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Simon Gonzalez et al.

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- (54) **WORK SURFACE FOR A VEHICLE**
- (71) Applicant: **Ford Global Technologies, LLC**,
Dearborn, MI (US)
- (72) Inventors: **Jose Ernesto Simon Gonzalez**,
Culiacan (MX); **Jose Maria Aburto**,
Oaxtepec (MX); **Lorena Virginia**
Mendez, Mexico City (MX)
- (73) Assignee: **Ford Global Technologies, LLC**,
Dearborn, MI (US)
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CPC **E04G 1/32** (2013.01); **E04G 7/301**
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CPC E04G 1/32; E04G 7/301
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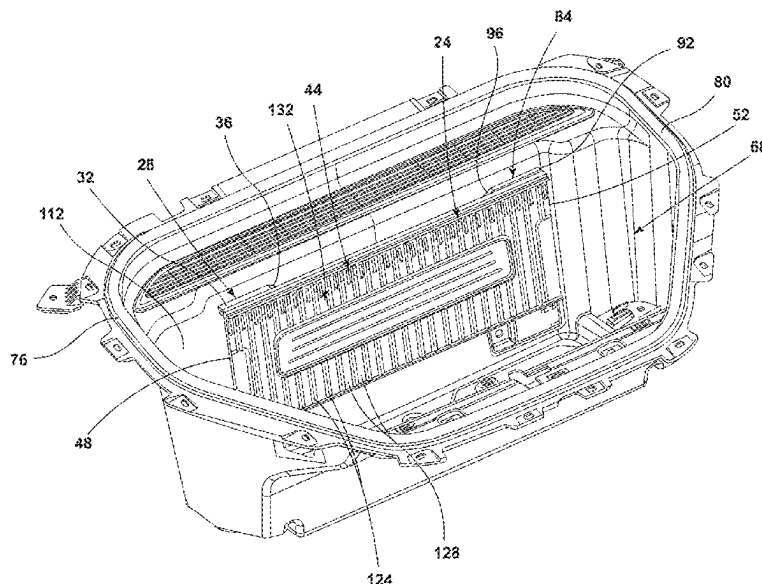
CN 208524056 U * 2/2019
Primary Examiner — Justin M Benedik
(74) *Attorney, Agent, or Firm* — Vichit Chea; Price
Heneveld LLP

(57) **ABSTRACT**

A work surface for a vehicle includes a first section, a central section, and a first lock assembly. The first section includes a proximal edge and a distal edge. The first section defines a channel therein. The central section includes a first end and a second end. The first end of the central section is positioned adjacent to the proximal edge of the first section. The proximal edge of the first section is pivotably coupled to the first end of the central section. The first section is movable between a stowed position and a fully-deployed position relative to the central section. The first lock assembly is coupled to the central section. The first lock assembly includes a post that is operable between a retracted position and an extended position. The fully-deployed position of the first section arranges the channel defined by the first section to receive the post.

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16 Claims, 11 Drawing Sheets



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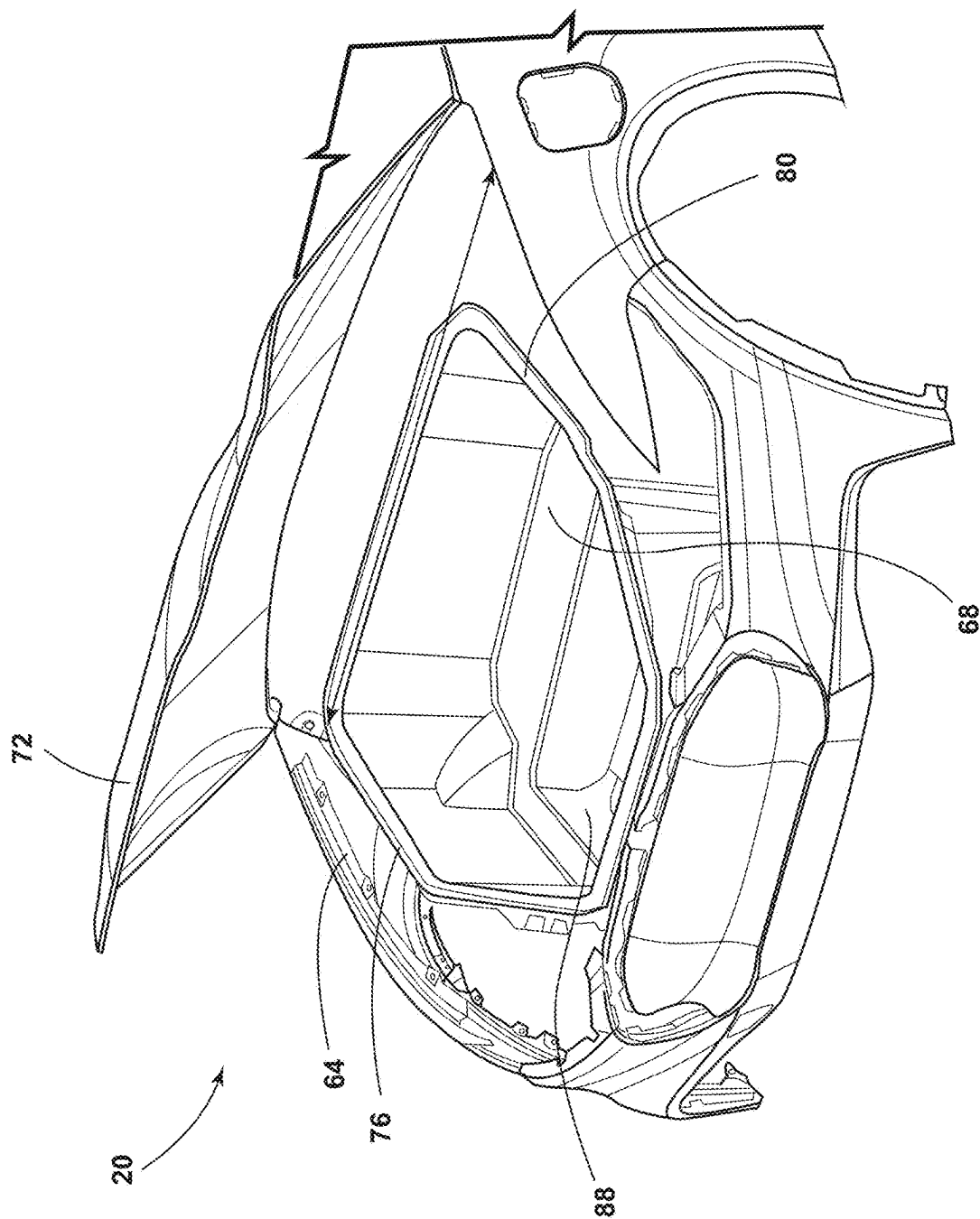


