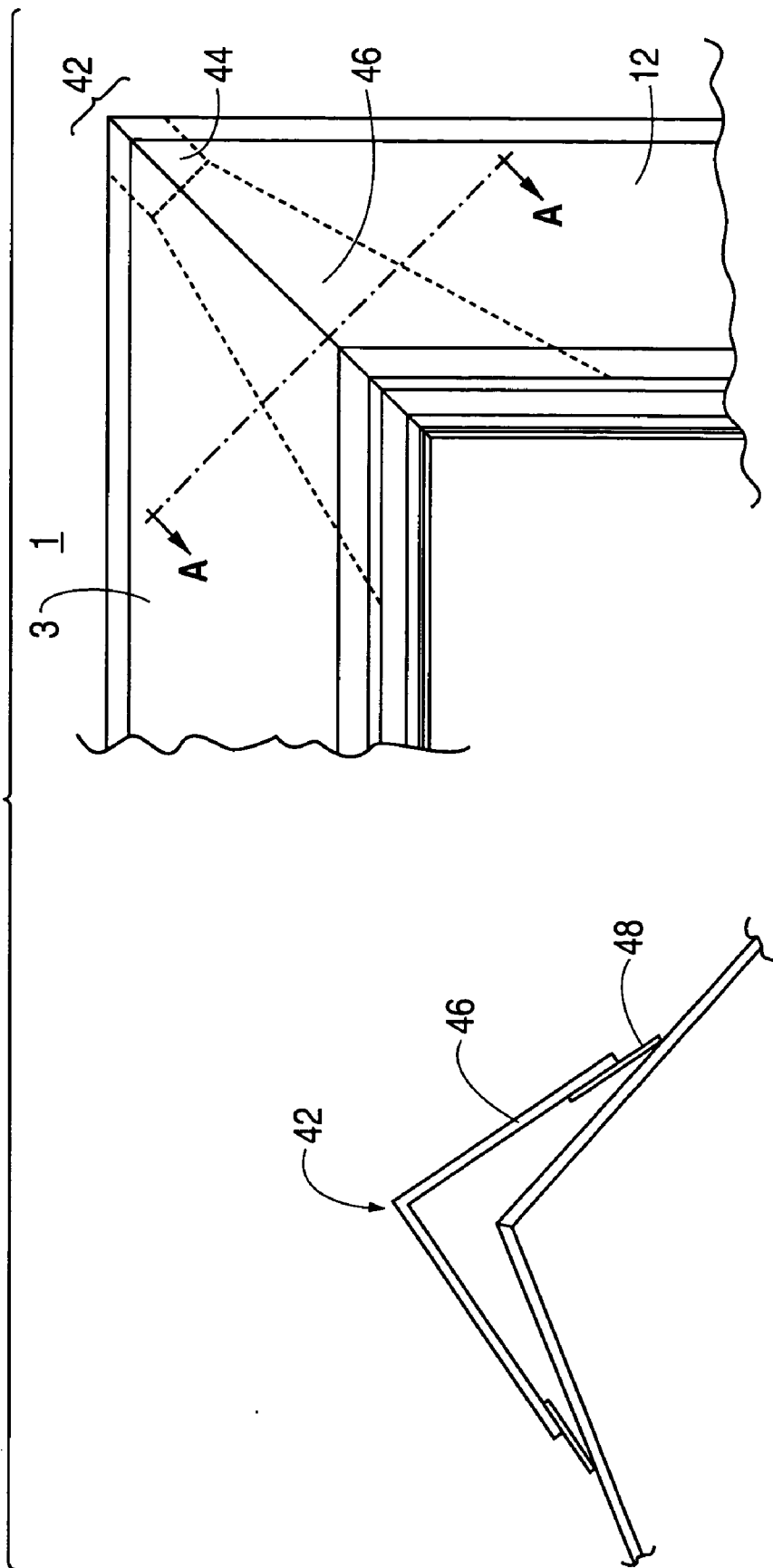


FIG. 7

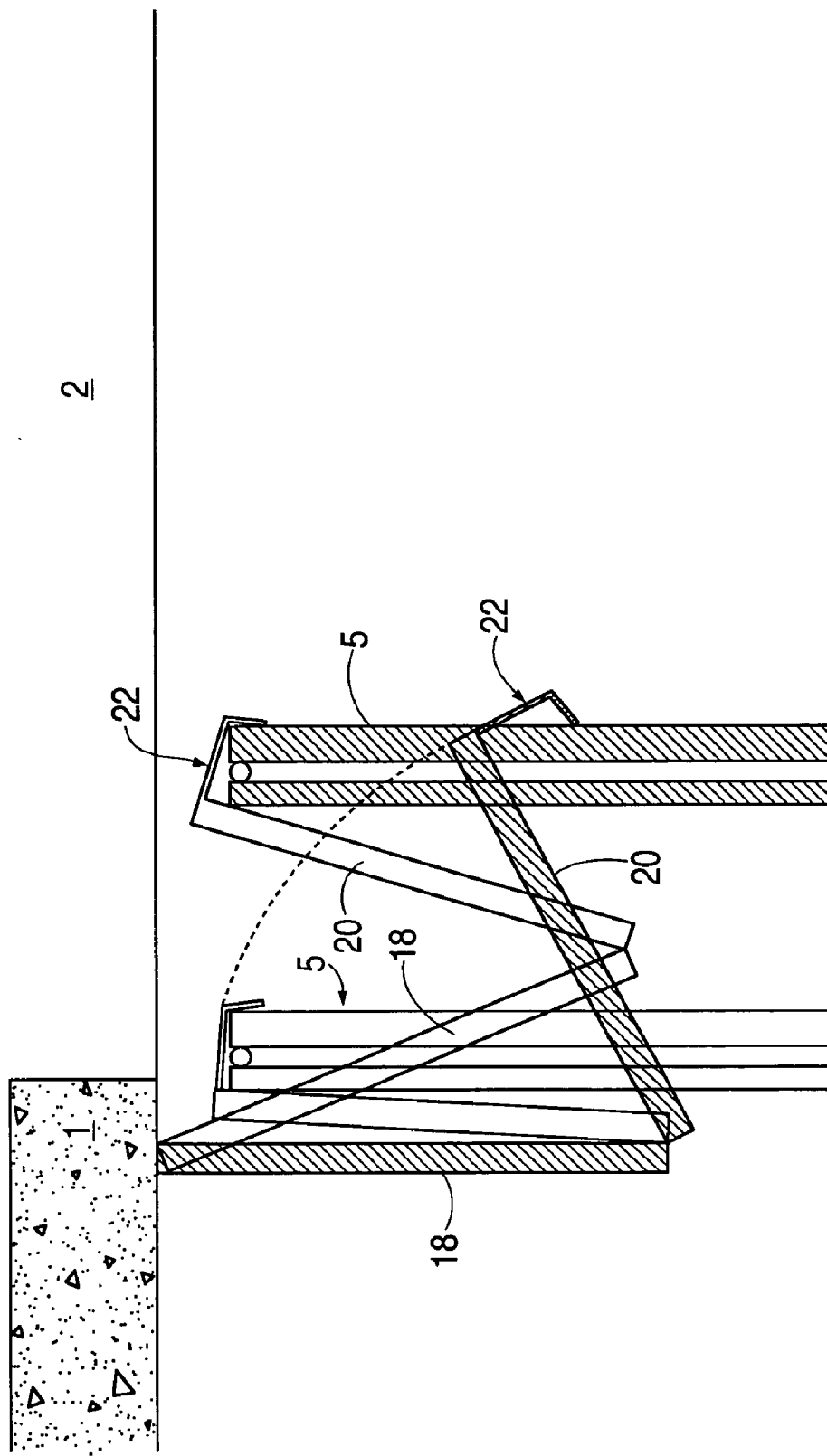
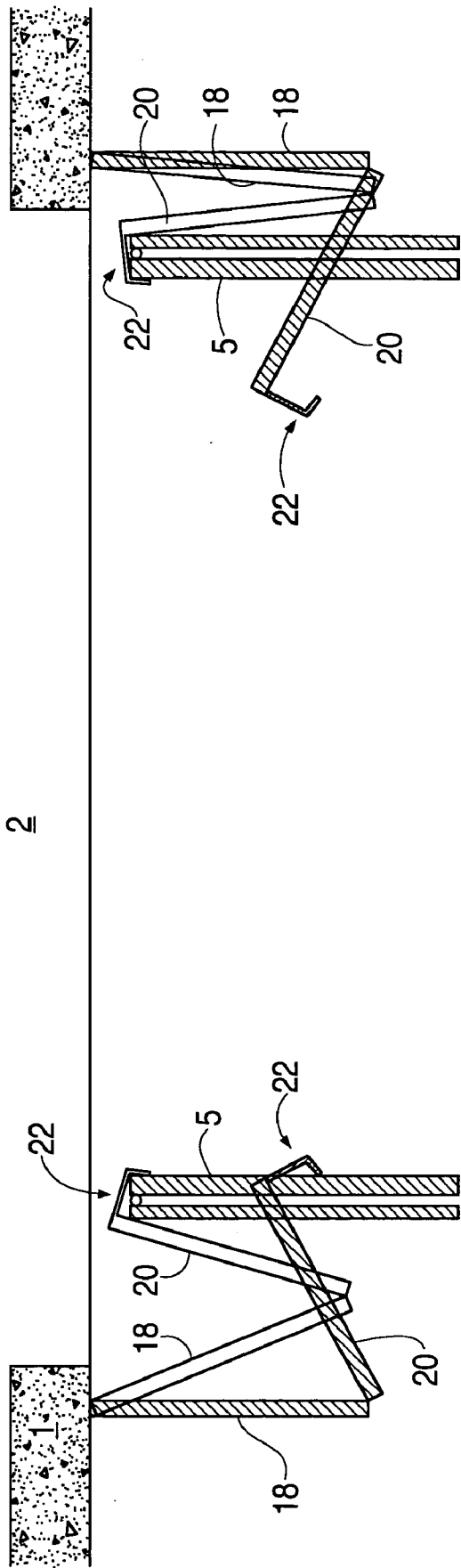


FIG. 8



PANEL ASSEMBLY FOR DOCK SEAL OR SHELTER

FIELD OF THE INVENTION

[0001] The present invention relates generally to an apparatus and method for sheltering vehicles parked at loading docks. More particularly, the present invention relates to an apparatus and method for sheltering vehicles of varying widths and heights that are parked on or off-center at loading docks.

BACKGROUND OF THE INVENTION

[0002] In the loading and off-loading of vehicles such as a semi-trailer trucks, it can be beneficial to shelter or seal the area between the dock and trailer against the environment. For example, when a loading dock door is opened to gain access to a vehicle, there is potential for exchange of inside and outside air that contributes to energy loss. At other times, inclement weather may contribute to slush, snow, or ice being collected on the vehicle which may flow around the sides and over the top of the vehicle onto the dock area, creating a hazard for service personnel. A similar effect can occur while the truck is parked at a dock and waiting to be loaded or unloaded, when a rain, wind, or snow storm begins.

