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Tan

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(54) **DUAL FASTENER MANIPULATION DEVICE**

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B25B 23/00 (2006.01)

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CPC ***B25B 13/481*** (2013.01); ***B25B 23/0007*** (2013.01)

(58) **Field of Classification Search**
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See application file for complete search history.

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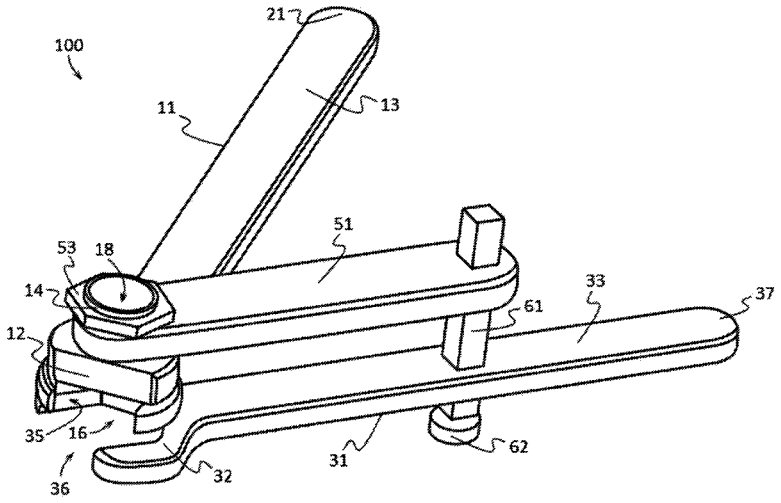
(57) **ABSTRACT**

A dual fastener manipulation device may be used to manipulate two fasteners, having the same rotational axis, which may be separated by various distances and various sized objects. The dual fastener manipulation device may include a first wrench having a first fastener engaging head, a first handle, and a pivot stud. A second wrench element may have a second fastener engaging head and a second handle. A pivot linkage may be pivotally coupled to the pivot stud, and a floating stud may be coupled to both the second wrench and to the pivot linkage. The first and second fastener engaging heads may be engaged to two fasteners having the same rotational axis, while the pivot linkage and floating stud may maintain the rotational axis of the fastener engaging heads, while also allowing the fastener engaging heads to be moved closer to or farther from each other.

