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OZONE

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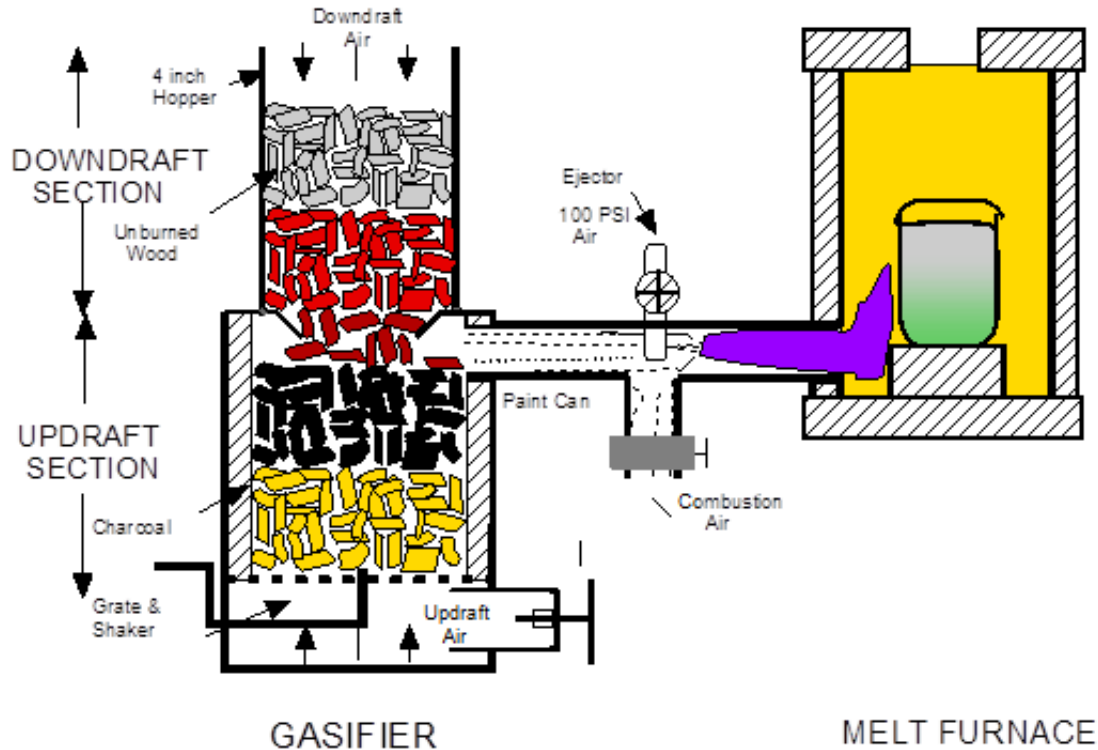
November 5,  
2001

**THOMAS B. REED - PRESIDENT**

To:  
Metal Casters, World Around

From: Tom Reed, President BEF

# THE UP-DOWNDRAFT GASIFIER FOR METAL MELTING "THE DASIFIER"



Subject: Metal Casting Gasifier

The furnace shown here was invented by my friend and metal caster, Agua Das (Das@welcomehome.org). He uses it to melt bronze at Fairs such as the Renaissance festivals. He operates it on any biomass junk, and since he is in attendance he knows where to shake it and poke it. (Like Bogart in "African Queen"). It is a matter of principle with Das that he will purchase nothing he doesn't have to. This is all made with a paint can and a coffee can, but feel free to make it larger with other cans. The principles of operation are:

- 1 All draft is supplied by a tiny hole in a piece of copper tubing fed from an old refrigerator compressor operating an ejector firing into the kiln. It draws gas from the gasifier and combustion air from a secondary valve to make a good mix. By adjusting the air flow you change the power level (the throttle) and by adjusting the air mix you change the air/fuel ratio (the choke).
- 2 The kiln is approximately 12 in in OD with a riser sleeve liner. The crucible was 5 in in diameter. Takes 10 minutes for the kiln to reach white heat.

- 3 The upper can is filled with “junk” biomass, anything lying around, but the denser the fuel, the less often you need to fill. I would recommend wood pellets, (particularly when they start supplying them in 1/2in diameter).
- 4 The upper can operates as a conventional downdraft gasifier.
- 5 The lower can is an updraft charcoal gasifier, so that the excess charcoal from the upper can can be gasified as needed by opening the updraft air valve.

I have always been surprised that no metal founder has copied this.

For more details you can try to reach Das at 303 237 3579.

Yours truly  
*Thomas B. Reed*  
Thomas B. Reed  
President, BEF