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(71) Applicant: **Vencel Resil Limited**
Belvedere, Kent. DA17 6BG (GB)

(72) Inventors:
- **Walker, Adrian**
  Howden, E. Yorks DN14 7EE (GB)
- **Freake, Robert Graham**
  Chelmsford, Essex CM3 3DR (GB)

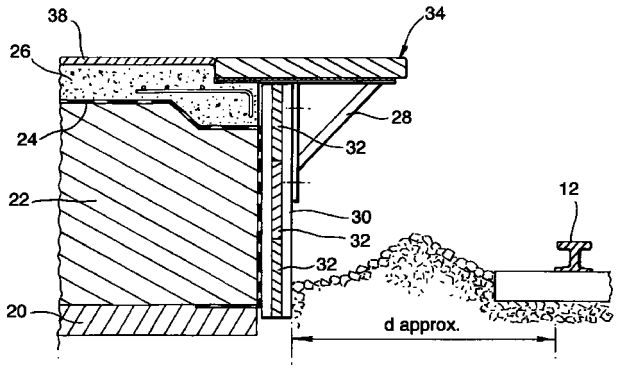
(74) Representative:
Nettleton, John Victor et al
Abel & Imray
20 Red Lion Street
London WC1R 4PQ (GB)

(54) Construction of trackside platforms

(57) A method of constructing a trackside platform for a railway, a tramway or the like, comprises:

providing blocks (22) of expanded polystyrene at the trackside in a configuration corresponding generally to the shape and position of the platform to be constructed; and
surfacing the top and sides of the polystyrene blocks in stronger, more durable material (26, 32).

Fig.3G.



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Description

[0001] This invention relates to the constructions of trackside platforms for railways, tramways or the like.

[0002] Strict safety rules are enforced for the safety of persons involved in construction work at the trackside of a railway. For example, when work is undertaken very close to a railway track, a barrier is erected to prevent access to the track and all traffic on the track is stopped during the work. Stopping all traffic on the track, however, represents a financial loss to the company using the track and therefore it is important that the time for which all traffic is stopped should be kept low.

[0003] On the other hand, when a trackside platform is being constructed, the workers have to work close to the track because that is the very position in which it is desired to place the platform.

[0004] It is an object of the invention to provide a method of constructing a trackside platform which reduces the need to stop all traffic on the adjacent track for an extended period.

[0005] The present invention provides a method of constructing a trackside platform for a railway, a tramway or the like, comprising:

> providing blocks of expanded polystyrene at the trackside in a configuration corresponding generally to the shape and position of the platform to be constructed; and
> surfacing the top and sides of the polystyrene blocks in stronger, more durable material.

[0006] Such a method has the advantage that because expanded polystyrene is a very light material used in a pre-fabricated form it is very quickly and easily laid in position so that construction work can proceed rapidly. In contrast, the construction of a trackside platform entirely in a conventional building material such as concrete would take much longer to accomplish. Thus, the invention enables work to proceed more quickly, so reducing the time for which traffic has to be stopped on the track. A further advantage of the invention is that it is relatively easy to dismantle the platform so constructed, should it be decided that it is no longer required. Yet another advantage is that the lightness of the construction enables the platform to be built on land of low load-bearing capacity.

[0007] Preferably, the top and sides of the blocks are surfaced using concrete. That provides a relatively inexpensive construction.

[0008] Advantageously, the method comprises using only pre-fabricated components for parts of the platform within a predetermined distance of the nearest rail and fitting the said pre-fabricated parts whilst stopping traffic on the track. By this means, traffic is stopped for the operations requiring the workers to be closest to the track and the use of pre-fabricated components keeps the time for which traffic is stopped relatively short.

[0009] The method may include applying surfacing material to the top of the expanded polystyrene blocks at locations further than a predetermined distance from the nearest rail whilst permitting traffic on the track but preventing access thereto by construction workers by means of a barrier. By this means, for much of the construction, work can proceed without stopping traffic on the track.

[0010] The method may include preparing the ground for the blocks, and laying the blocks whilst permitting traffic on the track but preventing access thereto by construction workers by means of a barrier at a predetermined distance from the nearest rail. Again, much of the construction work can proceed without stopping traffic on the track.

[0011] The step of preparing the ground may include preparing a formation level. That provides a simple, quick and relatively inexpensive foundation for the blocks.

[0012] It is preferred that the predetermined distance be 4 feet (1220 millimetres). This distance gives an adequate level of safety, enables the platform to be placed sufficiently close to the track, and yet allows work to proceed whilst keeping the interruption to traffic low.

[0013] The method may include fitting cantilevered coping members to the or each trackward edge of the blocks to provide a safety recess under the platform edge. Such members are readily available commercially.

[0014] The method preferably includes using a recess provided at the top of the or each trackward edge of the blocks to accommodate an inner edge portion of the coping members. Such a construction facilitates the fitting of the coping members.

[0015] The method may include casting surfacing material **in situ** on the top of the said blocks. Such a step is simple and relatively inexpensive. A further, hard wearing, layer of material, such as asphalt, may be provided on top of the cast layer if desired.

[0016] The surfacing material may be fibre-mesh reinforced concrete. Such material is both strong and relatively inexpensive.

[0017] Preferably, a geomembrane is provided between the said blocks and the surfacing material. Such a membrane helps prevent damage from chemical spillage and can, when a suitable material is used, provide a measure of fire protection.

[0018] Advantageously, the method includes attaching metal brackets to the surfacing material and using the brackets for fixing components on the or each trackside edge of the blocks. Brackets enable the trackside components to be fixed relatively quickly so keeping low the disruption to traffic on the adjacent track.

