Attack the Key
Own the Lock

by datagram & Schuyler Towne

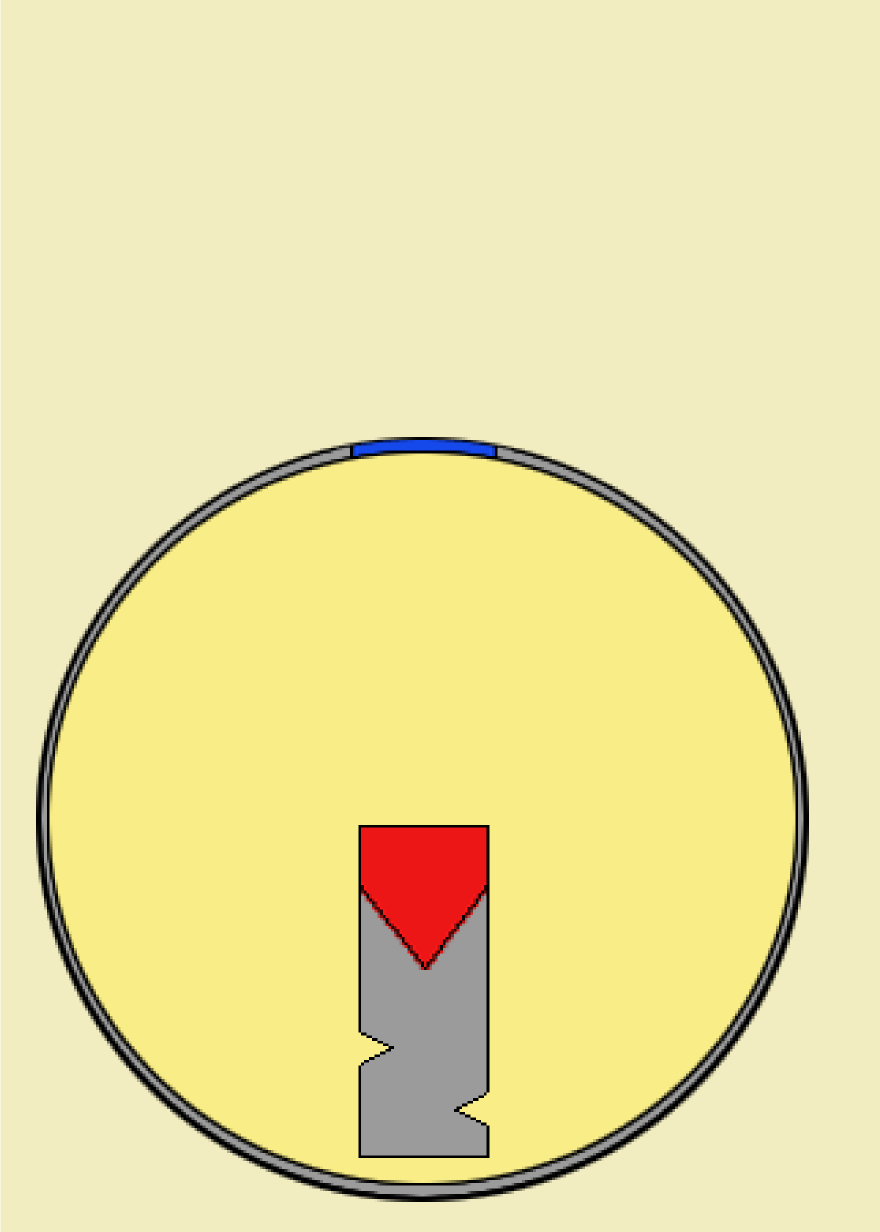
Defcon 18 (2010)
Las Vegas, NV

About Us

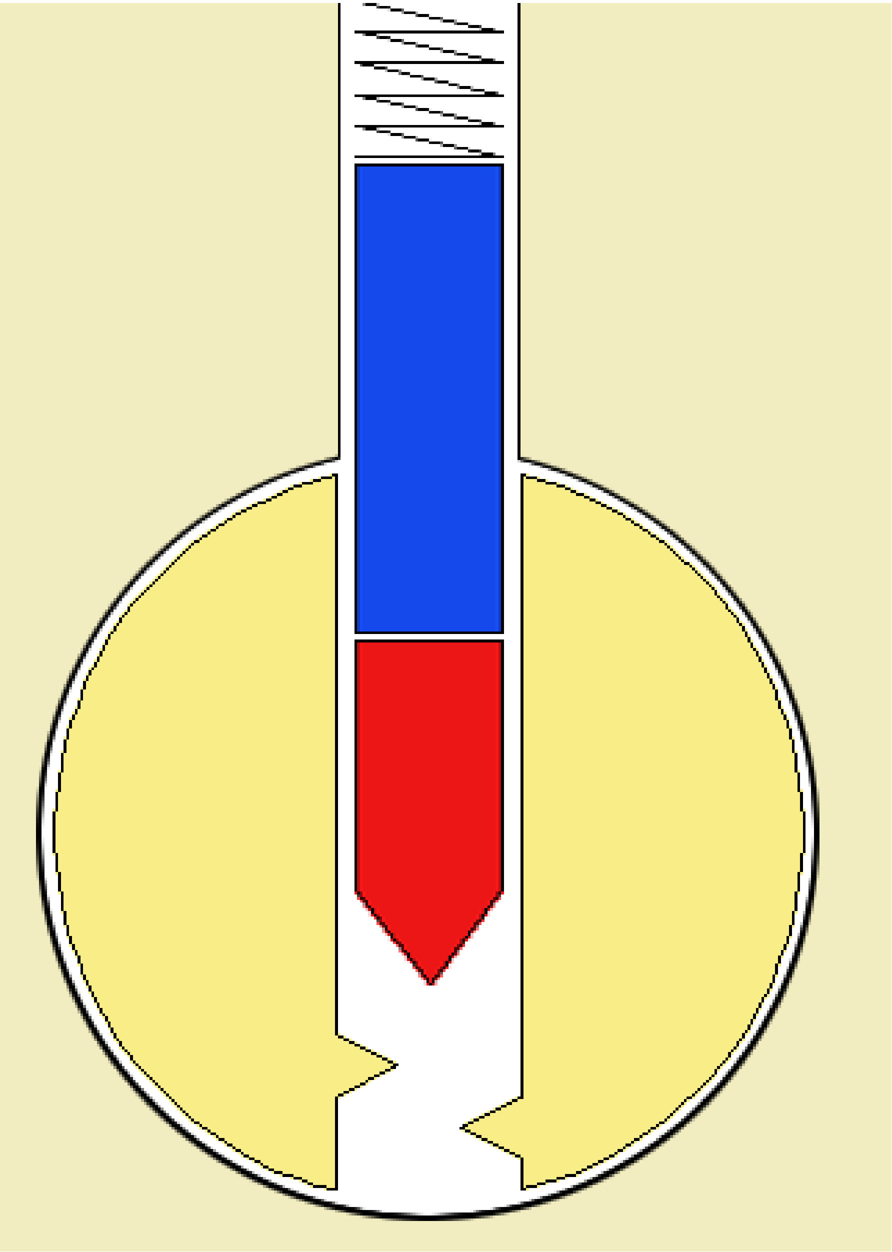
- Datagram
  - Forensic locksmith
  - Douchebag
  - No game shows :(

