Title: LATCH ASSEMBLY FOR A VEHICLE COMPARTMENT DOOR

Abstract: A latch assembly (24) for a vehicle interior compartment, comprising: a button (52) configured to travel in a first direction in response to a depressing force (56); a first side arm (62) configured to translate along a second direction perpendicular to the first direction, wherein the first side arm (62) comprises a first side pin (54) and a first engagement surface (80); a second side arm (64) configured to translate along a third direction perpendicular to the first direction, wherein the second side arm (64) comprises a second side pin (54) and a second engagement surface (84); and a first scissor link (70) configured to substantially link the translation of the first side arm (62) in the second direction to the translation of the second side arm (64) in the third direction, wherein the first scissor link (70) comprises: a first link arm (72) having a first end (78) configured to engage the first engagement surface (80) and a second end (79) configured to engage the button (52), wherein the first link arm (72) is configured to drive the first side arm (62) in the second direction in response to movement of the button (52) in the first direction; a second link arm (74) having a first end (82) configured to engage the second engagement surface (84) and a second end (83) configured to engage the second side arm (64) in the third direction in response to movement of the button (52) in the first direction.
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CROSS REFERENCE TO RELATED APPLICATION

[0001] This application claims priority from and the benefit of U.S. Provisional Application Serial No. 61/939,133, entitled "LATCH ASSEMBLY FOR A VEHICLE COMPARTMENT DOOR," filed February 12, 2014, which is hereby incorporated by reference in its entirety.

BACKGROUND

[0002] The invention relates generally to a latch assembly for use within a compartment door of a vehicle interior.

[0003] Vehicle storage compartments may be positioned throughout an interior of a vehicle to store cargo and other small items. For example, a center console may include a storage compartment suitable for storing sunglasses, driving glasses, or other items. Other storage compartments may be located within an overhead console, an armrest, seats, door panels, a dashboard, or other areas of the vehicle interior. Certain storage compartments include a door configured to secure the contents of the compartment and/or to hide the contents from view. A variety of latches may be employed to secure the door in an open or closed position. However, certain latches may be difficult to operate and/or expensive/time-consuming to manufacture.

BRIEF DESCRIPTION

[0004] The present invention relates to a latch assembly for a vehicle interior compartment that includes a button configured to travel in a first direction in response to a depressing force, and a first side arm configured to translate along a second direction perpendicular to the first direction. The first side arm includes a first side pin and a first engagement surface. The latch assembly also includes a second side arm configured to translate along a third direction perpendicular to the first direction. The second side arm includes a second side pin and a second engagement surface.
The latch assembly also includes a first scissor link configured to substantially link the translation of the first side arm in the second direction to the translation of the second side arm in the third direction. The first scissor link includes a first link arm having a first end configured to engage the first engagement surface and a second end configured to engage the button. The first link arm is configured to drive the first side arm in the second direction in response to movement of the button in the first direction and a second link arm having a first end configured to engage the second engagement surface and a second end configured to engage the button. The first link arm is configured to drive the second side arm in the third direction in response to movement of the button in the first direction.

[0005] The present invention also relates to a sliding track door having a substrate configured to mount between a first track and a second track, and to translate along the first track and the second track and a latch assembly. The latch assembly includes a button configured to travel in a first direction in response to a depressing force and a first side arm configured to translate along a second direction perpendicular to the first direction. The first side arm includes a first side pin and a first engagement surface. The sliding track door also includes a second side arm configured to translate along a third direction perpendicular to the first direction, the second side arm has a second side pin and a second engagement surface. The sliding track door also includes a first scissor link configured to substantially link the translation of the first side arm in the second direction to the translation of the second side arm in the third direction. The first scissor link includes a first link arm having a first end configured to engage the first engagement surface and a second end configured to engage the button. The first link arm is configured to drive the first side arm in the second direction in response to movement of the button in the first direction. The first scissor link also includes a second link arm having a first end configured to engage the second engagement surface and a second end configured to engage the button, the first link arm is configured to drive the second side arm in the third direction in response to movement of the button in the first direction. The first track includes a first corresponding recess configured to receive the first side pin, and the second track includes a second corresponding recess configured to receive that second side pin, and the corresponding recesses are longitudinally aligned with one another.
The present invention further relates to a storage compartment assembly for a vehicle interior that includes a panel and a latch assembly configured to secure the panel in a locked position. The latch assembly includes a button configured to travel in a first direction in response to a depressing force, and a first side arm configured to translate along a second direction perpendicular to the first direction. The first side arm includes a first side pin and a first engagement surface. The latch assembly also includes a second side arm configured to translate along a third direction perpendicular to the first direction. The second side arm includes a second side pin and a second engagement surface. The latch assembly also includes a first scissor link configured to substantially link the translation of the first side arm in the second direction to the translation of the second side arm in the third direction. The first scissor link includes a first link arm having a first end configured to engage the first engagement surface and a second end configured to engage the button. The first link arm is configured to drive the first side arm in the second direction in response to movement of the button in the first direction and a second link arm having a first end configured to engage the second engagement surface and a second end configured to engage the button. The first link arm is configured to drive the second side arm in the third direction in response to movement of the button in the first direction. The storage compartment assembly also includes a first corresponding recess configured to receive the first side pin and a second corresponding recess configured to receive that second side pin, the corresponding recesses are longitudinally aligned with one another. The latch is configured to be installed within a structure of the vehicle and the panel comprises the first recess and the second recess, or the latch is configured to be coupled to the panel and the first recess and the second recess are configured to be coupled to a structure of the vehicle.