[0003] Typical dock shelter designs include a rigid frame and fabric curtains. Typical dock seal designs include a foam pad which is covered with a fabric exterior. Such designs can experience energy loss when mounted to a dock having inclined or declined driveways. For example, when a truck backs down a declined driveway, the top of the truck will engage the shelter prior to the top of the truck. Because the shelters have rigid, inflexible (or relatively inflexible) frames, the sealing effectiveness will be diminished, or a gap may form at the bottom of the shelter. Also, when a truck backs into a dock seal, the same scenario will occur. To accommodate this situation, dock shelters and seals must be custom-made, including a frame assembly or foam that has a tapered profile (e.g. the frame or foam may protrude farther from the dock wall at the bottom of the shelter or seal than at the top). Further, the fabric material is subject to wear from abrasion during engagement and disengagement of vehicles.

[0004] Accordingly, it is desirable to provide a method and apparatus for sheltering or sealing the area between the dock and vehicle from the environment, which is versatile in that a single unit can be manufactured which accommodates docks having level, inclined, or declined driveways. Further, it would be desirable to provide such an apparatus, which is durable, e.g. is designed to minimize abrasion and wear of the apparatus. It would also be desirable to provide such an apparatus, which can accommodate vehicles of varying widths and heights, as well as vehicles which park off-center in the dock driveway.

SUMMARY OF THE INVENTION

[0005] The foregoing needs are met, to a great extent, by the present invention, wherein in one aspect an apparatus is provided that includes a "self-tapering" feature, the exterior of which may be more durable than some conventional fabric shelters, and which can accommodate vehicles of varying widths and heights, or vehicles which park off-

center in the dock driveway. By "self-tapering," it is meant that a single shelter or seal apparatus can accommodate docks having level, inclined, or declined driveways. The need for custom-made frames or foam to accommodate each of these conditions is therefore alleviated or eliminated. In some embodiments, the "self-tapering" feature is accomplished by using a material which is rigid, but when used in a large structure, is flexible to serve as the frame assembly. That is, the material from which the dock shelter or seal is made can adjust its shape when a vehicle backs into it on an incline or decline, alleviating or eliminating the need for a custom-made tapered shelter or seal. For example, if a vehicle backs in on a decline, the dock shelter or seal will bow at the top more than at the bottom. Further, unlike many conventional dock shelters, which have a frame assembly and fabric curtains, the frame and fabric curtains can be one in the same in some embodiments of the present invention. In other words, the frame need not be covered by additional fabric material. Also, the frame assembly itself may be made from a material which is durable, resisting abrasion.

[0006] In accordance with one embodiment of the present invention, a panel assembly for mounting along an opening to a dock wall is provided. The panel assembly includes a first and second panel adapted for essentially pivotal movement relative to one another. The first panel can be mounted to the dock wall and is adapted for essentially pivotal movement relative to the dock wall.

[0007] It should be understood, from hereonin, that the term "mountable" or "mounted" is intended to be interchangeable with the phrase "directly or indirectly mountable" and "directly or indirectly mounted." Thus, for example, specifying that the first panel is mountable or can be mounted to the dock wall means both that it can be directly mounted to the dock wall (e.g. by a hinge mechanism), or else it can be indirectly mounted to the dock wall (e.g. it can be mounted to a frame which is in turn mounted to the dock wall). It should be also understood, from hereonin, that "essentially pivotal movement" includes flexible movement about an axis that may not be purely rotational, as well as rotational movement. For example "essentially pivotal movement" may result from the first panel being mounted to the dock wall by a flexible bracket, or may result from the first panel being mounted to the dock wall by a hinge.

[0008] In some embodiments, the first panel and second panel each have a castellated edge that interlock to form a hinge joint. In some embodiments, the panel assembly includes a hinge assembly that biases the panel assembly to an open position (i.e. to a position in which the first panel and second panel are apart rather than together). In some embodiments the panels are made from blow molded plastics. In some embodiments, the panel assembly also includes a seal portion, which may be an elastomeric portion in the shape of a hook and which engages the back of a truck backing into the loading dock.

[0009] It should be understood that the "seal portion," also referred to as a "seal member," need not completely eliminate environmental intrusion. Rather, it is intended that apparatus with seal portions are more effective at reducing or eliminating environmental intrusion than those without seal portions. Similarly, when the words "to seal" is used, or the phrase "sealingly engages" is used, or the like, it is not

intended that environmental intrusion is necessarily eliminated. Rather it is intended that environmental intrusion is at least hindered or reduced compared to devices which do not seal.

[0010] In accordance with another embodiment of the present invention, a dock shelter or seal apparatus is provided having at least one panel assembly. The panel assembly includes a first and second panel, wherein the second panel is adapted for pivotal movement about a first axis relative to the first panel, and the first panel is mountable to one vertical side of the dock wall opening. In some embodiments the dock shelter or seal includes a second panel assembly similar to the first panel assembly, but is adapted to be mounted to the opposite vertical side of the dock wall opening. In such embodiments, the combination of the first and second panel assemblies form an expandable dual panel assembly, i.e. the dual panel assembly, in operation, can accommodate trucks of varying widths and/or which park off-center in the dock driveway. In some embodiments the dock shelter includes first and second panel assemblies as well as a head curtain. The head curtain can be constructed similarly to the side panel assemblies or it can be a conventional head curtain or other head curtain known in the art.

