

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

HILTI AKTIENGESELLSCHAFT

Petitioner,

v.

SPECIFIED TECHNOLOGIES INC.,

Patent Owner.

Case No. IPR2024-00193

U.S. Patent No. 10,143,868

PETITION FOR *INTER PARTES* REVIEW

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1004	WO2013/160776 to Ramorino et al.
1005	U.S. Patent No. 8,739,482 to Feil, III et al.
1006	3M Fire Protection Products Publication
1007	STI's Opening Claim Construction Brief
1008	STI's Supplemental Infringement Contentions
1009	STI's EZDR Product Data Sheet
1010	U.S. Patent Publication No. 2015/0251028 to Klein et al.
1011	U.S. Patent Publication No. 2014/0318064 to Reinhardt
1012	WO2012/009211 to Zernach
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1022 Screen capture of The Wayback Machine Archive of the below URL:

<https://web.archive.org/web/20151123164531/http://multimedia.3m.com/mws/media/446191O/3mtm-fire-barrier-pass-through-device.pdf>

LISTING OF CHALLENGED CLAIMS

Claim 1	
[1pre]	A firestopping apparatus comprising:
[1a]	a housing having a wall surface extending between opposed front and rear panels with an inner chamber defined therein,
[1b]	the front panel defining a front opening therethrough and the rear panel defining a rear opening therethrough,
[1c]	the housing including first and second housing members which are completely detachable from one another
[1d]	and moveable relative to one another between an assembled condition wherein the first and second housing members are interconnected and the wall surface is substantially continuous about the internal chamber, and an open condition wherein at least a portion of the first and second housing members are spaced from one another such that at least a portion of the wall surface is non-contiguous to define an opening into the internal chamber;
[1e]	intumescent material positioned within the internal chamber.
Claim 2	
[2]	The firestopping apparatus according to claim 1 wherein one or more mounting tabs extend outwardly from the housing.

Claim 3	
[3]	The firestopping apparatus according to claim 1 wherein the first housing member is pivotally connected to the second housing member along a portion of the wall surface.
Claim 4	
[4]	The firestopping apparatus according to claim 3 wherein a hinge is defined along the wall surface between the first and second housing members.
Claim 5	
[5]	The firestopping apparatus according to claim 4 wherein the first and second housing members are completely detachable from one another via the hinge.
Claim 6	
[6]	The firestopping apparatus according to claim 1 wherein a latching assembly is positioned along the wall surface to lock the housing in the assembled condition.
Claim 9	
[9pre]	A firestopping apparatus comprising:
[9a]	a housing having a wall surface with an inner chamber defined

	therein,
[9b]	a front panel extending from the wall surface and defining a front opening therethrough,
[9c]	the housing including first and second housing members which are moveable relative to one another between an assembled condition wherein the first and second housing members are interconnected and the wall surface is substantially continuous about the internal chamber, and an open condition wherein at least a portion of the first and second housing members are spaced from one another such that at least a portion of the wall surface is non-contiguous to define an opening into the internal chamber; and
[9d]	intumescent material positioned within the internal chamber;
[9e]	wherein a sealing member extends across at least a portion of the front opening.

Hilti Aktiengesellschaft (“Hilti” or “Petitioner”) petitions for *inter partes* review (“IPR”) of claims 1-6 and 9 (“the Challenged Claims”) of U.S. Patent No. 10,143,868 (“the ’868 patent”, Ex. 1001). Petitioner respectfully submits that this Petition demonstrates a reasonable likelihood of prevailing with respect to at least one Challenged Claim, and respectfully requests institution of IPR and cancellation of all the Challenged Claims as unpatentable as the precise relief requested. *See* 37 C.F.R. §42.22(a)(1).

I. REQUIREMENTS FOR IPR

A. Certification of Grounds for Standing

Petitioner certifies pursuant to Rule 42.104(a) that the patent for which review is sought is available for IPR and that Petitioner is not barred or estopped from requesting IPR challenging the patent claims on the grounds identified in this Petition. The present Petition is being filed within one year of service of a counterclaim asserting the ’868 patent against Petitioner in *Hilti Aktiengesellschaft v. Specified Technologies Inc.*, No. 1:22-cv-01248-CJB (D. Del.).

B. Overview of Challenge and Relief Requested

Hilti requests IPR of the Challenged Claims on the below grounds. Professor Milosh Puchovsky provides supporting testimony in his Declaration (Ex. 1003).

Ground	Claim(s)	Obvious under 35 U.S.C. § 103 based on
1A	1-6, 9	Ramorino and Feil and in further view of Rigollet
1B	1-6, 9	Ramorino and Feil and in further view of Rigollet and 3M Publication
2	9	Feil

The '868 patent claims the benefit of U.S. Provisional Patent App. Nos. 62/347,140, filed June 8, 2016, and 62/445,619, filed January 12, 2017. Ex. 1001, Cover Page. For purposes of this IPR, Petitioner treats June 8, 2016, as the earliest effective filing date. Each of the references asserted in this Petition qualifies as prior art under 35 U.S.C. § 102(a)(1) or § 102(a)(2) (as shown in the table below).

Reference	Patent/Pub. No.	Filing Date	Publication Date	Prior Art Under
Ramorino	WO2013/160776	March 8, 2013	October 31, 2013	35 U.S.C. § 102(a)(1)
Feil	U.S. 8,739,482	March 14, 2013	June 3, 2014	35 U.S.C. § 102(a)(1)
Rigollet	GB 2490598	May 4, 2012	November 7, 2012	35 U.S.C. § 102(a)(1)

Gardner (Background)	GB 2349189	February 11, 2000	October 25, 2000	35 U.S.C. § 102(a)(1)
Blocher (Background)	U.S. Pub. 2012/0242083	March 21, 2012	September 27, 2012	35 U.S.C. § 102(a)(1)
Korgaonkar (Background)	U.S. 4,373,235	January 18, 1982	February 15, 1983	35 U.S.C. § 102(a)(1)
3M Publication	N/A	N/A	2013	35 U.S.C. § 102(a)(1)

Each cited reference above was publicly available prior to the effective filing date. With the exception of the 3M Publication, each reference is a patent or published patent application. The 3M Publication bears a copyright date of 2013, which suggests that it was published in 2013 and could have been located by a POSITA with the exercise of reasonable diligence. Moreover, Petitioner's counsel personally retrieved the 3M Publication from the Wayback Machine on November 9, 2023. Ex. 1016, ¶2. The Wayback Machine shows an archive date of November 23, 2015, which is prior to the earliest claimed filing date of the '868 patent. Ex. 1016, ¶2; Ex. 1022.

In addition, Sebastian Simon, a Research & Development Expert of Firestop and Fireprotection Systems employed by an affiliate of Petitioner, testifies that he is personally familiar with the 3M Publication and that it would have been widely

distributed within the firestopping industry, further confirming that the 3M Publication could have been located by a POSITA with the exercise of reasonable diligence prior to the '868 patent's earliest effective filing date. Ex. 1019, ¶3. Professor Puchovsky concurs based on his experience in the firestopping field. Ex. 1003, ¶68.

C. Claim Construction

The '868 patent is currently the subject of a district court litigation: *Hilti Aktiengesellschaft v. Specified Technologies Inc.*, No. 1:22-cv-01248-CJB (D. Del.) (“the District Court Litigation”). In the District Court Litigation, the parties dispute the meaning of several terms.¹ Herein, Petitioner applies the plain and ordinary meaning of the claim terms.

Petitioner reserves the right to respond to any further constructions offered by the Patent Owner or adopted by the Board. Petitioner does not concede that each challenged claim satisfies all statutory requirements (*e.g.*, 35 U.S.C. § 112), nor is

¹ Where appropriate, Petitioner addresses the parties' claim construction disputes relating to the plain meaning of a given term in the context of a specific claim element. Under either party's understanding of the plain meaning of the subject terms, the Petition demonstrates a reasonable likelihood that one or more of the Challenged Claims are unpatentable.

Petitioner waiving any arguments concerning claim scope or grounds for patentability that can only be raised in a different forum.

D. Level of Ordinary Skill in the Art

A person of ordinary skill in the art (“POSITA”) relating to the subject matter of the ’868 patent as of June 8, 2016, would have had at least a bachelor’s degree in mechanical engineering, civil engineering, fire protection engineering, applied science or a related field, with three to five years’ experience in building construction, fire safety, or the firestopping field. Ex. 1003, ¶¶8-9. Additional graduate education could substitute for professional experience, or significant experience in the field could substitute for formal education. *Id.* Professor Puchovsky qualified as a POSITA as of June 8, 2016. *Id.*, ¶10.

II. THE ’868 PATENT

A. Brief Description

The ’868 patent relates to a “firestopping apparatus including a housing...[that] includes first and second housing members which are moveable relative to one another between an assembled condition...and an open condition...” Ex. 1001, Abstract; Ex. 1003, ¶25. The “housing” includes “panels” referred to as a “front panel,” “rear panel,” and “side panel.” Ex. 1003, ¶25; Ex. 1001 at 3:34-36 (“In the illustrated embodiment, the first housing member 110 includes an end surface 111 and side panels 112, 113 extending between a front panel 114 and a rear

panel 116.”). *See also* Ex. 1001 at 3:37-39.

The '868 patent explains that “[i]t is commonplace in the construction and renovation of commercial and residential buildings for the need to pass cables, conduits and the like through construction barriers such as walls, floors and ceilings.” Ex. 1001 at 1:19-22; Ex. 1003, ¶26. These openings raise a fire safety risk as they allow fire to spread even where the wall itself has been constructed as an effective fire safety barrier. Ex. 1001 at 1:22-27; Ex. 1003, ¶26. To mitigate this fire safety risk, “fire barriers are normally located within the openings that are designed to prevent the passage of fire through those openings.” Ex. 1001 at 1:27-29; Ex. 1003, ¶26. The '868 patent is directed to such a known fire barrier. Ex. 1003, ¶26.

The '868 patent includes various embodiments of “firestopping apparatus 100” in Figs. 3-9. Ex. 1003, ¶27. “The firestopping apparatus 100 generally comprises first and second housing members 110, 120 that are interconnected to one another to define a housing 102 having an internal chamber 150.” Ex. 1001 at 3:8-11; Ex. 1003, ¶27. The '868 patent explains that “[w]hile the illustrated housing 102 has a square configuration, with each housing member having a rectangular configuration, the invention is not limited to such.” Ex. 1001 at 3:11-14; Ex. 1003, ¶27. Instead, “[t]he housing may have any desired configuration with the housing members having corresponding configurations.” Ex. 1001 at 3:14-16; Ex. 1003, ¶27.

The '868 patent discloses a “first housing member 110 includ[ing] an end surface 111 and side panels 112, 113” (colored blue) and a “second housing member 120 includ[ing] an end surface 121 and side panels 122, 123 (colored yellow).” Ex. 1001 at 3:34-39; Ex. 1003, ¶28.

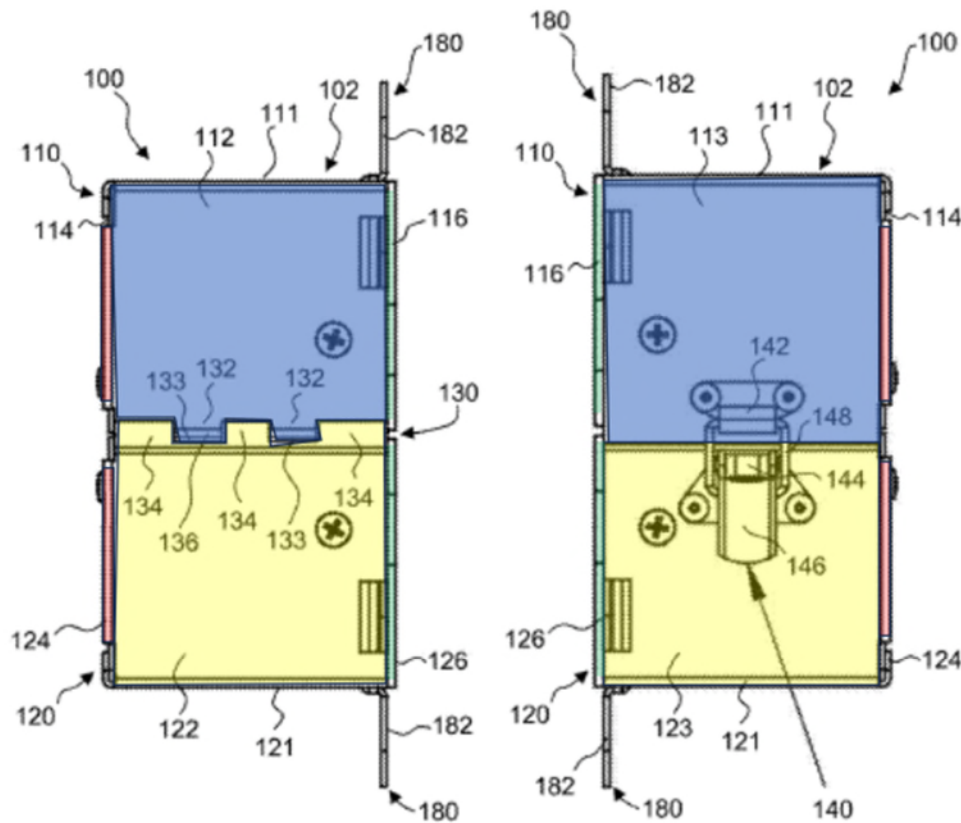


Fig. 6

Ex. 1001, Figs. 6 and 7 (annotated). Figs. 6 and 7 show two sides of the same device.

Ex. 1003, ¶28.

As shown in the figures above, the blue and yellow “side panels” are integral

to and form the sides of the housing members. The '868 patent discloses that these “side panels” “extend[] between a front panel 114 (colored red above) and a rear panel 116 (colored green above). Ex. 1001 at 3:34-39; Ex. 1003, ¶29.

The '868 patent explains that “[e]ach of the front panels 114, 124 includes a semi-circular opening 115, 125 such that when the housing members 110, 120 are in an assembled condition as illustrated in FIGS. 3-9, a front opening 118 is defined in the housing 102.” Ex. 1001 at 3:39-43; Ex. 1003, ¶30. This can be seen with reference to the below annotated figure, which identifies front panel 114 in red:

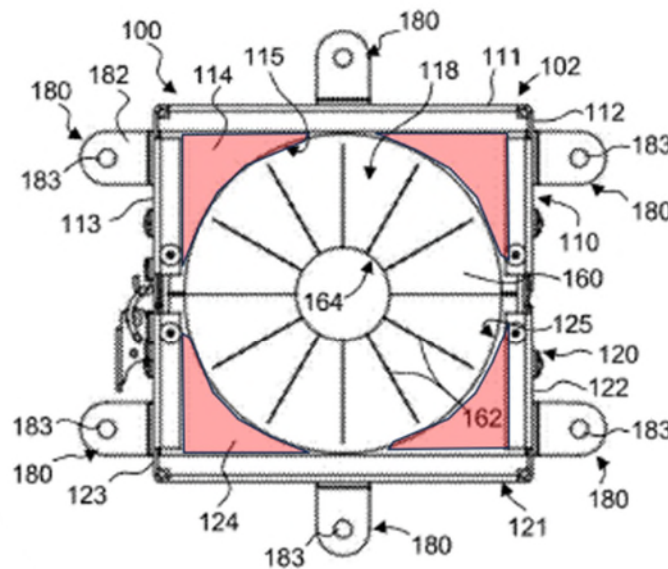


Fig. 4

Ex. 1001, Fig. 4 (annotated); Ex. 1003, ¶30.

The '868 patent further explains that “each of the rear panels 116, 126 includes

a semi-circular opening 117, 127 such that when the housing members 110, 120 are in an assembled condition, a rear opening 119 is defined in the housing 102.” Ex. 1001 at 3:43-46; Ex. 1003, ¶31. This can be seen with reference to the below annotated figure, which identifies the rear panel in green:

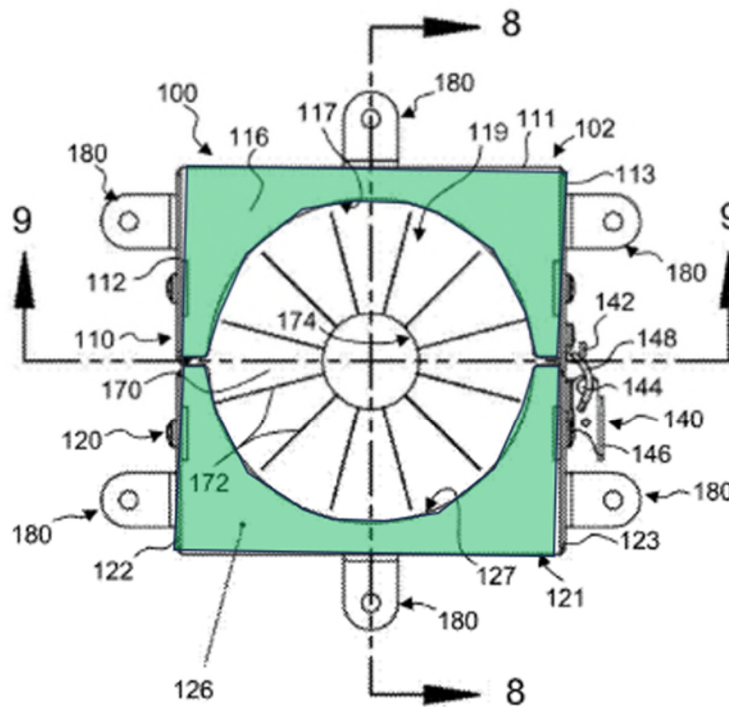


Fig. 5

Ex. 1001, Fig. 5 (annotated).

As the '868 patent admits, it was known that in building constructions, preexisting conduits (e.g., cables) would need additional firestopping due to numerous conditions that may have arisen since the conduits were originally installed. Ex. 1001 at 1:19-28; Ex. 1003, ¶32. The '868 patent discloses this with

reference to Fig. 1 shown below.

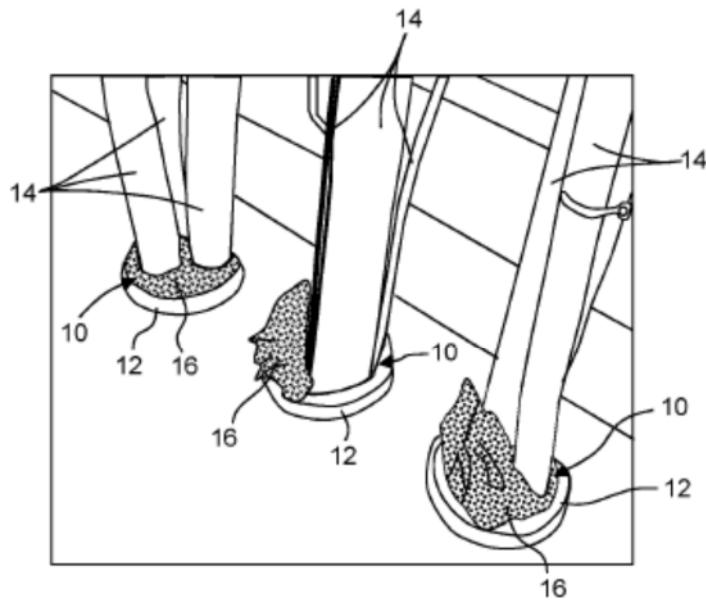


Fig. 1
(PRIOR ART)

Ex. 1001, Fig. 1.

Like many devices before it, the device of the '868 patent embodiments is designed to open and close around the existing pipes to provide an additional layer of fireproofing. Ex. 1003, ¶33. This can be seen with reference to Fig. 10 below.
Id.

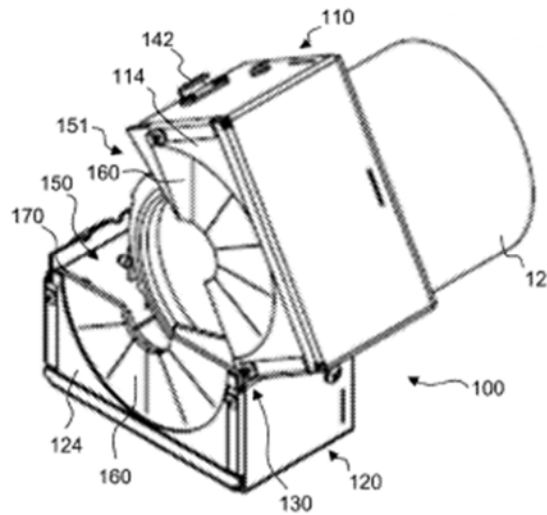


Fig. 10

Ex. 1001, Fig. 10.

As shown in the figure, “[t]o facilitate positioning the housing 102 about existing cables, conduits and the like, the first and second housing members 110, 120 are moveable relative to one another to an open configuration with an open space on at least one side 5 of the housing 102 such that the housing 102 can be positioned about a sleeve 12, cables or conduits.” Ex. 1001 at 4:1-6; Ex. 1003, ¶34. The ’868 patent also explains that, to allow movement of the housing members relative to one another, the “first and second housing members 110, 120 are hingedly interconnected to one another along the side panels 112, 122, with a releasable latching assembly along the side panels 113, 123 to facilitate the open configuration.” Ex. 1001 at 4:8-11; Ex. 1003, ¶34.

The '868 patent discloses a well-known detachable hinge assembly that “is defined by fingers 132 (colored purple in the figure below) of the side panel 112 extending between fingers 134 of the side panel 122.” Ex. 1001 at 4:22-24; Ex. 1003, ¶35.

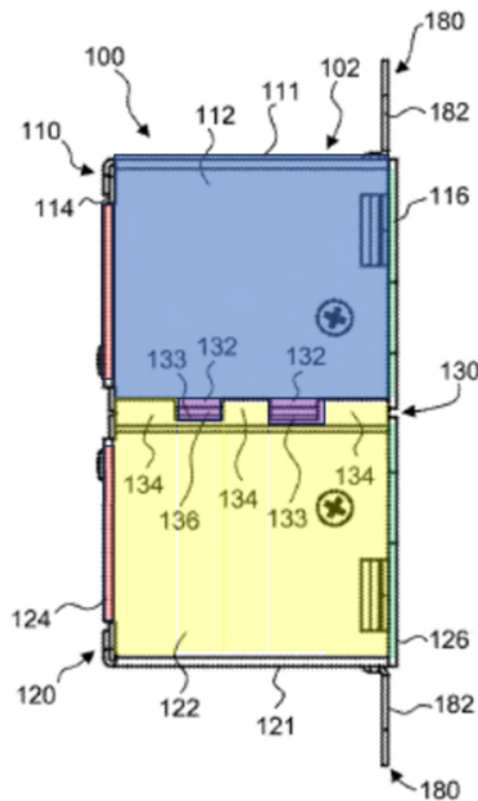


Fig. 6

Ex. 1001, Fig. 6 (annotated).

