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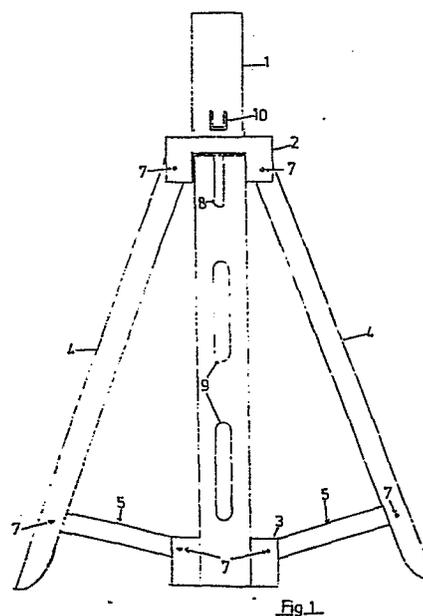
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54 **Traffic signalling system.**

57 The system includes an apparatus for use as a traffic warning device comprising a central tube (1), an upper hinge block (2), a lower hinge block (3), a number of support legs (4), said legs being pivotally attached to said upper hinge block (2) and a number of link arms (5), said link arms (5) being pivotally attached at one end to the lower hinge block (3) and at the other end each to a respective leg (4).



"Traffic Signalling System"

This invention relates to apparatus for use as a traffic signalling system.

5

Hitherto, the warning devices used as a signalling system at roadworks and other road hazards were in the form of coloured plastic cones. These were placed on the road surfaces to separate lanes of traffic, or mark the edges of roadworks. These cones, however, have several disadvantages. For safety reasons it is necessary that the cones are light enough to be easily knocked over and also that they are easily deformable on impact. However, when a cone is knocked over its shape is such that it can be easily moved by the wind. Thus, it may be moved away from its proper position and is liable to be run over by a passing vehicle.

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Moreover, its shape and one piece construction mean that it can be so seriously damaged as to be subsequently unusable after being run over.

20

It is an object of the present invention to obviate or mitigate these disadvantages.

According to one aspect of the traffic signalling system of the present invention there is provided apparatus for use as a traffic warning device comprising a central tube, an upper hinge block, a lower hinge block, a number of support legs, 5 said legs being pivotally attached to said upper hinge block and a number of link arms, said link arms being pivotally attached at one end to the lower hinge block and at the other end each to a respective leg.

10 Preferably, said top hinge block is slidably mounted on the central tube in such a way that the legs may be folded in flat against the tube to allow easy storage and transportation.

15 Preferably also, a number of support brackets and the like are provided, said support brackets allowing barriers, signs and the like to be attached to the warning device.

Embodiments of the present invention will now be described, 20 by way of example, with reference to the accompanying drawings, in which:-

Fig. 1 is a side view of one embodiment of a traffic warning device in accordance with the present invention; 25

Fig. 2 is a side view of the traffic warning device of Fig. 1 showing the legs in their folded closed position;

Fig. 3 is a side view of the upper hinge block of the device of Fig. 1; 30

Fig. 4 is a bottom plan view of the hinge block of Fig. 3;

Fig. 5 is a bottom view of the lower hinge block of the device of Fig. 1;

Fig. 6 is a side view of the hinge block 35

of Fig. 5;

Fig. 7 is a front view of one of the legs
of the device of Fig. 1;

Fig. 8 is a side view of the leg of Fig. 7;

5 Fig. 9 is a plan view of one of the link
arms of the device of Fig. 1;

Fig. 10 is a side view of the link arm of
Fig. 9.

10 Fig. 11 is a perspective view of a traffic
warning device similar to that of Fig. 1;

Figs. 12a and 12b are top and side views
respectively of one embodiment of a clip
for use as an alternative means of fixing
the legs of the device of Fig. 1 to the
15 hinge blocks;

Figs. 13a and 13b are top and side views
respectively of an alternative clip to that
of Fig. 12;

20 Figs. 14a and 14b are top and side views
respectively of a single lug tube coupling
for use with the device of Fig. 1;

Figs. 15a and 15b are top and side views
respectively of a four lug tube coupling
for use with the device of Fig. 1;

25 Figs. 16a and 16b are side and top views
respectively of a straight coupling for
use with the device of Fig. 1;

30 Figs. 17a and 17b are front and side views
respectively of an end portion of the
central tube of the device of Fig. 1
showing a catch which in use engages a
slot in the coupling of Fig. 16;

35 Figs. 18a, 18b and 18c are top, side and
bottom views respectively of an end tube
coupling for use with the device of Fig. 1

or with the tensioner of Fig. 23;
Fig. 19 is a side view of a bolt for use
in the tensioner assembly of Fig. 23;
Figs. 20a and 20b are side and front views
5 respectively of a nut for use with the
bolt of Fig. 19 in the tensioner assembly
of Fig. 23;
Fig. 21 is a front view of a tensioner
spring for use in the tensioner assembly
10 of Fig. 23;
Figs. 22a, 22b and 22c are top, side and
bottom views respectively of an end
coupling for use with the tensioner
assembly of Fig 23;
15 Fig. 23 is a side view of a tensioner
assembly for use with the barrier clamp
of Fig. 30;
Figs. 24a and 24b are front and side views
respectively of a warning light for use
20 with the warning device of Fig. 1;
Figs. 25a and 25b are part cut-away side
and top views respectively of a sign
support bracket for use with warning
device of Fig. 1;
25 Fig. 25c is an end view of the sign
support bracket of Figs. 25a and 25b;
Figs. 26a and 26b are side and front views
respectively of a ground pin for use in
stabilising the legs of the warning
30 device of Fig. 1 on the ground plate of
Figs. 27a, 27b and 27c;
Figs. 27a, 27b and 27c are side, top
and end views respectively of a ground
plate for use with the warning device of
35 Fig. 1;

Fig. 28 is a perspective view of a first embodiment of a barrier clamp;

Fig. 29 is a perspective view showing two of the clamps of Fig. 28 fixed to a barrier;

5 Fig. 30 is a side view of a second embodiment of a barrier clamp with a tensioner assembly fitted;

Fig. 31 is a front view of the tensioner assembly of Fig. 30; and

10 Fig. 32 is a perspective view of the warning device of Fig. 1 showing examples of the tube couplings of Figs. 14 and 15 in use.

