



# Introduction to Lockpicking & Key Bumping

by datagram

Animations by Deviant Ollam



# About Me

- Mild mannered Sys. Admin.
- C,C++,Python,ASM, etc. Programmer
- Enjoys long walks on the beach
- Hacke...Computer Security Enthusiast
- Lockpicking Enthusiast, would eventually like to become a bonafide locksmith.

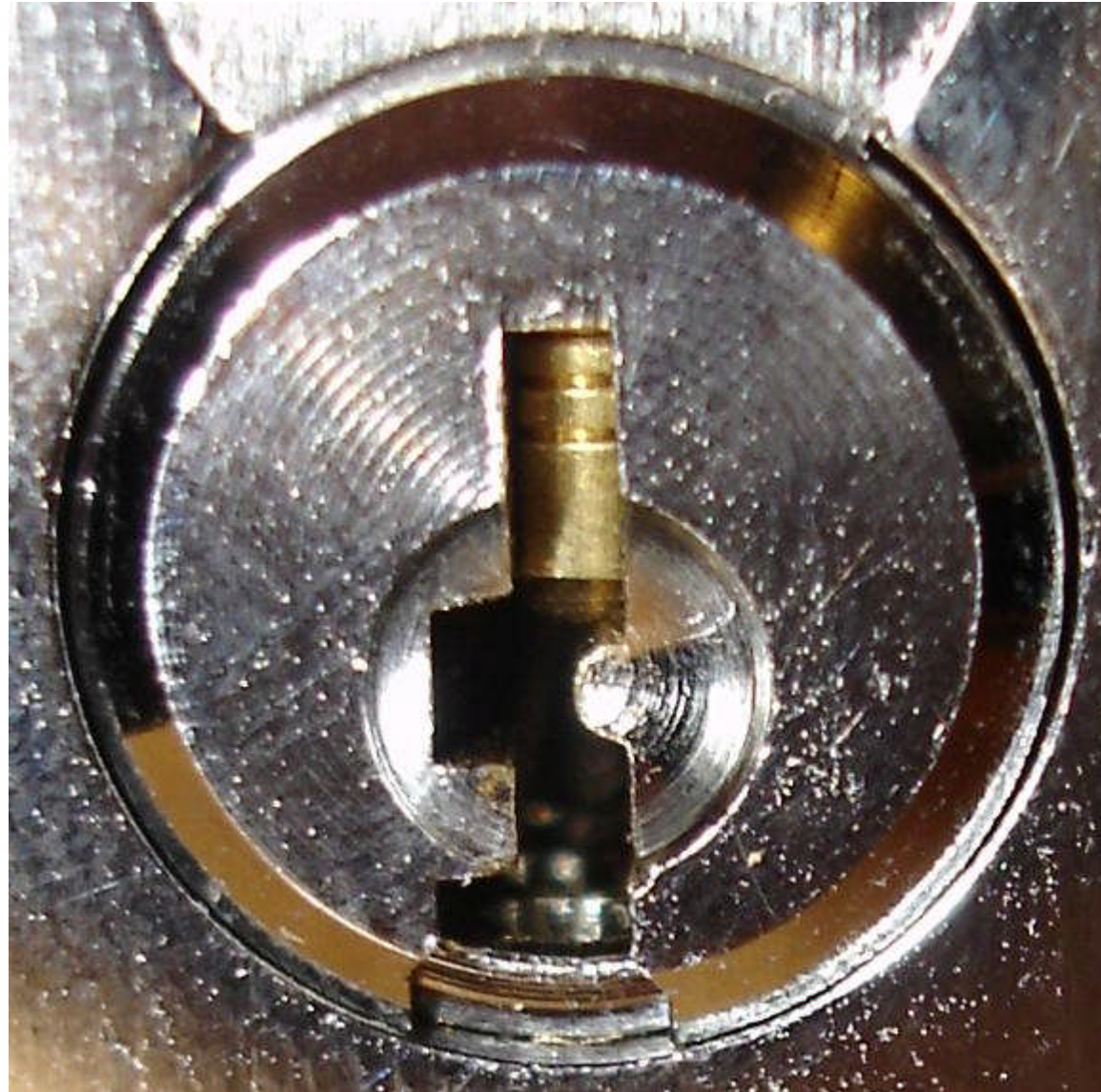


# Introduction To Lockpicking

- How Locks Work
- How Keys Work
- Picking a Lock
- Types of Locks

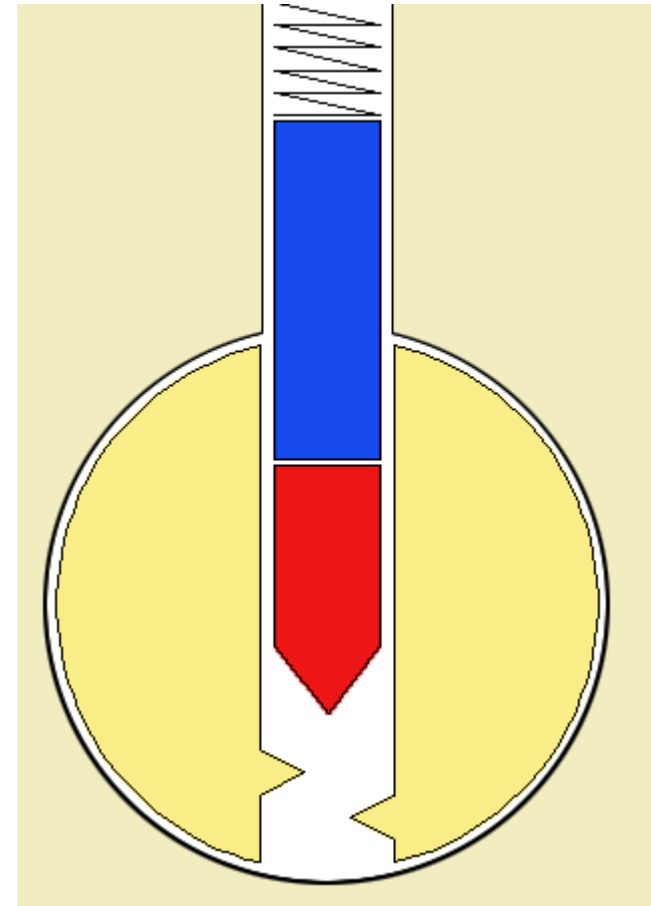
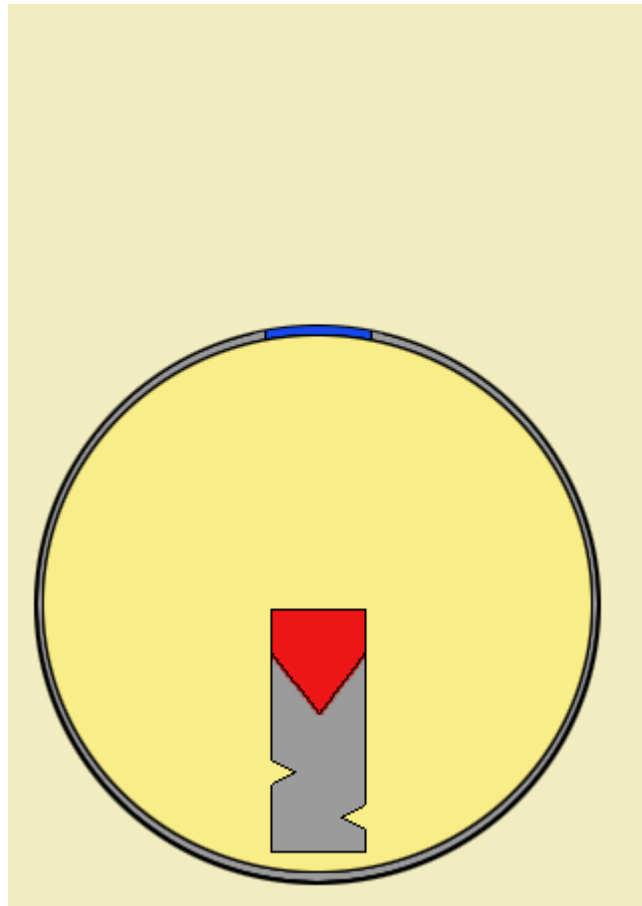