The '868 patent references a “pin 136 extend[ing] through the through bores and the channels defined by the semicircular ends 133 to pivotally connect the first

and second housing members 110, 112.” Ex. 1001 at 4:26-29; Ex. 1003, ¶36. This arrangement “allow[s] the hinge assembly 130 to be disassembled in the event it is necessary to completely disconnect the first housing member 110 from the second housing member 120.” Ex. 1001 at 4:29-34; Ex. 1003, ¶36.

The '868 patent further discloses the known structure of a “sealing member” in the disclosed device in the form of “sealing membranes 160 and 170.” Ex. 1001 at 5:13-15; Ex. 1003, ¶37. The sealing membrane 160 (colored black) can be seen with reference to the annotated figure below. Ex. 1003, ¶37.

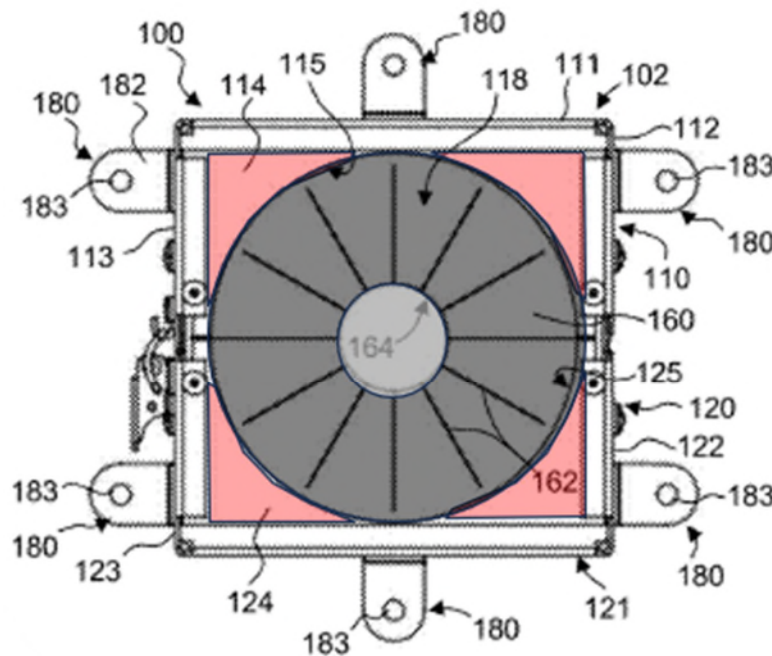


Fig. 4

Ex. 1001, Fig. 4 (annotated).

The '868 patent discloses that “[t]he membranes 160, 170 provide remedial

smoke and air sealing about the existing cables and conduits.” Ex. 1001 at 5:15-18; Ex. 1003, ¶38. Intumescent material sits behind the sealing membranes and “will rapidly expand and seal completely about the cables and conduits within the chamber 150” in the event of fire. Ex. 1001 at 5:23-25; Ex. 1003, ¶38.

B. Prosecution History

Patent Owner filed the non-provisional application that matured into the ’868 patent on June 7, 2017. Ex. 1001, Cover Page. During prosecution, Patent Owner did not disclose a **single** piece of prior art. The only prior art cited during prosecution was prior art the examiner found in an International search report, which Patent Owner also did not cite. Ex. 1002 at 2.

Patent Owner presented claim 1, which is reproduced below.

1. A firestopping apparatus comprising:

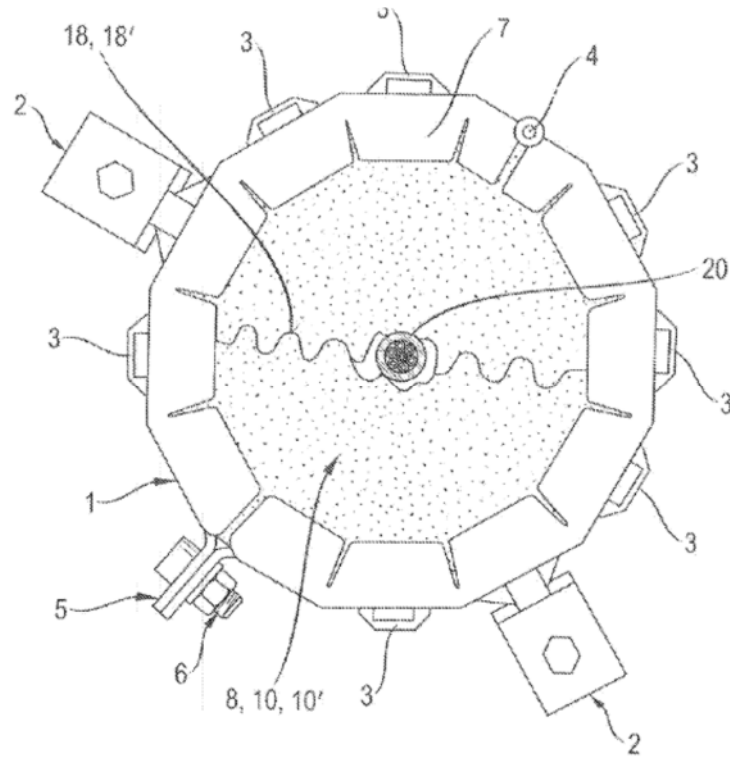
a housing having a wall surface extending between opposed front and rear panels with an inner chamber defined therein, the front panel defining a front opening therethrough and the rear panel defining a rear opening therethrough, the housing including first and second housing members which are moveable relative to one another between an assembled condition wherein the first and second housing members are interconnected and the wall surface is substantially continuous about the internal chamber, and an open condition wherein at least a portion of the first and second housing members are spaced from one another such that at least a portion of the wall surface is non-contiguous to define an opening into the internal chamber; and

intumescent material positioned within the internal chamber.

Ex. 1002 at 128.

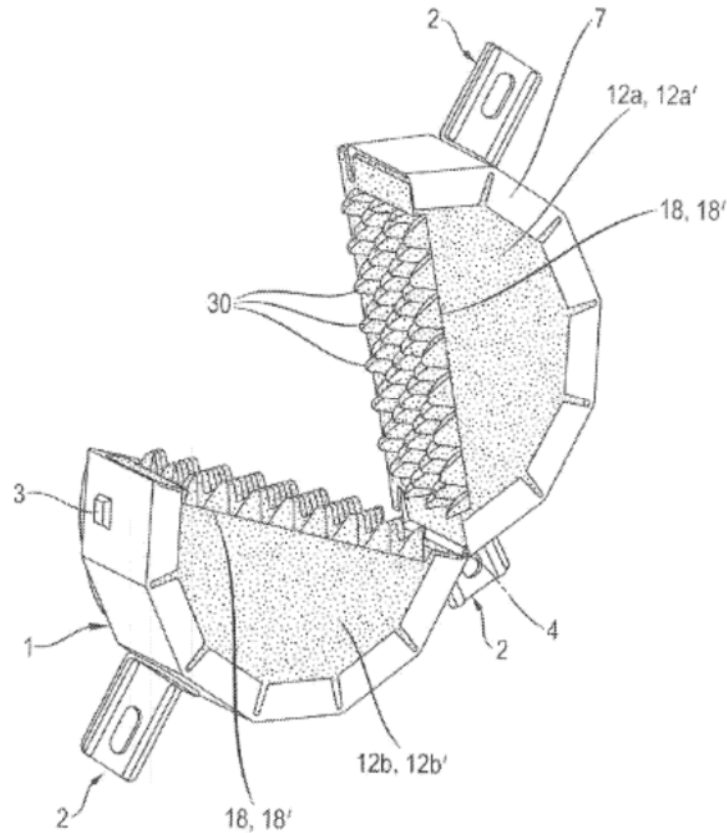
This claim is to nothing more than a housing with moveable members with an intumescent material included in the housing. Ex. 1003, ¶40.

On January 26, 2018, the examiner mailed a non-final office action (the “NFOA”) rejecting all presented claims. Ex. 1002 at 49-62; Ex. 1003, ¶41. The examiner rejected claims 1-7 and 15-20 over Klein (U.S. Patent Application Publication No. 2015/0251028) (Ex. 1010) in view of Reinhardt (U.S. Patent Application Publication No. 2014/0318064) (Ex. 1011). Ex. 1002 at 53; Ex. 1003, ¶41. Petitioner is the Applicant for Klein. Ex. 1010, Cover Page. Like the ’868 patent, Klein is directed to a firestopping device to be installed against a wall or ceiling that opens and closes around a cable. Ex. 1003, ¶41. This can be seen with reference to Fig. 3 below from Klein. *Id.*



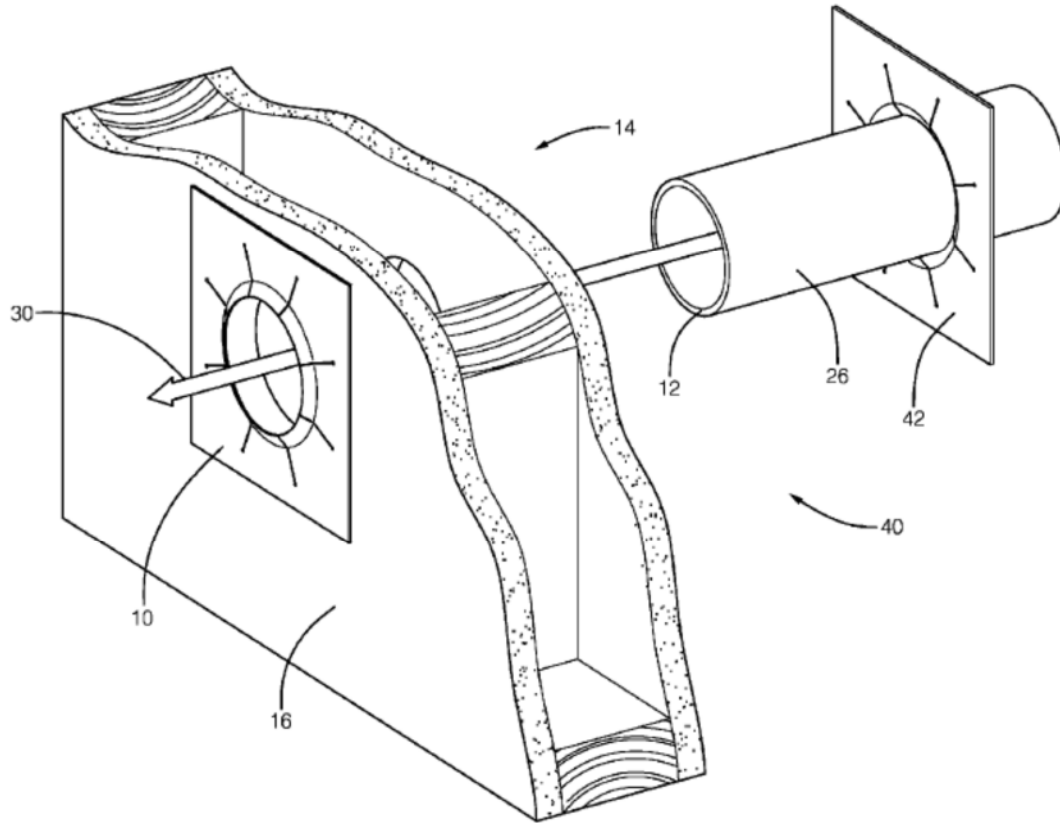
Ex. 1010, Fig. 3.

As shown in the figure, intumescent material 10 surrounds “conduit bundle 20.” Ex. 1003, ¶42. Figure 5 below shows how the two-member device opens by pivoting around “pivot axis 4.” *Id.*



Ex. 1010, Fig. 5.

In the NFOA, the examiner found that Klein did not disclose front and rear panels; however, a POSITA understands that “lugs 7” are “panels” as claimed in the ’868 patent. Ex. 1002 at 52-56; Ex. 1003, ¶43. For the disclosure of the claimed “panels,” the examiner cited Fig. 1 of Reinhardt, which is reproduced below. Ex. 1002 at 52-56; Ex. 1003, ¶43.



Ex. 1011, Fig. 1. The examiner found that Klein disclosed every other feature of dependent claims 2-7 and 15-20. Ex. 1002 at 52-56; Ex. 1003, ¶44.

With respect to application claim 8, which recited that “a sealing member extends across at least a portion of the front opening,” (Ex. 1002 at 129) the examiner found that Zernach’s (WO 2012/009211) (Ex. 1012) “pie foam disk (100)” constituted a “sealing member” as claimed. Ex. 1002 at 57; Ex. 1003, ¶45. Foam disk 100 can be seen in the below image. Ex. 1003, ¶45.

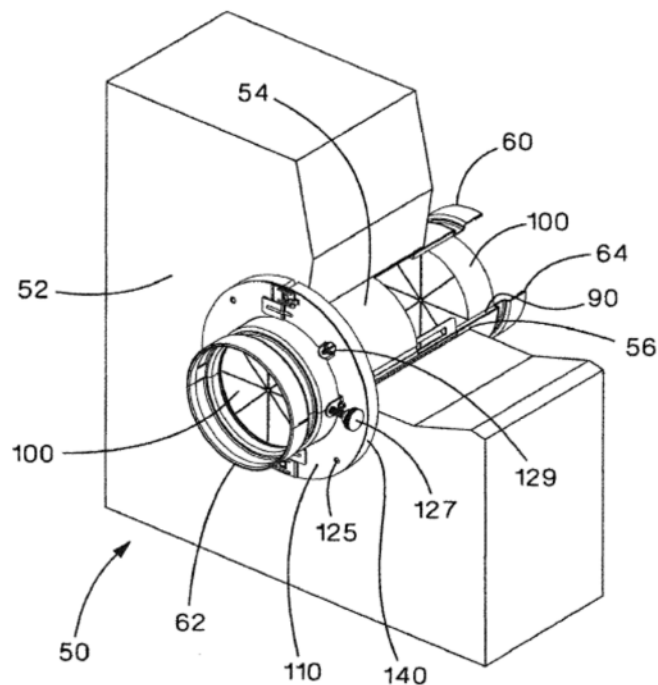


FIG.2

Ex. 1012, Fig. 2.

In response to the NFOA, Patent Owner did not dispute that the prior art taught all elements of claim 1. Instead, Patent Owner argued (incorrectly) that Klein “teaches away” from using a rear panel.² Ex. 1002 at 39-40; Ex. 1003, ¶46. Indeed,

² Patent Owner’s argument is incorrect. Klein says nothing that would “teach away” from including a rear panel. Instead, Klein discloses an embodiment where “lugs” (which correspond to the claimed panels) are arranged on both the circumferential line of the cladding part which faces the wall or ceiling, and the circumferential line

Patent Owner was careful **not** to argue that Klein does not include a panel, focusing instead on its argument that Klein “teaches away” from a *rear* panel. Ex. 1002 at 39-40.

As to Reinhardt, Patent Owner argued that: “Reinhardt does not teach front and rear panels on a housing as claimed. To the contrary, as illustrated in Fig. 2 thereof, Reinhardt teaches the panels 10 and 42 on opposite sides of the wall.” Ex. 1002 at 40; Ex. 1003, ¶47. Thus, Patent Owner disclaimed coverage of a device that includes front and rear panels on different sides of the wall. Ex. 1003, ¶47.

With respect to Zernach and the “sealing member,” Patent Owner argued that a POSITA would not have been motivated to combine the “foam pie disk” with Klein because Klein’s intumescent insert filled the entirety of the space encompassed by Klein’s housing. Ex. 1002 at 41; Ex. 1003, ¶48.

In addition to its argument, Patent Owner amended certain claims. In so doing, Patent Owner inaccurately argued that “[c]laims 8 and 15 are amended into independent form.” *Id.* at 38. Patent Owner failed to note that it incorporated only *some* of the language from claim 1 into newly independent claim 8. *Id.* at 33-34. Specifically, Patent Owner did not include the “rear panel” recitation from claim 1,

of the cladding part which faces away from the wall or ceiling. Ex. 1010, ¶0038; Ex. 1003, ¶46.

which “rear panel” Patent Owner argued was missing from the prior art. *Id.* There is no evidence in the record that the Examiner was aware that claim 8 (which issued as claim 9 of the Challenged Claims) did not recite the “rear panel” Patent Owner advocated as an alleged patentable distinction over the prior art.

In response to Patent Owner’s arguments, the examiner mailed a Notice of Allowance on July 27, 2018, which included an Examiner’s Amendment. Ex. 1002 at 14; Ex. 1003, ¶49. The Examiner’s Amendment referenced an interview with Patent Owner’s prosecution counsel, although Patent Owner did not file an interview summary. Ex. 1002 at 14. In the Amendment, the examiner proposed the following amendment to claim 1:

1. (currently amended) A firestopping apparatus comprising:

a housing having a wall surface extending between opposed front and rear panels with an inner chamber defined therein, the front panel defining a front opening therethrough and the rear panel defining a rear opening therethrough, the housing including first and second housing members which are completely detachable from one another and moveable relative to one another between an assembled condition wherein the first and second housing members are interconnected and the wall surface is substantially continuous about the internal chamber, and an open condition wherein at least a portion of the first and second housing members are spaced from one another such that at least a portion of the wall surface is non-contiguous to define an opening into the internal chamber; and

intumescent material positioned within the internal chamber.

Ex. 1002 at 20.

From this amendment, it appears that the examiner was unconvinced as to Patent Owner's arguments concerning the prior art's disclosure of panels and instead found a patentable distinction in the fact that Klein did not expressly disclose that its two clam-shell components could be detached from each other. With the examiner's amended language included, the '868 patent issued on December 4, 2018.

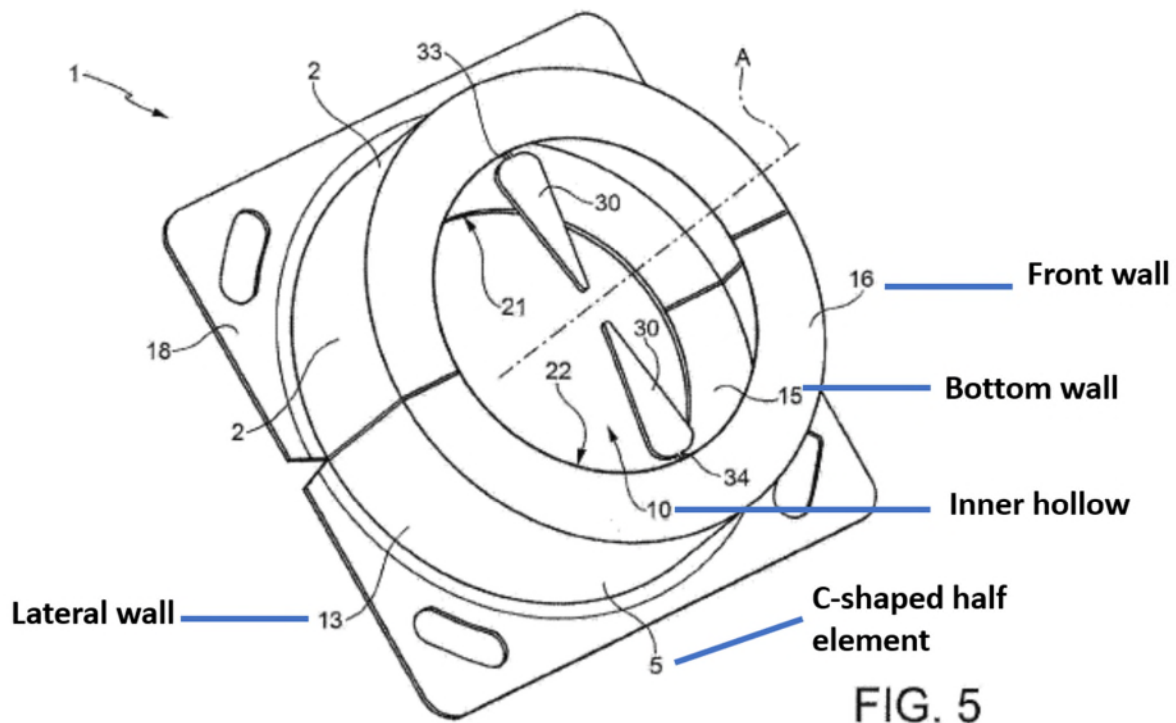
III. OVERVIEW OF THE CITED PRIOR ART

A. Overview of Ramorino

Ramorino is an October 2013 PCT publication and qualifies under 35 U.S.C. § 102(a)(1) as prior art to the '868 patent claims. Ex. 1004, Cover Page. Ramorino discloses an “intumescent material fire stop device (1), comprising a support body (2) shaped so as to take a collar-like shape ... to define an opening....” Ex. 1007, Abstract; Ex. 1003, ¶50. As will be shown below, Ramorino expressly teaches every element of every Challenged Claim, except that it does not *explicitly* state that the two hinged housing members are completely detachable from one another. Ex. 1003, ¶50. Instead, Ramorino leaves a POSITA with a design choice between a completely detachable “mechanical folding system” and a “mechanical folding system” which is not completely detachable. *Id.*

Ramorino Figure 5 is reproduced below. The device includes a front wall 16 and a bottom wall 15 with a lateral wall 13 extending between the front and bottom walls. Ex. 1004 at 13:9-20; Ex. 1003, ¶51. The device consists of two C-shaped

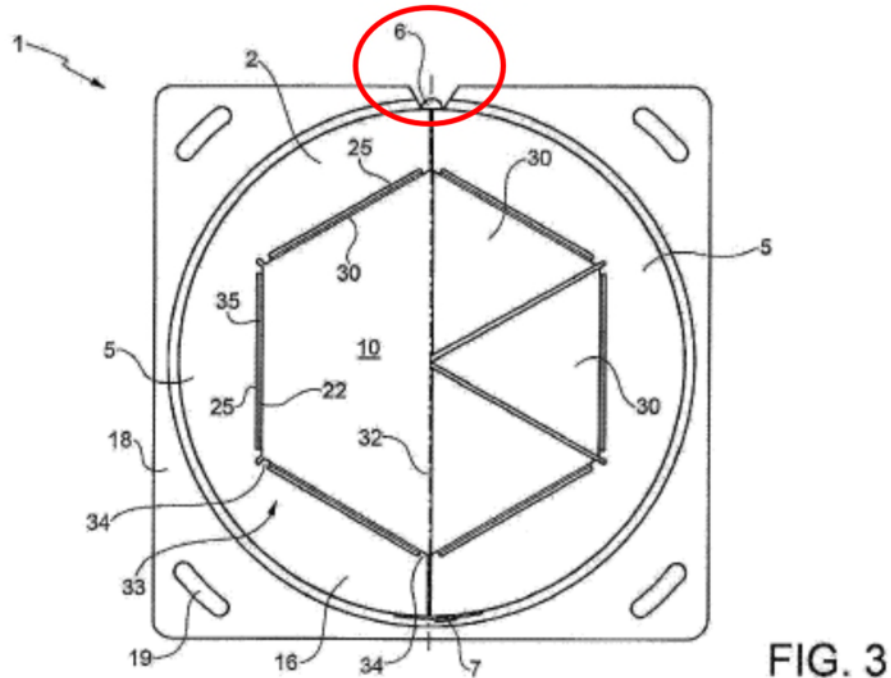
annular half elements 5. Ex. 1004 at 12:27-28; Ex. 1003, ¶51. The front, bottom, and lateral walls form an inner hollow 10 (along with an annular seat 14 depicted in other figures) within the two C-shaped annular half elements 5. Ex. 1004 at 13:9-20; Ex. 1003, ¶51.



