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(72) Inventeurs/Inventors:
WANG, OLIVER, HK;
LEE, HUEY-PING, CN

(73) Propriétaire/Owner:
AGIO INTERNATIONAL COMPANY, LTD., HK

(74) Agent: OSLER, HOSKIN & HARCOURT LLP

(54) Titre : FAUTEUIL BERCANT PIVOTANT ET ENSEMBLE
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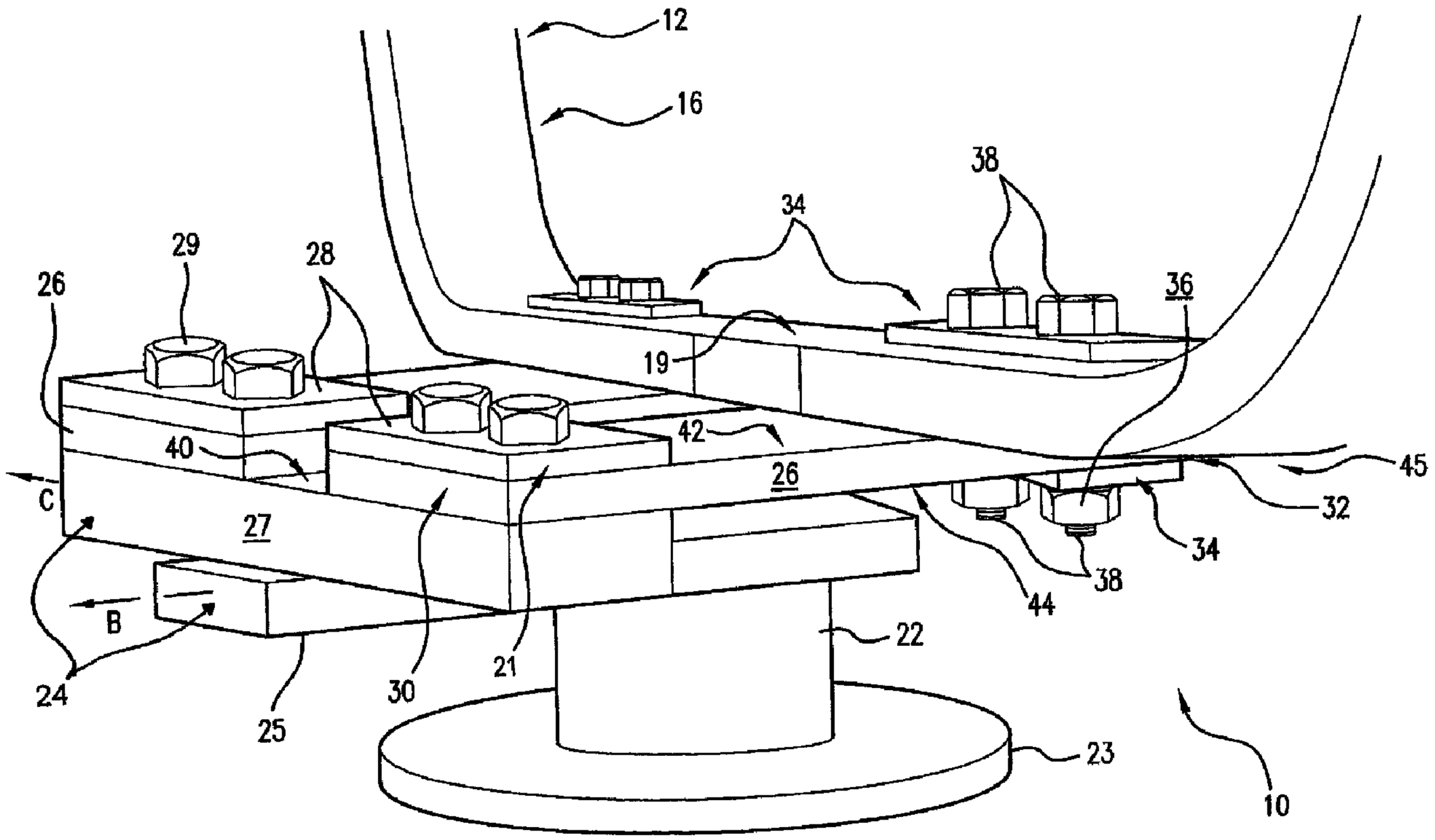

(57) Abrégé/Abstract:
A swivel rocker chair connection assembly facilitates construction of a swivel rocker chair and allows for the secure and stable operation of the chair. The chair includes a base portion, a seat portion and a connection assembly having at least one dual washer plate adapted to engage one or more rocker spring members positioned and engaged with the chair base and seat portions.

Abstract of the Disclosure

A swivel rocker chair connection assembly facilitates construction of a swivel rocker chair and allows for the secure and stable operation of the chair. The chair includes a base portion, a seat portion and a connection assembly having at least one dual washer plate adapted to engage one or more rocker spring members positioned and engaged with the chair base and seat portions.