# How Locks Work



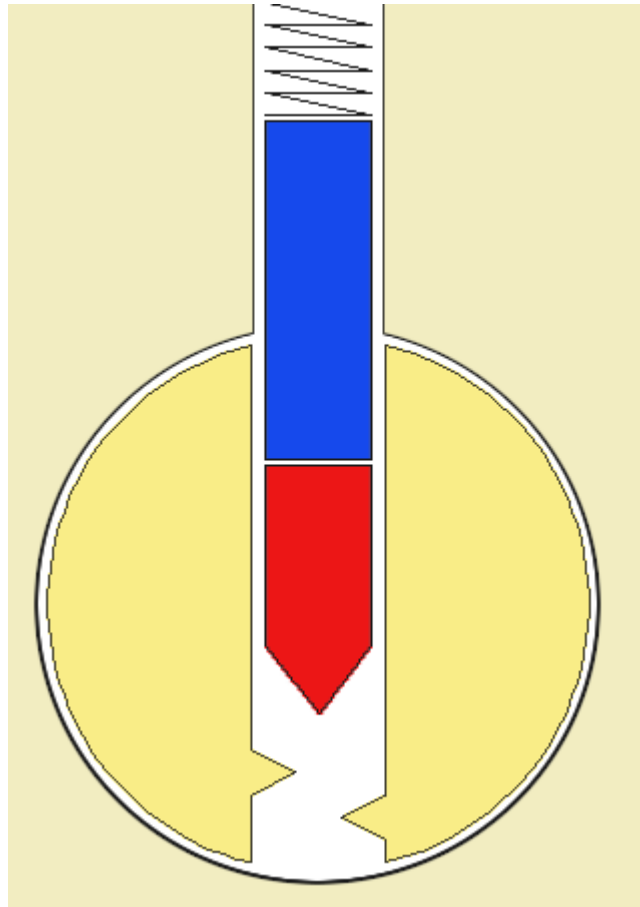


# How Locks Work





# How Locks Work





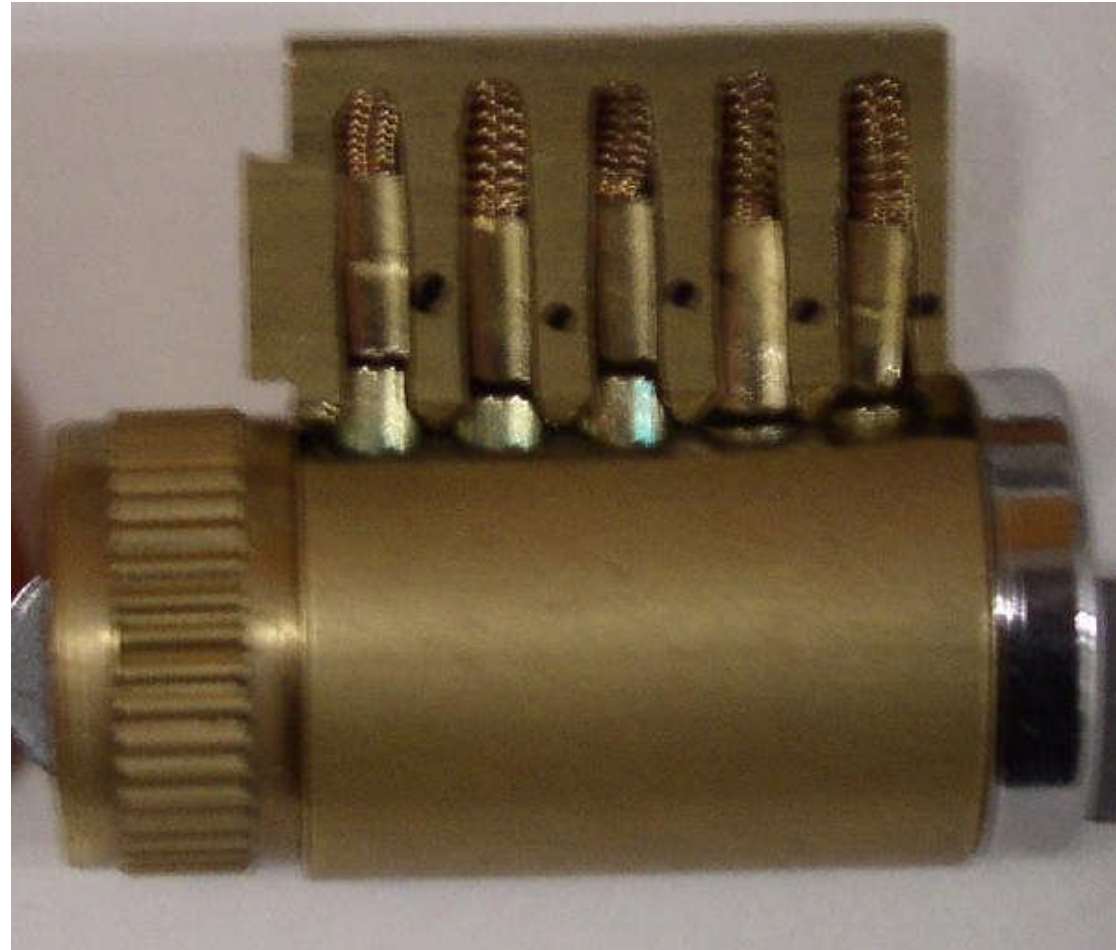


# How Locks Work





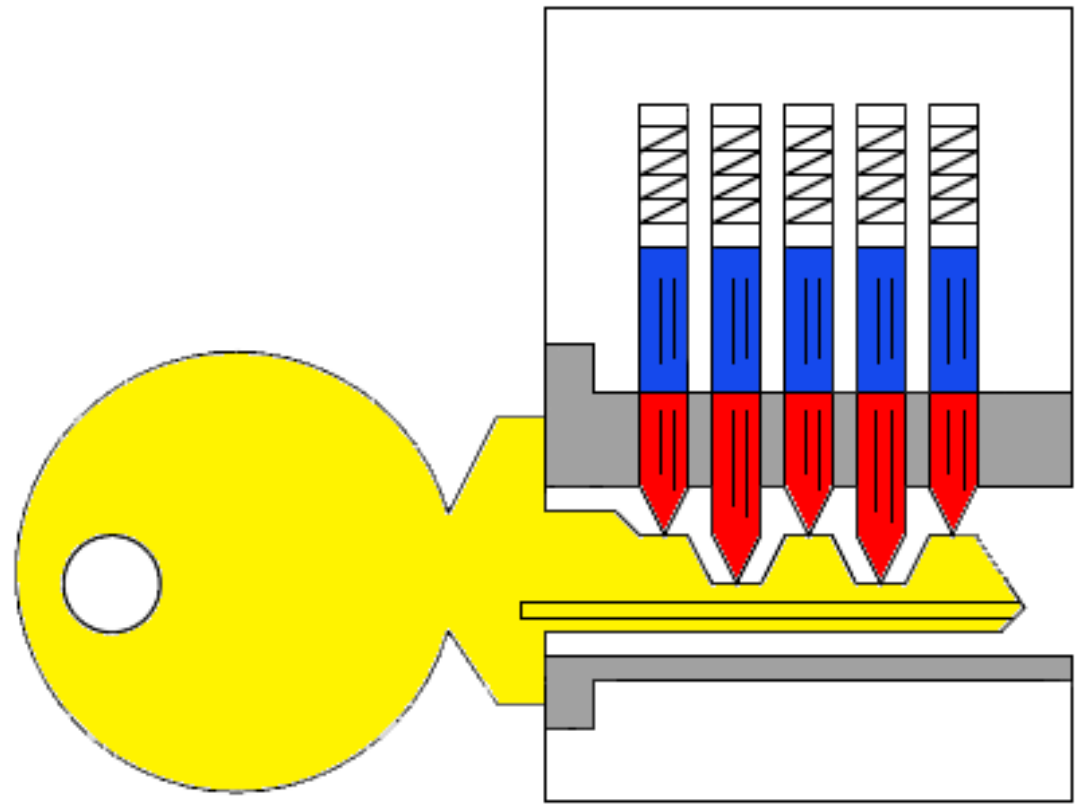
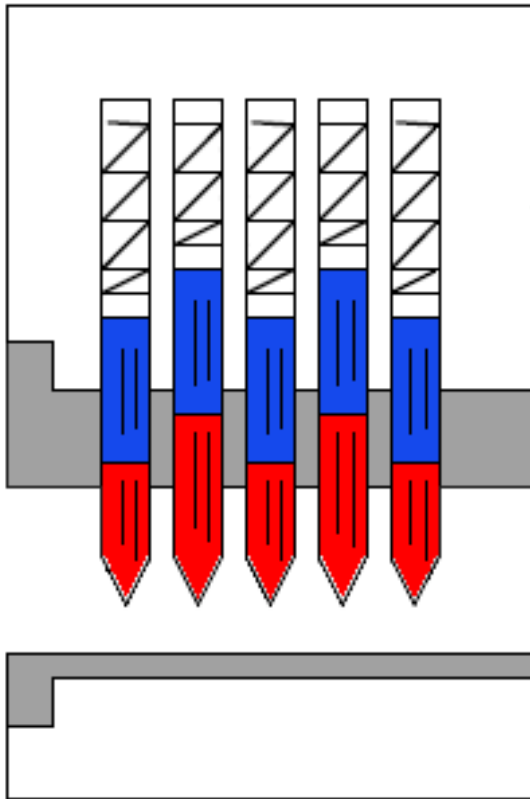
# How Locks Work





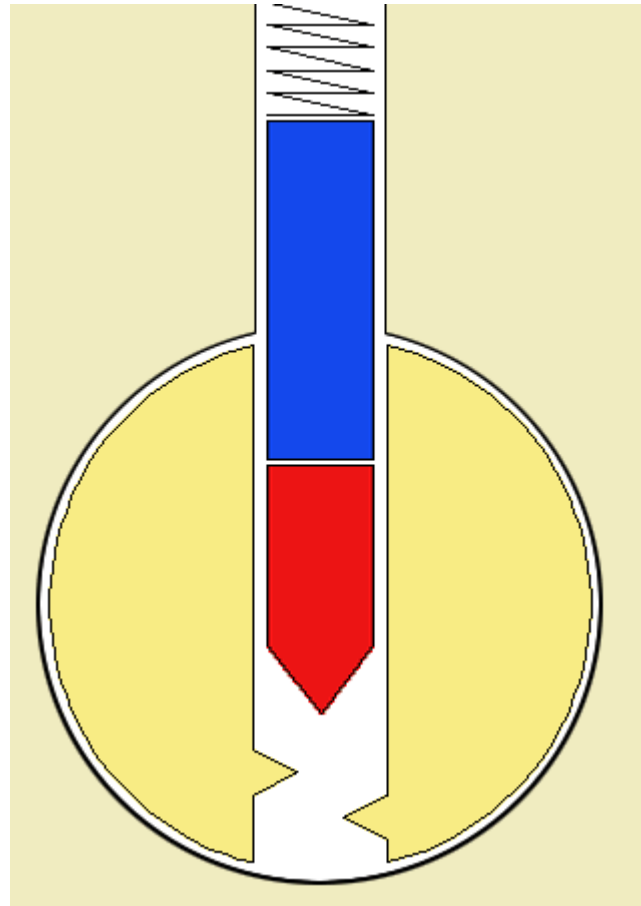


# How Keys Work





# How Keys Work



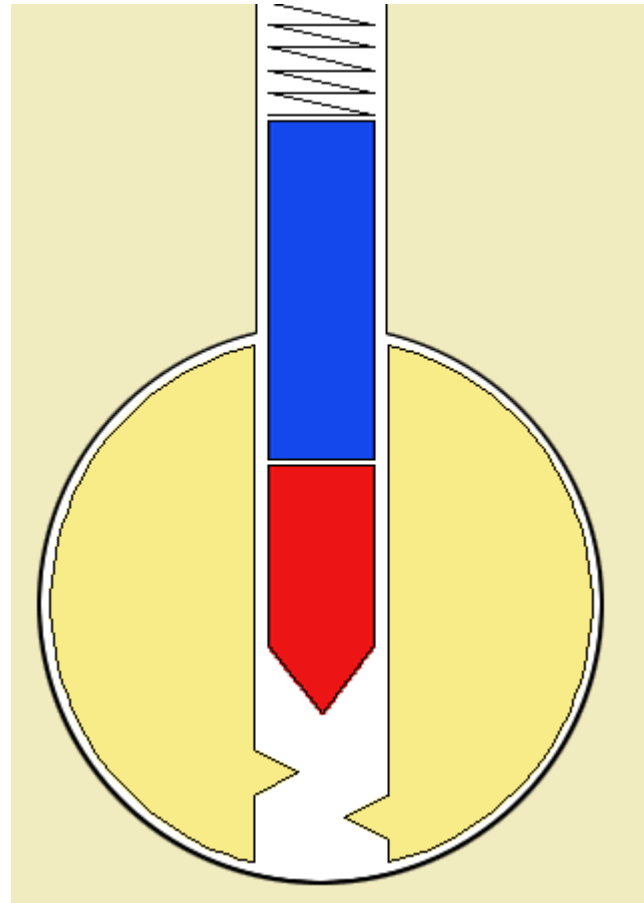


# Picking a Lock

- Apply (minimal) torque
- Find binding pin
- Raise all pin pairs to shear line

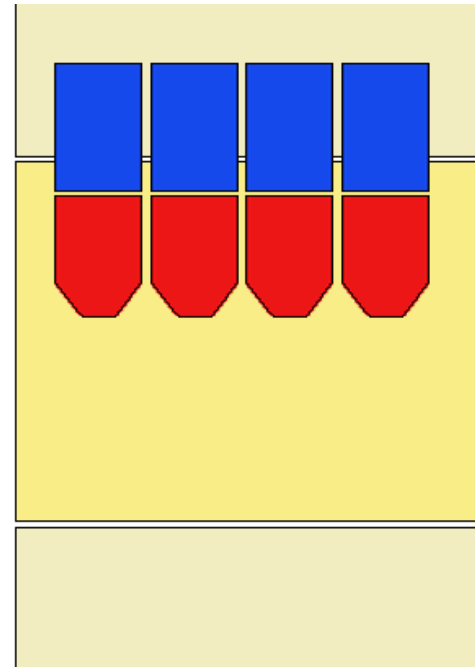
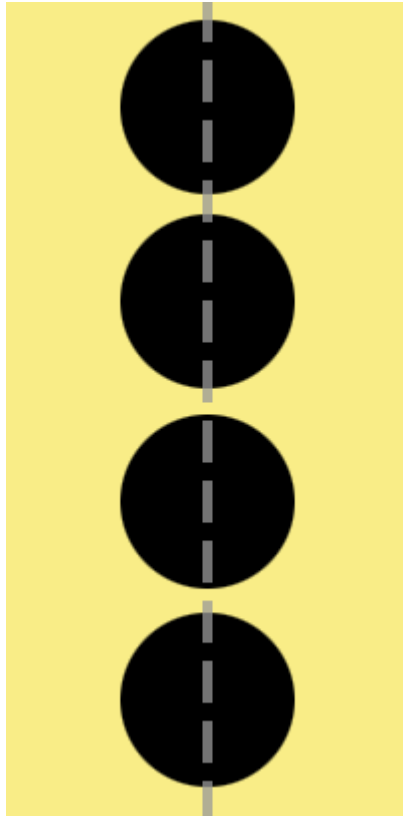


# Setting a Pin





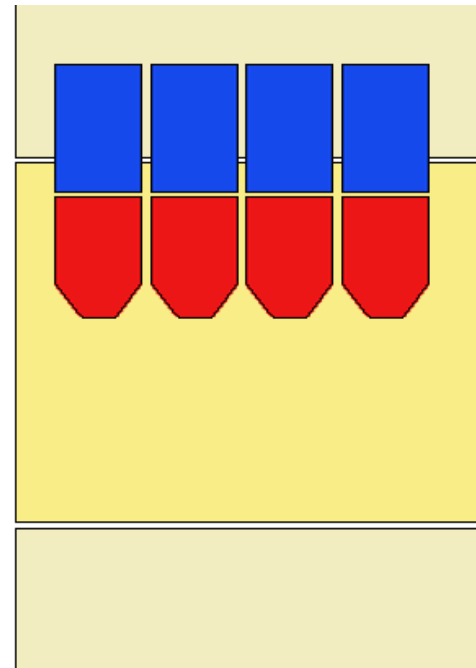
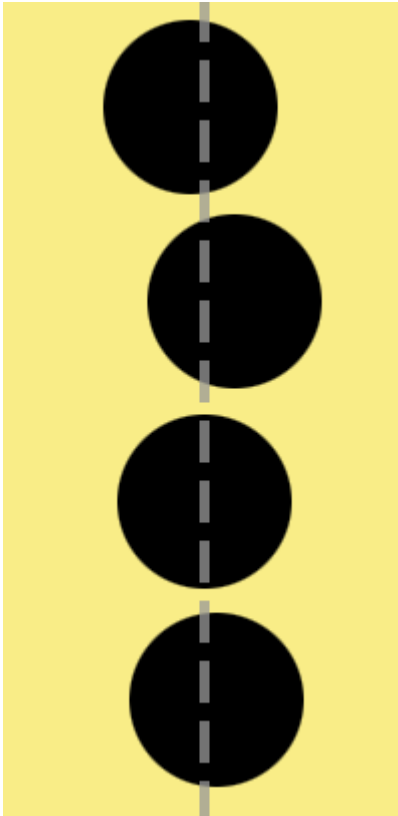
# Pin Binding Explained





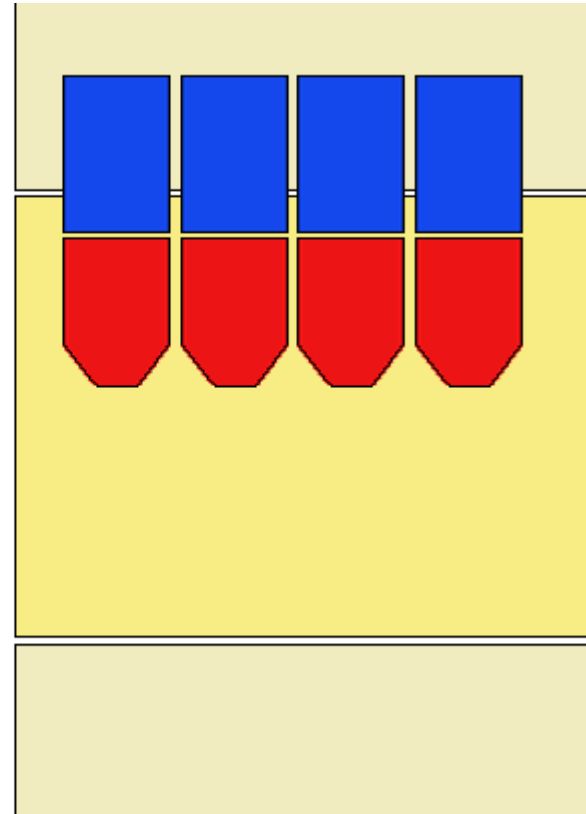


# Pin Binding Explained





# Picking a lock





# High Security Locks

- Usually offer one/more of the following:
  - Restrictive Keyways
  - Security Pins
  - Side Pin
  - Side Bars
  - Axial Rotation



