

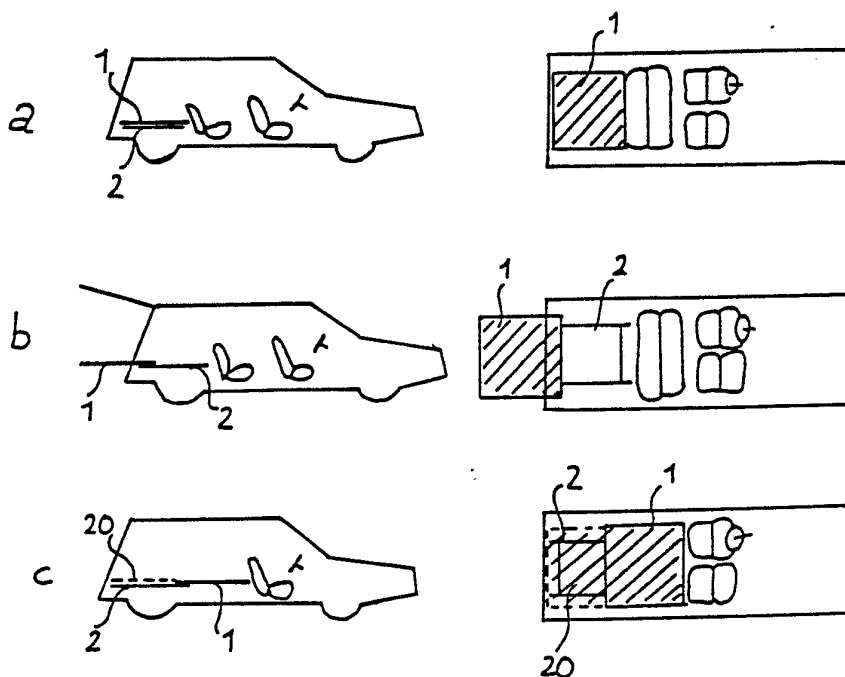


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(54) Title: LOAD CARRIER FOR VEHICLES**(57) Abstract**

Load carrier to be mounted in the loading area of a station wagon or the like, comprising a frame (2) and a load platform (1), which are slidable in relation to the frame and the whole of which or part of which may be moved to a position outside the boundary of the vehicle. In a neutral position the load platform is placed behind the back seat of the vehicle. When using maximal loading area with the back seat folded the load platform may be pushed forward beyond the edge of the frame and fixed in any position between neutral position and a position behind the back of the front seats. Having pushed the load platform (1) all the way to the back of the front seats of the vehicle a supplementary load platform (20) may be used to take advantage of the whole loading area.



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LOAD CARRIER FOR VEHICLES

TECHNICAL FIELD

The present invention refers to the field of goods handling and more specially to a loader or load carrier for light vehicles and/or passenger cars having a cargo space or loading area, such as station wagons or the like. Transporting smaller goods in a conventional station wagon, smaller lorry or bus of the pick-up type often implies loading and unloading problems.

At present it is necessary for a person loading the vehicle to carry out time-demanding, heavy and sideways lift working in the interior of the vehicle in a stooped or cramped position.

When delivering goods of smaller size the separate goods articles must often be loaded and unloaded several times in order to reach the article intended to be delivered at a certain place.

When transporting heavier goods this will often be placed at the very back of the vehicle due to difficulties in moving the articles further into the loading area. This means an incorrect distribution of weight on the vehicle shafts with respect to traffic safety. Moreover, every time other goods articles placed inside said heavier goods in the loading area, are to be taken out, the heavy goods have to be moved which implies great and unnecessary strain to the persons loading.

Furthermore, the floor of the vehicle is subjected to unnecessary wear due to this irrational handling of goods.

Thus, there is a demand for an improved device for simplifying loading and unloading of goods, preferably when using station wagons or the like, in order to eliminate the risk of injuries to the body and the risk to wear out in the first hand, back and legs. Furthermore, it would be desirable to have a better distribution of weight in the vehicle when loading and



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to eliminate unnecessary wear as well as rationalize the handling of lighter goods.

