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(54) **Travelling trolley.**

(57) A travelling trolley mainly comprising one or more track wheels (31), a load carrier (38) and a connecting body (34) between wheels (31) and carrier (38), wherein said connecting body is made from sheet material which is profiled by a pressing process into the desired shape, the lines of force caused by the load pass most advantageously to the wheels. The load carrier (38) is provided with at least one shaft (37) extending parallel to the wheel axles, along which shaft each connecting body (34) can be slid and fixed in position.

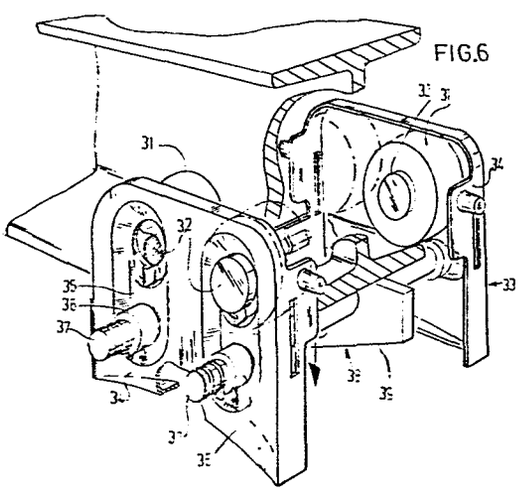

FIG.6

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Travelling trolley

The invention relates to a travelling trolley mainly comprising one or more track wheels, a load carrier and a connecting body between wheel and carrier.

The invention has for its object to improve a travelling trolley of the kind set forth in a sense such that it can be manufactured from very few component parts in an efficient manner at low cost and that, moreover, it is adjustable so that the travelling trolley can be readily adapted to different guide rails, that is to say, to the different kinds of profiles such as INP or UNP.

The travelling trolley according to the invention is distinguished in that the connecting body is made from sheet material which is profiled by a pressing process into the desired shape.

Thanks to this profiling comparatively thin sheet material may be used, which is nevertheless suitable for transferring heavy forces, whilst at the same time the connecting body is pressed into the desired shape so that the lines of force caused by the load pass most advantageously to the wheels. Moreover, the connecting body can be at once shaped in a form such that the wheels are protected and guided in the optimum manner.

In order to reduce the bending moment in the axle stubs of the wheels it is preferred to provide the connecting body with a cup-shaped bulging part, to which the axle stub can be secured. Thanks to this cup-shaped bulging part not only field or force is passed through a larger part into the web of the connecting body, but also the rigidity of the connecting body is enhanced.

It necessary, one or more bulging parts opposite to the cup-shaped bulging part may be provided in the sheet-shaped connecting body.

Preferably the bulging part have an elongate shape, the main dimension of the bulging parts lying at a lower level than the axle stubs, being directly substantially vertically, whilst the main dimension of the bulging parts lying above the stubs is substantially horizontal.

In a preferred embodiment having at least two opposite track wheels with the associated, sheet-shaped connecting bodies the load carrier has a U-shaped design, the web thereof exending between and substantially parallel to the connecting bodies and the flanges of the carrier being connected with the sheet-shaped connecting bodies. This design has the advantage that the web of the load carrier extends below the guide rail, which ensures a uniform load distribution among the connecting sheets.

Such a disposition provides, moreover, the possibility of providing elongate holes in the flanges for passing bolts connected with the sheet-shaped body. In this way the travelling trolley can be adapted to different widths of the track profiled used.

According to a further embodiment the travelling trolley is distinguished in that the load carrier is provided with at least one shaft extending parallel to the wheel axles, along which shaft each connecting body can be slid and fixed in position.

Owing to the use of a shaft, which can be simply manufactured, a cheap, adjustable travelling trolley can be obtained, whilst in addition an optimum position of the shaft with respect to the track wheels can be easily maintained in order to ensure an optimum transfer of forces so that the connecting bodies are loaded at a minimum.

In order to obtain a minimum overall weight the or each shaft is slidably arranged in a sleeve secured to a profiled, sheet-shaped connecting body. The sheet-shaped, profiled body can withstand comparatively high bending forces, whilst the sleeve ensures an effective parallel guide for the two opposite connecting bodies.

In order to achieve easy fixation each sleeve has a chamber accomodating an element that can be clamped

around the shaft. This clamping element is preferably designed in the form of a clamping spring and the shaft may have circumferential grooves for creating predetermined locations of the connecting bodies with respect to the shaft.

The aforesaid and further advantages will be described more fully with reference to four embodiments shown in the Figures.

