

## INSECTICIDE APPARATUS

The present invention relates generally to an insecticide apparatus. More particularly, the present invention is concerned with an insecticide apparatus which includes a chemical exterminating material and is provided with a resilient guard to protect the chemical exterminating means from being easily removed or undesirably accessible by animals either intentionally or accidentally.

In U.S. Pat. No. 1,566,199, a roach exterminator apparatus means is described that is similar to the roach exterminators presently being sold commercially. Essentially, this roach exterminator includes a tubular body formed of spirally twisted cardboard within which is positioned a chemical exterminating means in the form of a bait which usually includes, as the active ingredient, lead arsenate in an active amount between 15 and 20 percent, the remainder being inert binder materials of no biological activity but which attract the insect to the bait. The chemical exterminating means may be adhesively secured to the bottom of the tubular body—usually by its characteristically adherent nature. This combination of the chemical exterminating means and the tubular body forms the roach exterminator and is designed to be placed in any room where insects such as roaches, silver fish, water bugs, crickets, and the like, are usually seen. It is found that the insects are attracted to the chemical exterminating means and, after the insects have taken the bait, they have been found to return to their particular hideaways to die in a short period of time.

This product has been proven to be successful for many decades and will undoubtedly continue to provide effective extermination of various insects in the face of numerous organic insecticides previously known or yet to be developed. It is well known that many of the previously considered safe organic insecticides are today being reexamined for safe use in our environment, while new insecticides are being given far greater scrutiny than ever before. Not only are the basic characteristics of the insecticide considered, but frequently it is the manner of application of the insecticide necessary to bring about the effective contact between the insecticide and the insect that may raise a question of the safest possible use.

In order to avoid any serious questions of safety for a chemical composition that has been in accepted safe use for decades such as the lead arsenate bait, further protection against intentional or purposeful acts by animals or children to gain access to the chemical composition is considered to be desirable. Increased safety of the chemical composition would enhance the already more than acceptable public safety record established through many years of safe use.

It is therefore the principal object of the present invention to provide means for protecting against accidental or purposeful undesirable access to the chemical composition forming the chemical exterminating means or bait.

A further object of the present invention is to provide a guard covering the chemical exterminating means which will prevent accidental or purposeful undesirable access to or removal of the chemical exterminating means, and yet not hinder in any way the necessary access to the chemical exterminating means by the insects desired to be killed by the insecticide apparatus.

A further object of the present invention is to provide a guard which will be simple and easy to insert into the housing containing the chemical exterminating means, and will be retained therein even against intentional attempts to remove in toto or partially the chemical composition forming the insecticide.

It is another object of the present invention to provide a simple easy-to-install guard of a resilient flexible nature which is held in place within a tubular body to protect a chemical insecticide against improper access.

These and other objects of the present invention will become more apparent upon a careful reading of the following specification and accompanying drawings in which

FIG. 1 is a perspective view of the insecticide apparatus of the present invention.

FIG. 2 is an exploded perspective view of the basic elements forming the combination of the insect apparatus.

FIG. 3 is a cross-sectional view taken along the lines 3—3 of FIG. 1 illustrating the guard in place to protect the chemical insecticide from undesired access.

FIG. 4 is a cross-sectional view taken along the lines 4—4 of FIG. 3 illustrating the circumferential extent of the guard in relationship to the tubular housing.

FIG. 5 is a cross-sectional view taken along the lines 5—5 of FIG. 4.

FIG. 6 is a perspective view of a modified guard for the chemical insecticide.

FIG. 7 is a view similar to FIG. 5 illustrating the modified guard of FIG. 6 in place in the tubular housing.

The numeral 10 in FIG. 1 designates the combination of elements which is referred to as the insecticide apparatus of the present invention. Essentially, the components forming the insecticide apparatus 10 include the tubular housing 12, the resilient flexible guard 14, and the chemical exterminating means or insecticide 16 combined for use as the insect bait.

The tubular housing 12 may be composed of any suitable material such as paper or cardboard or plastic material such as the polyvinyl resins. However, generally for economical reasons the body is formed of cardboard twisted spirally in a manner well known in the construction of roller tubes for paper tissues and the like. It should be understood that the manner of construction of the tubular housing is not critical, nor is the particular shape critical although it has been found preferable, again for economical reasons, to utilize a cylindrically shaped tube. However, any tubular form that is hollow and elongated, regardless of the cross-sectional shape, may be utilized. The cylindrical tubular shape does have the advantage, however, that the chemical insecticide 16 will always be positioned at the bottom of the housing due to the weight component of the insecticide itself which forces the tubular housing 12 to take the position as shown in FIG. 1.

The tubular housing 12 is formed with similar open ends 18 and 20 to permit the ingress of the insects and their access to the chemical insecticide 16. The tubular housing may be of any size; however, it is found that sizes from 1 to 3 inches long and from  $\frac{3}{4}$  to 2 inches in outside diameter are entirely acceptable to admit the insects of the size usually encountered. Actually, the size is not critical and is determined solely by the size of the insect to be killed and the surrounding space available to position the insecticide apparatus 10.

The open ends 18 and 20 are preferably provided with an intumed circumferential lip 22 which narrows the diameter of the open end and is important to provide the means for holding the resilient guard 14 in place after it has been inserted into the tubular housing 12. It is not essential for the lip 22 to be continuous, merely that it protrude inwardly to narrow the diameter of the open ends 18 and 20 and provide an abutting surface 24 which will abut the complementary-shaped edge or rim 26 of the guard 14 as best shown in FIG. 2 and FIG. 3.

The chemical insecticide may be any insecticide composition which will first attract insects through color or odor or other stimuli and kill them upon contact or ingestion of the insecticide. The insecticide usually found to be very efficient for this purpose is lead arsenate mixed with a binder that may be a mash or gum or other insect-attracting composition well known in the art. The type of insecticidal bait 16 that has been used by the DeSoto Chemical Company, Inc., of Arcadia, Florida, in its commercial product is entirely satisfactory.

The chemical insecticide 16 is usually secured to the bottom of the tubular housing as at 28 by reason of its characteristically adherent nature. The body of the insecticide combination is usually sufficiently plastic to conform to the bottom of the housing as well as tacky or sticky to be self-securing to the inner surface of the housing. It is to be understood that self adhesion or any adhesion of the insecticide 16 to the housing is not a critical or essential aspect of the present invention.

The guard 14 as best shown in the exploded view of FIG. 2 is preferably provided with a shape generally conforming to the interior of the tubular housing, although the particular shape is not critical to the invention. As shown, the guard 14 is an elongated portion of a cylindrical tube which, in cross section