US 20250256042A1

(19) **United States**

(12) **Patent Application Publication** (10) **Pub. No.: US 2025/0256042 A1**

KERNICK et al. (43) **Pub. Date: Aug. 14, 2025**

(54) **ACCESSORY FOR INJECTION DEVICE**

(71) Applicant: **JANSSEN BIOTECH, INC.**, Horsham, PA (US)

(72) Inventors: **EDWARD KERNICK**, Jacksonville, FL (US); **Vincent BARRE**, Jacksonville, FL (US); **Dominic GOURD**, Ponte Vedra, FL (US); **Kathy BROWN**, Vacaville, CA (US)

(21) Appl. No.: **19/099,999**

(22) PCT Filed: **Aug. 17, 2023**

(86) PCT No.: **PCT/IB2023/058257**

§ 371 (c)(1),
(2) Date: **Jan. 30, 2025**

Publication Classification

(51) **Int. Cl.**
A61M 5/42 (2006.01)

(52) **U.S. Cl.**
CPC *A61M 5/427* (2013.01)

(57) **ABSTRACT**

In one example, an accessory for a drug injection device has a proximal end, a distal end, a receptacle, and a base. The receptacle defines a cavity that extends into the proximal end towards the distal end and terminates at an inner surface. The cavity receives an injection end of the drug injection device therein so as to position a needle of the drug injection device for delivery of a medication. The receptacle defines an opening that extends into the distal end and through the inner surface. The opening receives the needle of the drug injection device therethrough and has a cross-sectional dimension that is smaller than a cross-sectional dimension of the cavity. The base is disposed at the distal end of the injection device and has a skin-contacting surface with a cross-sectional dimension that is greater than the cross-sectional dimension of the cavity.

