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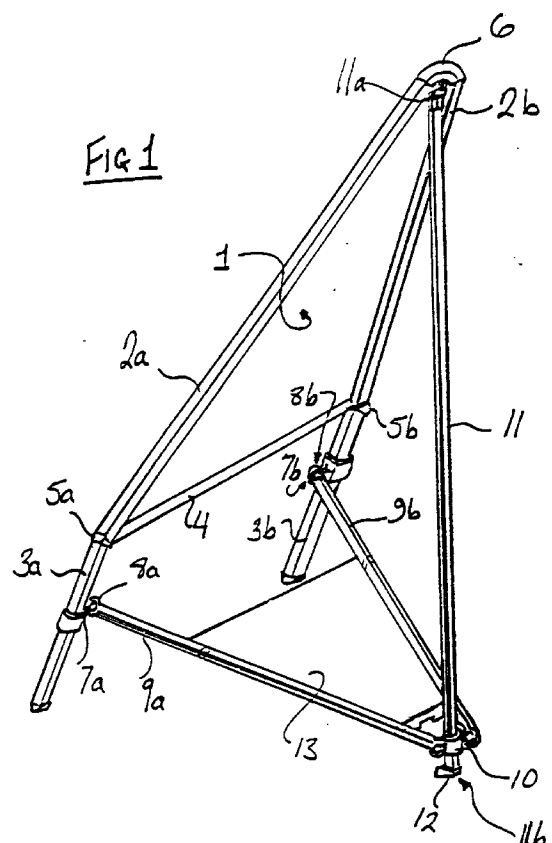
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(54) **Temporary sign structure.**

(57) A temporary road sign constructed from light-weight extruded plastics material, the individual extruded members of the structure being joined together by means of angled brackets to form a planar sign frame (2a, 2b, 4) having two front legs (3a,3b) extending downwardly therefrom, a rear leg (11) being pivotally attached to the upper part of the sign frame for swinging movement about a horizontal axis between a retracted position adjacent the sign frame and an extended position wherein the rear leg (11) extends at an angle to the sign frame, the sign further comprising a pair of swinging links (9a, 9b) pivotally attached to the sign frame at one of their respective ends for swinging movement about an axis passing adjacent the upper ends of the front legs (3a,3b), and held at their other respective ends in sliding contact with the rear leg (11) of the sign, the arrangement being such that in the retracted position of the rear leg (11) the swinging links (9a, 9b) lie adjacent the rear face of the sign frame (2a, 2b, 4) and engage the rear leg (11) adjacent its upper end (11a), and in the extended position the swinging links (9a, 9b) engage the rear leg (11) adjacent its lower end (11b).



The present invention relates to modular assemblies for use as road signs, and is particularly concerned with temporary road signs and barriers placed by contractors at the sites of road and pavement works.

Temporary road signing to alert road users and pedestrians to the presence of road working gangs and excavations is well known, the principal arrangements used for road signs being frames constructed from 'L' section metal bars to which flat metal sign boards are attached by means of resilient clips. Conventional barriers to alert pedestrians to the presence of holes in the pavement have been formed by plastics pillars supporting brightly coloured crosspieces.

These prior art signs have several disadvantages, principally that they are heavy and unwieldy. The prior road signs, due to their metallic construction, also tend to suffer permanent damage when road users collide with them, thus shortening the effective life of the road sign. Again, the heavy metallic construction of the signs inflicts severe damage on vehicles colliding with them, resulting in onerous insurance claims against the sign users. The signs of the prior art have the further disadvantage that the four feet generally provided to support the sign can contact the ground only when the sign is placed on a relatively flat surface, and the sign is thus unstable when on uneven ground.

The present invention relates to a temporary road sign constructed from lightweight extruded plastics material, the individual extruded members of the structure being joined together by means of angled brackets to form a planar sign frame having two front legs extending downwardly therefrom, a rear leg being pivotally attached to the upper part of the sign frame for swinging movement about a horizontal axis between a retracted position adjacent the sign frame and an extended position wherein the rear leg extends at an angle to the sign frame, the sign further comprising a pair of swinging links pivotally attached to the sign frame at one of their respective ends for swinging movement about an axis passing adjacent the upper ends of the front legs, and held at their other respective ends in sliding contact with the rear leg of the sign, the arrangement being such that in the retracted position of the rear leg the swinging links lie adjacent the rear face of the sign frame and engage the rear leg adjacent its upper end, and in the extended position the swinging links engage the rear leg adjacent its lower end.

