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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
63/382,174	11/03/2022		150	TRIPA096		

CONFIRMATION NO. 9538

FILING RECEIPT

189392
Tricam Industries, Inc.
7677 Equitable Drive
Eden Prairie, MN 55344

OC00000050567445

Date Mailed: 11/08/2022

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Power of Attorney:
TYE BIASCO -53989

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Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

LADDER STORAGE DEVICES

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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TITLE OF INVENTION

Ladder Storage Devices

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ABSTRACT

Various devices and methods for hanging tools or other items from a ladder are disclosed. The devices may be incorporated into parts of the ladder itself or be separate add-on devices for use with assorted ladders.

ADVANTAGES OF THE INVENTION OVER THE PRIOR ART

- Devices are built into existing ladder parts for convenience and to eliminate lost pieces.
- Provides tool hangers at locations most used on ladder.
- Devices do not increase size or negligibly increase size of ladder or individual parts.
- Devices do not increase the weight or negligibly increase the weight of the ladder.

- Devices do not interfere with the operation of the ladder.
- Devices blend in with ladder.

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to devices for hanging, storing, holding tools, hardware, and other various equipment on a ladder.

Background Information

When working on a ladder, it is often desirable to have tools, paint and other necessary objects within easy reach. For example, it is known to removably attach a paint roller tray to the rung of a ladder to paint a ceiling or other area requiring a ladder or step stool more easily. Golden, U.S. Pat. No. 3,625,388, discloses a paint tray particularly useful with an upright ladder.

Utility trays for use with stepladders are also known in the art. Pham, U.S. Pat. No. 5,673,885, discloses a paint tray for a stepladder for storing work materials, tools and a paint bucket that is held onto the ladder by retaining means. Melanson, U.S. Pat. No. 5,613,574, discloses a ladder mounted tool holster and parts tray that removably clamps onto the top step of a stepladder. Katz et. al, U.S. Pat. No. 6,443,260, discloses a stepladder tray pivotally attached to the top cap of a stepladder for supporting tools and the like. Christ et. al, U.S. Pat. No. 5,052,581, discloses a detachable ladder support tray for supporting tools and paint containers.

It is often inconvenient, however, to use a removable tool holder or tray with a ladder. In some instances, the tool holder or tr may be difficult to attach or remove from the ladder. The removable tool holder or tray and ladder usually must be stored separately, taking up additional space. Additionally, to move a ladder from place to place, the tool holder or tray may need to be removed and carried separately because of weight or awkward transport configuration.

Ladder trays and buckets are known, including those disclosed in U.S. Patent No. U.S. Patent No. 3,625,388 to Golden; U.S. Patent No. 5,052,581 to Christ et al.; U.S. Patent No. 5,613,574 to Melanson; U.S. Patent No. 5,673,885 to Pham; U.S. Patent No. 6,443,260 to Katz et al.; U.S. Patent Application No. US14/207,887 to Najey (Published as U.S. Pub. No. US20140326538A1); U.S. Patent No. 9,714,542 to Harcz; U.S. Patent No. 7,886,872 to Astor et al.; U.S. Patent No. 8,453,796 to Astor et al.; U.S. Patent No. 7,128,187 to Simpson; U.S. Patent No. 7,188,706 to Simpson; U.S. Patent No. 10,138,680 to Williams et al.; U.S. Patent No. D833,643 to Foley et al; as well as U.S. Patent Application No. 16/654,699 to Foley et al. (published as US20200115961 A1); U.S. Patent Application No. 16/715,097 to Foley (published as US20200190905 A1); U.S. Patent Application No. 16/788,655 to Wernberg, et al. (published as U.S. Pub. No. US20210246725 A1), and U.S. Patent Application No. 17/130,414 to Foley et al. (published as U.S. Pub. No. US20220195800 A1), all of which are incorporated herein by reference.

There is a need in the industry to have storage mechanisms that are built into the ladder itself or are easily used on a ladder that do not interfere with operation of the ladder to hold tools, hardware and equipment while not increasing the size or weight of the ladder itself or negligibly adding to the weight of the ladder.

DESCRIPTION OF THE INVENTION

List of Figures

Attached are drawings of embodiments ladder storage devices of the present invention.

- FIG. 1 depicts a perspective view of a multi-position ladder in a closed or stored position having embodiments of ladder storage devices.
- FIG. 2 depicts a second perspective view of the multi-position ladder of FIG. 1.
- FIG. 3 depicts a perspective view of a multi-position ladder in an open/A-frame position having embodiments of ladder storage devices.
- FIG. 4 depicts a second perspective view of the multi-position ladder of FIG. 3
- FIG. 5 depicts a perspective view of a multi-position ladder in an extension position having embodiments of ladder storage devices
- FIG. 6 depicts a second perspective view of the multi-position ladder of FIG. 5.
- FIG. 7 depicts a close-up perspective view of the multi-position ladder of FIG. 3 providing more detail of a hinge button hook embodiment.
- FIG. 8 depicts a perspective view of the hinge button hook embodiment of FIG. 7.
- FIG. 9 depicts a front elevation view of the hinge button hook of FIG. 7.
- FIG. 10 depicts a right-side view of the hinge button hook of FIG. 7.
- FIG. 11 depicts a left-side view of the hinge button hook of FIG. 7.
- FIG. 12 depicts a rear elevation view of the hinge button hook of FIG. 7.
- FIG. 13 depicts a top plan view of the hinge button hook of FIG. 7.
- FIG. 14 depicts a bottom plan view of the hinge button hook of FIG. 7.
- FIG. 15 depicts an exploded perspective view of the hinge button hook of FIG. 7.
- FIG. 16 depicts a close-up perspective view of the multi-position ladder of FIG. 4 providing more detail of a hinge button with slot embodiment.
- FIG. 17 depicts a perspective view of a hinge button with slot embodiment of FIG. 16.
- FIG. 18 depicts a front elevation view of the hinge button with slot of FIG. 16.
- FIG. 19 depicts a rear elevation view of the hinge button hook of FIG. 16.
- FIG. 20 depicts a right-side view of the hinge button with slot of FIG. 16.
- FIG. 21 depicts a left-side view of the hinge button with slot of FIG. 16.
- FIG. 22 depicts a top plan view of the hinge button with slot of FIG. 16.
- FIG. 23 depicts a bottom plan view of the hinge button with slot of FIG. 16.
- FIG. 24 depicts an exploded perspective view of the hinge button with slot of FIG. 16.
- FIG. 25 depicts a close-up perspective view of the multi-position ladder of FIG. 3 providing more detail of a rail hook embodiment.
- FIG. 26 depicts a perspective view of the rail hook of FIG. 25.
- FIG. 27 depicts a second perspective view of the rail hook of FIG. 25.

- FIG. 28 depicts a right-side view of the rail hook of FIG. 25.
- FIG. 29 depicts a left-side view of the rail hook of FIG. 25.
- FIG. 30 depicts a front elevation view of the rail hook of FIG. 25.
- FIG. 31 depicts a rear elevation view of the rail hook of FIG. 25.
- FIG. 32 depicts a top plan view of the rail hook of FIG. 25.
- FIG. 33 depicts a bottom plan view of the rail hook of FIG. 25.
- FIG. 34 depicts a cross-sectional view taken along the line A - A in FIG. 32.
- FIG. 35 depicts a perspective view of the cross-sectional view of FIG. 32.
- FIG. 36 depicts a second perspective view of the cross-sectional view of FIG. 32.
- FIG. 37 depicts a shaded perspective view of the rail hook of FIG. 25.
- FIG. 38 depicts a second shaded perspective view of the rail hook of FIG. 25.
- FIG. 39 depicts a shaded right-side view of the rail hook of FIG. 25.
- FIG. 40 depicts a shaded left-side view of the rail hook of FIG. 25.
- FIG. 41 depicts a shaded front elevation view of the rail hook of FIG. 25.
- FIG. 42 depicts a shaded rear elevation view of the rail hook of FIG. 25.
- FIG. 43 depicts a shaded top plan view of the rail hook of FIG. 25.
- FIG. 44 depicts a shaded bottom plan view of the rail hook of FIG. 25.
- FIG. 45 depicts a close-up perspective view of the multi-position ladder of FIG. 3 providing more detail of a ladder side hook embodiment.
- FIG. 46 depicts a shaded perspective view of the ladder side hook of FIG. 45.
- FIG. 47 depicts a front elevation view of the ladder side hook of FIG. 45.
- FIG. 48 depicts a rear elevation view of the ladder side hook of FIG. 45.
- FIG. 49 depicts a right-side view of the ladder side hook of FIG. 45.
- FIG. 50 depicts a left-side view of the ladder side hook of FIG. 45.
- FIG. 51 depicts a top plan view of the ladder side hook of FIG. 45.
- FIG. 52 depicts a bottom plan view of the ladder side hook of FIG. 45.
- FIG. 53 depicts a cross-sectional view taken along the line B - B in FIG. 45.
- FIG. 54 depicts an exploded perspective view of the ladder side hook of FIG. 45.
- FIG. 55 depicts a close-up right-side elevation view of the multi-position ladder of FIG. 3.
- FIG. 56 depicts a close-up left-side elevation view of the multi-position ladder of FIG. 5.

It is understood that the various components disclosed in the drawings may be substituted with equivalent components (e.g., parts may be made of plastic or metal) and are not considered limiting.

Description

The ladder storage devices of the present invention provide various means to hang a tool, hardware, or other item from advantageous positions on ladders. These devices are especially useful with multi-position ladders by incorporating the devices into existing parts for those ladders.

One embodiment of the present invention is a hook that extends from a hinge button of a

multi-position ladder as depicted in FIGS. 7-15. Preferably the hook does not increase the size of the button itself and does not increase the profile of the button (i.e., the hook does not extend wider from the ladder than the button itself). The hook has both an upward tail for hanging items that have straps or handles (e.g., pails).

The hook may also have built into it a slot for items that have hooks themselves. For example, the slot is designed to accommodate belt hooks for power tools such as the belt hook (340 in Fig. 3) disclosed in U.S. Patent Pub. No. US20210183188A1 owned by Milwaukee Electric Tool Corp., which is incorporated herein by reference. These types of belt hooks are designed with a low profile to prevent interference while using the tools or catching on other tools, supplies, equipment when moving the tools. In many cases of hand-held power tools, these hooks are actually located on the battery packs used to power the tools.

While the button and hook can be made of a single unibody construction, it is preferable that the button and hook are individual parts to allow differing materials of manufacture to address the different weight and strength requirements of the parts. The hook itself is preferably metal for durability and strength for cyclical hanging/removing items from the hook and for weight bearing. However, the button or hook can be made of any suitable materials known in the art.

As best seen in FIG. 15, the preferred embodiment of the button hook includes an outer cap, a base, and the hook. The button cap preferably has a slot that allows the hook to traverse the cap body and attach to the metal axle of the hinge lock for strength and stability of the hook itself. The preferred embodiment of the hook has an opening at its top to connect to the axle as well as an opening to accept a protrusion on the base to prevent the hook from rotating separately from the button. Another novel aspect of the hook is that it does not extend beyond the outer face of the button cap to prevent unintentional catching on the hook while either moving items around the ladder or moving the ladder itself. Further, the hook does not extend or beyond the inner face of the button cap so that the hook does not interfere with operation of the ladder (e.g., adjusting the angles or extending the rails on a multi-position ladder).

Another embodiment of the invention depicted in FIGS. 16-24 includes a hinge button with slots built into it that will allow tools, hardware, or other items with hooks or clips to be stored on or hang from the button. The preferred embodiment comprises two pieces, a front and a back of a hinge button mechanism. Two pieces allow for easier manufacturing and installation of the button on a ladder. However, a single piece device is also contemplated as within the scope of the invention. The two pieces are molded to provide slots that traverse the button from top to bottom and left to right. The front piece is manufactured with prongs that insert into prong receivers on the back piece and have lips on the ends to secure the prongs in place. This also allows for the front piece to be easily replaced if it breaks or for aesthetic reasons.

As with the earlier-described embodiment, the slots are preferably sized to accept not only ordinary hand tools such as screwdrivers, but ideally are configured to accept belt hooks for power tools and on power tool battery packs. Preferably the slots in one direction (as shown in

FIGS. X-X) are of a different size than the slots in the traverse direction, both in width and depth. This arrangement would allow for variations in the items stored or hung from the button. However, a design with identical-sized slots in both directions is within the scope of the invention.

Another embodiment of the ladder storage device depicted in FIGS. 25-44 includes a rail hook that is bult into the feet of a ladder that provides a location to store or hang tools, hardware, materials when a ladder is in the extension position. Molded feet for ladders are well known. For example, U.S. Patent No. 11,131,142 assigned to Werner Co. (incorporated herein by reference) depicts a plastic foot that is molded to accept the profile of a ladder rail end. The present invention includes a slot in the foot that accepts tools, hardware, or other items. The preferred embodiment contemplates a foot shaped with an indent in the middle running in the same direction as the rail onto which the foot is attached with a cross member over the indent. This arrangement provides a slot for placing items or a location to hang items that have hooks or clips. Ideally the slot is sized to accept common belt hooks for power tools and on power tool battery packs.

The preferred embodiment of the rail hook is a unibody structure that includes both the foot of the ladder as well as the hook. However, it is within the scope of the invention to have the foot and hook be separate pieces that are attached together either prior to installation on the ladder rail or independently attached to the rail. Preferably the profile of the hook does not extend outward from the rail beyond the lowest extremity of the foot when in any use orientation to prevent unintentional catching on the hook while either moving items around the ladder or moving the ladder itself

A further embodiment contemplates a ladder side hook as depicted in FIGS. 45-54 that attaches to the rails of a ladder to provide another alternative for storage or hanging of tools, hardware, or other items with hooks or clips on a ladder. This embodiment is preferably a removable hook that snaps onto the rail of a ladder. This embodiment may also include a locking device to maintain the device where it is installed on the ladder, so it is not inadvertently moved while using or moving the ladder. However, the invention also contemplated the ladder side hook being permanently mounted to a ladder rail.

The preferred embodiment of the ladder side hook includes prongs sized for and oriented to wrap around the ladder rail and snap into place with lips on the prongs latching onto the inner face of the rail. The preferred embodiment further includes one or more locks to prevent the ladder side hook from inadvertently being knocked off or moving on the rail. The preferred embodiment utilizes the same type of prongs with lips as the side hook itself to tightly lock the device to the ladder rail. The upper set of prongs preferably are placed above a rung of the ladder and the lower set of prongs preferably are placed below the same rung to keep the ladder side hook in its location.

Both the side hook and lock are preferably made of an appropriate plastic strong enough to support tools or other items to be hung from the hook while having durability of the prongs to

be installed and removed from a ladder numerous times with breaking or weakening. However, the ladder side hook and lock can be made of any appropriate material known in the art. It is also recommended that the side hook and lock be of contrasting colors to more easily see whether the device is locked in place. Additionally, the prongs only contact the out rail to allow the inner rail to slide for extension and contraction of the ladder.

Another novel feature of the ladder side hook embodiment is the angles of the slot of the hook differ depending on which side of the hook is facing up. As best seen in FIGS. 55-56, this design allows the top to be parallel with the surface upon with the ladder is resting in two different orientations (A-frame or extension). For instance, a multi-position ladder in the A-frame orientation will have a different rail angle than a multi-position ladder in extension orientation leading against a building or object, but this design allows the slot to be parallel to the surface upon which the ladder rests to better hold tools, hardware, or other items. It can also be seen in FIGS. 55-56 that the hook of the hinge button hook embodiment allows the hook portion to be at the bottom of the hinge button to best hold tools, hardware, or other items.

The above summary is not intended to describe each illustrated embodiment or every implementation of the subject matter hereof. The figures and the detailed description that follow more particularly exemplify various embodiments.

CLAIMS

1. We claim the ladder storage devices disclosed herein.

2. We claim the method of manufacturing the ladder storage devices disclosed herein.

3. We claim the method of operating the ladder storage devices disclosed herein.

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APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
63/382,174	**11/03/2022 02:42:03 PM ET**	**TRIPA096**

Title of Invention

LADDER STORAGE DEVICES

Application Information

APPLICATION TYPE	Utility - Provisional Application under 35 USC 111(b)	PATENT #	-
CONFIRMATION #	9538	FILED BY	Tye Biasco
PATENT CENTER #	61139059	FILING DATE	-
CUSTOMER #	189392	FIRST NAMED INVENTOR	Benjamin M. Wernberg
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 3

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
generatedADS61139059.pdf	6	Application Data Sheet	140 KB
TRIPA096 - Provisional Application Specification.pdf	7	Specification	110 KB
TRIPA096 - Provisional Application Drawings.pdf	45	Drawings-only black and white line drawings	7608 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)

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generatedADS61139059.pdf	AB69E742B0B296084DE17901C644CAF3C147A8F916579DA01 06EE9882CF23CB13FF062E0DDA8316706 4CC9275B64C1FA86 31394216EC5149DBB7B4C90D305885
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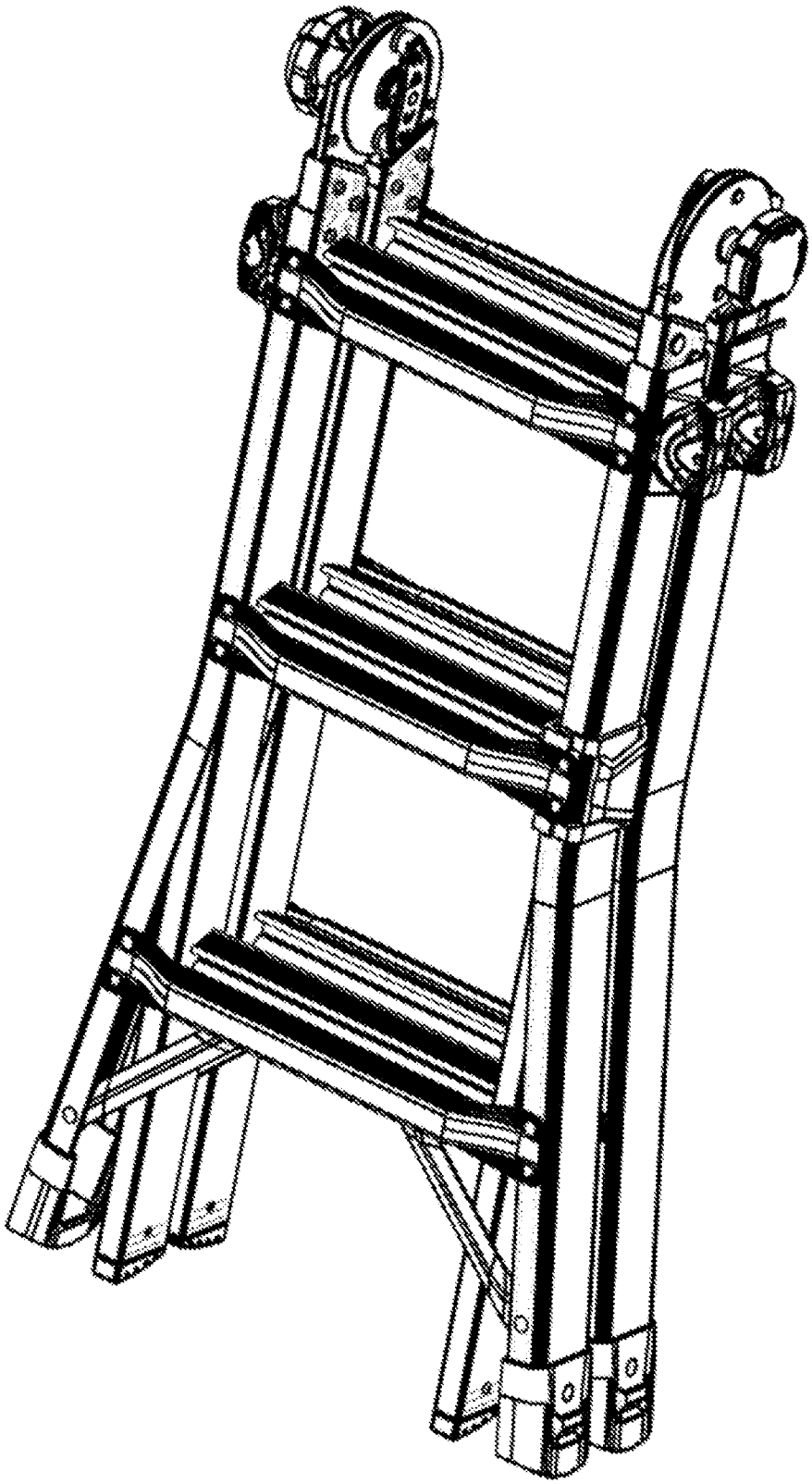
National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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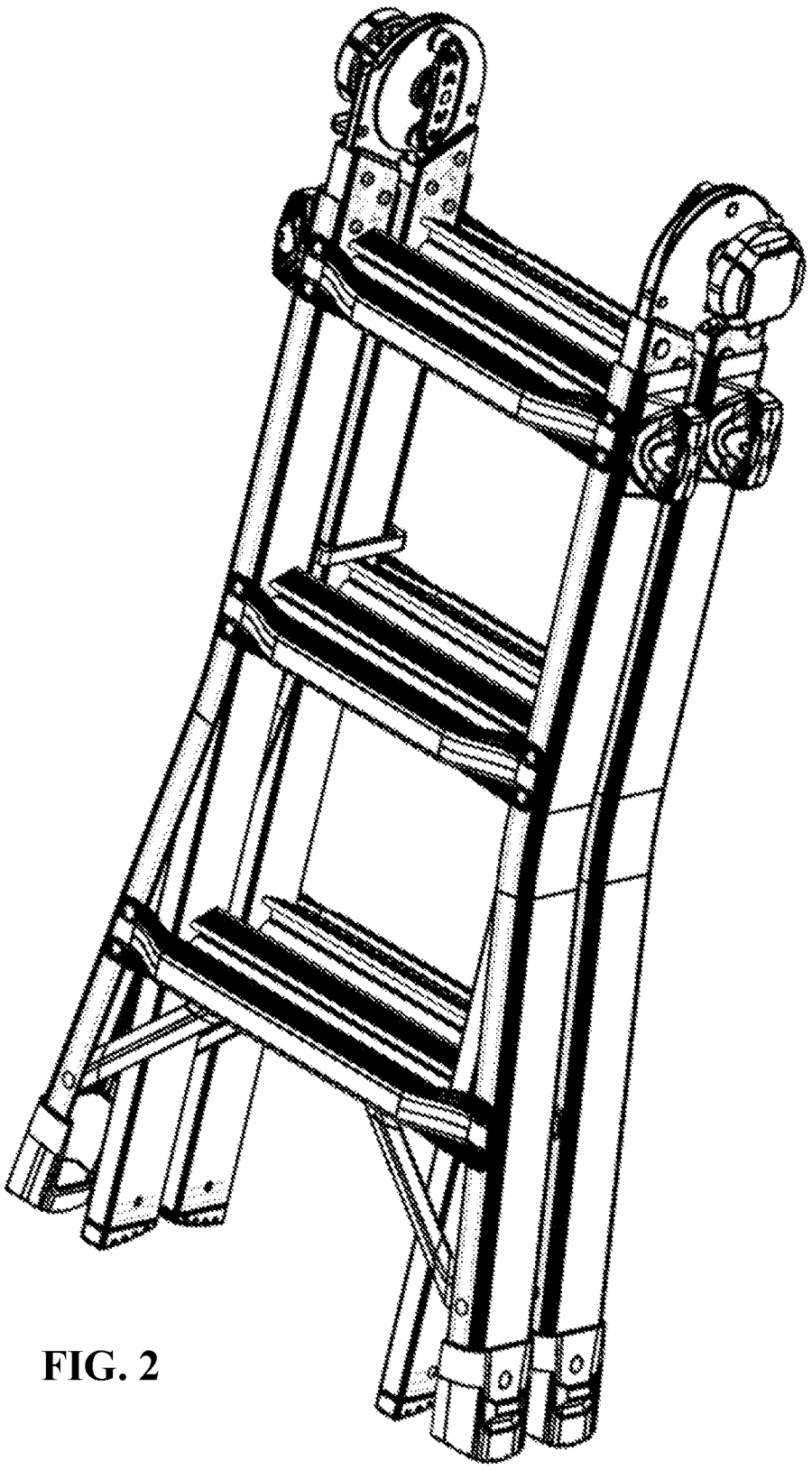