20 Claims, 5 Drawing Sheets



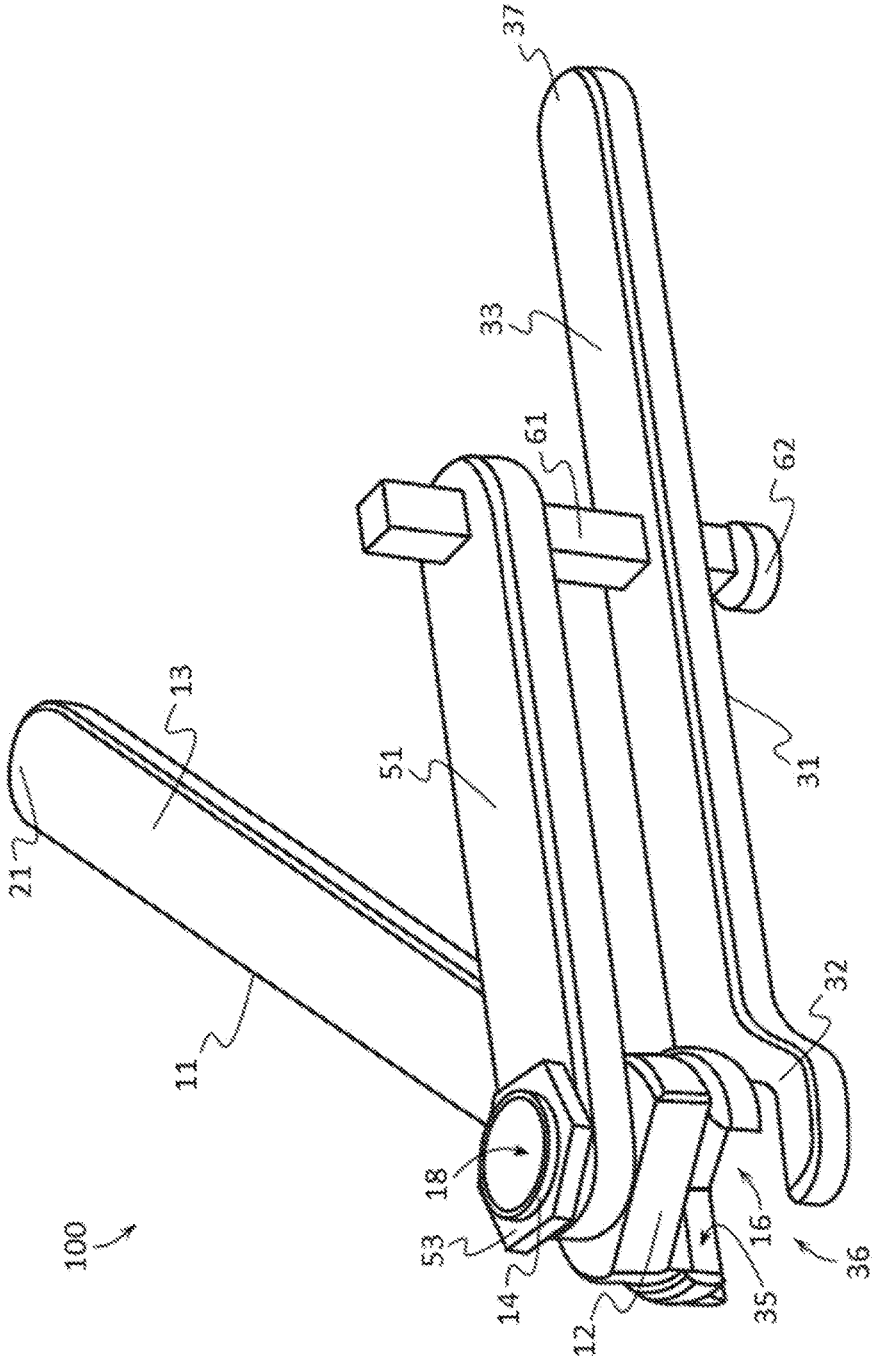


FIG. 1

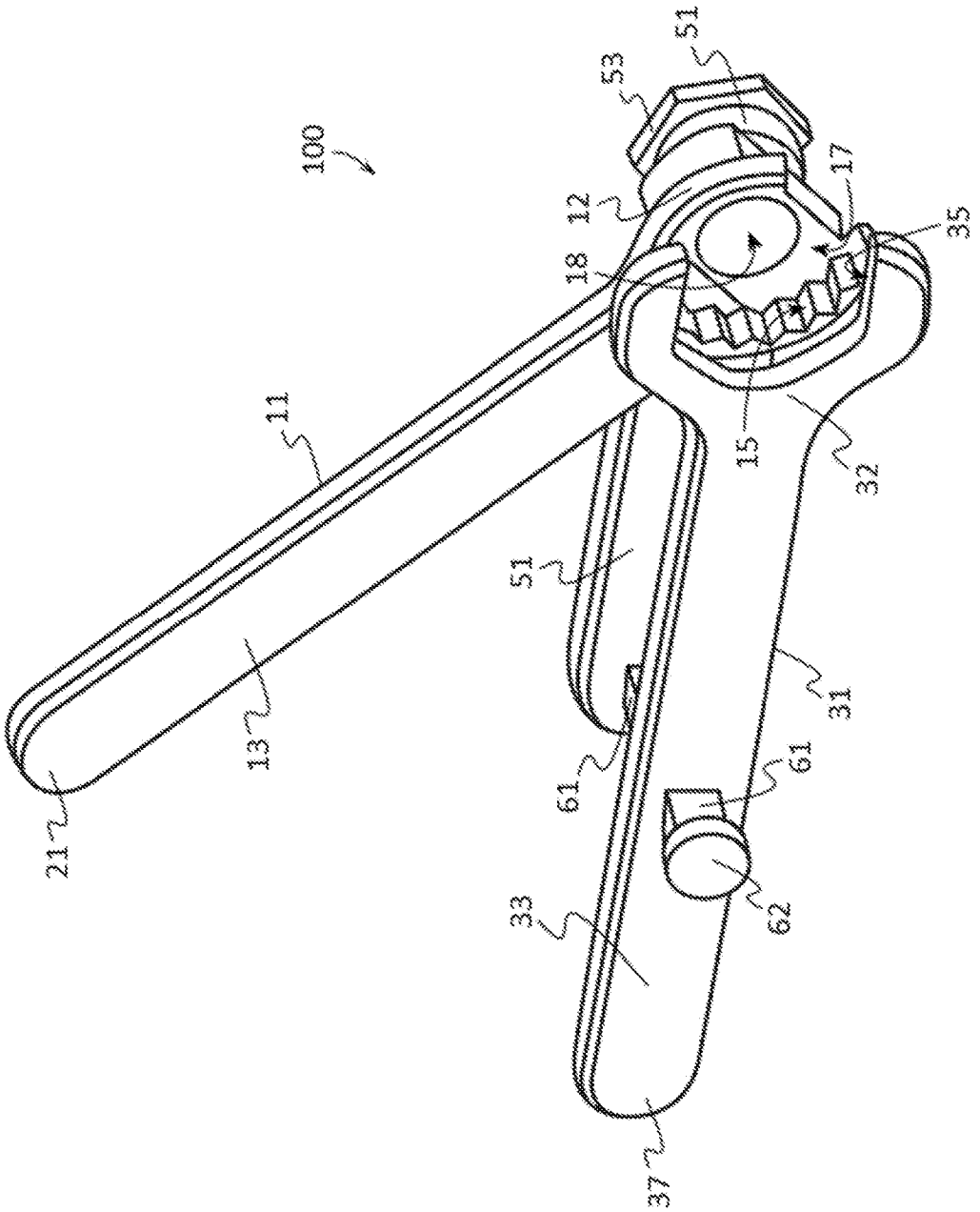


FIG. 2

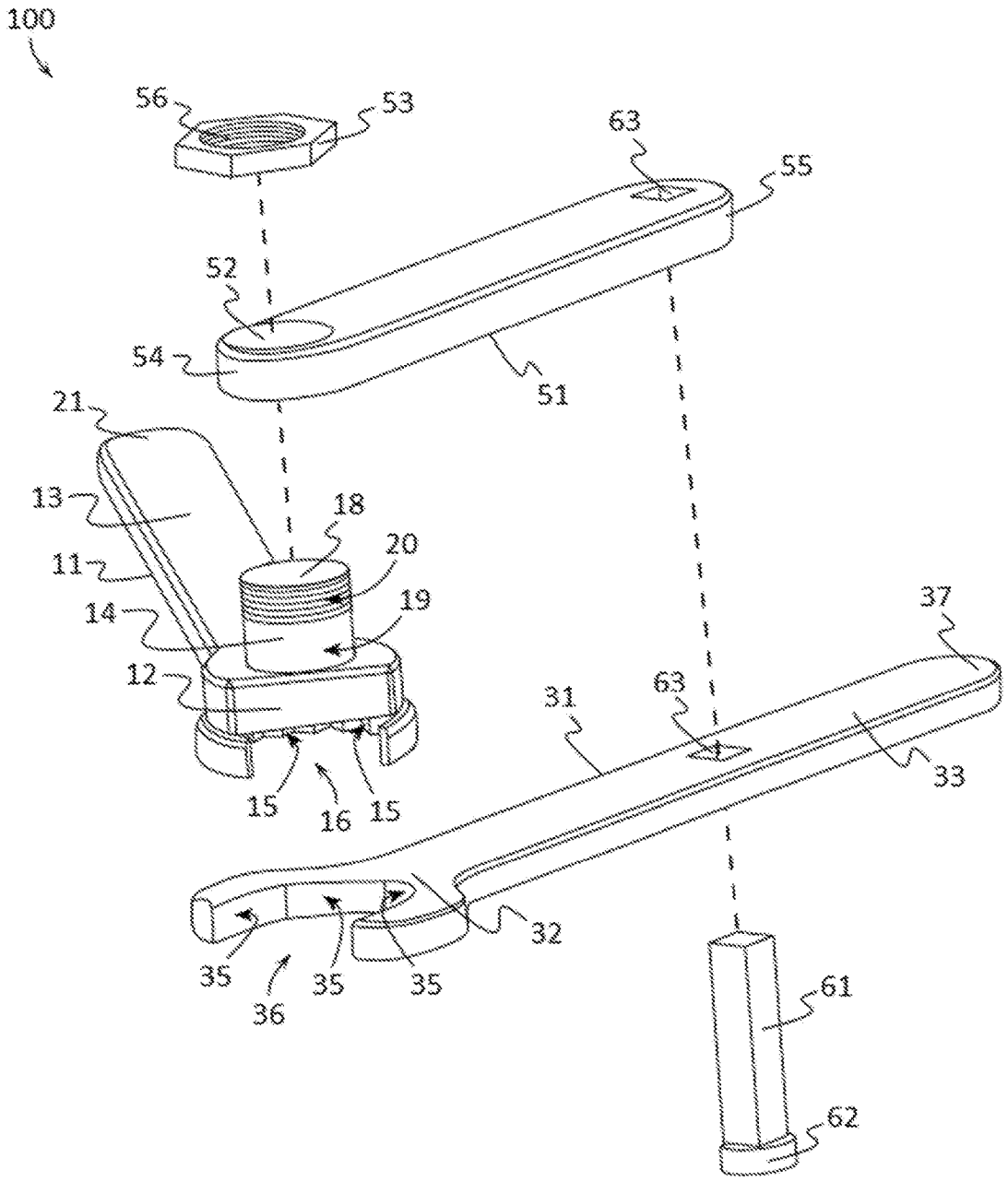

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