METHOD AND APPARATUS FOR FORMING ADJACENT FLOOR SLABS

Methods and apparatus for forming adjacent floor slabs and, in particular, adjacent floor slabs of cement or concrete are disclosed. One form of such apparatus provides formwork (1) for the edge of a slab (31). Said framework (1) comprising a base region (2) which has extending therefrom an upstand (10), in forms of the invention said upstand being supported by braces. Extending from said upstand (10) is a capping region (4), said capping region (4), in preferred forms, is braced by a member (5). The capping region (4) is preferably removable after said slab (31) is sufficiently set to be self-supporting. The top (6) of the capping region (4) may provide a level for the screeding (30) of said slab (31). In preferred forms of the invention the formwork (1) provides support for force transmitting dowels (20). Said dowels (20) may be supported in apertures (9) through said formwork (1). Other forms of the invention in which said capping region (4) provides resilient nosings for the edge of said slabs (31) are also disclosed.
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"METHOD AND APPARATUS FOR FORMING ADJACENT FLOOR SLABS"

FIELD OF THE INVENTION

This invention relates to methods and apparatus for forming adjacent floor slabs particularly but not solely adjacent floor slabs of concrete.

5 BACKGROUND ART

It is known to provide formwork to enable a floor slab, for example, a concrete floor slab to be poured. It is known to produce this formwork from wood or similar materials. In the past, once a first slab is sufficiently hardened or set the timber formwork can be removed and an adjacent slab poured against the now substantially self supporting first slab.

It is also known to provide dowellings linking the slabs so as to provide some limitation to the relative movement of the slabs and/or to provide for the transmission of loading across the slabs. In the past it has proved difficult to position the dowels so that they are level and held in position when floor slabs are poured.

15 It is an object of at least preferred forms of the present invention to provide a method and apparatus for forming adjacent floor slabs which, at least in part, go some way towards reducing the above mentioned disadvantages and/or which at least provides the public with a useful choice.

DISCLOSURE OF THE INVENTION

20 Accordingly in one aspect the present invention may be said to consist in a method of forming adjacent floor slabs of concrete which comprises:

providing as formwork for an edge of one slab, a composite elongate member that extends substantially horizontally;

a capping region, at least, of said composite member being removable after concrete poured to form one slab on one side of the formwork, providing composite elongate member is self-supportable;

pouring said slab to one side of said formwork, using as a screed support or level the capping region of said formwork;

removing the said capping region of said formwork when said slab screed therefrom is at least substantially self-supportable; and thereafter,
pouring the other slab so that no region of the remainder of said composite elongate member which provided said original formwork projects above the level of either slabs, screeding of the second poured slab being from a surface of said first poured slab.

5 Preferably said elongate member is a plastics member.

Preferably a dowelling assembly is supported by said composite formwork prior to the pouring of either of said slabs.

Preferably said dowelling system is as disclosed in our New Zealand Patent Specification No. 244817 and/or our New Zealand Registered Design No. 24820 the full content of which are hereby incorporated.

In a further aspect the present invention consists in a formwork providing member useful for providing formwork for the pouring of at least one and preferably two substantially contiguous floor slabs, said apparatus comprising:

a first elongate structure having an up-stand, said up-stand being supportable from a lower region, said lower region being substantially self-supporting on a substantially horizontal support surface and/or which can be pinned or otherwise be fixed relative to such a support surface;

a capping member to extend further upwardly from said up-stand but which is itself removable after, preferably, having been used as a screeding support for a slab retained by said composite formwork.

Preferably said capping member includes a region which, by triangulation or otherwise, re-engages with said first mentioned member (preferably at or adjacent a ground support region thereof) so as to substantially resist horizontal loads from a slab being poured or which has been poured.

25 Preferably said composite member includes therethrough openings to receive and, at least in part, support slab to slab dowelling members and/or assemblies.

Preferably the arrangement is as hereinafter described with reference to any one or more of the accompanying drawings.

Preferably said capping member includes an indent, rebate or other region to enable a, screwdriver, cold chisel, hammer claw or similar to be inserted, preferably
after the substantial setting of said (first) slab so as to facilitate the removal of said capping member.

