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(54) A piece of office furniture

(57) The invention relates to a piece of office furniture comprising a tabletop (10) and legs (2) supporting the tabletop. The individual elongated legs are connected to separate tubes (9) interconnecting the legs and supporting the tabletop. The tabletop is detachably secured to the tubes by means of quick-acting fasteners (90). The elongated legs may be built up of parts which are telescopically movable and adjustable relative to each other. Two legs may thereby be connected to a tube (8) extending between the legs, which tube is coupled to said two legs by means of corner pieces (5), which have ends that fit in the legs and in the tube.

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Description

The invention relates to a piece of office furniture comprising a tabletop and legs supporting said tabletop.

With office furniture of this type the legs supporting the tabletop generally form a frame in one piece, to which the tabletop is secured by means of screws or bolts. A tabletop having particular dimensions requires a particular frame and accordingly different frames and different tabletops must be produced for pieces of furniture having different dimensions. A system of this kind for manufacturing office furniture is rather inflexible and expensive.

According to the invention the individual elongated legs are connected to separate tubes interconnecting the legs and supporting the tabletop, whilst the tabletop is detachably secured to the tubes by means of quick-acting fasteners.

When using the construction according to the invention it is possible to build up a large variety of office furniture by using a number of standard parts. The tabletop can be readily replaced by another tabletop thereby, for example in case of damage or if it is desired to fit a tabletop of a different quality or size, since the tabletop can be removed from or secured to the tubes supporting the tabletop in a simple and quick manner.

The invention will be explained in more detail below with reference to some possible embodiments of the construction according to the invention diagrammatically illustrated in the accompanying Figures.

Figure 1 is a perspective view of one embodiment of a piece of office furniture according to the invention, in the shape of a table.

Figure 2 is a larger-scale side view of Figure 1.

Figure 3 is a perspective view of a second embodiment of a piece of office furniture according to the invention, in the shape of a table.

Figure 4 is a side view of the frame supporting the tabletop of the table shown in Figure 3.

Figure 5 is a side view of the table shown in Figure 3, wherein another tabletop has been added to the table.

Figure 6 is a side view corresponding with Figure 5, wherein the tabletops are mounted at different levels.

Figures 7 and 8 show further possible embodiments of a piece of office furniture according to the invention.

Figure 9 shows a clamping piece for interconnecting parts of a frame supporting a tabletop.

Figure 10 shows one end of a piece of tubing forming part of a frame, into which the clamping piece according to Figure 9 can be inserted.

Figure 11 is a larger-scale view of the end of the piece of tubing shown in Figure 10, with the clamping piece shown in Figure 9 provided therein.

Figure 12 shows a clamping mechanism for securing a tube to a further tube extending perpendicular thereto.

Figure 13 is a plan view of the clamping mechanism shown in Figure 12.

Figure 14 is a view of Figure 13, seen in the direction according to arrow XIV in Figure 13.

Figure 15 is a perspective view of a frame for a piece of furniture, which is assembled by using the clamping mechanism shown in Figure 13.

Figure 16 is a side view of a part of a leg of a piece of furniture according to the invention.

Figure 17 is a plan view of Figure 16.

Figures 18 and 19 show plan views of embodiments of legs for use in a piece of office furniture according to the invention.

Figure 20 is a plan view of a part of the frame of the piece of office furniture shown in Figure 17.

Figure 21 is a side view of Figure 20, seen according to the arrow XXI in Figure 20.

Figure 22 is a side view of a part of Figure 20, seen in the direction according to the arrow XXII in Figure 20.

Figure 23 is a plan view corresponding with Figure 20 of another embodiment.

Figure 24 is a side view of Figure 23.

Figure 26 is a diagrammatic bottom view of the fastening of tabletops to a leg.

Figure 26 is a side view of a support.

Figure 27 is a plan view of Figure 26.

Figure 28 is a side view of a strap for fastening a tabletop to a frame.

Figure 29 is a plan view of Figure 28.

Figure 30 shows the strap illustrated in Figures 28 and 29 in use.

Figures 31 and 32 show a cable duct suspended under a tabletop in two different positions.

Figures 33 - 35 are perspective views of cable guide elements.

Figure 36 shows a view of a cable guide element according to Figure 33 being connected to a baseplate.

Figure 37 is a plan view of Figure 36.

Figure 38 shows a part of a tabletop with a shelf pivoted thereto.

Figure 39 is a view corresponding with Figure 38, showing a shelf in partially raised condition.

Figure 40 is a view corresponding with Figure 38, showing a shelf in completely raised condition.

Figure 41 shows an embodiment of a two-piece coupling means, partially in cross-sectional view and partially in elevational view.

Figure 42 shows the coupling means illustrated in Figure 41, wherein the two parts are pivoted relative to each other in comparison with the position shown in Figure 41.

Figure 43 is a view corresponding with Figure 19 of a column with parts of the coupling means shown in Figures 41 and 42 secured thereto.

First a more general configuration of various possible embodiments of a piece of office furniture according to the invention will be described with reference to Figures 1 - 8, followed by a more detailed discussion of certain constructive details of this office furniture. Like parts are thereby numbered alike in the various Figures, and said parts will not be discussed anew for each Figure.

Figure 1 shows a piece of office furniture 1 in its simplest form as a table. The table is provided with four legs

2, which are each made up of two tubes 3 and 4, which are capable of telescoping movement relative to each other and which can be set to desired positions.

On the upper ends of the legs 2 corner pieces 5 are provided, which are provided with two parts 6 and 7 (Figure 4) including an obtuse angle with each other, said parts being inserted with a clamped fit in the upper ends of the tubes 3 and in the ends of a horizontally extending connecting tube 8 connecting two legs 2 respectively.

The table comprises two assemblies, each built up of two legs 2 and a connecting tube 8 connecting said legs, whilst said two assemblies are interconnected by means of tubes 9 extending horizontally and parallel to each other between the corner pieces 5 of said assemblies, said tubes 9 being secured to said corner pieces 5 in a manner yet to be described in more detail hereafter.

The tubes 9 support a tabletop 10, which is secured to the tubes 9 in a manner yet to be described in more detail hereafter.

In the embodiment shown in Figures 3 and 4 the oblique legs of the first embodiment are replaced by vertical legs 11 at one longitudinal side, said legs 11 also being built up of two parts 12 and 13, which are telescopically movable and adjustable relative to each other. For securing a connecting tube 8 to a leg 11 a corner piece 14 is used, which is connected to the tube 8 in a similar manner as described above with reference to the corner pieces 5, whilst said corner piece 14 furthermore comprises a vertically extending leg 15, by means of which said corner piece can be secured at a desired height to a part 12 yet to be described in more detail hereafter of the leg 11.

Furthermore a shelf 16 extending along a longitudinal edge of the tabletop is provided in line with the tabletop in the embodiment shown in Figure 3, which shelf can be pivoted upwards with respect to the tabletop in a manner yet to be described in more detail hereafter.

As shown in Figure 5, corner pieces 14 may be provided on either side of the column, with connecting tubes 8 being connected to said corner pieces and legs 2 being provided on the ends of the connecting tubes 8 remote from the corner pieces 14, so that the frame built up in this manner is capable of supporting two tabletops 10 being in line and, if desired, also a shelf 16 disposed between said tabletops, which shelf is pivoted to either one of said tabletops.

As will furthermore be apparent from Figure 6, supports 15 provided on either side of a leg 11 can be connected to the respective leg of the table at different heights, so that the two tabletops 10 can be disposed at different levels.

Figure 7 shows an embodiment of a piece of office furniture provided with two tabletops extending perpendicularly to each other. The free ends of said tabletops are supported in a similar manner as in the embodiment of Figure 3.

In the corner point of the piece of office furniture the tabletops are supported by a column 17 in a manner yet to be described in more detail hereafter. The column 17 is built up of a lower part 18 supporting the tabletops and, if desired, of similar parts 19 and 20 extending said lower part 18. As is diagrammatically indicated in Figure 7 further tabletops 22, bookshelves or the like may be provided by means of supports 21 secured to said extension parts 19 and/or 20.

As is diagrammatically indicated in Figure 7 the legs 11 may be extended in a similar manner by extension pieces 23 being configured so as to correspond with the legs, whereby bookshelves or the like may be provided between said extension pieces 19, 20 and 23, for example by means of suitable supports 21.

Figure 8 shows an embodiment which more or less corresponds with Figure 7, whereby it is indicated in Figure 8 that instead of rectangular tabletops also tabletops 24 having different shapes may be used.

Figure 9 is a side view of a clamping piece 25, by means of which a tube 9 can be secured to a corner piece 5 or 14. Said clamping piece is made up of an elongated body, which is on two diametrically opposed sides bounded by flat sides 26, which are interconnected by curved boundary surfaces 27 having a radius of curvature which is at least substantially equal to half the internal diameter of the tube 9. The clamping piece is at one end provided with a conical part 28, which is provided with a threaded hole 29 extending in the longitudinal direction of the clamping piece 25. Said conical end 28 may be inserted in a correspondingly shaped recess in the corner piece 5, whereupon said clamping piece 25 can be clamped down on said corner piece by means of a bolt to be screwed into the threaded hole 29, in such a manner that the clamping piece projects from the corner piece 5 along the larger part of its length.

The threaded hole 29 opens into a larger diameter bore 30 extending in the longitudinal direction of the clamping piece 25. Furthermore a slot 31 extending in the longitudinal direction of the clamping piece is formed in said clamping piece, said slot being eccentric to the central axis of the clamping piece, in such a manner that a wing 32 extending in the longitudinal direction of the clamping piece is formed, which is only connected to the remaining part of the clamping piece by a connecting part 33 which is thinner than the remaining part of the wing 32.

Three threaded bores 34 are provided in the clamping piece, diametrically opposite the wing 32.

As is furthermore illustrated in Figure 10, slotted holes 35 extending in the longitudinal direction of tubes 9 to be secured to the corner pieces are provided in the ends of said tubes.

The clamping piece shown in Figure 9 may be inserted into a tube, in such a manner that two threaded holes 34 will be positioned near the slotted hole 35. Subsequently bolts 36 may be passed through said slotted hole and be screwed into the threaded holes 34, in such a manner that the ends of said bolts will abut against the boundary surface of the wing 32 facing the threaded holes 34.

When the bolts 36 are firmly tightened the clamping piece 25 will be clamped against the inner wall of the tube 9, at least along four lines of contact extending in the longitudinal direction of the tube 9, as is indicated in Figure 11.

The length of the slotted hole 35 is such that two threaded holes 34 arranged side by side are accessible via the slotted hole 35, so as to be able to screw in the bolts 36. It will be apparent that as a result of three regularly spaced-apart threaded holes 34 being provided it is possible to secure the clamping piece in two different positions with respect to the tube body 9, by moving the clamping piece in the longitudinal direction of the respective tube 9, so that the distance between the legs to be interconnected by means of the tube 9 can thus be adjusted in a simple manner.

Figures 12 - 14 show a clamping mechanism 37, by means of which two tubes 9 extending perpendicularly to each other (Figure 15) can be interconnected. The clamping mechanism comprises a shaft built up of two parts 38 and 39 being in line. The larger diameter part 39 is externally threaded. A shell 40 projecting from said shaft and being integral therewith connects to one end of the shaft 38, 39. As will be apparent in particular from Figure 12, said projecting shell 40 is curved about a central axis intersecting or crossing the central axis of the shaft perpendicularly.

Said shaft is furthermore provided with a slot 41 extending in the longitudinal direction of said shaft, in which slot a clamping wedge 42 is movably accommodated. Said clamping wedge 42 is provided with a projecting nose 43, which is positioned in a groove 44 provided in a clamping nut 45 which is screwed on the threaded portion 39 of the shaft. Furthermore the free end of the clamping wedge 42 is slightly conical, because the boundary surface of this end of the wedge 42 facing the shell 40 extends in the direction of the free end of the wedge, in a direction away from the shell 40.

Furthermore a few threaded bores 46 including an angle with each other are provided in said shaft portion 38.

One of the tubes 9 to be interconnected can be slid over the shaft portion 38 until the free end of the respective tube abuts against the shoulder formed at the transition between the shaft portions 38 and 39. The tube in question can then be fixed to the shaft portion 38 by means of bolts, which are passed through holes provided in the respective tube for that purpose, and be screwed into the threaded holes 46.

The shell 40 may be placed on top of the other one of the two tubes 9 to be interconnected, whereupon the conical end of the clamping wedge 42 can be moved under the tube in question by tightening the nut 45, as a result of which the respective tube is clamped down between the shell 40 and the end of the clamping wedge 42.

Figures 4 and 16 show a view of the structural portion of the part 12 of a leg 11, leaving out the cover plates 47 shown in Figure 3, which cover said structural portion. As will be apparent from Figures 16 - 18, said structural portion of the leg part 12 is built up of two identical parts 48 and 49, which are folded of sheet material. Each part thereby comprises a web 50, to which a flange 51 extending perpendicularly to said web connects at one end. The free end of said flange 51 is bent so as to form an edge 52. A flange 53 deflected through an angle of 45° with respect to the web 50 connects to the longitudinal edge of the web 50 remote from the flange 51, said flange 53 at its longitudinal edge remote from the web 50 blending into a further flange 54 including an angle of 90° with the flange 53.

As will be apparent from Figures 17 and 18, the two parts 48 and 49 are thereby interconnected by securing the bent edges 52 of the flanges to the webs 50, for example by spot welding, in such a manner that parts of the webs 50 and the flanges 51 form a hollow tubular sleeve. As will furthermore be apparent from Figure 16, holes 55 are provided one above the other in the webs 50, whilst holes 56 are provided one above the other in the flanges 53 and 54.

A standard 58 of the leg part 13 secured to a baseplate 57 of the leg 11 (Figure 4) is movably accommodated in the tubular portion of the leg part 12. Said standard 58 may thereby be fixed in a desired position with respect to the leg part 12 by means of pins or bolts or the like to be passed through the holes 55.

The standard 58 is furthermore covered by cover plates 59 secured to the baseplate 57, said cover plates falling within the spaces bounded by the flanges 51, 53 and 54, when seen in plan view in Figures 17 and 18.

The cover plates 47 may be connected to the leg part 12 by using resilient mounting brackets 60, which are moved over the flanges 53 and 54.

An extension piece 23 (Figure 7) is of the same construction as the leg part 12, and the leg part 12 is thereby interconnected with one extension piece or extension pieces 23 by means of a coupling piece, which fits into the tubular sleeves formed by the parts 50 and 51 and which can be fixed to said tubular sleeves by means of bolts to be passed through the holes 55.

Similarly to the leg 11, the lower part 18 of the column 17 shown in Figure 7 is built up of two parts which are capable of telescoping movement relative to each other, whereby the construction of the part 61 supported on the ground in principle corresponds with the construction of the leg part 13 of the leg 11 supported on the ground.

The structural portion of the lower part 18 of the column 17, to which the tabletops and the like are attached, is shown in more detail in Figure 19.

As shown in Figure 19 said structural portion comprises two plate-shaped parts 61 and 62 extending parallel to each other, said parts being interconnected by U-shaped sections 63 and 64 disposed between said plate-shaped parts. As will be apparent from Figure 19, portions of the plate-shaped parts 61 and 62 and the sections 63 and 64 form a tubular means, in which the structural portion of the part 61 supported on the ground

of the part 17 of column 17 can be movably and adjustably accommodated.

Flanges 65 being integral with the plate-shaped parts 61 and 62 connect to the longitudinal edges of said plate-shaped parts, said flanges extending from their connecting edges to the respective plate-shaped parts in a direction towards each other, at an angle of 45° with the plate-shaped parts. The flanges are provided with holes for attaching further parts thereto, as will be explained in more detail hereafter. Also here cover plates 47 are provided in a similar manner as described above with reference to Figures 16 - 18.

Figures 20 - 22 show a frame part, which is secured to the column 17 for supporting the tabletops.

Said frame part comprises a horizontally extending beam 66, which is connected, by means of a connecting piece 67 extending perpendicularly to the beam 66, to a beam 68 extending parallel to the beam 66 and being in line therewith, seen in plan view (Figure 20). Furthermore one end of a shore 69 sloping downwards from the beam 66 butts against the bottom side of the beam 66.

