

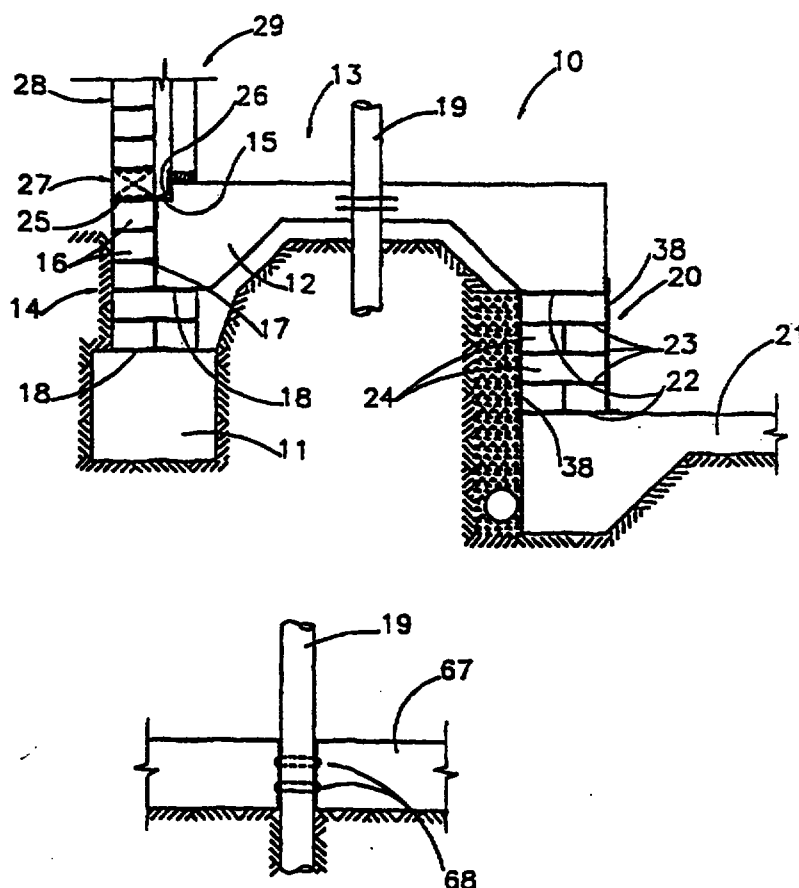
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : E04B 1/72, E04H 9/16	A1	(11) International Publication Number: WO 97/09491 (43) International Publication Date: 13 March 1997 (13.03.97)
(21) International Application Number: PCT/AU96/00542 (22) International Filing Date: 2 September 1996 (02.09.96) (30) Priority Data: PN 5151 1 September 1995 (01.09.95) AU (71)(72) Applicants and Inventors: KENNEDY, Anthony, William [AU/AU]; "Abbeyards", Lot 2 Springbrook Road, Mudgeeraba, QLD 4213 (AU). HITCHEN, John, Charles [AU/AU]; P.O. Box 2088, MDC Burleigh, QLD 4220 (AU). (74) Agent: GARDNER, John, R., G.; Pizeys, P.O. Box 7746, GCMC Bundall, QLD 4213 (AU).	(81) Designated States: AU, BR, CN, JP, MX, SG, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report.	

(54) Title: METHOD AND MEANS FOR PREVENTING OR MINIMISING TERMITE ATTACK OR INFESTATION

(57) Abstract

A method for preventing or precluding migration of termites or insects through a possible area of migration for example between a concrete slab (13) and a brick wall (28) erected on the slab (13) including the step of applying to a possible area of migration as for example a join line (15) between the slab (13) and wall (28), a settable or curable barrier material which defines a barrier to termite or insect migration through said area. The barrier material may define a physical barrier or may incorporate a chemical to define a chemical barrier. The method may be used also for preventing termite penetration along pipes (19) penetrating a slab (13) by providing beads (68) around the pipe (19) within the slab (13) or at the junction between the pipe (19) and slab (13).



METHOD AND MEANS FOR PREVENTING OR MINIMISING TERMITE ATTACK OR INFESTATION

Technical Field

This invention relates to a method and means for preventing or
5 minimising termite attack or infestation which is particularly but not exclusively
suited to applications in buildings.

Background Art

Due to recent changes in government regulations, past methods of
preventing termite attack or entry in buildings which have involved the use of
10 pesticides under the slab and around the outside periphery of a building are now
no longer possible to employ because of the detrimental effects of the residual
chemical poisons. Whilst new chemicals have been introduced to overcome this
problem, such chemicals prove considerably more expensive to use. As a result,
a number of different methods have been proposed or are now used with the aim
15 of combatting termite infestation or migration. One such method involves the use
of a product known as Termimesh which comprises a mesh of stainless steel
which has pores of sufficiently small size to prevent the passage of termites
therethrough. Whilst such a material is effective, it is required to be "parged" at
one edge to secure it in position. This is difficult to accomplish in certain
20 positions and furthermore a number of inspections must be undertaken to ensure
that the mesh is effectively secured in position by the parge and/or to ensure that
no damage has been caused to the mesh. In addition, the use of this product
tends to be particularly expensive.

The present invention aims to overcome or alleviate the above
25 disadvantages by providing improved method and means for preventing the
passage or migration of termites or other insects into a building. The present
invention, in a further aspect aims to provide a method and means which may be
applied to protect building products and components from termites or other
insects. Other objects and advantages of the invention will become apparent
30 from the following description.

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Summary of the Invention

The present invention thus provides in a first aspect, a method for preventing or precluding migration of termites or insects, said method including the step of applying to a possible area of migration, a settable or curable barrier material, said material defining a barrier to termite or insect migration through
5 said area.

The barrier material may define when cured or set a physical barrier or a chemical barrier or a combination thereof.

The area for migration may comprise a crack, fissure, joint,
10 opening, perpend or the like and the settable or curable barrier material, after application, may cure to define a permanent barrier to termites or insects. The barrier may be flexible or rigid.

The present invention, in one aspect is particularly applicable to buildings having concrete slabs and brick walls in which or adjacent to which,
15 cracks, fissures, perpends or joins may be created. In accordance with a method of the present invention, such fissures, cracks or joins are filled or sealed by the settable or curable barrier material referred to above, so as to prevent termite or insect passage therethrough. In one particular application where a concrete slab is formed, to be supported on a footing about the periphery of a building, the
20 junction between the slab and footing is sealed with the barrier material as referred to above to prevent passage of termites or insects from the ground beneath the slab through the junction between the slab and footing. In addition, the inner and top of the brickwork and/or outer faces of the brick foundation may be sealed with a layer of the compound liquid or substance. This will prevent
25 termites or insects from entering through imperfect mortar between the brick courses, joints or the brick perpends.

In a further application, where external brickwork of a building defines the peripheral formwork for the slab of a building, the upper surface of the brickwork and adjacent recessed portion of the slab, or an inner course of
30 bricks in the case of a cavity brick construction, is sealed with a layer of the



settable or curable barrier material as referred to above to prevent the passage of termites or other insects between the outer brick course and slab.

The settable or curable barrier material which forms the termite or insect barrier may be selected from a range of different products or combinations
5 of products. It may be in the form of a paste, gel, liquid or a matrix mix. As an example, the barrier material may define a unicellular membrane, that is a membrane in which a cellular chemical agent such as a termiticide is encapsulated.

In one form, the settable or curable barrier material may comprise a
10 product, material or chemical or a mixture thereof which creates a fusion reaction or adhesion between or with the materials of the building or component to which the settable or curable barrier material is applied.

In another form, the settable or curable barrier material is formed from a mixture of products, materials and/or chemicals which themselves form a
15 physical barrier, for example by adhesion.

The barrier material may include polymer binders, mineral extenders, biocides, fungicides, mould inhibitors, acrylic resins, acrylic emulsion powered acrylic polymers, and or moisture control and plasticising agents. The settable or curable barrier material may additionally include a chemical or
20 chemicals which comprises a termiticide or insecticide or other insect or termite deterrent.

The settable or curable barrier material may, after application, be either flexible or rigid and may be applied to a building or component in any suitable manner, for example by being sprayed, painted, trowelled, brushed or by
25 splatter machine. Alternatively, where appropriate, the settable or curable barrier material may be supplied in a cartridge tube or the like for application in the nature of a mastic.

The settable or curable barrier material may also be applied to other building products, such as timber poles or posts to fill cracks or fissures in the
30 post or poles to prevent termite or insect passage therethrough. In the case of



concrete slabs, the settable or curable barrier material may also be applied around slab penetrations, such as around penetrating pipes at the upper side of the slab to prevent termites or insects from passing between the pipe and slab material.

Alternatively, the settable or curable barrier material may be applied as a flexible
5 bead about the penetrating pipe and within or adjacent to the concrete slab to prevent insects or termites passing along the penetration and through the slab.

The settable or curable barrier material may when installed to brick walls also preferably provides a certain degree of water repellent or water resistant properties.

10 The settable or curable barrier material may also be applied to draft walls or retaining walls and on either side thereof to prevent entry of the termites or insects through the joints and perpend.

In one particular form, the settable or curable barrier material may being the nature of a liquid or a material with flowable properties, such that it
15 flow into and thereby block cracks which may be formed. The settable or curable barrier material in this form may also have properties which allow it to expand within the cracks to fill the cracks to prevent termite or insect passage through the cracks.

Brief Description of the Drawings

20 In order that the invention may be more readily understood and put into practical effect, reference will now be made to the accompanying drawings which illustrate a preferred embodiment of the invention and wherein:-

Fig. 1 illustrates in sectional view typical applications of the method and means of the invention in a bricked up slab construction;

25 Fig. 2 illustrates in sectional view further typical applications of the method and means of the invention in a boxed up slab construction;

Fig. 3 illustrates in sectional view, the termite sealing arrangement at the external wall of a bricked up slab;

30 Fig. 4 illustrates in sectional view, the termite sealing arrangement at the external wall of a boxed up slab application of the invention;



Figs. 5, 6, 7 and 8 illustrate the application of the invention to new or extension slabs;

Figs. 9 and 10 illustrate the application of the invention to isolated brick piers and brick walls with engaged piers respectively;

5 Fig. 11 is a view in the direction A-A of Fig. 10;

Fig. 12 illustrates the application of the invention to ground installed poles or posts;

Fig. 13 is a sectional view of the pole of Fig. 12 along line B-B;

10 Figs. 14 to 17 illustrate the application of the invention to pipe penetrations; and

Figs. 18 and 19 illustrates an application of the invention to construction joints between slabs.

Detailed Description of the Embodiments

Referring to the drawings and firstly to Fig. 1, there is illustrated
15 the general layout of a brick-up building foundation construction 10 which in this instance includes a footing 11 which extends about the periphery of the building to support the peripheral beam 12 of a concrete slab 13 and an outer brick course 14 which defines the formwork for the slab 13 and which may support the beam 12 onto the footing 11. Slab and footing reinforcement is not shown for the
20 purposes of clarity. The slab 13 is also formed with a recess 15 in its outer periphery which is at the level of the upper level of bricks 16 in the course 14. It will be apparent in this construction that a crack or fissure 17 is created in the join line between the inner face of the course of bricks 14 and the slab beam 12. Similarly, a join line 18' is created between the slab beam 12 and the bricks
25 which support the beam 12 on the footing 11. If untreated, the join lines 17 and 18 define a passage for termites or other insects into the building. In addition in this construction, a penetration such as a waste pipe 19 penetrates the slab 13 forming another area of possible penetration of termites. The construction 10 also includes a brick wall 20 forming a step down to a further slab 21. This
30 creates further join lines 22 providing possible areas for termite penetration



between the wall 20 and slabs 13 and 21. The joints 23 between the bricks 24 forming the wall 20 form other possible termite penetration paths.

In accordance with an embodiment of the present invention, and as shown in Fig. 3 which illustrates a slightly different form of brick-up construction where the slab 13 is supported directly on the footing 11, a layer 25 which forms a termite barrier is applied over the top of the top brick 16 in the course 14 to extend into and cover the adjacent recess 15 in the periphery of the slab 13. It will be apparent that the layer 25 therefore spans the join line 17 between the brick course 14 and slab beam 12 and slab 13 as well as sealing the extrusion openings in the bricks 16 to thereby act as a barrier to prevent termite or other insect migration through and along the join lines 17 and 18. The layer 25 may also be applied over the external faces of the bricks 16 and the joints between the bricks 16 to seal the bricks 16 and the joints 23 (and perpend) between the bricks 16 as shown in dotted outline in Fig. 3. The layer 25 may be applied by brushing, spraying, trowelling or any other suitable application means. The layer 25 may also be sufficiently fluid to partially flow into the join 17 to act as a barrier to termite migration. As an example, the layer 25 may be in the nature of a mortar, a hardenable liquid or a resin such as an epoxy resin to form a physical barrier. The mortar, a hardenable liquid or a resin may also incorporate a termiticide or other poison or repellent for example an organic phosphate. One or more layers 25 may be applied to the areas to ensure the possibility of termite penetration is minimised. The layer 25 may also have additional water sealing properties to seal the bricks 16 or act as a flashing. Alternatively or additionally, a conventional flashing 26 may be used over the layer 25 below the weep hole course 27 of the external wall 28.

After the layer 25 has cured, the external and internal walls 28 and 29 of the building may be erected in a known manner to be supported on the course 14 of bricks 16 or beam 12 and slab 13. In the illustration, a brick veneer construction results with the outer wall 28 being a single layer of bricks and the inner wall 29 being a wooden frame to which cladding may be applied.



Fig. 2 illustrates an alternative form of building foundation 30 in which in this case, the slab 31 is boxed up using formwork and is spaced from the outer course 14 of bricks, the slab 31 and brick course 14 being supported on the footing 11. Again, however, the slab 31 which has a perimeter beam 32 supported on the footing 11 defines a join line 33 which may create a passage to insects or termites. A similar arrangement is shown in Fig. 4.

In this instance, a layer 34 according to the invention is applied at the junction of the slab beam 32 and footing 11 to seal off the join line 33 to thereby prevent the passage of termites and insects through the join line 33.

10 A further layer 35 may also be applied to the inside vertical faces of the brick course 14 and the joint between the brick course 14 and footing 11. The layer 35 may also be continued over the top of the uppermost brick 16 in the course 14. This will prevent termites from entering through imperfect mortar between the brick 16 at the joints between the bricks or perpend and sealing the
15 extrusion openings in the bricks 16. The layers 34 and 35 may also have additional water sealing properties for sealing the bricks 16 or act as flashings. As shown in Fig 2, the layers 34 and 35 may merge into each other or be separate as shown in Fig. 4. Outer and inner walls 36 and 37 may be erected as before to form a brick veneer construction.

20 The brick or block draft wall 20 which is provided between upper and lower slabs 13 and 21 in Fig. 1 may also be sealed in accordance with the invention. In this instance, a layer 38 of the barrier material of the invention may be applied to the inner and outer sides of the wall 20. The layers 38 are extended upwardly and downwardly to cover the join lines 22 between the slabs 13 and 21
25 and bricks or blocks which are at the upper and lower sides of the wall 20. The layer 38 may also have additional water sealing properties for sealing the wall 20. The arrangement described above prevents the passage of termites or insects into the building from the ground beneath the slabs 13 and 21 by blocking the passages between the bricks or blocks or along the join line 22 which defines a
30 passage for termites or other insects into the building. If desired also layers of



the material may be provided along the join lines 22 between the wall 20 and slabs 13 and 21.

Fig. 2 also shows an arrangement where a retaining wall 39 of blocks or bricks is erected on the slab 31. In addition to a protective water proof
5 sheeting 40 between the wall 39 and adjacent earth 41, the face of the wall 39 is provided with a layer 42 of the barrier material according to the invention which seals the joins between the bricks or blocks forming the wall 39 and the joint between the wall 39 and slab 31, the layer 42 extending downwardly beyond the lowermost block in the wall 39 and over the slab 31.

10 Referring now to the embodiment of Fig. 5, there is illustrated an extension slab 43 constructed adjacent an existing wall 44 and slab 45, in this case a slab 45 on a waffle pan foundation. A rebate 46 is formed in the upper edge of the slab 45 adjacent the brick wall 44. The barrier material 47 of the invention is applied to fill the rebate 46 and seal the space between the slab 43
15 and brick wall 14 for preventing termite or insect passage from the ground and between the slabs 43 and 45 and wall 44. If desired for additional protection, a bead of the barrier material 46 may also be provided between the slabs 45 and 43 to prevent termite penetration from below, the bead 46 extending along the periphery of the slabs 45 and 43 and between the slabs 45 and 43 to provide a
20 complete seal.