Ex. 1004, Fig. 5 (annotated).

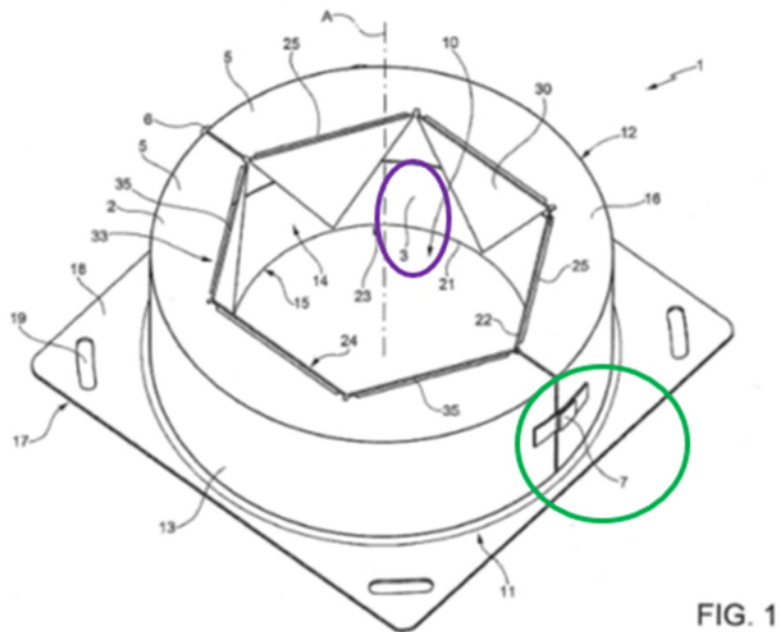
Ramorino discloses that the C-shaped half elements 5 are “hinged to each other by way of a hinge, or a specific mechanical folding system 6 allowing the elements 5 to rotate about an axis parallel to the axis A, and being provided with hooking members 7 diametrically opposite to the hinge 6, to close the body 2 about the axis A.” Ex. 1004 at 12:29-13:4; Ex. 1003, ¶52. The image below includes a

red circle to identify the “hinge, or [] specific mechanical folding system,” which a POSITA would understand to broadly include multiple types of hinged systems that allow the C-shaped housing members to rotate relative to each other. Ex. 1003, ¶52.



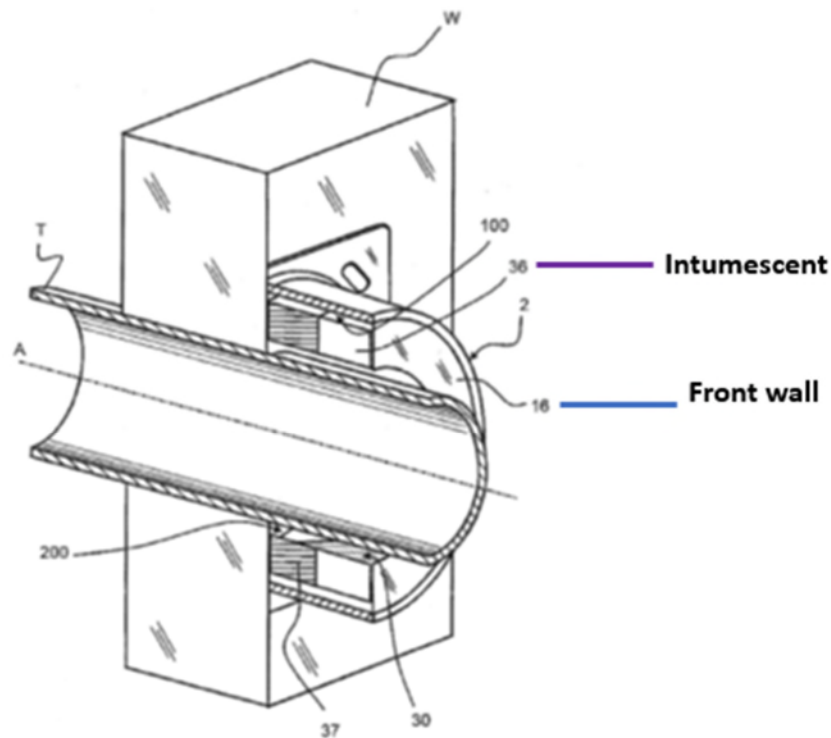
Ex. 1004, Fig. 3 (annotated).

The figure below circles (colored green) the hooking members 7 that are opposed to the “hinge, or [] specific mechanical folding system.” Ex. 1003, ¶53. The figure below also circles (colored purple) intumescent material element 3, which will foam in response to fire. *Id.* As shown in the figure, the intumescent material is placed within the housing between front wall 16 and bottom wall 15. *Id.*



Ex. 1004, Fig. 1 (annotated).

Ramorino's device is intended to be installed "around a pipe T coming out from a wall or floor." Ex. 1004 at 12:21-22; Ex. 1003, ¶54. Fig. 6 below illustrates this configuration.



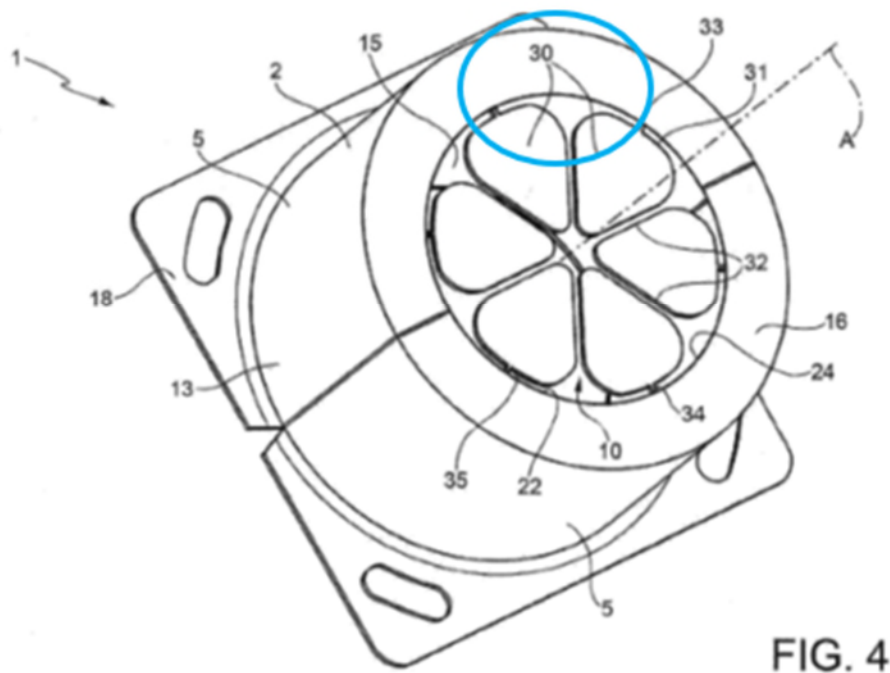
As shown in the figure, Ramorino's device closes around pipe T and is mounted to wall W. Fig. 6 depicts the front wall 16 while bottom wall 15 (located between sleeve 37 and the wall) is not illustrated. Lateral wall 13 extends between front wall 16 and bottom wall 15. Ex. 1003, ¶55. Each of components 36 and 37 are an intumescent material. *Id.*

Ramorino also discloses “a plurality of foldable locking lamellar elements 30 ... projecting from the front wall 16 into the hollow 10,” also “referred to as fins.” Ex. 1004 at 14:20-29; Ex. 1003, ¶56. The fins extend across a portion of the opening through which a conduit extends and function as sealing members in case of a fire:

In case of fire, the intumescent materials, and accordingly the whole expandable element 3, expand under the effect of the heat in the hollow 10, filling the whole hollow 10 and pushing the fins 30 towards the front opening The fins fold 30 passing from an initial position, where the fins 30 leave open the front opening 24, to a closing position, shown in the right portion of figure 3, and where the fins 30 close, at least partially, the front opening 24.... the fins 30 are shaped so that once brought to the closing position, they substantially obstruct the whole front opening 24.

Ex. 1004 at 18:5-23.

Ramorino's fins 30 are shown in figures 1-9 and are identified in the below exemplary figure. Ex. 1003, ¶57.



Ex. 1004, Fig. 4.

B. Overview of Feil

Feil discloses “[a] firestopping apparatus including a sleeve with at least first and second airflow-blocking elements.” Ex. 1005, Abstract. Feil further discloses inclusion of a piece of firestop material positioned on an inside surface of the sleeve, where such firestop material may comprise an intumescent composition. Ex. 1005, at 2:45-52. Feil’s FIG. 1 shows, in cross-section through a wall, an installed firestopping sleeve embodiment. Ex. 1005 at 1:30-32; Ex. 1003, ¶58. As shown below, a cable 90 extends through the device. Ex. 1003, ¶58.

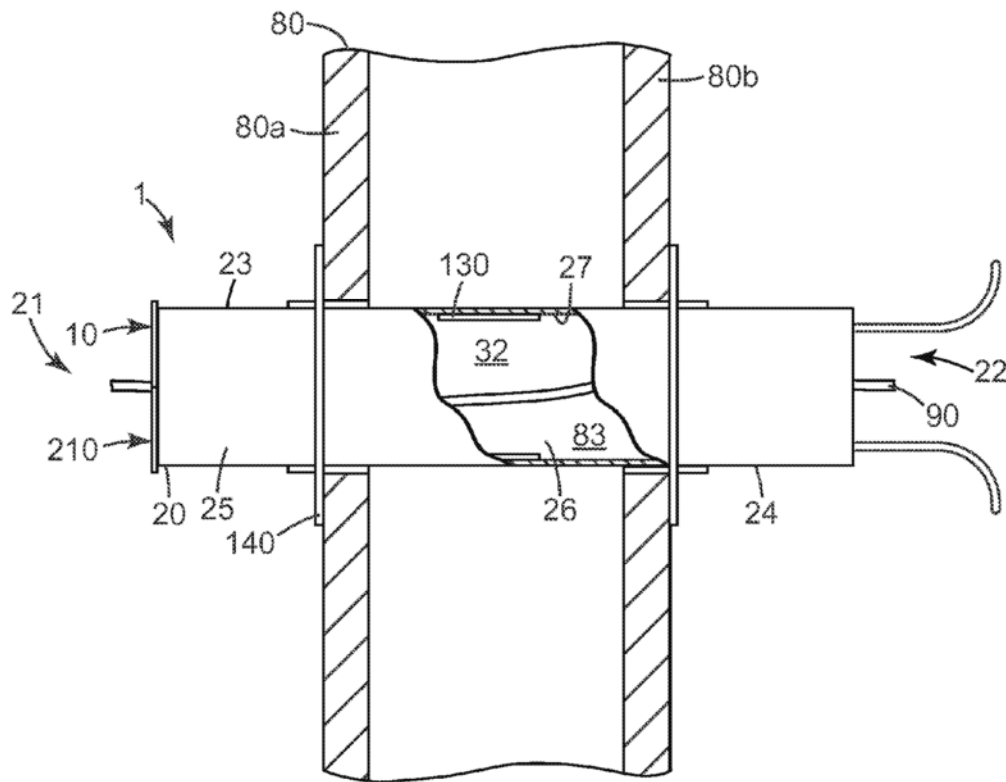


Fig. 1

Exhibit 1001, Fig. 1.

With reference to Figs. 3 and 4, Feil discloses an “airflow-blocking element 10” and “airflow-blocking element 210,” which are “slidably moveable” in actuation directions to allow the airflow-blocking elements to open away and close toward each other. Ex. 1005 at 3:17-4:3; Ex. 1003, ¶59. Airflow blocking elements include airflow shields 48 (colored red below), compressible body members 213 (colored yellow below) and siderails (colored blue below). Ex. 1003, ¶59.

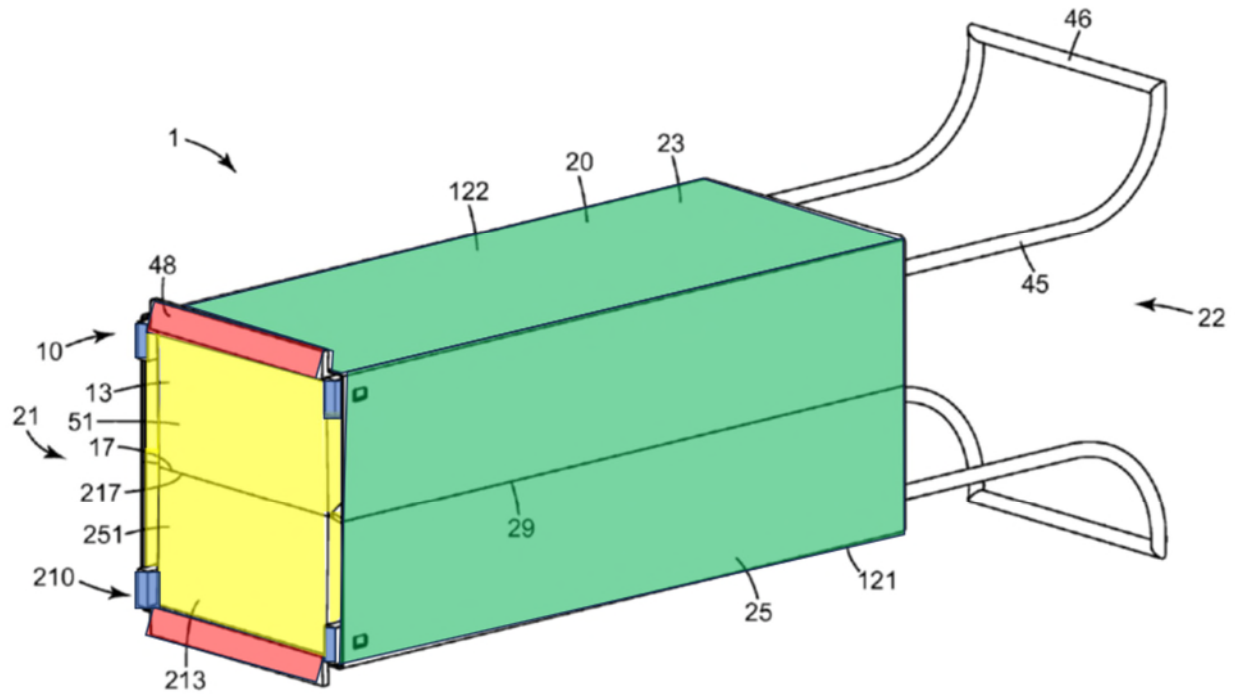


Fig. 3

Ex. 1005, Fig. 3 (annotated).

Fig. 4 shows a view of the device when the airflow-blocking elements have been actuated to allow an object (e.g., a cable) to pass through. Ex. 1003, ¶60.

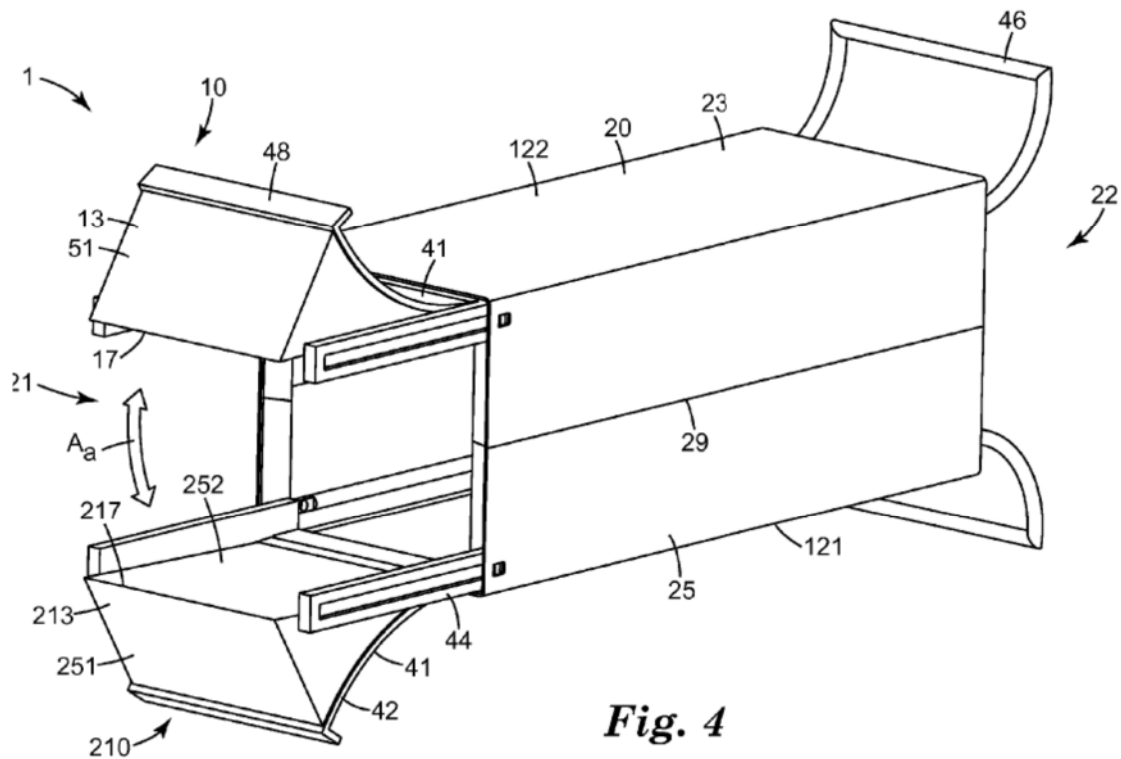
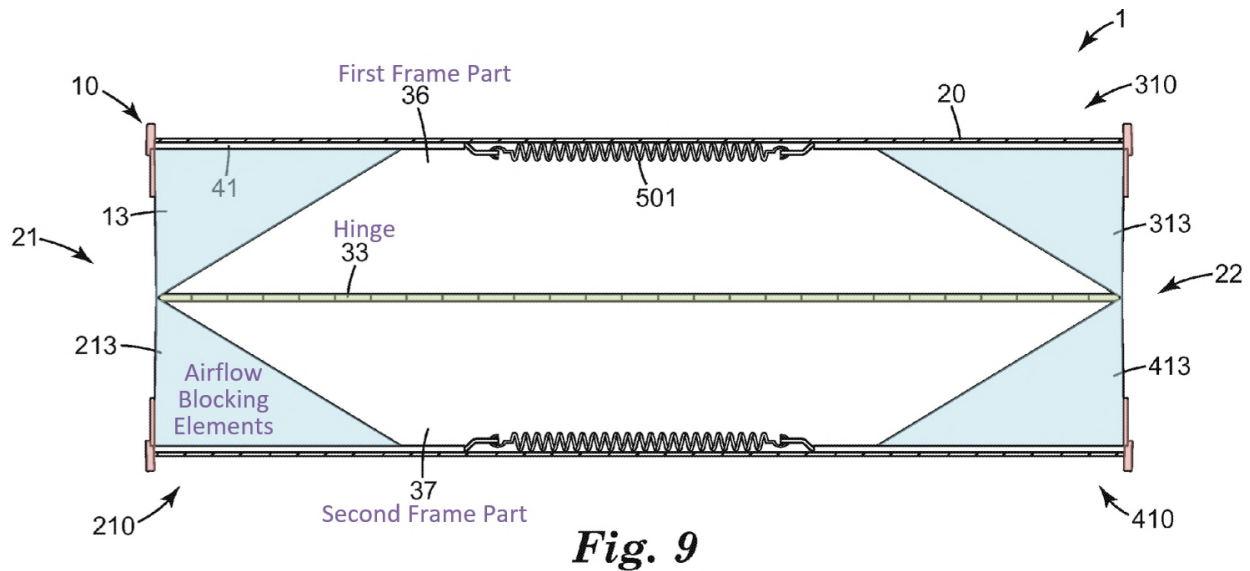


Fig. 4

Ex. 1005, Fig. 4.

With reference to Fig. 9, Feil discloses first and second frame parts 36, 37 connected by a hinge 33 to be “closed together clamshell-style to form sleeve 20.”

Ex. 1005 at 7:20-25; 13:8-18; 14:19-30; Ex. 1003, ¶61.



Ex. 1005, Fig. 9 (annotated).

Feil provides extensive teachings regarding the options for hinged frame parts, including completely detachable frame parts and the reasons for selecting such features. Ex. 1003, ¶62. To that end, Feil discloses that “any suitable hinged connection may be used, whether such a connection allows the hingedly connected sleeve parts to be disconnected from each other or not.” Ex. 1005 at 13:19-21; Ex. 1003, ¶62. Feil further explains:

In some embodiments, sleeve 20 may be comprised of two (or more) sleeve pieces (e.g., sleeve pieces 121 and 122 as shown in exemplary embodiment in FIGS. 2 and 3), which sleeve pieces can be taken apart from each other and can then be mated with each other (re-assembled) to form sleeve 20. (Such sleeve pieces may be, but do not have to be, similar to each other or even identical to each other.) Any suitable design may be used for sleeve parts that are mateable to each other to

form sleeve 20, and in particular any suitable design may be used for seam 29 formed by mating edges of such parts. Such a mating edge might comprise e.g. a plurality of tabs (e.g., in the manner of interlocking teeth); or, such an edge might comprise e.g. a single elongate tab of the general type illustrated in FIGS. 3-5 of U.S. Pat. No. 8,069,623.³

Ex. 1005 at 13:37-50.

