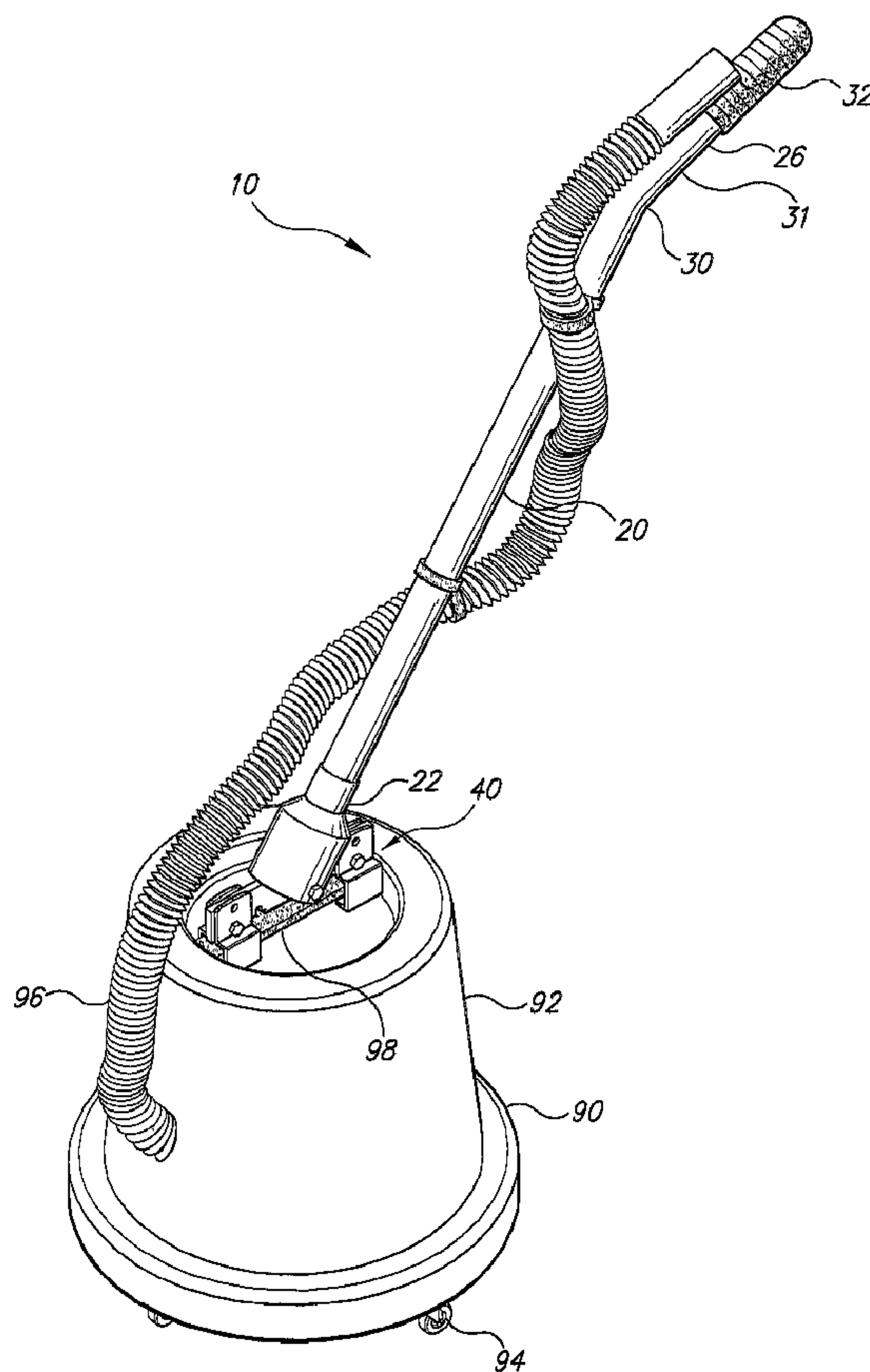




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 (54) Title: ERGONOMIC APPLIANCE HANDLE



(57) Abrégé/Abstract:

The ergonomic appliance handle (10) is an extension handle that is attachable to a carrying or transport handle (98) on a canister style vacuum cleaner (90) or similar floor appliance. The ergonomic appliance handle (10) provides an elongated handle shaft (20)

(57) **Abrégé(suite)/Abstract(continued):**

that is attached to the canister vacuum's handle (98) at a proximate end (22) of the handle shaft (20) by a mounting assembly (40). The handle shaft (20) extends angled upward, away from the vacuum (90), placing a handgrip (32) at the distal end (26) of the handle shaft (20) at an ergonomically comfortable height and position for a user to easily and conveniently operate the vacuum (90) in a comfortable posture without subjecting the user to unnecessary bending, stooping, or twisting.

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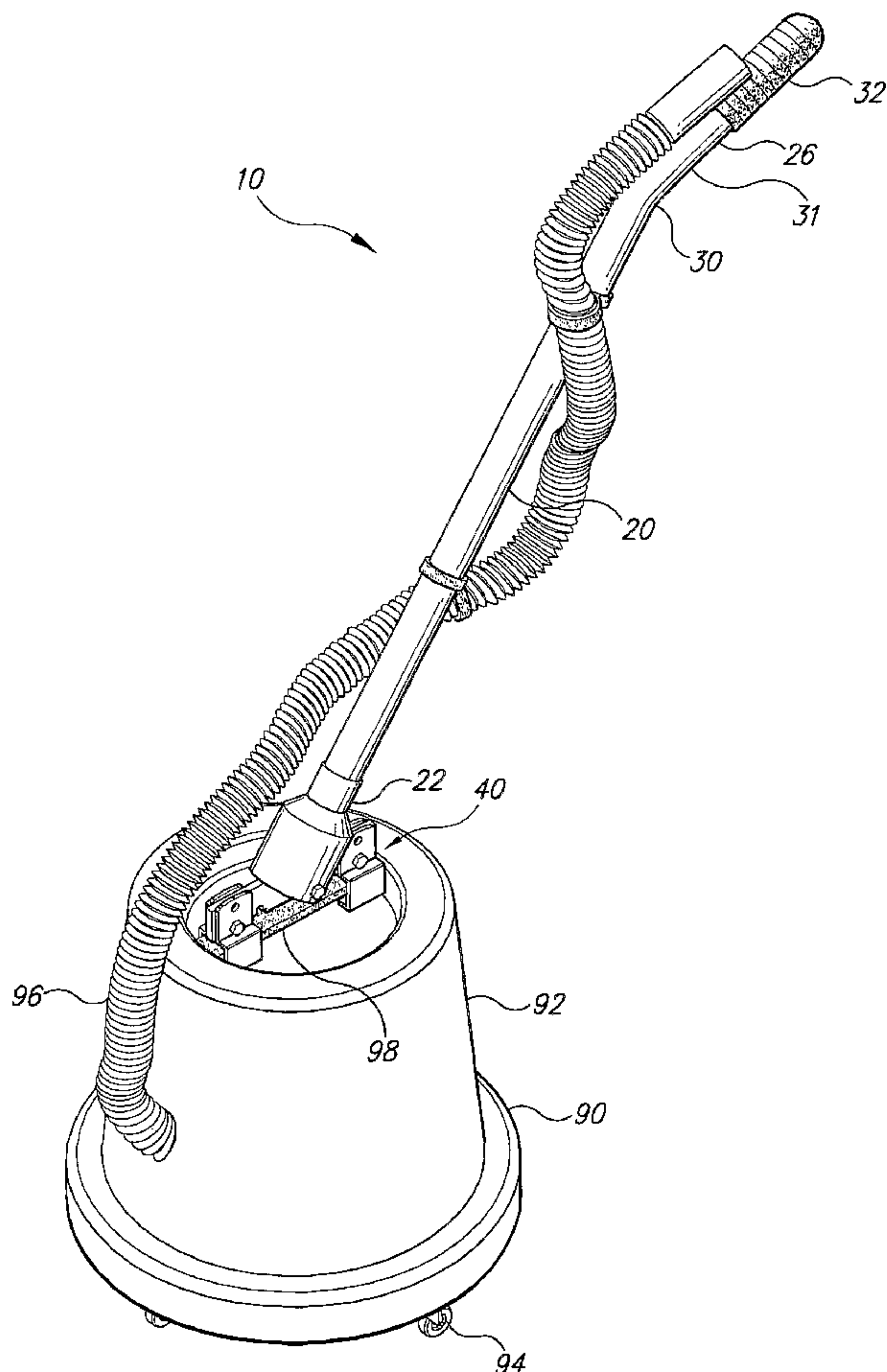
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tension handle that is attachable to a carrying or transport handle
(98) on a canister style vacuum cleaner (90) or similar floor ap-
pliance. The ergonomic appliance handle (10) provides an elon-
gated handle shaft (20) that is attached to the canister vacuum's
handle (98) at a proximate end (22) of the handle shaft (20) by a
mounting assembly (40). The handle shaft (20) extends angled
upward, away from the vacuum (90), placing a handgrip (32) at
the distal end (26) of the handle shaft (20) at an ergonomically
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ERGONOMIC APPLIANCE HANDLE

TECHNICAL FIELD

The present invention relates to handles and similar attachments for various
5 devices, and more particularly to an ergonomic appliance handle that provides an ergonomic
improvement to a vertically oriented canister style vacuum cleaner or other floor appliance.

BACKGROUND ART

10 Vertical canister type vacuum cleaners are widespread in use in homes,
commercial settings, and many other places. Vertical canister type vacuum cleaners (canister
vacuums) generally have a cylindrical main housing disposed vertically on a plurality of
wheels, some or all of the wheels being pivoting or caster type wheels. The housing contains
a motor and vacuum mechanism, as well as a collection receptacle, such as a filter bag, or a
15 bag-less drum or water reservoir. An intake opening and an exhaust opening in the housing
are connected to the vacuum mechanism, whereby air, along with dirt, particulate matter, and
other objects are drawn into the collection receptacle, the air being discharged through the
exhaust opening.

In use, a proximal end of a flexible hose is attached to the intake opening. The
20 distal end of the hose is used, generally along with a cleaning attachment, accessory, or
power nozzle, attached to the distal end for cleaning tasks.

Canister vacuums are advantageous over traditional upright vacuum cleaners.
Because cleaning accessories, including power nozzles such as for vacuuming, shampooing,
or steam cleaning carpets, are essentially separate from the main housing, they are of
25 relatively lightweight. Thus, a person operating the canister vacuum may maneuver the
cleaning accessory at the end of the flexible hose during cleaning tasks, within the range of
freedom of the hose, without the need to maneuver the main housing. In contrast, operating
an upright machine requires a user to maneuver the machine's entire weight. Thus, because a
canister vacuum requires only movement of the relatively lightweight hose and cleaning
30 accessory during much of a cleaning task, the canister vacuum presents a lighter workload
and less mechanical strain on a user's body, and in particular on a user's back. A user may

remain in an upright posture, expending minimal strength to perform cleaning tasks, presenting an ergonomic and body-mechanical advantage.

Of course, during the course of operating a canister vacuum, it will become necessary from time to time to move the main housing itself, as the hose and cleaning accessory reach their maximum extent from the main housing. Generally, the main housing is simply pulled along by the hose to a new position wherein the hose and cleaning accessory are again operable unencumbered by the main housing.

During the course of moving a canister vacuum, some situations are encountered that compromise the ergonomic advantage of the canister vacuum. As a canister vacuum is pulled from place to place by its hose, the canister vacuum trails the user by the length of the hose. To draw the canister vacuum closer, the user may need to bend, twist, or stoop to reach along the hose to pull the canister vacuum closer, contorting a normal and comfortable posture. Such actions place a strain on the user's body and in particular the lumbar-sacral area of the user's lower back.