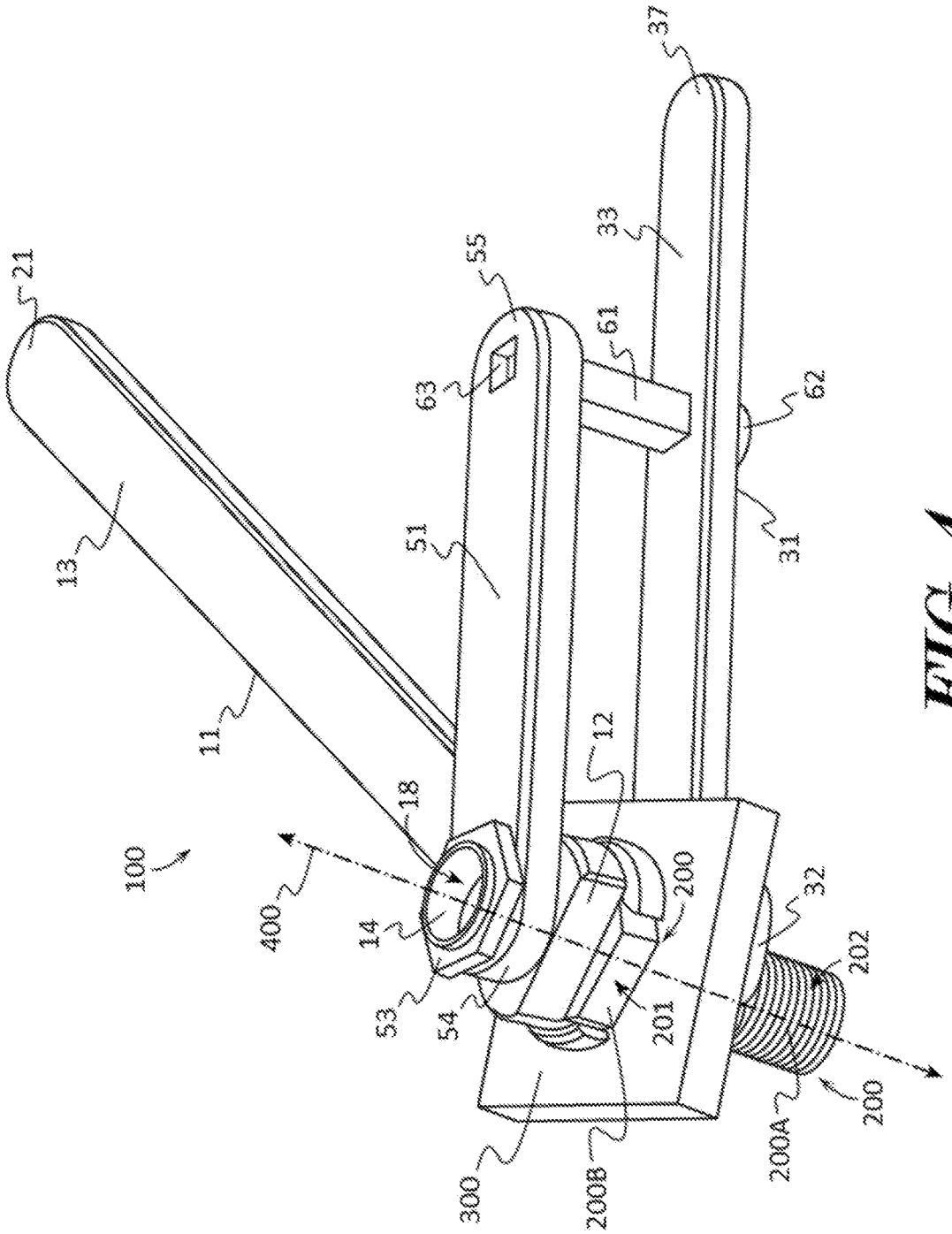
FIG. 3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201
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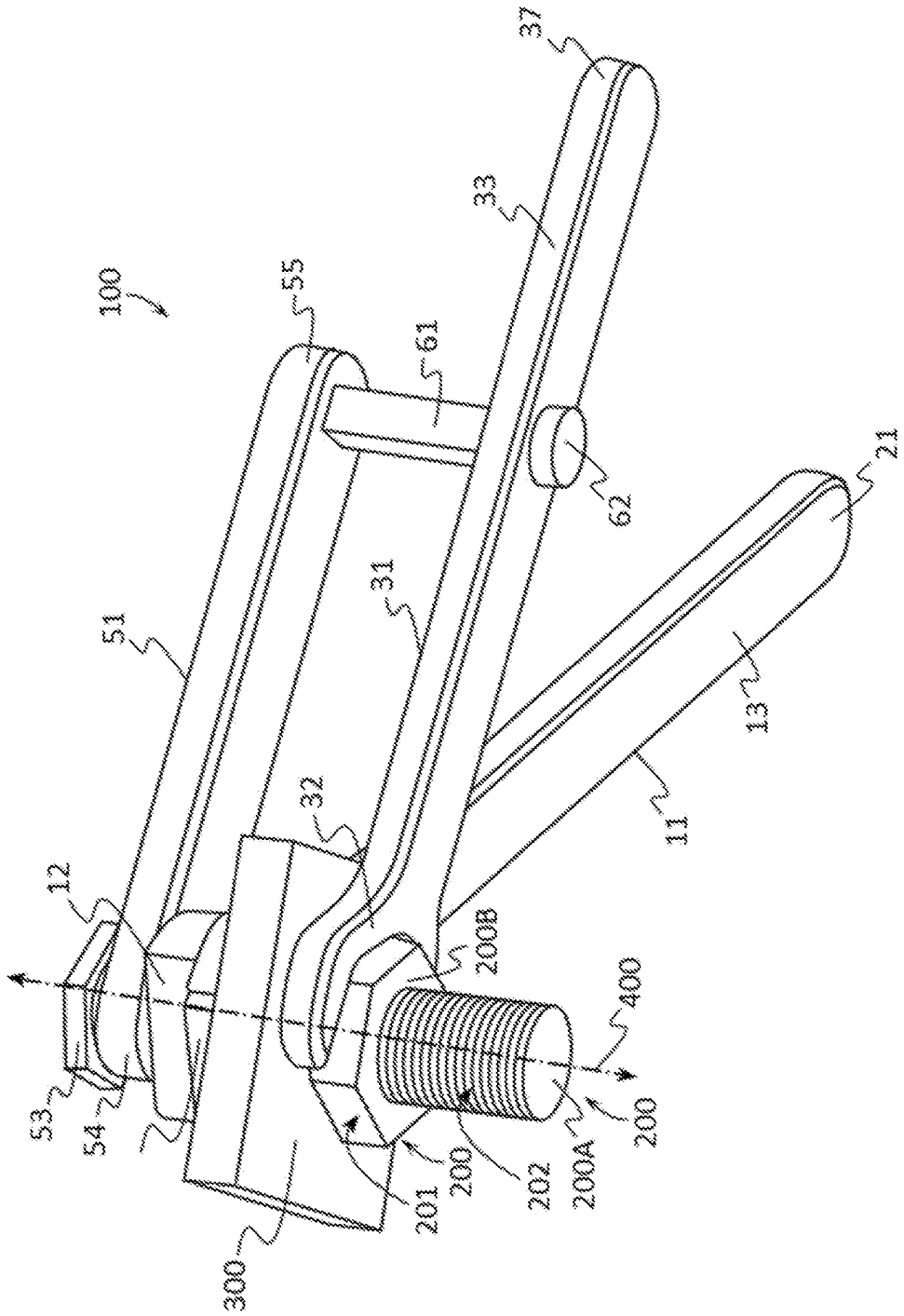
200B

