Rocky Forge News

Volume 8, issue 2 – February, 2009

Last Meeting

What a dedicated bunch the Indiana Blacksmiths can be, Saturday January 10th mother nature dished out some pretty mean weather. There was rain, ice, then snow with a temperature that read 29 degrees, but felt like 18 degrees. Never mind Mother Nature, we had a large crowd of dedicated individuals at Ted Stout's forge January 10th. The count ranged from 38 that signed in to 50 at the lunch table. Three groups were represented, Wabash Valley Blacksmith Shop, Rural Smiths of Mid-America and the Rocky Forge Blacksmith Guild.

Dellon Blanton spread out 3 large tables of things he has made and discussed their purpose and how he made them. We thank Dellon for a great presentation, a lot of questions were asked, and sketches made and photographs shot.

Dellon dedicated the day to our good friend and colleague, Harold Frost, who is battling bone cancer. Harold has been so generous and done so much for the blacksmithing community over the years. Please keep Harold in your thoughts and prayers through his current battle.

Carol, with the help of our daughter Diane Gaither, and carry-in dishes prepared a feast that we all enjoyed. Due to the weather she did this not knowing if we would have 10 or 50. But with near 50 she pulled it off very well and we truly had a feast!

After lunch Shane Stegmier demonstrated making a nice pair of tongs from a large coil spring. Dellon Blanton and Nathan Allen both wanted to try the pneumatic hammer and they both worked on railroad spikes and other pieces.

Saturday will go down in my memory as one of the best, a great bunch of guys in one gathering, blacksmithing talk, stuff to look at, good food, plenty of coffee and doughnuts, fellowship, good blacksmithing and more blacksmithing. Thanks to all of you for a great day, we may have fooled Mother Nature after all.

Next Meeting

Our next hammer-in of the Rocky Forge Blacksmith Guild will be at Ted's on February 14th. Since that is Valentines Day we will use the equipment to make hearts or any valentine related items. No doubt we should see some real creativity expressed at this meeting. By using square, round, flat, hollow or sheet stock as the raw material we have a lot of options available.

Carol said she would fix a pot of chili, sandwiches and drink for the meal. If you want to bring something to go with it that would be good.

I should let you all know that I had a heart attack on January 21st that required installation of a stent. It has been 10 days since the event and now I seem to be okay. My only serious restriction is no anvils will be lifted for a month.

Ted

Indiana State Fair Blacksmith Demonstrations

By David Childress

The Holidays are over and we need to start planning for the IBA's efforts at the State Fair. This year the fair is going to have a longer run. The Schedule is that the fair will run August 7 through August 23. This is seventeen days and the goal is to have demonstrators for each of these dates. The Rural Smiths of Mid-America have volunteered to cover Aug 7, 8, & 9. With enough involvement and dedication from all of the Satellite groups we should be able to arrange enough bodies. Last summer we had days with more demonstrators than room at the forges. There was never a time that was not covered. I truly thank the forgemaster and the few independent demonstrators that made the time to enjoy the fair. This year with more Satellite groups and a more advanced planning I am sure that we can continue to go beyond the Fair Board's expectations draw more members to the IBA, both experienced and beginning smiths.

Smoke and Noise

Articles from e-mail and the Internet

Compiled by David Childress

From: Allen Ortery
Date: Jan 9
Subject: [TheForge] hammer in

We will be holding the 27th annual hammer in at Lincoln's New Salem in central Illinois on April 21 and 22. If any one is interested in seeing Doug Willison demo you can contact me at bluestoneforge@gmail.com and I will be most happy to send you the flyer.

Allen Ortery

I have heard that this is a very good event and is about a small conference. Besides it is not very far and a chance to meet Illinois smiths. I have asked for the flyer but have not received it yet. DEC

It being the middle of winter and - except for the extremely hardy - smithing has moved indoors. I have seen an ever increasing number of gas forges and am sure that our safety officer will appreciate the following. For our own sakes we should know this. DEC

Propane Forge Safety

Foreword by Pete Stanaitis

There was considerable interest in the "Hans Peot" Propane Gas Forge generated by Bill Callaway at the May, 1998 special event held at Dave Mariette's shop. I had built one of those forges just for Bill's use and some of you saw the info I brought to the event on construction, costs, and propane. The two pages of drawings for the forge now exist on my website: `http://www.spaco.org/gsfrgdrw.gif` and `http://www.spaco.org/gsfrgtex.gif`.

