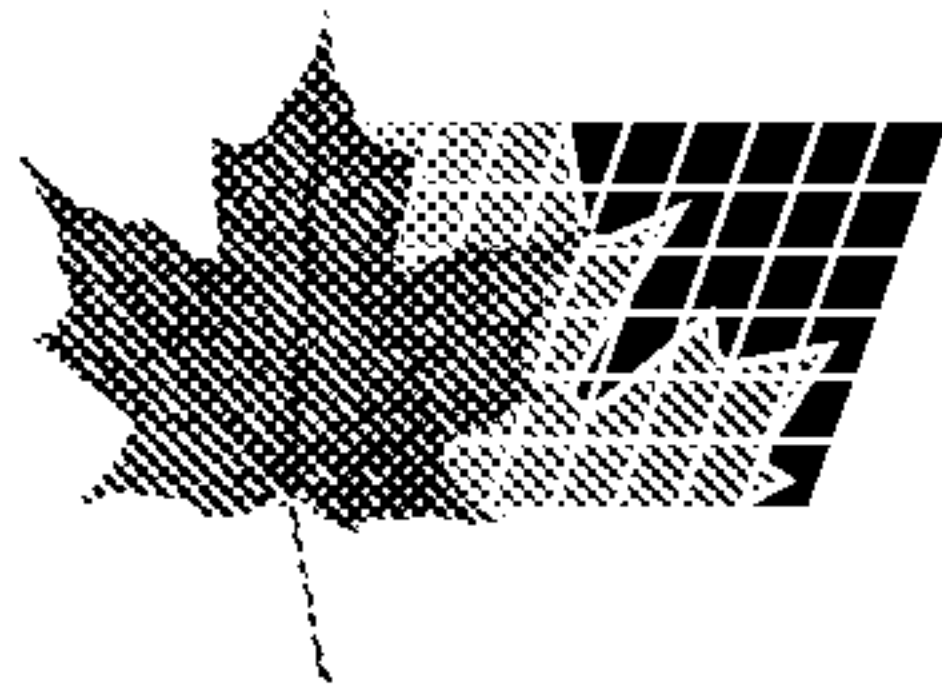




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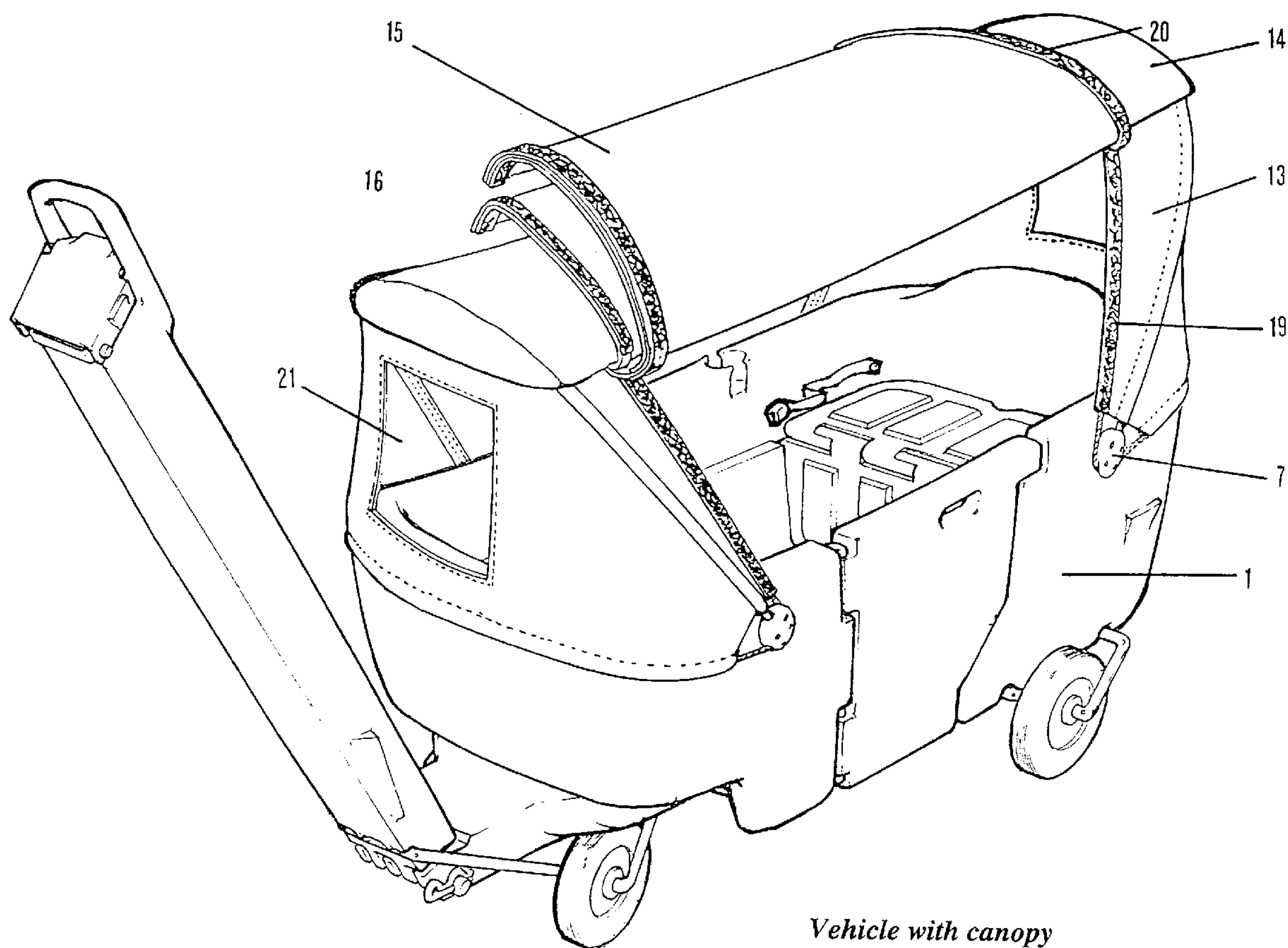
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(54) **VEHICULE TOUT-EN-UN POUR ENFANTS**

(54) **CHILDREN'S ALL-IN-ONE-VEHICLE**



(57) An all-weather/all-season vehicle for conveying children that includes a simple conversion assembly to change from a wagon to a sled or from a sled to a wagon while on the move. The unit includes a detachable canopy that offers protection from the elements and that can be easily disassembled and stored in a uniquely styled hollow handle used for pulling the vehicle. Specially designed seat slots and ledges allow for approximately one hundred different seating configurations.

CHILDREN'S ALL-IN-ONE VEHICLE

ABSTRACT

An all-weather/all-season vehicle for conveying children that includes a simple conversion assembly to change from a wagon to a sled or from a sled to a wagon while on the move. The unit includes a detachable canopy that offers protection from the elements and that can be easily disassembled and stored in a uniquely styled hollow handle used for pulling the vehicle. Specially designed seat slots and ledges allow for approximately one hundred different seating configurations.

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SPECIFICATION

1. The present invention relates to a multi-purpose all-weather/all-season vehicle ideal for conveying children.
2. There exist several types of non-motorized equipment currently used for transporting young children. Wagons represent one of the ever-popular products used by both children and adults of all ages. Wagons provide a ready means of transporting young children both short and long walking distances and have consistently proven to be a durable effective vehicle.

Wagons, however, are designed for use predominately on smooth finished surfaces such as sidewalks and roadways and under relatively warm, fair-weather operating conditions. Wagons are not designed suitably to be operated in inclement weather or cold climates and perform poorly in snow covered or icy weather conditions or alternatively on sand and beach environments. Wagon wheels can become compacted with snow or stuck in sand, making smooth rotation difficult or impossible under these types of weather and environmental conditions. Wagon wheels can, as well, become firmly lodged in sand, snow or ice. This creates unpleasant and difficult riding conditions for the young passengers, as well as, placing stress on the vehicle itself.

Finally, traditional wagons are both awkward and cumbersome to lift, whether for briefly carrying over some stationary obstacle, or, for placing in the trunk of an automobile. Traditional wagons do not contain any handles which could improve their portability.

Carriages are another product used for transporting toddlers or young children. Carriages have, as well, been designed predominately for use on clean, smooth

surfaces such as pavement and, once again, for use in warm-weather climatic conditions. Carriage use is neither practical nor safe on snow or ice covered surfaces. Wheels and axles become clogged with snow or stuck in icy ruts and, consequently, the motion is not smooth. The small passenger can be roughly managed under these conditions and this can be worrisome. Thus, weather conditions limit the usage of a carriage. Carriages are limited in interior space and are designed primarily for a single occupant although double carriages do exist. Carriages in general are designed for babies and toddlers and are not suitable for older children aged three to six years.

A variety of sleds have been designed over the years with the majority of which are used for pleasure such as downhill sliding. A smaller percentage is utilized for short distance transportation over snow covered surfaces. This is effective transportation after a fresh snowfall, however, with heavy snow removal equipment and the use of salt and sand on streets and sidewalks, it becomes almost impossible and extremely frustrating to pull a child on salt and sand covered pavement. This gritty material badly scratches the underside of the sled reducing the glide on the sled.

Canopies and/or hoods are affixed to carriages, wagons and other children's vehicles offering an added but very limited protection from the elements. The hooded fixture on carriages is a permanent structure and covers only a partial area of the carriage and not the entire vehicle. This provides limited protection from the elements. The "Delp" Wagon top conversion assembly has been designed for a wooden wagon and does not provide a device for plastic type wagons or all wagons.

The Densmore/McCarthy canopy is extremely limited in scope and application to a specific design of wagon and sled and would not accommodate all types of wagons. Importantly, no consideration is afforded to protection from harmful ultraviolet sun rays by this canopy design as no reference is made of specialized protective covering materials. The frame and canopy for the sled is designed for a single occupant. The sled is equipped with an outer edge or lip onto which the frame can mount. This is not suitable for other applications which do not have this outer edge. As well, the angle of the frame greatly reduces the interior space of the sled.

The frame designed for the Densmore/McCarthy wagon canopy is specific to what appears to be a wooden wagon. The limited description and drawings in the Densmore/McCarthy

patent depict a frame that mounts from the top or superior aspect of the wagon and would not fit other models of wagons. The width of the frame attachment is not compatible with all models and would prove to be unstable with the varying wagon widths. This Densmore/McCarthy patent does not offer any indication as to how the frame structure is supported at the joints and therefore, its integrity cannot be measured or relied upon. A portion of the mounting mechanism of this particular model would be on the interior of the wagon and create an uncomfortable ridge upon which a child may rub against or potentially be hazardous to catch clothing on. The lack of detail in this patent create difficulties in accurately assessing these features and their effects.

The detachable canopies, in general, have a limiting feature in that there is no storage place for the canopy when it is not in use. Once the canopy has been mounted and the consumer is in transit, there is little choice left to the consumer as to when or when not to use it.

Problems often encountered by the average user involve frequently changing weather conditions and varying and frequently changing road and pavement surfaces due to snow and ice conditions. It is often difficult to decide which mode of transport would be best suited for your child on a particular excursion when weather conditions can be unpredictable, extreme and varied on any given day or within a few short hours. It is not practical to bring several methods of transportation on a singular outing, such as a wagon for the nice weather, an umbrella (dangerous for young children and not enough adequate protection) in case there is rain or sleet and a sled for the snow or a blizzard. Such drastic weather changes are a reality in many climates and are frequently encountered.

3. I have found that these disadvantages may be overcome by designing a multi-purpose/all weather vehicle for children. The All-in-One Vehicle includes a conversion assembly to change from wagon to sled and/or sled to wagon while on the move, as well as a detachable canopy for both the sled and/or wagon. This allows for transportation in any type of weather and eliminates the need for multiple vehicles. The canopy can be conveniently stored in the hollow handle of the vehicle giving the consumer the choice of when to use the canopy. The handle can be removed for easier trunk storage and moulded in handles at the ends of the vehicle make it easier for lifting the vehicle for placement in the trunk of a vehicle.

4. In the following detailed description, reference will be made to the attached drawings which illustrate the embodiments of the invention. Figure 1 is the vehicle without a canopy and wheels down. Figure 2 shows the vehicle with the canopy. Figure 3 exhibits a side view of the vehicle with the canopy in position and with the wheels down for use on clear pavement. Figure 4 illustrates the rear view of the vehicle with the canopy and with the wheels up for use on snow or ice. Figure 5 presents a rear view of the vehicle with the wheels up and a person flipping open the roof of the canopy. Figure 6 is a sectional perspective view of the vehicle without the canopy. Figure 7 illustrates detail of the sectional perspective view of the vehicle from Figure 6. Figure 8 shows an exploded view of the canopy. Figure 9 represents a section of the canopy showing how the roof drapes over the front and back structures. Figure 10 depicts the canopy mount and a portion of the canopy. Figure 11 is a side view of the canopy mount and a portion of the canopy. Figure 12 represents section A-A of Figure 11. Figure 13 is the isometric view of the canopy mount. Figure 14 shows the internal ribs of the canopy mount. Figure 15 represents section B-B of Figure 14 showing the wood screws securing the mount to the vehicle. Figure 16 highlights Section C-C of Figure 14 representing an additional view of the mount attached to the vehicle. Figure 17 illustrates the rear section of the main vehicle with the wheels up. Figure 18 shows details of the vehicle door. Figure 19 is section D-D of Figure 18 highlighting the door catch mechanism. Figure 20 details the vehicle door pulled up prior to opening. Figure 21 represents section E-E of Figure 20 showing the door catch mechanism in operation. Figure 22 is a drawing of the vehicle handle, which is also storage for the canopy, with the compartment closed. Figure 23 represents a sectional view of the handle. Figure 24 illustrates a sectional view of the handle with the canopy storage compartment open and with the canopy inside. Figure 25 shows one seat unit. Figure 26 shows four seat units in flat configuration. Figure 27 depicts four seat units in a table and chair configuration. Figure 28 illustrates a selection of the one hundred possible seat configurations. Figure 29 is a top view of the front half of the vehicle. Figure 30 shows the bottom view of the front half of the vehicle. Figure 31 shows the seat belt attachment. Figure 32 is a sectional view of the seat belt attachment. Figure 33 shows an alternate connection between the handle and undercarriage. Figure 34 represents an alternate method of attaching the seat belt to the wagon.

4. The drawings in Fig. 1 illustrate the main body of a plastic vehicle (1). A rectangular shape with curved corners is maintained throughout the structure. The interior depth at the front end is shallower than the interior depth of the balance of the vehicle to allow for the front end axle steering undercarriage (9). This creates a 90 degree angle on the lateral sides of the vehicle where the shallow end meets the deeper interior section. The front and rear ends of the vehicle are each moulded higher than the side structure of the vehicle to allow for a back rest Figs. 1, 17 (42) for children. Incorporated into these front and rear raised sections or back rests Fig. 17 (42) are front and rear moulded-in lifting handles Figs. 1, 6, (25, 26). A drain-hole feature Fig. 6 (24) is included in the vehicle structure to provide drainage of captured liquids. On one lateral side on the upper edge of the vehicle are two moulded in cup holders Fig. 1 (58). They are circular in shape and recessed into the plastic allowing for convenient placement of a standard sized child's tumbler or bottle. The opposite lateral side has a functional door Fig. 1 (4) with a moulded in door handle Fig. 1, 20 (43). Both front and rear lateral sides have positioning dimples Fig. 17 (41) for the canopy mount Fig. 1 (7). Figure 1A shows an alternate method for mounting the canopy. Circular shaped, recessed holes (7A) are moulded into the superior aspect of the lateral sides; two are at the front and two are at the rear. These moulded in holes receive the pole or frame structure of the canopy and eliminate the need for a separate mounting mechanism. Moulded into the rear exterior lateral sides are rear axle detentes Fig. 3, 4 (22) that hold the rear axle assembly Fig. 1, 4 (6) in place when in sled operation. The detentes Fig. 3, 4 (22) are simple yet highly functional in design. The detente is tapered at the base and gradually increases its angle dimension to approximately twenty degrees at the top of the detente to give the appearance of a small wedge protruding from the side of the wagon. The rear axle Fig. 1, 4 (6), when elevated, rests on the flat, upper surface of the detente Fig. 3, 4 (22). The underside of the vehicle has moulded in runners Figs. 4, 7, 17 (31) that traverse the length of the underside of the wagon. This creates smooth operation in winter or sandy beach conditions. The lateral interior sides of the vehicle have three moulded in seat slots Fig. 6 (27) on each side and four moulded in seat ledges Fig. 7 (32). Each separate seat unit Fig. 25 (12) is rectangular in shape and can rest on the seat ledge Fig. 6, 7 (32) and/or fit into the seat slot Fig. 6 (27). On one side of each unit, three moulded in plastic hinges Fig. 25 (53) protrude from the longest edge of the seat and then turn to form slightly curved right angles. These

hinges Fig. 25 (53) allow for the seat units (12) to snap together in a variety of ways. Four seat units can be snapped together to form a flat configuration Fig. 26 for a sleeping child. Alternately, four units may be combined to form a table and chair configuration Fig. 27. These separate seat units, in combination with the seat slots and moulded in ledges, allow for great versatility and approximately one hundred different seat configurations Fig. 28. On the opposite side of the hinged side, there is a half round moulded in recess Fig. 26 (54) which enables one to easily lift the seat unit. The spaces formed below the seat structures Fig. 28 (59) can be used for storage of small articles.

Two vertical rectangular slots are moulded into the rear interior wall adjacent to the lateral side for insertion of a seat belt attachment Fig. 34 (17,18). The seat belt strap Fig. 1 (17,18) may be attached to a thin rectangular plastic tab Fig. 34 (57) by means of a pop rivet Fig. 34 (56). This plastic tab Fig. 34 (57) would be inserted horizontally into the moulded in slots and would be held in place by its simple T configuration. Alternately, a wood screw Figs. 31,32 (38) may be driven through the end of the seat belt Figs. 31,32 (17) and finally through the rear interior wagon wall. A washer Figs. 31,32 (55) would rest between the wood screw 38 and seat belt 17.

The vehicle door Figs. 1,18 (4) is located on the lateral side of the vehicle Fig. 1 (1) opposite the cup holders Fig. 1 (58). A small portion of the vehicle body Fig. 1 (1) on the hinged side has an angled contour to fit into the opposing central space of the adjoining door Fig. 1 (4). The uppermost and lowermost right angles on the door itself allow space for the door hinge caps Figs. 18,20 (46). The door Fig. 18 (4) is secured in place by a door hinge pin Fig. 18 (45) which runs downward through the superior aspect of the door Fig. 18 (4), continues vertically through a portion of the vehicle Fig. 18 (1) which intersects and joins the vehicle door Fig. 18 (4) and then finally through the bottom portion of the door. A door hinge pin cap Fig. 18 (46) is positioned on the upper and lower ends of the hinge pin Fig. 18 (45). An oval shaped door handle Fig. 18 (43) is moulded into the central upper portion of the plastic door Fig. 18 (4). The door can be opened by simply lifting upwards and sliding outwards towards the exterior of the vehicle. Conversely, the door can be closed by pulling the door upwards and sliding inwards towards the interior of the vehicle and applying a slight downward pressure on the door itself. A simple door catch Figs. 18,19,20,21, (44) moulded into and protruding upwards from the vehicle body

Figs. 19, 21, (44) is an angled piece of plastic which holds the door closed.

The vehicle comprises the wagon to sled/sled to wagon conversion assembly. This assembly includes standard wheels Fig. 1 (5) attached to the front Fig. 1 (8) and rear axles Fig. 1 (6). The rear axle Fig. 1(6) runs through the bottom of the vehicle body Fig. 1 (1) from one lateral side to the other. Each wheel Fig. 1 (5) is located on the axle Fig. 1 (6) positioned exteriorly to the outer side of the vehicle body. The axle Fig. 1 (6) freely swings from the vehicle frame or body by its connection through the vehicle body. For wagon use, the axle assembly Fig.1 (6) is shifted downwards and forward to rest on the undercarriage Figs. 1,3 of the wagon frame. For conversion to winter sled or sand-beach condition Fig. 4, the axle Figs. 1,4 (6) is pulled backwards and upwards off the ground and snaps onto the rear detentes Fig. 3,4 (22) on either side of the vehicle holding the axles Fig. 1,4 (6) and wheels Fig. 1,4 (5) off the ground. Fig. 4.