FIG. 1

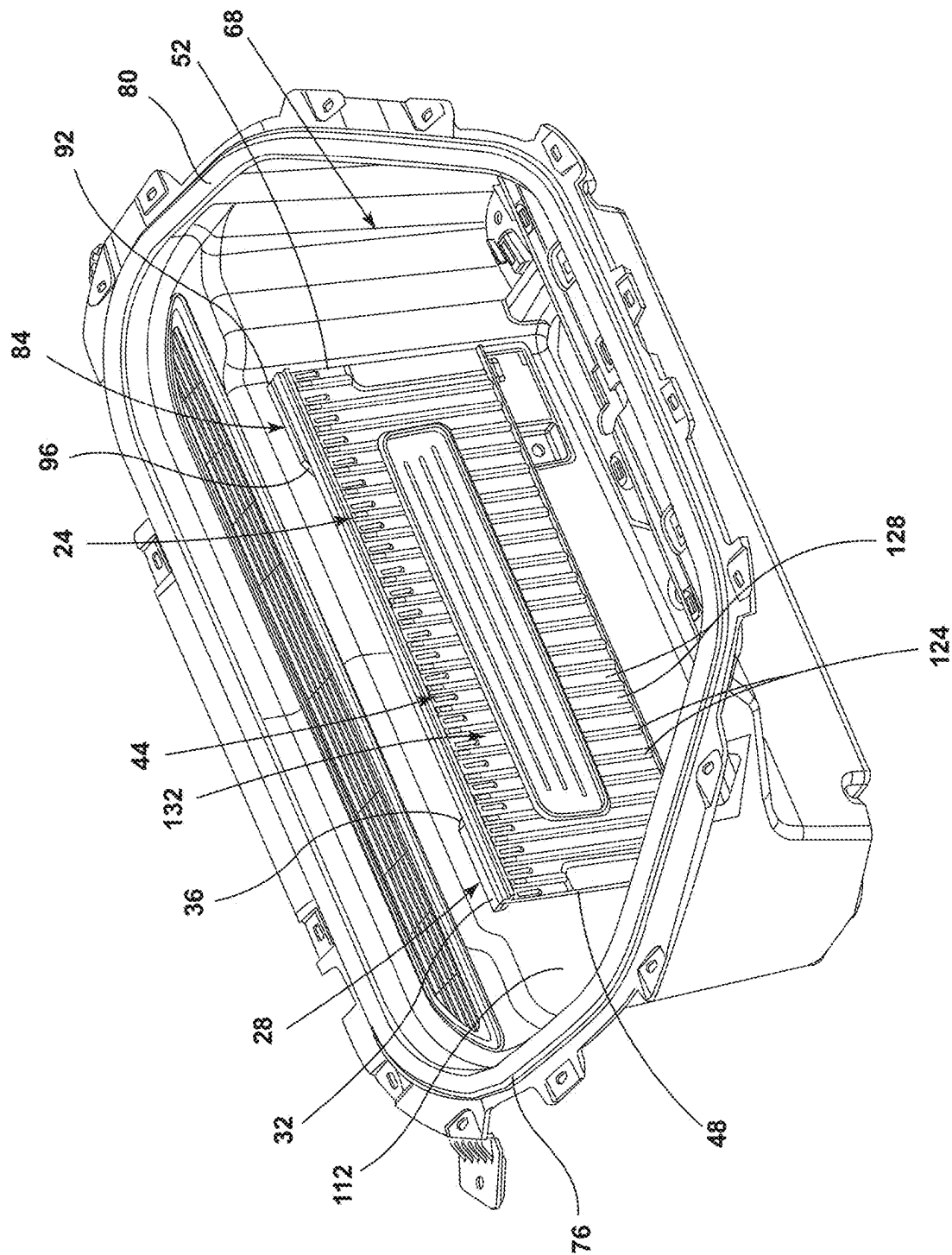


FIG. 2

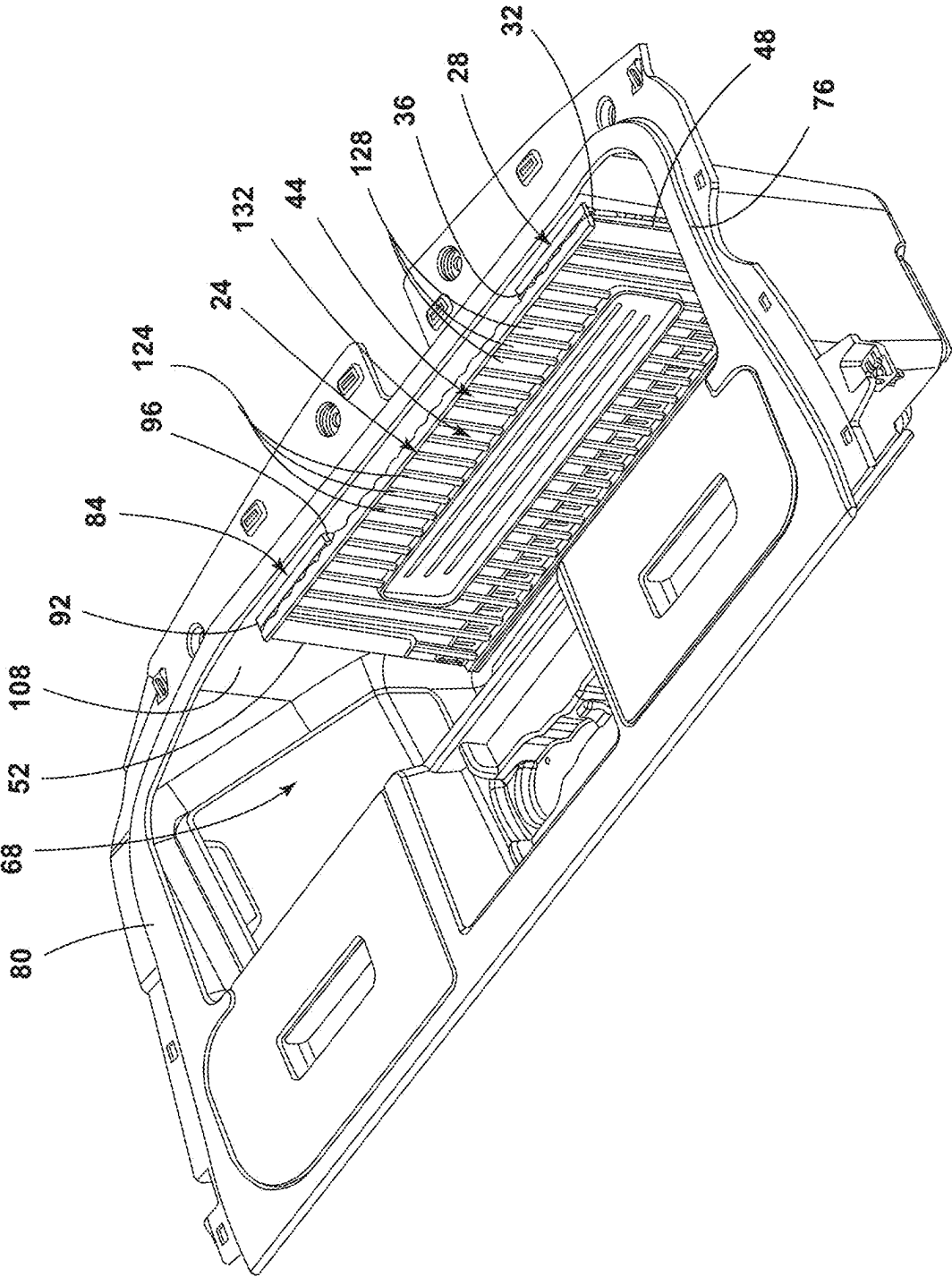


FIG. 3

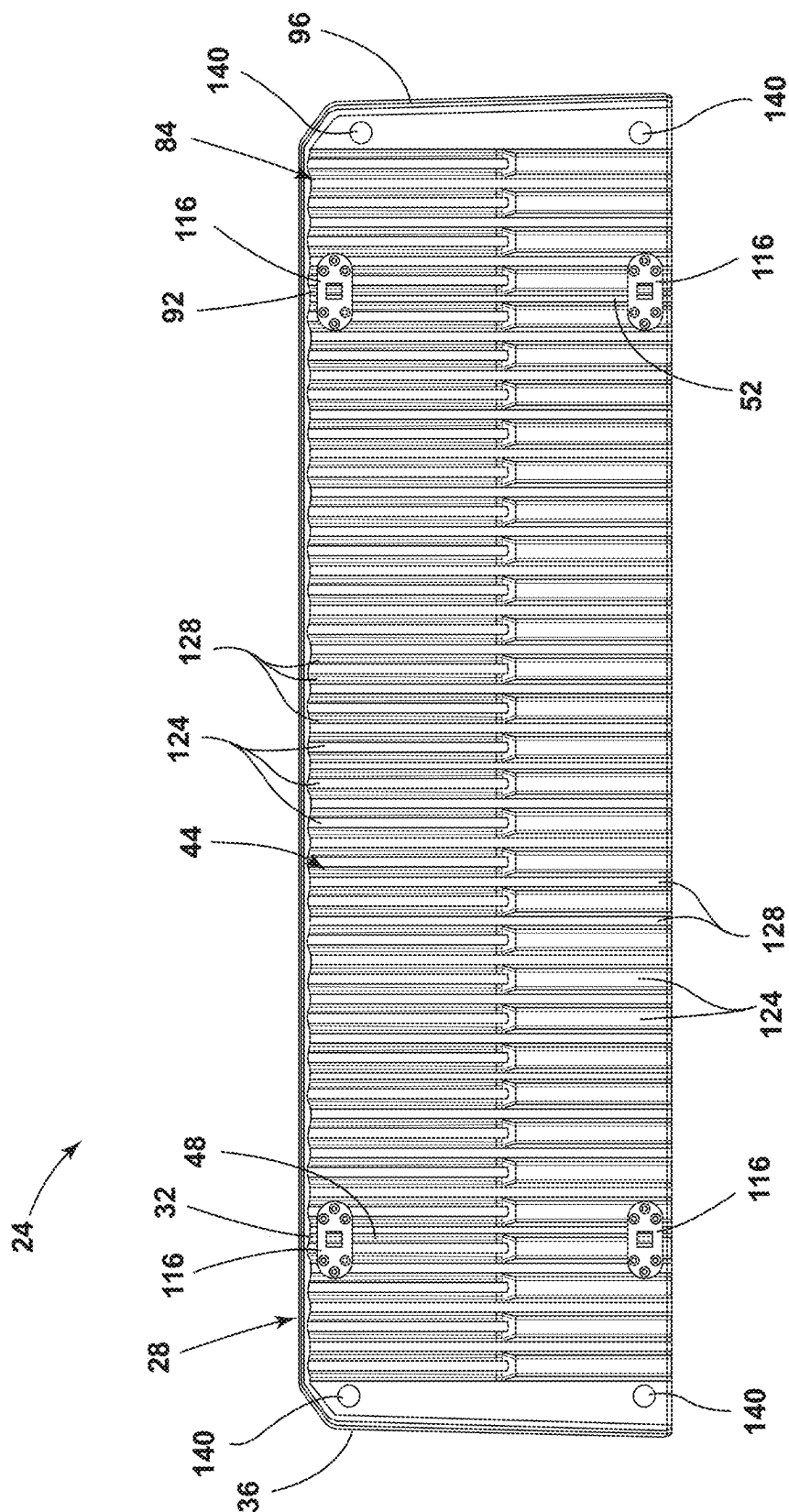


FIG. 4

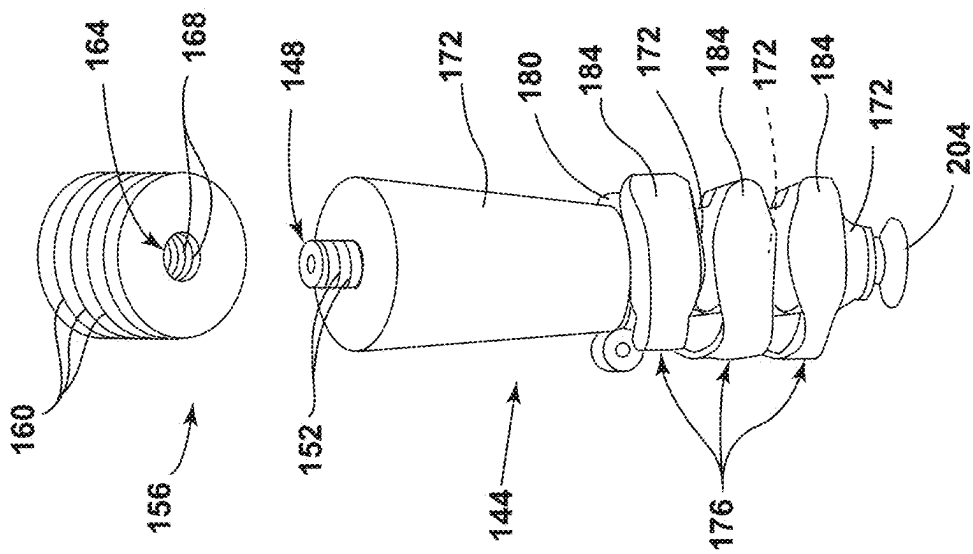


FIG. 5

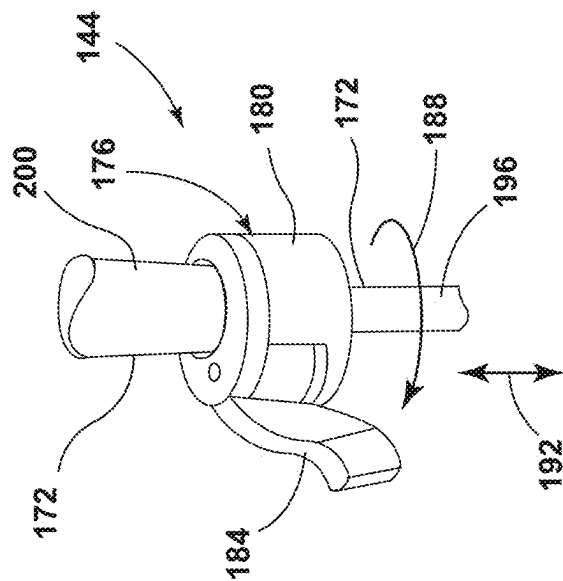


FIG. 6

