

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A SUBMISSION UNDER 35 U.S.C. 371		Attorney Docket No. 61823-US (713-3314)
		U.S. Application No. (if known, see 37 CFR 1.5)
International Application No. PCT/US2013/073861	International Filing Date December 9, 2013	Priority Date Claimed December 19, 2012
Title of Invention PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		
First Named Inventor Derek SCROGGIE		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information. 1. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). NOTE: The express request under 35 U.S.C. 371(f) will not be effective unless the requirements under 35 U.S.C. 371(c)(1), (2), and (4) for payment of the basic national fee, copy of the International Application and English translation thereof (if required), and the oath or declaration of the inventor(s) have been received. 2. ☒ A copy of the International Application (35 U.S.C. 371(c)(2)) is attached hereto (not required if the International Application was previously communicated by the International Bureau or was filed in the United States Receiving Office (RO/US)). 3. An English language translation of the International Application (35 U.S.C. 371(c)(2)) a. ☒ is attached hereto. b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4). 4. An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)) a. ☒ is attached. b. ☐ was previously filed in the international phase under PCT Rule 4.17(iv). Items 5 to 8 below concern amendments made in the international phase. <u>PCT Article 19 and 34 amendments</u> 5. ☐ Amendments to the claims under PCT Article 19 are attached (not required if communicated by the International Bureau) (35 U.S.C. 371(c)(3)). 6. ☐ English translation of the PCT Article 19 amendment is attached (35 U.S.C. 371(c)(3)). 7. ☐ English translation of annexes (Article 19 and/or 34 amendments only) of the International Preliminary Examination Report is attached (35 U.S.C. 371(c)(5)). <u>Cancellation of amendments made in the international phase</u> 8a. ☐ Do not enter the amendment made in the international phase under PCT Article 19. 8b. ☐ Do not enter the amendment made in the international phase under PCT Article 34. NOTE: A proper amendment made in English under Article 19 or 34 will be entered in the U.S. national phase application absent a clear instruction from applicant not to enter the amendment(s). The following items 9 to 17 concern a document(s) or information included. 9. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98. 10. ☒ A preliminary amendment. 11. ☒ An Application Data Sheet under 37 CFR 1.76. 12. ☐ A substitute specification. NOTE: A substitute specification cannot include claims. See 37 CFR 1.125(b). 13. ☐ A power of attorney and/or change of address letter. 14. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.3 and 37 CFR 1.821-1.825. 15. ☐ Assignment papers (<i>cover sheet and document(s)</i>). Name of Assignee: _____ 16. ☐ 37 CFR 3.73(c) Statement (<i>when there is an Assignee</i>). _____		

This collection of information is required by 37 CFR 1.414 and 1.491-1.492. The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 15 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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U.S. APPLN. No. (if known – see 37 CFR 1.5)	INTERNATIONAL APPLICATION No. PCT/US2013/073861	ATTORNEY DOCKET No. 61823-US (713-3314)
17. ☐ Other items or information:		
The following fees have been submitted.		CALCULATIONS PTO USE ONLY
18. ☒ Basic national fee (37 CFR 1.492(a)) \$280		\$ 280.00
19. ☒ Examination fee (37 CFR 1.492(c)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) \$0 All other situations \$720		\$ 720.00
20. ☒ Search fee (37 CFR 1.492(b)) If the written opinion prepared by ISA/US or the international preliminary examination report prepared by IPEA/US indicates all claims satisfy provisions of PCT Article 33(1)-(4) \$0 Search fee (37 CFR 1.445(a)(2)) has been paid on the international application to the USPTO as an International Searching Authority \$120 International Search Report prepared by an ISA other than the US and provided to the Office or previously communicated to the US by the IB \$480 All other situations \$600		\$ 480.00
TOTAL OF 18, 19, and 20 =		\$ 1,480.00
☐ Additional fee for specification and drawings filed in paper over 100 sheets (excluding sequence listing in compliance with 37 CFR 1.821(c) or (e) in an electronic medium or computer program listing in an electronic medium) (37 CFR 1.492(j)). Fee for each additional 50 sheets of paper or fraction thereof \$400		
Total Sheets	Extra Sheets	Number of each addition 50 or fraction thereof (round up to a whole number)
- 100 =	/ 50 =	x \$400
Surcharge of \$140.00 for furnishing any of the search fee, examination fee, or the oath or declaration after the date of commencement of the national stage (37 CFR 1.492(h)).		\$
CLAIMS	NUMBER FILED	NUMBER EXTRA
Total claims	20 - 20 =	0
Independent claims	3 - 3 =	0
MULTIPLE DEPENDENT CLAIM(S) (if applicable)		+ \$780
Processing fee of \$140.00 for furnishing the English translation later than 30 months from the earliest claimed priority date (37 CFR 1.492(i)).		\$
TOTAL OF ABOVE CALCULATIONS =		\$ 1,480.00
☐ Applicant asserts small entity status. See 37 CFR 1.27. Fees above are reduced by 1/2.		
☐ Applicant certifies micro entity status. See 37 CFR 1.29. Fees above are reduced by 3/4. Applicant must attach form PTO/SB/15A or B or equivalent.		
TOTAL NATIONAL FEE =		\$ 1,480.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property.		\$
TOTAL FEES ENCLOSED =		\$ 1,480.00
		Amount to be refunded: \$
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- a. ☐ A check in the amount of \$ _____ to cover the above fees is enclosed.
- b. ☐ Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees.
- c. ☒ The Director is hereby authorized to charge additional fees which may be required, or credit any overpayment, to Deposit Account No. 07-1337 as follows:
- i. ☒ any required fee.
- ii. ☐ any required fee except for excess claims fees required under 37 CFR 1.492(d) and (e) and multiple dependent claim fee required under 37 CFR 1.492(f).
- d. ☒ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038. The PTO-2038 should only be mailed or faxed to the USPTO. However, when paying the basic national fee, the PTO-2038 may NOT be faxed to the USPTO.

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NOTE: Where an appropriate time limit under 37 CFR 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the International Application to pending status.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

- ☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013, and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE 1: By providing this statement under 37 CFR 1.55 or 1.78, **this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.**

NOTE 2: A U.S. national stage application may not claim priority to the international application of which it is the national phase. The filing date of a U.S. national stage application is the international filing date. See 35 U.S.C. 363.

Correspondence Address

- ☒ The address associated with Customer Number: 27889 **OR** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country				Telephone	
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Signature	/Benjamin J. Hauptman/	Date	2015-06-17
Name (Print/Type)	Benjamin J. Hauptman	Registration No. (Attorney/Agent)	29,310

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This non-provisional application claims the benefit of, and priority from, United States provisional application 61/739,604 filed December 19, 2012. The contents of such provisional application and all other patent documents referenced in this application are hereby incorporated by reference in their entirety as if fully set forth herein.

TECHNICAL FIELD

[0002] The present disclosure relates generally to connection assemblies incorporating retainers which may also be referred to as fasteners. More particularly, this disclosure pertains to connections incorporating push-in type retainers having downward biasing wing features which secure the retainer in place after insertion through an aperture and with seals for creating a barrier to the penetration of moisture, dust and noise through the aperture in which the retainer is secured.

BACKGROUND

[0003] Push-in type W-base retainers are used in a variety of connection assemblies to secure components of the assembly. For example, in automobiles such stud-like retainers are used to secure molding or other surface structures to underlying support elements such as body panels, support beams or the like. Such retainers typically include a stem with deflectable wing elements for securing the retainer to the support elements when the stem portion supporting the deflectable wing elements is pushed through an aperture in the support element. Typically, a head attached to the stem is configured for attachment to a doghouse or other complementary receiving element on the underside of the surface structure. In this regard, the head may include an enhanced diameter upper platform radial collar feature and an enhanced diameter lower radial collar feature with a spacing post extending between the upper and lower radial collar features. Thus, the spacing post may slide into a doghouse or other receiving element as will be well

known to those of skill in the art and thereafter be blocked against axial withdrawal by the upper and lower radial collar features.

[0004] During use, as the stem is inserted into the aperture, the deflectable members may be compressed radially inwardly. The deflectable members then may spring outwardly as insertion is completed to lock behind the underside of the support element. Thus, with the head secured to the surface structure, the retainer forms a connection between the surface structure and the underlying support element.

[0005] W-base retainers are typically designed as a component of an overall assembly and work in conjunction with the other components with the goal of establishing and maintaining a “zero gap” condition between the sheet metal panel or other support element and the molding or other surface structure. To promote the desired “zero gap” condition, the W-base retainers typically provide a continuous pull down or clamp load condition. This constant pull down is intended to provide and maintain the desired “zero gap” condition between the support element and the molding or other surface structure. If this pull down force is compromised by a significant force acting in the opposite direction such that the molding or other surface structure does not seat against the sheet metal panel or other support element, an unacceptable gap condition may occur within the final assembled product. Such a gap condition may result in undesired rattling noise as well as in the introduction of dirt and water between the molding or other surface structure and the underlying support structure.

[0006] As much as is reasonably possible, it is generally desirable to limit the generation of squeaks, rattles and objectionable noises that may be created from movement of the retainer relative to the parts to which it is connected. By way of example only, and not limitation, various sealing arrangements for push through retainers are illustrated and described in US Patent 5,173,026 to Cordola et al. and US published application 2006/0099051 to Moerke, the contents of all of which are incorporated herein by reference in their entirety. To minimize corrosion, it is desirable also to prevent moisture from precipitation, carwashes, etc. from seeping past the retainer, and through the aperture in which the retainer is installed.

[0007] A variety of sealing structures have been used to minimize rattles and squeaks and to prevent moisture seepage past the retainer. Independent concave skirts such as described in US published application 2006/0099051 have been used in conjunction with push-in retainers at the base of the head to confront the body panel around the aperture in the panel. Elastomeric and foam seals also have been used to further improve sealing qualities against moisture penetration.

[0008] Although retainers as described incorporating concave skirts and/or seals have been used successfully to limit squeaks and rattles and to inhibit the penetration of moisture past the retainer, further improvements are desirable. Installing the seal as a separate part is cumbersome and awkward, complicating installation of the retainer. If installed on the retainer in advance, the seal can become dislodged, even if properly placed on the retainer. In automated assembly plants, a retainer missing a seal may not be detected and may be installed on the article in which it is used inadvertently. A loose retainer of this type will rattle or squeak, may provide a path for the penetration of moisture and may not adequately secure the second article or item as required. If the seal is adhered to the skirt of the retainer, the seal may not function optimally if the retainer is not seated squarely in the panel. Further, the position of the seal relative to the retainer skirt has limited the range of panel thicknesses with which the retainer can be used effectively to provide a seal against moisture intrusion.

[0009] As will be understood by those of skill in the art, a seal which is held between the retainer head and the support panel may experience a build, stack up condition as compression force is applied which results in a counteracting upward force being applied against the head which may partially offset the pull-down force provided by the deflectable wings. In some cases, the presence of seal elements which are compressed between the retainer head and the support panel may block the lower collar feature of the retainer from getting close enough to the underlying sheet metal panel to establish the desired “zero gap” condition between the sheet metal panel and the overlying molding or other surface structure. That is, the compressed seal in stack-up condition may act in the manner of a spacing shim holding the retainer head further away than intended from the sheet metal panel or other underlying support element. With the retainer head in this elevated condition, the attached molding or other surface element will likewise be held away from the panel or other support element and a gap condition may result.

SUMMARY

[0010] The present disclosure provides advantages and alternatives over the prior art by providing a connection assembly including a push-in type retainer having a functional sealing feature that does not experience a build, stack up condition that may reduce the clamp load force. Thus, the retainer is not blocked from assuming its designed orientation relative to the sheet metal panel or other underlying support element. A “zero gap” condition is thereby established and maintained between the sheet metal panel or other underlying support element and the mating molding substrate or other surface element.

[0011] In accordance with one exemplary feature, the present disclosure provides a connection assembly adapted to join a surface element such as molding or the like to an underlying support structure such as a sheet metal panel or the like while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use. The connection assembly includes a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure. The retainer includes a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head. The retainer head includes an upper platform and an annular platform defining a lower collar positioned in spaced relation below the upper platform. The clip portion includes a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from a central stem. The retainer further includes a seal disposed at least partially about the lower collar. The seal includes a body portion engaging the lower collar and a sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from the lower collar. The underside of the sealing foot forms an obtuse angle relative to the underside of the lower collar. The sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintains continuous sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.

[0012] Other features and advantages of the present disclosure will become apparent from a description of certain preferred embodiments thereof which are shown in the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is an exploded perspective view illustrating an exemplary sealing retainer in accordance with the present disclosure with the seal separated from the retainer body;

[0014] FIG. 2 is an elevation perspective view illustrating an exemplary sealing retainer in accordance with the present disclosure engaging trim molding prior to insertion through a sheet metal support panel;

[0015] FIG. 3 is a cross-sectional view illustrating an exemplary sealing retainer in accordance with the present disclosure in normal operative connecting relation between a doghouse surface connector and an underlying support panel with wing elements in the inserted self-adjusting downward biasing condition;

[0016] FIG. 4 is a cross-sectional view illustrating an exemplary sealing retainer in accordance with the present disclosure engaging trim molding prior to insertion through a sheet metal support panel and with the seal in an unstressed condition; and

[0017] FIG. 5 is a cross-sectional view illustrating an exemplary sealing retainer in accordance with the present disclosure engaging trim molding after full insertion through a sheet metal support panel with a retained “zero gap” condition between the trim molding and the support panel and illustrating the compression action of the seal in an extreme insertion condition.

[0018] Before the embodiments of the disclosure are explained in detail, it is to be understood that the disclosure is not limited in its application to the details of construction and the arrangements of the components set forth in the following description or illustrated in the drawings. The disclosure is capable of other embodiments and of being practiced or being

carried out in various ways. Also, it is understood that the phraseology and terminology used herein are for the purpose of description and should not be regarded as limiting. The use herein of "including", "comprising" and variations thereof is meant to encompass the items listed thereafter and equivalents thereof, as well as additional items and equivalents thereof.

DETAILED DESCRIPTION

[0019] Referring now more specifically to the drawings, and to FIGS. 1 and 2 in particular, it may be seen that the present disclosure provides a retainer 10 adapted to secure a molding 12 or other surface element to a sheet metal support panel 14 or other underlying support element of metal or the like. As shown, in the illustrated exemplary construction, the retainer 10 includes a retainer head 16 and a snap engaging clip portion 18. As will be appreciated, the retainer head 16 and the clip portion 18 may be formed as a monolithic unitary body by injection molding or other suitable molding or fabrication process. The material for retainer 10 can be selected as optimally desirable for its particular installation and use. Accordingly, the retainer 10 may be formed of suitable plastic, such as Nylon, polypropylene, acetal resin and the like as will be well known to those of skill in the art. Acetal resin and Nylon 6.6 may be preferred in some environments of use. Of course, other polymeric and non-polymeric materials including metal and the like and combinations of various polymeric materials also may be used if desired. Likewise, it should be understood that the particular configurations for the retainer head 16 and for the clip portion 18 may be varied in a manner as may be desired for a particular installation.

[0020] By way of example only, and not limitation, in the illustrated exemplary construction for the retainer 10, the retainer head 16 is adapted for sliding receipt and retention within an intermediate connector 20 (FIG. 2) such as a dog house connector or the like disposed in hidden relation at the underside of the molding 12. In this regard, the intermediate connector 20 may be formed integral with the molding 12 as shown or may be a separate attached structure as may be desired.

[0021] As shown, in the illustrated exemplary construction, the retainer head 16 includes a table-like upper platform 22 disposed in opposing relation to a lower collar 24 of substantially

rigid, annular construction. In this regard, while the upper platform 22 is illustrated as having a generally rectangular configuration, it is likewise contemplated that other polygonal or circular geometries may be used if desired. As shown, the lower collar 24 may be in substantially perpendicular non-angled orientation to the travel path of the retainer and may include an interior collar portion 26 and a reduced thickness outer annular lip 28 disposed circumferentially about the interior collar portion such that a step 30 is disposed at the intersection of the interior collar portion 26 and the outer annular lip 28. A neck structure 32 in the form of a reduced diameter post extends between the upper platform 22 and the lower collar 24. As will be understood, the effective outer diameters defined by the upper platform 22 and by the lower collar 24 are preferably greater than the effective outer diameter defined by the neck structure 32.

[0022] In operation, the retainer 10 may be operatively secured to the intermediate connector 20 by sliding the neck structure 32 into a slot in the intermediate connector 20 in a manner as will be well known to those of skill in the art. The intermediate connector may, in turn, be attached to the overlying molding 12 or other surface element. Likewise, the retainer head 16 may be connected directly to an overlying component by techniques such as tape, adhesive bonding, mechanical joining or the like if desired.

[0023] As indicated previously, the retainer 10 further includes a clip portion designated generally as 18 extending away from the underside of the lower collar 24. In the illustrated exemplary construction, the clip portion 18 includes a stem 34 projecting away from the lower collar 24 such that the lower collar is oriented substantially perpendicular to an axis defined by the stem. As illustrated, wing elements 36 extend upwardly in angled relation away from the end of the stem 34. The wing elements 36 are adapted to flex inwardly towards the stem 34 during insertion through an acceptance opening 38 in the support panel 14. As best seen through joint reference to FIGS. 1 and 3, in the illustrated exemplary construction each of the wing elements 36 incorporates an outer face having a dogleg configuration facing generally outwardly away from the stem 34. In this regard, in the illustrated construction, the outer face of each wing element 36 includes a proximal face surface 42 extending in angled relation away from the axis defined by the stem 34. A distal face surface 44 extends away from the proximal face surface in angled relation back towards the axis defined by the stem 34 ultimately terminating at the free tip

of the wing element thereby establishing the outer surface dogleg profile. As shown, the free tips of the wing elements are at an elevation below the lower collar 24.

[0024] As best seen through joint reference to FIGS. 1-3, a monolithic perimeter seal 50 of flexible polymeric material is disposed about the perimeter of the lower collar 24 generally at the intersection between the retainer head 16 and the clip portion 18. As best seen in FIG 3, the inner diameter of the perimeter seal 50 may substantially cover the outer annular lip 28 of the lower collar 24 and may abut the step 30. The perimeter seal 50 may be formed from commercially available moldable materials such as thermoplastic elastomers including, by way of example only, polyolefins, PVC, silicone rubber, PTFE, polyvinylidene fluoride (PVDF), fluorinated ethylene propylene (FEP) and blends thereof. Such materials will preferably be of lower durometer (i.e. are less rigid) than the material forming the retainer head and may be characterized by a useful operating temperature range of about -75 °C to about 175 °C. In accordance with one exemplary construction, the perimeter seal 50 may be formed by over-molding or two-shot molding processes such that during molding the flexible material forming the perimeter seal 50 is integrally fused with the more rigid acetal resin or other material forming the lower collar 24. It is also contemplated that the perimeter seal 50 may be formed separately with a circumferential acceptance slot around the interior for receipt and retention of the annular lip 28 in a stretch-fit relation if desired. In any event, the seal 50 defines a relatively soft, deformable covering at the perimeter edge of the lower collar 24 adapted to provide a seal around the acceptance opening 38 in the support panel 14 during use without the need for any sealing structures oriented below the lower collar.

[0025] As best seen in FIG. 3, the perimeter seal 50 may be substantially annular and may include a main body portion 52 adapted to cover the outer annular lip 28 of the lower collar 24. A hingeable outwardly flared sealing foot 54 extends in angled relation downwardly and radially away from the main body portion 52. As shown, the sealing foot 54 is elongated and relatively thin in cross-section. In an unstressed condition (FIG. 4), the sealing foot 54 extends radially outboard from the main body portion 52 to a free edge such that the sealing foot is disposed entirely outboard from lower collar 24 and the underside of the sealing foot forms an obtuse

angle relative to the underside of the lower collar 24. As shown, no portion of the angled sealing foot 54 is in the zone below the lower collar 24.

[0026] When the sealing foot 54 is pressed against the support panel 14 during normal use, the sealing foot 54 readily flexes upwardly towards a flattened condition about a living hinge 56 substantially at the intersection with the body portion 52. This hinging takes place without confinement of the sealing foot between the support panel 14 and the lower collar 24 while continuously maintaining contacting engagement with the underlying support panel. Thus, the sealing foot 54 may flex from its unstressed condition (FIG. 4) to its fully flexed position (FIG. 5) without experiencing a stack-up condition of seal material between the support panel 14 and the lower collar 24. As the sealing foot 54 flexes during compression, the edge of the sealing foot 54 moves radially outwardly as the sealing foot 54 takes on a more flattened condition. As this flattening takes place, the sealing foot 54 moves out of the way of the travel path for the lower collar 24. This avoids any confinement and stack-up of seal material between the support panel 14 and the lower collar 24 while nonetheless maintaining a sealing condition relative to the support panel 14. Accordingly, the retainer head 16 and the attached molding 12 may be pulled downwardly to a position wherein the molding 12 and the underlying support panel form a substantially flush “zero gap” condition while maintaining a seal around the acceptance opening 38. In this regard, it will be understood that such a zero gap condition occurs when a contact surface 60 on the molding 12 assumes a contacting abutting relation with the underlying support panel 14. As will be appreciated, the elevation and contour of the contact surface 60 may be selected to provide this zero gap condition when the sealing foot 54 is in a flexed condition relative to the support panel 14 and with the lower collar 24 elevated relative to the support panel 14.

[0027] Referring now to FIGS. 2 and 3, it will be seen that in normal operation (FIG. 3), a portion of the sloped distal face surface 44 may be in contacting relationship with the inner perimeter surface of the acceptance opening 38. In the normal operating condition shown in FIG. 3, the retainer 10 is urged downwardly continuously as the flexed wing elements press outwardly against the perimeter surface of the acceptance opening 38. However, downward movement will be limited once the molding 12 comes into contact with the underlying support

panel 14 to establish a zero gap condition. Thus, in the condition shown by FIG. 3, a condition of static equilibrium is established when the molding 12 comes into contact with the underlying support panel 14. Since the retainer 10 is urged continuously downwardly due to the sloped distal face surface 44, the retainer will naturally assume and retain the level at which the molding 12 contacts the underlying support panel 14 and thereby blocks further downward movement. As shown, in this equilibrium condition, the lower collar 24 remains slightly elevated relative to the support panel 14 and the sealing foot 54 of the perimeter seal 50 is hinged outwardly while maintaining a sealing relationship against the support panel 14. As can be seen, the sealing foot 54 is adapted to flex outwardly in a hinging action as the retainer moves downwardly without blocking further downward movement by the retainer 10.

[0028] As will be appreciated, the equilibrium position of the retainer 10 within the acceptance opening 38 is continuously self-adjusting as the relative positions of the molding 12 and the support panel 14 change during use as a result of vibration or other events. In this regard, the living hinge 56 urges the sealing foot 54 continuously against the underlying support panel 14 as the sealing foot 54 attempts to resume its normal unflexed condition (FIG. 4). Thus, the sealing relationship provided by the sealing foot 54 is maintained by sliding contact as the retainer 10 moves up and down and the sealing foot 54 moves radially in and out during equilibrium adjustment. That is, although the angle between the support panel 14 and the sealing foot 54 may change as the retainer 10 moves up and down, the sealing relation is maintained as the sealing foot 54 moves in sliding relation over the support panel. Moreover, since the sealing foot 54 is not confined between the lower collar 24 and the support panel 14, downward movement of the molding is unobstructed by the sealing element.

[0029] As best seen in FIG. 5, in the event of extreme insertion such that the tips of the wing elements 36 are within the acceptance opening, in the support panel 14, the sealing foot 54 may assume a substantially flattened condition against the underlying support panel 14 as the molding 12 establishes a “zero gap” condition with the support panel. Even in this extreme insertion condition, the sealing foot is not confined between the lower collar 24 and the support panel 14. Accordingly, no stack-up condition and resultant shim action is created. Thus, the molding 12 may continue to be pulled down to the desired “zero gap” condition over

the full range of operative engagement positions between the wing elements 36 and the support panel 14 with the sloped distal face surface 44 bearing against the support panel.

[0030] The ability to avoid a stack-up condition is promoted by maintaining the free space between the lower collar 24 and the underlying support panel during downward movement such that portions of the seal material do not collect in the free space in a manner which would limit downward movement. This free space below the lower collar is maintained even in the extreme insertion condition shown in FIG. 5. As shown, all portions of the sealing foot 54 are positioned radially outboard from the lower collar 24 and the free edge of the sealing foot 54 is adapted to slide radially outwardly away from the lower collar 24 and the main body portion 52 as the retainer head 16 moves downwardly and the sealing foot 54 hinges outwardly. Thus, the sealing foot 54 flattens by hinging outwardly about the living hinge 56 as it is pressed against an underlying support panel 14. Accordingly, the sealing foot 54 does not interfere with downward movement of the retainer head 16 and the molding 12 may be maintained in a “zero gap” condition with the underlying support panel 14.

[0031] While various spatial and directional terms, such as upper, horizontal, vertical, front and the like may be used to describe embodiments of the present invention, it is understood that such terms are merely used with respect to the orientations shown in the drawings. The orientations may be inverted, rotated, or otherwise changed, such that an upper portion is a lower portion, and vice versa, horizontal becomes vertical, and the like.

[0032] Of course, variations and modifications of the foregoing are within the scope of the present disclosure. It is to be understood that the disclosure disclosed and defined herein extends to all alternative combinations of two or more of the individual features mentioned or evident from the text and/or drawings. All of these different combinations constitute various alternative aspects of the present disclosure. The embodiments described herein explain the best modes known for practicing the disclosure and will enable others skilled in the art to utilize the disclosure. The claims are to be construed to include alternative embodiments to the extent permitted by the prior art.

What is claimed is:

1. A connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap, abutting relation between the surface element and the support structure during use, the connection assembly comprising:

a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform and an annular platform defining a lower collar positioned in spaced relation below the upper platform, wherein the clip portion comprises a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from a central stem, the retainer further including a seal disposed at least partially about the lower collar, the seal having a durometer lower than the lower collar and including a body portion engaging the lower collar and a sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from lower collar and the underside of the sealing foot forms an obtuse angle relative to the plane of the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.

2. The connection assembly as recited in Claim 1, wherein the retainer head and clip portion are molded as a unitary structure.

3. The connection assembly as recited in Claim 1, wherein the lower collar is oriented substantially perpendicular to an axis defined by the stem and has a stepped construction including an interior portion and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip.

4. The connection assembly as recited in Claim 3, wherein the seal is formed by over-molding or two-shot molding in fused, overlying relation about the outer annular lip of the lower collar.

5. The connection assembly as recited in Claim 3, wherein the retainer head and clip portion are molded as a unitary structure from a polymer selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin.

6. The connection assembly as recited in Claim 3, wherein the seal is molded from a thermoplastic elastomer.

7. The connection assembly as recited in Claim 3, wherein the retainer head and clip portion are molded as a unitary structure from acetal resin, and wherein the seal is molded from a thermoplastic elastomer.

8. The connection assembly as recited in Claim 1, wherein the wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening.

9. The connection assembly as recited in Claim 1, wherein the retainer head includes a connective neck structure extending between the upper platform and the lower collar, and wherein the neck structure is adapted to slidingly engage an intermediate doghouse connector operatively joined to the surface element.

10. A connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use, the connection assembly comprising:

a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform, an annular platform defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform, and a connective neck structure

extending between the upper platform and the lower collar, wherein the clip portion comprises a central stem extending downwardly away from the lower collar such that the lower collar is oriented substantially perpendicular to an axis defined by the stem, a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar, wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening, the retainer further including a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use;

a preformed surface element having a contact surface configured to abut the support structure in a substantially gapless relation during use; and

an intermediate connector operatively connected to the surface element and adapted to receive and retain the retainer head such that upon insertion of the retainer into an acceptance opening in the support panel, an operative connection is established between the surface element and the support structure, wherein the surface element is configured such that when the retainer is held between the intermediate connector and the support structure, the contact surface of the surface element is at an elevation such that it abuts the support structure while the sealing foot is in contacting relation with the support structure and the lower collar remains spaced in elevated relation away from the support structure.

11. The connection assembly as recited in Claim 10, wherein the retainer head and clip portion are molded as a unitary structure.

12. The connection assembly as recited in Claim 10, wherein the lower collar has a stepped construction including an interior portion and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip, and wherein the seal is formed from a material of lower durometer than the material forming the lower collar.

13. The connection assembly as recited in Claim 12, wherein the seal is formed by over-molding or two-shot molding in fused, overlying relation about the outer annular lip of the lower collar.

14. The connection assembly as recited in Claim 12, wherein the retainer head and clip portion are molded as a unitary structure from a polymer is selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin.

15. The connection assembly as recited in Claim 12, wherein the seal is molded from a thermoplastic elastomer.

16. The connection assembly as recited in Claim 12, wherein the retainer head and clip portion are molded as a unitary structure from acetal resin, and wherein the seal is molded from a thermoplastic elastomer.

17. The connection assembly as recited in Claim 10, wherein the intermediate connector is a doghouse connector adapted to slidably receive and retain the connective neck structure.

18. The connection assembly as recited in Claim 10, wherein, the intermediate connector is integral with the preformed surface element.

19. The connection assembly as recited in Claim 10, wherein, the intermediate connector is configured such that the contact surface is at an elevation below the lower collar and

above the free edge of the sealing foot when the retainer head is supported within the intermediate connector and prior to insertion into the acceptance opening.

20. A method of connecting a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use, the method comprising:

providing a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform, an annular platform defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform, and a connective neck structure extending between the upper platform and the lower collar, wherein the clip portion comprises a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar, wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening, the retainer further including a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use;

providing a preformed surface element having a contact surface configured to abut the support structure in a substantially gapless relation during use;

securing the retainer head within an intermediate connector operatively connected to the surface element; and

inserting the retainer into an acceptance opening in the support panel, to establish an operative connection between the surface element and the support structure, wherein the surface element is configured such that when the retainer is held between the intermediate connector and the support structure, the contact surface of the surface element is at an elevation such that it abuts the support structure while the sealing foot is in flexed contacting relation with the support structure and the lower collar remains spaced in elevated relation away from the support structure.

ABSTRACT OF THE DISCLOSURE

A connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure. The connection assembly includes a press-in retainer with a circumferential seal having a sealing foot. The sealing foot flexes about a living hinge while maintaining continuous sliding contact with the support panel without interfering with downward movement of the retainer.

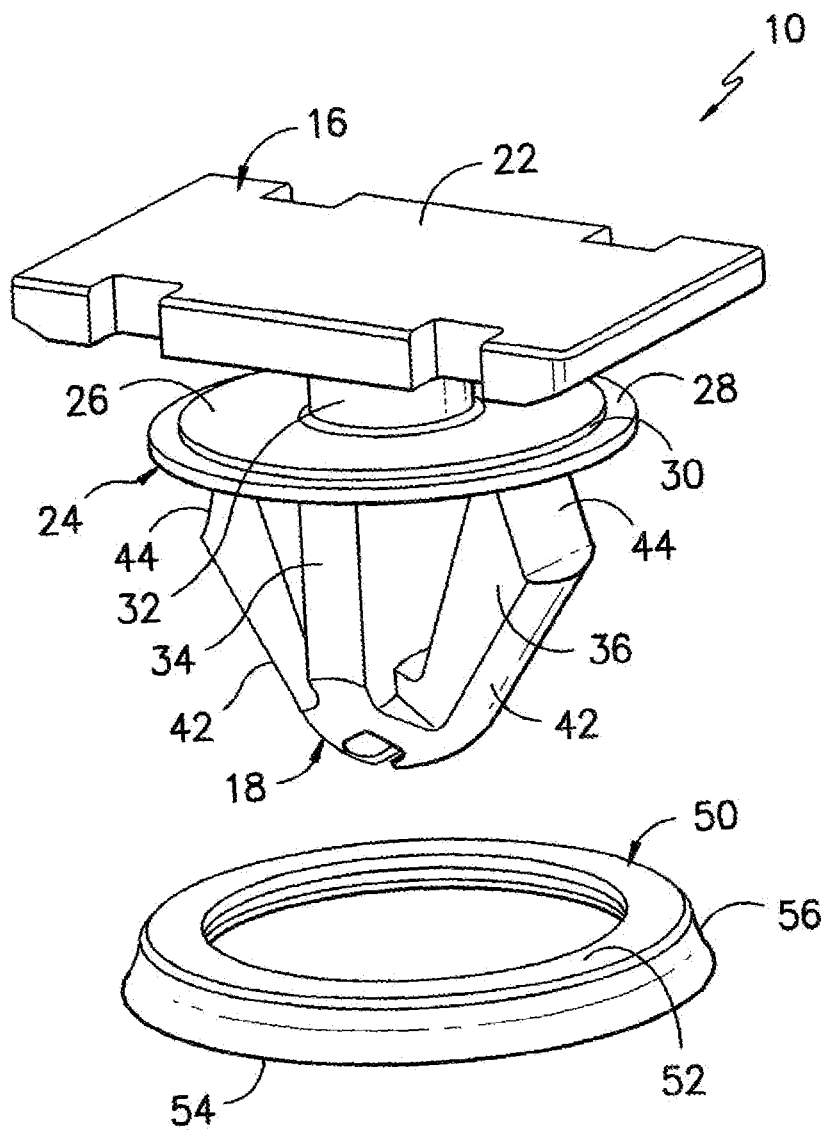


FIG. -1-

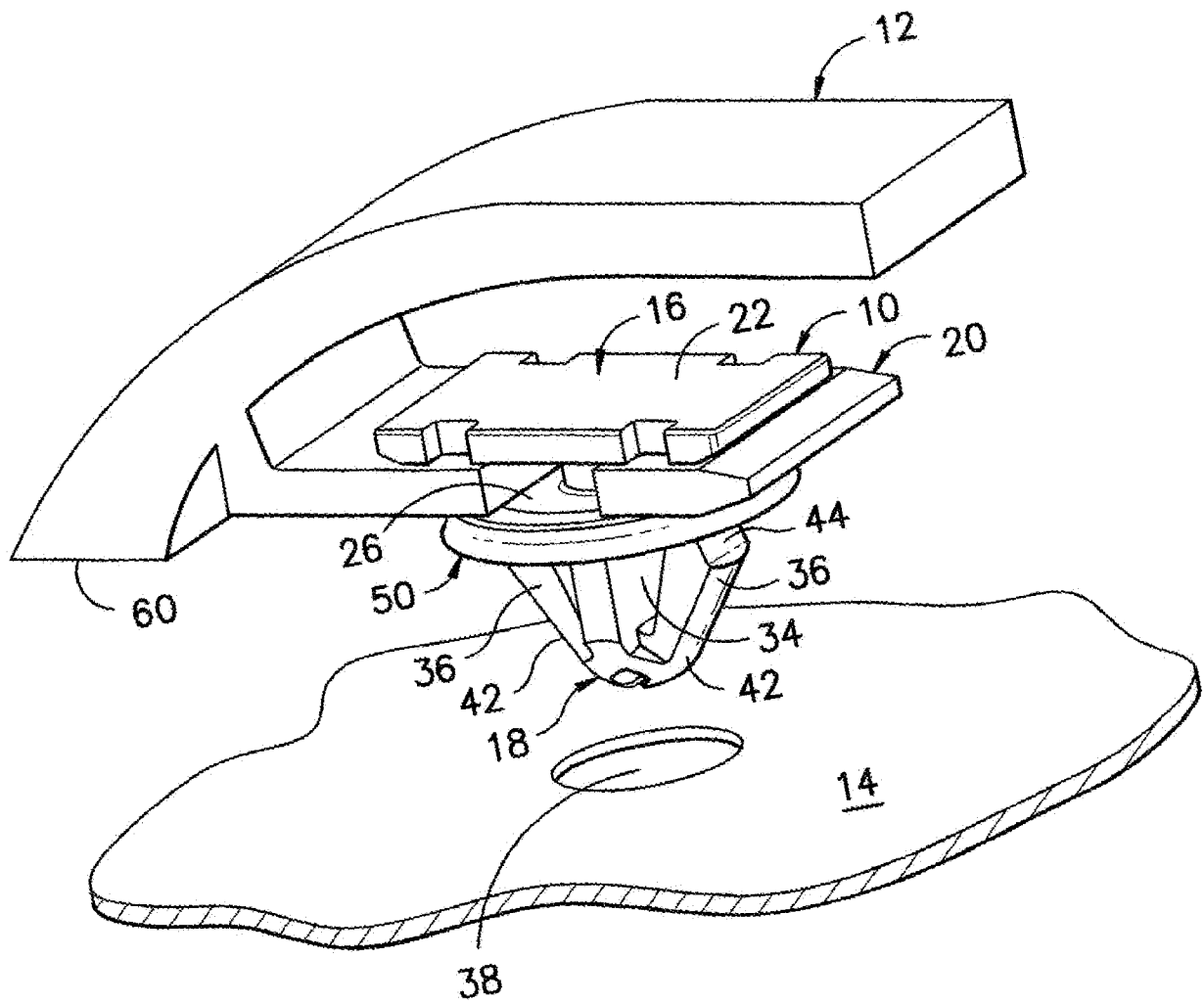


FIG. -2-

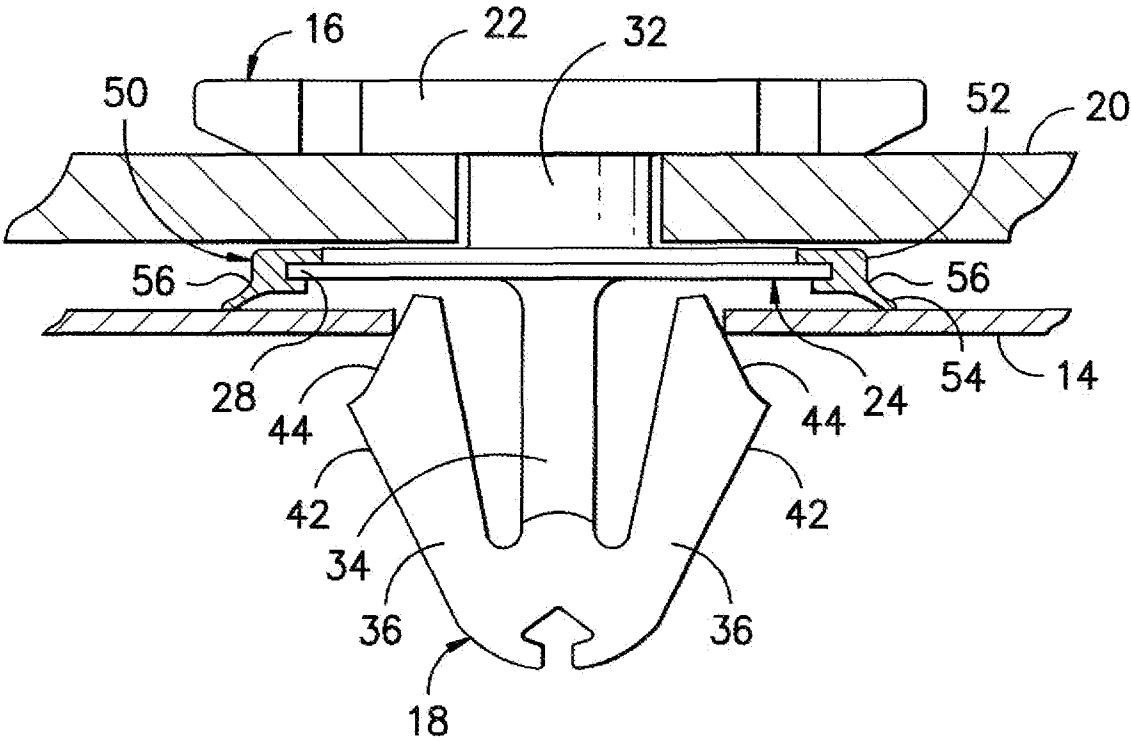


FIG. -3-

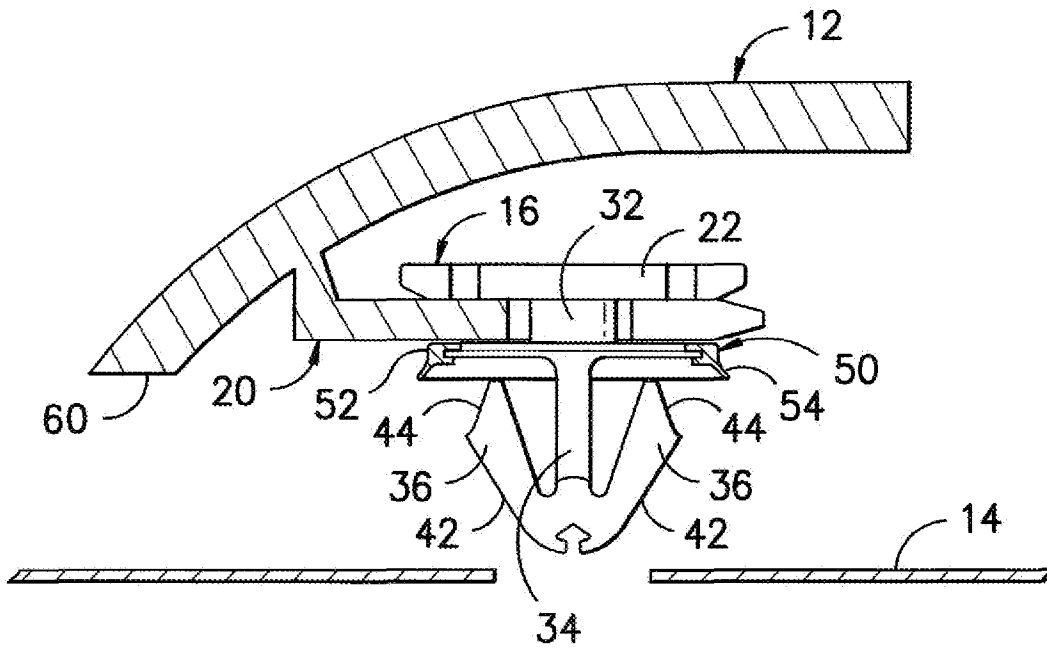


FIG. -4-

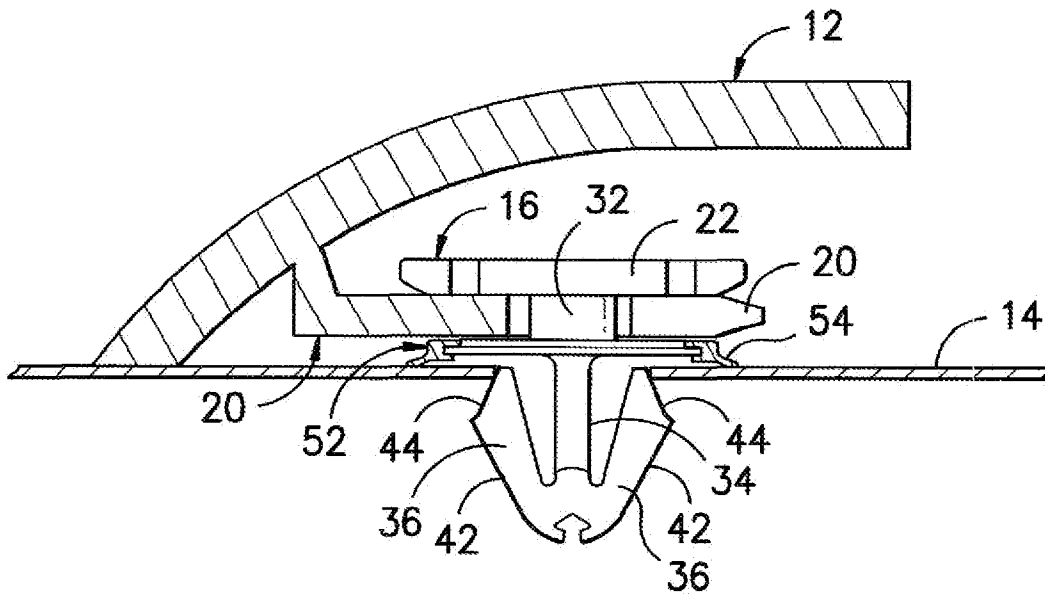


FIG. -5-

AIA Declaration**PATENT**

Named Inventor: Derek Scroggie

Attorney Docket No.: 61823

Title: PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

DECLARATION (37 C.F.R. §1.63) FOR US UTILITY OR DESIGN APPLICATION

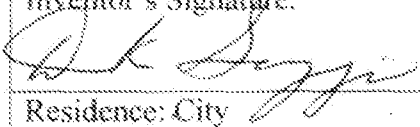
As the below named inventor, I hereby declare that:

This declaration is directed to either the attached application, or United States application or PCT international application or _____ application number - _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. §1001 by fine or imprisonment of not more than (5) years, or both.

