August 2019
Newsletter

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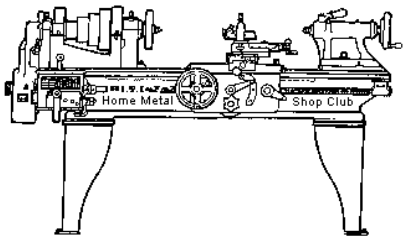


http://www.homemetalshopclub.org/

The Home Metal Shop Club has brought together metal workers from all over the Southeast Texas area since its founding by John Korman in 1996.

Our members' interests include Model Engineering, Casting, Blacksmithing, Gunsmithing, Sheet Metal Fabrication, Robotics, CNC, Welding, Metal Art, and others. Members enjoy getting together and talking about their craft and shops. Shops range from full machine shops to those limited to a bench vise and hacksaw.

If you like to make things, run metal working machines, or just talk about tools, this is your place. Meetings generally consist of ***general announcements***, an ***extended presentation*** with Q&A, a ***safety moment***, ***show and tell*** where attendees share their work and experiences, and ***problems and solutions*** where attendees can get answers to their questions or describe how they approached a problem. The meeting ends with ***free discussion*** and a ***novice group*** activity, where metal working techniques are demonstrated on a small lathe, grinders, and other metal shop equipment.

President	Vice President	Secretary	Treasurer	Librarian
Brian Alley	*Ray Thompson*	*Joe Sybille*	*Gary Toll*	*Ray Thompson*
Webmaster/Editor	Photographer	CNC SIG	Casting SIG	Novice SIG
Dick Kostelnicek	*Jan Rowland*	*Martin Kennedy*	*Tom Moore*	*John Cooper*

This newsletter is available as an electronic subscription from the front page of our website. We currently have over 1027 subscribers located all over the world.

About the Upcoming 14 September 2019 Meeting

The next general meeting will be held on 14 September at 1:00 P. M. at the Bayland Community Center, 6400 Bissonnet Street, Houston, Texas 77074. There will two presentations: S/S Shieldhall by Joe Sybille and Sloss Furnace by Richard Douglas.

Visit our website for up-to-the-minute details, date, location maps, and presentation topic for the next meeting.

General Announcements

Videos of recent meetings can be viewed on the HMSC website.

The HMSC has a large library of metal shop related books and videos available for members to check out at each meeting. These books can be quite costly and are not usually available at local public libraries. Access to the library is one of the many benefits of club membership. The club has funds to purchase new books for the library. If you have suggestions, contact the Librarian *Ray Thompson*.

We need more articles for the monthly newsletter! If you would like to write an article, or would like to discuss writing an article, please contact the Webmaster Dick Kostelnicek. Think about your last project. Was it a success, with perhaps a few 'uh ohs' along the way? If so, others would like to read about it. And, as a reward for providing an article, you'll receive a free year's membership the next renewal cycle!

Ideas for programs at our monthly meeting are always welcomed. If you have an idea for a meeting topic, or if you know someone that could make a presentation, please contact Vice-President Ray Thompson.

Reminder: Annual dues of $15.00 are due at the September meeting. Treasurer Gary Toll will accept cash or a check made payable to him.

Recap of the 17 August 2019 General Meeting

By *Joe Sybille*, with photos by *Jan Rowland*

Eighteen members attended the 1:00 P.M. meeting at the Bayland Community Center, 6400 Bissonnet Street, Houston, Texas 77074. There was one guest in attendance, Brian Sande. There are thirty-one members in good standing with the club.

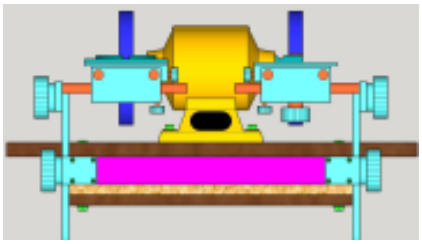
President Brian Alley led the meeting (right photo).

Presentation

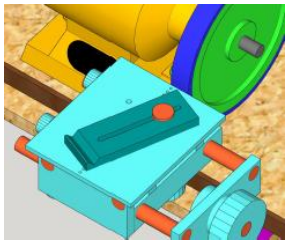
Club member Norm Berls gave a presentation on his design of 'A Fancy Tool Grinding Jig'. For this project Norm combines his skills as an accomplished woodworker and a skilled metal worker to design and to someday complete the building of a unique jig. The motivation for the design is to avoid boredom. Norm is retired and likes to tinker with things, mostly things made of metal.

