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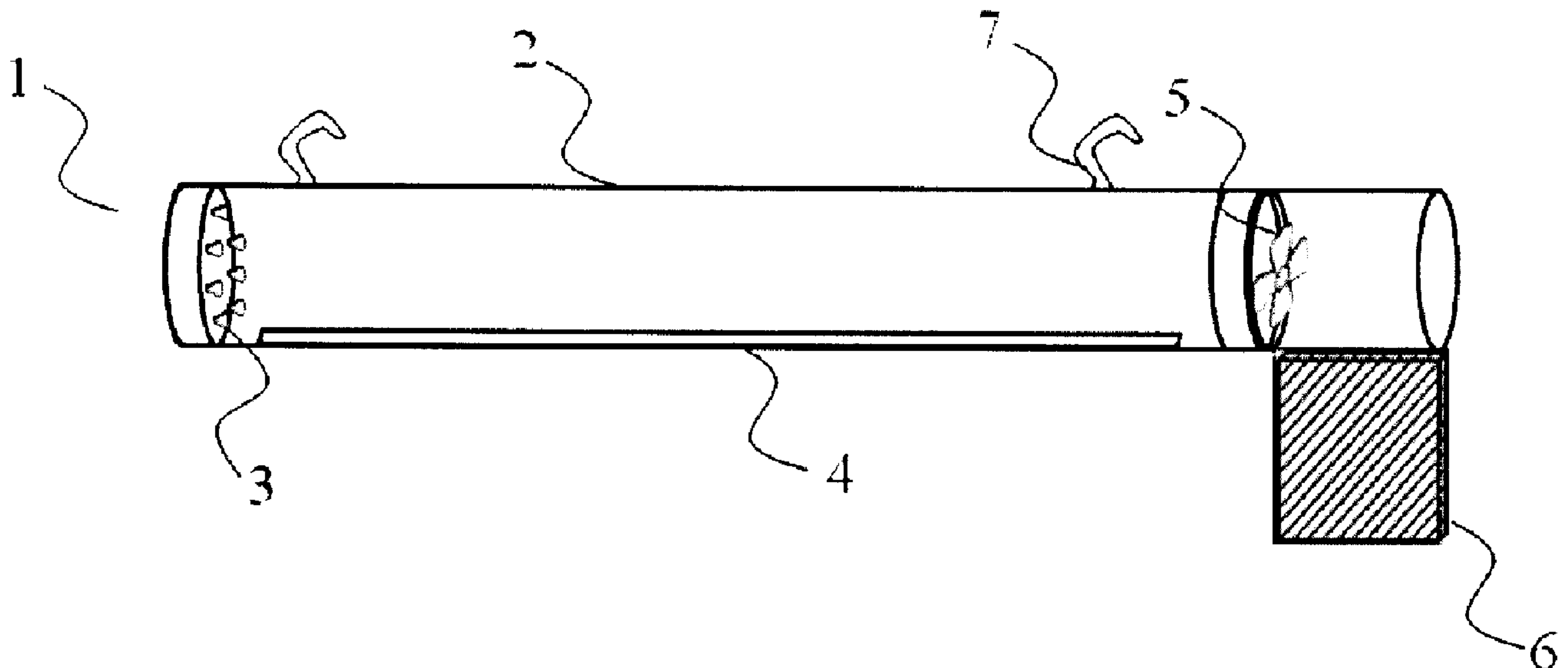
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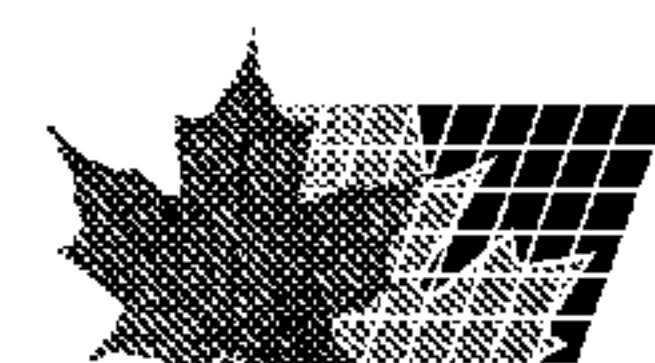
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(54) Title: INSECT TRAPS AND METHODS OF TRAPPING INSECTS



(57) **Abrégé/Abstract:**

Insect traps, apparatus for trapping insects, and methods for trapping insects, such as mosquitos, are provided. One example of an insect trap disclosed herein comprises an insect collecting chamber comprising an opening for one or more insects, an insect trapping chamber in communication with the insect collecting chamber, and an airflow generator for generating directed airflow from the collecting chamber to the insect trapping chamber. The disclosed insect traps may further comprise a light source. The insect traps provided herein may be mounted on or near screened windows, doors, or other openings, and natural attractants emitting from these openings may attract insects, such as mosquitos, to the insect traps.



ABSTRACT

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Insect traps, apparatus for trapping insects, and methods for trapping insects, such as mosquitos, are provided. One example of an insect trap disclosed herein comprises an insect collecting chamber comprising an opening for one or more insects, an insect trapping chamber in communication with the insect collecting chamber, and an airflow generator for generating directed airflow from the collecting chamber to the insect trapping chamber. The disclosed insect traps may further comprise a light source. The insect traps provided herein may be mounted on or near screened windows, doors, or other openings, and natural attractants emitting from these openings may attract insects, such as mosquitos, to the insect traps.

INSECT TRAPS AND METHODS OF TRAPPING INSECTS

FIELD OF INVENTION

The present invention relates generally to insect traps and apparatus for trapping insects, as well as methods for trapping insects. More specifically, the present invention relates to mosquito traps, apparatus for reducing the number of mosquitos in an area, and methods for their use.

