Obtaining key cut numbers from Abus Plus cylinder

by

Jaakko Fagerlund

This work has been put together by me. All the photographs and texts are my own and this work as a whole is my contribution to Lockpicking101.com and my contest entry for zeke79's contest on the auto lockout set.

Any comments and such can be directed to LP101's advanced forum where this article is to be found from a designated topic. If you like to contact me through email, my address is einstein@mbnet.fi. You just have to include ”LP101” without the quotations on the subject line, else my spam filter trashes your message.

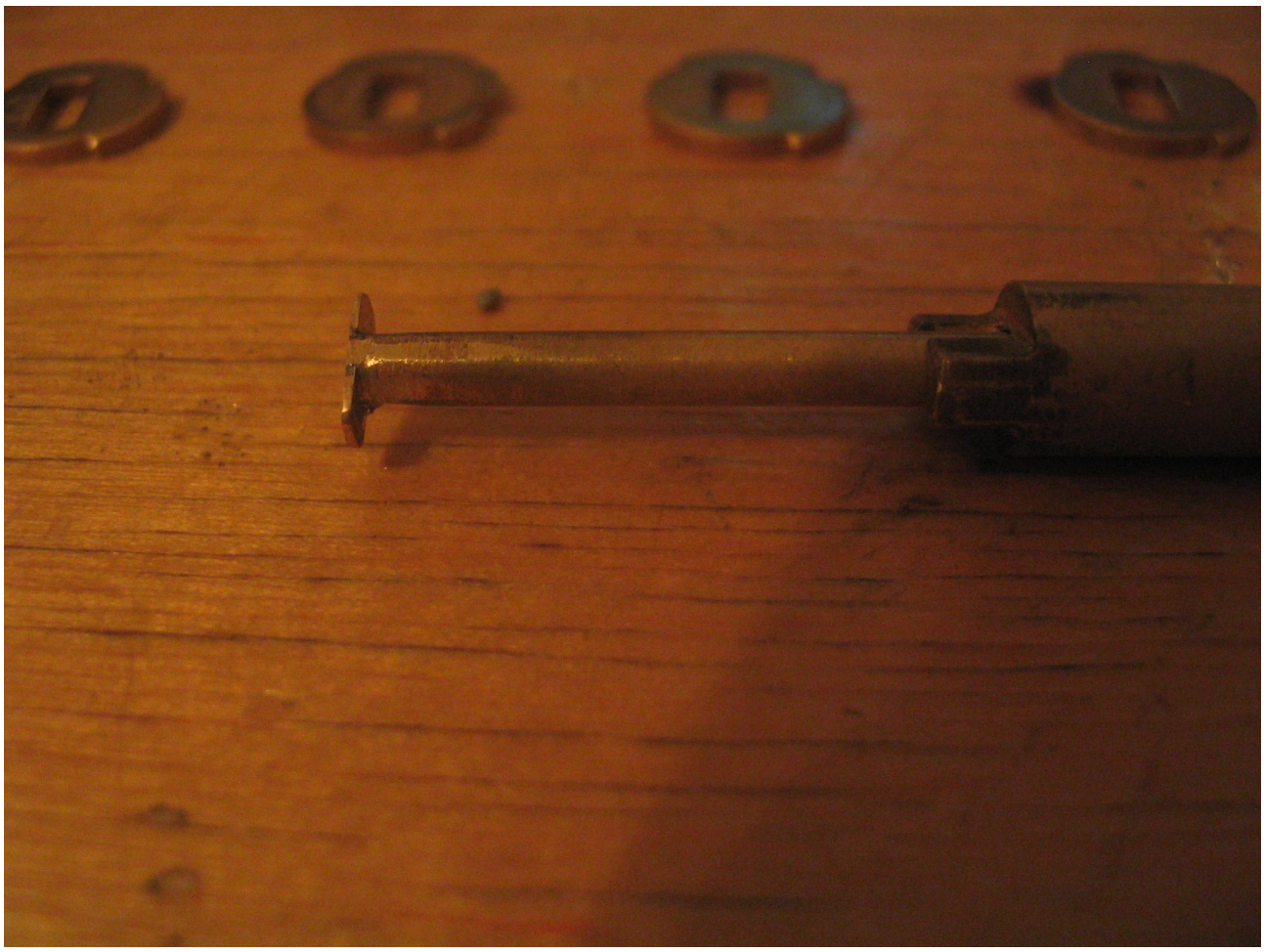
Happy reading and enjoy!

