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Hanger with removable leveling member

Abstract

An adjustable hanger for attaching an elongate beam to a support member has abase member with opposite sides and a support web. A leveling member with a top panel is attachable to the base member in a vertically reciprocal engagement. The top panel includes a rear flange for supporting on a surface of a support member, whereupon the support web is parallel with the surface of the support member. The leveling member is movable relative to the base member to accommodate elongate beams having different height dimensions. Once the beam is attached to the support member via fasteners, the leveling member may be detached from the base member. The leveling member or base member may have cooperative posts or legs and slots to facilitate engagement between them. A breakable cuff in the base member may engage a post of the leveling member to allow reciprocation followed by detachment.

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Background/Summary

BACKGROUND

(1) This disclosure relates generally to the field of building construction connectors, more particularly to a hanger for supporting and attaching an elongate beam, such as a joist, relative to a building support member, and more particularly a hanger that is height adjustable and has a leveling member for leveling the hanger relative to the building support member that is removable.

(2) In construction and building fields, hangers are common for assisting in the connection of one building member to another, such as an elongate beam (i.e., joist) to a rear support member (i.e., ledger). Hangers are often formed of metal, such as steel and include numerous sides and surfaces used for attaching to a support member and joist, and holding and supporting the beam. Some hangers may be formed of other rigid durable materials, such as molded plastics.

(3) One common type of beam is a deck or floor joist used as a substructure to support an overlying deck or floor structure. Deck joists can attach to an end support member, usually on a side of a building, and extend substantially perpendicular therefrom at a height substantially parallel to the other joists. A joist hanger is used as an intermediate member to attach the joists to the support member. Joist hangers are usually formed of a single piece of steel with opposite sides and a bottom web for holding and supporting a joist from underneath, and rear and/or top flange elements for attaching to a support member.

(4) One common problem associated with joist hangers is that they are cumbersome and time consuming to install, require many meticulous measurements and it can be difficult to level a joist given variances in dimension. Lumber of all types, including decking materials, is not always sized completely accurately and consistent. The height of joists can thus vary from one another by as much as 0.5 inches simply due to common production deviations or shrinkage of the wooden materials due to drying. This phenomenon can cause inconsistencies and integrity issues with building structures.

(5) Thus, it would be useful to provide a hanger with capabilities to improve upon these common issues, including a mechanism to adjust the height of a beam (joist) that it supports and attaches to a building support member.

SUMMARY

(6) In one embodiment, a hanger for attaching an elongate beam to a support member includes a base member and a leveling member. The base member comprises a left side laterally spaced from

a right side with a support web extending therebetween. The support web is substantially perpendicular to the left side panel and right side panel. The leveling member has an upper platform that is substantially parallel to the support web when engaged to the base member in a vertically movable connection. The base member and leveling member are vertically movable relative to one another with the upper platform supported on a surface of the support member. The leveling member is optionally detachable from the base member.

(7) In another embodiment, a hanger for attaching an elongate beam to a support member comprises a base member and a leveling member. The base member comprises a flat left side panel laterally spaced from a parallel flat right side panel with a substantially perpendicular support web extending therebetween. The support web defines a flat inner surface. The leveling member has an upper platform with a flat inner surface substantially parallel to the flat inner surface of the support web. The base member further includes one or more vertically extending slots and the leveling member includes one or more posts extending downward from the upper platform. Each of the one or more posts is received within one of the one or more slots extending vertically therethrough to connect the leveling member to the base member in a vertically movable relationship.

(8) In yet another embodiment, a hanger for attaching an elongate beam to a support member comprises a base member and a leveling member. The base member has a flat left panel and a parallel flat right panel with a flat web extending perpendicularly therebetween. Each of the left panel and right panel defines an opening. The leveling member comprises a top panel with rearwardly extending flange. The flange is substantially parallel to the web and extends rearwardly from a rear edge of the left panel and a rear edge of the right panel. A left leg member extending downwardly from one side of the top panel and a right leg member extending downwardly from an opposite side of the top panel. The left leg member is receiving in the opening in the left side panel and the right leg member is received in the opening in the right side member to engage the leveling member with the base member in a reciprocal relationship. The leveling member is detachable from the base member.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

(1) FIG. **1** shows a hanger with removable leveling member according to the disclosure from a front perspective view;

(2) FIG. **2** is a front elevation view of the hanger of FIG. **1**;

(3) FIG. **3** is a side elevation view of the hanger of FIG. **1**;

(4) FIG. **4** is a rear perspective view of the hanger of FIG. **1**;

(5) FIG. **5** is a side elevation view of the hanger being attached to a ledger;

(6) FIG. **6** is a front elevation view of the hanger being attached to a ledger;

(7) FIG. **7** is a side elevation view of the hanger attached to the ledger supporting a joist prior to removal of the leveling member; and

(8) FIG. **8** shows the hanger supporting a joist attached to a ledger.