DRAWINGS

FIG. 1 is a perspective view of an exemplary vehicle that may include one or more storage compartments each having a latchable compartment door.

FIG. 2 is a perspective view of an exemplary center console that may be located within an interior of the vehicle of FIG. 1.
FIG. 3 is a perspective view of the center console of FIG. 2 with a flexible door in an open position.

FIG. 4 is a perspective view of an embodiment of a flexible door with a latch assembly which may be employed within the center console of FIG. 2.

FIG. 5 is an exploded view of an embodiment of the latch assembly of FIG. 4.

FIG. 6 is a cross-sectional side view of the latch assembly of FIG. 4 in an uncompressed position, taken along line 6-6 of FIG. 4.

FIG. 7 is a cross-sectional perspective view of the latch assembly of FIG. 4 in an uncompressed position.

FIG. 8 is an exploded view of an alternative embodiment of a latch assembly.

FIG. 9 is a perspective view of an embodiment of a scissor link that may be employed within the latch assembly of FIG. 8.

FIG. 10 is a partially exploded view of the latch assembly of FIG. 8 in an uncompressed position.

FIG. 11 is a partially exploded view of the latch assembly of FIG. 8 in a compressed position.

FIG. 12 is a perspective view of an interior of the vehicle of FIG. 1 having a glove compartment that may use a latch assembly.

DETAILED DESCRIPTION

FIG. 1 is a perspective view of an exemplary vehicle 10, including an interior 12 having seats 14, a center console 16, and a dash 18. As discussed in detail below, the center console 16, the dash 18, and/or other areas within the interior 12 may include a storage compartment having a latch assembly that selectively secures a door of the storage compartment. For example, certain storage compartments may
employ a tambour door having a latch assembly that secures the tambour door in one or more track locations. In certain embodiments, pins may be configured to engage the track at one or more securing points, thereby enabling the tambour door to be secured along an opening of the storage compartment. The latch assembly may also include a button that urges the pins laterally inward, i.e., out of the securing points as the button is depressed. Removal of the pins from the securing points enables movement of the tambour door. Additionally, the dash 18 may include a glove compartment that is secured by a door that is held in a closed position by a latch assembly.

[0020] As will be appreciated, typical compartments include a number of methods of securing the covers and/or doors to the compartment in a desired position. Typical compartments, however, can suffer from accidental unlatching during use. For example, when an occupant of the vehicle 10 rests an arm or an elbow on the center console 16, the center console compartment may undesirably open. Furthermore, the door may include a latching mechanism that forms an unsightly, loose, or uncomfortable bump above the surface of the door. As explained in detail below, a latch assembly according to the described embodiments increases aesthetic appeal and mechanical functionality through a low-profile mechanical apparatus.

[0021] FIG. 2 is a perspective view of an exemplary center console 16 that may be located within an interior of the vehicle of FIG. 1. As illustrated, the center console 16 includes a storage compartment 20 enclosed by a tambour door 22 having a latch assembly 24. The console 16 is coupled to a floor of the vehicle interior 12 between a driver seat 26 and a passenger seat 26. In the present configuration, the console 16 is configured to provide a storage area and an armrest for an occupant of one or both seats 26. The console 16 is generally prismatic, having a front wall 28, a rear wall 30, two opposed and generally symmetrical side walls 32, and a top surface 34.