FIG. 4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200A
300

FIG. 5

DUAL FASTENER MANIPULATION DEVICE

FIELD OF THE INVENTION

This patent specification relates to the field of devices configured to simultaneously manipulate more than one fastener. More specifically, this patent specification relates to devices which are able to simultaneously manipulate two fasteners having the same rotational axis.

BACKGROUND

Threaded fasteners provide a convenient and rapid method of fastening or securing objects, whereby rotation in a first direction may be used to tighten or engage the fasteners and rotation in a second direction may be used to loosen or disengage the fasteners. A common method of employing threaded fasteners involves engaging a male fastener, such as a bolt or stud, to a female fastener, such as a nut in the same rotational axis. However, in order to successfully engage the two fasteners together, one of the fasteners must be rotated in a first direction while the other fastener must be prevented from rotating or rotated simultaneously in the second direction. Typically, this process is accomplished using two individual wrenches or other fastener engaging tools in which one or more users attempts to manipulate the individual fastener engaging tools to achieve the desired tightening or loosening. Unfortunately, it is easy for the tools to become dislodged from the fasteners or for the motions of the hands of the one or more users to interfere with each other resulting in inconvenience and possibly injury or fastener damage. Furthermore, difficulty in manipulating two fasteners is greatly increased when the fasteners are separated by material or planar surfaces of material as the material can make it difficult for the one or more users to see and/or reach the fasteners. For this reason, time and resources are often wasted in the manipulation of engaged fasteners.

Therefore a need exists for novel devices which are able to simultaneously manipulate two fasteners having the same rotational axis. There is also a need for novel devices configured to simultaneously manipulate fasteners that are able to prevent the motions of the hands of the one or more users from interfering with each other resulting in inconvenience and possibly injury or fastener damage. A further need exists, for novel devices configured to facilitate the simultaneous manipulation of fasteners having the same rotational axis separated by material or planar surfaces of material. Finally, a need exists for novel time and resource saving devices configured to facilitate the simultaneous manipulation of fasteners having the same rotational axis.

BRIEF SUMMARY OF THE INVENTION

A dual fastener manipulation device is provided. The device may be used to manipulate two fasteners, preferably having the same rotational axis, which may be separated by various distances and various sized objects. The dual fastener manipulation device may include a first wrench having a first fastener engaging head, a first handle, and a pivot stud. A second wrench element may have a second fastener engaging head and a second handle. A pivot linkage may be pivotally coupled to the pivot stud, and a floating stud may be coupled to both the second wrench and to the pivot linkage. The first and second fastener engaging heads may be engaged to two fasteners having the same rotational axis, while the pivot linkage and floating stud may maintain the rotational axis of the fastener engaging heads, while also allowing the fastener engaging heads to be moved closer to or farther from each other.

