

# Bucket Stove

The Bucket Stove pictured on the following pages (Figs. 9.2 and 9.3) was the most satisfactory of several models of expedient stoves developed at Oak Ridge and later field-tested. If operated properly, this stove burns only about 1/2 pound of dry wood or newspaper to heat 3 quarts of water from 600 F to boiling.

## Materials required for the stove

- ▶ A metal bucket or can, 12- to 16-quart sizes preferred. The illustrations show a 14-quart bucket and a 6-quart pot.
- ▶ Nine all-metal coat hangers for the parts made of wire. (To secure the separate parts of the movable coat-hanger wire grate, 2 feet of finer wire is helpful.)
- ▶ A 6 X 10-inch piece of a large fruit-juice can, for a damper.

## Construction

With a chisel (or a sharpened screw driver) and a hammer, cut a 4-1/2 X 4-1/2-inch hole in the side of the bucket about 1-1/2 inches above its bottom. To avoid denting the side of the bucket when chiseling out the hole, place the bucket over the end of a log or similar solid object.

To make the damper, cut a 6-inch-wide by 10-inch-high piece out of a large fruit-juice can or from similar light metal. Then make the two coathanger-wire springs illustrated, and attach them to the piece of metal by bending and hammering the outer 1 inch of the two 6-inch-long sides over and around the two spring wires. This damper can be slid up and down, to open and close the hole in the bucket. The springs hold it in any desired position. (If materials for making this damper are not available, the air supply can be regulated fairly well by placing a brick, rock, or piece of metal so that it will block off part of the hole in the side of the bucket.)

To make a support for the pot, punch 4 holes in the sides of the bucket, equally spaced around it and about 3-1/2 inches below the bucket's top. Then run a coat-hanger wire through each of the two pairs of holes on opposite sides of the bucket. Bend these two wires over the top of the bucket, as illustrated, so that their four ends form free-ended springs to hold the cooking pot centered in the bucket. Pressure on the pot from these four free-ended, sliding springs does not hinder putting it into the stove or taking it out.

Bend and twist 4 or 5 coat hangers to make the movable grate, best made with the approximate dimensions given in Fig. 9.2.

For adjusting the burning pieces of fuel on the grate, make a pair of 12-inch-long tongs of coathanger wire, as illustrated by Fig. 9.3.

To lessen heat losses through the sides and bottom of the bucket, cover the bottom with about 1 inch of dry sand or earth. Then line part of the inside and bottom with two thicknesses of heavy-duty aluminum foil, if available.

To make it easier to place the pot in the stove or take it out without spilling its contents, replace the original bucket handle with a longer piece of strong wire.

## Operation

The Bucket Stove owes its efficiency to: (1) the adjustable air supply that flows up through the burning fuel, (2) the movable grate that lets the operator keep the maximum amount of flame in contact with the bottom of the cooking pot, and (3) the space between the sides of the pot and the inside of the bucket that keeps the rising hot gases in close contact with the sides of the pot.

In a shelter, a Bucket Stove should be placed as near as practical to an air exhaust opening before a fire is started in it.

Fig. 9.2. Bucket-stove with adjustable damper and movable wire grate. Photo 1397-78A

