

## MULTIFUNCTIONAL SPRING LOADED CLIP

### FIELD OF INVENTION

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The invention relates to spring loaded clip. More particularly, the invention relates to a multifunctional spring loaded clip having a power supply unit embedded therewithin for supplying electricity to at least two electric powered devices.

### 10 BACKGROUND OF THE INVENTION

The mosquito breeding season starts during warm weather, especially in the summer. During such period, the massive amount of mosquitoes will start interrupt and annoy our daily life. Sometimes, dangerous bites from them may cause us into critical health  
15 condition. To get rid of indoor mosquitoes, mosquito repelling incense or mosquito killer spray is commonly used. However, most of the mosquito repelling incense and the mosquito killer spray are toxic chemicals that may poison the human body. To overcome this, ultrasonic insect repeller is introduced. Ultrasound is well known to have repellent effect as well as reduces mating and reproduction of insects. The  
20 ultrasonic insect repeller is constructed to produce certain ultrasonic frequencies to effectively repel insect or pest.

There are a few patented technologies over the prior art relating to aforementioned device. Of interest in respect to a Sonic insect repeller is US3886492A. This patent  
25 discloses an apparatus for repelling insects comprising a direct current power source, an oscillator comprising a pair of unijunction transistors and a transducer connected to said oscillator adapted to convert electrical output signals from said oscillator into sonic signals; said device being adapted to produce multiple frequency sonic output signals the frequencies of which are continuously varied, said sonic signals

comprising fundamental and harmonic components.

Another ultrasonic pest repeller is disclosed in US4562561A. This patent discloses an apparatus for use as an ultrasonic pest repeller capable of having three different modes of operation for the purpose of generating ultrasonic signals for use in repelling all types of pests. The apparatus includes a circuit coupled at its output with one or more ultrasonic transducers and the circuit operates to generate electronic signals which are applied to the transducer or transducers for creating the ultrasonic signals in any one of three different modes of operation including a first mode in which a steady, modulated signal is generated, a second mode in which a dual pulse signal is generated with modulation of each pulse, and a third mode in which a signal is swept over a band of frequencies and is modulated simultaneously with the sweeping action. The circuit includes a rectifier for providing a DC regulated voltage. Moreover, the circuit includes components for generating a 60 Hz modulating voltage and a pair of timers which are coupled together and operated when a three-pole, three-position switch is selectively actuated, one of the timers being operable to generate a predetermined on-off voltage used to control the operation of the other timer, the output of the other timer supplying power to the transducer or transducers in the selected mode of operation of the circuit.

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The main drawback of these apparatuses is that these apparatuses are not portable and not readily capable to be attached onto any structures. Therefore, a need exist for the prior apparatuses to be portable, readily attachable to any structures, and capable of being used with another electric powered device without the need of modification.

25 The present invention provides such as device.

## SUMMARY OF INVENTION

One object of the invention is to provide a multifunctional clip that is capable of

repelling insects or pests and providing power supply to any suitable electric powered devices.

The invention provides a mount comprises an ultrasound unit for repelling insects, at  
5 least one electric power connector for connecting an electric powered device, and a  
power supply unit connected to the ultrasound unit and the electric power connector  
for supplying electricity to both the ultrasound unit and the electric powered device.

In one preferred embodiment of the invention, the mount may further comprise a  
10 bendable stand for the attachment of the electric powered device to the mount.  
Preferably, the stand can be a flexible conduit for adjusting the electric powered  
device to any designated angles or positions.

In another preferred embodiment of the invention, the mount can be a spring loaded  
15 clip having a pair of elongated clamping members fulcrumed with respect to each  
other about a point between their ends to form a gripping jaws on one side of the  
fulcrum point and to form handles on the other side of the fulcrum point for operating  
the jaws, and a spiral spring member for forcing the jaws to move towards each other  
so that the clip can grip onto a structure.

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Alternatively, the ultrasound unit and/or the electric power connector can be coupled  
with a power switch.

The power connector can be an adapter, a plug, a socket, a battery terminal, a Berg  
25 connector, a coaxial power connector, a EIAJ connector, a FASTON terminal, a JST  
connector, a mini-Din connectors, a Molex connector, a universal serial bus (USB), a  
Perilex connector or any combination thereof, depending on the type of the electric  
powered device used.