15 Referring to the drawings, a traffic warning device comprises a central plastics tube 1 having slidably mounted on it an upper hinge block 2 and mounted at its base a lower hinge block 3. Four 'C' section plastic legs 4 and four 'C' section link arms 5 each have one of their ends pivotally
20 mounted by way of pivot shafts 6 pivoting in mounting holes 7 in the hinge blocks 2, 3. The other end of each of the link arms 5 is pivotally mounted by way of pivot shafts 6 each to a respective leg 4. The legs 4 and links 5 have slots 8 at their ends to allow them to bend easily for
25 attachment of the pivot shafts 6 to the mounting holes 7 in the hinge blocks 2, 3. Further, slots 9 in the legs 4 serve to reduce to the wind resistance of the legs hence reduce the incidence of the device being blown over by the wind.

30 In use, the device is removed from storage with the legs in the folded position as shown in Fig. 2. The legs 4 are then moved into the position shown in Fig. 1 by sliding the upper hinge block 2 down the central tube 1 causing the lower end of the legs 4 to move out from the base of the device as the
35 link arms 5 pivot on the lower hinge block 3. When the arms

are in their fully open position the upper hinge pivot 2 is prevented from sliding up the central tube 1, and hence refolding the legs 4, by a catch 10.

- 5 As an alternative to joining the parts with the pivot shafts 6 and mounting holes 7 the shafts 6 can be replaced with extra mounting holes and the parts joined with clips such as those shown in Figs. 12 and 13.
- 10 For particular applications it is possible to manufacture a device having a number of legs other than four. In particular a device with three legs requires triangular hinge blocks, etc.
- 15 Various accessories can be used with the warning device and it can be used as a base for signs and barriers. It is possible to make a fence or barrier by joining up a number of devices with battens mounted on the top part of the tube. Similarly, road signs and warning lamps may be easily
20 attached and the slots in the legs make it easy to run lengths of reflective tape between a number of warning devices. The warning devices may be manufactured in a number of different colours for use in different situations.
- 25 The shape of the device is such that it may be mechanically laid. Should a device be run over by a vehicle its construction is such that in most cases it will be possible to repair it by simply replacing those parts which have been damaged.
- 30 Examples of the various accessories will now be described with reference to Figs. 14 to 32 of the accompanying drawings.
- 35 Figs. 14a and 14b show a single lug tube coupling. This can

be used as the end for a flat barrier, as shown in Fig. 32, or as the end for a round barrier when used in combination with the end tube coupling of Fig. 18. It can also be used to fix signs onto tubes or onto the warning device of Fig.

5 1.

Figs. 15a and 15b show a four lug tube coupling. This can be used for sign fixing or for sign frame stabilising. It can also be used to extend barriers in all directions from
10 the device of Fig. 1 as shown in Fig. 32.

Figs. 16a and 16b show a straight coupling for use in extending tubes or for fixing high signs onto the device of Fig. 1. The tubes may be provided with a catch 11, as shown
15 in Fig. 17, which co-operates with a slot 12 on the straight coupling. Alternatively the coupling may be fixed to the tubes with the clips shown in Figs. 12 and 13.

Fig. 18 shows an end tube coupling. This can be used in
20 combination with the single lug tube coupling of Fig. 14 and 14b or the four lug tube coupling of Figs. 15a and 15b to affix tubular barriers to the warning device of Fig. 1. It can be used as a sign support in combination with the sign support bracket of Figs. 25a, 25b and 25c or the ground
25 plate of Figs. 27a, 27b and 27c. It can also be used in combination with the components of Figs. 19, 20, 21 and 22 to form the tensioner assembly shown in Fig. 23. This tensioner assembly can be used to tension the barrier clip of Fig. 30.

30

Figs. 24a and 24b show a warning light for fixing to the top of the central tube of the warning device of Fig. 1. The batteries for the lamp fit inside the device at 13 and the lamp is operated by a locating and earthing screw 14.

Figs. 25a, 25b and 25c show a sign support bracket. This bracket can be fitted to signs and removes the necessity for metal framing.

The ground pin shown in Figs. 26a and 26b can be used to stabilise the legs of the device of Fig. 1 or the ground plate of Fig. 27.

The ground plate of Figs. 27a, 27b and 27c allows barriers and signs to be fixed to the ground, using the ground pins of Figs. 26a and 26b, or to walls and rock faces using rails or bolts.

The barrier clamps shown in Figs. 28 and 29 can be fitted in pairs to motorway barriers to support signs on the central reservation. The signs fit between the two clamps and thus hold the clamps in position.

Alternatively, the barrier clamp shown in Fig. 30 can be used. This has a built in tensionary device and is thus self-supporting when fitted to a barrier. An example of a suitable tensioner is shown in Fig. 31.

Modifications and improvements may be incorporated without departing from the scope of the invention.

CLAIMS

1. A traffic signalling system including apparatus for use as a traffic warning device comprising a central tube, an
5 upper hinge block, a lower hinge block, a number of support legs, said legs being pivotally attached to said upper hinge block and a number of link arms, said link arms being pivotally attached at one end to the lower hinge block and at the other end each to a respective leg.
- 10
2. A system as claimed in claim 1, wherein said top hinge block is slidably mounted on the central tube in such a way that the legs may be folded in flat against the tube to allow easy storage and transportation.
- 15
3. A system as claimed in either preceding claim, wherein a number of support brackets and the like are provided, said support brackets allowing barriers, signs and the like to be attached to the warning device.
- 20
4. A traffic signalling system substantially as hereinbefore described with reference to the accompanying drawings.

