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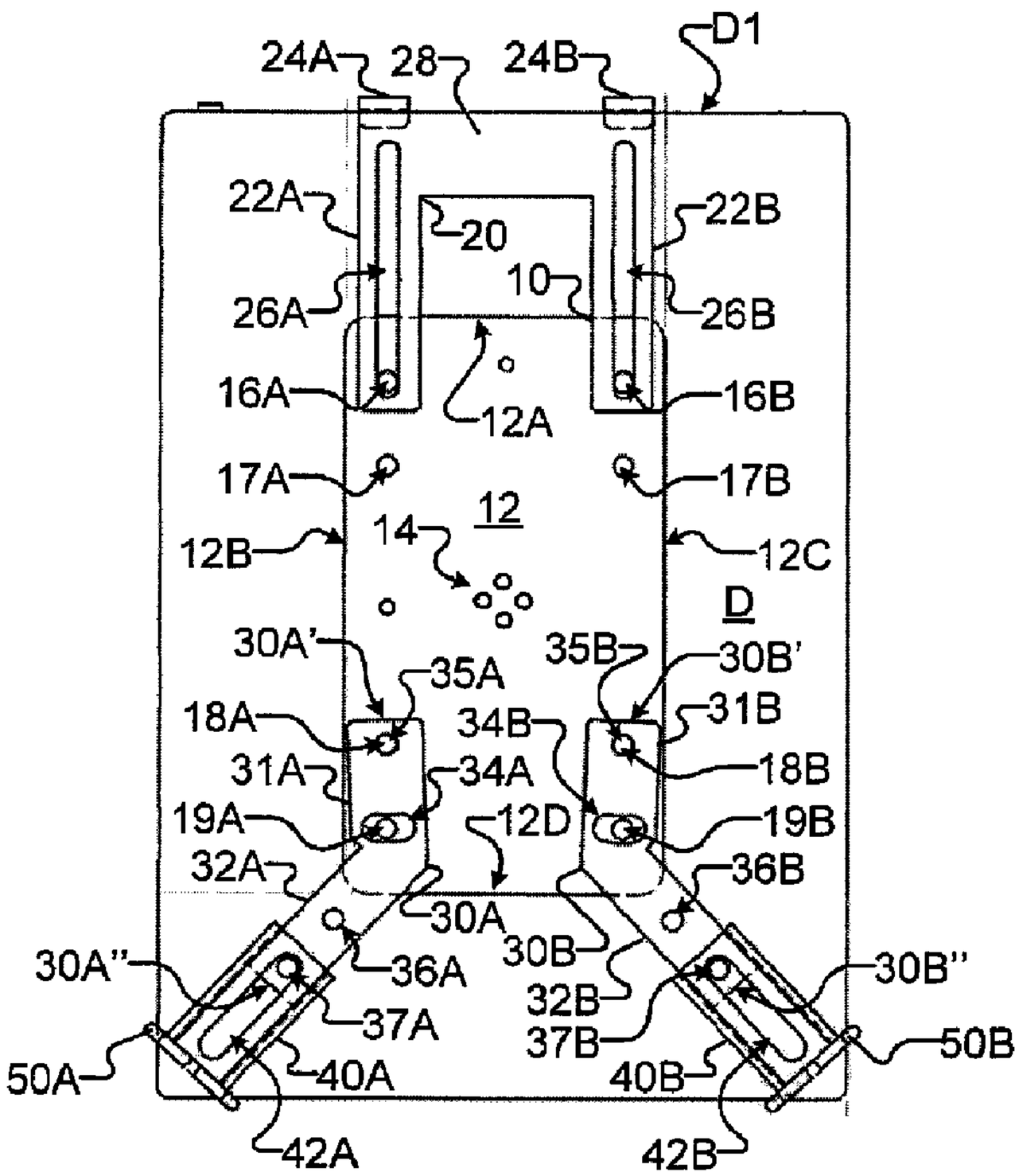
(54) **Titre : APPAREILS ET METHODES DE FIXATION DE PRODUITS**
(54) **Title: APPARATUS AND METHODS FOR SECURING PRODUCTS**



(57) **Abrégé/Abstract:**
Apparatus for securing products are provided. Each of a pair of elongate retaining members is pivotally secured at a first end of a base. Each of a pair of carriages is movable along a corresponding one of the retaining members and fixable to the corresponding

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(57) **Abrégé(suite)/Abstract(continued):**
one of the retaining members at a plurality of locations. Each carriage has a clip for capturing a projecting portion of the product. A stop member engages a portion of the product spaced apart from the projecting portions captured by the clips. The stop member is movable toward the clips in a single degree of freedom and is fixable to the base at a plurality of locations along the degree of freedom. Methods of securing a product using the apparatus are provided.

Abstract of the Disclosure

Apparatus for securing products are provided. Each of a pair of elongate retaining members is pivotally secured at a first end of a base. Each of a pair of carriages is movable along a corresponding one of the retaining members and fixable to the corresponding one of the retaining members at a plurality of locations. Each carriage has a clip for capturing a projecting portion of the product. A stop member engages a portion of the product spaced apart from the projecting portions captured by the clips. The stop member is movable toward the clips in a single degree of freedom and is fixable to the base at a plurality of locations along the degree of freedom. Methods of securing a product using the apparatus are provided.

Apparatus and Methods for Securing Products

Technical Field

[0001] The application relates to apparatus and methods for securing products. Particular embodiments of the invention provide apparatus and methods for securing tablet computers, e-readers, system controllers and other devices for retail display.

Background

[0002] Consumer technology products are often sold to the public in retail settings that permit pre-sale customer interaction with display models of the products offered for sale. Such displays find particular application in the sale of touch screen devices, such as touch screen equipped mobile phones, touch screen equipped tablet computers, and the like. An implication of allowing pre-sale customer interaction with display models is exposing such display models to risk of theft. Display models may be secured against physical removal from store premises to ameliorate the risk of theft. It is preferable that the means used to secure display models not detract unduly from the aesthetic and functional properties of the display model. It is also preferable that the means used to secure a display model interfere with customer interaction with the product as little as possible.

[0003] Consumer technology products come in a wide range of dimensions. It is preferable that means for securing display models be able to secure differently dimensioned products so as to address the inconvenience and cost which would occur if a different security apparatus was needed for every differently dimensioned product. Where means for

securing display models are adjustable and/or configurable to secure differently dimensioned products, it is preferable that adjustment and/or reconfiguration of the means be simple. It is also preferable that the adjustment and/or reconfiguration of the means be configured to engage securely with a range of products having different dimensions.

[0004] There is accordingly a general desire for apparatus and methods for securing display models of consumer products. There is particular need for apparatus and methods for securing display models of tablet computers and touch screen devices.

[0005] The foregoing examples of the related art and limitations related thereto are intended to be illustrative and not exclusive. Other limitations of the related art will become apparent to those of skill in the art upon a reading of the specification and a study of the drawings.

Summary

[0006] The following embodiments and aspects thereof are described and illustrated in conjunction with systems, tools and methods which are meant to be exemplary and illustrative, not limiting in scope. In various embodiments, one or more of the above-described problems have been reduced or eliminated, while other embodiments are directed to other improvements.

[0007] In one embodiment, apparatus for securing a product is provided. The apparatus has a base; a pair of retaining members, each retaining member being pivotally secured at a first end thereof to the base; a

pair of carriages, each carriage fixable to a corresponding one of the retaining members, each carriage having a clip for capturing a projecting portion of the product; and a stop member movable toward the clips in a single degree of freedom and fixable to the base at a plurality of locations along the degree of freedom, the stop member having a portion for engaging a portion of the product that is spaced apart from the projecting portions captured by the clips.

[0008] In some embodiments, the retaining members have a first elongate portion pivotally secured to the base and a second elongate portion extending at an outwardly obtuse angle from the first portion, and each one of the carriages is moveable along the second elongate portion of the corresponding one of the retaining members and fixable to the second elongate portion at a plurality of locations. In some embodiments, the retaining members are pivotally secured to the base with two points of contact, and the two points of contact are provided by a pair of fasteners engaged with a pair of longitudinally spaced apertures on the respective retaining members, first ones of the apertures being proximate to a first end of the respective retaining member and second ones of the apertures being distal from the first end of the respective retaining members, the second ones of the apertures being an oblong aperture positioned to permit rotational movement of the retaining member about an axis co-axial with the first ones of the apertures, with the carriages being provided on the retaining members distally of the first and second apertures.

[0009] In another embodiment, apparatus for securing a planar product having a polygonal shape is provided. The apparatus has a base, a pair of

rotatable retaining members with clips telescopically engaged at a second end of the retaining members for engaging with two corners of the product, first ends of the retaining members being securable to the base to prevent relative motion of the rotatable retaining members relative to the base and a slideable stop member engaged at a second end of the base for engaging with an edge of the product opposite the two corners, the slideable stop member being adjustable towards the pair of rotatable retaining members and securable to the base to prevent relative motion of the slideable stop member relative to the base.

[0010] In one embodiment, a method for securing a product using an apparatus having a base; a pair of retaining members, each retaining member pivotally secured at a first end thereof to the base; a pair of carriages, each carriage movable along a corresponding one of the retaining members and fixable to the corresponding one of the retaining members at a plurality of locations, each carriage having a clip for capturing a projecting portion of the product, and a stop member movable toward the clips in a single degree of freedom and fixable to the base at a plurality of locations along the degree of freedom, the stop member having a portion for engaging a portion of the product which is spaced apart from the projecting portions captured by the clips is provided. The method includes capturing projecting portions of the product in the clips, fixing the positions of the carriages relative to the retaining members, engaging the spaced apart portion of the product with the portion of the stop member for engaging the spaced apart portion of the product, developing tension in the retaining members by urging the product toward the clips with the stop member, and, when the retaining members are under tension, fixing the position of the stop member relative to the base.

Brief Description of Drawings

[0011] The accompanying drawings show non-limiting example embodiments.

[0012] FIG. 1 is a bottom plan view of an apparatus according to an example embodiment used to secure a rectangular device.

[0013] FIG. 2A is a lower end elevation view of the apparatus shown in FIG. 1.

[0014] FIG. 2B is a side elevation view of the apparatus shown in FIG. 1.

[0015] FIG. 3 is a top perspective view of the apparatus shown in FIG. 1.

[0016] FIG. 4 is a bottom perspective view of the apparatus shown in FIG. 1.

[0017] FIG. 5 is a bottom plan view of an apparatus according to another example embodiment used to secure a rectangular device.

[0018] FIG. 5A is a lower end elevation view of the apparatus shown in FIG. 5.

[0019] FIG. 5B is a bottom perspective view of the apparatus shown in FIG. 5.

[0020] FIG. 6 is a bottom plan view of an apparatus according to a further example embodiment used to secure a different rectangular device.

