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⑮ Improvements to corded curtain rail assemblies.

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⑯ A corded curtain assembly consists of a rail (1) having a longitudinal slot (3) formed in the front face and including longitudinal passageways (4,5). The back of the rail (1) includes a channel section (19) that allows pulley arrangements (20,21) to be attached thereto; pulley arrangements (20,21) are identical in construction and symmetrical so that they can be attached to the right or left hand ends of the rail (1). Each pulley arrangement includes a rear (22) and front flange (24) separated by a spindle (23) carrying a rotatable sleeve (29). A support member (25) extends from rear flange (22) parallel to the spindle (23) and supports a front face member (26) which lies in the same plane as flange (24) and is separated therefrom by a gap (31) through which a draw cord (9) may be taken. A longitudinal element (27) extends from support member (25) parallel to flange (22) and engages in the channel section (19) of the rail (1) to support the pulley arrangement (20,21) on the rail (1). Member (25) includes a slot (32). A draw cord (9) enters the left hand end of rail (1) through the slot (32) in the support member (25) in the pulley (21), and is taken along passageway (4) through slot (32) in the right hand pulley (20) around the spindle (23) which acts as the return pulley and back along passageway (5). The two runs (11,12) of the cord (9) are looped around the spindle (23) of the left hand pulley (21) to form a control for movement of curtains carried on gliders located in the rail slot (3). A fixed master carrier (14) is attached to one run (12) of the cord to move the gliders associated with one curtain

and an adjustable master carrier (16), is attached to the other run (11) of the other cord, so that a portion of the cord projects through the rail slot (3), to move the gliders associated with the other curtain. The draw cord (9) can be removed from either pulley (20,21) with the assembly in situ.

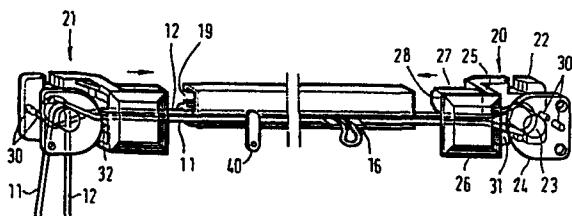


FIG 2

-1-

"IMPROVEMENTS TO CORDED CURTAIN RAIL ASSEMBLIES"

The present invention relates to a corded curtain rail assembly including pulley arrangements at either end of the rail that each have substantially the same construction and which may be used either as a return pulley or a draw pulley.

Corded curtain rail assemblies that carry two curtains for movement in opposite directions, between open and closed positions, using a single draw cord generally employ a single pulley arrangement at one end of the rail as a draw cord return pulley and a twin pulley arrangement at the other end as a traction pulley, the axis of the single pulley being at right angles to the axis of the twin pulleys. If it is desired to change the side of the rail assembly from which the draw cord operates the curtain, then, with such assemblies it is necessary to remove the whole curtain rail assembly from its fixture in order that different handed pulley arrangements may be fitted at each end of the rail.

I have now developed a corded curtain rail assembly in which the pulley arrangement mounted at each end of the rail contains a single spindle, parallel to the spindle in the arrangement at the other end of the rail, and both are of substantially the same construction that enables the cord to be completely removed from the spindle without need for removing the pulley arrangement from the rail, whereby either pulley arrangement may be used as a return or a traction pulley as required.

Additionally the assembly provides the capability for permitting the loop of an endless draw cord controlling the movement of the curtains to be moved from one end of the rail to the other whilst retaining the rail in situ.

-2-

Accordingly, therefore, the present invention provides a corded curtain rail assembly comprising a rail including means for carrying a plurality of curtain gliders for movement along the rail, two master carriers for effecting movement of gliders carrying two curtains in opposite directions along the rail between open and closed positions, an endless cord making a first run along the curtain rail from one end in one direction, contacting at least one of the two said carriers and passing round a return pulley arrangement mounted at the other end of the said rail making a return run along the curtain rail in the opposite direction and contacting the other said carrier the two runs of cord at the said one end of the said rail, passing over a traction pulley arrangement and forming a downwardly extending control loop, tension being applied to one or other of the arms of the said loop to cause the curtain to move in the required direction, characterised in that the two pulley arrangements each have substantially the same construction and include a single spindle having an axis normal to the run of the cord, the axes of the said spindles being parallel, and are so constructed that both runs of cord may be removed from a spindle without dismantling the pulley arrangement from the rail.

