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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

SECOND DECLARATION OF RICHARD T. KACZKOWSKI

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

I. INTRODUCTION

1. I previously provided a first Declaration (Exhibit 2001) in which I provided my opinion regarding the validity of U.S. Patent No. 11,920,339 (“the ‘339 Patent”) in response to Simpson Strong-Tie Co. Inc.’s (“Petitioner” or “Simpson”) Petition for Post Grant Review. This declaration is in addition to and supplements my first Declaration. My first Declaration is incorporated herein by reference.

2. My qualifications and background are provided in detail in my first Declaration. EX2001: ¶¶1-6. My qualifications and background are incorporated by reference into this declaration.

3. In providing the testimony set out in this declaration and my first 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, the declaration of Mr. Fennell (“the Fennell Declaration”) (EX1003), Patent Owner’s Preliminary Response, and the Institution Decision (“ID”). I have also reviewed the following documents which have been submitted as exhibits by Columbia Insurance Company (“Columbia” or “Patent Owner”):

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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

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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
2054	Declaration of Mike Alley
2055	Declaration of Econ Lit
2056	Declaration of Matt Church
2057	Declaration of Joe Dunkle
2058	Declaration of Ryan Holmes
2059	Declaration of Michael Nelson
2064	January 28, 2025 Deposition of Sam Hensen
2065	March 17, 2025 Deposition of Sam Hensen
2066	January 29, 2025 Deposition of Bryan Wert
2067	April 16, 2025 Deposition of Bryan Wert
2068	January 27, 2025 Deposition of Roger Dankel
2069	January 22, 2025 Deposition of Steven Brekke
2070	January 31, 2025 Deposition of Mark Rolf
2071	January 23, 2025 Deposition of Kristi Campbell
2072	January 24, 2025 Deposition of Mike Nelson
2073	Declaration of W. Andrew Fennell in Support of Petitioner's Reply to Patent Owner's Response and Petitioner's Opposition to Patent Owner's Contingent Motion to Amend (PGR2021-00109)
2074	Declaration of Sam Hensen in Support of Opposition to Motion for Preliminary Injunction
2075	Expert Report of Kenneth S. Serwin, PH.D.

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2076	Expert Report of Nathan Hoffmann, PE
2077	U.S. Patent No. 537,504
2078	U.S. Patent No. 3,885,363
2079	U.S. Patent No. 6,230,466
2080	U.S. Patent No. 9,790,684
2081	U.S. Publication No. 2012/0285020
2082	U.S. Publication No. 2013/0047539
2083	File History of U.S. Application No. 18/492,460
2084	New Oxford American Dictionary – Definition of Open
2085	Merriam-Webster’s Collegiate Dictionary – Definition of Opening
2086	Simpson Design File for Gypsum Board Cantilever Hanger
2087	Simpson Emails Re: DHU vs. USP’s FWH (1/2)
2088	Simpson Emails Re: USP Gypsum Hanger (1/3)
2089	Simpson Emails Re: USP Gypsum Hanger (2/3)
2090	MiTek Emails Re: FWH
2091	USP: FWH Fire Wall Hanger Testing
2092	Simpson Emails Re: USP Gypsum Hanger (3/3)
2093	MiTek Emails Re: Cantilevered Hanger (Highly Confidential – Prosecution Bar)
2094	Simpson Emails Re: Status of DHU/DHUTF
2095	Simpson Emails Re: New DHT Drywall Hanger – Forecast Estimate
2096	Simpson Emails Re: Fire Rated Hanger
2097	Simpson Emails Re: Group Field Trial in Baltimore
2098	Simpson Emails Re: USP FWH
2099	Simpson Emails Re: Firewall Hanger
2100	Simpson Emails Re: USP Fire Wall Hangers FWH Series
2101	Simpson Emails Re: DGF/DGHF and DGBF
2102	Simpson Emails Re: Fire Wall Hangers
2103	Simpson Emails Re: DU – DHU – DHUTF Challenge
2104	Simpson Emails Re: FWH USP (1/4)
2105	Simpson Emails Re: DHU
2106	Simpson Emails Re: USP FWH Hanger Talking Points
2107	Simpson Emails Re: FWH USP (2/4)
2108	Simpson Emails Re: Drywall Hanger
2109	Simpson Emails Re: Mitek FWH Meeting
2110	Simpson Emails Re: DHU vs. USP’s FWH (2/2)
2111	Simpson Emails Re: Confidential Drywall Hanger

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2112	Simpson Emails Re: Hanger Team Meeting Minutes
2113	Photograph of Initial Simpson FWH and MiTek FWH
2114	Simpson Emails Re: Baltimore Summary / Patent Meeting
2115	July 21, 2017 Simpson Hanger Team Minutes
2116	Simpson Emails Re: DGH/DGB Firewall Hanger is Now Available (1/2)
2117	Simpson Emails Re: DGH/DGB Firewall Hanger is Now Available (2/2)
2118	MiTek Emails Re: USP FWH Fire Wall Hanger
2119	MiTek Emails Re: FWH Fire Wall Hanger for 2 Hour Envelope
2120	MiTek Emails Re: Fire Wall Hanger – UFP
2121	MiTek Emails Re: Fire Wall Hanger
2122	MiTek Emails Re: Question? FWH Series – Fire Wall Hangers
2123	MiTek Emails Re: FWH3518
2124	Simpson Emails Re: New Fire Wall Hanger
2125	MiTek Emails Re: Standard Pricing – Reliable- Los Angeles Apts – Laurence Hovenier 1-27-15.xlsx
2126	Simpson Emails Re: Rumblings
2127	Simpson Emails Re: Top Flange Hanger Over 2 Layers of Gypsum Board
2128	Simpson Emails Re: B/HB Style Hanger for Wall with 2-Layers of Gyp
2129	Simpson Emails Re: FWH USP (3/4)
2130	Simpson Emails Re: FWH USP (4/4)
2131	Technical Bulletin: FWH Series Fire Wall Hangers
2132	Brochure FWH Series
2133	Brochure DG Series
2134	Brochure DGF Series
2135	Brochure DGT Series
2136	Simpson Emails Re: DHU/DHUTF
2137	Simpson Emails Re: Firewall Hanger (2/2)
2138	Simpson Cantilever Drywall Hanger Testing
2139	Mitek Emails Re: Revised Firewall Hanger Sales Sheet – Correction to Narrower Width Allowable Loads
2140	Simpson Emails Re: MiTek USP FWH Fire Wall Hanger
2141	Simpson Emails Re: USP Gypsum Hanger (4/4)

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4. Exhibit 2038 is a true and accurate copy of Table 721.1(2) of the 2012 International Building Code published by the International Code Council. The International Building Code is a model code that is widely adopted or referenced by local building codes in the United States. A person of ordinary skill in the art (“POSA”) would have considered Exhibit 2038 to be authoritative within the art as of December 31, 2013.

5. Exhibit 2039 is a true and accurate copy of an article entitled Fire Rating of Masonry Walls. A POSA would have considered Exhibit 2039 to be authoritative within the art as of December 31, 2013.

6. Exhibit 2040 is a true and accurate copy of an article entitled Fire and Concrete Structures published by the American Society of Civil Engineers (“ASCE”) available for download from ASCE at <https://ascelibrary.org/doi/10.1061/41016%28314%29299>. ASCE is a national professional organization serving civil and structural engineers. ASCE is recognized within the building and construction arts as a reputable organization. A POSA would have considered Exhibit 2040 to be authoritative within the art as of December 31, 2013.

7. Exhibit 2041 is a true and accurate copy of a paper entitled Comprehensive Fire Protection and Safety with Concrete published by the Irish Concrete Federation and available for download at

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https://www.theconcreteinitiative.eu/images/ECP_Documents/FireSafety_IE.pdf.

The Irish Concrete Federation publishes numerous technical guides related to concrete construction and is recognized within the building and construction arts as a reputable industry association. A POSA would have considered Exhibit 2041 to be authoritative within the art as of December 31, 2013.

8. Exhibit 2042 is a true and accurate copy of page 21 of the 2012 International Building Code published by the International Code Council. A POSA would have considered Exhibit 2042 to be authoritative within the art as of December 31, 2013.

9. Exhibit 2043 is a true and accurate excerpt of the text book by Dr. Andrew H. Buchanan, Structural Design for Fire Safety (2001). A POSA would have considered Exhibit 2043 to be authoritative within the art as of December 31, 2013.

10. Exhibit 2044 is a true and accurate copy of the webpage entitled Press Releases – MiTek Residential Construction Industry available at <https://www.mitek-us.com/about/press-releases/>, last visited December 16, 2024

11. Exhibit 2045 is a true and accurate copy of the press release MiTek Releases FWH Fire Wall Hanger, A New USP Structural Connector Product.

12. Exhibit 2046 is a true and accurate copy of the FWH Fire Wall Hanger section of the USP Structural Connectors 2015-2016 Product Catalog.

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13. Exhibit 2047 is a true and accurate copy of the plumbing, heating, and electrical installation section of the Wood-Frame House Construction paper published by the U.S. Department of Agriculture. A POSA would have considered Exhibit 2047 to be authoritative within the art as of December 31, 2013.

14. As stated in my first Declaration, 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. These principles are listed in Paragraphs 11-21 of my first Declaration, and are incorporated by reference into this declaration.

II. CLAIM CONSTRUCTION

15. I provided testimony in my first Declaration regarding the construction of the term “bounding” and the phrase “close conformance.” EX2001: ¶¶91-96, 206-218. I do not repeat these constructions in this declaration.

A. “Planar Extension Plates”

16. I provided testimony in my first Declaration regarding the construction of the phrase “planar extension plates.” EX2001: ¶¶117-144.

17. As I stated previously, in my opinion, a 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.

18. I have reviewed the Institution Decision and understand the Board has “preliminarily agree[d] with Petitioner and interpret the claim term ‘planar extension plate’ ... as not including bent portions but rather being limited to the ‘planar extension plate’ itself.” ID: 22. Such a preliminary holding does not change my opinion. The Board’s preliminary holding, as I understand it, is based on comparing the phrase “planar extension plate” from the claims of the ‘339 Patent with the phrase “each extension flange lying in an extension flange plane” from the claims of parent U.S. Patent No. 11,021,867. ID: 21. But these are different terms.

19. The distinction between “planar extension plates” and “extension flanges,” as interpreted by a POSA, is not whether or not the bends are part of these components. Instead, the distinction between “planar extension plates” and “extension flanges” lies in the words “plate” and “flange.” In the sheet metal hanger art, of which the ‘339 Patent is a part of as the disclosed fire wall hanger is made of sheet metal (EX1001: 7:18-23), a “flange” is a broad category or genus of a component of which a “plate” is a sub-category or species of. In other words, in the sheet metal arts, a “plate” is also a flange,” but a “flange” is not necessarily a “plate,” even though these terms are frequently used interchangeably. I agree with Simpson that a “plate” is “a smooth flat thin piece of material.” Pet: 9. In contrast, a “flange” can be a single plate (such as a single smooth flat thin piece of material)

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or multiple plates connected together (such as multiple connected smooth flat thin pieces of material).

20. I note that Simpson has applied this understanding of the difference between a “plate” and a “flange” in their own prior patents. For example, in U.S. Patent No. 6,230,466—with reference to Fig. 1A (reproduced below)—Simpson explains a “connection *flange* 6 has a side portion 12 that is substantially planar” and “is formed with a back portion 17 that is substantially planar.” EX2079: 4:7-8, 4:38-39 (emphasis added). In other words, Simpson is explaining a flange can be made up of two plates. A POSA would further understand that, since the flange is made of sheet metal, the two plates forming the flange must be connected by a bend, as shown in Fig. 1A.



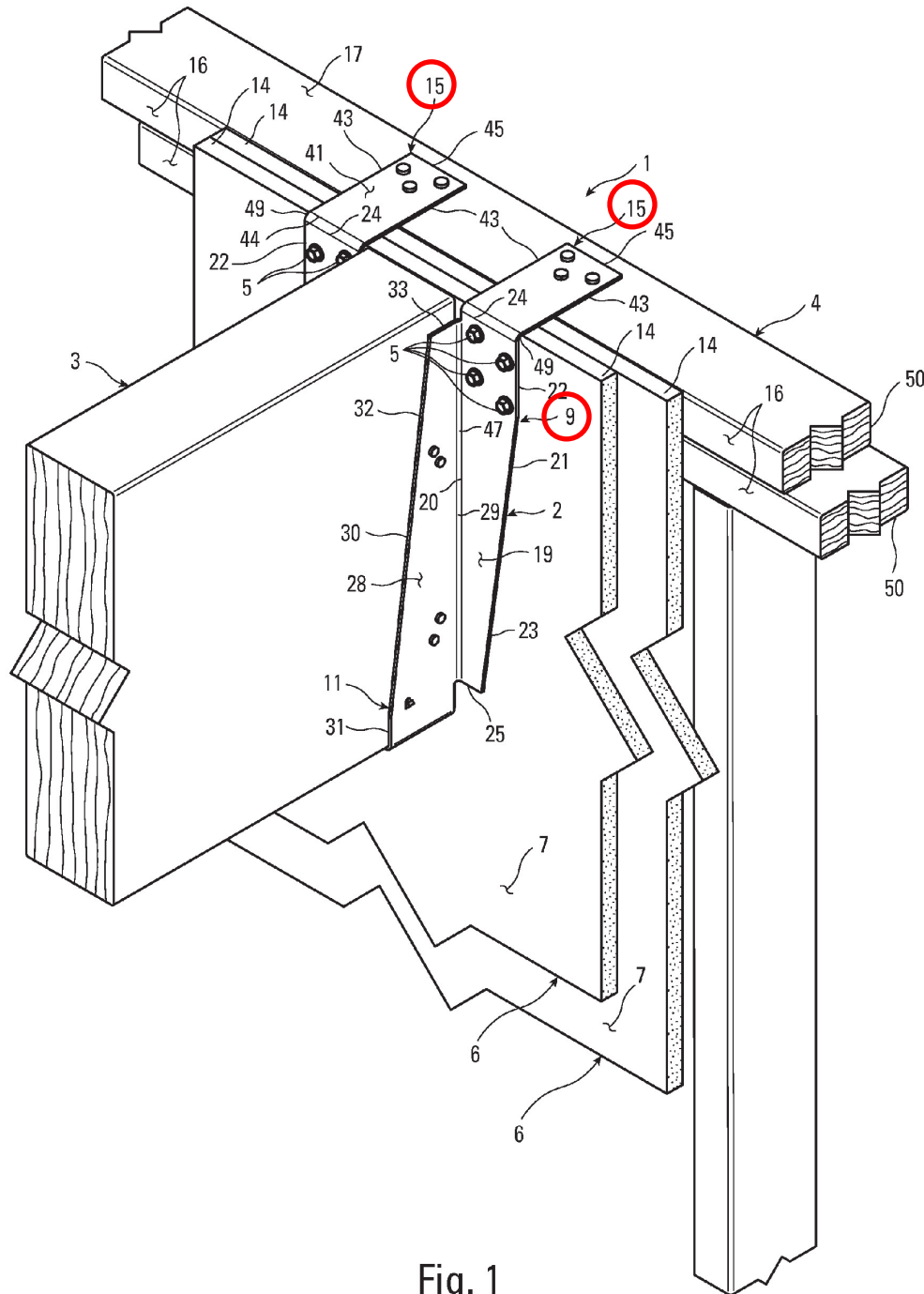
EX2079: Fig. 1A (annotated).

21. Bundy—Simpson’s own prior art reference applied in the Petition—provides an example of the POSA’s understanding that a “flange” can also be just a single “plate,” rather than multiple plates. With reference to Fig. 1 (reproduced

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below), Simpson identifies a “first top *flange* 15” and a “second top *flange* 15.”

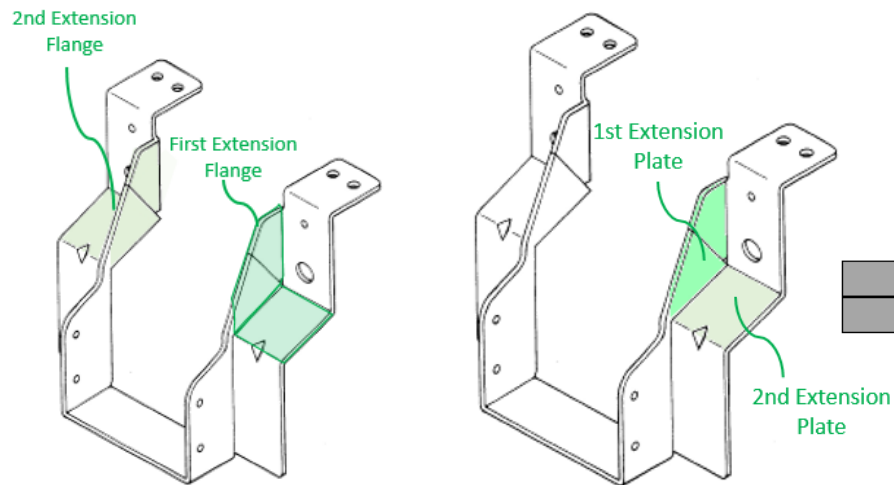
EX1005: 5:39-42. Simpson also identifies “first and second back *plate* members 9.” EX1005: 4:29 (emphasis added). As shown below, both the top flanges (15) and the back plate members (9) are made up of a smooth thin flat piece of sheet metal. EX1005: 4:46-49.



EX1005: Fig. 1 (annotated).

22. Moreover, this interpretation is how Simpson and Mr. Fennell have interpreted the terms “flange” and “plate” in the Yamaguchi grounds from the

Petition. Simpson and Mr. Fennell have identified Yamaguchi's purported "extension flange" as being made of two "planar extension plates." Pet: 97-98; EX1003: ¶308.



Pet: 98 (annotated by Simpson).

23. In addition, the POSA understanding the bends are part of the components forming the bends is consistent with the specification of the '339 Patent. The specification states "[t]he extension portion includes extension flanges *extending from* the channel-shaped portion *forming* a bend between each extension flange and the channel-shaped portion." EX1001: 2:15-18. The term "forming" indicates the bend is made-up of the extension flanges and channel-shaped portion. In other words, a portion of the bend is part of the extension flange and a portion of the bend is part of the channel-shaped portion. The bend is not a distinct element between the extension flange and channel-shaped portion.

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24. This is further reinforced by the language of claim 26 which states “the back flange *extending from an edge of the first planar extension plate.*” EX1001: claim 26. A portion of the bend has to be part of the planar extension plate in order for the back flange to “extend[] from” the edge of the planar extension plate. Otherwise, the bend is separating the back flange and the planar extension plate, and the start of the back flange’s extension is at the bend, not the “edge of the first planar extension plate.”

25. I reiterate from my first Declaration that Bundy further demonstrates the POSA considers a portion of a bend at the end of a “planar” plate to be part of the plate. EX2001: ¶¶125-130. Bundy identifies the back plate members (9) and side members (11) of the joist hanger (2) as being “planar.” EX1005: 4:29-30, 4:54-55. As shown below in Fig. 7, the side members and back plate members meet at a bend (47) formed between the components. Despite the bend, Bundy describes the side members (11) as being “connected to” back plate members (9) along an “angular joint 47 ... [where back edges of the side members 11] *meet* the first and second inner edges 20 of the ... back plate members 9.” EX1005: 4:13-16, 4:57-61. This “meet” statement demonstrates that Simpson considers the bends connecting the “planar” back plate members (9) and “planar” side members (11) to be part of those members.

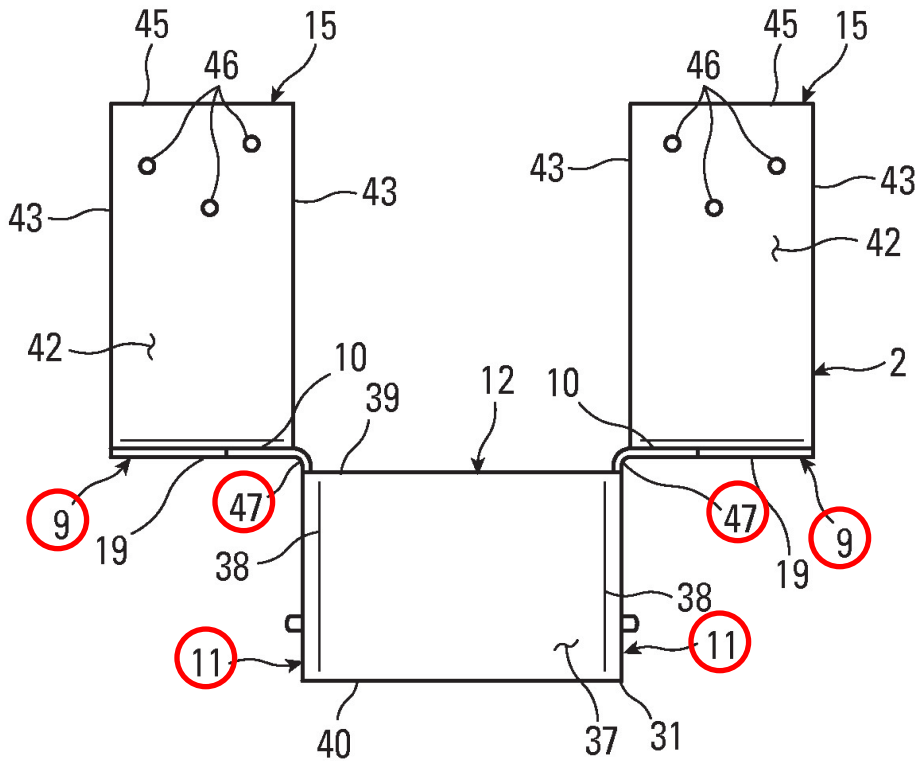
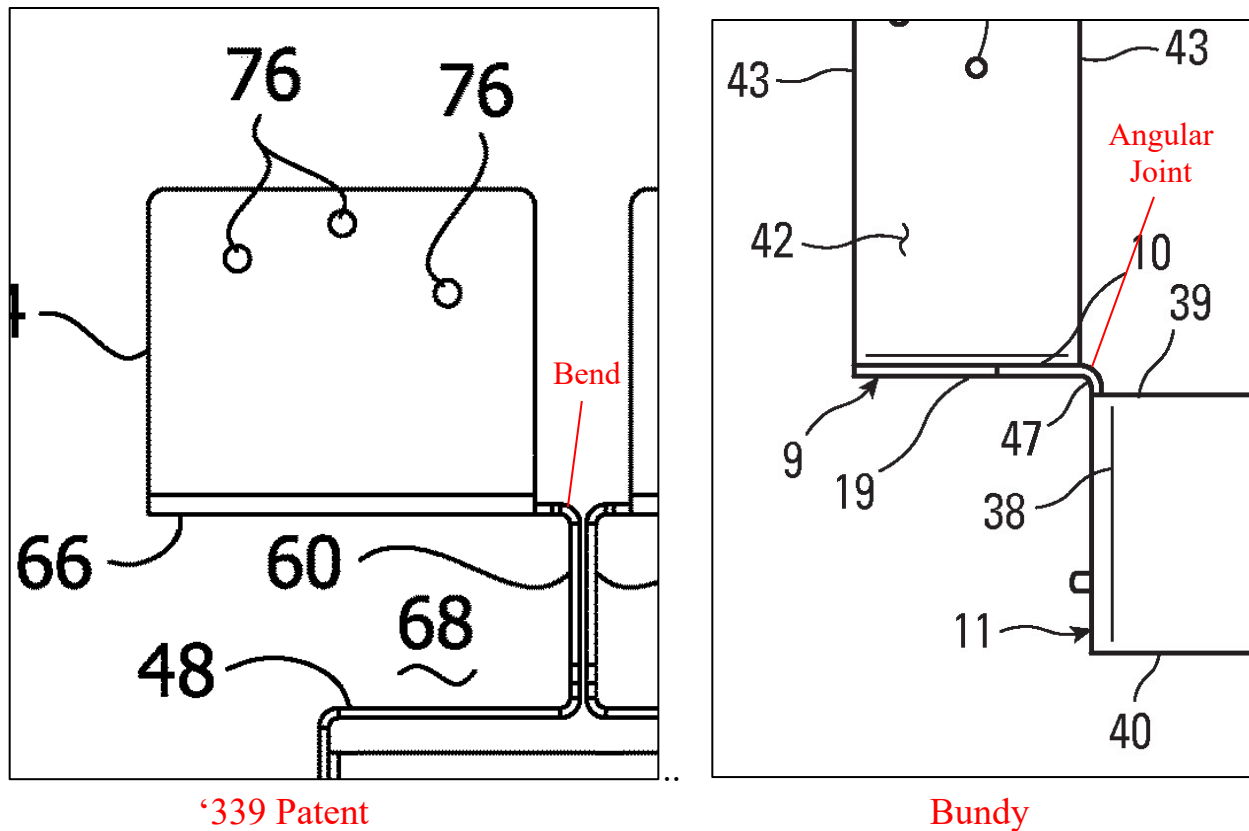


Fig. 7

26. In the Institution Decision, the Board did not give much weight to this description in Bundy because Bundy uses the term “angular joint” instead of “bend.” ID: 36. But as shown below, whether the term “angular joint” or “bend” is used, these terms refer to the same structure and serve the same purpose in both Bundy and the ‘339 Patent.



EX1001: Figs. 7 (enlarged, annotated); EX1005: Fig. 7 (enlarged, annotated).

27. For the above statement in Bundy to be true—i.e., “first and second back edges 29 [of the side members 11] ... *meet* the first and second inner edges 20 of the first and second back plate members 9”—the angular joint/bend must be considered part of the side members (11) and the back plate members (9). Otherwise, if the angular joint/bend (47) is considered a distinct element between the side members (11) and the back plate members (9), the back edges (29) of the side members (11) would *not meet* the inner edges (20) of the back plate members (9). Instead, the back edges (29) and the inner edges (20) would be spaced apart by the angular joint (47).

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B. “An Open Top Opening Outwardly From the Edge of the Fire Retardant Sheathing”

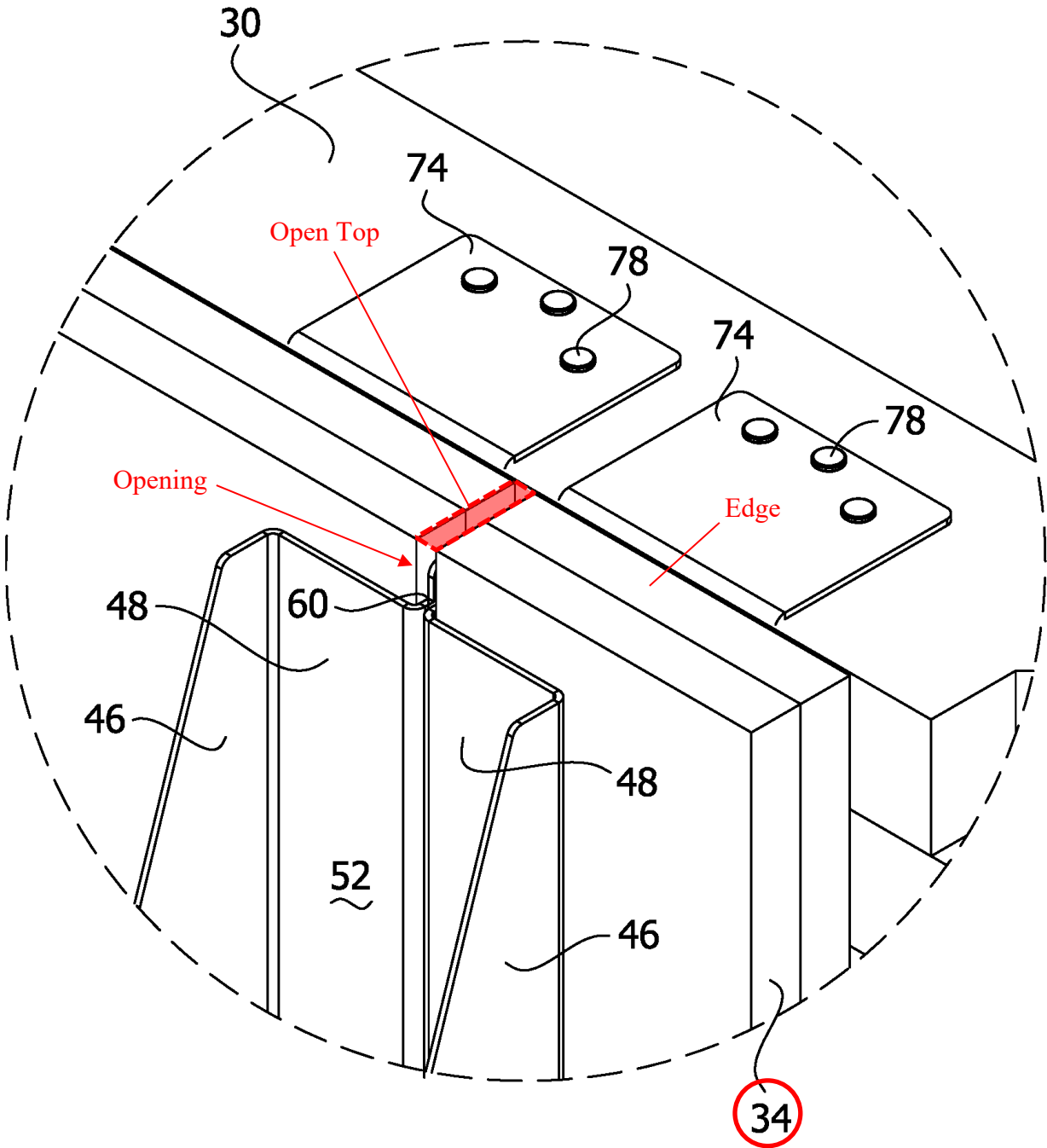
28. Claim 27 recites “the opening ... having an open top opening outwardly from the edge of the fire retardant sheathing.”

29. In my opinion, a POSA would understand this claim limitation to mean the construction of the opening is such that the open top provides access to the outside for the opening from the edge of the fire retardant sheathing.

30. This is consistent with the plain and ordinary meaning of the words “opening” and “outwardly.” EX2084: (New Oxford American Dictionary definition of “open” as a verb is “give access to”); EX2085: (Merriam-Webster’s Collegiate Dictionary definition of “opening” as a verb is “to give access”); EX2024: 4 (definition of “outwardly” is “toward the outside”); EX2025: 4 (definition of “outward” is “toward the outside”). “Opening” is the present participle of the verb “open.”

31. This construction is also consistent with the ‘339 Patent. As shown in Fig. 10A below, the open top of the opening provides access to the outside for the opening from the edge of the fire retardant sheathing (34).

FIG. 10A



EX1001: Fig. 10A (annotated)

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32. As explained in dependent claim 28, the “open top” of the opening providing access to the outside for the opening is what allows the fire retardant sheathing to be mounted to the frame wall *around* the fire wall hanger, 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 to move into the opening via the open top as the fire retardant sheathing is moved upward. EX1001: claim 1, 8:16-21.

33. The ‘339 Patent did not create the phrase “opening outwardly,” as this phrase has been used frequently in the construction arts such as in U.S. Pat. Nos. 9,790,684 (EX2080: claim 22) and 3,885,363 (EX22078: claim 6), and U.S. Publication Nos. 2013/0047539 (EX2081: claims 49 and 68) and 2012/0285020 (EX2082: claim 8). I note that these two patents and two patent publications are in the same general CPC Classification Field (E04B) as the ‘339 Patent. EX1001: (58). I have been informed that CPC Classification Field E04B is entitled “General Building Constructions; Walls, e.g., Partitions; Roofs; Floors; Ceilings; Insulation or Other Protection of Buildings.”

34. In addition, in each of the examples I provided in my first Declaration in paragraphs 191-194, the elements identified as “opening outwardly” all have access to the outside.

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C. “The Opening ... Opening Outwardly From the Exterior Edge of the Fire Retardant Sheathing”

35. Claim 1 recites “the opening ... *opening outwardly* from the exterior edge of the fire retardant sheathing.”

36. This claim language is similar to the language of claim 27 and has a similar meaning. The difference between the language in claim 1 and claim 27 is that no specific part of the opening in claim 1 (e.g., the open top recited in claim 27) is being required to provide the access to the outside. Accordingly, in this case, the POSA would understand the limitation means the construction of the opening is such that the opening has access to the outside from the exterior edge of the fire retardant sheathing. This is consistent with the specification, the dictionary definition, and the general usage in the art for the reasons described above.

III. WRITTEN DESCRIPTION SUPPORT

37. I provided testimony in my first Declaration regarding the written description support for the claims of the ‘339 Patent. EX2001: ¶¶69-168. This testimony is incorporated herein by reference.

IV. DEFINITENESS

38. I provided testimony in my first Declaration regarding the definiteness of the claims of the ‘339 Patent. This testimony is incorporated herein by reference and I supplement it with the following testimony.

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A. Claims 1-31: “Opening Outwardly”

39. I provided testimony in my first Declaration regarding the definiteness of the phrase “opening outwardly.” EX2001: ¶¶184-199.

40. 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.”

41. 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.”

42. Applying the construction of “opening outwardly,” these claim limitations are definite. The “opening outwardly” limitation of claim 27 means the construction of the opening is such that the open top provides access to the outside for the opening from the edge of the fire retardant sheathing. The “opening outwardly” limitation of claim 1 means the construction of the opening is such that the opening has access to the outside from the exterior edge of the fire retardant sheathing. These constructions provide the general directionality (e.g., to the outside) that addresses the reason for Simpson’s indefiniteness challenge. Pet: 16.

43. The Institution Decision preliminary determined the “opening outwardly” limitations of claims 1 and 27 are indefinite because “[w]hile Patent Owner points to the top of the opening as the exterior edge from which the sheathing is ‘opening outwardly,’ it would be at least equally reasonable to interpret ‘opening outwardly’ as referring to opening from the exterior edges of the front face of the fire retardant sheathing.” ID: 42.

44. I have been informed that when construing a claim, the language of the claim is to be considered as a whole. I have also been informed that claims are written in a manner that follows the principle of “antecedent basis.” I have been informed that “antecedent basis” is a patent drafting concept where the first time a component is introduced within the claim it is introduced by an indefinite article such as “a” or “an,” and then subsequent references to the component within the same claim (or claims that depend from it) use a definite article such as “the” or “said.”

45. Reviewing claims 1 and 27, in my opinion these claims identify the specific edge of the fire retardant sheathing that the “opening” of claim 1 opens outwardly from and that the “open top” of claim 27 opens outwardly from. The “opening outwardly” limitations do not introduce the recited “[exterior] edge of the fire retardant sheathing” into the claims. The “opening outwardly” limitations do not use indefinite articles when referring to the “[exterior] edge of the fire retardant

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sheathing.” That is, the “opening outwardly” limitation of claim 1 *does not recite* “the opening ... opening outwardly from an exterior edge of the fire retardant sheathing.” And the “opening outwardly” limitation of claim 27 *does not recite* “the opening ... having an open top opening outwardly from an edge of the fire retardant sheathing.” I note that claim 1 recites “exterior edge” and claim 27 recites “edge.” Claim 1 addition of “exterior” is to distinguish this “exterior edge” of the fire retardant sheathing from another “edge” of the fire retardant sheathing that bound the opening in the fire retardant sheathing. Claim 27 does not recite another “edge” of the fire retardant sheathing, so claim 27 just recites “edge,” not “exterior edge.”

46. Instead of using indefinite articles that introduce an element according to the principle of antecedent basis, the “opening outwardly” limitations use the definite article “the” when referring to the “edge of the fire retardant sheathing.” That is, the “opening outwardly” limitation of claim 1 *recites* “the opening ... opening outwardly from the exterior edge of the fire retardant sheathing.” And the “opening outwardly” limitation of claim 27 *recites* “the opening ... having an open top opening outwardly from the edge of the fire retardant sheathing.” Following the principle of antecedent basis as it has been explained to me, this means the “[exterior] edge of the fire retardant sheathing” being referred to in the “opening

outward” limitations is the specific “[exterior] edge” that was introduced previously in each claim.

47. Reviewing claims 1 and 27 as a whole, and specifically the portions of these claims before their respective “opening outwardly” limitations, each of these claims introduce the “[exterior] edge of the fire retardant sheathing” before the “opening outwardly” limitations by using the indefinite article “an.” That is, before the “opening outwardly” limitation of claim 1, claim 1 recites “cutting an opening into an exterior edge of fire retardant sheathing.” And before the “opening outwardly” limitation of claim 27, claim 27 recites “cutting an opening into an edge of fire retardant sheathing.” Following the principle of antecedent basis as it has been explained to me, these clauses of claims 1 and 27 introduce the “[exterior] edge” of the fire retardant sheathing that the opening in claim 1 opens outwardly from and that the open top in claim 27 opens outwardly from.

48. Moreover, both claims 1 and 27 state “...the opening extending through a front face of the fire retardant sheathing and a rear face of the fire retardant sheathing...”. The claims use the indefinite article “a” to introduce the front and rear faces, thereby distinguishing them from “the edge”. A POSA would also be able to distinguish between the “face” of a sheathing panel and the “edge” of a sheathing panel. When referring to a sheathing panel, the term “face” refers to the large planar surfaces of the panel, with the front face oriented towards the

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exposed side of the finished construction and the rear face oriented towards the concealed side. The term “edge” refers to the surface through the thickness of the sheathing. This understanding is consistent with the “exterior edge” where the opening was cut (in claim 1) and the “edge” where the opening was cut (in claim 27). A POSA would not consider a narrow cut extending through the front face to be an “edge” on the front face.