[0022] The console 16 also includes two side panels 36 which form the main body of the console 16. In the present configuration, each side panel 36 provides one of the side walls 32 of the console 16 and portions of the rear wall 30, the front wall 28 and the top surface 34. As illustrated, the side walls 32 include a compound-curved upper contour having both convex and concave portions, thereby transitioning between the
raised rear wall 30 and the lower front wall 28. The top surface 34 includes an opening 32 that enables an occupant to access an interior of the console 16.

[0023] In the present configuration, the console 16 includes a door 22 configured to transition between an open position and the illustrated closed position. The door 22 includes a latch assembly 24 that may enable an occupant to secure the door 22 in a number of positions between and including the open and closed positions. As discussed in detail below, sliding the door 22 toward the open position in the direction 42 exposes an interior of a storage compartment located within the console 16. In certain configurations, the door 22 is a tambour door having a series of substantially parallel ribs coupled to a substrate. The ribs are configured to engage a track within the side walls 20, while the substrate enables the door 22 to flex and to accommodate the contours of the opening 38. While the present tambour door is described with reference to the center console 16, it should be appreciated that alternative embodiments may employ similar doors positioned throughout the interior 12 of the vehicle 10. For example, a storage compartment located within an overhead console, door panel, instrument panel, the dash 18, or other region of the interior 12 may include a door having a latch assembly 24. Furthermore, other interior trim components, in addition to the tambour door described above, may include similar latch assemblies 24. As discussed in detail below, providing such a latch may enable a vehicle occupant to retain the door (e.g., tambour door 22) in a desired position over the storage compartment without accidental unlatching.

[0024] FIG. 3 is a perspective view of the center console 16 of FIG. 2 with the flexible door 22 in an open position. As illustrated, the side walls 20 include rails or tracks 40 configured to facilitate movement of the door 22 in the direction 42. In certain configurations, the tracks 40 include a C-shaped cross section, and may be coupled to the side panels 36 or integrally formed within the side panels 36. The substantially parallel ribs of the tambour door 22 include protrusions which engage the tracks 40 and support the door 22, while the attached substrate enables the door 22 to flex, thereby accommodating the contours of the opening 32. As illustrated, transitioning the door 22 to the open position exposes an interior 44 of the storage compartment within the center console 16.
As will be appreciated, a vehicle occupant may close the door 22 by grasping the latch assembly 24 or handle and moving the door 22 toward the front wall 20 of the center console 16. As the occupant pulls the door 22 forward, side pins of the latch assembly 24 may engage securing holes 46 (e.g., recesses) positioned along the tracks 40. Each securing hole 46 in one track 40 has a corresponding securing hole in the opposite track 40 (e.g., the securing holes are longitudinally aligned) so that the side pins in the door 22 may both enter the securing holes 46 at the same time. As explained in detail below, the side pins of the latch assembly 24 move in and out together. This paired movement enables the pins to remain secured in the securing holes 46 until both pins are extracted, which reduces wear on the latch assembly 24 and reduces the possibility that the door 22 will accidentally unlatch and come open. Once in the closed position, the show surface of the door 22 may provide a suitable surface for writing and/or storage of small items.

FIG. 4 is a perspective view of an embodiment of a flexible door with a latch assembly which may be employed within the center console of FIG. 2. As illustrated, the flexible door 22 includes multiple substantially parallel ribs 48 coupled to a substrate 50. The ribs 48 are configured to engage the tracks 40 of the console 16 to support the door 22 and to facilitate movement of the door 22 across the opening 38. The ribs 48 are coupled to a surface of the substrate 50 facing the interior 44 of the console 16, thereby forming a unitary structure. In this configuration, the door 22 may flex in a direction perpendicular to the orientation of the substantially parallel ribs 46, thereby enabling the tambour door to match the contours of a curved storage compartment opening.

