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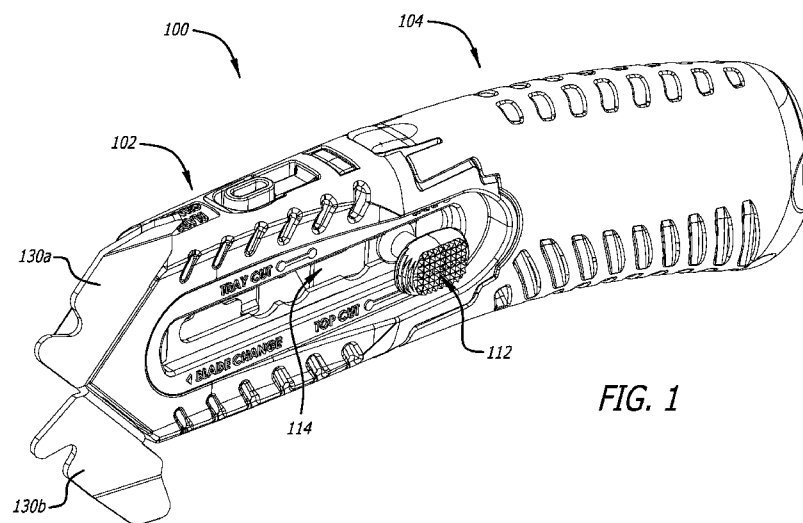


FIG. 1

(57) Abstract: A cutter apparatus includes a housing configured for gripping by a hand, a blade holder and/or blade coupled to the housing, a guard secured to the housing, and a handle coupled to the housing via an engagement interface configured to allow a user of the cutter apparatus to selectively interfit together the housing and the handle in multiple different cutter apparatus configurations including a pair of configurations in which the guard, in relation to each configuration, faces the blade from right and left sides, respectively, of the cutter apparatus.

5

Ambidextrous Utility Knife

TECHNICAL FIELD

The present invention relates generally to cutters and, in particular, an ergonomic
10 hand tool such as a cutter and a reconfigurable housing and/or handle for same.

BACKGROUND ART

A great variety of knives, cutters, safety cutters, and cutter apparatuses are
15 known. Features variously found in prior knives, cutters, safety cutters, and cutter
apparatuses include mechanisms and devices facilitating, for example, blade
deployment, blade locking, blade depth adjustment, blade change, or blade storage.
Various ergonomic devices and apparatuses are also known.

It is known to provide a safety cutter with a guard (or guide) located a short
20 distance from and facing a side of the cutting blade. *See e.g.*, U.S. Patent No.
5,386,632, U.S. Patent No. 6,314,646 B1, U.S. Patent No. D544,774 S, and U.S. Patent
No. 7,987,602 B2, which are hereby incorporated by reference.

Unfortunately, manufacturers or providers of such safety cutters, to
accommodate a greater number of customers and operational considerations, must make
25 available two different product versions, namely, a right-handed device in which the
guard faces one side of the cutting blade and a left-handed device in which the guard
faces the opposite side of the cutting blade. This, in turn, creates potential consumer
confusion as to which version of the product might be best suited for a particular user or
cutting operation. Moreover, twice as much shelf frontage is required to display two
30 versions (rather than one version) of a product.

It would be useful to be able to provide one or more of: a guarded cutter (i.e., a cutter including or provided with a guard) that eliminates or lessens the need to provide both left- and right-handed versions of the cutter; a cutter with a mechanism or device that facilitates an improved, advantageous, or otherwise desirable or useful blade change operation for the cutter; and a cutter with a mechanism or device that facilitates improved, advantageous, or otherwise desirable or useful blade storage within the cutter.

SUMMARY OF THE INVENTION

10 In an example embodiment, a cutter apparatus includes a housing with a blade carrier configured for holding a blade in multiple different cutting edge orientations in relation to the housing, the cutting edge orientations including a pair of cutting edge orientations that are mirror images of each other, and a handle coupled to the housing via an engagement interface configured to allow a user of the cutter apparatus to
15 selectively interfit together the housing and the handle in multiple different cutter apparatus configurations including a pair of configurations which, in conjunction with cutting edge orientations respectively selected from the pair of mirror image cutting edge orientations, accommodate ambidextrous operation of the cutter apparatus.

In an example embodiment, a cutter apparatus includes a housing, configured for
20 holding a blade, and a handle coupled to the housing via an engagement interface configured to allow a user of the cutter apparatus to selectively interfit together the housing and the handle in multiple different cutter apparatus configurations including a pair of configurations accommodating left and right-handed operation of the cutter apparatus, respectively.

25 In an example embodiment, a cutter apparatus includes a housing configured for gripping by a hand, a blade holder and/or blade coupled to the housing, a guard secured to the housing, and a handle coupled to the housing via an engagement interface configured to allow a user of the cutter apparatus to selectively interfit together the housing and the handle in multiple different cutter apparatus configurations including a
30 pair of configurations in which the guard, in relation to each configuration, faces the blade from right and left sides, respectively, of the cutter apparatus.

In an example embodiment, a cutter apparatus includes a housing with a blade carrier, and a handle coupled to and repositionable in relation to the housing to multiple different engagement positions at which the housing and the handle are secured together, the housing and the handle being configured such that when not secured together the housing and the handle remain coupled together and are repositionable in relation to each other.

In an example embodiment, a cutter apparatus includes a distal portion including a housing with an opening, a blade carrier coupled to and repositionable in relation to the housing, and multiple cut guards, and a proximal portion coupled to the distal portion such that the portions are repositionable in relation to and interfit with each other in multiple different configurations in which the portions are secured together and a different cut guard is positioned for contact with a workpiece for each of the configurations.

In an example embodiment, a cutter apparatus includes a housing, a blade holder coupled to the housing, and multiple guards coupled to the housing, at least two of the guards being fixed in position in relation to each other.

In an example embodiment, a cutter apparatus includes a housing configured for gripping by a hand, a blade holder and/or a blade coupled to the housing, and a blade storage assembly that is coupled to the housing and rotatably repositionable about an axis parallel or substantially parallel to a longitudinal axis associated with the blade holder and/or the blade.

In an example embodiment, a cutter apparatus includes a housing configured for gripping by a hand, a blade holder and/or a blade coupled to the housing, and a blade storage assembly coupled to and repositionable in relation to a portion of the housing, the blade storage assembly including a blade storage compartment configured for holding spare blades and a plurality of springs configured to secure blades within the blade storage compartment and prevent the blade storage assembly from being completely removed from the housing.

In an example embodiment, a cutter apparatus includes a housing, a blade carrier coupled to the housing and repositionable in relation to the housing, and multiple safety actuators configured to disengage, when a plurality of the safety actuators are activated,

one or more interlocks that prevent the blade carrier from being repositioned for a blade change operation.

BRIEF DESCRIPTION OF THE DRAWINGS

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FIG. 1 is a perspective view of an example embodiment of a cutter apparatus;

FIGs. 2A and 2B are left and right sides views, respectively, of the cutter apparatus of FIG. 1;

FIG. 3 is an exploded perspective view of the cutter apparatus of FIG. 1;

10 FIG. 4 is a perspective view of the blade carrier and the blade activation button of FIG. 3 shown assembled and with a blade positioned on the blade carrier;

FIGs. 4A and 4B show a pair of cutting edge orientations that are mirror images of each other;

15 FIG. 5 is a cross-sectional perspective view of the channel/guard structure of FIG. 3 shown with the blade activation button (of the blade carrier) at a safe position along a guide channel (of the channel/guard structure);

FIG. 6 is a partial perspective view of the cutter apparatus of FIG. 1, the blade activation button is shown repositioning along the guide channel from a top cut position to a tray cut position;

20 FIG. 7 is a partial perspective view of the cutter apparatus of FIG. 1 in which the blade carrier and its blade activation button are positioned along the guide channel at a distal-most tray cut position;

25 FIG. 8A is a cross-sectional view of the cutter apparatus along lines 8A-8A of FIG. 7 showing dual safety actuators that are repositionable for disengaging interlocks that prevent the blade carrier from being repositioned (extended) to a blade change position;

FIG. 8B is a side view of the housing portion of the cutter apparatus of FIG. 1 showing the blade carrier extended from the housing portion to the blade change position;

30 FIG. 9 is a side view of the cutter apparatus of FIG. 1 showing the handle portion disengaged from the housing portion, at an exterior interface defined therebetween, and repositioned sufficiently apart from the housing portion, at an interior

interface defined therebetween, such that the handle and housing portions are rotatably repositionable in relation to each other for reconfiguring the cutter apparatus;

FIG. 10 is a perspective view of the cutter apparatus of FIG. 1 showing the handle portion being rotatably repositioned in relation to the housing portion;

5 FIG. 11 is a side view of the cutter apparatus of FIG. 1 showing the handle portion repositioned in relation to and aligned for reengagement with the housing portion in a different cutter apparatus configuration;

FIG. 12 is a perspective view of the cutter apparatus of FIG. 1 in which the handle portion has been repositioned in relation to and reengaged with the housing
10 portion providing symmetrical cutter apparatus configuration;

FIG. 13 is a perspective view of the housing portion of the cutter apparatus of FIG. 1;

FIG. 13A is a cross-sectional view of the housing portion along lines 13A-13A of FIG. 13;

15 FIG. 14 is a perspective view of the handle portion of the cutter apparatus of FIG. 1; FIG. 14A is a cross-sectional view of the housing portion along lines 14A-14A of FIG. 14;

FIG. 14B is a cross-sectional view of the housing portion along lines 14B-14B of FIG. 14;

20 FIG. 15 is a side view of the cutter apparatus of FIG. 1 showing the blade storage assembly repositioned in relation to the handle portion for gaining access to the spare blade holder of the assembly;

FIG. 16A is a perspective view of the blade storage assembly of the cutter apparatus of FIG. 1;

25 FIG. 16B is another perspective view of the blade storage assembly in which its blade retention spring is shown repositioned in relation to the blade storage compartment for allowing a user of the cutter apparatus to withdraw a blade from the blade storage compartment;

FIG. 17A is a top view of the handle portion of the cutter apparatus of claim 1 in
30 which the blade storage assembly is shown in its fully retracted secured closed position;

FIG. 17B is a cross-sectional view of the handle portion along lines 17B-17B of FIG. 17A;

FIG. 18A is a top view of the handle portion of the cutter apparatus of claim 1 in which the blade storage assembly is shown in its fully extended secured open position;

FIG. 18B is a cross-sectional view of the handle portion along lines 18B-18B of FIG. 18A;

5 FIG. 19 is a partial perspective view of the cutter apparatus of FIG. 1 showing a blade extended from the cutter apparatus and a contact portion of a guard brought into contact with a workpiece during a cutting operation; and

FIG. 20 is a partial side view of the cutter apparatus of FIG. 1 showing opposing cut guards of the guard structure and their respective recessed portions.

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DISCLOSURE OF INVENTION

Referring to FIGs. 1, 2A, 2B, 3, and 4, in this example embodiment, a cutter apparatus 100 includes a housing portion (or body front) 102 and a handle portion (or
15 body rear) 104 configured to be coupled or interfitted in multiple different cutter apparatus configurations. The housing portion 102 and the handle portion 104 can be formed of various materials, for example, a thermoplastic that has high strength, rigidity, and impact resistance (e.g., Acrylonitrile butadiene styrene (ABS)), and by various processes (e.g., injection molding).

20 The handle portion 104 is coupled to the housing portion 102 via an engagement interface 106 (e.g., configured as shown). In this example embodiment, the engagement interface 106 is configured to allow a user of the cutter apparatus 100 to selectively interfit together the housing portion 102 and the handle portion 104 in multiple different cutter apparatus configurations.

25 The cutter apparatus 100 includes a channel/guard structure 108 secured to the housing portion 102 (e.g., fixedly secured by complementary surfaces or portions of the housing) and a blade carrier (or blade holder) 110 with a blade activation button 112. In this example embodiment, the channel/guard structure 108 includes or defines a channel
30 109 configured to support the blade carrier 110 such that the blade carrier 110 is repositionable along the channel 109. The channel/guard structure 108 can be formed of various materials, for example, a material made of or including a metal (or a metal alloy or a plastic) that has high strength and wear resistance (e.g., steel), and by various

processes (e.g., progressive die stamping). The blade carrier 110 can be formed of various materials, for example, a material made of or including a metal (or a metal alloy or a plastic) that has high strength and wear resistance (e.g., stainless steel), and by various processes (e.g., progressive die stamping). The blade activation button 112 can
5 be formed of various materials, for example, a zinc alloy (e.g., Zamak 2), and by various processes (e.g., die cast).

Referring additionally to FIGs. 4A and 4B, in this example embodiment, the blade carrier 110 is configured to hold a blade 111 in multiple different cutting edge orientations (e.g., with the blade 111 secured between the blade carrier 110 and one or
10 more portions of the channel/guard structure 108). In this example embodiment, the blade carrier 110 and a blade 111 are configured such that the multiple different cutting edge orientations include a pair of mirror image cutting edge orientations.

In example embodiments, the blade carrier 110 and the blade 111 are configured with symmetrical complementary engagement portions. By way of example, a
15 substantially flat surface (or portion) 113 of the blade carrier 110 includes or is provided with protrusions 115 (e.g., fixed tabs or other raised structures shaped and positioned as shown) configured to accommodate positioning the blade 111 adjacent to the substantially flat surface 113 with the protrusions 115 extending through one or more apertures in the blade and/or engaging complementary surfaces of the blade preventing
20 the blade from repositioning along the blade carrier 110.

In example embodiments, the blade carrier 110 is coupled to and repositionable in relation to (e.g., along a channel defined by) the channel/guard structure 108 and/or one or more other portions or components of the cutter apparatus 100. In this example
25 embodiment, the channel/guard structure 108 includes or is provided with a guide channel 114 (e.g., as shown) and the blade carrier 110 includes or is provided with a spring member 116 or other biasing component or element (e.g., a resilient portion of the blade carrier 110 extending proximally from the substantially flat surface 113). A connector element 118 (e.g., a post) traverses the guide channel 114 connecting (or otherwise securing or coupling together) the blade activation button 112 and the spring
30 member 116 at opposite sides of the guide channel 114. A bearing portion 120 of the connector element 118, biased by the spring member 116, detents outwardly to engage with the various blade carrier position setting portions (i.e., the wider portions) of the

guide channel 114. In this example embodiment, and referring additionally to FIGs. 5 and 6, the blade carrier position setting portions, starting at the proximal end of the guide channel 114 and moving toward its distal end, facilitate securing the blade carrier 110 in a “safe” position (in which the blade 111 is fully retracted within the housing portion 102), first and second “top cut” blade extension positions, and first and second “tray cut” blade extension positions, respectively. In FIG. 6, the blade activation button 112 is shown repositioning (as denoted by arrow 122) along the guide channel 114 from the second “top cut” position to the first “tray cut” position.

The blade 111 is activated by depressing the blade activation button 112 and sliding the index forward to reposition the blade carrier 110 forward (or distally) along the channel 109 (of the channel/guard structure 108). The spring member 116 (e.g., a flexible arm on the blade carrier 110) pushes the blade activation button 112 up into cutouts in the guide channel 114. In this example embodiment, there are six depth settings in total: safe, two top cut positions, two tray cut positions, and also (as discussed below) a blade change position.

