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(54) Titre : HOUSSE POUR COLONNE DE HAYON ET ACCES DE SERVICE
(54) Title: LIFTGATE COLUMN COVER AND SERVICE ACCESS

(57) Abrégé/Abstract:
A liftgate guide column cover may be used to cover and protect a liftgate guide column and thus the liftgate components within it, and also used to provide access to the guide column and the liftgate components within it. In one embodiment, the cover pivots between a closed and an open condition. In another embodiment, the cover can be attached and detached from the guide column.

Atty. Docket #: 30433.50005
Customer #: 78340

ABSTRACT OF THE DISCLOSURE

LIFTGATE GUIDE COLUMN COVER AND SERVICE ACCESS

A liftgate guide column cover may be used to cover and protect a liftgate guide column and thus the liftgate components within it, and also used to provide access to the guide column and the liftgate components within it. In one embodiment, the cover pivots between a closed and an open condition. In another embodiment, the cover can be attached and detached from the guide column.

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LIFTGATE GUIDE COLUMN COVER AND SERVICE ACCESS

This application claims priority to U.S. Serial No. 60/942,060, entitled **LIFTGATE GUIDE COLUMN COVER AND SERVICE ACCESS**, filed June 5, 2007, which is incorporated herein by reference.

I. Background of the Invention

A. Field of Invention

[0001] This invention pertains to the art of methods and apparatuses regarding liftgates and more specifically to methods and apparatuses regarding the manufacture and use of liftgate guide columns.

B. Description of the Related Art

[0002] It is well known in the art to attach liftgates to vehicle trailers or other forms of vehicle cargo holds to assist with loading and unloading of the vehicles. In general, liftgates include a cargo platform or deck and an adjustment system used to move the cargo platform. To load cargo from a ground surface to the vehicle's cargo floor, the cargo platform is positioned in a deployed or lowered position where it is generally parallel with the ground surface. The cargo can then be easily placed onto the cargo platform. The cargo platform is then lifted to a raised position generally parallel with the vehicle's cargo floor. The cargo can then be easily loaded into the vehicle. To unload cargo from the vehicle, the reverse steps are taken.

[0003] Various types and styles of liftgates are known in the art. Some non-limiting examples include conventional liftgates, flip-a-way or fold-up liftgates, rail type liftgates, and

special purpose liftgates. FIGURE 1 shows a known rail type liftgate system and provides a list of the major components. FIGURE 2 illustrates the basic operation of a liftgate system. Note that the uprights 1, 12 (hereafter "liftgate guide columns"), which receive runners 8, 16, are substantially solid and self-enclosed. Access to the interior channel of the guide column is limited to a contiguous opening wherein the runners move up and down to raise and lower an attached platform, and to a small opening at the top of the guide column. While the liftgate guide columns 1, 12 shown in FIGURE 1 work well for their intended purpose, such liftgate guide columns have a disadvantage.

[0004] The disadvantage is related to the fact that various liftgate components, which may include, for example, control wiring, hydraulic system components, switches, lights, etc. are positioned within the liftgate guide columns. Should any of these liftgate components require service or maintenance, they are difficult to access.

[0005] The present invention provides methods and apparatuses to provide easy access to the liftgate components that are positioned within a liftgate guide column while still providing protection for the liftgate components. This invention thus overcomes the foregoing difficulties and others while providing better and more advantageous overall results.

II. Summary of the Invention

[0006] According to one embodiment of this invention, a liftgate comprises: (A) at least one attachment surface that can be attached to an associated vehicle having a cargo receiving floor; (B) a cargo platform having a cargo receiving surface; (C) a first runner operatively connected to the cargo platform; (D) a first liftgate guide column comprising: (1) a top, a bottom, and a mid-portion; (2) a channel that receives at least a portion of the first runner; (3) a first access opening formed in the mid-portion that provides access to the interior of the first liftgate guide column; (E) a first cover that is pivotally connected to the first lifgate guide column and is manually pivotal between: (1) a first position where the first cover covers the first access

opening and prevents access through the first access opening; and, (2) a second position where the first cover does not cover the first access opening and permits access through the first access opening; and, (F) an adjustment system that moves the first runner within the channel in the first liftgate guide column between: (1) a relatively raised position where the cargo receiving surface of the cargo platform is substantially parallel with the cargo receiving floor of the vehicle; and, (2) a relatively lowered position where the cargo receiving surface of the cargo platform is substantially below the cargo receiving floor of the vehicle.

[0007] According to one embodiment of this invention, a liftgate comprises: (A) at least one attachment surface that can be attached to an associated vehicle having a cargo receiving floor; (B) a cargo platform having a cargo receiving surface; (C) a first runner operatively connected to the cargo platform; (D) a first liftgate guide column comprising: (1) a top, a bottom, and a mid-portion; (2) a channel that receives at least a portion of the first runner; (3) a first access opening formed in the mid-portion that provides access to the interior of the first liftgate guide column; (E) a first connection apparatus comprising: a first sleeve; and, a first pin; (F) a first cover that is: (1) manually attachable to the first lifgate guide column where the first cover covers the first access opening and prevents access through the first access opening by insertion of the first pin within the first sleeve; and, (2) manually detachable from first liftgate guide column where the first cover does not cover the first access opening and permits access through the first access opening by removal of the first pin from the first sleeve; and, (F) an adjustment system that moves the first runner within the channel in the first liftgate guide column between: (1) a relatively raised position where the cargo receiving surface of the cargo platform is substantially parallel with the cargo receiving floor of the vehicle; and, (2) a relatively lowered position where the cargo receiving surface of the cargo platform is substantially below the cargo receiving floor of the vehicle.