BRIEF DESCRIPTION OF THE DRAWINGS

Some embodiments of the present invention are illustrated as an example and are not limited by the figures of the accompanying drawings, in which like references may indicate similar elements and in which:

FIG. **1** depicts a top perspective view of an example of a dual fastener manipulation device according to various embodiments described herein.

FIG. **2** illustrates a bottom view of an example of a dual fastener manipulation device according to various embodiments described herein.

FIG. **3** shows a perspective exploded view of an example of a dual fastener manipulation device according to various embodiments described herein.

FIG. **4** depicts a top perspective view of an example of a dual fastener manipulation device, according to various embodiments described herein, engaged to two fasteners separated by a unit of material in which the two fasteners have the same rotational axis.

FIG. **5** illustrates a bottom perspective view of an example of a dual fastener manipulation device, according to various embodiments described herein, engaged to two fasteners separated by a unit of material in which the two fasteners have the same rotational axis.

DETAILED DESCRIPTION OF THE INVENTION

The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the term "and/or" includes any and all combinations of one or more of the associated listed items. As used herein, the singular forms "a," "an," and "the" are intended to include the plural forms as well as the singular forms, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, steps, operations, elements, components, and/or groups thereof.

Unless otherwise defined, all terms (including technical and scientific terms) used herein have the same meaning as commonly understood by one having ordinary skill in the art to which this invention belongs. It will be further understood that terms, such as those defined in commonly used dictionaries, should be interpreted as having a meaning that is consistent with their meaning in the context of the relevant art and the present disclosure and will not be interpreted in an idealized or overly formal sense unless expressly so defined herein.

In describing the invention, it will be understood that a number of techniques and steps are disclosed. Each of these has individual benefit and each can also be used in conjunction with one or more, or in some cases all, of the other disclosed techniques. Accordingly, for the sake of clarity, this description will refrain from repeating every possible combination of the individual steps in an unnecessary fashion. Nevertheless, the specification and claims should be read with the understanding that such combinations are entirely within the scope of the invention and the claims.

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

Although the terms "first", "second", etc. are used herein to describe various elements, these elements should not be limited by these terms. These terms are only used to distinguish one element from another element. For example, the first element may be designated as the second element, and the second element may be likewise designated as the first element without departing from the scope of the invention.

As used in this application, the term "about" or "approximately" refers to a range of values within plus or minus 10% of the specified number. Additionally, as used in this application, the term "substantially" means that the actual value is within about 10% of the actual desired value, particularly within about 5% of the actual desired value and especially within about 1% of the actual desired value of any variable, element or limit set forth herein.

New devices which are able to simultaneously manipulate two fasteners having the same rotational axis are discussed herein. In the following description, for purposes of explanation, numerous specific details are set forth in order to provide a thorough understanding of the present invention. It will be evident, however, to one skilled in the art that the present invention may be practiced without these specific details.

The present disclosure is to be considered as an exemplification of the invention, and is not intended to limit the invention to the specific embodiments illustrated by the figures or description below.

The present invention will now be described by example and through referencing the appended figures representing preferred and alternative embodiments. FIGS. **1-5** illustrate an example of a dual fastener manipulation device ("the device") **100** according to various embodiments. In some embodiments, the device **100** may comprise a first wrench **11** having a first fastener engaging head **12**, a first handle **13**, and a pivot stud **14**. A second wrench element **31** may have a second fastener engaging head **32** and a second handle **23**. A pivot linkage **51** may be pivotally coupled to the pivot stud **14**, and a floating stud **61** may be coupled to both the second wrench **31** and to the pivot linkage **51**. The first **12** and second **32** fastener engaging heads may be engaged to two fasteners having the same rotational axis, while the pivot linkage **51** and floating stud **61** may maintain the rotational axis of the fastener engaging heads **12**, **32**, while also allowing the fastener engaging heads **12**, **32**, to be moved closer to or farther from each other.

In some embodiments, the first wrench **11** may be made from or comprise a durable material such as aluminum, steel, other metals and metal alloys, hard plastics, or any other suitable rigid material and may comprise a first handle **13** coupled to a first fastener engaging head **12**. The first handle **13** may preferably be gripped by an individual and used to apply torque to the first fastener engaging head **12**. The first handle **13** may be configured in any size or shape. In preferred embodiments, the first handle **13** may comprise an elongated shape which may provide a greater mechanical advantage to the user when attempting to manipulate a fastener that is engaged by the first fastener engaging head **12**. The first handle **13** may be positioned proximate or in contact with the terminal end **21** of the first wrench **11**

As perhaps best shown in FIGS. **2-4**, the first fastener engaging head **12** may be configured to engage a threaded type of fastener **200**. Preferably, the first fastener engaging head **12** may be configured to engage male threaded fasteners **200**A, such as bolts having a head to which the first fastener engaging head **12** may be engaged to, and female threaded fasteners **200**B, such as nuts. Generally, a first fastener engaging head **12** may comprise two or more first fastener engagement surfaces **15** which may be used to grip two or more of the contact surfaces **201** of a fastener **200**. For example, a first fastener engaging head **12** may comprise two or more first fastener engagement surfaces **15** which may be used to contact two or more contact surfaces **201** on a four contact surface square nut, a six contact surface hex nut, a wing nut, or any other type of fastener **200**.

In preferred embodiments, the first fastener engaging head **12** may comprise a plurality of first fastener engagement surfaces **15** which may be shaped and angled as and positioned in contact with each other similar to a box wrench generally having a six-point, eight-point, or twelve-point opening for use with nuts or bolt heads with a hexagonal shape or square shape. By providing a plurality of first fastener engagement surfaces **15** which may be shaped and angled to contact multiple points on a fastener **200**, the first fastener engaging head **12** may fit onto a fastener **200** at many different angles for providing a positioning advantage where swing of the first handle **13** is limited. In further embodiments, the first fastener engaging head **12** may comprise a first opening **16** which may allow the first fastener engaging head **12** to function as an open-ended wrench. In still further embodiments, first fastener engaging head **12** may comprise a U-shape and/or may comprise two parallel and opposing first fastener engagement surfaces **15**.