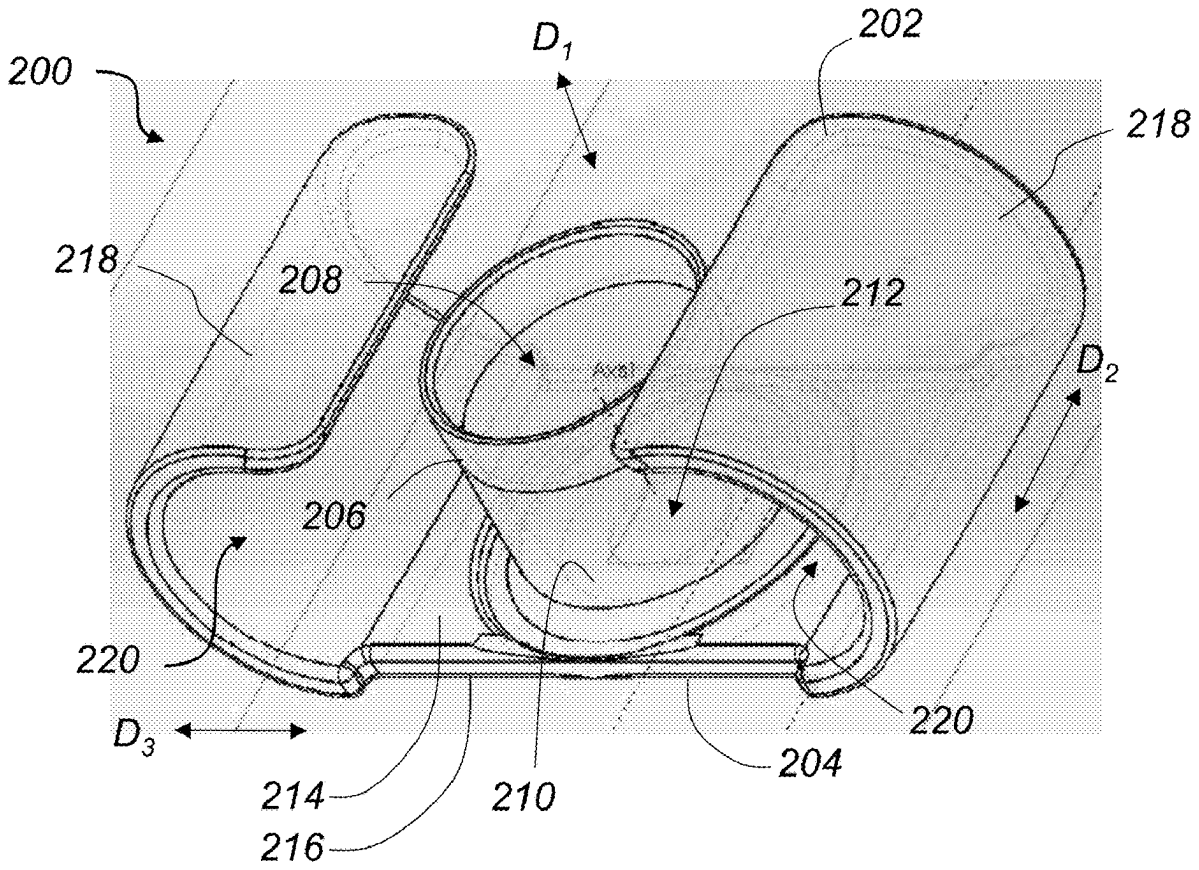


FIG. 1

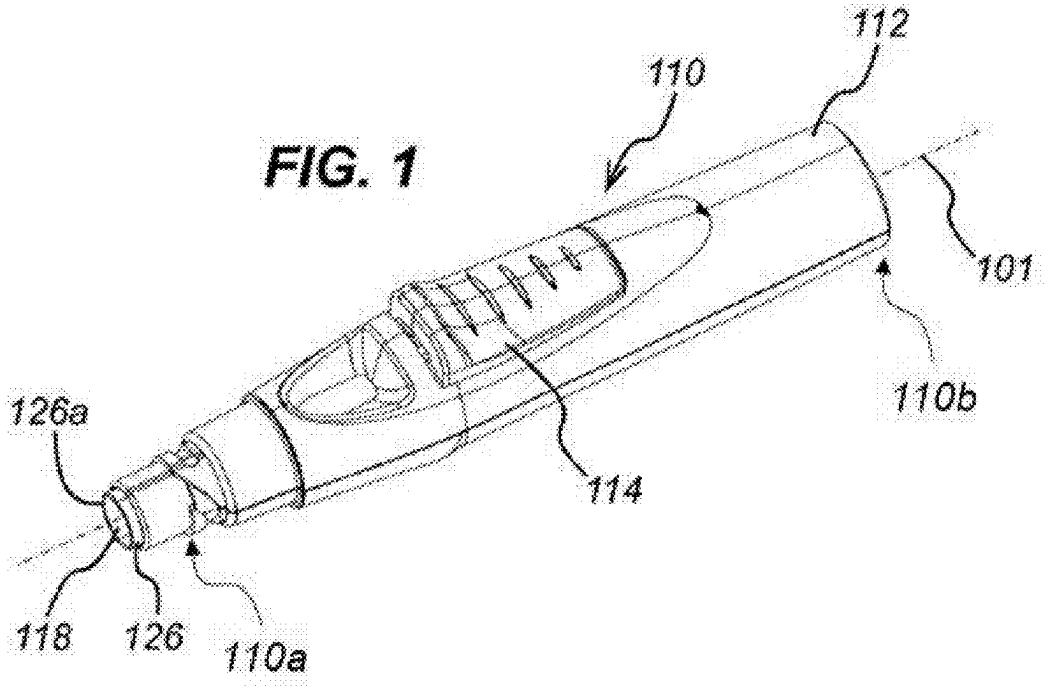


FIG. 2

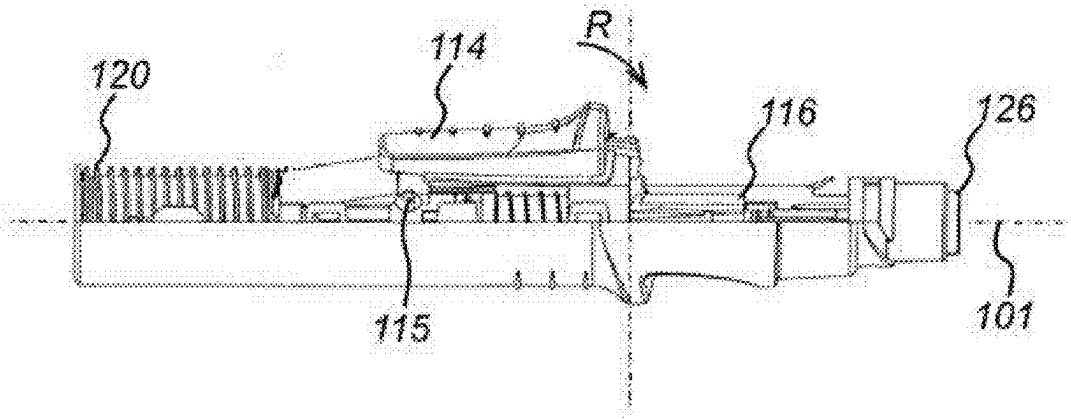
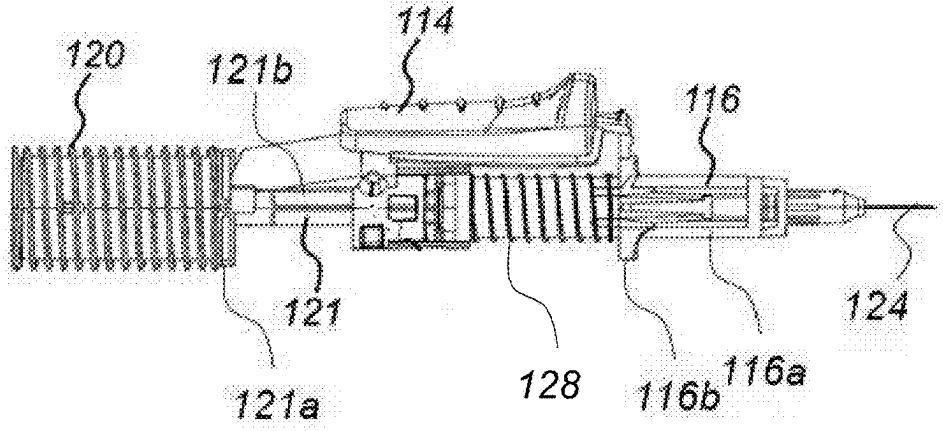