The master carriers and gliders of the assembly may be moved by the respective runs of cord making frictional contact therewith. Preferably, however each master carrier is releasably attached to its respective run of cord, and at least one of the carriers being adjustably movable along its respective run of cord by traversing the cord through the carrier.

Preferably the track contains a lengthwise slot formed in the front face thereof along which the gliders are moved, and through which the adjustable master carrier projects, whereby the cord can be traversed through the carrier with the curtain rail in situ.

-3-

The pulley arrangement at each end of the rail may include a member extending normal to the spindle thereof for engagement with co-operating section formed in the rail to mount the arrangement of the rail.

5 Two such members may extend in parallel and the pulley arrangement made symmetrical along a plane extending between and parallel to the said members and axially along the diameter of the spindle; the arrangement may then be mounted at the left or right end of the rail

10 as required.

The invention will now be more fully described by reference to the accompanying drawings in which:

Figure 1 is a diagrammatic representation of a general arrangement of rail, draw cord and master
15 carriers for use in connection with the present invention;

Figure 2 is a diagrammatic representation of an arrangement of rail; draw cord, master carriers and pulleys according to the present invention;

20 Figures 3 to 5 are diagrammatic representations illustrating the conversion of a pulley arrangement from a return pulley to a traction pulley.

Figure 6 is a front elevation of one pulley assembly according to the present invention;

25 Figure 7 is a section of the pulley arrangement of figure 1 along the lines A-A;

Figure 8 is a section of the arrangement of figure 7 along the lines B-B.

In the arrangement shown in figure 1, a rail 1
30 has a face portion 2 containing a longitudinally extending slot 3 communicating with two parallel longitudinally extending guidance channels 4 and 5. The rail includes a flat upper surface 6 having a downwardly extending lip 7 opposite to an upwardly extending lip 8 formed

-4-

above guidance channels 4 and 5 to provide a channel section 19 extending along the full length of the rail. An endless cord 9, looped at each end as described with reference to figure 2 below, has its ends welded together at 10. One run 11 of cord 9 passes along guidance channel 4 and the second run 12 along guidance channel 5. The cords are maintained in their respective channels by cord control tubes 13 (shown only on run 11) which are a snap fit onto the cord and sliding fit 10 in guidance channels 4 and 5 respectively.

A master carrier 14 is releasably positioned on the cord run 12 through weld 10 the weld preventing sliding movement of the carrier along the cord and slides in channel 5. The front of the carrier extends 15 across channel 4 into slot 3 and includes recess 15 along which cord 11 runs.

An adjustable master carrier 16 is frictionally retained on cord run 11, the cord being looped around a U-shaped portion 17 formed by channels in the upper 20 face of carrier 16. Carrier 16 extends through slot 3 such that the portion of cord 11 passing round the U-shaped portion 17 projects outwardly from the face of rail 1.

As shown in figure 2 the complete assembly includes 25 two pulley arrangements indicated generally at 20 and 21, which are of identical construction except that one is a mirror image of the other whereby one is adapted for fitting to the right hand end of the rail and the other is adapted for fitting to the left hand end of 30 the rail. Each arrangement comprises a flange member 22 from which extends a spindle 23 on which is located a rotatable sleeve 29 (not shown in figure 2). At the opposite end of spindle 23 and parallel to flange 22 is a second D-shaped flange member 24. A support member 35 25 projects from flange member 22 parallel to the axis

-5-

of spindle 23 and is terminated by a face member 26, parallel to flange 22, extending along the face of the rail 1 and lying in the same vertical plane as flange 24. The dimensions of flanges 22, 24 support member 5 25 and face member 26 are arranged such that a gap 31 is provided between the edge portions of flange 24 and members 25 and 26.