Example embodiments of cutters (or cutter apparatuses) include multiple guards at least two of which are fixed in position in relation to each other. In example embodiments, the multiple guards include two guards positioned at opposite sides of the cutter (or cutter housing). One or more of the multiple guards can be provided on, secured to, or integrally formed as part of the channel/guard structure 108.

In example embodiments, the multiple guards include at least two guards that are fixed in position in relation to a distal portion of the cutter. For example, one or more of the guards can be secured to the distal portion in a manner that prevents or discourages or at least does not readily facilitate removal or separation of the guard(s) from the distal portion by a user of the cutter. The multiple guards can additionally, or alternatively, include one or more guards that are detachable.

In example embodiments, a cutter (or cutter apparatus) includes guards that are mirror images of each other (e.g., symmetrical in relation to each other and also in relation to a distal portion of the cutter). In this example embodiment, the channel/guard structure 108 includes or is provided with two guards 130a and 130b that are mirror images of each other. The guards can be coupled together by a common component or element of the cutter. The guards 130a and 130b can be, for example,

integrally formed with an actuator guide portion 132 (of channel/guard structure 108) that includes and/or defines the guide channel 114. In example embodiments, the multiple guards are one or more of directly coupled (e.g., in direct contact with each other), indirectly coupled (e.g., coupled together by one or more intermediary coupling elements or components), continuously coupled (e.g., at all times and/or by a continuous coupling structure or mechanism), and intermittently coupled (e.g., when one or more of the guards is detachable).

Thus, in an example embodiment, a cutter apparatus includes a housing, a blade holder coupled to the housing, and multiple guards coupled to the housing, at least two of the guards being fixed in position in relation to each other and/or in relation to a distal portion of the housing. In example embodiments, the blade holder includes a blade carrier coupled to and repositionable in relation to the housing. Although example embodiments of cutters (or cutter apparatuses) described herein include a blade carrier (or blade holder) that is configured to be repositionable (e.g., in relation to the cutter housing), the scope of the present invention(s) additionally includes and/or contemplates cutters (or cutter apparatuses) with a blade holder that is coupled to the housing, but not repositionable (e.g., a fixed blade).

Example embodiments of cutters (or cutter apparatuses) include a blade carrier (or other component or element of the cutter) that is repositionable in relation to a portion of the cutter and multiple safety actuators configured to facilitate an action or process of disengaging one or more interlocks that prevent the blade carrier (or other component or element of the cutter) from being repositioned (e.g., for a blade change operation). The multiple (e.g., two or more independently repositionable) safety actuators can be configured to disengage the one or more interlocks, for example, when a plurality of the safety actuators are activated (e.g., two or more, or all of the safety actuator, are simultaneously in an activated state).

The safety actuators can include, by way of example, dual actuators configured to function as a Boolean AND operator, i.e., requiring both actuators to be activated in order to release the blade carrier or other component or element of the cutter. Referring to FIGs. 6, 7, and 8A, in this example embodiment, the cutter apparatus 100 includes safety actuators 140a and 140b located at the top side 141 and the bottom side 142, respectively, of the housing portion 102. The safety actuators 140a and 140b are located

within recesses 143a and 143b, respectively, in the housing portion 102 (e.g., substantially flush with adjacent exterior surfaces of the housing when not activated). The safety actuators 140a and 140b can include or be provided in the form of flexible components (e.g., levers coupled or secured to or integrally formed with the housing portion 102) configured to be repositionable in relation to the one or more interlocks. 5 The safety actuators 140a and 140b can include or be provided in the form of inflexible, rigid, or partially flexible or resilient components as well as articulated components and associated interconnection mechanisms and devices.

In example embodiments, the safety actuators are biased to reposition away from the one or more interlocks (the biasing forces being imparted, for example, by the actuators themselves and/or by one or more other components or elements of the cutter). In example embodiments, the one or more interlocks include portions configured to reposition (to respective blade carrier release positions) in response to activation of the safety actuators. Referring to FIGs. 4, 4A, 4B, and 8A, in this example embodiment, the blade carrier 110 includes engagement elements 144a and 144b (e.g., springs coupled or secured to or integrally formed with the blade carrier 110) configured to be repositionable (e.g., in relation to surfaces or portions of the channel 109) in response to activation of the safety actuators as denoted by arrows 146a and 146b, respectively. The engagement elements 144a and 144b reposition inwardly (e.g., flexing laterally in relation to the housing portion 102), disengaging from cutouts 148a and 148b (of the channel 109), respectively. When both of the safety actuators 140a and 140b are activated (depressed), the blade carrier 110 is free to be repositioned (extended distally) as denoted by arrow 149 to its blade change position (e.g., a distal-most or fully extended position, as illustrated in FIG. 8B, at which the blade activation button 112 is prevented from further forward movement due to its connector element 118 contacting the distal end of the guide channel 114). If either of the safety actuators 140a and 140b is not activated (depressed), its corresponding engagement element interlocks with a cutout in the channel thereby preventing the user from accidentally putting the cutter in the blade change position. After the cutter is in the blade change position, the blade 111 can be easily removed and replaced. 30

The multiple safety actuators can include dual blade change levers and/or other repositionable components or elements. In example embodiments, the multiple safety

actuators include dual actuators that are symmetrical (e.g., in relation to each other and also in relation to a distal portion of the cutter), positioned at opposite sides of the cutter housing, and/or are configured to activate when repositioned toward each other. The safety actuators can be, but are not necessarily, included or provided as part of the housing.

Thus, in an example embodiment, a cutter apparatus includes a housing, a blade carrier coupled to the housing and repositionable in relation to the housing, and multiple safety actuators configured to disengage, when a plurality of the safety actuators are activated, one or more interlocks that prevent the blade carrier from being repositioned for a blade change operation.

Example embodiments of cutters (or cutter apparatuses) include a mechanism or device that facilitates ambidextrous (left- and right-handed) operation of the cutter. The mechanism or device can include one or more engagement interfaces, for example, an exterior interface and an interior interface. Referring to FIGs. 3, 6, and 7, in this example embodiment, the handle portion 104 includes symmetrical dual latches 150a and 150b (e.g., flexible members provided at opposite sides of the distal end of the handle portion 104) and the housing portion 102 includes symmetrical openings 152a and 152b (e.g., provided as shown at opposite sides of the housing portion 102). In this example embodiment, the openings 152a and 152b are formed or otherwise provided at the top side 141 and the bottom side 142, respectively. The latches 150a and 150b are received within the openings 152a and 152b, respectively, to secure the housing portion 102 and the handle portion 104 together when they are interfitted in either a left-handed configuration or a right-handed configuration. The latches 150a and 150b respectively include tabs 154a or 154b (or other protruding portions or structures) that are configured to engage side portions of the openings when the housing and the handle are secured together. In this example embodiment, the tabs 154a and 154b must both be depressed (pressed inward) in order to unlock the housing and handle portions.

Example embodiments of cutters (or cutter apparatuses) include a housing portion (e.g., a distal portion) and a handle portion (e.g., a proximal portion) that are symmetrical about a first plane and a second plane, respectively. In example embodiments, the first and second planes are orthogonal. Referring to FIG. 9, in this example embodiment, a front body portion (e.g., front half) of the cutter apparatus 100

is symmetrical about (in relation to) an XZ plane (e.g., passing through the housing portion 102 and intersecting a point between the guards 130a and 130b) and a rear body portion (e.g., rear half) of the cutter apparatus 100 is symmetrical about (in relation to) an XY plane (e.g., passing through the handle portion 104 and intersecting a center point
5 between left and right sides thereof). In conjunction with the blade carrier 110, which allows the blade 111 to be selectively positioned in one of a pair of cutting edge orientations that are mirror images of each other, use the cutter apparatus 100 during a cutting operation utilizing left- and right-handed cutter apparatus configurations as described herein will be identical for left- and right-handed users, respectively.

10 Thus, in an example embodiment, a cutter apparatus includes a housing, configured for holding a blade, and a handle coupled to the housing via an engagement interface configured to allow a user of the cutter apparatus to selectively interfit together the housing and the handle in multiple different cutter apparatus configurations including a pair of configurations accommodating left and right-handed operation of the
15 cutter apparatus, respectively.

Example embodiments of cutters (or cutter apparatuses) include an engagement interface configured to facilitate selectively interfitting together portions of the cutter in multiple different ergonomic configurations (e.g., in relation to gripping the cutter by hand). The engagement interface can include or be defined, for example, by
20 complementary surfaces (or other portions) of the housing and the handle, respectively. In example embodiments, the engagement interface is configured to permit the handle (e.g., upon release) to be rotatably repositioned in relation to the housing, or vice versa. In example embodiments, the engagement interface includes an exterior (e.g., peripheral) interface configured to automatically lock (or secure) the housing and the
25 handle together when the housing and the handle are repositioned to interfit together in one (any) of the cutter apparatus configurations. In example embodiments, the exterior interface is configured to allow a user of the cutter apparatus to unlock (or disengage) the housing and the handle by actuating multiple release devices provided on one or more of the housing and the handle.

30 Referring to FIG. 9, in this example embodiment, the cutter apparatus 100 is reconfigurable for use by left- or right-handed users by depressing the tabs 154a and 154b (of the handle portion 104) as denoted by arrows 156a and 156b, respectively, and

sliding the handle portion 104 back as denoted by arrow 157. Referring to FIG. 10, with the handle portion 104 disengaged from the housing portion 102 and repositioned sufficiently apart from the housing portion 102, the handle and housing portions can now be rotatably repositioned in relation to each other, e.g., as shown by arrows 158a and 158b, for reconfiguring the cutter apparatus. Referring to FIG. 11, once the handle portion 104 is repositioned in relation to and aligned for reengagement with the housing portion 102 in a different cutter apparatus configuration, the handle portion 104 can be slid forward again as indicated by arrow 159. Referring to FIG. 12, the handle portion 104 is shown repositioned in relation to and reengaged with the housing portion 102 providing a cutter apparatus configuration that is symmetrical to the configuration shown in FIG. 1. An exterior interface 160 is provided (or defined), for example, by the symmetrical dual latches 150a and 150b (of the handle portion 104) and the symmetrical openings 152a and 152b (of the housing portion 102).

Thus, in an example embodiment, a cutter apparatus includes a housing with a blade carrier configured for holding a blade in multiple different cutting edge (or blade) orientations in relation to the housing, the cutting edge orientations including a pair of cutting edge orientations that are mirror images of each other, and a handle coupled to the housing via an engagement interface configured to allow a user of the cutter apparatus to selectively interfit (or connect) together the housing and the handle in multiple different cutter apparatus configurations including a pair of configurations (e.g., predetermined configurations) which, in conjunction with cutting edge orientations respectively selected from the pair of mirror image cutting edge orientations, accommodate ambidextrous operation of the cutter apparatus.

The engagement interface can be configured to allow the housing and the handle to interfit in multiple different predetermined configurations (e.g., two or more predetermined configurations) and/or only in predetermined configurations (e.g., configurations defined or rendered permissible by components or structures of the engagement interface). The engagement interface can be configured to allow the housing and the handle to interfit in multiple different symmetrical configurations (e.g., two or more symmetrical configurations) and/or only in symmetrical configurations (e.g., configurations that are symmetrical in relation to each other, symmetrical in their spacing, and/or symmetrical in relation to a point or location on the cutter).

Example embodiments of cutters (or cutter apparatuses) include an engagement interface with an inner (or central) portion and an outer (or peripheral) portion. In example embodiments, the engagement interface includes an interior interface (e.g., a central interface within the cutter apparatus) configured to couple (e.g., slidably and rotatably couple) the housing and the handle together. In example embodiments, a cutter apparatus includes a housing portion, a handle portion, and an interior interface defined therebetween such that the handle and housing portions are rotatably repositionable in relation to each other for reconfiguring the cutter apparatus. In example embodiments, the engagement interface includes a coupler configured to permit the handle to be rotatably repositioned in relation to the housing. The coupler includes, for example, a channel and a bearing (e.g., included as part of or provided on the handle and the housing, respectively, or vice versa). The bearing is secured or fitted (e.g., snapped-fitted) within and repositionable in relation to (e.g., along) the channel.

Referring to FIGs. 13, 13A, 14, 14A, and 14B, in this example embodiment, the housing and handle portions 102 and 104 include a bearing 162 and a channel 164, respectively. The bearing 162 is installed (e.g., snap-fitted) into the channel 164 and includes one or more engagement surfaces (or portions) configured to be repositionable in relation to the channel 164 (e.g., along and pivotally within the channel). In this example embodiment, the bearing 162 is slidably coupled with the channel 164. An interior interface 170 is provided (or defined), for example, by the bearing 162 (of the housing portion 102) and the channel 164 (of the handle portion 104).

Example embodiments of cutters (or cutter apparatuses) include a mechanism or device that facilitates multiple different engagement configurations at which housing and handle portions of the cutter are secured together and, when the portions are not in one of the engagement configurations, maintains a coupling arrangement as between the housing and handle portions. To this end, the channel 164 (e.g., a cylindrical channel or bore) includes or is provided with an inwardly extending annular ridge or ridge structure 172, and the bearing 162 includes or is provided with dual symmetrical flexible members 174a and 174b with laterally extending end portions 175a and 175b, respectively, that are fitted into and secured within the channel 164. Referring to FIGs. 13A and 14, the housing portion 102 includes symmetrical raised portions 176a and 176b, and the handle portion 104 includes complementary recessed portions 178a and

178b. Referring to FIG. 14A, the ridge structure 172 includes or is provided with ridge portions 180a and 180b (e.g., as shown). The bearing 162 is installed in the channel 164 by pressing its flexible members 174a and 174b inward a sufficient amount to allow their respective laterally extending end portions 175a and 175b to reposition past the ridge portions 180a and 180b (of the ridge structure 172) and into the channel 164. With the symmetrical raised portions 176a and 176b aligned with the recessed portions 178a and 178b, respectively, or aligned with the recessed portions 178b and 178a, respectively, the handle portion 104 can be slid forward to engage with the housing portion 102 in the selected cutter apparatus configuration. The ridge structure 172 and the bearing 162 are configured such that the ridge structure 172 prevents the laterally extending end portions 175a and 175b (of the bearing 162) from exiting the channel 164 once the bearing 162 is snap-fitted into or otherwise installed in the channel 164. Referring to FIG. 14B, the ridge structure 172 includes or is provided with ridge portions 182a, 182b, 184a, and 184b (e.g., spaced as shown) that engage with the laterally extending end portions 175a and 175b when the bearing 162 is installed (and its flexible members 174a and 174b no longer compressed) preventing the laterally extending end portions 175a and 175b from being withdrawn from the channel 164. With the complementary portions of the exterior interface 160 disengaged, the housing portion 102 and the handle portion 104 remain coupled together and are repositionable (in this example, both longitudinally and rotationally) in relation to each other.