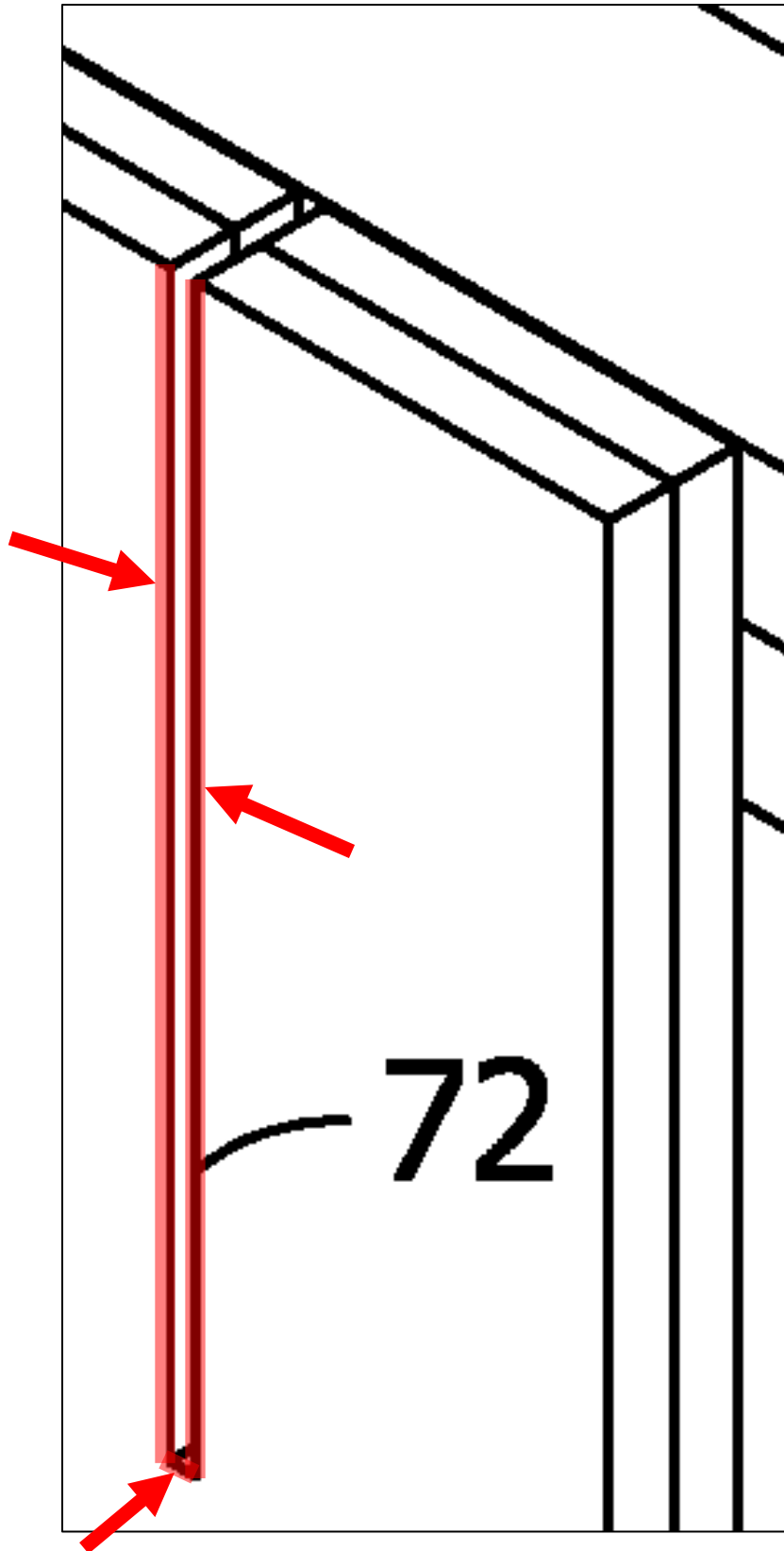
49. This means the “exterior edge” the opening in claim 1 is “opening outwardly” from *is the same* “exterior edge” of the fire retardant sheathing that was cut “into” to form the opening. Likewise, this means the “edge” the open top of claim 27 is “opening outwardly” from *is the same* “edge” of the fire retardant sheathing that was cut “into” to form the opening.

50. Therefore, based on my understanding of the principle of antecedent basis, the “[exterior] edge” of the fire retardant sheathing in the “opening outwardly” limitations is not just any edge, but the specific “[exterior] edge” of the fire retardant sheathing the opening was cut into. The “exterior edge” of claim 1 that the opening opens outwardly from is the “exterior edge” that was cut into to form the opening. And the “edge” of claim 27 that the open top opens outwardly from is the “edge” that was cut into to form the opening.

51. As previously discussed, a POSA would also understand that the term “face”, when applied to a sheathing panel, has a separate and distinct meaning

from the term “edge”. A POSA would therefore not consider the front face of the fire retardant sheathing to define the edge of the fire retardant sheathing into which the opening is cut.

52. My understanding of the Institution Decision is that the Institution Decision points to the “edges” of the front face (highlighted red below in annotated Fig. 9 of the ‘339 Patent) as possible edges the opening (72) is “opening outwardly” from. ID: 42 (“reasonable to interpret ‘opening outwardly’ as referring to opening from the exterior edges *of the front face* of the fire retardant sheathing”) (emphasis added). However, these red highlighted “edges” cannot be the “edge” the opening of claim 1 nor the open top of claim 27 open outwardly from. These red highlighted “edges” are formed by the “cutting” step. Thus, these red highlighted “edges” identified by the Institution Decision do not exist prior to the step of “cutting an opening into an [exterior] edge of the fire retardant sheathing” as recited by claims 1 and 27. Therefore, these red highlighted “edges” cannot be the “[exterior] edge” the opening is cut “into.” In other words, these red highlighted “edges” are not the “[exterior] edge of the fire retardant sheathing” that was cut into to form the opening, as recited by claims 1 and 27. Stated another way, a POSA would not consider the front face of the fire retardant sheathing to define the edge of the fire retardant sheathing into which the opening is cut.



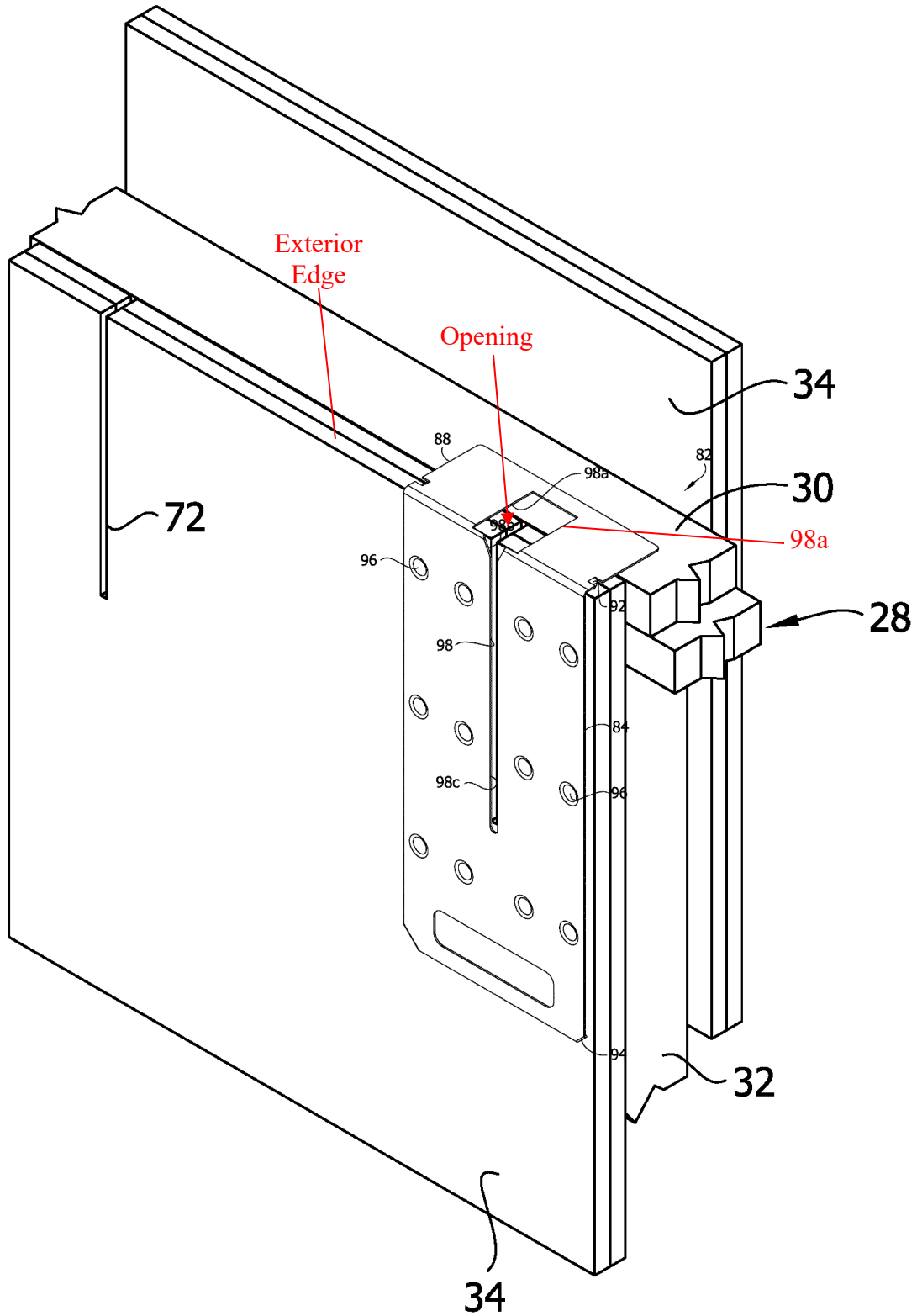
EX1001: Fig. 9 (annotated, enlarged).

53. As a result, because the principle of antecedent basis as explained to me means the opening of claim 1 “open[s] outwardly” from the same “exterior edge” that was cut into to form the opening, these red highlighted “edges” cannot be the “exterior edge of the fire retardant sheathing” that the opening of claim 1 “open[s] outwardly” from. Likewise, because the principle of antecedent basis as explained to me means the open top of claim 27 “open[s] outwardly” from the same “edge” that was cut into to form the opening, these red highlighted “edges” cannot be the “edge of the fire retardant sheathing” that the open top of claim 27 “open[s] outwardly” from.

54. This understanding is supported by the specification of the ‘339 Patent. The ‘339 Patent describes a template (82) for forming the opening (72), which is shown in Fig. 16. The specification explains “a cutting tool (e.g., a drywall cutout tool) is 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.” EX1001: 6:32-34. Fig. 9 below has been modified by superimposing Fig. 16 thereon to show the position of the template (82) on the fire retardant sheathing (34) to form the opening (72) illustrated in Fig. 9. The specification explains “the guide slot 98 includes a wide, rectangular portion 98a in the horizontal panel 88 to ease *insertion* of a cutting tool into the guide slot.” EX1001: 6:8-10 (emphasis added). As illustrated, the open top of the opening (72) that is “opening outwardly” is *at* the same “[exterior] edge”

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of the fire retardant sheathing (34) the spiral bit (EX1001: 6:35) of the cutting tool cuts “into” when the cutting tool enters the rectangular portion 98a of the slot 98 to cut the opening (72).



EX1001: Fig. 9 (modified with Fig. 16 superimposed thereon).

55. Therefore, in my opinion, by following the principle of antecedent basis and a POSA's understanding of the terms "face" and "edge", I disagree with the Institution Decision's determination that there are "at least two plausible and incompatible constructions of 'opening outwardly.'" ID: 42. Because the "[exterior] edge" of the fire retardant sheathing the opening/open top "open[s] outwardly" from *is the same* "[exterior] edge" of the fire retardant sheathing that was cut "into" to form the opening, the "opening outwardly" limitations are not indefinite for the reasons explained in the Institution Decision.

B. Claims 13 and 14: "Close Conformance"

56. I provided testimony in my first Declaration regarding the construction and definiteness of the phrase "close conformance." EX2001: ¶¶206-221.

57. As I stated previously, in my opinion, in the context of the claims 13 and 14, "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. EX2001: ¶210.

58. In reviewing the Institution Decision, the Board said "we encourage the parties to brief how the skilled artisan in view of the Specification would distinguish between, on the one hand, a hanger element and sheathing being in

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‘close conformance,’ and, on the other hand, a hanger element and sheathing *not* being in ‘close conformance.’” ID: 45 (emphasis in original).

59. At this direction, based on the ‘339 Patent’s specification stating “the gap between the extension flanges 60 and the edge of the slot 72 is less than or equal to 1/8” (EX1001: 5:38-39), the POSA would understand that edges of the fire retardant sheathing bounding the opening spaced *greater* than 1/8-inch from the exterior faces of the extension portion of the fire wall hanger would *not* be in “close conformance.”

V. PRIOR ART GROUNDS

A. Simpson’s and Mr. Fennell’s Motivations to Combine Cullen and Bundy

60. As addressed in Paragraphs 227-244 of my December 20, 2024 declaration, it is my opinion that a 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.

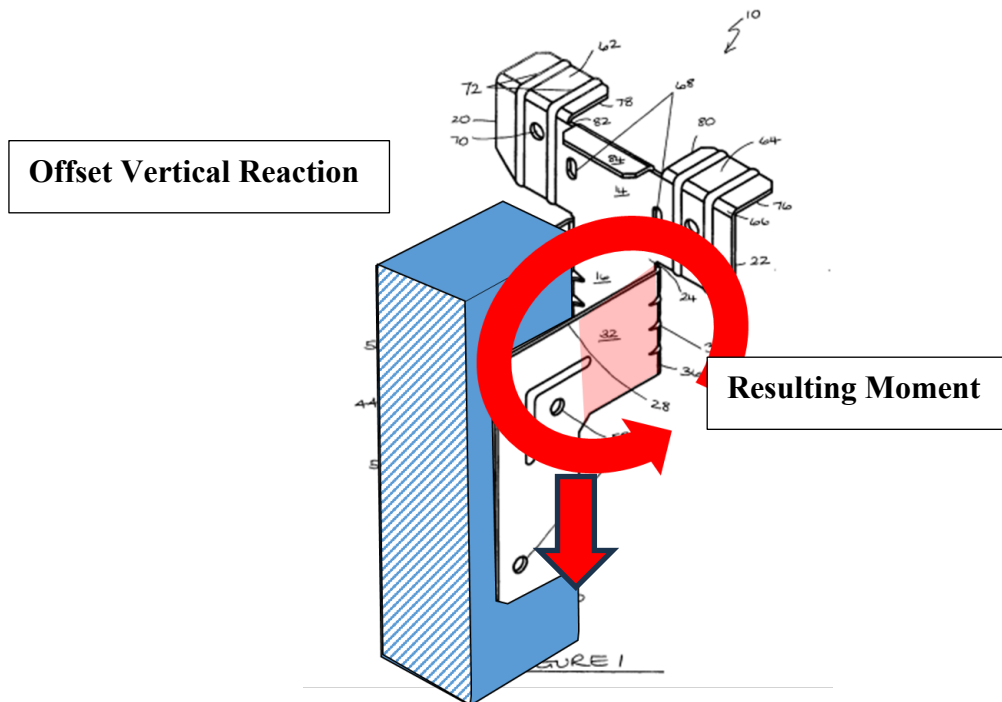
61. While I stand behind my opinion from the December 20, 2024 declaration, I further supplement my opinion as follows.

62. As addressed in Paragraphs 232-233 of my December 20, 2024 declaration, Cullen’s hanger teaches and relies upon the joist abutting the back plate.

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63. Spacing the end of the joist away from the back plate—as suggested by Simpson’s Cullen-Bundy combination—would entirely change the load path of the Cullen hanger in a structurally detrimental manner. Hence, a person of skill in the art would be highly skeptical of this modification and disinclined to attempt it.

64. 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 as demonstrated below:



EX1004: Fig. 1 (annotated).

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65. Specifically, the POSA would have significant doubts that the side walls (30, 32) of the Cullen hanger could withstand these forces without buckling, which in worst case scenarios could cause a collapse of the building.

66. In addition to introducing a larger moment reaction on the hanger by spacing the joist away from the back plate (12), the back plate would no longer provide any resistance to the rotation of the joist and the joist would no longer provide any reinforcement of the side walls (30, 32).

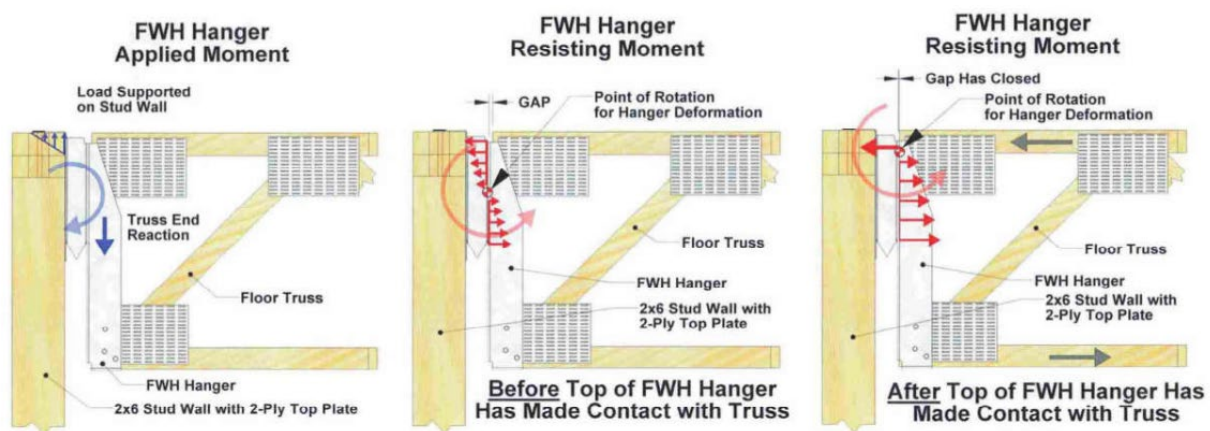
67. Even absent complete failure of the hanger, even slight deformation could cause the channel shaped portion and joist to rotate backward into the space that Simpson and Mr. Fennell propose could receive sheathing after the framing is completed.

68. Depending on the tolerances, this rotation backward into the space that Simpson and Mr. Fennell propose could receive sheathing would cause interference with receiving the sheathing.

69. A POSA would further understand that concerns regarding the hanger's ability to resist the larger moment reaction, and the resulting increased deflection, could not be easily remedied by merely increasing the steel thickness or cross section of the hanger. Such modifications would not only increase the material cost and fabrication difficulty of the hanger, but would reduce the chances of passing the required fire tests due to the increased thermal conductivity of the hanger.

Considerable experimentation would be required to engineer a modification that satisfied the conflicting requirements for fire resistance and structural performance.

70. Demonstrating the legitimacy of rotational forces from offsetting the joist away from the supporting or bearing members causing deformation of the hanger as a concern, I understand that upon the release of the FWH hanger—the hanger that I understand MiTek developed to practice the method claimed in the ‘339 Patent—MiTek released literature explaining how the FWH hanger overcame this phenomenon and the testing that was performed. As shown below, rather than simply offsetting the joist from the back plate of the hanger, the offset is provided by the extension portion, allowing the joist to contact the back panel (48) of the channel shaped portion of the FWH hanger after minimal rotation. This contact significantly increases the moment resistance provided by the hanger.



EX2091.

71. I also understand that documentary evidence has been obtained from Simpson in which Simpson and its employees expressed skepticism upon initially

learning of the product in April of 2014 that the FWH hanger would adequately resist the rotational forces.

72. For example, one of Simpson's employees questioned in an internal email [REDACTED]

[REDACTED] EX2092: SST0087797.

73. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] EX2089:
SST0087752.

¹ I understand Simpson's DU / DHU / DHUTF products are the commercial embodiments of the Bundy hanger.

74. Simpson drafted talking points that included, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

EX2088: SST0087827.

75. This documentary evidence from April 2014—only months after the priority date—is representative of the concerns that those of skill in the art would have had in attempting to offset the end of the joist away from the supporting or bearing members at the time of the invention.

76. Notably, the extension flanges of the FWH hanger are considerably taller (height wise) than the side walls (30, 32) of the Cullen hanger, meaning that were a person of skill in the art to compare the Cullen hanger and MiTek’s FWH hanger side-by-side, any concerns with respect to MiTek’s FWH hanger buckling or deforming would be exacerbated by the Cullen hanger. As previously discussed in paragraph 69 of this Declaration, these concerns could not be easily addressed by merely increasing the steel thickness or cross section of the hanger.

77. Bundy would not have minimized or alleviated these concerns. Bundy only succeeds with offsetting the joist because the hanger applies a “sufficiently large, flat surface to the surface of the [previously installed] exterior drywall sheet in order to stabilize the connection without crushing the drywall.” EX1005: 2:28-32.

78. Indeed, Simpson's internal design documents included testing demonstrating [REDACTED]

[REDACTED] EX2086: SST0105127.

79. Specifically, Simpson attempted different tests [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

80. [REDACTED]

[REDACTED]
[REDACTED]

81. Further, even to the extent that the Cullen hanger could be reinforced other internal testing by Simpson demonstrated [REDACTED]

[REDACTED]

[REDACTED]

EX2086: SST0105129 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

82. I understand that the Institution Decision referenced Russo (EX1013) and Leathe (EX1014) in regard to the order of installation.

83. Russo's framing brackets carry no vertical load and would not have been considered by a POSA trying to maintain spacing for receiving drywall behind hangers that do carry a load. EX1013.

84. Leathe shows a bracket for a ledger board. The bracket has a receiving section designed to accommodate insertion of a ledger board after the bracket is mounted to a building. (EX1014: 2:45-49). Leathe also discloses that a built-in joist

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hanger bracket may be included, but does not teach an installation sequence wherein the ledger board is installed after the joist hanger bracket has been loaded by the joists. (EX. 1014: 5:22-31). The Leathe bracket therefore merely provides a space for the insertion of the ledger board, and neither the bracket nor the ledger board carries vertical load until after the ledger board is inserted. Accordingly, Leathe provides no teaching for how the bracket can be designed with sufficient strength or stiffness so that, when loaded, the space may be maintained to accommodate the ledger. Leathe also provides no mention of installing sheathing after installation of a bracket or hanger, much less fire retardant sheathing.

85. I also disagree with the Institution Decision's reluctance to consider Bundy's installation as "[i]mportantly, [] not require[ing] any alteration of the drywall," as an express teaching away of penetrating the fire barrier with a portion of firewall hanger.

86. The conventional wisdom within the art was and remains to avoid disruptions in the fire resistant sheathing of a firewall.

87. Section 714.3 of the International Building Code, 2012 ed. (2012 IBC) prescribed requirements for penetrations through fire walls, and addressed both through penetrations (a breach in both sides of a wall assembly) and membrane penetrations (a breach in one side of a wall assembly). The IBC is a model building code widely referenced in, or adopted by, local building codes. Section 714.3

addressed issues such as the permissible size of the annular space (i.e., the gap) around the penetrating item, materials that may be required to fill the annular space, and test requirements for demonstrating that the penetration would not permit sufficient flames or hot gases to pass through the penetration to constitute a safety hazard.

88. Section 714.3.1.1 of the 2012 IBC required that penetrations shall be installed as tested in an approved fire-resistance rated assembly. For a fire rated load bearing wall, the fire-resistance test would have required that the wall demonstrate that it can support its design load over the duration of the fire test. The 2012 IBC requirements therefore addressed both fire resistance and structural performance issues.

89. The reluctance that a person of ordinary skill in the art would have had in penetrating the fire barrier with a portion of firewall hanger is demonstrated by deposition testimony of Simpson's witnesses and documentary evidence in which Simpson and its employees expressed skepticism that the FWH hanger would meet code requirements with respect to fire protections or would be deemed acceptable by building officials.

90. For example, Simpson's employees provided the following critiques of the FWH hanger:

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- the [REDACTED] (EX2087: SST0077466);
- the [REDACTED]
[REDACTED] (EX2088: SST0087827);
- [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] (EX2089: SST0087752); and
- [REDACTED]
[REDACTED] (EX2141).

91. I understand that one of Simpson’s Senior Vice Presidents has further testified that in designing the Bundy hanger, it was Simpson’s "[REDACTED]
[REDACTED] (EX2064: 168:23-170:13) and that it was Simpson’s “position [] to stay away from making any kind of alterations to the fire wall assembly.” (EX2065: 107:20-108:23).

92. Accordingly, Bundy’s statement about it being important not to require alterations of the drywall would have been understood—especially within the context of the conventional wisdom within the art—as an express teaching away from penetrating the fire barrier with a portion of firewall hanger.

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93. A POSA would not have been motivated by Bundy to adapt the application of the Cullen hanger as suggested by Simpson.

94. Bundy's contribution to the art was:

- configuring the disclosed hanger to extend over—not through the fire retardant sheathing—by lengthening the top flanges (EX1005: 4:17-20, 5:42-62, 6:14-17; and
- increasing the surface of the hanger resting on the exterior drywall sheet so as to resist the rotational forces caused by offsetting the joist away from the wall as discussed above. EX1005: 2:28-32.

95. To the extent that a POSA would consider combining the teachings of Cullen with Bundy, the POSA would extend the top flanges of the Cullen hanger—as in Bundy—so that they could extend over the top edges of the fire rated sheathing while installing the hanger on the exterior face of the fire rated sheathing.

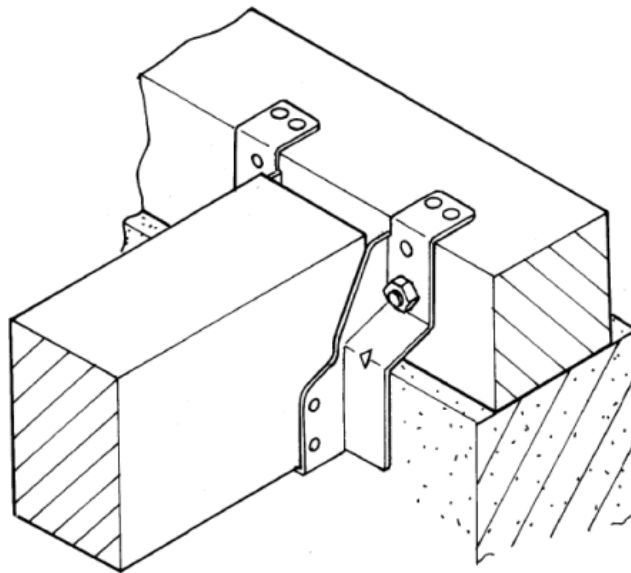
96. According to this application, the hanger would be capable of maintaining its designed load path as the outer surface of the fire rated sheathing will be available to resist any rotational forces from the joist and hanger. Additionally, this application would not require cutting openings in the sheathing, following the conventional wisdom.

B. Simpson's and Mr. Fennell's Motivations to Combine Yamaguchi and Bundy

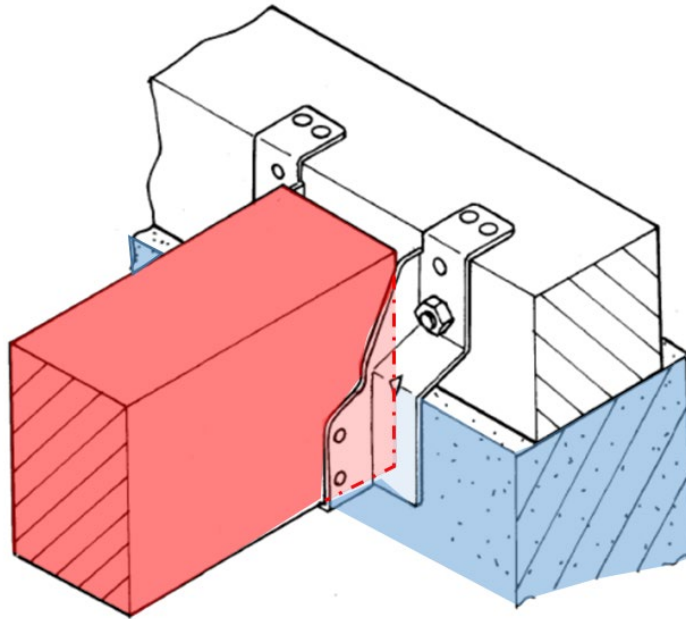
97. As addressed in Paragraph 256 of my December 20, 2024 declaration, it is my opinion that a person of ordinary skill in the art would have been discouraged from using the Yamaguchi hanger on a standard wood framed wall to create a space between the joist and the wall assembly.

98. While I stand behind my opinion from the December 20, 2024 declaration, I further supplement my opinion as follows.

99. As stated in my prior declaration, the person of skill in the art would recognize Yamaguchi's hanger as being especially constructed for attaching to the sill of a foundation wall. *See* EX1007: (55) Description of Article of Design. This is demonstrated in the Reference Diagram Illustrating Usage State.



100. Specifically, Yamaguchi shows the joist inserted as deep into the hanger as possible, abutting the foundation wall itself. *See e.g.* EX1007: Reference Diagram Illustrating Usage State.



EX1007: Reference Diagram Illustrating Usage State (annotated).

101. Those of skill in the art would understand that the joist in Yamaguchi is purposefully abutting the foundation wall to provide bearing support at the end of the joist.

102. As I discussed above with respect to Cullen, by spacing a joist away from the supporting or bearing member(s), the downward force transferred from the joist to the hanger will be offset and thus introduces a larger moment reaction on the

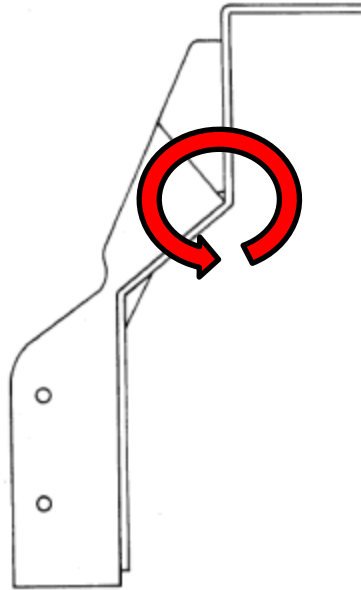
hanger. This moment reaction would result in rotational forces urging the bottom of channel shaped portion and joist toward the wall.

103. Where the joist is already abutting the foundation wall—such as in Yamaguchi’s Reference Diagram Illustrating Usage State—the rotational forces are resisted by the face of the foundation wall.

104. In contrast, a person of skill in the art would consider the use of the Yamaguchi hanger to space the joist away from a wood framed wall to be problematic as it removes the bearing support provided by the face of the foundation wall.

105. First, the Yamaguchi hanger risks unacceptable deformation without the aid of the bearing support provided by the face of the foundation wall. The side view of Yamaguchi demonstrates that a bend would need to singlehandedly resist the entirety of the rotational force. One of skill in the art would be highly skeptical that the bend—which represents a weak point—would hold under a load without the bearing support provided by the face of the foundation wall.

[Right Side View]



106. The foundation wall/sill combination of Yamagichi would provide significantly more resistance to rotation as compared to the top plate of a wood frame wall, since the foundation wall provides continuous support to the sill and prevents it from rotating along its length (i.e., twisting).

107. Thus even if the hanger itself had sufficient strength to resist deforming, one of skill in the art would also be skeptical that the top plate of a wood frame wall acting alone could withstand the rotational forces.

108. This concern is corroborated by Simpson's documentary evidence from the development of Bundy. Specifically, Simpson's design file shows that it attempted to design a hanger that could be installed prior to the sheathing and maintain a gap to receive the sheathing while developing and settling on the Bundy hanger. EX2086: SST0105115 ("Though it would be advantageous to install a

hanger away from framing that was capable of service level construction loads, with the luxury of installing drywall later, this is not a feasible solution here. Due to observed behavior, hanger rotation, and the critical nature of the gap behind the hanger, we advertise right away this is an important feature for the product to perform as expected.”).

109. During the testing, Simpson’s engineers found that [REDACTED]

[REDACTED]

EX2086: SST0105115.

110. Simpson attempted different tests [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

111.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] EX2086:

SST0105127.

112.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] EX2086: SST0105129.

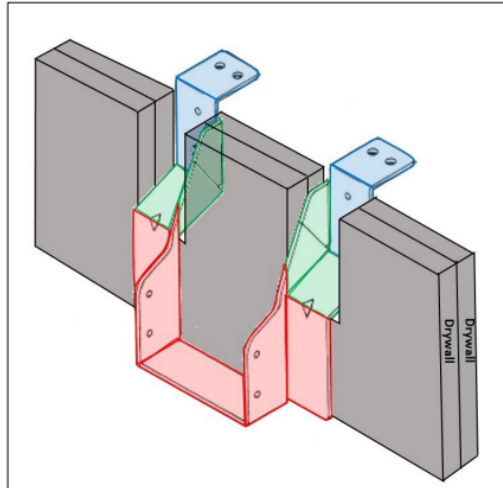
[REDACTED]

113. While I understand that this testing information was not publicly available, it demonstrates the type of concerns that a person of skill in the art would have had with offsetting the joist away from the top plate of a wood framed wall.

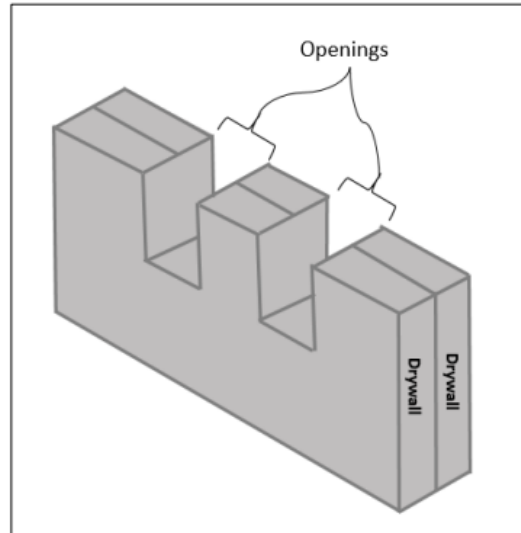
114. [REDACTED] even slight deformation of the hanger or rotation of the top plate could cause the channel shaped portion and joist to rotate backward into the space that Simpson and Mr. Fennell propose could receive drywall sheathing after the framing is completed. Depending on the tolerances, this would cause interference with receiving the sheathing.

115. Like the Cullen-Bundy combination above, Simpson's and Mr. Fennell's proposal for combining the teachings of Yamaguchi and Bundy would require cutting the sheathing to receive portions of the Yamaguchi hanger.

116. As demonstrated in Simpson's and Mr. Fennell's own renderings, the resultant cutouts would be substantial in size.



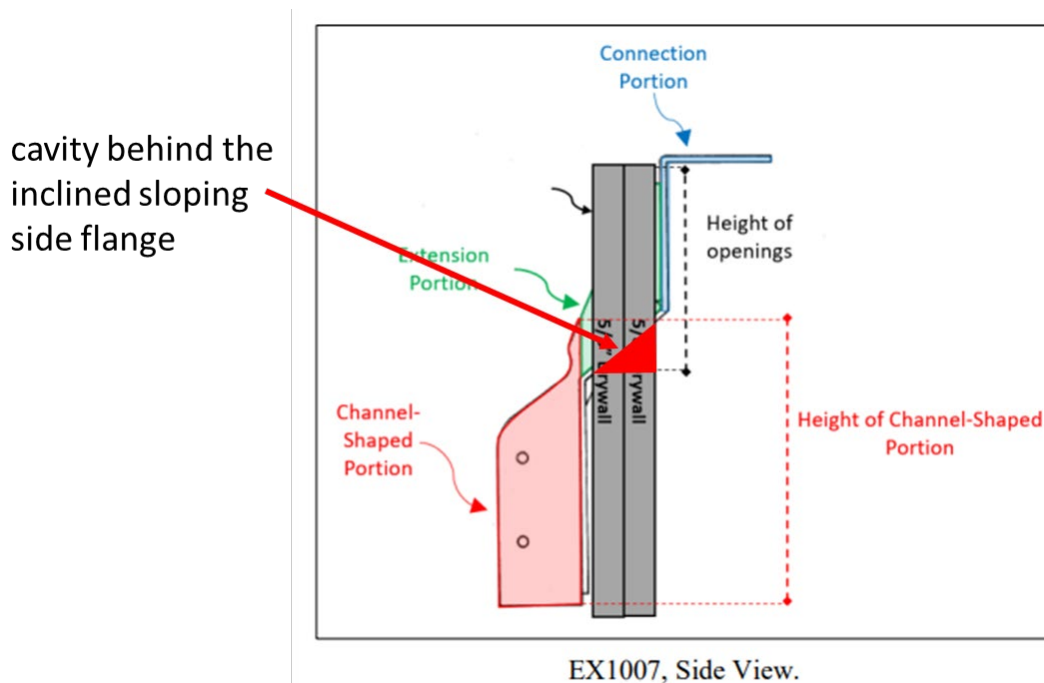
EX1007, Perspective View.



Petition at 69, 70.

117. Due to the configuration of the Yamaguchi hanger, the opening in the sheathing could not be filled by non-combustible materials. Nor would the opening be completely covered to prevent fire or heat penetration.

118. In fact, the Yamaguchi hanger's inclined sloping side flanges would leave significant cavities for fire to penetrate into the wall cavity.



119. As discussed above, the conventional wisdom within the art—

—was to avoid disruptions in the drywall sheathing. EX2087: SST0077466

EX2088: SST0087827

EX2089: SST0087752

EX2141 (

EX2064:168:23-170:13

EX2065: 107:20-108:23 (“our position was to stay away from making any kind of alterations to the fire wall assembly”); *see also* EX2090 (documenting skepticism from an engineering firm that that there were "some jurisdictions that [the engineering firm] fe[lt] won't accept it because of the slit made in the drywall.").

120. Following this conventional wisdom, Bundy taught installing the hanger over the drywall panels after the drywall panels were already installed on the wall and expressly taught away from cutting an opening in fire rated sheathing for a hanger. EX1005: Fig. 2, 2:18-25 (“[i]mportantly, [] does not require any alteration of the drywall . . . [t]he drywall [is] applied . . . , and the joist hanger can then be attached”), 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.”).

121. Further, the Yamaguchi hanger—with its numerous bends—would have been recognized as being more complicated to manufacture than the Bundy hanger or conventional hangers and thus would result in the hanger being more expensive.

122. Notably, a single construction site would likely require hundreds of hangers, such that the price difference for the Yamaguchi hangers would likely have been viewed as cost prohibitive. In fact, I understand that one of Simpson's Senior Vice Presidents testified that Simpson abandoned attempting to develop a hanger that could be installed prior to the sheathing until after MiTek had already proven the commercial viability, due to a belief that the market would prefer cost effective hangers. EX2065: 108:25-118:3 (Simpson believed the market would prefer "a more cost effective hanger without the need to develop a -- a product that would cantilever off").

123. As with the Cullen combination above, a POSA would not have been motivated by Bundy to adapt the application of the Yamaguchi hanger as suggested by Simpson.

124. Bundy's contribution to the art was:

- configuring the disclosed hanger to extend over—not through the fire retardant sheathing—by lengthening the top flanges (EX1005: 4:17-20, 5:42-62, 6:14-17; and
- increasing the surface of the hanger resting on the exterior drywall sheet so as to resist the rotational forces caused by offsetting the joist away from the wall as discussed above. EX1005: 2:28-32.

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125. To the extent that a POSA would consider combining the teachings of Yamaguchi with Bundy, the POSA would extend the Yamaguchi top flanges of the hanger—as in Bundy—so that they could extend over the top edges of the fire rated sheathing while installing the hanger on the exterior face of the fire rated sheathing.

126. According to this application, the hanger would be capable of maintaining its designed load path as the outer surface of the fire rated sheathing will be available to resist any rotational forces from the joist and hanger. Additionally, this application would not require cutting openings in the sheathing, following the conventional wisdom.

