

# Making a Simple and Easy Charcoal/ Coal Forge

by [acer73](#) on May 20, 2007

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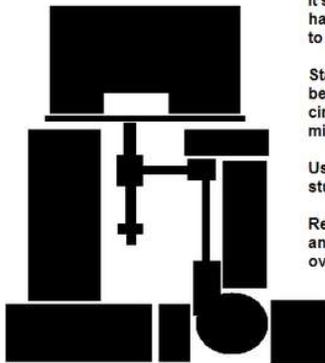
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## intro: Making a Simple and Easy Charcoal/ Coal Forge

In this instructable you will learn how to make a charcoal / coal burning forge from firebrick, a few steel plumbing parts, a steel sheet, some cinder blocks and a blower

Unfortunately I ran out of money before i could finish the forge, in total it should cost around \$ 50 USD depending how fancy you want it. The plans you will see are paint mock-ups from my actual design, i do not own a scanner so I had to make pictures.

This is what the finished forge should look like



It should look like this when all put together, I have not made mine yet because i still need to buy some parts, I ran out of money.

Stack the whole thing on cinder blocks but be sure to put some firebrick between the cinder blocks and the steel base. Concrete is mildly explosive when heated to a degree.

Use restraint quality charcoal because the stuff at the store is not real.

Remeber not to use galvanized steel under any circumstances. Do not put any body part over the forge when running

## step 1: Why a forge and getting started up

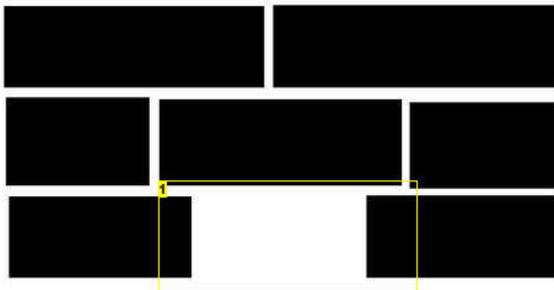
When I first discovered wanting to take up blacksmithing as a hobby, I searched and searched for designs and a website to help me get started. Then i discovered AnvilFire, they have some F.A.Q.'s and a whole bunch of info on starting up. They also have a help section called "Guru's Den" you ask questions and they will answer them.

As a beginner at Blacksmithing they recommend to build a forge out of a Brake Drum I decided against it because I really didn't want to be using a rusty piece of junk to hold 3,000 degree charcoal and white hot iron.

So i asked the guru guy a lot of questions.

And I made plans on it

Basically its fire brick in a square pillar shape stacked like a brick wall



### Image Notes

1. This is the place where you can stick the metals into the heart of the fire.

## step 2: What you need

Okay this forge will be light to medium duty work, you can make knives in it but definitely not swords because its not long enough, daggers maybe.

\_What you need\_

1. Fire bricks (number varies by size of brick and size of forge)
2. A Steel plate larger then the forge
3. Plumbing parts
  - a. 3-1 1/2 x 4 in steel pipe nipples
  - b. 1 1/2 x 8 in steel pipe nipple
  - c. 1 1/2 in T fitting
  - d. 1 1/2 in elbow fitting
  - e. 1 1/2 in cap
  - f. 1 1/2 in flanger

4. Cinder blocks
5. A Blower

Fire Brick- Its very important you get fire brick, do not even look at cement or concrete bricks, they will explode when heated. Firebrick is a little more expensive then normal brick because its a specialty item.

Steel Plumbing- Today I went to home Depot and they didn't sell fire brick or the 1 1/2 in pieces, so I would go to Loews or a similar home improvement store. Also if the plumbing your looking at is shiny make sure it is not galvanized, I can not stress how important it is not to use it. GALVANIZED METAL GIVES OFF FATAL AND TOXIC FUMES WHEN HEATED. Stay away from it and use the black, the electrical conduit is fine to use, but they need to thread and cut it for you.

Steel Plates- Your best shot would be to go to a junkyard and ask, your going to want a 1.5 ft x 1.5 ft steel plate for a decent size forge. Also its good to have the plate big because then there is a less of chance knocking something down, I am a klutz. make sure the plate is steel and around a half inch thick. This way it wont melt or get too soft.

Blower- It doesn't really matter what it is, but go to a hardware store and tell them what your doing and looking for. I have a blower but I have no idea what its called, maybe its called a blower. It needs to put out a decent bit of air though.

Flange- This is what connects the pipe to the steel plate and supplies the air to the charcoal, you're going to need to make a grate of some sort to keep the coals from falling down air pipe. But it needs to be big enough to let ashes fall to the ash trap. Otherwise it will clog up grate, letting in less air then needed.