- Schuyler
  - TOOOL US
  - NDE Magazine
  - Wheel of Fortune

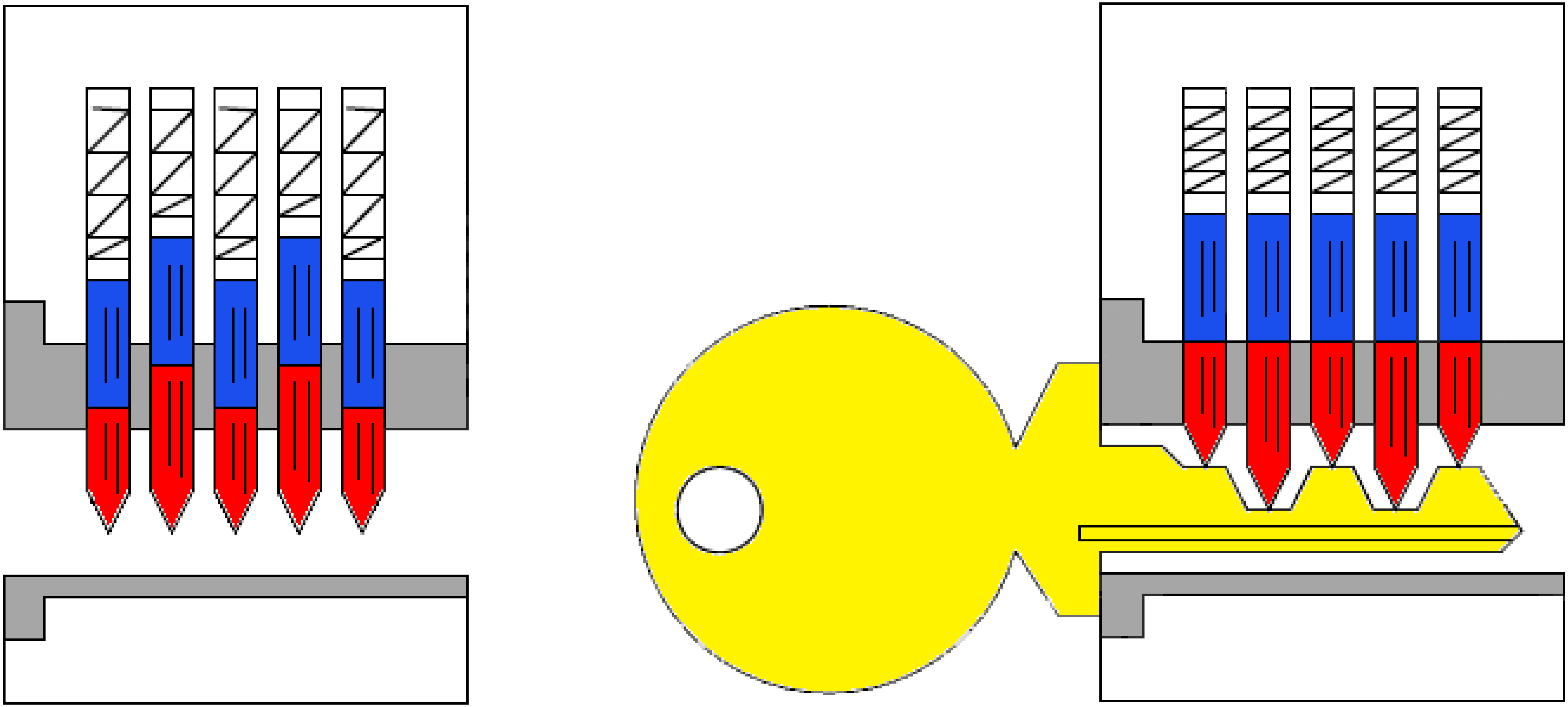
How Locks Work



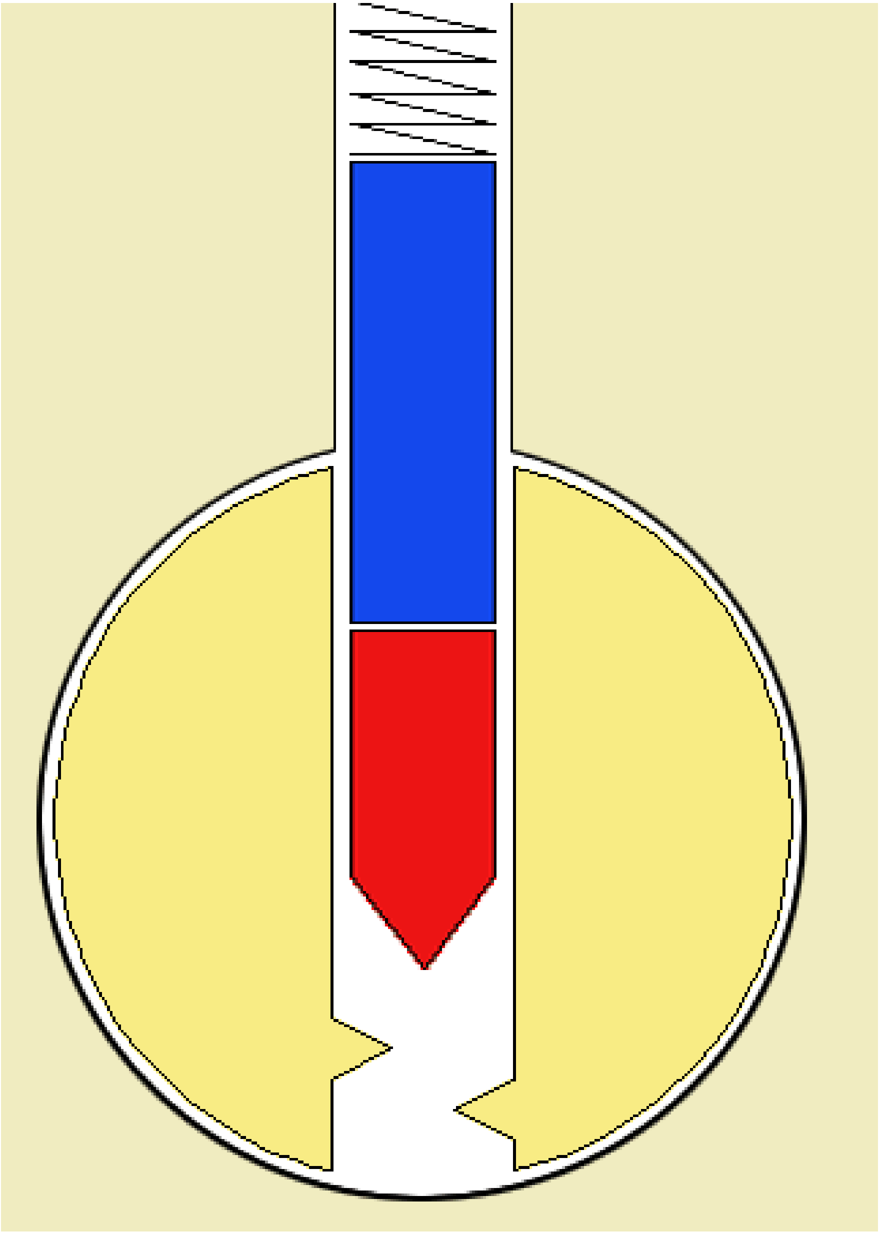
How Locks Work



How Locks Work



How Locks Work



Key Control

- Availability of blanks
- Distribution
- Duplication/simulation

Attacking the Key

- Bitting depths/code
- Keyway
- Model of the lock

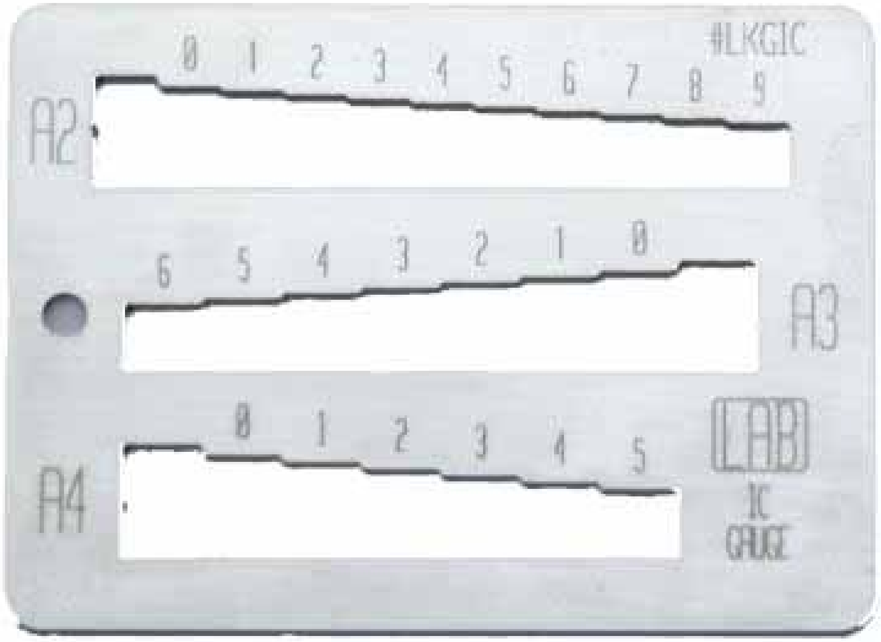
- Additional security features

Physical Access to Keys

- Holy Grail
- Duration = Attack Quality
- Wrist Impressioning

Direct Measurement

- Key gauges
- Micrometer
- Calipers



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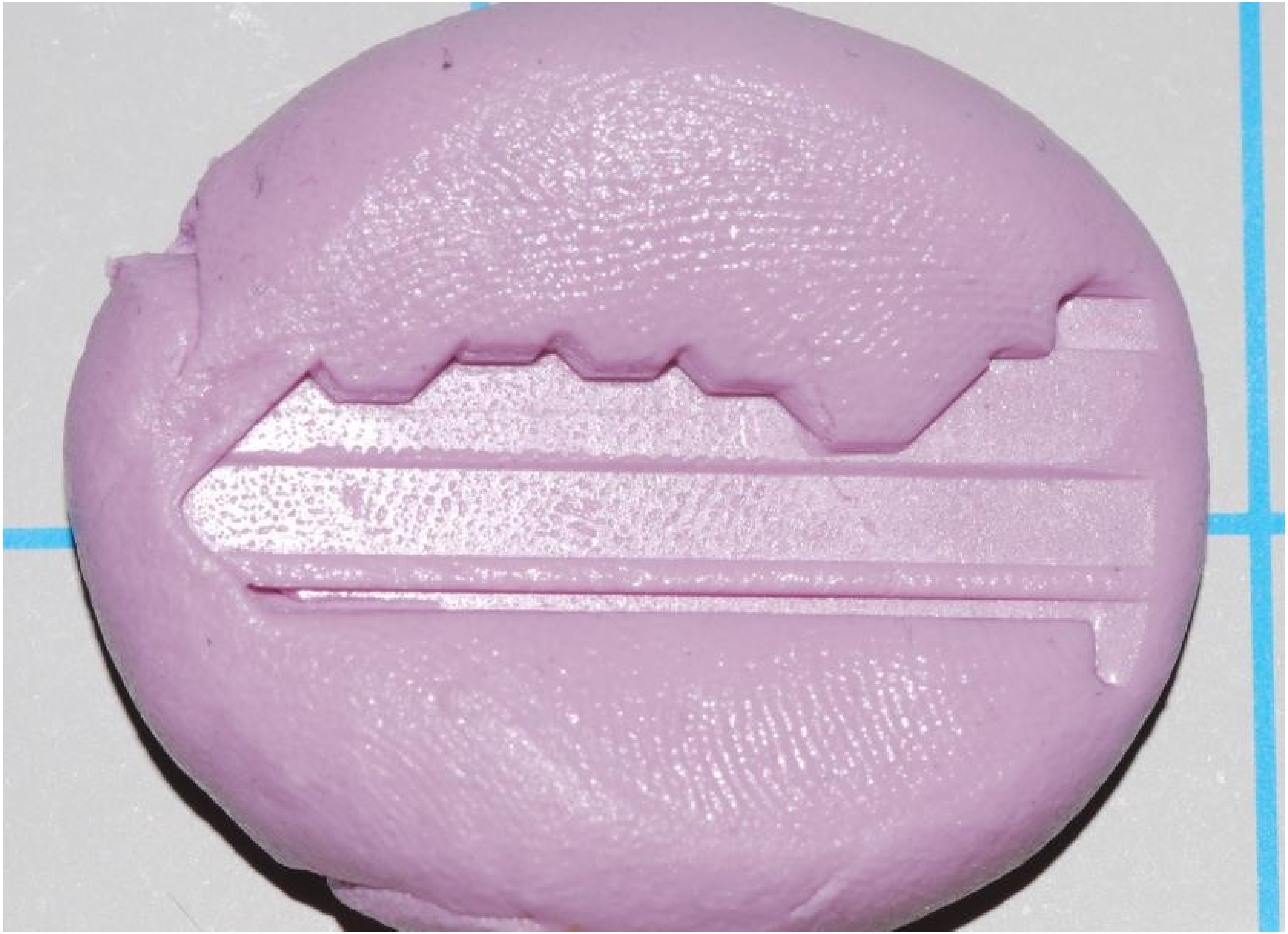

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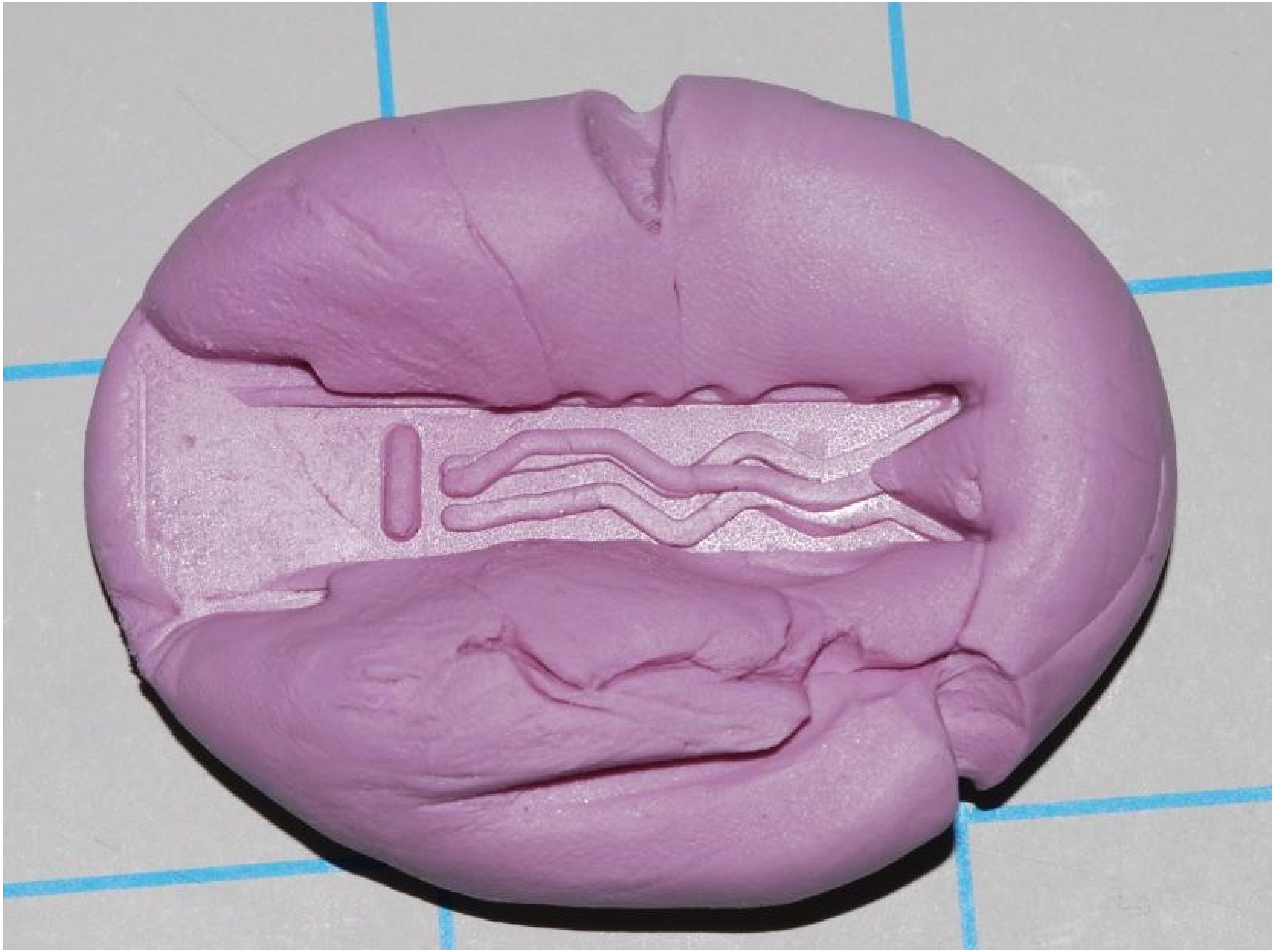
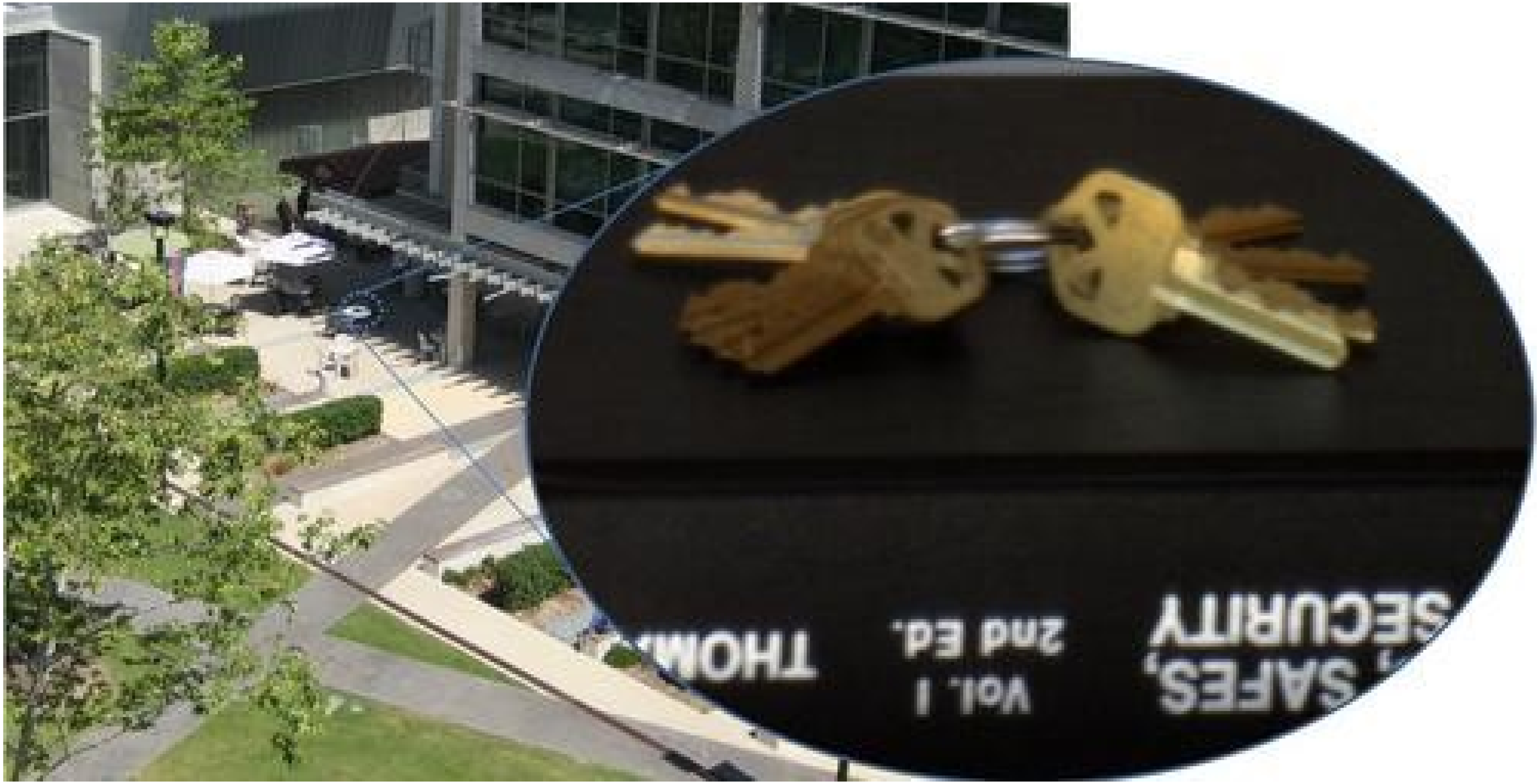