[0021] FIG. 7 is a bottom plan view of an apparatus according to yet another example embodiment used to secure a different rectangular device.

[0022] FIG. 8 is a flowchart of a method according to an example embodiment for securing a device.

Description

[0023] Throughout the following description specific details are set forth in order to provide a more thorough understanding to persons skilled in the art. However, well known elements may not have been shown or described in detail to avoid unnecessarily obscuring the disclosure. Accordingly, the description and drawings are to be regarded in an illustrative, rather than a restrictive, sense.

[0024] FIGs. 1-4 show an apparatus **10** according to an example embodiment used to secure an example device **D**. More particularly:

- FIG. 1 is a bottom plan view of apparatus **10**.
- FIG. 2A is a lower end elevation view of apparatus **10**.
- FIG. 2B is a side elevation view of apparatus **10**.
- FIG. 3 is a top perspective view of apparatus **10**.
- FIG. 4 is a bottom perspective view of apparatus **10**.

[0025] The illustrated device **D** has a rectangular slab form factor. Device **D** may comprise, for example, a tablet computer, a mobile phone, an

e-reader, a system controller (universal remote control), or some other device.

[0026] Apparatus **10** comprises a base **12**. In the illustrated embodiment, base **12** comprises a generally flat, rectangular plate. Base **12** comprises a plurality of centrally located threaded apertures **14**. Apertures **14** may receive fasteners, such as for fastening base **12** to a post (not shown in the drawings), which may in turn be secured to a stationary object, such as a counter in a retail store. Apertures **14** may be countersunk so that the heads of fasteners received therein sit below the surface of base **12** that contacts device **D**. In some embodiments, the countersinking can prevent tampering with the fasteners as they are concealed by device **D** when device **D** contacts base **12**. Base **12** also comprises a plurality of peripherally located apertures, individually enumerated as **16A**, **16B**, **17A**, **17B**, **18A**, **18B**, **19A** and **19B**. In some embodiments, one or more of apertures **16A**, **16B**, **17A**, **17B**, **18A**, **18B**, **19A** and **19B** is threaded.

[0027] A stop member **20** is secured to base **12** and extends outward of a first side **12A** of base **12**. Stop member **20** comprises two spaced apart arms **22A** and **22B** (arms **22A** and **22B** may be collectively referred to herein as arms **22**). In the illustrated embodiment, arms **22A** and **22B** are J-shaped, having hooked portions **24A** and **24B**, respectively (hooked portions **24A** and **24B** may be referred to collectively herein as hooked portions **24**). In FIGs. 1-4, hooked portions **24** of arms **22** engage a first side **D1** of device **D** at spaced apart locations.

[0028] The elongate portions of arms **22A** and **22B** comprise oblong apertures **26A** and **26B**, respectively (apertures **26A** and **26B** may be referred to collectively herein as apertures **26**). The longitudinal dimensions of apertures **26** are parallel to the lengths of arms **22**. In the illustrated embodiment, cross member **28** extends between arms **22** and fixes arms **22** in parallel relation. In other embodiments, stop member **22** may comprise a single arm (e.g., having a J-shaped portion configured to engage side **D1** of device **D** at and between where arms **22** engage side **D1**) or may comprise more than two arms.

[0029] Arms **22** may be secured to base **12** by headed fasteners (not shown in the drawings) whose shanks pass through apertures **26** and engage corresponding features (e.g., threaded apertures) of base **12**. For example, in the illustrated embodiment, apertures **26** are shown simultaneously registered with apertures **16A** and **16B** in base **12**, such that fasteners may pass through apertures **26** and engage apertures **16A** and **16B**.

[0030] Heads of the fasteners that penetrate apertures **26** may bear against the outward surfaces of arms **22** adjacent apertures **26** to clamp arms **22** flush against base **12**. The distance between the hooked portions **24** of arms **22** and the first side **12A** of base **12** may be fixed by operating headed fasteners (not shown in the drawings) that penetrate apertures **26** to clamp arms **22** against base **12**. Fasteners used to secure arms **22** to base **12** may comprise security fasteners, such as security screws. The oblong shape of apertures **26** and the fixed parallel relation of arms **22** permit single degree of freedom movement of stop member **20** along a direction perpendicular to side **12A** of base **12** (and side **D1** of device **D**) while fasteners penetrate

apertures **26** and engage base **12**. Thus, stop member **20** is adjustable relative to base **12**.

[0031] Apparatus **10** also comprises a pair of retaining members **30A** and **30B** (retaining members **30A** and **30B** may be referred to herein as retaining members **30**). In apparatus **10**, retaining members **30** are located on base **12** in mirror symmetry. Retaining members **30** are elongate, generally flat, and have arcuate configuration. More particularly, in the illustrated embodiment, retaining members **30** have a piecewise arcuate configuration wherein generally linear first portions **31** (individually enumerated as **31A** and **31B**) and generally linear second portions **32** (individually enumerated as **32A** and **32B**) form an outwardly obtuse angle **θ** (FIG. 4). In the illustrated embodiment, the angle **θ** formed between first portions **31** and their corresponding second portions **32** is approximately 135°. In some embodiments, angle **θ** is between about 105° and about 160°, including any angle therebetween. Angle **θ** assists in allowing clips **50** to squarely engage the corners of device **D**, as outlined in more detail below. Angle **θ** can be adjusted in different embodiments depending on the typical range of length-to-width ratios of the products to be secured in apparatus **10**.

[0032] A first pair of longitudinally spaced apertures are defined at the first end (individually enumerated as **30A'** and **30B'**) of each retaining member **30**. In the illustrated embodiment, apertures **34A** and **35A** are defined through and longitudinally spaced along first portion **31A** of retaining member **30A**, and apertures **34B** and **35B** are defined through and longitudinally spaced along first portion **31B** of retaining member **30B**. Apertures **34A** and **34B** (which may be referred to collectively herein as

apertures **34**), are distal from the first ends **30A'** and **30B'** of retaining members **30**. Apertures **35A** and **35B** (which may be referred to collectively herein as apertures **35**), are proximate first ends **30A'** and **30B'** of retaining members **30**.

[0033] In the illustrated embodiment, apertures **34A** and **35A** are shown registered with apertures **18A** and **19A** of base **12**, and apertures **34B** and **35B** are shown registered with apertures **18B** and **19B** of base **12**. Retaining members **30** may be secured to base **12** by registering apertures **35A** and **35B** with corresponding posts (not shown in the drawings) connected to base **12** and using headed fasteners (not shown in the drawings) whose shanks pass through apertures **35** and engage corresponding features (e.g., threaded apertures) of base **12** to retain members **30** flush against base **12**. In alternative embodiments, threaded fasteners are used without posts. The posts which register with apertures **35** may be integrally formed with base **12** or provided as separate elements that cooperate with corresponding features of base **12** (e.g., as threaded fasteners that engage threaded apertures in base **12**, such as apertures **18A** and **18B**, for example). In some such embodiments, headed fasteners registered with apertures **35** secure retaining members **30** to base **12**. Fasteners used to secure retaining members **30** to base **12** may comprise security fasteners, such as security screws.

[0034] In the illustrated embodiment, apertures **34** are oblong. The longitudinal dimensions of apertures **34** are transverse to the lengths of first portions **31A** and **31B** of retaining members **30**, and generally perpendicular to the direction from apertures **34** to apertures **35**. Advantageously, registration of apertures **35** with posts on base **12** and registration of

transverse oblong configuration of apertures **34** with posts on base **12** (e.g., shanks of threaded fasteners engaged with base **12**, such as in apertures **19A** and **19B**, for example) provide constrained pivotal movement of retaining members **30** about axes co-axial with apertures **35**. The angular orientation of members **30** about apertures **35** may be fixed by operating headed fasteners (not shown in the drawings) that penetrate apertures **34** to clamp members **30** against base **12**.

[0035] In the illustrated embodiment, apertures **34**, **35** provide two points of securement for retaining members **30** while allowing retaining members **30** to be pivoted about apertures **35**. Retaining members **30** can thus be pivoted to allow alignment of clips **50** squarely or substantially squarely with the corners of device **D**, as outlined in greater detail below, while retaining members **30** are securely held in position at two points. This configuration can make it more difficult for a person to remove device **D** from apparatus **10** than would be the case if retaining member **30** had only a single point of securement near first end **30'**, since retaining member **30** could be more easily twisted with only a single point of securement.

[0036] A second pair of apertures are defined at the second end (individually enumerated as **30A''** and **30B''**) of each retaining member **30**. In the illustrated embodiment, apertures **36A** and **37A** are defined through and longitudinally spaced along second portion **32A** of retaining member **30A**, and apertures **36B** and **37B** are defined through and longitudinally spaced along second portion **32B** of retaining member **30B**. Apertures **36A** and **36B** (which may be referred to collectively herein as apertures **36**), are distal from the second ends **30A''** and **30B''** of retaining members **30**.

Apertures **37A** and **37B** (which may be referred to collectively herein as apertures **37**), are proximate the second ends **30A''** and **30B''** of retaining members **30**.

[0037] Carriages **40A** and **40B** are mounted on the second ends **30A''** and **30B''**, respectively, of retaining members **30**. In the illustrated embodiment, carriages **40A** and **40B** (which may be referred to collectively herein as carriages **40**) are mounted for longitudinal travel along second portions **32A** and **32B**, respectively of retaining members **30**. In the illustrated embodiment, carriages **40** are elongate and have U-channel configuration in cross-section (this configuration is most clearly visible in carriage **40** shown in FIG. 4). The flanges of carriages **40** confine the opposed longitudinal sides of second portions **32A** and **32B** of retaining members **30**. The bases of carriages **40A** and **40B** comprise oblong apertures **42A** and **42B**, respectively (apertures **42A** and **42B** may be referred to collectively herein as apertures **42**). The longitudinal dimensions of apertures **42** are parallel to the lengths of carriages **40**. When carriages **40** are mounted on retaining members **30**, the longitudinal dimensions of apertures **42** are parallel to the lengths of respective ones of second portions **32A** and **32B** of retaining members **30**.

[0038] Carriages **40** may be secured to retaining members **30** by headed fasteners (not shown in the drawings) whose shanks pass through apertures **42** and engage either or both of apertures **36** and **37** (e.g., by threaded connection). The heads of the fasteners may bear against the outward surfaces of carriages **40** adjacent apertures **42** to retain the bases of carriages **40** flush against retaining members **30**. The relative positions of

carriages **40** and retaining members **30** may be fixed by operating headed fasteners (not shown in the drawings) that penetrate apertures **42** to clamp carriages **40** against retaining members **30**. Fasteners used to secure carriages **40** to retaining members **30** may comprise security fasteners, such as security screws.

[0039] Advantageously, the oblong shape of apertures **42** and the flanges of carriages **40** permit single degree of freedom movement of carriages **40** in directions parallel to the lengths of second portions **32A** and **32B** of retaining members **30** while fasteners penetrate apertures **42** and engage retaining members **30**.