Legal Name of Inventor: (e.g., Given name (First and middle or initial (if any) and Family Name or Surname))			
Derek Scroggie			
Inventor's Signature: 		Date: 11-26-13	Citizenship: US
Residence: City	State / Province / Territory	Country	
Macomb	MI	US	
Mailing address: C/O: Illinois Tool Works Inc., 3600 West Lake Avenue			
City	State	Zip	Country
Glenview	Illinois	60026	USA

I execute this Declaration for application acknowledging that I have reviewed and understand the contents of the application, and I am aware of the duty to disclose to the Office all information known to me to be material to patentability as explained in 37 C.F.R. §1.56. I further acknowledge that I understand English.

Note - Whenever an individual making an oath or declaration cannot understand English, the oath or declaration must be in a language that such individual can understand and shall state that such individual understands the content of any documents to which the oath or declaration relates.

Named Inventor: Michelle E. Bozinovski

Attorney Docket No.: 61823

Title: PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

DECLARATION (37 C.F.R. §1.63) FOR US UTILITY OR DESIGN APPLICATION

As the below named inventor, I hereby declare that:

This declaration is directed to either the attached application, or United States application or PCT international application or _____ application number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. §1001 by fine or imprisonment of not more than (5) years, or both.

Legal Name of Inventor:			
(e.g., Given name (First and middle or initial (if any) and Family Name or Surname))			
Michelle E. Bozinovski			
Inventor's Signature: 		Date: 11-20-13	Citizenship: US
Residence: City	State / Province / Territory	Country	
Oakland Charter Township	MI	US	
Mailing address:			
C/O: Illinois Tool Works Inc., 3600 West Lake Avenue			
City	State	Zip	Country
Glenview	Illinois	60026	USA

I execute this Declaration for application acknowledging that I have reviewed and understand the contents of the application, and I am aware of the duty to disclose to the Office all information known to me to be material to patentability as explained in 37 C.F.R. §1.56. I further acknowledge that I understand English.

Note - Whenever an individual making an oath or declaration cannot understand English, the oath or declaration must be in a language that such individual can understand and shall state that such individual understands the content of any documents to which the oath or declaration relates.

Named Inventor: Robert A. Murawski

Attorney Docket No.: 61823

Title: PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

DECLARATION (37 C.F.R. §1.63) FOR US UTILITY OR DESIGN APPLICATION

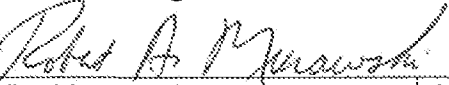
As the below named inventor, I hereby declare that:

This declaration is directed to either the attached application, or United States application or PCT international application or _____ application number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. §1001 by fine or imprisonment of not more than (5) years, or both.

Legal Name of Inventor:			
(e.g., Given name (First and middle or initial (if any) and Family Name or Surname))			
Robert A. Murawski			
Inventor's Signature:		Date:	Citizenship:
		11-20-2013	US
Residence: City	State / Province / Territory	Country	
Clinton Township	MI	US	
Mailing address:			
C/O: Illinois Tool Works Inc., 3600 West Lake Avenue			
City	State	Zip	Country
Glenview	Illinois	60026	USA

I execute this Declaration for application acknowledging that I have reviewed and understand the contents of the application, and I am aware of the duty to disclose to the Office all information known to me to be material to patentability as explained in 37 C.F.R. §1.56. I further acknowledge that I understand English.

Note - Whenever an individual making an oath or declaration cannot understand English, the oath or declaration must be in a language that such individual can understand and shall state that such individual understands the content of any documents to which the oath or declaration relates.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	61823-US (713-3314)
		Application Number	
Title of Invention	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--------------------------	---

Inventor Information:

Inventor 1					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Derek		SCROGGIE			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
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Address 1	c/o Illinois Tool Works Inc.					
Address 2	155 Harlem Avenue					
City	Glenview	State/Province	IL			
Postal Code	60025	Country i	US			
Inventor 2					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Michelle	E.	BOZINOVSKI			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Oakland Charter Township	State/Province	MI	Country of Residence i	US	
Mailing Address of Inventor:						
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Address 2	155 Harlem Avenue					
City	Glenview	State/Province	IL			
Postal Code	60025	Country i	US			
Inventor 3					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Robert	A.	MURAWSKI			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		61823-US (713-3314)	
		Application Number			
Title of Invention		PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL			
City	Clinton Township	State/Province	MI	Country of Residence i	US
Mailing Address of Inventor:					
Address 1		c/o Illinois Tool Works Inc.			
Address 2		155 Harlem Avenue			
City	Glenview	State/Province	IL		
Postal Code	60025	Country i	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	27889		
Email Address	itwUSpatents@itw.com	Add Email	Remove Email

Application Information:

Title of the Invention	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		
Attorney Docket Number	61823-US (713-3314)	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	

Filing By Reference :

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country i

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	61823-US (713-3314)
		Application Number	
Title of Invention	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	27889		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78. When referring to the current application, please leave the application number blank.			
Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	a 371 of international	PCT/US2013/073861	2013-12-09
Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCT/US2013/073861	Claims benefit of provisional	61739604	2012-12-19
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).			
Remove			
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ^j (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	61823-US (713-3314)
		Application Number	
Title of Invention	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	61823-US (713-3314)
		Application Number	
Title of Invention	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		

Applicant 1				Remove	
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.					
Clear					
☒ Assignee		☐ Legal Representative under 35 U.S.C. 117		☐ Joint Inventor	
☐ Person to whom the inventor is obligated to assign.			☐ Person who shows sufficient proprietary interest		
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	61823-US (713-3314)
		Application Number	
Title of Invention	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		

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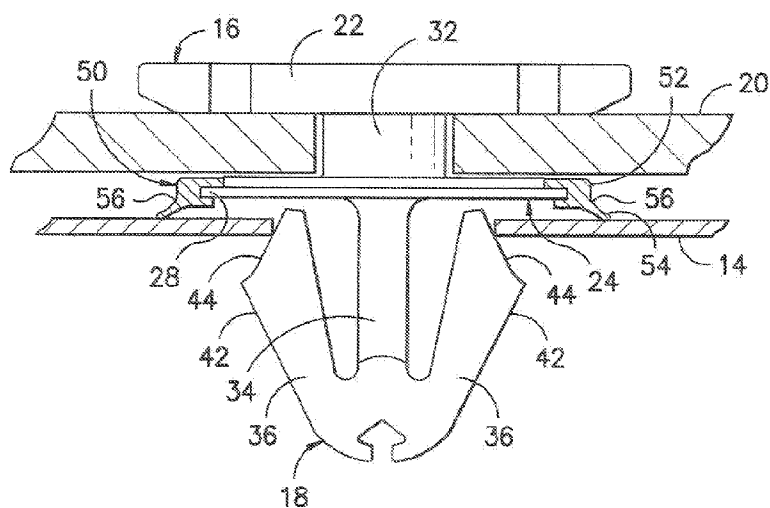


FIG. -3-

(57) Abstract: A connection assembly adapted to join a surface element (12) to an underlying support structure (14) while maintaining a substantially zero gap abutting relation between the surface element and the support structure. The connection assembly includes a press-in retainer (10) with a circumferential seal (50) having a sealing foot (54). The sealing foot flexes about a living hinge (56) while maintaining continuous sliding contact with the support panel without interfering with downward movement of the retainer.

PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This non-provisional application claims the benefit of, and priority from, United States provisional application 61/739,604 filed December 19, 2012. The contents of such provisional application and all other patent documents referenced in this application are hereby incorporated by reference in their entirety as if fully set forth herein.

TECHNICAL FIELD

[0002] The present disclosure relates generally to connection assemblies incorporating retainers which may also be referred to as fasteners. More particularly, this disclosure pertains to connections incorporating push-in type retainers having downward biasing wing features which secure the retainer in place after insertion through an aperture and with seals for creating a barrier to the penetration of moisture, dust and noise through the aperture in which the retainer is secured.

BACKGROUND

[0003] Push-in type W-base retainers are used in a variety of connection assemblies to secure components of the assembly. For example, in automobiles such stud-like retainers are used to secure molding or other surface structures to underlying support elements such as body panels, support beams or the like. Such retainers typically include a stem with deflectable wing elements for securing the retainer to the support elements when the stem portion supporting the deflectable wing elements is pushed through an aperture in the support element. Typically, a head attached to the stem is configured for attachment to a doghouse or other complementary receiving element on the underside of the surface structure. In this regard, the head may include an enhanced diameter upper platform radial collar feature and an enhanced diameter lower radial collar feature with a spacing post extending between the upper and lower radial collar features. Thus, the spacing post may slide into a doghouse or other receiving element as will be well

known to those of skill in the art and thereafter be blocked against axial withdrawal by the upper and lower radial collar features.

[0004] During use, as the stem is inserted into the aperture, the deflectable members may be compressed radially inwardly. The deflectable members then may spring outwardly as insertion is completed to lock behind the underside of the support element. Thus, with the head secured to the surface structure, the retainer forms a connection between the surface structure and the underlying support element.

[0005] W-base retainers are typically designed as a component of an overall assembly and work in conjunction with the other components with the goal of establishing and maintaining a “zero gap” condition between the sheet metal panel or other support element and the molding or other surface structure. To promote the desired “zero gap” condition, the W-base retainers typically provide a continuous pull down or clamp load condition. This constant pull down is intended to provide and maintain the desired “zero gap” condition between the support element and the molding or other surface structure. If this pull down force is compromised by a significant force acting in the opposite direction such that the molding or other surface structure does not seat against the sheet metal panel or other support element, an unacceptable gap condition may occur within the final assembled product. Such a gap condition may result in undesired rattling noise as well as in the introduction of dirt and water between the molding or other surface structure and the underlying support structure.

[0006] As much as is reasonably possible, it is generally desirable to limit the generation of squeaks, rattles and objectionable noises that may be created from movement of the retainer relative to the parts to which it is connected. By way of example only, and not limitation, various sealing arrangements for push through retainers are illustrated and described in US Patent 5,173,026 to Cordola et al. and US published application 2006/0099051 to Moerke, the contents of all of which are incorporated herein by reference in their entirety. To minimize corrosion, it is desirable also to prevent moisture from precipitation, carwashes, etc. from seeping past the retainer, and through the aperture in which the retainer is installed.

[0007] A variety of sealing structures have been used to minimize rattles and squeaks and to prevent moisture seepage past the retainer. Independent concave skirts such as described in US published application 2006/0099051 have been used in conjunction with push-in retainers at the base of the head to confront the body panel around the aperture in the panel. Elastomeric and foam seals also have been used to further improve sealing qualities against moisture penetration.

[0008] Although retainers as described incorporating concave skirts and/or seals have been used successfully to limit squeaks and rattles and to inhibit the penetration of moisture past the retainer, further improvements are desirable. Installing the seal as a separate part is cumbersome and awkward, complicating installation of the retainer. If installed on the retainer in advance, the seal can become dislodged, even if properly placed on the retainer. In automated assembly plants, a retainer missing a seal may not be detected and may be installed on the article in which it is used inadvertently. A loose retainer of this type will rattle or squeak, may provide a path for the penetration of moisture and may not adequately secure the second article or item as required. If the seal is adhered to the skirt of the retainer, the seal may not function optimally if the retainer is not seated squarely in the panel. Further, the position of the seal relative to the retainer skirt has limited the range of panel thicknesses with which the retainer can be used effectively to provide a seal against moisture intrusion.

[0009] As will be understood by those of skill in the art, a seal which is held between the retainer head and the support panel may experience a build, stack up condition as compression force is applied which results in a counteracting upward force being applied against the head which may partially offset the pull-down force provided by the deflectable wings. In some cases, the presence of seal elements which are compressed between the retainer head and the support panel may block the lower collar feature of the retainer from getting close enough to the underlying sheet metal panel to establish the desired “zero gap” condition between the sheet metal panel and the overlying molding or other surface structure. That is, the compressed seal in stack-up condition may act in the manner of a spacing shim holding the retainer head further away than intended from the sheet metal panel or other underlying support element. With the retainer head in this elevated condition, the attached molding or other surface element will likewise be held away from the panel or other support element and a gap condition may result.

SUMMARY

[0010] The present disclosure provides advantages and alternatives over the prior art by providing a connection assembly including a push-in type retainer having a functional sealing feature that does not experience a build, stack up condition that may reduce the clamp load force. Thus, the retainer is not blocked from assuming its designed orientation relative to the sheet metal panel or other underlying support element. A “zero gap” condition is thereby established and maintained between the sheet metal panel or other underlying support element and the mating molding substrate or other surface element.

[0011] In accordance with one exemplary feature, the present disclosure provides a connection assembly adapted to join a surface element such as molding or the like to an underlying support structure such as a sheet metal panel or the like while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use. The connection assembly includes a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure. The retainer includes a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head. The retainer head includes an upper platform and an annular platform defining a lower collar positioned in spaced relation below the upper platform. The clip portion includes a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from a central stem. The retainer further includes a seal disposed at least partially about the lower collar. The seal includes a body portion engaging the lower collar and a sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from the lower collar. The underside of the sealing foot forms an obtuse angle relative to the underside of the lower collar. The sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintains continuous sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.

[0012] Other features and advantages of the present disclosure will become apparent from a description of certain preferred embodiments thereof which are shown in the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is an exploded perspective view illustrating an exemplary sealing retainer in accordance with the present disclosure with the seal separated from the retainer body;

[0014] FIG. 2 is an elevation perspective view illustrating an exemplary sealing retainer in accordance with the present disclosure engaging trim molding prior to insertion through a sheet metal support panel;

[0015] FIG. 3 is a cross-sectional view illustrating an exemplary sealing retainer in accordance with the present disclosure in normal operative connecting relation between a doghouse surface connector and an underlying support panel with wing elements in the inserted self-adjusting downward biasing condition;

[0016] FIG. 4 is a cross-sectional view illustrating an exemplary sealing retainer in accordance with the present disclosure engaging trim molding prior to insertion through a sheet metal support panel and with the seal in an unstressed condition; and

[0017] FIG. 5 is a cross-sectional view illustrating an exemplary sealing retainer in accordance with the present disclosure engaging trim molding after full insertion through a sheet metal support panel with a retained “zero gap” condition between the trim molding and the support panel and illustrating the compression action of the seal in an extreme insertion condition.

[0018] Before the embodiments of the disclosure are explained in detail, it is to be understood that the disclosure is not limited in its application to the details of construction and the arrangements of the components set forth in the following description or illustrated in the drawings. The disclosure is capable of other embodiments and of being practiced or being

carried out in various ways. Also, it is understood that the phraseology and terminology used herein are for the purpose of description and should not be regarded as limiting. The use herein of "including", "comprising" and variations thereof is meant to encompass the items listed thereafter and equivalents thereof, as well as additional items and equivalents thereof.

DETAILED DESCRIPTION

[0019] Referring now more specifically to the drawings, and to FIGS. 1 and 2 in particular, it may be seen that the present disclosure provides a retainer 10 adapted to secure a molding 12 or other surface element to a sheet metal support panel 14 or other underlying support element of metal or the like. As shown, in the illustrated exemplary construction, the retainer 10 includes a retainer head 16 and a snap engaging clip portion 18. As will be appreciated, the retainer head 16 and the clip portion 18 may be formed as a monolithic unitary body by injection molding or other suitable molding or fabrication process. The material for retainer 10 can be selected as optimally desirable for its particular installation and use. Accordingly, the retainer 10 may be formed of suitable plastic, such as Nylon, polypropylene, acetal resin and the like as will be well known to those of skill in the art. Acetal resin and Nylon 6.6 may be preferred in some environments of use. Of course, other polymeric and non-polymeric materials including metal and the like and combinations of various polymeric materials also may be used if desired. Likewise, it should be understood that the particular configurations for the retainer head 16 and for the clip portion 18 may be varied in a manner as may be desired for a particular installation.

[0020] By way of example only, and not limitation, in the illustrated exemplary construction for the retainer 10, the retainer head 16 is adapted for sliding receipt and retention within an intermediate connector 20 (FIG. 2) such as a dog house connector or the like disposed in hidden relation at the underside of the molding 12. In this regard, the intermediate connector 20 may be formed integral with the molding 12 as shown or may be a separate attached structure as may be desired.

[0021] As shown, in the illustrated exemplary construction, the retainer head 16 includes a table-like upper platform 22 disposed in opposing relation to a lower collar 24 of substantially

rigid, annular construction. In this regard, while the upper platform 22 is illustrated as having a generally rectangular configuration, it is likewise contemplated that other polygonal or circular geometries may be used if desired. As shown, the lower collar 24 may be in substantially perpendicular non-angled orientation to the travel path of the retainer and may include an interior collar portion 26 and a reduced thickness outer annular lip 28 disposed circumferentially about the interior collar portion such that a step 30 is disposed at the intersection of the interior collar portion 26 and the outer annular lip 28. A neck structure 32 in the form of a reduced diameter post extends between the upper platform 22 and the lower collar 24. As will be understood, the effective outer diameters defined by the upper platform 22 and by the lower collar 24 are preferably greater than the effective outer diameter defined by the neck structure 32.

[0022] In operation, the retainer 10 may be operatively secured to the intermediate connector 20 by sliding the neck structure 32 into a slot in the intermediate connector 20 in a manner as will be well known to those of skill in the art. The intermediate connector may, in turn, be attached to the overlying molding 12 or other surface element. Likewise, the retainer head 16 may be connected directly to an overlying component by techniques such as tape, adhesive bonding, mechanical joining or the like if desired.

[0023] As indicated previously, the retainer 10 further includes a clip portion designated generally as 18 extending away from the underside of the lower collar 24. In the illustrated exemplary construction, the clip portion 18 includes a stem 34 projecting away from the lower collar 24 such that the lower collar is oriented substantially perpendicular to an axis defined by the stem. As illustrated, wing elements 36 extend upwardly in angled relation away from the end of the stem 34. The wing elements 36 are adapted to flex inwardly towards the stem 34 during insertion through an acceptance opening 38 in the support panel 14. As best seen through joint reference to FIGS. 1 and 3, in the illustrated exemplary construction each of the wing elements 36 incorporates an outer face having a dogleg configuration facing generally outwardly away from the stem 34. In this regard, in the illustrated construction, the outer face of each wing element 36 includes a proximal face surface 42 extending in angled relation away from the axis defined by the stem 34. A distal face surface 44 extends away from the proximal face surface in angled relation back towards the axis defined by the stem 34 ultimately terminating at the free tip

of the wing element thereby establishing the outer surface dogleg profile. As shown, the free tips of the wing elements are at an elevation below the lower collar 24.

[0024] As best seen through joint reference to FIGS. 1-3, a monolithic perimeter seal 50 of flexible polymeric material is disposed about the perimeter of the lower collar 24 generally at the intersection between the retainer head 16 and the clip portion 18. As best seen in FIG 3, the inner diameter of the perimeter seal 50 may substantially cover the outer annular lip 28 of the lower collar 24 and may abut the step 30. The perimeter seal 50 may be formed from commercially available moldable materials such as thermoplastic elastomers including, by way of example only, polyolefins, PVC, silicone rubber, PTFE, polyvinylidene fluoride (PVDF), fluorinated ethylene propylene (FEP) and blends thereof. Such materials will preferably be of lower durometer (i.e. are less rigid) than the material forming the retainer head and may be characterized by a useful operating temperature range of about -75 °C to about 175 °C. In accordance with one exemplary construction, the perimeter seal 50 may be formed by over-molding or two-shot molding processes such that during molding the flexible material forming the perimeter seal 50 is integrally fused with the more rigid acetal resin or other material forming the lower collar 24. It is also contemplated that the perimeter seal 50 may be formed separately with a circumferential acceptance slot around the interior for receipt and retention of the annular lip 28 in a stretch-fit relation if desired. In any event, the seal 50 defines a relatively soft, deformable covering at the perimeter edge of the lower collar 24 adapted to provide a seal around the acceptance opening 38 in the support panel 14 during use without the need for any sealing structures oriented below the lower collar.

[0025] As best seen in FIG. 3, the perimeter seal 50 may be substantially annular and may include a main body portion 52 adapted to cover the outer annular lip 28 of the lower collar 24. A hingeable outwardly flared sealing foot 54 extends in angled relation downwardly and radially away from the main body portion 52. As shown, the sealing foot 54 is elongated and relatively thin in cross-section. In an unstressed condition (FIG. 4), the sealing foot 54 extends radially outboard from the main body portion 52 to a free edge such that the sealing foot is disposed entirely outboard from lower collar 24 and the underside of the sealing foot forms an obtuse

angle relative to the underside of the lower collar 24. As shown, no portion of the angled sealing foot 54 is in the zone below the lower collar 24.

[0026] When the sealing foot 54 is pressed against the support panel 14 during normal use, the sealing foot 54 readily flexes upwardly towards a flattened condition about a living hinge 56 substantially at the intersection with the body portion 52. This hinging takes place without confinement of the sealing foot between the support panel 14 and the lower collar 24 while continuously maintaining contacting engagement with the underlying support panel. Thus, the sealing foot 54 may flex from its unstressed condition (FIG. 4) to its fully flexed position (FIG. 5) without experiencing a stack-up condition of seal material between the support panel 14 and the lower collar 24. As the sealing foot 54 flexes during compression, the edge of the sealing foot 54 moves radially outwardly as the sealing foot 54 takes on a more flattened condition. As this flattening takes place, the sealing foot 54 moves out of the way of the travel path for the lower collar 24. This avoids any confinement and stack-up of seal material between the support panel 14 and the lower collar 24 while nonetheless maintaining a sealing condition relative to the support panel 14. Accordingly, the retainer head 16 and the attached molding 12 may be pulled downwardly to a position wherein the molding 12 and the underlying support panel form a substantially flush “zero gap” condition while maintaining a seal around the acceptance opening 38. In this regard, it will be understood that such a zero gap condition occurs when a contact surface 60 on the molding 12 assumes a contacting abutting relation with the underlying support panel 14. As will be appreciated, the elevation and contour of the contact surface 60 may be selected to provide this zero gap condition when the sealing foot 54 is in a flexed condition relative to the support panel 14 and with the lower collar 24 elevated relative to the support panel 14.

[0027] Referring now to FIGS. 2 and 3, it will be seen that in normal operation (FIG. 3), a portion of the sloped distal face surface 44 may be in contacting relationship with the inner perimeter surface of the acceptance opening 38. In the normal operating condition shown in FIG. 3, the retainer 10 is urged downwardly continuously as the flexed wing elements press outwardly against the perimeter surface of the acceptance opening 38. However, downward movement will be limited once the molding 12 comes into contact with the underlying support

panel 14 to establish a zero gap condition. Thus, in the condition shown by FIG. 3, a condition of static equilibrium is established when the molding 12 comes into contact with the underlying support panel 14. Since the retainer 10 is urged continuously downwardly due to the sloped distal face surface 44, the retainer will naturally assume and retain the level at which the molding 12 contacts the underlying support panel 14 and thereby blocks further downward movement. As shown, in this equilibrium condition, the lower collar 24 remains slightly elevated relative to the support panel 14 and the sealing foot 54 of the perimeter seal 50 is hinged outwardly while maintaining a sealing relationship against the support panel 14. As can be seen, the sealing foot 54 is adapted to flex outwardly in a hinging action as the retainer moves downwardly without blocking further downward movement by the retainer 10.

[0028] As will be appreciated, the equilibrium position of the retainer 10 within the acceptance opening 38 is continuously self-adjusting as the relative positions of the molding 12 and the support panel 14 change during use as a result of vibration or other events. In this regard, the living hinge 56 urges the sealing foot 54 continuously against the underlying support panel 14 as the sealing foot 54 attempts to resume its normal unflexed condition (FIG. 4). Thus, the sealing relationship provided by the sealing foot 54 is maintained by sliding contact as the retainer 10 moves up and down and the sealing foot 54 moves radially in and out during equilibrium adjustment. That is, although the angle between the support panel 14 and the sealing foot 54 may change as the retainer 10 moves up and down, the sealing relation is maintained as the sealing foot 54 moves in sliding relation over the support panel. Moreover, since the sealing foot 54 is not confined between the lower collar 24 and the support panel 14, downward movement of the molding is unobstructed by the sealing element.

[0029] As best seen in FIG. 5, in the event of extreme insertion such that the tips of the wing elements 36 are within the acceptance opening, in the support panel 14, the sealing foot 54 may assume a substantially flattened condition against the underlying support panel 14 as the molding 12 establishes a “zero gap” condition with the support panel. Even in this extreme insertion condition, the sealing foot is not confined between the lower collar 24 and the support panel 14. Accordingly, no stack-up condition and resultant shim action is created. Thus, the molding 12 may continue to be pulled down to the desired “zero gap” condition over

the full range of operative engagement positions between the wing elements 36 and the support panel 14 with the sloped distal face surface 44 bearing against the support panel.

[0030] The ability to avoid a stack-up condition is promoted by maintaining the free space between the lower collar 24 and the underlying support panel during downward movement such that portions of the seal material do not collect in the free space in a manner which would limit downward movement. This free space below the lower collar is maintained even in the extreme insertion condition shown in FIG. 5. As shown, all portions of the sealing foot 54 are positioned radially outboard from the lower collar 24 and the free edge of the sealing foot 54 is adapted to slide radially outwardly away from the lower collar 24 and the main body portion 52 as the retainer head 16 moves downwardly and the sealing foot 54 hinges outwardly. Thus, the sealing foot 54 flattens by hinging outwardly about the living hinge 56 as it is pressed against an underlying support panel 14. Accordingly, the sealing foot 54 does not interfere with downward movement of the retainer head 16 and the molding 12 may be maintained in a “zero gap” condition with the underlying support panel 14.

[0031] While various spatial and directional terms, such as upper, horizontal, vertical, front and the like may be used to describe embodiments of the present invention, it is understood that such terms are merely used with respect to the orientations shown in the drawings. The orientations may be inverted, rotated, or otherwise changed, such that an upper portion is a lower portion, and vice versa, horizontal becomes vertical, and the like.

[0032] Of course, variations and modifications of the foregoing are within the scope of the present disclosure. It is to be understood that the disclosure disclosed and defined herein extends to all alternative combinations of two or more of the individual features mentioned or evident from the text and/or drawings. All of these different combinations constitute various alternative aspects of the present disclosure. The embodiments described herein explain the best modes known for practicing the disclosure and will enable others skilled in the art to utilize the disclosure. The claims are to be construed to include alternative embodiments to the extent permitted by the prior art.

What is claimed is:

1. A connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap, abutting relation between the surface element and the support structure during use, the connection assembly comprising:

a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform and an annular platform defining a lower collar positioned in spaced relation below the upper platform, wherein the clip portion comprises a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from a central stem, the retainer further including a seal disposed at least partially about the lower collar, the seal having a durometer lower than the lower collar and including a body portion engaging the lower collar and a sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from lower collar and the underside of the sealing foot forms an obtuse angle relative to the plane of the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.

2. The connection assembly as recited in Claim 1, wherein the retainer head and clip portion are molded as a unitary structure.

3. The connection assembly as recited in Claim 1, wherein the lower collar is oriented substantially perpendicular to an axis defined by the stem and has a stepped construction including an interior portion and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip.

4. The connection assembly as recited in Claim 3, wherein the seal is formed by over-molding or two-shot molding in fused, overlying relation about the outer annular lip of the lower collar.

5. The connection assembly as recited in Claim 3, wherein the retainer head and clip portion are molded as a unitary structure from a polymer selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin.

6. The connection assembly as recited in Claim 3, wherein the seal is molded from a thermoplastic elastomer.

7. The connection assembly as recited in Claim 3, wherein the retainer head and clip portion are molded as a unitary structure from acetal resin, and wherein the seal is molded from a thermoplastic elastomer.

8. The connection assembly as recited in Claim 1, wherein the wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening.

9. The connection assembly as recited in Claim 1, wherein the retainer head includes a connective neck structure extending between the upper platform and the lower collar, and wherein the neck structure is adapted to slidingly engage an intermediate doghouse connector operatively joined to the surface element.

10. A connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use, the connection assembly comprising:

a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform, an annular platform defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform, and a connective neck structure

extending between the upper platform and the lower collar, wherein the clip portion comprises a central stem extending downwardly away from the lower collar such that the lower collar is oriented substantially perpendicular to an axis defined by the stem, a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar, wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening, the retainer further including a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use;

a preformed surface element having a contact surface configured to abut the support structure in a substantially gapless relation during use; and

an intermediate connector operatively connected to the surface element and adapted to receive and retain the retainer head such that upon insertion of the retainer into an acceptance opening in the support panel, an operative connection is established between the surface element and the support structure, wherein the surface element is configured such that when the retainer is held between the intermediate connector and the support structure, the contact surface of the surface element is at an elevation such that it abuts the support structure while the sealing foot is in contacting relation with the support structure and the lower collar remains spaced in elevated relation away from the support structure.

11. The connection assembly as recited in Claim 10, wherein the retainer head and clip portion are molded as a unitary structure.

12. The connection assembly as recited in Claim 10, wherein the lower collar has a stepped construction including an interior portion and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip, and wherein the seal is formed from a material of lower durometer than the material forming the lower collar.

13. The connection assembly as recited in Claim 12, wherein the seal is formed by over-molding or two-shot molding in fused, overlying relation about the outer annular lip of the lower collar.

14. The connection assembly as recited in Claim 12, wherein the retainer head and clip portion are molded as a unitary structure from a polymer is selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin.

15. The connection assembly as recited in Claim 12, wherein the seal is molded from a thermoplastic elastomer.

16. The connection assembly as recited in Claim 12, wherein the retainer head and clip portion are molded as a unitary structure from acetal resin, and wherein the seal is molded from a thermoplastic elastomer.

17. The connection assembly as recited in Claim 10, wherein the intermediate connector is a doghouse connector adapted to slidably receive and retain the connective neck structure.

18. The connection assembly as recited in Claim 10, wherein, the intermediate connector is integral with the preformed surface element.

19. The connection assembly as recited in Claim 10, wherein, the intermediate connector is configured such that the contact surface is at an elevation below the lower collar and

above the free edge of the sealing foot when the retainer head is supported within the intermediate connector and prior to insertion into the acceptance opening.

20. A method of connecting a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use, the method comprising:

providing a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform, an annular platform defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform, and a connective neck structure extending between the upper platform and the lower collar, wherein the clip portion comprises a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar, wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening, the retainer further including a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use;

providing a preformed surface element having a contact surface configured to abut the support structure in a substantially gapless relation during use;

securing the retainer head within an intermediate connector operatively connected to the surface element; and

inserting the retainer into an acceptance opening in the support panel, to establish an operative connection between the surface element and the support structure, wherein the surface element is configured such that when the retainer is held between the intermediate connector and the support structure, the contact surface of the surface element is at an elevation such that it abuts the support structure while the sealing foot is in flexed contacting relation with the support structure and the lower collar remains spaced in elevated relation away from the support structure.