Coplanar connecting plates 70 extending perpendicularly to the longitudinal direction of the beam 68 are secured to the ends of the beams 68 and 69 by means of connecting ribs 71.

A rod 70' extending upwards from the beam 69 is furthermore secured to the end of the beam 69 remote from the beam 66, said rod extending to a position above the beam 68 and also being secured to said beam 68. The ends of beams 72 being coplanar with the beam 66 are secured to the free end of the beam 66, said beams 72 including an angle of approx. 45° with the beam 66. Beams 73 extending perpendicularly to the beams 72 are secured to the free ends of said beams 72. Connecting beams 74 connecting the beams 73 to the beam 66 are provided near the ends of the beams 73 remote from the beams 72.

Furthermore coupling pieces 75 are provided on the beams 72, for securing beams 9 extending under the tabletops thereto.

A connecting bracket 77, which is only shown in Figure 20, is vertically movable along the rod 70' and can be clamped down on the rod 70', by means not shown in detail, at any desired location, both on the part located between the beams 69 and 68 and on the part of the rod 70' extending above the beam 68, according to which is desired.

As will be apparent from Figure 20, the connecting bracket has two curved arms 78 positioned on either side of the rod 70'. Section pieces 79 are secured to the ends of said arms.

The frame part shown in Figures 20 - 22 can be secured to the column 17 by fixing the connecting flanges 70 to one of the flanges 65 (Figure 19) by means of bolts or the like. In addition to that the connecting sections 79 can be fixed to the flanges 65, which are positioned on either side of the flange 65 to which the plates 77 are fixed. The frame part shown in Figures 20 - 22 is prevented from rotating with respect to the column 1, about an axis extending in the longitudinal direction of the column, by means of the connecting bracket 77 thus clamped down on the respective flanges 65 and on the rod 70' via the sections 79.

The shape of the frame to be secured to the column 17 may be adapted to the shape of the tabletops to be supported and/or to the the angle which the tabletops butting against the column include with each other. Thus Figures 23 and 24 show an embodiment of such a piece of furniture wherein two short frame beams 80 butt against the free end of the frame beam 66, said frame beams 80 extending at an obtuse angle with respect to the frame beam 66 in a direction remote from the frame beam 68. Frame beams 81 extending perpendicularly to the frame beams 80 are connected to the free ends of said frame beams 80, which beams 81 are also connected to the frame beam 66 by means of connecting beams 82. Beam parts 83 extending parallel to the beams 80 connect to the ends of the beams 81 remote from the beams 80.

It will be apparent that thus several variations are conceivable, whereby the connection of the frame parts to the column 17 by means of parts 70 and 77 will be the same for every variant, however.

As shown in Figure 25, tabletops 22 may also be secured to the column 17 by means of corner supports 84, which are illustrated in more detail in Figures 26 and 27. The corner supports 84, which are made of sheet material, comprise two legs 85 and 86 extending perpendicularly to each other. The horizontal leg 86 is provided with a flange 87, which is bent with respect to said leg, on which flange a tabletop is to be supported. The other vertical leg 85 is provided with a bent flange 87 along its vertically extending longitudinal edge, which flange includes an angle of about 45° with the leg, as is shown in Figure 27. The corner support 84 can be connected to the column 17 by means of said leg 97, by securing said flange to one of the flanges 65 by means of bolts or the like, as is shown in more detail in Figure 19. It will be apparent, that in view of the larger number of holes provided one above the other in the flanges 65, supports 84 can thus be secured to the column 17 at any desired level for supporting tabletops, bookshelves or the like, for example. As will furthermore be apparent from Figure 19, the bolts 89 or the like fasteners, by means of which the supports 84 are secured to the column 17, are covered by the cover plates 47.

Figures 28 and 29 show a strap 90 for securing a tabletop 10 to a frame tube 9. The strap 90 is slightly wider at one end than the remaining part of the strap 90, and a pin 92 extending perpendicularly to the longitudinal direction of the strap 90 is provided on said enlarged end, said pin with both ends projecting from the enlarged end of the strap 90. A curved latch part 94 connects to the other end of the strap 90 via a connecting part 93 extending perpendicularly to said strap, said latch part on its outer side being provided with teeth 95. A part 96 forming a handle connects to the free end of the latch part 94.

As shown in more detail in Figure 30, coupling pieces 97 are secured to the bottom side of a tabletop 10 at desired locations, the bottom side of said coupling pieces being adapted to the profile of the tube 9, so that the tube 9 can be provided against the bottom side of the connecting block 97 in closely abutting relationship, as shown in Figure 30.

As is furthermore apparent from Figure 30, the connecting block is provided with a recess on one side, into which the pin 92 can be hooked. On its other side said connecting block is provided with an opening, into which the connecting part 93 and the latch part 94 connecting thereto can be pushed by exerting a pushing force on the part 96. The teeth 95 will thereby cooperate with teeth provided in the opening in the connecting block 97, into which the latch part 94 is inserted after the strap 90 made of a flexible material has been wrapped around the tube 9 in the manner shown.

It will be apparent that the latch part 94 of the strap can be quickly released from the connecting block 97 again by pressing the latch part 94 slightly downwards, seen in Figure 30, against the spring force of the material of which the strap 90 is made, so that the teeth 95 will be disengaged from the teeth provided in connecting block 97. Thus the strap 90 and the associated parts form some kind of quick-acting fastener, by means of which a tabletop 10 can be quickly secured to frame tubes 9 or be detached therefrom.

Figures 31 and 32 are sectional views of a cable duct 100, which can be suspended from a horizontally extending frame tube 102 forming part of the piece of furniture by means of hooks 101 provided in spaced-apart relationship in the longitudinal direction of the cable duct. As is apparent from Figures 31 and 32, the hook comprises a leg 103 extending under the cable duct 100 and a leg 104 extending along one side of the cable duct and perpendicularly connecting to said leg 103. At its upper end the leg 104 blends into an arm 106 via a curved part 105, said arm at its free end being provided with a tongue 107, which is bent back with respect to said arm.

The upper boundary surface 108 of the part of the arm 106 connecting to the curved part 105 includes an obtuse angle with the upper boundary surface 109 of the part of the arm 106 to which the tongue 107 connects.

Near the transition between the curved part 105 and the arm 106 a projecting cam 110 is provided on the side of the arm remote from the boundary surface 108.

In the position shown in Figure 31 the curved part 105 abuts against the correspondingly profiled frame beam 102, and the cam 110 abuts against the frame beam 102 on the side of the frame beam remote from the duct 100. Near the transition between the boundary surfaces 108 and 109 the arm 106 butts against the bottom side of the tabletop 10. The cable duct 100 is thereby positioned closely below the tabletop 10 and the shelf 16 respectively.

The hooks 101 can be moved from the position shown in Figure 31 to the left, seen in Figure 31, by exerting a suitable force on said hooks 101, whereby the cam 110 moves over the frame beam 102 and the hooks pivot counter-clockwise with respect to the frame beam 102, seen in Figures 31 and 32. The hooks supporting the duct 100 are prevented from sliding off the frame beam 102 because the tongues 107 will abut against the frame beam 102. By tilting the duct downwards with respect to the tabletop 10 and the shelf 16 respectively in this manner the cables present in the duct 100 will become readily accessible for carrying out maintenance work or the like.

If it is desired to detach the hooks 101 completely from the frame beam 102 the tongues 107 can be depressed in the direction of the arms 106, after which the arms 106 and the tongues 107 attached thereto can be moved over the frame beam 102. It will be apparent that the hooks can be provided again in a similar manner.

A cable guide means 111 suspended from the cable duct may be utilized for passing cables from cable ducts conventionally provided in the floors of office buildings and the like to the cable duct 100 provided under the tabletop 10 and the shelf 16 respectively, said cable guide means extending between the floor and the cable duct 100, as is diagrammatically illustrated in Figure 1. Said cable guide means 111 comprises a plurality of links 112 positioned one above the other, as is shown in perspective view in Figure 33. Each link 112 comprises a substantially elliptically curved strip-shaped part 113, the free ends 114 of which are spaced some distance apart. A partition 115 butts against the centre of the strip-shaped part 113. Near the location where the partition 115 butts against the strip-shaped part 113 an ear 116 butts against the upper edge of the strip-shaped part 113, in which ear a hole 117 is provided. A recess is provided in the strip-shaped part 113 under the ear 116, said recess on one side being bounded by a wall portion 118 connected to the partition 115. On said wall portion 118 a pin 119 is provided. The guide means is divided into two passages by means of partitions positioned one above the other, one of which passages can for example be used for power current cables and the other for data lines.

The parts 112 positioned one above the other can be interconnected by providing a projecting ear 116 in a recess in a link 112 occupying a higher position, whereby a respective pin 119 is inserted into the hole 117. The construction is thereby such that the links positioned one above the other can rotate through a certain angle about the pins 119 with respect to each other.

A lowermost link 112 of the cable guide means 111 is coupled to an ear 120 corresponding with an ear 116 for fixing said cable guide means to the ground, said ear 120 being secured to a more or less horse-shoe shaped connecting plate 121, which is to be secured to a cable duct or to the floor (Figures 36 and 37).

A rectangular frame 122 (Figure 34) to be secured to the cable duct, which is integral with a link 123 corresponding with a link 112, may be used for the connection to the cable duct 100. The uppermost link 112 of the cable guide means 111 may be connected to said link 123.

When a narrow cable duct is used a U-shaped connecting piece 134 illustrated in Figure 35 may be utilized, to which connecting piece a link 123 is secured in a similar manner as in the embodiment according to Figure 33.

Figures 38 - 40 show the pivoted connection of a shelf 16. At the bottom side of the tabletop 10 a connecting piece 125 is provided, which comprises an arm 126 projecting beyond the tabletop 10 and being positioned lower than said tabletop. The part of the connecting piece positioned under the tabletop is provided with a downwardly projecting nose 127.

A coupling rod 129 is pivoted to the arms 126 by means of a horizontally extending pivot pin 128. The end of the coupling rod 129 remote from said pivot pin 128 is pivoted, by means of a pivot pin 130 extending parallel to the pivot pin 128, to a support 131 secured to the shelf 16. Said support 131 is provided with a projecting arm 132, to the free end of which a nose 133 is secured. Furthermore the arm 126 is provided with an upwardly extending stop 134 on the side of the pivot pin 128 remote from the tabletop.

As will be apparent from Figure 38, the two noses 127 and 133 engage each other in the horizontal position of use of the shelf 16 and the support 13 rests on the end of the arm 26 projecting beyond the stop 134. Thus a solid support of the shelf 16 in the horizontal position has been achieved. The shelf can be moved from the position shown in Figure 38 to the raised position shown in Figure 40, thereby passing the position shown in Figure 39. At the beginning of said movement the coupling rod 129 may pivot a little in a direction away from the tabletop 10, until said coupling rod abuts against the stop 134. As a result of this the facing longitudinal edges of the tabletop 10 and the shelf 16 can move apart a little, so that the shelf 16 can subsequently be raised without coming into conflict with longitudinal edge of the tabletop 10. Partly as a result of the hinge construction comprising the coupling rod 129, the shelf 16 will be slightly inclined towards the tabletop 10 in the raised position the shelf 16, so that a stable position of the shelf 16 is obtained in the raised position as well.

Figures 41 and 42 show a two-part coupling means 135. One part 136 of the coupling means is formed of a block having a section substantially in the shape of a right-angled triangle, two boundary surfaces 137 and 138 of which means include an angle of 45° with each other. A leg 139 provided with holes 140 and extending perpendicularly to the boundary surface 137 is contiguous to the corner point where the boundary surfaces 137 and 138 meet.

As is furthermore apparent from Figures 41 and 42 a frustoconical recess 141 is provided near the third boundary surface of the body having a triangular section, whereby the bottom of said recess connects to a threaded hole 142 provided in the block 136.

The second part 143 of the coupling means comprises a shell-shaped part 144 having a rib 145 extending perpendicularly thereto, said rib being integral with a frustoconical body 146, which, as will be apparent from the Figures, fits into the recess 141 provided in the part 136 of the coupling means. A passage 147 is thereby provided in said rib and in the body 146 for receiving a screw having a recessed head to be screwed into the threaded hole 142, by means of which the two parts of the coupling means 135 can be fixed together.

Furthermore a hub 148 is positioned in the shell-shaped means 144, in which a threaded hole 149 is provided. The central axis of said threaded hole extends perpendicularly to the straight boundary surface 150 of the shell-shaped means 144.

As is illustrated in Figure 43 a coupling means 135 of this type can be secured, by means of the projecting leg 139, to a flange 65 of a leg or the like, and also to for example a flange 53 or 54 of a leg shown in Figure 18, of course. It is possible thereby to secure a single connecting means 135 to such a flange, but also two connecting means butting against each other with their boundary surfaces 137 may be secured thereto.

As is furthermore apparent from Figures 41 and 42, the shell-shaped means 144 can be fixed in several positions with respect to the central axis of the part 136 by rotating said means about the central axis of the holes 142, 147, for example in a first position, in which the straight boundary surface 150 extends perpendicularly, or in a second position, in which said boundary surface 150 extends horizontally. Parts may be fixed to said shell-shaped part by means of screws or the like to be screwed into the threaded hole 149.

Claims

1. A piece of office furniture comprising a tabletop and legs supporting said tabletop, characterized in that the individual elongated legs are connected to separate tubes interconnecting the legs and supporting the tabletop, whilst the tabletop is detachably secured to the tubes by means of quick-acting fasteners.

2. A piece of office furniture according to claim 1, characterized in that said elongated legs are built up of parts which are telescopically movable and adjustable relative to each other.

3. A piece of office furniture according to claim 1 or 2, characterized in that two legs are connected to a tube which extends between said legs, said tube being coupled to said two legs by means of corner pieces, which have ends that fit in said legs and in said tube.

4. A piece of office furniture according to claim 3, characterized in that elongated clamping pieces are secured to said corner pieces, said clamping pieces extending perpendicularly to a plane through the central axes of two legs interconnected by means of said corner pieces and a tube, whilst the parts of said clamping pieces projecting beyond the corner

pieces are inserted into further tubes interconnecting legs.

5. A piece of office furniture according to claim 4, characterized in that a clamping piece comprises an elongated body to be inserted into a tube, in which a slot being eccentric to the central axis of the elongated body is provided, in such a manner that a comparatively thin wing is formed, which forms part of the clamping piece and which is at one end secured to the remaining part of said clamping piece, whilst threaded holes are provided in a part of the clamping piece located opposite said wing for screwing bolts therein.

6. A piece of office furniture according to claim 5, characterized in that three bolt holes are provided in spaced-apart relationship in the longitudinal direction of said clamping piece, whilst a slotted hole is provided in an end of a tube to be clamped down by means of said clamping piece, the length of said slotted hole being such that two bolts can be screwed into the clamping piece through said slotted hole.

7. A piece of office furniture according to any one of the preceding claims, provided with a clamping piece for interconnecting two tubes crossing each other perpendicularly, whereby the clamping piece is provided with an elongated shaft, which is at one end provided with a shell-shaped part to be placed on a tube, whilst a keyway is provided on the side of the shaft remote from said shell-shaped part, in which a key is slidably accommodated, in such a manner that said key can be moved under the tube on which said shell-shaped part is placed.

8. A piece of office furniture according to claim 7, characterized in that said shaft part is externally threaded along part of its length, and that a nut is screwed on said part for moving said key.

9. A piece of office furniture according to claim 8, characterized in that said key is provided with a protrusion, which is positioned in a groove provided in said nut.

10. A piece of office furniture according to any one of the claims 7 - 9, characterized in that threaded holes are provided in an end of the shaft remote from said shell, which end is thinner than the remaining part of the shaft, said threaded holes functioning to clamp the end of a tube down on said part of the shaft.

11. A piece of office furniture according to any one of the preceding claims, characterized in that said tabletop is secured to a tube by means of a flexible strap connected to one end of said tabletop, which strap is at its other end provided with a latch means, which can be detachably inserted into a receiving hole connected to said tabletop.

12. A piece of office furniture according to claim 11, characterized in that said flexible strap is at one end provided with with a pin projecting from said strap with its ends, said pin being hooked in a corresponding recess in a connecting block provided on the bottom side of said tabletop.

13. A piece of office furniture according to claim 11 or 12, characterized in that said flexible strap is at one end provided with a connecting part extending perpendicularly to the strap, by means of which a toothed wing is connected to said strip, whilst a connecting block provided on the bottom side of said tabletop is provided with a toothed recess for receiving said toothed wing.