# Restrictive Keyways (BEST)



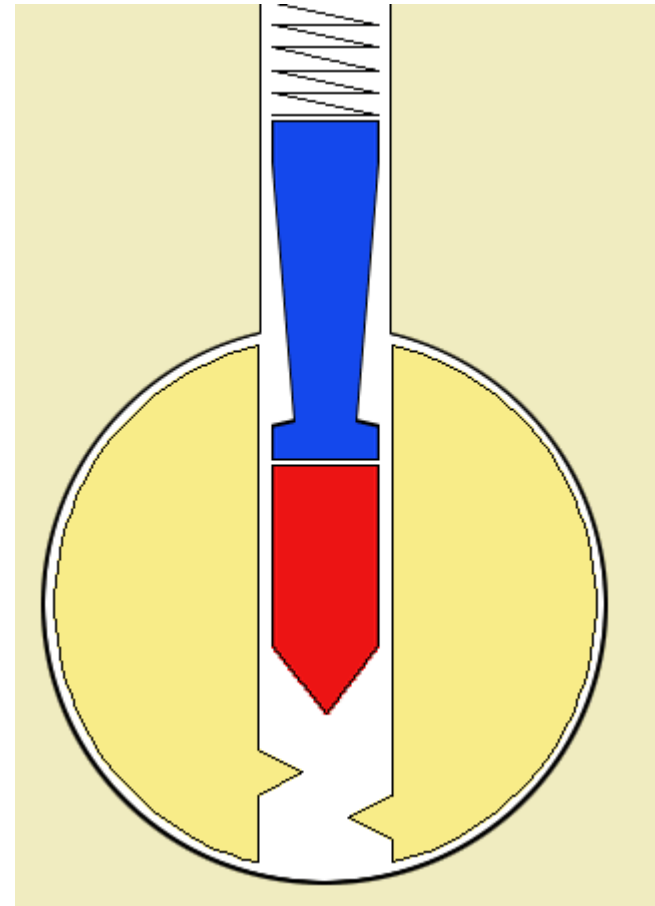
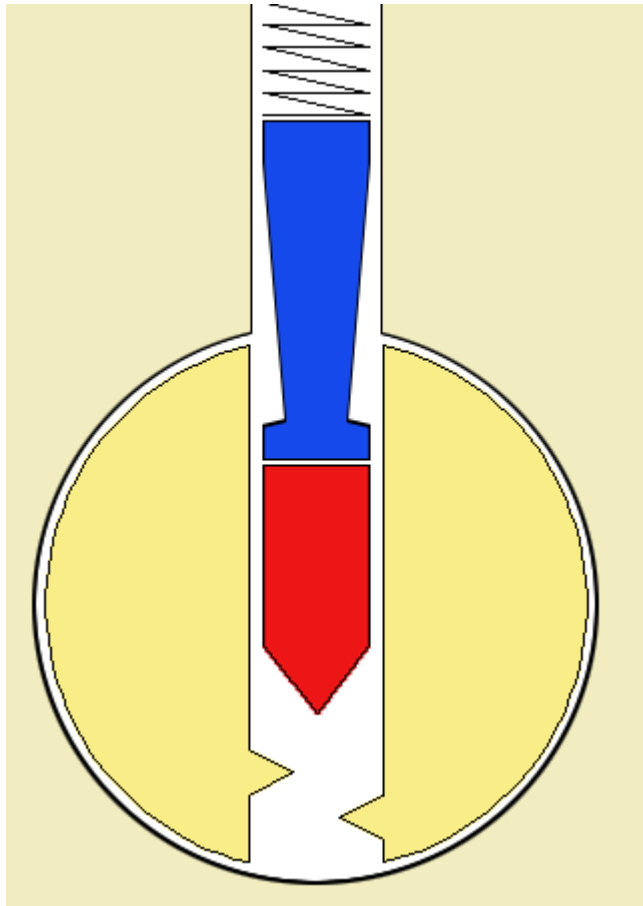
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Evil. Keyway.



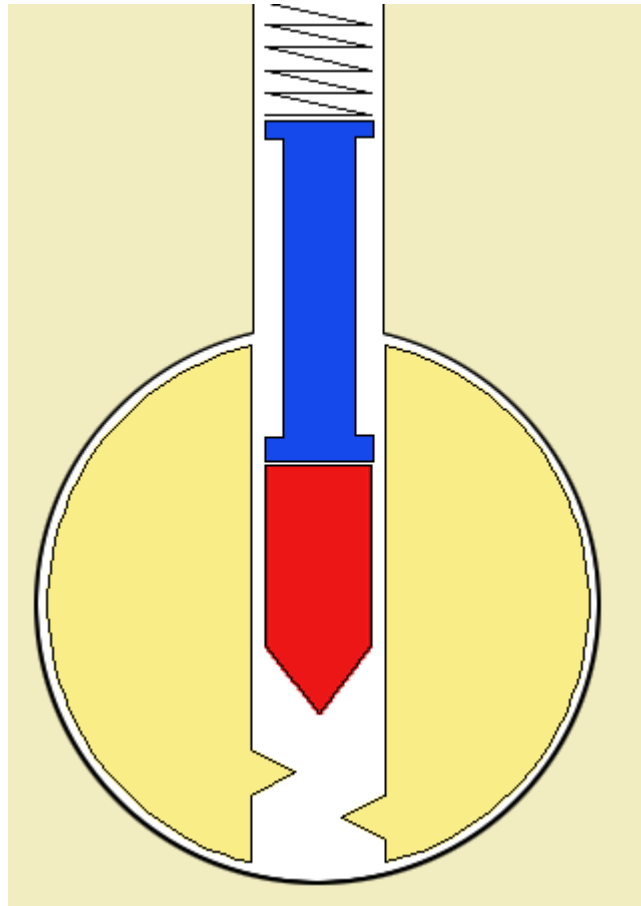
# Security Pins (Mushrooms)