”Jaakko” from LP101

In the above picture can be seen the Abus 88/50 padlock that costs about 20-25 Euros. It is equipped with the Abus Plus cylinder, that is a rotating detainer disc style cylinder. The code card shows a number sequence 4363144. The code corrsponds to the cuts in the key such that number 6 cut is a no-cut and number 1 is a fully cut. The numbers correspond to the cuts from bow to tip.

Under the code card can be seen two ball bearings and a retaining screw. These are removed from the shackle opening in the locks body once the lock is open. After that the retainer plug is removed simply by un-screwing it. The plug can be seen just under and to the right of the padlocks body. Next to it on the right is the drill protection plate that is free spinning and made of hardened steel. Under that are the detainer discs. From the left to the right there is a 0-disc (tension) and 7 code discs, namely 4, 3, 6, 3, 1, 4 and 4. They are all flipped over in the picture to show the stamped cut numbers at the backsides of the discs. Between the code discs and the code card is a pile of spacers and the sidebar. Missing from the picture is the cylinder itself and the butterfly disc at the bottom of the cylinder. Basically the butterfly disc is a disc that is cut as a number 1 cut, but because of the butterfly it corresponds to a no-cut on the keys tip. So if trying to tension from the bottom, it will turn one cut too much and will block the sidebar.

At the bottom of the picture is my homemade Abus Plus pick, that isn't finished. At the far right in the picture is my Blu-Tack sculping tool, a bar of brass.