FIG. 3



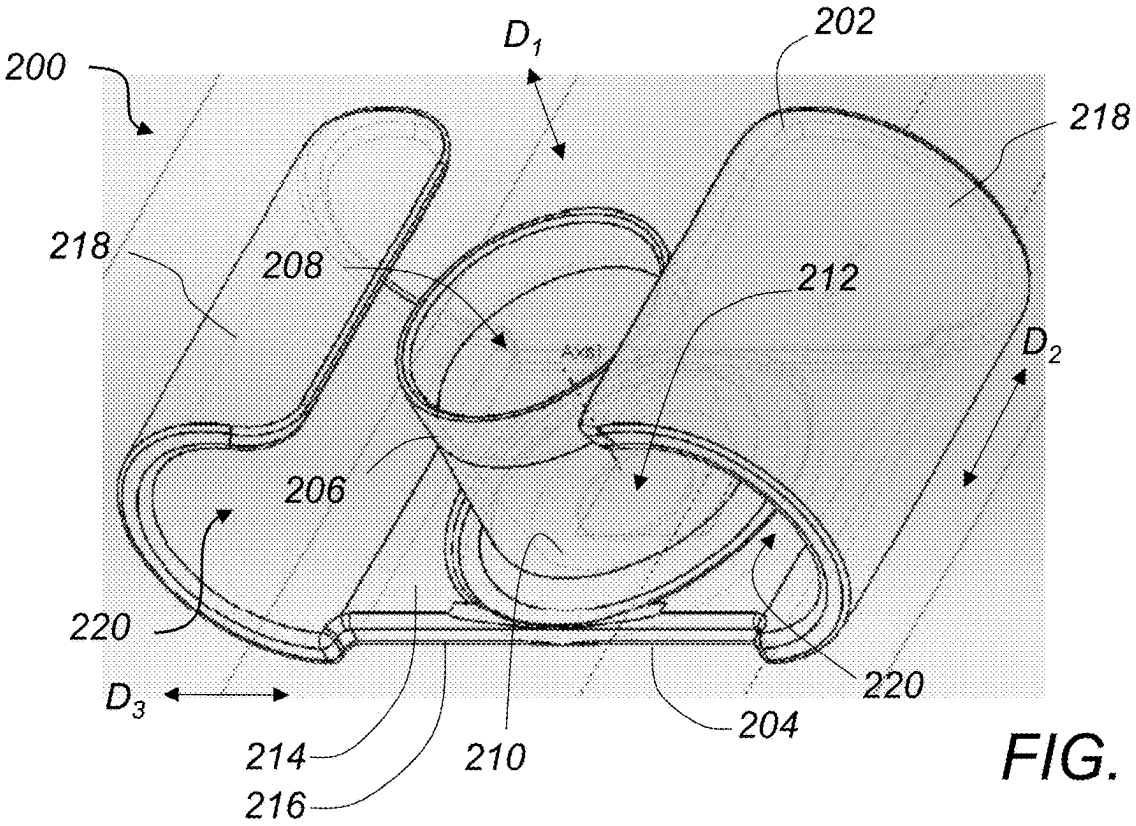


FIG. 4

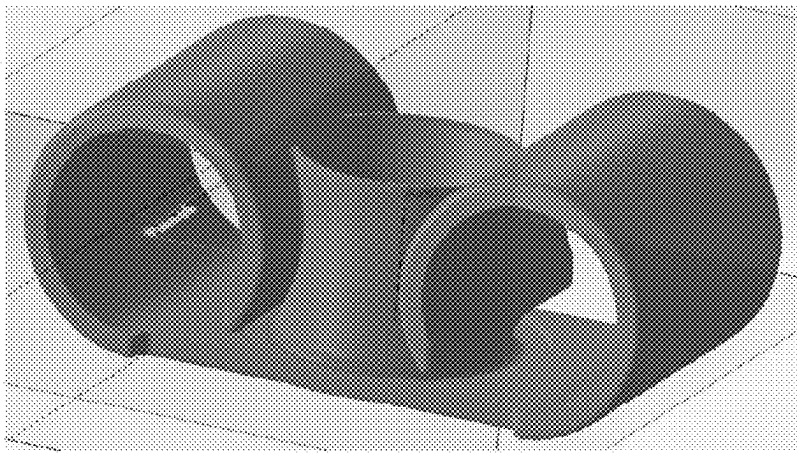


FIG. 5

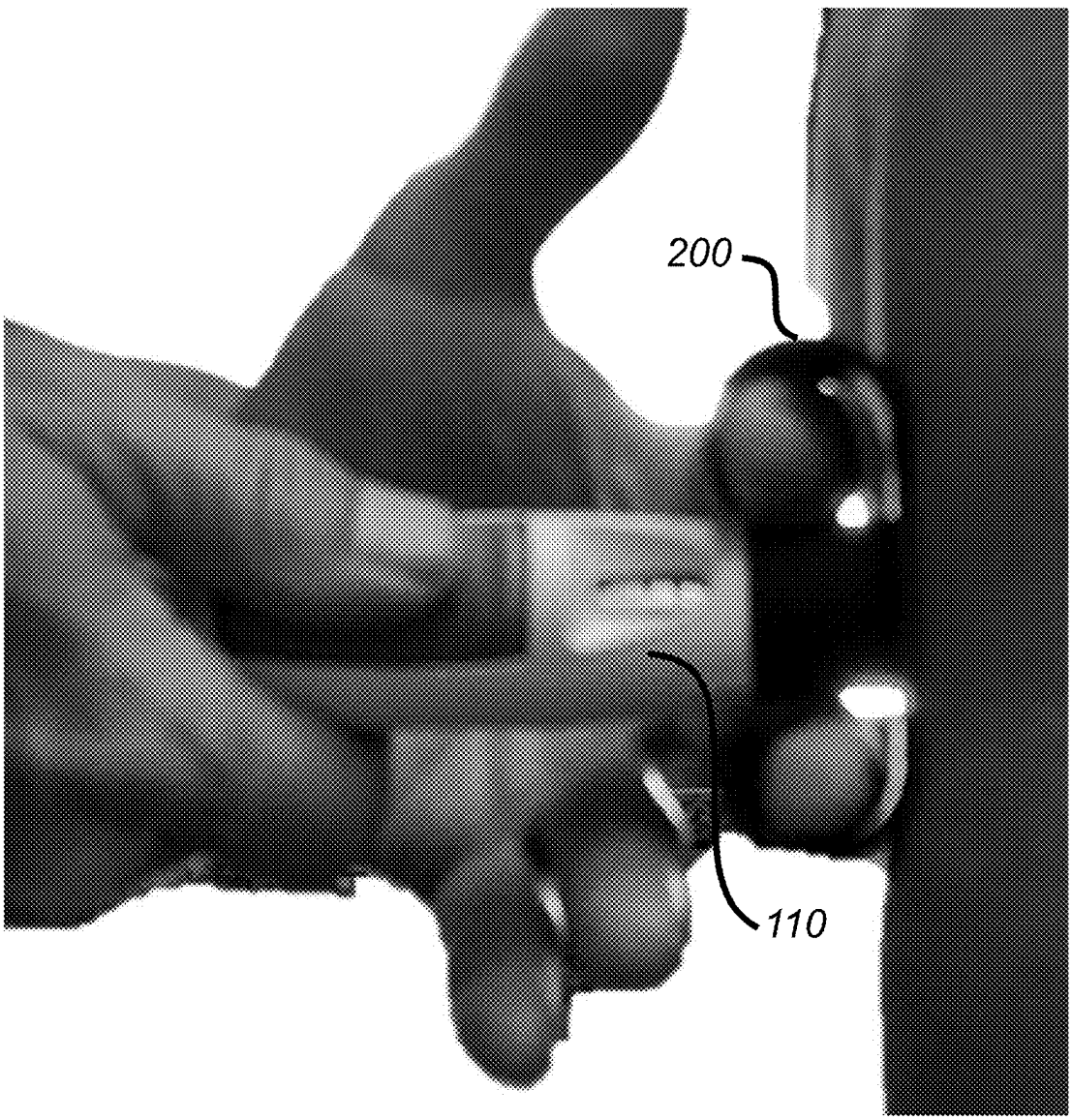


FIG. 6

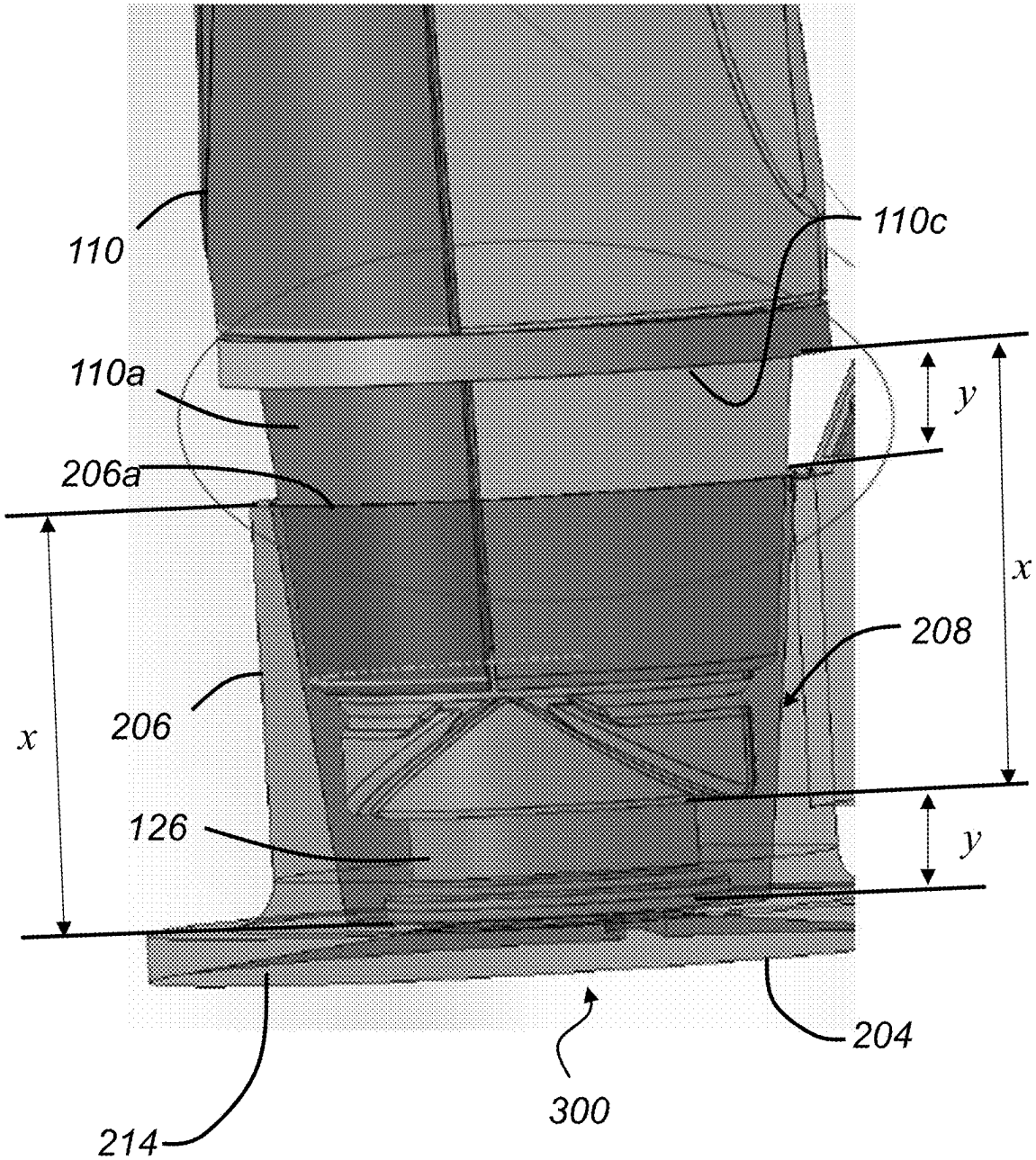


FIG. 7

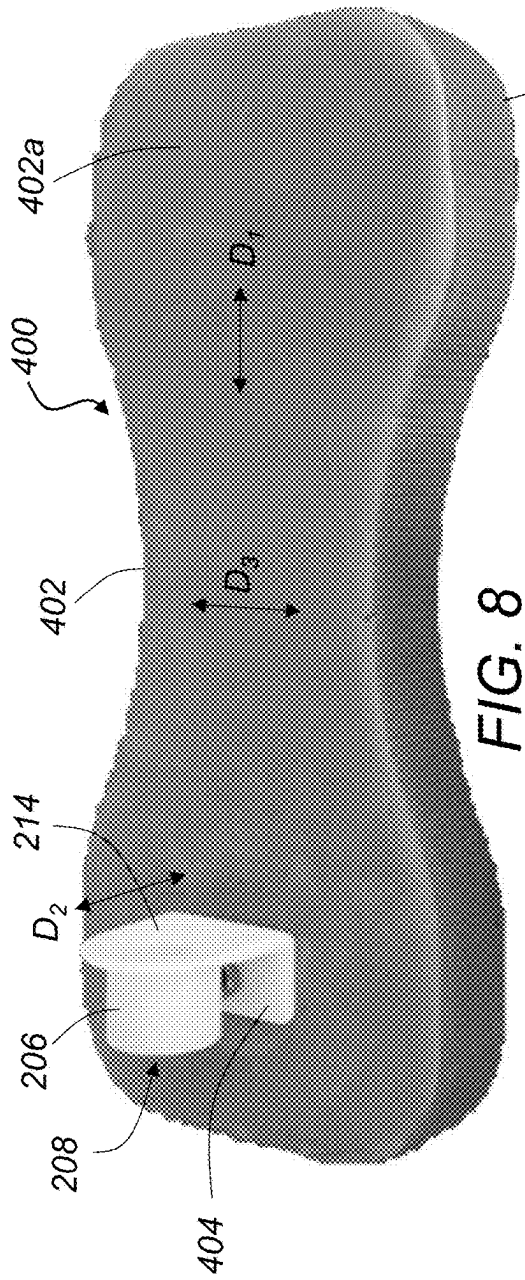


FIG. 8

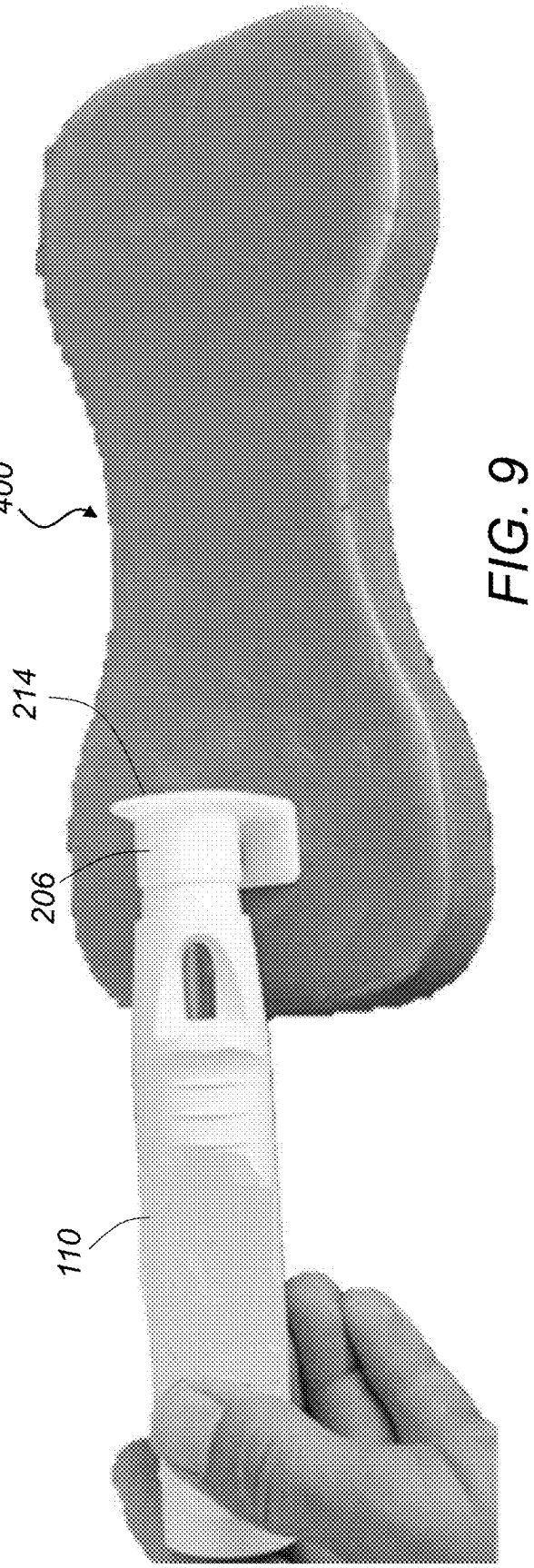


FIG. 9

FIG. 10

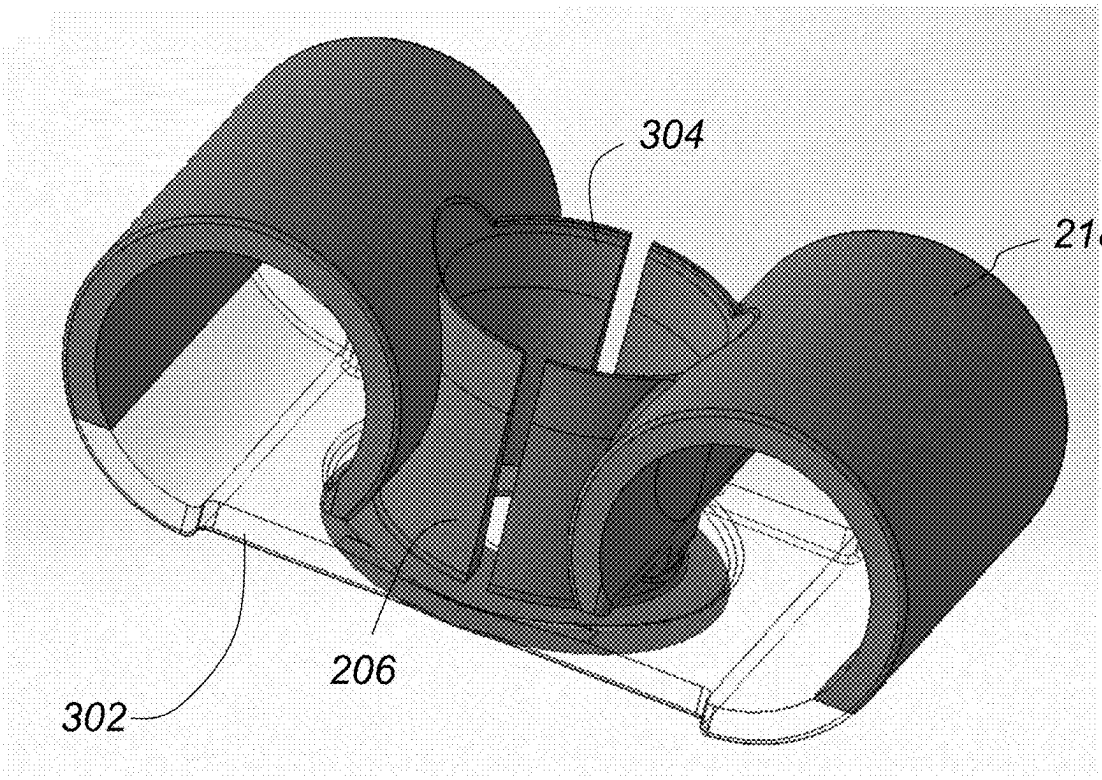


FIG. 11

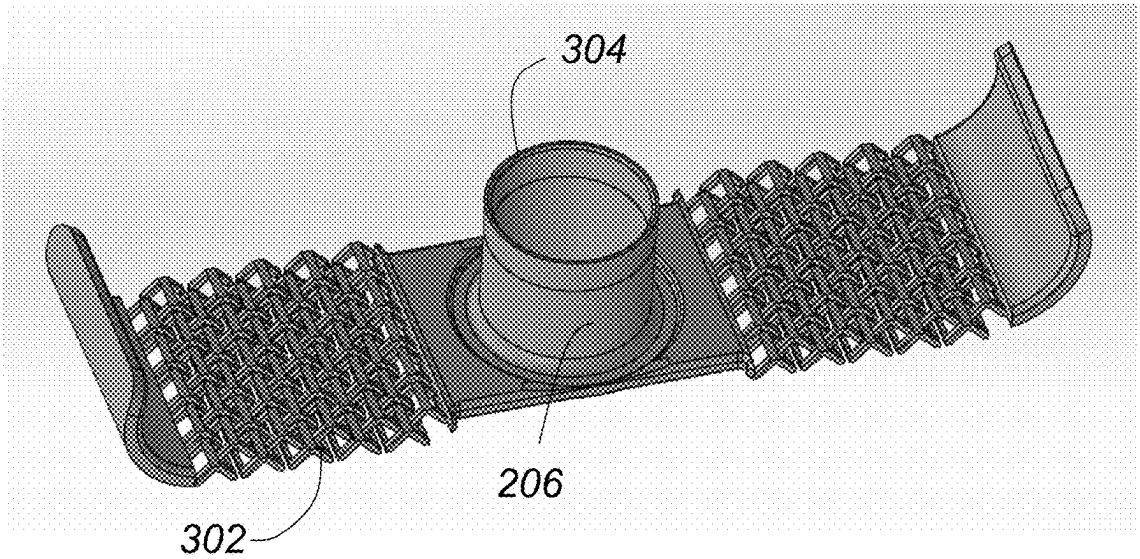


FIG. 12

ACCESSORY FOR INJECTION DEVICE

TECHNICAL FIELD

[0001] The present disclosure relates to drug injection devices, and more specifically, but not necessarily exclusively, to accessories for drug injection devices.

BACKGROUND

[0002] A drug injection device, such as (without limitation) a syringe, a manual injector, a pen injector, and/or an autoinjector, is commonly used to inject a liquid drug into a patient. These devices often include a plunger rod, a drug container, and a needle. The drug container can be, for example, a syringe body, a cartridge, or a vial. In operation, the drug injection device is pressed against a patient's skin such that the needle penetrates the patient's skin by a desired depth. The plunger rod is then driven by a manual force (i.e., in the case of a syringe or manual injector) or by an automated force (i.e., in the case of an autoinjector) to drive the drug product from the drug container and out of the needle into the patient. The automated force can be the force of a spring, motor, or other suitable energy source.

[0003] Some drug injection devices have a retractable sleeve that is configured to move between an extended position and a retracted position. In some such devices, the retractable sleeve can unlock an actuation mechanism of the drug injection device when it is moved to the retracted position. In other such devices, the retractable sleeve can act as a needle guard that extends over the needle to prevent inadvertent needle pricks, and moves to the retracted position to expose the needle for injection. In either case, the retractable sleeve is placed into engagement with the patient's skin, and the drug injection device is forced towards the patient's skin thereby causing the retractable sleeve to move to retract relative to the injection device housing from the extended position to the retracted position.

BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The following description of the illustrative embodiments may be better understood when read in conjunction with the appended drawings. It is understood that potential embodiments of the disclosed systems and methods are not limited to those depicted.

[0005] FIG. **1** shows a perspective view of a drug injection device according to one example;

[0006] FIG. **2** shows a side view of the drug injection device of FIG. **1** with a portion of the housing removed;

[0007] FIG. **3** shows a side view of the drug injection device of FIG. **1** with an entirety of the housing removed;

[0008] FIG. **4** shows a perspective view of an accessory for a drug injection device according to one example, with hidden lines shown;