FIG. 2

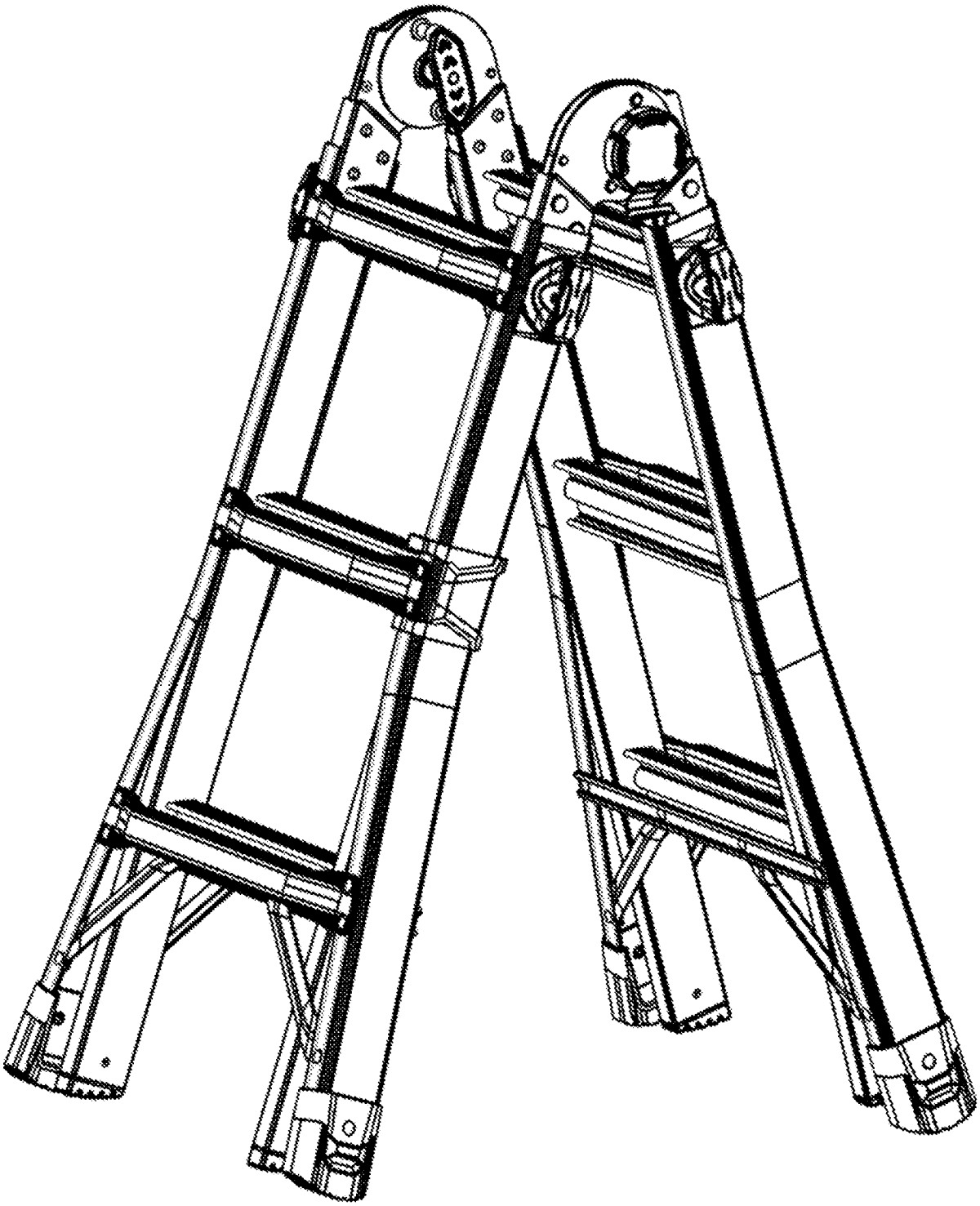


FIG. 3

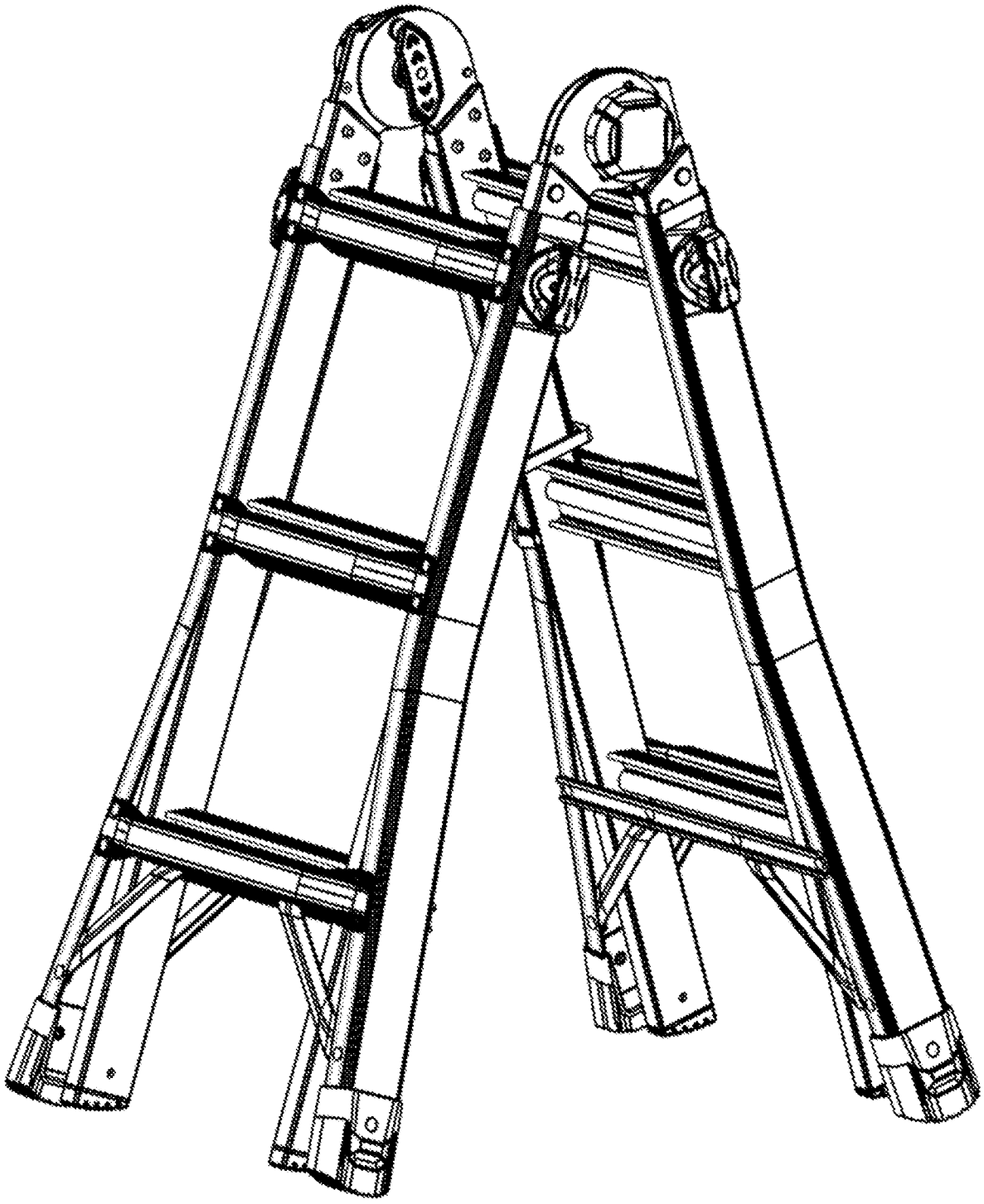


FIG. 4

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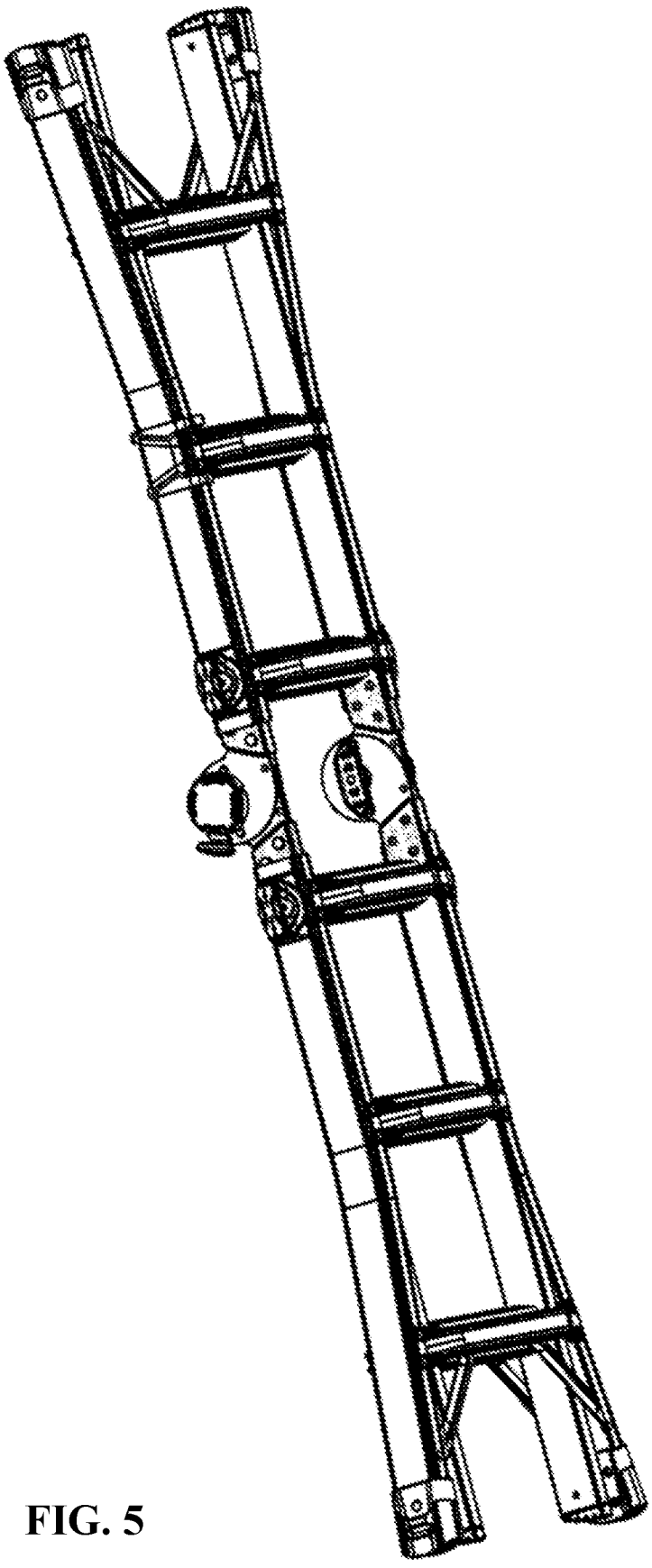


FIG. 5

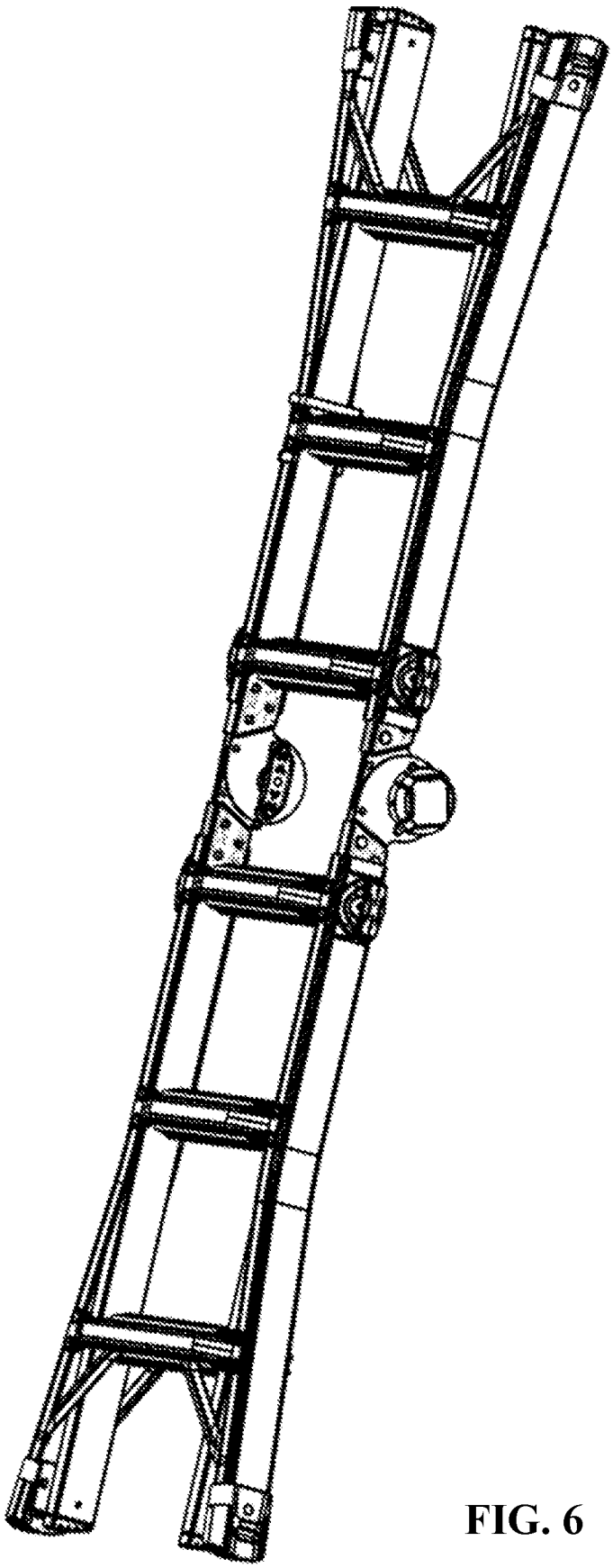


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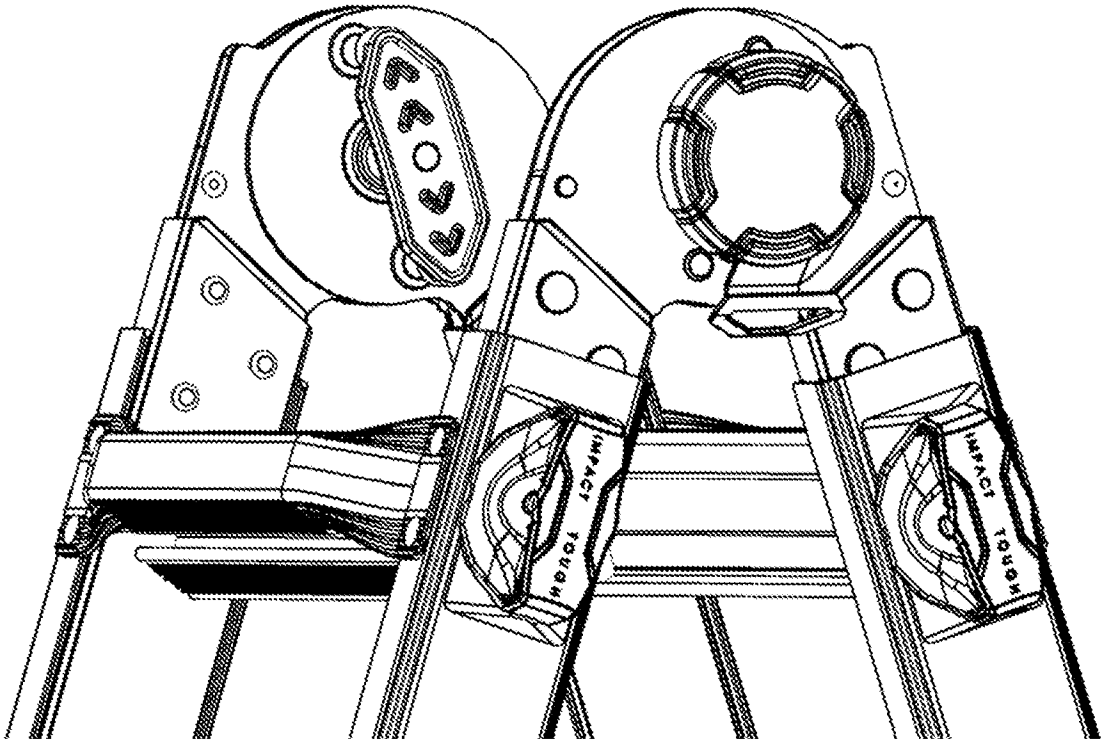


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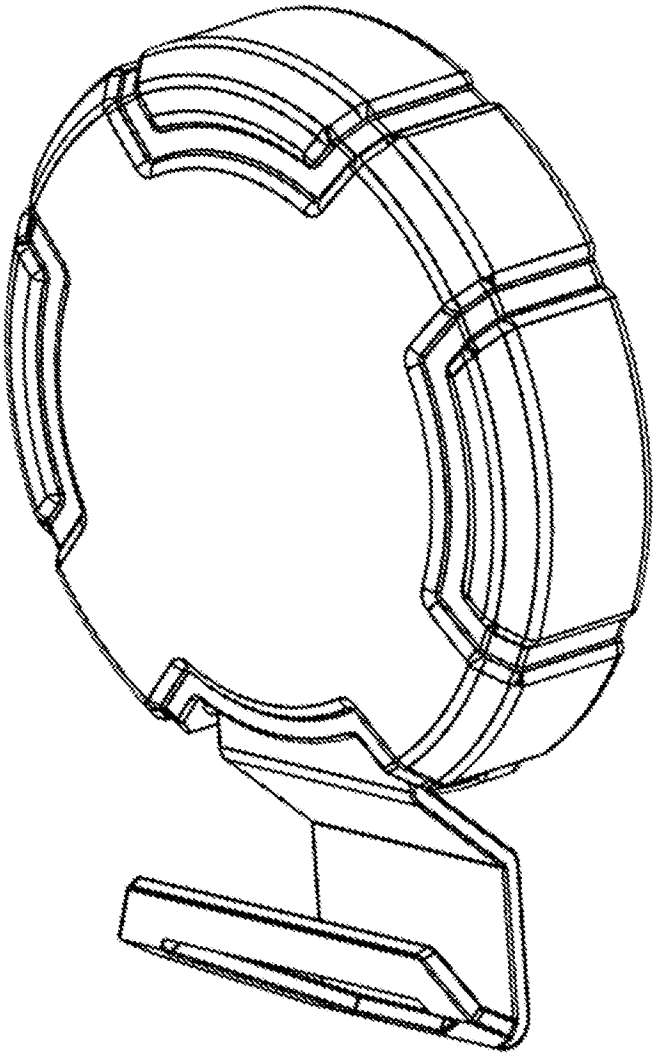