The pivotal attachments are preferably spherical joints of the ball-and-socket type.

A road sign according to the present invention will now be described in detail with reference to the accompanying drawing, in which:

Figure 1 shows a perspective view from the rear of a triangular road sign;

Referring now to the drawings, Figure 1 is a view

from the rear of a triangular road sign having a planar sign frame comprising a signboard 1 fixed to a frame formed by two inclined upper members 2a and 2b, two legs 3a and 3b, and an optional crosspiece 4. The two inclined upper members 2a and 2b are joined to respective legs 3a and 3b by corner brackets 5a and 5b, and are joined together at their respective upper ends by an apex bracket 6.

The signboard 1 is preferably formed of plastics material, polypropylene sheet of 2 mm thickness being the preferred material. The signboard can be printed with the sign material to be displayed, or may have an adhesive sign fixed thereto. The elongate members surrounding the signboard are preferably extruded from plastics material, and are preferably hollow. Each of the extruded sections may include an outer wall which is re-entrant to form at least one undercut slot, having an elongate opening and a detent surface adjacent the opening and facing away therefrom. The purpose of these slots, which extend along the length of the extruded members, will become clear in the description to follow.

The extruded members shown in Figures 1 and 2 may be joined by means of brackets which engage either in undercut slots extending along the outer surfaces of the members, or the brackets may have spigots to engage the ends of the extruded members.

The road sign of Figure 1 comprises a triangular signboard 1, and a pair of extruded members 2a and 2b adapted to extend along two sides of the signboard 1, and are joined by brackets 4a and 4b to legs 3a and 3b which extend in parallel away from the signboard 1. The extruded members 2a and 2b are joined at their upper ends by an apex bracket 6.

Attached to the legs 3a and 3b intermediate their ends are respective spherical pivots 7a and 7b. The two spherical pivots 7a and 7b may be identical components, or may be "handed". The spherical pivots 7a and 7b may alternatively be in engagement with external slots in the extruded members 2a and 2b, or positioned on the cross member 4, and in such cases it may be necessary to form cutouts (not shown) in the signboard 1 to provide clearance for the spherical pivots 7a and 7b.

Each of the pivots 7a and 7b is engaged by a complementary pivot 8a, 8b fitted to an end of a swinging arm 9a, 9b. The other ends of the arms 9a, 9b are attached to a slider 10 which is longitudinally slidable along a rear leg 11 of the sign. The rear leg 11 is pivotally attached at its upper end 11a to the apex bracket 6, and at or adjacent its lower end 11b has a stop 12 against which the slider 10 abuts in the erected position of the sign.

Attached to the arms 9a, 9b is a ballast weight 13, which has a recess in its underside to accommodate the rear leg 11 in the folded position of the sign.

The sign is shown in its erected position in the Figure. To fold the sign for storage, the slider 10 is

moved upwardly along the rear leg 11, causing the swinging arms 9a and 9b to rise and pivot about the pivots 7a, 7b respectively. During the initial stage of this movement, the rear leg 11 is first pivoted away from the sign frame until the arms 9a and 9b occupy a plane at right angles to the rear leg, and thereafter the rear leg 11 pivots towards the sign frame as the slider 10 moves further up the rear leg 11. The folded position is reached when the slider 10 is in its position closest to the apex bracket 6, and the rear leg 11 and swinging arms 9a and 9b lie adjacent the rear face of the sign frame. In this position, a first face of the ballast weight 13 that was uppermost in the erected position of the sign lies against the rear face of the sign frame, and a second face of the ballast weight 13 that was lowermost in the erected position of the sign faces away from the sign frame. A recess or slot is preferably provided in the second face of the ballast weight 13 to receive the rear leg 11 in the folded position, so as to reduce the thickness of the folded sign to a minimum.

The sign is erected from the folded position by reversing the above procedure, sliding the slider 10 down the rear leg 11 until it abuts the stop 12.

In an alternative embodiment (not illustrated), the rear leg 11 may be replaced by a pair of rear legs, pivotally attached at their upper ends to the sign frame for pivoting about a common horizontal axis. The slider 10 will then engage both rear legs, and will preferably comprise a crosspiece with sliding collars at its ends to engage the respective rear legs. To maintain the stability of the structure, the crosspiece should be held perpendicular to the rear legs. The swinging arms preferably each engage one end of the crosspiece, but alternatively may be attached to a common point at the centre of the crosspiece. The alternative embodiment with two rear legs is preferred when a sign having a rectangular sign frame is to be produced, such a sign comprising a horizontal top member extending along the upper edge of the sign-board, a pair of vertical sidepieces extending down from the ends of the top member, a pair of rear legs pivotally attached to the top member, a slider engaging both rear legs, and a pair of swinging arms pivotally attached to the sidepieces and to the slider, respectively. A ballast weight of generally trapezoidal shape may be fixed to the swinging arms, two recesses being provided in the ballast weight to receive the rear legs in the folded position.