[0011] In accordance with still another embodiment of the present invention, a dock seal apparatus is provided which includes a first expandable panel assembly mountable to the dock wall and is configured to sealingly engage trucks of varying widths. The expandable panel assembly comprises a first panel means, a second panel means, and a sealing member means. The second panel means is operably coupled to the first panel means such that the second panel means deflects toward the dock wall opening when the first expandable panel assembly is engaged by a vehicle backing into the dock. The first panel means is adapted to be operably coupled to the dock wall such that the first expandable panel assembly can accommodate trucks of varying widths. Specifically, when a narrower vehicle backs into the loading dock and engages the first expandable panel assembly, the first panel means deflects inwardly, toward the dock wall opening. On the other hand, when a wider vehicle backs into the loading dock and engages the first expandable panel assembly, the first panel means remains essentially stationary (i.e. remains essentially perpendicular to the dock wall) and may even deflect outwardly, away from the dock wall opening. The sealing member means is either integral with or attached to the second panel means and engages the back of a vehicle backing into the dock.

[0012] In accordance with yet another embodiment of the present invention, a method for sheltering the area between the end of a vehicle parked at a dock and a dock is provided. The method includes installing first and second panel assemblies, wherein the panel assemblies each have a first panel and a second panel, the second panel is adapted for pivotal movement relative to the first panel. Installation is accomplished by flexibly mounting the first panel to the dock wall. "Flexibly mounting" means, from hereonin, that the mounting structure enables the first panel to deflect toward or away from the dock opening in response to the second panel engaging a vehicle.

[0013] There has thus been outlined, rather broadly, certain embodiments of the invention in order that the detailed description thereof herein may be better understood, and in

order that the present contribution to the art may be better appreciated. There are, of course, additional embodiments of the invention that will be described below and which will form the subject matter of the claims appended hereto.

[0014] In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of embodiments in addition to those described and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein, as well as the abstract, are for the purpose of description and should not be regarded as limiting.

[0015] As such, those skilled in the art will appreciate that the conception upon which this disclosure is based may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] FIG. 1 is a perspective view illustrating a combined dock seal and shelter apparatus according to a preferred embodiment of the invention.

[0017] FIG. 2 is a perspective view of a combined dock seal and shelter apparatus according to another preferred embodiment of the invention.

[0018] FIG. 3 is a perspective view of a combined dock seal and shelter apparatus according to another preferred embodiment of the invention.

[0019] FIG. 4 is a top view of a side panel assembly in accordance with one embodiment of the invention.

[0020] FIG. 5 is a top detail view of the seal portion of the panel assembly of FIG. 4 shown engaged to the back of a vehicle parked at a loading dock.

[0021] FIG. 6 illustrates an exemplary corner seal assembly suitable for use with a dock seal or shelter according to the present invention.

[0022] FIG. 7 is a diagrammatic representation of a panel assembly according to an embodiment of the invention engaged with a wide and a narrow vehicle.

[0023] FIG. 8 is a diagrammatic representation of an expandable panel assembly engaged to a vehicle parked off-center in a driveway of a loading dock.

DETAILED DESCRIPTION

[0024] The present invention provides a panel assembly suitable for use in dock shelters and seals, which in some embodiments can accommodate vehicles of varying widths, vehicles parked off-center in the dock driveway, and which can be made from more durable materials than typical dock seals and shelters having fabric covered foam and fabric curtains. In some embodiments, a panel assembly according to the present invention is provided having two axes of rotation, one within the panel assembly, and one at or near

an edge of the panel assembly which will be mounted to the dock wall. Specifically, the panel assembly has two panels joined at an axis of rotation, and the panel assembly is further adapted to be pivotally mounted to the dock wall. This dual axis of rotation configuration enables the panel assembly to expand and contract to accommodate vehicles of varying widths, and vehicles parked off-center. Further, providing an axis of rotation within the panel assembly enables the panels to be made from more rigid (i.e. more durable) materials than dock shelters which have fabric curtains lacking the inner axis of rotation.

[0025] Although the apparatus described herein is particularly well-suited for use with a loading dock on a warehouse or the like, the teachings of the instant invention are not limited to any particular environment of use; rather, for example, the invention can be employed with virtually any structure adjacent a parking area where the creation of a seal with a vehicle is desired.

[0026] The invention will now be described with reference to the drawing figures, in which like reference numerals refer to like parts throughout. FIG. 1 illustrates a combined dock shelter and seal 10 in accordance with an embodiment of the invention, mounted adjacent to the wall 1 alongside a conventional loading dock opening 2, normally provided in warehouses, truck terminals, manufacturing plants and the like where materials and products are received and/or dispatched by trucks. The dock shelter and seal 10 includes an expandable panel assembly 11 mounted along either vertical side of the dock wall opening 2, a top portion 3 mounted along the top horizontal side of the dock wall opening 2, and optional draft pads 16 located at the base of the structure 10. The top portion 3 in this embodiment is a hood 14, which may be disposed outside the expandable panel assembly 11 as shown in FIG. 1, or it may be disposed inside or above the expandable panel assembly 11. For ease in description, the structure 11, comprising the two structures 12, will be referred to as an expandable panel assembly, whereas structures 12 will be referred to only as panel assemblies. However, it should be understood that panel assemblies 12 are expandable, consistent with the use of that term in this specification, and thus are "expandable panel assemblies".

