

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SIMPSON STRONG-TIE COMPANY INC.
Petitioner

v.

COLUMBIA INSURANCE COMPANY
Patent Owner

Case PGR2024-00050
Patent No. 11,920,339

DECLARATION OF RICHARD T. KACZKOWSKI

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I, Richard T. Kaczkowski, hereby declare as follows:

I. INTRODUCTION

1. I currently serve as a Principal Consultant at Unified Engineering LP, where I provide consulting services on a variety of structural and building envelope related projects. I am being compensated at the rate of \$350 per hour for the work I conduct related to this proceeding. My compensation does not depend on the content of my opinions or the outcome of the proceeding.

2. I previously served as the Vice President of Consulting Services at CTLGroup, an internationally recognized expert engineering, architectural, and materials science consulting and testing firm. I worked at CTLGroup from 2010 to 2023.

3. I hold Bachelor and Master degrees in Civil Engineering. I have been a Licensed Professional Engineer in Illinois since 1988, and a Licensed Structural Engineer in Illinois since 1990. I am also licensed as a Professional or Structural Engineer in numerous other states.

4. I have over 40 years of professional experience, including being employed for approximately nine years in the Research and Development department of USG Corporation, a major building materials manufacturer. In this position, I managed a laboratory group that was responsible for the development and code certification testing of building systems for wall, floor, ceiling and roof

applications. This included the development and testing of fire resistant drywall clad wall assemblies. In this role, I obtained considerable knowledge relating to fire resistant drywall construction, including methods for mounting and attaching the drywall and framing. While employed at USG, I was an active participant in corporate patent activities as a member of the Patent Review Committee. I was also a contributing editor to the Gypsum Construction Handbook, 5th Edition, published by USG Corporation, © 2000. This is a comprehensive and highly regarded industry handbook addressing all aspects of the use and performance of products in drywall construction, and is often utilized by design professionals, contractors, and building officials.

5. Among my current industry activities, I am a member of the American Society for Testing and Materials (ASTM). ASTM standards are widely recognized and often incorporated in building codes and construction specifications worldwide.

6. My qualifications are further enumerated in detail in my curriculum vitae, along with a list of publications, which is Exhibit 2002.

7. I have been retained by Patent Owner Columbia Insurance Company (“Columbia” or “Patent Owner”) to provide my opinions in the above-captioned post-grant review proceeding involving U.S. Patent No. 11,920,339 (the “‘339 Patent”, Exhibit 1001), which is titled “Method of Constructing a Fire-Resistive

Wall Assembly.” I understand this post-grant review has been requested by Simpson Strong-Tie Company Inc. (“Simpson” or “Petitioner”). I understand this declaration will be entered in the above-captioned post-grant review proceeding, as an exhibit with Patent Owner’s Preliminary Response to the Petition for Post Grant Review (the “Preliminary Response”) submitted by Columbia.

8. I understand the ‘339 Patent is a continuation of U.S. Patent No. 11,649,626 (the “‘626 Patent), which is a continuation of U.S. Patent No. 11,021,867 (the “‘867 Patent), which is a continuation of U.S. Patent No. 10,316,510 (the “‘510 Patent). I understand the ‘626 Patent is currently the subject of post-grant review numbers PGR2023-00047, PGR2023-00048, and PGR2023-00049 which are currently pending. I understand the ‘867 Patent was the subject of prior post-grant review number PGR2021-00109, in which a Final Written Decision (the “‘109 PGR FWD”) was issued. I understand the 109 PGR FWD decision found 18 of the original claims of the ‘867 Patent to be invalid, five (5) of the original claims of the ‘867 Patent to be valid, and one of the amended claims of the ‘867 Patent to be patentable. I understand the ‘109 PGR FWD is currently being appealed by Simpson. I understand the ‘510 Patent was the subject of prior post-grant review number PGR2019-00063, in which a Final Written Decision (the “‘063 PGR FWD”) was issued. I understand the ‘063 PGR FWD was appealed by both Simpson and Columbia to the Federal Circuit. I understand the Federal

Circuit affirmed that the original claims of the ‘510 Patent were invalid and that one of the amended claims of the ‘510 Patent was found to be patentable.

9. In providing the testimony set out in this declaration, I have reviewed the specification and claims of the ‘339 Patent, the file history of the ‘339 Patent, Simpson’s Petition for Post Grant Review of the ‘339 Patent (“Petition” or “Simpson Petition”), the prior art and other documents attached to the Petition, and the declaration of Mr. Fennell (“the Fennell Declaration”) (EX1003). I have also reviewed the following documents attached as exhibits to the Preliminary Response:

Exhibit No.	Description
2003	U.S. Patent No. 11,142,902
2004	U.S. Patent No. 11,225,787
2005	U.S. Publication No. 2021/0396000
2006	U.S. Publication No. 2022/0243455
2007	DGT/DGHT Fire Wall Hangers
2008	“Mass Timber and Wood Framing,” Architectural Record Magazine, McGraw Hill Construction, November 2012, pp. 165-169
2009	Top Flange Hangers LBV/BA/B/HB
2010	Merriam-Webster’s Collegiate Dictionary – Definition of Bound
2011	New Oxford American Dictionary – Definition of Bound
2012	U.S. Patent No. 11,065,667
2013	U.S. Publication No. 2019/0136520
2014	U.S. Patent No. 4,560,301
2015	U.S. Patent No. 6,112,495
2016	Simpson Strong-Tie: New Fire Wall Hangers Optimized for Power Nailers
2017	Simpson Strong-Tie: DGHT Top-Flange Fire Wall Hanger
2018	Simpson Strong-Tie: DGT Top-Flange Fire Wall Hanger

2019	Simpson Strong Tie Co., Inc. Design No. SST/WPCF 120-01 Fire Resistant Joist Hanger DG Series Fire Wall Hanger
2020	Simpson Strong-Tie: Your Go-To, Load-Rated Fire Wall Hanger
2021	Simpson Strong-Tie: Allowable Loads for the DG and DGH hanger installed on walls over wood structural panel sheathing
2022	Simpson Strong-Tie: DGH Fire Wall Hanger Now Available Skewed or with Offset Top Flange
2023	Simpson Strong-Tie: DG/DGB/DGH Fire Wall Hangers
2024	Merriam-Webster's Collegiate Dictionary – Definition of Outwardly
2025	New Oxford American Dictionary – Definition of Outward
2026	U.S. Publication No. 2002/0104279
2027	U.S. Patent No. 11,560,707
2028	U.S. Publication No. 2002/0148191
2029	U.S. Publication No. 2013/0133284
2030	Merriam-Webster's Collegiate Dictionary – Definition of Close
2031	New Oxford American Dictionary – Definition of Close
2032	Merriam-Webster's Collegiate Dictionary – Definition of Conform
2033	New Oxford American Dictionary – Definition of Conformance
2034	U.S. Patent No. 9,938,709
2035	U.S. Patent No. 5,237,613
2036	U.S. Patent No. 6,135,687
2037	Transcript of the May 25, 2022 Deposition of Mr. Fennell
2038	2012 International Building Code – Table 721.1(2)
2039	Fire Ratings of Masonry Walls
2040	Fire and Concrete Structures
2041	Fire Protection Safety with Concrete
2042	2012 International Building Code: Definition of “Fire Wall”
2043	Structural Design for Fire Safety
2044	Press Releases – MiTek Residential Construction Industry
2045	MiTek Releases FWH Fire Wall Hanger, A New USP Structural Connector Product
2046	USP Structural Connectors 2015-2016 Product Catalog
2047	Wood-Frame House Construction

10. In forming my opinions, I have relied upon various legal principles as included in the Fennell Declaration and the Simpson Petition, and explained to me

by Patent Owner's counsel. My understanding of these principles is summarized below.

11. I understand that in patent law a patent's claims define the scope of protection for the claimed invention.

12. I understand that the validity of a patent's claims is determined on a claim-by-claim basis.

13. I understand that in this proceeding, Petitioner has the burden of proving that the challenged claims would have been unpatentable by a preponderance of the evidence.

14. Ground 1 of the Petition argues that claims 1-31 of the '339 Patent should be invalidated because certain limitations purportedly lack written description support. I understand that U.S. patent law requires the patent application from which the patent matured provide a written description sufficient to convey to a person having ordinary skill in the art ("POSA") that the inventor had possession of the claimed subject matter as of the effective filing date. I further understand that the drawings within a patent application are part of the written description and may be sufficient on their own to provide the required written description of the invention.

15. Ground 2 of the Petition argues that claims 1-31 of the '339 Patent should be invalidated because certain claim limitations are purportedly indefinite.

I understand that a patent claim is invalid as indefinite if when read in light of the patent's specification and the prosecution history, the claim fails to inform those skilled in the art as to the scope of the invention with reasonable certainty.

16. Grounds 3-11 of the Petition argue that claims 1-22, 24, 25, and 27-31 of the '339 Patent should be invalidated as obvious over one or more combinations of prior art references. I understand a claim is unpatentable as obvious if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious to a person of ordinary skill in the art at the time of the invention.

17. I understand that the question of obviousness is resolved based on underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of non-obviousness.

18. I further understand that for each of its obviousness grounds, Petitioner must demonstrate that a person of ordinary skill would have: (1) a motivation to combine the relevant references and (2) a reasonable expectation of success of developing the claimed invention.

19. I understand that the United States Patent and Trademark Office ("PTO" or "USPTO") will interpret the claims of the '339 Patent as they would have been understood by those of ordinary skill in the art at the time of the

invention in view of the claim language itself, the patent specification, and the patent's prosecution history.

20. I have been informed that the time of the invention or effective filing date of the invention for the '339 Patent is the earliest priority date of the '339 Patent, which I have been informed is December 31, 2013.

21. In forming my opinions, I have applied the understanding of one of ordinary skill in the art working at the time of the invention claimed in the '339 Patent, i.e., prior to December 31, 2013. In my opinion, a person of ordinary skill in the art at this time would have an acquired body of knowledge gained through formal education, or practical experience providing an equivalent to, a Bachelor of Science in Mechanical Engineering, Civil/Structural Engineering, or a related/equivalent field, and at least four years of work experience: with (1) construction connector design, development, or use, (2) drywall construction practices/sequencing, and (3) performance requirements related to fire rated drywall construction.

II. THE INVENTION CLAIMED IN THE '339 PATENT

22. The '339 Patent pertains to an improvement in the "method of constructing a fire-resistive wall assembly." EX1001: claims 1 and 27. The method involves the following components: a fire wall hanger, a frame wall, and fire retardant sheathing. EX1001: claims 1 and 27. With reference to Figs. 1 and 2

(reproduced below), the fire wall hanger (26) includes (i) a channel-shaped portion (38) sized and shaped to receive a structural component, such as an end of a truss (12), (ii) a connection portion (42) configured for attachment to the frame wall (28), and (iii) an extension portion (40) interconnecting the channel-shaped portion and the connection portion. EX1001: Abstract, 4:37-40. The frame wall (28) includes a top plate (30) and a plurality of studs (32) extending downward from the top plate. EX1001: 4:18-20. In the illustrated embodiment, the fire retardant sheathing (34) comprises two layers of 5/8-inch-thick gypsum board, also known as drywall. EX1001: 4:21-25.

FIG. 1

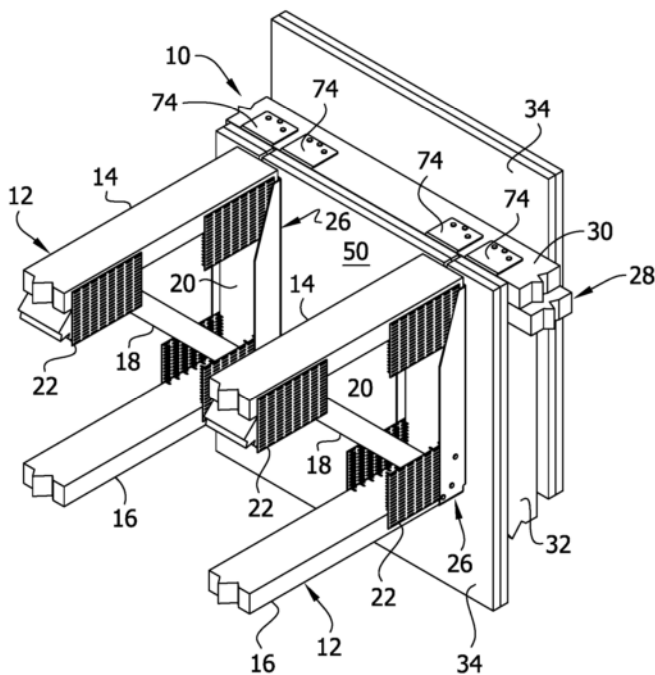
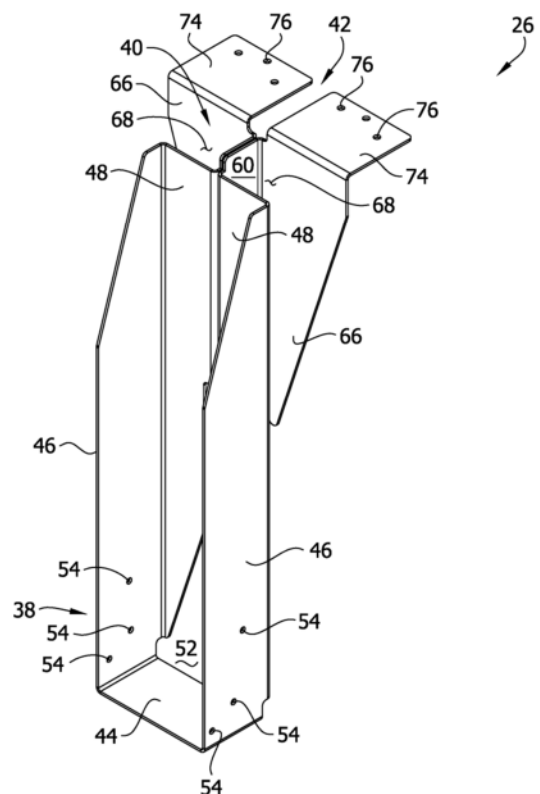
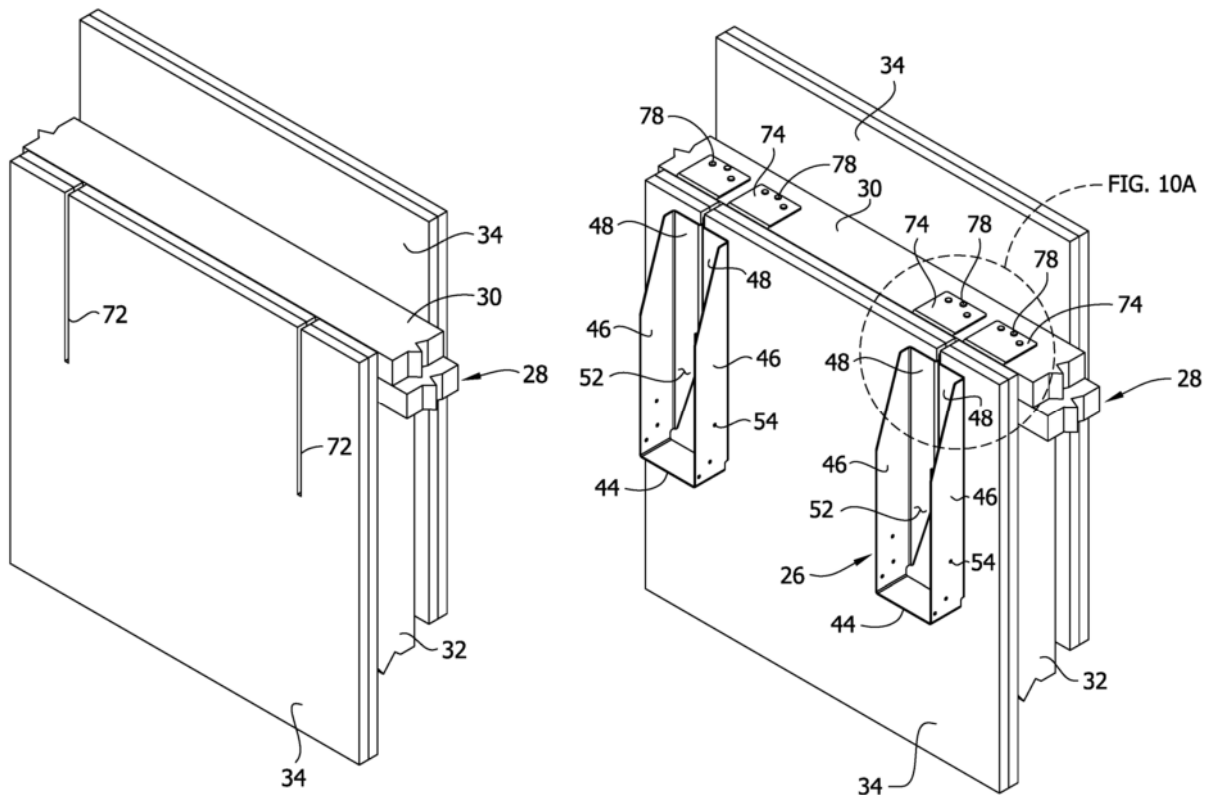


FIG. 2



EX1001: Figs. 1 and 2.

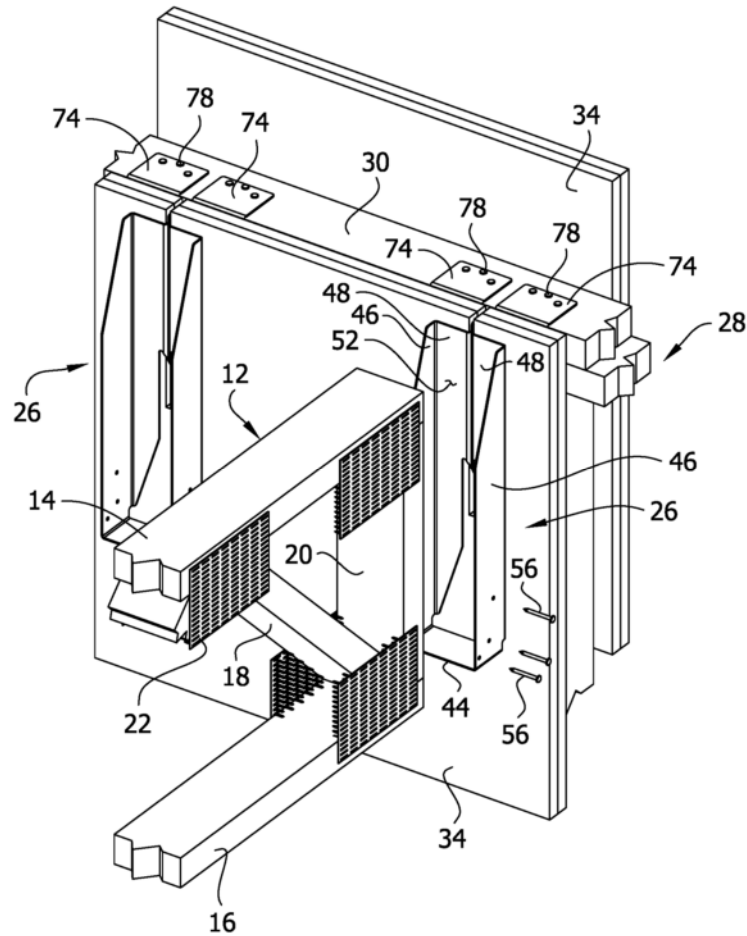
23. The method claimed by the '339 Patent involves several steps. The fire wall hanger (26) is mounted on the frame wall (28). EX1001: claims 1 and 27. An opening or slot (72) is also cut into an exterior edge of the fire retardant sheathing (34), as shown in Fig. 9 (reproduced below). EX1001: claims 1 and 27, 7:26-27.



EX1001: Figs. 9 and 10.

24. The next step involves installing the fire retardant sheathing (34) on the frame wall (28). The method claimed by the '339 Patent recites a specific order of construction of the fire-resistive wall assembly with respect to the order the fire wall hanger (26) and the fire retardant sheathing (34) are installed.

Specifically, the fire retardant sheathing (34) is installed on the frame wall (28) after the fire wall hanger (26) has already been mounted on the frame wall. Claim 1 recites “**after** mounting the fire wall hanger [26] on the frame wall [28] and **after** cutting the opening [72] into the ... fire retardant sheathing [34], **installing** the fire retardant sheathing with respect to the frame wall.” EX1001: claim 1. Claim 1 of the ‘339 Patent recites two sub-parts or sub-steps for the installing step of the fire retardant sheathing (34): (i) “inserting the fire retardant sheathing [34] between the channel-shaped portion [38] of the fire wall hanger [26] and the frame wall [28],” and (ii) “moving the fire retardant sheathing ... so that ... the fire wall hanger extends through the opening [72] in the fire retardant sheathing.” EX1001: claim 1.



EX1001: Fig. 12.

25. The ‘339 Patent explains the benefits of this specific order of assembly. The ‘339 Patent states this order of construction (i) “**simplifies construction**” by allowing the building to be completely framed and roofed before requiring the sheathing 34 to be installed” and (ii) allows “[t]rade workers (e.g., mechanical, electrical) [to] have **complete access to the wall cavity** to install components without interference from the sheathing 34.” EX1001: 7:67-8:5.

26. Independent claim 27 is similarly directed to the “method of constructing a fire-restive wall assembly” and recites the same order of assembly

as independent claim 1. EX1001: claim 27. The dependent claims recite further details regarding the method of construction.

27. Based on the assembly method claimed by the '339 Patent, a person of ordinary skill in the art would recognize that it considers both the structural and fire related performance requirements for a fire wall hanger. The hanger is described as “a hanger for connecting a structural component to a wall...”

EX1001: 1:50-51. The claims recite that the channel shaped component of the fire wall hanger is “...sized and shaped to receive a structural component...” EX1001: Claims 1, 27. A person of ordinary skill would recognize that a “structural component” is a load-bearing element and the hanger transfers the load from the joist to the wall. Accordingly, the structural capacity of the hanger would be an important consideration in its design and installation.

28. Furthermore, the specification repeatedly teaches the importance of minimizing openings or interruptions in the fire retardant sheathing to avoid compromising the required fire related performance:

- “The truss hangers 26 extend through a narrow slot in the fire retardant sheathing 34 to maintain the integrity and fire retardant characteristics of the fire separation wall.” EX1001: 4:34-36.
- “the integrity of the fire retardant sheathing should be maintained and interruptions of the sheathing kept to a minimum.” EX1001: 1:44-46.
- “The truss hanger 26, 126 permits a floor truss 12 to be secured to a wall 28 through fire retardant sheathing 34 with minimal interruption to the sheathing. Installation of the truss hanger minimally disrupts the

continuity of the sheathing and therefore does not reduce the fire resistive rating of a fire rated assembly. The extension flanges 60, 160 extend through the fire retardant sheathing 34 so that the sheathing is interrupted only by the slot 72 required to receive the flanges.” EX1001: 11:33-41.

III. THE ASSERTED PRIOR ART

A. U.S. Patent No. 9,394,680 to Bundy (EX1005)

29. U.S. Patent No. 9,394,680 (“Bundy”) is a patent assigned to Simpson. EX1005.

30. Bundy represents Simpson’s own attempt at developing a fire wall hanger. EX1005. Bundy’s filing date is December 14, 2013, which predates the ‘339 Patent’s December 31, 2013 priority date by less than three weeks. EX1001; EX1005. Thus, Bundy represents a contemporaneous attempt by Simpson to develop a fire wall hanger at the time of invention of the ‘339 Patent. Yet Bundy’s approach is fundamentally different than the invention of the ‘339 Patent.

31. Bundy discloses a joist hanger that is capable of installation over “one or more generally vertical drywall panels.” EX1005: Abstract.

32. As shown below in Figs. 1 and 2, the Bundy hanger is installed on a wood structural support member or top plate (item 4 in the drawings) of a wall having one or more drywall panels (item 6 in the drawings) already mounted thereon. EX1005: 3:55-59 and 2:20-25. The top plate of the wall is preferably made of two pieces of 2x4 dimensional lumber. EX1005: 6:4-5.

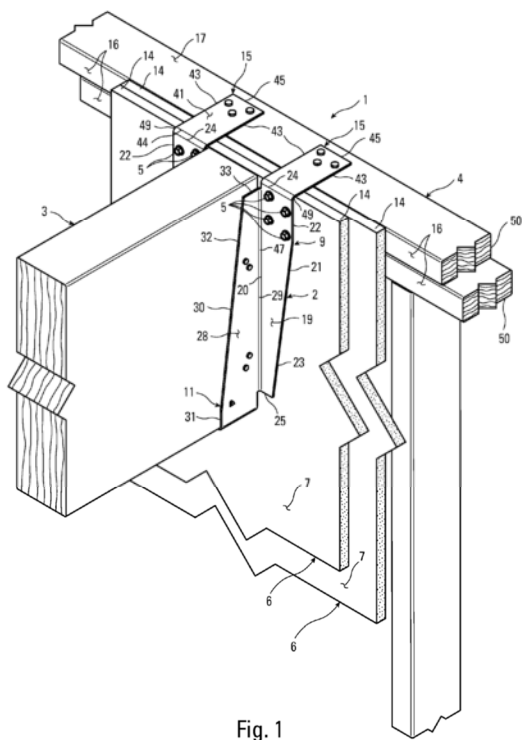


Fig. 1

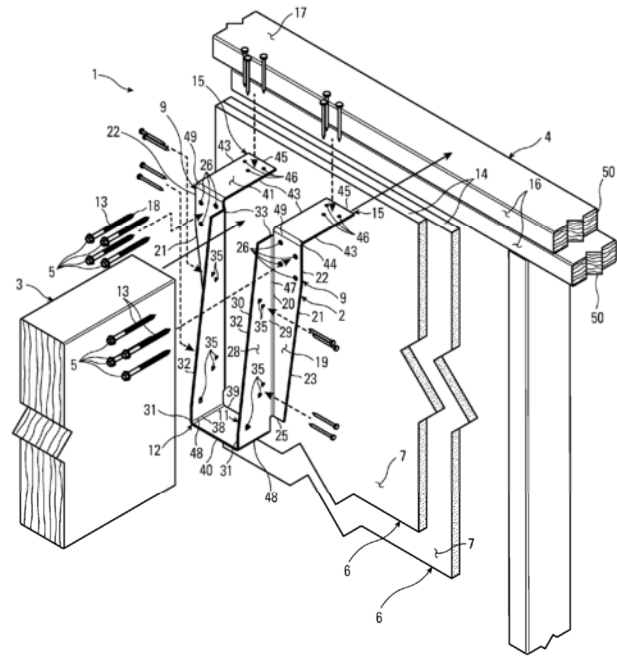


Fig. 2

EX1005: Figs. 1 and 2.

33. The joist hanger (2) of Bundy includes a channel-shaped portion configured to receive the structural component comprising a seat member (12) which supports a joist (3) and first and second side members (11) extending upward from the seat member. EX1005: 5:23-26, Fig. 2 (annotated).

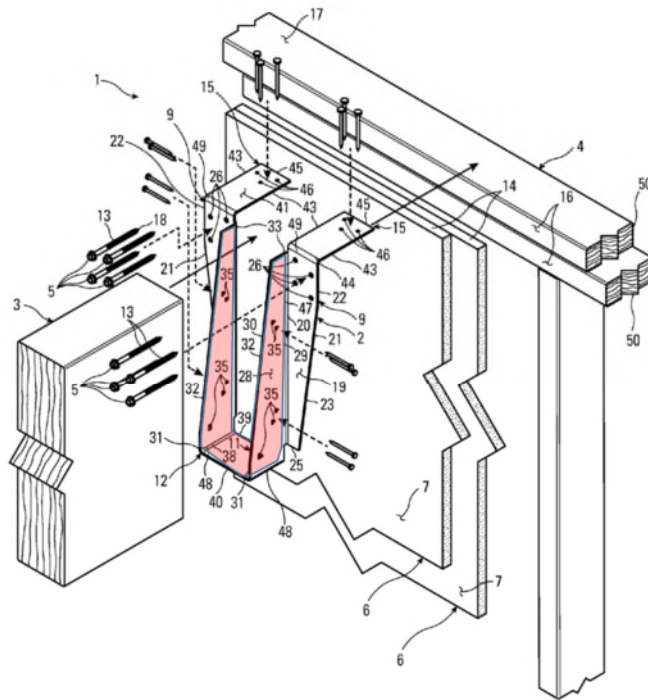


Fig. 2

EX1005: Fig. 2 (annotated).

34. The joist hanger (2) further includes first and second back plate members (9) extending outward from the channel-shaped portion's respective side members (11). EX1005: 4:5-16, Fig. 2 (annotated).

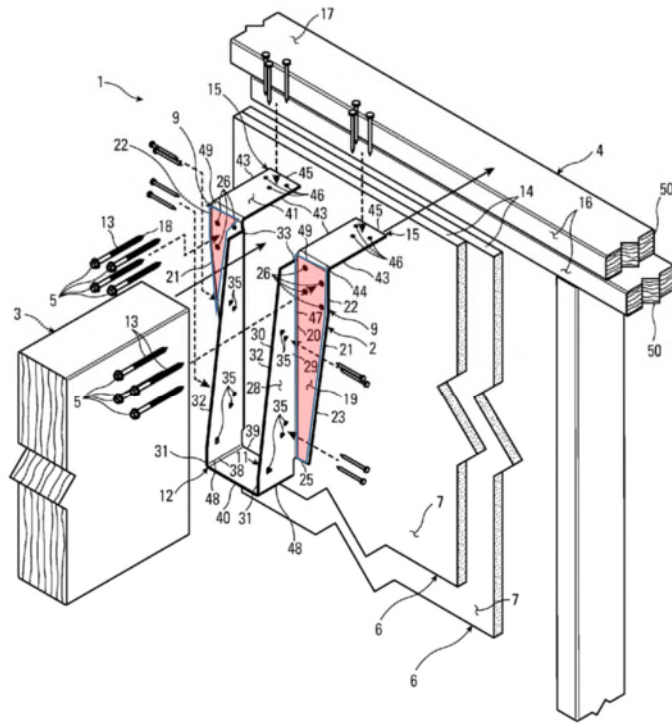


Fig. 2

EX1005: Fig. 2 (annotated).

35. The joist hanger (2) also includes top flanges (15) extending rearward from the respective back plate members (9) for attaching the joist hanger to the top surface of the top plate of a wall. EX1005: 5:39-43, Fig. 2. The top flanges (15) extend over the top of the drywall panels (6). EX1005: 5:39-43, Fig. 2 (annotated).

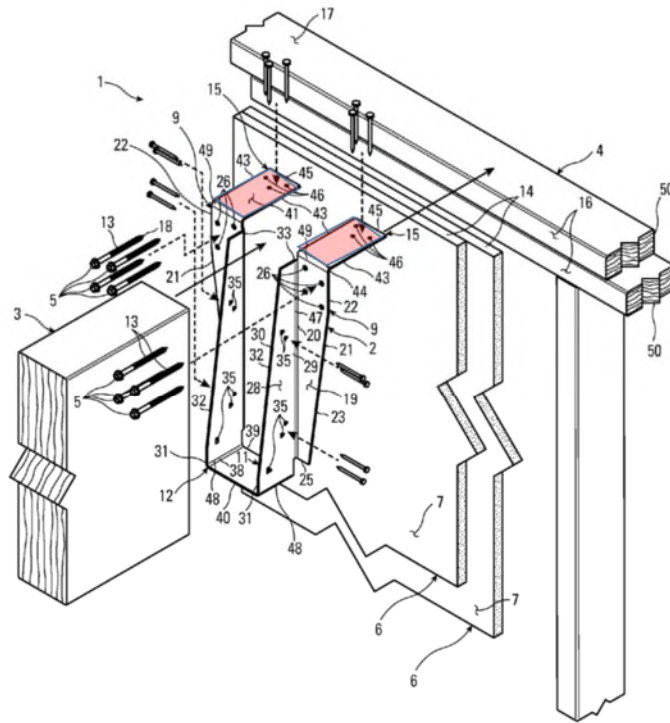


Fig. 2

EX1005: Figs. 2 (annotated).

36. As shown in Figs. 1 and 2, the joist hanger (2) is mounted on the top plate (4) of the wall after the one or more drywall panels (6) are installed on the wall. EX1005: Figs. 1 and 2. Thus, Bundy discloses a very different order of construction than the claims of the '339 Patent.

37. In Bundy, the joist hanger (2) is mounted on the top plate (4) of the wall **after** the drywall panels (6) are installed on the wall. EX1005: Fig. 2, 2:20-25. In fact, Bundy states “[t]he drywall [is] applied to the [] supporting member ..., and the joist hanger can **then** be attached.” EX1005: 2:20-25. To install the

joist hanger (2), the joist hanger is positioned such that “[t]he first and second top flanges 15 preferably extend over the top edge faces 14 of the one or more panels 6.” EX1005: 5:42-43, Fig. 1. The joist hanger (2) is placed onto the wall such that top flanges (15) are fastened to the top face (17) of the top plate (4) and the back plate members (9) interface with the front face (7) of the outer most drywall panel (6). EX1005: 5:45-49, 6:14-17, Fig. 1. Nails (5) are then inserted through the top flanges (15) and back plate members (9) and into the drywall panels (6) and top plate (4) to secure the joist hanger (2) to the wall. EX1005: 5:45-52, 4:16-23.

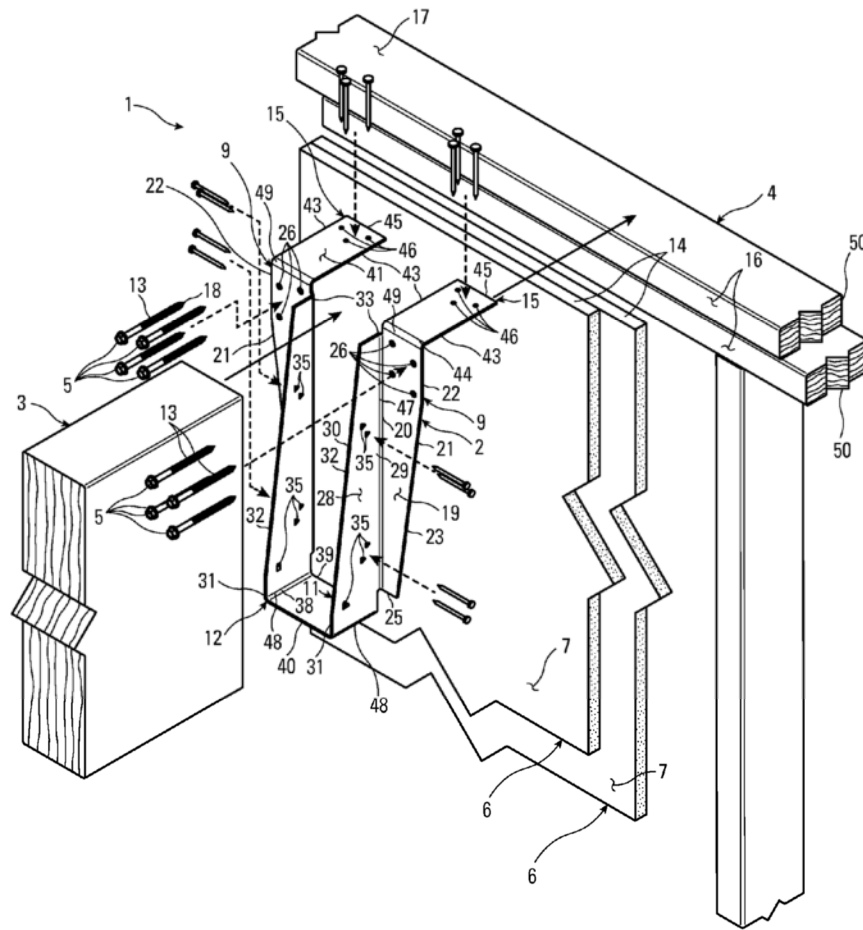


Fig. 2

EX1005: Fig. 2.

38. As shown below in Fig. 3, the engagement of the top flanges (14) with the wall top plate (4) and the back plate members (9) with the drywall panel (6) establishes the horizontal and vertical position of the joist hanger (2) relative to the wall. EX1005: Fig. 3, 5:45-49, 6:14-17.

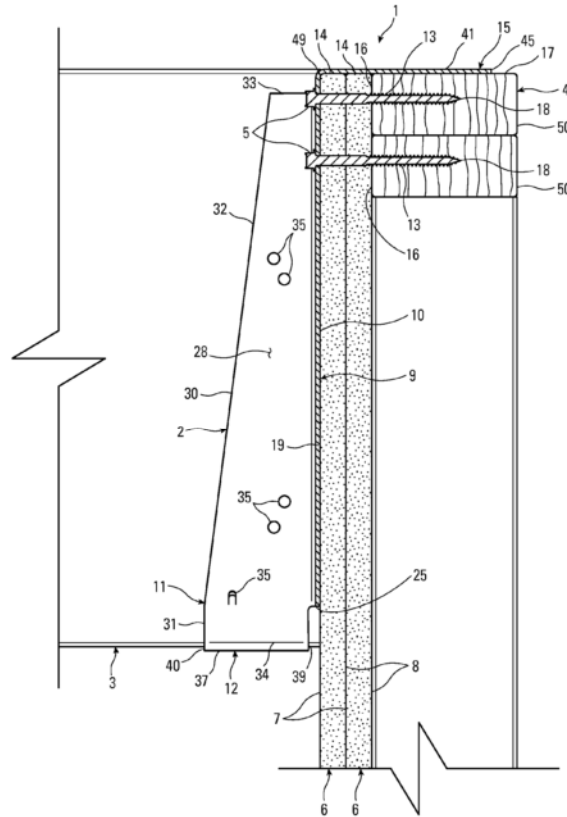


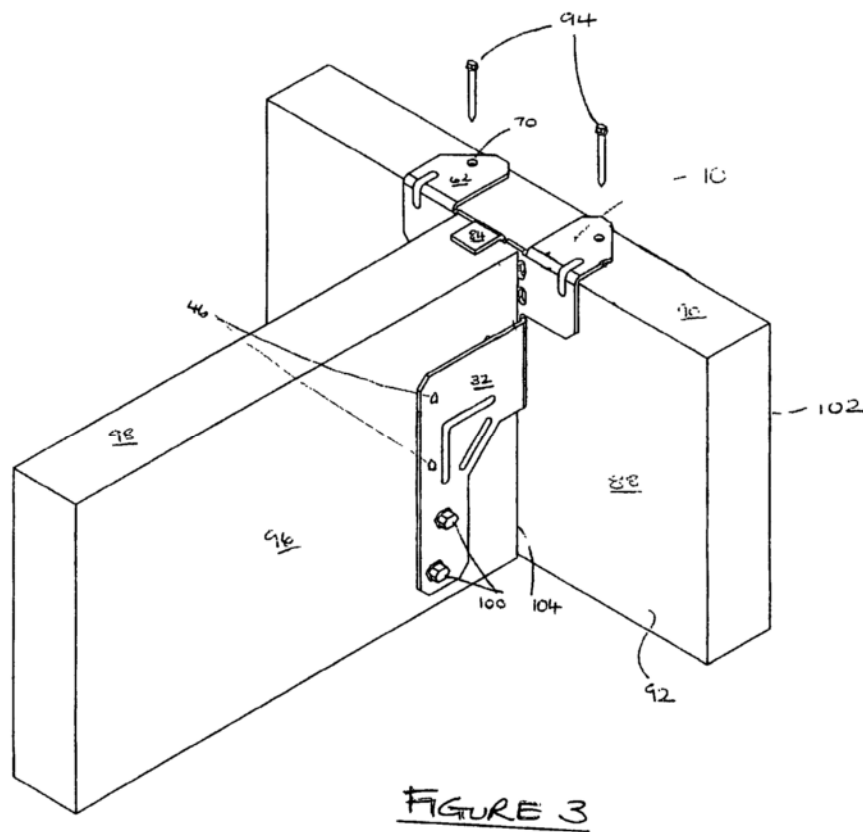
Fig. 3

EX1005: Fig. 3.

39. Bundy explains extending the joist hanger (2) over the drywall panels (6) “[i]mportantly, [] does not require any alteration of the drywall.”. EX1005: 2:18-19. Thus, Bundy has at least two fundamental differences from the claims of the ‘339 Patent in that (i) Bundy requires the drywall panels (6) to be installed on the wall **before** the joist hanger (2), and (ii) Bundy extends the joist hanger (2) (e.g., the top flanges (15) thereof) **over the top** of the drywall panels, not through an opening cut in the drywall panels.

B. G.B. Publication No. 2,451,853 to Cullen (EX1004)

40. Great Britain Publication No. 2,451,853 (“Cullen”) discloses “[a] bracket (10) in the form of a joist hanger for use in timber construction such as decking.” EX1004: Abstract. The bracket (10) is used to connect a joist (96) to a sill (88), as shown in Fig. 3 (reproduced below). EX1004: Fig. 3, 10:10-12, 16:23-28.



EX1004: Fig. 3.

41. With reference to Fig. 1 (reproduced below), the bracket (10) includes a back plate (12) for placement against the sill (88) and side walls (30, 32) projecting from the back plate which receive the joist (96) there-between.

EX1004: 10:16-31, 16:13-14. The bracket (10) includes bearing plates (62, 64) extending rearward from the back plate (12) that engage the upper surface of the sill (88). EX1004: 11:24-27, 16:2-4. As shown in Fig. 3 above, the bracket (10) seats the joist (96) all the way against the back plate (12), which in turn is placed against the sill (88). EX1004: Fig. 3, 16:13-14. The bracket (10) includes barbs (31, 33) at the interface between the side walls (30, 32) and the back plate (12) which engage the joist (96) to “prevent [the joist’s] withdrawal” from the bracket. EX1004: Fig. 1, 11:11-12, 4:8-12. “[T]he one or more barbs are arranged to allow insertion of a joist into the bracket, but prevent its withdrawal.” EX1004: 4:8-10.

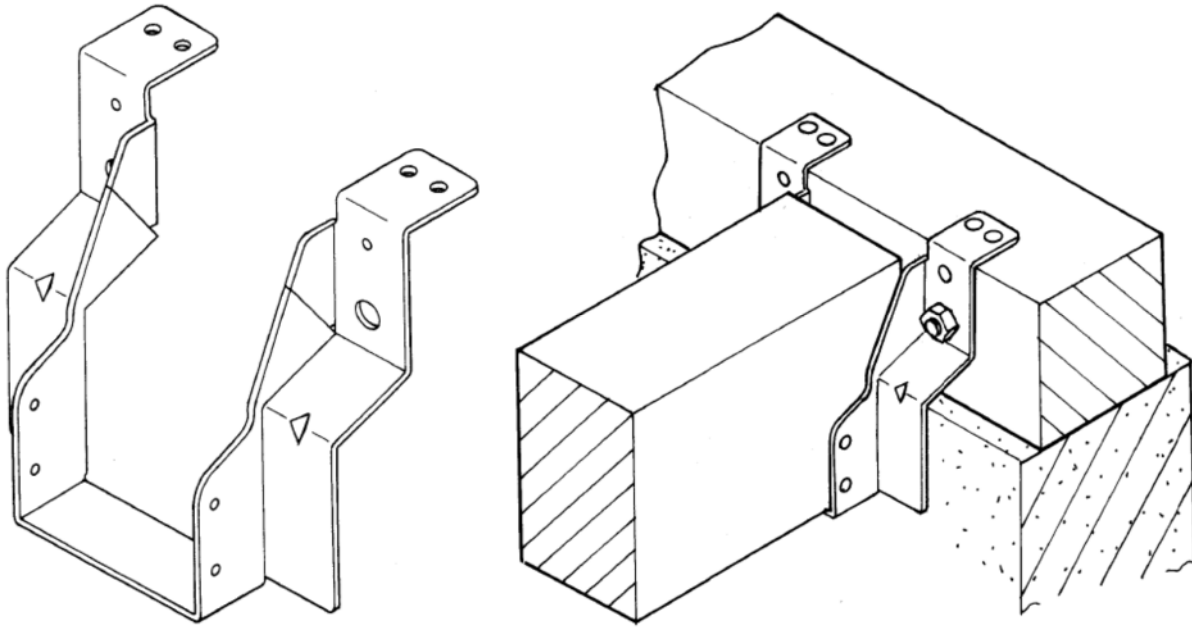
member. In this way the timber panels or boards fixed over the sill and joists to make the decking platform will be located on an even surface.” EX1004: 13:1-4.