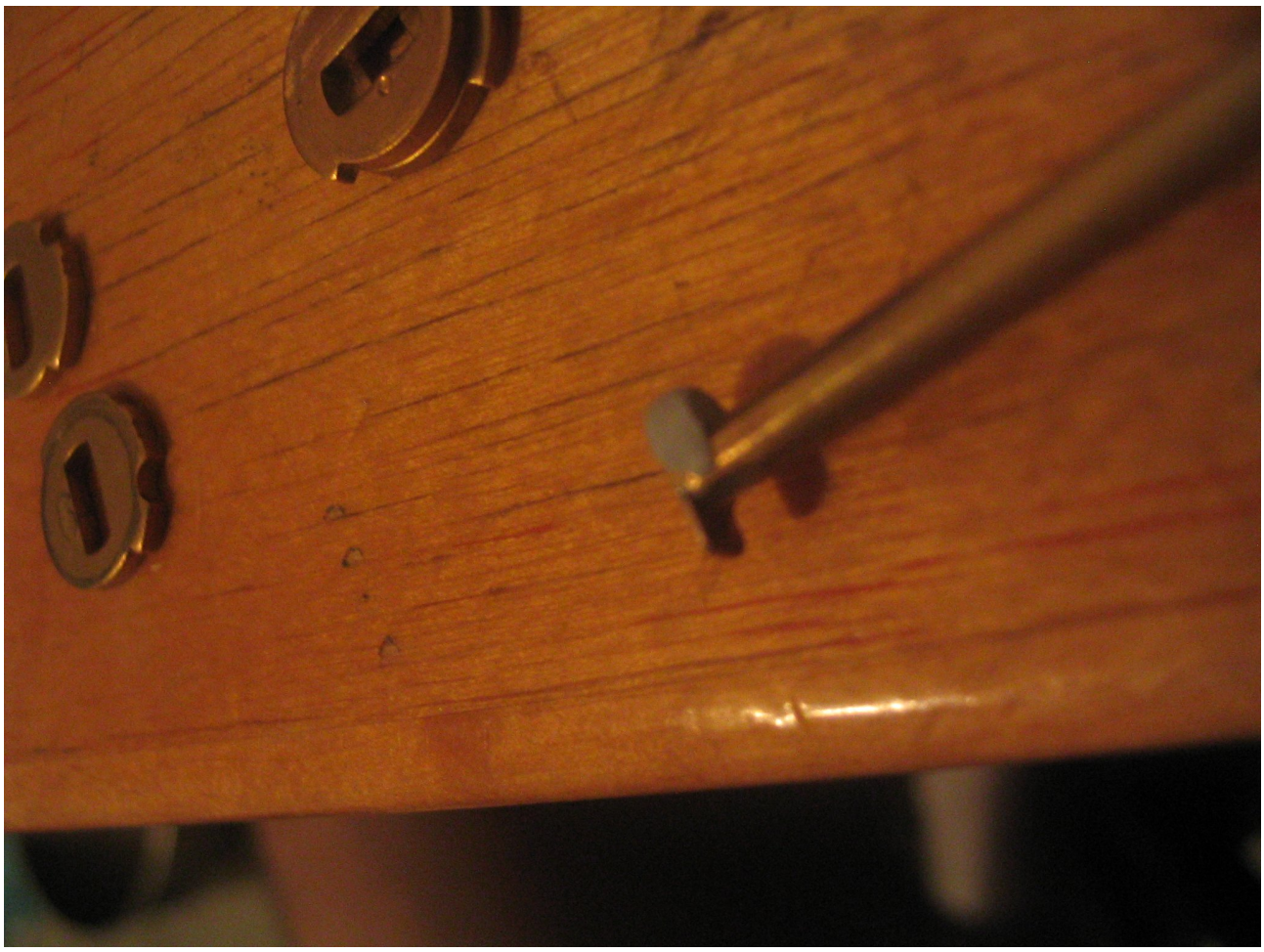


Here is a close-up of the tip of the Abus Plus pick. The key-shaped piece at the left end of the tool is 0.5 millimeters thick and is made from flattened piece of brass tubing and soldered to the shaft with lead-free solder. I don't go into details about the pick tool, because we'll need only the tip part of the tool