[0019] The method may include fixing the brackets to the surfacing material by means of bolts. The bolts may be embedded in the above-mentioned layer cast **in**

situ and provide a particularly simple means of fixing the brackets.

[0020] Advantageously, the method includes using each metal bracket to fix both a facing component and a coping component. Such a construction is particularly economical.

[0021] The method may include using facing components in the form of inter-locking facing panels on the or each trackward side of the blocks. The inter-locking panels provide a weatherproof surface for the blocks.

[0022] The method may include using spaced-apart facing posts on the or each trackward side of the blocks and sliding facing panels, interlocking with the posts into the spaces between the posts. The sliding in of the panels is quickly accomplished and may take place sufficiently far from the nearest rail for traffic to be allowed on the track while the panels are being positioned. The panels may be pre-cast concrete planks.

[0023] Instead, facing components may be fixed to the two opposite sides of the blocks by means of fixing rods passing through the blocks. In this construction, no brackets are required for fixing the facing components.

[0024] The invention is applicable to a platform constructed at a location where there is an adjacent track on only one side or to a platform constructed at a location with an adjacent track on each side.

[0025] The invention also provides a trackside platform constructed by a method according to the invention.

[0026] In particular, the platform may be a railway platform.

[0027] The construction of trackside platforms in accordance with the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 illustrates diagrammatically the use of a first set of safety regulations;

Figure 2 illustrates diagrammatically the use of a second set of safety regulations;

Figures 3A to 3E show steps in a first method of constructing a trackside platform according to the invention;

Figure 3F shows a detail of the construction of the first method;

Figure 3G shows a typical cross-section through the construction of the first method;

Figures 4A to 4D show steps in a second method of constructing a trackside platform according to the invention;

Figure 4E shows a detail of the construction of the second method; and

Figure 4F shows a typical cross-section through the construction of the second method.

[0028] Referring to the accompanying drawings, methods of constructing a platform at a location where there is an adjacent track on only one side will now be described.

[0029] The use of a first set of safety regulations termed "safe system of work type A" is illustrated in Figure 1. Two adjacent railway tracks 2 and 4 are shown and a construction site 6. A site fence 8 is erected between the tracks 2, 4 and the construction site 6 to provide a barrier between construction workers 10 and the railway tracks 2 and 4. The fence 8 is spaced a predetermined distance **d** from the nearest rail 12, **d** being four feet (1220 millimetres). On the closer track 2 to the construction site 6, traffic is permitted to move at a speed of forty miles per hour or less. On the more distant track 4, no speed restriction is imposed.

[0030] A second set of safety regulations termed "safe system of work type B" is illustrated in Figure 2 which corresponds generally to Figure 1 except that the site fence 8 is replaced by a site fence 8' located between the tracks 2 and 4 and spaced a distance **d'**, either four feet (1220 millimetres) or six feet six inches (2000 millimetres) from the nearest rail 14 of the track 4. No traffic is permitted on the track 2. On track 4, traffic is restricted to a speed of forty miles per hour or less if **d'** is four feet (1220 millimetres0 and no speed restriction is imposed if **d'** is six feet six inches (2000 millimetres).

[0031] Figure 3A shows a first step in a first method according to the invention. Under safe system of work type A, a formation level 20, for example, based on sand with the addition of some cement, is prepared close to the site fence within the safe fenced area and blocks of expanded polystyrene 22 are laid on the prepared formation level 20 at the trackside in a configuration corresponding generally to the shape and position of the platform to be constructed. Only one such block is shown in the drawings, further blocks are added in line according to the length of platform required, the end blocks sloping away to ground level in the usual manner for a trackside platform.

[0032] Figure 3B shows the second step in which, under safe system of work type A, a protective geomembrane 24 is applied to the blocks 22 and a glass fibre reinforced concrete slab 26 is cast **in situ** on the top of the blocks 22. The slab 26 includes additional steel reinforcement (not shown) and bolts (not shown) for fastening brackets to the described shortly.

[0033] Figure 3C shows the third step in which, under safe system of work type B, steel support brackets 28 and slotted concrete posts 30 are installed on the trackward side of the platform.

[0034] Figure 3D shows the fourth step in which, under safe system of work type A, pre-cast concrete facing panels 32 are slid into position in grooves in the posts 30.

[0035] Figure 3E shows the fifth and sixth steps in which, under safe system of work type B, coping stones 34 are mounted on the brackets 28 in a recess 36 provided in the trackward edge of the blocks 20. Under safe system of work type A, a hot rolled asphalt wearing course 38, for example, an asphalt or concrete finish, is provided on the top surface of the platform.

[0036] The remaining side of the platform is faced with concrete either cast **in situ** or applied as pre-fabricated panels (not shown). The ends of the platform are treated similarly.

[0037] Figure 4A shows a first step in second method according to the invention. Under safe system of work type A, a formation level 40, for example, based on sand with the addition of some cement, is prepared close to the site fence within the safe fenced area and blocks of expanded polystyrene 42 are laid on the prepared formation level 40 at the trackside in a configuration corresponding generally to the shape and position of the platform to be constructed. Only one such block is shown in the drawings, further blocks are added in line according to the length of platform required, the end blocks sloping away to ground level in the usual manner for a trackside platform.

[0038] Figure 4B shows the second step in which, under safe system of work type A, a protective geomembrane 44 is applied to the blocks 42 and a glass fibre reinforced concrete slab 46 is cast **in situ** on the top of the blocks 42. The slab 46 includes additional steel reinforcement (not shown) and bolts (not shown) for fastening brackets to the described shortly.

[0039] Figure 4C shows the third step in which, under safe system of work type B, steel support brackets 48 and interlocking pre-cast concrete panels 50 are installed on the trackward side of the platform.