43. Cullen makes no mention of drywall, sheathing, nor fire resistance. EX1004. In fact, the terms “drywall,” “gypsum,” “sheathing,” and “fire” do not appear in Cullen. Furthermore, the bracket (10) in Cullen seats the joist (96) against the back plate (12), which in turn rests against the sill (88). It therefore does not allow, or even contemplate, the installation of additional materials (such as drywall) between the back plate and sill, either before or after installation of the bracket. EX1004.

C. Japanese Design Patent No. D1213894 to Yamaguchi (EX1007)

44. Japanese Design Patent No. D1213894 (“Yamaguchi”) discloses “a joist bracket that is attached to sills and bears a joist bridging the sills.” EX1007:

1. Representative views of the joist bracket are shown below:



EX1007: Perspective Views, Reference Diagram Illustrating Usage State.

45. Yamaguchi’s description of the joist bracket is very limited. The “Description of Article of Design” [55] merely states, “The present article is a joist bracket that is attached to sills and bears a joist bridging the sills”. In the “Reference Diagram Illustrating Usage State” (reproduced above) the joist bracket of Yamaguchi is shown connecting a joist to a wooden sill sitting on a foundation wall (which are typically constructed of concrete or masonry), with the foundation wall being thicker than the wooden sill. EX1007. Thus, the function and purpose of Yamaguchi’s joist bracket is similar to the beam hanger disclosed in Japanese Publication No. H3-14482 to Tsukamoto (EX1008), as Tsukamoto’s beam hanger also attaches a beam (6) to a wooden base (4) on top of a foundation wall (8), as

shown in Figs. 5 and 6. EX1008: Figs. 5 and 6. I understand Tsukamoto was applied in some of the previous PGRs.

46. Yamaguchi makes no mention of drywall, sheathing, nor fire resistance. EX1007. In fact, the terms “drywall,” “gypsum,” “sheathing,” and “fire” do not appear in Yamaguchi. EX1007.

D. G.B. Publication No. 2,433,522 to Robinson (EX1011)

47. Great Britain Publication No. 2,433,522 (“Robinson”) discloses “a joist hanger for affixing a timber joist to masonry.” EX1011: Abstract. With reference to Fig. 2 (reproduced below), Robinson’s joist hanger (100) includes “a shoe 112 for supporting a joist and a flange 120 for suspending the hanger 100 from masonry or the like.” EX1011: 4:1-2. The shoe (112) is spaced apart from a second surface (122) by a mount (124) and a dividing wall (136). EX1011: Fig. 2, 4:5-16. This forms a duct opening (126) in the joist hanger (100). EX1011: Fig. 2, 4:13-15. The duct opening (126) allows for cables and pipes to extend through joist hanger (100) to eliminate “the need to drill holes in a joist in order to run cables, pipes, and the like past the joist.” EX1011: Fig. 2, Abstract, 1:24-30, 2:20-21, 4:13-19, 5:12-13.

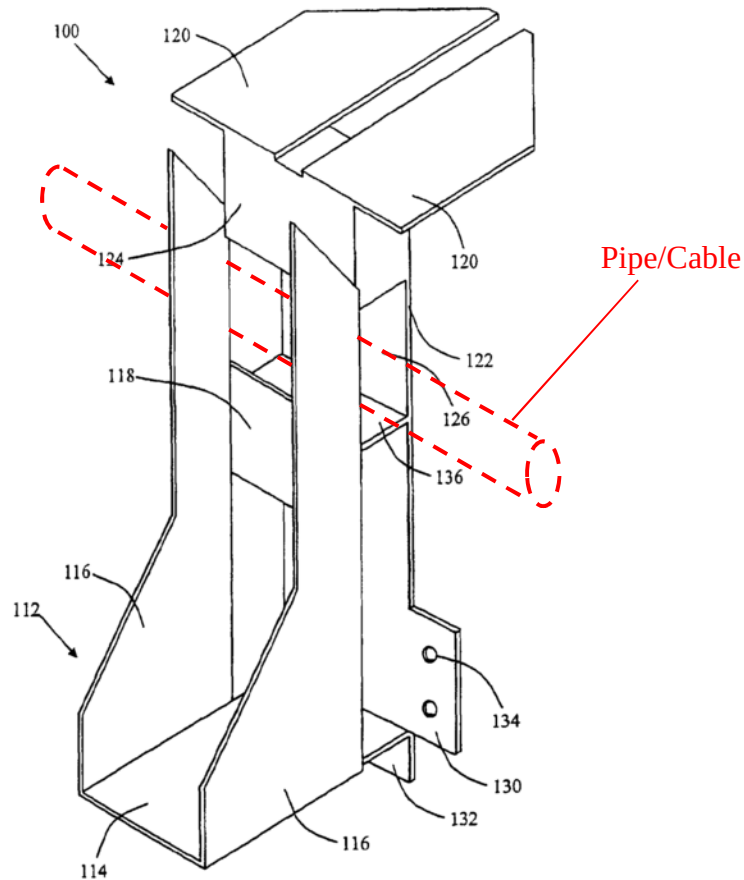


Figure 2

EX1011: Fig. 2 (annotated).

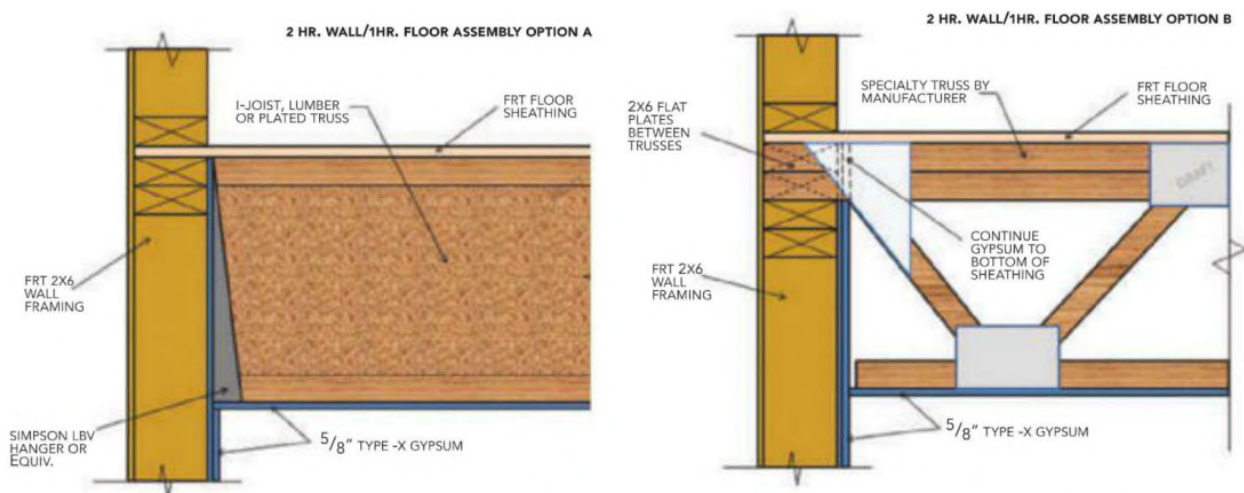
48. Robinson makes no mention of drywall, sheathing, nor fire resistance.

EX1011. In fact, the terms “drywall,” “gypsum,” “sheathing,” and “fire” do not appear in Robinson. EX1011.

E. Architectural Record: Mass Timber and Wood Framing (EX1031)

49. Architectural Record is a monthly magazine publication dedicated to architecture. The November 2012 edition of Architectural Record contains an article entitled “Mass Timber and Wood Framing” (“ArchRecord”). EX1031: 5-9.

The article primarily discusses the ability to use mass timber and wood framing in mid-rise construction, and provides no detailed discussion of framing connections. This article further discusses traditional wood-frame construction techniques such as balloon framing, platform framing, and semi-balloon framing. EX1031: 6. In discussing these different types of wood-frame construction techniques, the ArchRecord includes the following image, which Simpson heavily relies on:



(LEFT) Semi-balloon framing is more common in buildings five stories and higher; **(RIGHT)** it is often used as an alternative to platform framing where fire requirements or shrinkage may be a challenge.

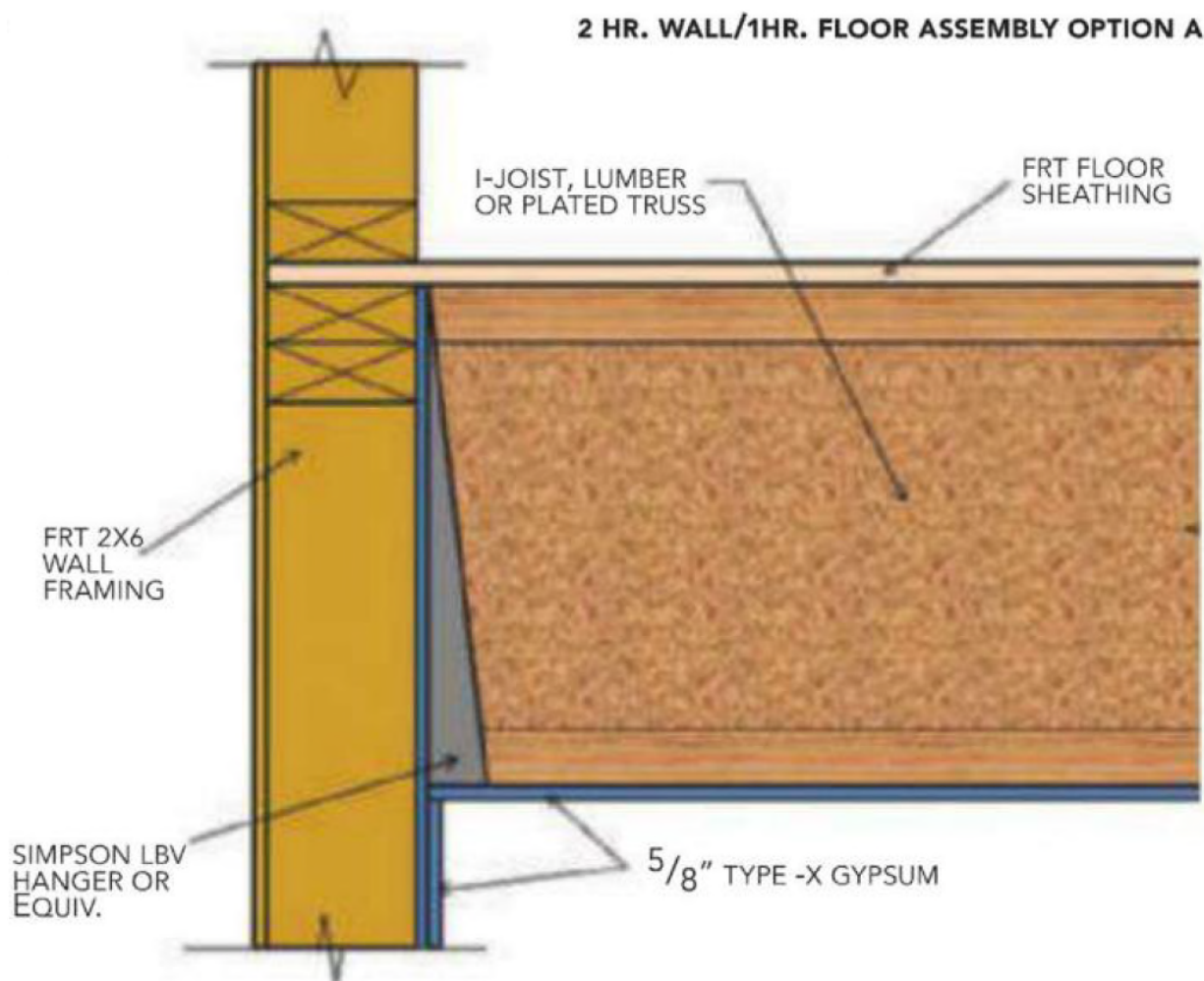
EX2008: 6; EX1031: 6.

50. EX2008 is an electronic version of ArchRecord and provides a better resolution of the image from EX1031, which appears to be a scanned document. The above image from EX2008 is identical to the image from EX1031 but for the gray background shading.

51. This image illustrates two types of wood frame construction identified as Option A (left side of image) and Option B (right side of image). The caption

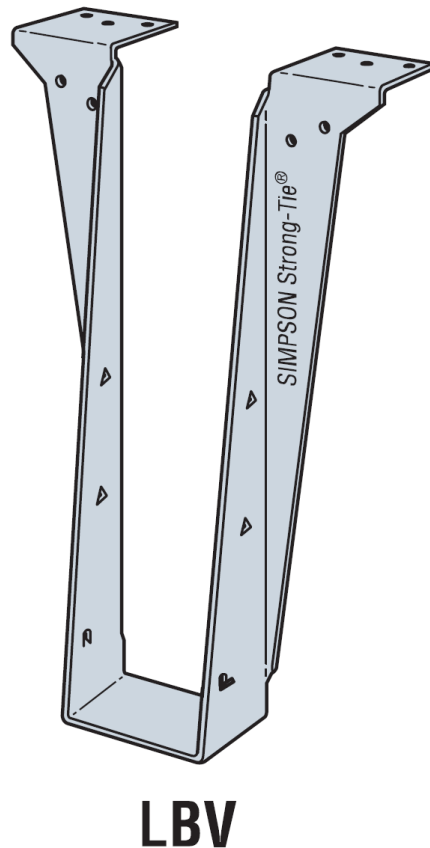
below Option A identifies it as illustrating semi-balloon framing. The caption below Option B states that semi-balloon framing is often used as an alternative to platform framing. EX1031: 6.

52. Option A for semi-balloon framing is shown in greater detail below. ArchRecord describes semi-balloon framing as a cross between balloon framing and platform framing. EX1031: 6. As explained by ArchRecord “[w]here balloon framing has a continuous stud from foundation to roof, semi-balloon framing does not.” EX1031: 6.



EX2008: 6; EX1031: 6.

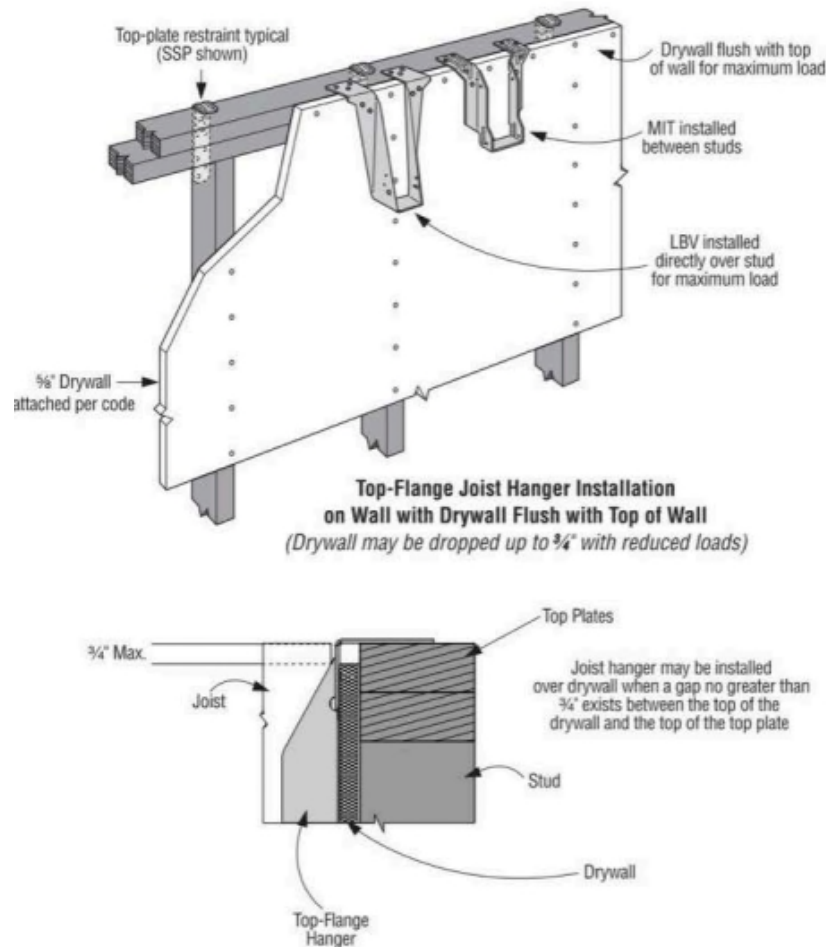
53. Option A specifically identifies a hanger, such as Simpson's LBV hanger shown below, to connect the joist to the frame wall. EX1031: 6. One of the annotations of the image reads "SIMPSON Strong-Tie®". EX1031: 6.



EX2009.

54. As shown above, ArchRecord shows the Simpson's LBV hanger installed over the drywall panels extending over the frame wall. EX1031: 6. The POSA would recognize Option A as being consistent with Simpson's Technical Bulletin for installing an LBV hanger over sheathing that was submitted as

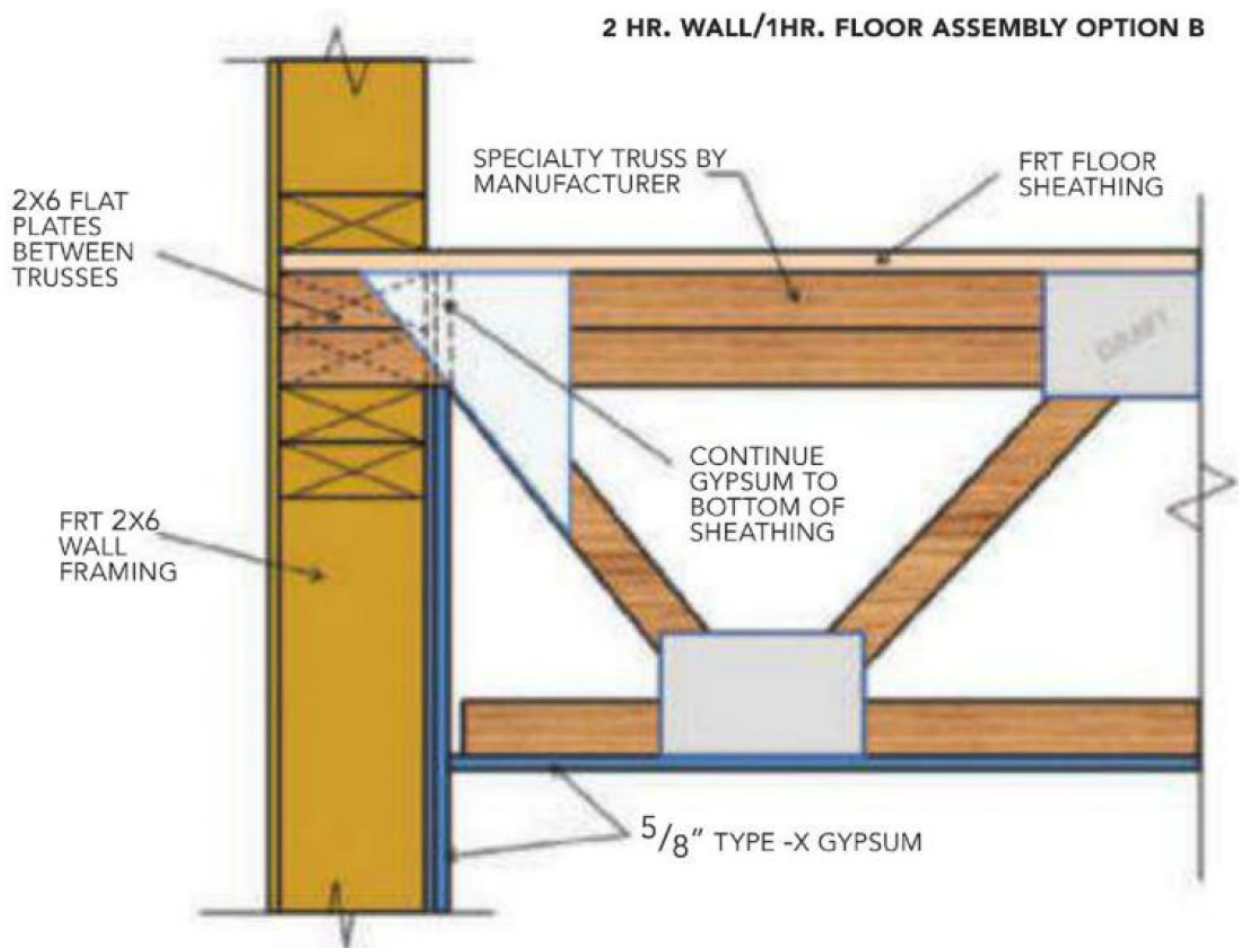
EX1012 (shown below). Thus, Option A is no different than the method of construction taught by Bundy. EX1005: Fig. 1.



EX1012: 2.

55. Option B is shown in greater detail below. Option B is a hybrid framing method which is similar to platform framing in that it “does not require hangers.” EX1031: 6. Instead, like platform framing, the trusses in Option B’s hybrid framing method “bear [directly] on the top plates” of the wood frame walls extending between each floor. EX1031: 6. The floor framing in Option B consists

of a specific truss configuration in which the top chords of the trusses are shown as bearing directly on the top plates of the wood frame walls. The top chord of the truss is longer than the bottom cord, and extends onto the top plate of the frame wall. Additional 2x6 plates are shown running between the trusses. Truss nailing plates (illustrated by triangular/square white/gray members) are shown connecting the chords to the webs of the truss, but no hangers are illustrated or called out in Option B. The triangular nailing plate connects the top chord to the web member extending down at an angle from the top chord.

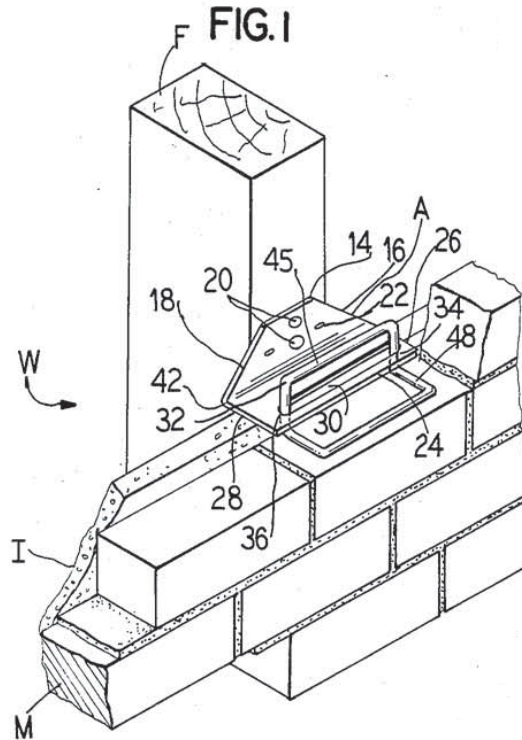


EX2008: 6; EX1031: 6.

F. U.S. Patent No. 4,827,684 to Allan (EX1006)

56. U.S. Patent No. 4,827,684 (“Allan”) discloses a masonry veneer wall anchor for tying a masonry veneer wall to the framing of a building. EX1006: 1:6-8.

57. As shown below in Fig. 1, Allan is directed to an anchoring means or wall anchor (A) used to tie a masonry veneer wall (M) to a building frame member (F) of a wall structure (W). EX1006: Abstract, 3:12-20. The wall anchor (A) is an angle iron that includes two legs (10, 12). EX1006: 3:21-26. The wall structure (W) includes an insulation layer (I) in the form of a plasterboard sheet disposed between the masonry veneer wall (M) and the building frame member (F). EX1006: 3:12-20. One leg (10) of the wall anchor (A) is secured to the building frame member (F) and the other leg (12) extends through the insulation layer (I) and connects to a tie (32) which is embedded into the masonry veneer wall (M), thereby tying the building frame member to the masonry veneer wall. EX1006: Fig. 1, 3:28-33, 4:15-18.



EX1006: Fig. 1.

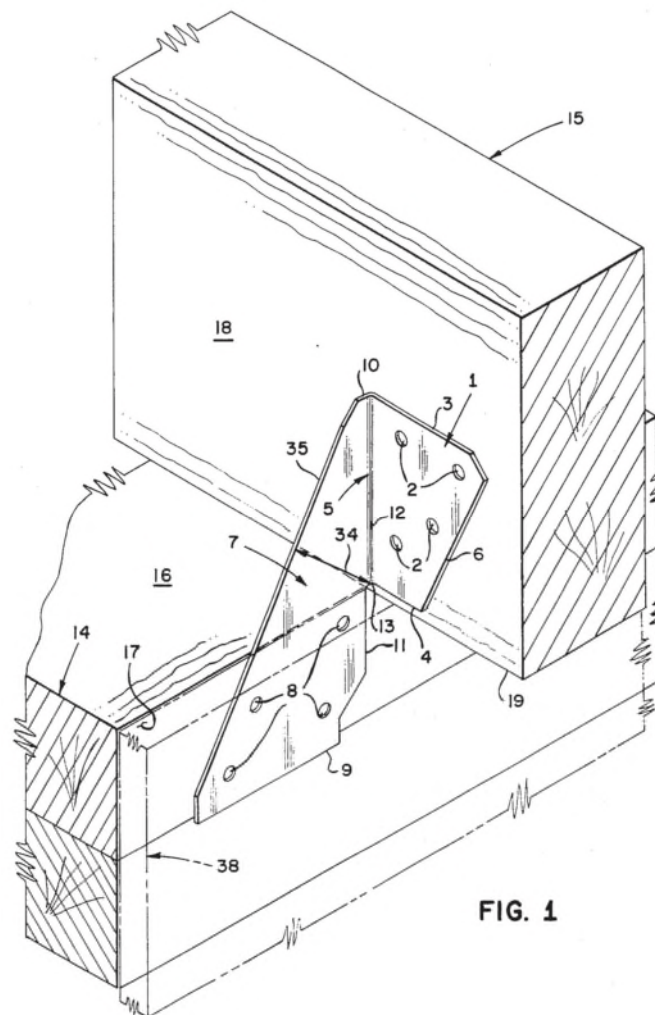
58. Veneer ties like Allan's wall anchor (A) prevent the masonry veneer wall (M) from tipping or leaning away from the building frame member (F). Veneer ties like Allan's wall anchor (A) do not transfer the vertical load or weight of the masonry veneer wall (M) to the building frame member (F). Nor is Allan's wall anchor (A) used to transfer a vertical load of a joist.

59. In addition, Allan makes no reference to, disclosure of, or suggestion of fire rating, resistance, or protection. EX1006. Allan is not concerned with methods of constructing firewalls. EX1006. In fact, the term "fire" does not appear in Allan. EX1006.

G. U.S. Patent No. 4,714,372 to Commins (EX1032)

60. U.S. Patent No. 4,714,372 (“Commins”) is directed to a hurricane tie or sheet metal connector “used to connect wood bottom chord trusses to top plates on the inside wall without requiring notching of the wall board.” EX1032:

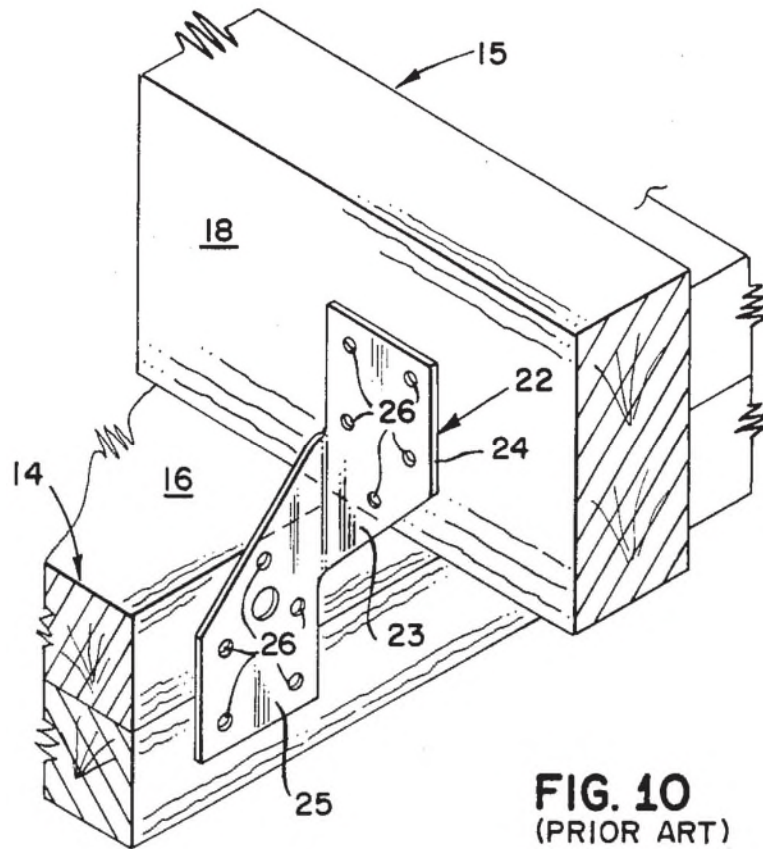
Abstract, 1:63-68, Fig. 1.



EX1032: Fig. 1.

61. With reference to prior art hurricane ties, such as shown in Fig. 10 (reproduced below), Commins explains when such ties were used with sheet rock

(a synonymous term for drywall or gypsum board), “a notch would have to be made in the gypsum board around extension 23.” EX1032: Fig. 10, 4:32-35.



EX1032: Fig. 10.

62. Hurricane ties like Commins prevent a beam or truss (15) from being lifted and blown off the top plate (14) of a wood stud wall due to severe winds. Commin’s hurricane tie does not transfer the vertical load or weight of the beam (15) to the top plate (14), as the beam rests on the top plate. EX1032: Figs. 1 and 10, 3:15-32.

63. In addition, Commins makes no reference to, disclosure of, or suggestion of fire rating, resistance, or protection. EX1032. Commins is not concerned with methods of constructing firewalls. EX1032: Figs. 1 and 10; 3:27-29. In fact, the term “fire” does not appear in Commins. EX1032.

IV. CLAIM CONSTRUCTION

64. I have been informed that claim terms and phrases are to be given their plain and ordinary meaning as understood by the POSA. I have also been informed that in construing claim terms and phrases, the POSA reads the term or phrase not only in the context of the particular claim in which the term or phrase appears, but also in the context of the entire patent, including the specification.

A. Claim Constructions from Prior Proceedings

65. I understand Simpson is applying the following constructions from prior proceedings in the Petition:

- “extend through”: “in the context of element A ‘extend[ing] through’ element B, [] ‘element A extends into one side and out the other of element B.’” Pet: 8.
- “extending from”: “in the context of element B extending from element A, the beginning of element B’s extension is on element A.” Pet: 8.
- “rigidly fixed”: “components are connected such that they do not move freely with respect to each other.” Pet: 8.

66. I make no opinion as to these constructions. I understand that Columbia does not dispute these constructions at this time, and therefore I am applying these constructions as presented.

B. “lie in [] vertical planes”

67. Claim 22 recites “wherein the first and second planar extension plates lie in parallel vertical planes.” I understand Simpson is construing “lie in [] vertical planes” as “for each planar extension plate a vertical plane is within the extent of the extension plate.” Pet: 8-9. I make no opinion as to this construction. I understand that Columbia does not dispute this construction at this time, and therefore I am applying this construction in this declaration. However, I reserve the right to revisit and advance a claim construction for this phrase in the future.

C. Other Disputed Terms and Phrases

68. I understand there are additional terms and phrases, such as “planar extension plate” and “bounding,” advanced by Simpson. I will address these additional terms and phrases in the sections below in which these terms and phrases appear.

V. WRITTEN DESCRIPTION SUPPORT

69. In my opinion, the specification (including the figures) of the ‘339 Patent demonstrate the inventor of the ‘339 Patent was in possession of the subject matter recited in all the claims of the ‘339 Patent.

70. I have been informed that word-for-word recitation of the claim terms

is not required in the specification in order for the specification to provide written description support. I have also been informed that drawings alone are sufficient to provide written description support.

A. Claims 1-31: “Inserting” and “Moving/Arranging” Steps

1. Written Description Support under the Proper Interpretation of “Inserting” and “Moving/Arranging Steps”

71. Independent claim 1 contains an “installing” step for the fire retardant sheathing that includes both (1) “inserting the fire retardant sheathing between the channel-shaped portion ... and the frame wall” and (2) “moving the fire retardant sheathing” so that the fire wall hanger extends through the opening in the fire retardant sheathing. EX1001: claim 1.

72. Independent claim 27 also contains an “installing” step for the fire retardant sheathing that includes both (1) “inserting the fire retardant sheathing between the channel-shaped portion ... and the frame wall” and (2) “arranging the fire retardant sheathing” so that the fire wall hanger extends through the opening in the fire retardant sheathing. EX1001: claim 27.

73. Simpson states “[t]here is a presumption that elements listed separately in a claim are distinct elements” and therefore the “distinction between the ‘inserting’ step of claims 1 and 27 and the respective ‘moving’ step of claim 1 and ‘arranging’ step of claim 27 is not supported by the specification.” Pet: 10.

74. I have been informed by counsel for Columbia that Simpson’s statement that “[t]here is a presumption that elements listed separately in a claim are distinct elements” applies to apparatus components, not the method steps recited by the claims of the ‘339 Patent. I have further been informed that when it comes to the steps in a claimed method, the steps can occur simultaneously or sequentially, unless stated or indicated otherwise by the claims.

75. As an initial matter, I note that the “inserting” step of claims 1 and 27 and the “moving/arranging” step of claims 1 and 27 are both sub-steps or parts of the overall “installing” step of the fire retardant sheathing recited by these claims. For example, claim 1 recites “said step of installing the fire retardant sheathing ***includes: inserting*** the fire retardant sheathing ...; ***and moving*** the fire retardant sheathing” EX1001: claim 1. Similarly, claim 27 recites “said step of installing the fire retardant sheathing ***includes: inserting*** the fire retardant sheathing ...; ***and arranging*** the fire retardant sheathing” EX1001: claim 27. These sub-parts are explaining in detail what it takes to perform the overall “installing” step of the fire retardant sheathing.

76. Turning to the ‘339 Patent, it is my opinion Columbia was in possession of the “installing” step for the fire retardant sheathing that includes both the “inserting” step and the “moving/arranging” sub-steps, with these sub-parts of the overall “installing” step being performed generally simultaneously.

77. For instance, the ‘339 Patent describes three different ways of constructing a fire-resistive wall assembly: (i) mounting the fire retardant sheathing on the frame wall before mounting the hanger to the frame wall, the fire retardant sheathing having a pre-formed opening (cut before or after being mounted to the frame wall) (EX1001: 7:26-53); (ii) mounting the fire retardant sheathing without a pre-formed opening to the frame wall before mounting the hanger to the frame wall (EX1001: 7:54-64; and (iii) mounting the hanger to the frame wall before mounting the fire retardant sheathing (EX1001: 7:65-8:21). The claims of the ‘339 Patent cover this last method.

78. Regarding this third method, mounting the hanger to the frame wall before mounting the fire retardant sheathing, the ‘339 Patent states:

“In still another embodiment, ***the truss hangers 26 can be installed on the wall 28 before the sheathing 34 is mounted on the wall.*** This simplifies construction by allowing the building to be completely framed and roofed before requiring the sheathing 34 to be installed. Trade workers (e.g., mechanical, electrical) therefore have complete access to the wall cavity to install components without interference from the sheathing 34. The truss hanger 26 is positioned against the wall 28 ... [and] fastened to the top plate 30 of the wall by any suitable means, such as by inserting nails 78 through nail holes 76. ... ***Subsequently, the sheathing 34 can be mounted on the wall 28 by moving the sheathing upward into place so that the extension flanges 60 of the hanger 26 extend through the slot 72 of the sheathing and the sheathing is positioned in the sheathing channels 68 between the back flanges 66 and the back panels 48.***” EX1001: 7:65-8:21.

79. In my opinion, this passage of the ‘339 Patent, in combination with the figures of the ‘339 Patent, shows Columbia was in possession of the “installing” step for the fire retardant sheathing that includes both sub-steps: (1) “inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall,” and (2) “moving the fire retardant sheathing relative to the fire wall hanger ... so that ... the fire wall hanger extends through the opening in the fire retardant sheathing” (claim 1) or “arranging the fire retardant sheathing relative to the fire wall hanger so that the fire wall hanger extends through the opening in the fire retardant sheathing” (claim 27).

80. For example, the mounting explanation in the above passage of the ‘339 Patent includes statements that correlate to (i) the “inserting” sub-step—e.g., “the sheathing is positioned in the sheathing channels 68 between the back flanges 66 [which are attached to the face of the frame wall 28] and the back panels 48” which means the fire retardant sheathing is also being positioned between the channel-shaped portion and the frame wall—, and (ii) the “moving/arranging” step—e.g., “by moving the sheathing upward into place such that the extension flanges 60 of the hanger 26 extend through the slot 72 of the sheathing.” EX1001: 8:17-21.

81. Further, with reference to Fig. 10 of the ‘339 Patent (reproduced below), it is apparent when the fire retardant sheathing (34) is “mounted on the

wall 28 by moving the sheathing upward into place” (EX1001: 8:17-18) as stated by the ‘339 Patent, after the fire wall hanger (26) is mounted to the top plate (30) of the frame wall (28), the fire retardant sheathing (34) is both (i) inserted between the channel-shaped portion (38) and the frame wall (28), and (ii) moved/arranged such that the fire wall hanger (26) extends through the opening (72) in the fire retardant sheathing (34).

82. Therefore, in my opinion, the ‘339 Patent demonstrates Columbia was in possession of the “installing” step for the fire retardant sheathing that includes the generally simultaneous or overlapping performance of the “inserting” and “moving/arranging” sub-steps.

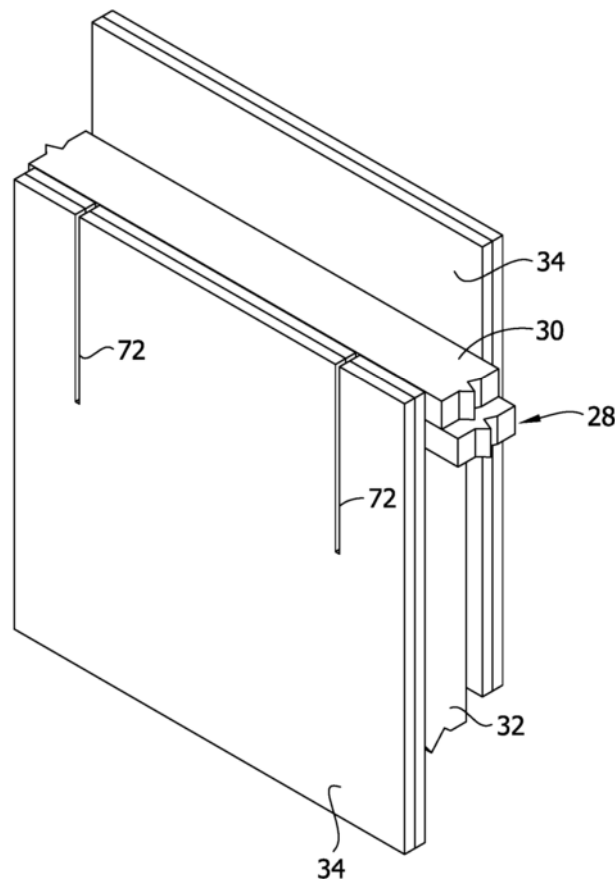
2. Written Description Support under Simpson’s Interpretation

83. In my opinion, the ‘339 Patent demonstrates Columbia was in possession of this limitation even under Simpson’s interpretation—e.g., that the “inserting” step is considered distinct from the “moving/arranging” step. Pet: 10-11.

84. As explained by the specification, the fire retardant sheathing (34) is “mounted on the wall 28 by moving the sheathing upward into place.” EX1001: 8:17-18. This upward movement is due to the opening (72) extending vertically downward from a top edge of the fire retardant sheathing (34). EX1001: Fig. 9. Because (i) the opening (72) is smaller than the channel-shaped portion (38) of the

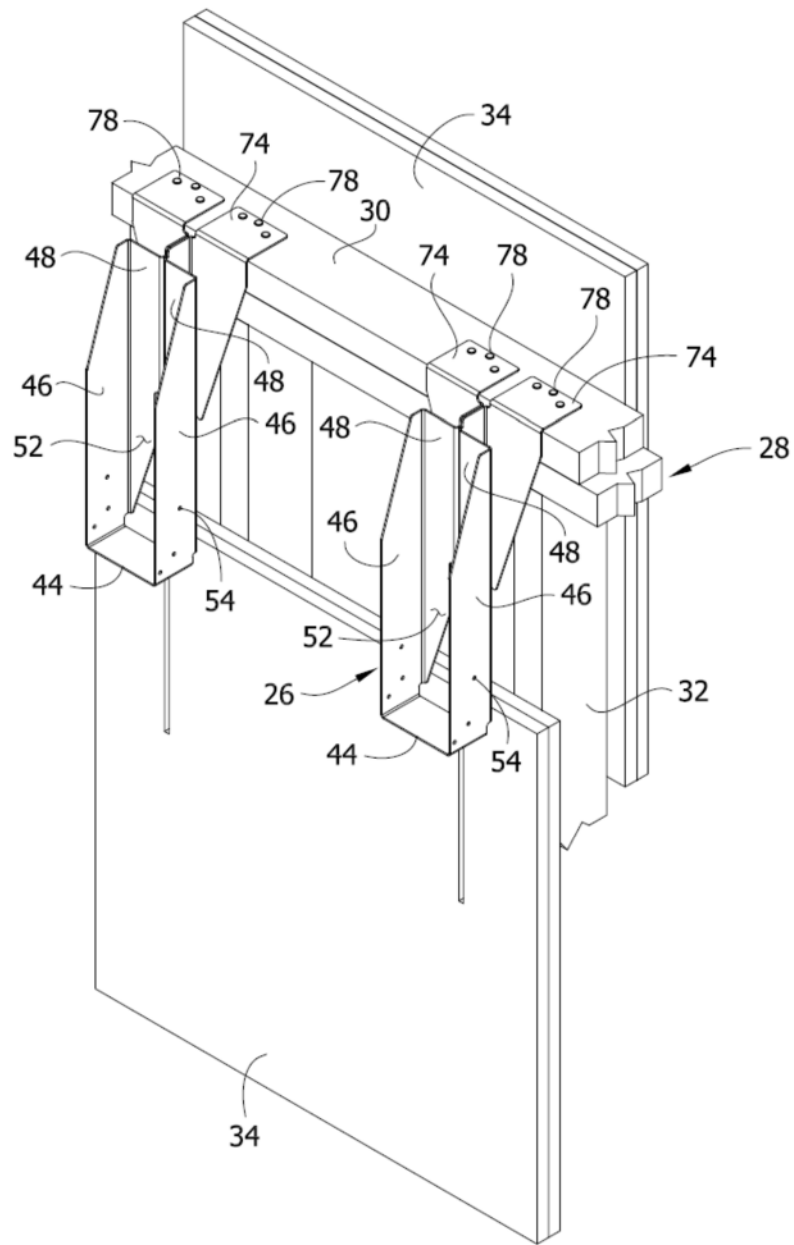
fire wall hanger (26) and (ii) the opening only has one open side (e.g., open top) along the top edge of the fire retardant sheathing (34), a POSA would easily recognize that the only way to position the extension flanges (60) of the fire wall hanger (26) in the opening (72) of the fire retardant sheathing in this method of construction (the fire retardant sheathing being installed on the frame wall (28) after the fire wall hanger is mounted on the frame wall), is by moving the fire retardant sheathing upward so that the extension flanges enter the opening in the fire retardant sheathing via the open top of the opening.