1/4

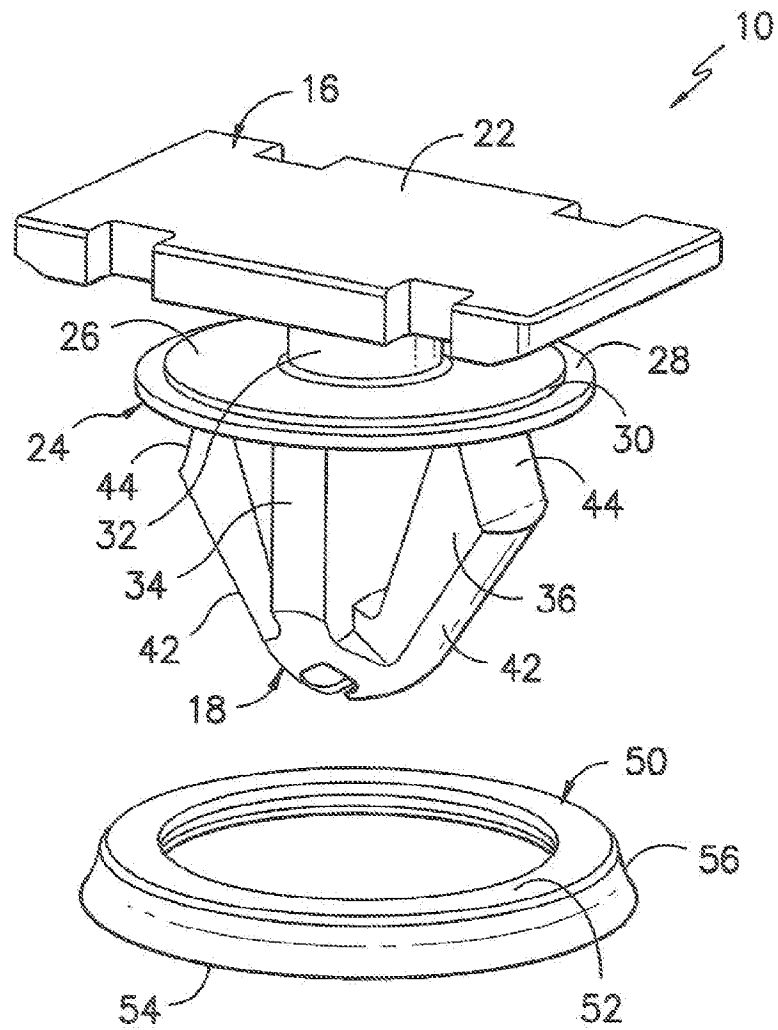


FIG. -1-

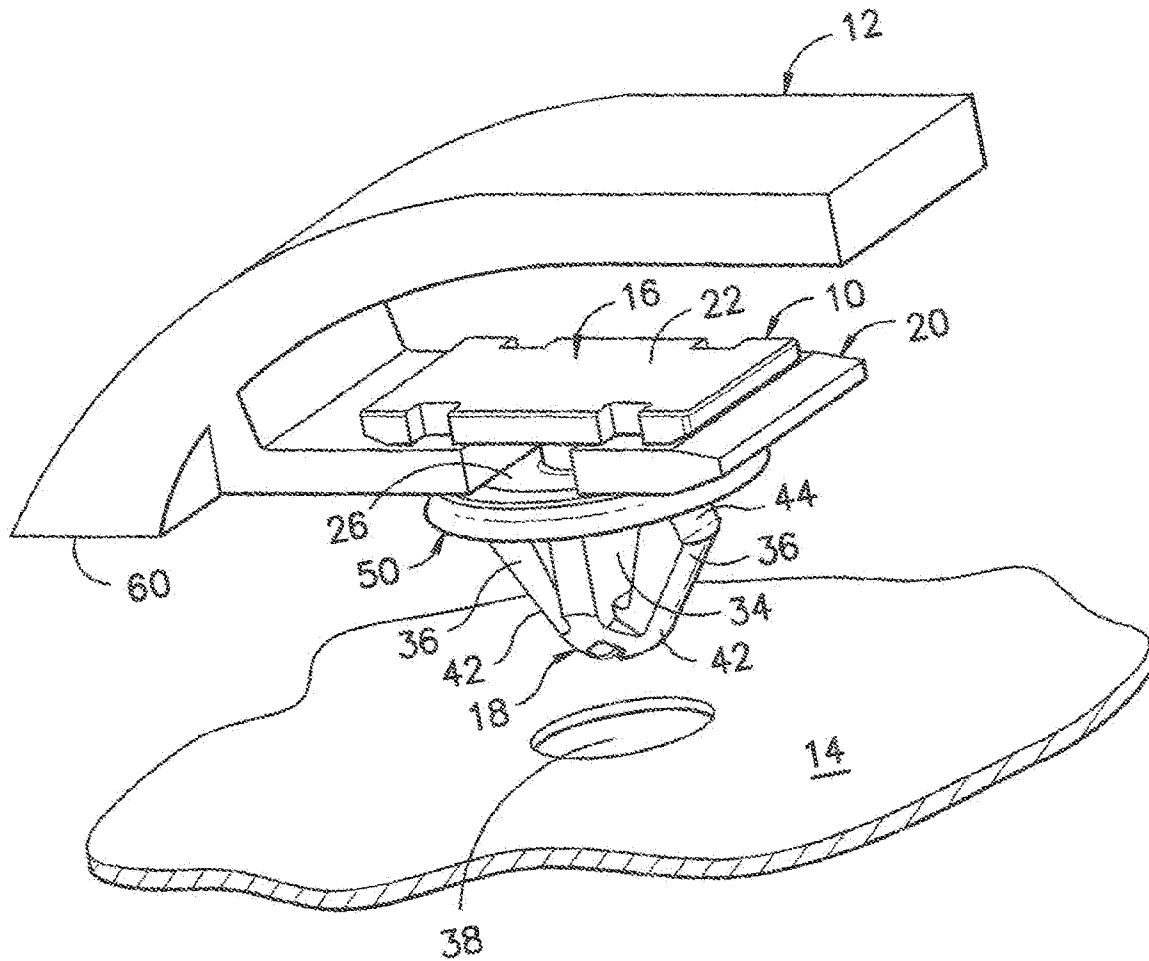


FIG. -2-

3/4

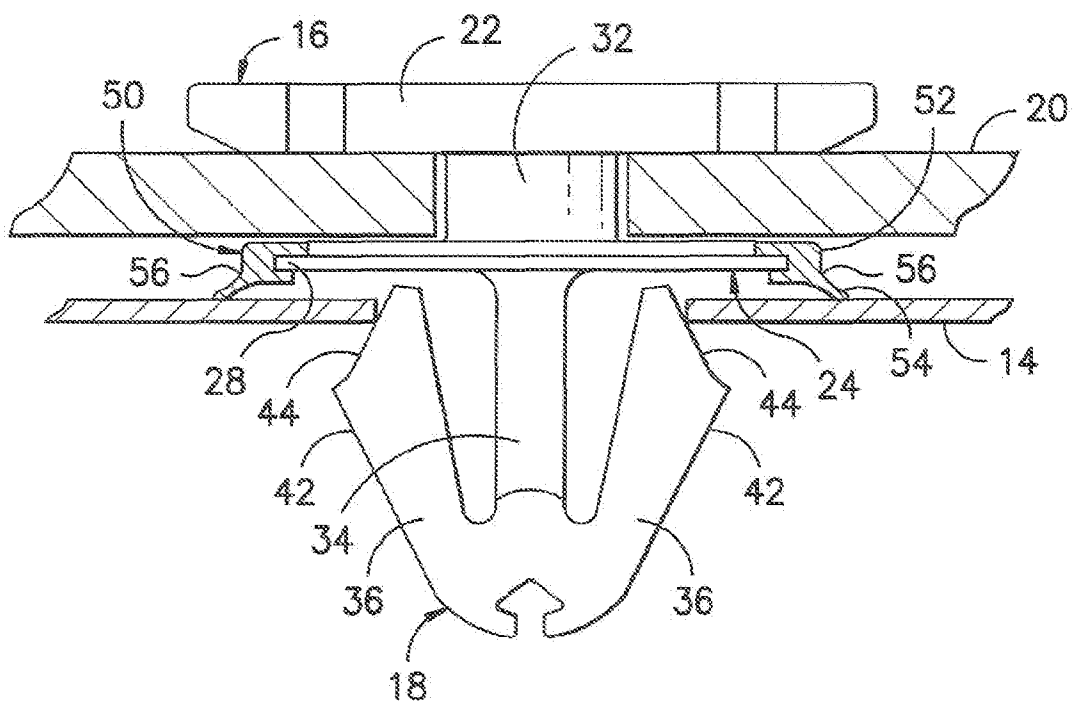


FIG. -3-

4/4

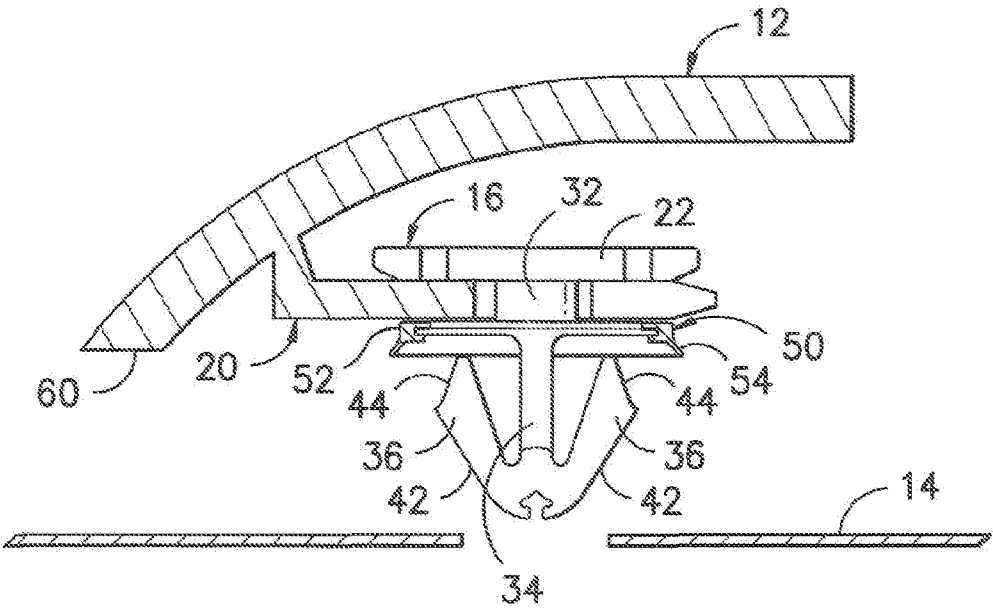


FIG. -4-

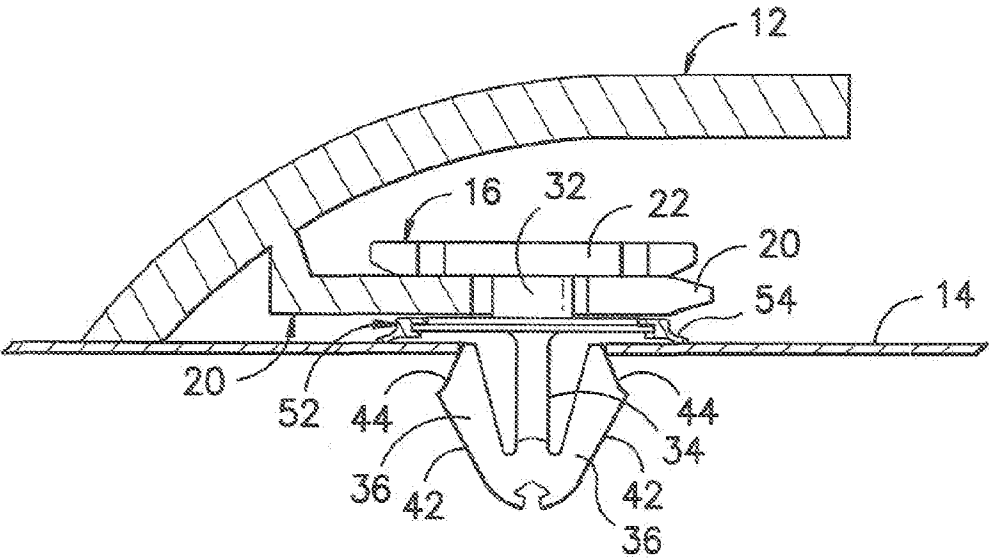


FIG. -5-

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/073861

A. CLASSIFICATION OF SUBJECT MATTER

INV. F16B5/06 F16B19/00 F16B21/08
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
F16B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 173 026 A (CORDOLA JEAN-PIERRE [FR] ET AL) 22 December 1992 (1992-12-22) cited in the application	1-4
Y	column 3, lines 1-6; figure 6 -----	5-20
Y	US 2011/243688 A1 (KLEIN JEAN LUC [FR] ET AL) 6 October 2011 (2011-10-06) paragraphs [0026], [0053] -----	1-20
Y	FR 2 913 738 A1 (RAYMOND ET CIE SOC EN COMMANDI [FR]) 19 September 2008 (2008-09-19) page 3, lines 9-34 -----	1-8, 10-16,20
Y	WO 2009/123616 A1 (TS TECH CO LTD [JP]; IWASAKI TAKASHI [US]) 8 October 2009 (2009-10-08) paragraphs [0029], [0030] -----	8-10, 17-20



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents :

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

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Date of the actual completion of the international search

21 March 2014

Date of mailing of the international search report

28/03/2014

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
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Fax: (+31-70) 340-3016

Authorized officer

Rochus, Johann

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/073861

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5173026	A	22-12-1992	ES 1020240 U	01-06-1992
			FR 2673249 A1	28-08-1992
			IT 1263297 B	05-08-1996
			JP H0571519 A	23-03-1993
			US 5173026 A	22-12-1992

US 2011243688	A1	06-10-2011	CN 102257281 A	23-11-2011
			EP 2344777 A1	20-07-2011
			FR 2938025 A1	07-05-2010
			KR 20110074944 A	04-07-2011
			US 2011243688 A1	06-10-2011
			WO 2010051987 A1	14-05-2010

FR 2913738	A1	19-09-2008	CN 101675255 A	17-03-2010
			EP 2140149 A1	06-01-2010
			FR 2913738 A1	19-09-2008
			JP 4967031 B2	04-07-2012
			JP 2010521632 A	24-06-2010
			KR 20090108717 A	16-10-2009
			US 2010098515 A1	22-04-2010
			WO 2008113438 A1	25-09-2008

WO 2009123616	A1	08-10-2009	EP 2268166 A1	05-01-2011
			JP 2011516325 A	26-05-2011
			US 2011119875 A1	26-05-2011
			WO 2009123616 A1	08-10-2009

Docket No.: 61823-US (713-3314)

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	
	:	
Derek SCROGGIE et al.	:	Confirmation No. (Not Yet Assigned)
	:	
U.S. Patent Application No. (Not Yet Assigned)	:	
	:	
Filed: June 17, 2015	:	

For: PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

PRELIMINARY AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Preliminary to examination of the above-referenced application, please amend the application as follows:

AMENDMENTS TO THE SPECIFICATION

On page 1, please amend paragraph [0001] as follows:

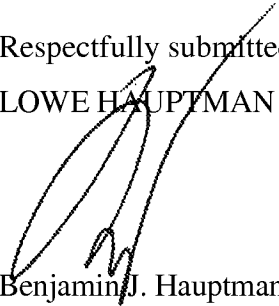
[0001] This ~~non-provisional~~ application is a National Phase of International Application Number PCT/US2013/073861 filed December 9, 2013 and claims the benefit of, and priority from, United States provisional application 61/739,604 filed December 19, 2012. The contents of such provisional application and all other patent documents referenced in this application are hereby incorporated by reference in their entirety as if fully set forth herein.

REMARKS

The specification of the referenced application has been amended to identify the corresponding International application. No new matter has been introduced through the foregoing amendments. Entry is in order.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,
LOWE HAUPTMAN & HAM, LLP



Benjamin J. Hauptman
Registration No. 29,310

2318 Mill Road, Suite 1400
Alexandria, Virginia 22314
(703) 684-1111
Facsimile: (703) 518-5499
Date: June 17, 2015
BJH/tal

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2015-06-17
	First Named Inventor	Derek SCROGGIE	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	61823-US (713-3314)	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5173026	A	1992-12-22	CORDOLA et al.	

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	1	20060099051	A1	2006-05-11	MOERKE	
	2	20100098515	A1	2010-04-22	RAYMOND	
	3	20110119875	A1	2011-05-26	IWASAKI	
	4	20110243688	A1	2011-10-06	KLEIN et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date		2015-06-17	
	First Named Inventor	Derek SCROGGIE		
	Art Unit			
	Examiner Name			
	Attorney Docket Number	61823-US (713-3314)		

1	2913738	FR	A1	2008-09-19	A. RAYMOND ET CIE SOCIETE EN COMMANDITE SIMPLE	☐
2	2009123616	WO	A1	2009-10-08	TS TECH CO., LTD.; IWASAKI, TAKASHI	☐

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NON-PATENT LITERATURE DOCUMENTS

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	ISR and WO for PCT/US2013/073861 mailed March 28, 2014	☐

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2015-06-17
First Named Inventor	Derek SCROGGIE
Art Unit	
Examiner Name	
Attorney Docket Number	61823-US (713-3314)

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Benjamin J. Hauptman/	Date (YYYY-MM-DD)	2015-06-17
Name/Print	Benjamin J. Hauptman	Registration Number	29,310

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



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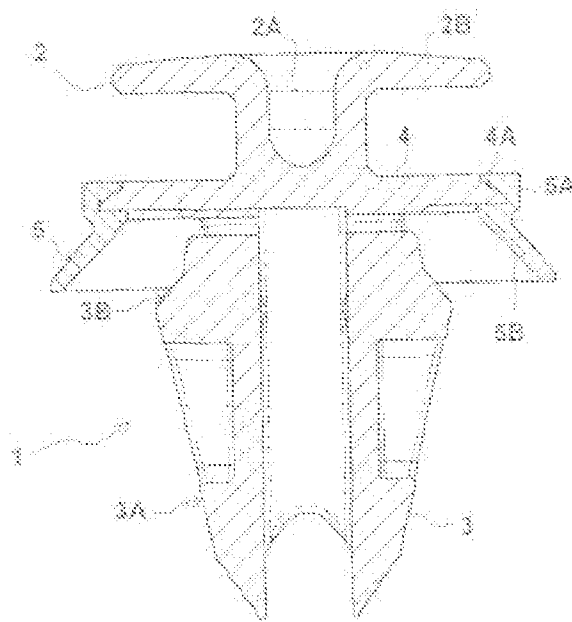
Bibliographic data: FR2913738 (A1) — 2008-09-19

AGRAFE DE FIXATION

Inventor(s): RAYMOND ANTOINE ± (RAYMOND ANTOINE)**Applicant(s):** RAYMOND ET CIE SOC EN COMMANDI [FR] ± (A. RAYMOND ET CIE SOCIETE EN COMMANDITE SIMPLE)**Classification:** - **international:** *B60R13/02; F16B19/00; F16B21/06; F16B43/00; F16B5/06*
- **cooperative:** F16B21/06; F16B5/065**Application number:** FR20070001939 20070316**Priority number(s):** FR20070001939 20070316**Also published as:** FR2913738 (B1) US2010098515 (A1) RU2413097 (C1)
MX2009009820 (A) KR20090108717 (A) KR20090108717 (A)
KR101157450 (B1) KR101157450 (B1) JP2010521632 (A)
JP2010521632 (A) JP4967031 (B2) JP4967031 (B2)
WO2008113438 (A1) EP2140149 (A1) EP2140149 (B1)
CN101675255 (A) BRPI0808929 (A2) less

Abstract of FR2913738 (A1)

Une agrafe de fixation comporte : un corps (1) en une première matière plastique moulée relativement rigide, muni d'une tête (2), d'un pied (3) et d'une collerette (4) disposée à la jonction entre la tête et le pied, et une rondelle d'étanchéité (5) en une seconde matière plastique moulée relativement souple qui est fixée à la périphérie de la collerette. La rondelle est fixée à la collerette par une liaison chimique cohésive résultant d'une fusion lors du moulage entre la première matière plastique et la seconde matière plastique.



①⑨ RÉPUBLIQUE FRANÇAISE
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②① N° d'enregistrement national : **07 01939**

⑤① Int Cl⁸ : **F 16 B 5/06** (2006.01), F 16 B 19/00, 21/06, 43/00,
B 60 R 13/02

①② **DEMANDE DE BREVET D'INVENTION** **A1**

②② Date de dépôt : 16.03.07.

③⑦ Priorité :

④③ Date de mise à la disposition du public de la
demande : 19.09.08 Bulletin 08/38.

⑤⑥ Liste des documents cités dans le rapport de
recherche préliminaire : *Se reporter à la fin du
présent fascicule*

⑥⑦ Références à d'autres documents nationaux
apparentés :

⑦① Demandeur(s) : *A. RAYMOND ET CIE Société en
commandite simple — FR.*

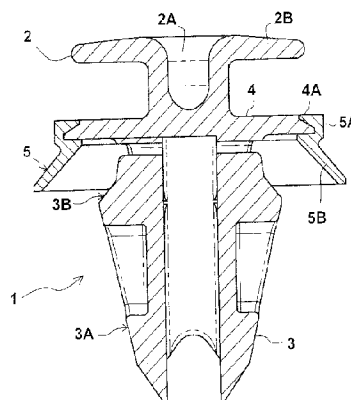
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⑤④ **AGRAFE DE FIXATION.**

⑤⑦ Une agrafe de fixation comporte: un corps (1) en une première matière plastique moulée relativement rigide, muni d'une tête (2), d'un pied (3) et d'une collerette (4) disposée à la jonction entre la tête et le pied, et une rondelle d'étanchéité (5) en une seconde matière plastique moulée relativement souple qui est fixée à la périphérie de la collerette. La rondelle est fixée à la collerette par une liaison chimique cohésive résultant d'une fusion lors du moulage entre la première matière plastique et la seconde matière plastique.



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L'invention concerne une agrafe de fixation utilisée pour fixer des éléments sur par exemple un véhicule terrestre notamment à moteur, et tout particulièrement pour fixer un panneau sur un support tel qu'une porte de véhicule terrestre à moteur.

5

On connaît du document de brevet FR-2673249, une telle agrafe de fixation comportant : un corps en matière plastique moulée relativement rigide, muni d'une tête adaptée à se monter au panneau à travers un orifice, d'un pied adapté à se monter au support à travers un orifice, et d'une
10 collerette disposée à la jonction du pied et de la tête, et une rondelle d'étanchéité en matière plastique relativement molle surmoulée sur la périphérie de la collerette pour assurer une étanchéité avec le support.

Le document de brevet GB-2360322 décrit une agrafe de fixation
15 similaire à celle décrite dans le document précédant mais dans laquelle le surmoulage est conçu pour éviter que la rondelle ne s'échappe de la collerette.

Enfin le document de brevet EP-1025368 décrit une agrafe avec
20 plusieurs collerettes.

Le but de l'invention est de renforcer encore plus l'étanchéité procurée par la rondelle d'une agrafe de fixation telle que définie plus haut.

25 A cet effet, l'invention a pour objet une agrafe de fixation comportant : un corps en une première matière plastique moulée relativement rigide, muni d'une tête, d'un pied et d'une collerette disposée à la jonction entre la tête et le pied, et une rondelle d'étanchéité en une seconde matière plastique moulée relativement souple qui est fixée à la
30 périphérie de la collerette, caractérisée en ce que la rondelle est fixée à la collerette par une liaison chimique cohésive résultant d'une fusion lors du moulage entre la première matière plastique et la seconde matière plastique.

L'idée à la base de l'invention est donc de choisir deux matières
35 plastiques différentes mais compatibles et de les polymériser lors du

moulage dans des conditions telles à provoquer la liaison cohésive entre la rondelle et la collerette.

L'agrafe selon l'invention trouve à s'appliquer en particulier mais non
 5 exclusivement pour la fixation d'un élément sur un support, par exemple un
 panneau de garnissage des portes d'automobile : le panneau comporte une
 série d'orifices dans chacun desquels on monte une agrafe, et ensuite on
 présente le panneau sur la porte ou le support, qui comporte une série
 d'orifices correspondants dans lesquels s'enclipsent les pieds des agrafes
 10 lorsqu'on presse le panneau contre le support. En position fixée, la collerette
 et la rondelle sont enserrées entre le panneau et le support, la collerette
 portant contre le panneau et la rondelle contre le support, la coopération de
 la collerette généralement tronconique et de la rondelle conférant à
 l'assemblage une excellente étanchéité.

15

L'invention s'étend à une agrafe de fixation dont la tête est à
 clipsage, à lanière crantée, à enrubannage, etc pour la fixation de câbles
 électriques, tubes de conduite ou autres éléments à fixer sur un support
 muni d'un orifice....

20

L'invention sera encore mieux comprise à la lecture de la description
 qui suit et qui est illustrée par le dessin montrant vue en coupe longitudinale
 une agrafe de fixation d'un panneau sur un support.

25 Sur la figure unique, on a représenté une agrafe de fixation d'un
 panneau à un support qui comporte un corps 1 en une première matière
 plastique moulée relativement rigide, muni d'une tête 2, d'un pied 3 et d'une
 collerette 4 disposée à la jonction entre la tête et le pied.

30 La tête 2 comporte un alésage central 2A bordé par un disque
 annulaire 2B servant de butée pour un blocage de la tête de l'agrafe selon
 une direction longitudinale.

Le pied 3 est composé d'une âme centrale déformable
 35 élastiquement entourée par une jambe formée de deux sections de longueur
 tronconiques disposées en opposition avec une base commune, l'une 3A

formant l'extrémité libre de la jambe dont la pointe est orientée vers cette extrémité, l'autre 3B dont la pointe est orientée vers la tête 2.

La collerette 4 se présente sous la forme d'un disque annulaire dont
5 le bord extérieur périphérique est muni d'un chanfrein. Quand l'agrafe est montée sur le panneau, ce dernier s'intercale entre le disque 2B de la tête et la collerette 4.

L'agrafe comporte également une rondelle d'étanchéité 5 en une
10 seconde matière plastique moulée relativement souple, c'est-à-dire beaucoup plus molle que la première matière plastique constituant le corps de l'agrafe.

La rondelle 5 a un bord intérieur périphérique 5A présentant une
15 gorge intérieure dans laquelle s'engage le chanfrein du bord extérieur de la collerette 4. Elle a également une lèvre périphérique 5B de forme tronconique qui saille depuis le bord 5A du côté du pied 3 et qui s'évase en allant en direction du pied 3.

Selon l'invention, le bord intérieur périphérique de la rondelle 5 est
20 fixé au bord extérieur périphérique de la collerette par une liaison cohésive lors du moulage de l'agrafe. Par conséquent, le corps 1 incluant la tête 2, le pieds 3 et la collerette 4 avec la rondelle 5 sont donc réalisés d'une seule pièce par moulage des deux matières plastiques respectivement du corps 1
25 et de la rondelle 5.

Ces deux matières plastiques peuvent être des matières thermoplastiques. Elles sont choisies pour être compatibles pour provoquer cette liaison cohésive lors du moulage par injection en une seule étape du
30 corps et de la rondelle de l'agrafe. La liaison peut par exemple se produire en phase de vulcanisation des matières brutes (les molécules une fois placées à l'intérieur du moule de fabrication de l'agrafe bi-matière se combinent entre elles à des températures données favorisant une bonne accroche chimique).

35

A titre d'exemple on pourra choisir comme couple de matières plastiques compatibles, par exemple :

- un copolymère acétal POMC (type Hostaform C9021 de la société Ticona ou Kepital F20-30 de la société Kep) avec un styrène copolymère TPE-S
- 5 (type Thermolast K de la société Kraiburg)
- un PA6/PP (type Orgalloy RS6000 de la société Arkema) avec un TPE-S (type Thermolast K ou Vitaprene de la société VTP)
- un PP (type Exxtral CNU011 de la société ExxonMobil) avec un PP/EPDM (type Santoprene de la société ExxonMobil) ou un SEBS (type Multiflex de la
- 10 société Multibase)

La cohésion chimique (ou adhésion chimique) est donc basée sur la formation de liaisons chimiques iono-covalentes. Ces liaisons sont parmi les plus fortes (de l'ordre de 1000 kJ/mole) et assurent aux assemblages collés

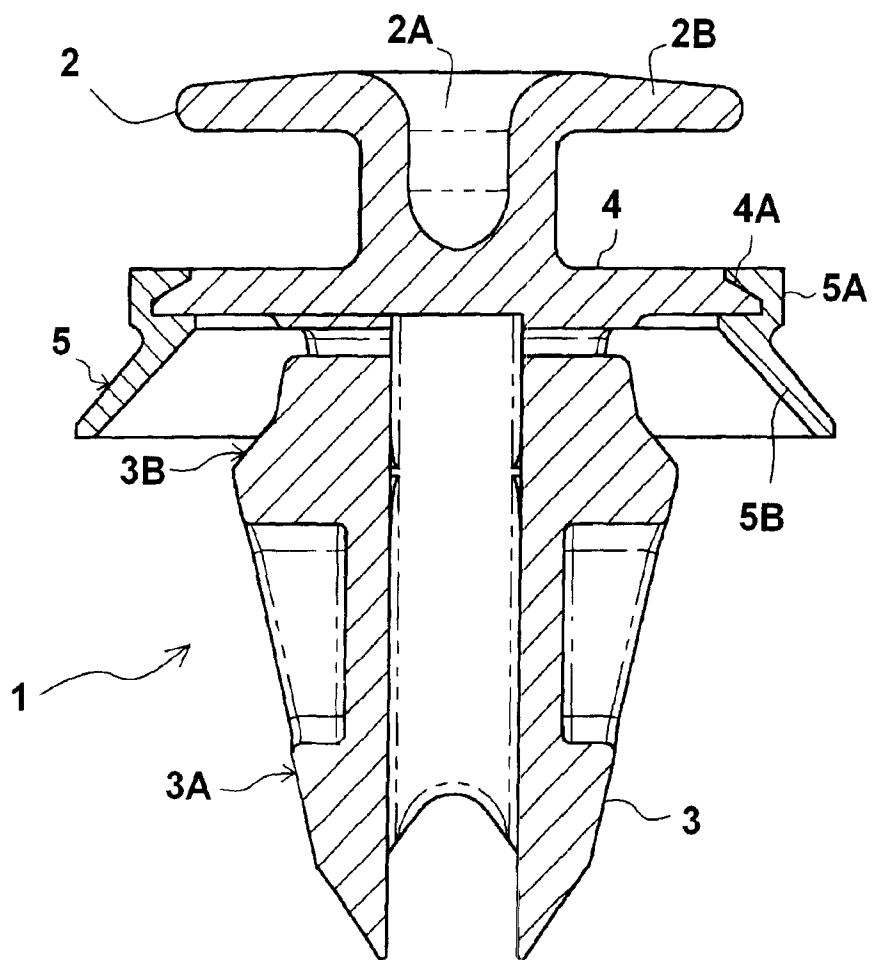
15 une résistance à la rupture importante et une meilleure durabilité ce qui renforce l'étanchéité procurée par la rondelle de l'agrafe selon l'invention.

REVENDICATIONS

1) Agrafe de fixation comportant : un corps (1) en une première matière plastique moulée relativement rigide, muni d'une tête (2), d'un pied (3) et
5 d'une collerette (4) disposée à la jonction entre la tête et le pied, et une rondelle d'étanchéité (5) en une seconde matière plastique moulée relativement souple qui est fixée à la périphérie de la collerette, caractérisée en ce que la rondelle est fixée à la collerette par une liaison chimique cohésive résultant d'une fusion lors du moulage entre la première matière
10 plastique et la seconde matière plastique.

2) Agrafe selon la revendication 1, dans laquelle la tête est adaptée à se monter à un panneau et le pied est adapté à se monter à un support, la rondelle assurant l'étanchéité avec le support.

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RAPPORT DE RECHERCHE PRÉLIMINAIRE

établi sur la base des dernières revendications
déposées avant le commencement de la recherche

N° d'enregistrement
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FA 693108
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DOCUMENTS CONSIDÉRÉS COMME PERTINENTS		Revendication(s) concernée(s)	Classement attribué à l'invention par l'INPI
Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes		
D,Y	FR 2 673 249 A (ITW DE FRANCE [FR]) 28 août 1992 (1992-08-28) * revendication 1; figures 4-6 *	1,2	F16B5/06 F16B19/00 F16B21/06 F16B43/00 B60R13/02
Y	EP 1 452 745 A (METZELER AUTOMOTIVE PROFILE [DE]) 1 septembre 2004 (2004-09-01) * alinéa [0018] * * alinéa [0022]; figure 1 *	1,2	
			DOMAINES TECHNIQUES RECHERCHÉS (IPC)
			F16B
Date d'achèvement de la recherche		Examineur	
7 novembre 2007		Comel, Ezio	
CATÉGORIE DES DOCUMENTS CITÉS			
X : particulièrement pertinent à lui seul Y : particulièrement pertinent en combinaison avec un autre document de la même catégorie A : arrière-plan technologique O : divulgation non-écrite P : document intercalaire T : théorie ou principe à la base de l'invention E : document de brevet bénéficiant d'une date antérieure à la date de dépôt et qui n'a été publié qu'à cette date de dépôt ou qu'à une date postérieure. D : cité dans la demande L : cité pour d'autres raisons & : membre de la même famille, document correspondant			

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ANNEXE AU RAPPORT DE RECHERCHE PRÉLIMINAIRE
RELATIF A LA DEMANDE DE BREVET FRANÇAIS NO. FR 0701939 FA 693108

La présente annexe indique les membres de la famille de brevets relatifs aux documents brevets cités dans le rapport de recherche préliminaire visé ci-dessus.
 Les dits membres sont contenus au fichier informatique de l'Office européen des brevets à la date du **07-11-2007**
 Les renseignements fournis sont donnés à titre indicatif et n'engagent pas la responsabilité de l'Office européen des brevets, ni de l'Administration française

Document brevet cité au rapport de recherche		Date de publication		Membre(s) de la famille de brevet(s)		Date de publication
FR 2673249	A	28-08-1992	ES	1020240 U		01-06-1992
			IT	1263297 B		05-08-1996
			JP	5071519 A		23-03-1993
			US	5173026 A		22-12-1992

EP 1452745	A	01-09-2004	DE	10308906 A1		16-09-2004

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Pour tout renseignement concernant cette annexe : voir Journal Officiel de l'Office européen des brevets, No.12/82



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CLIP-MOUNTING SEAT AND VEHICLE INTERIOR COMPONENT

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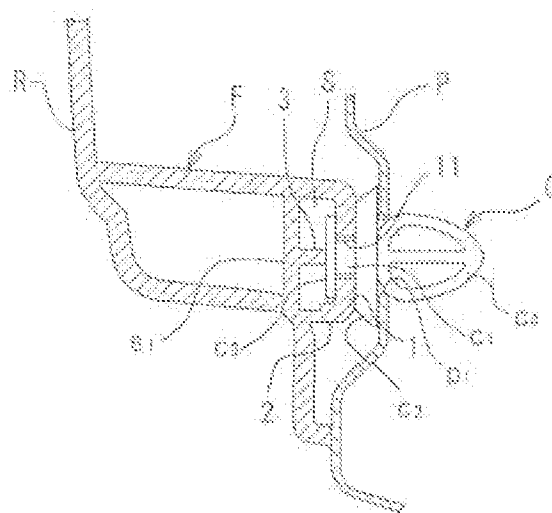
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A clip-mounting seat for mounting a clip to a vehicle interior component is disclosed. The clip includes a pillar-shaped axial portion. The clip-mounting seat includes a clip seating section, the clip seating section having an engaging hole for engagingly receiving the axial portion of the clip, and a pair of guide edge portions extending to the engaging hole from a side of the clip seating section to thereby form a tapered slit for allowing the axial portion of the clip to be slid along the pair of guide edge portions and allowing the axial portion of the clip to be guided into the engaging hole.

FIG. 2





PCT



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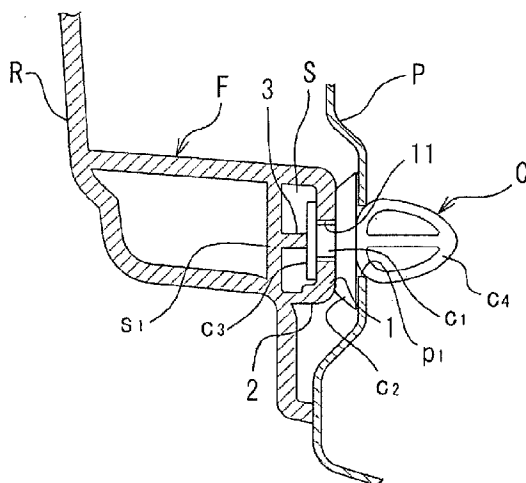
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Declarations under Rule 4.17:

[Continued on next page]

(54) Title: CLIP-MOUNTING SEAT AND VEHICLE INTERIOR COMPONENT

FIG. 2



(57) Abstract: A clip-mounting seat for mounting a clip to a vehicle interior component is disclosed. The clip includes a pillar-shaped axial portion. The clip-mounting seat includes a clip seating section, the clip seating section having an engaging hole for engagingly receiving the axial portion of the clip, and a pair of guide edge portions extending to the engaging hole from a side of the clip seating section to thereby form a tapered silt for allowing the axial portion of the clip to be slid along the pair of guide edge portions and allowing the axial portion of the clip to be guided into the engaging hole.



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— *with international search report (Art. 21(3))*

CLIP-MOUNTING SEAT AND VEHICLE INTERIOR COMPONENT DESCRIPTION

Field of the Invention

[0001] The present invention relates mainly to a clip-mounting seat which is used to mount a clip on an inner surface side of a vehicle interior component, the vehicle interior component being adapted to be opposingly fixed to a vehicle body panel by the clip.

Background of the Invention

[0002] Generally, in a vehicle interior component such as a door lining, a rear corner panel, etc., a plurality of anchor-shaped clips are provided at an inner surface of the vehicle interior component. The clips are press-fitted into stop holes formed in a panel surface of a vehicle body panel, whereby the vehicle interior component is opposingly fixed to the vehicle body panel.

[0003] More particularly, the clips are provided at the inner surface of the vehicle interior component via clip-mounting seats which are provided at the inner surface of the vehicle interior component. The clip-mounting seats of the vehicle interior component include seating sections on which the clips are to be seated (hereinafter referred to as "clip seating sections"). The clips include base sections, and tip end portions which are protruded from the base sections and are to be press-fitted into the stop holes of the vehicle body panel. The clips are provided at the inner surface of the vehicle interior component with portions of the base sections thereof being seated on the clip seating section of the vehicle interior component.

[0004] Referring now to Figs. 8 and 9, the conventional clip-mounting seat will be

discussed hereinafter in order to facilitate understanding of the present invention. As shown in Fig. 8, the conventional clip-mounting seat includes the clip seating section 1 on which the clip (not shown) is to be seated and which has an engaging hole 11 for engagingly receiving a pillar-shaped axial portion of the clip, and guide edge portions 10a, 10b for allowing the axial portion of the clip to be slid along the guide edge portions 10a, 10b and allowing the axial portion of the clip to be guided into the engaging hole 11.

[0005] The guide edge portions 10a, 10b extend inwardly from a side portion of the clip seating section 1, to thereby form a tapered slit having an inner end smaller in size than an outer diameter of the axial portion of the clip. The engaging hole 11 is formed into a substantially circular shape having a size which is larger than the outer diameter of the axial portion of the clip and allows the clip to be capable of being shifted so as to positionally match a corresponding stop hole of the vehicle body panel when the vehicle interior component is to be fixed to the vehicle body panel. The engaging hole 11 continues from inner ends of the guide edge portions 10a, 10b.

[0006] The clips which are provided at the vehicle interior component through the clip-mounting seats constructed as discussed above will be easily removed from the vehicle interior component during transportation of the vehicle interior component and/or fixing of the vehicle interior component to the vehicle body panel. The removal of the clips is brought about by a reason for which, when loads applied in such a direction X (indicated in Fig. 9 by an arrow) that the clips are disengaged from the clip seating sections of the clip-mounting seats is applied to the clips, the loads are concentrated on the inner ends of the guide edge portions 10a, 10b of the clip seating sections, to thereby cause the guide edge portions 10a, 10b to be operatively opened relative to each other.

[0007] Moreover, there are also proposed clip-mounting seats which, as shown in Figs. 10 and 11, include clip seating sections 1', 1" having engaging holes 11', 11" and guide edge portions 10a', 10b', 10a", 10b" and in the clip seating sections 1', 1" of which notched portions 13' and 13" are provided so as to extend along the guide edge portions 10a', 10b' and 10a" from the engaging holes 11', 11", whereby the guide edge portions 10a', 10b' and 10a" are adapted to serve as leaf-spring-shaped arms which are elastically deformable (Japanese Utility Model Application Laid-Open No. Sho. 52-137411 and Japanese Patent Application Laid-Open No. Hei. 6-270675).

[0008] With each of the conventional clip-mounting seats, the axial portion of the clip is slid along the guide edge portions 10a', 10b' (10a", 10b") and easily guided into the engaging holes 11' (11"). However, when a load in such a direction that the clip is disengaged from the engaging hole 11' (11") is applied to the clip and concentrated on inner ends of the guide edge portions 10a', 10b' (10a", 10b"), the guide edge portions 10a', 10b' (10a", 10b") are easy to be opened relative to each other. Therefore, each of the conventional clip-mounting seats fails to exert the function of preventing the disengagement of the clip from the clip-mounting seat. Moreover, the notched portions 13', 13" are formed by cutting the clip seating sections 1', 1", so that the guide edge portions 10a', 10b', 10a" are easy to be broken and rigidity of the clip seating sections 1', 1" is decreased.

Summary of the Invention

[0009] The present invention has been made with a view to overcoming the foregoing problems of the prior art clip-mounting seats.

[0010] It is therefore an object of the present invention to provide a clip-mounting seat which includes a clip seating section having an engaging hole for engaging an axial portion of a clip, and guide edge portions for allowing the axial portion of the clip to be

guided along the guide edge portions and allowing the axial portion of the clip to be guided into the engaging hole, wherein rigidity of the clip seating section is not decreased and disengagement of the clip from the clip seating section can be positively prevented.

[0011] It is another object of the present invention to provided a vehicle interior component provided with a plurality of clip-mounting seat as stated above.