and I might make a different PDF document about the manufacturing of the pick tool.

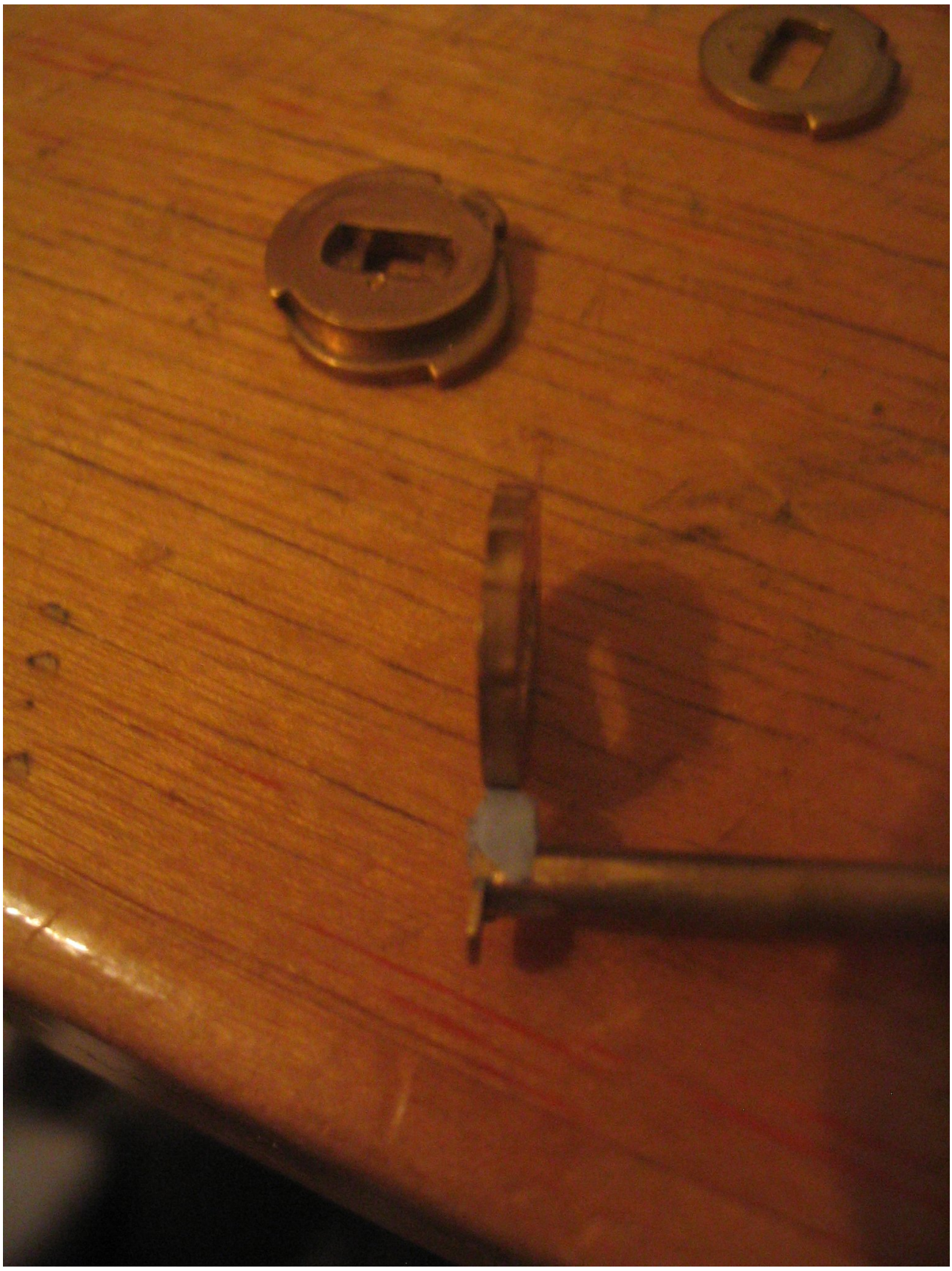
Here I have taken a piece of Blu-Tack (the stuff you put in posters corners to get in on the wall). The amount shown is far greater than needed, but it is better to have it too much than too little as the excess can always be removed.

