DEVICE FOR TRAPPING INSECTS OR PESTS AND METHOD FOR MANUFACTURING THE SAME

TECHNICAL FIELD

[0001] The present disclosure relates to a device for trapping insects or pests and a method for manufacturing the same.

BACKGROUND

[0002] The following discussion of the background is intended to facilitate an understanding of the present disclosure only. It should be appreciated that the discussion is not an acknowledgement or admission that any of the material referred to was published, known or is part of the common general knowledge of the person skilled in the art in any jurisdiction as of the priority date of the invention.

[0003] Insects and pests, such as cockroaches, lizards, bugs, beetles, etc are generally small and fast. As a result, these insects and pests are often difficult to capture without any assistance. For instance, a scurrying cockroach may move faster than a human and are often able to evade capture. There are known methods and traps for trapping and/or killing insects or pests.

[0004] A known method to get rid of insects or pests is the usage of pesticides or insecticides. Pesticides and other active ingredients to kill insects or pests are stored in aerosol spray cans. In use, a user directs the spray nozzle of the aerosol can at the insects or pests and spray the pesticides at the insects or pests. However, the effectiveness of such pesticides remains to be seen. Further, the usage of pesticides is harmful to humans when inhaled or ingested. Moreover, the usage of aerosol sprays is detriment to the environment.

[0005] In recent times, manufacturers have been known to introduce electronic insect killers. Such a device needs to be always powered on by an electric source. The device contains a fluorescent lure tube that lures insects into the trap and then zapping or electrocuting the insects that fly into the device. Such a device is disadvantageous as electricity is wasted as the device can only work effectively

when it is on for long periods of time. Further, such traps are not feasible to be used to trap larger pests such as lizards and cockroaches. Moreover, the issues of safety are also of huge concern as young children or toddlers may themselves be curious by the fluorescent lure tubes and insert their fingers into the device.

[0006] There exists a need for a device to alleviate one or more of the aforementioned problems. A further object of the invention is to provide a device which can trap insects and pests at a faster rate while reducing the use of harmful chemicals.

SUMMARY

[0007] The disclosure was conceptualised to provide a device for trapping insects or pests without the use of harmful chemicals.

[0008] In an aspect there is a device for trapping insects or pests. The device comprises a housing having a first opening and a second opening at opposed ends, and a sheet mountable within the housing and separating the housing into a first section and a second section, the sheet having a plurality of holes, wherein the second opening is configured to receive a vacuum source for drawing insects or pests through the first opening and trapping the insects or pests in the first section.

[0009] In some embodiments, the device further comprises a lid adapted to cover the first opening. This advantageously allows the insects and pests to be trapped in the first section without being able to escape.

[0010] In some embodiments, the lid is attached to the housing via one or more hinges. This advantageously allows the lid to be attached to the housing such that it can swing into a closed position easily, to trap the insects and pests in the first section.

[0011] In some embodiments, the device comprises fastening members for securing the lid to the housing when the lid is covering the first opening. This prevents the insects or pests trapped in the first section from being released accidentally.

[0012] In some embodiments, the fastening members are a hook and latch combination. This allows the lid to be secured to the housing in the closed position.

[0013] In some embodiments, the fastening members are hook and loop fasteners. This allows the lid to be secured to the housing in the closed position

[0014] In some embodiments, the sheet has adhesives on a side facing the first opening. This advantageously allows the insects or pests to be stuck onto the sheet.

[0015] In some embodiments, the housing is made of acrylic or plastic. This reduces the costs in manufacturing while ensuring that the overall device is lightweight.

[0016] In some embodiments, the housing is substantially transparent. This advantageously allows a user to view the contents of the device to know whether one or more insects or pests have been trapped and whether the device needs to be cleaned.

[0017] In some embodiments, the plurality of holes on the sheet is arranged to be evenly spaced apart from one another. This advantageously allows a uniform suction force to be applied through the plurality of holes to draw the insects or pests to the first section.

[0018] In some embodiments, the sheet is made of acrylic or plastic. This reduces the costs in manufacturing while ensuring that the overall device is lightweight.

[0019] In some embodiments the vacuum source is a vacuum cleaner. Advantageously, the device of the present invention may be used with any suitable vacuum cleaner which is readily available in most households.

[0020] In some embodiments, the second opening is adapted to receive a hose of the vacuum cleaner.

[0021] In some embodiments, the sheet is detachable from the housing. This advantageously allows the sheet and the housing to be washed after use.

[0022] According to another aspect of the disclosure there is a method of manufacturing a device for trapping insects or pests, comprising the steps of forming a housing with a first opening and a second opening at opposed ends; inserting a sheet with a plurality of holes within the housing to separate the housing into a first section and a second section; and mounting a lid proximate the first opening such that when a vacuum source is received at the second opening, insects or pests will be drawn through the first opening, the lid is operable to close to trap the insects or pests in the first section.