14. A piece of office furniture according to claim 13, characterized in that a handle is secured to the end of said wing.

15. A piece of office furniture according to any one of the preceding claims, characterized in that one leg part is provided with flanges including an angle with each other, in which holes are provided one above the other.

16. A piece of office furniture according to claim 15, characterized in that one leg part comprises four flanges, whose imaginary extensions extend perpendicularly to each other.

17. A piece of office furniture according to claim 15 or 16, characterized in that said flanges form part of folded plate-shaped parts, which are interconnected in such a manner that parts thereof define a tubular sleeve, in which a further leg part is telescopically movable.

18. A piece of office furniture according to any one of the claims 15 - 17, characterized in that a frame part is secured to a leg part for supporting a tabletop or the like, whereby said frame part is provided with two plate-shaped parts positioned one above the other, by means of which said frame part can be secured to a flange of a leg part, whilst said frame part is furthermore provided with a vertically extending rod, to which an arc-shaped coupling piece is secured, which is at its ends provided with fastening means, by which said coupling piece can be secured to two further flanges of the leg part, which are located on either side of the flange part to which said plate-shaped parts are secured.

19. A piece of office furniture according to claim 18, characterized in that said coupling part is vertically

adjustable with respect to said frame part and can be fixed in a desired position.

20. A piece of office furniture according to any one of the preceding claims, characterized in that a corner support is secured to a flange of the leg part by means of a flange forming part of said corner support, said flange extending at an angle of substantially 45° with respect to a part of the corner support connecting thereto.

21. A piece of office furniture according to any one of the preceding claims, characterized in that said piece of office furniture is provided with a cable duct extending under a tabletop or the like, said cable duct being suspended from a tube by a few hook-shaped means, whereby said hook-shaped means are provided with arms positioned between said tube and said tabletop, an upper boundary surface of which comprises two parts including an angle with each other, all this in such a manner that said cable duct can be disposed in two different positions by moving the arms in a direction perpendicularly to the longitudinal direction of the tube and pivoting the arms about the central axis of the tube, whereby in a first position one part of the upper boundary surface of an arm abuts against the bottom side of the tabletop or the like and whereby in a second position the other part of the upper boundary surface of an arm abuts against the bottom side of the tabletop or the like.

22. A piece of office furniture according to claim 21, characterized in that the arm of a hook-shaped means is on its bottom side provided with a projecting cam cooperating with said tube.

23. A piece of office furniture according to claim 21 or 22, characterized in that a resilient lip is provided on the free end of the arm of a hook-shaped means, which lip abuts against the tube in one position and which is spaced therefrom by some distance in the other position, and which can be pushed towards the arm in such a manner that said arm and said lip can be moved between said tube and the bottom side of the tabletop or the like.

24. A piece of office furniture according to any one of the preceding claims, characterized in that said piece of office furniture is provided with a cable guide means extending between the floor and the tabletop of said piece of office furniture, said cable guide means being provided with a plurality of links positioned one above the other and defining a hollow space, which links are interconnected by connecting means in such a manner that they can pivot with respect to each other about substantially horizontal pivot axes.

25. A piece of office furniture according to claim 24, characterized in that the interconnected links positioned one above the other have a substantially elliptic section.

26. A piece of office furniture according to claim 24 or 25, characterized in that each link has a projecting ear, which is positioned within a recess of an adjacent link, whilst both links are pivotally interconnected by using said ear.

27. A piece of office furniture according to any one of the preceding claims, characterized in that the lowermost link is pivoted to an ear, which is secured to a more or less horse-shoe shaped baseplate.

28. A piece of office furniture according to any one of the claims 24 - 27, characterized in that the upper end of said cable guide means is made up of a connecting part to be secured to a cable duct, said connecting part being integral with a part bounding a hollow space.

29. A piece of office furniture according to any one of the preceding claims, characterized in that a shelf extending parallel to a longitudinal edge of a tabletop is pivoted to said tabletop, in such a manner that the shelf can be raised from a position in which said shelf is in line with the tabletop to an upwardly extending position.

30. A piece of office furniture according to claim 29, characterized in that said shelf is connected to said tabletop by means of a coupling rod, which is pivoted to the shelf with one end and which is pivoted to an arm being secured to the tabletop with the other end, said arm projecting beyond said tabletop and being positioned lower than said tabletop.

31. A piece of office furniture according to claim 29 or 30, characterized in that said tabletop and said shelf are provided with projecting noses, which engage each other in the position of the shelf in which said shelf is in line with said tabletop.

32. A piece of office furniture according to claim 30 or 31, characterized in that a stop is provided, which limits a pivoting movement of the coupling rod in a direction away from said tabletop.

33. A piece of office furniture according to any one of the preceding claims, characterized in that said piece of office furniture is provided with coupling means built up of two parts which are adjustable relative to each other and which can pivot with respect to each other about a horizontal axis.

34. A piece of office furniture according to claim 33, characterized in that one of said coupling means is

provided with a projecting part, by means of which said coupling means can be secured to a flange of a leg, the extension of which includes an angle of 45° with the axis about which both parts of the coupling means can pivot with respect to each other.

35. A piece of office furniture according to claim 34, characterized in that the part to be secured to a flange of a leg extends perpendicularly to an adjoining boundary surface of the respective part of said coupling means.

36. A piece of office furniture according to any one of the claims 33 - 35, characterized in that the part which is capable of pivoting movement with respect to a part of the coupling means to be secured to a leg or the like comprises a shell-shaped part, in which a threaded hole is provided.