In a still further aspect the present invention consists in a formwork providing member useful for providing formwork for the pouring of at least one and preferably two substantially contiguous floor slabs, said apparatus comprising:

a first elongate structure having an upstand, said upstand being supportable from a lower region, said lower region being substantially self supporting on a substantially horizontal support surface and/or which can be pinned or otherwise be fixed relative to such a support surface;

a capping member extending further upwardly from said upstand but which is itself removable after, preferably, having being used a screening support for a slab retained by said composite form work, said capping member including an indent, rebate or other region to enable a screwdriver, cold chisel, hammer claw or similar to be inserted preferably after the substantial setting or curing of said slab so as to facilitate the removal of said capping member.

Preferably said composite member includes there through openings to receive and, at least in part, support slab to slab dwelling members and/or assemblies.

In still a further aspect the present invention consists in either or both members of any of the composite formwork structures hereinafter described with or without reference to any one or more of the accompanying drawings.

In a further aspect the present invention consists in a method of forming slabs substantially as hereinafter described with reference to any one or more of the drawings.

In yet another aspect the present invention consists in a method of forming adjacent floor slabs of concrete which comprises:

providing as formwork for an edge of one slab, a composite elongate member that extends substantially horizontally;

a capping region, said capping region comprising at least one resilient member; pouring said slab to one side of said formwork;

removing the said capping region of said formwork when said slab screed therefrom is at least substantially self-supportable; and thereafter,
pouring the other slab so that said resilient member(s) of said composite elongate member which provided said original formwork provides protective nosing(s) for either or both slabs.

Preferably said elongate member is a plastics member.

Preferably a dowelling assembly is supported by said composite formwork prior to the pouring of either of said slabs.

Preferably said dowelling system is as disclosed in our New Zealand Patent Specification No. 244817 and/or our New Zealand Registered Design No. 24820. Preferably said resilient member comprises a setable material.

Preferably said setable material has a tensile strength in the range between approximately 20 and 25 N/mm² when set.

Preferably said setable material has a compressive strength in the range between approximately 90 and 100 N/mm² when set.

Preferably said setable material comprises a material selected from the group comprising of epoxy resin, material containing silica sand and mixtures thereof.

Preferably said setable material has a density of approximately 1g/cm³ when set.

In yet another aspect the present invention consists in a formwork providing member useful for providing formwork for the pouring of at least one and preferably two substantially contiguous floor slabs, said apparatus comprising:

a first elongate structure having an up-stand, said up-stand being supportable from a lower region, said lower region being substantially self-supporting on a substantially horizontal support surface and/or which can be pinned or otherwise be fixed relative to such a support surface,

a capping member to extend further upwardly from said up-stand, said capping member being of a resilient material.

Preferably said resilient material comprises a setable material.

Preferably said setable material has a tensile strength in the range between approximately 20 and 25 N/mm² when set.

Preferably said setable material has a compressive strength in the range between approximately 90 and 100 N/mm² when set.
Preferably said setable material comprises a material selected from the group comprising epoxy resin, material containing silica sand and mixtures thereof.

Preferably said capping member is of a two-piece construction, said capping member being attached to said first elongate structure by removable fastening means.

Preferably said removable fastening means can be removed when a first or only slab has been formed by said formwork.

The invention consists in the foregoing and also envisages constructions of which the following gives examples.

**BRIEF DESCRIPTION OF THE DRAWINGS**

One preferred form of the present invention will now be described with reference to the accompanying drawings in which;

Figure 1 is an end elevation of apparatus for forming adjacent floor slabs according to a preferred form of the present invention;

Figure 2 is an end elevation of apparatus for forming adjacent floor slabs according to another form of the present invention;

Figure 3 is an end elevation of apparatus for forming adjacent floor slabs according to yet another (less preferred) form of the present invention;

Figure 4 is a partial perspective view of the removable portion of the form of the invention as shown in Figure 3;

Figure 5 shows the preferred form of the invention as shown in Figure 1, in use, supporting a dowel;

Figure 6 shows apparatus for forming adjacent floor slabs as shown in Figure 5 when used to provide formwork for the edge of a first slab of concrete, said apparatus forming a support or level for the screeding off of said first slab;

Figure 7 shows the apparatus as shown in Figure 6, a removable portion of said apparatus being removed once said first concrete slab is substantially self supporting;

Figure 8 shows the pouring of an adjacent second slab said second slab substantially encasing said apparatus;