[0040] Carriages **40** comprise clips **50** (individually enumerated as **50A** and **50B**). Clips **50** are configured to capture projecting portions of device **D**. In the illustrated embodiment, clips **50** each comprise a pair of opposed first portions and a pair of opposed second portions. The first portions of clips **50** are enumerated as **51** and **52**. The second portions of clips **50** are enumerated as **53** and **54**. The first portions of each clip **50** are mutually parallel. The second portions of each clip **50** are mutually parallel and perpendicular to the first portions. In the illustrated embodiment, clips **50** comprise C-shaped tubular members. The C-shaped tubular members define a generally rectangular shape (best seen in FIG. 3), in which each side of the rectangle contacts a different side of device **D**.

[0041] In other embodiments, clips **50** have configurations different from the configuration of the illustrated embodiment. For example, the clips could comprise securable clamps for engaging with the corners of device **D**,

a solid housing defining a generally rectangularly shaped opening for engaging with the corners of device **D** in a manner similar to clips **50**, a mechanism for preventing access to certain portions of device **D** while simultaneously engaging with the corners of device **D**, or the like. The height of the clips could be modified depending on the thickness of the device **D** to be secured.

[0042] As shown in FIGs. 1-4, in the illustrated embodiment clips **50** engage adjacent corners of device **D**. As can best be seen in FIG. 3, first portion **51** abuts second side **D2** and first portion **52** abuts third side **D3**. Sides **D2** and **D3** are adjacent and meet at a corner of device **D**. As can best be seen in FIGs. 2A and 2B, second portion **53** abuts fourth side of **D4** and second portion **54** abuts fifth side **D5**. Sides **D4** and **D5** are opposite one another. Sides **D4** and **D5** are both adjacent to each of sides **D2** and **D3**. Side **D1** of device **D** that is engaged with stop member **20** is opposite to the corners of device **D** engaged by clips **50**.

[0043] In some embodiments, including the illustrated embodiment, clips **50** are configured to engage squarely with the corners of device **D**, i.e. to grip each side of device **D** (e.g. sides **D2** and **D3** with respect to clip **50A** in the illustrated embodiment) to an approximately equal extent. In the illustrated embodiment, second portions **53** and **54** extend across (i.e. intersect) the corners of device **D** at an angle of approximately 45°. Engagement of clips **50** squarely with the corners of device **D** can make unauthorized removal of device **D** from apparatus **10** more difficult by making it more difficult to twist device **D** out of clips **50**.

[0044] It may be appreciated that device **D** cannot be removed from apparatus **10** in the configuration shown in FIGs. 1-4. In particular:

- Translational movement of device **D** away from base **12** in a direction normal to base **12** is prevented by the abutment of side **D4** of device **D** with J-shaped portions **24** of stop member **20** and second portions **53** of clips **50**.
- Translational movement of device **D** away from base **12** in directions crossing side **12A** of base **12** is prevented by abutment of side **D1** of device **D** with J-shaped portions **24** of stop member **20**.
- Translational movement of device D away from base **12** in directions crossing side **12D** is prevented by abutment of side **D2** of device **D** with first portions **51** of clips **50**.
- Translational movement of device **D** away from base **12** in directions crossing side **12B** is prevented by abutment of side **D3** of device **D** with first portion **52** of clip **50A**.
- Translational movement of device **D** away from base **12** in directions crossing side **12C** is prevented by abutment of side **D6** of device **D** with first portion **52** of clip **50B**.
- Rotational movement of device **D** about axes normal to base **12** is inhibited by the simultaneous abutment of side **D1** of device **D** with J-shaped portions **24** of stop member **20** and of side **D2** of device **D** with first portions **51** and **52** of clips **50**.
- Rotational movement of device **D** about axes parallel to the plane of base **12** is inhibited by the simultaneous abutment of side **D4** of device **D** with J-shaped portions **24** of stop member **20**, of second portions **53** of clips **50**, and of side **D5** with base **12**.

[0045] It may be appreciated that apparatus **10** does not unduly obscure side **D4** of device **D** (see in particular FIG. 3). This may be advantageous where device **D** is a touch screen device such as a touch screen equipped tablet computer and side **D4** comprises the touch screen and where apparatus **10** is being used to secure device **D** in a setting (such as a retail setting) where user interaction with the device **D** is desired.

[0046] It will be appreciated that apparatus **10** is adjustable and capable of securing devices of different dimensions. Factors that contribute to the adjustability of apparatus **10** include:

- The ability to fix the stop member **20** to the base **12** at a plurality of locations along arms **22** (by inserting fasteners through a plurality of locations through apertures **26**). As a result, if, for example, sides **D3** and **D6** were shorter than depicted in FIGs. 1-4, stop member **20** could be moved in a direction toward side **12D** and then fixed to base **12**.
- The ability to position carriages **40** at a plurality of locations along retaining members **30**, which permits the distance between clips **50** to be adjusted. As a result, if, for example, side **D2** of device **D** was shorter than depicted in FIGs. 1-4, carriages **40** could be moved along retaining members **30** in the direction of apertures **36** to reduce the distance between clips **50** to enable the outward first portions **52** of clips **50** to engage sides **D3** and **D6** of device **D**.
- The transverse oblong configuration of apertures **34** and the ability for pivotal movement of retaining members **30** about axes co-axial with apertures **35**. This allows adjustment of the angle of clips **50** relative to the corners of device **D** to be secured.

- The obtuse angle **θ** formed between first portions **31** and second portions **32** of retaining members **30** can assist in facilitating square engagement of clips **50** with the corners of device **D** to be secured for devices having a wide range of length-to-width ratios.

[0047] Stop member **20** and retaining members **30** may be arranged to secure devices on apparatus **10** in different configurations than the configuration shown in FIGs. 1-4. The reconfigurability of apparatus **10** is provided by symmetrical arrangements of apertures **16A**, **16B**, **17A**, **17B**, **18A**, **18B**, **19A** and **19B** on base **12**, which enable registration of the paired apertures defined in stop member **20** and in each of retaining members **30** with different pairs of apertures **16A**, **16B**, **17A**, **17B**, **18A**, **18B**, **19A** and **19B**. The symmetry of the arrangements of apertures **16A**, **16B**, **17A**, **17B**, **18A**, **18B**, **19A** and **19B** on base **12** may be described as follows:

- the arrangement of apertures **16A**, **17A**, **18A**, and **19A** is longitudinally symmetric with the arrangement of apertures **16B**, **17B**, **18B** and **19B**;
- the arrangement of apertures **16A** and **16B** is transversely symmetric with the arrangement of apertures **19A** and **19B**;
- the arrangement of apertures **17A** and **17B** is transversely symmetric with the arrangement of apertures **18A** and **18B**; and
- the arrangement of each pair of adjacent ones of apertures **17A**, **17B**, **18A** and **18B** (i.e., pairs [**17A**,**17B**], [**17B**,**18B**], [**18B**,**18A**] and [**18A**, **17A**]) is rotationally symmetric with the arrangement of every other such pair.

[0048] In the illustrated embodiment, this symmetry manifests in the following properties:

- apertures **17A**, **17B**, **18A** and **18B** are arranged at the corners of a square; and
- apertures **16A**, **16B**, **17A** and **17B** are arranged at the corners of a first rectangle, and apertures **18A**, **18B**, **19A**, and **19B** are arranged at the corners of a second rectangle whose sides are parallel to and have the same dimensions as the sides of the first rectangle.

[0049] It may be appreciated from the foregoing description and/or study of the drawings (e.g., FIG. 1) that apertures **26** may be arranged to simultaneously register with any of:

- apertures **16A** and **16B**;
- apertures **17A** and **17B**;
- apertures **16A**, **16B**, **17A** and **17B**;
- apertures **18A** and **18B**;
- apertures **19A** and **19B**;
- apertures **18A**, **18B**, **19A** and **19B**;
- apertures **17A** and **18A**; and
- apertures **17B** and **18B**.

[0050] It may also be appreciated from the foregoing description and/or study of the drawings (e.g., FIG. 1) that apertures **34** and **35** of retaining members **30** may be arranged to simultaneously register with any of:

- apertures **16A** and **17A**;
- apertures **16B** and **17B**;
- apertures **18A** and **19A**; and
- apertures **18B** and **19B**.

[0051] It will be appreciated, therefore, that where device **D** is rectangular such as is shown in FIGs. 1-4, apparatus **10** may be used to secure device **D** in not only the "portrait" type orientation shown but also a "landscape" type orientation.

[0052] FIG. 5 shows an example of an apparatus **70** according to another example embodiment. Apparatus **70** is a reconfiguration of apparatus **10**. Components of apparatus **70** are identified in FIG. 5 using the same reference numerals used to identify like components of apparatus **10** in FIGs. 1-4. The configuration of apparatus **70** differs from the configuration of apparatus **10** in that:

- stop member **20** extends across side **12B** of base **12** rather than side **12A**;
- apertures **26A** and **26B** of stop member **20** are registered with apertures **17A** and **18A**, respectively, of base **12**;
- retaining members **30** extend outward of the ends of side **12C** of base **12** rather than side **12D**;
- apertures **34A** and **35A** of retaining member **30A** are registered with apertures **19B** and **18B**, respectively, of base **12**; and
- apertures **34B** and **35B** of retaining member **30B** are registered with apertures **16B** and **17B**, respectively, of base **12**.

[0053] Apparatus **70** also differs from apparatus **10** in that instead of centrally located apertures **14**, apparatus **70** has a cylindrical tube **72** that extends generally normal to base **12** (cylindrical tube **72** can also be seen in FIGs. 5A and 5B). A post (e.g., attached to a stationary object, not shown in the drawings) may be inserted into tube **72** to support apparatus **70** (e.g., above a display counter). A threaded weld nut **74** registered with an aperture formed in the wall of tube **72** may receive a screw that interacts with a post (threaded weld nut **74** can also be seen in FIG. 5B). In some embodiments, the screw may bear against an outward surface of such a post. In other embodiments, the screw may engage a corresponding threaded aperture in the post to lock apparatus **70** to the post. In some embodiments, the screw may engage a corresponding elongate aperture in the post to permit base **12** to pivot about the post. The ability of base **12** to pivot about the post may allow devices secured in apparatus **10** to be rotated between portrait and landscape orientations, which may be useful in demonstrating adaptive screen technology of the devices. In other embodiments, tube **72** is fastenable to a post in other ways.

[0054] Apparatus **10** may also be reconfigured to secure differently dimensioned devices by substituting differently dimensioned stop members **20** and/or retaining members **30**. FIGs. 6 and 7 show, respectively, apparatus **80** and apparatus **90** that each include base **12** outfitted with retaining members (not specifically enumerated) that are differently dimensioned than the retaining members **30** of apparatus **10** and apparatus **70**. Stop members and retaining members may be provided in a variety of different sizes.

