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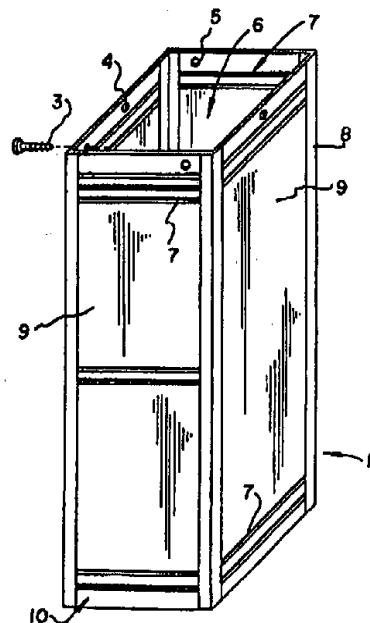
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(54) Title: TERMITE INTERCEPTION AND BAITING SYSTEM AND METHOD OF USE THEREOF

(57) Abstract

An apparatus and method for monitoring and controlling termite infestation are described. The apparatus (11) is comprised of a termite resistant housing having a bottom, sidewalls (9) having an interior and exterior surface, and a top. The top includes means (14) for accessing the interior of the housing to identify the presence of termites and to introduce toxic bait into the housing when the presence of termite is observed through the means for accessing the housing interior. The housing has at least one sidewall opening large enough (7) to permit termites to pass through and nontoxic termite bait (1) fixedly attached to the interior and/or exterior of one or more of the housing sidewalls (9).



TERMITE INTERCEPTION AND BAITING SYSTEM AND METHOD OF USE THEREOFFIELD OF INVENTION

This patent application relates to termite control, specifically to a method and system for termite interception and baiting designed to suppress or eradicate colonies of
5 termites, thereby protecting objects such as structures, agricultural crops and trees
against termite attack.

THE PRIOR ART

For many years, the indiscriminate application of environmentally persistent pesticides at ground level in and around the foundation of structures at points of possible termite
10 entry and attack, in order to form a barrier to termite entry, has been the only viable method for effective, long term protection of structures and other items against the termite attack. However, concerns over the effect of such tactics on the short and long-term health of persons occupying treated structures and on the general environment surrounding the structures has forced a reassessment of termite control
15 tactics by the termite control industry. This reassessment has included efforts to develop viable, low impact alternatives to indiscriminate "wholesale" applications of pesticides currently used to prevent or control termite attack.

One potential replacement method for barrier treatments for termite control is termite baiting. Termite baiting is the aggregation of termites at a fixed point and their
20 elimination due to their consumption of a toxicant-containing bait placed at the point of aggregation. This method of protection has several advantages over current methods. It involves the use of only a fraction of the amount of pesticide active ingredient that would have been expended to accomplish protection of an object, such as a structure, using barrier methods. The pesticide bait can optionally be placed in a
25 secured, tamper-proof housing that prevents movement of bait out of the housing into the general environment, yet permits termite entry into the housing. Placement of bait in a housing also minimises the potential for exposure of humans, especially children, and large animals to the bait. Perhaps most importantly, termite baiting results in the elimination or suppression of the termite colony, not just the exclusion of members of the colony from the point of attack or object being protected. Because a termite bait must be consumed by termites in order to be effective, a technique must be developed



to consistently and repeatedly make the bait available for consumption by members of a termite colony at a fixed point over a long enough period of time for the bait to have the intended toxic effect on the colony. However, to accomplish this, a baiting system must deal with several issues that if left unresolved, make a baiting method and/or
 5 system unlikely to succeed.

Because termites consume cellulose for nutrition, termites are a serious threat throughout much of the world to structures or other objects containing wood or other cellulose containing components. Termites can be divided into two basic classifications, subterranean and non-subterranean. Subterranean termite colonies live
 10 primarily in the ground and forage for cellulose containing food items in the earth or above ground by building a system of closed mud tunnels to traverse from the ground to the above ground food source. Non-subterranean termite colonies live above ground near or within the food source they are consuming.

For several reasons, it is desirable that termite bait be applied only after contact has
 15 been established with a termite colony and termites are aggregated for the purpose of feeding on the bait at a fixed, arbitrary baiting point. These reasons include minimisation of the amount of bait manufactured, potential deterioration of bait if it is left in place for long periods of time in anticipation of prospective termite attack, minimisation of the potential for unintended exposure of children and pets to the bait,
 20 etc. Therefore, any responsible baiting method and/or system must anticipate the need to first aggregate termites at a point with nontoxic aggregating medium and only then apply toxic bait at that point.

As currently developed, bait housings are devised to achieve detection and suppression of termites by utilising a system comprised of a housing with openings and a set of
 25 interchangeable bait cartridges.

OBJECT OF THE INVENTION

An object of this invention is to provide an improved apparatus and method for monitoring, detecting and controlling termite activity.



THE INVENTION

In accordance with a first aspect of the invention there is provided apparatus for the monitoring, detection and control of a termite infestation, comprising: a structurally-rigid housing providing a side-wall around a cavity into which a toxic bait attractive to termites can be inserted; termite-attractive interceptor material providing, or fixed to the side wall of the housing; a removable cover providing access to the cavity to enable the presence of termites in the interceptor material to be detected and a toxic bait to be inserted therein without such insertion removing or disturbing the interceptor material; and, termite-resistant material formed with termite-access openings through which foraging termites can pass.

An important feature of the invention is that the termite-attractive interceptor material forms part of the side wall of the housing and is not disturbed or replaced when toxic bait is placed in the cavity. Thus, the transition of feeding termites from non-toxic to toxic bait material is effected with the minimal disturbance to the non-toxic bait feeding site provided by the interceptor material.

In accordance with a second aspect of the invention there is provided a method of monitoring, detecting and controlling termite infestation, comprising: positioning a housing as claimed in the preceding paragraph in the location at which termite infestation is suspected; periodically removing the cover to visually detect whether the interceptor material shows signs of termite activity; responding to the presence of such signs by inserting into the cavity of the housing in close proximity to the interceptor material a toxic bait for which the termites have a greater preference than they have for the interceptor material, such insertion being carried out without removing or disturbing the interceptor material; and, replacing the cover.

