Abstract: A platform (10) comprising a plurality of generally flat panels (12), each of which is supported on a plurality of generally vertical support legs (14), wherein the panels (12) are formed from a glass reinforced polymer, and each comprise an uppermost side (12a) and a lowermost side (12b), the uppermost side (12b) being spaced from and generally parallel to the lowermost side (12a), there being provided a plurality of connecting webs (12c) extending between and generally perpendicular to the uppermost and lowermost sides (12a, 12b), the connecting webs (12c) forming a plurality of elongate cells between the uppermost side (12a) and the lowermost side (12b) of the panel (12).
5 Description of Invention

The present invention relates to a platform, particularly, but not exclusively for use as a temporary railway station platform.

It is known to provide for access to and from trains in a railway station using a temporary platform whilst the main platform is under construction or repair. This enables passengers to continue using the station whilst the construction/repair works are going on. Such platforms are typically provided in modular form, for easy assembly on site, and may also be used as a permanent installation, for example to extend an existing platform so that access to and from longer trains may be permitted, or for an entirely new platform.

According to a first aspect of the invention we provide a platform comprising a plurality of generally flat panels, each of which is supported on a plurality of generally perpendicular support legs, wherein the panels are formed from a glass reinforced polymer, and each comprise an uppermost side and a lowermost side, the uppermost side being spaced from and generally parallel to the lowermost side, there being provided a plurality of connecting webs extending between and generally perpendicular to the uppermost and lowermost sides, the connecting webs forming a plurality of elongate cells between the uppermost side and the lowermost side of the panel.

Each support leg is preferably connected to the panels via an intervening connecting beam, the connecting beam extending generally perpendicular to the support leg. In this case, the connecting beam is preferably secured to an uppermost end of the support leg and to the lowermost surface of the panel. Moreover, the connecting beam preferably extends and is connected to
adjacent panels, and thus provides means for preventing movement of one panel relative to its adjacent panel.

Each support leg may be secured to two connecting beams, the first connecting beam being secured to an end of a first panel, and the second connecting beam being secured to an adjacent end of a second panel. By virtue of this arrangement, each supporting leg can provide support for two panels.

The support legs may be formed from a glass reinforced polymer, and may have a generally H-shaped transverse cross-section.

According to a second aspect of the invention we provide a kit for assembly into a platform, the kit comprising a plurality of generally flat panels, a plurality of support legs, wherein the panels are formed from a glass reinforced polymer, and each comprises an uppermost side and a lowermost side, the uppermost side being spaced from and generally parallel to the lowermost side, there being provided a plurality of connecting webs extending between and generally perpendicular to the uppermost and lowermost sides, the connecting webs forming a plurality of elongate cells between the uppermost side and the lowermost side of the panel.

An embodiment of the invention will now be described by way of example with reference to and as shown in the accompanying drawings of which,

FIGURE 1 shows a plan view of a platform according to the invention,

FIGURE 2 shows a side view of a platform shown in Figure 1 from the direction marked X in Figure 1,

FIGURE 3 shows a side view of the platform shown in Figure 1 from the direction marked Y in Figure 1,
FIGURE 4 shows a cross-section through a portion of the platform shown in the preceding figures along the line marked Z in Figure 1,

FIGURE 5 shows an enlarged side view of a portion of an alternative embodiment of platform, and

FIGURE 6 shows an enlarged side view of a portion of a further alternative embodiment of platform.

Referring now to the figures, there is shown a platform 10 comprising a plurality of elongate, rectangular, generally flat panels 12, each of which is supported on a plurality of generally vertical support legs 14. The longitudinal axes of the panels extend along the length of the platform, i.e. when the platform is used as a railway platform, generally parallel to the railway line the platform is designed to serve. The panels 12 each comprise an uppermost side 12a and a lowermost side 12b, the uppermost side 12a being spaced from and generally parallel to the lowermost side 12b. A plurality of connecting webs 12c extend between and generally perpendicular to the uppermost and lowermost sides 12a, 12b, the connecting webs 12c forming a plurality of elongate cells between the uppermost side 12a and the lowermost side 12b of the panel 12. As illustrated in Figure 3, in this example each panel 12 is provided with three connecting webs 12c which divide the space between the uppermost side 12a and the lowermost side 12b into four cells each of which has a generally square transverse cross-section, and extends longitudinally along the length of the platform 10.

In order to prevent vertical movement of one panel 12 relative to an adjacent panel 12 when loaded, the panels 12 may be provided with an engagement formation 12d which interlocks with a corresponding engagement formation 12d. In one such embodiment, illustrated in Figure 5, the engagement formation 12d comprises extensions of the uppermost 12a and lowermost 12b sides which extend from one of the longitudinal edges of the panel 12 along
the entire length of the panel. The uppermost 12a and lowermost 12b sides at
the other longitudinal edge do not extend beyond the end connecting web 12c
and are provided with recesses in which the extensions of the uppermost 12a
and lowermost 12b sides of the adjacent panel 12 fit. It will be appreciated,
therefore, that adjacent panels 12 are connected along their longitudinal edges
by means of a "tongue and groove" type formation.