SWIVEL ROCKER CHAIR AND ASSEMBLY

Field of the Invention

The present invention relates to a swivel rocker, and more particularly relates to a swivel rocker connection assembly, chair and method of securing a seat assembly and a base assembly using a swivel rocker connection assembly.

Background and Summary of the Invention

Various types of swivel rocker chairs have been known which allow a person seated in the chair to both rotate about a vertical axis and pivot back and forth. While other types of chairs might allow the back of the chair to pivot relative to the seat, swivel rocker chairs are constructed so that the back and seat of the chair pivot and rotate together as a unit. Swivel rocker chairs generally include a base portion and a seat portion, with the seat portion generally including a back portion and potentially armrest portions. Different mechanisms have been employed for securing the base portion of swivel rocker chairs to the seat portion, and these prior art mechanisms have suffered from several deficiencies. First, these prior art mechanisms often fail to provide a secure connection, which can result in the seat falling off of the base and potential injuries to the chair occupant and bystanders. Further, because many chairs are packaged so that

they may be assembled on site by the end user, the parts and/or assembly instructions are often not sufficient to ensure that the chair is assembled properly so as to maintain full functionality and stability.

Accordingly, it is an object of the present invention to provide a connection assembly for a swivel rocker chair which allows for simple chair assembly and results in a safely operable chair.

It is another object of the present invention to provide a swivel rocker chair connection assembly which restricts the method of chair assembly, thereby ensuring the secure and stable operation of the chair.

It is another object of the present invention to provide a swivel rocker chair having a minimal number of connector parts while maintaining full functionality as well as secure attachment and operation.

Brief Description of the Drawings

FIG. 1 shows a front elevation of the swivel rocker assembly of the present invention affixed atop a base member for a swivel rocker chair.

FIG. 2 shows a perspective view of one embodiment of the swivel rocker assembly and portions of the chair of the present invention.

FIG. 3 shows a front cutaway elevational view of the swivel rocker connection assembly of the present invention in partial cross-section.

FIGS. 4A and 4B show a front elevation and right side view, respectively, of a washer plate member of the swivel rocker assembly of the present invention.

Detailed Description of the Preferred Embodiments

Figs. 1 through 4B show a swivel rocker chair connector assembly in accordance with the present invention. As shown in Figs. 1 and 2, the swivel rocker chair connector assembly 10 connects a chair seat portion 12 to a chair base 14. The chair seat portion 12 can be, for example, a lower stabilizing member such as U-bar member 16 which extends downwardly from the horizontal seat surface (not shown). The chair base assembly 14 can be provided with a base portion 15 that rests on the ground surface, legs 18 and a shaft 20 maintained in a cylindrical sleeve 22 so as to allow for rotation about a chair base axis, indicated at A. Legs 18 and cylindrical sleeve 22 can be secured to platform 23 by commonly known means, for example. A T-bar member 24 and a pair of substantially flat rocker spring members 26 can be provided as part of chair base assembly 14. Connector assemblies 21 such as washer plates 28, bolts 29 and nuts can be provided for securing the rocker spring members at a first end 30 to the T-bar member 24. Connector assemblies 21 are also provided to secure the other end 32 of the rocker spring members 26 to the chair seat portion 12. As shown in Figs. 2 and 3, the connector assembly of the present invention can comprise dual washer member(s) 34 and one or more nut 36 and bolt 38 combinations. The connector assembly may also optionally include the T-bar member and rocker spring members 26. In one embodiment, the connection of the rocker spring members to the chair seat portion can be accomplished by connecting means such as clamps, glue, or spot welds, for example, as opposed to washer members, nuts and bolts.

A stem portion 25 of the T-bar member is secured to the chair base shaft, which is rotatably maintained within the chair base by any of various means known in the art. As shown in Fig. 2, the T-bar member stem portion 25 is secured in a first substantially horizontal plane B when secured to the chair base 14. The T-bar member 24 is further provided with a top cross portion 27 secured to the stem portion 25 so as to extend in a second substantially horizontal plane C, as shown in Fig. 2, with the T-bar member top cross portion 27 and stem portion 25 being substantially perpendicular to one another. As further shown in Figs. 1 and 2, T-bar member 24 has an upper surface 40 which can cooperatively engage lower surfaces of respective rocker spring members 26. It will be appreciated that T-bar member can be part of a chair base assembly or part of the connector assembly of the present invention.