[0008] According to still another embodiment of this invention, a liftgate comprises: (A) at least one attachment surface that can be attached to an associated vehicle having a cargo receiving floor; (B) a cargo platform having a cargo receiving surface; (C) first and second

runners operatively connected to the cargo platform; (D) a first liftgate guide column comprising: (1) a top, a bottom, and a mid-portion; (2) a channel that receives at least a portion of the first runner; (3) a first access opening formed in the mid-portion that provides access to the interior of the first liftgate guide column; (E) a second liftgate guide column comprising: (1) a top, a bottom, and a mid-portion; (2) a channel that receives at least a portion of the second runner; (3) a first access opening formed in the mid-portion that provides access to the interior of the second liftgate guide column; (F) a first cover that is pivotally connected to the first lifgate guide column and is manually pivotal between: (1) a first position where the first cover covers the first access opening in the first lifgate guide column and prevents access through the first access opening in the first lifgate guide column; and, (2) a second position where the first cover does not cover the first access opening in the first lifgate guide column and permits access through the first access opening in the first liftgate guide column; (G) a first connection apparatus that connects the first cover to the first liftgate guide column, the first connection apparatus comprising: a first sleeve that rotatably receives a first pin; (H) a second cover that is pivotally connected to the second lifgate guide column and is manually pivotal between: (1) a first position where the second cover covers the first access opening in the second lifgate guide column and prevents access through the first access opening in the second lifgate guide column; and, (2) a second position where the second cover does not cover the first access opening in the second lifgate guide column and permits access through the first access opening in the second lifgate guide column; (I) a second connection apparatus that connects the second cover to the second liftgate guide column, the second connection apparatus comprising: a second sleeve that rotatably receives a second pin; and, (J) an adjustment system that moves the first and second runners within the channel in the first liftgate guide column and the channel in the second liftgate guide column, respectively, between: (1) a relatively raised position where the cargo receiving surface of the cargo platform is substantially parallel with the cargo receiving floor of the vehicle; and, (2) a relatively lowered position where the cargo receiving surface of the cargo platform is substantially below the cargo receiving floor of the vehicle.

[0009] One advantage of this invention is that it is easy to access liftgate components positioned within a liftgate guide column.

[0010] Another advantage of this invention is that the liftgate components positioned within the liftgate guide column are well protected.

[0011] Still other benefits and advantages of the invention will become apparent to those skilled in the art to which it pertains upon a reading and understanding of the following detailed specification.

III. Brief Description of the Drawings

[0012] The invention may take physical form in certain parts and arrangement of parts, embodiments of which will be described in detail in this specification and illustrated in the accompanying drawings which form a part hereof and wherein:

[0013] FIGURE 1 is a plan perspective view of a prior art rail type liftgate.

[0014] FIGURE 2 illustrates the general operation of a liftgate system.

[0015] FIGURE 3 is a perspective view of a curb side liftgate guide column according to one embodiment of this invention.

[0016] FIGURE 4 is a close-up view of the top portion of the liftgate guide column shown in FIGURE 3.

[0017] FIGURE 5 is a perspective view of one embodiment of the invention that is attached to a vehicle trailer.

IV. Detailed Description of the Invention

[0018] Referring now to the drawings wherein the showings are for purposes of illustrating embodiments of the invention only and not for purposes of limiting the same, FIGURE 3 shows a liftgate apparatus **100** using a pair of column covers **104** according to one embodiment of this invention. The overall operation of a rail type liftgate apparatus is as provided in FIGURE 2, and thus will not be described in detail.

[0019] With reference now to FIGURES 3, 4, and 5, the liftgate apparatus **100** may have a cargo receiving platform **105** and at least one attachment surface **135** for use in connecting the liftgate apparatus **100** to an associated vehicle **130** which may have a cargo receiving floor **107**. The particular type and manner in which the attachment surface **135** is used can be any manner known in the art and thus will not be described further here. The liftgate apparatus **100** may also at least one runner **102** (two shown) that pivotally attaches to the platform **105**, at least one liftgate guide column **101** (two shown) that slidably receives the runner **102** in a known manner, and an adjustment system **103** for use in adjusting the position of the cargo platform **105**. A guide column cover **104** may be used to cover and protect each guide column **101**, and thus the components within it, but also to provide access to each guide column **101** as will be discussed further below.

[0020] With reference now to FIGURES 3 and 4, the adjustment system **103** may be of any type chosen with the sound judgment of a person of skill in the art, and may include, for a non-limiting example, a hydraulic system (not shown) and a control system (not shown). As these systems, and similar systems, are well know, further details will not be provided here. However, some of liftgate adjustment system **103** components may be positioned within and/or supported on the liftgate guide column **101**, including, for example control wiring, hydraulic system components, and control switches. Additional liftgate components may also be positioned within and/or supported on the liftgate guide column **101** including, for one non-limiting example, lights.

[0021] The adjustment system **103** may be used to adjust the cargo platform **105** between a stored or stowed condition and a deployed or use condition. When the cargo platform **105** is in a deployed condition, the cargo platform's **105** cargo receiving surface **106** provides a planar surface for accepting cargo. The adjustment system **103** may also be used to adjust the cargo receiving surface **106** between a lowered use position, generally parallel with a ground surface, and an upper use position, generally parallel with the cargo receiving floor **107** of the vehicle **130**. In this way the liftgate apparatus **100** provides an elevator device for use in moving cargo from a ground surface to a position where it is level with - and easily unloaded onto—the vehicle's cargo receiving floor **107**.