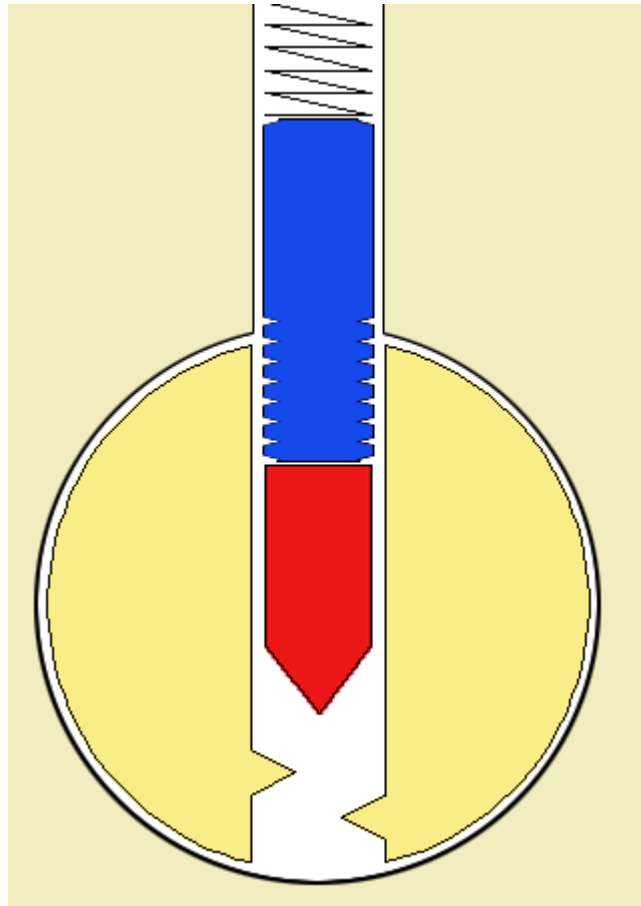


# Security Pins (Spool)



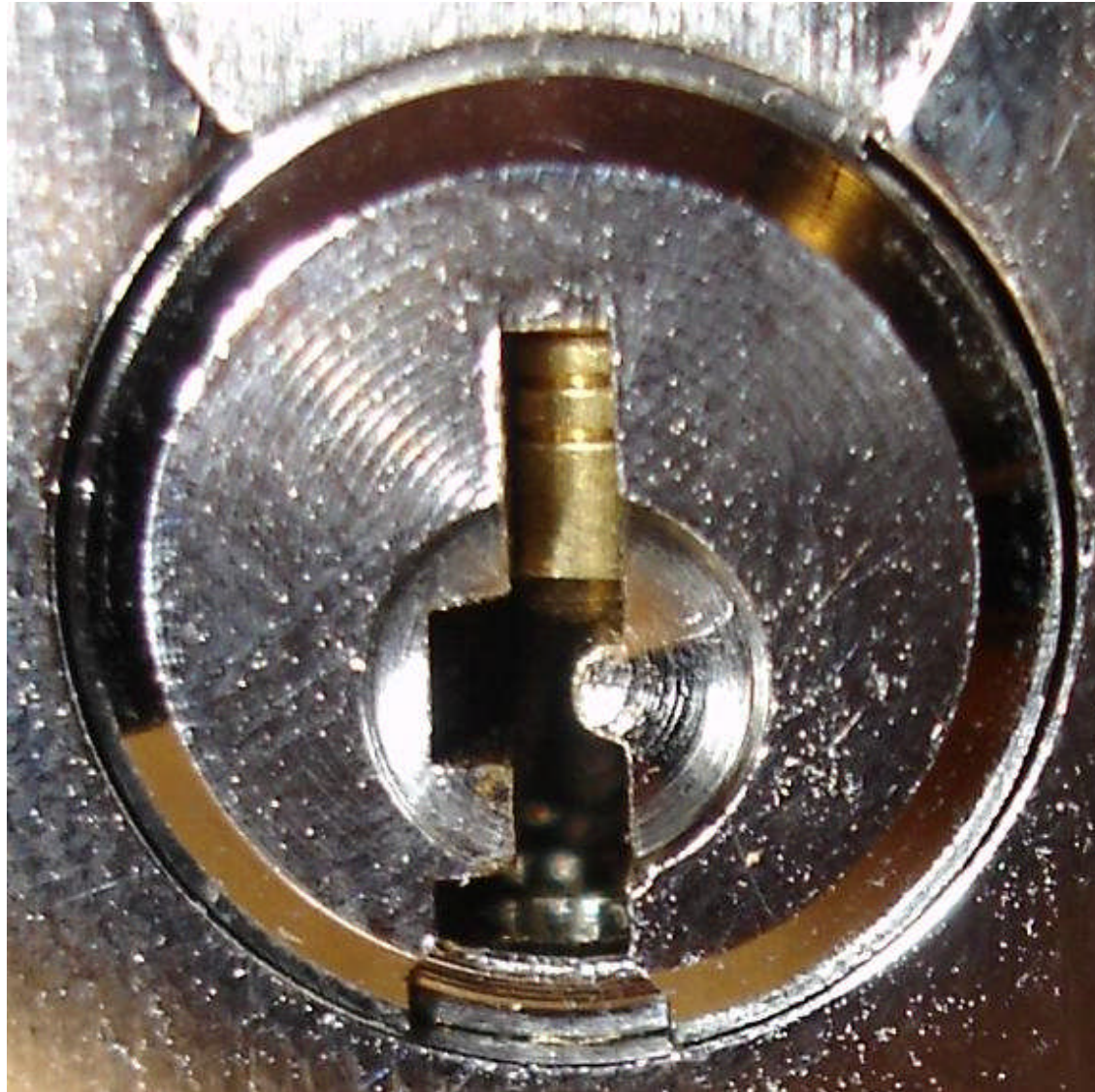


# Security Pins (Serrated)





## Security Pins (Serrated)





# Side Pins







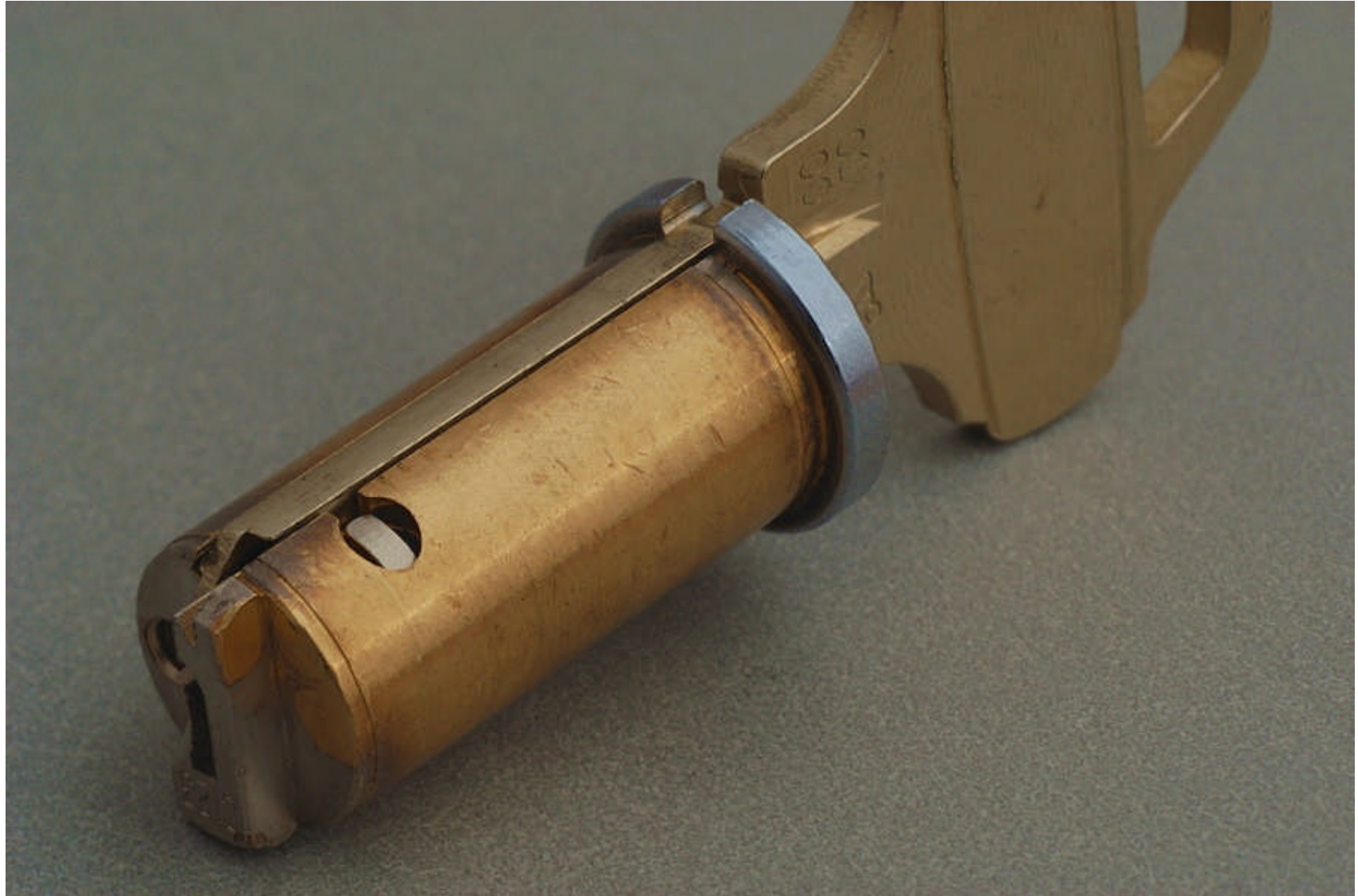
# Side Pins







# Side Pins





# Side Pins





# Side Pins







# Side Bars



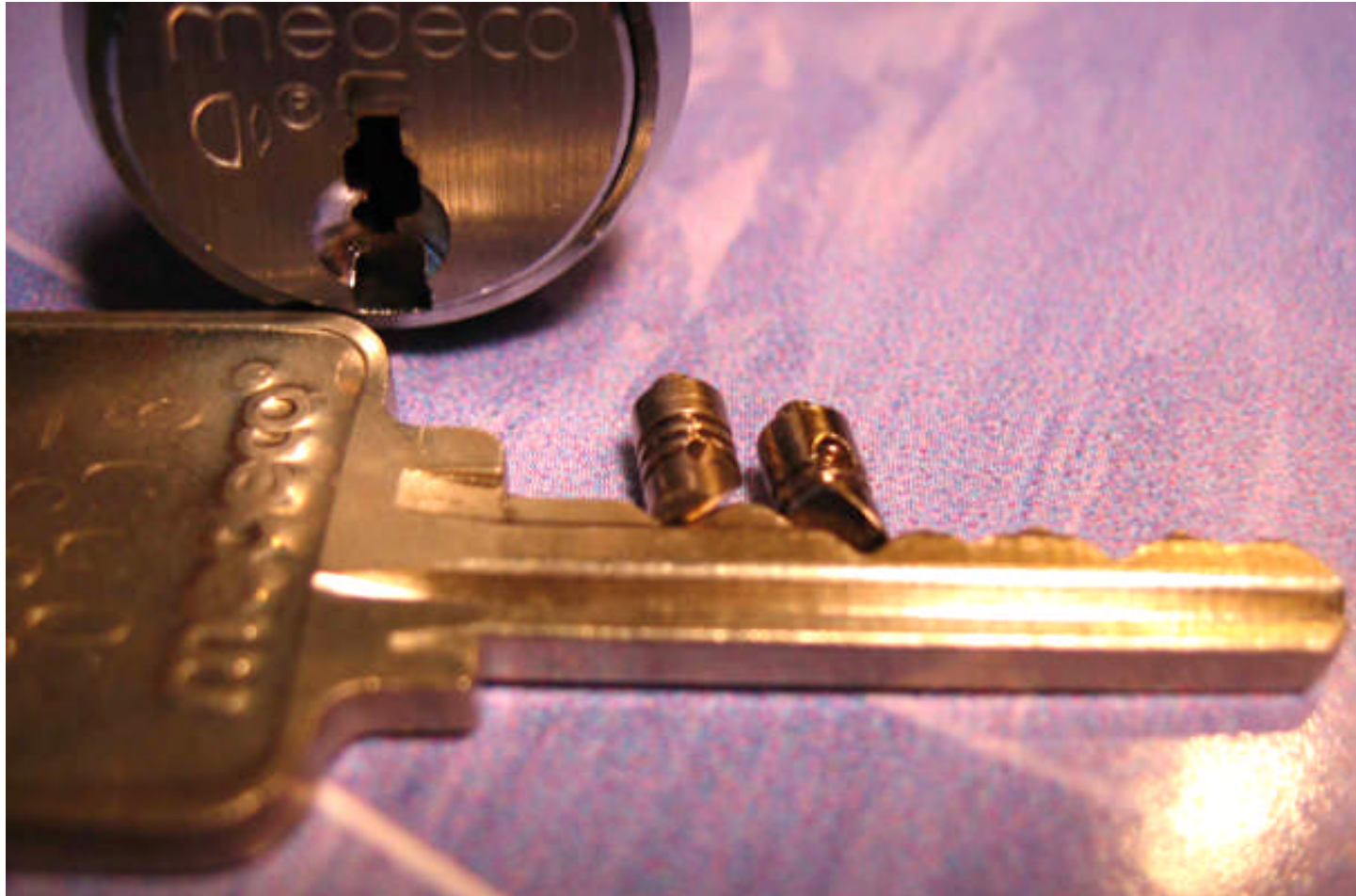


# Axial Rotation





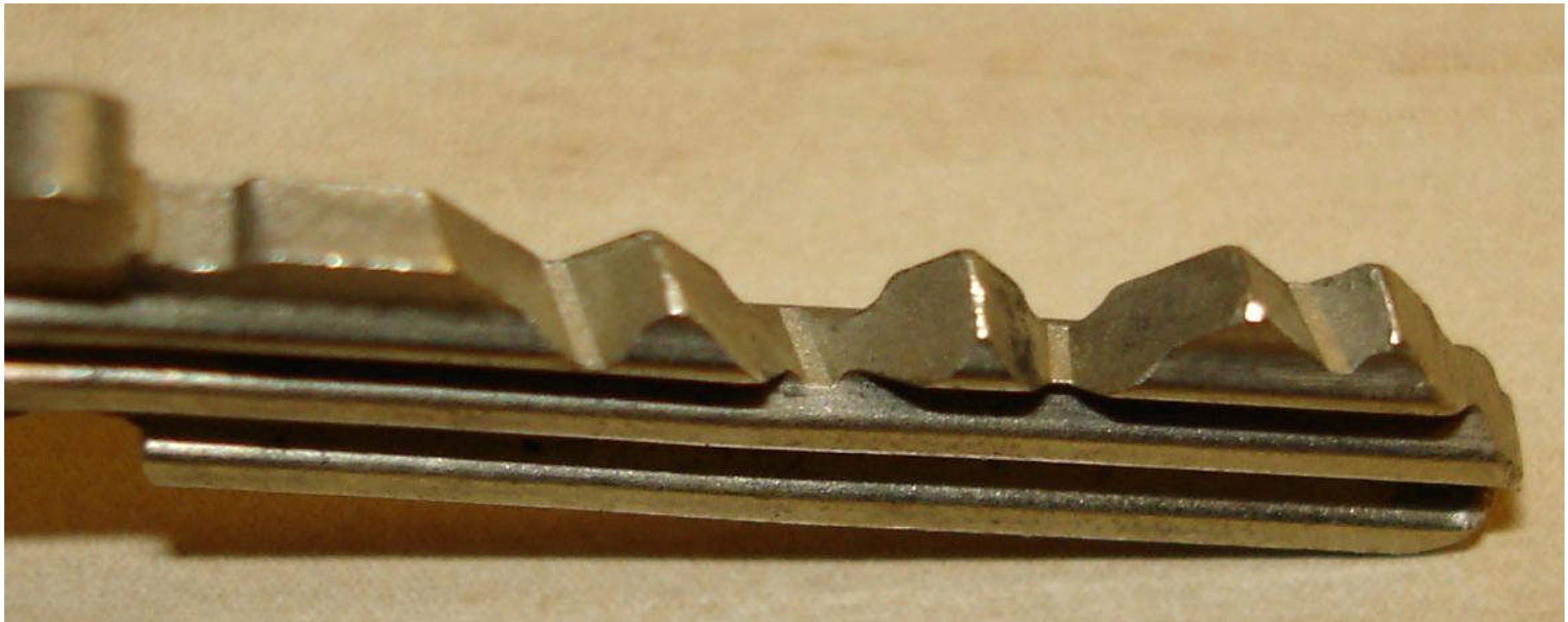
# Axial Rotation







# Axial Rotation





# Types of Locks

- Pin Tumblers
- Warded
- Tubular
- Dimple



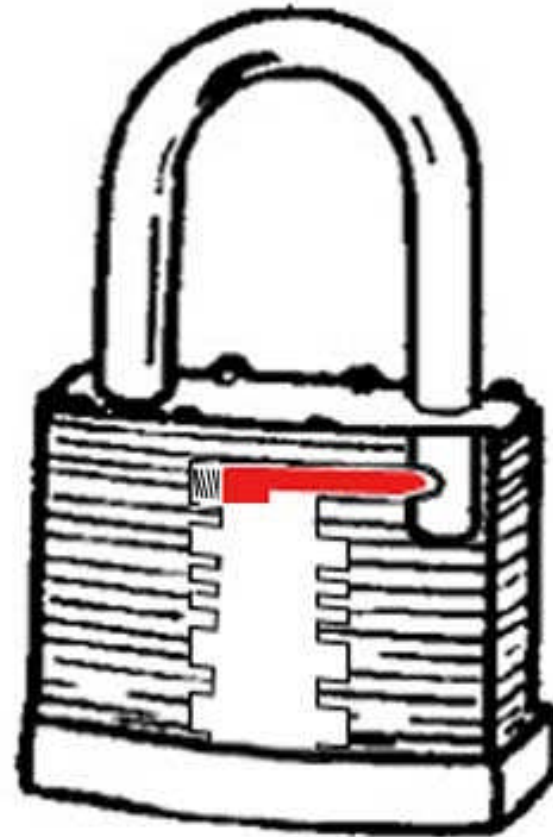
# Warded Locks

- Latch and spring
- One important latch
- Other latches to get in the way
- Requires:
  - Warded picks
    - Bought
    - Home made
- Commonly found:
  - Anywhere; popular, but not as much as pin tumblers





# Warded Locks





# Warded Picks





# Tubular Locks

- Pin stacks (4,7,8)
- Arranged in a circle
- Requires:
  - Tubular picks
  - Ballpoint pen casing
- Commonly found:
  - Vending machines
  - Bicycle locks







# Tubular Picks





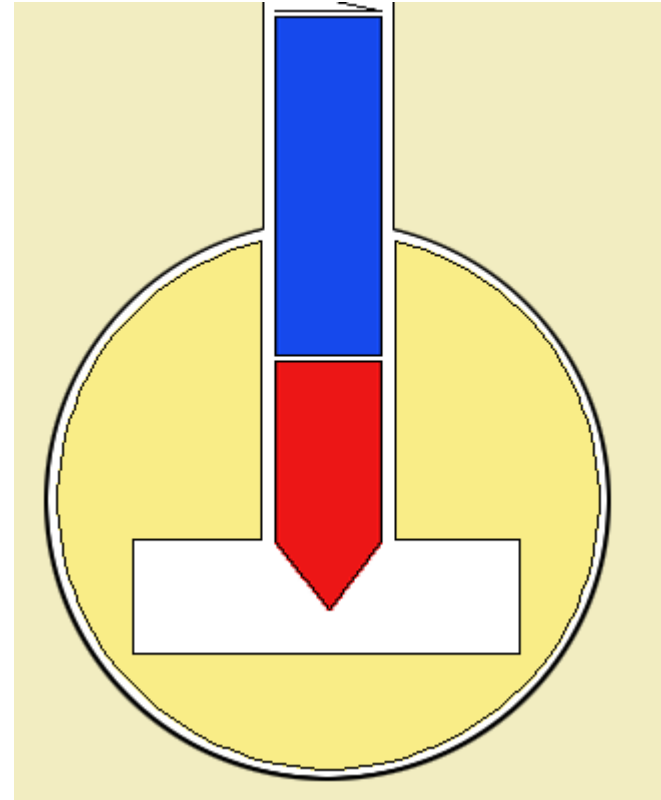
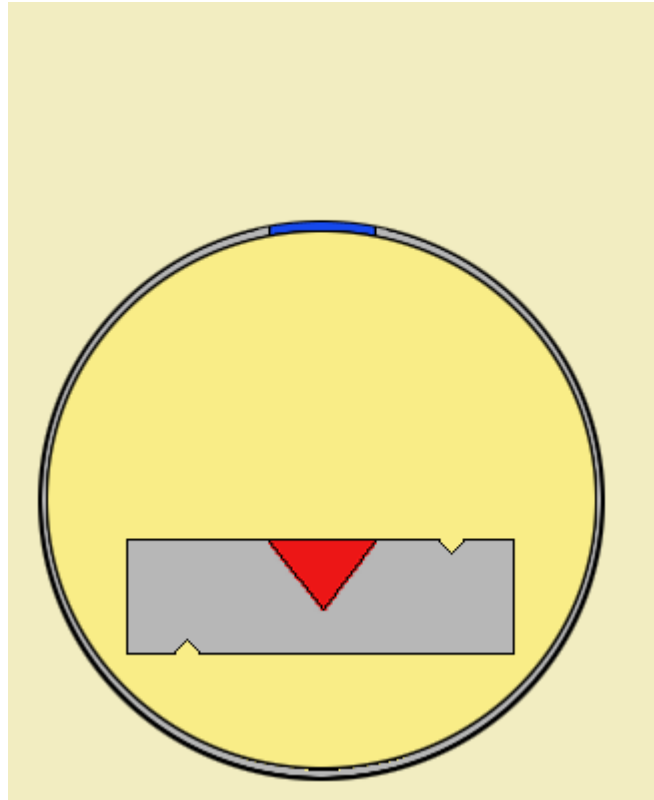
# Dimple Locks

- Pin stacks
- Horizontal keyway
  - Hard to pick!
- Requires:
  - Dimple picks
  - Key bumping
- Commonly found:
  - High security locks
  - Automobile door locks
  - Automobile anti-theft devices



