

AN INEXPENSIVE MULTIPLE BOOT DRYER

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Control of spring *Aedes* mosquitoes is a major concern of mosquito abatement districts located in the northern latitudes. Woodlots unsuitable to aerial application must be larvicided by ground crews. A direct result of this application is employees with wet boots due to leaks and accidents. Supervisory staff realized that the wearing of wet boots in 30 to 40 degree Fahrenheit temperatures was a hindrance to morale, and correlations in decreased productivity were easily made.

During the Fall of 1985 an inexpensive boot dryer was fabricated which has the capacity to dry 40 boots in 3-4 hours time. Boots are dried by being hung upside down between two outside top rail bars. One heat exhaust pipe is then placed inside each individual boot. Materials needed for this project include angle iron ($\frac{3}{16}$ " thick), channel iron ($\frac{3}{16}$ " thick), heat duct, galvanized pipe, electrical blower, heating elements and breaker box.

The unit is constructed of (See Figure 1) two

10' long 3" angle iron. Both ends are then welded (all metal connections are welded) to a piece of 3" channel iron 48" long, making sure both ends are exactly 18" apart and centered. Make sure lips of angle iron are facing in. A $9\frac{1}{2}$ foot 18" x 12" heat duct can then be cradled between the angle iron. Make sure that one end of heat duct is closed off. Next, attach two 16" pieces of 3" angle iron perpendicular to middle of base angle iron. Place a 20" piece of channel iron horizontally and on top of these 16" braces. Construct a T-brace from $1\frac{1}{2}$ " galvanized pipe with the stem of T-brace 36" and horizontal top of T-brace 30". Secure stem of T-brace to 20" channel iron.

Two end frames are then constructed and mounted on the 3" channel iron located at both ends of the dryer. Cut two 50" pieces of $1\frac{1}{2}$ " galvanized pipe and secure to base channel 46 $\frac{1}{2}$ " apart. Next place 90 degree elbows ($1\frac{1}{2}$ " I.D.) to the tops of these end posts. Cut a 45" long piece of the $1\frac{1}{2}$ " galvanized pipe and place between

