US00RE42487E

(19) **United States**

(12) **Reissued Patent**
May

(10) **Patent Number: US RE42,487 E**

(45) **Date of Reissued Patent: Jun. 28, 2011**

(54) **CARRIER ASSEMBLY FOR PERCUSSION INSTRUMENTS**

(76) Inventor: **Randall L. May**, Irvine, CA (US)

(21) Appl. No.: **10/948,849**

(22) Filed: **Sep. 24, 2004**

Related U.S. Patent Documents

Reissue of:

(64) Patent No.: **6,770,805**
Issued: **Aug. 3, 2004**
Appl. No.: **10/170,005**
Filed: **Jun. 10, 2002**

U.S. Applications:

(60) Division of application No. 09/756,479, filed on Jan. 8, 2001, now Pat. No. 6,403,869, which is a continuation-in-part of application No. 09/507,800, filed on Feb. 22, 2000, now Pat. No. 6,172,290, which is a division of application No. 09/497,266, filed on Feb. 3, 2000, now Pat. No. 6,329,583, which is a division of application No. 09/497,265, filed on Feb. 3, 2000, now Pat. No. 6,323,407, which is a continuation-in-part of application No. 08/976,999, filed on Nov. 24, 1997, now Pat. No. 6,028,257, which is a continuation-in-part of application No. 08/588,244, filed on Jan. 18, 1996, now Pat. No. 5,691,492.

(51) **Int. Cl.**
G10D 13/02 (2006.01)

(52) **U.S. Cl.** ..... **84/421**; 84/104; 84/411 R

(58) **Field of Classification Search** ..... None
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,774,823	A *	11/1973	Hoellerich	224/257
3,974,732	A *	8/1976	Kester, Jr.	84/421
4,102,237	A *	7/1978	Suess et al.	84/421
4,453,446	A *	6/1984	Hoshino	84/421
5,054,357	A *	10/1991	Pyle	84/421
5,140,889	A *	8/1992	Segan et al.	84/723
5,520,292	A *	5/1996	Lombardi	211/85.6
5,691,492	A	11/1997	May	84/421
5,949,008	A *	9/1999	Augsburger	84/421

OTHER PUBLICATIONS

Remo "Marching & Concert Percussion" Brochure, Copyright 1992.
"Ludwig/Musser Marching Percussion" Brochure, Copyright 1991.

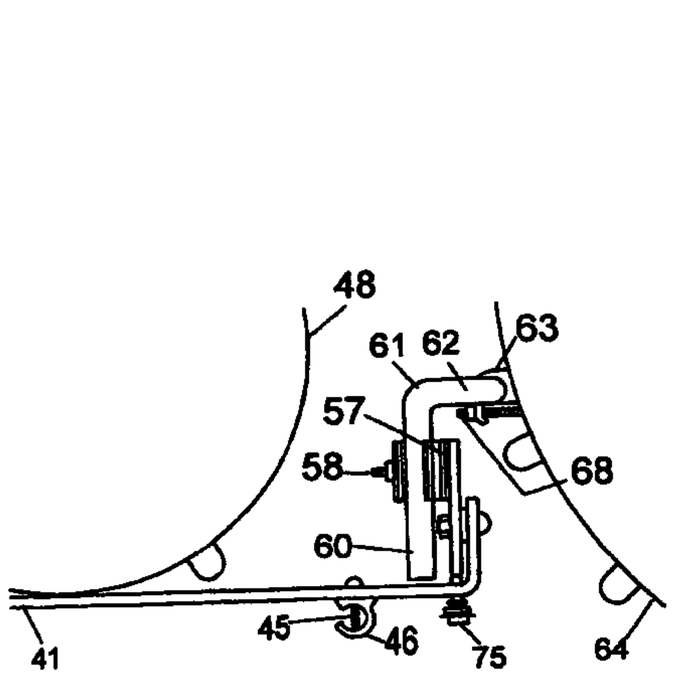
* cited by examiner

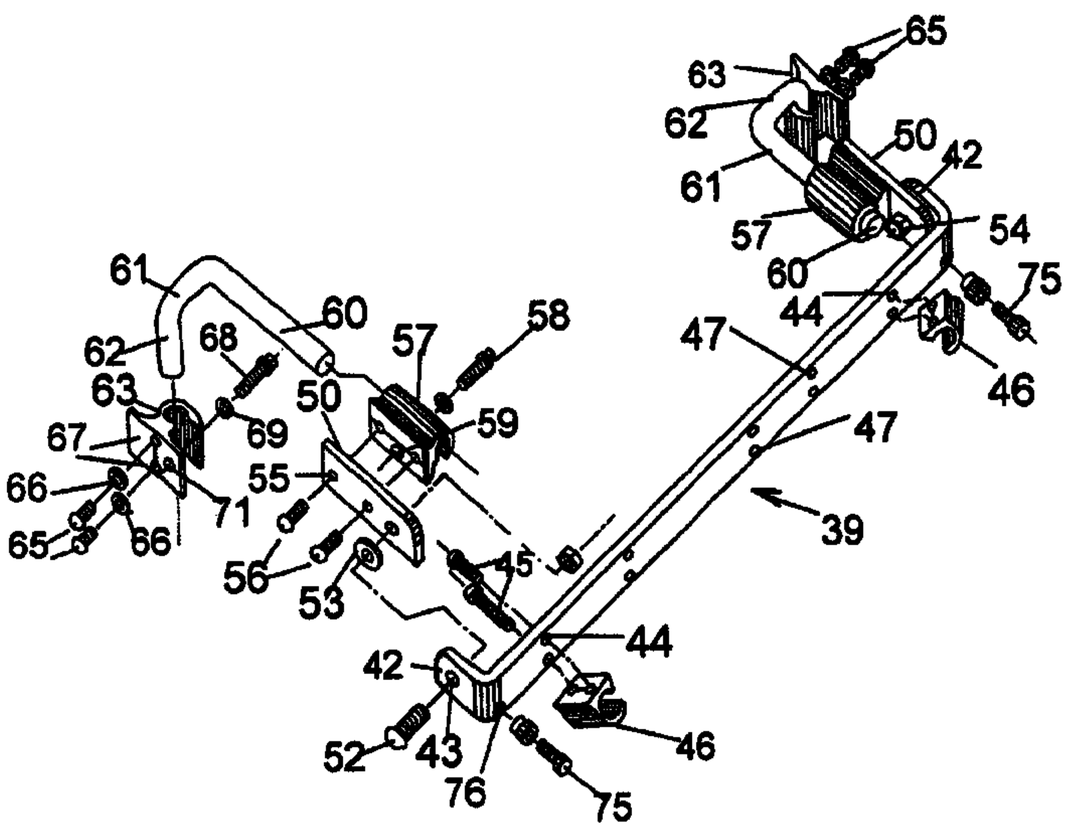
Primary Examiner — Marlon T Fletcher
(74) *Attorney, Agent, or Firm* — Kirk A. Buhler; Buhler & Associates

(57) **ABSTRACT**

Novel hardware is disclosed for supporting drums. The hardware is of a hinged construction and has one part of the hinge connectable to an external support, e.g., J-rods on a fixed pedestal support or a marching drum carrier, and another part of the hinge connectable to the shell of a drum or to the tension rods on a drum or to other supporting hardware installed on the drum.

