A bracket assembly attaches a garage door track to the ceiling joists or another structural support. In one embodiment, an upper bracket includes an upper horizontal element, a lower horizontal element, and at least one support element extending between the upper and lower horizontal elements. The upper element may include a ceiling flange that is angled approximately ninety degrees from the remainder of the bracket. A vertical bracket member attaches to the upper horizontal element, the lower horizontal element and the garage door track. The bracket can reduce installation time, labor, and the potential for error from the typical installation arrangement and method by reducing the number of cuts that the installer must make, and by reducing the number of fasteners that are needed.
GARAGE DOOR BRACKET

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims the benefit of priority under 35 U.S.C. 120 of U.S. Patent Provisional Application 61/047, 934, filed Apr. 25, 2008, which is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

[0002] The present invention relates to garage door tracks, and more particularly to a bracket for hanging a garage door track and/or garage door opener from a support structure, such as a ceiling joist.

[0003] Garage doors typically include wheels on each side that travel up and down tracks formed from C-shaped channels. The tracks include a vertical portion extending along the side of the garage door opening and a horizontal portion extending into the garage away from the garage door opening. The vertical portion is attached to the garage door opening, and the horizontal portion is attached to the ceiling by hanging from the ceiling joists. A typical arrangement for attaching the horizontal portion 10 to the ceiling joists 12, 14 is shown in FIG. 1. In this arrangement, a horizontal L-shaped bracket 16 is attached directly to the ceiling joists 12, 14. More specifically, the bracket 16 includes a first flange 18 parallel with the ceiling and a second flange 20 extending away from the ceiling perpendicular to the first flange 18. The flanges 18, 20 each include a series of fastener holes 22 along their lengths. The first flange 18 is connected to the ceiling joists 12, 14 with lag bolts 24 extending through the holes in the first flange 18 and into the joists 12, 14. The second flange 20 receives a bolt 26 that connects the horizontal bracket 16 to an L-shaped vertical bracket 30. Similar to the horizontal bracket 16, the vertical bracket 30 includes a first flange 32 with a series of holes 34, and a second flange 36 with a series of holes 38. The bolt 26 extends through the first flange 32 of the vertical bracket 30 and the second flange 20 of the horizontal bracket 16. A sway bracket 40 extends on an angle between the second flange 20 of the horizontal bracket 16 and the first flange 32 of the vertical bracket 30 to provide support and prevent lateral movement of the vertical bracket 30. The sway bracket 40 is connected to the horizontal bracket with a bolt 42 and to the vertical bracket with an additional bolt 44. Finally, the vertical bracket 30 connects to the horizontal portion 10 of the garage door track with a bolt 46 that extends through one of the holes 38 in the second flange 36 of the vertical bracket 30 and a hole in the garage door track 10.

[0004] Assembly of the above-described garage door track bracket arrangement involves a series of steps. The garage door installer must (1) measure the distance between ceiling joists, (2) cut the horizontal bracket to a proper length, (3) measure the distance between the ceiling and the horizontal portion of the track, (4) cut the vertical bracket to the proper length, (5) measure and cut the sway bracket to a proper length, (6) attach the horizontal bracket to the ceiling joists with two lag bolts, (7) attach the horizontal, vertical and sway brackets together with three bolts and (8) attach the vertical bracket to the garage door track with a bolt. Although this system and method is very widely known and used, it can be unfavorable, primarily because the installation steps are time consuming and labor intensive, and because they provide multiple opportunities for error by the installer.

SUMMARY OF THE INVENTION

[0005] The embodiments of the present invention provide a garage door track bracket that attaches between the ceiling joists and the vertical bracket member. The bracket can save time, labor and materials during installation while reducing the opportunities for error.

[0006] In one embodiment, the bracket includes an upper horizontal element, a lower horizontal element, and at least one support element extending between the upper and lower horizontal elements. The upper element may include a ceiling flange that is angled approximately ninety degrees from the remainder of the bracket. The vertical bracket member attaches to the upper horizontal element, the lower horizontal element and the track.

[0007] In another embodiment, the lower horizontal element is substantially shorter than the upper horizontal element and the upper and lower horizontal elements are connected by three support elements. A first support element extends between the first ends of the upper and lower horizontal elements and is perpendicular to the upper and lower horizontal elements. A second support element extends between the second ends of the upper and lower elements, and due to the difference in lengths between the upper and lower elements, the second support element extends on an angle between the upper and lower support elements. A third support element is positioned between the first and second support elements and extends perpendicular to the upper and lower horizontal elements.

