

AN INSECT LIGHT TRAP FOR USE WITH AUTO VEHICLES IN THE FIELD

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A light trap usable in the field where light power of 110 volts is not available can be valuable for certain insect studies, especially of mosquitoes. Having such a need, the writer designed a trap which can be attached to and operated from the battery of an auto vehicle. A trap of this kind can be taken to the breeding grounds of certain species of mosquitoes to determine their approximate abundance, to determine flight habits and movements; and can be used for census studies of new areas, obtaining species data by using a minimum of time when covering extensive areas. This field trap is operated where light attraction methods can be employed only by means of a storage battery. For those species which show negative phototropism it has been successfully demonstrated that, by chance, adults have been caught in the trap when the light bulb was detached, leaving but the drawing action of the fan to capture them.

This trap operates similarly to others commonly used by entomologists; however has some changes in principle of operation. The motor and fan of this design lie in a position below the killing jar, and by a down draft of air all insects attracted to the bright light are captured. It operates well for two hours at one time without overtaxing the storage battery to which it is clamped. By placing the lighted trap on the hood of the auto the beams of the light are cast in all directions from the vehicle, assuring the best possible attraction for insects in the immediate vicinity.

Construction

This light trap can be constructed easily and with a minimum of cost. Most parts can be hand made, some salvaged. The

searchlight reflector, $5\frac{1}{8}$ inches in diameter, is obtained from a four-cell dry battery searchlight unit. It aids greatly in spreading a brighter light to attract the insects. Into this reflector is soldered an auto light bulb socket, and into the socket is placed a single beam 32 candlepower 6-8 volt auto headlight bulb. Care should be taken to solder the socket in a position whereby the light bulb protrudes one and one-half inches below the reflector to permit the brilliant glow of the filament to shine free into the area about the vehicle. This feature of the trap proved to increase the efficiency of the "catching power," mainly because of the glaring light. Metal straps hold the reflector above the vertical cone of the lower parts of the trap. To prohibit large insects, Lepidopterans especially, from entering the trap a piece of hardware cloth, $\frac{1}{2}$ by $\frac{1}{2}$ inch squares, is placed on top of the cone through which the insects pass. This cone is made of a fine mesh bronze wire screen. At the end of the cone is soldered the lid of the killing jar. The hole in this lid has a diameter of three-fourths inch. The cylinder housing this apparatus can be fitted to the base of the trap either by a flanged seam, or merely by a tight-fitting overlap onto the base, through which the killing jar is reached for examination. A defrosting fan-motor unit, commonly used for automobile windshields, is attached to the base and rests directly below the killing jar. The fan blades are twisted in reverse so that it will draw air, in place of blowing. This motor operates on six volts and creates sufficient speed required to draw most insects into the jar. Electrical wiring runs from the motor to battery clamps, as well as to the top of