FIG. 9



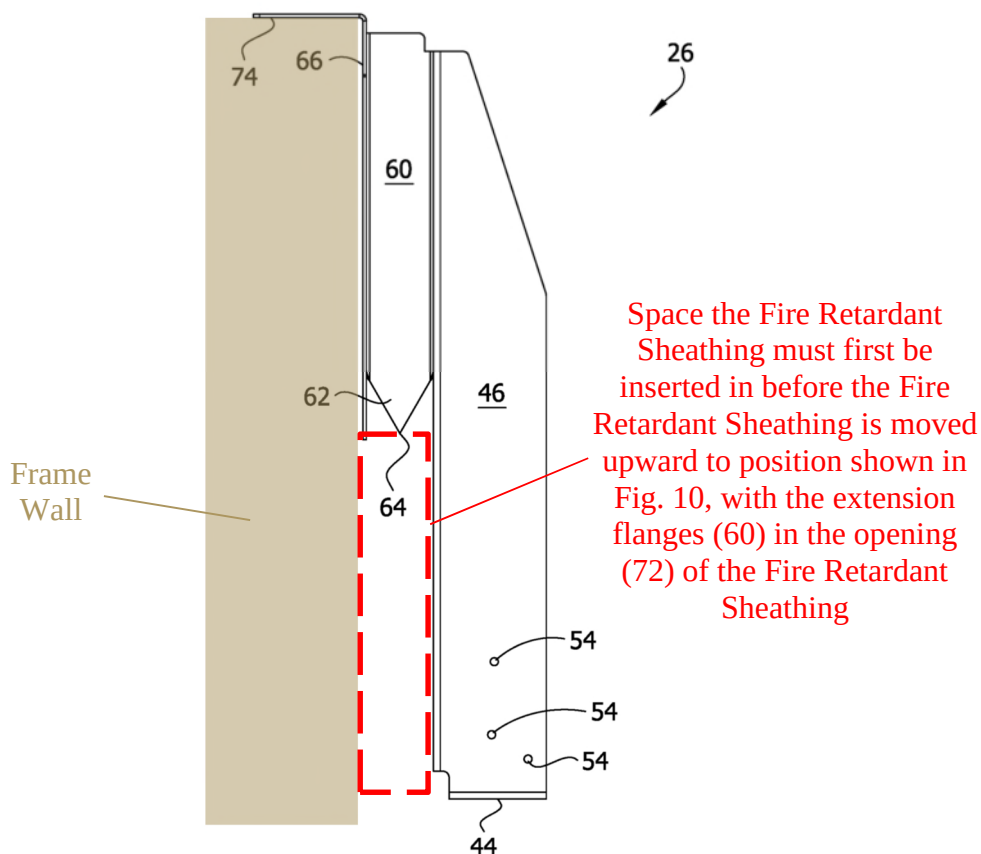
EX1001: Fig. 9.

85. In order to perform this “upward” movement, the opening (72) of the fire retardant sheathing (34) and the extension flanges (60) of the fire wall hanger (26) must be vertically aligned by positioning the fire retardant sheathing (34) below the extension flanges of the fire wall hanger, as shown below in modified Fig. 10. Fig. 10 below is modified by moving the fire retardant sheathing (34) vertically downward. Note the lower portion of the channel-shaped portion (38) extends below the bottom of the extension flanges (60) (e.g., the driving points (62)). EX1001: Fig. 5. This necessarily results in the fire retardant sheathing (34) **first** being inserted into the space between the lower portion of the channel-shaped portion (38) and the frame wall (28) (see annotated Fig. 5 and modified Fig. 10 below) **before** the fire retardant sheathing is then further moved/arranged to have “the fire wall hanger extend[] through the opening in the fire retardant sheathing” as recited by claims 1 and 27.



EX1001: Fig. 10 (modified—sheathing moved vertically downward).

FIG. 5



EX1001: Fig. 5 (annotated).

86. Modified Fig. 10 above shows the fire retardant sheathing (34) inserted between the channel-shaped portion (38) of the fire wall hanger (26) and the frame wall (28). From this position shown in modified Fig. 10 above, moving the fire retardant sheathing upward would result in the edge of the fire retardant sheathing bounding the opening (72) moving alongside the extension flanges (60) of the extension portion and the fire wall hanger extending through the opening.

87. Therefore, in my opinion, the ‘339 Patent demonstrates Columbia was in possession of this limitation even under Simpson’s “distinct” interpretation.

B. Claims 1-26: Bounding

88. Claim 1 recites “moving the fire retardant sheathing relative to the fire wall hanger mounted on the frame wall so that an edge of the fire retardant sheathing ***bounding*** the opening moves alongside the extension portion.”

89. Simpson argues the term “bounding” lacks written description. I disagree.

90. Initially, counsel for Columbia has informed me that Simpson’s statement “the Board determined that ‘bounding’ as applied to the hanger vis-à-vis the sheathing opening was unsupported by the specification” is factually incorrect. Pet: 11-12. Instead, counsel for Columbia has informed me that the Board in the ‘109 PGR FWD only found “no basis in the ‘867 patent ... to restrictively redefine ‘defining’ to mean ‘bounding.’” ‘109 PGR FWD: 148. I have been informed the Board in the ‘109 PGR FWD never determined “bounding” lacked written description support.

91. Simpson’s lack of written description argument with respect to “bounding” is based on an incorrect claim construction for the term. Simpson states “bounding” means to “enclose” or “confine” (Pet: 12), but what Simpson really means is that they consider “bounding” to mean “fully or completely enclose

or confine on all sides.” This interpretation is confirmed by the example Simpson gives: “[a] fence on only one side of a field does not ‘bound’ or confine the field.”

Pet: 17.

92. In my opinion, the term “bounding” should be given its plain and ordinary meaning: “to set the limits or bounds to,” or “to form the boundary of.” EX1035: 5. These are the dictionary definitions of the term. EX1035: 5; EX2010: 4; EX2011: 4 (“form[ing] the boundary of”). “Bounding” is not co-extensive with “enclose” or “confine” as advanced by Simpson, and, more particularly, is not co-extensive with “fully or completely enclose or confine” as Simpson’s arguments inherently require. In fact, the plain and ordinary meaning of “bounding” does allow for a single-edge to bound an opening, as provided by the following dictionary example: “the ground was bounded by a main road on one side and a meadow on the other.” EX2011: 4.

93. In addition, I note that Simpson in the claims of their own patent have used the term “bounding” to describe the boundary of only one side of an element, not the entire boundary. EX2012. For example, with reference to Fig. 7 (reproduced below), the claims of Simpson’s U.S. Patent No. 11,065,667 recite:

- “a third boundary bend (333) **bounding** the central portion (111) of the first body part (20).” EX2012: claims 5, 10, 22.
- “the second body part (220) of the bridging connector (19) additionally comprises a fourth boundary bend (433) **bounding**

the central portion (111) of the second body part (220).”
EX2012: claims 10 and 25.

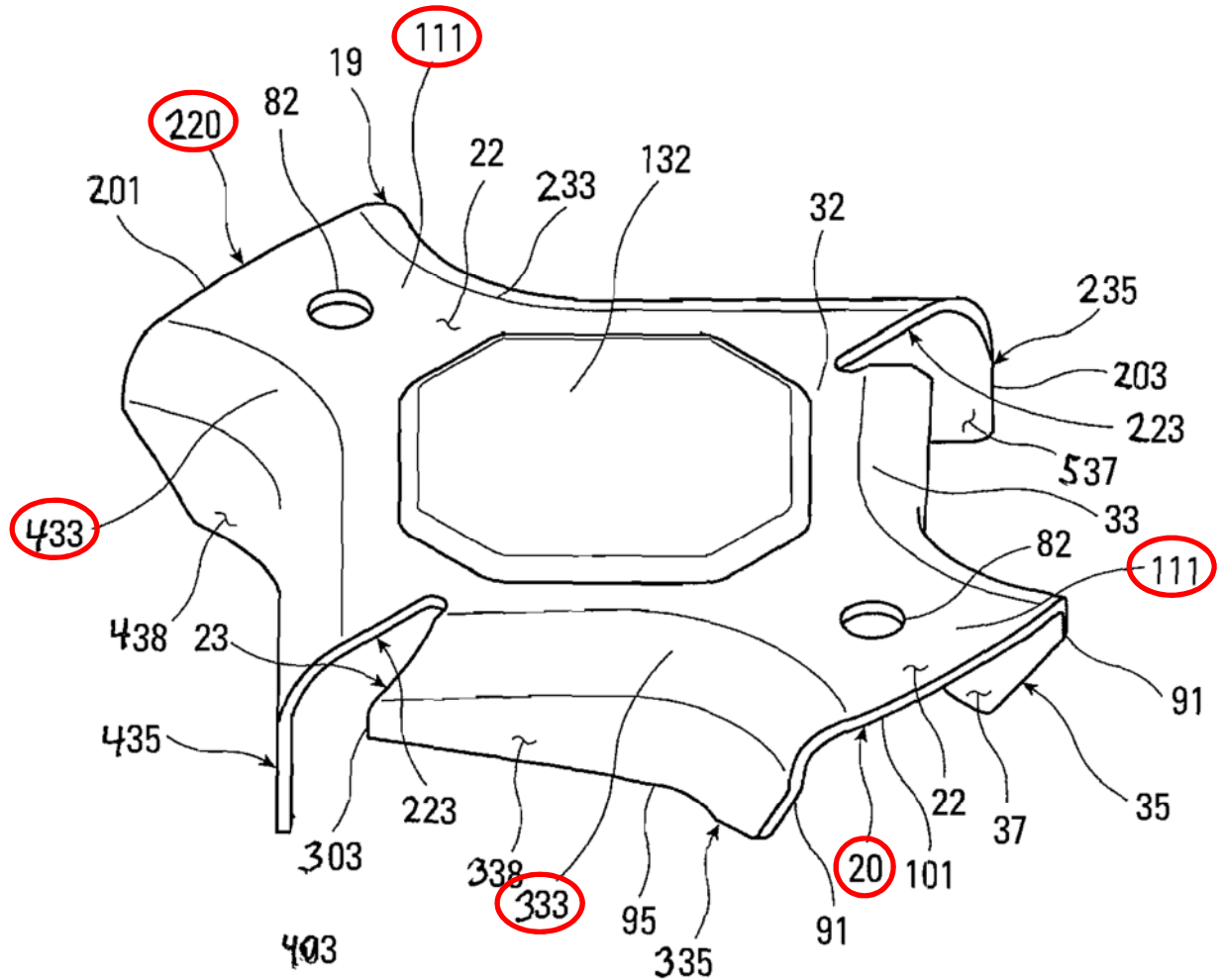


Fig. 7

EX2012: Fig. 7 (annotated).

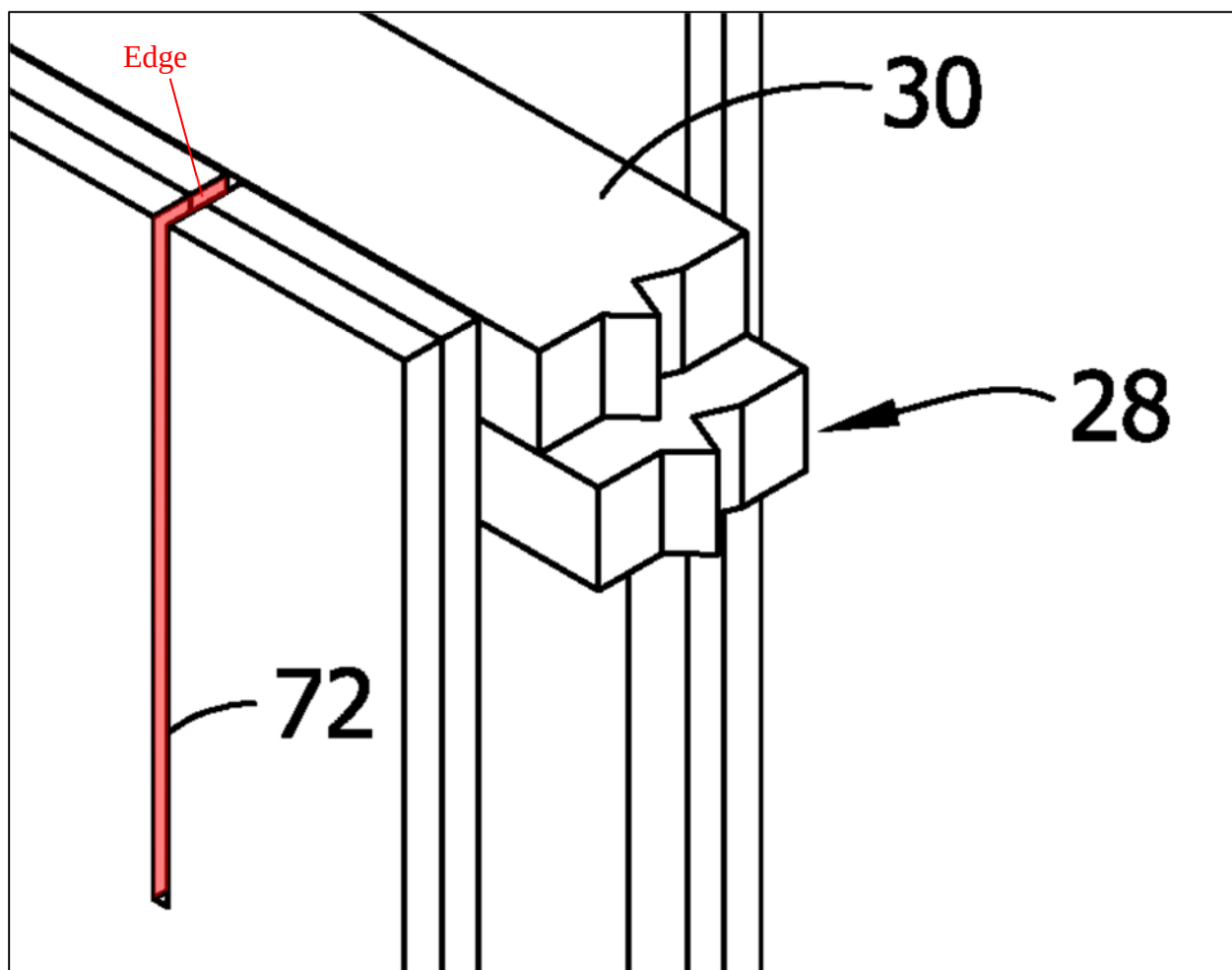
94. In particular, the claims of U.S. Patent No. 11,065,667 recite “a fourth boundary bend (433) bounding the central portion (111).” As shown above, the fourth boundary bend (433) bounds only one side of the central portion (111). EX2012: Fig. 7. For instance, the opposite side of the central portion (111) is bounded by a different second boundary bend (233). EX2012: Fig. 7.

95. I have been informed that references are indicative of what a POSA would generally believe a claim term to mean and can be used to demonstrate how a POSA would understand a claim term.

96. Therefore, in my opinion, the plain and ordinary meaning of “bounding” does not require “full” or “complete” confinement or enclosure, but instead is applicable to describe the boundary of one side or portion of an element.

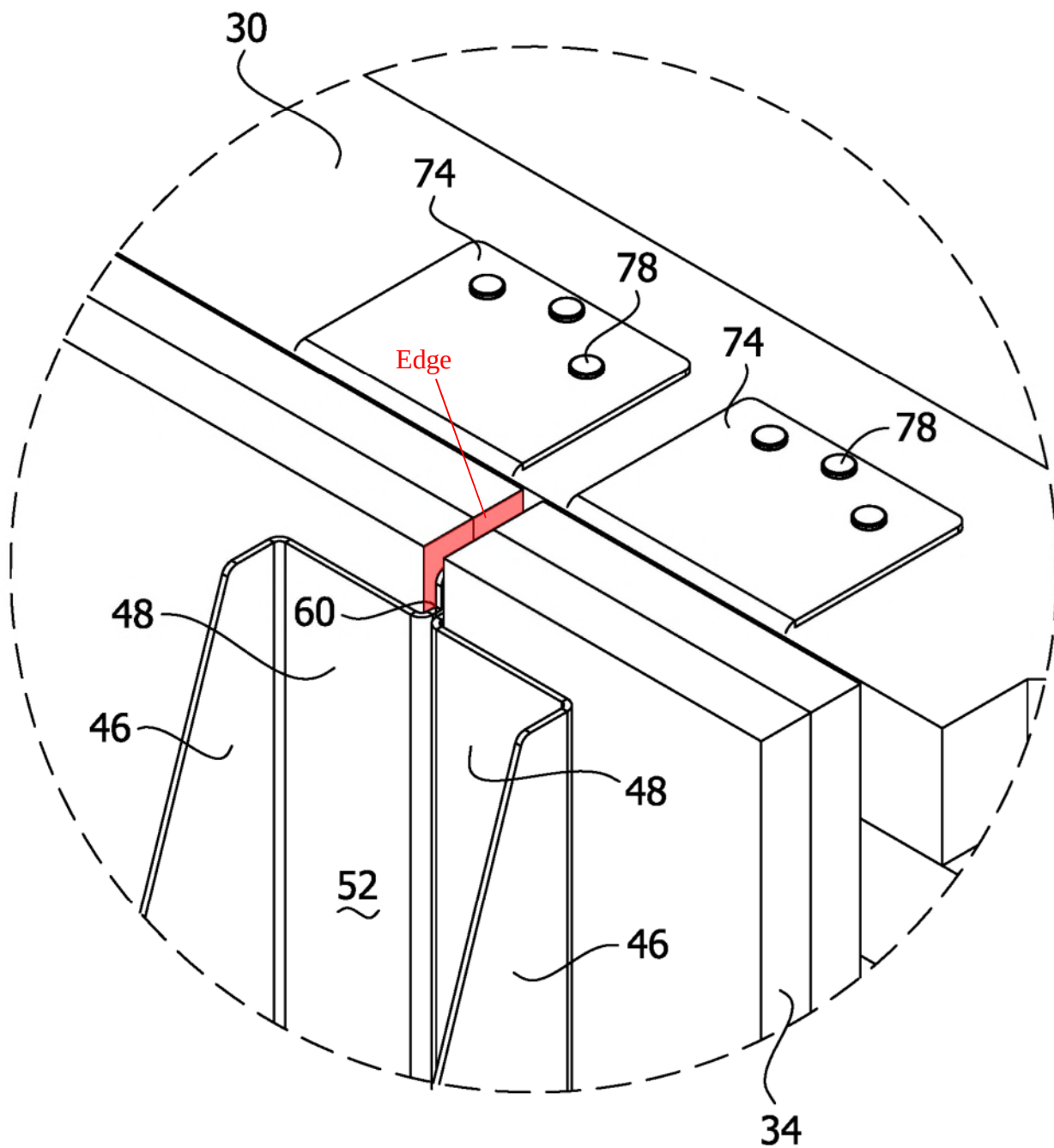
97. With this understanding in mind, in my opinion, the ‘339 Patent demonstrates Columbia was in was in possession of “an edge of the fire retardant sheathing bounding the opening” in the fire retardant sheathing as recited by claim 1.

98. For instance, Figs. 9-12 and 13A (some of which are reproduced below) show an edge of the fire retardant sheathing (34) bounding one side of the opening (72).



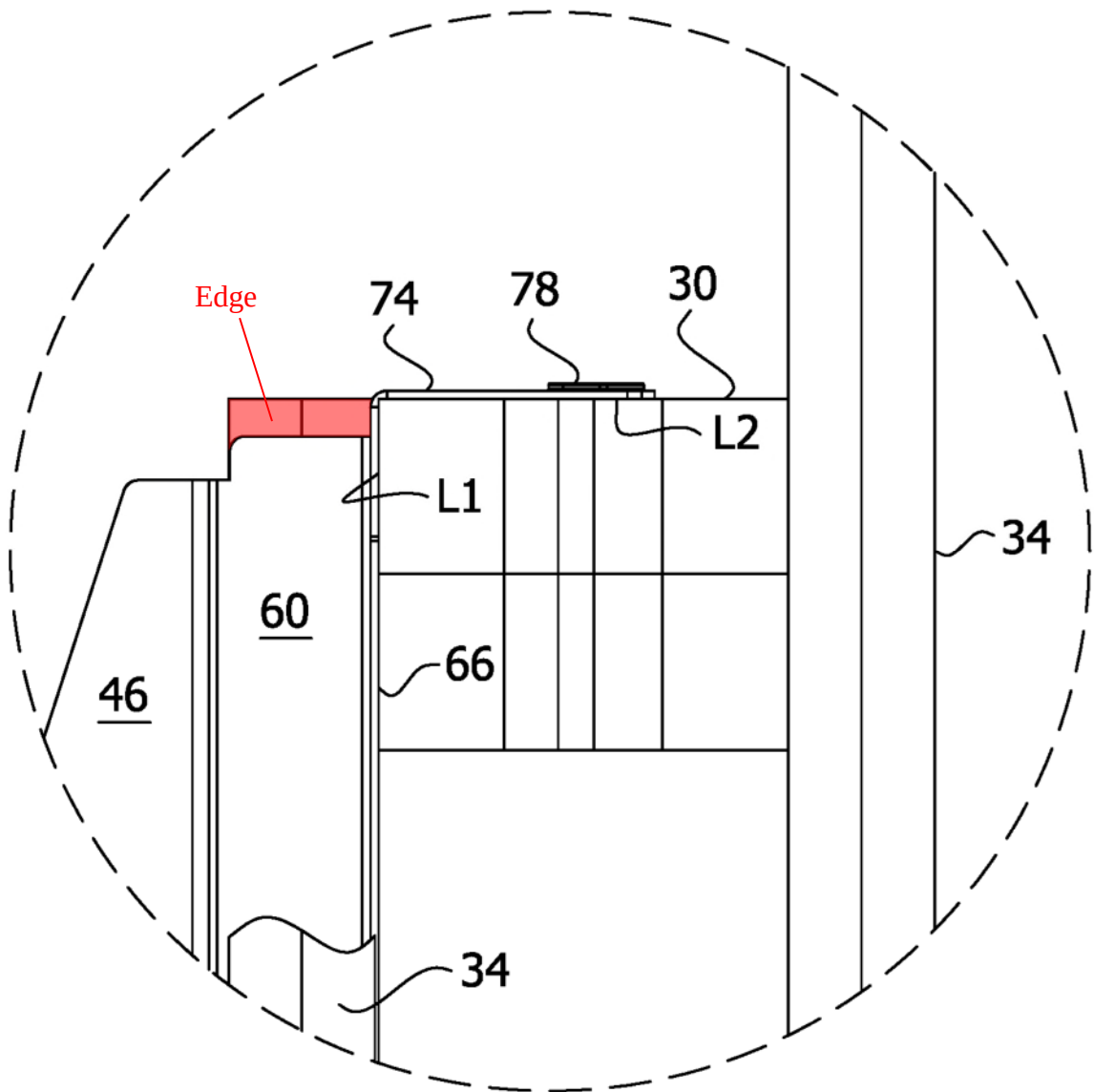
EX1001: Fig. 9 (enlarged, annotated).

FIG. 10A



EX1001: Fig. 10A (annotated)

FIG. 13A

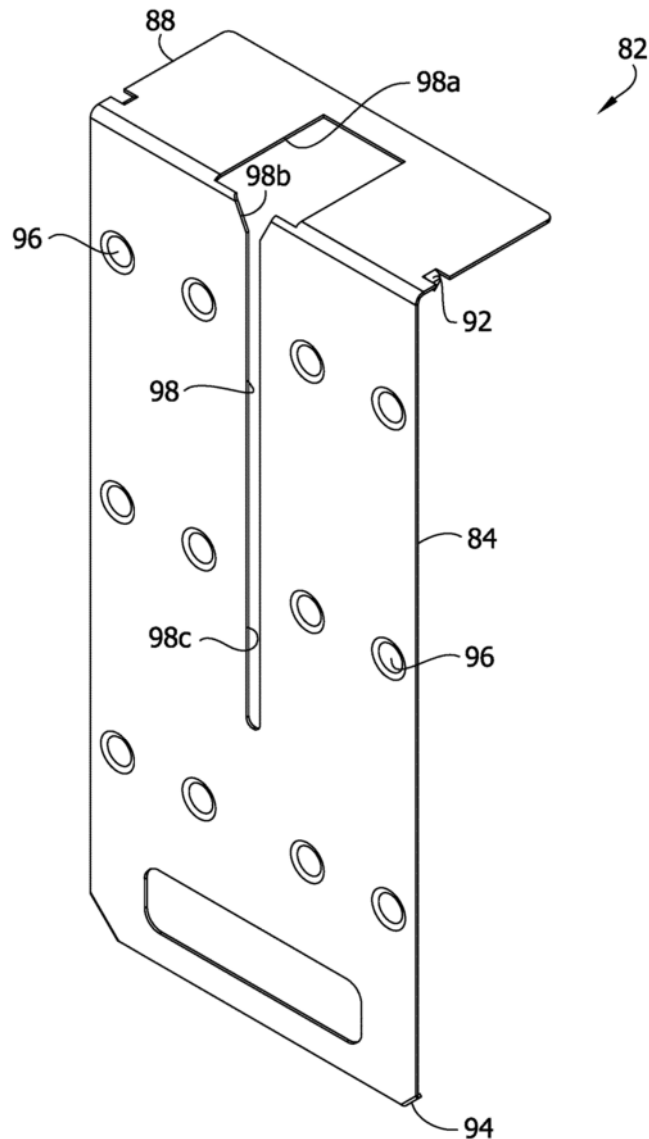


EX1001: Fig. 13A (annotated)

99. The edge illustrated above is the natural result of moving a “spiral bit” along the narrow portion (98c) of the slot (98) of the template (82) “to cut the slot

72” in the fire retardant sheathing (34), as explained by the ‘339 Patent. EX1001:
6:14-17, 6:31-36.

FIG. 16



EX1001: Fig. 16.

100. Therefore, in my opinion, the ‘339 Patent provides written description support for this limitation of claim 1.

C. Claims 9-11: Relative Proportions

101. Claim 9 recites “cutting the opening to have an area less than an area of an end of the structural component.”

102. Claim 10 recites “cutting the opening to have a height less than a height of the channel-shaped portion of the fire wall hanger.”

103. Claim 11 recites “cutting the opening to have a width less than a width of the channel-shaped portion of the fire wall hanger.”

104. Thus, these claims recite relative proportions of the opening (72) in the fire retardant sheathing (34) relative to the structural component (12) and to the channel-shaped portion (38) of the fire wall hanger (26). In my opinion, written description support for these relative proportions are found in the figures, with underlying support in the specification for the scale of the figures.

105. I have been informed that patent drawings are not generally interpreted as being to scale. I have also been informed that patent drawings can be interpreted as being to scale when the specification provides some scale information. I have also been informed that even when patent drawings are not drawn to scale, they may still be used to establish relative sizes and relationships between the various components which are clearly depicted in the drawings.

106. In my opinion, this is a situation in which the specification of the ‘339 Patent provides scale information for the patent drawings. For example, the specification states:

“As illustrated, the top plate 30 is formed by two **2×4’s** in stacked relation. Fire retardant sheathing 34 is mounted on both sides of the wall 28, as illustrated. In one embodiment, the fire retardant sheathing is gypsum board, such as **two layers of 5/8" gypsum board** mounted on each side of the wall 28 **as illustrated.**” EX1001: 4:20-25.

107. “2x4” and “5/8-inch” connote dimensions the specification of the ‘339 Patent says the “illustrated” components in the figures have. “2x4” is a well-understood term-of-art applied to wood framing members having nominal 2-inch (height) by 4-inch (width) dimensions but actual dimensions of 1.5-inches by 3.5-inches.

108. Further, with regard to the opening (72), the specification of the ‘339 Patent states the opening “has an area less than or equal to 6 square inches” and “is about 10 inches long.” EX1001: 5:37-38, 7:34. These statements provide additional scale information for the figures. For example, the opening (72) having an area of 6 square inches and a length of 10 inches means the width of the opening is about 0.6 inches.

109. Because the specification of the ‘339 Patent provides scale information for the figures, I have been informed that I can rely on the figures to demonstrate Columbia was in possession of the relative proportions recited by

claims 9-11. Even without relying on the scale information to determine precise measurements, the figures verify the relative proportions disclosed in the claims.

110. Turning to the figures of the '339 Patent, it is my opinion they show Columbia was in possession of the relative portions/dimensions recited by claims 9-11. I note that the relative proportions recited by claims 9-11 are clearly shown in the figures of the '339 Patent even if there was no scale information recited by the specification.

111. For example, with respect to claim 9—"cutting the opening to have an area less than an area of an end of the structural component"—Figs. 9, 12, and 14A show that the height and width of the end of the structural component (12) is greater than the respective height and width of the opening (72). Therefore, as area is a function of height x width in this context, the area of the opening (72) will be less than the area of the end of the structural component (12).

FIG. 12

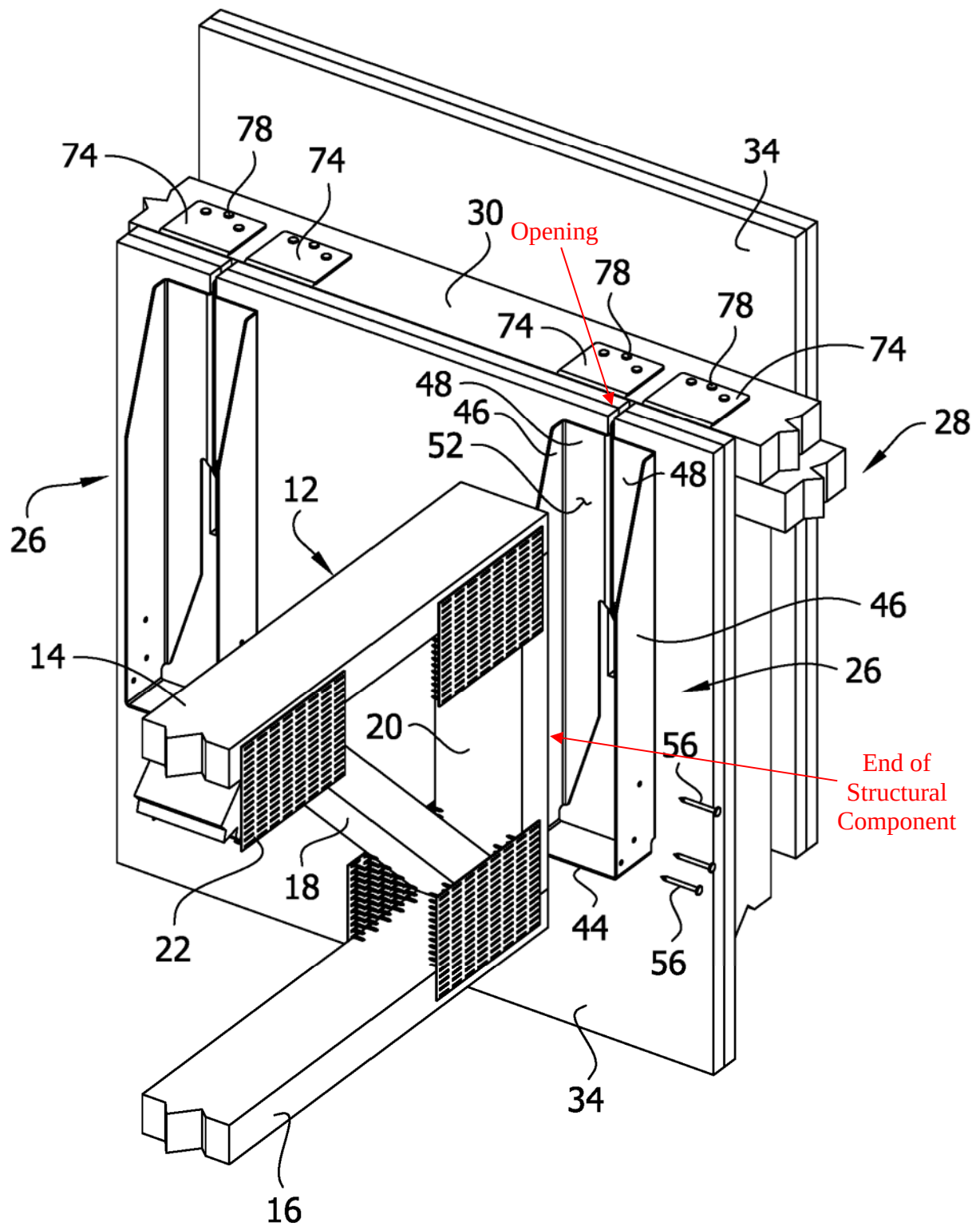


FIG. 9

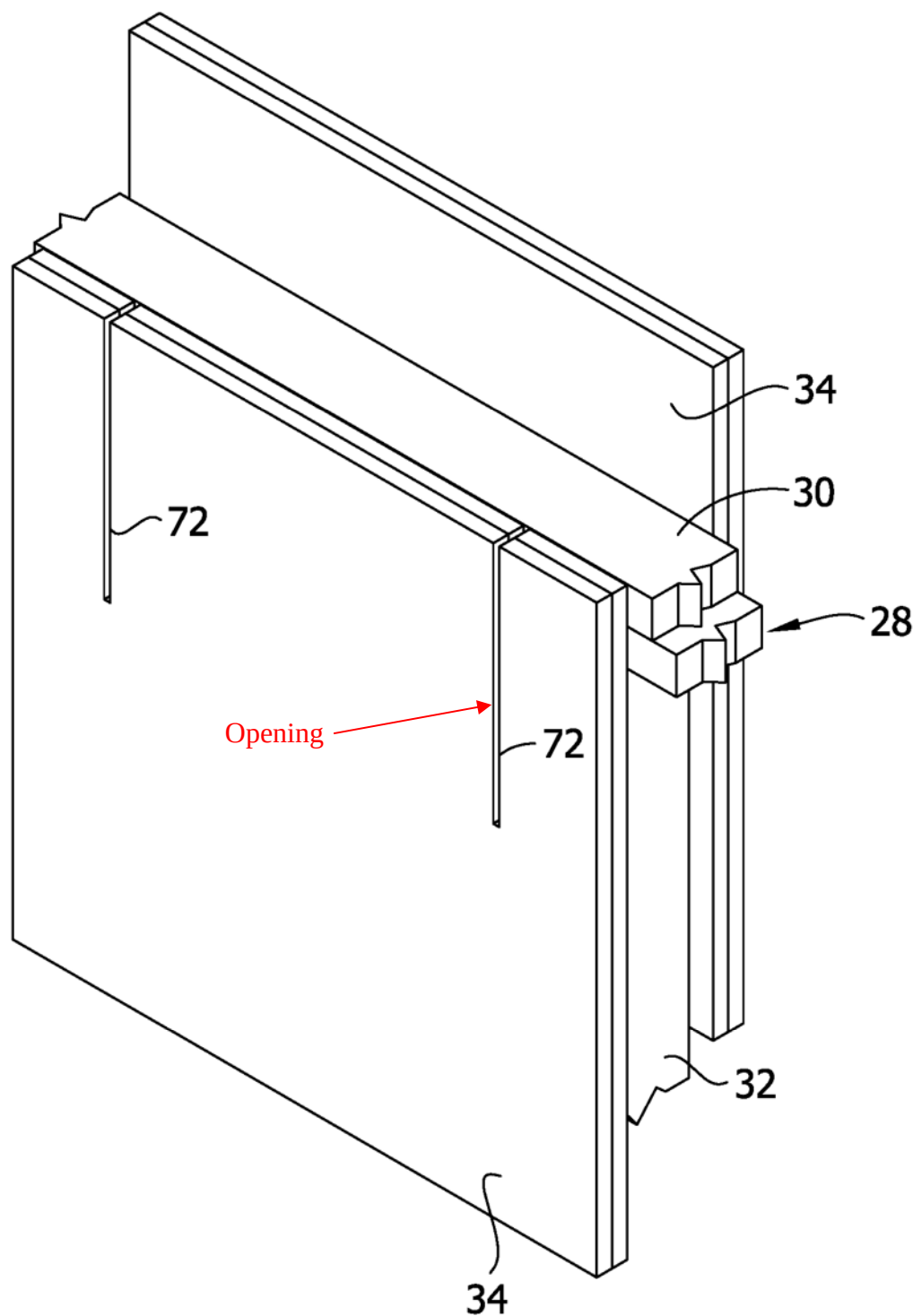
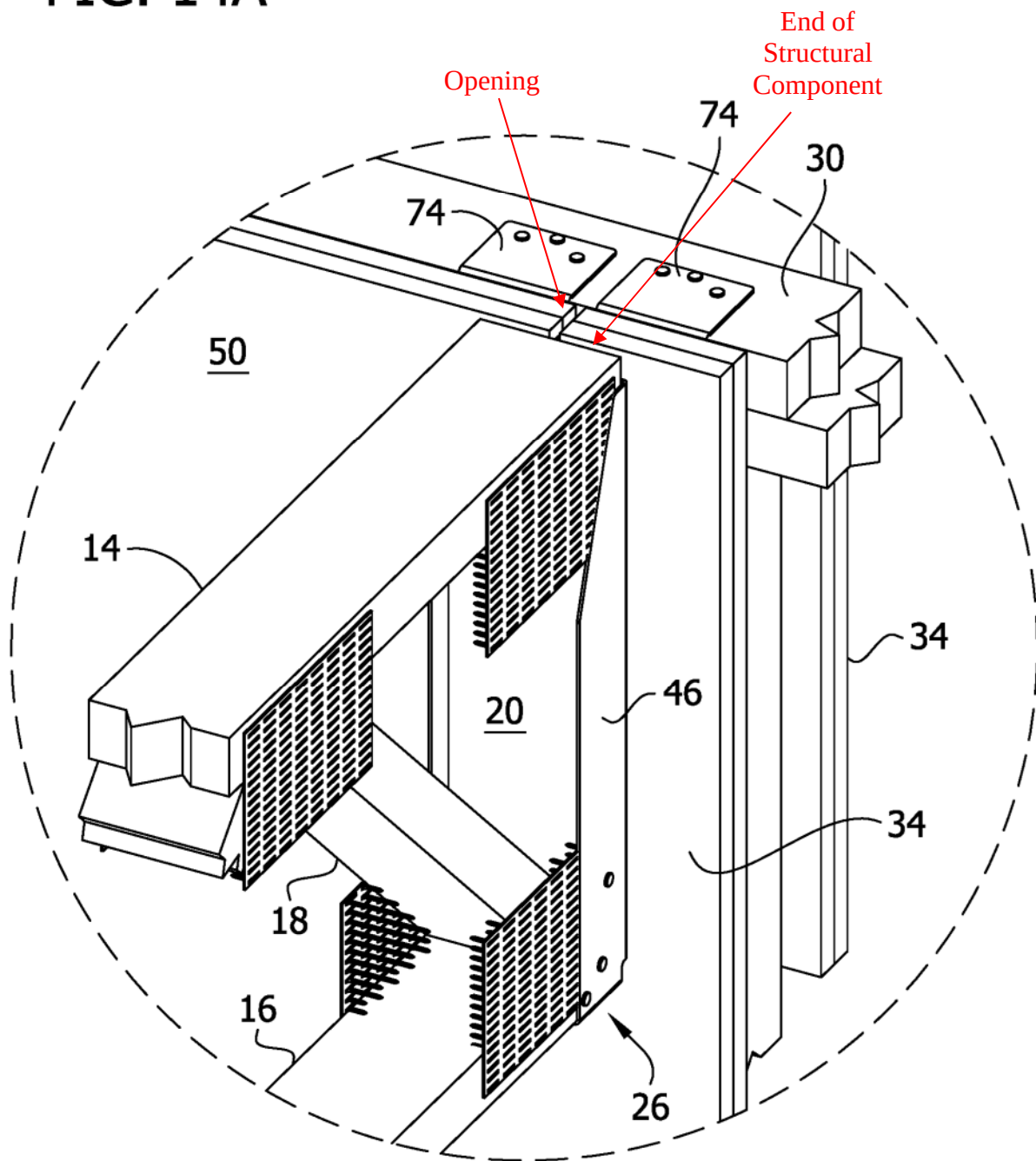


FIG. 14A



EX1001: Figs. 9, 12, and 14A (annotated).

112. With respect to claim 10—”cutting the opening to have a height less than a height of the channel-shaped portion of the fire wall hanger”—Figs. 9 and

12 show that the height of the opening (72) is less than a height of the channel-shaped portion (38) of the fire wall hanger (26).

FIG. 12

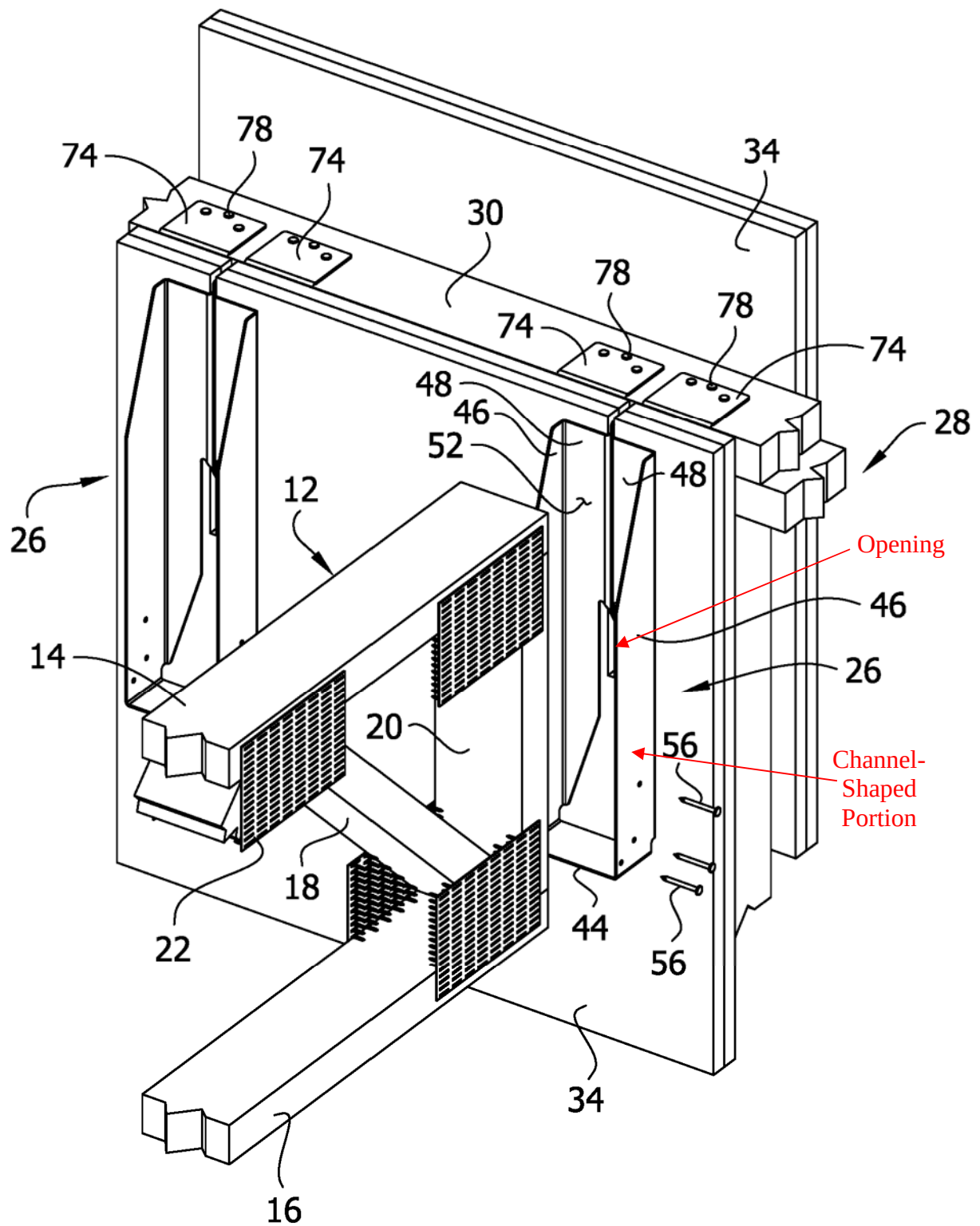
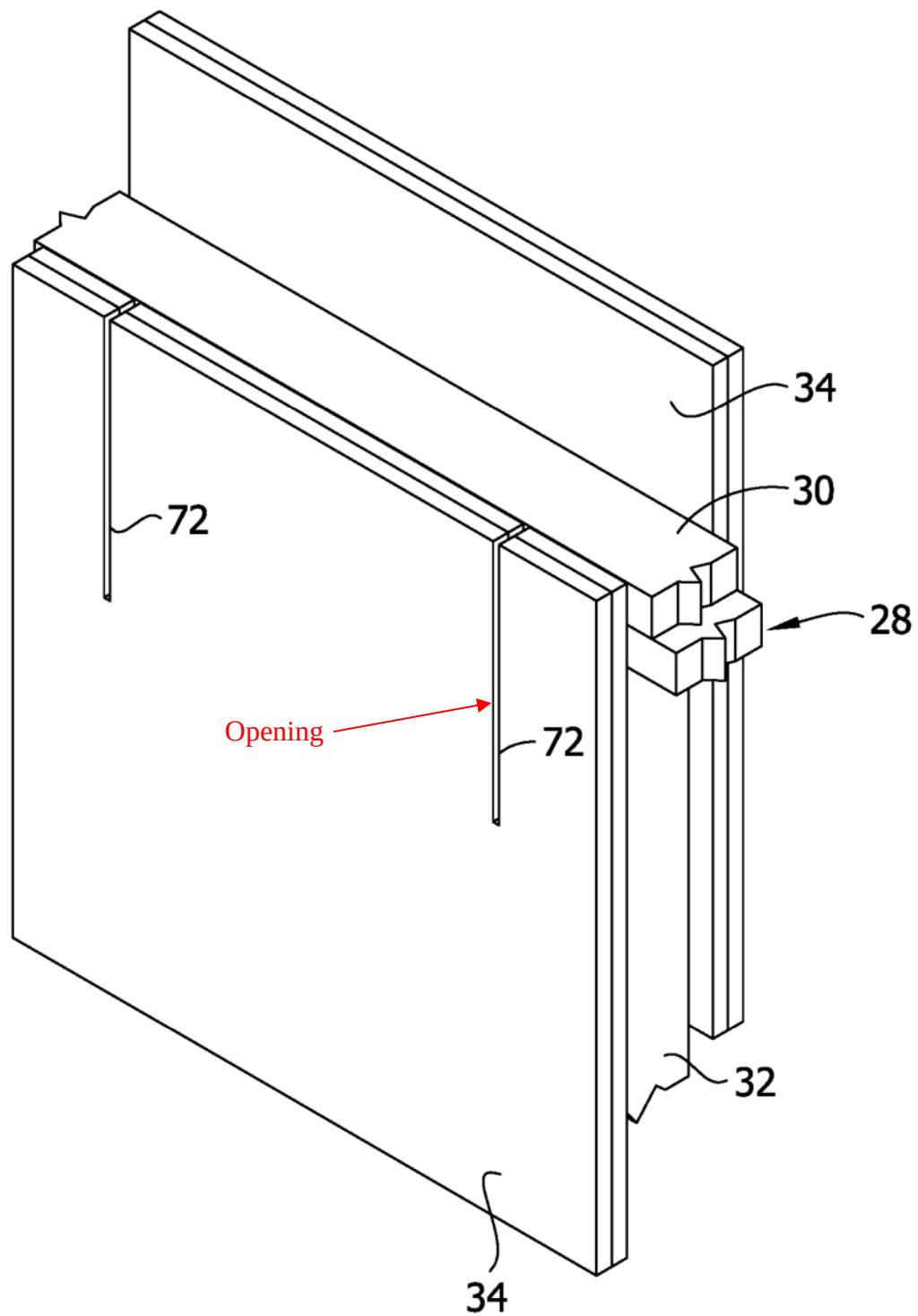


FIG. 9



EX1001: Figs. 9 and 12 (annotated).

