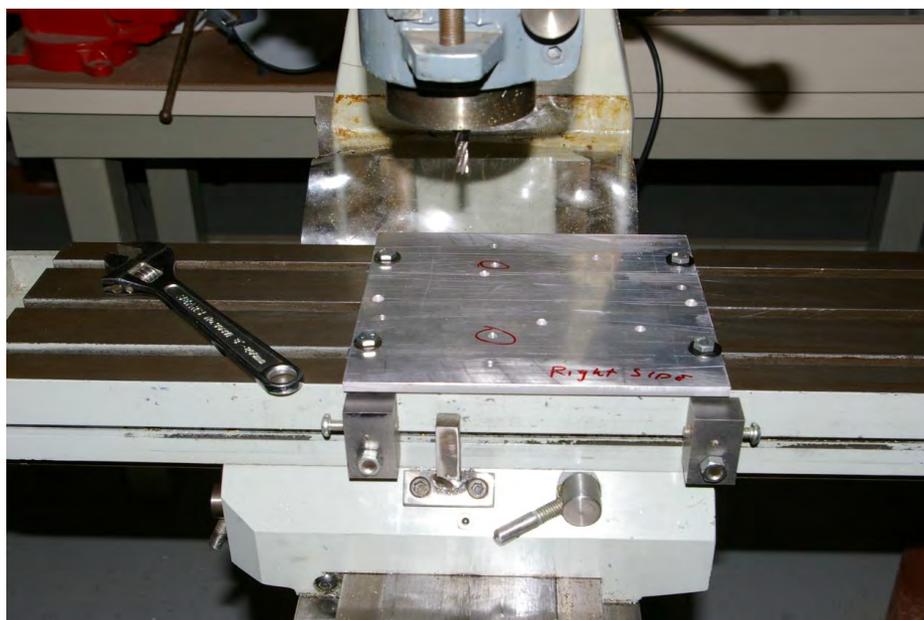


Newsletter of the Horological Tool Chapter #173 of the NAWCC

Tool Enthusiasts' Round-Up

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Upcoming Chapter Activities and Classified Ads



A Bushing Jig

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The Horological Tool Chapter of NAWCC

The Tool Enthusiasts' Round-Up is the newsletter of the Horological Tool Chapter #173 of the National Association of Watch and Clock Collectors Inc., a non-profit educational organization. This chapter and its newsletter are intended to foster interaction among NAWCC members who share a common interest in the use and collection of horological tools of all sorts. If you have an item you have researched, a book of interest, or notes on a project you have made, please consider sharing your knowledge with others through the newsletter.

The annual chapter dues of \$10 will ensure that members receive the newsletter and are included in the Membership Directory when it is published. Members are also entitled to one classified ad in each issue.

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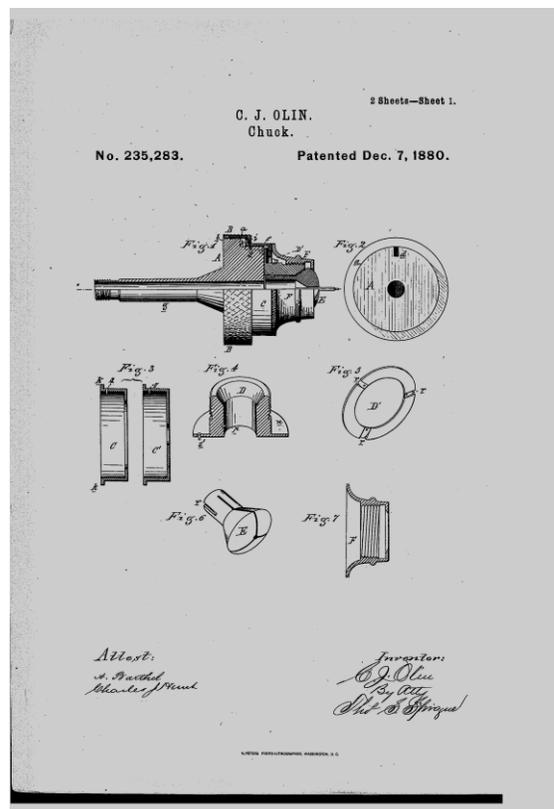
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News

We received a lot of membership renewals this year. If you did not pay yet, please look on your mailing label. If it is marked 2018 you still need to pay. We lost several members this year and like most NAWCC chapters there has been a gradual decline in membership. One reason is that many people do not even know that NAWCC has an active tool chapter.

On the plus side, we welcome Bill Curley as a new member. He does many different types of metalworking. This includes making his own horological tools. This is the type of person we would like to attract to the chapter. He has won several awards in the NAWCC craft competition. He has promised to send us pictures of some of his work for future publication. Keep a look out in the next newsletter for some of his handy work.