The object of the invention is to provide an improved load carrier to be securely but releasably mounted in a vehicle, which load carrier
5 comprises a slidable load platform the whole of which or part of which may be moved to a position outside the boundary of the vehicle and back into the loading area of the vehicle where it may be fixed in a predetermined position.

DISCLOSURE OF THE INVENTION

10 On accordance with the present invention a load carrier is provided to be mounted within the body of a vehicle, for example a station wagon, truck or the like. The load carrier comprises a frame or support having at least one rail or track and being adapted to be releasably secured in the proper loading area. A load platform is supported by said rail or rails and
15 is slidable and releasable in respect of the frame. When using the total or extended loading area with the back seat folded, the load platform may be pushed beyond the front edge of the frame all the way to the back of the front seats.

The load carrier in accordance with the present invention is intended
20 to be mounted in an ordinary loading area, preferably in a station wagon, without permanently encroaching upon the number of passenger seats. Alternatively, the load carrier may be mounted on a lorry platform or in a bus of the pick-up type.

BRIEF DESCRIPTION OF THE DRAWINGS

25 Other objects of the invention as well as the novel features of the construction thereof will become apparent from the following description of a preferred embodiment when read in connection with the accompanying drawings in which

Fig. 1a to c are schematic side views and plan views of the load
30 carrier according to the invention placed in three different positions.

Fig. 2 is a plan view of the frame of the load carrier.

Fig. 3 is a plan view from below of the load platform.

Fig. 4 is a cross-sectional view of the frame.

Fig. 5 is a side view of the means of the attachment of the load
35 carrier..

Fig. 6 is a side view of an engagement member to be engaged with the means of attachment of Fig. 5.



Fig. 7 is a cross sectional view of a locking device to lock the load platform in respect of the frame, and

Fig. 8 is a plan view from below of a supplementary load platform.

BEST MODE OF CARRYING OUT THE INVENTION

5 As shown in Figs. 1 to 4 the load carrier comprises a load platform 1 and a frame 2. As shown in Fig. 3 the load platform is provided with rollers or sliding members 3 mounted on angle irons 4, 5 and slidable in tracks 6, 7 in side beams 8, 9 of the frame 2. The load platform 1 further-
more comprises a handle 17 as well as a locking device 16, which will be
10 described in detail below. Moreover, the side beams 8, 9 of the frame comprises transverse beams 10, 11 connecting the two side beams. At one end of the beams 8, 9 there are provided engagement members 12, 13 to engage with means of attachment 14, 15 (see Fig. 5), which are firmly fixed in the loading area of the vehicle. A locking beam 18 extending between the
15 transverse beams 10, 11 is provided with a longitudinal groove 31 (Fig. 2). A number of cut-in portions 32 are evenly spaced along the length of the groove in order to lock the load platform in a desired position with reference to the frame. The load platform 1 is slidably mounted with respect of the frame 2 by means of the sliding members 3 and may be extracted to
20 the position shown in Fig. 1b and inserted to the position shown in Fig. 1a. With the back seat folded, the load platform 1 may be inserted to the position shown in Fig. 1c, whereafter a supplemental load platform 20 (fig. 8) may be inserted in the frame 2, behind the main load platform 1.

The engagement members 12, 13 at the one end of each beam 8, 9 are
25 shown in detail in Fig. 6 and comprise a rod or pin 28 provided with a recess 27. The recess is dimensioned to fit in a keyhole-shaped opening in the means of attachment 14, 15 shown in Fig. 5. The load carrier is mounted in the vehicle by inserting the engagement members 12, 13 in the large portion of the keyhole-shaped opening in the means of attachment
30 14, 15 raising the frame at the back end. When the frame is lowered to a horizontal position the means of attachment are locked in the narrow part of the keyhole-shaped openings, fixing the frame in the loading area of the vehicle. The load platform 1 comprises a locking device 16 shown in details in Fig. 7. The locking device comprises a push button 29, which
35 is biased upwardly by means of a spring 30 and which lower portion interacts with the locking beam 18 of the frame 2. When the push button is depressed, the lower portion of the button is free to run in the groove 31 and the load platform is free to move along the frame 2. When the press button is locked in one of the cut-in portions the load platform is locked.

in relation to the frame.

