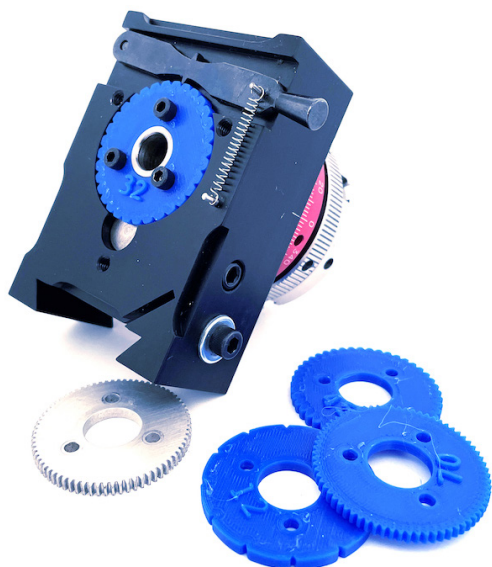


## CW TIP 10 — Indexing Attachment Add-on/Dirk Fassbender

Dirk Fassbender recently sent us an idea for an add-on accessory for the Sherline Indexing Attachment. Dirk says, “I’m a hobbyist and an intern at my local watch maker for the last 15 years in my off time from work. Before my flight career, I completed an apprenticeship as a precision mechanic.”

### About the Preset Index Plates

Dirk Fassbender printed some preset index plates to simplify the indexing process and reduce errors while using the Indexing Attachment (P/N 3200).



*FIGURE 1—Examples of Dirk's 3D-printed, preset index plates. The metal gear is the standard Sherline indexing gear (72 tooth, 48 pitch) that comes with the Indexing Attachment (P/N 3200).*

Dirk uses the Indexing Attachment to recut wheels with missing teeth. Dirk said, “I used a standard 3D printer with a 0.4 mm nozzle and 0.2 mm layer height. As I will use this primarily to repair clock wheels, going barrel, etc., where a tooth needs to be recut after a repair, the preparation of a new index plate takes about 30 minutes.”

He first altered a clockmaker's gear-cutting arbor (P/N 2096) by turning down the outer diameter to 16 mm to match the shoulder on the Thornton gear cutters (see Figures 2 and 3).

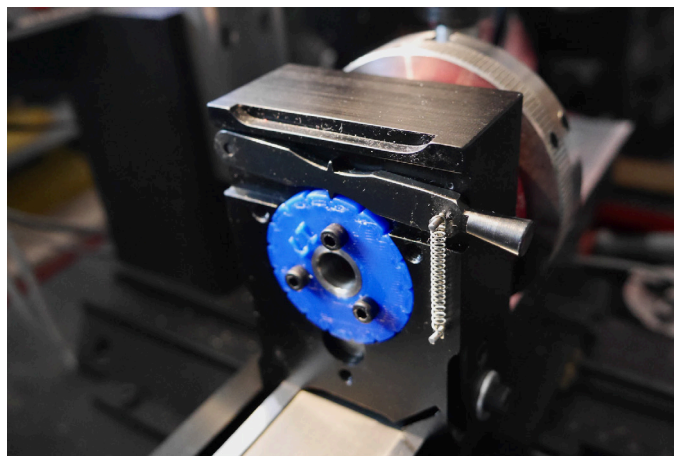


*FIGURE 2—The clockmaker's gear-cutting arbor (P/N 2096).*



*FIGURE 3—Thornton cutters.*

The 3D-printed index plate is now designed to fit the needed repair job. It will reduce errors because of the increased repeatability. The index plate size will make any tooth count up to 112 possible.



*FIGURE 4—The index plate placed in the indexing attachment.*

After centering the cutter and adjusting the part to the cutter, you can find the proper depth of the cut by going back and forth without counting teeth on the indexing attachment or measuring with the caliper on the index rack (see Figure 7). This process means working on one tooth to find the correct cut depth, and when the two cuts meet at the outer diameter of the blank and form the proper tooth head, you cut all the other teeth.

