



US 20090142154A1

(19) **United States**
(12) **Patent Application Publication**
HAMMOND

(10) **Pub. No.: US 2009/0142154 A1**
(43) **Pub. Date: Jun. 4, 2009**

(54) **ROLL-UP INSULATED PARTITIONING SYSTEM FOR TRAILERS**

Publication Classification

(76) Inventor: **WILLIAM HAMMOND,**
Riverside, CA (US)

(51) **Int. Cl.**
B61D 45/00 (2006.01)
(52) **U.S. Cl.** **410/130**
(57) **ABSTRACT**

Correspondence Address:
BUHLER ASSOCIATES
BUHLER, KIRK A.
1101 CALIFORNIA AVE., SUITE 208
CORONA, CA 92881 (US)

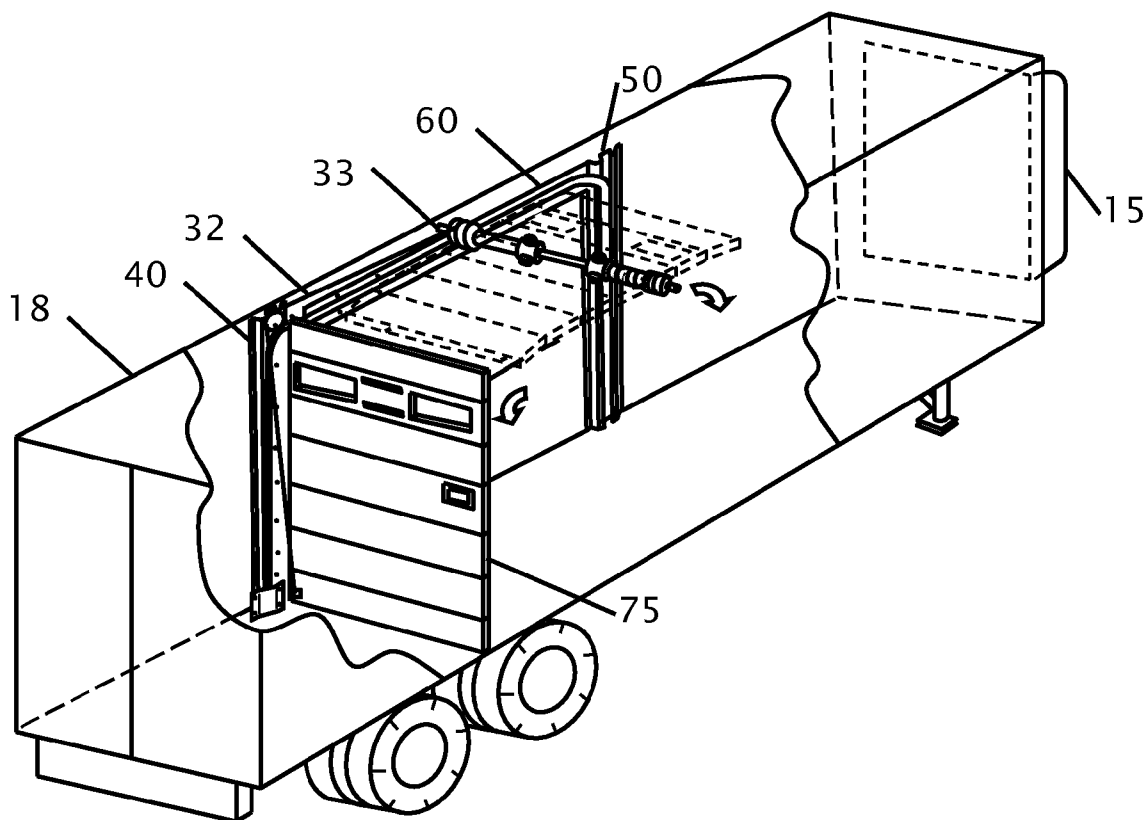
Improvements in trailer insulation and partitioning system are disclosed. The trailer insulation and partitioning includes one or more roll-up partitions or bulkheads that alter the amount of space in a trailer that is required to be refrigerated. The roll-up partitioning system includes protection mechanisms such as ramps and guides that prevent damage from impact with forklift, pallets and other cargo movement equipment. The roll-up partitions are constructed from a series of horizontal sections that are independently hinged together. A counterweight or spring makes opening or closing the partition easier. The tracks for the partitions are installed in a new trailer or can be retrofit into an existing trailer. The roll-up insulation system allows only a portion of the trailer to be refrigerated thereby reducing the fuel consumption that would be lost by refrigerating the entire trailer shell

(21) Appl. No.: **12/323,767**

(22) Filed: **Nov. 26, 2008**

Related U.S. Application Data

(60) Provisional application No. 61/005,000, filed on Nov. 30, 2007.



