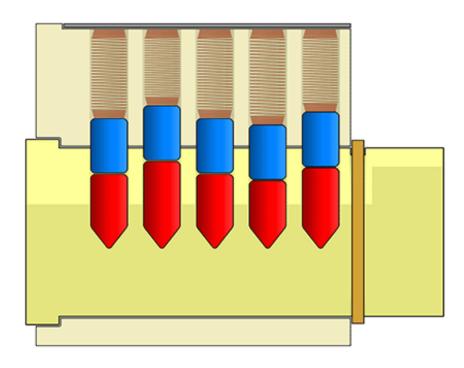
Lockpick



<u>Pins</u>

<u>Wafer</u>

5

Combo

<u>Resis</u>

<u>tant</u>

<u>Bumpi</u>

ng

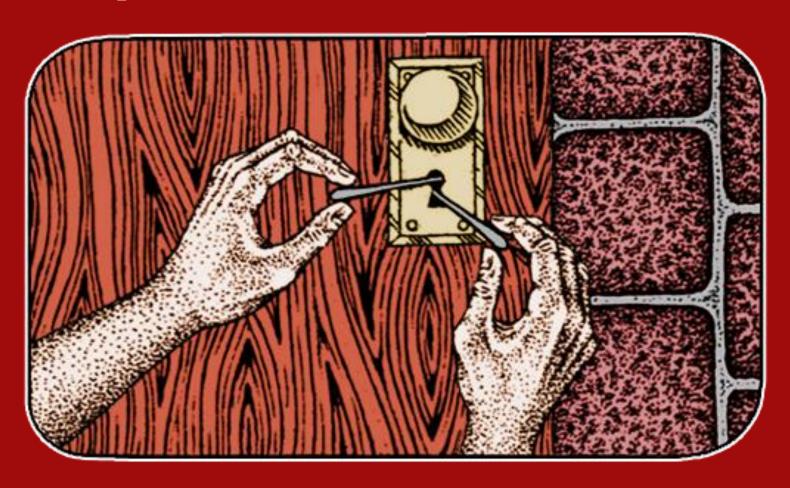
<u>Impre</u>

<u>ssion</u>

<u>Maste</u>

<u>ring</u>

Why do Locks Matter?



Locks Hold a Special Place in Our Lives





Locks Hold a Special Place in

Our Lives





Locks Hold a Special Place in Our Lives





Locks Hold a Special Place in





"What Does a Lock Signify?"

(Schu





"What Does a Lock Signify?"