As shown in Figs. 1 through 3, each rocker spring member 26 is provided with a first end 30, a second end 32, a top face 42, and a bottom face 44. The rocker spring members are secured on opposite sides of the chair base axis A and lie in substantially the same horizontal plane when at rest. This arrangement assists in the overall stability of the chair incorporating the swivel rocker assembly of the present invention. The rocker spring members can be substantially flat as shown in Figs. 1 and 2. The rocker spring members have holes at each end 30 and 32 that cooperate with appropriate washer plate bolts and washer plates in accordance with the present invention. The first end 30 of the rocker spring member is positioned above the T-bar member top portion 27 such that the bottom face of the rocker spring member cooperatively engages the T-bar member top portion upper face 40, with the second end 32 being positioned such that the rocker spring member top face rests underneath and cooperatively engages the bottom surface 45 of the chair seat portion 12.

It will be appreciated that, in an alternative embodiment, the present invention can operate with a single rocker spring member secured in substantially the middle portion of the T-bar member and in a plane above the chair base shaft, wherein such plane is substantially perpendicular to the chair base axis in the resting position.

Rocker spring members 26 are secured to T-bar member 24 by bolts, nuts and washer plates in accordance with one embodiment of the present invention. In one embodiment, rocker spring members 26 are secured to T-bar member 24 prior to shipment of the swivel chair parts to be assembled by the end user. In one embodiment of the invention, rocker spring members 26 are formed of a fiberglass reinforced plastic.

As shown in Figs. 3, 4A and 4B, at least one washer plate member 34 is provided having a pair of side walls 52 extending in substantially parallel relation, wherein each of the side walls 52 has an outer edge 54, an inner 56 and an outer 58 surface and at least two openings 60 therein. The space between the two opposing and parallel side walls is provided so as to cooperate with the combined thickness of the U-bar and rocker spring, as shown in Fig. 3. The washer plate member further includes a bridge portion 62 integrally formed with and connecting the side walls 52, wherein the bridge portion 62 has leg members 64 which extend laterally from the wall outer edges 54 and a joint portion 68 extending substantially perpendicularly from and connecting the leg members 64. The proper positioning of washer plates and/or a single washer plate member is critical, because omitting them or mis-positioning them will sometimes result in failure of the rocker spring at the points of attachment to the U-bar or seat assembly lower stabilizing element.

The washer plates 34, which can be substantially U-shaped in cross section, for example, help secure the second ends 32 of respective rocker spring members 26 to U-bar member 16 or other seat portion stabilizing member. This dual washer plate 34, as shown in Fig. 3, engages on one end the interior surface 19 of the substantially flat portion of U-bar member 16. As further shown in Fig. 3, the washer plates engage, on the other end, the bottom surface 44 of the rocker spring members 26 such that a washer plate bolt 38 passes sequentially through the first wall of the washer plate 34, the U-bar member 16 of the seat assembly, the rocker spring member 26, the second wall of the washer plate 34, a lock washer 35 (optionally), and a nut 36. It will be appreciated that U-bar member and/or other seat assembly member is provided with openings that mate with the openings in washer plate 34 to allow bolt 38 to pass through.

In one embodiment of the invention, the washer plate bolt 38 can be provided such that only the end portion of the bolt is threaded. In one embodiment, the threaded portion of the bolt represents approximately 25% of the entire length of the shaft of the bolt.

The present invention further provides means for securing the rocker spring members to the washer plate members such that the inner surface of one of the washer plate member walls cooperatively engages the seat chair portion in mating relationship therewith, and further such that the inner surface of the second washer plate member walls cooperatively engages and is in mating relationship with the rocker spring member bottom face near the second end of the rocker spring member. The connection or securing means can include a pair of bolts 38 extending through the openings of the washer plate member walls 52.

In one embodiment of the invention, each of the bolts includes a shaft which is partially threaded. In one embodiment of the invention, the seat portion lies in a plane which is between the bridge portion of the washer plate member and the T-bar member top portion.

The present invention makes it nearly impossible to omit or to mis-position the washer plates during installation. The partial threading of the washer plate bolt makes it impossible to attach the U-bar directly to the rocker spring without the dual washer plate.

Other embodiments may be employed to achieve this result. One such alternative embodiment includes pre-assembling the U-bar, washer plates, spring rocker, T-bar and swivel shaft, thereby eliminating the need for consumer assembly. Another embodiment is to bond the washer plates to the U-bar by welding or glue, for example. Another embodiment involves bonding the washer plate to the rocker spring. Yet another embodiment involves bonding all washer plates into proper position. The embodiment shown in the drawings is preferred and optimizes cost of production, ease of assembly and bulk shipping.

A method of installing a swivel rocker chair in accordance with the present invention can be accomplished as follows. First, a base assembly can be provided with a connected T-bar member substantially as described above. Then, a seat assembly having a lower stabilizing member can be provided. Next, one or more rocker spring members can be provided, wherein the rocker spring members have a first end and a second end, with the first end cooperatively engaging the T-bar member and the second end cooperatively engaging the

seat assembly lower stabilizing element. Next, a dual washer plate member can be provided, wherein the plate has a pair of walls each having an interior surface, such that a first interior surface cooperatively engages an upper surface of the seat assembly lower stabilizing member, and such that a second interior surface cooperatively engages a lower surface of each of the one or more rocker spring members. Next, a bolt member can be passed sequentially through the washer plate, lower stabilizing member, rocker spring member, and again through the washer plate, and the bolt member can be secured in the passed-through position by a nut or other similar object.