[0008] Attachment of the garage door track to the ceiling joists with the bracket of the present invention includes the steps of: (1) attaching the ceiling flange to the ceiling, (2) measuring the distance between the ceiling and the track and cutting the vertical bracket member to the proper length, (3) attaching the vertical bracket member to the upper and lower horizontal members of the bracket with two bolts and (4) attaching the track to the vertical bracket member with a bolt.

[0009] The bracket can reduce installation time and labor from the typical installation arrangement and method by reducing the number of cuts that the installer must make, and by reducing the number of fasteners that are needed. The reduction in measuring and cutting may also lower the chances for error by the installers.

[0010] These and other objects, advantages, and features of the invention will be readily understood and appreciated by reference to the detailed description of the current embodiment and the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is a perspective view of a prior art arrangement for connecting a garage door track to the ceiling joists.

[0012] FIG. 2 is an exploded perspective view of a bracket, ceiling joists and garage door track according to one embodiment of the present invention.

[0013] FIG. 3 is an assembled perspective view of the FIG. 2 embodiment.

DETAILED DESCRIPTION OF THE CURRENT EMBODIMENTS

[0014] A system and method for attaching a garage door track 100 to one or more ceiling joists 102, 104 according to
one embodiment of the present invention is shown in FIGS. 2 and 3. In the illustrated embodiment, the attachment system generally includes a bracket 106 and a vertical bracket member 108.

[0015] The garage door track 100 is typically a channel having a C-shaped cross section, such that the wheels of the garage door (not shown) can ride within the track. The track 100 includes a vertical portion (not shown) that extends alongside the opening of the garage door frame, and a horizontal portion that curves rearwardly from the vertical portion and runs approximately parallel to the ceiling. As illustrated, the horizontal portion of the track 100 includes a plurality of holes 110 for receiving one or more fasteners to support the track 100. Although not shown, each garage door typically includes two tracks, one on each side of the garage door. The ceiling joists 102, 104 are typically wooden beams that extend horizontally, generally parallel to the horizontal portion of the track 100. The joists run parallel to each other and are commonly spaced apart at even intervals. They may extend across the garage in a front-to-back direction, or in a side-to-side direction, or in another direction.

[0016] In the illustrated embodiment, the bracket 106 includes an upper member 112, a lower member 114, and three support members 116, 118 and 120. A ceiling flange 124 extends outwardly at an angle from the upper member 112. In one embodiment, the bracket 106 is formed from a single, unitary piece of material, such as sheet steel, for instance, by a stamping process. Other metals may otherwise be used, or alternatively, the bracket may be formed from plastic or another material capable of bearing the weight of a garage door. In one embodiment, the upper member 112, lower member 114 and support members 116, 118 and 120 lie in substantially the same plane, and the ceiling flange 124 extends outwardly from an upper edge 126 of the upper member 112 generally perpendicular to the plane of the upper member 112. The bracket 106 may be formed, for example, by stamping the desired shape into the sheet steel and the bending the ceiling flange to the desired angle, or by another known manufacturing method.

[0017] In the illustrated embodiment, the upper member 112 is generally straight, having a first end 128, a second end 130 and a longitudinal length extending between the first and second ends. As shown, the upper member further includes an upper edge 126 and a lower edge 132. The ceiling flange 124 is also generally straight, and includes a first end 136, a second end 138 opposite the first end, and a longitudinal length extending between the first 136 and second 138 ends. In one embodiment, the longitudinal length of the upper member 112 is about 25½ inches. The longitudinal length of the ceiling flange 124 may be the same as that of the upper member 112, or it may vary from that of the upper member 112. In the illustrated embodiment, the length of the ceiling flange 124 is the same as the upper member 112 such that the ceiling flange is capable of spanning the spacing of most ceiling joists. In one embodiment, the ceiling flange has a width of about 1¼ inches.

[0018] The lower member 114 is spaced from the upper member 112, and generally includes an upper edge 140, a lower edge 142, a first end 144, a second end 146 and a longitudinal length extending between the first and second ends. As shown, the lower member 114 is generally parallel to the upper member 112, however, it may extend at an angle to the upper member 112. In one embodiment, the longitudinal length of the lower member 114 is shorter than that of the upper member 112, to reduce the amount of material used for each bracket 106. More specifically, in the illustrated embodiment, the longitudinal length of the lower member is about 12½ inches.