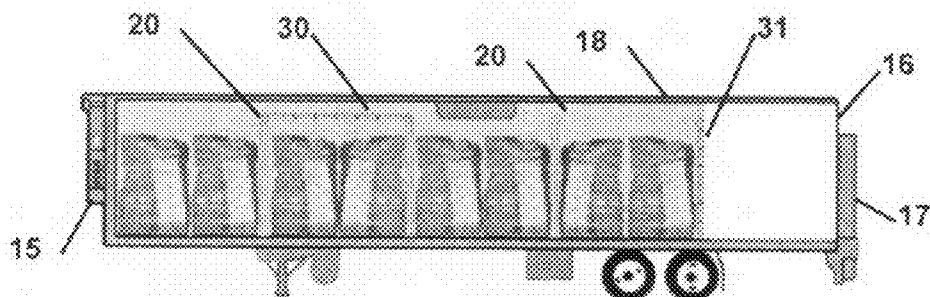


FIG. 1

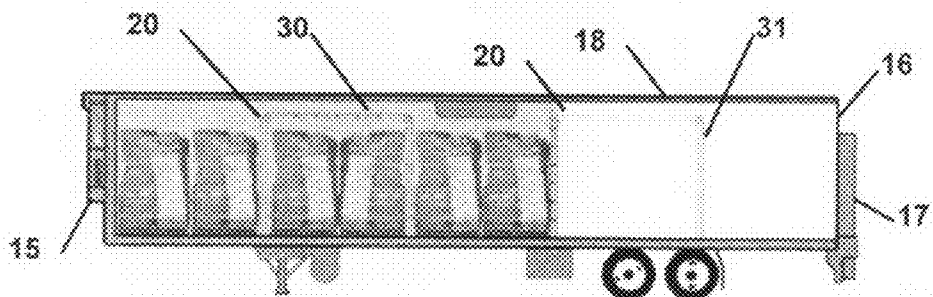


FIG. 2

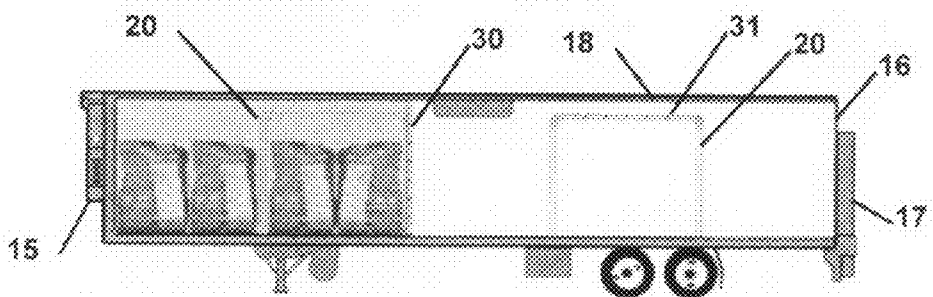


FIG. 3

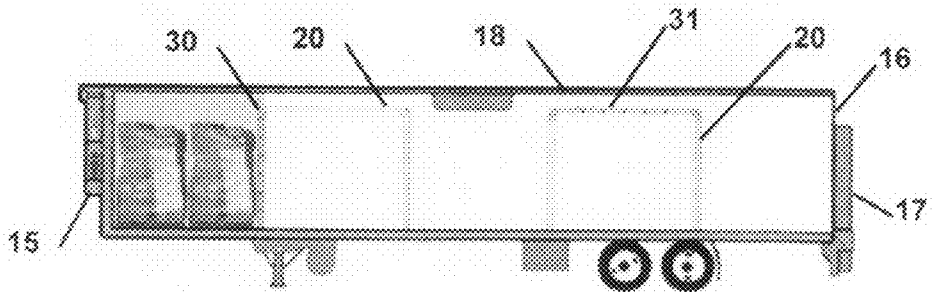


FIG. 4

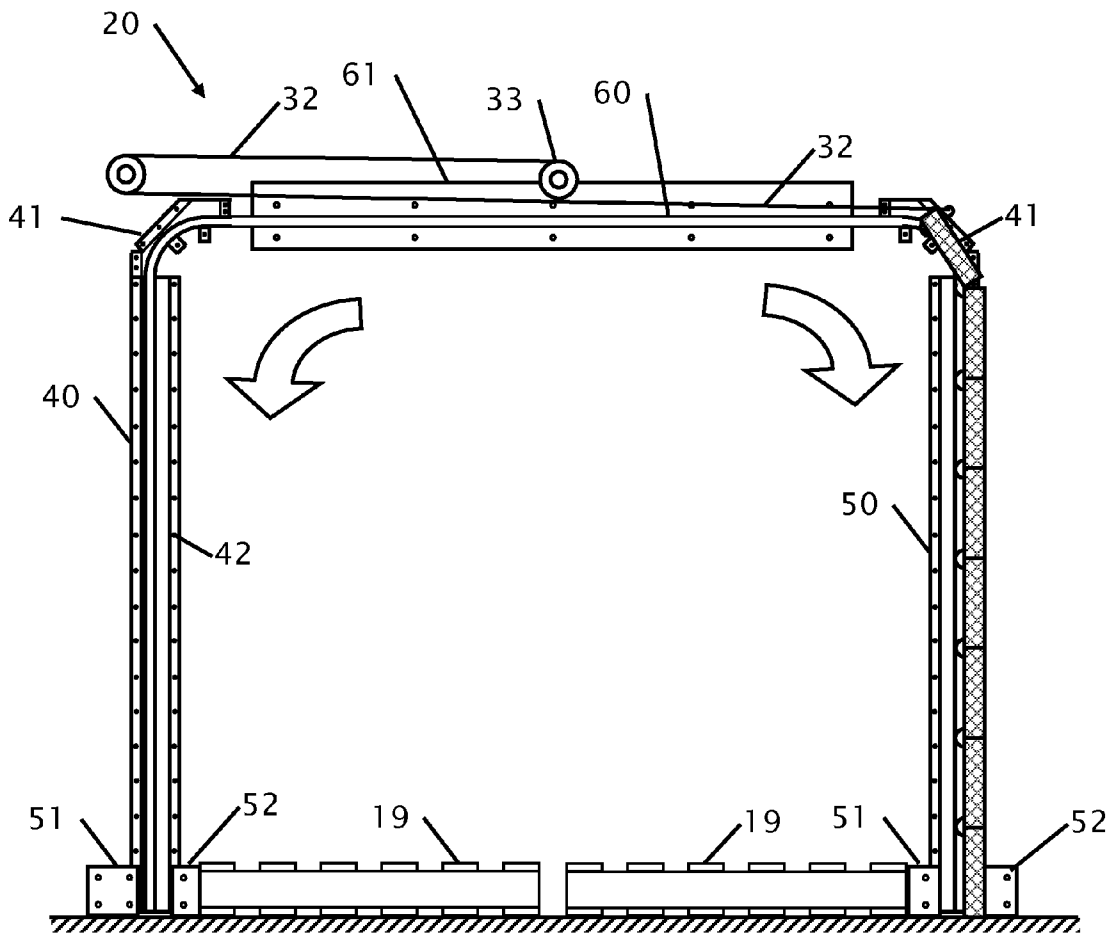