20 Claims, 7 Drawing Sheets





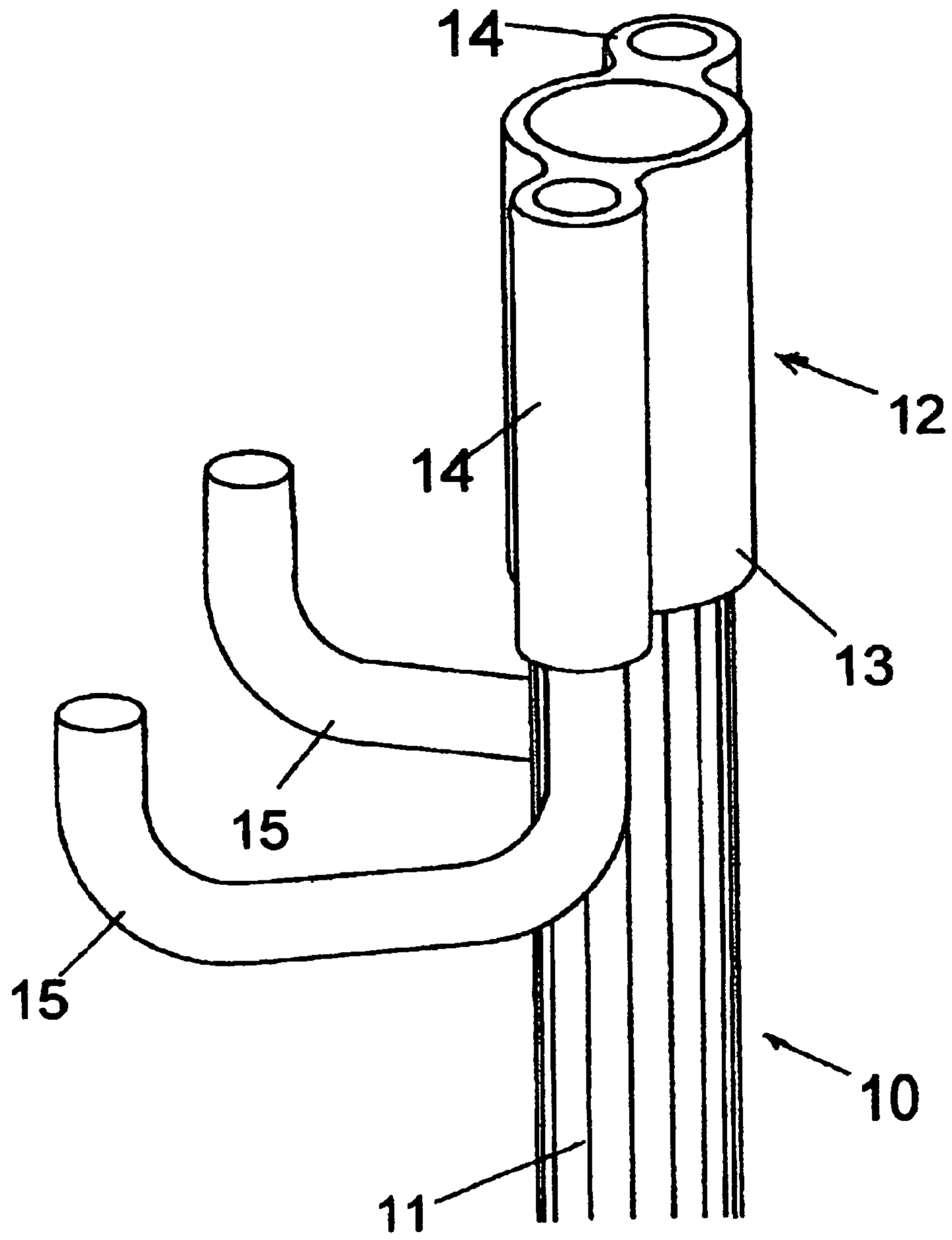
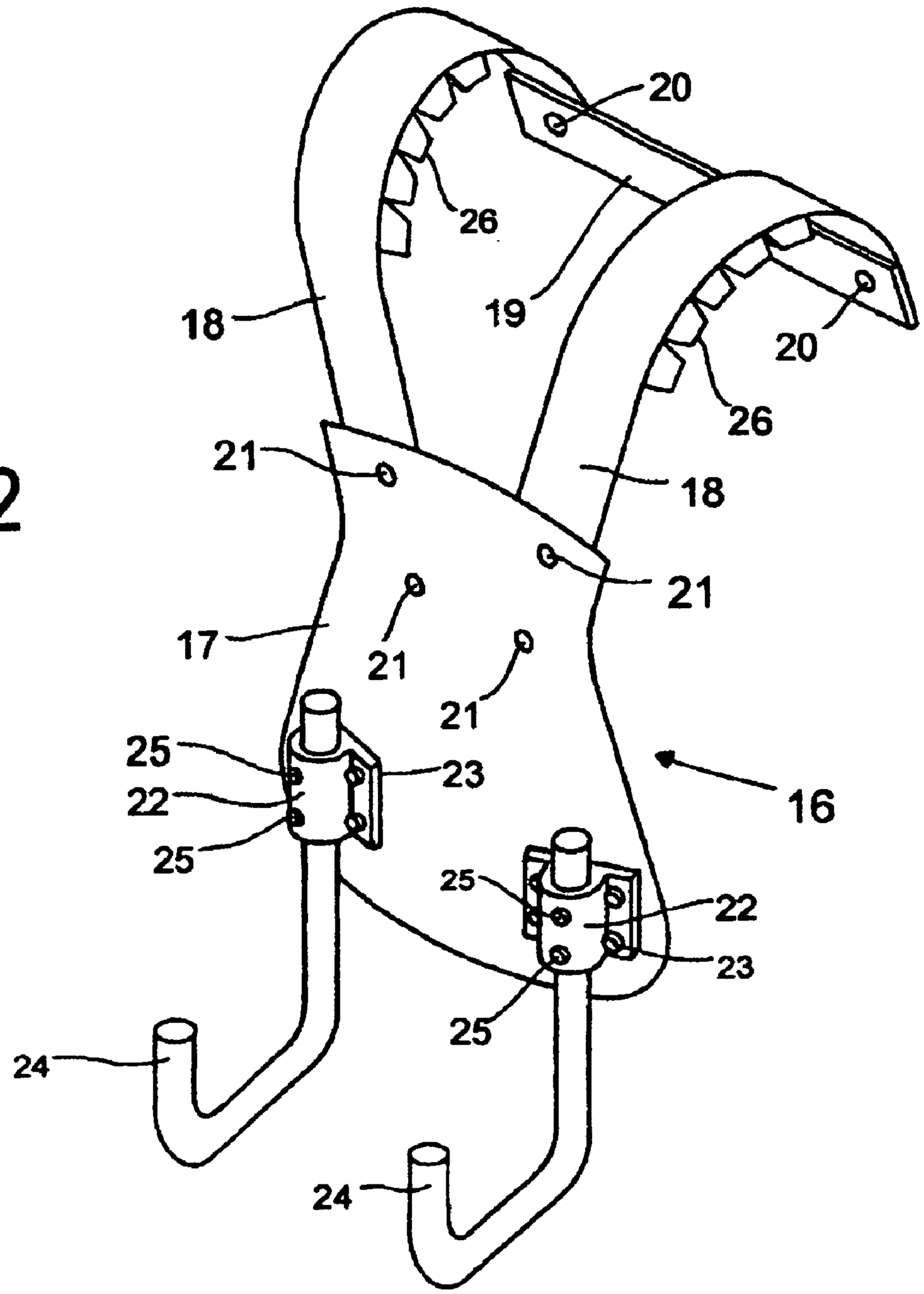