The front axle Fig.1 (8) runs permanently through the lower end of the vehicle handle Fig. 1 (2) assembly. For wagon use, the axle Fig. 1 (8) is shifted underneath the vehicle body Fig. 1 (1) and rests onto the steering undercarriage Fig. 1,(9). For conversion to winter sled/sand beach use, the vehicle Fig. 1 (1) is lifted slightly by the front moulded in handle Fig. 1,6 (26) where upon the front axle Fig. 1 (8) swings free of the steering undercarriage Fig. 1(9). The axle Fig. 1 (8) is then pulled forward and attached to the vehicle handle Fig. 1 (2) at the front handle detente Figs. 1,3 (23).

The steering undercarriage Figs. 1,7,30 (9) is attached to the main body of the vehicle and is secured in place by the steering undercarriage assembly pin Fig. 7 (28), the nylon roller bearing Fig. 7 ,30 (29) and pin restraining cap Fig. 7 (30).

In Fig. 1, the steering undercarriage (9) attaches to the unique handle (2) designed for pulling and steering this vehicle (1). The handle (2) also serves as a storage area for the canopy and framework Fig. 23 (49) when the canopy is not in use. The hollow handle (2) consists of a canopy storage cover Figs.1,22,23,24 (3), a pull tab Figs. 22,23,24 (48) on the canopy storage cover and a hinge Fig. 24 (50) and hinge pin cap Fig. 24 (47) at the base of this cover holding the cover in place. Canopy storage cover detentes Fig. 24 (51,52) hold the cover closed. The handle Figs. 1,24 (2) also consists of front axle detentes Figs. 1,3 (23) on either side of the handle

Fig. 1 (2) which hold the wheels Fig. 1 (5) in an elevated position during sled operation. A handle pin Figs. 1,7 (11) and a handle pin clip Fig. 1 (10) allow for easy removal of the handle for easier storage in the trunk of a vehicle.

The canopy mount Fig. 1,10,11 (7) is a circular and button-shaped and affixes onto the positioning dimples Fig. 17 (41) on the front and rear lateral sides of the vehicle. Figs. 13,14,15 show there are four recessed screw holes (39) moulded into the mount (7) which would accept wood screws (38) for attaching the mechanism onto the vehicle itself. Internal structural ribs (40) give support and strengthen the mount Fig. 1,10 (7).

The detachable canopy consists of a framework Figs. 9,10,11,12 (36) which can be constructed from a plurality of materials such as metal, plastic, fibreglass or other non-toxic, supportive material. The framework is collapsible to allow for placement in the storage handle Fig.23,24 (2) when not in use. This is ideal to maximize the use of all the features in the vehicle however, a permanent structure could also be used similar to existing mounting mechanisms and frames on baby carriages or other similar devices. Folding tent like poles Figs. 9,10,11,12 (36) used in the illustrations are practical, easy to assemble, simple to use, and suitable for providing the framework for the canopy assembly. The poles (36) extend over the front and rear of the lateral sides of the vehicle Fig.2 (1) attaching to the canopy mount Fig. 2 (7). The multi-layered canopy consists of a detachable or permanently affixed roof Fig. 8 (14), front and rear walls Fig. 8 (13,34) each with a window opening Fig. 8 (21) and detachable fold down sides Fig. 8 (15,16). The roof Fig. 8 (14) is comprised of a single layer of an opaque, water-proof and/or water resistant layer offering protection from harmful UV rays, rain, snow and other elements. The canopy roof Figs. 2,8 (14) extends from the front to the rear of the vehicle Fig. 2 (1) and rests upon and is attached to the framework by means of velcro Fig. 2 (19,20), Fig.8 (33) or other semi-permanent methods or can be stitched on permanently. The canopy cover consists of front and rear interior sleeves through which the frame Figs. 9,10,11,12 (36) and a bungee cord Figs. 9,10,11,12 (35) slide into. The frame (36) offers support for the canopy and the bungee cord (35) adds to this support by creating tension within the canopy assembly. The sides of the canopy are comprised of two layers Fig.8 (15,16). One layer is comprised of insect netting (15) to protect children from annoying insects and to protect those who may be allergic

to particular insects. The second layer is comprised of a transparent waterproof material (16) allowing for constant visualization of the children while offering protection from the elements. These protective layers may be in a downward position secured by velcro Fig. 2 (19,20) or flipped up and fastened onto the top of the canopy by velcro Fig. 2 (19,20) leaving the sides open. There is a transparent and waterproof window Fig. 2 (21) at the front and rear of the canopy which may be closed by means of a velcro attachment. The canopy can also be used on existing wagon models.

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

- ~~1. An all weather/all season non-motorized vehicle for transporting children.~~
- ~~2. A vehicle as defined in claim 1, comprising a wagon to sled and sled to wagon conversion assembly for all types of wagons and/or children's vehicles.~~
- ~~3. A vehicle as defined in claim 1 and 2, comprising a detachable canopy, frame and mount offering protection from all insects and weather while being accommodating and adaptable to all types of wagons.~~
- ~~4. A vehicle as defined in claims 1,2 and 3 in which the handle for pulling the vehicle is detachable .~~
- ~~5. A vehicle as defined in claims 1,2,3 and 4 in which the detachable handle provides a storage area for the canopy and frame assembly.~~
- ~~6. A vehicle as defined in claims 1,2,3,4 and 5 having seat slots and ledges that provide various seat configurations.~~
- ~~7. A vehicle as defined in claims 1,2,3,4,5 and 6 having moulded in handles on each end of the vehicle for lifting.~~
- ~~8. Each and every novel characteristic herein disclosed.~~

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4. A vehicle as defined in claims 1,2 and 3 in which the handle for pulling the vehicle is detachable .
5. A vehicle as defined in claims 1,2,3 and 4 in which the detachable handle provides a storage area for the canopy and frame assembly.
6. A vehicle as defined in claims 1,2,3,4 and 5 having seat slots and ledges that provide various seat configurations.
7. A vehicle as defined in claims 1,2,3,4,5 and 6 having moulded in handles on each end of the vehicle for lifting.
8. Each and every novel characteristic herein disclosed.