FIG. 5

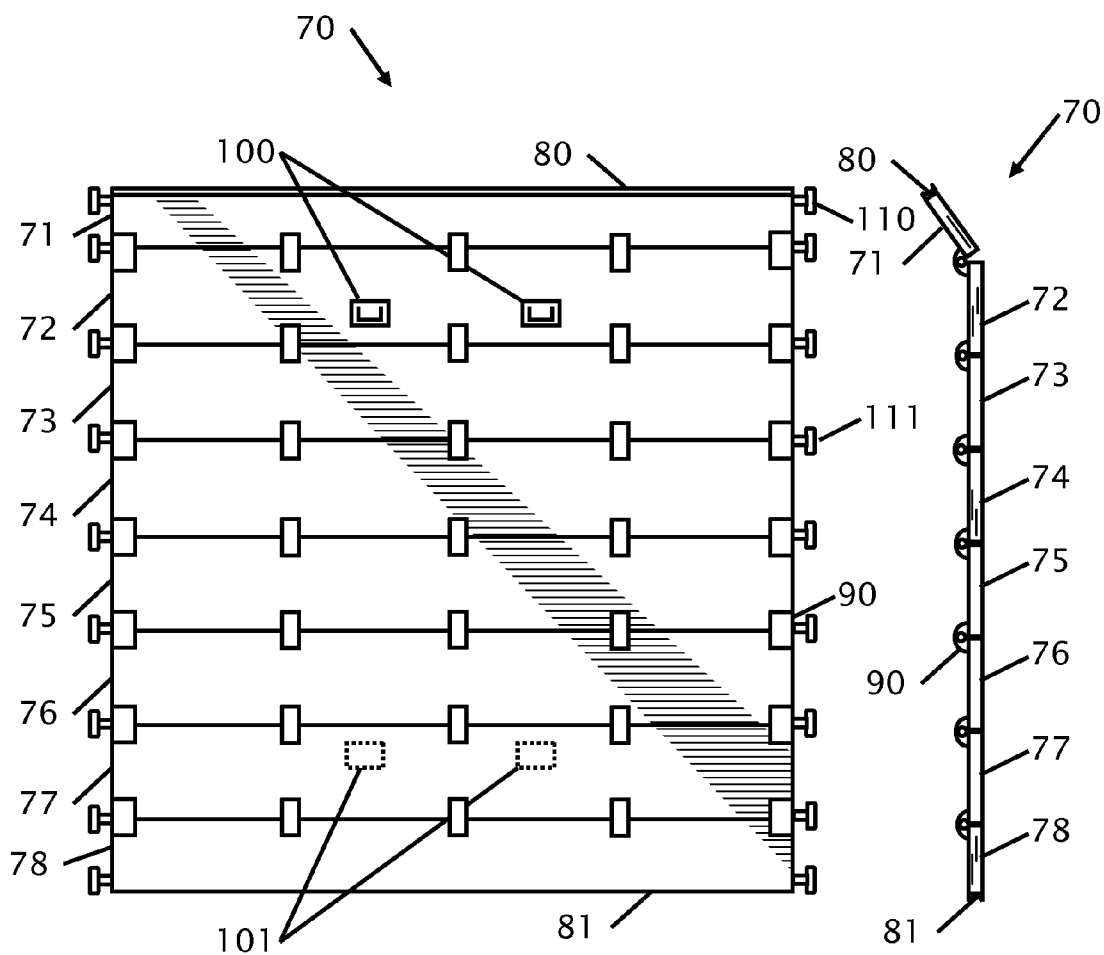
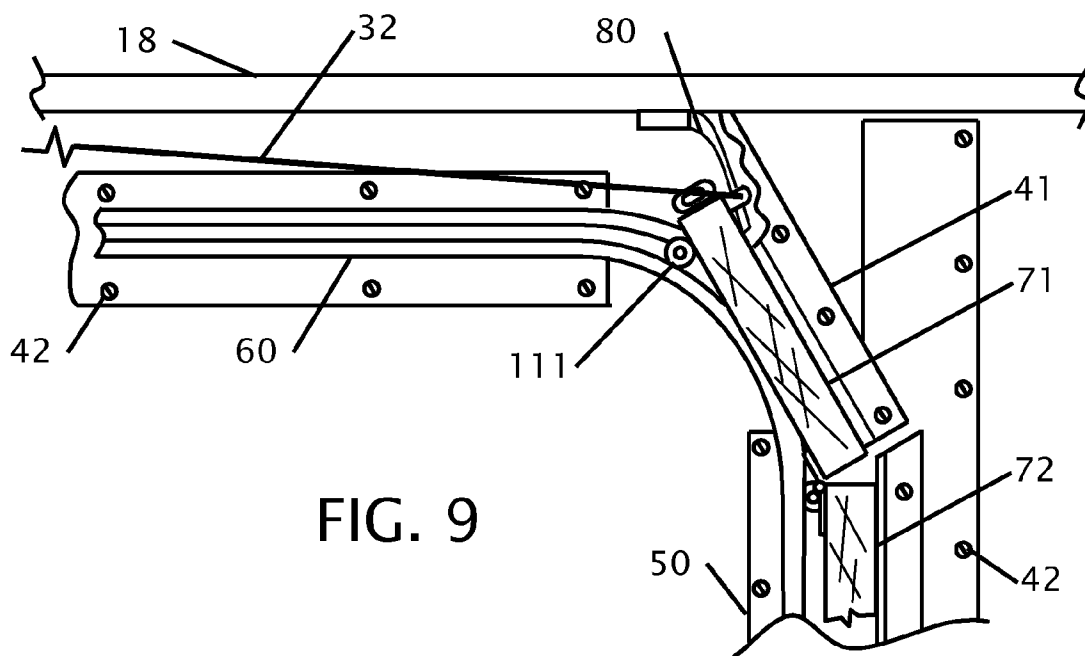
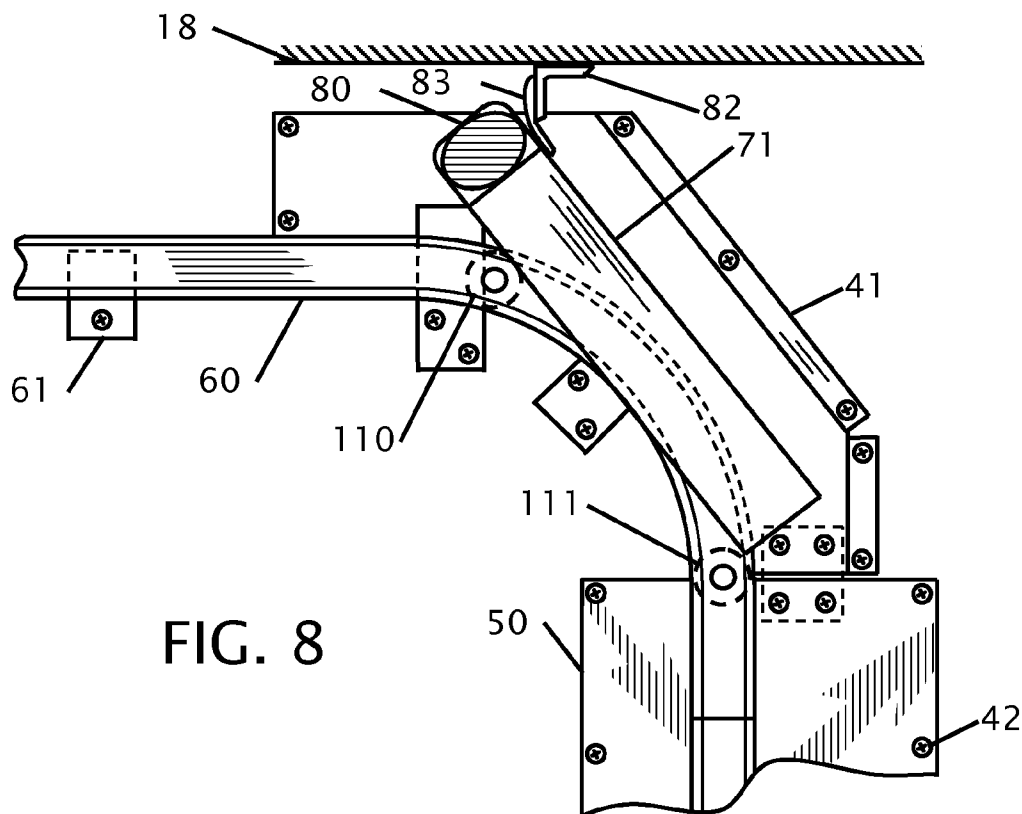
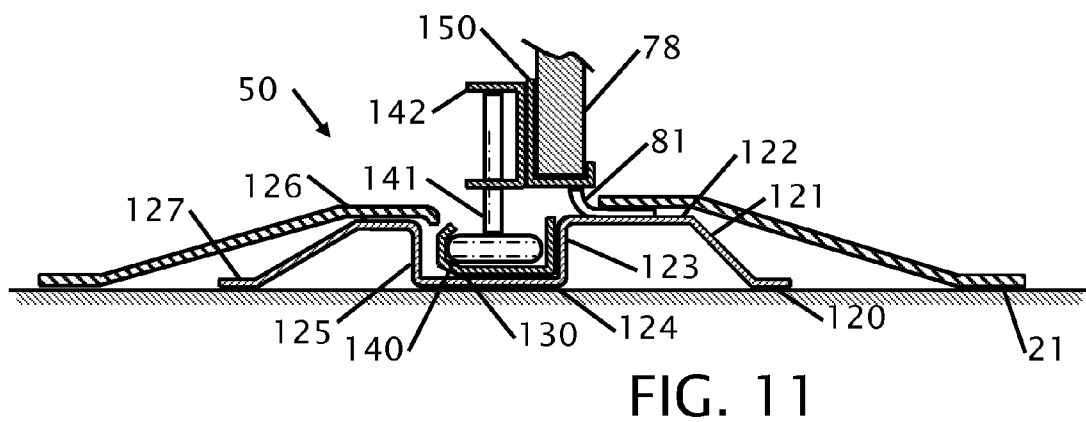
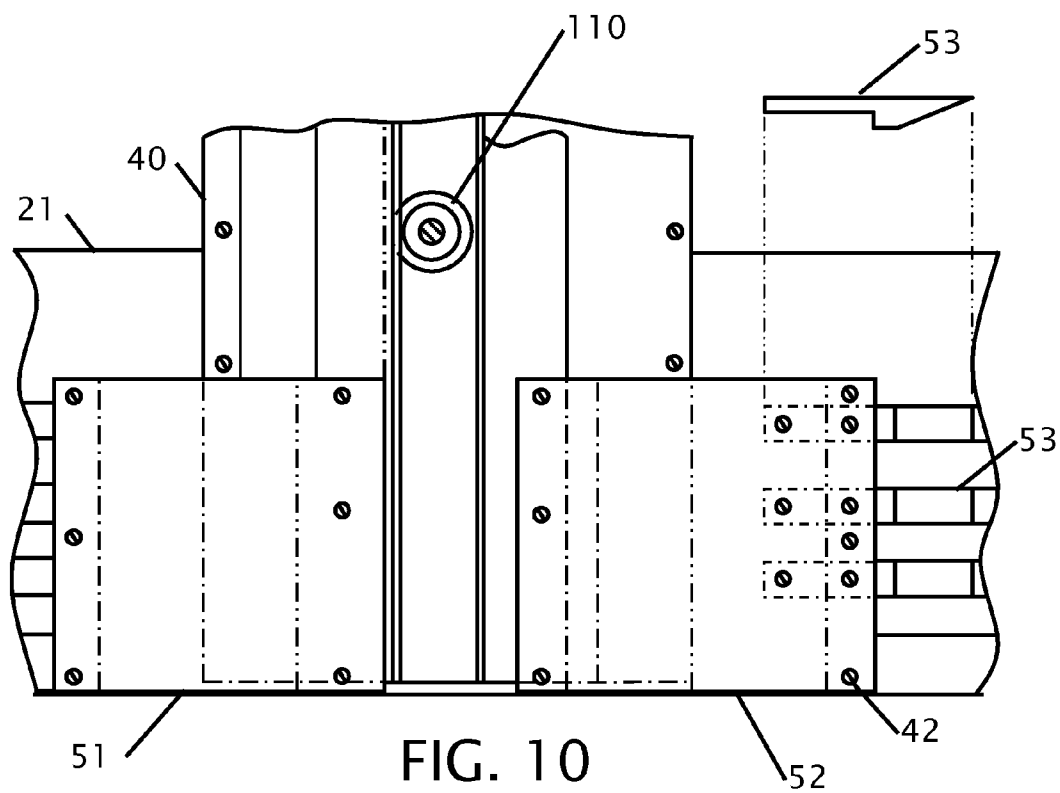