Fig. 1

Fig. 2



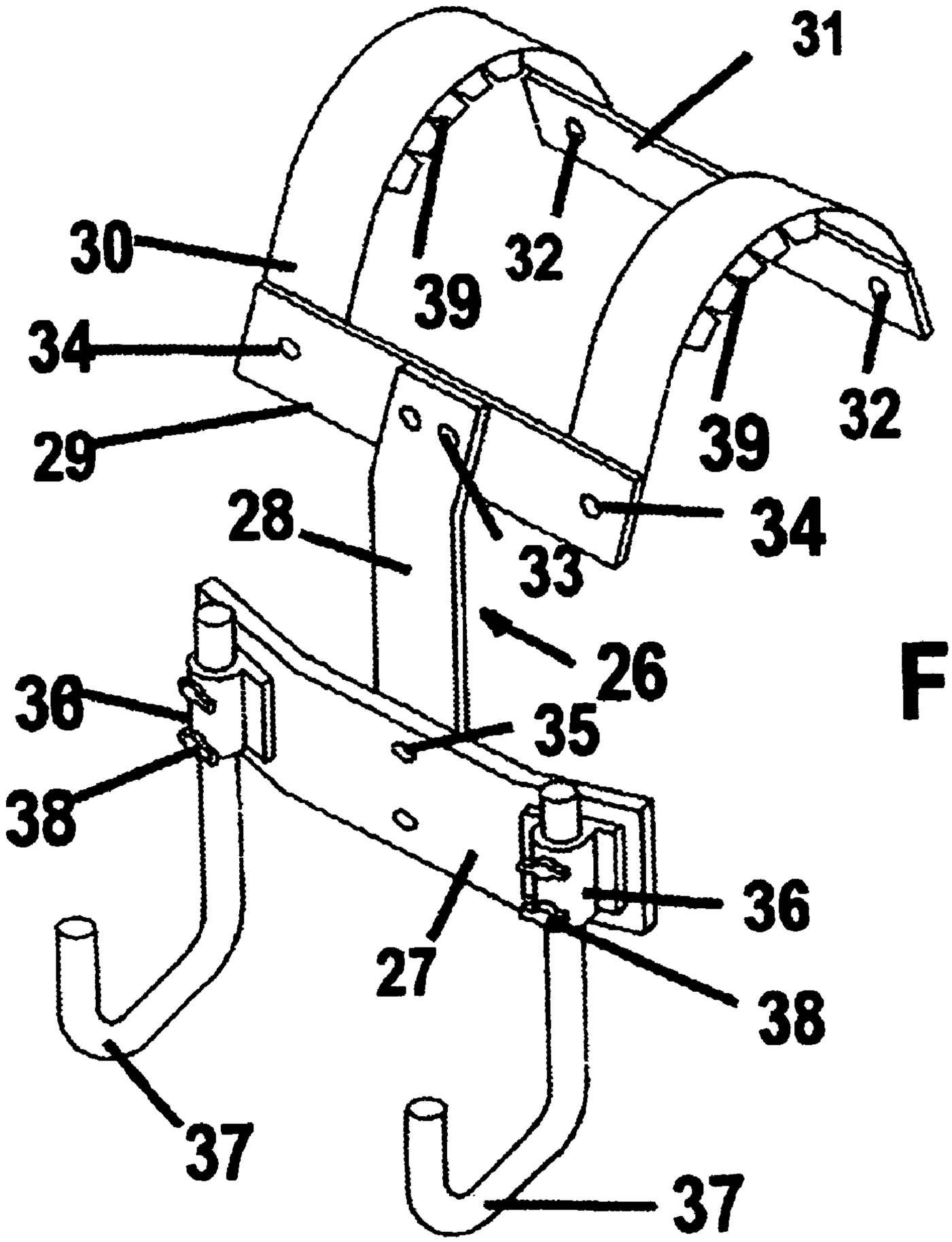


Fig. 3

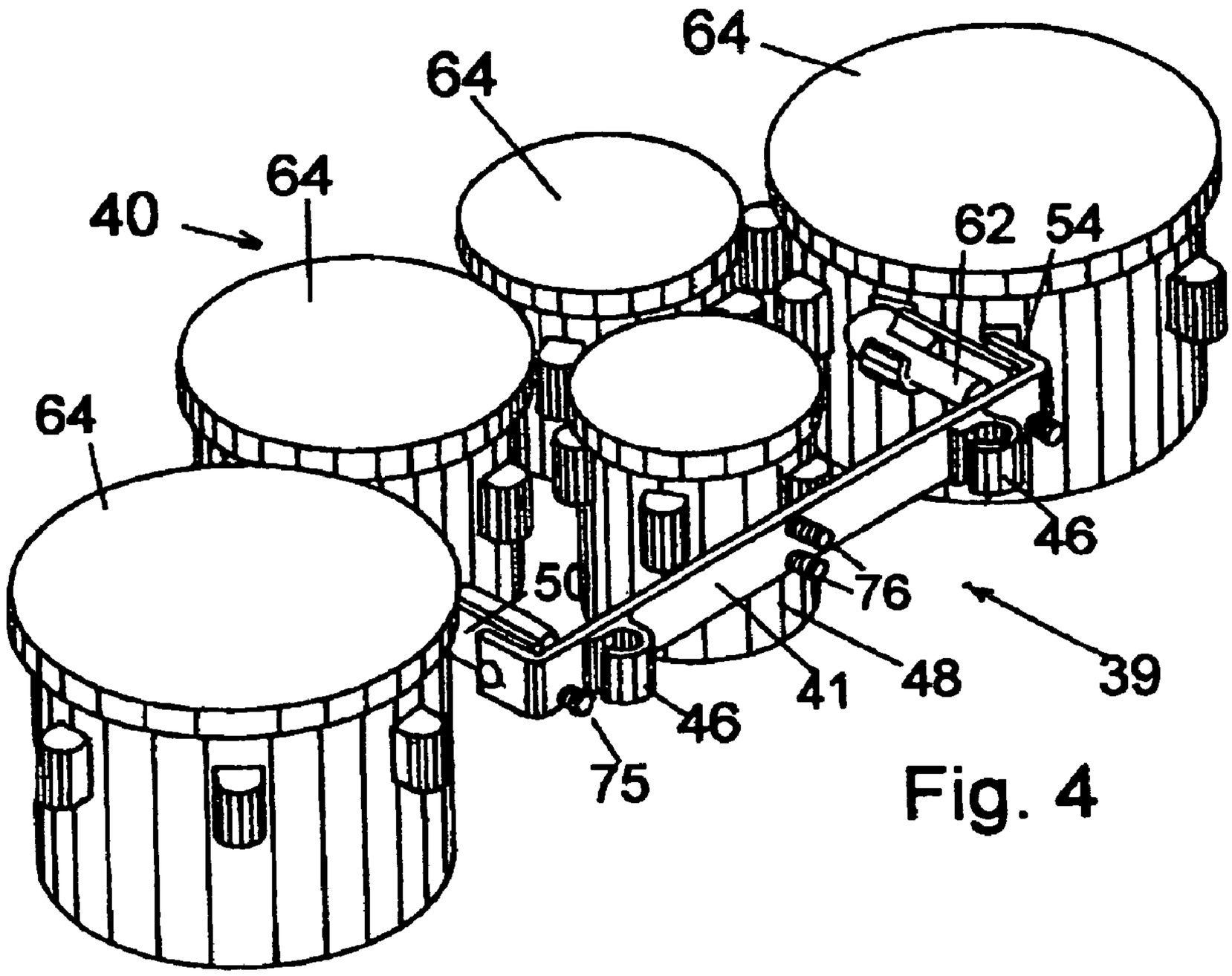

64
64
64
40
62
54
64
46
50
76
48
41
39
46
75

Fig. 4

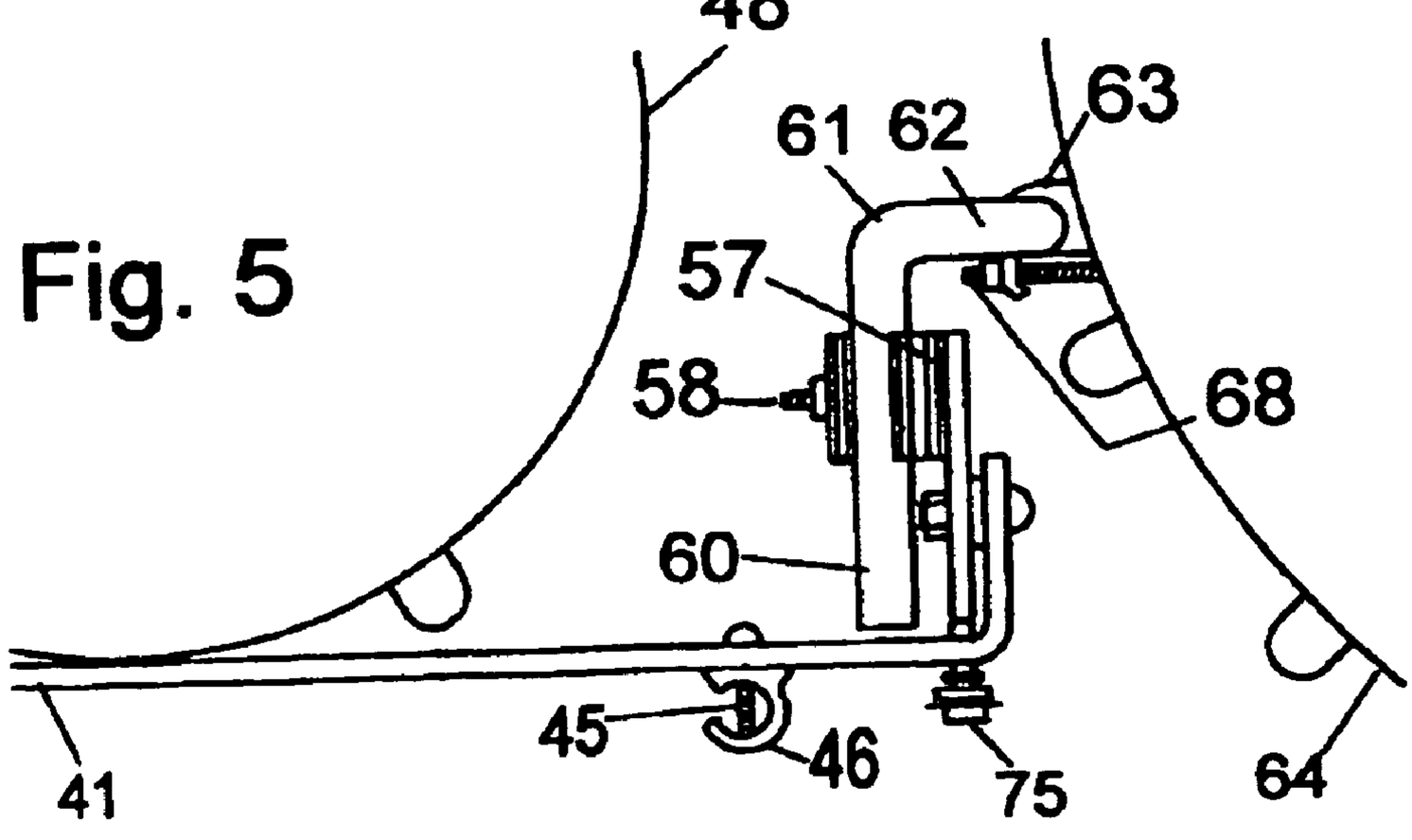

48