(Schu





Puzzles



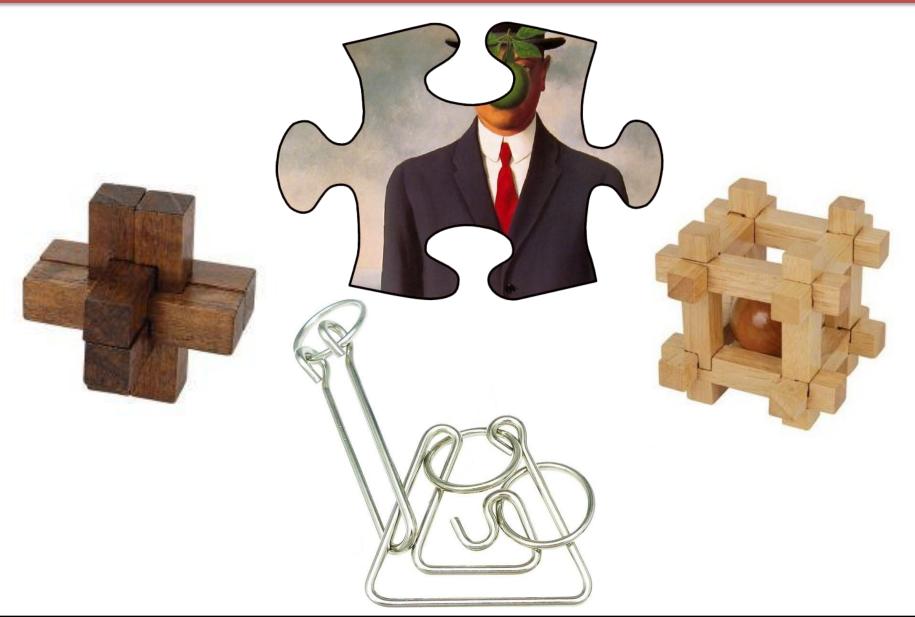


Puzzles





Puzzles





Lockpicking is fun puzzle

solving for us













Try your hand at Lockpicking

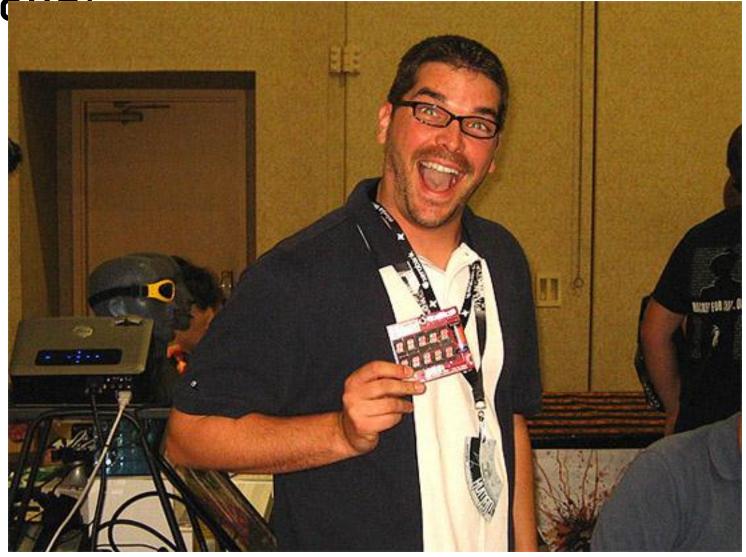
Game





... Win Fabulous Prizes and Become

Famous



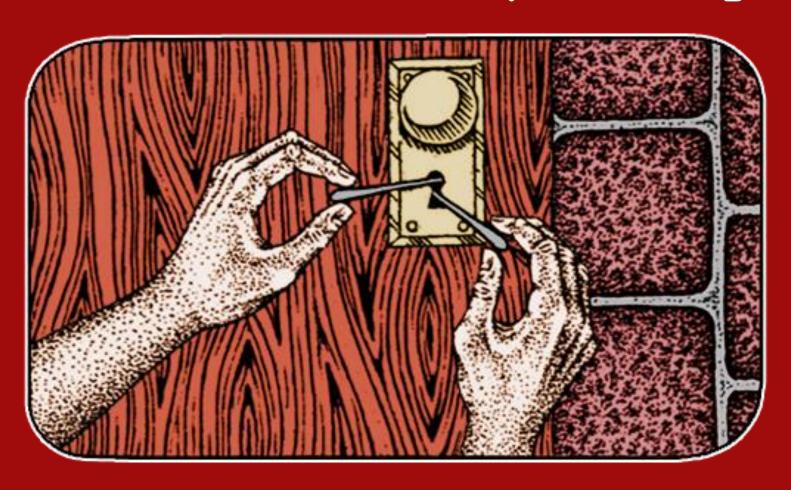


The Competition Can Get Serious





Intro to Lockpicking



First, a word about rules...

Yes₁ we have rules. ©

1.Do not pick locks which you do not own.

2.Do not pick locks upon which you rely.







1.Lockpicking



1.Lockpicking

2.Quick & Dirty



1.Lockpicking

2.Quick & Dirty



1.Lockpicking - what we
do

2.Quick & Dirty



1.Lockpicking - what we
do

2.Quick & Dirty - what criminals do



1.Lockpicking - what we
do

2.Quick & Dirty - what criminals do



1.Lockpicking - what we
do

Toool provides the knowledge and the means

2.Quick & Dirty - what criminals do

TOOOL provides knowledge. . . but



no means

Lockpicking is Easy!