Since several of these forges will soon be built by our members, I want to do everything I can to make sure that those uninitiated in the use of Propane fuel understand clearly how to use it safely. An incident from my own past will serve to illustrate the possible cost of ignorance: One night many years ago I was messing around in my shop and, not knowing that propane was HEAVIER than air, I filled a children's balloon with the stuff from my propane torch. I tossed it into the air expecting to see it float away on the cold winter breeze, but instead it fell promptly to the ground. NOW I knew that propane was heavier than air! But since my little "experiment" had failed, I decided to "bust" the balloon by squeezing it between my hands. As the balloon's skin broke, I must have generated some static electricity because in that fraction of a second, I was holding a ball of fire in my arms!

What a scare! Fortunately, all that happened was that the hair burned off my arms and eyebrows, but imagine what could have happened if there had been much more of that explosive gas in the vicinity!

So, imagine my delight when, while reading email from "theforge", the ABANA mailserver, I saw the attached article on Propane safety. It was written by Bruce Freeman, the editor of the newsletter of the New Jersey Blacksmiths Association and reprinted here with Bruce's express permission, with the proviso that I

1. Point out that this was an "amateur effort" and

2. Note that he was referring to "blowerless burners", so shut down procedures may vary for blower-equipped burners.

Propane Forge Safety

by Bruce Freeman, with contributions by Robert Grauman .

Facts about Propane

1. Propane is a liquid in the cylinder, but is burned as a gas.

2. Propane gas must be tapped from the top of the cylinder.

3. As the propane vapor (gas) is pulled off, evaporation of more liquid propane within the cylinder cools the cylinder.

4. As the liquid propane cools, the pressure of the vapor above it drops.

5. Overheating liquid propane will cause dramatic, and potentially catastrophic, increase in the pressure of the vapor above it. Most commercial cylinders have a pressure relief device. If this opens the cylinder will not explode, but it could vent the entire contents of the cylinder.

6. Liquid propane is not only flammable, it's an effective solvent. (The gas is not a solvent.)

7. A propane cylinder could leak, and it's best to assume it does leak.

8. Propane + air in a confined space (i.e., indoors) is a recipe for an explosion.

9. Propane is denser than air and can settle in basins or run along the ground to a source of ignition, then flash-back. It could also drain into a sewer and cause an underground explosion hazard. It can fill up a basement, ignite from a furnace or other appliance, and demolish a house.

Facts about Regulators

10. Every regulator has a diaphragm, a poppet valve and several fittings. Any of these could leak.

11. In particular, the poppet valve, the diaphragm and the pressure gauge contain mechanical parts. Any mechanical part is subject to failure with use, sometimes suddenly.

12. Regulators are pressure-control components, not shut-off valves. A separate shut-off valve should be located immediately upstream of a regulator. (This is always the case anyway when the regulator is directly connected to a propane cylinder, but should also be the case if the regulator is mounted remote from the cylinder on pipe or tubing.)

13. Regulators are typically designed to handle only gases. Solvents can harm internal components and cause dangerous breakdowns (e.g., of the diaphragm or poppet valve).

Facts about Refractories

14. Castable refractories require water to mix, set up overnight, and then must be fired slowly to cure. Too rapid heating the first time will cause spalling of the material. (This spalling can be a dangerously violent steam explosion.)

15. Any refractory that may have become wet should be heated slowly to dry it before it is exposed to full heat.

Facts about Combustion Gases

16. The two major combustion products of any carbon fuel (including propane) are carbon dioxide (CO2) and carbon monoxide (CO).

17. Other combustion products may also occur, depending upon the fuel and the combustion conditions. For example, when methane is first ignited, considerable formaldehyde is formed. When coal is incompletely burned, many complex combustion products ("smoke") are formed. These products are generally more harmful than CO or CO2, but are present at much lower levels. Propane, like methane, is fairly clean-burning.

18. Carbon dioxide is only slightly poisonous. It is the waste product of animal metabolism, so animals have a pretty high tolerance for it. While it is an odorless, tasteless gas, it does combine with water to form carbonic acid which has an odor and taste. Anyone who has drunk soda water (a solution of carbon dioxide, with no other flavors) and belched knows what carbonic acid tastes and "smells" like.

19. Carbon monoxide is another animal. It is a potent poison, with an action rather like cyanide. Apparently its action is somewhat less severe than cyanide, but since you are more likely to be exposed to CO than to CN, that won't comfort your next of kin much. Symptoms of mild CO poisoning include headache.

20. While both CO and CO2 are environmental pollutants, the quantities that a forge will produce is of no particular concern to anyone but you.