61
62
63
57
58
68
60
45
46
75
41
64

Fig. 5

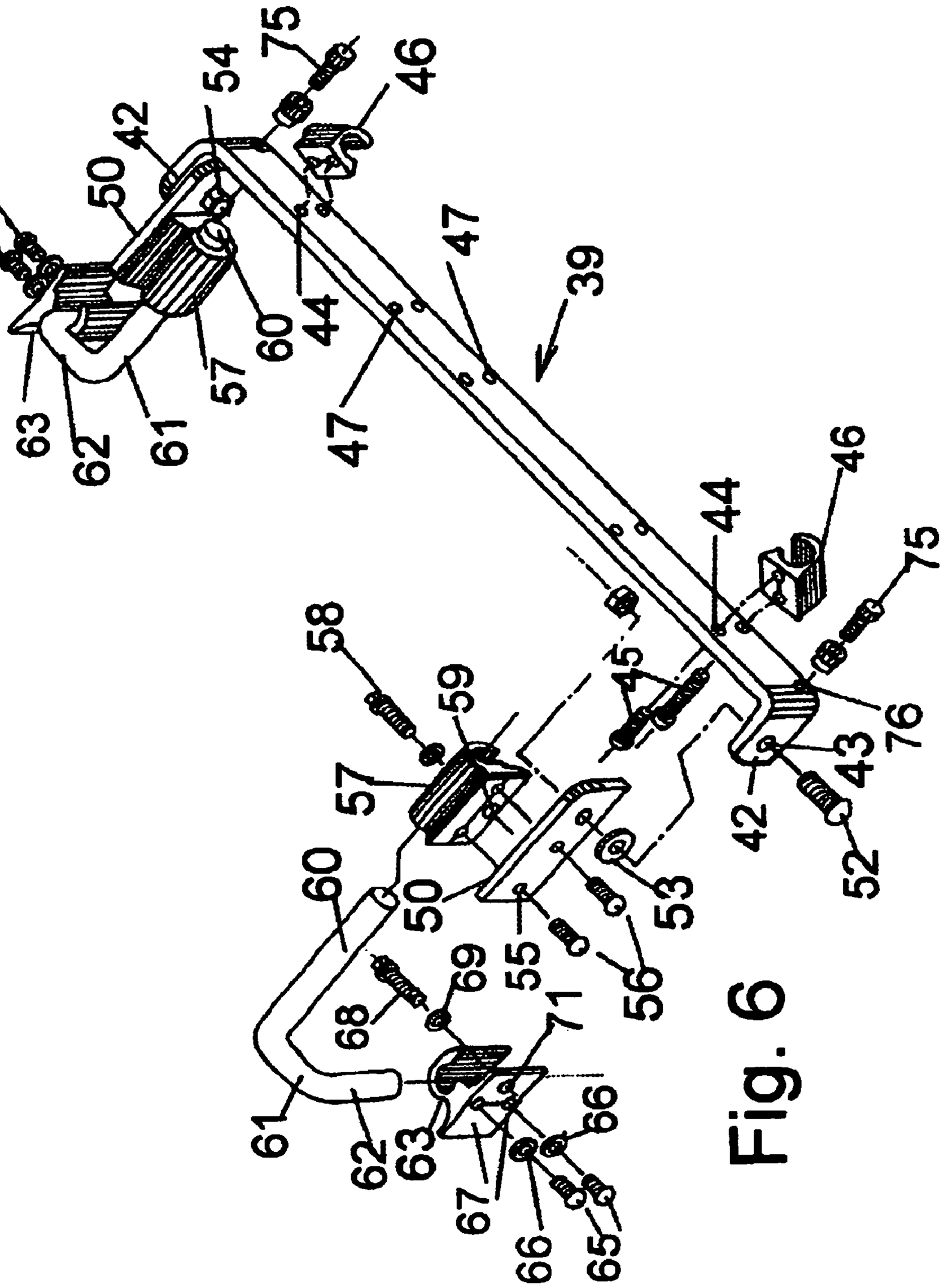

65
50
42
54
75
46
47
39
63
62
61
57
60
44
47
58
59
57
60
50
45
44
46
75
76
43
42
52
53
68
69
55
56
71
61
62
63
67
66
66
65