[0022] The guide column embodiment shown in FIGURES 3 and 4 has a generally rectangular columnar shape but it should be understood that a guide column could take many other shapes and still fall into the scope of this invention. The embodiment shown in FIGURES 3 and 4, however, is a generally rectangular columnar shape that includes a top **116** (shown with an access opening **117**), a bottom **119**, and a mid-portion **118** consisting of two vertical side walls and two vertical end walls. In several embodiments of this invention, where the liftgate guide column **101** has a length of LG1, and the length of the cover **104** is C1, the ratio of C1/LG1 may be either: 0.5, 0.75, or substantially 1.0 for one or both sets of guide columns **101** and covers **104**. A first side wall **109** has a channel **110** extending from near the top **116** of the guide column **101** to nearly the bottom **119** of the guide column **101**. The runner **102** freely moves up and down within this channel **110** when raising and lowering the attached cargo platform **105**. A second side wall **111** has at least one, two shown, access openings **108** that allow easy service or maintenance access to the various adjustment system **103** components positioned within the guide column **101**. In several embodiments of the invention, where the length of the liftgate guide column **101** is LG1, and the length of the access opening **108** is O1, the ratio of O1/LG1 may be at least 0.1 for one or both sets of guide columns **101** and covers **104**. The second side wall **111** may contain any number of additional access openings **108**, as needed. A first end wall **112** may have openings for taillights **113** mounted within the guide

column **101**, and in the embodiment shown in FIGURE 3 it also has additional access openings **114** (six shown). The first end wall may contain any number of additional access openings **114**, as needed. A second end wall **115** abuts, and may or may not be attached to, the rear end of the vehicle **130**.

[0023] When the guide column cover **104** is attached to the outside surface of the guide column **101**, it provides: (1) when in a closed or attached position, protection to the adjustment system **103** components; and, (2) when in an open or removed position, easy access—via access openings **108, 114,** and/or **117** - to the liftgate components housed within or supported by the guide column **101**. While the guide column cover **104** can have any shape chosen with the sound judgment of a person of skill in the art, in the embodiment shown in FIGURES 3 and 4, the cover **104** has a top portion **120** to protect the top **116** of the guide column **101**, a side portion **121** to protect the second side wall **111** of the guide column **103**, and an end portion **122** to protect the first end wall **112** of the guide column **101**. When attached and closed, the guide column cover **104** fully shields the access openings **108, 114,** and/or **117** located on the second side wall **109,** first end wall **111**, and/or top of the guide column **101** - and thus protects the various liftgate components positioned within or supported by the guide column **101**.

[0024] With continuing reference to FIGURES 3 and 4, the guide column cover **104** may be attached to the guide column **101** in any manner chosen with the sound judgment of a person of skill in the art. In one embodiment, the cover **104** is pivotally connected to the guide column **101**, using a hinge or hinges. The cover **104** may then be manually pivoted between a closed (first) position where the access openings **108, 114,** and/or **117** are covered and not accessible, and an open (second) position where the access openings **108, 114,** and/or **117** are not covered and are fully accessible. In another embodiment, a connection mechanism **123** comprising a sleeve **124** and a pin **125** that is received within the sleeve **124** is used. For this embodiment, the connection mechanism **123** provides both a pivotal connection for the cover **104** and also provides for an easy way to detach and remove the cover **104** away from the guide column **101**. Specifically, the connection mechanism **123** may include at least one sleeve/pin

connection **126**, two shown, where a pin **125** is received within a sleeve **124**, and thus the pin **125** can be rotated within the sleeve **124**. In one embodiment, as shown in FIGURES 3 and 4, the sleeve **124** is attached to the guide column **101** and the pin **125** is attached to the cover **104**. In another embodiment, not shown, the pin **125** is attached to the guide column **101** while the sleeve **124** is attached to the cover **104**. In yet another embodiment, a connection apparatus **123** consisting of a sleeve **124** and a pin **125** provides easy attachment and detachment of the cover **104** to the guide column **101** when the pin **125** is selectively inserted or removed from an opening in the sleeve **124**. In yet another embodiment, shown in FIGURES 3 and 4, the connection apparatus **123** provides both easy attachment and detachment of the cover **104** to the guide column **101** and pivotal attachment of the cover **104** to the guide column **101**. The number of sleeve/pin connections **126** used may vary depending on the sound judgment of a person of skill in the art.

[0025] With continuing reference to FIGURES 3 and 4, the cover **104** may be attached to the guide column **101** by lifting the cover **104** and placing the pin(s) **125** within the corresponding hole(s) in the sleeve(s) **124.** The cover **104** may then be easily pivoted in direction **D1** about the sleeve/pin **126** connection between an open position, shown in FIGURES 3-4, to a closed position (not shown) where the various service openings **108, 114,** and/or **117** are shielded by the cover **104.** When the cover **104** is closed, should it be desirable to access any adjustment system **103** component housed within the guide column **101**, it is only necessary—depending on the particular embodiment—to either detach the cover or open the cover **104** by pivoting it about the sleeve/pin **126** in direction **D2** to the open position shown in FIGURES 3-4. The various access openings **108, 114,** and/or **117**, are then easily used to access any liftgate component. If further access is required, the cover **104** can be easily removed by lifting the pin **126** out of the sleeve **124** in a pin/sleeve connection **122**, or removing the pivot pin **128** in a sleeve/sleeve connection **127**.