[0027] The structure 11 includes two panel assemblies 12. Each panel assembly 12 includes a first panel 18 and a second panel 20 and an optional seal member 22. The optional seal member may contain a serrated area 23 that will deflect easily (i.e., more easily than the seal member 22) so when the roof of a truck contacts the serrated area 23, the serrated area 23 deflects and moves out of the way to allow the seal member 22 to contact the entire length of the side of the truck. The serrated area 23 is positioned along the seal member so it will accommodate trucks of varying heights. The serrated area 23 may be made from cutting slits in the seal member 22 or it may be a brush type seal that is mounted in conjunction with the seal member 22. The panel assemblies 12 can also include ribs (not shown) in different areas of the panels and/or different orientations, as is known in the art, to aid in controlling the rigidity and bending of the panels 18, 20.

[0028] Both the first panel 18 and the second panel 20 are generally equal in length and are preferably sized to extend at least the entire length of the dock opening 2. However, panels 18, 20 may be shorter or longer than the length of the

dock opening 2. Moreover, the panels 18, 20 are not necessarily unitary pieces as shown, but may be assembled from smaller panel portions. Such an embodiment may be preferable if the panels 18, 20 are shipped and assembled together in the field.

[0029] The panels 18, 20 are preferably provided by materials which are rigid, but become somewhat flexible when used in a large structure (i.e., the panels will deflect or deform when certain loads are applied). For example, the panels 18, 20 could be made from polyethylene sheets, which have a very low coefficient of friction. The panels 18, 20 could also be made from materials used in conventional dock seals and shelters. Preferably, the panels 18, 20 are made from more rigid and more durable materials than those used in conventional seals and shelters having fabric curtains and covers. The panels 18, 20 are preferably made by blow molding or rotational molding. However, they could also be made by thermoforming or extrusion processes.

[0030] The second panel 20 is adapted for substantially pivotal movement relative to the first panel 18 about a first axis 24. In the illustrated embodiment, this is accomplished by a hinge joint 26 formed by interlocking the first and second curtain panels 18, 20. Specifically, the second panel 20 has a castellated rear end 28 and the first panel 20 has a complementary castellated front end 30.

[0031] The first panel 18 is adapted to be directly attached to the dock wall 1 or indirectly attached to the dock wall 1, for example by attachment to a frame assembly (not shown). The first panel 18 may be anchored rigidly in place or flexibly by any means known in the art, including by bolts, nuts, washers, nails, screws, and hinges. Preferably, the first panel 18 is flexibly mounted, that is it is adapted for essentially pivotal movement relative to the dock wall 1 so that the expandable panel assembly 11 can expand (i.e. the first panels 18 can deflect away from the dock opening) or contract (i.e. the first panels 18 can deflect toward the dock opening) to accommodate trucks of varying widths and trucks which park off-center in the dock driveway.

[0032] FIG. 2 illustrates a combined dock shelter and seal 10 with a compressible head pad 15. In this embodiment, the compressible head pad 15 is disposed between both panel assemblies 12. The compressible head pad 15 is preferably made from a polyurethane foam covered with fabric. As a truck backs into the expandable panel assembly 11, the second panel 20 is allowed to deflect towards the dock wall because of the compressible nature of the head pad 15. In order to help prevent the infiltration of rain or outside weather, a top seal 16 is positioned at the top and between both sets of first and second panels 18, 20 of the expandable panel assembly 11. The top seal 16 can be made from fabric or elastomeric material which can expand or contract, or it can be made from a more rigid material such as a polyethylene sheet that can be fastened to the top of one of the panels, 18 or 20 and is allowed to slide on top of the other panel while still maintaining contact with not only the other panel but also the top of the head pad 15. Also, in this embodiment, the sealing member 22 may again contain a serrated area 23 (not shown).

[0033] FIG. 3 illustrates yet another embodiment of a combined dock shelter and seal 10 with a compressible head pad 15. In this embodiment, the compressible head pad 15 is disposed on top and between the panel assemblies 12. As

shown in **FIG. 3**, there is wiper seal **17** that is in slidable contact with the bottom surface of the head pad **15**. Since the wiper seal **17** remains in contact with the bottom surface of the head pad, a seal is maintained between the bottom of the head pad **15** and the expandable panel assembly **11**.

[0034] **FIG. 4** is a detailed top view of the panel assemblies **12** of **FIG. 1**, shown mounted to a dock wall **1**, alongside the opening **2** in the dock wall **1**. As discussed above, the illustrated panel assemblies **12** include a first panel **18**, a second panel **20**, and an optional seal portion **22**. The second panel **20** is pivotally connected to the first panel **18** forming the hinge joint **26**. In the illustrated embodiment, the hinge joint **26** is formed by interlocking the second panel **20** with the first panel **18**, as described above, and by inserting a stay **40** lengthwise, from top to bottom through the panel/panel interface region. Stay **40** is preferably a spring, for example a fiberglass composite spring. In other words, stay **40** provides a torsional spring force such that when the second panel **20** is engaged by a vehicle backing into the dock, the stay provides a counterforce.

[0035] The position of the stay within the hinge area is chosen such that the panel assembly is held in an "open" position, and so the second panel **20** will also project into the path of a vehicle backing into the dock and thereby engage the vehicle. It should be understood that the term "open" means that the interior face (i.e. the side closer to the dock opening) of panels **18**, **20** are held in position away from each other rather than next to each other. "Open," however, does not necessarily mean that the panels **18**, **20** form a 180 degree angle. In fact, it is preferable that the second panel **20** is mounted at an approximate right angle to the dock wall and such that the interior face of panels **18**, **20** form a smaller angle than 180 degrees such that the second panel **20** is held in a position where a vehicle backing into the loading dock can engage the second panel **20**. Because of the torsional spring force that the stay can exert, the panel assembly **12** is biased to the open position when a vehicle backs into the dock and engages the second panel **20**.

