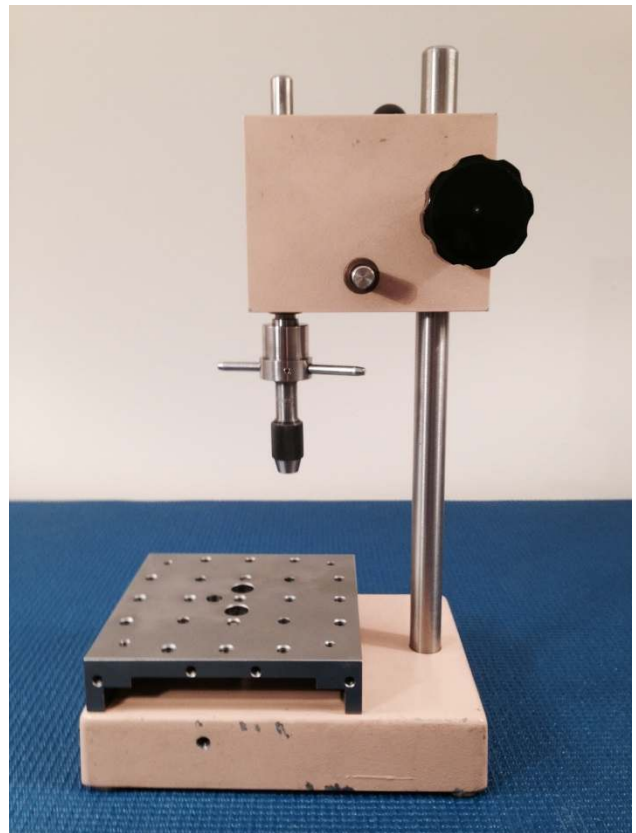
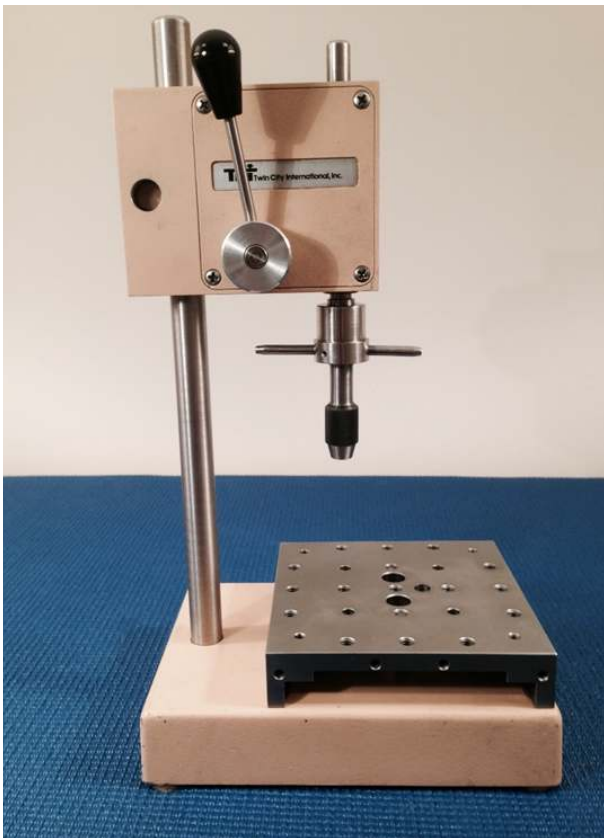


# Small Tapping Machine Made from Scrap Yard Find

---

By John Nathan

Recently, I came across Rick Sparber's very interesting article about making a Dremel drill press from an unknown but very cool machine (<http://rick.sparber.org/drdp.pdf>). I also have one of these machines, which I picked up at a scrap yard years ago. Mine was originally fitted with an electronic probe to test something. I discarded the probe, and converted the device into a small tapping machine:



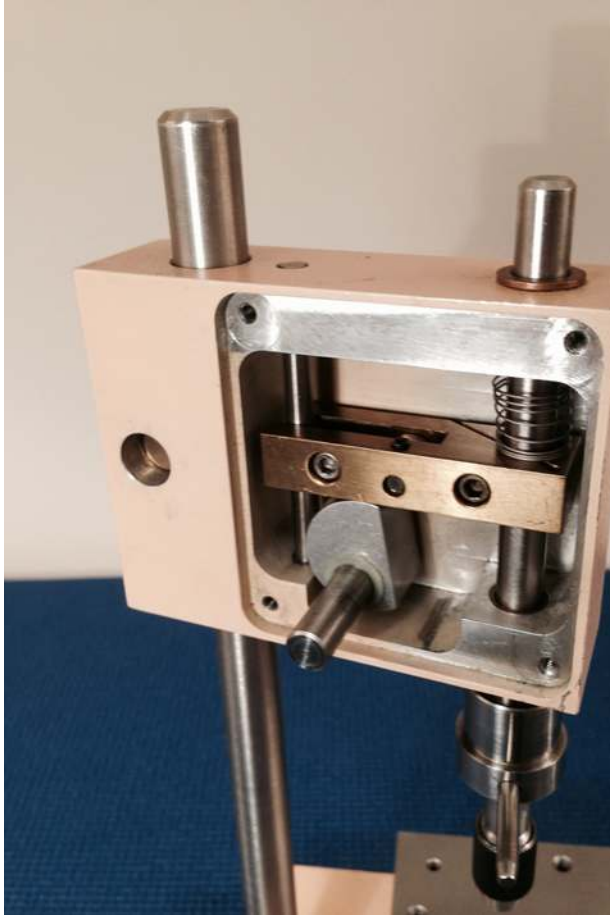
*Figures 1 and 2: Finished tapping machine with handle up*