[0012] In accordance with one aspect of the present invention, there is provided a clip-mounting seat for mounting a clip to a vehicle interior component. The clip includes a pillar-shaped axial portion. The clip-mounting seat includes a clip seating section, the clip seating section having an engaging hole for engagingly receiving the axial portion of the clip, and a pair of guide edge portions extending to the engaging hole from a side of the clip seating section to thereby form a tapered slit for allowing the axial portion of the clip to be slid along the pair of guide edge portions and allowing the axial portion of the clip to be guided into the engaging hole. The tapered slit has an inner end smaller in size than an outer diameter of the axial portion of the clip. The engaging hole is formed into a substantially circular shape having a size larger than the outer diameter of the axial portion of the clip; and the engaging hole continuing from inner ends of the guide edge portions. At least one of the guide edge portions is provided with a protruding piece projecting into the engaging hole from an inner end of the at least one of the guide edge portions. The protruding piece includes a tip end surface having a width that allows the tip end surface to be operatively come surface-contact with the axial portion of the clip.

[0013] In the clip-mounting seat, the at least one of the guide edge portions is provided with the protruding piece which includes the tip end surface having the width that allows the tip end surface to be operatively come surface-contact with the axial

portion of the clip, so that even if the clip is moved by a load applied in such a direction that the clip is disengaged from the engaging hole of the clip-mounting seat, the protruding piece operatively comes into surface-contact with the axial portion of the clip, the load that has the tendency to cause the clip to be disengaged from the engaging hole can be positively received by the protruding piece and can be distributed, the clip is shifted to a region of the engaging hole which is adjacent the guide edge portion that is not provided with any protruding piece, and the axial portion of the clip does not come into point-contact with the inner end of the guide edge portion 10b. Therefore, the guide edge portions are hard to be opened relative to each other. Thus, it is possible to prevent the clip from being disengaged from the clip-mounting seat without allowing rigidity of the clip seating section to be decreased.

[0014] Each of the guide edge portions may be provided with the protruding piece. In this case, even if the clip is moved by a load applied in such a direction that the clip is slid along the guide edge portions and disengaged from the engaging hole, the tip end surfaces of the protruding pieces operatively come into surface-contact with the axial portion of the clip, whereby the load that has the tendency to cause the clip to be disengaged from the engaging hole can be effectively received by the protruding pieces and can be distributed, so that the guide edge portions can be positively prevented from being opened relative to each other.

[0015] The tip end surface of the protruding piece may be formed into a circular arc-shape so as to fit around the axial portion of the clip. In this case, the protruding piece can positively fit around the axial portion of the clip.

[0016] According to a further aspect of the present invention, there is provided a vehicle interior component which is provided with a plurality of clip-mounting seats as set forth above. Transportation of the vehicle interior component can be performed

without causing any inconvenience and fixing of the vehicle interior component to a vehicle body panel can be easily performed without causing any inconvenience.

Brief Description of the Drawings

[0017] Fig. 1 is a schematic perspective view of a door lining at which a plurality of clip-mounting seats according to the present invention are provided;

[0018] Fig. 2 is a schematic sectional view of the door lining of Fig. 1, taken on a plane indicated in Fig. 1 by a line A-A;

[0019] Fig. 3 is a schematic side view of a clip-mounting seat according to the present invention;

[0020] Fig. 4 is a schematic enlarged fragmentary side view of the clip-mounting seat of Fig. 3;

[0021] Fig. 5 is a schematic side view of the clip-mounting seat of Fig. 3, which is of assistance in explaining a situation where a clip is prevented from being disengaged from the clip-mounting seat;

[0022] Fig. 6 is a schematic enlarged fragmentary side view of a modification of the clip-mounting seat of Fig. 3;

[0023] Fig. 7 is a schematic side view of another modification of the clip-mounting seat of Fig. 3, which is of assistance in explaining a situation where a clip is prevented from being disengaged from the modification;

[0024] Fig. 8 is a schematic side view of a conventional clip-mounting seat;

[0025] Fig. 9 is a schematic side view of the conventional clip-mounting seat, which is of assistance in explaining a situation where a clip is disengaged from the conventional clip-mounting seat;

[0026] Fig. 10 is a schematic side view of another conventional clip-mounting seat;

and

[0027] Fig. 11 is a schematic side view of still another conventional clip-mounting seat.

Detailed Description

[0028] Referring now to Figs. 1 and 2, there is illustrated a vehicle interior component R, for example, a door lining, in which a plurality of clip-mounting seats F according to the present invention for supporting anchor-shaped clips that are used in order to cause the door lining R to be opposingly fixed to a panel surface of a vehicle body panel, for example, a door panel P are disposed at predetermined intervals along peripheral edge portions of an inner surface of the door lining R except an upper edge portion of the inner surface of the door lining R.

[0029] As shown in Fig. 2, each of the clip-mounting seats F (only one clip-mounting seat F is shown in Fig. 2) comprises a clip seating section 1, a peripheral wall section 2 standing up from the inner surface of the door lining R and defining a space S in which a portion of a base section of a corresponding clip C is to be received, and a rising rib 3 rising up from a bottom plate s1 of the space S for stoppingly supporting the base section of the clip C. The clip seating section 1 of the clip-mounting seat F is formed with an engaging hole 11. In the illustrated example, the door lining R and the clip-mounting seats F are formed integrally of, for example, polypropylene resin by injection molding.

[0030] Each of the clips C (only one clip C is shown in Fig. 2) comprises the base section having a pillar-shaped axial portion c1, a first flange portion c2 and a second flange portion c3 connected to the first flange portion c2 through the pillar-shaped axial portion c1, and an anchor-shaped tip end portion c4. The clip C is adapted to be

mounted through a corresponding clip-mounting seat F to the inner surface of the door lining R, with the axial portion c1 thereof being engagingly received in the engaging hole 11 of the clip-mounting seat F, with the first flange portion c2 thereof being seated on the clip seating section 1 of the clip-mounting seat F, with the first and second flange portions c2, c3 thereof interposingly holding the clip seating section 1 of the clip-mounting seat F, and with the second flange portion c3 thereof being stoppingly supported by the rising rib 3 of the clip-mounting seat F. The door lining having the clips mounted through the clip-mounting seats F to the inner surface thereof is opposingly fixed to the door panel P by causing the anchor-shaped tip portions c4 of the clips to be press-fitted into through-holes p1 (only one through-hole p1 is shown in Fig. 2) which are formed in the door panel P.

[0031] The clip seating section 1 of each of the clip-mounting seats F according to the present invention is basically similar to that of the clip-mounting seat which is shown in Fig. 8. Referring now to Fig. 3, there is illustrated the clip seating section 1 of the clip-mounting seat F according to the present invention. In Fig. 3, elements of the clip seating section 1 of the clip-mounting seat F of the present invention that are substantially similar to those of the clip seating section shown in Fig. 8 are denoted by the same reference numerals. As shown in Fig. 3, the clip seating section 1 of the clip-mounting seat F according to the present invention is formed into a substantially U-shape as viewed from the side and has the engaging hole 11 and a pair of guide edge portions 10a, 10b extending to the engaging hole 11 for allowing the pillar-shaped axial portion c1 of a corresponding clip to be slid along the guide edge portions 10a, 10b and allowing the pillar-shaped axial portion c1 of the clip C to be guided into the engaging hole 11.

[0032] The guide edge portions 10a, 10b extend inwardly from a side portion of the

clip seating section 11, to thereby form a tapered slit having an inner end smaller in size than an outer diameter of the axial portion c1 of the clip. The engaging hole 11 is formed into a substantially circular shape having a size larger than the outer diameter of the axial portion c1 of the clip C, and continues from inner ends of the guide edge portions 10a, 10b.

[0033] In addition to the basic structure of the clip seating section 1, the clip seating section 1 of the clip-mounting seat F according to the present invention has protruding pieces 12a, 12b projecting into the engaging hole 11 from the inner ends of the guide edge portions 10a, 10b. Each of the protruding pieces 12a, 12b is provided with a tip end surface which has a width that allows the tip end surface to come into surface-contact with the axial portion c1 of the clip. Each of the protruding pieces 12a, 12b is formed in such a manner that one side of the protruding piece extends linearly from a corresponding guide edge portion 10a (or 10b). As shown in Fig. 4, the tip end surfaces of the protruding pieces 12a, 12b are formed into circular arc-shapes so as to fit around the axial portion c1 of the clip.

[0034] In the clip seating section 1 of the clip-mounting seat that is constructed as discussed above, even if the clip is moved by a load applied in such a direction X (indicated in Fig. 5 by an arrow) that the clip is slid along the guide edge portions 10a, 10b and disengaged from the engaging hole 11, the tip end surfaces of the protruding pieces 12a, 12b operatively come into surface-contact with the axial portion c1 of the clip, whereby the load that has the tendency to cause the clip to be disengaged from the engaging hole 11 can be effectively received by the protruding pieces 12a, 12b and can be distributed, so that the guide edge portions 10a, 10b can be positively prevented from being opened relative to each other. By this, it is possible to prevent the clip from being disconnected from the clip seating section of the clip-mounting seat, without

allowing rigidity of the clip seating section 1 to be decreased.

[0035] As long as the protruding pieces 12a, 12b can operatively come into surface-contact with the axial portion c1 of the clip at the tip end surfaces thereof, the sides of the protruding pieces are not formed so as to extend linearly from the guide edge portions 10a, 10b and may be formed so as to have slope regions 13a, 13b which are inclined to the engaging hole 11 from the inner ends of the guide edge portions 10a, 10b as shown in Fig. 6. In this case, it is possible to cause an interval between the inner ends of the guide edge portions 10a, 10b not to become much narrower than a required level.

[0036] While it is preferable that the protruding pieces are provided at both the inner ends of the guide edge portions 10a, 10b, the protruding piece 12a and the protruding piece 12b are not necessarily provided at the inner end of the guide edge portion 10a and the inner end of the guide edge portion 10b, respectively. As shown in Fig. 7, a protruding piece 12 may be provided at any one of the inner ends of the guide edge portions 10a, 10b (in the example shown in Fig. 7, the protruding piece 12 is provided at the inner end of the guide edge portion 10a). In this case, even if the clip is moved by a load applied in the direction that the clip is slid along the guide edge portions 10a, 10b and disengaged from the engaging hole 11, the protruding piece 12 also operatively comes into surface-contact with the axial portion c1 of the clip at a tip end surface thereof having a circular arc-shape, whereby the load that has the tendency to cause the clip to be disengaged from the engaging hole 11 can be positively received by the protruding piece 12 and can be distributed, the clip is shifted to a region of the engaging hole 11 which is adjacent the guide edge portion 10b that is not provided with any protruding piece, and the axial portion c1 of the clip does not come into point-contact with the inner end of the guide edge portion 10b, so that the guide edge

portions 10a, 10b are hard to be opened relative to each other.

[0037] As discussed above, the door lining R (Fig. 1) has the clips mounted to the inner surface thereof through the clip-mounting seats which facilitate preventing of disengagement of the clips therefrom, so that transportation of the door lining R can be performed without causing any inconvenience and fixing of the door lining to the vehicle body panel such as the door panel P (Fig. 1) can be easily performed without causing any inconvenience.

[0038] While the case where the clip seating section of the clip-mounting seat has the substantially U-shape as viewed from the side has been discussed above, the shape of the clip seating section of the clip-mounting seat may be a substantially square-shape as viewed from the side. Moreover, while the clip-mounting seat has the peripheral wall section 2 standing up from the vehicle interior component, it may have a pair of opposing plates standing up from the inner surface of the vehicle interior component, in lieu of the peripheral wall section 2. In this case, the opposing plates are interconnected by the clip seating section 1 and the bottom plate s1. Moreover, while the case where the entire clip-mounting seats are formed integrally with the door lining has been discussed above, the clip-mounting seats which are formed separately from the door lining may be mounted to the door lining.

[0039] The terms and expressions which have been employed are used as terms of description and not of limitation, and there is no intention in the use of such terms and expressions of excluding any equivalents of the features shown and described, or portions thereof, but it is recognized that various modifications are possible within the scope of the invention claimed.

What is claimed is:

1. A clip-mounting seat for mounting a clip to a vehicle interior component, said clip including a pillar-shaped axial portion, said clip-mounting seat including a clip seating section; said clip seating section having an engaging hole for engagingly receiving said axial portion of said clip, and a pair of guide edge portions extending to said engaging hole from a side of said clip seating section to thereby form a tapered slit for allowing said axial portion of said clip to be slid along said pair of guide edge portions and allowing said axial portion of said clip to be guided into said engaging hole; said tapered slit having an inner end smaller in size than an outer diameter of said axial portion of said clip; said engaging hole being formed into a substantially circular shape having a size larger than said outer diameter of said axial portion of said clip; and said engaging hole continuing from inner ends of said guide edge portions; wherein at least one of said guide edge portions is provided with a protruding piece projecting into said engaging hole from an inner end of said at least one of said guide edge portions, said protruding piece including a tip end surface having a width that allows said tip end surface to be operatively come surface-contact with said axial portion of said clip.
2. A clip-mounting seat as set forth in Claim 1, wherein each of said guide edge portions is provided with said protruding piece.
3. A clip-mounting seat as set forth in Claim 1, wherein said tip end surface is formed into a circular arc-shape so as to fit around said axial portion of said clip.
4. A clip-mounting seat as set forth in Claim 2, wherein said tip end surface is formed into a circular arc-shape so as to fit around said axial portion of said clip.
5. A vehicle interior component having a plurality of clip-mounting seats as set forth in Claim 1 or 2.

6. A vehicle interior component having a plurality of clip-mounting seats as set forth in Claim 3 or 4.

FIG. 1

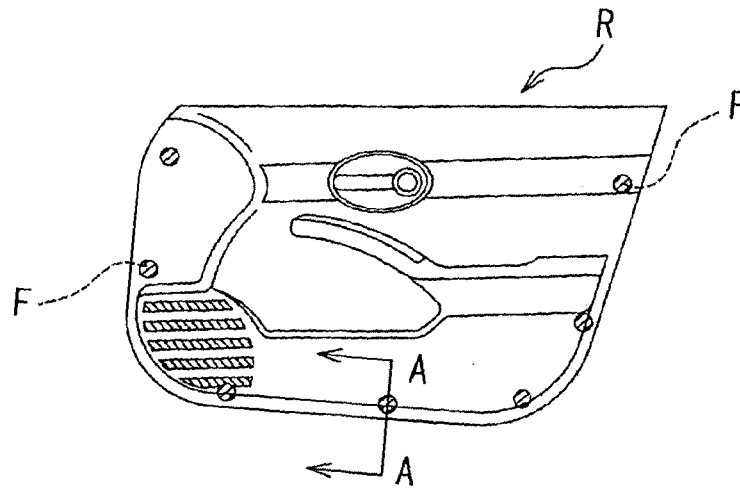


FIG. 2

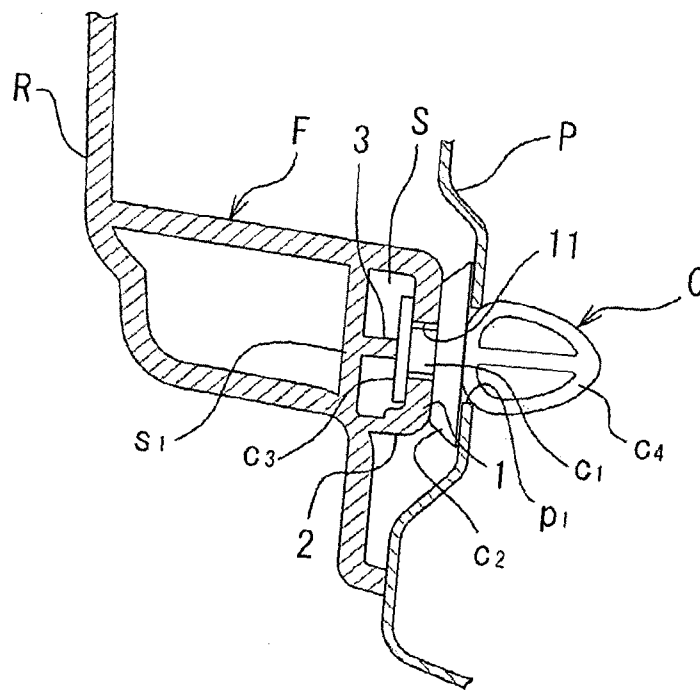


FIG. 3

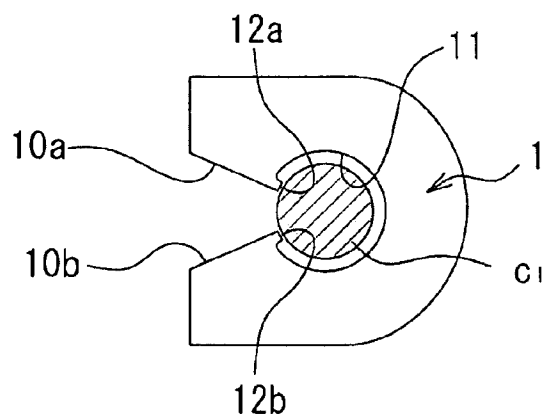


FIG. 4

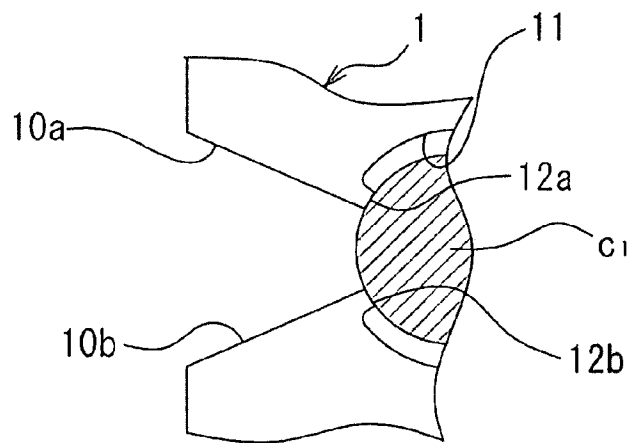


FIG. 5

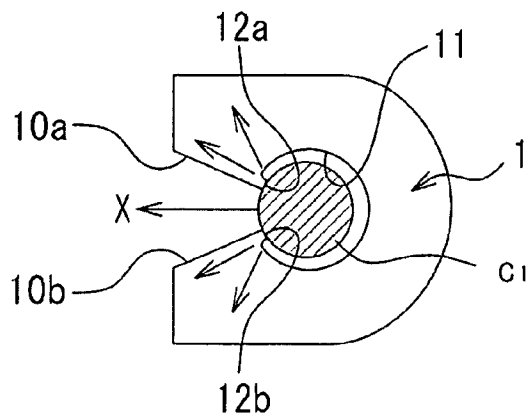


FIG. 6

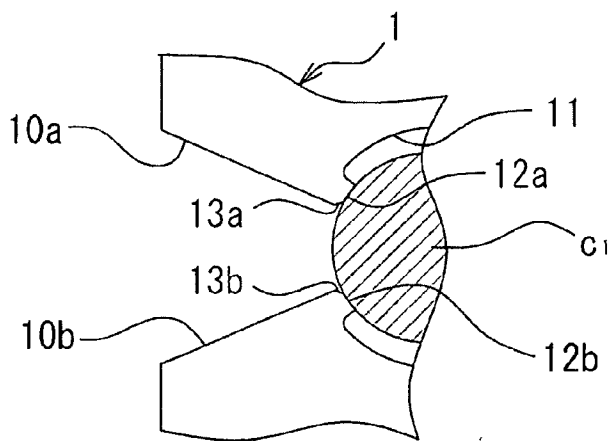


FIG. 7

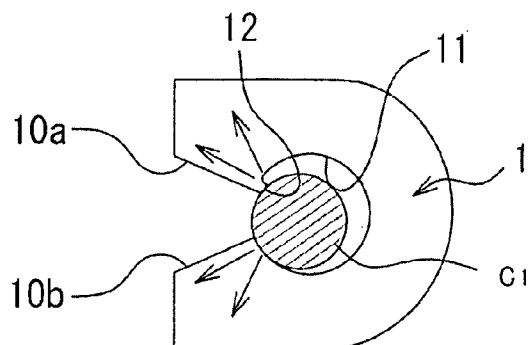


FIG. 8

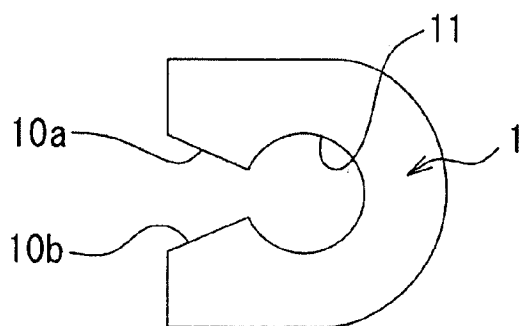


FIG. 9

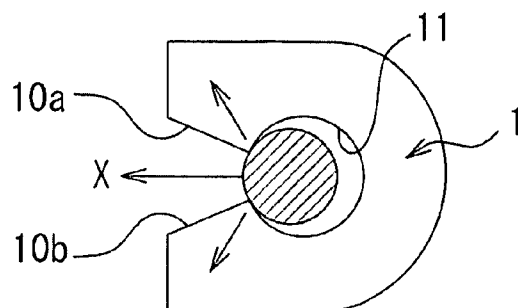


FIG. 10

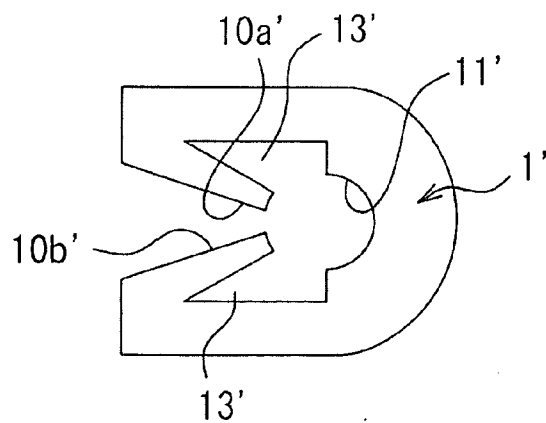
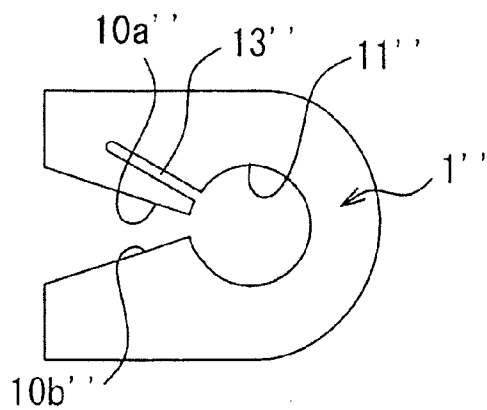


FIG. 1 1



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 08/58954

A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - A44B 21/00 (2008.04) USPC - 24/458 According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC(8)- A44B 21/00 (2008.04) USPC- 24/458 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched IPC(8)- A44B 21/00 (2008.04) USPC- 24/458, 49/502, 49/350, 248/544 Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PubWEST (USPT, PGPB, EPAB, JPAB); DialogPRO (Engineering); Google Scholar Search Terms: seat, clip, mounting, vehicle, axial, hole, door, pin, car, slide		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,694,719 A (Bejune et al.) 9 December 1997 (09.12.1997), Figures 2, 6, 13, and Column 8	1-6
A	US 6,481,682 B2 (Miura) 19 November 2002 (19.11.2002), entire document	1-6
A	US 6,918,162 B2 (Bodo) 19 July 2002 (19.07.2005), entire document	1-6
☐ Further documents are listed in the continuation of Box C. ☐		
* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 2 August 2008 (02.08.2008)	Date of mailing of the international search report AUGUST 19, 2008	
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774	

Form PCT/ISA/210 (second sheet) (April 2007)

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

To: Hauptman, Benjamin J. LOWE HAUPTMAN & HAM, LLP 2318 Mill Road Suite 1400 Alexandria VA 22314 ETATS-UNIS D'AMERIQUE	RECEIVED MAR 31 2014 NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION
LOWE, HAUPTMAN & HAM, LLP	
(PCT Rule 44.1)	
Applicant's or agent's file reference 713-3314PCT	Date of mailing <i>(day/month/year)</i> 28 March 2014 (28-03-2014)
International application No. PCT/US2013/073861	FOR FURTHER ACTION See paragraphs 1 and 4 below International filing date <i>(day/month/year)</i> 9 December 2013 (09-12-2013)
Applicant ILLINOIS TOOL WORKS INC.	
DOCKETED BY: <u>SW</u> DUE DATE: _____	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:
 The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
 1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338.82.70

For more detailed instructions, see PCT Applicant's Guide, International Phase, paragraphs 9.004 - 9.011.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. ☐ **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with any request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. Following the expiration of 30 months from the priority date, these comments will also be made available to the public.

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time_limits.html and the *PCT Applicant's Guide*, National Chapters.

Name and mailing address of the International Searching Authority European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040 Fax: (+31-70) 340-3016	Authorized officer PARRICHE, Sandrine Tel: +49 (0)89 2399-7890
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 713-3314PCT	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2013/073861	International filing date (<i>day/month/year</i>) 9 December 2013 (09-12-2013)	(Earliest) Priority Date (<i>day/month/year</i>) 19 December 2012 (19-12-2012)
Applicant ILLINOIS TOOL WORKS INC.		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6bis(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II)

3. ☐ **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- ☒ the text is approved as submitted by the applicant
☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- ☐ the text is approved as submitted by the applicant
☒ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 3
☐ as suggested by the applicant
☒ as selected by this Authority, because the applicant failed to suggest a figure
☐ as selected by this Authority, because this figure better characterizes the invention
 b. ☐ none of the figures is to be published with the abstract

Box No. IV Text of the abstract (Continuation of item 5 of the first sheet)

A connection assembly adapted to join a surface element 12 to an underlying support structure 14 while maintaining a substantially zero gap abutting relation between the surface element and the support structure. The connection assembly includes a press-in retainer 10 with a circumferential seal 50 having a sealing foot 54. The sealing foot flexes about a living hinge 56 while maintaining continuous sliding contact with the support panel without interfering with downward movement of the retainer.

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2013/073861

A. CLASSIFICATION OF SUBJECT MATTER

INV. F16B5/06 F16B19/00 F16B21/08
ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F16B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 173 026 A (CORDOLA JEAN-PIERRE [FR] ET AL) 22 December 1992 (1992-12-22) cited in the application	1-4
Y	column 3, lines 1-6; figure 6 -----	5-20
Y	US 2011/243688 A1 (KLEIN JEAN LUC [FR] ET AL) 6 October 2011 (2011-10-06) paragraphs [0026], [0053] -----	1-20
Y	FR 2 913 738 A1 (RAYMOND ET CIE SOC EN COMMANDI [FR]) 19 September 2008 (2008-09-19) page 3, lines 9-34 -----	1-8, 10-16,20
Y	WO 2009/123616 A1 (TS TECH CO LTD [JP]; IWASAKI TAKASHI [US]) 8 October 2009 (2009-10-08) paragraphs [0029], [0030] -----	8-10, 17-20

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

21 March 2014

Date of mailing of the international search report

28/03/2014

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Rochus, Johann

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2013/073861

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5173026	A	22-12-1992	ES 1020240 U	01-06-1992
			FR 2673249 A1	28-08-1992
			IT 1263297 B	05-08-1996
			JP H0571519 A	23-03-1993
			US 5173026 A	22-12-1992

US 2011243688	A1	06-10-2011	CN 102257281 A	23-11-2011
			EP 2344777 A1	20-07-2011
			FR 2938025 A1	07-05-2010
			KR 20110074944 A	04-07-2011
			US 2011243688 A1	06-10-2011
			WO 2010051987 A1	14-05-2010

FR 2913738	A1	19-09-2008	CN 101675255 A	17-03-2010
			EP 2140149 A1	06-01-2010
			FR 2913738 A1	19-09-2008
			JP 4967031 B2	04-07-2012
			JP 2010521632 A	24-06-2010
			KR 20090108717 A	16-10-2009
			US 2010098515 A1	22-04-2010
			WO 2008113438 A1	25-09-2008

WO 2009123616	A1	08-10-2009	EP 2268166 A1	05-01-2011
			JP 2011516325 A	26-05-2011
			US 2011119875 A1	26-05-2011
			WO 2009123616 A1	08-10-2009

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

To: see form PCT/ISA/220		Date of mailing (day/month/year) see form PCT/ISA/210 (second sheet)	
Applicant's or agent's file reference see form PCT/ISA/220		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT/US2013/073861	International filing date (day/month/year) 09.12.2013	Priority date (day/month/year) 19.12.2012	
International Patent Classification (IPC) or both national classification and IPC INV. F16B5/06 F16B19/00 F16B21/08			
Applicant ILLINOIS TOOL WORKS INC.			

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	Date of completion of this opinion see form PCT/ISA/210	Authorized Officer Rochus, Johann Telephone No. +49 89 2399-8913
---	--	--



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2013/073861

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
 - a. (means)
 - ☐ on paper
 - ☐ in electronic form
 - b. (time)
 - ☐ in the international application as filed
 - ☐ together with the international application in electronic form
 - ☐ subsequently to this Authority for the purposes of search
4. ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>5-20</u>
	No: Claims	<u>1-4</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-20</u>
Industrial applicability (IA)	Yes: Claims	<u>1-20</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Reference is made to the following documents:

- D1 US 5 173 026 A (CORDOLA JEAN-PIERRE [FR] ET AL) 22 December 1992 (1992-12-22)
- D2 US 2011/243688 A1 (KLEIN JEAN LUC [FR] ET AL) 6 October 2011 (2011-10-06)
- D3 FR 2 913 738 A1 (RAYMOND ET CIE SOC EN COMMANDI [FR]) 19 September 2008 (2008-09-19)
- D4 WO 2009/123616 A1 (TS TECH CO LTD [JP]; IWASAKI TAKASHI [US]) 8 October 2009 (2009-10-08)

Ad point V.:

- 1 In D1, there is disclosed a connection assembly 13 adapted to join a surface element 17 to an underlying support structure 18 while maintaining a substantially zero gap, abutting relation between the surface element 17 and the support structure 18 during use, the connection assembly 13 comprising: a press-in retainer adapted for insertion into an acceptance opening 20 in the support structure 18 to establish operative connecting engagement between the surface element 17 and the support structure 18, the retainer including a retainer head 2 and a clip portion 3 of arrowhead configuration projecting outwardly away from the retainer head 2, wherein the retainer head 2 includes an upper platform 6 and an annular platform 4 defining a lower collar positioned in spaced relation below the upper platform 6, wherein the clip portion 3 comprises a central stem 7B extending downwardly away from the lower collar 4 and a pair of flexible wings 7A, 7C extending in upward angled relation away from the central stem 7B, the retainer further including a seal 14 disposed at least partially about the lower collar 4, the seal 14 having a durometer lower than the lower collar 4 and including a body portion engaging the lower collar 4 and a sealing foot 15 projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot 15 is disposed outboard from the lower collar 4 and the underside of the sealing foot 15 forms an obtuse angle relative to the plane of the underside of the lower collar 4, and wherein the sealing foot 15 flexes about a living hinge while remaining outboard from the lower collar 4 and maintaining sliding

contact with the support structure 18 in response to applied pressure between the seal 14 and the support structure 18 during use, as Fig. 6 shows (column 3, lines 1 - 6).

As the connection assembly of claim 1 of the application does not differ from that of above, claim 1 does not fulfill the requirements of Art. 33(2) PCT.

- 2 In D2, there is disclosed a connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap, abutting relation between the surface element and the support structure during use, the connection assembly comprising:
a press-in retainer 1 adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer 1 including a retainer head 2 and a clip portion 3 of arrowhead configuration projecting outwardly away from the retainer head 2, wherein the retainer head 2 includes an upper platform and an annular platform 4 defining a lower collar positioned in spaced relation below the upper platform, wherein the clip portion 3 comprises a central stem 10 extending downwardly away from the lower collar 4 and flexible wings 12 extending in upward angled relation away from the central stem 10, the retainer 1 further including a seal 52 disposed at least partially about the lower collar 4, the seal 52 including a body portion engaging the lower collar 4 and a sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from the lower collar 4 and the underside of the sealing foot forms an obtuse angle relative to the plane of the underside of the lower collar 4, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar 4 and maintaining sliding contact with the support structure in response to applied pressure between the seal 52 and the support structure during use (paragraph [0026], [0053]).

The connection assembly of claim 1 of the application differs therefrom in that
a) there is a pair of flexible wings, and

b) the seal has a durometer lower than the the lower collar.

Difference a) is just a design feature, retainers comprising a pair of flexible wings being widely known such as from D1, D3 and D4;

difference b) aims to a better sealing between the retainer and the support structure as indicated in paragraph [0010] of the description. But again, it is widely known to use softer materials for the seal than for the body of the retainer, such as disclosed in D1 or D3.

Thus, each of D1 and D3 provide solutions for the problems underlying these differences. Applying the solutions given in D1 or D3 to a retainer as known from D2 leads to a connection assembly as claimed in claim 1.

Claim 1, therefore, does also not fulfill the requirements of Art. 33(3) PCT.

- 3 The features of dependent claims 2 to 4 are known from D1, those of claims 5 to 7 are known per se from D3, and those of claims 8 and 9 per se from D4:

claim 2: D1, column 3, lines 1 - 6;

claim 3: D1, Fig. 4;

claim 4: D1, column 3, lines 1 - 6;

claim 5: D3, page 4, line 3: acetal;

claim 6: D3, page 4, line 5: thermoplast K;

claim 7: D3, page 4, lines 3 - 5;

claim 8: D4, Fig. 2; and

claim 9: D4, Fig. 2.

Thus, the features of the dependent claims could not be used together with those of claim 1 to form the basis for an independent claim which could fulfill the requirements of the PCT.

- 4 In D4, there is disclosed a connection assembly adapted to join a surface element R to an underlying support structure P while maintaining a substantially zero gap abutting relation between the surface element R and the support structure P during use, the connection assembly comprising: a press-in retainer C adapted for insertion into an acceptance opening p_1 in the support structure P to establish operative connecting engagement between the surface element R and the support structure P, the retainer C including a retainer head c_1 , c_2 , c_3 and a clip portion c_4 of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform c_3 , an annular platform c_2 defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform c_3 , and a connective neck structure c_1 extending between the upper platform c_3 and the lower collar c_2 , wherein the clip portion c_4 comprises a central stem extending downwardly away from the lower collar c_2 such that the lower collar c_2 is oriented substantially perpendicular to an axis defined by the stem, a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar c_2 , wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled

segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening p_1 to urge the retainer C downwardly into the acceptance opening p_1 ;

a preformed surface element having a contact surface (fig. 2: lowermost part of surface element R) configured to abut the support structure P in a substantially gapless relation during use; and

an intermediate connector F operatively connected to the surface element R and adapted to receive and retain the retainer head such that upon insertion of the retainer C into the acceptance opening p_1 in the support structure P, an operative connection is established between the surface element R and the support structure P, wherein the surface element R is configured such that when the retainer C is held between the intermediate connector F and the support structure P, the contact surface of the surface element R is at an elevation such that it abuts the support structure P (paragraphs [0029], [0030]).

Independent claim 10 of the application differs from that of above in that the retainer further includes a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hingeing sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel and the lower collar remains spaced in elevated relation away from the support structure during use.

These features solve the problem of a better sealing function between the retainer and the support structure.

However, this problem is already solved by the retainer of D2 which contains a seal with the above seal features. Applying the teachings of D2 to the retainer of D4 leads to a connection assembly which finally would comprise all features of independent claim 10. Claim 10, therefore, does not fulfill the requirements of Art. 33(3) PCT.

- 5 The features of dependent claims 11 and 12 are known per se from D2, those of claims 13 to 16 per se from D3, and those of claims 17 to 19 of D4:

claim 11: D2, paragraph [0025];
claim 12: D2, paragraph [0053];
claim 13: D3, page 3, lines 27 - 30;
claim 14: cf. claim 5;
claim 15: cf. claim 6;
claim 16: cf. claim 7;
claim 17: D4, Fig. 2;
claim 18: D4, Fig. 2; and
claim 19: D4, Fig. 4.

Thus, the features of the dependent claims 11 - 19 could not be used together with those of claim 10 to form the basis for an independent claim which could fulfill the requirements of the PCT.

- 6 In D1, there is disclosed a method of connecting a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use, the method comprising:
providing a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform, an annular platform defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform, and a connective neck structure extending between the upper platform and the lower collar, wherein the clip portion comprises a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar, wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening, the retainer further including a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hingeing sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge

such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support structure in response to applied pressure between the seal and the support structure during use;

providing a preformed surface element having a contact surface configured to abut the support structure in a substantially gapless relation during use; and inserting the retainer into an acceptance opening in the support structure, to establish an operative connection between the surface element and the support structure, wherein the surface element is configured such that when the retainer is held between the intermediate connector and the support structure, the contact surface of the surface element is at an elevation such that it abuts the support structure while the sealing foot is in flexed contacting relation with the support structure and the lower collar remains spaced in elevated relation away from the support structure.

Method claim 20 of the application differs therefrom in securing the retainer head within an intermediate connector operatively connected to the surface element.

This is just one of the possibilities the person skilled in the art has to provide the connection between the retainer and the surface element. Additionally, such type of connection is known from D4.

Consequently, the features of claim 20 could not be considered to comprise an inventive step according to Art. 33(3) PCT.

Ad point VII.:

- 7 In claims 1, 10 and 20, a support panel is mentioned which is not defined. However, it appears that this should be the support structure. Therefore, the expression 'support structure' is used within this opinion.
- 8 The independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art as mentioned above being placed in the preamble (Rule 6.3(b)(i) PCT) and the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

- 9 The features of claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).
- 10 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D2 to D4 is not mentioned in the description, nor are these documents identified therein.

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL			
First Named Inventor/Applicant Name:	Derek SCROGGIE			
Filer:	Benjamin J. Hauptman/Tracy Luke			
Attorney Docket Number:	61823-US (713-3314)			
Filed as Large Entity				
Filing Fees for U.S. National Stage under 35 USC 371				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
National Stage Fee	1631	1	280	280
Natl Stage Search Fee - Report provided	1642	1	480	480
National Stage Exam - all other cases	1633	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1480

Electronic Acknowledgement Receipt

EFS ID:	22653831
Application Number:	14652819
International Application Number:	PCT/US2013/073861
Confirmation Number:	6722
Title of Invention:	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL
First Named Inventor/Applicant Name:	Derek SCROGGIE
Customer Number:	27889
Filer:	Benjamin J. Hauptman/Tracy Luke
Filer Authorized By:	Benjamin J. Hauptman
Attorney Docket Number:	61823-US (713-3314)
Receipt Date:	17-JUN-2015
Filing Date:	
Time Stamp:	10:19:56
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 1480
RAM confirmation Number	9088
Deposit Account	071337
Authorized User	HAUPTMAN, BENJAMIN J.