Preferably, the electric powered device is a fan. However it should be noted that the fan can be replaced by any other suitable electric powered device such as lighting device, cooler, heater, holder, power charging platform and etc.

- 5 One embodiment of the fan device may include a rotatable hub having at least two equally spaced fan blades attached at the circumference of the hub and a motor powered by the power supply unit for spinning the hub.

Preferably, the ultrasound unit produces at least one sound wave that is similar to the  
10 wing beating frequency of an insect for driving mosquitoes away.

Alternatively, the power connector is replaceable with a bendable stand for the attachment of an object to the mount. The object is but not limited to non-electrical device such as mirror, toy, miniature umbrella, bottle, hanger, sun-shade panel, and  
15 etc.

One skilled in the art will readily appreciate that the invention is well adapted to carry out the objects and obtain the ends and advantages mentioned, as well as those inherent therein. The embodiments described herein are not intended as limitations on  
20 the scope of the invention.

#### BRIEF DESCRIPTION OF THE DRAWINGS

For the purpose of facilitating an understanding of the invention, there is illustrated in  
25 the accompanying drawing the preferred embodiments from an inspection of which when considered in connection with the following description, the invention, its construction and operation and many of its advantages would be readily understood and appreciated.

Figure 1 shows a perspective view of a first embodiment of a multifunctional spring loaded clip which embodies therein the principle features of the invention.

5 Figure 2 shows an exploded view of the first embodiment of the multifunctional spring loaded clip.

Figure 3 shows a front perspective view of a second embodiment of the multifunctional spring loaded clip.

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Figure 4 shows a back perspective view of the second embodiment of the multifunctional spring loaded clip.

#### DETAILED DESCRIPTION OF THE INVENTION

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The invention will now be described in greater detail, by way of example, with reference to the drawings.

Referring to Fig. 1 & Fig. 2, a first embodiment of the multifunctional spring loaded clip 10 as illustrated therein comprises a pair of spaced apart elongated clamping members 11, 12 are pivotally connected at a fulcrum point 13 where a spiral spring member is transversely disposed therealong, to form a pair gripping jaws on one side of the fulcrum point 13 and a pair of handles for operating the jaws on the other side of the fulcrum point 13. The spiral spring member has a pair of arms, each extended from one end of the spiral spring member to contact with a clamping member 11, 12. The spiral spring member forces the end portion of each handle to move apart from each other and the end portion of each jaw to move towards each other so that the jaws can grip onto a structure. By pushing the handles toward each other will release the gripping of the jaws. Elastic members 14 can be disposed at the inner surface of

the jaws at its end portion to increase the gripping friction and to prevent scratches.

Preferably, a battery socket unit 40 is disposed at the inner surface of one of the clamping members 12 and an ultrasonic insect repellent unit 20 is disposed on top of the battery socket unit 40 and being wirely linked to the battery socket unit 40. The battery socket unit 40 has an opening for batteries to be inserted therefrom at the outer surface of the clamping member 12 and the opening can be covered by a casing cover 41. Preferably, the ultrasonic insect repellent unit 20 applies the ultrasonic resonance technique to produce low frequency pulse sonic waves. Generation of such waves is configured to mimic insect's wing beating frequency. In one embodiment, the ultrasonic insect repellent unit 20 mimics the wing beating frequency of a dragonfly to drive mosquitoes away. The ultrasonic insect repellent unit 20 may include a wave emitter to product the sonic wave and a microprocessor to process and generate the wave signals.

On the inner surface of the other clamping member 11, a power connector 30 is disposed thereon, and it is wirely linked to the battery socket unit 40. The power connector 30 can be an adapter, a plug, a socket, a battery terminal, a Berg connector, a coaxial power connector, a EIAJ connector, a FASTON terminal, a JST connector, a mini-Din connectors, a Molex connector, a universal serial bus (USB), a Perilex connector or any combination thereof. Depending on the type of the power connector 40 used, a suitable type of electric powered device such as fan 50, lighting device, cooler, heater, holder, power charging platform, toys, or any other suitable electronic device, can be connected to the power connector 30 for receiving power supply from the battery socket unit 40. Between the electric powered device and the power connector 30, a flexible conduit 60 can be provided for the attachment of the electric powered device to the power connector 30. The flexible conduit 60 can be twisted or bended to adjust the connected device to any designated angles or positions. Alternatively, the ultrasonic insect repellent unit 20 and/or the electric power

connector 30 can be coupled with a power switch. The electric powered device is a fan unit 50. The fan unit 50 may include a fan blade assembly 52 connected to a rotary shaft 53 of a hub 51, and an electric motor for rotating the shaft. The fan blade assembly 52 may consist of three equally spaced and flexible blades.

