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(54) Titre : PORTES COULISSANTES CONFIGURABLES POUR UTILISATION A DROITE OU A GAUCHE

(54) Title: NON-HANDED CONFIGURABLE SLIDING DOORS

(57) **Abrégé/Abstract:**

Implementations of the present invention include a non-handed reconfigurable door, including a door frame having a plurality of mounting locations, a door pull coupled to the door frame, and separate mounting hardware configured to be selectively mounted to the door frame to selectively change the hand of the door frame.



ABSTRACT OF THE DISCLOSURE

Implementations of the present invention include a non-handed reconfigurable door, including a door frame having a plurality of mounting locations, a door pull coupled to the door frame, and separate mounting hardware configured to be selectively mounted to the door frame to selectively change the hand of the door frame.

NON-HANDED CONFIGURABLE SLIDING DOORS

BACKGROUND OF THE INVENTION

1. Technical Field

[0001] The present disclosure relates generally to door systems and components, such as door systems and components for use with movable walls.

2. Background and Relevant Art

[0002] Doors are manufactured for use in a variety of settings. These settings include both exterior as well as interior settings. Manufacturers fabricate doors to suit the end uses found in the various applications in which the doors are to be used. One such application includes sliding doors.

[0003] Manufacturers of sliding doors often fabricate doors with handles located on a selected side in order to allow the door to be opened in a desired direction. The placement of the door handle on a selected side of the door is referred to as the door's "hand."

[0004] From a contractor's standpoint, the hand of each door at a construction site is selected to help ensure the suitability of each door. If the hand of a door is wrong, the contractor must then switch the door for one with the correct hand.

BRIEF SUMMARY OF THE INVENTION

[0005] Implementations of the present invention overcome one or more problems in the art with systems, methods, and apparatus configured to provide flexibility in the design

and installation of door systems. In particular, implementations of the present invention allow for the reconfiguration of a single door regardless of the hand of the door for the given location. Furthermore, implementations of the present invention provide a manufacturer with the ability to produce one type of door that may be adapted for use at a number of given locations, and thereby minimize the number of components and materials used.

[0006] Implementations of the present invention include a non-handed reconfigurable door, including a door frame having a plurality of mounting locations, a door pull coupled to the door frame, and separate mounting hardware configured to be selectively mounted to the door frame to select the hand of the door.

[0007] Additional features and advantages of exemplary implementations of the invention will be set forth in the description which follows, and in part will be obvious from the description, or may be learned by the practice of such exemplary implementations. The features and advantages of such implementations may be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. These and other features will become more fully apparent from the following description and appended claims, or may be learned by the practice of such exemplary implementations as set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] In order to describe the manner in which the above-recited and other advantages and features of the invention can be obtained, a more particular description of the invention briefly described above will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. Understanding

that these drawings depict only typical embodiments of the invention and are not therefore to be considered to be limiting of its scope, the invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

[0009] Figure 1 illustrates a partial perspective view of a sliding door in accordance with an implementation of the present invention;

[0010] Figure 2 illustrates a partial perspective view of a sliding door, and further illustrates the orientation of the brackets in relation to the door and the orientation of the door in relation to a wall;

[0011] Figure 3 illustrates a cross-sectional view of a sliding door coupled to a doorframe header according to one example; and

[0012] Figure 4 illustrates a roller track assembly according to one example.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] The present invention extends to a door system that includes a frame and separate mounting hardware. The separate mounting hardware may be mounted at a variety of mounting locations on the door frame. Mounting the separate mounting hardware at different locations changes the hand of the door. Changing the hand of the door may allow the door, which includes the door frame and the separate mounting hardware, to be configured for use at a variety of locations.

[0014] Figure 1 illustrates that, in at least one implementation, a door according to the present example may include a door frame that includes a plurality of spaced apart vertical members which are coupled with at least one cross member. A door pull is coupled to one of the vertical members. The door pull may be fixedly mounted to one

of the vertical members. The door further includes separate mounting hardware, which is shown in more detail in Figure 2.

[0015] Figure 2 illustrates a partial perspective view of the door illustrated in Figure 1. As illustrated in Figure 2, the separate mounting hardware may include a roller mount assembly as well as a slowdown block. The roller mount assembly illustrated in Figure 2 is mounted to the top of the door. In particular, the right side of the top of the door includes a plurality of fastening holes defined therein. The terms “right” and “top” are used for ease of reference only. The left top side and both the bottom left and right sides of the door may also include holes defined therein. In at least one implementation, the hole patterns in at least each of the four corners of the door frame may be substantially similar.

[0016] The hole pattern illustrated in Figure 2 may be generally centered relative to the minor axis of the door, which may also be referred to as the thickness of the door frame. The roller mount assembly is secured to the door frame by way of the hole pattern. In particular, the roller mount assembly includes a bracket. The bracket includes a base portion and an offset vertical portion. The base portion includes mounting holes defined therein to allow the bracket to be mounted to the corresponding fastening holes in the door frame. Mounting the bracket to the door frame positions one or more rollers relative to the door frame. Similarly, the slowdown block may be mounted to the door frame to position the slowdown block relative to the door frame.