As previously discussed, the flexible door 22 includes a latch assembly 24 configured to selectively block movement of the door 22 in a desired position (e.g., the open position, the closed position, partly closed position, etc.). The latch assembly 24 includes a button 52 in the illustrated embodiment, but as will be appreciated, alternative embodiments may employ other components (e.g., knobs, recesses, etc.) in place of the button 52 to control movement of the door 22. The latch assembly 24 includes side pins 54 that engage the securing holes 46 in the tracks 40. Moreover, the side pins are configured to apply equal force to the sides of the track 40.
when the latch assembly 24 is used in conjunction with a tambour door. That is, when
the side pins 54 are not secured within securing holes 46, they push against the track
40 and center the latch assembly 24 and the tambour door 22 laterally within the
track. This keeps the tambour door 22 from rattling, thereby reducing noise and
reducing wear on the tambour door 22. In the illustrated embodiment, the button 52 is
constructed to be flush with the substrate 50 while in a raised position. This enables
an occupant of the vehicle 10 to rest an arm or an elbow on the substrate 50 of the
door 22 without accidentally contacting the button and opening the door 22.
Furthermore, the aesthetic appearance may be enhanced. As discussed in detail
below, the button 52 may be designed to receive a force from an occupant of the
vehicle 10 to release the side pins 54. The illustrated embodiment shows a button 52
capable of receiving a downward force 56, perpendicular to the surface of the
substrate 50. As the button 50 moves in the downward direction 56 the side pins 54
retract, thereby extracting the side pins 54 from the recesses and facilitating
movement of the door 22.

[0028] FIG. 5 is an exploded view of the latch assembly 24 of FIG. 4. In the
illustrated embodiment, the latch assembly 24 includes an upper housing 58, a lower
housing 60, and the latching mechanism that is installed within the housings 58, 60.
A right side arm 62 and a left side arm 64 are disposed within the housing 58, 60 as
shown. A right spring 66 and a left spring 68 are configured to ensure that, at rest, the
side arms 62, 64 are extended away from one another. The latch assembly 24 also
includes a scissor link 70 to convert downward movement of the button into laterally
inward movement of the side arms, and to ensure that the movement of the right side
arm 62 is substantially equal to the movement of the left side arm 64. The latch
assembly 24 also includes the button 52 to receive a depressing force from an
occupant of the vehicle 10. As illustrated, the button is surrounded by the substrate
50 of the door 22.

[0029] FIG. 6 is a cross-sectional side view of the latch assembly of FIG. 4, in an
uncompressed position, taken along line 6-6 of FIG. 4. The latch assembly 24
includes the button 52, and the side pins 54 which engage respective recesses. As
illustrated, the upper housing 58 is coupled to the substrate 50 such that the button 52
is flush with the substrate 50 and moves below the level of the substrate 50 when an occupant applies a depressing force to the button 52. As illustrated, the button 52 is in the raised position. In this position, the side pins 54 are extended outwardly to the left and the right. Each side pin 54 is an element of either the right side arm 62 or the left side arm 64. Both side arms 62, 64 respond to movement of the button 50 in the downward direction 56 due to interaction with the scissor link 70. In addition, the scissor link 70 ensures that the movement of the right side arm 62 and the left side arm 64 is substantially equal. In the illustrated embodiment, the scissor link 70 includes two link arms 72, 74 that form an X shape through a center axis 76 of the scissor link 70. The first link arm 72 includes a first engagement rod 78 at a first end that engages the left side arm 64 at a first engagement surface 80. The second link arm 74 also includes a second engagement rod 82 at a first end that engages the right side arm 62 at a second engagement surface 84. The second link arm 74 also engages the button 52 at a second end 83. During compression of the button 52, each link arm 72, 74 moves from an upright position to a recumbent position. For example, in the uncompressed position of the illustrated embodiment, the first link arm 72 and the second link arm 74 are positioned at approximately 90 degrees with respect to one another and approximately 45 degrees with respect to the lower housing 60. In the uncompressed position, the first engagement rod 78 of the scissor link 70 and the first engagement surface 80 of the left side arm 64 are positioned a lateral distance 86 from the axis 76 of the scissor link 70. Likewise the second engagement rod 82 and the second engagement surface 84 are positioned a lateral distance 88 from the axis 76. In the illustrated embodiment, the distances 86, 88 appear approximately equal, but in other embodiments the distances may be different.

[0030] As the button 52 is depressed, upper ends 79, 83 of each of the link arms 72, 74 engage with the button 52 which forces the link arms 72, 74 to transition toward the recumbent position i.e., the angle with respect to the lower housing 60 is reduced. This relative movement increases the distance 86 between the first engagement rod 78 and the axis 76, which drives the first engagement surface 80 and the left side arm 64 to the right 90 which pulls the side pin 54 out of the respective recess. Likewise, the second engagement rod 82 drives the second engagement surface 84 and the right side arm 62 to the left 92, pulling the side pin 54 out of the
The button 52, upper housing 58, and/or lower housing 60 may include slots 94 that guide the movement of the link arms 72, 74 of the scissor link 70. The slots 94 may also reduce and/or block asymmetrical movement of the button 52. For example, as the button 52 is depressed, the first link arm 72 and the second link arm 74 slide outward in the slots 94 so that the button 52 remains horizontal relative to the substrate 50 and the upper housing 58.