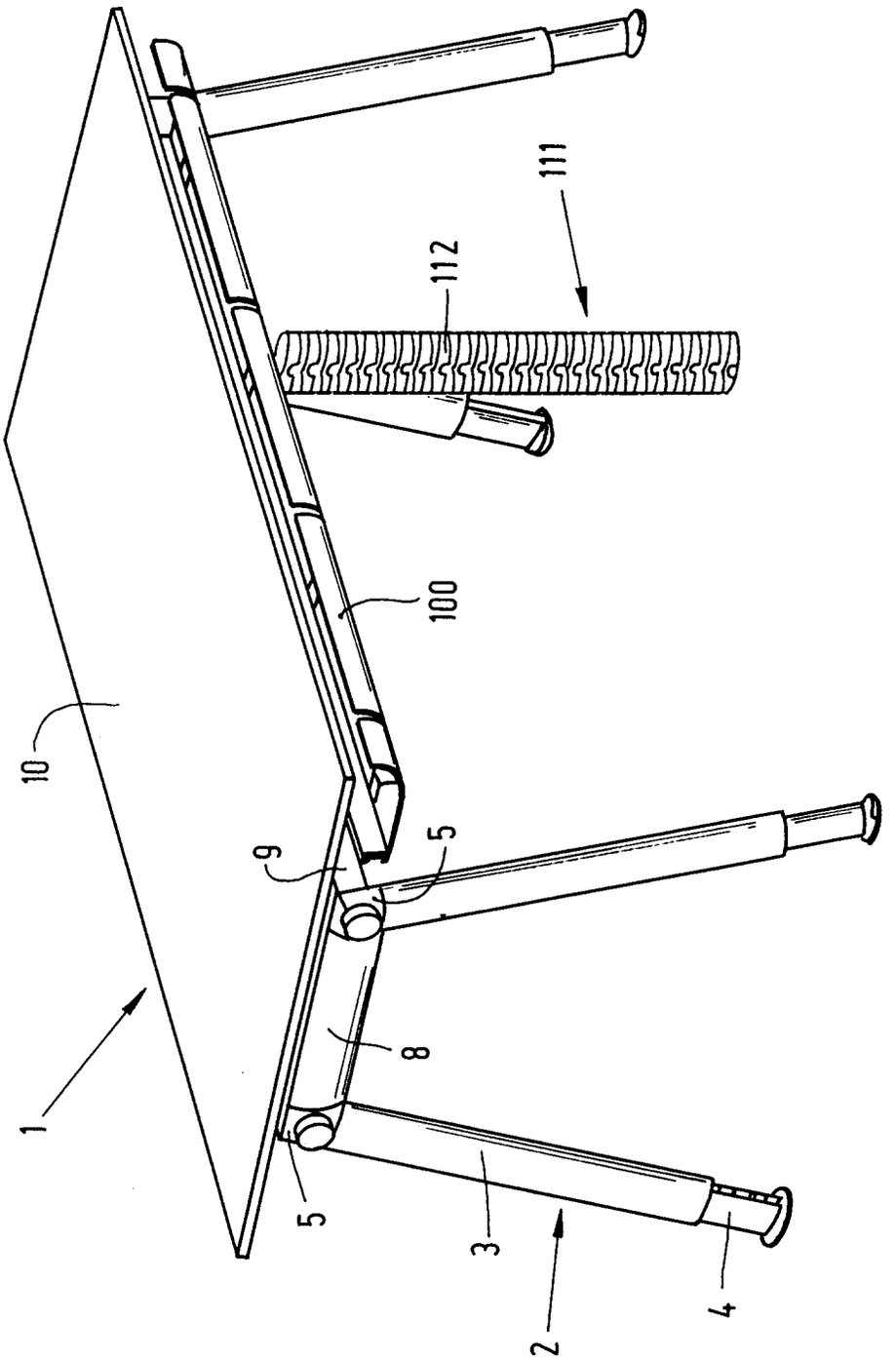


FIG.1

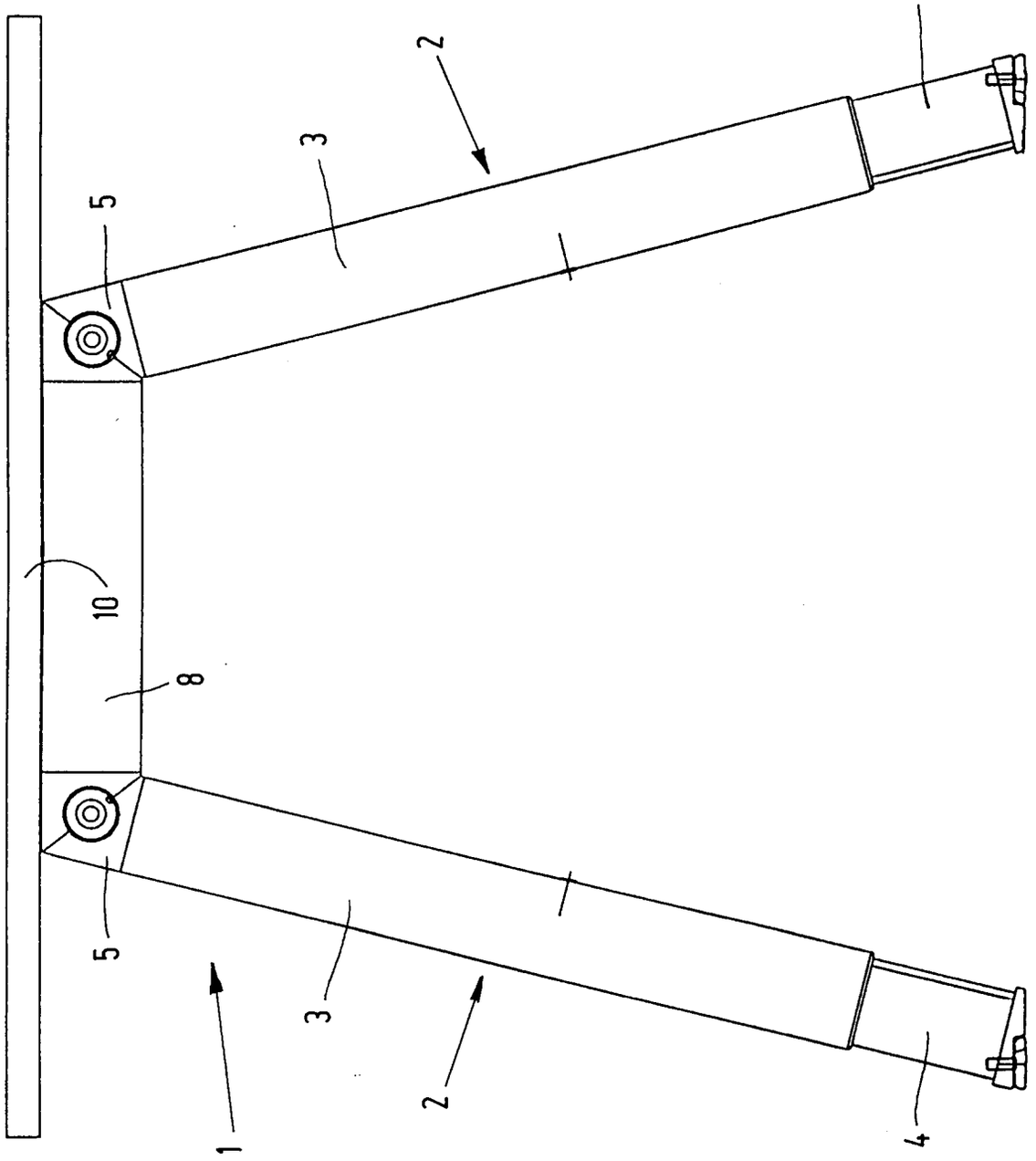


FIG.2

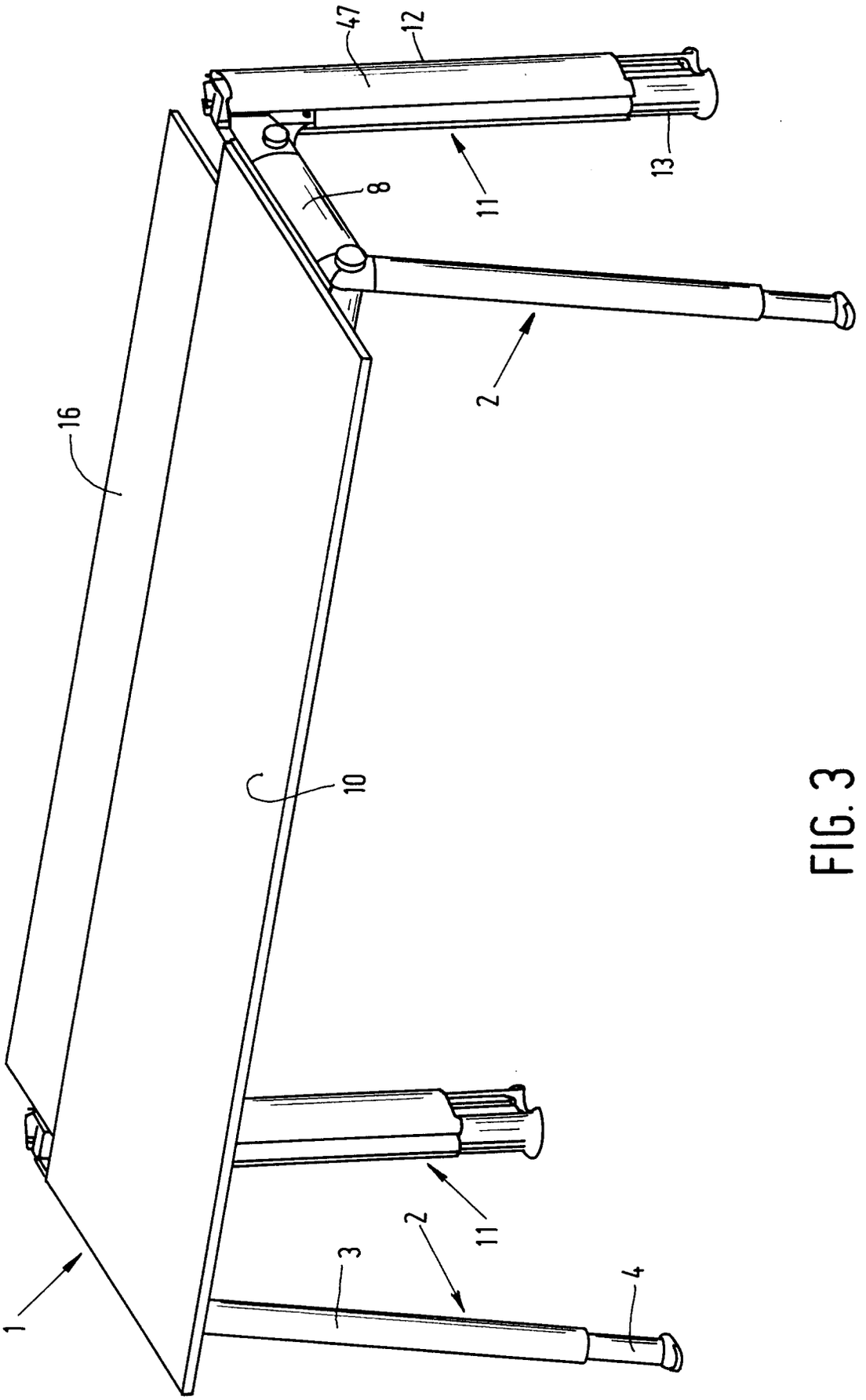


FIG. 3

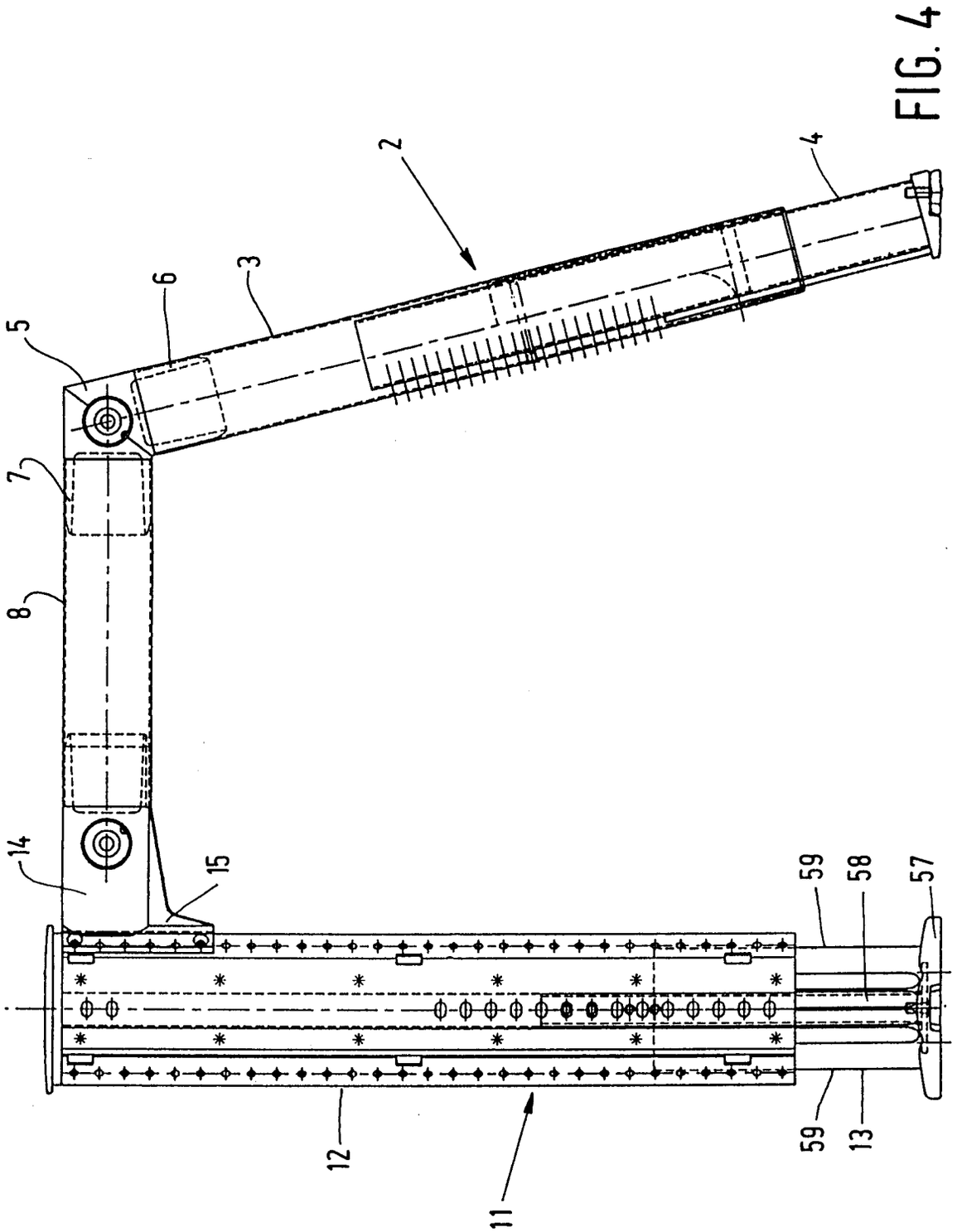


FIG. 4

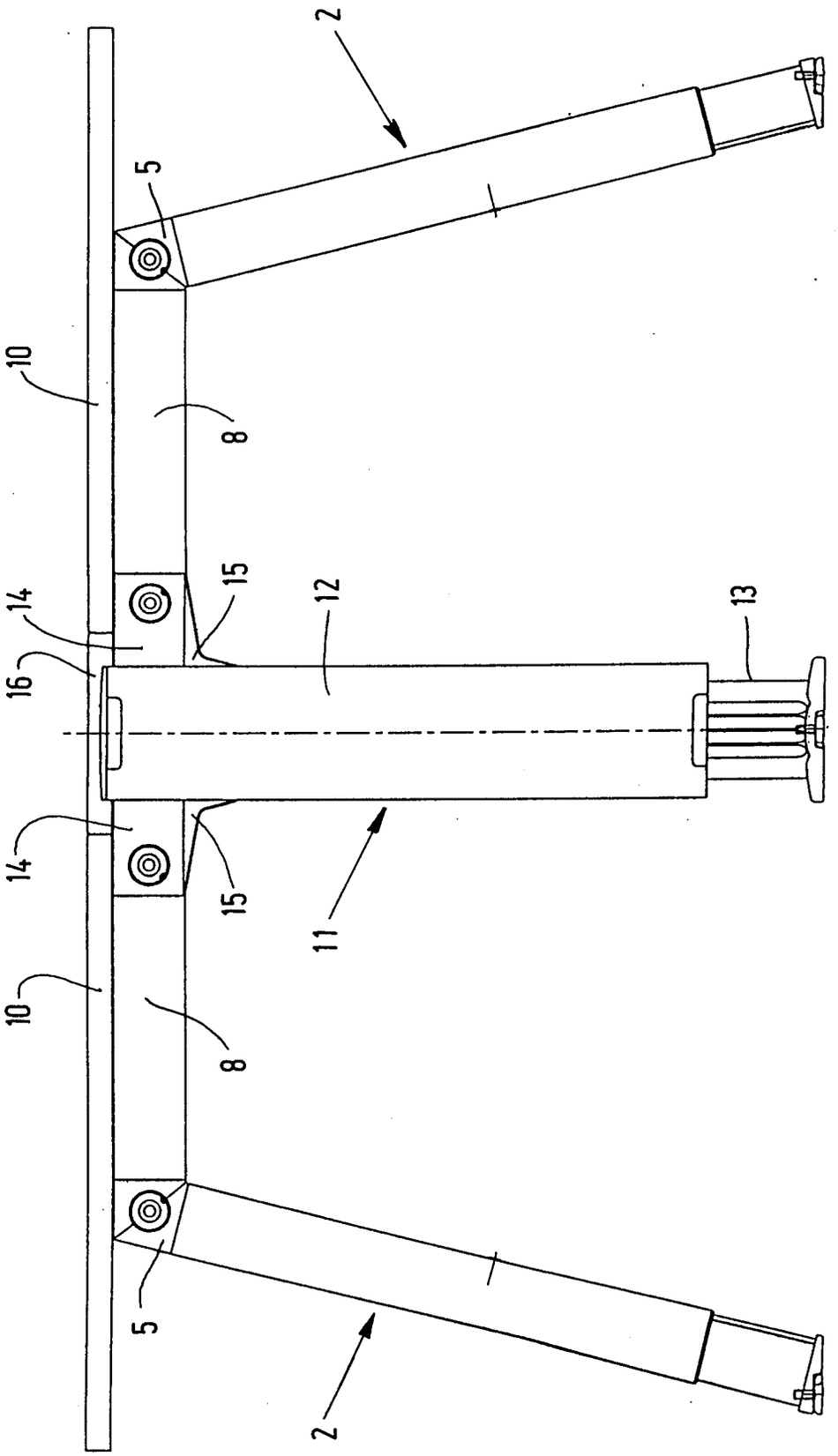


FIG.5

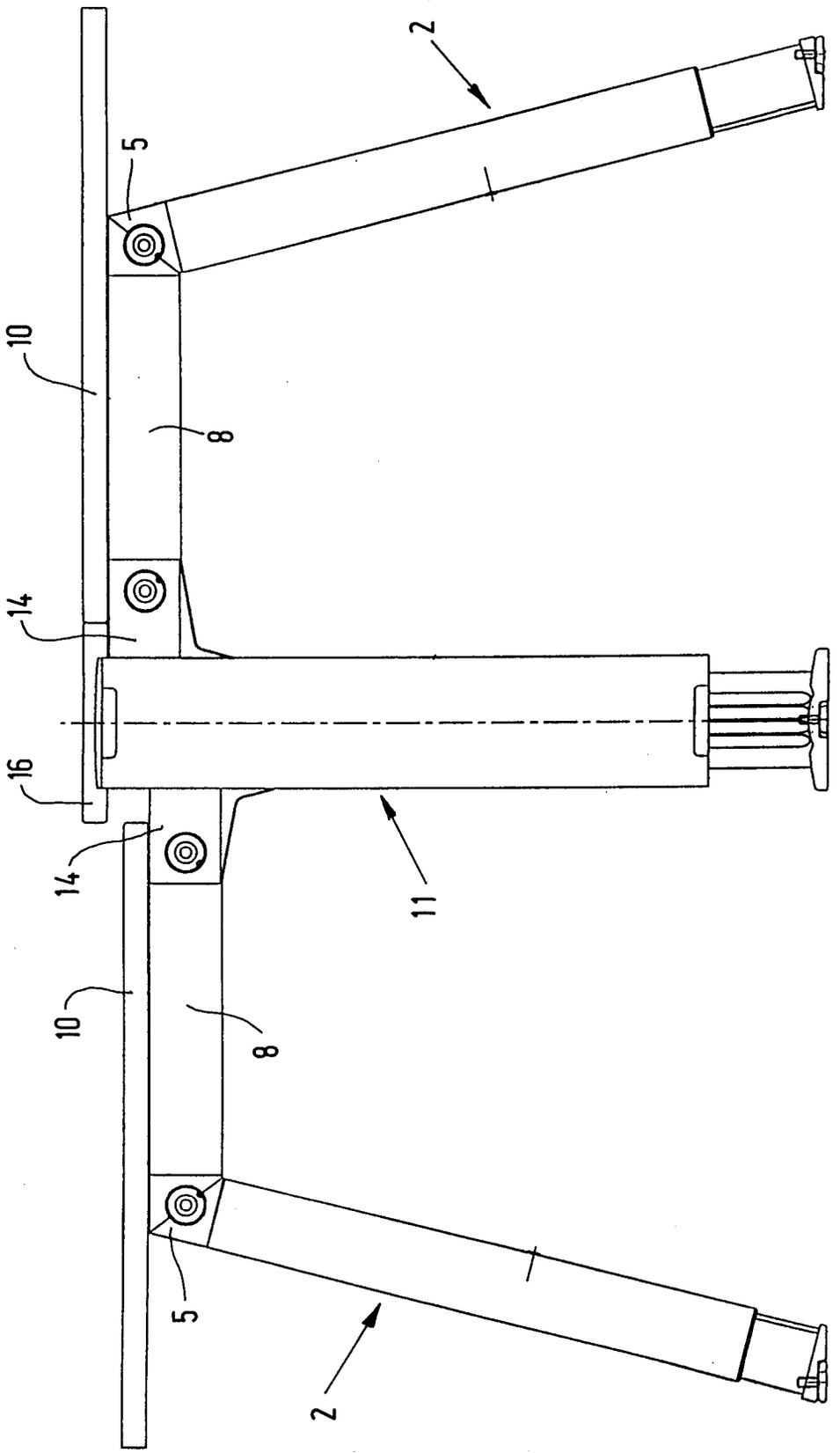


FIG. 6

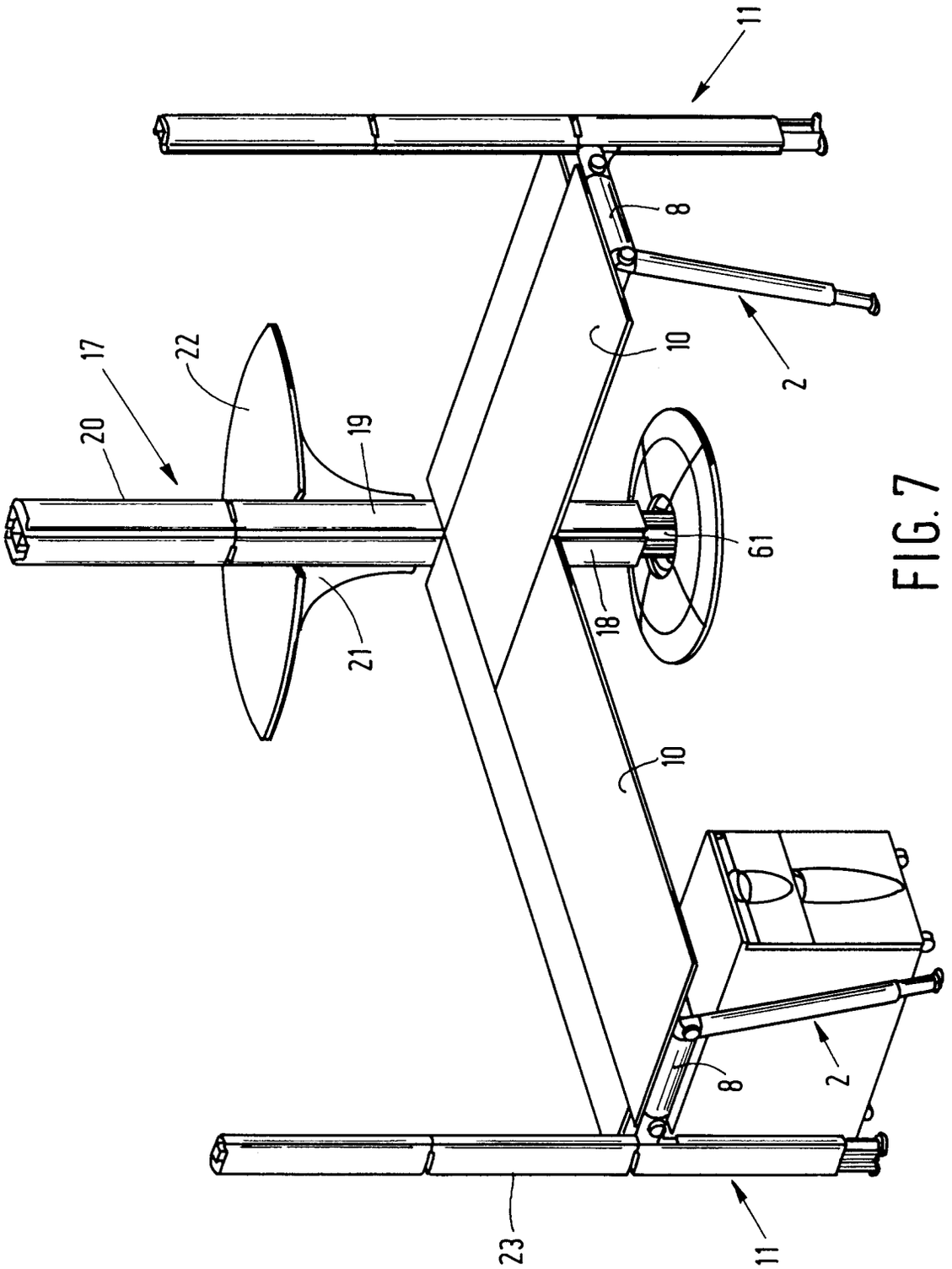


FIG. 7

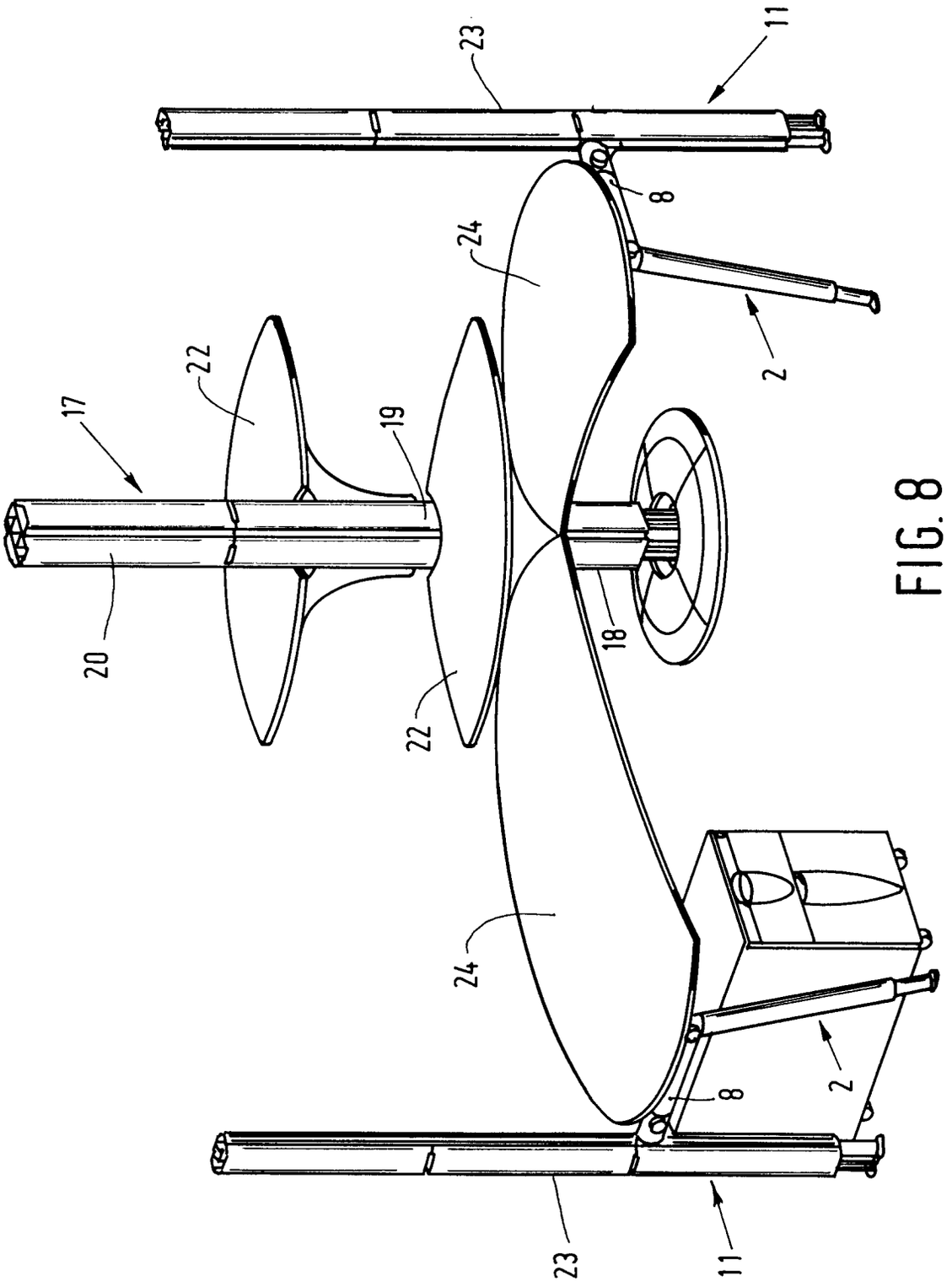


FIG. 8

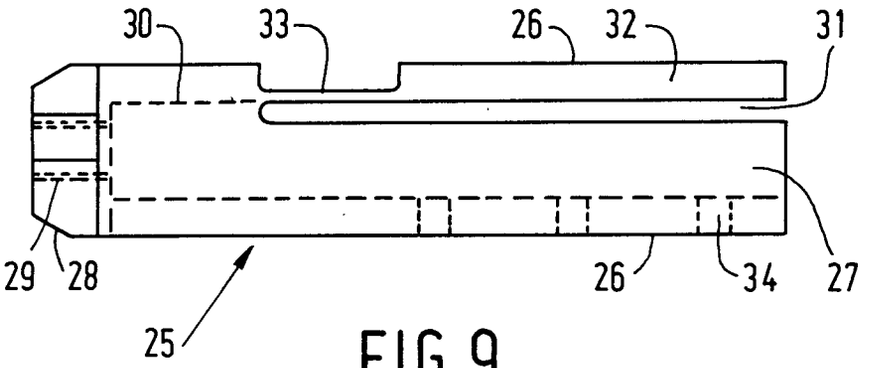