The invention may be embodied in other specific forms without departing from the spirit or essential characteristics thereof. The present embodiments are therefore to be considered in all respects as illustrative and not restrictive, the scope of the invention being indicated by the claims of the application rather than by the foregoing description, and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced therein.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A swivel rocker chair, comprising:

a base assembly having a T-bar member comprising a stem portion and a substantially horizontal top cross portion secured to the stem portion;

a seat assembly having a lower stabilizing element, said lower stabilizing element having an upper surface;

at least one plastic rocker spring member having a first end and a second end, said first end cooperatively engaging said top cross portion of said T-bar member and said second end cooperatively engaging said seat assembly lower stabilizing element; and

a connector assembly connecting said base assembly to said seat assembly, said connector assembly comprising:

a washer plate member having first and second inner surfaces, said first inner surface capable of cooperatively engaging said upper surface of said lower stabilizing element of said seat assembly, and said second inner surface capable of cooperatively engaging a lower surface of said second end of said at least one rocker spring member; and

connecting means for securing together said at least one rocker spring member, said at least one washer plate member, and said lower stabilizing element.

2. The chair of claim 1 including a pair of rocker spring members, each mounted to said T-bar member at said first end, and each secured to said seat assembly lower stabilizing element at said second end by a pair of said connector assemblies.

3. The chair of claim 1 wherein said washer plate member includes substantially parallel side walls and a bridge portion connecting said side walls.

4. A method of installing a swivel rocker chair, comprising the steps of:

providing a base assembly with connected T-bar member comprising a stem portion and a substantially horizontal top cross portion secured to the stem portion, said T-bar member having a top face;

providing a seat assembly having a lower stabilizing member with an upper surface;

providing at least one plastic rocker spring member having a first end and a second end, said first end cooperatively engaging said T-bar member and said second end cooperatively engaging said seat assembly lower stabilizing element;

providing a dual washer plate member having a pair of walls each having an interior surface, such that a first of said wall interior surfaces cooperatively engages said seat assembly lower stabilizing member upper surface, and such that a second of said wall interior surfaces cooperatively engages a lower surface of said at least one rocker spring member;

passing a bolt member sequentially through said dual washer plate, lower stabilizing member, rocker spring member, and again through said dual washer plate; and

securing said bolt member in the passed-through position.

5. The method of claim 4 wherein the step of providing at least one rocker spring member includes providing a pair of rocker spring members, each mounted to said T-bar

member at said first end, and each secured to said seat assembly lower stabilizing element at said second end.

6. The method of claim 4 wherein said T-bar member is rotatable about a base assembly axis.

7. A swivel rocker assembly for connecting a chair base to a chair seat portion, comprising:

a T-bar member rotatably secured to said chair base for rotation about a chair base axis, said T-bar member having a stem portion lying in a first substantially horizontal plane when secured to said chair base, said T-bar member further having a top portion lying in a second substantially horizontal plane when said T-bar member is secured to said chair base, said top portion being secured to said stem portion, said T-bar member top portion and stem portion being substantially perpendicular to one another, said T-bar member top portion having an upper face;

at least one plastic rocker spring member having a top face, a bottom face, a first end and a second end, said first end being positioned above said T-bar member top portion such that said bottom face of said at least one rocker spring member cooperatively engages said T-bar member top portion upper face, said second end being positioned such that said top face rests underneath said chair seat portion;

at least one washer plate member having a pair of side walls extending in substantially parallel relation, each of said side walls having an outer edge, an inner and an outer surface and at least two openings therein, said washer plate member further including a bridge portion integrally formed with and connecting said side walls, said bridge portion having leg members which extend laterally from said wall

outer edges and a joint portion extending substantially perpendicular from and connecting said leg members; and

connecting means for securing said at least one rocker spring member to said at least one washer plate member such that said inner surface of a first of said washer plate member walls rests above said seat chair portion in mating relationship therewith, and further such that said inner surface of a second of said washer plate member walls rests underneath and in mating relationship with said rocker spring member bottom face near said second end of said rocker spring member.

8. The assembly of claim 7 wherein said connecting means includes a pair of bolts extending through said openings of said washer plate member walls.

9. The assembly of claim 8 wherein each of said pair of bolts includes a shaft which is partially threaded.

10. The assembly of claim 7 wherein said seat portion lies in a plane which is between said bridge portion of said washer plate member and said T-bar member top portion.

11. The assembly of claim 7 including a pair of substantially flat rocker spring members.

12. The assembly of claim 7 including a pair of substantially flat rocker spring members secured to said T-bar member so as to lie on opposite sides of said chair base axis and in substantially the same horizontal plane.