FIG. 7 is a cross-sectional perspective view of the latch assembly of FIG. 4 in an uncompressed position. The illustrated embodiment shows the scissor link 70, the first link arm 72, the second link arm 74, the upper housing 58, the lower housing 60, and the button 52. The engagement rod 78 of the first link arm 72 is also illustrated engaging the engagement surface 80 of the second side arm 64. Additionally, the scissor link 70 includes a center pin 95 at the axis 76. As the button 52 is depressed, each link arm 72, 74 rotates around the center pin 95. The center pin 95 is mounted within a center-pin track 96 formed within the lower housing 60 and/or the button 52. The center-pin track 96 enables the center pin 95 to translate in a vertical direction 98 while constraining movement in a horizontal direction 100. This constraint of movement in the horizontal/lateral direction 100 by the center-pin track 96 ensures that as the link arms 72, 74 rotate around the center pin 95, the lateral movement of the engagement surfaces 80, 84 is substantially equal. And the lateral movement of the right side arm 62 is substantially equal to the lateral movement of the left side arm 64 as the button 52 is depressed.

FIG. 8 is an exploded view of the latch assembly 24 of FIG. 4. The illustrated embodiment of the latch assembly 24 includes the upper housing 58, lower housing 60, and additional latching mechanics that may be installed within the housing 58, 60. The right side arm 62 and the left side arm 64 may be installed, as shown, with a right spring 66 and a left spring 68 to ensure that, at rest, the side arms 62, 64 are extended away from each other. The springs 66, 68 are installed on spring crosses 102 on each of the side arms 62, 64 and in the lower housing 60. The spring crosses 102 ensure that the springs 66, 68 do not slide out of position during depression of the button 52. The latch assembly 24 also includes two scissor links 70 that ensure that the movement of the right side arm 62 is substantially equal to the
movement of the left side arm 64. Each scissor link 70 includes a first link arm 72 and a second link arm 74, as well as first engagement rods 78 and second engagement rods 82. An additional scissor link 70 within the latch assembly 24 provides a greater range of movement of the side pins 54. Potentially, the distance traveled by the right arm 62 and the left arm 64 may be doubled as the button 52 receives a depressing force.

[0033] As illustrated, each side arm 62, 64 includes a cup 104 at the engagement surface 80, 84. The cup 104 captures the respective engagement rod, thereby coupling the scissor link 70 to each side arm 62, 64. Accordingly, movement of one side arm 62, 64 drives movement of the scissor links 70, which subsequently drives movement of the other side arm 62, 64. For example, if the side pin 54 of the right side arm 62 is externally forced to the left 92, the cup 104 of the right side arm 62 will pull on the scissor link 70, causing the scissor link 70 to transition toward the recumbent position. Due to the connection between the engagement rods at the second end of the link arms with the slot in the button, transitioning one link toward the upright position drives the other link toward the upright position, thereby driving the left side arm 64 to the right 90. The linking of the scissor link 70 via the button 52 may also enable the latch assembly 24 to employ a single spring 66, 68. The single spring 66, 68 may be installed on either the right side or the left side and the restorative force of the spring 66, 68 is transferred through the side arm 63, 64 to the cup 104 to the scissor links 70 and to the other side arm 62, 64. The movement of each side arm 62, 64 may be guided by slide guides 106 in the lower housing 60 that may be installed through slide-guide slots 108 as illustrated in FIGS. 10 and 11.

[0034] FIG. 9 is a perspective view of an embodiment of the scissor link of the latch assembly of FIG. 8. The two scissor links 70 of FIG. 8 may, in some embodiments, be coupled to one another to form a compound scissor link 110 having four link arms (e.g., first link arm 72, second link arm 74, third link arm 116, and fourth link arm 118). As with the scissor link 70, the compound scissor link 110 includes the first engagement rod 78 and the second engagement rod 82. The compound scissor link 110, however, also includes a top hinge 118 and a bottom hinge 120 that connect the third link arm 112 and the fourth link arm 114. Also, an
additional axis 116 is formed between the second link arm 76 and the third link arm 112. Additional link arms may be added to the compound scissor link 110 with additional hinges and axes. As with the scissor link 70 described above, the compound scissor link 110 includes an upright position in which the engagement rods 78, 82 are close together and the link arms 72, 74, 112, 114 are substantially upright. Or, the compound scissor link 110 may be expanded to a recumbent position in which the engagement rods 78, 82 in the upper half of the compound scissor link 110 are separated from one another, and the link arms 72, 74, 112, 114 are substantially reclined. This enables the downward 56 movement of the button 52 to be converted into horizontal movement (i.e., right 90 and left 92), which is used to pull the side pins 54 from the recesses.