The drawing shows in:

Fig. 1 a perspective view of a first embodiment of the travelling trolley in accordance with the invention,

Fig. 2 a perspective view like fig. 1 of a second embodiment,

Fig. 3 a sectional view taken on the line III-III in fig. 2,

Fig. 4 a detail of the lower part of a travelling trolley in a third embodiment,

Fig. 5 a fourth embodiment provided with a single track wheel.

Fig. 6 a perspective view of a fifth embodiment of a travelling trolley,

Fig. 7 is a sectional view of the shaft of the load carrier in the travelling trolley shown in fig. 6,

Fig. 8 a sectional view taken on the line VIII-VIII in fig. 7,

Fig. 9 a perspective view of a sixth embodiment.

The travelling trolleys shown mainly comprise track wheels 2 adapted ro run along a profile 1, a load carrier 3 and a body 4 interconnecting said track wheels 2 and the load carrier 3.

According to the invention the connecting body 4 is made from relatively thin sheet material, which is bulging at 5 in the direction of the profile 1, whilst in addition opposite bulging parts 6, 7 may be provided (see fig. 1).

To the bulging parts 5 are fastened the axle stubs 8 of the track wheels 2 so that the axle stub may be

shorter, as a result of which the bending moment in the axle stub (see fig. 5) can be appreciably reduced. Moreover, owing to the cup-shaped bulging part 5 the load transferred in the plate 4 passes through a larger region in said plate, which region corresponds to the transitional rim between the bulging part and the sheet material.

The bulging parts 6, 7 of fig. 1 or 6' in fig. 2 have mainly an elongate shape, it being noted that the main dimension of the bulging part 6 lying in a region below the axle stubs 8 is substantially vertical, whereas that of the bulging part 7 above the bulging parts 5 is horizontal. In this way the plate-shaped connecting body 4 is stiffened to an extent such that on the top side the pressure load can be effectively absorbed by the bulging part 7, whereas the tensile and bending loads are withstood by the bulging parts 6.

The load carrier shown in fig. 1 has substantially the shape of a H, the web 9 of which extends between and substantially parallel to the two plate-shaped connecting bodies 4 on both sides of the guide profile 1. The flanges 10 of the H-shaped load carrier are secured by means of bolts 11 to the bent-over flanges 21 of the plate-shaped bodies 4. By providing sufficient lenghts of the flanges 10 and by providing, in addition, elongate holes 12 wherein the distance between the plate-shaped connecting bodies 4 can be adapted in the desired manner to the width of the track flange 13 of the profile 1.

By means of comparatively few component parts a strong and universally usable travelling trolley is thus obtained. It should be noted that a buffer 14 can be arranged in the bent-over flanges 12 of the plate-shaped connecting body 4.

In order to improve the passage of forces between the connecting body 4 and the flange 10 of the H-shaped carrier the flange 12 is bulging at 15, the bulging part fitting in a depressed channel 16 of the flange 10. The end rims 20 of the flanges 21 ensure true tracking so that the wheel cannot creep up. By the broad part 22 the flange 21 constitute an efficaceous support in wheel rupture.

Fig. 2 shows an embodiment in which the connecting body has no counter bulging parts. By a correct proportioning a (see Fig. 3) on both sides of the neutral line I-I the material of the connecting body is the same. Thereto inter alia an incision 18 is made in the bent-over flange 21, whilst the rim 20 ensures tracking. The rims of the connecting body are bent over so that, for example, the bulging part 7 in fig. 1 can be dispensed with. The lower rim of flange 17 has a width increasing towards the middle. The connection with the H-shaped load carrier is established with the aid of one bolt 11, one elongate hole 12 and two inwardly directed depressions 15 with the appropriate channels 16.

Fig. 4 shows am embodiment in which the load carrier is formed by a bridge portion 3 which is directly arranged between the plate-shaped connecting bodies and fastened by means of bolts 18. The plate-shaped connecting body 4 is suitably formed and profiled by means of the bulging parts 6.

Fig. 5 shows am embodiment of a travelling trolley having only one track wheel 2 adapted to roll in a U-shaped profile 1. The axle stub 8 of the track wheel 2 is fastened, like in fig. 1, to a bulging part 5, whilst the connecting body 4 is also provided with an opposite bulging part 6, 7. In this case the load carrier 3 is part of the same sheet from which the connecting body 4 is made, the sheet being deformed in a manner such that the eye of the load carrier is located substantially beneath the vertical line going through the track wheel 2. In this way a particularly simple, single travelling trolley is obtained.

