Sharpening Handbook

Because *sharp enough* … usually is not

Chapter 18

Woodworking Bench Tools

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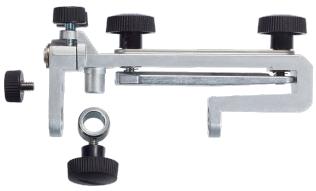
SharpeningHandbook.info

The full handbook, and the latest version of this chapter, are on the web at **SharpeningHandbook.info**. This chapter: November 2026.

Notes for All Woodworking Bench Tools

Jigs for Sharpening Chisels on the Tormek

SE-77 Square Edge Jig



SE-77 square edge jig

Some have mentioned that it is a bit tricky to get the alignment correct for chisels using this jig. That said, this jig is very useful for cambering plane blades, so it is useful to have if you sharpen those also.

Shorter chisels won't always work in this jig. The MB-102 Multi Base can alleviate this issue.

If you have some of your grandfather's old chisels around which you want to use (other to open paint cans), consider using

- SVS-38,
- SVH-60, or
- SE-77 with the MB-100

SE-76 Square Edge Jig



SE-76 square edge jig

This is a great jig to use for sharpening chisels, including skewed edges. However shorter chisels won't always work in this jig. If you have some of your grandfather's old chisels around which you want to use (other to open paint cans), consider using the SVH-60.

As with the SE-76, shorter chisels won't always work in this jig (unless using the MB-102 Multi Base). Consider using

- SVS-38,
- SVH-60, or
- SE-77 with the MB-100

The SE-77 has replaced this jig and the SE-76 is hard to find.

SVS-38 Short Tool Jig



SVS-38 short tool jig

This jig is also useful for sharpening chisels where there is not enough length to use either of the two jigs listed above.

The older version of this jig, the SVS-32, may also be used if the chisel can be held by the jig.

SVH-60 Straight Edge Jig

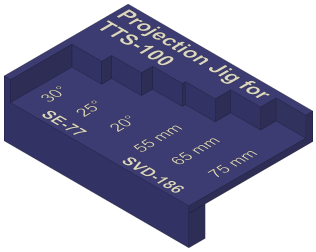


SVH-60 straight edge jig

This is the original jig for sharpening chisels and plane blades. It is no longer being made which is unfortunate as it is really great for holding shorter chisels. If you have shorter chisels, consider getting one from the used tools market.

The SE-77 has replaced this jig and the SVH-60 is hard to find.

Projection Jig for the SE-76 or SE-77



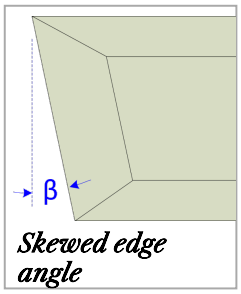
3D-printed projection jig for the SE-76 or SE-77

The Projection Jig for the SE-76 or SE-77 (see Chapter 3) is used with the TTS-100 for quickly setting both the USB height and the projection of the tool from the SE-76 or SE-77 jig.

Wood Chisels

Guidelines shown below are for **Primary Bevel Angles** & **Secondary bevel angles** (also known as *micro bevel angles*).

Notes are also available on a different web page for Micro / Secondary Bevels (see Chapter 1).

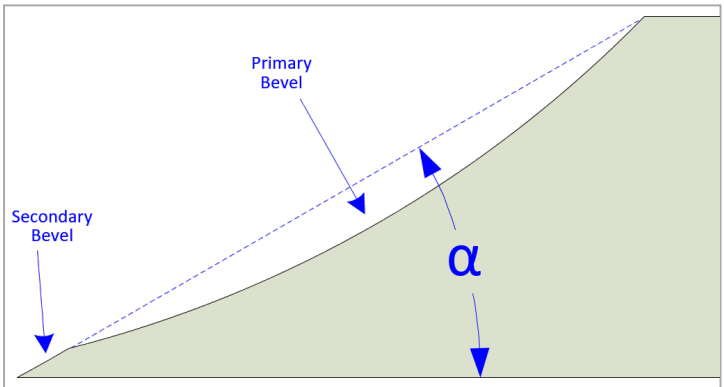


Skewed edge angle

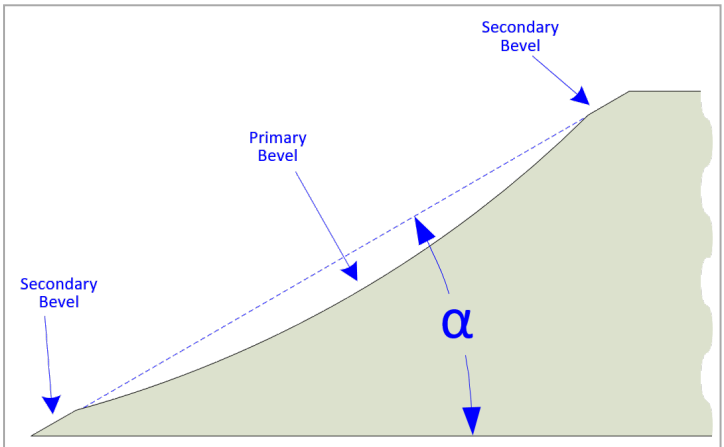
If this chisel is to have a skewed end (as shown to the left), it is recommended that **β** not be greater than 20°. A more acute angle (i.e., higher **β**) will cause the chisel to drift to the side when using it.

15° is a good target for the maximum value for **β**.