INTRODUCTION TO THE DRAWINGS

The invention will now be described in more detail, by way of examples, with reference to the accompanying diagrammatic drawings, in which:-

Figure 1 is a frontal view of an interceptor for use with the main embodiment and the first, fourth, fifth and sixth alternative embodiments of the invention;



Figure 2 is a perspective view of a housing used with the main embodiment and the first, fourth, fifth and sixth alternative embodiments of the invention;

Figure 3 is a perspective view of interceptors being inserted into the housing of Figure 2;

- 5 Figure 4 is a perspective view illustrating interceptors attached to the exterior of the housing according to the first alternative embodiment of the invention;

Figure 5 is a perspective view illustrating a second alternative embodiment involving a protective transparent covering of a cellulose-based housing;

Figure 6 is a perspective view illustrating a cover fixed to a housing;

- 10 Figure 7 is a perspective view illustrating a skeletal housing providing large termite entry openings for use with the main embodiment and the first, fourth, fifth and sixth alternative embodiments of the invention;

Figure 8 is a perspective view of the housing of Figure 7 internally provided with interceptors;

- 15 Figure 9 is a perspective view illustrating an embodiment with the interceptor attached to the interior of the housing but not covering termite access openings in the housing;

Figure 10 is a perspective view of part of a fifth embodiment of the invention, wherein the interceptors are fixed to the interior of the housing walls and overlying partly or wholly one or more termite access openings;

- 20 Figure 11 is a perspective view illustrating a sixth embodiment of the invention, wherein the interceptors are fixed to the exterior of the housing walls and overlie partly or wholly one or more termite access openings;



Figure 12 is a perspective drawing of a mesh bag which acts as a bait container in the housing;

Figure 13 is a perspective view of an upper part of a housing of a further embodiment of the invention, the interior of the housing being subdivided into compartments.

In the following description the same reference numerals are used in different figures to denote components which are common to more than one embodiment of the invention. The following reference numerals denote the following components:

1. Interceptor.
- 10 2. Attachment hole for attaching interceptor to housing.
3. Fastener for attaching interceptor to housing.
4. Cover attachment hole for attaching cover to housing with tie.
5. Interceptor attachment hole for fastener used to attach interceptor to housing.
6. Access and baiting opening.
- 15 7. Termite entry opening.
8. Solid column area of wall.
9. Housing side wall.
10. Solid area at bottom of wall.
11. Housing.
- 20 12. Protective covering.
13. Termite entry opening in protective covering.
14. Cover.
15. Tie for securing cover to housing.
16. Attachment hole in cover.
- 25 17. Large termite entry opening.

The aggregation of foraging termites that randomly discover aggregating medium placed for that purpose, herein referred to as interception, and their suppression or eradication through baiting, take place within a tamper-proof system as disclosed below. The system, in conjunction with a termite bait, is employed in areas of known or suspected termite activity.



The main embodiment of the invention is illustrated in Figure 2 which shows a protective housing of termite-resistant material with one or more termite access openings 7 formed in its surface to facilitate access to the interior of the housing by randomly foraging termites. The housing should be large enough to simultaneously contain an adequate amount of both bait and interceptor. The housing is a rigid, hollow structure with four sides 9, a bottom 10, and a baiting and access opening 6 opposite the bottom. The termite access openings 7 can be of any size or shape, but they must be large enough to permit unencumbered entry by termites into the housing 11. The housing 11 of Figure 2 is constructed of an inert substance such as extruded plastic of a thickness adequate to impart sufficient rigidity to the housing walls 9 to withstand warping under the lateral pressure that will be imposed on the walls if the housing is buried in earth. The housing 11 may be made, for example, of an extruded plastic approximately 1/8" thick with the termite entry openings 7 formed either at the time of extrusion or cut into the housing after extrusion. The housing may be formed as two or more pieces that snap together. The baiting and access opening 6 is large enough to permit inspection of the housing interior and to insert and remove aggregating medium and bait.

Interceptors 1 as shown in Figure 1 can be fixed to the interior of the housing 11 by forming openings at the top of each of the four side walls 9 of the housing 5 through which a screw-type fastener 3 can be passed and which also passes through a hole 2 drilled at the top of the interceptor. Two openings 4 used to secure a cover 14 (see Figure 6) to the housing, are formed at the top of two opposite side walls 9. When the centre of the cover 14 is placed directly over the centre of the opening 6 in the top of the housing, these two openings 4 in the walls 9 respectively lie beneath two similarly sized openings 16 in the cover 14. A nylon locking tie 15 is passed through the openings 4 and 16 to secure the cover 14 to the housing. In an alternative arrangement to that shown in Figure 2, the termite entry openings 7 are replaced by two larger rectangular openings 17 shown in Figure 7 and formed in each of the four walls 9. The openings 17 are approximately 1.5 inches x 3 inches when the housing dimensions are 2 inches square x 8 inches long.



Returning to Figure 2, the termite entry openings 7 in the housing comprise parallel slits running across the width of each of the four walls 9. The slits are approximately 2-4 millimetres wide with the vertical distance between each slit being approximately 4-8 millimetres. These slits can run continuously around the housing, on all four sides

5 apart from the corner regions of the housing 11 which are left to maintain the integrity of the housing as regards its strength and shape.

The housing 11 may be provided with one or more interceptors 1 as shown in Figure 1, made of a cellulose containing material palatable to termites. Preferably, separate interceptors 1 are placed against the inside surface of each side wall 9. Preferably the

10 entire vertical interior surface of the housing 11 is covered by interceptors. Figure 3 shows four interceptors 1 partially inserted into the housing 11 to leave a hollow cavity in the centre of the housing. Bait is placed in this cavity after termites are discovered foraging on the interceptors 1. Preferably, the interceptors 1 are of a minimal mass as they are only necessary to serve the function of intercepting randomly foraging

15 termites. Because the interceptors 1 have minimal mass, they are quickly consumed by foraging termites which then switch from consuming the interceptors to consuming toxic bait when put in place in the cavity of the housing 11. The interceptor 1 is fixed to the inside of the housing so that it lies adjacent to, or abuts or covers at least a portion of one of the termite access openings 7. The interceptor(s) is not moved or

20 removed during the interception and baiting process.

For example, interceptors can be pieces of a cellulose containing substance, palatable to termites, arranged to line the inside wall of the housing 11. A cellulose containing substance many species of termites are known to prefer comprises Southern Yellow Pine wood.