[0036] The panel **18** panel **20** interface region (or hinge joint region **26**) can include a backing member **32**. The backing member **32** shown is intended to help seal the panel assembly at the interface region from environmental intrusion. For example, gaps in the panel assembly may be present in the hinge region allowing air to enter and escape.

[0037] Alternatively, the backing member **32** can also be a "spring." The term "spring" is used broadly to encompass any biasing member. For example, with respect to the backing member, a spring is any device that biases the curtain panels **18**, **20** either toward or away from one another. In some embodiments, the spring **32** can hold the panel assembly **12** in an open position and further bias the panel assembly **12** to that open position when a vehicle backing into the dock engages the panel assembly **12**.

[0038] In the embodiment shown, the backing member **32** is an elastomer, rubber material, or fabric positioned on the interior face of the panels **18**, **20** behind the hinge joint **26**. As shown, the backing member **32** is held in place by positioning it between recessed portions **34** of each curtain panel **18**, **20** and is caulked in place. The material for the backing member **32** can be, for example a 22 oz. vinyl fabric. However, the backing member **32** can be any other material or device that can operate to seal the curtain

assembly at the hinge region. The backing member **32** may run along the entire height of the panel assembly **12**, or may run only along a portion of the height of the panel assembly **12**. Also, there may be one or more than one backing member **32** in each panel assembly **12**.

[0039] Alternatively, the hinge joint **26** itself may not provide any spring force, but instead the backing member **32** may be a spring. For example, the hinge region **26** may be similar to a door hinge mechanism, preferably with a seal provided in between, and the backing member **32** provides the spring force. In such a case, the backing member (or spring) **32** can be any material that provides a spring force, such as an elastomeric, rubber material, fiberglass composite, or spring steel. As another example, the spring **32** could be triangular foam blocks. As well, both the hinge joint **26** and the backing member **32** could operate as springs.

[0040] The first panel **18** is adapted for essentially pivotal movement relative the dock wall **2** as shown. In the embodiment shown, the first panel **18** is flexibly mounted directly to the dock wall using an L-shaped spring **36**. The spring **36** is an elastomer extrusion or rubber material cut to length. The spring **36** could be a fiberglass composite material or could be made from spring steel or the like. The first panel **18**, however, could be mounted by other methods as well. For example, the first panel **18** could have a mounting angle thermoformed into it and rely on a base material to provide spring force. Or else, as another example, the first panel **18** could be mounted using a hinge. Preferably, the hinge either itself or in conjunction with a backing member, provide a biasing force. Preferably, the mounting choice and biasing force are chosen so that the panel assemblies, when installed, can cooperate to deflect as necessary to accommodate both 8 foot wide and 8 foot 6 inch wide trucks when parked up to 6" off-center in the dock driveway.

[0041] Although in the illustrated embodiment, panel assemblies **12** are shown mounted directly to the dock wall, the panel assemblies **12** may also be mounted indirectly to the dock wall. For example, the panel assemblies **12** may be mounted to a frame or other structure which in turn is mounted to the dock wall.

[0042] The seal member **22** is shown in detail in **FIG. 5**, engaged to the back of a vehicle. The seal member **22** is a U-shaped, or hook shaped, assembly comprised of a portion of the edge of the second panel **20**, which is formed in a bent shape, in addition to a separate seal strip **38** bolted to the panel **20**. The U-shape assists engagement with the back of a vehicle to thereby form a seal. Therefore, it is preferable that the size and shape of the seal member is chosen to engage the interior edge of the truck wall **5**, as shown in **FIG. 5**. Although the embodiment shown is a seal member **22** that includes both a portion integral with the second panel **20** as well as a portion separate but attached to the second panel, the seal member **22** may be completely integral with the second panel **20**, or else it may be completely a separate portion from the second panel **20**.

[0043] The top portion **3** can be, for example, a conventional hood **14**, such as shown in **FIG. 1**, a compressible head pad **15** positioned either above or inside the panel assemblies, as shown in **FIGS. 2 and 3** or it can be similar to the panel assembly **12**, described above, but configured for mounting horizontally rather than vertically. If the top portion **3** is configured similarly to panel assembly **12**,

preferably the dock shelter or seal includes a corner seal assembly 42, an example of which is shown in FIG. 6, where the top portion 3 and panel assemblies meet. Thus, as shown in FIG. 6, in some embodiments, the top edge of each panel assembly 12 and each side edge of the top portion 3 are cut at approximately a 45 degree angle, so the edges meet to form a joint like that in a "picture frame." To alleviate environmental intrusion, which may occur if a vehicle backing into the dock causes the edge of the panel assembly 12 and top portion 3 to move apart, a corner seal assembly 42 is provided. The illustrated corner seal assembly 42 includes a flexible material portion 44, a stiff body portion 46, and an elastomeric or fabric seal 48 on either edge of the stiff body portion 46. The flexible material portion 44 is mounted at or near the corner of the dock shelter and is attached to the stiff body portion 46. The stiff body portion 46 "floats" on the dock shelter 10 and is not attached (other than via the flexible material) to the dock shelter. This design should enable the corner seal to alleviate environmental intrusion even when the interface between the head curtain and side curtain assembly opens asymmetrically.