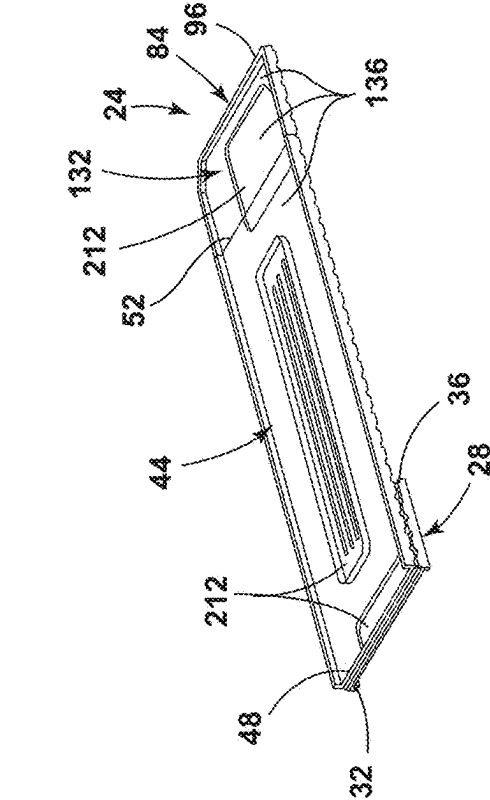


FIG. 7A

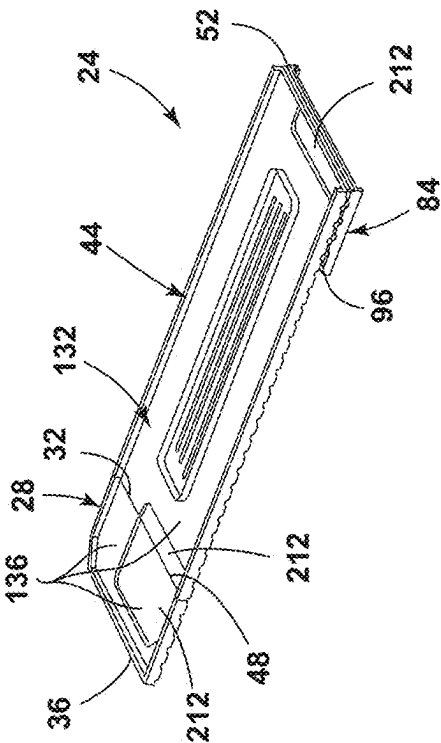


FIG. 7B

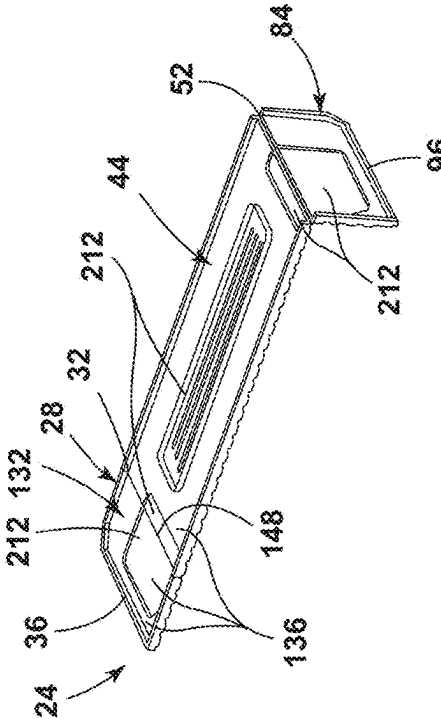


FIG. 7C

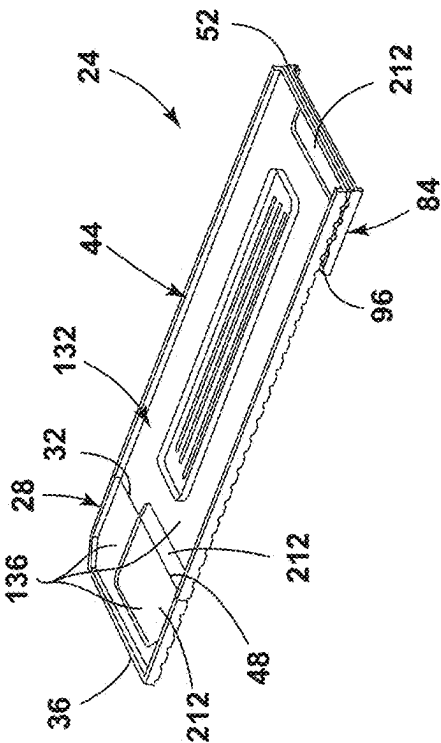
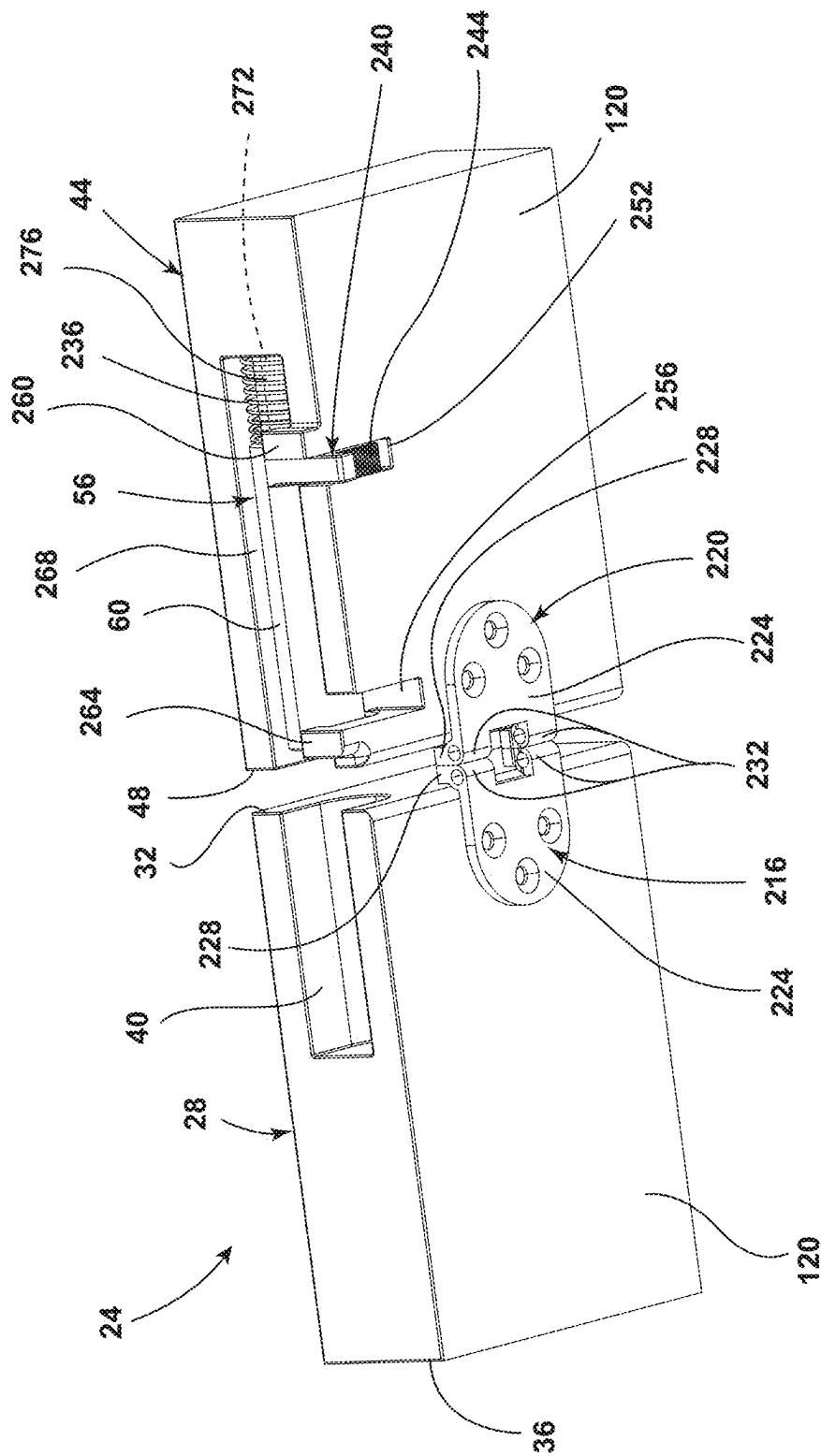
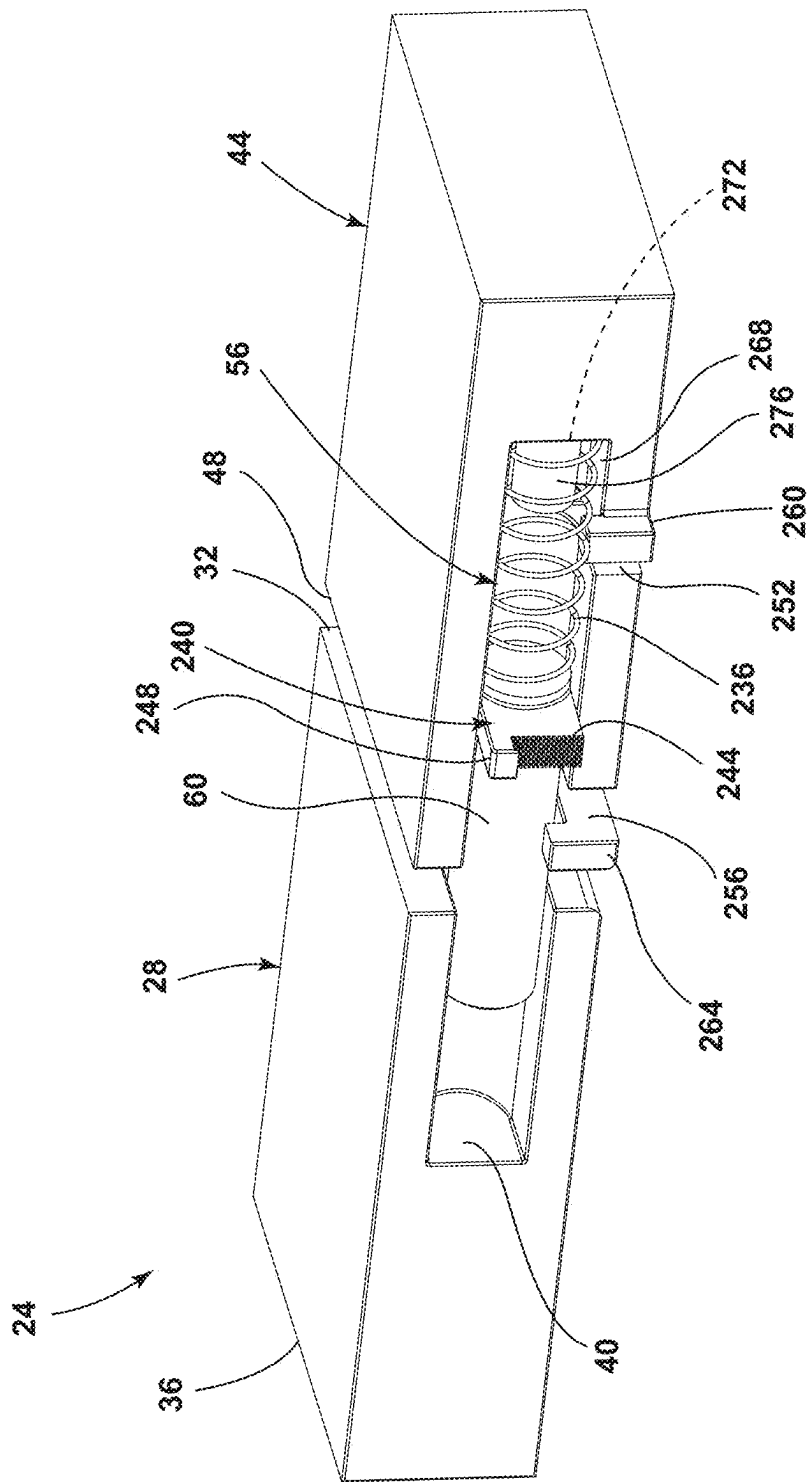


