

## Penny Stove PRINT Instructions

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<http://www.csun.edu/~mjurey/penny.html>



Materials you need:

Three 12 oz. Heineken cans (or two and a pop can). Two drip irrigation stakes- or wire hanger, bike spokes etc.. One ft. of bailing wire- or solid copper wire etc.. One drier vent tube- or heavy foil etc..

Tools you need:

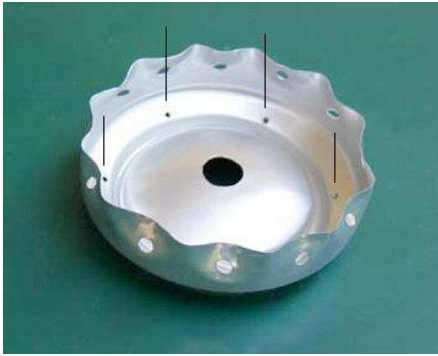
Although a good scout could make one with his knife, the following tools will do a cleaner job: large scissors, hand drill with 1/16" bit, needle nose pliers. At least one friend to drink the extra beer.



The Heineken can has raised bands that provide perfect diameter and spacing for all of the parts. Three cans are needed to make the stove. Another kind of pop or beer can actually works better for the top/base. Cut with a knife and finish with large scissors.



Top/base should be shorter than shown (about 1/2" tall). The Burner (3/4" tall) is cut off just below the first band. The Fuel Cup is cut off at the top of the band (making it about 1 1/4" tall). The Simmer ring uses a top band and top flat section (about 1" tall).



The burner has a 1/4" hole as show, or three 1/16" holes, drilled in the center and six 1/16" holes spaced outside the ring drilled vertically from outside the can (see lines). Needle nose pliers were used to make 12 dimples or folds. These must end 1/4" short of the top edge. Then, a small hole punch was used to make holes in the folds to release hot gases to the inside of burner. 12 are shown, but 6 (every other fold) tested just as good. If you don't have a punch, just drill 12 - 1/16" holes instead... it will work fine.

**\* WARNING**

Apparently some new cans have numbers stamped on the bottom. These bumps may keep the penny from sealing the burner opening allowing fuel to run under the penny before the stove gets hot or before you can light it. It may also let flame into the cup causing a POP that spreads burning alcohol.

The solution is to sand the Burner cup to remove the number bumps - 320 sand paper works fine. You can also use a socket and hammer to tap the penny into the Burner center to help it seal the opening - it should hold the fuel in the top cup indefinitely.

Another solution is to use a regular pop (sprite) or beer (Guinness) can for the burner.

In addition, a good safety solution is to drill 3 or 4 - 1/16" holes in the burner center instead of the single 1/4" hole. These must fit under the penny. This may keep flames out of the burner even if the penny is removed Mike Martin recommended this change.

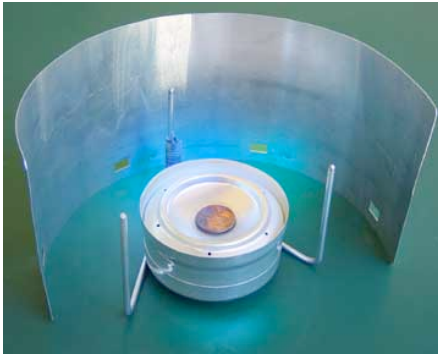


The burner is carefully tapped into the fuel cup until it hits bottom and provides a tight seal. A clean press fit between the burner and the cup is important because it keeps primer fuel from draining and heated gasses from leaking while burning.

For best results, the burner top ridge should sit about 1/8" or 3mm below the top cup lip. The center of the burner should be about 1/4" or 6.5 mm from the bottom center of the cup - use a pin to reach thru a center hole. If it sits too high you cannot fill the top & outer ring easily, too low and a it will hold less fuel.



The top/base is used as an insulated support for the fuel cup. This helps keep a stable temperature in the stove and provides protection under the stove. I now use a soda can for the top/base and cut it down until the stove sits firmly without tipping.



Two "U" shaped wires wrapped together with thin wire form the pot support. Drip irrigation stakes work best. Three legs make a stable base- supporting the pot at least 1" above the burner. My windscreen is a section of aluminum Dryer vent. Tests show that screen is not necessary in good weather and only increases one quart boil times by 30 seconds.



Modified 2 quart Open Country pot (6oz.) is large enough to melt snow, sterilize water, wash clothes, or shampoo hair. The stove, support, and screen fit inside the pot (total 8.3oz). An 8oz. bottle of alcohol (about 12 fully cooked meals) fits inside along with a spork, cup, scrub pad, soap, matches, lighter, salt, pepper, coffee, tea, and towel. Total cook kit is less than 20oz.



The top/base can be used as a cover for storage or to seal the stove and save fuel between meals. I now use the bottom of a pop can with one 1/16" hole in the bottom- it's lighter and fits tight without getting stuck - no need for the handle. Simmer ring slips over the bottom (not shown in this photo). The package is small enough to store inside of a plastic camp cup.