[0055] Apparatus **10** enables several convenient methods for securing a device **D**. FIG. 8 is a flowchart that illustrates one such method, namely a method **100** for securing a rectangular device. In step **102**, a device is positioned over base **12**. In step **104** of method **100**, clips **50** are positioned to capture adjacent corners of the device. In step **106**, the positions of carriages **40** are fixed relative to retaining members **30**. Step **108** comprises developing tension in retaining members **30** by urging the device toward clips **50** with stop member **20**. Step **108** may comprise placing stop member **20** into abutment with a side of the device that is spaced apart from the adjacent corners retained in clips **50** and moving stop member **20** toward clips **50** along its single free degree of movement until further movement is prevented by tension acting against the corners of the device retained in clips **50**. In step **108**, the movement of stop member **20** toward clips **50** causes the corners of the device captured in clips **50** to push clips **50** away from base **12**. This results in tension on carriages **40** and retaining members **30**, which may cause retaining members **30** to pivot about axes co-axial with apertures **35**. In some embodiments, the method further comprises adjusting the angle of clips **50** relative to the corners of device **D** being secured by rotating retaining members **30** about axes co-axial with apertures **35** so that clips **50** are squarely or nearly squarely engaged with the corners of device **D**. In the illustrated embodiment, this involves adjusting the angle formed between second portions **53** and **54** of clips **50** and the edges of device **D** to be approximately 45°, which optionally includes adjusting the longitudinal position of the carriages **40** relative to second portions **32** of retaining members **30** before securing carriages **40** to retaining members **30**. When no slack remains in retaining members **30**, carriages **40** and clips **50**, further

movement of stop member **20** toward clips **50** is prevented. In step **110**, the position of stop member **20** is fixed relative to base **12**.

[0056] It will be appreciated that other methods of securing device **D** in apparatus **10** are possible. For instance, stop member **20** may be adjusted along apertures **26** with device **D** in abutment with hooked portions **24** of stop member **20** to approximately center device **D** over base **12**. Stop member **20** may then be fixed in this position using headed fasteners engaged in apertures **26**. Retaining members **30**, carriages **40**, and clips **50** can then be positioned to capture the corners of device **D** under tension, and locked in place.

[0057] Where a component is referred to above (e.g., a base, stop member, arm, cross member, J-shaped portion, aperture, fastener, post, retaining member, carriage, clip, etc.), unless otherwise indicated, reference to that component (including a reference to a "means") should be interpreted as including as equivalents of that component any component which performs the function of the described component (i.e., that is functionally equivalent), including components which are not structurally equivalent to the disclosed structure which performs the function in the illustrated exemplary embodiments of the invention.

[0058] Unless the context clearly requires otherwise, throughout this application, the words “comprise,” “comprising,” and the like are to be construed in an inclusive sense, as opposed to an exclusive or exhaustive sense; that is to say, in the sense of “including, but not limited to.” Where the context permits, words in the above description using the singular or

plural number may also include the plural or singular number respectively. The word "or," in reference to a list of two or more items, covers all of the following interpretations of the word: any of the items in the list, all of the items in the list, and any combination of the items in the list.

[0059] The above detailed description of example embodiments is not intended to be exhaustive or to limit this application to the precise forms disclosed above. While specific examples of, and examples for, embodiments are described above for illustrative purposes, various equivalent modifications are possible within the scope of the technology, as those skilled in the relevant art will recognize. The illustrative purposes mentioned herein are not intended to be exhaustive or limiting of the possible applications of the technology. For example, apparatus and methods embodying the technology disclosed herein are not limited to use for securing products in a retail setting, and may be applied to secure products in other contexts, for instance in commercial establishments, educational institutions, government service branches, or other organizations where a tablet computer or other portable electronic device may be made temporarily available to a user for the purpose of reviewing or inputting certain information (e.g. reviewing a menu and submitting a food order in a restaurant; answering questionnaires in a government or health care professional office; or the like).

[0060] These and other changes can be made to apparatus and methods disclosed herein in light of the above description. While the above description describes certain examples of the technology, and describes the best mode contemplated, no matter how detailed the above appears in text,

the technology can be practiced in many ways. As noted above, particular terminology used when describing certain features or aspects of disclosed apparatus and methods should not be taken to imply that the terminology is being redefined herein to be restricted to any specific characteristics, features, or aspects of the system with which that terminology is associated. In general, the terms used in the following claims should not be construed to limit the technology to the specific examples disclosed in the specification, unless the above description section explicitly and restrictively defines such terms. Accordingly, the actual scope of the technology encompasses not only the disclosed examples, but also all equivalent ways of practicing or implementing the technology.

[0061] From the foregoing, it will be appreciated that specific examples of apparatus have been described herein for purposes of illustration, but that various modifications, alterations, additions and permutations may be made without departing from the practice of the invention. The embodiments described herein are only examples. Those skilled in the art will appreciate that certain features of embodiments described herein may be used in combination with features of other embodiments described herein, and that embodiments described herein may be practised or implemented without all of the features ascribed to them herein. Such variations on described embodiments that would be apparent to the skilled addressee, including variations comprising mixing and matching of features from different embodiments, are within the scope of this invention.

[0062] Some non-limiting examples of variations on the example embodiments described herein include the following:

- Base **12** may have different configurations. For instance, base **12** could have different arrangements of apertures, such as to enable apparatus **10** to be used with various mounting devices (posts, stands, and brackets, etc.) and accommodate variously configured retaining members.

- It is not necessary that stop member **20** and/or retaining members **30** be rotationally universal when based **12** is switched between landscape and portrait orientations.

- It is not necessary that the arrangement of apertures in base **12** exhibit the same degree of symmetry as the arrangement of the example embodiment described herein. For instance, apertures **17A**, **17B**, **18A** and **18B** may be arranged in a non-square rectangular configuration. Thus, it is possible to configure apparatus **10** such that registration of apertures **26** of stop member **20** is possible with only some, but not all, of the combinations of apertures set out in paragraph [0049] above.

- Stop member **20** and/or retaining members **30** may have greater or fewer apertures than shown in the example embodiments described herein. For example, stop member **20** may comprise additional oblong apertures parallel to apertures **26A** and **26B** to enable stop member **20** to be used with bases having apertures arranged

differently than base **12** (e.g., bases in which apertures **17A**, **17B**, **18A** and **18B** are arranged in a non-square rectangular configuration).

WHAT IS CLAIMED IS:

1. Apparatus for securing a product, the apparatus comprising:

a base;

a pair of retaining members, each retaining member pivotally secured at a first end thereof to the base;

a pair of carriages, each carriage fixable to a corresponding one of the retaining members, each carriage having a clip for capturing a projecting portion of the product; and

a stop member movable toward the clips in a single degree of freedom and fixable to the base at a plurality of locations along the degree of freedom, the stop member comprising a portion for engaging a portion of the product which is spaced apart from the projecting portions captured by the clips.

2. Apparatus as defined in claim 1, wherein each one of the carriages is movable along the corresponding one of the retaining members and fixable to the corresponding one of the retaining members at a plurality of locations.

3. Apparatus as defined in any one of claims 1 to 2, wherein each one of the retaining members comprises a first elongate portion pivotally secured to the base and a second elongate portion extending at an outwardly obtuse angle from the first portion, each one of the carriages being movable along the second elongate portion of the corresponding one of the retaining members and fixable to the second elongate portion at a plurality of locations.

4. Apparatus as defined in claim 3, wherein the obtuse angle defined by the first and second portions of the retaining members is between about 105° and about 160°.

5. Apparatus as defined in claim 3, wherein the obtuse angle defined between the first and second portions of the retaining members is approximately 135°.

6. Apparatus as defined in any one of claims 1 to 5, wherein each one of the retaining members is pivotally secured to the base with two points of contact.

7. Apparatus as defined in claim 6, wherein the two points of contact comprise a pair of fasteners engaged with a pair of longitudinally spaced apertures on the respective retaining members, first ones of the apertures being proximate to a first end of the respective retaining members and second ones of the apertures being distal from the first end of the respective retaining members, the second ones of the apertures comprising an oblong aperture positioned to permit rotational movement of the retaining members about an axis co-axial with the first ones of the apertures, wherein the carriages are provided on the retaining members distally of the first and second apertures.

8. Apparatus as defined in claim 7, wherein each one of the retaining members comprises a first elongate portion pivotally secured to the base and a second elongate portion extending at an outwardly obtuse

angle from the first portion, each one of the carriages being movable along the second elongate portion of the corresponding one of the retaining members and fixable to the second elongate portion at a plurality of locations, and wherein the longitudinal dimensions of the oblong apertures are oriented transverse to the lengths of the first elongate portions of the retaining members.

9. Apparatus as defined in claim 7 or claim 8, wherein the fasteners comprise headed fasteners engaged with a pair of apertures provided in the base.

10. Apparatus as defined in any one of claims 3 or 8, wherein the clips comprise longitudinal slots extending in a direction parallel to the lengths of respective ones of the second elongate portions of the retaining members, and wherein the clips are mounted for longitudinal travel along the second elongate portions.

11. Apparatus as defined in any one of claims 1 to 10, wherein the portions of the clips that engage with the retaining members have a U-channel configuration in cross-section.

12. Apparatus as defined in any one of claims 1 to 11, wherein the clips have single degree freedom of movement relative to the retaining members.

13. Apparatus as defined in any one of claims 1 to 12, wherein the clips comprise C-shaped tubular members defining four sides of a

rectangle, and wherein each side of the rectangle defined by the C-shaped tubular member contacts a different side of the product when the clip is engaged with the projecting portions.

14. Apparatus as defined in claim 13, wherein the C-shaped tubular members intersect the projecting portions of the product at an angle of approximately 45°.

15. Apparatus as defined in any one of claims 1 to 14, wherein the clips are disposed to engage squarely with the projecting portions of the product.

16. Apparatus as defined in any one of claims 1 to 15, wherein the product has a rectangular slab form factor, and wherein the projecting portions of the product comprise corners of the product.

17. Apparatus for securing a planar product having a polygonal shape, the apparatus comprising:

a base;

a pair of rotatable retaining members with clips telescopically engaged at second ends of the respective retaining members for engaging with two corners of the product, first ends of the retaining members being securable to the base to prevent relative motion of the rotatable retaining members relative to the base; and

a slideable stop member engaged at a second end of the base for engaging with an edge of the product opposite the two corners, the slideable stop member being adjustable towards the pair of

rotatable retaining members and securable to the base to prevent relative motion of the slideable stop member relative to the base.

18. Apparatus as defined in claim 17, wherein the rotatable retaining members are coupled to the base at first and second points, and wherein the second point is positioned and configured to permit rotational movement of the retaining members about an axis co-axial with the first point.

