



Shop Tips- or - Why Didn't I Think of This Long Ago
Center Marking of Cylindrical Stock
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When making a hidden tang knife with a crown stag handle (A), it is necessary to bore out the stag to accommodate the tang. The cavity to be created ought to be as long as needed but should be as tight to the tang as possible. To accomplish this, a useful tool (B) is an air die grinder and a side-cutting bit. The grinder uses a 0.25" collet and luckily, that's the diameter of the bit's back end. The problem is that the tang is longer than the bit, so an extension is needed (C). There is no need for preserving the full length of the extension or maintaining that big socket on the end. A few minutes with a welder, a grinder and a cutoff saw produces the tool shown at D. Unfortunately the diameter of the extension is 5/16" which won't fit into the collet (E). The simple solution is to toss the tool onto the lathe and turn down the butt end to 0.25". But if the turned-down section isn't centered, the bit will have a mind of its own and will go wherever the wobble takes it. No biggie – all that is needed is to precisely center punch the tool's butt end to allow the live center in the tailstock on the lathe to hold the tool from springing. But how do you center punch the end *exactly* in the center? The solution is shown at F – drill a 5/16" hole in a block of scrap hardwood and dig out a 5/16" transfer punch*. Insert the butt end of the tool about half way into the hole in the block and the transfer punch into the other end of the hole. Hit the punch a good lick (it would help to clamp the tool in a vise first), and you'll have a precisely centered divot.

The same idea applies to marking the center of an annealed ball bearing prior to drilling a hole – all you need is a block of wood, a hole the diameter of the bearing, and an appropriate punch. A bit of welding and you have a dapping punch, ready to make a rivet header. Perhaps you want to cheat and make a tenon by drilling a hole in round stock and inserting a section of smaller round stock in the hole. Use this technique to mark the center for drilling or even slicker, drill a block of steel with half the depth of the hole at the diameter of the larger stock and the other half of the length at the diameter of the smaller stock. You now have a drill guide. If you drilled an undersized hole (~1/32" down from the smaller diameter), you can heat the end of the larger stock to expand it and just drop the smaller stock into the hole. Once contraction does its thing, the smaller stock will be locked in place.

*<http://www.harborfreight.com/28-piece-transfer-punch-set-3577.html> \$10.00