[0019] In one embodiment, the bracket 106 includes at least one support member extending between the upper member 112 and lower member 114. As illustrated, the bracket 106 includes a first support member 116, a second support member 118 and a third support member 120. The first support member 116 extends between the first end 128 of the upper member 112 and the first end 144 of the lower member 114. As shown, the first support member is about 1½ inches wide, and it has a longitudinal length of about 3 inches. The second support member 118 is spaced from the first support member 116 and extends approximately parallel to the first support member 116. As shown, the second support member 118 is about 1½ inches wide, has a longitudinal length of about 3 inches, and is spaced about 7 inches from the first support member 116. The third support member 120 extends between the second end 130 of the upper member 112 and the second end 146 of the lower member 114. As such, it extends on an angle from the first 116 and second 118 support members and the upper 112 and lower 114 members. Although the present invention is shown with three support members, the number of support members may vary, depending on the material used for the bracket and the weight requirements that the bracket is required to support. The support members may be spaced apart at varying distances as desired from application to application.

[0020] As shown in FIGS. 2 and 3, the ceiling flange 124, upper member 112 and lower member each include a series of holes 150 extending along their longitudinal lengths. In one embodiment, the holes 150 are spaced evenly apart, although the spacing may vary from application to application. As shown, a first one of the holes 150 is located proximate to the first ends of each of the ceiling flange 124, the upper member 112 and lower member 114, and the holes extend along the longitudinal lengths of the ceiling flange 124, upper member 112 and lower member 114 for about 12½ inches. An additional hole 152 is located in the ceiling flange proximate to the second end 138. In this embodiment, the bracket 106 can accommodate a track 100 located anywhere between two joists that are spaced apart at about 25 inches or less, because the bracket 106 by rotating the bracket 180 degrees. Alternatively, the upper member 112, lower member 114 and ceiling flange 124 may each include one or more holes at any other desired positions along their lengths, including along their entire lengths. In another embodiment, one or more holes may be included in the support members. In yet another embodiment, one or more of the bracket members may include a strengthening rib formed therein. For instance, in the illustrated embodiment, a strengthening rib 154 extends along the lengths of each of the upper member 112, lower member 114 and the support members 116, 118 and 120.

[0021] The vertical bracket member 108 is typically an L-shaped channel having a first body member 160 and a second body member 162. The body members 160 and 162 may be formed from a variety of materials, similar to the bracket 106, and in one embodiment the vertical bracket member 108 is formed from sheet steel. The vertical bracket 108 may include a first end 164 and a second end 166, and each of the members 160 and 162 may include a series of holes 168 spaced apart along its length. In one embodiment, the spacing of the holes 168 and the distance between the
upper 112 and lower 114 members of the bracket 106 correspond such that one of the holes 168 can be aligned with a hole 150 on the upper member 112 while a second hole 168 aligns with a hole 150 on the lower member 114.

In one embodiment, installation of the bracket 106 and attachment of the bracket 106 to a garage door track 100 includes the steps of: (1) attaching the bracket 106 to the ceiling joists 102, 104 by extending a first lag bolt 170 through one of the holes 150 in the ceiling flange 124 and into a first ceiling joist 102 and a second lag bolt 172 through the hole 152 in the ceiling flange 124 and into a second ceiling joist 104; (2) measuring the distance between the ceiling joists and the garage door track 100 and cutting a vertical bracket member 108 to a proper length; (3) attaching the first body member 160 of the vertical bracket member 108 to the upper horizontal member 112 by extending a bolt 174 through a hole 150 in the upper member 112 and a hole 168 in the vertical bracket 108 and fastening a nut 176 to the bolt 174; (4) attaching the first body member 160 of the vertical bracket member 108 to the lower horizontal member 114 by extending a bolt 178 through a hole 150 in the lower member 114 and a hole 168 in the vertical bracket 108 and fastening a nut 180 to the bolt 178; and (5) attaching the second body member 162 of the vertical bracket 108 to the garage door track 100 by extending a bolt 182 through a hole 168 in the vertical bracket 108 and a hole 110 in the track 100 and fastening a nut 184 to the bolt 182. Of course, alternative fasteners may be used instead of the nuts and bolts. As noted above, when fastening the bracket 106 of the illustrated embodiment to the joists 102, 104, the installer may first determine the location of the track 100 between the joists 102, 104 (i.e. whether the track is closer to the first joist 102 or to the second joist 104) and orient the bracket 106 accordingly before attaching it to the joists 102, 104.