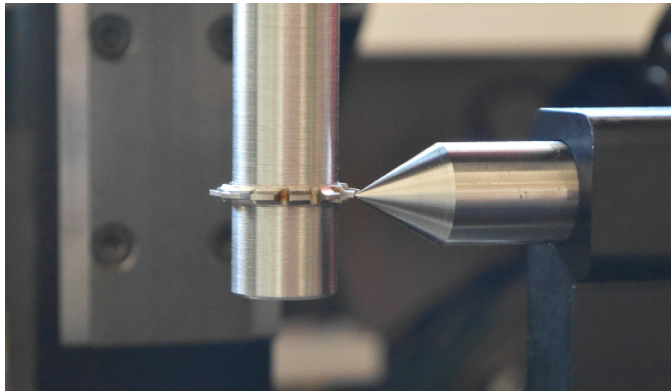


FIGURE 5—Centering the cutter with the tailstock center.

Following are examples of gear cutting using Dirk's indexing plates (see Figures 6-8).

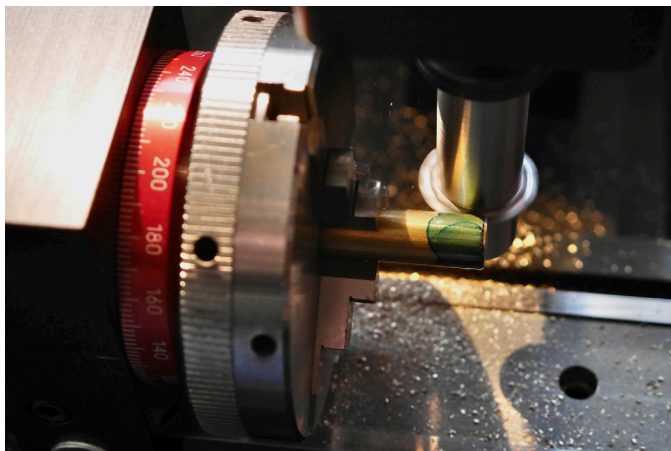


FIGURE 6

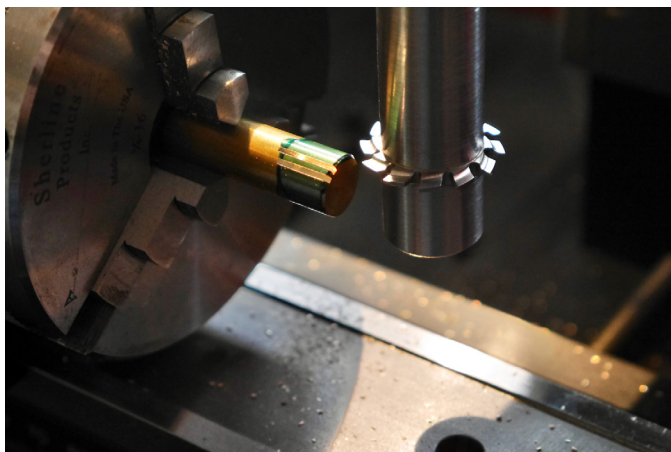


FIGURE 7



FIGURE 8

#### Links to Dirk's Website

*Sherline Index Attachment photos:* <https://dirkfassbender.de/sherline-3200.html>

*Sherline 4100 lathe, used as watch maker lathe:* <https://dirkfassbender.de/sherline-4100.html>

*The virtual watchmaker (CGI rendered images):* <https://dirkfassbender.de/the-virtual-watchmaker.html>

*STL Files:* Dirk has provide .stl files for the indexing plates on his website via the folowing link. Scroll to the bottom of the page and click the "Download" button: <https://dirkfassbender.de/sherline-3200.html>

Also, if anyone is interested and wants a special number (of indexing-plate gear teeth), he has offered to make a file for it. You can contact him using the email link from his website: <https://dirkfassbender.de/>

Best regards,  
Dirk Fassbender