Additionally, as a canister vacuum is pulled from room to room, or area to area, the canister vacuum's wheels are likely to encounter obstacles such as carpet edges, door thresholds, and the like that prevent further rolling movement of the canister vacuum. Simply pulling harder on the hose risks pulling the hose free from the main housing, or tipping over the canister vacuum entirely. Either case requires a corrective intervention by the user to either re-attach the hose, or to upright the canister vacuum, both operations requiring bending and/or twisting by the user that present the potential for back strain and other bodily injury. The alternative to pulling harder on the hose to overcome the obstruction is to lift the canister vacuum over the obstruction, again risking back strain or other injury. In addition to the obstacles of carpet edges, door thresholds, and the like, additional obstacles, such as furniture, require the user to stop and bend, stoop, or twist to guide the canister vacuum around the obstacles. Also, on certain flooring surfaces the caster wheels may tend to guide the canister vacuum in an erratic path as it is pulled, requiring the user to intervene to prevent the canister vacuum from bumping walls, furniture, and such.

An additional drawback to moving a canister vacuum by simply pulling the canister vacuum along by its hose is that, because the hose is flexible, the canister vacuum cannot be pushed, or maneuvered backwards, by the hose. Again, user intervention is required that requires the user to bend, stoop, twist, or stretch in a manner that may cause injury.

Various handle configurations have been employed to provide an ergonomic advantage for vacuum cleaners and other types of floor appliances.

U.S. Patent No. 6,742,222, issued on June 1, 2004 to T. Furr-Britt et al., discloses a dual handle attachment for an upright floor appliance. A single central bracket
5 attaches to the conventional single handlebar of an appliance, such as an upright vacuum cleaner, with a left and a right handgrip adjustably extending from the central bracket. The dual handle attachment allows a user to maneuver the appliance using generally symmetric upper body, arm, wrist, and hand forces.

U.S. Patent No. 3,897,607, issued on August 5, 1975 to R. Schaffer et al.,
10 discloses a readily removable implement handle for a vacuum cleaner, tool, floor scrubber, sweeper, or other device. Insertion means disposed on the handle releasably engage with receiving means affixed to the device, the handle including a locking means in the form of a spring.

U.S. Patent No. 5,507,071, issued on April 16, 1996 to R. Berfield, discloses a
15 U-shaped handle that is attachable to a motor housing of a vacuum apparatus to carry or lift the appliance.

U.S. Patent No. 5,819,364, issued on October 13, 1998 to J. Sham, discloses a detachable handle accessory for a handheld portable steam vacuum cleaner. The handle accessory includes a support base for mounting the portable steam vacuum cleaner, a handle
20 portion extending upwardly from the support base, and a wheel assembly affixed to the support base. The handle converts the handheld portable steam vacuum cleaner into an upright steam vacuum cleaner.

U.S. Patent Application Publication 2002/0124347, published on September 12, 2002 and applied for by J. Roney et al., discloses a telescoping handle built into an
25 upright vacuum cleaner.

U.S. Patent Application Publication No. 2002/0124345, published on September 12, 2002 and applied for by S. Holsten et al., discloses a vacuum appliance having push and pull handles. The vacuum cleaning appliance is generally of the canister vacuum configuration. A first handle is disposed on a first side of the vacuum appliance, a second
30 handle being disposed on a second side of the vacuum appliance generally opposite the first side.

U.S. Patent Application Publication 2003/0101534, published on June 5, 2003 and applied for by M. Noreen et al., discloses a canister-type vacuum cleaner having a

collapsible handle attached to the housing that is adjustable to the height of a user and positioned so that the user can use the handle to move and guide the vacuum cleaner housing.

U.S. Patent Application Publication 2003/0229964, published on December 18, 2003 and applied for by S. Thompson et al., discloses a handled cart that receives a wet/dry vacuum and converts the vacuum into an upright walk behind cleaning device. The cart provides a handle attached to a mobile base.

U.S. Patent No. 4,662,026, issued on May 5, 1987 to W. Sumerau et al., discloses a convertible vacuum cleaner handle that is convertible between a first position suitable for floor standing operation and a second position suitable for hand carried operation.

U.S. Patent No. 5,850,667, issued on December 22, 1998 to J. Orsini, discloses an extension handle for a portable vacuum that includes an elongate shaft having a proximal end and a distal end, and a bracket for attaching the shaft to the handle portion of a portable vacuum. The distal end of the shaft is pivotally retained in the bracket such that an on/off switch on the portable vacuum may be operated by the pivoting of the shaft to activate and deactivate the vacuum.

None of the above inventions and patents, taken either singly or in combination, is seen to describe the instant invention as claimed. Thus, an ergonomic appliance handle solving the aforementioned problems is desired.

DISCLOSURE OF THE INVENTION

This disclosure is directed to an ergonomic appliance handle. The ergonomic appliance handle includes a crossbar that has first and second ends. The ergonomic appliance handle additionally includes a pair of brackets disposed at each of the first and second ends of the crossbar. Each of the brackets is adapted for attachment to a carry handle on a floor appliance. The ergonomic appliance handle also includes a coupling fitting attached to the crossbar. The ergonomic appliance handle further includes an elongated handle shaft that has a proximal end and a distal end. The proximal end is attached to the coupling fitting.

This disclosure is also directed to an ergonomic appliance handle. The ergonomic appliance handle includes a pair of brackets. Each of the brackets has a flat top portion and a channeled lower portion. The pair of brackets is adapted for clamping onto a carry handle of a floor appliance. The ergonomic appliance handle further includes a coupling fitting attached to the pair of brackets. The ergonomic appliance handle also

includes an elongated handle shaft that has a proximal end and a distal end. The proximal end is attached to the coupling fitting.

This disclosure is additionally directed to an ergonomic appliance handle. The ergonomic appliance handle includes an elongated handle shaft that has a proximal end and a distal end. The ergonomic appliance handle further includes means for attaching the proximal end of the elongated handle shaft to a carry handle of a floor appliance.

This disclosure is also directed to an ergonomic appliance handle. The ergonomic appliance handle includes an elongated handle shaft that has opposed proximal and distal ends. The ergonomic appliance handle further includes a handle mounting assembly that is removably attached to the proximal end of the elongated shaft. The assembly has an upper end attached to the shaft and a lower end that has a laterally disposed circular face and a plurality of radially extending first teeth formed on the circular face. The ergonomic appliance handle additionally includes a coupling fixture that has an upper stem portion and an elongated lower portion. The upper stem portion has a laterally disposed circular face and a plurality of radially extending second teeth formed on the circular face. The lower portion has a passage formed therethrough that is adapted for receiving a carry handle of a floor appliance. The ergonomic appliance handle also includes a releasable fastener that extends through the circular faces of the handle mounting assembly and the coupling fixture. The teeth of the circular faces mesh to adjust the angle of the shaft to the handle receiving passage of the lower portion of the coupling fixture for ergonomic convenience.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an environmental, perspective view of a first embodiment of an ergonomic appliance handle according to the present invention.

Fig. 2 is an exploded perspective view of the ergonomic appliance handle shown in Fig. 1.

Fig. 3 is a side view showing an alternative coupling fixture for the ergonomic appliance handle of Fig. 1.

Fig. 4 is an environmental, perspective view of a second embodiment of an ergonomic appliance handle according to the present invention.

Fig. 5 is an exploded perspective view of the ergonomic appliance handle shown in Fig. 4.

Fig. 6 is an exploded plan view of a telescoping handle shaft for an ergonomic appliance handle.

Fig. 7 is a perspective view of a handle shaft for an ergonomic appliance handle including clips for retaining a vacuum hose.

5 Fig. 8 is a perspective view of a third embodiment of an ergonomic appliance handle according to the present invention.

Fig. 9 is an exploded perspective view of a mounting bracket and handle coupling fixture for the ergonomic appliance handle illustrated in Fig. 8.

10 Fig. 10 is a perspective view of a fourth embodiment of an ergonomic appliance handle according to the present invention.

Fig. 11 is a front view of a coupling member of a coupling fixture of the ergonomic appliance handle of Fig. 10.

Fig. 12 is a front view of a second coupling member of the coupling fixture of the ergonomic appliance handle of Fig. 10.

15 Fig. 13 is a front view of a handle mounting assembly mounted on an elongated shaft of the ergonomic appliance handle of Fig. 10.

Fig. 14 is an exploded perspective view showing the positioning and engagement of the coupling fixture with respect to the handle mounting assembly of the ergonomic appliance handle of Fig. 10.

20 Similar reference characters denote corresponding features consistently throughout the attached drawings.

BEST MODES FOR CARRYING OUT THE INVENTION

The ergonomic appliance handle is an extension handle that is attachable to a carrying or transport handle on a vertically oriented canister style vacuum cleaner or similar floor appliance. The ergonomic appliance handle provides an elongated handle shaft that attaches at a proximate end of the handle shaft to the canister vacuum's handle by means of a mounting assembly. The handle shaft extends angled upward and away from the vacuum, placing a handgrip at the distal end of the handle shaft at an ergonomically comfortable height and position for a user to easily and conveniently operate the vacuum in a comfortable posture without subjecting the user to unnecessary bending, stooping, or twisting.

30

The ergonomic appliance handle allows a user to maneuver the canister vacuum in an ergonomically correct and safe manner by providing the user the ability to both

push and pull the vacuum, to maneuver the vacuum around obstacles and obstructions, to more easily move the vacuum over obstructions in the floor surface, such as transitions from one floor surface to another, and to more easily control the movement of the vacuum over an uneven flooring surface, thus eliminating situations that require the user to bend, stoop, or
5 twist.

The ergonomic appliance handle provides enhanced ergonomic comfort and convenience for a user, thus complementing the advantages, and overcoming the disadvantages, of the canister style vacuum.

The present invention is an ergonomic appliance handle. Referring to Fig. 1, a
10 first embodiment of an ergonomic appliance handle 10 is shown attached to a carry handle 98 of a typical canister vacuum 90. The canister vacuum 90 illustrated is typical of a variety of vacuum cleaning appliances generally comprising a cylindrical housing 92 disposed vertically on a plurality of wheels 94, some or all of the wheels 94 being pivoting or caster type wheels. The housing 92 contains a motor and vacuum mechanism, and a collection
15 receptacle. A proximal end of a flexible hose 96 is attached to an intake opening defined in the housing 92. At a distal end of the flexible hose 96, a cleaning attachment, accessory, or power nozzle, may be attached. A carry handle 98 is generally disposed atop the housing 92, the carry handle 98 lying generally horizontally as the canister vacuum 90 sits on a horizontal surface, such as a floor.

20 The ergonomic appliance handle 10 comprises an elongated shaft 20 having a proximal end 22 that is attached to the carry handle 98 of the canister vacuum 90 by means of a mounting assembly 40. The elongated shaft 20 extends angled upward and away from the canister vacuum 90, placing the distal end 26 of the elongated shaft 20 at an ergonomically comfortable height and position for a user to easily and conveniently operate the canister
25 vacuum 90 in a comfortable posture without subjecting the user to unnecessary bending, stooping, or twisting. The distal end 26 of the elongated shaft 20 may be straight, or may have a bend 30, the bend 30 forming a handle portion 31, placing the handle portion 31 in a more comfortable gripping position. A handgrip 32 is disposed on the distal end 26 of the elongated shaft 20.

30 The elongated shaft 20 lies generally within a vertical plane containing the carry handle 98. The angle of the elongated shaft 20, relative to the floor, is generally between about twenty-five degrees (25°) and about forty degrees (40°) for optimal ergonomic use by most users, although angles outside this range may accommodate users with unique or specific needs. The elongated shaft 20 may be pivotally attached to the mounting assembly

40 so that the angle of the elongated shaft 20 may be adjusted. Alternatively, the elongated shaft 20 may be attached in a fixed position. A fixed-position angle between about thirty (30°) to thirty-five degrees (35°) provides a good ergonomic fit for a broad range of users. Again, of course, angles outside this range may be used to accommodate users with unique or specific needs.