13. The assembly of claim 7 further including means for securing said first end of said at least one rocker spring member to said T-bar member top portion.

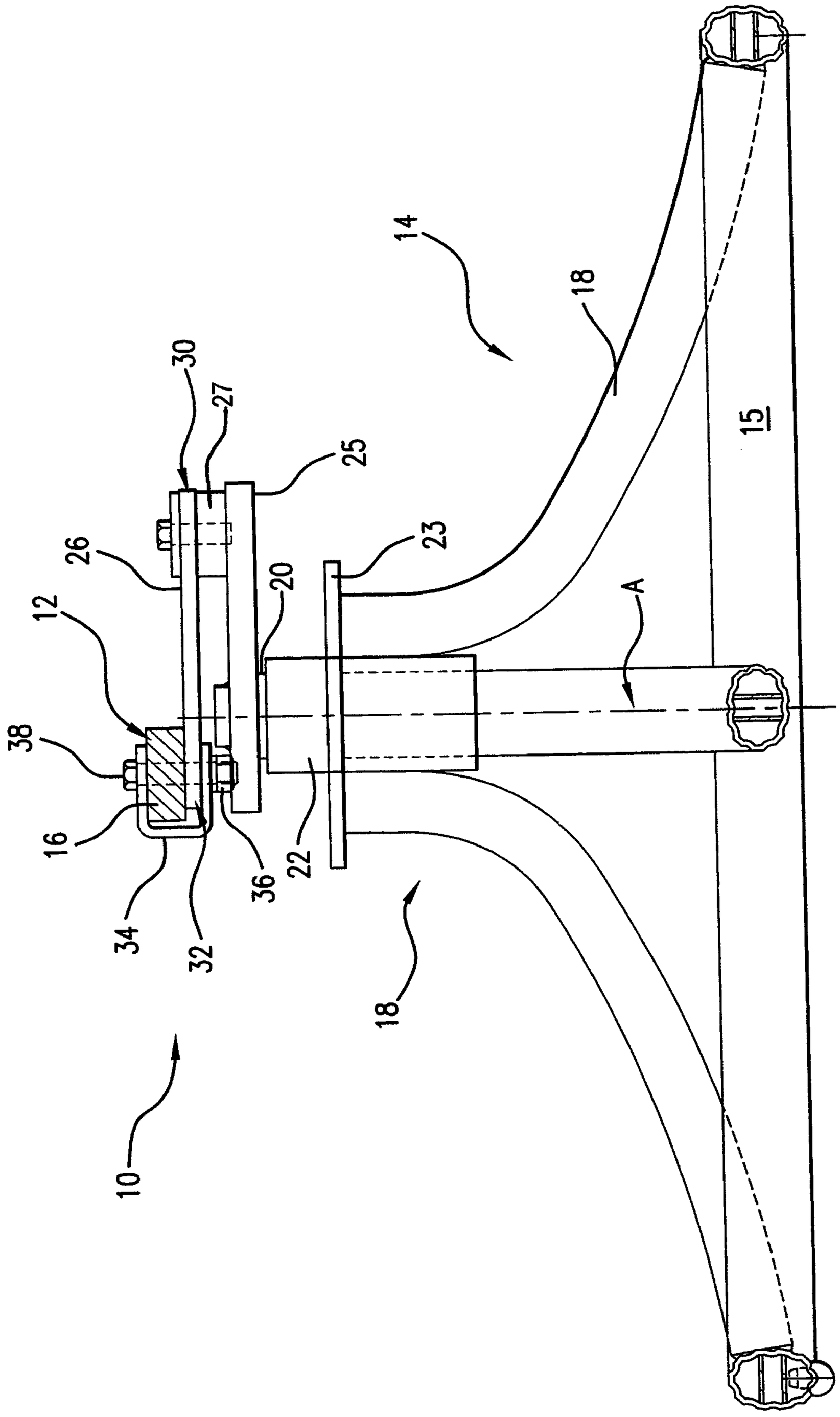

FIG. 1

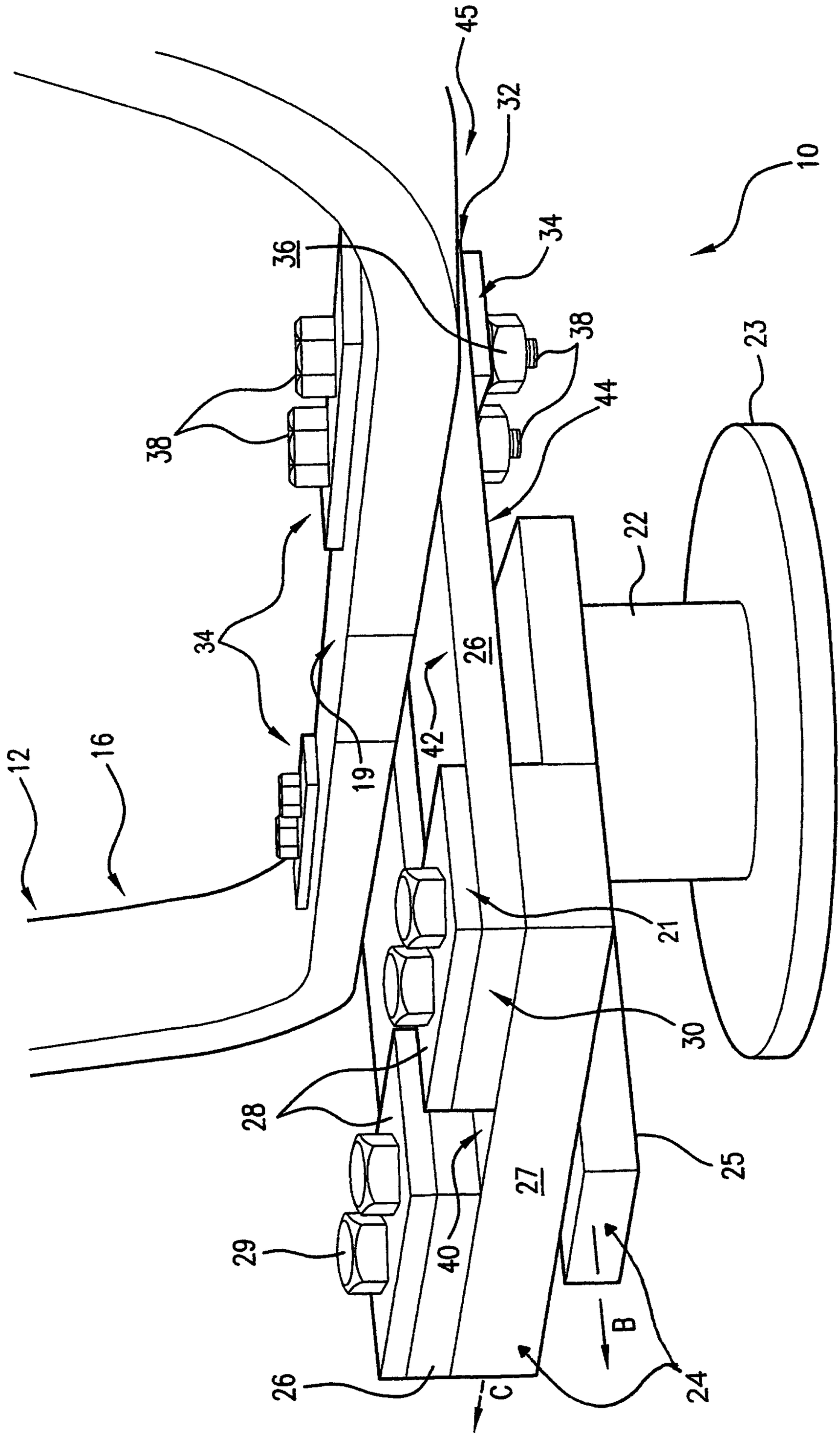
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FIG.2