> *There are two men inside the artist, the poet and the craftsman. One is born a poet. One becomes a craftsman.*
> Emile Zola



Primary & Secondary Bevels both ground on a wheel



Primary Bevel ground on a wheel
Secondary Bevels ground on a flat stone

General Guidelines

Type	α Primary Bevel	α Secondary Bevel	β Skew	Sharpness
Bench Chisels	20°	2° - 5°	0° - 15°	8
Corner Chisels	35°	*n/a*	*n/a*	6
Firmer Chisels				6
Soft Woods	25°	2° - 5°	*n/a*	
Hard Woods	30°	2° - 5°	*n/a*	
Mortise Chisels				6
Soft Woods	30°	2° - 5°	2° - 5°	
Hard Woods	35°	2° - 5°	2° - 5°	
Paring Chisels				8
General Use	20°	2°	0° - 15°	
Fine work	15°	2°	0° - 15°	

General Guidelines				
Type	α Primary Bevel	α Secondary Bevel	β Skew	Sharpness
Scraping Chisels	70° - 75°	*n/a*	*n/a*	6
Slick Chisels (large paring chisels)	20°	2°	*n/a*	7
Utility Chisels				
Narrow *< 3/8" wide*	30°	2° - 5°	0° - 15°	6
Standard *3/8" - 1" wide*	25°	2° - 5°	0° - 15°	
Wide *> 1" wide*	20°	2° - 5°	0° - 15°	

Notes & Comments

Corner Chisels

A mill file (or some other form of safe edge file) is used to sharpen the inside corner of the chisel.

Firmer Chisels

The secondary bevel needs to be wider:

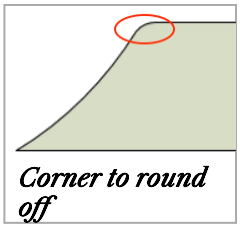
1/16" (1.5 mm) - 1/8" (3 mm)

Mortise Chisels

The secondary bevel needs to be wider:

1/16" (1.5 mm) - 1/8" (3 mm)

In The Complete Guide to Sharpening, Leonard Lee recommends rounding off the corner where the sharpened edge meets the top of the chisel. This allows for easier levering of the waste out of the hole.



Paring Chisels

These are typically used without a mallet (i.e., using only hand pressure).

Scraping Chisels

Could be as high as 90°.

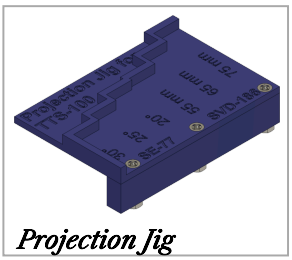
Slick Chisels (large paring chisels)

When used for dovetail work, they are sharpened flat across. Otherwise, they are sharpened with a slight crown.

Do not flatten the slight belly in the back of the tool. This aids in its use.

Utility Chisels

The projection jig for using the TTS-100 with the SE-77 is shown to the right. It is a great, quick-and-dirty tool that can help to quickly re-sharpen utility chisels (click on the image to get to the details for this jig).


Projection Jig

Flattening the Back

Flattening the back is really critical for the overall sharpness. There is a good video about that below.

Hollowing the Chisel's Back

Hollow grinding on the back of the chisels (traditional, not Japanese chisels) is recommended by some, including by Garret Hack. Two videos below show that process.

Replacing Wooden Handles

A good source for the shape of a handle is The Wood Turner's Handy Book (1887), by Paul N Hasluck (see pg. 67, fig. 39).

Other good sources are:

1. Making a New Chisel Handle for Tired Hands: Part 1 (finewoodworking.com), by Aaron Keim and published on the Fine Woodworking (finewoodworking.com) website. (Part 2 is also on the web site now.)
2. Socket Chisel Handle (woodturner.org), by Tom Caspar and published on the AAW (woodturner.org) website on the "Woodturning Fundamentals" eMagazine.

More Information

Books & Papers

- "The Complete Guide to Sharpening" (2003), by Leonard Lee. This is an excellent reference, and is recommended for every sharpener's library.
- "Cut Your Honing Time in Half: Freehand Technique is much faster than jigs and guides" (2008), by Hendrik Varju in "Fine Woodworking", July/August 2008. Hendrik noted a number of techniques, and also how hollow grinding is a "*secret of success*".
- "The Handyman's Book" (1903), a book by Paul N. Hasluck. As noted, my copy is the 1903 edition and is quite useful.
- "New Breed of Grinding Wheels" (2025), by Chris Gochnour in "Fine Woodworking", May/June 2025. Chris tested the sharpening of plane blades and chisels, comparing the use of traditional grindstones (on a high speed grinder) vs. CBN wheels.
- U.S. War Department's TM 9-867 Maintenance and Care of Hand Tools (on the web site) (1945). Setup of the plane for various uses is nicely done.
- Sharpen This, by Christopher Schwarz (2022). This is unique as it was written by a woodworker from the reference of his own sharpening.

Videos & Presentations

- **Vincent Chicone Videos**
  - Chisel Sharpening (YouTube video). Vincent Chicone owns a cabinet making shop and uses an old Tormek 2000 to sharpen his tools. This video is really good at showing how he flattens the back on the side of the SG grindstone.
- **Jeff Farris Videos**
  - Tormek SVH-60 Straight Edge Jig (YouTube video).
- **Garret Hack Videos**
  - Sharpening with Garrett Hack - Hollow Grinding on Chisels and Plane Blades (YouTube video)
- **Chris Gochnour Videos**
  - Chris Gochnour's sharpening process (video on Fine Woodworking's web site)
- **Highland Woodworking Videos**
  - Using the SE-77 Jig to Camber a Plane Blade on the Tormek Sharpener (YouTube video)
- **StewMac Videos**
  - Hollow-grinding a chisel with a Dremel tool (YouTube video)
- **Tormek Videos**
  - Tormek Live Sharpening Class - Part 3 - Chisels, plane irons & Tormek grinding wheels (YouTube video).
    - At 00:46, there is a great explanation of sharpening a tool with a radiused end using the SE-77 Square Edge Jig.
    - At 00:52, there is a great explanation of how to use the MB-100 Multi Base.
  - Tormek Live Sharpening Class - Part 9 - Sharpen a flat bevel with Tormek MB-100 on a diamond wheel (YouTube video).
  - Tormek SE-76 Square Edge Jig (YouTube video)
  - Tormek Turning Tool Setter TTS-100 (YouTube video)
  - Tormek AngleMaster WM-200 (YouTube video)

