Sharpening Handbook

Because *sharp enough* … usually is not

Chapter 5

Beekeeping Tools

Cell Punches 5-2

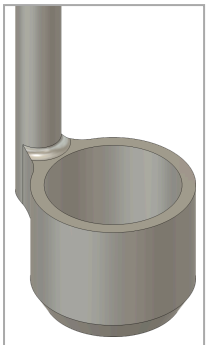
Comb Cutters 5-3

Hive Tools 5-4

SharpeningHandbook.info

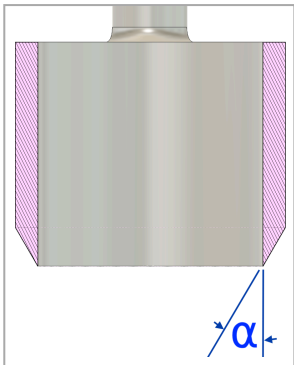
The full handbook, and the latest version of this chapter, are on the web at **SharpeningHandbook.info**. This chapter: November 2026.

Cell Punch



Cell Punch Tool

The edge needs to be sharp so that it can be easily inserted into the comb and not damage the cell to be retained and used for rearing a new queen. The edge needs to be along the outside edge rather than the inside, allowing the cut wax to easily slide through the opening.



Edge Angle *(sectional view)*

> *If nature were not beautiful, it would not be worth knowing, and if nature were not worth knowing, life would not be worth living.*
>
> Henri Poincaré in his book, "*The Value of Science*"

General Guidelines	
α	Sharpness
30°	7

Notes & Comments

30° Grind

This tool needs to be sharp to ensure it cuts cleanly through the wax and not incur any damage to the egg.

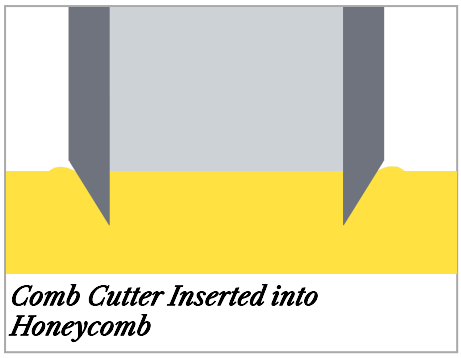
Some users of this tool heat it (e.g., with a flame such as a lighter). In those cases, the sharpness could be reduced to 5 or even 4.

How Sharp Should This Tool Be?

Cell punches do not need to be overly sharp (thusly, the sharpness scale rating of 7). They just need to be easily used. The edges need to be smooth and free from any nicks which would damage the comb.

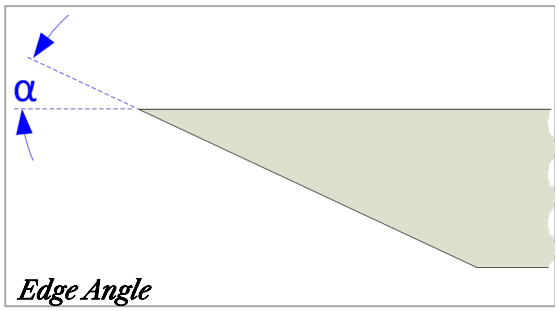
Sharpness Scale - see Chapter 1.
Ongoing maintenance - see Chapter 4, *Beekeeping Tools*.
Grindstones and Other Sharpening Media - see Chapter 2.

Comb Cutters



Comb Cutter Inserted into Honeycomb

The edge needs to be acute so that it can be easily inserted into the comb and not damage the part to be retained and boxed.



Edge Angle

Sharpen the outside, bottom edges on all 4 sides. This helps ensure that the comb to be taken (the center part) does not have edges which are compressed by the cutter's edge angle as the tool is inserted into the comb. This keeps the edges crisp for the product to be sold.

It was the bumble bee and the butterfly who survived, not the dinosaur.
Meridel Le Sueur

General Guidelines	
α	Sharpness
30˚	7

Notes & Comments

30˚ Grind

This tool needs to be sharp to ensure it cuts cleanly through the wax.