In some embodiments, the first fastener engaging head **12** may comprise one or more stop surfaces **17** against which portions of a fastener **200** may contact or rest when contact surfaces **201** of the fastener **200** are engaged to the first fastener engagement surfaces **15**. Optionally, a stop surface **17** may contact the top or bottom surface of the fastener **200** engaged by the first fastener engaging head **12** depending on the orientation of the fastener **200**. Preferably, a stop surface **17** may contact the surface of the fastener **200** farthest from the second fastener engaging head **32** of the second wrench **31**. A stop surface **17** may comprise a generally flat planar shape as shown in FIG. **2**, while in other embodiments, a stop surface **17** may be configured with any other shape, texture, or size.

In some embodiments, the first fastener engaging head **12** may comprise a pivot stud **14** which may be coupled to the first fastener engaging head **12** opposite the first fastener engagement surfaces **15**. In further embodiments, the device **100** may comprise a fastener aperture **18** which may extend through the first fastener engaging head **12**, such as through a pivot stud **14**. In this manner, the fastener aperture **18** may enable a threaded body **202**, such as the threading on a stud or threading on a male threaded fastener **200**A, to pass through the fastener aperture **18** of the first fastener engaging head **12**.

A pivot stud **14** may be used to pivotally couple the pivot linkage **51** to the first wrench **11** and more preferably to the first fastener engaging head **12**. Generally, a pivot stud **14**

may extend up and away from the first fastener engagement surfaces **15**, while being positioned centrally on the first fastener engaging head **12** respective to the first fastener engagement surfaces **15** so that the pivot stud **14** has substantially the same axis of rotation as a fastener **200** received by the first fastener engagement surfaces **15**.

In some embodiments, a pivot stud **14** may comprise a pivot surface **19** and a retainer surface **20**. Preferably, a pivot surface **19** may be generally smooth, while a retainer surface **20** may comprise threading or be threaded. A pivot linkage **51** may comprise a pivot aperture **52** which may be placed over the pivot stud **14** so that the pivot stud **14** is received in the pivot aperture **52**. Preferably, the pivot aperture **52** may have a smooth surface which may be slightly larger than the pivot surface **19** so that the pivot linkage **51** may pivot around the pivot surface **19**. Optionally, a linkage retainer **53** may be mated with the retainer surface **20** thereby preventing the pivot linkage **51** from being separated from the pivot stud **14** to pivotally couple the pivot linkage **51** and pivot stud **14**. In some embodiments, a linkage retainer **53** may comprise a nut type fastener having threading **56** configured to engage with a retainer surface **20** that is also threaded, a cotter pin, or any other fastener which may be used to retain pivot linkage **51** and pivot stud **14** together in a pivotal relationship. In alternative embodiments, portions of a pivot stud **14** may be peened over or otherwise made larger than portions of the pivot aperture **52** in order to prevent the pivot linkage **51** and pivot stud **14** from separating while providing a pivotal relationship. In further alternative embodiments, a pivot linkage **51** and pivot stud **14** may be coupled together with ball bearings, other types of friction reducing bearings, ratcheting coupling methods, or any other pivotal coupling method.

In some embodiments, the second wrench **31** may be made from or comprise a durable material such as aluminum, steel, other metals and metal alloys, hard plastics, or any other suitable rigid material and may comprise a second handle **33** coupled to a second fastener engaging head **32**. The second handle **33** may preferably be gripped by an individual and used to apply torque to the second fastener engaging head **32**. The second handle **33** may be configured in any size or shape. In preferred embodiments, the second handle **33** may comprise an elongated shape which may provide a greater mechanical advantage to the user when attempting to manipulate a fastener that is engaged by the second fastener engaging head **32**.

As perhaps best shown in FIGS. **2**, **3** and **5**, the second fastener engaging head **32** may be configured to engage a threaded type of fastener **200**. Preferably, the second fastener engaging head **32** may be configured to engage male threaded fasteners **200**A, such as bolts having a head to which the first fastener engaging head **12** may be engaged to, and female threaded fasteners **200**B, such as nuts. Generally, a second fastener engaging head **32** may comprise two or more second fastener engagement surfaces **35** which may be used to grip or contact two or more of the contact surfaces **201** of a fastener **200**. For example, a second fastener engaging head **32** may comprise two or more second fastener engagement surfaces **35** which may be used to contact two or more contact surfaces **201** on a four contact surface square nut, a six contact surface hex nut, a wing nut, or any other type of fastener **200**.

In preferred embodiments, the second fastener engaging head **32** may comprise a second opening **36** which may allow the second fastener engaging head **32** to function as an open-ended wrench. In still further preferred embodiments, second fastener engaging head **32** may comprise a U-shape and/or may comprise two parallel and opposing second fastener engagement surfaces **35**. In other embodiments, the second fastener engaging head **32** may comprise a plurality of second fastener engagement surfaces **35** which may be shaped and angled as and positioned in contact with each other similar to a box wrench generally having a six-point, eight-point, or twelve-point opening for use with nuts or bolt heads with a hexagonal shape or square shape.

The device **100** may comprise a floating stud **61** which may be coupled to both the second wrench **31** and to the pivot linkage **51**. In some embodiments, a floating stud **61** may be made from or comprise a durable material such as aluminum, steel, other metals and metal alloys, hard plastics, or any other suitable rigid material. A floating stud **61** may movably couple the second wrench **31** to the pivot linkage **51**, and therefore to the first wrench **11**, while allowing the second wrench **31** to be moved relative to the pivot linkage **51** and therefore to the first wrench **11**. Preferably, a floating stud **61** may slidably couple a pivot linkage **51** to the second wrench **31** by being slidably received in a floating aperture **63** of a pivot linkage **51** and/or slidably received in a floating aperture **63** of the second wrench **31**. One or more floating apertures **63** maybe positioned anywhere on a pivot linkage **51** and/or anywhere on a second wrench **31**, such as between the second fastener engaging head **32** and the terminal end **37** of the second wrench **31**.