Published Articles

- Making a New Chisel Handle for Tired Hands: Part 1 (finewoodworking.com), by Aaron Keim and published on the Fine Woodworking (finewoodworking.com) website. (Part 2 is also on the web site now.) Aaron noted,

  > *Some of the most important tools in my shop are my chisels. Whether I am chopping, carving, or paring, they are in my hands all day. As I have gotten older and my arthritis/tendonitis has gotten worse, my needs have changed. In this blog, I will talk about my preferred chisel handle and show how I make a replacement handle to suit my needs.*

- Socket Chisel Handle (woodturner.org), by Tom Caspar and published on the AAW (woodturner.org) website on the "Woodturning Fundamentals" eMagazine.

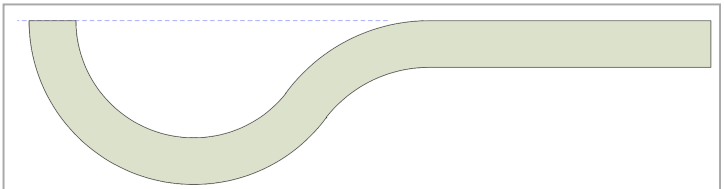
Sharpness Scale - see Chapter 1.
Notes for All Woodworking Bench Tools - at the start of this chapter.
Ongoing maintenance - see Chapter 4, *Woodworking Tools*.
Grindstones and Other Sharpening Media - see Chapter 2.

Lock Mortise Chisel

The **Lock Mortise Chisel** is essentially a scraping chisel.

Sharpness Scale
5

Hone the bevel face in line with the handle by rubbing a diamond file against it.



Bevel face alignment with the handle

> *Show us a man who never makes a mistake and we will show a man who never makes anything. The capacity for occasional blundering is inseparable from the capacity to bring things to pass.*
>
> Herman Lincoln Wayland

Replacing Wooden Handles

A good source for the shape of a handle is The Wood Turner's Handy Book (1887), by Paul N Hasluck (see pg. 67, fig. 39).

Other good sources are:

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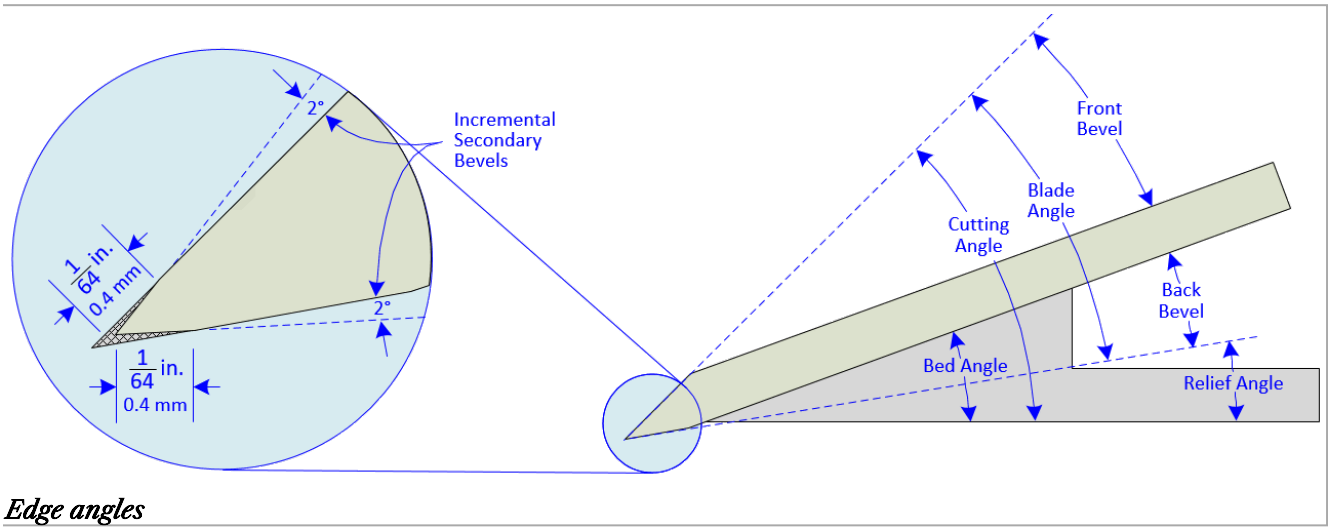
- Socket Chisel Handle (woodturner.org), by Tom Caspar and published on the AAW (woodturner.org) website on the "Woodturning Fundamentals" eMagazine.

Sharpness Scale - see Chapter 1.
Ongoing maintenance - see Chapter 4, *Woodworking Tools*.

Wood Plane

The image below shows nomenclature used in this outline. It shows a bevel up blade, but the ideas are the same for a bevel down blade (only the blade is flipped over before inserting it into the plane).

Notes are also available on a different web page for Micro / Secondary Bevels (see Chapter 1).



