

INSECT FEEDING STATION

This invention relates to a device for destroying insects. It more particularly relates to an insect feeding station whereby poison may be administered to insects without endangering children or domestic
5 animals.

Various types of devices have been known in the prior art for destroying insects. In some devices, the insects are trapped in the device after entering, either by mechanical construction, or by sticking to a gummy
10 substance. In either instance, the device is soon full and useless. In devices which contained a poison, it was easy to shake out loose poison, or probe through openings to reach the poison, thus making them a danger to children or small domestic animals. In addition,
15 prior devices are generally of a construction that the interior of the device is difficult to view so that it is not readily ascertainable whether insects are using the device or how much poison has been used.

In accordance with the present invention there
20 is provided an insect feeding station for administering poison to insects, comprising a base portion having a floor, and a cover; said floor extending to the periphery of the station and being provided with poison at the center thereof, and said cover having at least a part
25 transparent for viewing said poison, said station providing one or more side openings for insects to enter and leave the station, _____ and baffle means located within the station to prevent direct probing from said side openings to said center
30 but permitting insects which have taken the poison to leave said station, and said station being constructed so as to guide insects which enter through said one or more side openings towards said poison.

The insect feeding station of the invention
35 provides a cover and base portion having a floor for

carrying the poison and which extends to the periphery of the station. The station provides at least one, and preferably three or more, side openings for insects to enter and leave the station, and has a poison located at the center of _____
5 the floor. The side openings may be provided in outer vertical walls extending between the base portion and the cover, or may be formed by the baffle means themselves. The station may be of any peripheral
10 configuration, eg round, square or rectangular.

The station contains baffle walls which are so positioned that a probe cannot contact the poison if thrust into any of the side openings. The station is constructed so as to guide insects which enter through
15 the side opening or openings towards the poison; preferably, the baffle walls are so positioned as to lead insects from the side openings up to the poison.

The base portion may be formed as a unitary piece from a deformable material such as a plastic by
20 known methods. One preferred method for forming the base portion is from a flat sheet of plastics which is either thermoformed or vacuum formed over a suitable designed mold to form the ridges which act as baffle walls, and the central poison area. It is also
25 possible to form the base portion for example, by injection molding of a molten plastic into a suitably designed mold. The cover of the device may also be formed in like manner as a unitary piece which is attached to the top of the device. The cover may be
30 permanently affixed to the base portion and has at least a part which is transparent so that the poison is visible through the cover.

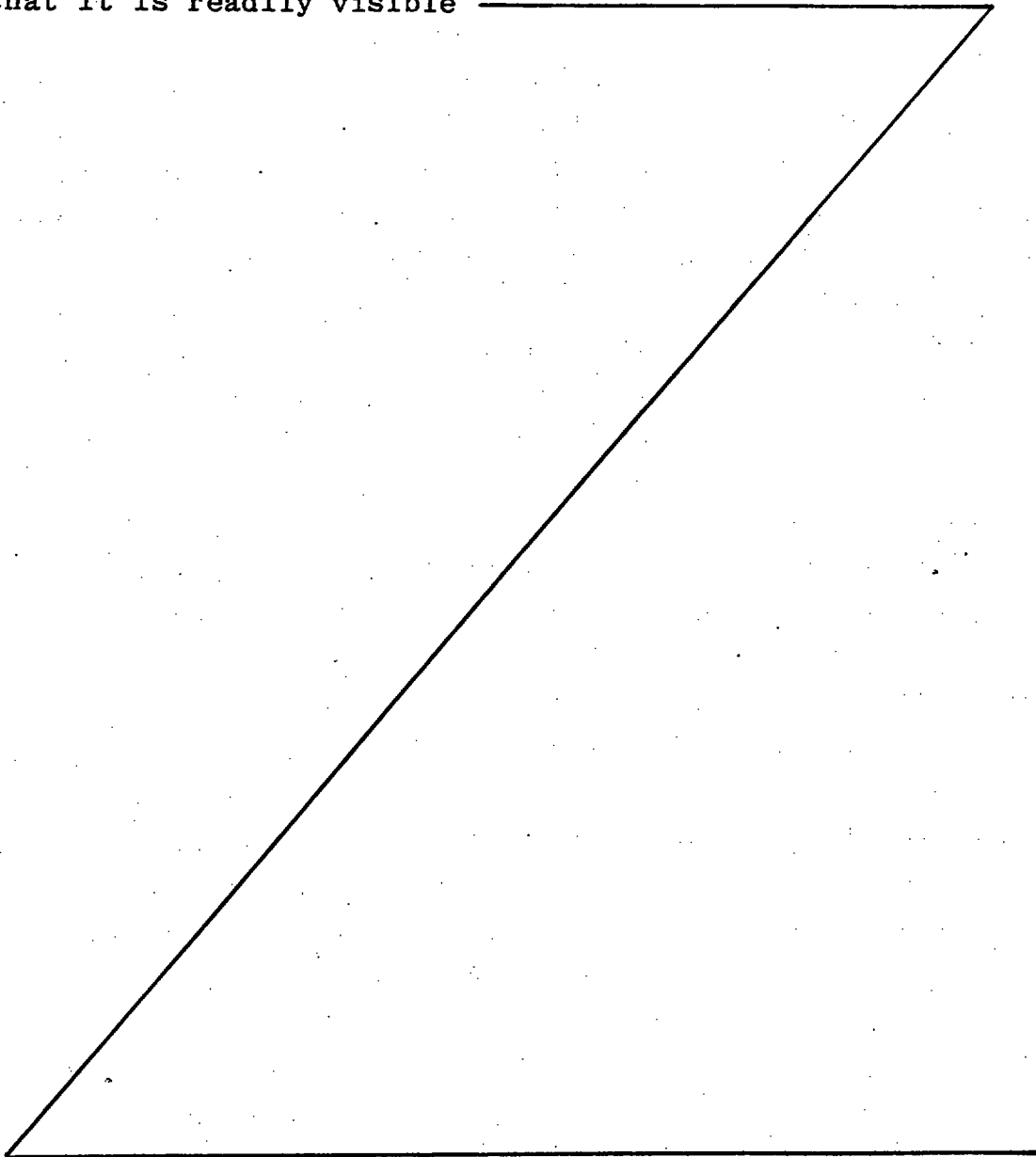
The poison is preferably of the type known as bait, ie it is a mixture of slow acting poison and some
35 food material attractive to insects, such as flour, molasses, peanut butter or the like. The bait is

