

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 509 788 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

31.07.1996 Bulletin 1996/31

(51) Int Cl.⁶: **E01F 15/00**

(21) Application number: **92303387.2**

(22) Date of filing: **15.04.1992**

(54) **Improvements relating to traffic warning devices and road safety systems**

Verkehrswarneinrichtung und Strassensicherheitssystem

Dispositif de signalisation routière et système de sécurité de la route

(84) Designated Contracting States:

**AT BE CH DE DK ES FR GB GR IT LI LU MC NL
PT SE**

(30) Priority: **15.04.1991 GB 9108083**

(43) Date of publication of application:

21.10.1992 Bulletin 1992/43

(73) Proprietors:

- **Jarvis, Allan**
Aberdare, Mid Glamorgan, Wales, CF44 0PY (GB)
- **Morgan, John Reynalt**
Aberdare, Mid Glamorgan, Wales, CF44 0PY (GB)

(72) Inventors:

- **Jarvis, Allan**
Aberdare, Mid Glamorgan, Wales, CF44 0PY (GB)
- **Morgan, John Reynalt**
Aberdare, Mid Glamorgan, Wales, CF44 0PY (GB)

(74) Representative: **Newell, William Joseph et al**

Wynne-Jones, Lainé & James
Morgan Arcade Chambers
33 St. Mary Street
Cardiff, CF1 2AB (GB)

(56) References cited:

EP-A- 0 171 269 **DE-A- 3 500 364**
DE-U- 7 832 819 **DE-U- 8 412 300**

EP 0 509 788 B1

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

There is a need to provide some form of warning device to give notification to motorists of the presence of a barrier member at a road side. It is common practice, on motorways in particular, to erect crash barriers which extend along the central reservation or at the outside of bends. The crash barrier panels are conventionally of a neutral colour and so the road user may not always be fully aware of the continuing presence of the barrier, particularly in poor weather conditions, such as fog. It is also possible to paint the barriers in a distinctive design (for example black and white stripes) but this is a time-consuming, dangerous and expensive procedure.

DE-A-3 500 364 and DE-U-7 832 819 each show arrangements in which a warning device is attached to a crash barrier panel using bolts or the like, which pass through holes provided in the panel.

It is an object of this invention to provide a warning device which may readily be applied to a crash barrier without requiring bolts or the like.

Accordingly, in one aspect, this invention provides a traffic warning device, including an exposed surface region providing a visual warning, and adapted in use to be inserted in a slot provided in a crash barrier panel, said warning device comprising a flexible or resiliently foldable member whereby the ends of the member may be brought towards each other against a resilient bias, the member having a relaxed length greater than that of the slot and having at each end a retaining portion joined to the main body of the strip by a neck portion, with the retaining portion projecting to both sides of the neck portion, whereby in use the device may be located in said slot with the spaced neck portions engaging opposite end regions of the slot.

Such a device can be inserted into the slots which are normally provided at intervals along the length of a crash barrier panel and which enable the panel to be mounted to fixing points by bolts, with a degree of play. Normally, not all of the slots are used for fixing purposes and the warning device can therefore be applied to the spare slots. In use the ends of the device will be pressed towards one another so that the adjacent retaining means come towards each other to allow them to be passed through the slot in the barrier. The device is then twisted through 90° and released so that the retaining portions slide to the ends of the slot behind the barrier. Ideally, the retaining portions would be substantially the same width as the body of the device so that a good secure location is achieved. The device may take many forms. In a particularly preferred form, the flexible or resiliently foldable member comprises a generally flat strip of tough flexible material such as a flexible plastics material. Alternatively, the member may comprise a tough flexible strip formed with a folded shape such as a V-shape. Here the resilience may be in the limbs of the V-shape or in an integral hinge between the limbs.

The device can carry warning markings in the form of symbols or coloured stripes formed on one or both faces of the device. These warning markings can be of mutually different designs or colouring at the respective two ends of the body of the device. Another possibility is to provide that the two faces of the body of the device are of mutually different designs or colourations.

In use, the device may be designed to be of such a length that the main body member is somewhat longer than the slot into which the device is to be located so that it will be bowed and thus present a curved warning face to an on-coming motorist.

In another aspect, this invention provides an improved form of road safety system comprising an elongate crash barrier panel provided with a plurality of elongate slots along its length wherein some of said slots receive fixing means for securing the panel to posts or other fixed structure and at least some of the other slots receive a traffic warning means. The traffic warning means may be a warning device of the type defined above.

The invention may be performed in various ways and preferred embodiments thereof will now be described with reference to the accompanying drawings, in which:-

Figure 1 is a plan view of a warning strip of this invention;

Figure 2 illustrates part of the rear of a warning barrier panel to which the strip of Figure 1 has been applied; and

Figure 3 is a perspective view of a warning barrier panel incorporating an alternative type of warning strip of this invention.