[0026] Though not shown, it is also contemplated to provide a closure mechanism and/or a lock mechanism to secure the cover **104** in a closed position to the guide column **101.**

The closure mechanism could be of any type chosen with the sound judgment of a person of skill in the art including, for some non-limiting examples, latch mechanisms, and latch/striker mechanisms similar to that commonly used with automobile trunk systems. The lock mechanism could be of any type chosen with the sound judgment of a person of skill in the art including, for some non-limiting examples, keyed locks such as those commonly found on automobile doors, deadbolt type locks, pad locks, combination locks, electric strikers, etc.

[0027] Multiple embodiments have been described, hereinabove. It will be apparent to those skilled in the art that the above methods and apparatuses may incorporate changes and modifications without departing from the general scope of this invention. It is intended to include all such modifications and alterations in so far as they come within the scope of the appended claims or the equivalents thereof.

Having thus described the invention, it is now claimed:

I/WE CLAIM:

1. A liftgate comprising:

at least one attachment surface that can be attached to an associated vehicle having a cargo receiving floor;

a cargo platform having a cargo receiving surface;

a first runner operatively connected to the cargo platform;

a first liftgate guide column comprising:

(1) a top, a bottom, and a mid-portion;

(2) a channel that receives at least a portion of the first runner;

(3) a first access opening formed in the mid-portion that provides access to the interior of the first liftgate guide column;

a first cover that is pivotally connected to the first lifgate guide column and is manually pivotal between: (1) a first position where the first cover covers the first access opening and prevents access through the first access opening; and, (2) a second position where the first cover does not cover the first access opening and permits access through the first access opening; and,

an adjustment system that moves the first runner within the channel in the first liftgate guide column between: (1) a relatively raised position where the cargo receiving surface of the cargo platform is substantially parallel with the cargo receiving floor of the vehicle; and, (2) a relatively lowered position where the cargo receiving surface of the cargo platform is substantially below the cargo receiving floor of the vehicle.

2. The liftgate of claim 1 wherein:

the first liftgate guide column further comprises a second access opening formed in the top that that provides access to the interior of the first liftgate guide column; and,

the first cover is manually pivotal between: (1) the first position where the first cover covers the second access opening and prevents access through the second access opening; and, (2) the second position where the first cover does not cover the second access opening and permits access through the second access opening.

3. The liftgate of claim 1 wherein the first liftgate guide column has a length LG1 and the first cover has a length C1 and the ratio C1/LG1 is at least 0.5.

4. The liftgate of claim 3 wherein the ratio C1/LG1 is at least 0.75.

5. The liftgate of claim 3 wherein the ratio C1/LG1 is substantially 1.0.

6. The liftgate of claim 1 wherein the first cover is pivotally connected to the first lifgate guide column with a connection apparatus comprising:

a sleeve; and,

a pin that is received within the sleeve.

7. The liftgate of claim 6 wherein the sleeve is attached to the first liftgate guide column and the pin is attached to the first cover.

8. The liftgate of claim 6 wherein the sleeve is attached to the first cover and the pin is attached to the first liftgate guide column.

9. The liftgate of claim 1 further comprising:

a second runner operatively connected to the cargo platform;

a second liftgate guide column comprising:

(1) a top, a bottom, and a mid-portion;

(2) a channel that receives at least a portion of the second runner;

(3) a first access opening formed in the mid-portion that provides access to the interior of the second liftgate guide column;

a second cover that is pivotally connected to the second lifgate guide column and is manually pivotal between: (1) a first position where the second cover covers the first access opening of the second liftgate guide column and prevents access through the first access opening of the second liftgate guide column; and, (2) a second position where the second cover does not

cover the first access opening of the second liftgate guide column and permits access through the first access opening of the second liftgate guide column; and,

wherein the adjustment system moves the second runner within the channel in the second liftgate guide column between: (1) a relatively raised position where the cargo receiving surface of the cargo platform is substantially parallel with the cargo receiving floor of the vehicle; and, (2) a relatively lowered position where the cargo receiving surface of the cargo platform is substantially below the cargo receiving floor of the vehicle.

10. The liftgate of claim 1 wherein the first liftgate guide column has a length LG1 and the first access opening has a length O1 and wherein the ratio O1/LG1 is at least 0.1.

11. A liftgate comprising:

at least one attachment surface that can be attached to an associated vehicle having a cargo receiving floor;

a cargo platform having a cargo receiving surface;

a first runner operatively connected to the cargo platform;

a first liftgate guide column comprising:

(1) a top, a bottom, and a mid-portion;

(2) a channel that receives at least a portion of the first runner;

(3) a first access opening formed in the mid-portion that provides access to the interior of the first liftgate guide column;

a first connection apparatus comprising: a first sleeve; and, a first pin;

a first cover that is: (1) manually attachable to the first lifgate guide column where the first cover covers the first access opening and prevents access through the first access opening by insertion of the first pin within the first sleeve; and, (2) manually detachable from first liftgate guide column where the first cover does not cover the first access opening and permits access through the first access opening by removal of the first pin from the first sleeve; and,

an adjustment system that moves the first runner within the channel in the first liftgate guide column between: (1) a relatively raised position where the cargo receiving surface of the

cargo platform is substantially parallel with the cargo receiving floor of the vehicle; and, (2) a relatively lowered position where the cargo receiving surface of the cargo platform is substantially below the cargo receiving floor of the vehicle.