As I've experimented a little with the Blu-Tack, I've noticed that it is not the best or ideal solution for this task. It is sticky and that is the problem. It should stick only to the pick tools end but not anywhere else. This is the reason why you will not see me doing a complete work with an intact padlock as I didn't have the time to investigate all the different substances that would work. This is going to be merely a proof of concept because of lack of time and material.

For the audience who has already started to dismantle their padlock at the moment I suggest to test baby powder on top of the Blu-Tack to render it non-sticky to other than the pick tools end. If you try this, please report back by either PM, email or in the topic where this is on the LP101 advanced area.



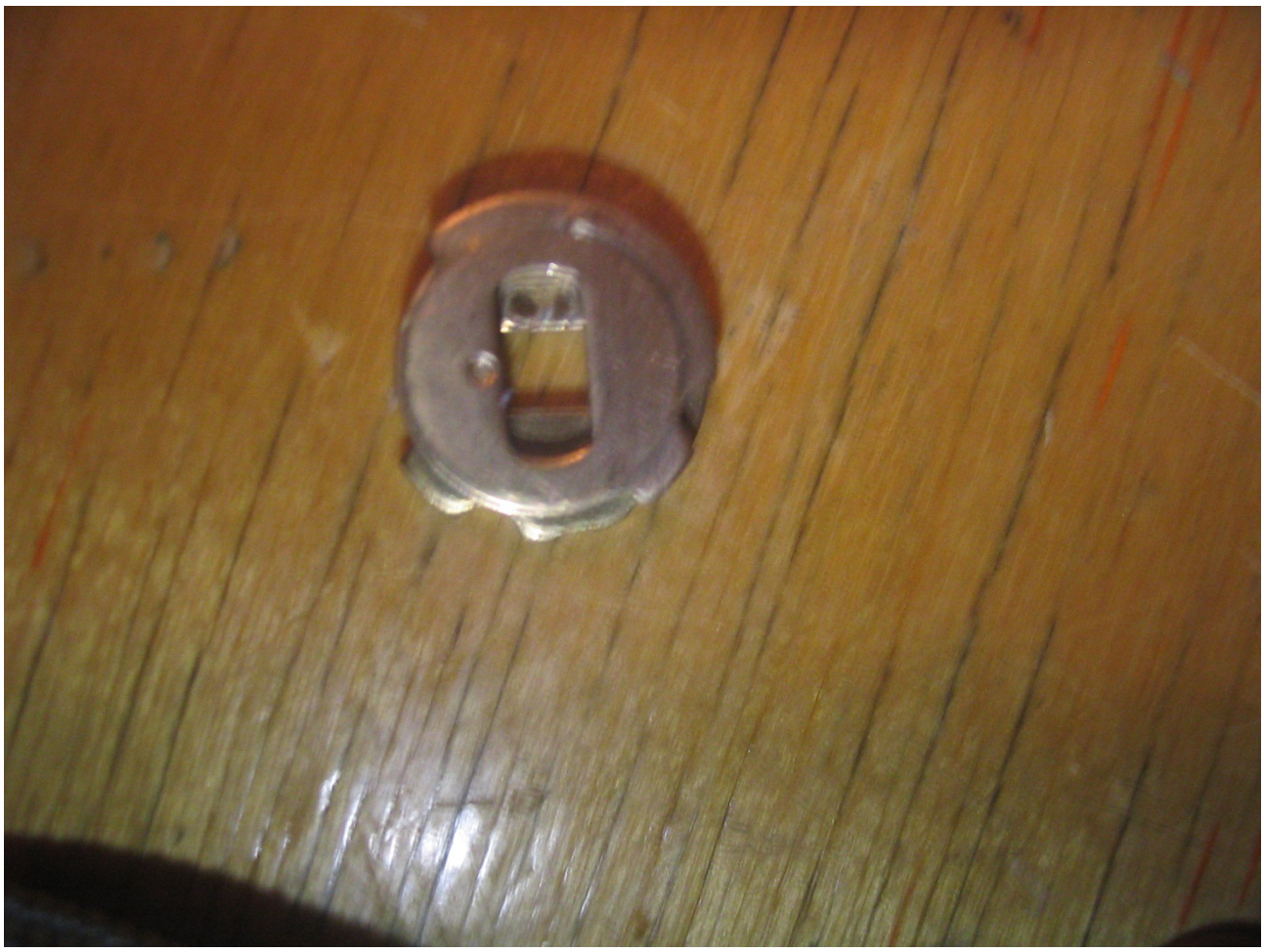
In the above photograph can be seen that I've stuffed the Blu-Tack around pick tools end on the ”user” side. I only applied it to the other part of the pick tools end, but it can be applied to both sides. This way it'll give stability in the lock and you don't have to think about at which side of the detainer disc the stamped number was.



The thickness of the Blu-Tack plus the pick tools end should not exceed that of the detainer disc. This is because the pick tools end still has to have room to turn in the lock. In the above photograph the Blu-Tack is a little too thick.

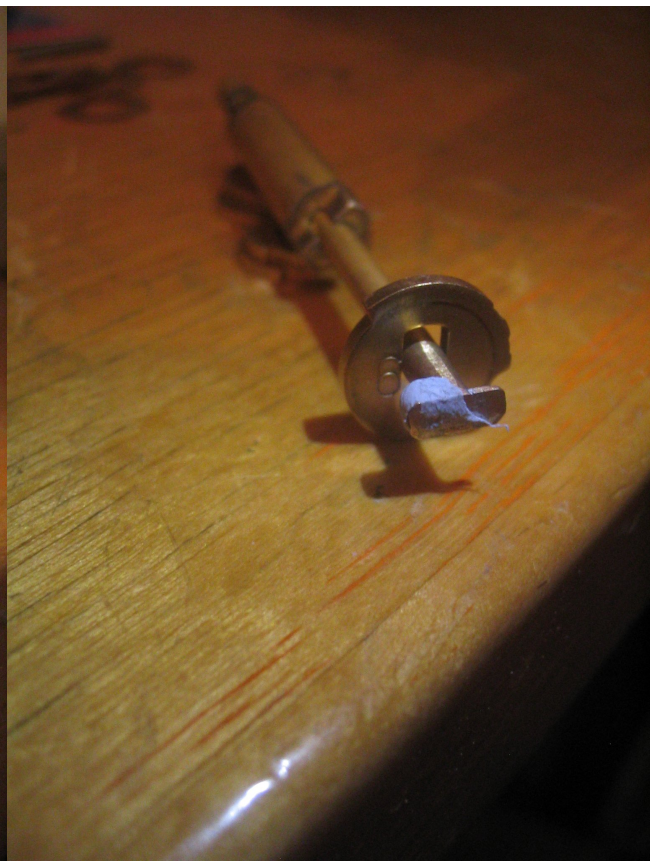
This photograph shows a close-up of the stampings on the backside of the detainer discs. These numbers are the same as in the code card. Obviously these are on the backside of the discs so that they can't be seen by just rotating the front discs out of the way. These are The Numbers we are after so that we could cut a key for the lock or use a dialer pick to open it. Dialer pick is basically a blank that has some sort of dial that shows the different angles of the cuts so you'll know how much to turn a single disc.