25 The interceptors can be held in place by fastenings passing through aligned holes 5 and 2, shown respectively in Figures 3 and 1 or may instead be held in place in another manner. For instance an overhanging lip may be formed at the top and bottom of the inside of each side wall 9 when the housing is extruded, and the interceptors snapped into place against the wall by placing one end of each behind one lip then, while slightly



bowing the interceptor, inserting the opposite edge behind the other lip of the same wall 9.

In a further arrangement not illustrated, four interceptors, each with approximately the same dimensions as the interior of one side wall of the housing are joined along their
 5 long side edges to form a hollow square box, open at both ends, that is approximately the length of the housing interior. These interceptors can then be installed within the housing interior as a single unit lining the inside face of the housing 11. This unit can then be secured to the housing at a single point. Such an arrangement simplifies the installation and securing of the interceptors to the housing.

10 In yet a further but unillustrated arrangement a single interceptor can be used. This may be a hollow block of wood, the external dimensions of which approximate to the interior dimensions of a housing and which can be shaped to leave a minimal amount of mass in the walls of the block. When this hollowed out block is slipped into the interior of the housing, it fits snugly.

15 Turning to Figure 6, the purpose of the cover 14 is to close the access and baiting opening 6 and thus shield the interceptor and toxic bait from the exterior environment. The cover is made of an inert substance such as extruded plastics similar to that used for the walls of housing 11 and can be removed to inspect the housing interior and its contents and for adding bait. The cover is secured to the housing by the tie 15 to
 20 20 reduce the possibility of escape of bait and to minimise disturbance to any termites feeding in the housing. The cover may be designed with a small inspection port (not shown) fitted with a removable plug to facilitate inspection of the interceptor(s) to see whether there are signs of termite activity. Such a plug allows the housing to be inspected for termite attack without the necessity of removing the cover 14.

25 Preferably the cover 14 is formed as a flat sheet which overhangs each side of the housing 11. Such an overhang helps reduce the amount of moisture draining into the housing when it is placed in the earth. For instance, an overhang of two inches on each side of the housing 11 is sufficient.



To exclude non-target organisms from the housing interior, the interceptor 1 is sized and the holes 7 in the housing wall 9 are positioned such that when an interceptor is placed against an interior wall of the housing, it covers all termite entry openings 7 in that wall. The interceptor 1 must be sized and the termite entry holes 7 positioned
 5 such that, when the interceptor abuts an interior wall of the housing, the portion of the housing wall perimeter that adjoins the perimeter of the interceptor is free of any gaps which could provide termite entry holes.

Such an arrangement is most easily accomplished by providing a semi solid, harden-in-place sealant material (not shown), such as silicone caulk or a flexible gasket type
 10 material, along the periphery of the side of the interceptor 1 which lie against the solid column area 8 of the wall and the solid area 10 at the bottom of the wall. The sealant material forms a barrier to non-target organisms entering a termite access hole in the housing and attempting to travel via small gaps or discontinuities in the interface between the interceptor and the housing wall. Such organisms, while they may be
 15 successful in finding a termite entry opening, will be blocked from actually entering the housing interior by the sealant material because it forms a continuous, unbroken barrier to such entry. However, because they eat cellulose, termites can gain unimpeded entry to the housing by forming an opening through the cellulose containing
 20 interceptor 1. The limited number of openings into the housing formed by termites boring through the interceptors 1 can be secured and defended by the termite colony against entry by their natural enemies into the housing much more effectively than if the colony was forced to defend itself from enemies entering through the openings that might be present around the edge of the interceptor if the sealant material was
 25 not in place or if the interceptor was not large enough to cover all of the openings 7 in the housing walls 9.

As an alternative to the use of sealant a gasket may be provided to prevent the entry of non-target organisms. Such a gasket may be provided by eighty inches of foam gasket material 1/4 inch wide placed around the perimeter of one side of each of the four interceptors 1 such that when the interceptor is in place, the gasket seats against
 30 the interior of the side walls 9 of the housing where no termite entry openings are formed.



Optionally, loose fill baits such as sawdust can be placed in a bait container 20, such as a synthetic fibre mesh bag shown in Figure 12, before being placed in the housing. The bag is sized such that, when it is filled with bait, it completely or substantially fills the part of the housing interior not occupied by interceptors. Upon insertion, the sides of the container lie against or are adjacent to the interceptors 1 under attack from termites. Termites gain access to the bait through its mesh openings which typically will be about one-eighth inch in diameter. When the container 20 is inserted care must be taken not to move or disturb the interceptors 1. When large openings 17 are present in the housing walls as shown in Figure 7 it is preferably to use a container for the bait.

The interior of the housing may be subdivided into two or more separate bait compartments as shown in Figure 13 by adding walls 13.

In the configuration of housing 11 shown in Figure 13 its interior cavity is divided into half by the addition of a single third wall similar to, and equidistant from housing walls 9.

The walls 31 suitable are made from the same material and thickness as the exterior walls 9 and have at least one termite entry opening 7. The use of separate compartments in the housing enables initial and successive additional bait placements to occur in separate compartments. This reduces the disturbance of termites feeding on bait in one compartment, during the addition of supplemental bait in another compartment. Ideally the initial bait placement is made in a compartment at one end, side or corner of the housing. Successive bait placements, optionally in bait containers such as a mesh bag, are made in adjoining compartments. Termites feeding in one chamber move to the adjacent newly-baited compartment as the supply of bait in the previously baited compartment is exhausted by their continued feeding.

Also provided is a toxic bait which is palatable to and preferentially eaten by the species of termite to be suppressed or eradicated. The toxic bait consists of a substrate that termites will preferentially consume and to which the toxicant is applied.



The bait can come in many physical forms. For example, the bait substrate can be in the form of a loose fill, gelatinous, solid block or thin solid strips. The substrate is preferably of a density such that it is even more favourably consumed by termites than the interceptors 1. Given a choice of two substances identical except for their density, 5 termites often prefer the less dense (less mass for a given volume) version of the substance because less effort is needed to consume it. Bait substrates with a lower density than Southern Yellow Pine include wood flour, paper towel and cardboard. Although these substrates are essentially the same substance as Southern Yellow Pine (cellulose), the fact that they are a less dense form of the substance means they are 10 often more favourably consumed.