Feil then includes a detailed discussion of the advantages of a hinged device that allows for complete detachability:

It will be appreciated that hinged designs and/or multipiece designs of sleeve 20 may be advantageous in at least some circumstances. That is, if a sleeve is to be used e.g. in the firestopping of a newly created opening in a wall (e.g., that does not contain tubing already inserted therethrough), sleeve 20 may be placed in the opening as is (that is, with a hinged sleeve in its closed position, or with a multi-piece sleeve in its assembled condition). *If to be used in firestopping an opening that already contains tubing inserted therethrough, it may be necessary to open and/or at least partially disassemble sleeve 20 in order to position the tubing within sleeve 20. Thus, a sleeve may be provided with a hinged connection so that it can be momentarily opened for*

³ Professor Puchovsky reviewed U.S. Patent No. 8,069,623 (Ex. 1017) and confirms that it is consistent with Feil's broad disclosures of hinged connections. Ex. 1003, ¶63, n. 2.

*insertion of tubing thereinto and then reclosed clamshell-type to reform sleeve 20. Similarly, sleeve pieces may be disassembled from each other for insertion of tubing, and then reassembled to each other to reform sleeve 20.*⁴

Ex. 1005 at 13:63-14:12; Ex. 1003, ¶63.

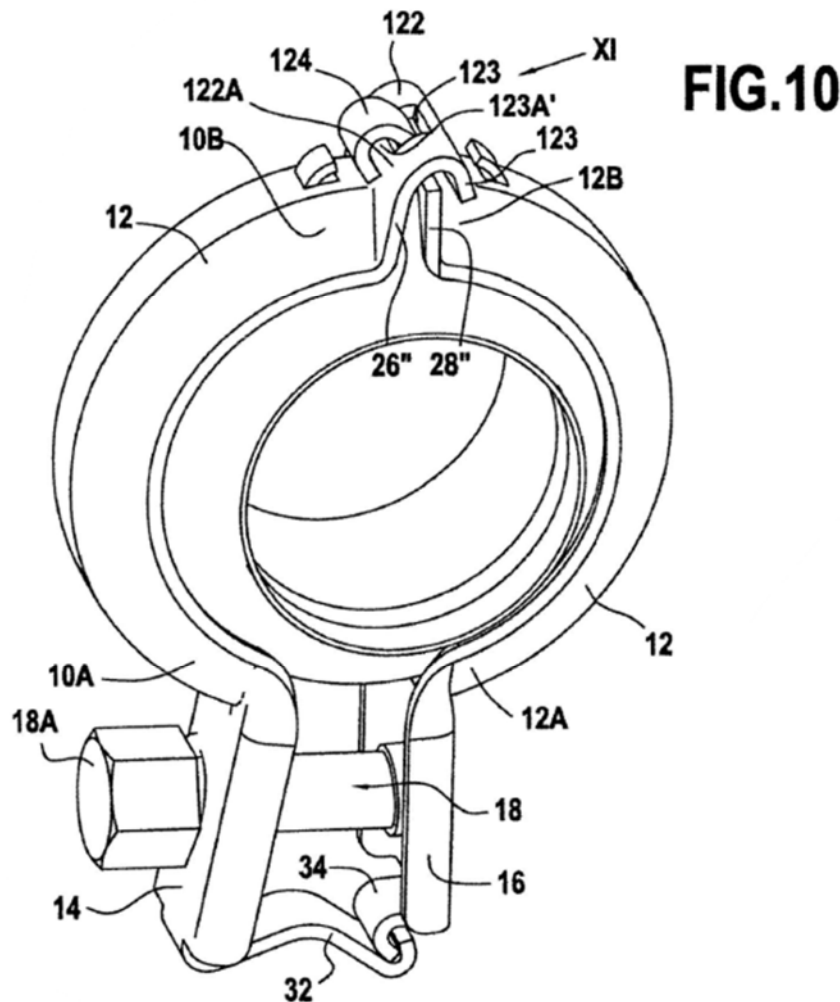
Accordingly, a POSITA reading the teachings of Feil would understand that a variety of clamshell attachment strategies are available to provide hinged openings and/or complete disassembly, which have advantages when adding a firestopping housing to an opening that already has tubing inserted therethrough—particularly in the case of a “retrofit” installation. Ex. 1003, ¶64.

C. Overview of Rigollet

Rigollet is a UK Patent titled “A hinged clamping collar.” Ex. 1013, Cover Page. Rigollet explains: “The present invention relates to a clamping collar made up of two half-shells, each half-shell having a first end provided with an outwardly projecting tightening tab, the tightening tabs co-operating with each other to tighten the collar, the second ends of the half-shells co-operating with each other via a hinge.” Ex. 1013 at 1:2-7; Ex. 1003, ¶65. Rigollet further explains that in order to form the hinge, “the second end of the first half-shell has a first hook that is

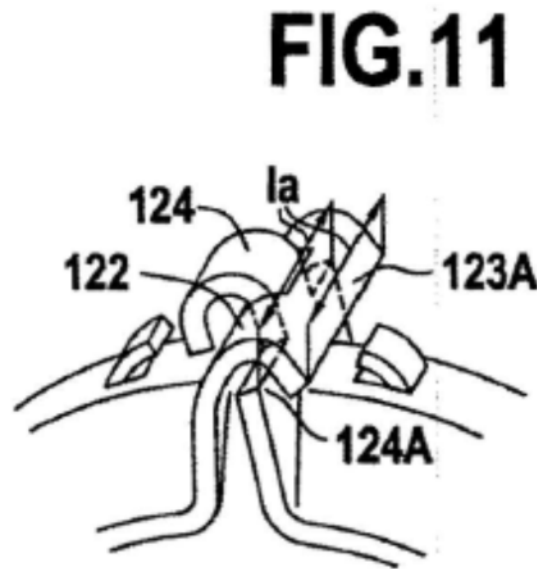
⁴ Emphasis herein is added unless otherwise indicated.

outwardly projecting and that is provided with a hooking window defined by a retaining edge, while the second end of the second half-shell has a second hook that is outwardly projecting. and that passes through the hooking window in the first hook in such a manner as to be able to co-operate with the retaining edge[.]” Ex. 1013 at 3:19-26; Ex. 1003, ¶65. The hooked hinge arrangement of Rigollet can be seen with reference to Fig. 10 below. Ex. 1003, ¶65.



Ex. 1013, Fig. 10.

Fig. 11 below shows a zoomed in view of the hinged arrangement. Ex. 1003, ¶66.



Ex. 1013, Fig. 11.

As shown in these figures, “[t]he first hook 122 is hooked over the upstanding base 124A of the second hook 124” to form a hinge. Ex. 1013 at 14:32-33; Ex. 1003, ¶67. In addition to allowing the two clamshell pieces to pivot relative to one another, the hinge allows the two clamshell pieces to be separated. *Id.*

D. 3M Publication

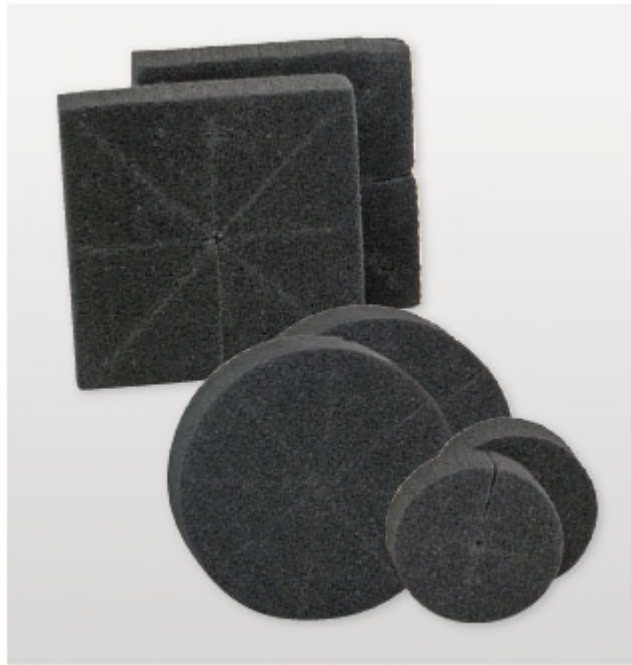
The 3M Publication bears a copyright date of 2013 and advertises the 3M Fire Barrier Pass-Through Device. Ex. 1006 at 2; Ex. 1003, ¶68. The 3M Publication explains that the Device “offer[s] you a hassle-free firestop method to help you

protect your building and the precious lives and resources within it.” Ex. 1006 at 1; Ex. 1003, ¶69. The 3M Publication further discloses “a device for firestopping structures where electrical, data and communication cables or plumbing pipes pass through fire-rated floors and walls” including “an intumescent material.” Ex. 1006 at 2; Ex. 1003, ¶69. The 3M Publication discloses foam panels that are physically distinct from the firestopping housing as shown in the below images. Ex. 1003, ¶69.



Ex. 1006 at 2.

As further shown below, the foam panels are replaceable, further confirming the fact that they are physically distinct from the housing. Ex. 1003, ¶70.



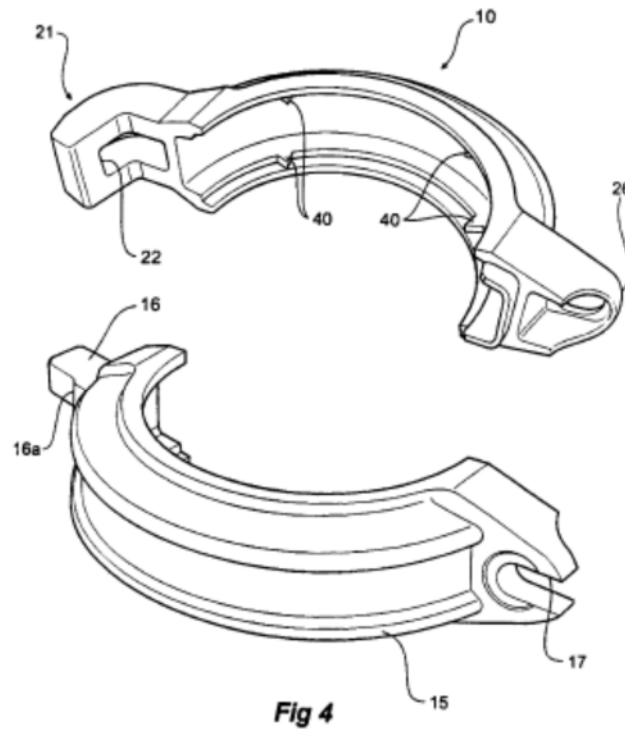
Replacement foam plugs

Ex. 1006 at 2.

E. Other Background References Disclosing Hinged and Detachable Housing Members

As shown above relative to the discussion of Feil and Rigollet, Patent Owner did not invent an arrangement in which two housing members are moveable relative to each other and detachable. Ex. 1003, ¶71. Instead, such arrangements had been known for years prior to the '868 patent's earliest effective filing date. For example, Gardner discloses a "pipe collar" that is "split into two semi-circular parts." Ex. 1014 at 1; Ex. 1003, ¶71. With reference to Fig. 4 below, Gardner explains that "arcuate half 15 has a finger-like projection 16 which extends radially from one of its ends" and that "other half 20 has a bearing surface (in the form of an edge 22) on

the end of arm 21 adapted to receive the finger-like radial projection 16 to form an interlocking hinge.” Ex. 1014 at 4; Ex. 1003, ¶71.



Ex. 1014, Fig. 4.

As another example, Blocher discloses a “pipe coupling” featuring a hinge mechanism to pivotally join two pieces in way that allows the same pieces to be completely detached from each other. Ex. 1018, Cover Page. This can be seen with reference to Figs. 11a and 11b shown below. Ex. 1003, ¶72.

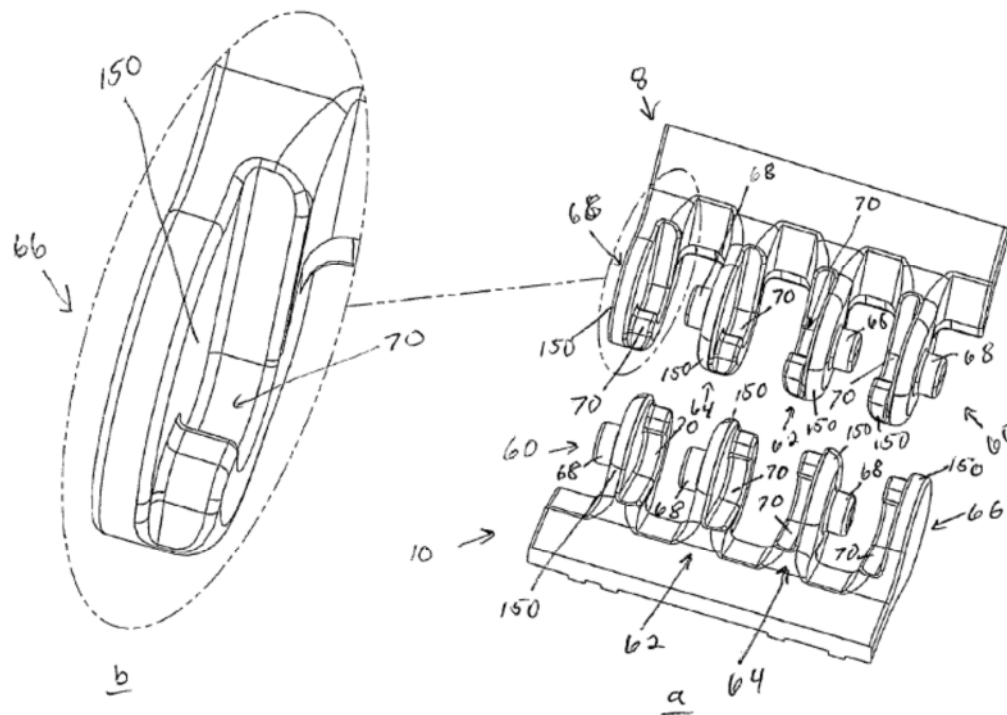


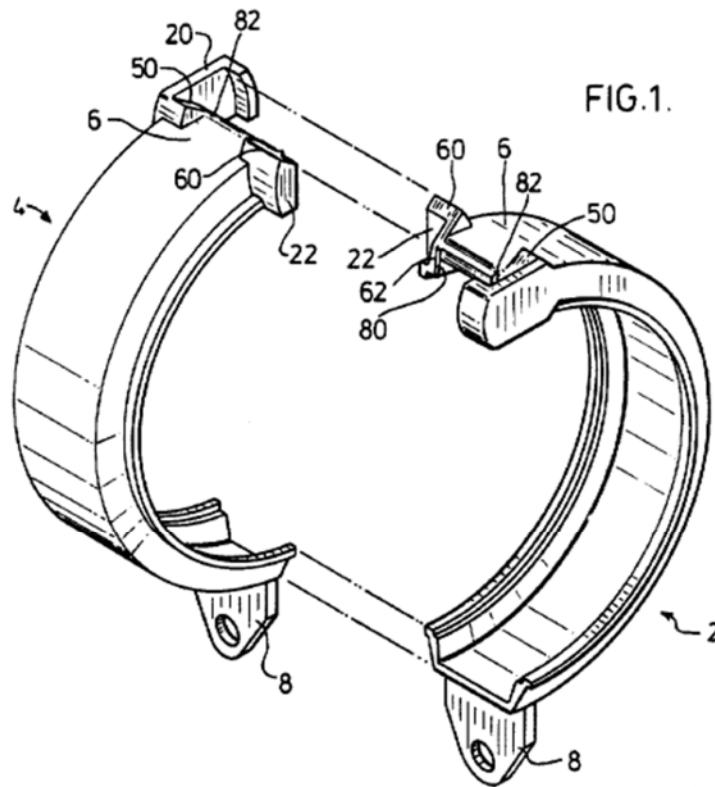
FIG. 11

Ex. 1018, Fig. 11.

As shown, each pin 68 fits into a corresponding hook 70 to form a hinge that allows the two pieces to pivot relative to one another as well as being completely detachable from one another. Ex. 1018, ¶0037; Ex. 1003, ¶73.

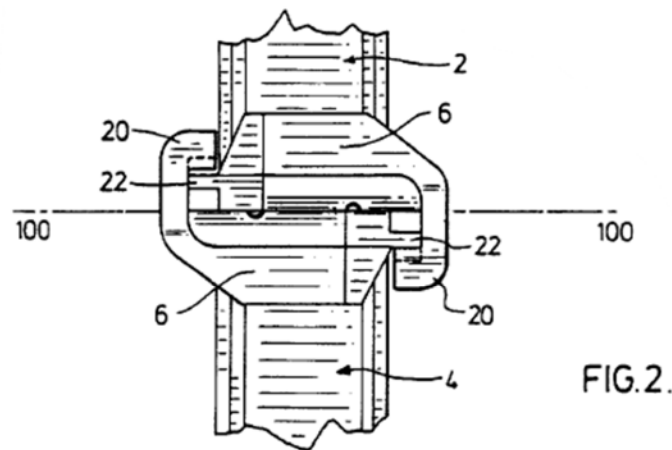
As a third example, Korgaonkar discloses a “Pipe Clamp.” Ex. 1015; Ex. 1003, ¶74. Korgaonkar discloses “two essentially identical semi-circular components 2 and 4 each having an end 6 adapted for pivotal connection with a similar component and a flange connection end 8. The pivotal end connection 6 includes a female component 20 and a male component 22.” Ex. 1015 at 2:40-44;

Ex. 1003, ¶74. This can be seen with reference to Fig. 1 below. Ex. 1003, ¶74.



Ex. 1015, Fig. 1.

Fig. 2, which is reproduced below, shows that “two components 6 have been interlocked to define a hinge axis shown by line 100 which passes between the end components 6 of two similar components.” Ex. 1015 at 2:57-60; Ex. 1003, ¶75.



Ex. 1015, Fig. 2.

Like the other devices of the prior art, Korgaonkar discloses a hinged device that allows housing members to pivot relative to one another while being completely detachable from each other. Ex. 1003, ¶76.

IV. THE CHALLENGED CLAIMS ARE UNPATENTABLE

A. [GROUND 1A] – Claims 1-6 and 9 are Obvious Based on Ramorino and Feil and further in view of Rigollet

1. Combination of Ramorino and Feil and further in view of Rigollet

Ramorino discloses each element of independent claim 1 except that it does not *expressly* state that its two housing members are detachable. Ex. 1003, ¶77. Instead, Ramorino discloses “a hinge, or a specific mechanical folding system,” leaving to a POSITA the specific type of “mechanical folding system” to be

included. Ex. 1004 at 12:30; Ex. 1003, ¶77. A POSITA would have found it obvious to implement a hinge that would allow the two C-shaped members of Ramorino to pivot relative to each other (as already expressly taught in Ramorino) while at the same time being completely detachable from each other in view of Feil's disclosure of such a hinged connection. Ex. 1003, ¶77.

A POSITA would be motivated to do so because Ramorino's device would then include completely detachable housing members, which would be advantageous for retrofitting applications. Ex. 1003, ¶78. Indeed, Feil identifies such an application as one in which it is advantageous for a fire stop device to include a hinged arrangement that allows for complete detachment of one housing member from the other. Ex. 1005 at 13:63-14:12.