DETAILED DESCRIPTION

(9) Among the benefits and improvements disclosed herein, other objects and advantages of the disclosed embodiments will become apparent from the following wherein like numerals represent like parts throughout the several figures. Detailed embodiments of a height variable hanger with removable leveling member are disclosed; however, it is to be understood that the disclosed embodiments are merely illustrative of the invention that may be embodied in various forms. In addition, each of the examples given in connection with the various embodiments of the invention which are intended to be illustrative, and not restrictive.

(10) Throughout the specification and claims, the following terms take the meanings explicitly

associated herein, unless the context clearly dictates otherwise. The phrase “in some embodiments” as used herein does not necessarily refer to the same embodiment(s), though it may. The phrases “in another embodiment” and “in some other embodiments” as used herein do not necessarily refer to a different embodiment, although it may. Thus, as described below, various embodiments may be readily combined, without departing from the scope or spirit of the invention.

(11) In addition, as used herein, the term “or” is an inclusive “or” operator, and is equivalent to the term “and/or,” unless the context clearly dictates otherwise. The term “based on” is not exclusive and allows for being based on additional factors not described, unless the context clearly dictates otherwise. In addition, throughout the specification, the meaning of “a,” “an,” and “the” include plural references. The meaning of “in” includes “in” and “on”.

(12) Further, the terms “substantial,” “substantially,” “similar,” “similarly,” “analogous,” “analogously,” “approximate,” “approximately,” and any combination thereof mean that differences between compared features or characteristics is less than 25% of the respective values/magnitudes in which the compared features or characteristics are measured and/or defined.

(13) Additionally, the embodiments described herein are done so with primary reference to a preferred embodiment that is a joist hanger for attaching a joist beam to a rear ledger. However, it is understood that the embodiments are not limited as such, and the inventive concepts embodied in the disclosed embodiments apply to a wide variety of hangers or brackets for use in attaching elongate building support members or beams to another support member. Herein, the term “joist” is synonymous with and shall encompass a beam or elongate building member. Likewise, the term “ledger” is synonymous with and shall encompass any building support member or structure to which a beam may be attached.

(14) With reference to the drawings wherein like numerals represent like parts throughout the figures, a hanger **10** is depicted that most generally includes a support base member **12** and a removable leveling member **14**. The base **12** comprises a pair of spaced apart sides **16** and **17** with a bottom joist support web **18**. In the depicted embodiment, the sides **16**/**17** are generally flat parallel panels with each side comprising one or more cuffs **20** that extend outward from the outer side surface to define a vertically extending slot. The base **12** may include additional rear flanges **22**/**23** with holes **24** for receiving fasteners to attach the base **12** to a building support (i.e., ledger L). The depicted attachment flanges **22**/**23** extend outwardly from and substantially perpendicular to the sides **16**/**17**, however, embodiments exist with inwardly extending flanges for attachment behind the joist J or other beam.

(15) The leveling member **14** generally comprises an upper flat platform **26** with a pair of posts or legs **28**/**29** extending downward therefrom on each lateral side. The platform defines a support flange **30** that extends rearwardly to an edge that is rearwardly positioned relative to the rear edges of the side flanges **22**/**23** when the leveling member **14** and base **12** are attached. As shown, each of the slots defined by the cuffs **20** is sized and shaped to receive one of the posts **28**/**29** extending downwardly. Each of the posts **28**/**29** carries a series of vertically spaced teeth **32** preferably with an angled bottom surface to aid in passing the posts through the cuff slots. As shown, preferably, adjacent teeth **32** include sufficient clearance between them to accommodate one of the cuffs. When the leveling member **14** and base **12** are engaged, the top platform and rear flange are substantially parallel to the inner surface of the support web.

(16) With reference to FIGS. **2** and **4**, the base **12** may optionally include a rear panel **34** that defines a plurality of holes **36**. The rear panel **34** is preferably formed from a bend at the rear edge of the joist support web **18** and extends upward substantially perpendicular thereto. The rear panel **34** is preferably substantially parallel to and coplanar with the side flanges **22**/**23**, and substantially perpendicular to the side panels **16**/**17**. Each of the holes in the rear panel **34** and side flanges **22**/**23** is sized to receive a fastener for attachment of the base **12** to a ledger L. It can be said that the side panels **16**/**17** and web **18**, and the rear panel **34**, when present, combine to define a channel for receipt of an elongate beam or joist to be supported on the web **18** and sandwiched between the