To suppress or eradicate subterranean termites, system housings formed by the housings 11 are buried in the ground around or under a structure erected in an environment likely to be inhabited by subterranean termites foraging for food. An opening is made in the ground the approximate size and depth of the housing 11. The 15 top edge of the housing is preferably flush with the earth's surface. Earth is filled in and compacted against the sides of the housing so that it is packed firmly against the termite entry openings in the sides of the housing. Typically housings 11 are placed in the ground every 5 to 50 feet around the perimeter of the structure to be protected and spaced by 10 to 25 feet from one another.

20 To suppress or eradicate non-subterranean termites and subterranean termites feeding above ground, the housings can be attached directly to cellulose containing members of a structure or item being attacked. The housings are attached directly to a cellulose containing part of the structure so that one or more termite entry openings 7 lie flush against the cellulose containing member.

25 Housings are inspected for termite activity on a regular, periodic basis (every 30 to 120 days). Termites locate the housing and the interceptor(s) it contains as the result of their foraging in search of food sources. An inspection is performed by removing the cover 14 and visually inspecting the surface of the interceptors 1 facing the vacant centre cavity of the housing. Because of the nature of termite attack against a 30 thin piece of wood such as the interceptor 1, visible signs or evidence of such attack



will invariably be left on the surface of the interceptor. This evidence can include, for example, exploratory tunnels built by termites as they consume the interceptor 1 that disfigure the interceptor in such a way that tell-tale signs of termite infestation are left on the surface of the wood.

- 5 If a termite attack is discovered, the housing is baited. If no termite attacked is discovered, the cover 14 is replaced and the housing is inspected again after the appropriate interval. Once termites have been discovered attacking the interceptor 1 the housing is baited with a toxic bait. An amount of bait, whatever its form, is inserted into the cavity in the centre of the housing such that it substantially fills the cavity. Bait can optionally be placed in a bait container 20.

It should be noted that the placing of a toxic bait next to an interceptor 1, is carried out without the interceptor 1 being moved or removed. After insertion of the toxic bait, the cover is replaced and the housing is inspected again after the appropriate interval.

- 15 Termites consuming an interceptor inevitably discover and transition to feeding upon the nearby newly-introduced toxic bait. This can be for one or more reasons. If the bait is of a lower density and of a consistency even more favourably consumed by termites than the interceptors 1, then termites may migrate from the interceptor and transition to consuming the toxic bait before the entire interceptor 1 is consumed. If
- 20 termites continue to consume the interceptors 1 even after the housing is baited, they will eventually be forced to transition to consuming the toxic bait. This is because the mass of the interceptors 1 is deliberately minimised, ensuring that termites will quickly totally consume the interceptors thereby necessitating the termite colony to again search for a food source. Because the toxic bait is nearby and is of a nature preferably
- 25 consumed by termites, they will be attracted towards consuming the toxic bait.

If the placement of additional toxic bait at a later date becomes necessary due to the depletion of the initial toxic bait, the additional toxic bait is placed against the previously-placed toxic bait. At no time is any previously placed bait or an interceptor moved or removed. Bait is repeatedly replenished in the housing without disturbing



previously placed bait until such time as all consumption of bait ceases. As long as termites are feeding on the bait, it is imperative that bait always be present in the housing in order to ensure that feeding by the colony on toxic bait is uninterrupted.

If termites do transition to consuming the toxic bait before the interceptors are completely consumed, thereby leaving the interceptors partially consumed, an added benefit may be derived from the housing configuration under certain circumstances. If for some reason, the bait is completely consumed before it is replenished and the colony is not yet eradicated, termites, may, instead of abandoning the baiting site, transition back to eating what remains of the nearby interceptors. When the toxic bait is replenished, the termites quickly transition back to eating it, as it has a lower density or some other more desirable feature. As a consequence the termite colony remains feeding at the point of aggregation even when the supply of bait is temporarily interrupted, thereby eliminating the need to reintercept the termite colony to complete its eradication.

The housing is inspected at regular intervals of, say, every 15 to 60 days, to assess the extent of termite consumption of the toxic bait. When the bait in the housing has been substantially consumed, more bait can be added without moving or disturbing the remains of the previously-placed bait.

In an alternative embodiment of the invention the interceptors are placed on the exterior vertical walls of the housing as shown in figure 4.

When the housing is deployed in the ground, earth abuts and is contiguous to the entire outer surface of all the interceptors 1. The termite entry openings into the interior of the housing where the toxic bait is to be placed, are preferably large and numerous enough to ensure that a considerable portion of the surface of the interceptor(s) 1 are visible when viewed through the termite entry openings from the interior of the housing. This visible portion is suitably about 20% of the surface of the interceptor that rests against the outside of the housing. The mass of the interceptors is minimised in the same fashion and for the same reason as in the main embodiment.



Optionally, non-target organisms can be excluded from this embodiment of the invention shown in Figure 4 in the same fashion as they are excluded from the main embodiment, the only difference being that the gasket or sealant material between the housing and the interceptor is provided on the exterior of the housing instead of on the interior.

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The housing is baited when evidence of termite attack on the interceptors is discovered. Such evidence can be detected, upon visual examination of the portions of the interceptor visible through the termite entry openings for damage or mud tubing. Toxic bait then is placed in the interior housing, but without moving or disturbing the interceptors 1. The bait, optionally within a bait container 20, is placed alongside an interior wall of the housing and covers at least one termite access opening 7 in the housing wall. Because the interceptors 1 under termite attack and the bait are respectively disposed on opposite sides of the termite entry openings, termites foraging on and consuming the interceptor 1 inevitably discover the toxic bait on the other side of the termite entry openings 7. Termites then transition easily to consuming the toxic bait in this embodiment for the same reasons as explained above. If the placement of additional bait at a later date becomes necessary due to the depletion of the initial toxic bait placement, the additional bait is placed beside the remains of any previously placed bait. At no time with this embodiment is the previously placed bait or an interceptor moved or removed.

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In the example of Figure 5, a housing 11 is made from a cellulose-containing substance palatable to termites, such as cardboard. The housing 11 is deployed, inspected and baited as previously described. However separate interceptors are no longer necessary as the housing 11 itself provides the interceptor. A thin termite-resistant covering 12 with termite entry openings 13 for example plastics sheeting which is transparent and forms part of the housing, covers the entire exterior surface of the housing except for the baiting and access opening at the top. The covering 12 impedes the movement of bait out of the housing if it is substantially damaged or consumed by termite attack during interception.