A longitudinally extending element 27 projects from member 25 parallel to face member 26 and therefore 10 at right angles to spindle 23, and has a cross section adapted to be a sliding fit into channel 19 of rail 1, whereby the pulley arrangement 20, 21 is mounted on the rail. A slot 28 is provided between member 27 and face member 26 having dimensions equal to the thickness of 15 material forming the rail 1, whereby the face member is able to slide over the front face of the rail.

A slot 32 is formed in member 25 opposite guidance channels 4 and 5 to permit the cord 9 to pass therethrough and over the spindle 23.

20 A loop of cord run 11 is shown extending outwardly of master carrier 16 for adjustment. Master carrier 14 is not shown in figure 2. A curtain glider 40 is shown extending downwardly from slot 3. The number of such gliders employed will be a matter of choice and dependent upon the width of the curtains. For the right hand curtain all gliders except 40 will be positioned 25 to the right hand side of carrier 16.

Pegs 30 extending inwardly of flanges 22 and 24 provide a gap through which the draw cord 9 may be forced 30 but through which it will not inadvertently pass, thus normally retain the cord within the pulley arrangement.

As shown in figure 2 the cord is looped around the

-6-

spindle 23 of pulley arrangement 20 in a single wrap, arrangement 20 is therefore acting as a return pulley. At the other end of the rail, the left hand end, run 11 of cord 9 makes a single pass over spindle 23 of 5 arrangement 21 whilst run 12 is looped around the spindle. The remaining portions of runs 11 and 12 form a downwardly extending loop which is used to control the movement of the curtains. By pulling on the appropriate arm thereof the cord runs and associated 10 carriers and gliders are traversed through the rail in opposite directions.

The conversion of the rail from left hand control of curtain movement, as shown in figure 2, to right hand control is illustrated, with reference to pulley 15 arrangement 20, in figures 3 4, and 5. Initially cord 9 is pulled off spindle 23 of arrangement 20 passed pegs 30 to the position shown in figure 3. Cord run 11 is pulled through master carrier 16, as shown in figure 2, to provide an additional length of cord. Run 11 is 20 then taken through slot 31 between face member 26 and flange 24 as shown in figures 3 and 4, over spindle 23 and forced passed pegs 30 to take up the position shown in figure 5. If required one run of cord may be looped around the spindle to take up the configuration shown 25 in figure 2 for arrangement 21. In order to make final adjustments the downwardly extending portion of run 12 of cord 9 at the left hand end of the rail is taken up through slot 31 of arrangement 21 out of the pulley and passed pegs 30. Run 11 of the cord can then be drawn 30 through master carrier 16 until the cord takes up the looped position around spindle 23 of arrangement 21 as shown with reference to arrangement 20. The required positions of master carriers 14 and 16 is then determined by adjustment of cord through master carrier 16.

-7-

Figures 6, 7 and 8 illustrate a pulley arrangement that is identical to arrangements 20 and 21 shown in figure 2 except that it includes two extending members 27 and 27a (shown in dotted outline in figure 5 7) so that the arrangement is enabled to be used either on the right hand or the left hand end of the rail. This arrangement is symmetrical about the line C-C of figure 8.

In an alternative arrangement the master carriers 10 are not attached to the draw cord runs 11 and 12 but are adapted to be moved by the cord through frictional engagement with their respective runs. In this arrangement the control for the movement of the curtains can be changed from the left hand side to the right hand 15 side, for example, of the assembly merely pulling the cord passed the master carriers and the gliders with the appropriate repositioning of the cord around the pulleys as described above.

If required the sleeve 29 on spindle 23 may 20 include two parallel grooves over which the control cord runs passed, only one of the grooves being employed at the return pulley end. The sleeve modified in this way may be spilt between the grooves so that the portions 25 of the sleeve in contact with the control cords may rotate in the direction of movement of that cord, i.e. the sleeve portions will be enabled to rotate in opposite directions.

The rail may be formed from extruded aluminium or 30 an extruded plastics material such as polyvinyl chloride (PVC). The pulley arrangements, master carriers and gliders are preferably formed from a plastics material, again such as nylon or PVC.

