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Turn Yourself a Lighter

Here's something you'll enjoy making as well as carrying in your pocket.

NO CIGARETTE lighter you buy can mean as much to you as one turned out in your own shop. It makes a fine project to keep your hand in between bigger jobs, or to learn basic techniques on a new lathe. This lighter works in wind, has a big fuel capacity, and is so sturdy and simple it will never get out of order.

Monel metal is the ideal material, but stainless steel, bronze, or even brass will do. You can make the sparking wheel by knurling a piece of $7/16$ " drill rod and hardening it, or take a wheel from an inexpensive new lighter.

Tank top. Chuck stock with more than enough protruding to make the entire piece. Face, turn the edge radius and wick tip, and turn the shoulder with a parting tool. File smooth and polish with emery cloth before parting off.

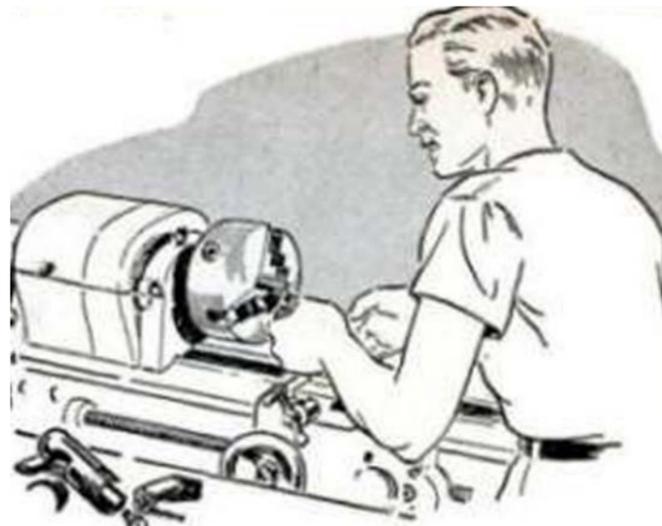
Tank. It's easier to make this of tubing than solid stock. Chuck a 3" length of thick-walled tubing (with a maximum bore of $1/2$ ") so that about 2" projects. Turn the outside, and bore carefully to a tight fit for the tank top. Cut the threads on the lathe too.

Plug. Leave enough out of the chuck to turn, thread, and cut off with a slight allowance for facing the knurled end afterward. File the knurled edges slightly.

Screw the plug snugly into the tank and insert the top. Put wooden pads against both ends; then squeeze the assembly in a vise to press the top home.

Post holder. Bend a $5/16$ "-wide strip of $1/16$ " stock lengthwise over a piece of steel $11/16$ " in diameter. This is to produce the curve matching that of the tank. Then clamp it to the steel to bend up the ends. Drill the four holes, taking care that the two larger ones are accurately located to hold the post parallel to the tank.

Post. Leaving $19/16$ " of a piece of $5/16$ " rod out of the chuck, centerdrill, and run a No. 36 hole through. Tap 6-32 to $2/3$ " depth. Then turn to $3/16$ " diameter for $1\frac{1}{2}$ ". Cut the outside thread almost full, finishing with a $3/16$ "-24 die. Polish and cut off.



Cheek your wheel size before shaping the top of the post. Spot the shaft hole to leave minimum clearance under the wheel, to insure using all the Hint.

Shield. You can bore this from solid stock, or use tubing and silver-Milder a plug into the top. Bore the inside to a smooth sliding fit on the tank. Use a pointed threading tool to make the gripping rings at the lower end. You can space them $.050$ " apart by swinging the compound parallel to the lathe ways and using its feed. Turn rings $.025$ " deep, round each one on top with a fine file, and polish.

File the flame opening to a depth of half the diameter. Slide the shield on a rod or dowel to drill out the slot at the back. File the slot to size. The three air holes above the slot can be drilled after assembly, if needed.

Fittings. The two round lock nuts that hold the post can be drilled and tapped in



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