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. 1.492 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal of New Application	F-1_Transmittal.pdf	218457	no	4
			38c5e7efa61c444e0a932596177f654960795c5		
Warnings:					
Information:					
2		F-2_Application.pdf	3751917	yes	25
			02164b76606ecd7a4f5c238b0b14eaeefbc815d1		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	11	
	Claims		12	17	
	Abstract		18	18	
	Drawings-only black and white line drawings		19	22	
	Oath or Declaration filed		23	25	
Warnings:					
Information:					
3	Application Data Sheet	F-3_ADS.pdf	1561456	no	7
			7e42828634306b4b8a7afd5fc4aca576f02516cc		
Warnings:					
Information:					
4	Documents submitted with 371 Applications	F-4_Published_PCT.pdf	2678956	no	24
			5e4b52c27515f43841ed78b0dc05b130670e8cb6		
Warnings:					
Information:					
5		F-5_Preliminary_Amendment.pdf	93566	yes	3
			c5150496c63747e55490637e4e302071e8bd78ff		

	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Applicant Arguments/Remarks Made in an Amendment		3	3	
Warnings:					
Information:					
6	Information Disclosure Statement (IDS) Form (SB08)	F-6_IDS.pdf	612365	no	4
			5208cc86cc019c23fceb3b26ef719d94cbad66d7		
Warnings:					
Information:					
7	Foreign Reference	1-FR2913738A1.pdf	951439	no	11
			6b116a58045e72356f594258f695bc89e57b72b5		
Warnings:					
Information:					
8	Foreign Reference	2-WO2009123616A1.pdf	2152297	no	24
			6f36d6a872eff9b52200c7ed46a244213a34e855		
Warnings:					
Information:					
9	Other Reference-Patent/App/Search documents	3-ISR_and_WO.pdf	2131505	no	15
			96ba68b5d8dea49acf82da70b88babff594ede1b		
Warnings:					
Information:					
10	Fee Worksheet (SB06)	fee-info.pdf	35520	no	2
			d0cb5b2232f64bc93a1177c5733a4b814eaaccab		
Warnings:					
Information:					
Total Files Size (in bytes):			14187478		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

590321

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

January 01, 2014

THIS IS TO CERTIFY THAT ANNEXED HERETO IS A TRUE COPY FROM THE RECORDS OF THE UNITED STATES PATENT AND TRADEMARK OFFICE OF THOSE PAPERS OF THE BELOW IDENTIFIED PATENT APPLICATION THAT MET THE REQUIREMENTS TO BE GRANTED A FILING DATE.

APPLICATION NUMBER: 61/739,604

FILING DATE: *December 19, 2012*

RELATED PCT APPLICATION NUMBER: *PCT/US13/73861*

THE COUNTRY CODE AND NUMBER OF YOUR PRIORITY APPLICATION, TO BE USED FOR FILING ABROAD UNDER THE PARIS CONVENTION, IS *US61/739,604*



Certified by

David J. Kyros

Under Secretary of Commerce
for Intellectual Property
and Director of the United States
Patent and Trademark Office

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PROVISIONAL APPLICATION FOR PATENT COVER SHEET – Page 1 of 2

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

Express Mail Label No. _____

INVENTOR(S)		
Given Name (first and middle [if any])	Family Name or Surname	Residence (City and either State or Foreign Country)
Derek	Scroggie	Macomb, MI
Michelle	Bozinovski	Macomb Township, MI
Robert	Murawski	Clinton Township, MI

Additional inventors are being named on the _____ separately numbered sheets attached hereto.

TITLE OF THE INVENTION (500 characters max):

PUSH THROUGH FASTENER WITH INTEGRATED SEAL

Direct all correspondence to: **CORRESPONDENCE ADDRESS**

☒ The address corresponding to Customer Number: 26359

OR

☐ Firm or Individual Name _____

Address _____

City	State	Zip
Country	Telephone	Email

ENCLOSED APPLICATION PARTS (check all that apply)

☒ Application Data Sheet. See 37 CFR 1.76
 ☐ CD(s), Number of CDs _____

☐ Drawing(s) Number of Sheets _____
 ☐ Other (specify) _____

☐ Specification (e.g. description of the invention) Number of Pages _____

Fees Due: Filing Fee of \$250 (\$125 for small entity). If the specification and drawings exceed 100 sheets of paper, an application size fee is also due, which is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

METHOD OF PAYMENT OF THE FILING FEE AND APPLICATION SIZE FEE FOR THIS PROVISIONAL APPLICATION FOR PATENT

☐ Applicant claims small entity status. See 37 CFR 1.27.
 250.00

☐ A check or money order made payable to the *Director of the United States Patent and Trademark Office* is enclosed to cover the filing fee and application size fee (if applicable).
 TOTAL FEE AMOUNT (\$)

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director is hereby authorized to charge the filing fee and application size fee (if applicable) or credit any overpayment to Deposit Account Number: _____

USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 10 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PROVISIONAL APPLICATION COVER SHEET
Page 2 of 2

PTO/SB/16 (09-11)

Approved for use through 05/31/2015. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____

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Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

SIGNATURE /jamesmrobertson/ Date 12/19/2012

TYPED or PRINTED NAME James M. Robertson REGISTRATION NO. 36905
(if appropriate)

TELEPHONE 864-621-0454 Docket Number: 15699-0024

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	
		Application Number	
Title of Invention	Push Through Fastener with Integrated Seal		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--

Inventor Information:

Inventor 1					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Derek		Scroggie			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Macomb	State/Province	MI	Country of Residence	US	
Mailing Address of Inventor:						
Address 1						
Address 2						
City	Macomb	State/Province	MI			
Postal Code		Country	US			
Inventor 2					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Michelle		Bozinovski			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						
City	Macomb Township	State/Province	MI	Country of Residence	US	
Mailing Address of Inventor:						
Address 1						
Address 2						
City	Macomb Township	State/Province	MI			
Postal Code		Country	US			
Inventor 3					Remove	
Legal Name						
Prefix	Given Name	Middle Name	Family Name	Suffix		
	Robert		Murawski			
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service						

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number			
		Application Number			
Title of Invention	Push Through Fastener with Integrated Seal				
City	Clinton Township	State/Province	MI	Country of Residence	US
Mailing Address of Inventor:					
Address 1					
Address 2					
City	Clinton Township	State/Province	MI		
Postal Code		Country	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence Information of this application.	
Customer Number	26359
Email Address	Add Email Remove Email

Application Information:

Title of the Invention	Push Through Fastener with Integrated Seal		
Attorney Docket Number		Small Entity Status Claimed	☐
Application Type	Provisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	9	Suggested Figure for Publication (if any)	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	
		Application Number	
Title of Invention	Push Through Fastener with Integrated Seal		
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	26359		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

			Remove
Application Number	Country ¹	Filing Date (YYYY-MM-DD)	Priority Claimed
			☒ Yes ☐ No

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	
		Application Number	
Title of Invention	Push Through Fastener with Integrated Seal		

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

☐ Assignee	☐ Legal Representative under 35 U.S.C. 117	☐ Joint Inventor
☐ Person to whom the inventor is obligated to assign.	☐ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Applicant is an Organization check here. ☐

Prefix	Given Name	Middle Name	Family Name	Suffix

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	
		Application Number	
Title of Invention	Push Through Fastener with Integrated Seal		

Mailing Address Information:			
Address 1			
Address 2			
City		State/Province	
Country		Postal Code	
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button.			

Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Assignee 1				
Complete this section only if non-applicant assignee information is desired to be included on the patent application publication in accordance with 37 CFR 1.215(b). Do not include in this section an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest), as the patent application publication will include the name of the applicant(s).				
If the Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information:				
Address 1				
Address 2				
City		State/Province		
Country		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee Data may be generated within this form by selecting the Add button.				

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	
		Application Number	
Title of Invention	Push Through Fastener with Integrated Seal		

Signature:

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications					
Signature	/jamesmrobertson/			Date (YYYY-MM-DD)	2012-12-19
First Name	James	Last Name	Robertson	Registration Number	36905
Additional Signature may be generated within this form by selecting the Add button.					

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

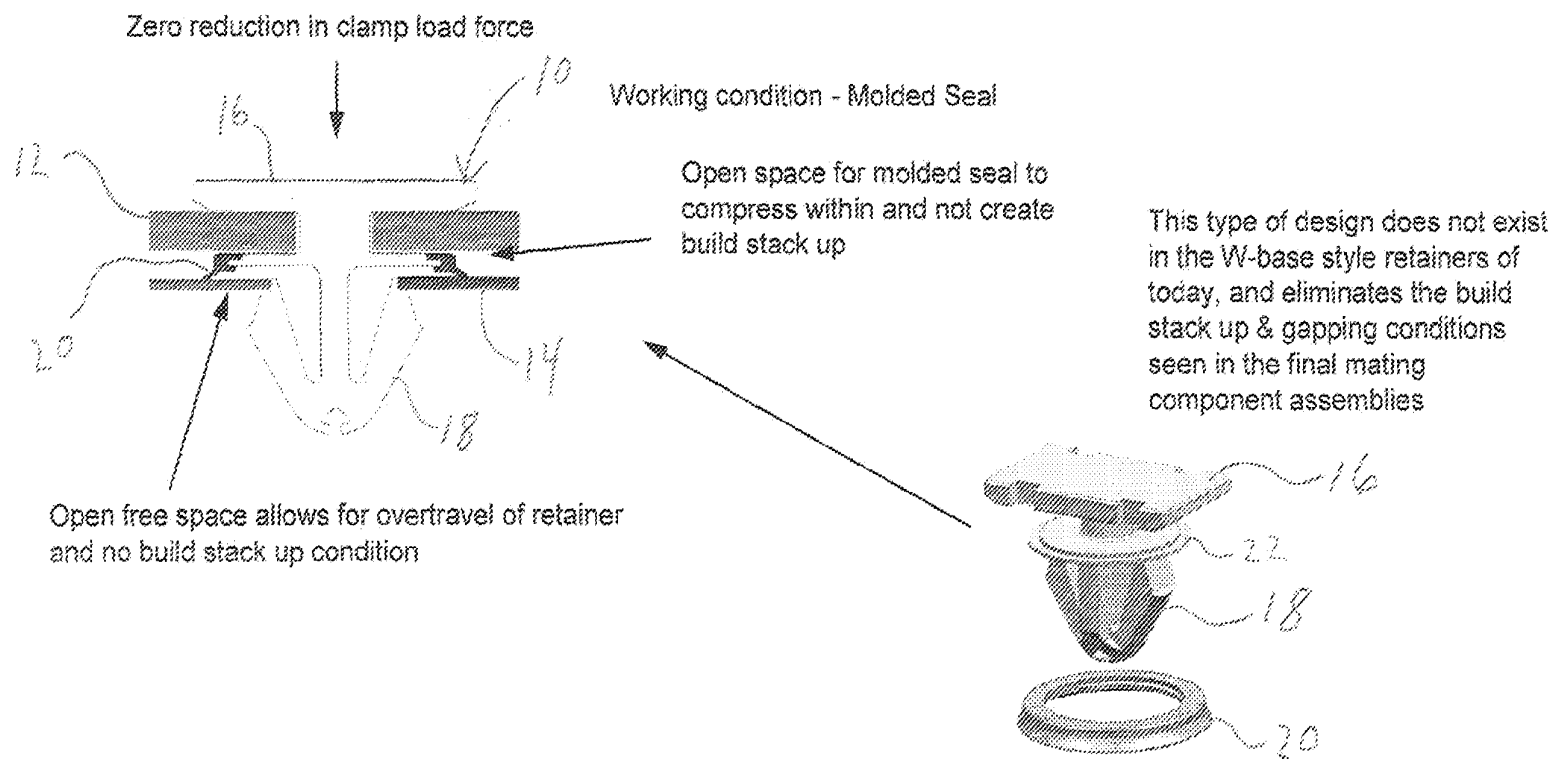
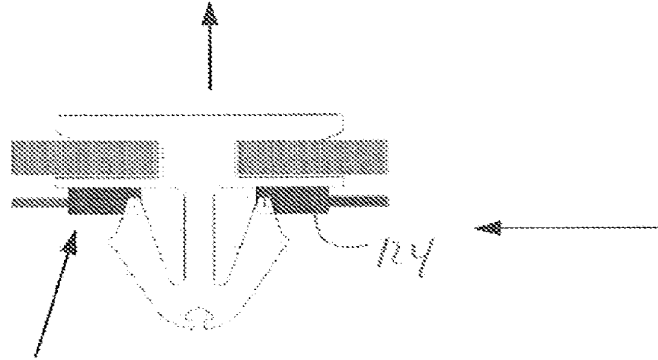
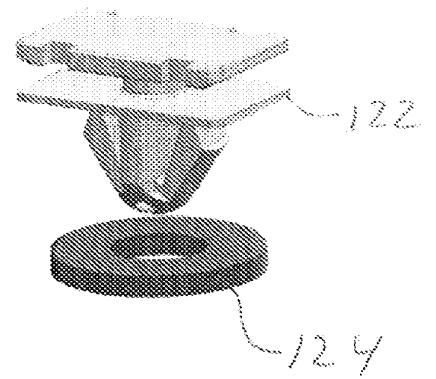


FIG. 1

Stack up creates build up movement outboard
from sheet metal -- resulting in gap



Compression style seal creating
build stack up condition



Prior Art

FIG. 2

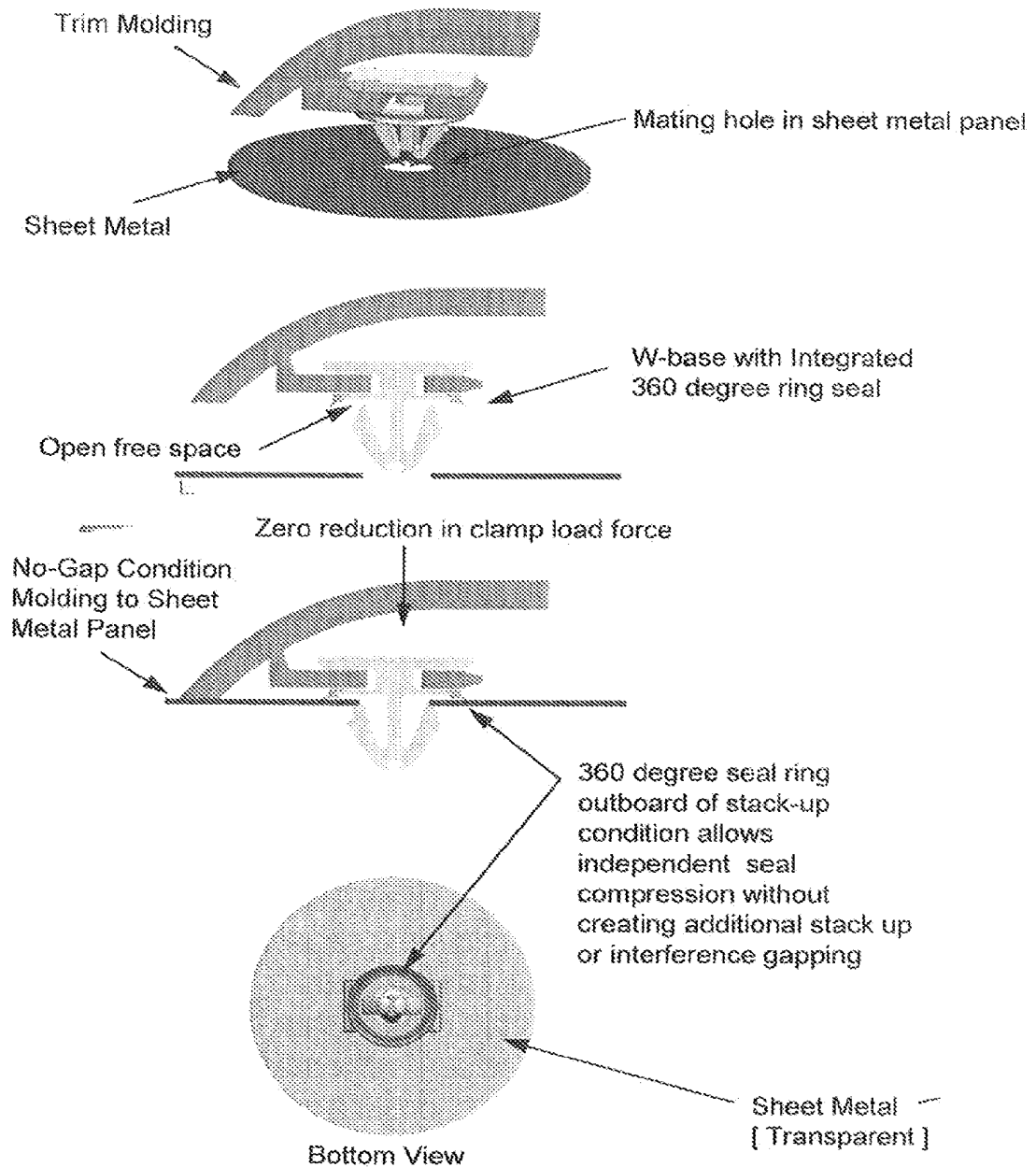


FIG. 3

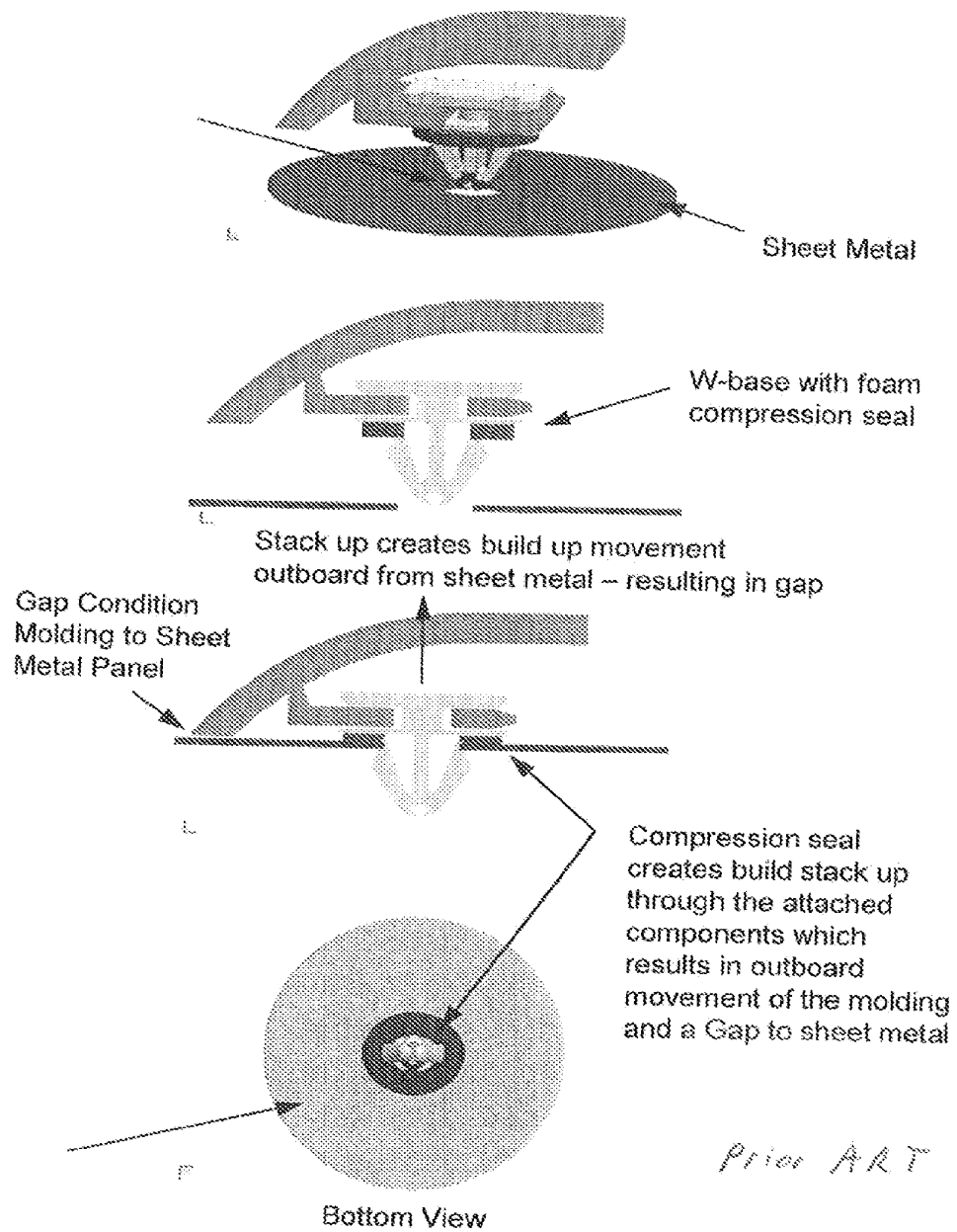


FIG. 4

Working condition - Molded Seal

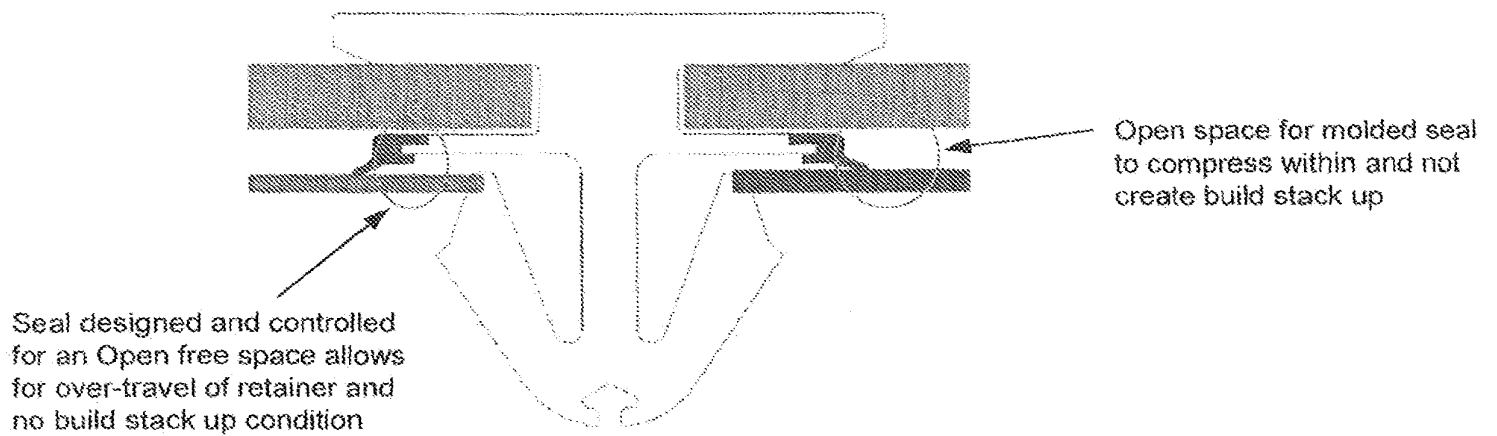
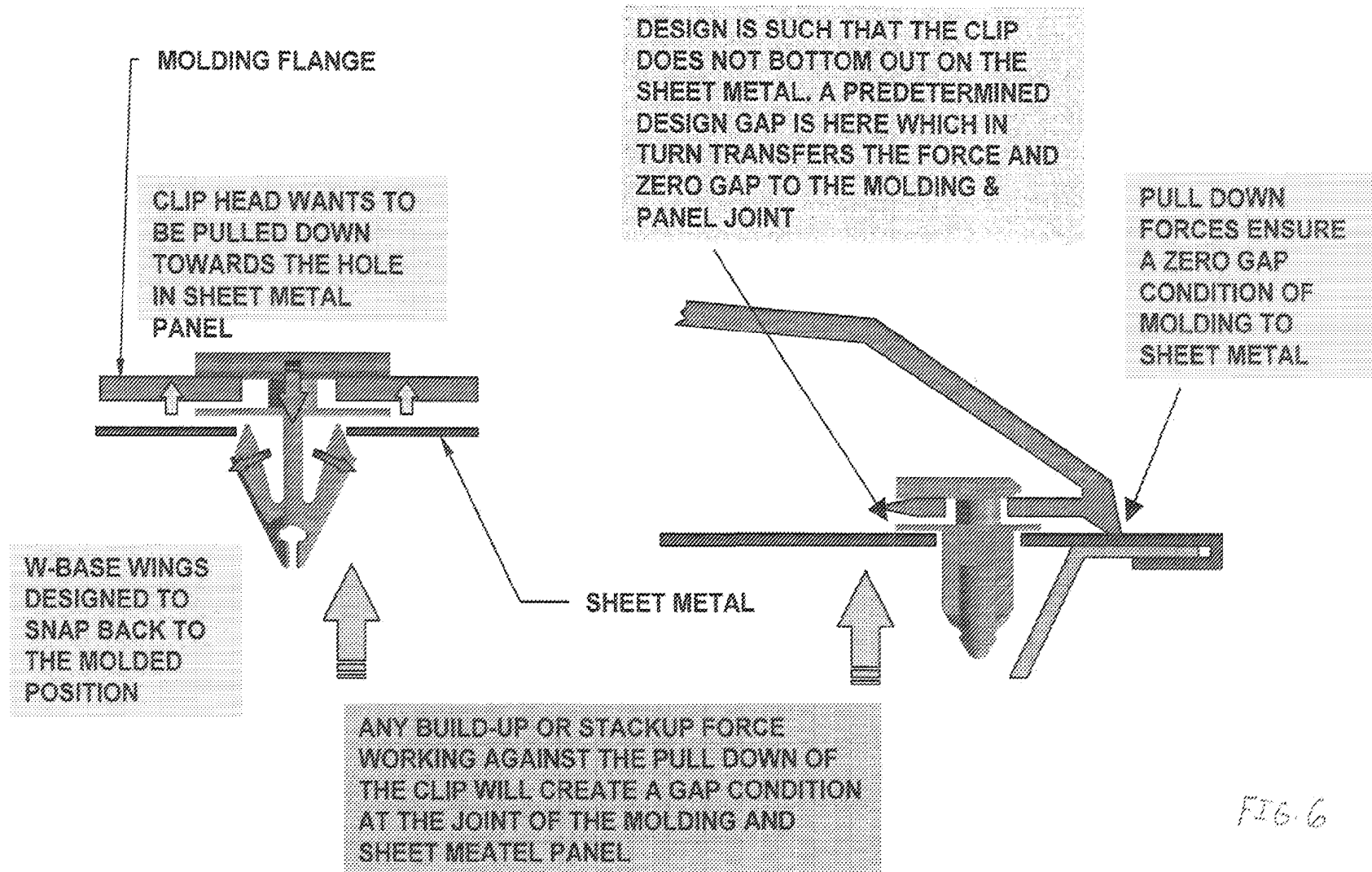


FIG. 5.

W-BASE RETAINER

RETENTION FORCES & HOW THE W-BASE STYLE RETAINER FUNCTIONS



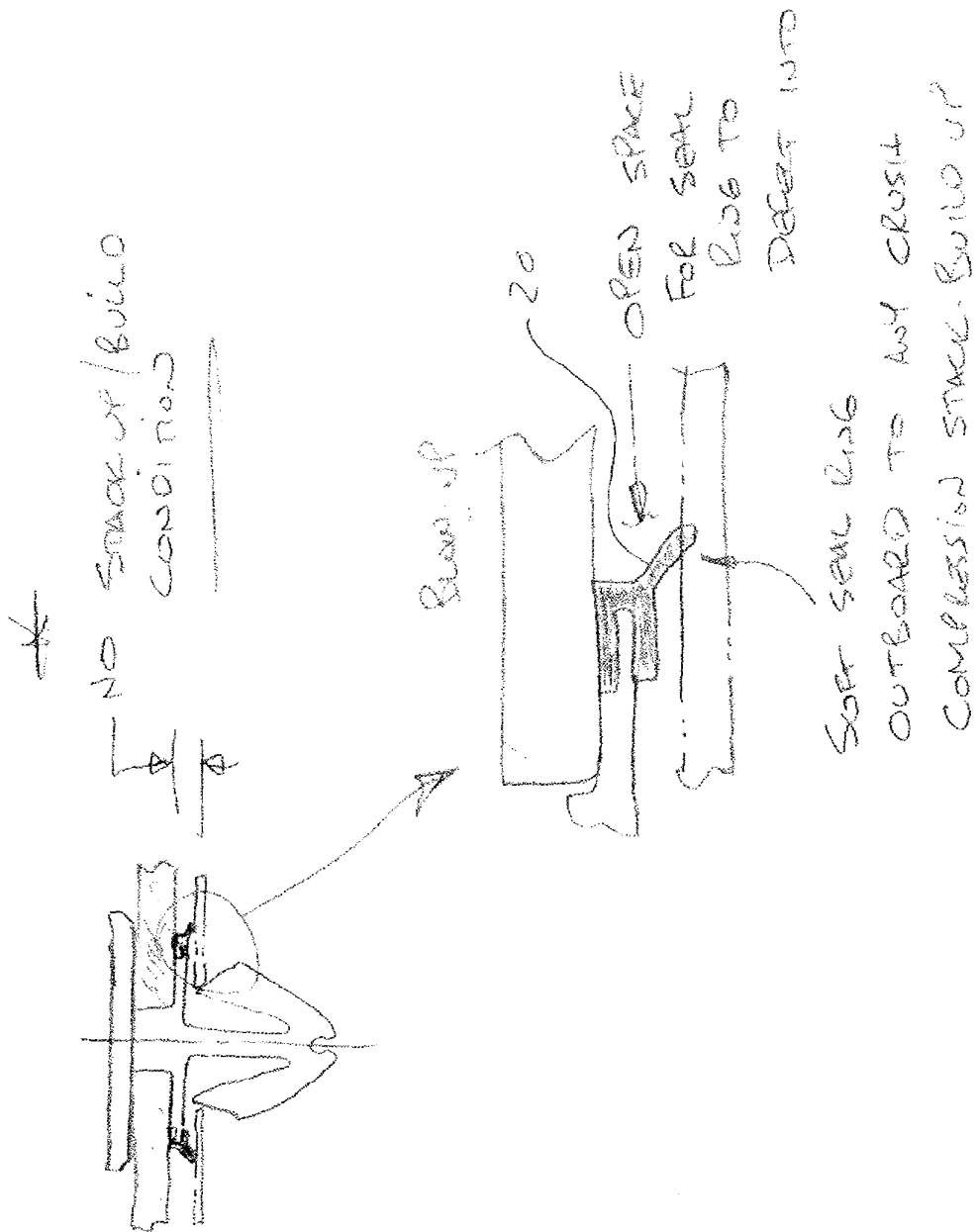
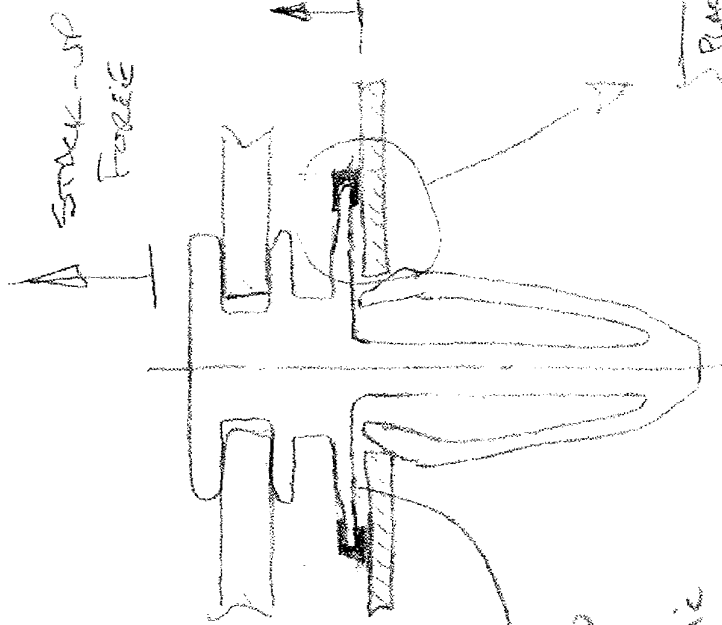
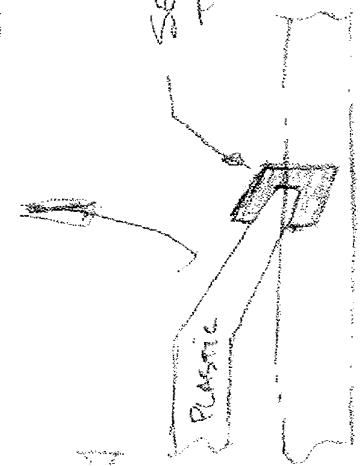


FIG. 7



CUP
DESIGNED
SO THAT
HARD PLASTIC
UMBRELLA
FLATTENS OUT
(MOLDED CONCAVE)

CHANGES BUILD/STACK-UP
FROM HARD PLASTIC
SPRING-BACK OF
CUP UMBRELLA



SEAL IS ADDED
TO HARD PLASTIC
UMBRELLA TO
CREATE A
BETTER BOARD

SEAL TO PANEL
INSTEAD OF
PLASTIC RISK

BUILD-UP

PATENT
US 2004/0099051 A1

PRIOR ART

PLASTIC
SPRING-UP
COMPRESSION

SEAL FORCE
IS GENERATED
BY HARD
PLASTIC UMBRELLA

FIG. 8

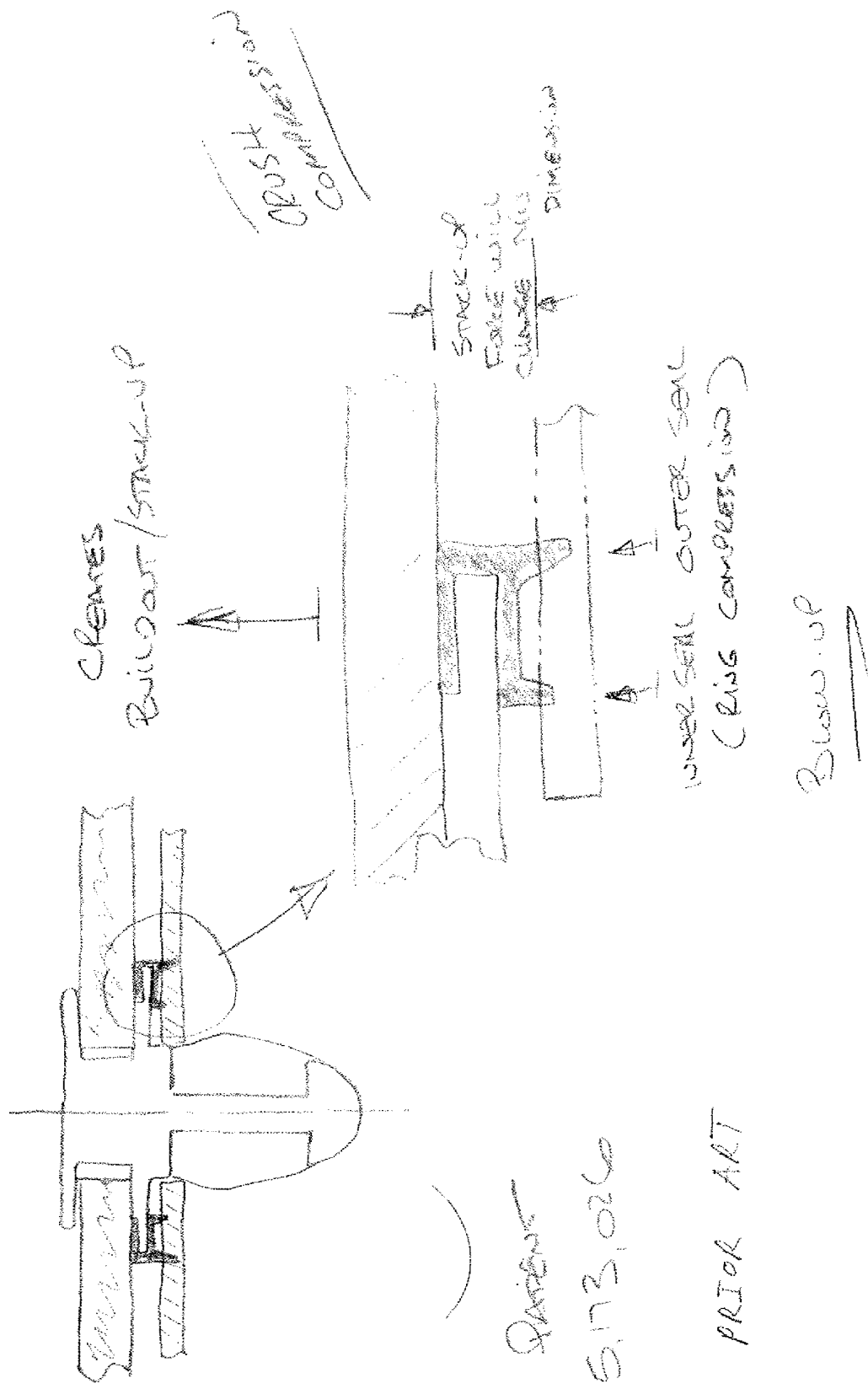


FIG. 9

PUSH THROUGH FASTENER WITH INTEGRATED SEAL

TECHNICAL FIELD

[0001] The present disclosure relates generally to fasteners and, more particularly, the disclosure pertains to push-in type fasteners having seals for creating a barrier to the penetration of moisture, dust and noise through an aperture in which the fastener is secured.

BACKGROUND

[0002] Push-in type W-base fasteners are used in a variety of assemblies to secure components of the assembly. For example, in automobiles stud-like fasteners are used to secure trim parts to body panels. The fastener includes a stem with deflectable members for securing the fastener to a body panel through an aperture in the panel through which the stem is pushed. A head attached to the stem is configured for attachment to the trim part. The deflectable members are pushed through the panel and engage the panel in the hole or on a surface of the panel opposite from the surface through which the stem is inserted.

[0003] W-base retainers are typically designed as a component of an assembly and work in conjunction with the other components with the goal of retaining and maintaining a “zero gap” condition between the sheet metal support panel and the molding on the vehicle. To ensure a “zero gap” the W-base retainer provides a continuous pull down or clamp load condition. The retainer itself is designed so that there is a gap between its lower collar feature and the underlying sheet metal support panel. This gap provides for constant pull down or clamp load force between the engagement wings and the upper head feature. This constant pull down provides and maintains the desired “zero gap” condition between the sheet metal support panel and the molding. If this design gap or pull down is compromised, an unacceptable gap condition may occur within the final assembled product.

[0004] By way of example only, and not limitation, various sealing arrangements for push through fasteners are illustrated and described in US Patent 5,173,026 to Cordola et al. and US published application 2006/0099051 to Moerke, the contents of all of which are incorporated

herein by reference in their entirety. As much as is reasonably possible, it is desirable to limit the generation of squeaks, rattles and objectionable noises that may be created from movement of the fastener relative to the parts to which it is connected. To minimize corrosion from within panels and the like, it is desirable also to prevent moisture from precipitation, carwashes, etc. from seeping past the fastener, and through the aperture in which the fastener is installed. A variety of sealing structures have been used to minimize rattles and squeaks and to prevent moisture seepage past the fastener. Concave skirts have been used on push-in fasteners at the base of the head to confront the body panel around the hole through the panel. The skirt is compressed against the panel and thereby provides a biasing force against the parts of the fastener that confront the panel on the opposite side. Flexible skirts of this type also accommodate some variation in the thickness of the panel or substrate by compensating for looseness that might occur otherwise for fasteners mounted on thin panels.

[0005] Elastomeric and foam seals have been used in conjunction with the skirt, to further improve sealing qualities against moisture penetration. The seals have been provided as a separate part slid over the stem and against the skirt or as a part adhered to or otherwise affixed to the underside of the skirt.

[0006] Although fasteners as described have been used successfully to limit squeaks and rattles and to inhibit the penetration of moisture past the fastener, further improvements are desirable. Installing the seal as a separate part is cumbersome and awkward, complicating installation of the fastener. If installed on the fastener in advance, the seal can become dislodged, even if properly placed on the fastener. In automated assembly plants, a fastener missing a seal may not be detected and may be installed on the article in which it is used inadvertently. A loose fastener of this type will rattle or squeak, may provide a path for the penetration of moisture and may not adequately secure the second article or item as required. If the seal is adhered to the skirt of the fastener, the seal may not function optimally if the fastener is not seated squarely in the panel. Further, the position of the seal relative to the fastener skirt has limited the range of panel thicknesses with which the fastener can be used effectively to provide a seal against moisture intrusion.