Thus, in an example embodiment, a cutter apparatus includes a housing with a blade carrier, and a handle coupled to and repositionable in relation to the housing to multiple different engagement positions at which the housing and the handle are secured together, the housing and the handle being configured such that when not secured together the housing and the handle remain coupled together and are repositionable in relation to each other. In example embodiments, the housing and the handle are repositionable further apart from each other (e.g., when portions of an engagement interface therebetween are disengaged) and a portion of the housing (e.g., a bearing or other coupling component or structure) is slidably coupled with a recessed or other complementary portion of the handle. In example embodiments, the housing and the handle are configured to permit rotation of the handle (about an axis) in relation to the housing, or vice versa, when the housing and the handle are not secured together. In

example embodiments, the housing and the handle are one or more of directly coupled (e.g., in direct contact with each other), indirectly coupled (e.g., coupled together by one or more intermediary coupling elements or components), continuously coupled (e.g., at all times and/or by a continuous coupling structure or mechanism), and intermittently
5 coupled (e.g., when elements or components providing or defining an engagement interface are repositionable in relation to each other).

Example embodiments of cutters (or cutter apparatuses) include a guard (or guard structure) with multiple workpiece contact portions that are associated (e.g., mutually exclusively) with multiple different cutter configurations, respectively.
10 Referring to FIG. 19, in this cutter apparatus configuration, the blade 111 is extended from the cutter apparatus 100, and a contact portion 192 of a guard 190 brought into contact with a workpiece 194 during a cutting operation. The guard 190 includes multiple contact portions, for example, symmetrical contact portions such as those provided by guards 130a and 130b.

15 Thus, in an example embodiment, a cutter apparatus includes a housing configured for gripping by a hand, a blade holder and/or blade coupled to the housing, a guard (or guide) secured (e.g., fixedly secured) to the housing, and a handle coupled to the housing via an engagement interface configured to allow a user of the cutter apparatus to selectively interfit together the housing and the handle in multiple different
20 cutter apparatus configurations including a pair of configurations in which the guard, in relation to each configuration, faces the blade from right and left sides, respectively, of the cutter apparatus. In example embodiments, the guard includes multiple workpiece contact portions (mutually exclusively) associated with the multiple different cutter apparatus configurations, respectively. In example embodiments, the housing and the
25 handle are tool-lessly reconfigurable.

In example embodiments, a cutter (or cutter apparatus) is reconfigurable (e.g., in relation to a gripping interface, surface, or structure) in multiple different cutter configurations and includes multiple cut guards (or cut guides) positioned for contact with a workpiece depending upon the cutter configuration. In example embodiments, at
30 least one of the multiple cut guards is positioned for contact with a workpiece for each of the configurations. In example embodiments, a different cut guard is positioned for contact with a workpiece for each of the configurations.

One or more of the guards is configured, for example, such that the cutter can be slid along the top of a box, allowing the top of the box to be removed more easily and safely with less risk of damage to merchandise inside. A guard on either side of the knife, as described herein, facilitates ambidextrous operation.

5 Referring to FIGs. 2A and 3, in this example embodiment, the housing portion (or distal portion) 102 includes or is provided with an opening 200 at least partially defined by surfaces (or other portions) of the housing (e.g., symmetrical surfaces) that face different directions, respectively. In this example embodiment, distal end portions 202a and 202b form or provide a V-shaped end portion of the housing (e.g. as shown).
10 In this example embodiment, the cut guards 130a and 130b (mirror images of each other) are positioned adjacent to the distal end portions 202a and 202b, respectively.

Thus, in an example embodiment, a cutter apparatus includes a distal portion including a housing with an opening, a blade carrier coupled to and repositionable in relation to the housing, and multiple cut guards (or cut guides), and a proximal portion
15 coupled to the distal portion such that the portions are repositionable in relation to and interfit with each other in multiple different configurations in which the portions are secured together and a different cut guard is positioned for contact with a workpiece for each of the configurations.

In example embodiments, the distal portion is or includes a guide for an
20 actuator/slider configured for repositioning the blade carrier. The cutter apparatus can include, for example, an actuator (e.g., a slider) coupled to the housing and configured to allow a user of the cutter apparatus to reposition the blade carrier, and an actuator guide (e.g., a slider guide) secured to the housing. One or more of the cut guards and the actuator guide can be, but are not necessarily, integrally formed.

25 In example embodiments, the opening is defined at least in part by a two (symmetrical) end portions (e.g., substantially flat/planar surfaces) of the housing that face the opposing guards, respectively.

In example embodiments, the cut guards are fixedly positioned (e.g., secured together) in relation to each other (and in relation to the housing). The multiple cut
30 guards include, for example, two cut guards positioned at opposite sides (or portions) of the housing. In this example embodiment, the cut guards 130a and 130b are positioned adjacent to opposite ends 204a and 204b, respectively, of the opening 200.

The proximal portion includes, for example, a handle with a bottom side (e.g., with a curved ergonomic shape configured to be held by the inside of the user's fingers opposite the knuckles during a cutting operation) and, for each of the configurations, one of the cut guards is positioned adjacent to a side (or portion) of the housing that is contiguous and/or in alignment with the bottom side of the handle and the other guard is positioned adjacent to a top side of the cutter apparatus.

One or more of the cut guards (e.g., all of the cut guards) can include a recessed portion (i.e., a tape splitter) that faces the workpiece when the cut guard is in a configuration in which it is positioned for contact with the workpiece. A tape splitter formed into each guard allows taped boxes to be opened without exposing the blade, reducing the risk of accidental cuts. Referring to FIG. 20, in this example embodiment, the cut guards 130a and 130b include or are provided with recessed portions 206a and 206b (e.g., contoured as shown), respectively.

In example embodiments, a cutter apparatus includes a housing, a blade holder coupled to the housing, and multiple guards coupled to the housing, at least two of the guards being fixed in position in relation to each other and/or in relation to a distal portion of the housing, the housing including distal and proximal portions that are repositionable in relation to each other in multiple different configurations in which the portions are secured together and a different guard is positioned for contact with a workpiece for each of the configurations. In example embodiments, for each of the configurations, one of the guards is positioned adjacent to a side of the housing that is adjacent to a bottom side of the cutter apparatus. In example embodiments, at least one of the guards includes a recessed portion that faces the workpiece when the guard is in a configuration in which the guard is positioned for contact with the workpiece.

Example embodiments of cutters (or cutter apparatuses) include a mechanism or device that facilitates rotatable repositioning of a blade storage assembly about an axis that is parallel or substantially parallel to a longitudinal axis associated with a blade holder and/or a blade of the cutter. Referring to FIGs. 15, 16A, 16B, 17A, 17B, 18A, and 18B, in this example embodiment, the cutter apparatus 100 includes a blade storage assembly 210 that is repositioned in relation to the handle portion 104 for gaining access to a spare blade holder 212 (of the assembly 210). In this example embodiment, the blade storage assembly 210 is coupled (e.g., slidably coupled) to the handle portion 104.

The blade storage assembly 210 includes or is provided with upper rails 214a and 214b and lower rails 216a and 216b that interface with complementary portions or structures of the handle portion 104, allowing the blade storage assembly 210 to be slidably withdrawn from the base of the handle as denoted by arrow 218 (FIG. 15). By way of
5 example, the blade storage assembly 210 is coupled to the handle portion 104 with a friction fit (e.g., of sufficient strength to steady the assembly in position and/or resist slight forces imparted, perhaps inadvertently, by a user of the cutter apparatus).

Thus, in an example embodiment, a cutter apparatus includes a housing configured for gripping by a hand, a blade holder and/or a blade coupled to the housing,
10 and a blade storage assembly that is coupled to the housing and rotatably repositionable about an axis parallel or substantially parallel to a longitudinal axis associated with the blade holder and/or the blade. The blade holder and/or the blade can be, for example, slidably supported within the housing and repositionable along the longitudinal axis.

Example embodiments of cutters (or cutter apparatuses) include a blade storage
15 compartment coupled to and repositionable in relation to a portion of the cutter (e.g., a handle portion) and a mechanism or device that facilitates securing blades within the blade storage compartment and preventing the blade storage assembly from being decoupled (or separated) from the portion of the cutter. The blade storage assembly 210 and the handle portion 104 include surfaces (e.g., spring-biased latch elements and
20 complementary engagement surfaces, respectively) that prevent the blade storage assembly from being completely separated from the handle portion.

The blade storage holder (or compartment) 212 is configured for holding spare blades (e.g., five blades) and includes a plurality of springs (or other biasing components) configured, for example, to perform one or more of: securing blades within
25 the blade storage compartment, controlling how many blades can be simultaneously withdrawn from the blade storage compartment, providing resistance to extending the blade storage assembly from the housing (e.g., during an initial/partial segment of the repositioning movement), and preventing the blade storage assembly from being completely removed from the housing (e.g., via positive lock with the housing).
30 Referring to FIGs. 16A and 16B, in this example embodiment, the plurality of springs includes a first spring 220 (e.g., a plastic spring molded in the blade storage compartment) configured to secure blades within the blade storage compartment (e.g.,

prevent the blades from falling out) and control how many blades can be simultaneously withdrawn from the blade storage compartment (e.g., only allow withdrawal of one blade at a time). The spring 220 includes a blade retention portion 224 (e.g., with surfaces/portions shaped and configured as shown). In FIG. 16B, the spring 220 is shown (in dashed lines) repositioned in relation to the blade storage compartment 212 as denoted by arrow 226 for allowing a user of the cutter apparatus to withdraw a blade from the blade storage compartment. In this example embodiment, the plurality of springs includes a second spring 230 (e.g., a plastic spring at the base of the spare blade compartment) configured to provide resistance to extending the blade storage assembly from the housing (e.g., latches into the rear body to provide resistance for extending the spare blade compartment) and prevent the blade storage assembly from being completely removed from the housing (when the assembly is extended to gain access to the blade storage compartment). The spring 230 includes an engagement portion (or latch) 232 (e.g., with surfaces/portions shaped and configured as shown), and the handle portion 104 includes recesses 234 and 236 configured to receive the engagement portion 232 therein. Referring to FIGs. 17A and 17B, when the blade storage assembly 210 is in its fully retracted closed position, the engagement portion 232 detents into recess 234 securing the assembly in position until (employing sufficient force to overcome the detent resistance) a user of the cutter apparatus 100 withdraws the assembly as denoted by arrow 238. Referring to FIGs. 18A and 18B, when the blade storage assembly 210 is repositioned to its fully extended opened position, the engagement portion 232 detents into recess 236 securing the assembly for withdrawing a blade from and/or reloading the blade storage compartment 212.

Thus, in an example embodiment, a cutter apparatus includes a housing configured for gripping by a hand, a blade holder and/or a blade coupled to the housing, and a blade storage assembly coupled to and repositionable in relation to a portion of the housing, the blade storage assembly including a blade storage compartment configured for holding spare blades and a plurality of springs configured to secure blades within the blade storage compartment and prevent the blade storage assembly from being completely removed from the housing.

Although the present invention(s) has(have) been described in terms of the example embodiments above, numerous modifications and/or additions to the above-

described embodiments would be readily apparent to one skilled in the art. It is intended that the scope of the present invention(s) extend to all such modifications and/or additions.

CLAIMS

What is claimed is:

1. A cutter apparatus comprising:
 - 5 a housing with a blade carrier configured for holding a blade in multiple different cutting edge orientations in relation to the housing, the cutting edge orientations including a pair of cutting edge orientations that are mirror images of each other; and
 - 10 a handle coupled to the housing via an engagement interface configured to allow a user of the cutter apparatus to selectively interfit together the housing and the handle in multiple different cutter apparatus configurations including a pair of configurations which, in conjunction with cutting edge orientations respectively selected from the pair of mirror image cutting edge orientations, accommodate ambidextrous operation of the cutter apparatus.
- 15 2. The cutter apparatus of claim 1, wherein the engagement interface is configured to allow the housing and the handle to interfit in multiple different predetermined configurations.
- 20 3. The cutter apparatus of claim 1, wherein the engagement interface includes an interior interface configured to couple the housing and the handle together.
4. The cutter apparatus of claim 3, wherein the interior interface is configured to slidably and rotatably couple the housing and the handle.
- 25 5. The cutter apparatus of claim 1, wherein the engagement interface includes an exterior interface configured to automatically lock the housing and the handle together when the housing and the handle are repositioned to interfit together in one of the cutter apparatus configurations.
- 30 6. The cutter apparatus of claim 5, wherein the exterior interface is configured to allow a user of the cutter apparatus to unlock the housing and the handle

by actuating multiple release devices provided on one or more of the housing and the handle.

7. The cutter apparatus of claim 1, wherein the engagement interface
5 includes a coupler configured to permit the housing and the handle to be repositioned further apart but not decoupled.

8. The cutter apparatus of claim 1, wherein the engagement interface
10 includes a coupler configured to permit the handle to be rotatably repositioned in relation to the housing or vice versa.

9. The cutter apparatus of claim 1, wherein the engagement interface
15 includes a channel and a bearing secured within and repositionable in relation to the channel.

10. The cutter apparatus of claim 9, wherein the channel includes or is
provided with an inwardly extending annular ridge and the bearing includes one or more
engagement surfaces configured to be repositionable in relation to the channel, the ridge
and the bearing being configured such that the ridge prevents the bearing from exiting
20 the channel.

11. A cutter apparatus comprising;
a housing configured for holding a blade; and
a handle coupled to the housing via an engagement interface configured to allow
25 a user of the cutter apparatus to selectively interfit together the housing and the handle in multiple different cutter apparatus configurations including a pair of configurations accommodating left and right-handed operation of the cutter apparatus, respectively.

12. A cutter apparatus comprising:
30 a housing configured for gripping by a hand;
a blade holder and/or blade coupled to the housing;
a guard secured to the housing; and

a handle coupled to the housing via an engagement interface configured to allow a user of the cutter apparatus to selectively interfit together the housing and the handle in multiple different cutter apparatus configurations including a pair of configurations in which the guard, in relation to each configuration, faces the blade from right and left sides, respectively, of the cutter apparatus.

13. The cutter apparatus of claim 12, wherein the housing and the handle are tool-lessly reconfigurable.

14. The cutter apparatus of claim 12, wherein the guard includes multiple workpiece contact portions associated with the multiple different cutter apparatus configurations, respectively.

15. A cutter apparatus comprising:
a housing with a blade carrier; and
a handle coupled to and repositionable in relation to the housing to multiple different engagement positions at which the housing and the handle are secured together, the housing and the handle being configured such that when not secured together the housing and the handle remain coupled together and are repositionable in relation to each other.

16. The cutter apparatus of claim 15, wherein the housing and the handle are symmetrical about a first plane and a second plane, respectively.

17. The cutter apparatus of claim 15, wherein the housing includes multiple guards.

18. The cutter apparatus of claim 17, wherein the handle is coupled to and repositionable in relation to the housing to multiple different engagement positions at which the housing and the handle are secured together and a different guard is positioned for contact with a workpiece for each of the engagement positions.

19. A cutter apparatus comprising:

a distal portion including a housing with an opening, a blade carrier coupled to and repositionable in relation to the housing, and multiple cut guards; and

5 a proximal portion coupled to the distal portion such that the portions are repositionable in relation to and interfit with each other in multiple different configurations in which the portions are secured together and a different cut guard is positioned for contact with a workpiece for each of the configurations.

10 20. The cutter apparatus of claim 19, wherein the distal portion and the proximal portion are symmetrical about a first plane and a second plane, respectively.