FIG. 6

FIG. 7





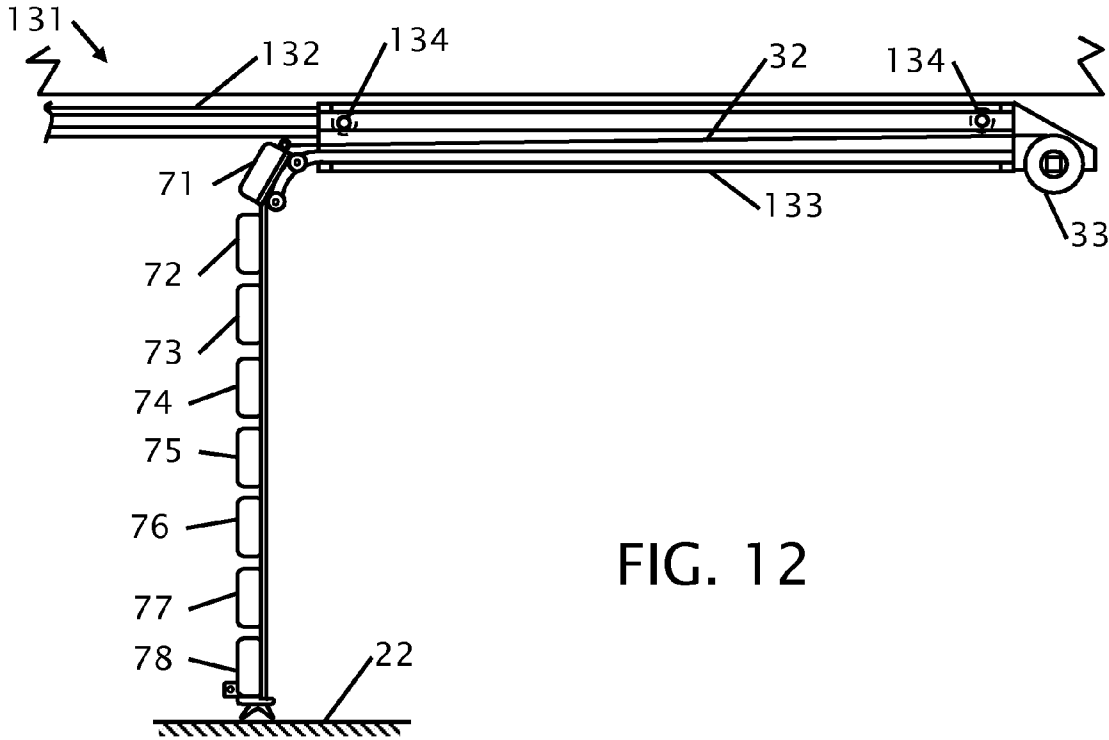


FIG. 12

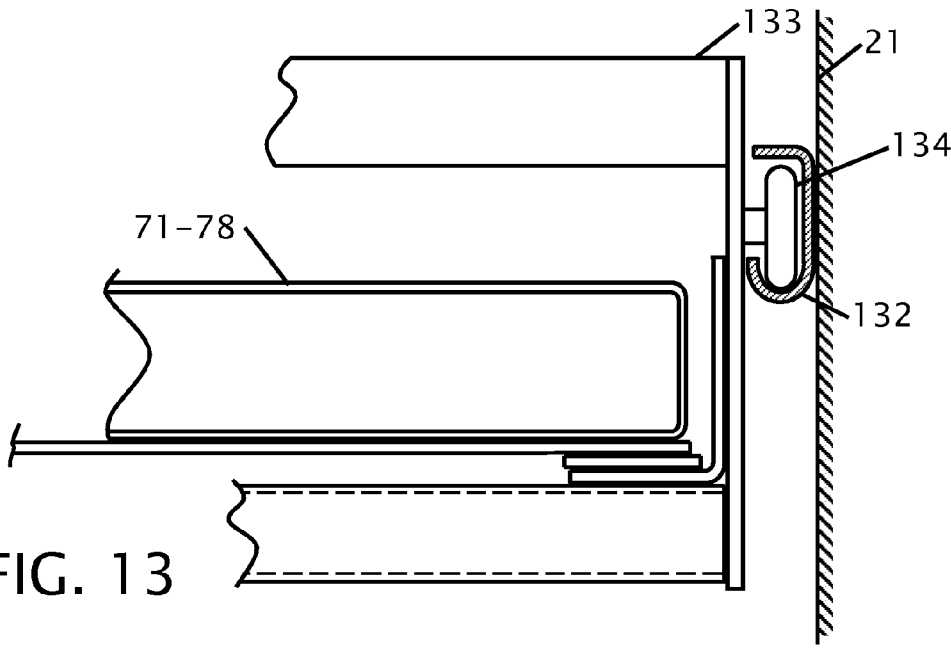
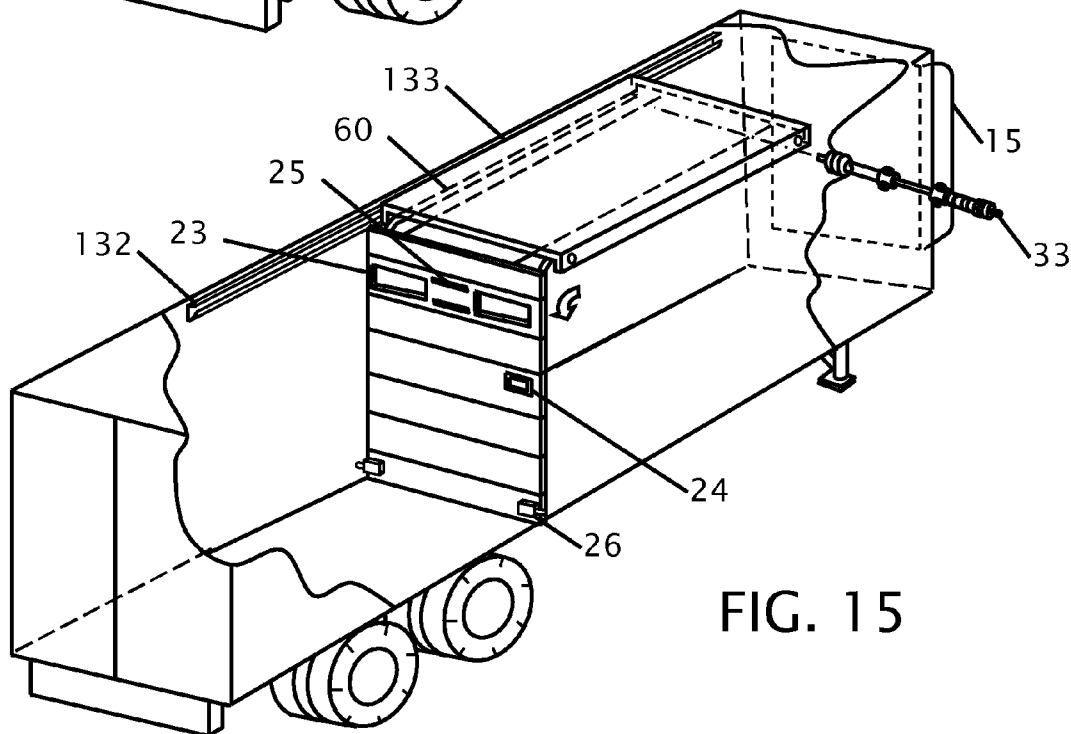
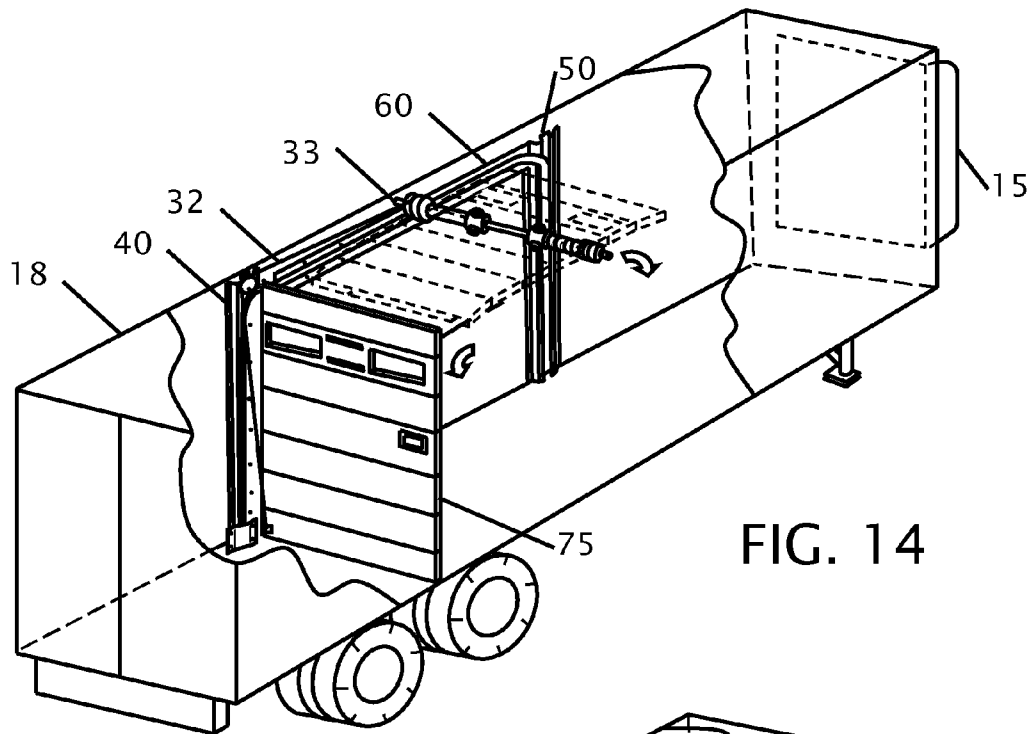