At loading, the load platform is retracted to its rear position and is stopped at a maximal retracted position by a stop lug 19 (Fig. 2) cooperating with a stop pin 34 (Fig. 3). After having loaded the load platform it is inserted into the vehicle and is stopped at a neutral position, i.e. the position shown in Fig. 1a. If the back seat of the vehicle is folded the load platform may be further inserted into the loading area. This is achieved by loosening the locking device 16 through pressing down the press button 29, whereafter the load platform may be pushed forward. The load platform may be pushed all the way to the back of the front seats and be locked in the locking beam 18 in any position between neutral position and this outmost position. When the load platform is pushed from neutral position beyond the frame (Fig. 1c) the sliding elements run freely on the folded back seats and due to the shape of the tracks 6 and 7 and the sliding members 3, the load platform is in this position prevented from being displaced sideways. When the load platform 1 is pushed forward to the back of the front seat (Fig. 1c), a supplementary load platform may be used, which is shown in Fig. 8, to supplement the main load platform 1 and fill the total load area up. The function of the supplementary load platform is analogue to that of the main load platform 1 with the angle irons 21, 22, which has been provided with sliding elements 23, being inserted in the tracks 6, 7. The supplementary load platform is pushed forward until a stop pin 24 mounted thereon has passed a stop lug 25 on the frame 2, whereafter the supplementary load platform is firmly positioned in the vehicle and the loading of the goods may start. When all the goods have been loaded the supplementary load platform is inserted until the stop pin 24 has passed the stop lug 19 thus locking the supplementary platform in position. The supplementary platform comprises like the main platform a locking device 26 and a handle 33.

When the load platform is to be taken out of the vehicle the locking device 26 is disengaged, when using the supplementary load platform 20, whereafter the platform 20 is withdrawn and taken out of the vehicle. After grasping the handle 17 of the main platform the locking device 16 is released and the main platform 1 pulled to the neutral position where it is locked in the frame. Thereafter, the frame is released from the means of attachment 14, 15 by raising the corresponding end of the load platform to move the engagement members 12, 13 into the greater part of the keyhole-shaped openings, whereafter finally the load carrier is taken out of the



vehicle as a whole. Alternatively the load platform may be taken away and the frame left in the vehicle.

With the load carrier in accordance with the present invention it is easy to load and unload a station wagon or the like without putting to much strain on back and legs. By pulling out the load platform it is also possible to take out goods placed behind the goods that are latest stowed without moving the latter articles. Even articles placed right behind the front seat may be conveniently taken out beyond the boundaries of the vehicle. Moreover, heavy goods may be pushed further into the loading area and fixed in a desired position with the locking device in order to obtain the optimal distribution of the weight in the vehicle.

A further advantage with the construction of the locking beam and the spring loaded locking device is that when putting on the brakes or accelerating the press button is automatically locked in one of the extensions, thereby locking the load platform in a position if the load platform by mistake was not properly locked in the frame. This prevents that the loaded platform is pressed against the seats in the case of a hard application of the brakes or that the loaded platform is pressed backwards in the case of a heavy acceleration. Furthermore, the wear on the loading area of the vehicle is reduced and the irrational handling of goods of today may be avoided which means more effective working hours. The loaded carrier does not effect the passenger transport capacity and the effects on the loading area itself are very small. The only permanent incision in the vehicle is the attachment of the bolts or the rods 14 and 15. The load carrier may be lifted in and out of the vehicle very easily and may be used in different vehicles. Different accessories as tool boxes, dog nets, goods harnesses etc. may be mounted directly on the load carrier without making further incision in the vehicle.

It should be noted that at least four sliding members 3 (or 23) are in engagement with the tracks 8, 9. This means that the load platform can be loaded in its position as seen in Fig. 1b with a heavy load at the cantilevered end. As a matter of fact the load platform can withstand 100 kg at the outmost end in this position. The whole load carrier is very light and have a weight of only 22 kg without the extra platform, which makes it easy to insert and take out.

While one particular and preferred embodiment of the invention has been shown in the drawings and described above, it will be apparent that



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the assembly is capable of many changes in form, construction and arrangement without departing from the spirit and scope of the invention as defined by the following claims.