BACKGROUND

Certain insects are known to participate in the transmission of a variety of human diseases causing significant health concerns worldwide. Malaria and dengue fever, for example, are both serious mosquito-borne diseases affecting many regions of the world. Furthermore, biting insects such as mosquitos are often perceived as pests, interfering with otherwise enjoyable outdoor recreational activities. Several species of mosquito feed on humans, often causing discomfort or annoyance to those bitten.

Mosquitos are attracted to humans by a complex variety of chemical and physical cues. Body heat, sweat/moisture, CO₂, and a variety of other chemicals, odors, and scents produced by the human body may serve as attractants for mosquitos looking for a food source and/or a source of blood for reproductive purpose. Other fragrances such as perfumes may also be attractants, as well as artificial light sources.

Several approaches have been identified for controlling mosquito populations: the elimination of mosquito breeding environments from an area can reduce mosquito populations; chemical spraying methods have been successfully employed; mosquito repellents have been developed; and mosquito traps have been designed. However, effective population control of mosquitos and other insects remains a significant challenge.

Mosquito traps are particularly interesting devices for reducing local mosquito populations, as they avoid potentially costly chemical spraying and chemical repellent materials, and any associated environmental or health considerations associated therewith. Well-known mosquito traps include bug zappers, and traps which release consumable chemical attractants to draw in

and capture mosquitos. However, these mosquito traps often have insufficient efficacy, and/or may require large amounts of electricity, frequent maintenance, and/or upkeep of a consumable supply of chemical attractant during operation.

Effective insect/mosquito traps remain highly sought-after, especially those which do not require frequent replacement of chemical attractant for their operation.

SUMMARY OF INVENTION

In one embodiment, the present invention provides an insect trap for trapping one or more insects, the insect trap comprising:

- an insect collecting chamber comprising an opening for one or more insects;
- an insect trapping chamber in communication with the insect collecting chamber;
and
- an airflow generator for generating directed airflow from the insect collecting chamber to the insect trapping chamber;

wherein one or more insects entering the insect collecting chamber are directed by the directed airflow from the insect collecting chamber to the insect trapping chamber, trapping the one or more insects.

In another embodiment of the insect trap outlined above, the insect trap may further comprise a light source for attracting insects.

In yet another embodiment of the insect trap or traps outlined above, the one or more insects may be attracted to the insect trap by natural attractants in the vicinity of the insect trap.

In another embodiment of the insect trap or traps outlined above, the one or more insects may be attracted to the insect trap by natural, synthetic, or artificial attractants, or a combination thereof, in the vicinity of the insect trap.

In still another embodiment of the insect trap or traps outlined above, the insect trap may be a

mosquito trap, and the insects may be mosquitos.

In another embodiment of the insect trap or traps outlined above, the insect trap may be for mounting near a window, door, screen, or other opening on a structure in the vicinity of a human or animal.

5 In yet another embodiment of the insect trap or traps outlined above, the insect trap may further comprise one or more mounting fittings.

In still another embodiment of the insect trap or traps outlined above, a length of the insect trap may be increased or reduced to assist in installation or mounting of the insect trap.

10 In an additional embodiment of the insect trap or traps outlined above, the air flow generator may be powered by one or more batteries, solar power, an electrical outlet, or a combination thereof.

In a further embodiment of the insect trap or traps outlined above, the light source may be powered by one or more batteries, solar power, an electrical outlet, or a combination thereof.

15 In yet another embodiment of the insect trap or traps outlined above, the air flow generator and the light source may be powered by the same power source.

In still another embodiment of the insect trap or traps outlined above, the opening for one or more insects may be large enough for mosquitos to pass through, but may prevent entry of larger insects or debris.

20 In another embodiment of the insect trap or traps outlined above, the insect trapping chamber may be removable or accessible, allowing trapped insects to be removed.

In an embodiment of the insect trap or traps outlined above, the insect trapping chamber may be removeable, accessible, and/or may have a transparent or see-through section (such as a window), optionally allowing for insect collection, monitoring, and/or destruction.

25 In an embodiment of the insect trap or traps outlined above, the insect trap may allow for monitoring, study, and/or collection of a local insect population.

In still another embodiment of the insect trap or traps outlined above, the insect trapping chamber may comprise one or more exhaust openings allowing air, but not insects, to exit the insect trapping chamber.

In yet another embodiment of the insect trap or traps outlined above, the insect trap may further
5 comprise a guide surface for promoting the entry of insects into the insect collecting chamber.

In an embodiment, the present invention provides a method of trapping one or more insects using the insect trap or traps outlined above, comprising the steps of:

- directing one or more insects from the insect collecting chamber to the insect trapping chamber using the directed airflow generated by the airflow generator;
10 and
- trapping one or more insects in the insect trapping chamber.

In another embodiment of the method of trapping one or more insects outlined above, the one or more insects may be one or more mosquitos.

In yet another embodiment of method or methods of trapping one or more insects outlined above,
15 the one or more insects may be prevented from exiting the insect trapping chamber by the airflow generator, by the directed airflow, by one or more one-way passages in the insect trapping chamber, by a flexible plastic wall, or a combination thereof.

In still another embodiment of method or methods of trapping one or more insects outlined above, the one or more insects may be at least partially attracted to the insect collecting chamber
20 by natural attractants in the vicinity of the insect trap.

In yet another embodiment of method or methods of trapping one or more insects outlined above, the one or more insects may be at least partially attracted to the insect collecting chamber by light, heat, or both light and heat, generated by the light source.

In still another embodiment of method or methods of trapping one or more insects outlined
25 above, the light source may provide light, heat, or both, within the insect collecting chamber,

which may attract one or more insects into the insect collecting chamber through the opening for one or more insects.