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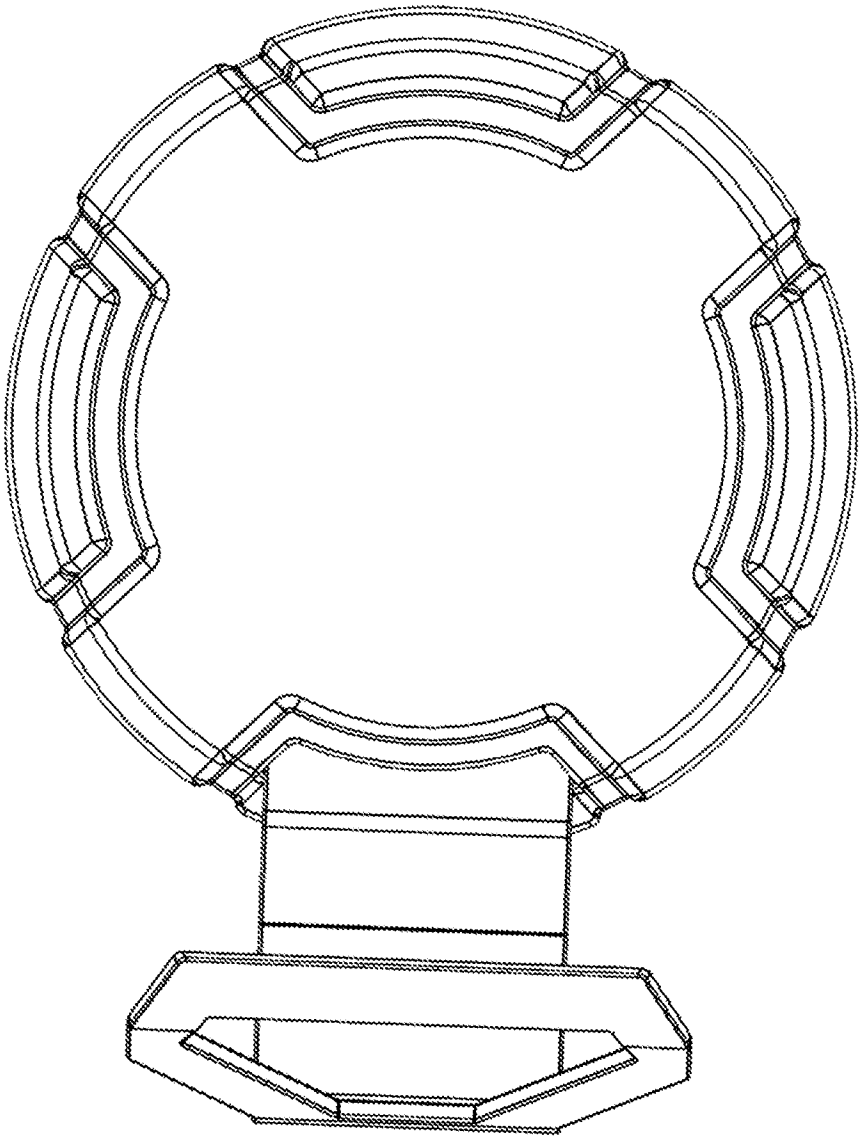


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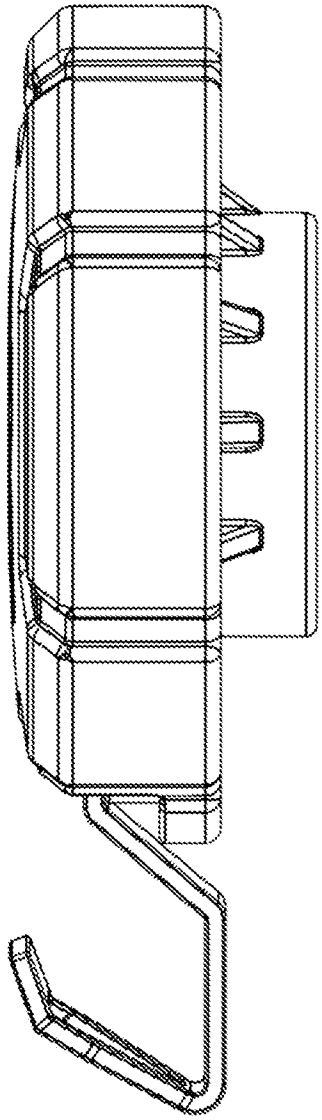


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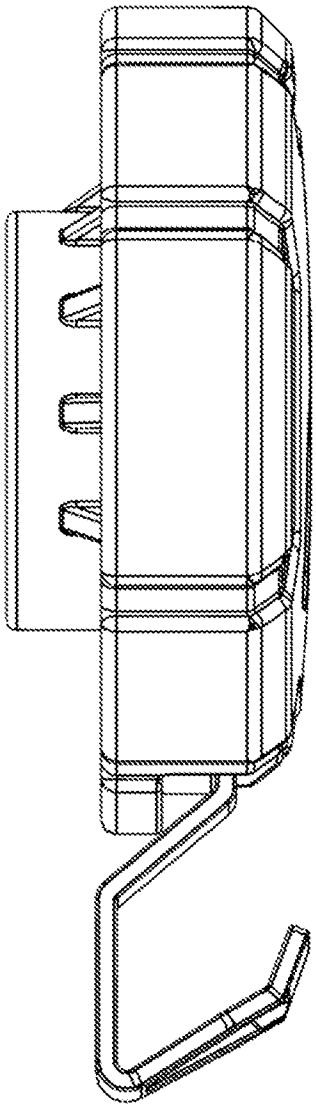


FIG. 11

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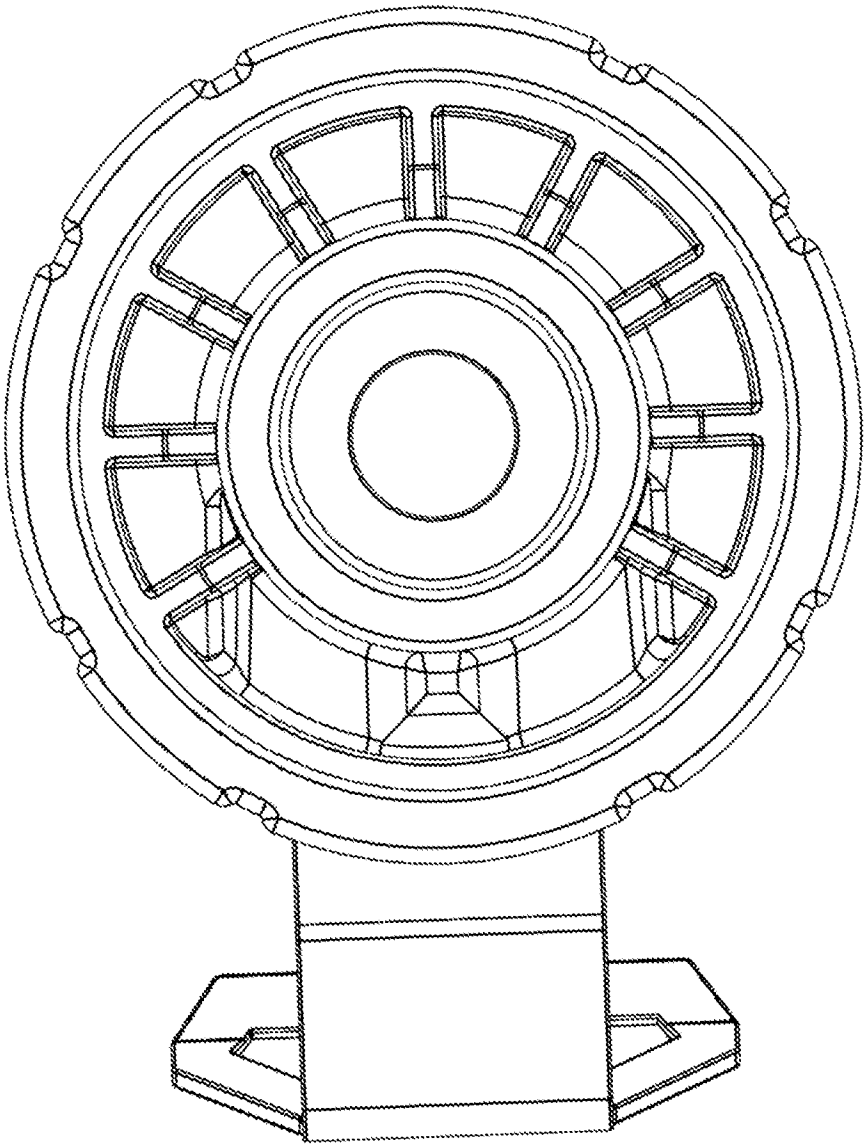


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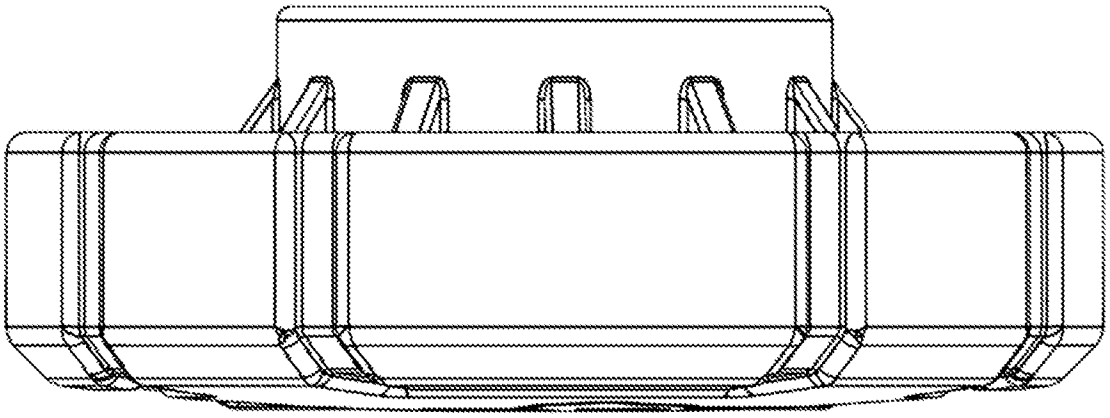


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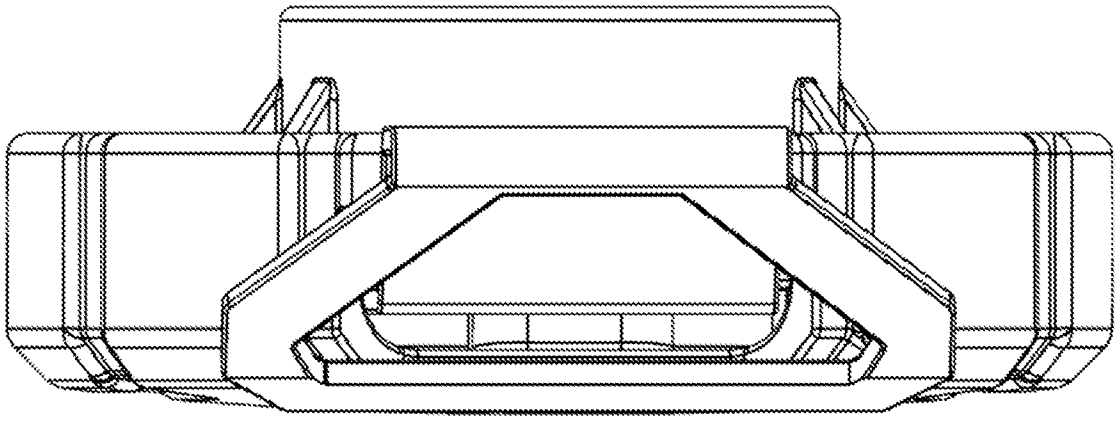


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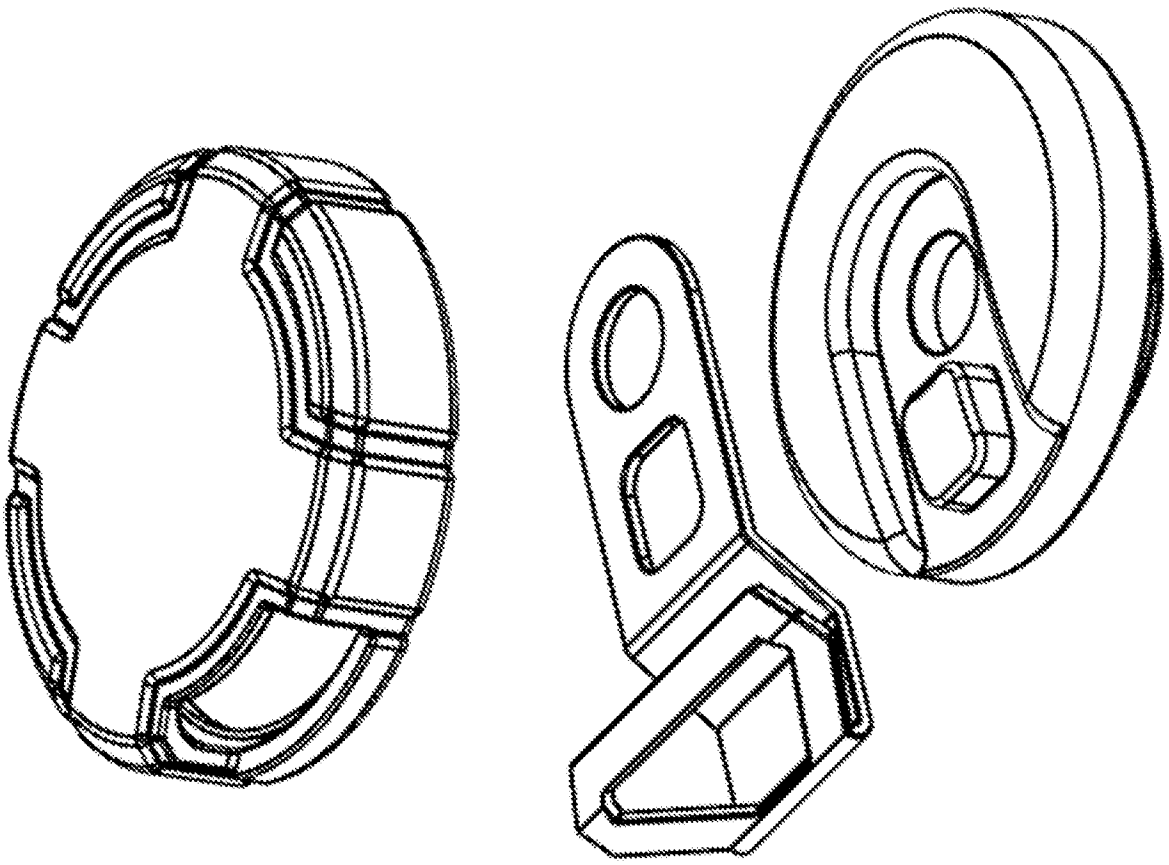


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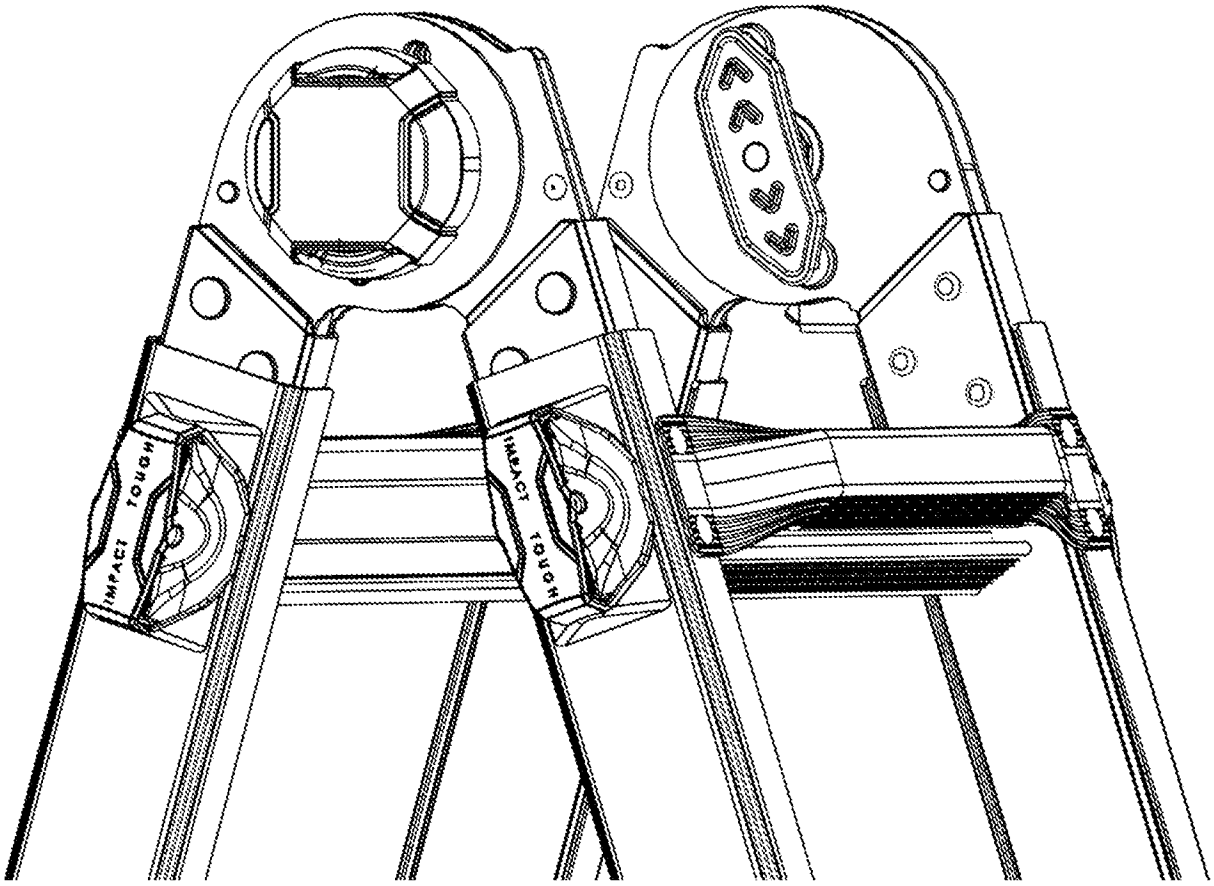


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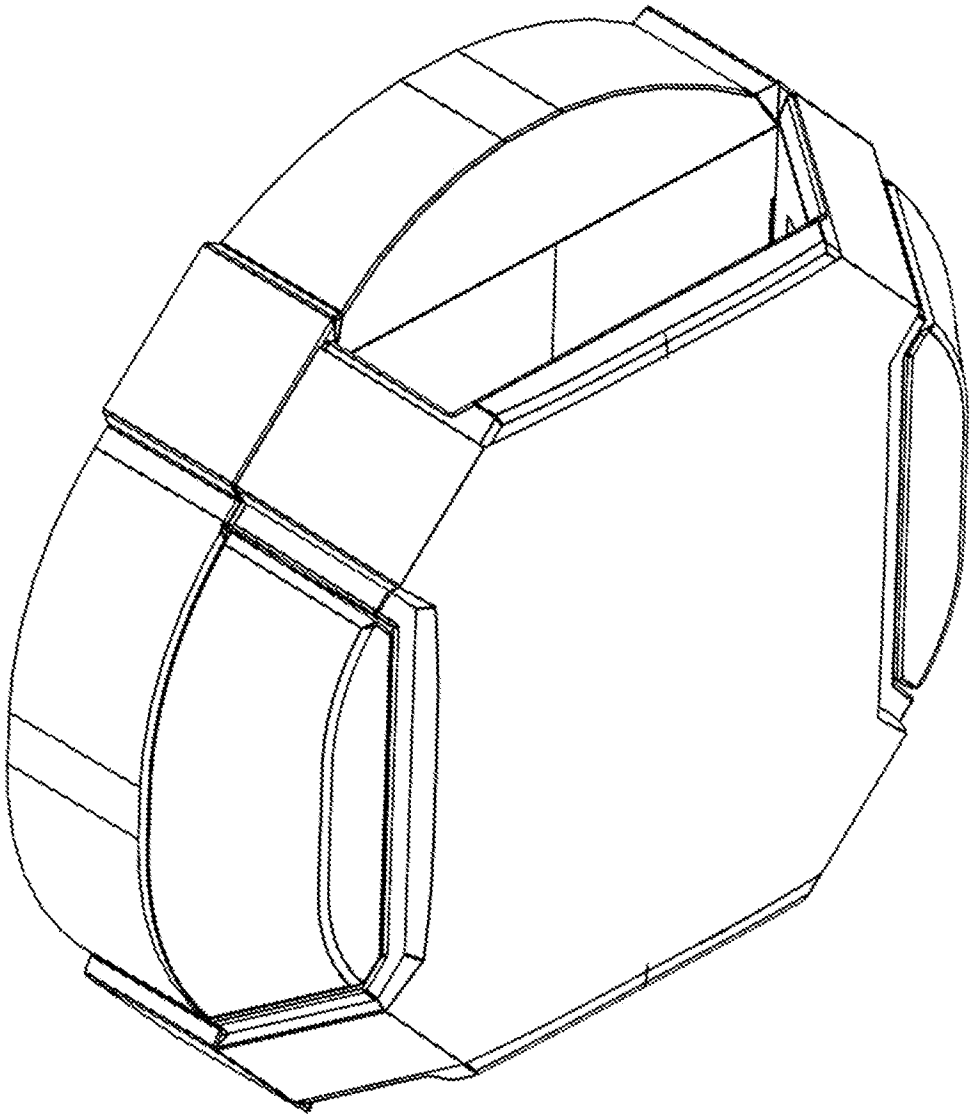