Turning now to Fig. 2, the mounting assembly 40 of the first embodiment is shown in greater detail. A crossbar 42 is attached horizontally above the carry handle 98. The crossbar 42 is a flat, elongated member having a length, width, and thickness. Near each end of the crossbar 42, at least one notched aperture 44 is defined, comprising an aperture formed through the crossbar 42 adjoining a notch extending to a lower edge of the crossbar 42.

At each end of the crossbar 42, a pair of brackets 50 are joined to the crossbar 42 at one of the notched apertures 44. Each of the brackets 50 has a flat top portion 52, and a bottom portion 54 that is bent into a "C" shape defining a channel 56. A pair of apertures, an upper aperture 58 and a lower aperture 60, are defined in the flat top portion 52 of each of the brackets 50, each of the apertures 58, 60 being adapted to receive a fastener, such as a bolt, to join a pair of the brackets 50 cooperatively together. Each of a pair of the brackets 50 are placed facing one another on opposite sides of the crossbar 50 and fastened together, with an upper fastener 62, such as a bolt or rivet or the like, passed through the brackets' 50 upper apertures 58 and through one of the notched apertures 44 to clamp the brackets 50 to the crossbar 42.

The channels 56 of the brackets 50 face one another on opposite sides of the carry handle 98. A lower fastener 64, such as a bolt, is passed through the brackets' 50 lower apertures 60, to clamp the brackets 50 about the carry handle 98, the carry handle 98 being held within the channels 56 of the cooperating brackets 50.

It can be recognized that the notched apertures 44 allow the crossbar 42 to be removed and replaced from between the bracket pairs by loosening, but not fully removing, the upper fasteners 62 and lifting the crossbar 42 to disengage the notched apertures 44 from the fastener 62. It can also be recognized that, with a plurality of notched apertures 44 defined near each end of the crossbar 42, the bracket 50 pairs may be placed at varied distances from one another to accommodate fastening the mounting assembly 40 to canister vacuums having carry handles 98 of various lengths.

A coupling fixture 70 joins the proximal end 22 of the elongated shaft 20 to the crossbar 42. The coupling fixture is a short, cylindrical member having a socket end 72

and a slotted end 74. A cylindrical recess 76 is defined axially within the socket end 72, the cylindrical recess 76 being adapted to receive the proximal end 22 of the elongated shaft 20. The proximal end 22 of the elongated shaft 20 is secured within the cylindrical recess 76 by a bolt or rivet, or other suitable means (not shown). A slot 78 is defined in the slotted end 74 of the coupling fixture 70, whereby the coupling fixture 70 is adapted to fit over the crossbar 42, with the crossbar 42 being received at least partially within the slot 78.

Referring to Fig. 3, the coupling fixture 70 is shown having the slot 78 angled so that the elongated shaft 20 lies angled in a plane perpendicular to, rather than within, the vertical plane containing the carry handle 98. This arrangement is useful for certain types of canister vacuum 90 having fixed wheels, rather than caster wheels, in order to prevent movement of the canister vacuum in a given direction.

Turning now to Fig. 4, a second embodiment of an ergonomic appliance handle 100 is shown attached to a carry handle 198 of a canister vacuum, the horizontal extent of the carry handle 198 being shorter than the carry handle 98 seen in Fig. 1. The ergonomic appliance handle 100 employs a mounting assembly 140 that is better suited to the shorter carry handle 198.

Referring to Fig. 5, the mounting assembly 140 of the second embodiment is shown in greater detail. A single pair of brackets 150 straddles the carry handle 198 and holds a coupling fixture 170 attached to the elongated shaft 20. Each of the brackets 150 has a flat upper portion 152 having an arcuate top edge 153. A bottom portion 154 of each bracket 150 is bent into a "C" shape defining a channel 156. An upper aperture 158, and at least one lower aperture 160 (two are shown) are defined in the upper portion 152 of each of the brackets 150. Each at least one lower aperture 160 receives a lower fastener 164 joining and clamping the two brackets 150 together about the carry handle 198. The brackets 150 are placed facing one another on opposite sides of the carry handle 198, the carry handle 198 engaged between and within the brackets' 150 channels 156. An upper fastener 162 passing through the upper apertures 158 retains the coupling fixture 170 to the brackets 150.

The coupling fixture 170 joins the proximal end 22 of the elongated shaft 20 to the brackets 150. The coupling fixture 170 is a short, cylindrical member having a socket end 172 and a tongue end 174. A cylindrical recess 176 is defined axially within the socket end 172, the cylindrical recess 176 being adapted to receive the proximal end 22 of the elongated shaft 20. A tongue 178 extends from the tongue end 174 of the coupling fixture 170, the tongue 178 being flat and rectangular. An aperture 179 is defined through the tongue 178. The coupling fixture 170 is attached between the upper portions 152 of the brackets 150 by

passing upper fastener 162 through the upper apertures 158 and through the aperture 179 of the tongue 178.

Turning now to Fig. 6, an elongated shaft 220 is shown comprised of a proximal shaft section 222 telescopically engaged with a distal shaft section 228. A spring-loaded locking pin 234 is disposed on the proximal shaft section 222, the locking pin 234 adapted to engage with one of a plurality of cooperating apertures 236 defined lengthwise along the distal shaft section 228 to secure the proximal shaft section 222 and the distal shaft section 228 together in position. Alternate means of securing the shaft sections 222,228 together may be used, such as a removable pin or the like (not shown) engaged through apertures formed in both shaft sections 222,228, or a locking or clamping collar or fixture (not shown) disposed at the mating end of one of the shaft sections 222,228. Additional, intermediate, telescoping sections (not shown) may be included between the proximal shaft section 222 and the distal shaft section 228, allowing increased extension of the elongated shaft 220.

Turning now to Fig. 7, the elongated shaft 20 is shown with at least one hose clip 338 disposed along the elongated shaft 20 to retain the flexible hose 96 of the canister vacuum 90. Each hose clip 338 has a band portion 340 to fasten around the elongated shaft 20 and a clip portion 342 for releasably retaining the flexible hose 96.

Turning now to Figs. 8 and 9, a third embodiment of an ergonomic appliance handle 400 is shown. The ergonomic appliance handle 400 employs a mounting assembly 440 that allows the angle of the elongated shaft 20 to be varied. The mounting assembly 440 illustrated employs brackets 50 to attach the mounting assembly 440 to the carry handle 98 of a canister vacuum. The brackets 50 support a crossbar 442, the crossbar 442 being similar to the crossbar 42 described above but somewhat wider. A coupling fixture 470 is supported on the crossbar 442.

The coupling fixture 470 is comprised of two members pivotally joined to one another. A base member 486, mounted to or formed as a unitary part of the crossbar 442, is pivotally joined to a socket member 472 that retains the elongated shaft 20. The socket member 472 has a socket end 474 wherein a cylindrical recess 476 is defined and adapted to receive the proximal end 22 of the elongated shaft 20. A mating portion 478 of the socket member 472 has a generally circular, inside face 480, the inside face 480 having an aperture 484 defined in the center of the mating portion 478. A plurality of teeth 482 are formed on the inside face 480, the teeth 482 formed about, and extending radially from, the aperture 484.

The base member 486 has a mating portion 490 adapted to mate with the mating portion 478 of the socket member 472, there being an aperture 496 defined in the center of the mating portion 490 such that the mating portion 478 and the mating portion 490 may be joined by a pin or bolt 498 passing through both of apertures 484 and 496. As illustrated, the mating portion 490 of the base member 486 extends from a mounting flange 488 that is adapted for mounting onto the cross bar 442. Alternatively, the base member 486 may be formed as a unitary part of the crossbar 442. An inside face 492 (not seen) of the mating portion 490 has a plurality of teeth 494 similar to teeth 482. A nut or internally threaded thumb-turn 499, engaged with a threaded end of the pin or bolt 498, is used to clamp the mating portions 478 and 490 together with teeth 482 and 494 engaged or meshing in order to prevent the socket member 472 from pivoting relative to the base member 486. It can be recognized that loosening the nut or internally threaded thumb-turn 499 allows the socket portion and base portion to be separated to disengage teeth 482 and 494, allowing the socket member 472 to be repositioned.

It can be recognized that the coupling fixture 470 allows the elongated shaft 20 to be varied in position to accommodate users of varied heights and physical needs. Additionally, the coupling fixture 470 allows the elongated shaft 20 to be positioned, for example in a vertical position, or removed entirely for storage.

In another alternative embodiment, the ergonomic appliance handle 500, shown in Figs. 10-14, includes an elongated shaft 20 that has a handle mounting assembly 560 extending therefrom, similar to the socket member 472 of the embodiment shown in Fig. 9. Elongated shaft 20 is received in socket end 590 of handle mounting assembly 560 and is secured to handle mounting assembly 560 through the engagement of pins or bolts 580, similar to that shown in the embodiment of Fig. 9 with regard to pins or bolts 477.

As best shown in Fig. 13, the handle mounting assembly 560 includes a lower portion having a laterally disposed circular face with plurality of radially extending teeth 760 formed thereon. An opening 770 is formed centrally through the circular face of the lower portion for receiving a fastener 540 (best seen in Fig. 14), which may be a screw, bolt, pin or any other suitable fastener.

The cross bar 442 of the embodiment shown in Fig. 9 is now replaced with a coupling fixture 570, as shown in Fig. 10. Coupling fixture 570 has an elongated lower portion that releasably receives handle 98, as will be described in further detail below, and an upper stem portion extending centrally from the lower portion for attachment to the handle mounting assembly 560. As best shown in Fig. 14, the coupling fixture 570 includes an

upper stem portion having a laterally disposed circular face with a plurality of radially extending teeth 600 formed thereon. Radially extending teeth 600 selectively and adjustably engage radially extending teeth 760 of handle mounting assembly 560, as will be described in further detail below. A passage 550 is formed through a lower portion of coupling fixture
5 570 for receiving carry handle 98.

Coupling fixture 570 is formed from first and second coupling members 510, 520. As shown in Fig. 12, the first coupling member 510 has a handle receiving recess 730 formed in a lower portion thereof. Further, a pair of fastener bosses 700, 710 axially aligned with the stem are formed through the upper portion and another set of fastener bosses 720 are
10 formed centrally axially aligned along the lower portion normal to the aligned pair of openings 700 and 710 through first coupling member 510. As shown in the drawings, the bosses 720 are not precisely linear, but disposed in a slight arc. The contouring is dependent upon the needs and desires of the user. The bosses may be linear or formed in the shape of an arc to accommodate the transport handle shape. The positioning, spacing and number of
15 bosses 700, 710 and 720 are dependent upon the needs and desires of the user, as well as the length of the transport handle to which the bosses are attached.

As shown in Fig. 11, the second coupling member 520 includes a corresponding set of bosses 640, 650 in the upper portion and also a corresponding set of bosses 660 in the lower portion. When first and second coupling members 510, 520 are
20 joined, the coupling members 510 and 520 may be releasably secured to one another by fasteners 780 (shown in Fig. 14), which are received in bosses 640, 650, 660, 700, 710, 720. Fasteners 780 may be threaded screws, bolts, snaps or any other suitable releasable fasteners, allowing the user to easily uncouple first and second coupling members 510, 520 in order to release handle 98.

25 Second coupling member 520 includes an upper stem portion 610 defining the upper engaging surface of coupling fixture 570, and having the plurality of radially extending teeth 600 formed thereon for engagement with teeth 760. The stem portion 610 may be formed as part of member 520 or may be received, as a separate member, into a groove formed in second coupling member 520. An opening 630 is formed centrally through the
30 upper engaging surface for reception of fastener 540.

