

UNITED STATES PATENT OFFICE

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DEVICE FOR REARING AND CAPTURING INSECTS

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dedicated to the free use of the Public of the
United States of America

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4 Claims. (Cl. 119—1)

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amended April 30, 1928; 370 O. G. 757)

This application is made under the act of March 3, 1883, as amended by the act of April 30, 1928, and the invention herein described may be manufactured and used by or for the Government for governmental purposes without the payment to us of any royalty thereon.

We hereby dedicate the invention herein described to the free use of the public in the territory of the United States of America to take effect upon the granting of a patent to us.

Our invention relates to cabinets for use in the propagation of certain "host" species of insects, stages of which are required in large numbers for feeding and rearing millions of beneficial parasitic insects. These parasitic insects are distributed in orchards and cultivated crops, where they attack and kill noxious insect pests, and thus reduce the damage to the crops from the latter.

The device is illustrated in the accompanying drawing in which Fig. 1 is a front elevation of the device with the door open; Fig. 2 is a side elevation; Fig. 3 is a top plan view; Fig. 4 is a detailed view of one of the traps on the line 4—4 Fig. 2, and Fig. 5 is a sectional view of one of the trays on the line 5—5 Fig. 1, showing the entrance slot.

Essentially this cabinet consists of a rearing compartment 1 supported on short legs 2 and having a large door in front 3, having each side of fine-mesh screen wire 4 and having back and bottom of smooth solid material. The top 5, of sheet metal, is equipped with one or more trapping devices 6 for collecting the insects automatically. The interior fixtures from which especial efficiency is obtained because of new and unique design, consist of a series of vertically hanging trays 7 of narrow or thin width with sides of screen wire, supported on strips 8 at each side of the rearing compartment.

A detailed description of a definite cabinet in use in the work is given below as an example of how the principles involved may be applied in a practical way. It is not implied that the dimensions given are inflexible, or that other materials might not be substituted for construction, in working out the ideas and principles involved. Smaller or larger dimensions and other materials have been used with success, provided the essential features and combinations described herein are not departed from.

The framework of the cabinet, as used by us is of wood size $1\frac{1}{2}$ inches by $1\frac{1}{2}$ inches. The four corner posts 20 are thirty-six inches long, eight inches at the bottom of each forming a sup-

porting "leg" 2. Cross pieces 27 of the same material extend between corner posts at bottom and top of rearing compartment 1, making the cabinet 30 inches wide across the front, 29 inches from front to back and forty-five inches tall, with the 9-inch trapping devices 6 included. The bottom 16, back, top 5 and door 3 are of smooth 28-gauge galvanized flat sheet metal, the door 3 being reinforced with strips of $1\frac{1}{8}$ by $\frac{3}{4}$ inch wood around the edges, and being very tightly hinged and latched as shown at 26 to the rearing compartment as shown in Fig. 2. The sides are of 60-mesh-to-the-inch brass or copper screen wire 4, which is reinforced and protected by vertical wooden strips $17\frac{3}{4}$ by $1\frac{1}{8}$ inches.

Except the top, all flat metal surfaces on bottom, back, door and screen wire sides are attached to the inside of the wooden frame, additional $\frac{3}{4}$ by $1\frac{1}{8}$ inch wood strips being used to permit this, where needed. In this manner the number of angles and hiding places for the insects in the rearing cabinet is reduced, following the principle that unobstructed opportunity must be presented to the insects, to gratify their tendency or "tropism", to crawl or fly upward toward the trapping devices 6.

Over four $6\frac{1}{2}$ inch holes in the sheet metal top 5 near each corner, cones of sheet metal, or tapered "funnels" 9 were soldered in an inverted position. Funnels 10, similar in shape and size to the funnels 9, are provided and the screw caps 21 of the cylindrical containers 22 are soldered at the edges of perforations through the flat surfaces of the screw caps, to the spreading outward surfaces of the tapered funnels. The cylindrical containers are of sufficient length so that when they are attached at their open ends by means of a corresponding screw thread to the screw caps 21 secured to the funnels 10, the opposite ends which are closed with a 60-mesh to the inch copper screen wire 11, extend above the small openings 18 and 23 of the funnels 10 and 9, respectively, these small openings being inside the cylindrical containers. In use the funnels 10 to which the screw caps 21 and cylindrical containers 22 are attached, fit closely over the funnels 9 soldered to the cabinet top. The insects crawl upward through the small openings in the top of the cabinet into the two funnels, and into the container 22 of the trap 6 and cannot find their way back again, but are held there until needed, when the trap cans may be opened and the insects transferred to other containers. The screen wire ends of the cylindrical containers provide ventilation for the trapped insects. In transfer-