113. With respect to claim 11—”cutting the opening to have a width less than a width of the channel-shaped portion of the fire wall hanger”—Figs. 9 and 12 (above) show the width of the opening (72) is less than a width of the channel-shaped portion (38) of the fire wall hanger (26).

114. Therefore, in my opinion, the ‘339 Patent demonstrates Columbia was in possession of the relative proportions recited by claims 9-11.

D. Claims 20-23: “Planar Extension Plates”

115. Claims 20-23 recite the phrase “planar extension plates.” For example, claim 20 recites “positioning the fire retardant sheathing relative to the extension portion of the fire wall hanger so that only first and second *planar extension plates* of the extension portion of the fire wall hanger extend through the opening in the fire retardant sheathing.”

116. Simpson’s lack of written description argument is founded in their claim construction of the “planar extension plate” phrase. Pet: 13. Simpson has construed the phrase such that “a bent portion is not part of an extension plate.” Pet: 9. Simpson argues that because the illustrated bends in the figures start within the opening in the fire retardant sheathing, the extension plates do not extend through the fire retardant sheathing. Pet: 13.

117. First, I address the claim construction of “planar extension plate.” I disagree with Simpson that a claim construction of “planar extension plate” excludes portions of the bends at the ends of the plate that connect the plate to other elements. Instead, in my opinion, the POSA would understand a “planar extension plate” or “planar [] plate” includes portions of the bends at the ends of the plate that connect the plate to other elements.

118. Support for this interpretation can be found in the claims of the ‘339 Patent, the specification and figures of the ‘339 Patent, and the common knowledge and parlance of the POSA. For example, claim 23 of the ‘339 Patent recites:

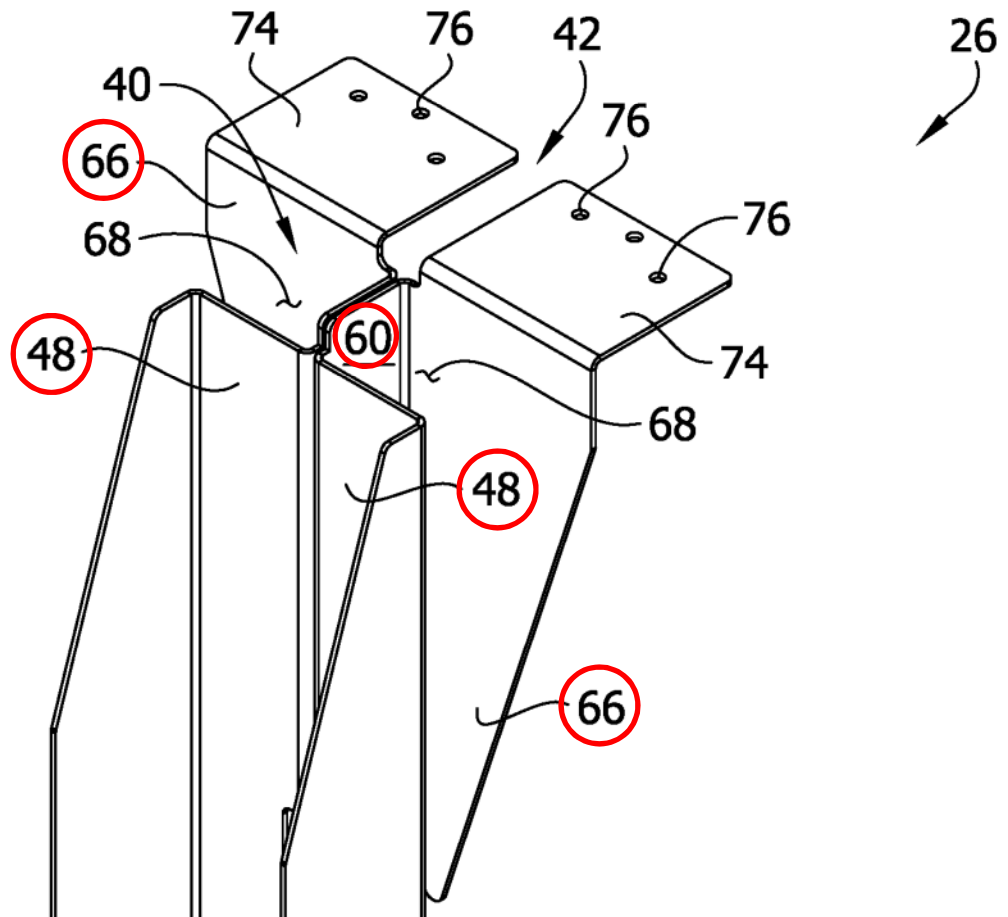
- “the first end of the first planar extension plate being **connected to** the channel-shaped portion by **a first bend**,”
 - “the second end of the first planar extension plate being **connected to** the connection portion by **a second bend**,”
 - “the first end of the second planar extension plate being **connected to** the channel-shaped portion by **a third bend**, and”
 - “the second end of the second planar extension plate being **connected to** the connection portion by **a fourth bend**.”
- EX1001: claim 23.

119. These limitations from claim 23 inform the POSA that the first and second planar extension plates *connect directly to* the channel-shaped portion or the connection portion by bends. Thus, the recited bends are merely part of the respective components forming the recited bend. Therefore, the bends are simply

part of the respective planar extension plate and channel-shaped portion/connection portion combination.

120. The specification of the ‘339 Patent also supports this interpretation that a bend is part of the elements that form the bend. For example, with reference to Fig. 2 (reproduced below), the specification states “[e]ach flange 60 ***extends from*** one of the back panels 48,” and “[a] back flange 66 ***extends from*** each of the extension flanges 60” even though these elements form bends at their respective connections to each other. EX1001: 5:6-7, 5:22-23, Fig. 2.

FIG. 2



EX1001: Fig. 2 (cropped, annotated).

121. I understand that Simpson has adapted a construction of “extending from” as “in the context of element B extending from element A, the beginning of element B’s extension is on element A.” Pet: 8. Given this construction of “extending from” the bend has to be part of the elements which form the bend. Otherwise, the start of element B’s extension would be at the bend, not on element

A (if element A and element B are connected to one another by a bend, similar to the limitations recited in claim 23).

122. Further, the POSA would understand the bends are merely de minimus features in the hanger formed by stamping sheet metal, as described by the '339 Patent. EX1001: Fig. 15, 7:18-25. Comporting with the '339 Patent's disclosure of a hanger formed from a single 12-14 gauge sheet metal blank, the POSA would recognize the components recited in the claims would commonly be manufactured by stamping and bending the sheet metal. EX1001: Fig. 15, 7:18-23. The POSA would thus recognize it is impossible to bend corners in sheet metal without providing a finite, although very small, radius at the bend. The bends are thus necessary as the connection portion transitions to the extension plate and the extension plate further transitions to the channel-shaped portion or connection portion.

123. The POSA would recognize that the bends, which are present only due to the manner of manufacture, are very small compared to the entire planar extension plate. The POSA would accordingly consider these bends as being an insignificant deviation from the otherwise relatively flat extension plates, such that the planar extension plates are connected directly to the channel-shaped portion or connection portion.

124. Turning to this fields of joist hangers and general construction connectors, I have been made aware of a number of Simpson references that demonstrate even Simpson considers a portion of a bend at the end of a “planar” plate to be part of the plate.

125. For example, Bundy (U.S. Patent No. 9,394,680) (one of the prior art references being applied in the Petition against the claims of the ‘339 Patent) demonstrates Simpson considers a portion of a bend at the end of a “planar” plate to be part of the plate. For example, with reference to Fig. 7 of Bundy (reproduced below), Bundy identifies the back plate members (9) and the side member (11) of the joist hanger (2) as being “planar.” EX1005: 4:29-30 (“back plate members 9 preferably are planar”), 4:54-55 (“side members 11 preferably are planar”). Bundy also states that each side member (11) is “connect to” one of the back plate members (9). EX1005: 4:13-16 (“The first side member 11 preferably is connected to the first back plate member 9. Preferably, the second side member 11 is also connected to the second back plate member 9.”). As shown below in Fig. 7, a bend (47) is formed by the connection between the planar back plate members (9) and the planar side members (11).

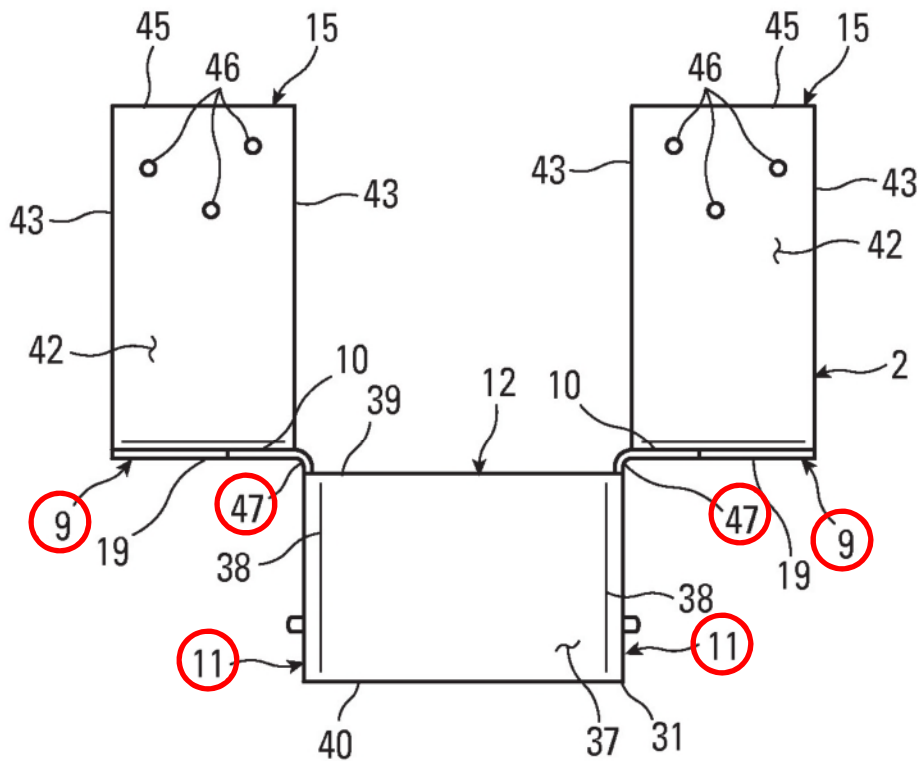


Fig. 7

EX1005: Fig. 7 (annotated).

126. Despite the bend, Bundy states:

“The first and second side members 11 preferably have first and second back edges 29 **that form an angular joint 47**, preferably orthogonal, where **they meet** the first and second inner edges 20 of the first and second back plate members 9.” EX1005: 4:57-61.

127. This statement that the edges of the back plate members (9) and the edges of the side members (11) “meet” demonstrates Simpson considers the bends connecting the “planar” back plate members (9) and the “planar” side members (11) to be part of those members.

128. Another example of this understanding by Simpson is illustrated below with reference to Fig. 8 of Bundy, which shows a bend (49) formed by the planar back plate members (9) and the top flanges (15). Bundy again states the top flanges “are planar.” EX1005: 5:53 (“top flanges 15 preferably are planar”). Bundy also states that each top flange (15) is “connected to” one of the back plate members (9). EX1005: 5:39-42 (“the joist hanger 2 has a first top flange 15 connected to the first back plate member 9 and a second top flange 15 connected to the second back plate member 9.”). As shown below in Fig. 8, the bend (49) is formed by the connection between the planar back plate members (9) and the planar top flanges (15).

130. Again, this statement that the edges of the back plate members (9) and the edges of the top flanges (15) “meet” demonstrates Simpson considers the bends connecting the “planar” back plate members (9) and “planar” top flanges (15) to be part of those members/flanges.

131. U.S. Publication No. 2021/0396000 (EX2005) by Simpson also demonstrates Simpson considers a portion of a bend at the end of a “planar” plate to be part of the plate. With reference to Figs. 3 and 7 of this publication (reproduced below), Simpson identifies side members (11) as being “planar.” EX2005: ¶[0039] (“side members 11 preferably are planar”). Simpson also states a seat member (12) is connected to the side members (11). EX2005: ¶[0045] (“a seat member 12 interconnecting the first and second side members 11”). As shown below in Figs. 3 and 7, a bend (48) is formed by the connection between the planar side member (11) and the seat portion (12).

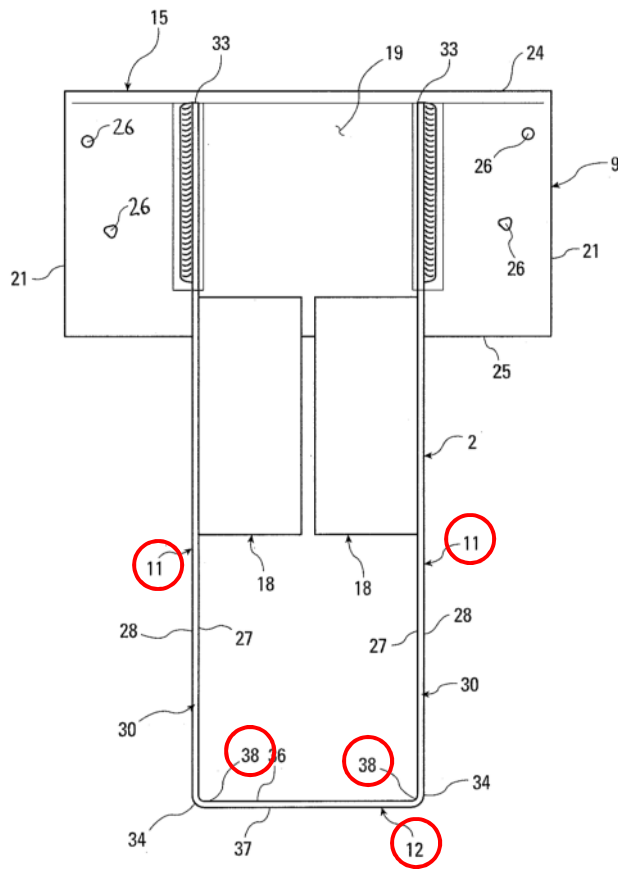


Fig. 3

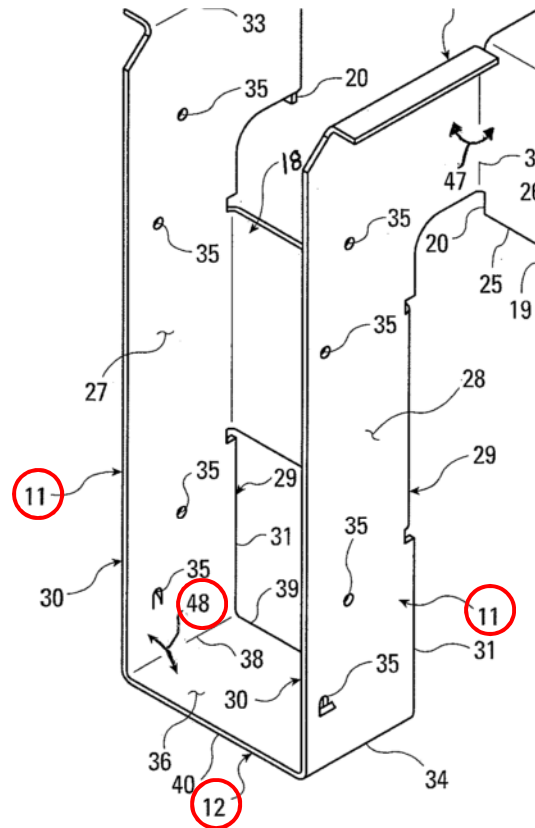


Fig. 7

EX2005: Fig. 3 (annotated, Fig. 7 (cropped, annotated).

132. Despite the bend, Simpson states:

“The first and second side edges 38 [of the seat member 12] preferably **form an angular joint 48**, where **they meet** the first and second bottom edges 34 of the first and second side members 11.”
EX2005: ¶[0046].

133. This statement that the edges of the seat member (12) and the edges of the side members (11) “meet” demonstrates Simpson considers the bends

connecting the seat member (12) and the “planar” side members (11) to be part of those members.

134. Another example of this understanding is illustrated below with reference to Figs. 4 and 7 (reproduced below) of this publication (EX2005) by Simpson. Simpson states back plate members (9) and top flanges (15) are “planar.” EX2005: ¶¶[0037] (“back plate members 9 preferably are planar”), [0048] (“top flanges 15 preferably are planar”). Simpson also states that each top flange (15) is “connected to” one of the back plate members (9). EX2005: ¶[0047] (“top flanges 15 connected to the one or more back plate members 9”). As shown below in Figs. 4 and 7, a bend (49) is formed by the connection between the planar back plate members (9) and the planar top flanges (15).

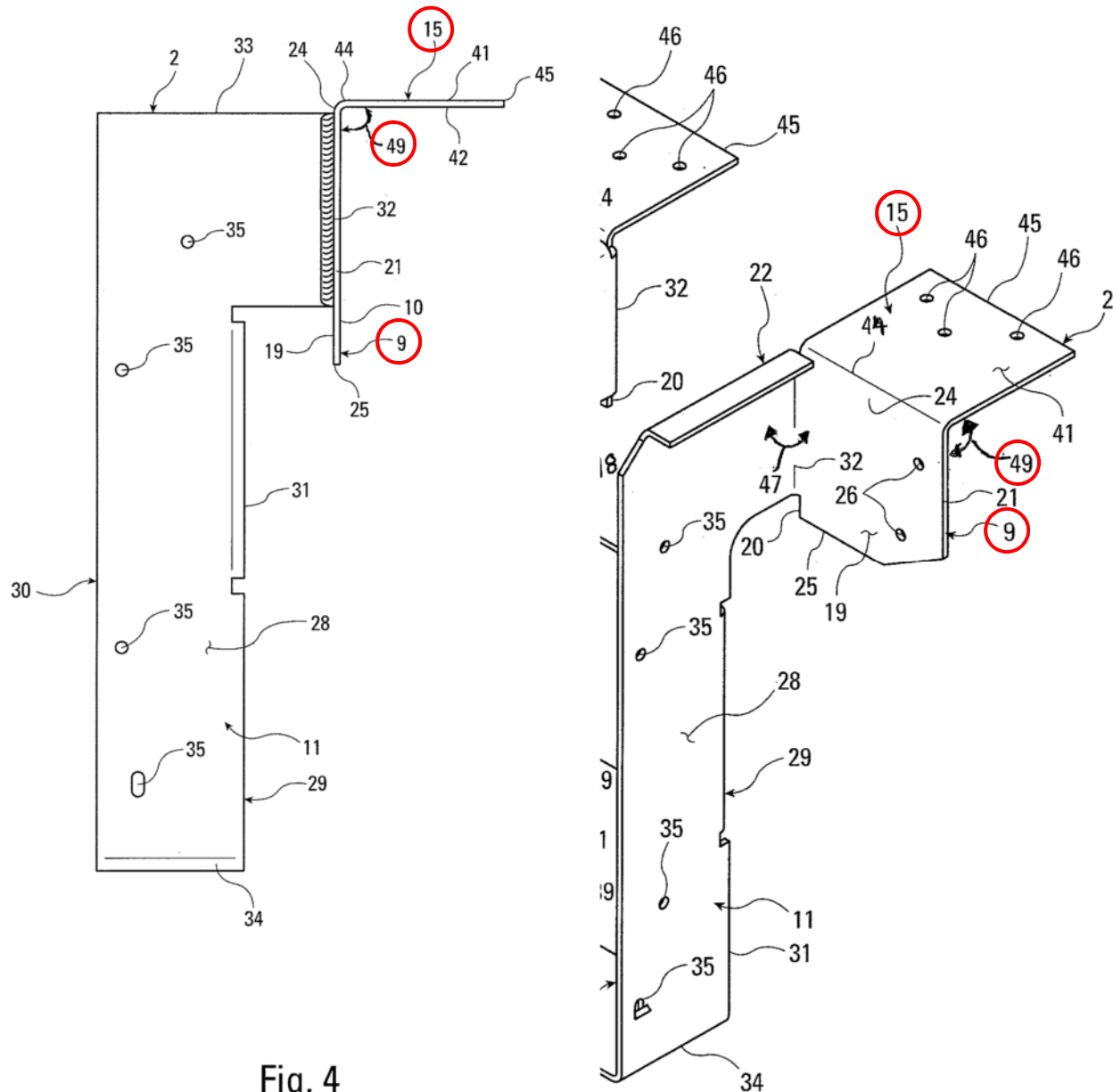


Fig. 4

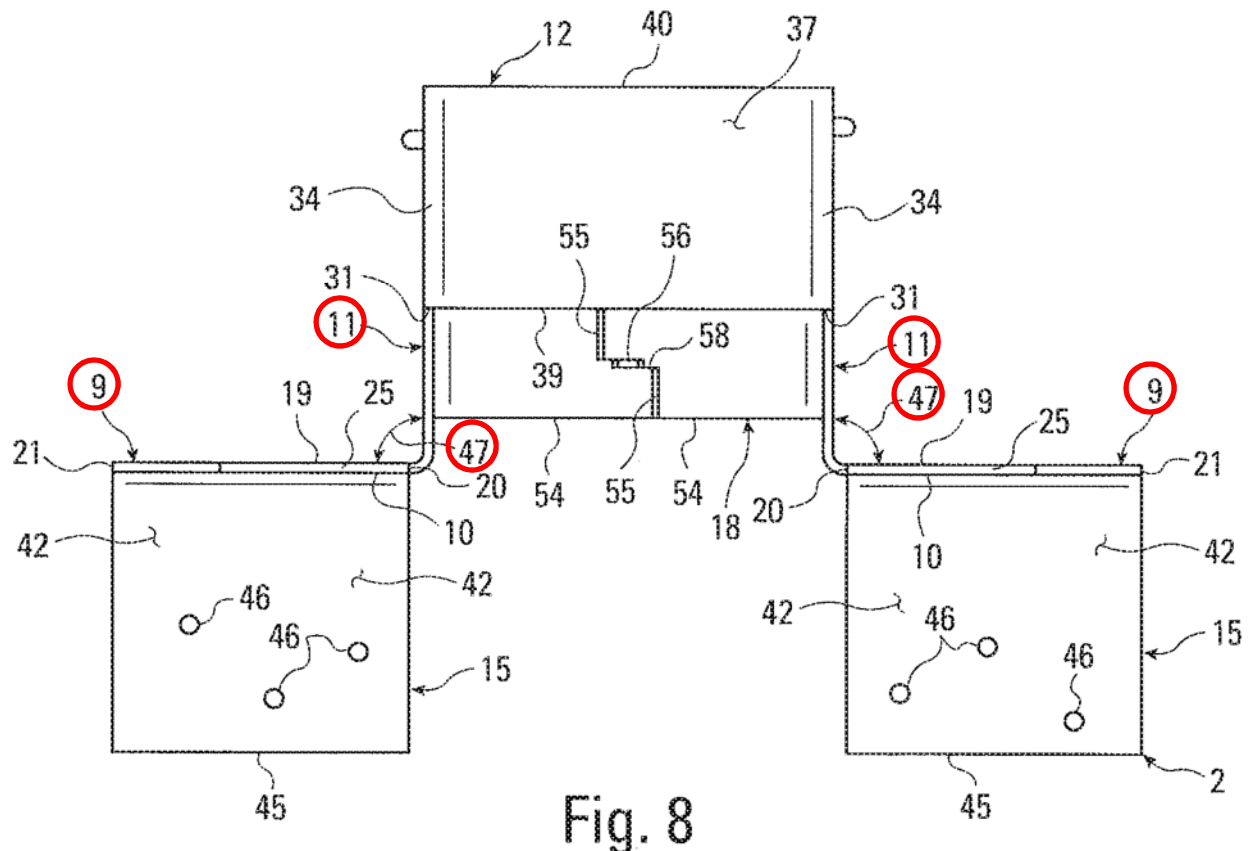
135. Despite the bend, Simpson states:

“The front edges 44 [of the top flanges 15] preferably **form an angular joint 49**, preferably orthogonally where **they meet** the one or more top edges 24 of the one or more back plate members 9.”
EX2005: ¶[0048].

136. Again, this statement that the edges of the top flanges (15) and the edges of the back plate members (9) “meet” demonstrates Simpson considers the

bends connecting the “planar” top flanges (15) and the “planar” back plate members (9) to be part of those members.

137. U.S. Patent No. 11,225,787 (EX2004) by Simpson also demonstrates Simpson considers a portion of a bend at the end of a “planar” plate to be part of the plate. With reference to Fig. 8 of this patent (reproduced below), Simpson identifies back plate members (9) and side members (11) as being “planar.” EX2004: 4:38-39 (“back plate members 9 preferably are planar”), 4:56-57 (“side members 11 preferably are planar”). Simpson also states each side member (11) is “connected to” one of the back plate members (9). EX2004: 4:23-26 (“The first side member 11 preferably is connected to the first back plate member 9. Preferably, the second side member 11 is connected to the first back plate member 9 or the second back plate member 9”). As shown below in Fig. 8, bends (47) are formed by the connection between the planar back plate members (9) and the planar side members (11).



EX2004: Fig. 8 (annotated).

138. Despite the bend, Simpson states:

“the first and second side members 11 preferably have first and second back edges 29 that **form an angular joint 47**, preferably an orthogonal joint, where **they meet** the first and second inner edges 20 of the first and second back plate members 9.” EX2004: 4:60-64.

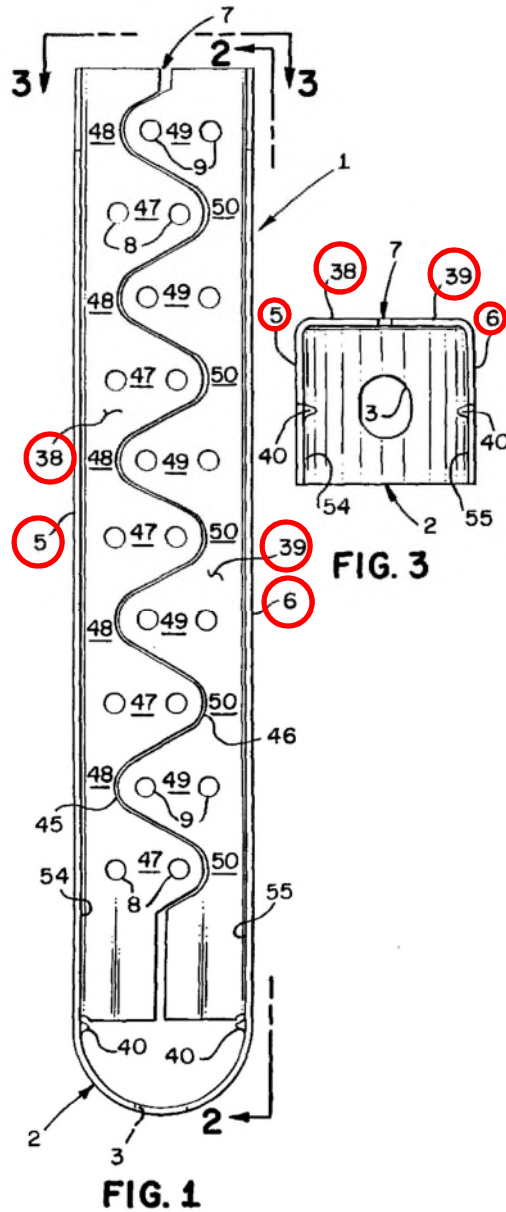
139. This statement that the edges of the back plate members (9) and the edges of the side members (11) “meet” demonstrates Simpson considers the bends connecting the “planar” back plate members (9) and the “planar” side members (11) to be part of those members.

140. Several other Simpson patents and publications further confirm Simpson considers a portion of a bend at the end of a “planar” plate to be part of the plate.

141. In U.S. Publication No. 2019/0136520 by Simpson, with reference to Fig. 7 of this publication (reproduced below), Simpson states “[t]he first and second **plates** [16, 17] are **joined to each other at a bend.**” EX2013: ¶[0021]. Claim 13 of this publication also recites “the second plate is attached to the first plate at an orthogonal bend.” EX2013: claim 13. The statement the plates (16, 17) are “joined to each other at a bend” demonstrates Simpson considers the bend connecting the planar plates (16, 17) to be part of the plates.

an angle 40 therefrom a selected distance.” EX2014: 5:33-36. This statement the seat base (27) is “integrally connected to” the back plate (23) demonstrates Simpson considers the bend connecting the planar seat base (27) and the planar back plate (23) to be part of these components.

is then ***bent*** at back bend line 52 to form first back ***plate*** 38 which is ***integrally connected to*** the first side member 5. The second side member [6] is then ***bent*** at back bend line 53 to form second back ***plate*** 39 which is ***integrally connected to*** the second side member 6.” EX2015: 6:15-20. This statement that the back plates (38, 39) are “integrally connected to” the respective side members (5, 6) demonstrates Simpson considers the bends connecting the planar back plates (38, 39) and the planar side members (5, 6) to be part of these components.



EX2015: Figs. 1 and 3 (annotated).

144. Therefore, Simpson’s own patent documents demonstrate what the POSA already understands, that the proper construction of “planar extension plates” does not exclude portions of the bends at the ends of the plate that connect the plate to other elements.

145. With the understanding that a “planar extension plate” includes portions of the bends at the ends of the plate that connect the plate to other elements, I now turn to the ‘339 Patent to evaluate if Columbia was in possession of “first and second ***planar extension plates*** of the extension portion of the fire wall hanger ***extend[ing] through the opening*** in the fire retardant sheathing,” as recited by claim 20.

146. In my opinion, the ‘339 Patent demonstrates Columbia was in possession of this feature recited by claim 20. For example, the specification of the ‘339 Patent states the “two extension flanges 60 [] extend through the fire retardant sheathing 34” and “the extension flanges 60 extend through a slot 72 in the fire retardant sheathing 34.” EX1001: 5:5-6, 5:35-36.

147. In addition, Figs. 11 and 36 of the ‘339 Patent (reproduced below), show the planar extension plates (60, 160), with portions of the bends at the front and rear ends thereof, extend through the opening in the fire retardant sheathing (34).

FIG. 11

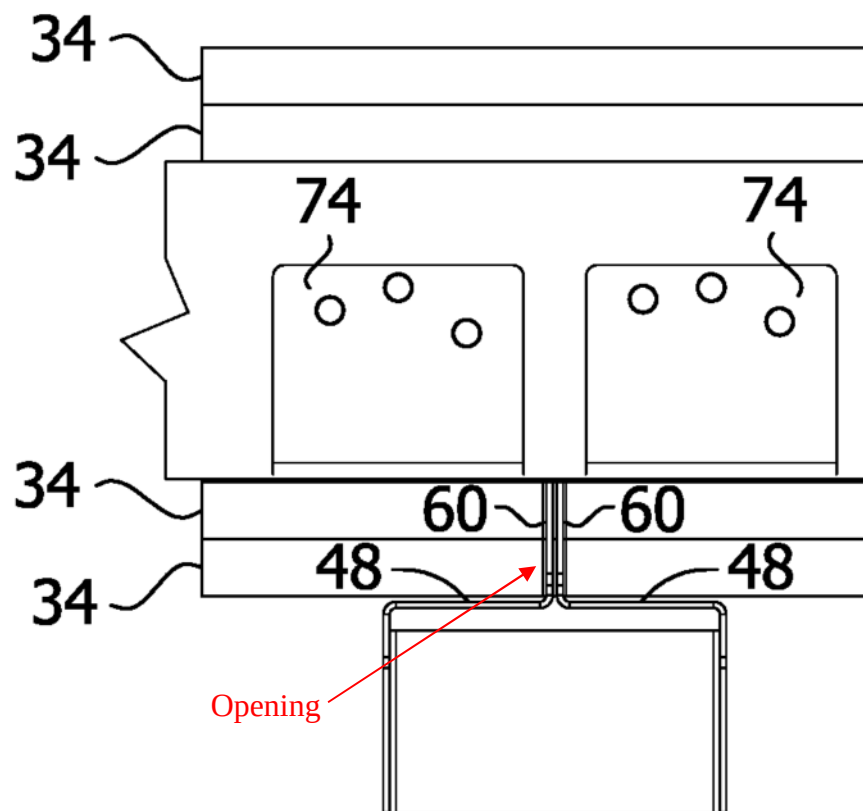
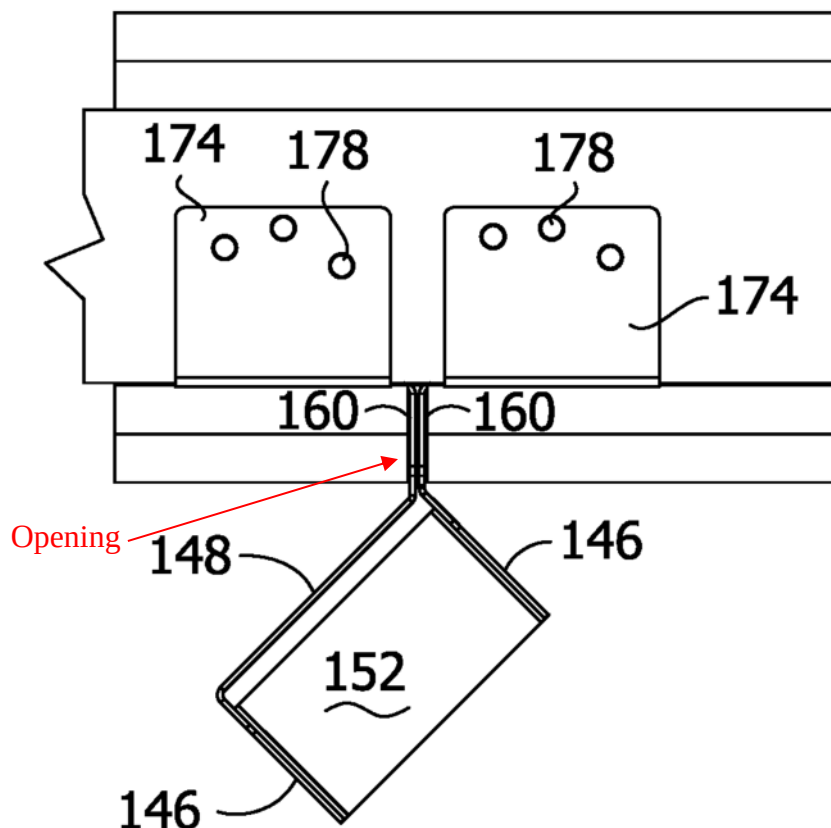


FIG. 36



EX1001: Figs. 11 and 36 (enlarged, annotated).

148. Notably in Figure 11, the bends of the planar extension plates (60) are depicted as starting as the planar extension plates (60) exit the slot (72) in the fire retardant sheathing (34).

149. Therefore, in my opinion, Columbia was in possession of planar extension plates extending through the opening in the fire retardant sheathing.

E. Claims 20-23 and 26: Negative Limitations

150. I have been informed by counsel for Columbia that a negative limitation is a statement in a claim that expressly specifies the absence of an element or feature. I have been informed there is no heightened standard for negative limitations. I have been informed that just like other limitations, the patent disclosure need only to reasonably convey to a POSA that the inventor had possession of the claimed subject matter. The patent disclosure need not state an express disclaimer nor use the same words as the claims in order to provide written description support for a negative limitation.

1. Claims 20-23: “Only”

151. Claim 20 recites “positioning the fire retardant sheathing relative to the extension portion of the fire wall hanger so that **only** first and second planar extension plates of the extension portion of the fire wall hanger **extend through** the opening in the fire retardant sheathing.” Simpson argues claim 20 lacks written description support because the “specification provides not disclosure supporting the exclusionary ‘only’ in claim 20.” Pet: 14.

152. In my opinion, the ‘339 Patent demonstrates Columbia was in possession of “only” first and second planar extension plates (60) of a fire wall

hanger (26) extending through the opening (72) in the fire retardant sheathing (34). For example, the specification of the '339 Patent only describes the planar extension plate (60) as extending through the fire retardant sheathing (34), no other element of the fire wall hanger (26). The specification states the “two extension flanges 60 [] extend through the fire retardant sheathing 34” and “the extension flanges 60 extend through a slot 72 in the fire retardant sheathing 34.” EX1001: 5:5-6, 5:35-36.

153. In addition, Figs. 11, 13A, and 36 of the '339 Patent (reproduced below) show that **only** the planar extension plates ((60) in Figs. 11 and 13A; (160) in Fig. 36) extend through the opening (72) in the fire retardant sheathing (34).

FIG. 11

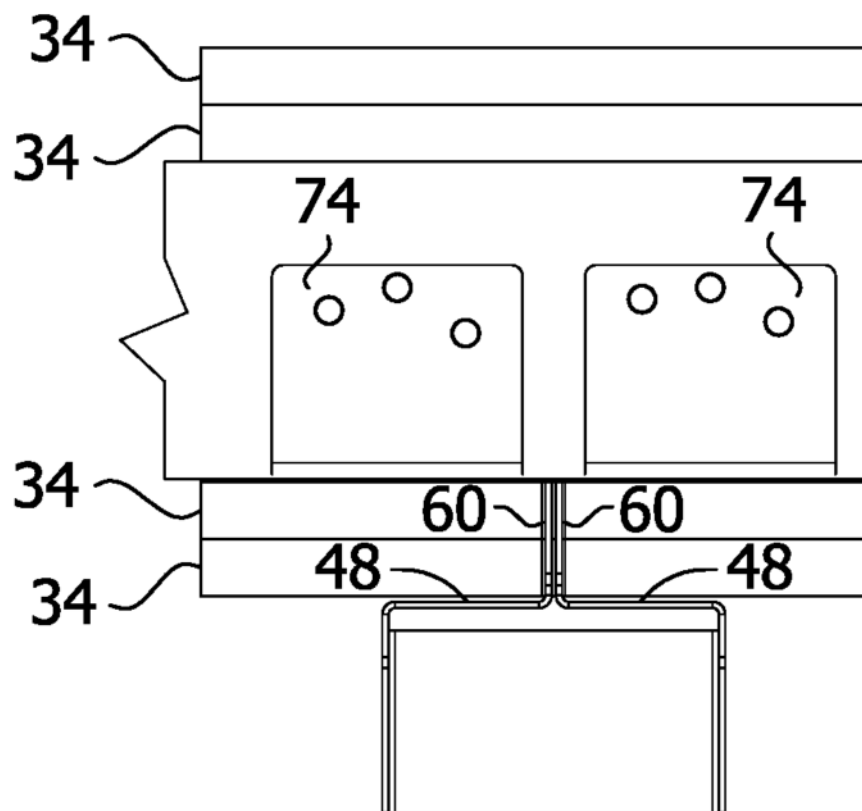


FIG. 13A

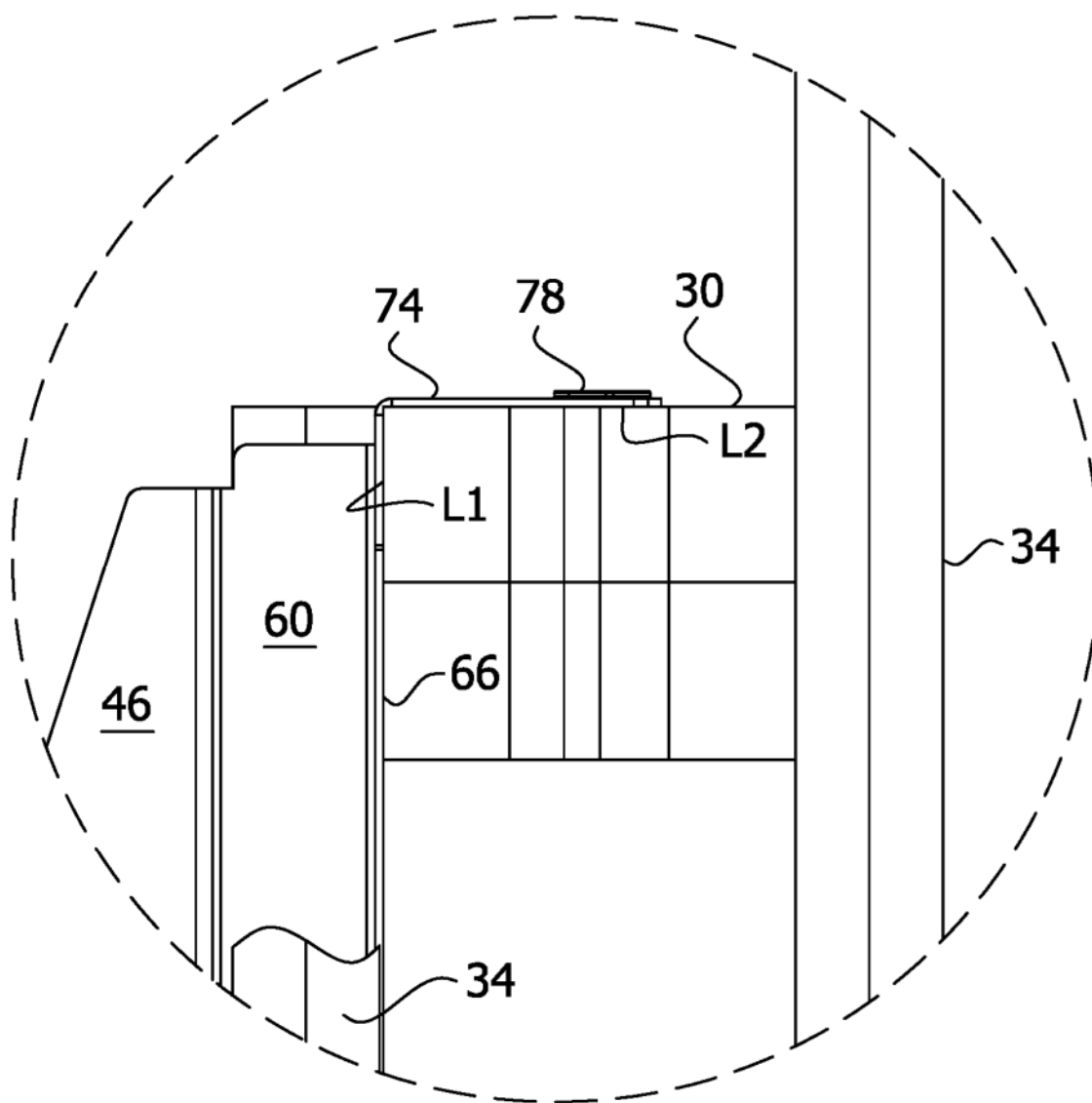
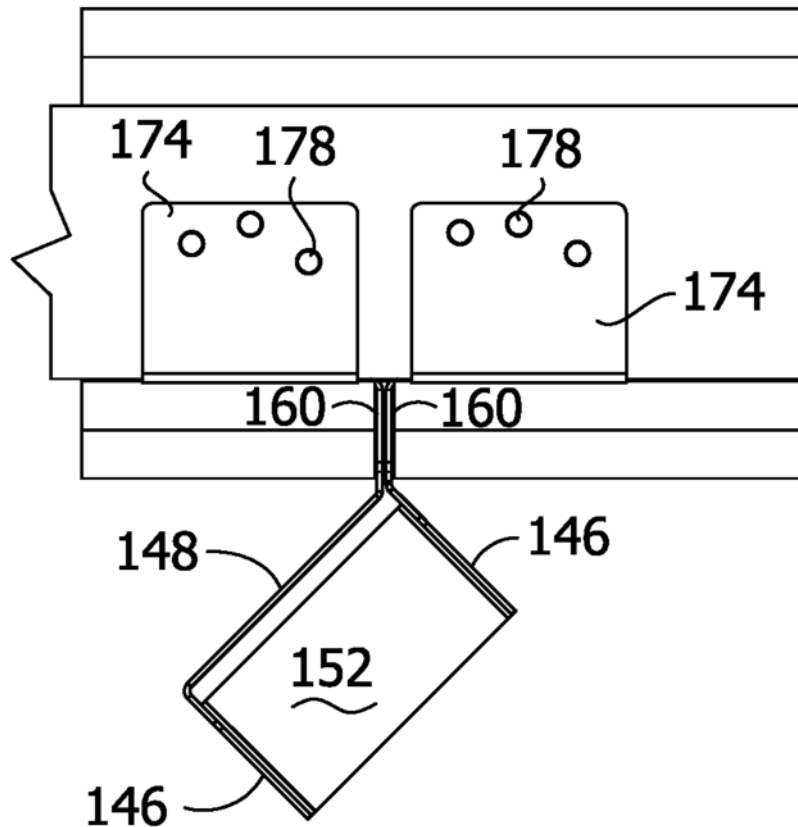


FIG. 36



EX1001: Figs. 11 (enlarged), 13A, and 36 (enlarged).