19. Apparatus as defined in any one of claims 17 to 18, wherein the rotatable retaining members comprise first and second portions, the first portion of the retaining members being engageable with the base and the second portion of the retaining members comprising the clips, wherein the second portion extends at an outwardly obtuse angle from the first portion.

20. Apparatus as defined in any one of claims 1 to 19, wherein the product comprises a tablet computer, a mobile phone, an e-reader, or a system controller.

21. A method for securing a product using an apparatus having a base, a pair of retaining members, each retaining member pivotally secured at a first end thereof to the base, a pair of carriages, each carriage movable along a corresponding one of the retaining members and fixable to the corresponding one of the retaining members at a plurality of locations, each carriage having a clip for capturing a projecting portion of the product, and a stop member movable toward

the clips in a single degree of freedom and fixable to the base at a plurality of locations along the degree of freedom, the stop member comprising a portion for engaging a portion of the product which is spaced apart from the projecting portions captured by the clips, the method comprising:

capturing projecting portions of the product in the clips;

fixing the positions of the carriages relative to the retaining members;

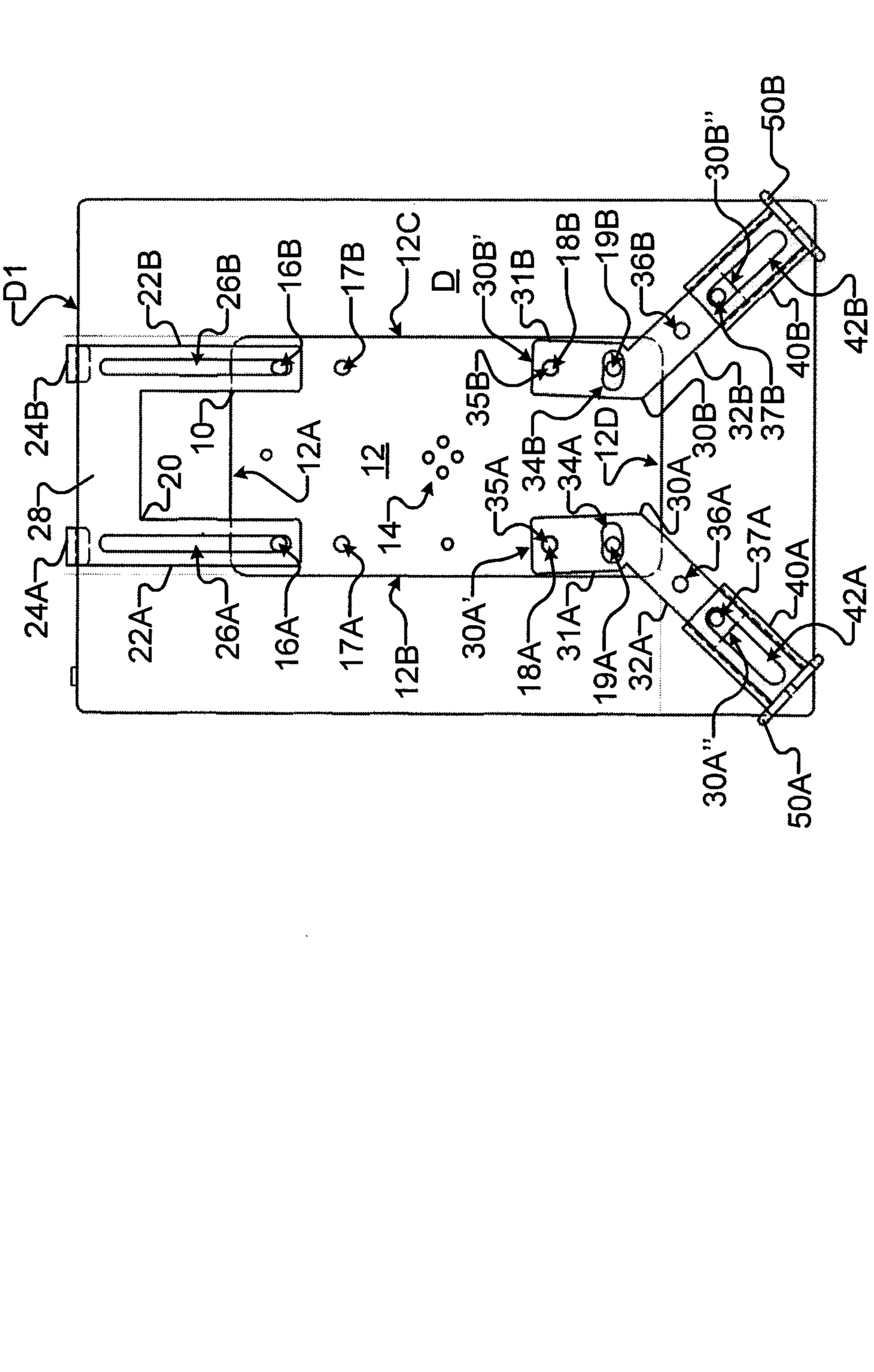
engaging the spaced apart portion of the product with the portion of the stop member for engaging the spaced apart portion of the product;

developing tension in the retaining members by urging the product toward the clips with the stop member; and

when the retaining members are under tension fixing the position of the stop member relative to the base.

22. A method as defined in claim 21, wherein fixing the positions of the carriages relative to the retaining members comprises pivoting the retaining members so that the projecting portions of the product are engaged squarely in the clips.

23. A method as defined in any one of claims 21 to 22, wherein the product comprises a tablet computer, a mobile phone, an e-reader, or a system controller.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24B
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26B
16B
17B
12C
D
30B'
31B
18B
19B
36B
30B''
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12A
12
35B
34B
34A
12D
30B
32B
37B
40B
42B
20
28
24A
22A
26A
16A
17A
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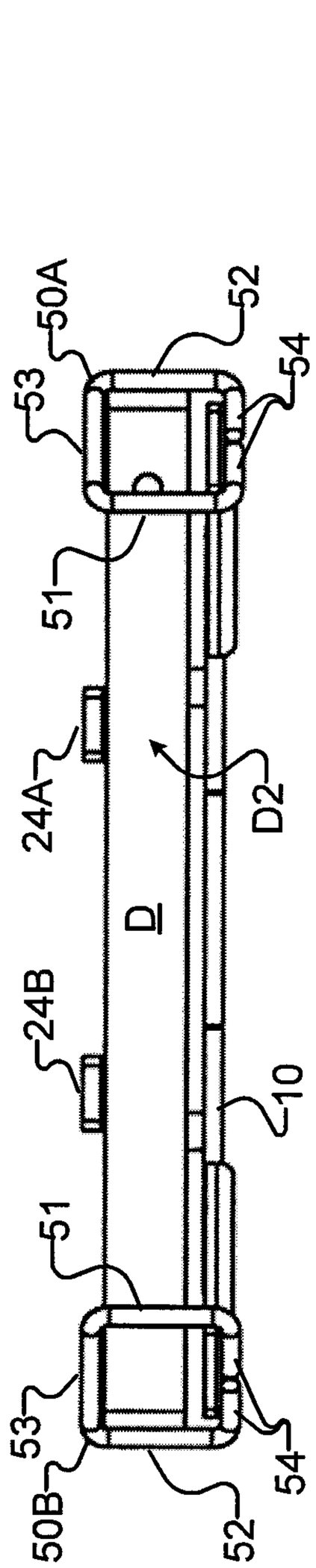
FIG. 1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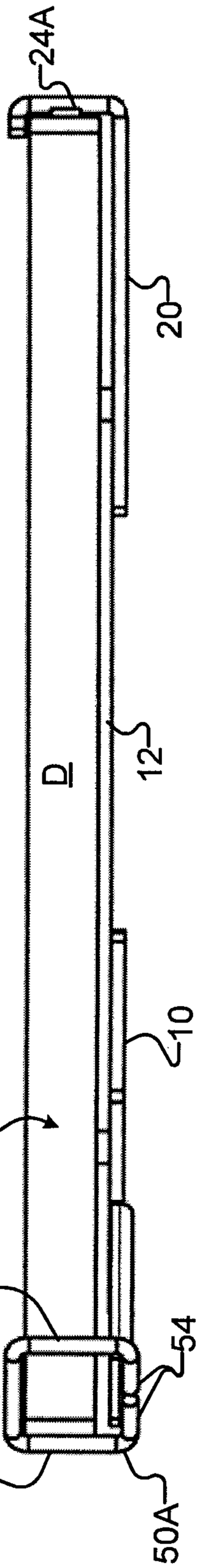
D
D2
24B
10
51
53
50B
52
54

FIG. 2A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20
D
12
10
D3
52
53
54
51
50A