Figure 9 is an end elevation of yet another preferred form of the present invention, said preferred form having an unbraced, upright 10 and a cap for having a slot or indent 50, the slot enabling a screwdriver, cold chisel or hammer claw or
similar to be inserted and used to lever or force the end cap away from the set or nearly set concrete slab 31;

Figure 10 shows an end elevation of apparatus as shown in Figure 9 with the slab 31 poured;

Figure 11 shows an end elevation of apparatus as shown in Figures 9 and 10 wherein the end cap 4 is levered away from the now set or nearly so slab 31 by the insertion of an object into the slot 50;

Figure 12 shows an end elevation of apparatus as shown in Figures 9, 10 and 11 wherein the second slab 31 is poured against the first slab 31;

Figure 13 shows an end elevation of a further form of the invention wherein a cut, crack or slot 70 is induced or otherwise produced in the adjoining regions of the slabs 31 and 32, this cut or slot 70 may then be sealed off fullled with various joint sealing apparatus, for example, may be filled with a joint seal substantially as described in our New Zealand Patent Specification No. 247968 and/or New Zealand Patent Specification No. 229154 the content of which are included herein by way of reference, this apparatus involves an element 60 which divides the cut or slot 70 and enables epoxy 61 to fill the gap between the apparatus 60 and the walls of the cut or slot 70;

Figure 14 shows a cross-sectional view of a form of the present invention, said form incorporating support means 51 for holding in place a dowel 20; the dowel 20 is preferably sleeved by a sleeve 100 of a type as disclosed in the co-owned New Zealand Patent Specification No. 244817 and/or New Zealand Registered Design No. 24820;

Figure 15 is an end view of apparatus according to the present invention as illustrated in Figure 14, shown before the pouring of the concrete slab 31, the view shows the support means 51;

Figure 16 shows yet another form of the present invention incorporating support means 51 for the dowels 20 which are preferably sleeved 100, the support means 51 may comprise a simple upright;
Figure 17 shows an end view of another preferred form of the present invention before the pouring of the slab 31, said form of the present invention showing the support of the dowels 20 by means of angle braces 51;

Figure 18 shows yet another preferred form of the present invention in which the capping means 4 is not intended to be removed after the pouring of the slabs, rather the capping means 4 comprises a substantially resilient material such as epoxy 111, said epoxy portions 111 providing nosings for the slabs once poured. The nosings prevent degradation of the edges of the slabs, the nosings are preferably bonded to the slabs such as 31 by means of a retaining or joining means 110, in Figure 18 the retaining or joining means 110 comprises a lattice work; and

Figure 19 shows yet another preferred form of the present invention similar to that illustrated in Figure 19, in the form of the invention as illustrated in Figure 19 the retaining or joining means 110 comprises a spiral spring which is preferably a setable corrosion resistant metal, the retaining or joining means 110 being embedded in the resilient members 111 making up the cap 4.

BEST MODES FOR CARRYING OUT THE INVENTION

A preferred of the present invention consists in a formwork providing member 1. This formwork providing member 1 is useful in providing formwork for the pouring of at least one preferably two substantially contiguous floor slabs.

The formwork apparatus 1 comprises an elongate structure having an up-stand 10. Said up-stand 10 is supportable from a lower region 2. Said lower region 2 may be substantially self-supporting on a substantially horizontal support surface and/or can be pinned or otherwise fixed relative to such a substantially horizontal support surface.

In preferred forms of the invention the substantially horizontal support surface comprises a floor area which has been substantially prepared for the pouring of a concrete slab, for example, by levelling and preferably by the addition of gravel or other similar which are known in the art to which the invention relates.

As shown in at least Figures 14, 16, 18 and 19 the lower region 2 may be supported on a layer of material 50. The layer of material 50 may comprise cement, mortar, epoxy or other suitable adhesives. The layer of material 50 may provide for the levelling of the lower region 2 and may secure it by holding it in place. The lower
portion of the lower region 2 may be roughened to enable it to better stick to the material 50, for example, it may have apertures to enable fastening means such as pins, screws or nails to be inserted therethrough.

Extending further upwardly from said up-stand 10 is a capping member 4. Said capping member 4 is substantially removable, preferably after having been used as a screeding support for a slab. The capping member 4 provides preferably an upper surface 6 which may be used as a screed support or screed level.