Bruce Forman
 Editor Director



Olin's watchmakers lathe chuck patent

A Bushing Jig For Your Milling Machine



Figure 1. A Rockwell vertical milling machine.

For many years I have done clock repair but, have found that rebushing winding arbors can be problematic. Most bushing tools on the market are not designed to bore out the large diameter winding arbors holes of a grandfather clock movement. There are several methods to hand bush these larger holes but, often the results are not perfect. Sometimes the holes have drifted from their original position during the rebushing process and the task must be repeated.

Recently, I received an interesting tall case clock from New England that had steel plates. These plates are very thin which can present a challenge when rebushing because there is little surface interference when pressing in a friction fit bushing. Many of the smaller holes were plugged with brass for better wearing properties but the clock maker never bushed the front plate for the winding arbors; so, they have always had a steel on steel mating. With time, these holes had worn egg shaped as had many of the brass bushings; someone closed them with a prick punch causing damage to many of the pivots. Because the steel plates are a real challenge to hand bush, compared to soft brass, I decided it was time to come up with a better method of bushing the larger winding arbor holes.

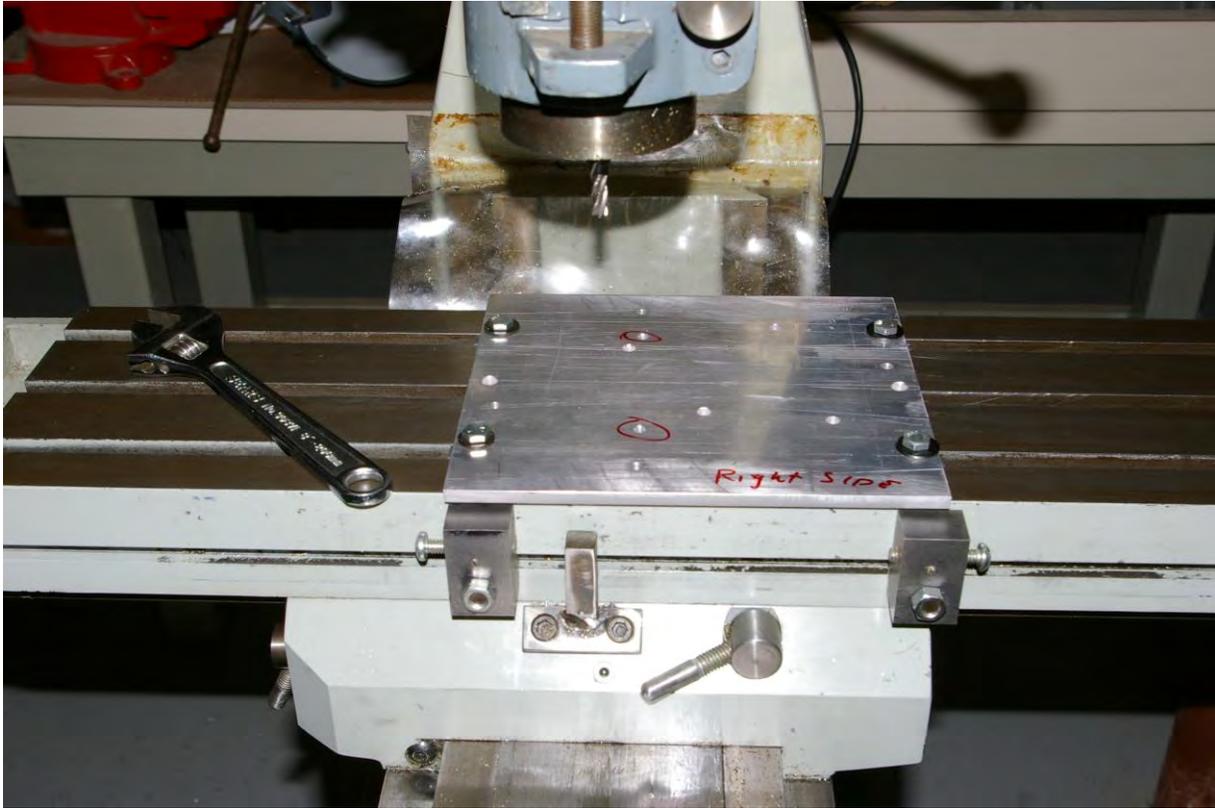


Figure 2. A bushing jig mounted on to the milling table.

Precision hole location and boring is often done using a vertical milling machine. I own a Rockwell vertical milling machine and it is a great aid in many of the projects I do, Figure 1. This machine was adapted with a jig I built to bush winding holes. The jig is made from a piece of quarter inch thick aluminum plate, slightly larger than the front plate of the clock I was repairing. It was held to the milling table in the four corners of the plate with “T” bolts, Figure 2. The aluminum plate protects the milling table during the boring operation and is used to bolt the clock plate to. A hole, smaller than the hole to be bushed, is drilled in the aluminum plate at the locations of the winding arbors.