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preferably of a paste like or solid consistency. Thus, the insects are attracted to the device, eat the bait, and leave the device to die elsewhere. The bait may be a molded shape, eg a flat wafer affixed to the floor of
5 the inner compartment.

It is also a feature of one embodiment of this invention to have a contrasting color beneath the bait, and more desirably the contrasting color is luminous so that it is readily visible



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in darkened areas. As bait is removed by insects, the contrasting color underneath becomes visible and provides an indication whether insects are using the station and how much bait has been used. The contrast between the bait and the background may be accomplished in a number of ways. A contrasting color may be coated in the inside of the poison area before the bait is placed. The base may be of a transparent material, and a contrasting color backing sheet may be applied to the underside of the base. Another method is to form the entire base portion of the station from a plastic which is of a color that contrasts with the bait.

The invention may be better understood by reference to the drawings in which

Figure 1 is a top perspective view of an insect feeding station of the invention with parts of the cover broken away, showing an embodiment of the invention having baffle walls,

Figure 2 is a top view of the embodiment of Figure 1,

Figure 3 is a view in elevation of the embodiment in Figure 1,

Figure 4 is a perspective view of a plurality of bases for insect feeding stations (with covers in place) made from a single sheet of plastic material,

Figures 5, 6, and 7 represent embodiments of the insect feeding station similar to Figures 1, 2 and 3 respectively, with alternative guide and baffle means, and

Figure 8 shows a cross-section taken along the lines 8-8 of Figure 6, with an alternative floor construction of the base.

Figure 9 and 11 are top plan views of embodiments of the invention having a plurality of openings and alternative guide and baffle walls, and

Figure 10 is a view in elevation of the embodiment of Figure 9.

Figure 12 is a top plan view of an embodiment of the invention having guide walls and baffle walls, with



parts of the cover broken away,

Figure 13 is a top plan view of an embodiment of the invention having both outer and inner insect guide means,

5 Figure 14 is a view in elevation of the embodiment of Figure 13,

Figures 15 and 17 represent alternative embodiments of the guide and baffle walls,

10 Figures 16 and 18 are views in elevation respectively of the embodiments shown in Figures 15 and 17.

Referring to Figures 1, 2 and 3 the insect feeding station shown comprises a base portion 10 and cover 12. The base portion is formed from a suitable plastic, and may be transparent plastic but need
15 not be transparent. Base portion 10 has outer casing wall 14 with openings 22. Inner compartment wall 20 forms an inner compartment 24. Bait 26 is affixed to floor 18 in inner compartment 24. The floor of inner compartment 24 may be coated with a contrasting color layer 28 before
20 affixing the bait. Alternatively, a contrasting color may be provided by having a base 10 formed of a transparent plastic and affixing a backing sheet 29 of a contrasting color. Another method for providing a contrasting background beneath the bait is to mold the entire base 10 from
25 a plastic material of a contrasting color.