Edge angles

Values shown in the table below are for the **Cutting Angle** and the **Relief Angle**. As the **Bed Angle** is based on the plane body you are using, these are not shown. Additionally, the **Front Bevel** and **Back Bevel** can be easily determined from the **Cutting Angle** and the **Relief Angle**. To calculate these angles, use the following formulas:

Front Bevel = Cutting Angle - Bed Angle

Back Bevel = Bed Angle - Relief Angle

I think there is more talk and debate about the plane than there is usage of one.
Rich Colvin

General Guidelines				
Type	**Cutting Angle**	**Relief Angle**	**Camber**	**Sharpness**
Bench Planes				
General Purpose	32°	*n/a*	1/32" - 1/16"	8
Soft Woods	27°	*n/a*		
Low Angle	32°	10°		
Blind Nailer	*n/a*	*n/a*	*n/a*	*n/a*
Block Planes				
Bevel Down	35°	10°	1/32" - 1/16"	8
General Purpose	32°	*n/a*		
Soft Woods	27°	*n/a*		
End Grain	45°	*n/a*		
Bullnose Planes	35°	*n/a*	None	8

General Guidelines				
Type	Cutting Angle	Relief Angle	Camber	Sharpness
Jack Planes	35°	*n/a*	Radius of 8” - 10”	8
Jointer or Trying Planes	35°	*n/a*	$^1/_{32}$” - $^1/_{16}$”	8
Moulding Planes	*n/a*	*n/a*	*n/a*	8
Rabbet Planes	35°	*n/a*	None	8
Scrub Planes	35°	*n/a*	Radius of 3” - 4”	7
Shoulder Planes	35°	*n/a*	None	8
Smoothing Planes	35°	*n/a*	$^1/_{32}$” - $^1/_{16}$”	8
Spoke Shaves	*n/a*	*n/a*	*n/a*	8

Notes & Comments

Bench Planes
Cutting angle could be as low as 30°.

When working wood wider than the blade, crown the cutting edge or round the corners (or both).

Using a 10° relief angle is especially useful for Low Angle and Bevel Down planes.

Blind Nailer
You will need to consult someone wiser than I. (Leonard Lee’s book, “The Complete Guide to Sharpening”, is a good place to start.)

Block Planes
Often, no cap iron is needed.

Using a 10° relief angle is especially useful for Low Angle and Bevel Down planes.

Bullnose Planes
Sharpen to be square across the front.

Jack Planes
Jack Planes generally have a greater amount of camber on the blade. TM 9-867 Maintenance and Care of Hand Tools (on the web site) recommends that the center of the blade project $^1/_{16}$” beyond the edge corners.

Moulding Planes
Lap the face of the cutter.

For re-sharpening or re-profiling the edge, you will need to consult someone far smarter than I.

Rabbet Planes
Sharpen square across the front.

Scrub Planes
Highly curve the cutting edge. One guide is that the camber should be 1-2x blade's width

Shoulder Planes
Sharpen square across the front.

Spoke Shaves
You will need to consult someone wiser than I. (Leonard Lee's book, "The Complete Guide to Sharpening", is a good place to start.)

Grind Shape & Experience
The shape of the grind used is a call best made by the tool's use, based on their own experience. Additional notes are available on separate web pages for: Grind Profiles (see Chapter 1), and Micro / Secondary Bevels.

Flattening the Back
Flattening the back is really critical for the overall sharpness. There is a good video about that below.

Relief Angles
A relief angle helps keep the force behind the cutting edge aligned with the movement of the plane (i.e., more in alignment with the surface of the wood than tangential to it). This is especially true for bevel down plane blades, and is also true for low angle planes.

Primary and Secondary Bevels
Additional notes on Primary and Secondary Bevels is on the Chisel (see Wood Chisels, in this chapter) page.

Repairing Hand Planes
Gordon Addison wrote a good article titled, "Repairing Hand-Plane Totes and Knobs" in the September/October 2024 (#312) issue of *Fine Woodworking*.

More Information

Books & Papers

- "The Complete Guide to Sharpening", by Leonard Lee (2003). This is an excellent reference, and is recommended for every sharpener's library.
- "Cut Your Honing Time in Half: Freehand Technique is much faster than jigs and guides", by Hendrik Varju in "Fine Woodworking". July/August 2008. Hendrik noted a number of techniques, and also how hollow grinding is a "*secret of success*".
- "The Handyman's Book", a book by Paul N. Hasluck. My copy is the 1903 edition and is quite useful.
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high speed grinder) vs. CBN wheels.

- "The Razor Edge Book of Sharpening", by John Juranitch (2000)
- "Sharpen This", by Christopher Schwarz (2022). This is unique as it was written by a woodworker from the reference of his own sharpening.

Videos & Presentations

- **David Charlesworth Videos**
  - Plane Assembly and Setting (YouTube video). A method of plane setting after sharpening which ensures successful planing. This is from David Charlesworth's DVD, "Plane Sharpening". Filmed and produced in 2016 in the UK by Artisan Media. Published by Lie-Nielsen.
  - New radical camber grinding jig - from Tormek (YouTube video)
- **Vincent Chicone Videos**
  - Chisel Sharpening (YouTube video). Vincent Chicone owns a cabinet making shop and uses an old Tormek 2000 to sharpen his tools. This video is really good at showing how he flattens the back on the side of the SG grindstone.
- **Jeff Farris Videos**
  - Tormek SVH-60 Straight Edge Jig (YouTube video).
- **Giant Cypris Videos**
  - Educational Video on "Influence of the Cap-iron on Hand Plane" (Vimeo video)
- **Chris Gochnour Videos**
  - Chris Gochnour's sharpening process (video on Fine Woodworking's web site)
- **Chris Schwarz Videos**
  - Fine Tune a Back Iron (Vimeo video)
- **Sedge Tool Videos**
  - Tormek Tip: How to Camber a Plane Blade (YouTube video).
- **Stumpy Nubs Videos**
  - The biggest sharpening mistake woodworkers make (And why...) (YouTube video). ... a video about flattening the back.
- **Tormek Videos**
  - Tormek Live Sharpening Class - Part 3 - Chisels, plane irons & Tormek grinding wheels (YouTube video).
    - At 00:46, there is a great explanation of sharpening a tool with a radiused end using the SE-77 Square Edge Jig.
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  - Tormek Turning Tool Setter TTS-100 (YouTube video)
  - Tormek AngleMaster WM-200 (YouTube video)