CLAIMS

1. Load carrier to be mounted in the loading area of a vehicle, as for example a station wagon, small lorry or the like, in which the loading area consists of an ordinary loading area behind the back seat or a total loading area when the back seat is folded, c h a r a c -
5 t e r i z e d by a frame or support (2) having at least one rail or track (6, 7) and a locking beam (18), and being adapted to be releasably secured in the ordinary loading area; and a load platform (1) supported by said rail or rails and slidable and releasable in respect of the frame, the load platform when using the total loading area being pushable
10 beyond the front edge of the frame (2) all the way to the back of the front seat, and the whole of said load platform may be pulled out of the loading area when loading or unloading.

2. Load carrier in accordance with claim 1, c h a r a c t e r i z e d in that at one end of each rail (6, 7) are arranged engagement members
15 (12, 13) to engage with complementary means of attachment (14, 15) anchored in the loading area of the vehicle.

3. Load carrier in accordance with claim 2, c h a r a c t e r i z e d in that the engagement members are rods (12, 13) having an area of reduced diameter (27) and that the means of attachment is a bolt (14, 15) having
20 at its upper end a keyhole-shaped opening with a position of a small diameter turned upwards and a portion of greater diameter at the downend to cooperate with the engagement members so that the engagement members may be inserted in the means of attachment during holding up the back of the frame and that, when lowering the back of the frame, the engagement mem-
25 bers engage the upper small part of the keyhole-shaped opening in order to lock the frame in the desired position.

4. Load carrier in accordance with any of the previous claims, c h a r a c t e r i z e d by a locking device (16, 26) adapted to lock the load platform (1, 20) in relation to the frame (2) through engagement
30 with the locking beam (18).

5. Load carrier in accordance with claim 1, c h a r a c t e r i z e d in that the locking beam (18) is provided with a longitudinal groove (31) comprising cut-in portions (32) evenly spaced along the beam to engage with the locking device (16, 26).