Figs. 6 and 7 illustrates a further embodiment of extension slab 48 applied to a construction where an existing or new slab 49 and a brick course 50 is supported on a footing 51. In this instance, the new slab 49 is erected adjacent the existing slab 48 on the footing 51. Again a rebate 52 is provided in the edge
25 of the slab 48 adjacent the brick wall 50 and is filled with the substance or material 53 which fills the rebate 52 and seals the space between the slab 48 and brick wall 50. A similar arrangement is provided between the slab 49 and wall 50 wherein a rebate 52' is filled with material 53'. Further material 54 in the form of a layer may be provided to extend continuously from the material 53 and 53'
30 applied to the rebates 52 and 52' along the side of the brick wall 50 and over the



top thereof for providing a complete seal for preventing termite or insect passage from the ground.

Fig. 7 illustrates an alternative sealing arrangement wherein layers 55 and 56 are provided on opposite sides of the wall 50 to extend downwardly and continuously from the materials 53 and 53' in the rebates 52 and 52' in the slabs 48 and 49 to the footing 51.

In the arrangement of Fig. 8, the add-on slab 48 is erected on a further footing 51' adjacent the existing footing 51. Again a rebate 52' is formed in the add-on slab 48 adjacent the existing slab 49 which is filled with the barrier material 52' which also extends downwardly between the slabs 48 and 49 as illustrated. In each of the above embodiments, the rebates formed in the slab preferably extend continuously along the edge of the slab to ensure that a complete seal is established by the barrier material.

Where an isolated brick pier 58 is erected, as shown in Fig. 9, the upper portion of the pier 58 may be sealed with a layer 59 of material according to the invention, the layer 59 extending over the top of the pier 58 and down the sides of the pier 58, usually a distance of 150mm to 400mm. The layer 59 may terminate in a bead 60 of the material surrounding the pier 58.

A similar arrangement is shown in Figs. 10 and 11 where a brick wall 60 with engaged pier 61 is sealed by a layer 62 of barrier material according to the invention, the layer 62 extending over the top of the wall 60 and pier 61 and down the sides thereof, in this case usually to a distance of 150mm to 400mm to again terminate in a bead 63.

Fig. 12 illustrates the application of the invention to a pole or post 63 which is located in the ground 64. A layer 65 of material, according to the present invention is applied about the lower end of the pole 63 to enter any cracks or fissures 66 within the pole 63 as shown in Fig. 12 or 13 to prevent termites forming their galleries in the cracks or fissures 66 and being undetected. The layer 65, as shown in Fig. 11 or 12 is applied to the end of the pole 63 to a sufficient height such that it extends above the ground 64.



Fig. 14 illustrates a typical application of the invention where pipes 19 (as in Fig. 1) penetrate a slab 67. A recess 68 of annular form may be formed in the slab 67 around the pipe 19 to receive the liquid or substance 69 according to the present invention which seals about the pipe 19 and between the pipe 19 and slab 67 to provide a termite and insect barrier. The recess 68 may be formed during slab construction or after curing of the slab 67.

Fig. 15 illustrates a further application of the invention to a pipe 19 penetrating a slab 67. In this instance, the material 69 is simply applied around the upper side of the slab 67 to seal against the penetrating pipe 19.

Fig. 16 illustrates an application of the invention again where a pipe 19 penetrates a slab 67. In this instance, the sealing material 68 in accordance with the invention in the form of one or more beads is located in situ within the slab 67 to surround and seal against the penetrating pipe 19. The beads of sealing material 68 are applied prior to pouring of the slab 67 so as to be embedded within the slab.

Fig. 17 illustrates an application where a pipe 19 which is provided with lagging 69 penetrates a slab 67. As in the embodiment of Fig. 16, the material 68 in the form of beads around the pipe 19 are provided within the slab 67 to provide a termite or insect barrier between the pipe 19 and slab 67. For installation, the lagging 69 is provided in sections 69' and 69". The upper and lower sections 69' and 69" may be removed to allow application of the barrier material 68 and thereafter the sections 69' and 69" are reinstalled as shown.

The barrier material as described is used in specific building applications associated with building slabs. It may, however, be applied to other applications where a crack or join line appears or for example in openings through bricks or blocks including extrusion openings which may be sealed with a layer or compound according to the present invention to block insect or termite passage.

Referring now to Fig. 18, there is illustrated an application of the invention to a construction joint 70 between adjacent building slabs 71 and 72.



On the upper side of the slabs 71 and 72 and along the joint line 70, recesses or rebates 73 and 74 are provided in the respective slabs 71 and 72, the rebates 73 and 74 defining a recess 75 extending along the joint line 70. The barrier material 76 in accordance with the invention is deposited into the recess 75 to

5 substantially fill the recesses 73 and 74 and also extend into the joint 70. This will prevent passage of insects and termites from the ground beneath the slabs 71 and 72 through the joint line 70.

Where larger cracks or fissures are encountered additional support may be required to be provided to the compound liquid or substance which forms

10 the termite barrier. Additional support may be provided by a matting, such as a fibreglass matting or other material which may initially be laid over the larger crack or fissure and thereafter the compound liquid or substance deposited upon the mat. This will provide sufficient support to the compound liquid or substance to act as a barrier for termites and insects. An example of such an arrangement is

15 shown in Fig. 19 where the matting 77 spans the joint line 70 between slabs 71 and 72. This arrangement may be provided in any of the applications described above.

The present invention thus provides an arrangement where a complete termite barrier is created for a building. All potential entry points

20 within the slab and perimeter area are treated in the manner described above.

Whilst the above has been given by way of illustrative embodiment of the invention, all such modifications and variations thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of the invention as defined in the appended claims.

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**CLAIMS**

1. A method for preventing or precluding migration of termites or
insects, said method including the step of applying to a possible area of
migration, a settable or curable barrier material which defines a barrier to termite
5 or insect migration through said area.
2. A method according to Claim 1 wherein said area of migration is
defined by cracks, fissures, perpends or joins in a building having a concrete
slabs and brick walls and wherein said fissures, cracks perpends or joins are
10 filled or sealed by said settable or curable barrier material.
3. A method according to Claim 2 wherein said concrete slab is
supported on a footing and wherein the junction between said slab and footing is
sealed with said settable or curable barrier material to prevent passage of termites
15 or insects from the ground beneath the slab through said junction between said
slab and footing.
4. A method according to Claim 3 wherein a brick foundation course
is associated with said slab and wherein the inner and top of said brick course
20 and/or outer faces of the brick foundation are sealed with said barrier material.
5. A method according to Claim 2 wherein external brickwork of said
building defines the peripheral formwork for the slab of a building, said slab
being recessed adjacent the upper level of said brickwork and wherein said upper
25 surface of said brickwork and adjacent recessed portion of the slab, is sealed by a
layer of said settable or curable barrier material.
6. A method according to Claim 1 wherein said area of penetration is
defined in a timber poles or posts and wherein said material is applied to fill
30 cracks or fissures in the post or poles to prevent termite or insect passage there





through.

7. A method according to Claim 1 wherein said area of penetration is defined in a slab penetration and wherein said barrier material is applied around
5 penetrating pipes at the upper side of the slab to prevent termites or insects from passing between the pipe and slab material.

8. A method according to Claim 1 wherein said barrier material is applied as a flexible bead about said penetrating pipe and within or adjacent to
10 said the concrete slab to prevent insects or termites passing between said penetrating pipe and slab.

9. A method according to Claim 1 wherein said possible area of migration comprises a an area along or over a brick pier and wherein said barrier
15 material is applied as a layer to the top of said pier and the sides thereof.

10. A method according to Claim 1 wherein said possible area of migration comprises an area along or over a retaining wall and wherein said barrier material is applied to at least one side of said retaining wall.

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11. A method according to Claim 1 wherein said possible area of migration comprises a join line between an existing building slab and a new building slab and wherein said barrier material is applied between said slabs.

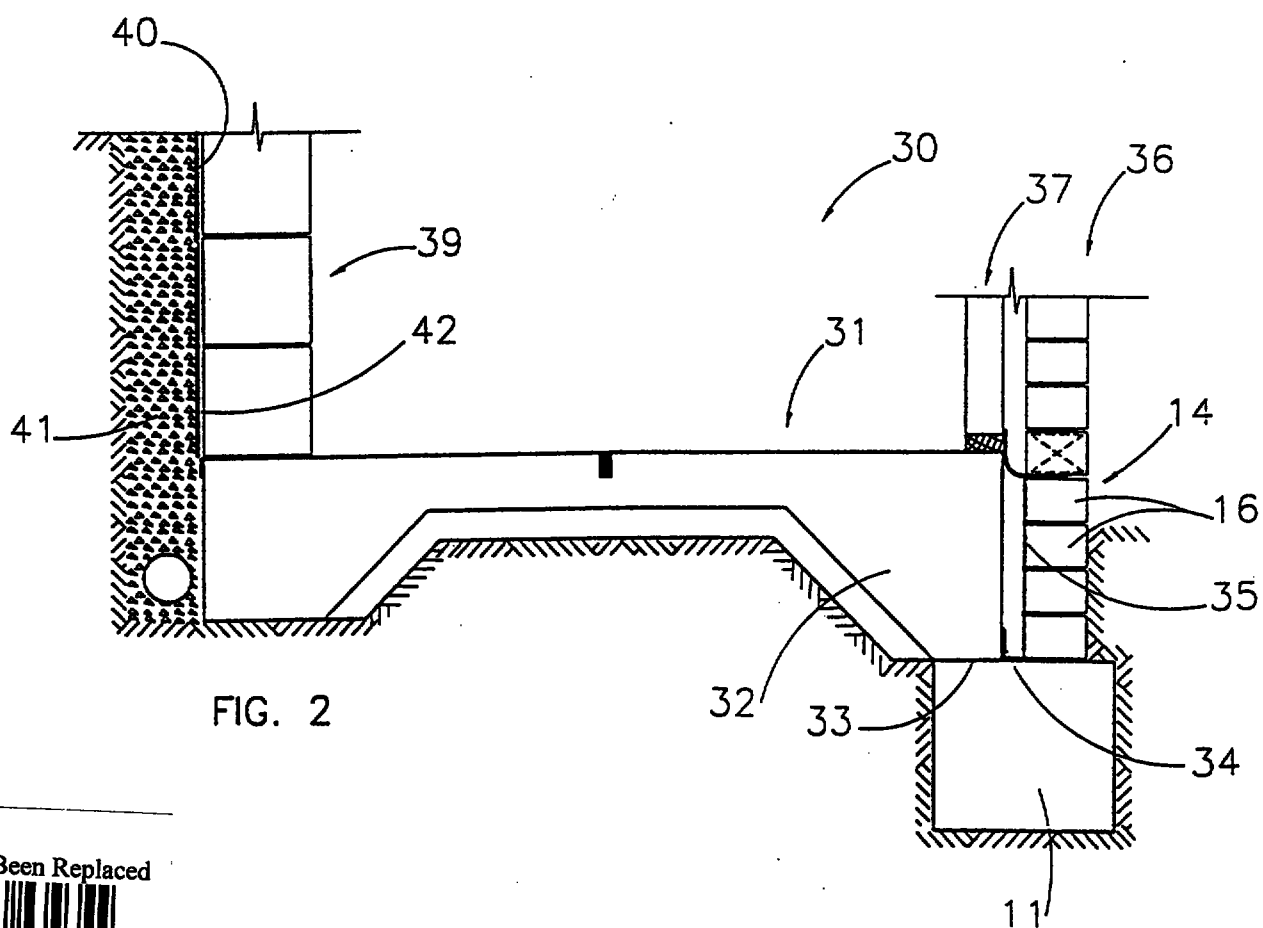
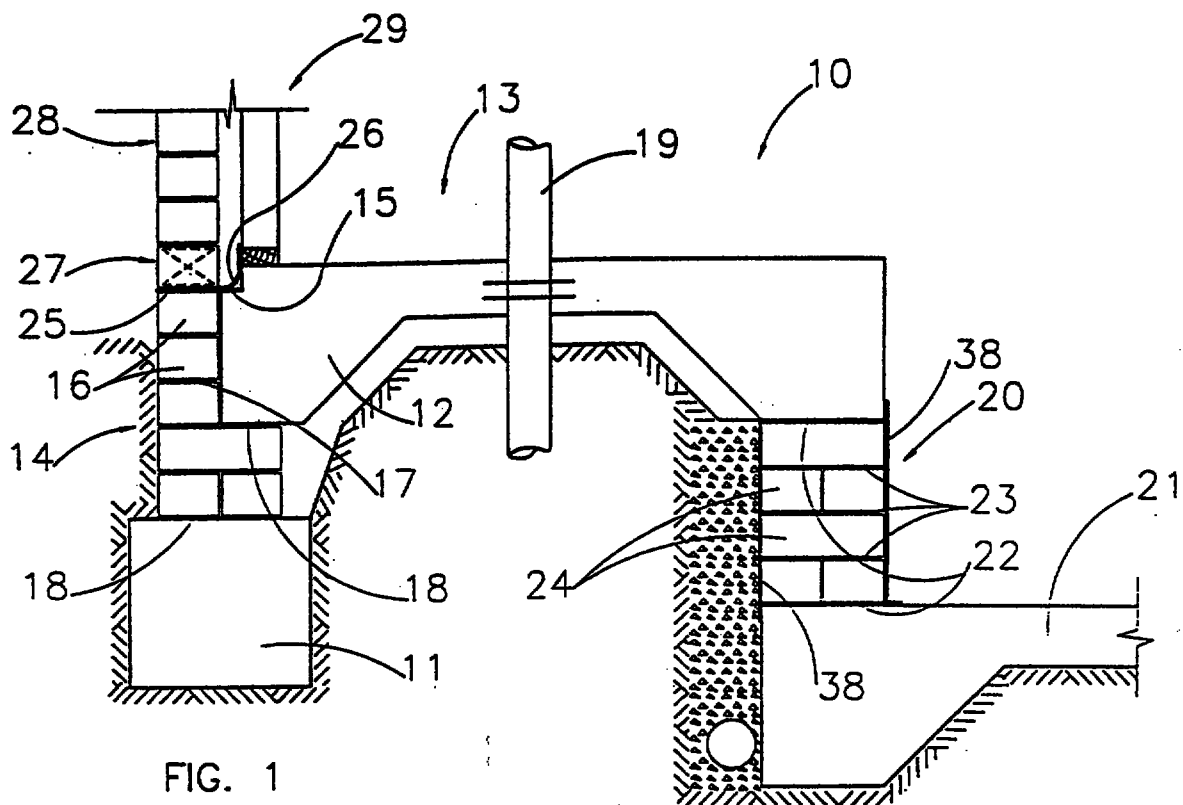
25 12. A method according to Claim 11 wherein a recess is formed in an edge of one slab adjacent the other slab and wherein said barrier material is applied to said recess to seal the join line between said slabs.