In an alternative embodiment illustrated in Figure 6, the extension of the
uppermost side 12a is provided along a first one of the longitudinal edges of
each panel 12 whilst the extension of the lowermost side 12b is provided along
the other (second) longitudinal edge. Recesses are provided in the lowermost
side 12b of the first edge and the uppermost side 12a of the second edge so
that the extension of an adjacent panel can fit into each recess.

It will be appreciated that overlapping an extension of one panel 12 with an
adjacent panel 12 in these ways ensures that a vertical force acting on one
panel 12 will be transferred to the adjacent panel 12 and that vertical
movement of one panel 12 relative to an adjacent panel will be restricted or
prevented. Locating each extension in a recess ensures that the uppermost
surface of the platform, on which people are intended to walk, is as smooth as
possible and the extensions do not provide a trip hazard to a person walking
on the platform.

Each support leg 14 is connected to an end of a panel 12 via an intervening
connecting beam 16, the connecting beam 16 extending generally horizontally
from front to back of the platform 12, i.e. generally perpendicular to the
longitudinal axes of the panels 12. As such, each connecting beam 16
connects adjacent panels 12, and thus provides means for preventing
movement of one panel 12 relative to its adjacent panel 12.

In this example, each connecting beam 16 has a generally C shaped
transverse cross-section, and has a generally vertically extending portion 16a
which is secured to an uppermost end 14a of a support leg 14, and an uppermost generally horizontally extending portion 16b to the lowermost surface 12b of the panel 12. Further support for the connecting beam 16 is provided by an L-shaped support member 18 which has a first portion 18a which is secured to the support leg 14, and a second, generally perpendicular portion 18b which is secured to the lowermost horizontally extending portion 16c of the connecting beam 16.

The connecting beam 16 and L-shaped support member 18 are, in this example, secured together and to the support leg 14 / panel 12 by means of Rivnuts™, but any other standard fastener such as a bolts could be used instead. The support legs 14 have a generally H-shaped transverse cross-section, the two generally parallel side portions extending parallel to the connecting beam 16, and the central connecting portion extending generally perpendicular to the connecting beam 16. Each connecting beam 16 is secured to one of the side portions at the first end 14a of each support leg 14 by means of six Rivnuts™, three being provided on one side of the central connecting portion, and three on the other.

As illustrated in Figures 2 and 4, each support leg 14 is, in this example, secured to two connecting beams 16, the first connecting beam 16 being secured to a first side portion of the supporting leg 14, and the second connecting beam 16 being secured to an adjacent end of a second panel 12, and to the opposite side portion of the supporting leg 14. As such, each supporting leg 14 provides support for two panels 12.

The lowermost end 14b of each supported leg 14 is secured to the ground using two L-section base parts 20 which are welded to a galvanised steel, generally square base plate 22. The base plate 22 is secured to a concrete anchor embedded in the ground by means of two anchor pins 24, whilst a perpendicular upright portion of each of the L-section base parts 20 is bolted to
one of the side portions at the lowermost end portion 14b of the support leg 14. The bolts by means of which the support leg 14 is secured to the ground are located in a generally circular aperture provided in the support leg 14 and a vertically extending slot in the upright of the base plate 22. The provision of such a vertically extending slot allows for a degree of adjustment to the distance between the ground and the uppermost end 14a of the support leg 14, and therefore the height of the platform above the ground. In order to support the support leg 14 in a raised position, rather than simply rely on the force of the nut and bolts securing the support leg 14 to the base parts 20 to retain the platform in the raised position, packers 26, which may be made from plastic, are preferably placed underneath the support leg 14 between the base parts 20, as illustrated in Figure 4. This is particular advantageous to accommodate variations in height of the ground on which the platform 10 is erected.

Similar means may be provided to facilitate horizontal adjustment of the position of the support leg 14 relative to the concrete anchor. In this case, the pin or stud by means of which the base plate 22 is secured to the concrete anchor is located in an elongate slot in the base plate 22.

One or all of the panels 12, support legs 14, connecting beams 16, and support flanges 18 may be formed from a glass reinforced polymer (GRP) such as glass fibre reinforced isophalic polyester or vinylester. In this example, all these components are manufactured from GRP, and are made by pultrusion. The use of GRP is advantageous as the resulting components are relatively lightweight, and therefore easy to transport and assemble on site. An additional advantage of GRP is that holes for receiving fasteners such as Rivnuts™ or bolts can be drilled on-site, and need not be pre-formed. This means that there is some degree of flexibility in the precise position of the components of the platform relative to one another, which is useful in accommodating irregularities in the ground on which the platform is
assembled. Moreover, systems can also be prefabricated in large units in the factory, which reduces the time spent on site installing the structure.