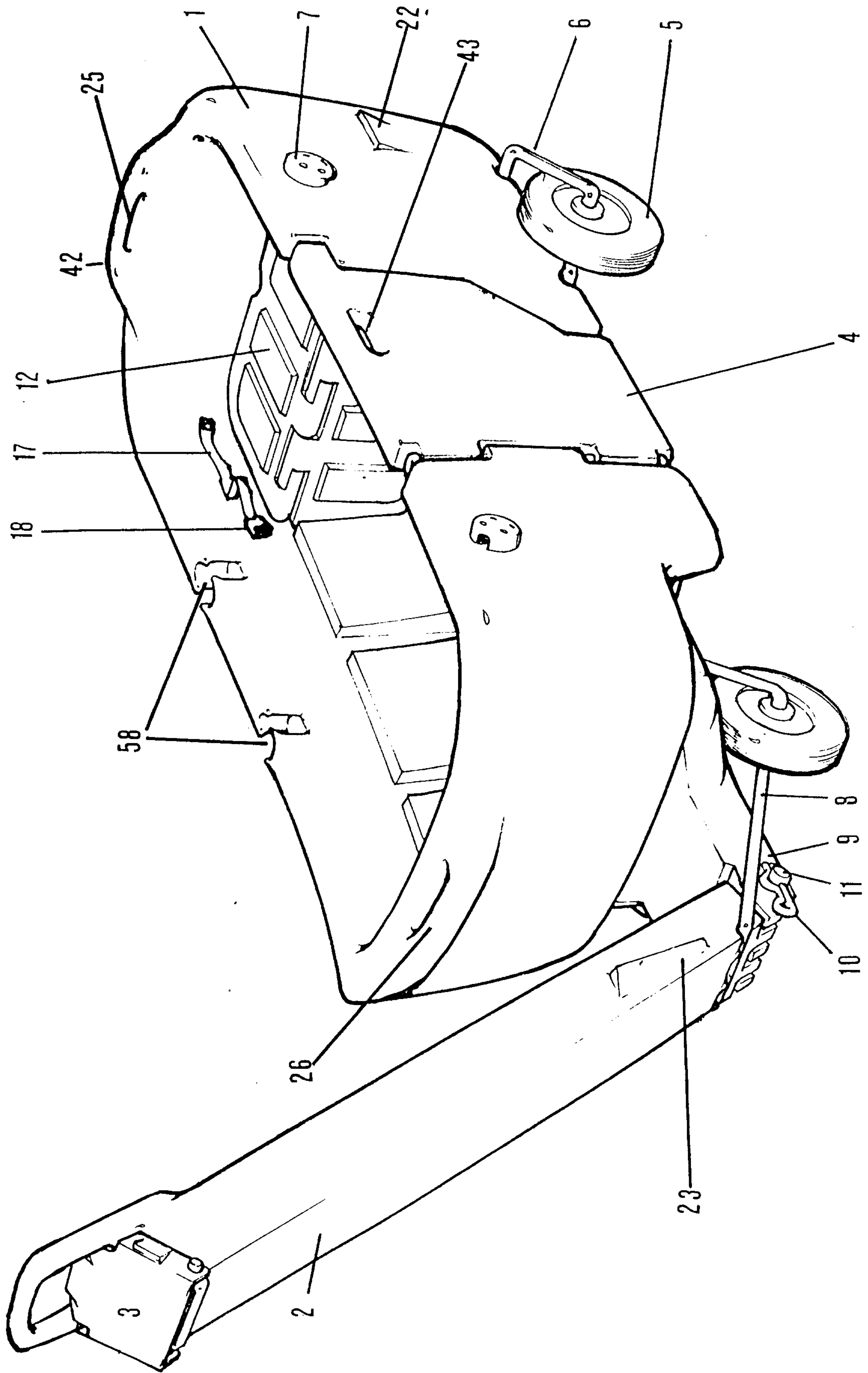


Fig. 1
Vehicle without canopy, wheels down

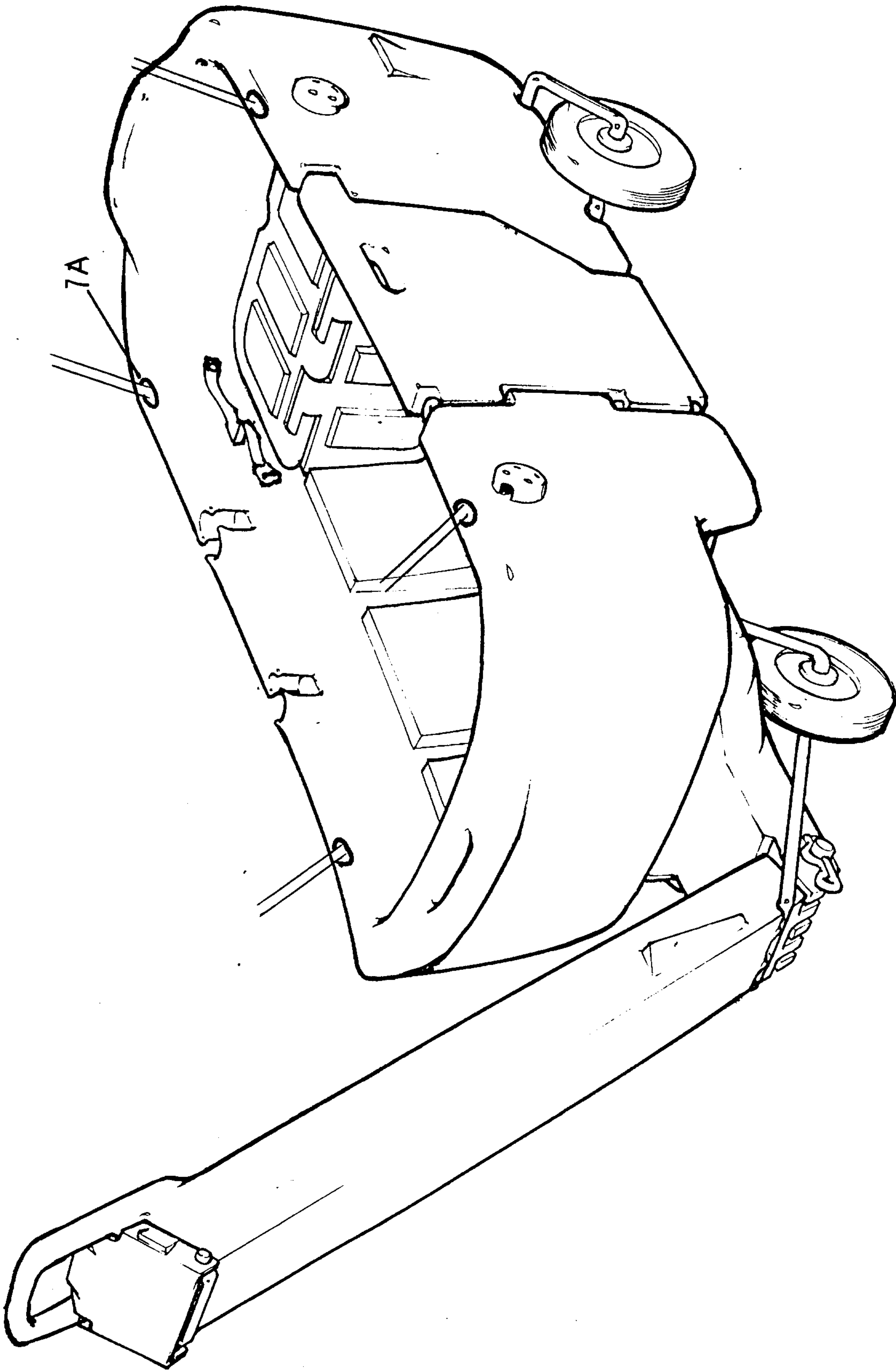


Fig. 1A
Vehicle without canopy, wheels down

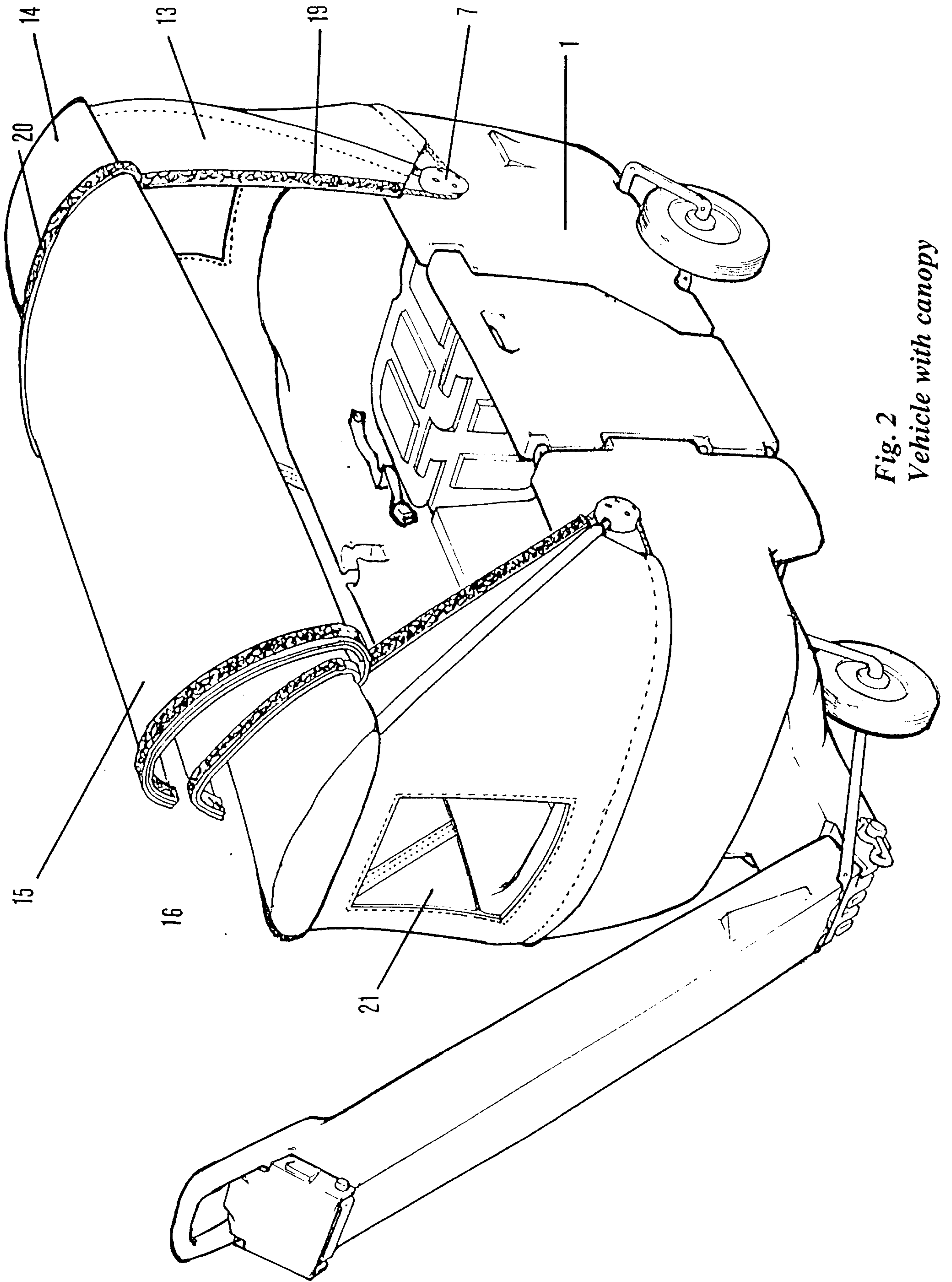


Fig. 2
Vehicle with canopy

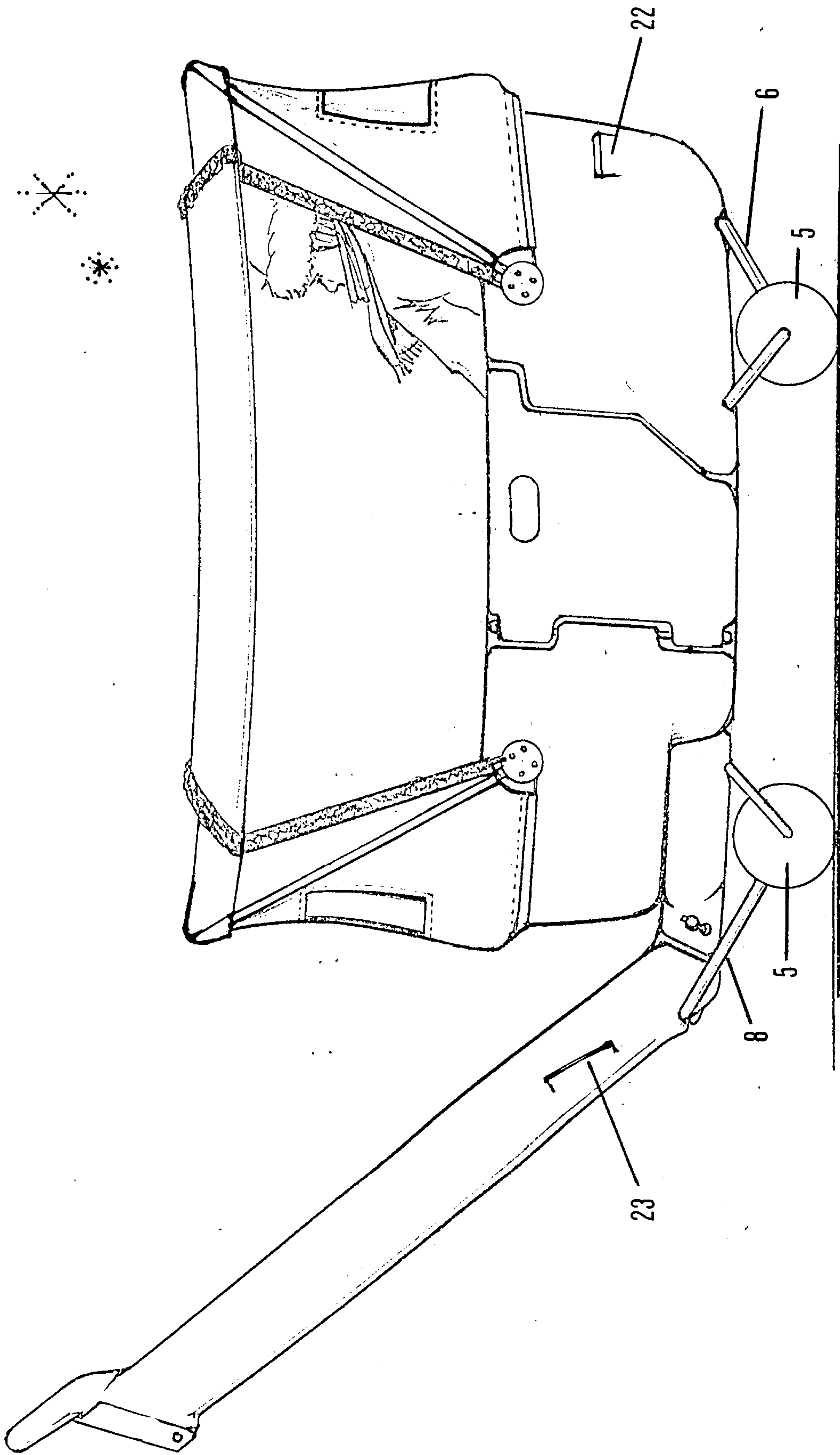


Fig. 3
Winter use on clear pavement

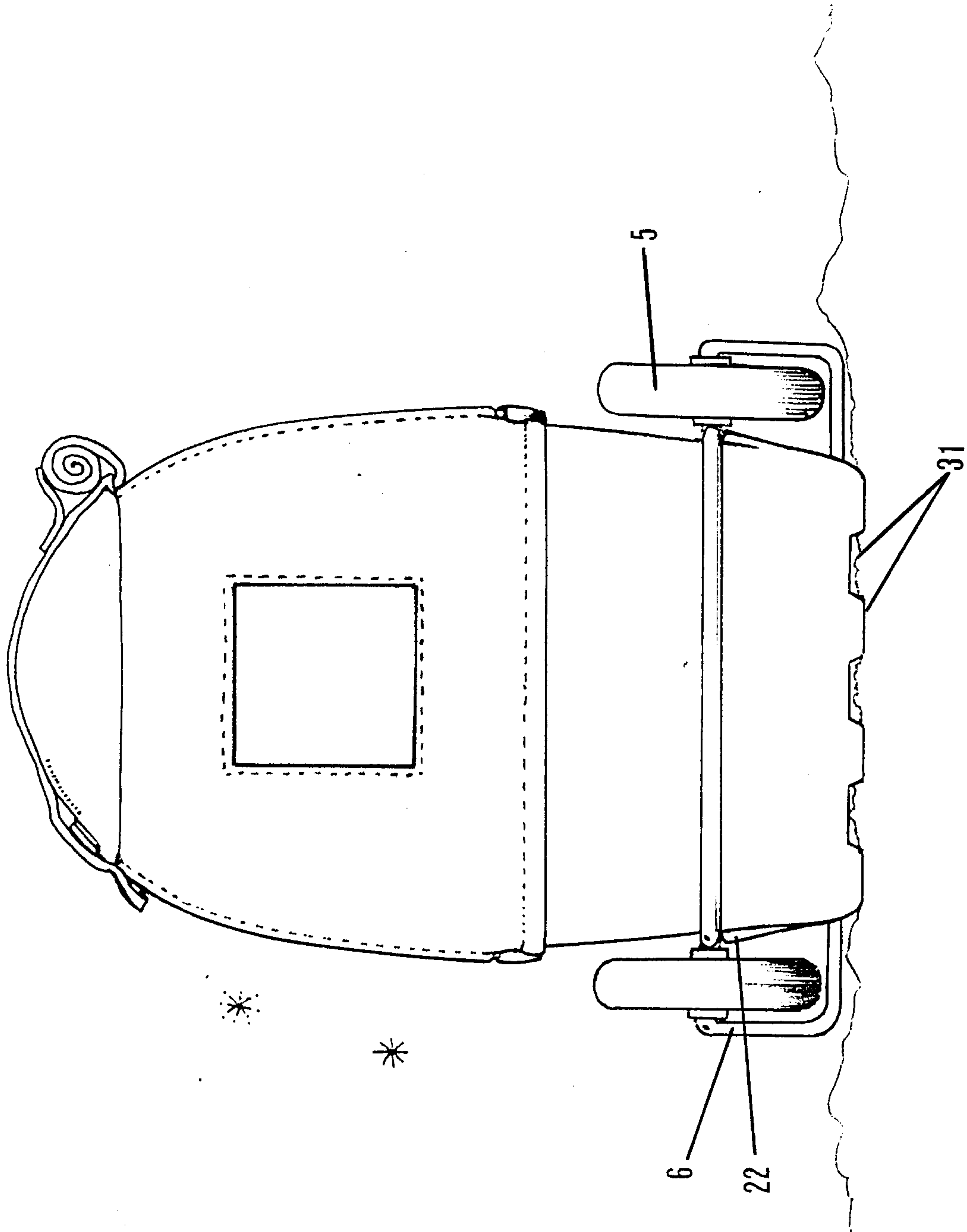


Fig. 4
Winter use on snow (wheels up)

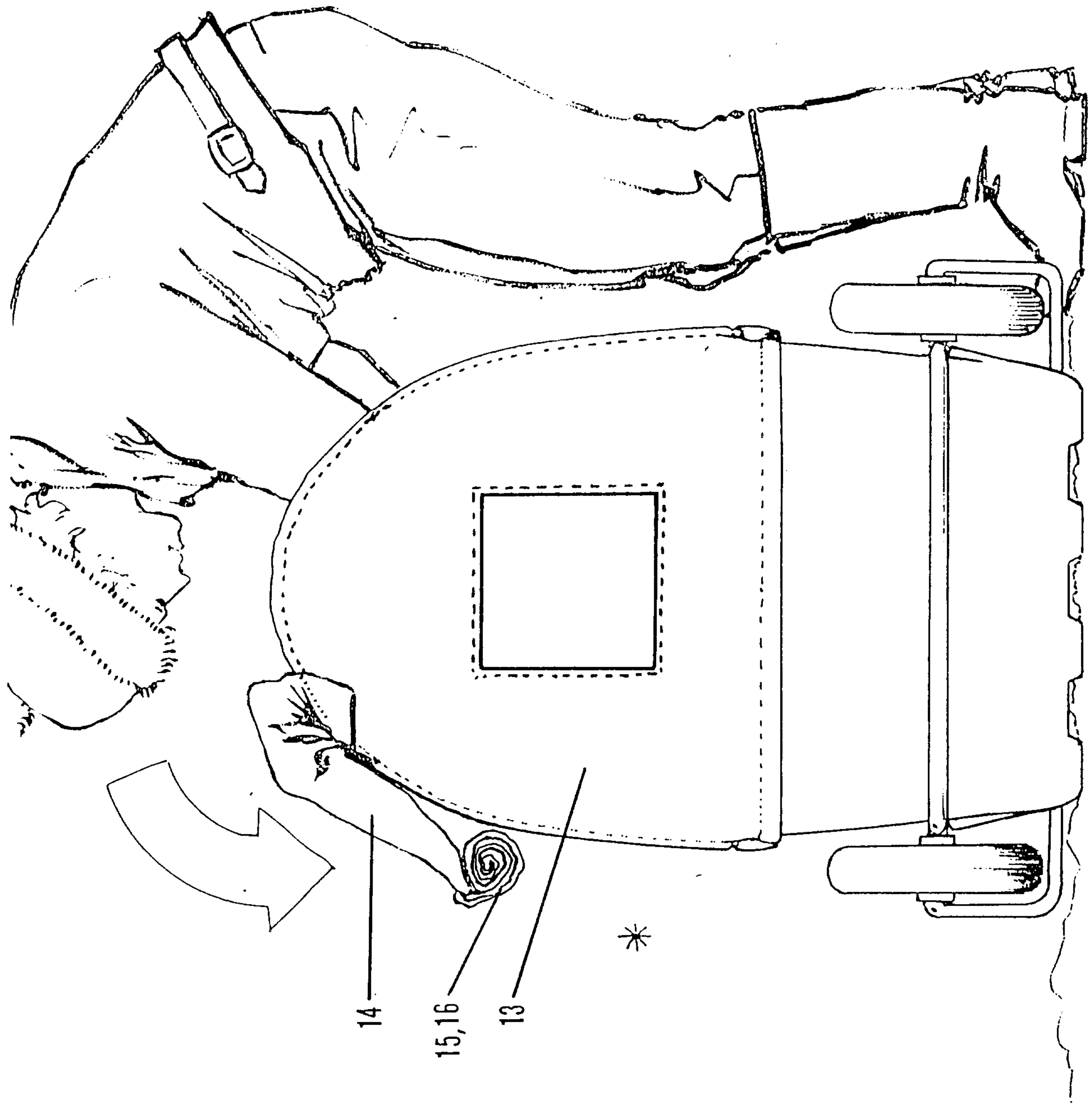


Fig. 5
Parent flipping open roof of canopy

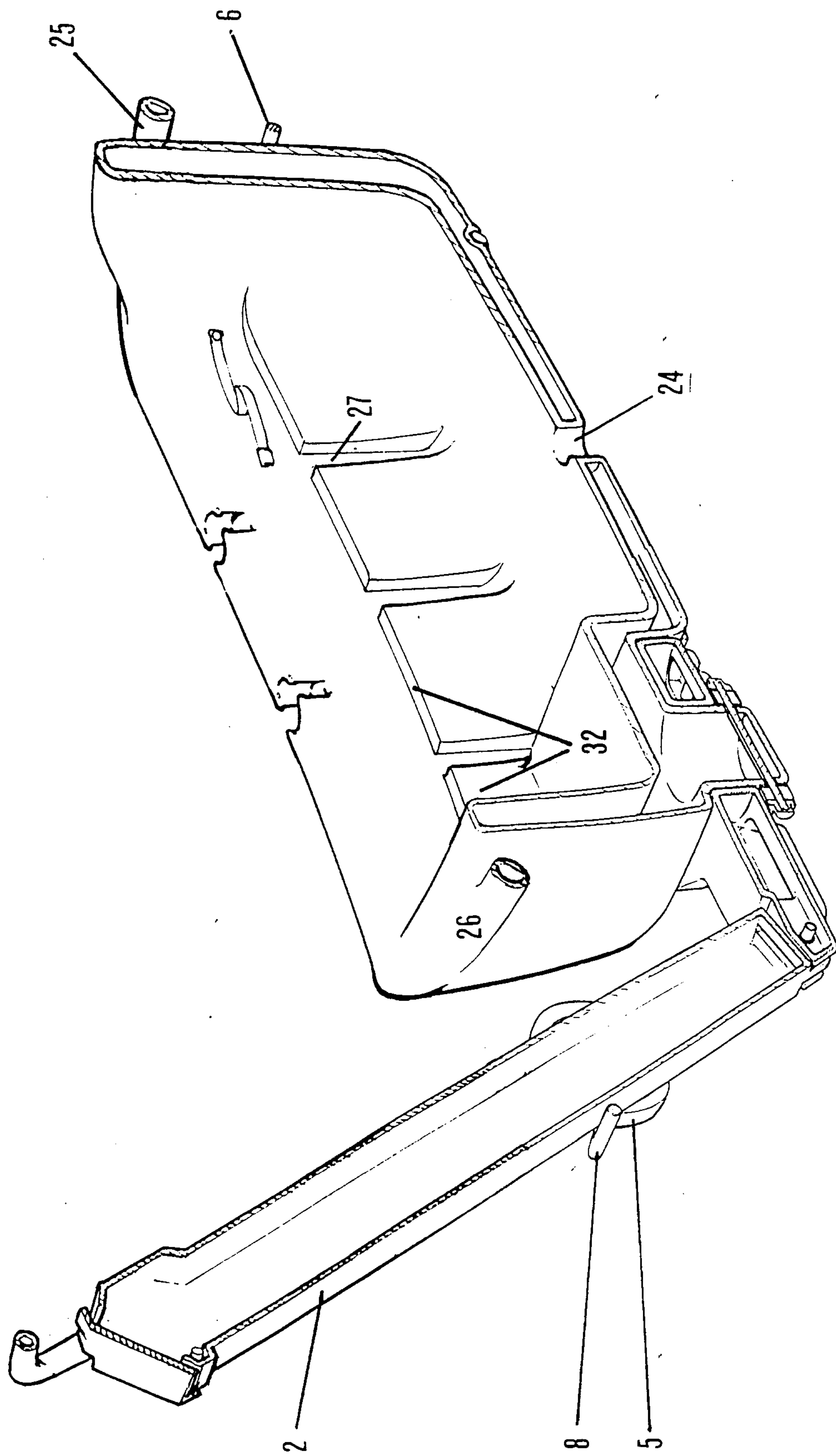
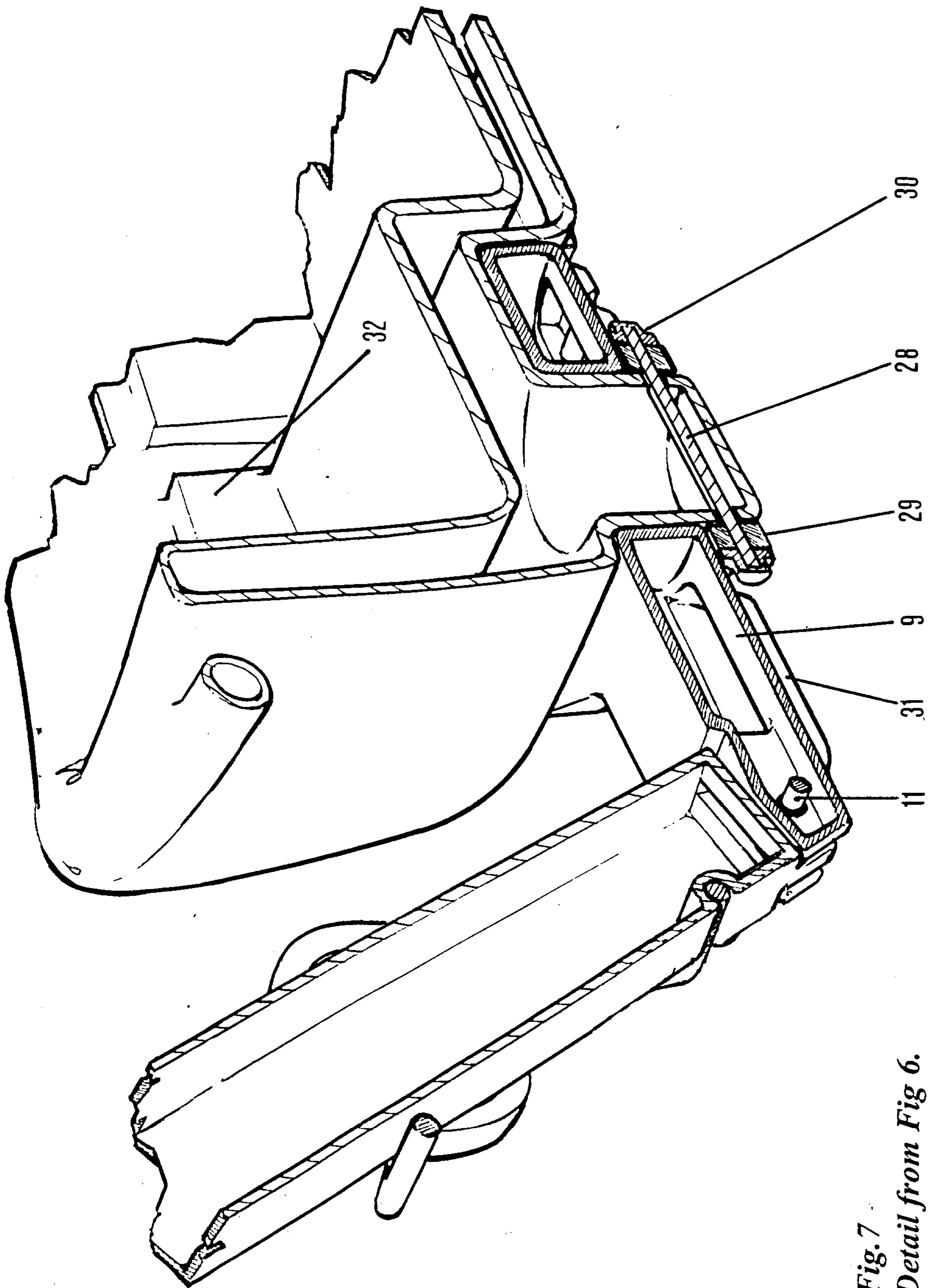