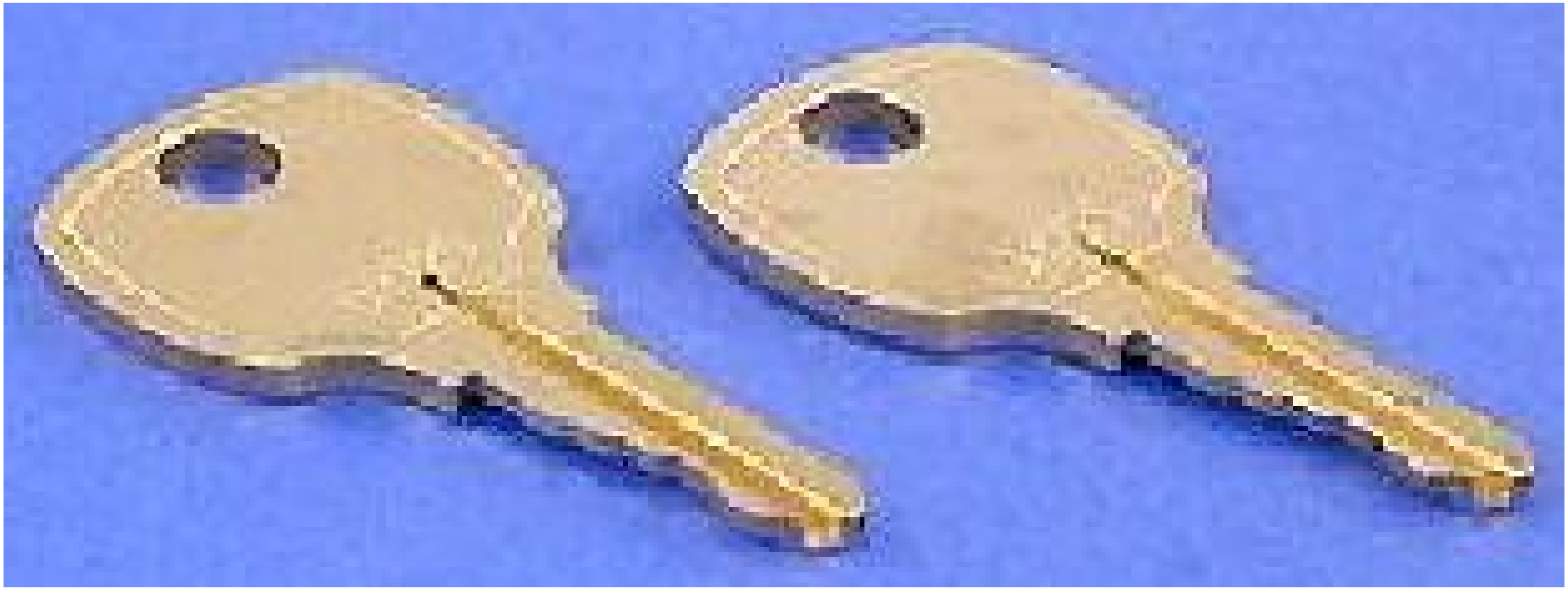
Visual Access to Key

- Sight reading
- Estimation
- Photography

Visual Access – UCSD



Visual Access - Diebold

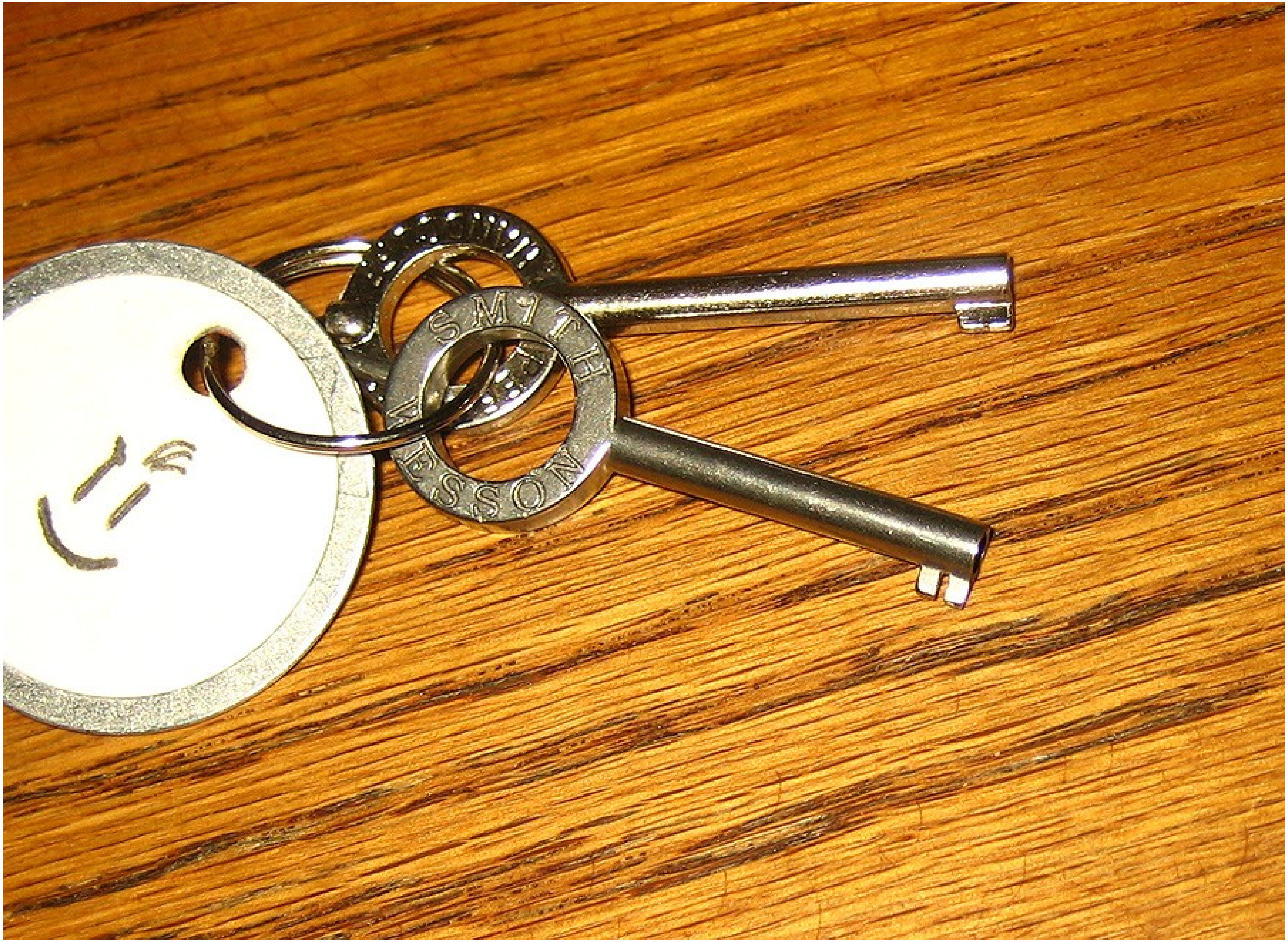


Visual Access – NY MTA

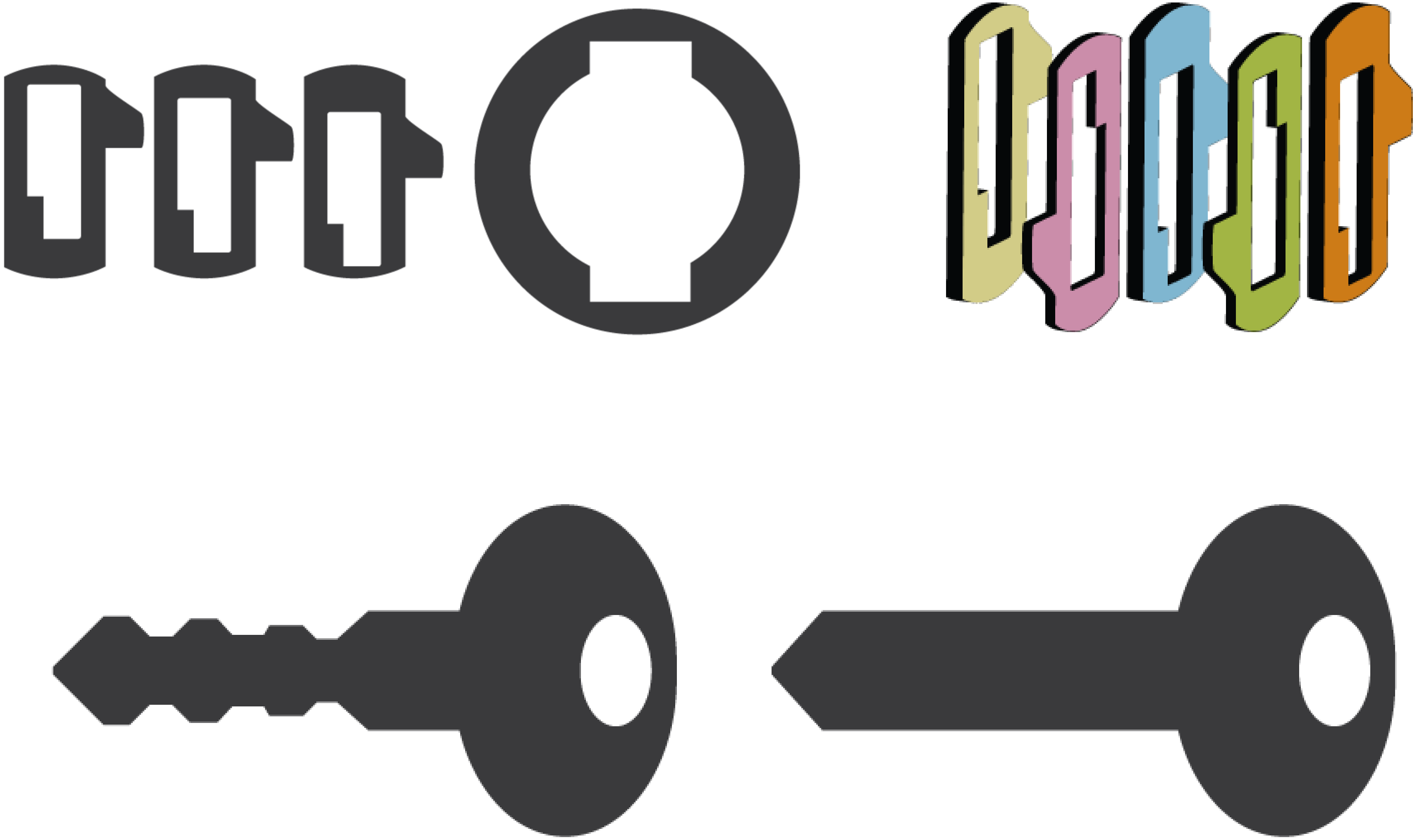
Key Blanks

- Impressioning
- Overlifting
- “Reflecting” keys
- Sectional keyways
- Rake keys
- Key bumping

Universal Handcuff Keys



Overlifting



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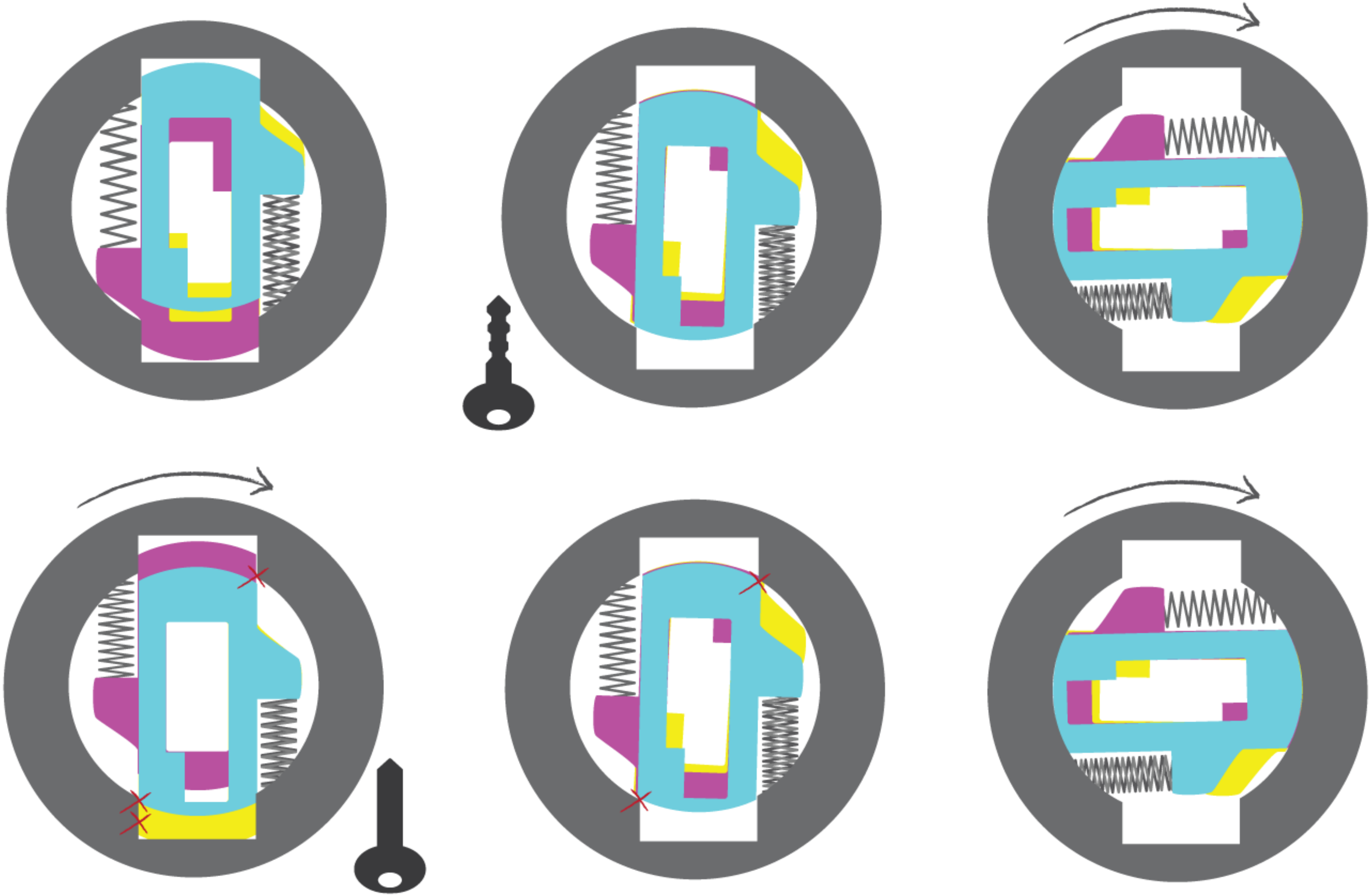
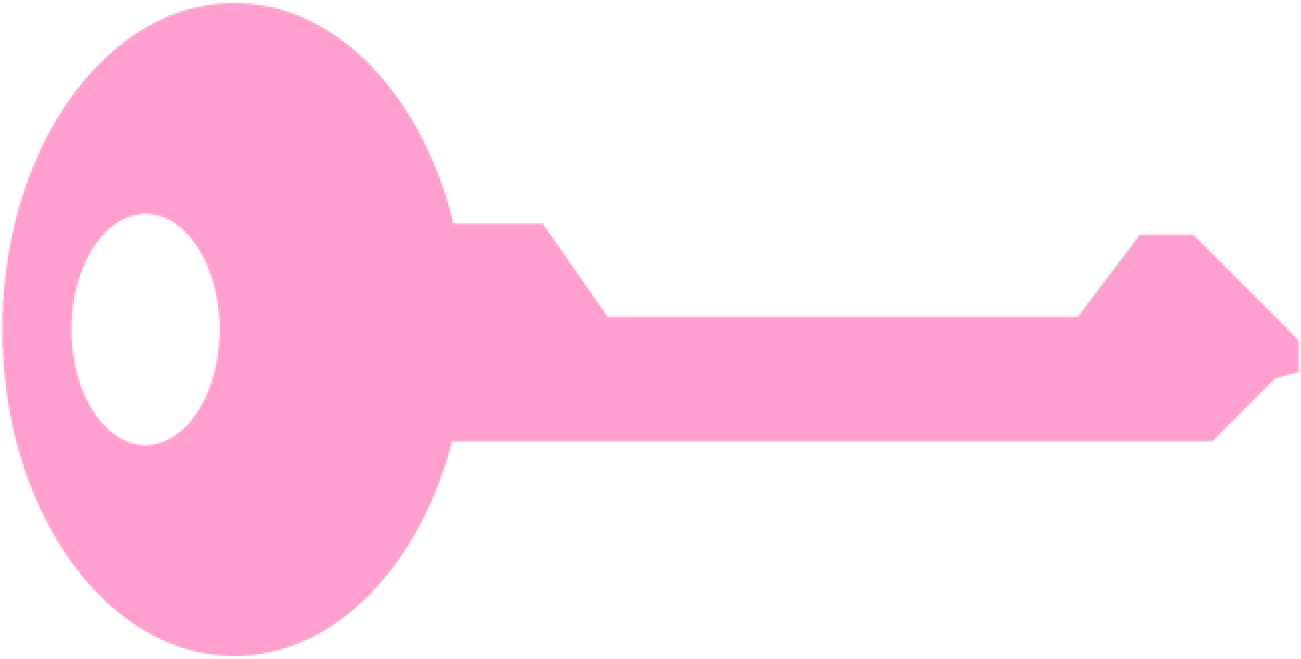
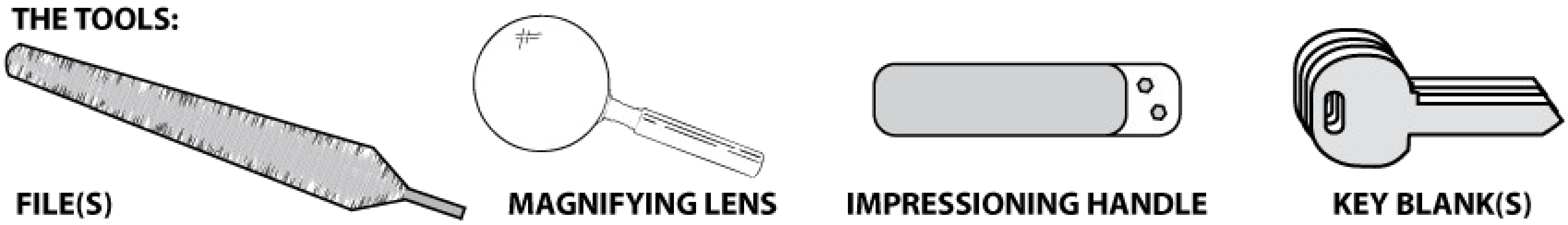
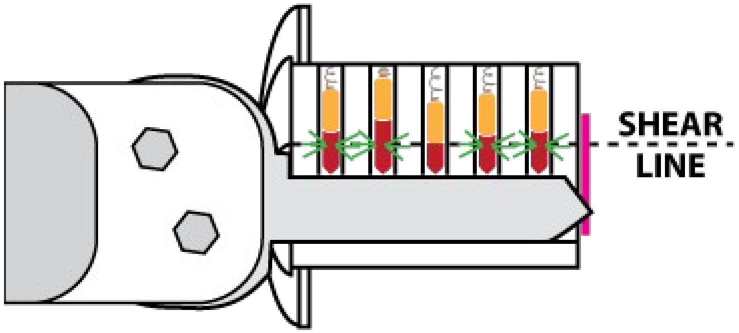