In another embodiment of the insect trap or traps outlined above, the insect trap may be for collection, sampling, or monitoring of a local insect population.

- 5 In another embodiment of the method or methods of trapping one or more insects outlined above, the method may further comprise a step of collecting, sampling, or monitoring a local insect population using the one or more insects trapped in the insect trapping chamber.

BRIEF DESCRIPTION OF THE DRAWINGS

10 These and other features, aspects and advantages of the present invention will become better understood with regard to the following description and accompanying drawings wherein:

FIGURE 1 shows a non-limiting embodiment of an insect trap for trapping insects;

FIGURE 2 shows a non-limiting example of an insect trap which is installed in the vicinity of a screened window;

FIGURE 3 shows a non-limiting example of an insect trap during operation; and

- 15 FIGURE 4 shows a non-limiting embodiment of an insect trap for trapping insects having an optional guide surface.

For illustrative purposes, the walls of the insect traps in these Figures have been represented as being transparent, so as to allow a view of inner elements of the insect trap embodiments and examples.

20 DETAILED DESCRIPTION

Described herein are insect traps, an apparatus for trapping insects, and methods for trapping insects. It will be appreciated that the insect traps and methods of their use described herein are for illustrative purposes intended for those skilled in the art, and are not meant to be limiting in any way. All reference to embodiments or examples throughout this disclosure should be

considered as a reference to an illustrative and non-limiting embodiment or an illustrative and non-limiting example.

One embodiment of an insect trap as provided herein is shown in Figure 1. The illustrated insect trap (1) comprises: an insect collecting chamber (2) having an opening for one or more insects (4); an insect trapping chamber (6) in communication with the insect collecting chamber (2); and an airflow generator (5) for generating directed airflow from the insect collecting chamber (2) to the insect trapping chamber (6). The insect trap (1) may optionally comprise one or more light sources (3), which may be positioned outside, inside, or near the insect collecting chamber (2). In some embodiments, the one or more light sources (3) may be positioned inside the insect collecting chamber (2), such that produced light and/or heat may be detectable outside the insect trap (1) through the opening for one or more insects (4) and/or through the insect trapping chamber (6). The insect trap (1) may further comprise one or more mounting fittings (7) for mounting the insect trap (1) in a desired location.

Yet another embodiment of an insect trap as provided herein is illustrated in Figure 2. In this embodiment, the illustrated insect trap (1) is installed at or near a screened window (10). The screened window may be, for example, a screened window of a stationary or mobile type of human habitation, such as, but not limited to, a home, cottage, tent or recreational vehicle (RV). In some embodiments, natural insect/mosquito attractants produced by the occupants of the human habitation may vent through the screened window (10), producing attractive cues in the vicinity of the insect trap (1).

As will be understood by those of skill in the art, many variations of the the insect collecting chamber (2) are possible. Although the insect collecting chamber (2) is illustrated as having a cylindrical shape in Figure 1, the skilled person will recognize that many variations in size and shape are possible and contemplated herein. The insect collecting chamber may be made of any suitable material, including plastics/polymers, wood, glass, metal, or any other suitable material, and may optionally be painted in colors attractive to insects and/or colors matching, complementing, or blending in to the environment in which the insect trap (1) is to be positioned. Since mosquito behaviour can be greatly influenced by smell, the choice of material used in the construction of the collecting chamber is an important consideration.

The insect collecting chamber (2) may comprise one or more openings for one or more insects (4). The openings (4) may extend the full length of the insect collecting chamber (2), or a portion thereof. In some embodiments, the opening(s) may be large enough for a desired insect, such as a mosquito, to pass through, but small enough to prevent entry of larger insects and/or debris.

5 In some non-limiting embodiments, a length of the insect collecting chamber (2) and/or the insect trap (1) may be adjustable, such that the length may be increased or reduced to suit the dimensions of the desired installation position. In certain embodiments, the insect collecting chamber (2) may act as a form of adjustable tension rod, allowing installation in, for example, the frame of a window, optionally without requiring the use of hooks or other mounting
10 equipment.

The insect trapping chamber (6) may be any suitable container, bag, chamber, or receptacle known to those of skill in the art. In some embodiments, the insect trapping chamber may comprise a mesh bag or screened container allowing the passage of airflow but not insects or mosquitos. In certain embodiments, the insect trapping chamber (6) may comprise one or more
15 exhaust openings, allowing the passage of air but not insects/mosquitos. In further embodiments, the insect trapping chamber (6) may comprise two sections, one for trapping insects, and the other (or both sections) containing one or more exhaust openings for allowing air to flow through the insect trapping chamber (6) to the outside, while preventing the escape of insects such as mosquitos.

20 In some embodiments, the insect trapping chamber (6) may be removable from the insect trap (1), or may be accessible through a resealable opening or access port, allowing the user to access the contents of the insect trapping chamber (6) in order to clean out or empty the insects trapped therein. In certain embodiments, the insect trapping chamber may be disposable, user replaceable, and/or reuseable.

25 The insect trap (1) illustrated in Figures 1 and 2 has an optional light source (3) installed. In the illustrated embodiments, the optional light source (3) is installed within the insect collecting chamber (2) at one end, and the light and/or heat produced by the installed optional light source may be detectable by insects through the opening(s) for one or more insects (4). The light, heat,

and/or other signals produced by the light source (3) may be attractive to certain insects, such as mosquitos. It will be understood that the one or more optional light sources (3) may be installed within the insect collecting chamber (2) as shown in Figure 1, or outside of the insect collecting chamber, or generally in the vicinity of the insect trap (1).