C. Simpson's and Mr. Fennell's Motivations to Combine Robinson and Bundy

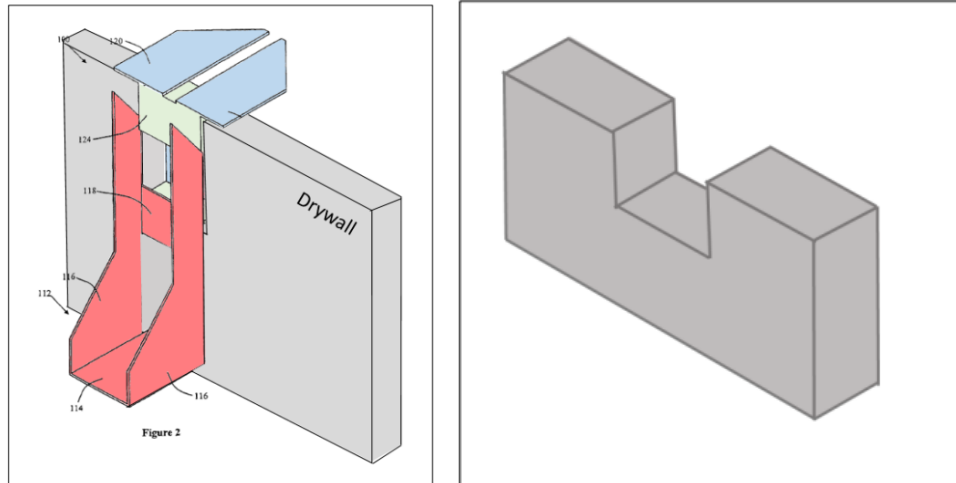
127. As addressed in Paragraphs 260-272 of my December 20, 2024 declaration, it is my opinion that a person of ordinary skill in the art would have been disinclined to use Robinson to penetrate the fire retardant sheathing of a fire resistant wall assembly.

128. While I stand behind my opinion from the December 20, 2024 declaration, I further supplement my opinion as follows.

129. Like the Cullen-Bundy and Yamaguchi-Bundy combinations above, Simpson's and Mr. Fennell's proposal for combining the teachings of Robinson and

Bundy would require cutting the sheathing to receive portions of the Robinson hanger.

130. As demonstrated in Simpson's and Mr. Fennell's own renderings, the resultant cutouts would be substantial in size.



Petition at 106, 107.

131. Due to the configuration of the Robinson hanger, even as modified as proposed by Simpson and Mr. Fennell, the opening in the sheathing would not be filled by non-combustible materials. While the opening may be substantially covered by the structural member (i.e., typically the combustible wood joist or truss), any gap between the structural member and the sheathing would be a pathway for fire to penetrate into the wall cavity.

132. As discussed above, the conventional wisdom within the art—[REDACTED]
[REDACTED]—was to avoid disruptions in the sheathing. EX2087: SST0077466 [REDACTED]

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[REDACTED]; EX2088: SST0087827 [REDACTED]

[REDACTED] EX2089: SST0087752 [REDACTED]

[REDACTED] EX2141 [REDACTED]

[REDACTED] EX2064: 168:23-170:13 [REDACTED]

[REDACTED] EX2065: 107:20-108:23 (“our position was to stay away from making any kind of alterations to the fire wall assembly”); *see also* EX2090 (documenting skepticism from an engineering firm that that there were "some jurisdictions that [the engineering firm] fe[lt] won't accept it because of the slit made in the drywall.").

133. Following this conventional wisdom, Bundy *taught* installing the hanger over the drywall panels after the drywall panels were already installed on the wall and *expressly taught away* from cutting an opening in fire rated sheathing for a hanger. EX1005: Fig. 2, 2:18-25 (“*[i]mportantly, [] does not require any alteration of the drywall . . .* [t]he drywall [is] applied . . . , and the joist hanger can then be attached”) (emphasis added), 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.”); .

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134. Further, the Robinson hanger—with its dividing wall (136), mount (124), and second surface (122)—would have been recognized as being relatively difficult and expensive to produce. It is not clear that such a hanger could be formed from a single piece of metal. Instead, it appears that the hanger would require separate components to be welded together. Nor is there an immediately evident redesign of the Robinson hanger concept that would make the hanger capable of being fabricated from a single piece of metal.

135. Between the mount 24, second surface 122, and the wall 136, the Robinson hanger likewise appears to require significantly more material than either Bundy or more conventional joist hangers that would have been familiar to the POSA.

136. A single construction site would likely require hundreds of hangers, such that the price difference for the Robinson hangers would have been viewed as cost prohibitive. In fact, I understand that one of Simpson's Vice Presidents testified that Simpson abandoned attempting to develop a hanger that could be installed prior to the sheathing until after MiTek had already proven the commercial viability. EX2065: at 108:25-118:3 (Simpson believed the market would prefer "a more cost effective hanger without the need to develop a -- a product that would cantilever off").

D. Simpson's and Mr. Fennell's Motivations to Combine Cullen-Bundy, Yamaguchi-Bundy, and Robinson-Bundy with Allan

137. As addressed in Paragraphs 273-284 of my December 20, 2024 declaration, it is my opinion that a person of ordinary skill in the art would not have been motivated by Allan to complete the Cullen-Bundy-Allan, Yamaguchi-Bundy-Allan, and Robinson-Bundy-Allan combinations proposed by Simpson and Mr. Fennell.

138. While I stand behind my opinion from the December 20, 2024 declaration, I further supplement my opinion as follows.

139. Joist hangers have been used in construction for well over a century. For example, U.S. Patent No. 537,504 is a patent issue in 1895 directed to a joist-hanger.

140. Despite that hangers have been used in construction for well over a century, none of Simpson's prior art combinations rely on any reference disclosing one of these hangers extending through sheathing, such as drywall.

141. In my prior declaration, I explained that in contrast to a joist hanger, the wall anchor of Allan is not required to support any vertical load. The importance of this distinction is demonstrated above in my discussion that a person of skill in the art would have been highly skeptical that the Cullen or Yamaguchi hangers could successfully resist the rotational forces that would be generated by spacing a joist

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away from the load bearing wall structure. As Allan is not required to support any vertical load, it does not provide any solution that would overcome this skepticism.

142. In my prior declaration, I explained there is a fundamental difference between cutting a hole in insulation and cutting a hole in sheathing intended to provide fire protection.

143. Cutting a hole in the insulation does not defeat the purpose of the insulation, it just lessens the localized insulation value of the wall assembly. This is similar to how gaps around doors and windows may cause drafts within a home during colder weather without compromising that the home still provides shelter from the cold.

144. On the other hand, cutting a hole in a sheathing intended to provide fire protection provides a path for the fire to spread, thus potentially circumventing the wall's fire protection. As noted in the '339 patent, "building codes require that the fire separation wall maintain a certain fire resistant rating. Thus, the integrity of the fire retardant sheathing should be maintained and interruptions of the sheathing kept to a minimum" EX1001: 1:43-46. If the code requires a wall to have a two hour fire rating, a sheathing discontinuity that prevents the required rating from being achieved renders the wall useless from a building code fire resistance rating perspective.

145. As presented above, the evidence collected from Simpson corroborates that the conventional wisdom within the art was to avoid disruptions in the sheathing.

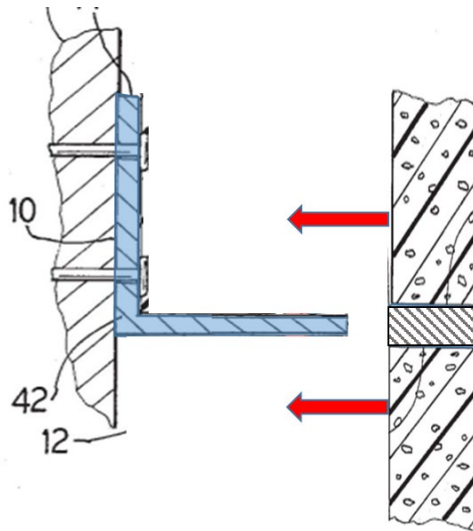
EX2087: SST0077466 [REDACTED] EX2088:
SST0087827 [REDACTED]
[REDACTED] EX2089: SST0087752 ([REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]; EX2141 [REDACTED]
EX2064: 168:23-170:13 [REDACTED]
[REDACTED] EX2065: 107:20-108:23 (“our position was to stay away from making any kind of alterations to the fire wall assembly”); *see also* EX2090 (documenting skepticism from an engineering firm that that there were “some jurisdictions that [the engineering firm] fe[lt] won’t accept it because of the slit made in the drywall.”).

146. Accordingly, Allan does not provide any solution that would overcome that the conventional wisdom within the art was to avoid disruptions in the sheathing.

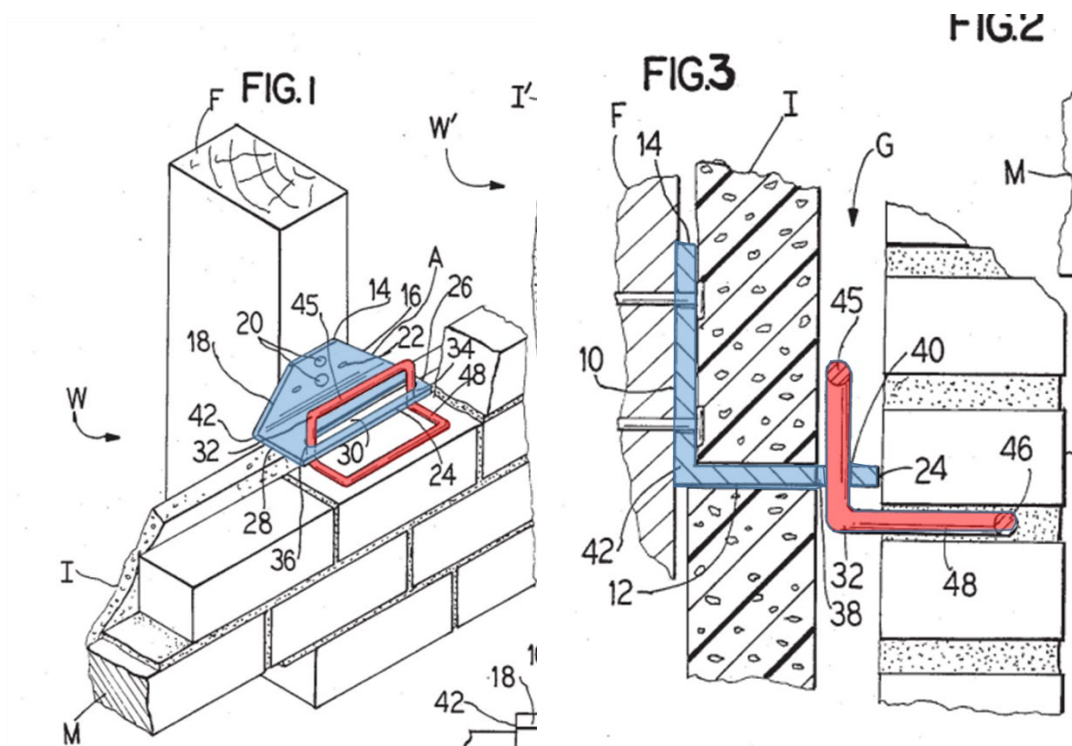
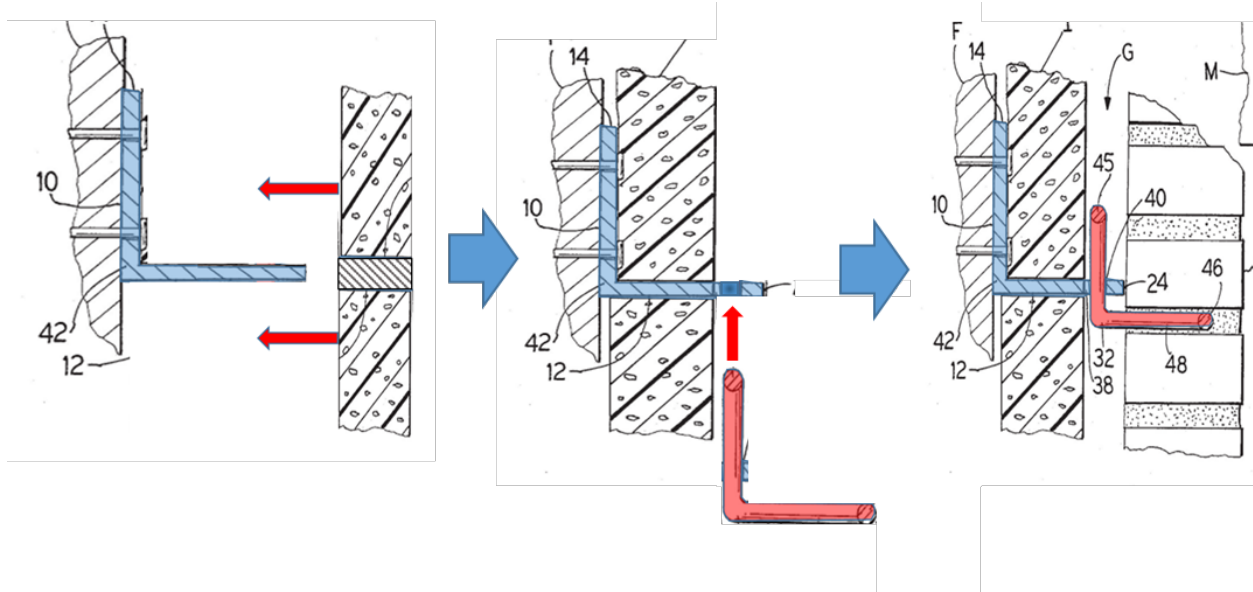
147. In my prior declaration, I also explained that Allan does not teach inserting the sheathing between the wall frame and existing, stationary components of the already mounted fire wall hanger while simultaneously moving the sheathing

relative to hanger such that a portion of the hanger extends through an opening in the sheathing.

148. Instead, as illustrated below, Allan merely requires the insulation to be lined up so the leg (12) is inserted into a notch or slot in the insulation as the insulation is installed plumb onto the wall frame.



149. Only after the insulation is installed is the wall anchor then further assembled by adding a tie (32) (red in the figures below) through an exposed (30) slot in the leg (12). EX1006: 4:1-40.



150. None of Cullen, Yamaguchi, Robinson, Bundy, or Allan teach or suggest inserting sheathing between existing components of an already complete and installed structural member. Nor do I agree that this would be intuitive even for

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those of skill in the art as it requires multiple recognitions to be perceived and appreciated simultaneously:

- recognizing that the select hangers have a preexisting gap (or in the case of Robinson that the hanger could be modified to have a preexisting gap) that would be accessible to receiving sheathing;
- recognizing to cut the fire resistant sheathing around the extension portion; and
- recognizing that once the fire resistant sheathing was cut to fit around the extension portion, it could be aligned and slid into place so that the sheathing would fit behind the channel shaped portion while surrounding the extension portion.

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

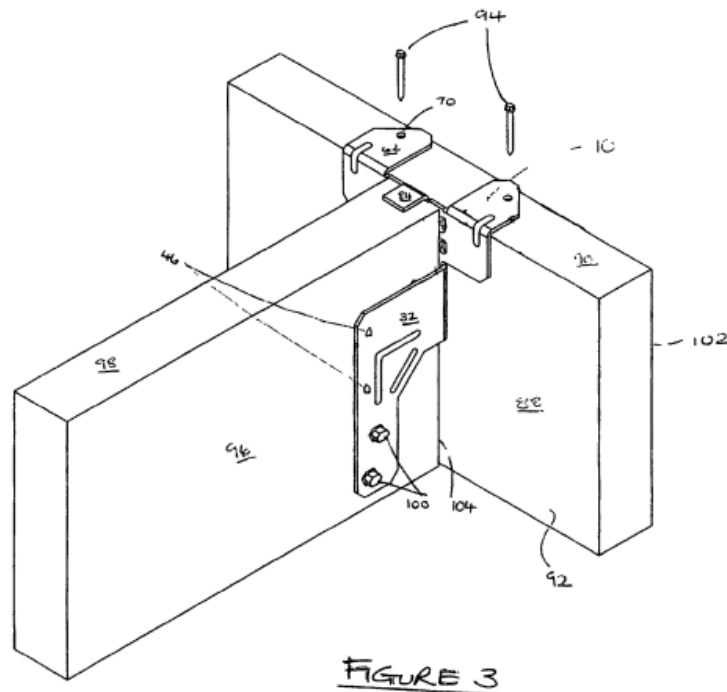
151. As addressed in Paragraphs 285-298 of my December 20, 2024 declaration, it is my opinion that a person of ordinary skill in the art would not have been motivated to combine ArchRecord, Commins, and Cullen according to Simpson's and Mr. Fennell's proposal.

152. I understand that the Institution Decision credits Mr. Fennell's explanation that "a POSA would have found it obvious to mount Cullen's (adapted) hanger onto ArchRecord's wall framing, and then to install gypsum sheathing by

notching the sheathing and inserting it between the mounted hanger and the wall framing” (EX1003 ¶ 444) as being a “straightforward combination.”

153. I disagree that the combination is straightforward.

154. As discussed above at Paragraphs 62 to 68 and in my December 20, 2024 report at Paragraphs 227-232, 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. Rather, Cullen’s principle of operation relies on the joist (96) abutting the back plate (12). EX1004: Fig. 3, 16:13-14 (“joist 96 ... is guided and aligned against the back plate 12.”); EX2001: ¶¶229-232. This is demonstrated in Figure 3 reproduced below.



EX1004: Fig. 3.

155. Furthermore, as discussed above at paragraphs 62-76 and in my December 20, 2024 report at Paragraph 234, the person of skill in the art would have been skeptical that the Cullen hanger would have adequately resisted the rotational downward force that would be introduced by spacing the joist away from the wood wall. This is corroborated by Simpson's skepticism of the MiTek's FWH hanger upon its initial release. EX2092: SST0087797 (questioning whether the extension portion of the FWH hanger would "buckle (crumple) as the bottom of the hanger tries to rotate back into the wall"); EX2089: SST0087752 ("rotation towards the gap will result in unavoidable conflict with the drywall placement"). A POSA would not

have recognized the use of the Cullen hanger to space the joist away from the wood framed wall as being reasonably viable.

156. Notably, neither the ArchRecord reference nor Commins—which merely teaches a hurricane tie—provides any solution for resisting the rotational forces created by cantilevering the joist away from the supporting or bearing members.

157. Nor would either the ArchRecord reference or Commins overcome the conventional wisdom within the art to avoid disruptions in the sheathing discussed above in paragraphs 86 to 92.

158. Commins provides no suggestion that it was intended for use on fire resistant wall assemblies.

159. While Option A and Option B as depicted in ArchRecord are described as being for use with fire resistant wall assemblies, neither of these two options were universally accepted in the industry.

160. As described by Mark Rolf (one of the inventors of the ‘339 Patent), Nathan Hoffman (whom Simpson retained to provide an expert report in a related district court litigation), and Bryan Wert (a Simpson employee designated as an unretained expert in a related district court litigation), architects and code officials were interpreting the fire code differently and prescribing a wide range of complicated architectural details from project to project and jurisdiction to

jurisdiction. EX2070: 19:13-22:20; EX2093. EX2076: ¶40 (Simpson retained expert stating “the market did not have good solutions for using joist hangers with two-hour fire-resistive wall assemblies” and identifying solutions he implemented in the appropriate time frame); EX2067: 41:1-44:11 [REDACTED]

[REDACTED]

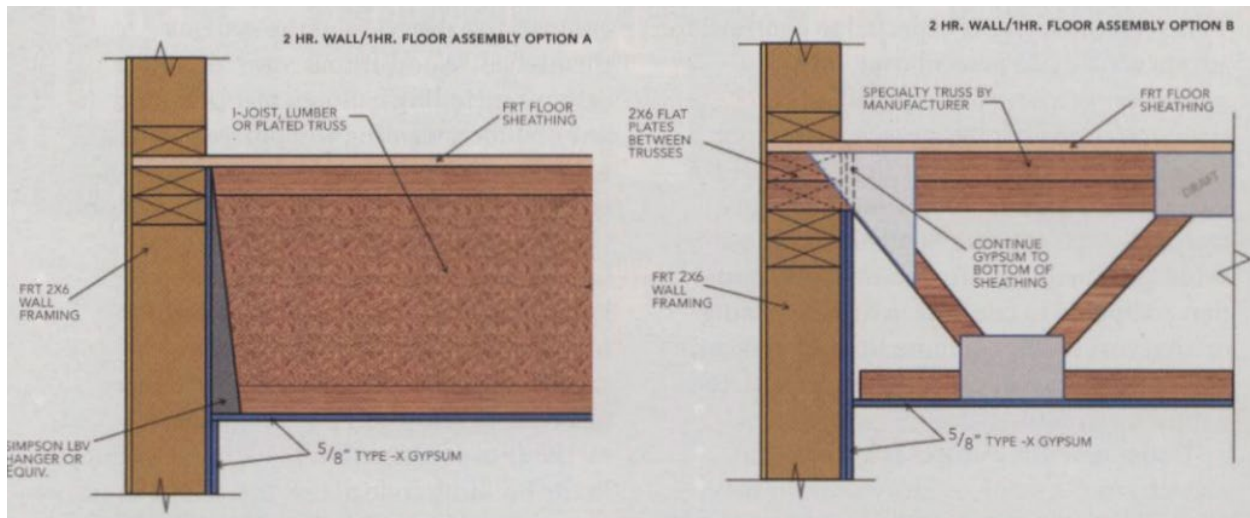
[REDACTED].

161. Rather than being universally accepted, Option A and Option B as depicted in ArchRecord were merely alternative solutions to the use of non-combustible construction materials that were being proposed by the timber industry. While I have no reason to dispute that these solutions may have been allowed or used on projects on some jurisdictions, they would have required approval by local building officials on a project-by-project basis.

162. Specifically, the article is identified as an “educational-advertisement” sponsored by naturally:wood—an organization promoting British Columbia’s timber industry. See <https://www.naturallywood.com/> (“We work collaboratively with the Government of British Columbia, Government of Canada, independent academic and research institutes, trade associations and wood products companies to support an environmentally sustainable and globally competitive forest sector in British Columbia.”).

163. Even if taken at face value, neither ArchRecord Option A or Option B would have encouraged a person of skill in the art to penetrate the fire rated sheathing with side walls (30, 32) of the Cullen hanger as proposed by Simpson and Mr. Fennell.

164. Of Option A (left) and Option B (right) of ArchRecord, only Option A discloses the use of a hanger, but the hanger is installed over—*i.e.*, after—the sheathing, just like Bundy.



165. Option B of ArchRecord does not use a hanger or any other structural connector for coupling the truss to the frame wall. Instead, the top chord of the truss is elongated compared to the bottom chord, such that the top chord is simply stacked on top of the wall's top plate.

166. Notably while Option A and Option B are depicted side-by-side, the two solutions would be recognized by the POSA as incompatible alternatives as they

rely on completely different framing methods, where Option B is essentially utilizing platform framing and Option A is utilizing semi-balloon framing.

167. Notably, both Option A and Option B are depicted as requiring FRT lumber (i.e., fire retardant treated wood) for the wall framing and floor sheathing. Although not explicitly stated in the article, the Option B construction—to the extent it would have been accepted by a building official—would likely have required the use of fire retardant treated wood for the truss plates due to the top chords penetrating the sheathing and fire caulking around the top chord where it penetrated the sheathing.

168. Carrying this concept over to Simpson's and Mr. Fennell's proposed use of the Cullen hanger, it would have been expected to require fire caulking completely around each of the side walls (30, 32). In fact, this was one of Simpson's expectations of the MiTek FWH hanger. EX2089: [REDACTED]

[REDACTED]

[REDACTED].

169. But fire caulking completely around Cullen hanger's side walls would not be feasible in the Simpson's proposed use of Cullen because the joist or truss would block access to the gap between the inner surfaces of the side walls and the edge of the cutout in the drywall.

F. Claim 25

170. I have been informed that a claim is only invalid as being obvious if the prior art obviousness combination teaches all the limitations in the claim.

171. Simpson asserts claim 25 is invalid as obvious over the following grounds:

- Ground 3: Cullen, Bundy, and Allan
- Ground 7: Robinson, Bundy, and Allan
- Ground 9: ArchRecord, Commins, and Cullen

172. Simpson does not assert claim 25 is invalid as obvious based on the Yamaguchi Grounds (Grounds 5 and 6).

173. Claim 25 recites the structure of the fire wall hanger. In my opinion, Simpson has not been able to show the prior art teaches all the limitations of claim 25. In particular, in my opinion the joist hanger (10) of Cullen (Grounds 3 and 9) does not teach the structure of the fire wall hanger recited in claim 25. In addition, in my opinion the joist hanger (100) of Robinson does not teach the structure of the fire wall hanger recited in claim 25.

1. Claim 25 and Cullen (Grounds 3 and 9)

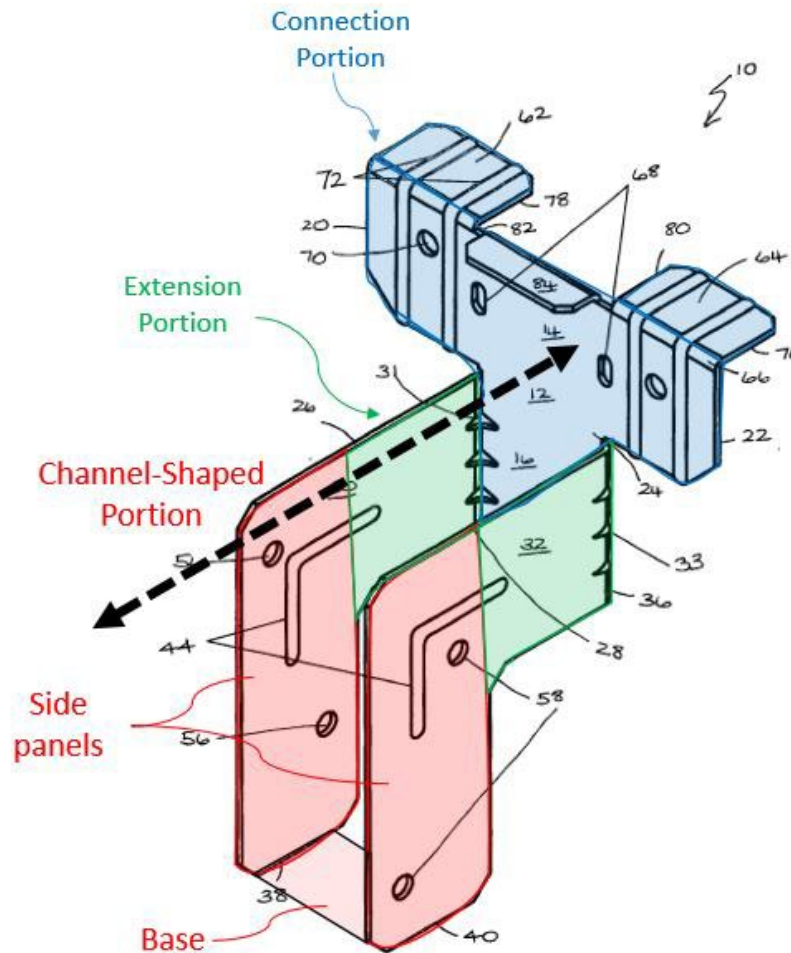
174. I disagree with Simpson and Mr. Fennell that Cullen teaches the fire wall hanger recited in claim 25. Pet: 59-62, 176.

175. Claim 25 recites “an axis that is normal to the planar front surface of the back flange ..., *the axis intersecting the side panel of the channel-shaped*

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portion and the planar front surface of the back flange.” Simpson labels this limitation as 25.F. In my opinion, the structure of Cullen’s joist hanger (10) does not meet this limitation.

176. In Grounds 3 and 9, Simpson states the joist hanger (10) in Fig. 1 of Cullen teaches limitation 25.F of claim 25. Pet: 61-62, 176. The joist hanger (10) of Cullen has a back plate (12) and two side walls (30, 32) extending forward from the back plate. EX1004: Fig. 1, 10:22-24. Simpson’s annotated image of Fig. 1 of Cullen is provided below. Simpson points to the red annotated portions of the side walls (30, 32) as being the claimed channel-shaped portion. Pet: 61-62. Simpson points to the back plate (12) (annotated blue by Simpson) as being the claimed back flange. Pet: 61-62.

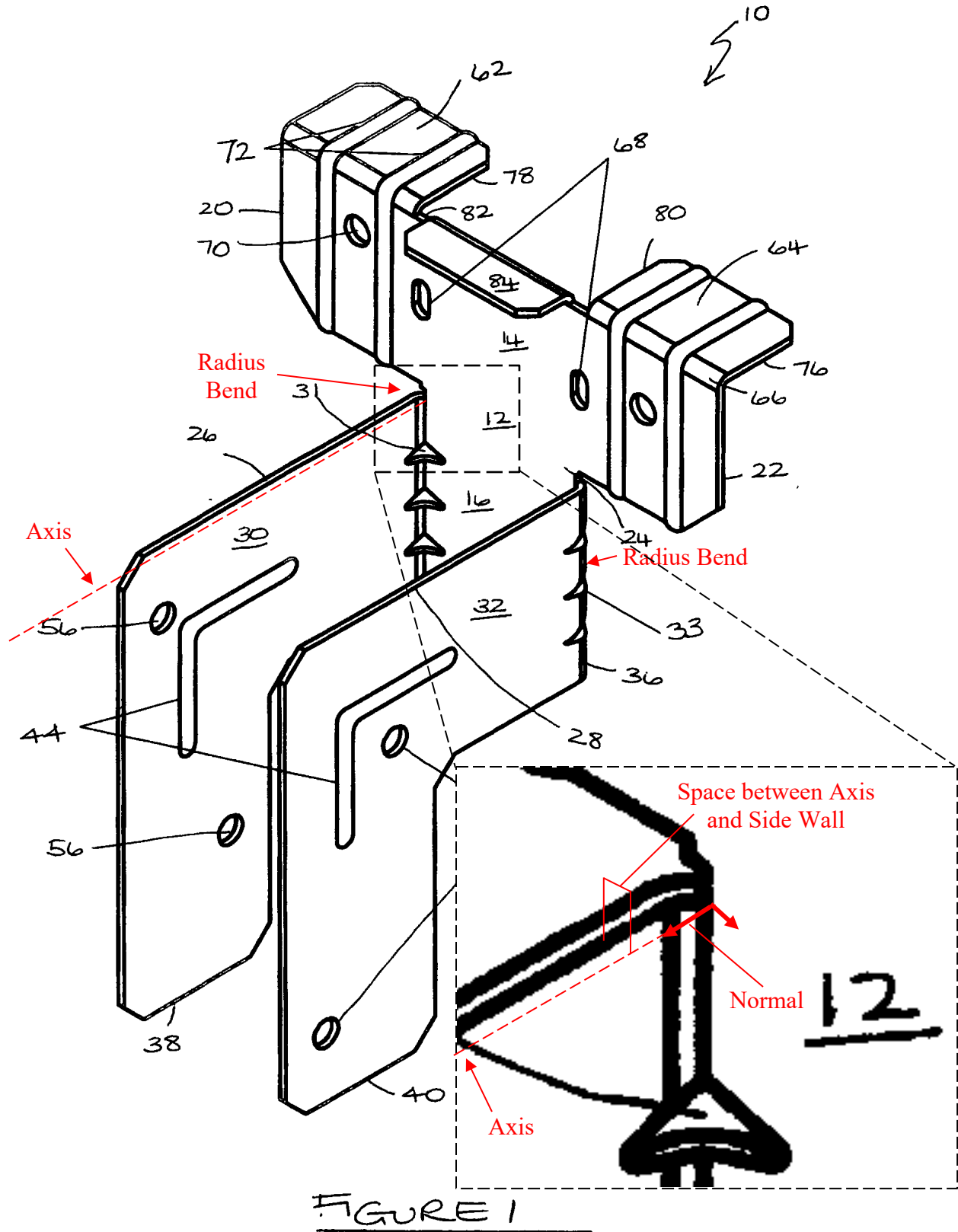


Pet: 62 (annotated by Simpson).

177. Fig. 1 of Cullen is produced below. As shown below, Cullen's side walls (30, 32) are connected to the back plate (12) by *radius bends*. Cullen also explains its side walls (30, 32) are "parallel" to each other and are "perpendicular" to the back plate (12). EX1004: 10:25-26. These two things mean the side walls (30, 32) of Cullen are spaced outward from the "planar front surface" of the back plate (12). As a result, it would be impossible for an axis that is normal to and intersecting the "planar front surface" of the back plate (12) to also intersect one of

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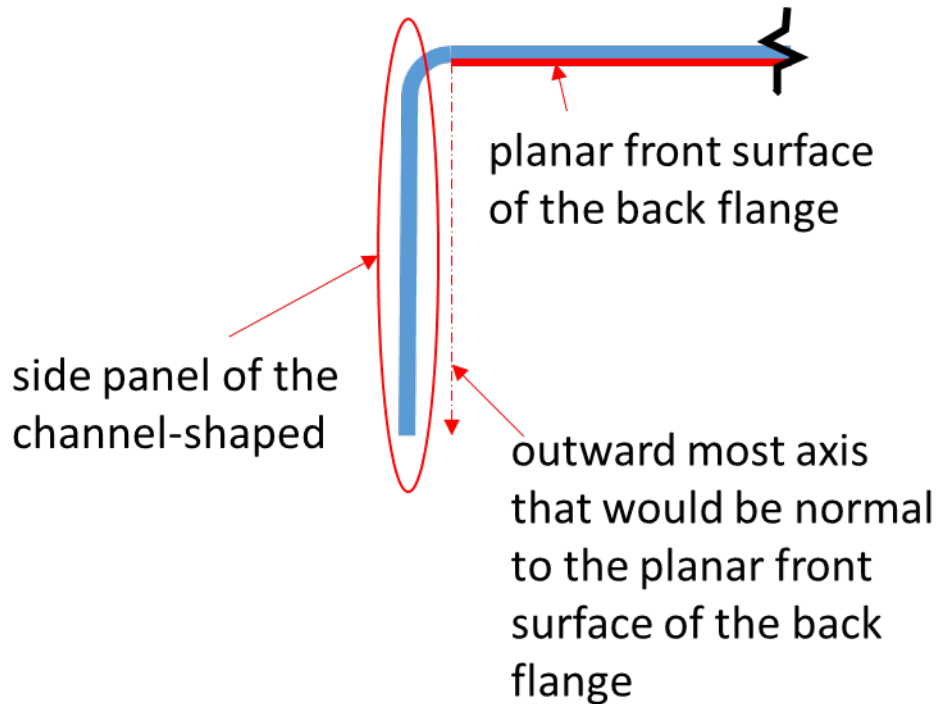
the side walls (30, 32) that are “perpendicular to the back plate.” EX1004: 10:25-26. The word “normal” in claim 25 is being used in its geometry context of meaning the axis is perpendicular or at a right angle to the planar front surface of the back flange. As I show below, any such axis that is normal to the planar front surface of the back plate (12) would necessarily be spaced apart from and parallel to the side walls (30, 32). Thus, any such axis that is normal to the planar front surface does not intersect either of the side walls (30, 32) of Cullen’s joist hanger (10), as I show in the annotated image below.



EX1004: Fig. 1 (annotated).

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178. To further illustrate this point, I provide the following schematic showing the axis normal to the planar front surface being spaced apart from and not intersecting the side walls because of the radius bend:



179. To the extend Simpson and Mr. Fennel argue the front surface of the back plate (12) extends over the radius bends, and therefore all the way to the side walls (30, 32), the joist hanger (10) of Cullen would still fail to teach the limitations of claim 25. Limitation 25.F requires a “planar front surface” of the back flange and thus cannot be met by the non-planar surface within the radius of the bends. Cullen explains its joist hanger (10) is formed from a single sheet metal blank by folding. EX1004: Fig. 4, 8:12-14, 10:22-23, 18:7-19:7. Sheet metal formed in this manner has radius bends, no matter how tight the bend is formed in the sheet metal. I have

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been informed that Mr. Fennel stated as much in the following portion of a prior deposition of his:

Q: And, question. Is this a bent piece of metal?

A: Yes.

Q: And with a bent piece of metal, is there going to be some type of radius, even a small radius of that bend?

A: Likely, yes.

Q: And that would be a small radius both on the inside and the outside, correct?

A: Yes.

EX2062: 110:10-111:16.

180. Accordingly, for these reasons in my opinion claim 25 is valid over Simpson's combination of Cullen, Bundy, and Allan and the combination of ArchRecord, Cummins, and Allan.

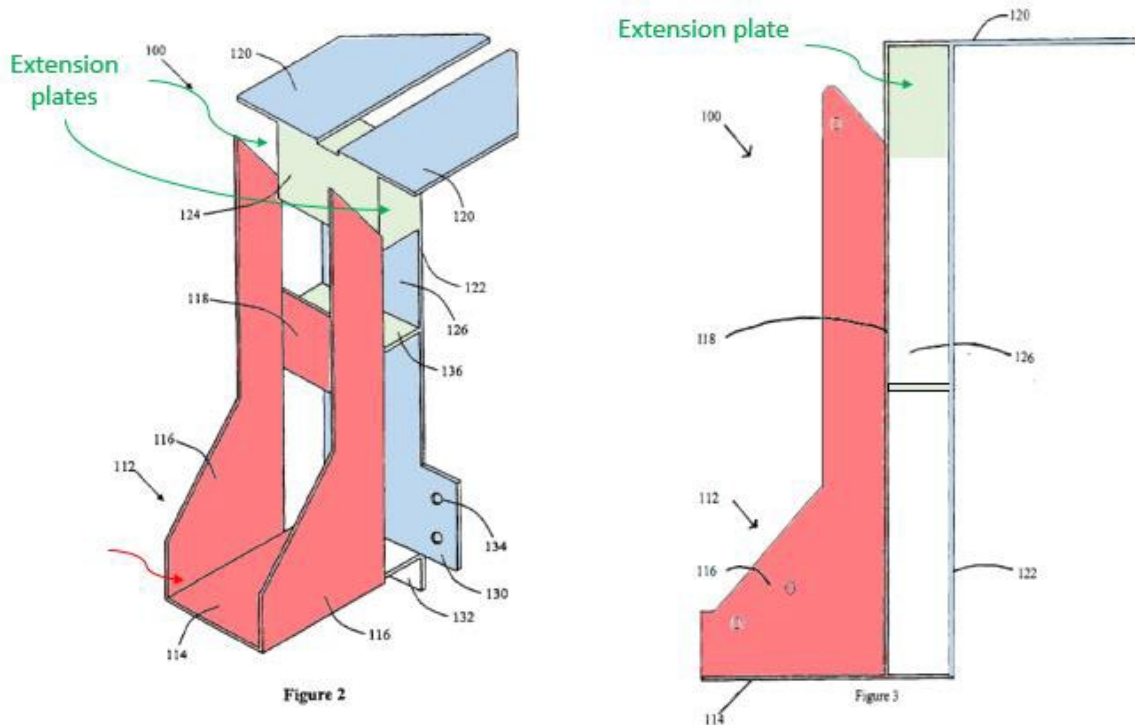
2. Claim 25 and Robinson (Ground 7)

181. I disagree with Simpson and Mr. Fennell that Robinson teaches the fire wall hanger recited in claim 25. Pet: 136-143.