The travelling trolley shown in fig. 6 comprises track wheels 31, four of which are arranged pairwise side by side. Each track wheel is rotatable about an axle stub 32, which is non-rotatably secured in one side 33 in a plate-shaped connecting body 34. The plate-shaped connecting body 34 is suitably profiled in order to withstand the bending and tractive forces involved.

For example, a depressed part 35 is provided in the connecting body 34 leading to a sleeve 36, which is

secured to the connecting body in a sense opposite the axle stub 32. The sleeve 35 accomodates a shaft 37, which forms part of a load carrier 38. The load carrier is formed by a plate 39 extending parallel to the connecting bodies 34 having at the ends a continuous hole for receiving the shaft with close fit.

The bore of the sleeve 36 is such that a slidable fit is obtained for the shaft 37 so that an accurate parallel guide is ensured when the connecting body 34 and hence the sleeves 36 slide along the shafts 37 of fig. 6.

For fixing the sleeves 36 in position with respect to the shaft 37 a resilient clamping body 40 is arranged in a chamber 41 of the sleeve. The resilient body 40 can be released from the shaft 37 by means of the ends 33 protuding out of the sleeve and being moved towards one another so that the spring 40 can be displaced along the shaft. The depth of the chamber 41 decreases towards the middle of the travelling trolley so that the sleeve automatically clamps tight to the resilient body 40 in the right-hand direction in fig. 7 indicated by the arrow P1. Upon a reverse movement the spring 40 gets into the wider part of the chamber 41 so that it can be released in the manner described above, as a result of which the whole assembly is displaceable along the shaft 37.

The shaft preferably has shallow grooves 42 receiving the clamping body 40 so that a given distance between the connecting bodies 34 can be set in a simple manner, said distance corresponding, for example, to the standard size of the profiles along which the travelling trolley is movable.

Fig. 9 shows an embodiment in which each of the connecting bodies 34 is provided with two stubs 32 for the wheels ans a single sleeve 36 for the shaft 37. Two bulging parts 35 converge to the sleeve 36 and join eachother there. The adjustment of the sleeve 36 over the shaft corresponds with the above described manner.

As a matter of course, the invention is not limited to the embodiments described above. The plate-shaped

connecting body 34 may have any desired form owing to the simple pressing process by which the sheet can be stiffened by bulging parts and can be shaped into the desired form by setting to be fastened to the carrier or the axle stubs of the track wheels respectively.

Moreover, any other guard means than a spring 40 may be used for the adjustment of the sleeve with respect to the shaft.

WHAT IS CLAIMED IS:

1. A travelling trolley mainly comprising one or more track wheels, a load carrier and a connecting body between wheel and carrier characterized in that the connecting body is made from sheet material which is profiled into the desired from by a pressing process.

2. A travelling trolley as claimed in claim 1, characterized in that the or each wheel is journalled on an axle stub which is fastened to a cup-shaped bulging part of the connecting body.

3. A travelling trolley as claimed in claim 1 or 2 characterized in that the connecting body is provided with one or more bulging parts forming similar and or counter-parts of the cup-shaped bulging parts.

4. A travelling trolley as claimed in claim 3 characterized in that the or each bulging part has mainly an elongate shape.

5. A travelling trolley as claimed in claims 3 and 4 characterized in that the main dimensions of the bulging parts located in a region between the axle stubs and the load carrier are substantially vertical.

6. A travelling trolley as claimed in claim 5 characterized in that in a section parallel to the axle stubs, with respect to the neutral line thereof, the material is the same on both sides.

7. A travelling trolley as claimed in claims 3 and 4 characterized in that the main dimensions of the bulging parts located in a region remote from the load carrier with respect to the axle stubs are substantially horizontal.

8. A travelling trolley as claimed in anyone of the preceding claims characterized in that the connecting body is provided with bent-over end flanges each of which has an incision to obtain wheel guiding, safeguard against wheel rupture and buffer mounting.

9. A travelling trolley as claimed in anyone of the preceding claims comprising one or more pairs of opposite track wheels and two associated connecting bodies characterized in that the load carrier has the shape of a H, the web of the carrier extending substantially parallel or parallel between the connecting bodies and the flanges of the carrier being connected with those of the connecting body.

10. A travelling trolley as claimed in claim 9 characterized in that the flanges of the H-shaped carrier have elongate holes for passing bolts co-operating with the connecting bodies.

11. A travelling trolley as claimed in anyone of the preceding claims characterized in that the load carrier and the connecting body are formed from the same sheet.

12. A travelling trolley mainly comprising two or more track wheels, a load carrier and two relatively opposite connecting bodies between the wheels and the carrier characterized in that the load carrier is provided with at least one shaft extending parallel to the wheel axles, along which shaft each connecting body can be slid and fixed in position.