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Termites gain access to the housing body through the holes 13 in the protective covering 12. The cellulose based housing body does not contain preformed termite entry holes. The termites enter the interior of the bait housing and consume the portion of the interceptor behind the holes 13. Because any openings in the housing
 55 can only be formed by termites, the likelihood of invasion by non-target organisms is diminished. The cellulose-containing substance from which the housing is made is thick enough to impart rigidity to the walls to resist their warping under the lateral pressure imposed by burying the housing in the earth.

10 The housing is baited when evidence of attack on its body is detected. Bait, optionally within a bait container 20, is then placed in the housing interior without disturbing any part of the housing. The toxic bait is placed against the interior wall of the housing so that termites foraging on the housing inevitably discover the nearby toxic bait.

15 If the placement of additional toxic bait at a later date becomes necessary, it is placed against the previously placed toxic bait. At no time is any previously placed bait moved or removed. Bait is repeatedly replenished in the housing as required.

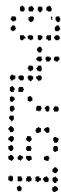
20 A third non-illustrated alternative embodiment of the invention is similar to the fifth embodiment except that the termite-resistant plastics sheet providing the termite entry holes, is fixed to the interior of the housing instead of the exterior. The plastics sheet is transparent in order that termite attack on the housing is visually detected when the interior of the housing body is viewed through the protective covering. According to this embodiment, termites are intercepted by the housing outside the sheet and termite migration to the toxic bait placed inside the protective sheet occurs after they have gained access through the holes in the sheet.

25 Figure 9 shows a fourth alternative embodiment of the invention in which there is a partial placement of the interceptors on the interior of the housing. In this embodiment the openings 7 are formed only partially in the housing walls, either by forming openings in one or more walls, but not all the walls, or by forming openings only in part of all of the walls, or by forming openings only in parts of one or more walls but not in all the walls. One or more interceptors 1 are fixed to the interior of the



housing alongside respective walls without obstructing part of any termite access opening 7 in the housing wall. Foraging termites enter the housing through the termite openings 7 and traverse to the interceptor 1 by building enclosed exploratory, protective tunnels across the exposed interior surfaces of the housing wall. Such an arrangement enables easier detection of termites foraging in the housing because the tunnels can often be seen as early evidence of termite activity.

It should be noted that the embodiment of Figure 9 is not useful in areas where non-target organisms are a problem.



10 The housing of Figure 9 is baited when evidence of foraging termites is discovered by tubes on the interior walls or signs of termite attack on the interceptor are discovered.



15 Figure 10 shows a further embodiment of the invention in which the interceptors 1 overlie either a part of one or more termite entry openings 7 or do not overlie every termite entry opening 7. Each interceptor 1 is fixed to the interior of the housing in such a way that it lies alongside the interior surface of the housing but does not close off every termite access opening 7.

20 This embodiment is most useful in areas of high ground moisture. Leaving all or part of one or more termite entry openings uncovered by interceptors allows for quick draining of water out of the housing. Sizing of the interceptors such that they do not cover the entire wall 9 allows for swelling of the interceptors 1 as they absorb moisture. In areas of high moisture content, such undersizing may be necessary to ensure that interceptors are not swollen with water to a size larger than the housing wall that they are against, as this could cause them to buckle away from the housing wall. As provision is not made for excluding non-target organisms from the housing interior, this embodiment is not useful in areas where non-target organisms are a problem.

25 In the embodiment of the invention shown in Figure 11, there is partial placement of the interceptors 1 on the exterior of the housing, so that the interceptors 1 overlie either only part of one or more termite entry openings 7 or do not overlie every termite entry opening. The interceptor 1 is fixed to the exterior surface of the housing



wall in such a way that it does not cover every termite access opening in the housing walls or does not overlie every termite entry opening in its entirety.

In the embodiment of Figures 10 and 11, the top of the housing may be closed by a cover which fits tightly against the external or interior walls, respectively, of the housing with or without additional means of attachment.

The embodiment of Figure 11 is useful in areas of high ground moisture. Leaving all or part of one or more of the termite entry openings uncovered by interceptors allows for quick drainage or water out of the housing. Provision is not made to exclude non-target organisms from the housing interior, therefore this embodiment of the housing is not useful in areas where non-target organism are a problem.

In the above specific examples of the invention, dimensions are given in inches. Such imperial dimensions may be converted to metric dimensions by applying the conversion factor of 1 inch equals 2.54 centimetres.

Specific conversions of the imperial values given above, are:

1/8" inch (1/8")	= 3.175mm
1/4 inch	= 6.350mm
80 inch	= 2.032 metres
1.5 inch	= 3.81 cms.
2 inch	= 5.08 cms.
3 inch	= 7.62 cms.
8 inch	= 20.32 cms.
5 feet	= 1.524 metres
10 feet	= 3.048 metres
25 feet	= 7.62 metres
50 feet	= 15.24 metres.



The claims defining the invention are as follows:

1. Apparatus for the monitoring, detection and control of a termite infestation, comprising: a structurally-rigid housing providing a sidewall around a cavity into which a toxic bait attractive to termites can be inserted; termite-attractive interceptor material providing, or fixed to, the sidewall of the housing; a removable cover providing access to the cavity to enable the presence of termites in the interceptor material to be detected and a toxic bait to be inserted therein, without such insertion removing or disturbing the interceptor material; and, termite-resistant material formed with termite-access openings through which foraging termites can pass.
- 10 2. Apparatus as claimed in claim 1, in which the housing is provided by a hollow block of interceptor material having the termite-resistant material formed by a plastics layer on the sidewall of the housing.
3. Apparatus as claimed in claim 2, in which the layer is on the inside of the sidewall.
- 15 4. Apparatus as claimed in claim 2, in which the layer is on the outside of the sidewall.
5. Apparatus as claimed in claim 1, in which the termite-resistant material provides rigidity to the housing and on which is mounted one or more strips of interceptor material.
- 20 6. Apparatus as claimed in claim 5, in which the strips are mounted outside the termite-resistant material.
7. Apparatus as claimed in claim 5, in which the strips are mounted inside the termite-resistant material.
8. Apparatus as claimed in claim 6 or claim 7, in which the termite access openings are entirely covered by the interceptor material.



9. Apparatus as claimed in claim 6 or claim 7, in which the termite access openings are only partially covered by the interceptor material.