FIG. 17

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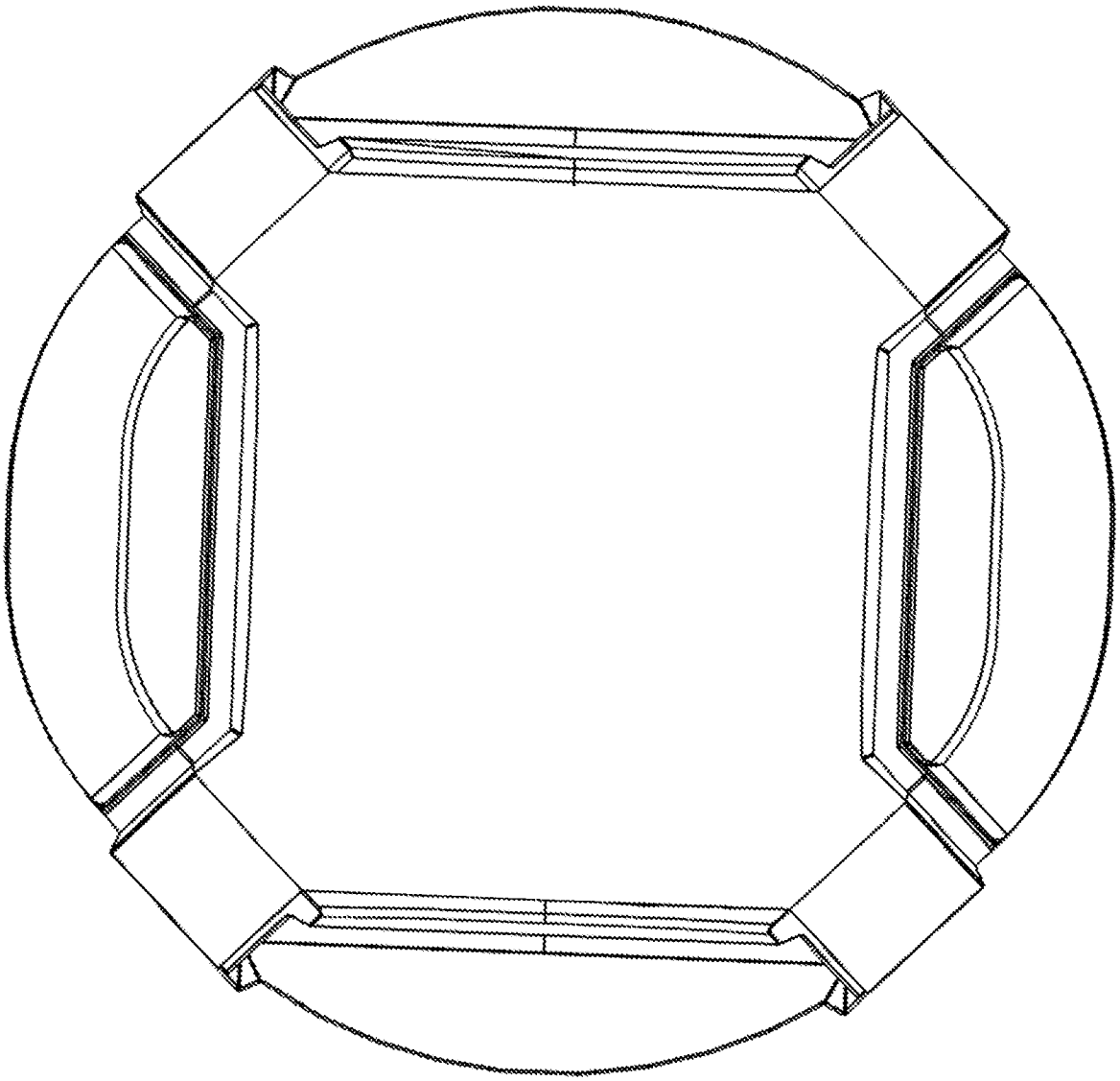


FIG. 18

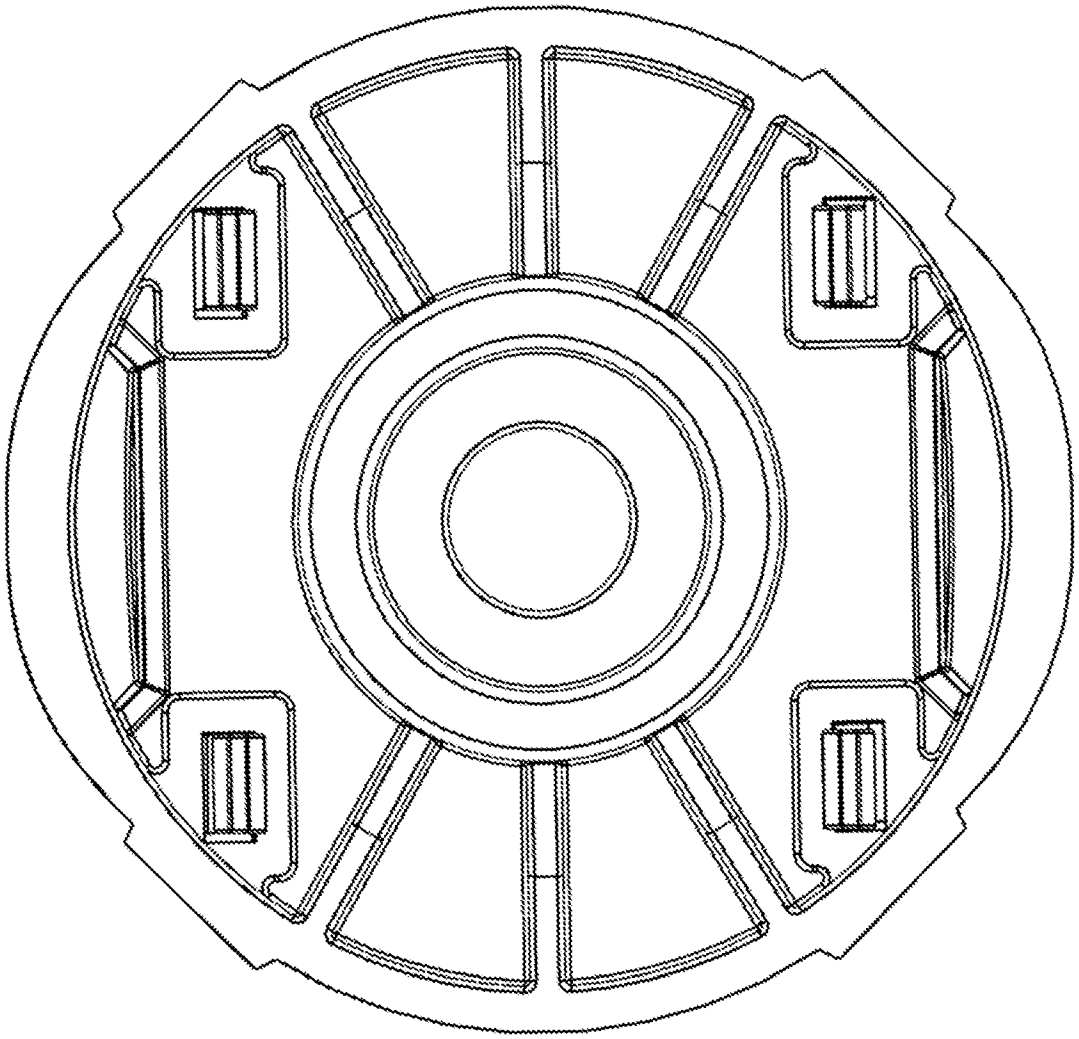


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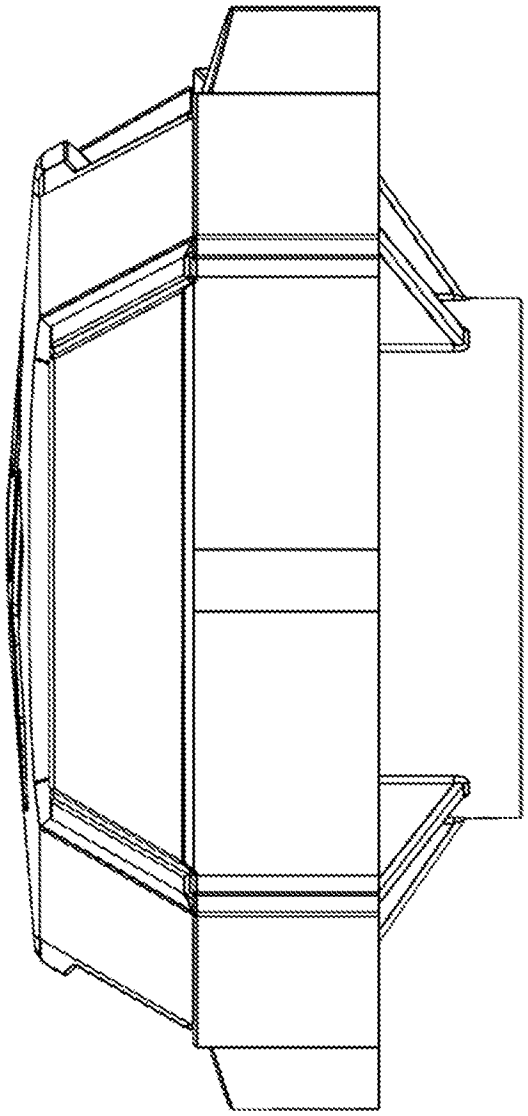


FIG. 20

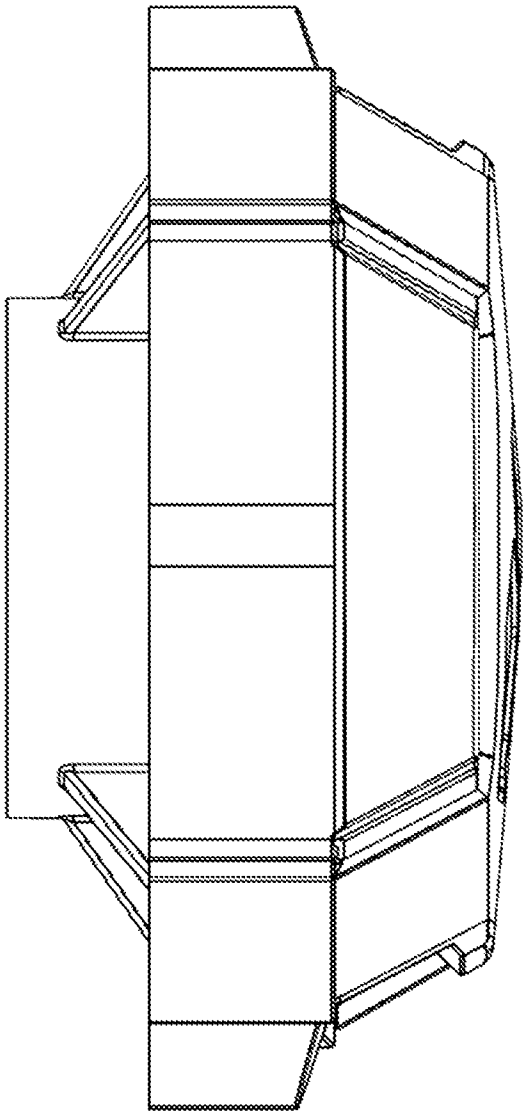


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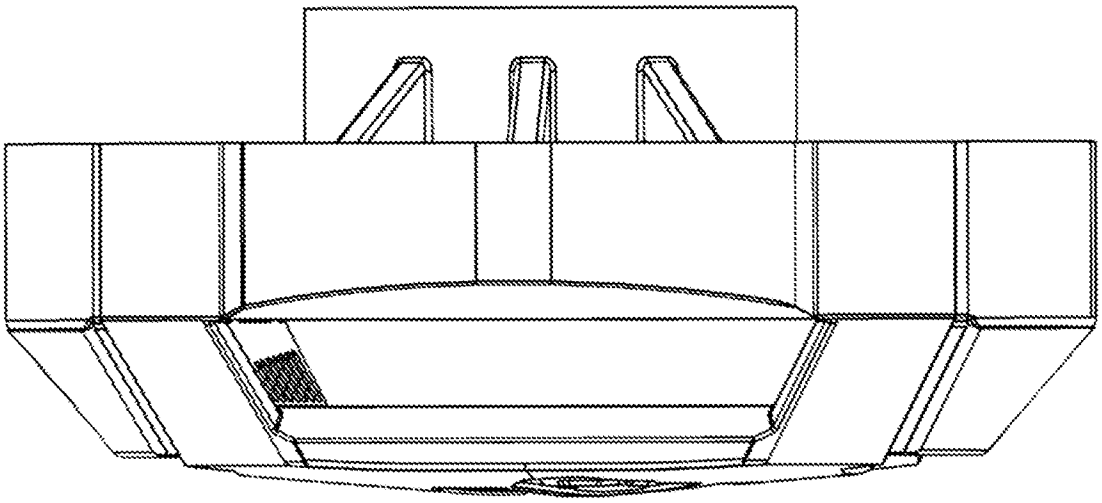


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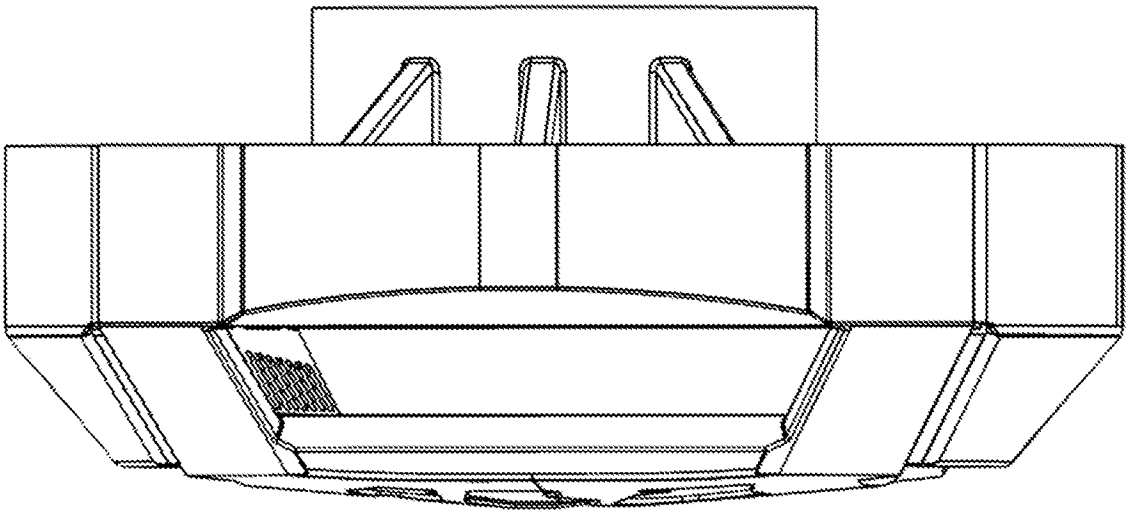


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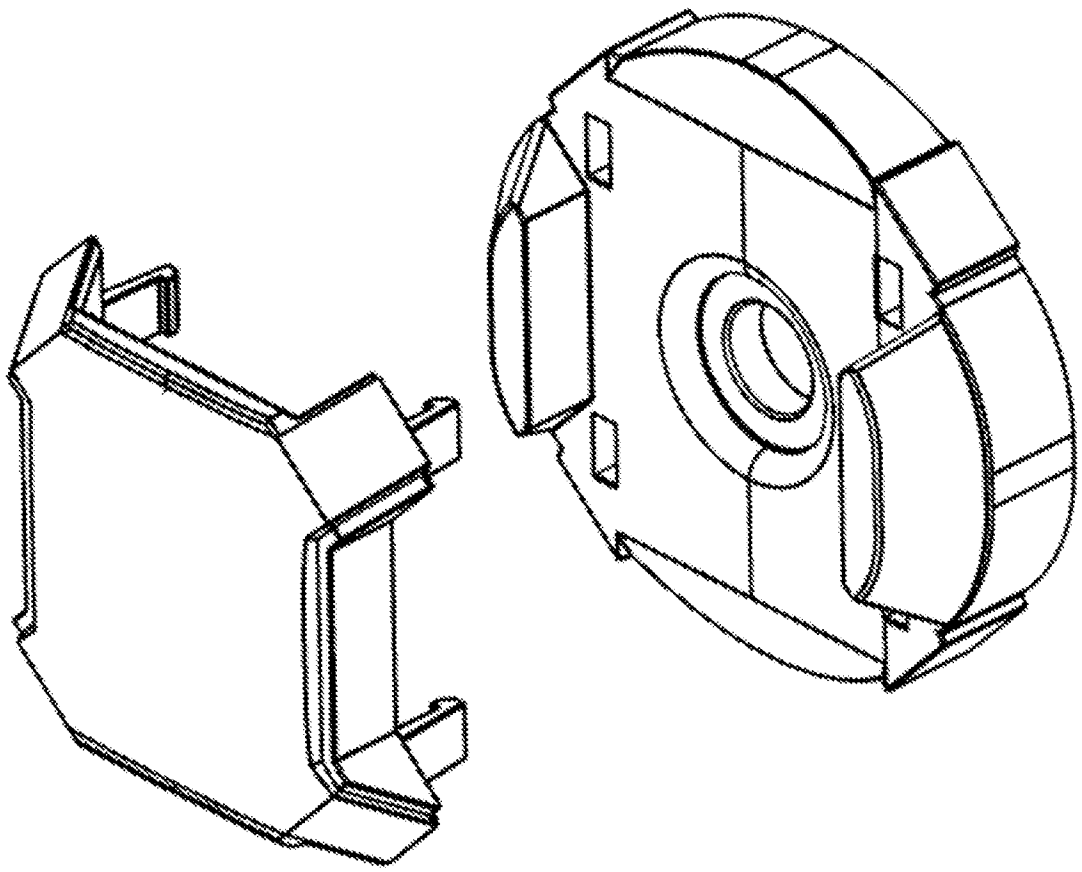


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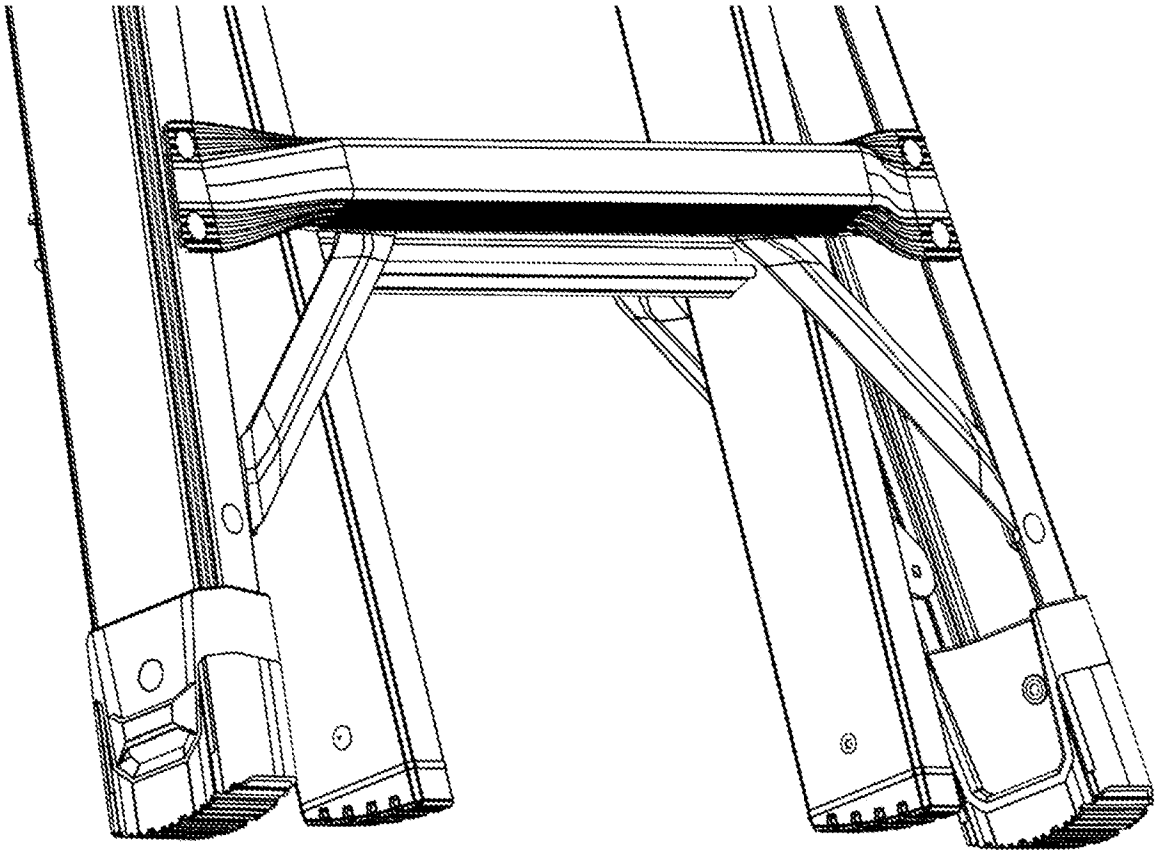


FIG. 25

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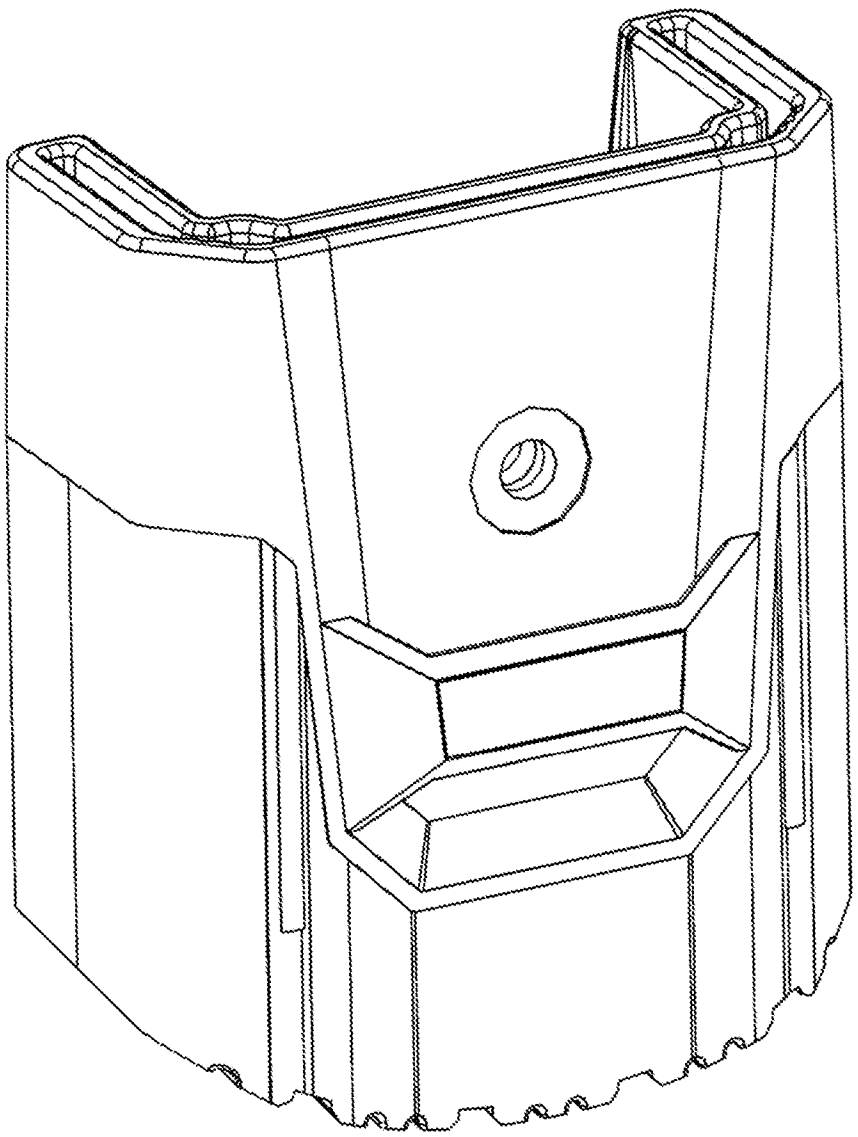