182. Claim 25 recites "the extension portion includes first and second planar extension plates." Simpson labels this limitation as 25.C. In my opinion, the structure of Robinson's joist hanger (100) does not meet this limitation.

183. Simpson and Mr. Fennell assert that Robinson's mount (124) has "side plates" that meet this limitation, as shown below. Pet: 139-140. I disagree with this.

Robinson's joist hanger (100) has "a mount 124 to which the second surface 122 and the two side gussets 116 are attached." EX1011: 4:9-10. But there is no illustration or description in Robinson about the internal construction of the mount (124). Simpson states a "plate" is "a smooth flat thin piece of material." Pet: 9. Figs. 2 and 3 cited to by Simpson and Mr. Fennel do not show the internal construction of the mount (124). And there is also no explanation on the internal construction of the mount (124) in Robinson.



Pet: 140 (annotated by Simpson).

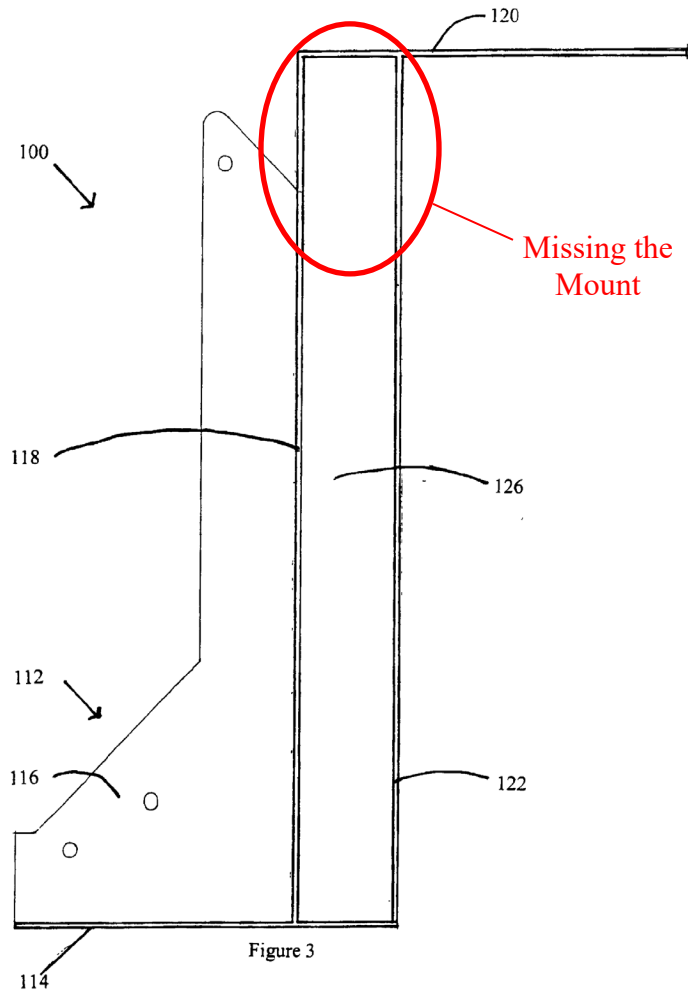
184. The figures of Robinson are inconsistent with one another, especially in regards to the mount (124). Fig. 2 (reproduced below) shows the mount (124) as

This diagram shows an exploded perspective view of a display device assembly. The main component is a display panel 100, which includes a top surface 120, a bottom surface 112, and side surfaces 114 and 116. The panel is divided into a central display area 118 and side areas 122 and 124. A bezel or frame 126 is shown surrounding the display area. A mounting bracket 130 is attached to the side of the panel, featuring two circular mounting holes 132 and a rectangular cutout 134. A small component 136 is also shown near the mounting bracket.

Figure 2

EX1011: Fig. 2.

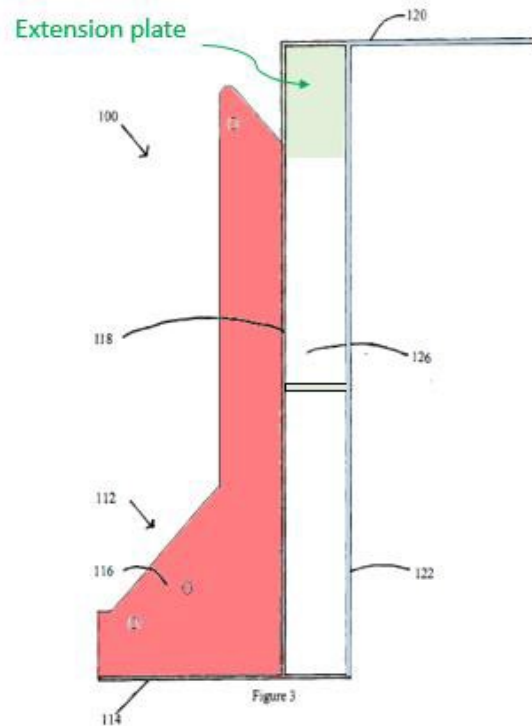
185. Fig. 3 of Robinson, shown below, does not even show the mount (124).



EX1011: Fig. 3.

186. Instead, Simpson and Mr. Fennell use the following modified and annotated image of Fig. 3 to assert that Fig. 3 shows an extension plate. However, Simpson added the green rectangle to Fig. 3. And as shown above Fig. 3 does not have any lines, such as a bottom horizontal line, that illustrates the mount (124). This is the case even though Fig. 3 is “a side elevation of the joist hanger of Figure 2.” EX1011: 3:24. The lack of the mount (124) in Fig. 3 makes one question

whether the joist hanger (100) would even have the described mount. Other inconsistencies between Figs. 2 and 3 includes how the first surface (118) is illustrated. In Fig. 2, the first surface (118) is in the middle, but in Fig. 3 the first surface extends from the top to the bottom of the joist hanger (100).



Pet: 140 (modified and annotated by Simpson).

187. Tellingly, Fig. 4 of Robinson (shown below) does not show the mount (124) having side plates. Fig. 4 is “a plan view from above the joist hanger of Figure 2.” EX1011: 3:25. Fig. 4 shows components of the joist hanger (100) otherwise hidden from view by the flanges (120) in broken lines. For example, Fig. 4 shows the portions of the purported back flange (second surface (122)) obscured by the

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flanges (120) in broken lines to indicate a hidden element underneath the flanges (120). It is a common drafting practice to use broken lines (also called hidden lines) to indicate components that would otherwise be hidden or covered by other components in a drawing view. However, Fig. 4 does not have any such broken or hidden lines shows Simpson's and Mr. Fennell's purported side plates of the mount (124). This is the case even though Fig. 4 does include broken or hidden lines indicating the exterior sides of the duct opening (126) defined by the mount (124). As shown in Fig. 2, the exterior sides of the duct opening (126) are vertically aligned with the exterior sides of the mount (124). If Simpson and Mr. Fennel were correct that the sides of the mount (124) had planar extension plates, Fig. 4 would show an additional broken line adjacent each existing broken line depicting the duct opening (126) to indicate the thickness of the planar plates. But Fig. 4 has not such additional lines. This lack of additional lines further indicates the mount (124) illustrated in Fig. 2 is a solid block.

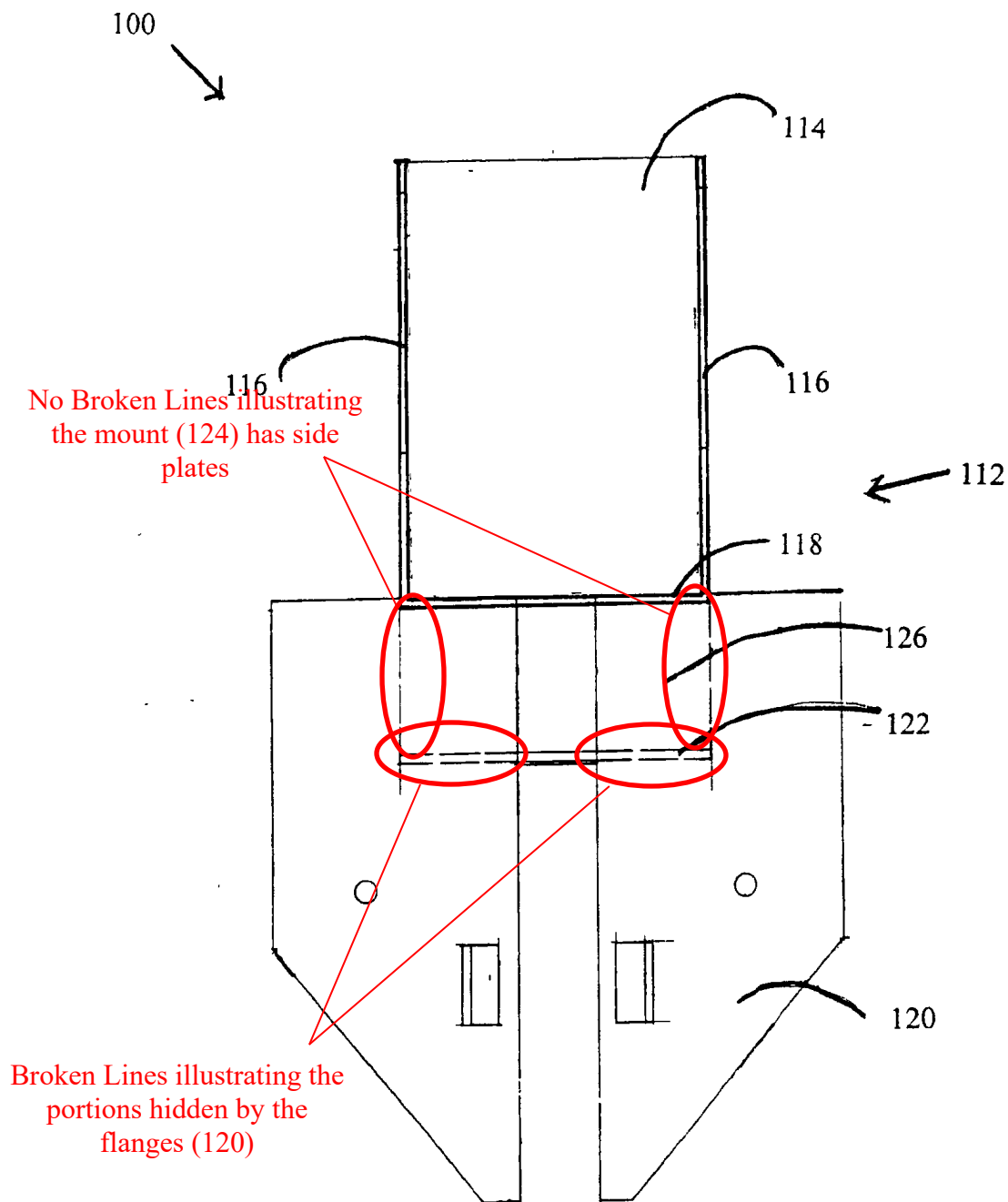


Figure 4

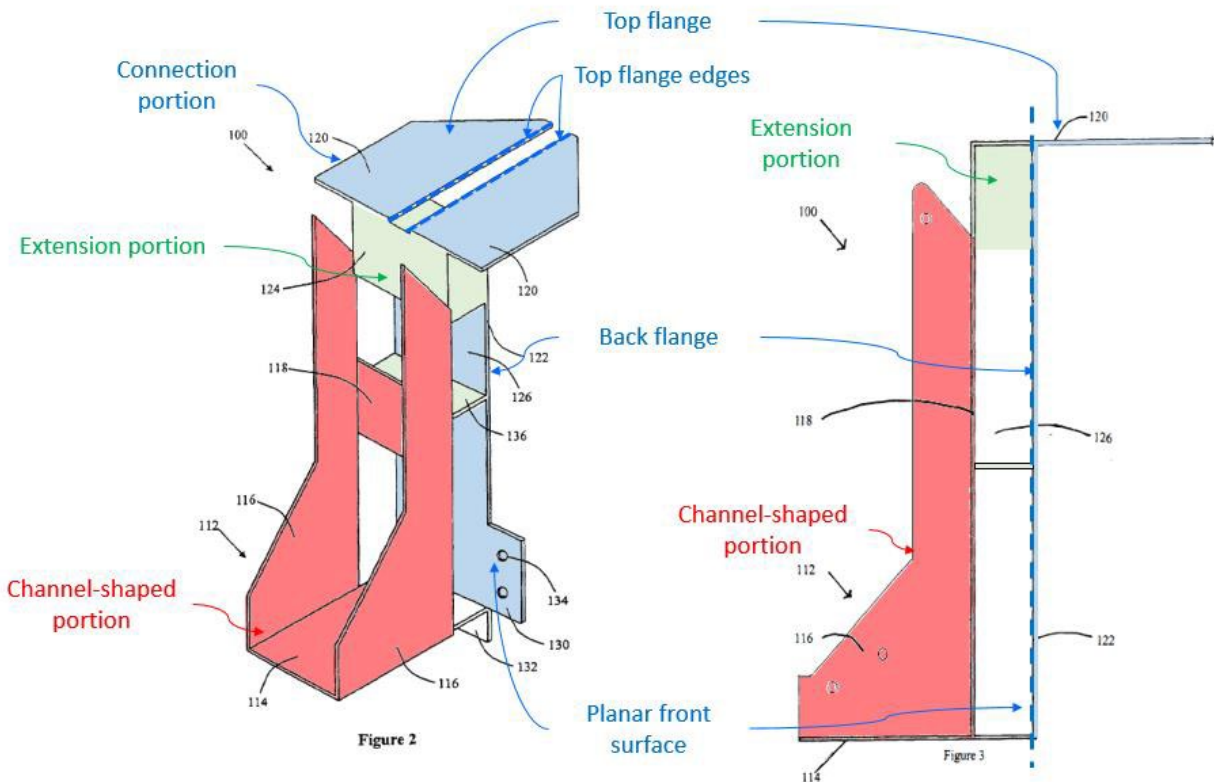
EX1011: Fig. 4 (annotated).

188. Accordingly, for these reasons in my opinion Robinson does not teach “the extension portion includes first and second planar extension plates” as recited

by claim 25. Thus, in my opinion claim 25 is valid over Simpson's combination of the Robinson, Bundy, and Allan.

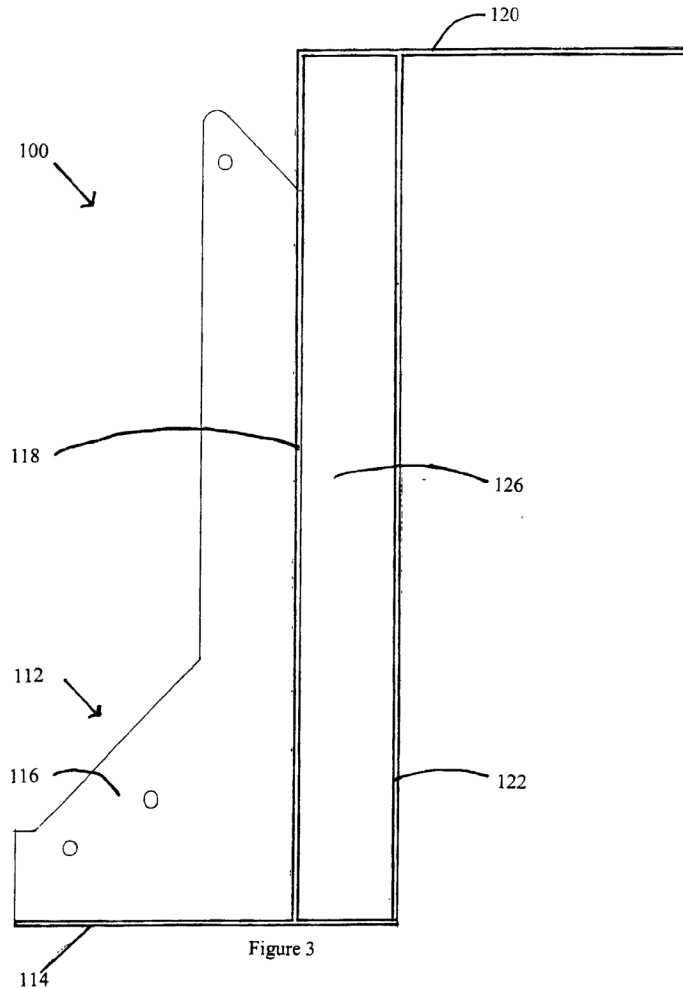
189. Robinson also fails to teach another limitation of claim 25. Claim 25 also recites that "the back flange extend[s] from an edge of the top flange." Simpson labels this limitation as 25.B. In my opinion, the structure of Robinson's joist hanger (100) does not meet this limitation.

190. As shown in Simpson and Mr. Fennell's modified and annotated images of Robinson (reproduced below), Simpson points to the part of Robinson's joist hanger (100) forming Robinson's second surface (122) as disclosing the claimed back flange. Pet: 137. However, the part forming Robinson's second surface (122) does not extend from an edge of one of the flanges (120) in my opinion. Simpson points to the flanges (120) as meeting the claimed top flange. Pet: 37.



Pet: 137 (annotated by Simpson).

191. Fig. 3 of Robinson (shown below) shows the part forming Robinson's second surface (122) extending from a bottom face of the flange (120), not an edge of the flange (120).



EX1011: Fig. 3.

192. Fig. 2 of Robinson is shown below. As seen in Fig. 2, the inner side edges of Robinson's flanges (120) are free of direct connection to any other structure of the joist hanger (100) and do not form the starting location from which the second surface (122) extends. The construction of "extending from" means "in the context of element B extending from element A, the beginning of element B's extension is on element A." Pet: 8. Fig. 2 does not show the starting point of the part forming Robinson's second surface (122) extension is on one of the inner side edges of the

Robinson's flanges (120). The bottom face of the flange (120) appears, at least from Fig. 3, to be the starting location from which the second surface (122) extends.

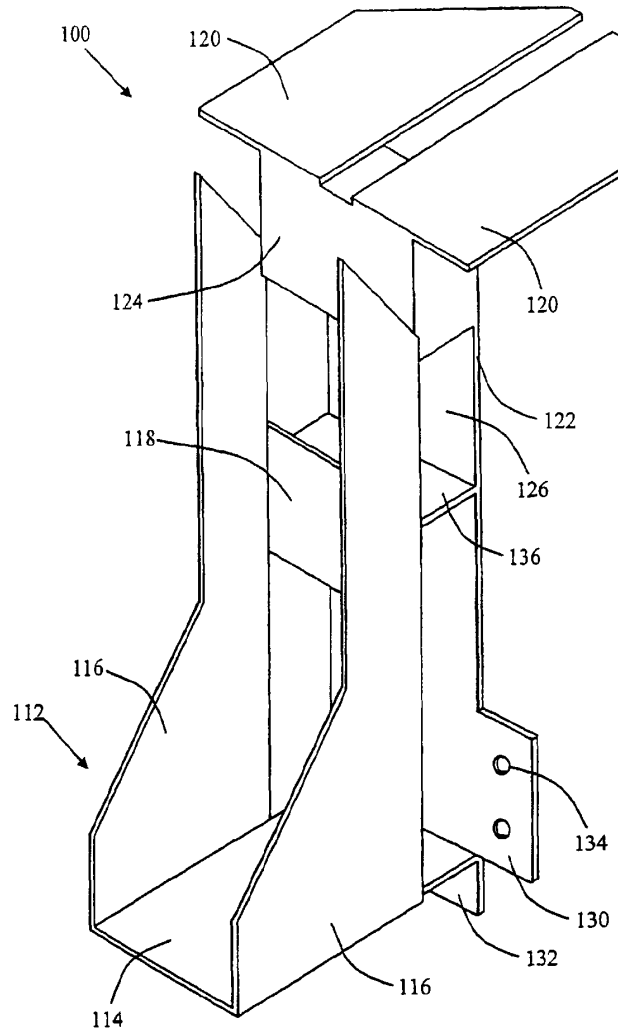


Figure 2

EX1011: Fig. 2.

193. I state again that Figs. 2 and 3 of Robinson are inconsistent with each other. Thus, the actual disclosure of Robinson is far from clear. As I explained above, the mount (124) is shown in Fig. 2, but not in Fig. 3. In Fig. 3, no mount (124) is shown between the first and second surfaces (118, 122). And the mount

(124) as illustrated in Fig. 2 includes a top surface (annotated in red below) which is disposed between the flanges (120) and the part forming Robinson's second surface (122).

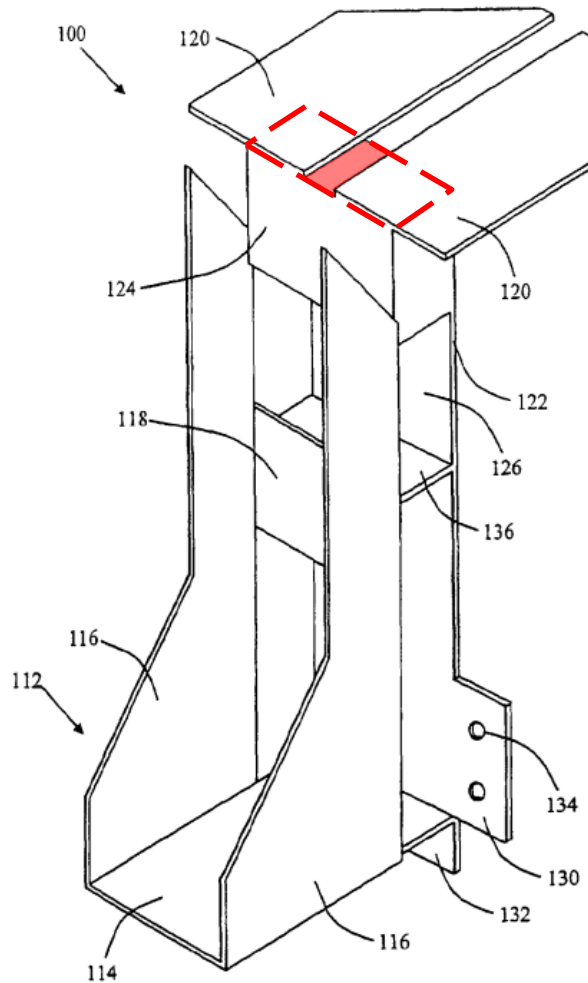


Figure 2

EX1011: Fig. 2 (annotated).

194. With reference to Simpson's annotated image below, Simpson agrees that the purported back flange (the part forming the second surface (122)) does not extend all the way up to the flanges (120) in Fig. 2. Simpson identifies the portion

circled in red of the mount (124) immediately underneath the flanges (120) as part of the extension portion (annotated green by Simpson)—not the back flange (blue).

Pet: 112.

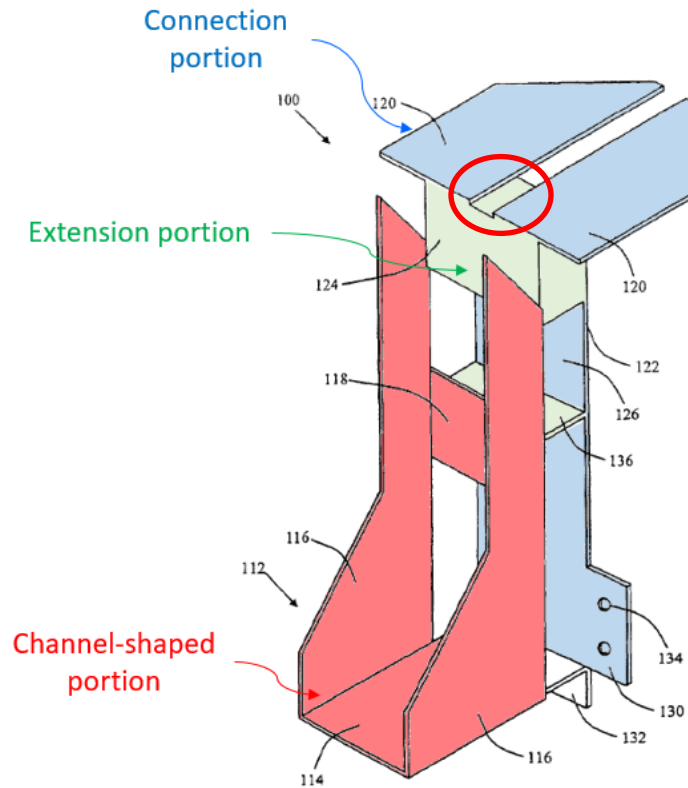


Figure 2

EX1011: Fig. 2 (annotated by Simpson, red circle added by me).

195. In summary, Fig. 2 does not show the part forming Robinson's second surface (122) engaging either of the flanges (120) and Fig. 3 shows the part forming Robinson's second surface (122) as extending from the bottom face of the flange (120), not an edge.

196. Accordingly, for these reasons in my opinion Robinson does not teach "the back flange extending from an edge of the top flange" as recited by claim 25.

Thus, in my opinion claim 25 is valid over Simpson's combination of the Robinson, Bundy, and Allan.

G. Secondary Considerations

197. I understand that in analyzing obviousness, objective considerations of non-obviousness (i.e. secondary considerations) must be considered when present.

198. I understand that through case law a number of secondary considerations have been recognized as relevant in supporting that a patent claim is not obvious, including:

- commercial success of the invention,
- whether the invention satisfied a long felt need in the industry,
- failure of others to find a solution to the problem at hand,
- unexpected results,
- copying by others,
- licensing by others,
- skepticism of experts,
- professional approval,
- teaching away by others, and
- recognition of a problem.

I understand that this list is not exhaustive and that other factors or considerations may provide objective evidence of non-obviousness.

1. Commercial success

199. I understand that when a product attains a high degree of commercial success, there is a basis for inferring that prior attempts to a solution have been made and have failed. I understand that demonstrating that an invention has commercial value by virtue of being commercially successful weighs in favor of its non-obviousness.

200. In Section V(G)(8) of my report, I provide a detailed mapping of claim 1 to the product literature describing installation of the FWH and Simpson's DG/DGB/DGH, DGF/DGBF/DGHF, and DGT products, establishing that the products embody the invention claimed in claim 1 of the '339 Patent. *See Infra* Paragraphs 356-360.

201. I understand that, prior to the FWH, the only other firewall hanger available in the market, for use in two-hour fire resistive wall assemblies, was Simpson's DU/DHU/DHUTF, which could not be installed prior to drywall. EX2075:12-13, 23.

202. I understand that the FWH, which could be installed prior to drywall, quickly enjoyed substantial market share as reflected in Simpson's internal documents.

203. The evidence obtained in the case shows that the commercial success of MiTek's FWH product series was primarily attributable to the FWH's ability to allow drywall to be installed after installation of the hanger.

204. Specifically, EX2094 is a Simpson email string dated February, 2016.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

² I understand that MiTek entered the structural connector by acquiring USP Structural Connectors in approximately 2011 and that customers and competitors continued to refer to MiTek and USP interchangeably for years following the acquisition.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

205. EX2095 is a Simpson email chain dated 2017 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

206. EX2096 is a Simpson email chain dated February, 2015 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

207. EX2097 is a copy of a February 9, 2017 Simpson email that states:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

208. EX2098 is a Simpson email dated January 15, 2016 with subject [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

209. EX2137 is a Simpson email chain that includes the following statements on August 31, 2015: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

210. I understand that, during the time period of 2014 to 2017, there were only two products in the firewall market, the FWH and DU. EX2072: ¶¶3, 5 2055: ¶¶34-35

211. The FWH combined with Simpson’s infringing products, once they were introduced in 2017, enjoyed substantial market share of roughly 88% in 2020 and 86% in 2023. 2055: ¶49.

212. Thus, the claimed fire wall hanger with the ability to be installed using the claimed method accounts for an increasing percentage of fire wall hangers sold and have become the industry standard.

213. The evidence demonstrates that since the launch of the FWH, its sales have increased substantially and, as Simpson’s expert, Serwin, admits and Simpson’s documents acknowledge, monthly sales of the FWH have always been more successful than Simpson’s DU. EX2075: 28-29.

214. EX2100 is a Simpson email chain dated March, 2017 with the subject

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] *See*

also EX2068: 133:8-134:2 [REDACTED]

[REDACTED]

[REDACTED]

215. I understand that Simpson came out with their versions of the FWH with the ability to be installed according to the claimed method in June 2017.

Simpson documents and testimony demonstrates and Simpson's expert acknowledge that sales of these Simpson infringing fire wall hangers have increased significantly and quickly outperformed Simpson's DU/DHU/DHUTF series.

216. For example, EX2101 is a Simpson email discussing [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

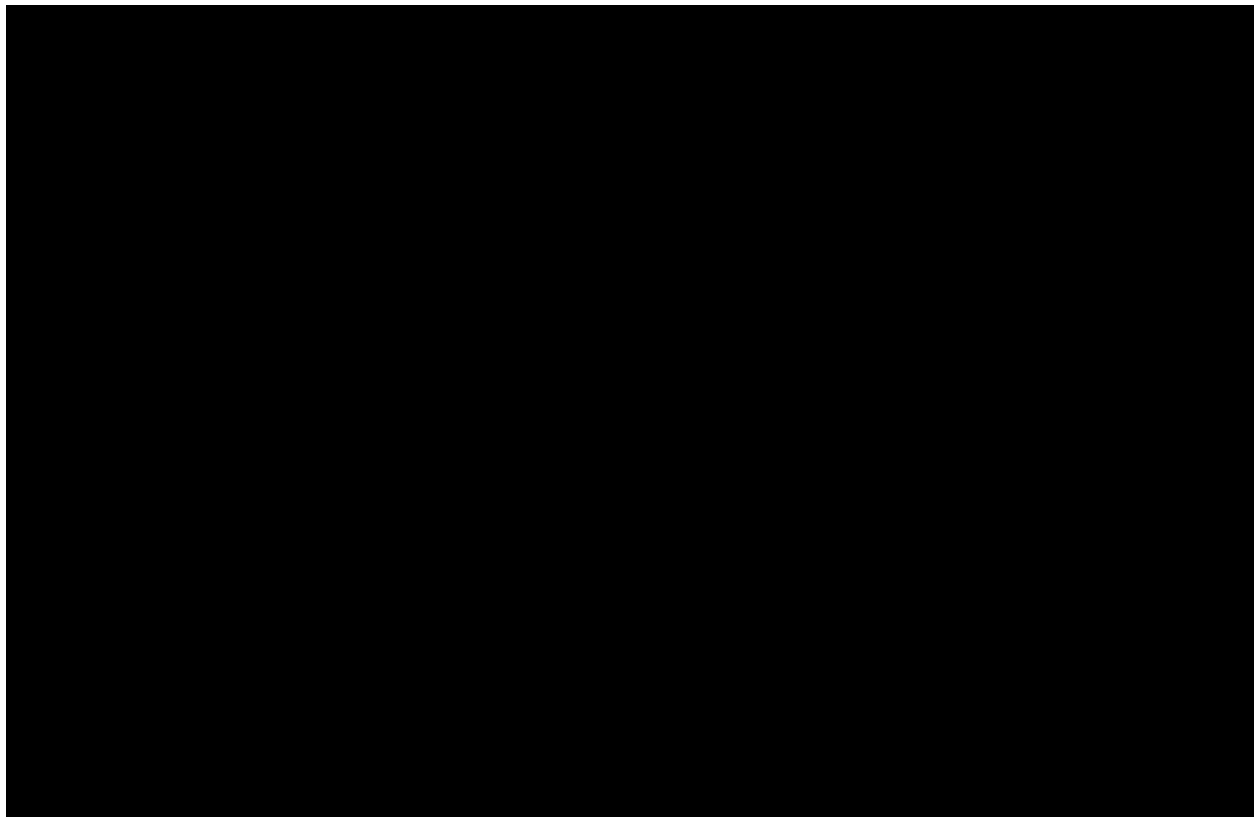
[REDACTED]

217. Simpson witness, Dankel, t [REDACTED]

[REDACTED]

[REDACTED] EX2068: 140:17-141:5.

218. Below is a chart created by Simpson's expert, Serwin, showing sales for the FWH, DU, DG, DGF, and DGT:



EX2075: 29.

219. The evidence obtained in the ‘510 Patent Litigations shows that the commercial success of MiTek's FWH product series was primarily attributable to the FWH's ability to allow drywall to be installed after installation of the hanger.

220. I understand that the evidence shows that the FWH commanded a market premium over the DU because of its ability to be installed prior to drywall.

EX2094



EX2059: 38:24-39:17, *see also id.*

at 43:19-44:8 and 111:16-23 (describing that the FWH product was an exception to MiTek's connector product offerings in that it was one of the few products priced higher than the corresponding Simpson product)

221. I understand that Ryan Holmes, a customer of MiTek, has testified that he is willing to pay more for the FWH because of its ability to be installed prior to drywall. EX2058 (Holmes Dec.).

222. The evidence demonstrates that customers strongly desired the FWH, and its ability to be installed prior to drywall, and were urging Simpson to bring a similar product to market, as reflected in Simpson's internal documents and testimony. EX2064: 45:14-23; 56:15-57:3; 162:17-164:17; EX2107; EX2100

[REDACTED]

[REDACTED]

223. EX2102 is a January 2015 email to Simpson from [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

224. EX2103 is an April, 2015 Simpson email

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

225. EX2104 is a Simpson email dated November 13, 2014 that states: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

226. The evidence demonstrates that many customers were expressly demanding and requiring a fire hanger that could be installed prior to drywall.

227. For example, EX2136 is a March 10, 2015 Simpson email chain that states: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

228. EX2105 is a Simpson email chain and on March 11, 2016 states [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

229. Simpson's economics expert in the '510 Patent Litigation, Kenneth Serwin, acknowledged that [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

EX2075: 31, 40.

230. EX2106 is a Simpson email string dated July, 2014 that includes the following statement: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] [REDACTED]

[REDACTED]

[REDACTED]

231. EX2108 is a Simpson email chain dated January, 2016 that includes the following statements: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

_____).

106

39:18-40:19 (testifying that MiTek's marketing communications highlighted the FWH series hanger's ability to be installed before drywall).

234. I understand that one of MiTek's witnesses testified that customers wanted to purchase the FWH products because of "[t]he installation methodology that was enabled by that product, that it could be completely framed out in the structure without having to have the drywall be installed in between the framing process so the framers didn't have to come back. That was the predominant value that product was offering." EX2059: 34:11-35:4. "[I]n installation methodology in which the hanger could be installed before the drywall was a primary driver in the purchasing decision" of customers purchasing in the "light wood frame construction, typically three to five stories, multifamily" market. EX2059: 35:18-36:11. The "primary driver for the success" of the FWH product was that it enabled the benefit "of being completely able to frame out the structure prior to the drywall being installed." EX2059: 69:4-21. Customers communicated to MiTek the "incredible savings in the installation process" because "the process of having to have the framers come back to the job after the drywall was installed was, lengthened the overall cycle of the job which adds costs and then also directly adds cost by an additional day or two for the framing crew." EX2059: 91:3-24.

235. The evidence obtained in the case shows that the commercial success of Simpson's DG/DGB/DGH series hangers was attributable to the DG/DGB/DGH series hanger's ability to allow drywall to be installed after installation of the hanger

236. EX2115 is a document titled [REDACTED] is dated July 21, 2017, and states: [REDACTED]

[REDACTED]

[REDACTED]

237. EX2116 is an email dated June 26, 2017 and states: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] *See also* EX2117.

238. EX2133 is a Simpson brochure for the DG, DGB, and DGH that states: "Engineered Design Makes it Easy to Install Before the Drywall. The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. . . The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete." *See also* EX2064: 94:12-

96:4 (discussing Simpson DG hanger and agreeing its "construction allowed the joist to be put up first and the drywall to be installed after.").

239. The ability to install the FWH hanger—and later the DG Series and DGF Series—before the drywall is mounted presented significant benefits over the DU/DHU/DHUTF series hangers. The evidence corroborates and confirms that the major driving force behind the commercial success of the FWH, the DG Series, DGF Series, and DGT series was the ability to install drywall after the hanger is installed.

240. In my opinion, based on the evidence MiTek plans to present, the commercial success of MiTek's FWH series hangers and Simpson's DG, DGF, and DGT series hangers was the result of the ability to be installed according to the method claimed in claim xxx of the '339 Patent.

241. In my opinion, commercial success of MiTek's FWH and Simpson's DG, DGF, and DGT series products strongly corroborates my opinion that the challenged claims would not have been obvious.

2. copying by competitors

242. I understand that copying by a competitor is recognized as an objective indicia of nonobviousness in that it suggests that the competitor saw value in the invention that he could not achieve without copying.

243. In reviewing Simpson's internal documents and deposition testimony provided to me by Patent Owner, it is apparent that Simpson copied the inventive

features of MiTek's FWH series products in developing and releasing its DG series hangers so as to provide a hanger intended to be used by its customers to practice the method claimed in the '339 Patent.

244. Simpson's internal documents and deposition testimony shows that Simpson was aware of Mitek's FWH product and analyzed it prior to developing its DG and DGF Series products.

245. For example, I understand that retired Simpson employee Roger Dankel testified [REDACTED]

[REDACTED] EX2068: 41:3-10.

246. I understand that Simpson employee Sam Hensen testified regarding [REDACTED]

[REDACTED] EX2064: 146:25-154:16.

247. Numerous of Simpson's internal documents acknowledge that the FWH hanger and its ability to be installed prior to drywall according to the claimed method of the '339 Patent was strongly preferred over Simpson's own DU series products that could only be installed after the drywall.

248. For example, EX2106 is the start of a Simpson email string dated July, 2014 that includes the following statement: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

249. EX2104 is a Simpson email dated November 13, 2014 that states: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

250. Simpson's documents and testimony further evidences that its sales team and customers began requesting a firewall hanger that product could meet the FWH hanger's ability to be installed prior to the drywall. EX2064: 45:14-23; see also 162:17-164:17; EX2107.

251. EX2096 is a Simpson email chain dated February, 2015 which includes the following statement: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

252. EX2136 is a March 10, 2015 Simpson email chain that states: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

253. EX2137 is the start of a Simpson email chain that includes the following statements on August 31, 2015: [REDACTED]

[REDACTED]

[REDACTED]

³ I understand CLP, to refer to CLP Systems, another manufacturer of framing connection hardware. I understand the email to identify CLP as providing a different connector product unrelated to the firewall hangers

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

254. EX2108 is the start of a Simpson email chain dated January, 2016 that includes the following statements: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

255. EX2094 is the start of a Simpson email string dated February, 2016.

On February 5, 2016, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

256. EX2105 is a Simpson email chain and on March 11, 2016 states [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

257. EX2100 is the start of a Simpson email chain dated March, 2017 with the subject [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

258. Simpson's documents and testimony further demonstrate that Simpson acted on the pressure from its sales team and customers and began developing a firewall hanger that incorporated the FWH's ability to be installed prior to drywall.