A floating stud **61** may be configured in any length thereby allowing the second wrench **31** to be moved a desired distance from the pivot linkage **51** and therefore from the first wrench **11**. For example, a floating stud **61** having a relatively longer length may enable the second wrench **31** to be moved a relatively larger distance from the pivot linkage **51**, while a floating stud **61** having a relatively shorter length may enable the second wrench **31** to be moved a relatively shorter distance from the pivot linkage **51**. The travel enable by the length of the floating stud **61** may enable the device **100** to be used to manipulate fasteners **200** having the same axis of rotation that are separated by a plurality of distances and optionally by one or more units of material **300** (FIGS. **4** and **5**) having different sizes.

Generally, a floating stud **61** may comprise an elongated shape, such as an elongated rectangular prism shape as shown in FIGS. **1**, **3**, **4**, and **5**, an elongated cylindrical shape, an elongated triangular prism shape, an elongated hexagonal prism shape, or any other elongated shape including combinations of shapes. Optionally, a floating stud **61** may comprise one or more slide stops **62** which may limit the movement of the floating stud **61** relative to the second wrench **32** and/or the pivot linkage **51**.

In some embodiments, a floating stud **61** may be slidingly coupled to the pivot linkage **51** so that portions of the sliding stud **61** may be moved relative to the pivot linkage **51**. In further embodiments, the pivot linkage **51** may comprise a floating aperture **63** which may be complementary shaped to the floating stud **61** and slightly larger than the width of the floating stud **61** so that portions of the floating stud **61** may pass through the floating aperture **63** to allow portions of the floating stud **61** to slide within floating aperture **63** of the pivot linkage **51**. For example, a floating stud **61** may comprise an elongated cylinder shape and a floating aperture **63** may comprise a slightly larger cylindrical shape so that the cylindrical portions of the floating stud **61** may slide within the floating aperture **63**. An optional slide stop **62** may be shaped larger than the floating aperture **63** so that the slide stop **62** cannot pass through the floating aperture **63** thereby limiting the movement of the floating stud **61** relative to the pivot linkage **51**. In alternative embodiments,

a floating stud **61** may be coupled to the pivot linkage **51** so that the floating stud **61** and pivot linkage **51** are not movable relative to each other.

In some embodiments, a floating stud **61** may be slidingly coupled to the second wrench **31** so that portions of the sliding stud **61** may be moved relative to the second wrench **31**. In further embodiments, the second wrench **31** may comprise a floating aperture **63** which may be complementary shaped to the floating stud **61** and slightly larger than the width of the floating stud **61** so that portions of the floating stud **61** may pass through the floating aperture **63** to allow portions of the floating stud **61** to slide within floating aperture **63** of the second wrench **31**. For example, a floating stud **61** may comprise an elongated rectangular prism shape and a floating aperture **63** may comprise a slightly larger rectangular prism shape so that the rectangular prism portions of the floating stud **61** may slide within the floating aperture **63**. An optional slide stop **62** may be shaped larger than the floating aperture **63** so that the slide stop **62** cannot pass through the floating aperture **63** thereby limiting the movement of the floating stud **61** relative to the second wrench **31**. In alternative embodiments, a floating stud **61** may be coupled to the second wrench **31** so that the floating stud **61** and second wrench **31** are not movable relative to each other.

In some embodiments, a pivot linkage **51** may comprise an elongated shape having a proximal end **54** and a distal end **55**. A pivot linkage **51** may be made from or comprise a durable material such as aluminum, steel, other metals and metal alloys, hard plastics, or any other suitable rigid material. The pivot linkage **51** may also comprise a pivot aperture **52** and a floating aperture **63**. The pivot aperture **52** may be generally shaped to fit over or receive portions of a pivot stud **14**. The floating aperture **63** may be generally shaped to fit over or receive portions of a floating stud **61**. In some embodiments, a pivot aperture **52** may be positioned proximate to the proximal end **54**, while a floating aperture **63** may be positioned proximate to the distal end **55**. In alternative embodiments, one or more pivot apertures **52** and/or floating apertures **63** may be positioned anywhere on a pivot linkage **51**.

It should be understood to one of ordinary skill in the art that the wrenches **11**, **31**, handles **13**, **33**, pivot stud **14**, pivot linkage **51**, floating stud **61**, and any other element discussed herein may optionally be configured in a plurality of sizes and shapes including "T" shaped, "X" shaped, square shaped, rectangular shaped, cylinder shaped, cuboid shaped, hexagonal prism shaped, triangular prism shaped, or any other geometric or non-geometric shape, including combinations of shapes. It is not intended herein to mention all the possible alternatives, equivalent forms or ramifications of the invention. It is understood that the terms and proposed shapes used herein are merely descriptive, rather than limiting, and that various changes, such as to size and shape, may be made without departing from the spirit or scope of the invention.

In some embodiments, the first fastener engaging head **12** of the first wrench **11** may be generally configured as an open-ended box wrench and the second fastener engaging head **32** of the second wretch **31** may be generally configured as a U-shaped open-ended wrench. In other embodiments, the first fastener engaging head **12** may be configured as a ratchet wrench having a one-way mechanism which allows the first fastener engagement surfaces **15** of the first fastener engaging head **12** to be turned without removing the first fastener engagement surfaces **15** from the fastener **200** simply by cycling the handle **13** backward and forward. Similarly, in some embodiments, the second fastener engaging head **32** may be configured as a ratchet wrench having a one-way mechanism which allows the second fastener engagement surfaces **35** of the second fastener engaging head **32** to be turned without removing the second fastener engagement surfaces **35** from the fastener **200** simply by cycling the handle **33** backward and forward.

In alternative embodiments, a first fastener engaging head **12** and/or a second fastener engaging head **32** may be configured as a flare-nut wrench, a ratcheting box wrench, a flex-head socket wrench, a spanner wrench, a striking face box wrench, an adjustable wrench, a monkey wrench, a pipe wrench, a breaker bar, a torque wrench, and alligator wrench, a strap or chain wrench, or any other type of wrench having two or more fastener engagement surfaces **15**, **35**, which may be used to contact and manipulate a fastener **200**.