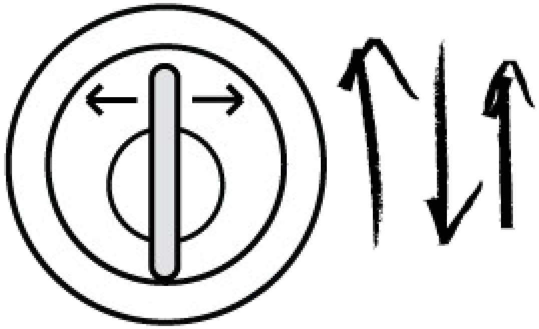
Rake/Gypsy Keys

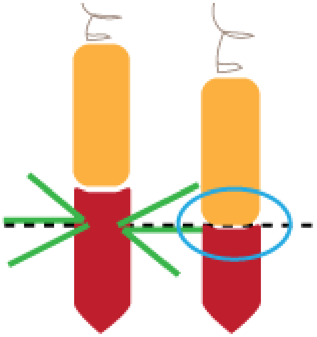


Impressioning









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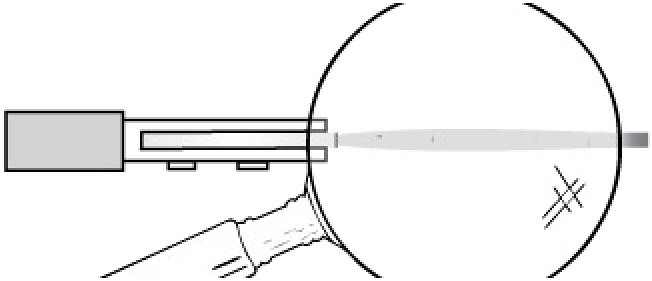
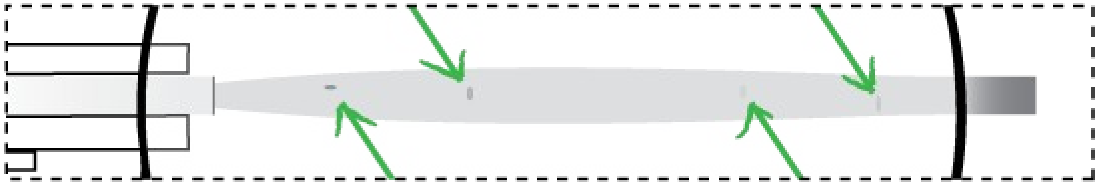
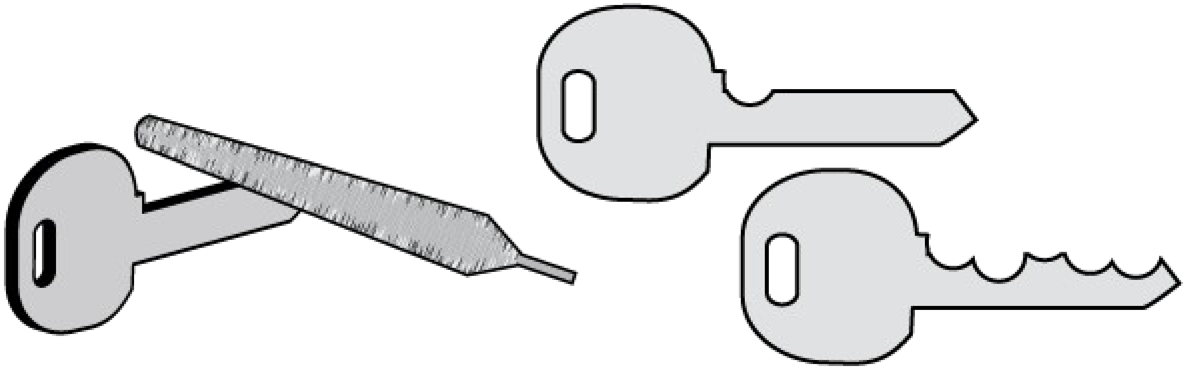
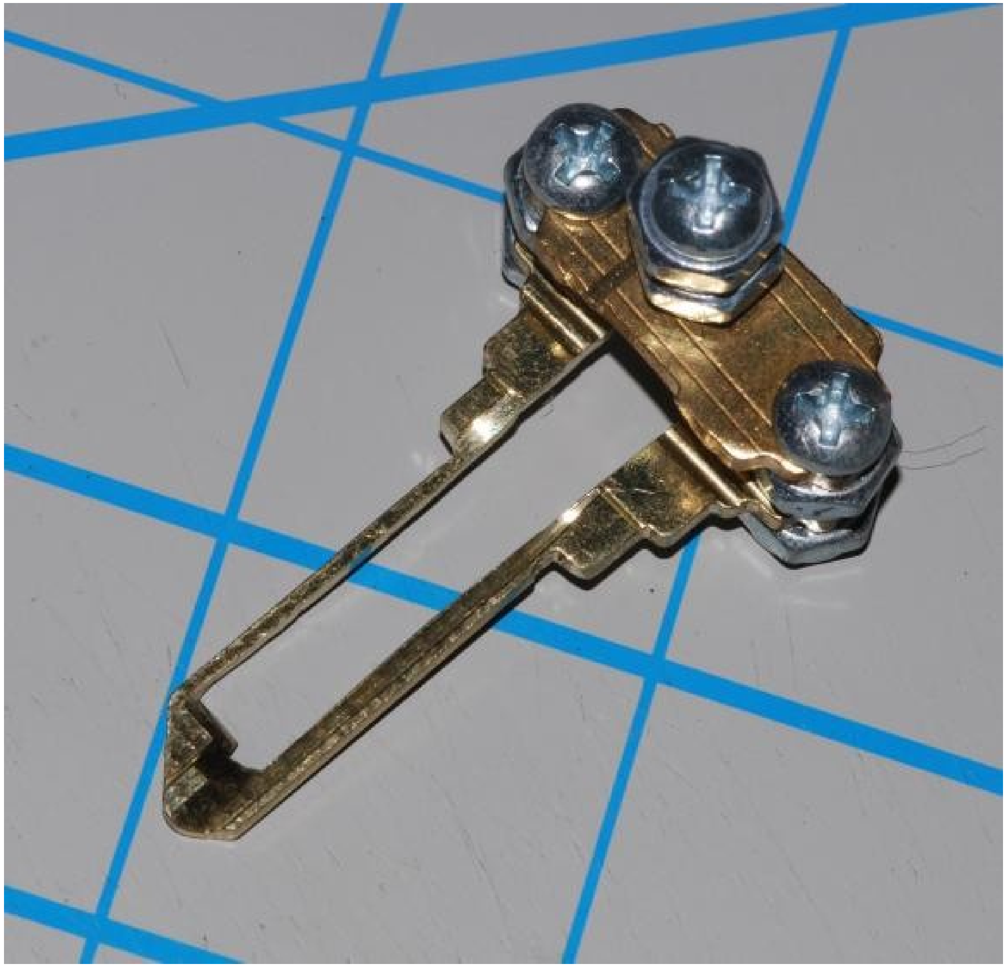


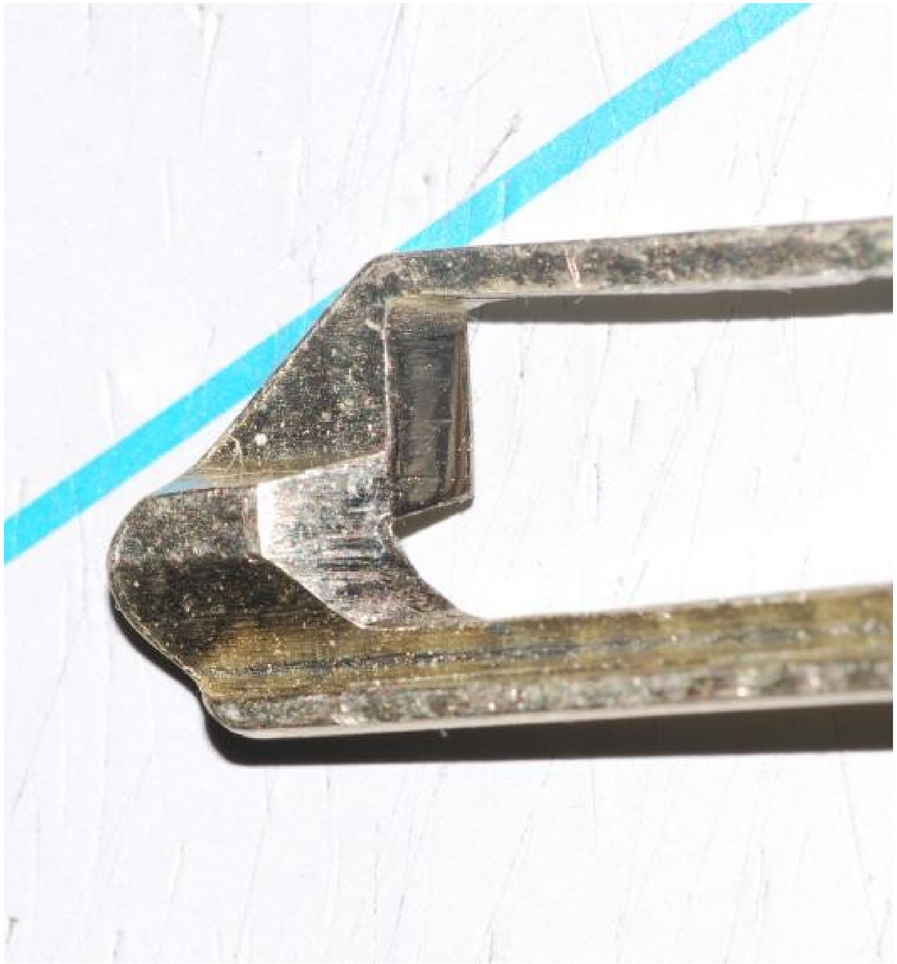




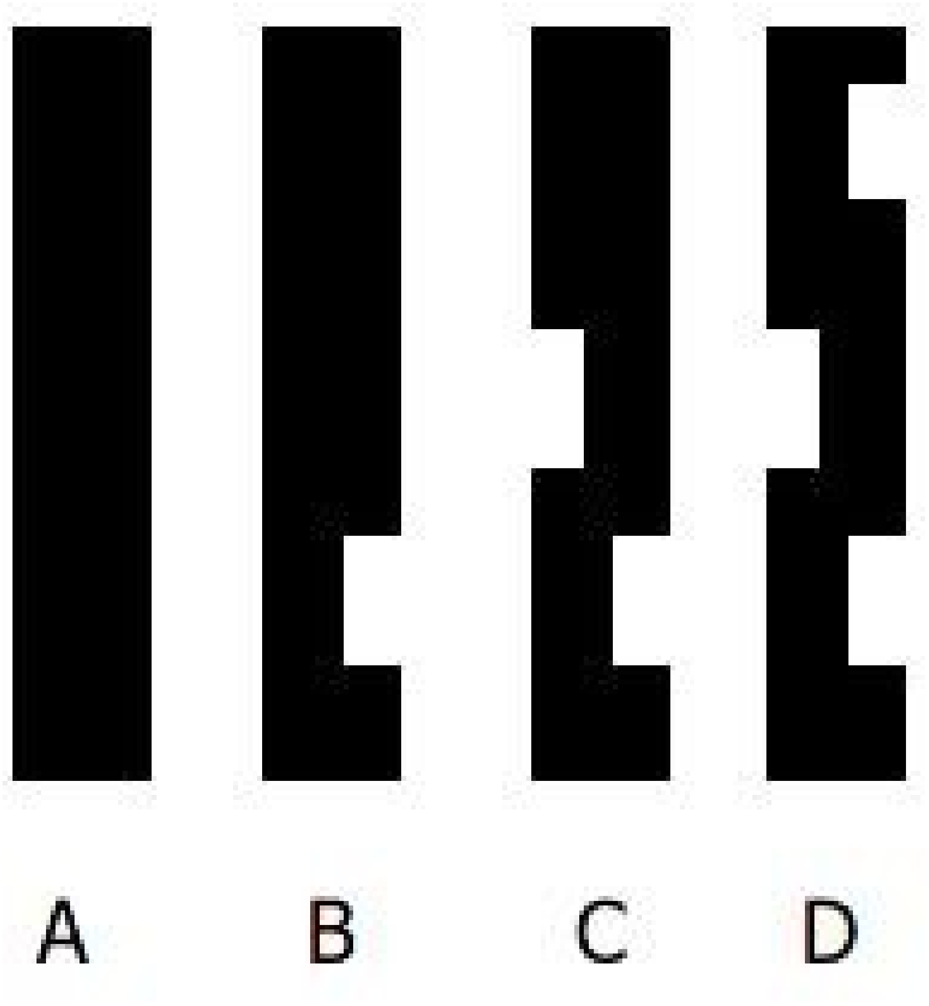
Works Forever!