10. Apparatus as claimed in any one of the preceding claims, in which the housing has a cover provided with an insert portion which fits within the upper end of the housing.

11. Apparatus as claimed in any one of claims 1 to 10, in which the housing has a cover fitting over the top end-portion of the housing.

12. Apparatus as claimed in any one of claims 1 to 10, in which the cover overlaps the top end of the housing on all sides by a substantial amount and is secured to it by a tie.

13. Apparatus as claimed in claim 1, provided with a mesh container of toxic bait and which is shaped to fit into the cavity of the housing.

14. Apparatus as claimed in claim 8 or any one claims 10 to 13 when dependent thereon, in which an inert continuous seal is provided between the peripheral edge-portion of the interceptor material and the termite-resistant material to prevent non-target organisms entering the cavity of the housing.

15. Apparatus as claimed in any one of the preceding claims, in which the cavity is partitioned by one or more upright walls of termite-resistant material into separate compartments individually accessible by way of the cover, the or each partition wall being provided with one or more termite access openings to enable termites to travel between the compartments.

16. Apparatus as claimed in claim 1 in which the termite access openings are spaced from the interceptor material by areas of termite-resistant material so that the presence of termite activity is denoted by the construction of termite tunnels on the surface of the termite-resistant material inside the cavity.



17. A method of monitoring, detecting and controlling termite infestation, comprising: positioning a housing as claimed in claim 1 in the location at which termite infestation is suspected; periodically removing the cover to visually detect whether the interceptor material shows signs of termite activity; responding to the presence of
5 such signs by inserting into the cavity of the housing in close proximity to the interceptor material a toxic bait such insertion being carried out without removing or disturbing the interceptor material; and, replacing the cover.

18. Apparatus as claimed in claim 1, arranged and adapted to be used substantially as described with reference to any one of the examples shown in the accompanying
10 drawings.

19. A method as claimed in claim 17, carried out substantially as hereinbefore described.

Dated this 24th day of October 2001.

David A. Nimocks III

By: *H.J. Kantzen*
(Applicant's Patent Attorney)



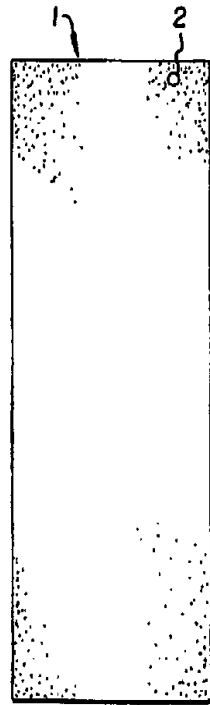


Fig. 1

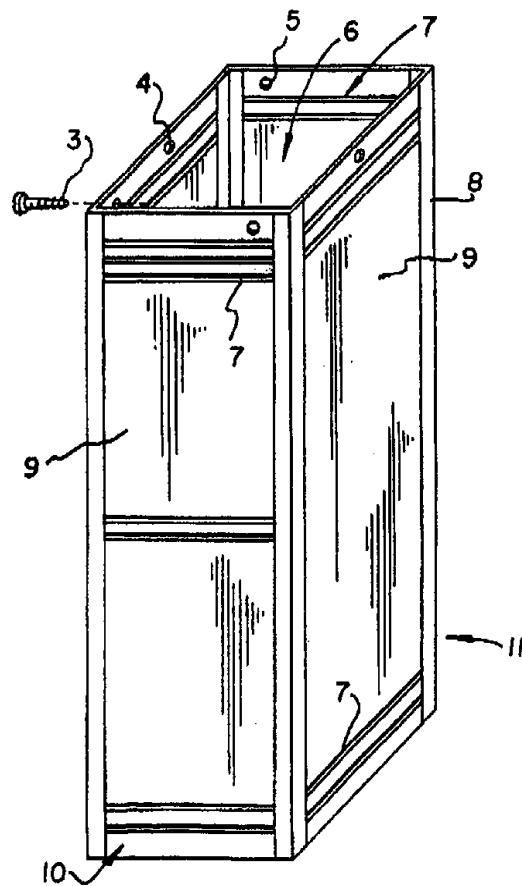


Fig. 2

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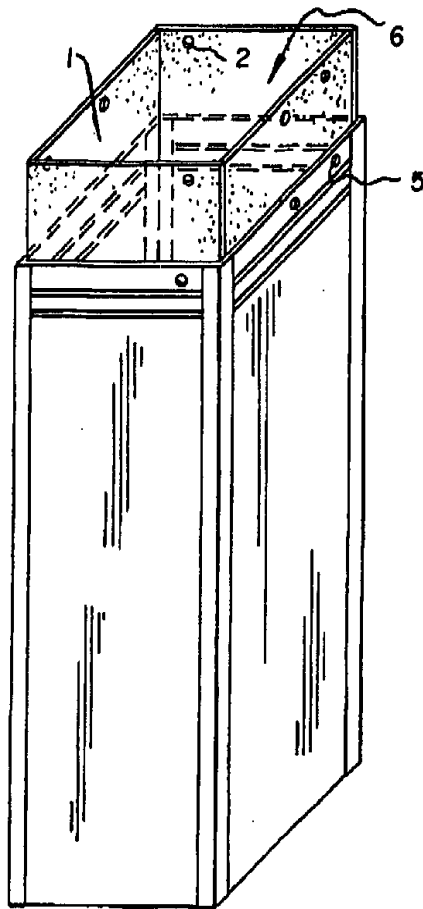


