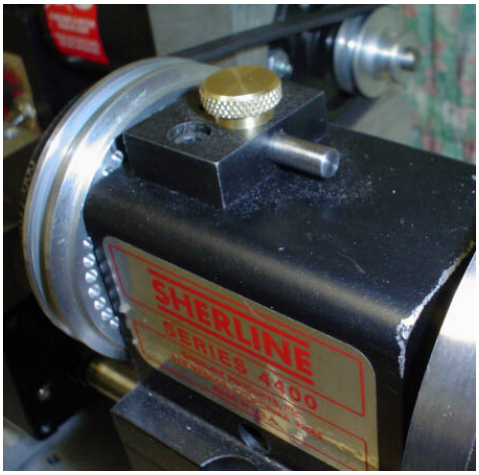
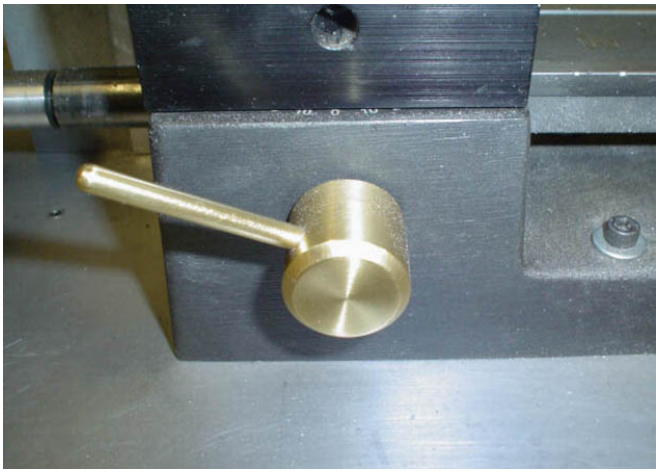
TIP 34 — Lathe Indexing, Engagement Lever and Axis Lock Modifications/ Jim Knighton





The photos above reference Jim's finished indexing system (L) and engagement lever extension (R).

INDEX LOCK—The spindle lock/indexer should be self-expanatory from the photo. The lock's body is CRS blued to match the color of the headstock and secured with two 10-32 TPI SHCS. The pin is stepped with the fat end visible. The skinny end fits through a smaller hole in the body not visible in the photo. The skinny end is of a slightly larger diameter than the indexing holes and with a conical end. This allows the pin to securely engage the indexing holes without side to side play that would otherwise be evident. The locking nut is a shop-built knurled brass head about 5/8" in diameter with a 4-40 TPI shaft that fits into a matching hole in the pin. The pulley was modified by mounting it in a chuck in turn mounted on a CNC rotary table. I drilled 48 evenly spaced holes so that when used as an indexing device I can obtain the most frequently used divisions (2,3,4,6,8,12,16,24,48).

In use as a spindle lock, the nut is loosened and the pin slid to the left to engage in any one of the holes. The lockup is positive and secure. When used as an indexing device, the same procedure is followed but with the addition of counting the appropriate number of holes each step for the desired number of divisions.

ENGAGEMENT LEVER EXTENSION—The engagement lever photo shows a brass replacement for the utilitarian but dull standard part. It isn't a total replacement. I modified the standard engagement lever by removing the stock lever and turned the end so that it was smooth. I turned a 1" brass round to the profile shown and on the back side bored a hole to match the diameter of the modified stock piece. The brass round was then pressed onto the shaft with a little Loctite® to keep everything secure. The brass lever is about 1.75" long and angled towards the front by 20 degrees.

I use both modifications on a daily basis and while my opinion might be unduly biased, I think both are very useful, attractive, and highly functional improvements.

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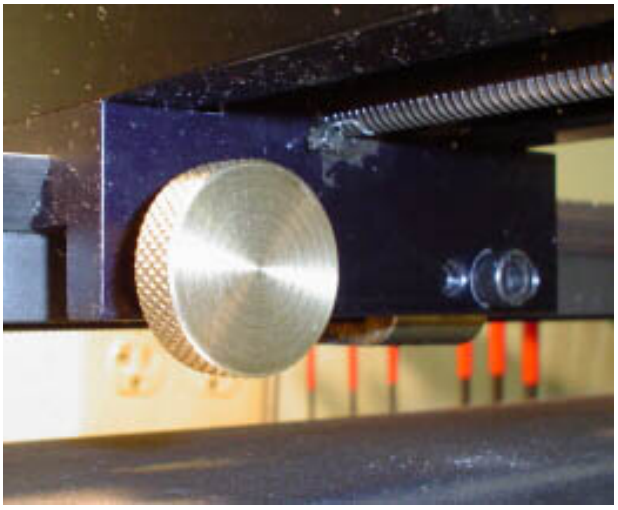