Reflecting Keys





Sectional Keyways



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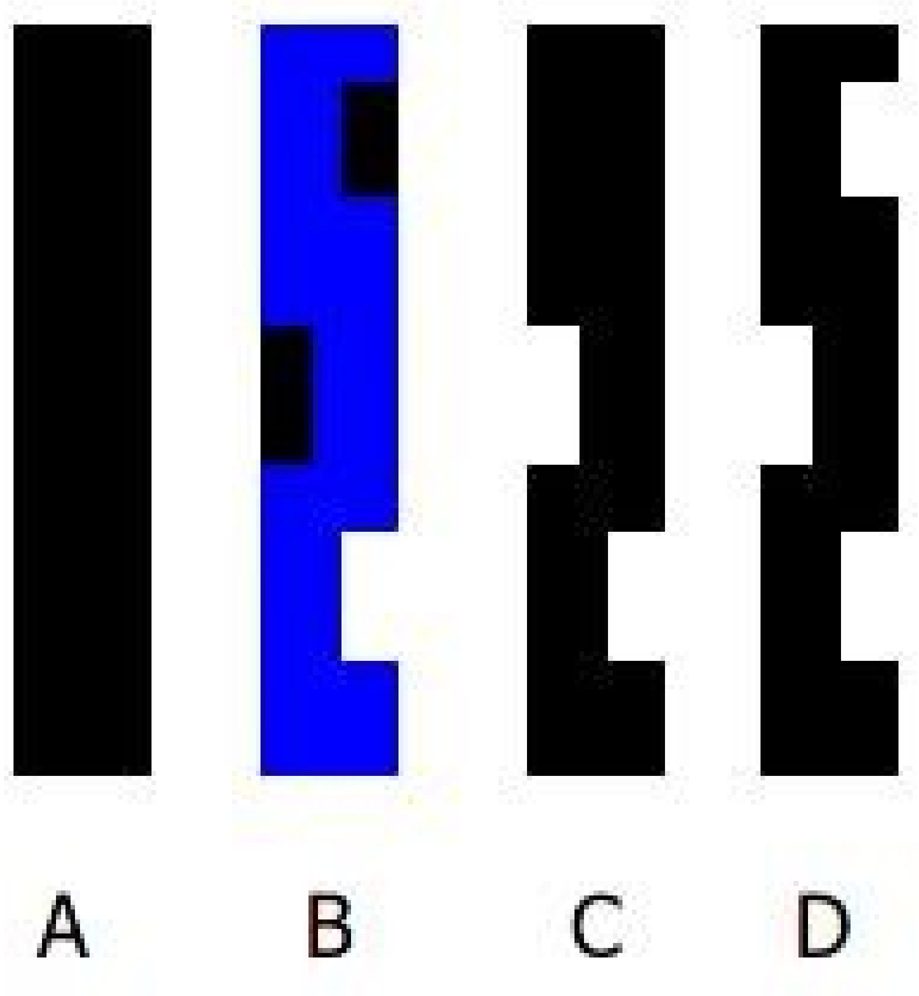
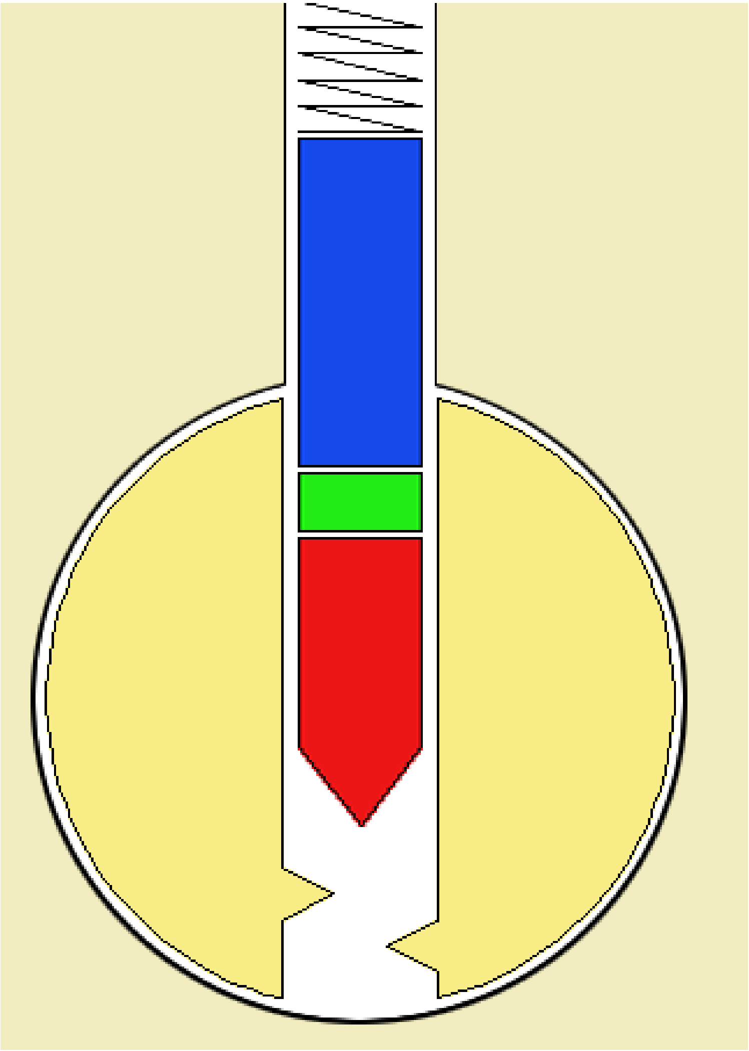
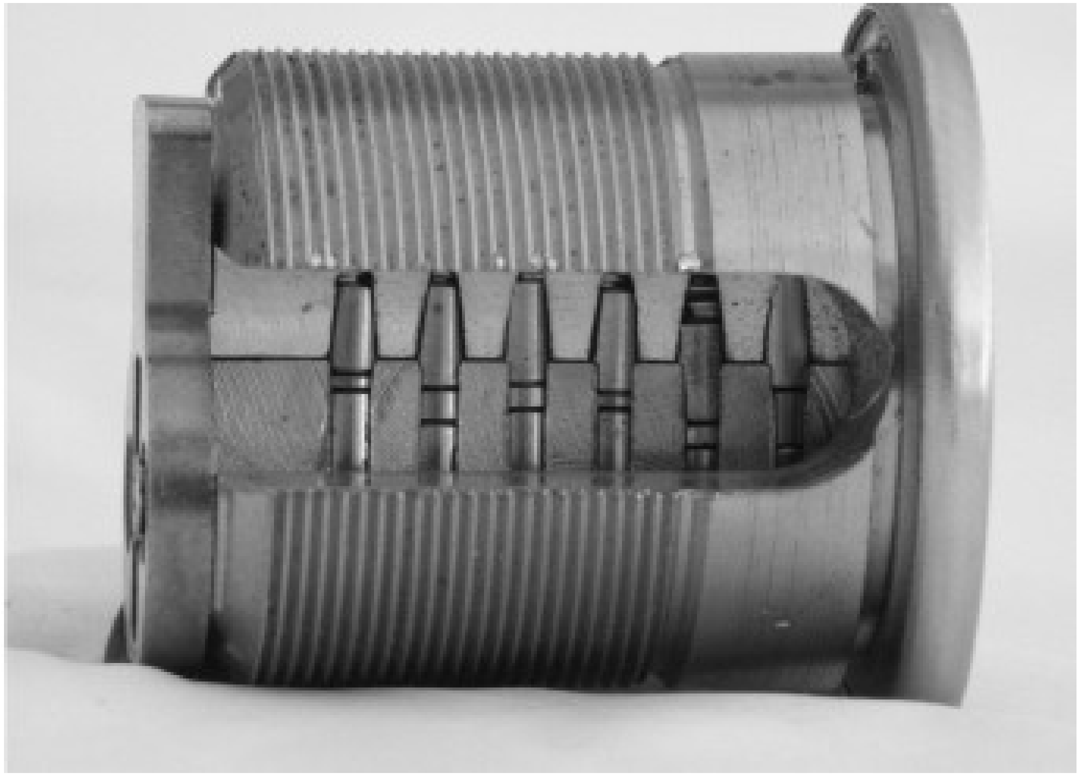


Incorrect Key

- Master key decoding
- Bumping
- Skeleton keys
- Sidebar attacks
- Passive component bypasses
- Decoding attacks

Master Key Systems





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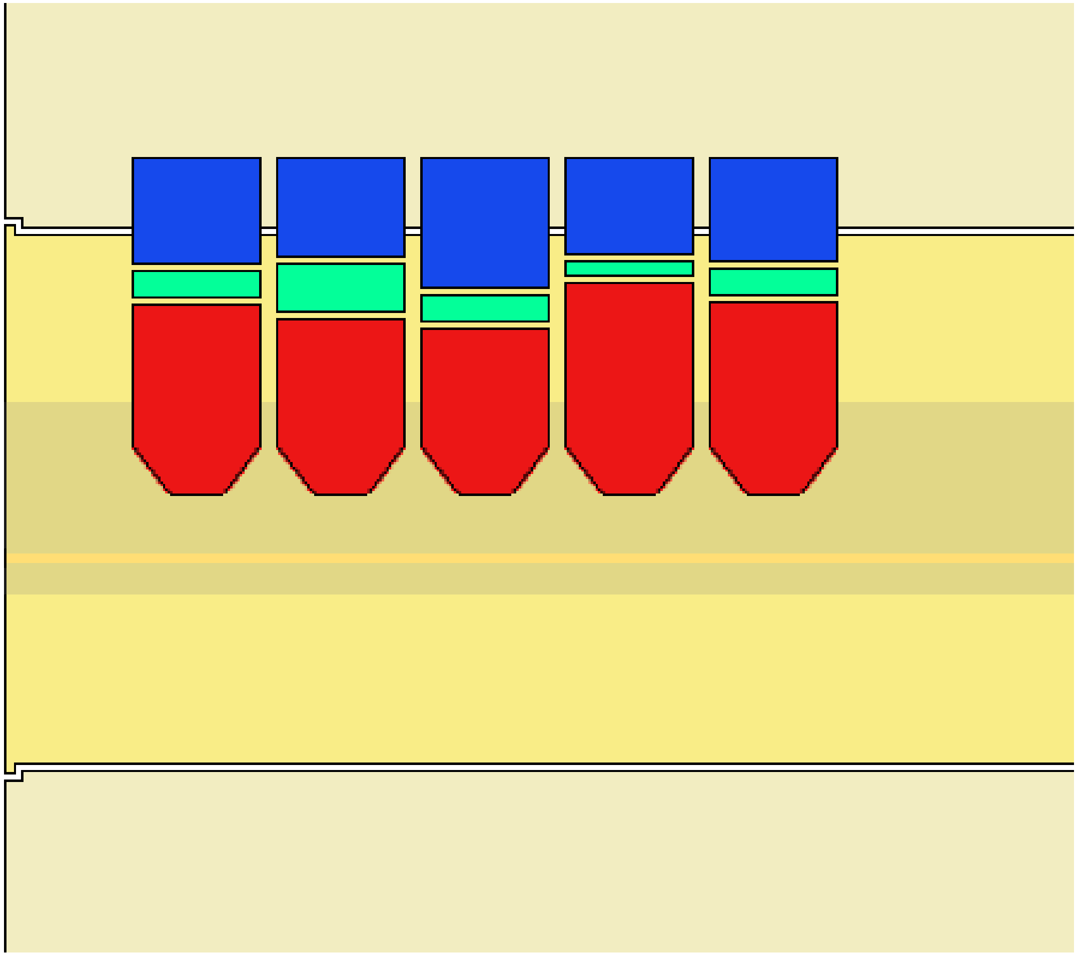

