April 5, 1966 E. J. CARRIERO 3,243,913

RODENT AND VERMIN EXTERMINATOR

Filed April 1, 1963 2 Sheets-Sheet 1

Fig. 1

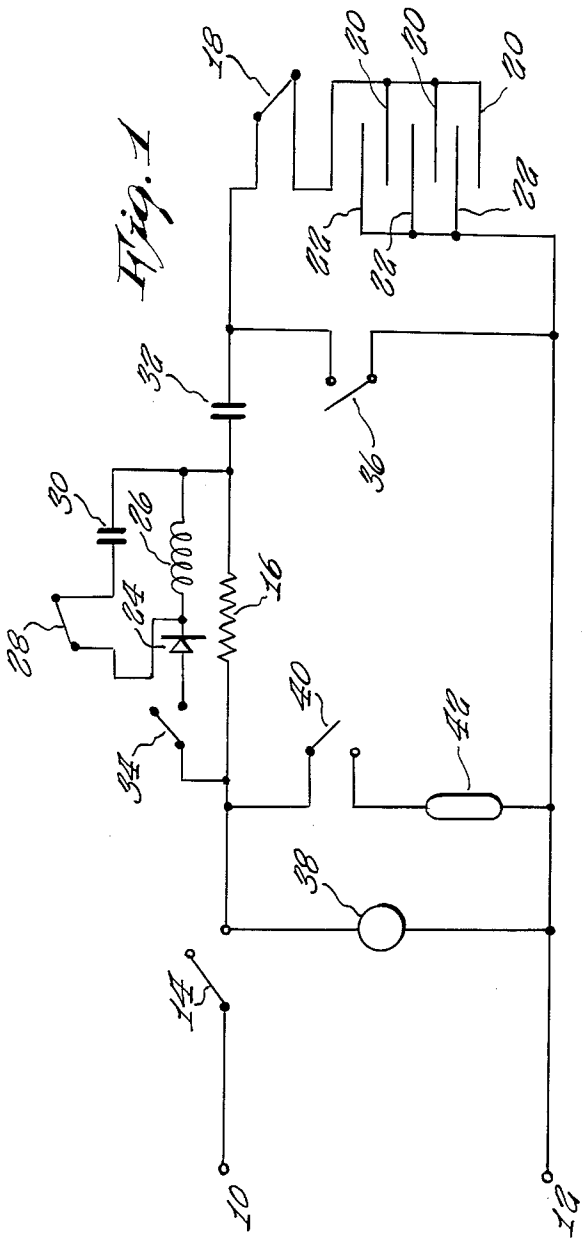
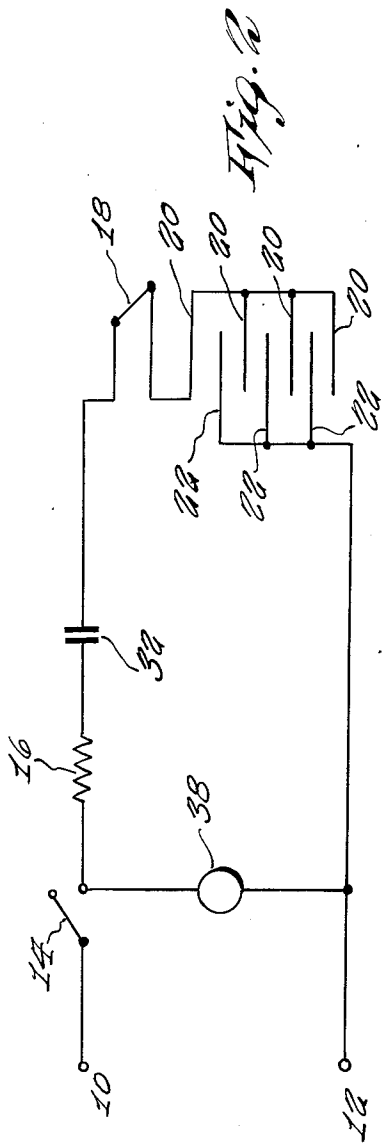


Fig. 2



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Filed April 1, 1963 2 Sheets-Sheet 2