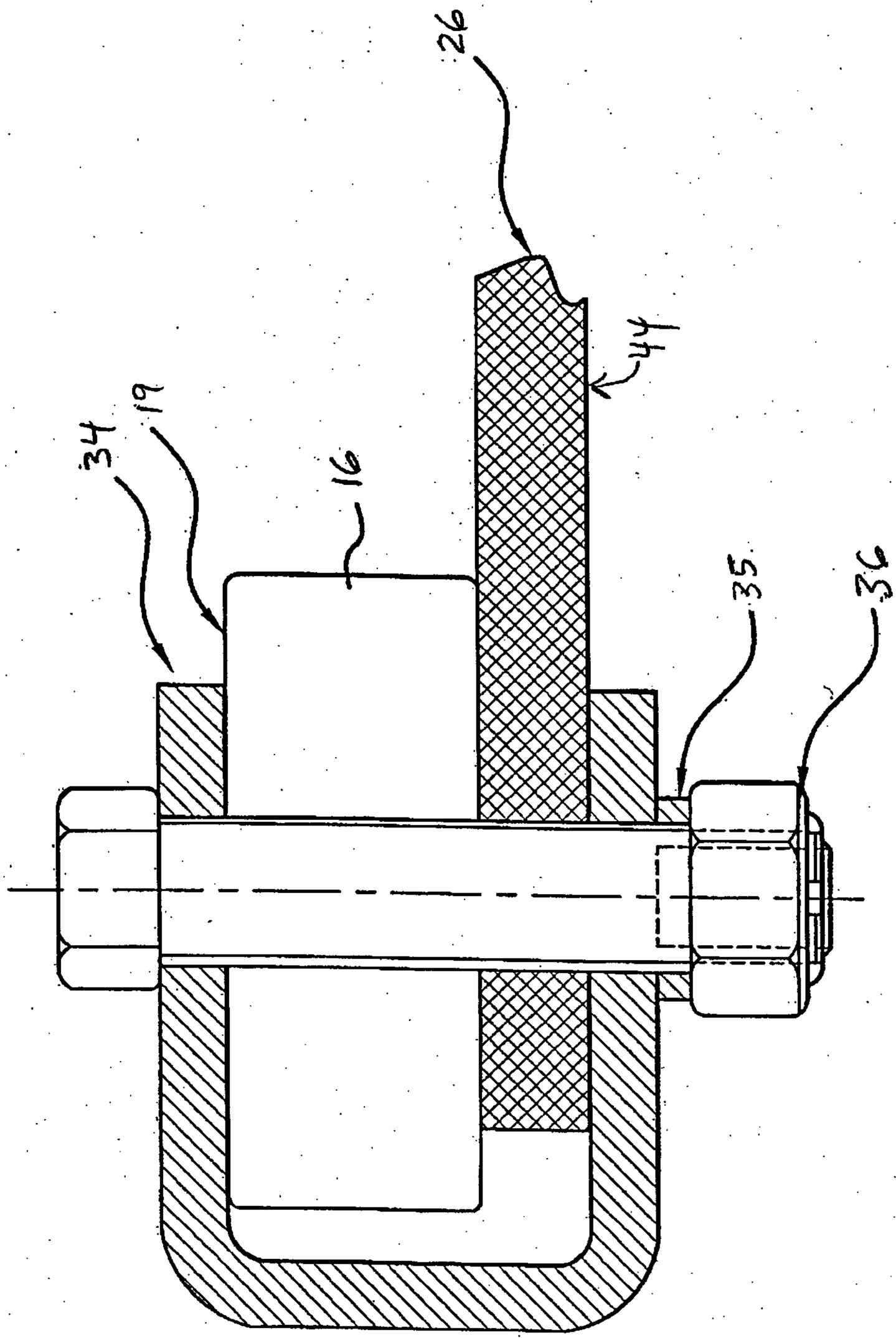


FIG. 3

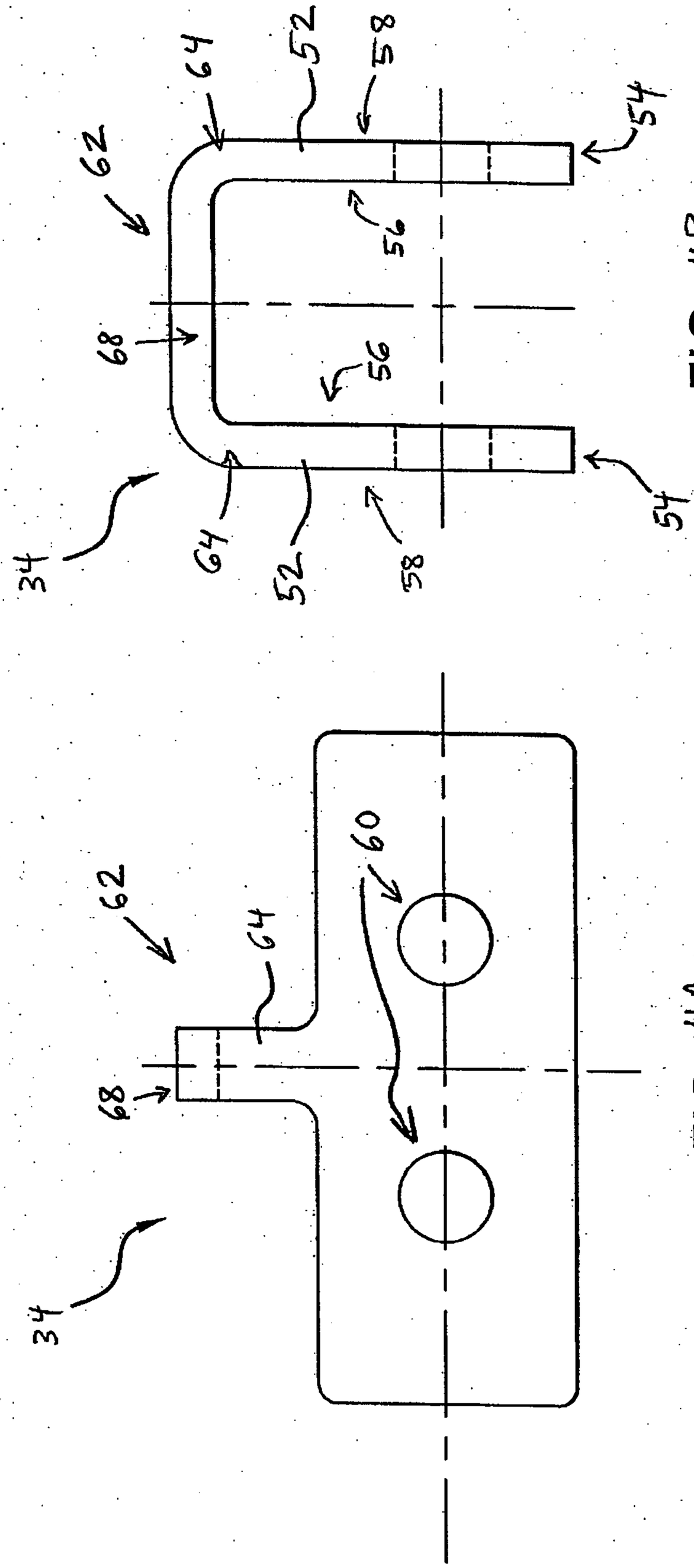