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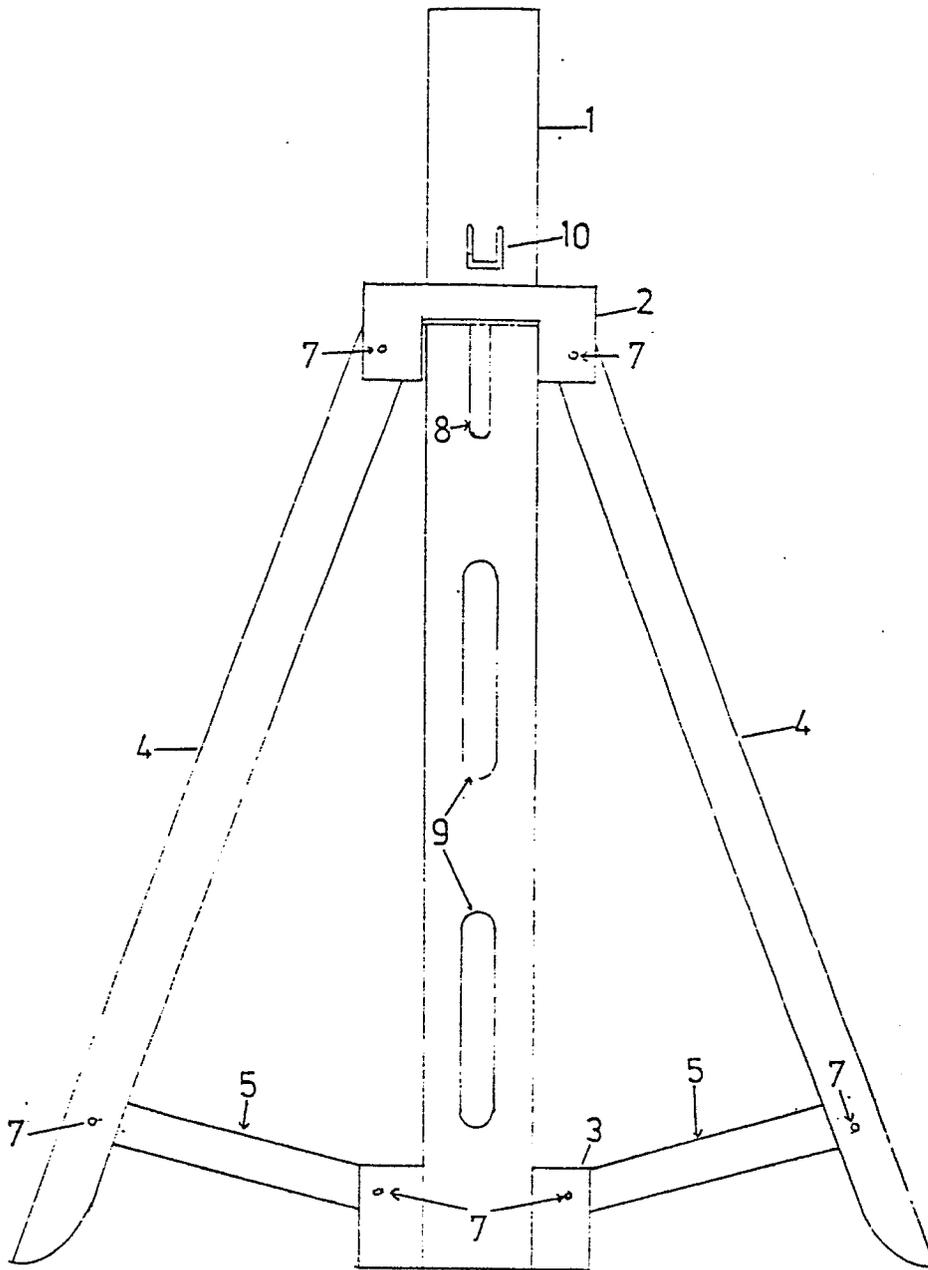


Fig 1

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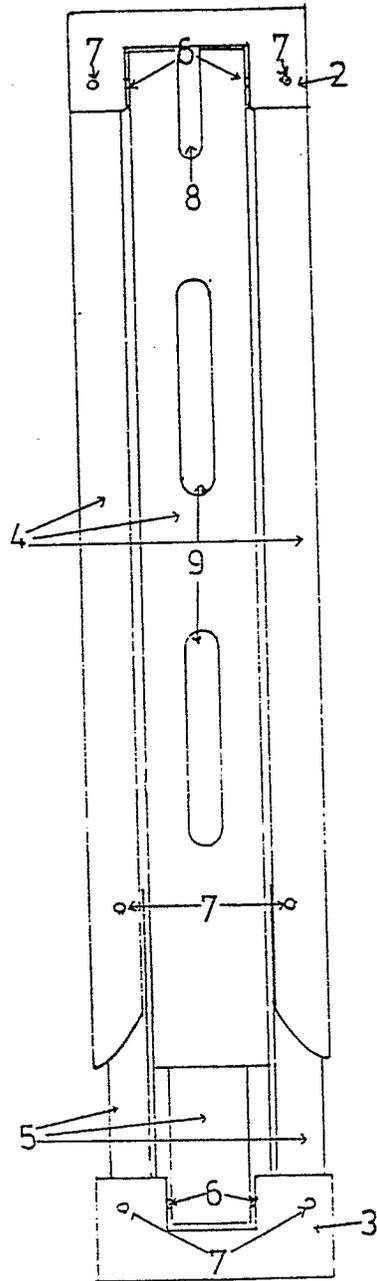