The warning strip shown in Figure 1 is formed e.g. by stamping from a flexible plastics material as a general flat sheet having a main body portion 1 and retaining arm portions 2 at each end. The arms 2 are interconnected with the main body 1 by neck portions 3. The body portion 1 will be suitably coloured and carries coloured strips 4 which may be of a coloured reflective, fluorescent or luminous character.

In use the strip is fixed so that the two arm portions are brought together and they are then slid lengthwise through a slot 5 formed in a barrier panel 6 (Figure 2). The strip is then twisted through 90° and the arm portions 2 then slide to the ends of the slot 5 and thus hold the strip firmly in place. The body portion 1 of the strip will be somewhat longer than the slot 5 so that it will be caused to bow outwardly (as shown in Figure 3), thus presenting the warning face of the strip to the on-coming motorist.

The design of strip illustrated in Figure 3 has different coloured sections 7 and 8 either side of the centre line, thus, for example, indicating a particular direction of movement. The strip could be inserted in the other direction to display the other one of the two coloured

portions 7 and 8 in the normal on-coming direction. It is also possible for the strip to be coloured differently on both faces so that it can be inserted into the slot 5 of the panel 6 as required, to display the desired one of the two faces.

Instead of being bowed, the strip may be of V-shape projecting from the panel 6 with two angled faces separated by the centreline of the V, the two faces serving similar functions to the coloured sections 7 and 8 of the bowed version described above.

In another embodiment (not illustrated) a warning device of other than strip form is attached to a slot 5 in the panel 6. This warning device may take the form of any visually prominent item which locates in the slot 5.

in a relaxed state.

8. A warning device according to Claim 6, wherein said device is of generally V-shape, presenting two angled faces.
9. A road safety system comprising an elongate crash barrier panel (6) provided with a plurality of elongate slots (5) characterised in that some of said elongate slots (5) receive fixing means for securing the panel (6) to posts or other fixed structures and at least some of the other elongate slots (5) receive a traffic warning device (1 to 4) according to any one of claims 1 to 8.

Claims

1. A traffic warning device, including an exposed surface region providing a visual warning, and adapted in use to be inserted in a slot (5) provided in a crash barrier panel, said warning device comprising a flexible or resiliently foldable member (1) whereby the ends of the member may be brought towards each other against a resilient bias, the member having a relaxed length greater than that of the slot (5) and having at each end a retaining portion (2) joined to the main body of the strip by a neck portion (3), with the retaining portion (2) projecting to both sides of the neck portion (3), whereby in use the device may be located in said slot with the spaced neck portions (3) engaging opposite end regions of the slot (5).
2. A warning device according to Claim 1, wherein the retaining portion (2) is substantially of the same width as the body of the member.
3. A warning device according to Claim 1 or Claim 2, wherein warning markings (4) in the form of symbols or coloured strips are formed on one or both faces of the device.
4. A warning device according to Claim 3, wherein the warning markings are of mutually different designs or colouring at the respective two ends of the body of the device.
5. A warning device according to Claim 3 or Claim 4, wherein the two faces of the body of the device are of mutually different designs or colourations.
6. A warning device according to any one of Claims 1 to 5, wherein the device is formed from a flexible plastics material.
7. A warning device according to Claim 6, wherein said device assumes a generally flat condition when

Patentansprüche

1. Verkehrswarnvorrichtung mit einem sichtbaren Oberflächenbereich, der für eine visuelle Warnung sorgt, die bei Gebrauch in einen Schlitz (5) einsetzbar ist, der in einem Leitplankenblech vorgesehen ist, und die ein elastisches oder federnd faltbares Glied (1) enthält, wobei die Enden des Gliedes gegen eine federnde Vorspannung einander genähert werden können und wobei das Glied im entspannten Zustand eine Länge hat, die größer ist als die des Schlitzes (5), und an jedem Ende einen Rückhalteabschnitt (2) aufweist, der mit dem Hauptkörper des Gliedes durch einen Halsabschnitt (3) verbunden ist, wobei der Rückhalteabschnitt (2) auf beiden Seiten gegenüber dem Halsabschnitt (3) vorsteht und wobei bei Gebrauch die Vorrichtung in dem Schlitz angeordnet werden kann, wobei dann die mit Abstand voneinander angeordneten Halsabschnitte (3) an sich gegenüberliegenden Endabschnitten des Schlitzes (5) angreifen.
2. Warnvorrichtung nach Anspruch 1, bei der der Rückhalteabschnitt (2) im wesentlichen die gleiche Breite hat wie der Körper des Gliedes.
3. Warnvorrichtung nach Anspruch 1 oder 2, bei der auf einer oder beiden Oberflächen der Vorrichtung Warnmarkierungen (4) in Form von Symbolen oder farbigen Streifen angebracht sind.
4. Warnvorrichtung nach Anspruch 3, dadurch gekennzeichnet, daß die Markierungen aus abwechselnd verschiedenen Zeichen oder Farben an jeweils zwei Enden des Körpers der Vorrichtung bestehen.
5. Warnvorrichtung nach Anspruch 3 oder 4, bei der die beiden Oberflächen des Körpers aus abwechselnd unterschiedlichen Zeichen oder Farben bestehen.