FIG. 26

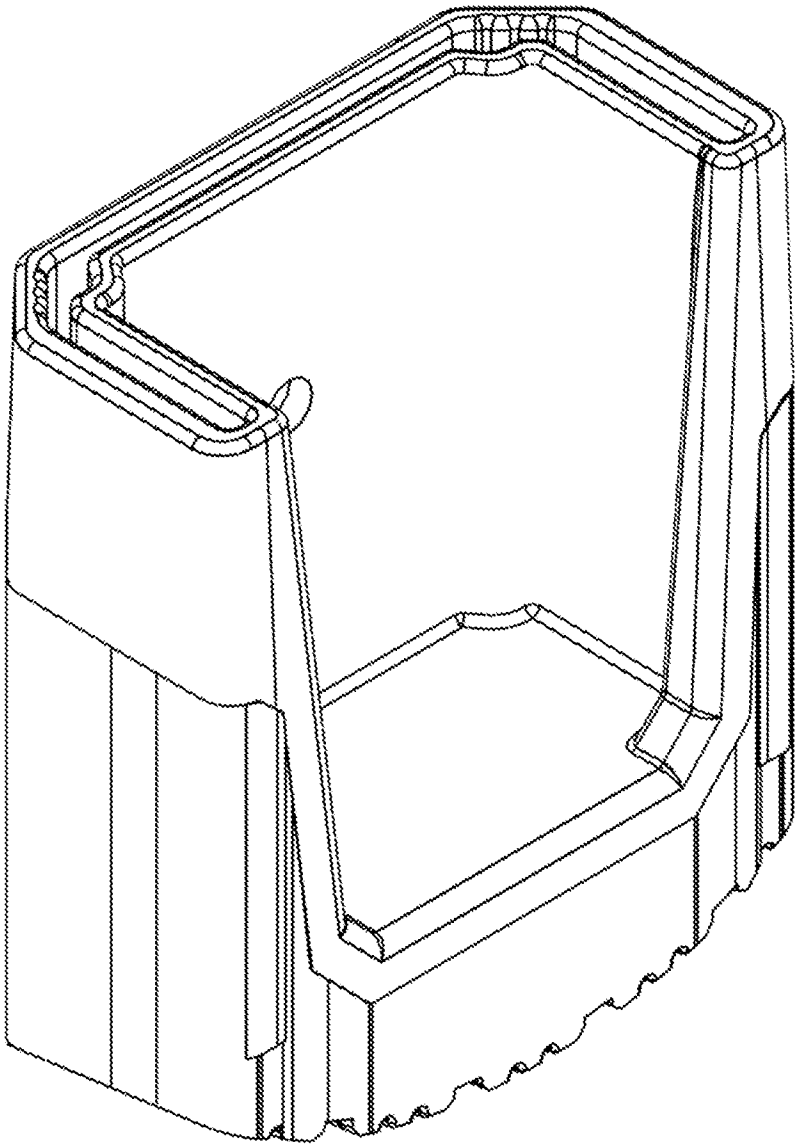


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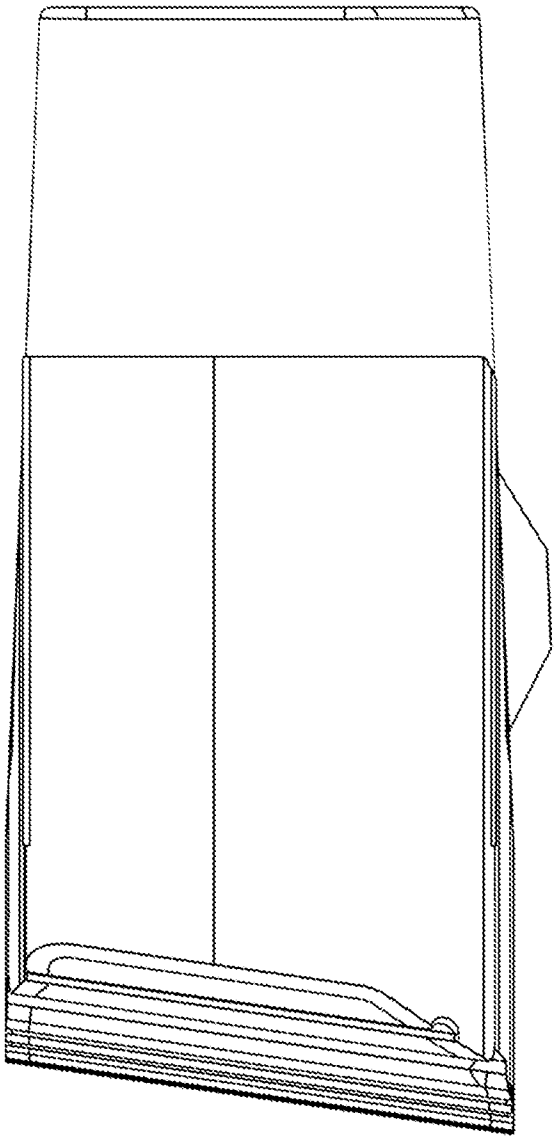


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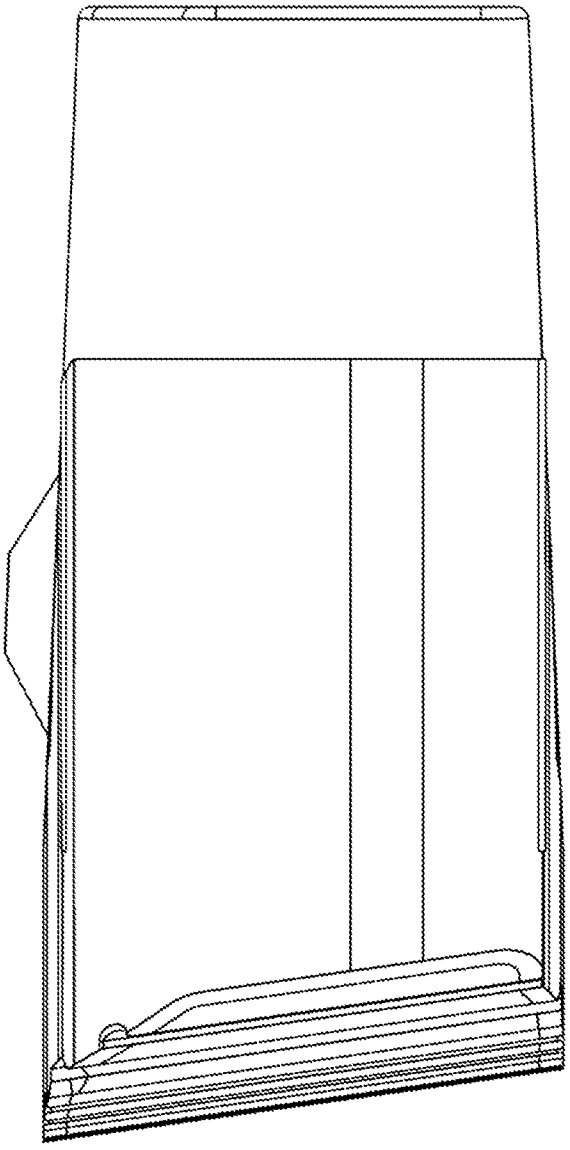


FIG. 29

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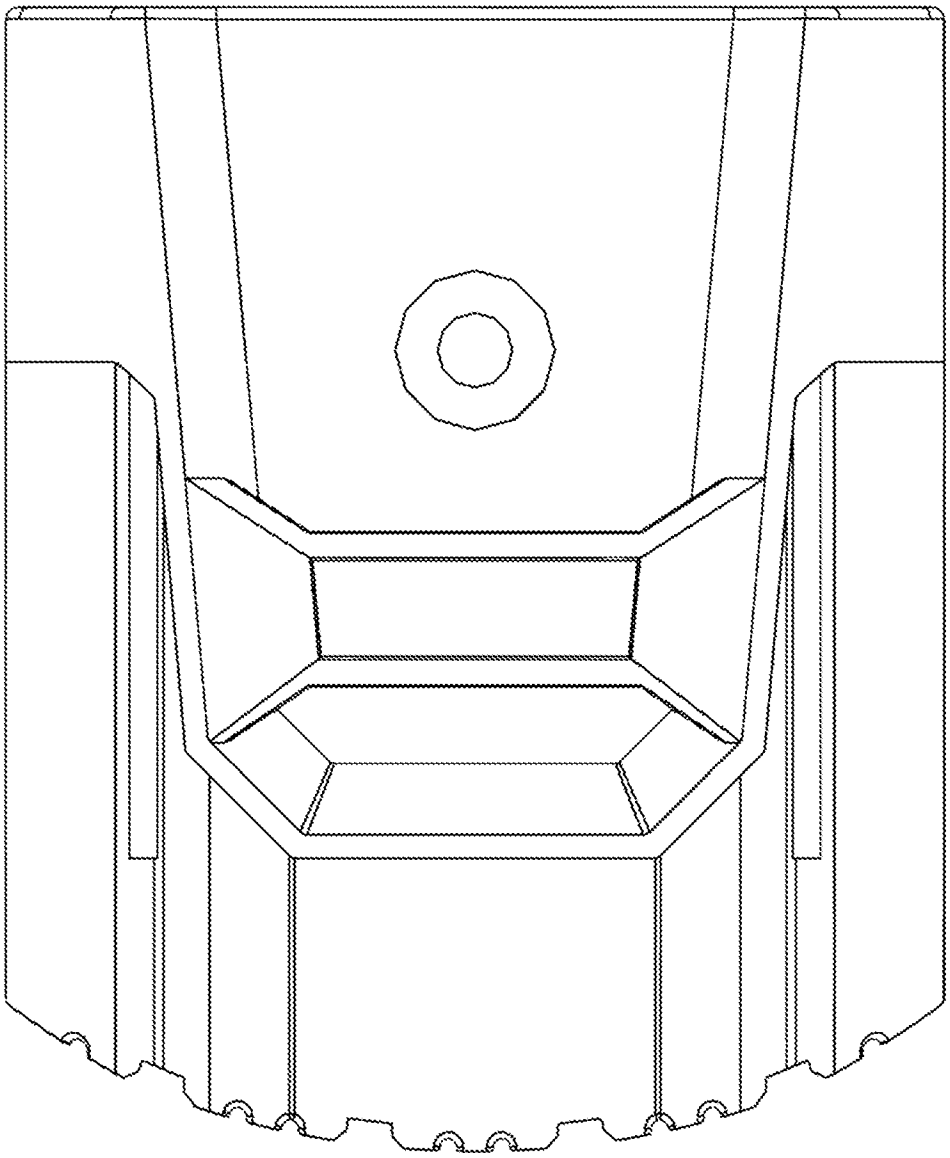


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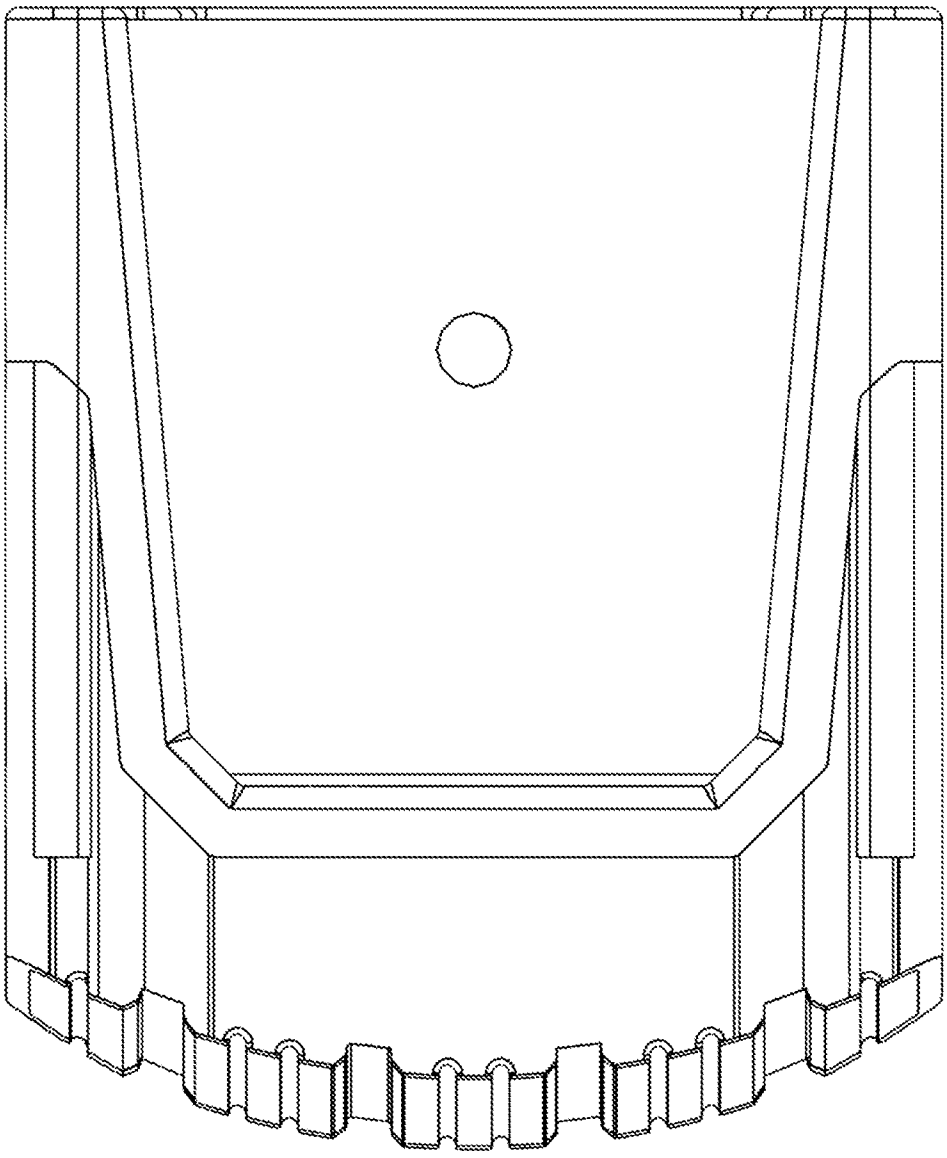


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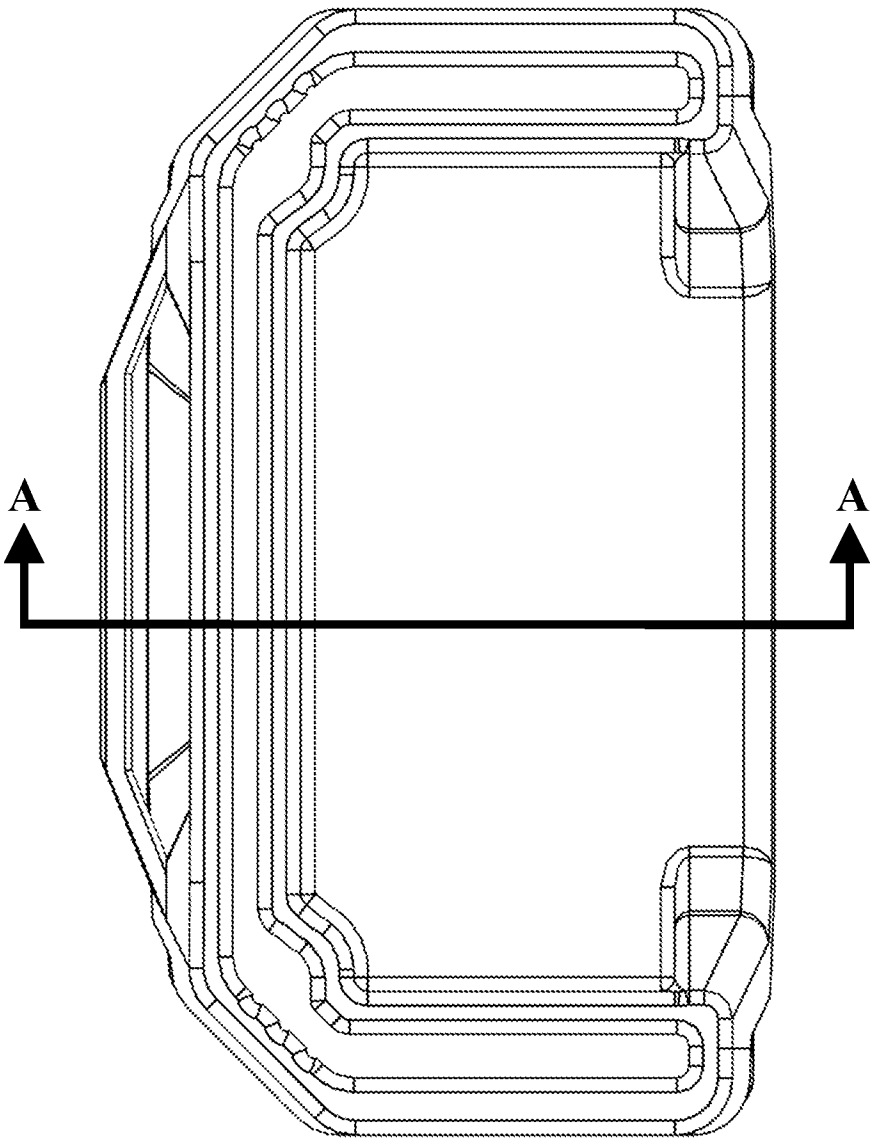


FIG. 32

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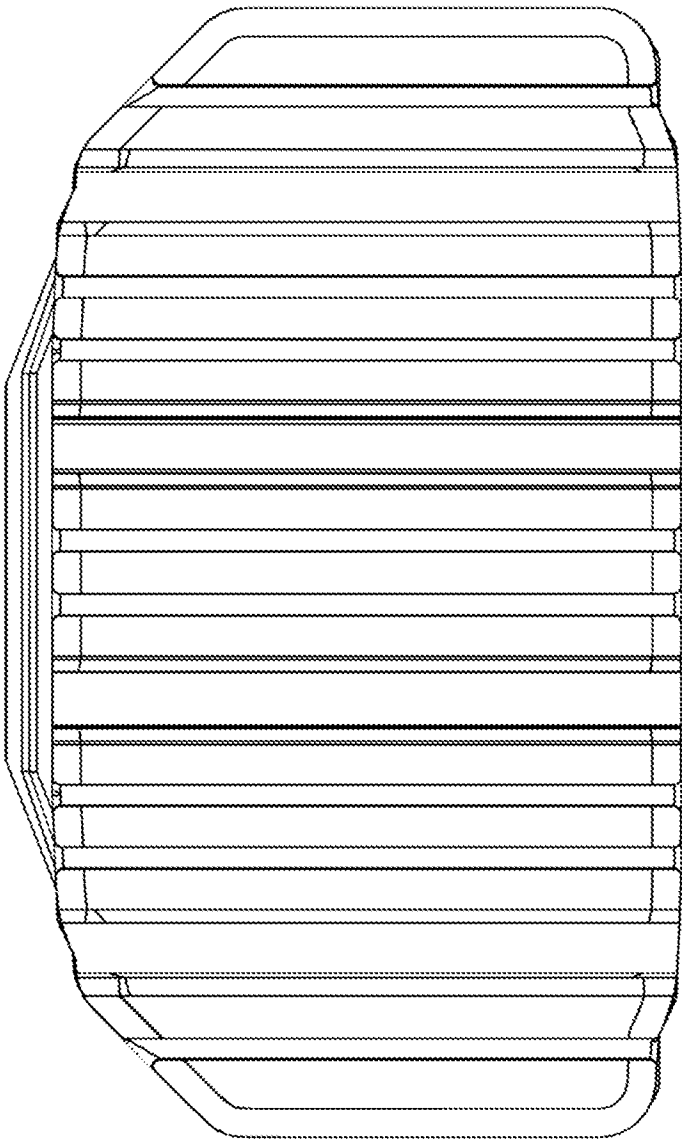


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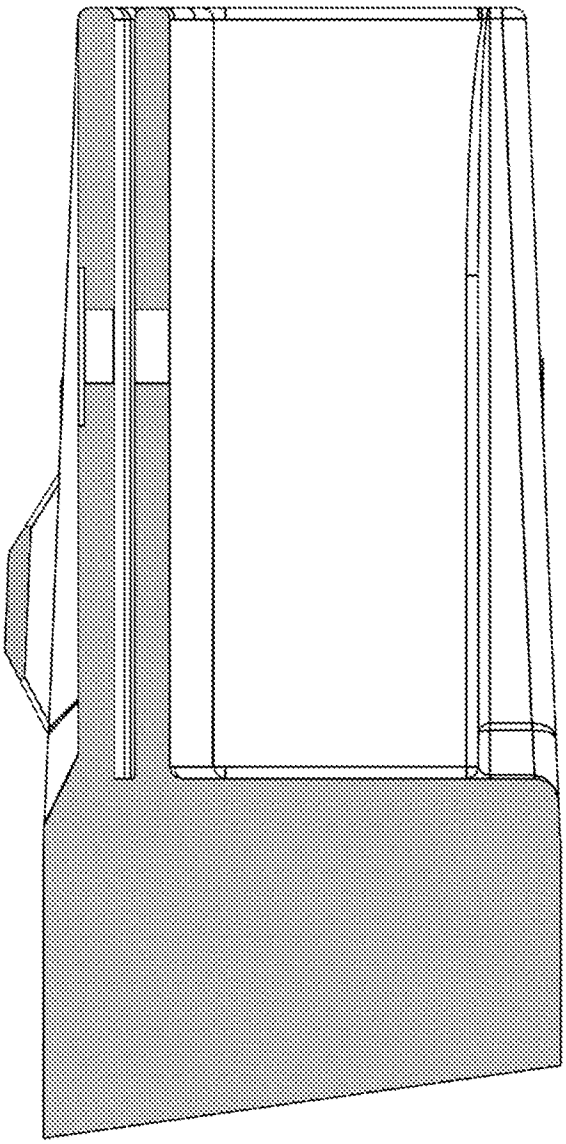


