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United States Department of Agriculture  
Agricultural Research Administration  
Bureau of Entomology and Plant Quarantine

### HAND-OPERATED EQUIPMENT FOR PRECISION DUSTING

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Dust guns with small discharge tubes are useful for applying insecticides to restricted parts of a plant with precision, economy, and freedom of the operator from the annoyance of a dust cloud.

The equipment shown in operation in figure 1 consists of two parts, (1) a dust gun, which holds a supply of insecticide and provides a means of directing the dust discharge, and (2) a portable air pump. The parts may be assembled from readily available or salvaged materials at comparatively low cost.

#### The Dust Gun

The dust gun (figure 2) was constructed from these parts: A mason-type quart jar, one 12-inch length of 5/16-inch copper or steel tubing bent into a "U," one 10-inch length of 1/4-inch tubing, one 5/16-inch, straight, union, compression coupling with one sleeve and two nuts, one quarter-inch right-angle compression coupling with one sleeve and two nuts, a piece of strap iron 3/4 by 10 inches, and a 4-inch length of garden hose. Metal tubing and compression couplings are used in fuel lines of oil stoves and automobiles. The strap iron is bored to receive the couplings, bent to form a grip support, and fastened over a gasket to the jar top.

#### A Portable Air Pump

Details of a portable air pump are shown in figure 3. First mount an automobile tire pump on a wooden staff (3/4 by 3/4 by 42 inches) by means of thin sheet-iron straps and an eyebolt. Fasten the end of the tire-pump plunger rod in a foot brace made of strap iron or of stout wood. If the rod is not threaded and a 1- by 3/4- by 8-inch piece of hardwood is used for the foot brace, bore a hole through the wood, pass the rod through it, peen over the end of the rod sufficiently to hold a washer in place, and tack a piece of

metal over the end of the rod. Three eyescrews hold a 1/8- to 3/8-inch guide rod, 31 inches long, bent at right angles just beneath the staff handle and fastened to the foot brace by the same means used for the plunger rod. Connect the tire pump and dust gun with a 30-inch length of rubber tubing (1/4 inch inside diameter), and the outfit is ready for use. Ordinary tire-pump tubing is not large enough in diameter to operate the dust gun.

#### Operating the Equipment

Air compression is developed by pushing the pump toward the ground, and the plunger rod is held by the foot brace during the back stroke. Both guide rod and staff handles are grasped in carrying the equipment. It is necessary to shake the dust gun occasionally in order to keep the dust in a "fluffed" condition.



Figure 1.—Equipment in operation. The operator stands with one foot on the foot brace while pumping air through the dust gun.



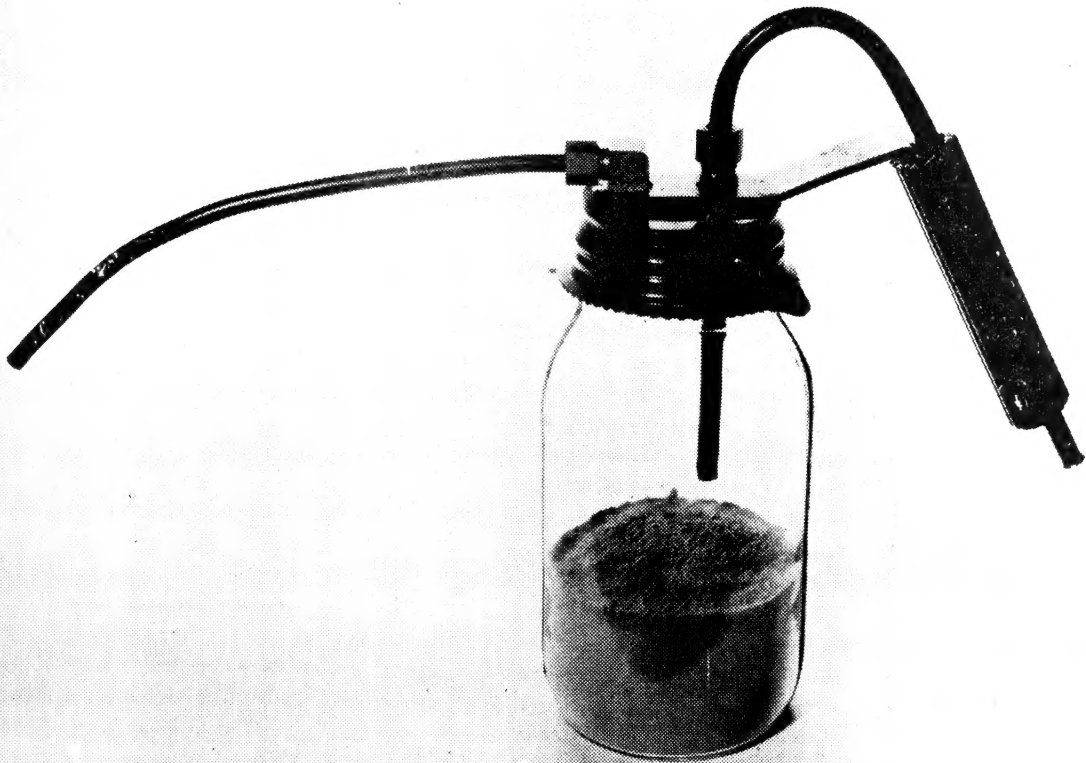


Figure 2.—Dust gun, showing tube compression couplings, gaskets, U-shaped air-intake tube, dust supply, discharge tube, and parts forming the grip.





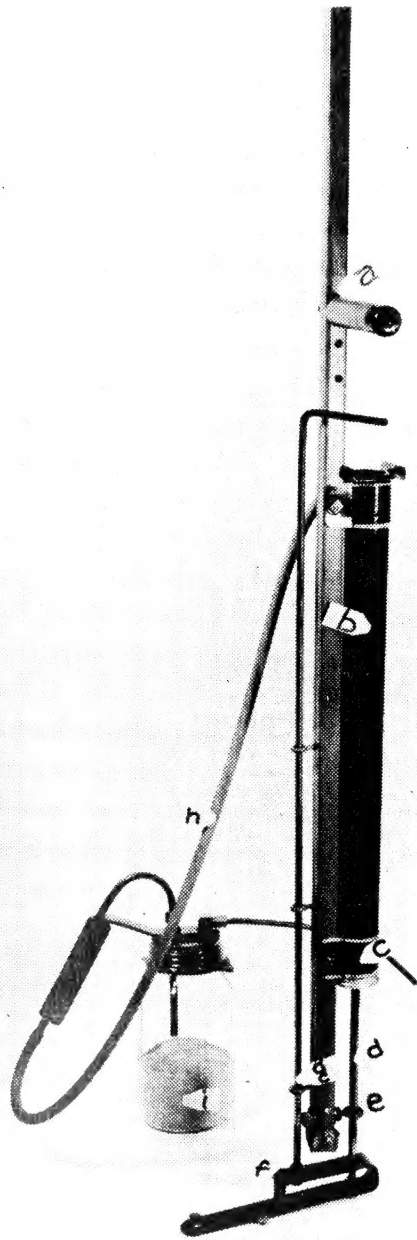


Figure 3.—Details of the air pump: (a) Adjustable staff handle, (b) medium-sized tire pump, (c) sheet-metal clamp, (d) pump plunger rod, (e) plunger-rod eyebolt, (f) foot brace, (g) guide rod, (h) air hose, and (i) dust gun. A simpler foot brace may be made of wood, as described on page 1.

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