Pin Tumbler Locks



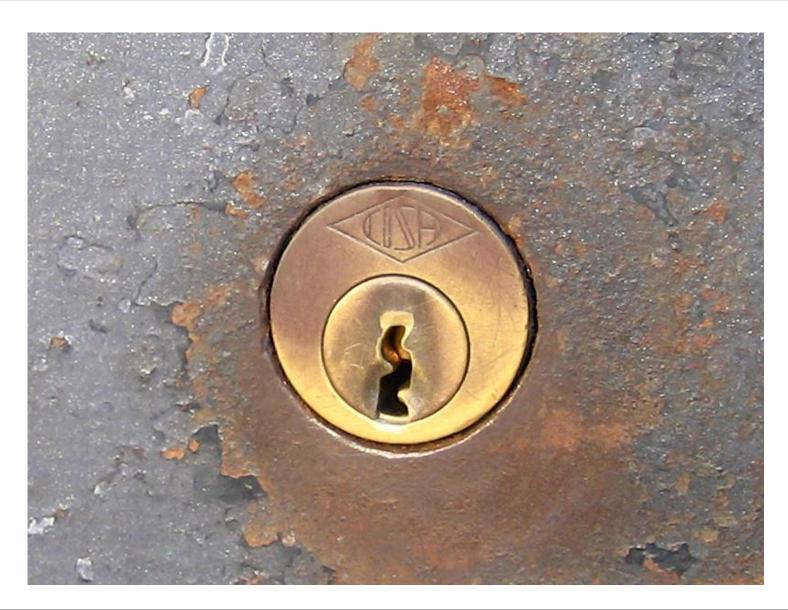


Pin Tumbler Locks



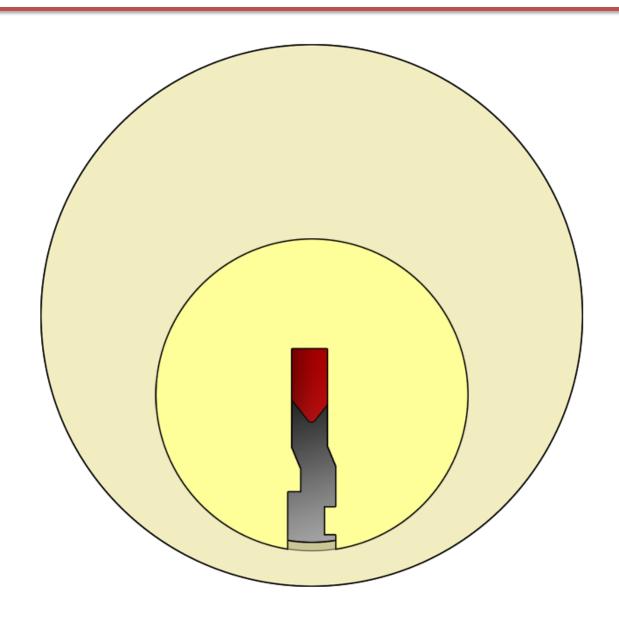


Pin Tumbler Locks



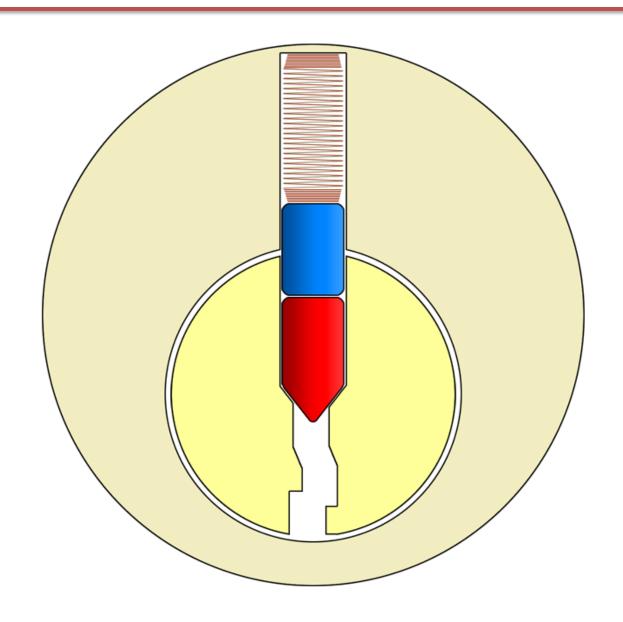