Various forms of removal cap 4 are envisaged, for example, the forms as shown in Figures 1, 2 and 3.

In preferred forms of the invention such as shown in Figures 1 and 2 the up-stand 10 is supported or is formed from bracing members 3. These provide for further support particularly when a slab has been poured.

In at least a preferred form of the invention as shown in Figure 1 said capping member 4 includes a region 5 which provides further support to said capping member and preferably said up-stand 10 by means of a re-engagement with said lower support means 2. As shown in Figure 1 in one preferred form of the invention the region 5 interengages with said support region 2 by means of clipping a thickened region 7 into a channel having a narrowed mouth 8. Those skilled in the art to which the invention relates will realise that a variety of forms of engaging the region 5 to the support region or other regions of the apparatus 1 are possible without departing from the scope of the invention.

In forms of the invention the capping member 4 may be of a differing, for example, more or less resilient material.

In preferred forms of the invention there is provided an aperture 9 through the up-stand 10 and any support or bracing region 5. The aperture 9 is preferably sized to allow a dowel 20 to be passed therethrough and be supported thereby. In preferred forms of the invention the dowel is of the form as disclosed in our New Zealand Patent Specification No. 244817 and/or New Zealand Registered Design No. 24820; the full content of which are hereby incorporated by way of reference. The apertures 9 provide support for the dowelling 20 and particularly in forms of the invention which involve a bracing region 5 help to hold the dowelling 20 level.
In forms of the invention as shown in Figures 14, 15, 16, 17, 18 and 19 the dowel may be partially sleeved with, for example, sleeving material as disclosed in the above mentioned co-owned New Zealand Patent Specification and Design Registrations.

In other forms of the invention the dowel 20 may be supported, braced or held in position by means of a support member such as 51. In the forms of the invention as shown, the support members 51 are present on that side of the apparatus on which the first slab 31 is to be poured. This is believed to be preferable as it enables the dowel 20 to be held in position as the slab 31 sets. In other forms of the invention the support member may be present on either the side on which the second or final slab is to be poured or present on both sides.

As shown in Figures 14 and 15 the support member 51 may comprise an upright plate or member having an aperture therethrough. This is believed to provide support for the dowel 20 and prevents the dowel being lifted on the side of the slab first poured 31. In other forms of the invention the support member 51 may comprise a support for the underneath of the dowel 20. One form of this preferred form of the invention as shown in Figure 17 wherein a angled brace 51 supports the dowel 20.

In yet another form the support member 51 may comprise a simple upright which supports the underneath of the dowel. An upright of this type is shown in Figures 18 20 and 19.

The support members 51 provide an advantage of at least preferred forms of the present invention in that the dowels 20 are used to transmit loading across the joint between the slabs. The dowellings however in their preferred sleeved form allow relative horizontal movement between the slabs. This helps relieve the stresses between the slabs. Further details are given in the co-owned New Zealand Patent Specification No. 244817. The full details of which are hereby incorporated by way of reference.

The use of one form of the present invention is shown in Figure 5. The apparatus 1 is placed on a substantially flat horizontal surface, for example, ground prepared for a slab by rolling all the additional gravel. The lower region 2 of the apparatus 1 may be pinned or otherwise fixed to the substantially horizontal surface.
In preferred forms of the invention a dowel 20 is placed through the apertures 9. The dowel 20 is therefore supported and held substantially horizontally.

The first concrete slab 31 is then poured against the apparatus 1. In those forms of the invention which include a bracing or support region 5 the first slab is poured 5 against that portion of the apparatus not having the bracing region 5.

The concrete slab 31 surrounds an end of the dowel 20, if said dowel is present. As previously described the capping region 4 preferably provides a level or support 6 in order to screed off the slab. A screeding tool 30 such as a trowel or screeding member may therefore be used in order to provide the correct screeding 10 level.

As shown in Figure 7 once the first slab 31 is sufficiently hardened to enable it to be substantially self-supporting the cap region 4 may be removed from said apparatus 1. The slab 31 is thus substantially self-supporting. The second slab 32 can then be poured against said first slab 31. The upper level of said first slab 31 may be used to provide a screeding level or support for any screeding tool used 30. In other less preferred forms of the invention the remaining apparatus 1 may be removed before the second slab is poured. In the form of the invention as shown in Figure 8 the second slab 32 substantially covers said remaining apparatus 1.