[0040] Figure 4D shows the fourth and fifth steps in which, under safe system of work type B,

[0041] Figure 3E shows the fifth and sixth steps in which, under safe system of work type A, coping stones 54 are mounted on the brackets 48 in a recess 56 provided in the trackward edge of the blocks 40. A hot rolled asphalt wearing course 58 is provided on the top surface of the platform.

[0042] The remaining side of the platform is faced with concrete either cast **in situ** or applied as pre-fabricated panels (not shown). The ends of the platform are treated similarly.

[0043] Some typical dimensions are given below by way of example:

[0044] Position of the platform edge relative to the nearest running rail: 730 to 771 millimetres horizontally and 915 metres vertically.

[0045] Refuge space under the platform edge: at least 300 millimetres wide and 480 millimetres high for the full length of the platform.

[0046] Concrete slab cast **in situ**: 200 millimetre thick class C30 concrete.

[0047] Coping stones: 394 to 435 millimetres overlying the platform, 479 to 520 millimetres overhanging the platform edge.

[0048] If the platform is to be constructed as an island platform between two tracks, coping stones would be provided on both sides.

[0049] Instead of concrete, a known asbestos substitute could be used for facing the sides of the platform.

[0050] The invention is applicable to many different sorts of trackside platform including tramways and overground sections of an underground railway.

Claims

1. A method of constructing a trackside platform for a railway, a tramway or the like, comprising:

   providing blocks of expanded polystyrene at the trackside in a configuration corresponding generally to the shape and position of the platform to be constructed; and
   surfacing the top and sides of the polystyrene blocks in stronger, more durable material.

2. A method as claimed in claim 1, wherein the top and sides of the blocks are surfaced using concrete.

3. A method as claimed in claim 1 or claim 2, comprising using only pre-fabricated components for parts of the platform within a predetermined distance of the nearest rail and fitting the said pre-fabricated parts whilst stopping traffic on the track.

4. A method as claimed in any preceding claim, including applying surfacing material to the top of the expanded polystyrene blocks at locations further than a predetermined distance from the nearest rail whilst permitting traffic on the track but preventing access thereto by construction workers by means of a barrier.

5. A method as claimed in any preceding claim, including preparing the ground for the blocks, and laying the blocks whilst permitting traffic on the track but preventing access thereto by construction workers by means of a barrier at a predetermined distance from the nearest rail.

6. A method as claimed in any preceding claim, including fitting cantilevered coping members to the or each trackward edge of the blocks to provide a safety recess under the platform edge.

7. A method as claimed in claim 6, including using a recess provided at the top of the or each trackward edge of the blocks to accommodate an inner edge portion of the coping members.

8. A method as claimed in any preceding claim, including casting surfacing material **in situ** on the top of the said blocks.

9. A method as claimed in any preceding claim, including attaching metal brackets to the surfacing material and using the brackets for fixing components on the or each trackside edge of the blocks.

10. A method as claimed in any preceding claim, including using facing components in the form of inter-locking facing panels on the or each trackward side of the blocks.

11. A method as claimed in any of claims 1 to 15, including using spaced apart facing posts on the or each trackward side of the blocks and sliding facing panels, interlocking with the posts into the spaces between the posts.

12. A method as claimed in of claims 1 to 12, in which facing components are fixed to the two opposite sides of the blocks by means of fixing rods passing through the blocks.

Fig.1.

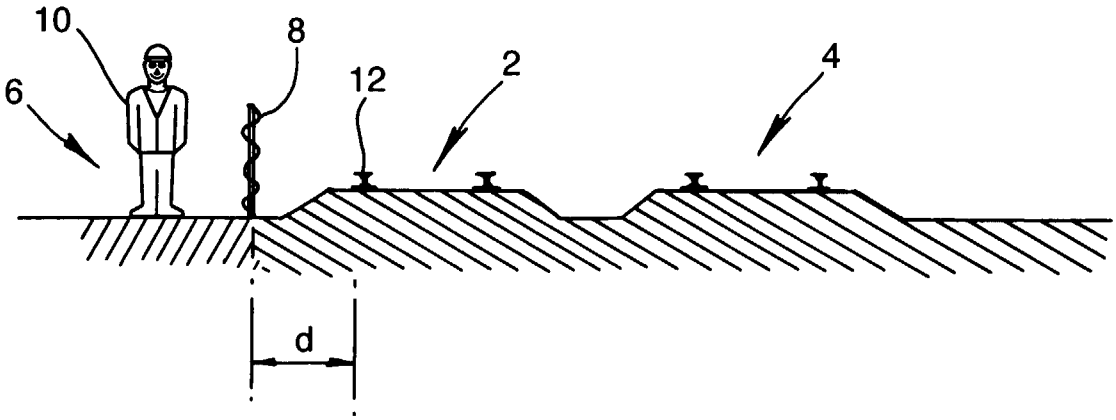


Fig.2.