[0044] FIG. 7 illustrates the operation of a panel assembly 12 when engaging both a narrow (e.g. 8 foot wide) truck, and a wide (e.g. 8 foot 6 inch wide) truck. As is shown, the back of the truck engages the second panel 20. Specifically, the seal member 22 wraps around the back edge of the truck. As the truck backs up, the second panel 20 and first panel 18 rotate or flex as needed to stay engaged with the truck and form a seal. As is shown, in the case of a narrow truck, the first panel 18 flexes inwardly (i.e. toward the dock opening) to a greater degree than in the case of a wide truck backing into the dock. By contrast, the second panel 20 flexes inwardly to a greater degree in the case of a wide truck than a narrow truck.

[0045] FIG. 8 illustrates operation of the expandable panel assembly 11 when a truck backs into the dock but is off-center in the driveway. As the diagram indicates, embodiments according to the present invention allow each panel assembly 12 to independently react to engagement with the truck. Thus, on the side where the truck is further from panel assembly 12, the panel assembly 12 operates similarly to when a narrower truck backed into the driveway. And, on the side where the truck is closer to the panel assembly 12, the panel assembly 12 operates similarly to the case where a wide truck backs into the driveway.

[0046] The many features and advantages of the invention are apparent from the detailed specification, and thus, it is intended by the appended claims to cover all such features and advantages of the invention which fall within the true spirit and scope of the invention. Further, since numerous modifications and variations will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation illustrated and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

What is claimed is:

1. A panel assembly mountable along an opening in a dock wall for providing a dock shelter or seal, comprising:

a first panel and a second panel, wherein said second panel is adapted for essentially pivotal movement relative to said first panel about a first axis, and said first

panel is adapted for essentially pivotal movement relative to the dock wall about a second axis.

2. A panel assembly according to claim 1, wherein said first panel has a front edge and a rear edge and the second panel has a front edge and a rear edge, and the rear edge of said second panel is pivotally connected to the front edge of said first panel.

3. A panel assembly according to claim 2, wherein the rear edge of said second panel is hingedly connected to the front edge of said first panel.

4. A panel assembly according to claim 3, wherein the rear edge of said second panel is castellated and the front edge of said first panel is also castellated such that the rear edge of said second panel and the front edge of said first panel interlock to form a hinge joint.

5. A panel assembly according to claim 4, further comprising a stay, wherein said panel assembly has a length and said stay is positioned in an opening extending the length of said panel assembly through the castellated front edge of said first panel and the castellated rear edge of said second panel.

6. A panel assembly according to claim 5, wherein said stay biases said panel assembly to an open position.

7. A panel assembly according to claim 2, wherein:

said panel assembly has an interior face on the side of the dock opening and an opposing exterior face;

said panel assembly further comprises at least one backing member positioned at the first axis on the interior face of the said panel assembly.

8. A panel assembly according to claim 7, wherein the backing member biases the panel to an open position where the second panel is held away from the first panel.

9. A panel according to claim 7, wherein the backing member is chosen from springs, triangular foam blocks, elastomer panels, rubber panels, and fiberglass composites.

10. A panel assembly according to claim 7, wherein said first panel has recessed portion at or near the front edge of the first panel, and said second panel has a recessed portion at or near the rear edge of the second panel, and the backing member is adapted to fit between the recessed portions.

11. A panel assembly according to claim 1, wherein the first panel and the second panel comprise a rigid but flexible material.

12. A panel assembly according to claim 11, wherein the material is blow molded.

13. A panel assembly according to claim 1, wherein at least one of said first or second panels comprise a plurality of panel portions which are assembled to form said first or second panels.

14. A panel assembly according to claim 2, wherein the rear edge of said first panel is directly or indirectly mountable to the dock wall.

15. A panel assembly according to claim 14, wherein said panel assembly further comprises at least one L-shaped bracket for flexibly mounting the rear edge of said first panel to the dock wall.

16. A panel assembly according to claim 1, further comprising a seal member located at the front edge of said second panel, the seal can be integral with said second panel, or a separate component attached to said second panel, or can be both integral and a separate component.

17. A panel assembly according to claim 15, wherein the seal member comprises a hook portion located at the front edge of said second panel, the hook portion comprises a seal strip.

18. A panel assembly according to claim 1, wherein said first panel has a length and said second panel has a length and the length of said first panel and the length of said second panel are sized for vertical mounting along the opening in the dock wall.

19. A panel assembly according to claim 1, wherein said first panel has a length and said second panel has a length and the length of said first panel and the length of said second panel are sized for horizontal mounting along the width of the opening in the dock wall.

20. A dock shelter or seal for mounting along an opening in a wall of a dock, the dock having a dock floor, comprising:

at least a panel assembly comprising a first and second panel, wherein said second panel is adapted for essentially pivotal movement relative to said first panel about a first axis, and said first panel is directly or indirectly mountable to the dock wall.

21. A dock shelter or seal according to claim 20, wherein the dock shelter further comprises at least a second panel assembly, wherein the first panel assembly is directly or indirectly mountable along a side of the opening in the dock wall which is approximately perpendicular to the dock floor, and the second panel assembly is directly or indirectly mountable along a second side of the opening in the dock wall which is also approximately perpendicular to the dock floor.

22. A dock shelter or seal according to claim 21, wherein the dock shelter further comprises a top portion panel assembly, wherein the top portion panel assembly is directly or indirectly mountable to a side of the opening in the dock wall which is parallel to the dock floor and the top portion panel assembly is positioned along the dock wall above and substantially perpendicularly to the first and second panel assemblies.