Fig. 6

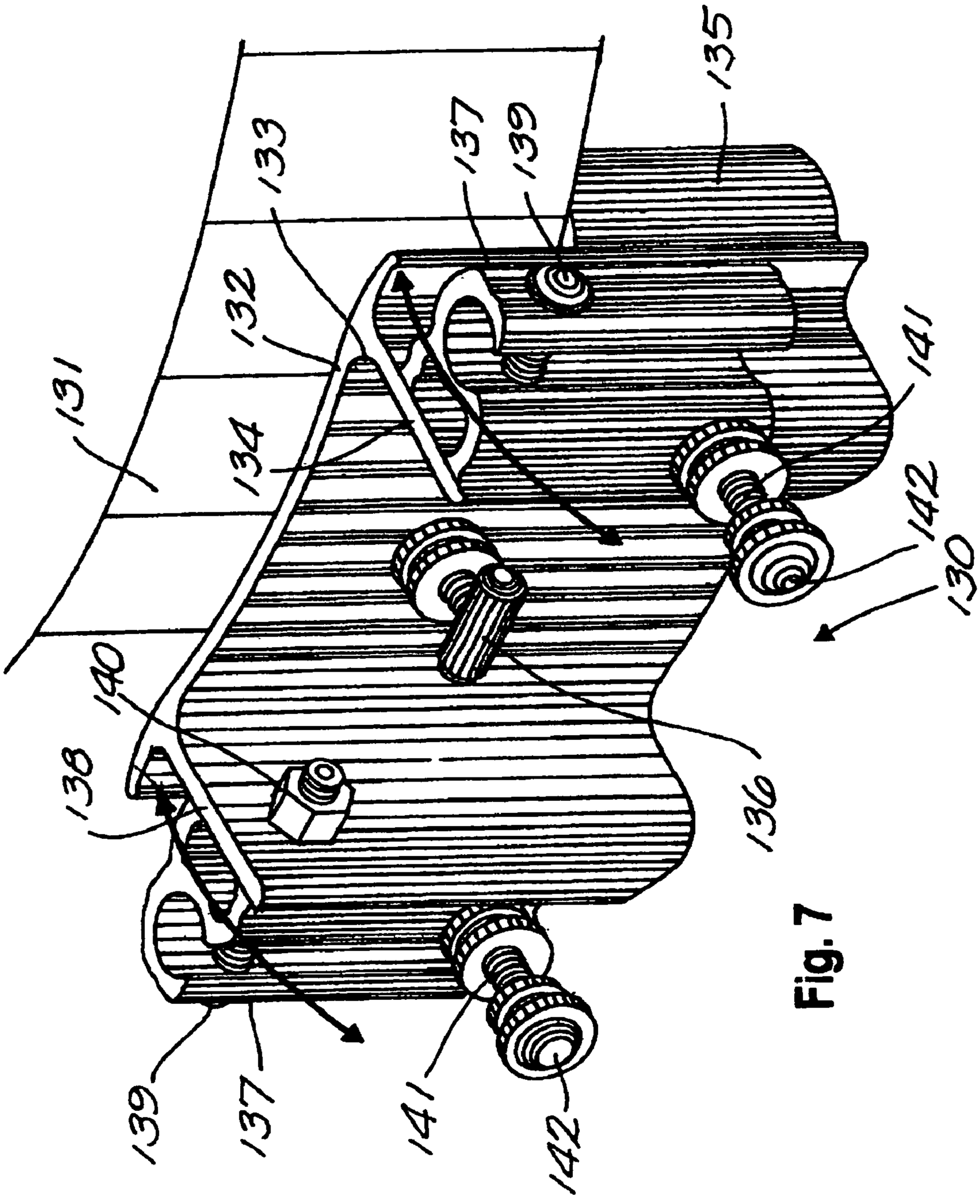


Fig. 7

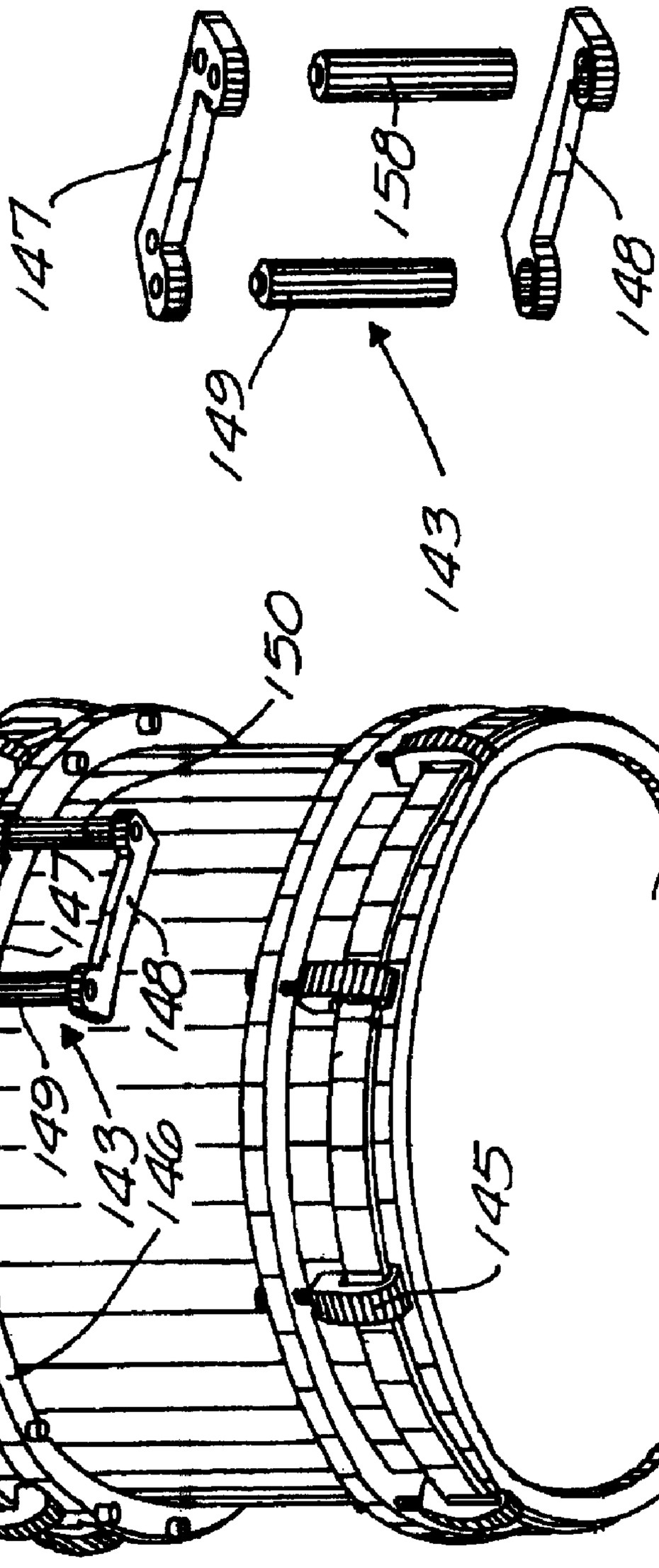


Fig. 8

Fig. 9

CARRIER ASSEMBLY FOR PERCUSSION INSTRUMENTS

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates the additions made by reissue.

CROSS REFERENCE TO RELATED APPLICATION

[This application is a division of U.S. patent application Ser. No. 09/756,479, filed Jan. 8, 2001 now U.S. Pat. No. 6,403,869.]

This application is a reissue of U.S. application Ser. No. 10/170,005 filed on Jun. 10, 2002 now U.S. Pat. No. 6,770,805 issued on Aug. 3, 2004, which is a Division of application Ser. No. 09/756,479 filed Jan. 8, 2001, now U.S. Pat. No. 6,403,869 issued Jun. 11, 2002, which is a Continuation-in-part of U.S. application Ser. No. 09/507,800 filed Feb. 22, 2000, now U.S. Pat. No. 6,172,290 issued Jan. 9, 2001, which is a Division of U.S. application Ser. No. 09/497,266 filed Feb. 3, 2000, now U.S. Pat. No. 6,329,583 issued Dec. 11, 2001, which is a Division of U.S. application Ser. No. 09/497,265 filed Feb. 3, 2000, now U.S. Pat. No. 6,323,407 issued Nov. 27, 2000, which is a Continuation-in-part of U.S. application Ser. No. 08/976,999 filed Nov. 24, 1997, now U.S. Pat. No. 6,028,257 issued Feb. 22, 2000, which is a Continuation-in-part of U.S. application Ser. No. 08/588,244, filed Jan. 18, 1996, now U.S. Pat. No. 5,691,492, issued Nov. 25, 1997.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to new and useful improvements in apparatus for supporting or carrying percussion instruments, particularly drums of various kinds.

2. Brief Description of the Prior Art

The prior art discloses many examples of apparatus for supporting percussion instruments but none providing the combination of features disclosed and claimed herein.

May U.S. Pat. No. 5,691,492 discloses hardware for supporting drums that is of a hinged construction and has one part of the hinge connectable to an external support, e.g., J-rods on a fixed support or a marching drum carrier, and another part of the hinge connectable to the shell of a drum or to the tension rods on a drum or to other hardware on the drum.