Published Articles

- "Repairing Hand-Plane Totes and Knobs", by Gordon Addison (September/October 2024 - #312). "Fine Woodworking".

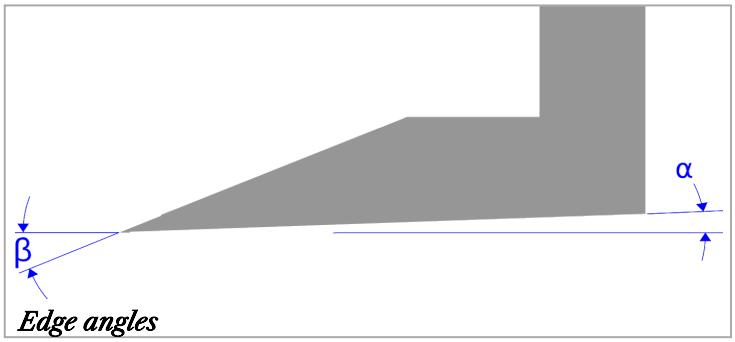
Web Sites

- Chris Gochnour outlined the sharpening process (finewoodworking.com) that he follows in this excellent article on Fine Woodworking (finewoodworking.com). The embedded video is nice in that it shows how quickly he can resharpen a plane blade (the whole video is 6:32).
- Lee Valley (leevalley.com) published a great set of information about Restoring an Old Hand Plane (leevalley.com).

Sharpness Scale - see Chapter 1.
Notes for All Woodworking Bench Tools - at the start of this chapter.
Ongoing maintenance - see Chapter 4, *Woodworking Tools*.
Grindstones and Other Sharpening Media - see Chapter 2.

Router Plane

The image to the right shows nomenclature used in this outline. The vertical part of the blade (which affixes to the tool holder) is shown perpendicular to the surface of the wood.



Edge angles

As with chisels and plane blades, both surfaces which interface to make the cutting edge must be honed. This is the angle **β** in the picture to the right.

It is critical that **α** ≥ 0. The toe (cutting edge) must not be higher than the foot (opposite from the cutting edge). If this is not the case, the cutting edge will not engage with the wood properly and will not cut correctly.

How are such old tool designs still so relevant in today's world where we have the Internet and CNC systems? It is probably because we are clamoring for a simpler time.
Rich Colvin

General Guidelines

Type	β	α	Sharpness
Traditional	30°	2° - 5°	8
Melbourne Tool Company	30°	*n/a*	8

Notes & Comments

Traditional

Top Face: The top face must be sharpened using the side of the grinding wheel. When using the Tormek to sharpen the **β**; angle, use the SE-77 jig with the multi-base jig (MB-100 or MB-102). Alternative jigs are discussed below.

Bottom Face: When using the Tormek to shape or sharpen the bottom face (the **α** angle), use the SE-77 jig. Alternative jigs are discussed below.

Melbourne Tool Company

Melbourne Tool Company introduced a set of router planes which use a straight blade. When Using the Tormek to sharpen these, use the SE-77 jig.

If the blade is too short to sharpen using the SE-77, then add the use of a multi-base (MB-100 or MB-102) to sharpen the blade's edge on the side of the grindstone.

Alternative jigs are discussed below.

Grinding on the Stone's Side

When grinding on the side of the grinding stone, the diamond grindstones are recommended.

Noting the Grinding Angle

It is a good practice to note the blade's angle(s) in one of these ways:

1. Record a reference number on the blade, and use an index card to keep the pertinent information for that blade.

   This is the preferred method as it also allows for noting other information about the blade such as metal type, where & when purchased (and cost), and any other sharpening notes.

2. Record the angle on the blade itself.

Alternative Jigs

Tormek Jigs

The Tormek SE-76 Square Edge Jig can also be used. These are no longer sold, but if you have one, you should use it.

The Tormek SVH-60 Straight Edge Jig may be usable also. You will need to ensure the jig will open up enough to secure your tool's blade. As with the SE-76, these are no longer sold, but if you have one, you should try to use it.

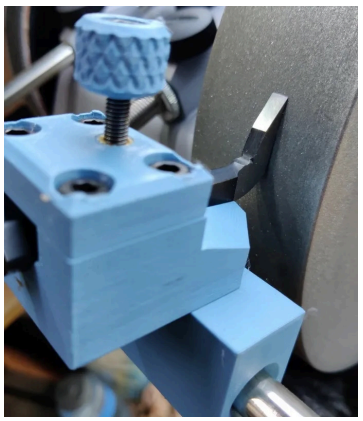
3D-Printed Jigs for Sharpening Traditional Blades

Alan Budden (Dr.AI on the Tormek Forum & Printables.com) posted links in 2023 to some jigs which can be 3D-printed and used for sharping the traditional blades.