15 21. The cutter apparatus of claim 19, wherein the proximal portion includes a handle with a bottom side and, for each of the configurations, one of the cut guards is positioned adjacent to a side of the housing that is adjacent to the bottom side of the handle.

22. The cutter apparatus of claim 19, wherein the opening is at least partially defined by surfaces of the housing that face different directions, respectively.

20 23. The cutter apparatus of claim 19, wherein the cut guards include two cut guards positioned at opposite sides of the housing.

25 24. The cutter apparatus of claim 23, wherein the opening is defined at least in part by two end portions of the housing that face the opposing guards, respectively.

25 25. The cutter apparatus of claim 19, wherein the cut guards include two cut guards formed or provided as mirror images of each other.

30 26. The cutter apparatus of claim 19, wherein the cut guards are fixedly positioned in relation to each other.

27. The cutter apparatus of claim 19, wherein at least one of the cut guards includes a recessed portion that faces the workpiece when the cut guard is in a configuration in which the cut guard is positioned for contact with the workpiece.

5 28. A cutter apparatus comprising:
a housing;
a blade holder coupled to the housing; and
multiple guards coupled to the housing, at least two of the guards being fixed in
position in relation to each other.

10

29. The cutter apparatus of claim 28, wherein the blade holder includes a blade carrier coupled to and repositionable in relation to the housing.

15 30. The cutter apparatus of claim 28, wherein the housing includes distal and proximal portions that are repositionable in relation to each other in multiple different configurations in which the portions are secured together and a different guard is positioned for contact with a workpiece for each of the configurations.

20 31. The cutter apparatus of claim 30, wherein, for each of the configurations, one of the guards is positioned adjacent to a side of the housing that is adjacent to the bottom side of the cutter apparatus.

25 32. The cutter apparatus of claim 30, wherein at least one of the guards includes a recessed portion that faces the workpiece when the guard is in a configuration in which the guard is positioned for contact with the workpiece.

33. The cutter apparatus of claim 30, wherein the guards are fixedly positioned in relation to the distal portion.

30 34. The cutter apparatus of claim 28, wherein the guards include two guards positioned at opposite sides of the housing.

35. The cutter apparatus of claim 28, wherein the guards include two guards formed or provided as mirror images of each other.

36. A cutter apparatus comprising:

- 5 a housing configured for gripping by a hand;
a blade holder and/or a blade coupled to the housing; and
a blade storage assembly that is coupled to the housing and rotatably repositionable about an axis parallel or substantially parallel to a longitudinal axis associated with the blade holder and/or the blade.

10

37. The cutter apparatus of claim 36, wherein the housing includes a handle portion to which the blade storage assembly is coupled.

15 38. The cutter apparatus of claim 29, wherein the blade storage assembly includes a spare blade holder and is configured to be repositionable in relation to the handle portion for gaining access to the spare blade holder.

20 39. The cutter apparatus of claim 30, wherein the blade storage assembly and the handle portion include surfaces configured to prevent the blade storage assembly from being completely separated from the handle portion.

40. The cutter apparatus of claim 29, wherein the blade storage assembly is coupled to the handle portion with a friction fit.

25 41. A cutter apparatus comprising:
a housing configured for gripping by a hand;
a blade holder and/or a blade coupled to the housing; and
a blade storage assembly coupled to and repositionable in relation to a portion of the housing, the blade storage assembly including a blade storage compartment
30 configured for holding spare blades and a plurality of springs configured to secure blades within the blade storage compartment and prevent the blade storage assembly from being completely removed from the housing.

42. The cutter apparatus of claim 41, wherein the plurality of springs includes a first spring molded to an interior portion of the blade storage compartment, the first spring being configured to secure blades within the blade storage compartment and control how many blades can be simultaneously withdrawn from the blade storage
5 compartment.

43. The cutter apparatus of claim 41, wherein the plurality of springs includes a second spring molded to an exterior portion of the blade storage compartment, the second spring being configured to provide resistance to extending the
10 blade storage assembly from the housing and prevent the blade storage assembly from being completely removed from the housing.

44. A cutter apparatus comprising:
a housing;
15 a blade carrier coupled to the housing and repositionable in relation to the housing; and
multiple safety actuators configured to disengage, when a plurality of the safety actuators are activated, one or more interlocks that prevent the blade carrier from being repositioned for a blade change operation.
20

45. The cutter apparatus of claim 44, wherein the safety actuators include or are provided in the form of flexible components configured to be repositionable in relation to the housing.

25 46. The cutter apparatus of claim 44, wherein the safety actuators are biased to reposition away from the one or more interlocks.

47. The cutter apparatus of claim 44, wherein the one or more interlocks include portions configured to reposition in response to activation of the safety
30 actuators.

48. The cutter apparatus of claim 44, wherein the multiple safety actuators include dual blade change levers.

49. The cutter apparatus of claim 48, wherein the dual blade change levers
5 are part of the housing.

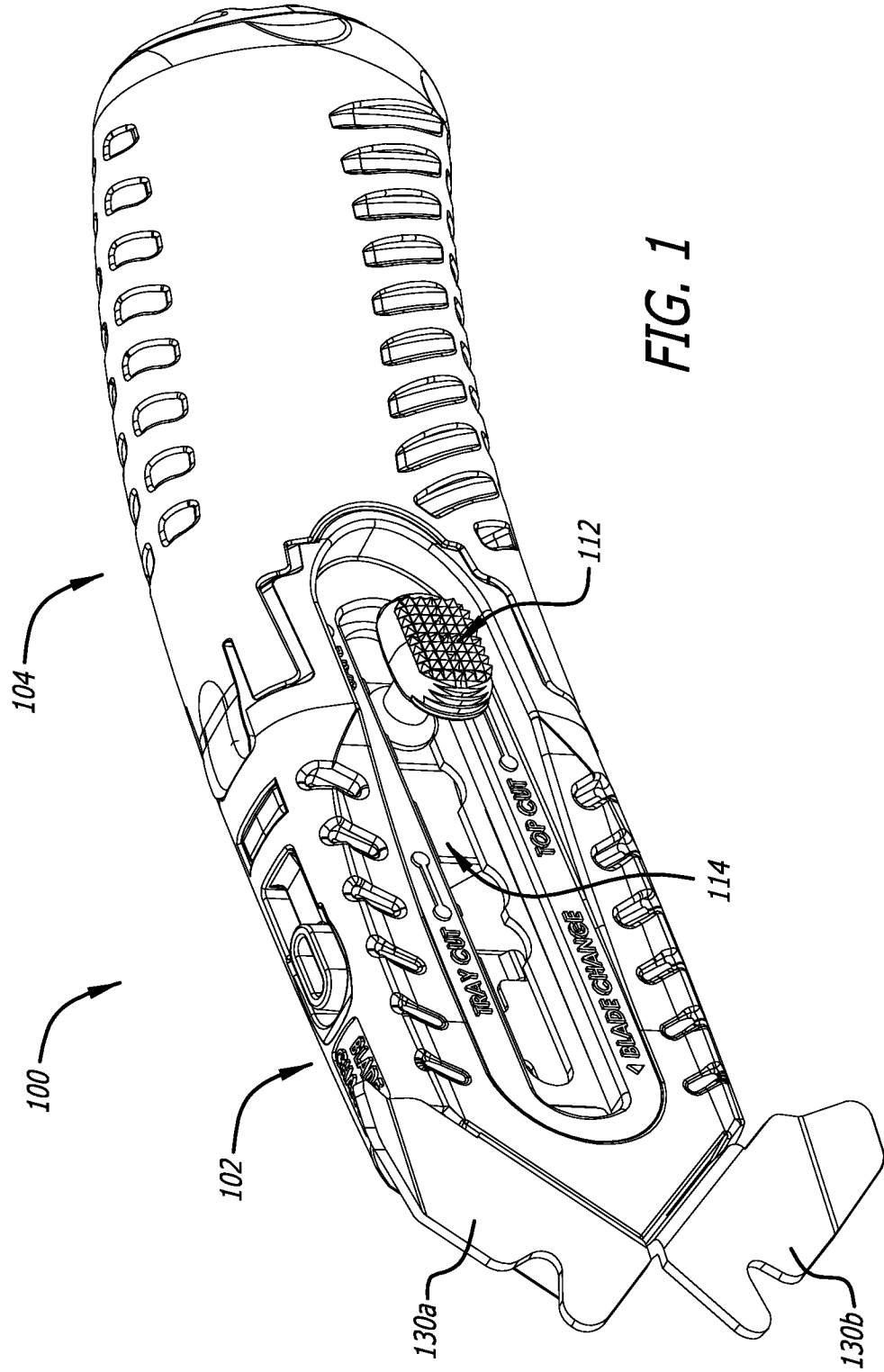
50. The cutter apparatus of claim 48, wherein the dual blade change levers are positioned at opposite sides of the housing.

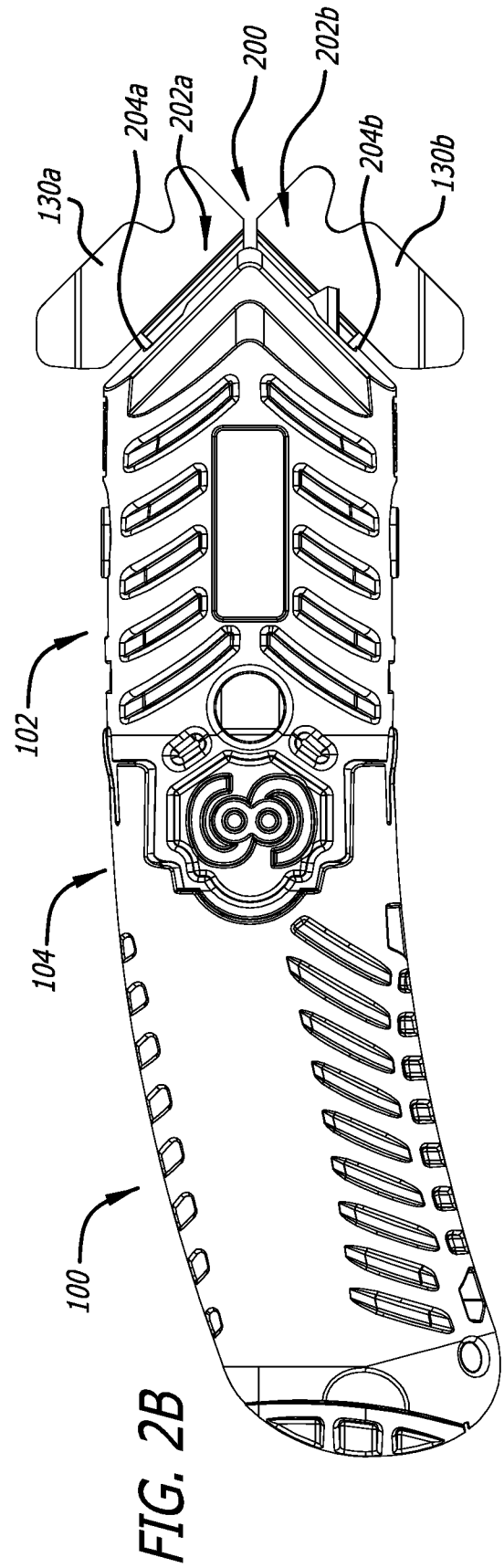
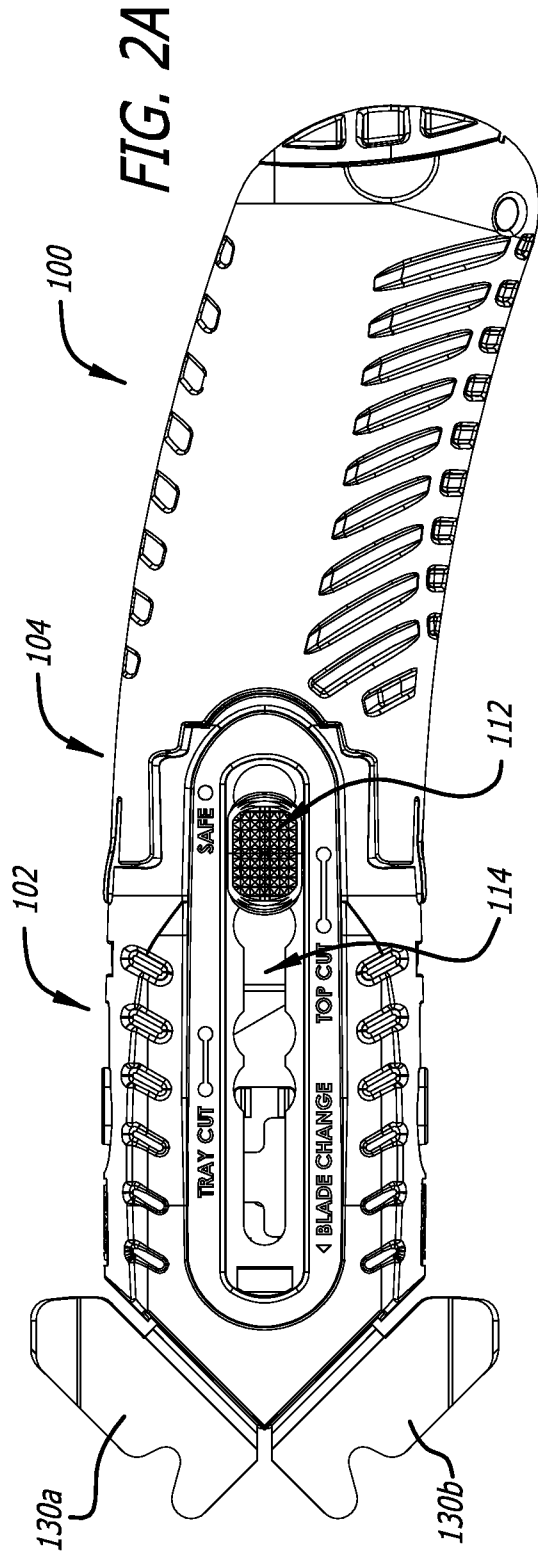
10 51. The cutter apparatus of claim 48, wherein the dual blade change levers are symmetrical.