Fig. 6
Perspective view, sectional



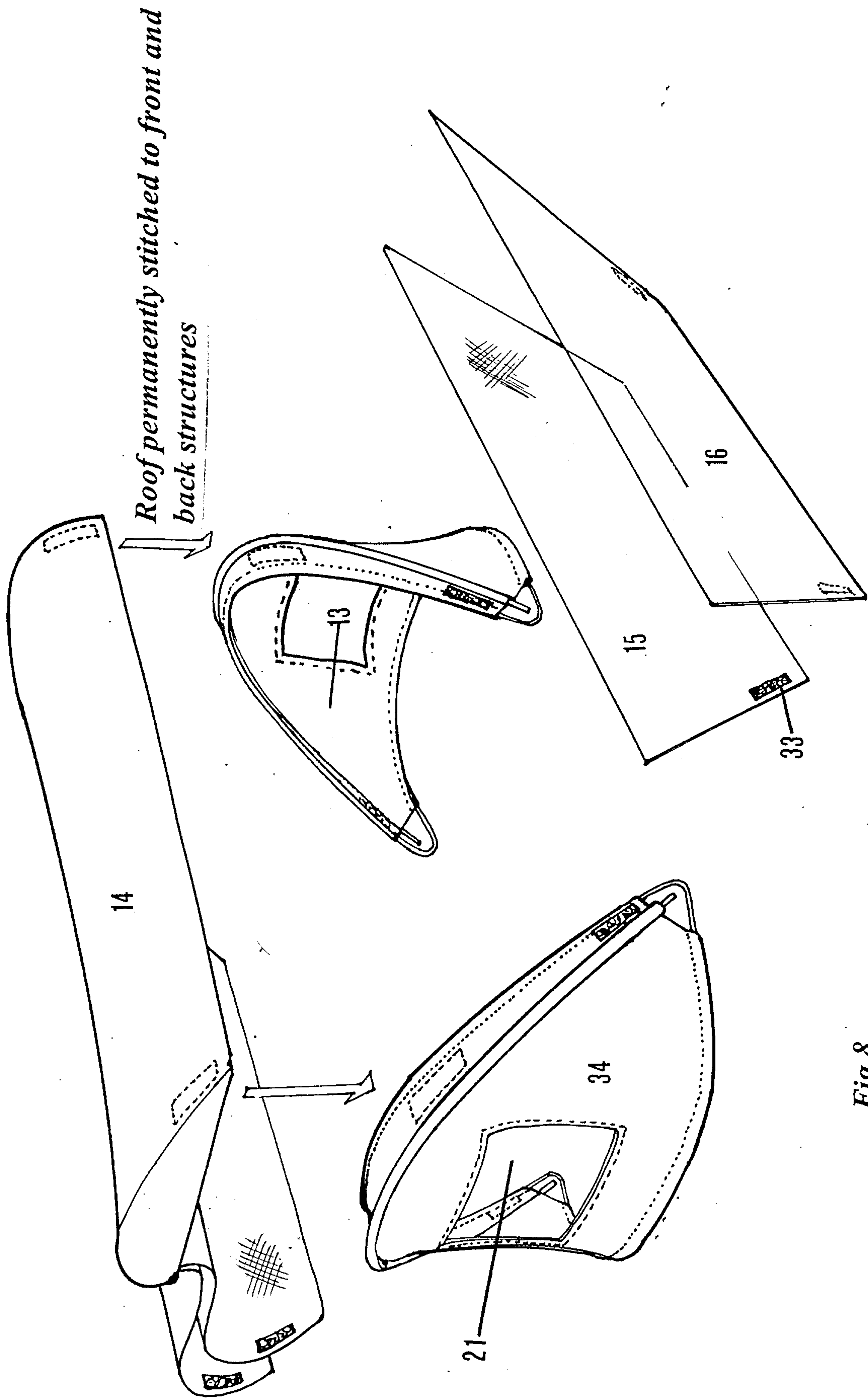


Fig.8
Canopy , exploded view

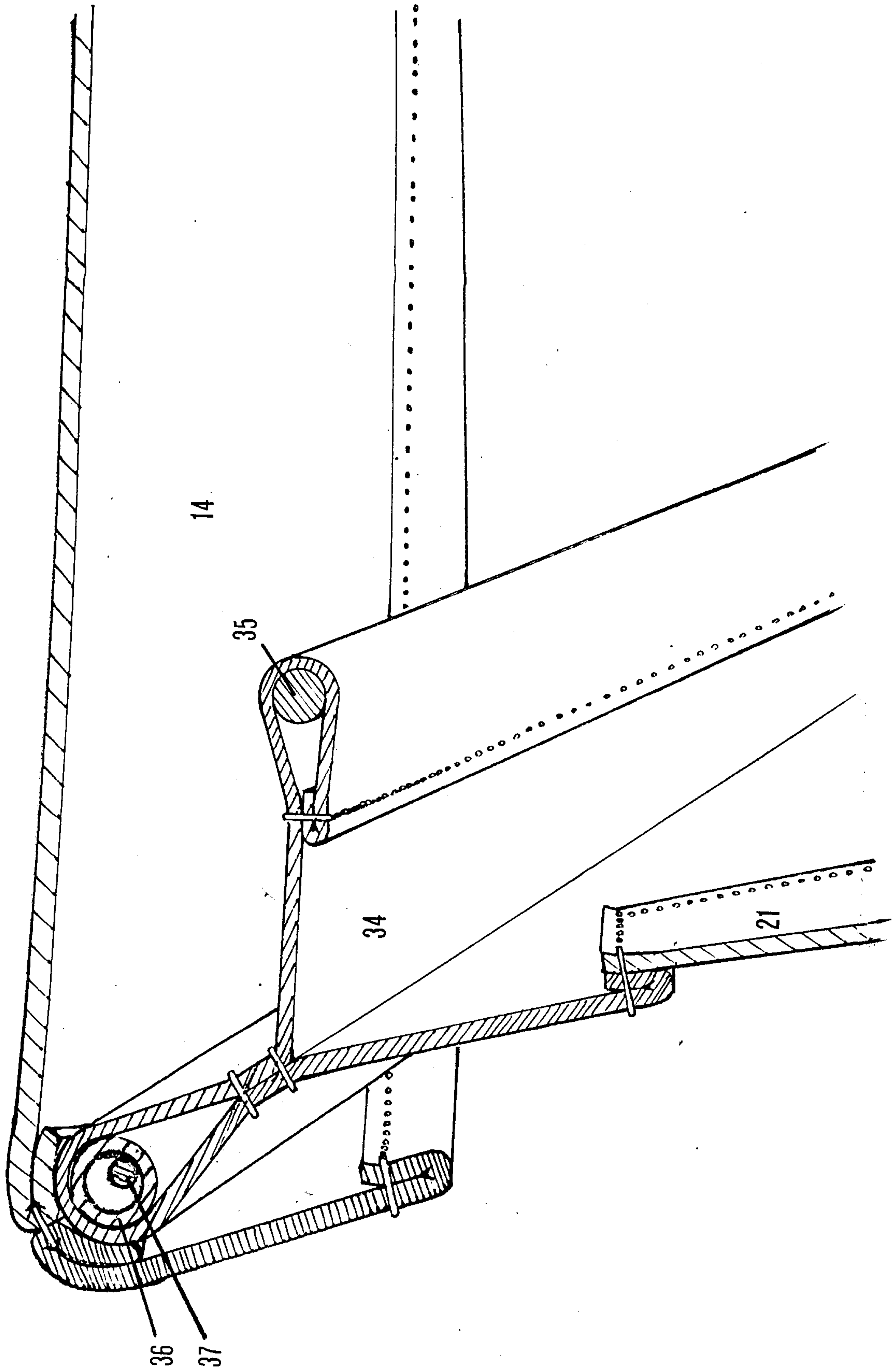


Fig.9
*Section showing how roof drapes over front
 and back structures*

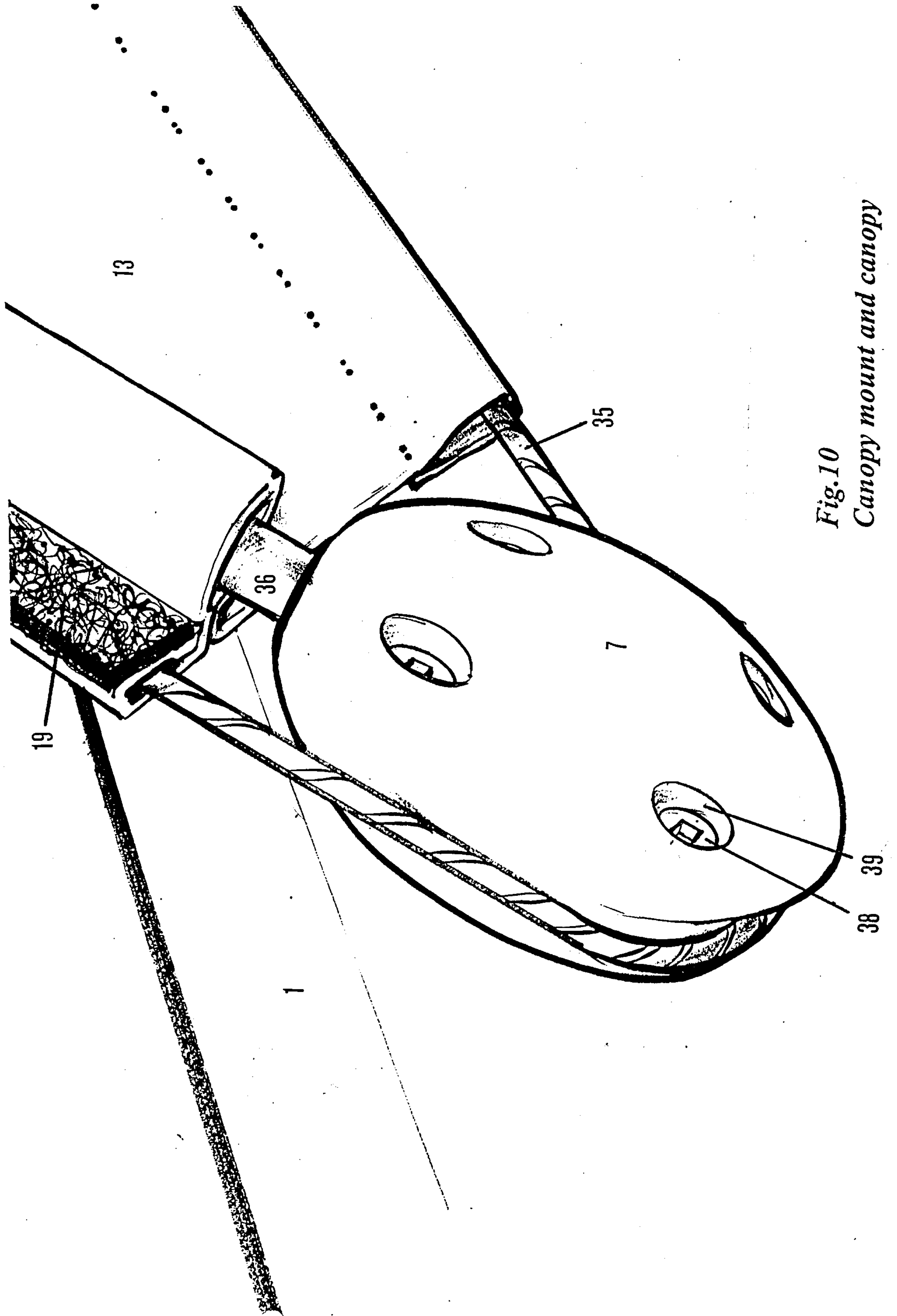
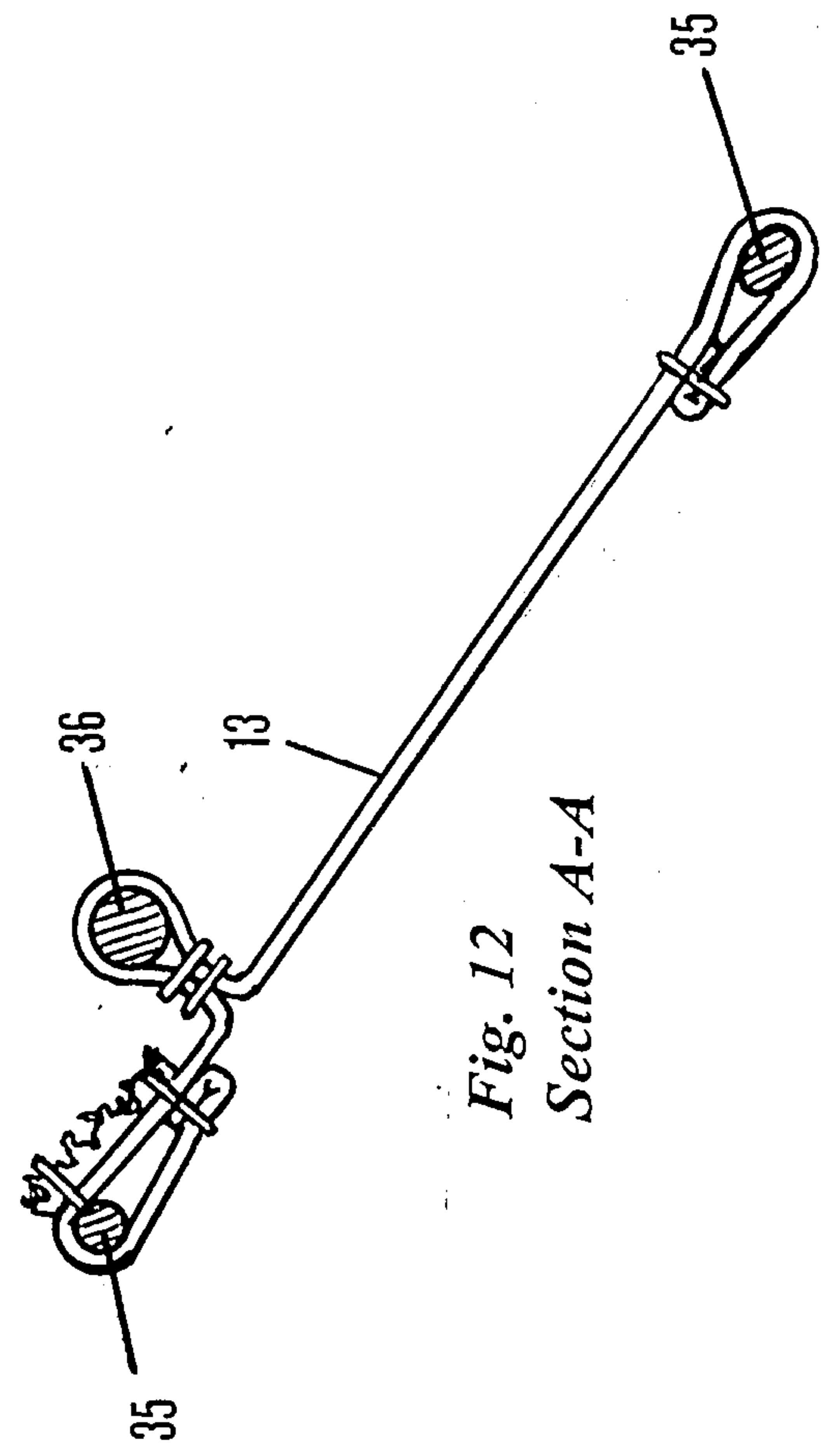
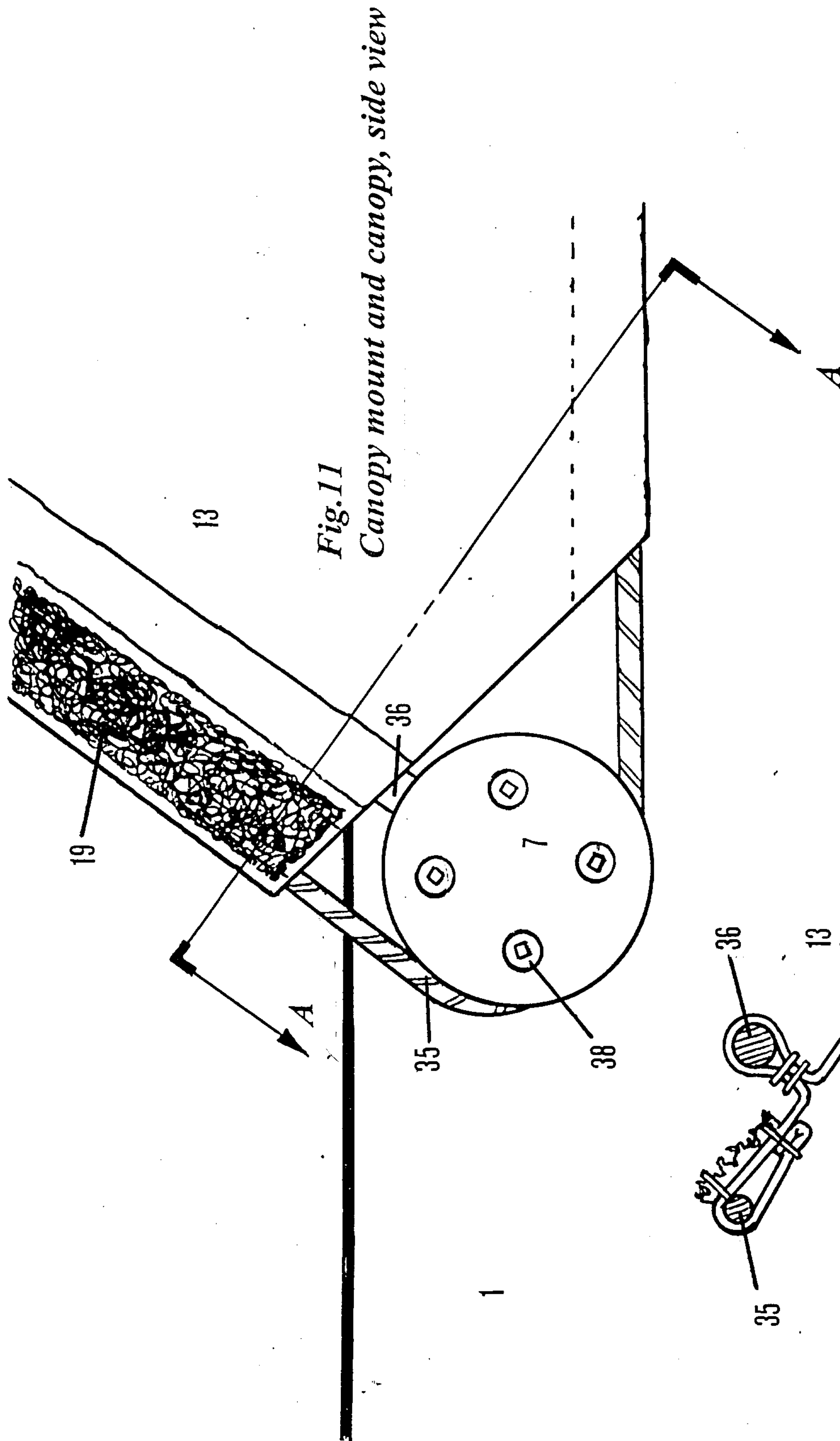