FIG. 9

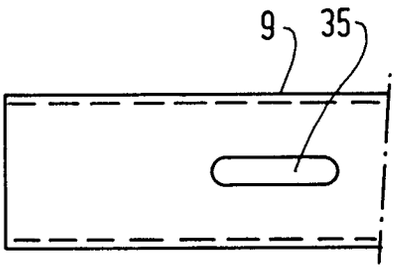


FIG. 10

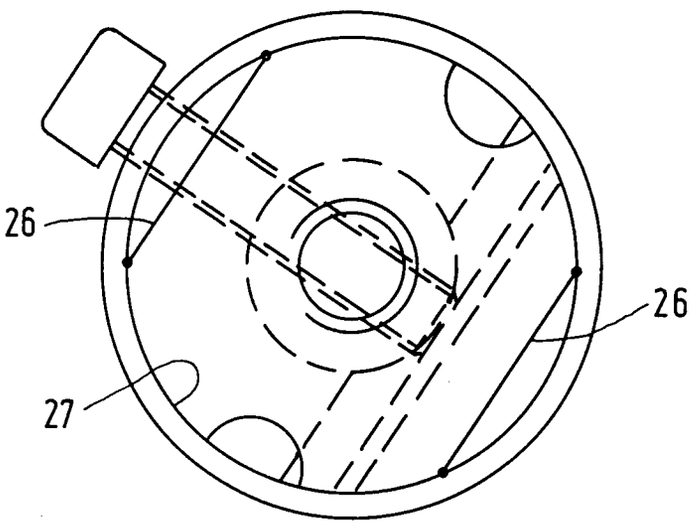


FIG. 11

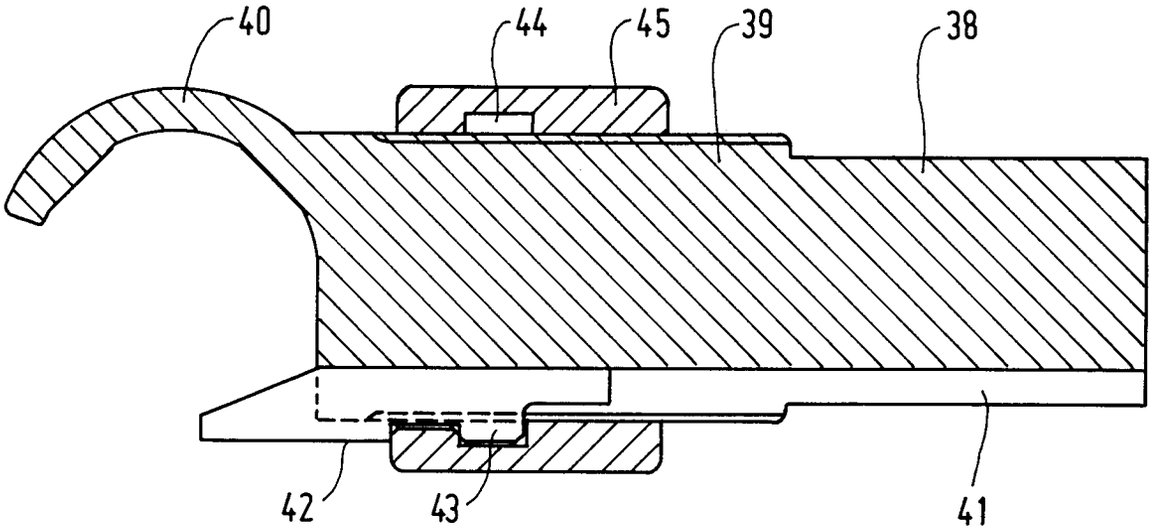


FIG. 12

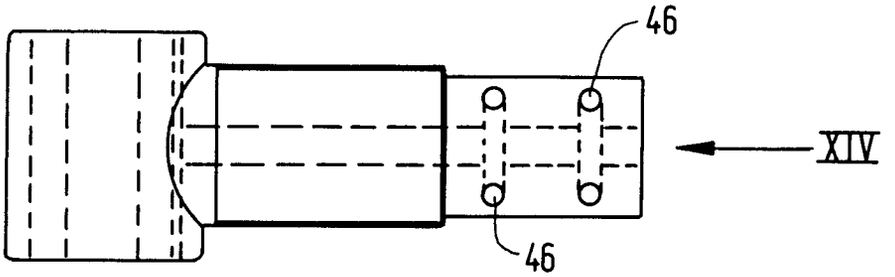


FIG. 13

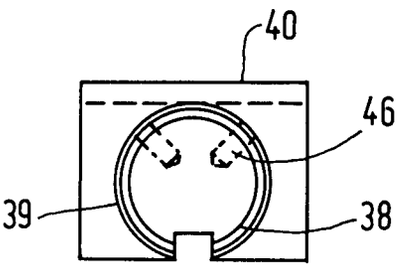
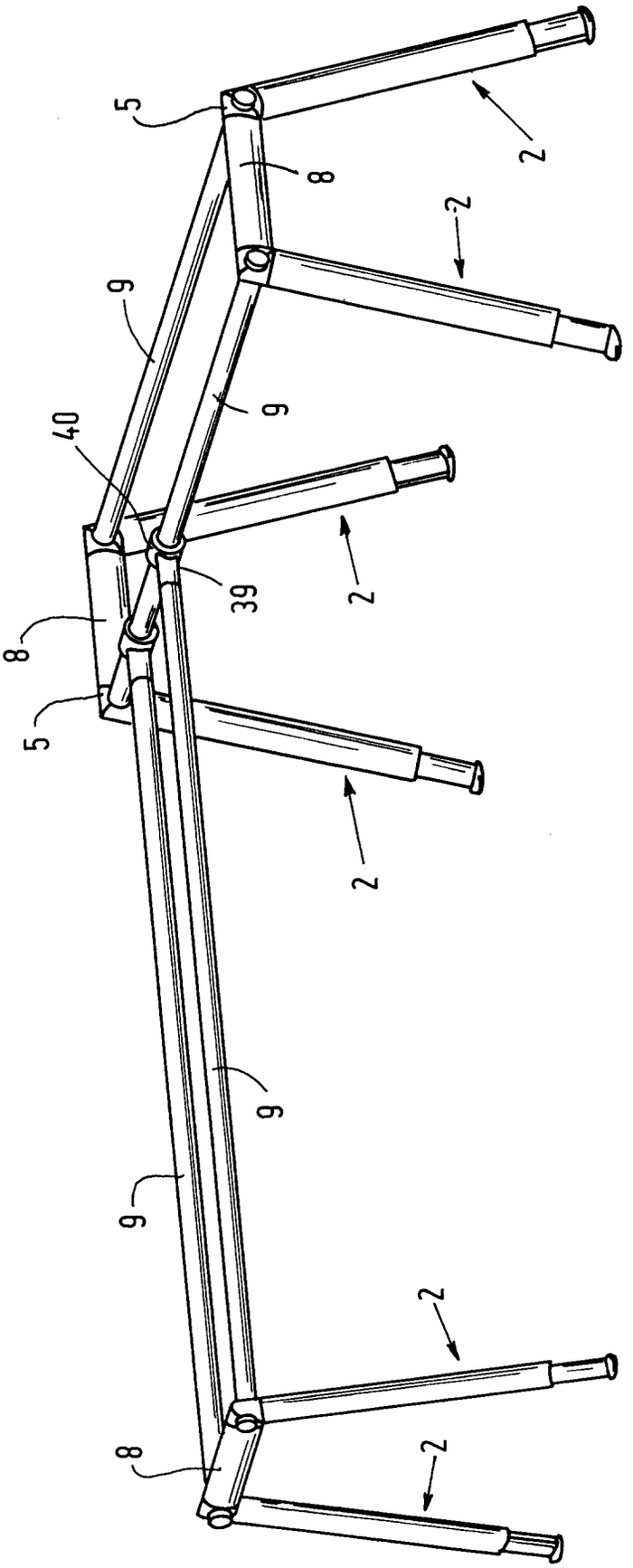


FIG. 14



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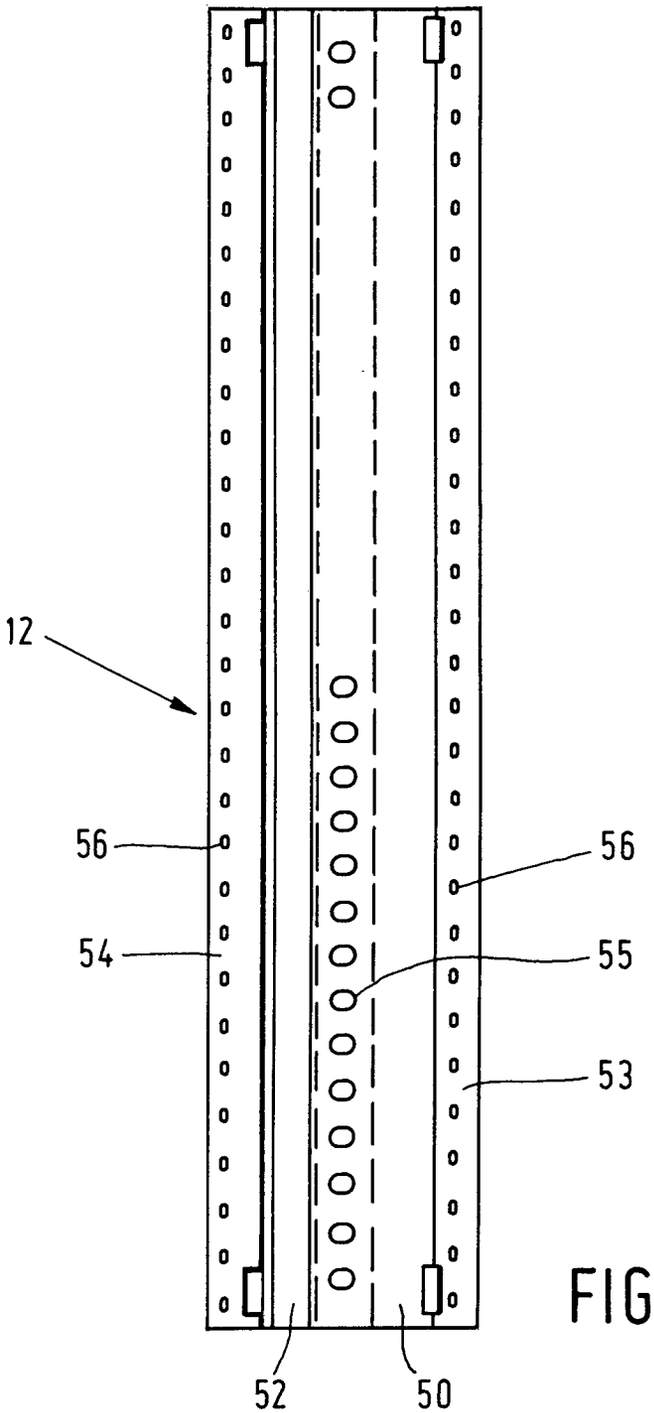
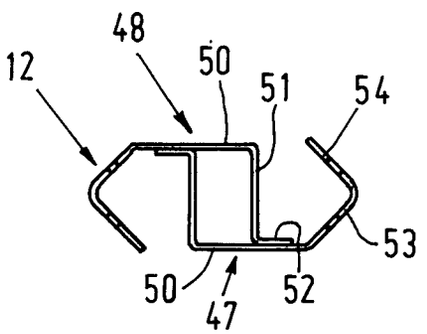