The jig project is in the early stages of construction. Some parts of jig are made from cold rolled steel, tool steel, stainless steel, and mild steel. Major parts include jig frame, lower base, work table base, work table carriage, perpendicular slider, parallel slider, and both small and large radial tool holders. The bench grinder in the jig is outfitted with cubic boron nitride (CBN) grinding wheels. CBN is almost as hard as diamond and has a higher heat tolerance than diamond. The base of the grinding wheel is stainless steel and the likelihood of disintegration is minimal when compared to an aluminum oxide wheel.

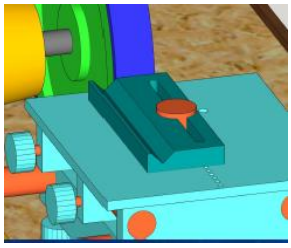
Norm used the graphics software Sketch-Up to design his jig. The software is relatively simple to use and provides excellent options for depicting ideas of the designer. Below are several depictions of major parts of the jig.



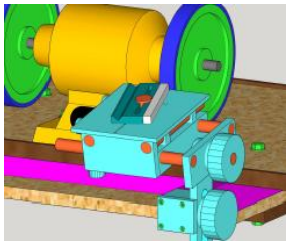
Front view



Parallel slider



Perpendicular slider



Compound angle set

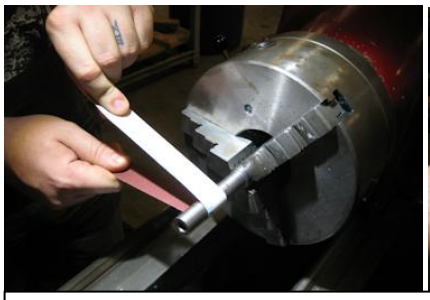
The jig will allow the user to maintain substantial control in the shaping of tool face angles and edges. In addition to using this versatile jig to position cutting tools against the grinding wheel of a typical bench grinder, Norm's ultimate goal with this jig is to make a set of tool bits like those shown in the right photo.

Slides of Norm's presentation may be viewed in this web link.

Safety Moment

The safety video warned viewers of the hazards present when using a strip of emery cloth to shine or polish a workpiece rotating on the lathe. Using the emery strip is analogous to using a strap wrench to grab and turn an object. The strap wrench works by taking advantage of the static friction between the

strap pulled tightly around the object and the object itself. Friction builds up between the emery cloth and the rotating workpiece by the metal filings removed from the workpiece. These filings build up momentarily between the cloth in contact with the workpiece and the workpiece itself. Once this occurs, if one is pinching the emery cloth near the rotating workpiece, there is an opportunity for one's finger to get caught between the tensioned emery strip and rotating workpiece, resulting in a likely injury. See left picture depicting a safe method to use emery cloth to shine or polish a work piece. The right picture shows an unsafe



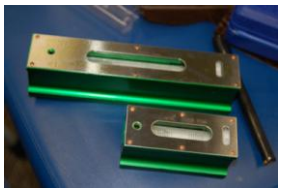
Safe Method

Unsafe Method

Show and Tell

John Cooper discussed an article on 3D printing of extremely thin items created primarily for the medical field. The article appeared in the August 2019 edition of Fabricating & Metalworking magazine. See left photo.

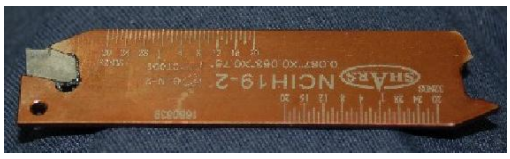
Vance burns demonstrated the power of a Dremel electric screwdriver he acquired recently by driving a screw into a piece of 2 by 4 wood. See right photo.



Richard Douglas exhibited precision levels and an American made boring bar he acquired recently. See left photo.

Brian Sande showed artwork using a copper etching process. See right photo.

Problems and Solutions

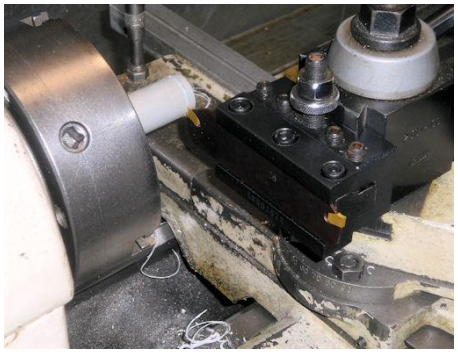


A member wanted to know if there is a way to eliminate the tendency of an insert seating too deeply into the slot grip of a cut off blade. Problems arise when workpieces of a certain diameter strike the cut off blade rather than the cutter insert. See photo at left.