Second coupling member 520 further includes a handle receiving recess 670 formed in a lower portion 620 thereof. A plurality of upper ribs 680 are formed along an upper edge of recess 670, which mate with upper ribs 740 of first coupling member 510 when first and second coupling members 510, 520 are joined together. Similarly, a plurality of

lower ribs 690 of second coupling member 520 mate with a plurality of lower ribs 750 of first coupling member 510. The upper and lower ribs provide for enhanced frictional engagement of coupling fixture 570 when handle 98 is received within passage 550.

5 As shown in Fig. 14, a knob 530 is mounted to fastener 540, similar to the engagement knob 499 of the embodiment of Fig. 9. In use, fasteners 780 may be loosened, allowing handle 98 to be received within passage 550. Fasteners 780 are tightened to secure coupling fixture 570 to handle 98, with handle 98 being frictionally engaged by upper ribs 680, 740 and lower ribs 690, 750.

10 Knob 530 is grasped and rotated by the user to loosen fastener 540, allowing elongated handle shaft 20 to rotate with respect to coupling fixture 570 and handle 98. When a desired comfortable angular position of elongated handle shaft 20 is obtained, knob 530 is tightened and the engagement of radially extending teeth 600 with radially extending teeth 760 prevents angular displacement of elongated handle shaft 20 with respect to coupling
15 fixture 570. Further, it should be noted that handle shaft 20 may be a singular telescoping shaft, a fold shaft, or have an angular bend at the distal end thereof, allowing for varying hand grips or grip shapes.

It is to be understood that the present invention is not limited to the embodiments described above, but encompasses any and all embodiments within the scope of the following claims.

CLAIMS

1. An ergonomic appliance handle, comprising:
 - an elongated handle shaft having opposed proximal and distal ends;
 - a handle mounting assembly removably attached to the proximal end of the elongated shaft, the assembly having an upper end attached to the shaft and a lower end having a laterally disposed circular face and a plurality of radially extending first teeth formed on the circular face;
 - a coupling fixture having an upper stem portion and an elongated lower portion, the upper stem portion having a laterally disposed circular face and a plurality of radially extending second teeth formed on the circular face, the lower portion having a passage formed therethrough adapted for receiving a carry handle of a floor appliance;
 - a releasable fastener extending through the circular faces of the handle mounting assembly and the coupling fixture, the teeth of the circular faces meshing to adjust the angle of the shaft to the handle receiving passage of the lower portion of the coupling fixture for ergonomic convenience;wherein said coupling fixture comprises: a first coupling member; a second coupling member; and means for releasably fastening said first coupling member to said second coupling member.

2. The ergonomic appliance handle as recited in claim 1, wherein said elongated handle shaft has a bend formed therein near the distal end to form a handle portion.

3. The ergonomic appliance handle as recited in claim 1, wherein said first coupling member has a first handle receiving recess formed therein.

4. The ergonomic appliance handle as recited in claim 3, wherein said second coupling member has a second handle receiving recess formed therein, the first and second recesses defining the passage in the lower portion of said coupling fixture when said first and second coupling members are fastened together.

5. The ergonomic appliance handle as recited in claim 4, wherein said first and second coupling members each have a plurality of upper ribs formed on respective upper edges of said first and second recesses for engaging said carry handle.

6. The ergonomic appliance handle as recited in claim 5, wherein said first and second coupling members each have a plurality of lower ribs formed on respective lower edges of said first and second recesses for engaging said carry handle.

7. The ergonomic appliance handle as recited in claim 1, wherein the circular faces of said handle mounting assembly and said coupling fixture each have a central opening formed therethrough for receiving said fastener.

8. The ergonomic appliance handle as recited in claim 7, further comprising a gripping knob mounted on said fastener for engagement by the user.

9. An ergonomic appliance handle, comprising:
an elongated handle shaft having opposed proximal and distal ends;
a handle mounting assembly removably attached to the proximal end of the elongated shaft, the assembly having an upper end attached to the shaft and a lower end having a laterally disposed circular face and a plurality of radially extending first teeth formed on the circular face;

a coupling fixture having an upper stem portion and an elongated lower portion, the upper stem portion having a laterally disposed circular face and a plurality of radially extending second teeth formed on the circular face, the lower portion having a passage formed therethrough adapted for receiving a carry handle of a floor appliance;

a releasable fastener extending through the circular faces of the handle mounting assembly and the coupling fixture, the teeth of the circular faces meshing to adjust the angle of the shaft to the handle receiving passage of the lower portion of the coupling fixture for ergonomic convenience;

wherein said coupling fixture comprises: symmetrical first and second coupling members having aligned fastener bosses and complementary handle receiving recesses defined therein; and a plurality of releasable fasteners extending through the aligned fastener bosses, whereby said coupling fixture is adapted for releasable attachment around the carry handle on the floor appliance.

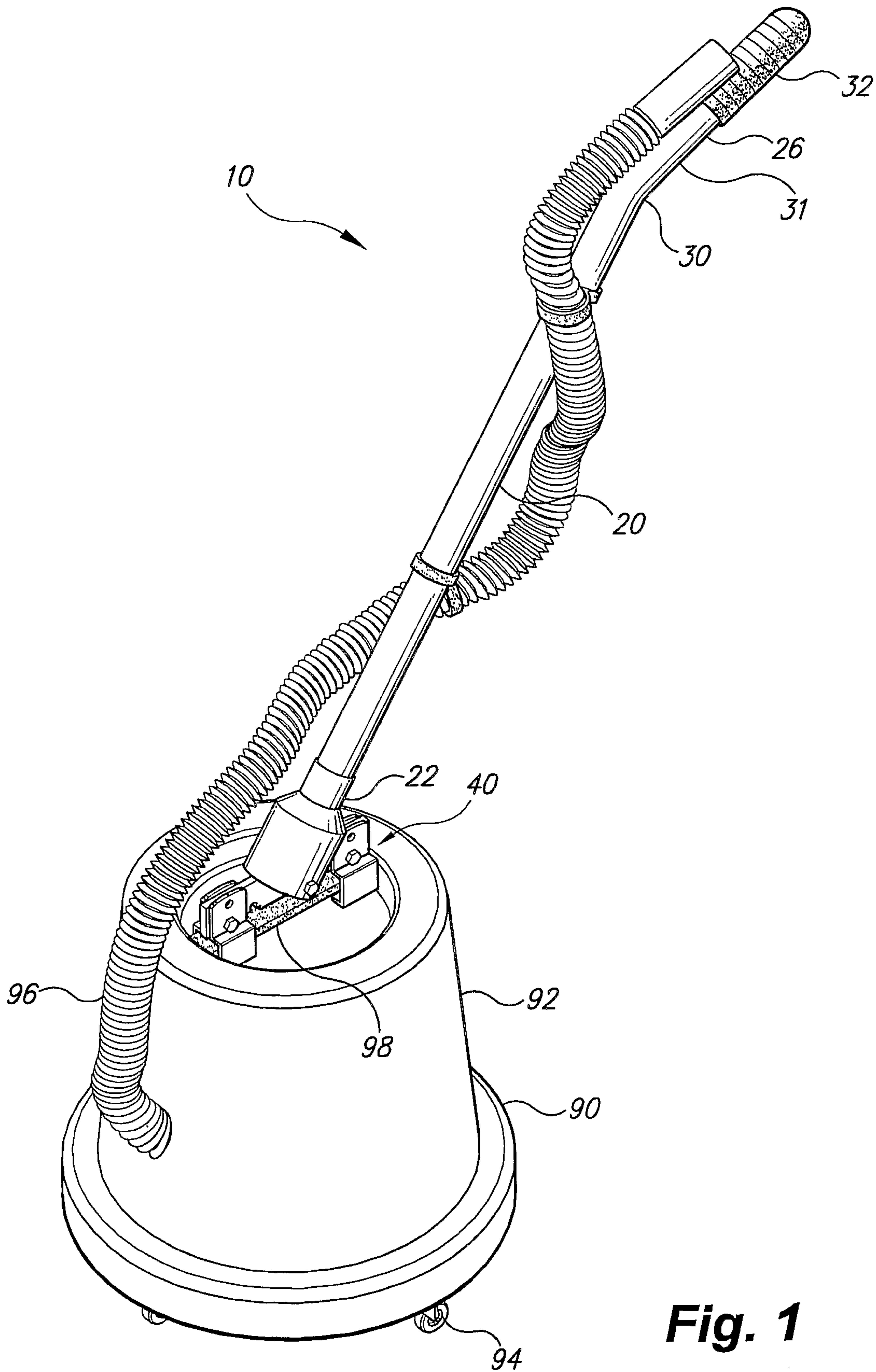


Fig. 1

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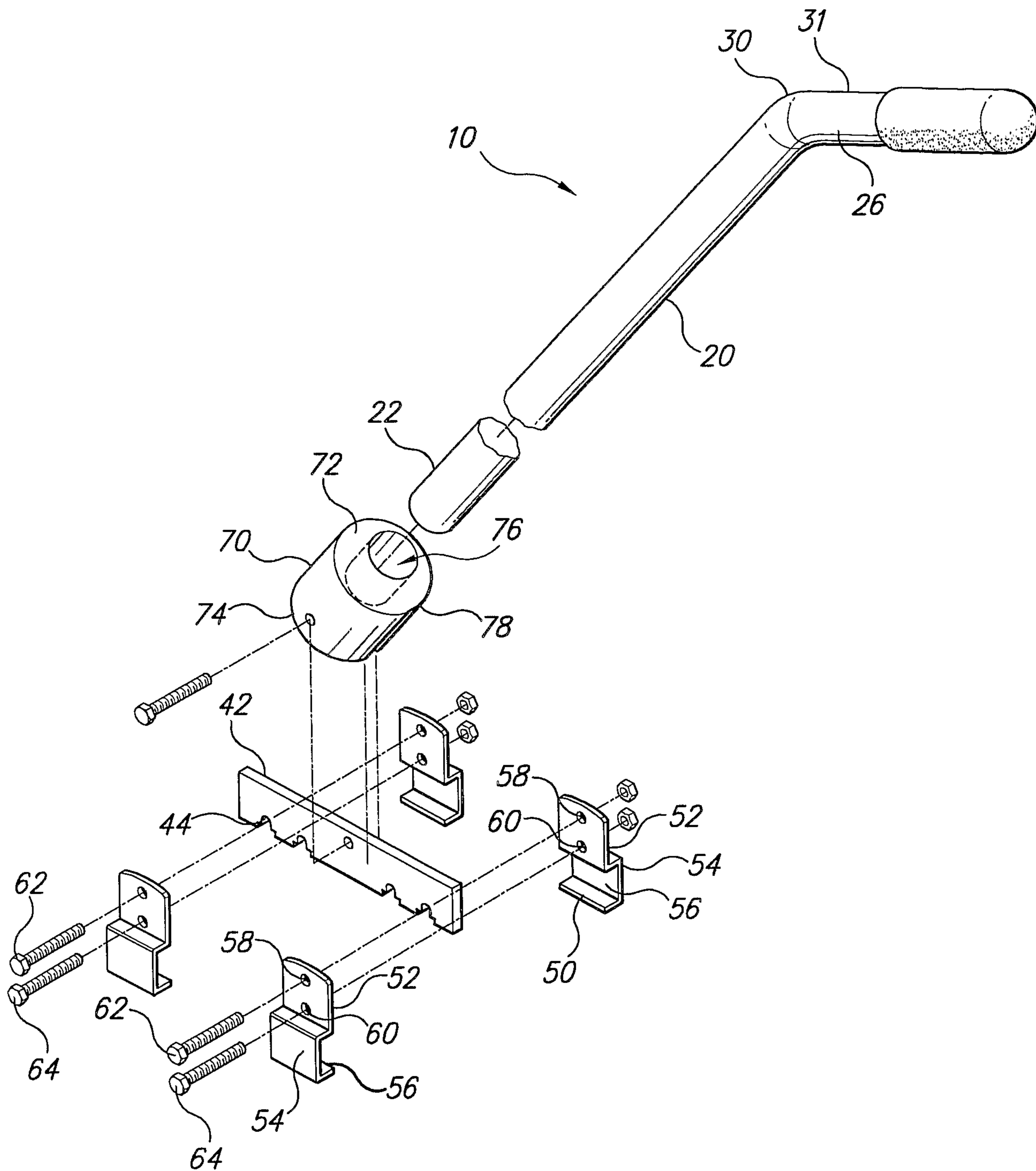