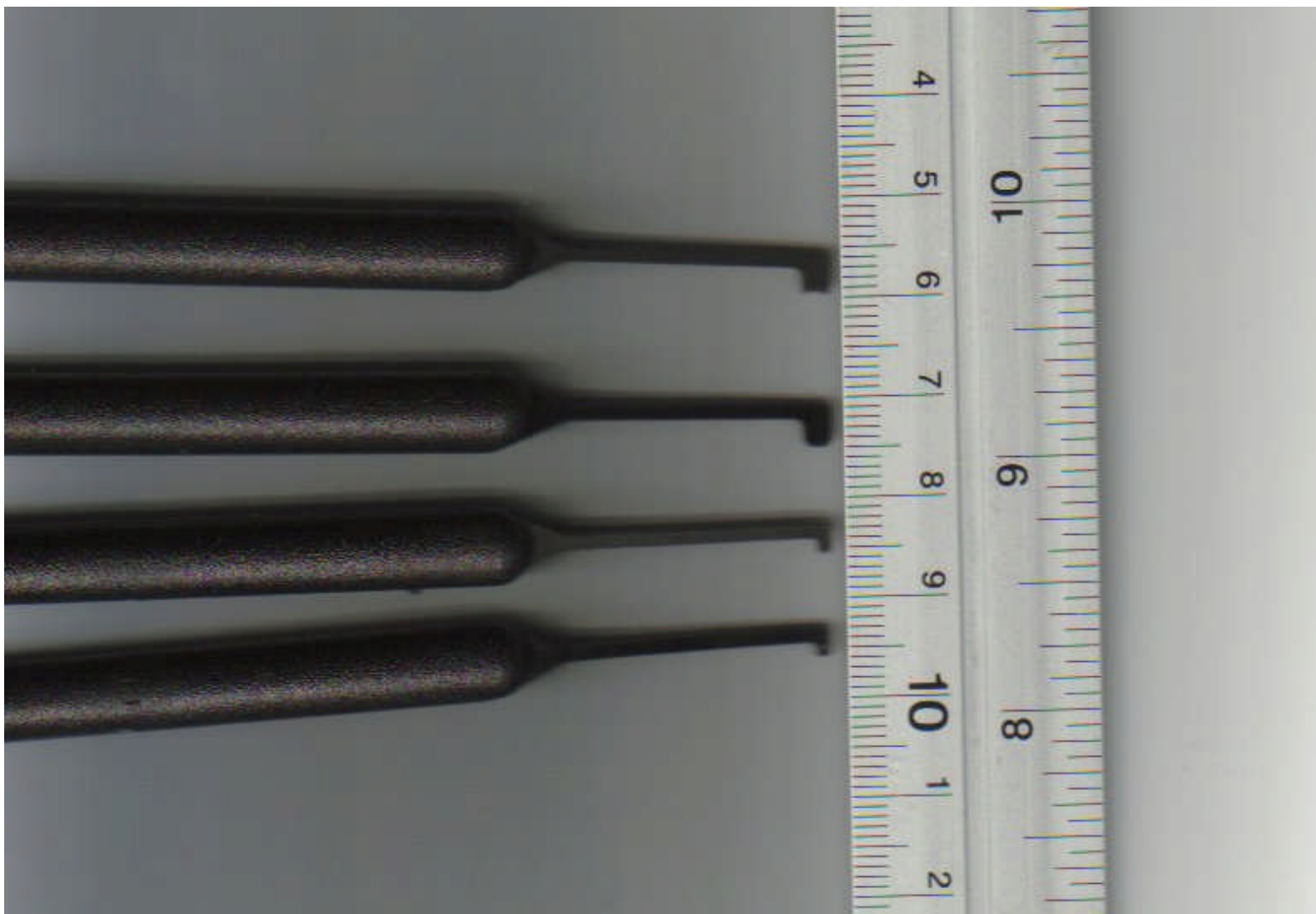


# Dimple Locks





## Dimple Picks (Souber)





# Introduction to Lock bumping

- How Bumping Works
- Pick Guns
- Creating Bump keys
- Minimal movement method
- Defending against Bumping



# General Response to Bumping

- Fake
- Hard to do; only professionals can do it
- Requires massive monetary/time investment
- Requires many keys for 100% efficiency
- Keys must be made extremely exact
- Keys are hard to obtain
- Burglars need to know what lock it is beforehand





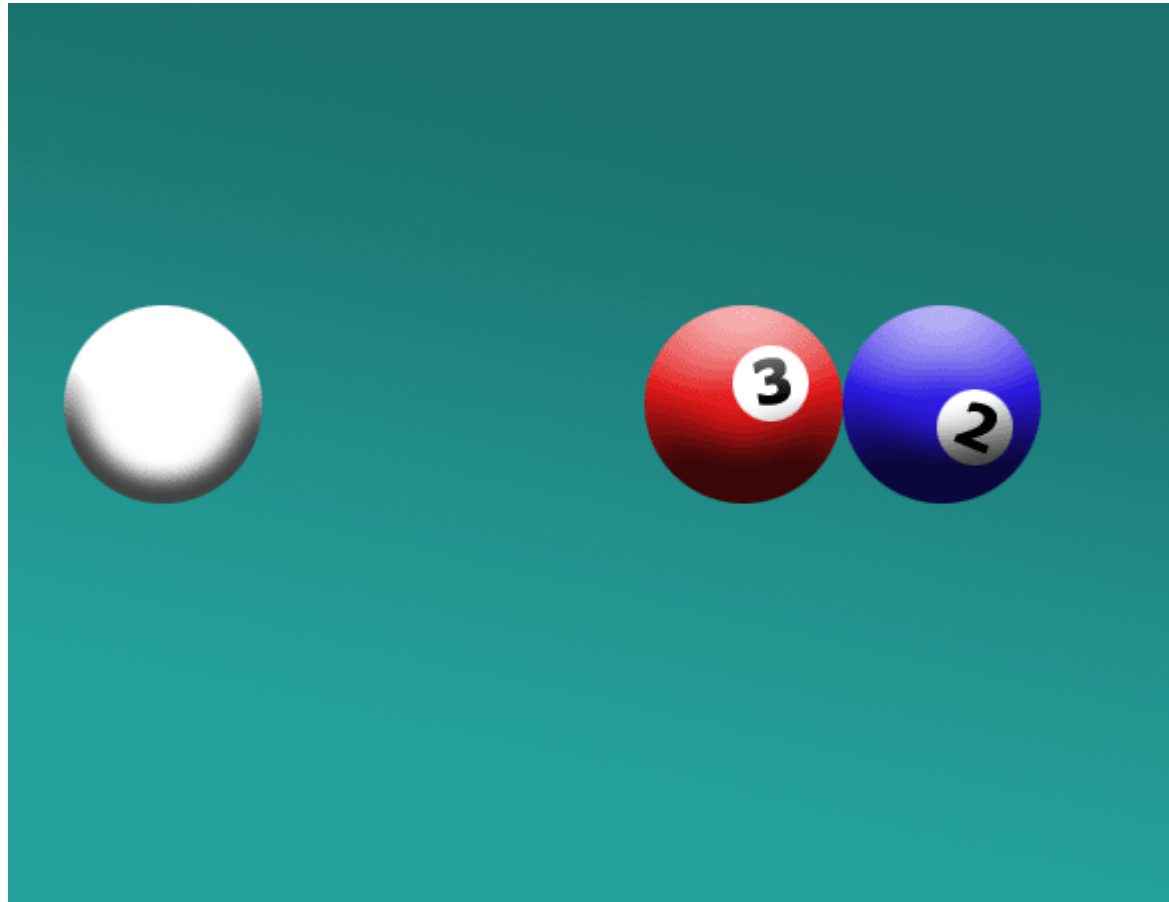
# How Bumping Works

- Specialized keys
- Newton's cradle principle
- Related to pick gun method
- Also explained by pool balls



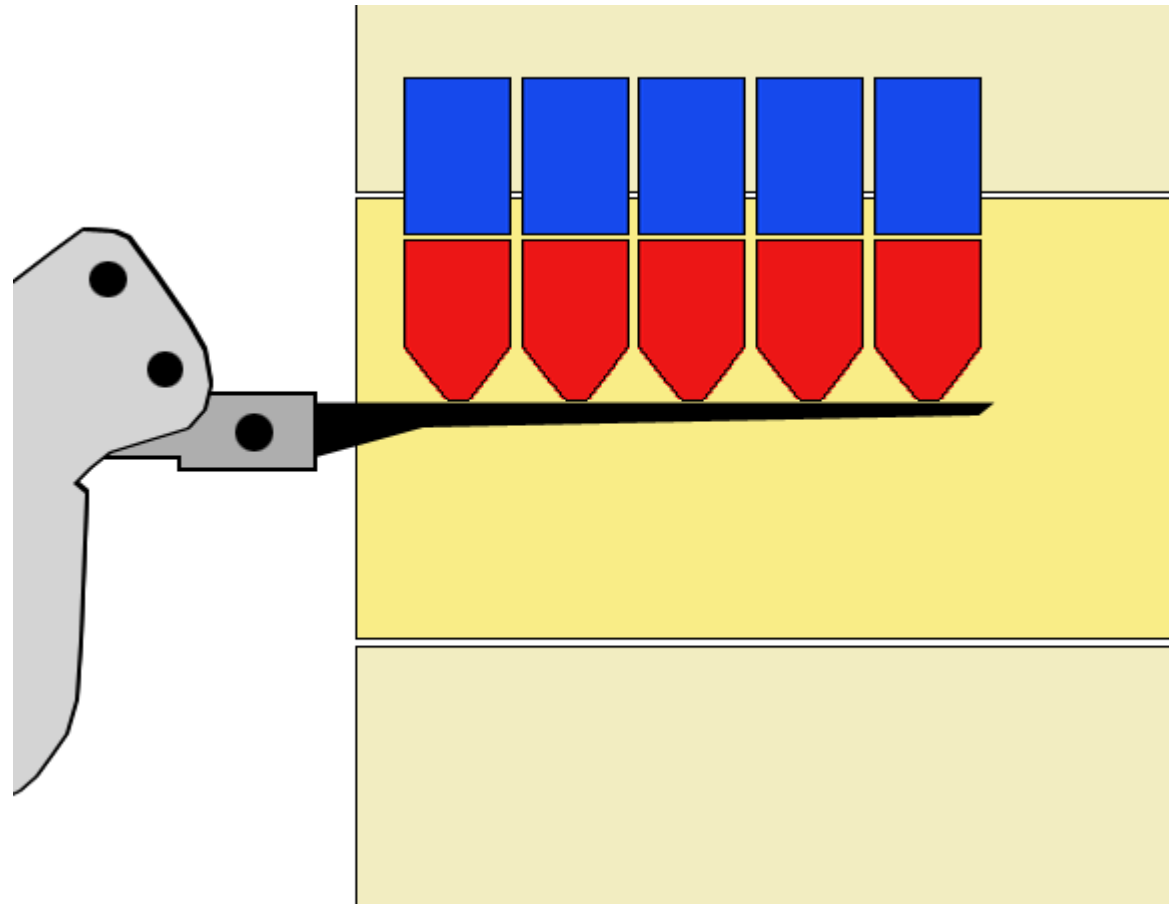


# How Bumping Works





# Pick Gun Mechanics





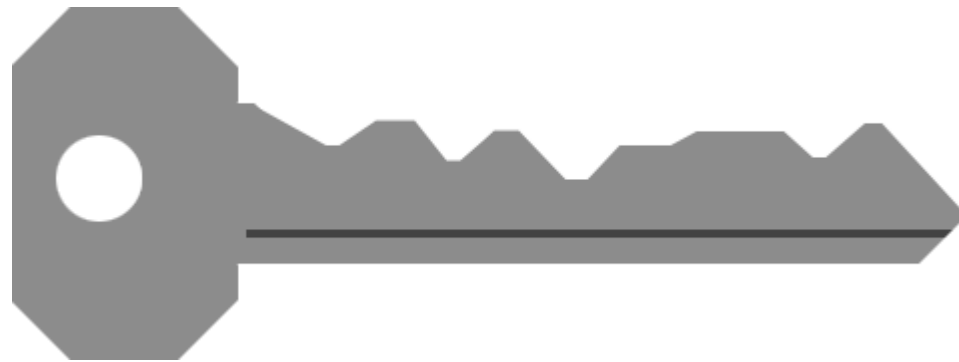
# Bump Keys





# Creating Bump keys

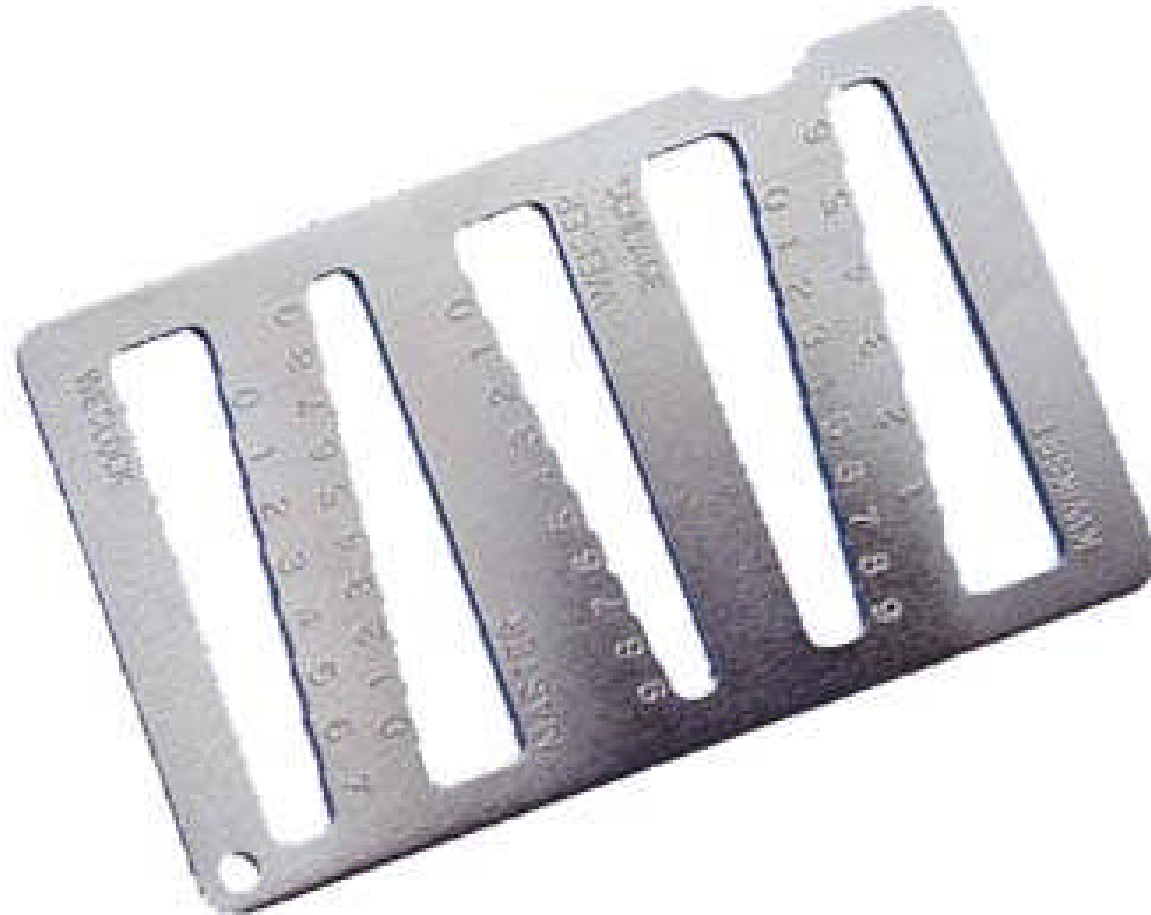
- Obtain key that will fit the lock
- Cut “999” key, (deepest pin depths)
  - Key gauges can be used for this