In a further alternative embodiment (not illustrated), the rear leg 11 may be replaced by a pair of rear legs, pivotally attached at their upper ends to the sign frame for pivoting about a common horizontal axis. The slider 10 will then preferably engage both rear legs, and will preferably comprise a crosspiece with sliding collars at its ends to engage the respective rear legs. To maintain the stability of the structure, the crosspiece should be held perpendicular to the rear

legs. The swinging arms may extend from a common point at the centre of a cross member extending along the lower edge of the sign frame, the swinging arms diverging to form a triangle with the crosspiece of the slider. In such a sign, the triangular structure will lie between the rear legs and adjacent the rear face of the sign frame in the folded position, and a ballast weight may be provided within the triangular structure. A further pair of swinging arms may also be provided, extending from the respective ends of the crosspiece of the slider to the outer edges of the sign frame, level with its lower edge.

In any of the embodiments described, latching means may be provided to retain the sign in the erected and/or folded positions. Such a latching means may comprise means to prevent sliding of the slider along the rear leg, or means to retain the rear leg adjacent the sign frame by cooperating elements positioned on the rear leg and the sign frame respectively.

Claims

1. A temporary road sign constructed from elongate extruded plastics members, the individual extruded members of the structure being joined together by means of angled brackets to form a planar sign frame which is generally upright in use and has two front legs extending downwardly therefrom, a rear leg being pivotally attached to the upper part of the sign frame for swinging movement about a first horizontal axis between a retracted position adjacent the sign frame and an extended position wherein the rear leg extends at an angle to the sign frame, the sign further comprising a pair of swinging links pivotally attached at one of their respective ends to the sign frame for swinging movement about a second generally horizontal axis spaced from the first, and held at their other respective ends in sliding contact with the rear leg of the sign, the arrangement being such that in the retracted position of the rear leg the swinging links lie adjacent the rear face of the sign frame and engage the rear leg adjacent its upper end, and in the extended position the swinging links engage the rear leg adjacent its lower end.
2. A temporary road sign according to claim 1, wherein the second generally horizontal axis passes adjacent the upper ends of the front legs.
3. A temporary road sign according to claim 1 or claim 2, wherein the pivotal attachments joining the pair of swinging links to the sign frame are spherical joints of the ball-and-socket type.
4. A temporary road sign according to any preced-

ing claim wherein the pair of swinging links are attached to a slider which is slidable along the rear leg between an erect position adjacent the lower end of the rear leg and an erect position adjacent the upper end of the rear leg.

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5. A temporary road sign according to any preceding claim, wherein the rear leg comprises a pair of parallel leg portions attached to the sign frame for pivotal movement about a common horizontal axis, and a slider engages both rear leg portions, the slider comprising a crosspiece with sliding collars at its ends to engage the respective rear leg portions.

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6. A temporary road sign according to claim 5, wherein the pivotal attachments joining the pair of swinging links to the slider are positioned at the respective ends of the crosspiece, and the pivotal attachments joining the pair of swinging links to the sign frame are positioned at the midpoint of the lower edge of the sign frame.

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7. A temporary road sign according to claim 6, wherein a second pair of swinging links join the sign frame to the slider, the second pair of swinging links extending from respective collars of the slider to points adjacent the ends of the lower edge the sign frame.

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8. A temporary road sign according to claim 5, wherein the pivotal attachments joining the pair of swinging links to the slider are positioned at the midpoint of the crosspiece.

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9. A temporary road sign according to any preceding claim, wherein latching means are provided to retain the sign in the erected and/or folded positions.