Fig 2

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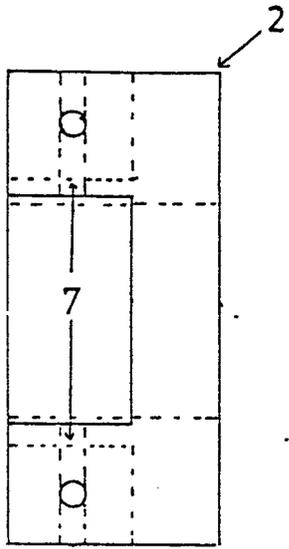


Fig 3

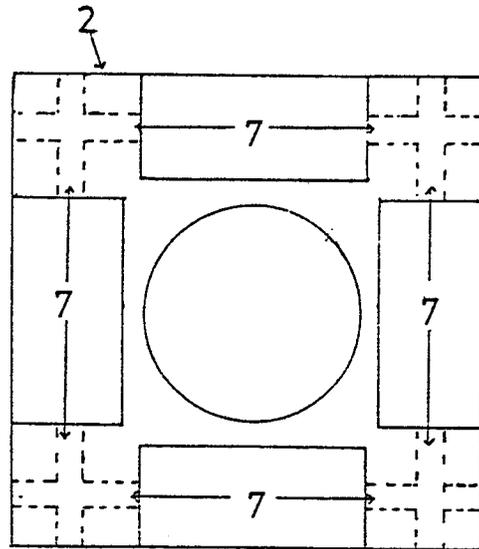


Fig 4

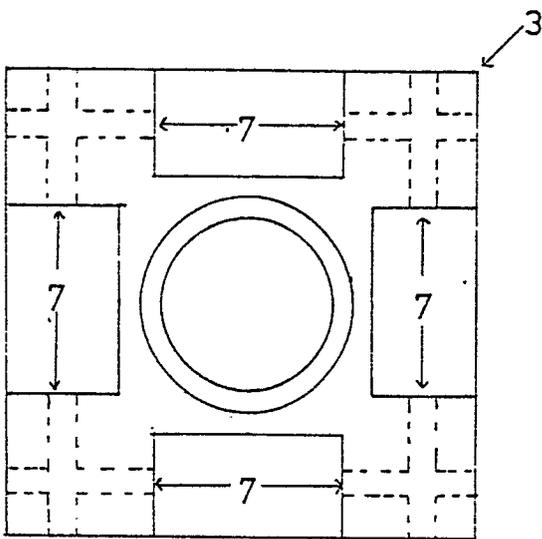


Fig 5

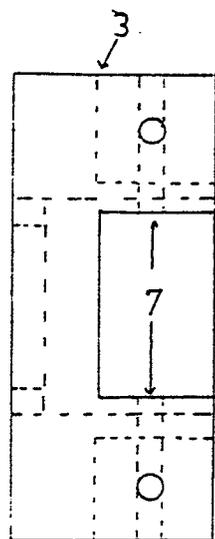


Fig 6

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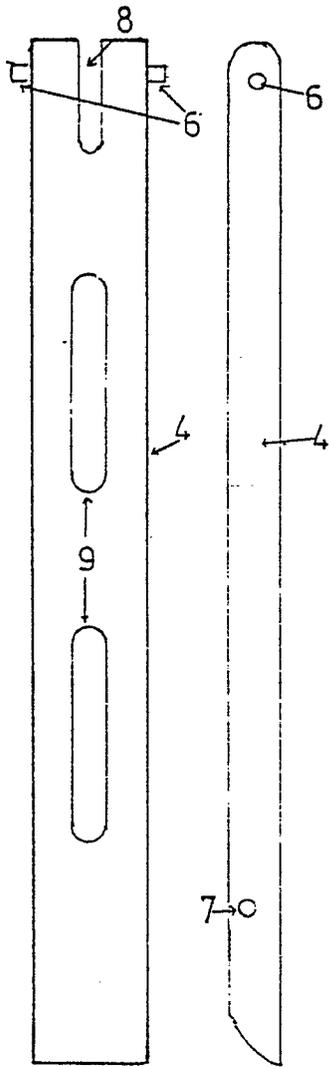