FIG. 7D







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11

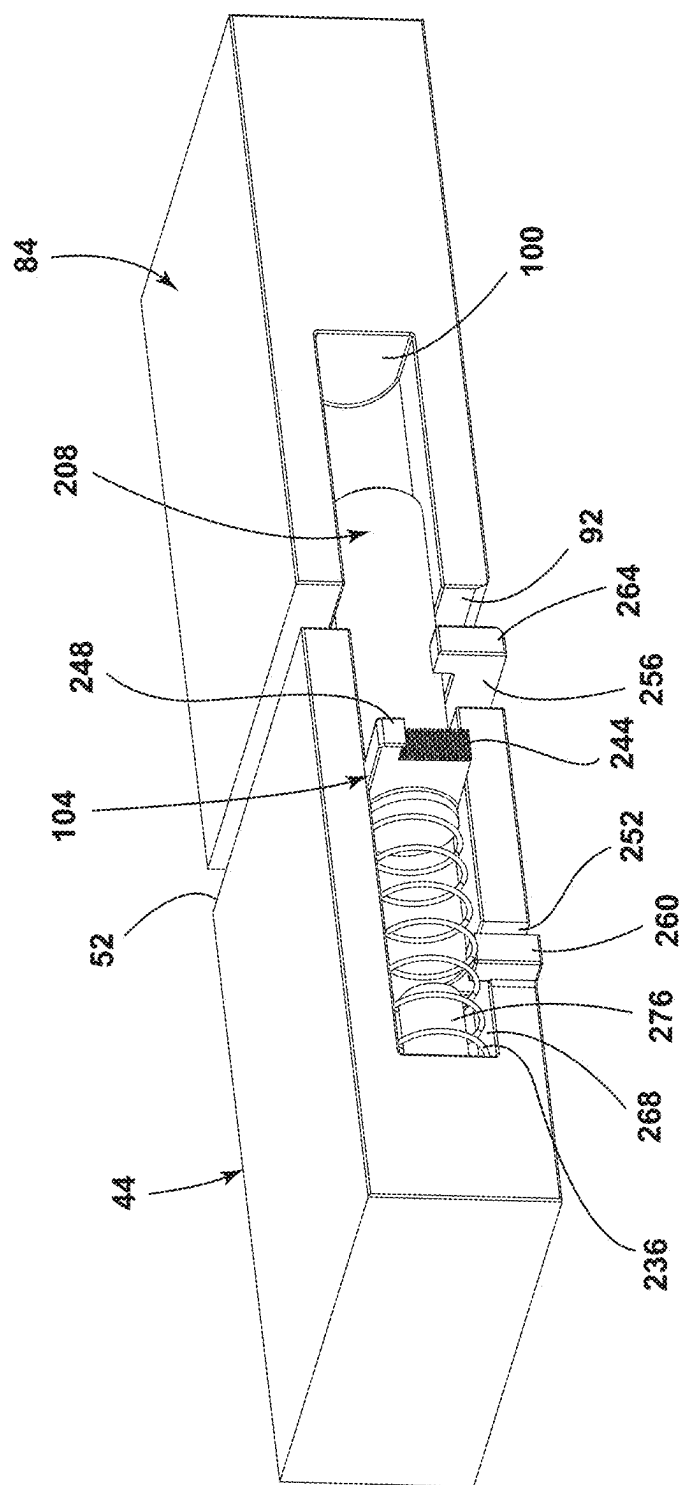


FIG. 10

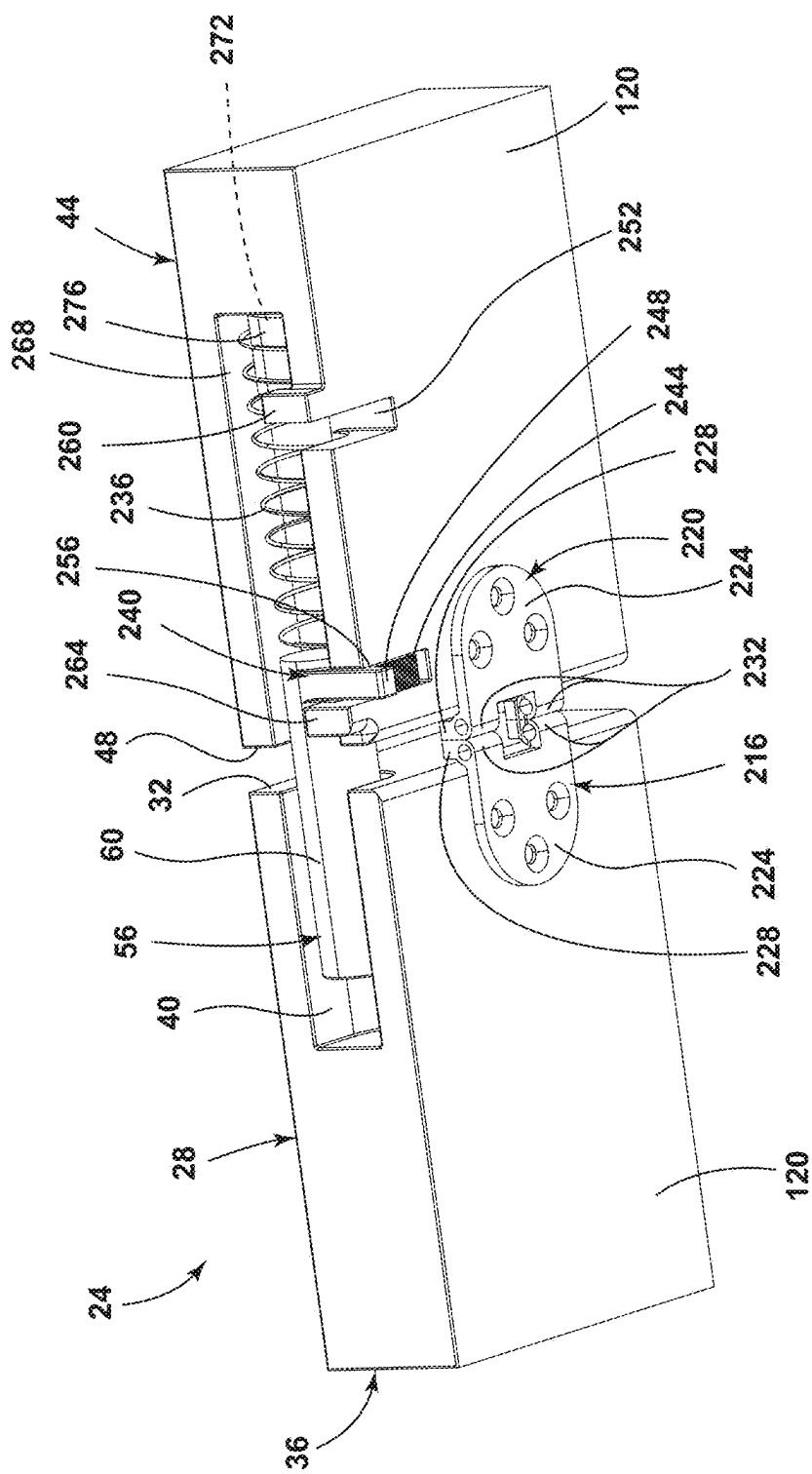


FIG. 11

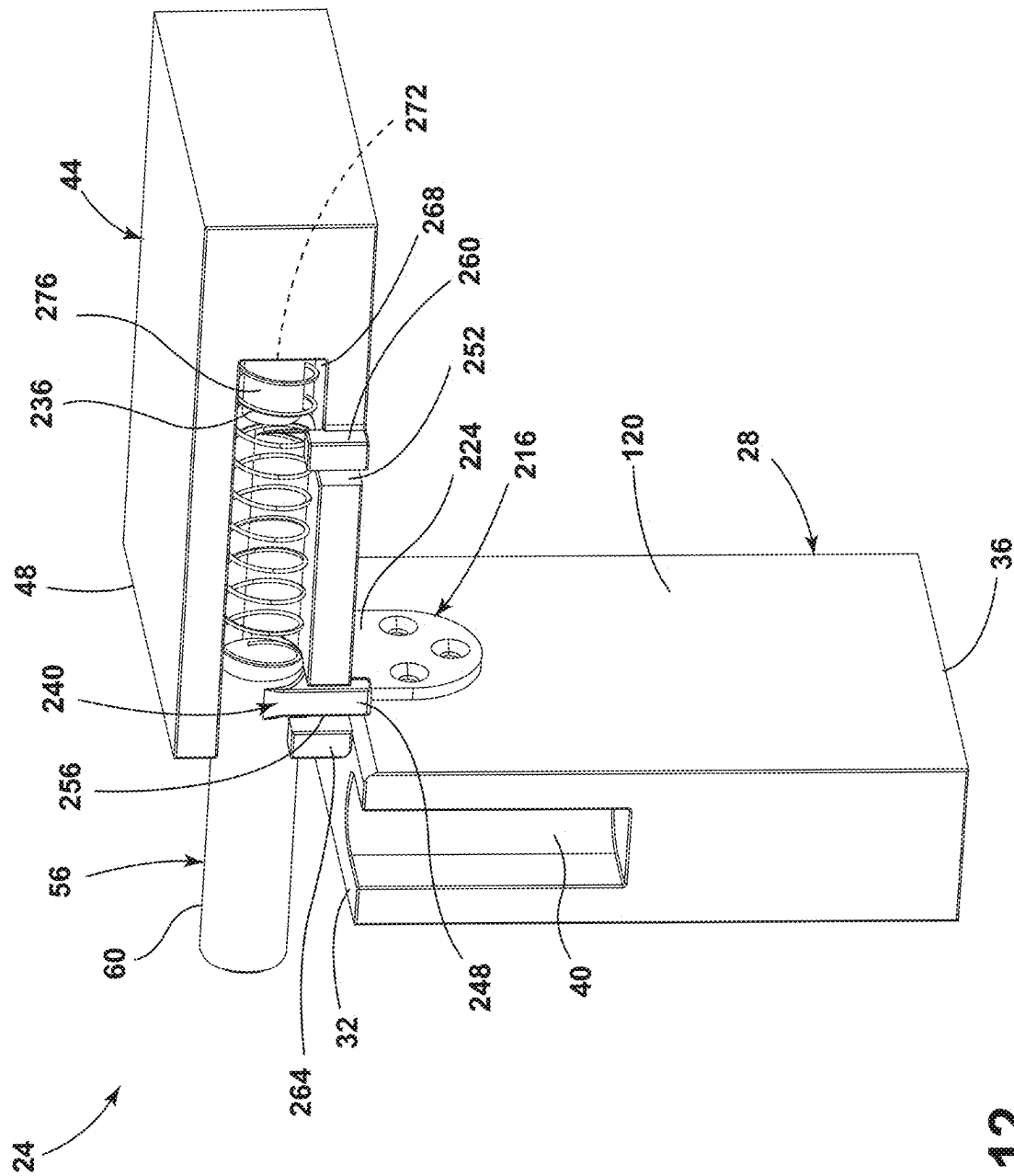


FIG. 12

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WORK SURFACE FOR A VEHICLE

FIELD OF THE DISCLOSURE

The present disclosure generally relates to a work surface. 5
More specifically, the present disclosure relates to a work surface for a vehicle.

BACKGROUND OF THE DISCLOSURE

Consumers often compare available features and func- 10
tionality between vehicles when making a purchasing decision. Accordingly, additional solutions are needed that provide features and functionality that are desirable to consumers.

SUMMARY OF THE DISCLOSURE

According to a first aspect of the present disclosure, a work surface for a vehicle includes a first section, a central section, and a first lock assembly. The first section includes 20
a proximal edge and a distal edge. The first section defines a channel therein. The central section includes a first end and a second end. The first end of the central section is positioned adjacent to the proximal edge of the first section. The proximal edge of the first section is pivotably coupled to the 25
first end of the central section. The first section is movable between a stowed position and a fully-deployed position relative to the central section. The first lock assembly is coupled to the central section. The first lock assembly includes a post that is operable between a retracted position 30
and an extended position. The fully-deployed position of the first section arranges the channel defined by the first section to receive the post of the first lock assembly.

Embodiments of the first aspect of the disclosure can include any one or a combination of the following features: 35

a fully-deployed-and-locked position of the first section is defined as the post of the first lock assembly extending into the channel defined by the first section when the first section is in the fully-deployed position;

a second section having a proximal edge and a distal edge, 40
wherein the proximal edge of the second section is positioned adjacent to the second end of the central section;

the central section is positioned between the first section and the second section;

the second section is pivotably coupled to the second end 45
of the central section;

the second section is movable between a stowed position and a fully-deployed position relative to the central section;

the second section defines a channel therein;

a second lock assembly is coupled to the central section, wherein the second lock assembly includes a post that is operable between a retracted position and an extended position, and wherein the fully-deployed 55
position of the second section arranges the channel defined by the second section to receive the post of the second lock assembly;

a fully-deployed-and-locked position of the second section is defined as the post of the second lock assembly 60
extending into the channel defined by the second section when the second section is in the fully-deployed position;

the first section and the second section are capable of use as support legs for the central section when the first 65
section and the second section are each in a partially-deployed position;

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a second lock assembly coupled to the central section, wherein the second lock assembly includes a post that is operable between a retracted position and an extended position, and wherein placing the post of the first lock assembly in the extended position when the first section is in the partially-deployed position and placing the post of the second lock assembly in the extended position when the second section is in the partially-deployed position aids in retaining the first section and the second section in the partially-deployed position;

a recess defined in an underside of the work surface;

a leg that is received by the recess, wherein the leg is configured to provide support to the work surface;

15 the first locking assembly further includes a biasing member positioned between the post and the central section, wherein the biasing member biases the post to the extended position;

the first lock assembly further includes a protrusion that extends from the post; and

a first receptacle defined by the central section, wherein the protrusion is configured to engage with the first receptacle when the post is in the retracted position, and wherein the engagement between the protrusion and the first receptacle retains the post in the retracted position, and a second receptacle defined by the central section, wherein the protrusion is configured to engage with the second receptacle when the post is in the extended position, and wherein the engagement between the protrusion and the second receptacle retains the post in the extended position.

According to a second aspect of the present disclosure, a work surface for a vehicle includes a first section, a second section, a central section, a first lock assembly, and a second lock assembly. The first section includes a proximal edge and a distal edge. The first section defines a channel therein. The second section includes a proximal edge and a distal edge. The second section defines a channel therein. The central section includes a first end and a second end. The central section is positioned between the first section and the second section. The first end of the central section is positioned adjacent to the proximal edge of the first section. The proximal edge of the first section is pivotably coupled to the first end of the central section. The first section is movable between a stowed position and a fully-deployed position relative to the central section. The proximal edge of the second section is positioned adjacent to the second end of the central section. The second section is movable between a stowed position and a fully-deployed position relative to the central section. The first lock assembly is coupled to the central section. The first lock assembly includes a post that is operable between a retracted position and an extended position. The fully-deployed position of the first section arranges the channel defined by the first section to receive the post of the first lock assembly. The second lock assembly is coupled to the central section. The second lock assembly includes a post that is operable between a retracted position and an extended position. The fully-deployed position of the second section arranges the channel defined by the second section to receive the post of the second lock assembly.