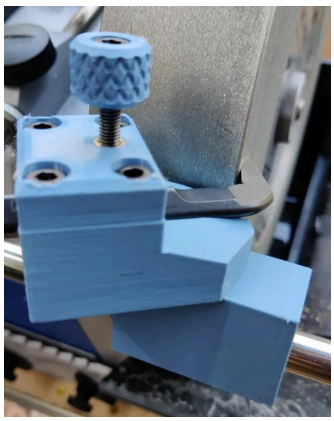
Alan created two versions of these jigs:

1. the style shown to the right for sharpening on the Tormek, and
2. a different version for sharpening on traditional bench stones using an Eclipse style honing guide.

Alan Budden's 3D-printed jigs



Grinding the blade's bottom face



Grinding the blade's top face on the side of the grinding wheel

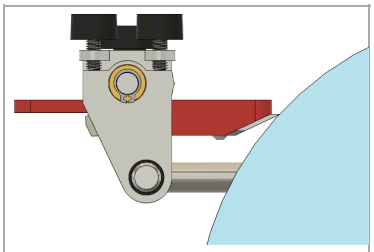
Links to the Printables.com web site where Alan published these designs are below.

There is also information about jigs for sharpening this blade on the Traditional Router Plane Blade Jigs (see Chapter 3) page of this handbook.

3D-Printed Jigs for Sharpening Woodpecker Blades

The Woodpeckers router plane has blades which are removable from the blade holder shaft. These blades can then be sharpened on the Tormek grinder using a blade holder sharpening jig held in the Tormek SE-77 Square Edge jig or SE-76 Square Edge Jig.

Pictures of this approach are to the left. The blade holder sharpening jig is shown as the red part.



Straight blade in blade holder sharpening jig, held in SE-77, with a Japanese Waterstone

These blade holder sharpening jigs are designed for quick setup of the Tormek using the Tormek TTS-100 Turning Tool Setter. That means the process is fast, and the craftsman can get back to work sooner.

There are two versions of the one for the spear point blade.

There is also information about jigs for sharpening this blade on the Woodpecker Router Plane Blade Jigs (see Chapter 3) page of this handbook.

More Information

Books & Papers

- "The Complete Guide to Sharpening" by Leonard Lee

Videos & Presentations

- Tormek Live Sharpening Class - Part 3 - Chisels, plane irons & Tormek grinding wheels (YouTube video).
  - ☆ At 00:46, there is a great explanation of sharpening a tool with a radiused end using the SE-77 Square Edge Jig.
  - ☆ At 00:52, there is a great explanation of how to use the MB-100 Multi Base.
- Tormek Live Sharpening Class - Part 9 - Sharpen a flat bevel with Tormek MB-100 on a diamond wheel (YouTube video).
- Tormek Live Sharpening Class - Part 20 - MB-102 Multi Base - Enhanced Knife Sharpening & Flat Bevels (YouTube video).
  - For sharpening on the side of the grinding wheel (particularly the diamond grindstones). The value for this approach is:
    - It allows for a flat grind (see Chapter 1) on the cutting edge.
    - It allows for sharpening short tools. This video demonstrates this well.
  - For sharpening vertically from the horizontal position. This is a replacement for the front vertical base (indexjigs.html). Sharpening knife edges using a edge trailing approach may be preferable if you sharpen on a softer Japanese water stone (so you don't accidentally dig into the grindstone). It is also quite useful for sharpening spoon knives.
  - ☆ At about 00:30, there is a great explanation of sharpening the router plane blade using the SE-77 Square Edge Jig & the MB-102 Multi Base..

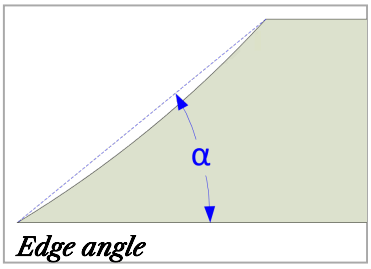
Web Sites

- Alan Budden's 3D-printable sharpening jigs on Printables.com (printables.com):
  - Tormek Router Plane Sharpening Jig (printables.com) for use with a Tormek grinder
  - Router Plane Blade Sharpening Jigs (printables.com) for use on traditional bench stones

> **Sharpness Scale** - see Chapter 1.
> **Ongoing maintenance** - see Chapter 4, *Woodworking Tools*.
> **Grindstones and Other Sharpening Media** - see Chapter 2.

Spokeshave

Guidelines shown below are for **Primary Bevel Angles** & **Secondary bevel angles** (also known as *micro bevel angles*).



Do not add a back bevel or curve the back surface.

Notes are also available on a different web page for Micro / Secondary Bevels (see Chapter 1).

> *Woodworking - patience = firewood.*
> Anonymous

General Guidelines			
	α		
Use	Primary Bevel	Micro Bevel	Sharpness
General Purpose	30˚	+2˚ to +5˚	8

Notes & Comments

General Purpose

If not adding a secondary bevel, aim for 27˚ - 28˚ for the primary bevel.

Carving edges are typically not reground; only to reshape them, or repair a problem with the edge. More commonly, the edge is simply honed on the leather wheel.

More Information

Books & Papers

- "How to Sharpen Every Blade in Your Workshop" (book), by Don Geary.
- "Taunton's Complete Illustrated Guide to Sharpening" (book), by Thomas Lie-Nielsen.

Videos & Presentations

- Sharpening a Wooden Bodied Spokeshave, by Chris Buchanan (YouTube). Chris has a playlist for sharpening all forms of chairmaking tools.