[0023] Other aspects and features of the present disclosure will become apparent to those of ordinary skill in the art upon review of the following description of specific embodiments of the invention in conjunction with the accompanying figures.

Brief Description of the Drawings

[0024] In the figures, which illustrate, by way of example only, embodiments of the present disclosure,

[0025] FIG. 1 is a perspective view of a device for trapping insects and pests in accordance with an embodiment;

[0026] FIG. 2 is a top view of the device of FIG. 1 when the lid is in an open position;

[0027] FIG. 3 is a perspective view of the device for trapping insects and pests, when used with a vacuum source;

[0028] FIG. 4 is a schematic view of the device for trapping insects and pests, with a hose of the vacuum source received in a second opening of the device; and

[0029] FIG. 5 is a perspective view of the device for trapping insects and pests illustrating an example with a pest trapped in a first section of the device and the lid in a closed position.

DESCRIPTION OF EMBODIMENTS

[0030] The disclosure was conceptualized to provide a device for trapping insects and pests such that no harmful chemicals is necessary. Accordingly, this results in a safe and effective way to trap insects and pests in a housing such that these insects or pests may be disposed in a safe and hygienic manner.

[0031] In order to illustrate the technical solution(s) to the embodiments of the present disclosure, embodiments of the present disclosure are described with reference to the drawings. It is appreciable that the drawings referred to are some examples or embodiments of the present disclosure. A person having ordinary skill in the art, without further creative efforts, may apply the present disclosure to other scenarios according to these drawings. For example, although the drawings relate to a device having a rectangular shape, a person having ordinary skill in the art and without creative efforts would be able to apply the present disclosure to a device of a cylindrical shape or other polygonal shapes.

[0032] FIG. 1 is a perspective view of a device for trapping insects and pests in accordance with an embodiment. The device 10 may be used to trap insects or pests. The device 10 comprises a housing 12 with an enclosed space therein. The housing 12 has a first opening 14 and a second opening 16, opposite of the first opening. A sheet 18 is disposed within the housing 12. The sheet 18 separates the housing 12 into a first section 20 and a second section 22. The sheet 18 has a plurality of holes such as through holes 24 for allowing air to be passed through from the first section 20 to the second section 22.

[0033] The housing 12 is preferably made of any lightweight materials. For example, the housing 12 may be made from acrylic or plastic. This reduces the cost of manufacturing the device. The sheet 18 may be made from any material which is sturdy and lightweight. For example, the sheet 18 may be made from acrylic or plastic. The sheet 18 may then be drilled to provide a plurality of small through holes 24. The holes 24 may be dimensioned to be small enough to allow air to pass through the first section 20 to the second section 22 but not allow insects and pests to pass through the holes 24.

[0034] FIG. 2 is a top view of the device of FIG. 1 when the lid is in an open position. A lid 26 may be attached to a top end of the housing 12, adjacent to the first opening 14. The lid 26 may be attached to the housing 12 via one or more hinges 32. The hinges 32 may be screwed or mounted onto the top end of the housing 12 and a first end of a top face of the lid 26 such that the hinges 32 function as a pivot to allow the lid 26 to move from an open position (such as illustrated in FIG. 2) in which the lid 26 does not cover the first opening 14, to a closed position (such as illustrated in FIG. 5), in which the lid 26 covers the first opening 14 and seals the first section 20 completely. The hinges 32 may be made of acrylic or metal.

[0035] Fastening members 28, 30 may be suitably mounted onto the housing 12 and the lid 26 to secure the lid 26 tightly in the closed position to prevent the accidental release of insects and pests. For example, a hook 28 may be installed onto a second end of the lid, opposite from the first end which is attached to the hinges 32. A corresponding latch 30 may be installed at the top end of the housing 12 and may be adapted to receive the hook 28 when the lid 26 is in the closed position. The combination of the hook 28 and the latch 30 locks the lid 26 in the closed position. Alternatively, the fastening members may be a hook 28 and loop 30 fastener configuration, such as Velcro. While two possible fastening means are disclosed, a person of ordinary skill in the art will understand from reading this disclosure, without further creative efforts, may apply the present disclosure to other fastening means. For example, the lid 26 may be a separate component not attached to the housing 12 via hinges. The lid 26 may then be fastened to the top end of the housing via a snap fit configuration, such that the lid 26 may be manually pushed into the first opening 14 to seal the lid 26 onto the housing 12. Similar to the housing 12, the lid 26 may be made from any lightweight materials such as acrylic or plastic. Preferably, the lid is made of a transparent material. The lid 26 may optionally be provided with a catch (not shown) to keep the lid 26 in the open position and prevent the lid 26 from shutting accidentally.