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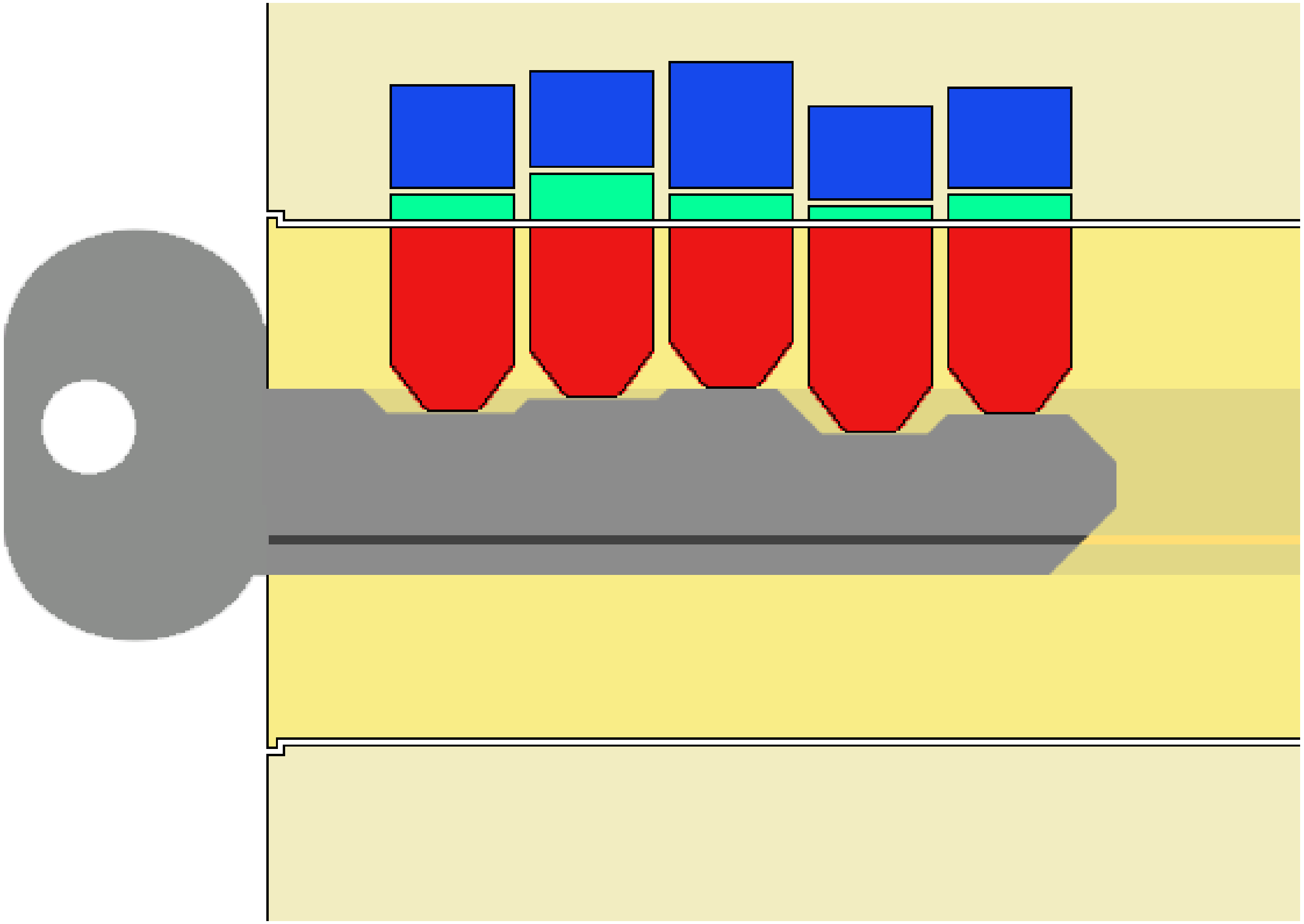
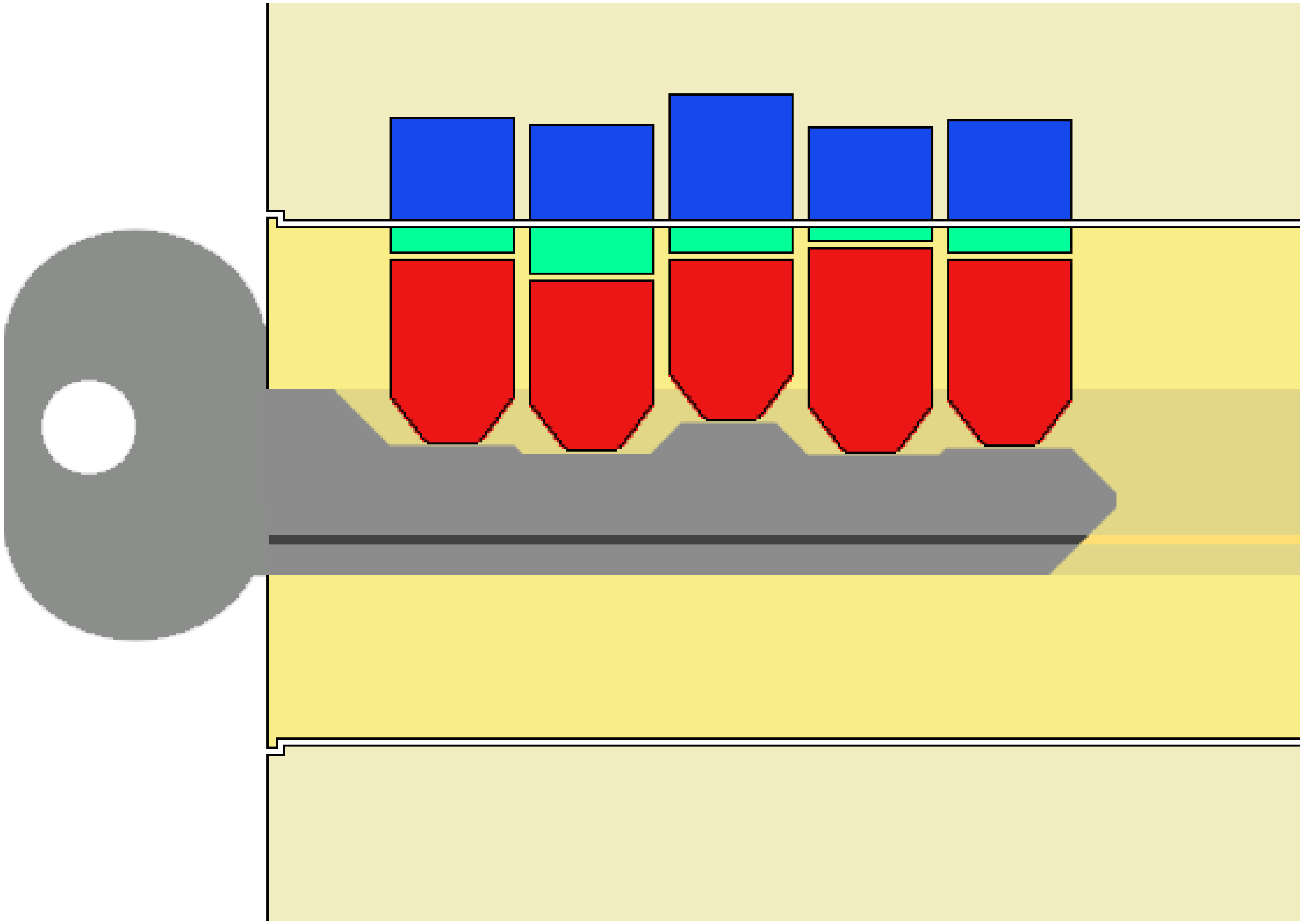


Master Key Systems



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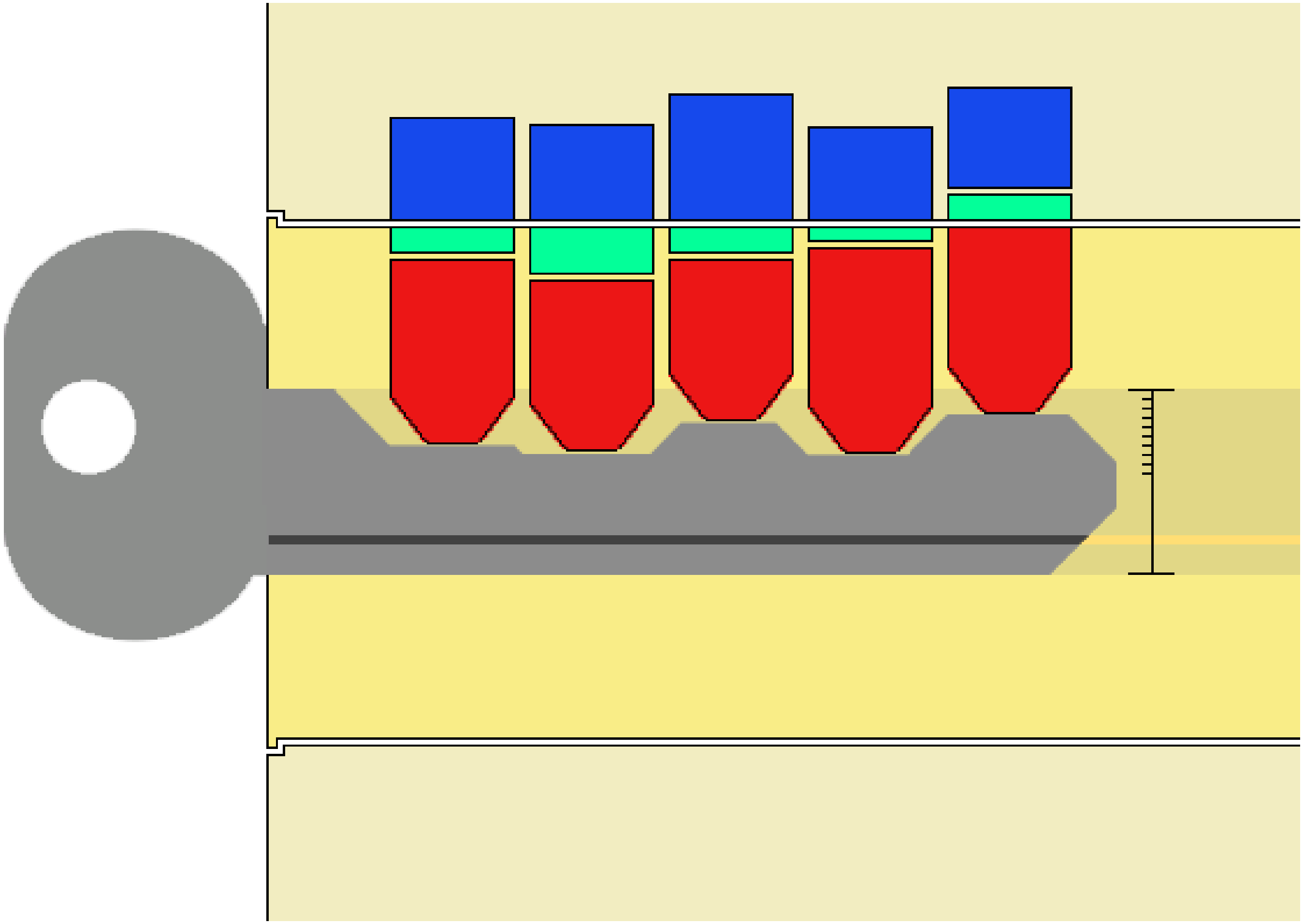
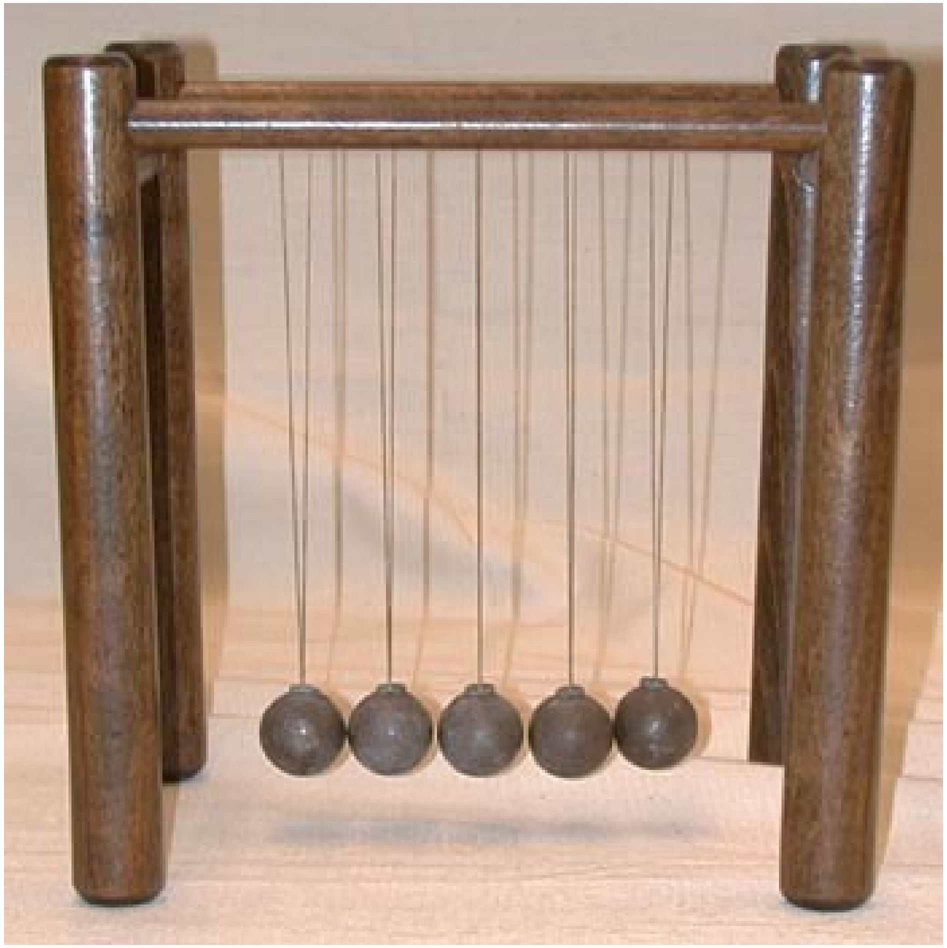
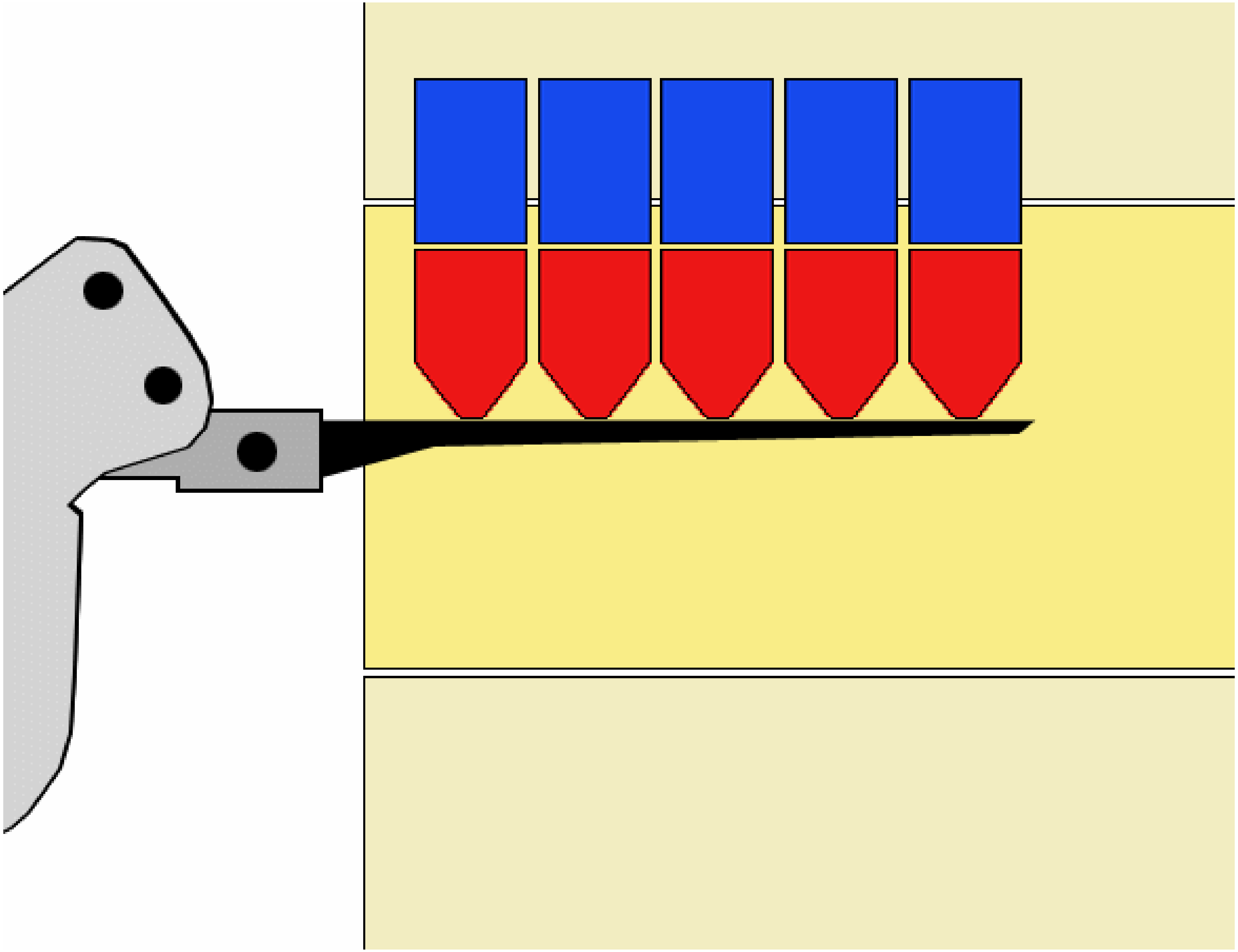