[0007] As will be understood by those of skill in the art, a seal which is compressed between the fastener head and the support panel may experience a build, stack up condition. This build, stack up compromises the designed gap between the lower collar feature of the fastener and the underlying sheet metal support panel. As a result, the “zero gap” condition between the sheet metal support panel and the molding may be compromised as well. A seal in a build, stack up condition may result in undesired outboard movement of the molding and creating a gap between the support panel and the overlying molding component.

SUMMARY

[0008] The present disclosure provides advantages and alternatives over the prior art by providing a push-in type fastener having an integrated fully functional sealing feature that does not experience a build, stack up condition that may reduce the clamp load force. Thus, the “zero gap” condition is maintained between the sheet metal and the mating molding substrate. This contrasts with current foam seal retainers which may undergo a stack up condition and create a gap between the sheet metal and the molding substrate in some circumstances.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1 is a set of views illustrating a sealing fastener in accordance with the present disclosure;

[0010] FIG. 2 is a set of views illustrating a sealing fastener using an annular foam seal in accordance with the prior art;

[0011] FIG. 3 is a set of views illustrating a sealing fastener in accordance with the present disclosure engaging trim molding with a “zero gap” condition between the trim molding and a sheet metal support panel;

[0012] FIG. 4 is a set of views similar to FIG. 3 illustrating a sealing fastener using an annular foam seal in accordance with the prior art illustrating the creation of a gap condition between the trim molding and a sheet metal support panel;

[0013] FIG. 5 is a schematic cross-sectional view illustrating a sealing fastener in accordance with the present disclosure;

[0014] FIG. 6 is a set of views illustrating the retaining function of a W-base fastener;

[0015] FIG. 7 is a set of views illustrating the compression action of a seal on a fastener in accordance with the present disclosure;

[0016] FIG. 8 is a set of views illustrating the compression action of a seal on a fastener in accordance with US patent application 2006/0099051 as best understood; and

[0017] FIG. 9 is a set of views illustrating the compression action of a seal on a fastener in accordance with US patent 5,173,026 as best understood.

[0018] Before the embodiments of the disclosure are explained in detail, it is to be understood that the disclosure is not limited in its application to the details of construction and the arrangements of the components set forth in the following description or illustrated in the drawings. The disclosure is capable of other embodiments and of being practiced or being carried out in various ways. Also, it is understood that the phraseology and terminology used herein are for the purpose of description and should not be regarded as limiting. The use herein of "including", "comprising" and variations thereof is meant to encompass the items listed thereafter and equivalents thereof, as well as additional items and equivalents thereof.

DETAILED DESCRIPTION

[0019] Referring now more specifically to the drawings and to FIG. 1 in particular, it may be seen that the present disclosure provides a fastener 10 adapted to secure a molding or trim

element 12 to an underlying support panel 14 of metal or the like. The fastener 10 includes a head 16 and a snap engaging stem 18. Head 16 and stem 18 can be formed as a monolithic body by injection molding or other suitable molding or fabrication process. The material for fastener 10 can be selected as optimally desirable for its particular installation and use. Accordingly, fastener 10 can be formed of plastic, such as nylon. It should be understood that the exemplary embodiment for fastener 10 and the particular configurations for snap engaging stem 18 and head 16 are provided as suitable for the particular installation.

[0020] A perimeter seal 20 of flexible polymeric material is disposed about the perimeter of a lower platform 22 generally at the intersection between the head 16 and the stem 18. By way of example only, the perimeter seal may be formed by over-molding or two-shot molding processes. Referring to FIG. 2, a prior art sealing arrangement is illustrated wherein an annular foam seal 124 is disposed below a lower platform 122.

[0021] As best seen through joint reference to FIGS. 3, 5 and 7, a fastener incorporating a perimeter seal consistent with the present disclosure may be used to secure a molding trim component to an underlying support panel. As shown in FIG. 3, in an embodiment consistent with the present disclosure, compression of the perimeter seal does not lead to a build, stack up condition. Rather there is open free space below the lower platform which does not accumulate seal material when the seal is compressed. All portions of the deforming foot project outboard from the lower platform on which it is mounted. Accordingly, interference gapping is eliminated and a zero gap condition is established between the support panel and the molding.

[0022] As best seen in FIG. 4, in a prior art system incorporating an annular foam seal, stack-up may take place and result in a gap condition between the support panel and the molding. As will be appreciated, this gap condition may lead to undesirable rattling.

[0023] Referring to FIGS. 7-9, it may be seen that a seal consistent with the present disclosure having a deformable foot outboard from the lower platform represents an improvement over prior perimeter seals. In particular, known prior seals are subject to stack up conditions in use and may produce an undesired gap condition.

[0024] Of course, variations and modifications of the foregoing are within the scope of the present disclosure. It is understood that the disclosure disclosed and defined herein extends to all alternative combinations of two or more of the individual features mentioned or evident from the text and/or drawings. All of these different combinations constitute various alternative aspects of the present disclosure. The embodiments described herein explain the best modes known for practicing the disclosure and will enable others skilled in the art to utilize the disclosure. The claims are to be construed to include alternative embodiments to the extent permitted by the prior art. Of course, variations and modifications of the foregoing are within the scope of the present disclosure. Thus, it is to be understood that the disclosure disclosed and defined herein extends to all alternative combinations of two or more of the individual features mentioned or evident from the text and/or drawings. All of these different combinations constitute various alternative aspects of the present disclosure. The embodiments described herein explain the best modes known for practicing the disclosure and will enable others skilled in the art to utilize the disclosure. The claims are to be construed to include alternative embodiments and equivalents to the extent permitted by the prior art.

WHAT IS CLAIMED IS:

1. A novel and nonobvious push through fastener as shown and described and equivalents thereto.

Electronic Acknowledgement Receipt

EFS ID:	14520084
Application Number:	61739604
International Application Number:	
Confirmation Number:	5393
Title of Invention:	Push Through Fastener with Integrated Seal
First Named Inventor/Applicant Name:	Derek Scroggie
Customer Number:	26359
Filer:	Charles Brandon Browning/James M. Robertson
Filer Authorized By:	Charles Brandon Browning
Attorney Docket Number:	15669-0024
Receipt Date:	19-DEC-2012
Filing Date:	
Time Stamp:	19:03:40
Application Type:	Provisional

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 250
RAM confirmation Number	12467
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
-----------------	----------------------	-----------	----------------------------------	------------------	------------------

1		JMRProvPushThrough.PDF	5558676 21f18ed142fac1d7aa53fd7e45f7e8a37e612947	yes	23
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Application Data Sheet		1	6	
	Provisional Cover Sheet (SB16)		7	8	
	Specification		9	14	
	Drawings-other than black and white line drawings		15	23	
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	29607 75830714cfe300632d8a69caa8be81518d75515f	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			5588283		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

DOCUMENT MADE AVAILABLE UNDER THE PATENT COOPERATION TREATY (PCT)

International application number:	PCT/US2013/073861
International filing date:	09 December 2013 (09.12.2013)
Document type:	Certified copy of priority document
Document details:	Country/Office: US
	Number: 61/739,604
	Filing date: 19 December 2012 (19.12.2012)
Date of receipt at the International Bureau:	03 January 2014 (03.01.2014)

Remark: Priority document submitted or transmitted to the International Bureau in compliance with Rule 17.1(a),(b) or (b-bis)

PCT REQUESTOriginal (for **SUBMISSION**)

0	For receiving Office use only	
0-1	International Application No.	PCT/US13/73861
0-2	International Filing Date	09 DEC 2013 (09.12.13)
0-3	Name of receiving Office and "PCT International Application"	PCT INTERNATIONAL APPLICATION RO/US
0-4	Form PCT/RO/101 PCT Request	
0-4-1	Prepared Using	PCT-SAFE [EASY/EFS-Web mode] Version 3.51.060.236 MT/FOP 20131001/0.20.5.21
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	United States Patent and Trademark Office (USPTO) (RO/US)
0-7	Applicant's or agent's file reference	713-3314PCT
I	Title of Invention	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL
II	Applicant	
II-1	This person is	Applicant only
II-2	Applicant for	All designated States
II-4	Name	ILLINOIS TOOL WORKS INC.
II-5	Address	3600 West Lake Avenue Glenview, Illinois 60026 United States of America
II-6	State of nationality	US
II-7	State of residence	US
III-1	Applicant and/or inventor	
III-1-1	This person is	Inventor only
III-1-3	Inventor for	
III-1-4	Name (LAST, First)	SCROGGIE, Derek
III-1-5	Address	c/o Illinois Tool Works Inc. 3600 West Lake Avenue Glenview, Illinois 60026 United States of America

PCT REQUEST

Original (for SUBMISSION)

III-2	Applicant and/or inventor	
III-2-1	This person is	Inventor only
III-2-3	Inventor for	
III-2-4	Name (LAST, First)	BOZINOVSKI, Michelle E.
III-2-5	Address	c/o Illinois Tool Works Inc. 3600 West Lake Avenue Glenview, Illinois 60026 United States of America
III-3	Applicant and/or inventor	
III-3-1	This person is	Inventor only
III-3-3	Inventor for	
III-3-4	Name (LAST, First)	MURAWSKI, Robert A.
III-3-5	Address	c/o Illinois Tool Works Inc. 3600 West Lake Avenue Glenview, Illinois 60026 United States of America
IV-1	Agent or common representative; or address for correspondence	
	The person identified below is hereby/ has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	Agent
IV-1-1	Name (LAST, First)	HAUPTMAN, Benjamin J.
IV-1-2	Address	LOWE HAUPTMAN & HAM, LLP 2318 Mill Road, Suite 1400 Alexandria, Virginia 22314 United States of America
IV-1-3	Telephone No.	703-684-1111
IV-1-4	Facsimile No.	703-518-5499
IV-1-5	e-mail	itw@ipfirm.com
IV-1-6	Agent's registration No.	29,310
V	DESIGNATIONS	
V-1	The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents.	
VI-1	Priority claim of earlier national application	
VI-1-1	Filing date	19 December 2012 (19.12.2012)
VI-1-2	Number	61/739,604
VI-1-3	Country	US
VI-2	Priority document request	
	The receiving Office is requested to prepare and transmit to the International Bureau a certified copy of the earlier application(s) identified above as item(s):	VI-1

PCT REQUEST

Original (for SUBMISSION)

VI-3	Incorporation by reference : where an element of the international application referred to in Article 11(1)(iii)(d) or (e) or a part of the description, claims or drawings referred to in Rule 20.5(a) is not otherwise contained in this international application but is completely contained in an earlier application whose priority is claimed on the date on which one or more elements referred to in Article 11(1)(iii) were first received by the receiving Office, that element or part is, subject to confirmation under Rule 20.6, incorporated by reference in this international application for the purposes of Rule 20.6.		
VII-1	International Searching Authority Chosen	European Patent Office (EPO) (ISA/EP)	
VIII	Declarations	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	—	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	—	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	—	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	—	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	—	
IX	Check list	Number of sheets	Electronic file(s) attached
IX-1	Request (including declaration sheets)	4	✓
IX-2	Description	11	—
IX-3	Claims	6	—
IX-4	Abstract	1	✓
IX-5	Drawings	4	—
IX-7	TOTAL	26	
	Accompanying Items	Paper document(s) attached	Electronic file(s) attached
IX-8	Fee calculation sheet	✓	—
IX-20	Figure of the drawings which should accompany the abstract		
IX-21	Language of filing of the international application	English	
X-1	Signature of applicant, agent or common representative	/Benjamin J. Hauptman, Reg. No. 29,310/	
X-1-1	Name (LAST, First)	HAUPTMAN, Benjamin J.	
X-1-2	Name of signatory		
X-1-3	Capacity (if such capacity is not obvious from reading the request)		

PCT REQUESTOriginal (for **SUBMISSION**)**FOR RECEIVING OFFICE USE ONLY**

10-1	Date of actual receipt of the purported international application	09 DEC 2013 (09.12.13)
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/EP
10-6	Transmittal of search copy delayed until search fee is paid	

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11-1	Date of receipt of the record copy by the International Bureau	
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PCTNOTIFICATION OF THE RECORDING
OF A CHANGE(PCT Rule 92bis.1 and
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

HAUPTMAN, Benjamin J.
Lowe Hauptman & Ham, LLP
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Alexandria, Virginia 22314
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year) 25 February 2014 (25.02.2014)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 713-3314PCT	
International application No. PCT/US2013/073861	International filing date (day/month/year) 09 December 2013 (09.12.2013)

1. The following indications appeared on record concerning:

☒ the applicant ☐ the inventor ☐ the agent ☐ the common representative

Name and Address ILLINOIS TOOL WORKS INC. 3600 West Lake Avenue Glenview, Illinois 60026 United States of America	State of Nationality US	State of Residence US
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	Facsimile No.	
	E-mail address	

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person ☐ the name ☒ the address ☐ the nationality ☐ the residence

Name and Address ILLINOIS TOOL WORKS INC. 155 Harlem Avenue Glenview, Illinois 60025 United States of America	State of Nationality US	State of Residence US
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	Facsimile No.	
	E-mail address ☐ Notifications by e-mail authorized	

3. Further observations, if necessary:

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PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This non-provisional application claims the benefit of, and priority from, United States provisional application 61/739,604 filed December 19, 2012. The contents of such provisional application and all other patent documents referenced in this application are hereby incorporated by reference in their entirety as if fully set forth herein.

TECHNICAL FIELD

[0002] The present disclosure relates generally to connection assemblies incorporating retainers which may also be referred to as fasteners. More particularly, this disclosure pertains to connections incorporating push-in type retainers having downward biasing wing features which secure the retainer in place after insertion through an aperture and with seals for creating a barrier to the penetration of moisture, dust and noise through the aperture in which the retainer is secured.

BACKGROUND

[0003] Push-in type W-base retainers are used in a variety of connection assemblies to secure components of the assembly. For example, in automobiles such stud-like retainers are used to secure molding or other surface structures to underlying support elements such as body panels, support beams or the like. Such retainers typically include a stem with deflectable wing elements for securing the retainer to the support elements when the stem portion supporting the deflectable wing elements is pushed through an aperture in the support element. Typically, a head attached to the stem is configured for attachment to a doghouse or other complementary receiving element on the underside of the surface structure. In this regard, the head may include an enhanced diameter upper platform radial collar feature and an enhanced diameter lower radial collar feature with a spacing post extending between the upper and lower radial collar features. Thus, the spacing post may slide into a doghouse or other receiving element as will be well

known to those of skill in the art and thereafter be blocked against axial withdrawal by the upper and lower radial collar features.

[0004] During use, as the stem is inserted into the aperture, the deflectable members may be compressed radially inwardly. The deflectable members then may spring outwardly as insertion is completed to lock behind the underside of the support element. Thus, with the head secured to the surface structure, the retainer forms a connection between the surface structure and the underlying support element.

[0005] W-base retainers are typically designed as a component of an overall assembly and work in conjunction with the other components with the goal of establishing and maintaining a “zero gap” condition between the sheet metal panel or other support element and the molding or other surface structure. To promote the desired “zero gap” condition, the W-base retainers typically provide a continuous pull down or clamp load condition. This constant pull down is intended to provide and maintain the desired “zero gap” condition between the support element and the molding or other surface structure. If this pull down force is compromised by a significant force acting in the opposite direction such that the molding or other surface structure does not seat against the sheet metal panel or other support element, an unacceptable gap condition may occur within the final assembled product. Such a gap condition may result in undesired rattling noise as well as in the introduction of dirt and water between the molding or other surface structure and the underlying support structure.

[0006] As much as is reasonably possible, it is generally desirable to limit the generation of squeaks, rattles and objectionable noises that may be created from movement of the retainer relative to the parts to which it is connected. By way of example only, and not limitation, various sealing arrangements for push through retainers are illustrated and described in US Patent 5,173,026 to Cordola et al. and US published application 2006/0099051 to Moerke, the contents of all of which are incorporated herein by reference in their entirety. To minimize corrosion, it is desirable also to prevent moisture from precipitation, carwashes, etc. from seeping past the retainer, and through the aperture in which the retainer is installed.

[0007] A variety of sealing structures have been used to minimize rattles and squeaks and to prevent moisture seepage past the retainer. Independent concave skirts such as described in US published application 2006/0099051 have been used in conjunction with push-in retainers at the base of the head to confront the body panel around the aperture in the panel. Elastomeric and foam seals also have been used to further improve sealing qualities against moisture penetration.

[0008] Although retainers as described incorporating concave skirts and/or seals have been used successfully to limit squeaks and rattles and to inhibit the penetration of moisture past the retainer, further improvements are desirable. Installing the seal as a separate part is cumbersome and awkward, complicating installation of the retainer. If installed on the retainer in advance, the seal can become dislodged, even if properly placed on the retainer. In automated assembly plants, a retainer missing a seal may not be detected and may be installed on the article in which it is used inadvertently. A loose retainer of this type will rattle or squeak, may provide a path for the penetration of moisture and may not adequately secure the second article or item as required. If the seal is adhered to the skirt of the retainer, the seal may not function optimally if the retainer is not seated squarely in the panel. Further, the position of the seal relative to the retainer skirt has limited the range of panel thicknesses with which the retainer can be used effectively to provide a seal against moisture intrusion.

[0009] As will be understood by those of skill in the art, a seal which is held between the retainer head and the support panel may experience a build, stack up condition as compression force is applied which results in a counteracting upward force being applied against the head which may partially offset the pull-down force provided by the deflectable wings. In some cases, the presence of seal elements which are compressed between the retainer head and the support panel may block the lower collar feature of the retainer from getting close enough to the underlying sheet metal panel to establish the desired “zero gap” condition between the sheet metal panel and the overlying molding or other surface structure. That is, the compressed seal in stack-up condition may act in the manner of a spacing shim holding the retainer head further away than intended from the sheet metal panel or other underlying support element. With the retainer head in this elevated condition, the attached molding or other surface element will likewise be held away from the panel or other support element and a gap condition may result.

SUMMARY

[0010] The present disclosure provides advantages and alternatives over the prior art by providing a connection assembly including a push-in type retainer having a functional sealing feature that does not experience a build, stack up condition that may reduce the clamp load force. Thus, the retainer is not blocked from assuming its designed orientation relative to the sheet metal panel or other underlying support element. A “zero gap” condition is thereby established and maintained between the sheet metal panel or other underlying support element and the mating molding substrate or other surface element.

[0011] In accordance with one exemplary feature, the present disclosure provides a connection assembly adapted to join a surface element such as molding or the like to an underlying support structure such as a sheet metal panel or the like while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use. The connection assembly includes a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure. The retainer includes a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head. The retainer head includes an upper platform and an annular platform defining a lower collar positioned in spaced relation below the upper platform. The clip portion includes a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from a central stem. The retainer further includes a seal disposed at least partially about the lower collar. The seal includes a body portion engaging the lower collar and a sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from the lower collar. The underside of the sealing foot forms an obtuse angle relative to the underside of the lower collar. The sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintains continuous sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.

[0012] Other features and advantages of the present disclosure will become apparent from a description of certain preferred embodiments thereof which are shown in the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is an exploded perspective view illustrating an exemplary sealing retainer in accordance with the present disclosure with the seal separated from the retainer body;

[0014] FIG. 2 is an elevation perspective view illustrating an exemplary sealing retainer in accordance with the present disclosure engaging trim molding prior to insertion through a sheet metal support panel;

[0015] FIG. 3 is a cross-sectional view illustrating an exemplary sealing retainer in accordance with the present disclosure in normal operative connecting relation between a doghouse surface connector and an underlying support panel with wing elements in the inserted self-adjusting downward biasing condition;

[0016] FIG. 4 is a cross-sectional view illustrating an exemplary sealing retainer in accordance with the present disclosure engaging trim molding prior to insertion through a sheet metal support panel and with the seal in an unstressed condition; and

[0017] FIG. 5 is a cross-sectional view illustrating an exemplary sealing retainer in accordance with the present disclosure engaging trim molding after full insertion through a sheet metal support panel with a retained “zero gap” condition between the trim molding and the support panel and illustrating the compression action of the seal in an extreme insertion condition.

[0018] Before the embodiments of the disclosure are explained in detail, it is to be understood that the disclosure is not limited in its application to the details of construction and the arrangements of the components set forth in the following description or illustrated in the drawings. The disclosure is capable of other embodiments and of being practiced or being

carried out in various ways. Also, it is understood that the phraseology and terminology used herein are for the purpose of description and should not be regarded as limiting. The use herein of "including", "comprising" and variations thereof is meant to encompass the items listed thereafter and equivalents thereof, as well as additional items and equivalents thereof.

DETAILED DESCRIPTION

[0019] Referring now more specifically to the drawings, and to FIGS. 1 and 2 in particular, it may be seen that the present disclosure provides a retainer 10 adapted to secure a molding 12 or other surface element to a sheet metal support panel 14 or other underlying support element of metal or the like. As shown, in the illustrated exemplary construction, the retainer 10 includes a retainer head 16 and a snap engaging clip portion 18. As will be appreciated, the retainer head 16 and the clip portion 18 may be formed as a monolithic unitary body by injection molding or other suitable molding or fabrication process. The material for retainer 10 can be selected as optimally desirable for its particular installation and use. Accordingly, the retainer 10 may be formed of suitable plastic, such as Nylon, polypropylene, acetal resin and the like as will be well known to those of skill in the art. Acetal resin and Nylon 6.6 may be preferred in some environments of use. Of course, other polymeric and non-polymeric materials including metal and the like and combinations of various polymeric materials also may be used if desired. Likewise, it should be understood that the particular configurations for the retainer head 16 and for the clip portion 18 may be varied in a manner as may be desired for a particular installation.

[0020] By way of example only, and not limitation, in the illustrated exemplary construction for the retainer 10, the retainer head 16 is adapted for sliding receipt and retention within an intermediate connector 20 (FIG. 2) such as a dog house connector or the like disposed in hidden relation at the underside of the molding 12. In this regard, the intermediate connector 20 may be formed integral with the molding 12 as shown or may be a separate attached structure as may be desired.

[0021] As shown, in the illustrated exemplary construction, the retainer head 16 includes a table-like upper platform 22 disposed in opposing relation to a lower collar 24 of substantially

rigid, annular construction. In this regard, while the upper platform 22 is illustrated as having a generally rectangular configuration, it is likewise contemplated that other polygonal or circular geometries may be used if desired. As shown, the lower collar 24 may be in substantially perpendicular non-angled orientation to the travel path of the retainer and may include an interior collar portion 26 and a reduced thickness outer annular lip 28 disposed circumferentially about the interior collar portion such that a step 30 is disposed at the intersection of the interior collar portion 26 and the outer annular lip 28. A neck structure 32 in the form of a reduced diameter post extends between the upper platform 22 and the lower collar 24. As will be understood, the effective outer diameters defined by the upper platform 22 and by the lower collar 24 are preferably greater than the effective outer diameter defined by the neck structure 32.

[0022] In operation, the retainer 10 may be operatively secured to the intermediate connector 20 by sliding the neck structure 32 into a slot in the intermediate connector 20 in a manner as will be well known to those of skill in the art. The intermediate connector may, in turn, be attached to the overlying molding 12 or other surface element. Likewise, the retainer head 16 may be connected directly to an overlying component by techniques such as tape, adhesive bonding, mechanical joining or the like if desired.

[0023] As indicated previously, the retainer 10 further includes a clip portion designated generally as 18 extending away from the underside of the lower collar 24. In the illustrated exemplary construction, the clip portion 18 includes a stem 34 projecting away from the lower collar 24 such that the lower collar is oriented substantially perpendicular to an axis defined by the stem. As illustrated, wing elements 36 extend upwardly in angled relation away from the end of the stem 34. The wing elements 36 are adapted to flex inwardly towards the stem 34 during insertion through an acceptance opening 38 in the support panel 14. As best seen through joint reference to FIGS. 1 and 3, in the illustrated exemplary construction each of the wing elements 36 incorporates an outer face having a dogleg configuration facing generally outwardly away from the stem 34. In this regard, in the illustrated construction, the outer face of each wing element 36 includes a proximal face surface 42 extending in angled relation away from the axis defined by the stem 34. A distal face surface 44 extends away from the proximal face surface in angled relation back towards the axis defined by the stem 34 ultimately terminating at the free tip

of the wing element thereby establishing the outer surface dogleg profile. As shown, the free tips of the wing elements are at an elevation below the lower collar 24.

[0024] As best seen through joint reference to FIGS. 1-3, a monolithic perimeter seal 50 of flexible polymeric material is disposed about the perimeter of the lower collar 24 generally at the intersection between the retainer head 16 and the clip portion 18. As best seen in FIG 3, the inner diameter of the perimeter seal 50 may substantially cover the outer annular lip 28 of the lower collar 24 and may abut the step 30. The perimeter seal 50 may be formed from commercially available moldable materials such as thermoplastic elastomers including, by way of example only, polyolefins, PVC, silicone rubber, PTFE, polyvinylidene fluoride (PVDF), fluorinated ethylene propylene (FEP) and blends thereof. Such materials will preferably be of lower durometer (i.e. are less rigid) than the material forming the retainer head and may be characterized by a useful operating temperature range of about -75 °C to about 175 °C. In accordance with one exemplary construction, the perimeter seal 50 may be formed by over-molding or two-shot molding processes such that during molding the flexible material forming the perimeter seal 50 is integrally fused with the more rigid acetal resin or other material forming the lower collar 24. It is also contemplated that the perimeter seal 50 may be formed separately with a circumferential acceptance slot around the interior for receipt and retention of the annular lip 28 in a stretch-fit relation if desired. In any event, the seal 50 defines a relatively soft, deformable covering at the perimeter edge of the lower collar 24 adapted to provide a seal around the acceptance opening 38 in the support panel 14 during use without the need for any sealing structures oriented below the lower collar.

[0025] As best seen in FIG. 3, the perimeter seal 50 may be substantially annular and may include a main body portion 52 adapted to cover the outer annular lip 28 of the lower collar 24. A hingeable outwardly flared sealing foot 54 extends in angled relation downwardly and radially away from the main body portion 52. As shown, the sealing foot 54 is elongated and relatively thin in cross-section. In an unstressed condition (FIG. 4), the sealing foot 54 extends radially outboard from the main body portion 52 to a free edge such that the sealing foot is disposed entirely outboard from lower collar 24 and the underside of the sealing foot forms an obtuse

angle relative to the underside of the lower collar 24. As shown, no portion of the angled sealing foot 54 is in the zone below the lower collar 24.

[0026] When the sealing foot 54 is pressed against the support panel 14 during normal use, the sealing foot 54 readily flexes upwardly towards a flattened condition about a living hinge 56 substantially at the intersection with the body portion 52. This hinging takes place without confinement of the sealing foot between the support panel 14 and the lower collar 24 while continuously maintaining contacting engagement with the underlying support panel. Thus, the sealing foot 54 may flex from its unstressed condition (FIG. 4) to its fully flexed position (FIG. 5) without experiencing a stack-up condition of seal material between the support panel 14 and the lower collar 24. As the sealing foot 54 flexes during compression, the edge of the sealing foot 54 moves radially outwardly as the sealing foot 54 takes on a more flattened condition. As this flattening takes place, the sealing foot 54 moves out of the way of the travel path for the lower collar 24. This avoids any confinement and stack-up of seal material between the support panel 14 and the lower collar 24 while nonetheless maintaining a sealing condition relative to the support panel 14. Accordingly, the retainer head 16 and the attached molding 12 may be pulled downwardly to a position wherein the molding 12 and the underlying support panel form a substantially flush “zero gap” condition while maintaining a seal around the acceptance opening 38. In this regard, it will be understood that such a zero gap condition occurs when a contact surface 60 on the molding 12 assumes a contacting abutting relation with the underlying support panel 14. As will be appreciated, the elevation and contour of the contact surface 60 may be selected to provide this zero gap condition when the sealing foot 54 is in a flexed condition relative to the support panel 14 and with the lower collar 24 elevated relative to the support panel 14.

[0027] Referring now to FIGS. 2 and 3, it will be seen that in normal operation (FIG. 3), a portion of the sloped distal face surface 44 may be in contacting relationship with the inner perimeter surface of the acceptance opening 38. In the normal operating condition shown in FIG. 3, the retainer 10 is urged downwardly continuously as the flexed wing elements press outwardly against the perimeter surface of the acceptance opening 38. However, downward movement will be limited once the molding 12 comes into contact with the underlying support

panel 14 to establish a zero gap condition. Thus, in the condition shown by FIG. 3, a condition of static equilibrium is established when the molding 12 comes into contact with the underlying support panel 14. Since the retainer 10 is urged continuously downwardly due to the sloped distal face surface 44, the retainer will naturally assume and retain the level at which the molding 12 contacts the underlying support panel 14 and thereby blocks further downward movement. As shown, in this equilibrium condition, the lower collar 24 remains slightly elevated relative to the support panel 14 and the sealing foot 54 of the perimeter seal 50 is hinged outwardly while maintaining a sealing relationship against the support panel 14. As can be seen, the sealing foot 54 is adapted to flex outwardly in a hinging action as the retainer moves downwardly without blocking further downward movement by the retainer 10.

[0028] As will be appreciated, the equilibrium position of the retainer 10 within the acceptance opening 38 is continuously self-adjusting as the relative positions of the molding 12 and the support panel 14 change during use as a result of vibration or other events. In this regard, the living hinge 56 urges the sealing foot 54 continuously against the underlying support panel 14 as the sealing foot 54 attempts to resume its normal unflexed condition (FIG. 4). Thus, the sealing relationship provided by the sealing foot 54 is maintained by sliding contact as the retainer 10 moves up and down and the sealing foot 54 moves radially in and out during equilibrium adjustment. That is, although the angle between the support panel 14 and the sealing foot 54 may change as the retainer 10 moves up and down, the sealing relation is maintained as the sealing foot 54 moves in sliding relation over the support panel. Moreover, since the sealing foot 54 is not confined between the lower collar 24 and the support panel 14, downward movement of the molding is unobstructed by the sealing element.

[0029] As best seen in FIG. 5, in the event of extreme insertion such that the tips of the wing elements 36 are within the acceptance opening, in the support panel 14, the sealing foot 54 may assume a substantially flattened condition against the underlying support panel 14 as the molding 12 establishes a “zero gap” condition with the support panel. Even in this extreme insertion condition, the sealing foot is not confined between the lower collar 24 and the support panel 14. Accordingly, no stack-up condition and resultant shim action is created. Thus, the molding 12 may continue to be pulled down to the desired “zero gap” condition over

the full range of operative engagement positions between the wing elements 36 and the support panel 14 with the sloped distal face surface 44 bearing against the support panel.

[0030] The ability to avoid a stack-up condition is promoted by maintaining the free space between the lower collar 24 and the underlying support panel during downward movement such that portions of the seal material do not collect in the free space in a manner which would limit downward movement. This free space below the lower collar is maintained even in the extreme insertion condition shown in FIG. 5. As shown, all portions of the sealing foot 54 are positioned radially outboard from the lower collar 24 and the free edge of the sealing foot 54 is adapted to slide radially outwardly away from the lower collar 24 and the main body portion 52 as the retainer head 16 moves downwardly and the sealing foot 54 hinges outwardly. Thus, the sealing foot 54 flattens by hinging outwardly about the living hinge 56 as it is pressed against an underlying support panel 14. Accordingly, the sealing foot 54 does not interfere with downward movement of the retainer head 16 and the molding 12 may be maintained in a “zero gap” condition with the underlying support panel 14.

[0031] While various spatial and directional terms, such as upper, horizontal, vertical, front and the like may be used to describe embodiments of the present invention, it is understood that such terms are merely used with respect to the orientations shown in the drawings. The orientations may be inverted, rotated, or otherwise changed, such that an upper portion is a lower portion, and vice versa, horizontal becomes vertical, and the like.

[0032] Of course, variations and modifications of the foregoing are within the scope of the present disclosure. It is to be understood that the disclosure disclosed and defined herein extends to all alternative combinations of two or more of the individual features mentioned or evident from the text and/or drawings. All of these different combinations constitute various alternative aspects of the present disclosure. The embodiments described herein explain the best modes known for practicing the disclosure and will enable others skilled in the art to utilize the disclosure. The claims are to be construed to include alternative embodiments to the extent permitted by the prior art.



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(54) **Title:** PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

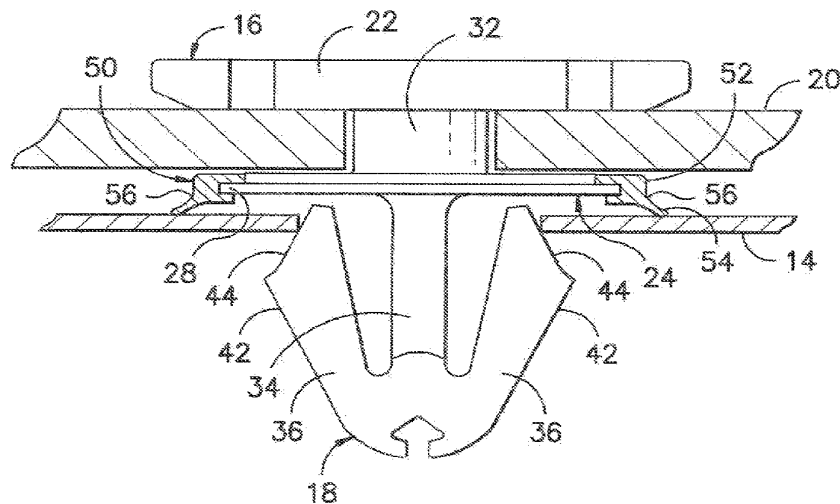


FIG. -3-

(57) **Abstract:** A connection assembly adapted to join a surface element (12) to an underlying support structure (14) while maintain-
ing a substantially zero gap abutting relation between the surface element and the support structure. The connection assembly in-
cludes a press-in retainer (10) with a circumferential seal (50) having a sealing foot (54). The sealing foot flexes about a living hinge
(56) while maintaining continuous sliding contact with the support panel without interfering with downward movement of the retain-
er.

What is claimed is:

1. A connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap, abutting relation between the surface element and the support structure during use, the connection assembly comprising:

a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform and an annular platform defining a lower collar positioned in spaced relation below the upper platform, wherein the clip portion comprises a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from a central stem, the retainer further including a seal disposed at least partially about the lower collar, the seal having a durometer lower than the lower collar and including a body portion engaging the lower collar and a sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from lower collar and the underside of the sealing foot forms an obtuse angle relative to the plane of the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.

2. The connection assembly as recited in Claim 1, wherein the retainer head and clip portion are molded as a unitary structure.

3. The connection assembly as recited in Claim 1, wherein the lower collar is oriented substantially perpendicular to an axis defined by the stem and has a stepped construction including an interior portion and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip.

4. The connection assembly as recited in Claim 3, wherein the seal is formed by over-molding or two-shot molding in fused, overlying relation about the outer annular lip of the lower collar.

5. The connection assembly as recited in Claim 3, wherein the retainer head and clip portion are molded as a unitary structure from a polymer selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin.

6. The connection assembly as recited in Claim 3, wherein the seal is molded from a thermoplastic elastomer.

7. The connection assembly as recited in Claim 3, wherein the retainer head and clip portion are molded as a unitary structure from acetal resin, and wherein the seal is molded from a thermoplastic elastomer.

8. The connection assembly as recited in Claim 1, wherein the wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening.

9. The connection assembly as recited in Claim 1, wherein the retainer head includes a connective neck structure extending between the upper platform and the lower collar, and wherein the neck structure is adapted to slidably engage an intermediate doghouse connector operatively joined to the surface element.

10. A connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use, the connection assembly comprising:

a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform, an annular platform defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform, and a connective neck structure

extending between the upper platform and the lower collar, wherein the clip portion comprises a central stem extending downwardly away from the lower collar such that the lower collar is oriented substantially perpendicular to an axis defined by the stem, a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar, wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening, the retainer further including a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use;

a preformed surface element having a contact surface configured to abut the support structure in a substantially gapless relation during use; and

an intermediate connector operatively connected to the surface element and adapted to receive and retain the retainer head such that upon insertion of the retainer into an acceptance opening in the support panel, an operative connection is established between the surface element and the support structure, wherein the surface element is configured such that when the retainer is held between the intermediate connector and the support structure, the contact surface of the surface element is at an elevation such that it abuts the support structure while the sealing foot is in contacting relation with the support structure and the lower collar remains spaced in elevated relation away from the support structure.

11. The connection assembly as recited in Claim 10, wherein the retainer head and clip portion are molded as a unitary structure.

12. The connection assembly as recited in Claim 10, wherein the lower collar has a stepped construction including an interior portion and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip, and wherein the seal is formed from a material of lower durometer than the material forming the lower collar.

13. The connection assembly as recited in Claim 12, wherein the seal is formed by over-molding or two-shot molding in fused, overlying relation about the outer annular lip of the lower collar.

14. The connection assembly as recited in Claim 12, wherein the retainer head and clip portion are molded as a unitary structure from a polymer is selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin.

15. The connection assembly as recited in Claim 12, wherein the seal is molded from a thermoplastic elastomer.

16. The connection assembly as recited in Claim 12, wherein the retainer head and clip portion are molded as a unitary structure from acetal resin, and wherein the seal is molded from a thermoplastic elastomer.

17. The connection assembly as recited in Claim 10, wherein the intermediate connector is a doghouse connector adapted to slidably receive and retain the connective neck structure.

18. The connection assembly as recited in Claim 10, wherein, the intermediate connector is integral with the preformed surface element.

19. The connection assembly as recited in Claim 10, wherein, the intermediate connector is configured such that the contact surface is at an elevation below the lower collar and

above the free edge of the sealing foot when the retainer head is supported within the intermediate connector and prior to insertion into the acceptance opening.

20. A method of connecting a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use, the method comprising:

providing a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform, an annular platform defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform, and a connective neck structure extending between the upper platform and the lower collar, wherein the clip portion comprises a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar, wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening, the retainer further including a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use;

providing a preformed surface element having a contact surface configured to abut the support structure in a substantially gapless relation during use;

securing the retainer head within an intermediate connector operatively connected to the surface element; and

inserting the retainer into an acceptance opening in the support panel, to establish an operative connection between the surface element and the support structure, wherein the surface element is configured such that when the retainer is held between the intermediate connector and the support structure, the contact surface of the surface element is at an elevation such that it abuts the support structure while the sealing foot is in flexed contacting relation with the support structure and the lower collar remains spaced in elevated relation away from the support structure.