Embodiments of the second aspect of the present disclosure can include any one or a combination of the following features:

a fully-deployed-and-locked position of the first section is defined as the post of the first lock assembly extending into the channel defined by the first section when the

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first section is in the fully-deployed position, and wherein a fully-deployed-and-locked position of the second section is defined as the post of the second lock assembly extending into the channel defined by the second section when the second section is in the fully-deployed position;

a recess defined in an underside of the work surface, wherein a leg is received by the recess, and wherein the leg is configured to provide support to the work surface; and

the first and second locking assemblies each further include, a biasing member positioned between the post and the central section, a protrusion that extends from the post, a first receptacle defined by the central section, and a second receptacle defined by the central section, wherein the biasing member biases the post to the extended position, wherein the protrusion is configured to engage with the first receptacle when the post is in the retracted position, wherein the engagement between the protrusion and the first receptacle retains the post in the retracted position, wherein the protrusion is configured to engage with the second receptacle when the post is in the extended position, and wherein the engagement between the protrusion and the second receptacle retains the post in the extended position.

These and other aspects, objects, and features of the present disclosure will be understood and appreciated by those skilled in the art upon studying the following specification, claims, and appended drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

In the drawings:

FIG. 1 is a front perspective view of a vehicle, illustrating an access panel in an open position to reveal a cargo area, according to one example;

FIG. 2 is a front perspective of the cargo area, illustrating a work surface stored therein, according to one example;

FIG. 3 is a rear perspective view of the cargo area, illustrating the work surface stored therein, according to another example;

FIG. 4 is bottom view of the work surface, illustrating first and second sections in fully-deployed positions relative to a central section, according to one example;

FIG. 5 is a front view of a leg that can be coupled to the work surface, illustrating various components thereof, according to one example;

FIG. 6 is a front view of the leg, illustrating a retention assembly thereof, according to one example;

FIG. 7A is a side perspective view of the work surface, illustrating the first section in a partially-deployed position and the second section in a fully-deployed position, according to one example;

FIG. 7B is a side perspective view of the work surface, illustrating the first section in a stowed position and the second section in the fully-deployed position, according to one example;

FIG. 7C is a side perspective view of the work surface, illustrating the first section in a fully-deployed position and the second section in a partially-deployed position, according to one example;

FIG. 7D is a side perspective view of the work surface, illustrating the first section in the fully-deployed position and the second section in a stowed position, according to one example;

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FIG. 8 is a bottom perspective view of an underside of the work surface at a junction between the first section and the central section, illustrating a post in a retracted position, according to one example;

FIG. 9 is a side perspective view of the junction between the first section and the central section, illustrating the post in a partially-extended position, according to one example;

FIG. 10 is a side perspective view of a junction between the second section and the central section, illustrating a post in a partially-extended position, according to one example;

FIG. 11 is a bottom perspective view of the junction between the first section and the central section, illustrating the post in an extended position, according to one example; and

FIG. 12 is a side perspective view of the junction between the first section and the central section, illustrating the first section in the partially-deployed position and the post in the extended position, according to one example.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

For purposes of description herein, the terms “upper,” “lower,” “right,” “left,” “rear,” “front,” “vertical,” “horizontal,” and derivatives thereof shall relate to the concepts as oriented in FIG. 1. However, it is to be understood that the concepts may assume various alternative orientations, except where expressly specified to the contrary. It is also to be understood that the specific devices and processes illustrated in the attached drawings, and described in the following specification are simply exemplary embodiments of the inventive concepts defined in the appended claims. Hence, specific dimensions and other physical characteristics relating to the embodiments disclosed herein are not to be considered as limiting, unless the claims expressly state otherwise.