Color layer 28 is preferably a luminescent material. This may be a coating of luminescent paint, or a luminescent dyed paper or the like. If the bait contains
30 an oleagenous ingredient, it is desirable to coat color layer 28 with a protective material, e.g., a resin, before affixing the bait so that the color layer is not soaked with oil or grease and discolored or inactivated.

In a preferred embodiment, the base portion 10 and cover 12 are both of transparent plastic.

35 In the embodiment of Figures 1 to 3, the inner surface of the outer casing wall 14 is curved inwardly at 30 to guide insects entering openings 16 towards openings

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22 into the inner poison compartment 24. This is done to prevent an insect from entering at one outer opening 16, and wandering randomly along the inner wall and out the next opening 16. It is to be noted, however that the inward curving at 30 is not critical to the device and may be omitted, although it is believed that the device will not perform as well.

Cover 12 extends to the periphery of outer casing walls 14 to close the base portion 10 and may also be formed from a sheet of plastic. However, cover 12 should have at least a portion which is transparent so that bait 24 may be readily seen and is permanently affixed to base 10 as by adhesive or any suitable means.

As illustrated, the insect feeding station may be flat on a floor or other desired area. Insects may enter the device through openings 16 and are guided by curved walls 30 to offset openings 22 to reach bait 24 in the inner compartment, and may leave through the same openings. The consumption of bait 24 may be viewed through transparent cover 12, and be readily visible due to contrasting background 29 under the bait.

Although insects may easily reach the bait, it will be readily apparent in Figure 1 that a probe placed in any opening 16 in the outer casing wall 14 will not enter the inner compartment wall 20 due to offset openings 22 in wall 20. Thus, the device is safe from inquisitive children.

The device could also be mounted on vertical surfaces by means of double sided adhesive tape (see Figure 8) on the lower surface 29 of base portion 10. Since bait 24 is affixed to the floor of the inner compartment, it will not be disturbed and will remain in the same position within the device.

Figures 5, 6 and 7 illustrate an embodiment of the invention which is essentially similar to the embodiment of Figures 1, 2 and 3 in base structure of the device. The outer case walls 32 are elongated and curved inwardly towards the center poison area 26 to provide guide walls

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34. The extended walls 32 form a plurality of openings 36 leading directly to poison 26. A cover 12 extends to the outer ends of walls 32. Insects entering openings 36 will be guided along walls 34 to poison 26. The walls 34 have a curvature such that a probe thrust into opening 36 cannot contact poison 26. Poison 26 is placed over a contrasting color material, as in the embodiment of Figures 1, 2 and 3 and at least a portion of cover 12 is transparent so that poison 26 is visible through the cover.

Figure 8 illustrates an alternative embodiment of the device of Figures 5, 6 and 7 wherein the base 10 is vacuum formed from a flat sheet of plastic, to form walls 32 and 34. As shown, the floor 18 rises from the periphery of the device so that the central area forms a depression 36. This is advantageous when the poison or bait 26 is in the form of a melt, since it can be poured into the depression and allowed to solidify. As shown, vacuum forming leaves hollow areas 38 beneath the base and the backing layer 29 serves to close the lower base area and also to stiffen the device. Backing 29 may have a cut out in the center for attaching a two sided adhesive tape 40 with a peel off layer 42 to the lower surface of base 10. Thus, by removing layer 42, the device may be affixed to a vertical surface by adhesive tape 40. This is a preferred arrangement of the adhesive mounting, since the device will be completely flush with the surface, and insects will not have a tendency to crawl under the device instead of into it, as might occur when the adhesive is mounted on the bottom of backing 29.

Figure 4 illustrates the formation of a plurality of bases for insect feeding stations from a single sheet of plastic 42. Sheet 42 is vacuum formed over a suitable mold to form a plurality of base units 10, each of which then is filled with poison 26, and provided with a cover 12. Score lines 44 are provided to make separation of the individual feeding stations easy. A single backing sheet may be attached to the sheet 42 after vacuum forming. This method of forming the insect feeding stations is particularly

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useful when it is desired to market a number of devices as a unit, so that the customer may separate them and use as required.

In the embodiment of Figures 9 and 10, the device has a base portion 10 having a floor 40 with a poison 26 at the center thereof. The base portion 10 has a plurality of arcuate walls 42 extending from the periphery 44 of floor 40 essentially to the area of poison 26. There is in effect no outer wall to the device and the arcuate walls form a plurality of openings 46 leading directly to poison 26. A cover 12 extends to the outer ends of arcuate walls 42. Insects entering openings 46 will be guided along walls 42 to poison 26. The walls 42 have a curvature such that a probe thrust into opening 46 cannot contact poison 26. Poison 26 is placed over a contrasting and luminescent color material, and at least a portion of cover 12 is transparent so that poison 26 is visible through the cover.