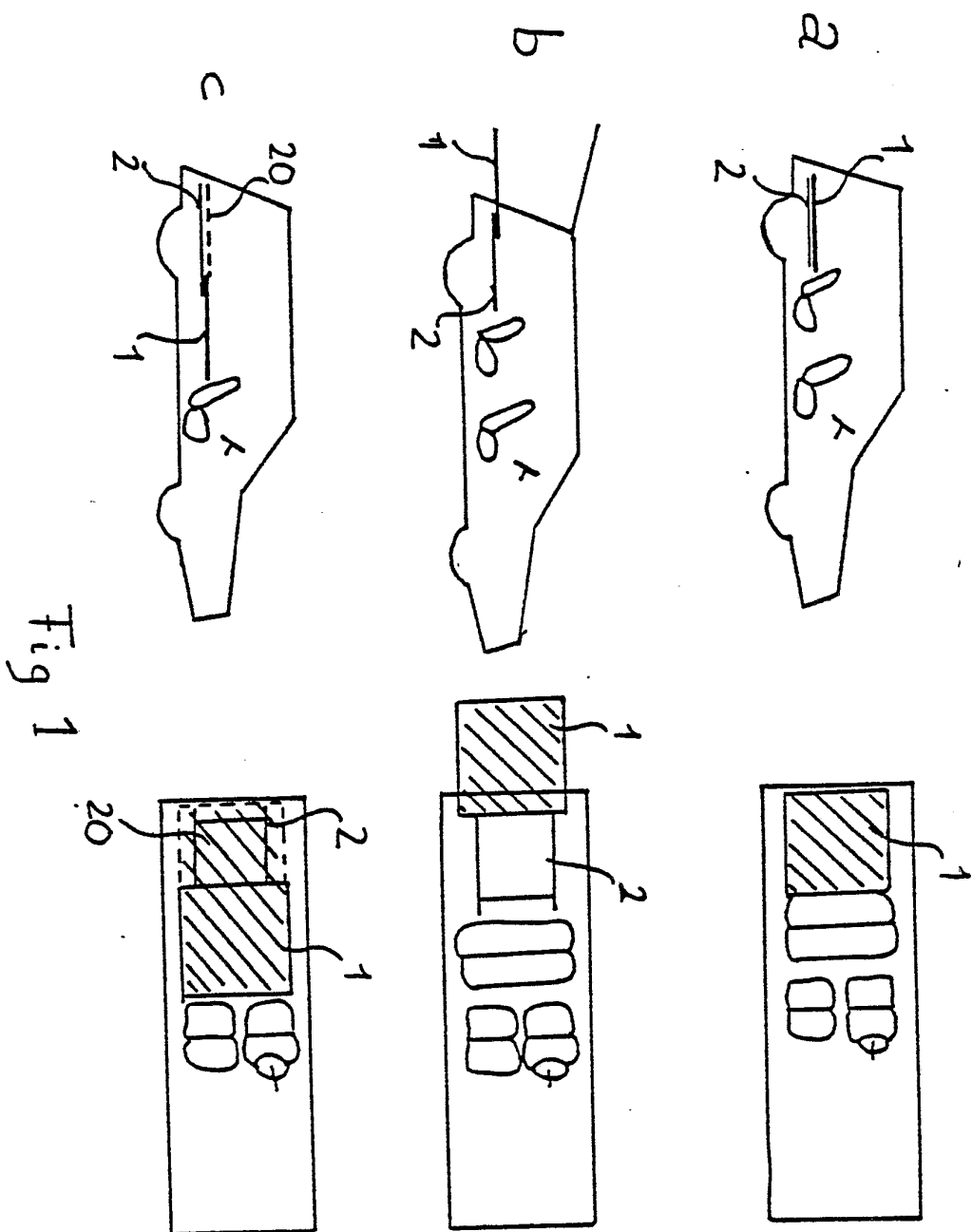


Fig 1

Fig 2

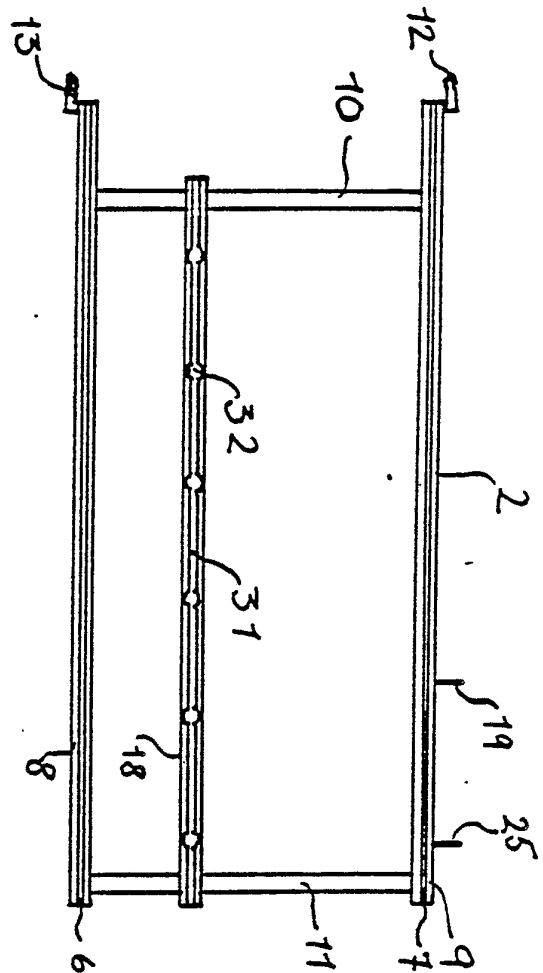


Fig 3

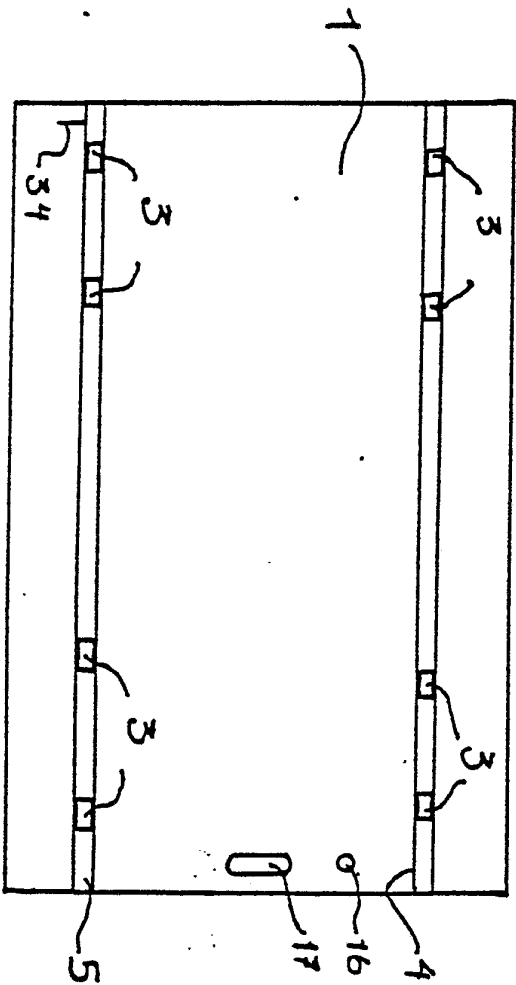