A retrofit application involves a situation where there is a preexisting conduit to be firestopped with a collar. Ex. 1003, ¶79. As discussed by Feil, in that situation, it would be advantageous to completely separate the two housing members so that each housing member can be separately placed around a conduit prior to closing the device. *Id.* For example, if there is insufficient clearance (e.g., due to a ceiling or wall) to rotate the device around its axis to the necessary width while the housing members were connected, it would be advantageous to place each housing member separately. *Id.*

Feil discloses further that "[a]ny suitable design may be used for sleeve parts

that are mateable to each other to form sleeve 20, and in particular any suitable design may be used for seam 29 formed by mating edges of such parts. Such a mating edge might comprise e.g. a plurality of tabs (e.g., in the manner of interlocking teeth).” Ex. 1005 at 13:43-48; Ex. 1003, ¶80. A POSITA would understand the “interlocking teeth” of Feil to refer to the type of simple hinge of Rigollet. Ex. 1003, ¶80. Specifically, Rigollet’s hook system discloses the same concept as “interlocking teeth.” *Id.* Thus, a POSITA would understand that it would be advantageous to implement the type of detachable hinged arrangement of Rigollet in Ramorino consistent with Feil’s disclosure.⁵ *Id.*

In addition, to the benefits discussed above with respect to retrofitting applications, a POSITA would be motivated to implement the hinged mechanism of Rigollet in Ramorino because doing so would save money relative to a separate hinge component. *Id.*, ¶81. The integrated hooking mechanism of Rigollet avoids that cost. *Id.* Moreover, Rigollet’s mechanism results in a more straightforward

⁵ It should be understood that in view of Feil’s broad teachings of a detachable hinged device including two members, a POSITA would understand that there are a number of hinged mechanisms that could advantageously applied to Ramorino to allow for complete detachability of the hinged C-shaped housing members. Ex. 1003, ¶80, n. 3. Rigollet is but one example.

manufacturing process because there is no need to separately affix a hinge. *Id.*

Combining Ramorino and Feil in further view of Rigollet merely involves combining prior art elements according to known methods to yield predictable results, and use of known techniques to improve similar devices in the same way. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 415-421 (2007); Ex. 1003, ¶82. In particular, a POSITA would have recognized that both Ramorino and Feil are used to solve the same firestopping problem (e.g., slowing the passage of fire through openings created by pipes and other conduits running from one room to another, at least partially through the use of intumescent materials), and use mechanical features to open/close the firestopping device. Ex. 1003, ¶82. In fact, Feil expressly discloses that the disclosed “sleeve 20” may be constructed so as to include a “circular cross-section,” similar to Ramorino. *Id.*; Ex. 1005 at 15:7-11. The detachable hinged arrangement of Feil is readily adaptable to the hinged clamshell device of Ramorino, as one of a limited number of commonly available methods to assemble/disassemble a housing. Ex. 1003, ¶82. Rigollet would be understood to disclose a hinged clamshell pipe clamp and its applicability to firestopping a pipe, cables, etc. would have been readily apparent to a POSITA. *Id.*

In addition, a POSITA would understand that having a hinge mechanism that allows for complete detachability of a hinged device would be an obvious design choice among an extremely finite number of design choices. *Id.*, ¶83. Feil and

Rigollet disclose that such arrangements were known, which is confirmed by the background pipe collar references discussed *supra* (at 38-42). *Id.* And a POSITA would identify one of only two possible design choices, either: a) a design in which the hinged device does not allow for complete detachability or b) a design in which the hinge in the device allows for complete detachability. *Id.*

A POSITA would reasonably expect to be successful in making the combination of Ramorino, Feil and Rigollet. *Id.*, ¶84. The technology claimed in the '868 patent is mechanical in nature and predictable. *Id.* The references disclose well known components that are combinable with ordinary skill. *Id.* There is nothing unpredictable that would result from the combination. *Id.* Moreover, the three references all relate to closures around conduits or pipes. *Id.* Ramorino and Feil both relate to known hinged firestop sleeves, which include intumescent material. *Id.* A POSITA would be well familiar with these types of devices and would readily recognize as combinable with—at the very least—a reasonable expectation of success. *Id.*

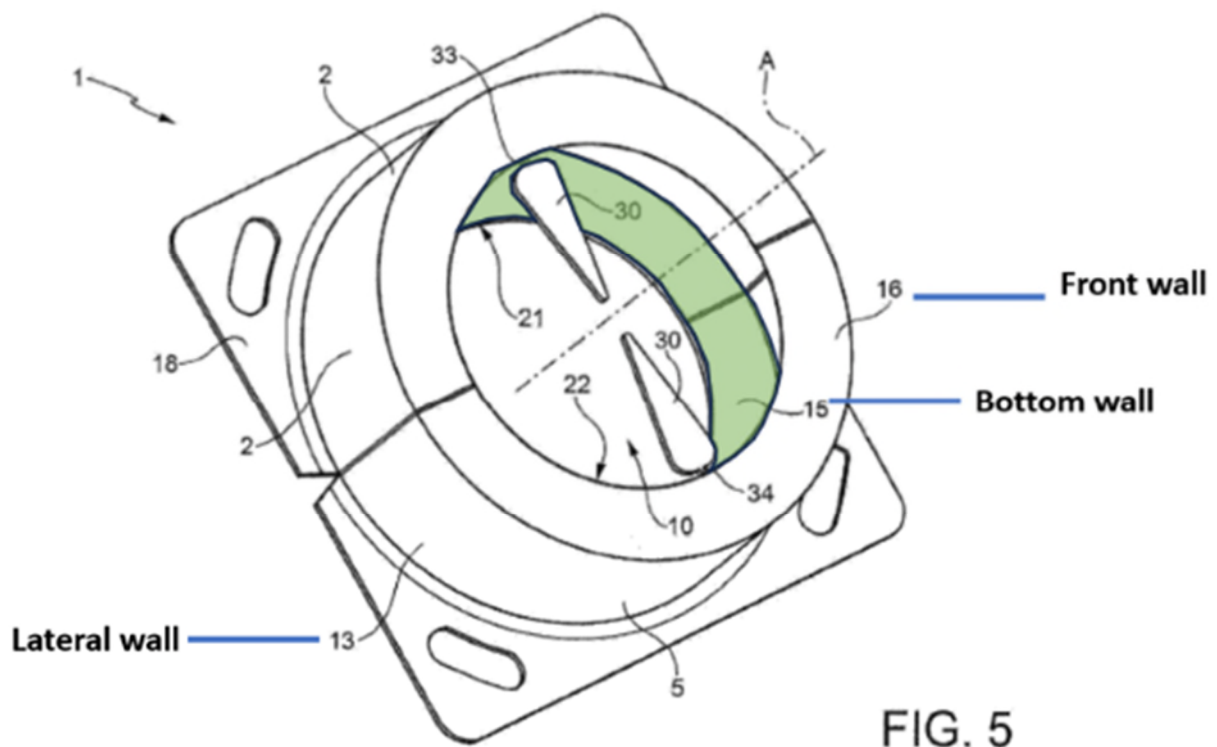
2. Analysis

a) [1pre]

To the extent that the preamble is found to be limiting, Ramorino discloses a firestopping apparatus described as an “intumescent material fire stop device.” Ex. 1004, Cover Page; Ex. 1003, ¶85.

b) [1a]

Ramorino discloses a housing (body 2) having a wall surface (lateral wall 13) extending between opposed front and rear panels (front wall 16 and bottom wall 15), as shown below in FIG. 5. *See* Ex. 1004 at 13:9-20; Ex. 1003, ¶86. Bottom wall 15 is colored green for clarity.



Ex. 1005, Fig. 5 (annotated).

Ramorino also discloses an “inner chamber” in the form of annular seat 14. Ex. 1003, ¶87. Ramorino explains: “[T]he lateral wall 13 is provided with an annular seat 14 housing the intumescent material element 3, that is to say expandable when subjected to fire heat; the seat 14 is defined, besides the lateral wall 13, by a

bottom wall 15 and a front wall 16, opposite and facing each other and substantially, perpendicular to the lateral wall 13 and projecting from respective axially opposite edges of the lateral wall 13 towards the hollow 10 and the axis A.” Ex. 1004 at 13:13-20; Ex. 1003, ¶87. Thus, Ramorino’s housing includes a wall surface with an inner chamber defined therein. Ex. 1003, ¶87.

In the District Court Litigation, the parties dispute the construction of the term “panels” as well as “front and rear panels.” As to the latter, Patent Owner clearly disclaimed a device that has front and rear panels located on opposite sides of a wall when it argued: “Applicant respectfully submits that Reinhardt does not teach front and rear panels on a housing as claimed. To the contrary, as illustrated in Fig. 2 thereof, Reinhardt teaches the panels 10 and 42 on opposite sides of the wall.” Ex. 1002 at 40; Ex. 1003, ¶47. Because Ramorino includes front and rear panels installed on the same side of the wall, the Board need not resolve this dispute.

As to the construction of “panels,” Patent Owner asserts that no construction is necessary and that “[t]o the extent the term is construed, it should be construed as its plain meaning.” Ex. 1007 at 26. Petitioner agrees that the term “panels” should be construed according to its plain meaning. A POSITA would understand that this plain meaning includes panels that are physically distinct from and/or integrally connected to the housing. Ex. 1003, ¶88. A panel may be a flat surface that forms part of the firestop device in this context, but curved portions could also be

considered to be panels. *Id.* Ramorino’s front wall 16 and bottom wall 15 clearly qualify as “panels” according to the plain meaning of the term. *Id.*

Patent Owner also offers an “alternative” construction according to which “panel” means a “layer that is a physically distinct from other components of the housing.” Ex. 1007 at 26. It is unclear how this construction is an “alternative” as it is inconsistent with the breadth of the plain meaning of the term “panels.” Ex. 1003, ¶89. However, to the extent Patent Owner advocates for such a construction in this proceeding, Patent Owner’s “alternative” construction is legally incorrect. *Id.*

This construction attempts to narrow the plain and ordinary meaning of the term “panels” to require that: 1) a panel is a “layer” and 2) that the “layer” must be physically distinct from other components. There is no basis in the intrinsic record to limit the term in the manner proposed by Patent Owner as an “alternative construction.” Ex. 1003, ¶89. Indeed, the term “layer” appears nowhere in the specification or even the file history. *Id.*

The portion of Patent Owner’s “alternative” construction requiring that a panel be “physically distinct from other components of the housing,” is equally incorrect. *Id.*, ¶90. There is no basis in the specification for limiting a panel to a “physically distinct” component as compared to the other components of the housing. *Id.* To the contrary, the specification is clear that a “panel” includes both

structures that are integral to the housing as well as structures that may be physically distinct from other components of the housing. *Id.*, ¶90.

For example, the specification refers to the “side panel” as a “panel”:

In the illustrated embodiment, the first housing member **110** includes an end surface **111** and side panels **112, 113** extending between a front panel **114** and a rear panel **116**. Similarly, the second housing member **120** includes an end surface **121** and side panels **122, 123** extending between a front panel **124** and a rear panel **126**. Each of the front panels **114, 124** includes a semi-circular opening **115, 125** such that when the housing members **110, 120** are in an assembled condition as illustrated in FIGS. 3-9, a front opening **118** is defined in the housing **102**. Similarly, each of the rear panels **116, 126** includes a semi-circular opening **117, 127** such that when the housing members **110, 120** are in an assembled condition, a rear opening **119** is defined in the housing **102**. The front and rear openings **118, 119** are preferably coaxial and allow cables, conduits and the like to pass through the housing **102**.

Ex. 1001 at 3:34-49.

Contrary to Patent Owner’s proposed construction, the “side panel” is integral to the housing as shown in the embodiment of Fig. 3 below. Ex. 1003, ¶91.

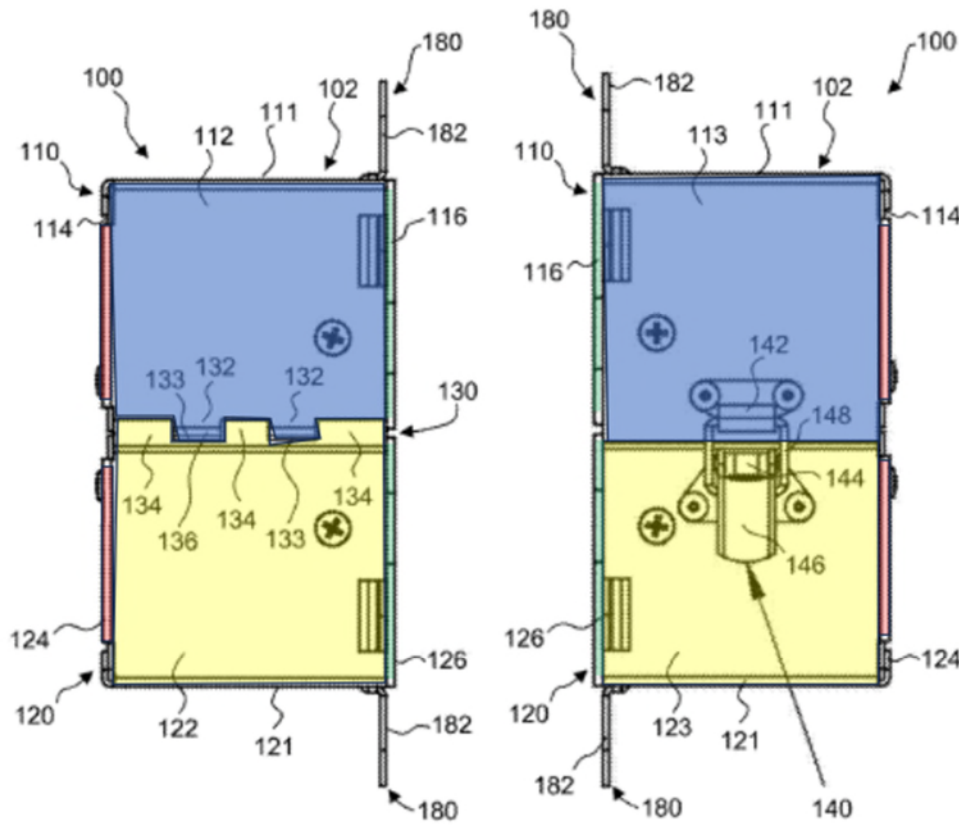


Fig. 6

Fig. 7

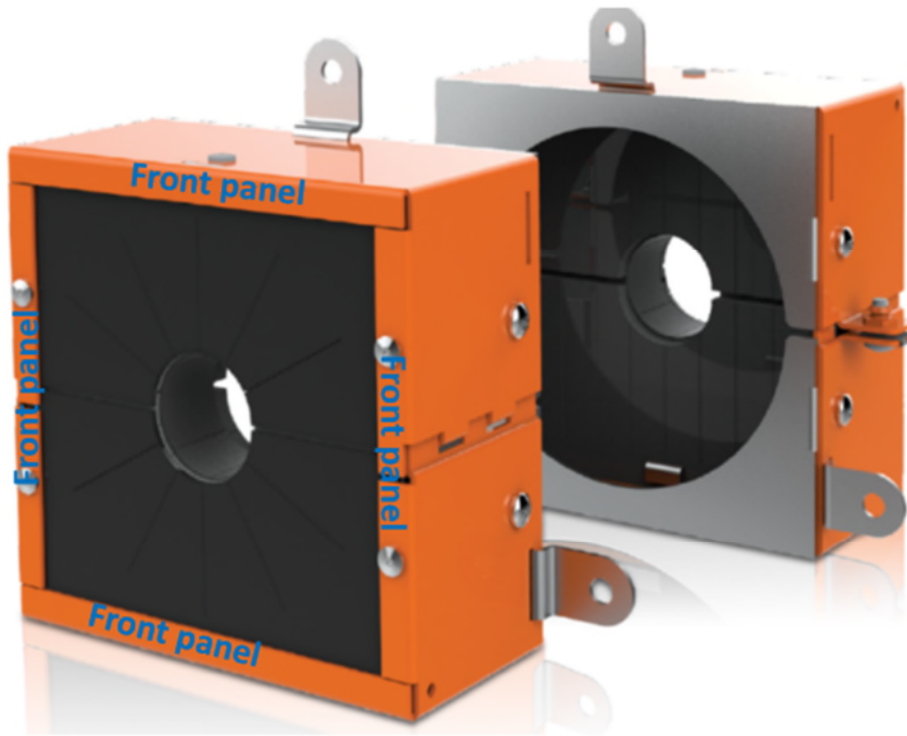
Ex. 1001, Figs. 6 and 7.

For example, as shown in Fig. 3, side panel 112 is a part of the housing; it is not a layer and is not a physically distinct component as compared to the rest of the housing.⁶ Ex. 1003, ¶92. There is no basis to narrow the claim as Patent Owner

⁶ While Patent Owner may argue that “front and rear panels” are different than “side panels,” that is an artificial attempt to narrow its claims to avoid the prior art.

attempts to do—presumably in an effort to avoid the Ramorino reference.

Indeed, Patent Owner's own positions concerning instrumentalities that embody claims 1 and 9 of the '868 patent confirm that the front and rear panels need not be physically distinct components as compared to the rest of the housing. Ex. 1003, ¶93. In the District Court Litigation, Patent Owner argues that its devices referred to as model numbers EZDR200 and EZDR400 embody claims 1-6 and 9 of the '868 patent. Ex. 1008 at 11; Ex. 1003, ¶94. This is consistent with Patent Owner's own patent marking on the data sheet for those products. Ex. 1009 at 2; Ex. 1003, ¶94. That datasheet, which is marked with the '868 patent, includes the below image, which is annotated to indicate the structures comprising the front panel. Ex. 1003, ¶94.



Ex. 1009 at 1 (annotated).

As shown, the front panel is comprised of bent metal portions that are integral to the housing, which confirms that Patent Owner’s narrow construction is incorrect according to Patent Owner’s own patent marking. Ex. 1003, ¶94.

c) [1b]

Ramorino discloses a front panel “defining a front opening therethrough and the rear panel defining a rear opening therethrough” as claimed in claim 1. Ex. 1003, ¶95. Specifically front wall 16 defines a front opening 24 therethrough and a bottom wall 15 defines a rear opening 23 therethrough. Ex. 1004 at 14:12-19. Ramorino

explains that “the radially inner peripheral edge 22 of the front opening 24 [is] positioned on the wall 16” and that “the radially inner peripheral edge 21 of the rear opening 23 [is] positioned on the bottom wall 15.” Ex. 1004 at 14:12-19; Ex. 1003, ¶95.

d) [1c]

Ramorino discloses first and second housing members in the form of C-shaped annular half elements: “the support body 2 is a substantially annular body, in particular made of metal, formed by two opposed substantially C-shaped half-annular elements 5.” Ex. 1004 at 12:26-29; Ex. 1003, ¶96. Ramorino discloses hinging the two C-shaped elements to each other on one side “by way of a hinge, or a specific mechanical folding system 6.” Ex. 1004 at 12:28-30; Ex. 1003, ¶96. On the other side, the two C-shaped elements are “provided with hooking members 7 diametrically opposite to the hinge 6, to close the body 2 about the axis A.” Ex. 1004 at 13:2-4; Ex. 1003, ¶96.

Although Ramorino does not expressly disclose that the hinge or mechanical folding system allows for complete detachability of the two C-shaped elements, a POSITA would understand this to be an obvious design choice as discussed *supra* (at 42-46). Ex. 1003, ¶97. Feil expressly discloses the benefits of such an arrangement:

If to be used in firestopping an opening that already contains tubing

inserted therethrough, it may be necessary to open and/or at least partially disassemble sleeve 20 in order to position the tubing within sleeve 20. Thus, a sleeve may be provided with a hinged connection so that it can be momentarily opened for insertion of tubing thereinto and then reclosed clamshell-type to reform sleeve 20. Similarly, sleeve pieces may be disassembled from each other for insertion of tubing, and then reassembled to each other to reform sleeve.

Ex. 1005 at 13:63-14:12; Ex. 1003, ¶97.

In view of this, and Feil's disclosure of "interlocking teeth," a POSITA would look to Rigollet for its detachable hinged arrangement that would allow Ramorino's C-shaped members to pivot relative to one another while being completely detachable from each other (e.g., implementing the hooked hinged arrangement that allows one housing member to be detached from the other). Ex. 1003, ¶98. In this combination, the hinged mechanism of Rigollet allows for one housing member to be detached from the other by detaching the hooked hinged arrangement. *Id.*

e) [1d]

Ramorino discloses that the C-shaped half annular elements are "moveable relative to one another between an assembled condition wherein the first and second housing members are interconnected and the wall surface is substantially continuous about the internal chamber and an open condition wherein at least a portion of the first and second housing members are spaced from one another such that at least a

portion of the wall surface is non-contiguous to define an opening into the internal chamber” as claimed in claim 1. Ex. 1003, ¶99. Specifically, Ramorino discloses that elements 5 are “hinged to each other by way of a hinge, or a specific mechanical folding system 6 allowing the elements 5 to rotate about an axis parallel to the axis A.” Ex. 1004 at 12:28-13:4; Ex. 1003, ¶99.

The “assembled condition” would be when the device is closed (e.g., around the pipe) with “hooking members 7” closing “the body 2 about the axis A.” Ex. 1004 at 13:3-4; Ex. 1003, ¶99. In such a condition, the two housing members of the firestop collar are interconnected and the wall surface is substantially continuous, as shown in FIG. 1 below. Ex. 1003, ¶99.⁷

⁷ A POSITA would understand Ramorino’s figures to disclose the same basic structure of Ramorino’s device with slight variations between embodiments. A POSITA would understand from Ramorino that features of one embodiment may be included in another embodiment as vice versa. Ex. 1003, ¶99, n. 4.

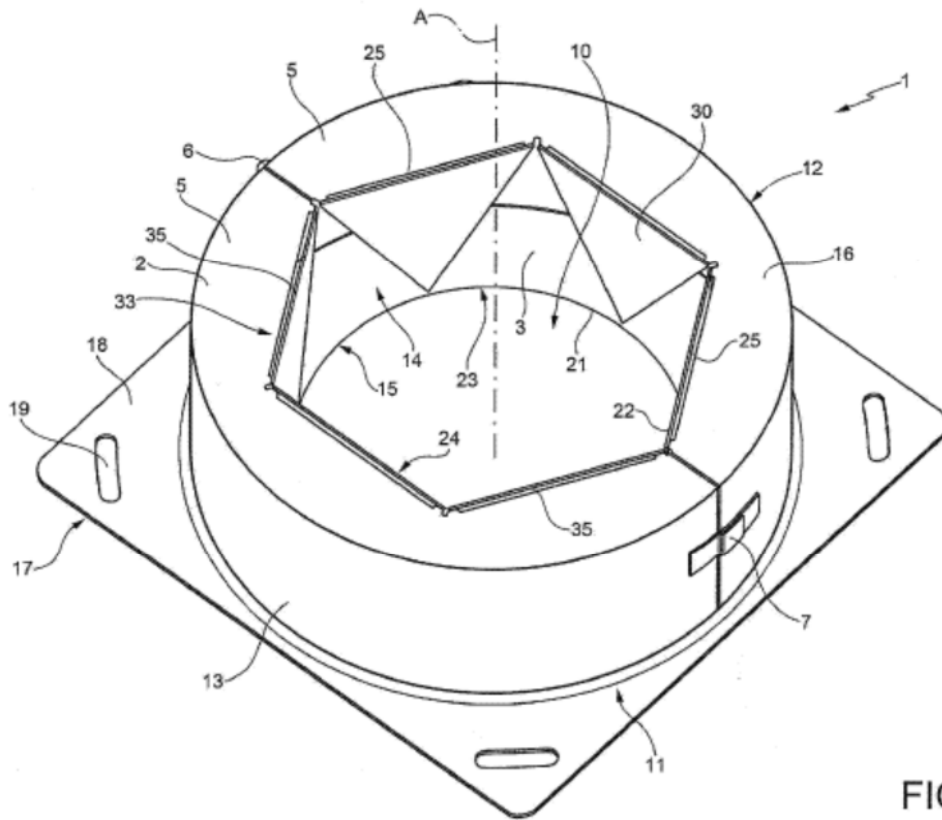


FIG. 1

Ex. 1004, Fig. 1.

The “open condition” is present when the elements 5 [] rotate about an axis parallel to the axis A,” (e.g., as the device is placed around a conduit) which, when not closed, would result in an opening in the side of the internal chamber. Ex. 1004 at 12:28- 13:4; 17:28-30 (“In use, the device 1 is assembled on a pipe, arranged through a wall or floor W, in the initial configuration shown in figures 1 and 2 and in the left part of figure 3”); Ex. 1003, ¶100. In that situation, at least a portion of the wall surface is non-contiguous. Ex. 1003, ¶100.

f) [1e]

Ramorino discloses an “intumescent material positioned in the internal chamber” as claimed in claim 1 of the ’868 patent. FIG. 6 shows the device in cross section mounted on a wall W, with two intumescent sleeves 36, 37 clearly shown: the “expandable element 3 comprises two annular adjacent sleeves 36, 37 extending around the axis A and placed side-by-side along the axis A.” Ex. 1004 at 16:20-23; 16:23-24 (“the sleeves 36, 37 are made of respective different intumescent materials”); Ex. 1003, ¶101.