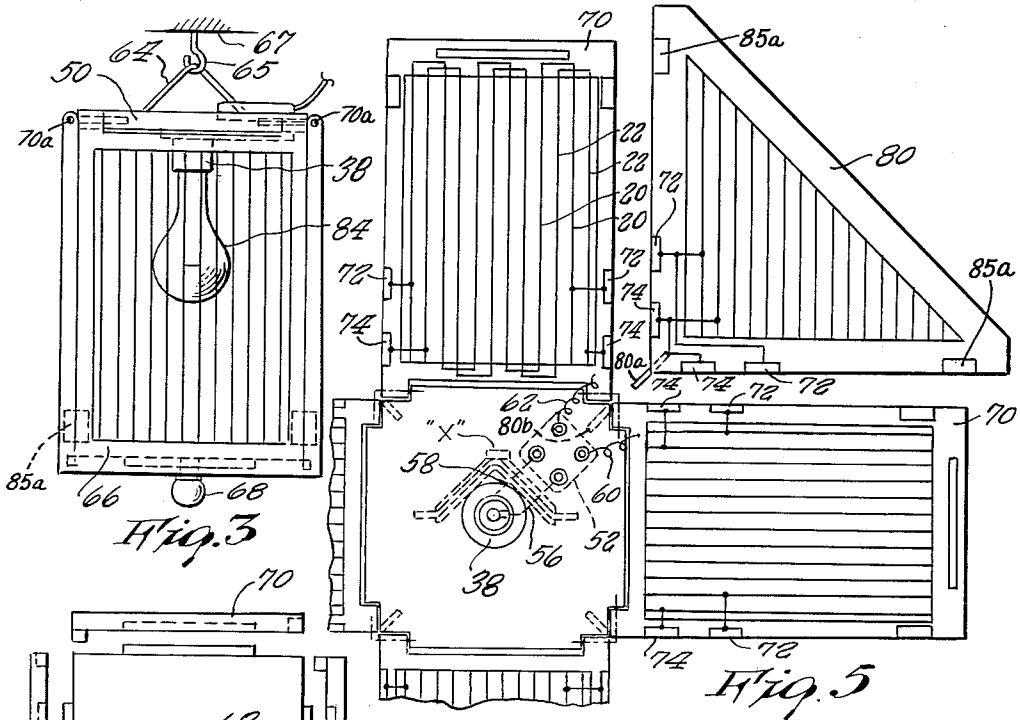


Fig. 3

Fig. 5

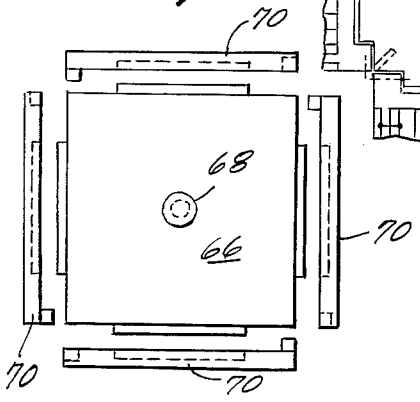


Fig. 4

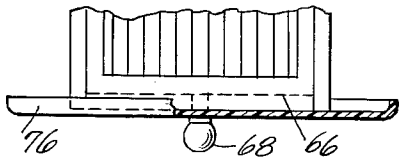


Fig. 6

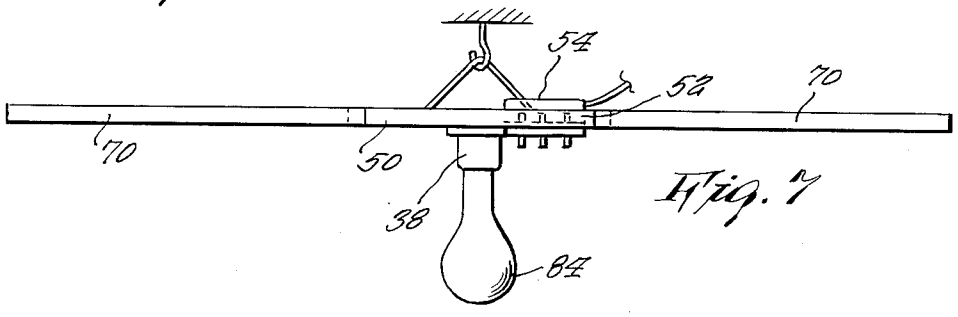


Fig. 7

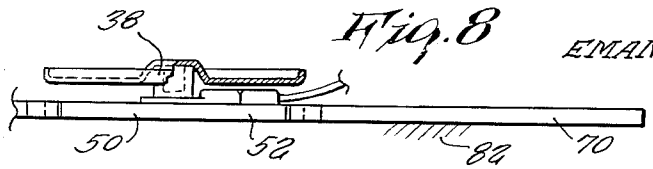


Fig. 8

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RODENT AND VERMIN EXTERMINATOR

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1 Claim. (Cl. 43—98)

My invention is directed toward a device for exterminating rodents, vermin and insects. It is an object of my invention to provide a new and improved device of the character indicated which is particularly adaptable to exterminating rodents such as rats or vermin.