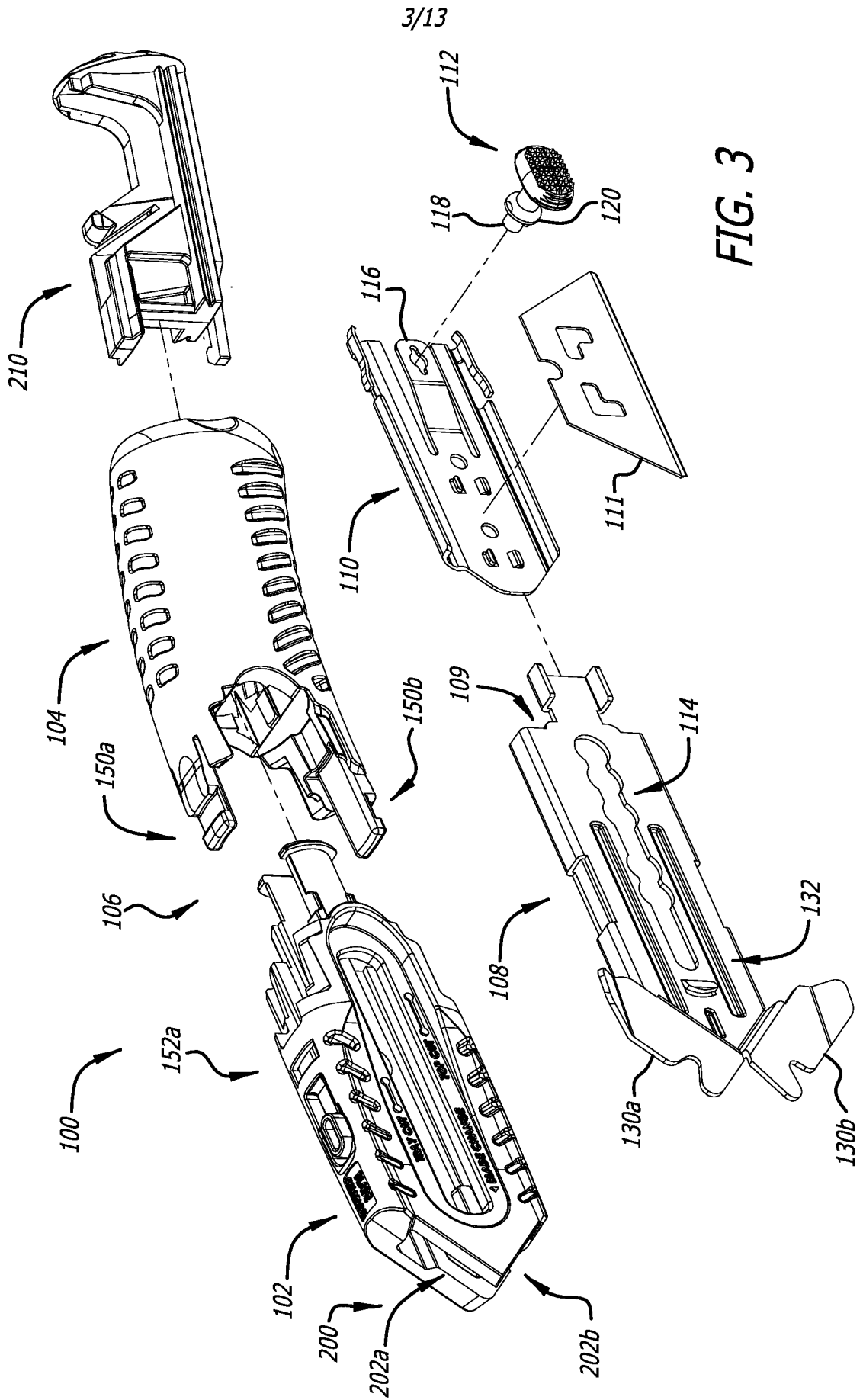
52. The cutter apparatus of claim 48, wherein the dual blade change levers are configured to activate when repositioned toward each other.

15

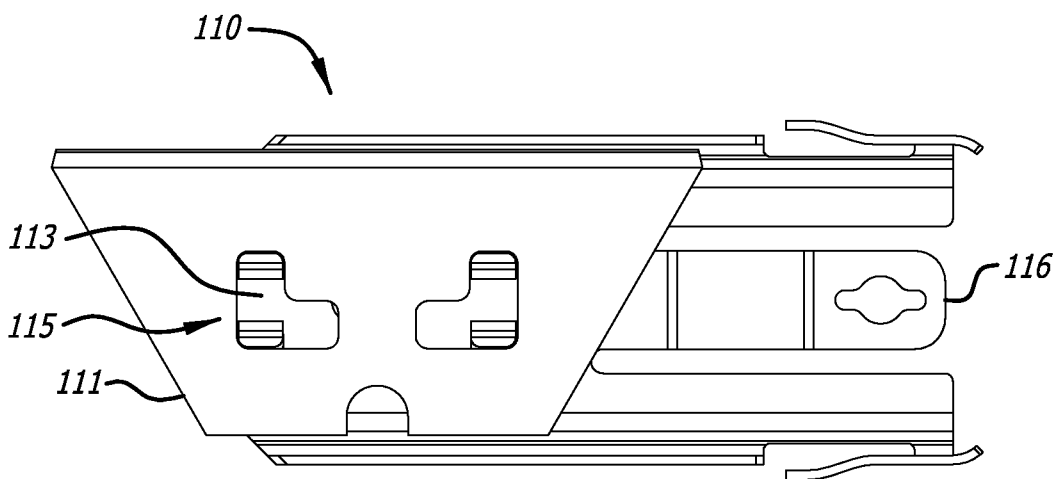
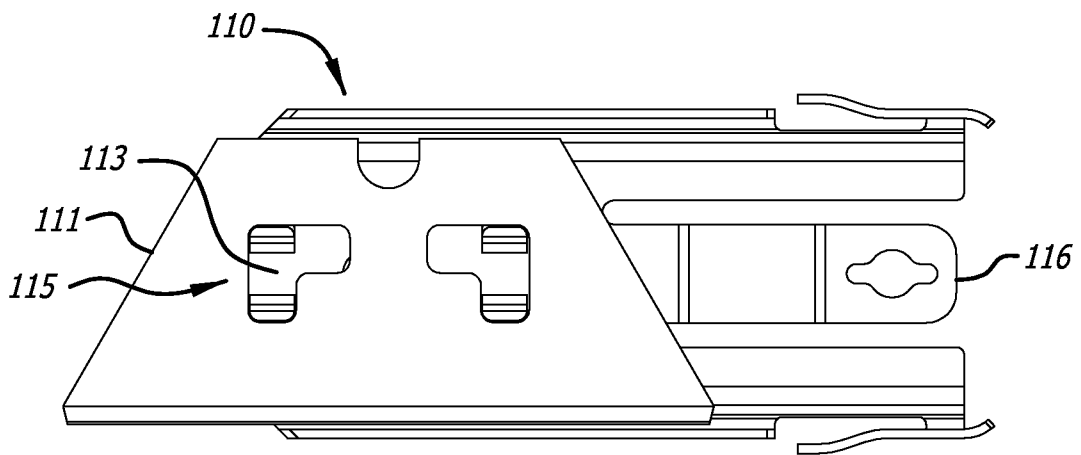
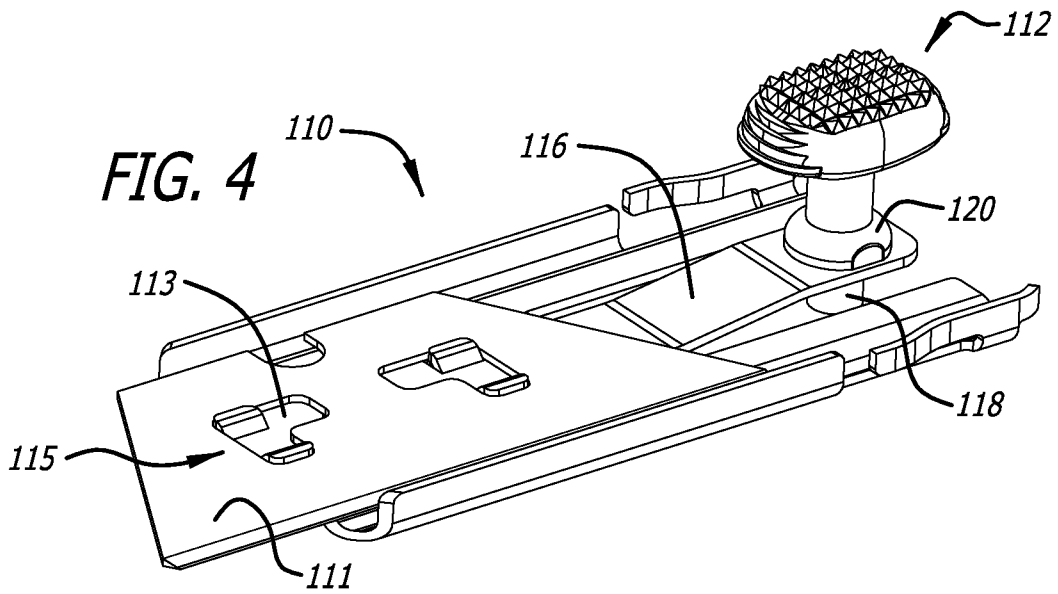
53. The cutter apparatus of claim 48, wherein the blade carrier is positioned between the dual blade change levers.







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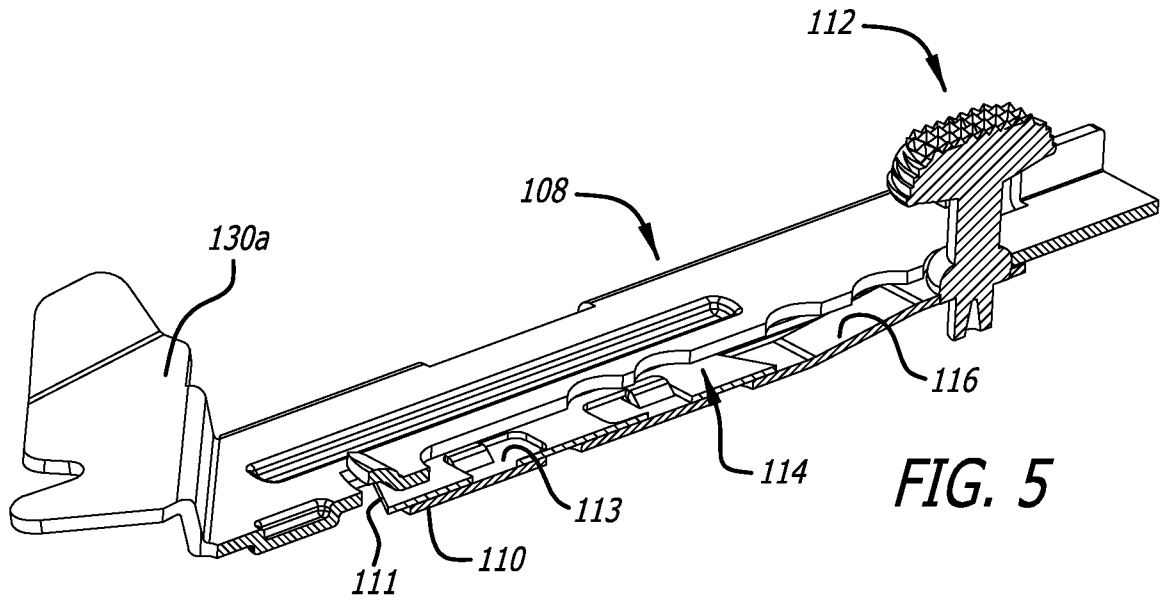