FIG. 13



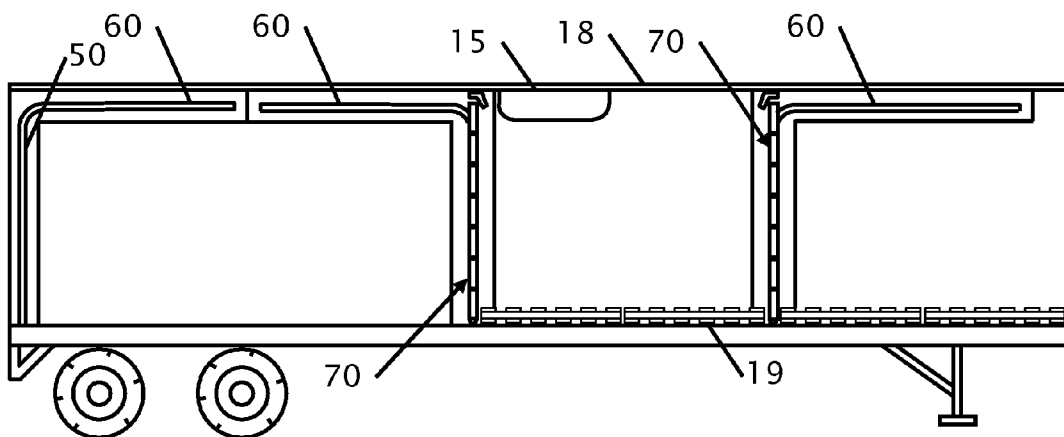


FIG. 16

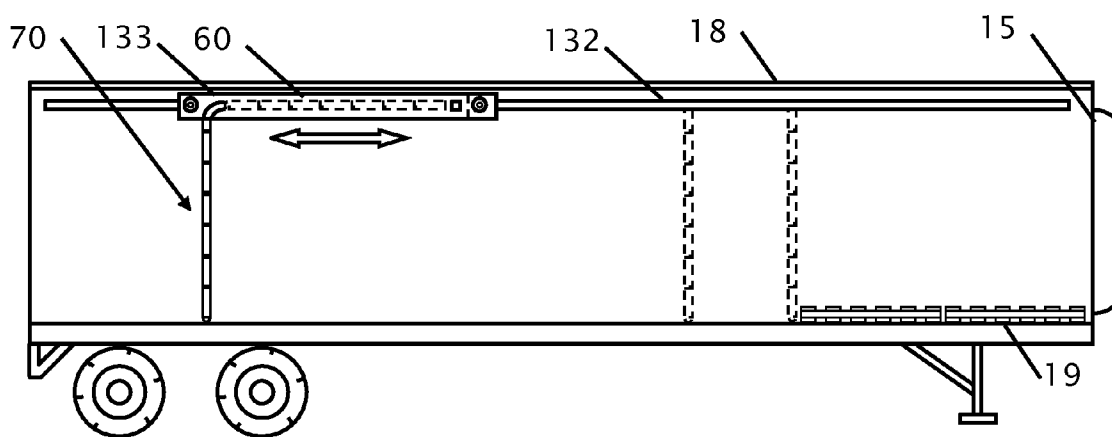


FIG. 17

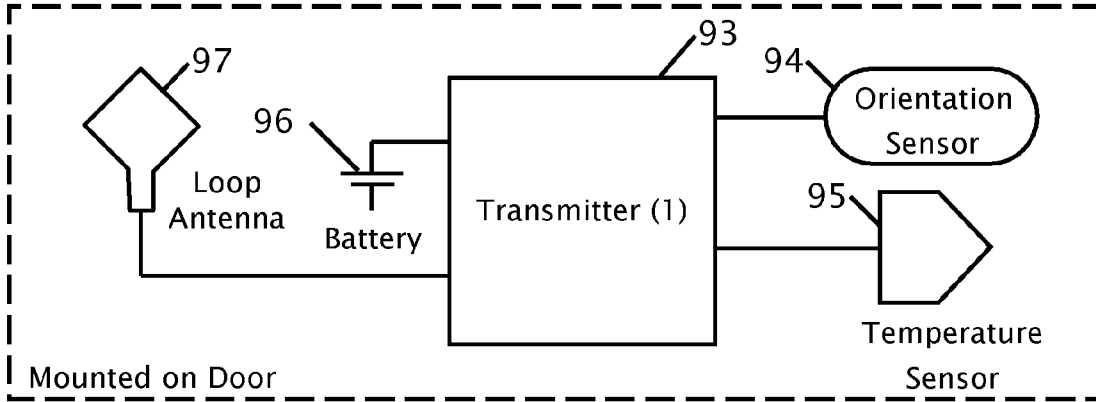


FIG. 18A

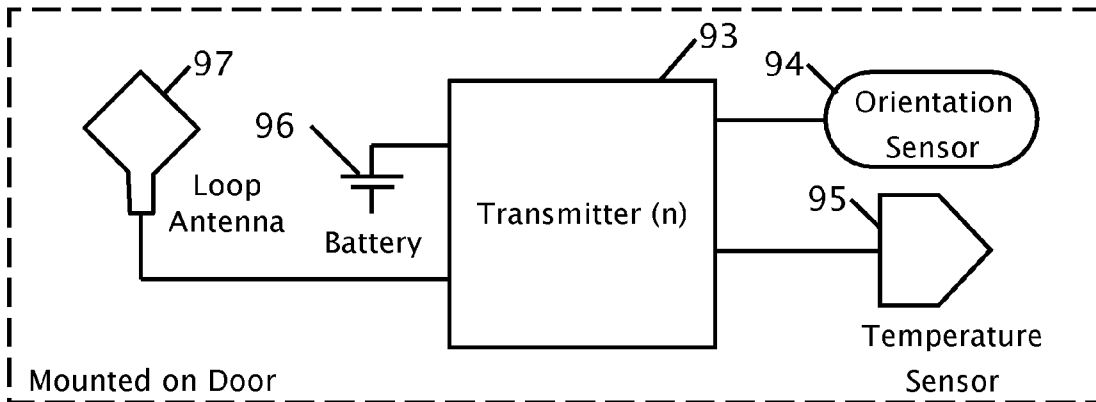


FIG. 18B

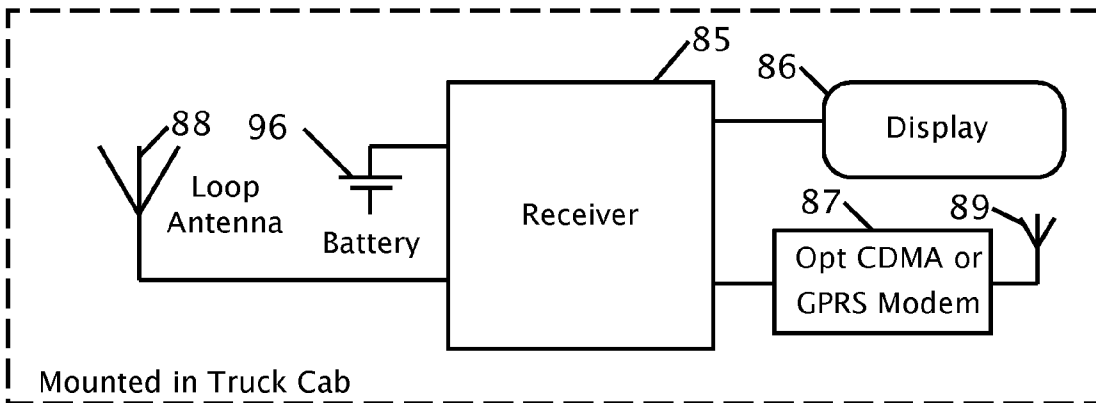


FIG. 18C

ROLL-UP INSULATED PARTITIONING SYSTEM FOR TRAILERS

CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of Provisional 61/005,000 filed Nov. 30, 2007 the entire contents of which is hereby expressly incorporated by reference herein.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not Applicable

THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

[0003] Not Applicable

INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC

[0004] Not Applicable

BACKGROUND OF THE INVENTION

[0005] 1. Field of the Invention

[0006] The present invention relates to improvements in a refrigerated trailer insulation system. In particular, the insulation system includes one or more roll-up partitions that alter the amount of space in a trailer that is required to be refrigerated. The roll-up partitioning system includes protection mechanisms such as ramps and guides that prevent damage from impact with forklift, pallets and other cargo movement equipment.