Articles

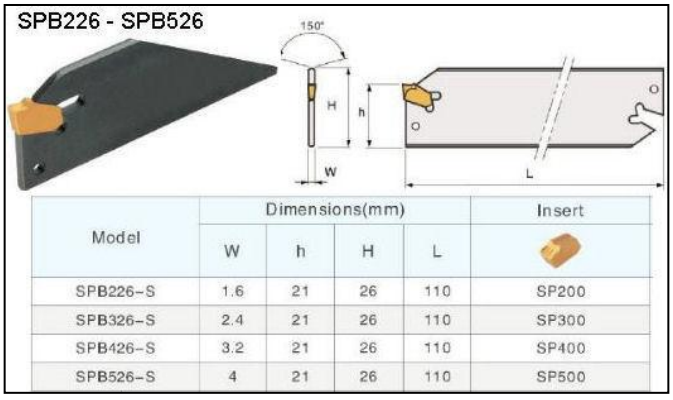
Carbide Insert Parting Tool

by *Dick Kostelnicek*

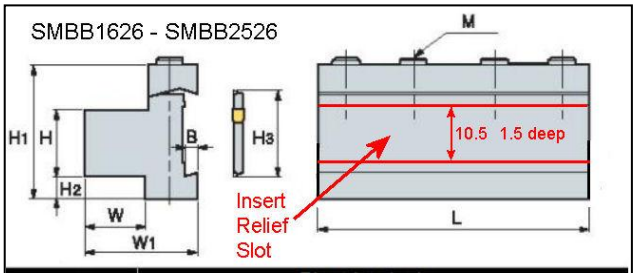


The lathe parting tool that I used for many years looked something like the one pictured at the right. It employed a rectangular tool steel blade that had virtually no side clearance. Also, it generated a long stringy cutting, thereby preventing free discharge from the cut groove. On deep cuts, the blade often jammed from an impacted cutting and occasionally the end of the blade broke off from its length. As a result, my way of operating was to peck in-and-out of the groove in order to break up the stringy cutting, remove swarf, and apply lubrication. Meanwhile, I wondered when the blade would snap off. Lubrication was also a problem especially for deep cuts of 1/2 inch or so. As a final insult, in order to provide some top back rake of the cutting edge, the blade ran up a slight incline in the tool holder. Hence, as more of the blade was exposed for deeper cuts, the blade holder required vertical repositioning in order to place the cutting edge on the work's rotational center.

Today, we have a readily available replacement that uses a thin blade that supports a slightly wider carbide insert (upper left photo). The insert (right photo) is between 0.4 and 1 mm wider (depending on its cutting width) than its accompanying blade, thereby allowing sufficient side clearance. It has a built in top concaved chip breaker surface that curls the width of the chip, thereby, making it narrower than the cut groove and allows for free passage from the cut. Because the insert is carbide, the stock can be turned at very high speed and often without lubrication. Also, the blade is positioned parallel to the cross feed of the lathe's bed, so it can be extended without re-centering. As an additional bonus, the blade is reversible, thereby allowing a second insert to be used without removing the holder from the tool post.



Model	Dimensions(mm)				Insert
	W	h	H	L	
SPB226-S	1.6	21	26	110	SP200
SPB326-S	2.4	21	26	110	SP300
SPB426-S	3.2	21	26	110	SP400
SPB526-S	4	21	26	110	SP500



Model No.	Dimensions (mm)								
	H	W	H3	L	H1	H2	W1	B	M
SPBB1626-5	16	19	26	79	43	13	30	5.3	3xM6
SPBB2026-6	20	19				9	38		
SPBB2526-6	25	23		110		4	42		

Four blades, each of different thickness but with the same height, are available (above left illustrutation). Each supports a different width carbide insert (SP200 – SP500) having a cutting width ranging from 2, 3, 4, and 5 mm. I purchased a 26 mm high blade (SPB226) that supports a 2 mm insert (SP200). The blade holder is shown in the above right illustration. All 26 mm high blades, regardless

of thickness, can be held by the same blade holder (SPBB1626, SPBB2026, or SPBB2526). The 16, 20, 25 designation increases as the turning size of your lathe increases.

My lathe has an AXA Aloris type tool post. It uses a 250-101 tool holder (right illustration) to support the SPBB1626 blade holder. As purchased, both the height (H) and width (W) of a SPBB1626 blade holder (above right illustration) are too large for the slot in the 250-101 tool holder. I milled them down to H = 13.5 mm and W = 12.5 mm. Furthermore, there needs to be a shallow 1 mm deep relief slot cut into the blade holder in order to allow the insert to slide freely without scraping the holder (left photo).

The three parts, SPBB226 Blade, SPBB1626 Blade Holder, and SP200 Insert, for a 26mm high blade, 2mm wide parting tool can be found readily on the internet and supplied by Ebay, Amazon or your favorite import source. The total cost for the three items, which included 10 inserts, was about $40.