Therefore I suggest the following safety measures:

In General

1. Never allow a propane cylinder to tip while in use, as liquid propane may enter the regulator, possibly damaging the regulator and rendering it unsafe, and definitely resulting in a surge in propane flow.

2. If (during the cool months) your propane cylinder cools so much that you can't get the pressure you need, place it in a tub of cold water. Never apply artificial heat. (The tub-of-cold-water trick is not the best solution. Your propane cylinder is too small for the job, and you should consider using a larger one, or two cylinders in parallel, using an RV tandem valve for this application.)

3. Never allow the heat from the forge to heat the propane cylinder.

4. The regulator and hose are vulnerable components and should be treated gently, protected from heat and harm (watch where you wave that hot

iron) and inspected before use. The hose can also be affected by solvents, sunlight, and other deteriorating influences.

5. The first time you fire up a forge, do so delicately. Leave the doors open and heat at a slow rate. This will cure the refractory. Place the doors back in position after firing the body of the forge for a period of time.

6. Place the forge on a non-combustible surface. Keep combustibles away.

7. Have a dry chemical fire extinguisher ("ABC") handy.

8. Never leave a hot forge unattended, even if the fuel is shut off.

9. Never store a propane cylinder indoors.

10. Preferably operate a propane forge outside. If that is impossible or impractical, operate the forge only where very substantial ventilation is provided. This means, either no walls (roof only) or forced ventilation. This precaution is necessary both to prevent fire (propane leak) and to prevent CO poisoning. If you ever suffer a headache while working with any combustion equipment, get out of there!

Suggested Procedure for Lighting a Propane Forge

11. Inspect your propane cylinder (especially the valve), your regulator (especially the connector to the cylinder and its O-ring) and your burner (especially the hose) for any signs of wear or problems. Do not install the regulator if you see any sign of problem.

12. Install the regulator by hand, without tools, until the nut (left-hand thread, remember) is fully seated. immediately tighten the nut with a wrench. (If you wait, you might forget and have a very serious propane leak when you turn on the propane.) Do not over tighten the nut, as this will only ruin the connectors.

13. Make sure the forge is safely situated (no combustibles nearby), the burner is properly and firmly installed, and all is well before lighting the forge.

14. Before lighting the forge, ensure that there is proper ventilation. If you are outside or only under a canopy, no problem. If you are inside, provide forced ventilation. At a minimum, this should consist of a high-powered roof or window fan (preferably blowing out) and an open door or large window. turn on the fan before or immediately after lighting the forge. (The noise of a fan may interfere with your ability to judge the burning conditions of the burner. If so, be sure to turn the fan on within a minute or so of lighting the burner.)

15. Recheck the regulator connection to the cylinder, and recheck that the knob is loose (set to zero pressure). Then light a propane torch and hold it near the burner opening inside the base of the forge (off to one side so you don't blow it out when you turn on the propane to the forge). First turn on the propane at the cylinder valve, then slowly turn the regulator knob to bring the pressure up to an appropriate value. The forge should light easily and stay lit. If it doesn't, something is wrong.

16. If you even think anything has gone wrong, turn off the propane at the cylinder valve.

Use and Adjustment of the Forge

17. After the forge is lit and the flame is stable, make any adjustments necessary to the pressure to get a good stable burn.

18. If you haven't already done so, turn on your exhaust fan.

19. If there is a flame shooting out of the forge (i.e., between the bricks typically used as a front door), you have incomplete combustion in the forge. With the forge burner adjusted to this mixture, your forge cannot give you maximum heat, and, in addition, formation of toxic carbon monoxide may be greatly increased. Adjust the burner until the flame recedes into the forge.

Shut-Down of the Forge

20. Always shut down the forge by turning off the fuel at the cylinder, then backing off the regulator knob (as a safety precaution.)

21. When finished a forging session, remove the regulator from the cylinder and take the cylinder to its outside, storage area at once. Make sure you replace the plastic plug in the propane cylinder.

22. Remove the back and front doors (i.e., the firebricks) and set these aside on noncombustible surfaces. Remember that they are easily hot enough to start a wood fire.

23. Allow the forge to cool for at least a half an hour before you leave the area. This is to prevent accidental fires from going undetected.

I think you're going to enjoy using your new gas forge. Please keep safety in mind so you can enjoy it for a long time.

Announcements

The Rocky Forge News is available by E-mail and on our website (`http://www.rockyforge.org/`). If you wish to receive the newsletter via E-mail sent Dave Childress a note at `trollkeep@gmail.com`, or e-mail directly to `rocky@rockyforge.org`.