Outer View



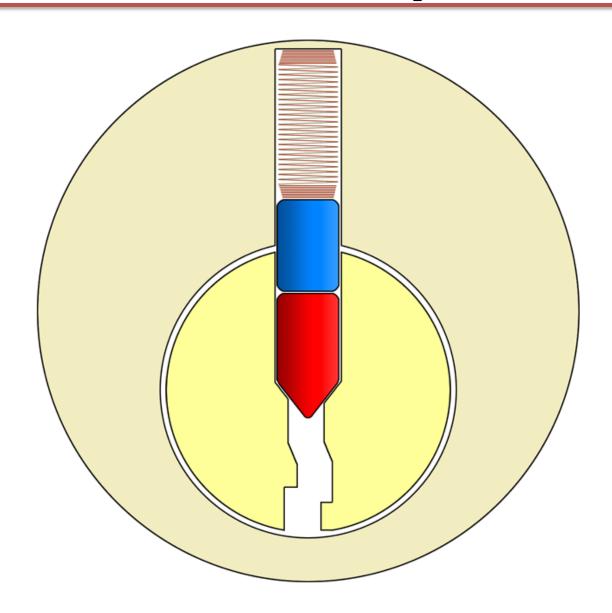


Inner View



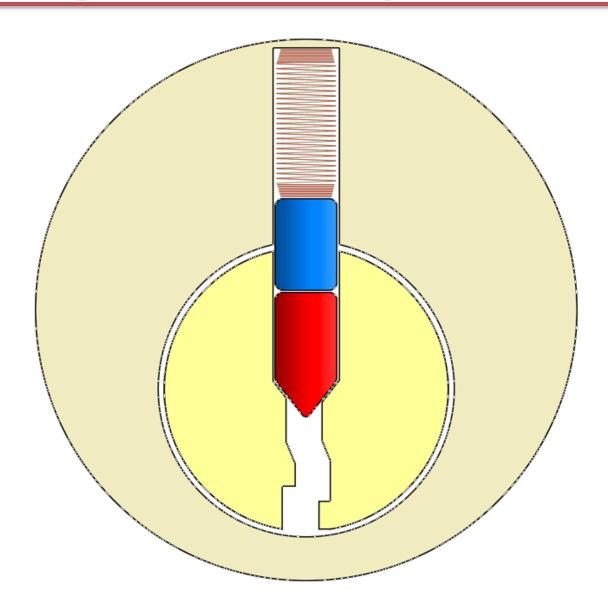


Attempt Without a Key



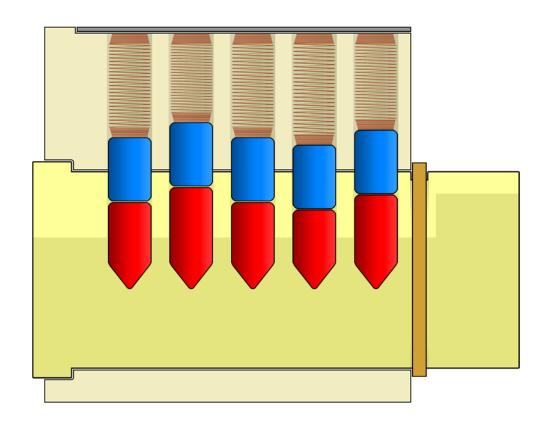


Operating With a Key