12. The liftgate of claim 11 wherein the first sleeve is attached to the first liftgate guide column and the first pin is attached to the first cover.

13. The liftgate of claim 11 wherein the first sleeve is attached to the first cover and the first pin is attached to the first liftgate guide column.

14. The liftgate of claim 11 further comprising:

a second connection apparatus comprising: a second sleeve; and, a second pin; and,

wherein the first cover is: (1) manually attachable to the first lifgate guide column where the first cover covers the first access opening and prevents access through the first access opening by insertion of the second pin within the second sleeve; and, (2) manually detachable from first liftgate guide column where the first cover does not cover the first access opening and permits access through the first access opening by removal of the second pin from the second sleeve.

15. The liftgate of claim 11 wherein:

the first liftgate guide column further comprises a second access opening formed in the top that that provides access to the interior of the first liftgate guide column; and,

the first cover is manually pivotal between: (1) the first position where the first cover covers the second access opening and prevents access through the second access opening; and, (2) the second position where the first cover does not cover the second access opening and permits access through the second access opening.

the first cover is: (1) manually attachable to the first lifgate guide column where the first cover covers the second access opening and prevents access through the second access opening by insertion of the first pin within the first sleeve; and, (2) manually detachable from first liftgate

guide column where the first cover does not cover the second access opening and permits access through the second access opening by removal of the first pin from the first sleeve.

16. The liftgate of claim 11 wherein the first liftgate guide column has a length LG1 and the first cover has a length C1 and the ratio C1/LG1 is at least 0.5.

17. The liftgate of claim 11 further comprising:

a second runner operatively connected to the cargo platform;

a second liftgate guide column comprising:

(1) a top, a bottom, and a mid-portion;

(2) a channel that receives at least a portion of the second runner;

(3) a first access opening formed in the mid-portion that provides access to the interior of the second liftgate guide column;

a second cover that is: (1) manually attachable to the second lifgate guide column where the second cover covers the first access opening in the second liftgate guide column and prevents access through the first access opening in the second liftgate guide column by insertion of the first pin within the first sleeve; and, (2) manually detachable from the second liftgate guide column where the second cover does not cover the first access opening in the second liftgate guide column and permits access through the first access opening in the second liftgate guide column by removal of the first pin from the first sleeve.

wherein the adjustment system moves the second runner within the channel in the second liftgate guide column between: (1) a relatively raised position where the cargo receiving surface of the cargo platform is substantially parallel with the cargo receiving floor of the vehicle; and, (2) a relatively lowered position where the cargo receiving surface of the cargo platform is substantially below the cargo receiving floor of the vehicle.

18. The liftgate of claim 11 wherein the first liftgate guide column has a length LG1 and the first access opening has a length O1 and the ratio O1/LG1 is at least 0.1.

19. A liftgate comprising:

at least one attachment surface that can be attached to an associated vehicle having a cargo receiving floor;

a cargo platform having a cargo receiving surface;

first and second runners operatively connected to the cargo platform;

a first liftgate guide column comprising:

(1) a top, a bottom, and a mid-portion;

(2) a channel that receives at least a portion of the first runner;

(3) a first access opening formed in the mid-portion that provides access to the interior of the first liftgate guide column;

a second liftgate guide column comprising:

(1) a top, a bottom, and a mid-portion;

(2) a channel that receives at least a portion of the second runner;

(3) a first access opening formed in the mid-portion that provides access to the interior of the second liftgate guide column;

a first cover that is pivotally connected to the first lifgate guide column and is manually pivotal between: (1) a first position where the first cover covers the first access opening in the first lifgate guide column and prevents access through the first access opening in the first lifgate guide column; and, (2) a second position where the first cover does not cover the first access opening in the first lifgate guide column and permits access through the first access opening in the first lifgate guide column;

a first connection apparatus that connects the first cover to the first liftgate guide column, the first connection apparatus comprising: a first sleeve that rotatably receives a first pin;

a second cover that is pivotally connected to the second lifgate guide column and is manually pivotal between: (1) a first position where the second cover covers the first access opening in the second lifgate guide column and prevents access through the first access opening in the second lifgate guide column; and, (2) a second position where the second cover does not cover the first access opening in the second lifgate guide column and permits access through the first access opening in the second lifgate guide column;

a second connection apparatus that connects the second cover to the second liftgate guide column, the second connection apparatus comprising: a second sleeve that rotatably receives a second pin; and,

an adjustment system that moves the first and second runners within the channel in the first liftgate guide column and the channel in the second liftgate guide column, respectively, between: (1) a relatively raised position where the cargo receiving surface of the cargo platform is substantially parallel with the cargo receiving floor of the vehicle; and, (2) a relatively lowered position where the cargo receiving surface of the cargo platform is substantially below the cargo receiving floor of the vehicle.

20. The liftgate of claim 19 wherein:

the first liftgate guide column has a length LG1 and the first cover has a length C1 and the ratio C1/LG1 is at least 0.5;

the first access opening has a length O1 and the ratio O1/LG1 is at least 0.1;

the second liftgate guide column has a length LG2 and the first cover has a length C2 and the ratio C2/LG2 is at least 0.5; and,

the second access opening has a length O2 and the ratio O2/LG2 is at least 0.1.