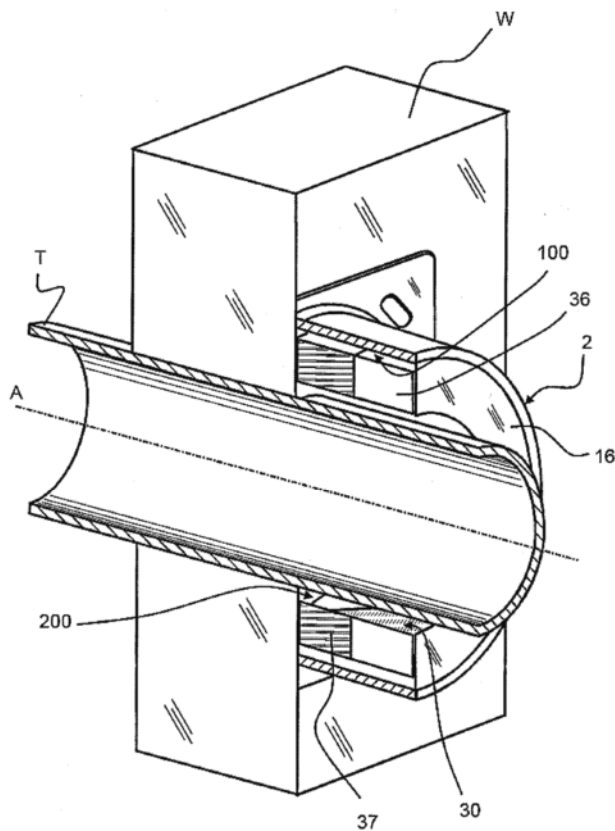
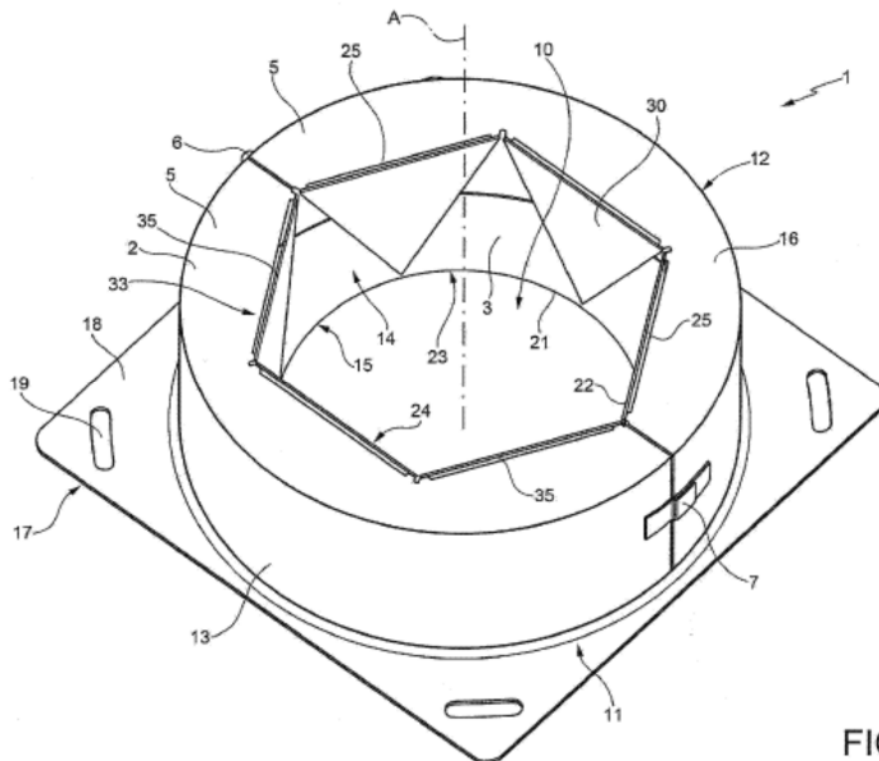


FIG. 6

Ex. 1004, Fig. 6.

g) [2]

Ramorino discloses “one or more mounting tabs extend[ing] outwardly from the housing” as claimed in claim 2 of the ’868 patent. Ex. 1003, ¶102. Specifically, Ramorino describes each half annulus 5 as having a “radially outer flange 18 provided with openings 19 to insert fastening members (not shown) such as screws or plugs.” Ex. 1004 at 13:25-29; Ex. 1003, ¶102. Fig. 1 below shows the flanges and openings.



The flange 18 with openings 19 constitute “mounting tabs.” Ex. 1003, ¶102.

h) [3]

Ramorino discloses that “the first housing member is pivotally connected to the second housing member along a portion of the wall surface” as claimed in claim 3 of the ’868 patent. Ex. 1003, ¶103. Specifically, Ramorino’s hinge 6 is arranged along a portion of the lateral wall surface 13 and pivotally connects the two C-shaped half annular elements 5 with a hinge: “the elements 5 being hinged to each other by way of a hinge ... allowing the elements 5 to rotate about an axis parallel to the axis A.” Ex. 1004 at 12:30-13:2; Ex. 1003, ¶103. In the combination of Ramorino and Feil in further view of Rigollet, the detachable hinge would pivotally connect the second housing member along a portion of the wall surface.

i) [4]

Ramorino discloses that “a hinge is defined along the wall surface between the first and second housing members” as claimed in claim 4 of the ’868 patent. Ex. 1003, ¶104. Specifically, Ramorino’s hinge 6 is arranged along a portion of the lateral wall surface 13 and pivotally connects the two C-shaped half annular elements 5 with a hinge: “the elements 5 being hinged to each other by way of a hinge ... allowing the elements 5 to rotate about an axis parallel to the axis A.” Ex. 1004 at 12:30-13:2; Ex. 1003, ¶104. In the combination of Ramorino and Feil in further view of Rigollet, the detachable hinge would be defined along the wall surface between the first and second housing members. Ex. 1003, ¶104.

j) [5]

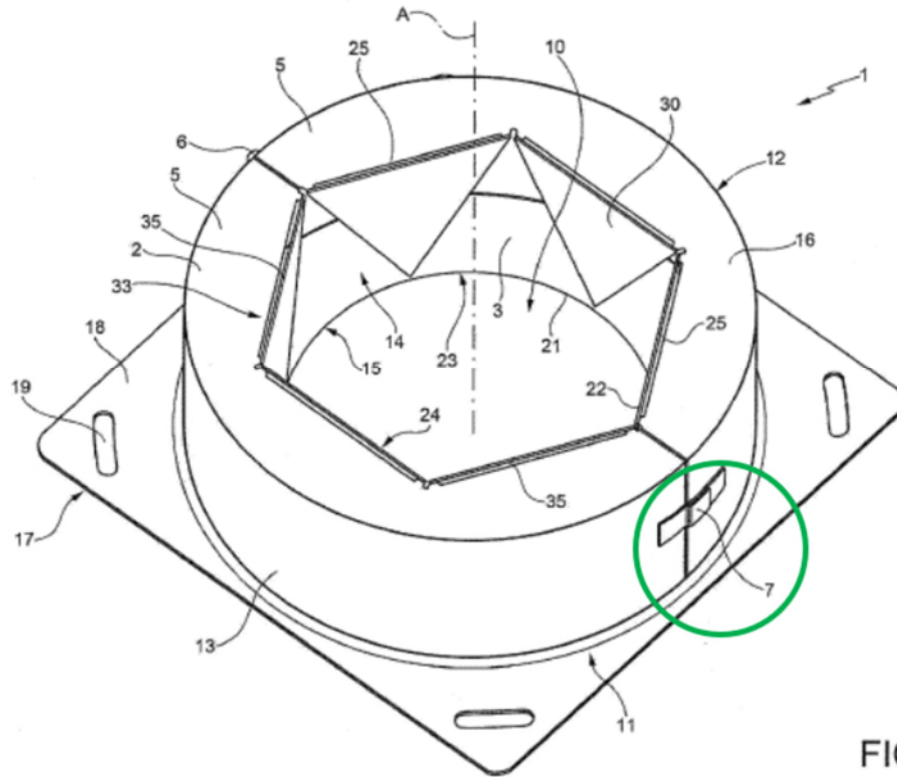
Ramorino in combination with Feil and in further view of Rigollet discloses that “the first and second housing members are completely detachable from one another via the hinge” as claimed in claim 5 of the ’868 patent. Ex. 1003, ¶105. As explained *supra* (at 42-46), Ramorino discloses a “hinge, or [] specific mechanical folding system” that connects the two C-shaped housing members. In the combined system, Ramorino’s two C-shaped half members are completely detachable from one another through the hinged mechanism disclosed by Feil and Rigollet.

k) [6]

Ramorino discloses that “a latching assembly is positioned along the wall surface to lock the housing in the assembled condition” as claimed in claim 6 of the ’868 patent.⁸ Ex. 1003, ¶106. Specifically, Ramorino’s hooking members 7 operate as a latching assembly operative “to close the body 2 about the axis A” and are

⁸ The ’868 patent explains that the “latching assembly” of the alleged invention “is not limited to [] a hinge and latch configuration, but may have any configuration which allows at least one side of the housing **102** to be opened such that a sleeve, cables or conduit can be received into the chamber **150** of the housing **102**.” Ex. 1001 at 4:11-16. As such, Ramorino’s hooking members plainly qualify as a “latching mechanism” within the scope of the ’868 patent. Ex. 1003, ¶106, n. 5.

positioned along the surface of lateral wall 13 as shown in the figure below. Ex. 1004 at 13:2-4; Ex. 1003, ¶106.



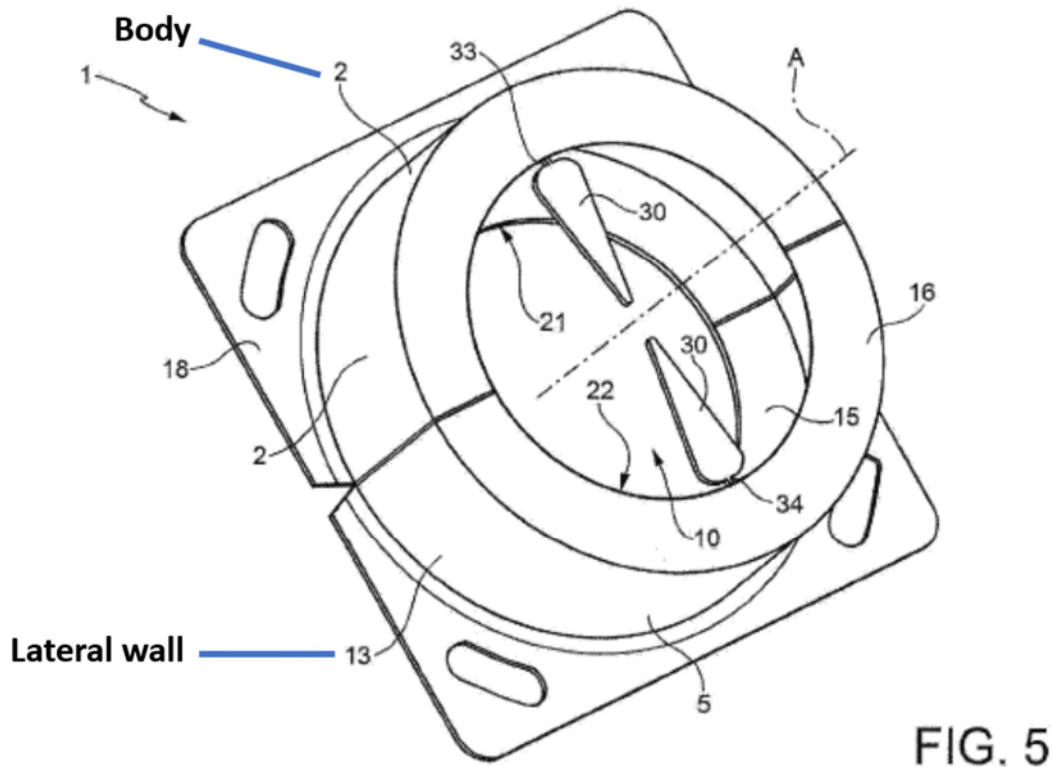
l) [9pre]

The preamble to claim 9 is identical to the preamble for claim 1. Ramarino discloses the preamble for the same reasons discussed with respect to claim 1, *supra* (at 4). Ex. 1003, ¶108

m) [9a]

Ramorino discloses a housing (body 2) having a wall surface (lateral wall 13)

as shown below in FIG. 5.⁹ See Ex. 1004 at 13:9-20; Ex. 1003, ¶108.



Ex. 1004, Fig. 5 (annotated).

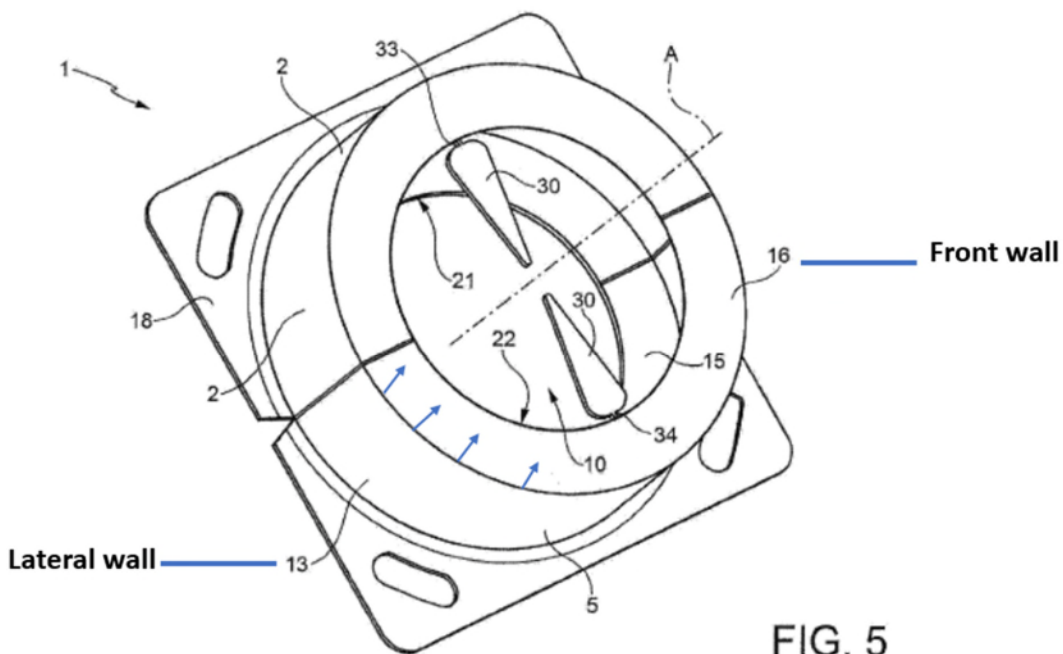
Ramorino discloses an “inner chamber” in the form of annular seat 14. Ex. 1003, ¶109. Ramorino explains: “[T]he lateral wall 13 is provided with an annular seat 14 housing the intumescent material element 3, that is to say expandable when subjected to fire heat; the seat 14 is defined, besides the lateral wall 13, by a bottom

⁹ A POSITA would understand that “a wall surface” could also include front wall 16 and bottom wall 15 as well. Ex. 1003, ¶108, n. 6.

wall 15 and a front wall 16, opposite and facing each other and substantially, perpendicular to the lateral wall 13 and projecting from respective axially opposite edges of the lateral wall 13 towards the hollow 10 and the axis A.” Ex. 1004 at 13:13-20; Ex. 1003, ¶109. Thus, Ramorino’s housing includes a wall surface with an inner chamber defined therein. Ex. 1003, ¶109.

n) [9b]

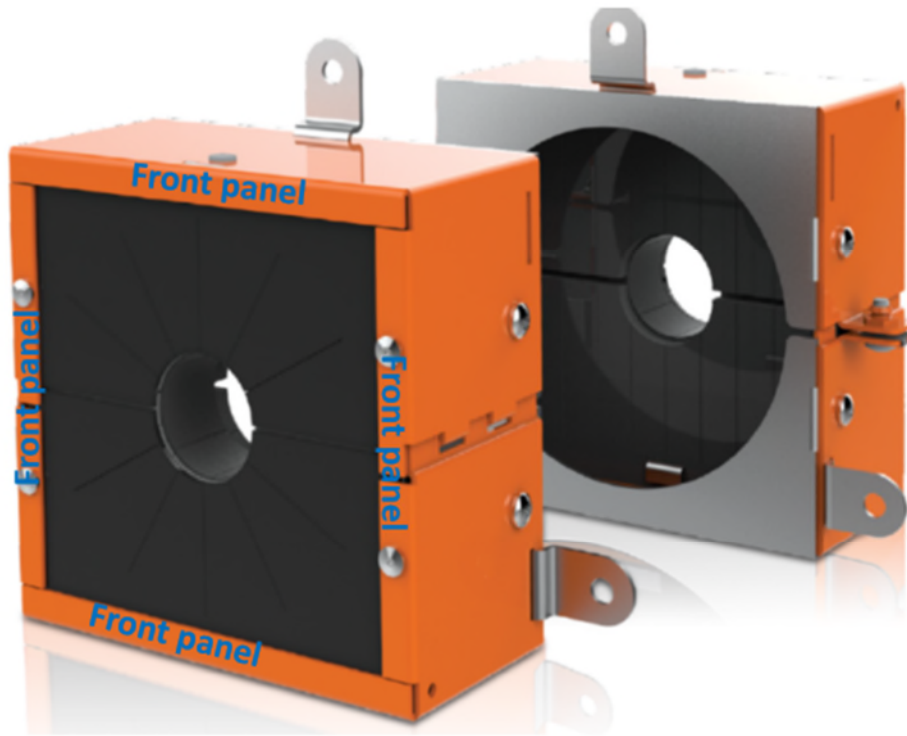
Ramorino discloses “a front panel extending from the wall surface and defining a front opening therethrough” as claimed in claim 9 of the ’868 patent. Ex. 1003, ¶110. Specifically, Ramorino discloses front wall 16, which extends from lateral wall 13. *Id.* Front wall 16 “extends” from lateral wall 13 as indicated by the arrow in the figure below. *Id.*



Ex. 1004, Fig. 5.

Front wall 16 defines a front opening 24 therethrough. Ex. 1003, ¶111. Ramorino explains that “the radially inner peripheral edge 22 of the front opening 24 [is] positioned on the wall 16” and that “the radially inner peripheral edge 21 of the rear opening 23 [is] positioned on the bottom wall 15.” Ex. 1004 at 14:12-19; Ex. 1003, ¶111.

The discussion concerning the construction of “panels” in connection with element 1a, *supra* (at 46-53) applies equally here given this element’s recitation of a “front panel.” Ex. 1003, ¶112. Unlike claim 1, claim 9 does not recite a “rear panel.” Claim 9 also recites a “sealing member,” (discussed in detail *infra*). *Id.* In Patent Owner’s EZDR200 and EZDR400 commercial embodiments, the sealing member is the black elastomeric piece that extends across the opening defined by the front panels as shown in the image below. *Id.*



Ex. 1009 at 1 (annotated).

The sealing member cannot constitute the claimed “front panel” because the only component of the above device that could be a “sealing member” extending “across at least a portion of the front opening” defined by the front panel, as claimed in claim 9, is the black elastomeric component. Ex. 1003, ¶113. That component cannot simultaneously be a panel defining an opening and a sealing member extending across a portion of the opening. Indeed, the opening in the black elastomeric piece cannot be the claimed opening defined by the front panel because nothing extends across a portion of that opening. *Id.* Instead, the opening is entirely

unobstructed. *Id.*

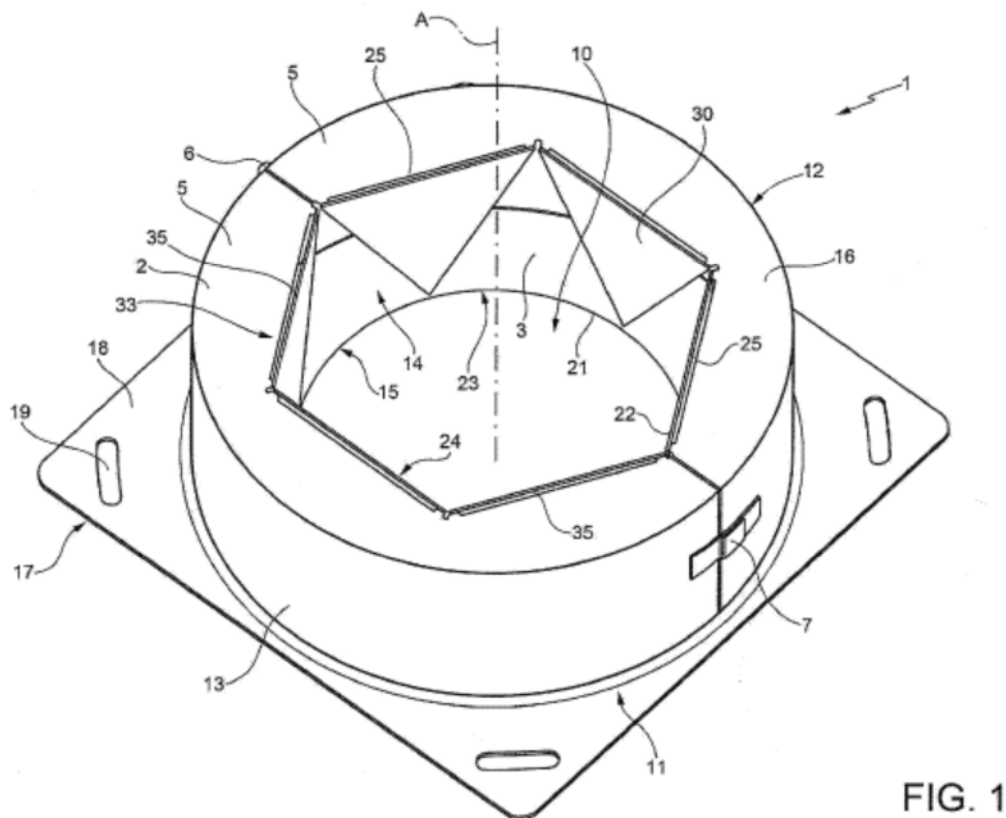
o) [9c]

Ramorino discloses that “the housing includ[es] first and second housing members which are moveable relative to one another” as claimed in claim 9 of the ’868 patent. Ex. 1003, ¶114. Specifically, Ramorino discloses first and second housing members in the form of C-shaped half elements: “the support body 2 is a substantially annular body, in particular made of metal, formed by two opposed substantially C-shaped half-annular elements 5.” Ex. 1004 at 12:26-29; Ex. 1003, ¶114. Ramorino discloses hinging the two C-shaped elements to each other on one side “by way of a hinge, or a specific mechanical folding system 6.” Ex. 1004 at 12:28-30; Ex. 1003, ¶114. On the other side, the two C-shaped elements are “provided with hooking members 7 diametrically opposite to the hinge 6, to close the body 2 about the axis A.” Ex. 1004 at 13:2-4; Ex. 1003, ¶114.