FIG. 2B

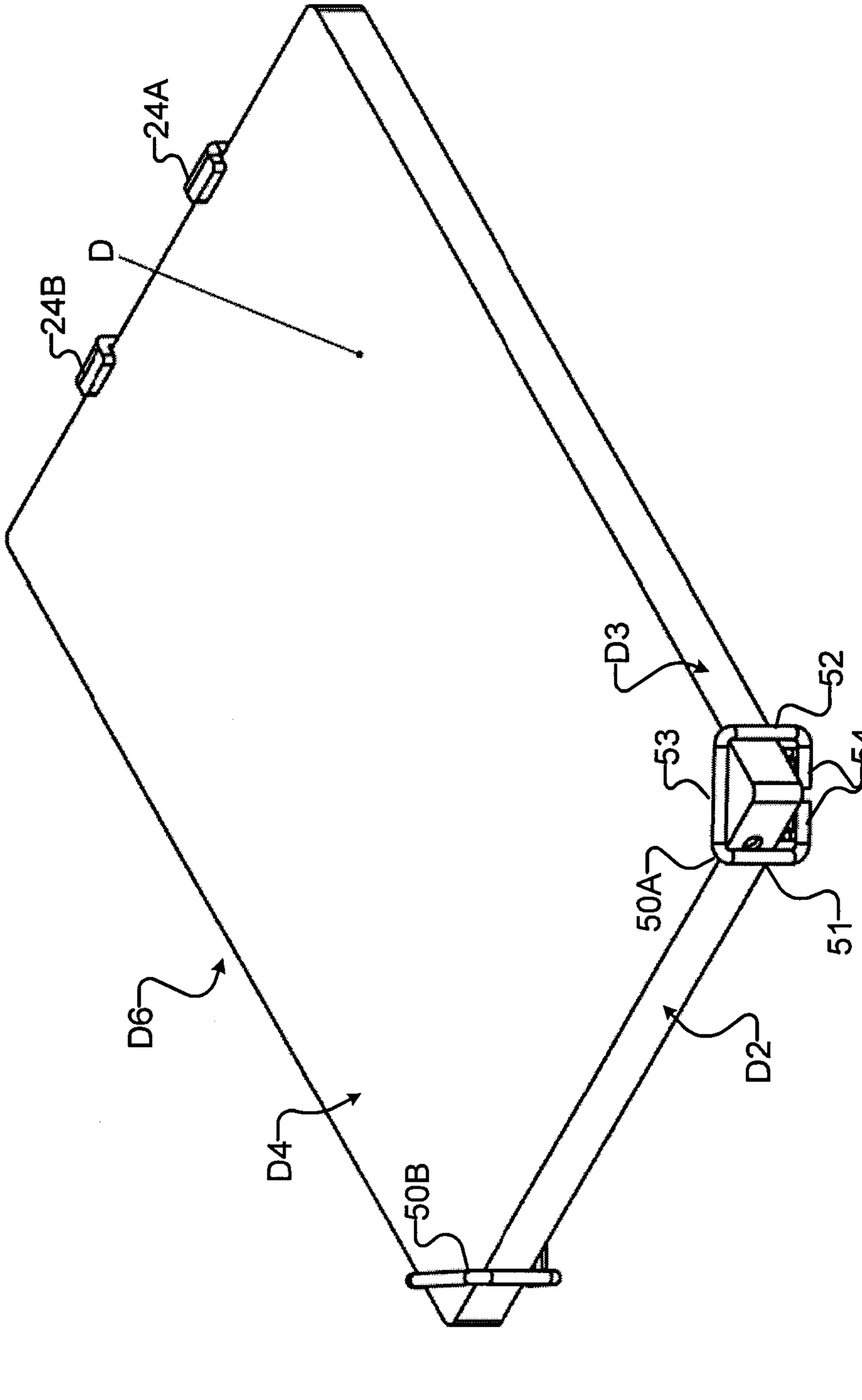
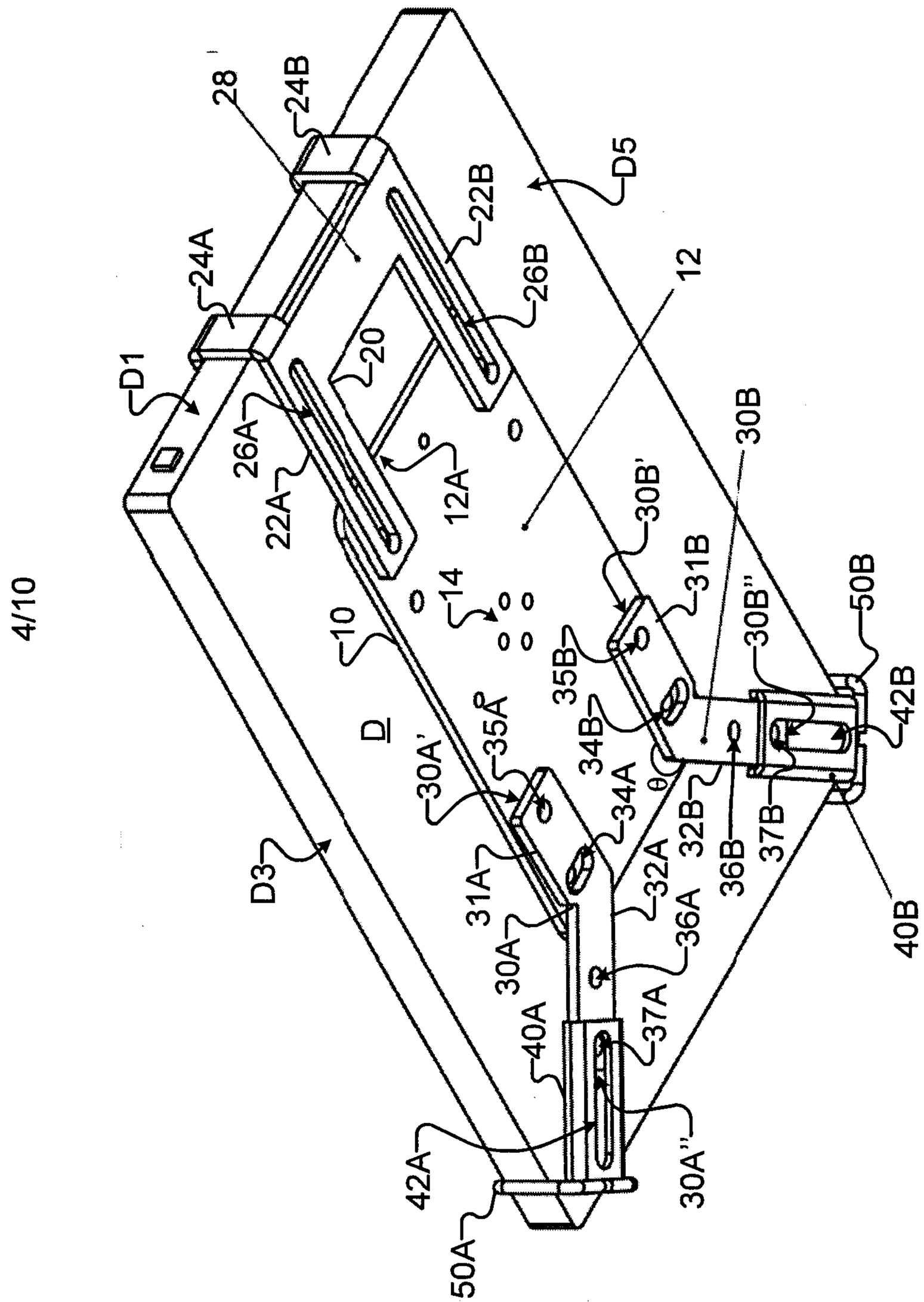


FIG. 3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D1
24A
28
24B
D5
22B
26B
12
20
26A
22A
12A
30B'
30B
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14
10
D
35B
35A
34B
30A'
34A
D3
31A
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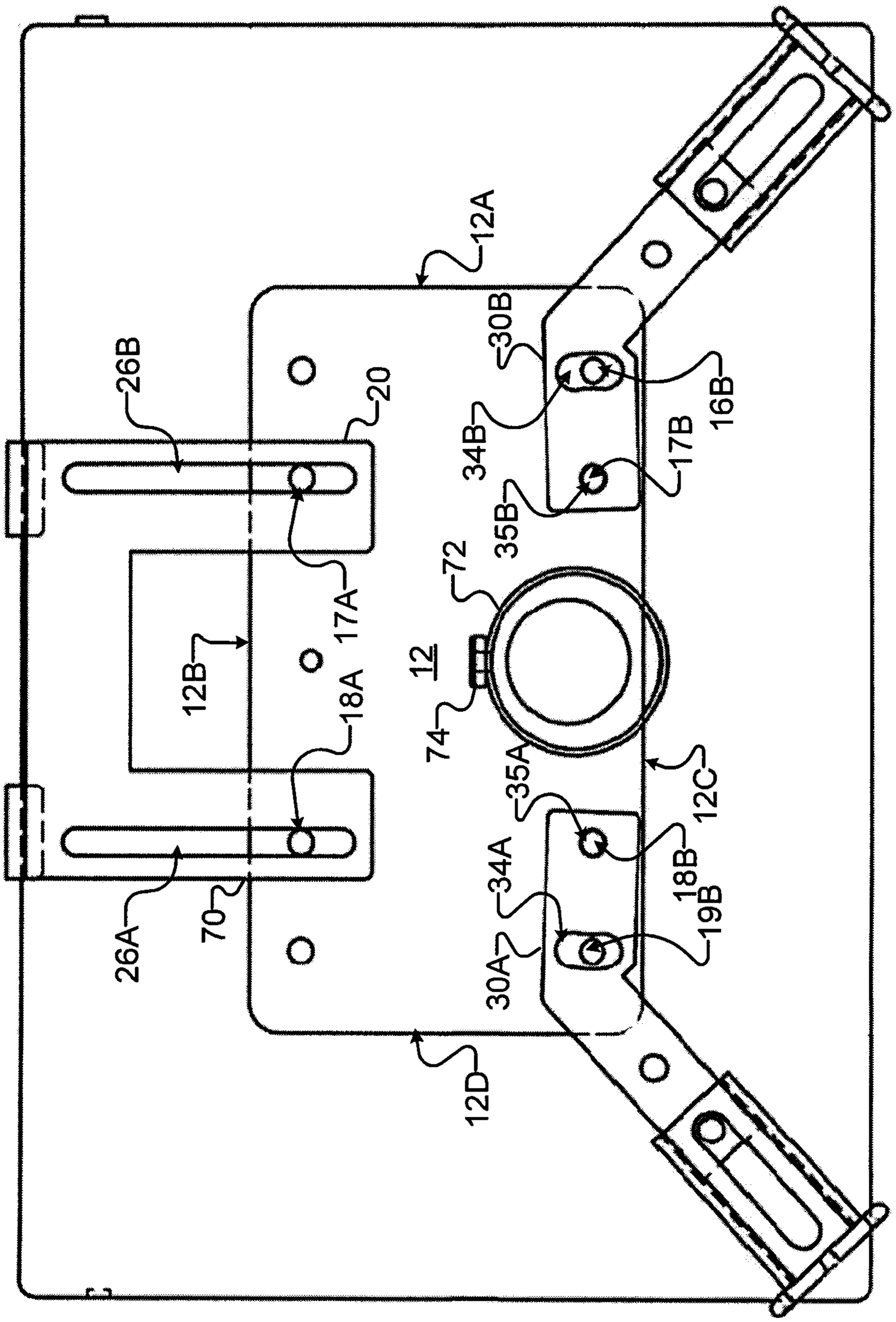
36B
37B
30A
36A
40A
37A
42B
40B
42A
30A''
50

FIG. 4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17B
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12
74
17A
18A
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26B
35A
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19B
34A
30A
12D
70
26A