259. For example, in EX2094 discussed above, Sam Hensen commented that

[REDACTED]

[REDACTED]

260. EX2104 discussed above, Bryan Wert inserted the comment that he would [REDACTED]

[REDACTED]

[REDACTED]

REDACTED
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261. EX2109 is a June 2016 Simpson email with the subject [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

262. EX2112 is a February 18, 2017 Simpson email regarding [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

263.

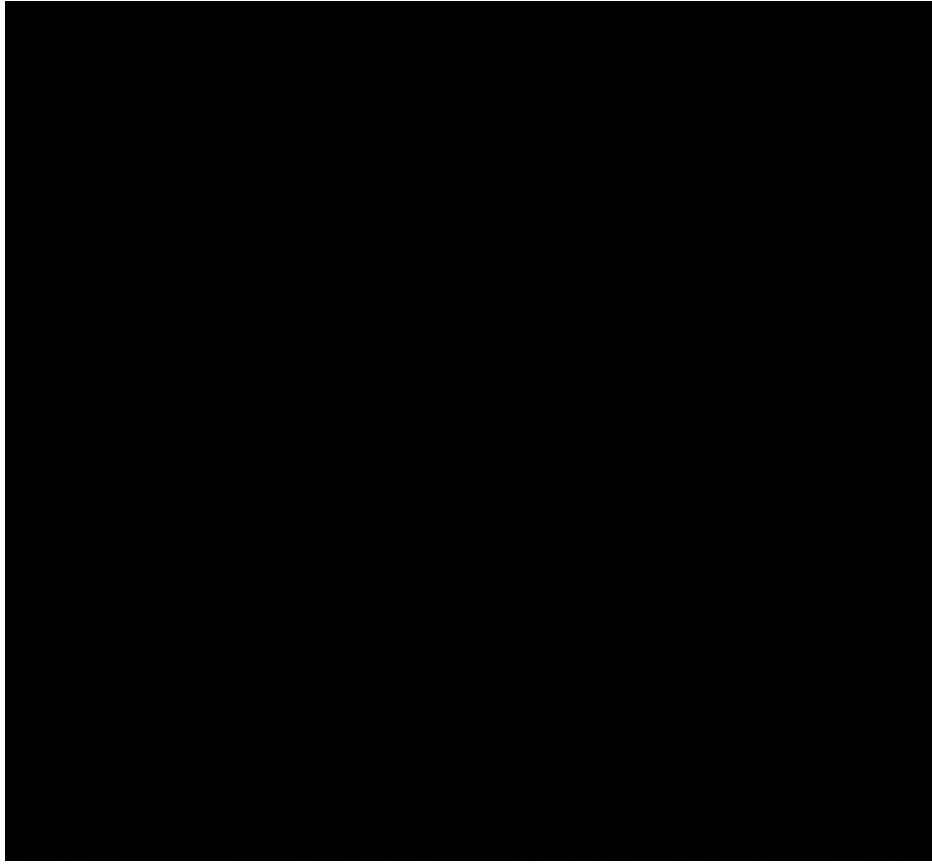
264.

EX2064: 70:15-74:22; EX2112.

EX2113

See also EX2064:

199:16-201:25; EX2111



265.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

266. Again, EX2110 is a February 18, 2017 Simpson email regarding

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

267. EX2114: is a March 4, 2017 Simpson email regarding [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

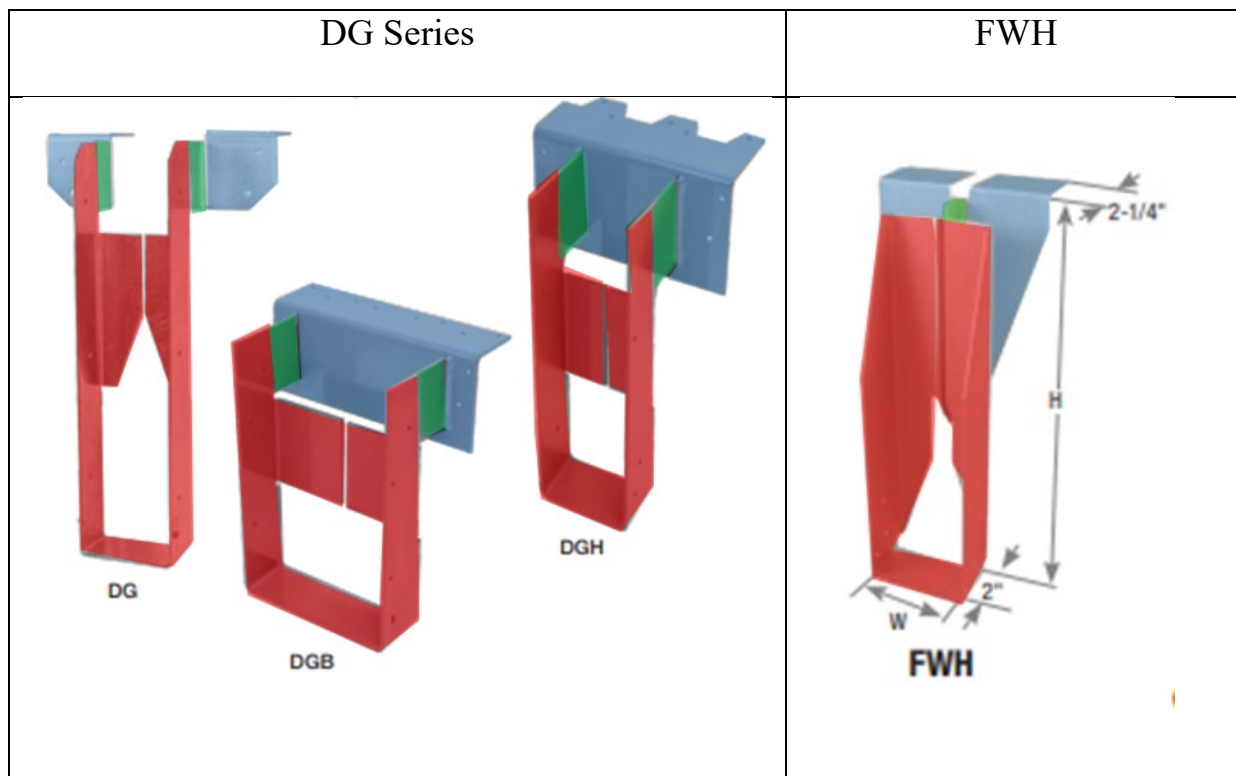
[REDACTED]

268. I further understand that Mr. Hensen acknowledged in a declaration that “Prior to Simpson’s release of the DG Hangers, Simpson was aware of MiTek’s FWH Hanger and the fact that Plaintiffs had filed a patent application covering the FWH Hanger. In developing the DG Hangers, Simpson was careful to design around Plaintiffs’ then-pending patent application, U.S. Pat. Appl. 14/555,049 (‘the ’049 Application’).” EX2074.

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269. Despite attempting to design around limitations of the then pending patent application, it is my opinion that the DG Series still copied the inventive aspects of the FWH that are required to practice the claimed method of constructing a firewall.

270. Specifically, the hangers within the DG series incorporated the components of the FWH (a channel shaped portion (red in the figures below), an extension portion comprising two extension flanges (green in the figures below), and a connection portion comprising a top flange and a back flange extending from an edge of the top flange (blue in the figures below)) and their configuration (the extension flanges being configured to extend through drywall and creating space to receive the drywall between the back flange of the connection portion and the channel shaped portion).



EX2133 (DG Series brochure); EX2132 (FWH series brochure).

271. The intent for the DG Series to function in the same manner as the FWH with respect to the extension flanges being configured to extend through drywall and create space to receive the drywall between the back flange of the connection portion and the channel shaped portion is corroborated by Simpson's documents.

272. EX2115 is a document titled [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

273. EX2116 is an email dated June 26, 2017 and states: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

274. EX2133 is a Simpson brochure for the DG, DGB, and DGH that states:

"Engineered Design Makes it Easy to Install Before the Drywall The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie.

. . The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete." (emphasis added)

275. In my opinion, Simpson's DG Series, when considered as a whole, is substantially similar in design to the FWH product.

276. Further, because Simpson's DG Series was intended to operate the same as the FWH product in terms of the operation of the extension portion providing space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete, I find the differences between the Simpson's DG Series and the FWH—primarily the extension flanges being spaced apart to avoid

the earlier patent claims within the ‘339 Patent family—were not so significant as to preclude substantial similarity.

277. Notably, the configuration of the hanger provided a significant improvement over conventional hangers in that the fire resistance of the drywall could be maintained by limiting the section of the drywall required to be removed to just that required to allow the extension portion to extend through the drywall. Providing a space to receive the drywall allows the hanger to be installed—and the framing to be completed—prior to mounting the drywall. Further, the configuration of the hanger made it possible to maintain this space by providing a load path resisting the moment caused by cantilevering the channel shaped portion and joist away from the connection portion.

278. The features of MiTek's FWH series hangers which Simpson copied were the very features that are embodied in the limitations of the ‘339 Patent. *See e.g.* Exhibit 1001 at Claim 1 and Claim 27 (“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”).

279. The features of MiTek's FWH series hangers which Simpson copied were further necessary to perform the claimed method of constructing fire resistant

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walls. Without these features, there would not be a sufficient space in which the drywall could be installed by “inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall” as claimed in both Claim 1 and 27.

280. Accordingly, it is my opinion that there is a nexus between the Simpson’s copying and the claimed method of the ‘339 Patent.

281. In my opinion, Simpson’s copying of the FWH strongly corroborates my opinion that the method claimed in the ‘339 Patent would not have been obvious to a person of ordinary skill in the art.

3. praise by others

282. I understand that praise by industry participants, especially competitors, is recognized as an objective indicia of nonobviousness.

283. In reviewing both Simpson’s and MiTek’s contemporaneous e-mails and communications provided to me by Patent Owner, there is significant evidence of industry praise of the FWH for providing a better solution for attaching a joist to a firewall.

284. For example, EX2118 is an email chain dated March 31, 2014 between USP and a third-party discussing USP’s FWH product and Simpson’s DU/DHU/DHUTF series hangers. The third-party states “I don’t know what Simpson’s version cost. We were disappointed with what they [Simpson] came up

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with and didn't even bother to ask. We don't see it as an option unless the local building official has a problem with our typical approach. **Your version looks much more promising. How soon will it become available?"** (emphasis added)

285. EX2119 is the start of an email chain dated April 18, 2014 between USP and a third-party and the subject line "FW:FWH Fire Wall Hanger for 2 Hour Envelope." Curtis Cabaniss of USP wrote the following to the third-party "I didn't know if you run into this currently with anything you are producing or if you are seeing it on projects from any of the floor system companies you are working with, but I thought I would pass along some detail of the product for you in case you are looking for an engineered solution." The third-party responded as follows: "I am dealing with this on a bunch of jobs right now and **this looks like a great solution.**" (emphasis added)

286. EX2120 is an April, 2014 email chain that includes the following statement: "[REDACTED] is working with the engineer who is designing the [REDACTED] who plans to specify the FWH in the design. I spoke to the engineer today and he said the only possible stopper would be the price being too high. **He was very excited and very much wants to include us in the design.** The initial plan is for 'around' 150 buildings." (emphasis added)

287. EX2121 is the start of an email chain dated March-May, 2014. On March 20, 2014, Fred Powers states that "**FWH was well received at** [REDACTED] [REDACTED] Wayne distributed the info to all the key players in the division." (emphasis added)

288. EX2102 is a January 2015 email to Simpson from [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

289. EX2122 is the start of an email chain dated January 27, 2015 with subject "Question? FWH Series-Fire Wall Hangers." An individual from KNH Sawatzky & Associates states the following: "**I am very impressed with the new FWH series hangers to uphold the fire rating of the wall but still allow a good connection.**" (emphasis added)

290. EX2124 is the start of an email chain dated July, 2014. On July 29, 2014, William Munyan at R&M Group-NC, PLLC stated to Dan Scullion at Simpson the following: "Dan...**This is a great idea.** Does Simpson have anything

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like this???" (emphasis added) *See also* EX2064: 166:7-167:16 (clarifying Mr. Munyan was referring to MiTek's FWH series hanger).

291. EX2123 is the start of an email chain dated March, 2015. On March 6, 2015, Matt Church at Davis & Church stated the following: "**This FWH hanger is really a homerun. I did another Woodworks seminar this past Wednesday and promoted it as heavily as I could without saying the words USP (they wouldn't let me).** I also met the USP reps here locally and had some good conversation with them about it was well. Looks like 2015 will be another big year for the multi-family industry and we really appreciate having you guys there to help us get through it as we try to provide our clients with cost effective solutions on their projects." (emphasis added)

292. Much of the praise from specifiers (i.e. engineers and architects), installers (framers and general contractors)—[REDACTED]
[REDACTED]—specifically recognizing the significance and value of allowing installation of drywall after installation of the hanger pursuant to the method claimed in the '339 Patent.

293. EX2106 is a Simpson email string dated July, 2014 that includes the following statement: "[REDACTED]

[REDACTED]
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

294. EX2104 is a Simpson email dated November 13, 2014 that states: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

295. EX2103 is the start of a Simpson email chain. On April 16, 2015, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

296. EX2125 is the start of an email chain from January, 2015 which states the following: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

297. EX2108 is the start of a Simpson email chain dated January, 2016 that includes the following statements: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

298. EX2094 is the start of a Simpson email string dated February, 2016.

On February 5, 2016, [REDACTED]

[REDACTED]

[REDACTED]

[illegible]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

300. EX2126 is an email chain dated September 5, 2019 that states as follows: [REDACTED]

[REDACTED]

[REDACTED]

301. Simpson's witnesses and internal communications evidence that building codes and building inspectors in some jurisdictions began requiring firewall hangers meeting the installation sequence made possible by the configuration recited in the claims of the '339 Patent . For example, I understand that Roger Dankel, a recently retired Simpson employee, testified that [REDACTED]

[REDACTED]

[REDACTED] EX2068: 132:8-23; *See also* EX2103 ([REDACTED])

[REDACTED]

[REDACTED]

[REDACTED]).

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302. The configuration of the FWH Hanger allows the practice of the method of the '339 Patent. Specifically, the configuration of the FWH Hanger allows drywall to be installed between the joist and the wall assembly by cantilevering the channel shaped portion away from the connection portion. This provides a built in space sized to receive the drywall between the channel shaped portion and the back flange of the hanger, while using the extension portion to transfer the downward load on the channel shape portion through the drywall to the connection portion in a manner that adequately resists the moment caused by the downward force.

303. Notably, much of the praise for the FWH was explicitly tied to the FWH being able to be installed prior the drywall as expressly recited in the claims of the '339 Patent.

304. Accordingly, it is my opinion that there is a nexus between the industry praise of the FWH and the claimed method of the '339 Patent.

305. In my opinion, the industry praise of the FWH corroborates my opinion that the method claimed in the '339 Patent would not have been obvious to a person of ordinary skill in the art.

4. long felt need

306. I understand that evidence of a long felt but unresolved need tends to show non-obviousness because it is reasonable to infer that the need would have not persisted had the solution been obvious.

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307. The International Building Code (IBC) has required fire resistance ratings of up to two-hours duration within Type 3 (multi-family residential) structures since its first printing in 2000. The 2000 ed. of the IBC also specified requirements for through penetrations and membrane penetrations into or through fire resistant walls to maintain the fire safety performance of these walls.

308. Further, prior to the 2000 International Building Code, the three national model building codes (Uniform Building Code (UBC), Standard Building Code (SBC), and the National Building Code (NBC)), and the National Fire Protection Association (NFPA) Life Safety Code all provided similar fire-resistant rating requirements.

309. I understand that Sam Hensen has testified that there was not a lot of change with respect to Type 3 construction with wood framing since the 2000 version of the International Building Code. EX2065: 25:1-28:15. I agree with this assessment.

310. I understand that there is testimony and evidence demonstrating that there was a known problem in the industry regarding how to attach joist to firewalls dating back as early as at least 2008. See e.g., EX2056; EX2069: 27:17-28:18 (testifying as to conceiving of the invention "start[ing] back in 2009" when, at a trade show, an engineer "brought up the fact that they are starting to do more wood frame

construction projects and were struggling with the details around two-hour fire rated walls.").

311. Simpson's own internal documents and emails likewise demonstrates that Simpson had been approached by its customers as early as 2011 regarding how to attach joist to firewalls. For example, EX2127 which is a May 10, 2011 Simpson email [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

312. As demonstrated by the evidence, prior to the release of the FWH hanger there was a patch work of workarounds and imperfect solutions by which floor or roof members were connected to wall members requiring a two-hour fire rating. EX2067: 41:1-44:11; EX2076: ¶40; EX2093; EX2070: 19:13-22:20.

313. The acceptance of these solutions was not universal, but rather depended on the whims and interpretations building inspectors. *Id.*

5. failure of others

314. I understand that evidence that others tried but failed to find a solution to the problem addressed by a claimed invention is evidence of nonobviousness.

315. In reviewing Simpson's internal documents and testimony from the '510 Patent Litigation that has been provided to me by Patent Owner, there is

significant evidence showing that in 2013 Simpson was looking at different concepts for attaching a hanger to support the floor system to the fire-resistive wall.

316. Simpson recognized that “ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] EX2086: SST0105115. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] EX2064: 33:6-35:18; see also 146:25-154:16 [REDACTED]

[REDACTED]

[REDACTED] 180:21-190:6 (same); EX2138 [REDACTED]

[REDACTED]

[REDACTED]

317. Specifically, during the testing, Simpson’s engineers found that “ [REDACTED]

[REDACTED]

[REDACTED] EX2086: SST0105115.

318. In one test Simpson used [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

319. Simpson used a

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

EX2086:

SST0105129.

[REDACTED]

320. Each of these attempts failed to [REDACTED]

[REDACTED]. *Id.* at EX2086:
SST0105099.

321. While Simpson's DU/DHU/DHUTF series hangers were commercially released and remain available, they have not enjoyed the commercial success that was enjoyed by the products embodying the installation methods of the '339 Patent.

322. As an example, the document starting with EX2118 is an email chain dated March 31, 2014 between USP and a third-party discussing USP's FWH product and Simpson's DU/DHU/DHUTF series hangers. The third-party states [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

323. As explained above, Simpson's DU/DHU/DHUTF series hangers require the drywall to be installed prior to the hanger. Such a solution would have

often been unacceptable to builders. Ideally the framing will be completed before drywall is installed. This allows access to the interior of the walls for electrical and plumbing work—as well as inspection—before closing the walls. It further allows the drywall to be protected from the elements as otherwise the structure may not be enclosed and a roof installed prior to introducing the drywall. Requiring drywall to be installed prior to the hangers also presents scheduling, sequencing, and labor difficulties as the drywall is typically installed by a separate trade than the trade performing the framing.

324. The evidence collected in the '510 Patent Litigation likewise includes feedback that Simpson received from its customers demonstrating the unacceptability of Simpson's DU/DHU/DHUTF series hangers for the majority of multi-family construction projects.

325. For example, EX2104 is a Simpson email dated November 13, 2014 that states: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

326. EX2103 is an April 2015 Simpson email chain [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

327. EX2108 is a Simpson email chain dated January, 2016 that includes the following statements: [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

328. EX2094 is a Simpson email string dated February, 2016. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

329. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] In failing to design a hanger allowing the drywall to be installed after the hanger was installed, the hanger that Simpson did release (the DU/DHU/DHUTF series) failed to adequately meet the needs in the industry.

330. In my opinion, Simpson's attempts, and failure, to design a hanger allowing the drywall to be installed after the hanger was installed strongly

corroborates my opinion that the method claimed in the ‘339 Patent would not have been obvious to a POSA.

6. skepticism by others

331. I understand that evidence of industry skepticism weighs in favor of non-obviousness. I understand that if industry participants or skilled artisans are skeptical about whether or how a problem could be solved or the workability of the claimed solution, it favors non-obviousness. I understand that doubt or disbelief by skilled artisans regarding the likely success of a combination or solution weighs against the notion that one would combine elements in references to achieve the claimed invention.

332. As addressed in Section 86 to 89 above, it is my opinion that the person of ordinary skill in the art would have been skeptical as to cutting holes in or removing sections of the fire-resistant drywall to accommodate a hanger and supported member in fear that doing so would jeopardize the fire rating. The evidence collected in the litigation confirms my opinion.

333. Sam Hensen, senior vice president of Simpson, testified that in 2014

[REDACTED]

[REDACTED]

EX2064: 168:23-170:13.

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334. Likewise, EX2090 is a MiTek email string dated July 10, 2014 that states the following: "Today I made my first FWH presentation to an Engineering firm, [REDACTED]. One of the [REDACTED] reviewed it along with an Engineer I know. Overall, they feel it is a good concept. Questions/concerns that came up were:>**They said they deal with some jurisdictions that they feel won't accept it because of the slit made in the drywall.** I thought I had viewed some test information that might have addressed this, but I can't find it in my files. > They asked about a condition where the FWH would be used at a shearwall location, where you would have plywood/OSB then drywall over that. The hanger is built for 2 layers of drywall so can we make the hanger work in a condition like this? > They asked about the cost of the FWH compared to SST." (emphasis added)

335. The evidence collected in the '510 litigation further demonstrates skepticism as to the ability to receive the sheathing within the space provided by the extension portion and the ability of the hanger to withstand the moment caused by cantilevering the channel shaped portion away from the frame wall.

336. For example, [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] EX2064: 171:13-174:24; *see also* EX2107.

337. EX2121 is an answer to a request for a substitution of the FWH hanger dated March 28, 2014 which includes a handwritten note dated April 3, 2014 that

states: "This is structurally not ok as the wall stud height become taller and the load capacity of the studs become less. Also the eccentricity of truss load being applied on the studs become larger by this method which adds more moment into the studs." *See also* EX2124 ("how is it they do not need a restraint on the back of the top plate to prevent plate rollover?").

338. In 2015, Simpson was skeptical [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] EX2064: 176:4-178:25; EX2140.

339. As compared to conventional hangers and even Simpson's DU/DHU/DHUTF series hangers, hangers meeting the configuration of components as recited in the limitations of the '339 Patent would have higher cost in that they require more material and require more complex forming.

340. The evidence collected in the litigation demonstrates that there was skepticism as to whether the benefits of the claimed hanger would justify the additional manufacturing cost.

341. EX2139 is a MiTek email string dated March 6, 2015 that states the following: "I received some comments back recently from a couple of key engineering customers and Multifamily framers, regarding the FWH. . . Regarding

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time savings, right now they don't believe that this would save their clients significant enough time to justify the higher cost of this hanger."

342. MiTek's customer—Trussway—with whom MiTek was working on the FWH "was concerned that it was going to be way more expensive than I – in my mind, it needed to be a lot cheaper than it was. And we ended up, you know having to charge quite – I don't remember the prices but they were way more costly than I thought the market could bear. But I was incorrect because, obviously we sold a lot of them." EX2070: 70:6-71:25; *see also id.* at 86:25-87:19.

343. I understand that MiTek has provided the following testimony in the '510 Patent Litigation: "I am aware that the pricing was questioned. Different customers asked for different reason and considered different things. And during the process, I learned more of the variables that could be in place with the cost of application. So asking why the product was expensive or the need for it was something that we discussed with a lot of customers and why it was important to explain the benefits that were in every savings options in there." EX2071: 116:5-117:16.

344. I understand that Sam Hensen has acknowledged in a March 17, 2025 deposition that Simpson chose to develop its DU series hangers to install after the drywall because doing so was a more cost effective solution and that it was

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inconclusive at the time as to whether the industry would appreciate a hanger that could be installed before the drywall. EX2065: 108:25-111:18.

345. In my opinion, the evidence shows that the industry expressed skepticism that the method claimed in the '339 Patent could be used in firewalls without compromising the firewall's fire resistance rating. Further, the industry expressed skepticism that hanger recited in the limitations of the '339 patent would not have the ability to adequately withstand the moment caused by cantilevering the channel shaped portion away from the frame wall and thus would not be able to maintain the space to receive the sheathing as required in the inserting steps of the '339 Patent. Finally, the industry expressed skepticism whether the benefits of the method claimed in the '339 Patent would justify the additional manufacturing cost of the hanger required to practice the method.

346. In my opinion, the industry skepticism of the claimed method corroborates my opinion that the method claimed in the '339 Patent would not be obvious to a POSA.

7. teaching away by others

347. I understand that nonobviousness can be shown when prior art teaches away from a claimed invention. I understand that a reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be

discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the patent applicant.

348. As addressed above and in my first declaration, Bundy is the single prior art reference in which two layers of fire resistant sheathing was disclosed between the channel shaped portion of the hanger and the wall frame.

349. 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. Bundy at 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.

350. 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.

351. Bundy explains that "[p]referably, no part of the joist hanger 1 contacts the front face 16 of the structural support member 4." EX1005: :26-28. Bundy further explains that "[t]he 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.*" EX1005: 5:42-45 (emphasis added). Bundy discourages the use of back flanges that would engage the face of the top plate, as such a member would prevent the hanger from sliding over the one or more drywall panels and onto the lumber of the wood structural support member.

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352. In other words, Bundy expressly taught away from any hanger that would require alteration of the fire resistant drywall—such as the cutout in the drywall to accommodate the extension portion of the hanger as recited in the claims of the '339 Patent. Bundy further taught away from including a back flange extending from an edge of the top flange.

353. In my opinion, a person of skill in the art would have considered the prior art to teach away from the claimed method of the '339 Patent and this weighs in favor of the nonobviousness of the '339 Patent.

8. Nexus

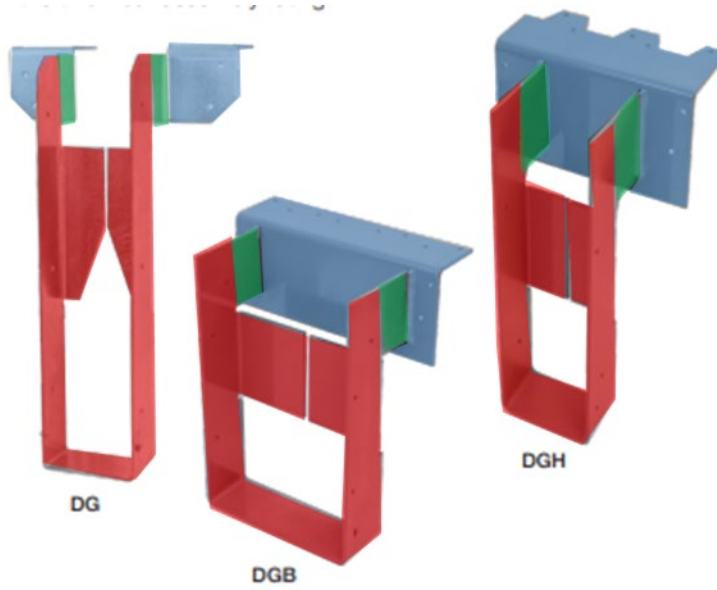
354. I understand that a nexus is required between the merits of the claimed invention and the objective evidence of secondary considerations. I understand that a showing of nexus can be made in two ways: (1) via a presumption of nexus, or (2) via a showing that the evidence is a direct result of the unique characteristics of the claimed invention.

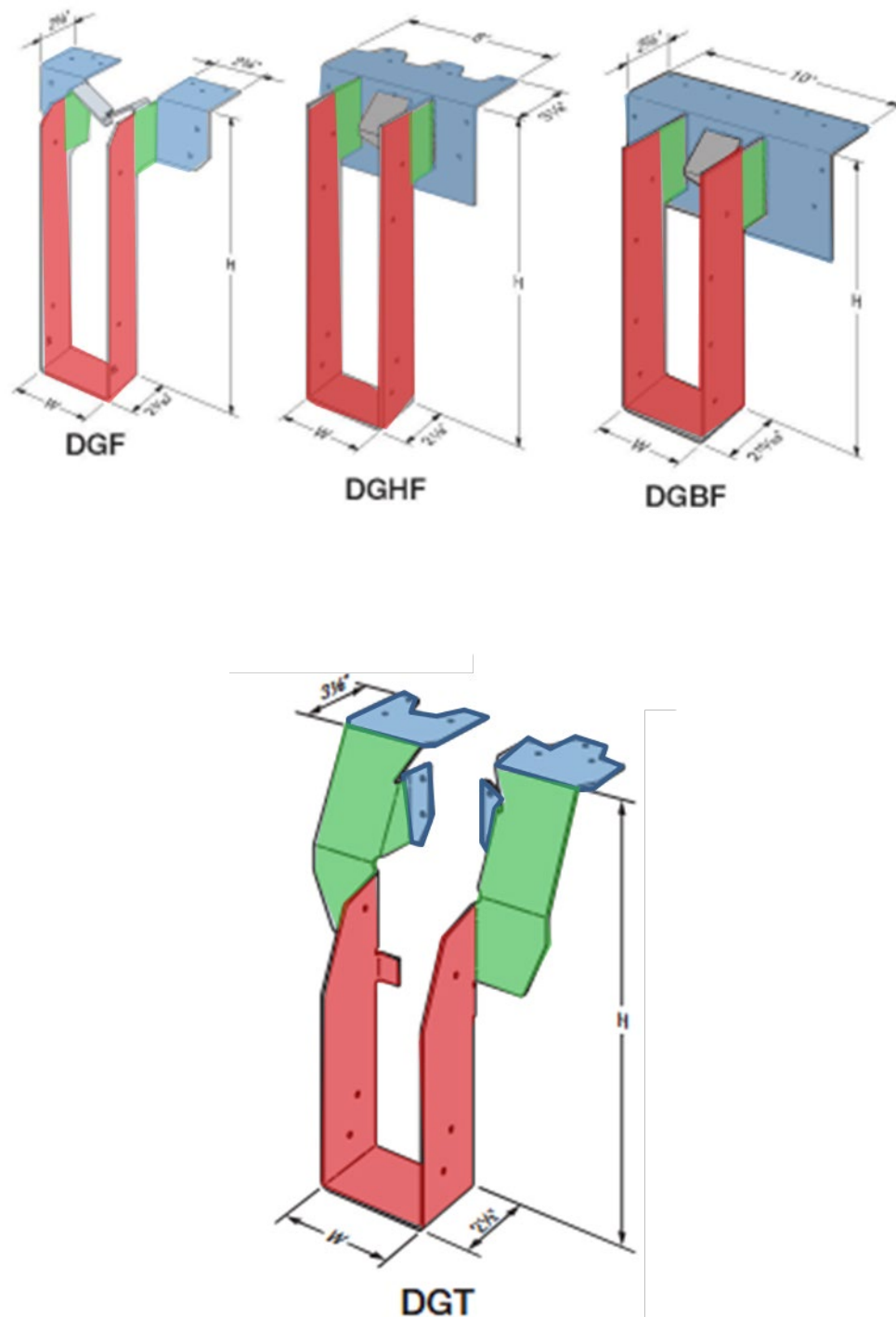
355. I understand that a patent owner is entitled to a presumption of nexus when it shows that the asserted objective evidence is tied to a specific product that embodies the claimed features, and is coextensive with them. I understand that there is a presumption of nexus for objective considerations when the patentee shows that the asserted objective evidence is tied to a specific product and that product is the invention disclosed and claimed in the patent.

356. As set forth above, all of the objective evidence relates to the FWH, DG/DGB/DGH, DGF/DGHF/DGBF, and DGT and/or the claimed method of installing the unique fire wall hanger prior to the drywall.

357. In the following paragraphs, I provide a detailed mapping of claim 1 to the product literature describing installation of the FWH, DG/DGB/DGH, DGF/DGHF/DGBF, and DGT, establishing that these products embody the full scope of the claimed invention and are coextensive with the claimed features.

358. As shown below, the FWH, DG/DGB/DGH, DGF/DGHF/DGBF, and DGT, as recited in claim 1 of the '339 Patent, contain a channel shaped portion sized and shaped to receive a structural component (red in the figures below), an extension 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 (green in the figures below), and a connection portion configured for attachment to the frame wall (blue in the figures below)) and their configuration (the extension flanges being configured to extend through drywall and creating space to receive the drywall between the back flange of the connection portion and the channel shaped portion.





359. Further, brochures for these products instruct that they are installed according to the claimed method of steps of mounting the fire wall hanger, cutting

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an opening into an exterior edge of fire retardant sheathing and installing the fire retardant sheathing after mounting the hanger and cutting the opening in the fire retardant sheathing. EX2132; EX2133; EX2134; EX2135.

360. I have attached claim charts as Appendix A – Appendix D at the end of this declaration mapping the claims to the FWH, DG/DGB/DGH, DGF/DGHF/DGBF, and DGT/DGHT products.

361. In my opinion, the FWH, DG/DGB/DGH, DGF/DGHF/DGBF, and DGT/DGHT are commercial embodiments of the invention disclosed and claimed in the ‘339 patent, these products practice the limitations of claim 1, the objective evidence is tied to these products, and the presumption of nexus applies.

362. As mentioned before, I understand that, even absent a presumption of nexus, nexus can be proven by showing that the evidence of secondary considerations is the direct result of the unique characteristics of the claimed invention.

363. In my opinion, the inventive configuration of the claimed fire wall hanger, as a whole, provides the ability to be installed according to the claimed method, including, first, “mounting a fire hanger on a frame wall,” and then “installing the fire retardant sheathing” “after mounting the fire wall hanger on the frame wall.”

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364. The evidence of record shows that the benefit of the claimed method of installing the drywall after the fire wall hanger drove success of Mitek's FWH, was copied by Simpson in its DG/DGB/DGH, DGF/DGHF/DGBF, and DGT, was praised in the industry, and was not achieved by other fire wall hangers in the prior art.

365. Documents and deposition testimony in this case demonstrate the connection between the claim elements and the objective evidence of nonobviousness:

- Simpson's expert, Kenneth Serwin, acknowledged that [REDACTED]
[REDACTED] EX2075: 31, 40.
- Customer declarations state that the product was purchased due to the claimed feature of being able to be installed prior to the drywall. EX2058 (Holmes Dec.); EX 2057 (Dunkle Dec.); EX 2056 (Church Dec).

366. Numerous Simpson documents show customer demand for the FWH, show customer requests for, and acknowledge the need for, a product comparable to the FWH that can be installed according to the claimed method, and indicate that the FWH guided Simpson to design its competing products. For example, a third-party email to Simpson states: "[REDACTED]"

[REDACTED]
[REDACTED]
[REDACTED] EX2102; *see also* EX2100;
EX2096; EX2094; EX2107; EX2104; EX20105; EX2106; EX2129; EX2067:
120:15-121:8; EX2064: 45:14-23; 162:17-164:17. Another Simpson email notes that

[REDACTED]
[REDACTED]
[REDACTED] EX2136; *see also* SST0051281;
SST045546; EX2108; EX2064: 146:25-154:16; EX2109; EX2114. Simpson
internal documents show its goal with its competing products, such as the DG, was
to [REDACTED]

[REDACTED] EX2115; *see also* EX2110; EX2116; EX2117; EX2094; EX2109.

367. Testimony from Mitek shows that the primary reason customers purchased the FWH product was because the hanger could be installed prior to drywall. EX2059: 34:11-35:4; 35:18-36:11; 69:4-21; 91:3-24.

368. 3. Survey evidence shows the primary reason customers buy the FWH is due to the preferred installation method and 87% of those respondents said they would pay more for a hanger with this patented feature. EX2054: ¶¶23-26, 91-96.

369. I understand that the prominence of the patented technology in advertising creates an inference that links the invention to the success. Both Mitek's and Simpson's marketing experts elected to emphasize the claimed method, which shows its importance. For example, EX2131 is a FWH technical bulletin showing new FWH hangers, including announcing that "The advanced design allows you to install the hangers before the drywall is attached, allowing your project to be completely framed-up and weather-tight when the drywall sheathing shows up on site." *See also* EX2072: 39:18-40:19 (testifying that MiTek's marketing communications highlighted the FWH series hanger's ability to be installed before drywall). EX2133 is a Simpson brochure for the DG, DGB, and DGH that states: "Engineered Design Makes it Easy to Install Before the Drywall. The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. . . The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete."

370. I understand that lack of previous experience in the relevant market combined with high sales of the patented product provide an inference of a nexus between commercial success and the patented invention and that the lack of market power in the field suggests that it is the features of the patented invention that led to the commercial success.

371. The record in this case shows that the FWH was Mitek’s first foray into the fire wall hanger market. EX2059: ¶3-4 . Despite being a newcomer, Mitek captured the market, and sold the FWH at a premium. EX2059: ¶9-16; EX2055: ¶49-52 Thus, MiTek’s lack of previous experience in the relevant market combined with its high sales of the patented FWH product provides an inference of a nexus between its commercial success and the patented invention. The lack of market power in this field would seem to suggest that it was the features of the patented invention that led to the commercial success.

372. In my opinion, there is a nexus between the unique features of the claimed invention, the inventive configuration of the fire wall hanger and installation method, and the evidence of secondary considerations.

VI. CONTINGENT AMENDMENTS

373. I understand that Columbia, as the Patent Owner, is able to submit a Contingent Motion to Amend. I understand that the Contingent Motion to Amend seeks to replace any issued claims of the ‘339 Patent found to be invalid with corresponding substitute claims (claims 32-54) contained in the Contingent Motion to Amend. I understand the substitute claims in the Contingent Motion to Amend contain amendments or changes to the issued claims of the ‘339 Patent. I further understand that the Contingent Motion to Amend is “contingent” in that the

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substitute claims will only replace the issued claims of the ‘339 Patent if the issued claims of the ‘339 Patent are found to be invalid.

A. Written Description Support: Bottom Edge (Substitute Claims 36 and 48)

374. Substitute claim 36 recites “moving the fire retardant sheathing upward relative to the fire wall hanger so that an exposed bottom edge of the second extension flange is a first part of the fire wall hanger to move into the opening in the fire retardant sheathing, the bottom edge being free of direct attachment to any other component.” The term “bottom edge” in substitute claim 36 is being added by amendment.

375. Substitute claim 48 recites “moving the fire retardant sheathing upward relative to the fire wall hanger so that an exposed bottom edge of the extension flange of the extension portion is a first part of the fire wall hanger to move into the opening in the fire retardant sheathing via the open top of the opening in the fire retardant sheathing, the bottom edge being free of direct attachment to any other component.” The term “bottom edge” in substitute claim 48 is being added by amendment.