[0035] As illustrated in FIG. 9, the compound scissor link 110 may include a flex U element 122. The flex U element 122 enables flexing of the engagement rods 120 during installation into the upper housing 58, the lower housing 60, the button 52, the right side arm 62, and the left side arm 64. The flex U element 122 may also be used in the scissor link 70 described above with regard to the embodiment of FIGS. 4-8. The flex U element 122 enables the engagement rod 120 of one of the link arms 112, 114, 116, 118 may be squeezed together in order to snap the engagement rod 120 into the proper location within the upper housing 58, the lower housing 60, the button 52, the right side arm 62, and/or the left side arm 64. Other embodiments may include a scissor link 70 or a compound scissor link 110 that does not include the flex U element 122. Such embodiments may use a different method of installing the scissor link 70 or the compound scissor link 110.

[0036] FIG. 10 is a partially exploded view of the latch assembly of FIG. 8 in an uncompressed position. As illustrated, in the uncompressed position, the scissor links 70 are substantially upright and the engagement rods 78, 82 are positioned close together. In the uncompressed position, each spring 66, 68 is uncompressed and the side pins 54 are extended into a locking position 124. In the illustrated embodiment of FIG. 10, the scissor link 70 does not include a center pin 95 along the axis 76 between the link arms 72, 74. As illustrated, certain engagement rods 78, 82 are engaged with fixed-position holes (e.g., fixed-position holes 126) in the button 52.
The fixed-position holes 126 in some embodiments may be installed in the upper housing 58, the lower housing 60, or both. The fixed-position holes 126 hold certain engagement rods in a desired position to control movement of the engagement rods coupled to the engagement surfaces. In the illustrated embodiment, the engagement rods close to the center of the button 52 are installed in the fixed-position holes 126, while the engagement rods away from the center of the button 52 slide in response to depression of the button 52.

[0037] FIG. 11 is a partially exploded view of the latch assembly of FIG. 8 in a compressed position. As illustrated, in the compressed position, the scissor links 70 are in the recumbent position and the engagement rods 78, 82 are separated from one another. In the compressed position, each spring 66, 68 is compressed and the side pins 54 are retracted into an open position 128.

[0038] FIG. 12 is a perspective view of an interior of the vehicle of FIG. 1 having a glove compartment that may use a latch assembly. The glove compartment 130 includes a door 132 that may slide open along a track, as the tambour door 22 described above. The door 132 may also be a solid panel door configured to hold a contour of the dash 18. Furthermore, the panel door 132 may be installed in other areas of the interior of the vehicle 10. The door 132 may spring open, rotating down with a hinge 134 at the bottom of the compartment 130. In either case, the latch assembly 24 may include the right side arm 62, the left side arm 64, and the button 52. The side pins 54 are connected to the side arms 62, 64 and are received by receptacles 136 that lock the compartment 130 closed. When the button 52 is depressed, the side arms 62, 64 pull the side pins 54 out of the receptacles 136 and the compartment 130 comes open. To assist in opening the compartment 130, a bumper 138 may be installed behind the latch assembly 24. The bumper 138 may be compressed while the compartment 130 is forced closed, pushing against the compartment 130. Thus, when the button 52 is pushed and the side pins 54 exit the receptacles 136, the bumper 138 pushes the compartment 130 away from the dash 18. Furthermore, the latch assembly 24 may be installed within the dash 18 of the vehicle 10 with the receptacles installed within the panel door 132.
While only certain features and embodiments of the invention have been illustrated and described, many modifications and changes may occur to those skilled in the art (e.g., variations in sizes, dimensions, structures, shapes and proportions of the various elements, values of parameters (e.g., temperatures, pressures, etc.), mounting arrangements, use of materials, colors, orientations, etc.) without materially departing from the novel teachings and advantages of the subject matter recited in the claims. The order or sequence of any process or method steps may be varied or re-sequenced according to alternative embodiments. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the invention. Furthermore, in an effort to provide a concise description of the exemplary embodiments, all features of an actual implementation may not have been described (i.e., those unrelated to the presently contemplated best mode of carrying out the invention, or those unrelated to enabling the claimed invention). It should be appreciated that in the development of any such actual implementation, as in any engineering or design project, numerous implementation specific decisions may be made. Such a development effort might be complex and time consuming, but would nevertheless be a routine undertaking of design, fabrication, and manufacture for those of ordinary skill having the benefit of this disclosure, without undue experimentation.
CLAIMS:

