

Chain Drilling Guide, Version 1.2

By R. G. Sparber

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I own a variety of saws. Yet, there are situations where I am reduced to an awful substitute – chain drilling. The resulting cut is ragged and the process is time-consuming. It is always a battle between not breaking through to the adjacent hole while minimizing the material between holes. All of this careful alignment of the drill makes the entire process slow.



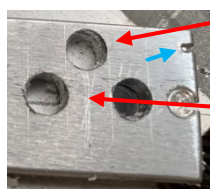
Pictured here is about the best that I can do. There was some break through to adjacent holes but not bad.

What you can't see from this row of holes is how I did it.



My secret weapon is this proof of concept drill guide made of aluminum. The finished tool would be of steel or even hardened steel.

These 3/16 inch holes are drilled 13/32 of an inch apart². On the left end, I have press fit a 1/2 inch long piece of steel rod. It is my pivot. On the right end is a partially drilled hole with a saw cut on the center line.



Above this row of holes is a single 3/16 inch hole. This hole was located on the drill guide by first marking the point on the centerline that is halfway between these two holes. Then I used a compass to scribe an arc centered at the pivot pin hole (easier to do before the pin is installed). Next, I drilled the hole so it would have a reasonable amount of material around it.

I have also added a saw cut, on the right side, aligned with this hole (blue arrow).

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² See <https://www.youtube.com/watch?v=kBdJbD7l2Eo> for how I did it.



The first step in using the drill guide was to draw a line where the chain of holes will be cut.



Then I drilled my first hole.



This feature of the guide aligned with my pencil line.

The pivot pin is a snug fit in the first hole.

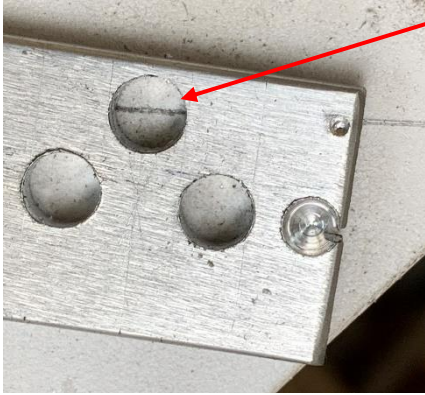


I then drilled the hole closest to the alignment feature and dropped in a 3/16th-inch diameter pin.



With the drill guide pinned in two places, I ran my 3/16th drill through the remaining holes. Just took a few seconds.





With the pivot pin still engaged, I rotated the guide so the offset hole in the guide is aligned with my pencil line.

Then I drilled through this offset hole.



With the guide removed, you can see that the holes are closely spaced without any break through.



I then reinstalled the guide with the pivot pin in this freshly drilled hole and my alignment feature again on the center line.



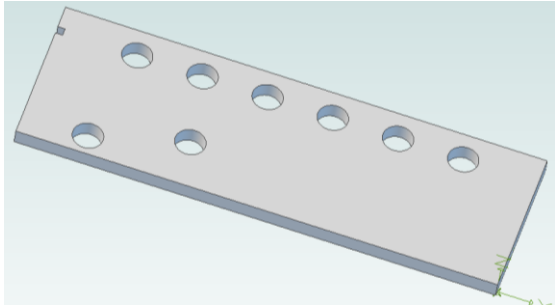
Dropped in that second pin and drilled the holes. I felt no pull to the side due to the drill breaking through to an adjacent hole.



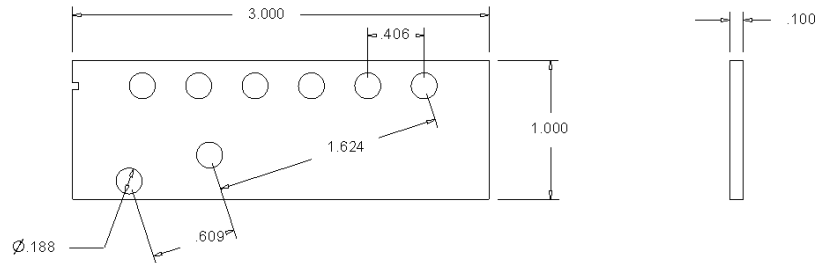
The resulting chain drilled line took maybe two minute.

Except for the fact that I am making a cut by chain drilling, it does look about as good as possible. At least it was fast and reasonably aligned.

John Herrmann contacted me with a design improvement. Add one more hole so aligning the second set of holes is easier and more precise.



I made this one out of steel.



You can see a video of it being used -

<https://www.youtube.com/watch?v=nAZAGDi9QnE>

Dave Kellogg suggested that any remaining web can be removed by running the drill down each hole and rocking it back and forth. This would likely be necessary when chain drilling metal.

Mike Cox pointed me to his elegant solution to the problem of chain drilling:

<http://mikesworkshop.weebly.com/chain-drilling-jig.html>

One important feature of Mike's design is that he placed the line of holes at a precise distance from the edge of the drill guide. This lets the user follow a line separating the finished side from the scrap side. Drill all holes on the scrap side.

Now, in his case, it was possible to make this offset equal to the drill radius so that all drilled holes ended up tangent to the line. That is not possible with my design because my guide holes are equal in diameter to the final hole diameter. The drill would likely break through to the guide's edge. However, they could be offset by the thickness of the web between holes.

Acknowledgment

Thanks to John Herrmann for improving the design. Thanks to Dave Kellogg for suggesting the clean-up step in the procedure. Thanks to Mike Cox for his great alternate solution.

I welcome your comments and questions.

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