Ramorino discloses that the C-shaped half annular elements are “moveable relative to one another between an assembled condition wherein the first and second housing members are interconnected and the wall surface is substantially continuous about the internal chamber and an open condition wherein at least a portion of the first and second housing members are spaced from one another such that at least a portion of the wall surface is non-contiguous to define an opening into the internal chamber” as claimed in claim 1. Ex. 1003, ¶115. Specifically, Ramorino discloses

that elements 5 are “hinged to each other by way of a hinge, or a specific mechanical folding system 6 allowing the elements 5 to rotate about an axis parallel to the axis A.” Ex. 1004 at 12:28-13:4; Ex. 1003, ¶115.

The “assembled condition” would be when the device is closed (e.g., around the pipe) with “hooking members 7” closing “the body 2 about the axis A.” Ex. 1004 at 13:3-4; Ex. 1003, ¶116. In such a condition, the two housing members of the firestop collar are interconnected and the wall surface is substantially continuous as shown in FIG. 1 below. Ex. 1003, ¶116.



Ex. 1004, Fig. 1.

The “open condition” is present when “the elements 5 [] rotate about an axis parallel to the axis A,” (e.g., as the device is placed around a conduit) which, when not closed, would result in an opening in the side of the internal chamber. Ex. 1004 at 12:28-13:4; 17:28-30 (“In use, the device 1 is assembled on a pipe, arranged through a wall or floor W, in the initial configuration shown in figures 1 and 2 and in the left part of figure 3”); Ex. 1003, ¶117. In that situation, at least a portion of the wall surface is non-contiguous. Ex. 1003, ¶117.

p) [9d]

Ramorino discloses an “intumescent material positioned within the internal chamber” as claimed in claim 1 of the '868 patent. Ex. 1003, ¶118. FIG. 6 shows the device in cross section mounted on a wall W, with two intumescent sleeves 36, 37 clearly shown: the “expandable element 3 comprises two annular adjacent sleeves 36, 37 extending around the axis A and placed side-by-side along the axis A.” Ex. 1004 at 16:20-23; 16:23-24 (“the sleeves 36, 37 are made of respective different intumescent materials”).

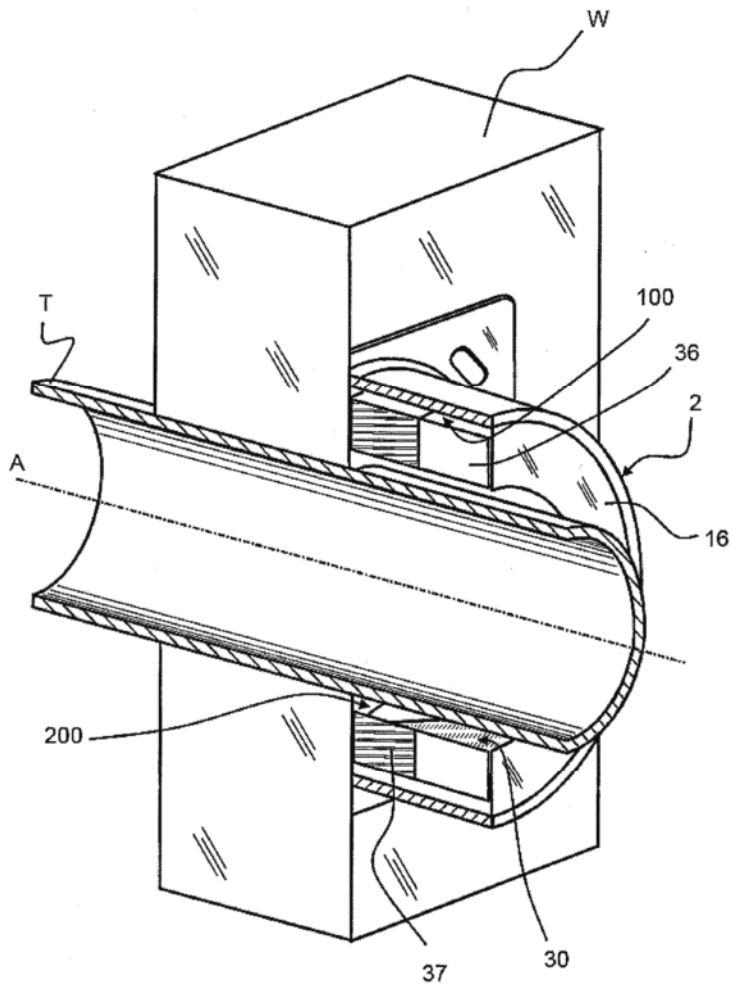


FIG. 6

Ex. 1004, Fig. 6.

q) [9e]

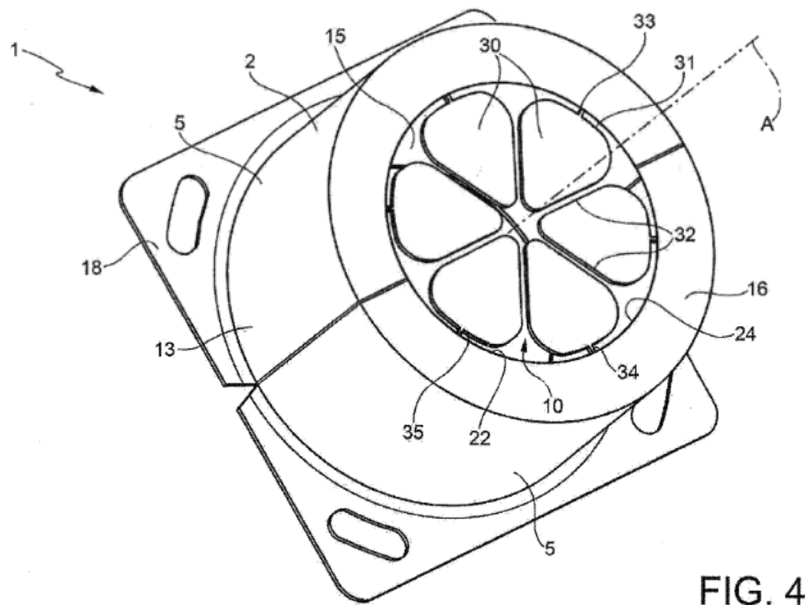
Ramorino discloses fins that serve as sealing members that extend across at least a portion of the front wall opening. Ex. 1003, ¶119. Ramorino includes “a plurality of foldable locking lamellar elements 30 ... projecting from the front wall

16 into the hollow 10,” also “referred to as fins.” Ex. 1004 at 14:20-29; Ex. 1003, ¶119. In addition to extending across at least a portion of the front opening, the fins (and hinges that attach the fins to Ramorino’s housing) function as front opening sealing members in case of a fire:

In case of fire, the intumescent materials, and accordingly the whole expandable element 3, expand under the effect of the heat in the hollow 10, filling the whole hollow 10 and pushing the fins 30 towards the front opening the fins 30 fold passing from an initial position, where the fins 30 leave open the front opening 24, *to a closing position*, shown in the right portion of figure 3, and *where the fins 30 close, at least partially, the front opening 24.... the fins 30 are shaped so that once brought to the closing position, they substantially obstruct the whole front opening 24.*¹⁰

Ex. 1004 at 18:5-23. This structure is shown in the figure below. Ex. 1003, ¶120.

¹⁰ The fins are connected to the housing by way of a hinge, which extends across at least a portion of the front opening, even when the fins are not yet pushed forward in the event of fire. Ex. 1003, ¶119, n. 7.



Ex. 1004, Fig. 4.

B. [GROUND 1B – Alternative Ground] Claims 1-6 and 9 are Obvious in view of Ramorino and Feil further in view of Rigollet and 3M Publication

1. Claim 1

Petitioner presents Ground 1B as an alternative to Ground 1A to address any argument by Patent Owner that the Board should adopt Patent Owner’s (incorrect) “alternative” claim construction of “panel(s).” Ex. 1003, ¶121. Under that construction, a panel is a “layer that is a physically distinct from other components of the housing.” Ex. 1007 at 26. As explained above, a POSITA would not agree that the ’868 patent is limited in this way. Ex. 1003, ¶121. However, even if it were, the prior art would still render claims 1-6 and 9 obvious. *Id.* Ground 1B is the same as Ground 1A except that either of the 3M Publication or Feil are applied to

demonstrate that the prior art disclosed panels in a hinged firestopping device that form a layer of the device that is a physically distinct component.¹¹ *Id.*

a) [1pre]

See Ground 1A, *supra* at 46. Ex. 1003, ¶122.

b) [1a]

As explained *supra* (at 49-53) in connection with Ground 1A, Patent Owner may argue that “panel” as claimed in claim 1 of the ’868 patent should be construed to be a “layer that is physically distinct from other components of the housing.” Even if the Board were to adopt that construction—and Petitioner respectfully submits that it should *not*—element 1a is still rendered obvious by the prior art. Ex. 1003, ¶123. Specifically, it would have been obvious to modify Ramorino such that front wall 16 and bottom wall 15 are physically distinct “layers” of Ramorino’s firestopping device. *Id.* That is, front wall 16 and bottom wall 15 would each constitute their own separate piece of metal (or other material) that are joined (e.g.,

¹¹ The disclosures of Feil and the 3M Publication as to front panels that are physically separate pieces as compared to the rest of the housing are consistent with Reinhardt (Ex. 1011, Fig. 1), which the examiner cited during prosecution as teaching front and rear panels. Ex. 1002 at 53-54; Ex. 1003, ¶121, n. 8. Patent Owner did not contest that finding.

by a screw) to the lateral wall 13. *Id.* Otherwise, the combination of Ground 1A is the same. *Id.* Indeed, Ramorino is silent on whether the front and bottom walls are physically separate pieces as compared to the rest of the housing. *Id.*

A POSITA would reasonably expect to be successful in making this combination (*see supra* at 46). *Id.* Constructing housings of multiple physically separate components has been known for years. *Id.* The modification at issue is mechanical and entirely predictable in nature. *Id.*

A POSITA would have two design choices: 1) panels that are physically distinct and 2) panels that are integrated into the housing. Ex. 1003, ¶124. Indeed, as the examiner found during prosecution—a finding Patent Owner did not dispute—“it was old and well-known in the art to utilize [] front and rear apertured panels for [] firestopping applications.” Ex. 1002 at 54; Ex. 1003, ¶124. This is reflected, for example, in the 3M Publication, which shows front and rear panels that are physically distinct components as shown in the figures below. Ex. 1003, ¶124.



Ex. 1006 at 1.

The foam inserts are separate front and rear panels that can be removed as further evidenced by the figure below (which shows the hinged device opened with the front panel removed). Ex. 1003, ¶124.



Ex. 1006 at 2.

Similarly, Feil discloses an “airflow shield 48,” which a POSITA would understand to be “a layer that is physically distinct from the other components of the housing.” Ex. 1003, ¶125. For example, airflow shields 48 are separate components as compared to compressible body 13 and compressible body 213 as well as the rest of the housing. *Id.* Feil explains that airflow shield 48 may or may not be integrally formed with biasing sheet 41. Ex. 1005 at 10:27-28. The “airflow shield 48” is colored red in the annotated figure below.

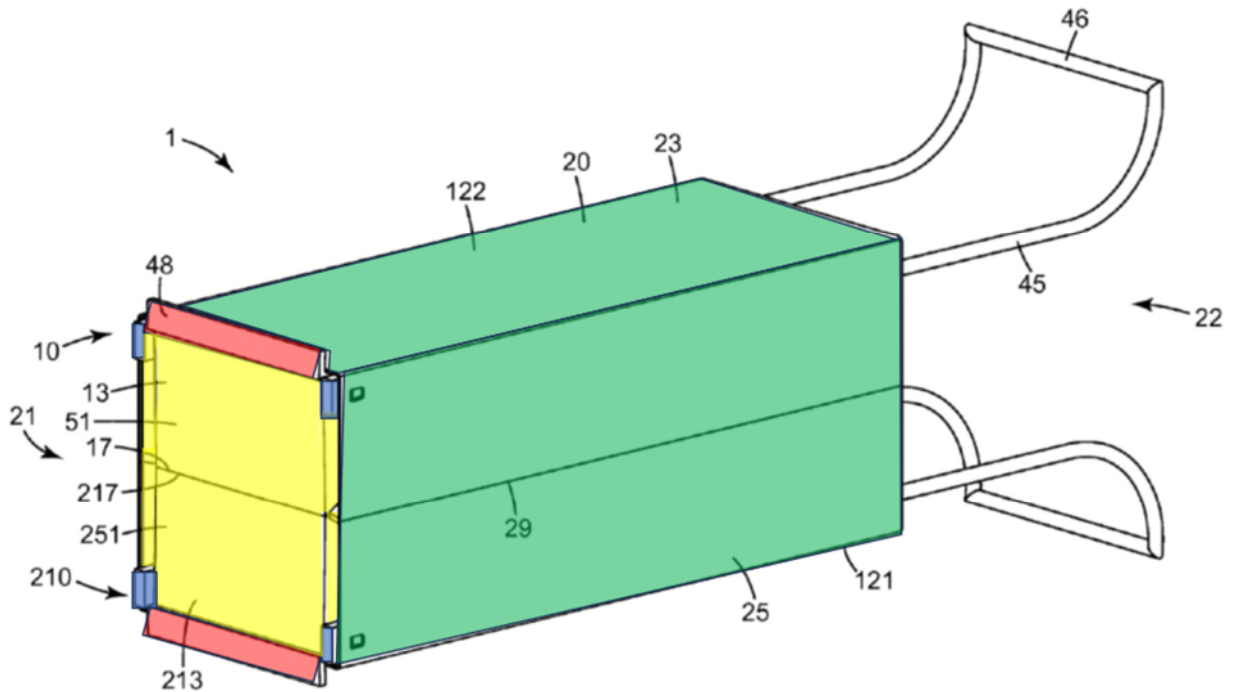


Fig. 3

Ex. 1005, Fig. 3 (annotated).

Additionally, Feil generally discloses that it was known to include physically separate pieces in a firestop device. For example, Feil discloses compressible body 13 and compressible body 213, which are colored yellow in the figure above. *Id.*; *see also* Ex. 1005 at 5:51-6:2. As shown in the figure below, these compressible bodies are physically separate pieces as compared to components of the housing.

In that situation, additional structural integrity would be useful. *Id.*

Ramorino also discloses an “inner chamber” in the form of annular seat 14. This inner chamber would remain unchanged in the combination including 3M Publication. Ex. 1003, ¶127.

c) [1b]

See Ground 1A, *supra* at 53-54. Ex. 1003, ¶128.

d) [1c]

See Ground 1A, *supra* at 54-55. Ex. 1003, ¶129.

e) [1d]

See Ground 1A, *supra* at 56-58. Ex. 1003, ¶130.

f) [1e]

See Ground 1A, *supra* at 58-59. Ex. 1003, ¶131.

g) [2]

See Ground 1A, *supra* at 59-60. Ex. 1003, ¶132.

h) [3]

See Ground 1A, *supra* at 60-61. Ex. 1003, ¶133.

i) [4]

See Ground 1A, *supra* at 61. Ex. 1003, ¶134.

j) [5]

See Ground 1A, *supra* at 61-62. Ex. 1003, ¶135.

k) [6]

See Ground 1A, *supra* at 62-63. Ex. 1003, ¶136.

2. Claim 9

a) [9pre]

See Ground 1A, *supra* at 63. Ex. 1003, ¶137.

b) [9a]

See Ground 1A, *supra* at 63-65. Ex. 1003, ¶138.

c) [9b]

As explained *supra* (at 49-53) in connection with Ground 1A, Patent Owner may argue that “panel” as claimed in claim 1 of the ’868 patent should be construed to be a “layer that is physically distinct from other components of the housing.” Even if the Board were to adopt that construction—and Petitioner respectfully submits that it should *not*—element 9b is still met as discussed above with respect to element 1a. Ex. 1003, ¶139.

d) [9c]

See Ground 1A, *supra* at 68-70. Ex. 1003, ¶140.

e) [9d]

See Ground 1A, *supra* at 71-72. Ex. 1003, ¶141.

f) [9e]

See Ground 1A, *supra* at 72-74. Ex. 1003, ¶142.

C. [GROUND 2] – Claim 9 is Obvious Based on Feil

1. Claim 9

As demonstrated below, Feil teaches each element of claim 9, although it does so with reference to embodiments which differ slightly from one another. Ex. 1003, ¶143. A POSITA would be motivated to modify Fig. 3 of Feil in view of certain other embodiments and disclosures as discussed in detail below. *Id.* For example, Feil discloses a “LIST OF EXEMPLARY EMBODIMENTS” in which the reference discloses numerous devices that represent combinations of the various embodiments described and shown in the figures. Ex. 1005 at 15:40-20:22; Ex. 1003, ¶143. A POSITA understands from this that the various embodiments of Feil may be combined with each other (which would have been apparent even without the list of exemplary embodiments). Ex. 1003, ¶143. Given the foregoing and the mechanical and predictable nature of the device(s) disclosed in Feil, a POSITA would have had a reasonable expectation of success in combining the teachings of Feil as detailed in this ground. *Id.*

a) [9pre]

Feil discloses a firestopping apparatus for providing firestopping at wall/floor openings. Ex. 1005, e.g., at 13:63-14:12.

b) [9a]

Feil discloses a housing 20 having a wall surface (colored green in the figure

below), with an inner chamber defined in the housing. Ex. 1003, ¶145. Objects such as cables are passed through the inner chamber. *Id.*; Ex. 1005 at 4:4-9. Indeed, Feil discloses that “[a]pparatus 1 comprises an elongated, open-ended sleeve 20 that defines *interior space 32* therewithin.” Ex. 1005 at 2:36-37; Ex. 1003, ¶145.

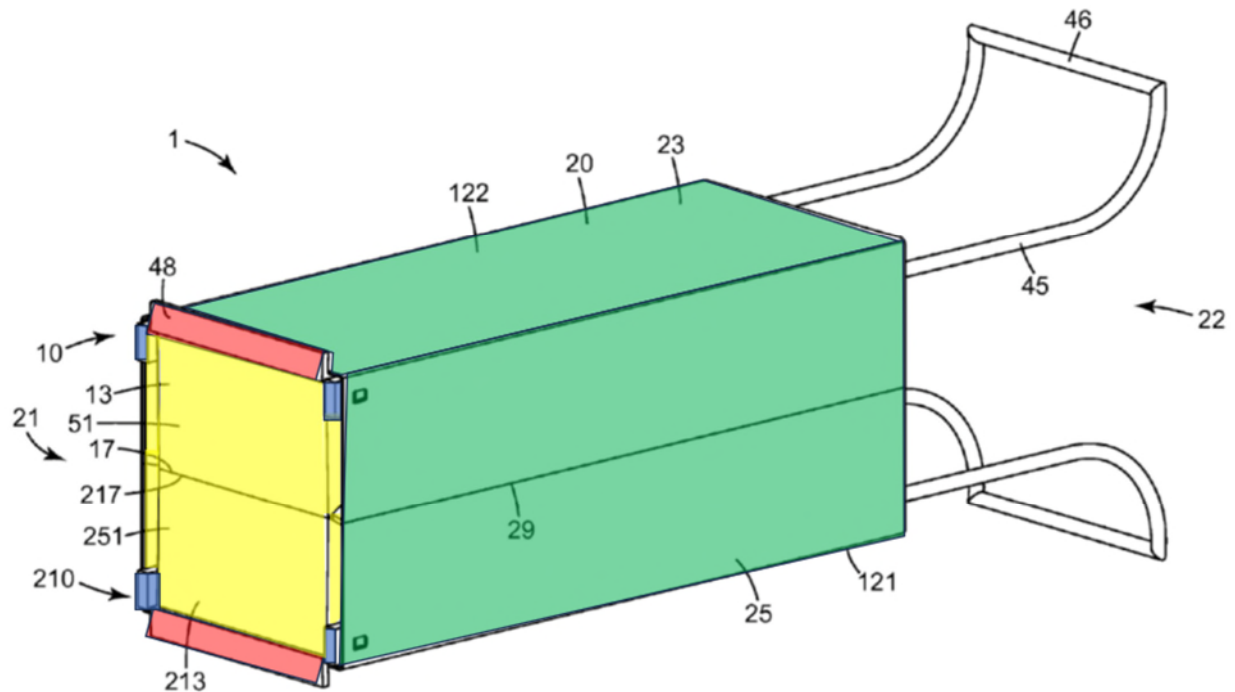


Fig. 3

Ex. 1005, Fig. 3 (annotated).

c) [9b]

Feil discloses “a front panel extending from the wall surface and defining a front opening therethrough” as claimed in claim 9 of the ’868 patent. Ex. 1003, ¶146. Specifically, airflow shields 48 comprise a front panel that defines an opening therethrough. *Id.* Airflow shields 48 “extend” from the green wall surface at least

upward or downward, *i.e.* the airflow shields are perpendicular to the wall surface.