[0007] 2. Description of Related Art Including Information Disclosed Under 37 CFR 1.97 and 1.98

[0008] Most refrigerated trailers cool all or the majority of the volume of the trailer. If a trailer is filled with a single pallet of material or completely filled with product, the fuel cost to cool the entire volume is basically the same. A number of inventions have been patented that try to close off a portion of the internal volume of the trailer to only cool the area that has product. Most of these systems are blankets or bulkheads that are hinged from the sides of the trailer or moved in and out of the trailer. The majority of these systems have failed because they are difficult to use or are easily damaged. Exemplary examples of these patents are presented herein.

[0009] U.S. Pat. No. 3,376,599 issued to the I. Singer on Apr. 9, 1968 discloses a mounting arrangement for insulated bulkhead in a trailer. The mounting system includes a track system that is mounted to the upper corners of a trailer and an accordion type insulated curtain is extendable across the trailer shell. The accordion partition is movable to a variety of places within the trailer shell, but the accordion partition is susceptible to damage because it extends along at least one wall. If the partition is left in the back of the trailer shell and the trailer is filled with product the installer will have to move around the entire product and drag the accordion partition to the front of the trailer shell for use. These two disadvantages are not present in the pending application.

[0010] U.S. Pat. No. 3,057,284 issued to R. K. Learmont on Oct. 9, 1962 and U.S. Pat. No. 4,049,311 issued to Alfred T. Dietrich et al., on Sep. 20, 1977 both discloses movable insulated doors or bulkheads. The bulkheads are mounted to the corners of the trailer shell where they are slid to the side or

rotated to provide passage of product within the trailer shell. The bulkheads take room on the sides of the trailer and are susceptible to damage as product is moved into the trailer shell. If the bulkheads are removed prior to installation of product the trucker will need to carry the bulkheads back into the trailer for installation, making it less likely that they will be used. These two disadvantages are also not present in the pending application.

[0011] U.S. Pat. No. 4,880,342 issued to Joseph A. Pradovic on Nov. 14, 1989 discloses a moveable bulkhead. The movable bulkhead includes slabs of insulation material that is strapped to the inside of the trailer shell using the existing anchoring points within a trailer. The movable bulkheads must be set aside or removed from the trailer to move material past them within the trailer. They also provide a limited seal between the sides of the bulkheads and the sides of the trailer where cooled air can pass the bulkheads making them less effective. Because these bulkheads are separate parts from the trailer shell, they can easily be set aside and not used thereby making them ineffective. These disadvantages are not present in the pending application.

[0012] U.S. Pat. No. 7,214,016 issued to Chad Nelson et al., on May 8, 2007 discloses a bulkhead and partitioning system with wipers located on the edges. The partitioning system consists of a loose door partition that is placed within the trailer shell to reduce the volume that must be cooled. While this partitioning system provides reduces the volume that will be cooled the partitions must be moved or removed when product is being placed or removed from the trailer shell.

[0013] What is needed is a simple to operate trailer partitioning system that resists damage, is easy to open and close, and does not interfere with the installation of product within the trailer. The proposed application satisfies these requirements with a retrofitable and easy to install and use insulated partitioning system.

BRIEF SUMMARY OF THE INVENTION

[0014] It is an object of the trailer insulated partitioning system to create a partitioning system that rolls-up. The ability to roll the partition up allows the partition to be moved out of the way while it is not being used. The roll-up allows the partition to be quickly raised and lowered to divide the trailer frame into a larger or smaller cavity to increase or decrease the volume of trailer that is being refrigerated.

[0015] It is an object of the trailer insulated partitioning system to include ramps that protects the installation from accidental harm from a forklift or pallet. The ramps or protectors guides cargo and cargo movement around and over the partitions and any structure that supports the partitioning system.

[0016] It is an object of the trailer insulated partitioning system to provide a partitioning system with one or more partitioning structures. The use of multiple partitions allows the trailer driver to divide the trailer into smaller segments to refrigerate or retain refrigeration into just a section that is smaller than the entire trailer shell. Each partition can be individually opened, closed locked or unlocked to alter the refrigerated volume.

[0017] It is an object of the trailer insulated partitioning system to make the partitioning system from separate horizontal partitions. The use of horizontal partitions allows the partitions to be made from narrower sections that minimize the space that is required in front and back of the partitions when they are being rolled up or down. Because the partitions

roll vertically, the partitions can be brought only partially down on top of a pallet or other obstruction.

[0018] It is an object of the trailer insulated partitioning system to use springs or counterweights to make the partitions easier to open or close. The counterweights can be integrated into the sides of the partitions or in the top of the ceiling where they minimize the amount of force required to raise the partitions.

[0019] It is another object of the trailer insulated partitioning system with tracks. The tracks are mounted into the sides of the trailer where they create a minimal reduction in the volume of the trailer. The tracks remain in a fixed position within the trailer to guide the partition sections.

[0020] It is still another object of the trailer insulated partitioning system where each partition is insulated to keep the refrigerated section cold and reduce the amount of refrigeration that is required thus reducing the amount of energy or gas that is used to keep the product within the trailer cold.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

[0021] FIG. 1 shows the roll-up insulated partitioning system installed in a trailer that is mostly filled with product.

[0022] FIG. 2 shows the roll-up insulated partitioning system installed in a trailer that is, over half filled with product.

[0023] FIG. 3 shows the roll-up insulated partitioning system installed in a trailer that is less than half filled with product.

[0024] FIG. 4 shows the roll-up insulated partitioning system installed in a trailer with only a few pallets of product within the trailer.

[0025] FIG. 5 shows the track system that is installed in the sidewalls of a trailer.

[0026] FIG. 6 shows a front view of a partition used in the roll-up insulated partitioning system.

[0027] FIG. 7 shows a side view of a partition used in the roll-up insulated partitioning system.

[0028] FIG. 8 shows a detailed view of the corner track for the roll-up insulated partitioning system.

[0029] FIG. 9 shows a detailed view of the sidewall ramping protection system with a portion of a partition installed to show the partition sealing with the side of the trailer.

[0030] FIG. 10 shows a section of the sidewall track.

[0031] FIG. 11 shows a cross sectional view of the sidewall track and track protector.

[0032] FIG. 12 shows a perspective view of a trailer shell with a movable a single drop roll-up insulated bulkhead.

[0033] FIG. 13 is a side detail of the movable guide structure.

[0034] FIG. 14 shows a perspective view of a trailer shell with a single double drop roll-up insulated bulkhead.

[0035] FIG. 15 is a perspective view of a movable single drop roll-up insulated bulkhead.

[0036] FIG. 16 is a side view of a trailer shell with three single sided roll-up insulated bulkheads.

[0037] FIG. 17 is a side view of a trailer shell with a movable a single drop roll-up insulated bulkhead.

[0038] FIG. 18A-C shows block diagrams of the transmitter and receiver components the sense and sends the door position and the temperature.