[0009] FIG. **5** shows a perspective view of an accessory for a drug injection device according to another example;

[0010] FIG. **6** shows a side view of a drug injection device and the accessory of FIG. **5** in position against a patient's skin for an injection;

[0011] FIG. **7** shows a side view of an accessory for a drug injection device according to yet another example;

[0012] FIG. **8** shows a perspective view of an accessory for a drug injection device according to yet still another example;

[0013] FIG. **9** shows a perspective view of the accessory of FIG. **8** with a drug injection device;

[0014] FIG. **10** shows the accessory of FIGS. **7** and **8** positioned against a patient's skin with a drug injection device;

[0015] FIG. **11** shows a perspective view of an accessory for a drug injection device according to another example; and

[0016] FIG. **12** shows a perspective view of an accessory for a drug injection device according to yet another example.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

[0017] When using a drug injection device having a sliding sleeve, it is preferable that the drug injection device is pressed into the patient's skin with only as much force as needed to retract the sliding sleeve. However, it has been observed that, in practice, operators of the drug injection device often press the device into the patient's skin with an excessive force that is greater than that needed to retract the sliding sleeve. This excessive force can result in the patient's skin being compressed toward the patient's bone beneath the injection site, thereby reducing the distance between the drug injection device and the patient's bone. In extreme instances, the patient's skin can be compressed to such a degree that the tip of the needle can come into contact with the patient's bone, which can bend the needle under the patient's skin. Moreover, as the skin is compressed at the injection site, uncompressed skin adjacent the injection site can surround and collapse towards the sliding sleeve, thereby making it difficult to visually determine when the sliding sleeve has reached the retracted position. This can exacerbate the issue, as the patient or health care provider could continue to press the drug injection device further into the skin, without knowing that the sliding sleeve has reached the retracted position.

[0018] It has also been observed that, due to user variability, the location that an injection is administered often varies from one injection to the next for a given patient and varies from one patient to the next. This variability can result in injections being administered at different locations with differing amounts of soft tissue (i.e., fat and/or muscle). However, the likelihood of the needle contacting bone is higher when injections are administered at locations having smaller amounts of soft tissue. Therefore, it is often desirable to administer injections at locations having higher amounts of soft tissue.