The above description is that of various embodiments of the invention. Various alterations and changes can be made without departing from the spirit and broader aspects of the invention. Further, the terms “horizontal” and “vertical” are used in the application to generally describe the orientation of the components of the invention with respect to each other and their surroundings, and are not intended to require a specific orientation or direction.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A bracket assembly adapted to join a garage door track with at least one joist, comprising:
   - an upper horizontal element adapted to be attached to the at least one joist;
   - a lower horizontal element;
   - at least one support element attached to the upper and lower horizontal elements; and
   - a vertical bracket member adapted to be attached to the track and at least one of the upper and lower horizontal elements.

2. The bracket assembly of claim 1 wherein the upper horizontal element includes a flange parallel with and attached to a bottom surface of the joist and a second flange extending outward from the bottom surface of the joist.

3. The bracket assembly of claim 2 wherein the vertical bracket is adapted to be attached to the second flange.

4. The bracket assembly of claim 3 wherein at least one of the first and second flanges, the lower horizontal element and the vertical bracket member defines a plurality of holes adapted to receive a fastener.

5. The bracket assembly of claim 4 wherein at least one hole on the upper horizontal element is aligned with at least one hole on the lower horizontal element, wherein said vertical bracket is fastened to the upper and lower horizontal elements at said aligned holes.

6. The bracket assembly of claim 3 wherein the upper and lower horizontal elements are connected by first, second and third support elements.

7. The bracket assembly of claim 6 wherein the first support element extends between a first end of the upper horizontal element and a first end of the lower horizontal element, the first support element being generally perpendicular to the upper and lower horizontal elements.

8. The bracket assembly of claim 7 wherein the third support element extends between a second end of the upper horizontal element and a second end of the lower element.

9. The bracket assembly of claim 8 wherein the lower horizontal element is shorter than the upper horizontal element, wherein the third support element extends on an angle between the upper and lower support elements.

10. The bracket assembly of claim 9 wherein the second support element is positioned between the first and second support elements.

11. The bracket assembly of claim 10 wherein the second support element is generally parallel to the first support member.

12. A method of attaching a garage door track to a joist with a bracket, the bracket having an upper horizontal element, a lower horizontal element, at least one support element connecting the upper and lower horizontal elements, and a vertical bracket, the method comprising:
   - attaching the upper horizontal element to the ceiling joist;
   - measuring the distance between the ceiling and the track;
   - cutting the vertical bracket member to a length that generally corresponds to the distance between the ceiling and the track;
   - attaching the vertical bracket member to the upper and lower horizontal members of the bracket;
   - attaching the track to the vertical bracket member.

13. The method of claim 12 wherein the upper horizontal element includes first and second flanges, wherein the method comprises arranging the first flange to be generally parallel to a bottom surface of the joist.

14. The method of claim 13 further comprising arranging the lower horizontal element to be parallel with the upper horizontal element.

15. The method of claim 14 further comprising attaching vertical bracket member to the second flange.

16. The method of claim 14 further comprising connecting the upper and lower horizontal elements with first, second and third support elements.

17. The method of claim 16 further comprising attaching the first support element to a first end of the upper horizontal element and to a first end of the lower horizontal element.

18. The method of claim 17 further comprising attaching the third support element to a second end of the upper horizontal element and to a second end of the lower horizontal element, wherein the lower horizontal element is shorter than the upper horizontal element, wherein the third support element extends between the upper and lower horizontal elements on an angle.

19. The method of claim 18 further comprising positioning the second support element between the first and third horizontal element.
20. The method of claim 19 wherein the upper and lower horizontal elements and the vertical bracket member each define a plurality of holes, wherein the method comprises securing the vertical bracket member to the upper and lower horizontal members with a fastener.

21. A bracket assembly for connecting a garage door track to a ceiling support element, comprising:

- a one-piece, unitary sheet metal bracket including an elongated upper member having first and second ends, an elongated lower member having first and second ends, a support member extending between the upper member and the lower member, and an attachment flange extending from the upper member generally perpendicular to the upper member for attaching the sheet metal bracket to the ceiling support member, the upper elongated member defining a first fastener hole and the lower elongated member defining a second attachment hole, the first and second attachment holes aligned along a line that is generally perpendicular to the longitudinal extent of the upper elongated member; and
- an elongated vertical support member connected to the sheet metal bracket and the garage door track, the vertical support member including a first portion, a second portion, and a third portion, the first portion attached to the upper elongated member of the sheet metal bracket by a first fastener extending through the first fastener hole, the second portion attached to the lower elongated member of the sheet metal bracket by a second fastener extending through the second fastener hole, and the third portion capable of attaching to the garage door track by a fastener extending through the third portion and the garage door track.

* * * * *