5 The person of skill in the art will recognize that any suitable light source may optionally be used in insect trap (1). The light source may be one or more LED, diode light, incandescent, halogen, fluorescent, or other suitable light source known in the art. In certain embodiments, the light source(s) may produce light comprising wavelegth(s) attractive to certain insects such as mosquitos. In further embodiments, the light source(s) may produce heat, which may be
10 attractive to certain insects such as mosquitos. The choice of light source will also depend on the power source available to the unit. For example, battery operated traps would require low voltage light sources, such as LEDs, to preserve battery life.

The insect trap (1) embodiment in Figure 1 illustrates an airflow generator (5) for generating directed airflow from the insect collecting chamber (2) to the insect trapping chamber (6). In the
15 illustrated embodiment, the airflow generator (5) comprises an electric fan, and is installed inside the insect collecting chamber (2) at the end opposite the optional light source (3). The directed airflow produced by the airflow generator (5) draws mosquitos or other insects from the insect collecting chamber (2) into the insect trapping chamber (6). Airflow generated by the airflow generator (5) may then exit the insect trap (1) through the insect trapping chamber (6) via one or
20 more optional exhaust openings in the insect trapping chamber (6). In some embodiments, a portion of the the insect trapping chamber (6) may comprise a mesh, screen, or other air-permeable material, allowing exhaust of the directed airflow without allowing mosquitos or other trapped insects to escape.

The airflow generator (5) is installed inside the insect collecting chamber (2) at the end opposite
25 the optional light source (3) in the embodiment illustrated in Figure 1. The person of skill in the art will recognize that the airflow generator (5) may be installed in other suitable positions of the insect trap (1) while still generating directed airflow from the insect collecting chamber (2) to the insect trapping chamber (6). In some embodiments, the airflow generator (5) can be positioned such that air from outside the insect collecting chamber (2) is drawn into the insect collecting

chamber (2) through the one or more openings (4), at least partially encouraging insects to enter the insect collecting chamber (2).

The airflow generator (5) may be any suitable airflow generator known in the art. Suitable airflow generators (5) may include an electric fan, such as a computer fan, a blower, or another
5 suitable apparatus for generating directed airflow.

The person of skill in the art will recognize that many suitable means for generating directed airflow from the insect collecting chamber (2) to the insect trapping chamber (6) are known in the art. In an embodiment, directed airflow may be generated by producing a region of reduced air pressure at the insect collecting chamber (2), drawing air from the insect collecting chamber
10 (2) to the insect trapping chamber (6).

In an embodiment, directed airflow may be generated by producing a region of positive air pressure at the insect collecting chamber (2), pushing or pulling air from the insect collecting chamber (2) to the insect collecting chamber (6).

In an embodiment, the airflow generator (5) may by any suitable means know in the art which
15 can generate differential pressure in the insect trap such that insects such as mosquitos are directed from the insect collecting chamber (2) to the insect trapping chamber (6). By way of non-limiting example, in some embodiments a vacuum may be created which draws insects from the insect collecting chamber (2) into the insect trapping chamber (6).

In the embodiment shown in Figure 1, the air flow generator (5) is optionally positioned between
20 the insect collecting chamber (2) and the insect trapping chamber (6). In some embodiments, the airflow generator (5) may be positioned so as to prevent insects in the insect trapping chamber (6) from re-entering the insect collecting chamber (2). By way of example, mosquitos in the insect trapping chamber (6) may be physically prevented or obstructed from entering the insect collecting chamber (2) by the airflow generator (5), by the directed airflow moving from the
25 insect collecting chamber (2) to the insect trapping chamber (6), by the structure of the insect trapping chamber (6) itself, which may only permit one-way movement of insects, or by any combination thereof.

In certain embodiments, operation of the airflow generator (5) may not be required for preventing insects from exiting the insect trapping chamber (6). By way of non-limiting example, passage(s) between the insect collecting chamber and the insect trapping chamber (6) may be blocked when the airflow generator is not running, passage(s) between the insect collecting chamber and the insect trapping chamber (6) may allow only one-way movement of insects into the insect trapping chamber (6), and/or the insect trapping chamber (6) may be designed so as to immobilize insects entering the insect trapping chamber (6) (i.e. a portion of the insect trapping chamber (6) may be sticky, and/or may comprise a mesh or netting that entangles insects such as mosquitos). The person of skill in the art will recognize that many suitable options are available in the art for preventing trapped insects from escaping the insect trapping chamber (6).

It will be understood that the optional light source (3) and/or the airflow generator (5) of the insect trap (1) embodiment of Figure 1 may be powered by any suitable power source known to those of skill in the art. In some embodiments, the airflow generator (5) and/or the optional light source (3) may be powered by one or more batteries, solar power, an electrical outlet, or a combination thereof. In further embodiments, the airflow generator (5) and/or the optional light source (3) configured to be powered by one power source in some applications, and a different power source in other applications. By way of example, permanent or long-term installations near a home may be powered plugging the insect trap (1) into an electrical outlet, while installations on or near a tent or other shelter at a remote location may be powered by one or more batteries, or by solar power via solar panels/solar cells, or both. In some embodiments, the optional light source (3) and the airflow generator (5) may be powered by the same energy source, or by different energy sources. In further embodiments, the optional light source (3) and the airflow generator (5) may be combined into a single unit.

As shown in Figure 1, insect traps provided herein may optionally comprise one or more mounting fittings (7) for positioning/installing the insect traps in a desired location. It will be understood that many suitable mounting fitting options are known to the person of skill in the art. Suitable mounting fittings (7) may include, but are not limited to, any suitable hook, clip, bolt/screw/nail fitting, tie, hanger, stand, tension fitting, VelcroTM, adhesive, magnetic fitting,

mechanical fitting, or other suitable mounting fitting or attachment point known in the art. In some embodiments, the insect trap (1) may simply be placed on the ground or other surface.