154. In addition, the specification of the '339 does provide a reason to have only the planar extension plates (60) extend through the opening (72) in the fire retardant sheathing (34). For example, the specification states:

- “The truss hangers 26 extend through a narrow slot in the fire retardant sheathing 34 to ***maintain the integrity and fire***

retardant characteristics of the fire separation wall.” EX1001: 4:34-36.

- “the integrity of the fire retardant sheathing should be maintained and ***interruptions of the sheathing kept to a minimum.***” EX1001: 1:44-46.
- “The truss hanger 26, 126 permits a floor truss 12 to be secured to a wall 28 through fire retardant sheathing 34 with ***minimal interruption to the sheathing.*** Installation of the truss hanger minimally disrupts the continuity of the sheathing and therefore ***does not reduce the fire resistive rating of a fire rated assembly.*** The extension flanges 60, 160 ***extend through*** the fire retardant sheathing 34 so that ***the sheathing is interrupted only by the slot 72 required to receive the flanges.***” EX1001: 11:33-41.

155. These statements from the specification address the reason why only the planar extension plates (60) of the fire wall hanger (26) (and no other elements of the fire wall hanger) extend through the opening (72) in the fire retardant sheathing, to keep the interruption of the fire retardant sheathing to a minimum in order to maintain the integrity and fire protection capabilities of the fire retardant sheathing in the fire wall assembly. The POSA would further understand that extending additional components of the hanger (beyond only the planar extension plates) through the opening in the fire retardant sheathing would require a larger opening, counter to the ‘339 Patent’s goal of keeping “interruptions of the sheathing [] to a minimum” to maintain the integrity and fire retardant characteristics of the sheathing.

156. Therefore, in my opinion, Columbia was in possession of “only” the planar extension plates extending through the opening in the fire retardant sheathing.

2. Claim 26: “Entirely”

157. Claim 26 recites “the back flange and the top flange being *entirely* disposed outward, in the second direction, of the inner face plane.”

158. Simpson argues claim 26’s use of “entirely” is “an absolute term [that] lacks written description for similar reasons as claim[] 20.” Pet: 14.

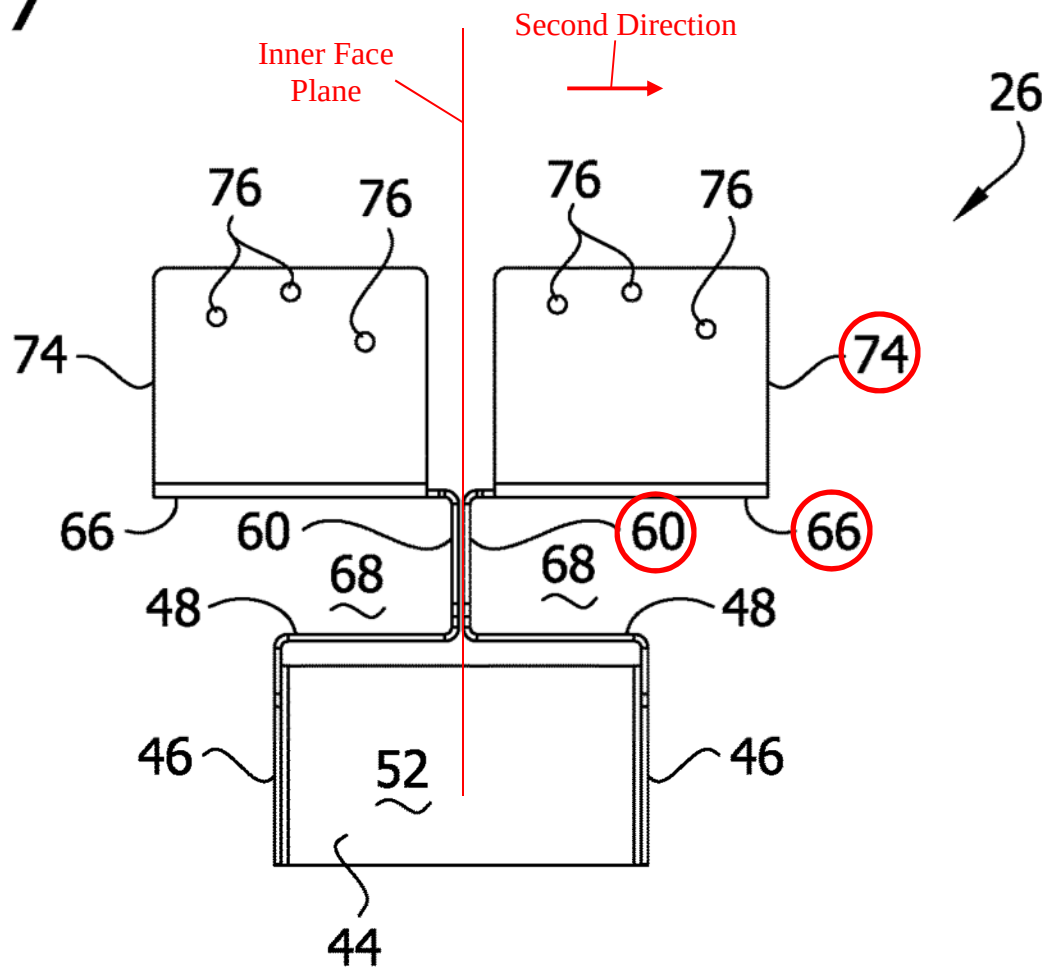
159. I disagree with Simpson that the term “entirely” as it appears in claim 26 is a negative limitation. As used in claim 26—“the back flange and the top flange being *entirely* disposed outward, in the second direction, of the inner face plane”—the term “entirely” is positively stating the position of elements relative to other elements. Specifically, the term “entirely” is being used as part of a description in the limitation that positively describes the relative positions of the top flange and the back flange relative the inner face plane, which is defined by the inner face of the first planar extension plate.

160. Because I have been informed that negative limitations are treated no differently than other limitations for the purposes of written description support, regardless of whether or not “entirely” is determined to be a negative limitation, in

my opinion the '339 Patent demonstrates Columbia was in possession of this limitation.

161. For example, the specification of the '339 Patent describes the arrangement of the top flange (74) and back flange (66) relative to the planar extension plate (60). The specification states “[e]ach back flange 66 extends generally perpendicular from the extension flange 60” and “[e]ach connector tab 74 extends generally perpendicular from one of the back flanges.” EX1001: 5:23-24, 6:42-43. This geometry is shown in Fig. 7 of the '339 Patent (reproduced below). The perpendicular extension of the back flange (66) from the extension plate (60), and the perpendicular extension of the top flange (74) from the back flange (66) necessarily results in the back and top flanges being disposed entirely outward of the inner face plane of one of the extension plates. As stated by claim 26 the “inner face plane” is defined by the inner face of the extension plate (60) from which the back flange (66) extends. EX1001: claim 26. In addition, Fig. 7 (below) shows this arrangement as well.

FIG. 7



EX1001: Fig. 7 (annotated).

162. Therefore, in my opinion, Columbia was in possession of “the back flange and the top flange being entirely disposed outward, in the second direction, of the inner face plane,” as recited by claim 26.

F. Claims 16 and 17: “Extends Through the Fire Retardant Sheathing”

163. Claim 16 recites “positioning the fire retardant sheathing so that a second extension flange of the extension portion of the fire wall hanger *extends through* the fire retardant sheathing.”

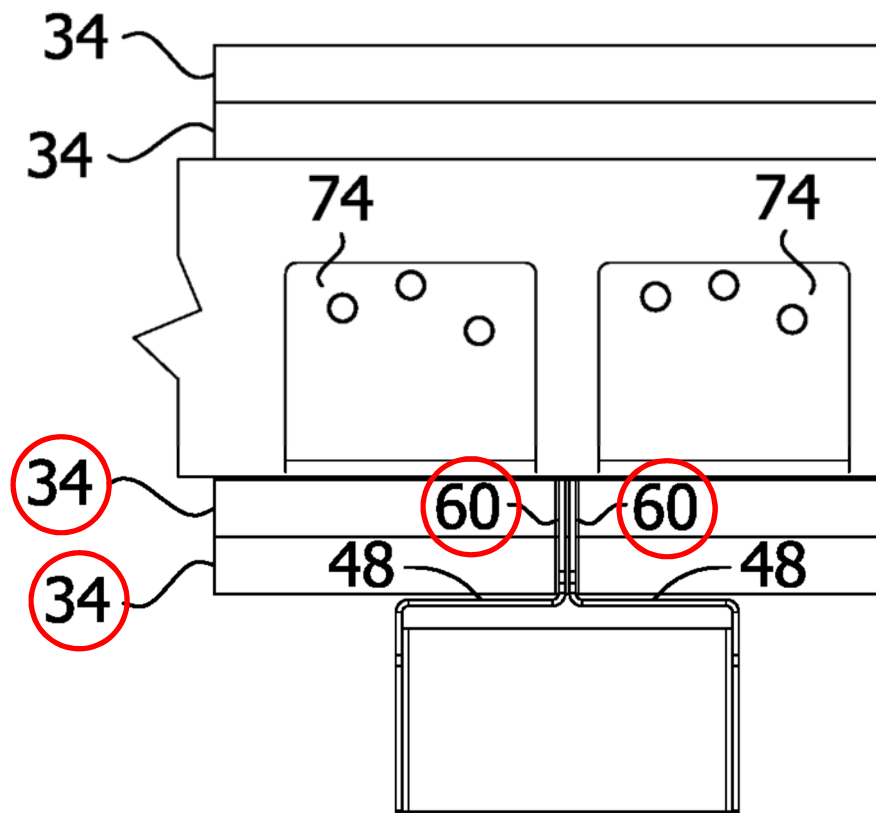
164. Similarly, claim 17 recites “positioning the fire retardant sheathing so that the second extension flange of the extension portion of the fire wall hanger *extends through* the opening in the fire retardant sheathing.”

165. Simpson argues these limitations lack written description support.
Pet: 19. In particular, Simpson argues claim 16 lacks written description support, and claim 17 lacks written description support “[f]or reasons similar to claim 16.”
Pet: 19-20.

166. In my opinion, the ‘339 Patent provides written description support for these limitations by showing Columbia was in possession of them. With regard to claim 16, the specification of the ‘339 Patent states “the extension portion 40 includes two extension flanges 60 configured to extend through the fire retardant sheathing 34.” EX1001: 5:4-6. This statement from the specification closely follows the limitation in claim 16. With regard to claim 17, the specification states “the extension flanges 60 extend through a slot 72 in the fire retardant sheathing 34.” EX1001: 5:35-36. Again, this statement from the specification closely follows the limitation in claim 17.

167. In addition, the extension flanges (60) extending through the fire retardant sheathing (34) (and opening (72) thereof) is shown in Fig. 11 of the '339 Patent (reproduced below):

FIG. 11



EX1001: Fig. 11 (enlarged, annotated).

168. Accordingly, in my opinion, Columbia was in possession of these limitations recited by claims 16 and 17.

VI. DEFINITENESS

169. I have been informed that definiteness is evaluated from the perspective of the POSA.

170. In my opinion, the claims of the '339 Patent are definite because, in view of the specification and figures of the '339 Patent, the claims inform a POSA as to the scope of the invention with reasonable certainty.

A. Claims 1-31: “Fire Wall Hanger”

171. Independent claims 1 and 27 each recite “a fire wall hanger.”

172. Simpson argues “[t]he scope of a ‘fire wall hanger’ ... is unclear.”

Pet: 15. I disagree.

173. In my opinion, the POSA is reasonably informed about the scope of a “fire wall hanger” in view of the claim language itself, the specification, and the use of this term in the art.

174. I have been informed that terms which are defined by the claims are definite. In this case, claims 1 and 27 recite:

- “the ***fire wall hanger including a channel-shaped portion*** sized and shaped to receive a structural component, a ***connection portion*** configured for attachment to the frame wall and an ***extension portion*** interconnecting the channel-shaped portion and the connection portion and spacing the channel-shaped portion from the connection portion.” EX1001: claim 1.

- “the **fire wall hanger including a channel-shaped portion** sized and shaped to receive a structural component, a **connection portion** configured for attachment to the frame wall and an **extension portion** interconnecting the channel-shaped portion and the connection portion and spacing the channel-shaped portion from the connection portion.” EX1001: claim 27.

175. Thus, the claims of the ‘339 Patent explain what elements make up a “fire wall hanger,” thereby providing the POSA about the scope of the term with reasonable certainty.

176. Further, the POSA’s reading of the specification of the ‘339 Patent confirms a fire wall hanger is a hanger that includes a channel-shaped portion, an extension portion, and a connection portion, as recited by claims 1 and 27:

- “**hanger 26, 126** permits a floor truss 12 to be secured to a wall 28 through **fire retardant sheathing** 34 with minimal interruption to the sheathing. Installation of the truss hanger minimally disrupts the continuity of the sheathing and therefore does not reduce the fire resistive rating of a **fire rated assembly**.” EX1001: 11:33-38.
- “hangers 26 can be used with ... **fire-rated wall assembly**, such as a **2-hour fire-resistive wall assembly**. The floor trusses 12 are mounted on the wall 28 adjacent the fire retardant sheathing 34 by the truss hangers 26. The truss hangers 26 extend through a narrow slot in the fire retardant sheathing 34 to maintain the integrity and fire retardant characteristics of the **fire separation wall**.... hanger 26 **includes** a **channel-shaped portion** 38, an **extension portion** 40, and a **connection portion** 42.” EX1001: 4:30-39.

177. Given these repeated and numerous references in the specification of the ‘339 Patent pertaining to “fire,” such as “fire retardant sheathing,” “fire rated

assembly,” “fire-rated wall assembly,” “2-hour fire-resistive wall assembly,” and “fire separation wall,” the POSA upon reading the specification understands and is able to draw the immediate conclusion that the hanger (26) described by the specification is a “fire wall hanger.” For instance, the specification (excluding the claims) recites the word “fire” over 65 times. EX1001: 1:24-12:19. For example, the specification states, “...the truss hangers 26 can be used with any wall assembly or fire-rated wall assembly, such as a 2-hour resistive wall assembly” EX1001: 4:29-32. While the specification does not use the term “fire wall hanger,” I have been informed that there is no requirement that the terms of the claims appear “word-for-word” in the specification.

178. A POSA would understand that the term “fire wall hanger” refers to a hanger that may be used in the construction of a fire-rated wall assembly. The term “fire wall” is a well-recognized term of art in the construction industry that is applied to fire rated walls. For example, the International Building Code, 2012 ed., defines fire wall as “A fire-resistance-rated wall having protected openings, which restricts the spread of fire and extends continuously from the foundation to or through the roof, with sufficient structural stability under fire conditions to allow collapse of construction on either side without collapse of the wall.” EX2042: 21.

179. Further, I have been made aware of a number of instances in which Simpson has used the term “fire wall hanger” in the past to identify hangers

suitable for use in fire wall assemblies and that Simpson currently uses the term “fire wall hanger” as the name for hangers suitable for use in fire wall assemblies.

- EX2007: 1 – “DGT™/DGHT™ Fire Wall Hangers”
- EX2016: 1 – “New Fire Wall Hangers”
- EX2017: 1 – “DGHT™ Top-Flange Fire Wall Hanger”
- EX2018: 1 – “DGT™ Top-Flange Fire Wall Hanger”
- EX2019: 1 – “Fire Resistant Joist Hanger DG Series Fire Wall Hanger”
- EX2020: 1 – “Your Go-To, Load-Rated Fire Wall Hanger”
- EX2021: 1 – “DG and DGH series fire wall hangers”
- EX2022: 1 – “DGH Fire Wall Hanger”
- EX2023: 1 – “DG/DGB/DGH Fire Wall Hangers”

180. Simpson’s own use of the term “fire wall hanger” in their own literature and documentation demonstrates Simpson and a POSA understand the scope of the term.

181. While many of these example uses by Simpson started in 2017, post-dating the ‘339 Patent’s December 2013 priority date, the term’s meaning and use did not change from December 2013 to 2017. For example, I understand that Columbia’s licensee—MiTek—was using the term “fire wall hanger” as the name for the hanger illustrated in the ‘339 Patent approximately 7-months after the

priority date. EX2044: 8 (“Fire Wall Hanger”); EX2045: 1 (“Fire Wall Hanger”); EX2046: 1 (“Fire Wall Hanger”).

182. Therefore, the POSA understands the scope of the term “fire wall hanger” in that it includes a channel-shaped portion, an extension portion, and a connection portion, and that the hanger may be used in the construction of a fire-rated wall assembly

183. Accordingly, in my opinion, the term “fire wall hanger” is definite because the POSA understands the scope of the term with reasonable certainty.

B. Claims 1-31: “Opening Outwardly”

184. Independent claim 27 recites “cutting an opening into an edge of fire retardant sheathing, the opening extending through a front face of the fire retardant sheathing and through a rear face of the fire retardant sheathing and having *an open top opening outwardly* from the edge of the fire retardant sheathing.”

185. Similarly, independent claim 1 recites “cutting an opening into an exterior edge of fire retardant sheathing, the opening extending through a front face of the fire retardant sheathing and through a rear face of the fire retardant sheathing and *opening outwardly* from the exterior edge of the fire retardant sheathing.”

186. Each of these limitations is divided into two parts, separated by a comma. The first part recites the “cutting” method step. The second, subsequent

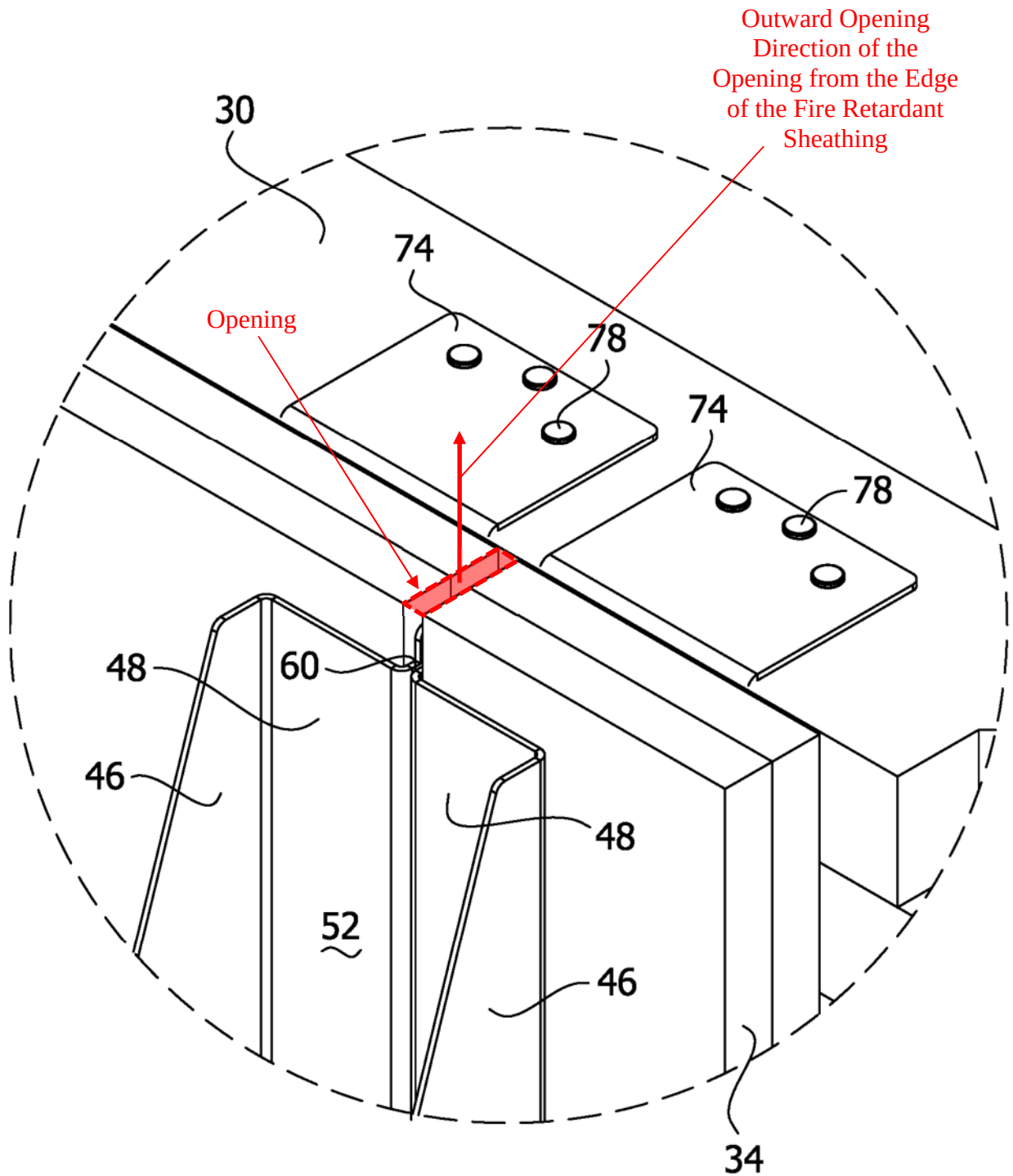
part recites the physical characteristics of the “opening” that was formed by the “cutting” step. Simpson appears to miss this distinction.

187. Simpson argues the meaning of the phrase “opening outwardly” is “unclear.” Pet: 16.

188. In my opinion, the POSA understands the scope of the phrase “opening outwardly” with reasonable certainty based on the ‘339 Patent and the use of this phrase in the art.

189. The claim language and the figures of the ‘339 Patent guide the POSA to the scope of this phrase. The claim language describes the physical characteristics of the “opening” after it has been formed by the “cutting” step—that the opening (72) opens outwardly of the edge of the fire retardant sheathing (34). Fig. 10A of the ‘339 Patent (reproduced below) shows the opening (72) formed by the “cutting” step and shows the opening (e.g., the open top thereof) opening outwardly from the exterior edge (into which the opening was cut) of the fire retardant sheathing (34).

FIG. 10A



EX1001: Fig. 10A (annotated)

190. In other words, the opening (72) (e.g., the open top thereof) at the edge of the fire retardant sheathing (34) faces outward from the edge of the fire retardant sheathing. This is consistent with the plain and ordinary meaning of the term. EX2024: 4 (definition of “outwardly” is “toward the outside”); EX2025: 4 (definition of “outward” is “toward the outside”).

191. This is also consistent with how the term is used in the construction arts. For example, in U.S. Publication No. 2002/0104279, with reference to Fig. 3 (reproduced below), the publication states “a plurality of flared recesses (42) in the front face (40), ***opening outwardly*** and upwardly from bottom (36) to the top (34).” EX2026: ¶[0041]. U.S. Publication No. 2002/0104279 uses the phrase “opening outwardly” to indicate an unenclosed front of each recess (42) and the general direction the unenclosed front faces.

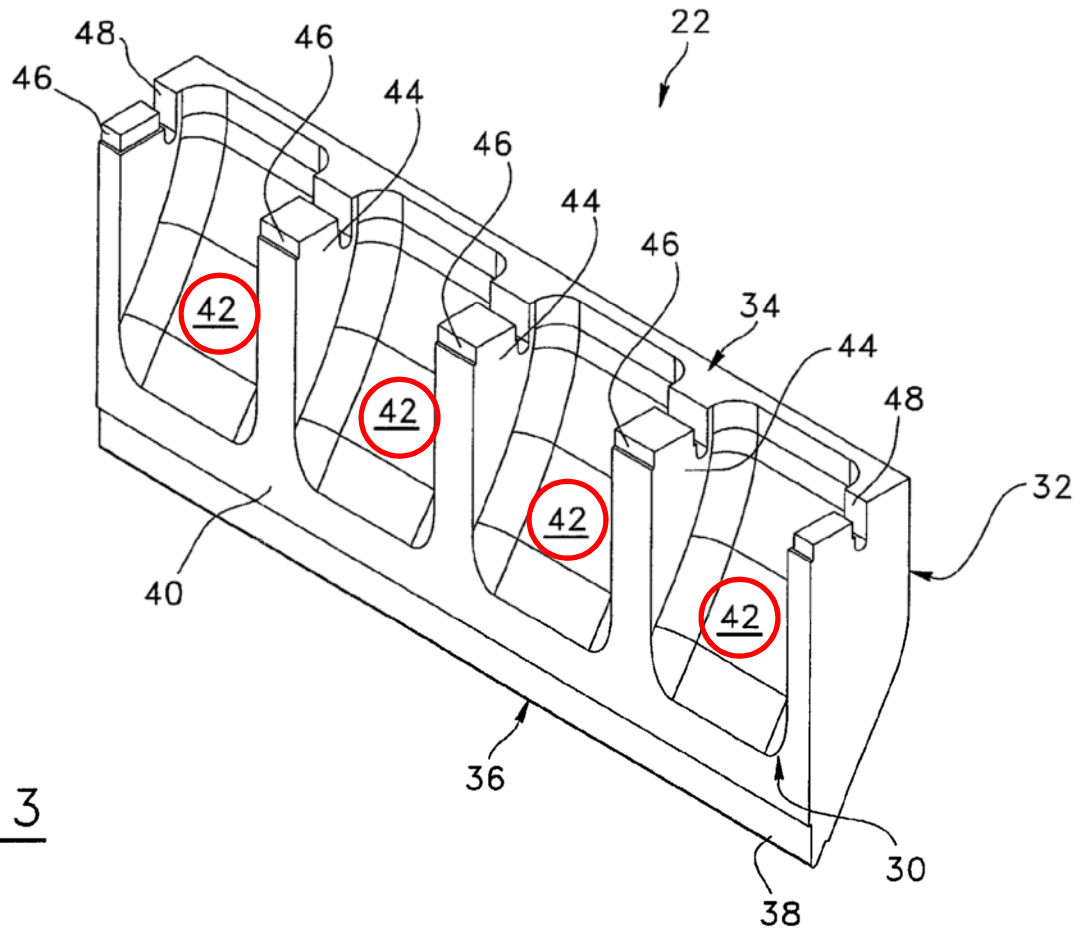


FIG. 3

EX2026: Fig. 3 (annotated).

192. In U.S. Patent No. 11,560,707, with reference to Fig. 12 (reproduced below), the patent claims “the abutting end cap [235] further comprises a receiving slot [241] in and **opening outwardly** from an exterior surface of the elongate web surface [237].” EX2027: claim 7. U.S. Patent No. 11,560,707 uses the phrase “opening outwardly” to indicate an unenclosed bottom of the slot (241) at the exterior surface of the elongate web surface (237) and the general direction the unenclosed bottom faces at the elongate web surface.

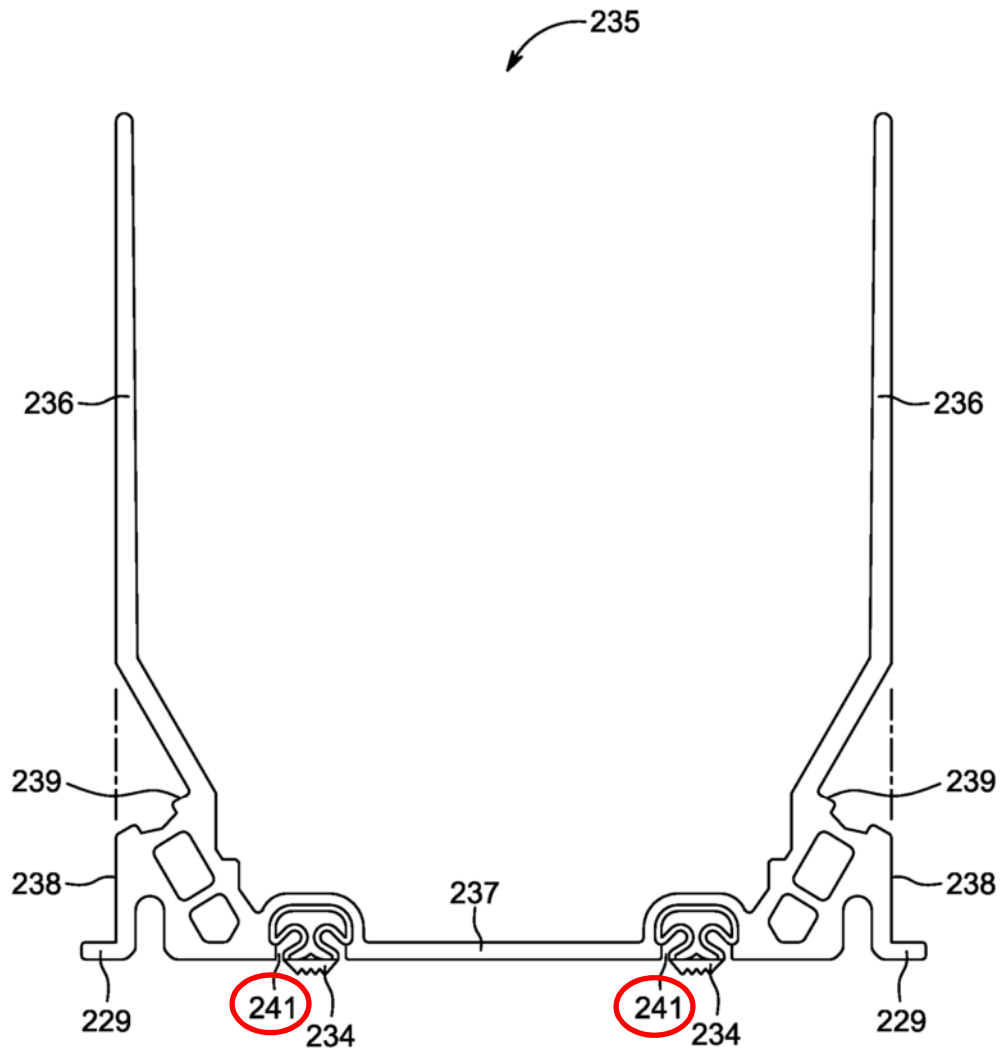
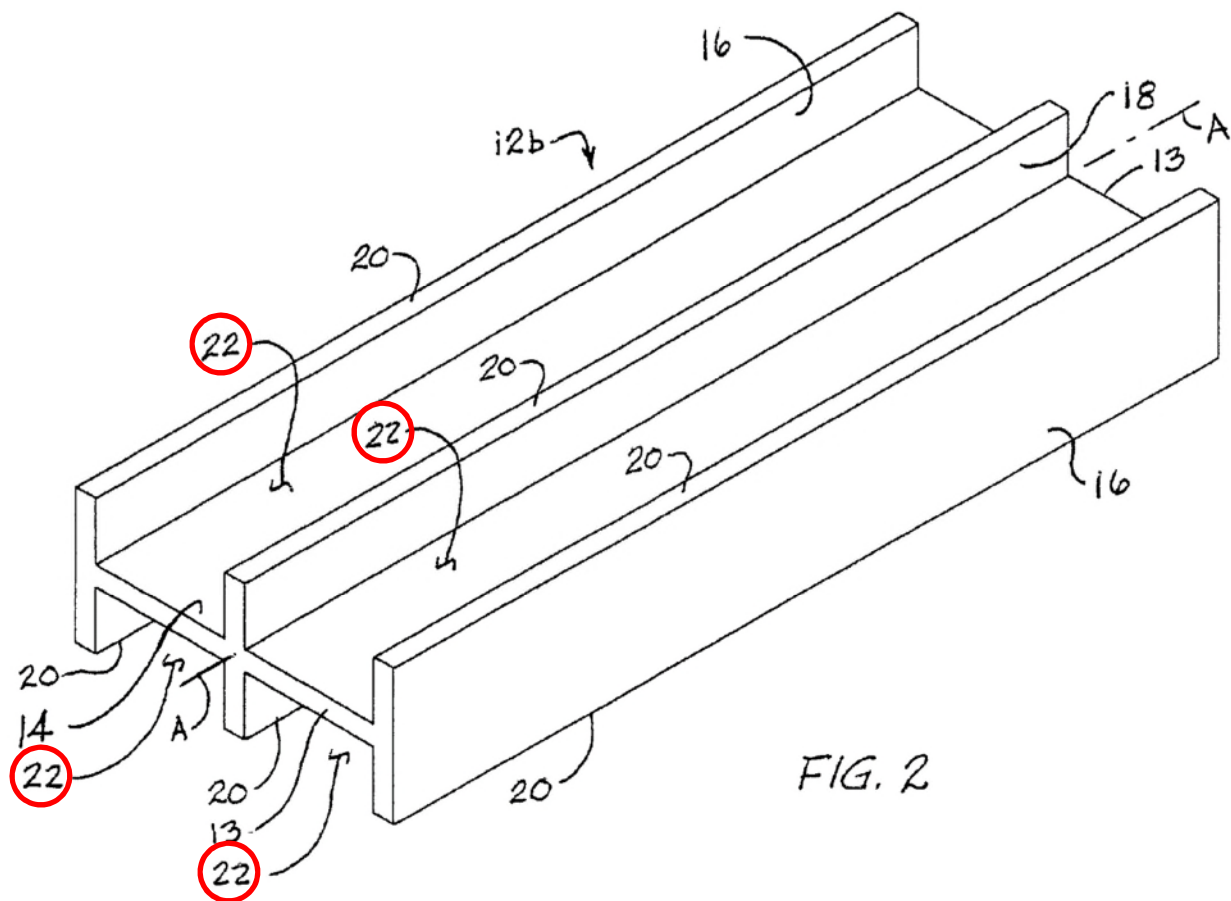


Figure 12

EX2027: Fig. 12 (annotated).

193. In U.S. Publication No. 2002/0148191, with reference to Fig. 2 (reproduced below), the publication states “[o]n each side of the web 14 the flanges 16,18 define there-between a pair of separated lateral pockets 22 that **open outwardly** through opposite sides of the stud 12b and longitudinally extend along

its entire length.” EX2028: ¶[0024]. The publication also claims “a lateral pocket area **opening outwardly** through one side of the stud member.” EX2028: claim 16. U.S. Publication No. 2002/0148191 uses the phrase “opening outwardly” to indicate an unenclosed top or bottom of each pocket (22) and the general direction the unenclosed top/bottom faces.

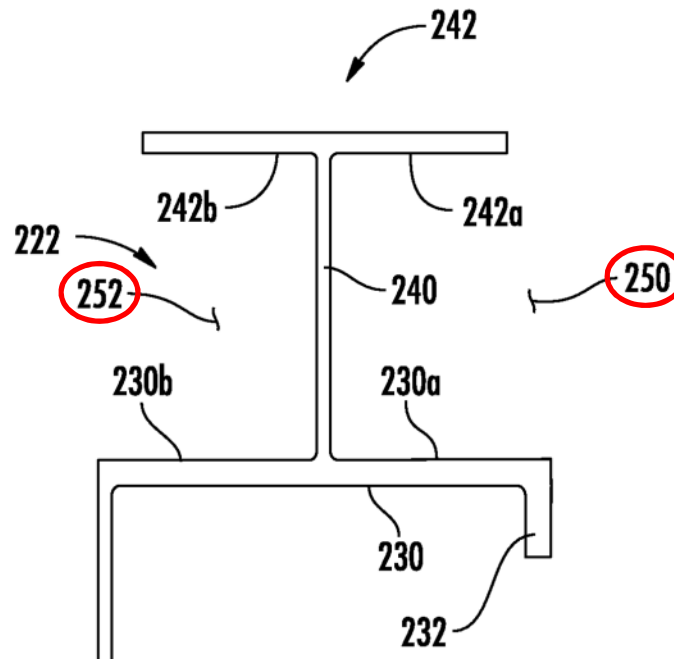


EX2028: Fig. 2 (annotated).

194. In U.S. Publication No. 2013/0133284, with reference to Fig. 4 (reproduced below), the publication states “portion 230b of second horizontal wall 230 and portion 243b of cross piece 242 form a longitudinally extending channel

252 **opening outwardly** in an opposed direction to channel 250.” EX2029:

¶[0035]. U.S. Publication No. 2013/0133284 uses the phrase “opening outwardly” to indicate an unenclosed side of the channel (252) and the general direction the unenclosed side faces relative to the other channel (250).



EX2029: Fig. 4 (cropped, annotated).

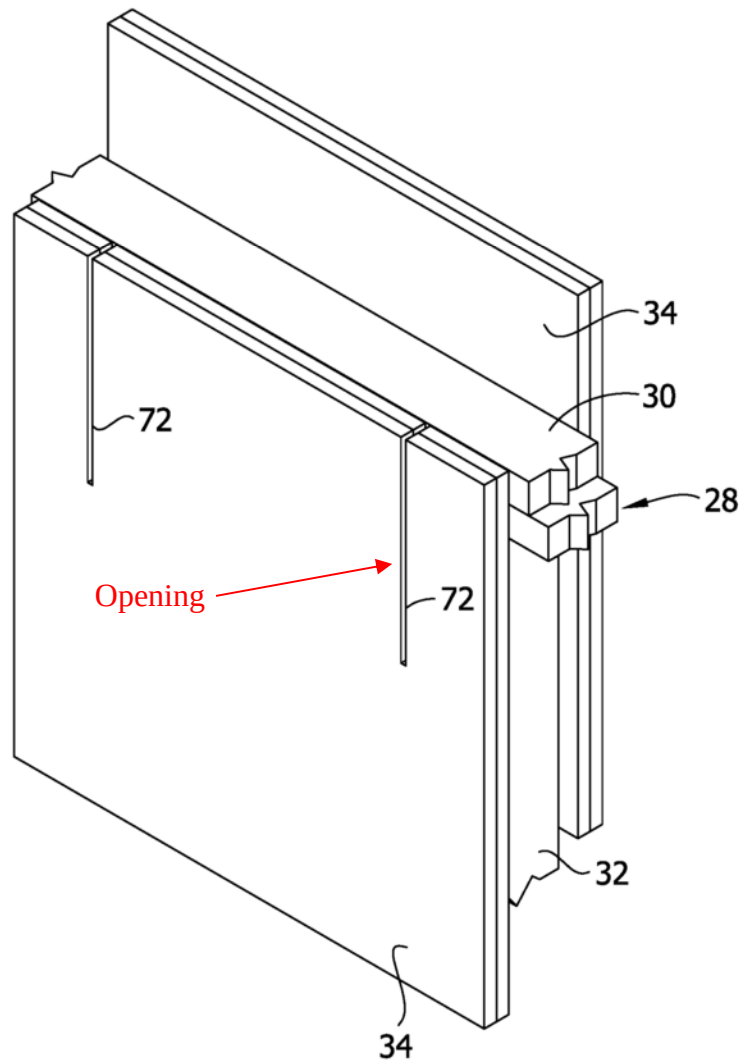
195. Thus, the common usage of the phrase in the construction arts demonstrates the POSA understands the scope of the phrase with reasonable certainty.

196. Further, returning to the ‘339 Patent, the outward open directionality of the opening (72) at the edge of the fire retardant sheathing (34) is the natural result of “a cutting tool (e.g., a drywall cutout tool) [being] inserted into the guide slot 98 [of the template 82] to cut a slot 72 in the sheathing at the location of the

guide slot” as explained by the ‘339 Patent, the result of which is shown in Fig. 9.

EX1001: 6:32-34.

FIG. 9



EX1001: Fig. 9 (annotated).

197. The opening (72) being open outwardly (e.g., having an open top) is what allows the fire retardant sheathing (34) to be mounted to the frame wall

around the fire wall hanger (26), after the fire wall hanger is mounted to the wall as recited by the claims and described in the ‘339 Patent, by allowing the extension flanges (60) to move into the opening via the open top as the fire retardant sheathing is moved upward. EX1001: claim 1, 8:16-21.

198. The claim language’s use of “outwardly” and cutting “into”—“cutting an opening **into** an exterior edge of fire retardant sheathing, the opening ... opening **outwardly** from the exterior edge of the fire retardant sheathing”—further informs the POSA that “outwardly” provides a directionally that is opposite “into” the fire retardant sheathing.

199. In view of the specification of the ‘339 Patent and the knowledge of a POSA, the POSA understands what an opening (72) opening outwardly from the exterior edge of the fire retardant sheathing (34) means. Therefore, in my opinion, the phrase “opening outwardly” is definite.

C. Claims 1-26: “Bounding”

200. Claim 1 recites “moving the fire retardant sheathing relative or the fire wall hanger mounted on the frame wall so that an edge of the fire retardant sheathing **bounding** the opening moves alongside the extension portion.”

201. Simpson argues the term “bounding” is indefinite based on their interpretation that “bounding” means to “fully or completely enclose or confine.” Pet: 17. However, for the reasons stated above and briefly restated here, the plain

and ordinary meaning of bounding does not require full or complete confinement as advanced by Simpson.

202. Under its plain and ordinary meaning, “bounding” is applicable to describe the boundary of one side or portion of an element. This plain and ordinary meaning is supported by the dictionary example of the use of the word “bounding”: “the ground was bounded by a main road on one side and a meadow on the other.” EX2011: 4.