Application number / numéro de demande: 2633558

Figures: 3;4

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14. Latch
15. Runner Wear Pad
16. Curb Side Runner
17. Closer Cylinder
18. Outer Hub
19. Main Deck
20. Bottom Stop
21. Deck Extension
22. Grommeted Hole for Battery Cable
23. Hydraulic Enclosure
24. 150 Amp Circuit Breaker
25. Filler / Breather Cap
26. Return Line
27. Grommeted Hole for Return Line
28. Hydraulic Reservoir
29. Grommeted Hole for Liftgate Wiring Harness
30. Liftgate Wiring Harness
31. Pump or Hydraulic Unit
32. Pump Starter Solenoid
33. Thermalpak® with Voltage Guard™
34. 5 Amp Fuse
35. Motor Wiring Harness
36. Relay
37. ON – OFF Toggle Switch
38. Torsion Spring

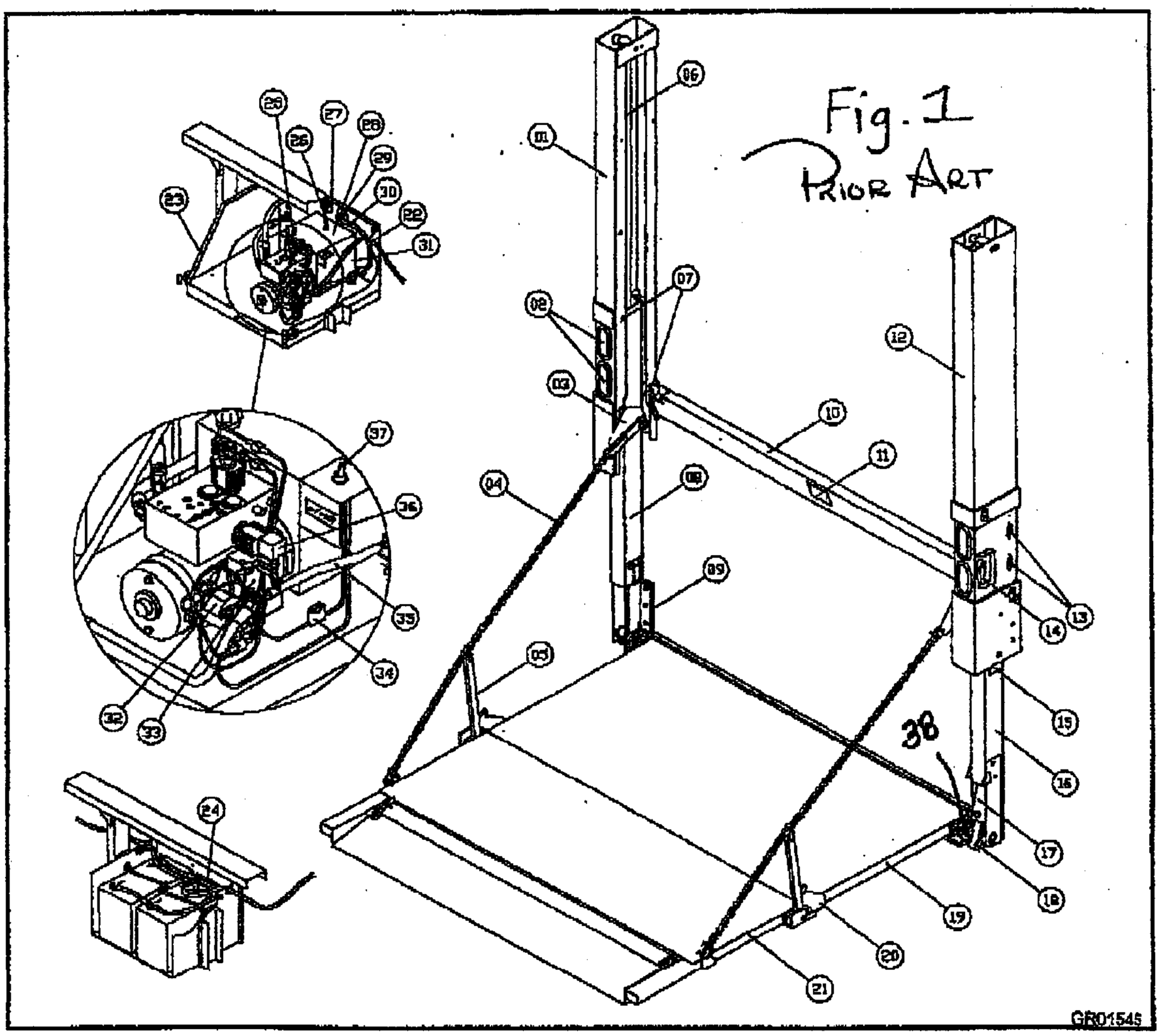


Fig. 1
Prior Art

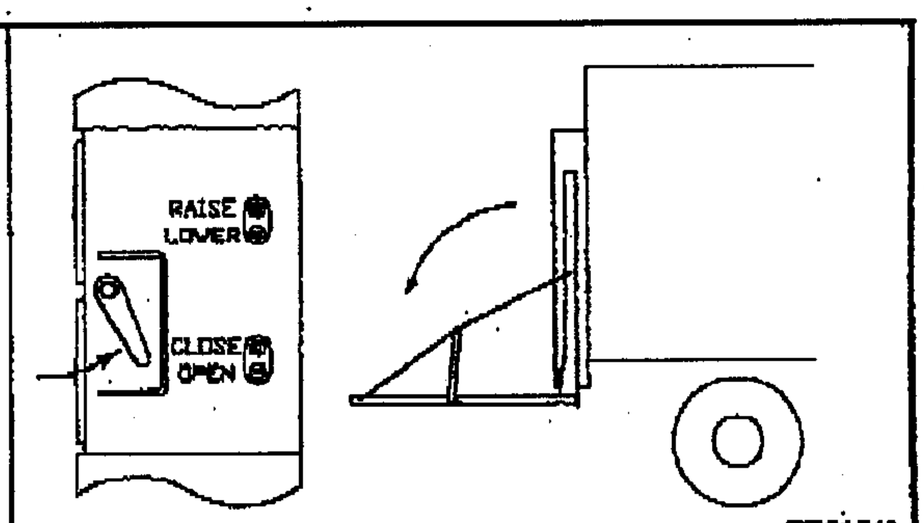
OPENING PLATFORM FOR LOADING