As illustrated in Figure 2, the insect traps disclosed herein may be installed in a location in the vicinity of one or more people and/or animals. In some embodiments, the insect traps provided herein may be installed on or near a window, a screened window, a door, a screened door, a vent, or another opening on a stationary or mobile human habitation. Natural insect/mosquito attractants produced by said humans or other animals, cooking smells, toilet smells, or a combination thereof, which may be emitting from said opening(s), may attract mosquitos or other insects to the installed insect trap or traps. In this way, naturally produced attractants may be used to lure mosquitos or other insects to, and into, insect trap embodiment(s) provided herein, resulting in their capture. In some embodiments, the use of additional attractants may not be necessary, which may reduce or eliminate the need for the use of potentially costly, consumable, synthetic chemical attractants, and maintenance and upkeep requirements associated therewith.

As will be recognized, the naturally produced attractants or natural attractants referenced herein may include any of a wide variety of attractants generated by or associated with humans and other animals which are attractive to mosquitos or other insects. Examples of attractants may include, but are not limited to, CO₂, moisture, body heat, body odors or fragrances, emitted gases, perfumes or colognes, cooking smells, food smells, toilet smells, or any other suitable insect- or mosquito- attractive cues generated, produced, or associated with humans or other animals. In some embodiments, natural attractants may be considered as “passive” attractants, as they are attractants which arise from regular daily human or animal activity, and are not deliberately provided or generated for the sole purpose of attracting mosquitos or other insects.

As will also be recognized, synthetic or artificial attractants referenced herein may include any of a wide variety of attractants deliberately provided for attracting mosquitos or other insects to a location. Synthetic or artificial attractants may include, but are not limited to, man-made mimics of compounds emitted by animals (mimics of octenol, CO₂, carboxylic acids, esters, etc...), or optionally concentrated sources of naturally occurring compounds (such as optionally concentrated sources of octenol, CO₂, carboxylic acids, esters, etc...). Whereas natural attractants

may be considered as “passive” attractants, synthetic or artificial attractants may be considered as “active” attractants, as they are deliberately provided for the purpose of attracting mosquitos or other insects to a location.

5 In certain embodiments, chemical cues or attractants generated by mosquitos or other insects trapped in the insect trapping chamber (6) may attract additional insects or mosquitos to the insect trap (1). The directed airflow exiting the insect trapping chamber (6) may assist in distributing the attractive cues in the vicinity of the insect trap.

10 In some embodiments, the opening for one or more insects (4) and/or the entrance to the insect trapping chamber (6) from the insect collecting chamber (2) may function as one-way passages, allowing insects such as mosquitos to enter but not exit. The person of skill in the art will be aware of suitable one-way passage/valve designs for preventing the exit of mosquitos from the insect trap (1), while still allowing insect entry.

15 As will be understood, the insect traps provided herein may be used to trap one or more kinds of insects. By way of example, the insect traps provided herein may be used for trapping biting insects, or insects often perceived as pests, which are attracted to chemical cues emitted by humans, light, heat, or a combination thereof. In particular, the insect traps provided herein may be used for trapping mosquitos.

20 Figure 3 illustrates an example of an insect trap as provided herein while in operation. As shown in the illustrated example, the insect trap (1) is installed on a screened window (10) of a stationary human habitation. Mosquitos (27) are attracted (direction of mosquito attraction shown in solid arrows (20), (21), and (22)) to the insect trap (1) by attractive cues produced by the humans inside the dwelling and emitting through the screened window (10). Once in the vicinity of the insect trap (1), mosquitos enter the insect collecting chamber (2) of the insect trap through the one or more openings (4). Mosquitos may be at least partially attracted or drawn (represented by solid arrow (22)) into the insect collecting chamber (2) by light and/or heat produced by the one or more optional light sources (3), and/or by the directed airflow generated by the airflow generator (5) (the direction of the directed airflow is shown by wavy arrows, including wavy arrow (25) indicating directed airflow moving from the insect collecting chamber

(2) to the insect trapping chamber (6), and wavy arrow (26) indicating exhaust of the directed airflow from the insect trapping chamber (6), in Figure 3). Once inside the insect collecting chamber (2), mosquitos are directed/forced (represented by solid arrow (23)) from the insect collecting chamber (2) to the insect trapping chamber (6) by the directed airflow produced by the airflow generator (5). Once inside the insect trapping chamber (6), mosquitos are prevented from exiting (represented by solid arrow (24)) by the directed airflow, and by the airflow generator (5) itself. Alternatively or in addition, an optional flexible plastic wall may be used to prevent mosquitos from escaping.

Over time, trapped mosquitos will accumulate in the insect trapping chamber (6), where they are prevented from escaping, thus reducing the mosquito population in the vicinity of the dwelling. In some embodiments, the insect trapping chamber (6) may be removable from the insect trap (1), or may be accessible through a resealable opening or access port, allowing the user to access the contents of the insect trapping chamber (6) in order to clean out or empty the insects trapped therein. In certain embodiments, the insect trapping chamber may be disposable, user replaceable, and/or reuseable.

In this example, natural attractive cues produced by the humans in the dwelling, light and/or heat produced by the optional light source of the insect trap, attractive cues produced by trapped insects, or a combination thereof, are used to draw the mosquitos to, and/or into, the insect trap. As such, the insect trap in the illustrated embodiment does not require any synthetic and/or consumable attractant to be used in combination with the insect trap.