[0036] As described earlier, the plurality of holes 24 may be dimensioned to be small enough to allow air to pass through the first section 20 to the second section 22 but not allow insects and pests to pass through the holes 24. The holes 24 may

be arranged in any suitable manner spaced apart from one another. Preferably, the holes 24 are not arranged to be in a closed proximity of one another. This prevents the holes from getting combined into a larger hole due to wear and tear, which may cause the holes 24 to expand. Advantageously, the holes 24 may be arranged in a regular matrix array configuration such as illustrated in FIG. 2. This allows air to be sucked uniformly from the first section 20 into the second section 22 and thus provide a better and constant suction force across the sheet 18, thereby enabling the insects and pests to be trapped in the first section 20. Optionally, the sheet 18 may be coated and cured with suitable adhesives 29. This allows the insects and pests to be stuck onto the sheet 18 even when the suction force is eventually removed. The adhesives 29 may be any suitable adhesives that is sticky and curable at room temperature.

[0037] FIG. 3 is a perspective view of the device for trapping insects and pests, when used with a vacuum source. The second opening 16 of the housing 12 is adapted to receive a vacuum source. The vacuum source may be any device that provides a suction force. For example, the vacuum source may be a vacuum cleaner 40. The vacuum cleaner 40 may be one used in households and have a hose 42 which is the conduit for sucking air. The hose 42 may be adapted to fit into the second opening 16 of the housing 12 (see FIG. 4).

[0038] In use, when a user spots an insect or pest, the user may keep the lid 26 in the open position (for embodiments with a lid). The hose 42 of the vacuum cleaner 40 may then be directed into the second opening 16 of the housing 12. The vacuum cleaner 40 is then powered on such that the hose 42 provides a suction force. The user may then direct the first opening 14 of the housing 12 at the pest and insects and the suction force provided by the vacuum cleaner 42 draws the pest or insects through the first opening 14 into the first section 20 (as shown in FIG. 4). The insect and pests will then be trapped in the first section 20.

[0039] It will be appreciated that the plurality of holes 24 on the sheet 18 allow air to be sucked through them such that the insects and pests are not allowed to enter the second section 24. This prevents the insects and pests from entering the hose 42 and mixing with the waste contained in bag of the vacuum cleaner.

[0040] FIG. 5 is a perspective view of the device for trapping insects and pests illustrating an example with a pest trapped in a first section of the device and the lid in a closed position. After the insects and pest are trapped in the first section 20, the lid 26 may then be closed and sealed with the fastening members 28, 30 before the vacuum cleaner 40 is powered off. The insects and pests that remain trapped in the first section 20 may then be disposed.

[0041] Advantageously, since the device for trapping insects and pests are configured to be used with a readily available suction device such as a vacuum cleaner that can be found in most households, there is a greater convenience of using the device. Moreover, the vacuum cleaner needs to be powered on only when in use, thus saving a great deal of electricity when compared to using electrical insect traps of the prior art. Furthermore, since pesticides are not required to be used, the harmful effects of pesticides are negated, while being friendly to the environment.

[0042] It will now be apparent that a device for trapping insects and pests has been described in the specification with sufficient particularity to be understood by one of ordinary skill in the art. Moreover, it will be apparent to those skilled in the art that various modifications, variations, substitutions, and equivalents exist for features of the device which do not materially depart from the scope of the invention.

[0043] It should be further appreciated by the person skilled in the art that variations and combinations of features described above, not being alternatives or substitutes, may be combined to form yet further embodiments falling within the intended scope of the invention.

Claims:

1. A device for trapping insects or pests, comprising:

   a housing having a first opening and a second opening at opposed ends; and

   a sheet mountable within the housing and separating the housing into a first section and a second section, the sheet having a plurality of holes,

   wherein the second opening is configured to receive a vacuum source for drawing insects or pests through the first opening and trapping the insects or pests in the first section.

2. The device of claim 1, further comprising a lid adapted to cover the first opening.

3. The device of claim 2, wherein the lid is attached to the housing via one or more hinges.

4. The device of any of claims 2 or 3, further comprising fastening members for securing the lid to the housing when the lid is covering the first opening.

5. The device of claim 4, wherein the fastening members are a hook and latch combination.

6. The device of claim 4, wherein the fastening members are hook and loop fasteners.

7. The device of claim 1, wherein the sheet has adhesives on a side facing the first opening.

8. The device of any of the preceding claims, wherein the housing is made of acrylic or plastic.

9. The device of claim 8, wherein the housing is substantially transparent.

10. The device of any of the preceding claims, wherein the plurality of holes is arranged to be evenly spaced apart from one another.

11. The device of claim 1, wherein the sheet is made of acrylic or plastic.

12. The device of any of the preceding claims, wherein the vacuum source is a vacuum cleaner.

13. The device of claim 12, wherein the second opening is adapted to receive a hose of the vacuum cleaner.

14. The device of claim 1, wherein the sheet is detachable from the housing.

15. A method of manufacturing a device for trapping insects or pests, comprising the steps of:

forming a housing with a first opening and a second opening at opposed ends;

inserting a sheet with a plurality of holes within the housing to separate the housing into a first section and a second section; and

mounting a lid proximate the first opening such that when a vacuum source is received at the second opening, insects or pests will be drawn through the first opening, the lid is operable to close to trap the insects or pests in the first section.