May U.S. Pat. No. 6,028,257 shows drum hardware and drums secured thereon preferably supported on a vest type carrier or a T-bar carrier or a fixed post or pedestal.

May U.S. Pat. No. 6,172,290 shows a hinged support for an array of drums.

Other possibly relevant prior art is Pyle U.S. Pat. No. 5,054,357; May U.S. Pat. No. 5,072,910 and May U.S. Pat. No. 5,300,810.

SUMMARY OF THE INVENTION

One of the objects of this invention is to provide a new and improved hinged support for an array of drums for support on a pedestal or marching type carrier.

Another object of the invention is to provide a new and improved hinged support for an array of drums for support on a pedestal or marching type carrier having means for adjusting the position of a drum array relative to fixed drums thereon.

Another object of the invention is to provide a new and improved hinged support for an array of drums for support on a pedestal or marching type carrier having novel means for supporting the drums thereon.

Another object of the invention is to provide a new and improved hinged support for drums for support on a pedestal or marching type carrier by J-rod supports.

Another object of the invention is to provide a new and improved means for connecting a hinged support for an array of drums for support on individual drums.

Other objects of the invention will become apparent throughout the specification and claims as hereinafter related.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an isometric view of a pedestal support and J-bars for supporting a drum and supporting hardware as described below.

FIG. **2** is an isometric view of a supporting vest and J-bars for supporting marching drum assemblies as described below.

FIG. **3** is an isometric view of a novel T-bar assembly and J-rods for supporting drums containing features of the supporting vest of FIG. **2** for marching drums as described below.

FIG. **4** is an isometric view of one embodiment of supporting hardware supporting an array of drums, as in a marching drum assembly.

FIG. **5** is a top detail view of the hardware and a portion of the drums as shown in FIG. **4**.

FIG. **6** is an exploded isometric view of the hinge for the drums and hardware of FIGS. **4** and **5**.