Another object is to provide a new and improved device of the character indicated which is particularly adaptable to exterminating insects.

Still another object is to provide a new and improved device of the character indicated which can be converted from a form in which the device functions as a rodent and vermin exterminator to a form in which the device functions as an insect exterminator.

All of the foregoing and still further objects and advantages of my invention will become apparent when this specification is studied together with the accompanying drawings wherein:

FIGURE 1 is a circuit diagram of my device as used as a rodent and vermin exterminator;

FIGURE 2 is a circuit diagram of my device as used as an insect exterminator;

FIGURE 3 is an elevation view of my device as used as an insect exterminator;

FIGURE 4 is a bottom view of the device of FIGURE 3 with the side walls partially separated;

FIGURE 5 is a bottom view of my device with the walls extended in flat position;

FIGURE 6 is a partial elevation view of the device of FIGURE 3 with a catch tray added;

FIGURE 7 is an elevation view of my device in the process of being converted from an insect exterminator to a rodent and vermin exterminator; and

FIGURE 8 is a partial elevation view of my device as used as a rodent and vermin exterminator.

Referring to FIGURE 1, terminals **10** and **12** represent the two terminal input from a power source such as 115-volt, 60-cycles per second two lead supply. Terminal **10** is connected through a first manually operated switch **14**, a second manually controlled switch **34**, a resistor (shunt) **16**, a first capacitor **32**, a first set of relay contacts **18** (when closed) to three paralleled electrically conductive electrodes **20**. Terminal **12** is connected directly to three paralleled electrically conductive electrodes **22**. (Each of electrodes **22** is placed adjacent but spaced apart from a corresponding one of electrodes **20**.)

A semiconductor rectifier **24** and the winding **26** of a relay are connected in series to form a first network which is connected in parallel with resistor **16**. A second set of relay contacts **28** (when closed) are connected in series with a second capacitor **30** (of relatively small capacitance) and switch **34** to form a second network connected in parallel with resistor **16**. A third set of relay contacts **36** (when closed) connect the junction of capacitor **32** and contacts **18** to terminal **12**.

A lamp socket **38** is connected between terminal **12** and the junction of switch **14** and resistor **16**. Socket **38** is shunted by a third network constituted by the series connection of a fourth set of relay contacts **40** (when closed), and a neon bulb **42**.

Contact sets **18**, **28**, **36** and **40** are all controlled by winding **26**. When winding **26** is deenergized, contacts sets **18** and **28** are closed and contact sets **36** and **40** are open. When winding **26** is energized, contact sets **18** and **28** are open and contact sets **36** and **40** are closed.

When switches **14** and **34** are closed to turn the unit on,

no current flows, and winding **26** is deenergized. The circuit is then as shown in FIGURE 1. When a rodent is caught in the trap and its body interconnects one or more electrodes **20** with one or more electrodes **22**, current flows through the body and electrocutes same. This current flow produces a voltage drop across resistor **16**. This voltage drop causes a current to flow through rectifier **24** (which converts same to a direct current), through the closed contact set **28** and capacitor **30** (which is initially uncharged, and acts initially as a short circuit). This initial current does not flow through winding **26**, since it is effectively short-circuited. After a short period of time, however, capacitor **30** becomes fully charged and acts as a direct voltage block. Then the current can only flow through winding **26** and energizes same.

With reference to FIG. 1 the operation of the device is as follows: The switches **14** and **34** are manually closed. When a rodent then bridges the electrodes **20** and **22** a complete circuit is made and current flowing from terminal **10** through the resistor **16** and capacitor **32**, passes through the normally closed relay contact **18** and through the rodent, electrocuting it, with the current passing through the terminal **12**.

The voltage drop produced across the resistor **16** permits current to flow through the rectifier **24** and the current thus rectified. This rectified current initially charges the capacitor **30** through the normally closed contact **28**. After a specific period of time as determined by the value of the capacitor **30** and the resistance of the winding of the relay **26**, the capacitor **30** becomes fully charged and acts as a D.C. block. The capacitor **30** then discharges through the winding of the relay **26**, keeping it energized. The normally closed contacts **18** and **28** then open and the normally open contacts **36** and **40** now close. When the relay contact **18** opens, it ends the flow of current through the electrocuted rodent, thus preventing burning. The contact **40**, now closed, permits current to flow through the warning signal **42** to operate the same and to indicate the presence of a rodent in the trap.

