

A "Two-Gun" Ground Sprayer¹

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THE most economical time to control invading noxious shrubs is at an early stage in the invasion, when stands are sparse. One method of doing this is with a ground spray rig (Fig. 1). With such a rig the problem is to get the guns out from the vehicle so that a reasonable-sized swath can be covered. The out-rigger apparatus described herein can be used to cover a swath of 50 feet where the brush is fairly dense, to 90 feet on sparser stands.

A welded box frame of channel iron and scrap metal was made to fit in the pickup bed (Fig. 2-A). The purpose of the frame is to support the pipe and get it high enough to clear shrubby plants. A ball-trailer hitch welded to the center of the top part of the box

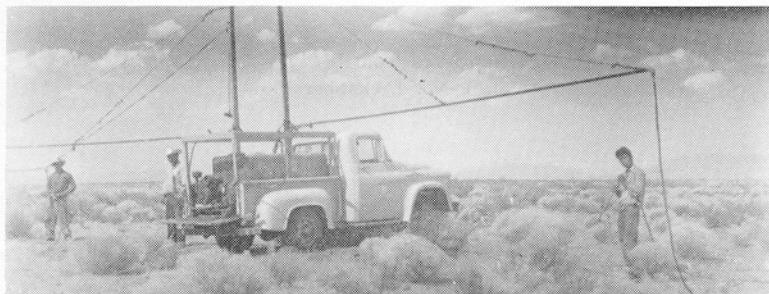


Figure 1. A two-gun spray rig.

frame on each side serves as the flexible inner support for the pipe boom (Fig. 2-D). The trailer hitch coupling was bolted to an 8-inch length of 1½-inch pipe (Fig. 2-E) which was reduced to a 1-inch pipe at a gate valve. A 20-foot length of 1-inch pipe was fastened to the other side of the valve. This latter pipe serves as a swinging boom to carry the spray material and as a support for the hose and orchard guns attached to the outside end. From the center of each of the box frame side plates a 7-foot metal upright was welded in place (Fig. 2-B). A cross-member, welded across the top, extends outward 21 inches on each side (Fig. 2-C). Harness rings on short lengths of chain were welded on the outside end and in the center of the pipe as attachment points for the support cables (Fig. 2-F). The other end of the one-fourth-inch cables was fastened to the outer edge of the extended top cross-member (Fig. 2-G). Harness snaps were used for ease in mounting and dismantling. Turn-buckles were installed on each cable so that proper length adjustments could be easily made (Fig.

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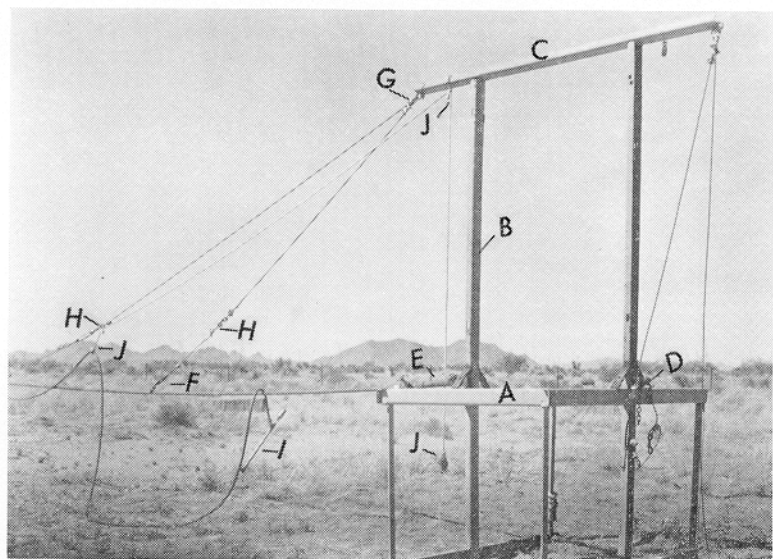


Figure 2. A detailed view of the box frame and out-rigger connections. See the text for a description of the lettered points.

2-H). Fastening the upper end of the cable to the *extended* upper cross-member causes the pipe to return automatically to the center, outward position.

A commercial engine-driven sprayer with a capacity of 5 gallons per minute and pressure range of 0 to 450 pounds per square inch was placed on the pickup bed inside the box frame. Two hydraulic hoses connect the pump to the pivot end of the pipe, sufficient slack being allowed to permit free swinging. A gate valve seals the inside end of the 1-inch pipe, but it may be opened to permit rapid drainage of the spray material in the pipe. The pipe is used as the carrier for the spray material, the liquid being forced through from a hose connection near the sealed end. Twenty-five feet of pressure hose connects the outside ends of the 2 pipes with orchard-type spray guns (Fig. 2-I).

The pressure hose can be partially supported by a system of pulleys and a counterweight (Fig. 2-J). This facilitates handling of the hose.

For transit, a rack is built on one side of the pickup to carry the dismantled pipe. All that is necessary is to disconnect the harness snaps and loosen the trailer hitch at the inside end of the pipe. The pipe with all the hose connections intact can be laid on the pickup rack.

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