

Make a small, practical forge

by [khaeotix](#) on August 1, 2007

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intro: Make a small, practical forge

This instructable will show you how to make a small (no more than 2 feet by two feet) forge for melting lead and/or heating thin-ish steel to shape it.

Unfortunately, i only have pics of the forge in action, as i didnt think of making an instructable until i came in.

Be careful with this, as it can produce high temperatures and will almost certainly injure you if you touch the bricks after use. Give it about a 2 day cooldown period just to be safe.

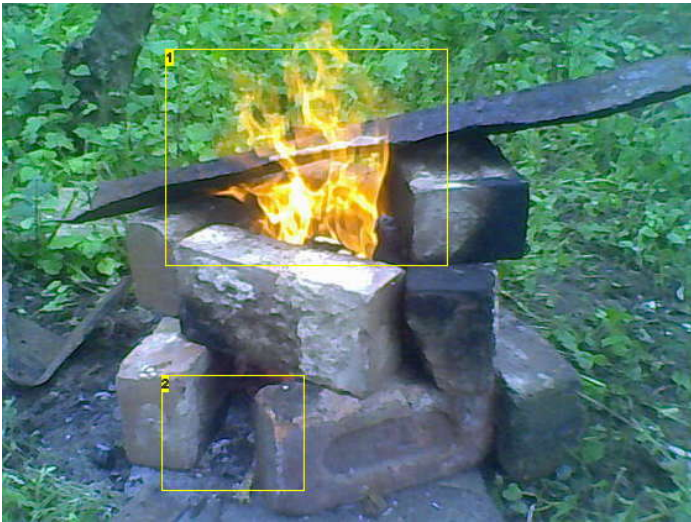


Image Notes

1. Look! it actually works!
2. The hole for lighting/inserting metal to be heated.



Image Notes

1. It ate a helluva lot more wood than this. All in all, it ate a length of 2-by-3 about 3-4 feet long.



Image Notes

1. The piece of slate.
2. Basic framework
3. My big rusty lead melting doofus.
4. Lead spillover catcher.
5. Hole for the lighting/putting pieces of metal inside.

step 1: Bricks!

You need them. anything from 5-11 will work fine. If you only have 5, you can only make one layer though :(

Also, something to put underneath it. I used roofing slate, and although it cracked because of the heat, it kept it burning REAL hot.



Image Notes

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step 2: The build stage...

Place the slate on the floor. Now, make a pentagon using 5 bricks on their sides. Move two apart to make a small gap, so that you can light your forge etc. Add your second layer in much the same way, except (if you only have 10 bricks like me) only using four. If you have more, use 5, but stagger them from the ones below.



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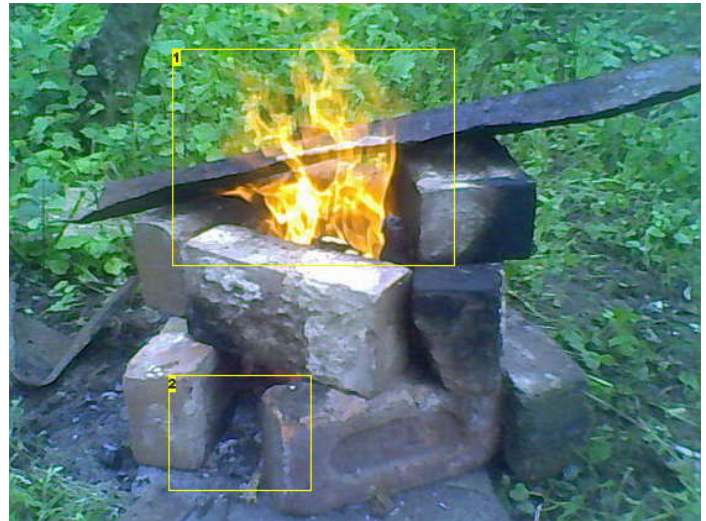


Image Notes

1. Look! it actually works!
2. The hole for lighting/inserting metal to be heated.

step 3: Fuel!