376. I have been informed that the substitute claims must have written description support from the ‘339 Patent as initially filed (U.S. Patent Application No. 18/112,843) and the prior applications the ‘339 Patent claims priority to, which in this case includes U.S. Patent Application Nos. 17/235,349, 16/433,799,

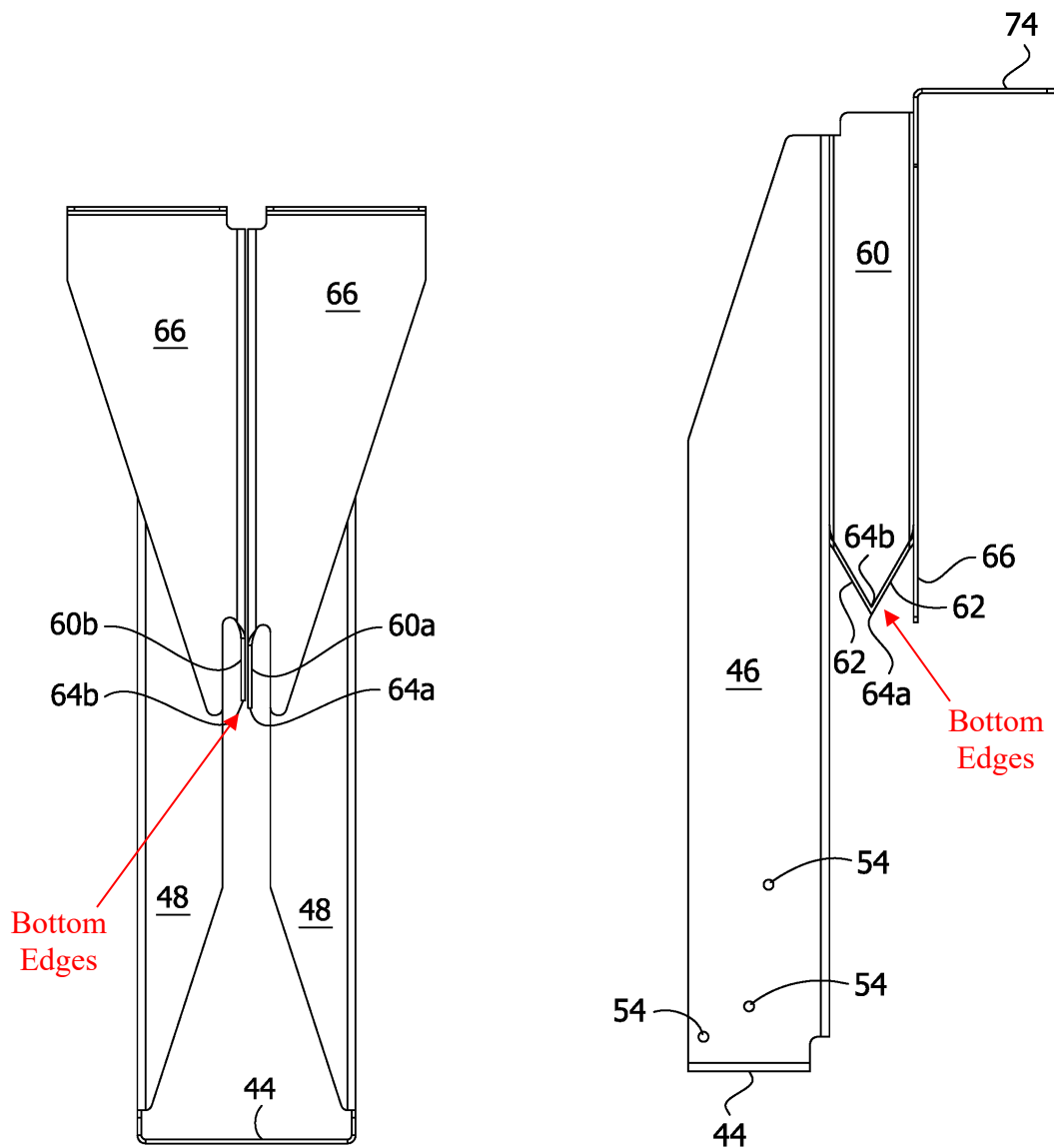
16/225,517, and 15/675,409, 14/555,049. The written description support for “bottom edge” in these applications is generally identical.

377. Based on my review of U.S. Patent Application No. 18/112,843 (“the ‘843 Application”) (Exhibit 1002 (file history) at 37-108), which matured into the ‘339 Patent, in my opinion the specification and figures contained in the ‘843 Application convey to a POSA that the inventors of the ‘339 Patent were in possession of each extension flange (60) having a “bottom edge being free of direct attachment to any other component,” as recited by substitute claims 36 and 48 in the Contingent Motion to Amended. For simplicity, I am only pointing out written description support in the ‘843 Application.

378. The ‘843 Application explains “[a]t a bottom edge, each flange 60 includes a driving point 62.” ‘843 Application: ¶[0058]. As shown in Figs. 4 and 6 (reproduced below), the bottom edge of each extension flange (60) is free of direct attachment to another component in order to form the pointed tips (64a, 64b) of the driving points (62). These bottom edges of the extension flanges (60) are also exposed. This allows the bottom edges of the extension flanges (60) to move into the opening (72) as the fire retardant sheathing (34) is moved upward into place when the fire wall hanger (26) is mounted to the wall before the sheathing. ‘843 Application: ¶[0070].

FIG. 4

FIG. 6



EX1001: Figs. 4 and 6 (annotated).

379. Substitute claim 36 also recites that the “exposed bottom edge of the second extension flange *is a first part of the fire wall hanger to move into* the opening in the fire retardant sheathing.” Similarly, substitute claim 48 recites that the “exposed bottom edge of the extension flange of the extension portion *is a first*

part of the fire wall hanger to move into the opening in the fire retardant sheathing via the open top of the opening in the fire retardant sheathing.”

380. Based on my review of the ‘843 Application, in my opinion the specification and figures contained in the ‘843 Application convey to a POSA that the inventors of the ‘339 Patent were in possession of the bottom edge of the extension flange (60) being the first part of the fire wall hanger (26) to move into the opening (72) in the fire retardant sheathing (34). The specification explains for the embodiment where the fire wall hanger (26) is “installed on the wall 28 before the sheathing 34 is mounted on the wall” that after the fire wall hanger is mounted on the wall “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.” ‘843 Application: ¶[0070] (emphasis added).

381. As shown in Figs. 3-5, the bottom edge of the extension flange labeled “60a” is at the very bottom of the extension flange and forms the lowest point (e.g., the pointed tip labeled “64a”) of the extension portion (40). With reference to Figs. 9 and 10, it is apparent that as the fire retardant sheathing (34) is moved upward, because the bottom edge of the extension flange labeled “60a” is at the bottom of the extension portion (40), this bottom edge of the extension flange labeled “60a” is the first part of the fire wall hanger (26) to move into the opening

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(72) in the fire retardant sheathing via the open top of the opening. Further, when the fire retardant sheathing (34) is mounted on the wall (28), only the extension portion (40) is in the opening (72) due to the size and shape of the opening (72) and the configuration of the fire wall hanger (26), as shown in Figs. 10-13A. No other portion of the fire wall hanger (26) is in the opening (72). This, in combination with the bottom edge of the extension flange labeled “60a” being at the bottom of the extension portion (40), necessitates that this bottom edge is the first part of the fire wall hanger (26) to move into the opening (72) when the fire retardant sheathing is moved upward relative to the fire wall hanger (26) already mounted on the wall (28).

382. Therefore, the ‘843 Application has written description support for the requirement “moving the fire retardant sheathing upward relative to the fire wall hanger so that an exposed bottom edge of the second extension flange is a first part of the fire wall hanger to move into the opening in the fire retardant sheathing, the bottom edge being free of direct attachment to any other component” recited by substitute claim 36 and for the requirement “moving the fire retardant sheathing upward relative to the fire wall hanger so that an exposed bottom edge of the extension flange of the extension portion is a first part of the fire wall hanger to move into the opening in the fire retardant sheathing via the open top of the

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opening in the fire retardant sheathing, the bottom edge being free of direct attachment to any other component” recited by substitute claim 48.

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

Executed this 27th day of May, 2025.

By Richard Kaczowski:

A handwritten signature in dark ink, appearing to read "R.T. Kaczowski", is written over a horizontal line.

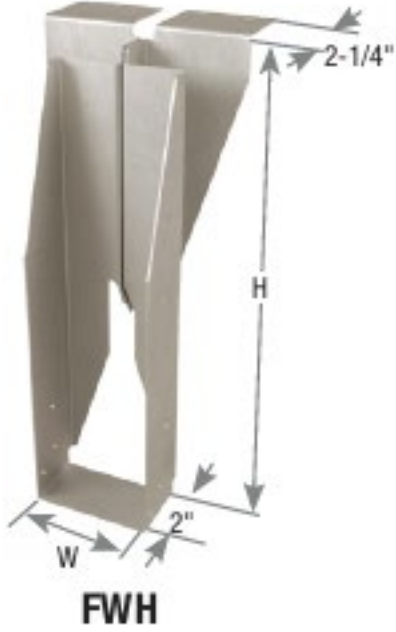
Appendix A

Claim Charts
U.S. Patent No. 11,920,339 vs. MiTek's FWH Series Hangers

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
A method of constructing a fire-resistive wall assembly, the method comprising:	To the extent the preamble limits the claim, users of MiTek's FWH Series Hangers perform a method of constructing a fire-resistant wall assembly when using MiTek's FWH Series Hangers according to the instructions provided by MiTek: The Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH before the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts. 2 Hour Fire-Rating FWH hangers are tested per ASTM E814 standards. When installed on one side of a maximum 2 hour fire-rated wall assembly, the penetration of the MiTek FWH Fire Wall Hanger through the gypsum wallboard will not reduce the fire resistive rating of the 2 hour fire resistive assembly.

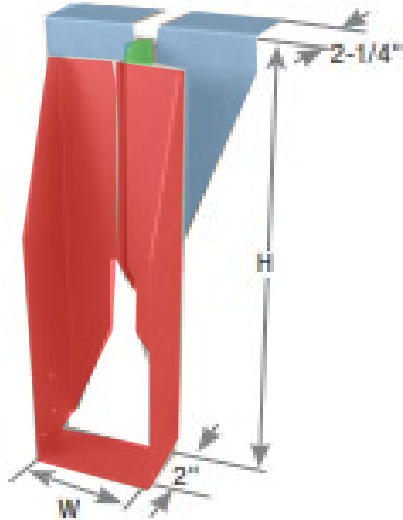
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Typical FWH stud wall with (2) layers of 5/8" gypsum wallboard installation
mounting a fire wall hanger on a frame wall,	MiTek instructs users of MiTek's FWH Series Hangers to mount the fire wall hangers on a frame wall:

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH <i>before</i> the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts. Installation: • Install the face of hanger flanges tight to stud wall framing.

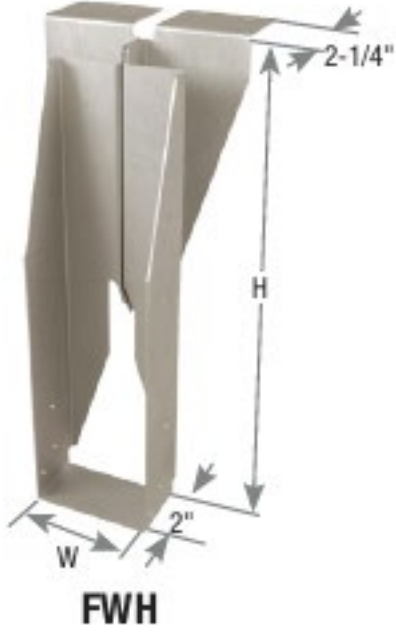
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 2-1/4" H W 2" FWH

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Typical FWH stud wall installation
the frame wall including a top plate and a plurality of studs extending down from the top plate, and	The frame wall on which users of MiTek's FWH Series Hangers are instructed to mount the hangers includes a top plate and a plurality of studs extending down from the top plate:

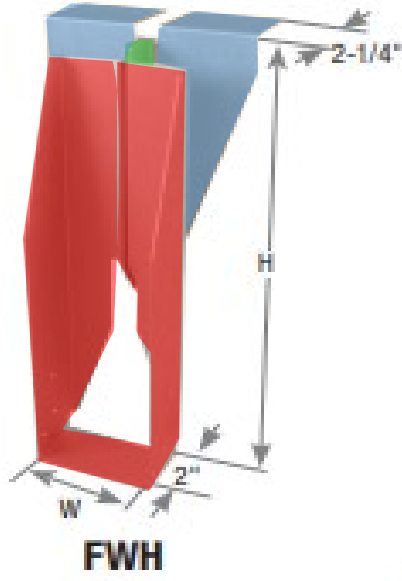
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH <i>before</i> the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts.  Typical FWH stud wall installation

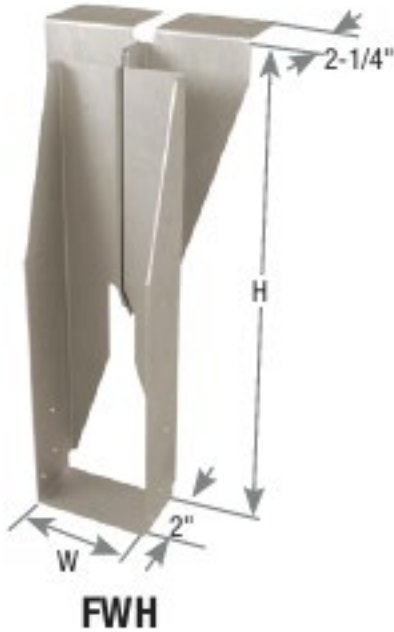
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
the fire wall hanger including a channel-shaped portion sized and shaped to receive a structural component,	MiTek's FWH Series Hangers include a channel-shaped portion (highlighted red below) sized and shaped to receive a structural component:  The diagram shows a 3D perspective view of a fire wall hanger (FWH). The hanger is primarily red, with a blue structural component being inserted into its channel-shaped portion. The red portion has a U-shaped cross-section. Dimensions are indicated with arrows: 'W' for the overall width at the base, 'H' for the height, '2"' for the width of the base of the channel, and '2-1/4"' for the width of the top of the channel. The label 'FWH' is centered below the diagram.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH <i>before</i> the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts. • The truss/joist should bear fully on the FWH seat with a gap no greater than 1/8" between the end of the supported member and the hanger. See Figure 1.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 FWH

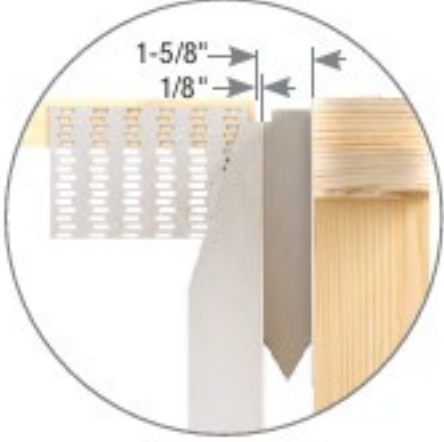
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Typical FWH stud wall installation
a connection portion configured for attachment to the frame wall and	MiTek's FWH Series Hangers include a connection portion (highlighted blue below) configured for attachment to the frame wall:

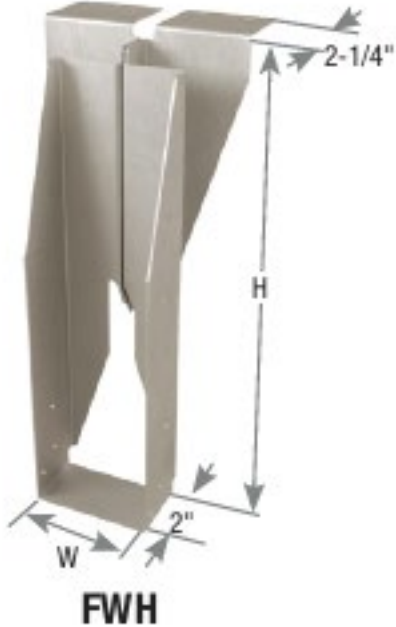
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 A 3D perspective view of a red, U-shaped component. The component has a base with a width dimension labeled 'W' and a depth dimension labeled '2"'. The height of the side walls is labeled 'H'. The top edge of the right side wall is labeled '2-1/4"'. The label 'FWH' is positioned below the component.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH <i>before</i> the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts. 

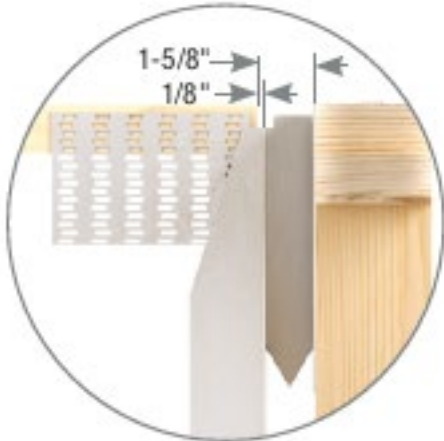
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Typical FWH stud wall installation
an extension portion interconnecting the channel-shaped portion and the connection portion and spacing the channel-shaped portion from the connection portion,	MiTek's FWH Series Hangers include an extension portion (highlighted green below) interconnecting the channel-shaped portion and the connection portion and providing an approximately 1 5/8" drywall gap between the channel-shaped portion and the connection portion (i.e., spacing the channel-shaped portion from the connection portion):

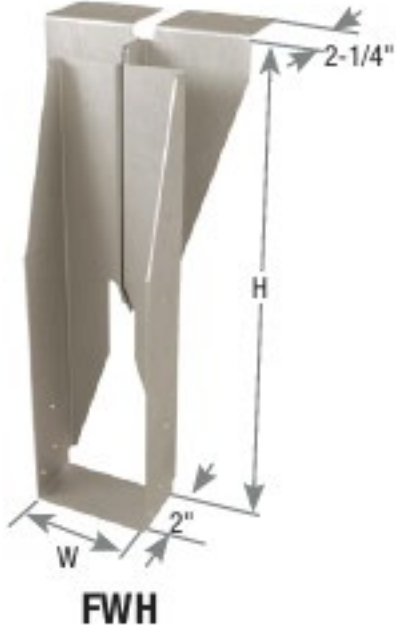
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 • The end of the truss/joist should measure 1-5/8" from the face of the supporting wall. See Figure 1.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Figure 1 Typical FWH Side View

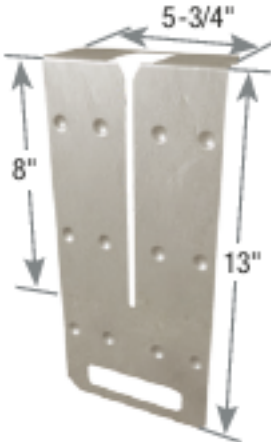
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	
said step of mounting the fire wall hanger includes securing the connection portion of the firewall hanger to the top plate of the frame wall so that the channel-shaped portion is spaced from the frame wall;	MiTek instructs users of MiTek's FWH Series Hangers to mount the fire wall hanger by securing the connection portion of the fire wall hanger to the top plate of the frame wall so that the channel-shaped portion is spaced from the frame wall:

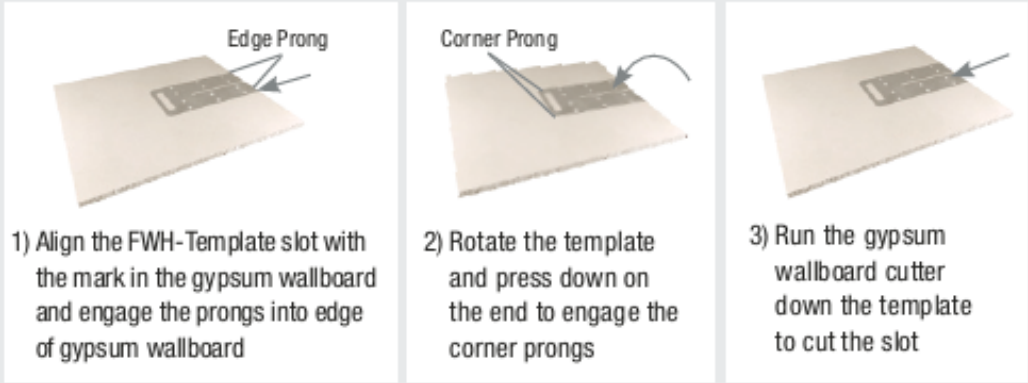
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH <i>before</i> the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts. • The end of the truss/joist should measure 1-5/8" from the face of the supporting wall. See Figure 1.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Figure 1 Typical FWH Side View

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 2-1/4" H W 2" FWH

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Typical FWH stud wall installation
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; and	MiTek instructs users of MiTek's FWH Series Hangers to cut an opening (in the form of a slot) into the fire retardant drywall sheathing as part of the installation of the fire-retardant wall assembly: • Gypsum Wallboard Installation - Use the FWH-T template to slot cut the gypsum wallboard. See FWH-T Template Installation Sequence on next page. Slide the gypsum wallboard into position and fasten to the framing members meeting minimum requirements specified by code.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The opening or slot that MiTek instructs users to cut into the fire retardant drywall sheathing as part of the installation of the fire-retardant wall assembly extends through the front face and rear face of the fire-retardant sheathing. The slot is cut from the exterior edge of the fire-retardant sheathing, such that the resultant opening faces outwardly, away from the exterior edge of the fire-retardant sheathing.  FWH-T template (must be ordered separately)

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	FWH-T Template Installation Sequence  1) Align the FWH-Template slot with the mark in the gypsum wallboard and engage the prongs into edge of gypsum wallboard 2) Rotate the template and press down on the end to engage the corner prongs 3) Run the gypsum wallboard cutter down the template to cut the slot
after mounting the fire wall hanger on the frame and after cutting the opening into the exterior edge of the fire retardant sheathing, installing the fire retardant sheathing with respect to the frame wall so the rear face of the fire retardant sheathing faces toward the studs of the wall frame,	MiTek instructs users of MiTek's FWH Series Hangers to install the fire retardant drywall sheathing on the frame wall. A POSA would understand that the rear face of the sheathing is designed to face toward the studs of the wall frame, consistent with industry literature and typical drywall installation practices:

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The Fire Wall Hanger is designed for attaching truss, I-joist, solid sawn lumber, or engineered wood floor framing members to double wall top plates or minimum 2-ply 2x solid sawn header fire rated wood frame walls. The advanced design allows the installation of the FWH <i>before</i> the 5/8" gypsum wallboard (drywall) is attached and permits the building project to be completely framed-up, and weather-tight before the gypsum wallboard sheathing work starts. Features: • Hangers can be installed before gypsum wallboard is attached • Gypsum Wallboard Installation - Use the FWH-T template to slot cut the gypsum wallboard. See FWH-T Template Installation Sequence on next page. Slide the gypsum wallboard into position and fasten to the framing members meeting minimum requirements specified by code.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Typical FWH stud wall with (2) layers of 5/8" gypsum wallboard installation
said step of installing the fire retardant sheathing includes: inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall; and	MiTek instructs users of MiTek's FWH Series Hangers to install the fire retardant drywall sheathing by inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall: • Gypsum Wallboard Installation - Use the FWH-T template to slot cut the gypsum wallboard. See FWH-T Template Installation Sequence on next page. Slide the gypsum wallboard into position and fasten to the framing members meeting minimum requirements specified by code.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Typical FWH stud wall with (2) layers of 5/8" gypsum wallboard installation
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	Installing the fire retardant drywall sheathing would necessarily require moving the sheathing relative to MiTek's FWH Series Hangers mounted on the frame wall so that an edge of the fire retardant drywall sheathing bounding the opening on said sheathing moves alongside the extension portion of the fire wall hanger and the fire wall hanger extends through the opening in the fire retardant drywall sheathing:

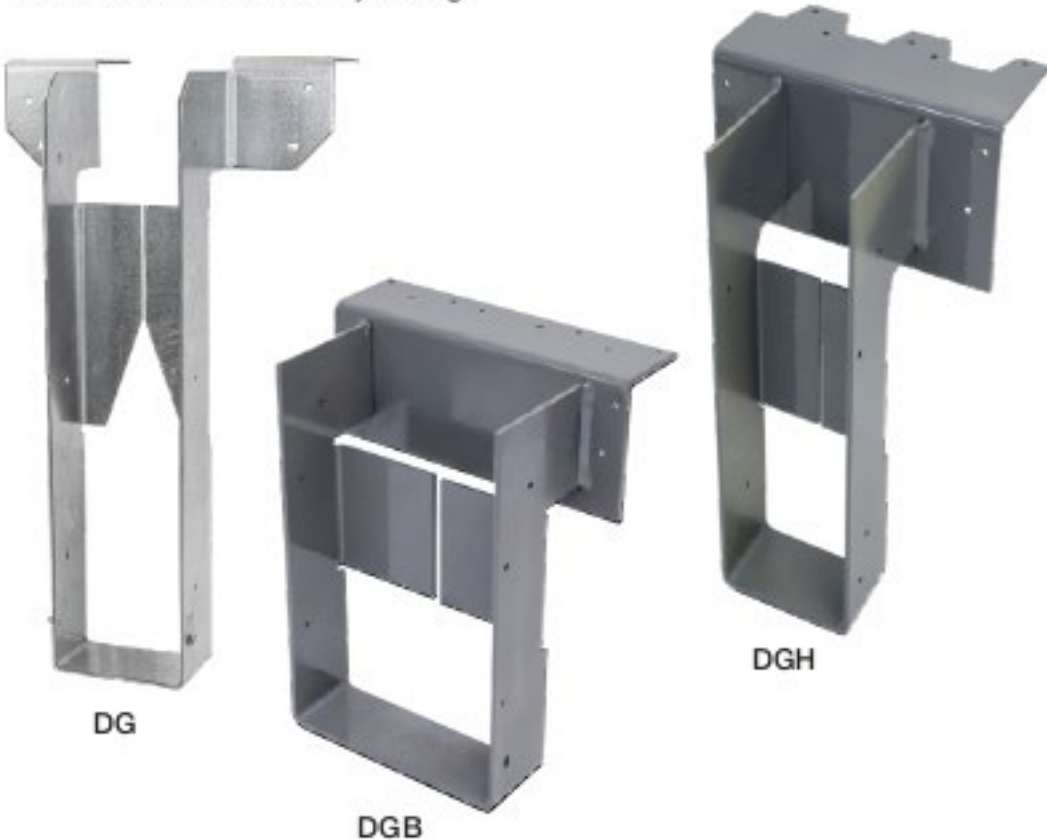
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
the fire wall hanger extends through the opening in the fire retardant sheathing.	2 Hour Fire-Rating FWH hangers are tested per ASTM E814 standards. When installed on one side of a maximum 2 hour fire-rated wall assembly, the penetration of the MiTek FWH Fire Wall Hanger through the gypsum wallboard will not reduce the fire resistive rating of the 2 hour fire resistive assembly. • Gypsum Wallboard Installation - Use the FWH-T template to slot cut the gypsum wallboard. See FWH-T Template Installation Sequence on next page. Slide the gypsum wallboard into position and fasten to the framing members meeting minimum requirements specified by code.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Typical FWH stud wall with (2) layers of 5/8" gypsum wallboard installation

Appendix B

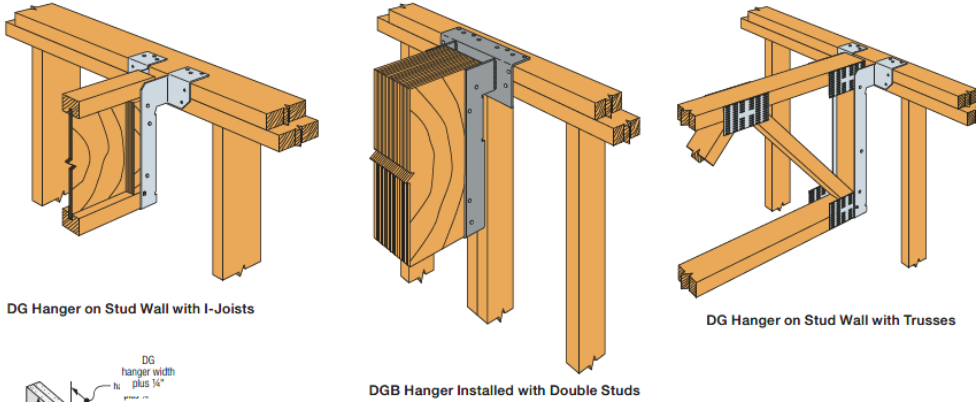
Claim Charts
U.S. Patent No. 11,920,339 vs. Simpson's DG, DGB, and DGH Hangers

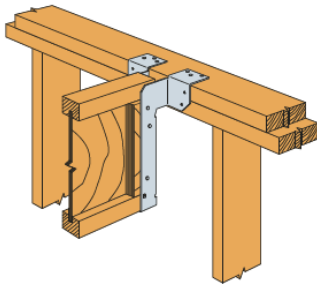
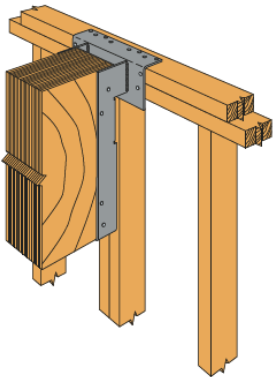
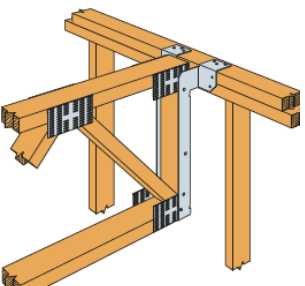
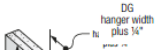
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
A method of constructing a fire-resistive wall assembly, the method comprising:	To the extent the preamble limits the claim, users of Simpson's DG, DGB, and DGH Hangers perform a method of constructing a fire-resistant wall assembly when using Simpson's DG, DGB, and DGH Hangers according to the instructions provided by Simpson: The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a continuous fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DG/DGH/DGB hangers do not reduce the two-hour fire wall assembly rating.

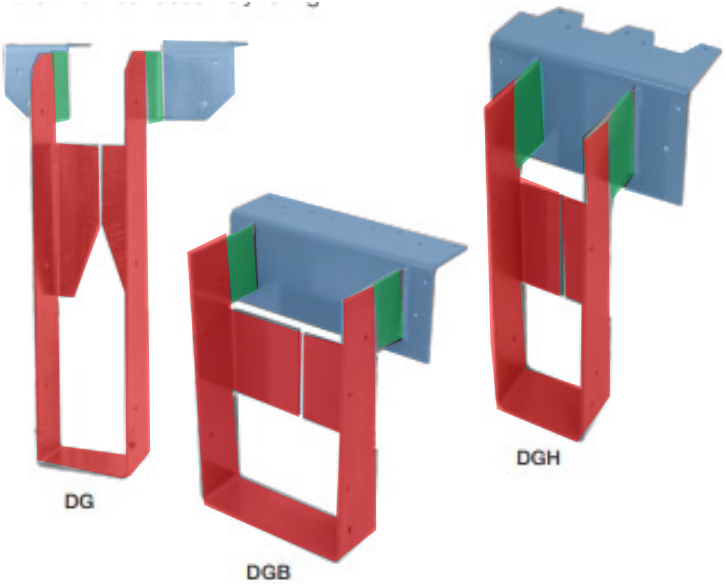
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	Two-Hour Fire Wall Assembly Rated Simpson Strong-Tie has completed ASTM E814 standard testing verifying that the DG/DGH/DGB hangers do not reduce the two-hour assembly rating.  The image displays three metal hanger components used in fire wall assemblies. On the left is the DG hanger, a vertical U-shaped bracket. In the center is the DGB hanger, a more complex bracket with a horizontal base and a vertical support. On the right is the DGH hanger, which features a horizontal top flange and a vertical support. Each component is shown in a perspective view, highlighting its L-shaped profile and mounting holes. DG DGB DGH

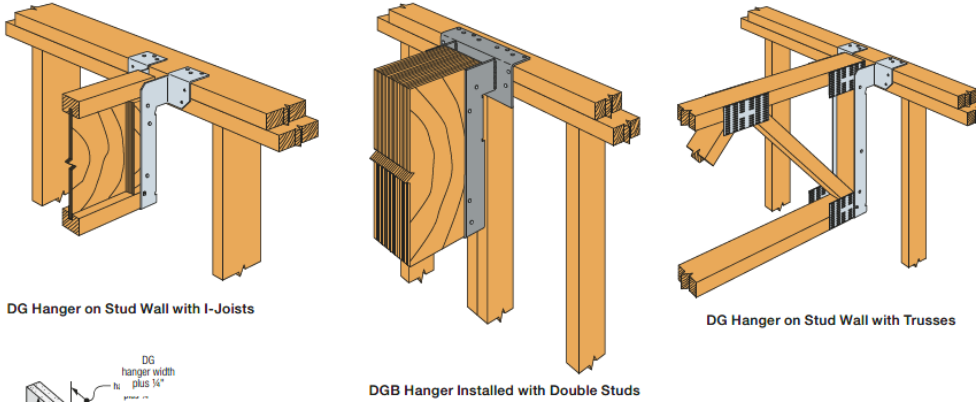
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger with I-Joists
mounting a fire wall hanger on a frame wall,	Simpson instructs users of Simpson's DG, DGB, and DGH Hangers to mount the fire wall hangers on a frame wall:

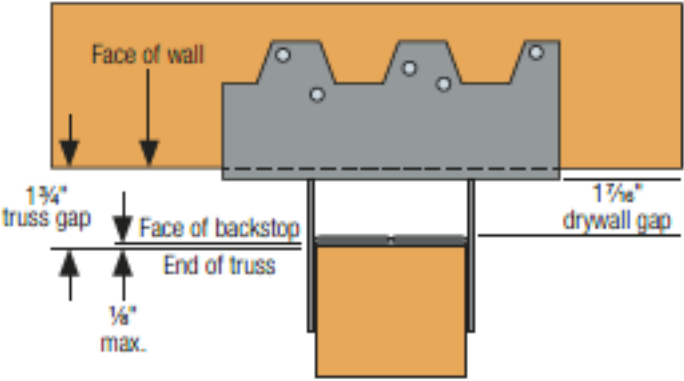
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a continuous fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DG/DGH/DGB hangers do not reduce the two-hour fire wall assembly rating. Installation • Use all specified fasteners. I-joists require web stiffeners. • DG/DGH/DGB hangers are mounted like a standard top-flange hanger.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger on Stud Wall with I-Joists DGB Hanger Installed with Double Studs DG Hanger on Stud Wall with Trusses DG hanger width plus 1/4"
the frame wall including a top plate and a plurality of studs extending down from the top plate, and	The frame wall on which users of Simpson's DG, DGB, and DGH Hangers are instructed to mount the hangers includes a top plate and a plurality of studs extending down from the top plate:

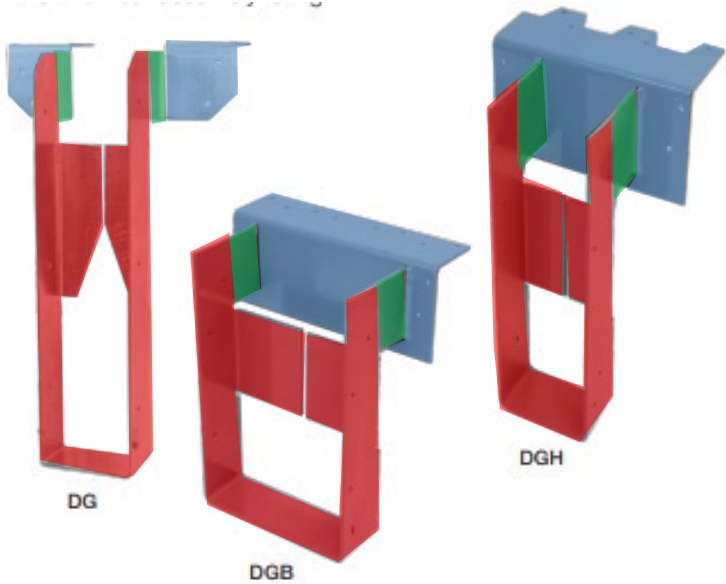
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of $\frac{5}{8}$" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a continuous fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DG/DGH/DGB hangers do not reduce the two-hour fire wall assembly rating.  DG Hanger on Stud Wall with I-Joists  DGB Hanger Installed with Double Studs  DG Hanger on Stud Wall with Trusses  DG hanger width h1 plus $\frac{3}{4}$"

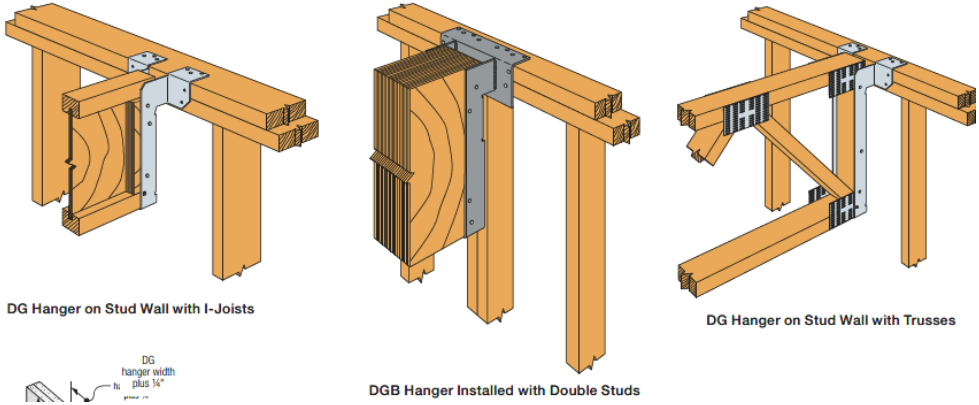
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
the fire wall hanger including a channel-shaped portion sized and shaped to receive a structural component,	Simpson's DG, DGB, and DGH Hangers include a channel-shaped portion (highlighted red below) sized and shaped to receive a structural component:  DG DGB DGH

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 The diagrams illustrate three applications of a DG hanger: DG Hanger on Stud Wall with I-Joists: Shows a cross-section of a wall stud with an I-joist resting on a metal hanger. DGB Hanger Installed with Double Studs: Shows a cross-section of a wall with two studs and a metal hanger supporting a double stud. DG Hanger on Stud Wall with Trusses: Shows a cross-section of a wall stud with a truss resting on a metal hanger. A detail view of the hanger is shown with the following dimensions: - DG hanger width - hi - plus 1/4" - gross

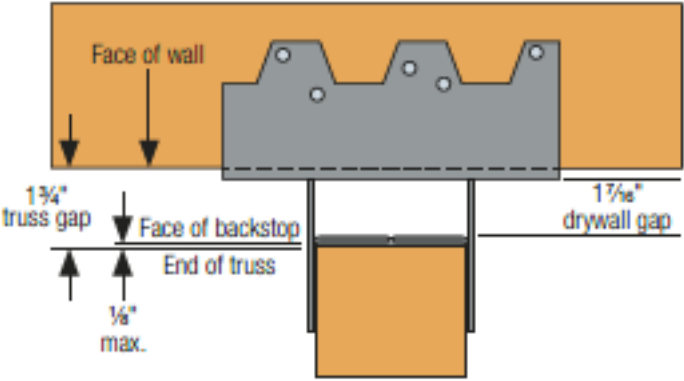
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGH Hanger (DG Similar) Top View with Gap

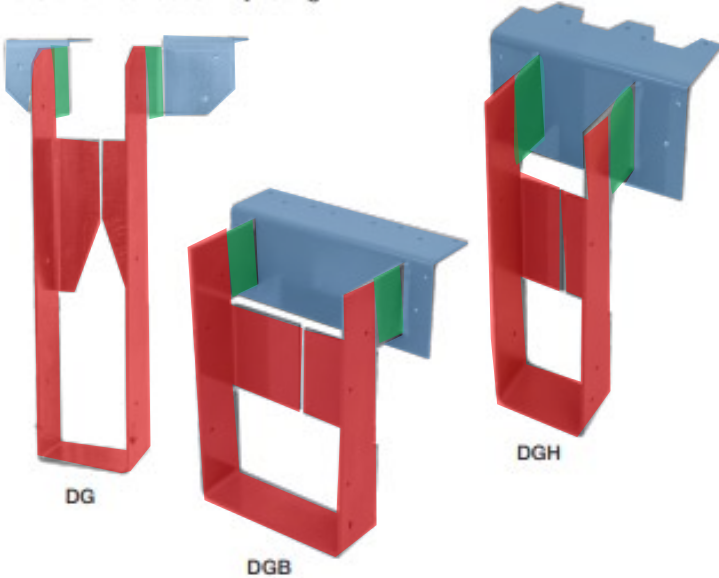
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger with I-Joists
a connection portion configured for attachment to the frame wall and	Simpson's DG, DGB, and DGH Hangers include a connection portion (highlighted blue below) configured for attachment to the frame wall:

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 The figure illustrates three variations of a mechanical assembly, labeled DG, DGB, and DGH. Each assembly consists of a red U-shaped frame with two green vertical inserts. In the DG view, a blue component is positioned above the frame. In the DGB view, the blue component is inserted into the top of the frame. In the DGH view, the blue component is fully seated within the frame structure.