FIGS. **4** and **5** depict an example of a dual fastener manipulation device **100**, according to various embodiments described herein, engaged to two fasteners **200** separated by a unit of material **300** in which the two fasteners **200** have the same rotational axis **400**. In this example, the device **100** is being used to manipulate an upper female fastener **200**B and a lower female fastener **200**B separated by a unit of material **300** and which are threaded onto a male fastener **200**A. Preferably, the first fastener engaging head **12** of the first wrench **11** may be engaged to the upper female fastener **200**B by contacting the first fastener engagement surfaces **15** with the contact surfaces **201** of the upper female fastener **200**B. The second fastener engaging head **32** of the second wrench **31** may be engaged to the lower female fastener **200**B by contacting the second fastener engagement surfaces **35** with the contact surfaces **201** of the lower female fastener **200**B. The floating stud **61** may enable the first wrench **11** and the second wrench **32** to be moved closer and farther from each other so that the first fastener engaging head **12** and second fastener engaging head **32** may be engaged and disengaged with the female fasteners **200**B. A user may then grasp and manipulate the handles **13**, **33**, to rotate the upper and/or lower female fasteners **200**B as desired, by rotating one or both handles **13**, **33**, around the rotational axis **400** of the fasteners **200**A, **200**B. Additionally, the male threaded fastener **200**A may be received or otherwise moved through the fastener aperture **18** and pivot aperture **52** so that the female fasteners **200**B may be moved up or down the male fastener **200**A unimpeded by the device **100**.

While some materials have been provided, in other embodiments, the elements that comprise the device **100** such as the wrenches **11**, **31**, handles **13**, **33**, pivot stud **14**, pivot linkage **51**, floating stud **61**, and/or any other element discussed herein may be made from or comprise durable materials such as aluminum, steel, other metals and metal alloys, wood, hard rubbers, hard plastics, fiber reinforced plastics, carbon fiber, fiber glass, resins, polymers or any other suitable materials including combinations of materials. Additionally, one or more elements may be made from or comprise durable and slightly flexible materials such as soft plastics, silicone, soft rubbers, or any other suitable materials including combinations of materials.

In some embodiments, one or more of the elements that comprise the device **100** may be coupled or connected together with heat bonding, chemical bonding, adhesives, clasp type fasteners, clip type fasteners, rivet type fasteners, threaded type fasteners, other types of fasteners, or any other suitable joining method. In other embodiments, one or more of the elements that comprise the device **100** may be coupled or removably connected by being press fit or snap fit together, by one or more fasteners such as hook and loop

type or Velcro® fasteners, magnetic type fasteners, threaded type fasteners, sealable tongue and groove fasteners, snap fasteners, clip type fasteners, clasp type fasteners, ratchet type fasteners, a push-to-lock type connection method, a turn-to-lock type connection method, slide-to-lock type connection method or any other suitable temporary connection method as one reasonably skilled in the art could envision to serve the same function. In further embodiments, one or more of the elements that comprise the device **100** may be coupled by being one of connected to and integrally formed with another element of the device **100**.

Although the present invention has been illustrated and described herein with reference to preferred embodiments and specific examples thereof, it will be readily apparent to those of ordinary skill in the art that other embodiments and examples may perform similar functions and/or achieve like results. All such equivalent embodiments and examples are within the spirit and scope of the present invention, are contemplated thereby, and are intended to be covered by the following claims.

What is claimed is:

1. A dual fastener manipulation device, the device comprising:

a. a first wrench having a first fastener engaging head and a pivot stud;

b. a second wrench having a second fastener engaging head;

c. a pivot linkage pivotally coupled to the pivot stud; and

d. a floating stud coupled to both the second wrench and to the pivot linkage.

2. The device of claim **1**, wherein the first wrench comprises a fastener aperture.

3. The device of claim **1**, wherein the first wrench comprises stop surface.

4. The device of claim **1**, wherein the first wrench comprises two or more first fastener engagement surfaces.

5. The device of claim **1**, wherein the second wrench comprises two or more second fastener engagement surfaces.

6. The device of claim **1**, wherein the floating stud is slidingly coupled to the pivot linkage.

7. The device of claim **1**, wherein the floating stud is slidingly coupled to the second wrench.

8. The device of claim **1**, wherein the pivot linkage comprises a pivot aperture, and wherein the pivot stud of the first wrench is received in the pivot aperture.

9. The device of claim **1**, wherein the pivot linkage is coupled to the pivot stud with a linkage retainer.

10. The device of claim **1**, wherein the second fastener engaging head is U-shaped.

11. The device of claim **1**, wherein the second fastener engaging head comprises two parallel and opposing second fastener engagement surfaces.

12. A dual fastener manipulation device, the device comprising:

a. a first wrench having a first fastener engaging head and a pivot stud;

b. a second wrench having a second fastener engaging head;

c. a pivot linkage pivotally coupled to the pivot stud, wherein the pivot linkage comprises a pivot aperture, and wherein the pivot stud of the first wrench is received in the pivot aperture; and

d. a floating stud coupled to both the second wrench and to the pivot linkage.

13. The device of claim **12**, wherein the first wrench comprises a fastener aperture.

14. The device of claim **12**, wherein the first wrench comprises Stop surface.

15. The device of claim **12**, wherein the first wrench comprises two or more first fastener engagement surfaces.

16. The device of claim **12**, wherein the second wrench comprises two or more second fastener engagement surfaces.

17. The device of claim **12**, wherein the floating stud is slidingly coupled to the pivot linkage.

18. The device of claim **12**, wherein the floating stud is slidingly coupled to the second wrench.

19. The device of claim **12**, wherein the pivot linkage is coupled to the pivot stud with a linkage retainer.

20. The device of claim **12**, wherein the second fastener engaging head is U-shaped, and wherein the second fastener engaging head comprises two parallel and opposing second fastener engagement surfaces.

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