-1-

CLAIMS:

1. A corded curtain rail assembly comprising a rail (1) including means for carrying a plurality of curtain gliders (40) for movement along the rail, two master carriers (14,16) for effecting movement of gliders (40) carrying two curtains in opposite directions along the rail between open and closed positions, an endless cord (9) making a first run along the curtain rail from one end in one direction, contacting at least one of the two said carriers (14,16) and passing round a return pulley arrangement (20) mounted at the other end of the said rail (1) making a return run along the curtain rail in the opposite direction and contacting the other said carrier (14,16) the two runs of cord at the said one end of the said rail (1) passing over a traction pulley arrangement (21) and forming a downwardly extending control loop, tension being applied to one or other of the arms of the said loop to cause the curtain to move in the required direction, characterised in that the two pulley arrangements (20,21) each have substantially the same construction and include a single spindle (23) having an axis normal to the run of the cord (9) the axes of the said spindles (23) being parallel, and are so constructed that both runs (11,12) of cord (9) may be removed from a spindle (23) without dismantling the pulley arrangement (20,21) from the rail.

2. A corded rail assembly according to claim 1 characterised in that the axes of the said spindles (23) are directed normal to the face (2) of the rail (1) and extend across the vertical plane passing through the rail (1), the spindles (23) including sleeves (29) rotatable thereon and over which the said runs (11,12) of cord (9) pass.

-2-

3. A corded rail assembly according to claim 2 characterised in that the sleeves (29) contain grooves to locate the runs of cord.

4. A curtain rail assembly according to claim 3 5 characterised in that the sleeves (29) are split between the said grooves and are capable of rotating in opposite directions.

5. A curtain rail assembly according to any one of claims 1-4 characterised in that the master carriers 10 (14,16) and gliders (40) are moved by the respective runs (11,12) of cord (9) making frictional contact therewith.

6. A curtain rail assembly according to any one of claims 1-4 characterised in that the master carriers 15 (14,16) are each releasably attached to a respective run of cord (11,12) at least one carrier (16) being adjustably movable along the said one run of cord (11) by traversing the cord through the carrier.

7. A curtain rail assembly according to claim 6 20 characterised in that the rail (1) contains a lengthwise slot (3) formed in the front face (2) thereof along which the gliders (40) are moved, and through which at least the adjustable master carrier (16) projects, whereby the cord (9) can be traversed through the carrier 25 with the curtain rail (1) in situ.

8. A curtain rail assembly according to any one of the preceding claims characterised in that each run of cord (11,12) is carried in a parallel passageway (4,5) extending lengthwise of the curtain rail (1).

30 9. A curtain rail assembly according to any one of claims 2-8 characterised in that the pulley arrangement (20,21) includes a member (27) extending normal to the spindle

(23) thereof to engage in a ⁻³⁻co-operating section (19) formed in the rail (1) whereby the arrangement is mounted on the rail.

10. A curtain rail assembly according to any one of 5 claims 2 to 8 characterised in that the pulley arrangement (20,21) includes two identical members (27,27a) extending normal to the spindle (23), one member (27, 27a) engaging a co-operative section (19) formed in the rail (1) whereby the arrangement is mounted on the rail, 10 said pulley arrangement (20,21) being symmetrical about a plane extending between and parallel to the said members (27,27a) and axially along a diameter of the spindle (23), whereby the arrangement may be mounted at the left or right end of the rail.