13. A travelling trolley as claimed in claim 12 characterized in that the or each shaft is slidably arranged in a sleeve secured to a profiled, plate-shaped connecting body.

14. A travelling trolley as claimed in claims 12 or 13, characterized in that each sleeve has a chamber accomodating an element that can be clamped around the shaft.

15. A travelling trolley as claimed in claims 12 to 14 characterized in that the depth of the chamber decreases towards the middle of the travelling trolley.

16. A travelling trolley as claimed in claims 12 to 15 characterized in that the clamping element is designed in the form of a clamping spring.

17. A travelling trolley as claimed in claims 12 to 16 characterized in that the shaft is provided with circumferential grooves.

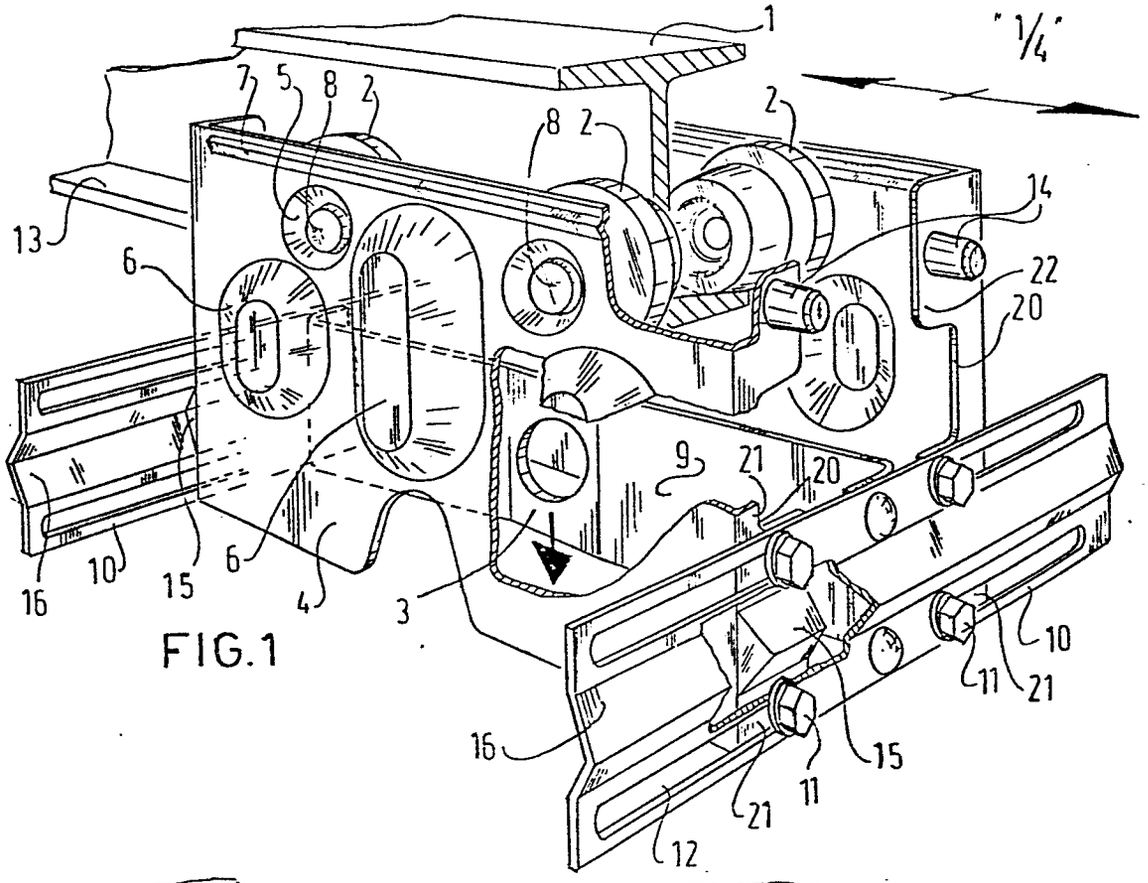
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FIG.1