Fig 7

Fig 8

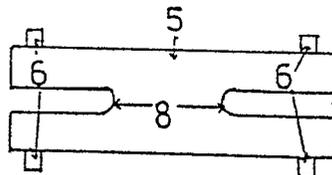


Fig 9

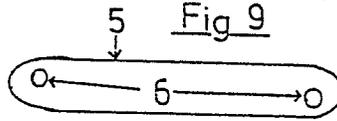


Fig 10

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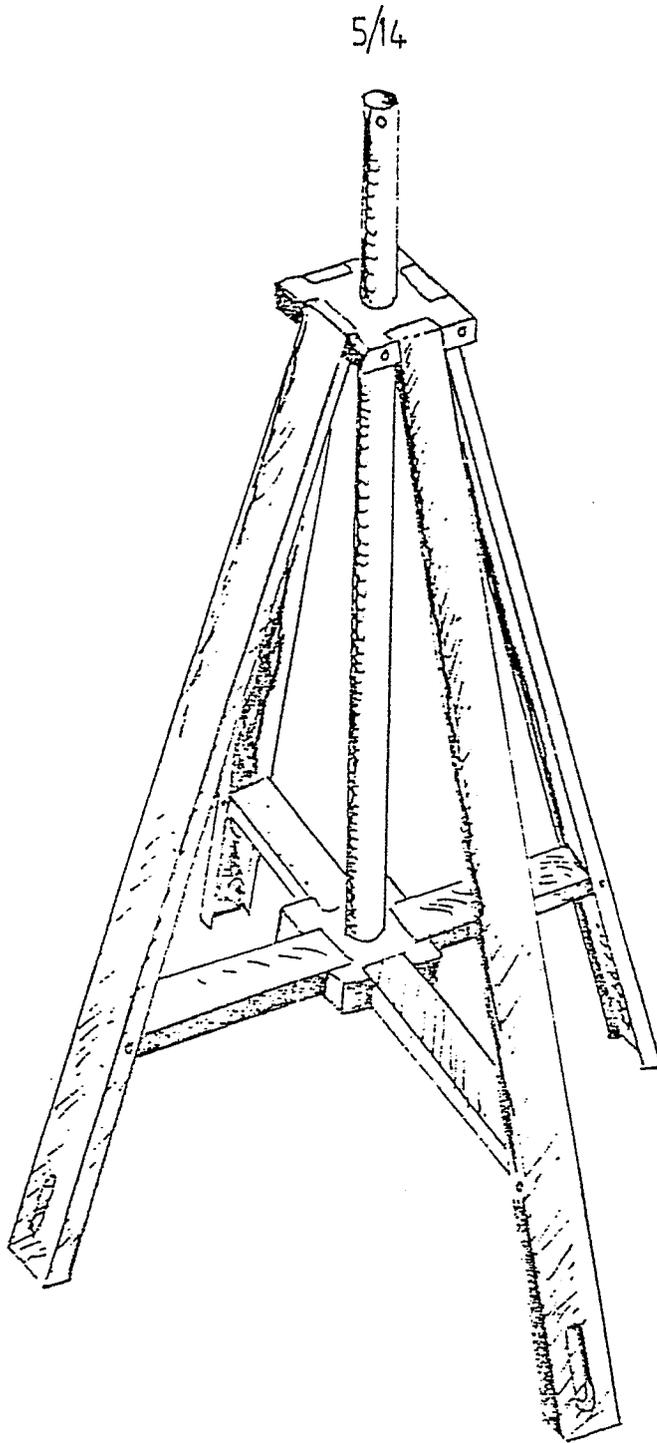
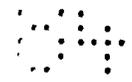


Fig 11



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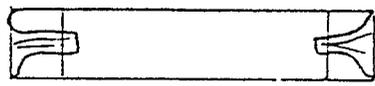


Fig 12a

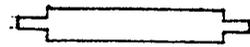


Fig 13a

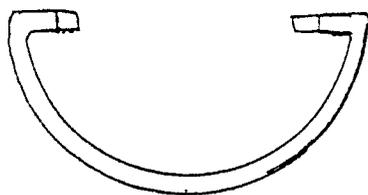


Fig 12b



Fig 13b

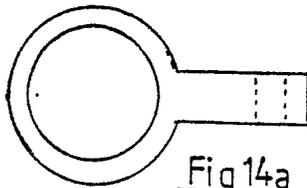


Fig 14a

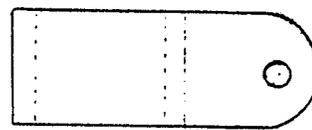


Fig 14b

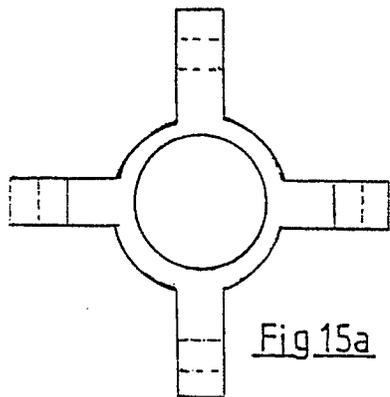


Fig 15a

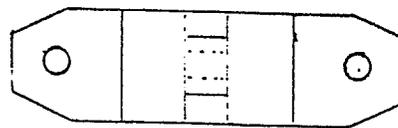


Fig 15b

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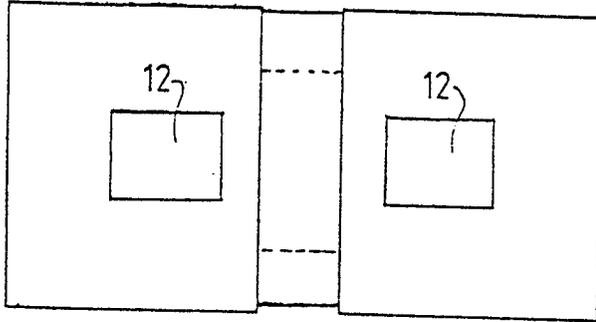


Fig 16a

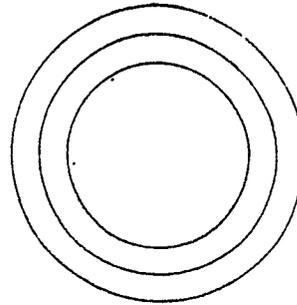


Fig 16b

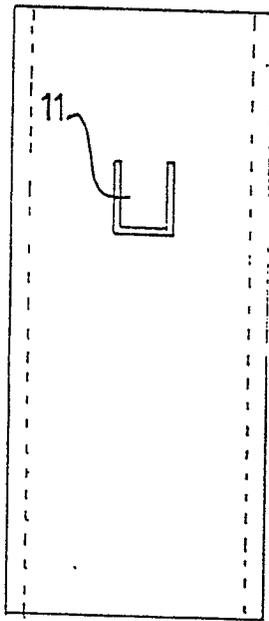


Fig 17a

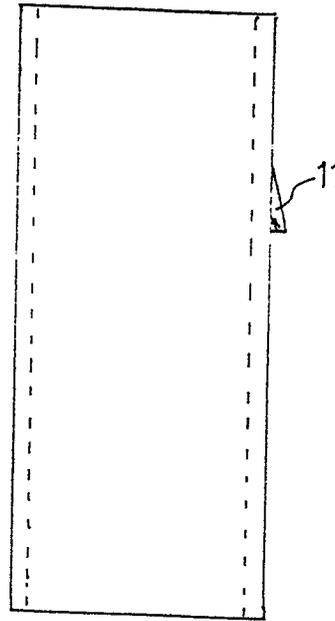


Fig 17b

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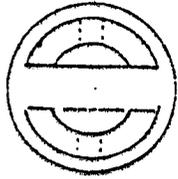