- Cut with:
  - Hand file, dremel, professional key cutter



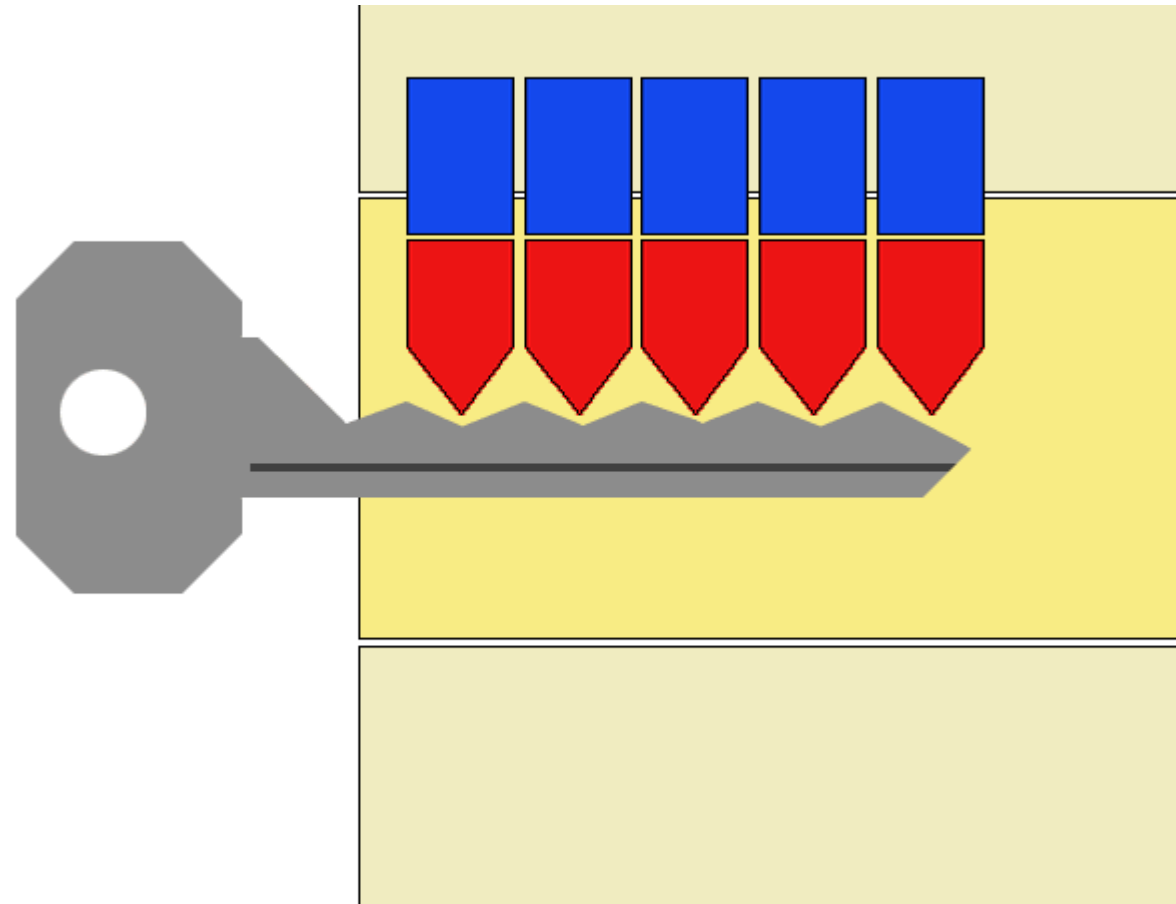
# Key Gauges





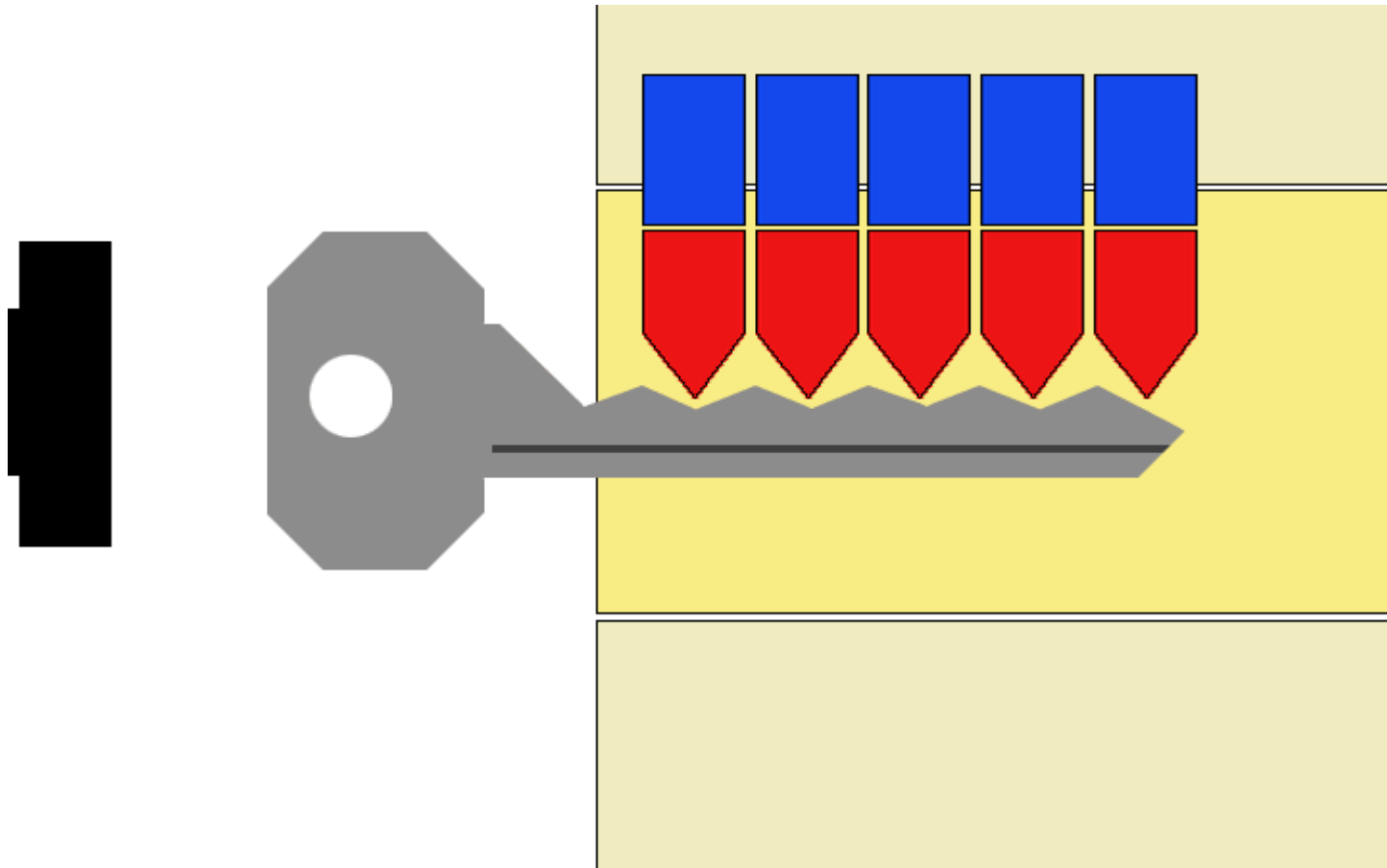


# Key Bumping



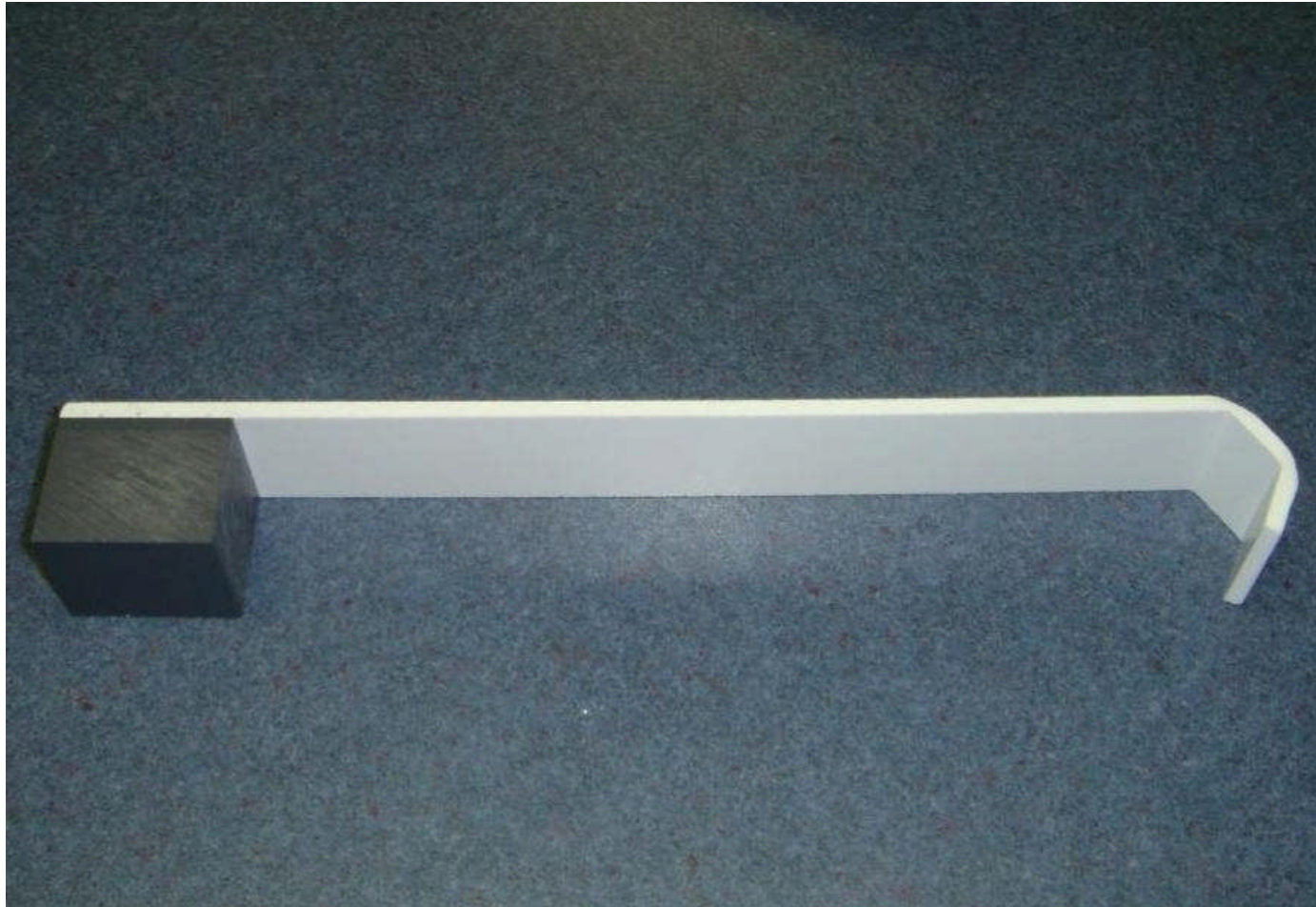


# Key Bumping





# Bumping Hammers



- KEBump



# Demonstration



# Bumping Tracks

- Slight deformations can occur
- Caused by the shoulder
- Solution? Glue gun shoulder!





# Glue Gun Shoulders

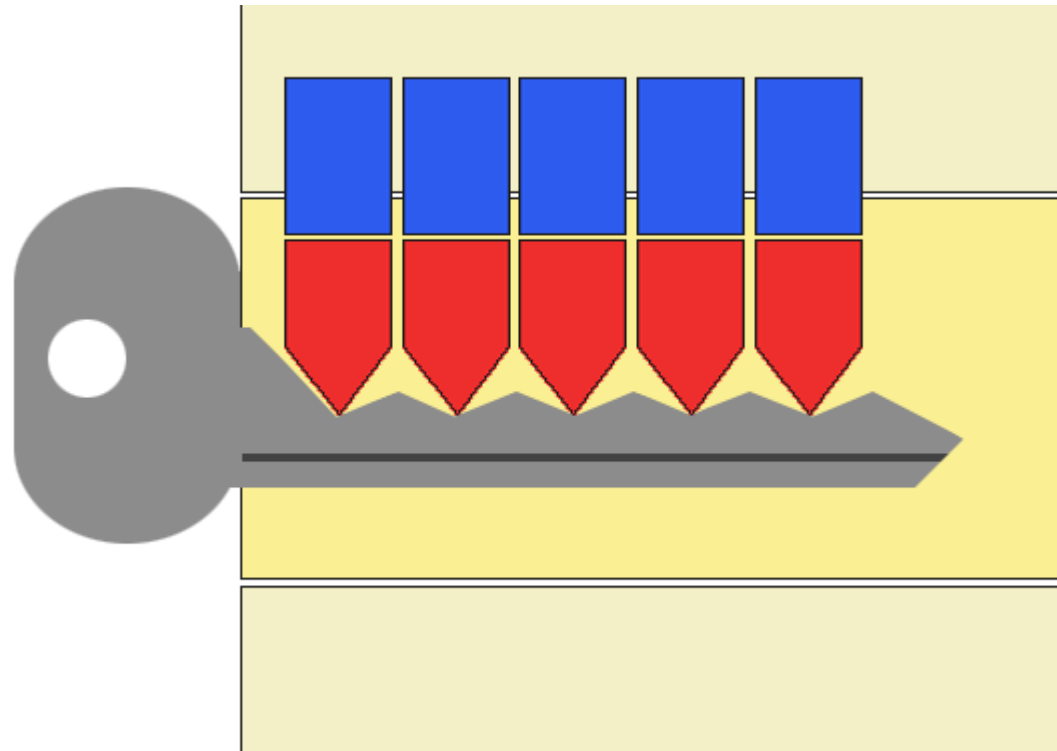
- Mitigates damage to face of lock
  1. Remove shoulder on key
  2. Cut glue gun stick in half
  3. Heat halves and seal together on key
  4. Bump!