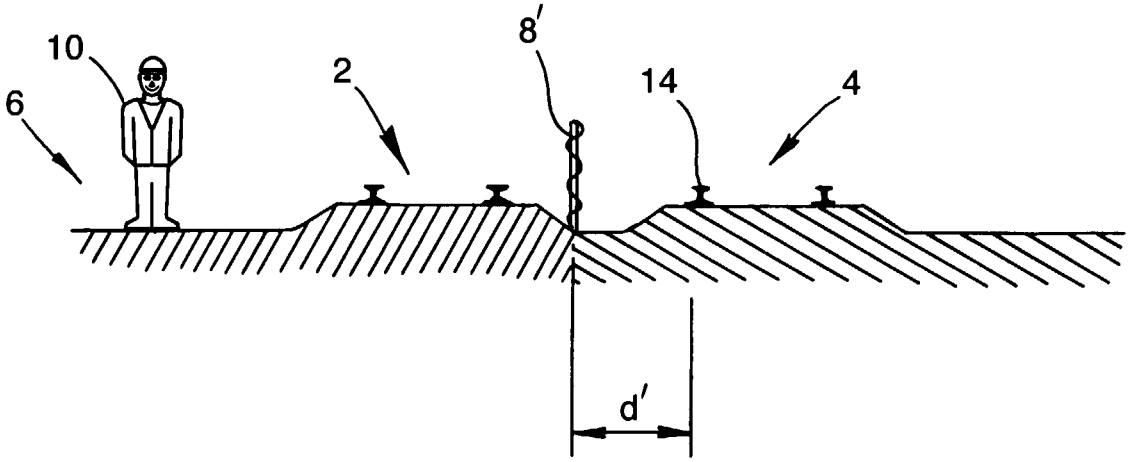


Fig.3A.

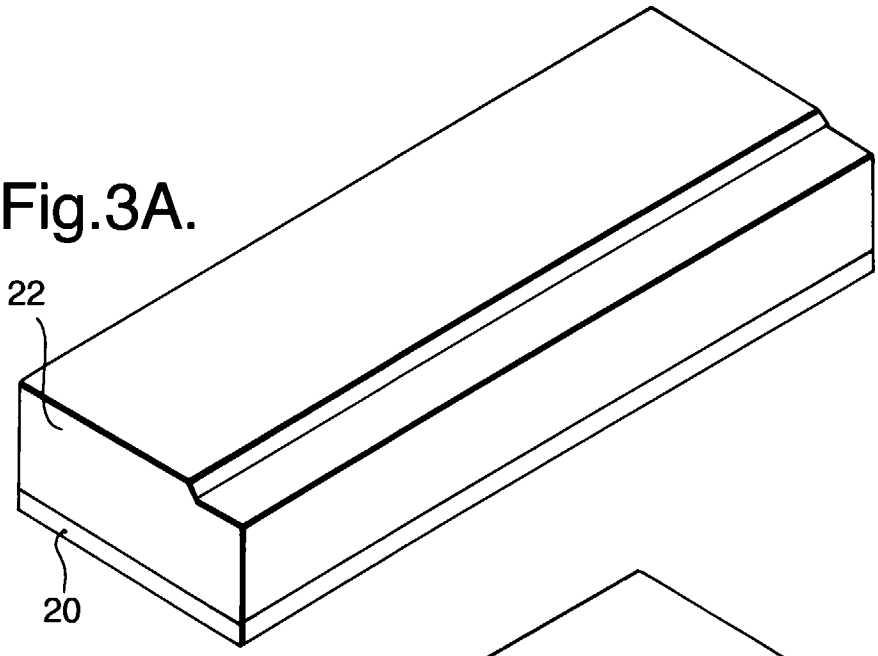


Fig.3B.

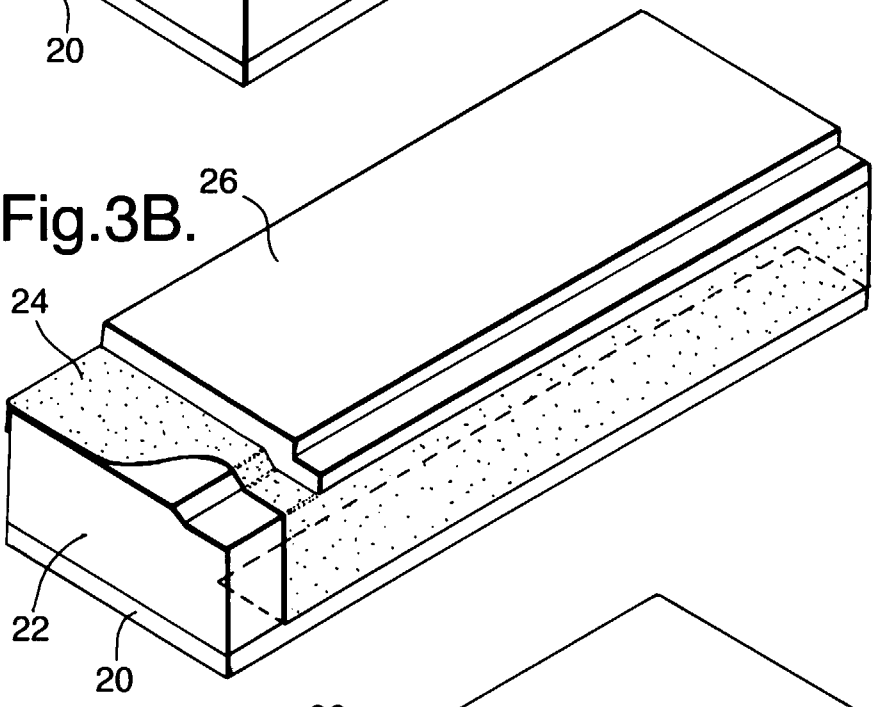


Fig.3C.