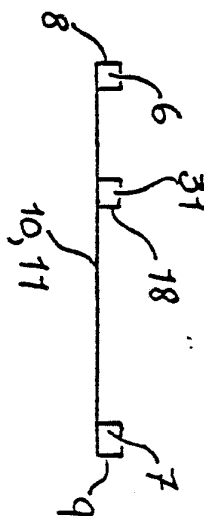
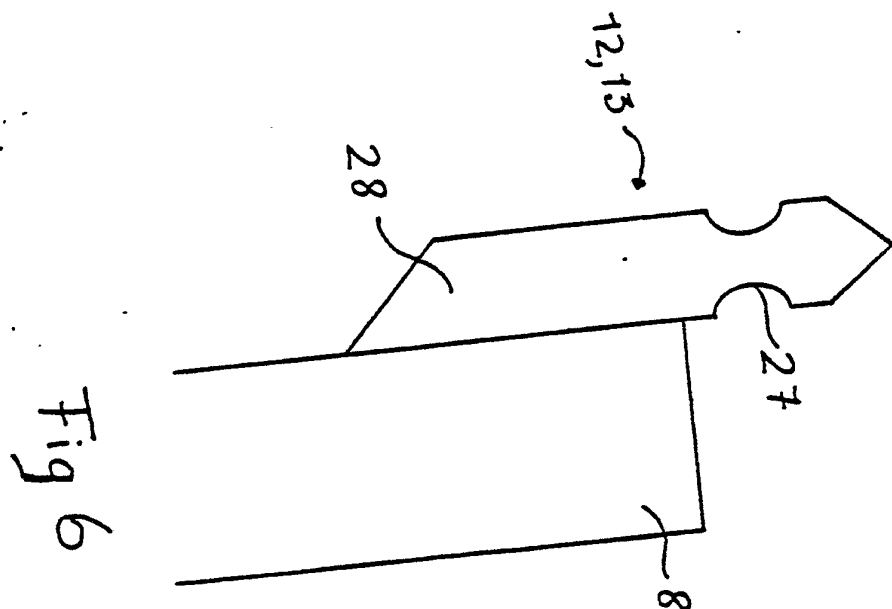
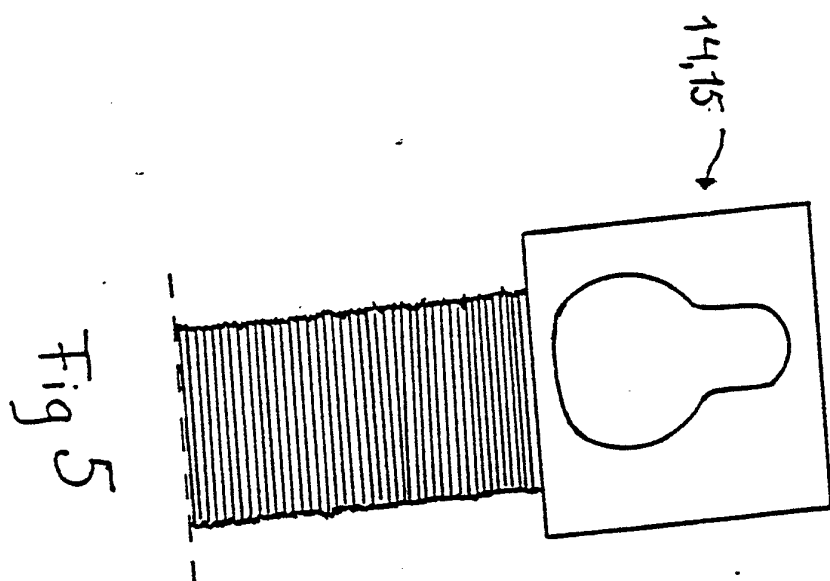