FIG. 16



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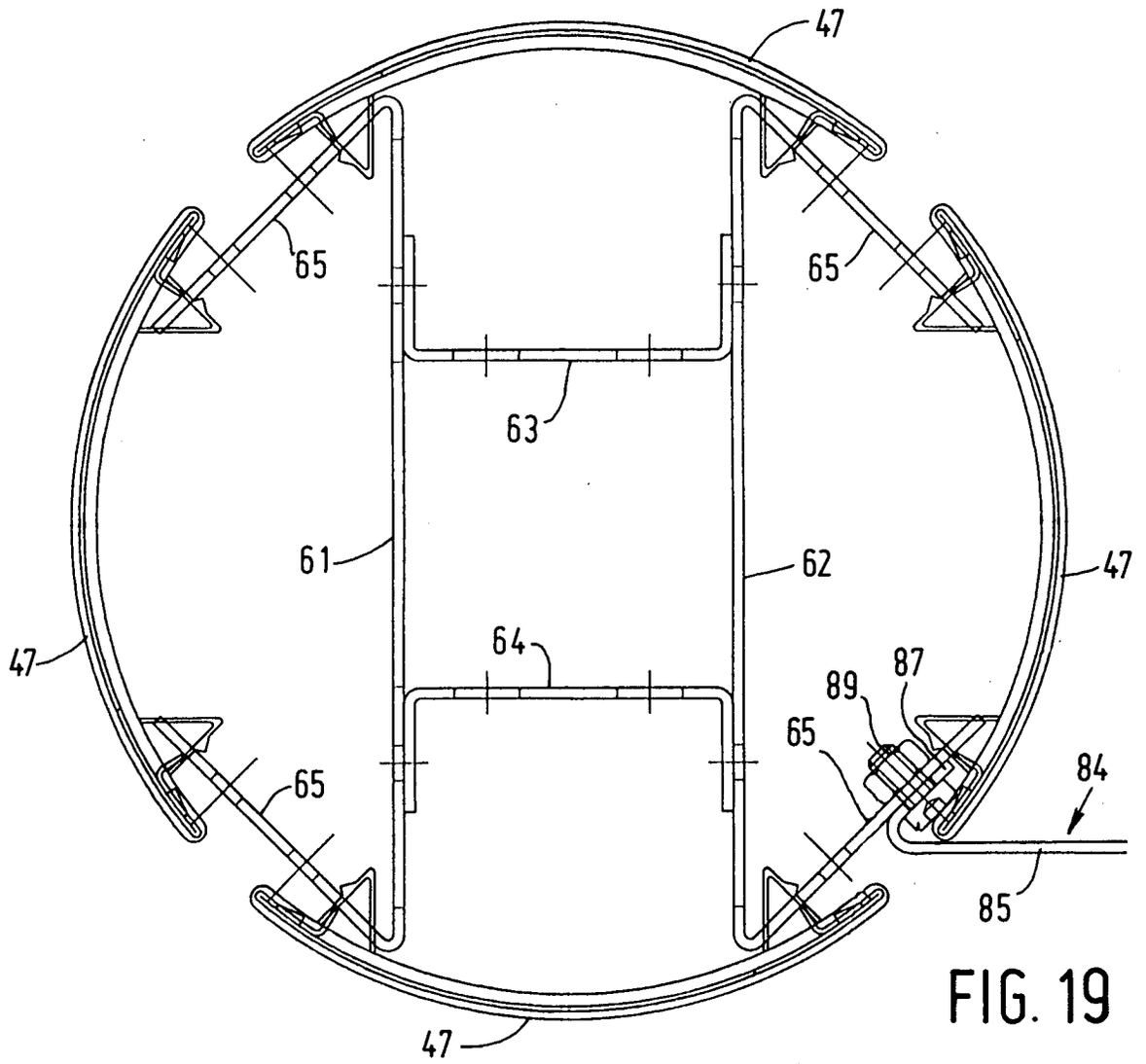
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FIG. 19

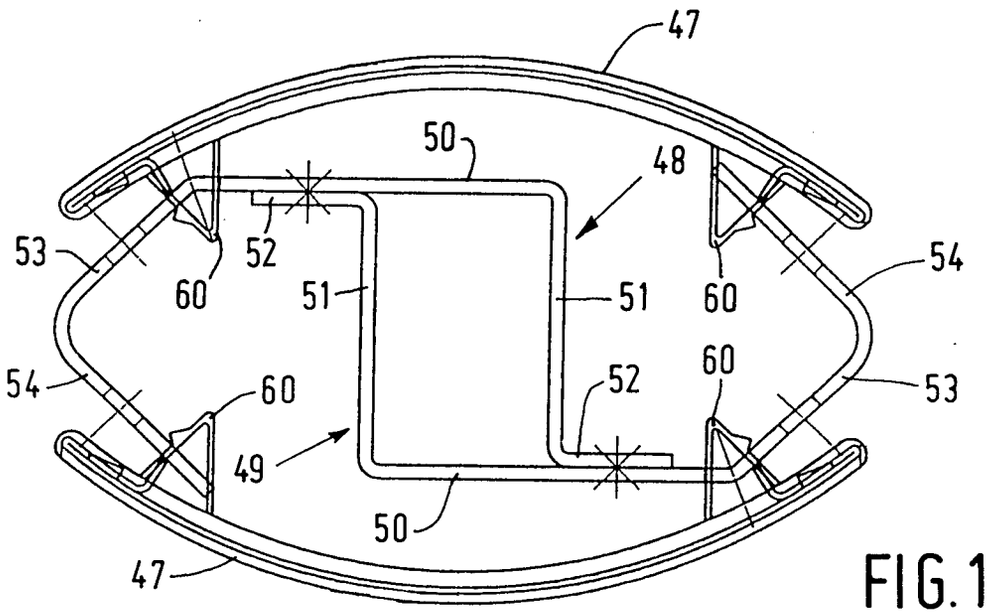
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FIG. 18