6. Warnvorrichtung nach einem der Ansprüche 1 bis 5, bei der die Vorrichtung aus flexiblem Kunststoff besteht.
7. Warnvorrichtung nach Anspruch 6, bei der die Vorrichtung im entspannten Zustand im wesentlichen flach ist.
8. Warnvorrichtung nach Anspruch 6, bei der die Vorrichtung die allgemeine Form eines V mit zwei winkligen Oberflächen hat.
9. Straßenwarnsystem, bestehend aus einer langgestreckten Leitplanke (6), die mit einer Mehrzahl von langgestreckten Schlitzen versehen ist, dadurch gekennzeichnet, daß einige der langgestreckten Schlitze (5) Befestigungsmittel zum Anbringen der Leitplanke an Pfosten oder anderen Bauteilen enthalten und daß wenigstens einige der anderen langgestreckten Schlitze (5) mit einer Verkehrswarnvorrichtung (1 bis 4) nach einem der Ansprüche 1 bis 8 ausgerüstet sind.

Revendications

1. Dispositif de signalisation routière, comprenant une région à surface exposée fournissant une signalisation visuelle, et apte, lors de l'utilisation, à être introduit dans une fente (5) pratiquée dans un panneau de rail de sécurité, ledit dispositif de signalisation comprenant un élément (1) flexible ou pouvant être plié de façon élastique, ce par quoi les extrémités de l'élément peuvent être amenées l'une vers l'autre à l'encontre d'une sollicitation élastique, l'élément ayant une longueur relâchée plus grande que celle de la fente (5) et ayant à chaque extrémité une partie de retenue (2) réunie au corps principal de la bande par une partie d'étranglement (3), la partie de retenue (2) se projetant des deux côtés de la partie d'étranglement (3), ce par quoi, lors de l'utilisation, le dispositif peut être situé dans ladite fente avec les parties d'étranglement (3) espacées engageant les régions d'extrémité opposées de la fente (5).
2. Dispositif de signalisation selon la revendication 1, dans lequel la partie de retenue (2) a sensiblement la même largeur que le corps de l'élément.
3. Dispositif de signalisation selon la revendication 1 ou la revendication 2, dans lequel des marquages de signalisation (4), sous la forme de symboles ou de bandes colorées, sont formés sur l'une ou les deux faces du dispositif.
4. Dispositif de signalisation selon la revendication 3, dans lequel les marquages de signalisation sont de

dessins mutuellement différents ou de colorations mutuellement différentes au niveau des deux extrémités respectives du corps du dispositif.

5. Dispositif de signalisation selon la revendication 3 ou la revendication 4, dans lequel les deux faces du corps du dispositif sont de dessins ou colorations mutuellement différents.
6. Dispositif de signalisation selon l'une quelconque des revendications 1 à 5, dans lequel le dispositif est formé à partir d'une matière plastique flexible.
7. Dispositif de signalisation selon la revendication 6, dans lequel ledit dispositif prend un état généralement plat lorsqu'il est à l'état relâché.
8. Dispositif de signalisation selon la revendication 6, dans lequel ledit dispositif a la forme générale d'un V, présentant deux faces obliques.
9. Système de sécurité routière comprenant un panneau (6) de rail de sécurité allongé, doté d'une pluralité de fentes allongées (5), caractérisé par le fait que certaines desdites fentes allongées reçoivent un moyen de fixation pour fixer le panneau (6) à des poteaux ou autres structures fixes et au moins certaines des autres fentes allongées (5) reçoivent un dispositif de signalisation routière (1 à 4) tel que défini à l'une quelconque des revendications 1 à 8.