Fig 4





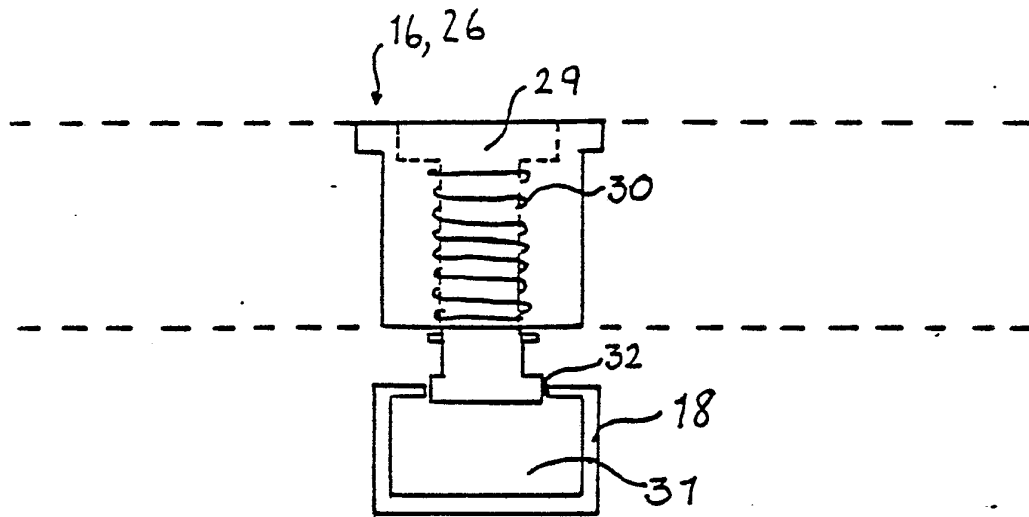


Fig 7

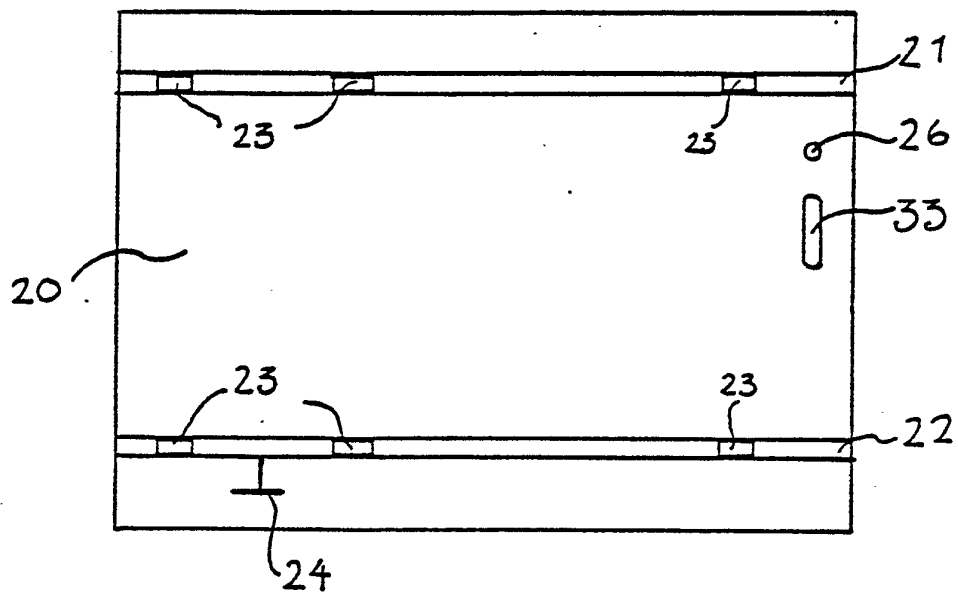
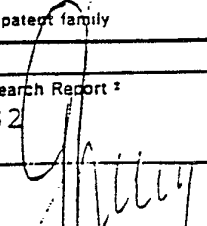
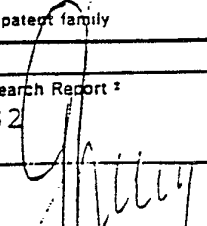
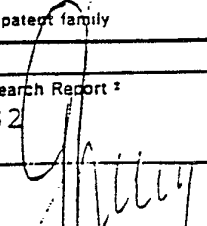