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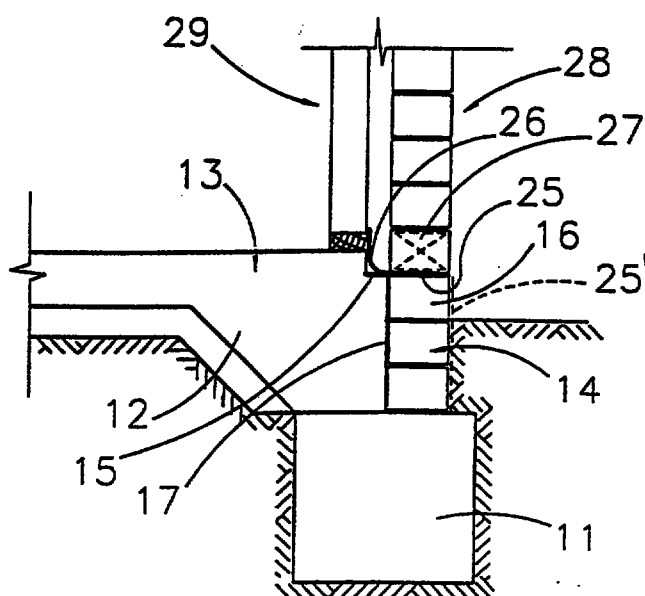


FIG. 3

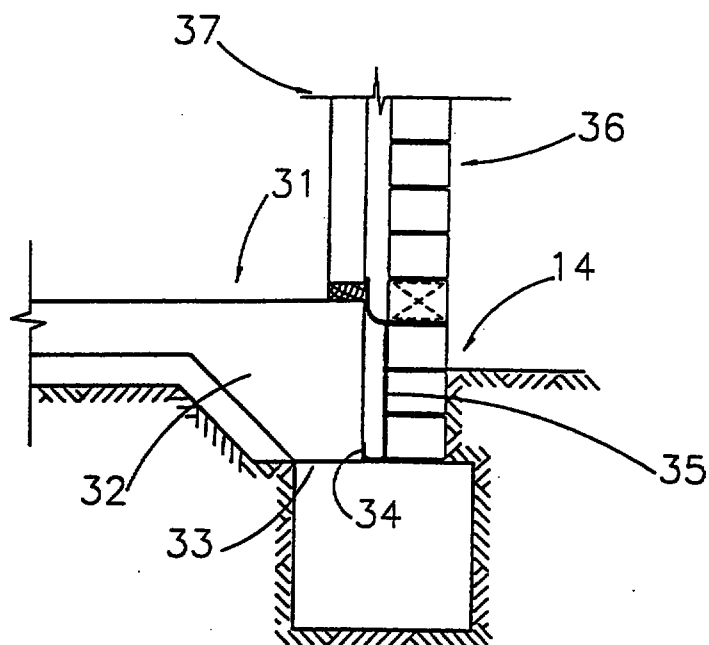


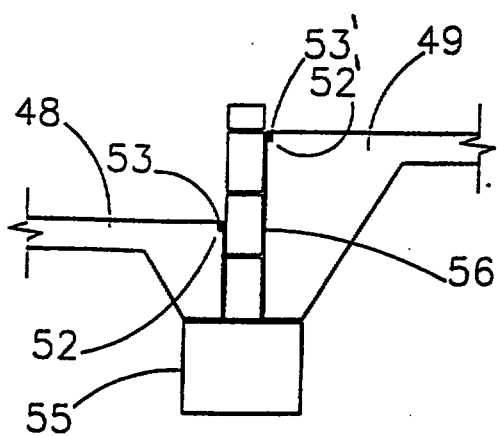
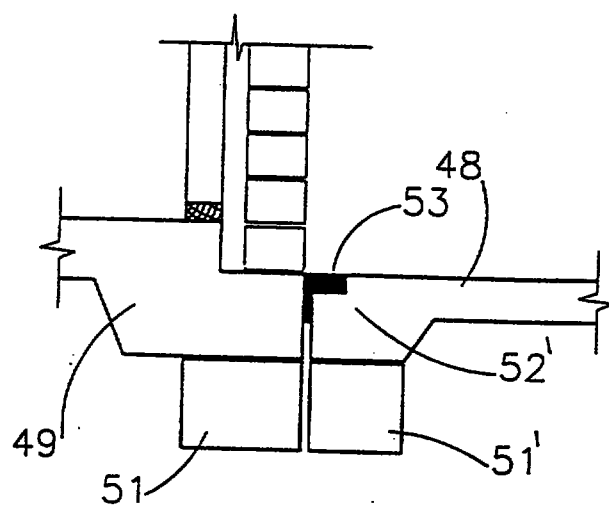
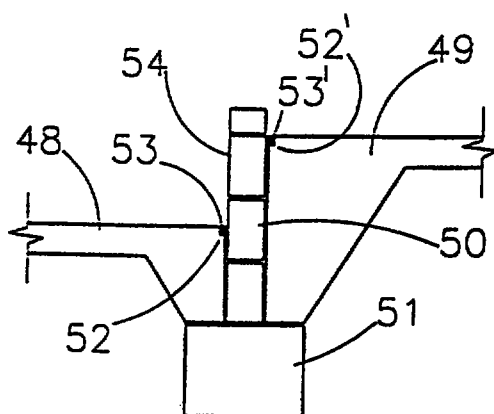
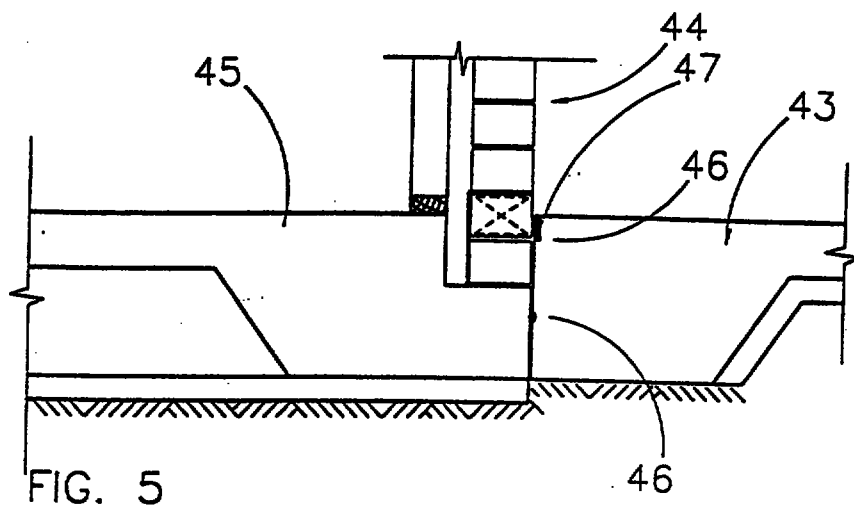
FIG. 4

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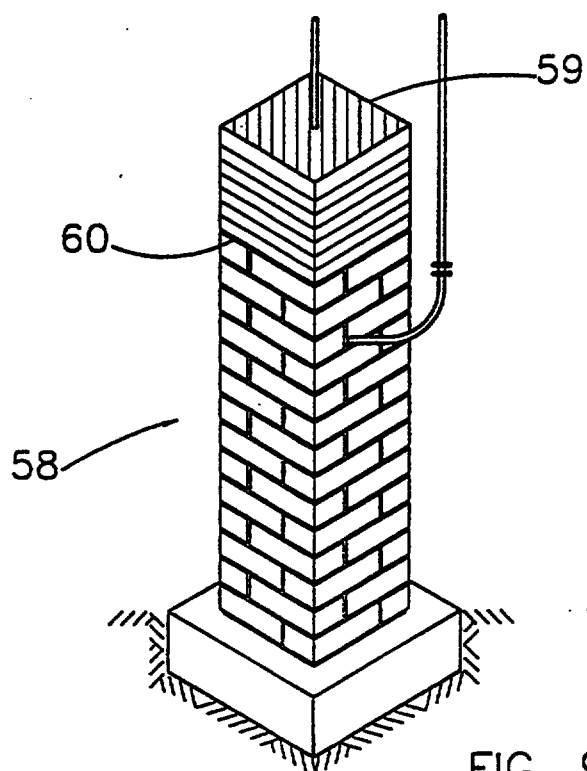


FIG. 9

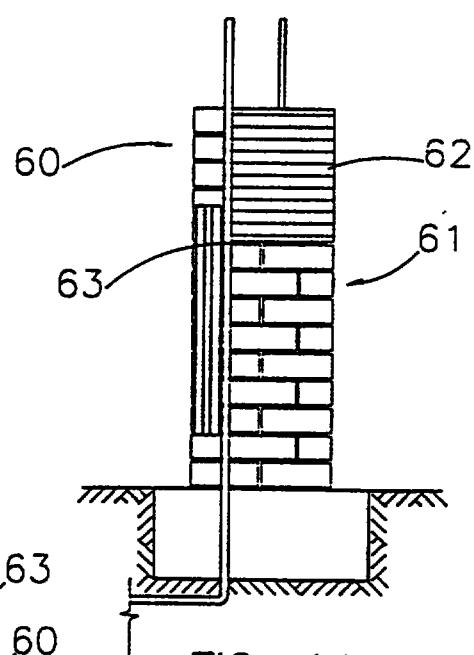


FIG. 11

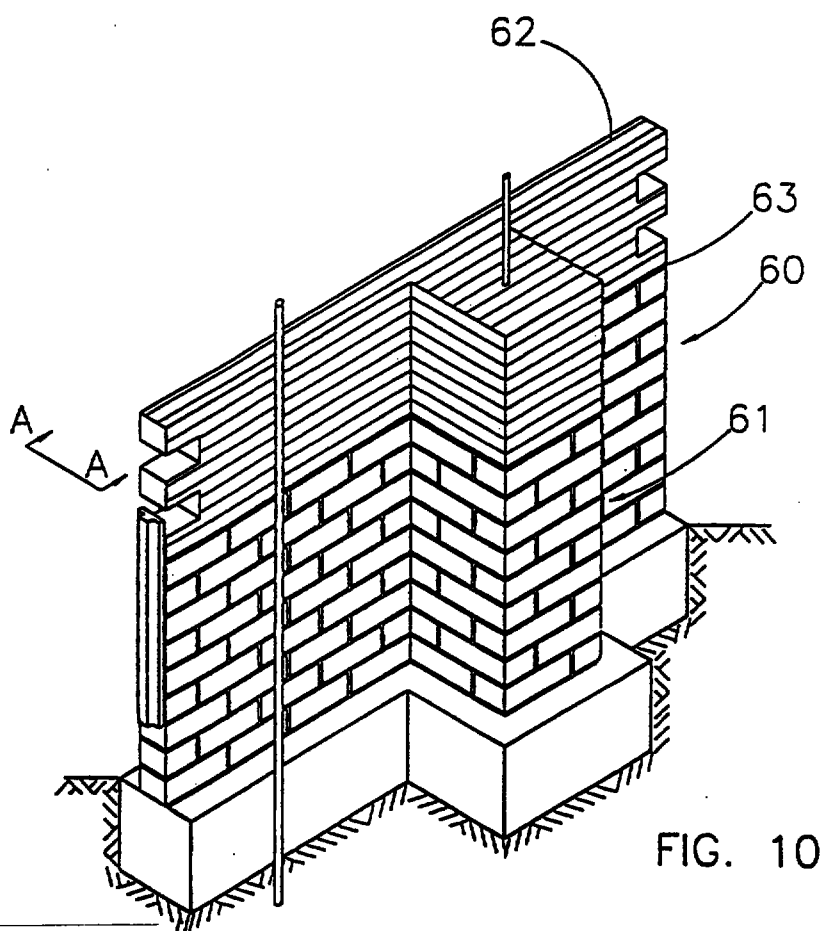


FIG. 10

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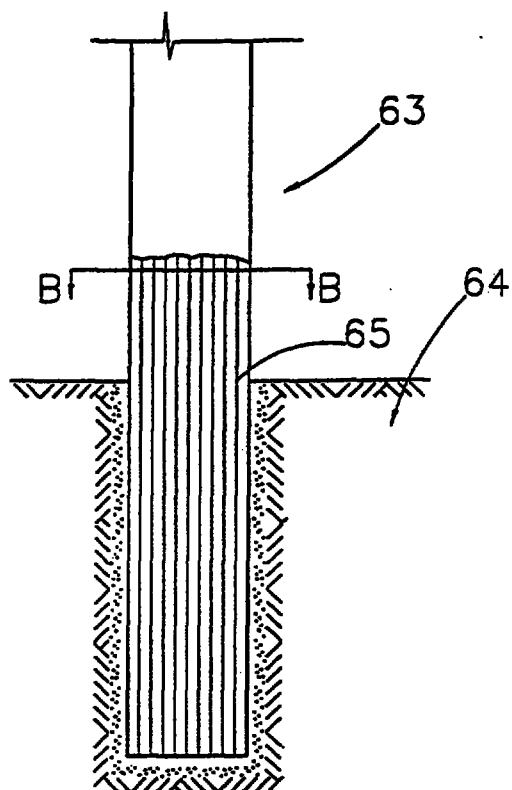


FIG. 12

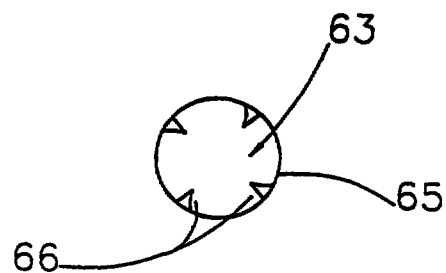


FIG. 13

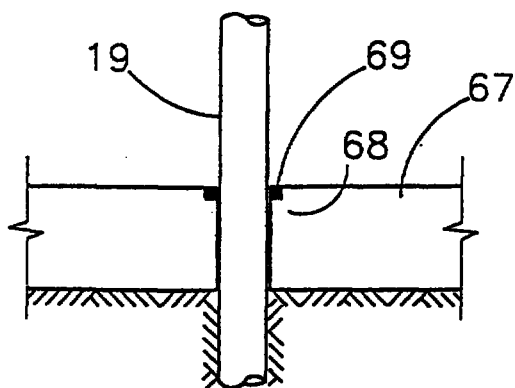


FIG. 14

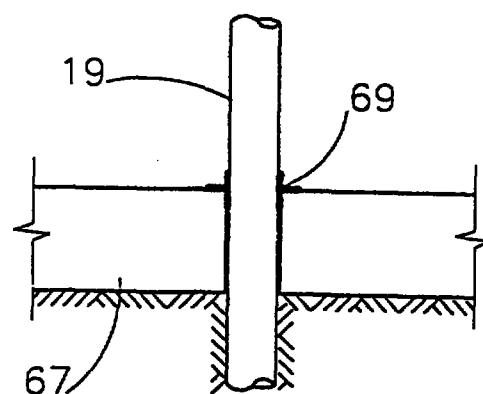


FIG. 15

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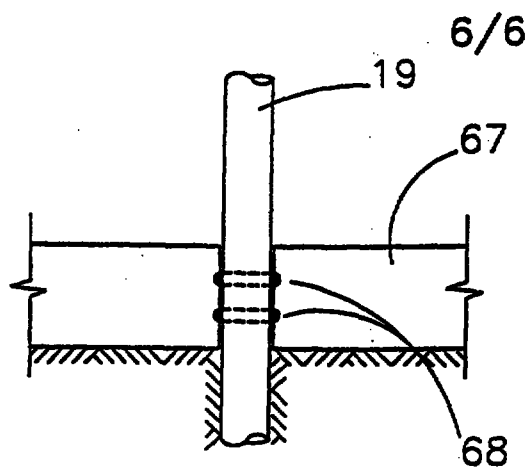


FIG. 16

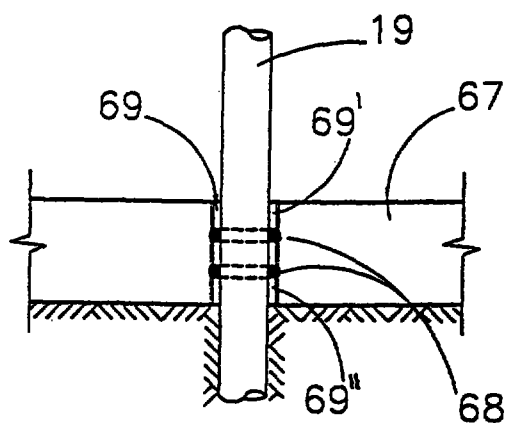


FIG. 17

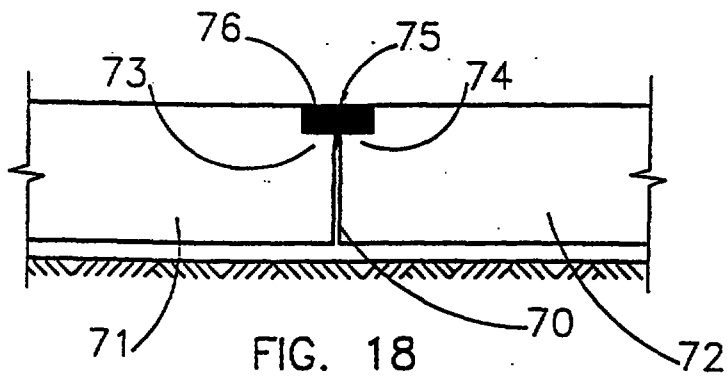


FIG. 18

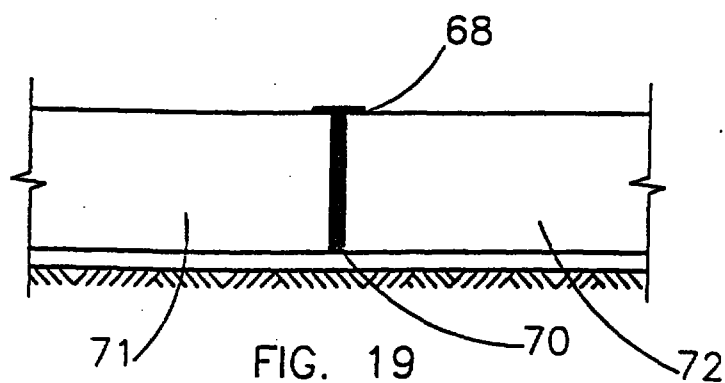


FIG. 19

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☒	Description : paged 3, 7, 11 to 14	-
☒	Claim(s) : paged 15 to paged 17	-
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METHOD AND MEANS FOR PREVENTING OR MINIMISING TERMITE ATTACK OR INFESTATION

Technical Field

This invention relates to a method and means for
5 preventing or minimising termite attack or infestation which
is particularly but not exclusively suited to applications in
buildings.