FIG. **7** is an isometric view of another embodiment of hinge secured on a drum shell.

FIG. **8** is an isometric view of a drum shell having auxiliary rods supported thereon as supports for a hinge.

FIG. **9** is a detail, exploded view of the auxiliary supporting rods shown in FIG. **8**.

DESCRIPTION OF PRIOR ART SUPPORTS FOR THE DRUM SUPPORTING HARDWARE OF THIS INVENTION

FIGS. **1-3** illustrate prior art devices for supporting the drum hardware shown in FIGS. **4-9**.

In FIG. **1**, there is shown a drum support **10** comprising a vertically extending post **11** of a tripod (not shown) such as that shown in May U.S. Pat. No. 5,072,910. A bracket **12** has a center receptacle **13** supported on post **11** and side receptacles **14** that receive and support J-rods **15**.

Referring to FIG. **2**, there is shown a vest- or harness-type **16** carrier for percussion instruments which comprises a vest portion **17**, shoulder straps **18** and back bar **19**. Back bar **19** is removably secured to shoulder straps **18** by screws or bolts **20**. Where desired, back bar **19** may be fixed as by welding or the like. Vest portion **17** is removably secured to shoulder straps **18** by screws or bolts **21** and has a pair of J-bar receptacles **22** secured by screws or bolts **23**. J-bars **24** are supported in receptacles **22** and secured in position by T-bolts or set screws **25**. J-bar receptacles may also be used of the type shown in FIGS. **38-41** and **51-55** of May U.S. Pat. No. 6,028,257. Shoulder straps **18** have pads **26** to cushion the load of the instruments carried by carrier **16**. This carrier **16** is constructed and used as in May U.S. Pat. No. 5,691,492.

Referring to FIG. **3**, there is shown a T-bar-type carrier **26** for percussion instruments which comprises a belly plate **27**, vertical bar **28**, upper horizontal bar **29**, shoulder straps **30** and back bar **31**. Back bar **31** is removably secured to shoulder straps **30** by screws or bolts **32**. Where desired, back bar

31 may be fixed as by welding or the like. Upper horizontal bar **29** is removably secured to shoulder straps **30** by screws or bolts **34**. Upper horizontal bar **29** is removably secured to the upper end of vertical bar **28** by screws or bolts **33**.

Belly plate **27** is removably secured to the lower end of vertical bar **28** by screws or bolts **35**. A pair of J-bar receptacles **36** are secured on belly plate **27** by screws or bolts or the like. J-bar receptacles may also be used of the type shown in FIGS. **38-41** and **51-55** of May U.S. Pat. No. 6,028,257. J-bars **37** are supported in receptacles **36** and secured in position by T-bolts **38**. Shoulder straps **30** have pads **39** to cushion the load of the instruments carried by T-bar carrier **26**. This carrier **26** is constructed and used as in May U.S. Pat. No. 5,691,492.

An Embodiment for Supporting Multiple Drum Assemblies

A hinge assembly **39** (FIGS. **4-6**) is provided for supporting a multiple drum assembly or array **40** as used in marching bands. Hinge assembly **39** is similar in function to that shown in FIGS. **13-17** of May U.S. Pat. No. 6,028,257 with features permitting adjustability that is not possible in the embodiment of the patent. Multiple drum assembly or array **40** comprises a plurality, typically 2-6, of drums secured together for support and carrying by a drummer as in a marching band. In this embodiment, hinge assembly **39** provides a hinged support between the drum assembly **40** and a suitable marching carrier **16** or **26** as shown in FIGS. **2** and **3** or a fixed post support **11** as shown in FIG. **1**.

Hinge assembly **39** (FIGS. **4-6**) comprises a back bar **41** that is the fixed member of the hinge. Back bar **41** has end portions **42**, bent at a right angle thereto, with holes **43** providing a pivot for the hinge. Holes **44** in each end of back bar **41** have bolts **45** inserted therethrough to secure J-rod receptacles **46** in place for supporting hinge assembly **39** on J-rods **15**, **24**, **37** on the supports shown in FIGS. **1-3**. Holes **47** in back bar **41** provide for connection of one or more drums **48** (FIG. **4**).

In FIG. **6**, the left side of the drawing shows the components in exploded relation while the right side shows them assembled. Hinge bars **50** are secured for rotation at each end of back bar **41** on bent end portions **42**. Each hinge bar **50** has a hole **51** which receives bolt **52** extending through hole **43** and washer **53** and secured in place by nut **54**. Each hinge bar **50** has a pair of holes **55** through which bolts **56** extend to secure clamping receptacle **57** thereon. Bolt **58** extends through receptacle **57** into hole **59** to tighten or loosen the clamp.

The end portion **60** of connecting rod **61** is secured in clamping receptacle **57**. Another end portion **62** of connecting rod **61** fits into and is clamped by clamping receptacle **63** which is secured on one of the drums **64** of drum assembly **39**. Drum **64** has holes that receive bolts **65** extending through washers **66** into holes **67** in the base of clamping receptacle **63**. Bolt **68** extends through washer **69** and hole **70** in receptacle **63** into hole **71** to tighten or loosen the clamp. This clamping receptacle is available commercially and is described more completely in FIGS. **39-41**, **47-49**, and **52-55** of May U.S. Pat. No. 6,028,257.

Each hinge bar **50** is pivoted on bolts **52** to a selected position. Each hinge bar **50** has an end portion cut in curvature **72** permitting the edge to clear back bar **41**. A set bolt **75** extends through hole threaded **76** in back bar **41** to engage the end portion **72** of hinge bar **50** to secure the hinge in a selected position.

In the assembly shown in FIG. **4**, the array **40** of drums **64** are secured together and to hinge bars **50** for pivotal movement relative to drum **48** supported on the back bar. The clamping receptacles **57** are releasable to permit sliding adjustment of connecting rods **61** and the drum array **40** supported thereon inward and outward relative to back bar **41** and drum **48**. The individual drums **64** of drum array **40** are preferable larger drums ranging about 8"-14" in diameter. Drum **48** on back bar **41** is preferably a smaller drum about 6" in diameter.

Operation

The operation of this supporting hardware should be apparent but will be described in some detail for clarity of understanding. Referring to FIGS. **4-6**, the array of drums **40** is installed on J-rod clamps **63** as described above. The tenor drums **48** and **49** are secured on hinge back bar **41**. In this position, the drum array **40** can be tilted relative to the drums **48** and **49** of hinge back bar **41**. The connection of J-bar receptacle **57** permits the array of drums **40** to be adjusted inward and outward of the drums **48** and **49** on hinge back bar **47**.

Another Hinge Assembly

Another hinge assembly is shown in FIG. **7** for connecting a drum to J-rods on a pedestal support or on a marching vest or T-bar carrier. Hinge assembly **130** is shown mounted on a drum **131** to allow pivoting of the drum on its support.