The present illustrated embodiments reside primarily in combinations of method steps and apparatus components related to a work surface. Accordingly, the apparatus components and method steps have been represented, where appropriate, by conventional symbols in the drawings, showing only those specific details that are pertinent to understanding the embodiments of the present disclosure so as not to obscure the disclosure with details that will be readily apparent to those of ordinary skill in the art having the benefit of the description herein. Further, like numerals in the description and drawings represent like elements.

As used herein, the term “and/or,” when used in a list of two or more items, means that any one of the listed items can be employed by itself, or any combination of two or more of the listed items, can be employed. For example, if a composition is described as containing components A, B, and/or C, the composition can contain A alone; B alone; C alone; A and B in combination; A and C in combination; B and C in combination; or A, B, and C in combination.

In this document, relational terms, such as first and second, top and bottom, and the like, are used solely to distinguish one entity or action from another entity or action, without necessarily requiring or implying any actual such relationship or order between such entities or actions. The terms “comprises,” “comprising,” or any other variation thereof, are intended to cover a non-exclusive inclusion, such that a process, method, article, or apparatus that comprises a list of elements does not include only those elements but may include other elements not expressly listed or inherent to such process, method, article, or apparatus. An element preceded by “comprises . . . a” does not, without

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more constraints, preclude the existence of additional identical elements in the process, method, article, or apparatus that comprises the element.

As used herein, the term “about” means that amounts, sizes, formulations, parameters, and other quantities and characteristics are not and need not be exact, but may be approximate and/or larger or smaller, as desired, reflecting tolerances, conversion factors, rounding off, measurement error and the like, and other factors known to those of skill in the art. When the term “about” is used in describing a value or an end-point of a range, the disclosure should be understood to include the specific value or end-point referred to. Whether or not a numerical value or end-point of a range in the specification recites “about,” the numerical value or end-point of a range is intended to include two embodiments: one modified by “about,” and one not modified by “about.” It will be further understood that the end-points of each of the ranges are significant both in relation to the other end-point, and independently of the other end-point.

The terms “substantial,” “substantially,” and variations thereof as used herein are intended to note that a described feature is equal or approximately equal to a value or description. For example, a “substantially planar” surface is intended to denote a surface that is planar or approximately planar. Moreover, “substantially” is intended to denote that two values are equal or approximately equal. In some embodiments, “substantially” may denote values within about 10% of each other, such as within about 5% of each other, or within about 2% of each other.

As used herein the terms “the,” “a,” or “an,” mean “at least one,” and should not be limited to “only one” unless explicitly indicated to the contrary. Thus, for example, reference to “a component” includes embodiments having two or more such components unless the context clearly indicates otherwise.

Referring to FIGS. 1-12, reference numeral 20 generally designates a vehicle. The vehicle 20 is provided with a work surface 24. The work surface 24 includes a first section 28 having a proximal edge 32 and a distal edge 36. The first section 28 defines a channel 40 therein. A central section 44 of the work surface 24 includes a first end 48 and a second end 52. The first end 48 of the central section 44 is positioned adjacent to the proximal edge 32 of the first section 28. The proximal edge 32 of the first section 28 is pivotably coupled to the first end 48 of the central section 44. The first section 28 is movable between a stowed position (e.g., see FIG. 7B) and a fully-deployed position (e.g., see FIG. 7C) relative to the central section 44. A first lock assembly 56 is coupled to the central section 44. The first lock assembly 56 includes a post 60 that is operable between a retracted position (e.g., see FIG. 8) and an extended position (e.g., see FIG. 10). The fully-deployed position of the first section 28 can arrange the channel 40 defined by the first section 28 to receive the post 60 of the first lock assembly 56.

Referring again to FIGS. 1-12, the vehicle 20 may be a motor vehicle. For example, the vehicle 20 may be a land-based vehicle (e.g., an automobile, a motorcycle, a train, etc.), an air-based vehicle (e.g., an airplane, a helicopter, etc.), and/or a water-based vehicle (e.g., a boat or other watercraft). While the vehicle 20 may be a motor vehicle, the present disclosure is not limited to internal combustion engines as a source of locomotive power for the vehicle 20. Rather, alternative sources may be utilized in providing locomotive power to the vehicle 20. For example, locomotive power may be provided to the vehicle 20 by electric

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motors, fuel cells, and/or petroleum-based fuel engines. According to various examples, the vehicle 20 may be driver-controlled, semi-autonomous, fully-autonomous, or any combination of user-controlled and automated. For example, the semi-autonomous example of the vehicle 20 may perform many, or all, commuting independent of user interaction while the user maintains override control of the vehicle 20.

Referring now to FIGS. 1-3, the vehicle 20 includes a body 64 that defines a cargo area 68. The cargo area 68 may be selectively accessed by moving an access panel 72 from a closed position to an open position (see FIG. 1). In the example depicted in FIG. 1, the cargo area 68 may be referred to as a front trunk and the access panel 72 may be a hood of the vehicle 20. However, the present disclosure is not so limited. Rather, the cargo area 68 may be positioned at any suitable location on the vehicle 20. In various examples, the work surface 24 may be sized and/or configured to extend from a first side 76 of the cargo area 68 to a second side 80 of the cargo area 68. For example, the first section 28 may engage with the first side 76 of the cargo area 68 and a second section 84 of the work surface 24 may engage with the second side 80 of the cargo area 68 such that the work surface 24 is capable of being suspended above the cargo area 68. In such an example, at least a portion of the cargo area 68 may remain accessible to a user while the work surface 24 is suspended above the cargo area 68. For example, a front 88 of the cargo area 68 may remain accessible to the user while the work surface 24 is suspended above the cargo area 68. The second section 84 of the work surface 24 can be arranged and/or configured in a similar manner to the first section 28. For example, the second section 84 may be a mirror image of the first section 28.

Referring to FIGS. 2-4, the second section 84 of the work surface 24, when provided, includes a proximal edge 92 and a distal edge 96. In such examples, the proximal edge 92 of the second section 84 is positioned adjacent to the second end 52 of the central section 44. In various examples, the second section 84 can be pivotably coupled to the second end 52 of the central section 44. The central section 44 can be positioned between the first section 28 and the second section 84. As with the first section 28, the second section 84 is movable between a stowed position (e.g., see FIG. 7D) and a fully-deployed position (e.g., see FIG. 7B) relative to the central section 44. In some examples, the second section 84 may be configured and/or arranged in the same manner as the first section 28. Accordingly, the second section 84 can define a channel 100 and the central section 44 can be provided with a second lock assembly 104 coupled thereto, as will be discussed in further detail herein (see FIG. 10).

Referring again to FIGS. 2-4, the work surface 24 can be folded up and stowed within the cargo area 68 of the vehicle 20. Such stowage of the work surface 24 can be provided at a front wall 108 or a rear wall 112 of the cargo area 68. In some examples, a mounting structure may be provided on one of the walls of the cargo area 68 (e.g., the front wall 108, the rear wall 112, or a sidewall). The mounting structure may retain the work surface 24 in the stowed position while the vehicle 20 is in motion and/or may retain the work surface 24 in the stowed position to increase a cargo volume of the cargo area 68 when compared to the work surface 24 being loose in the cargo area 68. The moveable coupling between the first section 28 and the central section 44 can be accomplished by one or more hinges 116 positioned at a junction between the proximal edge 32 of the first section 28 and the first end 48 of the central section 44. Similarly, when employed, the moveable coupling between the second section

84 and the central section **44** can be accomplished by one or more of the hinges **116** being positioned at a junction between the proximal edge **92** of the second section **84** and the second end **52** of the central section **44**. The hinge(s) **116** may be a living hinge that is defined by a decreased thickness of material of the work surface **24** or may be a multi-part hinge (e.g., including a first member and a second member rotatably coupled to one another by one or more pins). The hinge(s) **116** can be coupled to an underside **120** of the work surface **24**.

Referring to FIGS. 4-7D, the underside **120** of the work surface **24** can define a series of ridges **124** and a series of valleys **128**. In such an example, each adjacent ridge **124** is separated by one of the valleys **128**. In various examples, the series of ridges **124** and the series of valleys **128** may also be defined by a top side **132** of the work surface **24** (see FIGS. 2 and 3). In some examples, the series of ridges **124** defined by the underside **120** of the work surface **24** and the top side **132** of the work surface **24** may correspond with one another such that an alternating pattern of the ridges **124** and the valleys **128** is aligned between the underside **120** and the top side **132**. It is contemplated that the ridges **124** and the valleys **128**, when provided on the underside **120** and the top side **132**, may be arranged in a pattern that results in the ridges **124** of the underside **120** corresponding with the valleys **128** of the top side **132** and vice versa. Such an arrangement may be referred to as a corrugated arrangement. In some examples, the top side **132** of the work surface **24** may be provided with one or more planar areas **136**, as will be discussed further herein.