I found that wood works best for me, as most of mine is dry + easy to cut. But, im sure coal will work fine, as will charcoal etc. Experiment, and see what results you get. To make it melt lead, add a piece of metal over the top, on a slant (this is what the extra brick is for XD) and place your lead in the centre of the metal over the fire. This WILL melt the lead, after it has gotten to heat, and it almost certainly will direct flame out one side flamethrower-style (if not with the range).

BE SAFE WITH THIS!



Image Notes

1. It ate a helluva lot more wood than this. All in all, it ate a length of 2-by-3 about 3-4 feet long.

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Comments

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Sora_1_2 says:

Is the roofing slate or whatever I decide to use just to keep the ground from burning or what?

Sep 25, 2008. 4:52 AM [REPLY](#)



octavian234 says:

what are the melting points of some metals like nickel, iron, copper, aluminum, tin, lead, and steel

Jul 10, 2008. 9:49 PM [REPLY](#)



halberdear says:

well copper is about 2000 degrees tins is about 600 degrees steel is like 5000 degrees aluminum is 1200 degrees iron is about 1800 degrees and nickel is 2700 dgre

Sep 19, 2008. 5:05 PM [REPLY](#)



Gryle says:

With the exception of steel, all of your listed metals are elements. A good periodic table should tell you what you want know. Wikipedia and a Material Safety Data Sheet are also good sources for information on metals.

Jul 27, 2008. 3:49 PM [REPLY](#)



joey2542667 says:

Is it possible to melt aluminum foil?

Feb 6, 2008. 5:39 PM [REPLY](#)



Aar000n3y says:

Unless you super size this, no.

The melting point of aluminum is 1220 degrees F, and he said it can melt lead, so the forge probably goes up to about 621 degrees F (melting point of lead).

Just google the material and 'melting point' and you can usually find the temperature pretty easily

Sep 1, 2008. 1:14 PM [REPLY](#)



joey2542667 says:

ok

Sep 1, 2008. 2:01 PM [REPLY](#)



khaeotix says:

you could do it if you added a better air system... mostly what i used was my own lungs and the natural draw, which usually lead to me being out of breath

Sep 1, 2008. 1:38 PM [REPLY](#)



joey2542667 says:

lol, OK well I have an air compressor.

Sep 1, 2008. 2:02 PM [REPLY](#)



Grey_Wolfe says:

Blow dryer works good too. btw. And a cheap low-power one will be less expensive to run then your compressor.

You won't get as much air pressure, but that really shouldn't be an issue. It should be plenty for aluminum.

Aluminum foil melted can be used like paint. Very neat effect.

Oct 2, 2008. 10:14 AM [REPLY](#)



joey2542667 says:

OK thanks

Oct 2, 2008. 10:35 AM [REPLY](#)



Grey_Wolfe says:

If you decide to use the paint idea, be careful. If you use it on glass make sure the glass is fairly warm first.

Think ice is hot water, only more dangerous.

You probably already realize that, but I figured it was worth saying.

Oct 2, 2008. 2:07 PM [REPLY](#)



Grey_Wolfe says:

Ice IN hot water.

Weird typo, only missed by half the keyboard. lol

Oct 2, 2008. 2:08 PM [REPLY](#)



joey2542667 says:

lol ok, thanks

Oct 2, 2008. 3:22 PM [REPLY](#)



joey2542667 says:

With this forge.

May 12, 2008. 5:26 PM [REPLY](#)



thoraxe says:

With this forge or in general?

May 12, 2008. 5:09 PM [REPLY](#)



zerrodach says:
cool instructable
but can it melt anything besides lead?
because lead is soft and poisonous, and i dont like handling it

Aug 28, 2008. 9:25 AM [REPLY](#)



gibsonlp96 says:
can this melt tin and copper, cuz i have a copper sword and tons of tin around, and wanted to make a bronze blade

May 23, 2008. 6:18 PM [REPLY](#)



thoraxe says:
hey try melting pennies b4 you ruin your sword. Make sure they're pre 1984 pennies though. After that they contain zinc, which will burn and be poisonous. If you do get it melted, put the tin into the copper after it's melted, or else the tin will burn away.

Jun 11, 2008. 2:48 PM [REPLY](#)



notjustsomeone says:
I don't mean to be rude but pennies shifted from 95% copper in 1982. Starting in 1983 all pennies are 97.5% zinc. In 1982 pennies were made of copper and zinc so just to be safe and make sure you're getting copper don't use any after 1981.