FIG. 5

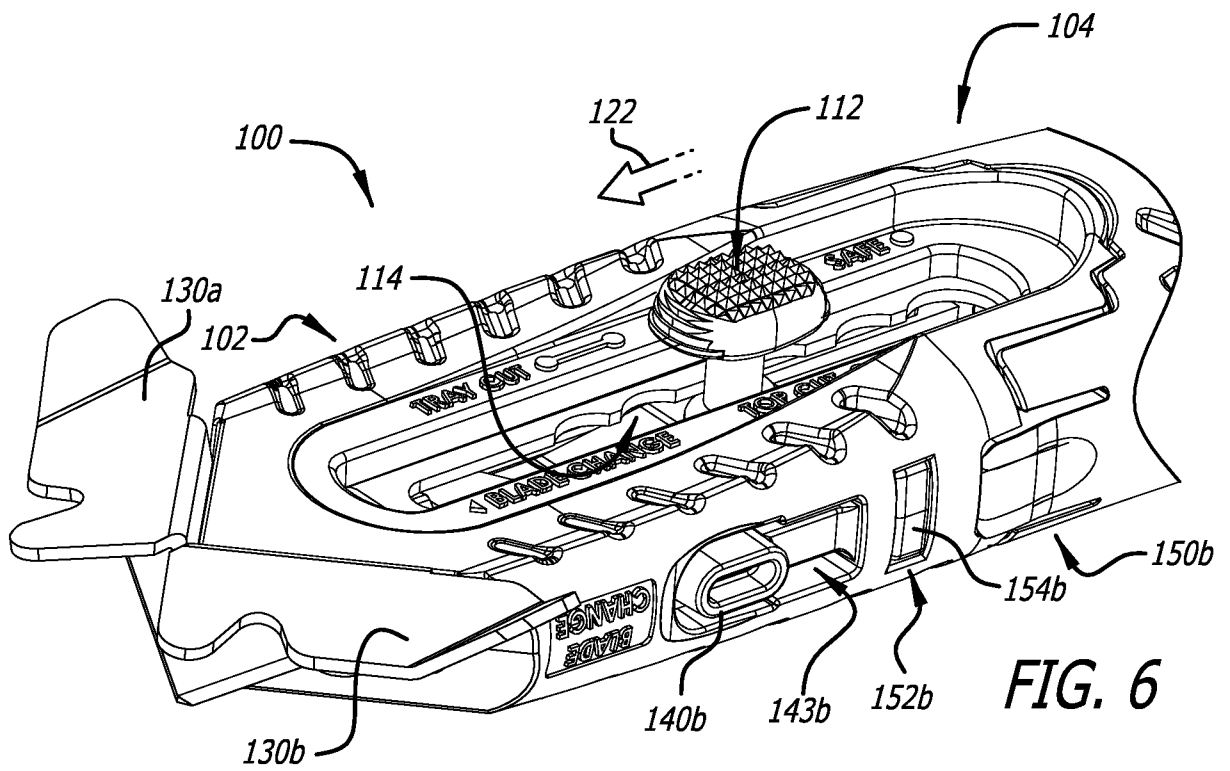


FIG. 6

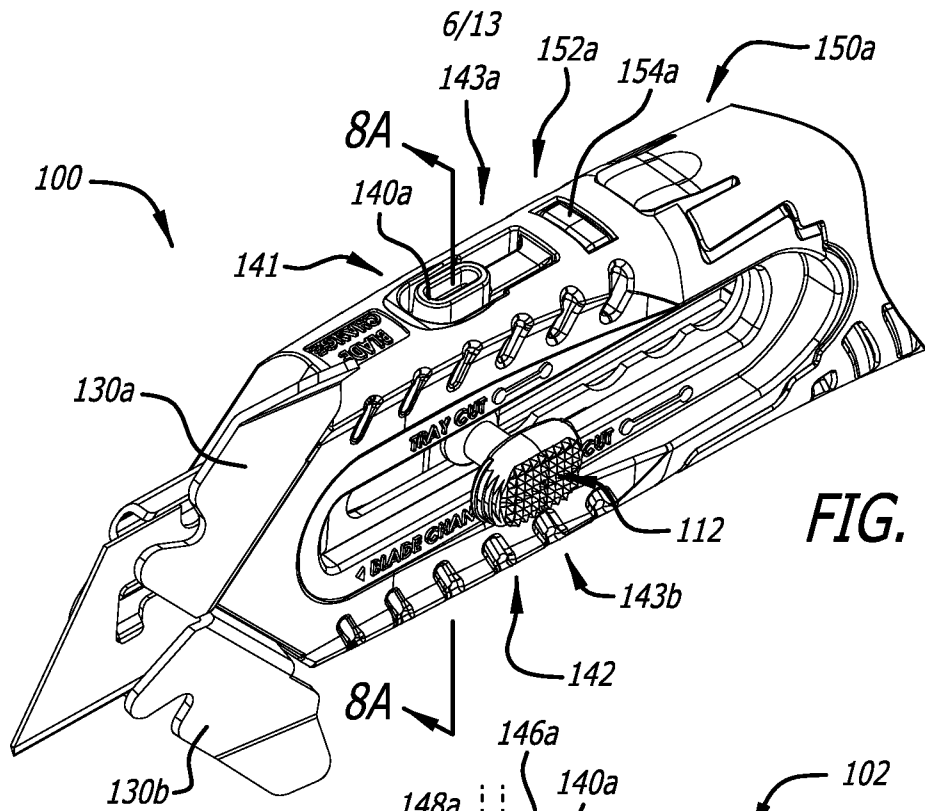


FIG. 7

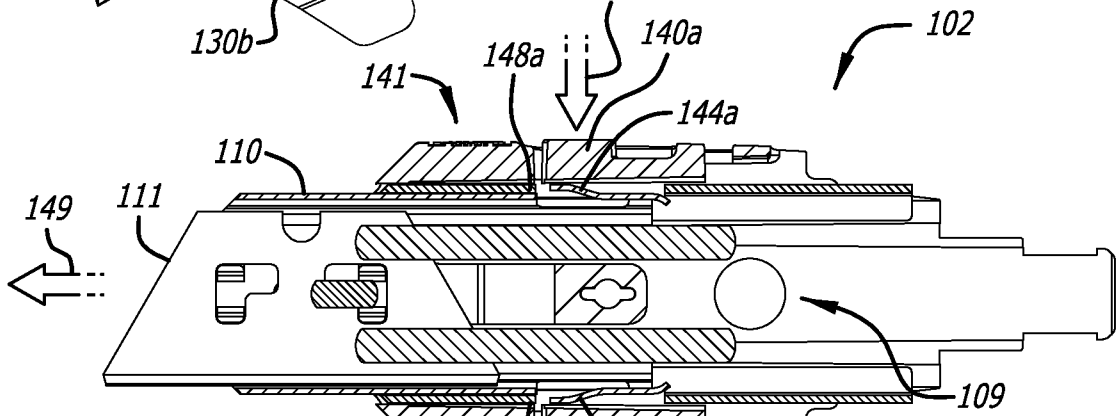


FIG. 8A

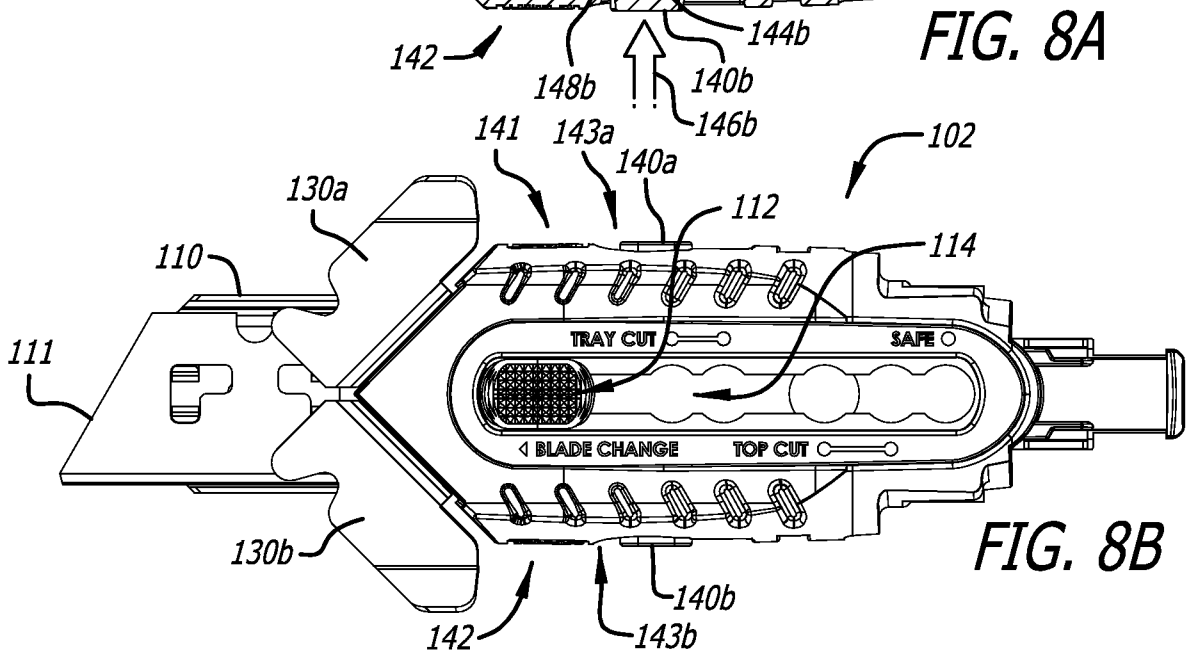


FIG. 8B

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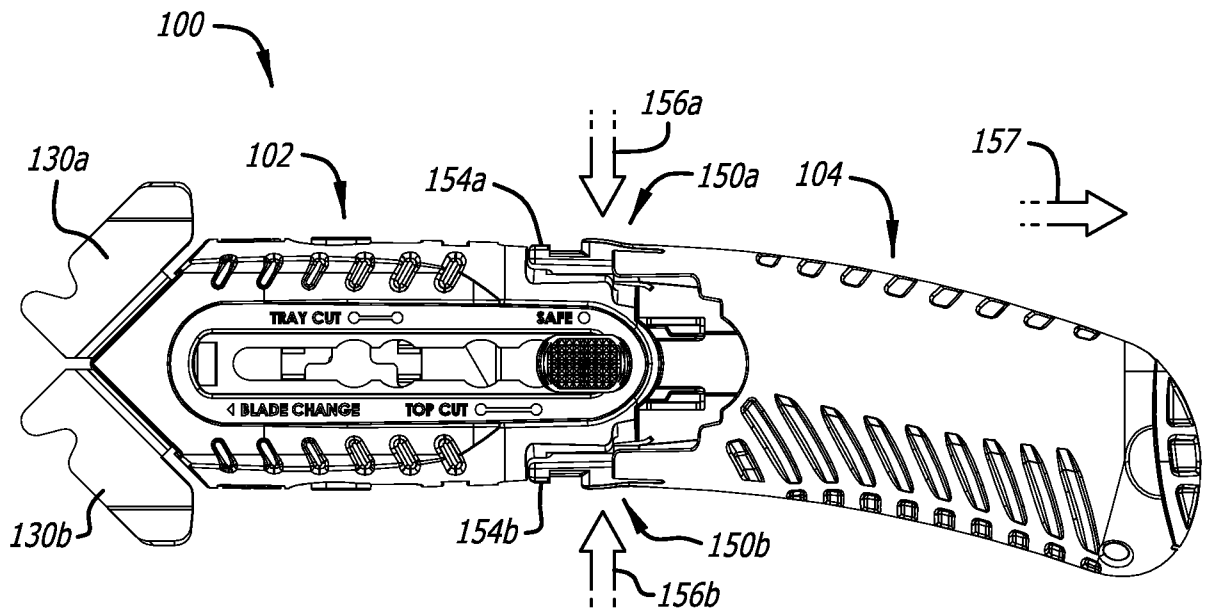


