Hot Punching

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One of the folks working in my shop needed to do some hot punching, so the following is what I came up with.

Start with 3/4" thin wall tubing (about 10"), three ½"washers, some 1/2"x13 all-thread , and a 1/2x13 nut. Slot one end of the all-thread, tack weld two washers together and weld into the slot. On one end of the tubing, grind/file a circular depression (see the picture). On the other face, saw a slot wide enough that the washers can slide into the tubing. The depth of the slot ought to be deep enough to have the hole in the washer partially inside the tube (as you look at the depression side)

With the all thread inserted into the tube, a washer and nut run onto the other end, and a ½" diameter piece of round stock is slipped into the washer, you are ready to punch.....if you had a punch. Never guess what's next!

Buy some ½" round S7 tool steel. Cut 3" pieces. If you have a lathe (or a friend with one), use a cut-off tool to create a shallow notch just a bit wider than the thickness of two washer about 1" from one end of the S7. Turn down the business end to whatever diameter of hole is needed. It is a good idea to face both ends so that they are square to the run of the punch. In the image above, there are 4 punches -3/16", 1/4", 3/8" and ½" (the last is easy since that is the diameter of the stock S7).

Heat treating is straight forward - wrap the punches in paper, then stainless heat treating foil, toss them into an oven at 1750 F for about an hour (helps to know a blade smith if you don't have the oven), pull the package out of the oven and remove the punches from the foil. Let them cool to air temperature and you are done.

We used an 8 pound sledge to do the punching when creating 1/4": holes in ½" stock (for a Holbrook inspired hanger) and the ½" holes in 1/8" stock (for a trammel) Neither punch showed any sign of damage or wear

Some of my cutting chisels (used on the treadle hammer) were more than ½" in diameter. The image below is what I like to think of as the heavy duty version of the idea – use a pipe section instead of washers and weld some flat bar with the correct hole diameter on the top and bottom faces of 1" thick wall tube.