The example illustrated in Figure 3 employs an insect trap (1) which includes an optional light source. The mosquitos being trapped in this non-limiting example are attracted to light and heat generated by the light source. As such, the number of mosquitos trapped in this non-limiting example while using the optional light source may be increased compared to the number of mosquitos trapped over the same time period without using the optional light source. The optional light source is not required for operation of the insect trap, as mosquitos will already be attracted to the insect trap by attractive cues emitting from the screened window (10), and directed into the insect trapping chamber (6) by the directed airflow produced by the airflow generator (5). However, use of the optional light source may further improve the effectiveness of

the insect trap at trapping mosquitos or other insects in certain cases. Furthermore, during periods where attractive cues emitting from the screened window (10) are reduced (i.e. when the human occupants of the cottage are off-site), the optional light source may be used to at least partially compensate and provide continued motivation for mosquitos to enter the insect collecting chamber (2). In some cases, light and/or heat generated by the light source which is detectable through the opening (4) of the insect collecting chamber (2) may motivate mosquitos to enter opening (4) more frequently than they would otherwise.

Another embodiment of an insect trap as provided herein is shown in Figure 4. The insect trap illustrated in the non-limiting embodiment shown in Figure 4 includes an optional guide surface (28). The optional guide surface (28) may be installed on the insect trap so as to form a channel, funnel, or guiding passage leading to the one or more openings for insects (4). If the insect trap is installed on, for example, a screened window, the optional guide surface (28) may, in some embodiments, be installed in an orientation parallel to the plane of the window and such that the opening for one or more insects (4) is flanked by the guide surface (28) on one side and by the screened window on another side, forming a channel, funnel, or guiding passage leading to the one or more openings (4).

The optional guide surface (28) may be a plastic barrier, a screen, or other suitable surface for directing mosquitos or other insects towards the one or more openings for insects (4). In further embodiments, the optional guide surface (28) may be removable as desired.

In an embodiment, the channel, funnel, or guiding passage formed with the optional guide surface (28), or the guide surface (28) alone, may be shaped so as to enhance suction at the one or more openings (4) being generated by the airflow generator (5). This enhanced suction may further encourage insects or mosquitos into the insect collecting chamber (2).

The present invention has been described with regard to preferred embodiments. The previous examples and embodiments are provided for illustrative purposes only, and are intended to demonstrate certain non-limiting embodiments. The examples above are not intended to limit the scope of the invention disclosed herein in any way, and are not intended to be limiting in any way.

WHAT IS CLAIMED IS:

1. An insect trap for trapping one or more insects, the insect trap comprising:

- an insect collecting chamber comprising an opening for one or more insects;
- an insect trapping chamber in communication with the insect collecting chamber;
- 5 and
- an airflow generator for generating directed airflow from the insect collecting chamber to the insect trapping chamber;

wherein one or more insects entering the insect collecting chamber are directed by the directed airflow from the insect collecting chamber to the insect trapping chamber, trapping the one or more insects.

2. The insect trap according to claim 1, wherein the insect trap further comprises a light source for attracting insects.

3. The insect trap according claim 1 or 2, wherein the one or more insects are attracted to the insect trap by natural attractants, synthetic attractants, artificial attractants, or a combination thereof, in the vicinity of the insect trap.

4. The insect trap according to any one of claims 1 to 3, wherein the insect trap is a mosquito trap, and the insects are mosquitos.

5. The insect trap according to any one of claims 1 to 4, wherein the insect trap is for mounting near a window, door, screen, or other opening on a structure in the vicinity of a human or animal.

6. The insect trap according to any one of claims 1 to 5, further comprising one or more mounting fittings.

7. The insect trap according to any one of claims 1 to 6, wherein a length of the insect trap can be increased or reduced to assist in installation or mounting of the insect trap.

8. The insect trap according to any one of claims 1 to 7, wherein the air flow generator is powered by one or more batteries, solar power, an electrical outlet, or a combination thereof.

5 9. The insect trap according to any one of claims 2, or claims 3-8 as they depend on claim 2, wherein the light source is powered by one or more batteries, solar power, an electrical outlet, or a combination thereof.

10. The insect trap according to claim 9, wherein the air flow generator and the light source are powered by the same power source.

10 11. The insect trap according to any one of claims 4, or claims 5-10 as they depend on claim 4, wherein the opening for one or more insects is large enough for mosquitos to pass through, but prevents entry of larger insects or debris.

12. The insect trap according to any one of claims 1 to 11, wherein the insect trapping chamber is removable or accessible, allowing trapped insects to be removed.

15 13. The insect trap according to any one of claims 1 to 12, wherein the insect trapping chamber comprises one or more exhaust openings allowing air, but not insects, to exit the insect trapping chamber.

14. The insect trap according to any one of claims 1 to 13, wherein the insect trap further comprises a guide surface for promoting the entry of insects into the insect collecting chamber.

20 15. A method of trapping one or more insects using the insect trap according to any one of claims 1 to 14, comprising the steps of:

- directing one or more insects from the insect collecting chamber to the insect trapping chamber using the directed airflow generated by the airflow generator;
- and

25

- trapping one or more insects in the insect trapping chamber.

16. The method of claim 15, wherein the one or more insects are one or more mosquitos.

17. The method of claim 15 or 16, wherein the one or more insects are prevented from exiting the insect trapping chamber by the airflow generator, by the directed airflow, by one or more one-way passages in the insect trapping chamber, or a combination thereof.

18. The method of any one of claims 15-17, wherein the one or more insects are at least partially attracted to the insect collecting chamber by natural attractants, synthetic attractants, artificial attractants, or a combination thereof, in the vicinity of the insect trap.

19. The method according to any one of claims 15-18, wherein the insect trap is the insect trap according to any one of claims 2, or claims 3-14 as they depend on claim 2, and wherein the one or more insects are at least partially attracted to the insect collecting chamber by light, heat, or both light and heat, generated by the light source.

20. The method according to claim 19, wherein the light source produces light, heat, or both, within the insect collecting chamber, which attracts the one or more insects into the insect collecting chamber through the opening for one or more insects.

21. The insect trap of any one of claims 1-14, wherein the insect trap is for collection, sampling, or monitoring of a local insect population.