Id. While not required by the term “panel,” airflow shields 48 form a layer that is physically distinct as compared to the rest of the housing. *Id.*

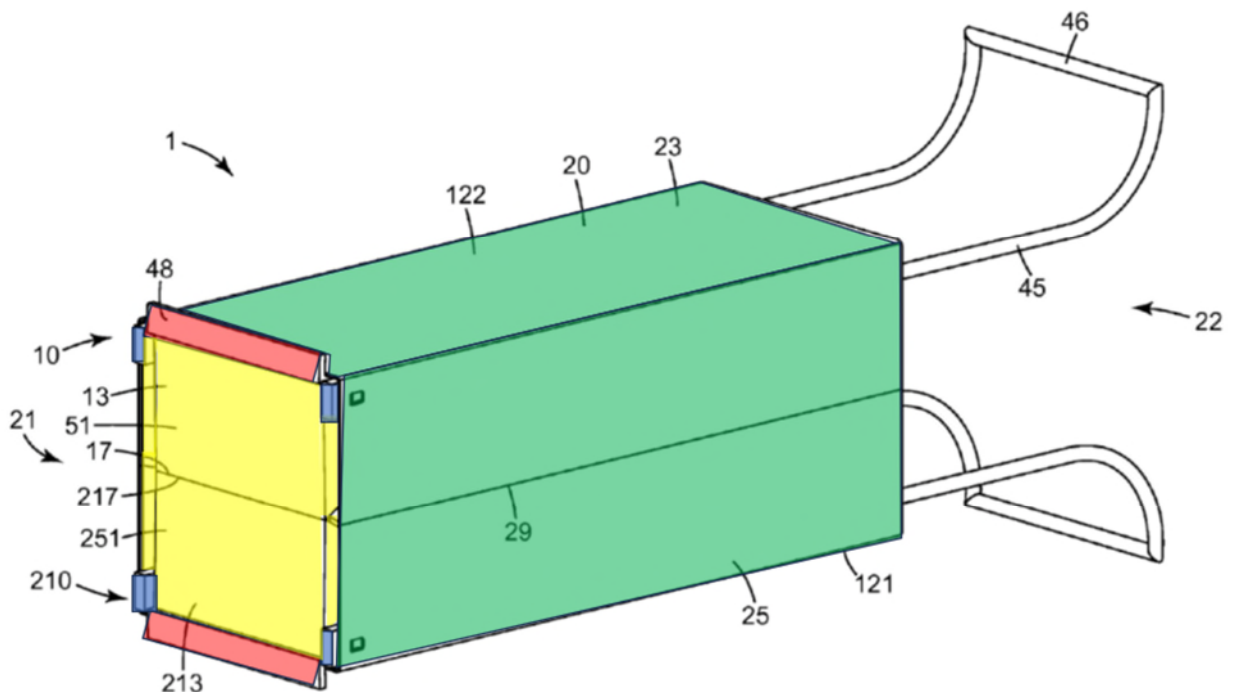
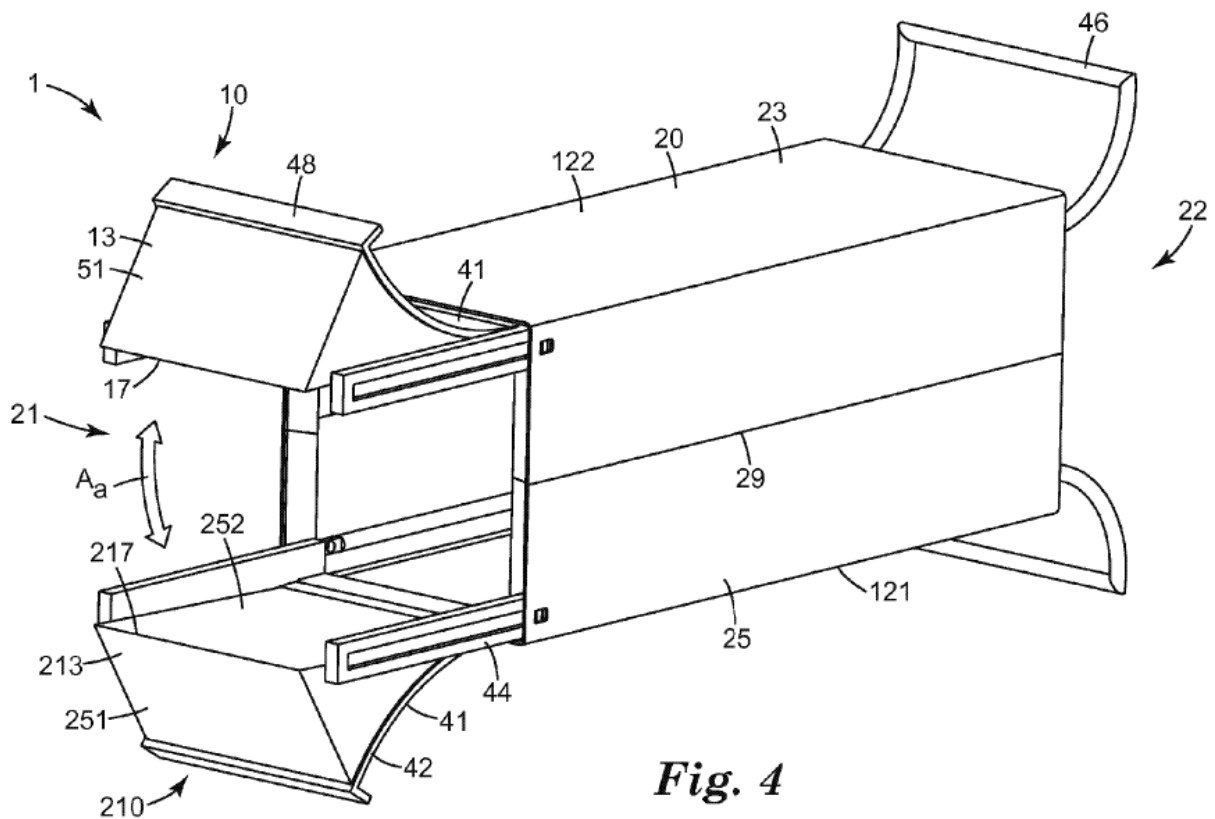


Fig. 3

Ex. 1005, Fig. 3 (annotated).

Airflow shields 48 are separate components as compared to compressible body 13 and compressible body 213 as well as the rest of the housing. Ex. 1003, ¶146. Feil explains that airflow shield 48 may or may not be integrally formed with biasing sheet 41. Ex. 1005 at 10:27-28; Ex. 1003, ¶146. Biasing sheet 41 is shown

in Fig. 4 below. Ex. 1003, ¶146. As such, airflow shields 48 define an opening across which compressible body 13 and compressible body 213 extend. *Id.*



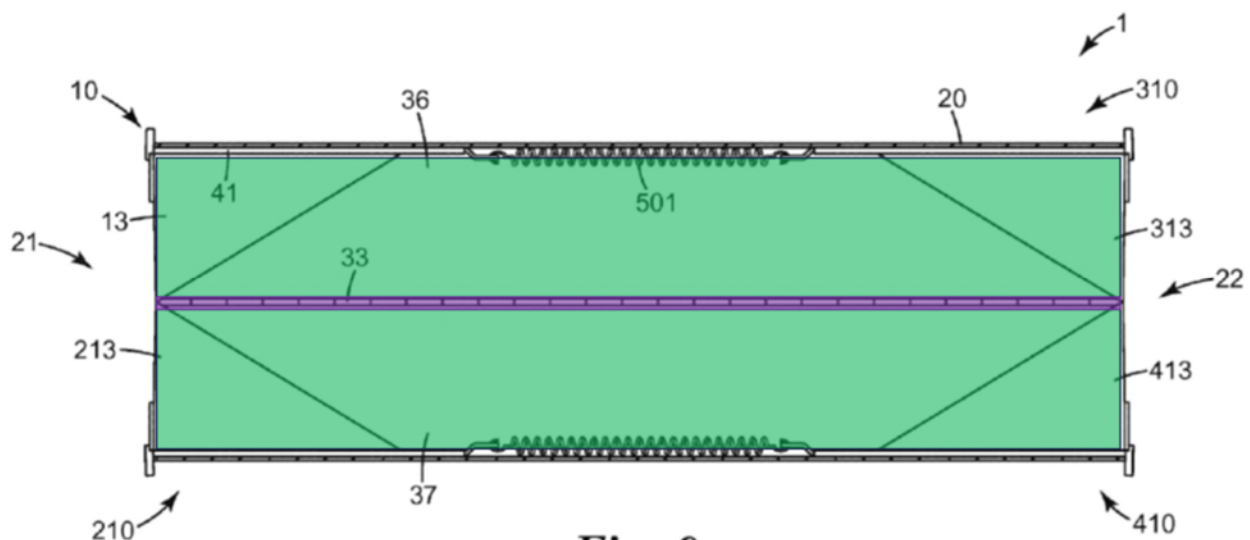
Ex. 1005, Fig. 4.

d) [9c]

Feil discloses that “the housing include[es] first and second housing members which are moveable relative to one another between an assembled condition wherein the first and second housing members are interconnected and the wall surface is

substantially continuous about the internal chamber, and an open condition wherein at least a portion of the first and second housing members are spaced from one another such that at least a portion of the wall surface is non-contiguous to define an opening into the internal chamber” as claimed in claim 9 of the ’868 patent. Ex. 1003, ¶147.

For example, with reference to Fig. 9, Feil discloses that “sleeve 20 comprises first and second elongated parts 36 and 37 that are hingedly connected by hinge 33, and that comprise respective edges that can be at least closely abutted against each other (e.g., can be contacted with each other) when parts 36 and 37 are closed together clamshell-style to form sleeve 20.” Ex. 1005 at 13:13-18; Ex. 1003, ¶148. The housing members (colored green) and hinge (colored purple) are shown in the annotated figure below. Ex. 1003, ¶148.



Ex. 1005, Fig. 9 (annotated).

While Feil discloses its hinge with reference to Fig. 9, a POSITA would have found it obvious to incorporate the hinge of Fig. 9 into the embodiment of Fig. 3 as discussed above with respect to element 9[b]. Ex. 1003, ¶149. Indeed, Feil expressly states that it is advantageous to construct a hinged assembly. Ex. 1005 at 13:63-14:10; Ex. 1003, ¶149.

Feil also discloses a list of exemplary embodiments, including “Embodiment 17,” which discloses a hinged embodiment. Ex. 1005 at 19:22-35; Ex. 1003, ¶150. Thus, Feil expressly discloses that its hinged assembly (e.g., as depicted in Fig. 9) may be combined with any of the other preceding 16 embodiments. Ex. 1003, ¶151.

In Feil, the “open condition” exists when the housing parts 36 and 37 are opened (*e.g.*, to fit around a cable) and the “assembled condition” exists “when parts 36 and 37 are closed together clamshell-style to form sleeve 20.” Ex. 1005 at 13:4-18; Ex. 1003, ¶152. In the “assembled condition,” elongated parts 36 and 37 are interconnected and the wall surface is substantially continuous about the internal chamber. Ex. 1003, ¶152. In the “open condition” elongated parts 36 and 37 are opened away from each other to define an opening into the inner chamber. *Id.* In that situation, at least a portion of the wall surface is non-contiguous. *Id.*

e) [9d]

Feil discloses an “intumescent material positioned within the internal

chamber” as claimed in claim 9 of the ’868 patent. Ex. 1003, ¶153. Specifically, Feil discloses that in some embodiments, “sleeve 20 may comprise at least one piece of firestop material 130 as depicted in exemplary manner in FIG. 1” and that “a piece of firestop material 130 may be provided e.g. as a sheetlike slab or pad that is positioned along a major inside surface 27 of sleeve 20.” Ex. 1005 at 2:43-48; Ex. 1003, ¶153. Feil further discloses that “such a piece of firestop material may comprise an intumescent composition so that if activated (e.g. by heat) the firestop material may expand so as to partially or completely block the passage of flame, hot gases, smoke, etc. through sleeve 20.” Ex. 1005 at 2:48-52; Ex. 1003, ¶153.

In view of this disclosure, a POSITA would have found it obvious to include a sheet of intumescent material within the internal chamber of the embodiment disclosed with respect to Fig. 3. Ex. 1003, ¶154. Indeed, Feil discloses “Embodiment 21”, which is “[t]he apparatus of any of embodiments 1-20 wherein the sleeve further comprises at least one intumescent sheet that is abutted against a major inside surface of a sidewall of the sleeve.” Ex. 1005 at 19:58-61; Ex. 1003, ¶154. This confirms a POSITA’s understanding that an intumescent material may be incorporated into the embodiment of Fig. 3. Ex. 1003, ¶154.

f) [9e]

Feil discloses “a sealing member extend[ing] across at least a portion of the front opening” as claimed in claim 9 of the ’868 patent. Ex. 1003, ¶155.

Specifically, Feil discloses “compressible body 13” and “compressible body 213” of “first airflow-blocking element 10” and “second airflow-blocking element 210.” Ex. 1005 at 4:4-10; Ex. 1003, ¶155. These “compressible body” components are colored yellow in the below figure. Ex. 1003, ¶155.

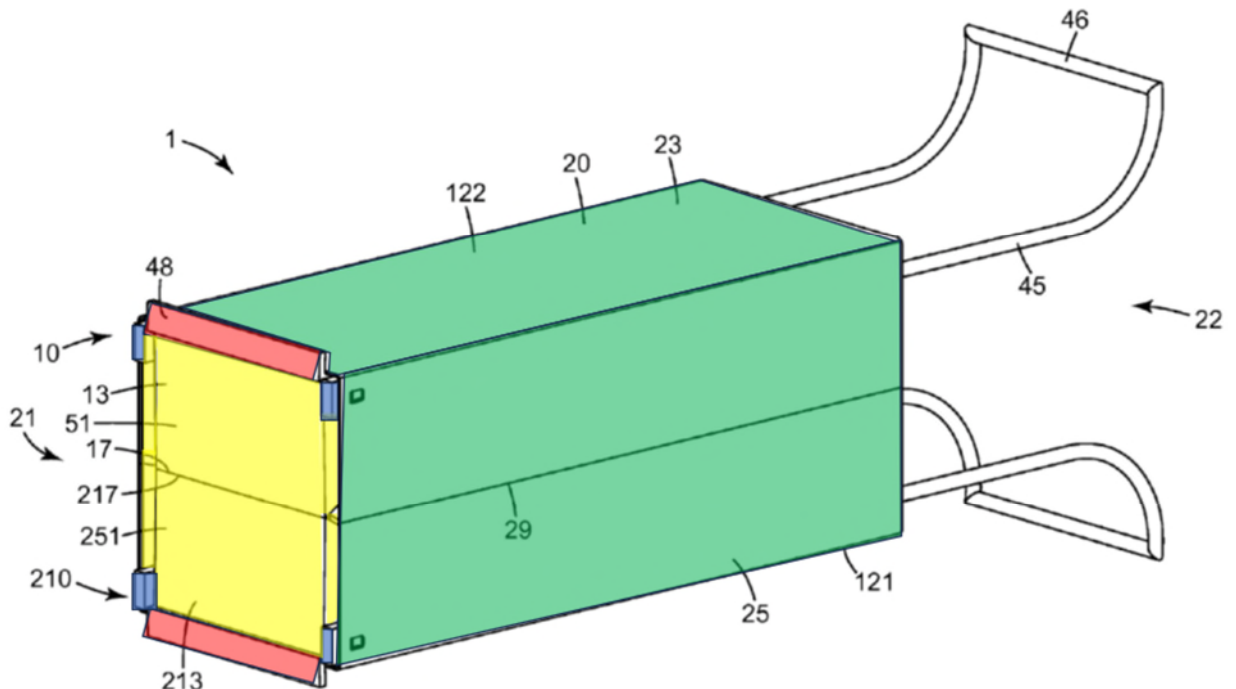


Fig. 3

Ex. 1005, Fig. 3 (annotated).

The “compressible body” components extend across the front opening defined by the airflow shield 48 (which correspond to the claimed panels). Ex. 1003, ¶156. In so extending, the “compressible body” components seal the opening by preventing the passage of air through the channel when the “airflow-blocking

elements” are in their closed position. *Id*; see also Ex. 1005 at 3:8-12; 8:27-32.

D. SECONDARY CONSIDERATIONS OF NON-OBVIOUSNESS

As to secondary considerations of non-obviousness, Patent Owner has asserted that commercial success, long felt need, and copying apply. Ex. 1020 at 30. Patent Owner’s attempt to argue these issues in the District Court Litigation has been entirely conclusory to date and has included no attempt to establish the requisite nexus. *Id*. If Patent Owner asserts secondary considerations of non-obviousness in this proceeding, Petitioner intends to respond. Ex. 1003, ¶¶160-162.

E. PTAB DISCRETION SHOULD NOT PRECLUDE INSTITUTION

1. Discretionary Denial under 35 U.S.C. § 325(d) is Not Warranted

Discretionary denial under the Board’s §325(d) *Advanced Bionics* analysis is not warranted in this case and a discussion of each *Advanced Bionics* factor follows. See *Advanced Bionics, LLC v. Med-El Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6, 8-9 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”).

a) Factor 1 is not met.

The first *Advanced Bionics* factor asks “whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office.” Here, none of the art

relied on by Patent Owner was cited to the Office during prosecution.

Similarly, Patent Owner's arguments here are not the same or substantially the same as those presented during prosecution. During prosecution, the examiner relied on Klein in view of Reinhardt to reject claim 1-6. Ex. 1002 at 49-62. The examiner found that Klein disclosed each feature of claims 1-6 except for panels, which the examiner found to be disclosed by Reinhardt. *Id.* Here, Ramorino plainly discloses panels as well as the other features of claim 1 and its dependent claims, except that Ramorino does not expressly disclose that the hinged housing members are detachable from each other.

To gain allowance of claim 1, Patent Owner was required to accept an examiner's amendment adding the limitation that the housing members are "completely detachable." The examiner apparently considered the references the examiner found and determined that the prior art taught hinged housing members but did not teach detachable housing members. The examiner did not have before him Petitioner's argument here that Feil expressly discloses the desirability of hinged, detachable housing members in a firestopping device. Nor did the examiner consider Petitioner's argument here that Rigollet and the background references discussed *supra* (at 38-42) disclosed that it was well known in the industry to include hinged mechanisms that allow for completely detachable housing members in clamshell-style devices.

With respect to claim 9, the examiner apparently found that it would not have been obvious to *modify* Klein to include a “sealing member” as claimed. Here, Petitioner does not rely on modification of any device to include a “sealing member.” Instead, Ramorino discloses this feature without modification. And so too does Feil—again without modification.

b) If Factor 1 is met, then the examiner erred materially in allowing claims 1-6 and 9.

As discussed above, Factor 1 is not met. That said, if the examiner did consider Patent Owner’s arguments that are the same or substantially the same as Patent Owners’ arguments here, the examiner would have erred materially in allowing the claims.

To gain allowance of claim 1 (and its dependents), Patent Owner had to accept the examiner’s amendment adding the “completely detachable” limitation. The examiner erred in finding that the prior art taught hinged housing members but did not teach completely detachable housing members and that it would not have been obvious to include such detachable housing members in a hinged clamshell type device. Ex. 1003, ¶157. As shown herein, the art was replete with examples of hinged connections that allow for housing members to be completely detached from each other. *Id.* Indeed, Feil expressly discloses the benefits of such an arrangement in a firestop device. The examiner’s error in overlooking this fact was material

because if the examiner had identified these teachings from the prior art, claim 1 (and its dependents) would not have issued in the form it did.

To the extent the examiner's allowance of claim 1 (and its dependents) turned on Patent Owner's argument that Klein "teaches away" from inclusion of a rear panel, that too would be error. Ex. 1003, ¶158. Far from teaching away from a rear panel, Klein expressly discloses one in the form of lugs as well as the benefits of locating such lugs on the wall facing side of the device (the "rear" side). Ex. 1010 at ¶0038; Ex. 1003, ¶158.

As to claim 9, it appears that the examiner found that the prior art did not disclose a "sealing member" as claimed (or an obvious modification to include a "sealing member"). Ex. 1003, ¶159. As shown herein, the prior art plainly discloses that it was known to include a "sealing member" as claimed in a firestop device. The examiner erred in finding otherwise. And that error was material because claim 9 would not have issued in the form it did had the examiner not overlooked the prior art teachings of a "sealing member." *Id.*

2. Denial under the *Fintiv* Factors is not warranted.

Petitioner submits herewith a *Sotera* stipulation. Ex. 1021. As such, denial under *Fintiv* is inappropriate in view of the Director's Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings With Parallel District Court Litigation dated June 21, 2022 (the "Director's Procedure").

If Patent Owner were to argue—contrary to the Director’s Procedure—that the *Fintiv* factors support discretionary denial notwithstanding Petitioner’s *Sotera* stipulation, that argument would fail. For example, using the median time to trial in Delaware (36.3 months), trial would begin in December 2025.¹² The Board’s Final Written Decision is expected to issue several months in advance of that date.

In addition, Petitioner respectfully submits that the Petition presents compelling merits. Petitioner’s obviousness case is straightforward and well supported by Professor Puchovsky.

V. CONCLUSION AND MANDATORY NOTICES

The Challenged Claims are unpatentable as demonstrated above, and institution is warranted and respectfully requested.

A. Real Party-in-Interest

Hilti Aktiengesellschaft is the real party-in-interest.

B. Related Matters

The ’868 Patent is currently the subject of a district court litigation: *Hilti Aktiengesellschaft v. Specified Technologies Inc.*, No. 1:22-cv-01248-CJB (D. Del.).

C. Lead and Back-Up Counsel

¹² In the District Court Litigation, trial is currently set to begin on October 20, 2025.

Lead Counsel	Backup Counsel
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D. Service Information

Pursuant to 37 C.F.R. § 42.10(b), Powers of Attorney accompany this Petition. Please address all correspondence to lead counsel. Petitioner consents to service of all documents via the following email addresses: mdorfman@gardellagrace.com, ngrace@gardellagrace.com, litigation@gardellagrace.com. To the extent physical documents will be served on Patent Owner, please address all correspondence to lead counsel and back-up counsel at the following mailing addresses:

GARDELLA GRACE P.A.
80 M Street SE, 1st Floor
Washington, D.C. 20003

E. Fees

The undersigned authorizes the PTO to charge the fee set forth in 37 C.F.R. § 42.15(a) for this Petition to Deposit Account No. 601484. The undersigned authorizes payment for additional fees that may be due with this petition to be charged to the above-referenced Deposit Account.

Dated: November 17, 2023

Respectfully submitted,

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CERTIFICATION UNDER 37 CFR §42.24

Under the provisions of 37 C.F.R. §42.24(d), the undersigned hereby certifies that the word count for the foregoing Petition for *Inter Partes* Review totals 13,447 words excluding a table of contents, Mandatory Notices under §42.8, a certificate of service, a certificate of word count, an exhibit list, and claim listing.

CERTIFICATE OF SERVICE

The undersigned certifies service pursuant to 37 C.F.R. §§42.6(e) and 42.105(b) on the Patent Owner by USPS Priority Mail Express of a copy of this Petition for *Inter Partes* Review and supporting materials at the correspondence address of record for the '868 patent to:

Massina Patent & Trademark Law PLLC
PO Box 246
Bath, PA 18014
UNITED STATES

Dated: November 17, 2023

By: /s/ Michael A. Dorfman
Name: Michael A. Dorfman
GARDELLA GRACE P.A.