Jun 11, 2008. 5:38 PM [REPLY](#)



thoraxe says:
really? so thats why i found melted zinc and saw green flames when i melted that 84 penny.....hmm..thanks for that

Jun 11, 2008. 6:52 PM [REPLY](#)



notjustsomeone says:
Smug but wrong. The reason you saw green flames is because a penny minted in 1984 has an outer shell of pure copper with a zinc core. In fact the penny you melted was copper-plated-zinc, 97.5% zinc and 2.5% copper. Would you have weighed it on a fine scale you'd have noticed it weighed only 2.5g rather than 3.1g that a mostly copper penny weighs. I would suggest you do some research on the subject starting with www.usmint.gov so that you can be better informed when attempting to cast metals of potentially hazardous composition.

Jun 11, 2008. 7:53 PM [REPLY](#)



thoraxe says:
yeah that's what i meant it contained zinc. I cut a modern penny and half and saw zinc in the center of it, but when i cut a 74 penny it was difficult and i saw no silver metal in between. Same goes for the 84 penny, i couldn't cut it and i saw no silver metal, so i guessed it was pure copper all the way through

Jun 12, 2008. 7:58 AM [REPLY](#)



khaeotix says:
tbh i don't know.
Try it.

May 23, 2008. 11:24 PM [REPLY](#)



thegamer211 says:
Great Instructable, easy to make/understand! But will this melt (with just a wood fire) anything other than lead? And also, can anyone think of any household item besides fishing weights that are made of lead?

Nov 23, 2007. 4:06 PM [REPLY](#)



notjustsomeone says:
If you're still looking for lead go down to a tire shop and ask if they've got any wheel weights they want to get rid of. they're the little peices of lead on a steel clip used to balance tires. Most auto shops have a bucket of unusable ones lying around.

Jun 11, 2008. 8:02 PM [REPLY](#)



khaeotix says:
hmm... you'll be surprised. However, id recommend coal or amthesyte. It'll melt things like aluminium, but you might want to make a crucible for that. Also, if you're going to melt aluminium you may just want to stockpile at least 3 pallets worth of chopped up wood (I.E. chopping up 3 pallets ;))

Nov 25, 2007. 2:14 AM [REPLY](#)



killerjackalope says:
Did you mean anthracite?

Apr 20, 2008. 4:55 PM [REPLY](#)



thoraxe says:
antracite is hard 2 get and expensive... USE CHARCOAL! Its just as good as coal, they are actually the same. They both have roughly the same BTU's per pound, its just that coal is just so much more dense, it looks like it has more energy, but coal and charcoal are equivelant.

May 12, 2008. 5:08 PM [REPLY](#)



zach911 says:
not to be rude but they arent the same. charcoal is made from wood briquets and coal is mined.

Jun 27, 2008. 8:43 AM [REPLY](#)



thoraxe says:

Jul 27, 2008. 6:01 PM [REPLY](#)

pound per pound they contain the same BTU's. they are not physically the same, as coal is denser because it is compacted from it's creation process. charcoal is much purer than coal. you are correct, they are not the same thing but there main composition and BTU's per pound are equal. They are both primarily carbon. Graphite and jet are also types of coal, they are extremely hard to ignite and form after anthracite.



Derinsleep says:

Jul 13, 2008. 1:18 PM [REPLY](#)

diamonds are also carbon:)now i will go crush some coal with my 100 ton press :) then sell those



thoraxe says:

Jul 13, 2008. 3:23 PM [REPLY](#)

So far, there are two reliable methods of making artificial diamonds large enough for jewelry. One uses a "seed" of a smaller diamond and puts additional molten graphite (a form of coal) under enormous pressure and temperature until it is added to the crystalline structure and makes the seed larger. Another method, called chemical vapor deposition, CVD, creates a chamber where tiny pieces of diamond precipitate and condense together, like ice crystals, in layers to form a solid deposit. These specimens can easily be colored and usually have no imperfections.

from: <http://www.wisegeek.com/what-are-artificial-diamonds.htm>



thoraxe says:

Jul 13, 2008. 3:15 PM [REPLY](#)

sorry to burst your bubble, but you also need heat, and an oxygen free environment:) look up artificial diamonds



Derinsleep says:

Jul 13, 2008. 11:56 PM [REPLY](#)

my bubble was not bursted,i was jk



killerjackalope says:

May 12, 2008. 5:15 PM [REPLY](#)

Well charcoal is better simply because it's purer carbon, otherwise no difference, since the other elements in coal don't affect the energy output or density...