Fig 8

INTERNATIONAL SEARCH REPORT

International Application No PCT/EP 81/00197

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ³ According to International Patent Classification (IPC) or to both National Classification and IPC IPC ³ : B 60 R 5/04																										
II. FIELDS SEARCHED Minimum Documentation Searched ⁴ <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 25%; border-bottom: 1px solid black;">Classification System</th> <th style="border-bottom: 1px solid black;">Classification Symbols</th> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px; vertical-align: top;">IPC³</td> <td style="padding: 5px; vertical-align: top;">B 60 R</td> </tr> </table> Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁵			Classification System	Classification Symbols	IPC ³	B 60 R																				
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III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴ <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%; border-bottom: 1px solid black;">Category ⁶</th> <th style="border-bottom: 1px solid black;">Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷</th> <th style="width: 10%; border-bottom: 1px solid black;">Relevant to Claim No. ¹⁸</th> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">X</td> <td style="padding: 5px;">DE, A, 2302972 (MATTES) 1 August 1974 see the entire document ---</td> <td style="text-align: center; vertical-align: top; padding: 5px;">1</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">X</td> <td style="padding: 5px;">FR, A, 1251232 (LUCIEN) 17 December 1957 see the entire document ---</td> <td style="text-align: center; vertical-align: top; padding: 5px;">1</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">X</td> <td style="padding: 5px;">FR, A, 2438564 (RENOUARD) 9 May 1980 see the entire document ---</td> <td style="text-align: center; vertical-align: top; padding: 5px;">1</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">X</td> <td style="padding: 5px;">US, A, 2094401 (GIRL) 28 September 1937 see the entire document ---</td> <td style="text-align: center; vertical-align: top; padding: 5px;">1</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">US, A, 2470314 (LIM) 17 May 1949 ---</td> <td style="text-align: center; vertical-align: top; padding: 5px;">1</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">AU, A, 455613 (MOSER) 22 February 1973 ---</td> <td style="text-align: center; vertical-align: top; padding: 5px;">1</td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">A</td> <td style="padding: 5px;">AU, A, 437448 (WELLINGTON) 28 October 1971 -----</td> <td style="text-align: center; vertical-align: top; padding: 5px;">1</td> </tr> </table>			Category ⁶	Citation of Document, ¹⁶ with indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸	X	DE, A, 2302972 (MATTES) 1 August 1974 see the entire document ---	1	X	FR, A, 1251232 (LUCIEN) 17 December 1957 see the entire document ---	1	X	FR, A, 2438564 (RENOUARD) 9 May 1980 see the entire document ---	1	X	US, A, 2094401 (GIRL) 28 September 1937 see the entire document ---	1	A	US, A, 2470314 (LIM) 17 May 1949 ---	1	A	AU, A, 455613 (MOSER) 22 February 1973 ---	1	A	AU, A, 437448 (WELLINGTON) 28 October 1971 -----	1
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IV. CERTIFICATION <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-bottom: 1px solid black; padding: 5px;"> Date of the Actual Completion of the International Search ² 12th March 1982 </td> <td style="width: 50%; border-bottom: 1px solid black; padding: 5px;"> Date of Mailing of this International Search Report ² 25th March 1982 </td> </tr> <tr> <td style="border-bottom: 1px solid black; padding: 5px;"> International Searching Authority ¹ EUROPEAN PATENT OFFICE </td> <td style="border-bottom: 1px solid black; padding: 5px;"> Signature of Authorized Officer ²⁰  G.L.M. Krüssenberg </td> </tr> </table>			Date of the Actual Completion of the International Search ² 12th March 1982	Date of Mailing of this International Search Report ² 25th March 1982	International Searching Authority ¹ EUROPEAN PATENT OFFICE	Signature of Authorized Officer ²⁰  G.L.M. Krüssenberg																				
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