The use of the apparatus as previously described provides a frangible region 41 between the slabs 31 and 32. This frangible region 41 may be useful in preventing the occurrence of cracking when either or both said slabs contract or otherwise move away from each other.

In preferred forms of the invention a gap filling device may be placed between said first slab 31 and said second slab 32. This preferably occurs before the pouring of said second slab 32. The gap filling apparatus preferably allows said slabs to contract and expand but provides for a substantially hygienic filling of said gap so as to prevent the build-up of dirt. For example, the joint seal or gap filling device may be of the form substantially as described in our New Zealand Patent Specifications 247968 and/or 229154. The full content of which are hereby incorporated by way of 30 reference.
The apparatus 1 is preferably produced from a plastics material and may be extruded. In other forms of the invention either the entire apparatus 1 or the lower portion 2 and 10 may be produced from metal, preferably extruded metal. The upper portion may be produced from a plastics material. A variety of other forms for the apparatus 1 are envisaged. For example, a variety of braced or otherwise supported structures may be used.

In other forms of the invention the upright portion 10 of the device may be used to induce a crack between adjacent slabs 31 and 32. A slot or cut 70 may also be produced at or near the junction of the slabs 31 and 32. Any cut 70 produced may be filled with a joint seal. For example, a joint seal substantially as disclosed in our New Zealand Patent Specification No. 247968 may be placed in the cut 70 and the space filled by epoxy 61. The full content of our New Zealand Patent Specification No. 247968 is incorporated herein by way of a reference. A preferred form of the invention as shown in Figures 9 to 13 wherein a slot indent or rebate 50 is provided in or attached to the end cap region 4. This slot enables a cold chisel, screwdriver or claw of a hammer or similar to be placed therein and enables the end cap 4 to be levered or otherwise forced away from the rest of the apparatus.

The resilient members 111 may be produced from a setable material such as epoxy sealant. For example, a setable material is epoxy sealant such as a general purpose pourable grout such as a two-part, silica, sand-filled epoxy resin base, high strength, mortar grout. Desirable strengths are such that the tensile strength lies in the range of 20 to 25 N/mm², the compressive strength lies in the range of 90 to 110 N/mm². The resilient members 111 may be moulded from the above mentioned material. Full curing of the material may take 7 days at 25°C. However an initial cure may take as little as 12 hours.

The above sealant may be coloured to suit the situation. Epoxy sealants of this type have a density of the order of 1.9g/cm³, a minimum pot life of about 30 minutes at 25°C and provide good chemical resistance to common acids, alkalies and solvents.

It is desirable that the resilient members 111 making up the capping region 4 are sized such that they finish flush with the finished slabs, for example, 31. In preferred forms of the invention the top of the cap 4 may provide a level from which the slabs,
for example, 31 can be screeded as is elsewhere described. However, it is possible for
the resilient members 111 making up the capping region 4 to be of a size such that they
are higher or lower than the finished level of the slabs. In this case the members 111
can be lowered by any suitable common work site technique which will be obvious to
5 those skilled in the art to which the invention relates. It is also possible to raise the
resilient members 111 by, for example, adding further epoxy.

It is desirable that the resilient members 111 are bonded or attached to the slabs,
for example, 31. This may be achieved by providing a rough surface on the members
111, such as by adding sand to the surface of the members. The surface of the
10 members may also be roughened. In other forms of the invention the resilient
members 111 made from an epoxy sealant may have a layer of a suitable adhesive, for
example, the same epoxy sealant applied to the outer surface thereof. In a preferred
form of the invention as illustrated, joining or bonding means 110 are provided. The
joining or bonding means 110 may comprise a lattice work or a spring. A portion of
15 the bonding means 110 is embedded in the resilient members 111 whilst the remainder
sticks out of the member 111 and has the slab poured around it. The cement enters the
bonding means, for example, the spring or lattice work and sets thus bonding said
resilient member 111 to the slab. The resilient members are preferable in two parts
and may be attached to the upright 10 by fastening means 120 such as a nut and bolt.
20 Other suitable fastening means 120 may comprise a removable pin or means which can
be removed or cut off such as the head of a nail or rivet. The importance of the
removal fastening means 120 is that the resilient members 111 should be free to move
with the slab such as 31 to which they are attached. This allows for the expansion and
contraction of the joint between the slabs. The resilient members provide for the
25 protection of the edge of the joint between the slabs and may prevent debris such as
dirt entering the joint.