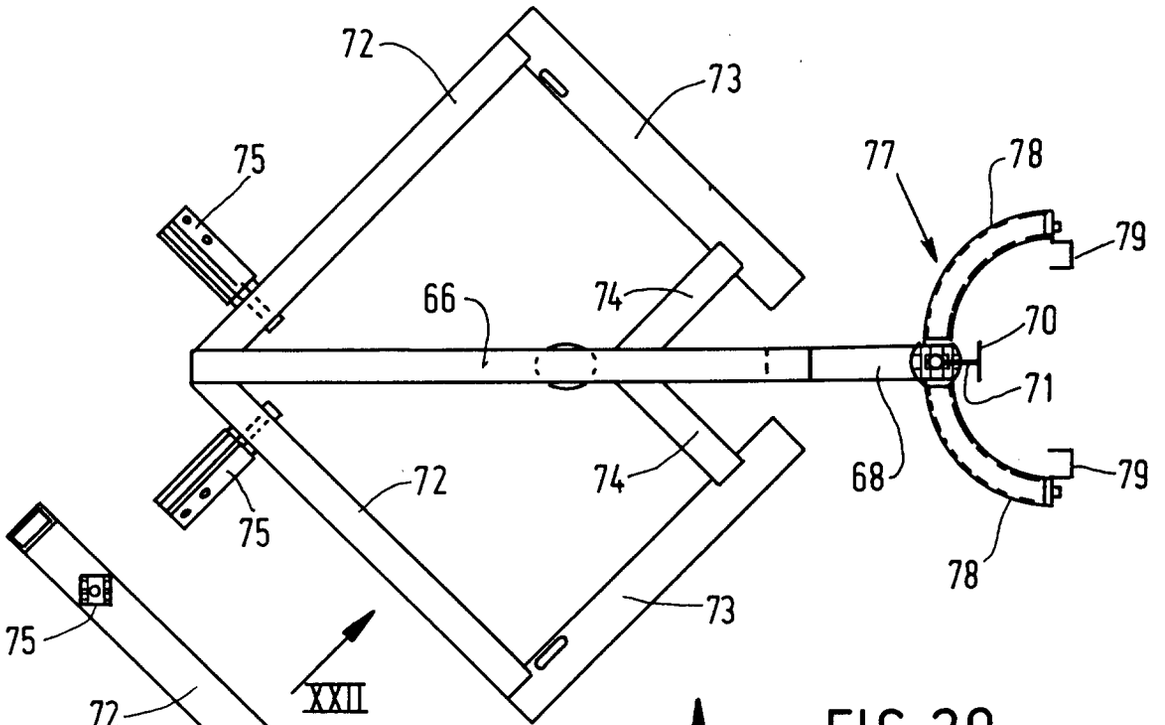

FIG. 20

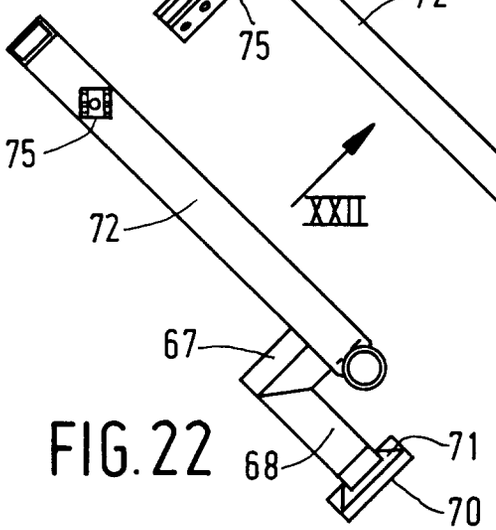

FIG. 22

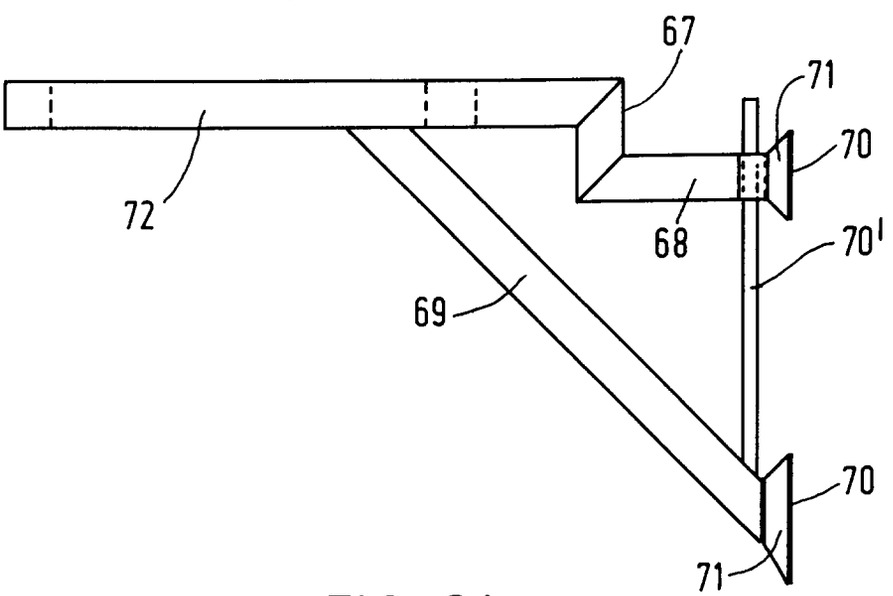

FIG. 21

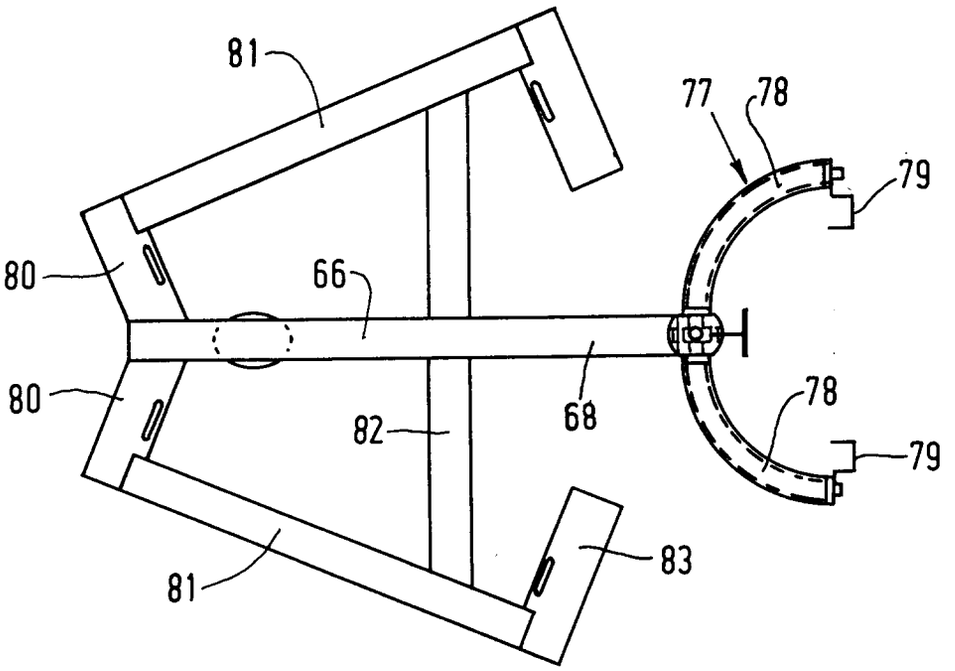

FIG. 23

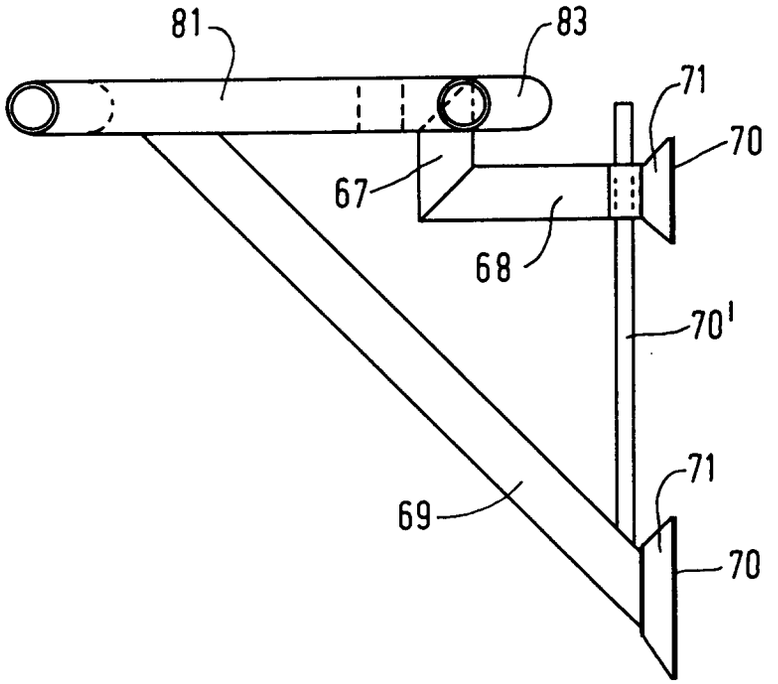

FIG. 24

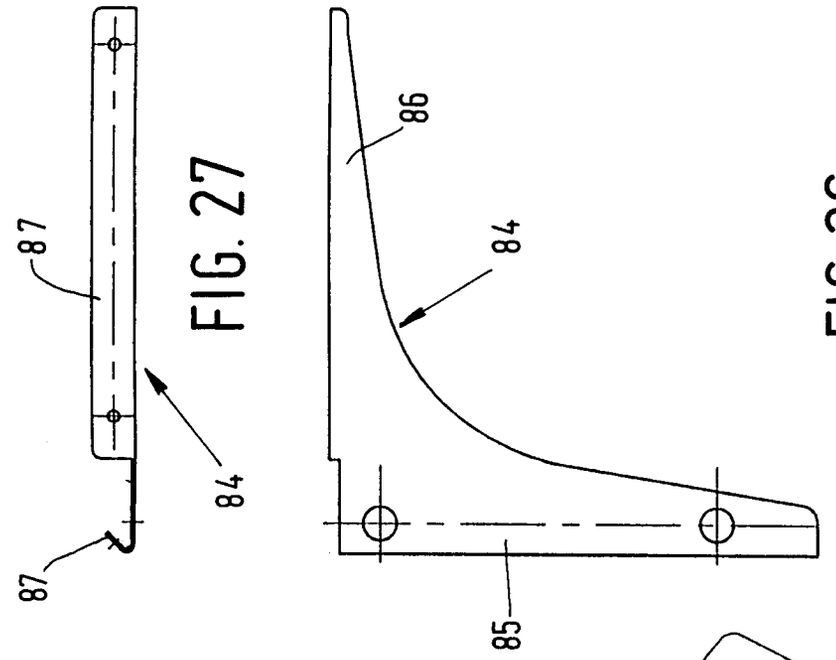

FIG. 27

FIG. 26

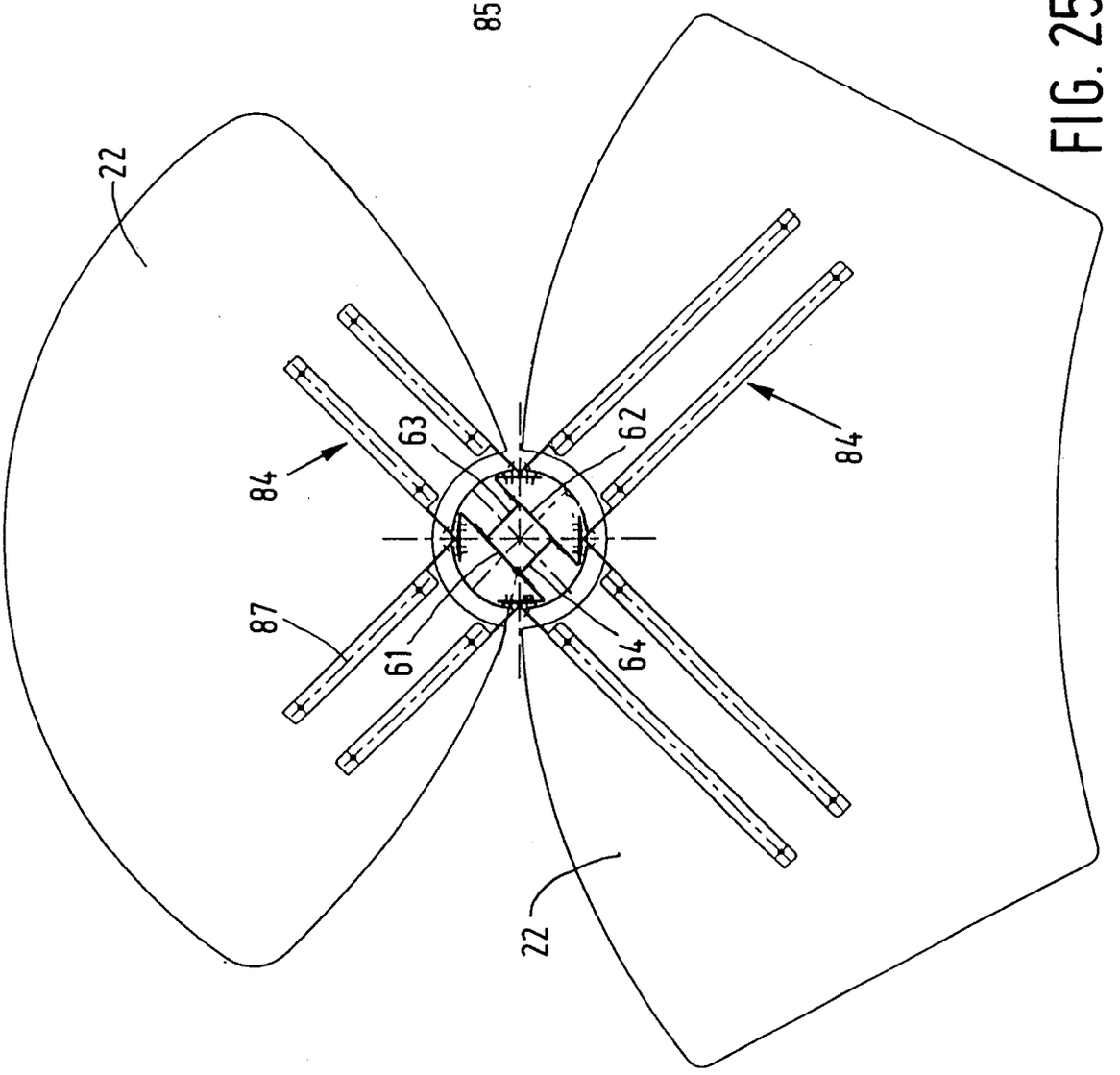

FIG. 25

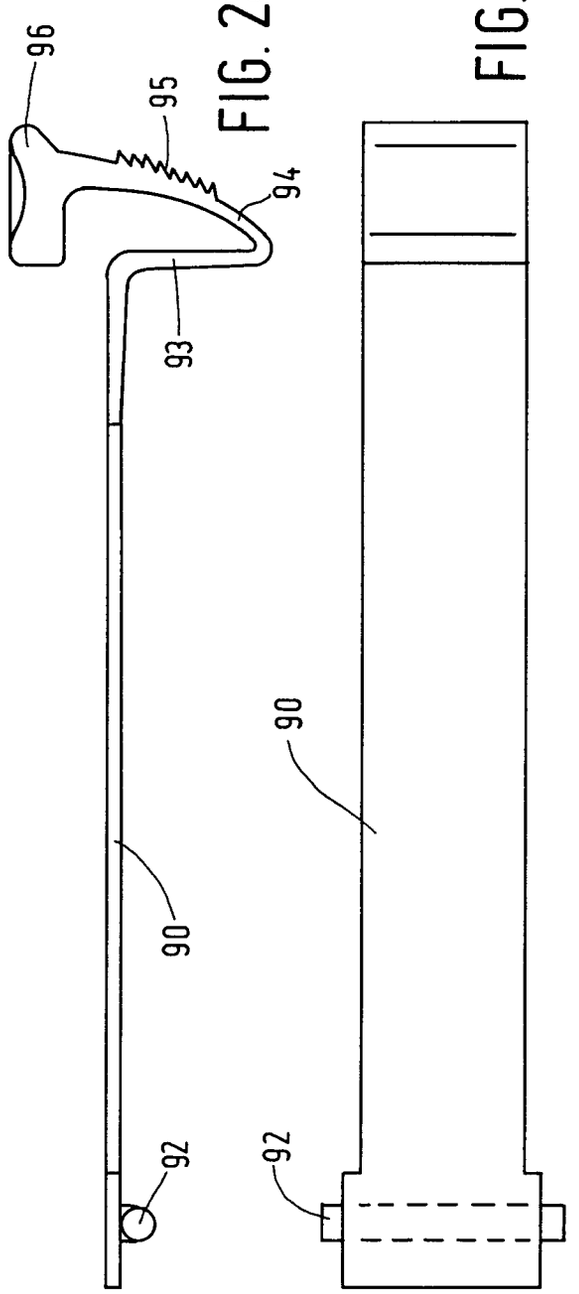

FIG. 28

FIG. 29

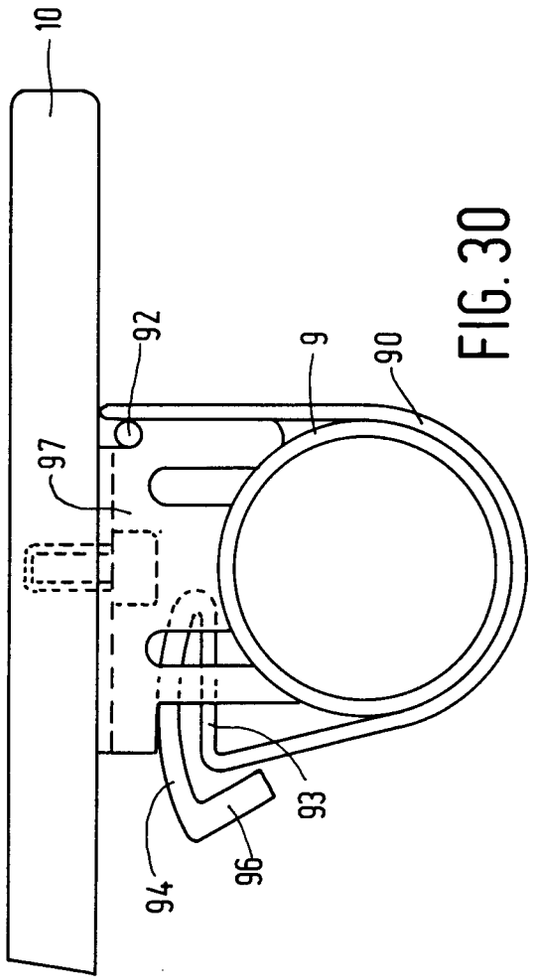

FIG. 30

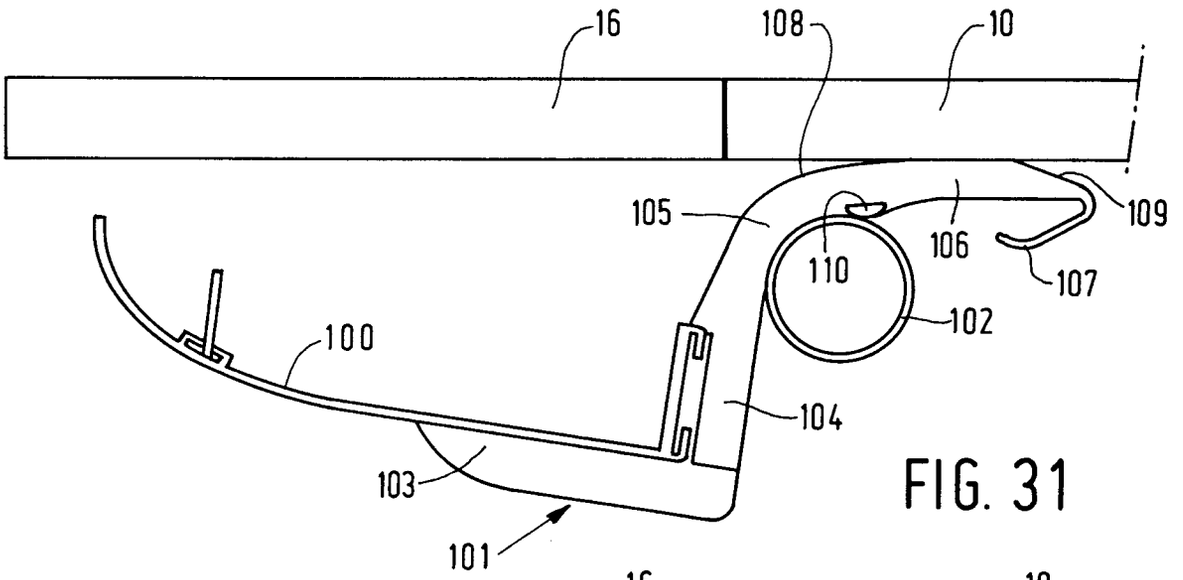
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FIG. 31

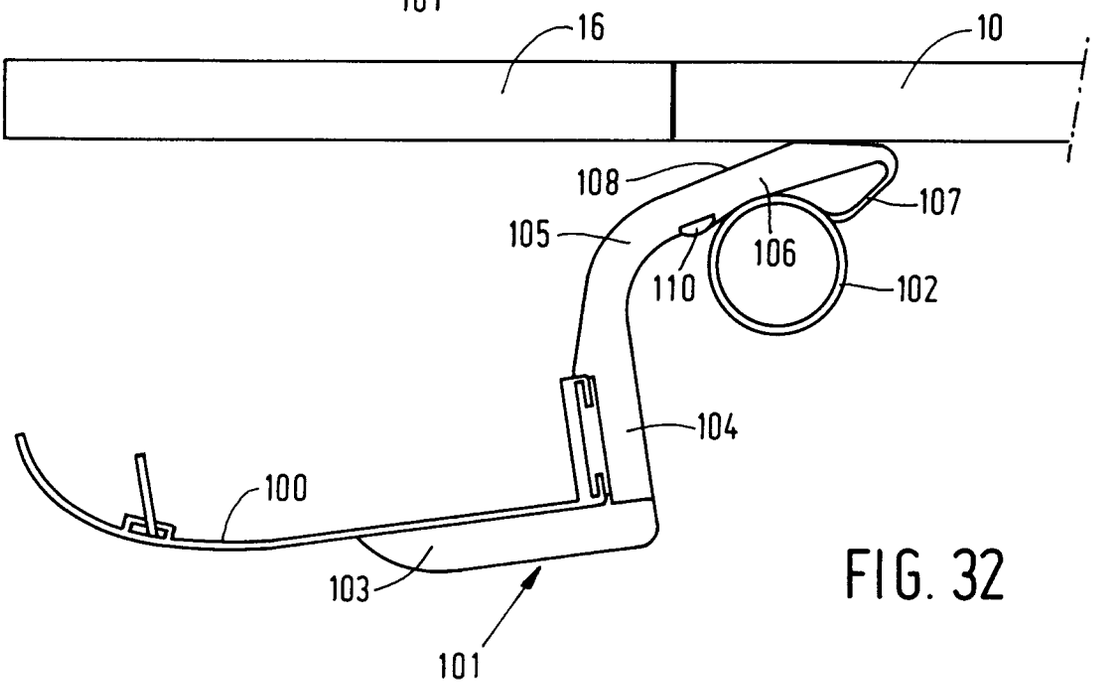
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FIG. 32