Fig. 2

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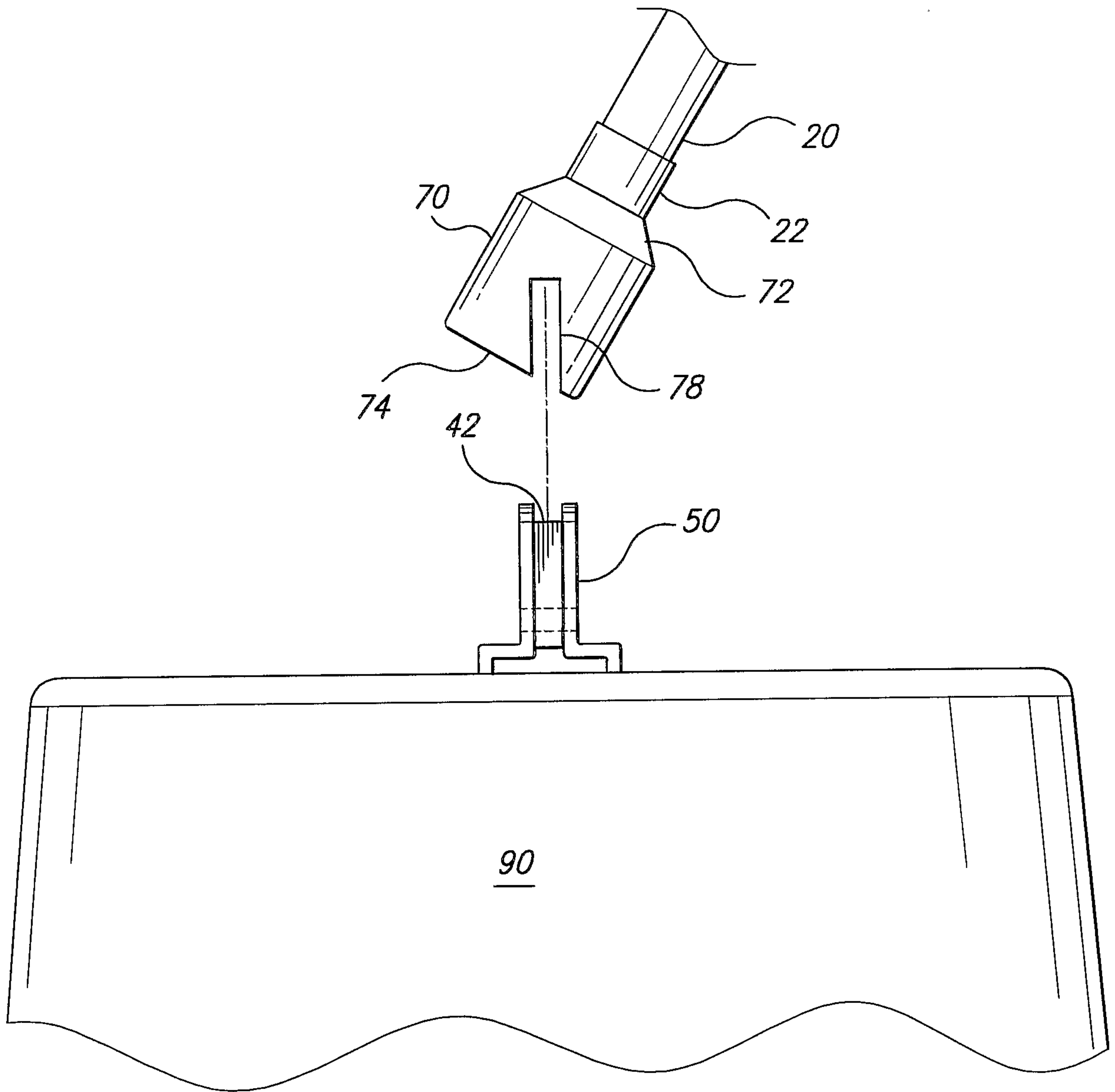


Fig. 3

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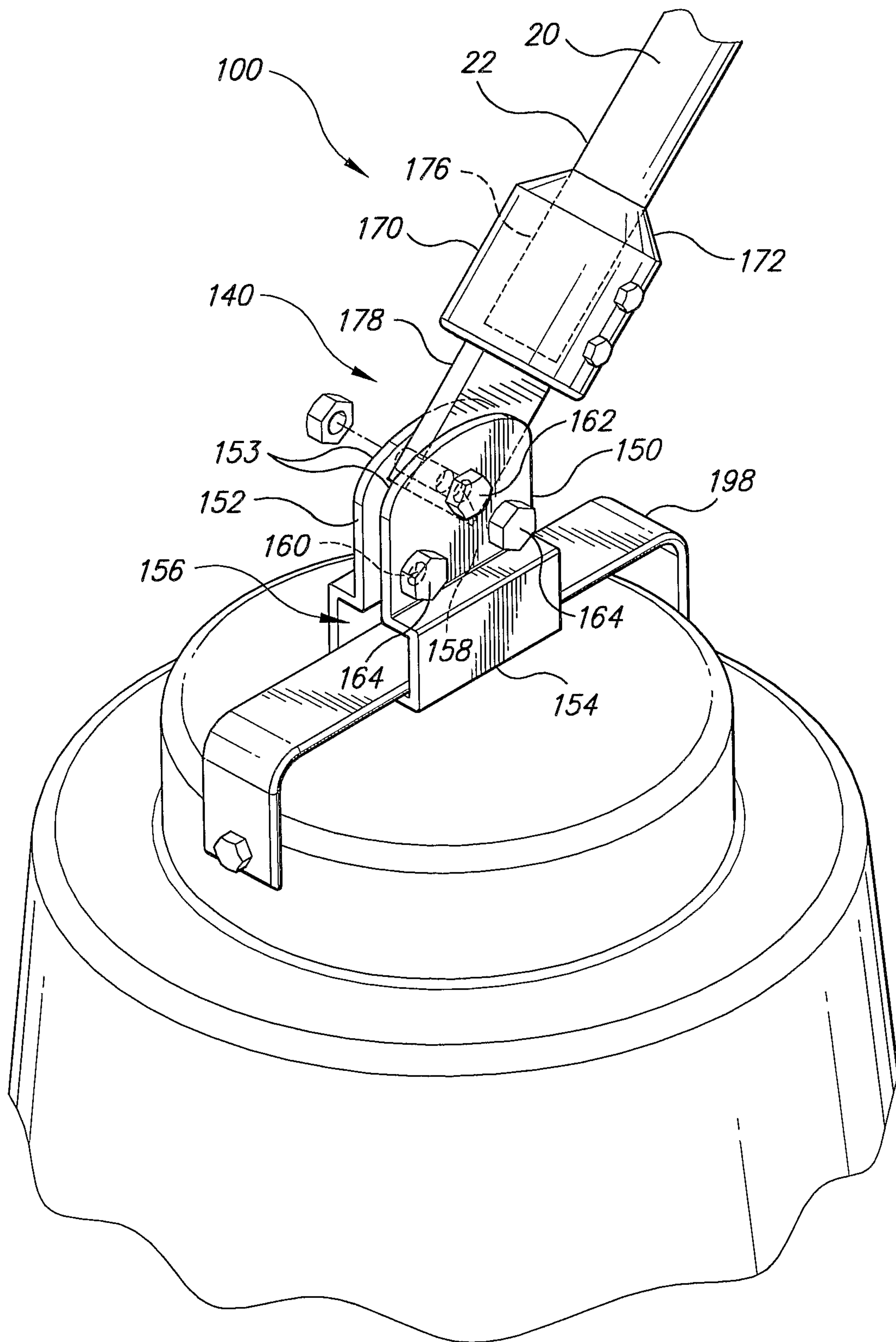


Fig. 4

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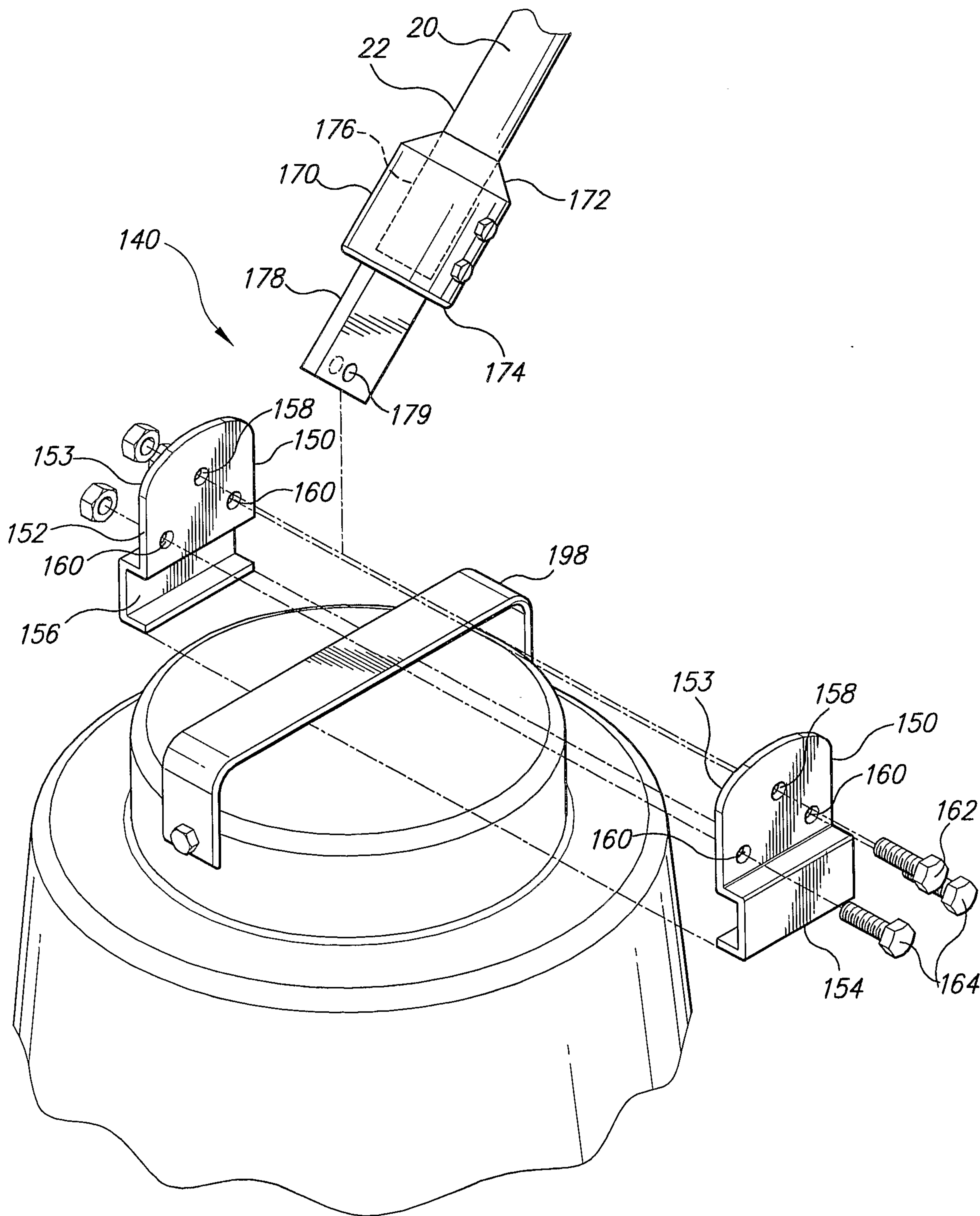