22. The method of any one of claims 15-20, further comprising a step of collecting, sampling, or monitoring a local insect population using the one or more insects trapped in the insect trapping chamber.

FIGURE 1

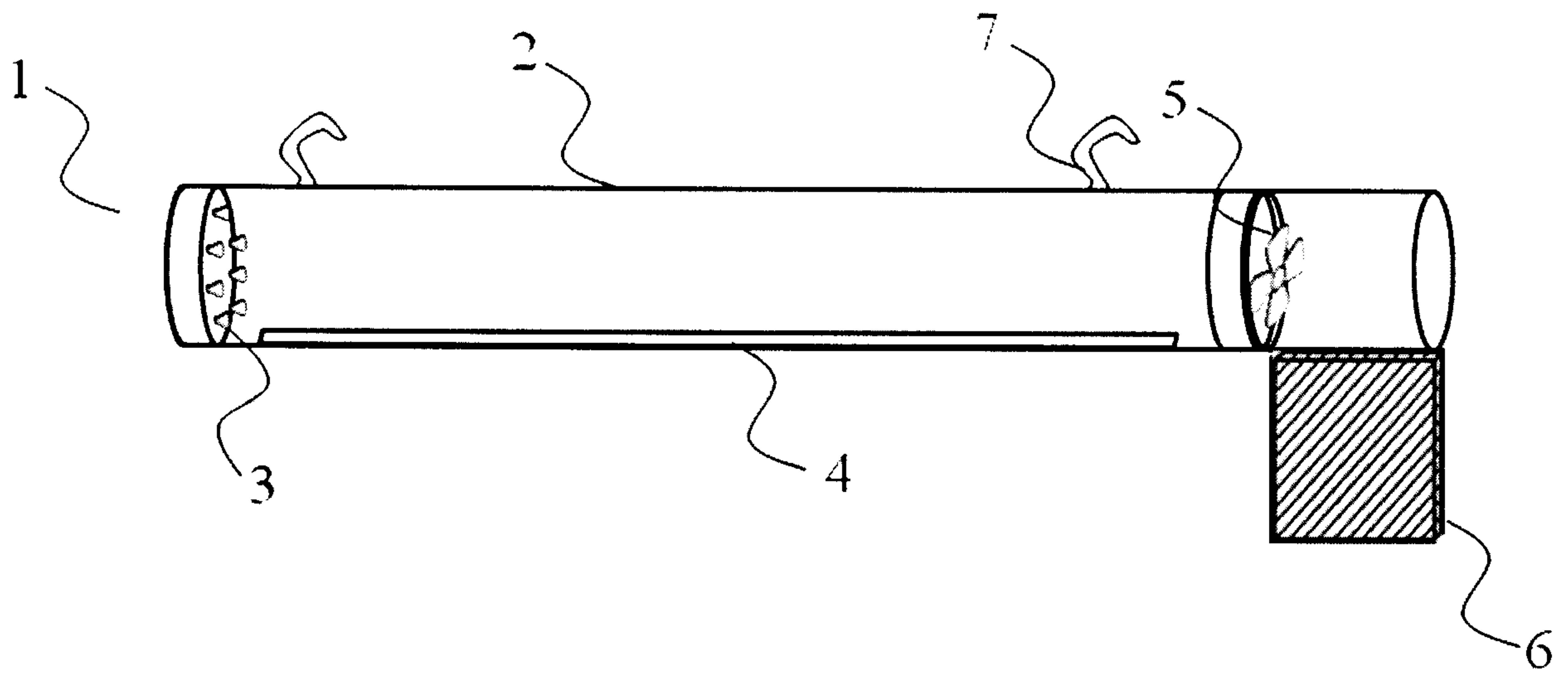


FIGURE 2

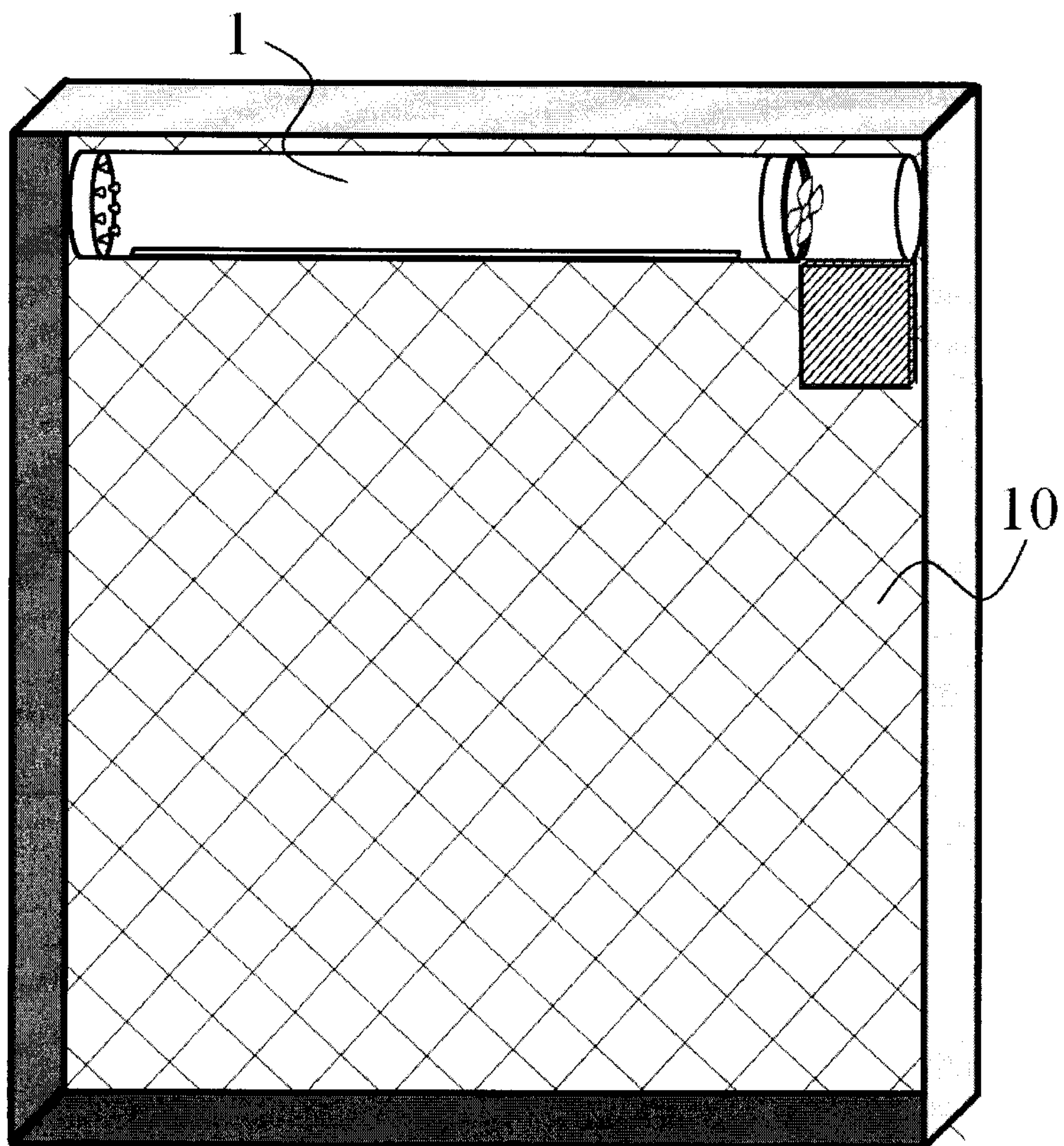


FIGURE 3

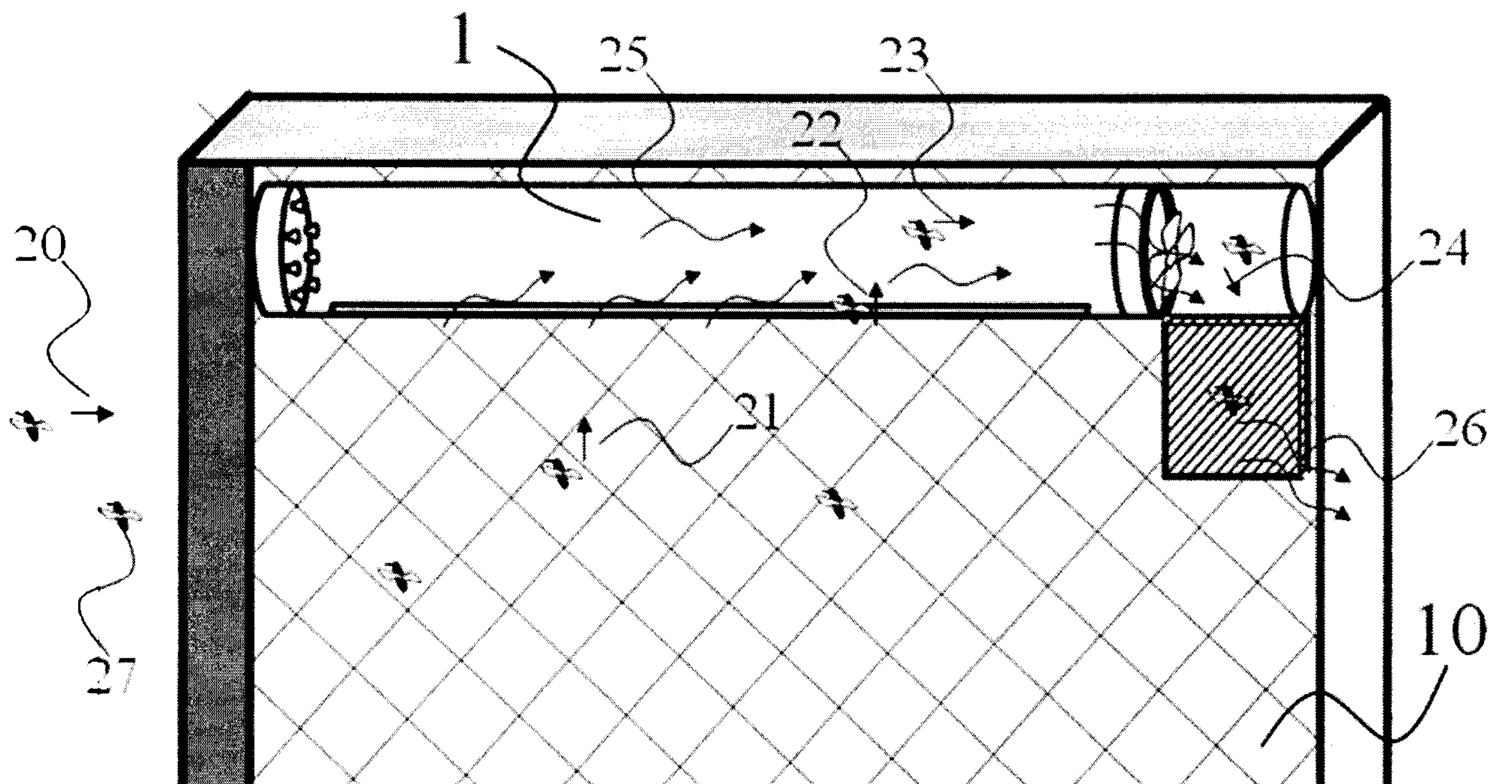


FIGURE 4