DETAILED DESCRIPTION OF THE INVENTION

[0039] FIG. 1-FIG. 4 show the roll-up insulated partitioning system installed in a trailer with various numbers of pallets loaded within the trailer. The trailer shell **18** has an opening on one end **16** for the installation of product into the trailer shell **18**. A ramp or lift **17** is optionally installed onto the operable side of the trailer shell **18**. On the side opposite the operable side, a refrigeration unit **15** is located. A separate motor powers the refrigeration unit **15** and compressor that is attached trailer. The energy used to operate the refrigeration unit is supplied by separate gas, diesel or nitrogen fuel. The amount of energy required to refrigerate the trailer shell **18** is proportional to the volume that is being refrigerated. The greatest amount of fuel used to refrigerate the trailer shell **18** occurs when the trailer shell **18** is completely filled with product (not shown). While two sets of roll-up partitions are shown in these figures it is contemplated that as few as one to many more than two sets of tracks and roll-up partitions can be used.

[0040] In FIG. 1, the majority of the trailer shell **18** is filled with product. One roll-up partition **31** is pulled over the track **20** in front of the cargo to reduce the volume being air-conditioned. Partition **30** is in its upper position to allow cooling to the remainder of the trailer volume without restricting storage area.

[0041] In FIG. 2, the trailer shell **18** is more than half filled with product. The same roll-up partition **31** (From FIG. 1) is pulled over the other side of the track to reduce the volume being refrigerated. Partition **30** is in its upper position to allow cooling to the remainder of the trailer volume without restricting storage area.

[0042] In FIG. 3, the trailer shell **18** is less than half filled with product. In this figure partition **31** is in its upper position to allow access to the product without using the sides of the trailer for storage. Partition **30** is pulled over the track **20** in front of the cargo to reduce the volume being air-conditioned.

[0043] In FIG. 4, the trailer shell **18** is almost empty of product. In this figure partition **31** is in its upper position to allow access to the product without using the sides of the trailer for storage. Partition **30** is pulled over the other side of the track to reduce the volume being refrigerated. In each of these figures, only the volume of cargo requiring refrigeration is cooled. This is accomplished with two roll-up partitions **30**, **31** and when not in use these partitions are stored in the upper portion of the trailer shell **18** to provide full access to the inside of the trailer shell **18**.

[0044] FIG. 5 shows the track system **20** that is installed in the sidewall of a trailer. A track system that allows the bulkhead to be placed on either side of the overhead track **60**. While tracking on both sides **40** and **50** of the overhead track **60** is shown, it is also contemplated that only one side track **40** or **50** can be used with the overhead **60** track. The two parallel sets of side tracks are mirror image complimentary tracks on the opposite side of the trailer shell. Only one-track set is shown, but prototypes have been made with two sets of track as shown in FIGS. 1-4. The track shown allows a single partition to the closed on either vertical side of the overhead track, but it is also contemplated that the track will allow for closure on only one side as opposed to the two sides **40** and **50** shown. The track includes an overhead track **60** that is secured

to the sides of the trailer shell with brackets **61** that are fastened to the sides of the trailer with screws or the like. A radiused corner track **41** guides the roll-up partitions from the overhead track **60** to either vertical track **40** and **50**. The vertical tracks are also fastened or anchored **61** to the sides of the trailer shell with fasteners **42**. Detailed information on the track and partition components are shown and described in more detail in other figures herein.

[0045] This figure shows where pallets **19** would be placed in the truck shell. The track has a retracting system **32** that is essentially a coiled spring. Cable(s) **33** connect the retracting system to the roll-up door and can assist in lifting the door when it is lowered on one or both sides of the overhead track **60**. Track shields **51** and **52** are placed on opposing lower sides of the vertical tracks **40** and **50** to eliminate or mitigate damage from pallets and forklifts to the vertical tracks **40** and **50**.

[0046] FIG. **6** and FIG. **7** show a front and side view (respectively) of a partition **70** used in the roll-up insulated partitioning system. The wheels are not shown in FIG. **7** for clarity. The sections of the partition **71-78** are similar in construction to the roll-up partitions that are used with sectional garage partitions. The partition sections can be fabricated with various types and thicknesses of insulation based upon cost and insulation requirements. The thickness of these partitions will also vary based upon the insulation properties but the basic operation of the partitions will not appreciably be altered. The partitions **70** are constructed in sections to allow them to be lifted vertically with minimal angular tilting that could interfere with product within the trailer shell. Prototypes have been constructed with sections of partitions that are approximately 10 to 14 inches in height, but other sized sections are contemplated. The width of the partition section is variable based upon the width of the trailer shell, but will most commonly be constructed with a width of approximately 96 inches. The ends of the outer partition sections **71** and **78** have seals **80** and **81**, respectively, that seal with the floor and the ceiling of the trailer shell to prevent air from moving past the partition. One or more handles **100** and **101** exist in one or more partition sections to allow an operator to raise or lower the partition without gripping the bottom of the partition or end sectional panels. Wheels **110** and **111** are shown in FIG. **6**. These wheels engage into the tracks shown in FIG. **5**.

[0047] FIGS. **8** and **9** show detailed views of the corner track for the roll-up insulated partitioning system. The radiused corner section **41** guides the wheels **110** and **111** to move the partition section **71** (and **72-78** in FIGS. **6** and **7**) around the vertical section(s) **50** and the horizontal section **60**. One of the anchors **61**, that secure the top track **60** to the side of the trailer shell, is shown in this figure with a securing fastener. The vertical track **50** is shown secured to the sidewall of the trailer with securing fastener(s) **42**. A stop **82** is secured to the top **18** of the trailer shell and a gasket **83** seals the top section **71** of the partition with the top of the trailer shell. Both ends of the outer partition panels **71** (**78**) have a sealing element **80** that seals the bottom on the partition with the bottom of the trailer shell (not shown). The radiused corner section **41** is secured to the side wall of the trailer and provides a track for the wheels **110** and **111** to transition from the horizontal top track **60** to the vertical track(s) **50** (**40**). A spring or counter weight system can be incorporated into the track(s) to make lifting or opening the partitions easier.

[0048] FIG. **9** shows a section of the sidewall track. Only the bottom section of the side track **50** is shown here in this figure with a fastener **42** securing the track to the side of the trailer shell **18**. This view provides a visual appearance of the track **50** when looking at the track. The cable **32** is shown connected to a door sectional panel **71**.

[0049] FIG. **10** and FIG. **11** shows a section of the sidewall track and a cross sectional view of the sidewall track and track protector. In FIG. **10** the track is shown mounted on the side of a truck shell **21**. The vertical side track **40** is shown with the track shields **51** and **52** that provide a ramp to move a pallet or forklift blades around the vertical track(s) **40**. Fasteners **42** are shown along the track and shield components to secure the track and components to the truck shell. Additional deflector blocks **53** are shown to minimize the edge of the track shields **51** and **52**.

[0050] The side-track **50** starts as a flat piece of material that is bent to provide flat sections **120** and **127** where fasteners are used to secure the track to the sidewalls of the trailer. Ramps **121** and **126** provide structural strength and protection to the wheel guides. These ramped areas will guide a forklift or pallet around the wheel guides to prevent damage that could affect the functionality of moving the partition. Flat section **122** provides a sealing surface for the gasket **81** that extends along the sides of the partition sections. The gaskets **81**, **80** and **83** (from FIG. **8**) provide a complete seal of the partition with the trailer shell. The vertical areas **123** and **125** in combination with the bottom area **124** provide a nest for the track **130**. The wheel(s) **110** and **140** roll within this track to guide the partition sections. The shape of track **130** captures the radius of the wheel to hold and guide the wheel(s). Each wheel has a shaft **141** extending from the wheel. The shaft is retained on a bracket **142** that is then secured to a partition-holding member **150**. The partition-holding member **150** is secured to the partition section **78**.

[0051] FIG. **12** shows a perspective view of a trailer shell with a movable single drop roll-up insulated bulkhead. A guide structure **131** has an elongated track **132** that extends along both upper sides of the interior truck shell. A movable track **133** can roll along the guide structure to place the movable track **133** at nearly any location along the interior truck shell with rollers **134** that track in the guide structure **131**. The bulkhead is constructed in a number of sections **71-78** that roll up and down into the movable track **133**. In the lowered position the bulkhead closes on the floor **22** of the trailer shell. The retraction system **33** assists in lifting the bulkhead sections **71-78**. A cable **32** connects the bulkhead **71** to the retraction mechanism **33**.

[0052] FIG. **13** is a side detail of the movable guide structure. The side wall **21** of the truck shell is shown with the elongated guide track structure **132** with a wheel **134** in the guide track structure **132**. The movable track **133** is shown with one of the partition sections **71-78** shown in the vertical orientation in the movable track **133**.