Fig. 5

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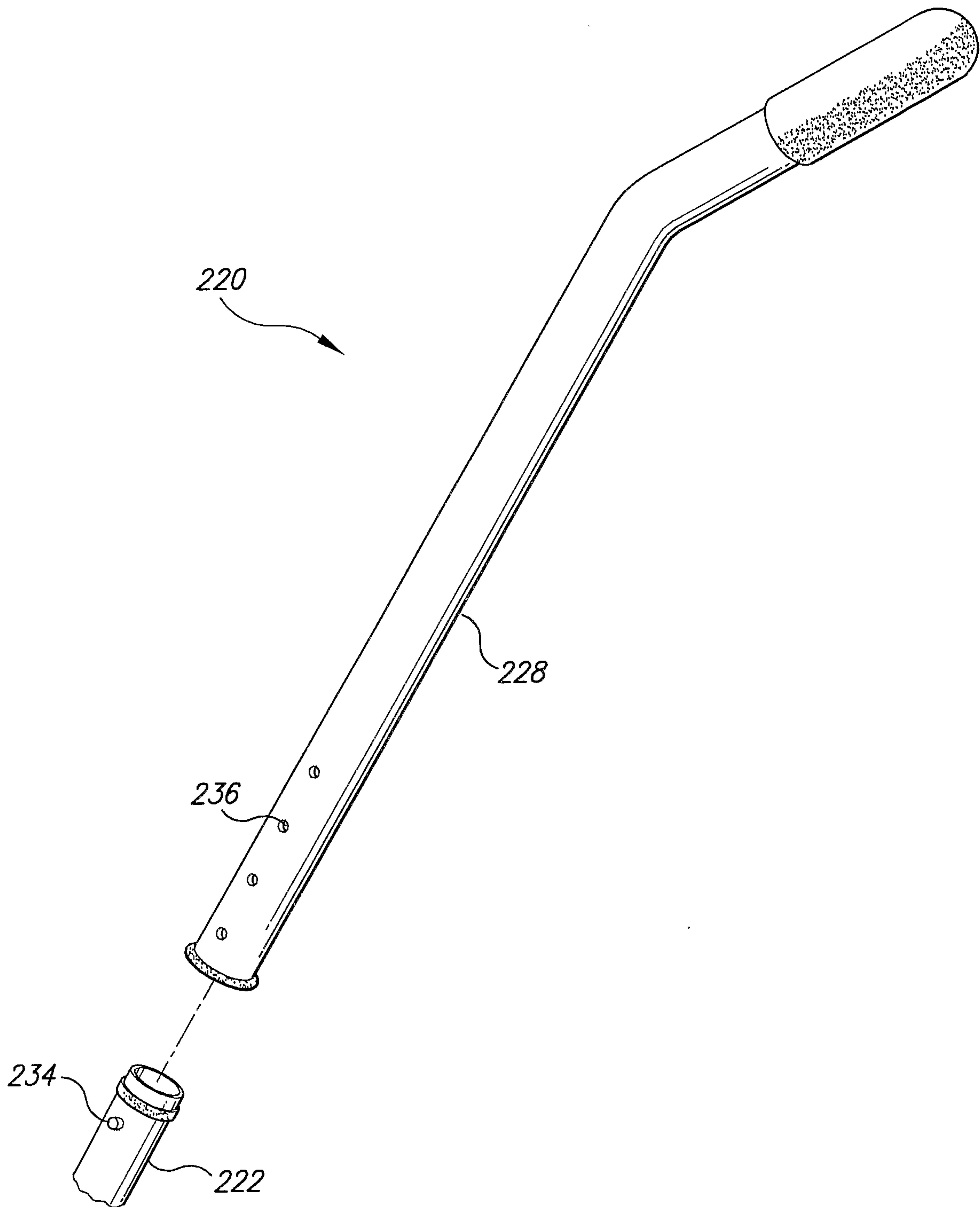


Fig. 6

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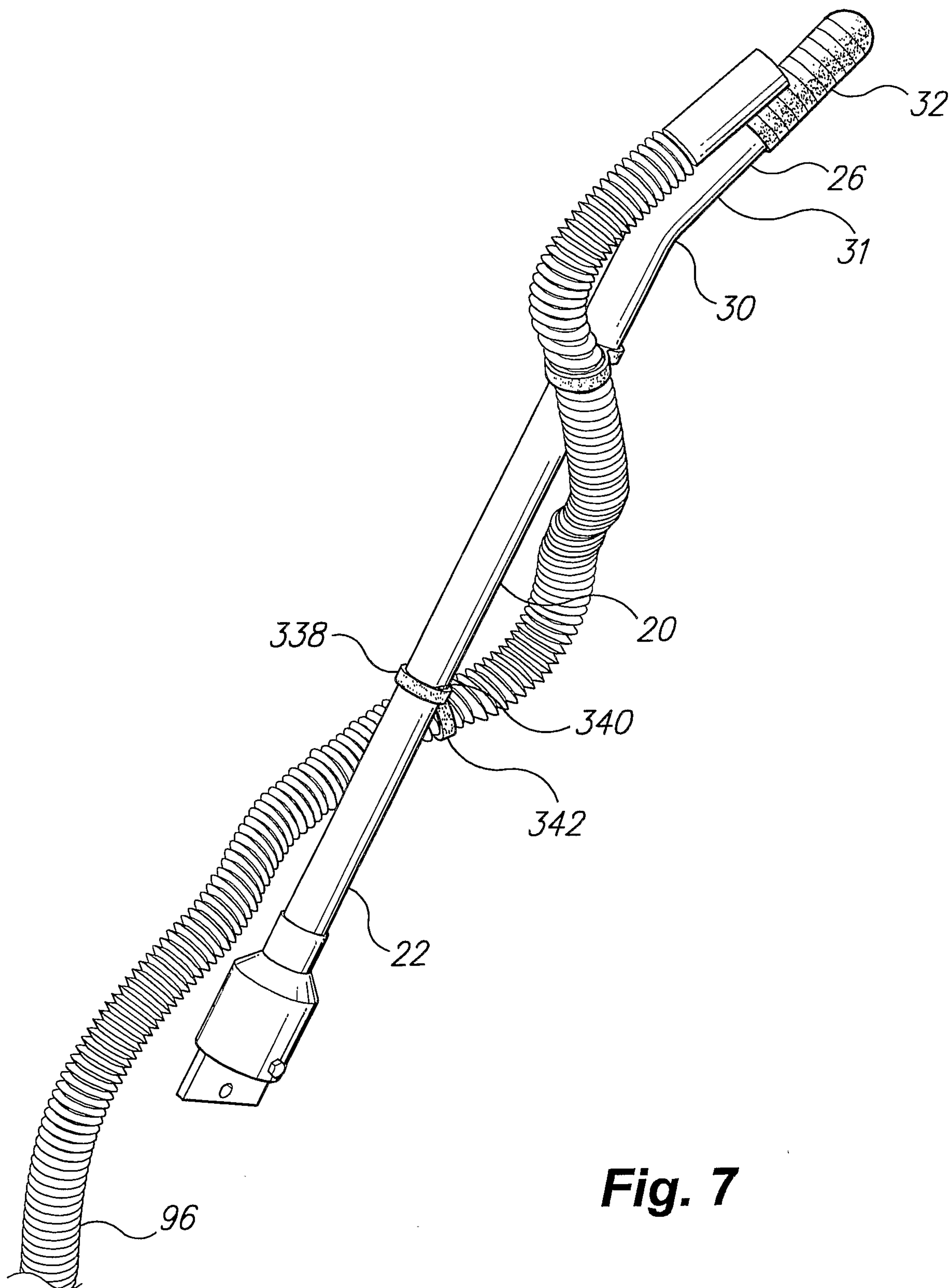


Fig. 7

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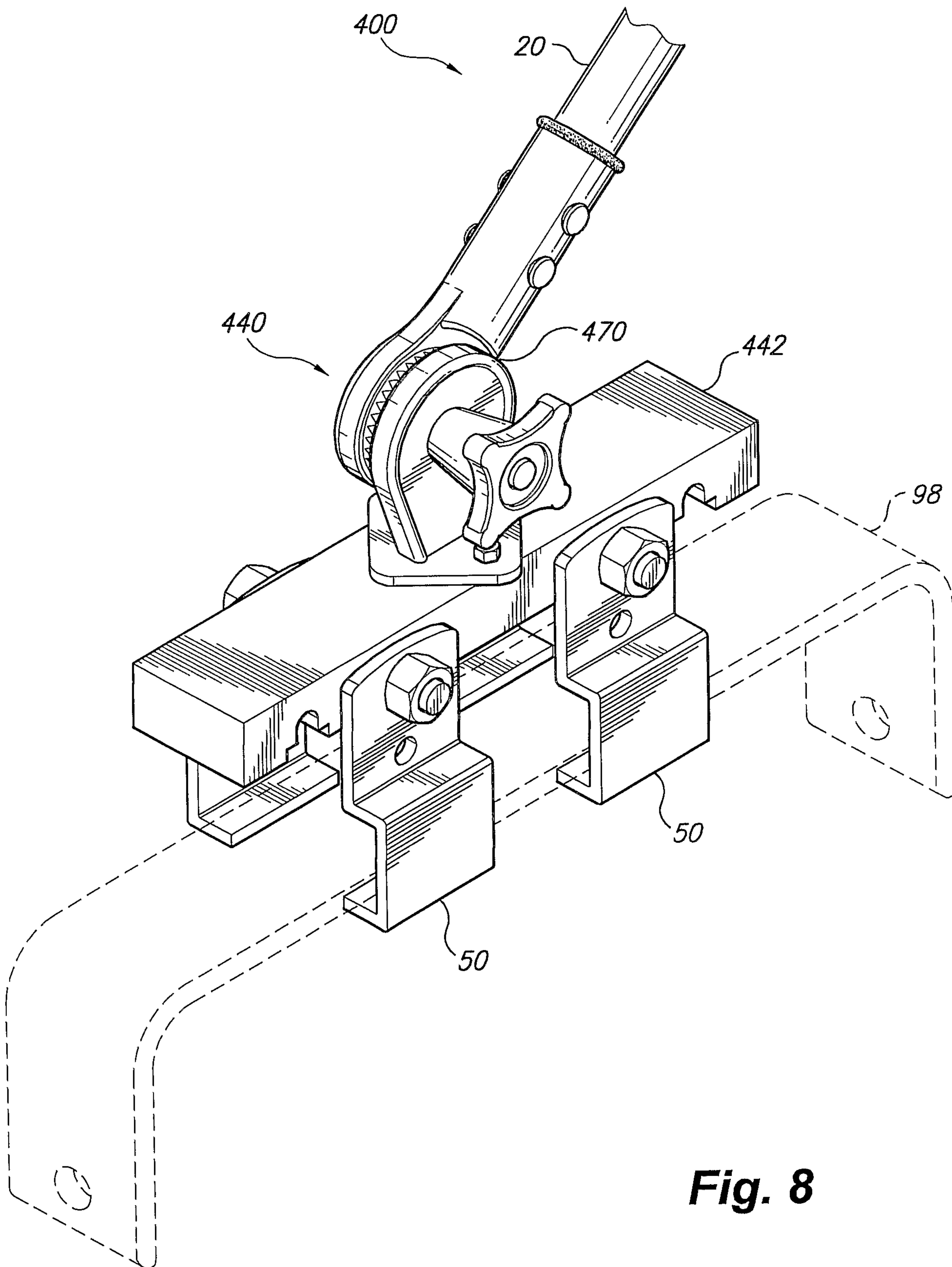