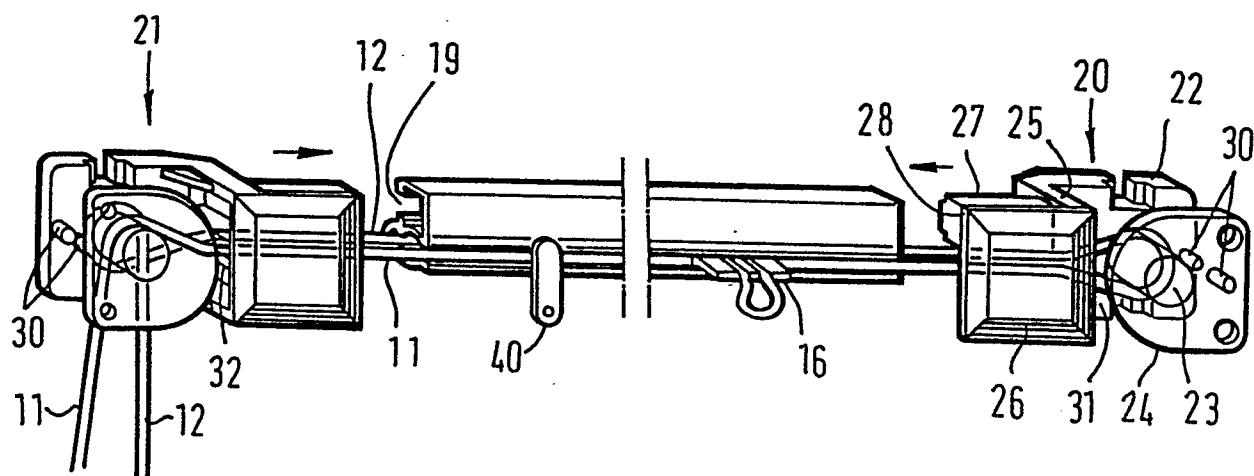
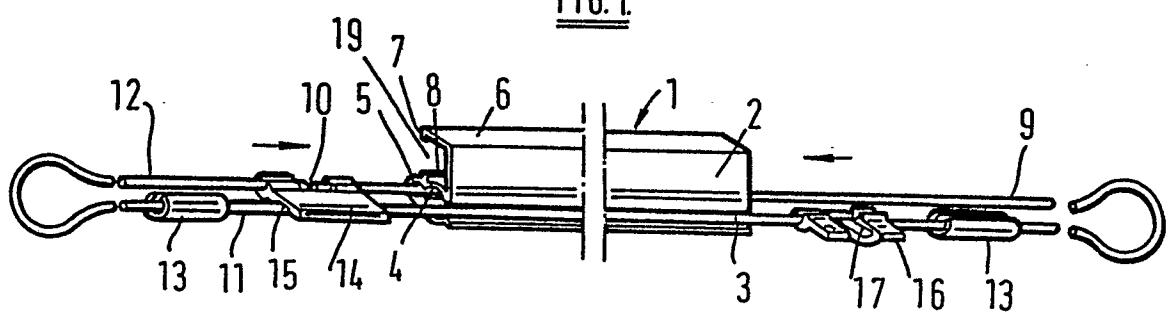
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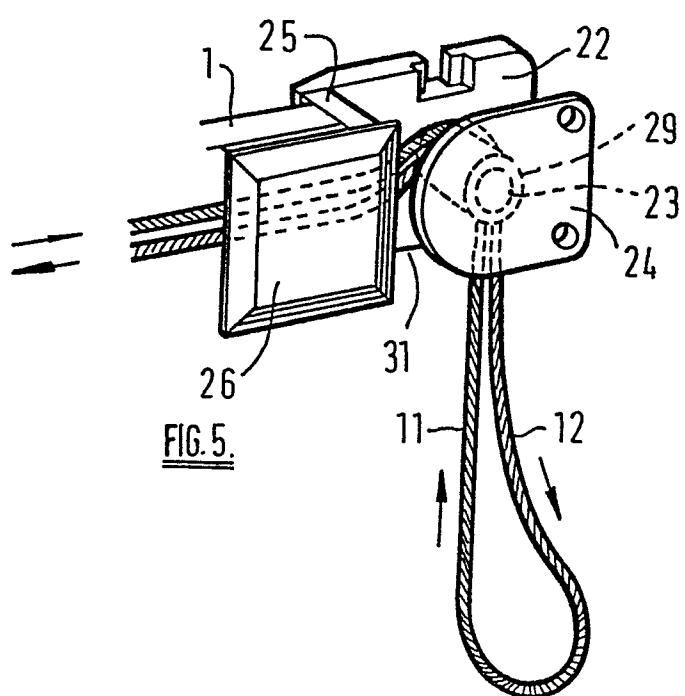