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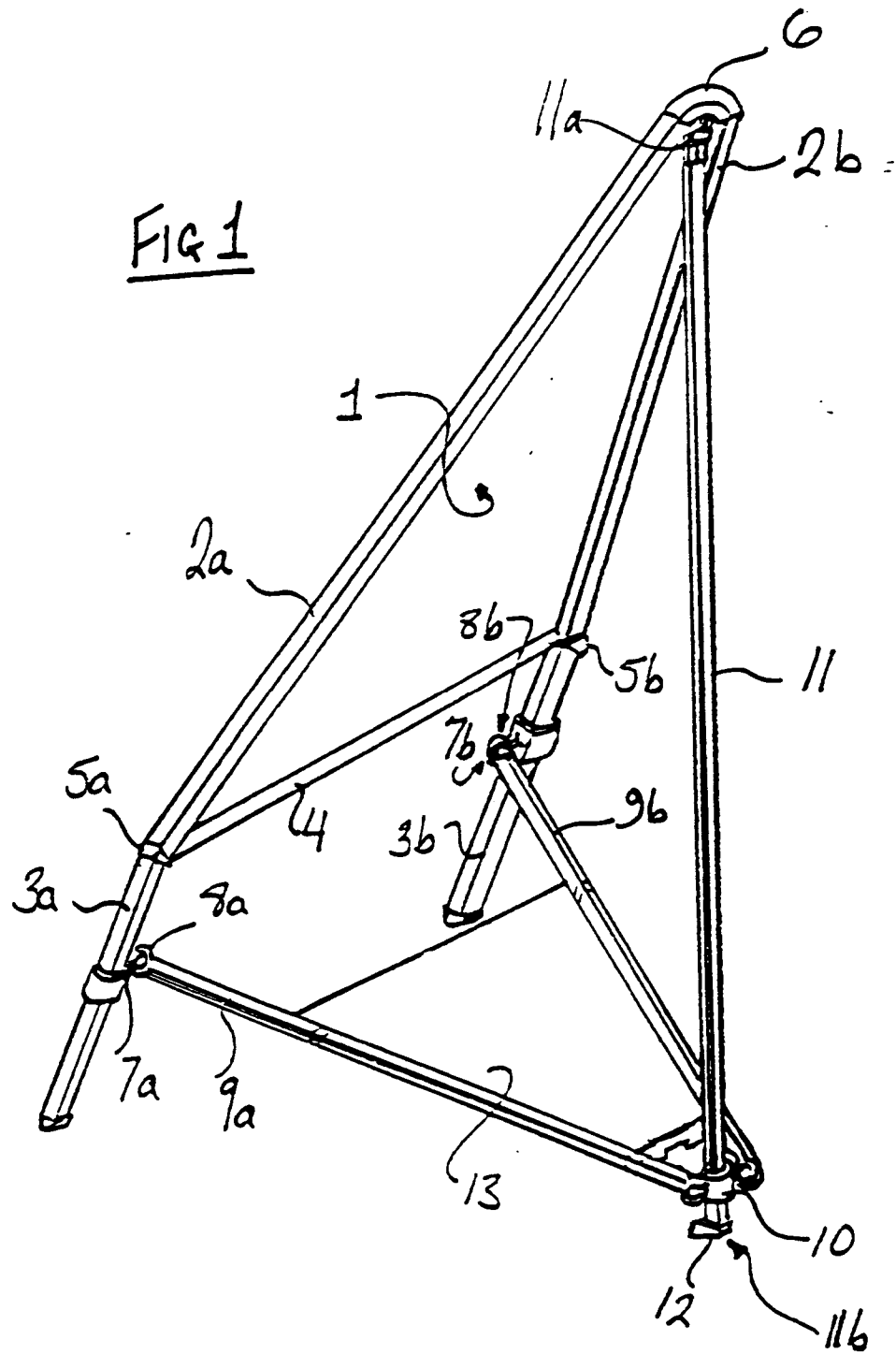
10. A temporary road sign according to claim 9, wherein the latching means comprises means to prevent sliding of the slider along the rear leg.

11. A temporary road sign according to claim 9, wherein the latching means comprises means to retain the rear leg adjacent the sign frame by cooperating elements positioned on the rear leg and the sign frame respectively.

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European Patent
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EUROPEAN SEARCH REPORT

Application Number
EP 95 30 3096

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.6)
Y	FR-A-2 659 160 (C. CLOEREC) * the whole document * ---	1,2,4, 9-11	E01F9/012
Y	FR-A-1 436 788 (P. DELEDIEU) * page 2, column 1, paragraph 2 -paragraph 3; figures * ---	1,2,4, 9-11	
A	GB-A-2 262 955 (PASTICHE COSIGN LTD.) * page 2, paragraph 1 -paragraph 4; figures * ---	1,5,6,8	
A	FR-A-1 595 176 (Y. LAPORTE) -----		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6) E01F B60Q
Place of search THE HAGUE		Date of completion of the search 20 September 1995	Examiner Verveer, D
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