The form of the invention as shown in Figures 9 to 13 may consists of a metal
upstand 10 and base plate 2. These may be, for example, spot welded together. The
end cap 4 may be moulded from a plastics material. It is obvious to those skilled in the
30 art to which the invention relates that the upstand 10 and base 2 need not be corrosion
proofed, for example, other reinforcing bars are not, however, they may be galvanised or otherwise protected.

Forms of the invention may be used to provide the formwork for a edge of a single slab. In such a form of the invention the dowelling apertures 9 need not be present. In the immediately previously described form of the invention the capping member 4 may remain permanently in place.

In other forms of the invention the second or adjacent slab may be replaced by a wall or similar structure. In this form of the invention the dowelling apertures 9 may be present to support dowels 20.

It is envisaged that said apertures 9 may provide support for the reinforcing or rebar.

It will be noted that the present invention provides methods and apparatus for forming at least one floor slab and preferably but not solely the forming of adjacent floor slabs which, in at least a preferred form, provide the public with a useful choice.
CLAIMS:
1. A method of forming adjacent floor slabs of concrete which comprises:
   providing as formwork for an edge of one slab, a composite elongate member
   that extends substantially horizontally;
   a capping region, at least, of said composite member being removable after
   concrete poured to form one slab on one side of the formwork, providing composite
   elongate member is self-supportable;
   pouring said slab to one side of said formwork, using as a screed support or level
   the capping region of said formwork;
   removing the said capping region of said formwork when said slab screed
   therefrom is at least substantially self-supportable; and thereafter,
   pouring the other slab so that no region of the remainder of said composite
   elongate member which provided said original formwork projects above the level of
   either slabs, screeding of the second poured slab being from a surface of said first
   poured slab.
2. A method of forming adjacent floor slabs of concrete as claimed in claim 1
   wherein said elongate member is a plastics member.
3. A method of forming adjacent floor slabs of concrete as claimed in claim 1 or 2
   wherein a dowelling assembly is supported by said composite formwork prior to the
   pouring of either of said slabs.
4. A method of forming adjacent floor slabs of concrete as claimed in any one of
   claims 1 to 3 wherein said dowelling system is as disclosed in our New Zealand Patent
   Specification No. 244817 and/or our New Zealand Registered Design No. 24820.
5. A formwork providing member useful for providing formwork for the pouring of
   at least one and preferably two substantially contiguous floor slabs, said apparatus
   comprising:
   a first elongate structure having an up-stand, said up-stand being supportable
   from a lower region, said lower region being substantially self-supporting on a
   substantially horizontal support surface and/or which can be pinned or otherwise be
   fixed relative to such a support surface,
a capping member to extend further upwardly from said up-stand but which is itself removable after, preferably, having been used as a screeding support for a slab retained by said composite formwork.

6. A formwork as claimed in claim 5 wherein said capping member includes a region which, by triangulation or otherwise, reengages with said first mentioned member (preferably at or adjacent a ground support region thereof) so as to substantially resist horizontal loads from a slab being poured or which has been poured.

7. A formwork as claimed in claim 5 or 6 wherein said composite member includes therethrough openings to receive and, at least in part, support slab to slab dowelling members and/or assemblies.

8. A formwork as claimed in any one of claims 5 to 7 wherein said capping member includes an indent, rebate or other region to enable a, screwdriver, cold chisel, hammer claw or similar to be inserted, preferably after the substantial setting of said slab so as to facilitate the removal of said capping member.

9. A formwork providing member useful for providing formwork for the pouring of at least one and preferably two substantially contiguous floor slabs, said apparatus comprising;

   a first elongate structure having an upstand, said upstand being supportable from a lower region, said lower region being substantially self supporting on a substantially horizontal support surface and/or which can be pinned or otherwise be fixed relative to such a support surface;

   a capping member extending further upwardly from said upstand but which is itself removable after, preferably, having been used a screening support for a slab retained by said composite formwork, said capping member including an indent, rebate or other region to enable a screwdriver, cold chisel, hammer claw or similar to be inserted preferably after the substantial setting or curing of said slab so as to facilitate the removal of said capping member.