side panels **16**/**17**.
(17) As shown, the side panels **16**/**17** also define a plurality of holes **38** for accommodating fasteners driven at an oblique angle for attaching a joist J to the ledger L. In the depicted embodiment, the side panel holes **38** are at least partially circumscribed with a raised support surface **40**. The raised support surfaces **40** may include one or more relief notches **42** and are generally configured to assist alignment of a driving tool by providing an abutment surface for the nose of the tool. The offset raised surfaces **40** additionally act to help maintain integrity of the side panels, **16** and **17**, during and after driving of a fastener. Typically, the polymeric panels can deform under the pressure of the fastener head when driven with significant force from a power driving tool. The side panel holes **40** are offset vertically from one another and preferably extend obliquely through a respective side panel at an angle specifically configured to assist in creating a "toenail" connection between the base **12**, joist J and ledger L. "Toenailing" or creating a "toenail" connection is a common type of attachment technique in the building industry whereby multiple fasteners are driven obliquely through opposite sides of the joist J and into the ledger L. The holes **40** in the left panel **17** are vertically offset from the holes **40** in the right panel **16** to allow the fasteners to be driven through the rear of the joist J without obstructing one another.
(18) Additionally, the embodiments of the hanger **10** can include one or more boss covers at an outer portion of any of the toenail holes **40** consistent with those disclosed in co-owned U.S. patent application Ser. No. 17/364,950 and International Patent Application No. PCT/US2021/40033. Each boss cover defines a relatively smaller opening than the primary opening of the obliquely extending toenail hole and is configured so that it breaks away (at least partially) from the main body of the hanger at some point as a screw is driven further through the hole and eventually into the joist and ledger, yielding an abutment between the head of the screw and the outside surface of the hanger. In this manner, the screws are driven in a repeatably precise angle and position.
(19) In the depicted embodiment, the base **12** and leveling member **14** are both formed of a molded polymer. However other embodiments exist wherein one or both are made from a different material such as metal. The other hardware, including fasteners, are typically formed of steel which may be treated in any known manner to improve strength, hardness and corrosion resistive properties (i.e., heat treating, coating, etc.). The hardware is not limited in dimension.
(20) FIGS. **5-8** are exemplary of a typical installation of a joist J or beam using the hanger **10** and help illustrate the elements, relationships and typical operation within the hanger **10**.
(21) FIGS. **5** and **6** illustrate a first step. The hanger **10** is placed against the front surface of a ledger L with the support flange **30** resting on the top surface of the ledger, which ensures that base **12** (more specifically, the web **18** of the base) is level. An installer can subsequently adjust the height of the base **12** by sliding it downward relative to the leveling member **14**. As the base **12** is moved downward, the posts **28**/**29** pass through the cuffs **20**. The post teeth **32** include a lower ramp surface to assist in allowing the base **12** to travel downward relative to the leveling member. Since the cuffs **20** are formed from molded plastic, they offer a small degree of outward flexibility to help permit the teeth **32** to pass downward during installation.
(22) Once the base **12** is positioned at the proper height for accommodating the joist J and positioning the joist at the desired height, the base **12** is attached to the ledger L via fasteners driven obliquely through holes **24** in the side flanges **22**/**23** and optionally through one or more of the holes **36** in the rear panel **34**.
(23) With reference to FIG. **7**, a joist J is inserted between the upper platform **26** and joist support web **18**. The parallel relationship between the support web **18** and upper platform **26**, with the support flange **30** flat atop the ledger L ensures that the joist J remains level. Fasteners are then driven obliquely through the side holes **38** and rear of the joist J and into the ledger L to secure the joist with a toenail connection (note: fasteners not shown in the Figures).
(24) With reference to FIG. **8**, once the joist J is attached to the ledger L, the leveling member **14** is removed, yielding a completely level joist J at the precisely desired height. The leveling member

14 can be removed by one or more of cutting, breaking, or bending the cuffs **20** to allow disengagement of the teeth **32** and legs. Alternatively, the legs **28**/**29** may be cut or broken to remove the leveling member. Additional joists may be installed in the same manner. The hanger **10** ensures that all joists in a given structure are installed consistently level with one another and the ledger, regardless of minor deviations in dimension that may exist among the joists.

(25) While preferred embodiments of the foregoing have been set forth for purposes of illustration, the foregoing description should not be deemed a limitation of the invention herein. Accordingly, various modifications, adaptations and alternatives may occur to one skilled in the art without departing from the spirit and the scope of the present invention.

Claims

1. A hanger for attaching an elongate beam to a support member, comprising: a base member comprising a left side laterally spaced from a right side with a support web extending therebetween, the support web being substantially perpendicular to the left side and right side; and a leveling member having an upper platform that is substantially parallel to the support web when engaged to the base member in a vertically movable connection, wherein the base member and the leveling member are vertically movable relative to one another with the upper platform supported on a surface of the support member, the leveling member is detachable from the base member, the leveling member comprises at least one post extending downward from the upper platform, and the base member comprises at least one cuff that defines a vertically open slot that receives a post of the at least one post in a vertically slidable relationship, and the post of the at least one post includes a series of vertically spaced apart teeth that engage a cuff in a ratchet engagement.