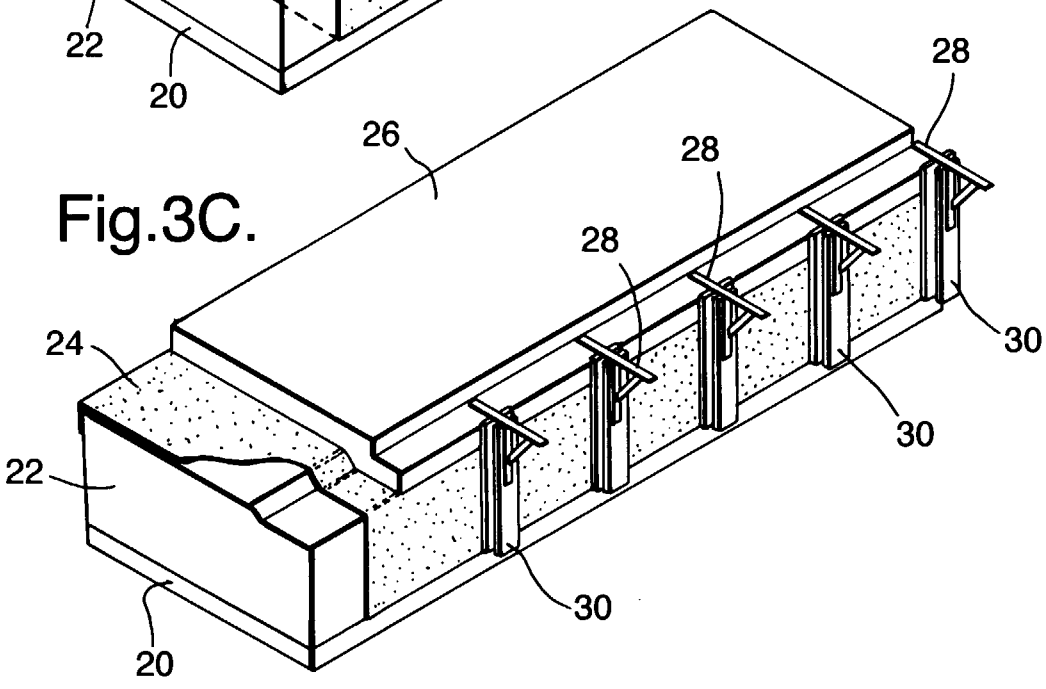


Fig.3D.

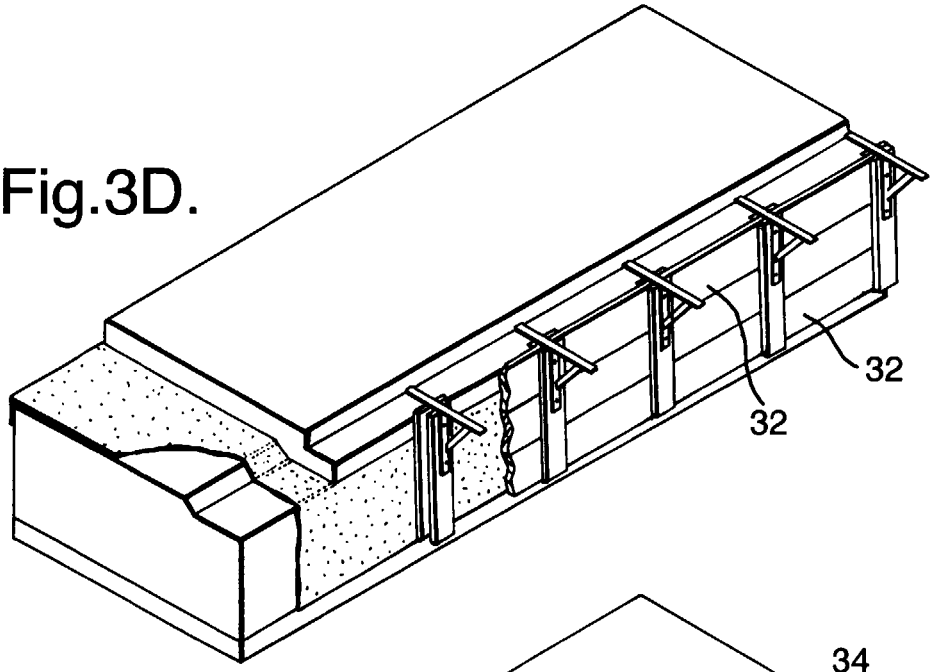


Fig.3E.

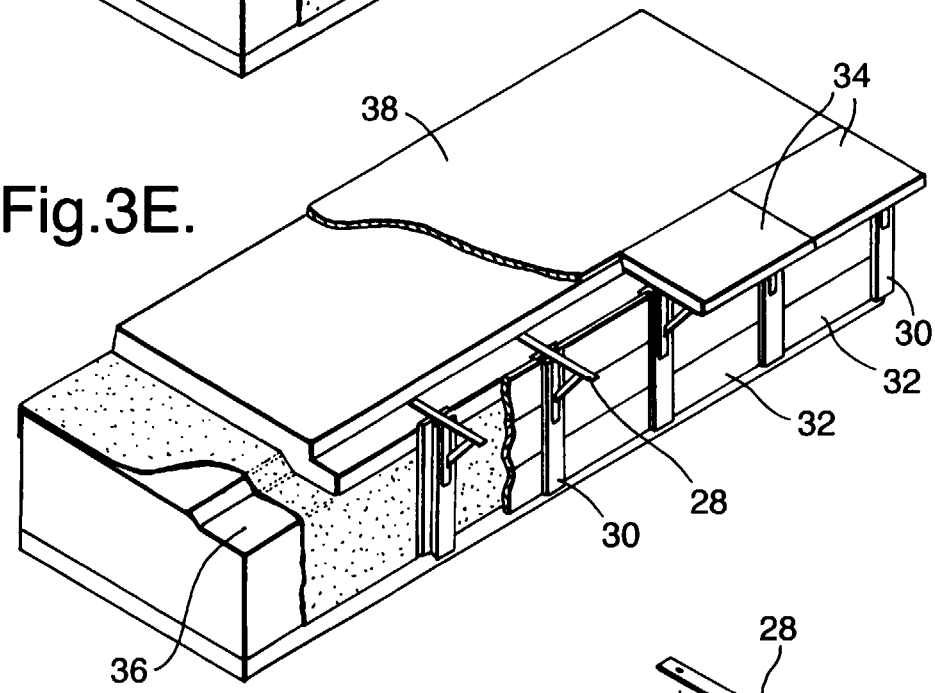


Fig.3F.