A pin with the same diameter is then turned to fit snugly into this hole. The pin has a head that is turned to the same size as the original winding arbor hole in the clock plate. Since the original winding arbor hole only wears on one side, the pin can be turned in the lathe until it mates with this perimeter. This diameter should be similar in size to the winding shaft that it will fit with a few thousandths of an inch more added for clearance. A small center drill is used to locate a hole in the center of the pin after turning the diameters. The finished locating pin is shown near the hole to be bushed in Figure 3.



Figure 3. The locating pin and the hole it fits.



Figure 4. The locating pin in the bushing jig hole.

Next the pin is inserted into the jig hole that corresponds to the hole in the plate that needs to be bored. The clock plate is then placed over the pin and aligned with the unworn portion of the egg shaped hole in the plate. Because clock plates have screw in pillars that support lifting levers etc., you may need to drill some clearance holes in the jig plate or the clock plate may not sit flat.

The clock plate is then held in place by 4 hold downs made of aluminum, so they will not mar the clock plate.



Figure 5. Using a center finder to locate the hole center.

The milling head is aligned with the pin using a center locator and the center hole drilled in the pin, Figure 5. Once this is located the x/y table of the mill is locked in place and the center finder is replaced with an end mill of the proper diameter for the new bushing. The final step is to remove the locating pin and slowly lower the milling machine spindle thus boring a hole, Figure 6 and 7.



Figure 6. Boring the hole with an end mill.



Figure 7. The hole after boring.

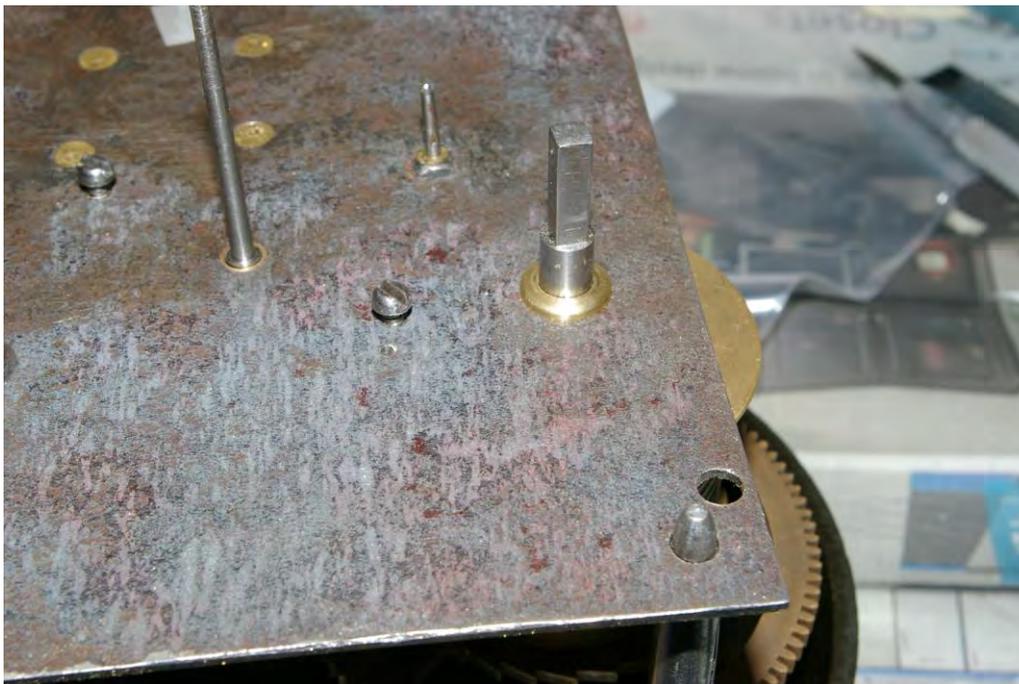


Figure 8. The finished bushing.

Because the clock plates are thin, I decided it was best to use a bushing with a shoulder. A tapered hand reamer was used to countersink the backside of the plate hole and the bushing was

riveted into place, It was then reamed to final clearance. The jig worked well for preserving the hole location and the gears engaged properly after the job was done. I would therefore recommend spending the time to make such a jig if you need to rebush large winding arbors in clocks.

Bruce Forman
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They Do Not Build Them Like They Use To

The next two pictures are from a small factory in Chicago I visited. These pictures prove that there are still companies making things in America and that a good tool lasts forever. The first picture is of a 100 year old metal spinning lathe, once run from overhead flat belting but now converted to a motor and V belt. Lathes like this were/are used to make all sorts of parts including bezels for clock dials. The second picture shows a man using the lathe to spin a part.