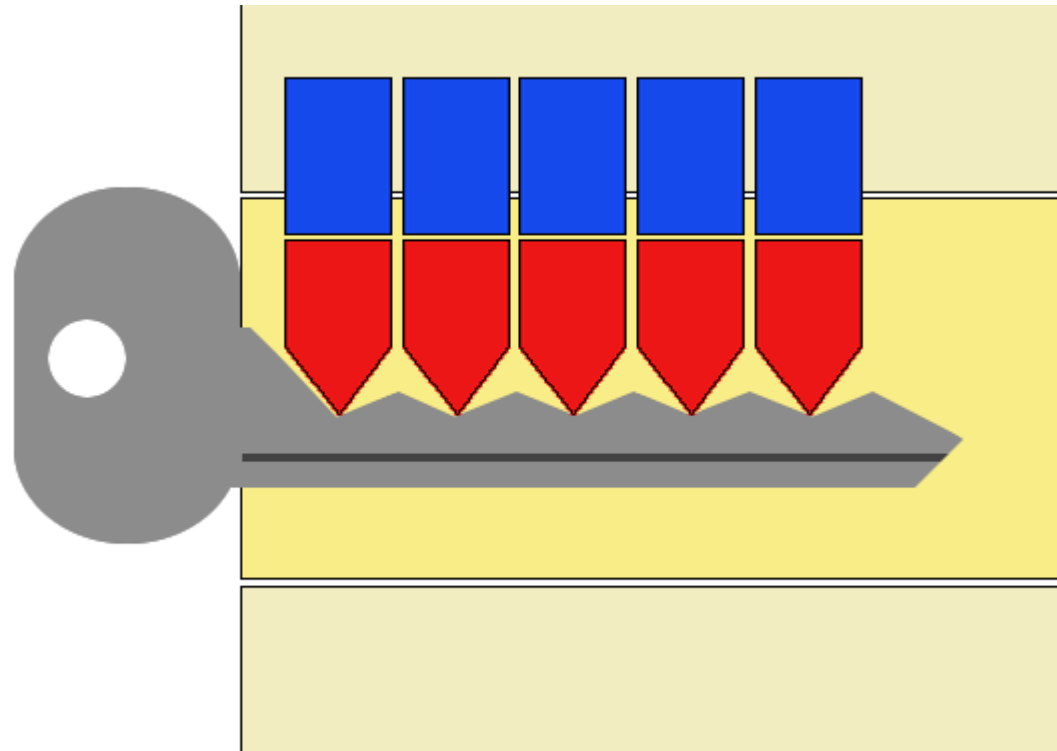


# Minimal Movement Bumping



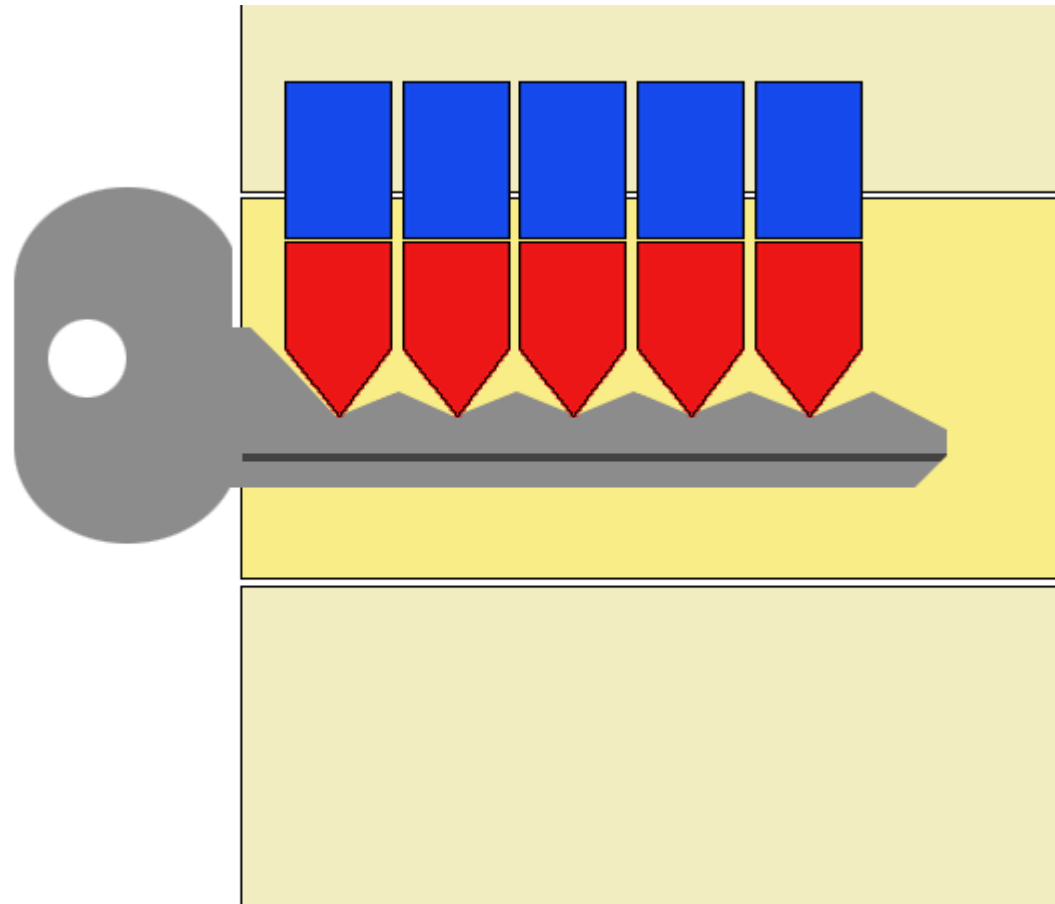


# Minimal Movement Bumping



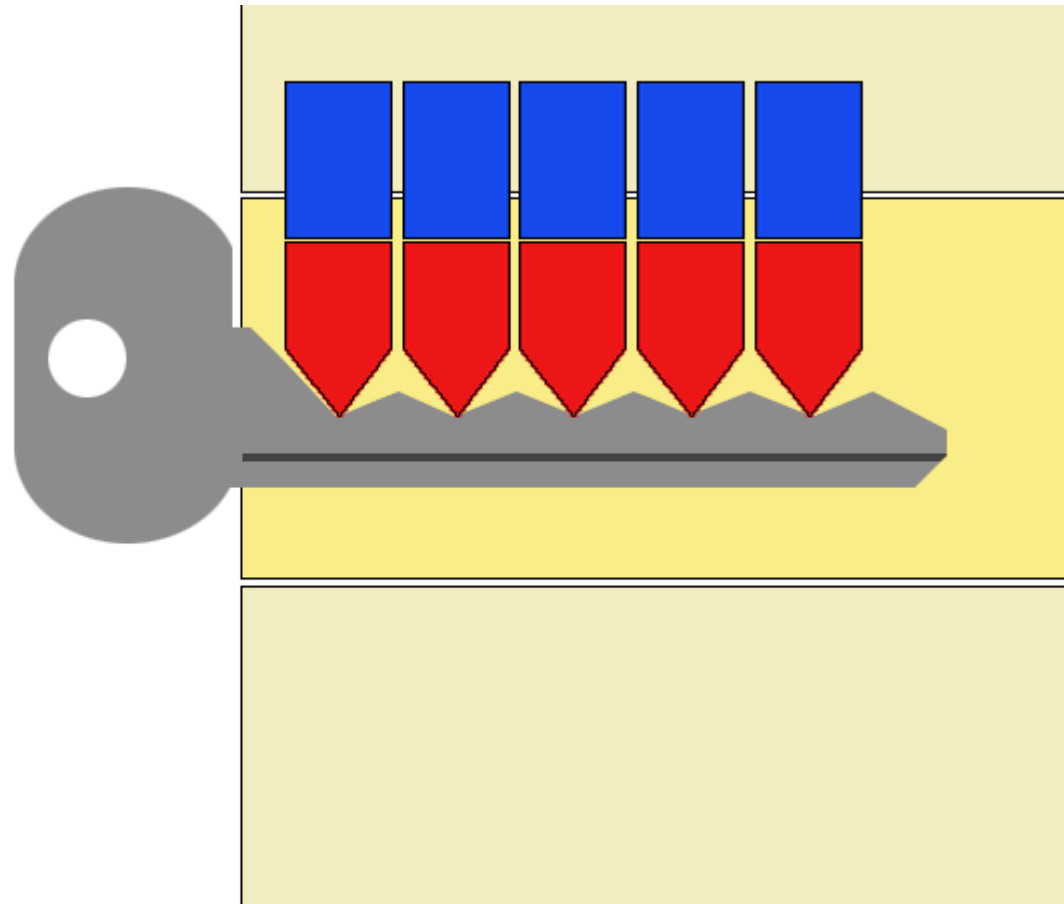


# Minimal Movement Bumping





# Minimal Movement Bumping





# Should bumping scare you?

- Quite frankly, yes.
- Inexpensive
- Inconspicuous
- EASY
- Few locks offer protection
  - Especially in the USA
- Insurance problems