1. A latch assembly for a vehicle interior compartment, comprising:
   a button configured to travel in a first direction in response to a depressing force;
   a first side arm configured to translate along a second direction perpendicular to the first direction, wherein the first side arm comprises a first side pin and a first engagement surface;
   a second side arm configured to translate along a third direction perpendicular to the first direction, wherein the second side arm comprises a second side pin and a second engagement surface; and
   a first scissor link configured to substantially link the translation of the first side arm in the second direction to the translation of the second side arm in the third direction, wherein the first scissor link comprises:
      a first link arm having a first end configured to engage the first engagement surface and a second end configured to engage the button, wherein the first link arm is configured to drive the first side arm in the second direction in response to movement of the button in the first direction;
      a second link arm having a first end configured to engage the second engagement surface and a second end configured to engage the button, wherein the second link arm is configured to drive the second side arm in the third direction in response to movement of the button in the first direction.

2. The latch assembly of claim 1, wherein the first engagement surface, the second engagement surface, or any combination thereof, comprises a cup configured to receive the first end of a respective link arm and to block movement of the first end relative to the respective side arm in the second and third directions.

3. The latch assembly of claim 1, comprising a center pin rotatably coupling the first link arm to the second link arm to facilitate rotation of the link arms about a first axis.
4. The latch assembly of claim 3, wherein the button, the lower housing, or a combination thereof comprises a center-pin track configured to receive the center pin, and to block movement of the scissor link in the second direction and in the third direction.

5. The latch assembly of claim 1, comprising a spring coupled to the first side arm, wherein the spring is configured to urge the first side arm in a fourth direction opposite the second direction.

6. The latch assembly of claim 1, wherein the vehicle interior compartment comprises a center console, a glove box, an overhead storage compartment, or any combination thereof.

7. The latch assembly of claim 1, wherein the button comprises a first slot configured to couple the button to the second end of the first link arm, and a second slot configured to couple the button to the second end of the second link arm, wherein the first slot and the second slot are configured to facilitate movement of the respective second ends in response to movement of the button in the first direction.

8. The latch assembly of claim 1, wherein the button is configured to receive a depressing force from a finger of an occupant of the vehicle.

9. The latch assembly of claim 1, wherein the first scissor link comprises: a third link arm rotatably coupled to the second link arm at a first pin; and a fourth link arm rotatably coupled to the first link arm at a second pin; wherein the first link arm and the second link arm are coupled at a first hinge at an end of each link arm, and the third link arm and the fourth link arm are coupled at a second hinge at an end of each link arm.

10. The latch assembly of claim 1, comprising:
a second scissor link configured to substantially link the translation of the first side arm in the second direction to the translation of the second side arm in the third direction, comprising:

- a third link arm rotatably coupled to the second link arm at a first pin, having a first end coupled to a housing of the latch assembly and a second end configured to engage the button;
- a fourth link arm rotatably coupled to the first link arm at a second pin, having a first end coupled to a housing of the latch assembly and a second end configured to engage the button.

11. The latch assembly of claim 10, wherein the second scissor link is configured to be interchangeable with the first scissor link within the latch assembly.

12. A sliding track door, comprising:
- a substrate configured to mount between a first track and a second track, and to translate along the first track and the second track;
- a latch assembly comprising:
  - a button configured to travel in a first direction in response to a depressing force;
  - a first side arm configured to translate along a second direction perpendicular to the first direction, wherein the first side arm comprises a first side pin and a first engagement surface;
  - a second side arm configured to translate along a third direction perpendicular to the first direction, wherein the second side arm comprises a second side pin and a second engagement surface; and
  - a first scissor link configured to substantially link the translation of the first side arm in the second direction to the translation of the second side arm in the third direction, wherein the first scissor link comprises:
    - a first link arm having a first end configured to engage the first engagement surface and a second end configured to engage the button, wherein the first link arm is configured to drive the first side arm in the second direction in response to movement of the button in the first direction;
a second link arm having a first end configured to engage the second engagement surface and a second end configured to engage the button, wherein the second link arm is configured to drive the second side arm in the third direction in response to movement of the button in the first direction;

wherein the first track comprises a first corresponding recess configured to receive the first side pin, and the second track comprises a second corresponding recess configured to receive that second side pin, and wherein the corresponding recesses are longitudinally aligned with one another.