Key Bumping

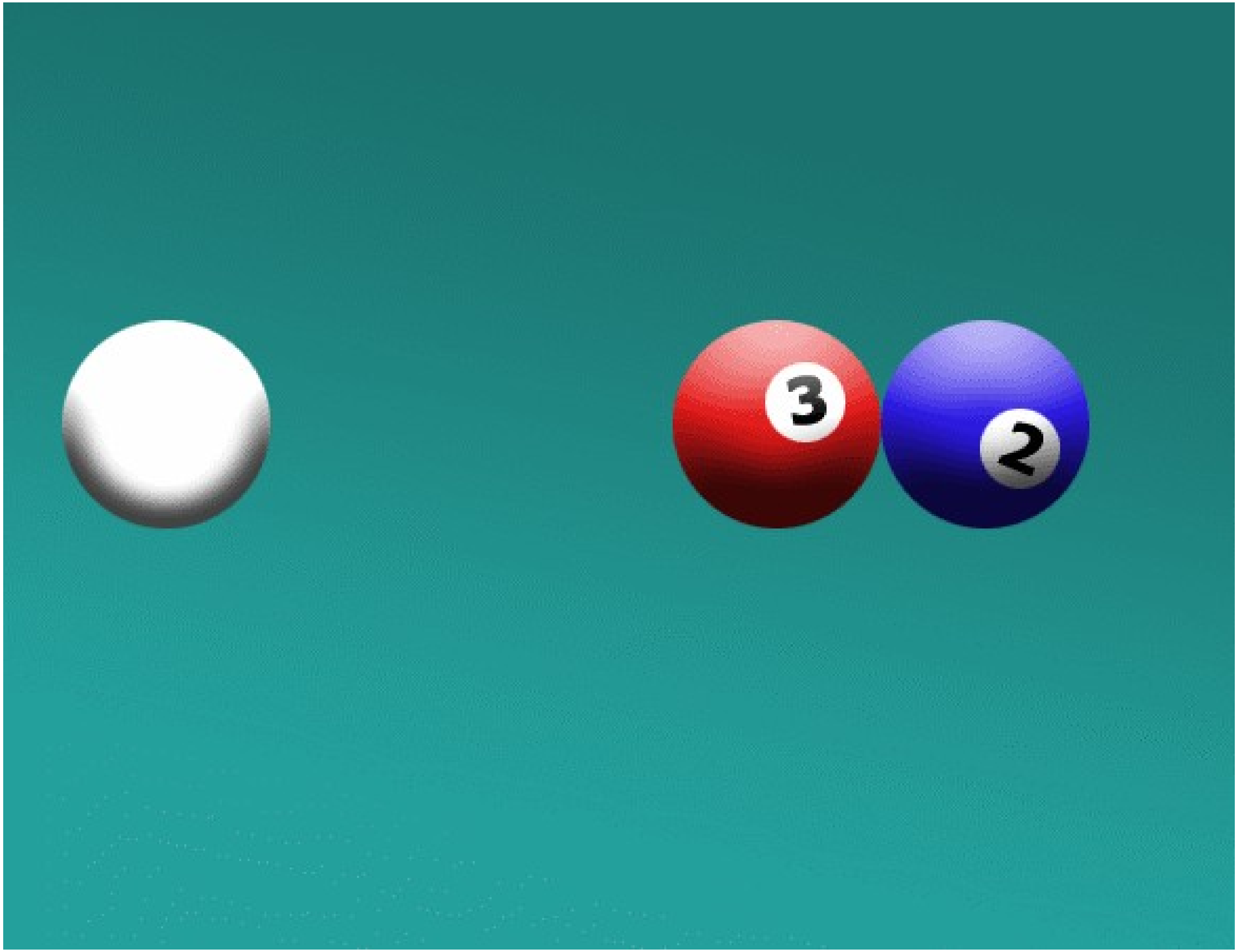
- Basic physics
- Specialized key
- Easy, effective
- Vendor response



Pick Gun Mechanics

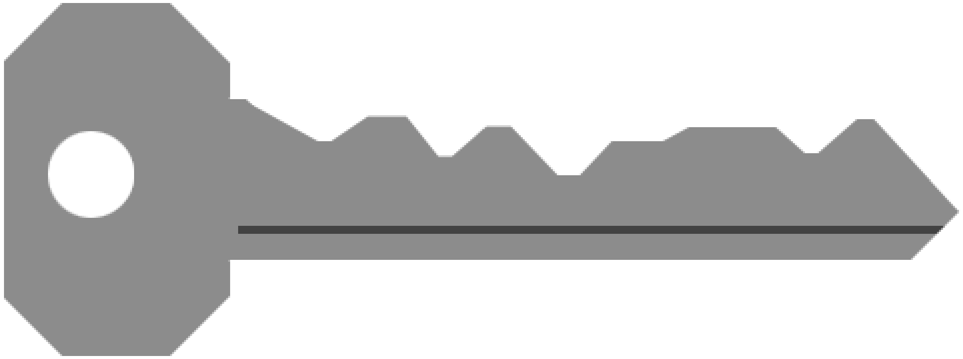


How Bumping Works



Creating Bump Keys

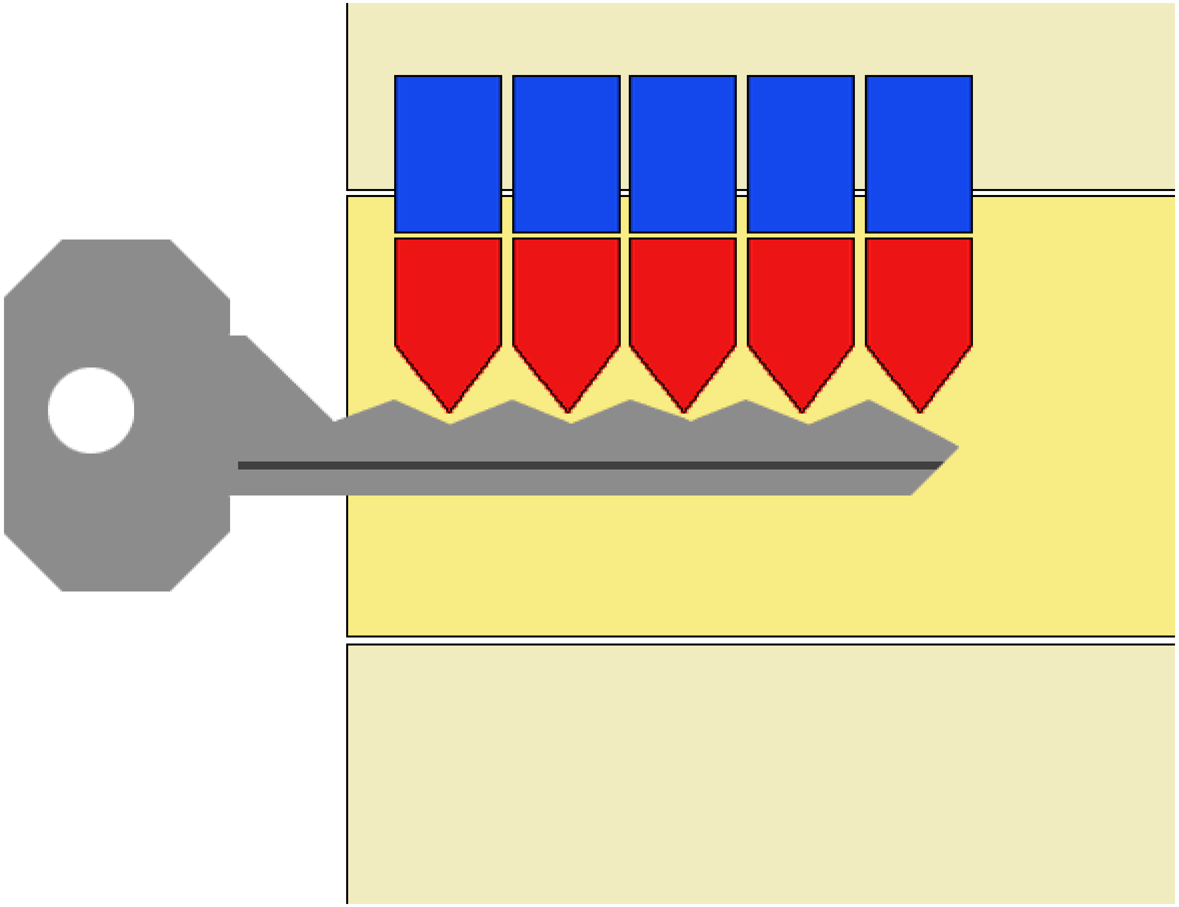
- Any key that fits
- Cut “999” key (deepest pin depths)
  - Use key gauges



- Cut with
  - Hand file, dremel, key cutter

Bump Keys

Key Bumping



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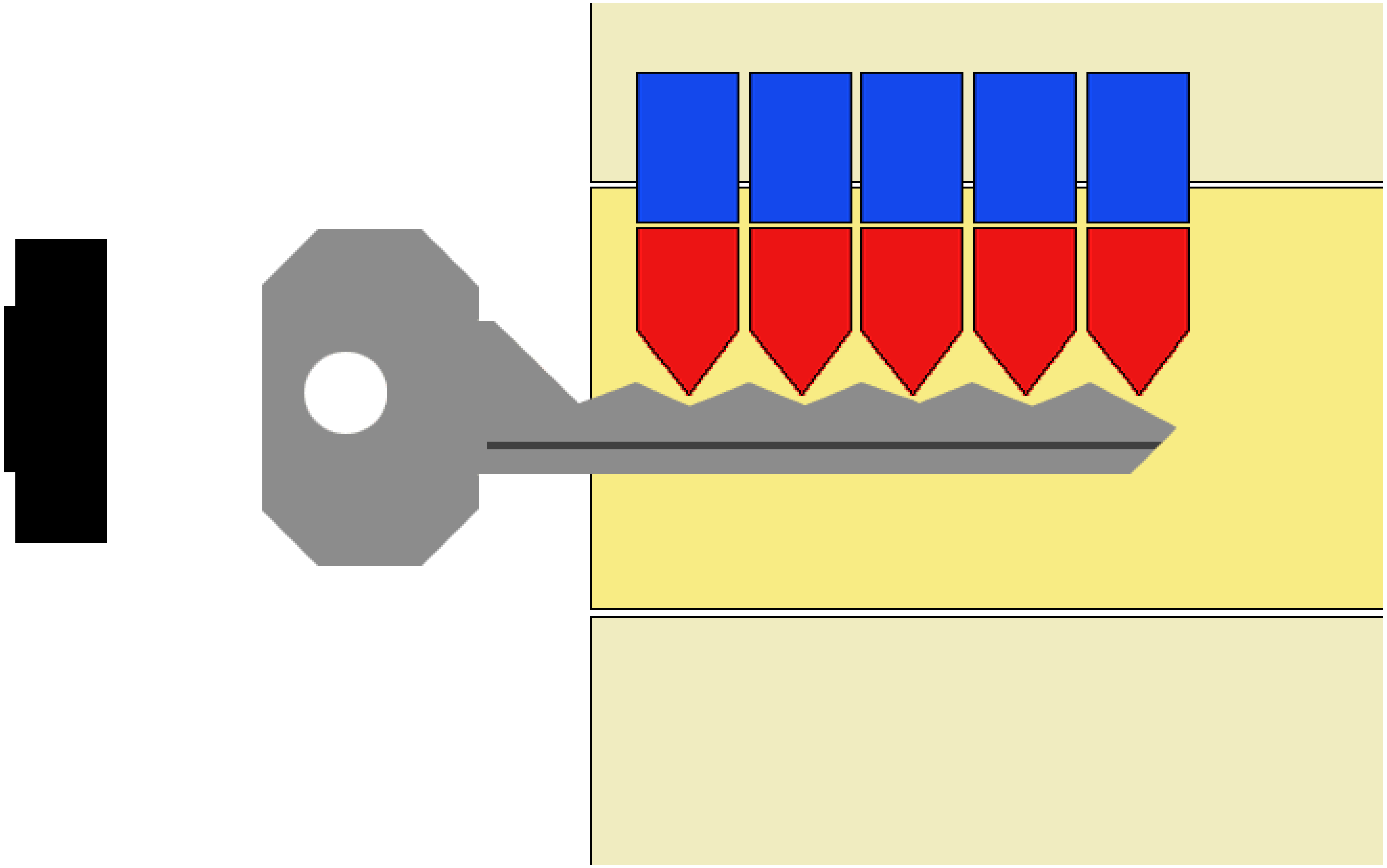
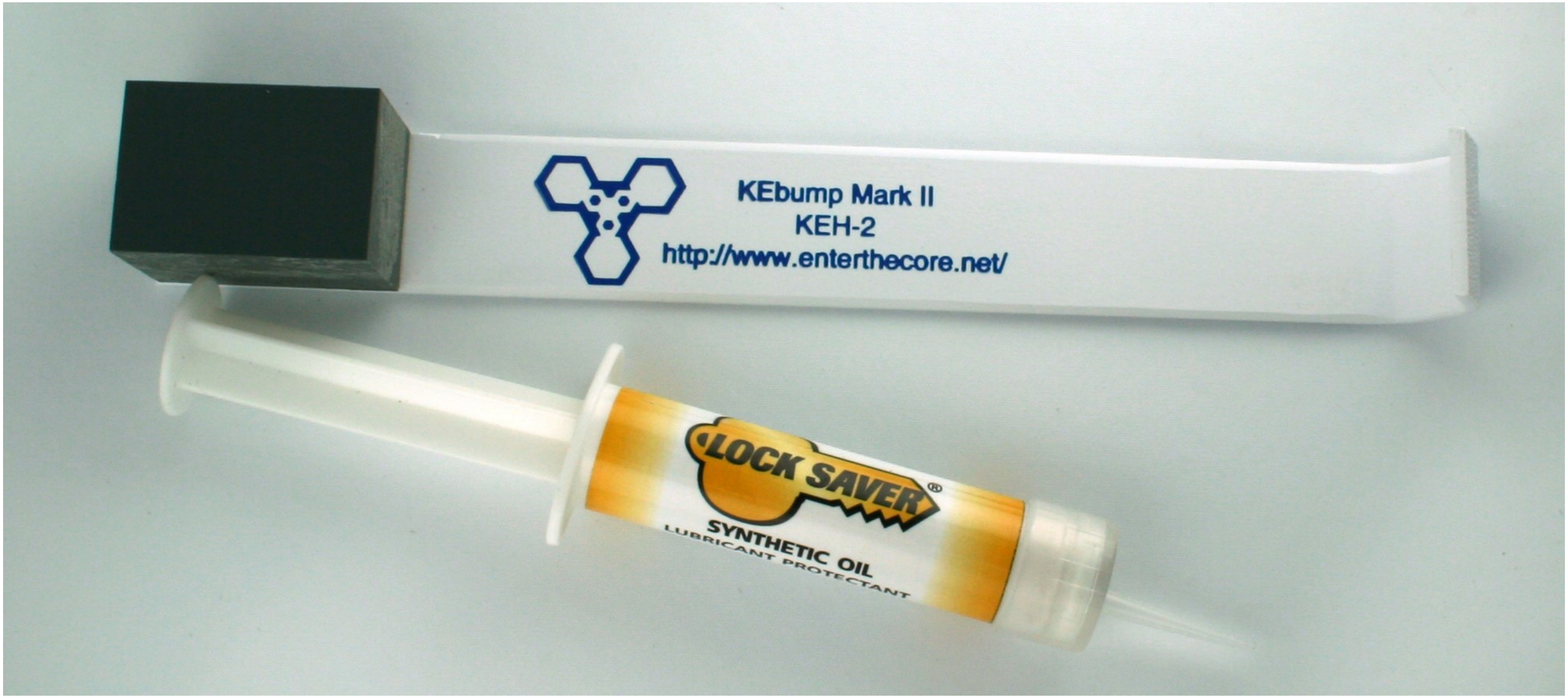