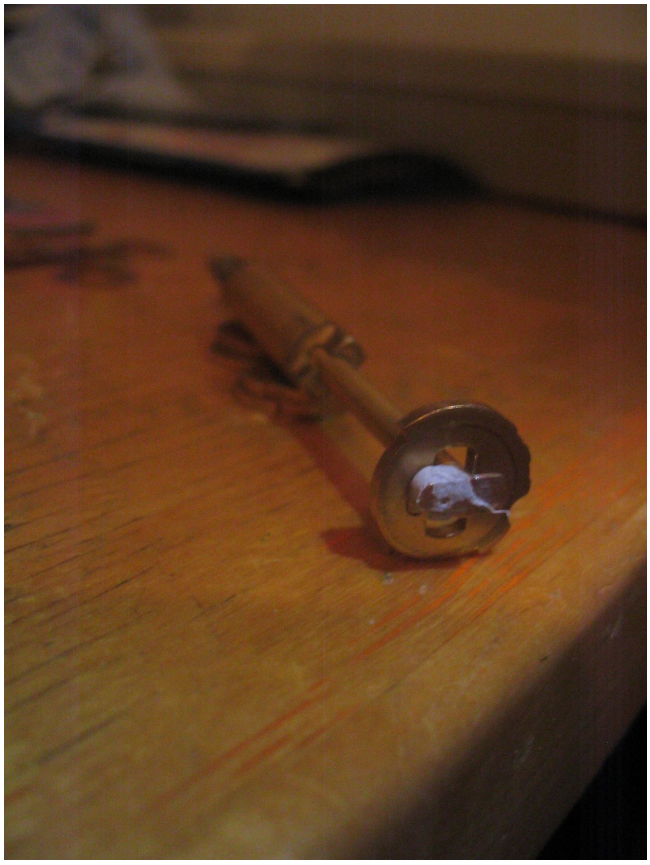
There is only the discs 1, 3, 4 and 6 because I don't have a cylinder with a 2 or a 5 cut disc. All the discs have false cuts although they can't be seen very well from this photograph.



Sorry about this little blurry photograph but it should be showing a number 6 code disc under and on top of that another disc turned 90 degrees. Now, if you look closely at the bottom discs upper visible part through the key opening, you can see the cut number. In reality we would be inside the cylinder right now and looking out of the key hole to see these stamped numbers this way.

At this point comes to play our Blu-Tack prepared pick tools end.