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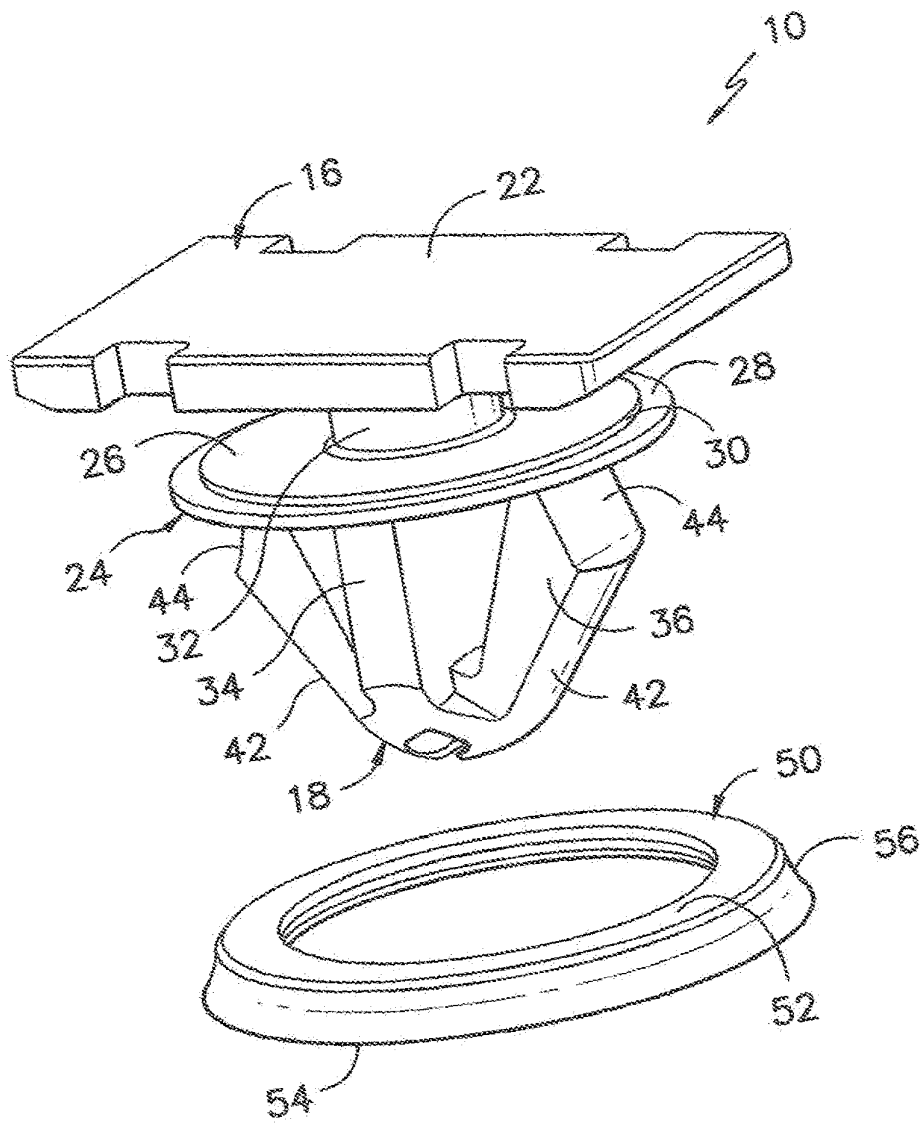
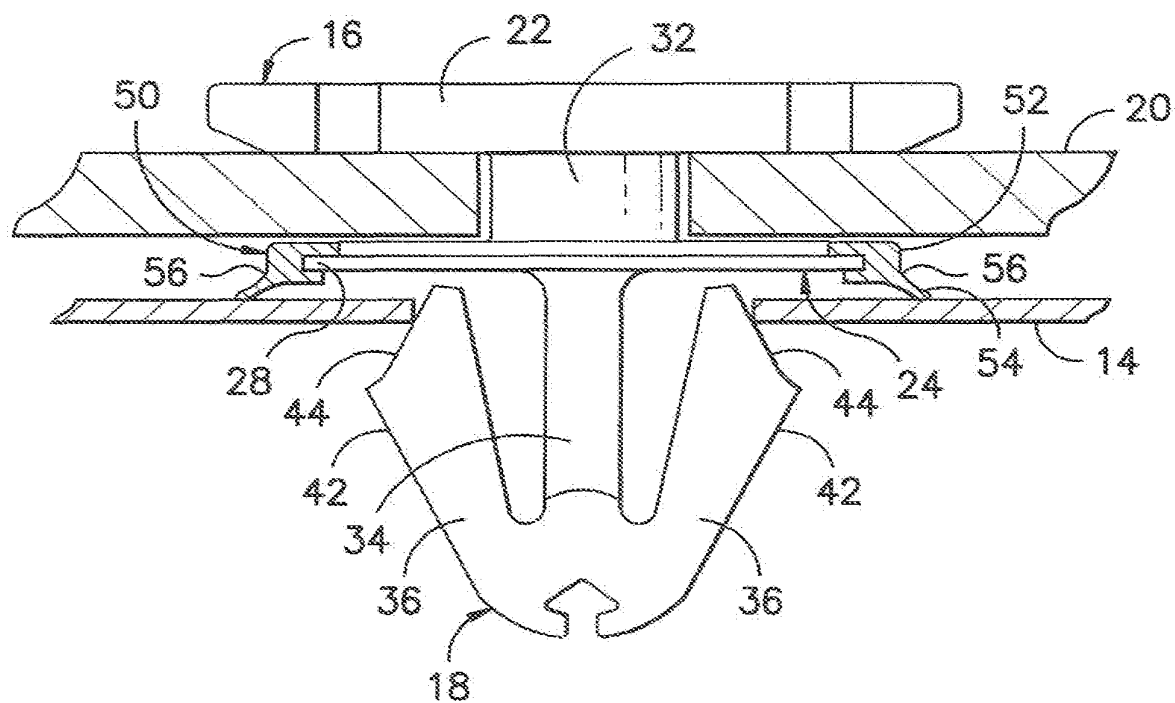


FIG. -1-



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*FIG. -3-*

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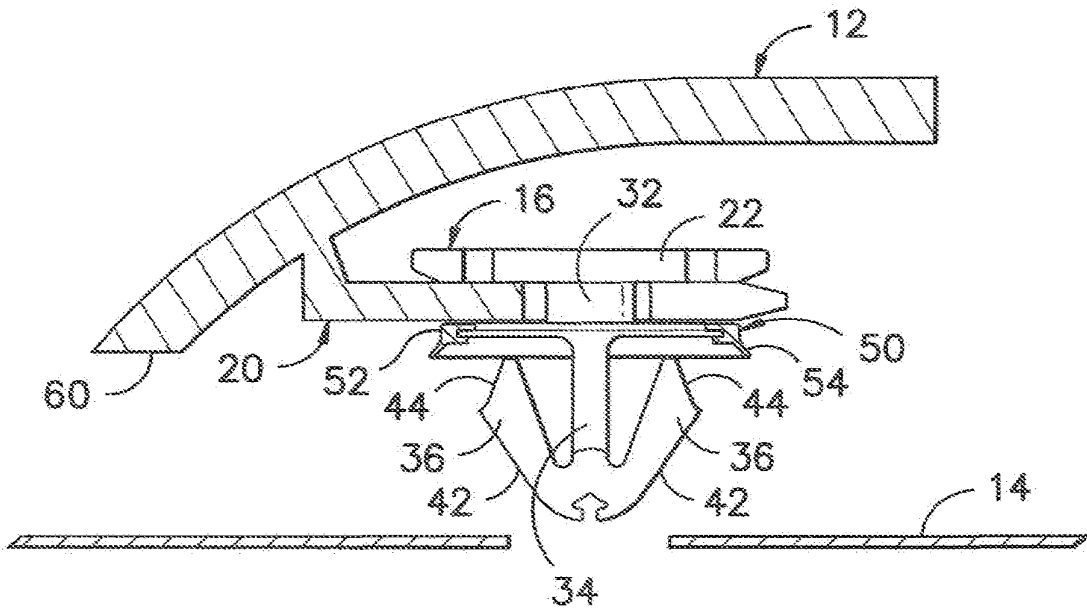


FIG. -4-

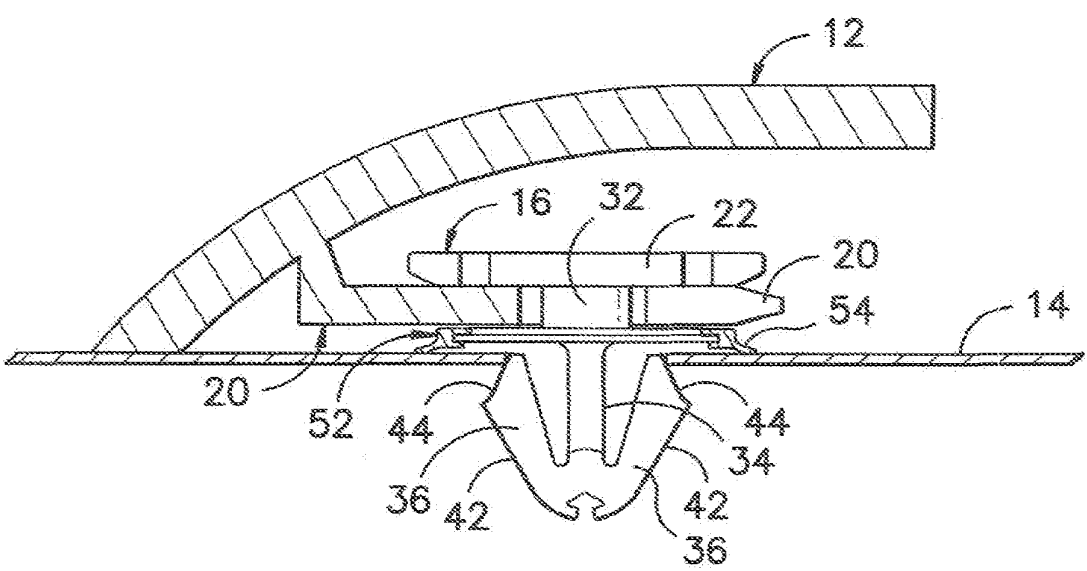


FIG. -5-



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U.S. APPLICATION NUMBER NO.	FIRST NAMED INVENTOR	ATTY. DOCKET NO.
14/652,819	Derek SCROGGIE	61823-US (713-3314)

27889
ILLINOIS TOOL WORKS INC.
PATENT DEPARTMENT
155 HARLEM AVENUE
GLENVIEW, IL 60025

INTERNATIONAL APPLICATION NO.

PCT/US13/73861

I.A. FILING DATE	PRIORITY DATE
12/09/2013	12/19/2012

CONFIRMATION NO. 6722
371 ACCEPTANCE LETTER



OC000000076712928

Date Mailed: 08/06/2015

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office, in its capacity as a Designated / Elected Office (37 CFR 1.495), has ACCEPTED the above identified international application for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above. A Filing Receipt will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE "FILING DATE or 371(c) DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1) and (c)(2) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN BELOW.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363)

06/17/2015

DATE OF RECEIPT OF 35 U.S.C.
371(c)(1) and (c)(2) REQUIREMENTS

The following items have been received:

- Copy of the International Application filed on 06/17/2015
- Copy of the International Search Report filed on 06/17/2015
- Preliminary Amendments filed on 06/17/2015
- Information Disclosure Statements filed on 06/17/2015
- Inventor's Oath or Declaration filed on 06/17/2015
- Request for Immediate Examination filed on 06/17/2015
- U.S. Basic National Fees filed on 06/17/2015
- Priority Documents filed on 06/17/2015
- Application Data Sheet (37 CFR 1.76) filed on 06/17/2015

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

MARIAN E DAY

Telephone: (703) 756-1142

page 1 of 1



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
14/652,819	06/17/2015		1480	61823-US (713-3314)	20	3

CONFIRMATION NO. 6722

FILING RECEIPT



0000000076712927

27889
ILLINOIS TOOL WORKS INC.
PATENT DEPARTMENT
155 HARLEM AVENUE
GLENVIEW, IL 60025

Date Mailed: 08/06/2015

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

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Michelle E. BOZINOVSKI, Oakland Charter Township, MI;
Robert A. MURAWSKI, Clinton Township, MI;

Applicant(s)

ILLINOIS TOOL WORKS INC., Glenview, IL;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/US13/73861 12/09/2013
which claims benefit of 61/739,604 12/19/2012

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 08/05/2015

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 14/652,819**

Projected Publication Date: 11/12/2015

Non-Publication Request: No

Early Publication Request: No

Title

PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 14/652,819			
APPLICATION AS FILED - PART I									
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)		
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280		
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	480		
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720		
TOTAL CLAIMS (37 CFR 1.16(j))	20	minus 20 = *			OR	x 80 =	0.00		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *				x 420 =	0.00		
APPLICATION SIZE FEE (37 CFR 1.16(s)) If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).							0.00		
							0.00		
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00		
			TOTAL			TOTAL	1480		
* If the difference in column 1 is less than zero, enter "0" in column 2.									
APPLICATION AS AMENDED - PART II									
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x
	Application Size Fee (37 CFR 1.16(s))							OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x
	Application Size Fee (37 CFR 1.16(s))							OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.									

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET Substitute for Form PTO-1360 (For use with Form PTO/SB/06)							Application Number 14652819		Filing Date	
							Applicant(s) Derek SCROGGIE			
							* May be used for additional claims or amendments			
CLAIMS	AS FILED		AFTER FIRST AMENDMENT		AFTER SECOND AMENDMENT			*	*	*
	Indep	Depend	Indep	Depend	Indep	Depend				
1	1									
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3		1								
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Total Indep	3		0		0					
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/652,819	06/17/2015	Derek SCROGGIE	61823-US (713-3314)

CONFIRMATION NO. 6722

27889
ILLINOIS TOOL WORKS INC.
PATENT DEPARTMENT
155 HARLEM AVENUE
GLENVIEW, IL 60025

PUBLICATION NOTICE



OC00000078615649

Title:PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

Publication No.US-2015-0322985-A1

Publication Date:11/12/2015

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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	Filing Date	2015-06-17
	First Named Inventor	Derek SCROGGIE
	Art Unit	3726
	Examiner Name	David P. Bryant
	Attorney Docket Number	61823-US (713-3314)

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	Filing Date		2015-06-17
	First Named Inventor	Derek SCROGGIE	
	Art Unit	3726	
	Examiner Name	David P. Bryant	
	Attorney Docket Number	61823-US (713-3314)	

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14652819
Filing Date	2015-06-17
First Named Inventor	Derek SCROGGIE
Art Unit	3726
Examiner Name	David P. Bryant
Attorney Docket Number	61823-US (713-3314)

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Benjamin J. Hauptman/	Date (YYYY-MM-DD)	2016-03-21
Name/Print	Benjamin J. Hauptman	Registration Number	29,310

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	25251041
Application Number:	14652819
International Application Number:	
Confirmation Number:	6722
Title of Invention:	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL
First Named Inventor/Applicant Name:	Derek SCROGGIE
Customer Number:	27889
Filer:	Benjamin J. Hauptman/Amy Kendall
Filer Authorized By:	Benjamin J. Hauptman
Attorney Docket Number:	61823-US (713-3314)
Receipt Date:	21-MAR-2016
Filing Date:	17-JUN-2015
Time Stamp:	11:11:38
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	F1-IDS.pdf	1034977 9e287396e1d39883fa5a3e77c47ec197a14ec365	no	4

Warnings:

Information:

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/652,819	06/17/2015	Derek SCROGGIE	61823-US (713-3314)	6722

27889 7590 05/16/2017
ILLINOIS TOOL WORKS INC.
PATENT DEPARTMENT
155 HARLEM AVENUE
GLENVIEW, IL 60025

EXAMINER

VAUGHAN, JASON L

ART UNIT	PAPER NUMBER
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3726

MAIL DATE	DELIVERY MODE
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05/16/2017

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 14/652,819	Applicant(s) SCROGGIE ET AL.	
	Examiner JASON L. VAUGHAN	Art Unit 3726	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06/17/2015.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

- 5) ☒ Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) _____ is/are allowed.
- 7) ☐ Claim(s) _____ is/are rejected.
- 8) ☐ Claim(s) _____ is/are objected to.
- 9) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

- a) ☒ All b) ☐ Some** c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date _____ | 4) ☐ Other: _____ |

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Election/Restrictions

REQUIREMENT FOR UNITY OF INVENTION

As provided in 37 CFR 1.475(a), a national stage application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept ("requirement of unity of invention"). Where a group of inventions is claimed in a national stage application, the requirement of unity of invention shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "special technical features" shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.

The determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim. See 37 CFR 1.475(e).

WHEN CLAIMS ARE DIRECTED TO MULTIPLE CATEGORIES OF
INVENTIONS

As provided in 37 CFR 1.475(b), a national stage application containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn only to one of the following combinations of categories:

- (1) A product and a process specially adapted for the manufacture of said product; or
- (2) A product and process of use of said product; or
- (3) A product, a process specially adapted for the manufacture of the said product, and a use of the said product; or
- (4) A process and an apparatus or means specifically designed for carrying out the said process; or
- (5) A product, a process specially adapted for the manufacture of the said product, and an apparatus or means specifically designed for carrying out the said process.

Otherwise, unity of invention might not be present. See 37 CFR 1.475(c).

Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group A, claim(s) 1-19, drawn to a connection assembly.

Group B, claim(s) 20, drawn to a method of connecting.

The groups of inventions listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group A and B lack unity of invention because even though the inventions of these groups require the technical feature of claim 1, this technical feature is not a special technical feature as it does not make a contribution over the prior art in view of Cordola et al. (US Patent No. 5,173,026). Cordola et al. discloses a connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap, abutting relation between the surface element and the support structure during use, the connection assembly including: a press-in retainer (13) adapted for insertion into an acceptance opening in the support structure (18) to establish operative connecting engagement between the surface element (17) and the support structure, the retainer including a retainer head (5, 6, 11) and a clip portion (8) of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform (6) and an annular platform (11) defining a lower collar (5) positioned in spaced relation below the upper platform, wherein the clip portion comprises a central stem (7b) extending downwardly away from the lower collar and a pair of flexible wings (7a, 7c) extending in upward angled relation away from a central stem, the retainer further including a seal disposed at least partially about the lower collar, the seal (14, 15, 16) having a durometer lower than the lower collar and including a body portion (14) engaging the lower collar and a sealing foot (15) projecting

Art Unit: 3726

downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from lower collar and the underside of the sealing foot forms an obtuse angle relative to the plane of the underside of the lower collar, and wherein the sealing foot flexes about a living hinge (*formed by the connection between 14 and 15*) while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.

The examiner notes that the anticipatory references establishes that the groups of inventions/species lack unity of invention. Under PCT rule 13.2 only one claim must be anticipated for there to be a lack of unity between all of the claims. A special technical feature cannot be shared by all of the claims if a single claim is missing a special technical feature.

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If

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claims are added after the election, applicant must indicate which of these claims are readable on the elected invention or species.

Should applicant traverse on the ground that the inventions have unity of invention (37 CFR 1.475(a)), applicant must provide reasons in support thereof. Applicant may submit evidence or identify such evidence now of record showing the inventions to be obvious variants or clearly admit on the record that this is the case. Where such evidence or admission is provided by applicant, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be corrected in compliance with 37 CFR 1.48(a) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. A request to correct inventorship under 37 CFR 1.48(a) must be accompanied by an application data sheet in accordance with 37 CFR 1.76 that identifies each inventor by his or her legal name and by the processing fee required under 37 CFR 1.17(i).

The examiner has required restriction between product or apparatus claims and process claims. Where applicant elects claims directed to the product/apparatus, and all product/apparatus claims are subsequently found allowable, withdrawn process claims that include all the limitations of the allowable product/apparatus claims should be considered for rejoinder. All claims directed to a nonelected process invention must

include all the limitations of an allowable product/apparatus claim for that process invention to be rejoined.

In the event of rejoinder, the requirement for restriction between the product/apparatus claims and the rejoined process claims will be withdrawn, and the rejoined process claims will be fully examined for patentability in accordance with 37 CFR 1.104. Thus, to be allowable, the rejoined claims must meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103 and 112. Until all claims to the elected product/apparatus are found allowable, an otherwise proper restriction requirement between product/apparatus claims and process claims may be maintained. Withdrawn process claims that are not commensurate in scope with an allowable product/apparatus claim will not be rejoined. See MPEP § 821.04. Additionally, in order for rejoinder to occur, applicant is advised that the process claims should be amended during prosecution to require the limitations of the product/apparatus claims. **Failure to do so may result in no rejoinder.** Further, note that the prohibition against double patenting rejections of 35 U.S.C. 121 does not apply where the restriction requirement is withdrawn by the examiner before the patent issues. See MPEP § 804.01.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. VAUGHAN whose telephone number is (571)270-5704. The examiner can normally be reached on Mon-Thur, 7:30 AM - 5:00PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JASON L VAUGHAN/
Primary Examiner, Art Unit 3726

Notice of References Cited	Application/Control No. 14/652,819		Applicant(s)/Patent Under Reexamination SCROGGIE ET AL.	
	Examiner JASON L. VAUGHAN		Art Unit 3726	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-3,249,973 A	05-1966	ALEXANDER SECKERSON CLIFFORD	B60R13/0206	24/297
*	B	US-3,771,275 A	11-1973	Seckerson; Clifford Alexander	F16B5/065	403/388
*	C	US-4,778,320 A	10-1988	Nakama; Daiji	F16B5/065	24/297
*	D	US-5,028,187 A	07-1991	Sato; Seiichi	F16B19/1081	411/41
*	E	US-5,339,491 A	08-1994	Sims; Kenneth A.	B60R16/0215	16/2.2
*	F	US-5,458,365 A	10-1995	Rogers; Mark	B60R21/215	280/728.3
*	G	US-6,715,185 B2	04-2004	Angellotti; Roger A.	F16B5/065	24/297
*	H	US-6,805,524 B2	10-2004	Kanie; Hideki	F16B5/02	411/174
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes 	Application/Control No. 14652819	Applicant(s)/Patent Under Reexamination SCROGGIE ET AL.
	Examiner JASON L VAUGHAN	Art Unit 3726

CPC- SEARCHED		
Symbol	Date	Examiner
F16B5/065	5/13/2017	JLV

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search as provided.	5/13/2017	JLV

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/JASON L VAUGHAN/ Primary Examiner.Art Unit 3726
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Doc code: IDS

PTO/SB/08a (03-15)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14652819
	Filing Date	2015-06-17
	First Named Inventor	Derek SCROGGIE
	Art Unit	3726
	Examiner Name	David P. Bryant
	Attorney Docket Number	61823-US (713-3314)

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14652819	
Filing Date	2015-06-17	
First Named Inventor	Derek SCROGGIE	
Art Unit	3726	
Examiner Name	David P. Bryant	
Attorney Docket Number	61823-US (713-3314)	

1	
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EXAMINER SIGNATURE

Examiner Signature	/JASON L VAUGHAN/	Date Considered	05/13/2017
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	(14/652819).APP.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2017/05/13 12:18
L2	1	1 and surface adj element	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2017/05/13 12:18
L3	3	("5173026").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2017/05/13 12:20
L4	2	("2011243688").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2017/05/13 12:27
L5	2	("20110243688").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2017/05/13 12:28
L6	2	FR-2913738-\$.did. or WO-200912616- \$.did.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2017/05/13 12:29
L7	8	((("20060099051") or ("20100098515") or ("20110119875") or ("20110243688")).PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2017/05/13 12:30
L8	3	("4534530").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2017/05/13 12:31
L9	17	3 or 4 or 5 or 6 or 7 or 8	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2017/05/13 12:31
L10	1015	F16B5/065.cpc.	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2017/05/13 12:32
L11	675	F16B5/065.cpc.	US-PGPUB; USPAT	OR	ON	2017/05/13 12:32
L12	9	(US-3249973-\$ or US-3771275-\$ or US- 4778320-\$ or US-5028187-\$ or US- 5173026-\$ or US-5339491-\$ or US- 5458365-\$ or US-6715185-\$ or US- 6805524-\$).did.	USPAT	OR	ON	2017/05/13 12:46

EAST Search History (Interference)

< This search history is empty >

5/ 13/ 2017 12:47:31 PM

C:\ Users\ jvaughan\ Documents\ EAST\ Workspaces\ 14-652819.wsp



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BIB DATA SHEET

CONFIRMATION NO. 6722

SERIAL NUMBER 14/652,819	FILING or 371(c) DATE 06/17/2015 RULE	CLASS 029	GROUP ART UNIT 3726	ATTORNEY DOCKET NO. 61823-US (713-3314)	
APPLICANTS ILLINOIS TOOL WORKS INC., Glenview, IL; INVENTORS Derek SCROGGIE, Macomb, MI; Michelle E. BOZINOVSKI, Oakland Charter Township, MI; Robert A. MURAWSKI, Clinton Township, MI; ** CONTINUING DATA ***** This application is a 371 of PCT/US13/73861 12/09/2013 which claims benefit of 61/739,604 12/19/2012 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 08/05/2015					
Foreign Priority claimed ☒ Yes ☐ No 35 USC 119(a-d) conditions met ☒ Yes ☐ No Verified and Acknowledged <u>/JASON L. VAUGHAN/</u> Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY MI	SHEETS DRAWINGS 4	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS ILLINOIS TOOL WORKS INC. PATENT DEPARTMENT 155 HARLEM AVENUE GLENVIEW, IL 60025 UNITED STATES					
TITLE PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL					
FILING FEE RECEIVED 1480	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

Doc code: IDS

PTO/SB/08a (01-10)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date		2015-06-17	
	First Named Inventor	Derek SCROGGIE		
	Art Unit			
	Examiner Name			
	Attorney Docket Number	61823-US (713-3314)		

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5173026	A	1992-12-22	CORDOLA et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

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U.S.PATENT APPLICATION PUBLICATIONS						Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20060099051	A1	2006-05-11	MOERKE	
	2	20100098515	A1	2010-04-22	RAYMOND	
	3	20110119875	A1	2011-05-26	IWASAKI	
	4	20110243688	A1	2011-10-06	KLEIN et al.	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date		2015-06-17	
	First Named Inventor	Derek SCROGGIE		
	Art Unit			
	Examiner Name			
	Attorney Docket Number	61823-US (713-3314)		

	1	2913738	FR	A1	2008-09-19	A. RAYMOND ET CIE SOCIETE EN COMMANDITE SIMPLE	☐
	2	2009123616	WO	A1	2009-10-08	TS TECH CO., LTD.; IWASAKI, TAKASHI	☐

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	ISR and WO for PCT/US2013/073861 mailed March 28, 2014	☐

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EXAMINER SIGNATURE

Examiner Signature	/JASON L VAUGHAN/	Date Considered	05/13/2017
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In The Matter of United States Patent Application:

Serial No. : 14/652,819
Inventor : Derek Scroggie
Filed : 06/17/2015
Group Art Unit : 3726
Examiner : VAUGHAN, Jason L.
Title : PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED
HINGING SEAL
Our File : 61823-US

The Honorable Commissioner of Patents and Trademarks
P.O. Box 1450
Arlington, VA 22313-1450

Response to Election/Restriction Requirement

In response to the Restriction Requirement set forth in the Office Action of May 16, 2017, Applicants hereby **elects with traverse**, the following identified claim group:

Group A, (claims 1-19) drawn to a connection assembly.

This election is made subject to the following grounds for traverse and subject to the right of subsequent rejoinder.

Grounds for Traverse:

The Office Action finds a lack of unity of invention on grounds that the technical feature of independent claim 1 is not a qualifying “special technical feature” which makes a contribution over the prior art. In support of this position, the Office Action relies on the teachings of Cordola et al. (US Patent 5,173,026) to find that that the technical feature of claim 1 is anticipated.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Moreover, the elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

It is respectfully submitted that the cited reference to Cordola et al. does not meet the rigorous standards required to support an anticipation rejection of the subject matter of Claim 1 when the claimed invention is considered as a whole. In this regard, the Office Action takes the position that Cordola et al. discloses a connection assembly adapted to join a surface element (17) to an underlying support structure (18) while maintaining a substantially zero gap, abutting relation between the surface element and the support structure during use. However, as best understood, the teachings of Cordola et al. actually contemplate maintaining a significant gap between the surface element (17) and the underlying support structure (18).

As best seen in FIGS. 4 and 6 of Cordola et al. no construction is identified to promote the establishment of a zero gap, abutting relation. To the contrary, the washer (14) includes an inner lip (16) which is illustrated as projecting straight down from a position below the central portion (11) of the flange (4). In Cordola et al. such an inner lip (16) as well as the flange (4) will necessarily prevent the surface element (17) from ever establishing a zero gap relation with the underlying support structure (18). The result is a significant gap in the final assembly as shown in FIG. 6 and Cordola et al. provides no alternative to address this issue and establish a zero gap relation. Thus, it is respectfully submitted that Cordola et al. cannot serve as an adequate anticipatory reference relative to Claim 1 when that claim is properly considered as a whole.

In the absence of a proper anticipatory reference relative to the technical feature of Claim 1, reconsideration and withdrawal of the restriction requirement is requested at this time.

Extension of Time/Fee Authorization:

A one (1) month extension of time accompanies this submission. To any extent required, an additional extension is hereby requested. Any required fees in this application (including extension fees) may be deducted from J.M. Robertson Deposit Account 50-1424

Respectfully submitted,

/James Robertson/

James Robertson
Reg. No. 36,905

864-621-0454

Electronic Patent Application Fee Transmittal				
Application Number:		14652819		
Filing Date:		17-Jun-2015		
Title of Invention:		PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		
First Named Inventor/Applicant Name:		Derek SCROGGIE		
Filer:		James M. Robertson		
Attorney Docket Number:		61823-US (713-3314)		
Filed as Large Entity				
Filing Fees for U.S. National Stage under 35 USC 371				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension - 1 month with \$0 paid	1251	1	200	200
Miscellaneous:				
Total in USD (\$)				200

Electronic Acknowledgement Receipt

EFS ID:	30064705
Application Number:	14652819
International Application Number:	
Confirmation Number:	6722
Title of Invention:	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL
First Named Inventor/Applicant Name:	Derek SCROGGIE
Customer Number:	27889
Filer:	James M. Robertson
Filer Authorized By:	
Attorney Docket Number:	61823-US (713-3314)
Receipt Date:	14-AUG-2017
Filing Date:	17-JUN-2015
Time Stamp:	10:22:26
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	EFT
Payment was successfully received in RAM	\$200
RAM confirmation Number	081417INTEFSW10235300
Deposit Account	
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Extension of Time	aia0022.pdf	163825	no	2
			7090bfa8d15cafe39f0e01748327722c52e0ae4		
Warnings:					
Information:					
2	Response to Election / Restriction Filed	Restriction_response.pdf	362261	no	3
			b60895e0d05ffd78c2d3d428fdb0fb1858c913		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	31171	no	2
			a9a864c1fa0211d141cd3ed4e84ee763e131b659		
Warnings:					
Information:					
Total Files Size (in bytes):			557257		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) 61823-US(713-3314)
Application Number 14/652,819	Filed 06/17/2015	
For PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		
Art Unit 3726	Examiner Vaughan, Jason L	

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>	
☒ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50	\$ <u>200</u>
☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150	\$ _____
☐ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350	\$ _____
☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550	\$ _____
☐ Five months (37 CFR 1.17(a)(5))	\$3,000	\$1,500	\$750	\$ _____

☐ Applicant asserts small entity status. See 37 CFR 1.27.☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.☐ A check in the amount of the fee is enclosed.☐ Payment by credit card. Form PTO-2038 is attached.☐ The Director has already been authorized to charge fees in this application to a Deposit Account.☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to
Deposit Account Number 50-1424.☒ Payment made via EFS-Web.**WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**

I am the

☐ applicant.☐ attorney or agent of record. Registration number _____.☒ attorney or agent acting under 37 CFR 1.34. Registration number 36905./James Robertson/

Signature

08/14/2017

Date

James M. Robertson

Typed or printed name

864-621-0454

Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.☒ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). The information is required to obtain or retain a benefit by the public, which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 6 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	15	("20110119875" "3771275" "6805524" "5173026" "3249973" "5028187" "5458365" "20100098515" "20060099051" "4534530" "4778320" "5339491" "20110243688" "6715185").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:47
S2	23	scroggie-derek.in.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:48
S3	5	bozinovski-michelle-e.in.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:48
S4	5	murawski-robert-a.in.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:49
S5	966	(411/508).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:49
S6	221	(411/509).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:49
S7	423	(411/510).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:49
S8	59	f16b5/0084.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:50
S9	144	f16b5/0607.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:50
S10	554	f16b5/0657.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:50
S11	587	f16b2/22.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:51
S12	34	f16b2005/0678.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:51

S13	192	f16b21/084.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:52
S14	1084	f16b21/086.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:52
S15	440	f16b21/088.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:52
S16	180	f16b19/008.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:53
S17	277	f16b19/00.cpc.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/10/24 14:53

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Notice of References Cited	Application/Control No. 14/652,819		Applicant(s)/Patent Under Reexamination SCROGGIE et al.	
	Examiner ROBERTA S DELISLE		Art Unit 3677	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20050079033-A1	04-2005	Benedetti, Steven Michael	F16B21/086	411/508
*	B	US-3550217-A	12-1970	COLLYER ROBERT C	F16B5/0642	411/508
*	C	US-3745612-A	07-1973	Seckerson; Clifford Alexander	F16B21/086	411/508
*	D	US-7481474-B2	01-2009	Higgins; Lawrence John	F16B21/086	24/292
*	E	US-7927050-B2	04-2011	Koike; Takashi	F16B5/0628	411/104
*	F	US-3678797-A	07-1972	Seckerson; Clifford A.	F16B21/086	411/509
*	G	US-5704753-A	01-1998	Ueno; Eiji	F16B21/086	24/297
*	H	US-5797714-A	08-1998	Oddenino; Manrico	B60R13/0206	411/508
*	I	US-5865500-A	02-1999	Sanada; Michitaka	B60R19/52	180/68.6
*	J	US-6572317-B2	06-2003	Okada; Shigeo	F16B5/0657	24/297
*	K	US-7770266-B2	08-2010	Higgins; Lawrence J.	F16B21/086	24/297
*	L	US-20100293761-A1	11-2010	Koike; Takashi	F16B21/086	24/458
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/652,819	06/17/2015	Derek SCROGGIE	61823-US (713-3314)	6722
27889	7590	11/03/2017	EXAMINER	
ILLINOIS TOOL WORKS INC.			DELISLE, ROBERTA S	
PATENT DEPARTMENT			ART UNIT	PAPER NUMBER
155 HARLEM AVENUE			3677	
GLENVIEW, IL 60025			NOTIFICATION DATE	DELIVERY MODE
			11/03/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

itwuspatents@itw.com
mgawlik@itw.com

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

2. Claim Status:

- | | | |
|-----|-------------|-------------------------|
| a. | Claims 1-20 | Pending |
| i. | Claims 1-19 | Elected |
| ii. | Claim 20 | Non-elected (withdrawn) |

3. Prior Art Reference(s):

- | | | |
|----|------------------|-----------------------|
| b. | Benedetti et al. | USPAP 2005/0079033 A1 |
| c. | Sanada et al. | US 5,865,500 |

Response to Arguments

4. Applicant's election with traverse of Group A, claims 1-19 in the reply filed on 08/14/2017 is acknowledged. The traversal is on the grounds that US Patent No. 5,173,026 to Cordola et al. does not anticipate the limitations of claim 1 and therefore the examiner has not provided sufficient evidence of a lack of unity of invention among the identified claim sets. This is not found persuasive because as set forth in the previous action Cordola et al. does anticipate the limitations claim 1.

Applicant's arguments are directed to the recited "zero gap" relationship between a surface element and a support structure. Applicant contends that in Figures 4 and 6 the structure of the clip of Cordola et al., in particular the washer (14), flange (4), and inner lip (16) prevent the clip of Cordola et al. from providing a "zero gap" relationship between a surface element and a support structure. However, these features of

Cordola et al. are of a form and function identical to that of features 50 and 24 of the instant invention, as depicted in Figure 3. Further, looking to the applicant's disclosure this recited "zero gap" relationship between a surface element and a support structure appears to be described as between surface 60 of element 12 and surface 14, as depicted in Figure 4. Applicant's disclosure refers to this relationship in paragraph [0026] and does not disclose that features 50 and 24 provide this relationship. Further, as depicted in Figure 3 of applicant's disclosure, clearly there is a gap that exists between the surfaces 14 and 20 and therefore it is unclear what applicant considers the "zero gap" condition if it is to be provided by features such as 50 and 24 of the instant invention.

In conclusion, it appears that the disclosed "zero gap" condition refers to the relationship between surface 60 of element 12 and surface 14, as depicted in Figure 4, the prior art of Cordola et al. clearly anticipates the features recited in claim 1, and the clip of Cordola et al. would be capable of providing a "zero gap" condition if it were to be utilized with a molding such as 12 of the instant invention.

Therefore, there are no special technical features that link the claims of Group A and Group B, as identified in the Requirement for Restriction/Election of 05/16/2017, in order to provide unity of invention under PCT Rule 13.1.

The requirement is still deemed proper and is therefore made **FINAL**.

Claim Rejections - 35 USC § 103

5. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-9 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Benedetti et al. (USPAP 2005/0079033 A1).

Regarding claim 1, Benedetti discloses a connection assembly (abstract) adapted to join a surface element (610) to an underlying support structure (604) while maintaining a substantially zero gap (fig. 6C), abutting relation between the surface element (610) and the support structure (604) during use, the connection assembly comprising:

a press-in retainer (400) adapted for insertion into an acceptance opening (602) in the support structure (604) to establish operative connecting engagement between the surface element (610) and the support structure (604), the retainer (400) including a retainer head (436) and a clip portion (424A-B) of arrowhead configuration projecting outwardly away from the retainer head (436), wherein the retainer head (436) includes an upper platform (fig. 4) and an annular platform (fig. 4) defining a lower collar (fig. 4) positioned in spaced relation below the upper platform (fig. 4), wherein the clip portion (424A-B) comprises a central stem (402) extending downwardly away from the lower collar (fig. 4) and a pair of flexible wings (410) extending in upward angled relation away from a central stem (402), the retainer (400) further including a seal (438) disposed at least partially about the lower collar (fig. 4), the seal (438) having a durometer lower than the lower collar (fig. 4) and including a body portion (fig. 4) engaging the lower collar (fig. 4) and a sealing foot (442) projecting downwardly and radially outwardly

away from the body portion (fig. 4) to a free edge such that the sealing foot (442) is disposed outboard from lower collar (fig. 4) and the underside of the sealing foot (442) forms an obtuse angle (fig. 4) relative to the plane of the underside of the lower collar (fig. 4), and wherein the sealing foot (442) flexes about a living hinge (fig. 4) while remaining outboard from the lower collar (fig. 4) and maintaining sliding contact with the support panel (604) in response to applied pressure between the seal (438) and the support panel (604) during use.

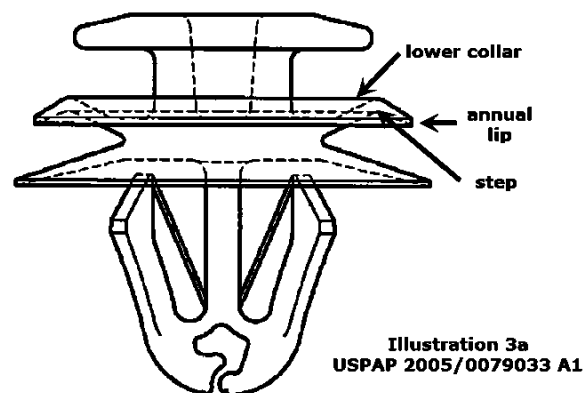
Examiner notes that Benedetti does not explicitly disclose the seal having a durometer lower than the lower collar. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made wherein the seal has [having] a durometer lower than the lower collar, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material.