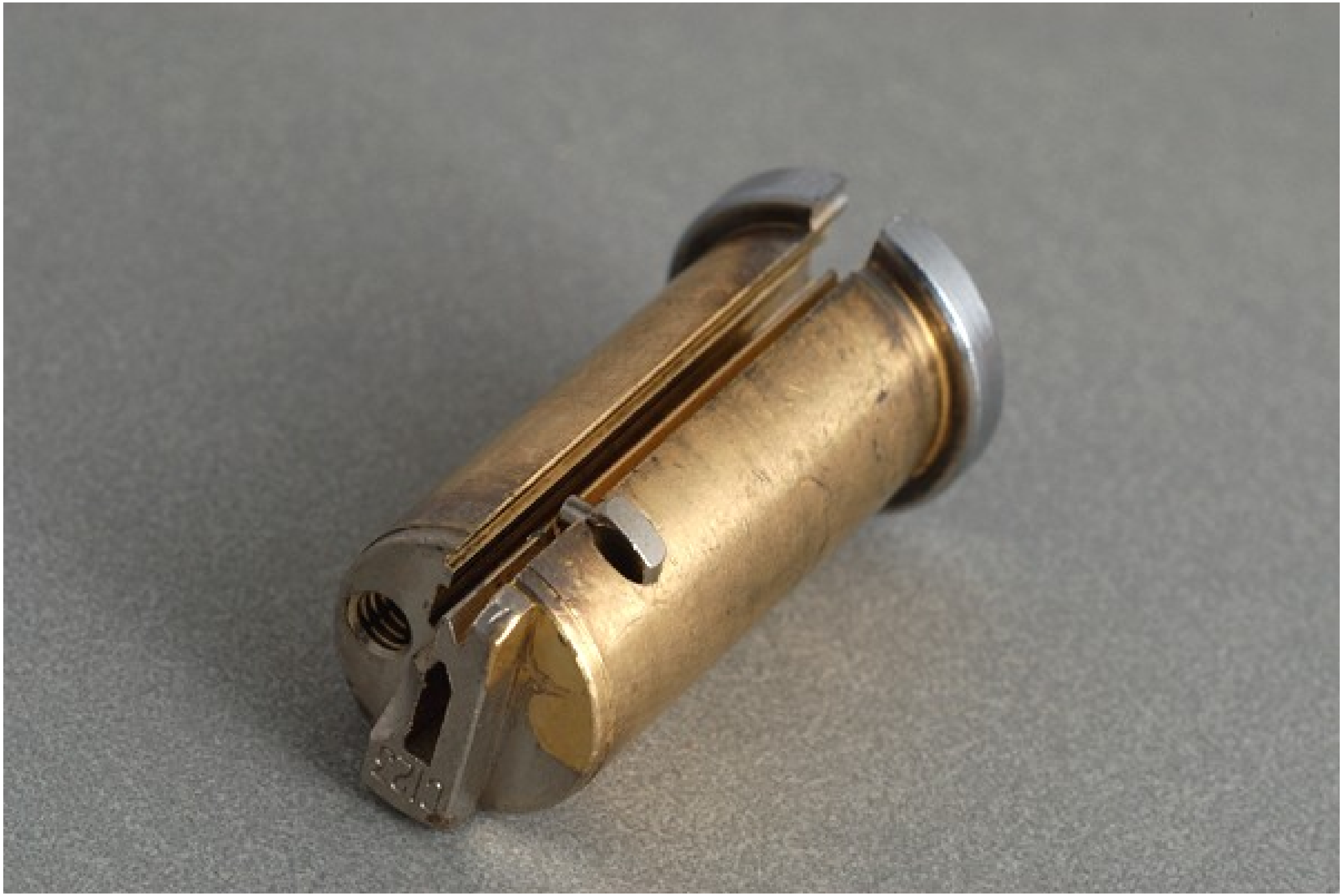
100% Efficiency…?

Don't underestimate attackers...

Bumping Hammers



Side Pins



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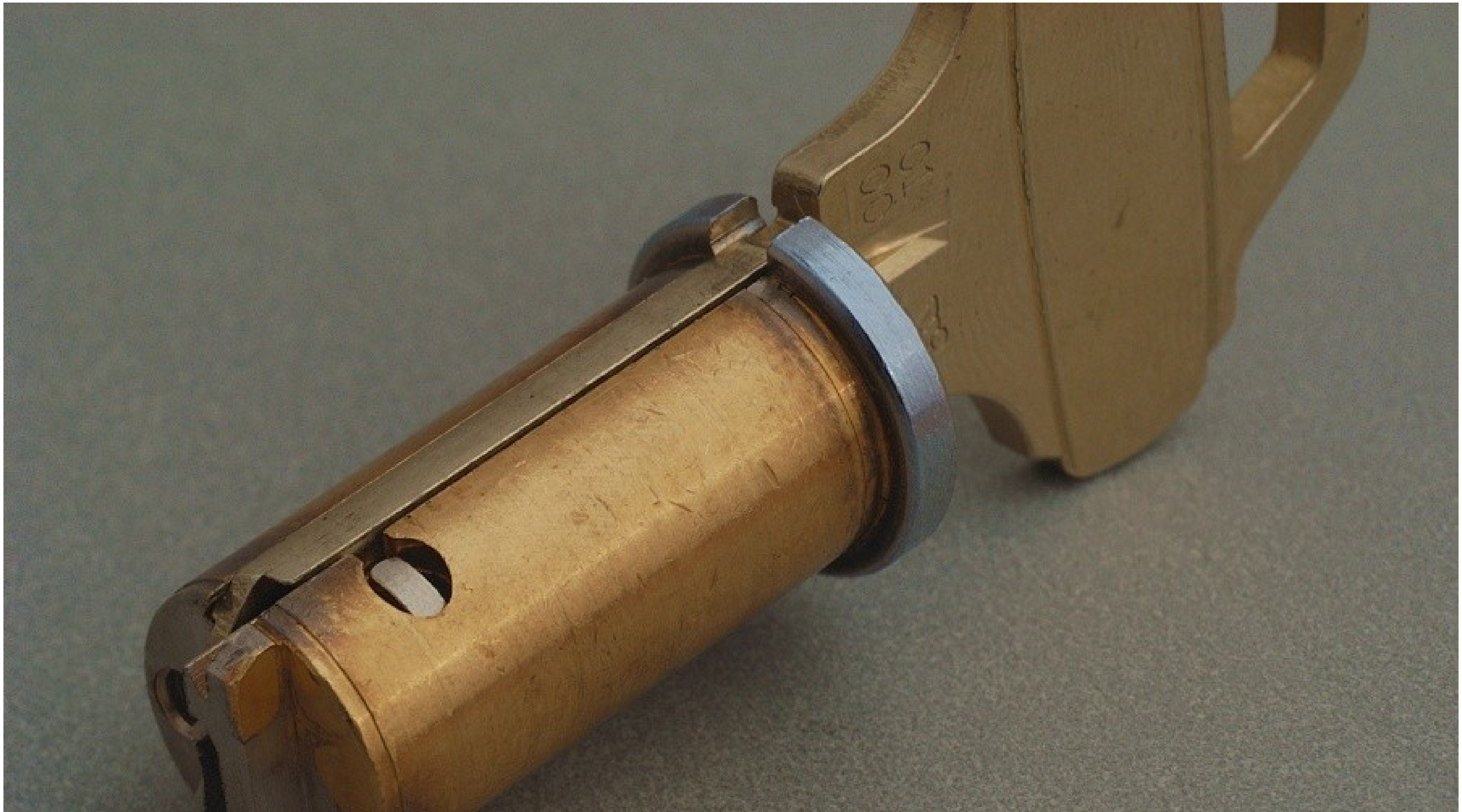

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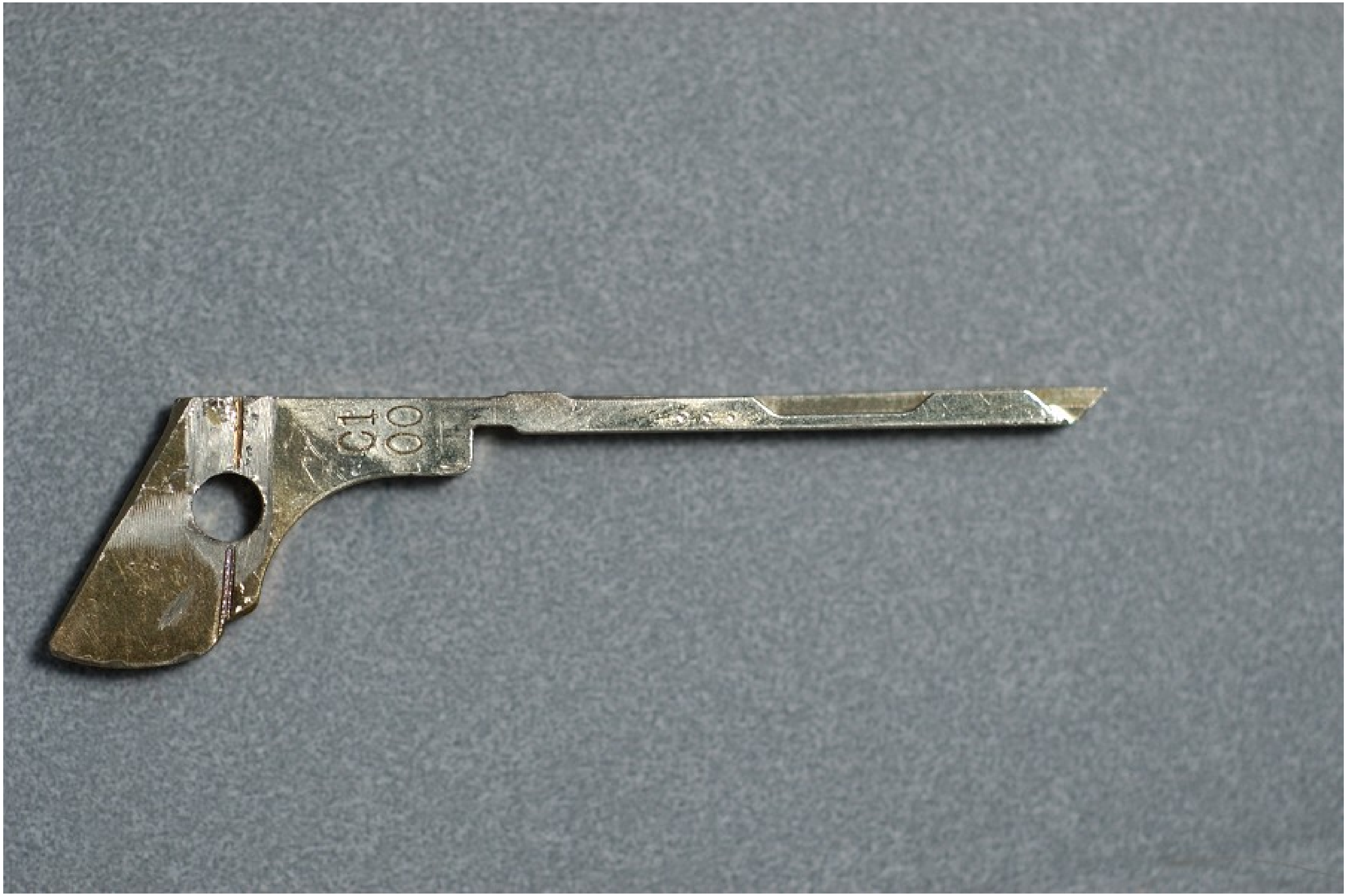


Side Pins

Regional Sidebar Attacks

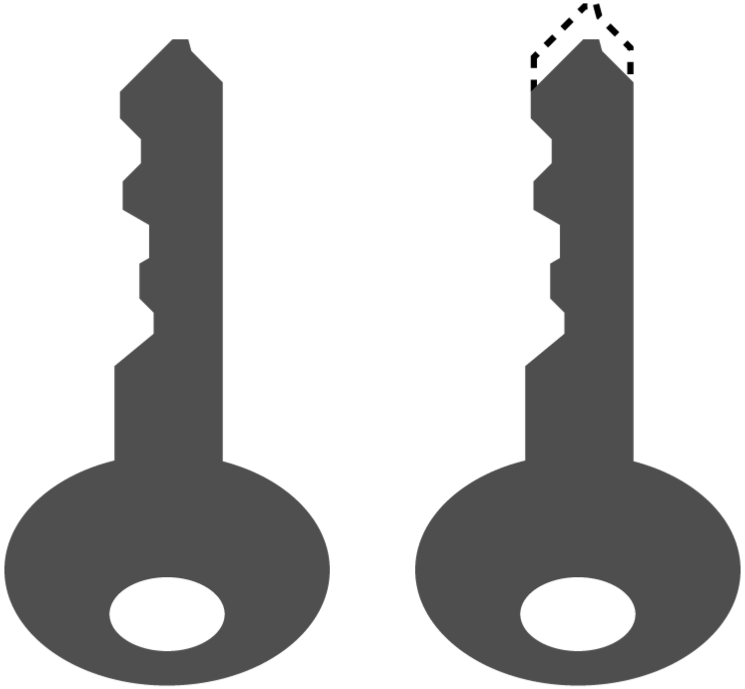
- ASSA Twin Combi
- Schlage Primus
- Fichet 480
- The list goes on...

- Schlage is doing it wrong.

One Last Way Schlage Is Doing It Wrong: LFIC

- BEST SFIC
- Small Format Interchangable Core

- Schlage LFIC
- 6.5 Control Key



Passive Components

What have we learned?

Resources

- openlocksport.com
- lockwiki.com
- lockpickingforensics.com
- ndemag.com

Meet us at Q&A!