Fig. 10
Canopy mount and canopy



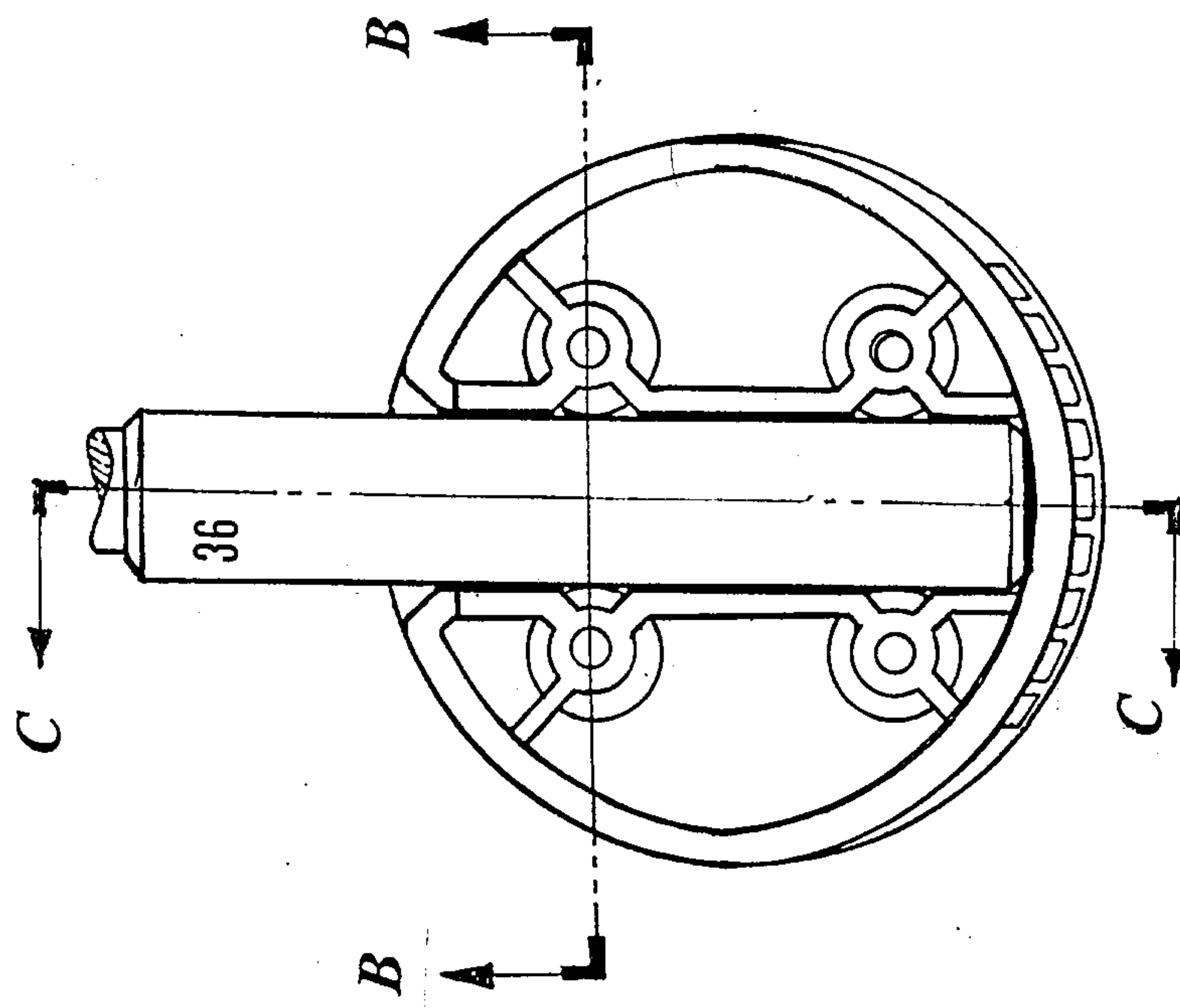


Fig. 14 Canopy mount, internal ribs

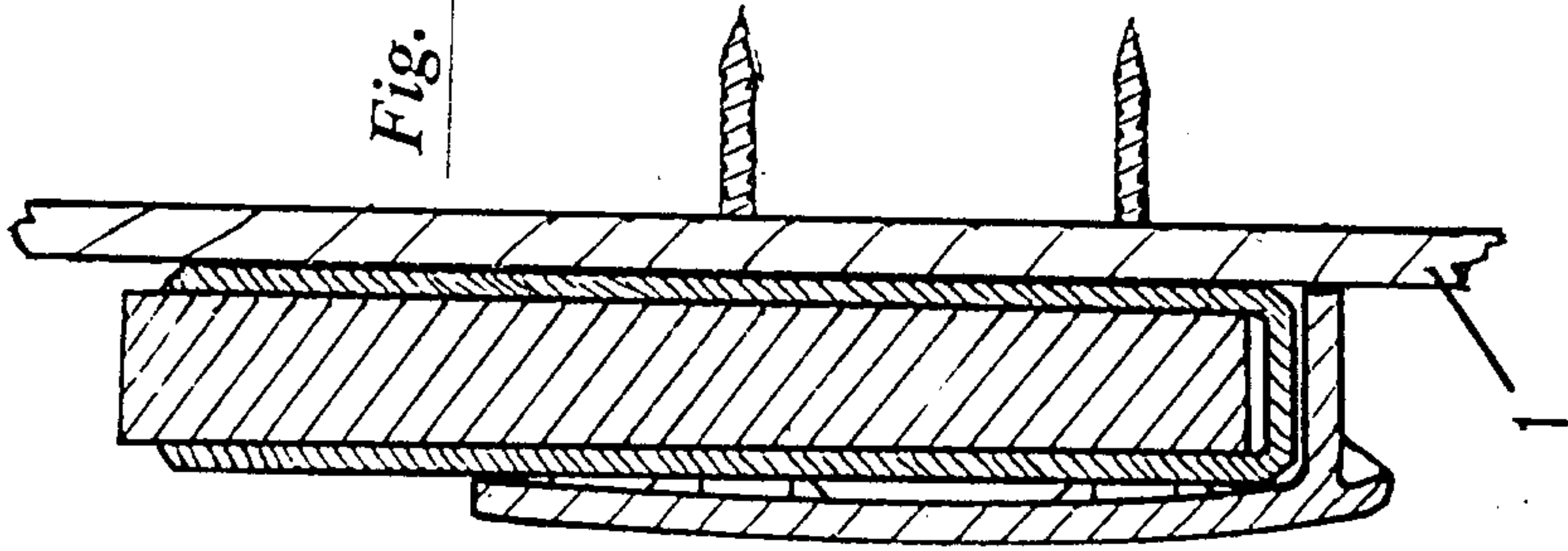


Fig. 16 Section C-C

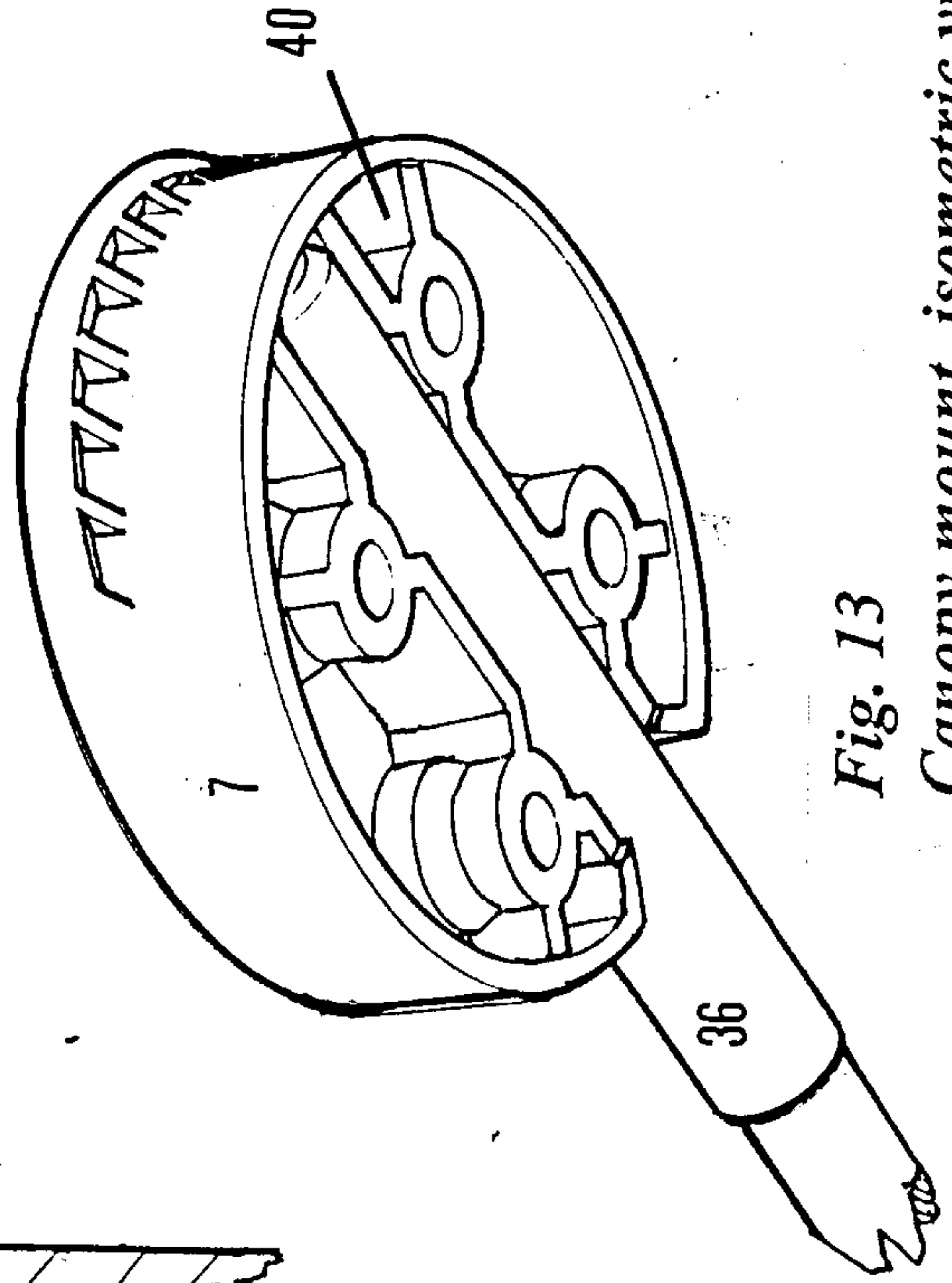


Fig. 13
Canopy mount, isometric view

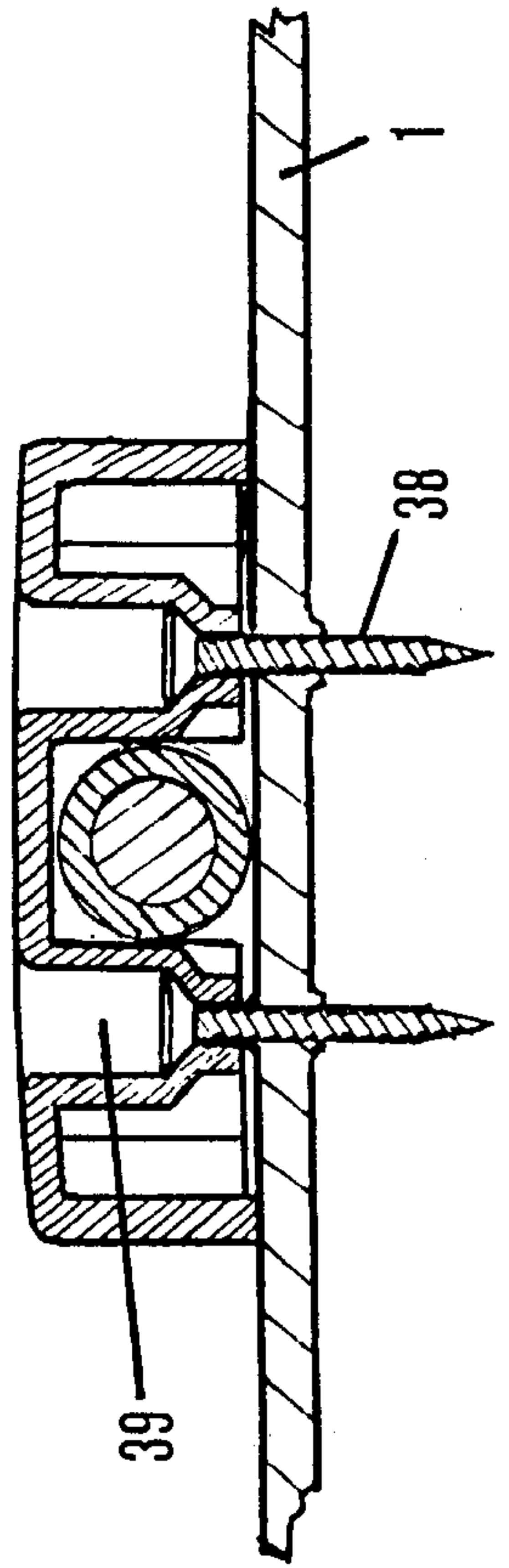


Fig. 15 Section B-B

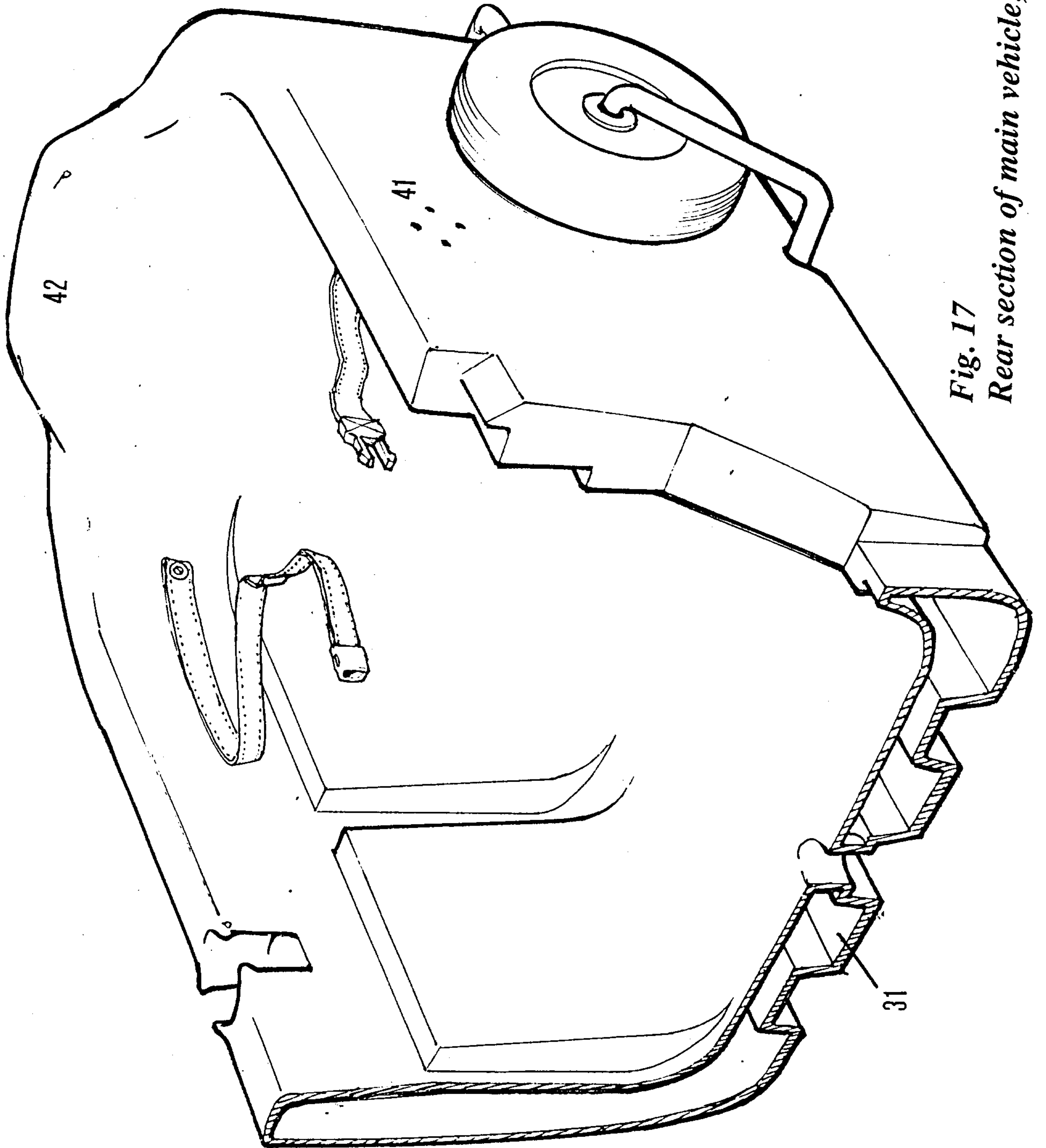


Fig. 17
Rear section of main vehicle, wheels up

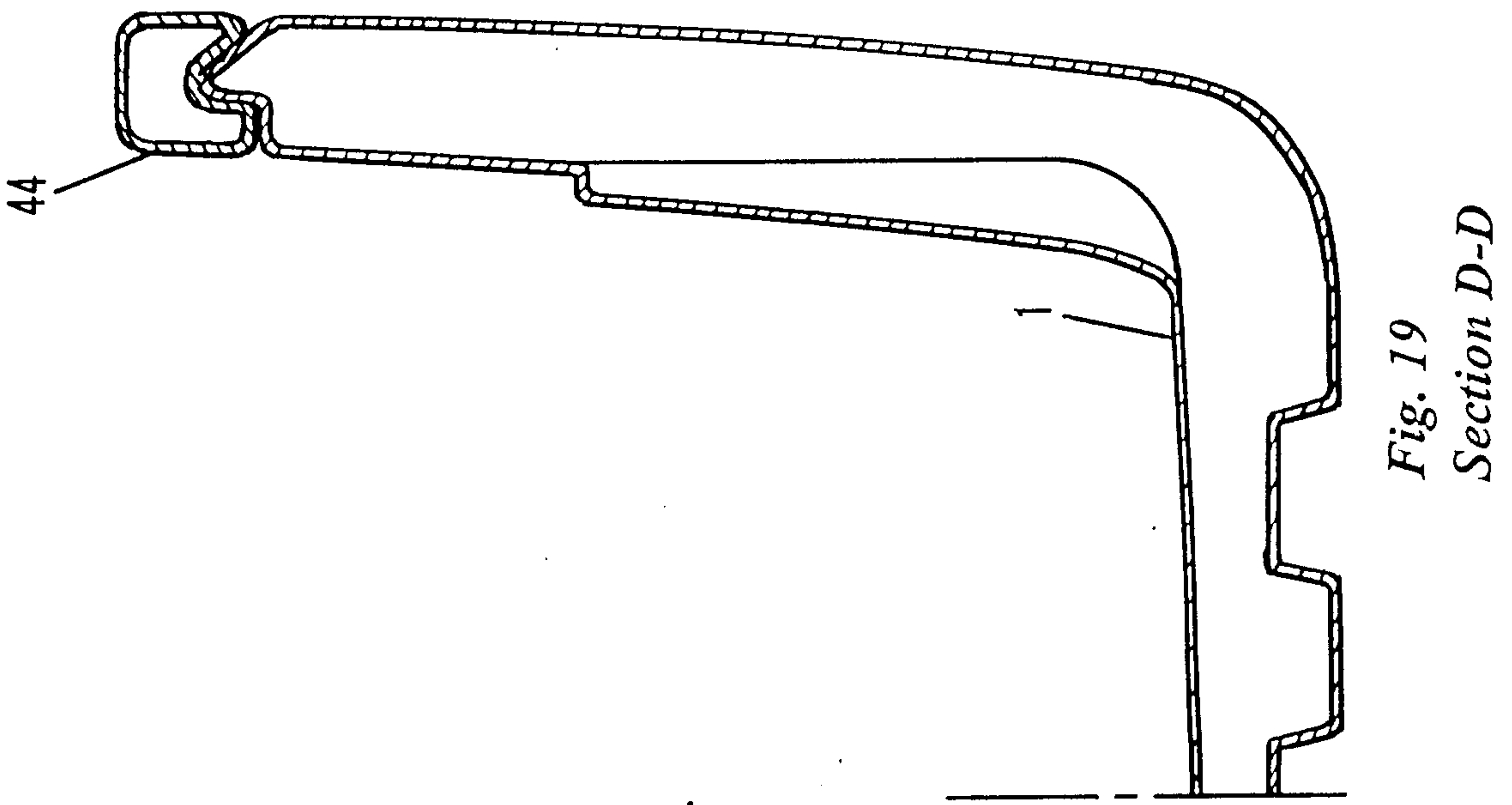


Fig. 19
Section D-D