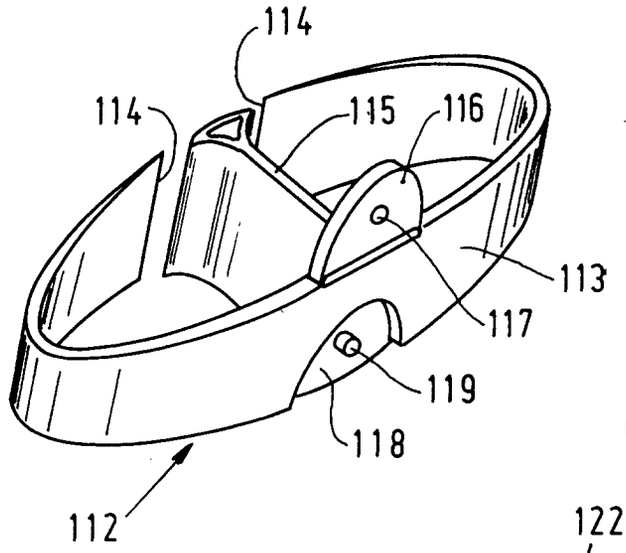

FIG. 33

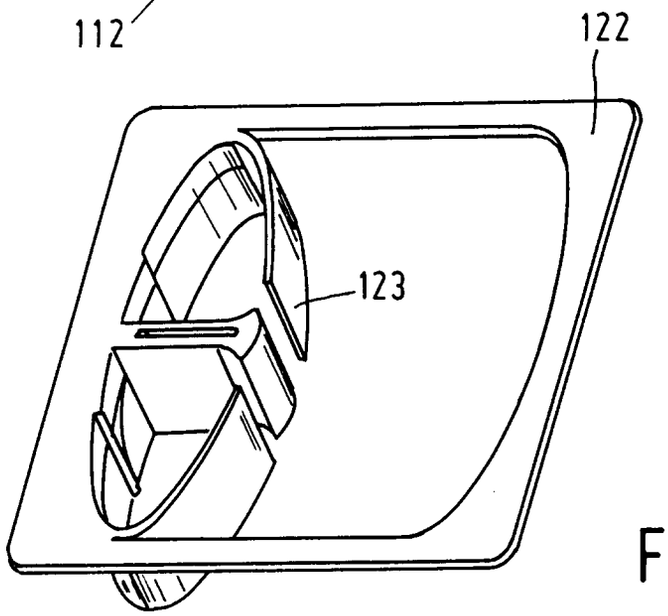

FIG. 34

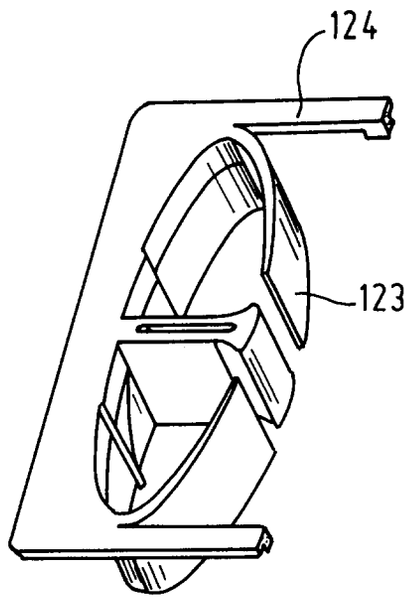

FIG. 35

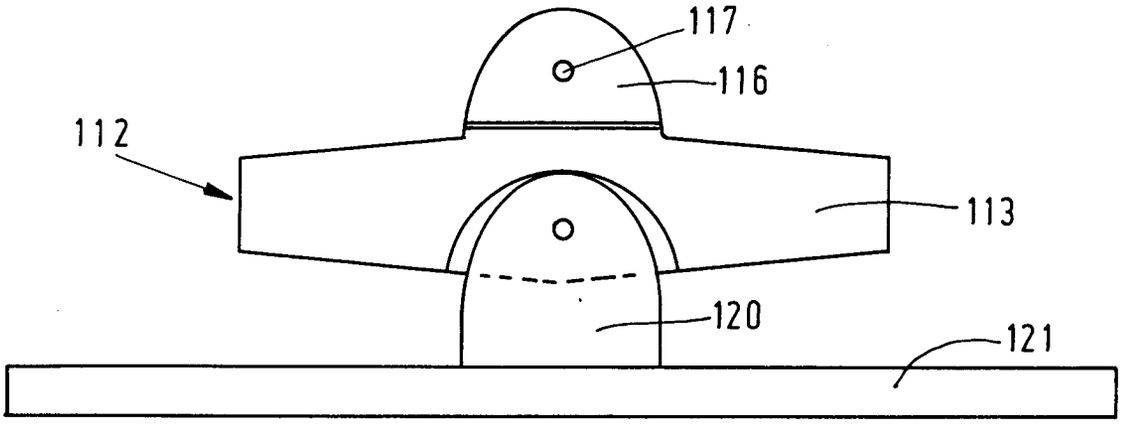

FIG. 36

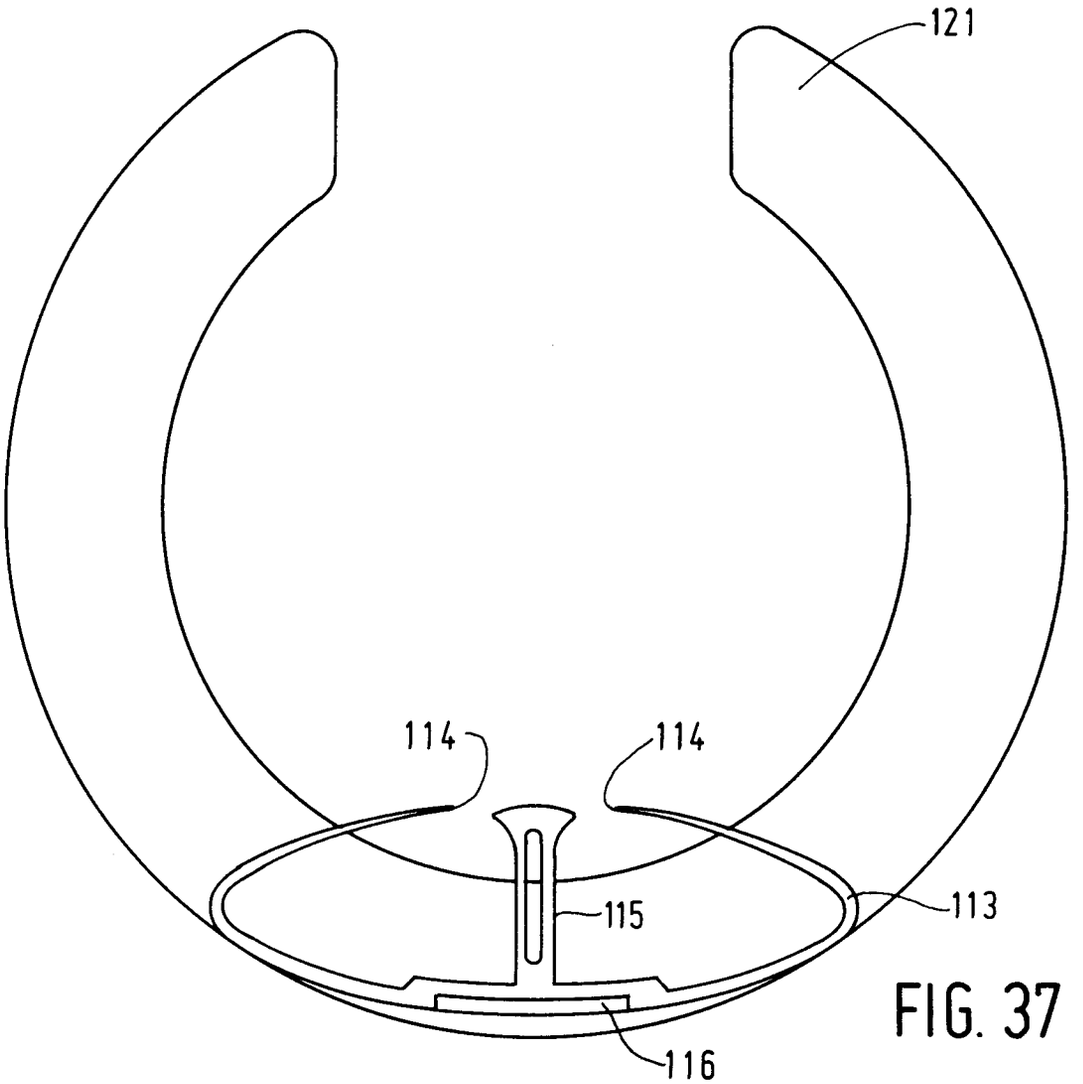

FIG. 37

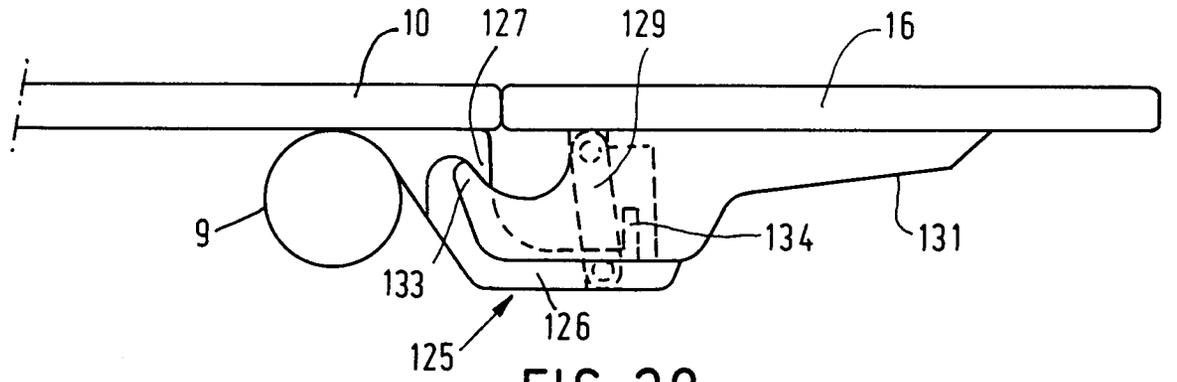
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FIG. 38

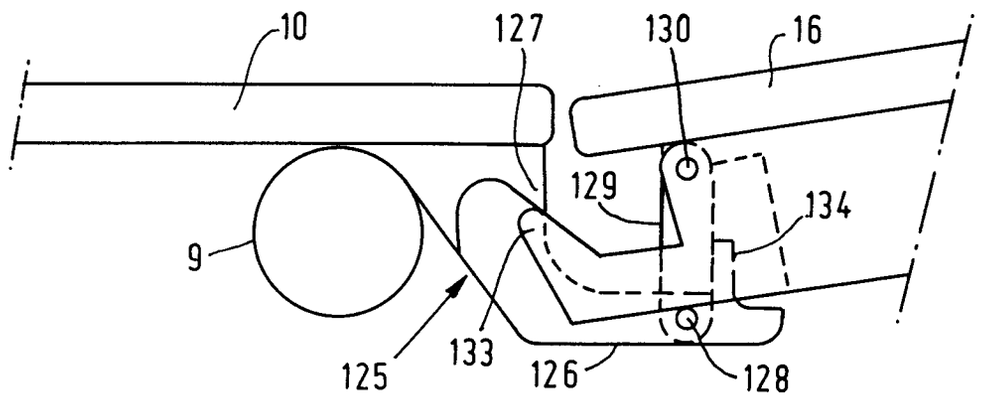
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FIG. 39

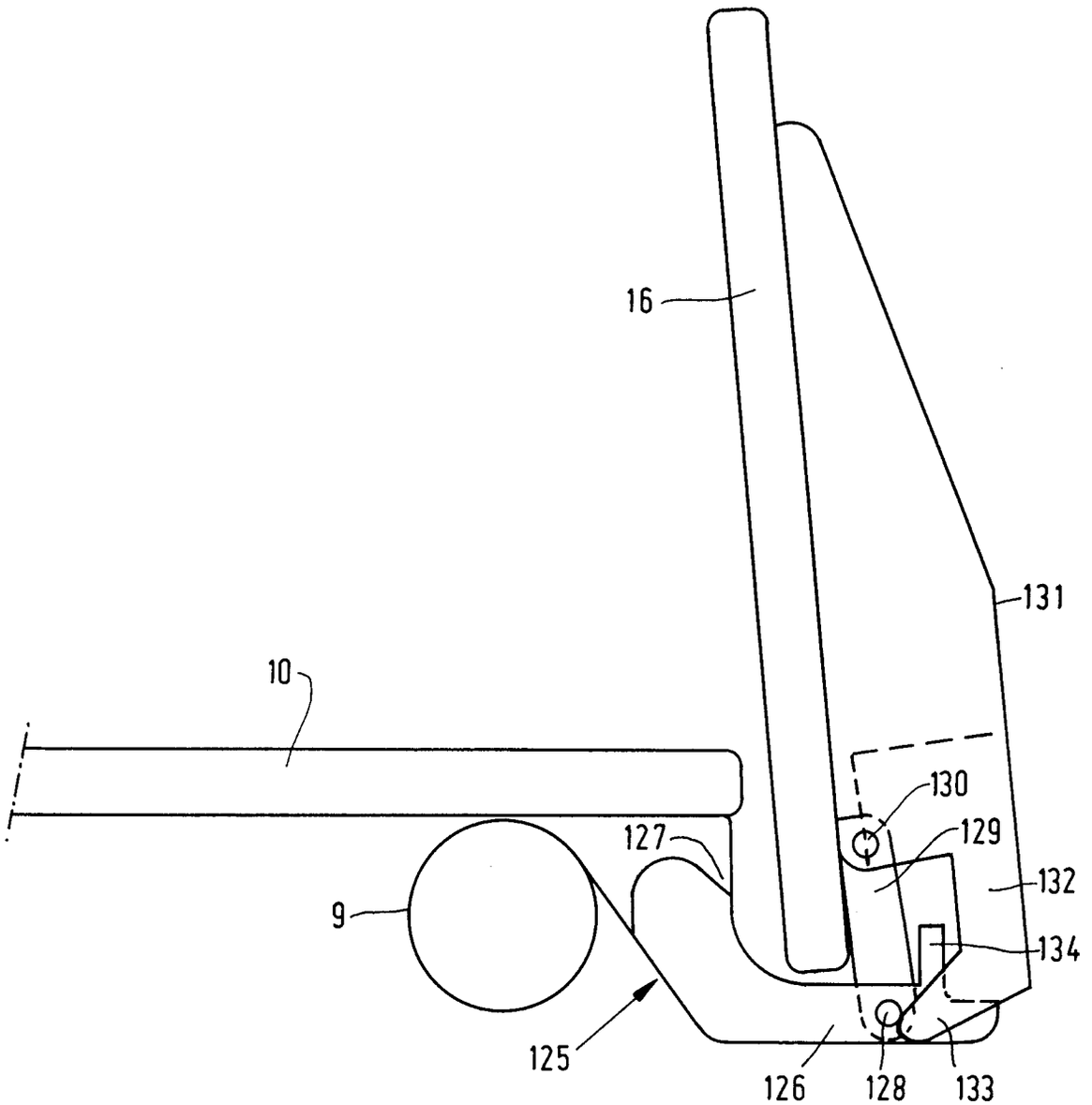

FIG. 40

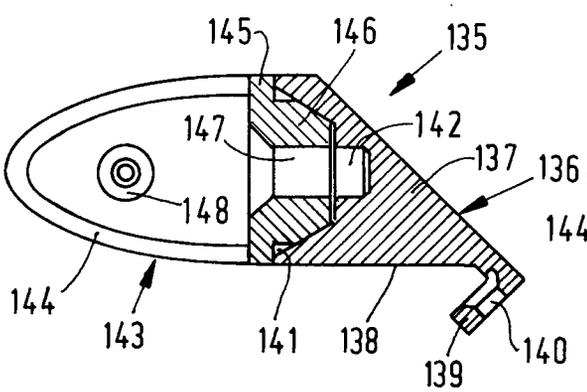

FIG. 41

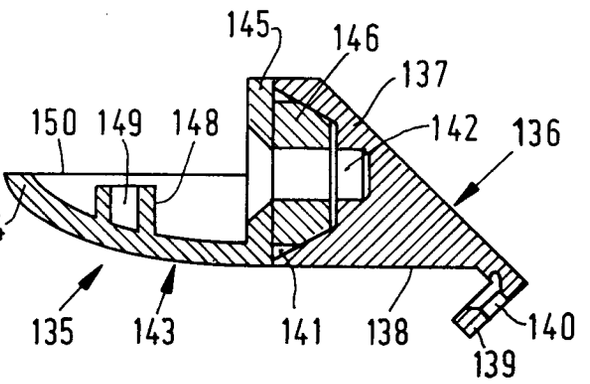

FIG. 42

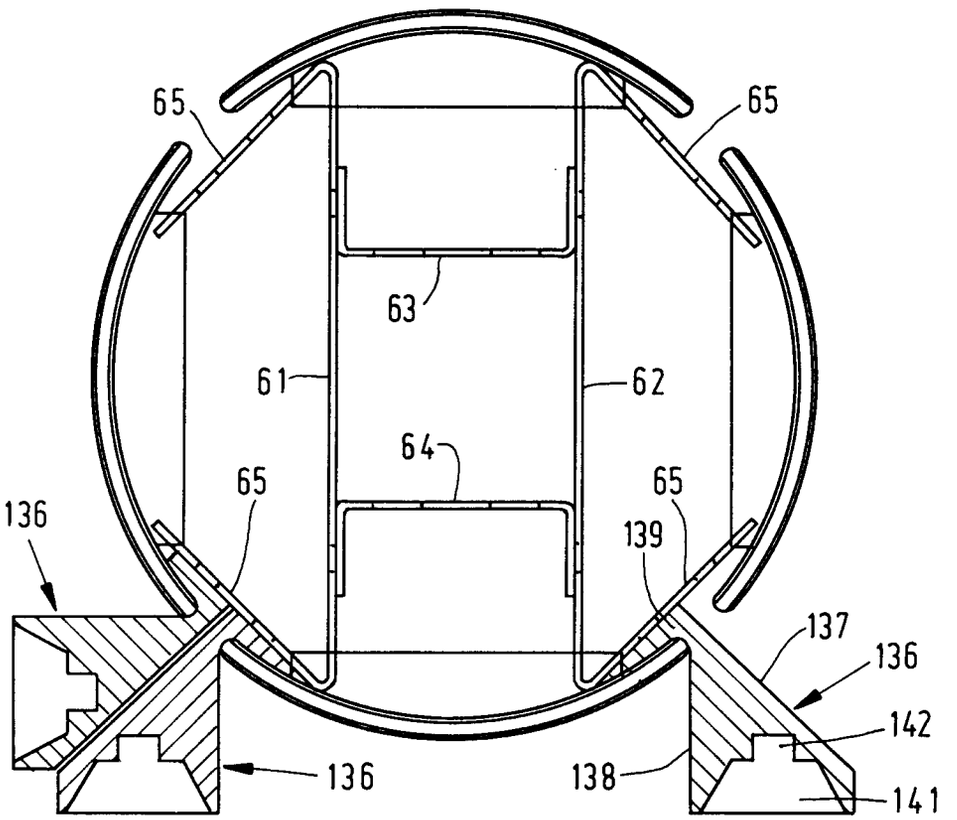

FIG. 43