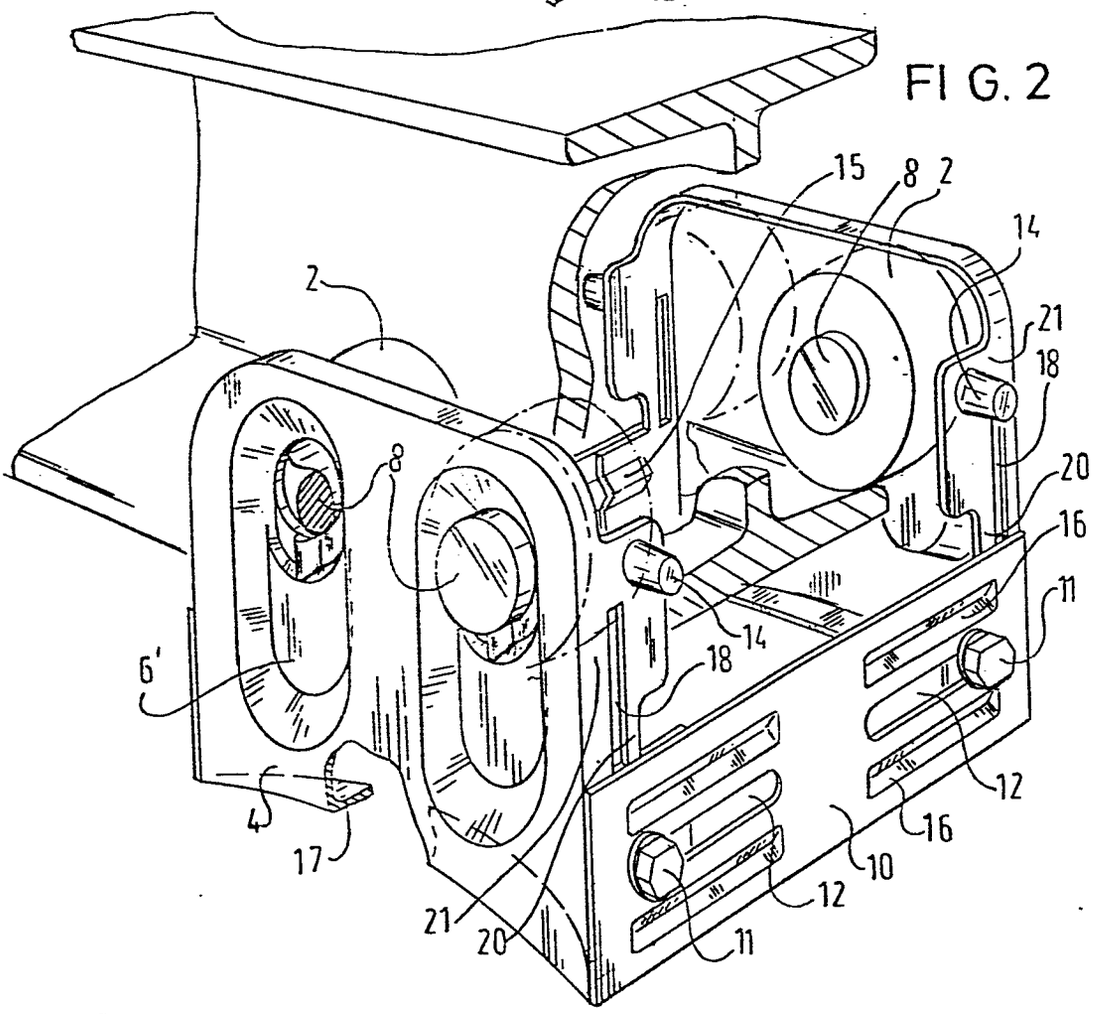
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FIG. 2