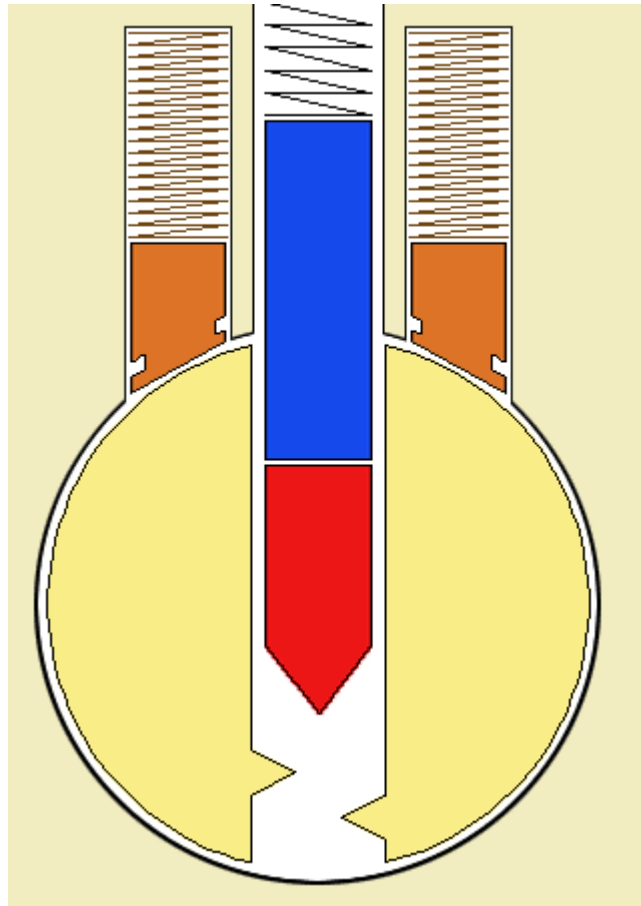
# Defending against Bumping

- Sidebars
- Trap pins
- Shadow drilling



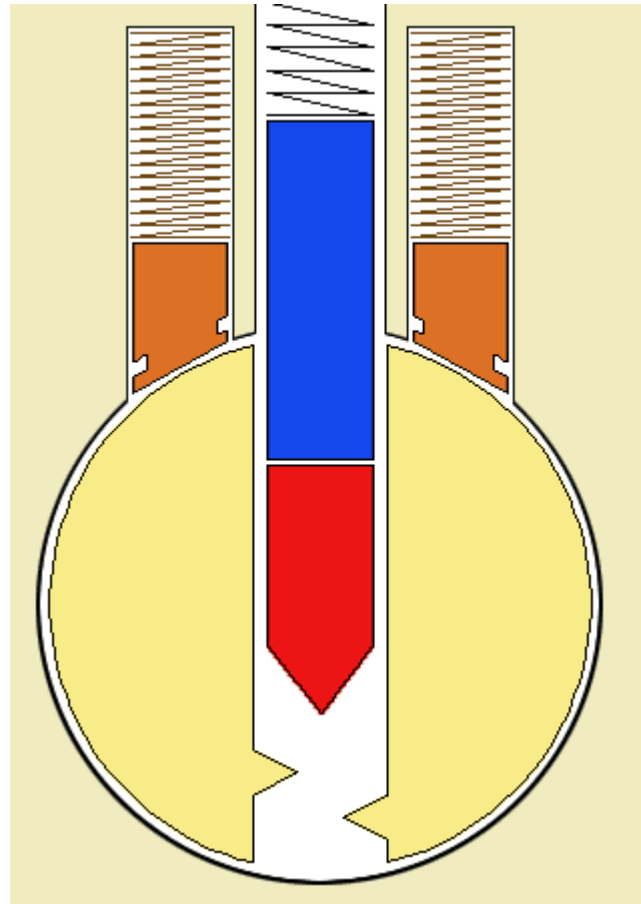


# Trap Pins



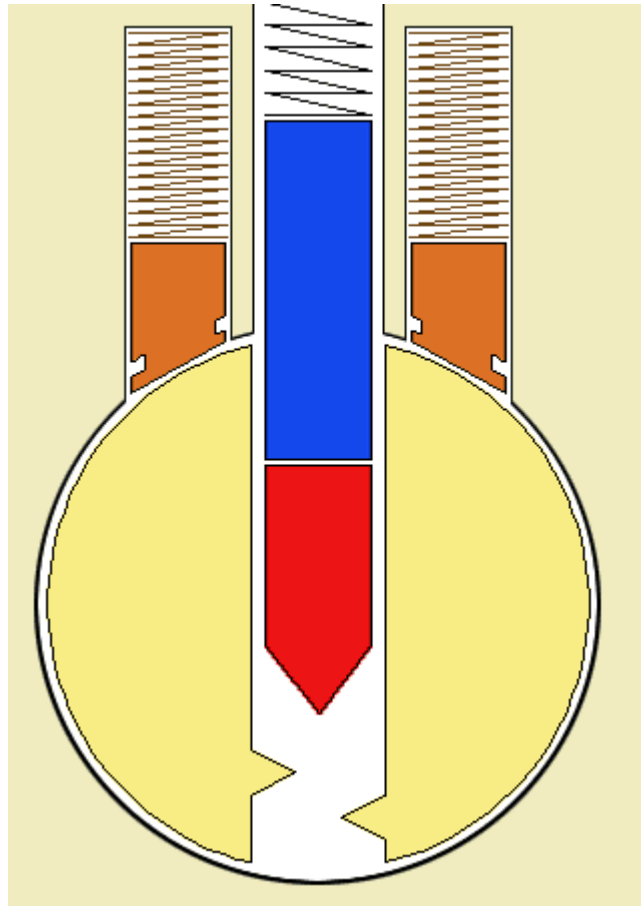


# Trap Pins (With Key)





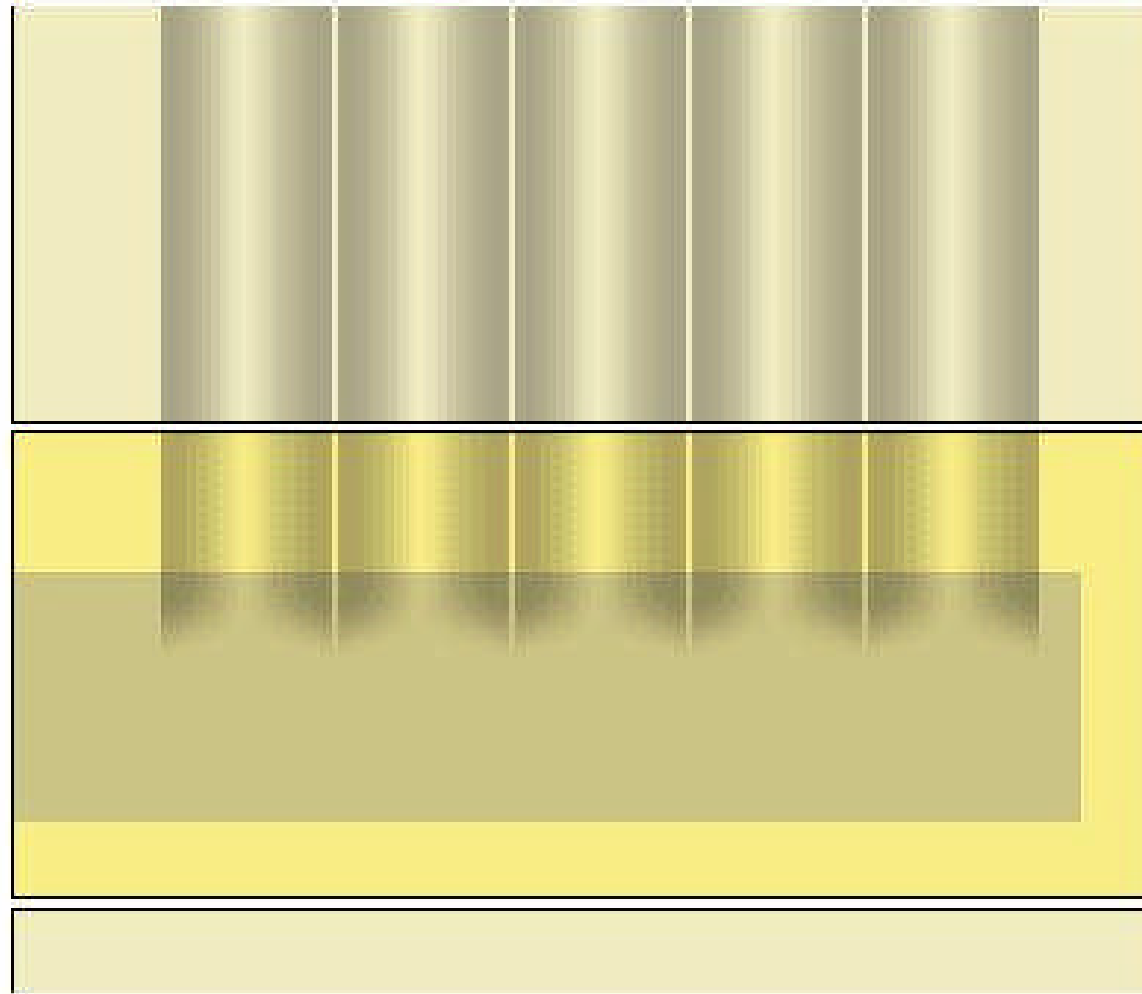
# Trap Pins (Bumped)



- What problem exists?

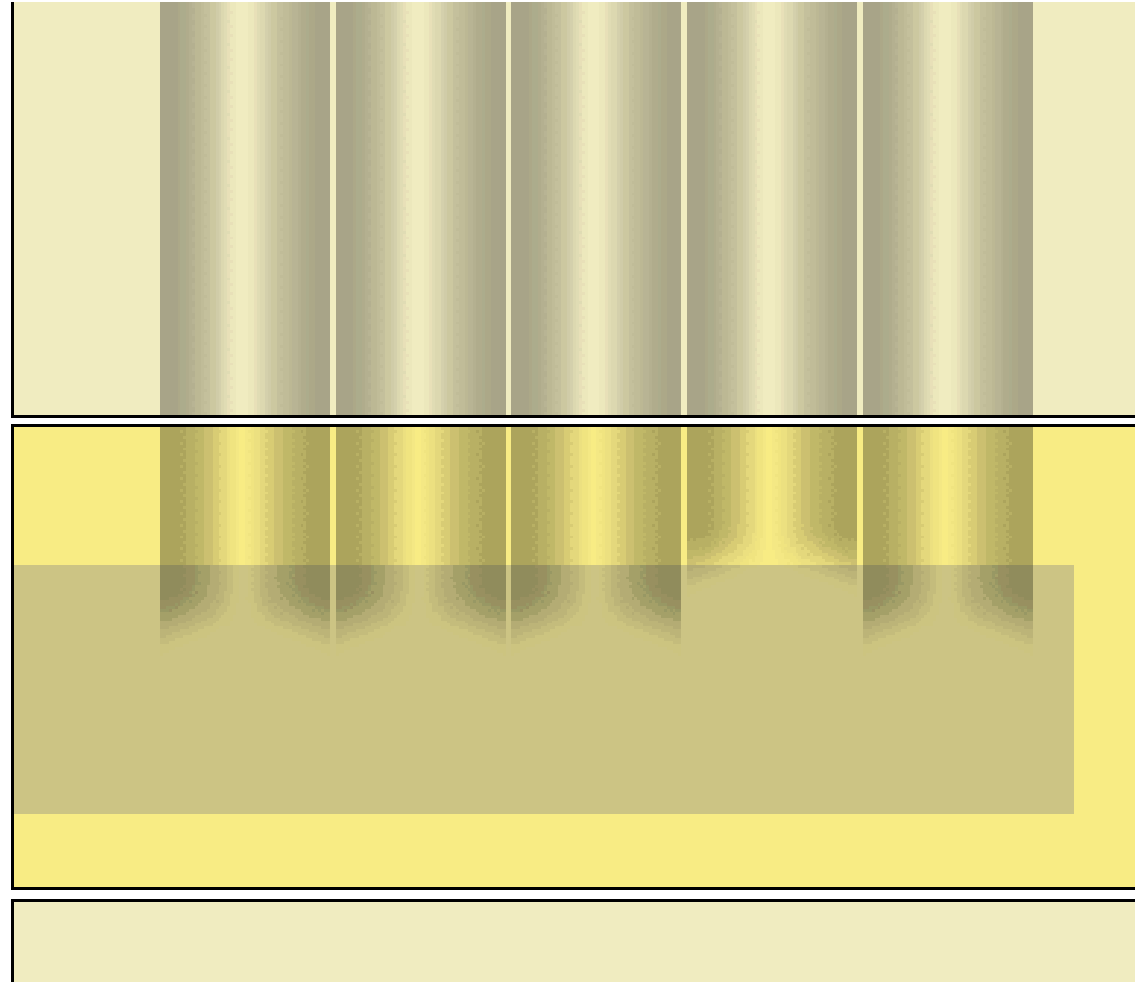


# Shadow Drilling



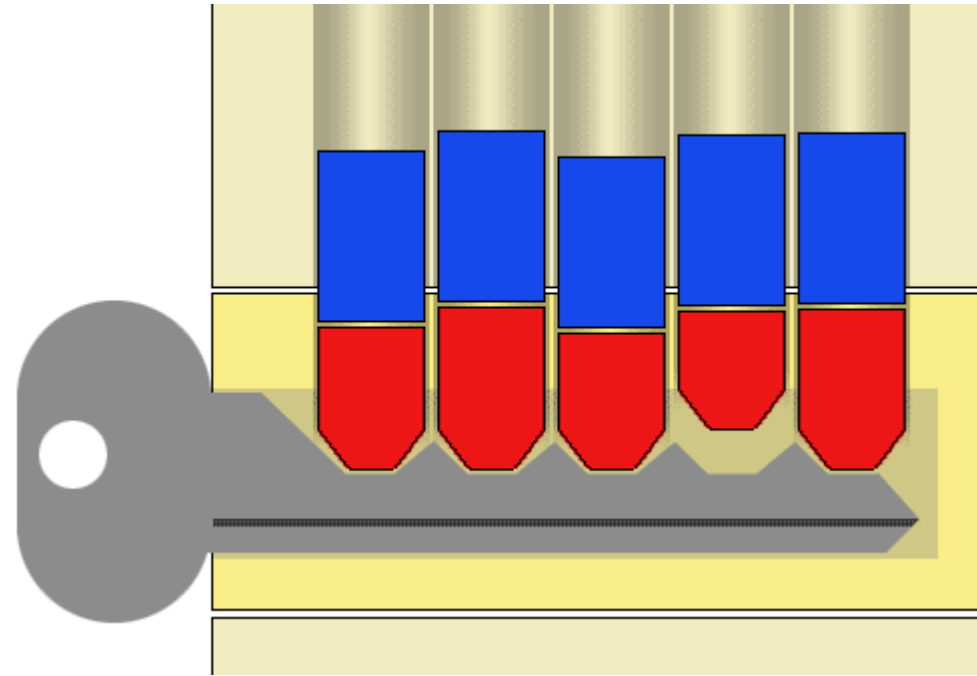


# Shadow Drilling





# Shadow Drilling

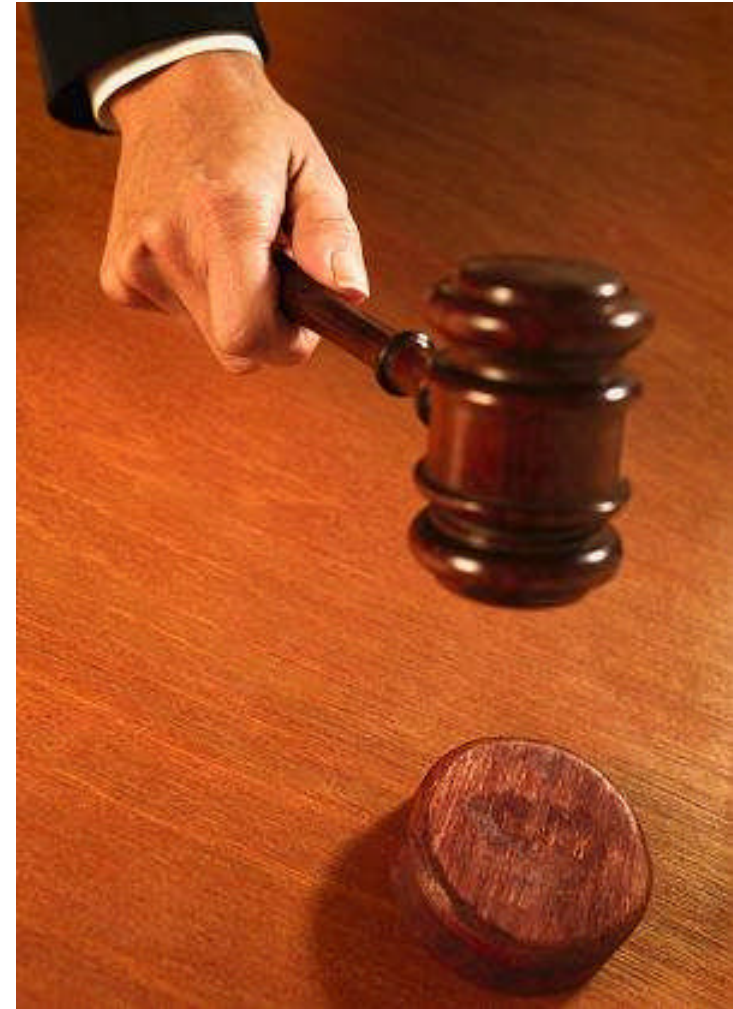






# Legal Issues

- Don't be a criminal
- Purchasing
  - Variable...
  - General eligibility:
    1. Lock manufacturer/distributor
    2. Law enforcement / MP
    3. Automobile dealer
    4. Repossession
    5. Certified Locksmith
- Possession
  - “Prima facie”
  - Intent





# Affordable Security

- Good Locks:
  - **medeco** (biaxial chisel pins)
  - **BEST** (SFICs)
  - **ASSA** (V-10)
  - **ABUS** (Granit & Diskus)
  - **AMERICAN** (700x, 2000 series)
  - **SG SARGENT AND GREENLEAF** (833 series)
  - Schlage (Primus)
  - Abloy (wafer/disk locks)
- BAD Locks:
  - **Master**
  - **Kwikset**





# Buying Picks and Tools

- LayerOne sponsored by:
  - <http://lockpickshop.com>
    - Great for picks, pick sets, misc. tools (gauges, spinners, etc), and practice cylinders.
- Also check out <http://lockpicks.com>
  - They offer some items that LPS does not, such as key blanks, key cutters, and other such tools.



# Links

- TOOOOL
  - <http://toool.nl>
  - Bumping PDF:
    - <http://toool.nl/bumping.pdf>
  - MIT Guide to Lockpicking:
    - <http://toool.nl/pdf/mit.pdf>
- Marc Tobias
  - <http://security.org>
- Barry Wels
  - <http://connect.waag.org/toool>
- Lockpicking Forums
  - <http://lockpicking101.com>
- Lockpick Vendors
  - <http://lockpickshop.com>
  - <http://lockpicks.com>
  - <http://southord.com>
  - <http://peterson-international.com>
- KEBump
  - <http://kebump.com>



# Thanks and Credits

- Deviant Ollam (images!)
- Magnus Björkbom (picking illustration)
- SteveW (dimple pick image)
  
- Lockpickshop.com (sponsors! Woot!)
- KEBump (sponsors! Woot!)



Questions ?





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