Building destroying termites are most commonly
subterranean. Their attack/infestation originates from the
10 nest (colonies) located either underground or in the base of
trees, with tunnels (foraging galleries) radiating from the
nest through the soil to food sources.

At all times termites require moisture but must conceal
themselves from direct sunlight. Thus for travel across
15 exposed walls, for example, they build mud-like shelters
(tunnels) "plasters" on the outside in which they can travel
concealed from sunlight to their food source. The area for
subterranean migration may comprise a crack, fissure, joint,
opening, perpend or the like in an outer wall or footing.

20 Background art

Due to changes in government regulations in Australia
and elsewhere, past methods of preventing termite attack or
entry in buildings which have involved the use of pesticides
under the slab and around the outside periphery of a building
25 are now no longer possible to employ because of the
detrimental effects of the residual chemical poisons. Whilst
new chemicals have been introduced to overcome this problem,
such chemicals prove considerably more expensive to use. As
a result, a number of different methods have been proposed or
30 are now used with the aim of combating termite infestation or
migration.

One such method involves the use of a product known as
TERMIMESH which comprises a mesh of stainless steel which has
pores of sufficiently small size to prevent the passage of
35 termites therethrough. Whilst such a material is effective,
it is required to be "parged" at one edge to secure it in

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position. This is difficult to accomplish in certain positions and furthermore a number of inspections must be undertaken to ensure that the mesh is effectively secured in position by the parge and/or to ensure that no damage has
5 been caused to the mesh. In addition, the use of this product tends to be particularly expensive.

Japanese patent literature, such as 316502/92, 88836/90, 250308/88, 99301/87, 346047/93 and 18822/84 describe methods of termite control which are particularly suited to the
10 elevated timber structures mostly utilised in Japanese dwelling construction, chosen for its earthquake resistant properties. In such above ground structures, entry points for termites are not concealed and thus can be treated after construction and accessed during the life of the structure.
15 However the Japanese patents are aimed at the provisions of alternate poisons which are less harmful and to methods for their use.

Japanese patent application No. 80008/92 describes methods of spraying treatment to areas about buildings where
20 termites may breed in order to prevent such breeding. It describes the use of polyurethane resins to carry and encapsulate poisons whereby the effect of the poison is maintained for extended periods, unlike earlier methods where the termiticides used are dissolved by the resins such that
25 their effectiveness is reduced or lost. The polyurethane resin mixtures formed are also useful as moisture barriers which can be applied to the ground under slabs to provide the dual purpose of moisture proofing and provision of a long term poison.

30 It is considered that the use of any poison is disadvantageous and the need to deposit sufficient mixture to cover the ground under a concrete slab would be very costly in terms of the volume of chemical required.

The present invention aims to overcome or alleviate at
35 least one of the above disadvantages by providing improved methods of and means for preventing or minimising the passage

or migration of termites or other insects into a building. The present invention, in a further aspect aims to provide methods and means which may be applied to protect building products and components from termites or other insects.

5 Other objects and advantages of the invention will become apparent from the following description.

Summary of the invention

The present invention thus provides in a first aspect, a method of preventing or minimising migration of termites into
10 a structure having a ground supported termite resistant base support which on completion extends below the adjacent ground level and supports an above ground structure including a concealed wall structure containing termite consumable material concealed by an outer wall skin, the method
15 comprising forming insitu during construction, a continuous termite penetration resistant barrier by applying a settable or curable termite or insect resistant barrier mixture which when applied cures to form a continuous flexible penetration resistant barrier which adheres to and extends between an
20 above ground exposed portion of the outer wall skin and a face of the termite resistant base support which is below the concealed wall structure, filling cracks and fissures in the outer wall skin and the termite resistant base support, whereby termite entry to the concealed wall structure from an
25 in-ground nest can occur only if the termites enter across the exposed part of the flexible penetration resistant barrier on the above-ground portion of the outer skin thereby providing visible evidence of their penetration.

The barrier material may define when cured or set a
30 physical barrier which could contain a chemical barrier.

The present invention, in one aspect is particularly applicable to buildings having concrete slabs and brick walls in which cracks, fissures, may be created and adjacent to which, in the supported wall structure, perpendes or joints
35 are created through which termites may travel to consumable material in the wall structure. In accordance with the



method of the present invention, such fissures, cracks or joints are filled or sealed by the settable or curable barrier material referred to above when the curable barrier material is applied to create the continuous flexible
5 penetration resistant barrier, so as to prevent termite or insect passage therethrough.

In one particular application where a concrete slab is formed, to be supported on a footing about the periphery of a building, the junction between the slab and footing is also
10 sealed with the barrier material as referred to above to prevent passage of termites or insects from the ground beneath the slab through the junction between the slab and footing. In addition, the inner and top of the brickwork and/or outer faces of the brick foundation may be sealed with
15 a layer of the compound liquid or substance. This will prevent termites or insects from entering through imperfect mortar between the brick courses, joints or the brick perpend.

In a typical application, where external brickwork of a
20 building defines the peripheral formwork for the slab of a building, the upper surface of the brickwork and adjacent recessed portion of the slab, or an inner course of bricks in the case of a cavity brick construction, is sealed with a layer of the settable or curable barrier material as
25 referred to above to prevent the passage of termites or other insects between the outer brick course and slab.

The settable or curable barrier material which forms the termite or insect barrier may be selected from a range of different products or combinations of products. It may be in
30 the form of a paste, gel, liquid or a matrix mix. As an example, the barrier material may define a unicellular membrane, that is a membrane in which a cellular chemical agent such as a termiticide is encapsulated.

The barrier material may include polymer binders,
35 mineral extenders, biocides, fungicides, mould inhibitors, acrylic resins, acrylic emulsion powered acrylic polymers,

and or moisture control and plasticising agents. The settable or curable barrier material may additionally include a chemical or chemicals which comprises a termiticide or insecticide or other insect or termite deterrent.

5 The settable or curable barrier material may be applied to a building or component in any suitable manner, for example by being sprayed, painted, trowelled, brushed or by splatter machine. Alternatively, where appropriate, the settable or curable barrier material may be supplied in a
10 cartridge tube or the like for application in the nature of a mastic.

 The settable or curable barrier material may also be applied to other building products, such as timber poles or posts to fill cracks or fissures in the post or poles to
15 prevent termite or insect passage therethrough. In the case of concrete slabs, the settable or curable barrier material may also be applied around slab penetrations, such as around penetrating pipes at the upper side of the slab to prevent termites or insects from passing between the pipe and slab
20 material. Alternatively, the settable or curable barrier material may be applied as a flexible bead about the penetrating pipe and within or adjacent to the concrete slab to prevent insects or termites passing along the penetration and through the slab.

25 The settable or curable barrier material may when installed to brick walls also preferably provides a certain degree of water repellent or water resistant properties.

 The settable or curable barrier material may also be applied to draft walls or retaining walls and on either side
30 thereof to prevent entry of the termites or insects through the joints and perpend.

 In one particular form, the settable or curable barrier material may be in the nature of a liquid or a material with flowable properties, such that it flows into and thereby
35 block cracks which may be formed. The settable or curable barrier material in this form may also have properties which

allow it to expand within the cracks to fill the cracks to prevent termite or insect passage through the cracks.

Brief description of the drawings

In order that the invention may be more readily understood and put into practical effect, reference will now be made to the accompanying drawings which illustrate a preferred embodiment of the invention and wherein:-

- Fig. 1 illustrates in sectional view typical applications of the method and means of the invention in a bricked up slab construction;
- Fig. 2 illustrates in sectional view further typical applications of the method and means of the invention in a boxed up slab construction;
- Fig. 3 illustrates in sectional view, the termite sealing arrangement at the external wall of a bricked up slab;
- Fig. 4 illustrates in sectional view, the termite sealing arrangement at the external wall of a boxed up slab application of the invention;
- Figs. 5, 6, 7 and 8 illustrate the application of the invention to new or extension slabs;
- Figs. 9 and 10 illustrate the application of the invention to isolated brick piers and brick walls with engaged piers respectively;
- Fig. 11 is a view in the direction A-A of Fig. 10;
- Fig. 12 illustrates the application of the invention to ground installed poles or posts;
- Fig. 13 is a sectional view of the pole of Fig. 12 along line B-B;
- Figs. 14 to 17 illustrate the application of the invention to pipe penetrations, and
- Figs. 18 and 19 illustrates an application of the invention to construction joints between slabs.

Detailed description of the embodiments

- Referring to the drawings and firstly to Fig. 1, there is illustrated the general layout of a brick-up building

foundation construction 10 which in this instance includes a footing 11 which extends about the periphery of the building to support the peripheral beam 12 of a concrete slab 13 and an outer Skin which is brick and which during construction 5 has a course 14 which, acts as the formwork for the slab 13 and which may support the beam 12 onto the footing 11. Slab and footing reinforcement is not shown for the purposes of clarity. The slab 13 is also formed with a recess 15 in its outer periphery which is at the level of the upper level of 10 bricks 16 in the course 14.

It will be apparent in this construction that a crack or fissure 17 may be created in the join line between the inner face of the course of bricks 14 and the slab beam 12. Similarly, a join line 18' is created between the slab beam 15 12 and the bricks which support the beam 12 on the footing 11. If untreated, the join lines 17 and 18 define passages for termites or other insects into the building. In addition in this construction, a penetration such as a waste pipe 19 penetrates the slab 13 forming another area of possible 20 penetration of termites from beneath the slab.

The construction 10 also includes a brick wall 20 forming a step down to a further slab 21. This creates further join lines 22 providing possible areas for termite penetration between the wall 20 and slabs 13 and 21. The 25 joints 23 between the bricks 24 forming the wall 20 form other possible termite penetration paths.

In accordance with an embodiment of the present invention, and as shown in Fig. 3 which illustrates a slightly different form of brick-up construction where the 30 slab 13 is supported directly on the footing 11, a layer 25 which forms a termite barrier is applied over the top of the top brick 16 in the course 14 to extend into and cover the adjacent recess 15 in the periphery of the slab 13. It will be apparent that the layer 25 therefore spans the join line 35 17 between the brick course 14 and slab beam 12 and slab 13 as well as sealing the extrusion openings in the bricks 16 to



thereby act as a barrier to prevent termite or other insect migration through and along the join lines 17 and 18.

The layer 25 may also be applied over the external faces of the bricks 16 and the joints between the bricks 16 to seal the bricks 16 and the joints 23 between the bricks 16 as shown in dotted outline in Fig. 3. The layer 25 may be applied by brushing, spraying, trowelling or any other suitable application means. The layer 25 may also be sufficiently fluid to partially flow into the join 17 to act as a barrier to termite migration. As an example, the layer 25 may be in the nature of a mortar, a hardenable liquid or a resin such as an epoxy resin to form a continuous flexible penetration resistant barrier.

The mortar, a hardenable liquid or a resin may also incorporate a termiticide or other poison or repellent for example an organic phosphate. One or more coats of the mixture may be applied to the areas to form the layer 25 to ensure the possibility of termite penetration is minimised. The layer 25 may also have additional water sealing properties to seal the bricks 16 or act as a flashing. Alternatively or additionally, a conventional flashing 26 may be used over the layer 25 below the weep hole course 27 of the external wall 28.

After the layer 25 has cured, the external and internal walls 28 and 29 of the building may be erected in a known manner to be supported on the course 14 of bricks 16 or beam 12 and slab 13. In the illustration, a brick veneer construction results with the outer wall 28 being a single layer of bricks and the inner wall 29 being a wooden frame to which cladding may be applied.

Corresponding components/features of the invention applied to the embodiment of Fig. 1 are given the same reference numerals as used in Fig. 3.

The brick or block draft wall 20 which is provided between upper and lower slabs 13 and 21 in Fig. 1 may also be sealed in accordance with the invention. In this

instance, a layer 38 of the barrier material of the invention may be applied to the inner and outer sides of the wall 20. The layers 38 are extended upwardly and downwardly to cover the join lines 22 between the slabs 13 and 21 and bricks or blocks which are at the upper and lower sides of the wall 20. The layer 38 may also have additional water sealing properties for sealing the wall 20. The arrangement described above prevents the passage of termites or insects into the building from the ground beneath the slabs 13 and 21 by blocking the passages between the bricks or blocks or along the join line 22 which defines a passage for termites or other insects into the building. If desired also layers of the material may be provided along the join lines 22 between the wall 20 and slabs 13 and 21.

Fig. 2 illustrates an alternative form of building foundation 30 in which in this case, the slab 31 is boxed up using formwork and is spaced from the outer course 14 of bricks, the slab 31 and brick course 14 being supported on the footing 11. Again, however, the slab 31 which has a perimeter beam 32 supported on the footing 11 defines a join line 33 which may create a passage to insects or termites. Termites may also enter from the ground 80 through gaps in the mortar between bricks 16 and travel along the face 82 To the inner wall.

In this instance, a layer 34 according to the invention is applied at the junction of the slab beam 32 and footing 11 to seal off the join line 33 to thereby prevent the passage of termites and insects through the join line 33.

A further layer 35 may also be applied to the inside vertical faces of the brick course 14 and the joint between the brick course 14 and footing 11. The layer 35 may also be continued over the top of the uppermost brick 16 in the course 14. This will prevent termites from entering through imperfect mortar between the brick 16 at the joints between the bricks or perpends and sealing the extrusion openings in the bricks 16. The layers 34 and 35 may also have additional

water sealing properties for sealing the bricks 16 or act as flashings. Outer and inner walls 36 and 37 may be erected as before to form a brick veneer construction.

It will be seen that if termites try to enter the
5 internal wall 37 from a nest in the ground 80 their path through the mortar joints will be blocked by the layer 35, such that they can not penetrate the footing 11 or slab 31. The joint therebetween is blocked by the layer 34 which joins
10 outer face of the bricks 16 past the exposed edge 81 of the layer 35 and then into the wall cavity for access to the interior wall 37. This will lead either prevent their entry or if they do enter they will leave a visible path over the edge 81 which will enable simple detection and eradication.

15 A similar arrangement is shown in Fig. 4. As shown in fig 2, the layers 34 and 35 may merge into each other or be separate as shown in Fig. 4.

Fig. 2 also shows an arrangement where a retaining wall 39 of blocks or bricks is erected on the slab 31. In
20 addition to a protective water proof sheeting 40 between the wall 39 and adjacent earth 41, the face of the wall 39 is provided with a layer 42 of the barrier material according to the invention which seals the joints between the bricks or blocks forming the wall 39 and the joint between the wall 39
25 and slab 31 against ingress by termites, the layer 42 extending downwardly beyond the lowermost block in the wall 39 and over the slab 31.

Referring now to the embodiment of Fig. 5, there is illustrated an extension slab 43 constructed adjacent an
30 existing wall 44 and slab 45, in this case a slab 45 on a waffle pan foundation. A rebate 46 is formed in the upper edge of the slab 43 adjacent the brick wall 44. The barrier material 47 of the invention is applied to fill the rebate 46 and seal the space between the slab 43 and brick wall 44 for
35 preventing termite or insect passage from the ground and between the slabs 43 and 45 and wall 44. If desired for



additional protection, a bead of the barrier material 46 may also be provided between the slabs 45 and 43 to prevent termite penetration from below, the bead 46 extending along the periphery of the slabs 45 and 43 and between the slabs 45 and 43 to provide a complete seal.

However it will be seen that the flexible layer 35 which extends from the outer edge 81 to the slab 45 prevents entry to the inner wall 37 other than across the exposed edge 81 as in the earlier described constructions.

10 Figs. 6 and 7 illustrates a further embodiment of extension slab 48 applied to a construction where a an slab 49 and a brick course 50 is supported on a footing 51 adjacent an existing slab 48 on the footing 51. Again a rebate 52 is provided in the edge of the slab 48 adjacent the 15 brick wall 50 and is filled with the substance or material 53 which fills the rebate 52 and seals the space between the slab 48 and brick wall 50.

A similar arrangement is provided between the slab 49 and wall 50 wherein a rebate 52' is filled with material 53'. 20 Further material 54 in the form of a layer may be provided to extend continuously from the material 53 and 53' applied to the rebates 52 and 52' along the side of the brick wall 50 and over the top thereof for providing a complete seal for preventing termite or insect passage from the ground.

25 Fig. 7 illustrates an alternative sealing arrangement wherein layers 55 and 56 are provided on opposite sides of the wall 50 to extend downwardly and continuously from the materials 53 and 53' in the rebates 52 and 52' in the slabs 48 and 49 to the footing 51.