Cinder Block stand- Basically its just some upturned blocks holding up the whole thing, just be sure to put fire block or another insulator between the cinder block stand and the steel plate. Other wise the concrete blocks will explode, which is not good, because there is going to be 3,000 degree coals and fire block all over the place.

Fuel- I live in the middle of a desert so we don't have a great coal supply, mostly because it doesn't get cold enough in the winter. So I decided to use Charcoal, I was told via Anvil Fire's Guru not to use the kind they sell at supper markets, aka pressed brickettes. This is because they are full of crap you don't need and they don't burn hot enough. The Guru said to find a restaurant supply co. and order real charcoal, the kind that looks like real burnt wood. I really have no idea how much you need, but buy more then you think you will need for the first time.

### step 3: Building the Forge

Okay now here is the easy part, not really.

Your going to have to drill a hole in the steel plate for the Flange to fit in, my advise would be to ask the person at the junk yard you got it from.

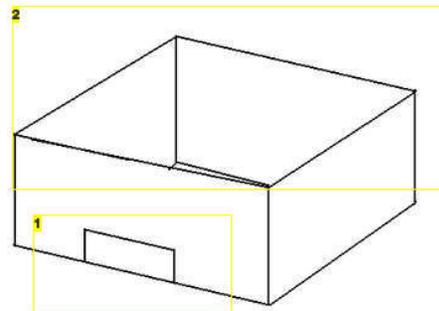
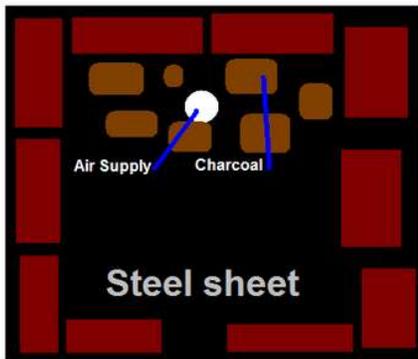
Oh i almost forgot, get the hole drilled about 4 inches from center, this way you can set the charcoal on the back wall.

See the picture for what i mean it says "steel sheet" on it(OMG THERE IS COLOR IN IT)

remember when i said you needed to fit it together like a wall well here is the thing in 3-D, also i have not made it yet so i can't tell you how to place the bricks, you may need to cut some

Be sure to keep one missing in the bottom front, this way you will have good access to the heart of the fire for easier heating.

Do not attempt to put anything over the forge when it is running, it would alter the amount of air flowing out the top and have it go out the access. The result would be 3,000 degree air shooting out towards you. BAD!!!



#### Image Notes

1. Make sure to leave a brick missing here so that you have easy access to the "heart" of the fire.
2. DO NOT PUT ANYTHING OVER THIS AREA WHEN THE FORGE IS ON. DO NOT ATTEMPT TO COVER IT

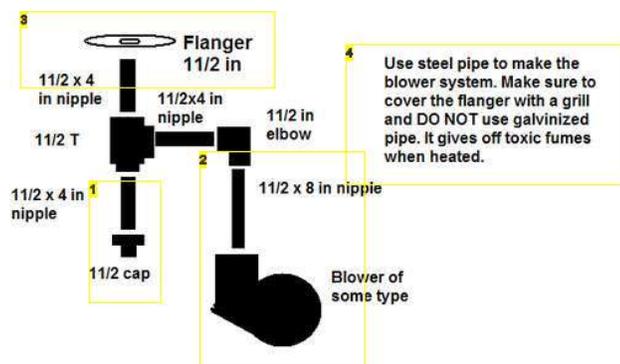
#### step 4: Putting together the air supplie

Okay if u look at the picture is self explanatory. If your wondering how to attach your blower to the pipe, I would us duct tape. Also you can use as big of pipe as you want, the max being 2 inches wide.

I recommend to keep the Plumbing all attached together when not in use because its mostly flat, unlike the forge which you can just take apart when your not using it. It is also recommended to buy a pipe cleaner and run it though the whole thing after every use to get out all the ash and clingers especially if you are using coal as a fuel.

When running the blower make sure the ash trap cap has a good seal otherwise your going to be leaking air.