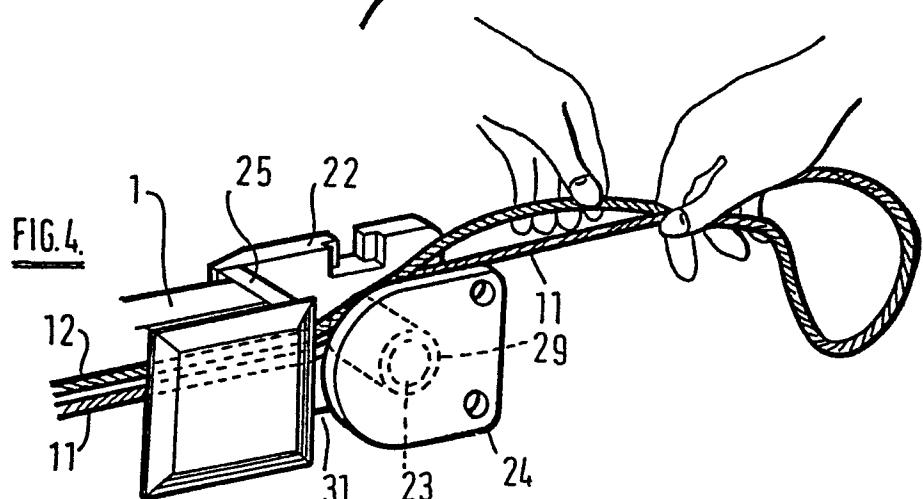
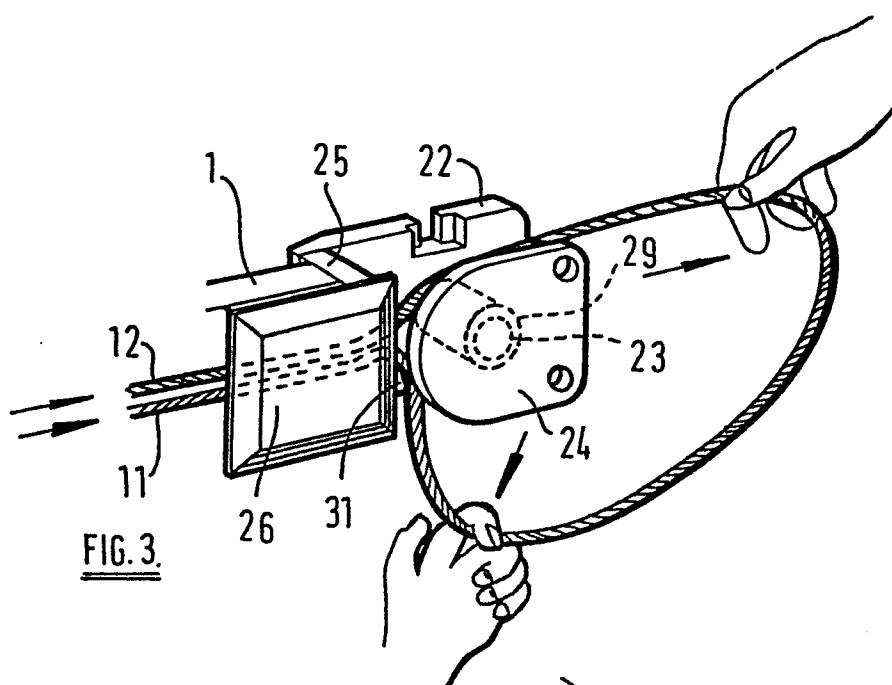
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FIG.1.FIG.2.