30 In the arrangement of Fig. 8, the add-on slab 48 is erected on a further footing 51' adjacent the existing footing 51. Again a rebate 52' is formed in the add-on slab 48 adjacent the existing slab 49 which is filled with the barrier material 52' which also extends downwardly between 35 the slabs 48 and 49 as illustrated. In each of the above embodiments, the rebates formed in the slab preferably extend



continuously along the edge of the slab to ensure that a complete seal is established by the barrier material.

Where an isolated brick pier 58 is erected, as shown in Fig. 9, the upper portion of the pier 58 may be sealed with a layer 59 of material according to the invention, the layer 59 extending over the top of the pier 58 and down the sides of the pier 58, usually a distance of 150mm to 400mm. The layer 59 may terminate in a bead 60 of the material surrounding the pier 58. Again termite entry must be over the exposed layer 59 down the sides of the pier to provide a visible indication of termite entry.

A similar arrangement is shown in figs. 10 and 11 where a brick wall 60' with engaged pier 61 is sealed by a layer 62 of barrier material according to the invention, the layer 62 extending over the top of the wall 60' and pier 61 and down the sides thereof, in this case usually to a distance of 150mm to 400mm to again terminate in a bead 63.

Fig. 12 illustrates the application of the invention to a pole or post 63 which is located in the ground 64. A layer 65 of material, according to the present invention is applied about the lower end of the pole 63 to enter any cracks or fissures 66 within the pole 63 as shown in Fig. 12 or 13 to prevent termites forming their galleries in the cracks or fissures 66 and being undetected. The layer 65, as shown in Fig. 11 or 12 is applied to the end of the pole 63 to a sufficient height such that it extends above the ground 64.

Fig. 14 illustrates a typical application of the invention where pipes 19 (as in Fig. 1) penetrate a slab 67. A recess 68 of annular form may be formed in the slab 67 around the pipe 19 to receive the liquid or substance 69 according to the present invention which seals about the pipe 19 and between the pipe 19 and slab 67 to provide a termite and insect barrier. The recess 68 may be formed during slab construction or after curing of the slab 67.

Fig. 15 illustrates a further application of the invention to a pipe 19 penetrating a slab 67. In this



instance, the material 69 is simply applied around the upper side of the slab 67 to seal against the penetrating pipe 19.

Fig. 16 illustrates an application of the invention again where a pipe 19 penetrates a slab 67. In this instance, the sealing material 68' in accordance with the invention in the form of one or more beads is located in situ within the slab 67 to surround and seal against the penetrating pipe 19. The beads of sealing material 68' are applied prior to pouring of the slab 67 so as to be embedded within the slab.

Fig. 17 illustrates an application where a pipe 19 which is provided with lagging 69 penetrates a slab 67. As in the embodiment of Fig. 16, the material 68' in the form of beads around the pipe 19 are provided within the slab 67 to provide a termite or insect barrier between the pipe 19 and slab 67. For installation, the lagging 69 is provided in sections 69' and 69". The upper and lower sections 69' and 69" may be removed to allow application of the barrier material 68' and thereafter the sections 69' and 69" are reinstalled as shown.

The barrier material as described is used in specific building applications associated with building slabs. It may, however, be applied to other applications where a crack or join line appears or for example in openings through bricks or blocks including extrusion openings which may be sealed with a layer or compound according to the present invention to block insect or termite passage.

Referring now to Fig. 18, there is illustrated an application of the invention to a construction joint 70 between adjacent building slabs 71 and 72. On the upper side of the slabs 71 and 72 and along the joint line 70, recesses or rebates 73 and 74 are provided in the respective slabs 71 and 72, the rebates 73 and 74 defining a recess 75 extending along the join line 70. The barrier material 76 in accordance with the invention is deposited into the recess 75 to substantially fill the recesses 73 and 74 and also extend

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into the joint 70. This will prevent passage of insects and termites from the ground beneath the slabs 71 and 72 through the joint line 70.

Where larger cracks or fissures are encountered
5 additional support may be required to be provided to the compound liquid or substance which forms the termite barrier. Additional support may be provided by a matting, such as a fibreglass matting or other material which may initially be laid over the larger crack or fissure and thereafter the
10 compound liquid or substance deposited upon the mat. This will provide sufficient support to the compound liquid or substance to act as a barrier for termites and insects. An example of such an arrangement is shown in Fig. 19 where the matting 77 spans the joint line 70 between slabs 71 and 72.
15 This arrangement may be provided in any of the applications described above.

The present invention thus provides an arrangement where a complete termite barrier is created for a building. All potential entry points within the slab and perimeter area may
20 be treated in the manner described above.

Whilst the above has been given by way of illustrative embodiment of the invention, all such modifications and variations thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit
25 of the invention as defined in the appended claims.



THE CLAIMS DEFINING THIS INVENTION ARE AS FOLLOWS:-

1. A method of preventing or minimising migration of termites into a structure having a ground supported termite resistant base support which on completion extends below the adjacent ground level and supports an above ground structure including a concealed wall structure containing termite consumable material concealed by an outer wall skin, the method comprising forming insitu during construction a continuous termite penetration resistant barrier by applying a setttable or curable termite resistant barrier mixture which when applied cures to form a continuous flexible penetration resistant barrier which adheres to and extends between an above ground exposed portion of the outer wall skin and a face of the termite resistant base support which is below the concealed wall structure, filling cracks and fissures in the outer wall skin and the termite resistant base support, whereby termite entry to the concealed wall structure from an in-ground nest can occur only if the termites enter across the exposed part of the flexible penetration resistant barrier on the above-ground portion of the outer skin thereby providing visible evidence of their penetration.
2. A method as claimed in claim 1 and wherein the structure further contains a pipe which penetrates the termite resistant base support in the form of a concrete slab, the method further comprising applying the setttable or curable mixture continuously about the pipe prior to pouring the concrete slab about the pipe.
3. A method as claimed in Claim 2, wherein said barrier mixture is applied as a flexible bead about said penetrating pipe.
4. A method as claimed in claim 1, wherein the termite resistant base support is a concrete slab and the outer wall





is formed in layers or courses externally about the concrete slab, the method comprising applying the settable or curable mixture fully across the upper surface of an above ground layer or course of said outer wall to the exposed surface thereof and extending down one face of the bricks to said slab prior to the addition of further layers or courses of bricks thereto to form the outer wall.

5. A method as claimed in claim 4, wherein said one face is the inner face of the bricks.

10 6. A method as claimed in Claim 4, wherein the outer wall has a brick foundation course and the inner and top surfaces of said brick foundation course and/or outer faces of the brick foundation are sealed with said barrier mixture.

7. A method as claimed in Claim 4, wherein the outer
15 wall is an external brickwork wall having lower courses, which during construction, formed the peripheral formwork for the slab of a building, said slab being recessed adjacent said brickwork and wherein said upper surface of a brickwork course and the adjacent recessed portion of the slab is
20 sealed by a layer of said settable or curable barrier mixture.

8. A method as claimed in claim 1, wherein the termite resistant base support is a concrete slab having an edge rebate or ledge for supporting a timber plate of the above
25 ground structure and the settable or curable mixture is applied continuously about the perimeter wall of said slab beneath said rebate or ledge to said exposed surface.

9. A method of preventing or precluding migration of termites or insects into a structure having columns
30 supporting an above ground structure containing termite





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consumable material and wherein the columns provide a possible concealed termite or insect entry path between the ground and the consumable material, the method comprising forming a continuous termite or insect barrier, by applying 5 during construction of the structure a settable or curable barrier mixture, to extend from the above ground exposed faces of the columns to the lower ends of the columns whereby termite entry to any column can only occur across an exposed face of the column.

10 10. A method as claimed in claim 9, wherein the termite resistant settable or curable barrier mixture is applied across the upper surface of the column and continuously about at least a portion of the exposed walls of said columns.

11. A method as claimed in Claim 9, wherein said entry path 15 is defined in a timber poles or posts and wherein said mixture is applied to fill cracks or fissures in the post or poles.

12. A method as claimed in any one of the preceding claims wherein the settable or curable termite resistant barrier 20 mixture cures as a flexible membrane which bonds to said outer wall and to said termite resistant base support.

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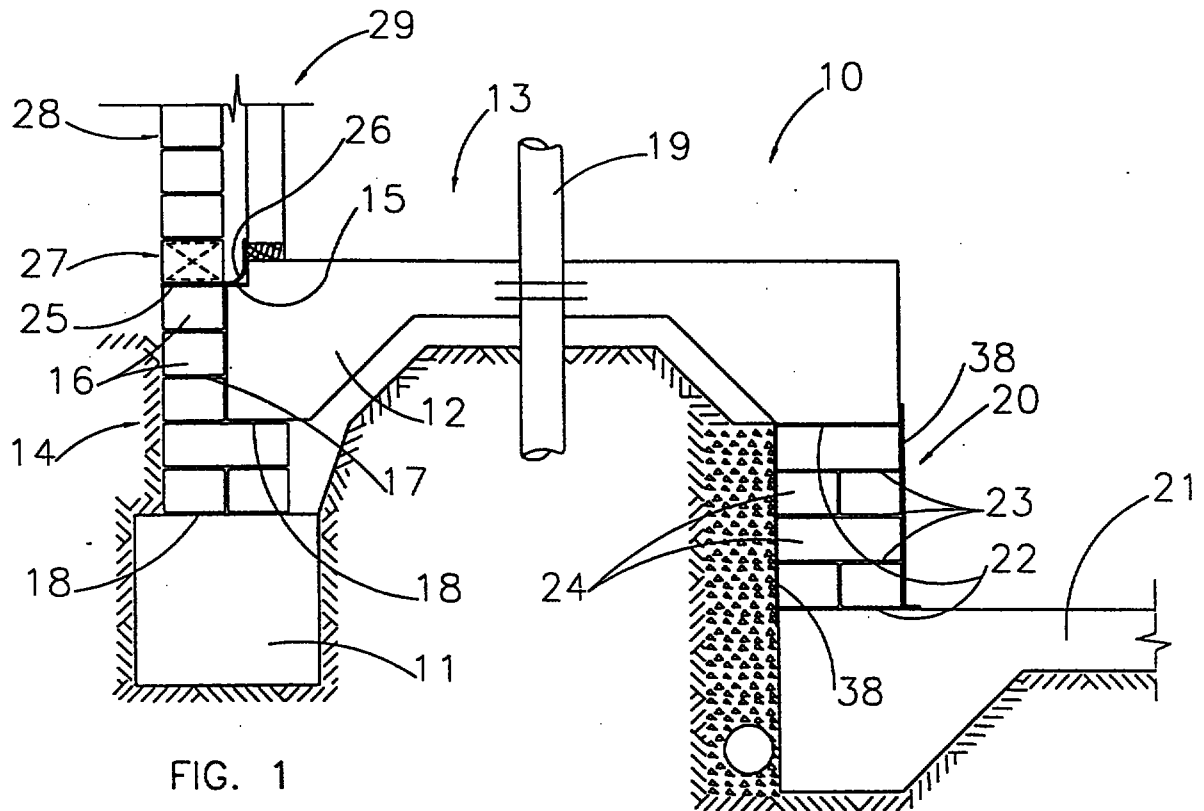


FIG. 1

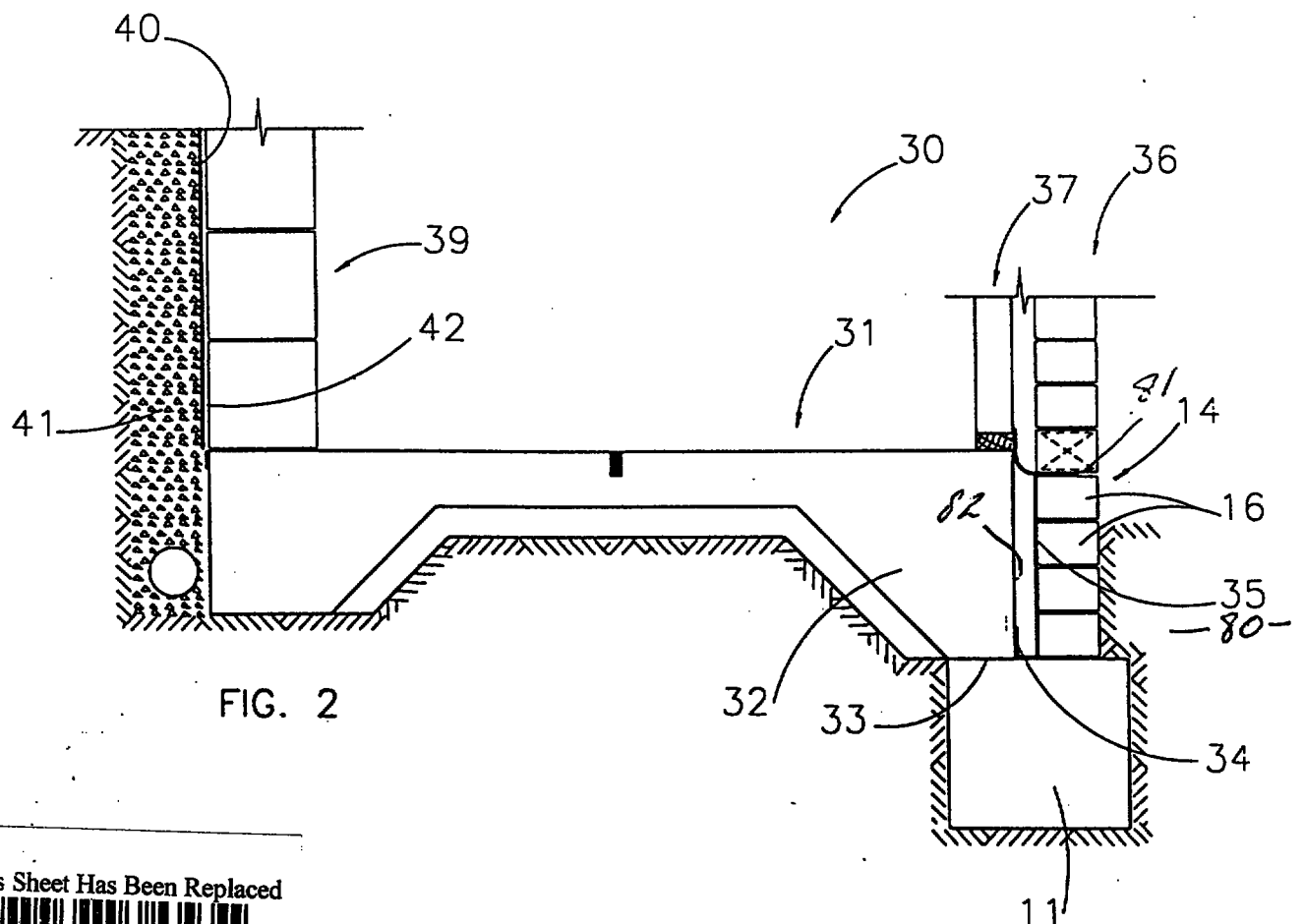


FIG. 2

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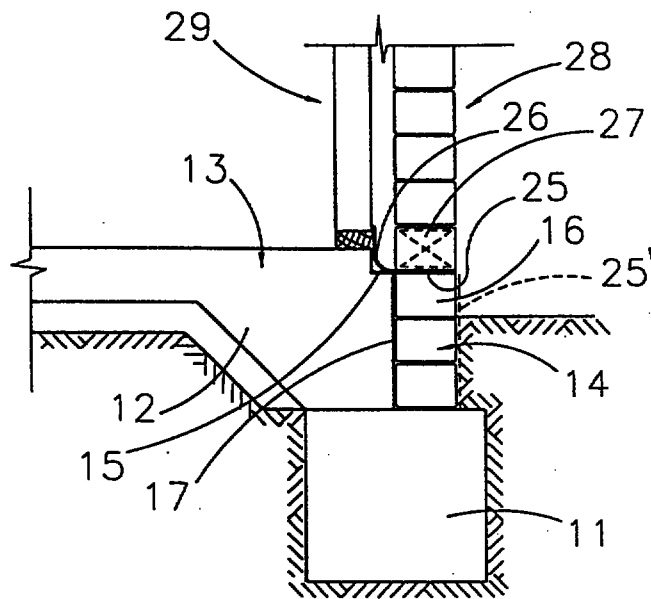