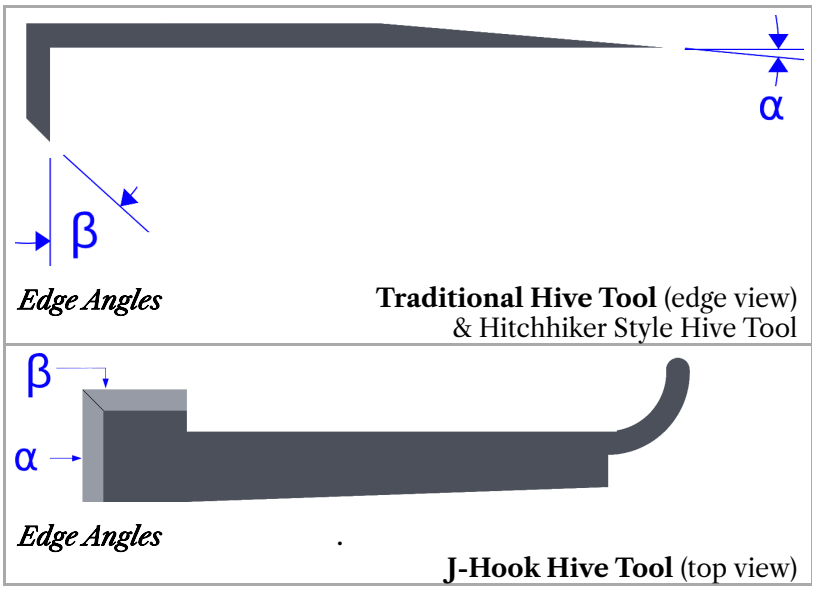
Ongoing Maintenance

These are usually made from stainless steel, so they need to be kept clean, but no oils should be applied to the tool as they could taint the flavour of the honey.

Sharpness Scale - see Chapter 1.
Grindstones and Other Sharpening Media - see Chapter 2.

Hive Tools

Guidelines shown below are for **Hive Box Separating Edges** & **Scraping Edges**.



α The **hive box separating edge** needs to be very acute so that it can be easily inserted between the boxes to separate them when the bees have been aggressively sealing the boxes together with propolis.

β The **scraping edge** needs to be useful for scraping propolis and burr comb off the frames and hive boxes. A greater angle (than α) helps keep from damaging the woodenware, and also helps preserve the edge. This could be up to 60˚ if desired.

The overall goal for this tool's maintenance is that it make the tool's use easier which:

1. makes the beekeeping work easier,
2. reduces the disturbance to the bee's home, which should also reduce the bees getting as angry (i.e., from hammering the tool into the gap), and
3. minimizes damage to the hive boxes.

For so work the honey bees, creatures that by a rule in nature, teach the act of order to a peopled kingdom.
William Shakespeare

General Guidelines				
Tool	α Hive Box Separating Edge		β Scraping Edge	Sharpness
	Primary Bevel	Micro Bevel		
Traditional Hive Tool **Hitchhiker Hive Tool**	3˚ - 10˚	30˚ - 45˚	20˚ - 60˚	3
J-Hook Hive Tool	10˚	45˚	20˚	3

Notes & Comments

Traditional Hive Tool & Hitchhiker Hive Tool

β could be as high as 60˚, but 45˚ is recommended.

My favourite tool (from Jero Beekeeping) has these angles:

- α = 3˚
- α micro bevel = 30˚
- β = 20˚

J-Hook Hive Tool

The **hive box separating edge** (α) needs to be much more acute than typically delivered on new tools. I've seen new beekeepers really wrestle with inserting this tool between the boxes to separate them.

I have also noted that many new tools have a rather rough edge. This leads to more damage of the hive boxes than is necessary. Smoothing that edge is a worthwhile endeavour.

The **scraping edge** (β) needs to be useful for scraping propolis and burr comb off the frames and hive boxes. This is far less critical for this tool as it does not get used for that purpose very often. Typically the removal of propolis and burr comb off the frames and hive boxes is done using the end of the tool (α).

The J-hook tools I have all came with a 20˚ angle. I leave it at that.

How Sharp Should a Hive Tool Be?

Sharpness Scale **4**

Hive tool edges do not need to be overly sharp (thusly, the sharpness scale rating of 4). They just need to be easily used. The edges need to be smooth and free from any nicks which would damage the hive boxes.

It is a good practice to round off the corners of this tool to help it not cut through the apiarist's pocket.

After sharpening your hive tools you should consider acquiring a belt-mounted magnetic tool holder; something like the Bee Smart Magnetic Tool Holder. This will reduce the damage to your pockets, and will help ensure you not leave the tool sitting around on a hive.

Other Notes



Hitchhiker Style Hive Tool

The hitchhiker style hive tool is sharpened in the same way as the traditional hive tool. The outstretched "thumb" should not be sharpened.

The Tormek SVH-60 Straight Edge Jig and SG-250 Grindstone work well for sharpening these tools.

When sharpening hive tools, be cautious about overheating them (if not using a Tormek). The steel's edge can become a bit brittle.

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