Fig 18a

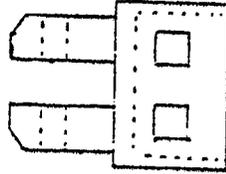


Fig 18b

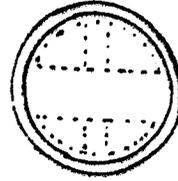


Fig 18c



Fig 19



Fig 20a



Fig 20b

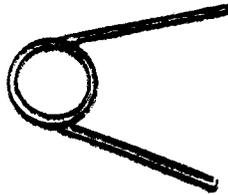


Fig 21

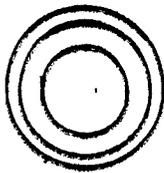


Fig 22a

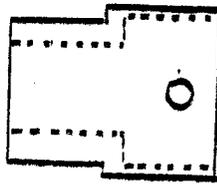


Fig 22b

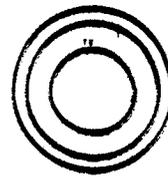


Fig 22c

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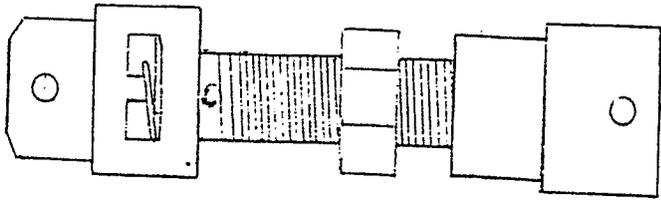


Fig 23

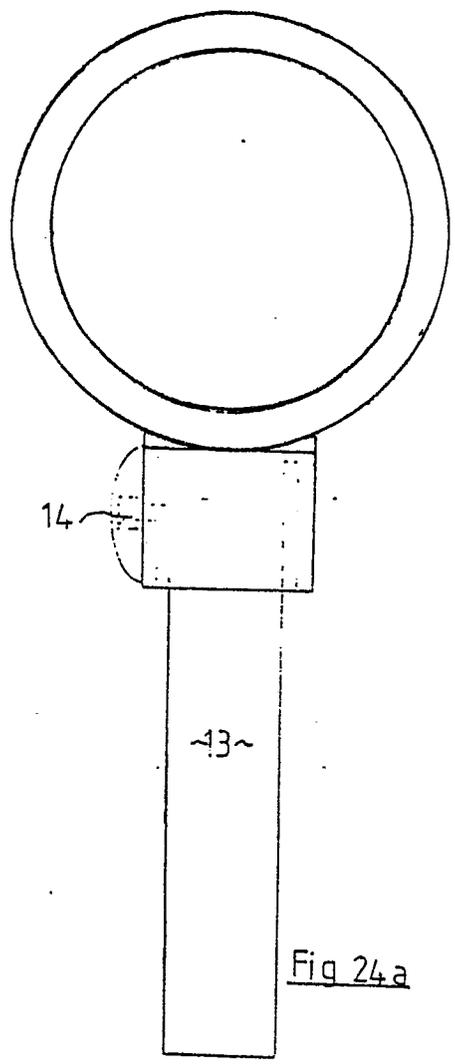


Fig 24a

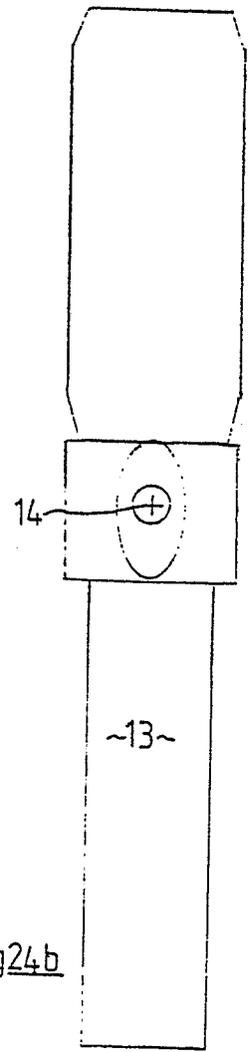


Fig 24b

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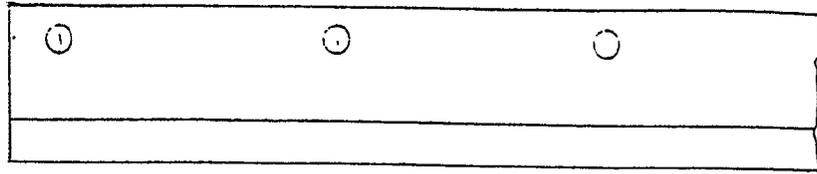


Fig 25a

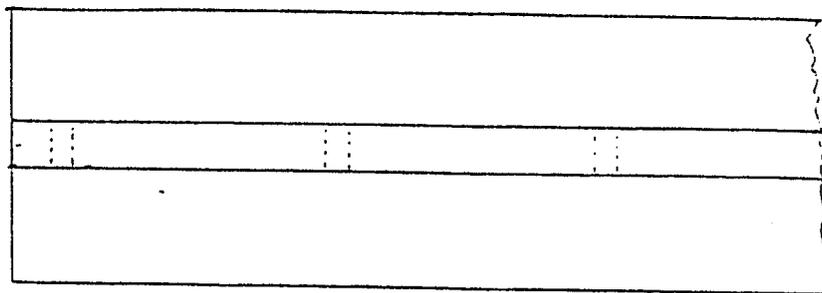


Fig 25b

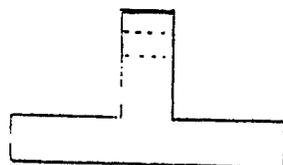


Fig 25c



Fig 26a

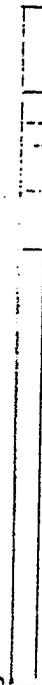


Fig 26b

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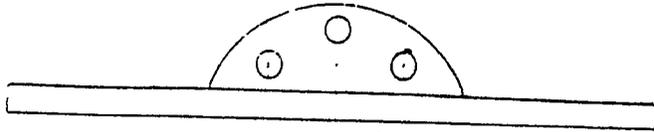