Regarding claim 2, Benedetti discloses the connection assembly as recited in claim 1, wherein the retainer head (436) and clip portion (424A-B) are molded as a unitary structure (fig. 4, ¶ [0041]).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “molded as a unitary structure”. The patentability of the product does not depend on its method of production. Determination of patentability is based on

the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. In *re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Regarding claim 3, Benedetti discloses the connection assembly as recited in claim 1, wherein the lower collar (fig. 4, see illustration 3a below) is oriented substantially perpendicular to an axis defined by the stem (402) and has a stepped construction including an interior portion (440) and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip (see illustration 3a below).



Regarding claim 4, Benedetti discloses the connection assembly as recited in claim 3, wherein the seal (438) is formed by over-molding or two-shot molding in fused ([0041]), overlying relation about the outer annular lip of the lower collar (fig. 4).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “formed by over-molding or two-shot molding in fused”. The patentability of the product does not depend on its method of production. Determination

of patentability is based on the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. In *re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Regarding claim 5, Benedetti discloses the connection assembly as recited in claim 3, wherein the retainer head (436) and clip portion (424A-B) are molded as a unitary structure (fig. 4) from a polymer selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin (§ [0041]).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “molded as a unitary structure”. The patentability of the product does not depend on its method of production. Determination of patentability is based on the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. In *re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Examiner further notes Benedetti does not explicitly disclose a polymer selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made with a polymer selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In *re Leshin*, 125 USPQ 416. It is also common knowledge to

choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material.

Regarding claim 6, Benedetti discloses the connection assembly as recited in claim 3, wherein the seal (438) is molded from a thermoplastic elastomer (¶ [0041]).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “molded”. The patentability of the product does not depend on its method of production. Determination of patentability is based on the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. In *re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Examiner further notes Benedetti does not explicitly disclose wherein the seal is molded from a thermoplastic elastomer. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made wherein the seal is molded from a thermoplastic elastomer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In *re Leshin*, 125 USPQ 416. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material.

Regarding claim 7, Benedetti discloses the connection assembly as recited in claim 3, wherein the retainer head (436) and clip portion (424A-B) are molded as a unitary

structure (fig. 4) from acetal resin, and wherein the seal (438) is molded from a thermoplastic elastomer (§ [0041]).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “molded as a unitary structure”. The patentability of the product does not depend on its method of production. Determination of patentability is based on the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. In *re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Examiner further notes Benedetti does not explicitly disclose wherein the seal is molded from a thermoplastic elastomer. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made wherein the seal is molded from a thermoplastic elastomer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In *re Leshin*, 125 USPQ 416. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material.

Regarding claim 8, Benedetti discloses the connection assembly as recited in claim 1, wherein the wings (410) each have a dog-leg configuration (fig. 4) including a radially inwardly angled segment (fig. 4) defining an angled biasing surface (454) disposed between a radially outwardly angled segment (fig. 4) and a free end (452), the angled biasing surface (454) being adapted to press against an interior surface of the

acceptance opening (602) to urge the retainer (400) downwardly into the acceptance opening (602).

Regarding claim 9, Benedetti discloses the connection assembly as recited in claim 1, wherein the retainer head (436) includes a connective neck structure (fig. 4) extending between the upper platform (fig. 4) and the lower collar (fig. 4), and wherein the neck structure (fig. 4) is *[adapted to slidingly engage an intermediate doghouse connector operatively joined to the surface element (610)]*.

Examiner's note*: the above statement in brackets is an example of intended use failing to limit the structure of the claimed invention. The prior art must only be capable of performing said functional recitations to be applicable and in the instant case, the prior art of Benedetti is indeed capable. Note that it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

7. **Claims 10-19 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Benedetti et al. (USPAP 2005/0079033 A1) in view of Sanada et al. (US 5,865,500).**

Regarding claim 10, Benedetti discloses a connection assembly (abstract) adapted to join a surface element (610) to an underlying support structure (604) while maintaining a

substantially zero gap abutting relation between the surface element (610) and the support structure (604) during use, the connection assembly comprising:

a press-in retainer (400) adapted for insertion into an acceptance opening (602) in the support structure (604) to establish operative connecting engagement between the surface element (610) and the support structure (604), the retainer (400) including a retainer head (436) and a clip portion (424A-B) of arrowhead configuration projecting outwardly away from the retainer head (436), wherein the retainer head (436) includes an upper platform (fig. 4), an annular platform (fig. 4) defining a lower collar (fig. 4) having a perimeter edge positioned in spaced relation below the upper platform (fig. 4), and a connective neck structure (fig. 4) extending between the upper platform (fig. 4) and the lower collar (fig. 4), wherein the clip portion (424A-B) comprises a central stem (402) extending downwardly away from the lower collar (fig. 4) such that the lower collar (fig. 4) is oriented substantially perpendicular to an axis defined by the stem (402), a pair of flexible wings (410) extending in upward angled relation away from the central stem (402), the flexible wings (410) terminating at wing tips (452) disposed in spaced relation below the lower collar (fig. 4), wherein the flexible wings (410) each have a dog-leg configuration including a radially inwardly angled segment (fig. 4) defining an angled biasing surface (454) disposed between a radially outwardly angled segment (fig. 4) and a free end (452), the angled biasing surface (454) being adapted to press against an interior surface of the acceptance opening (602) to urge the retainer (400) downwardly into the acceptance opening (602), the retainer (400) further including a monolithic seal (438) disposed about the perimeter edge of the lower collar (fig. 4), the seal (438) having a durometer lower than the lower collar (fig. 4), the seal (438)

including a body portion (fig. 4) at least partially surrounding the perimeter edge and the seal (438) further including an integral hinging sealing foot (442) projecting downwardly and radially outwardly away from the body portion (fig. 4) to a free edge such that the sealing foot (442) is disposed entirely outboard from the underside of the lower collar (fig. 4) and forms an obtuse angle (fig. 4) relative to the underside of the lower collar (fig. 4), and wherein the sealing foot (442) flexes about a living hinge (fig. 4) while remaining outboard from the lower collar (fig. 4) and maintaining sliding contact with the support panel (604) in response to applied pressure between the seal (438) and the support panel (604) during use;

except for a preformed surface element (610) having a contact surface configured to abut the support structure (604) in a substantially gapless relation during use; and

except for an intermediate connector operatively connected to the surface element (610) and adapted to receive and retain the retainer head (436) such that upon insertion of the retainer (400) into an acceptance opening (602) in the support panel (604), an operative connection is established between the surface element (610) and the support structure (604), wherein the surface element (610) is configured such that when the retainer (400) is held between the intermediate connector and the support structure (604), the contact surface of the surface element (610) is at an elevation such that it abuts the support structure (604) while the sealing foot (442) is in contacting relation with the support structure (604) and the lower collar (fig. 4) remains spaced in elevated relation away from the support structure (604).

Examiner notes that Benedetti does not explicitly disclose the seal having a durometer lower than the lower collar. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made wherein the seal has [having] a durometer lower than the lower collar, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material.

Examiner also notes that Benedetti does not explicitly disclose a preformed surface element having configured to abut the support structure in a substantially gapless relation during use. However, Sanada teaches a preformed surface element (6) having configured to abut the support structure (2) in a substantially gapless relation during use (fig. 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Benedetti with a preformed surface element having configured to abut the support structure in a substantially gapless relation during use as taught by Sanada to provide a more secure fit between the components.

Examiner further notes that Benedetti does not explicitly disclose an intermediate connector operatively connected to the surface element. However, Sanada teaches an intermediate connector (20) operatively connected to the surface element (6). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Benedetti with an intermediate connector operatively

connected to the surface element as taught by Sanada to provide a more secure fit between the components.

Regarding claim 11, Benedetti discloses the connection assembly as recited in claim 10, wherein the retainer head (436) and clip portion (424A-B) are molded as a unitary structure (fig. 4, ¶ [0041]).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “molded as a unitary structure”. The patentability of the product does not depend on its method of production. Determination of patentability is based on the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. In *re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Regarding claim 12, Benedetti discloses the connection assembly as recited in claim 10, wherein the lower collar (fig. 4, see illustration 3a in claim 3) has a stepped construction including an interior portion and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip, and wherein the seal (438) is formed from a material of lower durometer than the material forming the lower collar (fig. 4).

Regarding claim 13, Benedetti discloses the connection assembly as recited in claim 12, wherein the seal (438) is formed by over-molding or two-shot molding in fused (¶ [0041]), overlying relation about the outer annular lip of the lower collar (fig. 4).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “formed by over-molding or two-shot molding in fused”. The patentability of the product does not depend on its method of production. Determination of patentability is based on the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. In *re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Regarding claim 14, Benedetti discloses the connection assembly as recited in claim 12, wherein the retainer head (436) and clip portion (424A-B) are molded as a unitary structure (fig. 4) from a polymer is selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin (¶ [0041]).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “molded as a unitary structure”. The patentability of the product does not depend on its method of production. Determination of patentability is based on the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. In *re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Examiner further notes Benedetti does not explicitly disclose a polymer selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made with a polymer selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material.

Regarding claim 15, Benedetti discloses the connection assembly as recited in claim 12, wherein the seal (438) is molded from a thermoplastic elastomer (§ [0041]).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “molded”. The patentability of the product does not depend on its method of production. Determination of patentability is based on the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Examiner further notes Benedetti does not explicitly disclose wherein the seal is molded from a thermoplastic elastomer. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made wherein the seal is molded from a thermoplastic elastomer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the

intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material.

Regarding claim 16, Benedetti discloses the connection assembly as recited in claim 12, wherein the retainer head (436) and clip portion (424A-B) are molded as a unitary structure (fig. 4) from acetal resin, and wherein the seal (438) is molded from a thermoplastic elastomer (§ [0041]).

Examiner notes that this claim is considered to be a product-by-process claim due to the limitation of “molded as a unitary structure”. The patentability of the product does not depend on its method of production. Determination of patentability is based on the product itself. See MPEP 2113. If the product in the product-by-process claim is the same as or obvious from a product of prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964,966 (Fed. Cir. 1985).

Examiner further notes Benedetti does not explicitly disclose wherein the seal is molded from a thermoplastic elastomer. However, it would have been obvious to one having ordinary skill in the art at the time of the invention was made wherein the seal is molded from a thermoplastic elastomer, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material.

Regarding claim 17, Benedetti, as modified by Sanada, discloses the connection assembly as recited in claim 10, **except for** wherein the intermediate connector is a doghouse connector adapted to slidingly receive and retain the connective neck structure.

However, Sanada teaches wherein the intermediate connector (20) is a doghouse connector adapted to slidingly receive and retain the connective neck structure (fig. 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Benedetti wherein the intermediate connector is a doghouse connector adapted to slidingly receive and retain the connective neck structure as taught by Sanada to provide a more secure fit between the components.

Regarding claim 18, Benedetti, as modified by Sanada, discloses the connection assembly as recited in claim 10, **except for** wherein, the intermediate connector is integral with the preformed surface element.

However, Sanada teaches wherein, the intermediate connector is integral with the preformed surface element. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Benedetti wherein, the intermediate connector is integral with the preformed surface element as taught by Sanada to provide a more secure fit between the components.

Regarding claim 19, Benedetti, as modified by Sanada, discloses the connection assembly as recited in claim 10, **except for** wherein, the intermediate connector (20, Sanada) is configured such that the contact surface (fig. 2, Sanada) is at an elevation below the lower collar (fig. 4, Benedetti) and above the free edge of the sealing foot (442, Benedetti) when the retainer head (436, Benedetti) is supported within the intermediate connector (20, Sanada) and prior to insertion into the acceptance opening (602, Benedetti).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERTA S DELISLE ("Bobbi") whose telephone number is (571)270-3746. The examiner can normally be reached on M-F: 7 am - 4 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Victor D Batson can be reached on 571-272-6987. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERTA S DELISLE/
Primary Examiner, Art Unit 3677

rsd

Search Notes 	Application/Control No. 14/652,819	Applicant(s)/Patent Under Reexamination SCROGGIE et al.
	Examiner ROBERTA S DELISLE	Art Unit 3677

CPC - Searched*		
Symbol	Date	Examiner
F16B5/065	5/13/2017	JLV
F16B 2/22; 5/0084, 0607; 0657; 19/00, 008; 21/084, 086, 088; 2005/0678	10/24/2017	rsd

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
411	508, 509, 510	10/24/2017	rsd

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST search as provided.	5/13/2017	JLV
EAST (see search history)	10/24/2017	rsd
Reviewed IDS citations	10/24/2017	rsd
Inventor names search	10/24/2017	rsd

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

/JASON L VAUGHAN/ Primary Examiner.Art Unit 3726	
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Scroggie :
Serial No.: 14/652,819 : Art Unit.: 3677
Filed: June 17, 2015 : Examiner: Delisle, Roberta S.
For: PUSH THROUGH RETAINER :
CONNECTION WITH INTEGRATED :
HINGING SEAL :

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL

Transmitted herewith is:

- Transmittal (1 page)
- Response to the Office Action dated November 3, 2017 (10 pages)

STATUS

Applicant
is other than a small entity.

Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition for extension of time.

The Commissioner is authorized to charge any underpayment of necessary fees, or credit any overpayment to the Deposit Account No. 503858

Date: February 2, 2018

/Joseph M. Butscher/
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225 S. Meramec, Ste. 725
St. Louis, MO 63105
314-584-4083

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Docket No. 61823-US

Inventor: Scroggie	:	
	:	Art Unit: 3677
Serial No.: 14/652,819	:	
	:	Examiner: Delisle, Roberta S.
	:	
Filed: June 17, 2015	:	Confirmation No. 6722
	:	
For: PUSH THROUGH RETAINER	:	Electronically Filed on
CONNECTION WITH INTEGRATED	:	<u>February 2, 2018</u>
HINGING SEAL	:	
	:	

RESPONSE UNDER 37 C.F.R. § 1.111

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This Paper responds to the Office Action sent November 3, 2017. The Applicant respectfully submits that the claims define allowable subject matter, as explained below.

THE CLAIMS

1. (Original) A connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap, abutting relation between the surface element and the support structure during use, the connection assembly comprising:

a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform and an annular platform defining a lower collar positioned in spaced relation below the upper platform, wherein the clip portion comprises a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from a central stem, the retainer further including a seal disposed at least partially about the lower collar, the seal having a durometer lower than the lower collar and including a body portion engaging the lower collar and a sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from lower collar and the underside of the sealing foot forms an obtuse angle relative to the plane of the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.

2. (Original) The connection assembly as recited in claim 1, wherein the retainer head and clip portion are molded as a unitary structure.

3. (Original) The connection assembly as recited in claim 1, wherein the lower collar is oriented substantially perpendicular to an axis defined by the stem and has a stepped construction including an interior portion and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip.

4. (Original) The connection assembly as recited in claim 3, wherein the seal is formed by over-molding or two-shot molding in fused, overlying relation about the outer annular lip of the lower collar.

5. (Original) The connection assembly as recited in claim 3, wherein the retainer head and clip portion are molded as a unitary structure from a polymer selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin.

6. (Original) The connection assembly as recited in claim 3, wherein the seal is molded from a thermoplastic elastomer.

7. (Original) The connection assembly as recited in claim 3, wherein the retainer head and clip portion are molded as a unitary structure from acetal resin, and wherein the seal is molded from a thermoplastic elastomer.

8. (Original) The connection assembly as recited in claim 1, wherein the wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening.

9. (Original) The connection assembly as recited in claim 1, wherein the retainer head includes a connective neck structure extending between the upper platform and the lower collar, and wherein the neck structure is adapted to slidingly engage an intermediate doghouse connector operatively joined to the surface element.

10. (Original) A connection assembly adapted to join a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use, the connection assembly comprising:

a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform, an annular platform defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform, and a connective neck structure

extending between the upper platform and the lower collar, wherein the clip portion comprises a central stem extending downwardly away from the lower collar such that the lower collar is oriented substantially perpendicular to an axis defined by the stem, a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar, wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening, the retainer further including a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use;

a preformed surface element having a contact surface configured to abut the support structure in a substantially gapless relation during use; and

an intermediate connector operatively connected to the surface element and adapted to receive and retain the retainer head such that upon insertion of the retainer into an acceptance opening in the support panel, an operative connection is established between the surface element and the support structure, wherein the surface element is configured such that when the retainer is held between the intermediate connector and the support structure, the contact surface of the surface element is at an elevation such that it abuts the support structure while the sealing foot is in contacting relation with the support structure and the lower collar remains spaced in elevated relation away from the support structure.

11. (Original) The connection assembly as recited in claim 10, wherein the retainer head and clip portion are molded as a unitary structure.

12. (Original) The connection assembly as recited in claim 10, wherein the lower collar has a stepped construction including an interior portion and a reduced thickness outer annular lip with a step between the interior portion and the outer annular lip, and wherein the seal is formed from a material of lower durometer than the material forming the lower collar.

13. (Original) The connection assembly as recited in claim 12, wherein the seal is formed by over-molding or two-shot molding in fused, overlying relation about the outer annular lip of the lower collar.

14. (Original) The connection assembly as recited in claim 12, wherein the retainer head and clip portion are molded as a unitary structure from a polymer is selected from the group consisting of Nylon 6, Nylon 6.6, and acetal resin.

15. (Original) The connection assembly as recited in claim 12, wherein the seal is molded from a thermoplastic elastomer.

16. (Original) The connection assembly as recited in claim 12, wherein the retainer head and clip portion are molded as a unitary structure from acetal resin, and wherein the seal is molded from a thermoplastic elastomer.

17. (Original) The connection assembly as recited in claim 10, wherein the intermediate connector is a doghouse connector adapted to slidably receive and retain the connective neck structure.

18. (Original) The connection assembly as recited in claim 10, wherein, the intermediate connector is integral with the preformed surface element.

19. (Original) The connection assembly as recited in claim 10, wherein, the intermediate connector is configured such that the contact surface is at an elevation below the lower collar and above the free edge of the sealing foot when the retainer head is supported within the intermediate connector and prior to insertion into the acceptance opening.

20. (Withdrawn) A method of connecting a surface element to an underlying support structure while maintaining a substantially zero gap abutting relation between the surface element and the support structure during use, the method comprising:

providing a press-in retainer adapted for insertion into an acceptance opening in the support structure to establish operative connecting engagement between the surface element and the support structure, the retainer including a retainer head and a clip portion of arrowhead configuration projecting outwardly away from the retainer head, wherein the retainer head includes an upper platform, an annular platform defining a lower collar having a perimeter edge positioned in spaced relation below the upper platform, and a connective neck structure extending between the upper platform and the lower collar, wherein the clip portion comprises a central stem extending downwardly away from the lower collar and a pair of flexible wings extending in upward angled relation away from the central stem, the flexible wings terminating at wing tips disposed in spaced relation below the lower collar, wherein the flexible wings each have a dog-leg configuration including a radially inwardly angled segment defining an angled biasing surface disposed between a radially outwardly angled segment and a free end, the angled biasing surface being adapted to press against an interior surface of the acceptance opening to urge the retainer downwardly into the acceptance opening, the retainer further including a monolithic seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use;

providing a preformed surface element having a contact surface configured to abut the support structure in a substantially gapless relation during use;

securing the retainer head within an intermediate connector operatively connected to the surface element; and

inserting the retainer into an acceptance opening in the support panel, to establish an operative connection between the surface element and the support structure, wherein the surface element is configured such that when the retainer is held between the intermediate connector and the support structure, the contact surface of the surface element is at an elevation such that it abuts the support structure while the sealing foot is in flexed contacting relation with the support structure and the lower collar remains spaced in elevated relation away from the support structure.

REMARKS

The present application includes claims 1-20. Claim 20 has been withdrawn from consideration.

Claims 1-9 stand rejected as being unpatentable over U.S. 2005/0079033 (“Benedetti”) . Claim 1 recites, in part, “a seal disposed at least partially about the lower collar, the seal having a durometer lower than the lower collar and including a body portion engaging the lower collar and a sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed outboard from lower collar and the underside of the sealing foot forms an obtuse angle relative to the plane of the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.” As explained below, Benedetti does not expressly or necessarily describe, teach, or suggest these limitations.

The Office Action points to reference numeral 438 of Benedetti as a “seal.” *See* November 3, 2018 Office Action at page 4.

However, Benedetti indicates that the “base 408 can be formed to include an umbrella surface 438 that defines a void or concavity 440.” *See* Benedetti at [0025]. As shown in Figure 4, the umbrella surface 438 is integrally formed with the base 408 and the head 436. The umbrella surface 438 is not a separate seal secured to any portion of the fastener 400.

Benedetti indicates that an “edge 442 of umbrella surface 438 bears against a panel (see FIG. 6C ...) when fastener 400 is inserted into a hole in the panel.” *See id.* at [0025]. In particular, “[e]dge 442 of umbrella surface 438 bears against panel 602, putting umbrella surface 438 into compression to provide an impediment (at the least) to a water seepage, if not a barrier.” *See id.* at [0039].

As explained above, Benedetti indicates that the umbrella surface 438, which is an integral piece of the fastener 400 (but not a seal coupled to the fastener), provides an “impediment” or “barrier.” A barrier or impediment is not necessarily seal. Benedetti does not expressly or necessarily describe, teach, or suggest that the umbrella surface 438 is a seal. Indeed, Benedetti does not even mention the term “seal.”

Benedetti does not expressly or necessarily describe, teach, or suggest a “seal,” as recited in claim 1. For at least these reasons, Benedetti does not render claim 1 and the claims depending therefrom unpatentable.

Even if one assumes that the umbrella surface 438 is a seal, which the Applicant clearly does not assume, the umbrella surface 438 is not disposed about a lower collar. Instead, the umbrella surface 438 appears to be its own collar. Benedetti does not expressly or necessarily describe, teach, or suggest “a seal disposed at least partially about the lower collar,” as recited in claim 1. For at least these additional reasons, Benedetti does not render claim 1 and the claims depending therefrom unpatentable.

Additionally, as explained above, there is nothing in Benedetti that indicates that the fastener 400 has portions formed of different materials. Indeed, the umbrella surface 438 is seemingly formed of the same material as the rest of the fastener 400. Accordingly, Benedetti does not expressly or necessarily describe, teach, or suggest “the seal having a durometer lower than the lower collar,” as recited in claim 1. For at least these additional reasons, Benedetti does not render claim 1 and the claims depending therefrom unpatentable.

Further, Benedetti does not expressly or necessarily describe, teach, or suggest a “sealing foot [that] flexes about a living hinge,” as recited in claim 1. For at least these additional reasons, Benedetti does not render claim 1 and the claims depending therefrom unpatentable.

Claims 10-19 stand rejected as being unpatentable over Benedetti in view of U.S. 5,865,500 (“Sanada”) Claim 10 recites, in part, “seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.”

The Applicant respectfully submits that the proposed combination does not describe, teach, or suggest the aforementioned limitations of claim 10, as explained above with respect to

claim 1. For at least these reasons, the proposed combination does not render claim 10 and the claims depending therefrom unpatentable.

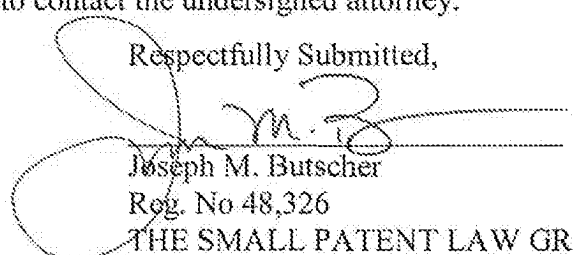
REQUEST FOR REJOINDER: Like claims 1 and 10, claim 20 recites, in part, a “seal disposed about the perimeter edge of the lower collar, the seal having a durometer lower than the lower collar, the seal including a body portion at least partially surrounding the perimeter edge and the seal further including an integral hinging sealing foot projecting downwardly and radially outwardly away from the body portion to a free edge such that the sealing foot is disposed entirely outboard from the underside of the lower collar and forms an obtuse angle relative to the underside of the lower collar, and wherein the sealing foot flexes about a living hinge while remaining outboard from the lower collar and maintaining sliding contact with the support panel in response to applied pressure between the seal and the support panel during use.” As explained above, the proposed combination does not describe, teach, or suggest these limitations. Accordingly, the Applicant respectfully requests that claim 20 be rejoined and allowed.

In general, the Office Action makes various statements regarding the pending claims and the cited references that are now moot in light of the above. Thus, the Applicant will not address such statements at the present time. However, the Applicant expressly reserves the right to challenge such statements in the future should the need arise (e.g., if such statements should become relevant by appearing in a rejection of any current or future claim).

The Applicant respectfully requests reconsideration of the claim rejections for at least the reasons discussed above. If the Examiner has any questions or the Applicant can be of any assistance, the Examiner is invited to contact the undersigned attorney.

Date: February 2, 2018

Respectfully Submitted,



Joseph M. Butscher

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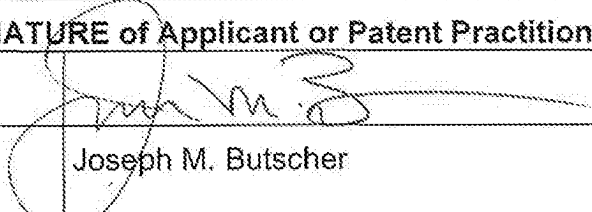
(314) 584-4083

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	14/652,819
Filing Date	June 17, 2015
First Named Inventor	Scroggie
Title	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL
Art Unit	3677
Examiner Name	Delisle, Roberta S.
Attorney Docket Number	61823-US

SIGNATURE of Applicant or Patent Practitioner

Signature		Date (Optional)	February 2, 2018
Name	Joseph M. Butscher	Registration Number	48326
Title (if Applicant is a juristic entity)	Attorney for Applicant		
Applicant Name (if Applicant is a juristic entity)	Illinois Tool Works Inc.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number

Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)



I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above:

151860

OR



I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

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I am the Applicant (If the Applicant is a juristic entity, list the Applicant name in the box):

Illinois Tool Works Inc.



Inventor or Joint Inventor (title not required below)



Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)



Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)



Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature

Date (Optional)

Name

Ernest W. Torain, Jr.

Title

Illinois Tool Works Inc. - Deputy General Counsel - Intellectual Property

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.



Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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STATEMENT UNDER 37 CFR 3.73(c)Applicant/Patent Owner: Illinois Tool Works Inc.Application No./Patent No.: 14/652,819 Filed/Issue Date: June 17, 2015Titled: PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEALIllinois Tool Works Inc., a corporation

(Name of Assignee)

(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 035849, Frame 0383, or for which a copy thereof is attached.
- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:
1. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.
2. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
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[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Josesph M. Butscher/

Signature

Joseph M. Butscher

Printed or Typed Name

February 2, 2018

Date

48326

Title or Registration Number

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	31681927
Application Number:	14652819
International Application Number:	
Confirmation Number:	6722
Title of Invention:	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL
First Named Inventor/Applicant Name:	Derek SCROGGIE
Customer Number:	27889
Filer:	Dean D. Small/Tricia Bates
Filer Authorized By:	Dean D. Small
Attorney Docket Number:	61823-US (713-3314)
Receipt Date:	02-FEB-2018
Filing Date:	17-JUN-2015
Time Stamp:	10:12:22
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	61823-US- Amendment-2FEB2018.pdf	902076	no	11
			18e984f8a0794c6dfe0ebfe5255a863eab3800cc		

Warnings:

Information:					
2	Power of Attorney	61823-US-POA-2FEB2018.pdf	884057	no	2
			e3fd87187649a7e0053d685f6d8ac47d60f1d82		
Warnings:					
Information:					
3	Miscellaneous Incoming Letter	61823-US-373-Statement-2FEB2018.pdf	118343	no	3
			f2a36c10af13d428a8fca13c4b723c175e62e08e		
Warnings:					
Information:					
Total Files Size (in bytes):			1904476		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/652,819	Filing Date 06/17/2015	☐ To be Mailed
---	---	----------------------------------	---------------------------------------

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO**APPLICATION AS FILED – PART I**

(Column 1)

(Column 2)

FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		X \$ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED – PART II

(Column 1)

(Column 2)

(Column 3)

	02/02/2018	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)	ADDITIONAL FEE (\$)
AMENDMENT	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0		x \$100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x \$460 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
	TOTAL ADD'L FEE							0

(Column 1)

(Column 2)

(Column 3)

		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE (\$)	ADDITIONAL FEE (\$)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=		X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
	TOTAL ADD'L FEE							

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
BURNELL L. ROSS

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
14/652,819	06/17/2015	Derek SCROGGIE	61823-US

151860
The Small Patent Law Group, LLC
225 S. Meramec Ave.
Suite 725
St. Louis, MO 63105

CONFIRMATION NO. 6722
POA ACCEPTANCE LETTER



Date Mailed: 02/07/2018

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/02/2018.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/qnghuyen/

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	28	("20110119875" "3771275" "6805524" "3745612" "7770266" "5173026" "7481474" "3249973" "5028187" "5458365" "20100293761" "5704753" "20100098515" "3678797" "5797714" "20060099051" "5865500" "7927050" "6572317" "4534530" "4778320" "5339491" "20050079033" "3550217" "20110243688" "6715185").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2018/03/13 09:46
L2	8	("2005/0079033").URPN.	USPAT	OR	ON	2018/03/13 09:46
L3	966	(411/508).CCLS.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/03/13 10:05
L4	281	f16b19/00.cpc.	US-PGPUB; USPAT; USOCR	OR	ON	2018/03/13 10:06
L7	25	("4354566" "4597603" "4645250").PN. OR ("5865500").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2018/03/13 10:29

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L5	241	f16b19/00.cpc.	US-PGPUB; USPAT	OR	ON	2018/03/13 10:06
L6	853	(411/508).CCLS.	US-PGPUB; USPAT	OR	OFF	2018/03/13 10:06

3/ 13/ 2018 10:30:06 AM
C:\ Users\ rdelisle\ Documents\ EAST\ Workspaces\ Default EAST Workspace (Flat Panel LANDSCAPE).wsp



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 6722

SERIAL NUMBER 14/652,819	FILING or 371(c) DATE 06/17/2015 RULE	CLASS 411	GROUP ART UNIT 3677	ATTORNEY DOCKET NO. 61823-US (500-436US1)	
APPLICANTS ILLINOIS TOOL WORKS INC., Glenview, IL; INVENTORS Derek SCROGGIE, Macomb, MI; Michelle E. BOZINOVSKI, Oakland Charter Township, MI; Robert A. MURAWSKI, Clinton Township, MI; ** CONTINUING DATA ***** This application is a 371 of PCT/US13/73861 12/09/2013 which claims benefit of 61/739,604 12/19/2012 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** 08/05/2015					
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /ROBERTA S DELISLE/ Acknowledged Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY MI	SHEETS DRAWINGS 4	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS The Small Patent Law Group, LLC 225 S. Meramec Ave. Suite 725 St. Louis, MO 63105 UNITED STATES					
TITLE PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL					
FILING FEE RECEIVED 1480	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

151860 7590 04/02/2018
The Small Patent Law Group, LLC
225 S. Meramec Ave.
Suite 725
St. Louis, MISSOURI 63105
UNITED STATES OF AMERICA

EXAMINER

DELISLE, ROBERTA S

ART UNIT

PAPER NUMBER

3677

DATE MAILED: 04/02/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/652,819	06/17/2015	Derek SCROGGIE	61823-US (500-436US1)	6722

TITLE OF INVENTION: PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
REGULAR	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	07/02/2018

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

151860 7590 04/02/2018
The Small Patent Law Group, LLC
225 S. Meramec Ave.
Suite 725
St. Louis, MISSOURI 63105
UNITED STATES OF AMERICA

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/652,819	06/17/2015	Derek SCROGGIE	61823-US (500-436US1)	6722

TITLE OF INVENTION: PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
REGULAR	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	07/02/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
DELISLE, ROBERTA S	3677	411-508000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee

☐ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____



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UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/652,819	06/17/2015	Derek SCROGGIE	61823-US (500-436US1)	6722

151860 7590 04/02/2018

The Small Patent Law Group, LLC
225 S. Meramec Ave.
Suite 725
St. Louis, MISSOURI 63105
UNITED STATES OF AMERICA

EXAMINER

DELISLE, ROBERTA S

ART UNIT	PAPER NUMBER
----------	--------------

3677

DATE MAILED: 04/02/2018

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/652,819	Applicant(s) SCROGGIE et al.	
	Examiner ROBERTA S DELISLE	Art Unit 3677	AIA Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Remarks filed 2/7/2018.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-20. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some *c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☒ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.	6. ☐ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.	

/ROBERTA S DELISLE/ Primary Examiner, Art Unit 3677	
--	--

EXAMINER'S AMENDMENT

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Please rejoin previously withdrawn method claim 20.

NOTE: the only purpose of this Examiner's Amendment is to rejoin previously withdrawn method claim 20.

Rejoin claim 20

3. Claims 1-19 are directed to an allowable product. Pursuant to the procedures set forth in MPEP § 821.04(B), claim 20, directed to the process of making or using an allowable product, previously withdrawn from consideration as a result of a restriction requirement, is hereby rejoined and fully examined for patentability under 37 CFR 1.104.

Because all claims previously withdrawn from consideration under 37 CFR 1.142 have been rejoined, **the restriction requirement as set forth in the Office action mailed on 5/16/2017 is hereby withdrawn.** In view of the withdrawal of the restriction requirement as to the rejoined inventions, applicant(s) are advised that if any claim

presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Once the restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Allowable Subject Matter

4. Claims 1-20 are allowed.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERTA S DELISLE ("Bobbi") whose telephone number is (571)270-3746. The examiner can normally be reached on M-F: 7 am - 4 pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Victor D Batson can be reached on 571-272-6987. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROBERTA S DELISLE/
Primary Examiner, Art Unit 3677

rsd

Issue Classification 	Application/Control No. 14/652,819	Applicant(s)/Patent Under Reexamination SCROGGIE et al.	
	Examiner ROBERTA S DELISLE	Art Unit 3677	

CPC						
Symbol				Type	Version	
F16B	/	5	/	0084	F	2013-01-01
F16B	/	5	/	0607	I	2013-01-01
F16B	/	2	/	22	I	2013-01-01
F16B	/	19	/	00	I	2013-01-01
F16B	/	19	/	008	I	2013-01-01
F16B	/	21	/	086	I	2013-01-01
F16B	/	2005	/	0678	A	2013-01-01
Y10T	/	24	/	44026	A	2015-01-15
Y10T	/	29	/	49828	A	2015-01-15
F16B	/	5	/	0657	A	2013-01-01

CPC Combination Sets					
Symbol			Type	Set	Ranking
/	/	/			

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/ROBERTA S DELISLE/ Primary Examiner, Art Unit 3677	13 March 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 14/652,819	Applicant(s)/Patent Under Reexamination SCROGGIE et al.
	Examiner ROBERTA S DELISLE	Art Unit 3677

INTERNATIONAL CLASSIFICATION			
CLAIMED			
F16B	/	19	/ 00
NON-CLAIMED			
	/		/

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
411	508

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/ROBERTA S DELISLE/ Primary Examiner, Art Unit 3677	13 March 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 14/652,819	Applicant(s)/Patent Under Reexamination SCROGGIE et al.
	Examiner ROBERTA S DELISLE	Art Unit 3677

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 20	
/ROBERTA S DELISLE/ Primary Examiner, Art Unit 3677 (Primary Examiner) _____ (Date) 13 March 2018		O.G. Print Claim(s) 1	O.G. Print Figure 1

<i>Search Notes</i> 	Application/Control No. 14/652,819	Applicant(s)/Patent Under Reexamination SCROGGIE et al.
	Examiner ROBERTA S DELISLE	Art Unit 3677

CPC - Searched*		
Symbol	Date	Examiner
F16B5/065	5/13/2017	JLV
F16B 2/22; 5/0084, 0607; 0657; 19/00, 008; 21/084, 086, 088; 2005/0678	10/24/2017	rsd
F16B 19/00	03/13/2018	rsd

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
411	508, 509, 510	10/24/2017	rsd
411	508	03/13/2018	rsd

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
EAST search as provided.	5/13/2017	JLV
EAST (see search history)	10/24/2017	rsd
Reviewed IDS citations	10/24/2017	rsd
Inventor names search	10/24/2017	rsd
EAST (see search history)	03/13/2018	rsd
Reviewed cited prior art of record	03/13/2018	rsd
Forward / backward citation searching	03/13/2018	rsd

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<i>Search Notes</i> 	Application/Control No. 14/652,819	Applicant(s)/Patent Under Reexamination SCROGGIE et al.
	Examiner ROBERTA S DELISLE	Art Unit 3677

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
F16B	19/00	03/13/2018	rsd
411	508	03/13/2018	rsd

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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

151860 7590 04/02/2018
The Small Patent Law Group, LLC
225 S. Meramec Ave.
Suite 725
St. Louis, MISSOURI 63105
UNITED STATES OF AMERICA

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/652,819	06/17/2015	Derek SCROGGIE	61823-US (500-436US1)	6722

TITLE OF INVENTION: PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
REGULAR	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	07/02/2018

EXAMINER	ART UNIT	CLASS-SUBCLASS
DELISLE, ROBERTA S	3677	411-508000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Joseph M. Butscher

2 The Small Patent Law Group, LLC

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Illinois Tool Works Inc.

Glenview, Illinois

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

☒ Issue Fee

☐ A check is enclosed.

☒ Publication Fee (No small entity discount permitted)

☒ Payment by credit card. Form PTO-2038 is attached.

☐ Advance Order - # of Copies _____

☒ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number 503858 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Joseph M. Butscher/

Date April 30, 2018

Typed or printed name Joseph M. Butscher

Registration No. 48326

Electronic Patent Application Fee Transmittal				
Application Number:		14652819		
Filing Date:		17-Jun-2015		
Title of Invention:		PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL		
First Named Inventor/Applicant Name:		Derek SCROGGIE		
Filer:		Dean D. Small/Tricia Bates		
Attorney Docket Number:		61823-US (500-436US1)		
Filed as Large Entity				
Filing Fees for U.S. National Stage under 35 USC 371				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
UTILITY APPL ISSUE FEE	1501	1	1000	1000
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt

EFS ID:	32478633
Application Number:	14652819
International Application Number:	
Confirmation Number:	6722
Title of Invention:	PUSH THROUGH RETAINER CONNECTION WITH INTEGRATED HINGING SEAL
First Named Inventor/Applicant Name:	Derek SCROGGIE
Customer Number:	151860
Filer:	Dean D. Small/Tricia Bates
Filer Authorized By:	Dean D. Small
Attorney Docket Number:	61823-US (500-436US1)
Receipt Date:	30-APR-2018
Filing Date:	17-JUN-2015
Time Stamp:	09:09:26
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 1000
RAM confirmation Number	043018INTEFSW09102000
Deposit Account	503858
Authorized User	Dean Small

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

37 CFR 1.492 (National application filing, search, and examination fees)

37 CFR 1.492(a) (Basic national fee only)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	61823-US-Issue-Fee-30APR2018.pdf	88142	no	1
			414d48fed26ad4fdccc8eaded94d2ae4aa2b087		

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	32294	no	2
			7d19af1f3191cbcc1510ec424aa989898259c9b1		

Warnings:

Information:

Total Files Size (in bytes):			120436
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/652,819	05/29/2018	9982694	61823-US (500-436US1)	6722

151860 7590 05/09/2018
The Small Patent Law Group, LLC
225 S. Meramec Ave.
Suite 725
St. Louis, MO 63105

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment is 272 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Derek SCROGGIE, Macomb, MI;
ILLINOIS TOOL WORKS INC., Glenview, IL;
Michelle E. BOZINOVSKI, Oakland Charter Township, MI;
Robert A. MURAWSKI, Clinton Township, MI;

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