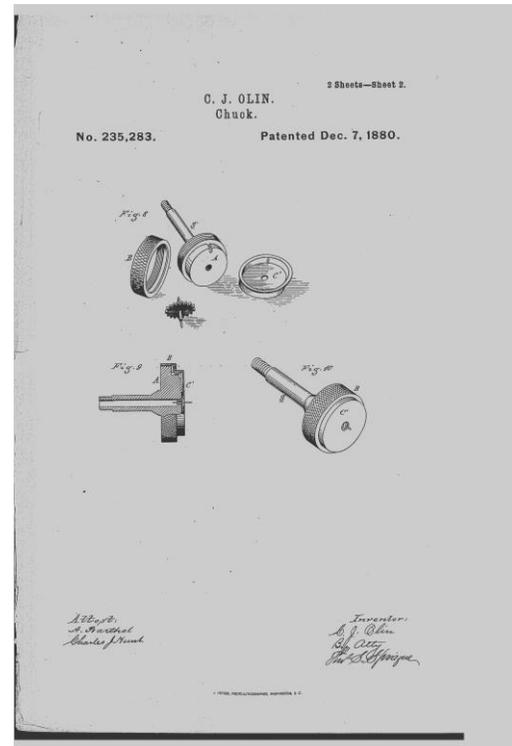
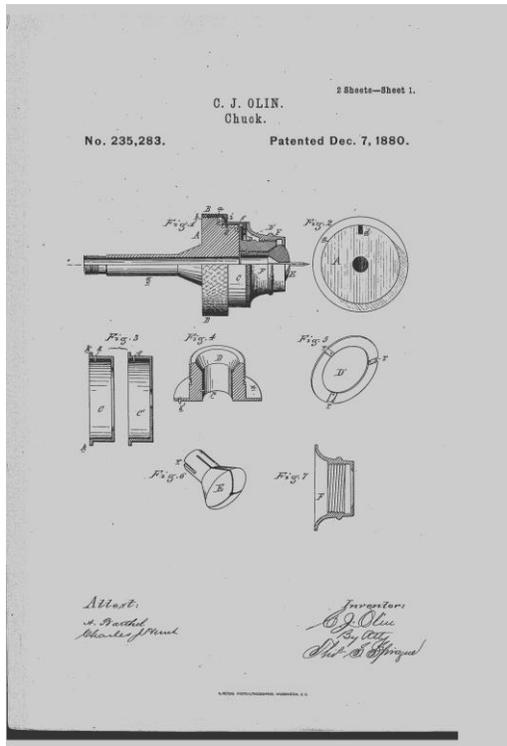


Figure 1. A Metal spinning lathe.

The lathe is much like a wood lathe but weighs many times as much. Okay, it is not necessarily a horological tool but, it was neat to see and proves that a good tool lasts forever when well maintained.

Future Articles

We have received several interesting articles for future TER issues. One will deal with the special chuck designed by C. J. Olin in 1890 for a watchmaker's lathe. The second will show a NAWCC Craft Competition award winning entry. This is a staking set sized for clockmaking. We all wish we had one of these in our shop.



Classified Advertising

Wanted

Levin and Derbyshire headstock and tailstocks (lever feed) in 10 mm sizes, any condition, running or not. Also 10 mm Levin collets and other related equipment. M. L. Shetler, Watchmaker, 4151 Paul Road, Woodhull, N. Y. 14898

Deckel, Aciera, Rivett, Schaublin, Lorch, Hardinge, Levin, lathe or mill accessories wanted. Will trade, or sell if I have duplicates. Mark Fulmer
(330) 877-2021, Markusfu@hotmail.com

Derbyshire Elect model lathe attachments- pivot polisher, screw cutting attachment, roller file rest, and screw feed tailstock - will trade - for sale: tools from the Elgin watch factory, lathes, grinders, millers, etc...some made by American Watch Tool. J. Dill, 2117 22nd St. Road, Greeley, Co. 80631, Tel: 970-353-8561, jimdle@yahoo.com.

Wanted cutters for an Ingold Fraise I acquired on eBay. Unfortunately the seller did not have any cutters for the tool. Also would like original or copies of any W. D. Clement Lathe and tool catalogs. John S Koepke, 2923 16th Street, San Pablo, CA 94806, 510-236-2197, jskoepke@comcast.net.

Buying antique clock and watchmaking tools prior to 1850. If you have something of interest to sell or trade let me know. Bruce Forman, 234 Eagle Ridge Drive, Valparaiso, IN 46385, (219) 763-4748, email: bruce.forman@frontier.com.

For Sale



Unmarked center lathe with 26 centers, motor, and wooden base, \$525. Cost is \$350, if I keep the wooden base and motor. Bruce Forman, 234 Eagle Ridge Drive, Valparaiso, IN 46385, (219) 763-4748, email: bruce.forman@frontier.com.



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