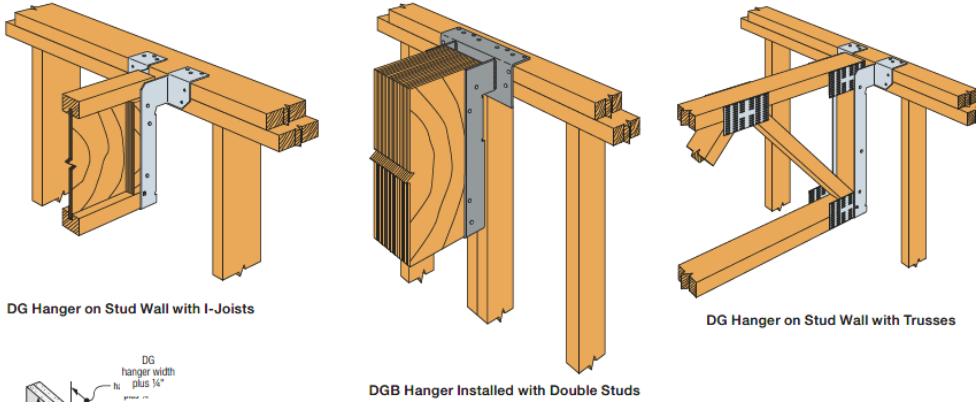
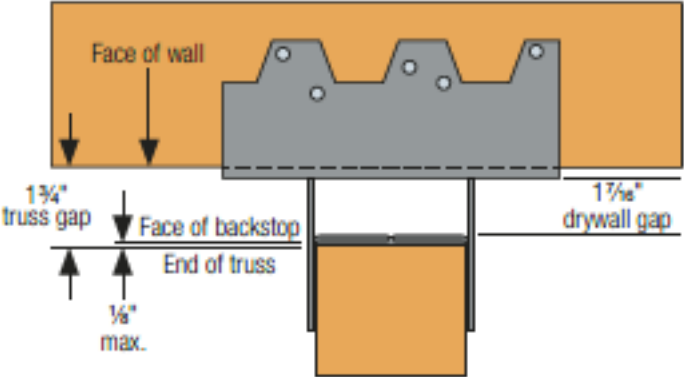
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 The diagrams illustrate three applications of a DG hanger: DG Hanger on Stud Wall with I-Joists: Shows a cross-section of a wall stud with an I-joist resting on a metal hanger. DGB Hanger Installed with Double Studs: Shows a cross-section of a wall with two studs and a metal hanger supporting a double stud. DG Hanger on Stud Wall with Trusses: Shows a cross-section of a wall stud with a truss resting on a metal hanger. A detail view of the hanger shows its profile with dimensions: DG hanger width plus 1/4" and a 1/2" gap.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a continuous fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DG/DGH/DGB hangers do not reduce the two-hour fire wall assembly rating.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGH Hanger (DG Similar) Top View with Gap
an extension portion interconnecting the channel-shaped portion and the connection portion and spacing the channel-shaped portion from the connection portion,	Simpson's DG, DGB, and DGH Hangers include an extension portion (highlighted green below) interconnecting the channel-shaped portion and the connection portion and providing approximately a 1 7/16" drywall gap between the channel-shaped portion and the connection portion (i.e., spacing the channel-shaped portion from the connection portion):

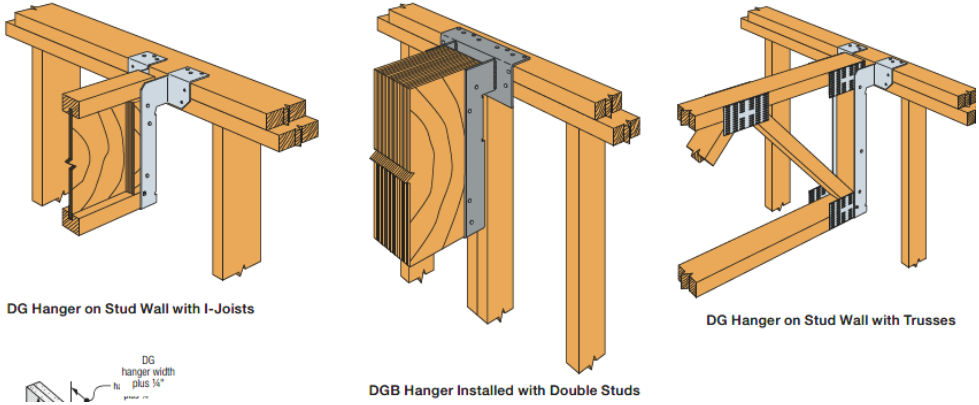
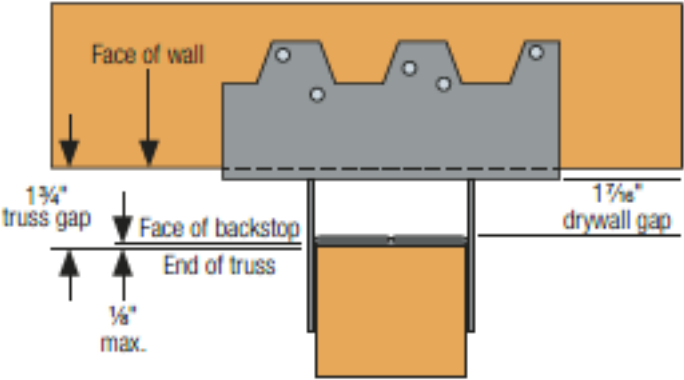
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 The image displays three 3D perspective views of a mechanical assembly, labeled DG, DGB, and DGH. Each view shows a red U-shaped frame with green vertical inserts, mounted on a blue base. DG shows the front view, DGB shows a side view, and DGH shows a rear view.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a continuous fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DG/DGH/DGB hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall

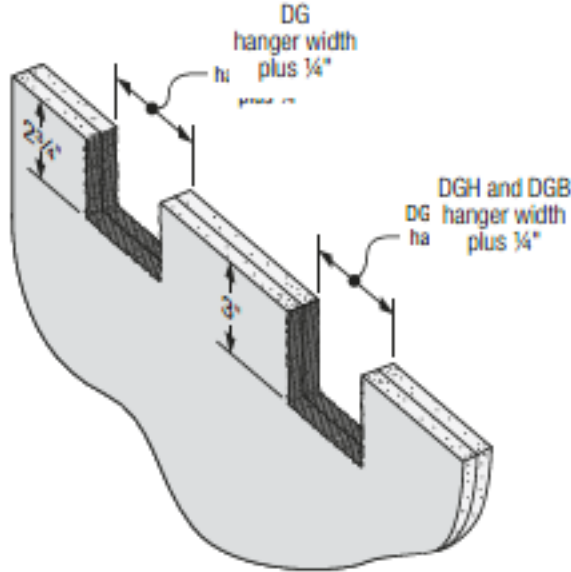
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger on Stud Wall with I-Joists DGB Hanger Installed with Double Studs DG Hanger on Stud Wall with Trusses DG hanger width h_i plus $\frac{1}{4}"$  Face of wall Face of backstop End of truss $1\frac{3}{4}"$ truss gap $\frac{1}{8}"$ max. $1\frac{7}{8}"$ drywall gap DGH Hanger (DG Similar) Top View with Gap

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger with I-Joists
said step of mounting the fire wall hanger includes securing the connection portion of the firewall hanger to the top plate of the frame wall so that the channel-shaped portion is spaced from the frame wall;	Simpson instructs users of Simpson's DG, DGB, and DGH Hangers to mount the fire wall hanger by securing the connection portion of the fire wall hanger to the top plate of the frame wall so that the channel-shaped portion is spaced from the frame wall:

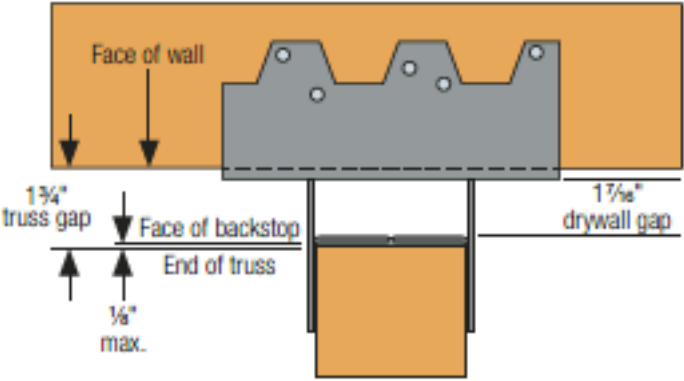
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a continuous fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DG/DGH/DGB hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger on Stud Wall with I-Joists DGB Hanger Installed with Double Studs DG Hanger on Stud Wall with Trusses DG hanger width h_i plus $\frac{1}{4}"$  Face of wall Face of backstop End of truss 1 3/4" truss gap 1 7/8" drywall gap 1/8" max. DGH Hanger (DG Similar) Top View with Gap

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger with I-Joists
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; and	Simpson instructs users of Simpson's DG, DGB, and DGH Hangers to cut openings in the form of notches into an exterior edge of the fire retardant drywall sheathing as part of the installation of the fire-retardant wall assembly:

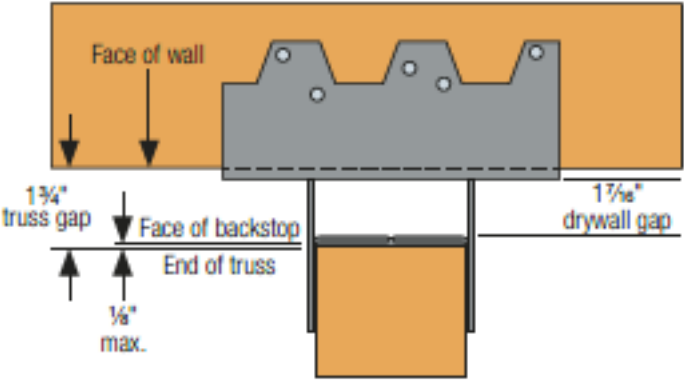
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 The diagram illustrates a cross-section of a drywall assembly with notches cut into it. The notches are shown extending through the front and rear faces of the drywall. Labels indicate dimensions: 'DG hanger width plus 1/4\"/> Drywall Notches The notches that Simpson instructs users to cut into the fire retardant drywall sheathing as part of the installation of the fire-retardant wall assembly extend through the front face and rear face of the fire-retardant sheathing. The notch is cut from the exterior edge of the fire-retardant sheathing, such that the resultant opening faces outwardly, away from the exterior edge of the fire-retardant sheathing.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
after mounting the fire wall hanger on the frame and after cutting the opening into the exterior edge of the fire retardant sheathing, installing the fire retardant sheathing with respect to the frame wall so the rear face of the fire retardant sheathing faces toward the studs of the wall frame,	Simpson instructs users of Simpson's DG, DGB, and DGH Hangers to install the fire retardant drywall sheathing on the frame wall. A POSA would understand that the rear face of the sheathing is designed to face toward the studs of the wall frame, consistent with industry literature and typical drywall installation practices: The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a continuous fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DG/DGH/DGB hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGH Hanger (DG Similar) Top View with Gap

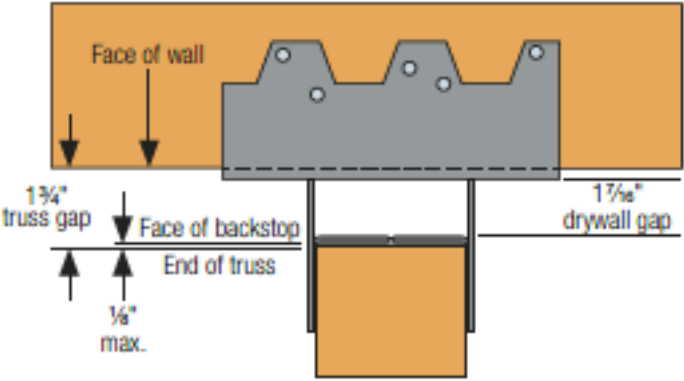
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger with I-Joists
said step of installing the fire retardant sheathing includes: inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall; and	Simpson instructs users of Simpson's DG, DGB, and DGH Hangers to install the fire retardant drywall sheathing by inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall:

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a continuous fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DG/DGH/DGB hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGH Hanger (DG Similar) Top View with Gap

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger with I-Joists
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.	Installing the fire retardant drywall sheathing would necessarily require moving the sheathing relative to Simpson's DG, DGB, and DGH Hangers mounted on the frame wall so that an edge of the fire retardant drywall sheathing bounding the opening on said sheathing moves alongside the extension portion of the fire wall hanger and the fire wall hanger extends through the opening (i.e., the notches) in the fire retardant drywall sheathing:

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DG fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a continuous fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DG/DGH/DGB hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGH Hanger (DG Similar) Top View with Gap

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DG Hanger with I-Joists

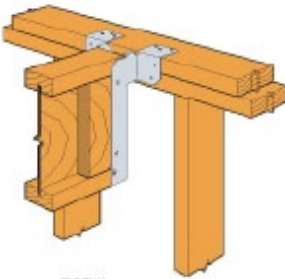
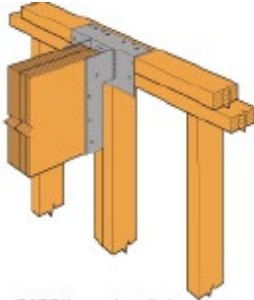
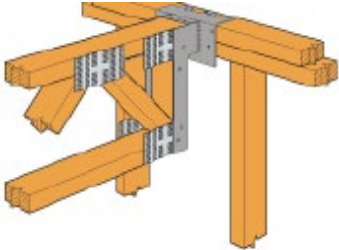
Appendix C

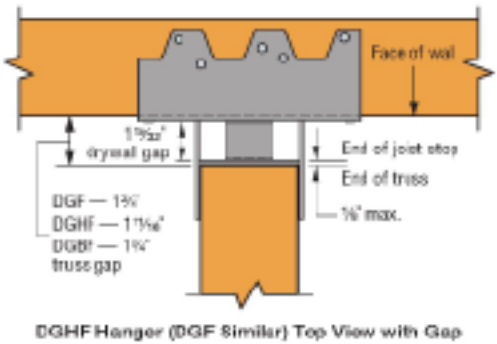
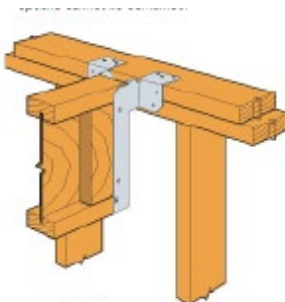
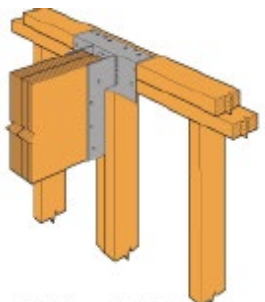
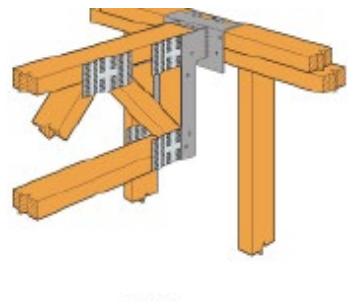
Claim Charts
U.S. Patent No. 11,920,339 vs. Simpson's DGF/DGBF/DGHF Fire Wall Hangers

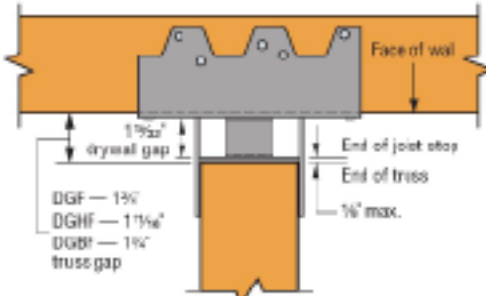
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
A method of constructing a fire-resistive wall assembly, the method comprising:	To the extent the preamble limits the claim, users of Simpson's DGF/DGBF/DGHF Fire Wall Hangers perform a method of constructing a fire-resistant wall assembly when using Simpson's DGF/DGBF/DGHF Fire Wall Hangers according to the instructions provided by Simpson: The DGF fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This fire wall series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a two-hour fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF/DGHF/DGBF hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall

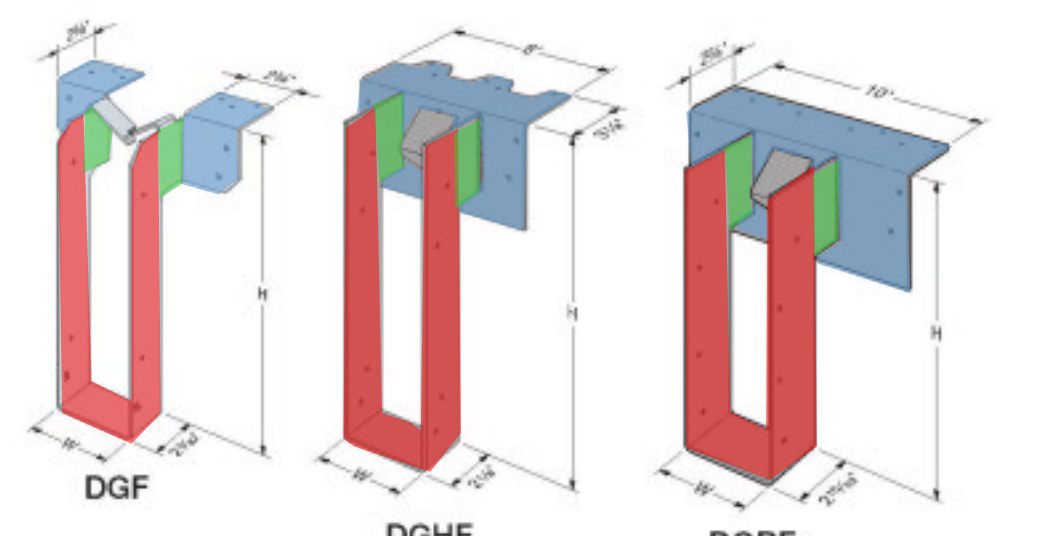
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	Two-Hour Fire Wall Assembly Rated Simpson Strong-Tie has completed ASTM E814 standard testing verifying that the DGF/DGHF/DGBF hangers do not reduce the two-hour assembly rating.  DGF DGHF DGBF

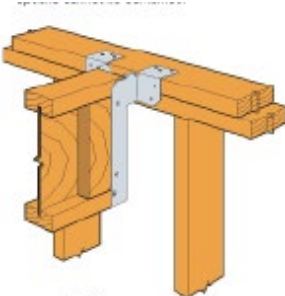
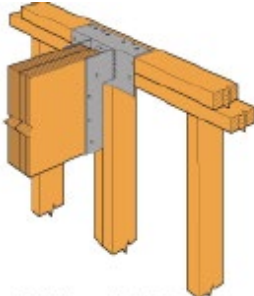
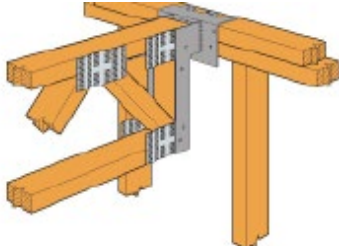
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGF hanger with I-joist.
mounting a fire wall hanger on a frame wall,	Simpson instructs users of Simpson's DGF/DGBF/DGHF Fire Wall Hangers to mount the fire wall hangers on a frame wall: Installation • Use all specified fasteners. I-joists require web stiffeners. • DGF/DGHF/DGBF hangers are mounted like a standard top-flange hanger.

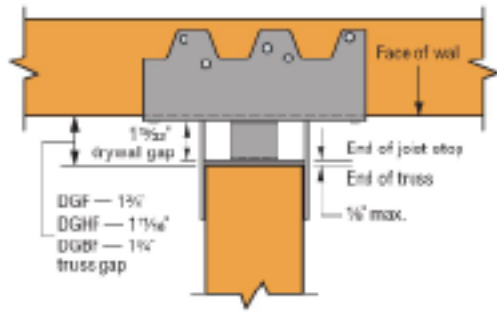
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DGF fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This fire wall series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a two-hour fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF/DGHF/DGBF hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall  DGF Hanger on Stud Wall with I-Joists  DGBF Hanger Installed with Double Studs <i>(see installation note on p. 2)</i>  DGHF Hanger on Stud Wall with Trusses

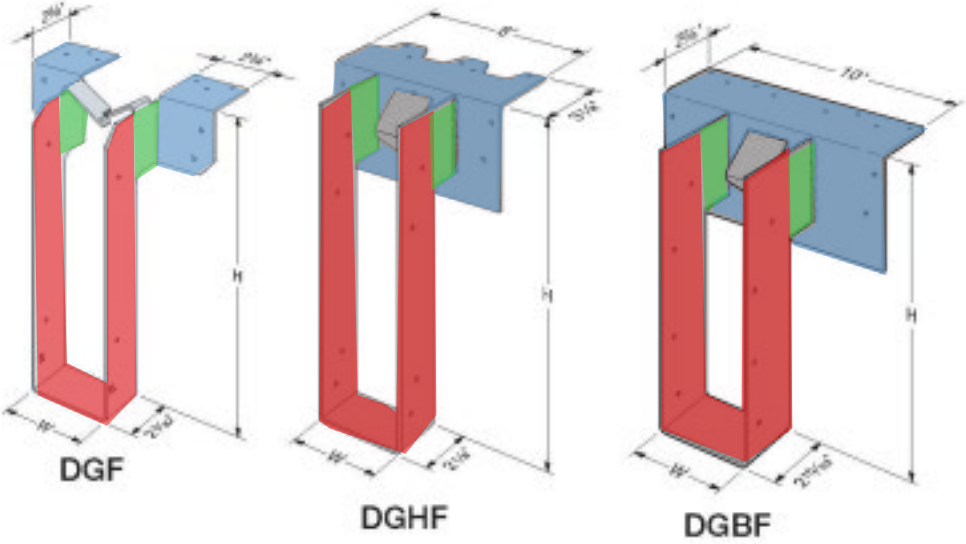
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHF Hanger (DGF Similar) Top View with Gap
the frame wall including a top plate and a plurality of studs extending down from the top plate, and	The frame wall on which users of Simpson's DGF/DGBF/DGHF Fire Wall Hangers are instructed to mount the hangers includes a top plate and a plurality of studs extending down from the top plate:  DGF Hanger on Stud Wall with I-Joists  DGBF Hanger Installed with Double Studs (see installation note on p. 2)  DGHF Hanger on Stud Wall with Trusses

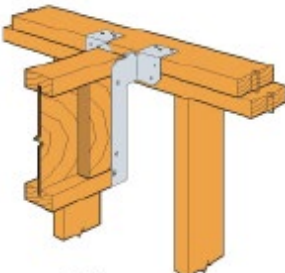
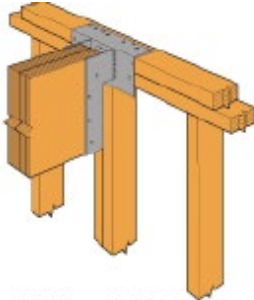
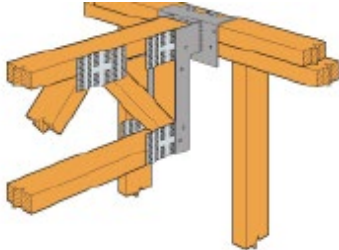
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHF Hanger (DGF Similar) Top View with Gap
the fire wall hanger including a channel-shaped portion sized and shaped to receive a structural component,	Simpson's DGF/DGBF/DGHF Fire Wall Hangers include a channel-shaped portion (highlighted red below) sized and shaped to receive a structural component:

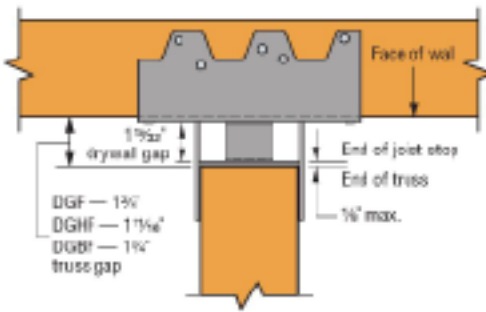
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 The image displays three isometric views of U-shaped components, labeled DGF, DGHF, and DGBF. Each component consists of a red U-shaped body, a blue top flange, and a green internal insert. The dimensions for each component are as follows: DGF: The top flange has a width of $2W$. The body has a width of W and a height of H. DGHF: The top flange has a width of W. The body has a width of W and a height of H. DGBF: The top flange has a width of $10W$. The body has a width of W and a height of H.

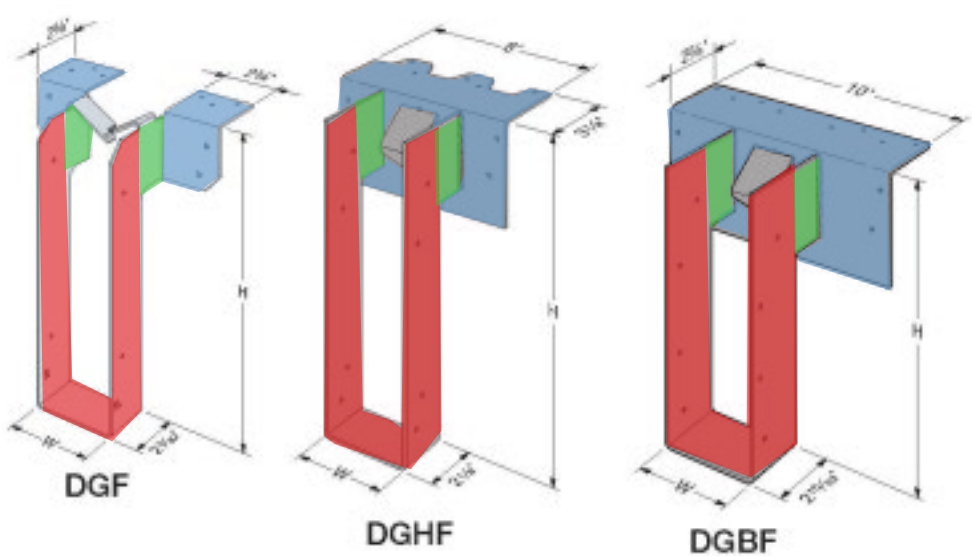
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DGF fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This fire wall series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a two-hour fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF/DGHF/DGBF hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall  DGF Hanger on Stud Wall with I-Joists  DGBF Hanger Installed with Double Studs <i>(see installation note on p. 2)</i>  DGHF Hanger on Stud Wall with Trusses

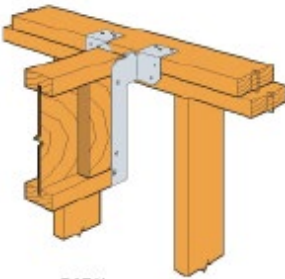
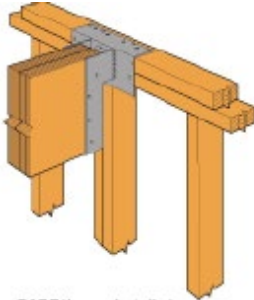
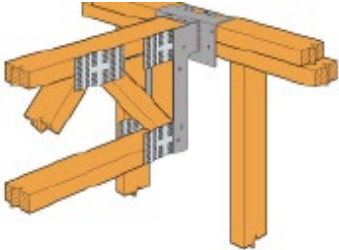
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGF Hanger (DGF Similar) Top View with Gap  DGF hanger with I-joint.

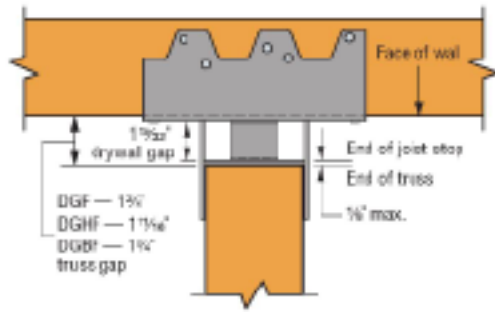
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
a connection portion configured for attachment to the frame wall and	Simpson's DGF/DGBF/DGHF Fire Wall Hangers include a connection portion (highlighted blue below) configured for attachment to the frame wall:  DGF DGHF DGBF

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DGF fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This fire wall series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a two-hour fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF/DGHF/DGBF hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall  DGF Hanger on Stud Wall with I-Joists  DGBF Hanger Installed with Double Studs <i>(see installation note on p. 2)</i>  DGHF Hanger on Stud Wall with Trusses

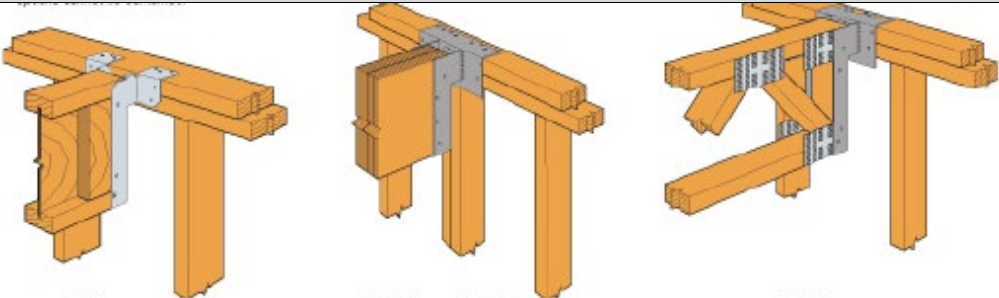
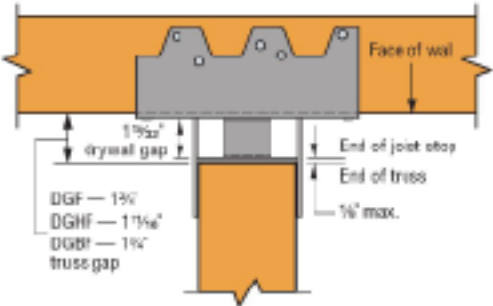
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHF Hanger (DGF Similar) Top View with Gap
an extension portion interconnecting the channel-shaped portion and the connection portion and spacing the channel-shaped portion from the connection portion,	Simpson's DGF/DGBF/DGHF Fire Wall Hangers include an extension portion (highlighted green below) interconnecting the channel-shaped portion and the connection portion and providing a 1 15/32" drywall gap between the channel-shaped portion and the connection portion (i.e., spacing the channel-shaped portion from the connection portion):

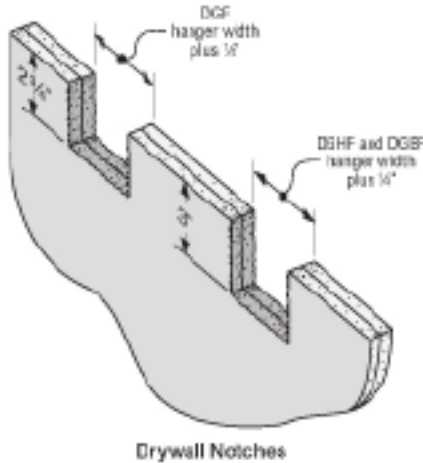
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 The diagrams illustrate three variations of a U-shaped component, each with a red U-shaped body and a blue top flange. The components are labeled DGF, DGHF, and DGBF. The dimensions for each component are as follows: DGF: Top flange width is $2W$, top flange height is H, base width is W, and base height is $2W/3$. DGHF: Top flange width is 8, top flange height is $3/4 H$, base width is W, and base height is $2W/3$. DGBF: Top flange width is 10, top flange height is H, base width is W, and base height is $2W/3$.

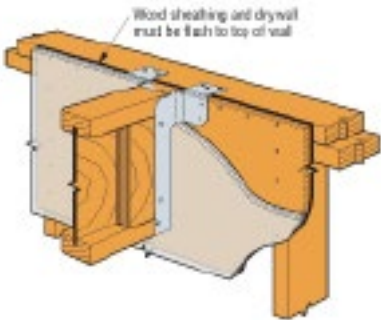
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DGF fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This fire wall series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a two-hour fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF/DGHF/DGBF hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall  DGF Hanger on Stud Wall with I-Joists  DGBF Hanger Installed with Double Studs (see installation note on p. 2)  DGHF Hanger on Stud Wall with Trusses

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGF Hanger (DGF Similar) Top View with Gap  DGF hanger with I-joint.

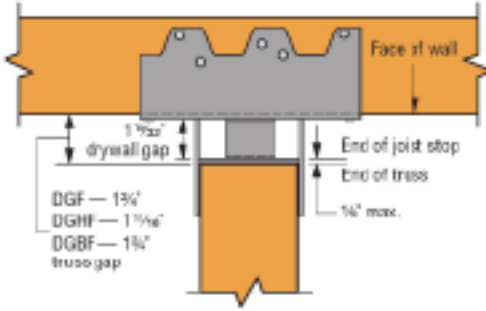
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
said step of mounting the fire wall hanger includes securing the connection portion of the firewall hanger to the top plate of the frame wall so that the channel-shaped portion is spaced from the frame wall;	Simpson instructs users of Simpson's DGF/DGBF/DGHF Fire Wall Hangers to mount the fire wall hanger by securing the connection portion of the fire wall hanger to the top plate of the frame wall so that the channel-shaped portion is spaced from the frame wall: The DGF fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This fire wall series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a two-hour fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF/DGHF/DGBF hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall

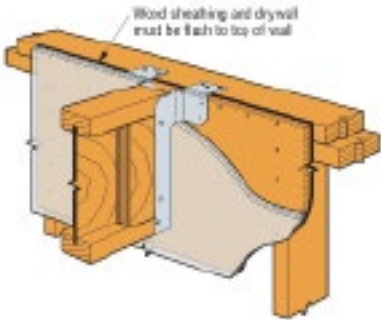
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGF Hanger on Stud Wall with I-Joists DGBF Hanger Installed with Double Studs (see installation note on p. 2) DGHF Hanger on Stud Wall with Trusses  Face of wall 1 5/8" drywall gap End of joist stop End of truss 1/8" max. DGF — 1 1/2" DGHF — 1 1/4" DGBF — 1 1/2" truss gap DGHF Hanger (DGF Similar) Top View with Gap
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	Simpson instructs users of Simpson's DGF/DGBF/DGHF Fire Wall Hangers to cut openings in the form of notches into an exterior edge of the fire retardant drywall sheathing as part of the installation of the fire-retardant wall assembly:

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
outwardly from the exterior edge of the fire retardant sheathing; and	 Drywall Notches The notches that Simpson instructs users to cut into the fire retardant drywall sheathing as part of the installation of the fire-retardant wall assembly extend through the front face and rear face of the fire-retardant sheathing. The notch is cut from the exterior edge of the fire-retardant sheathing, such that the resultant opening faces outwardly, away from the exterior edge of the fire-retardant sheathing.
after mounting the fire wall hanger on the frame and after cutting the opening into the exterior edge of the fire retardant sheathing, installing the fire retardant sheathing with respect	Simpson instructs users of Simpson's DGF/DGBF/DGHF Fire Wall Hangers to install the fire retardant drywall sheathing on the frame wall. A POSA would understand that the rear face of the sheathing is designed to face toward the studs of the wall frame, consistent with industry literature and typical drywall installation practices:

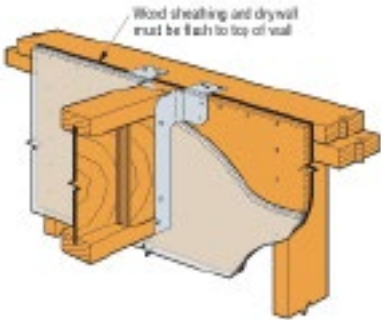
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
to the frame wall so the rear face of the fire retardant sheathing faces toward the studs of the wall frame,	The DGF fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This fire wall series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a two-hour fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF/DGHF/DGBF hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall  DGF Hanger installed over structural sheathing

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGF hanger with I-joist.
said step of installing the fire retardant sheathing includes: inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall; and	Simpson instructs users of Simpson's DGF/DGBF/DGHF Fire Wall Hangers to install the fire retardant drywall sheathing by inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall:

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	The DGF fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This fire wall series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The joist hanger gives the completed assembly the ability to function as a two-hour fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF/DGHF/DGBF hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall  DGHF Hanger (DGF Similar) Top View with Gap

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGF Hanger installed over Structural Sheathing  DGF hanger with I-joint.
moving the fire retardant sheathing relative to the fire wall hanger	Installing the fire retardant drywall sheathing would necessarily require moving the sheathing relative to Simpson's DGF/DGBF/DGHF Fire Wall Hangers mounted on the

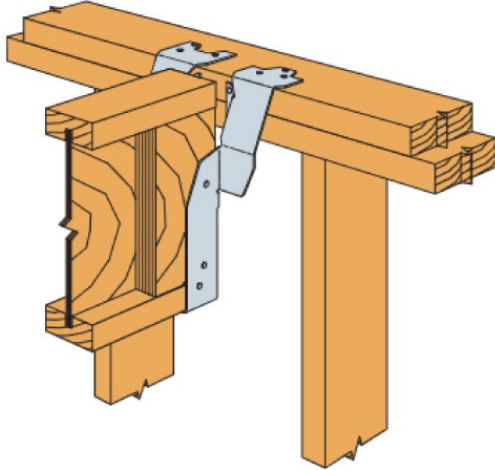
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
mounted on the frame wall so that an edge of the fire retardant sheathing bounding the opening moves alongside the extension portion and the fire wall hanger extends through the opening in the fire retardant sheathing.	frame wall so that an edge of the fire retardant drywall sheathing bounding the opening on said sheathing moves alongside the extension portion of the fire wall hanger and the fire wall hanger extends through the opening in the fire retardant drywall sheathing: The DGF fire wall hanger is the next generation in the drywall hanger series from Simpson Strong-Tie. It's ideal for multi-family, multi-level building construction and easily installs on a two-hour wood stud fire wall (e.g., Type III construction) during framing. This fire wall series features three models of top-flange hangers that connect floor trusses and joists to wood stud walls. The hangers feature enough space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. The Joist hanger gives the completed assembly the ability to function as a two-hour fire-rated wall. All three fire wall hangers have been tested according to ASTM E814 and received F (flame) and T (temperature) ratings for use on one or both sides of the wall. These ratings verify that the DGF/DGHF/DGBF hangers do not reduce the two-hour fire wall assembly rating. Key Features • The hanger features a gap wide enough to install two layers of 5/8" drywall

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 Wood sheathing and drywall must be flush to top of wall DGF Hanger installed over Structural Sheathing  DGF hanger with I-joint.