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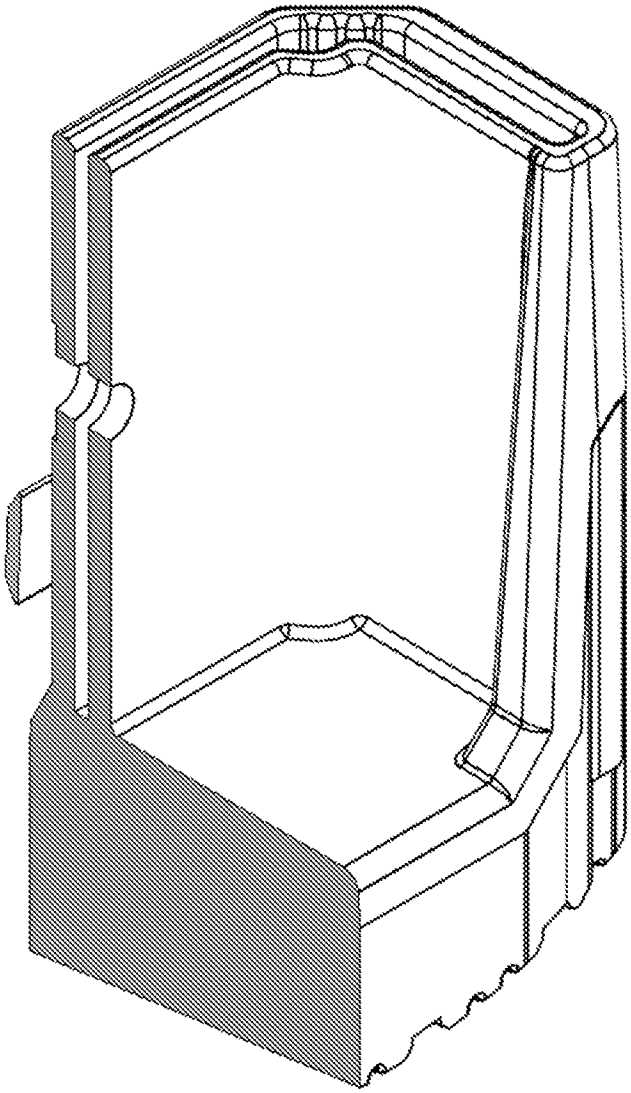


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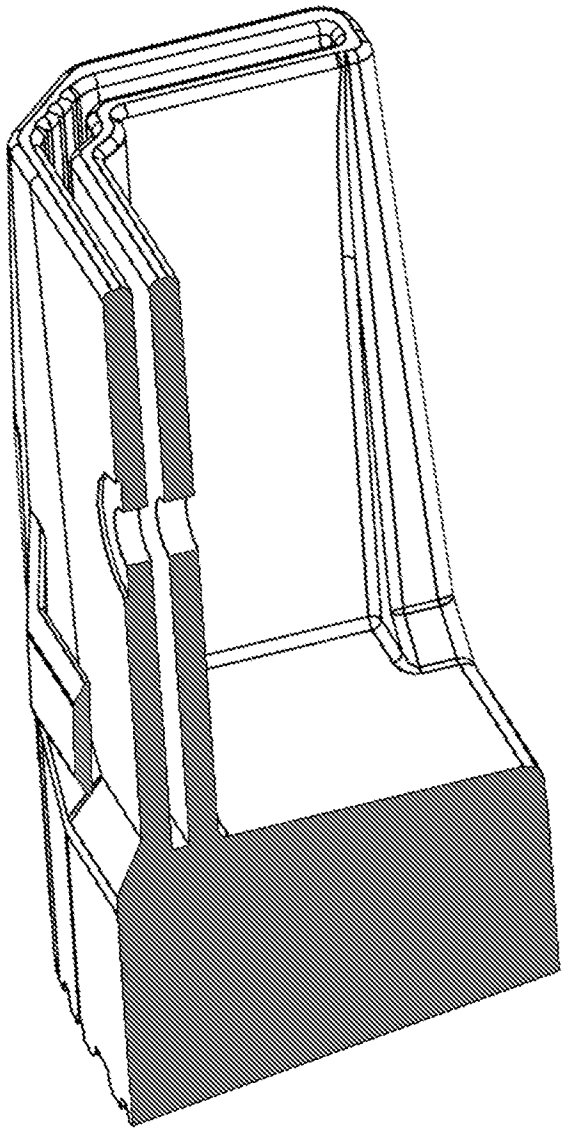


FIG. 36

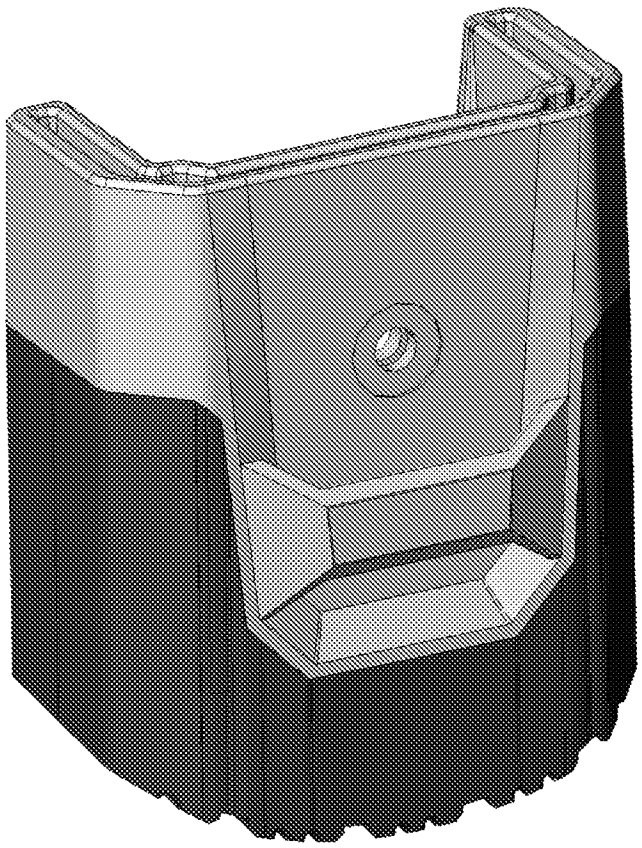


FIG. 37

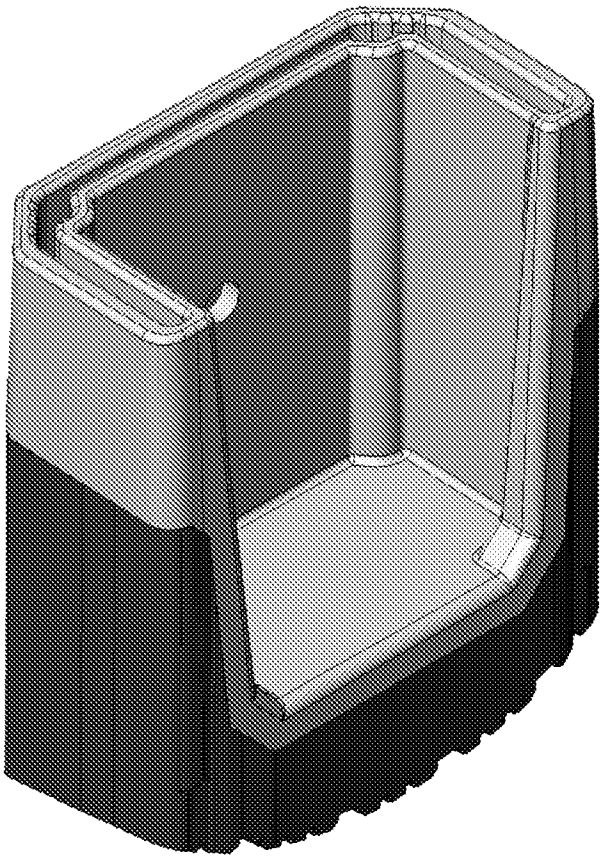


FIG. 38

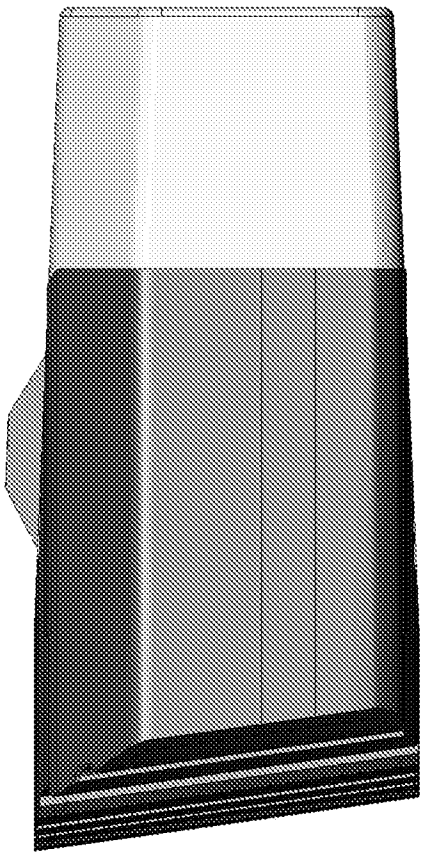


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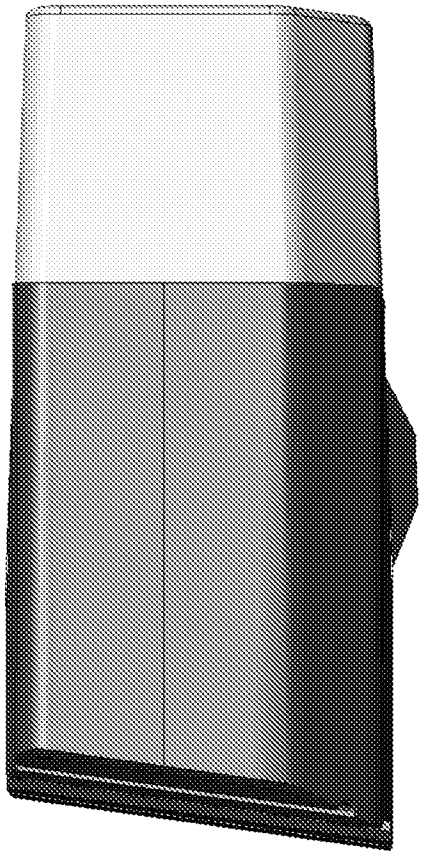


FIG. 40

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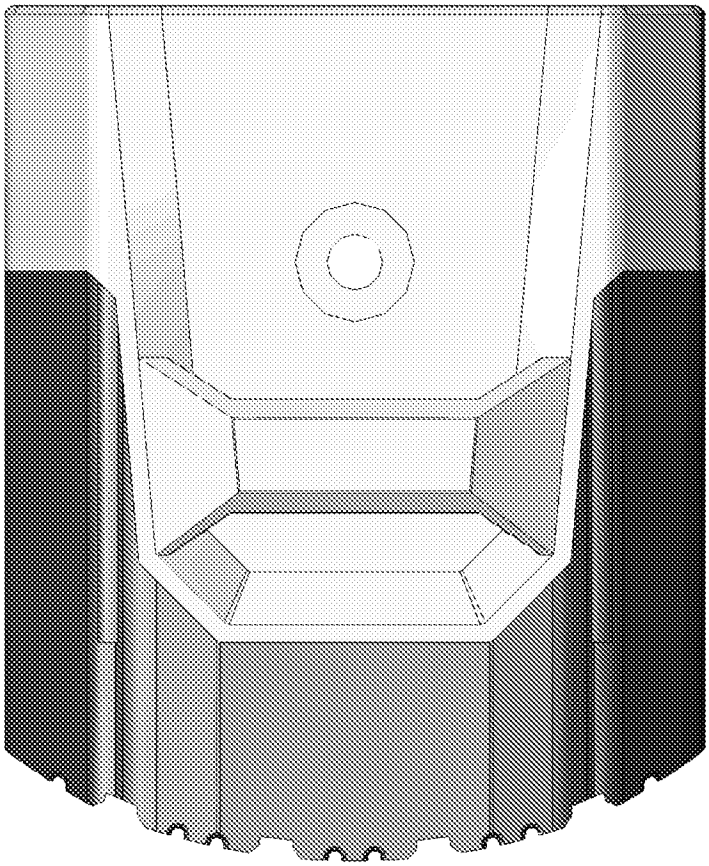


FIG. 41

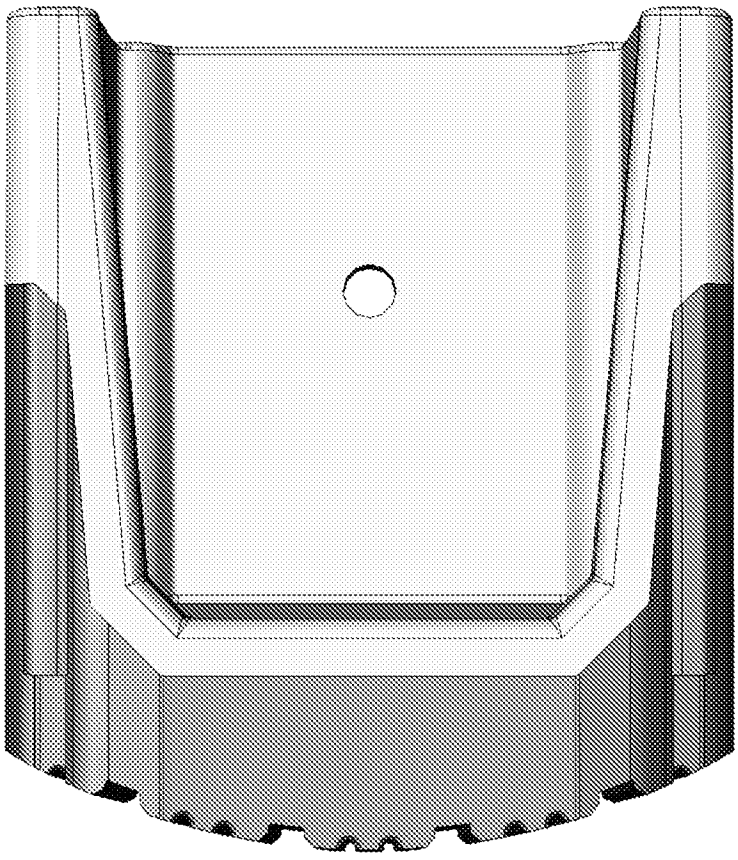


FIG. 42

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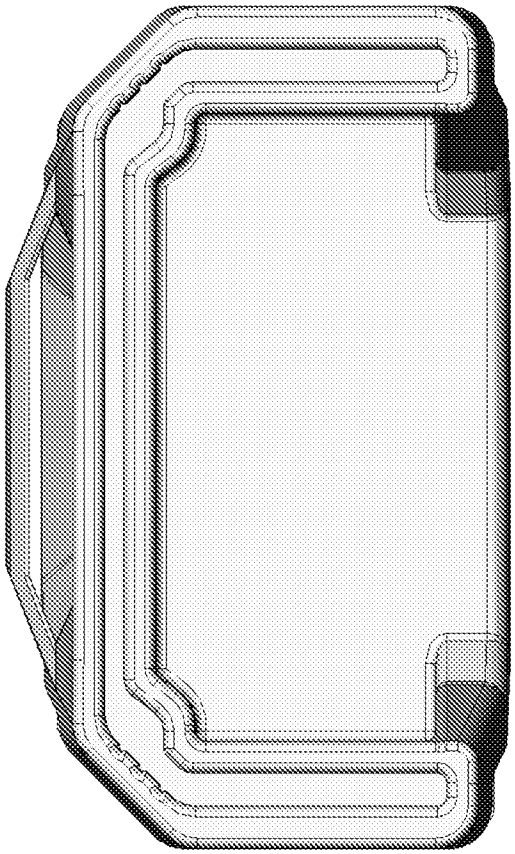


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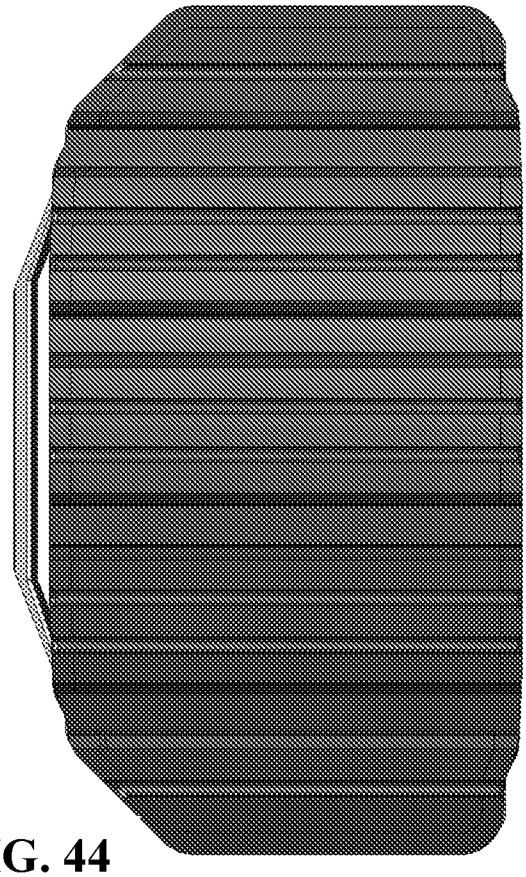


FIG. 44

PGR2026-00044
TRICAM EX1008

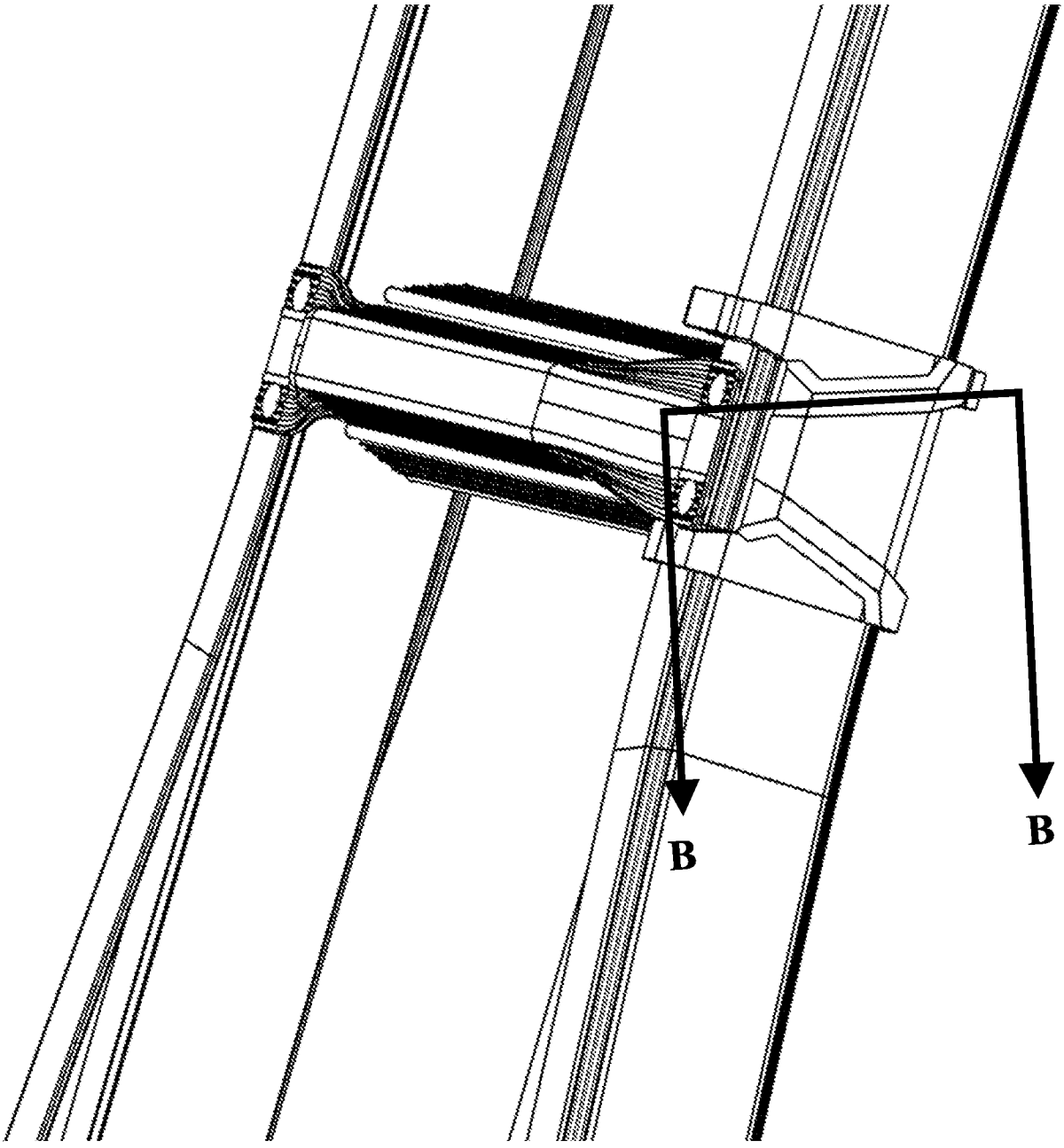


FIG. 45

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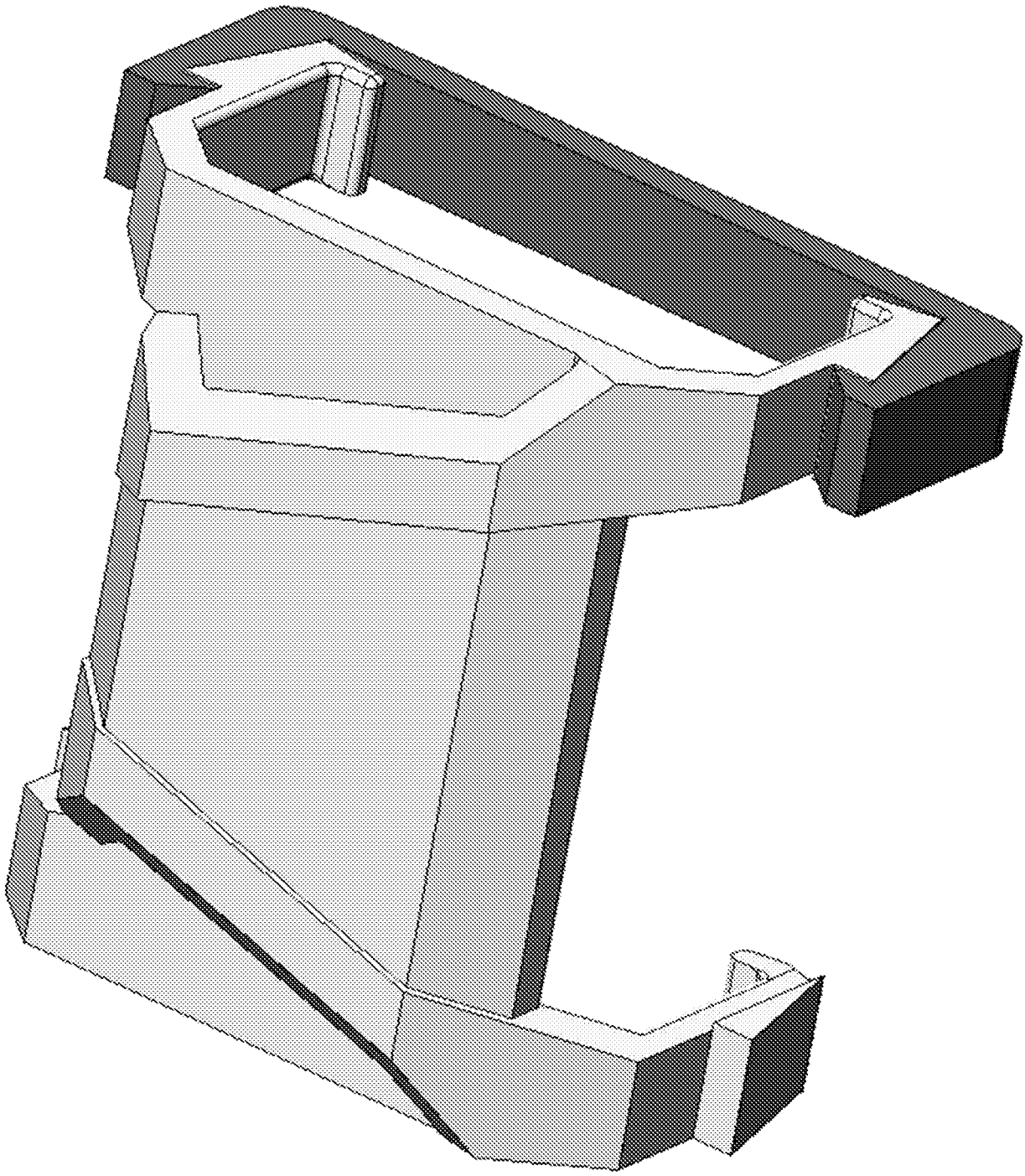