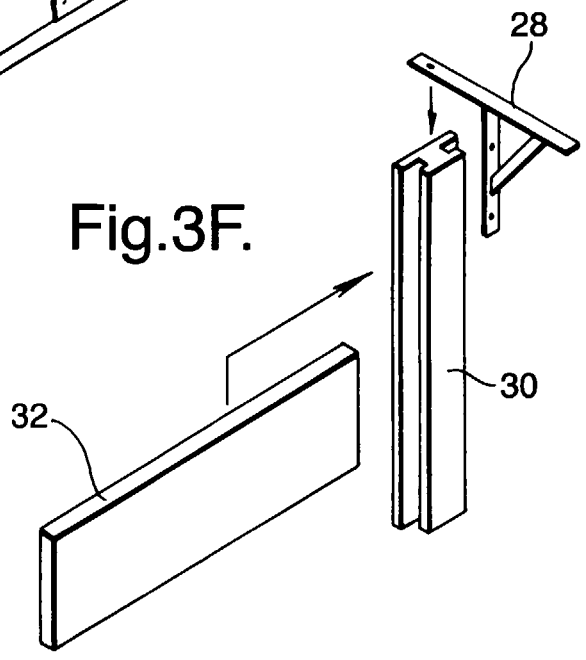


Fig.3G.

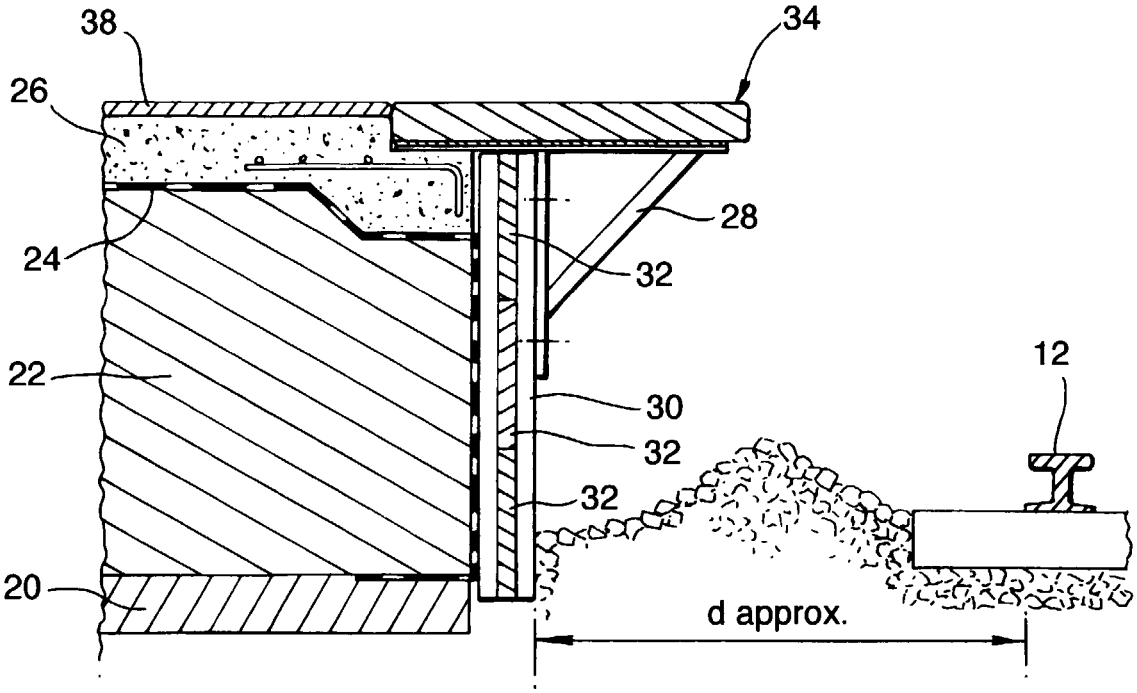
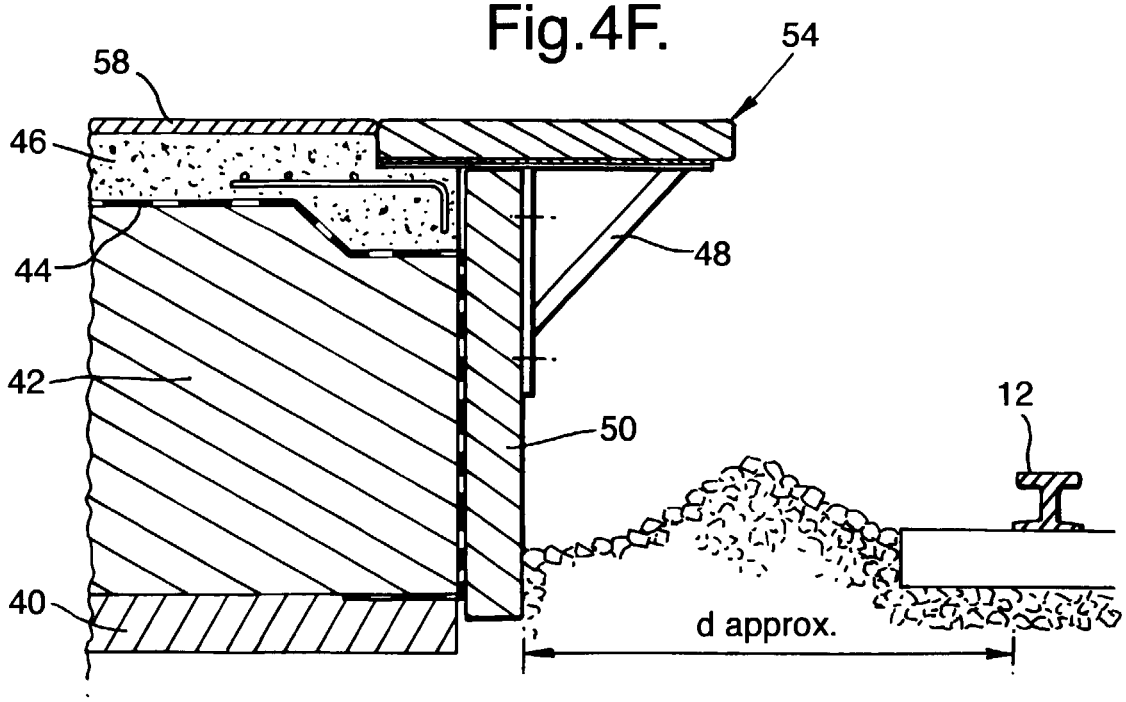