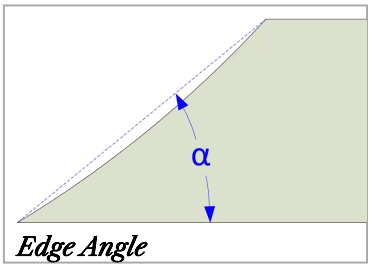
Published Articles

- What are Slip Stones? (sharpeningsupplies.com)

Sharpness Scale - see Chapter 1.
Ongoing maintenance - see Chapter 4, *Woodworking Tools*.
Grindstones and Other Sharpening Media - see Chapter 2.

Travisher

Guidelines shown below are for **Primary Bevel Angles** & **Secondary bevel angles** (also known as *micro bevel angles*). Notes are also available on a different web page for Micro / Secondary Bevels (see Chapter 1).



Edge Angle

Do not add a back bevel or curve the back surface.

> *Few hand tool purists can make a living with them.*
> Anonymous

Slip stones are typically used in this process.

General Guidelines			
	α		
Use	Primary Bevel	Micro bevel	Sharpness
General Purpose	30˚	+2˚ to +5˚	8

Notes & Comments

General Purpose

I have seen recommendations for this to be as high as 15˚ for soft woods, but that seems like it would be quite difficult to control for a fine finish.

Some travisher blades have a hollow on the back surface. Ignore this hollow when honing that face.

Carving edges are typically not reground; only to reshape them, or repair a problem with the edge. More commonly, the edge is simply honed on the leather wheel.

More Information

Books & Papers

- "Taunton's Complete Illustrated Guide to Sharpening" (book), by Thomas Lie-Nielsen

Videos & Presentations

- Allan Williams Woodworker - Sharpening a Travisher Blade (YouTube). This is especially nice as Allan outlines a jig which makes the process easier if regrinding is necessary.
- Making a Chairmakers Travisher (YouTube) by Harry Rogers. This video outlines blacksmithing for making a blade.
- Sharpening a Travisher (YouTube) by Chris Buchanan. This video also outlines a jig for regrinding. Chris has a playlist for sharpening all forms of chairmaking tools.
- Sharpening a Travisher Blade (YouTube) by James Mursell of The Windsor Workshop.

- Sharpening Woodwork Tools - The Travisher (WIP Wednesday) (YouTube) by Ben & Lois Orford.

Published Articles

- What are Slip Stones? (sharpeningsupplies.com)

Web Sites

- Sharpening a Travisher Blade (travisher.com) by James Mursell. James, of The Windsor Workshop (thewindsorworkshop.co.uk) in West Sussex, UK, makes travishers (and other chair-making tools), and his information is great. He has some good general sharpening information (thewindsorworkshop.co.uk) also.

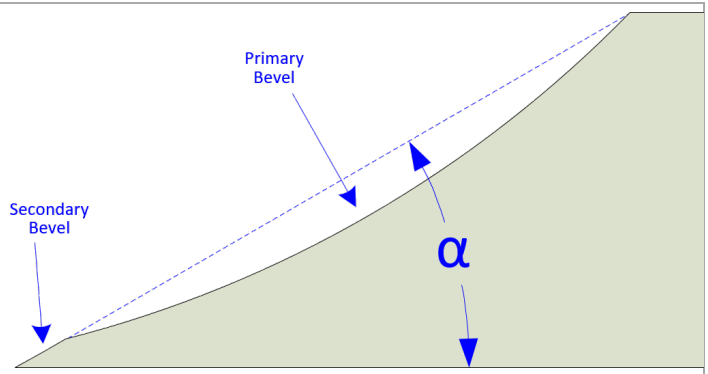
> **Sharpness Scale** - see Chapter 1.
> **Ongoing maintenance** - see Chapter 4, *Woodworking Tools*.
> **Grindstones and Other Sharpening Media** - see Chapter 2.

Japanese Wood Chisel

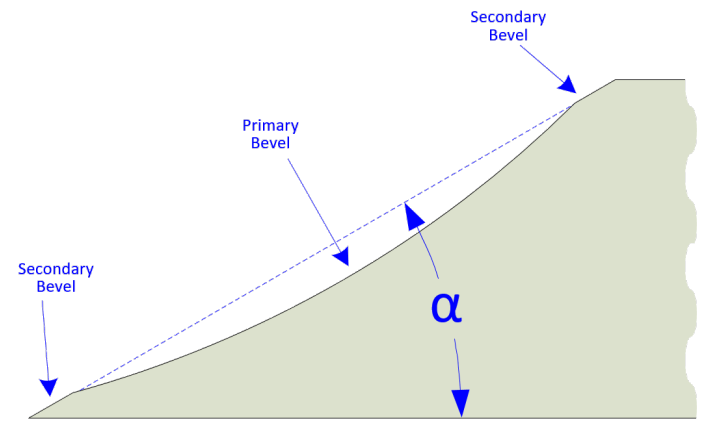
Japanese chisels are keenly defined by the laminated blade. The cutting edge (bottom) is a high carbon steel for maximum sharpening capabilities, and the upper edge is a low carbon steel which facilitates shock absorption and makes sharpening easier.

Guidelines shown below are for **Primary Bevel Angles** & **Secondary bevel angles** (also known as *micro bevel angles*). Notes are also available on a different web page for Micro / Secondary Bevels (see Chapter 1).