With specific references to FIGS. 4-6, one or more recesses **140** can be defined in the underside **120** of the work surface **24**. In the depicted example of FIG. 4, the recesses **140** are defined in the underside **120** at the first and second sections **28**, **84**. However, it is contemplated that the one or more of the recesses **140** may additionally, or alternatively, be defined in the underside **120** at the central section **44**. Each of the recesses **140** is configured to receive a leg **144**. Each leg **144** is configured to provide support to the work surface **24**. For example, each of the recesses **140** may receive one of the legs **144** when the work surface **24** is in the fully-deployed position to enable use of the work surface **24** in environments outside of, or immediately adjacent to, the vehicle **20**. For example, the work surface **24** may be placed in the fully-deployed position and the legs **144** may be inserted into the recesses **140** such that the work surface **24** can be employed as a table in camping environments, at sporting events, at job sites, and so on. The cargo area **68** may be provided with a designated area for storing the leg(s) **144**. In some examples, the leg(s) **144** may be received and/or retained in the underside **120** of the central section **44**. In one specific, non-limiting, example, at least some of the valleys **128** may be configured to receive the leg(s) **144**.

Referring again to FIGS. 4-6, each of the legs **144** may be received within one of the recesses **140** in a snap fit manner or interference fit manner such that the leg **144** is retained within the recess **140** by a slight deformation of the recess **140** and/or by a weight of the work surface **24**. In some examples, the leg **144** may be provided with a threaded portion **148**. The threaded portion **148** may have an outer diameter that is less than an outer diameter of a portion of the leg **144** from which the threaded portion **148** extends. The outer diameter of the threaded portion **148** defines threads **152** therein. In examples where the outer diameter of the threaded portion **148** is less than the outer diameter of the portion of the leg **144** from which the threaded portion **148** extends, an insert **156** may be received within the recess **140**.

In such an example, the insert **156** may define ribs **160** in an exterior surface thereof that aid in retention of the insert **156** within the recess **140**. When the insert **156** is employed, the insert **156** defines a chamber **164** that is provided with threads **168** that are complementary to the threads **152** on the threaded portion **148**. In various examples, the insert **156** may be omitted and the recesses **140** can be provided with the threads **168** that are complementary to the threads **152** of the threaded portion **148**. In such an example, the recess **140** can be sized to receive the threaded portion **148**. In some examples, the threaded portion **148** may be provided directly in the exterior surface of the leg **144** such that the threaded portion **148** does not have an outer diameter that is less than the outer diameter of the portion of the leg **144** from which the threaded portion **148** extends.

Referring further to FIGS. 4-6, the leg **144** may be provided with a plurality of segments **172**. Each of the plurality of segments **172** may be telescopically engaged, or extendably engaged, with immediately adjacent others of the plurality of segments **172** such that an overall length of the legs **144** may be adjustable. Adjacent ones of the plurality of segments **172** can be coupled by a retention assembly **176**. The retention assembly **176** includes a body **180** and an arm **184**. The arm **184** is movable relative to the body **180** between an open position (see FIG. 6) and a closed position (see FIG. 5), as indicated by arrow **188**. When the arm **184** is in the open position, a relative position of adjacent segments **172** of the leg **144** is capable of adjustment, as indicated by arrow **192**. For example, a lower segment **196** may be adjustable relative to an upper segment **200** when the arm **184** is in the open position (see FIG. 6). In various examples, the leg **144** may be provided with a foot **204** that is positioned at an end of the leg **144** that is opposite from the portion of the leg **144** that engages with the recess **140** (e.g., the threaded portion **148**).

Referring now to FIGS. 7A-7D, the work surface **24** is shown in various arrangements with regard to the positioning of the first section **28** and the second section **84**. FIGS. 7A and 7D show the first section **28** and the second section **84** in a partially-deployed position relative to the central section **44**, respectively. FIG. 7B shows the first section **28** in the stowed position and the second section **84** in the fully-deployed position. FIG. 7D shows the first section **28** in the fully-deployed position and the second section **84** in the stowed position. The stowed position of the given section of the work surface **24** (e.g., the first section **28** and/or the second section **84**) can arrange the given section in a generally parallel relationship with the central section **44**. The generally parallel relationship between the given section and the central section **44** can arrange the underside **120** of the given section being in an abutting, or nearly-abutting, relationship with the underside **120** of the central section **44**.

Referring again to FIGS. 7A-7D, in some examples, the first section **28** and the second section **84** may be capable of use as support legs for the central section **44** when the first section **28** and the second section **84** are each in the partially-deployed position. In such an arrangement, the distal edge **36** of the first section **28** and the distal edge **96** of the second section **84** can contact a surface below the work surface **24** such that the work surface **24** is suspended above the surface (e.g., the ground, the access panel **72** of the vehicle **20**, a floor, etc.). Similarly, the work surface **24** may be used as a desk by a user placing the first section **28** on a first side of their legs and the second section **84** on a second side of their legs while the first and second sections **28**, **84** are each in the partially-deployed position and the

user is in a seated position. In such an arrangement, the post 60 of the first lock assembly 56 and/or a post 208 of the second lock assembly 104 may be placed in an extended-and-locked position (see FIG. 12). In some examples, the top side 132 of the work surface 24 may define one or more depressions 212. The one or more depressions 212 may aid in retaining items that are placed on the top side 132 while the work surface 24 is in use (e.g., writing utensils, electronic devices, beverage containers, and so on). In various examples, one or more of the one or more depression 212 may extend between the first section 28, the central section 44, and/or the second section 84 such that the given depression 212 includes a portion that is on the central section 44 and a portion that is on the given section (e.g., the first section 28 and/or the second section 84).

Referring to FIGS. 8-12, in various examples the hinge(s) 116 include a first portion 216 and a second portion 220. In the depicted examples, the first and second portions 216, 220 of the hinge(s) 116 each include a first leg 224 and a second leg 228. The first leg 224 of the hinge(s) 116 engages with the underside 120 of the work surface 24 (e.g., at the first section 28, the central section 44, or the second section 84). The second leg 228 of the hinge(s) 116 extend at an angle from the first leg 224 (e.g., a ninety degree angle) and engage with, for example, the proximal edge 32 of the first section 28, the first end 48 of the central section 44, the second end 52 of the central section 44, or the proximal edge 92 of the second section 84. When the first section 28 or the second section 84 are in the fully-deployed position, their corresponding second legs 228 of their hinges 116 may directly abut the immediately adjacent second leg 228 of the hinge 116 of the central section 44. The first and second portions 216, 220 of the hinge(s) 116 can be provided with radiused corners 232 that can enable smooth movement through the full range of motion of the first section 28 and/or the second section 84.

Referring again to FIGS. 8-12, the first lock assembly 56 includes a biasing member 236. The biasing member 236 biases the post 60 to the extended position. In various examples, the biasing member 236 can be a spring (e.g., a coil spring). A protrusion 240 extends from the post 60 of the first lock assembly 56. The protrusion 240 can be integrally formed or unitarily formed with the post 60. A user interacts with the protrusion 240 to transition the post 60 between the extended position and the retracted position. The protrusion 240 can be provided with a surface that is modified to increase a coefficient of friction between the surface of the protrusion 240 and the user (e.g., a finger of the user). For example, the surface modification to the protrusion 240 may be knurling or projections 244. The protrusion 240 may be provided with a flange 248 that may aid a user in transitioning the post 60 between the extended position and the retracted position. The flange 248 may aid in rotating the post 60 into and/or out of one or more receptacles.

Referring further to FIGS. 8-12, the central section 44 can define a first receptacle 252 and a second receptacle 256. The first receptacle 252 corresponds with the retracted position of the post 60 and the second receptacle 256 corresponds with the extended position of the post 60. The protrusion 240 is configured to be received within, or engage with, the first receptacle 252 when the post 60 is in the retracted position. The engagement between the protrusion 240 and the first receptacle 252 retains the post 60 in the retracted position. Physical interference between the protrusion 240 and the first receptacle 252 can resist the biasing force provided by the biasing member 236 when the post 60 is in the retracted position. When the post 60 is in the retracted position and the

protrusion 240 is positioned within the first receptacle 252, the first lock assembly 56 may be referred to as being in a retracted-and-locked position. The protrusion 240 is configured to be received within, or engage with, the second receptacle 256 when the post is in the extended position. When the post 60 is in the extended position, the biasing member 236 may not be fully extended such that the biasing force remains present. Accordingly, as with the first receptacle 252, physical interference between the protrusion 240 and the second receptacle 256 can resist the biasing force provided by the biasing member 236 when the post 60 is in the extended position. It is contemplated that, in some examples, the biasing force provided by the biasing member 236 may reverse when the post 60 is in the extended position. That is, when the biasing member 236 is in the retracted position, the biasing member 236 may provide a biasing force that pushes the post 60 toward the channel 40. However, in some examples, when the biasing member 236 is in the extended position, the biasing member 236 may provide a biasing force that pulls the post 60 away from the channel 40.

Referring still further to FIGS. 8-12, the central section 44 can include a first protuberance 260 that is positioned adjacent to the first receptacle 252 and a second protuberance 264 that is positioned adjacent to the second receptacle 256. The first protuberance 260 can aid in “catching” the protrusion 240 as the post 60 is actuated to the extended position, thereby preventing over-extension of the post 60. Similarly, the second protuberance 264 can aid in “catching” the protrusion 240 as the post is actuated to the retracted position. Accordingly, the first and second protuberances 260, 264 can act as catches that are capable of guiding the protrusion 240 into the first and second receptacles 252, 256, respectively. In various examples, the first protuberance 260 is unitarily formed or integrally formed with a wall that at least partially defines the first receptacle 252. Similarly, in various examples, the second protuberance 264 is unitarily formed or integrally formed with a wall that at least partially defines the second receptacle 256. The post 60 is received within a passage 268 that is defined by the central section 44. The post 60 travels within the passage 268 as the post 60 is moved between the retracted position and the extended position. A back wall 272 of the passage 268 may be provided with a tab 276 extending therefrom. The tab 276 may be configured to be received by the biasing member 236. Accordingly, the tab 276 may provide a degree of retention to the biasing member 236 that can aid in maintaining an alignment of the biasing member 236 within the passage 268. For example, when the biasing member 236 is a coil spring, the tab 276 may be received within an inner diameter of the coil spring. A fully-deployed-and-locked position of the first section 28 may be defined as the post 60 of the first lock assembly 56 extending into the channel 40 that is defined by the first section 28 when the first section 28 is in the fully-deployed position.