FIG. 9

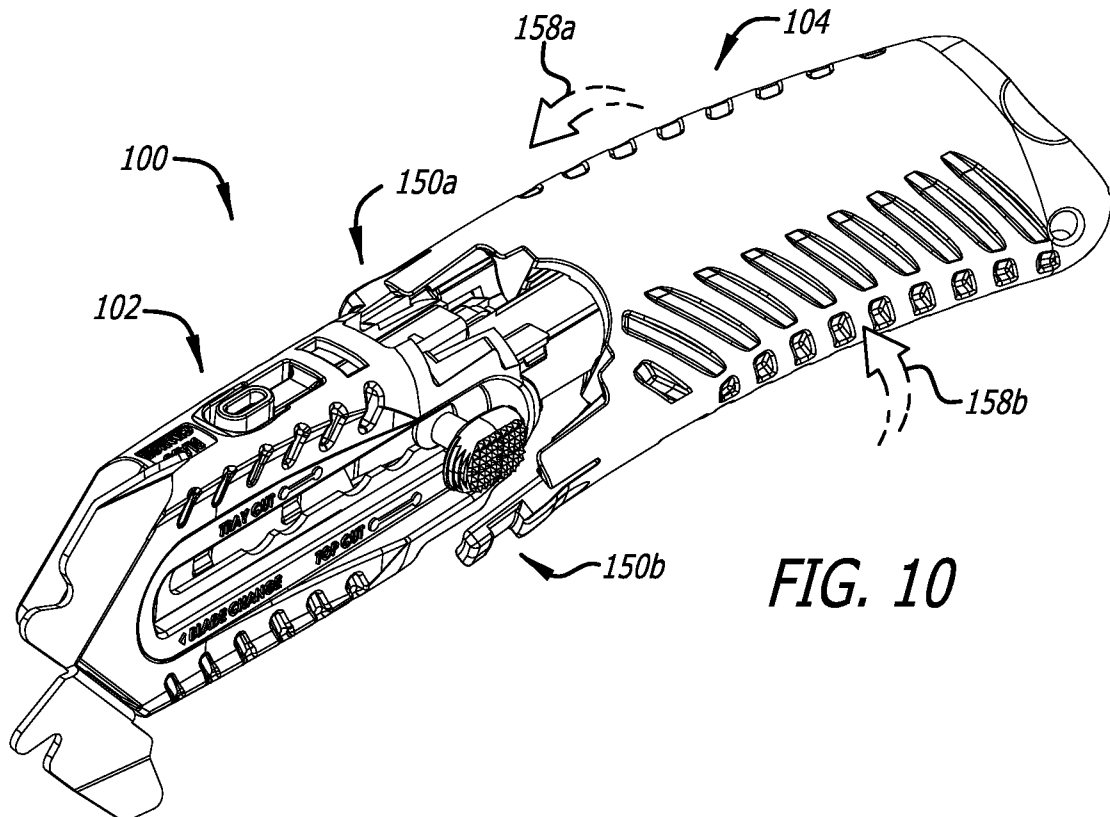
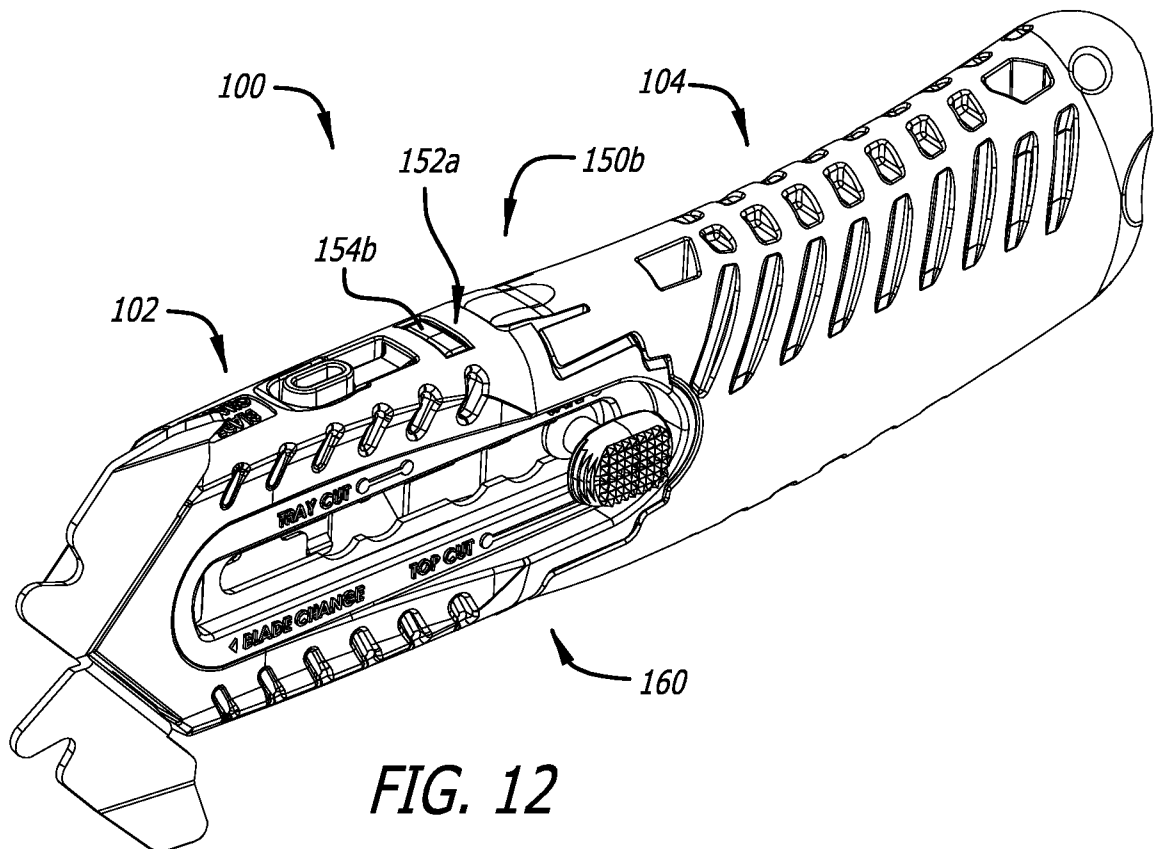
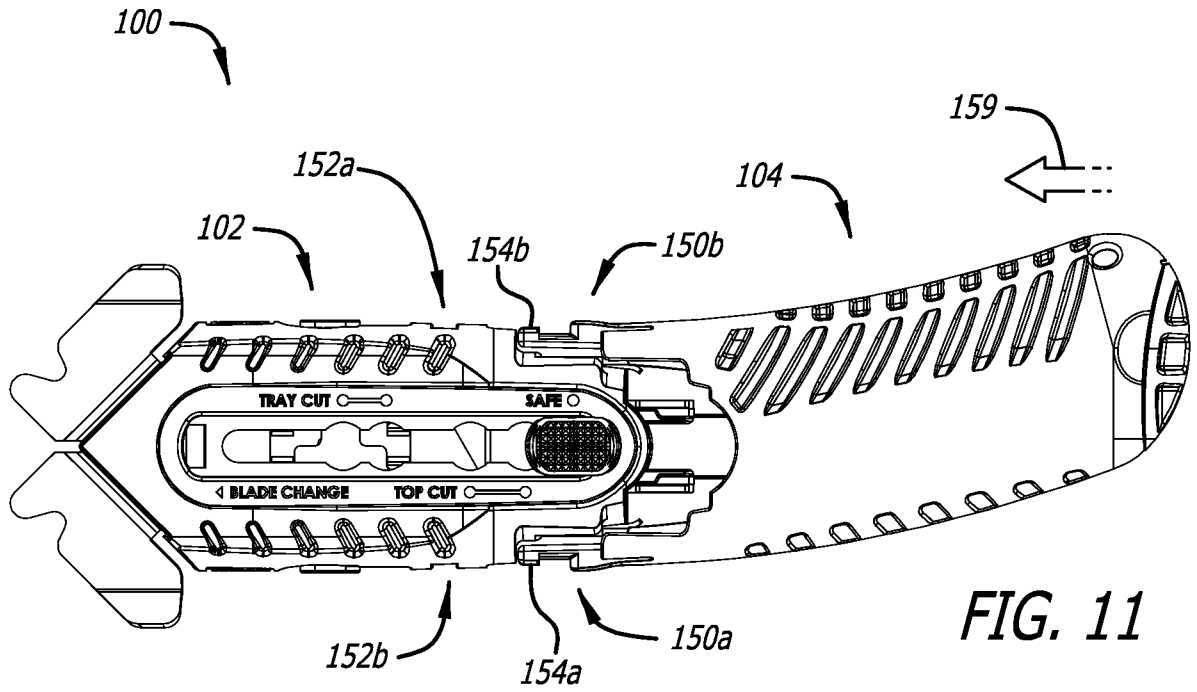
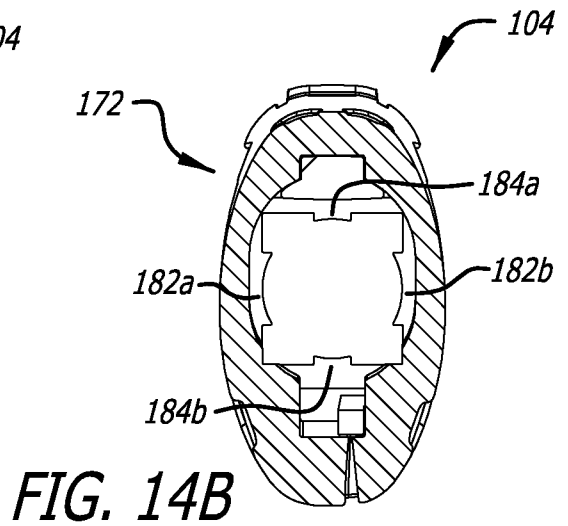
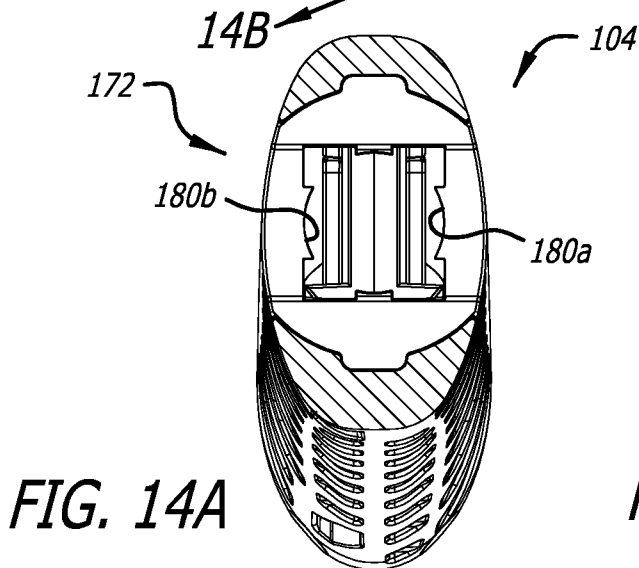
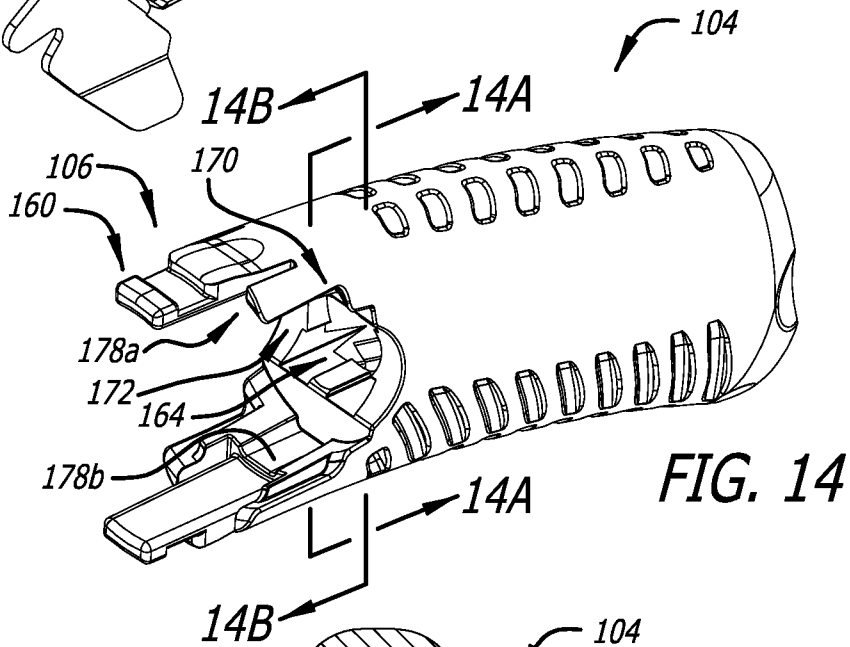
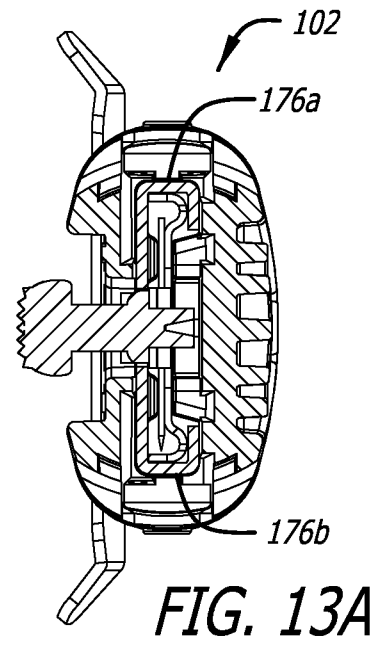
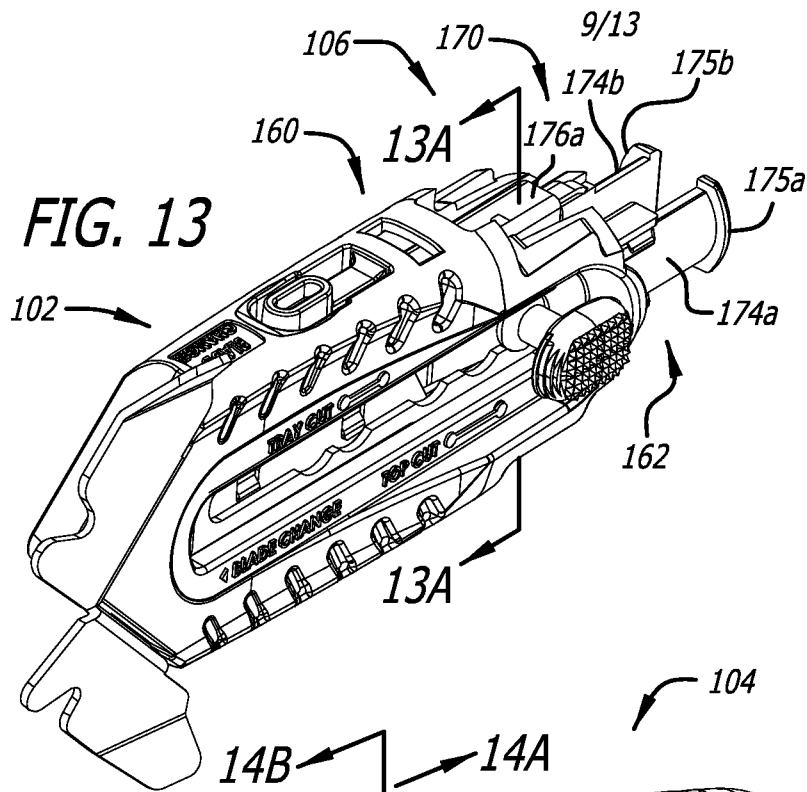
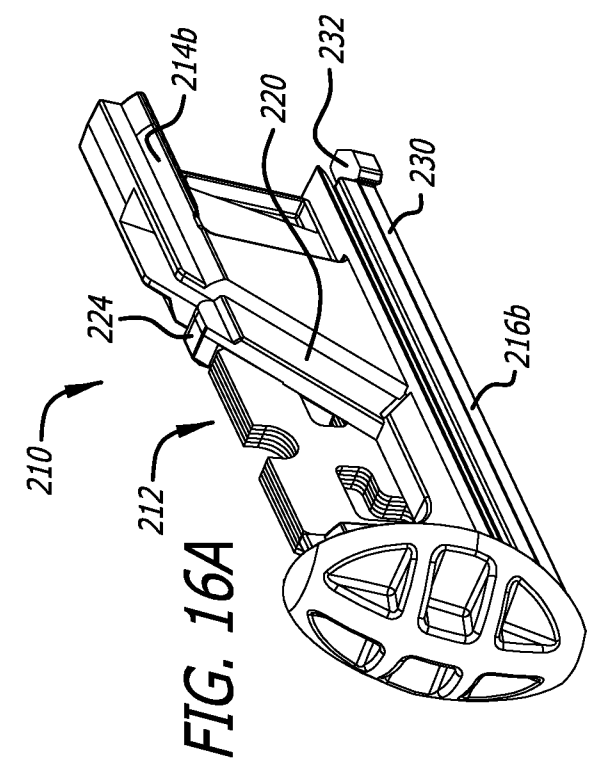
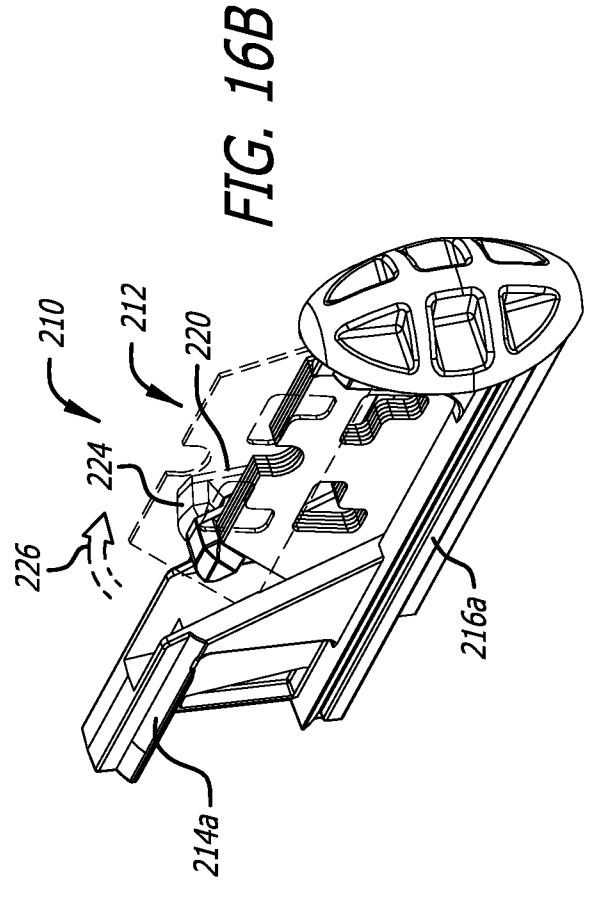
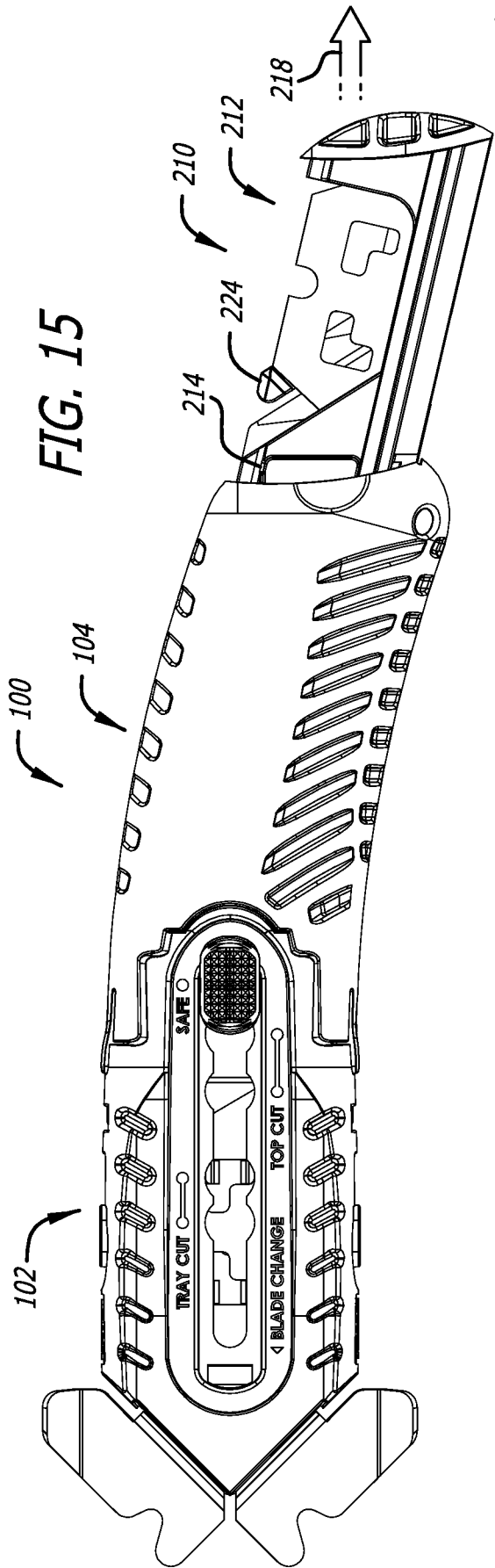