Fig 27a

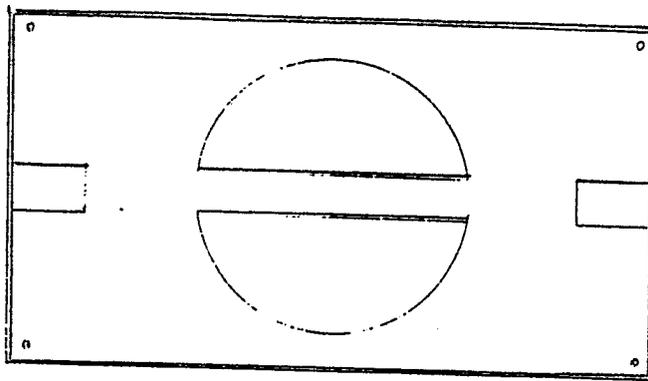


Fig 27b

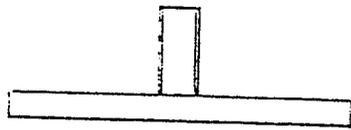


Fig 27c

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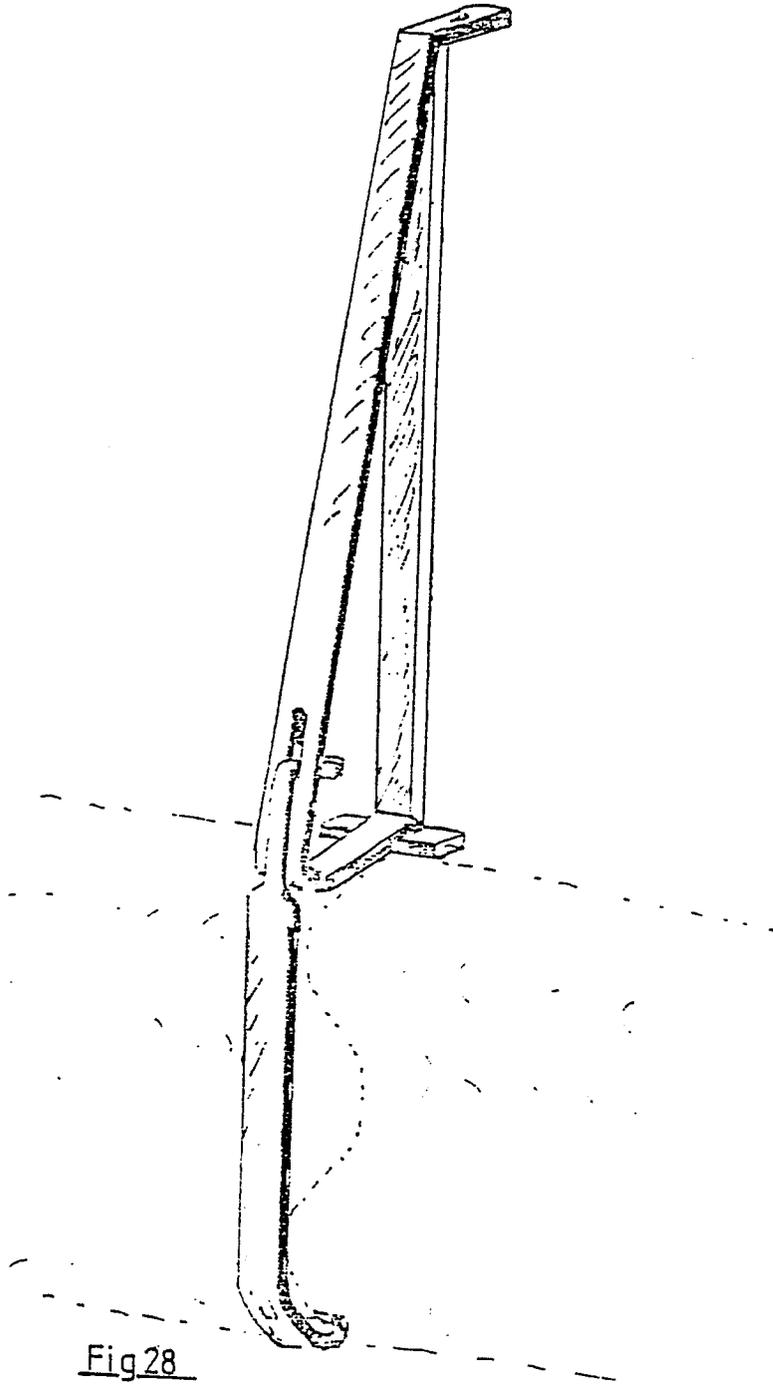


Fig 28

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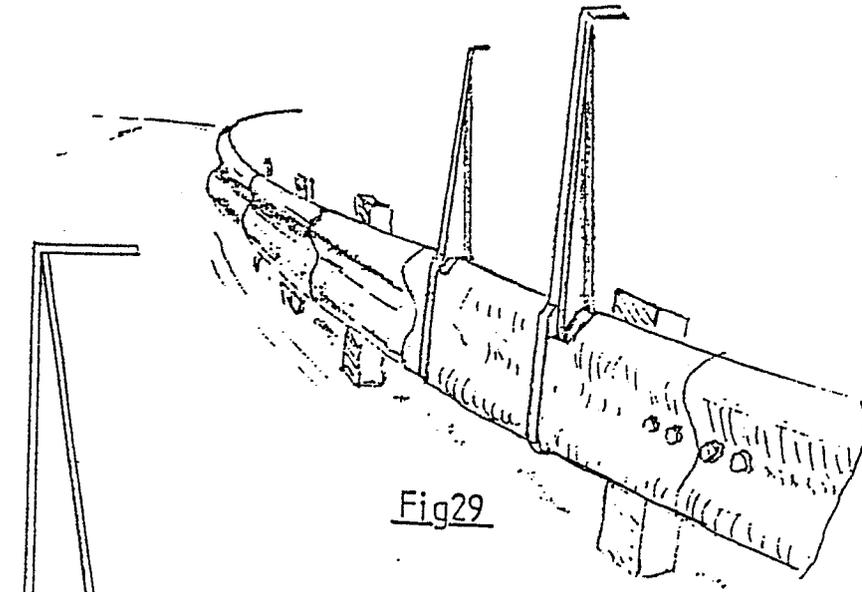