[0017] Figure 3 illustrates the interaction of the mounting bracket to additional components of the door and a doorframe header. In particular, the doorframe header may be fixed relative to a door frame. A roller track assembly may be coupled to the door frame. The roller track assembly allows the door to slide relative to the door

frame. The roller track assembly illustrated in Figure 3 includes a tab or tongue which extends into a channel defined in the door frame header. The roller track assembly also includes a roller track. The roller track is configured to receive rollers and to allow the rollers to roll therein. As the rollers roll relative to the roller track, the door is thereby able to slide from relative to the door frame.

[0018] Referring again to Figure 1, the hand of the door is shown on the right side. The configuration of the door allows the hand of the door to be readily adapted, such as to change the hand of the door from the side as shown to the opposite side. In at least one example, in order to change the hand of the door, the door may be removed from the roller track assembly. The separate mounting hardware may then be removed. In the illustrate example, the mounting hardware may be removed. The door frame may then be rotated 180 degrees, thereby locating the door pull on the opposite side relative to the door frame header.

[0019] As previously introduced, mounting holes may be defined in each of the corners of the door frame. The separate mounting hardware, which has been removed, may then be mounted to the portion of the door frame which is now on top, which was previously on the bottom. The door may then be again mounted to the roller track assembly. As a result, the configuration of the door allows the hand of the door to be changed from one side to the other in a convenient and rapid fashion. The hand of the door has been described as being changed after the door has been mounted to the doorframe header. The hand of the door may also be changed before the door is mounted to the doorframe header. The hand of the door may also be readily changed from one side to the other as desired.

[0020] In one example, the vertical and/or cross members may be formed of a metallic material, including extruded metallic material, such as extruded aluminum. Various parts of the separate mounting assembly may also be formed of metallic materials. In particular, the sheet metal bracket may be formed from sheet metal while the slowdown block may be formed from a zinc alloy.

[0021] Changing the hand of the door may allow the door to be pulled or travel in a different direction. As the door is opened, a substantial portion of the door travels beyond a door frame. The roller track assembly is illustrated in isolation in Figure 4. The travel of the door relative the door frame may be controlled by the configuration of the roller track assembly. In particular, the roller assembly travels within channels defined in the roller track assembly, which constrains the travel of the roller assembly and consequently the door. The roller track assembly according to the present example may have a plurality of reference channels, including end reference channels and a central reference channel. The roller assemblies according to the present example travels in the central reference channel and one of the end reference channels.

[0022] In the illustrated example roller, the track portion of the roller track assembly is less than double the width of the doorframe, which may be the distance traveled by the door, as a portion of the door still overlaps the door frame when the door is in the opened position. Accordingly, in conjunction with changing the direction of the door travel in relation to the wall, the interface of the roller track and the wall may also be changed. The roller track may remain in a constant position in reference to the wall and door opening. Such a configuration may allow a single roller track assembly to be mounted a single time to allow the roller track be in contact with the vertical components of the doorframe.

[0023] The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes that come within the meaning and range of equivalency of the claims are to be embraced within their scope.

WHAT IS CLAIMED IS:

1. In an architectural design environment that includes one or more movable wall systems with one or more doorways, at least one of the doorways having a roller track affixed to an upper portion thereof, a sliding door that can be readily reconfigured after installation in a doorway so that the sliding door can be changed from a left-handed to a right-handed opening and vice versa, the sliding door comprising:

a door frame having first and second vertical members joined at the top by a first horizontal member and joined at the bottom by a second horizontal member, the first and second vertical members and the first horizontal member together defining a top edge of the door frame which includes a plurality of mounting locations on said top edge;

a door pull connected to one of said first or second vertical members so as to define either a left-handed or right-handed door when installed in said doorway;

mounting hardware attached to said mounting locations on said top edge of the door frame in a manner that leaves the front and back sides of the door unencumbered by the mounting hardware, and said mounting hardware being removably attached to said top edge of the door frame so that if a left-handed door results when secured in the doorway, the mounting hardware can thereafter be detached from said top edge and then re-attached to said top edge of the door frame after the door frame is horizontally rotated one hundred eighty degrees, thus reconfiguring the door as a right-handed door but doing so without having to reconfigure the door pull's location on the sliding door; and

said mounting hardware comprising an assembly for slidably attaching the door frame to the upper track.

2. The sliding door recited in claim 1, wherein the assembly for slidably attaching the door frame to the upper track comprises a roller mount assembly.

3. The sliding door recited in claim 2, wherein the roller mount assembly comprises a bracket and one or more rollers.

4. The system as recited in claim 3, wherein the mounting hardware further comprises one or more slow down blocks for regulating speed at which the door slides.