[0053] FIG. **14** shows a perspective view of a trailer shell with a single double drop roll-up insulated bulkhead. This bulkhead is shown and described in FIGS. **12**, **13** and **17**. In this figure the truck shell has a refrigeration system **15** shown on one end of the truck shell **18**. The lift mechanism **33** that assists in lifting the bulkhead door into the overhead track **60** is shown. The cable **32** connects the bulkhead door to the lift mechanism **33**. The bulkhead can be moved into either vertical position using either of the vertical tracks **40** and **50** that connect to the overhead track **60**.

[0054] FIG. 15 is a perspective view of a movable single drop roll-up insulated bulkhead. This bulkhead is shown and described in FIGS. 5, 8, 9 and 16. In this figure the truck shell has a refrigeration system 15 shown on one end of the truck shell 18. The lift mechanism 33 that assists in lifting the bulkhead door into the overhead track 60 is shown. Side lock(s) 26 allows the door to be maintained in the vertical orientation. The movable track 133 that includes the movable sectional bulkhead collectively rolls in the elongated track 132. This allows the bulkhead to be lowered in virtually any position within the truck shell. Window(s) 23 are shown that allows a person to look through the bulkhead. A transmitter module 24 is shown connected to one of the bulkhead panels. Lifting strap(s) 25 are shown that allows an operator the ability to lift the bulkhead without grasping the bottom of the bulkhead. The transmitter module is described in more detail with FIGS. 18A-18C

[0055] FIG. 16 is a side view of a trailer shell with three single sided roll-up insulated bulkheads. In this figure, a refrigeration unit 15 is located near the central top of the trailer shell 18. Because the refrigeration unit 15 exists in the middle of the trailer shell 18 three individual partitioned bulkhead doors are used. Each set of roll-up bulkhead doors have separate vertical tracks 50 connected with curved sections to overhead tracks 60. A number of pallets 19 are shown on the floor within the trailer shell 18. Two roll-up partitions 70 are shown in the vertical orientation thereby confining the area being cooled by the refrigeration unit 15.

[0056] FIG. 17 is a side view of a trailer shell with a movable a single drop roll-up insulated bulkhead. The refrigeration unit 15 is located on one end of the truck trailer shell 18. Two pallets 19 are shown located near the refrigeration unit 15. The movable track 133 can roll along the elongated track 132 to position the partition or bulkhead 70 where desired to decrease the volume that is being refrigerated. The partition or bulkhead 70 is stored and deployed from the overhead track 60.

[0057] FIG. 18A-18C shows block diagrams have the transmitter(s) and receiver components the sense and send the door position and the temperature. In FIG. 18A the module is placed on a first door. This module is shown as item 24 in FIG. 15. Additional modules are identified in FIG. 18B where (n) represents additional modules. The number of modules is theoretically only limited by the desired number of units that are specified. In the preferred embodiment only one module is needed and is placed on the inside of the furthest bulkhead in the area being refrigerated but it is contemplated that each door could have one on each side as well as one at the top and bottom of each bulkhead door.

[0058] Each unit has a transmitter 93 connected to an antenna 97 and a power source 96 such as a battery. The transmitter has a temperature sensor 95 that measures the temperature and or an orientation sensor 94 that determines the position of the bulkhead door. The signal is transmitted through the antenna 97 to a receiver module mounted in the cab of the truck. The driver of the truck can visually determine if the bulkhead door is opened or closed and if the temperature inside the truck shell is acceptable. In another contemplated embodiment the data can be stored in memory and recalled to determine if the truck shell remained cold throughout the entire transportation time. The receiver 85 is connected to a power source or battery 96. The receiver further is connected to an antenna 88. The display 86 provides a numerical, graphical, digital or binary indicator of the signal from the

transmitter units. The receiver may optionally include a receiver for CDMA or a GPRS module 87 that can have a separate antenna 89.

[0059] Thus, specific embodiments and applications for a roll-up partitioning system for a trailer have been disclosed. It should be apparent, however, to those skilled in the art that many more modifications besides those described are possible without departing from the inventive concepts herein. It is further contemplated that the roll-up partitions can include a locking system to prevent the partition from being opened accidentally or intentionally. In another contemplated embodiment the partitions can have one or more windows to view the amount or quality of product that is located behind the partition. In still another contemplated embodiment the partition can have a thermometer to verify the temperate at the partition. Another contemplated embodiment includes a counter that counts the number of times the partition is opened or passes a certain point of travel. The inventive subject matter, therefore, is not to be restricted except in the spirit of the appended claims.

1. A roll-up insulated bulkhead system for a trailer shell comprising:
 - a frame structure configured for mounting within a trailer shell;
 - a bulkhead configured with at least two panels that are pivotally linked to allow said at least two panels to articulate in their horizontal axis;
 - said frame structure having a first pair of vertical track, a pair of horizontal track and said first pair of vertical and pair of horizontal tracks are linked with a curved track joiners;
 - each first vertical track, curved track and horizontal track is mountable on opposing side walls of said trailer shell, and
 - said frame structure allows said bulkhead to transition between said vertical tracks to said pair of horizontal track.
2. The roll-up insulated bulkhead according to claim 1 wherein said at least two panels are insulated.
3. The roll-up insulated bulkhead according to claim 1 wherein said articulation is with hinges.
4. The roll-up insulated bulkhead according to claim 1 wherein said bulkhead is connected to said frame structure with wheels that allows said bulkhead to move along said frame structure in a guided path.
5. The roll-up insulated bulkhead according to claim 1 that further includes a retraction system that aids in lifting said bulkhead.
6. The roll-up insulated bulkhead according to claim 1 wherein when said bulkhead is positioned in said first pair of vertical track, said bulkhead is effectively divides a volume of said trailer shell.
7. The roll-up insulated bulkhead according to claim 1 that further includes a sensor that determines a position of said bulkhead.
8. The roll-up insulated bulkhead according to claim 1 that further includes a second pair of curved tracks that are cooperatively coupled with said pair of horizontal tracks and a second pair of vertical tracks that are cooperatively coupled with said second pair of curved tracks that allows said bulkhead to transition from either of said pairs vertical tracks to said pair of horizontal track.

9. The roll-up insulated bulkhead according to claim **8** that further includes a retraction system that aids in lifting said bulkhead from either of said pairs of vertical tracks.

10. The roll-up insulated bulkhead according to claim **5** wherein said retraction system is a coiled spring that is connected to said bulkhead with a flexible member.

11. A roll-up insulated bulkhead system for a trailer shell comprising:

a guide structure configured for mounting within a trailer shell;

said guide structure having an elongated pair of tracks that are mountable along the elongated sides of said trailer shell;

a movable track structure that slides or rolls in said guide structure;

a bulkhead configured with at least two panels that are pivotally linked to allow said at least two panels to articulate in their horizontal axis;

said movable track structure having a first pair of vertical track, a pair of horizontal track and said first pair of vertical and pair of horizontal tracks are linked with a curved track joiners, and

said movable track structure allows said bulkhead to transition between said vertical tracks to said pair of horizontal track.

12. The roll-up insulated bulkhead according to claim **11** wherein said at least two panels are insulated.

13. The roll-up insulated bulkhead according to claim **11** wherein said articulation is with hinges.

14. The roll-up insulated bulkhead according to claim **11** wherein said bulkhead is connected to said movable track structure with wheels that allows said bulkhead to move within said movable track structure in a guided path.

15. The roll-up insulated bulkhead according to claim **11** that further includes a retraction system that aids in lifting said bulkhead.

16. The roll-up insulated bulkhead according to claim **11** wherein when said bulkhead is positioned in said first pair of vertical track, said bulkhead is effectively divides a volume of said trailer shell.

17. The roll-up insulated bulkhead according to claim **11** that further includes a sensor that determines a position of said bulkhead.

18. The roll-up insulated bulkhead according to claim **11** that further includes a second pair of curved tracks that are cooperatively coupled with said pair of horizontal tracks and a second pair of vertical tracks that are cooperatively coupled with said second pair of curved tracks that allows said bulkhead to transition from either of said pairs vertical tracks to said pair of horizontal track.

19. The roll-up insulated bulkhead according to claim **18** that further includes a retraction system that aids in lifting said bulkhead from either of said pairs of vertical tracks.

20. The roll-up insulated bulkhead according to claim **15** wherein said retraction system is a coiled spring that is connected to said bulkhead with a flexible member.

* * * * *