Fig. 3

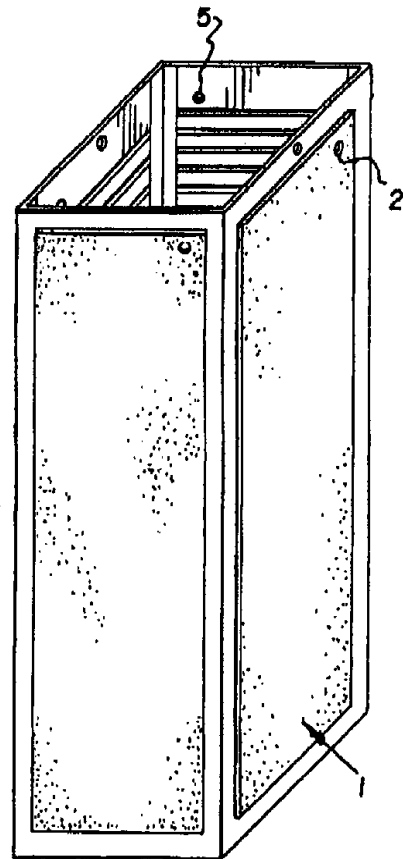


Fig. 4

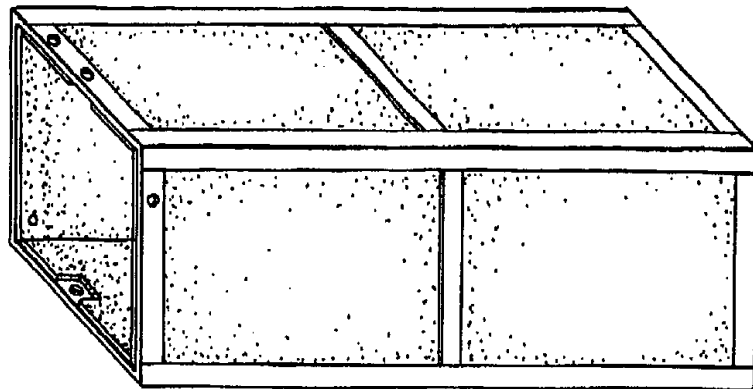


Fig. 8

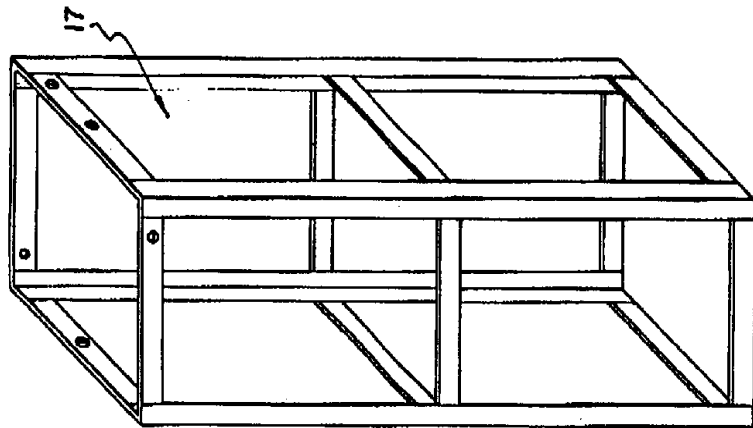


Fig. 7

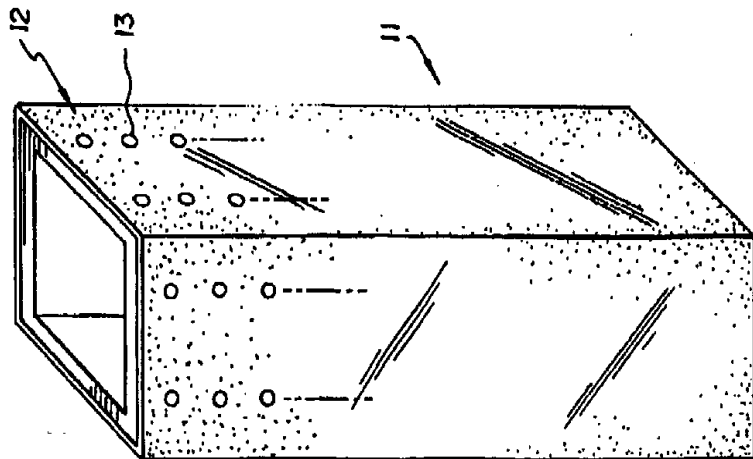


Fig. 5

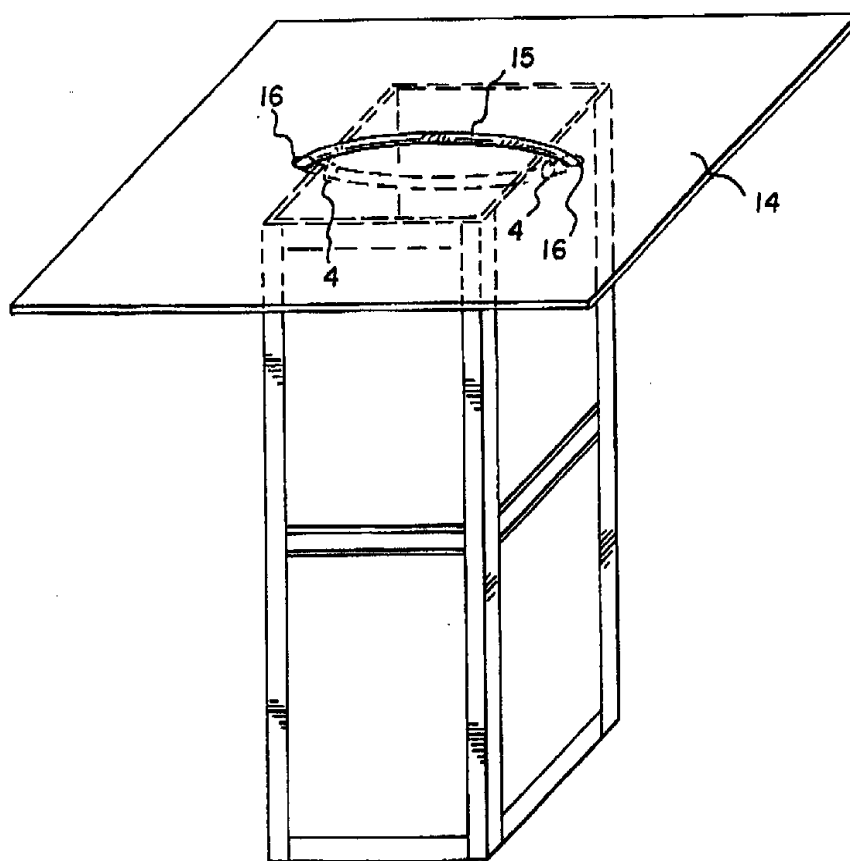
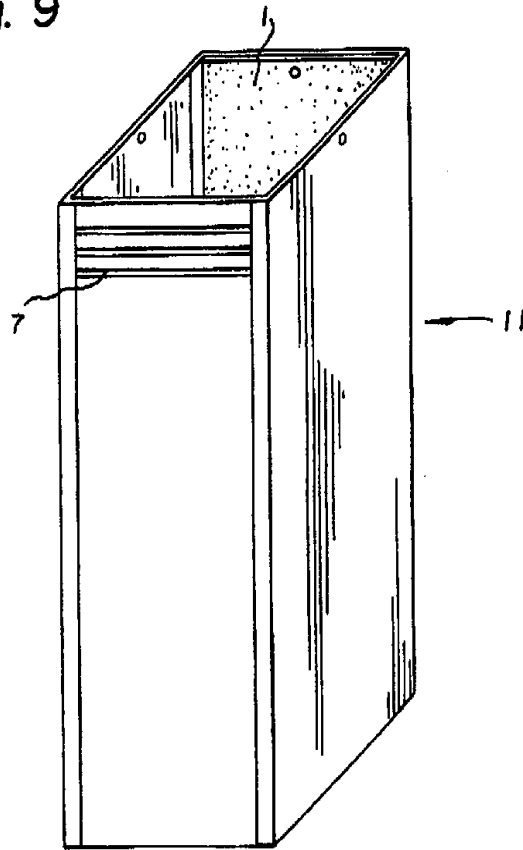
*Fig. 6*