[0019] The present disclosure relates to accessories that can be paired with drug injection devices to address the aforementioned and/or other issues, and also relates to drug injection systems that include such accessories and drug injection devices. It will be understood that, according to various examples, accessories of the present disclosure can be paired with different drug injection devices, such as (without limitation) syringes, manual injectors, pen injectors, and/or autoinjectors. However, for ease of discussion, one example of a drug injection device **110** will be described herein.

[0020] Referring to FIGS. **1** to **3**, a drug injection device **110** is shown according to one example. In this example, the drug injection device **110** is an autoinjector. The drug injection device **110** comprises a housing **112**, and a syringe **116** housed within the housing. The syringe **116** comprises a syringe body **116***a* having a needle **124** at one end and a

flange **116***b* at the other end. The drug injection device **110** comprises a sliding sleeve **126** that is configured to move relative to the housing **112** between an extended position, wherein the sliding sleeve **126** extends from the housing **112**, and a retracted position, wherein the sliding sleeve **126** is retracted relative to the housing **112**. Retraction of the sliding sleeve **126** can be caused by applying a force to the device **110** to move the sliding sleeve **126** against the skin of the patient. Retraction of the sliding sleeve **126** unlocks a drive mechanism of the drug injection device **110**, thereby allowing the injection to begin. As will be described further below, when the injection is initiated, the syringe **116**, including the syringe body **116***a* and needle **124**, is advanced from an initial position, wherein the needle **124** does not extend from an opening **118** at a first end **110***a* of the drug injection device **110**, to an injection position, where the needle **124** projects out of the opening **118** at a first end **110***a*. When the injection is complete, the syringe **116** is advanced proximally to a final position, wherein the needle **124** is retracted back into the opening **118**.

[0021] The drug injection device **110** can have a pen-like shape. For instance, the drug injection device **110** can have a first end **110***a* (also referred to as an injection end) and a second end **110***b*. The first end **110***a* and second end **110***b* can be opposite one another along a central axis **101**. The first end **110***a* can include the sliding sleeve **126** and a distal end of the housing **112**. The drug injection device **110** can be elongate from the first end **110***a* to the second end **110***b*. The housing **112** can have a substantially tubular shape, although other shapes are contemplated within the scope of this disclosure. The sliding sleeve **126** can be configured to extend from, and retract into, a distal aperture **118** of the housing **112**.