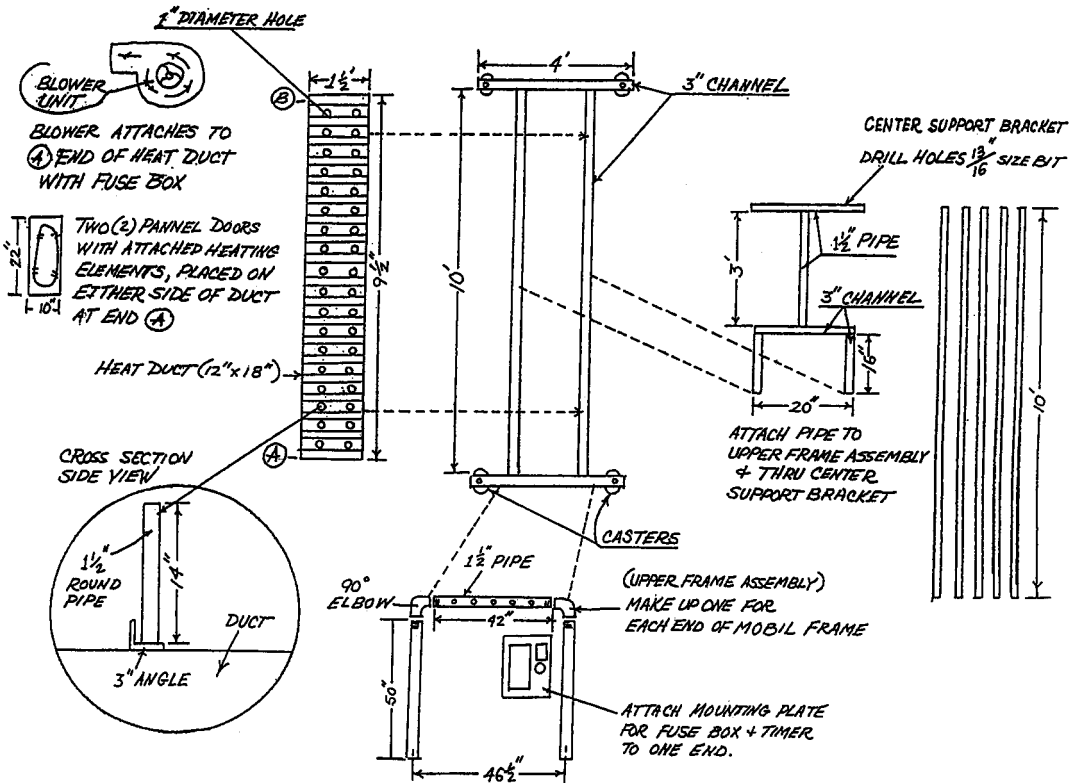


Fig. 1. Boot dryer assembly whose main components consist of angle iron, channel iron, galvanized pipe, heat duct and an electrical blower unit.

the two elbows. Repeat this procedure for other end frame. Casters may be placed under these end posts if mobility is desired.

Construct top rack between the tops of the two end frames and top of middle support T-brace. Drill a $\frac{13}{16}$ " hole thru both sides of pipe at the center of top T-brace. Repeat by drilling holes 6" and 12" left and right of center hole. Also drill $\frac{13}{16}$ " holes on insides only of top two end frame pipes following same pattern of holes as in top T-brace. Place a $\frac{3}{4}$ " x 10' pipe in these center holes and secure. Make sure all holes are evenly spaced, 6" apart.

Now drill two rows (20 holes per row) of 1" holes $4\frac{3}{4}$ " apart and 3" from both edges of heating duct. Twenty light weight angle pieces will be cut at 18" lengths to be pop riveted crossways to heating duct for support. Make sure that the holes cut in each piece correspond with holes cut in top of duct. Cut forty $1\frac{1}{2}$ " x 14" pipes to be placed and brazed over each hole opening.

Place an electrical blower unit ($\frac{1}{8}$ hp, 1,725 rpm, 1,400 cfm) at the open end of the heating duct and fasten to frame. Form this end of the duct work to make an airtight seal on the exhaust of the blower unit. Now cut two 22" x 10" holes on both sides of duct just in front of blower. Make sure to save the cut out pieces since they will be used as doors. Using 1" angle fabricate a door frame for these openings and fasten cutout in frame. Place two door hinges on door and attach so that door opens downward. Mount 4,000 watt (110 v) heating units (used clothes dryer element) on inside of both doors. In the upper left hand corner of end frame which contains blower unit mount a 12" x 12" piece of $\frac{1}{4}$ " steel plate. Fasten a 120/240 amp breaker box to the plate and a timer if desired. Connect electricity for blower and heating elements to breaker box. The approximate cost of

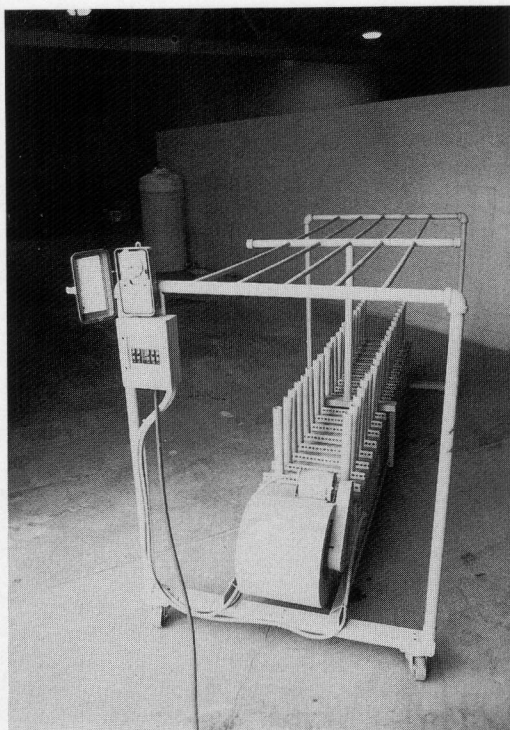


Fig. 2. Electric forced air boot dryer capable of drying 20 pairs of wet boots in 3-4 hours.

the boot dryer is \$500 if all materials are new but we utilized spare materials on location and actually spent approximately \$50.

To date this boot dryer (Fig. 2) has performed flawlessly with no repairs needed. Considering low cost of construction and an operation cost of only 0.57 dollars/KWH, this device offers an inexpensive method to dry boots and improve morale.