Without craftsmanship, inspiration is a mere reed shaken in the wind.
Johannes Brahms



Primary & Secondary Bevels both ground on a wheel



Primary Bevel ground on a wheel
Secondary Bevels ground on a flat stone

General Guidelines

End Profile Type	Usage	α Primary Bevel	α Secondary Bevel	Sharpness
 **Kaku Uchi**	*Soft Woods*	35°	*n/a*	7
	Hard Woods	40°	*n/a*	
 **Kinari**	*Narrow < 8 mm*	35°	2°	8
	Standard 8 - 25 mm	30°	2°	
	Wide > 25 mm	25°	2°	

General Guidelines				
End Profile Type	Usage	α		Sharpness
		Primary Bevel	Secondary Bevel	
 Mentori	*Narrow < 8 mm*	35°	2°	7
	Standard 8 - 25 mm	30°	2°	
	Wide > 25 mm	25°	2°	
 Shinogi	*Soft Woods*	25°	2°	8
	Hard Woods	30°	2°	

Notes & Comments

Kaku Uchi

An old style with only slightly raked sides. This blade profile delivers maximum power for chopping but is less versatile when paring.

Mortise chisels often have this profile.

Kinari

This has longer bevels than the mentori, and the more delicate profile is excellent for paring dovetails but still retains enough mass for effective chopping.

Mentori

This is the most common blade profile. It combines heft for chopping and striking with side bevels for paring access.

Shinogi

This has a low, wide-beveled blade profile which affords excellent access when paring in tight spaces. It is an un-hooped chisel, not meant for striking.

Crank-neck chisels often have this profile.

Grind Profiles

The shape of the grind used is a call best made by the tool's use, based on their own experience. Additional notes are available on separate web pages for Grind Profiles (see Chapter 1), and Micro / Secondary Bevels.

Some also advocate only using flat stones, including Toshio Odate, author of Japanese Woodworking Tools: Their Tradition, Spirit, and Use (1998), and John Reed Fox.

If you want to grind a flat bevel on the edge and you are using a Tormek, watch the video below on using the Tormek MB-100 Muti Base and the one on using the Tormek MB-102 Multi Base.

Secondary or Micro Bevels

Some recommend there be no secondary bevel angle. If the user chooses to have a secondary bevel, 2° is recommend as this allows for repeated resharpening by touching up the secondary bevel only. Once this becomes too time consuming (i.e., the secondary bevel becomes too large), then you will have to regrind the primary bevel.

Hollow Grinding the Back

Hollow(s) in the back face should be > $^{1}/_{8}$" (0.1250" / 3 mm) from the cutting edge. If less, tap it out as necessary. (There is a great video from Andrew Hunter on the Fine Woodworking site.)

Other Japanese Chisel Notes

giant Cypress has great information on Japanese chisel set up, and it is highly recommended.

More Information

Books & Papers

- Some also advocate only using flat stones, including “Japanese Woodworking Tools: Their Tradition, Spirit, and Use” (1998), by Toshio Odate.
- The article, "Choosing and Using Japanese Chisels (finewoodworking.com)" in Fine Woodworking magazine (finewoodworking.com), May/June 2013 (finewoodworking.com), is highly recommended.

Videos & Presentations

- **Vincent Chicone**
  - Chisel Sharpening (YouTube video). Vincent Chicone owns a cabinet making shop and uses an old Tormek 2000 to sharpen his tools. This video is really good at showing how he flattens the back on the side of the SG grindstone.
- **Link Van Cleave**
  - Hollow-grinding a chisel with a Dremel tool (YouTube video)
- **Garret Hack**
  - Sharpening with Garrett Hack - Hollow Grinding on Chisels and Plane Blades (YouTube video)
- **Andrew Hunter**
  - Tapping Out a Japanese Plane Blade with Andrew Hunter (YouTube video)
- **Tormek's Videos**
  - Tormek Live Sharpening Class - Part 3 - Chisels, plane irons & Tormek grinding wheels (YouTube video).
    - At 00:46, there is a great explanation of sharpening a tool with a radiused end using the SE-77 Square Edge Jig.
    - At 00:52, there is a great explanation of how to use the MB-100 Multi Base.
  - Tormek Live Sharpening Class - Part 9 - Sharpen a flat bevel with Tormek MB-100 on a diamond wheel (YouTube video).
  - Tormek Live Sharpening Class - Part 20 - MB-102 Multi Base - Enhanced Knife Sharpening & Flat Bevels (YouTube video).
    - For sharpening on the side of the grinding wheel (particularly the diamond grindstones). The value for this approach is: 1)It allows for a flat grind on the cutting edge, and 2) It allows for sharpening short tools. This video demonstrates this well.

- For sharpening vertically from the horizontal position. This is a replacement for the front vertical base (indexjigs.html). Sharpening knife edges using a edge trailing approach may be preferable if you sharpen on a softer Japanese water stone (so you don't accidentally dig into the grindstone). It is also quite useful for sharpening spoon knives.
    - Tormek SE-76 Square Edge Jig (YouTube video)
    - Using the SE-77 Jig to Camber a Plane Blade on the Tormek Sharpener (YouTube video)
    - Tormek SVH-60 Straight Edge Jig (YouTube video).
    - Tormek Turning Tool Setter TTS-100 (YouTube video)
    - Tormek AngleMaster WM-200 (YouTube video)

Sharpness Scale - see Chapter 1.
Notes for All Woodworking Bench Tools - at the start of this chapter.
Ongoing maintenance - see Chapter 4, *Woodworking Tools*.
Grindstones and Other Sharpening Media - see Chapter 2.

Japanese Saw

I won't try to describe this better than Dr. Wilbur Pan did at his web site, giant Cypress.

That said, Leonard Lee recommends not resharpening these unless you are a professional at it. The shape is too complex, and often includes a 3rd or 4th bevel on each tooth. Additionally, diamond grindstones are often used.

> *It is not enough to know your craft - you have to have feeling. Science is all very well, but for us imagination is worth far more.*
>
> Edouard Manet

Ongoing maintenance - see Chapter 4, *Woodworking Tools*.