[0022] The drug injection device **110** comprises a drive element **121** in lieu of a conventional plunger that would normally be used to discharge the contents of the syringe **116** manually. The drive element **121** has a drive surface **121***a*, and a plunger having a plunger rod **121***b* and a seal (e.g., bung). The seal is configured to form a seal with an inner wall of the syringe body **116***a* so as to prevent leakage of the drug past the seal.

[0023] The drug injection device **110** comprises a drive spring **120** that, when released, engages the drive surface **121***a* to drive the drive element **121** distally. Hydrostatic forces acting through the drug and/or, to some extent, static friction between the drive element **121** and the syringe body **116***a* initially ensure that the plunger advances with the syringe body **116***a* so as to move the syringe **116** from the initial position, whereby the needle **124** does not extend from the opening **124**, to the injection position, whereby the needle **124** extends from the opening **118**. The plunger advances with the syringe body **116***a* until the syringe body **116***a* meets an obstruction that retards its motion or a return spring **128** bottoms out. At this point, the syringe **116** is in the injection position and the drive spring **120** continues to drive the plunger so that it advances inside the syringe body **116***a* to dispense the drug from the needle **124**. After the drug has been dispensed, the return spring **128** acts on the syringe **116** to return the syringe **116** from the injection position to a final position, wherein the needle **124** is retracted into the opening **118** of the housing **112**.

[0024] The drug injection device **110** can comprise an actuator **114** that is configured to be actuated to release the drive spring **120**. The actuator **114** can be configured to move between an unactuated position, wherein the drive spring **120** is not released, and an actuated position, wherein the drive spring **120** is released. The drug injection device **110** can be configured such that, movement of the sliding sleeve **126** from the extended position to the retracted position can unlock the actuator **114**, thereby allowing the actuator to move from the unactuated position to the actuated position to deliver the injection.

[0025] Turning now to FIG. **4**, an accessory **200** for a drug injection device, such as device **110** or any other suitable drug injection device, is shown according to one example. The accessory **200** has a proximal end **202** and a distal end **204** that are offset from one another along a first direction D**1**. The accessory **200** has a receptacle **206** defining a cavity **208** that extends into the proximal end **202** towards the distal end **204**. The cavity **208** is configured to receive the injection end **110***a* of the drug injection device **110** therein. When received in the cavity **208**, the injection end **110***a* can be removably coupled to the receptacle **206**. The drug injection device **110** and the receptacle can removably couple to one another such that the accessory does not cause the sliding sleeve **126** to be locked in the retracted position. Rather, the sliding sleeve **126** can return to the extended position merely by the operator removing the force from the drug injection device that is applied towards the patient.

[0026] The cavity **208** can terminate at an inner surface **210**. In at least some examples, the inner surface **210** can limit an insertion depth of the drug injection device **110** into the cavity **208**. The cavity **208** can be configured to conform to a shape and size of the injection end **110***a* of the drug injection device **110**. For example, the cavity **208** can have a cross-sectional shape that conforms to a cross-sectional shape of the injection end **110***a*. The cavity **208** can have a cross-sectional dimension that is substantially equal to a cross-sectional dimension of the injection end **110***a*. As such, the cavity **208** can be configured to position the injection device **110** relative to the accessory **200** by limiting, or substantially preventing altogether, movement of the injection device **110** along a second direction D**2** and/or a third direction D**3**, wherein the first, second, and third directions D**1**, D**2**, and D**3** are perpendicular to one another.

[0027] The receptacle **206** can define an opening **212** (shown in hidden lines) that extends into the distal end **204** and through the inner surface **210**. The opening **212** is configured to receive the needle **124** of the drug injection device **110** therethrough. The opening **212** has a cross-sectional dimension that is smaller than a cross-sectional dimension of the cavity **208**. For example, a diameter or width of the opening **212** along a direction perpendicular to the first direction DI can be smaller than a diameter or width of the cavity **208** along the same direction. As such, the inner surface **210** can interfere with the sliding sleeve **126** and/or distal end of the housing **112** of the drug injection device **110** to limit the insertion depth of the drug injection device **110** into the accessory **200**.

[0028] The accessory **200** has a base **214** at the distal end **204**. The base **214** has a skin-contacting surface **216** that has a cross-sectional dimension and/or surface area that is greater than a cross-sectional dimension and/or area, respectively, of the cavity **208**. For example, the skin-contacting surface **216** can be wider than the cavity **208** in at least one direction, such as the second direction D**2** and/or third direction D**3**. The base **214** can be configured as a flange. Moreover, the skin-contacting surface **216** can have a cross-

sectional dimension and/or surface area that is greater than the cross-sectional dimension and/or surface area, respectively, of a skin-contacting surface **126***a* at the injection end **110***a* of the drug injection device **110**. For example, the skin-contacting surface **216** can be wider than the cavity **208** in at least one direction, such as the second direction D**2** and/or third direction D**3**. Thus, when the injection end **110***a* of the drug injection device **110** is received in the cavity **208**, the skin-contacting surface **216** of the base **214** can extend outwardly from the injection end **110***a* along a direction along a plane that is transverse to the first direction D**1**.

[0029] The accessory **200** can have at least one finger holder **218**. The at least one finger holder **218** can define an opening **220** therein that is sized to receive a finger of an operator of the drug injection device **110**. The opening **220** can extend in a direction that is transverse to the first direction D**1**. For example, the opening **220** can extend along an axis that extends along the second direction D**2**. In some examples, the at least one finger holder **218** can define an at least partially closed shape around the opening **220** as shown in FIG. **4** or more of a closed shape as shown in FIG. **5**. The at least one finger holder **218** can extend from the base **214** along the first direction D**1** and then along a direction (e.g., the third direction D**3**) that is towards the receptacle **206** as shown in FIG. **4**. In some examples, the at least one finger holder **218** can further extend back towards the base **214** as shown in FIG. **5**.

[0030] In some examples, as shown, the accessory **200** can have a pair of finger holders **218**. In such examples, the finger holders **218** can be disposed on opposite sides of the receptacle **206**. The finger holders **218** can be substantial mirror images of one another or can differ from one another.

[0031] In some examples, as shown in FIGS. **11** and **12**, a first portion **302** that includes at least a portion of the skin contacting surface and a second portion **304** that supports the drug injection device **110**. The second portion **304** can include the receptacle **206** and/or at least a portion of the finger holders **218**. The first portion **302** can be more flexible than the second portion **304** so as to allow a user to flex the accessory to pinch the patient's skin while the accessory is positioned on the patient's skin during an injection to limit risk of advertent needle sticks. For example, as shown in FIG. **11**, the first portion **302** can be formed of a material (e.g., rubber and/or silicone) that is more flexible than a material (e.g., plastic and/or metal) of the second portion **304**. As another example, as shown in FIG. **12**, the first portion **302** can be formed of the same material as the second portion **304** but can be formed in a manner to have a greater flexibility than the second portion **304**. In this example, the first portion **302** is formed to have a chainmail-like structure. However, the first portion **302** can be formed in another manner to be more flexible than the second portion **304** (e.g., to have another structure that is more flexible).

[0032] Turning briefly to FIG. **6** (and with reference to labels in FIGS. **4** and **5**), in operation, the accessory **200** can be positioned against the skin of the patient at an injection site, such as a back of the arm. The injection end **110***a* of the drug injection device **110** can be received into the receptacle **206** before positioning the accessory **200**, which positioning the accessory **200**, or after positioning the accessory against the skin. The drug injection device **110** can then be forced towards the skin, thereby causing the sliding sleeve **126** to engage the inner surface **210** of the receptacle **206** and retract. This in turn exposes the needle **124** and causes the needle **124** to be inserted into the patient's skin. At least a portion of the force applied to the drug injection device **110** can be transferred to the patient's skin through the accessory **200**, thereby causing at least some deflection of the skin. The drug injection device **110** can then be activated (e.g., by automatic or manual force) to cause the drug to be discharged from the drug container **116** and out of the needle **124**.