FIG. 3

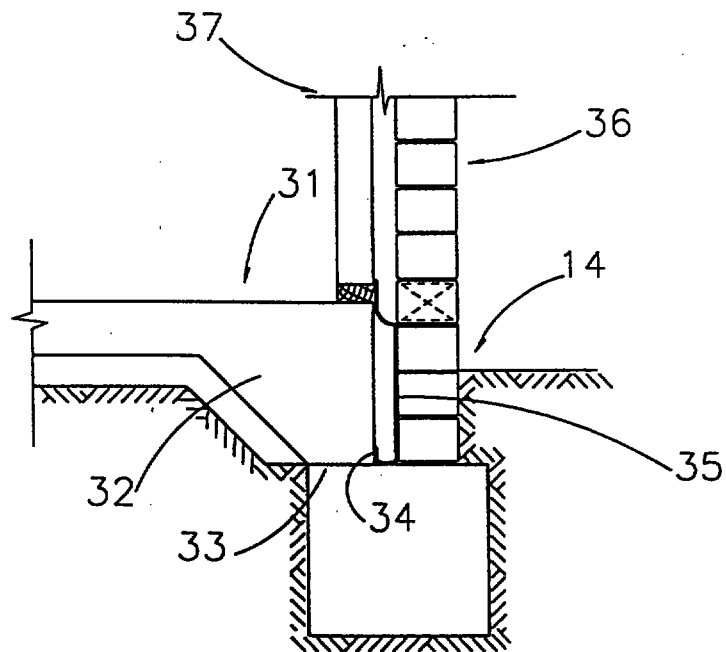
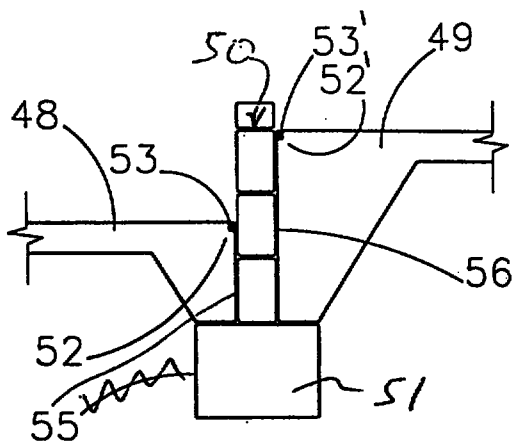
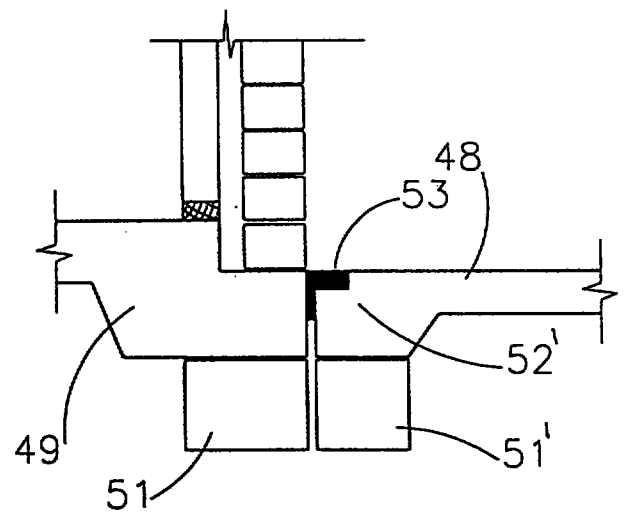
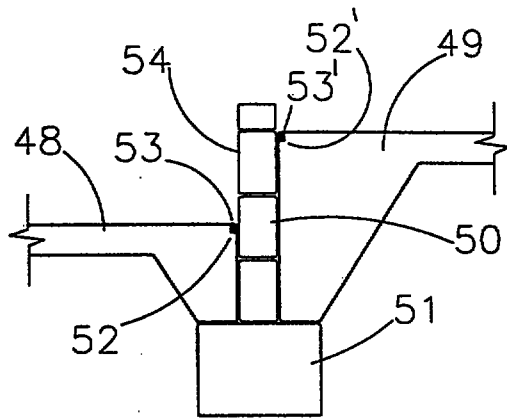
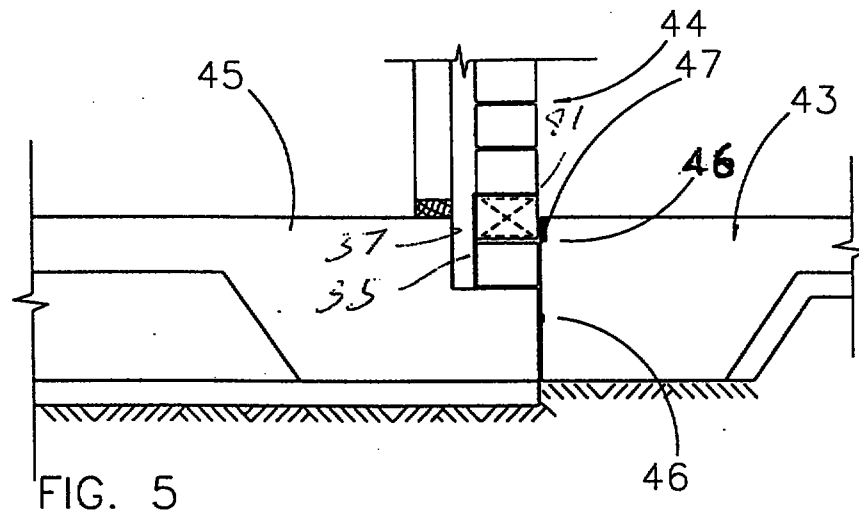


FIG. 4

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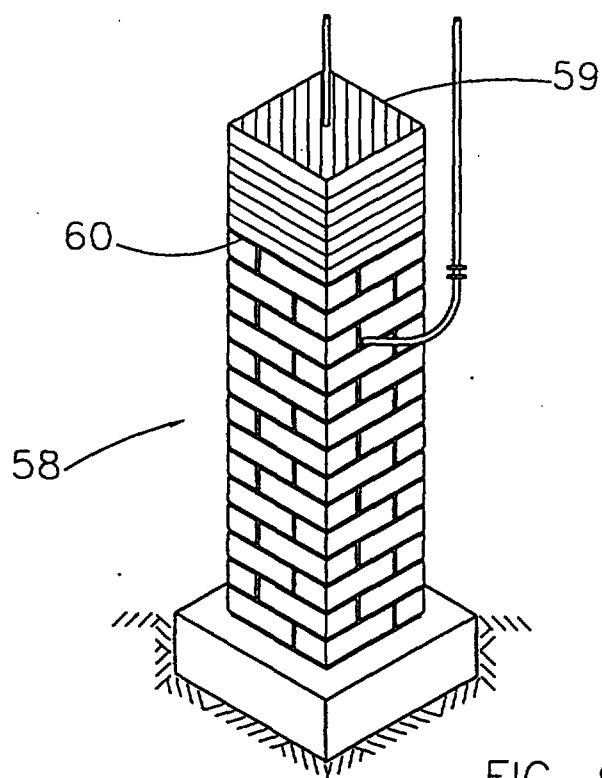


FIG. 9

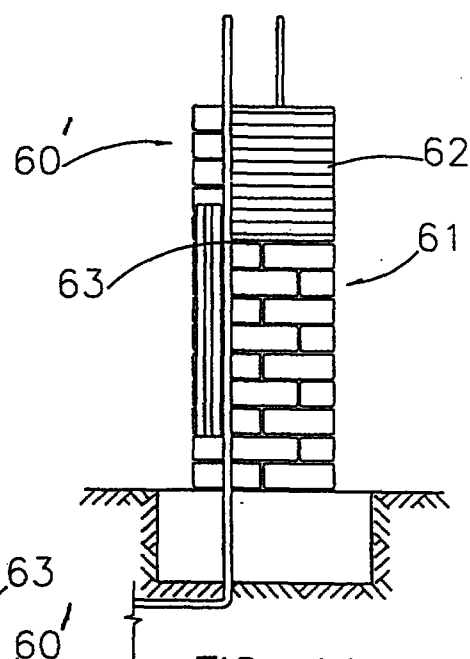


FIG. 11

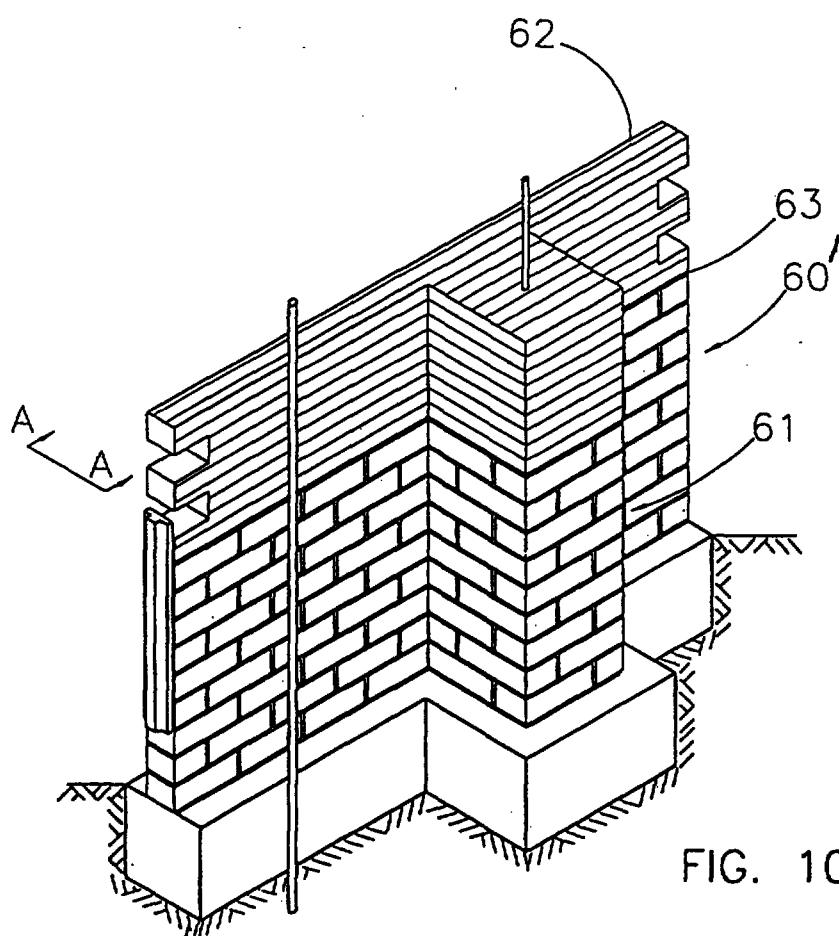


FIG. 10

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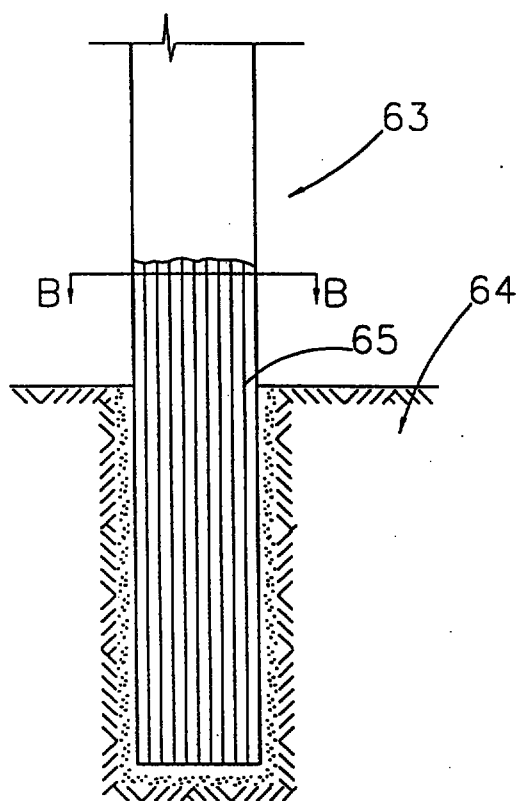


FIG. 12

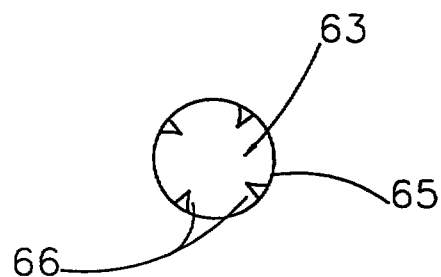


FIG. 13

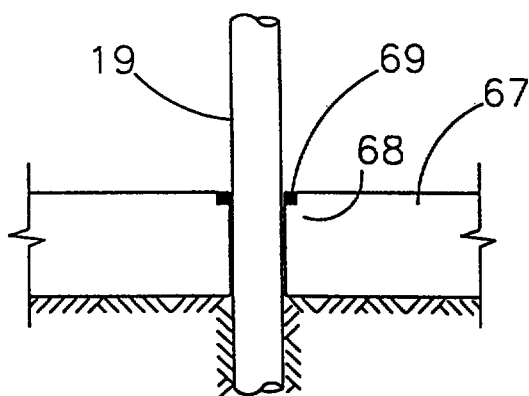


FIG. 14

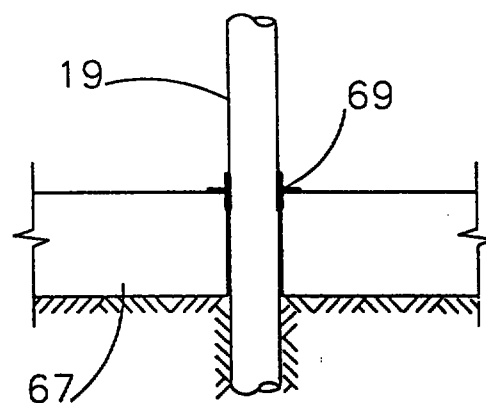


FIG. 15

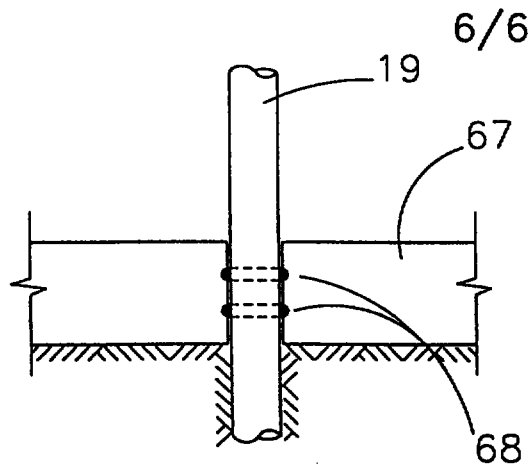


FIG. 16

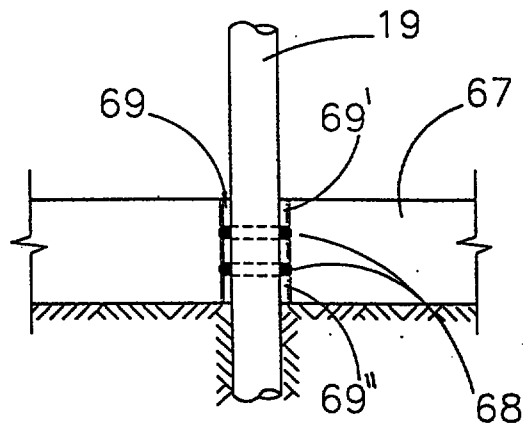


FIG. 17

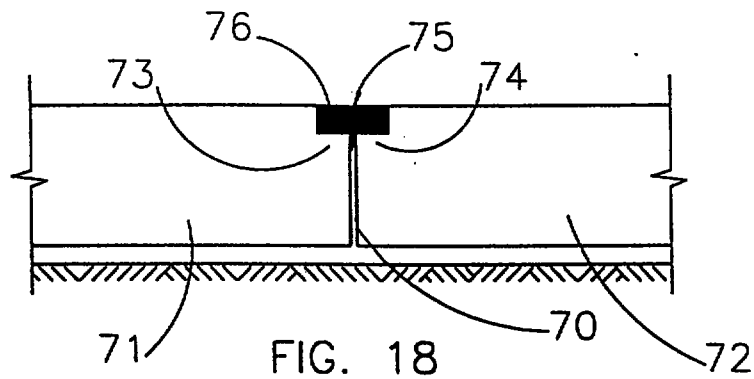


FIG. 18

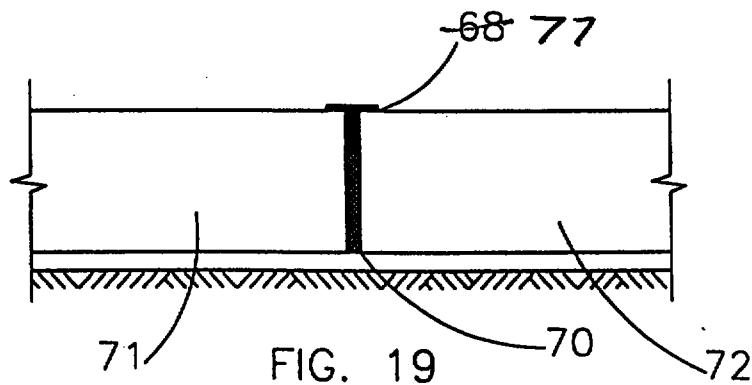


FIG. 19

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☐	Claim(s) : paged	to paged
☒	Drawing(s) : paged 11, 16, 21, 26, 31, 36, 41, 46, 51, 56, 61, 66	to paged
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foundation construction 10 which in this instance includes a footing 11 which extends about the periphery of the building to support the peripheral beam 12 of a concrete slab 13 and an outer skin which is brick and which during construction has a course 14 which, acts as the formwork for the slab 13 and which may support the beam 12 onto the footing 11. Slab and footing reinforcement is not shown for the purposes of clarity. The slab 13 is also formed with a recess 15 in its outer periphery which is at the level of the upper level of bricks 16 in the course 14.