DO NOT USE GALVANIZED PIPE, YOU WILL DIE OR GET SICK



#### Image Notes

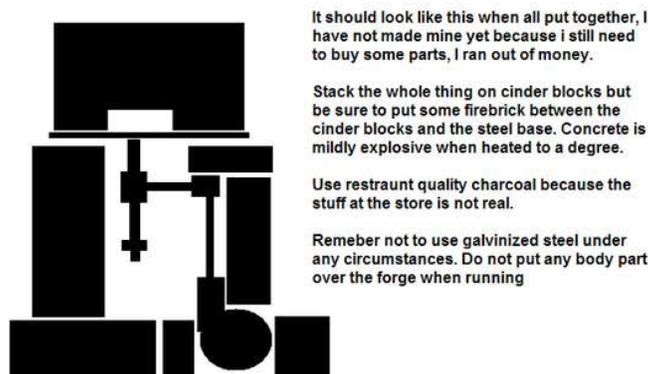
1. This is the ash trap empty it every 10 minuets or so depending how much ash you get, a back up would be bad
2. This piece can be any length because you just need it to be stable and not hanging
3. attach this to the inside of the steel plate
4. VERY IMPORTANT

#### step 5: Putting it all together

Okay use common sense and look around, does anything not look right. If it doesn't fix it.

Its going to be heavy so i suggest putting the plate on the stand of cinder blocks before you put the fire brick forge on top. Then slip the flange in and attach the plumbing.

It should look some what like this



#### step 6: Firing it up

Okay its finally done.

Do not rush especially now when its done.

Were going to fill it up with charcoal about half way to the top and about to 2/3's of the way like in my picture.

Now douse it in lighter fluid and let it get going once its flames have died down a bit turn on the blower and restock the fire and make sure u don't add to much charcoal at a time.

Now heat your metal and forge it

If you want help an how-to's on forging to go AnvilFire

A gas forge can be found Here

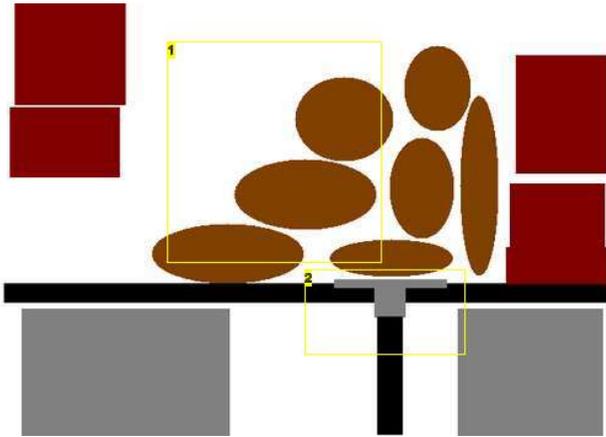
<http://www.instructables.com/id/Making-a-Simple-and-Easy-Charcoal-Coal-Forge/>

And several different types of tongs

Simple  
Complex

For more projects and Ideas visit the The Forge Group

This is my first Instructable so give me feed back on its quality



#### Image Notes

1. Stack the charcoal sloped and about 2/3 towards the back. Make sure you only have it a maximum of half the height of your forge high
2. Have the most amount of charcoal be above the flange

## Related Instructables



**Make a Small Blacksmith's Forge** by Vendigroth



**Make a small, practical forge** by khaeotix



**Coke forge and sword!** by [Tom]



**Aluminum Foundry** by StaticPhocus



**How to Make a small Gas Furnace** by Vendigroth



**Waste-Oil Forge and Foundry** by notjustsomeone



**How to Make a Draw Knife** by notjustsomeone



**How to Make some Charcoal** by juggler



## Comments

23 comments

[Add Comment](#)



**Mitten** says:

i just use a coffee can with holes poked in the bottom and a hairdryer ...

May 20, 2007. 7:45 PM [REPLY](#)



**acer73** says:

the coffee can would melt after a bit

May 20, 2007. 8:45 PM [REPLY](#)



**Mitten** says:

coffee cans are made from steel, and it gets hot enough to melt aluminum in a steel canned veggie can in the middle of the coals without melting.

May 20, 2007. 8:56 PM [REPLY](#)



**Vendigroth** says:

yeh, but you're subjecting the can to intense heat for a long time, the steel turns so crusty and anaemic that you can literally poke a finger through it.

May 22, 2007. 10:57 AM [REPLY](#)



**Derinsleep** says:

but if you poke your finger thru,u can say this:  
"What's in the box?Pain."

Jul 21, 2008. 11:04 AM [REPLY](#)



**Digital\_Anarchy** says:

LOL aneamic steel, the irony.

Jun 10, 2008. 2:41 PM [REPLY](#)



**chuckr44** says:

Ha ha ha! I get it. "Iron"-y.

Jun 12, 2008. 11:41 AM [REPLY](#)



**Derinsleep** says:

rofl

Aug 16, 2008. 12:50 AM [REPLY](#)



**acer73** says:

Well this way takes longer but looks nicer and would last longer.