Assure toggle switch in power unit is in "ON" position.

Hold safety latch in the unlatch position.

Lower platform approximately 8" before releasing latch.

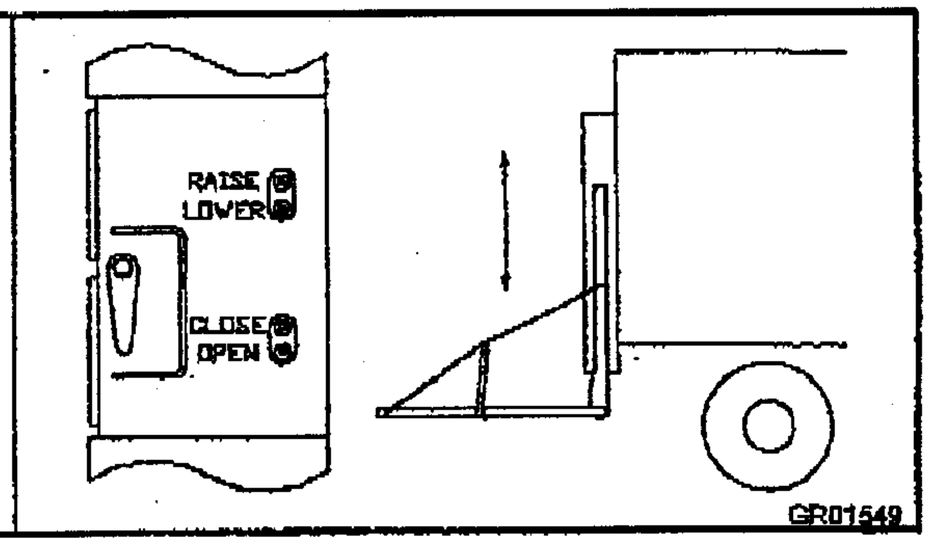
Push and hold open button. Press lower button simultaneously to open platform.



RAISING AND LOWERING PLATFORM

Press lower button to lower platform.

Press raise button to raise platform.

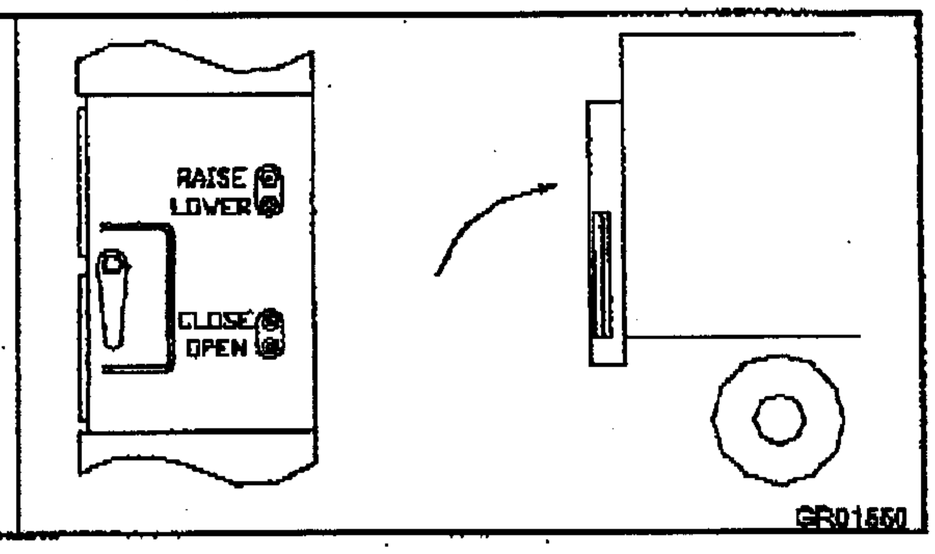


CLOSING PLATFORM FOR TRANSIT

Assure platform is at least 6" below bed level.

Push and hold close button. Press raise button simultaneously to close platform.

Raise folded platform up to bed level until travel stops.



LOWERING PLATFORM FOR DOCK LOADING

Assure platform is in transit position.

Hold safety latch in the unlatch position.

Lower platform until bottom stop hooks engage sill extension.