FIGURE 1—shows saddle lock screw in place

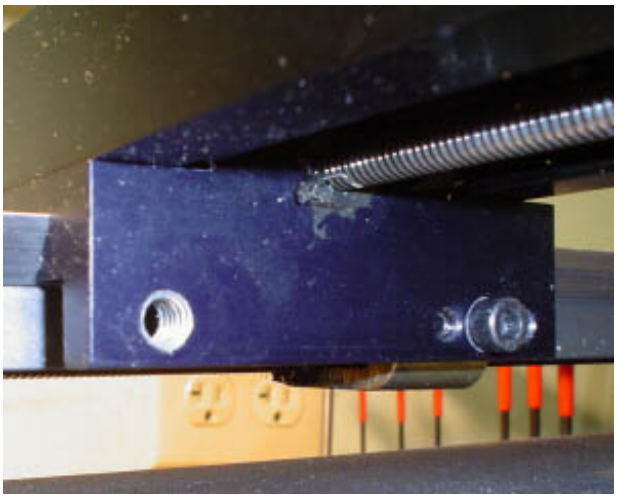

FIGURE 2—shows hole in saddle with screw removed

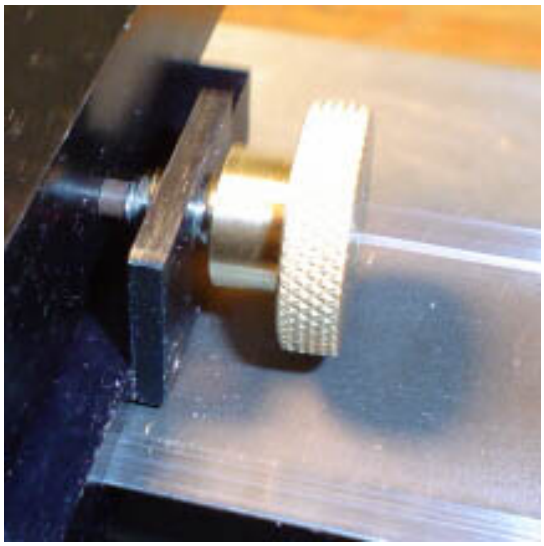

FIGURE 3—shows the table lock fixture

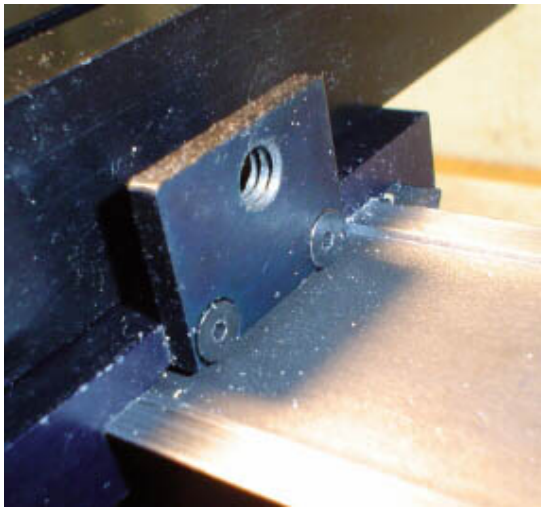

FIGURE 4—shows the fixture with the screw removed

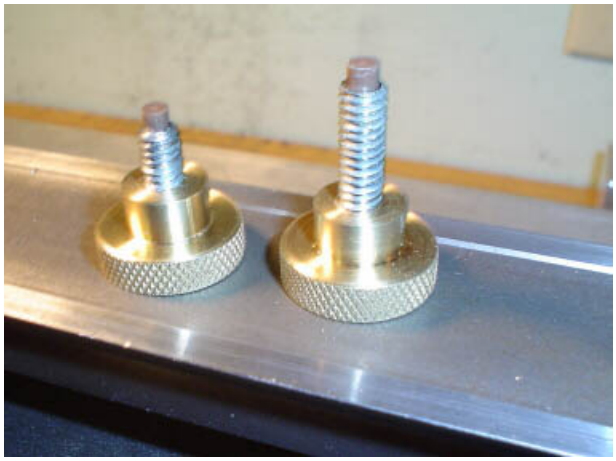

FIGURE 5—shows the two Delrin tipped, knurled screws

Preceding are photos of a simple modification I made so that I could have attractive and functional axis locks on both the saddle and the cross slide. Perhaps others would find this to be useful as well.

SADDLE AND CROSS SLIDE LOCKS—The axis lock screws consist of knurled brass heads turned from 1" brass stock (knurls are 7/8" diameter and the stub end is 1/2" diameter), a length of 1/4-20 TPI threaded rod drilled out to 5/32", and a short length of Delrin turned to match. The Delrin insert is a tight press fit—no adhesives were used. The modifications to the saddle to mount a small bracket for the cross slide lock and a threaded hole in the skirt for the long axis lock are illustrated in the photos. The bracket is CRS, 1" x 3/4" and secured to the saddle

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with 4-40 screws. The bracket was blued so that it looks as though it “belongs” on the similarly colored Sherline lathe.

— Jim Knighton

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