203. This plain and ordinary meaning is also supported by Simpson’s own use of “bounding” to describe the boundary of only one side of an element, not the entire boundary:

- “a third boundary bend (333) **bounding** the central portion (111) of the first body part (20).” EX2012: claims 5, 10, 22.
- “the second body part (220) of the bridging connector (19) additionally comprises a fourth boundary bend (433) **bounding** the central portion (111) of the second body part (220).” EX2012: claims 10 and 25.

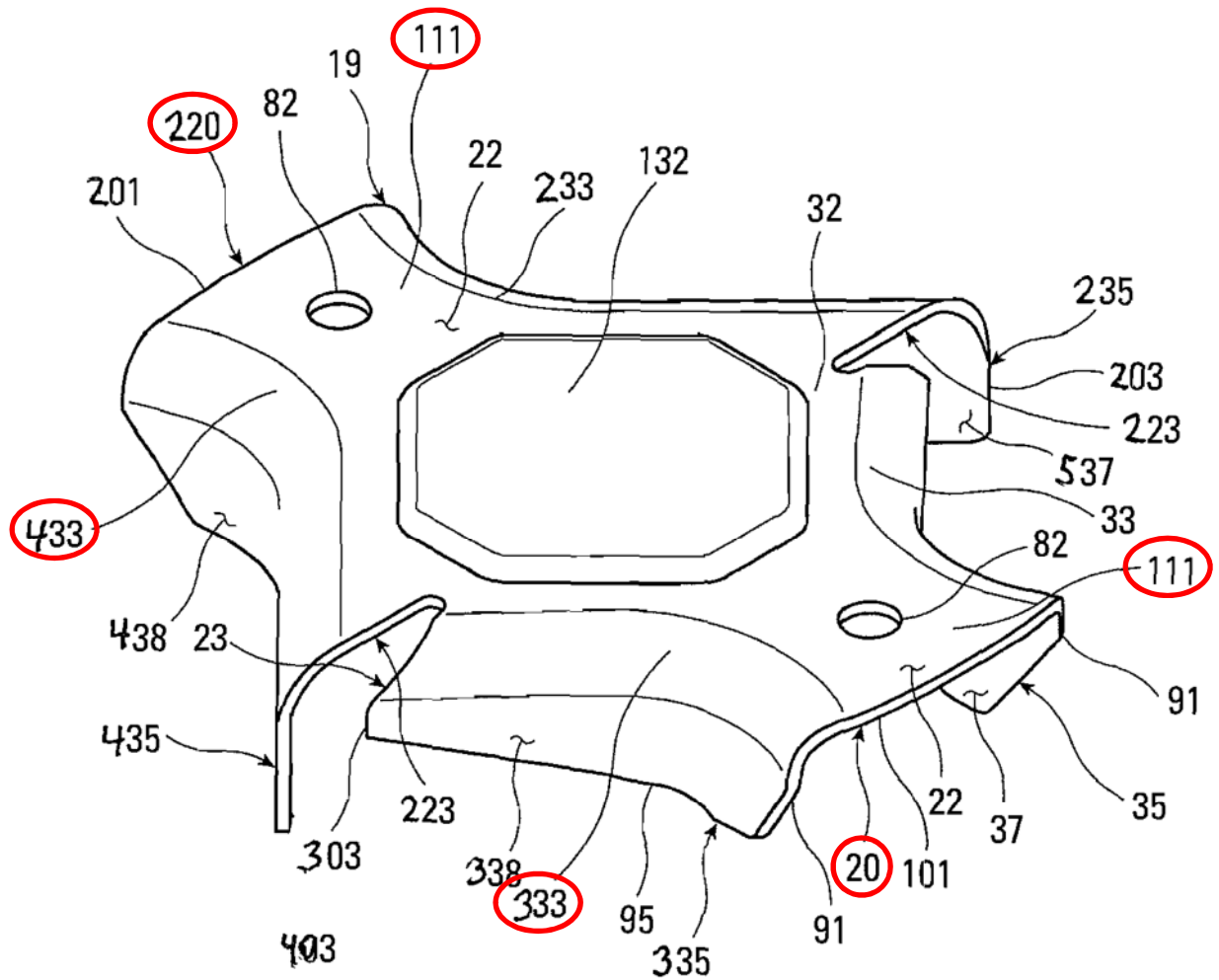
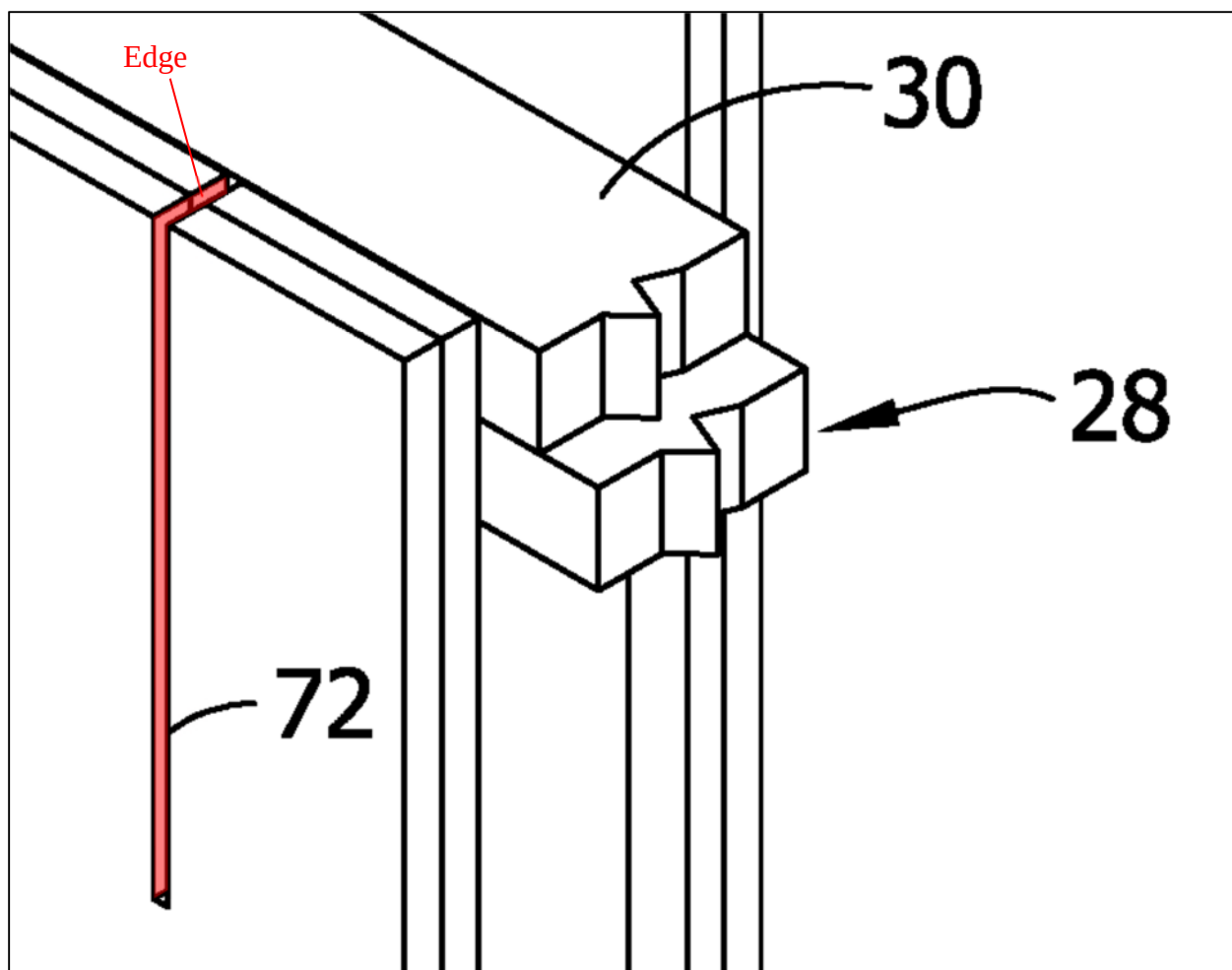


Fig. 7

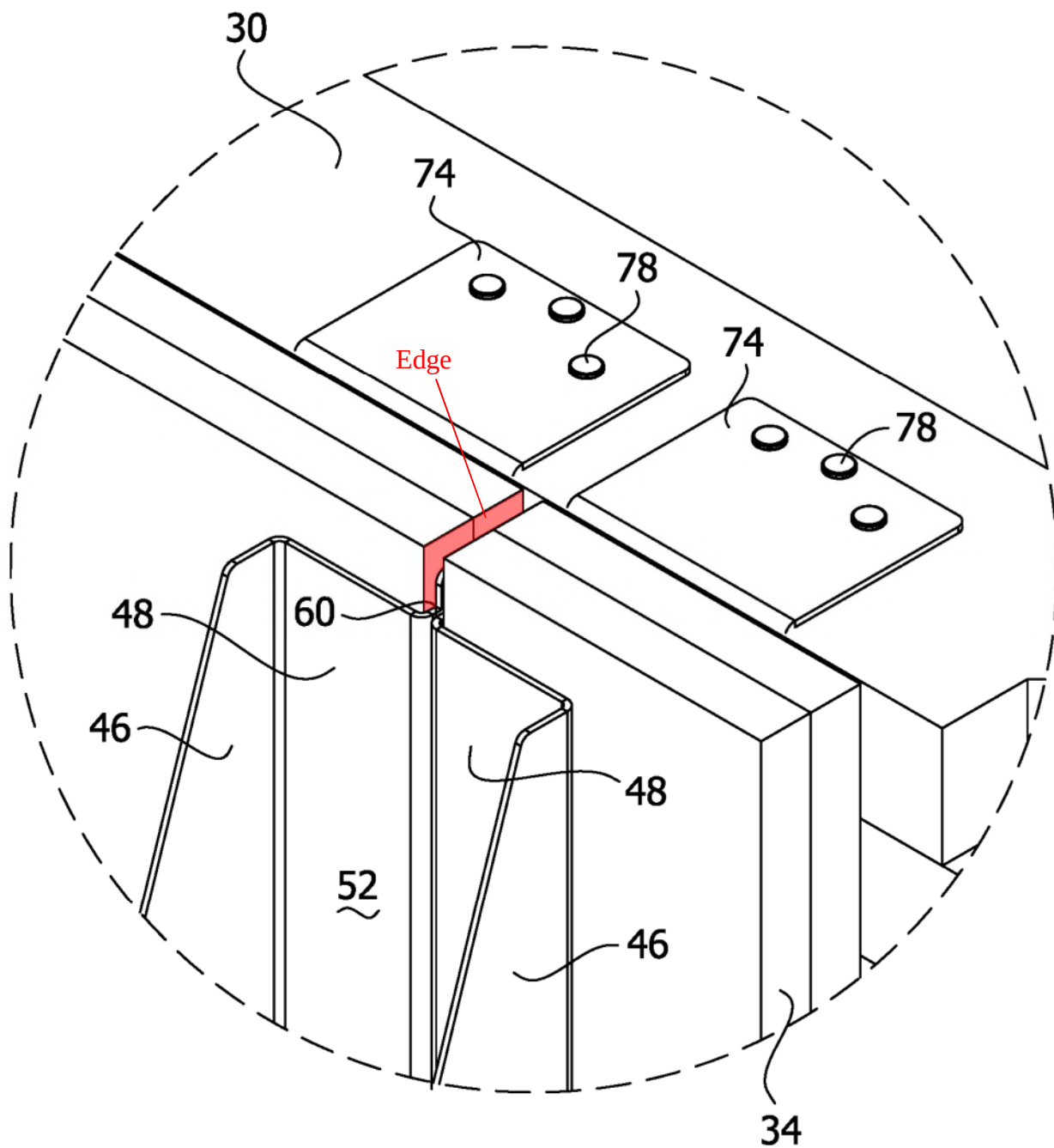
EX2012: Fig. 7 (annotated).

204. Further, the figures of the ‘339 Patent support and guide the POSA to this plain and ordinary meaning. With reference to Figs. 9 and 10A of the ‘339 Patent (reproduced below), it is clear that “bounding” as recited by claim 1—“an edge of the fire retardant sheathing bounding the opening”—was using this plain and ordinary meaning to allow for a single-edge to bound the opening (72) as illustrated below.



EX1001: Fig. 9 (enlarged, annotated).

FIG. 10A



EX1001: Fig. 10A (annotated)

205. Therefore, in my opinion, the plain and ordinary meaning of “bounding” does not require full or complete confinement. Instead, the plain and ordinary meaning of “bounding” allows for a single-edge to bound an opening. With this interpretation, it is my opinion that the term “bounding” is clear and definite.

D. Claims 13 and 14: “Close Conformance”

206. Claim 13 recites “positioning the fire retardant sheathing relative to the fire wall hanger so that the edge of the fire retardant sheathing bounding the opening is in ***close conformance*** with a first exterior face of the extension portion of the fire wall hanger.”

207. Claim 14 recites “positioning the fire retardant sheathing so that a second exterior face of the extension portion is in ***close conformance*** with a second vertical edge of the fire retardant sheathing bounding the opening.”

208. Simpson argues “close conformance” is a term of degree and is indefinite. Pet: 18.

209. I have been informed that terms of degree are definite when the patent provides objective boundaries for the POSA. I have been informed that any part of the patent, such as the claims, figures, and/or written description can provide the POSA with the objective boundaries.

210. Turning to the phrase “close conformance,” the plain and ordinary meaning of this phrase to the POSA is “within a short distance away and corresponding in form or shape.” This is the plain and ordinary meaning of the phrase as derived from the plain and ordinary meaning from the individual terms “close” and “conformance” making up the phrase. EX2030: 4 (defining “close” as “in a close position or manner”); EX2031: 4 (defining “close” as “a short distance away [] in space”); EX2032: 4 (defining “conform” as “to give the same shape, outline, or contour to”); EX2033: 4 (defining “conformance” as “similarity in form or type; agreement in character”). Accordingly, in the context of claims 13 and 14—i.e., “the edge of the fire retardant sheathing bounding the opening is in close conformance with a first exterior face of the extension portion of the fire wall hanger”—“close conformance” means the edge of the fire retardant sheathing is within a short distance away and corresponding in form or shape to the exterior face of the extension portion.

211. I have been made aware of a number of Simpson references that demonstrate Simpson’s use of the phrase “close conformance” (or equivalent language) is consistent with this plain and ordinary meaning—within a short distance away and corresponding in form or shape. For example, in U.S. Patent No. 9,938,709, with reference to Fig. 5 (reproduced below), Simpson states “[t]he stiffener [7] and the connection element [6] of the connector [1] are formed with

closely or exactly *conforming* members and surfaces so that stretch of the connection element is minimized.” EX2034: 1:67-2:3. This patent also claims “said base [21] and back member [9] of said connection element [6] are formed to *substantially conform* ... to the shape of said stiffener [7].” EX2034: claim 13. As shown below, the stiffener (7) and the connection element (6) are both within a short distance away and corresponding in form or shape (e.g., the stiffener is nested in the connection element).

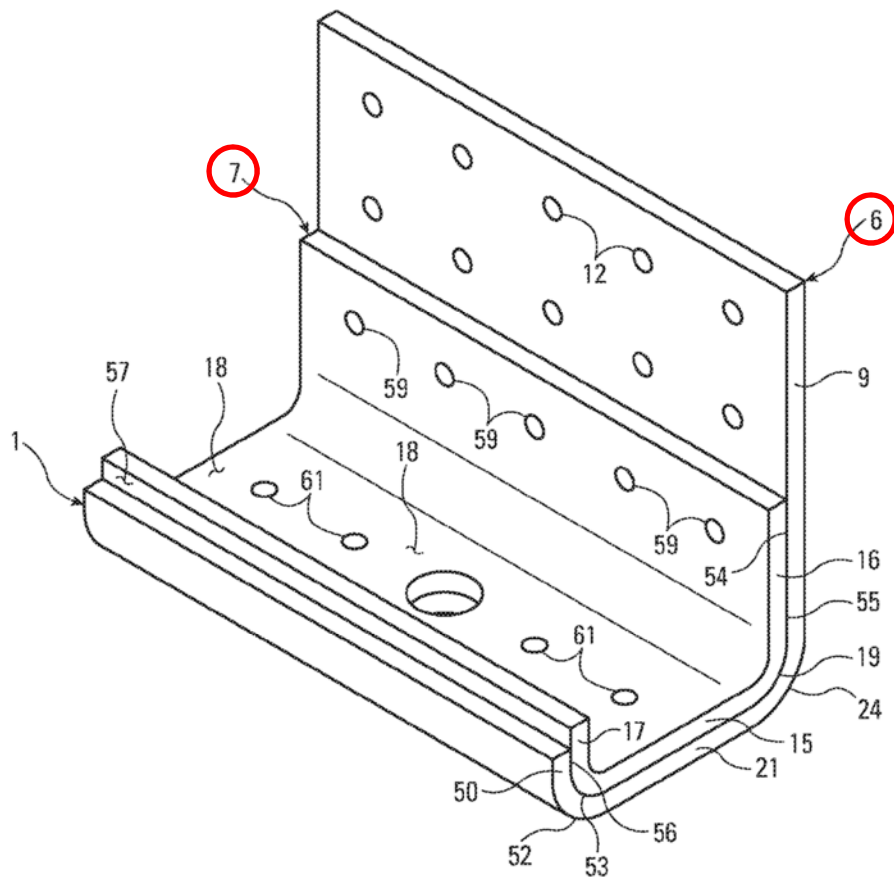
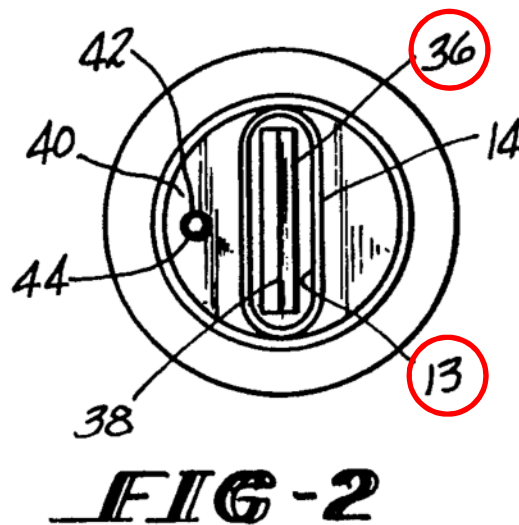


Fig. 5

EX2034: Fig. 5 (annotated).

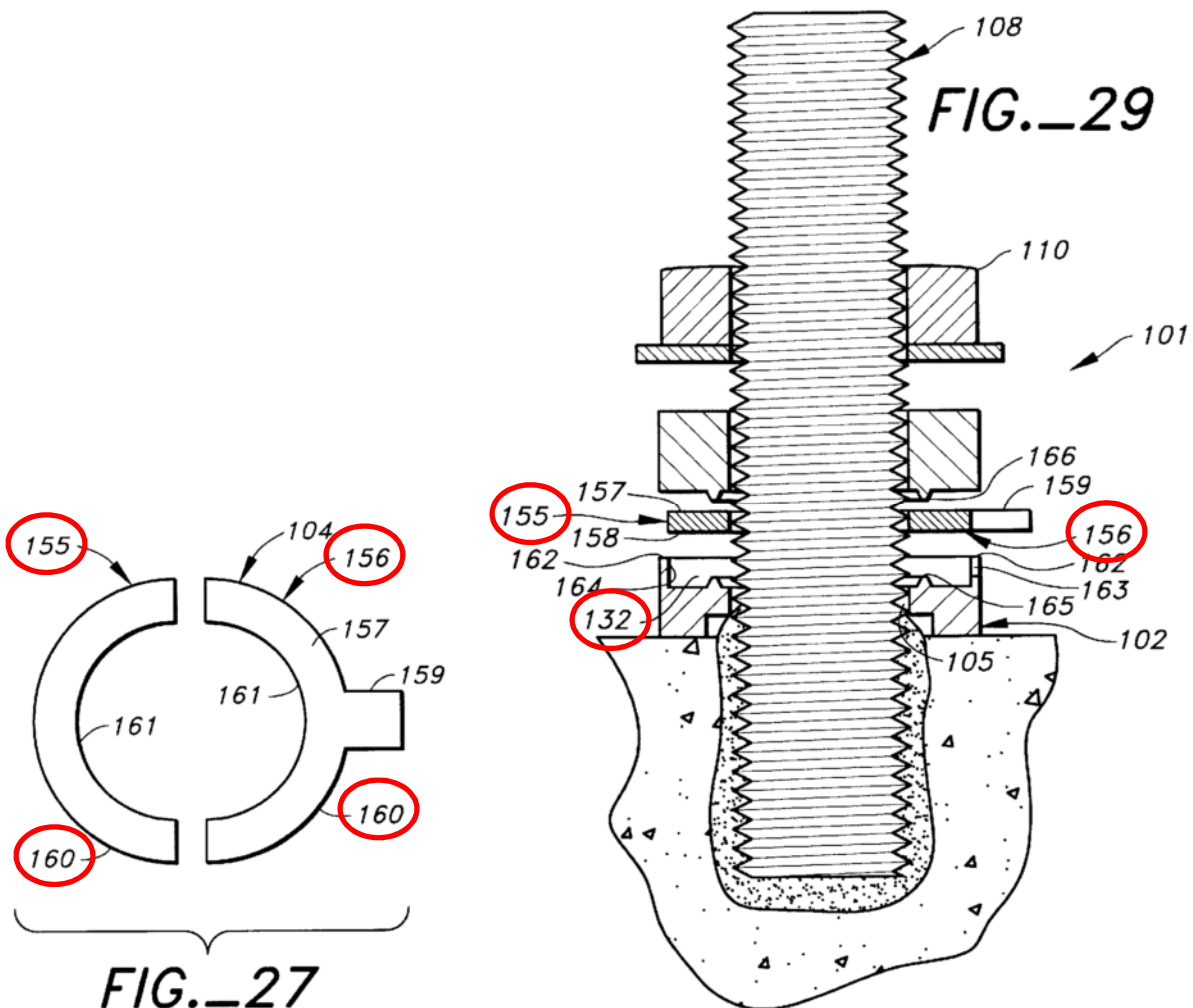
212. In U.S. Patent No. 5,237,613, with reference to Fig. 2 (reproduced below), Simpson states “[a]s seen in FIG. 2, the configuration of the guide interior 13 **closely conforms** to the cross-sectional shape of the chisel blade 36.” EX2035: 4:3-5. Again, as shown below, the guide interior (13) is both within a short distance away and corresponding in form or shape to the cross-sectional shape of the chisel blade (36).



EX2035: Fig. 2 (annotated).

213. In U.S. Patent No. 6,135,687, with reference to Figs. 27 and 29 (reproduced below), Simpson states “[t]he convex sides 160 of the c-shaped pieces 155 and 156 should **conform** to the shape of the main recess 132, such that there is a **close fit** between the c-shaped pieces 155 and 156 and the main recess 132.” EX2036: 16:10-13. As shown below, the c-shaped pieces (155, 156) are both

within a short distance away and corresponding in form or shape to the main recess (132).



EX2036: Figs. 27 and 29 (annotated).

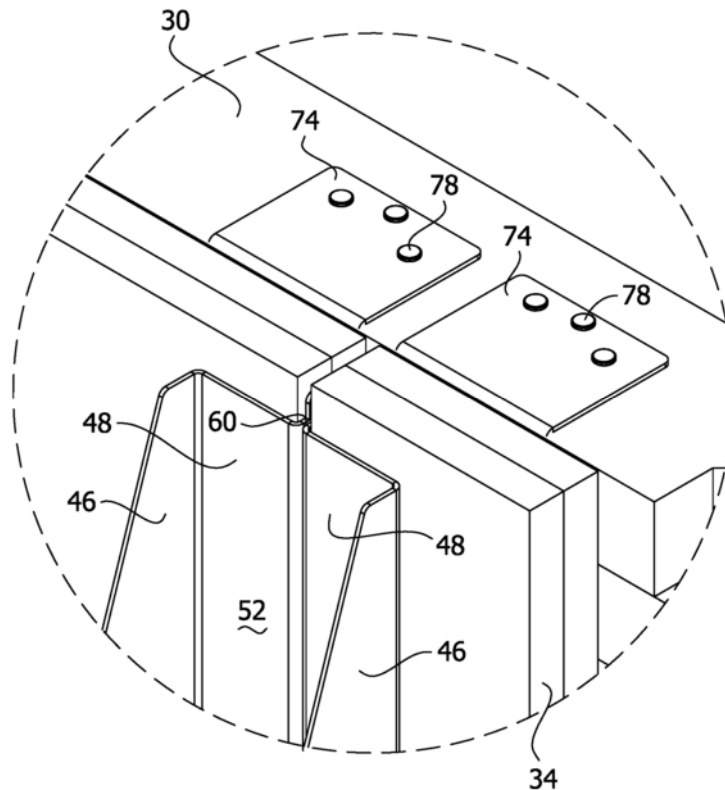
214. These uses by Simpson demonstrate Simpson is familiar with the meaning and boundaries of “close conformance,” absent any guidelines from the specification. In each case Simpson uses “close conformance”, or similar wording, to describe elements that are within a short distance away and corresponding in form or shape to one another. As Simpson is familiar with the meaning and

boundaries of the phrase, so too is a POSA. I have been informed that patent documents, such as Simpson's patents described above, can be used to help show a claim is definite.

215. In addition, even though a POSA will understand the meaning and scope of the phrase "close conformance" as demonstrated by Simpson's own patents, in my opinion, the '339 patent provides clear "objective boundaries" for the phrase as well.

216. For example, the specification of the '339 Patent states:

"As seen in FIGS. 10A and 11, *the extension flanges 60 extend through a slot 72 in the fire retardant sheathing 34.* Preferably, the slot has an area less than or equal to 6 square inches, and ***the gap between the extension flanges 60 and the edge of the slot 72 is less than or equal to 1/8"***. ... *A portion of the fire retardant sheathing 34 extends into each sheathing channel 68 and is secured between the back panels 48 and the back flanges 66.*" EX1001: 5:35-44.



EX1001: Fig. 10A.

217. The statement in the specification that “the gap between the extension flanges 60 and the edge of the slot 72 is ***less than or equal to 1/8”***,” provides a clear objective boundary to the POSA regarding the short distance between the edge of the fire retardant sheathing and the exterior face of the extension portion. EX1001: 5:38-39. Again, the claim language is “the edge of the fire retardant sheathing bounding the opening is in ***close conformance*** with a first exterior face of the extension portion of the fire wall hanger.” Accordingly, when seeking out the objective boundaries of this limitation, the POSA would look to the specification for statements about the physical relationship between the fire

retardant sheathing (34) (of which the claimed “edge” is a part of) and the extension portion (40) and/or extension flanges (60) (of which the claimed “first exterior face” is a part of). With these search parameters in mind, the POSA would immediately identify the portion of the specification stating “the gap between the extension flanges 60 and the edge of the slot 72 is ***less than or equal to 1/8”***,” and would recognize its relevance in informing the POSA about the spacing required to be proximity short distance away.

218. In addition, Figs. 5, 9, 10A, 11, and 13A of the ‘339 Patent (reproduced below) show the “close conformance,” further giving the POSA an understanding about the object boundaries of the phrase. These figures provide a clear example to a POSA of the planar edge of the fire retardant sheathing (34) matching the form of (and being within a short distance of) the planar exterior face of the extension portion (40). For example, not only do these figures show the short distance of 1/8-inch as stated in the specification, these figures also show the matching or corresponding shape in the form of opposed planar surfaces of the exterior face of the extension portion (40) and the edge of the fire retardant sheathing (34).

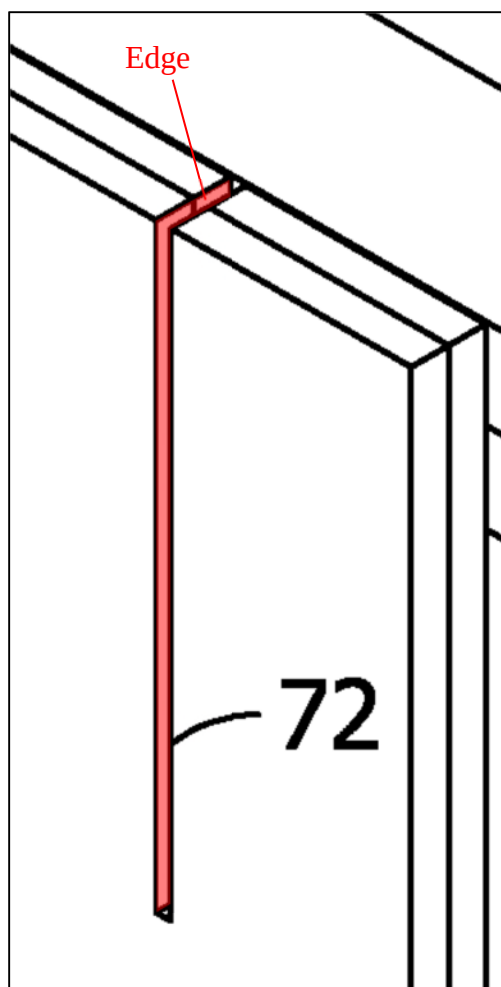
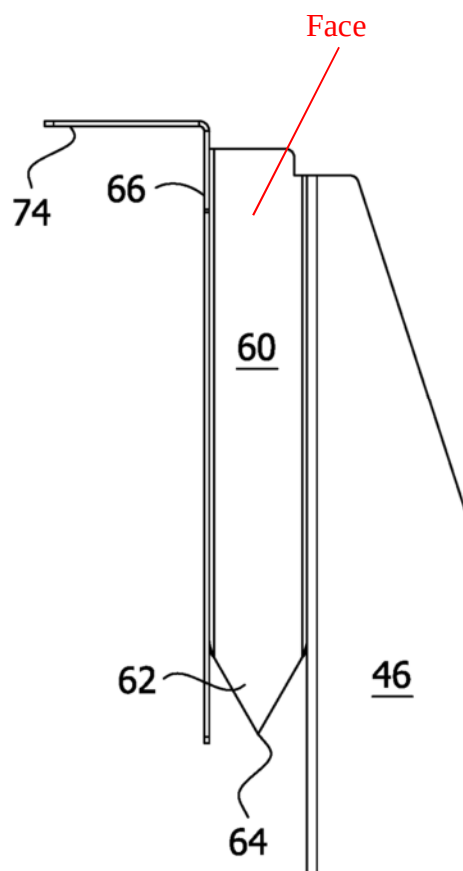
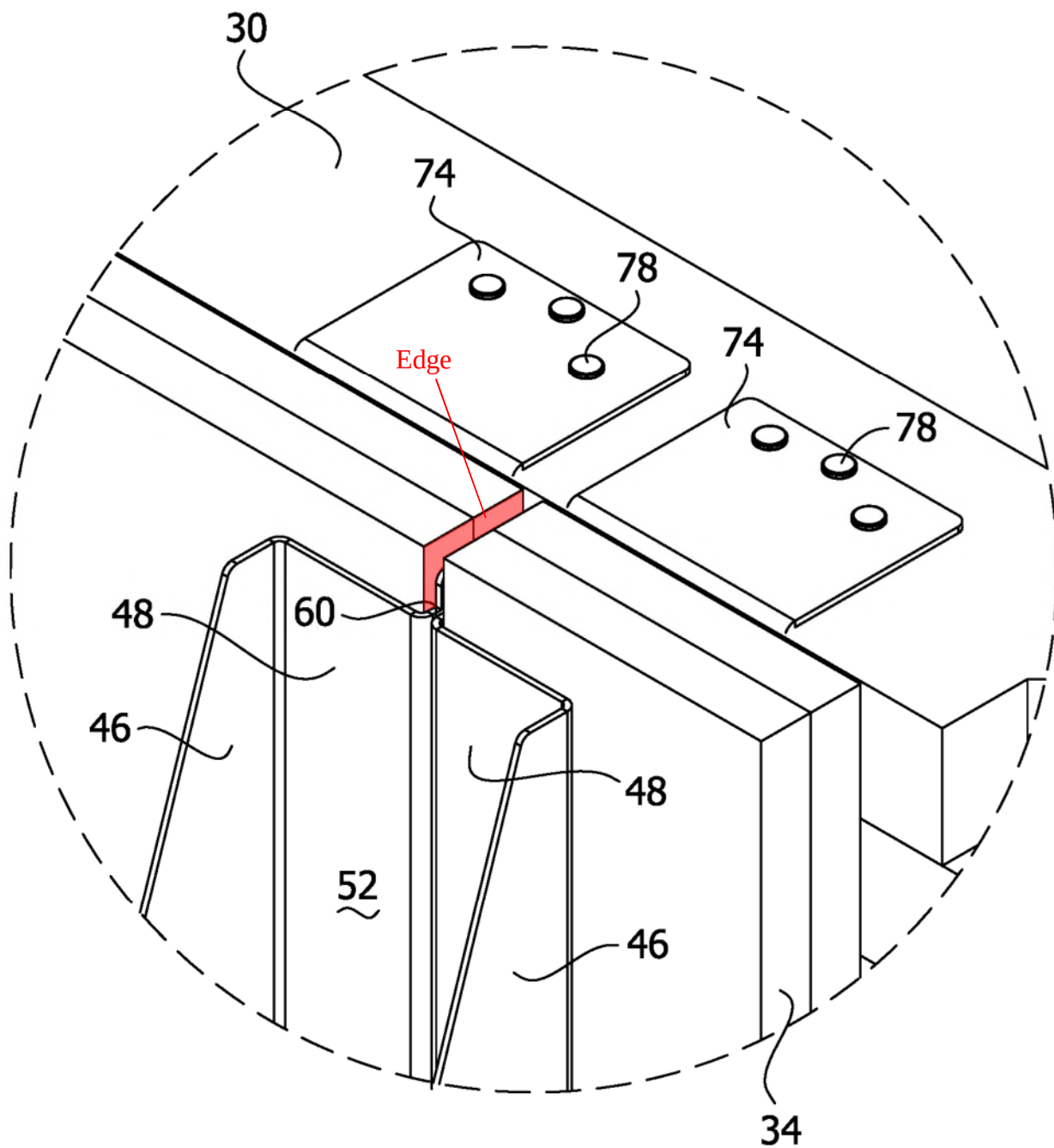


FIG. 5



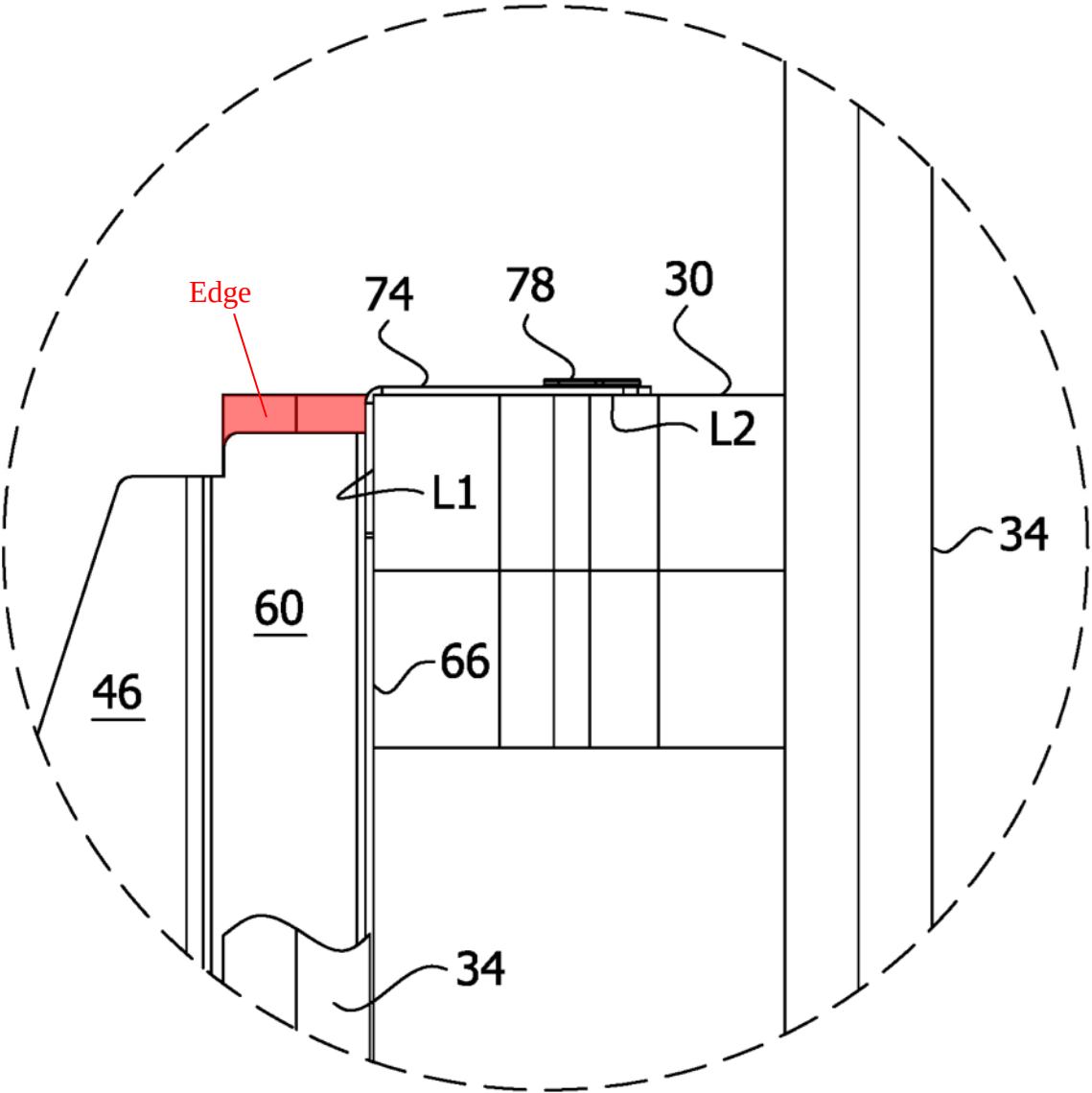
EX1001: Figs. 5 and 9 (enlarged, annotated).

FIG. 10A



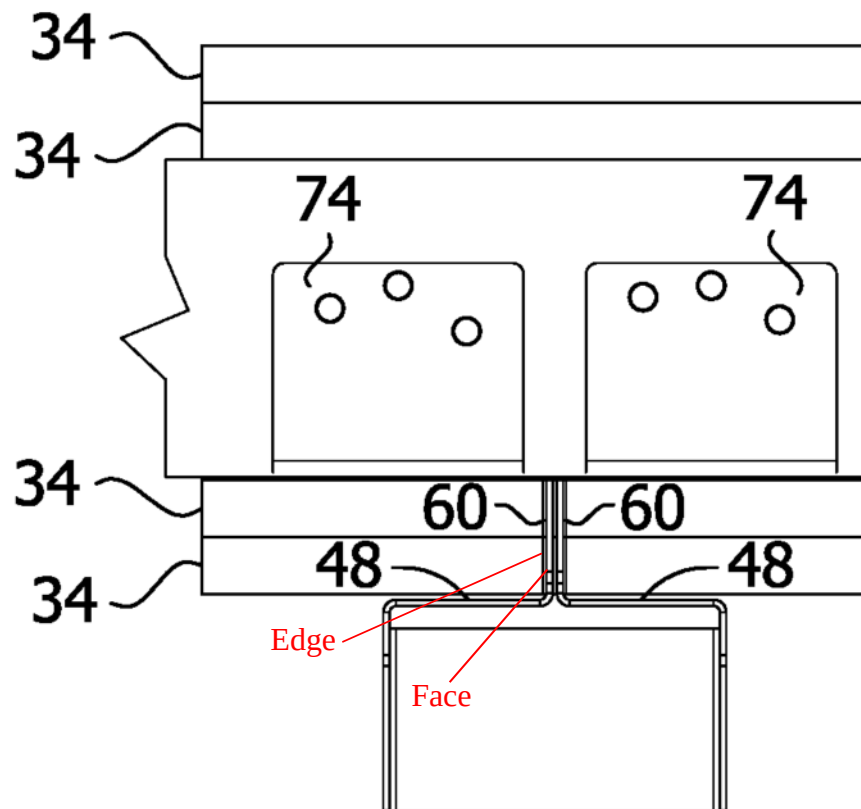
EX1001: Fig. 10A (annotated)

FIG. 13A



EX1001: Fig. 13A (annotated)

FIG. 11



EX1001: Fig. 11 (enlarged, annotated).

219. The specification of the '339 Patent also provides a reason to the POSA for having the close conformance between the fire retardant sheathing (34) and the extension portion (40). For example, the specification states:

- “The truss hangers 26 extend through a narrow slot in the fire retardant sheathing 34 to ***maintain the integrity and fire***

retardant characteristics of the fire separation wall.” EX1001: 4:34-36.

- “the integrity of the fire retardant sheathing should be maintained and ***interruptions of the sheathing kept to a minimum.***” EX1001: 1:44-46.
- “The truss hanger 26, 126 permits a floor truss 12 to be secured to a wall 28 through fire retardant sheathing 34 with ***minimal interruption to the sheathing.*** Installation of the truss hanger minimally disrupts the continuity of the sheathing and therefore ***does not reduce the fire resistive rating of a fire rated assembly.*** The extension flanges 60, 160 ***extend through*** the fire retardant sheathing 34 so that ***the sheathing is interrupted only by the slot 72 required to receive the flanges.***” EX1001: 11:33-41.

220. These statements from the specification explain why the POSA practicing the invention claimed in the ‘339 Patent wants to have the edge of the fire retardant sheathing (34) be within a short distance of and correspond to the form of the exterior face of the extension portion (40), to maintain the integrity and fire protection capabilities of the fire-resistive wall assembly.

221. Therefore, in my opinion, not only is the phrase “close conformance” part of the parlance known to the POSA, but the POSA would understand the object boundaries of the phrase upon reviewing the entirety of the ‘339 Patent. Accordingly, in my opinion, the phrase “close conformance” is definite.

E. Claims 20-23: “Plate”

222. Claims 20-23 use the term “plate” when naming components of the extension portion of the fire wall hanger (e.g., first and second extension plates),

whereas other claims of the '339 Patent use the term “flange” when naming components of the extension portion (e.g., first and second extension flanges).

EX1001: claims 15-17, 19, and 31.

223. Simpson states the use of the word “plate” in claims 20-23 is indefinite because “the difference between ‘extension flange’ and ‘planar extension plate’ is unclear.” Pet: 20.

224. I disagree with Simpson that the difference between an “extension flange” and a “planar extension plate” is unclear. In my opinion, the difference between these terms is clear based on the words of the claims themselves. Claim 20 states that the extension plate is “planar,” whereas claim 19 makes no such statement about the “extension flanges.” Thus, based on my understanding of patent law as it has been explained to me by Columbia, the scope of “extension flanges” recited in claim 19 covers an extension flange that is “planar” and an extension flange that is not necessarily “planar.” Therefore, the difference in scope between “extension flange” and “planar extension plate” is clear based on the words in the claims.

225. Simpson also states “[t]he meaning and scope of ‘planar extension plates’ are undefined in the Patent-at-Issue.” Pet: 20. However, I have been informed by counsel for Columbia that claims terms do not need to be expressly defined by the patent in order to be definite.

226. Accordingly, in my opinion, the difference between “extension flange” and “planar extension plate” is clear and definite.