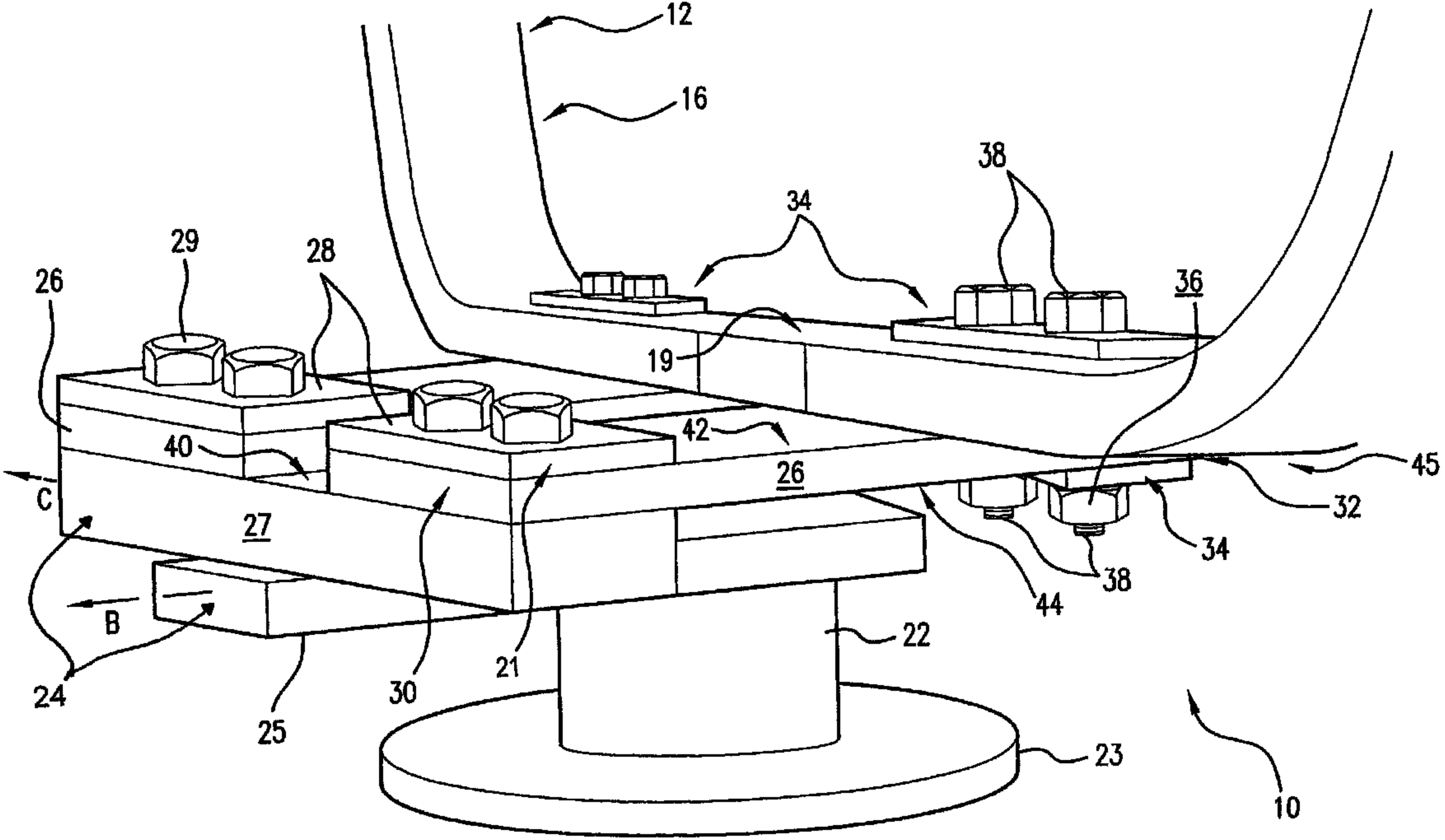


FIG. 4A

FIG. 4B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