FIG. 5

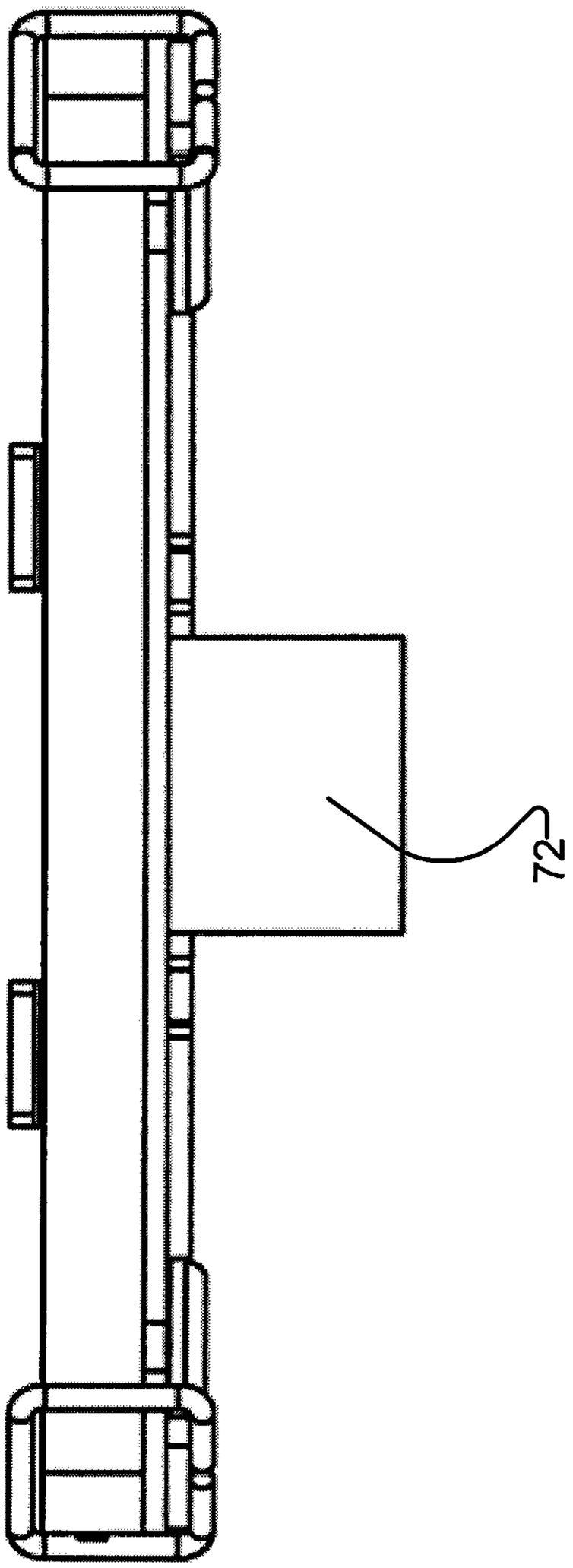


FIG. 5A

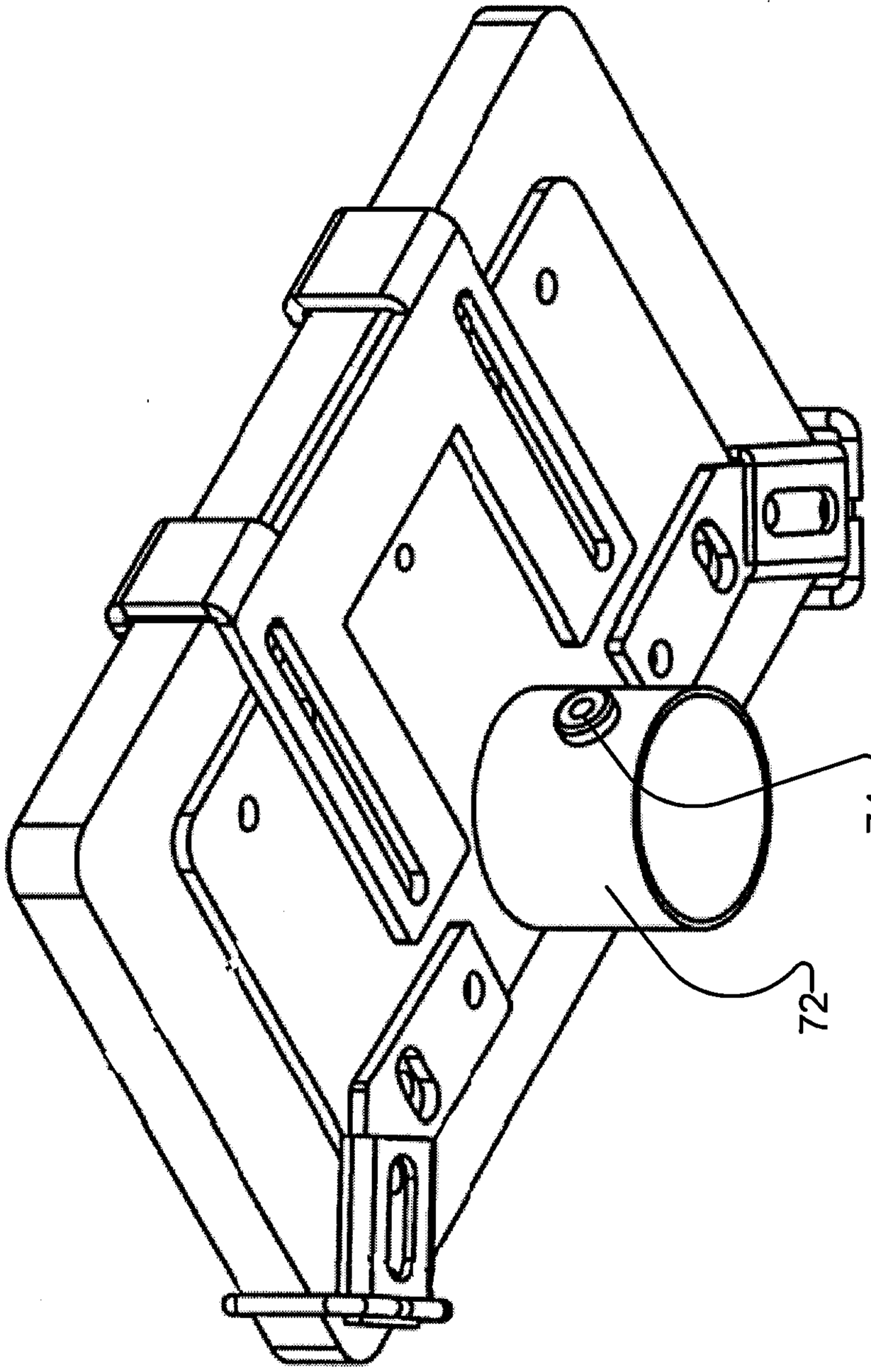


FIG. 5B

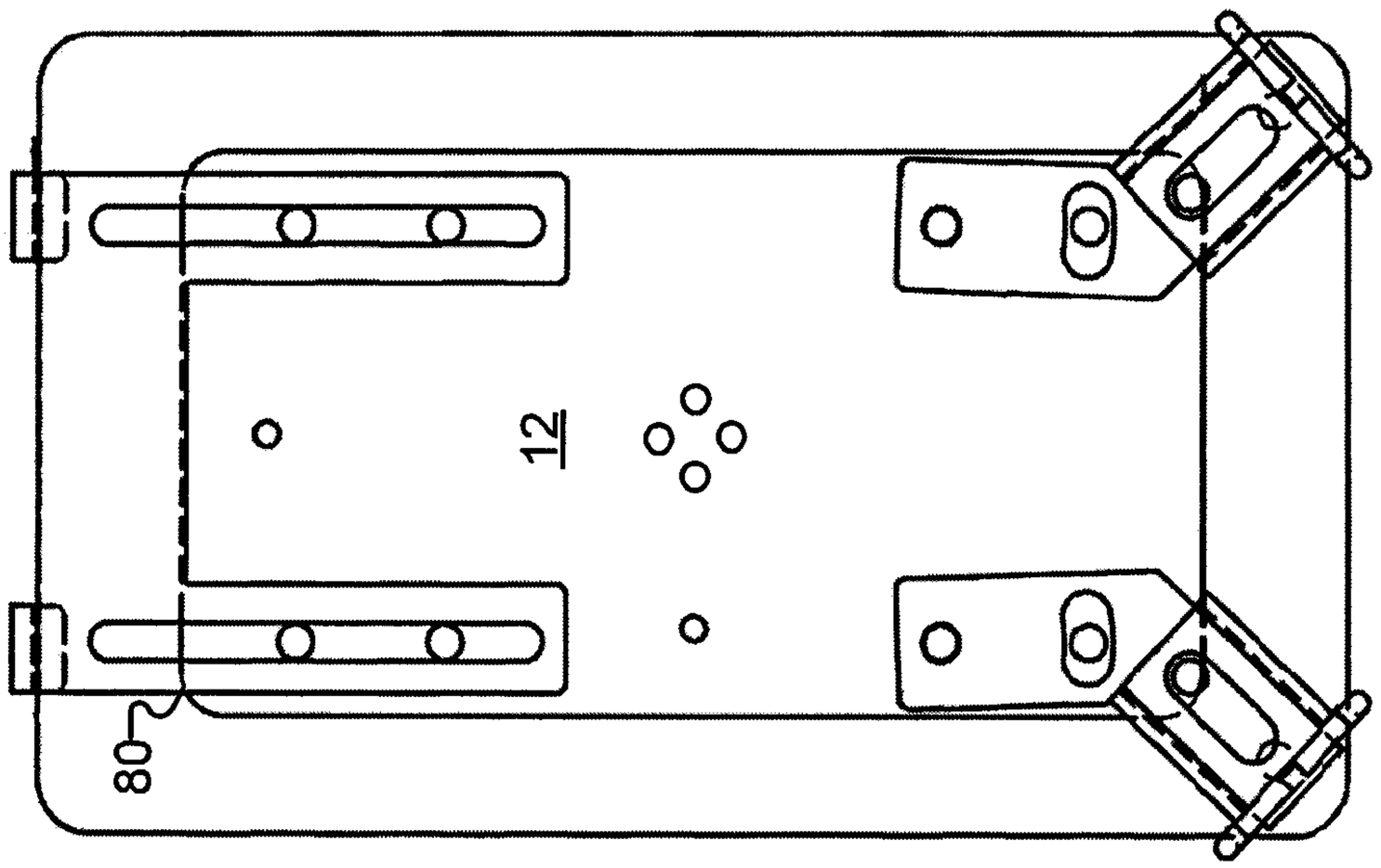


FIG. 6

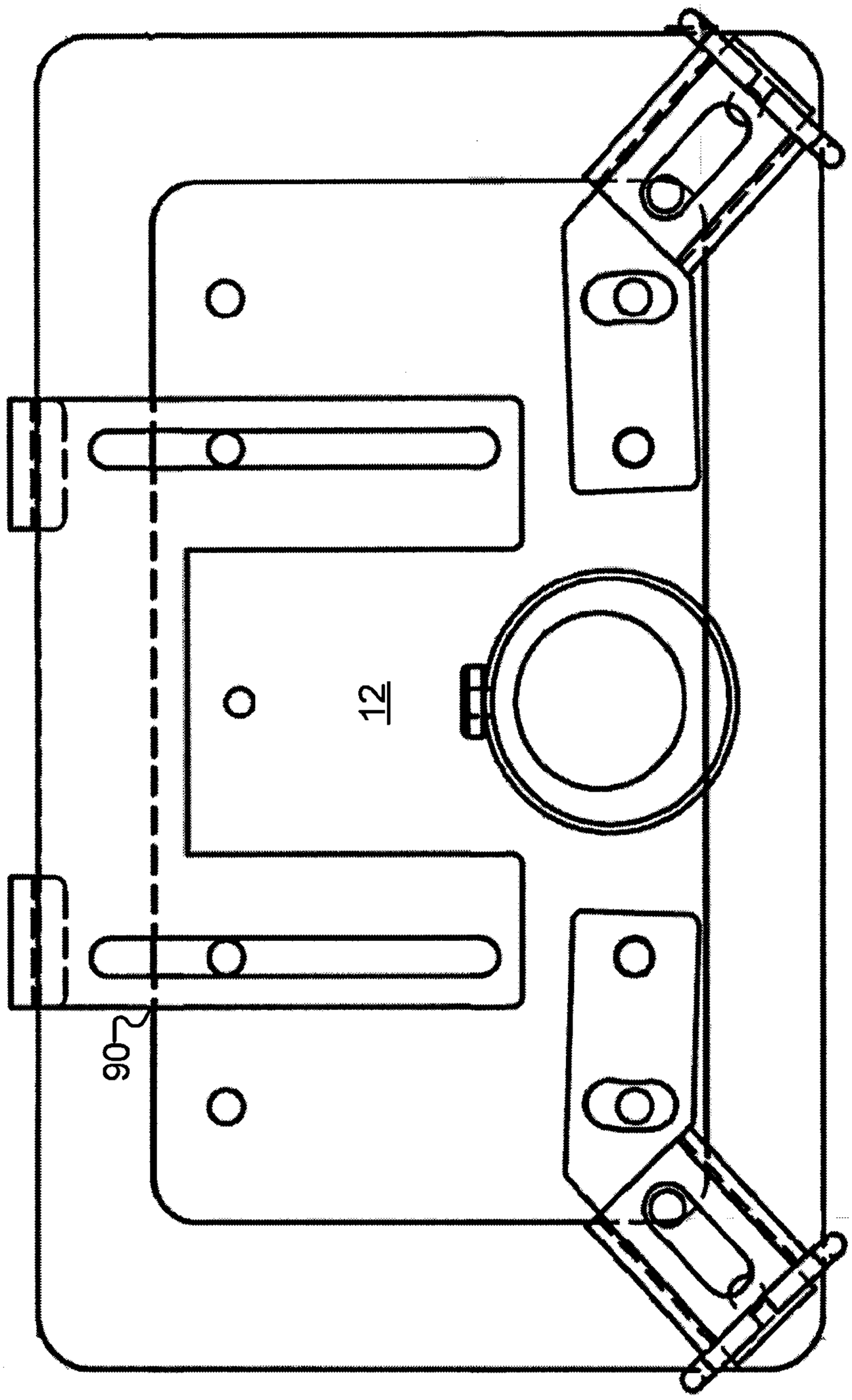


FIG. 7

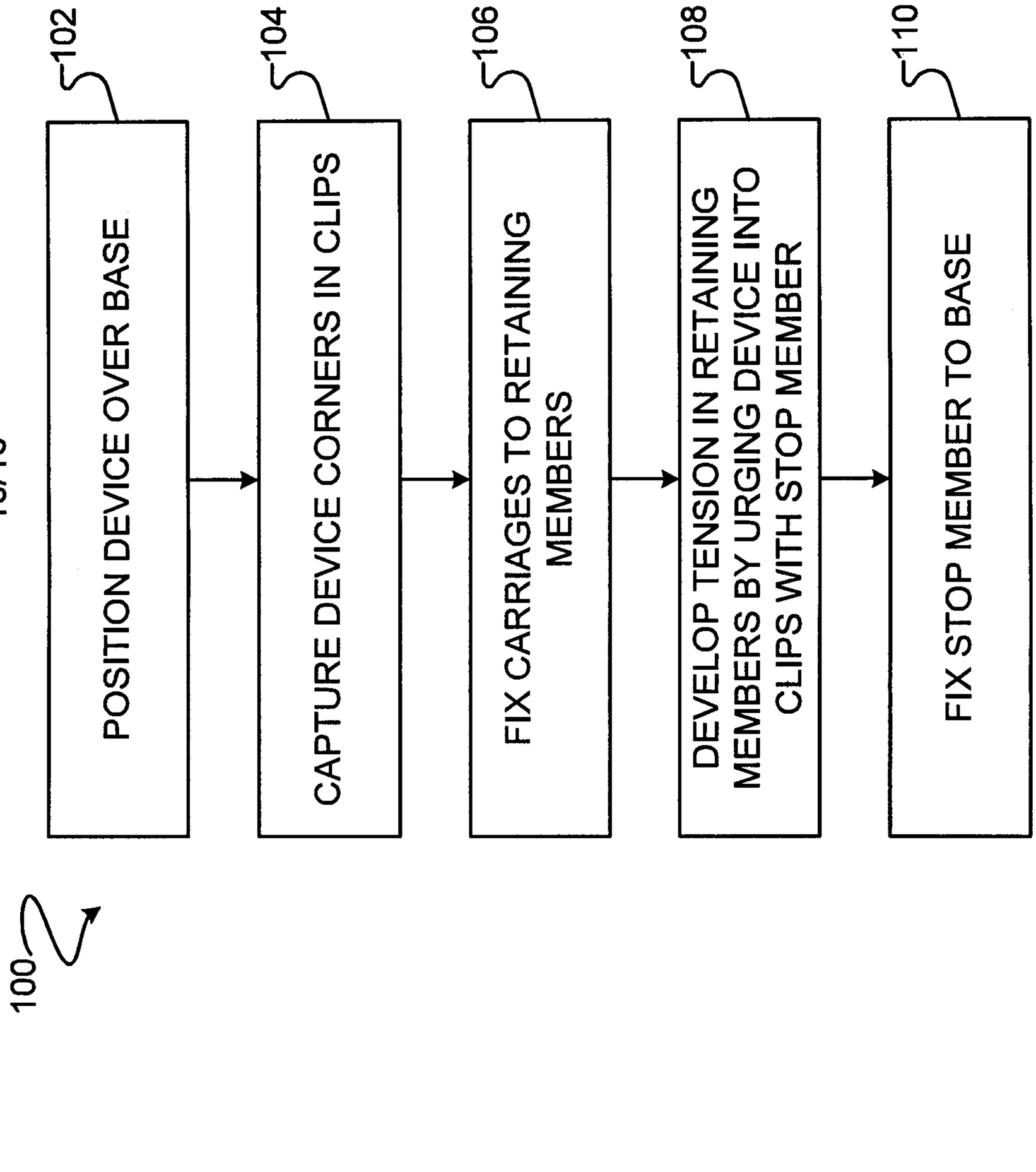
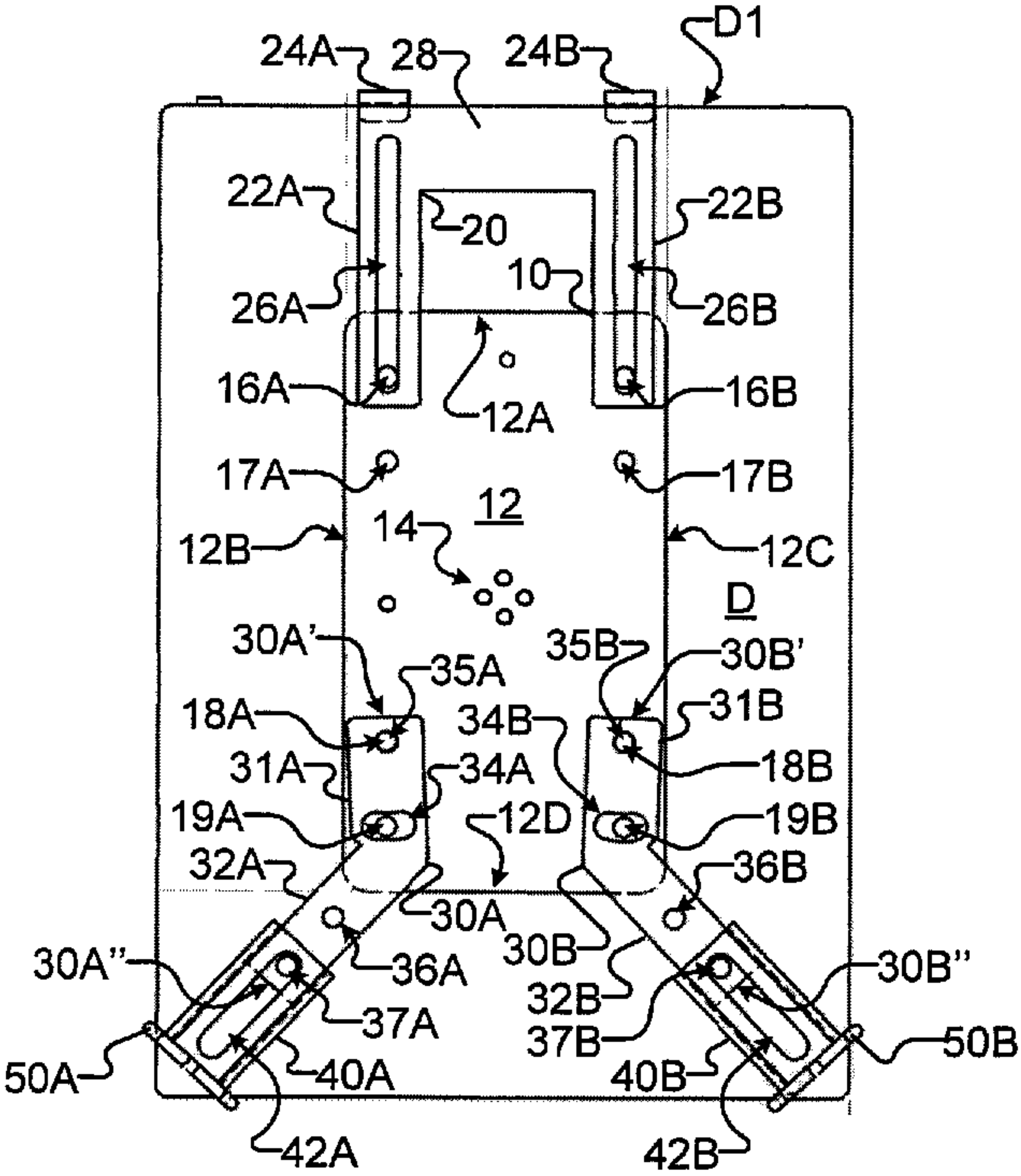

100
POSITION DEVICE OVER BASE
102
CAPTURE DEVICE CORNERS IN CLIPS
104
FIX CARRIAGES TO RETAINING MEMBERS
106
DEVELOP TENSION IN RETAINING MEMBERS BY URGING DEVICE INTO CLIPS WITH STOP MEMBER
108
FIX STOP MEMBER TO BASE
110

FIG. 8


D1
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24B
22A
22B
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10
26A
26B
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17B
12
12B
14
12C
D
30A'
35B
30B'
35A
18A
34B
31B
31A
34A
18B
19A
12D
19B
32A
36B
30A
30B
30A''
36A
30B''
32B
37A
37B
50A
40A
40B
50B
42A
42B