FIG. 10







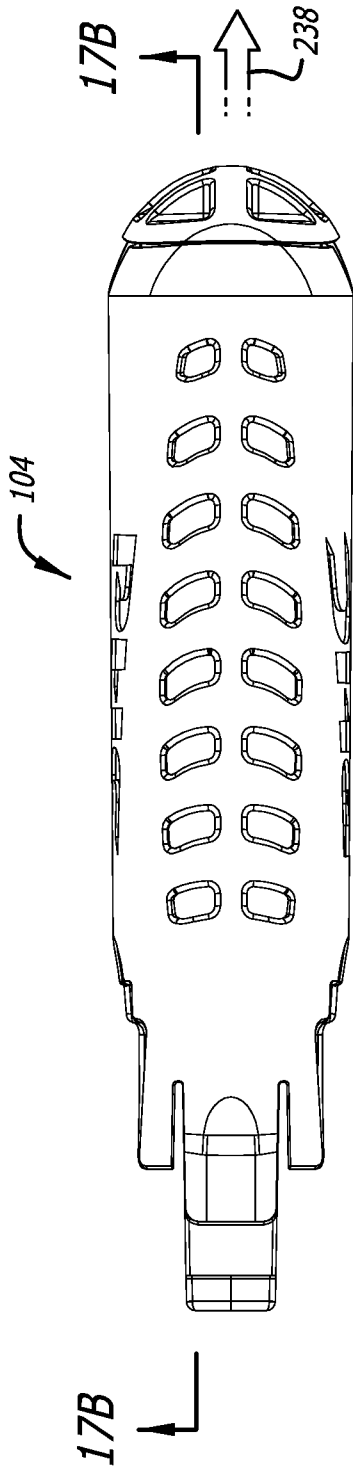


FIG. 17A

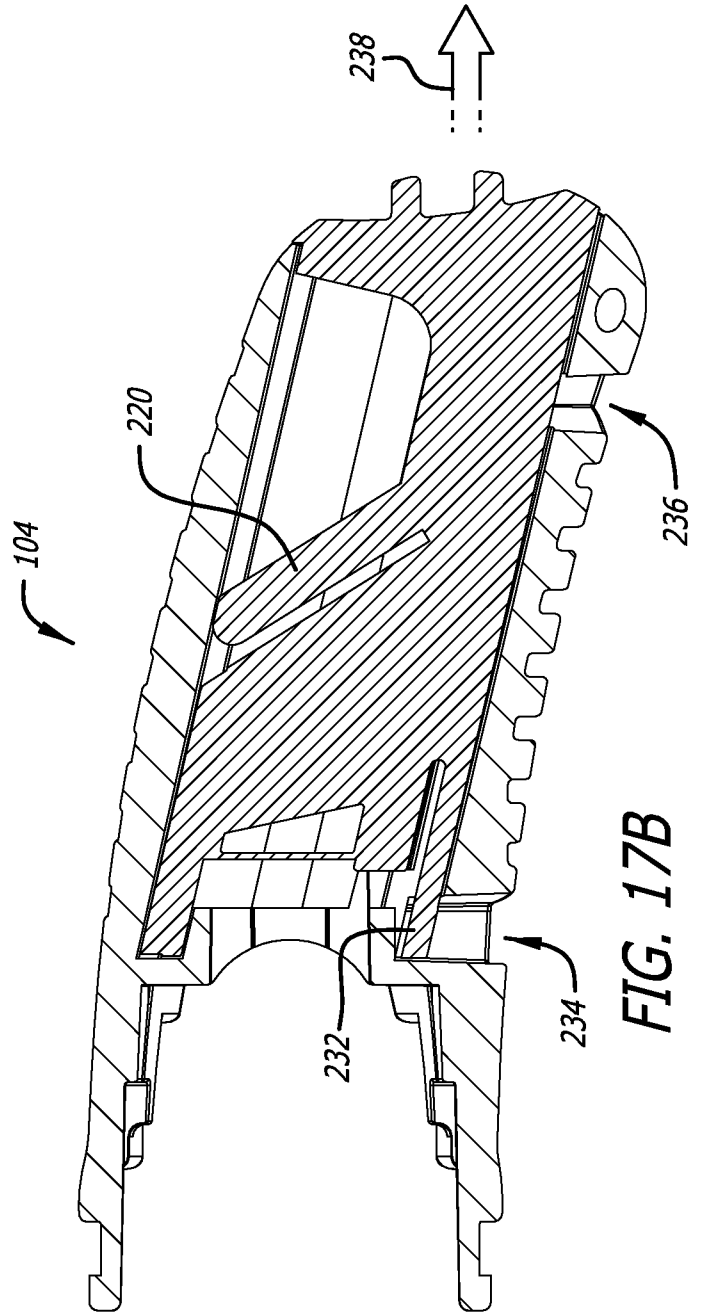
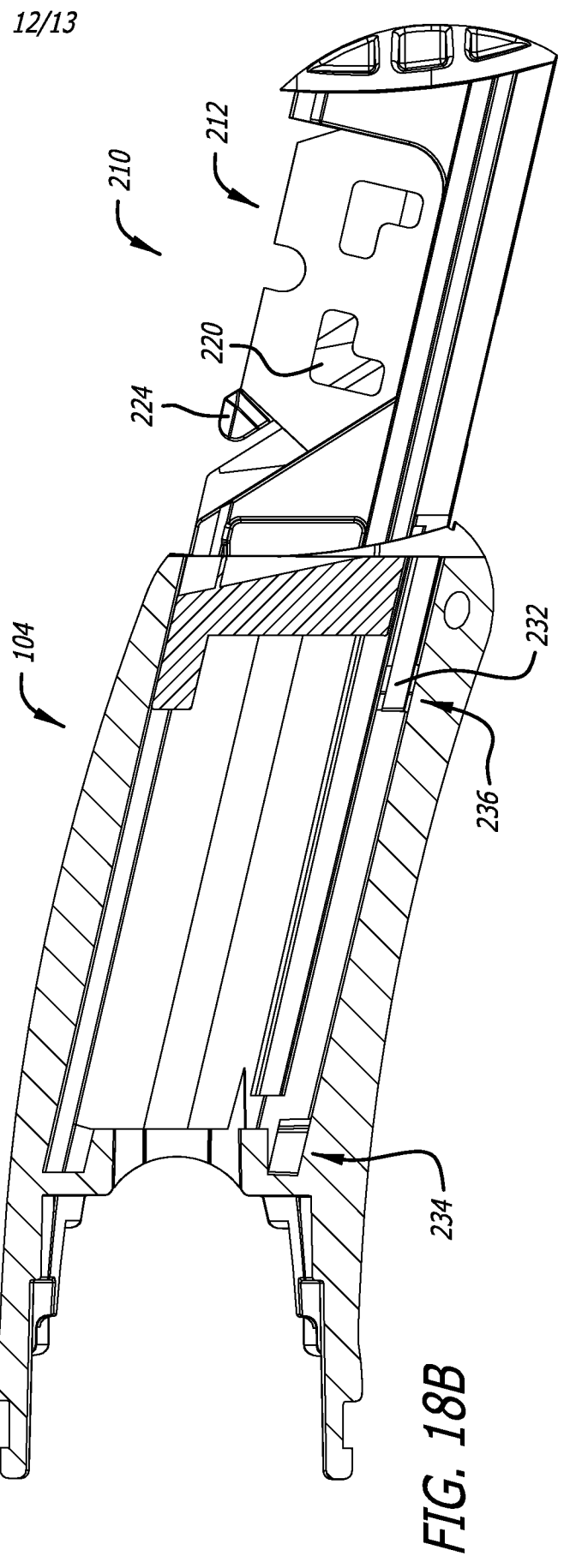
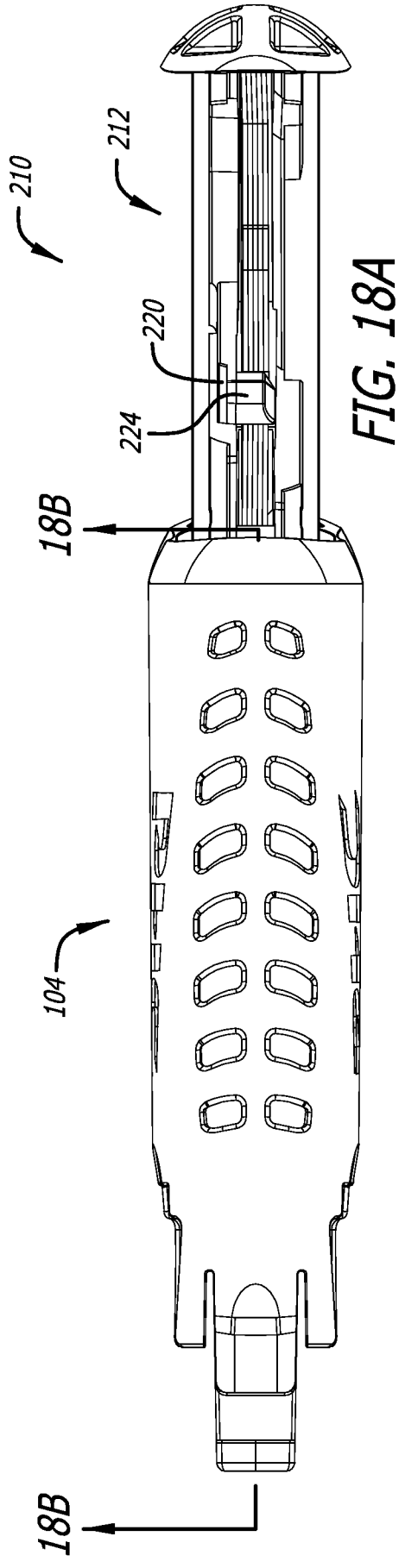


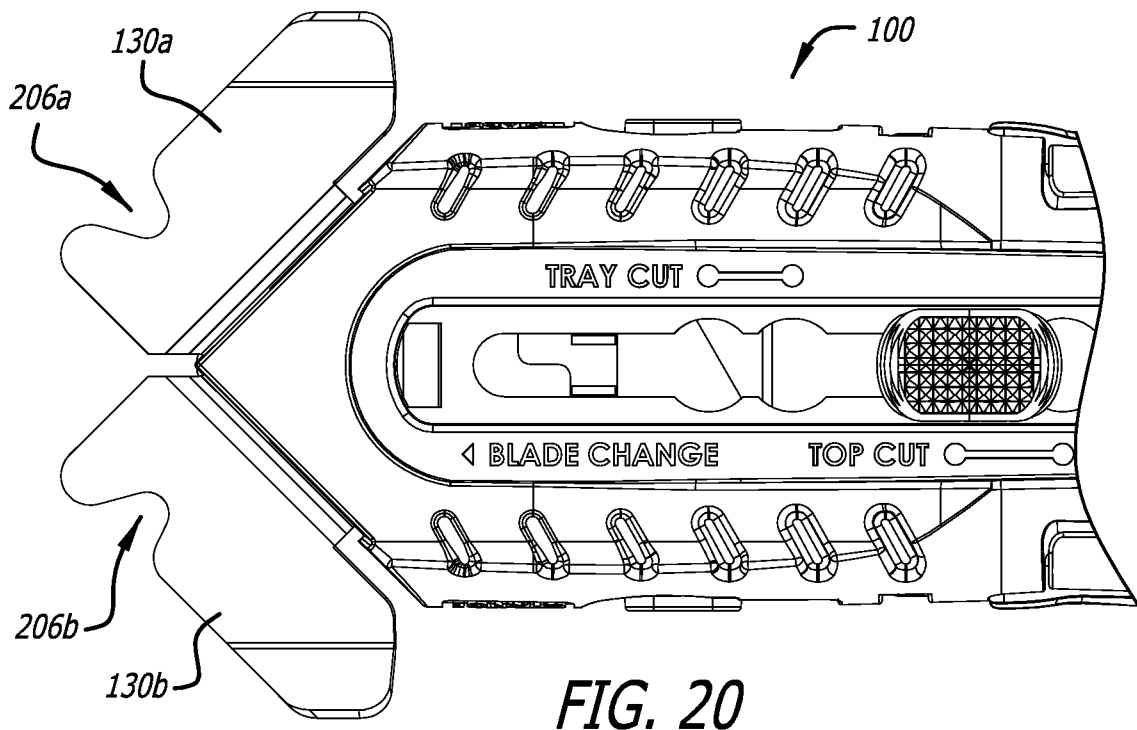
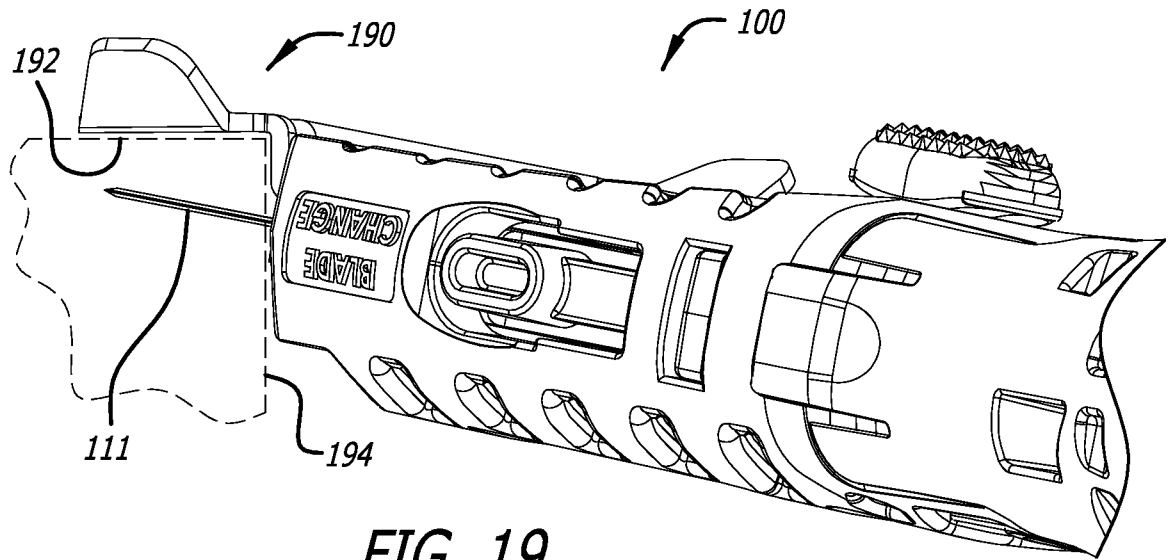
FIG. 17B



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FIG. 18A

FIG. 18B



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/62587

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(8) - B26B 1/00 (2013.01)
 USPC - 30/320
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 IPC(8) - B26B 1/00 (2013.01)
 USPC - 30/320

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 IPC(8) - B26B 1/00 (2013.01)
 USPC - 30/123, 124, 125, 132, 162, 151, 320

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 PubWEST (PGPB, USPT, EPAB, JPAB); PatBase; Google (Patents, Scholar, Web)
 Search Terms: Knife, cutter, blade, ambidextrous, left, right, hand, orientation, angle, direction, position, multiple, plurality, many, more than one, two, three, mirror, reverse, reflection, opposite, handle, grip, slide, rotate, pivot, swivel, bearing, remain, stay, attac

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X =====	US 2005/0172416 A1 (FELICIANO) 11 August 2005 (11.08.2005) Fig. 1-2; Para [0035], [0041]-[0042]	15 =====
Y		1, 7, 9-10, 16-18
X =====	US 2009/0266210 A1 (CHUNG et al.) 09 October 2009 (09.10.2009) Fig. 1-5, 8; Para [0016]-[0024], [0028]-[0029]	28-35 =====
Y		2-14, 17-27, 32
X =====	US 6,314,646 B1 (SCHMIDT) 13 November 2001 (13.11.2001) Fig. 1-3; col 5, ln 27-48, col 5, ln 64 to col 6, ln 28, col 7, ln 5-39	36-40 =====
Y		27, 32 / 9-10
X =====	US 2010/0037468 A1 (ROWLAY et al.) 18 February 2010 (18.02.2010) Fig. 1-6, 13-14, 18-23, 25; Para [0070], [0079], [0098]-[0099], [0109]-[0110], [0113], [0118], [0128], [0133], [0136]	41-43 =====
Y		46-53
X =====	US 2005/0217114 A1 (VOTOLATO) 06 October 2005 (06.10.2005) Fig. 1-5; Para [0048]	44-45, 48, 50-52 =====
Y		1-6, 8-14, 19-27, 46-47, 49, 53
Y	US 5,012,581 A (FLETCHER et al.) 07 May 1991 (07.05.1991) Abstract; Fig. 1-4; col 3, ln 24-51, col 4, ln 11-27, col 4, ln 46-59	1-6, 8-11 16, 20

Further documents are listed in the continuation of Box C.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 04 February 2013 (04.02.2013)	Date of mailing of the international search report 01 MAR 2013
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201	Authorized officer: Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 12/62587

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0090224 A1 (LIN) 09 April 2009 (09.04.2009) Fig. 1, 4; Para [0019], [0026]-[0027]	9-10