It will be apparent in this construction that a crack or fissure 17 may be created in the join line between the inner face of the course of bricks 14 and the slab beam 12. Similarly, a join line 18 is created between the slab beam 12 and the bricks which support the beam 12 on the footing 11. If untreated, the join lines 17 and 18 define passages for termites or other insects into the building. In addition in this construction, a penetration such as a waste pipe 19 penetrates the slab 13 forming another area of possible penetration of termites from beneath the slab.

The construction 10 also includes a brick wall 20 forming a step down to a further slab 21. This creates further join lines 22 providing possible areas for termite penetration between the wall 20 and slabs 13 and 21. The joints 23 between the bricks 24 forming the wall 20 form other possible termite penetration paths.

In accordance with an embodiment of the present invention, and as shown in Fig. 3 which illustrates a slightly different form of brick-up construction where the slab 13 is supported directly on the footing 11, a layer 25 which forms a termite barrier is applied over the top of the top brick 16 in the course 14 to extend into and cover the adjacent recess 15 in the periphery of the slab 13. It will be apparent that the layer 25 therefore spans the join line 17 between the brick course 14 and slab beam 12 and slab 13 as well as sealing the extrusion openings in the bricks 16 to

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additional protection, a bead of the barrier material 47 may also be provided between the slabs 45 and 43 to prevent termite penetration from below, the bead 47 extending along the periphery of the slabs 45 and 43 and between the slabs 45 and 43 to provide a complete seal.

However it will be seen that the flexible layer 35 which extends from the outer edge 81 to the slab 45 prevents entry to the inner wall 37 other than across the exposed edge 81 as in the earlier described constructions.

Figs. 6 and 7 illustrates a further embodiment of extension slab 48 applied to a construction where a slab 49 and a brick course 50 is supported on a footing 51 adjacent an existing slab 48 on the footing 51. Again a rebate 52 is provided in the edge of the slab 48 adjacent the brick wall 50 and is filled with the substance or material 53 which fills the rebate 52 and seals the space between the slab 48 and brick wall 50. A similar arrangement is provided between the slab 49 and wall 50 wherein a rebate 52' is filled with material 53'. Further material 54 in the form of a layer may be provided to extend continuously from the material 53 and 53' applied to the rebates 52 and 52' along the side of the brick wall 50 and over the top thereof for providing a complete seal for preventing termite or insect passage from the ground.

Fig. 7 illustrates an alternative sealing arrangement wherein layers 55 and 56 are provided on opposite sides of the wall 50 to extend downwardly and continuously from the materials 53 and 53' in the rebates 52 and 52' in the slabs 48 and 49 to the footing 51.

In the arrangement of Fig. 8, the add-on slab 48 is erected on a further footing 51' adjacent the existing footing 51. Again a rebate 52' is formed in the add-on slab 48 adjacent the existing slab 49 which is filled with the barrier material 53 which also extends downwardly between the slabs 48 and 49 as illustrated. In each of the above embodiments, the rebates formed in the slab preferably extend

continuously along the edge of the slab to ensure that a complete seal is established by the barrier material.

Where an isolated brick pier 58 is erected, as shown in Fig. 9, the upper portion of the pier 58 may be sealed with a layer 59 of material according to the invention, the layer 59 extending over the top of the pier 58 and down the sides of the pier 58, usually a distance of 150mm to 400mm. The layer 59 may terminate in a bead 60 of the material surrounding the pier 58. Again termite entry must be over the exposed layer 59 down the sides of the pier to provide a visible indication of termite entry.

A similar arrangement is shown in Figs. 10 and 11 where a brick wall 60 with engaged pier 61 is sealed by a layer 62 of barrier material according to the invention, the layer 62 extending over the top of the wall 60 and pier 61 and down the sides thereof, in this case usually to a distance of 150mm to 400mm to again terminate in a bead 63.

Fig. 12 illustrates the application of the invention to a pole or post 63 which is located in the ground 64. A layer 65 of material, according to the present invention is applied about the lower end of the pole 63 to enter any cracks or fissures 66 within the pole 63 as shown in Fig. 12 or 13 to prevent termites forming their galleries in the cracks or fissures 66 and being undetected. The layer 65, as shown in Fig. 12 or 13 is applied to the end of the pole 63 to a sufficient height such that it extends above the ground 64.

Fig. 14 illustrates a typical application of the invention where pipes 19 (as in Fig. 1) penetrate a slab 67. A recess 68 of annular form may be formed in the slab 67 around the pipe 19 to receive the liquid or substance 69 according to the present invention which seals about the pipe 19 and between the pipe 19 and slab 67 to provide a termite and insect barrier. The recess 68 may be formed during slab construction or after curing of the slab 67.

Fig. 15 illustrates a further application of the invention to a pipe 19 penetrating a slab 67. In this

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instance, the material 69 is simply applied around the upper side of the slab 67 to seal against the penetrating pipe 19.

Fig. 16 illustrates an application of the invention again where a pipe 19 penetrates a slab 67. In this instance, the sealing material 68 in accordance with the invention in the form of one or more beads is located in situ within the slab 67 to surround and seal against the penetrating pipe 19. The beads of sealing material 68' are applied prior to pouring of the slab 67 so as to be embedded within the slab.

Fig. 17 illustrates an application where a pipe 19 which is provided with lagging 69 penetrates a slab 67. As in the embodiment of Fig. 16, the material 68 in the form of beads around the pipe 19 are provided within the slab 67 to provide a termite or insect barrier between the pipe 19 and slab 67. For installation, the lagging 69 is provided in sections 69' and 69". The upper and lower sections 69' and 69" may be removed to allow application of the barrier material 68 and thereafter the sections 69' and 69" are reinstalled as shown.

The barrier material as described is used in specific building applications associated with building slabs. It may, however, be applied to other applications where a crack or join line appears or for example in openings through bricks or blocks including extrusion openings which may be sealed with a layer or compound according to the present invention to block insect or termite passage.

Referring now to Fig. 18, there is illustrated an application of the invention to a construction joint 70 between adjacent building slabs 71 and 72. On the upper side of the slabs 71 and 72 and along the joint line 70, recesses or rebates 73 and 74 are provided in the respective slabs 71 and 72, the rebates 73 and 74 defining a recess 75 extending along the join line 70. The barrier material 76 in accordance with the invention is deposited into the recess 75 to substantially fill the recesses 73 and 74 and also extend

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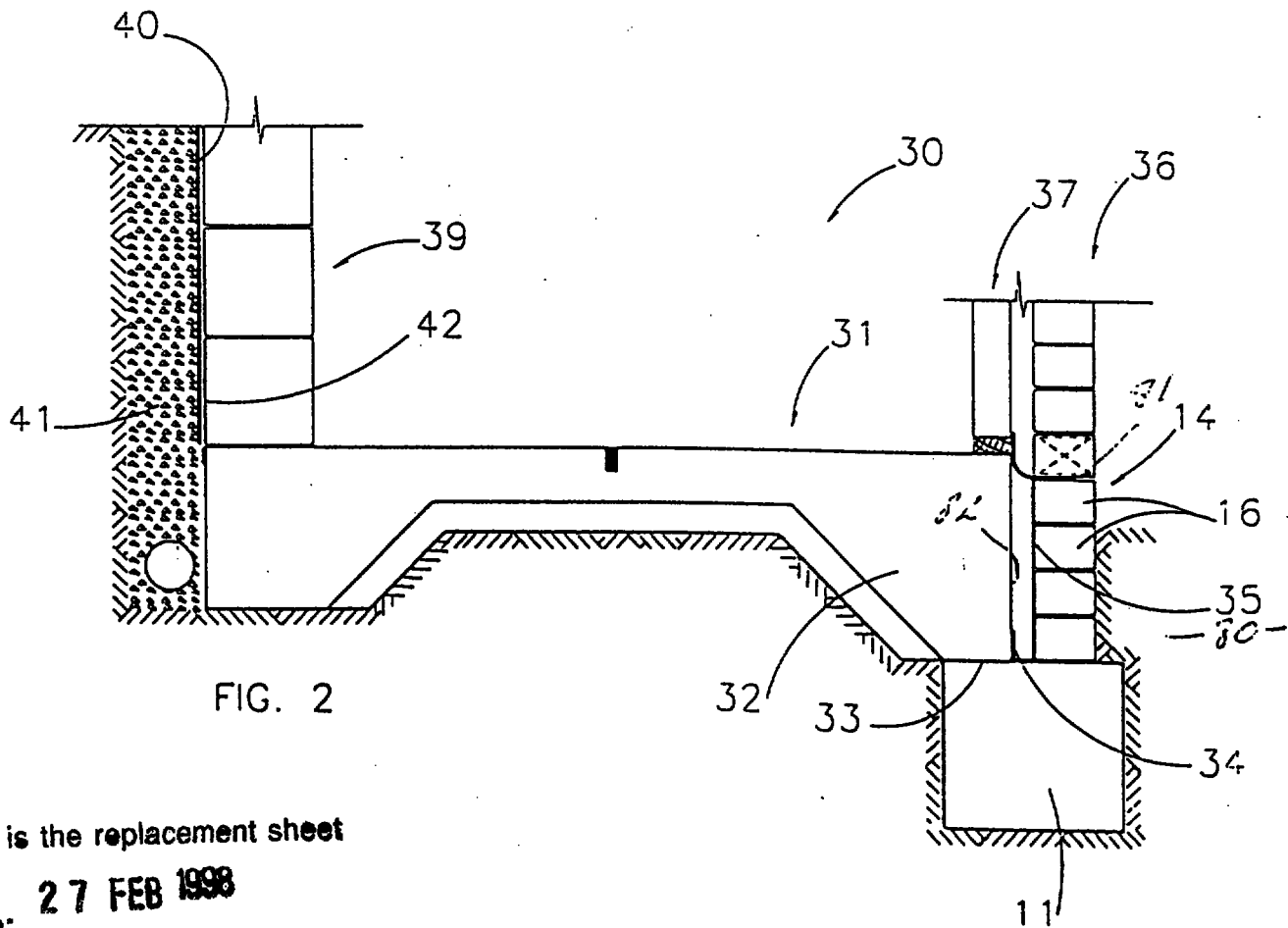
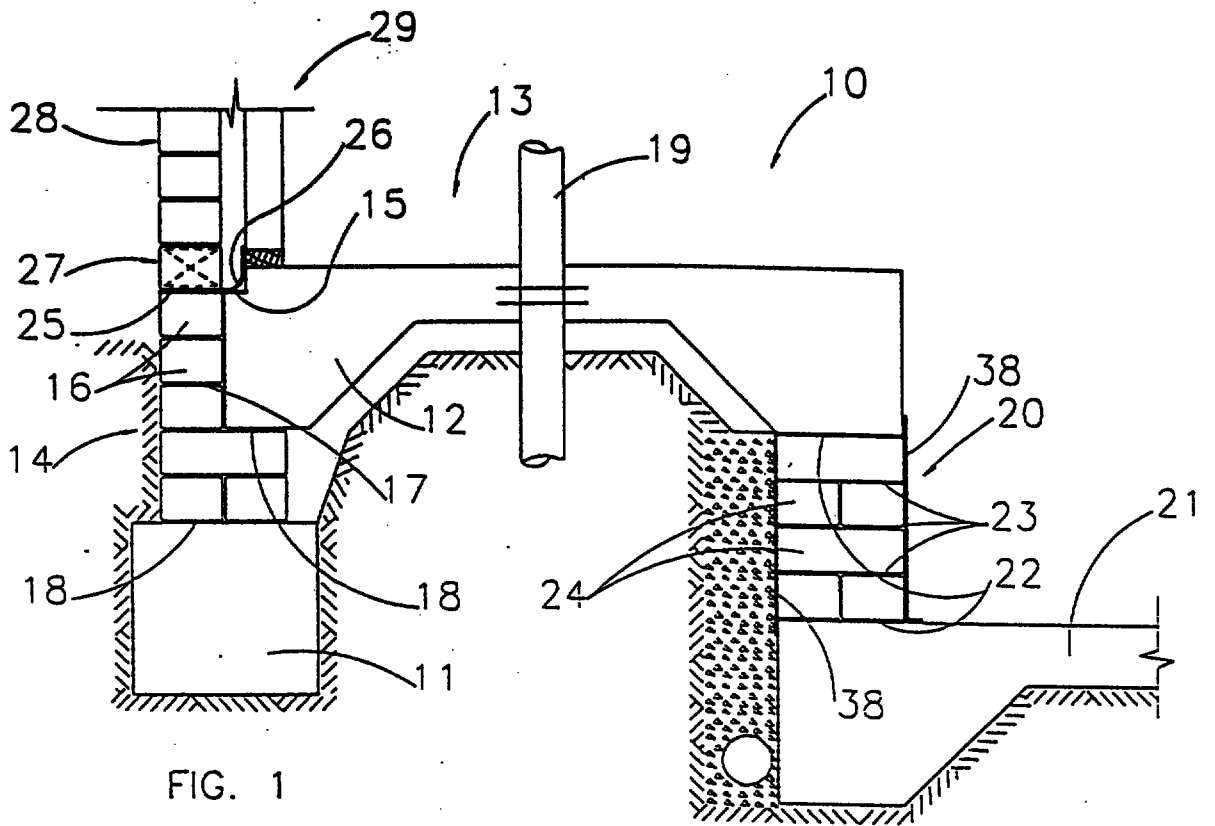
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into the joint 70. This will prevent passage of insects and termites from the ground beneath the slabs 71 and 72 through the joint line 70.

Where larger cracks or fissures are encountered
5 additional support may be required to be provided to the compound liquid or substance which forms the termite barrier. Additional support may be provided by a matting, such as a fibreglass matting or other material which may initially be laid over the larger crack or fissure and thereafter the
10 compound liquid or substance deposited upon the mat. This will provide sufficient support to the compound liquid or substance to act as a barrier for termites and insects. An example of such an arrangement is shown in Fig. 19 where the matting 77 spans the join line 70 between slabs 71 and 72.
15 This arrangement may be provided in any of the applications described above.