Fig. 8

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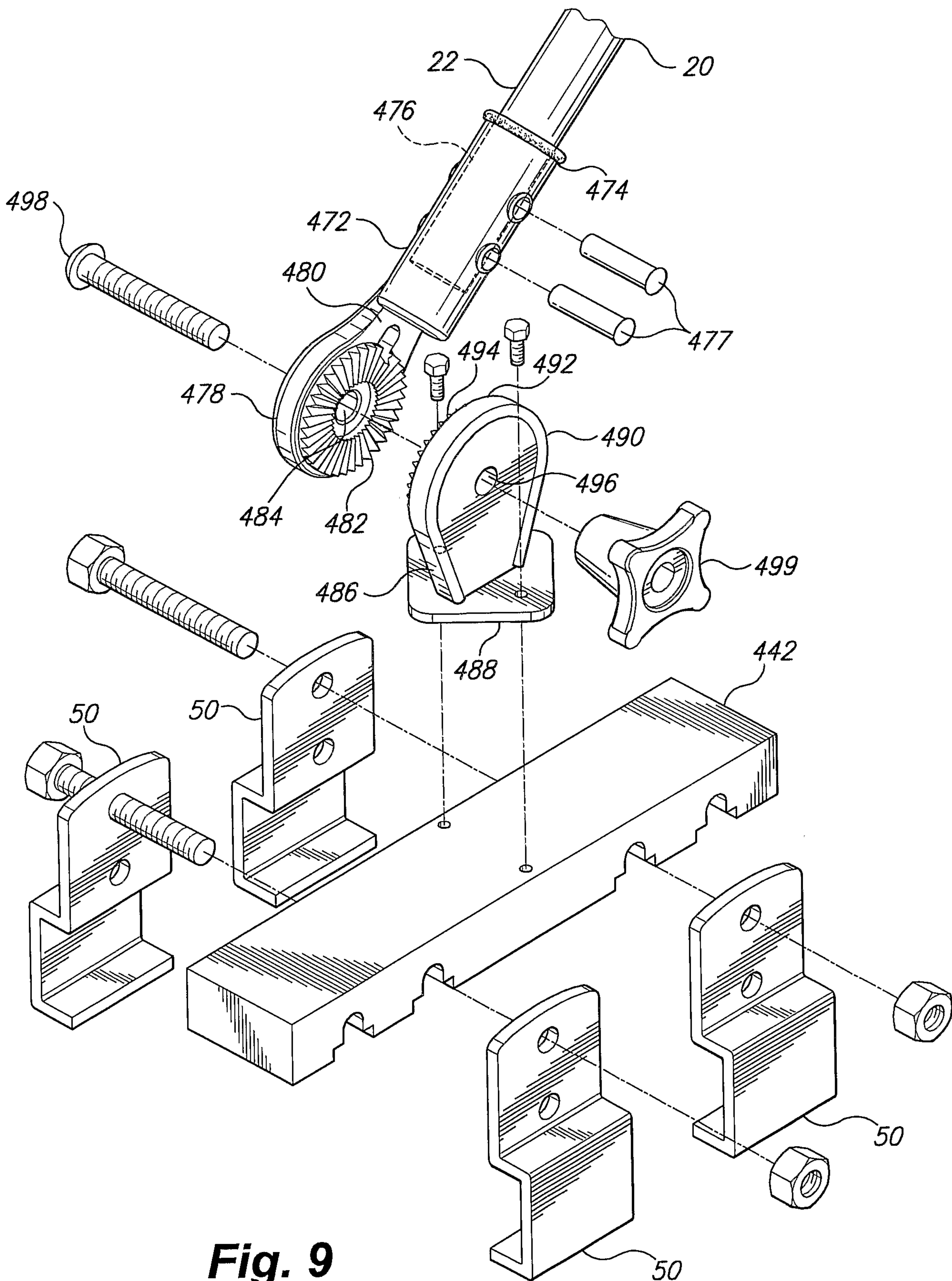


Fig. 9

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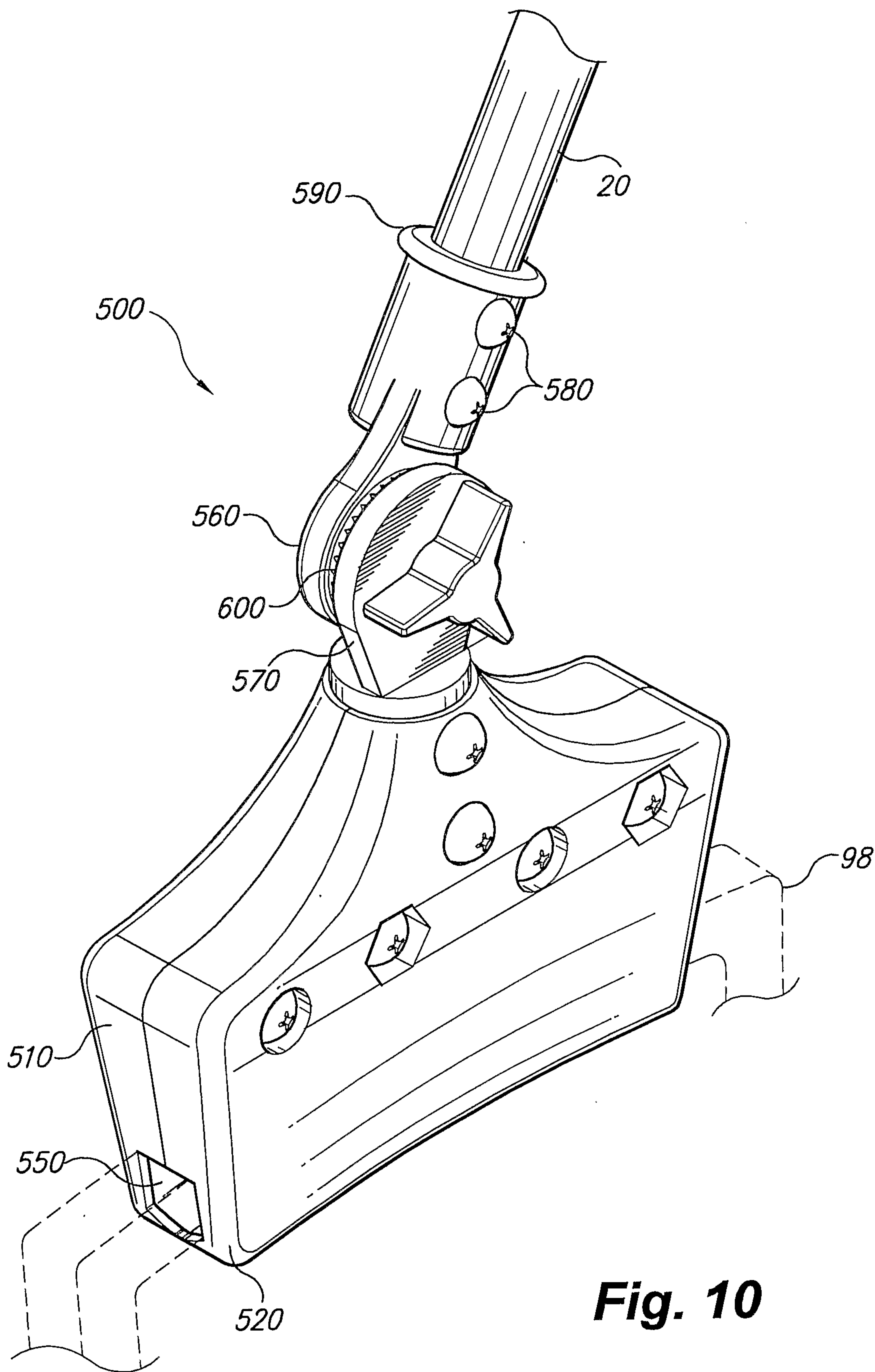


Fig. 10

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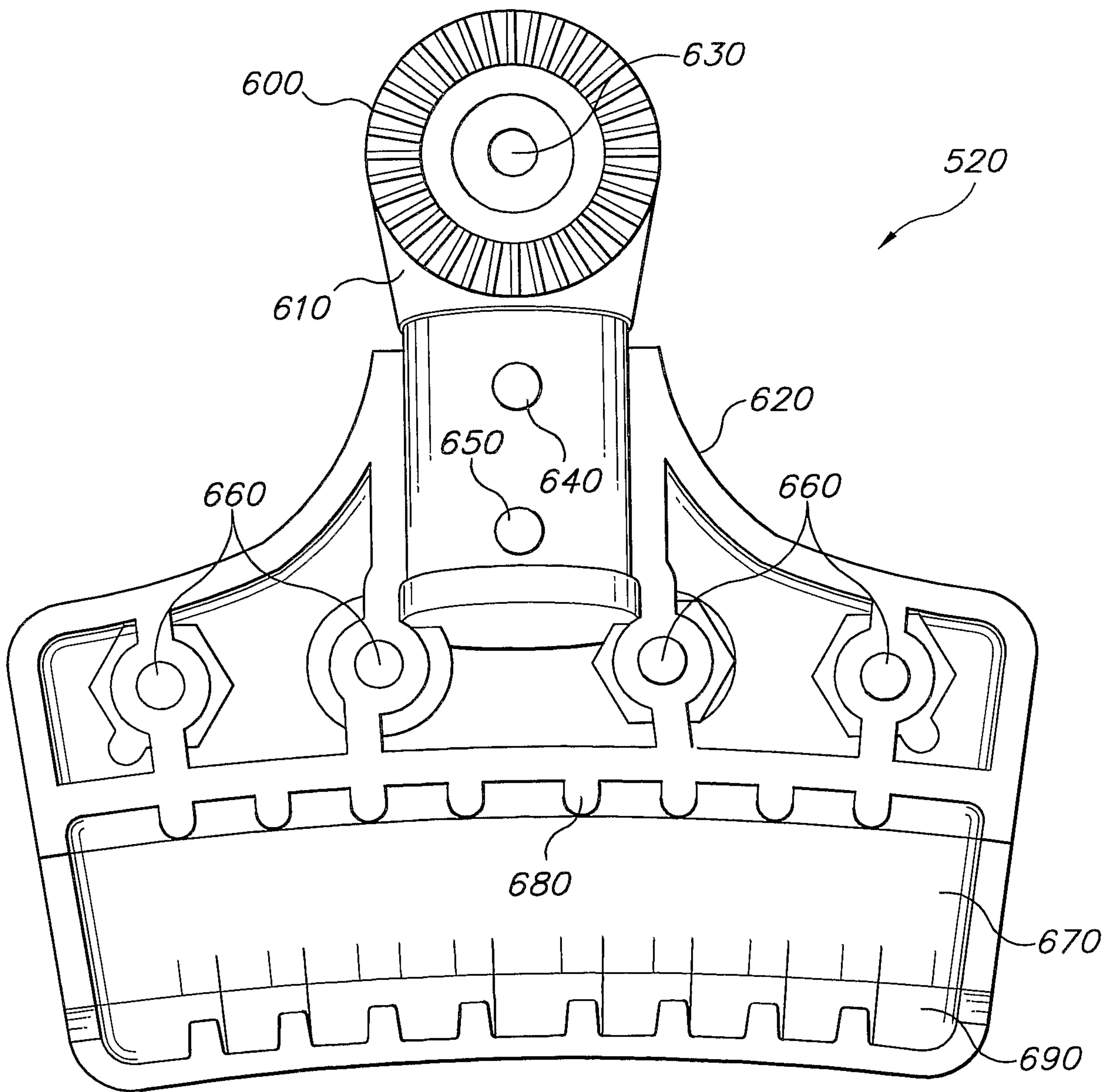