[0033] When the force is applied to move the drug injection device **110** towards the patient, the skin-contacting surface **216** of the accessory **200** can spread out the force over an area of the patient's skin that is greater than the surface area of the skin-contacting surface **126***a* of the sliding sleeve **126**. Spreading out the force over a greater area can result in a smaller deflection of the skin towards the bone compared to the deflection that would occur without the use of the accessory. In other words, an application of a force to the accessory **200** can result in a smaller skin deflection towards the bone than an application of an equivalent force to the drug injection device **110** when used without the accessory **200**.

[0034] Referring to FIG. **7**, an accessory **300** is shown according to another example. The accessory **300** can have a receptacle **206** and a base **214** configured as discussed above. Although not shown, the accessory **300** can optionally have at least one finger holder **218**, such as a pair of finger holders **218**, as discussed above. The accessory **300** and drug injection device **110** can be configured to together provide at least one visual indication of when the sliding sleeve **126** of the drug injection device **110** has reached the retracted position. For instance, the drug injection device **110** can comprise a first indicator **110***c* and the accessory **300** can comprise a second indicator **202**, wherein alignment or mating of the first and second indicators **110***c* and **202** indicates that the sliding sleeve **126** has reached the retracted position. The indicators can be any suitable visual indicator, such as (without limitation) markings, lines, or mating surfaces.

[0035] FIG. **7** shows one example in which the first indicator of the drug injection device **110** is an edge (e.g., lip) **110***c* at the injection end **110***a*, and the second indicator of the accessory **300** is an edge **206***a* at the proximal end of the receptacle **206**. The edge **110***c* contacts the edge **206***a* of the accessory **300** when the sliding sleeve **126** reaches the retracted position so as to give the user a visual indication that the sliding sleeve **126** is in the retracted position. The drug injection device **110** can have a dimension x from the edge **110***c* to a distal end of the housing **112** and/or to the skin-contacting surface **126***a* of the sliding sleeve **126** when the sliding sleeve **126** is in the retracted position. The cavity **208** can have a depth from the edge **206***a* of the receptacle **206** to the inner surface **210** of the receptacle **206** that is substantially equal to the dimension x. The dimension x is greater than a dimension y measured from the skin-contacting surface **126***a* of the sliding sleeve **126** to the distal end of the housing **112** when the sliding sleeve **126** is in the extended configuration.

[0036] Turning now to FIGS. **8** to **10**, an accessory **400** is shown according to yet another example. The accessory **400** comprises a receptacle **206** and a base **214** that can be configured as discussed above. The accessory **400** can optionally comprise an indicator or finger holder as discussed above. The accessory **400** can also comprise a

positioning body **402**, and an attachment member **404** that attaches the receptacle **206** and base **214** to the positioning body **402**. The positioning body **402** is configured to orient the receptacle **206** and base **214** relative to the body of a patient so as to enable more consistent, repeatable, and reliable positioning of the injection device from one injection to the next. In at least one example, as shown in FIG. **10**, the accessory **400** can be configured such that, when the positioning body **402** is placed adjacent a patient's arm pit, such that a first surface **402***a* faces the patient's upper arm and a second surface **402***b* faces the patient's torso, the receptacle **206** is in-line with the patient's triceps so as to position the drug injection device **110** to inject the drug into the triceps.

[0037] The positioning body **402** can have any suitable shape for positioning the base **214** against a desired injection site. For instance, in the example of FIGS. **8** and **9**, at least a portion, up to an entirety, of the positioning body **402** can have a planar shape. The positioning body **402** can be a board or pad. The positioning body **402** can have a first surface **402***a* and a second surface **402***b* that are opposite one another. The first and second surfaces **402***a* and **402***b* can each have a cross-sectional dimension, such as a width and/or length, that is greater than a dimension from the first surface **402***a* to the second surface **402***b*. The attachment member **404** can be configured to attach the receptacle **206** and base **214** to one of the first and second surfaces **402***a* and **402***b*. In the example shown, the attachment member **404** comprises a plate **404** that is attached to the first surface **402***a* and to the base **214**. The positioning body **402** extends along the first direction D**1**. In some examples, the positioning body **402** can be elongate along the first direction D**1**. The base **214** extends away from the first surface **402***a* along the second direction D**3**. The cavity **208** of the receptacle **206** has a central axis that extends along the first direction D**1** and thus parallel to the first surface **402***a* of the positioning body **402**. It will be understood that the receptacle **206** and base **214** can be attached to the positioning body **402** in any suitable manner and at any suitable location (e.g., on a side edge of the positioning body **402**).

[0038] It should be noted that the illustrations and descriptions of the examples and embodiments shown in the figures are for exemplary purposes only, and should not be construed limiting the disclosure. One skilled in the art will appreciate that the present disclosure contemplates various embodiments. Additionally, it should be understood that the concepts described above with the above-described examples and embodiments may be employed alone or in combination with any of the other examples and embodiments described above. It should further be appreciated that the various alternative examples and embodiments described above with respect to one illustrated embodiment can apply to all examples and embodiments as described herein, unless otherwise indicated.

[0039] Unless explicitly stated otherwise, each numerical value and range should be interpreted as being approximate as if the word "about," "approximately," or "substantially" preceded the value or range. The terms "about," "approximately," and "substantially" can be understood as describing a range that is within **15** percent of a specified value unless otherwise stated.

[0040] Conditional language used herein, such as, among others, "can," "could," "might," "may," "e.g.," and the like, unless specifically stated otherwise, or otherwise understood within the context as used, is generally intended to convey that certain embodiments include, while other embodiments do not include, certain features, elements, and/or steps. Thus, such conditional language is not generally intended to imply that features, elements, and/or steps are in any way required for one or more embodiments or that one or more embodiments necessarily include logic for deciding, with or without author input or prompting, whether these features, elements and/or steps are included or are to be performed in any particular embodiment. The terms "comprising," "including," "having," and the like are synonymous and are used inclusively, in an open-ended fashion, and do not exclude additional elements, features, acts, operations, and so forth. Also, the term "or" is used in its inclusive sense (and not in its exclusive sense) so that when used, for example, to connect a list of elements, the term "or" means one, some, or all of the elements in the list.

[0041] While certain example embodiments have been described, these embodiments have been presented by way of example only and are not intended to limit the scope of the inventions disclosed herein. Thus, nothing in the foregoing description is intended to imply that any particular feature, characteristic, step, module, or block is necessary or indispensable. Indeed, the novel methods and systems described herein may be embodied in a variety of other forms; furthermore, various omissions, substitutions, and changes in the form of the methods and systems described herein may be made without departing from the spirit of the inventions disclosed herein. The accompanying claims and their equivalents are intended to cover such forms or modifications as would fall within the scope and spirit of certain of the inventions disclosed herein.

[0042] It will be understood that reference herein to "a" or "one" to describe a feature such as a component or step does not foreclose additional features or multiples of the feature. For instance, reference to a device having or defining "one" of a feature does not preclude the device from having or defining more than one of the feature, as long as the device has or defines at least one of the feature. Similarly, reference herein to "one of" a plurality of features does not foreclose the invention from including two or more, up to all, of the features. For instance, reference to a device having or defining "one of a protrusion and a recess" does not foreclose the device from having both the protrusion and the recess.