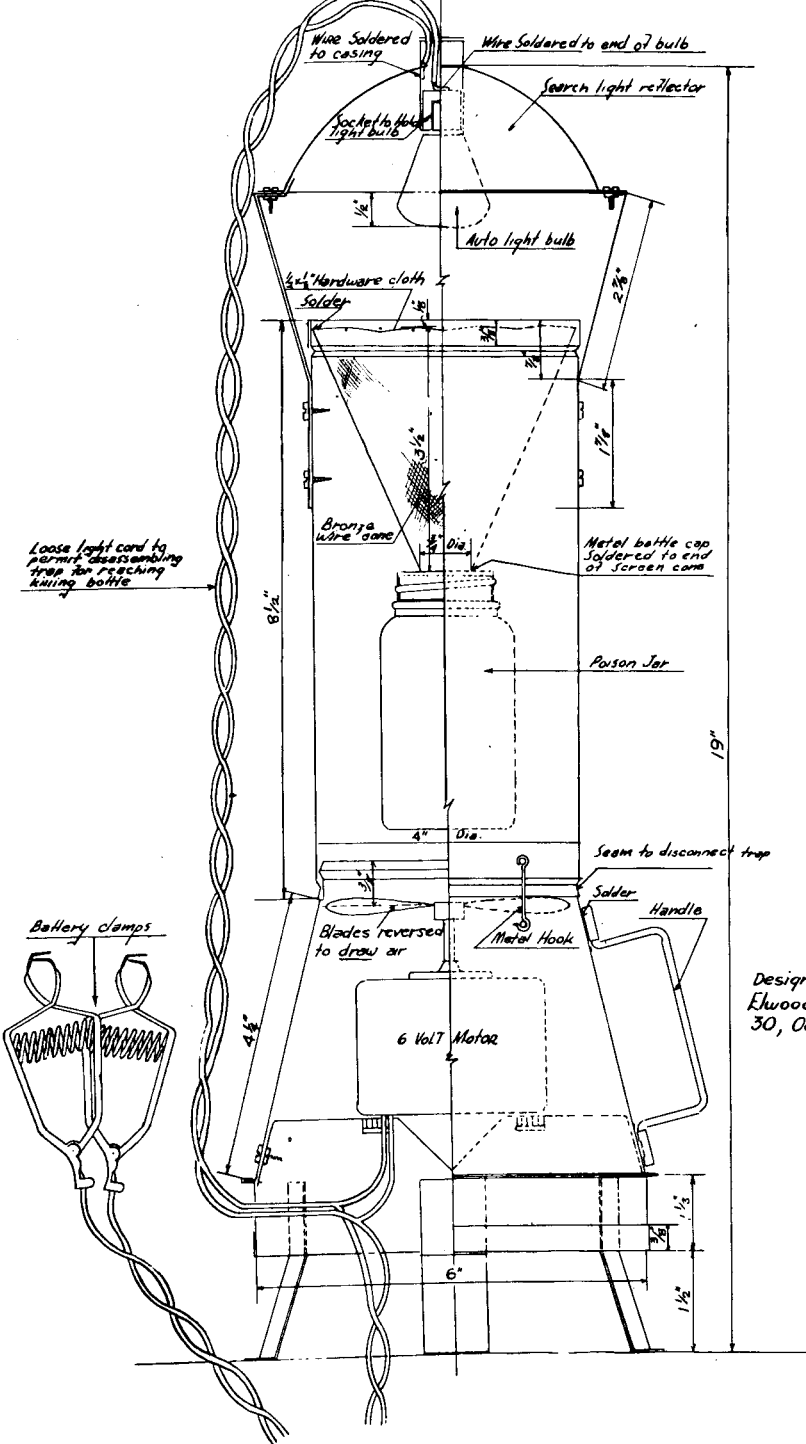


Fig. 1. Insect collection light trap designed for use with auto vehicles afield.

the reflector where its separate wires are soldered to the socket and the plate which connects with the end of the light bulb.

This trap has been used afield successfully by the writer. On one occasion 120 *Culex erythrothorax* adult mosquitoes were caught in a twenty-minute period. Four

genera of mosquitoes have been captured by it in both the desert and sea coast sections of Southern California.

C. S. Richards, a co-worker, was very helpful in the original designing of this trap, and for his aid the writer expresses appreciation.

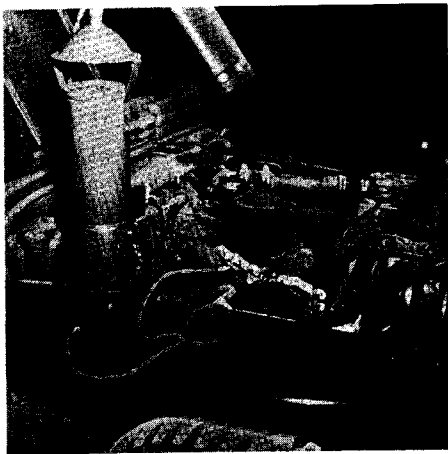


Fig. 2. Light trap in operation. Is clamped to battery and usually sets on top of the hood where light beams can spread over the surrounding ground.