As manufactured, the machine has a handle to lower the vertical rod. With the handle up, the vertical rod is captured and cannot descend. Moving the handle to the down position allows the rod to float up and down. This action was perfect for tapping.

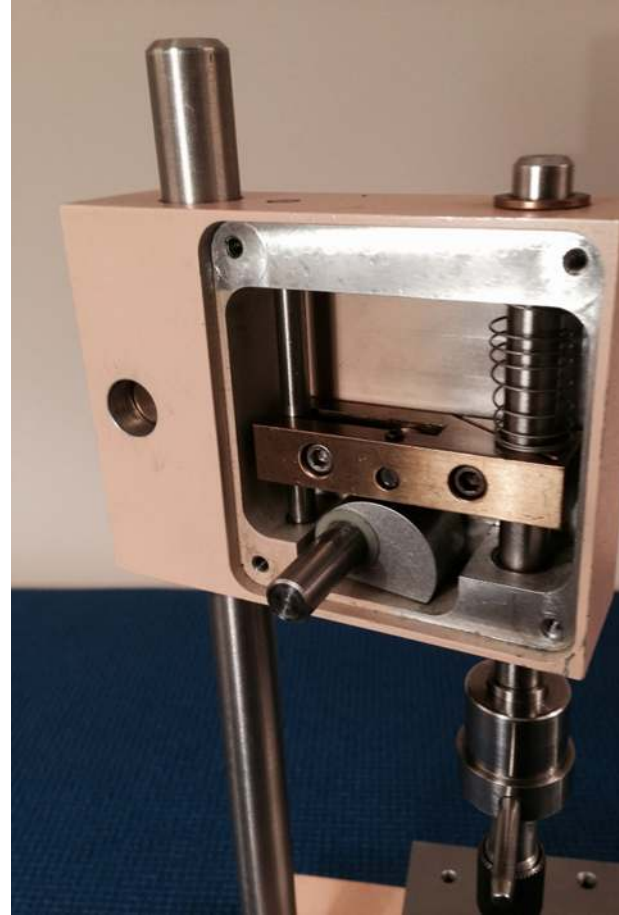


*Figure 3: Handle down*

The original actuating mechanism was very well made. No expense seems to have been spared. All shafts were fitted with bearings, and the actuating cam has a ball bearing follower. Here are pictures with the handle and cover removed:



*Figure 4: Rod in up position*



*Figure 5: Rod in down position*

To convert the device into a tapping machine, the challenge was to mate a rotating tap wrench to the machine's rod (which does not turn). The solution was to use a collar and a rare earth spherical magnet<sup>1</sup> to attach the tap wrench to the rod. The tap wrench is held in one end of the collar with set screws. The collar was machined at the other end to receive the machine's rod. To hold the tap

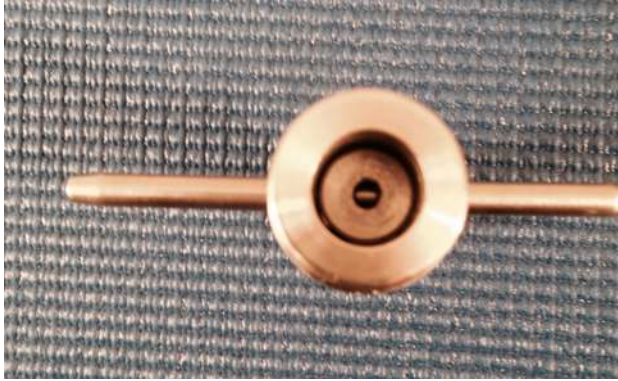
<sup>1</sup> See, for example, <http://www.kjmagnetics.com/products.asp?cat=12>

wrench/collar assembly to the rod, the magnet was inserted between the end of the tap wrench and the end of the rod. Because the magnet only has a point contact with the flat end of the rod, the tap wrench/collar assembly freely rotates about the rod, but is held securely enough so it does not fall off. Additionally, because the tap wrench has a centering recess on its end, the magnet has a greater area of contact with the tap wrench than with the point contact on the flat end of the rod. So when the tap wrench/collar is removed to change taps, the magnet stays put in the collar recess.

The following pictures show the design:



*Figure 6: Starrett No. 93-A tap wrench held in stainless steel collar with set screws*



*Figure 7: Collar recess without magnet*



*Figure 8: Collar recess with magnet inserted*



*Figure 9: Flat bottom of rod*



To complete the tapping machine, I added the threaded fixture plate. I found this at the same scrap yard some years later.

John Nathan

January 2014