When the capacitor **32** becomes fully charged it acts as a D.C. block and prevents current from flowing through the relay winding **26**, thus de-energizing the same and opening the circuit. The capacitor then discharges through the resistor **16**. The light bulb socket shown in FIG. 1 at **38** can contain a screw-in food tray to lure an animal into the trap.

At this point, a circuit is completed which lights the neon bulb **42** to indicate that a rodent has been caught in the trap. When the rodent's body is removed, the light is extinguished and relay winding **26** is deenergized to reset the trap.

In the arrangement thus far described, no lamp is in lamp socket **38**. Food can be placed in the socket to lure the rodent into a trap.

When switch **14** is closed but switch **34** is open, the circuit thus described above is modified as shown in FIGURE 2. A lamp bulb **84** is placed in socket **38** and is lit, since socket **38** is connected across terminals **10** and **12**. In addition a network consisting of resistor **16**, capacitor **32**, closed contacts **18** and electrodes **20** are all connected in series with terminal **10**, and electrodes **22** are connected in series with terminal **12**. In this arrangement, the device acts to kill insects. The insects are attracted by the lit bulb **84** in socket **38** and as they interconnect electrodes **20** and **22** are electrocuted. In this case no alarm light is energized since it is not necessary to remove the dead insects to reset the trap.

Referring now to the drawings my device comprises a top insulated plate **50** carrying a four prong polarized male fixture **52** adapted to receive electrical current from either top or bottom prong pairs by way of a female connection **54** to the voltage source. Conductors **56** and **58**

conduct current from fixture **52** to the lamp socket **38**; conductors **60** and **62** conduct current to electrodes **20** and **22** from fixture **52** as described hereinafter.

The top of plate **50** carries a loop **64** which is supported on hook **65** secured to a ceiling **67**. My device further includes a bottom insulated plate **66** having a bottom knob **68** threadedly engaged therewith.

Four side pieces **70** extend between various sides of plates **50** and **66** and are hingedly connected to plate **50** to form a rectangular structure. Each of pieces **70** contain spaced apart electrodes **20** and **22** which are interleaved. Structures **70** each contain a first upper pair of magnets **72**, which are connected to electrode **20**, and a second lower pair of magnets **74**, which are connected to electrodes **22**.

Consequently, when magnets **72** of pieces **70** are placed into abutting contact with each other, current is supplied to all electrodes **20** and **22** through the magnets. The magnets hold the pieces **70** together vertically to assemble the insect exterminator. A catch tray **76** can surround peripherally the bottom plate **66** being held in position by knob **68**.

To convert the device of FIGURES 3, 4 and 6 into the form of FIGURES 5, 7 and 8, the vertical side pieces **70** are swung on their hinges **70***a* from vertical to horizontal positions and additional triangular or rectangular side pieces **80** are placed inbetween adjacent pieces **70**. The side pieces **80** connect to the sides **70** by the pins **80***a* (FIG. 5) engaging in recesses **80***b*. Also magnets **85***a* may be used to hold the parts together. Pieces **80** carry electrodes **20** and **22** as well as magnet pairs **72** and **74** whereby pieces **70** and **80** can be held horizontally together (with the bottom plate **66** removed) by magnetic forces, and electrodes **20** and **22** are electrically connected in the manner indicated. At this point, the structure is inverted as shown in FIGURE 7. The structure is then removed from hook **66** and turned to the upright position and placed on a floor **82** as shown in FIGURE 8. The light bulb **84** is then removed to permit the device to function as previously described.

While I have described my invention with particular reference to the drawings, my protection is to be limited only by the terms of the claim which follows.

I claim as follows:

An exterminator comprising a first electrode, a second electrode spaced from the first electrode, a source of alternating current having one terminal electrically connected to said second electrode and the other terminal electrically connected in series through a resistor, a first capacitor, and a first relay switch to said first electrode, a first shunt means connected to the terminals of said resistor and including a manually operated switch, a rectifier and a relay winding connected in series, a second shunt means connected to the terminals of said relay winding and including a second relay switch and a second capacitor connected in series, a third relay switch connected in parallel with said electrodes and having one lead connected to the junction of said first capacitor and said first relay switch, a fourth relay switch connected in parallel with said electrodes ahead of said first shunt means and including a lamp connected in series therewith, said relay switches being operably controlled by said relay winding, said first and second relay switches being opened and said third and fourth relay switches closed when said relay winding is energized.

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