Eventually the can would melt

May 20, 2007. 8:59 PM [REPLY](#)



**BARBARIANROCKER** says:

folks i use a castiron cooking pot to melt stuff down. the wife may not like it but oh well.

Mar 10, 2008. 12:09 PM [REPLY](#)



**Vendigroth** says:

hey, acer73, great instructable and thanks for jioning the Forge.  
I'm looking forward to seeing some good stuff from you in the future, hopefully made with this forge.  
M'self, i'm planning to do an instructable on a forge, different to this but roughly the same size  
When i make it, i'll have to make stuff with it....

May 22, 2007. 11:00 AM [REPLY](#)



**James (pseudo-geek)** says:

now here I've been wondering where that pic is from for months and now I realize its the "G-man" from Half-life 2

Dec 29, 2007. 2:45 AM [REPLY](#)



**Vendigroth** says:

—  
Best. Character. EVAR.

Dec 29, 2007. 4:26 AM [REPLY](#)



**James (pseudo-geek)** says:

personally I hated him for what he was doing, but I LOVED how he talked, it was awesomely creepy.

Dec 29, 2007. 1:08 PM [REPLY](#)



**Vendigroth** says:

it takes a little thought to realise that Gman's on Gordon's side.

Dec 29, 2007. 2:06 PM [REPLY](#)



**James (pseudo-geek)** says:

o.O how so?

Dec 29, 2007. 6:17 PM [REPLY](#)



**James (pseudo-geek)** says:

heres one of my reasons, which I believe is proof.  
the Vortagons cannot be evil, it is grafted into their nature to be on the good side.  
If they fought to stop the G-man, then he must be evil.

Dec 29, 2007. 6:19 PM [REPLY](#)



**Vendigroth** says:

Dec 30, 2007. 5:57 AM [REPLY](#)

The Vortigaunts only fought against you in HL1 because they'd been enslaved. After that, they came to earth as refugees to help fight the Combine. They stopped Gman because they needed Gordon for their own tasks, like getting Alyx out of city-17. HOWEVER: Gman rescued the baby Alyx from black mesa...and the Vortigaunts saved her life in Ep.2...each side's playing different games, using Gordon as the ball, so to speak.

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**acer73** says:

May 22, 2007. 11:21 PM [REPLY](#)

Im going on vacation this week and the week after that so i cant make it for another month.

Thanks for the comment though

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**5George5** says:

Dec 19, 2007. 9:42 PM [REPLY](#)

good instructable  
any metal subjected to heat oxidizes (rusts) much more quickly. it will flake off and mix with the metal which isnt a big deal unless you're melting gold or silver. then you need to use a graphite crucible. anyways it just gets weaker a lot quicker when it gets hot

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**jtobako** says:

May 23, 2007. 12:55 PM [REPLY](#)

Nice. A few points.

CLAY brick works, and the only firebrick that the big box hardware stores carry (around here) are the 1" thick wood stove liners. You have to go to a ceramic supply for full size firebrick. I've heard that masons carry firebrick, but haven't had any luck there yet.

How is a 1/4+ inch thick cast iron brake drum different than your steel plate?

Electrical conduit is zinc plated (just not as thick).

If you are using a steel plate, just drill holes in it where the flange comes in. A larger diameter pipe means you can drill more holes : )

My furnace blower hangs off the horizontal pipe using a floor flange-I cover up part (most) of the intake to control air flow.

If your air pipes are getting hot enough to burn zinc, SOMETHING IS WRONG. And, a small amount of zinc won't hurt you.

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**acer73** says:

May 20, 2007. 10:18 PM [REPLY](#)

It doesn't take a lot of heat to melt aluminum, this is a medium scale forge. Were heating Steel and Iron Red Hot. You don't do that in a coffee can

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**FrenchCrawler** says:

May 22, 2007. 12:47 AM [REPLY](#)

Aluminum melts at 1200 degrees F. I used a medium paint can as my crucible when I first started... but after the first batch of cans (about 30), the can couldn't hold up to the heat and sprung a leak. I'm still using the store charcoal, though I'm looking into getting some coke (not the drug).

My forge/furnace consists of a large (5 gallon) paint can buried into the ground with 2 metal pipes underneath. One pipe for drainage of any water that happens to get in and the other for the blower (I'm using a wet/dry vac). I have a round section of chicken wire in the middle of the can to hold the coal up on the sides of the furnace and in the middle while allowing the crucible to go into the middle and letting the ash through. I then take the vac and suck the ash out once the furnace cools down.

A simple furnace is described in the "Back to Basics" book. Instead of using the fire brick/ concrete, use a Truck Brake Drum and place a metal grate into the bottom. Here's a site to show what I mean.

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