FIG. 46

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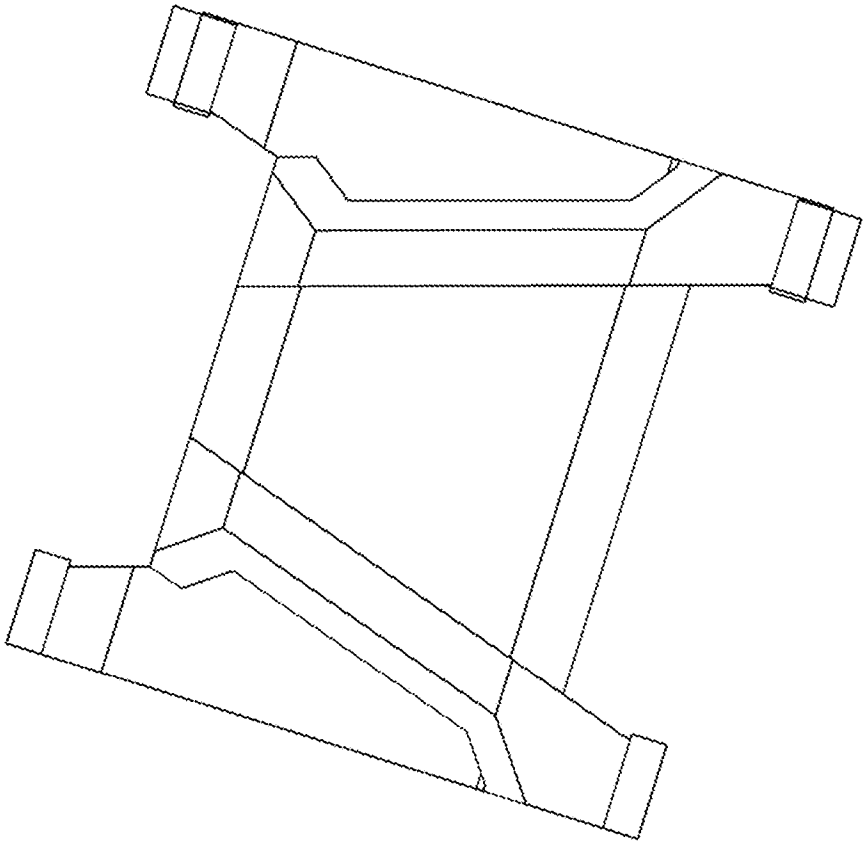


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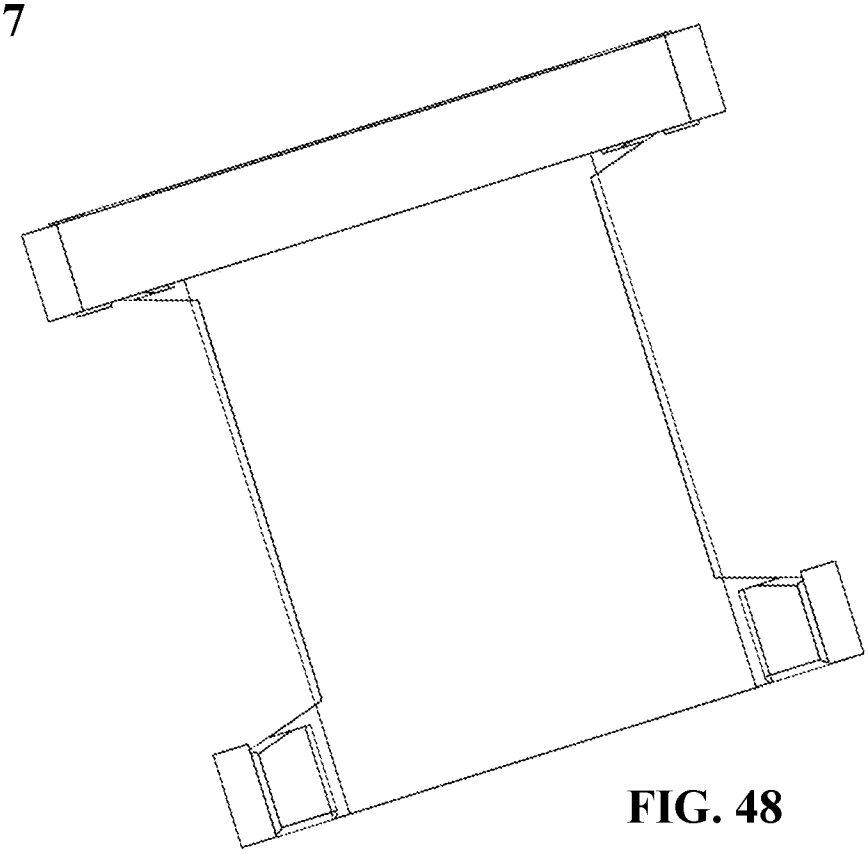


FIG. 48

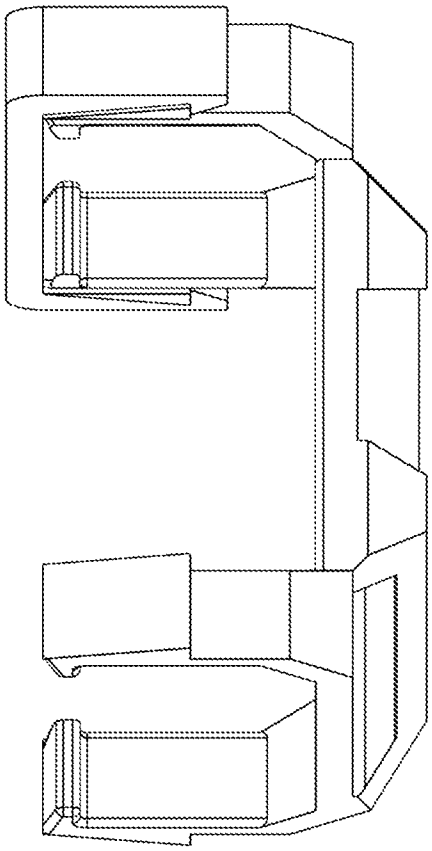


FIG. 49

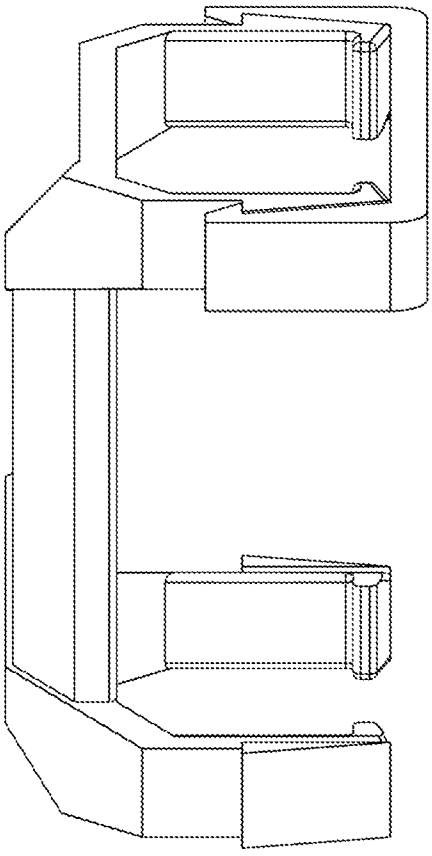


FIG. 50

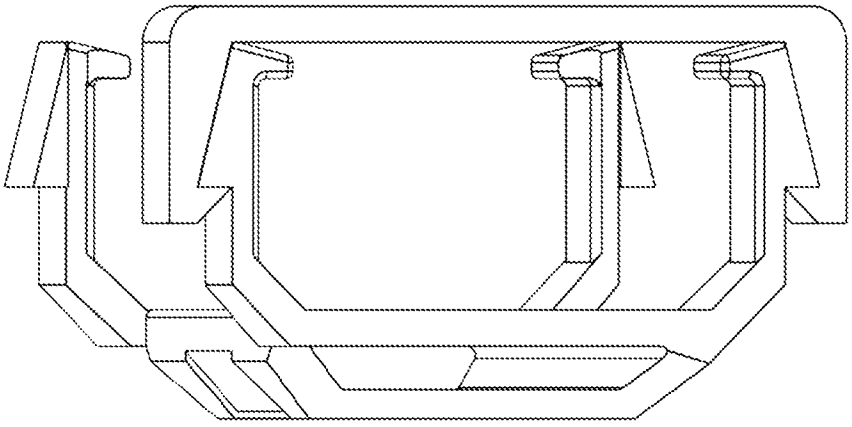


FIG. 51

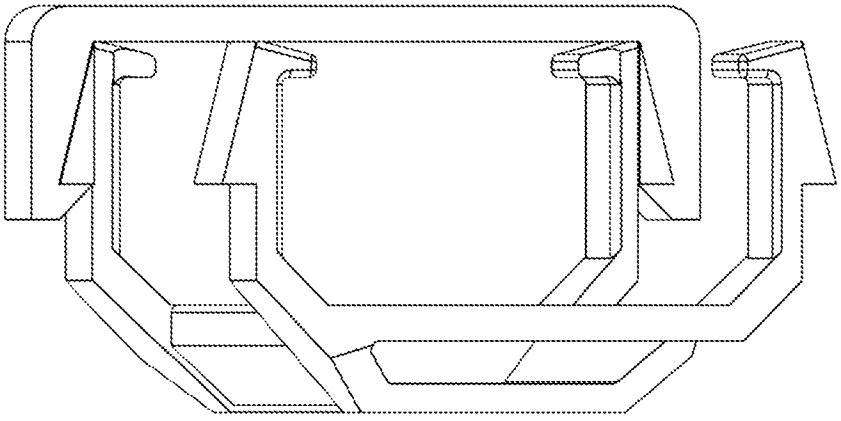
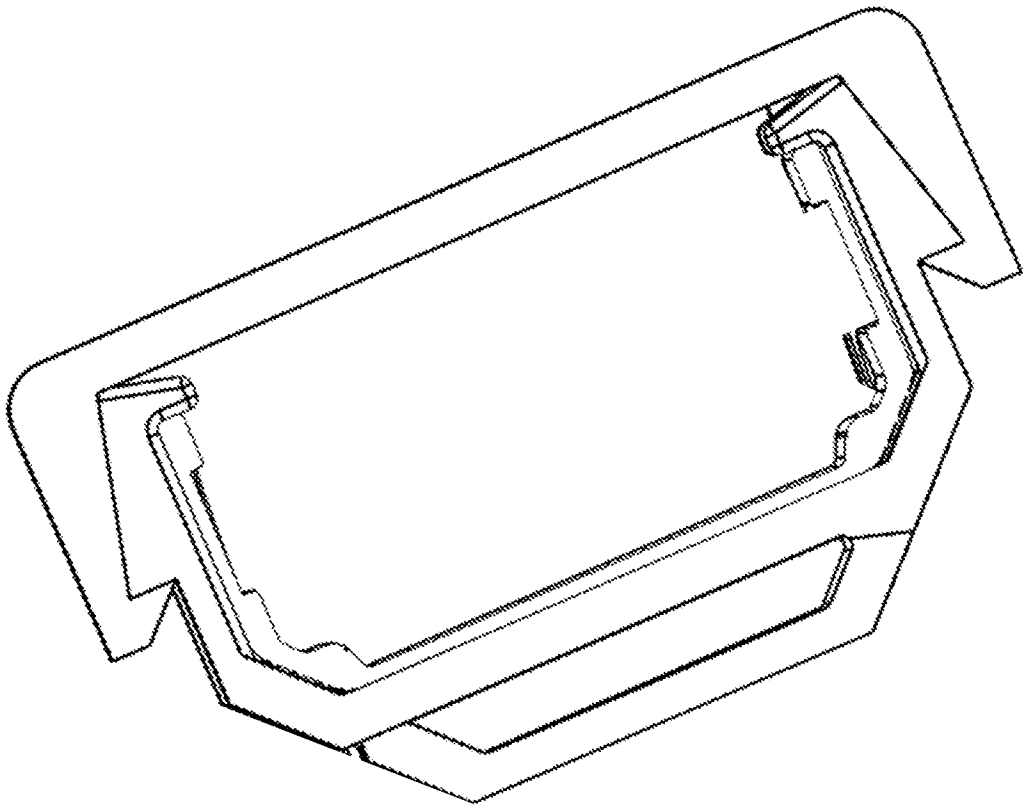


FIG. 52



B - B

FIG. 53

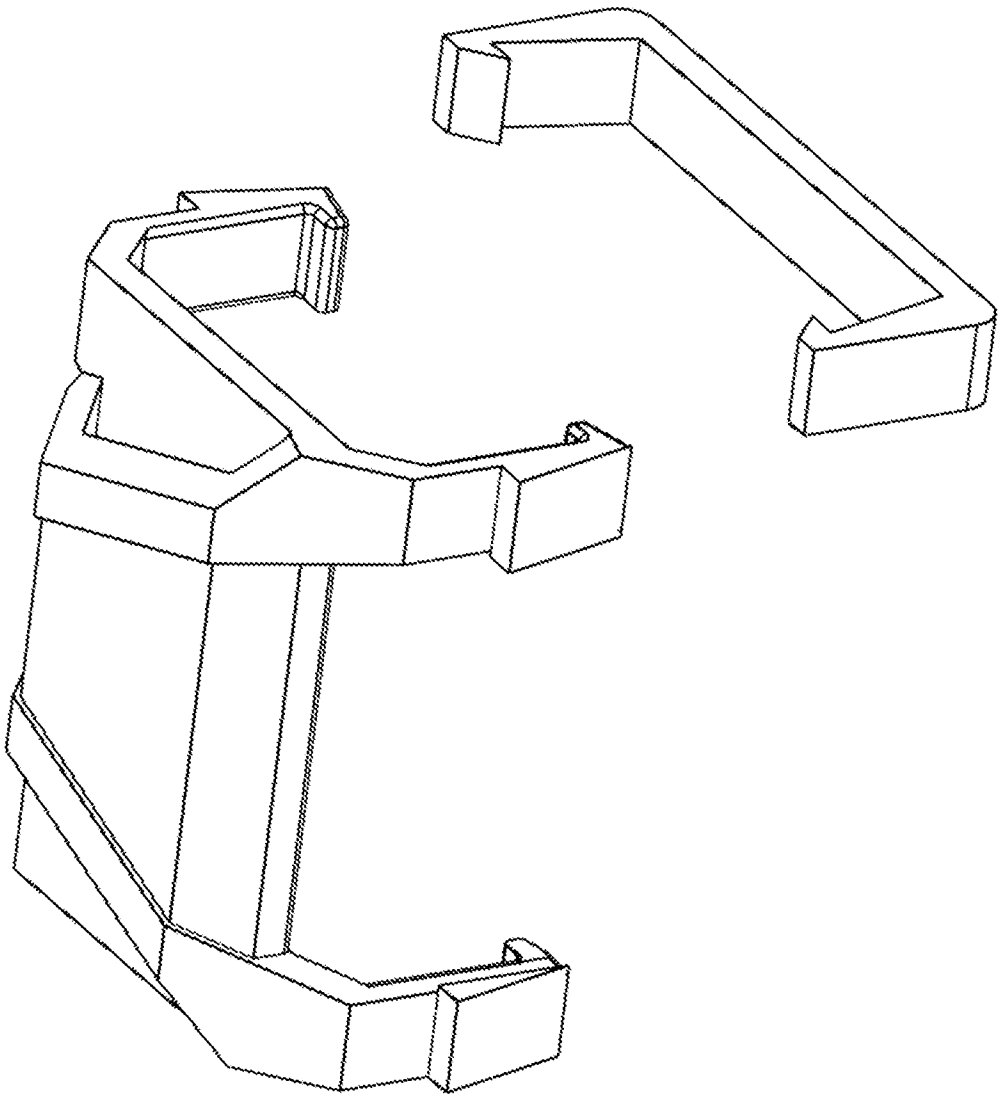
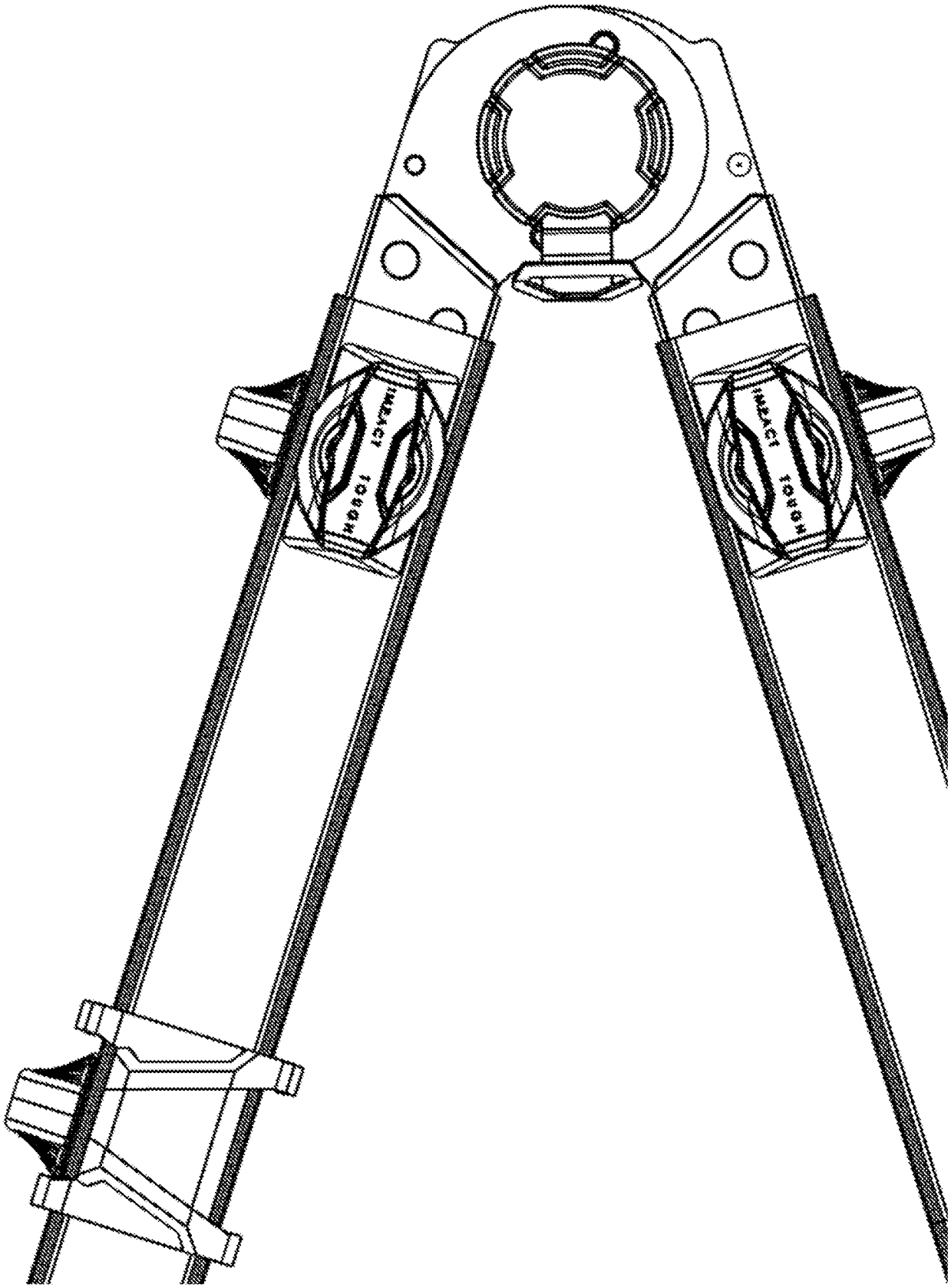
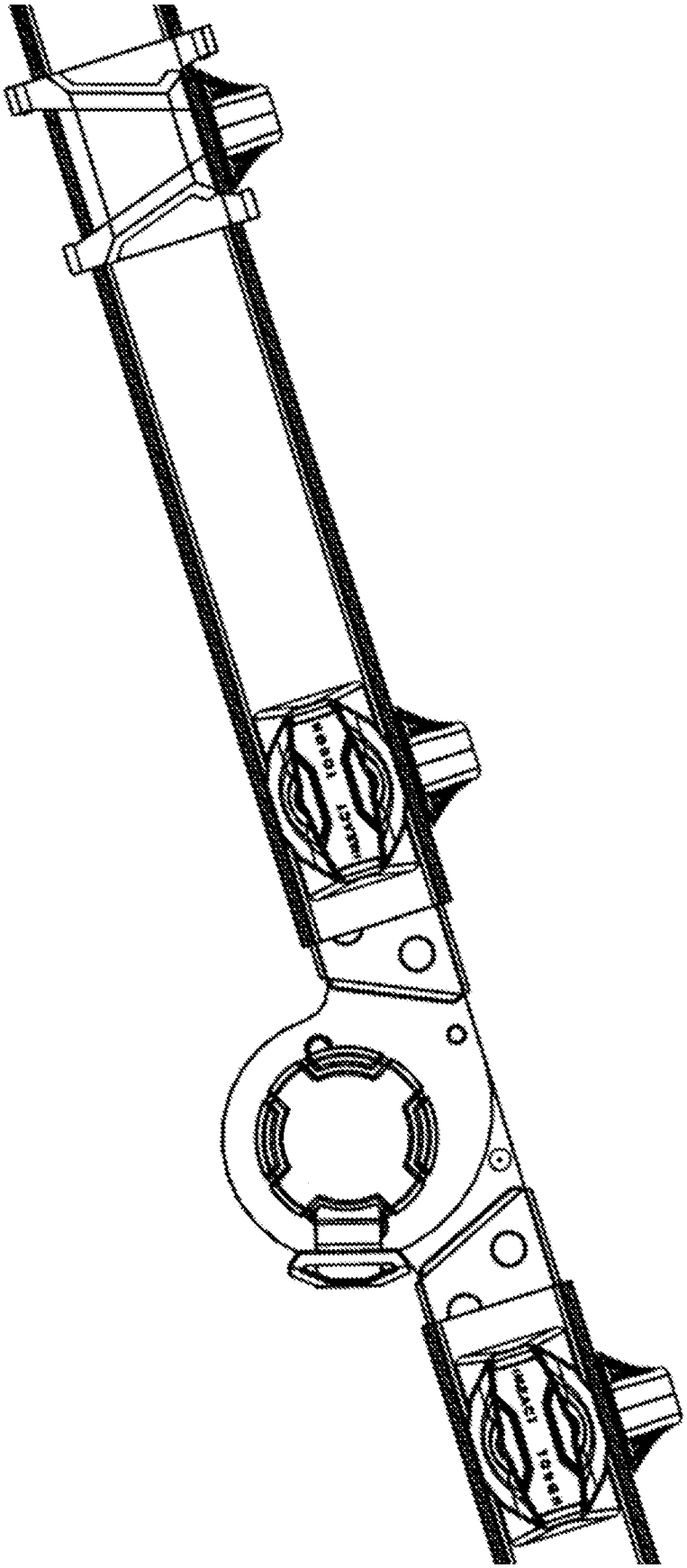