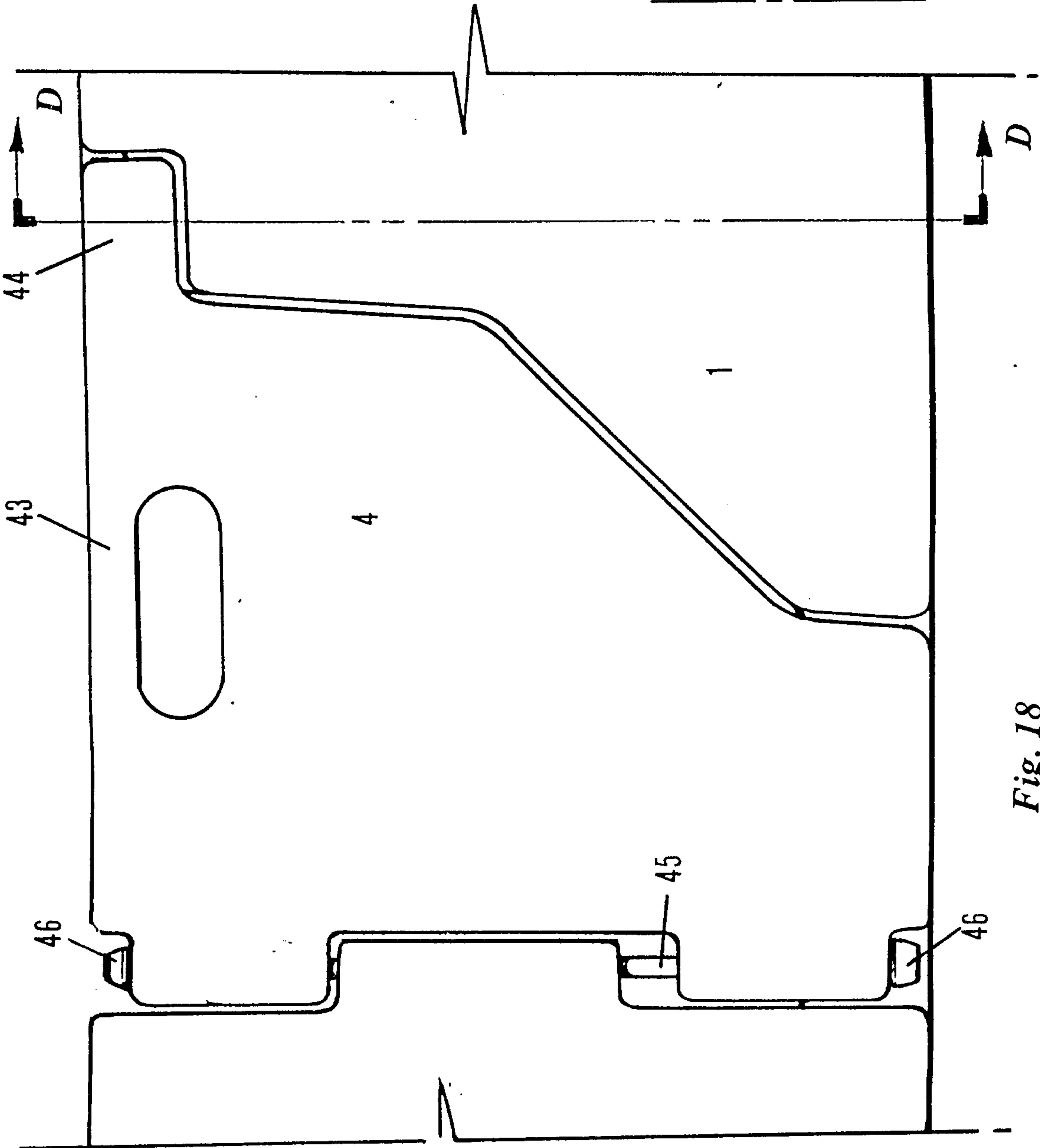


Fig. 18
Detail of vehicle door

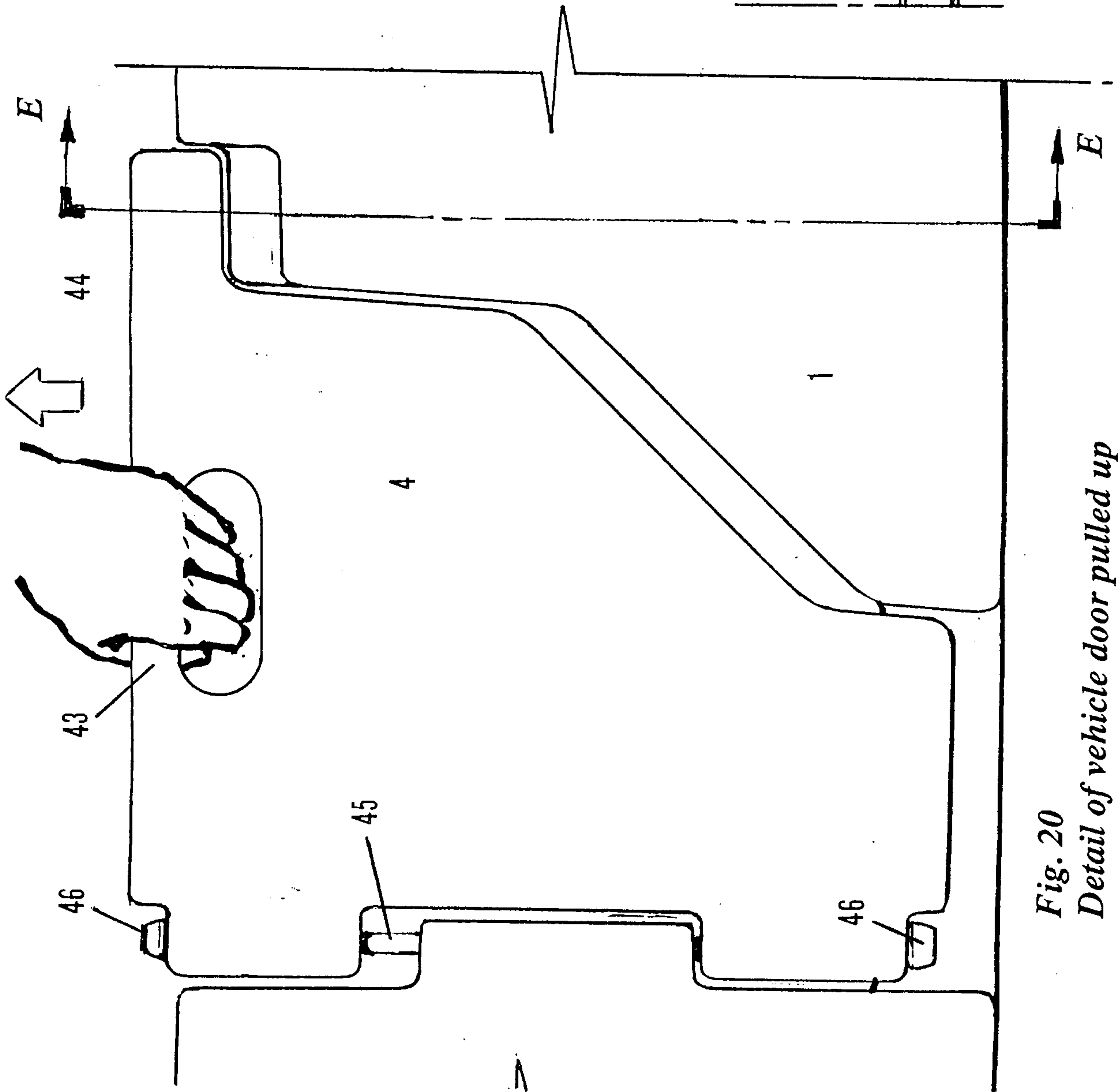


Fig. 20
Detail of vehicle door pulled up
prior to opening

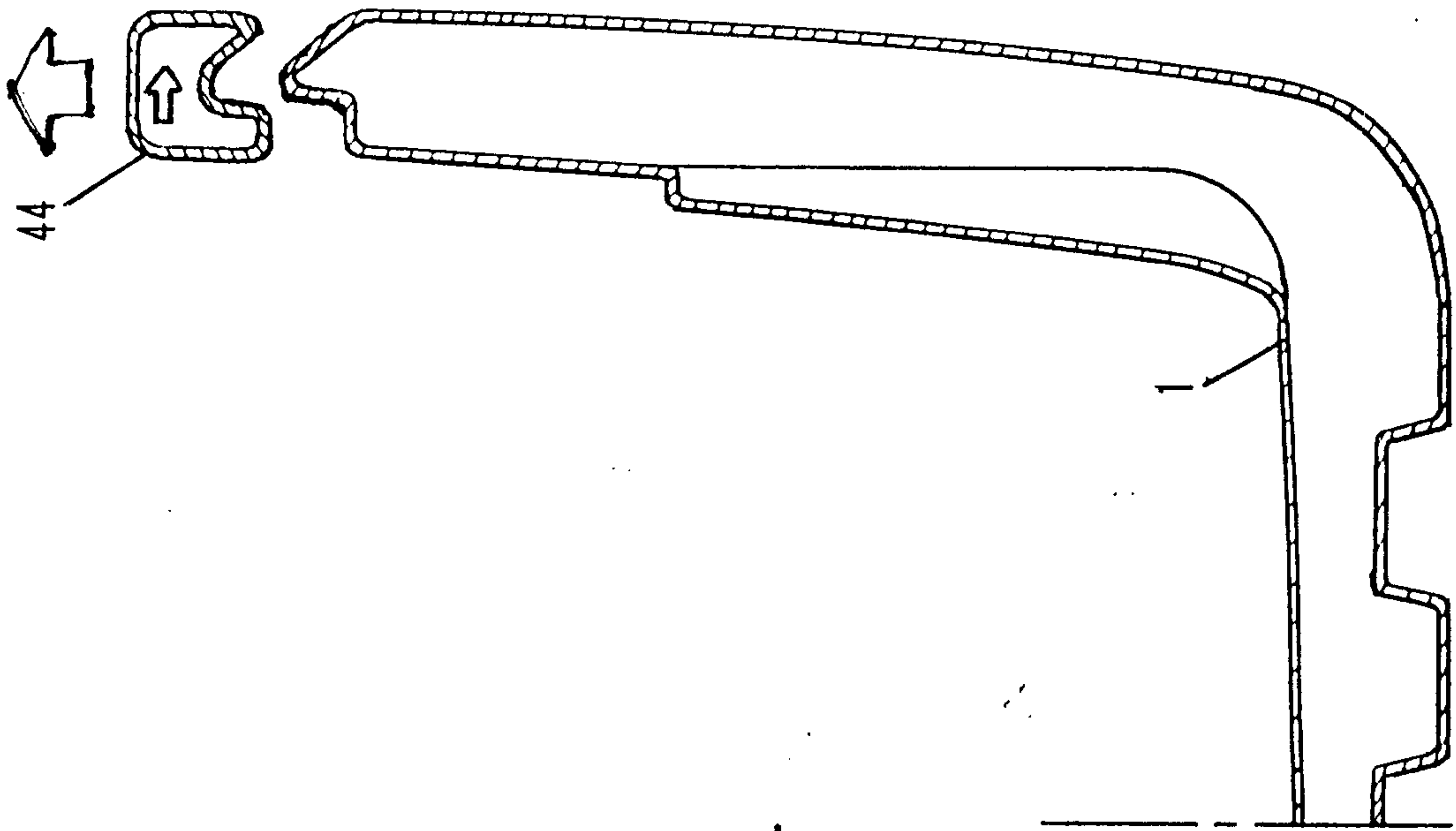


Fig. 21
Section E-E

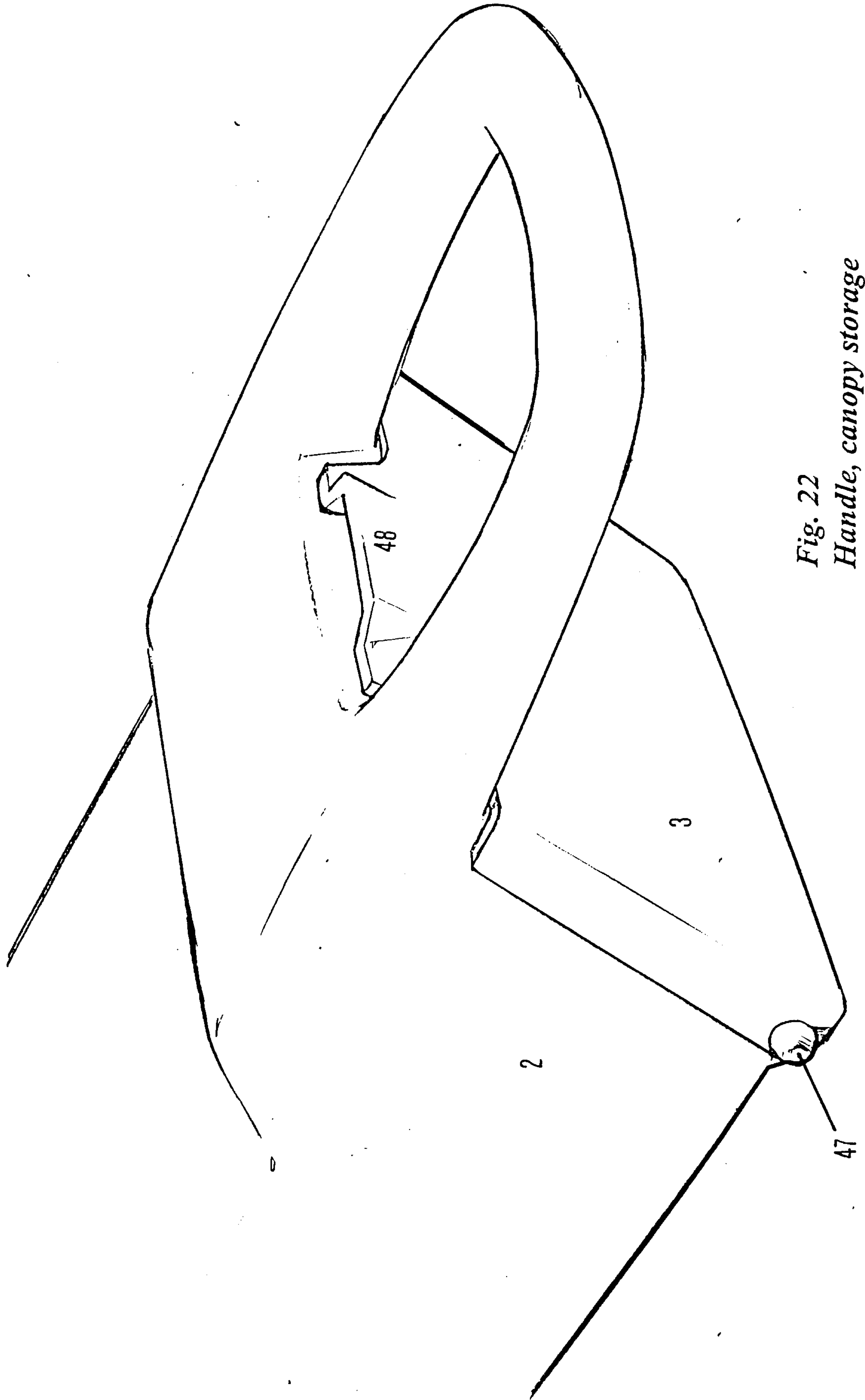


Fig. 22
*Handle, canopy storage
compartment closed*

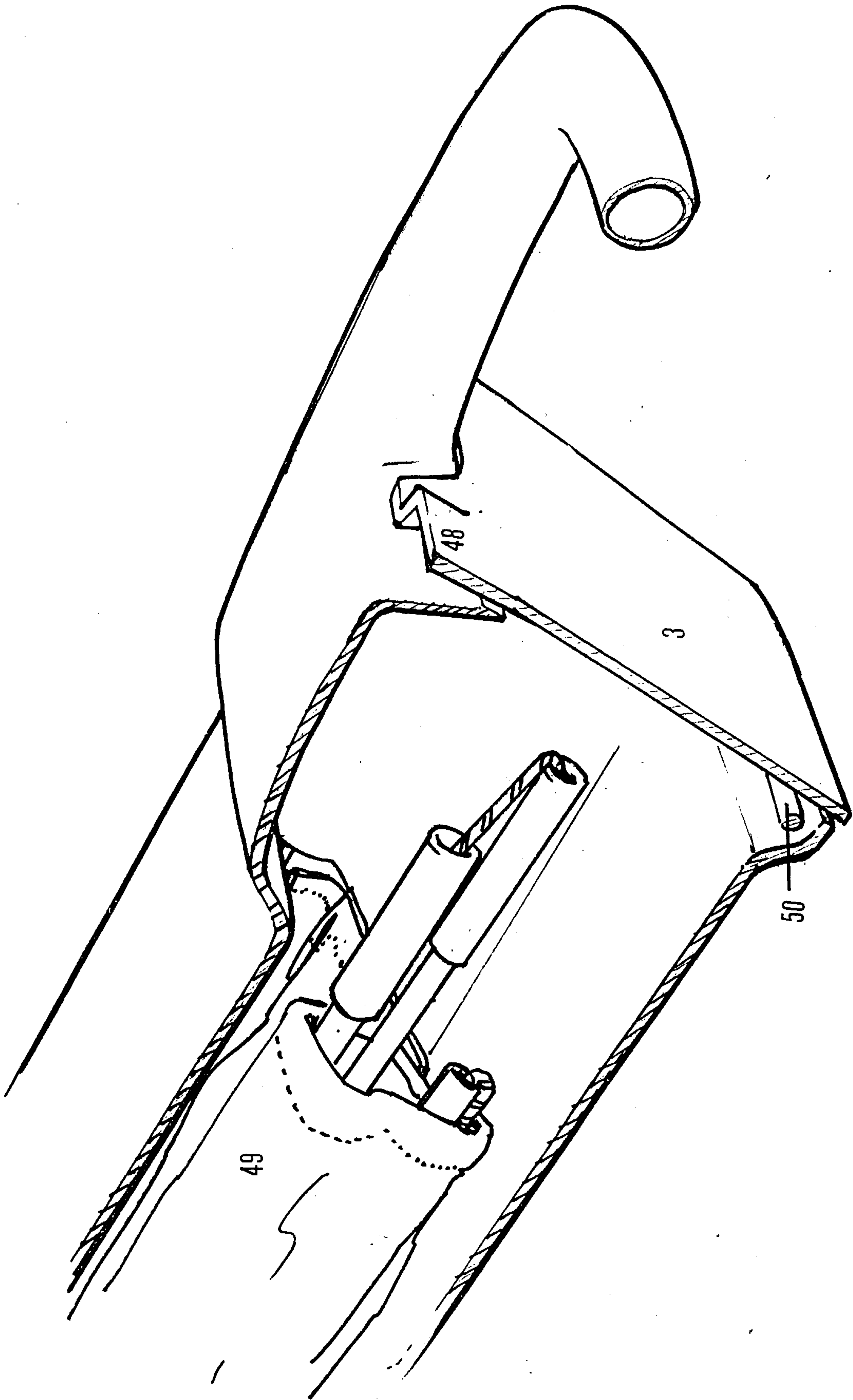


Fig. 23
Sectional view of handle

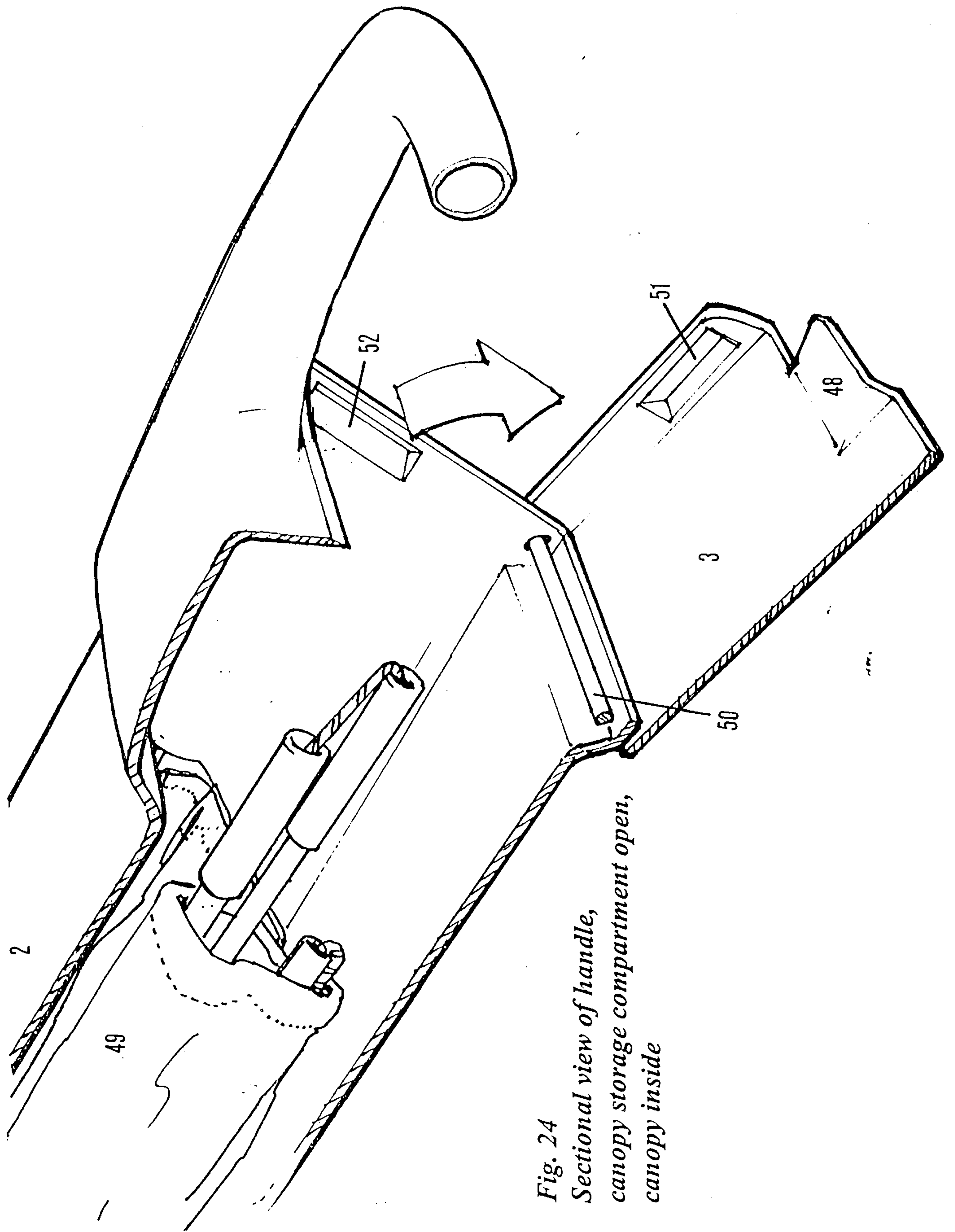


Fig. 24
Sectional view of handle,