Fig 29

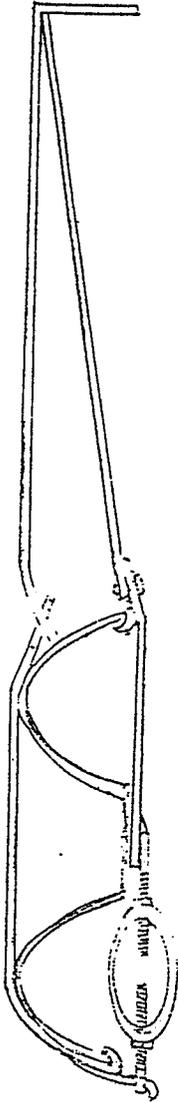


Fig 30

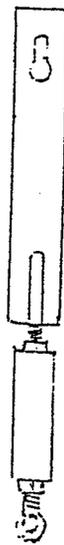


Fig 31

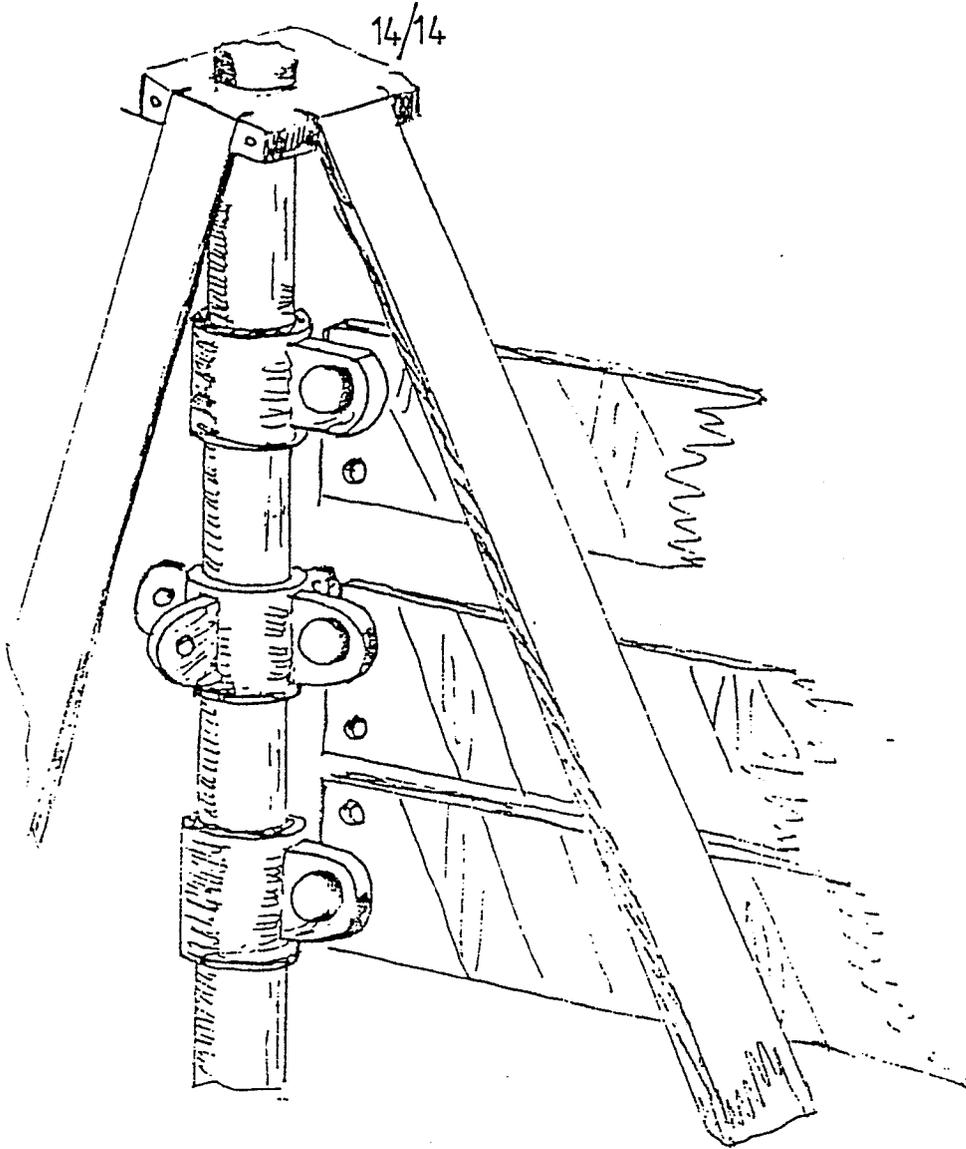


Fig 32



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-3 899 843 (DOYLE, SWEZY) * Column 2, line 47 - column 3, line 46; column 4, line 63 - column 5, line 23; figures 1-11 *	1-4	E 01 F 9/01
X	US-A-2 781 017 (FULLER) * Whole document *	1-4	
			TECHNICAL FIELDS SEARCHED (Int. Cl. ³)
			E 01 F
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 27-03-1984	Examiner DIJKSTRA G.
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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</p> <p>& : member of the same patent family, corresponding document</p>			