2. The hanger of claim 1, wherein the base member and the leveling member are engaged via a cooperative and slidable leg in slot relationship.

3. The hanger of claim 1, wherein the leveling member is detachable from the base member via breaking or bending the respective cuffs to allow disengagement of the respective post.

4. A hanger for attaching an elongate beam to a support member, comprising: a base member comprising a left side laterally spaced from a right side with a support web extending therebetween, the support web being substantially perpendicular to the left side and right side; and a leveling member having an upper platform that is substantially parallel to the support web when engaged to the base member in a vertically movable connection, wherein the base member and the leveling member are vertically movable relative to one another with the upper platform supported on a surface of the support member, the leveling member is detachable from the base member, and the upper platform defines a rear flange that extends rearwardly past a rear edge of the left side and a rear edge of the right side configured to rest on a top edge of the base member.

5. The hanger of claim 4, wherein the leveling member comprises at least one post extending downward from the upper platform, and the base member engages the at least one post.

6. The hanger of claim 5, wherein the base member comprises at least one cuff that defines a vertically open slot that receives a post of the at least one post in a vertically slidable relationship.

7. The hanger of claim 6, wherein the post of the at least one post includes a series of vertically spaced apart teeth that engage a cuff in a ratchet engagement.

8. The hanger of claim 4, wherein the base member and leveling member are formed as molded plastic parts.

9. A hanger for attaching an elongate beam to a support member, comprising: a base member comprising a left side laterally spaced from a right side with a support web extending therebetween, the support web being substantially perpendicular to the left side and right side; and a leveling member having an upper platform that is substantially parallel to the support web when engaged to the base member in a vertically movable connection, wherein the base member and the leveling member are vertically movable relative to one another with the upper platform supported on a

surface of the support member, the leveling member is detachable from the base member, and the base member comprises one or more rear flanges perpendicular to the left side and right side, each rear flange defining one or more holes for receipt of a fastener to attach the base member to the support member.

10. The hanger of claim 9, wherein the leveling member comprises a post extending downwardly from the upper platform on opposite sides thereof, each downwardly extending post being configured to engage with one of the left side and the right side.

11. The hanger of claim 10, wherein each of the left side and the right side includes a passthrough slot for receipt of one of the posts.

12. The hanger of claim 11, wherein the leveling member is detachable from the base member via disengagement of the posts from the respective passthrough slot.

13. The hanger of claim 12, wherein each of the passthrough slots is formed via a cuff extending away from an inner or outer surface of the left side and the right side.

14. The hanger of claim 13, wherein the leveling member is detachable from the base member via breaking or bending the respective cuffs to allow disengagement of the respective post.

15. The hanger of claim 11, wherein the base member and leveling member are formed from a plastic material.

16. A hanger for attaching an elongate beam to a support member, comprising: a base member comprising a flat left side panel laterally spaced from a parallel flat right side panel with a substantially perpendicular support web extending therebetween, the support web defining a flat inner surface; and a leveling member having an upper platform with a flat inner surface substantially parallel to the flat inner surface of the support web, wherein the base member includes one or more vertically extending slots and the leveling member includes one or more posts extending downward from the upper platform, and each of the one or more posts is received within one of the at least one of the one or more vertically extending slots extending vertically therethrough to connect the leveling member to the base member in a vertically movable relationship, each of the one or more posts includes a plurality of spaced apart teeth, and adjacent teeth of the plurality of spaced apart teeth are configured to trap a portion of the base member with one of the one or more vertically extending slots positioned between said adjacent teeth.

17. The hanger of claim 16, wherein each of the one or more vertically extending slots is defined by a cuff in the left side panel or the right side panel.

18. The hanger of claim 17, wherein the leveling member is detachable from the base member by breaking the cuffs to disengage the vertically extending posts.

19. The hanger of claim 16, wherein the leveling member and the base member are both formed of a plastic material.

20. A hanger for attaching an elongate beam to a support member, comprising: a base member with a flat left panel and a parallel flat right panel with a flat web extending perpendicularly therebetween, each of the left panel and the right panel defining an opening; and a leveling member comprising a top panel with rearwardly extending flange, the flange being substantially parallel to the web and extending rearwardly from a rear edge of the left panel and a rear edge of the right panel, a left leg member extending downwardly from one side of the top panel and a right leg member extending downwardly from an opposite side of the top panel, wherein the left leg member is received in the opening in the left side panel and the right leg member is received in the opening in the right side member to engage the leveling member with the base member in a reciprocal relationship, and the leveling member is detachable from the base member.