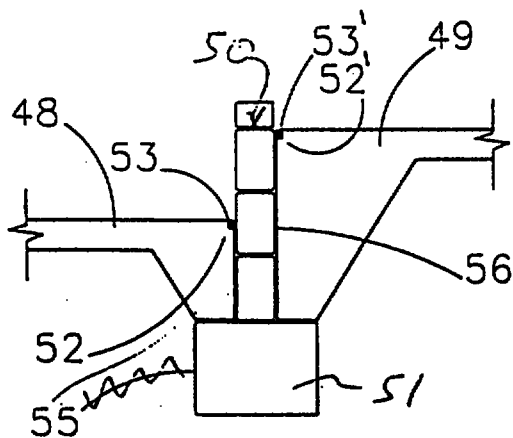
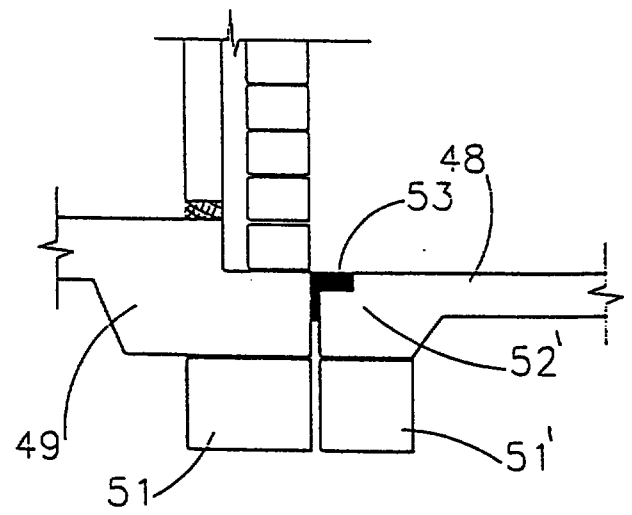
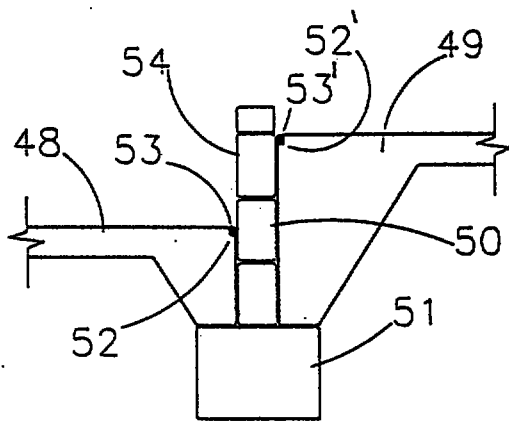
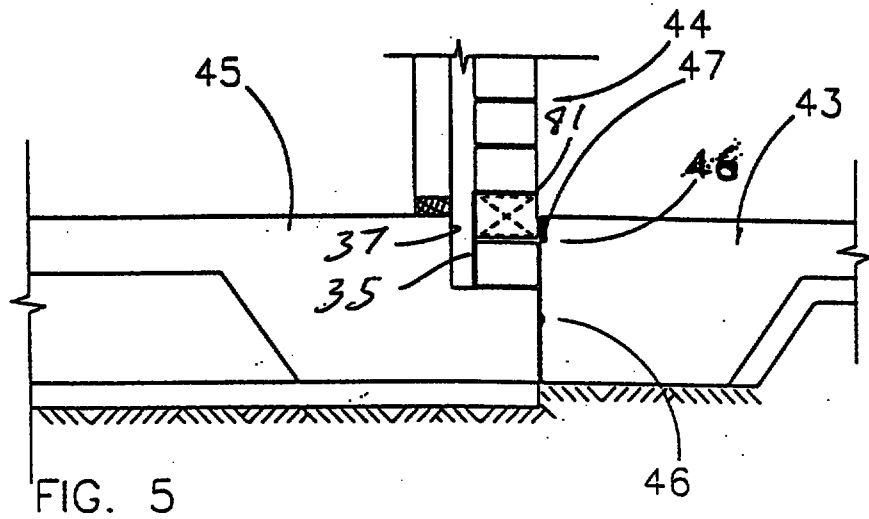
The present invention thus provides an arrangement where a complete termite barrier is created for a building. All potential entry points within the slab and perimeter area may
20 be treated in the manner described above.

Whilst the above has been given by way of illustrative embodiment of the invention, all such modifications and variations thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit
25 of the invention as defined in the appended claims.



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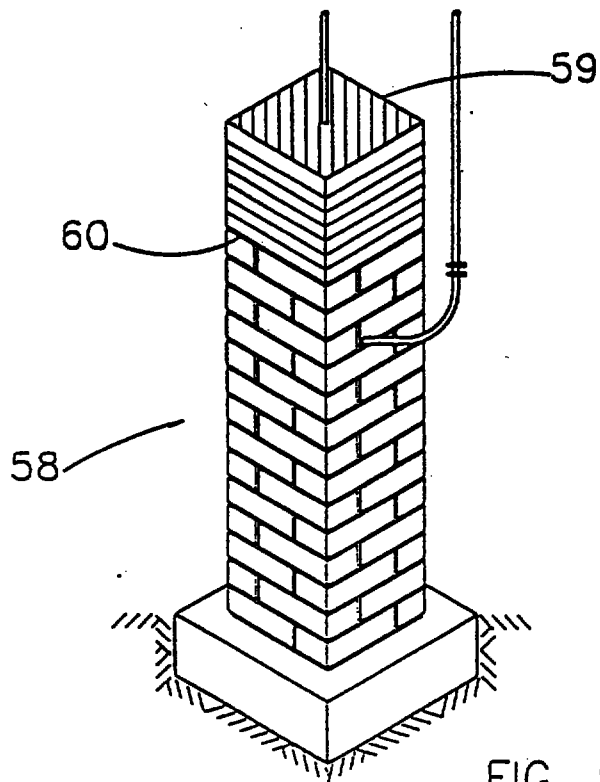


FIG. 9

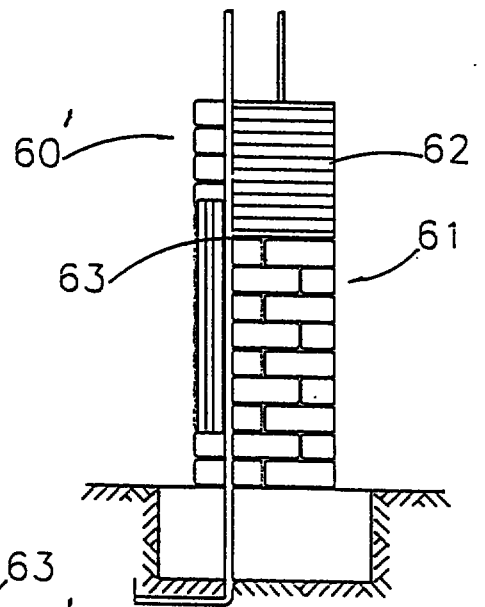


FIG. 11

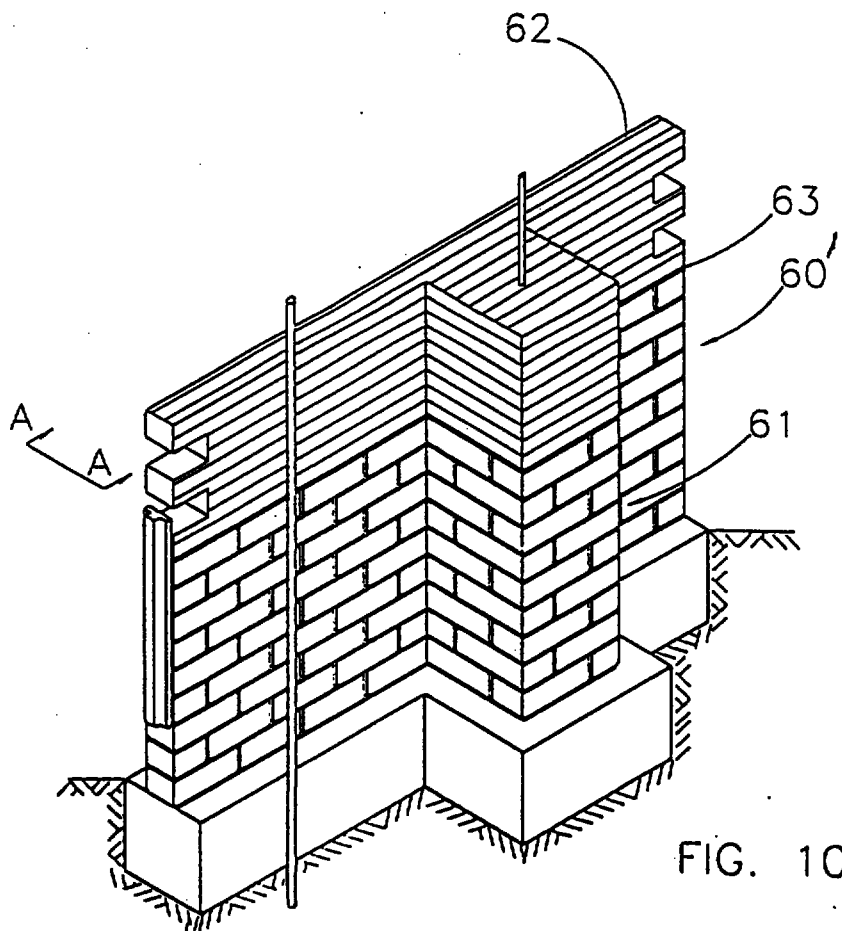


FIG. 10

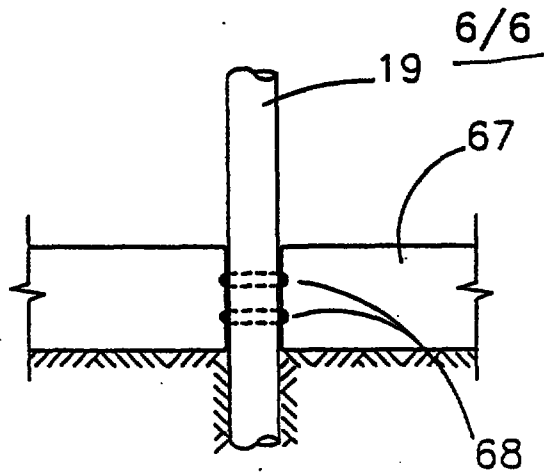


FIG. 16

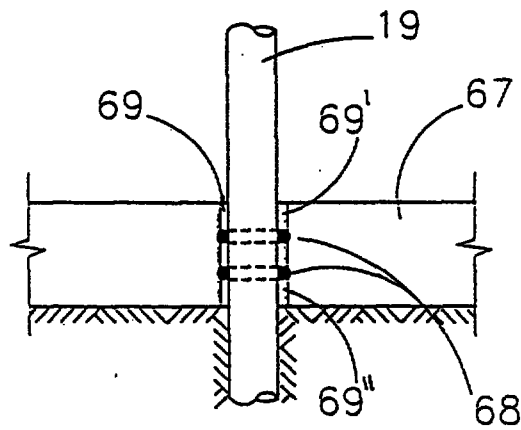


FIG. 17

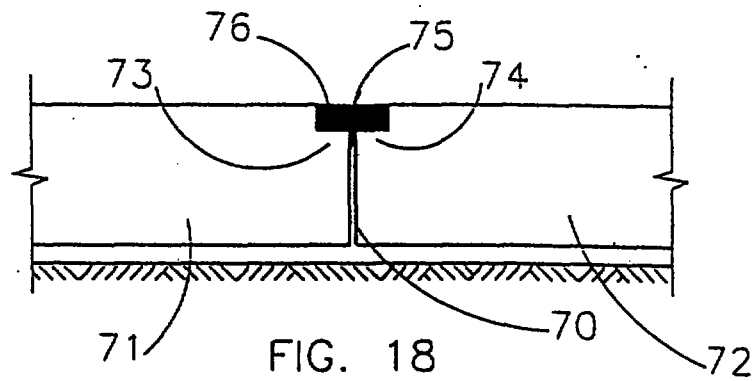


FIG. 18

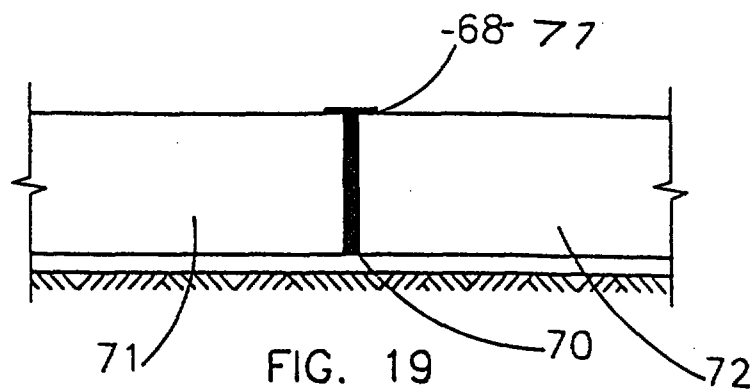


FIG. 19

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☐	Drawing(s)	: paged <u>...</u> to paged <u>...</u>
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or migration of termites or other insects into a building. The present invention, in a further aspect aims to provide methods and means which may be applied to protect building products and components from termites or other insects. Other objects and advantages of the invention will become apparent from the following description.

Summary of the Invention

The present invention thus provides in a first aspect, a method of preventing or minimising migration of termites into a structure having a ground supported termite resistant base support which on completion extends below the adjacent ground level and supports an above ground structure including a concealed wall structure containing termite consumable material concealed by an outer wall skin, the method comprising forming insitu, a continuous termite penetration resistant barrier by applying a settable or curable termite or insect resistant barrier mixture which when applied cures to form a continuous flexible penetration resistant barrier which adheres to and extends between an above ground exposed portion of the outer wall skin and a face of the termite resistant base support which is below the concealed wall structure, filling cracks and fissures in the outer wall skin and the termite resistant base support, whereby termite entry to the concealed wall structure from an in-ground nest can occur only if the termites enter across the exposed part of the flexible penetration resistant barrier on the above-ground portion of the outer skin thereby providing visible evidence of their penetration.

The barrier material may define when cured or set a physical barrier which could contain a chemical barrier.

The present invention, in one aspect is particularly applicable to buildings having concrete slabs and brick walls in which cracks, fissures, may be created and adjacent to which, in the supported wall structure, perpends or joints are created through which termites may travel to consumable material in the wall structure. In accordance with the

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THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:-

1. A method of preventing or minimising migration of termites into a structure having a ground supported termite resistant base support which on completion extends below the adjacent ground level and supports an above ground structure including a concealed wall structure containing termite consumable material and an outer wall concealed by an outer skin, the method comprising forming insitu a continuous termite penetration resistant barrier by applying a settable or curable termite resistant barrier mixture, which when applied cures to form a continuous flexible penetration resistant barrier which adheres to and extends between an above ground exposed portion of the outer wall skin and a face of the termite resistant base support which is below the concealed wall structure, filling cracks and fissures in the outer wall skin and the termite resistant base support, whereby termite entry to the concealed wall structure from an in-ground nest can occur only if the termites enter across the exposed part of the flexible penetration resistant barrier on the above-ground portion of the outer skin thereby providing visible evidence of their penetration.
2. A method as claimed in claim 1 and wherein the structure further contains a pipe which penetrates the termite resistant base support in the form of a concrete slab, the method further comprising applying the settable or curable mixture continuously about the pipe prior to pouring the concrete slab about the pipe.
3. A method as claimed in Claim 2, wherein said barrier mixture is applied as a flexible bead about said penetrating pipe.
4. A method as claimed in claim 1, wherein the termite resistant base support is a concrete slab and the outer wall is formed in layers or courses externally about the concrete



slab, the method comprising applying the settable or curable mixture fully across the upper surface of an above ground layer or course of said outer wall to the exposed surface thereof and extending down one face of the bricks to said slab prior to the addition of further layers or courses of bricks thereto to form the outer wall.

5. A method as claimed in claim 4, wherein said one face is the inner face of the bricks.

6. A method as claimed in Claim 4, wherein the outer wall has a brick foundation course and the inner and top surfaces of said brick foundation course and/or outer faces of the brick foundation are sealed with said barrier mixture.

7. A method as claimed in Claim 4, wherein the outer wall is an external brickwork wall having lower courses, which during constructions, formed the peripheral formwork for the slab of a building, said slab being recessed adjacent said brickwork and wherein said upper surface of a brickwork course and the adjacent recessed portion of the slab is sealed by a layer of said settable or curable barrier mixture.

8. A method as claimed in claim 1, wherein the termite resistant base support is a concrete slab having an edge rebate or land for supporting a timber plate of the above ground structure and the settable or curable mixture is applied continuously about the perimeter wall of said slab beneath said rebate or ledge to said exposed surface.

9. A method of preventing or precluding migration of termites or insects into a structure having columns supporting an above ground structure containing termite consumable material and wherein the columns provide a possible concealed termite or insect entry path between the



ground and the consumable material, the method comprising forming a continuous termite or insect barrier, by applying during construction of the structure a settable or curable barrier mixture, to extend from the above ground exposed faces of the columns towards the lower ends of the columns whereby termite entry from any column can only occur across an exposed face of the column coated with the barrier mixture.

10. A method as claimed in claim 9, wherein the termite resistant settable or curable barrier mixture is applied across the upper surface of the column and continuously about at least a portion of the exposed walls of said columns.

11. A method as claimed in Claim 9, wherein said entry path is defined in a timber poles or posts and wherein said mixture is applied to fill cracks or fissures in the post or poles.

12. A method as claimed in any one of the preceding claims wherein the settable or curable termite resistant barrier mixture cures as a flexible membrane which bonds to said outer wall, and to said termite resistant base support.

13. A method of preventing or minimising migration of termites into a structure having a ground supported termite resistant base support which on completion extends below the adjacent ground level and supports an above ground structure including a concealed wall structure containing termite consumable material and an outer wall concealed by an outer skin, the method comprising forming insitu during construction a continuous termite penetration resistant barrier by applying a settable or curable termite resistant barrier mixture, which when applied cures to form a continuous flexible penetration resistant barrier which adheres to and extends between an above ground exposed

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portion of the outer wall skin and a face of the termite resistant base support which is below the concealed wall structure, filling cracks and fissures in the outer wall skin and the termite resistant base support, whereby termite entry to the concealed wall structure from an in-ground nest can occur only if the termites enter across the exposed part of the flexible penetration resistant barrier on the above-ground portion of the outer skin thereby providing visible evidence of their penetration.

14. A method of minimising termite attack substantially as hereinbefore described with reference to any one of the accompanying drawings.