canopy storage compartment open,
canopy inside

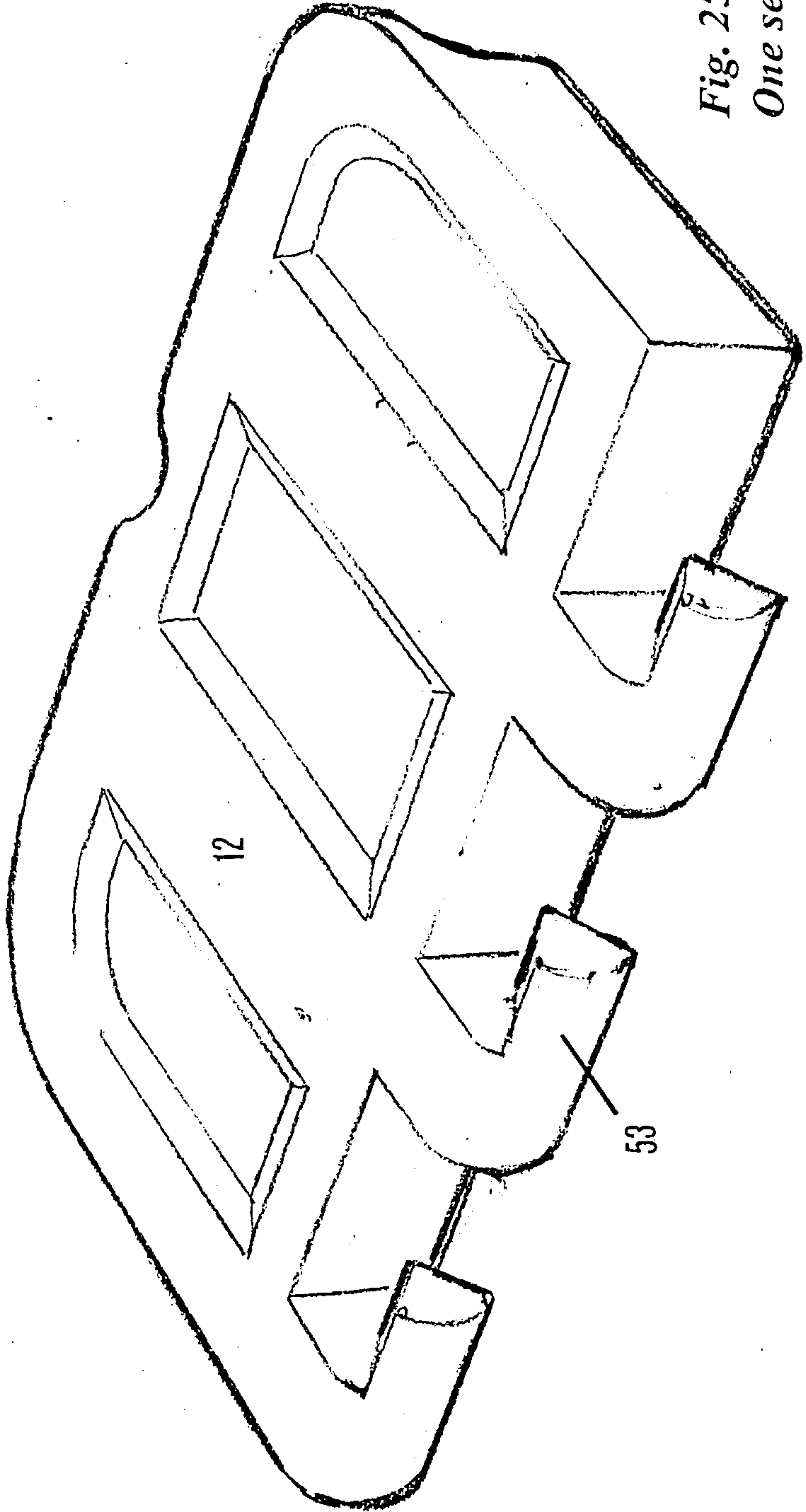


Fig. 25
One seat unit

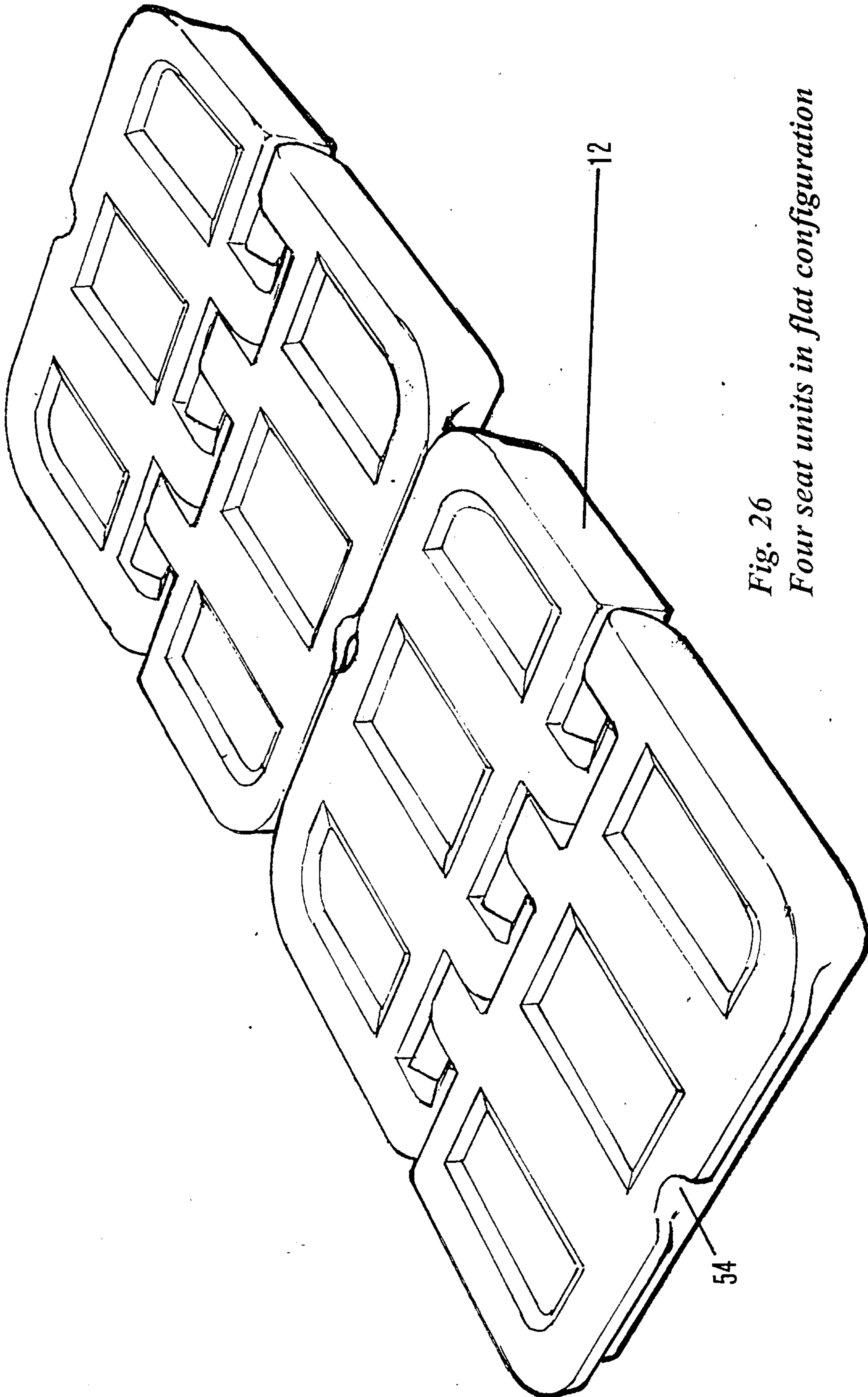


Fig. 26
Four seat units in flat configuration

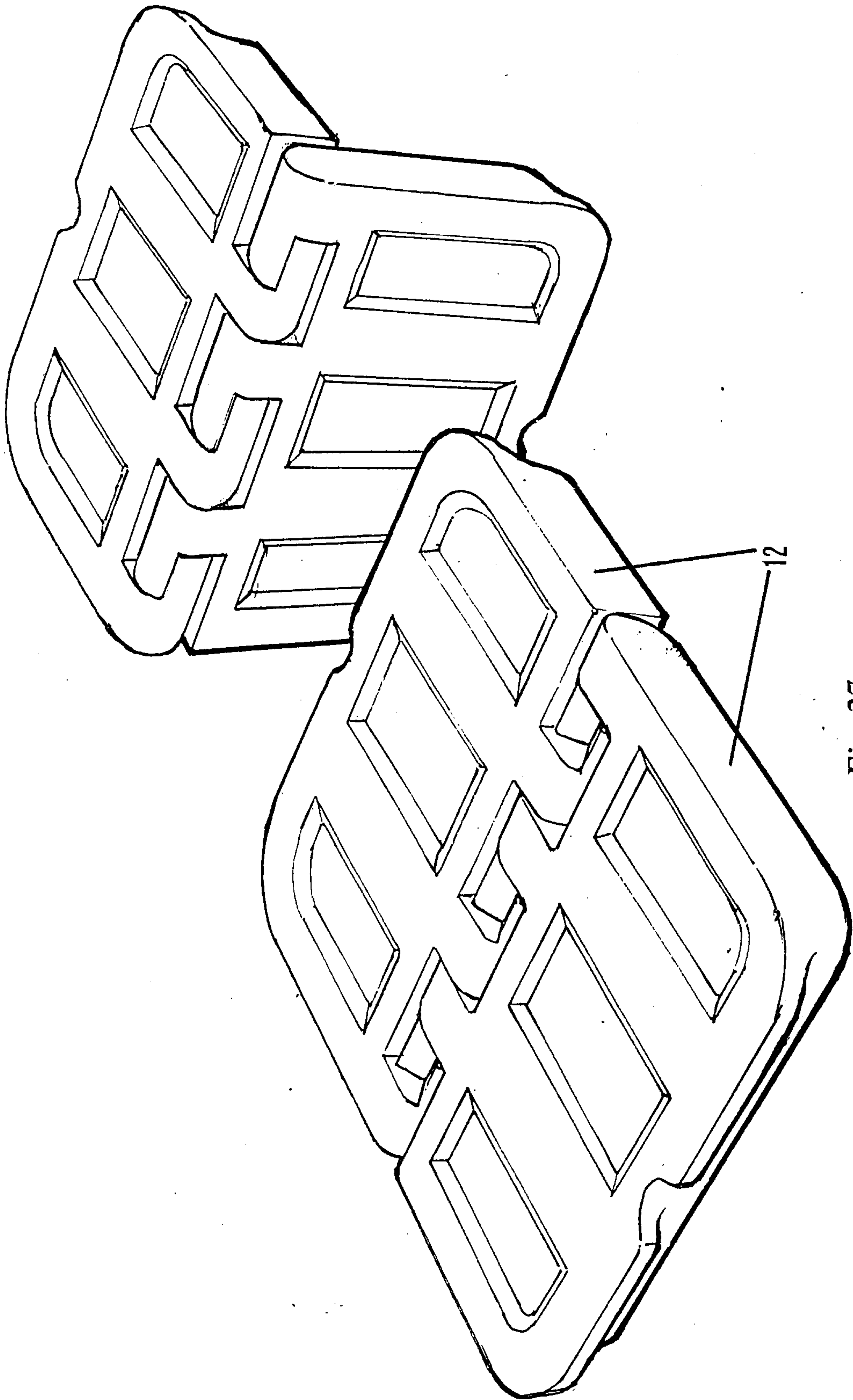


Fig. 27
Four seat units in 'table and chair' configuration

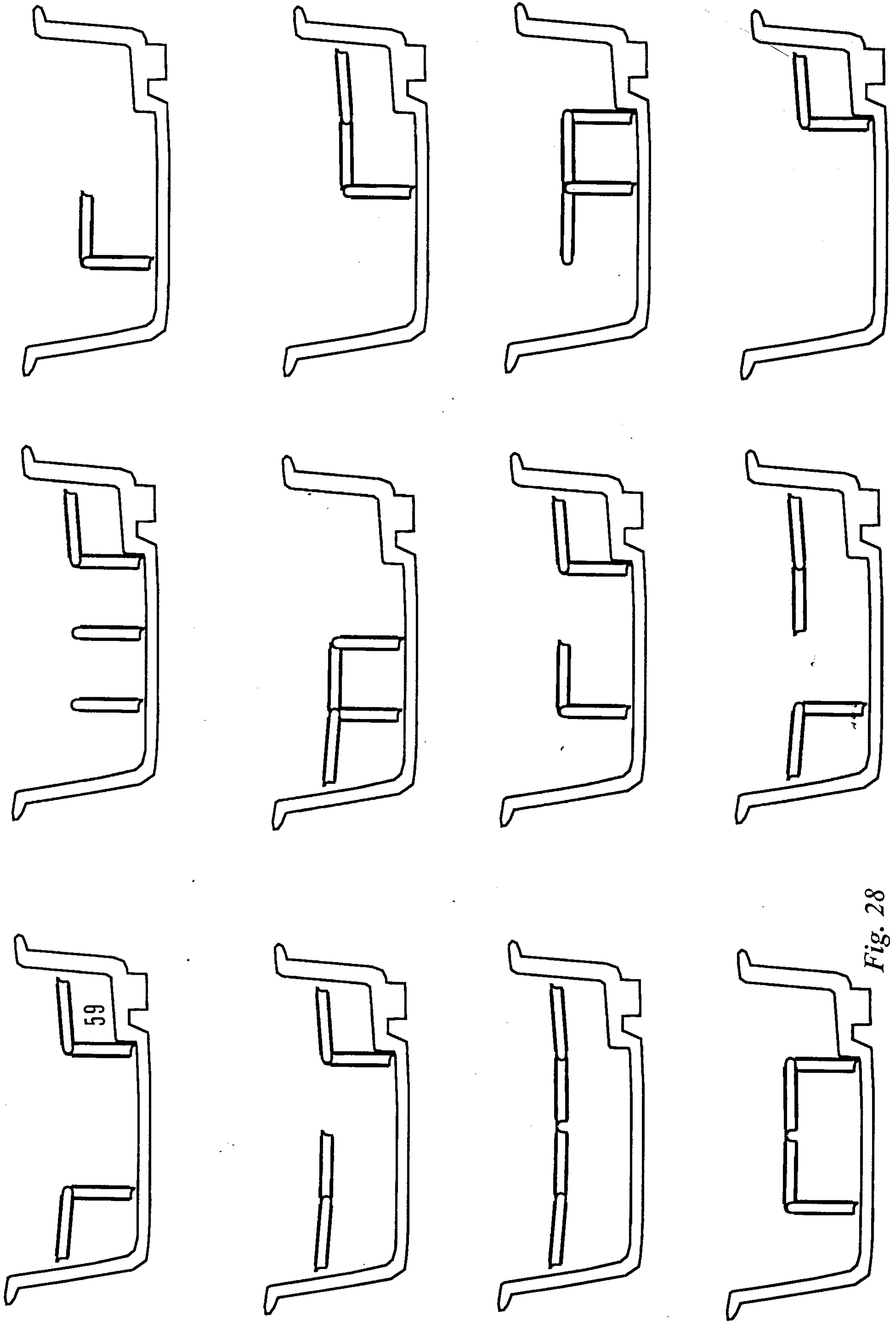


Fig. 28

A selection of the 100 odd possible seat configurations

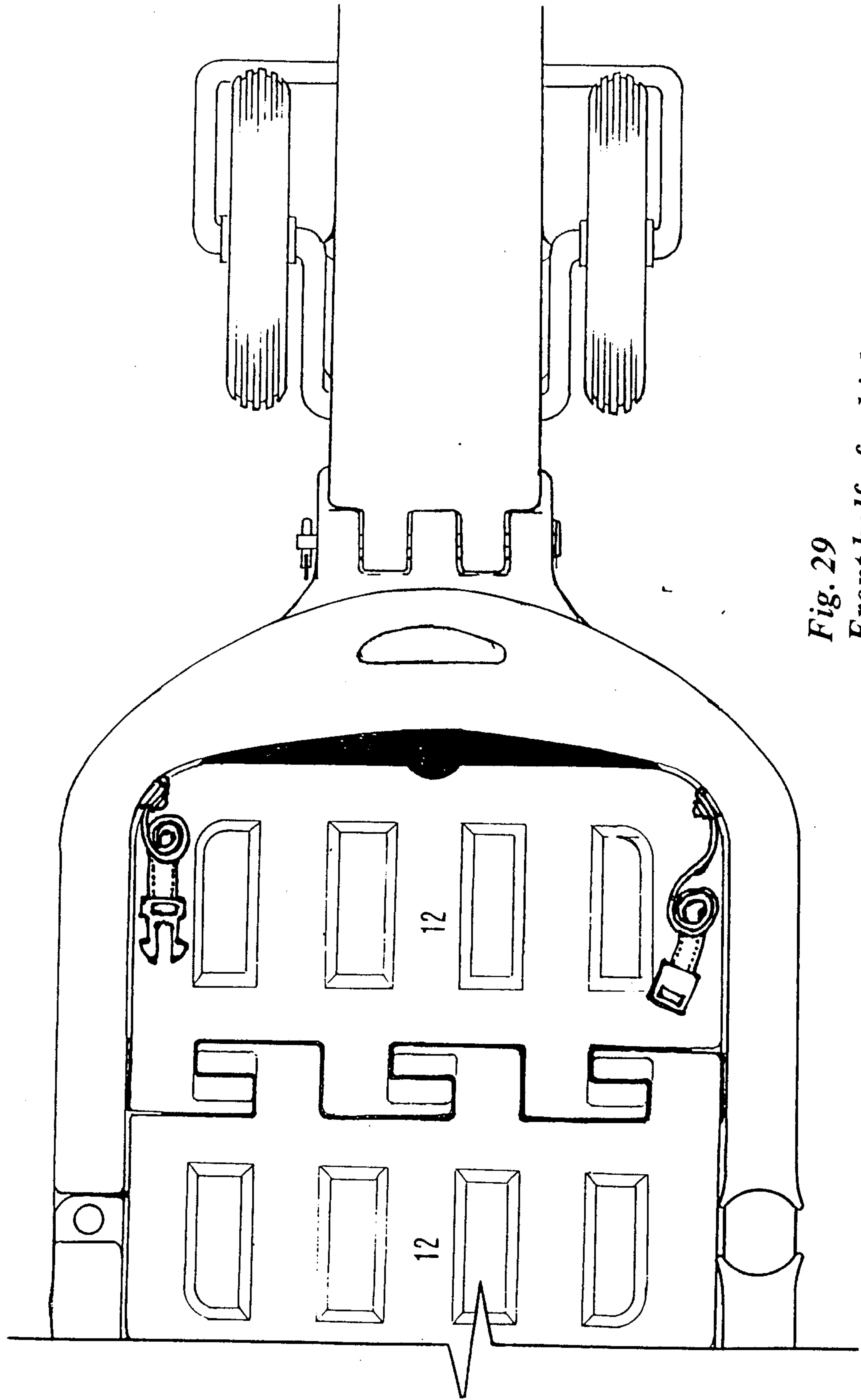


Fig. 29