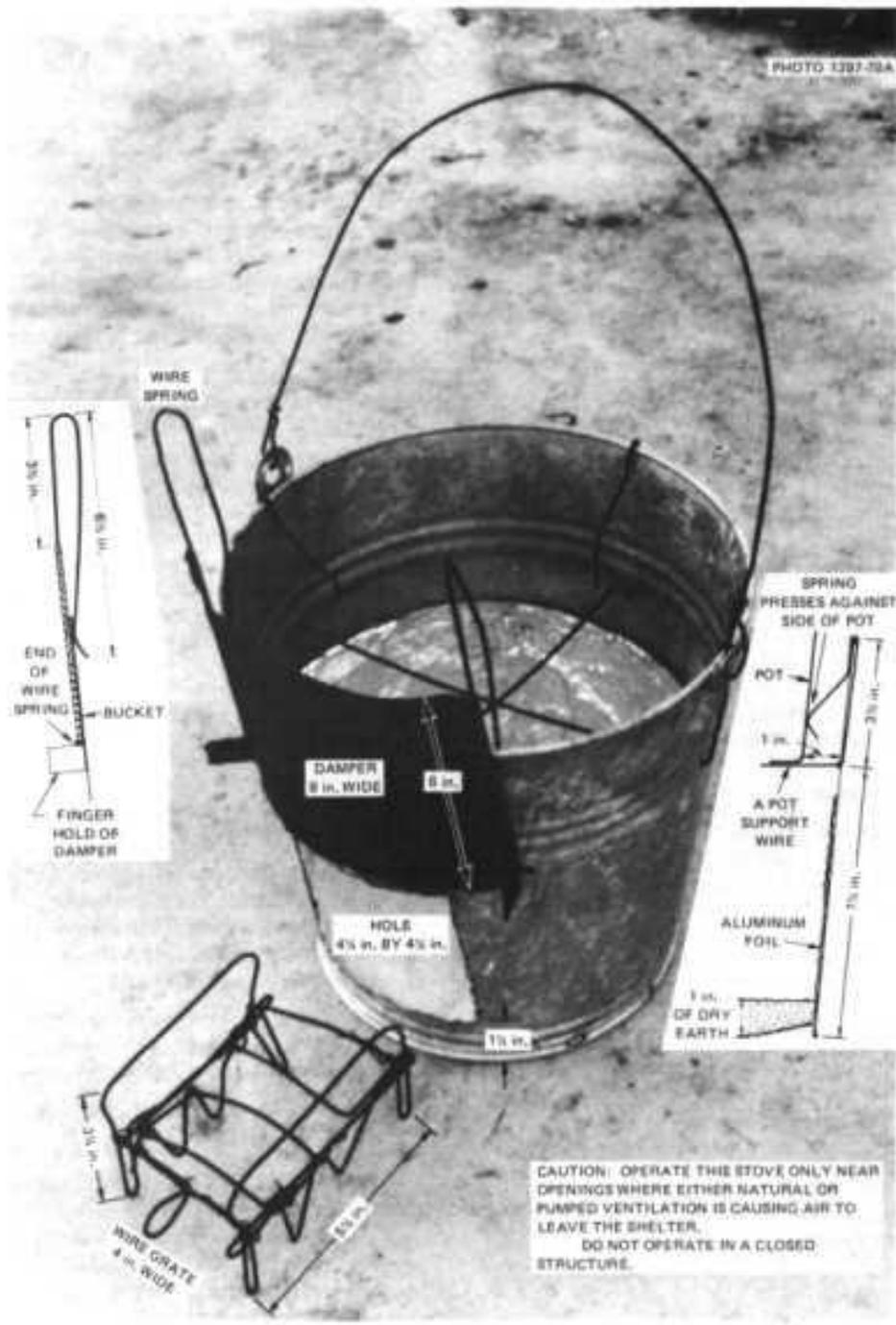


Fig. 9.3. Bucket-stove with its sliding damper partly closed. Foot-long tongs of coat hanger wire are especially useful when burning twisted half-pages of newspaper.



If wood is to be burned, cut and split dry wood into small pieces approximately 1/2 inch square and 6 inches long. Start the fire with paper and small slivers of wood, placing some under the wire grate. To keep fuel from getting damp in a humid shelter, keep it in a large plastic bag.

If newspaper is to be burned, use half-pages folded and twisted into 5-inch-long "sticks," as illustrated. Using the wire tongs, feed a paper "stick" into the fire about every half-minute.

Add fuel and adjust the damper to keep the flame high enough to reach the bottom of the pot, but not so high as to go up the sides of the pot.

To use the Bucket Stove for heating in very cold weather, remove the pot and any insulation around the sides of the bucket; burn somewhat more fuel per minute.