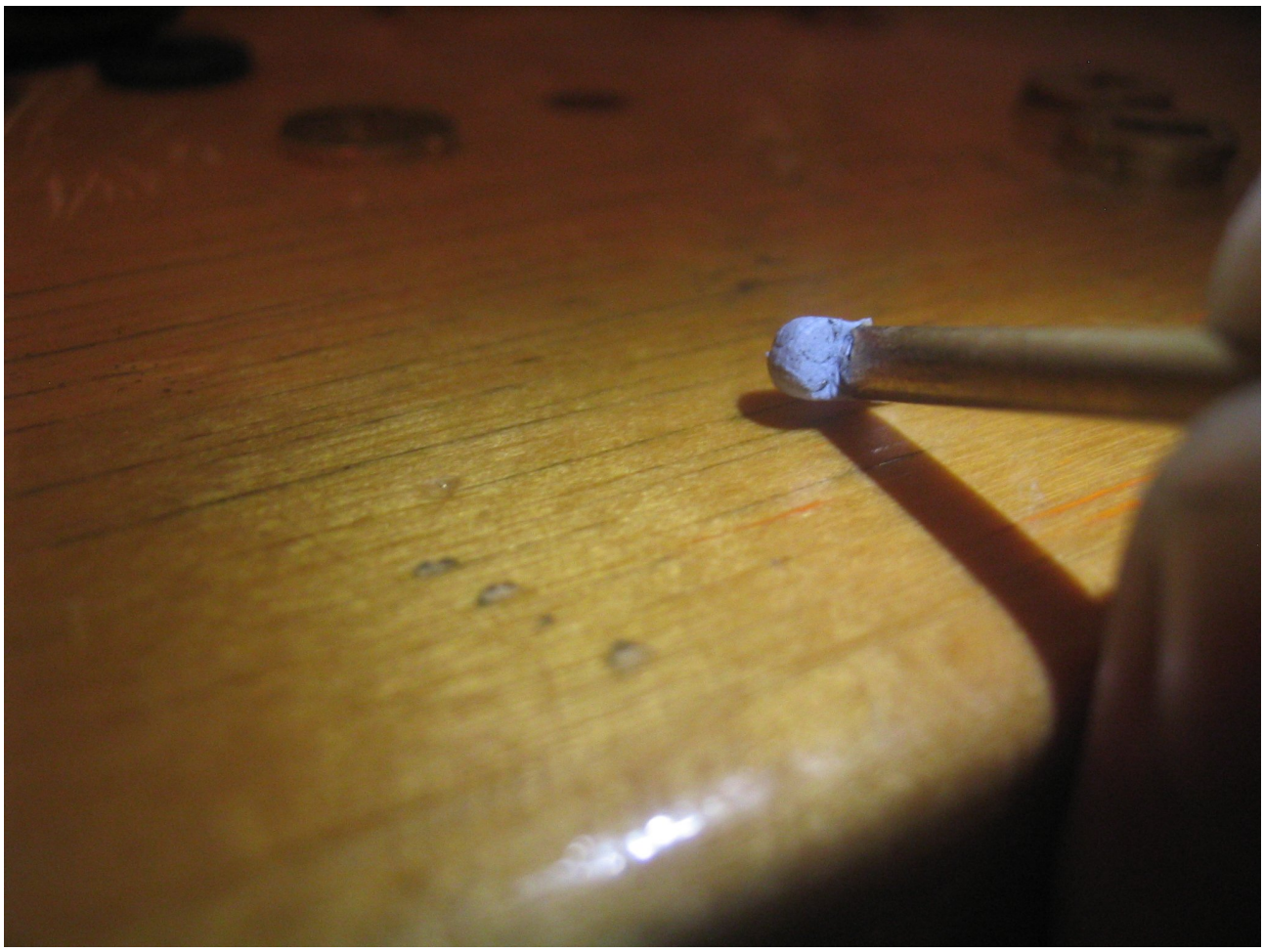




Upper left:
Here we see the tool inserted into the lock and viewed from the inside of the said lock.

Upper right:
The distance from the tools Blu-Tack end to the discs surface is a little exaggerated. When inserted, the tools end is turned 90 degrees and...

Left:
...pulled to impression the stamped number on the Blu-Tack.



After the impression has been made, the tool is carefully turned 90 degrees to where it came from and then carefully removed from the lock. The result should be something like in the above photograph. It shows a number 6 impressioned as a mirror image on the Blu-Tack. As all the numbers 1, 2, 3, 4, 5 and 6 are slightly different from each other, they can be easily recognised from the impression mark even if the impression is partial or bends a little while removing the tool from the lock.

This manouvering takes alot of effort and precise working and a hefty amount of time to be practical. Other tool that I could think for this and that would be very much faster would be some sort of borescope. Fiber optics starts to be cheap nowadays, so it might work. I on the other hand don't have the time at the moment or borescope or fiber optics, not to speak the money for any of those, so IF someone else wants to try out these methods, feel free to message me about it.

Before trying to do this on a dirty lock, you should clean it with some solvent the get rid of all the grease, oil and dirt that may be in there. And remember to lubricate it after opening ;)

Thank you for reading, this has been my first documentary about lockpicking ever.

Jaakko Fagerlund, Finland