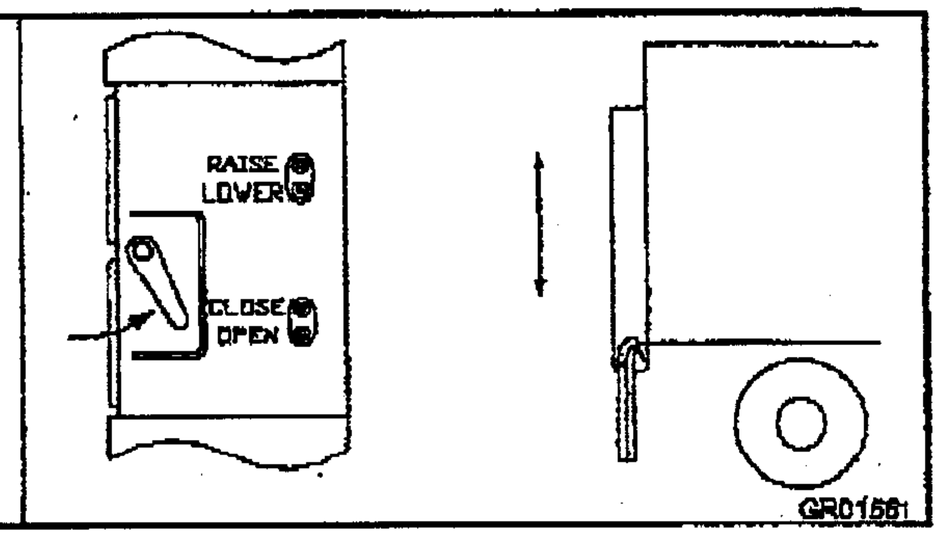


Fig. 2

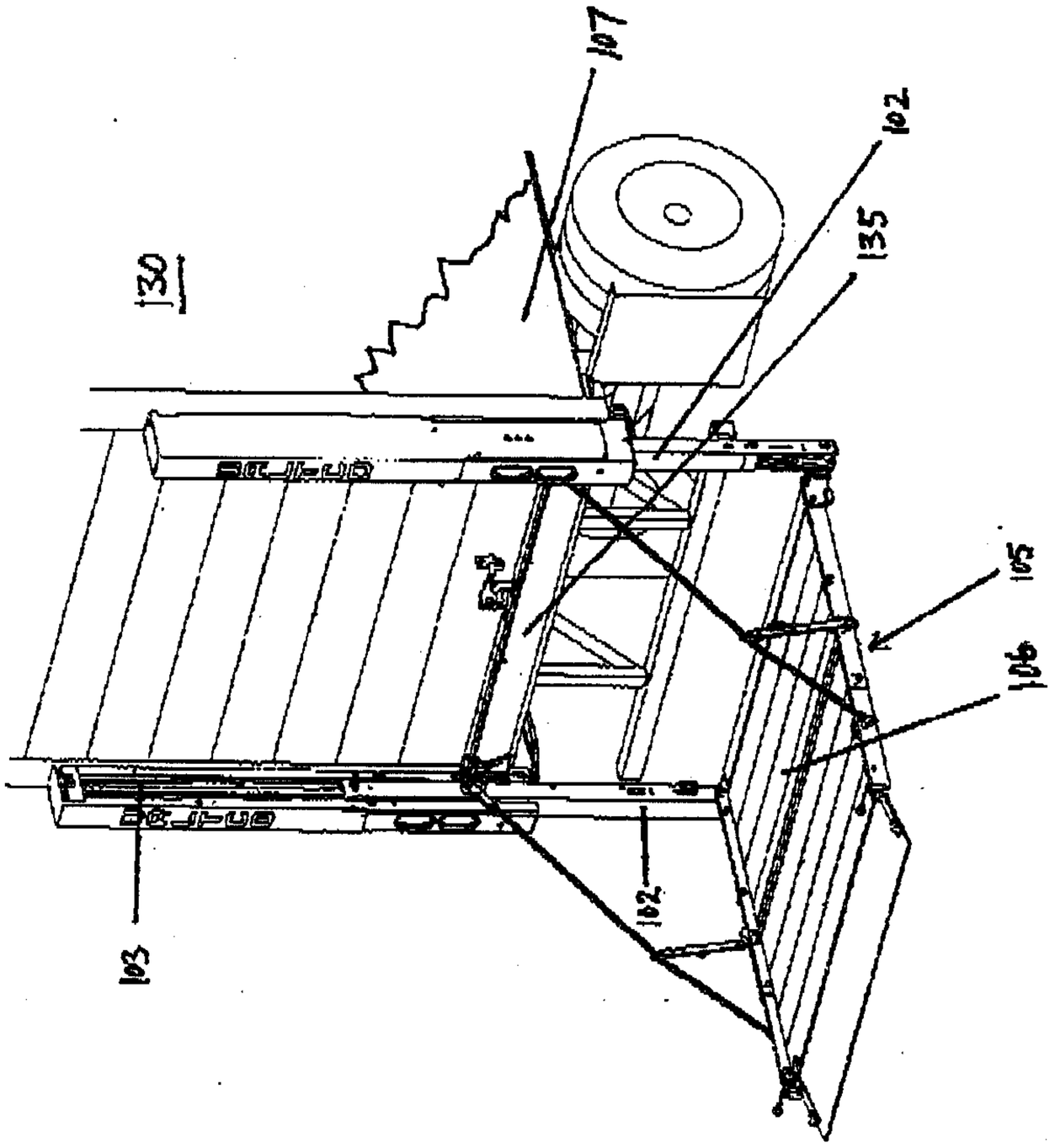


Fig. -5