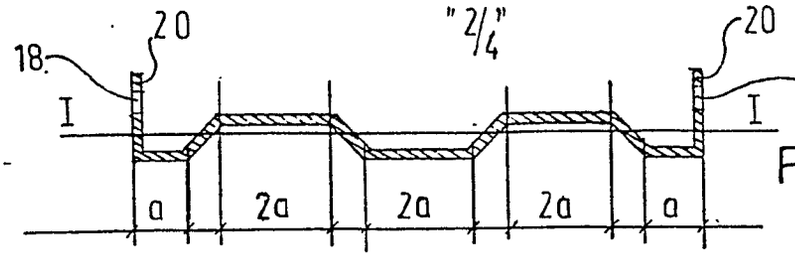


FIG.3

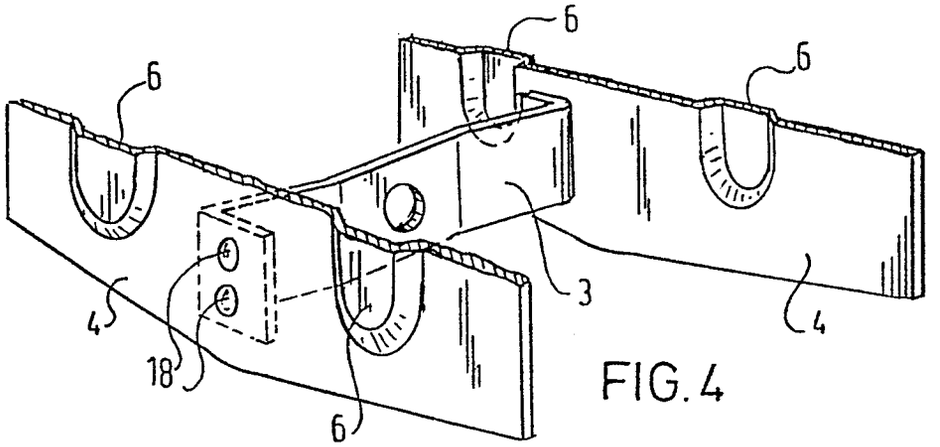


FIG.4

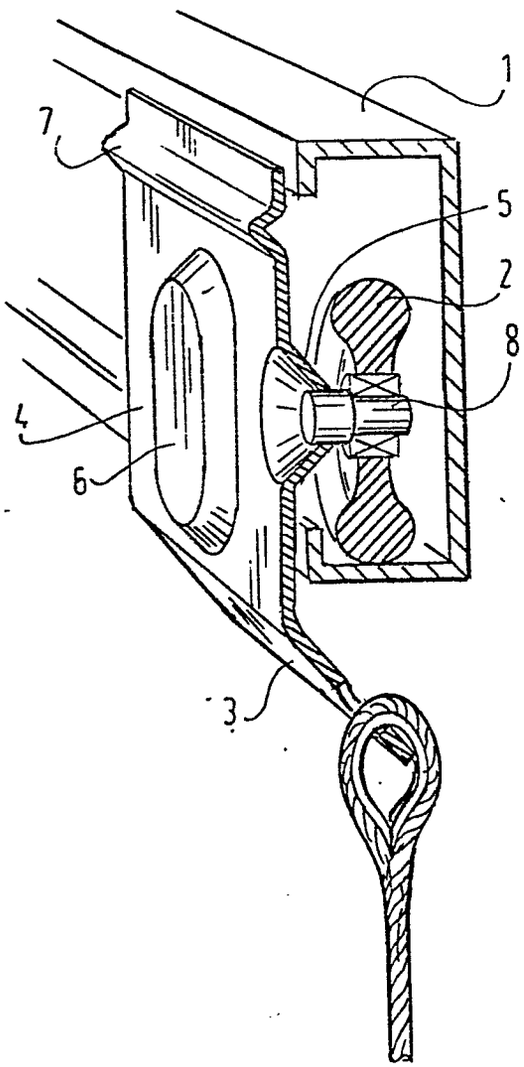


FIG.5

FIG.6

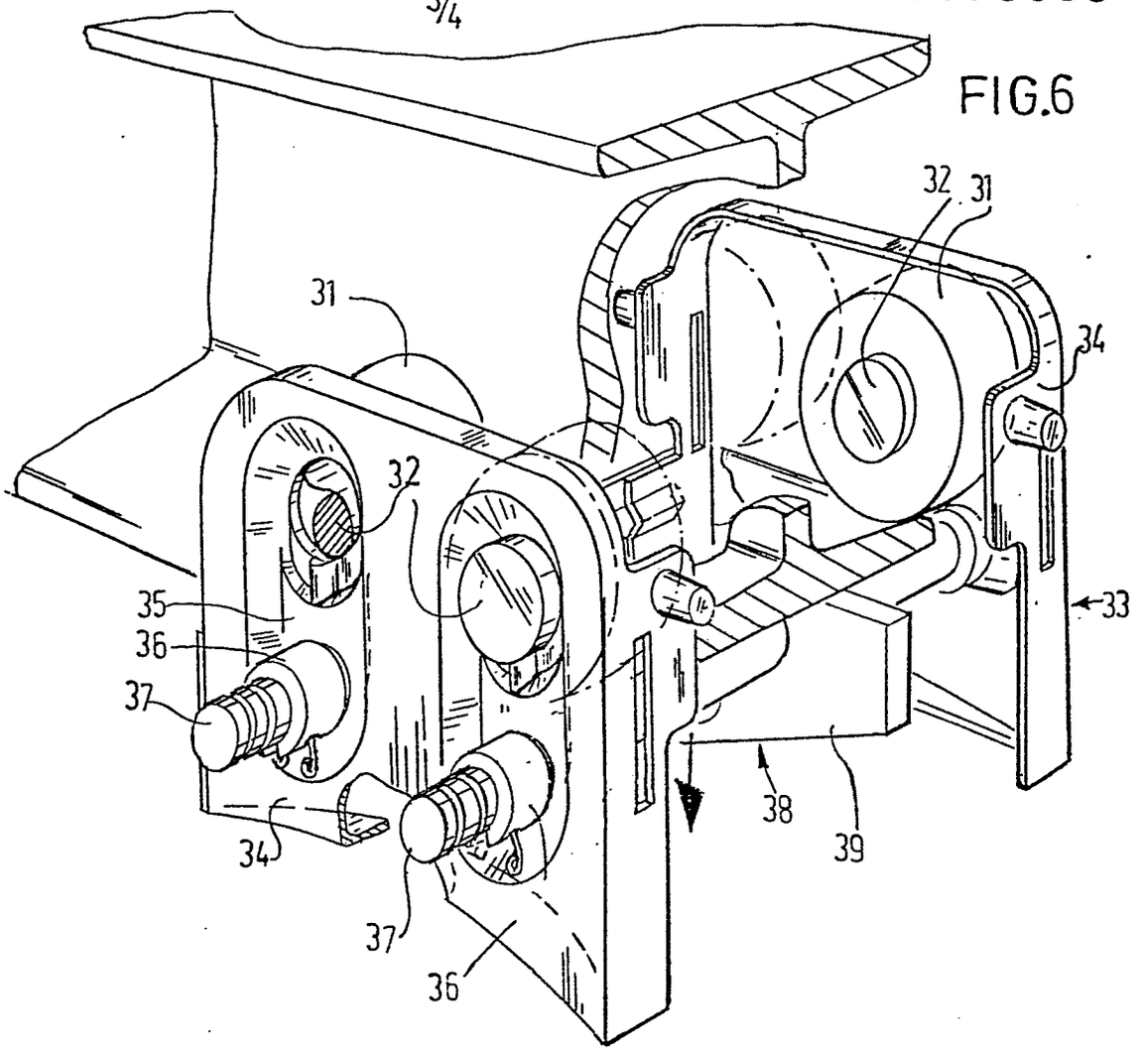


FIG.7

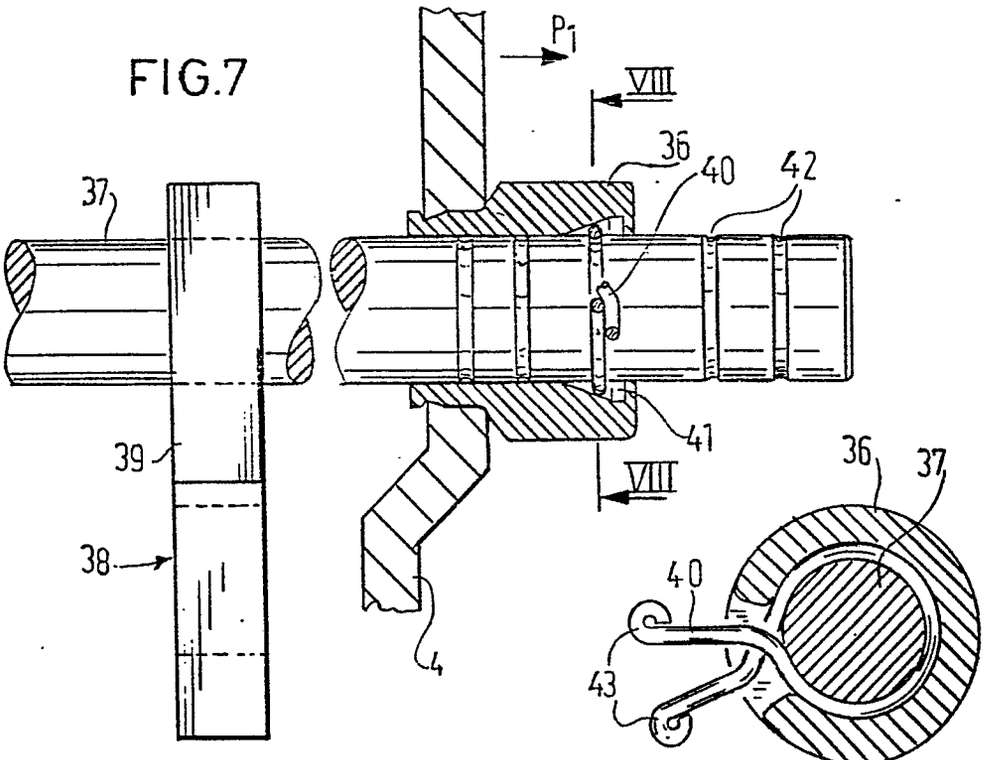
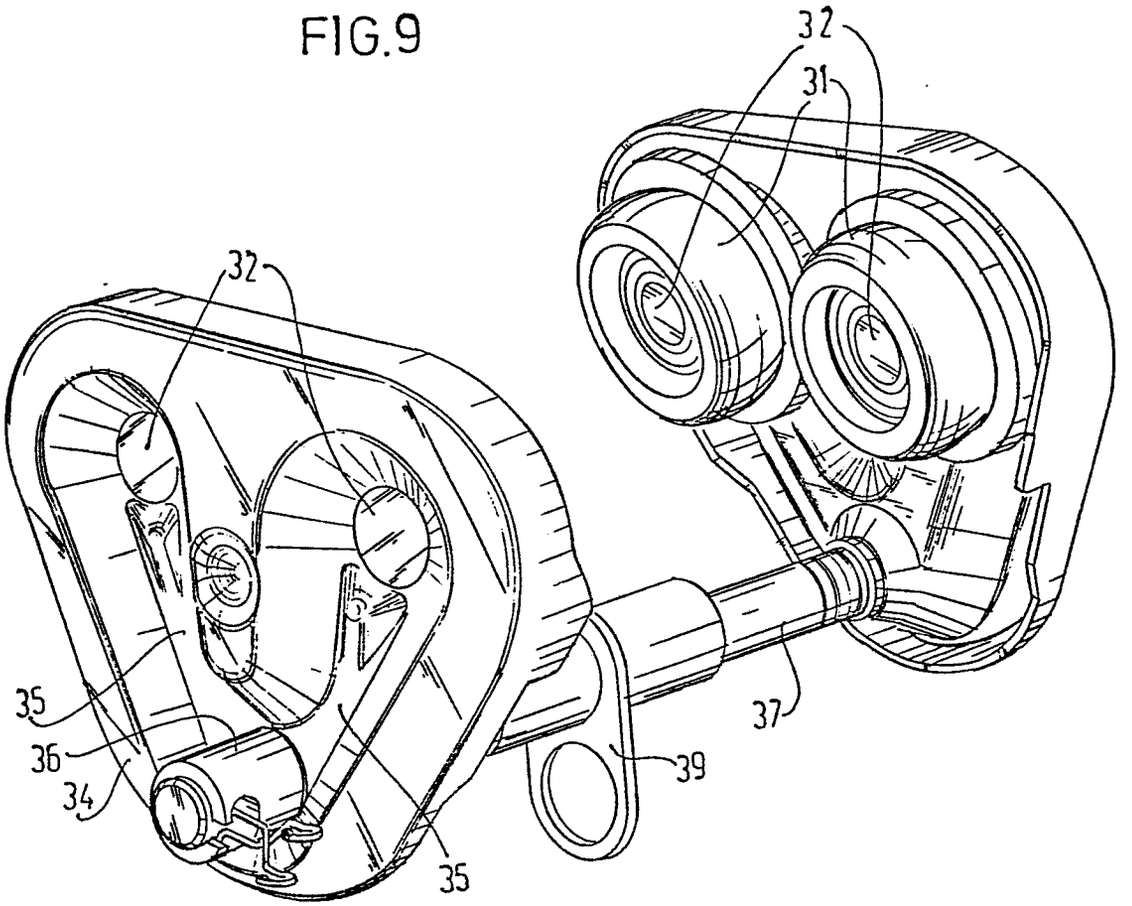


FIG.8

FIG.9



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EUROPEAN SEARCH REPORT

0078085

Application number

EP 82 20 1325

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
X	US-A-1 903 235 (HUMMEL) *Page 1, lines 51-100; page 2, lines 1-23*	1,2,8	B 66 C 11/06
X	GB-A-1 025 022 (KING) *The whole document*	1,8	
X	GB-A- 686 179 (KING) *Page 1, lines 69-90; page 2, lines 1-79*	1	
A	GB-A-1 069 827 (BIRFIELD ENGINEERING) *The whole document*	12,13, 14,17	
A	US-A-3 018 739 (CARROLL) *The whole document*	12,13	TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
A	BE-A- 664 458 (DEMAG)		B 66 C B 65 G
A	US-A-2 574 473 (GETZ)		
A	FR-A-2 415 590 (FROST & SON)		
A	GB-A- 727 192 (KING)		

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	24-01-1983	VAN DEN BERGHE E.J.J

CATEGORY OF CITED DOCUMENTS

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EUROPEAN SEARCH REPORT

Application number

EP 82 20 1325

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
A	FR-A-1 233 519 (FISCHER & LUDLOW)		

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

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