Fig. 11

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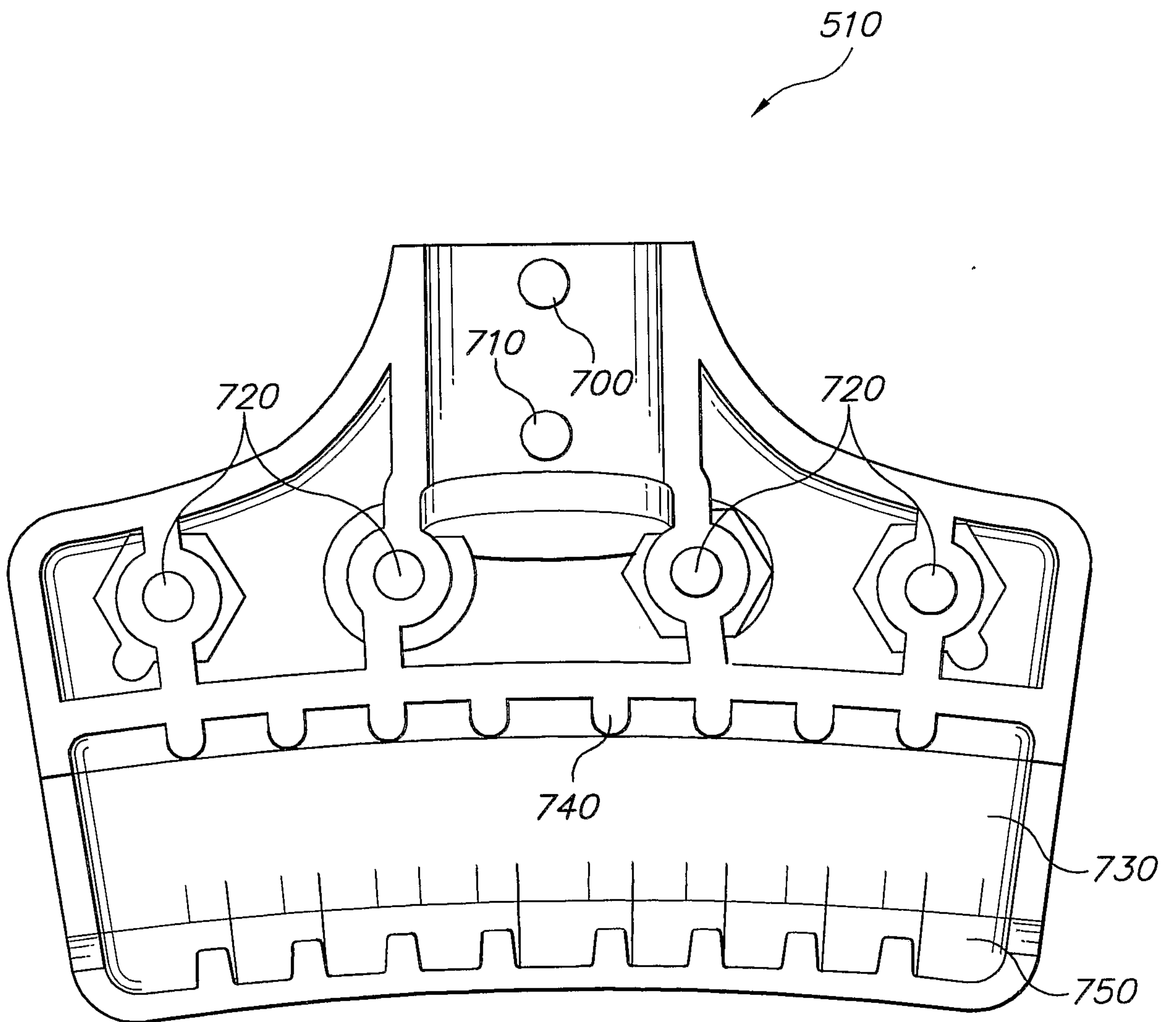


Fig. 12

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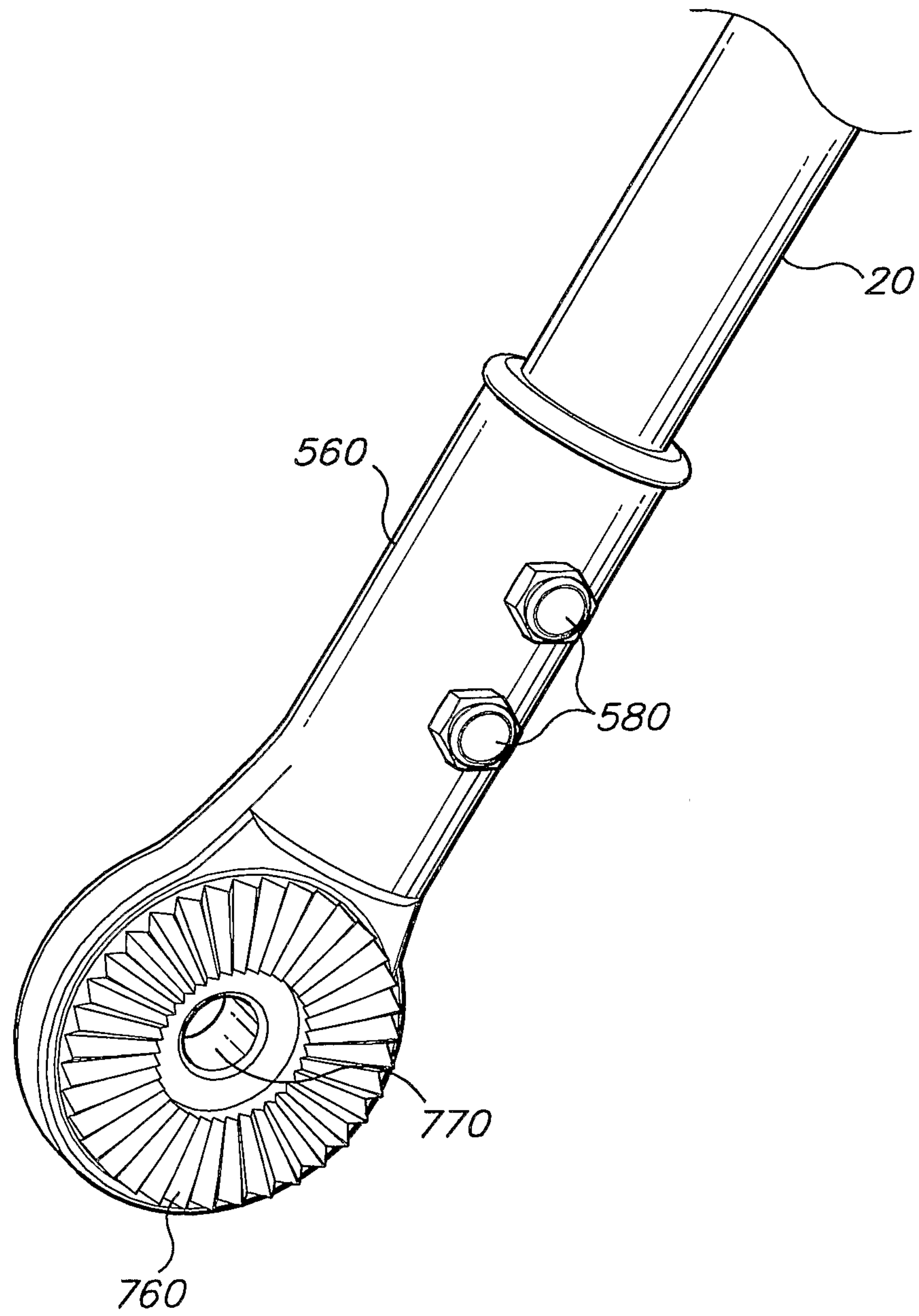


Fig. 13

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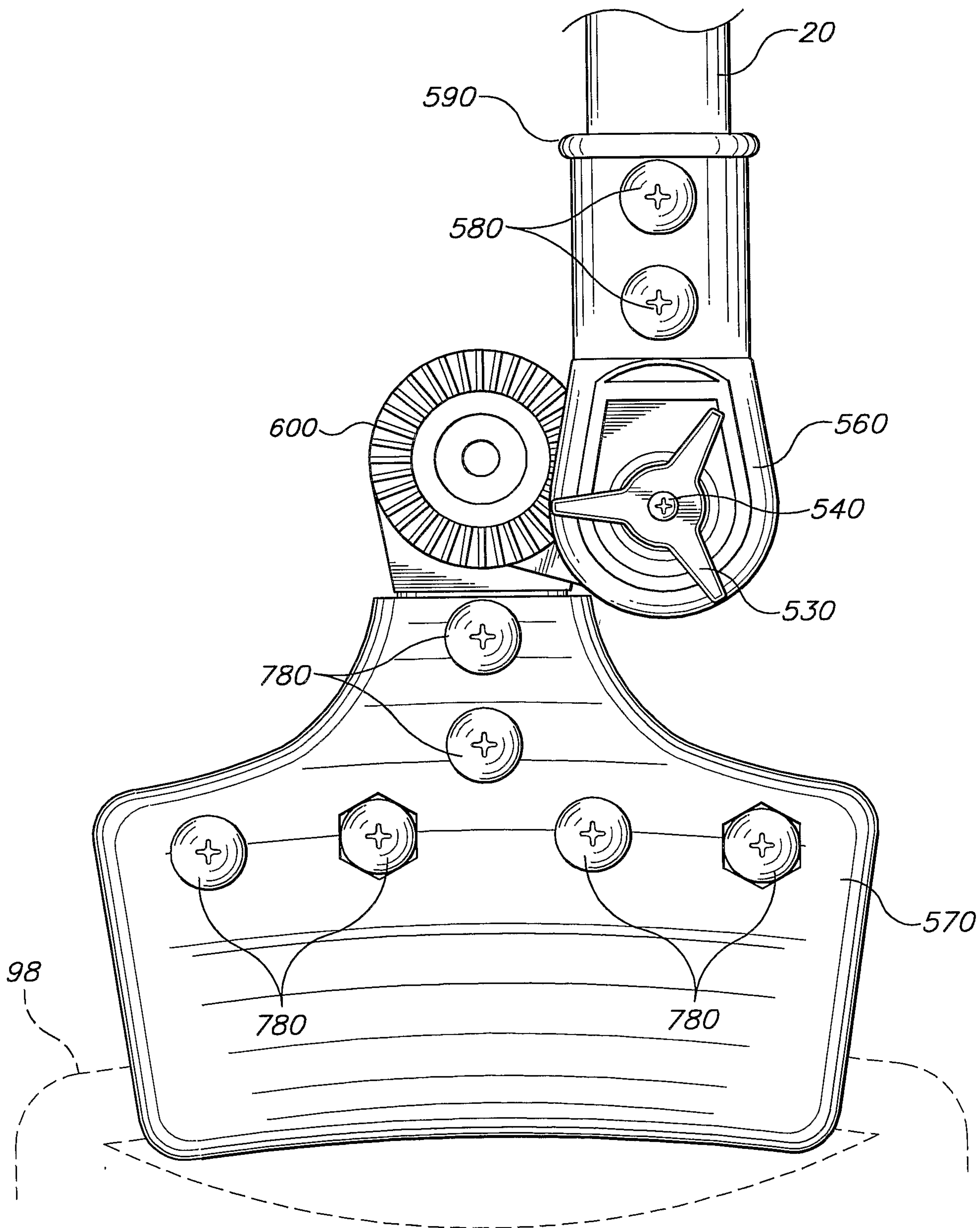


Fig. 14