Fig. 9



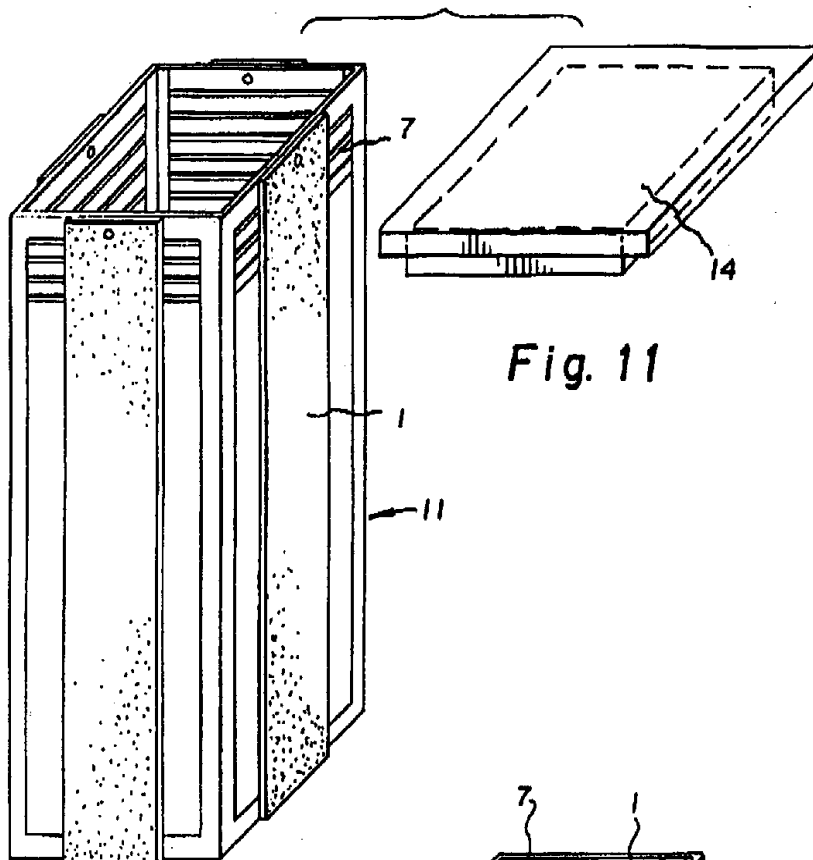
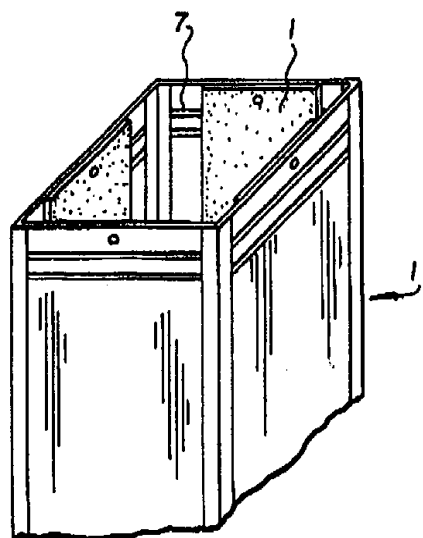


Fig. 11

Fig. 10



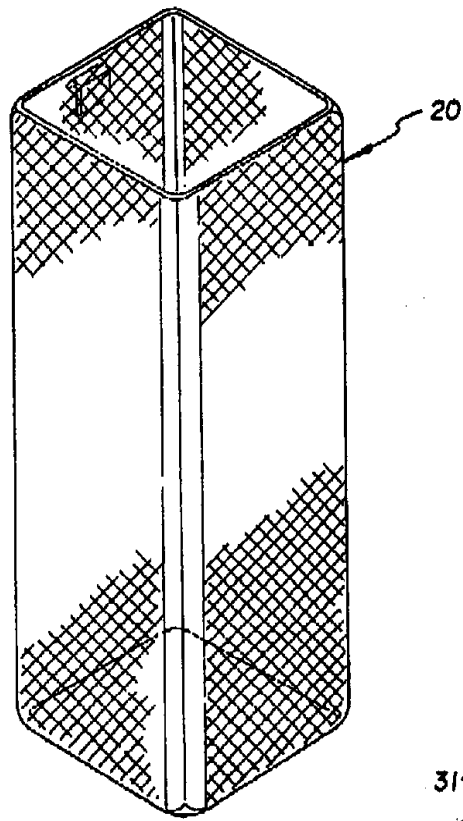


Fig. 12

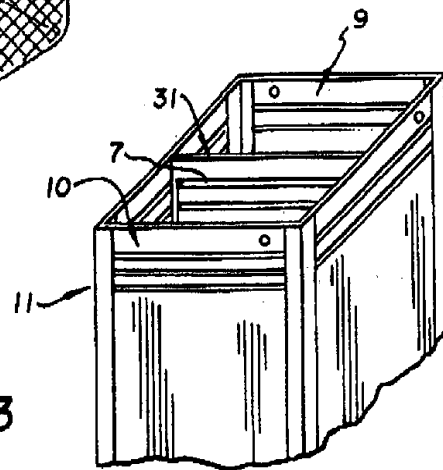


Fig. 13