VII. PRIOR ART GROUNDS

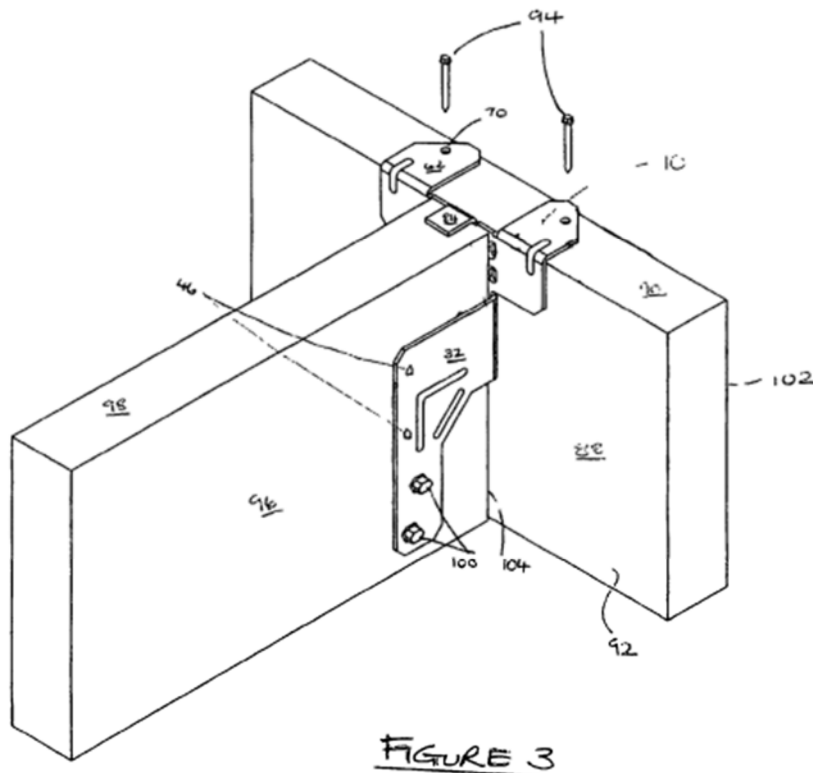
A. Simpson’s Motivation to Adapt Cullen’s Hanger in View of Bundy Fails

227. Simpson and its expert Mr. Fennell argue that those skilled in the art would have been motivated to adapt Cullen’s hanger in view of Bundy. While Bundy may have motivated a POSA to extend the top flanges of the Cullen hanger, I disagree that Bundy would have provided any motivation to use or modify Cullen to accommodate sheathing between the end of the joist the back plate of the hanger as suggested by Simpson and Mr. Fennell.

228. While Mr. Fennell argues that “Cullen’s hanger 10 defines a space between its back plate 12 and channel-shaped portion (which includes legs 38, 40 and an optional seat) corresponding to the length of its extension portion (sidewalls 30, 32)” (EX1003: ¶134), this description artificially distinguishes components of the Cullen hanger.

229. Cullen does not teach the use of an extension portion separating a channel shaped portion from the back plate (12)—or the wall frame to which the back plate attaches. Nor is Cullen’s hanger designed or intended to define a space between its back plate (12) and a channel-shaped portion. Rather, Cullen’s hanger was only intended for use with the joist abutting all of the way against the back

plate as shown in Figure 3 and discussed at EX1004: 16:13-14 (“As the joist 96 slides between the side walls 30,32 it is guided and aligned against the back plate 12.”).



EX1004: Fig. 3.

230. The Cullen hanger is merely a conventional hanger in that it does not contemplate any spacing between the end of the joist and the back plate or the use of the side walls (30, 32) as extension portions for extending through sheathing.

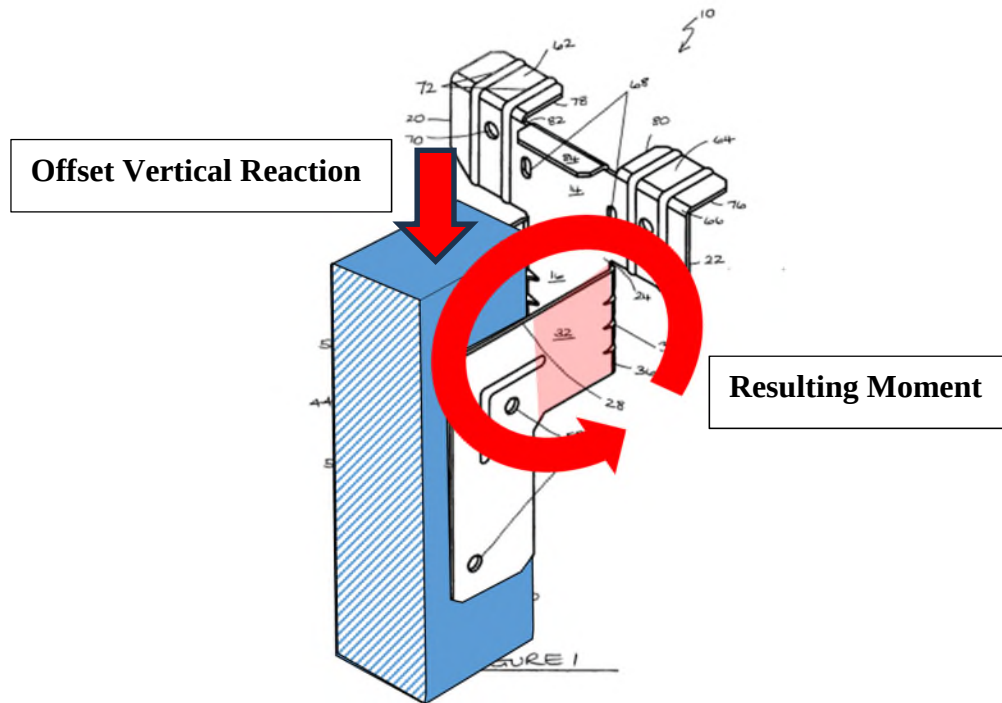
231. Notwithstanding Simpson and Mr. Fennell's arguments, a person of skill in the art would not have considered spacing the joist away from the back plate (12) so as to provide a space between the end of a joist and the wall to receive sheathing, as doing so was contrary to Cullen's teachings.

232. Cullen's hanger relies on the joist abutting the back plate. Specifically, the Cullen hanger is intended to receive the joist until the joist meets the location tab (84). EX1004: Figs. 1 and 3, 13:1-5 ("The tab 84 is arranged so that the top surface of a joist located against it at the surface 86 will align with the top surface of the sill or bearing member."). In the preferred embodiment, the hanger will further include barbs (31, 33) in the back corners between the side walls and back plate to prevent further secure the joist within the hanger. EX1004: 4:8-12 ("Preferably, the bracket includes one or more barbs. Preferably the one or more barbs are arranged to allow insertion of a joist into the bracket, but prevent its withdrawal. . .").

allow sheathing to be received there-between. Specifically, Cullen's side walls (30, 32) are intended to engage the joist until the joist meets both the barbs (31, 33) present between the side walls and back flange and the location tab (84). EX1004: Figs. 1 and 3, 4:8-12 ("Preferably, the bracket includes one or more barbs. Preferably the one or more barbs are arranged to allow insertion of a joist into the bracket, but prevent its withdrawal"); 13:1-5 ("The tab 84 is arranged so that the top surface of a joist located against it at the surface 86 will align with the top surface of the sill or bearing member."); 16:13-14 ("As the joist 96 slides between the side walls 30,32 it is guided and aligned against the back plate 12.").

234. Cullen's hanger supports the joist and hence is a load-bearing or structural element. Further, by spacing the end of the joist away from the supporting or bearing members—as suggested by Simpson's Cullen-Bundy combination—the downward force transferred from the joist to the hanger is now farther offset and thus introduces a larger moment reaction on the hanger. This, in turn, results in additional stresses on the hanger that would reduce its structural load carrying capacity. This reduction in load carrying capacity is undesirable in a structural hanger, and hence a POSA would not be motivated to make this modification. This is demonstrated in the figure below. Because of these drawbacks—deformation and reduced loading carrying capacity—the person of

skill in the art would not seek to space the end of the joist away from the wood wall.



EX1004: Fig. 1 (annotated).

235. Bundy also fails to provide any motivation for a POSA to have considered installing two layers of sheathing between the back plate (12) of the Cullen hanger and the end of a joist. Given the decrease in structural load carrying capacity discussed above, Bundy teaches away from installing drywall between the back plate (12) of the Cullen hanger and the joist by describing drywall as having little to no bearing strength – “Drywall is naturally fire resistant and can be used to cover and protect the structural members of a building. However, gypsum is friable and has little or no dowel bearing strength.” EX1005, 5:18-21.

236. As shown in Fig. 1, Bundy teaches installing the hanger over the drywall panels **after** the drywall panels are already installed on the wall. EX1005: Fig. 2, 2:20-25 (“[t]he drywall [is] applied to the [] supporting member ..., and the joist hanger can **then** be attached”), 5:14-20.

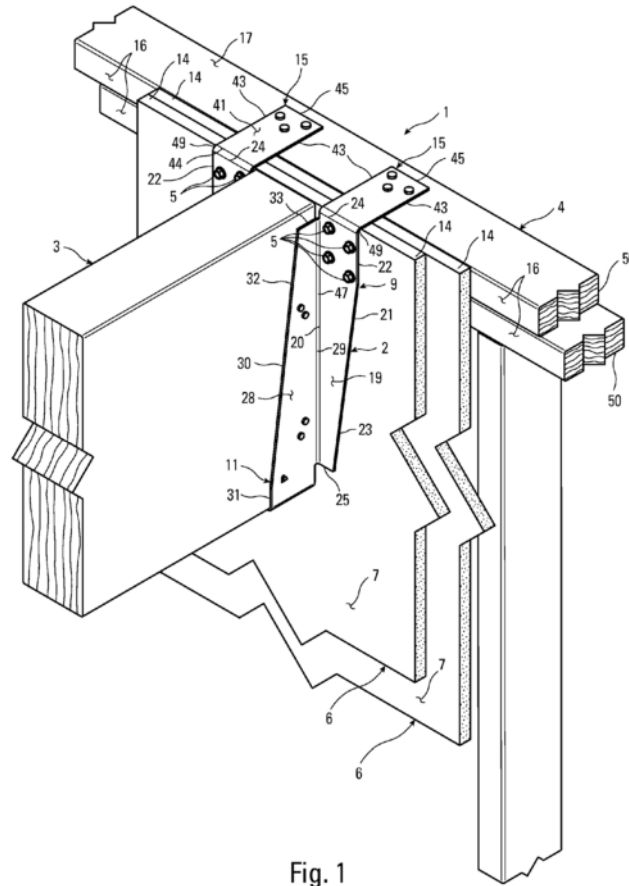


Fig. 1

EX1005: Fig. 1.

237. To install the Bundy hanger, the hanger is positioned such that “[t]he first and second top flanges 15 ... **extend over** the top edge faces 14 of the one or more panels 6.” EX1005: 5:42-43. The hanger is moved over the drywall until the first and second top flanges (15) engage the top face (17) of the top plate (4) and

EX1005: Fig. 2.

143

2:18-19. Because Bundy requires installing the hanger over the drywall panels, Bundy explicitly teaches away from Simpson's proposed Cullen-Bundy combination of cutting an opening in the drywall panels for Cullen's hanger to extend through.

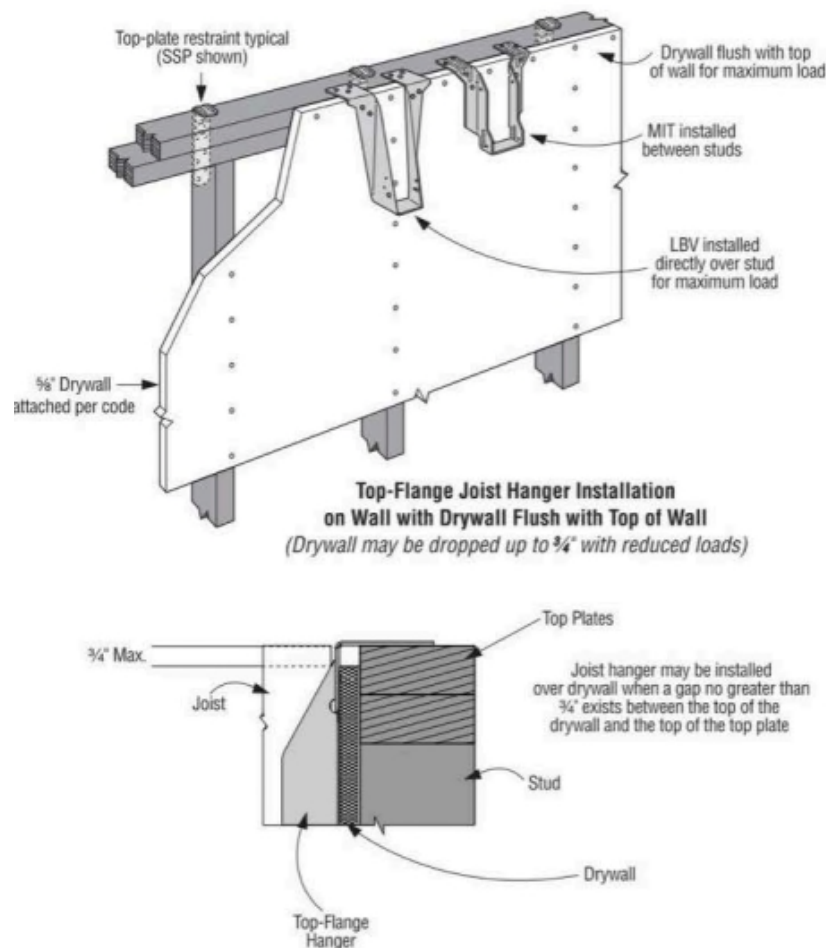
239. Similarly, because Bundy requires installing the sheathing first and is avoiding cutting an opening in the drywall panels, Bundy also expressly teaches away from including a back flange that would directly engage the wall framing, such as the one present in Cullen. EX1005: 5:26-28 ("Preferably, no part of the joist hanger 2 contacts the front face 16 of the structural support member 4."), 5:42-45 ("The first and second top flanges 15 preferably extend over the top edge faces 14 of the one or more panels 6 and are the only parts of the joist hanger that contact the structural support member 4.").

240. As Bundy teaches away from both (1) cutting an opening in the drywall panels for a hanger, and (2) the inclusion of a back flange that engages the wall, the POSA would have been discouraged from combining Cullen and Bundy in the manner asserted by Simpson to meet the claims of the '339 Patent.

241. Instead, if a POSA were to combine the teachings of Cullen and Bundy, the POSA would follow the teachings of Bundy and mount Cullen's hanger after the drywall panels are mounted on the wall frame such that Cullen's back

plate (12) would engage the face of the drywall panels and Cullen's bearing plates (62, 64) would be modified to extend over the top edge of the drywall panels.

242. Notably, this was already practiced with single layers of sheathing and conventional hangers as taught in Simpson's Technical Bulletin submitted as EX1012:



EX1012: 2.

243. EX1012 demonstrates it was known to position conventional hangers such that the top flanges extend over the top edge of the drywall and with the back

flanges of the back flanges of the hanger engaging the outer face of the drywall, although the POSA would have recognized that “the thickness of the drywall or sheathing brings the top-flange mails closer to the edge of the top plate.” EX1012:

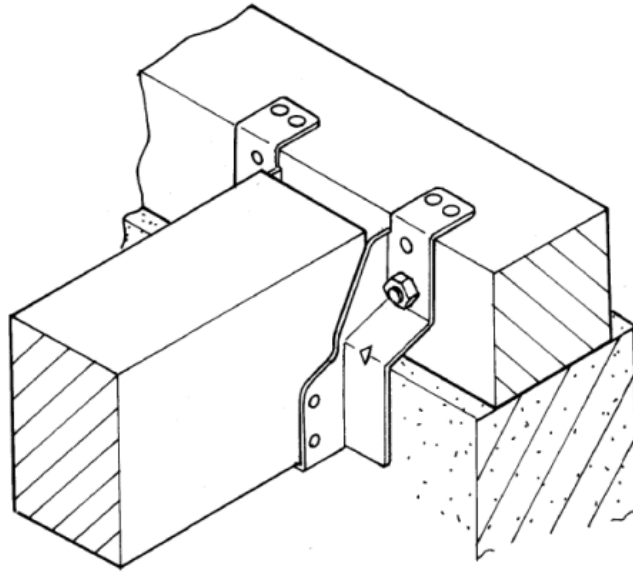
1. With this regard, Bundy merely sized the top flanges to extend over the top edges of *two* layers of drywall, instead of just *one*.

244. Accordingly, the person of ordinary skill in the art would have been disinclined to use or modify Cullen to accommodate sheathing between the end of the joist the back plate 12 of the hanger.

B. Simpson’s Motivation to Adapt Yamaguchi’s Hanger in View of Bundy Fails

245. Simpson and its expert Mr. Fennell argue that those skilled in the art would have been motivated to adapt Yamaguchi’s hanger in view of Bundy. I disagree. While Yamaguchi and Bundy are both directed to joist hangers, the POSA would recognize that Yamaguchi and Bundy were designed for entirely different applications.

246. Specifically, the POSA would recognize Yamaguchi’s hanger as being especially constructed for attaching to the sill of a foundation. *See* EX1007: (55) Description of Article of Design. This is demonstrated in the Reference Diagram Illustrating Usage State.



EX1007: Reference Diagram Illustrating Usage State.

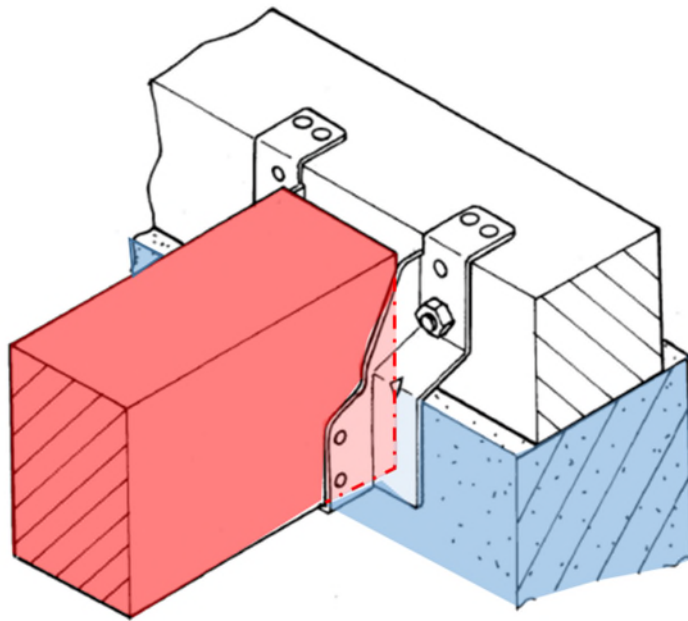
247. Sill plates, also known as foundation sills, run along the top of a foundation wall or substructure to serve as an attachment point for the structure and the base for the structure's exterior walls. Such sills can be attached to the foundation using anchor bolts.

248. Because Yamaguchi's hanger is directed to foundation wall applications, the POSA would not consider Yamaguchi's disclosures to suggest the hanger's use in a firewall assembly, much less the use of the hanger to define a space for receiving drywall.

249. There would have been no reason to add fire-resistant sheathing, such as the drywall mentioned in Bundy (EX1005: 5:18-20) to the foundation wall of Yamaguchi to make the foundation wall fire resistant. A person of ordinary skill in

the art would understand that the foundation wall of Yamaguchi would most likely be made of either concrete or masonry. EX2038: Table 721.1(2); EX2039: 1; EX2040: 1; EX2041: 7. Thus, adding fire-resistant sheathing next to a concrete or masonry wall would be unnecessary because the foundation wall would already have been inherently fire resistant.

250. Even to the extent that a foundation wall was finished with sheathing, the POSA would not have considered Yamaguchi's hanger to be designed to allow sheathing to be inserted between the end of the joist and the foundation wall. Yamaguchi shows the joist inserted as deep into the hanger as possible, with the foundation wall itself abutting and providing bearing support at the end of the joist. See *e.g.* EX1007: Reference Diagram Illustrating Usage State.



EX1007: Reference Diagram Illustrating Usage State (annotated).

251. Even to the extent that a foundation wall was finished with sheathing, the installer would have either stopped the sheathing below the joist—in which case the joist and unfinished portion of the wall would likely be concealed by installing a ceiling—or cut the sheathing around the joist and hanger similar to the images at pgs. 42 and 64 of EX1029.



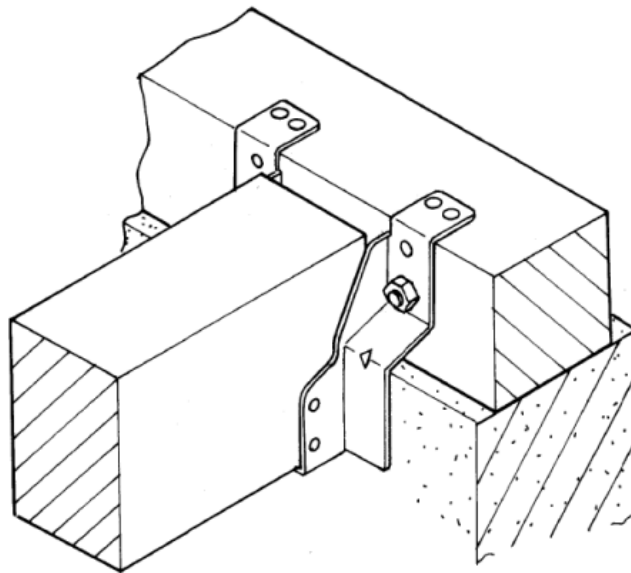
EX1029: 42, 64.

252. Recognizing that the claimed method of the ‘339 Patent would be inapplicable for Yamaguchi’s foundation wall application, Simpson further argues that “[g]iven that Yamaguchi’s hanger is intended for securing a joist to a wall, a POSA would have sought to use Yamaguchi’s hanger to secure a joist to a wooden frame wall, as taught by Bundy.” Pet: 66. But neither Simpson or Bundy adequately explain a motivation for changing the construction of the firewall

assembly of Bundy to use the re-sized Yamaguchi hanger. This would require cutting the sheathing to receive portions of the Yamaguchi hanger.

253. To the extent that Simpson and Mr. Fennell selected Yamaguchi because the Yamaguchi hanger was designed to allow the joist to be spaced away from the sill plate, the POSA would not have considered this feature particularly pertinent for wooden frame wall installations.

254. The POSA would recognize that Yamaguchi is intended for use with foundation walls that have a width (or “thickness”) greater than the width of the sill disposed at the top of the foundation wall and on which the hanger is mounted. *See e.g.* EX1007: Reference Diagram Illustrating Usage State.



255. Accordingly, the POSA would recognize that any spacing provided by Yamaguchi between the end of the joist and the sill plate is to simply compensate

for the difference in widths between the sill and the foundation wall. However, wood frame walls typically do not have a difference in width between the top plate and the underlying wall supporting the top plate. Thus, the POSA would not have considered this feature particularly pertinent for wooden frame wall installations.

256. Indeed, a POSA would have been discouraged from using the Yamaguchi hanger on a standard wood framed wall to create a space between the joist and the wall assembly without a specific reason to do so. As discussed above with respect to the Cullen-Bundy combination, by spacing the joist away from the wood framing, the downward force that the hanger is supporting is also spaced from the wall, creating an increased moment reaction on the hanger of Yamaguchi. This would subject the hanger to increased stresses which, in turn, would reduce its structural capacity when attached to a wood framed wall. Such a decrease in structural capacity would be undesirable for a load-bearing hanger.

257. Furthermore, because Bundy requires the installation of the hanger over the already installed drywall panels, Bundy also expressly teaches away from including a hanger that would directly engage the front face of the wall framing. EX1005: 5:26-28 (“Preferably, no part of the joist hanger 2 contacts the front face 16 of the structural support member 4.”), 5:42-45 (“The first and second top flanges 15 preferably extend over the top edge faces 14 of the one or more panels 6 and are the only parts of the joist hanger that contact the structural support member 4.”).

258. As Bundy teaches away from both (1) cutting an opening in the drywall panels for a hanger, and (2) the inclusion of a back flange that engages the wall, the POSA would have been discouraged from combining Yamaguchi and Bundy in the manner asserted by Simpson to meet the claims of the '339 Patent.

259. Accordingly, a POSA would not have been motivated to combine Yamaguchi and Bundy as suggested by Simpson.

C. Simpson's Motivation to Adapt Robinson's Hanger in View of Bundy Fails

260. Simpson and its expert Mr. Fennell argue that those skilled in the art would have been also been motivated to adapt Robinson's hanger in view of Bundy. As with the Yamaguchi and Bundy combination above, the POSA would recognize that Robinson and Bundy were likewise designed for entirely different applications.

261. Robinson by its own description is intended for affixing a joist to masonry. EX1011: Abstract, 1:2-3, 1:9-10, 1:28-30, 4:21-22. As discussed above with respect to Yamaguchi, masonry is inherently fire-resistant and as such a there would have been no reason to add fire-resistant sheathing, such as the drywall mentioned in Bundy to make the foundation wall fire resistant. EX2038: Table 721.1(2); EX2039: 1; EX2040: 1; EX2041: 7.

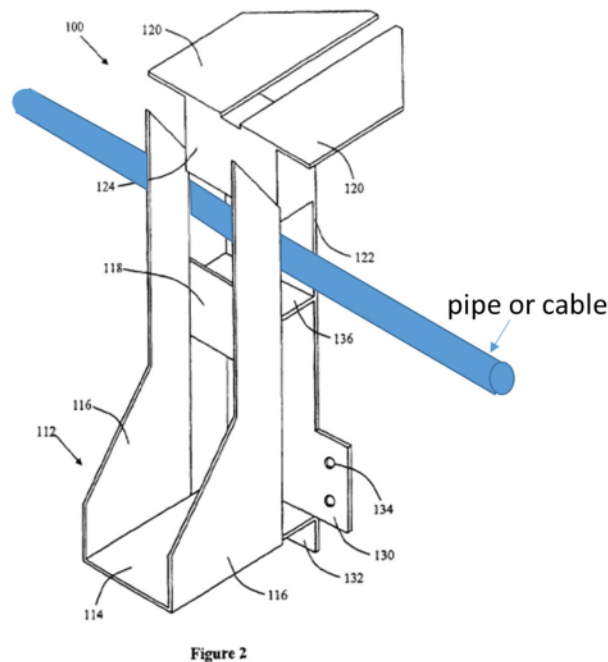
262. While Robinson does acknowledge that its disclosed hanger could be used in other applications, including timber to timber applications, the novel

feature of Robinson is still incompatible with Simpson's proposed combination of Robinson and Bundy.

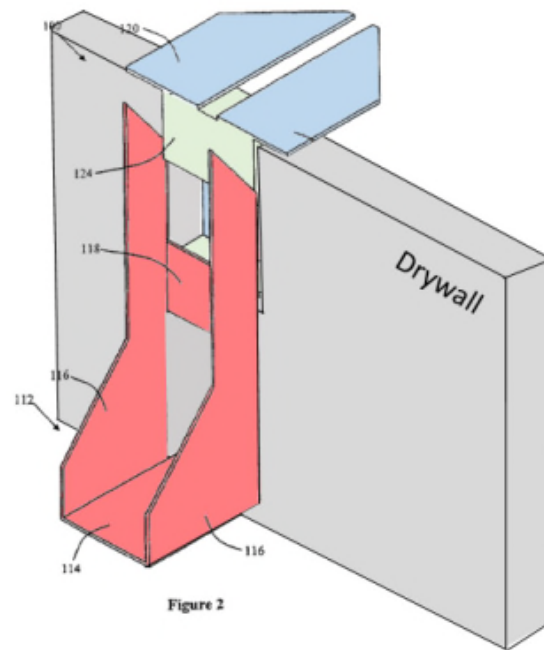
263. The intended purpose of Robinson is not simply to create a "gap behind a joist" as suggested by Simpson and Mr. Fennell, but more specifically to provide a cavity or duct opening (126, 226) between the end of the joist and masonry (or other supporting structure) to allow cables and pipes or a ventilation duct to pass through. EX1011: 2:1-6 ("... joist spaced from a supporting structure to which the hanger is attached to define a duct opening between the end of the joist and the supporting structure."), 2:20-24 ("The duct opening may be arranged to allow cables and pipes to be passed through it. Additionally, or alternatively, the duct opening may define a ventilation duct between the end of the joist and the supporting structure."), 3:11-15 ("to provide a cavity or duct opening between the end of the joist and the structural wall"), 4:13-19 ("... to define a duct opening 126. The duct opening 126 may include an internal dividing wall 136 to separate copper pipes carrying hot water from electrical cables, for example."), 5:12-13 ("The duct opening 126 is thereby arranged to allow cables and pipes to be passed through it.").

264. Contrary to this its intended purpose, Simpson's combination would block the access to the cavity or duct opening (126, 226) with sheathing in a way that would make them inaccessible for cables, pipes, and ventilation ducts.

Robinson's intended application and Simpson's proposed application are shown side by side demonstrating how Simpson's modification changes and entirely defeats the purpose of Robinson's invention.



Intended Application
EX1011: Fig. 2 (annotated)



Simpson's Combination
Pet 106

265. Nor would it be a recognized practice to “size the gap between the first and second surfaces 118, 122 to additionally accommodate [both sheathing and] ventilation and/or piping if such additional spacing was required.” EX1003: ¶338. The POSA would understand that such ventilation and/or piping are routed behind the sheathing through the wood framed wall itself. EX2047: 6 (“plumbing lines, heating ducts, and electrical wiring [is] concealed in the walls”).

266. Arguing that such a modification was “taught by Bundy,” Simpson and Mr. Fennell propose to terminate Robinson’s platform (114) in the Figure 2 embodiment of Robinson thereby “opening the gap below dividing wall 136 through the bottom of the hanger to receive sheathing.” See EX1003: ¶336. I am aware of no such teaching within Bundy, as Bundy lacks a back flange that would directly engage the wall framing. EX1005: 5:26-28 (“Preferably, no part of the joist hanger 2 contacts the front face 16 of the structural support member 4.”), 5:42-45 (“The first and second top flanges 15 preferably extend over the top edge faces 14 of the one or more panels 6 and are the only parts of the joist hanger that contact the structural support member 4.”). Nor would Bundy provide any motivation to terminate Robinson’s platform (114) to create a gap to accommodate drywall.

267. As discussed above, Bundy teaches installing the hanger over the drywall panels **after** the drywall panels are already installed on the wall. EX1005: 4:17-20, 5:42-62, 6:14-17. This installation is illustrated in Fig. 2 reproduced below:

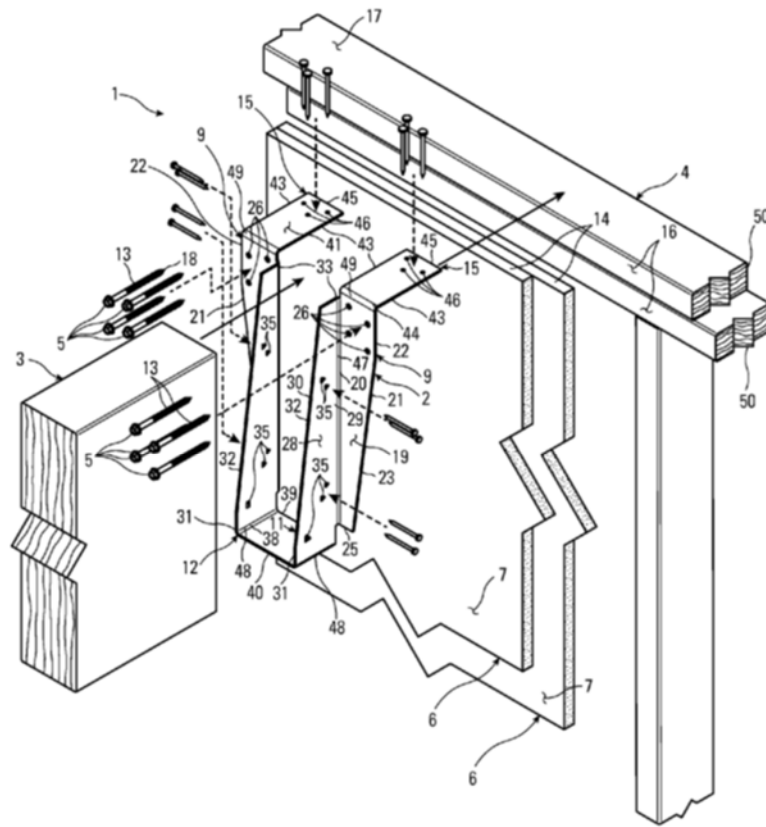
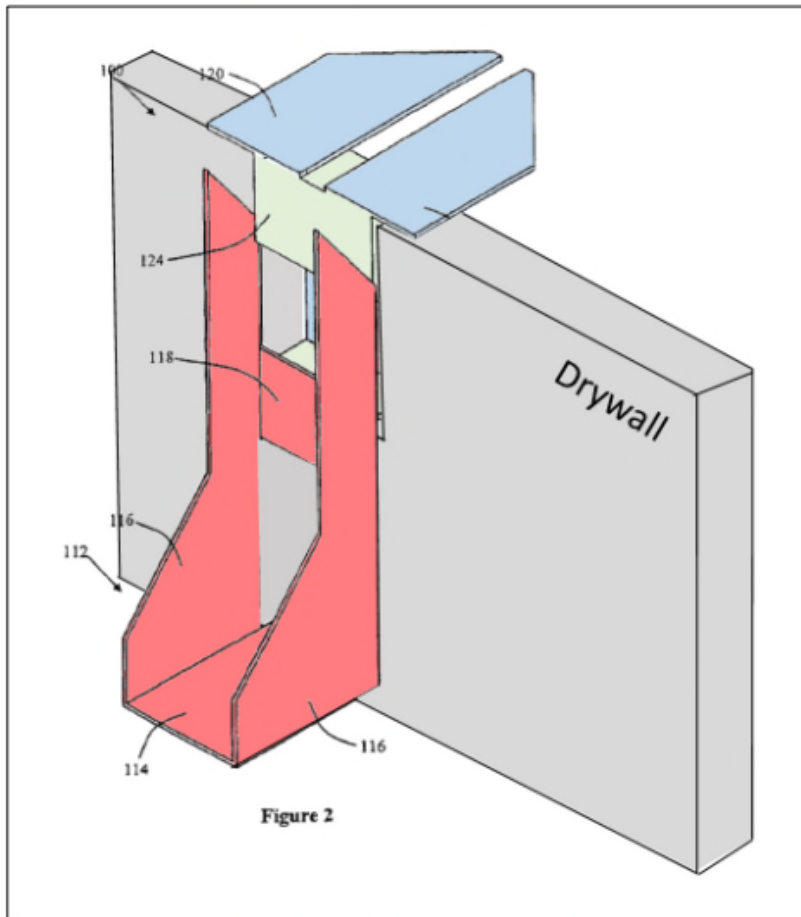


Fig. 2

EX1005: Fig. 2.

268. In other words, Simpson’s proposed installation of the sheathing—after mounting the Robinson hanger first—takes the reverse order as disclosed by Bundy.

269. Likewise, Bundy teaches away from installation methods that require “alteration[s] of the drywall” (EX1005: 2:18-19) such as cutting an opening into the drywall for the Robinson hanger to extend through as suggested by Simpson and Mr. Fennell. And Robinson does not suggest cutting drywall.



EX1011, FIG. 2 (annotated).

270. Furthermore, because Bundy requires the installation of the hanger over the already installed drywall panels, Bundy also expressly teaches away from including a back flange that would directly engage the wall framing. EX1005: 5:26-28 (“Preferably, no part of the joist hanger 2 contacts the front face 16 of the structural support member 4.”), 5:42-45 (“The first and second top flanges 15 preferably extend over the top edge faces 14 of the one or more panels 6 and are the only parts of the joist hanger that contact the structural support member 4.”).

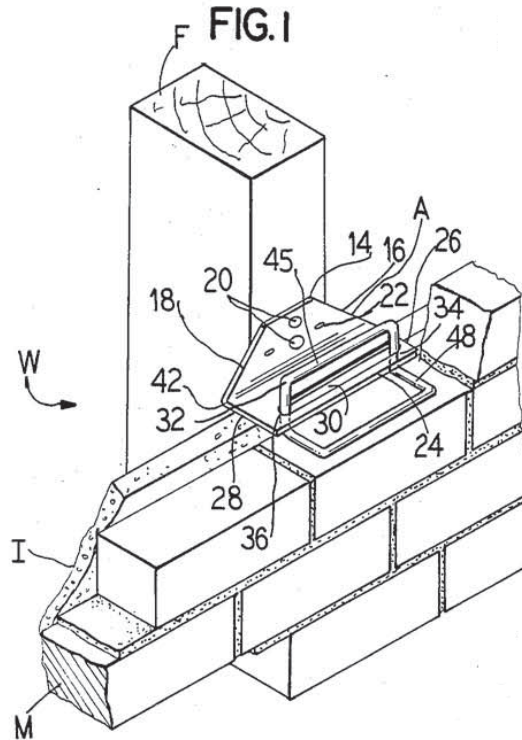
271. As Bundy teaches away from both (1) cutting an opening in the drywall panels for a hanger, and (2) the inclusion of a back flange that engages the wall, the POSA would have been discouraged from combining Robinson and Bundy in the manner asserted by Simpson to meet the claims of the '339 Patent. As such, Bundy does not provide any suggestion to use the duct opening 126 of Robinson to accommodate drywall.

272. Accordingly, a POSA would not have been motivated to combine Robinson and Bundy as suggested by Simpson.

D. Simpson's Motivation to Combine Cullen-Bundy, Yamaguchi-Bundy, and Robinson-Bundy with Allan Fails

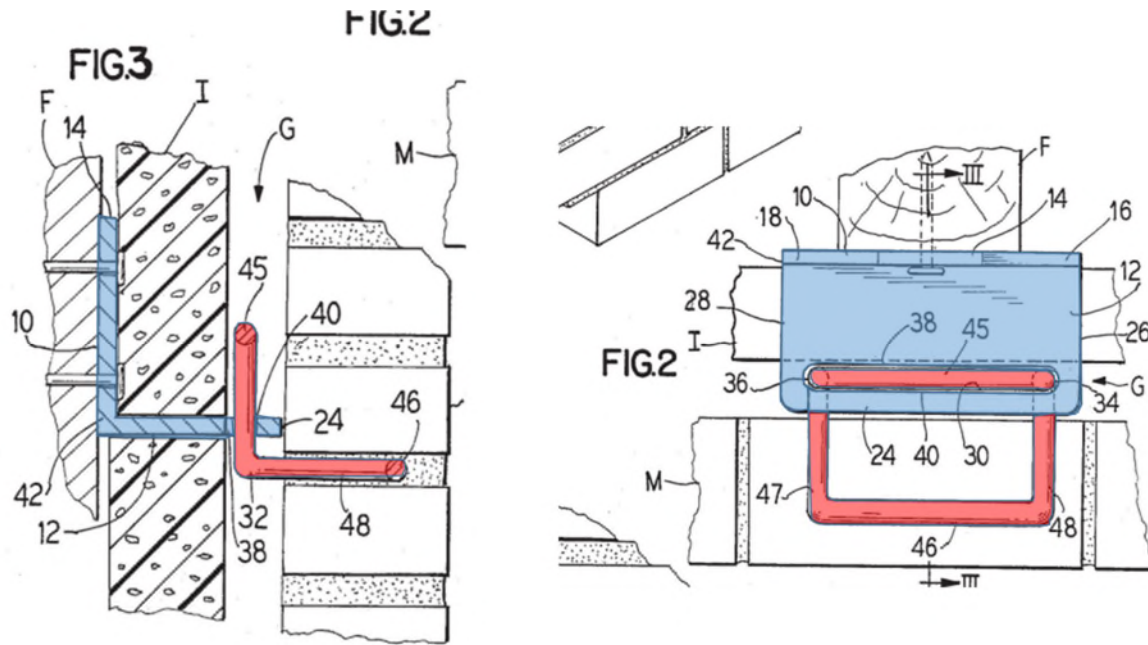
273. In addition to attempting to combine each of Cullen, Yamaguchi, and Robinson with Bundy, Simpson further combines these references with Allan's teaching to in an attempt to provide support for installing sheathing around the modified fire wall hangers.

274. Notably, Allan is an unrelated, non-analogous reference with respect to Cullen, Yamaguchi, Robinson, and Bundy. As shown in Fig. 1, Allan is directed to a wall anchor (A) used to tie a masonry veneer wall (M) to a building frame member (F) of a wall structure (W). EX1006: Fig. 1, Abstract, 3:12-20.



EX1006: Fig. 1.

275. The wall anchor (A) is an angle iron (blue in Figures 2 and 3 reproduced and annotated below) that includes two legs (10, 12). EX006: 3:21-25. The wall structure includes an insulation layer in the form of a plasterboard sheet (I) disposed between the masonry veneer wall (M) and the building frame member. EX1006: 3:12-20. One leg (10) of the wall anchor is secured to the building frame member and the other leg (12) extends through the insulation layer and connects to a tie (32) (red in Figures 2 and 3 reproduced and annotated below) which is embedded into the masonry veneer wall, thereby tying the building frame member to the masonry veneer wall. EX1006: Figs. 1-3, 3:28-33, 4:15-18.



EX1006: Figs. 2, 3 (annotated).

276. Beyond mischaracterizing Allan as a “structural hanger,” neither Simpson nor Mr. Fennell provides any reason why a POSA would have considered Allan pertinent to joist hangers.

277. Allan is not a “hanger,” much less a joist hanger. Nor is Allan pertinent to any of the design issues that a POSA would have considered in designing or modifying joist hangers, such as those disclosed in Cullen, Yamaguchi, Robinson, or Bundy. Hangers must be designed to support a vertical load. To this end, not only does the extension portion of the hanger in the claims of the ‘339 patent extend through fire-resistant sheathing, it also transfers the vertical load from the joist to the back flange in a manner that resists the moment arm caused by the vertical load. EX1001: 6:61-7:13.

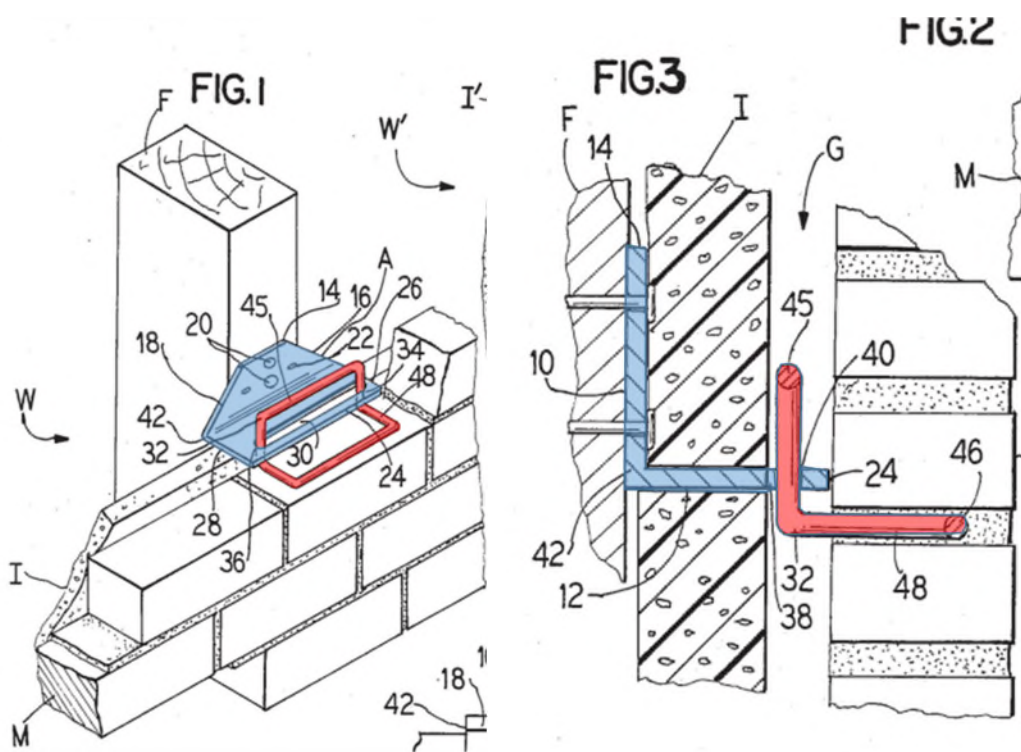
278. But in contrast to a joist hanger, the wall anchor of Allan is not required to support any vertical load. Instead, wall anchors are merely used to prevent masonry veneer walls from moving away from a building frame member (i.e. a horizontal load).

279. Moreover, Allan makes no reference to fire rating, resistance, or protection. EX1006. Instead, Allan relates to a wall anchor that extends through insulation.