13. The sliding track door of claim 12, comprising a center pin rotatably coupling the first link arm to the second link arm to facilitate rotation of the link arms about a first axis.

14. The sliding track door of claim 12, wherein the first scissor link comprises:

a third link arm rotatably coupled to the second link arm at a first pin; and
a fourth link arm rotatably coupled to the first link arm at a second pin;
wherein the first link arm and the second link arm are coupled at a first hinge at an end of each link arm, and the third link arm and the fourth link arm are coupled at a second hinge at an end of each link arm

15. The sliding track door of claim 13, comprising:

a second scissor link configured to substantially link the translation of the first side arm in the second direction to the translation of the second side arm in the third direction, comprising:

a third link arm rotatably coupled to the second link arm at a first pin, having a first end coupled to a housing of the latch assembly and a second end configured to engage the button;

a fourth link arm rotatably coupled to the first link arm at a second pin, having a first end coupled to a housing of the latch assembly and a second end configured to engage the button.
16. A storage compartment assembly for a vehicle interior, comprising:
   a panel;
   a latch assembly configured to secure the panel in a locked position, comprising:
      a button configured to travel in a first direction in response to a depressing force;
      a first side arm configured to translate along a second direction perpendicular to the first direction, wherein the first side arm comprises a first side pin and a first engagement surface;
      a second side arm configured to translate along a third direction perpendicular to the first direction, wherein the second side arm comprises a second side pin and a second engagement surface;
   a first scissor link configured to substantially link the translation of the first side arm in the second direction to the translation of the second side arm in the third direction, wherein the first scissor link comprises:
      a first link arm having a first end configured to engage the first engagement surface and a second end configured to engage the button, wherein the first link arm is configured to drive the first side arm in the second direction in response to movement of the button in the first direction; and
      a second link arm having a first end configured to engage the second engagement surface and a second end configured to engage the button, wherein the second link arm is configured to drive the second side arm in the third direction in response to movement of the button in the first direction;
   a first corresponding recess configured to receive the first side pin; and
   a second corresponding recess configured to receive the second side pin, wherein the corresponding recesses are longitudinally aligned with one another;
   wherein the latch is configured to be installed within a structure of the vehicle and the panel comprises the first recess and the second recess, or the latch is configured to be coupled to the panel and the first recess and the second recess are configured to be coupled to a structure of the vehicle.
17. The storage compartment assembly of claim 16, comprising a hinge configured to enable the panel to rotate to an open position.

18. The storage compartment assembly door of claim 16, wherein the latch assembly comprises a spring coupled to the first side arm, wherein the spring is configured to urge the first side arm in a fourth direction opposite the second direction.

19. The storage compartment assembly door of claim 16, wherein the first scissor link comprises:
   a third link arm rotatably coupled to the second link arm at a first pin; and
   a fourth link arm rotatably coupled to the first link arm at a second pin;
   wherein the first link arm and the second link arm are coupled at a first hinge at an end of each link arm, and the third link arm and the fourth link arm are coupled at a second hinge at an end of each link arm.

20. The storage compartment assembly door of claim 16, comprising:
    a second scissor link configured to substantially link the translation of the first side arm in the second direction to the translation of the second side arm in the third direction, comprising:
     a third link arm rotatably coupled to the second link arm at a first pin, having a first end coupled to a housing of the latch assembly and a second end configured to engage the button;
     a fourth link arm rotatably coupled to the first link arm at a second pin, having a first end coupled to a housing of the latch assembly and a second end configured to engage the button.
A CLASSIFICATION OF SUBJECT MATTER

INV. E05B83/32 E05B83/30 E05C9/04 E05B1/00 E05B65/08
ADD. E05B77/36 E05C17/60

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

E05B

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

Electronic database consulted during the international search (name of database and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Further documents are listed in the continuation of Box C. See patent family annex.

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Date of the actual completion of the international search

13 May 2015

Date of mailing of the international search report

26/05/2015

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Perez Mendez, Jose F

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