Anthracite isn't expensive, theres a coalyard next door to the workyard, and the railway sleeper fences have breaks where coal falls into ours... one was me but accidentally, dropped the clutch in the forklift and put it clean through, there's a guy I know on the other side shifting the remnants of a pile in a bobcat... I can get anthracite or black diamond smokeless...



thoraxe says:

May 14, 2008. 4:09 PM [REPLY](#)

well, thats you, you get it FREE! Us, on the other hand, have 2 buy and ship it (i live in Florida, not known for coal) Also, why do all the blacksmiths use bituminous coal instead of anthracite, when anthracite has more BTU, burns longer, and is cleaner? I guess its the fact that it burns slower, thus not as intense heat?



killerjackalope says:

May 14, 2008. 4:10 PM [REPLY](#)

You give it the beans and it'll burn like hell, at a young age I made the link between hot air and hot fires, hence the hairdryer blowing in through the ash takeout, unfortunately my antics caused the glass on the front to disintegrate, one just flopped out and shattered on the floor the other snapped in half...



thoraxe says:

May 14, 2008. 4:44 PM [REPLY](#)

Beans as in, smashing into small pieces?



killerjackalope says:

May 14, 2008. 4:51 PM [REPLY](#)

well generally give it the beans means go full throttle but can mean lots of things... the stuff I get is falling from the bottom of the pile so its small most of the time, though whenever I was doing work in there we used to get free peat briquettes which are great, they start dead easy, even if they're bought theyre cheap and burn suprisingly hot, basically just dried and compressed peat...



thoraxe says:

May 14, 2008. 5:16 PM [REPLY](#)

hmmm... well, your very lucky to have an anthracite pile right next 2 your house. And peat briquettes? Weird...



killerjackalope says:

May 14, 2008. 5:28 PM [REPLY](#)

not next to my house, that would be crazy cool though and I may end up living in there, depending on how my grand plans for our shipping containers go...



thoraxe says:
workshop i mean....

May 15, 2008. 2:16 PM [REPLY](#)



killerjackalope says:
I don't work down there anymore, I'm still friendly with the guy that owns it now, the business was my dads, then he passed away and left it to the guy that worked for him because I was too young to run it with him. He's been doing well, I can still go down and use the workshop and our containers from the houses full of stuff are there, they're slowly emptying though, I want to make them into a kind of 'shippable apartment'.

May 15, 2008. 3:17 PM [REPLY](#)



thoraxe says:
very interesting...what kind of business was it?

May 15, 2008. 5:23 PM [REPLY](#)



killerjackalope says:
Tyre fitting and manufacture of bulletproof tyres, for industrial scrapyards etc.

May 15, 2008. 5:41 PM [REPLY](#)



thoraxe says:
cool, very interesting thank you

May 16, 2008. 3:47 PM [REPLY](#)



killerjackalope says:
Well having access to industrial scal polyurethane polymers is interesting, my dad and I developed several interesting items, including a thing similar to a nerf except it flew faster and bounced on impact, compared to the vortex, which destroys most in it's path, when I throw it anyway, then again things fall over when I walk in to rooms...

May 16, 2008. 4:26 PM [REPLY](#)

I have to go down to do a handy tricks 'ible the insane things that are down there a forklift over 50 years old that runs like a beast, has a modern starter system add and several odd mods, the blaster, a homebrew tyre filler, made for when a bead wont seal, so you shoot 20L of air in at 90psi... also makes a cannon with the right attachments...



khaeotix says:
blushes

Oops... that's what i meant. Anthracite.

Apr 21, 2008. 3:08 AM [REPLY](#)



killerjackalope says:
I asked because I wasn't sure... There are quite a lot of types of coal, lignite being another one, closer to the peat end of the spectrum...

Apr 21, 2008. 5:05 AM [REPLY](#)

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