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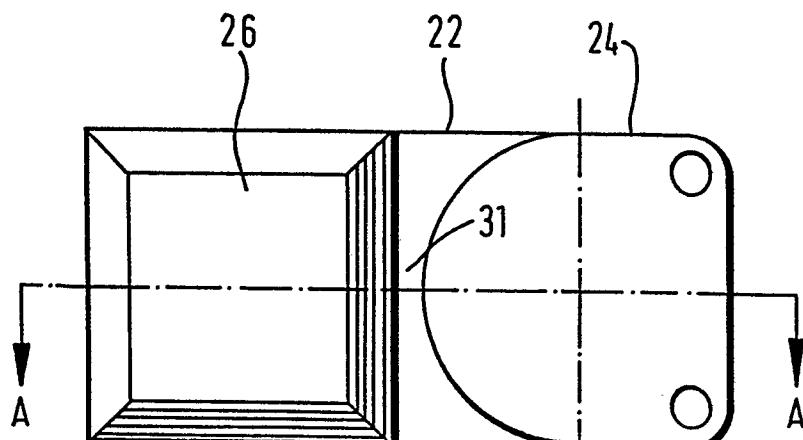


FIG. 6.

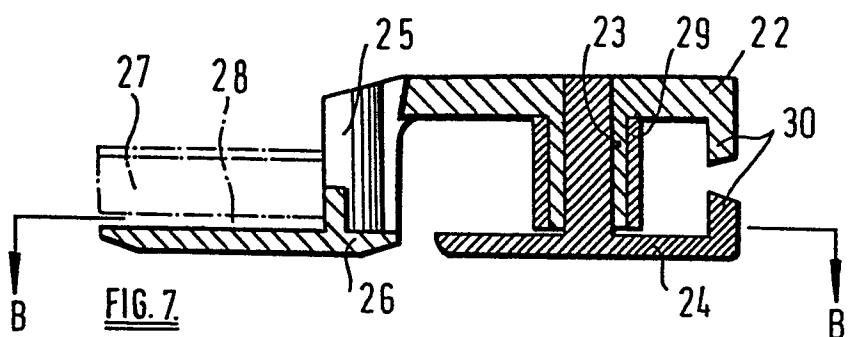


FIG. 7.

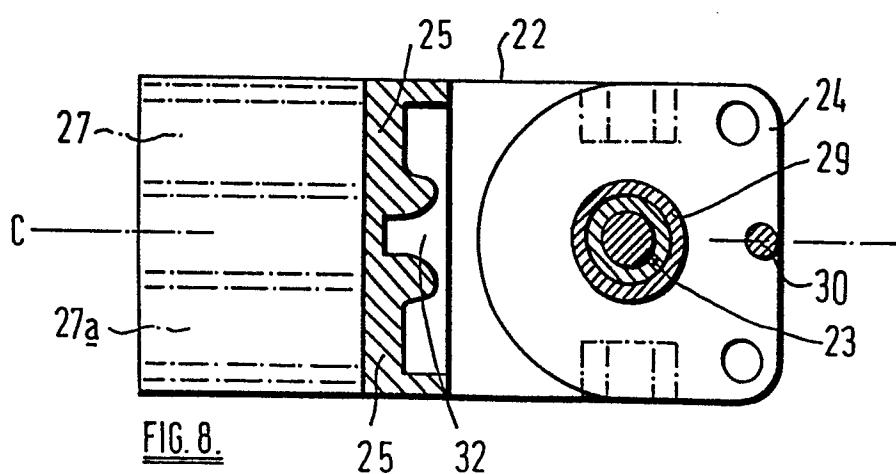


FIG. 8.



EUROPEAN SEARCH REPORT

0098900

Application number

EP 82 30 3527

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	--- US-A-2 863 505 (CAMERON) * Column 1, lines 39-50; column 7, lines 35-67; figures 1,6,16,17 *	1,2,6	A 47 H 5/032		
A	--- US-A-2 861 632 (ROSENBAUM) * Column 1, lines 56-59; figures 1,2,4 *	1,7			
A	--- GB-A-1 363 270 (ANTIFERENCE LTD.) * Page 4, lines 52-80; figures 1,2,7,8,28,29 *	1,2,8-10			
A	--- GB-A- 394 (HUTTEMEISTER)(AD1914) * Page 1, lines 23-39; figures 1-3 *	1-4,9	TECHNICAL FIELDS SEARCHED (Int. Cl. 3)		
A	--- GB-A- 873 076 (HARRISON) * Page 1, lines 60-80; figure 2 *	3,4	A 47 H E 06 B		
A	--- FR-A-1 558 602 (BRATSCHI) * Page 2, column 2, lines 7-34; figure 4 *	5			
The present search report has been drawn up for all claims					
Place of search THE HAGUE	Date of completion of the search 07-02-1983	Examiner AYITER J.			
CATEGORY OF CITED DOCUMENTS	T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document				
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document					