What is claimed:

1. An accessory for a drug injection device, the accessory comprising:

a proximal end and a distal end;

a receptacle defining:

a cavity that extends into the proximal end towards the distal end along a first direction and terminates at an inner surface, the cavity configured to receive an injection end of the drug injection device therein to position the drug injection device for delivery of a medication; and

an opening that extends into the distal end and through the inner surface, the opening configured to receive the needle of the drug injection device therethrough and having a cross-sectional dimension that is smaller than a cross-sectional dimension of the cavity;

a base at the distal end, the base comprising a skin-contacting surface that has a cross-sectional dimension that is greater than the cross-sectional dimension of the cavity; and

at least one finger holder that defines an opening configured to receive a finger of an operator of the drug injection device, the opening extending in a direction that is transverse to the first direction.

2. The accessory of claim **1**, wherein the at least one finger holder comprises a pair of finger holders.

3. The accessory of claim **2**, wherein the finger holders are disposed on opposing sides of the receptacle.

4. The accessory of any one of claims **1** to **3**, wherein the at least one finger holder extends from the base along the first direction and then along a direction that is towards the receptacle.

5. The accessory of claim **4**, wherein the at least one finger holder further extends back towards the base.

6. The accessory of any one of claims **1** to **5**, wherein the at least one finger holder defines an at least partially closed shape around the opening.

7. The accessory of any one of claims **1** to **6**, wherein the inner surface limits an insertion depth of the drug injection device into the receptacle.

8. The accessory of any one of claims **1** to **7**, comprising a positioning body attached to the receptacle and base, the positioning body configured to orient the receptacle and base relative to a patient's body.

9. The accessory of claim **8**, wherein the accessory is configured such that, when the positioning body is placed adjacent a patient's arm pit, between the patient's upper arm and the patient's torso, the receptacle is in-line with the patient's triceps so as to position the drug injection device to inject the drug into the triceps.

10. The accessory of any one of claims **8** and **9**, wherein at least a portion of the positioning body has a planar shape.

11. The accessory of any one of claims **8** to **10**, wherein the positioning body is a board or pad.

12. The accessory of any one of claims **8** to **11**, wherein the positioning body has a first surface and a second surface that are opposite one another, and the first and second surfaces each have a cross-sectional dimension that is greater than a dimension from the first surface to the second surface.

13. The accessory of claim **12**, wherein the accessory is configured to be positioned such that, when the first surface faces the patient's upper arm and the second surface faces the patient's torso, the receptacle is in-line with the patient's triceps so as to position the drug injection device to inject the drug into the triceps.

14. The accessory of claim **12**, comprising an attachment member attaches the receptacle and base to one of the first and second surfaces.

15. The accessory of any of claims **8** to **14**, wherein the positioning body is elongate along the first direction.

16. The accessory of any one of claims **8** to **15**, wherein the base extends away from the positioning body along a second direction, transverse to the first direction.

17. The accessory of claim **1**, comprising a first portion that includes at least a portion of the skin-contacting surface, and a second portion that supports the drug injection device, wherein the first portion is more flexible than the second portion so as to allow a user to flex the accessory to pinch a patient's skin during an injection.

18. A drug injection system, comprising:

the accessory of any of claims **1** to **17**; and

the drug injection device.

19. The drug injection system of claim **18**, wherein the drug injection device comprises:

a housing;

a syringe disposed within the housing, the syringe having a needle; and

a sliding sleeve that is configured to engage the inner surface of the accessory to move relative to the housing between an extended position, wherein the sliding sleeve extends from the housing, and a retracted position, wherein the sliding sleeve is retracted relative to the housing.

20. The drug injection system of claim **19**, wherein the housing has a first indicator, the accessory has a second indicator, and the system is configured such that alignment or mating of the first and second indicators indicates that the sliding sleeve has reached the retracted position.

21. The drug injection system of claim **20**, wherein the first indicator is a first edge, and the second indicator is a second edge at the proximal end of the receptacle that contacts the first edge when the sliding sleeve reaches the retracted position so as to give the user a visual indication that the sliding sleeve is in the retracted position.

22. The drug injection system of any one of claims **20** and **21**, wherein the drug injection device has a dimension from the first indicator to a distal end of the housing or to a skin-contacting surface of the sliding sleeve when the sliding sleeve is in the retracted position, and the cavity has a depth from the second indicator of the receptacle to the inner surface that is substantially equal to the dimension.

23. A drug injection system, comprising:

a drug injection device, comprising:

a housing having a first indicator;

a syringe disposed within the housing, the syringe having a needle; and

a sliding sleeve that is configured to move relative to the housing between an extended position, wherein the sliding sleeve extends from the housing, and a retracted position, wherein the sliding sleeve is retracted relative to the housing; and

an accessory for a drug injection device, the accessory comprising:

a proximal end and a distal end;

a receptacle defining:

a cavity that extends into the proximal end towards the distal end along a first direction and terminates at an inner surface, the cavity configured to receive an injection end of the drug injection device therein such that the sliding sleeve engages the inner surface; and

an opening that extends through the inner surface to receive the needle of the drug injection device therethrough;

a base comprising a skin-contacting surface that has a cross-sectional dimension that is greater than a cross-sectional dimension of the sliding sleeve; and

a second indicator, wherein the system is configured such that alignment or mating of the first and second indicators indicates that the sliding sleeve has reached the retracted position.

24. The drug injection system of claim **23**, wherein the first indicator is a first edge, and the second indicator is a

second edge at the proximal end of the receptacle that contacts the first edge when the sliding sleeve reaches the retracted position so as to give the user a visual indication that the sliding sleeve is in the retracted position.

25. The drug injection system of any of claims **23** and **24**, wherein the drug injection device has a dimension from the first indicator to a distal end of the housing or to a skin-contacting surface of the sliding sleeve when the sliding sleeve is in the retracted position, and the cavity has a depth from the second indicator of the receptacle to the inner surface that is substantially equal to the dimension.

26. An accessory for a drug injection device, the accessory comprising:

a proximal end and a distal end;

a receptacle defining:

a cavity that extends into the proximal end towards the distal end along a first direction and terminates at an inner surface, the cavity configured to receive an injection end of the drug injection device therein to position the drug injection device for delivery of a medication; and

an opening that extends into the distal end and through the inner surface, the opening configured to receive the needle of the drug injection device therethrough;

a base at the distal end, the base comprising a skin-contacting surface that has a cross-sectional dimension that is greater than a cross-sectional dimension of the cavity; and

a positioning body attached to the receptacle and base, the positioning body configured to orient the receptacle and base relative to a patient's body.

27. The accessory of claim **26**, wherein the accessory is configured such that, when the positioning body is placed adjacent a patient's arm pit, between the patient's upper arm and the patient's torso, the receptacle is in-line with the patient's triceps so as to position the drug injection device to inject the drug into the triceps.

28. The accessory of any one of claims **26** and **27**, wherein at least a portion of the positioning body has a planar shape.

29. The accessory of any one of claims **26** to **28**, wherein the positioning body is a board or pad.

30. The accessory of any one of claims **26** to **29**, wherein the positioning body has a first surface and a second surface that are opposite one another, and the first and second surfaces each have a cross-sectional dimension that is greater than a dimension from the first surface to the second surface.

31. The accessory of claim **30**, wherein the accessory is configured to be positioned such that, when the first surface faces the patient's upper arm and the second surface faces the patient's torso, the receptacle is in-line with the patient's triceps so as to position the drug injection device to inject the drug into the triceps.

32. The accessory of claim **30**, comprising an attachment member attaches the receptacle and base to one of the first and second surfaces.

33. The accessory of any of claims **26** to **32**, wherein the positioning body is elongate along the first direction.

34. The accessory of any one of claims **26** to **33**, wherein the base extends away from the positioning body along a second direction, transverse to the first direction.

* * * * *