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In a second embodiment of the invention as shown in Fig. 3 & Fig. 4, the power connector 30 is replaceable by a bendable stand, preferably a conduit stand 60 to attach any object to the clip 10. The object 70 can be any type of non-electrical device such as mobile phone holder, mirror, toy, miniature umbrella, bottle, hanger, sun-  
10 shade panel, and etc.

The present disclosure includes as contained in the appended claims, as well as that of the foregoing description. Although this invention has been described in its preferred form with a degree of particularity, it is understood that the present disclosure of the  
15 preferred form has been made only by way of example and that numerous changes in the details of construction and the combination and arrangements of parts may be resorted to without departing from the scope of the invention.

## CLAIMS

1. A mount being a spring loaded clip (10) having a pair of elongated clamping members (11, 12) fulcrumed with respect to each other about a fulcrum point (13)  
5 between their ends to form a gripping jaws on one side of the fulcrum point (13) and handles on the other side of the fulcrum point (13) for operating the jaws; and a spiral spring member for forcing the jaws to move towards each other so that the clip can grip onto a structure, the mount comprising:  
an ultrasound unit (20) for repelling insects;  
10 at least one electric power connector (30) for connecting an electric powered device;  
and  
a power supply unit (40) connected to the ultrasound unit (20) and the electric power connector (30) for supplying electricity to both the ultrasound unit (20) and the electric powered device;  
15 wherein the power connector is a USB connector for the connection of a USB powered device.
2. A mount according to claim 1, further comprising a bendable stand (60) for the attachment of the electric powered device to the mount.  
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3. A mount according to claim 2, wherein the stand (60) is a flexible conduit.
4. A mount according to any one of claims 1 to 3, wherein the ultrasound unit (20) and/or the electric power connector (30) is coupled with a power switch.  
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5. A mount according to any one of claims 1 to 4, wherein the electric powered device is a fan (50).
6. A mount according to claim 5, wherein the fan (50) includes a rotatable hub (51)

having at least two equally spaced fan blades (52) attached at the circumference of the hub (51) and a motor powered by the power supply unit (40) for spinning the hub (51).

5 7. A mount according to any one of claims 1 to 6, wherein the ultrasound unit (20) produces at least one sound wave that is similar to the wing beating frequency of an insect for driving mosquitoes away.

8. A mount according to any one of claims 1 to 7, wherein the power supply unit (40)  
10 is a battery socket unit.

9. A mount comprising:  
an ultrasound unit (20) for repelling insects;  
at least one bendable stand (60) for the attachment of an object (70) to the mount;  
15 and a power supply unit (40) connected to the ultrasound unit (20) for supplying electricity to the ultrasound unit (20);  
characterised in that the mount further comprises a USB connector linked to the power supply unit (40) for supplying electricity to a USB powered device.

20 10. A mount according to claim 9, wherein the mount is a spring loaded clip (10) having a pair of elongated clamping members (11, 12) fulcrumed with respect to each other about a fulcrum point (13) between their ends to form a gripping jaws on one side of the fulcrum point (13) and handles on the other side of the fulcrum point (13) for operating the jaws; and  
25 a spiral spring member for forcing the jaws to move towards each other so that the clip can grip onto a structure.

11. A mount according to claim 9 or claim 10, wherein the stand (60) is a flexible conduit.

12. A mount according to any one of claims 9 to 11, wherein the ultrasound unit (20) is coupled with a power switch.

5 13. A mount according to any one of claims 9 to 12, wherein the ultrasound unit (20) produces at least one sound wave that is similar to the wing beating frequency of an insect for driving mosquitoes away.

14. A mount according to any one of claims 9 to 13, wherein the power supply unit  
10 (40) is a battery socket unit.