5. The sliding door recited in claim 1, wherein the mounting hardware further comprises one or more slow down blocks for regulating speed at which the door slides.

6. The sliding door recited in claim 1, wherein the mounting locations include a plurality of mounting holes for receiving the mounting hardware.

7. In an architectural design environment that includes one or more movable wall systems with one or more doorways, at least one of the doorways having an upper roller track affixed thereto, a sliding door that can be readily reconfigured after installation in a doorway so that the sliding door can be changed from a left-handed to a right-handed opening and vice versa, the sliding door comprising:

a door frame having first and second vertical members joined at the top by a first horizontal member and joined at the bottom by a second horizontal member, the first and second vertical members and the first horizontal member together defining a top edge of the door frame which includes a plurality of mounting locations on said top edge;

a door pull connected to one of said first or second vertical members so as to define either a left-handed or right-handed door when installed in said doorway;

mounting hardware comprised of at least two roller assemblies attached to said mounting locations on said top edge of the door frame in a manner that leaves the front and back sides of the door unencumbered by the roller assembly, and said roller assemblies being removably attached to said top edge of the door frame so that if a left-handed door results when secured in the doorway, the roller assemblies can

thereafter be detached from said top edge and then re-attached to said top edge of the door frame after the door frame is vertically rotated one hundred eighty degrees so that the first and second vertical members and the second horizontal member together define a top edge of the door frame that includes a plurality of mounting locations on said top edge, thus reconfiguring the door as a right-handed door but doing so without having to reconfigure the door pull's location on the sliding door; and

said roller assemblies each including one or more rollers for slidably attaching the door frame to the upper roller track.

8. The sliding door recited in claim 7, wherein each roller mount assembly comprises a bracket and one or more rollers.

9. The sliding door recited in claim 8, wherein the mounting hardware further comprises one or more slow down blocks for regulating speed at which the door slides.

10. The sliding door recited in claim 9, wherein the mounting locations include a plurality of mounting holes for receiving the mounting hardware.

11. The system as recited in claim 7, wherein the mounting hardware further comprises one or more slow down blocks for regulating speed at which the door slides.

12. In an architectural design environment that includes one or more movable wall systems with one or more doorways, a sliding door system that can be readily reconfigured after installation in a doorway so that the sliding door can be changed from a left-handed to a right-handed opening and vice versa, the sliding door system comprising:

an upper roller track attached at a header of a doorway in a manner so that a first portion of the roller track is positioned directly over the doorway, and the remaining portion of the roller track is positioned to the left or right of the doorway

depending on whether the door is to be a left-handed or right-handed door, the attachment of said roller track being removable so that if a left-handed door results when secured in the doorway, the roller track can thereafter be detached and then re-attached to the header thus reconfiguring the roller track for a right-handed door if desired;

a door comprising a door frame having first and second vertical members joined at the top by a first horizontal member and joined at the bottom by a second horizontal member, the first and second vertical members and the first horizontal member together defining a top edge of the door frame which includes a plurality of mounting locations on said top edge;

a door pull connected to one of said first or second vertical members so as to define either a left-handed or right-handed door when installed in said doorway;

mounting hardware attached to said mounting locations on said top edge of the door frame in a manner that leaves the front and back sides of the door unencumbered by the mounting hardware, and said mounting hardware being removably attached to said top edge of the door frame so that if a left-handed door results when secured in the doorway, the mounting hardware can thereafter be detached from said top edge and then re-attached to top edge of the door frame after either (1) the door frame is horizontally rotated one hundred eighty degrees, or (2) the door frame is vertically rotated one hundred eighty degrees so that the first and second vertical members and the second horizontal member together define a top edge of the door frame that includes a plurality of mounting locations on said top edge, thus reconfiguring the door in either case as a right-handed door but doing so without having to reconfigure the door pull's location on the sliding door; and

said mounting hardware comprising a roller assembly for slidably attaching the door frame to the upper roller track.

13. The sliding door system recited in claim 12, wherein the roller track is part of a roller track assembly further comprising a trim cap and one or more brackets for affixing the roller track assembly to the header of the doorway.

14. The sliding door system recited in claim 13, wherein the brackets of the roller track assembly are adjustable or removable.

15. The sliding door system recited in claim 12, wherein the assembly for slidably attaching the door frame to the upper track comprises a roller mount assembly.

16. The sliding door recited in claim 15, wherein the roller mount assembly comprises a bracket and one or more rollers.

17. The sliding door system recited in claim 16, wherein the brackets of the roller mount assembly are adjustable or removable.

18. The sliding door recited in claim 17, wherein the mounting hardware further comprises one or more slow down blocks for regulating speed at which the door slides.

19. The sliding door recited in claim 12, wherein the mounting locations include a plurality of mounting holes for receiving the mounting hardware.

20. The system as recited in claim 12, wherein the mounting hardware further comprises one or more slow down blocks for regulating speed at which the door slides.

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Figures: 1, 2, 3, 4,

Pages: _____

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