Front half of vehicle, top view

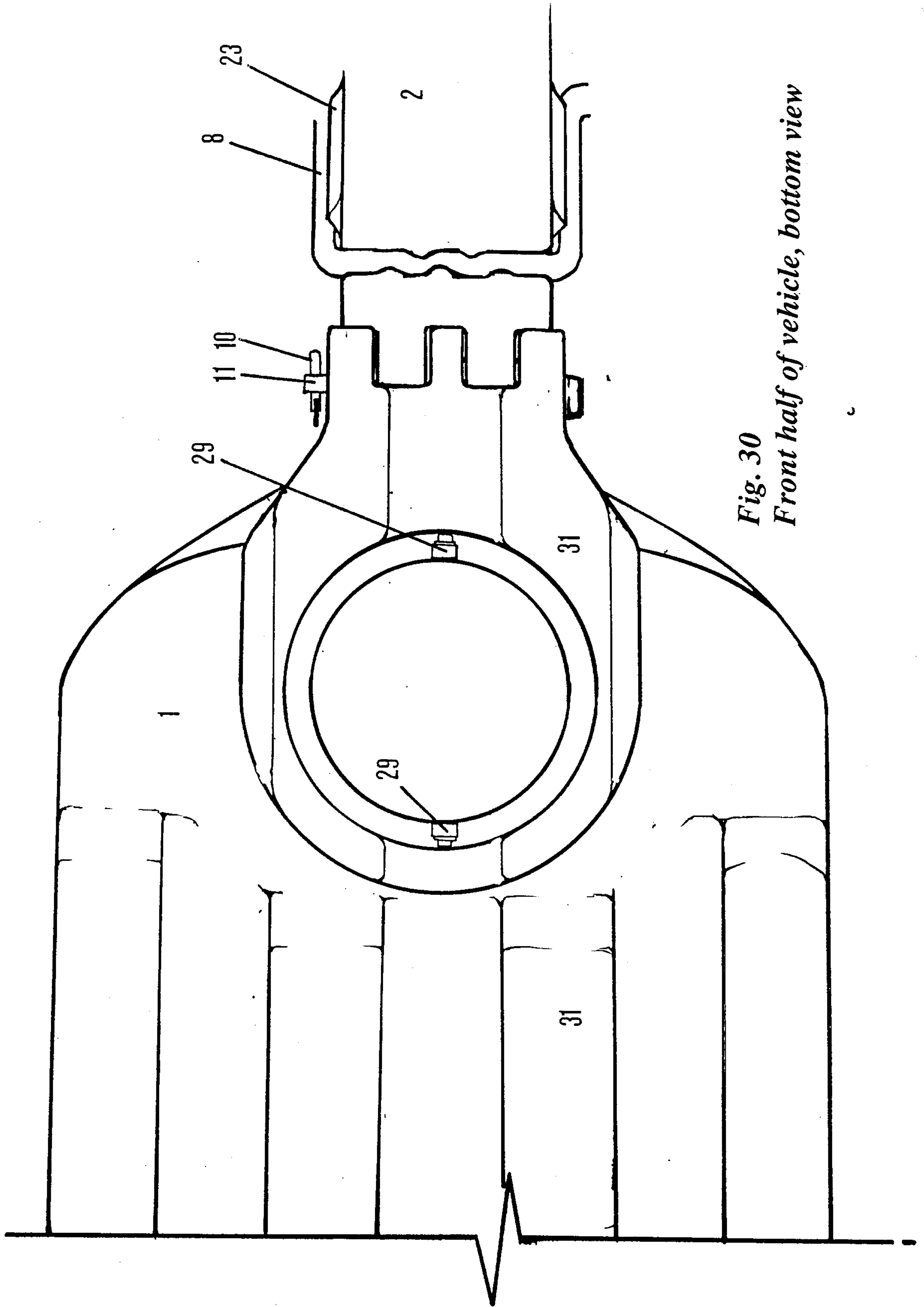


Fig. 30
Front half of vehicle, bottom view

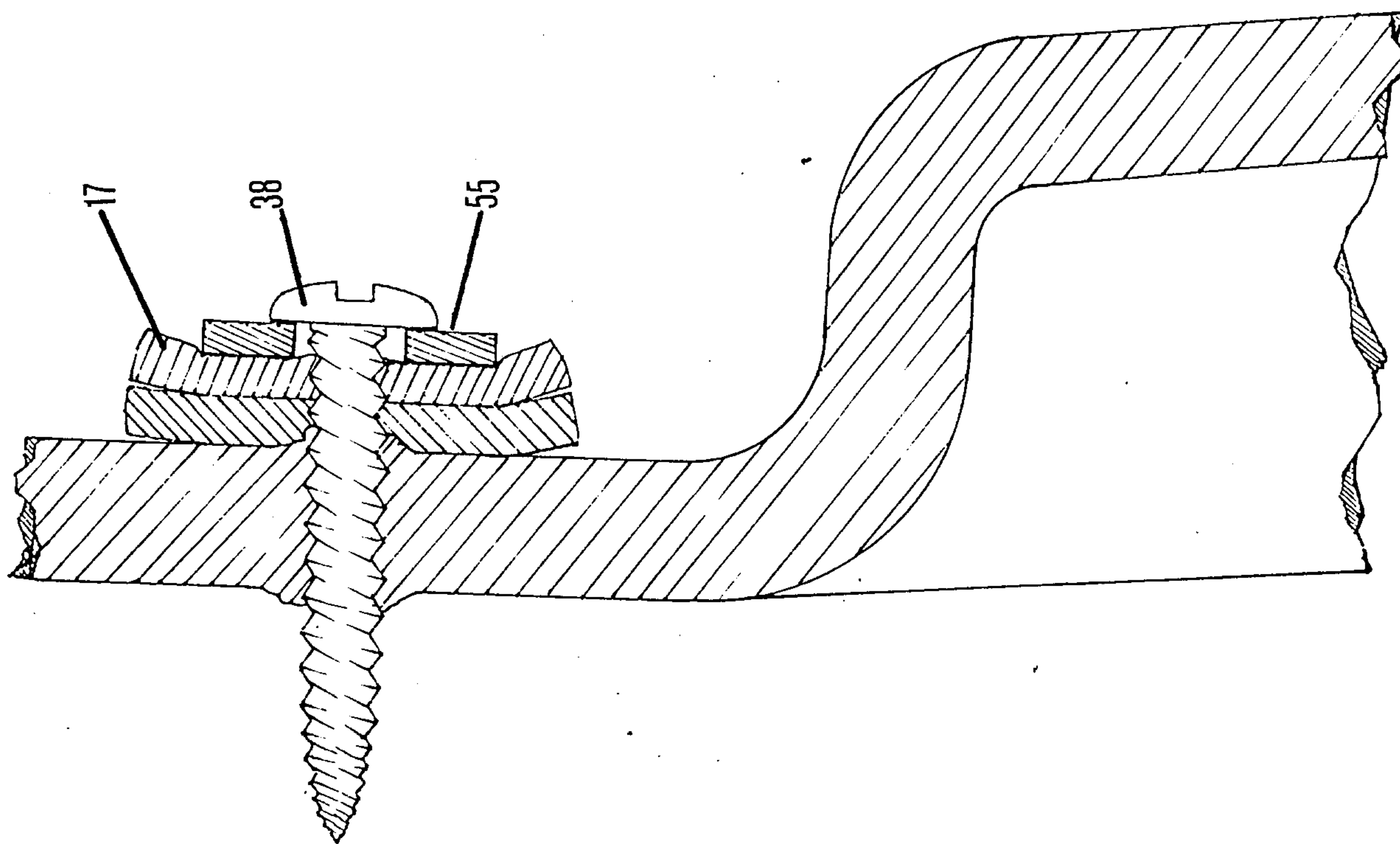


Fig. 32
Seat-belt attachment, sectional view

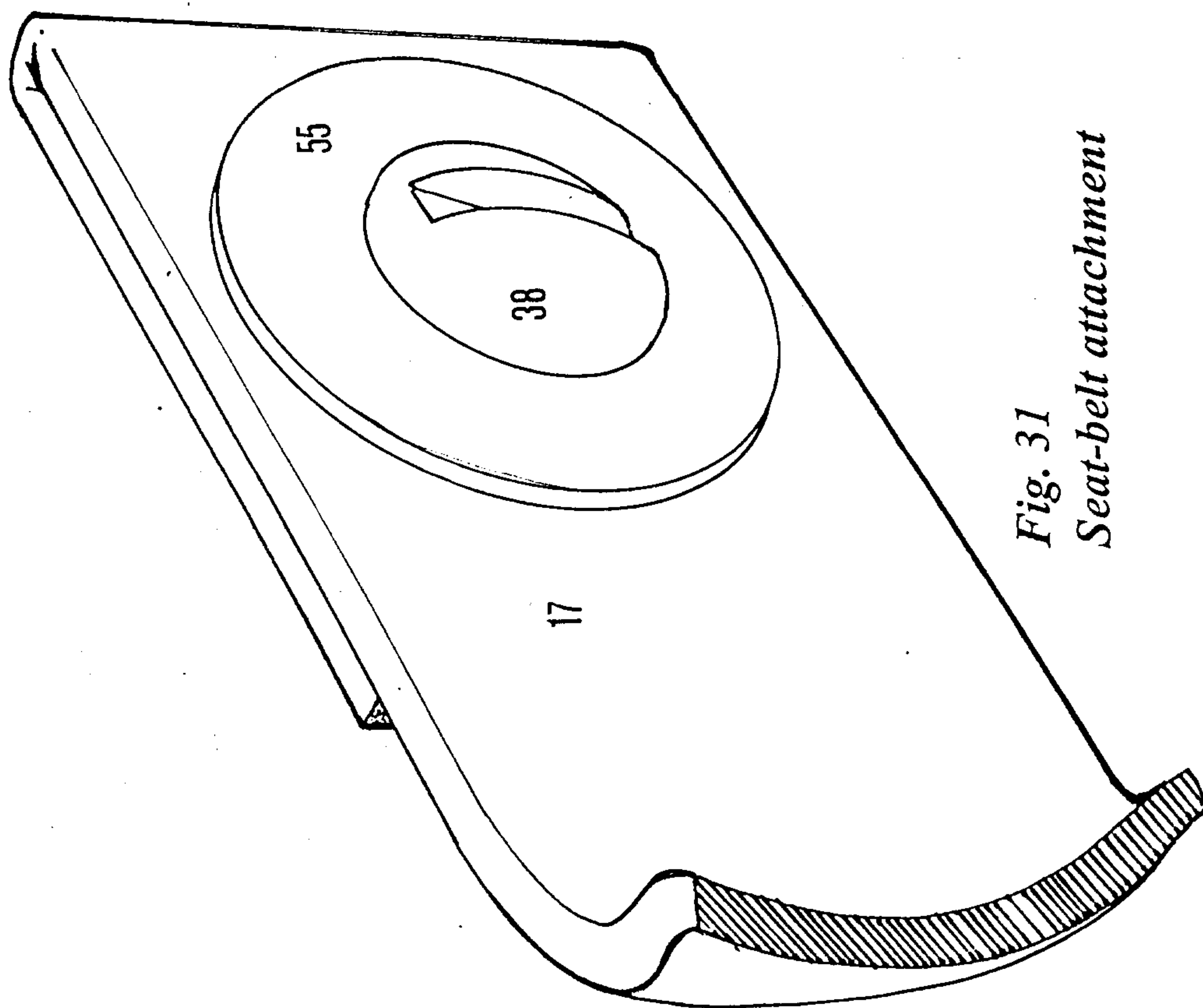


Fig. 31
Seat-belt attachment

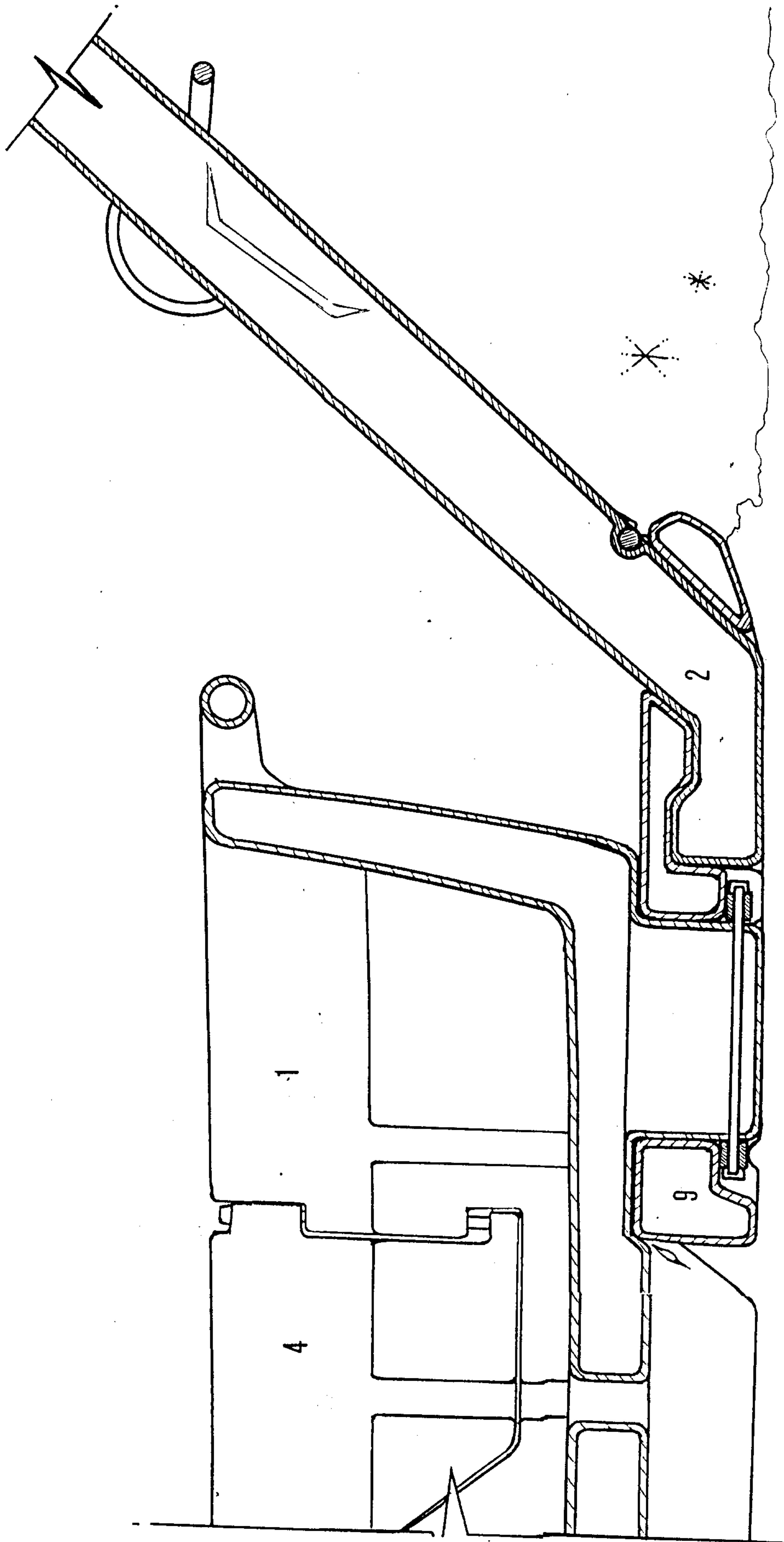


Fig. 33
Alternate connection between handle and undercarriage

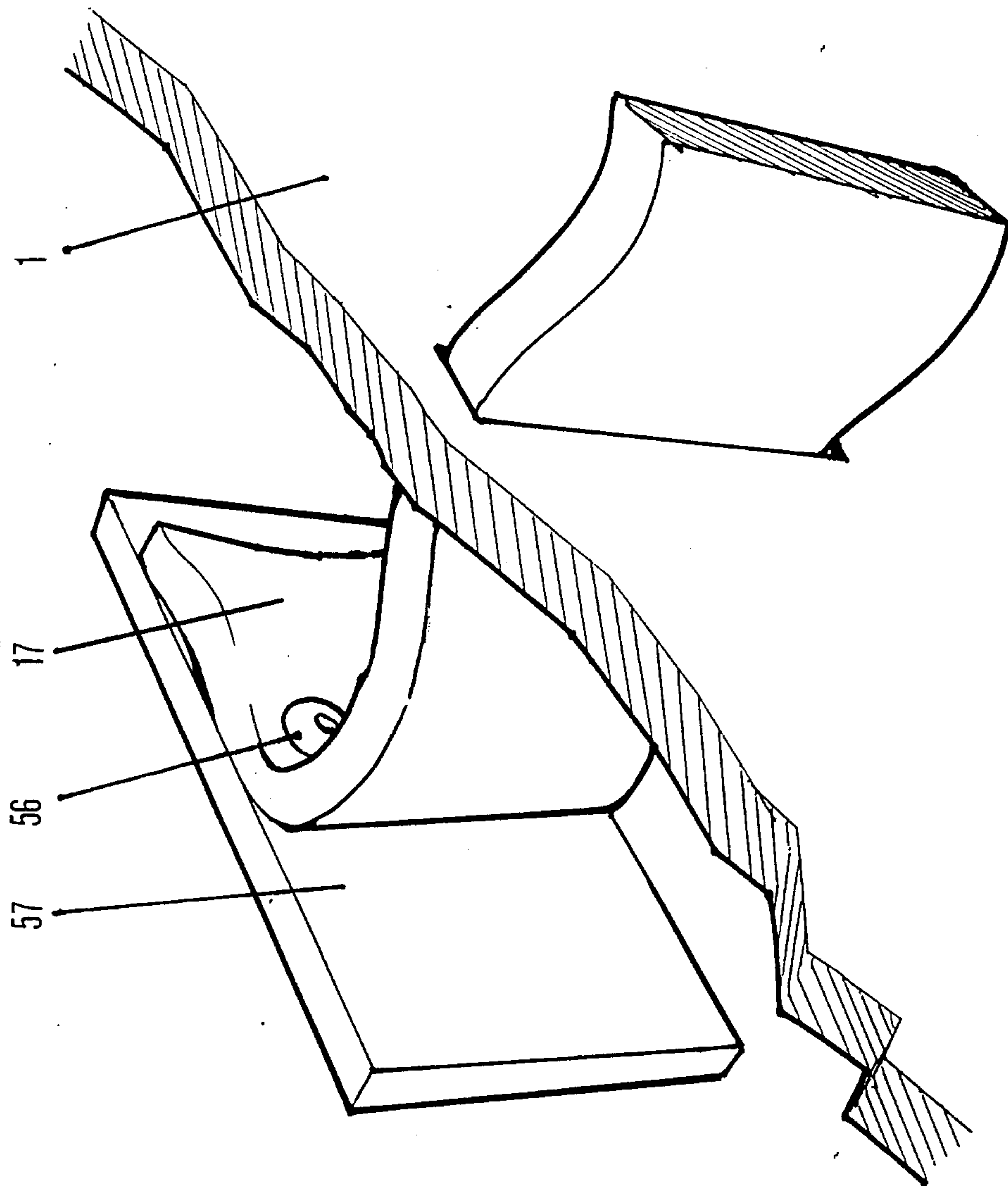


Fig. 34
Alternative method of attaching seatbelt to vehicle