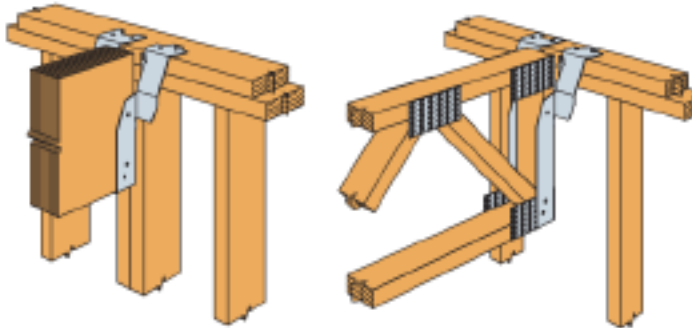
Appendix D

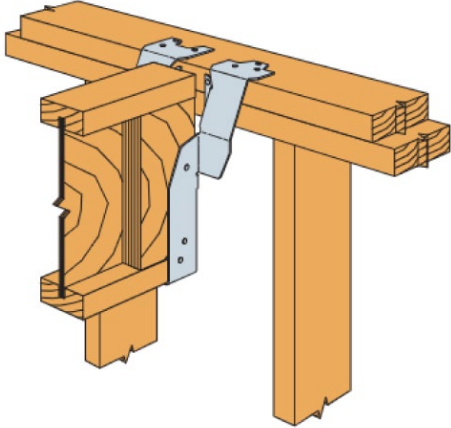
Claim Charts
U.S. Patent No. 11,920,339 vs. Simpson's DGT and DGHT Hangers

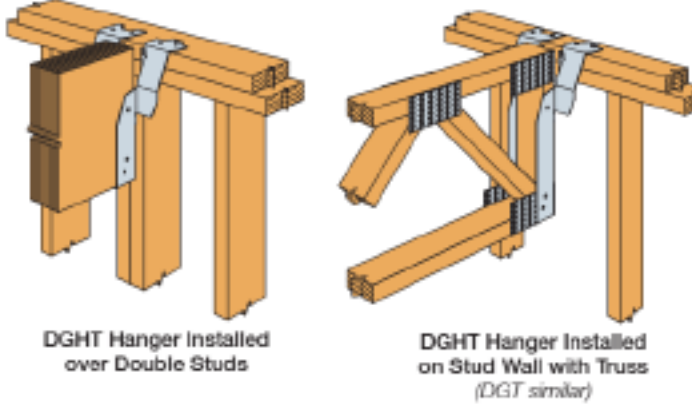
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
A method of constructing a fire-resistive wall assembly, the method comprising:	To the extent the preamble limits the claim, users of Simpson's DGT and DGHT Top-Flange Fire Wall Hangers perform a method of constructing a fire-resistant wall assembly when using the DGT and DGHT Top-Flange Fire Wall Hangers according to the instructions provided by Simpson: Simpson Strong-Tie® Wood Construction Connectors DGT™/DGHT™ Fire Wall Hangers Ideal for multi-family, multi-level Type III residential construction, the new patent-pending DGT and DGHT hangers are load-tested firewall hangers with a two-hour fire rating. They're the first fire wall hangers designed to install with a power nailer during framing, which helps save time before hanging drywall and keeps construction projects on schedule. These two top-flange hangers connect floor trusses and joists to wood stud walls. Both models are offered in a wide range of sizes, making them simple to select and use. Both the DGT and DGHT hangers feature space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete. These fire wall hangers have been tested according to ASTM E814 and received a two-hour fire rating for use on one or both sides of the wall. This rating verifies that the DGT and DGHT hangers do not reduce the two-hour fire wall assembly rating.

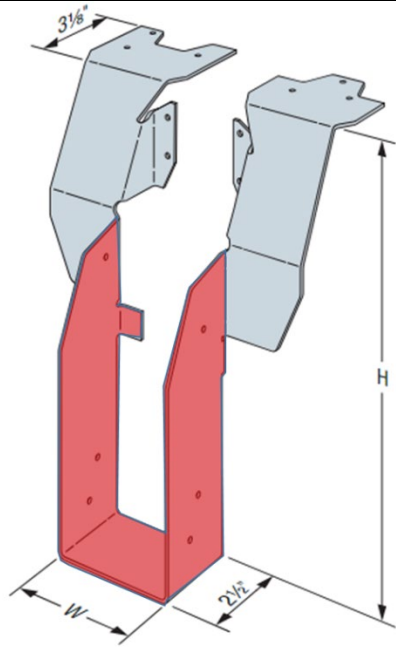
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
mounting a fire wall hanger on a frame wall,	Simpson instructs users of its DGT and DGHT Top-Flange Fire Wall Hangers to mount the fire wall hangers on a frame wall:  DGT Hanger Installed on Stud Wall with I-Joist <i>(DGHT similar)</i>

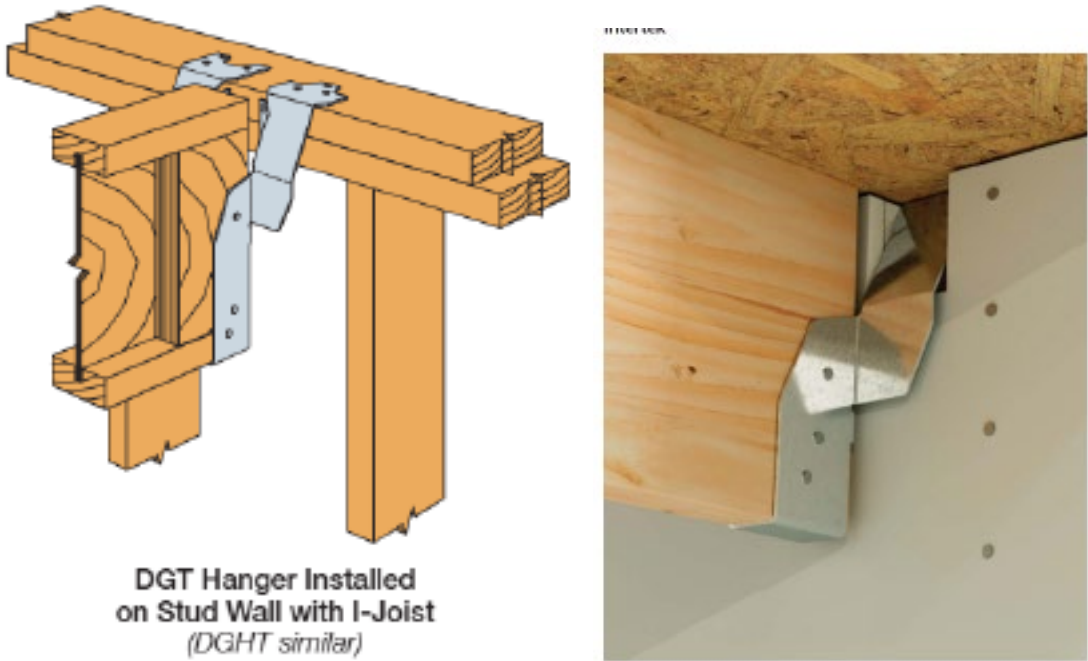
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGT fire wall hanger installation.

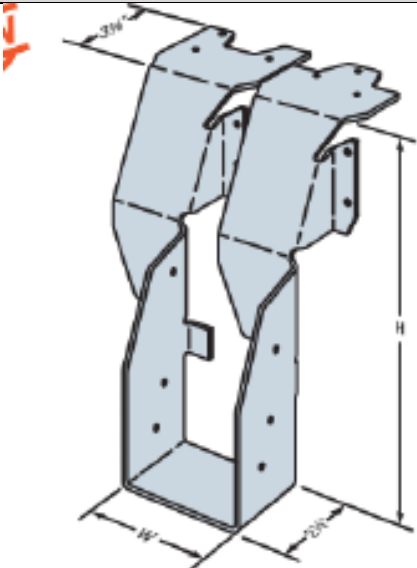
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT Hanger Installed over Double Studs DGHT Hanger Installed on Stud Wall with Truss (DGT similar)  DGHT fire wall hanger installation.

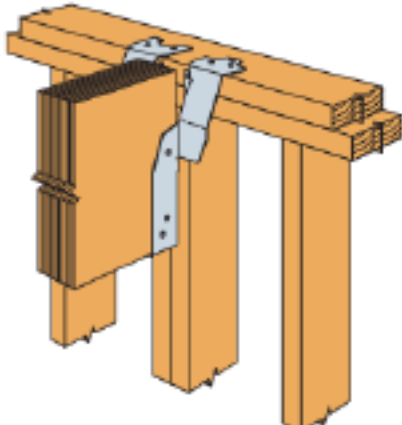
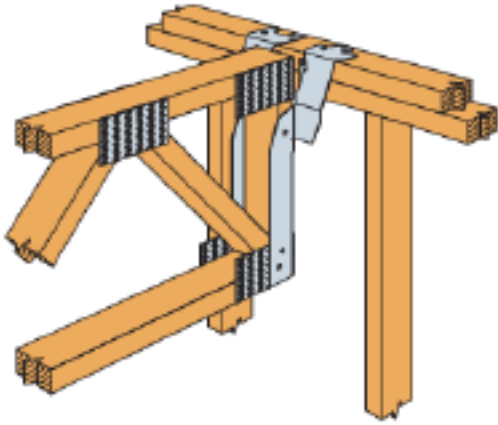
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
the frame wall including a top plate and a plurality of studs extending down from the top plate, and	The frame wall on which users of Simpson's DGT and DGHT Top-Flange Fire Wall Hangers are instructed to mount the hangers includes a top plate and a plurality of studs extending down from the top plate:  DGT Hanger Installed on Stud Wall with I-Joist (DGHT similar)

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT Hanger Installed over Double Studs DGHT Hanger Installed on Stud Wall with Truss (DGT similar)
the fire wall hanger including a channel-shaped portion sized and shaped to receive a structural component,	Simpson's DGT and DGHT Top-Flange Fire Wall Hangers include a channel-shaped portion (highlighted in red below) sized and shaped to receive a structural component:

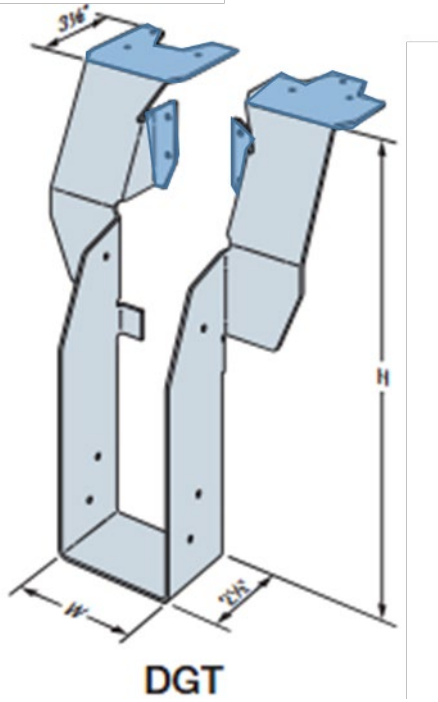
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGT Fire Wall Hanger (DGHT similar)

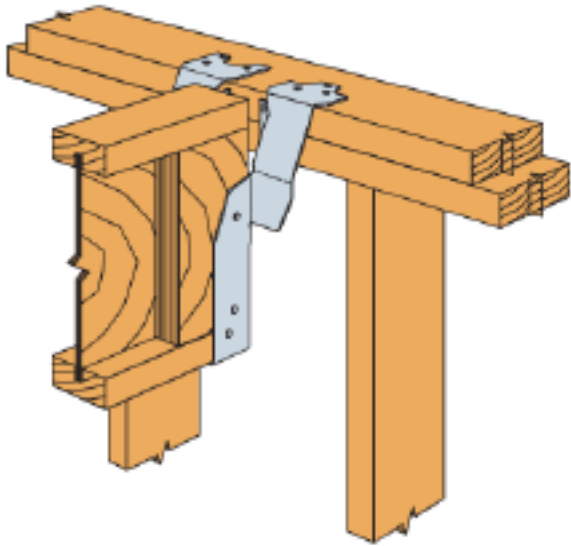
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGT Hanger Installed on Stud Wall with I-Joist <i>(DGHT similar)</i> DGT fire wall hanger installation.

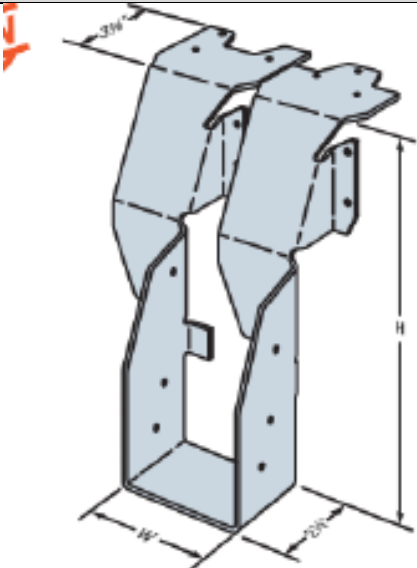
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT Installation with Right Flange Concealed <i>(left similar)</i> The diagram shows a perspective view of a metal structure, likely a duct or flange assembly, with dimensions labeled: 3W (width of the top flange), W (width of the main body), 2W (width of the base), and H (height). A red arrow points to the top flange. The structure has multiple holes and a complex, folded design.

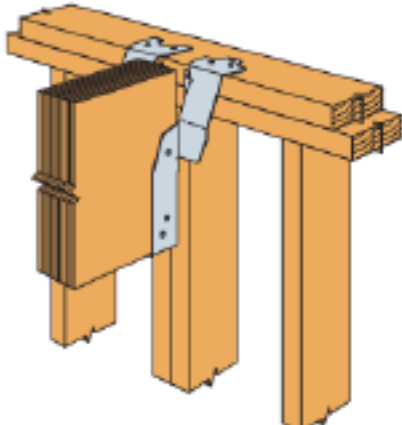
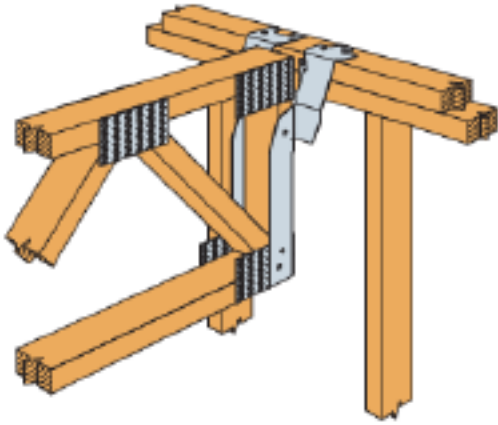
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT Hanger Installed over Double Studs  DGHT Hanger Installed on Stud Wall with Truss (DGT similar)

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT fire wall hanger installation.
a connection portion configured for attachment to the frame wall and	Simpson's DGT and DGHT Top-Flange Fire Wall Hangers include a connection portion (highlighted in blue below) configured for attachment to the frame wall:

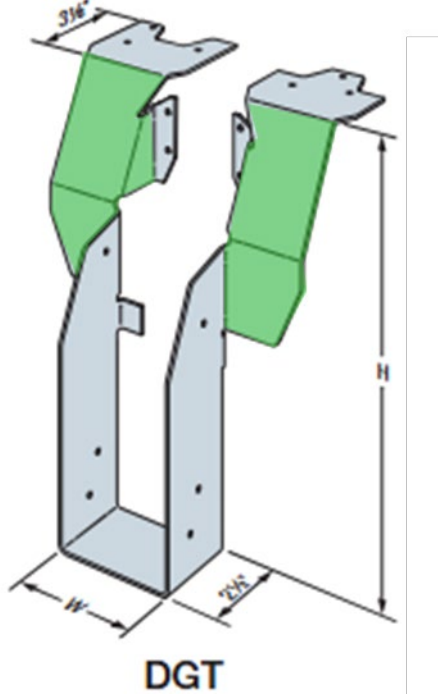
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 A technical drawing of a U-shaped metal component, labeled 'DGT'. The component is shown in a perspective view. It has a base with a width 'W' and a height 'H'. The top flange has a thickness of $3/16$". The side flange has a thickness of $2/16$". The component is made of a material with a light blue color and a textured surface. The label 'DGT' is positioned below the component.

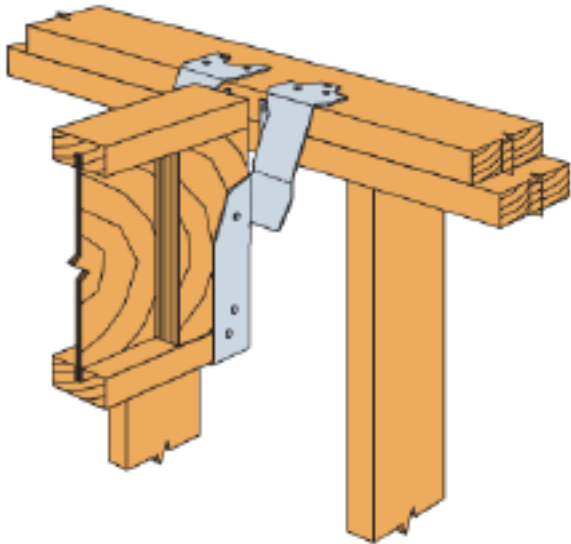
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGT Hanger Installed on Stud Wall with I-Joist <i>(DGHT similar)</i>

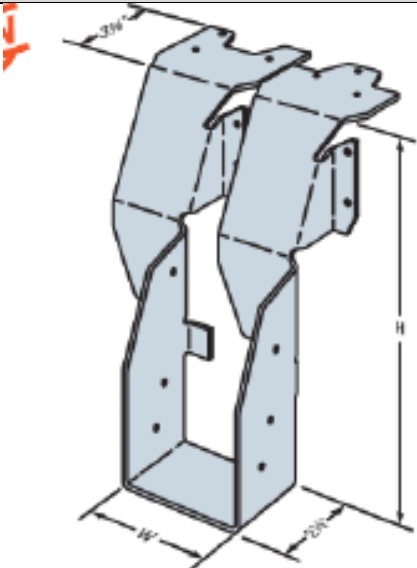
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT Installation with Right Flange Concealed <i>(left similar)</i> The diagram shows a perspective view of a metal structure, likely a duct or flange assembly, with dimensions labeled: 3W (width of the top flange), W (width of the main body), 2W (width of the base), and H (height). A red arrow points to the top flange. The structure has multiple holes and a complex, folded design.

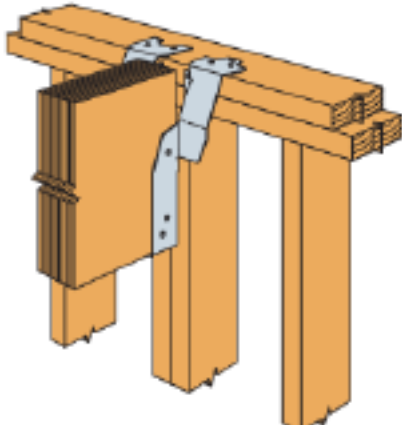
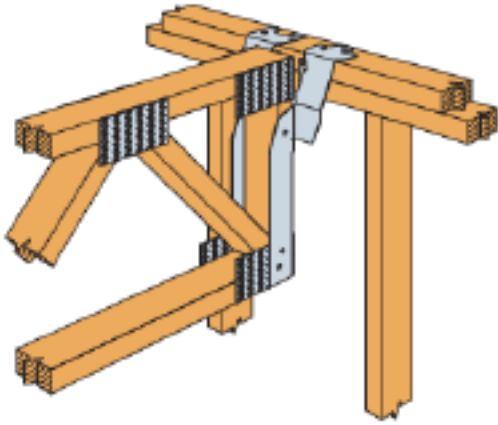
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT Hanger Installed over Double Studs  DGHT Hanger Installed on Stud Wall with Truss (DGT similar)

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT fire wall hanger installation.
an extension portion interconnecting the channel-shaped portion and the connection portion and spacing the channel-shaped portion from the connection portion,	Simpson's DGT and DGHT Top-Flange Fire Wall Hangers include an extension portion (highlighted in green below) interconnecting the channel-shaped portion and the connection portion and providing a 1 15/32" drywall gap between the channel-shaped portion and the connection portion (i.e., spacing the channel-shaped portion from the connection portion):

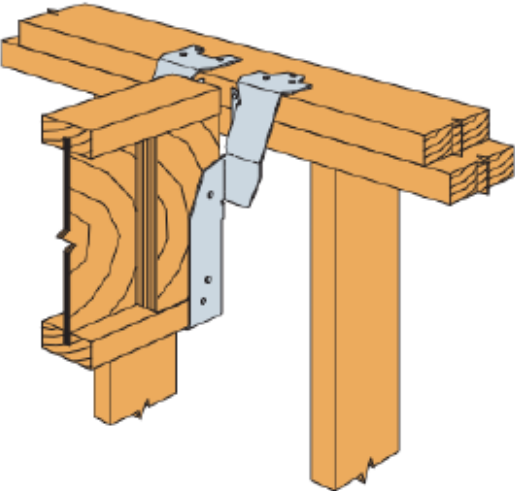
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGT The diagram shows a perspective view of a U-shaped metal component, labeled 'DGT'. The component has two vertical side walls and a horizontal base. Two green, wedge-shaped inserts are positioned within the upper part of the U-shape. Dimensions are indicated: 'W' for the width of the base, 'H' for the height of the side walls, and '3/16"' for the thickness of the top flange. The top flange of the right side wall is also labeled '3/16"'. The green inserts are shown in a position that suggests they are being inserted into or removed from the component.

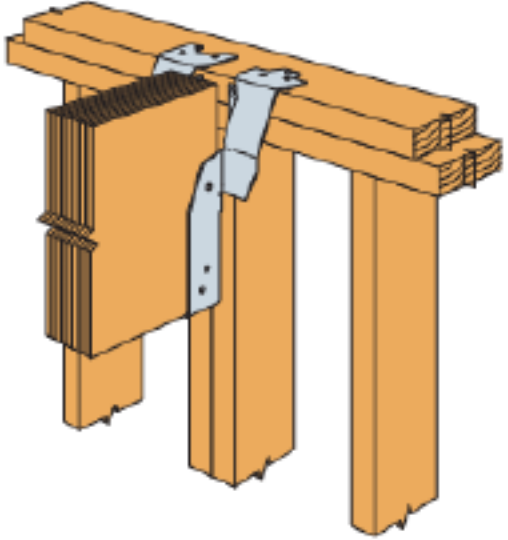
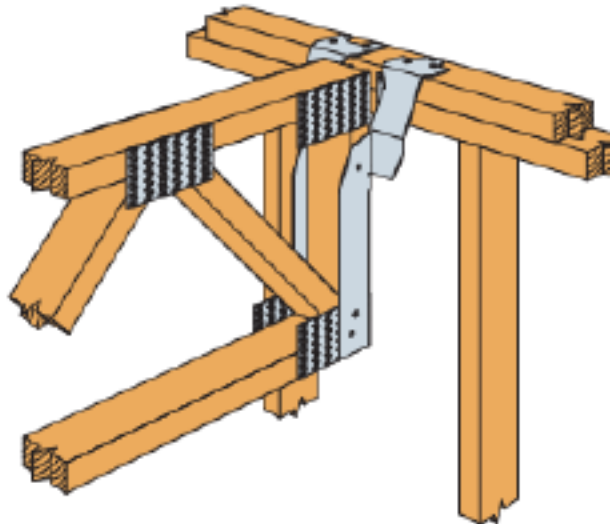
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	A technical perspective drawing showing a metal hanger (DGT Hanger) installed on a wooden stud wall. The hanger is a U-shaped metal piece with a vertical flange on one side and a horizontal flange on the other. It is secured to the wall with two screws. An I-joist is shown resting on the horizontal flange of the hanger. The drawing is labeled 'DGT Hanger Installed on Stud Wall with I-Joist (DGHT similar)'. A photograph showing a metal hanger installed on a wooden stud wall. The hanger is a U-shaped metal piece with a vertical flange on one side and a horizontal flange on the other. It is secured to the wall with two screws. An I-joist is shown resting on the horizontal flange of the hanger. The drawing is labeled 'DGT Hanger Installed on Stud Wall with I-Joist (DGHT similar)'. DGT fire wall hanger installation.

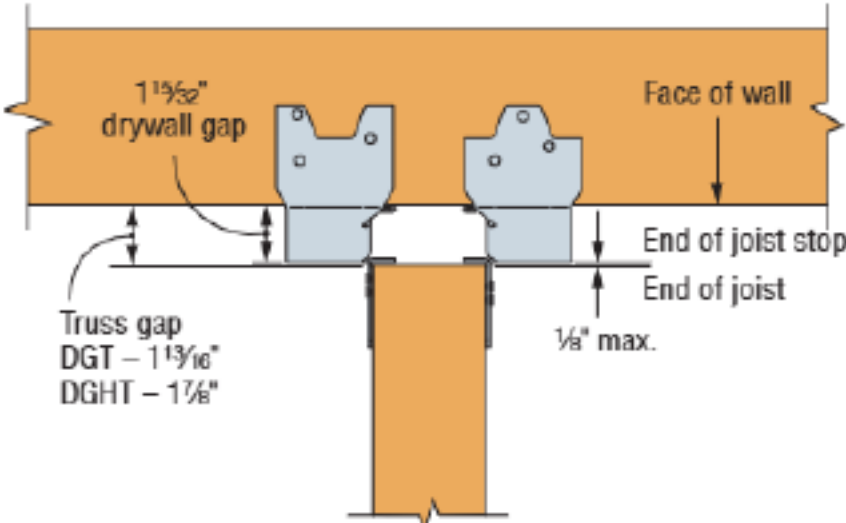
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT Installation with Right Flange Concealed <i>(left similar)</i> The diagram shows a perspective view of a metal structure, likely a duct or flange assembly, with dimensions labeled: 'W' for width, 'H' for height, and '2R' for a radius. A red arrow points to the top left corner of the structure. The structure has a U-shaped cross-section with a central opening and a top flange. The right flange is concealed, and the left flange is visible. The structure is shown in a perspective view, with dashed lines indicating hidden edges.

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT Hanger Installed over Double Studs  DGHT Hanger Installed on Stud Wall with Truss <i>(DGT similar)</i>

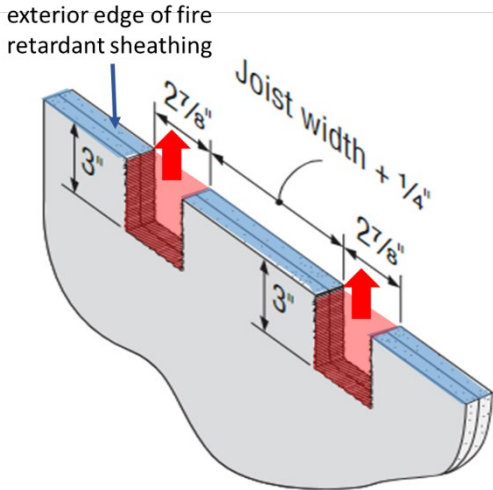
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT fire wall hanger installation. These two top-flange hangers connect floor trusses and joists to wood stud walls. Both models are offered in a wide range of sizes, making them simple to select and use. Both the DGT and DGHT hangers feature space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete.
said step of mounting the fire wall hanger includes securing the connection portion of the firewall hanger to the top plate of the frame wall so that the channel-shaped	Simpson instructs users of its DGT and DGHT Top-Flange Fire Wall Hangers to mount the fire wall hanger by securing the connection portion of the fire wall hanger to the top plate of the frame wall so that the channel-shaped portion is spaced from the frame wall:

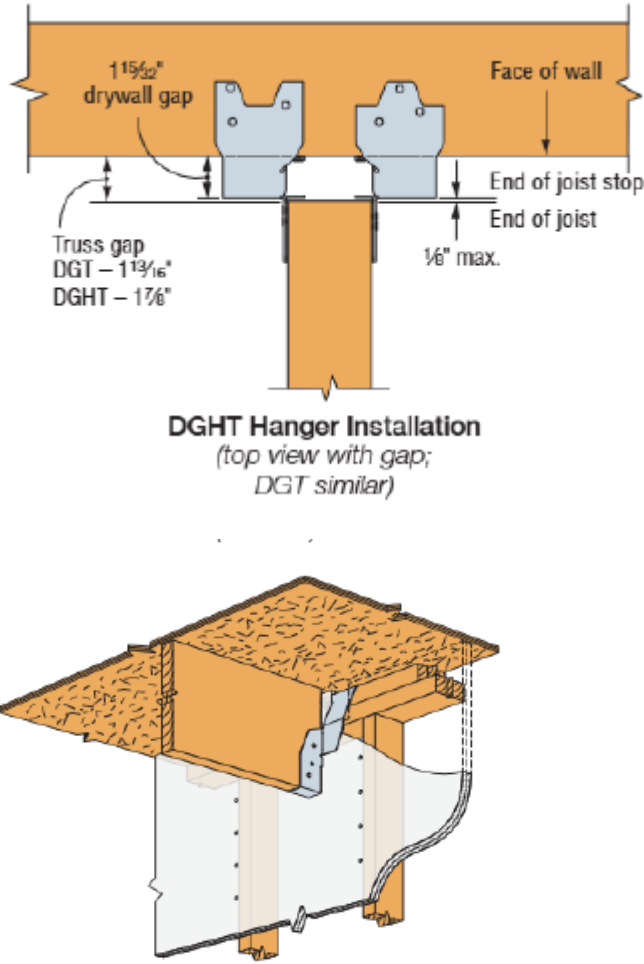
Claim 1 of U.S. Patent No. 11,920,339	Product/Method
portion is spaced from the frame wall;	Installation: • Use all specified fasteners. I-joists require web stiffeners. • DGT/DGHT hangers are mounted like a standard top-flange hanger.  DGT Hanger Installed on Stud Wall with I-Joist <i>(DGHT similar)</i>

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	 1 1/8" drywall gap Face of wall End of joist stop End of joist Truss gap DGT - 1 1/8" DGHT - 1 1/8" 1/8" max. DGHT Hanger Installation (top view with gap; DGT similar)
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	Simpson instructs users of its DGT and DGHT Top-Flange Fire Wall Hangers to cut openings in the form of notches into an exterior edge of the fire retardant drywall sheathing as part of the installation of the fire-retardant wall assembly:

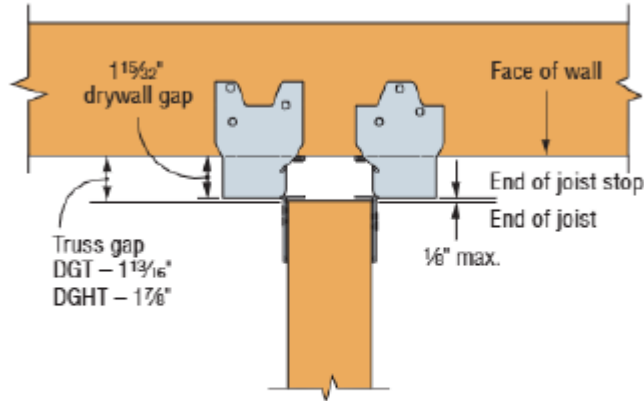
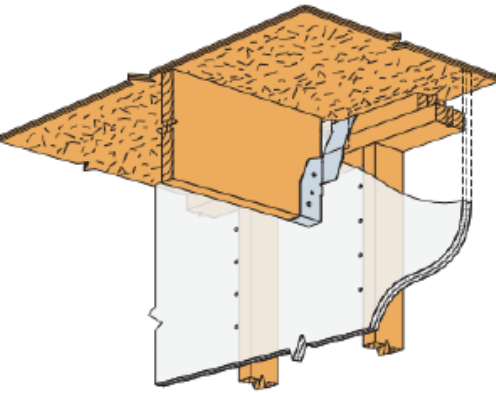
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outwardly from the exterior edge of the fire retardant sheathing; and	1 ¹³/₃₂" drywall gap Face of wall End of joist stop End of joist Truss gap DGT - 1 ¹³/₁₆" DGHT - 1 ¹/₈" 1/8" max. DGHT Hanger Installation (top view with gap; DGT similar) 2 ⁷/₈" 3" Joist width + 1/4" 2 ⁷/₈" Drywall Notches The notches that Simpson instructs users to cut into the fire retardant drywall sheathing as part of the installation of the fire-retardant wall assembly extend through the front face and rear face of the fire-retardant sheathing. The notch is cut from the exterior edge of the fire-retardant sheathing, such that the resultant opening faces outwardly, away from the exterior edge of the fire-retardant sheathing.

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	 Drywall Notches
after mounting the fire wall hanger on the frame and after cutting the opening into the exterior edge of the fire retardant sheathing, installing the fire retardant sheathing with respect to the frame wall so the rear face of the fire retardant sheathing faces toward the studs of the wall frame,	Simpson instructs users of its DGT and DGHT Top-Flange Fire Wall Hangers to install the fire retardant drywall sheathing on the frame wall. A POSA would understand that the rear face of the sheathing is designed to face toward the studs of the wall frame, consistent with industry literature and typical drywall installation practices:

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	 DGHT Hanger Installation (top view with gap; DGT similar) DGT Hanger Installation (DGHT similar)

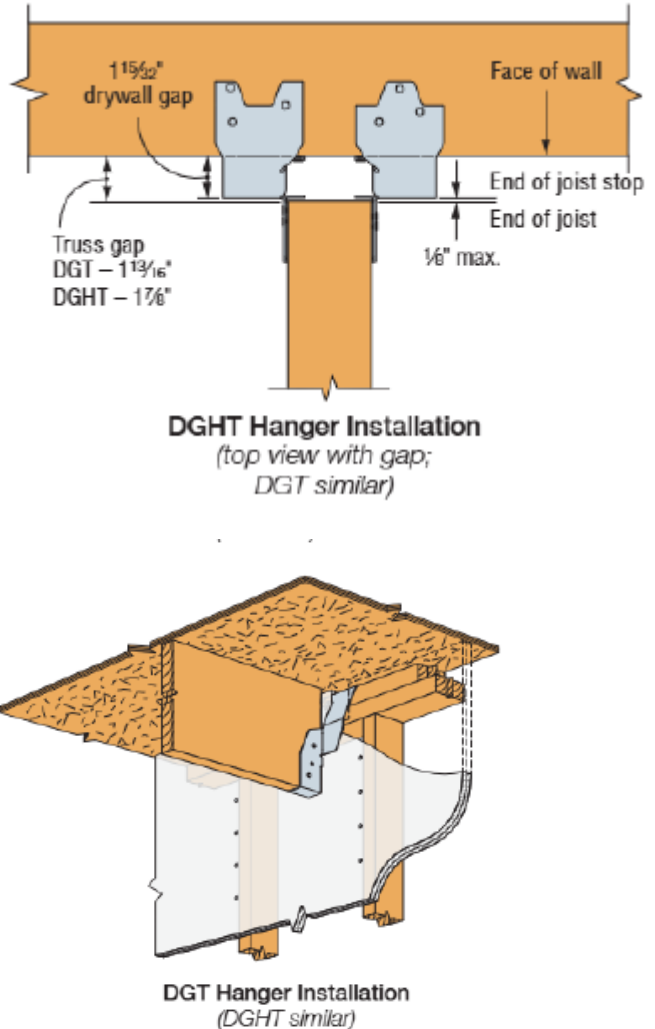
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	These two top-flange hangers connect floor trusses and joists to wood stud walls. Both models are offered in a wide range of sizes, making them simple to select and use. Both the DGT and DGHT hangers feature space for two layers of 5/8" gypsum board (drywall) to be slipped into place after the framing is complete.  DGT fire wall hanger installation.

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said step of installing the fire retardant sheathing includes: inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall; and	Simpson instructs users of its DGT and DGHT Top-Flange Fire Wall Hangers to install the fire retardant drywall sheathing by inserting the fire retardant sheathing between the channel-shaped portion of the fire wall hanger and the frame wall:

Claim 1 of U.S. Patent No. 11,920,339	Product/Method
	 DGHT Hanger Installation <i>(top view with gap; DGT similar)</i>  DGT Hanger Installation <i>(DGHT similar)</i>

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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.	Installing the fire retardant drywall sheathing would necessarily require moving the sheathing relative to the DGT and DGHT Top-Flange Fire Wall Hangers mounted on the frame wall so that an edge of the fire retardant drywall sheathing bounding the opening on said sheathing moves alongside the extension portion of the fire wall hanger and the fire wall hanger extends through the opening in the fire retardant drywall sheathing:

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	 The top diagram, titled "DGHT Hanger Installation (top view with gap; DGT similar)", shows a top-down view of a metal hanger (blue) connecting a vertical wooden joist to a horizontal orange wall. A "1 15/32\" drywall gap" is indicated between the hanger and the wall. The "Face of wall" is labeled on the right. Below the hanger, the "End of joist stop" and "End of joist" are marked, with a "1/8\" max." gap specified. To the left, the "Truss gap" is defined as "DGT - 1 13/16\" and "DGHT - 1 7/8\". The bottom diagram, titled "DGT Hanger Installation (DGHT similar)", is a perspective view showing a wooden joist being supported by a metal hanger. The hanger is secured to the underside of a drywall ceiling with screws. The joist is shown resting on the hanger, with a gap visible between the joist and the ceiling.

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