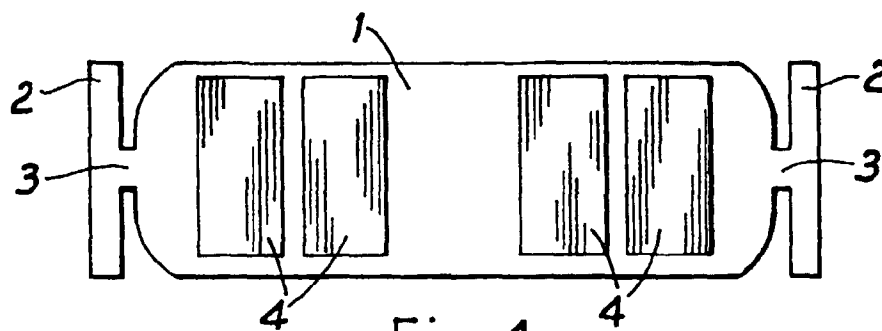


Fig. 1

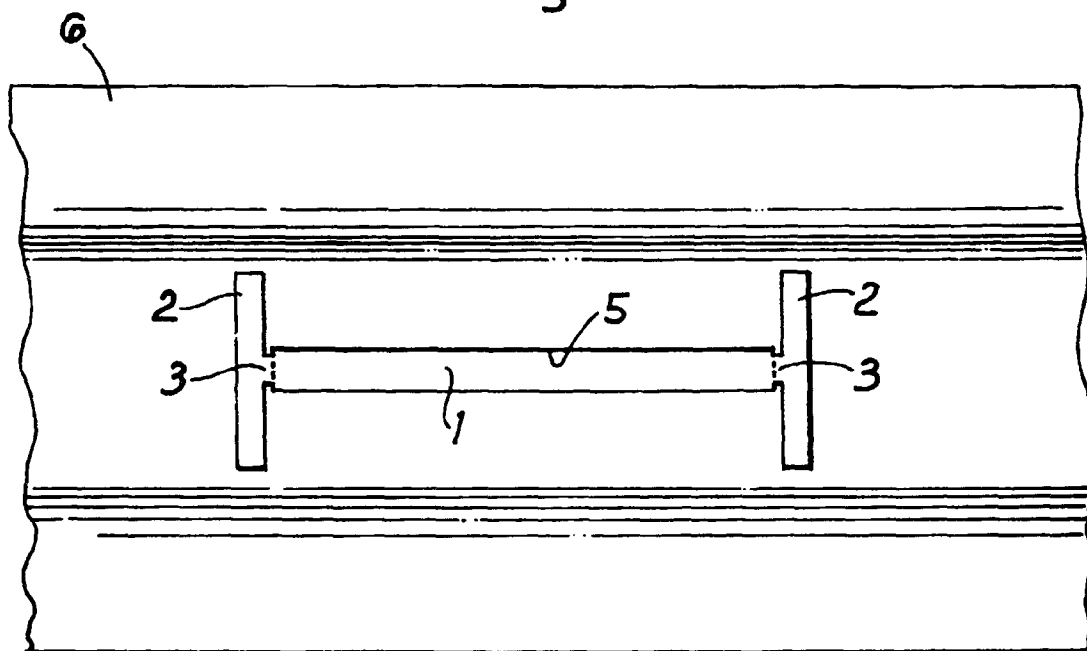


Fig. 2

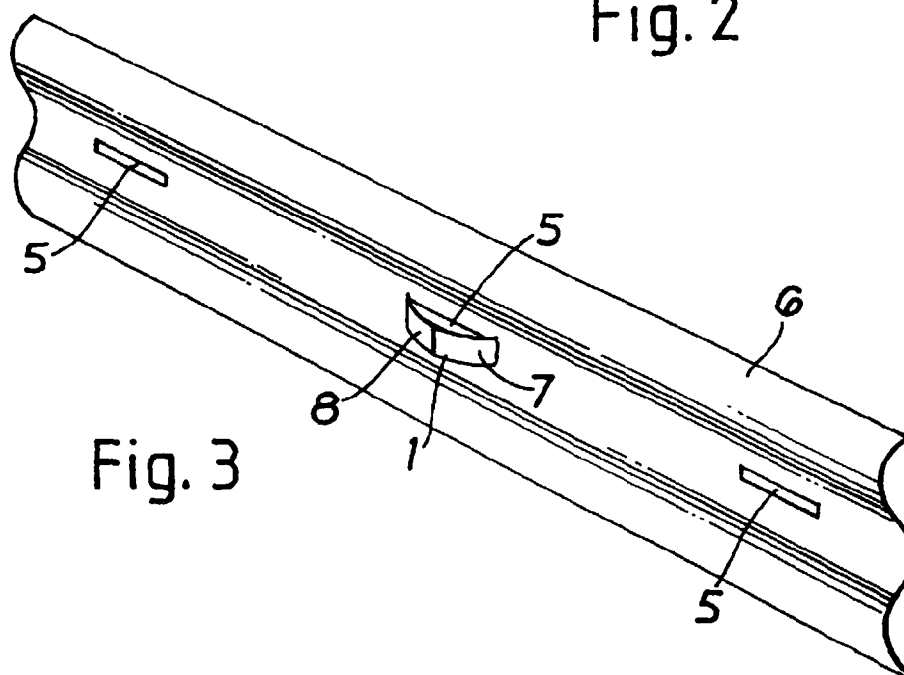


Fig. 3