Referring yet again to FIGS. 8-12, the second lock assembly 104 is comparable to the first lock assembly 56, with the second lock assembly 104 generally representing a mirror-image of the first lock assembly 56 due to the positioning of the second lock assembly 104 at the second end 52 of the central section 44. Accordingly, the foregoing descriptions equally apply to the second lock assembly 104, the second end 52 of the central section 44, and the second section 84. For the sake of brevity, the foregoing descriptions will not be outlined for the second lock assembly 104 in their entirety, as one of skill in the art will recognize corresponding structures. Rather, the second lock assembly

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104 will be discussed generally. As mentioned above, the second section 84 defines the channel 100 therein. The second lock assembly 104 is coupled to the central section 44 and includes the post 208 that is operable between the retracted position and the extended position. Descriptions of the post 60 above apply in whole, or in part, to the post 208. The fully-deployed position of the second section 84 arranges the channel 100 defined by the second section 84 to receive the post 208 of the second lock assembly 104. As with the first lock assembly 56, a fully-deployed-and-locked position of the second section 84 can be defined as the post 208 of the second lock assembly 104 extending into the channel 100 defined by the second section 84 when the second section 84 is in the fully-deployed position. The biasing member 236 of the second lock assembly 104 can engage with the tab 276 within the passage 268.

Referring to FIG. 12, the first and second lock assemblies 56, 104 are each capable of being placed in the extended position while the first and second sections 28, 84, respectively, are in the partially-deployed position as depicted. Such an arrangement may be referred to as a partially-deployed-and-extended position. In so doing, the post 60 of the first lock assembly 56 can aid in retaining the first section 28 in the partially-deployed position. For example, the post 60 may prevent the first section 28 from being rotated from the partially-deployed position to the fully-deployed position. Similarly, the post 208 of the second lock assembly 104 can aid in retaining the second section 84 in the partially-deployed position. For example, the post 208 may prevent the second section 84 from being rotated from the partially-deployed position to the fully-deployed position. The posts 60, 208 may not prevent the first section 28 and the second section 84, respectively, from rotating from the partially-deployed position to the stowed position. The partially-deployed-and-extended positions for the first and second sections 28, 84 can provide an additional use for the work surface 24 as a tray table, standalone table, mobile desk, and the like without employing the leg(s) 144.

Modifications of the disclosure will occur to those skilled in the art and to those who make or use the concepts disclosed herein. Therefore, it is understood that the embodiments shown in the drawings and described above are merely for illustrative purposes and not intended to limit the scope of the disclosure, which is defined by the following claims as interpreted according to the principles of patent law, including the doctrine of equivalents.

It will be understood by one having ordinary skill in the art that construction of the described concepts, and other components, is not limited to any specific material. Other exemplary embodiments of the concepts disclosed herein may be formed from a wide variety of materials, unless described otherwise herein.

For purposes of this disclosure, the term “coupled” (in all of its forms: couple, coupling, coupled, etc.) generally means the joining of two components (electrical or mechanical) directly or indirectly to one another. Such joining may be stationary in nature or movable in nature. Such joining may be achieved with the two components (electrical or mechanical) and any additional intermediate members being integrally formed as a single unitary body with one another or with the two components. Such joining may be permanent in nature, or may be removable or releasable in nature, unless otherwise stated.

It is also important to note that the construction and arrangement of the elements of the disclosure, as shown in the exemplary embodiments, is illustrative only. Although only a few embodiments of the present innovations have

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been described in detail in this disclosure, those skilled in the art who review this disclosure will readily appreciate that many modifications are possible (e.g., variations in sizes, dimensions, structures, shapes and proportions of the various elements, values of parameters, mounting arrangements, use of materials, colors, orientations, etc.) without materially departing from the novel teachings and advantages of the subject matter recited. For example, elements shown as integrally formed may be constructed of multiple parts, or elements shown as multiple parts may be integrally formed, the operation of the interfaces may be reversed or otherwise varied, the length or width of the structures and/or members or connector or other elements of the system may be varied, and the nature or numeral of adjustment positions provided between the elements may be varied. It should be noted that the elements and/or assemblies of the system may be constructed from any of a wide variety of materials that provide sufficient strength or durability, in any of a wide variety of colors, textures, and combinations. Accordingly, all such modifications are intended to be included within the scope of the present innovations. Other substitutions, modifications, changes, and omissions may be made in the design, operating conditions, and arrangement of the desired and other exemplary embodiments without departing from the spirit of the present innovations.

It will be understood that any described processes, or steps within described processes, may be combined with other disclosed processes or steps to form structures within the scope of the present disclosure. The exemplary structures and processes disclosed herein are for illustrative purposes and are not to be construed as limiting.

It is also to be understood that variations and modifications can be made on the aforementioned structures and methods without departing from the concepts of the present disclosure, and further, it is to be understood that such concepts are intended to be covered by the following claims, unless these claims, by their language, expressly state otherwise.

What is claimed is:

1. A work surface for a vehicle, comprising:

- a first section having a proximal edge and a distal edge, wherein the first section defines a channel therein;
- a central section having a first end and a second end, wherein the first end of the central section is positioned adjacent to the proximal edge of the first section, wherein the proximal edge of the first section is pivotably coupled to the first end of the central section, wherein the first section is movable between a stowed position and a fully-deployed position relative to the central section;
- a first lock assembly coupled to the central section, wherein the first lock assembly comprises a post that is operable between a retracted position and an extended position, wherein the fully-deployed position of the first section arranges the channel defined by the first section to receive the post of the first lock assembly, wherein the first lock assembly further comprises a biasing member positioned between the post and the central section, wherein the biasing member biases the post to the extended position, and wherein the first lock assembly further comprises a protrusion that extends from the post;
- a first receptacle defined by the central section, wherein the protrusion is configured to engage with the first receptacle when the post is in the retracted position, and

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wherein the engagement between the protrusion and the first receptacle retains the post in the retracted position; and

a second receptacle defined by the central section, wherein the protrusion is configured to engage with the second receptacle when the post is in the extended position, and wherein the engagement between the protrusion and the second receptacle retains the post in the extended position.

2. The work surface for a vehicle of claim 1, wherein a fully-deployed-and-locked position of the first section is defined as the post of the first lock assembly extending into the channel defined by the first section when the first section is in the fully-deployed position.

3. The work surface for a vehicle of claim 1, further comprising:

a second section having a proximal edge and a distal edge, wherein the proximal edge of the second section is positioned adjacent to the second end of the central section.

4. The work surface for a vehicle of claim 3, wherein the central section is positioned between the first section and the second section.

5. The work surface for a vehicle of claim 3, wherein the second section is pivotably coupled to the second end of the central section.

6. The work surface for a vehicle of claim 5, wherein the second section is movable between a stowed position and a fully-deployed position relative to the central section.

7. The work surface for a vehicle of claim 6, wherein the second section defines a channel therein.

8. The work surface for a vehicle of claim 7, further comprising:

a second lock assembly coupled to the central section, wherein the second lock assembly comprises a post that is operable between a retracted position and an extended position, wherein the fully-deployed position of the second section arranges the channel defined by the second section to receive the post of the second lock assembly.

9. The work surface for a vehicle of claim 8, wherein a fully-deployed-and-locked position of the second section is defined as the post of the second lock assembly extending into the channel defined by the second section when the second section is in the fully-deployed position.

10. The work surface for a vehicle of claim 3, wherein the first section and the second section are capable of use as support legs for the central section when the first section and the second section are each in a partially-deployed position.

11. The work surface for a vehicle of claim 10, further comprising:

a second lock assembly coupled to the central section, wherein the second lock assembly comprises a post that is operable between a retracted position and an extended position, wherein placing the post of the first lock assembly in the extended position when the first section is in the partially-deployed position and placing the post of the second lock assembly in the extended position when the second section is in the partially-deployed position aids in retaining the first section and the second section in the partially-deployed position.

12. The work surface for a vehicle of claim 1, further comprising:

a recess defined in an underside thereof.

13. The work surface for a vehicle of claim 12, further comprising:

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a leg that is received by the recess, wherein the leg is configured to provide support to the work surface.

14. A work surface for a vehicle, comprising:

a first section having a proximal edge and a distal edge, wherein the first section defines a channel therein;

a second section having a proximal edge and a distal edge, wherein the second section defines a channel therein;

a central section having a first end and a second end, wherein the central section is positioned between the first section and the second section, wherein the first end of the central section is positioned adjacent to the proximal edge of the first section, wherein the proximal edge of the first section is pivotably coupled to the first end of the central section, wherein the first section is movable between a stowed position and a fully-deployed position relative to the central section, wherein the proximal edge of the second section is positioned adjacent to the second end of the central section, wherein the second section is pivotably coupled to the second end of the central section, wherein the second section is movable between a stowed position and a fully-deployed position relative to the central section;

a first lock assembly coupled to the central section, wherein the first lock assembly comprises a post that is operable between a retracted position and an extended position, wherein the fully-deployed position of the first section arranges the channel defined by the first section to receive the post of the first lock assembly; and

a second lock assembly coupled to the central section, wherein the second lock assembly comprises a post that is operable between a retracted position and an extended position, wherein the fully-deployed position of the second section arranges the channel defined by the second section to receive the post of the second lock assembly, wherein the first and second lock assemblies each further comprises:

a biasing member positioned between the post and the central section, wherein the biasing member biases the post to the extended position;

a protrusion that extends from the post;

a first receptacle defined by the central section, wherein the protrusion is configured to engage with the first receptacle when the post is in the retracted position, and wherein the engagement between the protrusion and the first receptacle retains the post in the retracted position; and

a second receptacle defined by the central section, wherein the protrusion is configured to engage with the second receptacle when the post is in the extended position, and wherein the engagement between the protrusion and the second receptacle retains the post in the extended position.

15. The work surface for a vehicle of claim 14, wherein a fully-deployed-and-locked position of the first section is defined as the post of the first lock assembly extending into the channel defined by the first section when the first section is in the fully-deployed position, and wherein a fully-deployed-and-locked position of the second section is defined as the post of the second lock assembly extending into the channel defined by the second section when the second section is in the fully-deployed position.

16. The work surface for a vehicle of claim 14, further comprising:

a recess defined in an underside thereof; and

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a leg that is received by the recess, wherein the leg is
configured to provide support to the work surface.

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