23. A dock shelter or seal according to claim 22, further comprising a top portion panel assembly having a first and second panel, wherein said second panel is adapted for essentially pivotal movement relative to said first panel about a first axis, and said first panel is directly or indirectly mountable to the dock wall.

24. A dock shelter or seal according to claim 23, wherein at least one of the first, second, or top panel assemblies each further comprise a sealing member.

25. A dock shelter or seal according to claim 20, wherein said first panel is adapted for essentially pivotal movement relative to the dock wall about a second axis.

26. A dock shelter or seal according to claim 25, wherein said first panel is directly or indirectly mountable to the dock wall for flexible movement.

27. A dock seal assembly mountable along an opening in a dock wall, comprising:

an expandable panel assembly configured to accommodate trucks of varying widths, comprising a first and a second panel assembly, the first panel assembly including:

a rear first panel having a front edge and a rear edge;

a front first panel having a front edge and a rear edge;

a first seal portion;

wherein the rear edge of said front first panel is pivotally connected to the front edge of said rear first panel defining a first axis of rotation, the rear edge of said rear first panel is adapted for essentially pivotal movement relative to the dock wall about a second axis of rotation and is directly or indirectly mountable to a first vertical side of the dock wall opening, and the first seal portion is located at the front edge of said front first panel;

the second panel assembly comprising:

a rear second panel having a front edge and a rear edge;

a front second panel having a front edge and a rear edge;

a second seal portion;

wherein the rear edge of said front second panel is pivotally connected to the front edge of said rear second panel defining a third axis of rotation, the rear edge of said rear second panel is adapted for essentially pivotal movement relative to the dock wall about a fourth axis of rotation and is mountable to a second, opposing vertical side of the dock wall opening, and the second seal portion is located at the front edge of said front second panel; and,

wherein the first, second, third, and fourth axes of rotation are substantially parallel to one another.

28. A dock seal or shelter according to claim 27, wherein the expandable panel assembly is configured to accommodate truck widths ranging from about 8' to about 8'6" and wherein the trucks may be parked up to 6" off-center.

29. A dock seal apparatus for mounting on a dock wall and for sealingly engaging a truck parked at a loading dock, comprising:

a first expandable panel assembly directly or indirectly mountable to the dock wall and configured to sealingly engage trucks of varying widths, comprising:

a rear panel means;

a front panel means; and,

a sealing member means located at an edge of said front panel means, wherein said front panel means is operably coupled to said rear panel means such that said front panel means deflects toward the dock wall opening when said expandable panel assembly is engaged by the vehicle, and said rear panel means is adapted to be operably coupled to the dock wall such that said rear panel means moves toward the dock wall opening when said expandable panel assembly is engaged by a sufficiently narrow vehicle and remains substantially unmoved or moves away from the dock wall when said expandable panel assembly is engaged by a sufficiently wide vehicle.

30. A dock seal apparatus according to claim 29, wherein said front panel means is operably coupled to said rear panel means by a hinge means.

31. A dock seal apparatus according to claim 30, wherein said hinge means biases said front panel away from the dock wall opening.

32. A dock seal apparatus according to claim 29, wherein said first expandable panel assembly is sized to mount along a first vertical side of the dock wall opening.

33. A dock seal according to claim 32, further comprising a second expandable panel assembly sized to mount along a second vertical side of the dock wall.

34. A dock seal according to claim 33, further comprising a top portion panel assembly sized to mount along a horizontal side of the dock wall.

35. A dock seal according to claim 34, wherein the top portion panel assembly comprises:

a top rear panel means;

a top front panel means; and

a top sealing member means located at an edge of said top front panel means, wherein said top front panel means is operably coupled to said top rear panel means such that said top front panel means deflects toward the dock wall opening when said top portion panel assembly is engaged by the vehicle, and said top rear panel means is mountable along horizontal side of the dock wall opening.

36. A dock seal according to claim 35, further comprising a first corner panel adapted to overlap said top portion panel assembly and said first expandable panel assembly when mounted, and a second corner seal adapted to overlap said top portion panel assembly and said second expandable panel assembly when mounted.

37. A method of providing shelter about the end of a vehicle body parked at a dock opening, comprising:

installing a first panel assembly to a first vertical side of the dock opening, the first panel assembly comprising:

a first front panel and a first rear panel, wherein said first front panel is adapted for essentially pivotal movement relative to said first rear panel about a first axis;

wherein installing the first panel assembly comprises flexibly mounting the first rear panel to the dock wall; and,

installing a second panel assembly to a second vertical side of the dock opening, the second panel assembly comprising:

a second front panel and a second rear panel, wherein said second front panel is adapted for essentially pivotal movement relative to said second rear panel about a second axis;

wherein installing the second panel assembly comprises flexibly mounting the second rear panel to the dock wall.

38. A method according to claim 37, wherein the first panel assembly is indirectly mounted to the dock wall.

39. A method according to claim 37, wherein the first axis of rotation and the second axis of rotation are substantially perpendicular to the dock floor and substantially parallel to one another.

40. A method according to claim 37, further comprising installing a top portion assembly along a top horizontal side of the dock wall opening.

41. A method according to claim 40, wherein the top portion assembly comprises a top front panel and a top rear panel, wherein said top front panel is adapted for essentially pivotal movement relative to said top rear panel about a first axis.

42. A panel assembly according to claim 16, wherein said seal member comprises as serrated portion.

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