38
34
26
28
24
32
22
12
30
32
32
20
d approx.

Fig.4F.


58
54
46
48
44
42
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40
d approx.

Fig.4A.

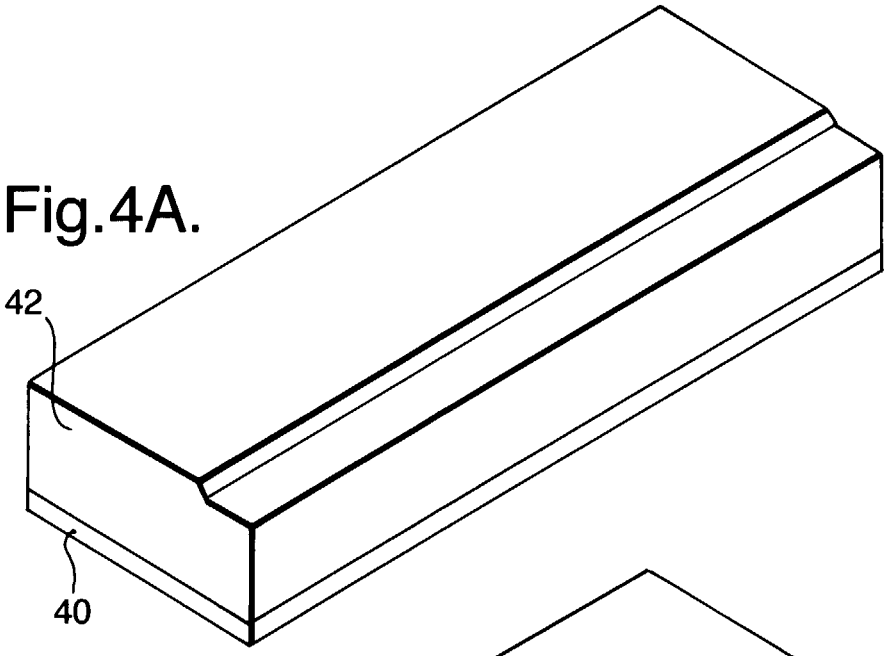


Fig.4B.

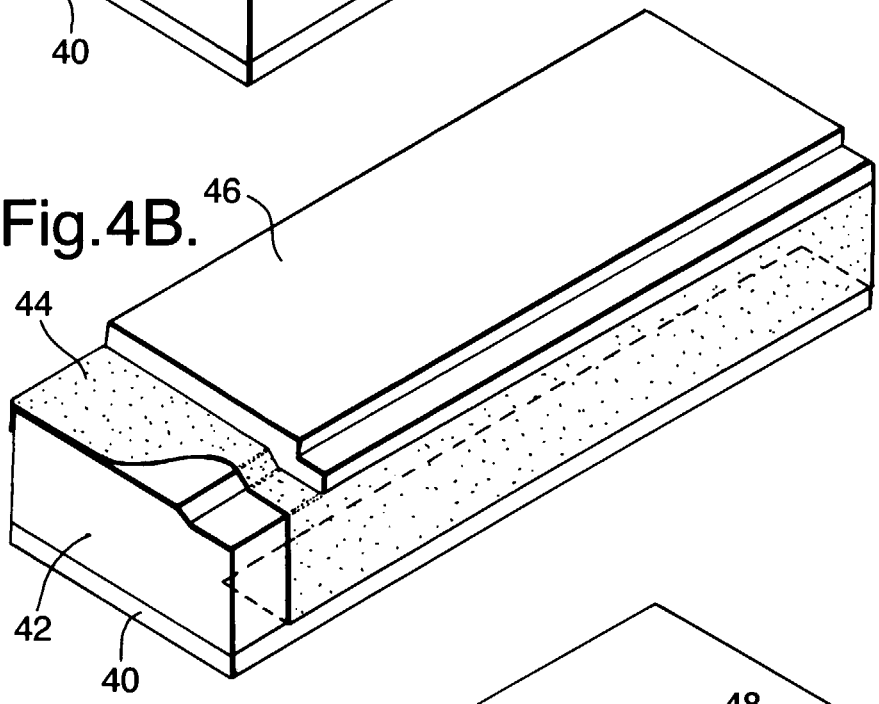


Fig.4C.