FIG. 54


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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
63/382,174	11/03/2022 02:42:03 PM ET	TRIPA096

Title of Invention

LADDER STORAGE DEVICES

Application Information

APPLICATION TYPE	Utility - Provisional Application under 35 USC 111(b)	PATENT #	-
CONFIRMATION #	9538	FILED BY	Tye Biasco
PATENT CENTER #	61139059	AUTHORIZED BY	-
CUSTOMER #	189392	FILING DATE	-
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Benjamin M. Wernberg

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 8632	E2022A3E43293535	Tye Biasco

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2005	PROVISIONAL APPLICATION FILING FEE	150.00	1	150.00
			TOTAL AMOUNT:	$150.00

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If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

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If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

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Application Data Sheet 37 CFR 1.76

The Application Data Sheet is part of the provisional or non-provisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.

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of inventors: 5

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Application Information

Customer number	**189392** ~
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Title of invention	**LADDER STORAGE DEVICES**
Attorney docket number	**TRIPA096**
Entity status	Small
	Provisional Application under 35 USC 111(b)

Application type	
Subject matter	Utility
Total number of drawing sheets	45
Suggested figure for publication	----
Filing by reference	No
Publication request	Normal eighteen-month publication

Representative Information

of representatives: 0

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).

Data was not provided for this section.

Domestic Benefit/National Stage Information

of benefit claims: 0

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c), 386(c), or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Data was not provided for this section.

Foreign Priority Information

of foreign priority claims: 0

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the Application Data Sheet constitutes the claim for priority as required by

35 U.S.C. 119 (b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Data was not provided for this section.

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

Checking this box will cause the application to be examined under the first inventor to file provisions of the AIA.

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 2016, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization or Opt-Out of Authorization to Permit Access

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE:
This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. **Priority Document Exchange (PDX)**
Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant

application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h) (1).

B. **Search Results from U.S. Application to EPO**

Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with the search results from the instant application.

NOTE:
Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Applicant Information

of applicants: 1

The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46.

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Applicant Organization
Applicant type Assignee

Assignee Information including Non-Applicant Assignee Information

of assignees: 0

An assignee-applicant identified in the "Applicant" section will appear on the patent application as an applicant.

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Data was not provided for this section.

Signature

NOTE:

This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c)**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See CFR 1.4(d) for the manner of making signatures and certifications.

Signature	First name	Last name	Registration #	Date
/Tye Biasco/	Tye	Biasco	53989	11/03/2022

TITLE OF INVENTION

Ladder Storage Devices

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ABSTRACT

Various devices and methods for hanging tools or other items from a ladder are disclosed. The devices may be incorporated into parts of the ladder itself or be separate add-on devices for use with assorted ladders.

ADVANTAGES OF THE INVENTION OVER THE PRIOR ART

- Devices are built into existing ladder parts for convenience and to eliminate lost pieces.
- Provides tool hangers at locations most used on ladder.
- Devices do not increase size or negligibly increase size of ladder or individual parts.
- Devices do not increase the weight or negligibly increase the weight of the ladder.

- Devices do not interfere with the operation of the ladder.
- Devices blend in with ladder.

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to devices for hanging, storing, holding tools, hardware, and other various equipment on a ladder.

Background Information

When working on a ladder, it is often desirable to have tools, paint and other necessary objects within easy reach. For example, it is known to removably attach a paint roller tray to the rung of a ladder to paint a ceiling or other area requiring a ladder or step stool more easily. Golden, U.S. Pat. No. 3,625,388, discloses a paint tray particularly useful with an upright ladder.

Utility trays for use with stepladders are also known in the art. Pham, U.S. Pat. No. 5,673,885, discloses a paint tray for a stepladder for storing work materials, tools and a paint bucket that is held onto the ladder by retaining means. Melanson, U.S. Pat. No. 5,613,574, discloses a ladder mounted tool holster and parts tray that removably clamps onto the top step of a stepladder. Katz et. al, U.S. Pat. No. 6,443,260, discloses a stepladder tray pivotally attached to the top cap of a stepladder for supporting tools and the like. Christ et. al, U.S. Pat. No. 5,052,581, discloses a detachable ladder support tray for supporting tools and paint containers.

It is often inconvenient, however, to use a removable tool holder or tray with a ladder. In some instances, the tool holder or tr may be difficult to attach or remove from the ladder. The removable tool holder or tray and ladder usually must be stored separately, taking up additional space. Additionally, to move a ladder from place to place, the tool holder or tray may need to be removed and carried separately because of weight or awkward transport configuration.

Ladder trays and buckets are known, including those disclosed in U.S. Patent No. U.S. Patent No. 3,625,388 to Golden; U.S. Patent No. 5,052,581 to Christ et al.; U.S. Patent No. 5,613,574 to Melanson; U.S. Patent No. 5,673,885 to Pham; U.S. Patent No. 6,443,260 to Katz et al.; U.S. Patent Application No. US14/207,887 to Najey (Published as U.S. Pub. No. US20140326538A1); U.S. Patent No. 9,714,542 to Harcz; U.S. Patent No. 7,886,872 to Astor et al.; U.S. Patent No. 8,453,796 to Astor et al.; U.S. Patent No. 7,128,187 to Simpson; U.S. Patent No. 7,188,706 to Simpson; U.S. Patent No. 10,138,680 to Williams et al.; U.S. Patent No. D833,643 to Foley et al; as well as U.S. Patent Application No. 16/654,699 to Foley et al. (published as US20200115961 A1); U.S. Patent Application No. 16/715,097 to Foley (published as US20200190905 A1); U.S. Patent Application No. 16/788,655 to Wernberg, et al. (published as U.S. Pub. No. US20210246725 A1), and U.S. Patent Application No. 17/130,414 to Foley et al. (published as U.S. Pub. No. US20220195800 A1), all of which are incorporated herein by reference.

There is a need in the industry to have storage mechanisms that are built into the ladder itself or are easily used on a ladder that do not interfere with operation of the ladder to hold tools, hardware and equipment while not increasing the size or weight of the ladder itself or negligibly adding to the weight of the ladder.

DESCRIPTION OF THE INVENTION

List of Figures

Attached are drawings of embodiments ladder storage devices of the present invention.

- FIG. 1 depicts a perspective view of a multi-position ladder in a closed or stored position having embodiments of ladder storage devices.
- FIG. 2 depicts a second perspective view of the multi-position ladder of FIG. 1.
- FIG. 3 depicts a perspective view of a multi-position ladder in an open/A-frame position having embodiments of ladder storage devices.
- FIG. 4 depicts a second perspective view of the multi-position ladder of FIG. 3
- FIG. 5 depicts a perspective view of a multi-position ladder in an extension position having embodiments of ladder storage devices
- FIG. 6 depicts a second perspective view of the multi-position ladder of FIG. 5.
- FIG. 7 depicts a close-up perspective view of the multi-position ladder of FIG. 3 providing more detail of a hinge button hook embodiment.
- FIG. 8 depicts a perspective view of the hinge button hook embodiment of FIG. 7.
- FIG. 9 depicts a front elevation view of the hinge button hook of FIG. 7.
- FIG. 10 depicts a right-side view of the hinge button hook of FIG. 7.
- FIG. 11 depicts a left-side view of the hinge button hook of FIG. 7.
- FIG. 12 depicts a rear elevation view of the hinge button hook of FIG. 7.
- FIG. 13 depicts a top plan view of the hinge button hook of FIG. 7.
- FIG. 14 depicts a bottom plan view of the hinge button hook of FIG. 7.
- FIG. 15 depicts an exploded perspective view of the hinge button hook of FIG. 7.
- FIG. 16 depicts a close-up perspective view of the multi-position ladder of FIG. 4 providing more detail of a hinge button with slot embodiment.
- FIG. 17 depicts a perspective view of a hinge button with slot embodiment of FIG. 16.
- FIG. 18 depicts a front elevation view of the hinge button with slot of FIG. 16.
- FIG. 19 depicts a rear elevation view of the hinge button hook of FIG. 16.
- FIG. 20 depicts a right-side view of the hinge button with slot of FIG. 16.
- FIG. 21 depicts a left-side view of the hinge button with slot of FIG. 16.
- FIG. 22 depicts a top plan view of the hinge button with slot of FIG. 16.
- FIG. 23 depicts a bottom plan view of the hinge button with slot of FIG. 16.
- FIG. 24 depicts an exploded perspective view of the hinge button with slot of FIG. 16.
- FIG. 25 depicts a close-up perspective view of the multi-position ladder of FIG. 3 providing more detail of a rail hook embodiment.
- FIG. 26 depicts a perspective view of the rail hook of FIG. 25.
- FIG. 27 depicts a second perspective view of the rail hook of FIG. 25.

- FIG. 28 depicts a right-side view of the rail hook of FIG. 25.
- FIG. 29 depicts a left-side view of the rail hook of FIG. 25.
- FIG. 30 depicts a front elevation view of the rail hook of FIG. 25.
- FIG. 31 depicts a rear elevation view of the rail hook of FIG. 25.
- FIG. 32 depicts a top plan view of the rail hook of FIG. 25.
- FIG. 33 depicts a bottom plan view of the rail hook of FIG. 25.
- FIG. 34 depicts a cross-sectional view taken along the line A - A in FIG. 32.
- FIG. 35 depicts a perspective view of the cross-sectional view of FIG. 32.
- FIG. 36 depicts a second perspective view of the cross-sectional view of FIG. 32.
- FIG. 37 depicts a shaded perspective view of the rail hook of FIG. 25.
- FIG. 38 depicts a second shaded perspective view of the rail hook of FIG. 25.
- FIG. 39 depicts a shaded right-side view of the rail hook of FIG. 25.
- FIG. 40 depicts a shaded left-side view of the rail hook of FIG. 25.
- FIG. 41 depicts a shaded front elevation view of the rail hook of FIG. 25.
- FIG. 42 depicts a shaded rear elevation view of the rail hook of FIG. 25.
- FIG. 43 depicts a shaded top plan view of the rail hook of FIG. 25.
- FIG. 44 depicts a shaded bottom plan view of the rail hook of FIG. 25.
- FIG. 45 depicts a close-up perspective view of the multi-position ladder of FIG. 3 providing more detail of a ladder side hook embodiment.
- FIG. 46 depicts a shaded perspective view of the ladder side hook of FIG. 45.
- FIG. 47 depicts a front elevation view of the ladder side hook of FIG. 45.
- FIG. 48 depicts a rear elevation view of the ladder side hook of FIG. 45.
- FIG. 49 depicts a right-side view of the ladder side hook of FIG. 45.
- FIG. 50 depicts a left-side view of the ladder side hook of FIG. 45.
- FIG. 51 depicts a top plan view of the ladder side hook of FIG. 45.
- FIG. 52 depicts a bottom plan view of the ladder side hook of FIG. 45.
- FIG. 53 depicts a cross-sectional view taken along the line B - B in FIG. 45.
- FIG. 54 depicts an exploded perspective view of the ladder side hook of FIG. 45.
- FIG. 55 depicts a close-up right-side elevation view of the multi-position ladder of FIG. 3.
- FIG. 56 depicts a close-up left-side elevation view of the multi-position ladder of FIG. 5.

It is understood that the various components disclosed in the drawings may be substituted with equivalent components (e.g., parts may be made of plastic or metal) and are not considered limiting.

Description

The ladder storage devices of the present invention provide various means to hang a tool, hardware, or other item from advantageous positions on ladders. These devices are especially useful with multi-position ladders by incorporating the devices into existing parts for those ladders.

One embodiment of the present invention is a hook that extends from a hinge button of a

multi-position ladder as depicted in FIGS. 7-15. Preferably the hook does not increase the size of the button itself and does not increase the profile of the button (i.e., the hook does not extend wider from the ladder than the button itself). The hook has both an upward tail for hanging items that have straps or handles (e.g., pails).

The hook may also have built into it a slot for items that have hooks themselves. For example, the slot is designed to accommodate belt hooks for power tools such as the belt hook (340 in Fig. 3) disclosed in U.S. Patent Pub. No. US20210183188A1 owned by Milwaukee Electric Tool Corp., which is incorporated herein by reference. These types of belt hooks are designed with a low profile to prevent interference while using the tools or catching on other tools, supplies, equipment when moving the tools. In many cases of hand-held power tools, these hooks are actually located on the battery packs used to power the tools.

While the button and hook can be made of a single unibody construction, it is preferable that the button and hook are individual parts to allow differing materials of manufacture to address the different weight and strength requirements of the parts. The hook itself is preferably metal for durability and strength for cyclical hanging/removing items from the hook and for weight bearing. However, the button or hook can be made of any suitable materials known in the art.

As best seen in FIG. 15, the preferred embodiment of the button hook includes an outer cap, a base, and the hook. The button cap preferably has a slot that allows the hook to traverse the cap body and attach to the metal axle of the hinge lock for strength and stability of the hook itself. The preferred embodiment of the hook has an opening at its top to connect to the axle as well as an opening to accept a protrusion on the base to prevent the hook from rotating separately from the button. Another novel aspect of the hook is that it does not extend beyond the outer face of the button cap to prevent unintentional catching on the hook while either moving items around the ladder or moving the ladder itself. Further, the hook does not extend or beyond the inner face of the button cap so that the hook does not interfere with operation of the ladder (e.g., adjusting the angles or extending the rails on a multi-position ladder).

Another embodiment of the invention depicted in FIGS. 16-24 includes a hinge button with slots built into it that will allow tools, hardware, or other items with hooks or clips to be stored on or hang from the button. The preferred embodiment comprises two pieces, a front and a back of a hinge button mechanism. Two pieces allow for easier manufacturing and installation of the button on a ladder. However, a single piece device is also contemplated as within the scope of the invention. The two pieces are molded to provide slots that traverse the button from top to bottom and left to right. The front piece is manufactured with prongs that insert into prong receivers on the back piece and have lips on the ends to secure the prongs in place. This also allows for the front piece to be easily replaced if it breaks or for aesthetic reasons.

As with the earlier-described embodiment, the slots are preferably sized to accept not only ordinary hand tools such as screwdrivers, but ideally are configured to accept belt hooks for power tools and on power tool battery packs. Preferably the slots in one direction (as shown in

FIGS. X-X) are of a different size than the slots in the traverse direction, both in width and depth. This arrangement would allow for variations in the items stored or hung from the button. However, a design with identical-sized slots in both directions is within the scope of the invention.

Another embodiment of the ladder storage device depicted in FIGS. 25-44 includes a rail hook that is bult into the feet of a ladder that provides a location to store or hang tools, hardware, materials when a ladder is in the extension position. Molded feet for ladders are well known. For example, U.S. Patent No. 11,131,142 assigned to Werner Co. (incorporated herein by reference) depicts a plastic foot that is molded to accept the profile of a ladder rail end. The present invention includes a slot in the foot that accepts tools, hardware, or other items. The preferred embodiment contemplates a foot shaped with an indent in the middle running in the same direction as the rail onto which the foot is attached with a cross member over the indent. This arrangement provides a slot for placing items or a location to hang items that have hooks or clips. Ideally the slot is sized to accept common belt hooks for power tools and on power tool battery packs.

The preferred embodiment of the rail hook is a unibody structure that includes both the foot of the ladder as well as the hook. However, it is within the scope of the invention to have the foot and hook be separate pieces that are attached together either prior to installation on the ladder rail or independently attached to the rail. Preferably the profile of the hook does not extend outward from the rail beyond the lowest extremity of the foot when in any use orientation to prevent unintentional catching on the hook while either moving items around the ladder or moving the ladder itself

A further embodiment contemplates a ladder side hook as depicted in FIGS. 45-54 that attaches to the rails of a ladder to provide another alternative for storage or hanging of tools, hardware, or other items with hooks or clips on a ladder. This embodiment is preferably a removable hook that snaps onto the rail of a ladder. This embodiment may also include a locking device to maintain the device where it is installed on the ladder, so it is not inadvertently moved while using or moving the ladder. However, the invention also contemplated the ladder side hook being permanently mounted to a ladder rail.

The preferred embodiment of the ladder side hook includes prongs sized for and oriented to wrap around the ladder rail and snap into place with lips on the prongs latching onto the inner face of the rail. The preferred embodiment further includes one or more locks to prevent the ladder side hook from inadvertently being knocked off or moving on the rail. The preferred embodiment utilizes the same type of prongs with lips as the side hook itself to tightly lock the device to the ladder rail. The upper set of prongs preferably are placed above a rung of the ladder and the lower set of prongs preferably are placed below the same rung to keep the ladder side hook in its location.

Both the side hook and lock are preferably made of an appropriate plastic strong enough to support tools or other items to be hung from the hook while having durability of the prongs to

be installed and removed from a ladder numerous times with breaking or weakening. However, the ladder side hook and lock can be made of any appropriate material known in the art. It is also recommended that the side hook and lock be of contrasting colors to more easily see whether the device is locked in place. Additionally, the prongs only contact the out rail to allow the inner rail to slide for extension and contraction of the ladder.

Another novel feature of the ladder side hook embodiment is the angles of the slot of the hook differ depending on which side of the hook is facing up. As best seen in FIGS. 55-56, this design allows the top to be parallel with the surface upon with the ladder is resting in two different orientations (A-frame or extension). For instance, a multi-position ladder in the A-frame orientation will have a different rail angle than a multi-position ladder in extension orientation leading against a building or object, but this design allows the slot to be parallel to the surface upon which the ladder rests to better hold tools, hardware, or other items. It can also be seen in FIGS. 55-56 that the hook of the hinge button hook embodiment allows the hook portion to be at the bottom of the hinge button to best hold tools, hardware, or other items.

The above summary is not intended to describe each illustrated embodiment or every implementation of the subject matter hereof. The figures and the detailed description that follow more particularly exemplify various embodiments.

CLAIMS

1. We claim the ladder storage devices disclosed herein.

2. We claim the method of manufacturing the ladder storage devices disclosed herein.

3. We claim the method of operating the ladder storage devices disclosed herein.