10. A formwork providing member as claimed in claim 9 wherein said composite member includes therethrough openings to receive and, at least in part, support slab to slab dowelling members and/or assemblies.
11. A method of forming adjacent floor slabs of concrete which comprises:
   providing as formwork for an edge of one slab, a composite elongate member
   that extends substantially horizontally;
   a capping region, said capping region comprising at least one resilient member;
   pouring said slab to one side of said formwork;
   removing the said capping region of said formwork when said slab screed
   therefrom is at least substantially self-supportable; and thereafter,
   pouring the other slab so that said resilient member(s) of said composite elongate
   member which provided said original formwork provides protective nosing(s) for
   either or both slabs.

12. A method of forming adjacent floor slabs of concrete as claimed in claim 11
   wherein said elongate member is a plastics member.

13. A method of forming adjacent floor slabs of concrete as claimed in claim 11 or
   12 wherein a dowelling assembly is supported by said composite formwork prior to the
   pouring of either or said slabs.

14. A method of forming adjacent floor slabs of concrete as claimed in any one of
   claims 1 to 3 wherein said dowelling system is as disclosed in our New Zealand Patent
   Specification No. 244817 and/or our New Zealand Registered Design No. 24820.

15. A method of forming adjacent slabs of concrete as claimed in any one of claims
   11 to 14 wherein said resilient member comprises a setable material.

16. A method of forming adjacent slabs as claimed in claim 15 wherein said setable
   material has a tensile strength in the range between approximately 20 and 25 N/mm²
   when set.

17. A method of forming adjacent floor slabs as claimed in claim 15 or 16 wherein
   said setable material has a compressive strength in the range between approximately
   90 and 100 N/mm² when set.

18. A method of forming adjacent floor slabs as claimed in any one of claims 15 to
   17 wherein said setable material comprises a material selected from the group
   comprising of epoxy resin, material containing silica sand and mixtures thereof.

19. A method of forming adjacent floor slabs as claimed in any one of claims 15 to
   18 wherein said setable material has a density of approximately 1g/cm³ when set.
20. A formwork providing member useful for providing formwork for the pouring of at least one and preferably two substantially contiguous floor slabs, said apparatus comprising:

   a first elongate structure having an up-stand, said up-stand being supportable from a lower region, said lower region being substantially self-supporting on a substantially horizontal support surface and/or which can be pinned or otherwise be fixed relative to such a support surface,

   a capping member to extend further upwardly from said up-stand, said capping member being of a resilient material.

10 21. A formwork providing member as claimed in claim 20 wherein said resilient material comprises a setable material.

22. A formwork providing member as claimed in claim 21 wherein said setable material has a tensile strength in the range between approximately 20 and 25 N/mm² when set.

15 23. A formwork as claimed in claim 21 or 22 wherein said setable material has a compressive strength in the range between approximately 90 and 100 N/mm² when set.

24. A formwork as claimed in claim 21, 22 or 23 wherein said setable material comprises a material selected from the group comprising epoxy resin, material containing silica sand and mixtures thereof.

20 25. A formwork providing member as claimed in any one of claims 20 to 24 wherein said capping member is of a two-piece construction, said capping member being attached to said first elongate structure by removable fastening means.

26. A formwork providing member as claimed in claim 25 wherein said removable fastening means can be removed when a first or only slab has been formed by said formwork.

27. A method of forming slabs substantially as herein described with reference to any one or more of the drawings.

28. A formwork providing member as herein described with reference to any one or more of the accompanying drawings.

30 29. A method of forming adjacent floor slabs of concrete as herein described with reference to any one or more of the accompanying drawings.
# INTERNATIONAL SEARCH REPORT

**A. **

**CLASSIFICATION OF SUBJECT MATTER**

Int Cl*: E04G 9/10

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

**B. **

**FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC: E04G, E04B 5/-

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

AU: IPC as above

Electronic database consulted during the international search (name of database and, where practicable, search terms used)

DERWENT: (Formwork., shutter.; falsework.; form# cap;)

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**C. **

**DOCUMENTS CONSIDERED TO BE RELEVANT**

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Further documents are listed in the continuation of Box C

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Date of the actual completion of the international search

10 January 1995

Date of mailing of the international search report

16 JAN 1996

Name and mailing address of the ISA/AU

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<td>US 5194165 A (RATTIGAN) 16 March 1993 Figure 5</td>
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