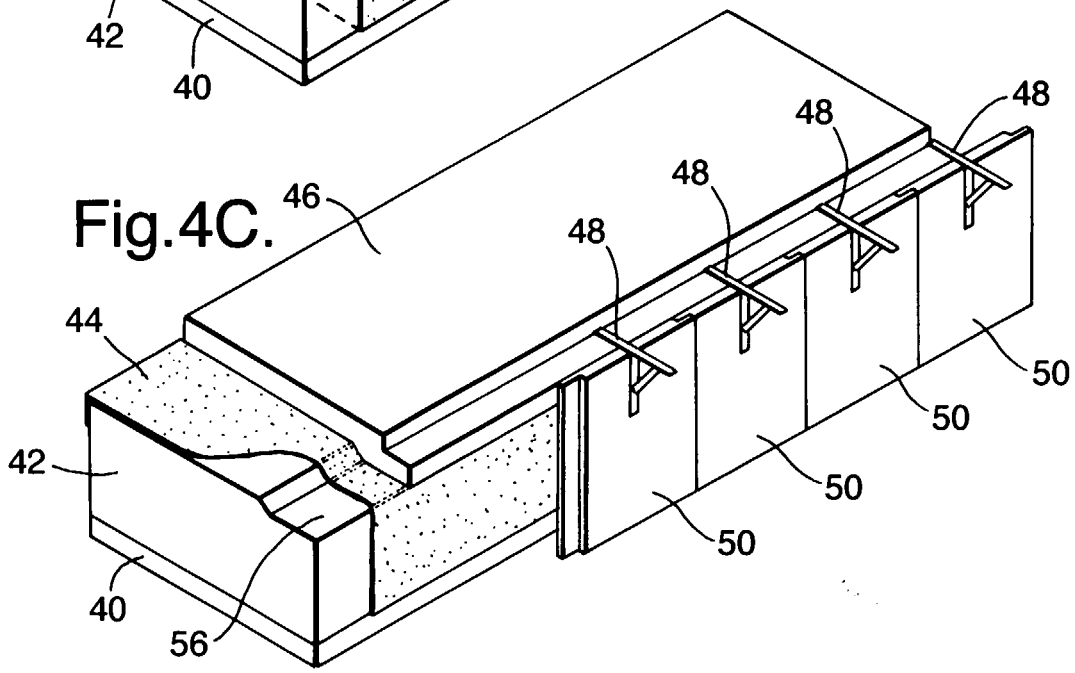


Fig.4D.

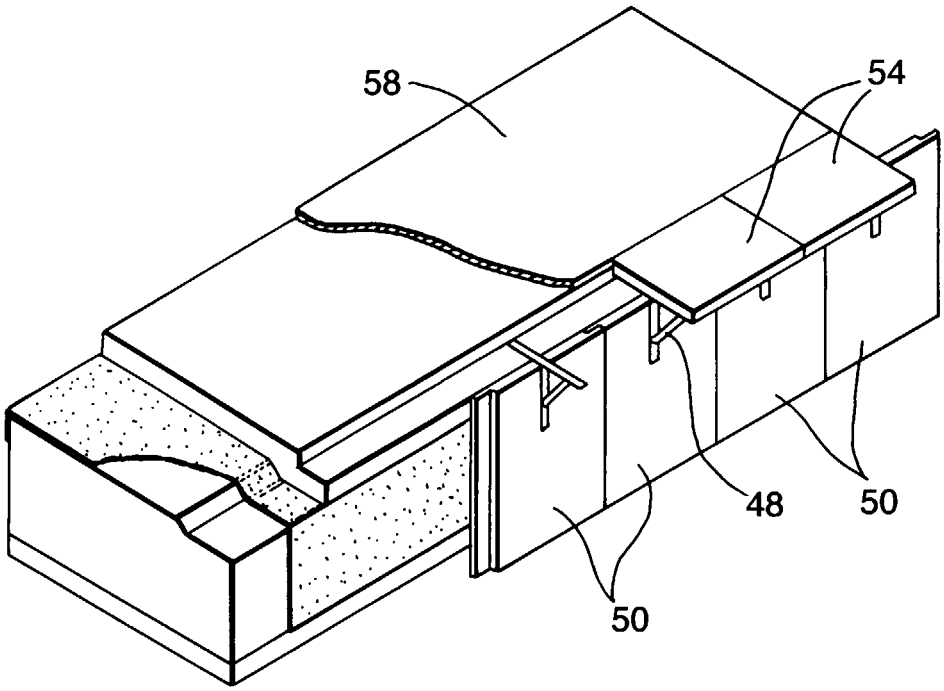
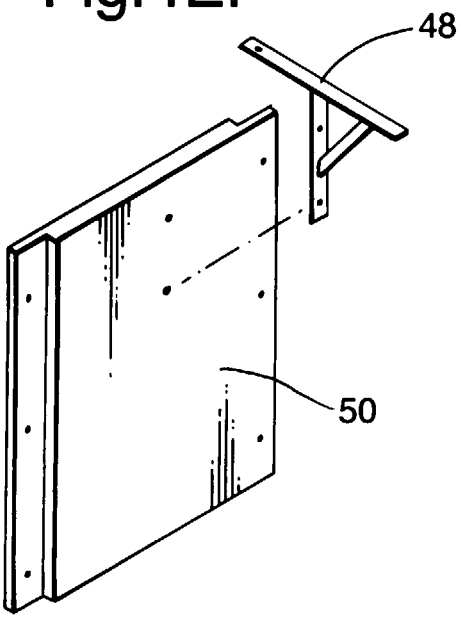


Fig.4E.



European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 8254

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.7)
A	DE 93 04 059 U (STELCON AG ;SCHRECK MIEVES GMBH (DE)) 16 September 1993 (1993-09-16) * page 9, line 12 - page 10, line 9; figure 1 *	1	E01F1/00 B61B1/02

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

E01F
B61B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	8 February 2000	Chlosta, P

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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08-02-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 9304059 U	16-09-1993	NONE	

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