280. Modifying Allan to incorporate a fire retardant sheathing requires that a hole be cut in the sheathing. There is a fundamental difference between cutting a hole in insulation (which simply results in a lesser degree of insulation) and cutting a hole in a sheathing intended to provide fire protection. Where cutting a hole in insulation simply results in a lesser degree of insulation provided, cutting a hole in a fire barrier can result in the complete loss of the fire barrier's fire-resistance and rating. The '339 patent notes, "the integrity of the fire retardant sheathing should be maintained and ***interruptions of the sheathing kept to a minimum.***" EX1001: 1:44-46. A further discussion is provided in the text book Structural Design for Fire Safety. EX2043: 22-23 ("A severe fire will find any weakness in a separating barrier, and many such weaknesses are not visible during normal operation of a building. Care must be taken to ensure that poor quality workmanship or penetration for services and fittings do not compromise the performance of fire-

EX1005: Fig. 1.

282. Nor does the method of installing the insulation over the Allan wall anchor disclose or suggest the claimed method of the '339 Patent. In Allan, the insulation layer is merely installed around the outstanding leg (12) of an L-shaped bar (blue in the figures below), after which the wall anchor is further assembled by adding a tie (32) through an exposed (30) slot in the leg (12). EX1006: 4:1-40.



EX1006: Figs. 2 and 3 (annotated).

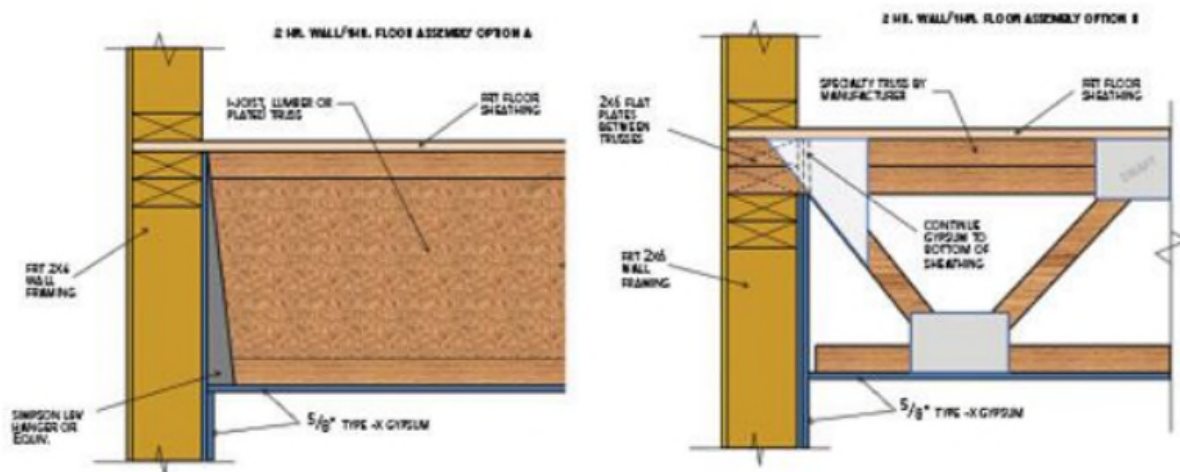
283. Rather than inserting the sheathing between the wall frame and existing, stationary components of the already mounted fire wall hanger while simultaneously moving the sheathing relative to hanger such that a portion of the hanger extends through an opening in the sheathing (see e.g. EX1001 Claims 1.F

and 1.G), Allan merely requires the insulation to be lined up so the leg (12) is inserted into a notch or slot in the insulation.

284. Nor is it enough that installing pre-cut drywall around simple structural connectors, plumbing, or electrical outlets was known in the art. Neither Allan, nor any of the other references, provided any teaching, suggestion, or motivation for the simultaneous inserting and moving/arranging steps of the claims of the '339 Patent.

E. Simpson's Motivation to Combine ArchRecord, Commins, and Cullen Fails

285. ArchRecord is an article providing basic descriptions of the balloon, platform, and semi-balloon wood framing methods with scant disclosure regarding the hanging of floor joists. The article provides a limited textual description, such that Simpson and Mr. Fennell primarily focus on the following figure:

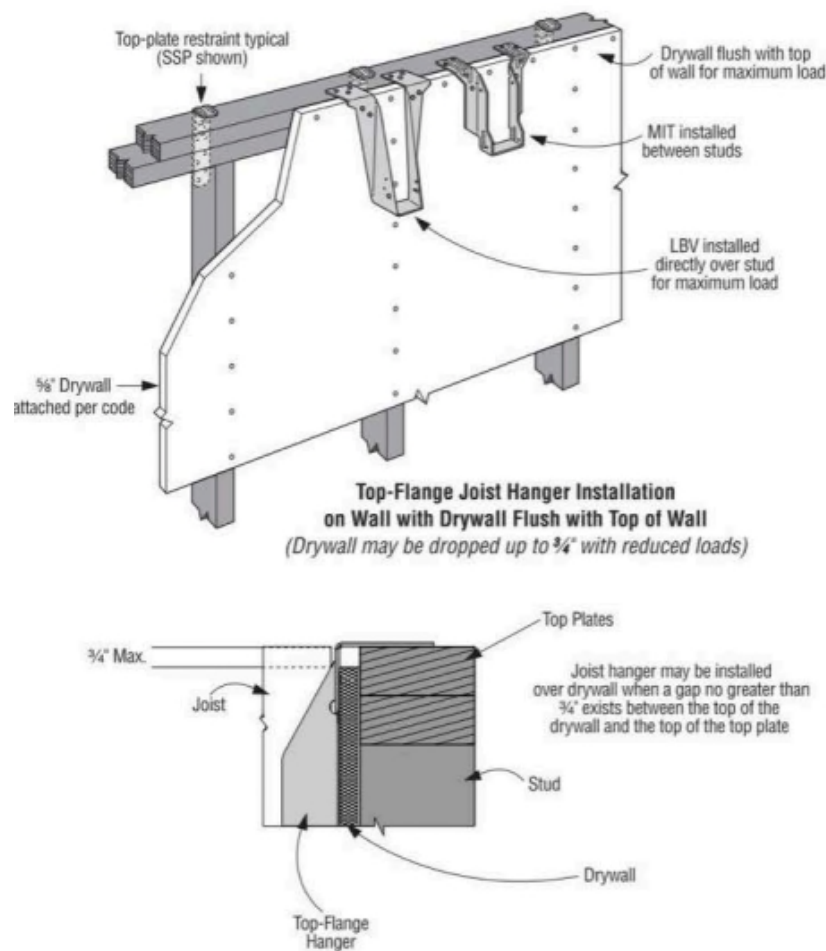


(Left) Semi-balloon framing is more common in buildings five stories and higher; (Right) it is often used as an alternative to platform framing where fire requirements or shrinkage may be a challenge.

EX2008: 6; EX1031: 6.

286. The figure provides two framing method options, Option A (left) and Option B (right) which I discuss in further detail in the following paragraphs. It is not clear which teaching of ArchRecord Simpson and Mr. Fennell are suggesting to combine with Cullen. To the extent that there is any inclination to conflate the disclosed Option A and Option B of ArchRecord, the POSA would recognize that the two options are distinct framing methods, with Option A being a semi-balloon framing, and Option B being a hybrid framing method similar to platform framing. EX1031: 6.

287. Option A discloses the use of a hanger, but the hanger is installed over the top of the sheathing. Notably, the hanger is identified as a Simpson LBV hanger. The POSA would recognize this option as being consistent with Simpson's Technical Bulletin for installing an LBV hanger over sheathing that was submitted as EX1012. Simpson's LBV hanger is installed over the drywall panels on the frame wall. As a result, Option A is no different than Bundy (with the exception Bundy's top flanges extend over two drywall panels, not one).

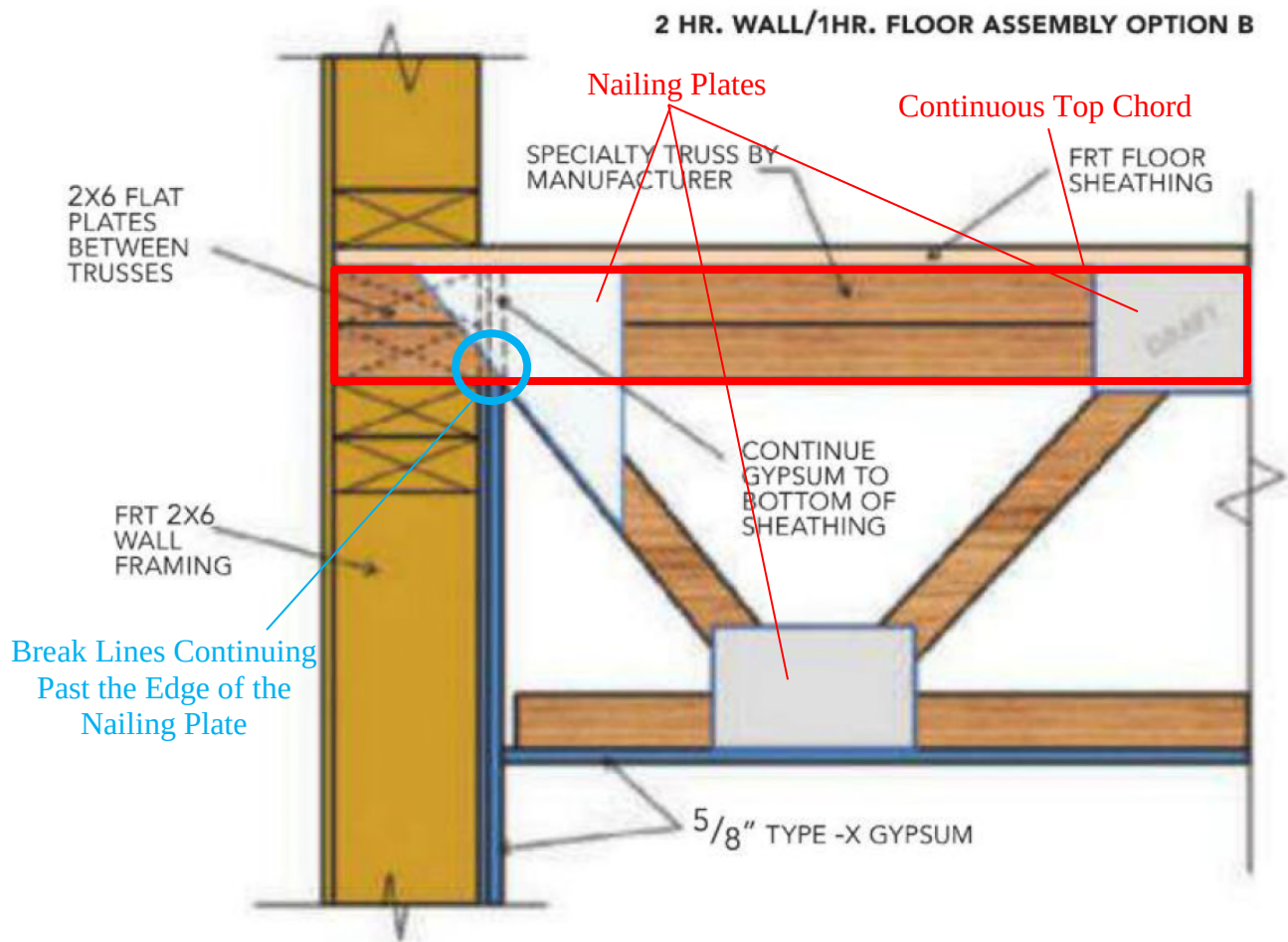


EX1012: 2.

288. As the hanger is installed over the top of the sheathing, Option A does not teach or suggest: (1) installing fire retardant sheathing after mounting the fire wall hanger on a frame wall, (2) inserting the fire retardant sheathing between the fire wall hanger the frame wall, (3) moving the fire retardant sheathing relative to the fire wall hanger mounted on the frame wall so that the edge of the fire retardant sheathing bounding an opening moves alongside the extension portion, nor (4) the fire wall hanger extending through an opening in the fire retardant sheathing.

289. In Option B the floor framing is provided by trusses without the use of a hanger or any other structural connector for coupling the truss to the frame wall. Option B's hybrid framing method is similar to platform framing in that it "does not require hangers." EX1031: 6.

290. Instead, like platform framing, the trusses in Option B's hybrid framing method "bear [directly] on the top plates" of the frame wall. EX1031: 6. The top chord of the truss is elongated compared to the bottom chord, such that the end of the top chord is simply stacked on top of the wall's top plate. This is confirmed in the figure as the grain of wood indicates continuation of the top chord of the truss and that the 2X6 flat plates are identified as being installed "between trusses."

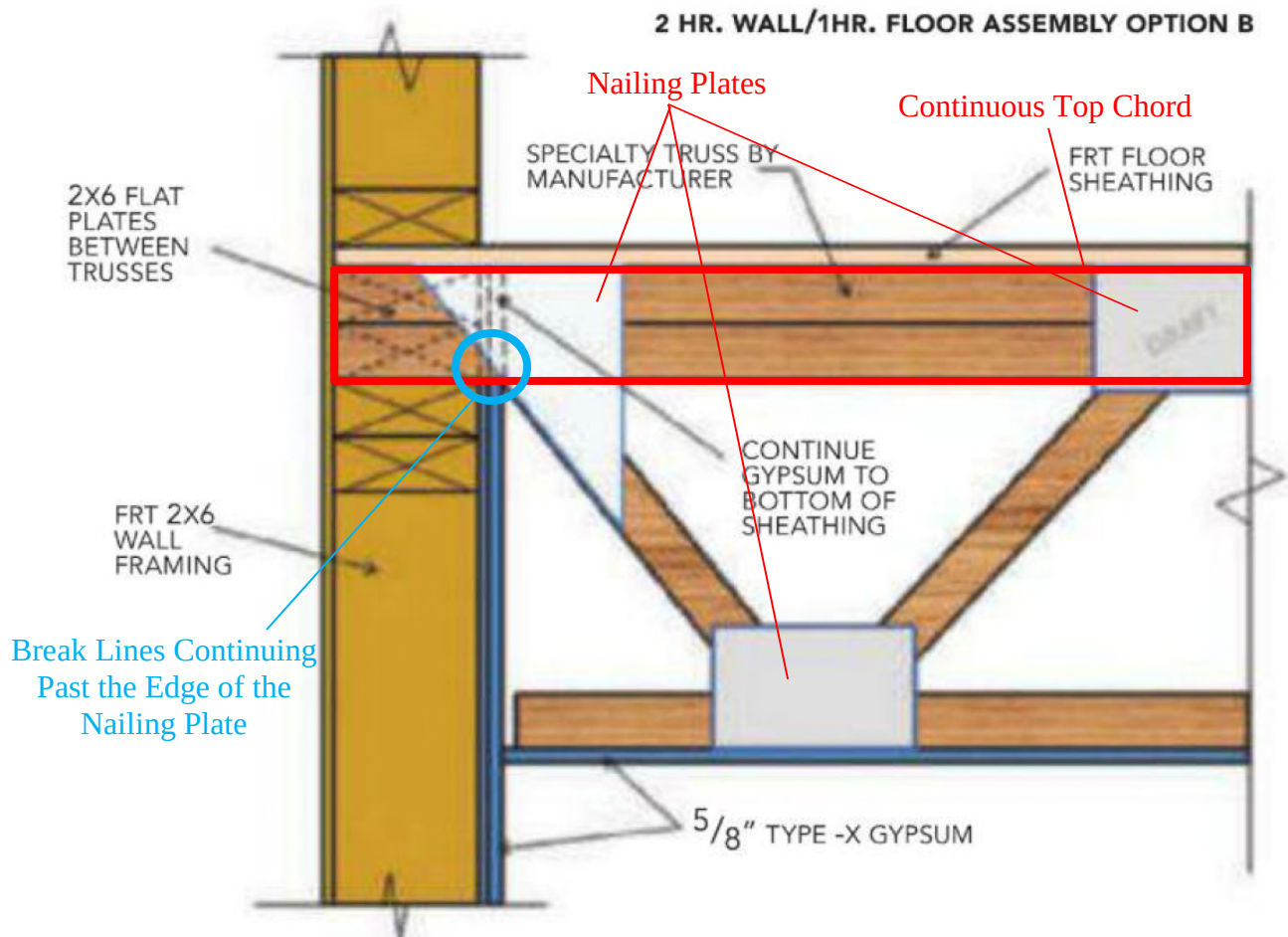


EX2008: 6 (annotated); EX1031: 6.

291. Likewise, what Simpson and Mr. Fennell identify as a “structural connector,” is simply a triangular shaped nailing plate on the side of the truss holding the top chord and truss web together (*i.e.*, similar to the other square nailing plates that are shown).

292. This plate does nothing to couple the truss to the wall assembly. Further, the cross section does not indicate a notch around the plate, but rather the break lines continue below the edge of the plate thus conclusively demonstrating a cutout around the entire cross-section of the top chord. Accordingly, the plate only

extends through the sheathing in the sense that the top chord it is attached to also extends through the sheathing.



EX2008: 6 (annotated); EX1031: 6.

293. Option B fails to demonstrate it was known to cut or notch the gypsum around a structural connector such that the structural connector extends through the gypsum sheathing on its own. In fact, Option B lacks any disclosure regarding how or when the sheathing is put into place on the wall framing.

294. The “structural connector” of ArchRecord Option B is simply a flat plate that lays flush along the side of the top chord and web of the truss. This plate

is part of the truss and does nothing to couple the truss to the wall assembly. Thus, there is no logical motivation to incorporate Commins' teaching to notch the sheathing around the structural connector as proposed by Simpson. Nor would a POSA consider using the Cullen hanger in conjunction with the framing method disclosed in Option B of ArchRecord, as the Option B framing method does not use a hanger.

295. To the extent that Simpson suggests using the Cullen hanger in conjunction with the framing method of Option A of ArchRecord, there would have been no reason to deviate from the Option A method of installation and simply install the hanger over the top of the sheathing. Likewise, even adding a second layer of sheathing to Option A would merely arrive at the installation method of Bundy, whereby the size of top flanges would need to be optimized to extend over the top edges of two layers of drywall, instead of just one.

296. None of ArchRecord, Commins, and Cullen provide any hint or suggestion to insert sheathing between an already installed hanger and the wall assembly. Only Option A of ArchRecord even discloses the use of a hanger, and even then the hanger installs over the top of the sheathing. Commins merely teaches notching drywall around penetrations, no differently than how sheathing would be installed around an electrical outlet or plumbing.

297. And as discussed above in Paragraphs 229-233, Cullen's hanger is not designed or intended to define a space between its back plate (12) and a channel-shaped portion, much less the use of the side walls (30, 32) as extension portions for extending through sheathing. To the contrary, Cullen's hanger relies on the joist abutting the back plate.

298. Accordingly, a POSA would not have been motivated to combine ArchRecord, Commins, and Cullen as suggested by Simpson.

F. The Prior Art Fails to Teach, Suggest, or Provide a Motivation for Multiple Steps of the Method Recited in the Independent Claims

299. Within Simpson's limitation-by-limitation obviousness analysis, the Petition fails to provide any supporting citations to the asserted prior art for any of the obviousness combinations with respect to the claim limitations of independent claims 1 and 27 that pertain to installing the fire retardant sheathing. These limitations are as follows:

- [1.E]/[27.E] - installing the fire retardant sheathing "after mounting the fire wall hanger on the frame wall and after cutting the opening into the exterior edge of the fire retardant sheathing" (Pet. at 32, 80, 115-116, 158-159);
- [1.F]/[27.F] – "inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall" as part of the step of installing the fire retardant sheathing "after mounting the fire wall hanger on the frame wall" (Pet. at 32-33, 80, 115-116, 158-159);
- [1.G] – "moving the fire retardant sheathing relative to the fire wall hanger mounted on the frame wall so that an edge of the

fire retardant sheathing bounding the opening moves alongside the extension portion and the fire wall hanger extends through the opening in the fire retardant sheathing” (Pet. at 33-34, 81-82, 118-119, 159-160); and

- [27.G] – “arranging the fire retardant sheathing relative to the fire wall hanger so that the fire wall hanger extends through the opening in the fire retardant sheathing and part of the extension portion of the fire wall hanger is received in the opening.” (Pet. at 63, 101, 143, 177)

300. Notably, of Simpson’s asserted references, I am not aware of any disclosure within Yamaguchi, Cullen, or Robinson regarding the installation of sheathing. Yamaguchi, Cullen, and Robinson do not provide disclosure regarding fire retardant sheathing, nor the manner of constructing fire-resistive wall assemblies including installing the fire retardant sheathing **after** the fire wall hanger is mounted to the frame wall as claimed. EX1004; EX1007; EX1011..

301. Bundy and ArchRecord are the only references that specifically teach mounting fire resistant sheathing on a frame wall for the purposes of providing fire resistance.

302. But Bundy teaches mounting the sheathing before mounting the fire wall hanger on the frame wall. EX1005: Fig. 2, 2:20-25 (“[t]he drywall [is] applied to the [] supporting member ..., and the joist hanger can then be attached”), 5:14-20. Specifically, as shown below, Bundy teaches extending the joist hanger (2) over the drywall panels (6) after the drywall panels are already installed on the wall (4). EX1005: 5:42-43.

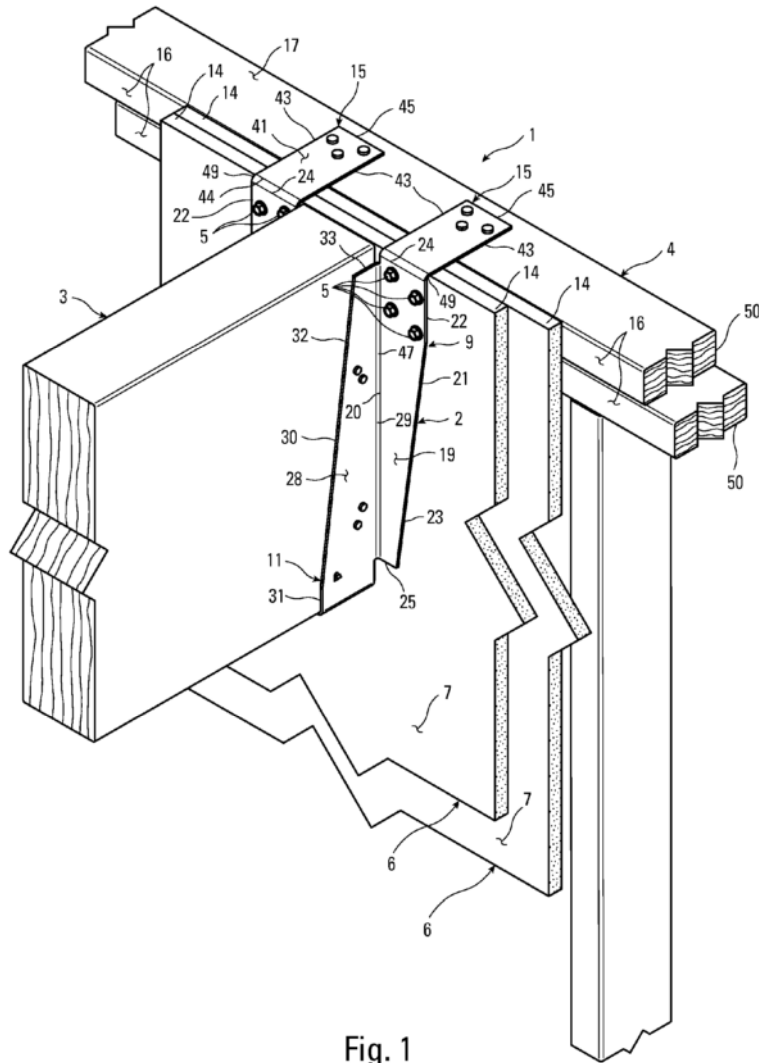
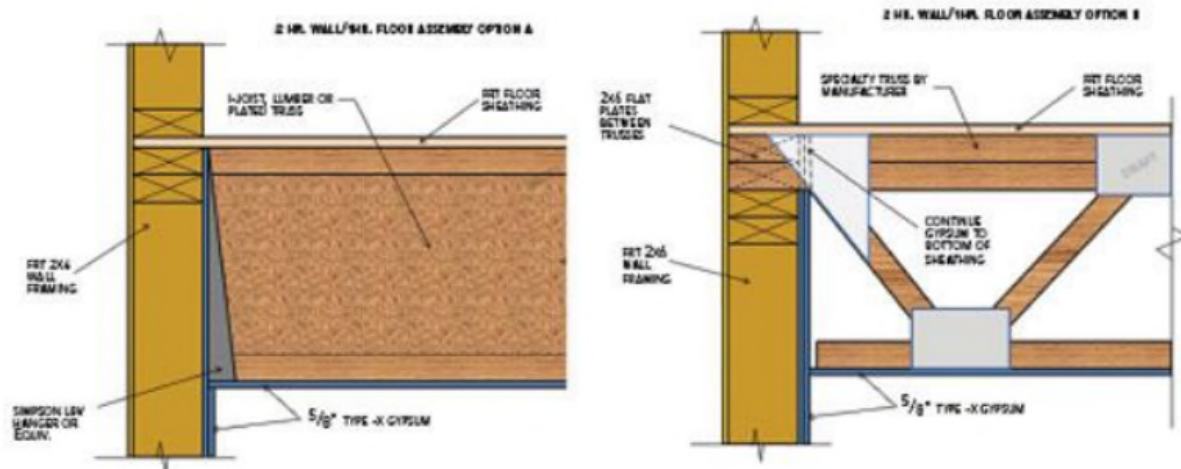


Fig. 1

303. As discussed above in Paragraphs 53-54 and 287, ArchRecord likewise only suggests installing the sheathing **before** mounting a fire wall hanger on the frame wall.

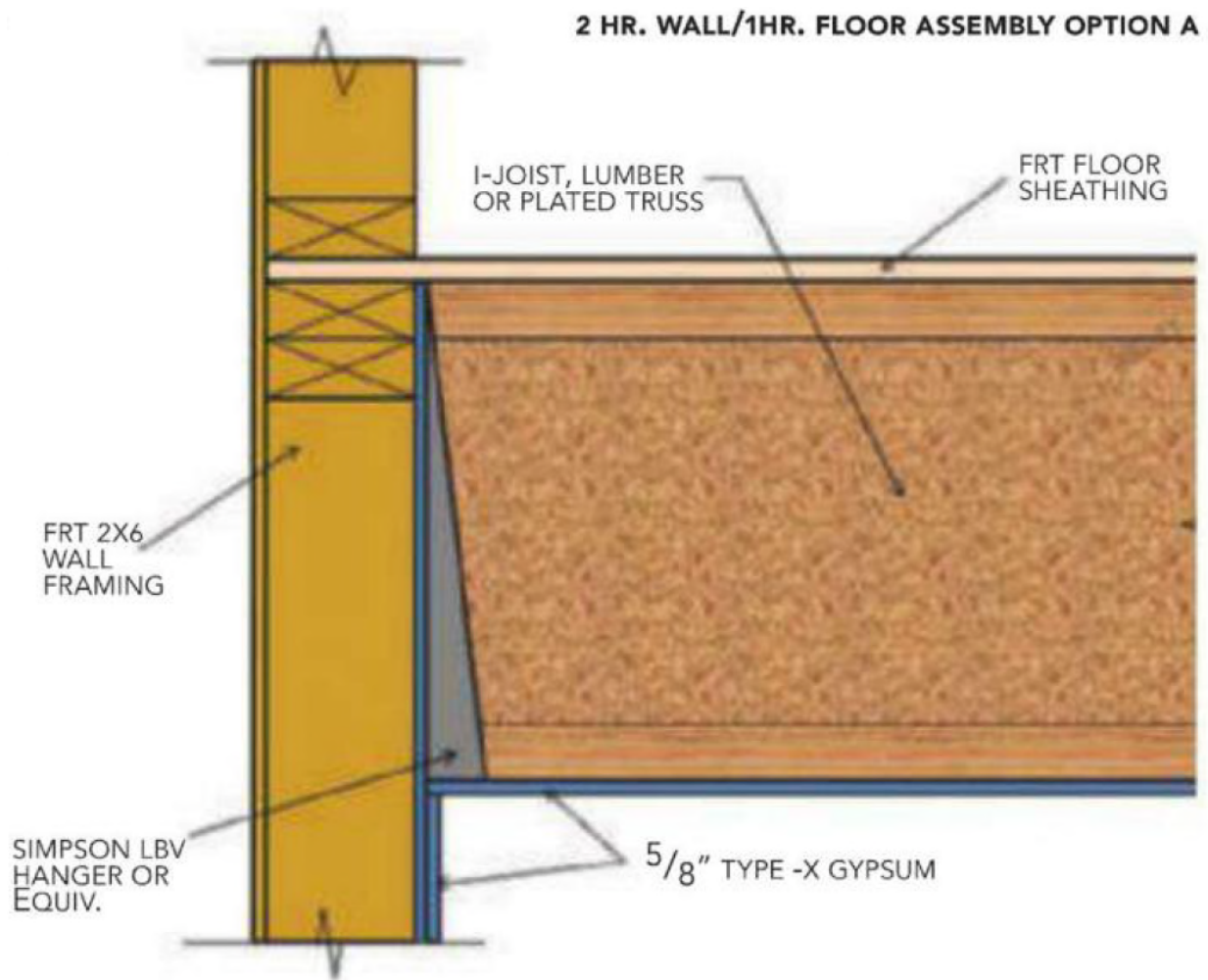
304. Simpson relies on the following image from ArchRecord, which discloses two wood framing options: (1) Option A (left) and (2) Option B (right).



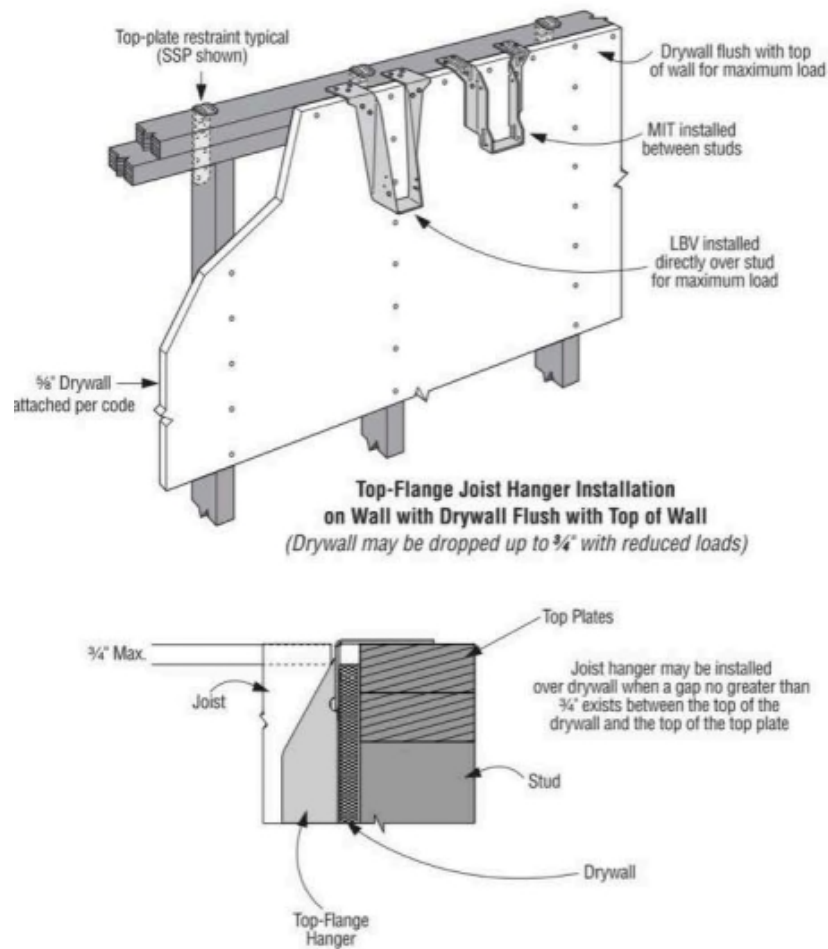
(Left) Semi-balloon framing is more common in buildings five stories and higher; (Right) it is often used as an alternative to platform framing where fire requirements or shrinkage may be a challenge.

EX2008: 6.

305. As discussed above in Paragraphs 52-55 and 287-294, of these two options, only Option A uses a hanger. Option A is just like Bundy as the LBV hanger is installed over the top of already installed sheathing, as shown below and consistent with Simpson’s technical bulletin for the LBV hanger (EX1012). Option B has no hanger. Option B is hybrid framing method similar to platform framing in that it “does not require hangers.” EX1031: 6. Instead, the top chord of the truss “bear[s] on the top plates” of the frame wall. EX1031: 6. ArchRecord does not show any broken or hidden lines for the gypsum indicating the gypsum is cutout around the hanger in Option A, unlike in Option B which shows such broken lines for the gypsum at the top chord. This demonstrates the hanger in Option A is placed over the gypsum, not within the gypsum.



EX2008: 6.

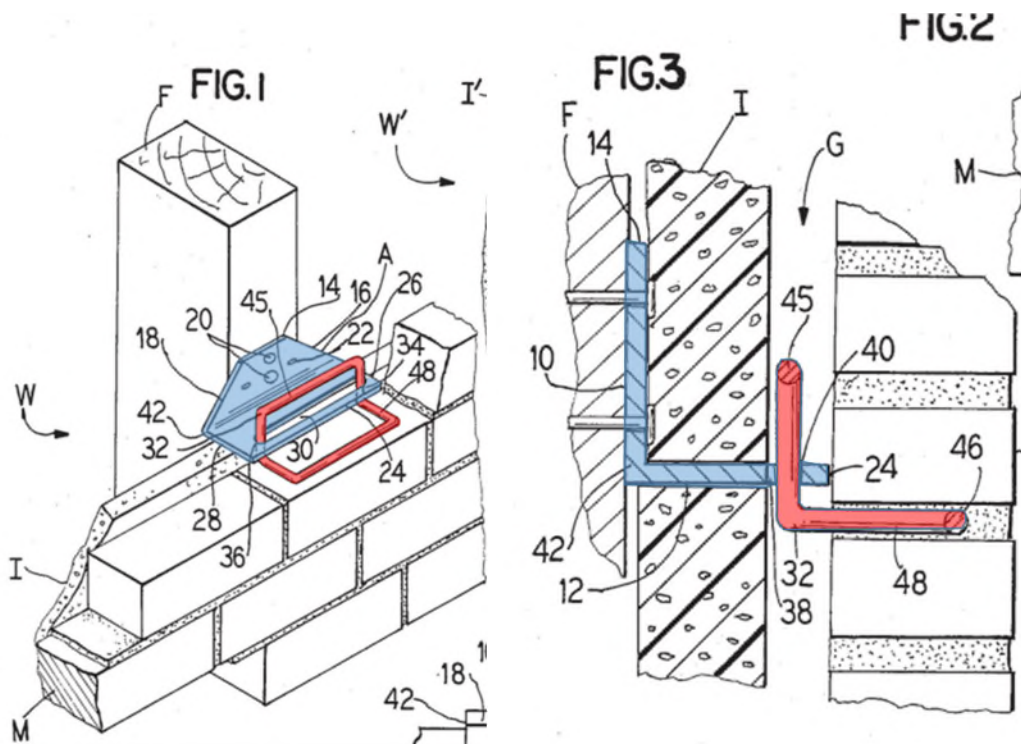


EX1012: 2.

306. Allan and Commins teach the installation of sheathing around structural connectors (a wall anchor and hurricane tie respectively), but not in the context of a joist hanger transferring a vertical load to the frame wall and not in the context of constructing a fire-resistive wall assembly. Nor does either Allan or Commins teach inserting the sheathing between the frame wall and a component of the wall anchor already mounted on the frame wall.

307. Rather, as discussed above, the insulation layer in Allan is installed around the outstanding leg (12) of an L-shaped bar so that the wall anchor remains between the insulation layer and the frame wall. Only **after** the insulation layer is installed around the outstanding leg is the wall anchor further assembled by adding a tie (32) (i.e., the part of the wall anchor actually connected to the masonry veneer wall) through an exposed (30) slot in the outstanding leg. EX1006: 4:1-40.

Accordingly, at the time the insulation layer of Allan is installed there is no space between the frame wall and any component of the wall anchor capable of accepting sheathing. As such, Allan fails to teach inserting the sheathing between the frame wall and a component of the wall anchor already mounted on the frame wall as required by the “inserting” step of [1.F]/[27.F].



EX1006: Figs. 2, 3 (annotated).

308. Commins attempts to avoid the necessity of notching around the hurricane tie, as an improvement over the prior art hurricane tie by eliminating the portion identified as 23 as shown in Fig. 10. EX1032: 3:55-57 (“the sheathing need not be installed to provide clearance for the sheathing”)

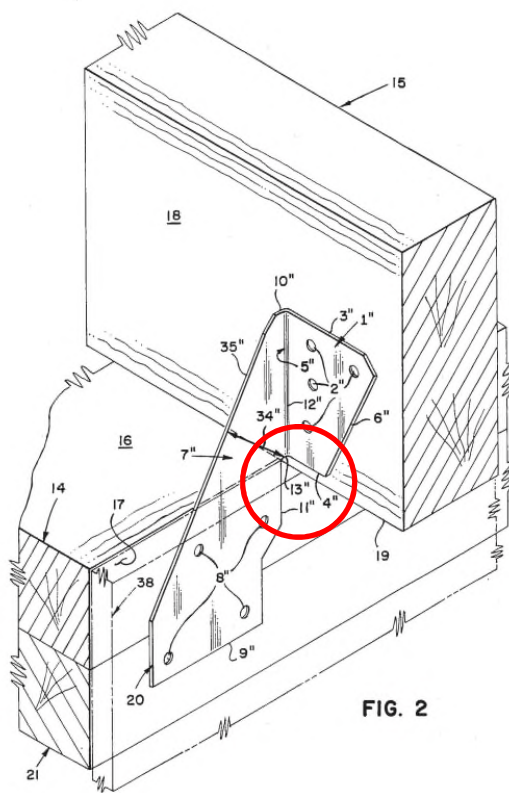


FIG. 2

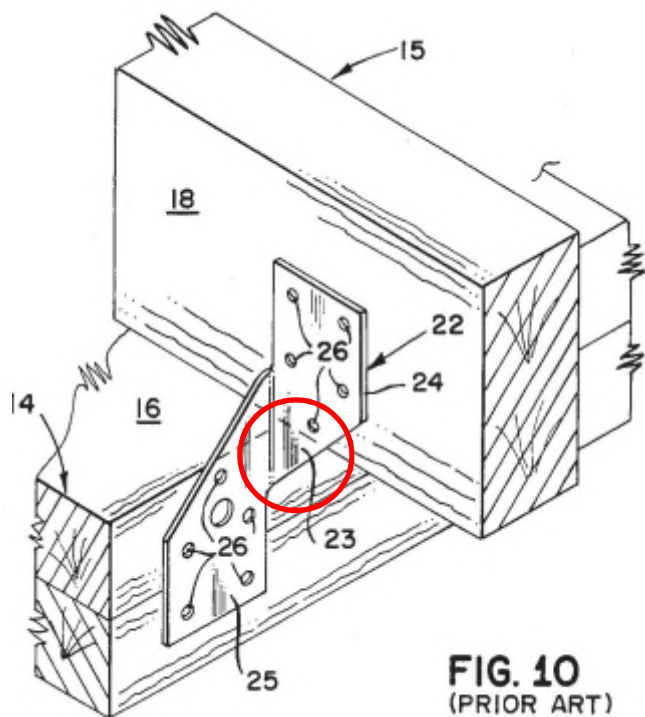
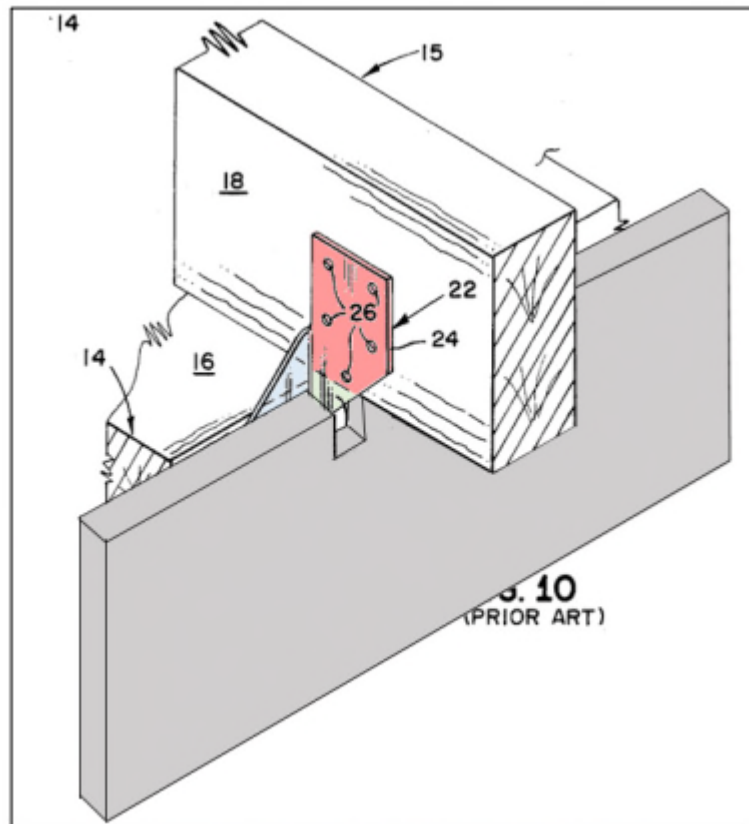


FIG. 10
(PRIOR ART)

EX1032: Fig. 2, 10.

309. Even with the disclosed prior art hurricane tie, the sheathing would still simply be installed around the portion identified as 23 (shown in Simpson’s

annotation of Figure 10 below), and not inserted between any components of the hurricane tie and the wall framing.



EX1032, FIG. 10 (annotated).

EX1003: ¶422.

310. None of the asserted prior art references teach the step of installing the fire retardant sheathing specifically “after mounting the fire wall hanger on the frame wall” wherein the step includes “inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall.”

311. Notably, the step of installing the fire retardant sheathing specifically “after mounting the fire wall hanger on the frame wall” wherein the step includes

“inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall” is the key premise of the claimed method of the ‘339 Patent. See EX1001: limitations 1.E/27.E and 1.F/27.F. This step is not merely peripheral as it goes to the heart of the benefit of the claimed inventive method—mounting the fire retardant sheathing after the hanger is mounted to the frame wall:

“In still another embodiment, the truss hangers 26 can be installed on the wall 28 before the sheathing 34 is mounted on the wall. ***This simplifies construction by allowing the building to be completely framed and roofed before requiring the sheathing 34 to be installed. Trade workers (e.g., mechanical, electrical) therefore have complete access to the wall cavity to install components without interference from the sheathing 34.*** The truss hanger 26 is positioned against the wall 28 ... [and] fastened to the top plate 30 of the wall by any suitable means, such as by inserting nails 78 through nail holes 76. ... Subsequently, the sheathing 34 can be mounted on the wall 28 by moving the sheathing upward into place so that the extension flanges 60 of the hanger 26 extend through the slot 72 of the sheathing and the sheathing is positioned in the sheathing channels 68 between the back flanges 66 and the back panels 48.” EX1001: 7:65-8:21.

312. As explained by the ‘339 Patent, installing the fire retardant sheathing after mounting the fire wall hanger (1) “simplifies construction by allowing the building to be completely framed and roofed before requiring the sheathing 34 to be installed” and (2) allows “[t]rade workers (e.g., mechanical, electrical) [to] have complete access to the wall cavity to install components without interference from the sheathing 34.” EX1001: 7:67-8:5.

313. Further, the step of installing the fire retardant sheathing after mounting the fire wall hanger plays a major role in the subject matter of the claims because it drives a number of the other claim limitations, specifically:

- the configuration of the hanger in that the hanger itself is required to define a space for receiving sheathing [limitations 1.B/ 27.B],
- the step of cutting an opening in the sheathing [limitations 1.D/ 27.D],
- the moving of the sheathing relative to the hanger such that the edges of the fire retardant move alongside the extension portion [limitation 1.G], and
- the arranging of the sheathing relative to the hanger such that the extension portion is received in the opening in the fire retardant sheathing [limitation 27.G].

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 20th day of December, 2024.



By Richard Kaczkowski: _____