Moreover, the GRP panels 12 can readily be provided with an antiskid surface, such as one formed using a mixture of epoxy resin and a carbide grit, directly onto the uppermost surface 12a of each panel. There is no need to glue a separate antiskid surface onto a support panel 12, for example.

When used in this specification and claims, the terms "comprises" and "comprising" and variations thereof mean that the specified features, steps or integers are included. The terms are not to be interpreted to exclude the presence of other features, steps or components.

The features disclosed in the foregoing description, or the following claims, or the accompanying drawings, expressed in their specific forms or in terms of a means for performing the disclosed function, or a method or process for attaining the disclosed result, as appropriate, may, separately, or in any combination of such features, be utilised for realising the invention in diverse forms thereof.
CLAIMS

1. A platform comprising a plurality of generally flat panels, each of which is supported on a plurality of generally vertical support legs, wherein the panels are formed from a glass reinforced polymer, and each comprise an uppermost side and a lowermost side, the uppermost side being spaced from and generally parallel to the lowermost side, there being provided a plurality of connecting webs extending between and generally perpendicular to the uppermost and lowermost sides, the connecting webs forming a plurality of elongate cells between the uppermost side and the lowermost side of the panel.

2. A platform according to claim 1 wherein each support leg is connected to the panels via an intervening connecting beam, the connecting beam extending generally perpendicular to the support leg.

3. A platform according to claim 2 wherein the connecting beam is secured to an uppermost end of the support leg and to the lowermost surface of the panel.

4. A platform according to claim 3 wherein the connecting beam extends and is connected to at least two adjacent panels.

5. A platform according to any one of claims 2 to 4 wherein each support leg is secured to two connecting beams, the first connecting beam being secured to an end of a first panel, and the second connecting beam being secured to an adjacent end of a second panel.

6. A platform according to any preceding claim wherein the support legs are formed from a glass reinforced polymer.

7. A platform according to any preceding claim wherein the support legs have a generally H-shaped transverse cross-section.
8. A kit for assembling into a platform, the kit comprising a plurality of generally flat panels, a plurality of support legs, wherein the panels are formed from a glass reinforced polymer, and each comprise an uppermost side and a lowermost side, the uppermost side being spaced from and generally parallel to the lowermost side, there being provided a plurality of connecting webs extending between and generally perpendicular to the uppermost and lowermost sides, the connecting webs forming a plurality of elongate cells between the uppermost side and the lowermost side of the panel.

9. A platform substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

10. A kit for assembling a platform substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

11. Any novel feature or novel combination of features described herein and/or in the accompanying drawings.
**INTERNATIONAL SEARCH REPORT**

**A. CLASSIFICATION OF SUBJECT MATTER**

INV. B61B1/02 E01I/00

According to International Patent Classification (IPC) onto both national classification and IPC.

**B. RELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

B61B E01F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
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<th>Category</th>
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<th>Relevant to claim No</th>
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<td>US 2006/037155 A1 (SZEKELY KENNETH E J [CA]) 23 February 2006 (2006-02-23) paragraphs [0014], [0015], [0043], [0044], [0051], [0059] - [0062]; figures 1-9</td>
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<td>A</td>
<td>GB 2 336 611 A (REA DEREK WILLIAM [GB]) 27 October 1999 (1999-10-27) abstract; figures 1-6</td>
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**D**

Further documents are listed in the continuation of Box C

- Special categories of cited documents
  - "A" later document published after the international filing date and not in conflict with the application but cited to understand the principle or theory underlying the invention
  - "D" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
  - "F" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
  - "S" document member of the same patent family

Date of the actual completion of the international search

5 May 2009

Date of mailing of the international search report

12/05/2009

Name and mailing address of the ISA/

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Authorized officer

Fuchs, Aloïse

Form PCT/ISA/218 (second ed.) (April 2002)
This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. □ Claims Nos., because they relate to subject matter not required to be searched by this Authority, namely

2. [X] Claims Nos. 9-11 because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically

   see FURTHER INFORMATION sheet PCT/ISA/210

3. □ Claims Nos.; because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

This International Searching Authority found multiple inventions in this international application, as follows:

1. □ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims

2. □ As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees

3. □ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.

4. □ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims, it is covered by claims Nos.

Remark on Protest

□ The additional search fees were accompanied by the applicant’s protest and, where applicable, the payment of a protest fee

□ The additional search fees were accompanied by the applicant’s protest but the applicable protest fee was not paid within the time limit specified in the invitation

□ No protest accompanied the payment of additional search fees
Continuation of Box 11.2

Claims Nos.: 9-11

Claims 9-11 make merely reference to the drawings, without defining further features of the claimed subject-matter.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2)PCT declaration be overcome.
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