Hinge assembly **130** comprises a fixed member **132** that is a one-piece extrusion having a back portion **133** with parallel upstanding wall members **134** and rearward facing curved wall portions **135** that fit over two of the tension rods on the drum or rods **149** and **150** of the embodiment in FIGS. **8-9**. Back portion **133** has a curvature allowing it to fit against drum **131**. Thumbscrew **136** secures back portion **133** to the drum shell.

Two J-rod clamping receptacles **137** are supported for pivotal movement on sidewalls **134** of fixed hinge member **132**. Receptacles **137** are cast or extruded and have an open edge portion which can flex to clamp J-rods or posts adjustably. Receptacles **137** have a cylindrical inner surface. The base **138** of receptacles **137** is hollow and maintains the receptacle in spaced relation to sidewalls **134** of fixed hinge member **132**. Hinge bolts **139** extend through receptacles **137** into sidewalls **134** where they are secured by nuts **140**. Bolts **141**, operated by knobs **142**, extend through the hollow base of receptacles **137** to engage wall **132** of fixed hinge member **130**. Adjustment of bolts **141** pivots hinged receptacles **137** outward or inward to a selected position.

Operation

The operation of this supporting hardware should be apparent but will be described in some detail for clarity of understanding. Referring to FIG. **7**, hinge assemble **130** is supported on drum **131** by clamping on the drum tension rods or rods **149** and **150** of the embodiment in FIGS. **8-9**. Pivoted hinge receptacles **137** support the drum **131** on J-rods (not shown) on a supporting pedestal or on a marching carrier. Drum **131** is pivoted to a selected position by operation of knobs **142** on bolts **141** as described above.

Adaptor for Fastening Hinge to Drums

In FIG. **7**, the hinge assembly is shown for attachment to tension rods on a drum **131**. FIGS. **8** and **9** show an adaptor

143 to facilitate attachment to a drum that does not have tension rods extending from one side of the drum to the other. In this view, the drum has drumheads **144** on opposite sides secured by drum clamps **145** to rim **146**. In this embodiment, adaptor **143** comprises spacer plates **147** and **148** securing rods **149** and **150** is spaced relation corresponding to the spacing of clamping walls **135** in the hinge of FIG. **7**. Spacer plate **147** is secured to the ends of two adjacent bolts securing drum clamps **145** in place.

While this invention has been described fully and completely, with special emphasis on several preferred embodiments and/or applications, it should be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

What is claimed is:

1. Supporting hardware, for at least one drum including a drum shell, a pair of drum heads and drum hoops, for supporting said drum for pivotal movement on an external support, comprising:

a hinge comprising a fixed supporting plate including means for supporting said drum-supporting hardware on said external support,

a pair of movable hinge plates positioned adjacent to said fixed supporting plate,

and a hinge pin interconnecting said supporting plate and said hinge plates for pivotal movement of said hinge plates on said supporting plate,

said movable hinge plates having means for connection to an external support on said drum to clamp said drum on one of said hinge plates, and

means adapted to be secured on supporting rods on said drum interconnecting said hinge plate with said drum.

2. Supporting hardware for at least one drum according to claim **1** in which:

said rods are two adjacent tension rods on the drum.

3. Supporting hardware for at least one drum according to claim **1** in which:

said rods are rod members supported on said drum shell in said drum not having tension rods or connecting rods extending between **[**tire**]** *the* drum-heads.

4. Supporting hardware for at least one drum according to claim **1** in which:

said fixed supporting plate has hollow receptacles for connection to said rods, and

said movable hinge plates have hollow receptacles for connection to J-rods supported by and extending from the external support.

5. Supporting hardware, for at least one drum including a drum head and drum hoop, for supporting such drum for pivotal movement on an external support, comprising:

a hinge comprising a supporting member including means for supporting said drum supporting hardware on said external support,

said support member having adjustment means for horizontal towards and away movement of said drum supporting hardware on said external support, and

a hinge member positioned adjacent to said supporting member.

6. Supporting hardware for a drum according to claim 5 in which:

said drum has at least one rod secured thereon, and said drum securing means is secured to said rod.

7. Supporting hardware for a drum according to claim 6 having two adjacent rods on the drum.

8. Supporting hardware for a drum according to claim 7 in which:

said rods are supported on a drum not having tension rods or connecting rods extending between the drum-heads.

9. Supporting hardware for a drum according to claim 6 in which: one of said hinge members has a hollow receptacle for connection to one rod, and

another of said hinge members has a hollow receptacle for connection to a J-rod supported by and extending from the external support.

10. Supporting hardware for drums according to claim 5 in which: said hinge comprises a fixed supporting plate with end portions bent at a right angle thereto,

means on said supporting plate for supporting said drum-supporting hardware on said external support,

a pair of hinge plates positioned adjacent to the bent end portions of said fixed supporting plate,

and a hinge pin interconnecting said bent end portions and said hinge plates,

said hinge plates having means for connection to an external support on a drum to secure such drum on one of said hinge plates, and

said external support on said drum comprising a rod interconnecting said hinge plate with said drum.

11. Supporting hardware for drums according to claim 10 including:

two adjacent tension rods or connecting rods on the drum.

12. Supporting hardware for drums according to claim 10 including:

said rods are supported on a drum not having tension rods or connecting rods extending between the top and bottom of the drum.

13. Supporting hardware for drums according to claim 10 in which:

said fixed supporting plate has hollow receptacles for connection to J-rods supported by and extending from the external support, and

said movable hinge plates have hollow receptacles for connection to rods on said drum.

14. Supporting hardware for drums according to claim 5 in which:

said hinge comprises a supporting plate with end portions bent at a right angle thereto,

means on said supporting plate for supporting said drum-supporting hardware on a drum,

a pair of hinge plates positioned adjacent to the bent end portions of said fixed supporting plate,

a hinge pin interconnecting said bent end portions and said hinge plates, and

said hinge plates including means for supporting said drum-supporting hardware on a plurality of drums.

15. Supporting hardware for drums according to claim 14 in which:

each said hinge plate includes a hollow receptacle for connection to a J-rod supported by and extending from the external support.

16. Supporting hardware for drums according to claim 15 in which:

at least one of said hinge plates includes a thumbscrew operable to engage said supporting plate for pivotal adjustment of said drum.

17. Supporting hardware for a drum, comprising:

drum attachment hardware for a drum that does not penetrate into or through the drum shell to secure to at least one drum, where the hardware further includes;

a hinge member positioned adjacent to said attachment hardware;

a hinge pin interconnecting said attachment hardware and said hinge member with at least one receptacle for

attaching the hinge member to a shoulder supported carrier to allow the drum attachment hardware to rotate relative to the at least one receptacle.

18. The supporting hardware for a drum from claim 17 wherein the drum attachment hardware is with fastening means for securing the hardware to at least one tension rods and or tubes and or bars on a drum.

19. The supporting hardware for a drum from claim 17 wherein the drum attachment hardware is with fastening means that clamps to at least one of the drums one tension rods and or tubes and or bars on a drum.

20. The supporting hardware for a drum from claim 17 wherein the drum attachment hardware is with fasteners that secure the hardware onto the drum rim and or hoop.

* * * * *