The embodiment of Figure 11 is essentially similar to that shown in Figure 9, except that it has a plurality of straight guide walls 48, instead of the arcuate walls 42 of the embodiment in Figure 9. The straight guide walls 48 are directed from the periphery of the device tangential to poison area 26, so that the insects will be guided to poison area 26, but a probe inserted into any of the plurality of entrys 16 cannot contact poison 26.

Referring now to Figure 12, yet another embodiment is shown wherein the inner surface of the outer casing wall 14 is curved inwardly at 30 to guide insects entering openings 16 towards openings 22 into the inner poison compartment 24. This is done to prevent an insect from entering at one outer opening 16, and wandering randomly along the inner wall and out the other opening 16.

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Figures 13 and 14 illustrate an embodiment of the invention which is essentially similar to the embodiment of Figure 12 in the interior structure of the device. The outer case walls 32 are elongated and curved inwardly towards case openings 16 to provide outer guide walls 34. Guide walls 34 serve to direct insects toward opening 16 so that they will be more likely to enter the insect feeding station, and interior guide walls 30 direct the insects towards openings 22 into the inner compartment 24 and to poison 26.

In the embodiments of Figures 5 to 8, the openings 16 in outer casing walls 36, of base portion 10 are bounded by inner curved walls 38 directly to poison 26 by a curved path. Thus the walls 38 serve both as guide walls and a baffle means, insects will be guided along walls 38 to poison 26, but a probe thrust into opening 16 could not reach poison 26.

Two further embodiments of insect feeding station of this invention are shown in Figs. 15 and 16, and Figs. 17 and 18, respectively. The configuration of the guide baffles 38 in these two embodiments will be apparent from the drawings.

It will be seen that the illustrated embodiments of the present invention provide an insect feeding station for administering poison to insects, particularly crawling insects, permitting the ready detection of the removal of poisonous bait, even in dimly lit areas and without removing the device, and which has a baffle means system so that children cannot probe the bait containing compartment.



CLAIMS:

1. An insect feeding station for administering poison to insects, comprising a base portion having a floor, and a cover; said floor extending to the periphery of the station and being provided with poison
5 at the center thereof, and said cover having at least a part transparent for viewing said poison, said station providing one or more side openings for insects to enter and leave the station, _____
and baffle means located within the station to prevent
10 direct probing from said side openings to said center but permitting insects which have taken the poison to leave said station, and said station being constructed so as to guide insects which enter through said one or more side openings towards said poison.
2. An insect feeding station according to Claim 1, wherein said side opening or openings is (are) provided in outer vertical walls extending between said base portion and said cover.
3. An insect feeding station according to Claim 1, wherein said baffle means comprise curved walls directed from the periphery of said station toward the center thereof to guide insects from said periphery to
5 said center, said baffle means forming said side openings at the periphery of said station.
4. An insect feeding station according to Claim 1, wherein said baffle means comprise straight walls directed from the periphery of said station tangentially to said center to guide insects from said
5 periphery to said center, said baffle means forming said side openings at the periphery of said station.
5. An insect feeding station according to any preceding claim, wherein said poison is a bait mixture of food and poison.
6. An insect feeding station of Claim 5, wherein said bait mixture is a solid mixture affixed to the floor at said center.



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7. An insect feeding station according to Claim 6, comprising a contrasting color beneath said bait.

8. An insect feeding station according to Claim 7, wherein said contrasting color is luminescent.

9. An insect feeding station according to Claim 7 or Claim 8, wherein said base portion and cover are transparent plastic and said contrasting color is provided by a backing sheet affixed to the lower side of
5 said base portion.

10. An insect feeding station according to Claim 7 or Claim 8, wherein said base portion is formed from a plastic having a color which contrasts with the color of the bait.

11. An insect feeding station according to any preceding claim, comprising means to affix said station to a vertical surface.

12. An insect feeding station according to any preceding claim, wherein said base portion is formed as a unitary plastic piece.

13. An insect feeding station according to Claim 12, wherein said base portion is formed, along with a plurality of similar base portions, from a single flat sheet of plastics material, means being provided
5 between each said base portion to permit easy separation of individual base portions from said sheet.

14. An insect feeding station according to Claim 1 and substantially as hereinbefore described with reference to Figs. 1-3; Fig. 4; Figs. 5-7; Fig. 8; Figs. 9 and 10; Fig. 11; Fig. 12; Figs. 13 and 14;
5 Figs. 15 and 16; Figs. 17 and 18 of the accompanying drawings.