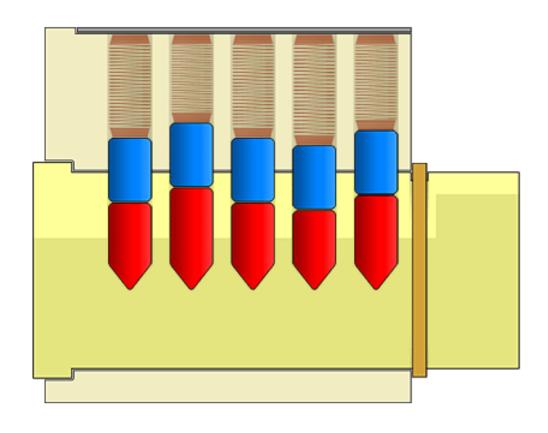


Pin Stacks



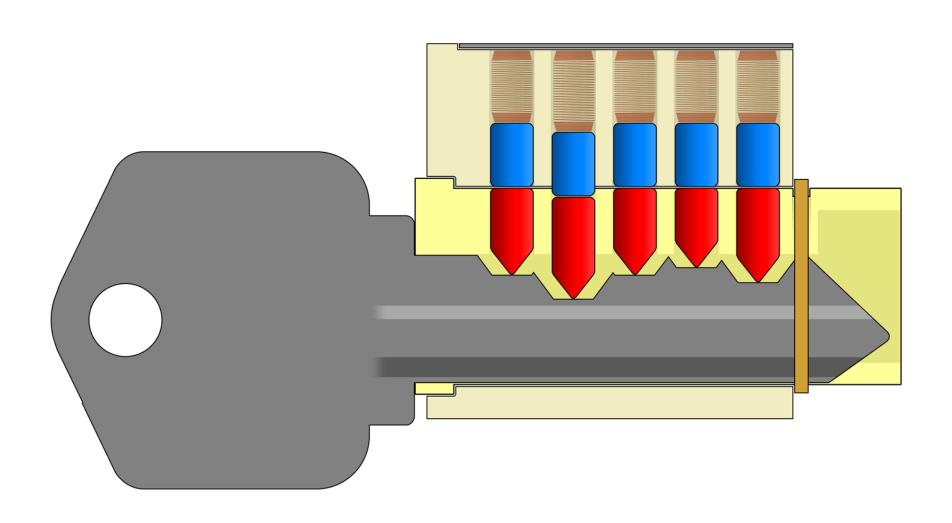


Key Operation



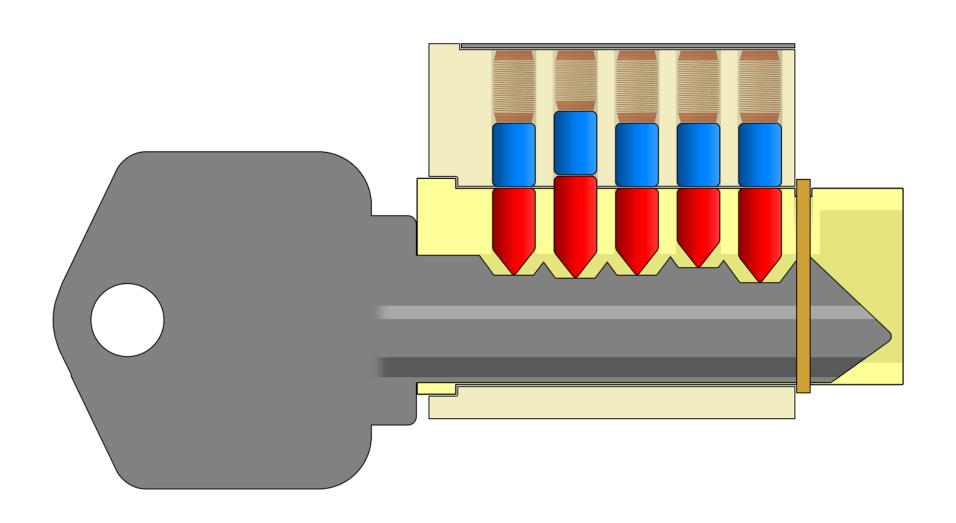


One Bitting Too Low



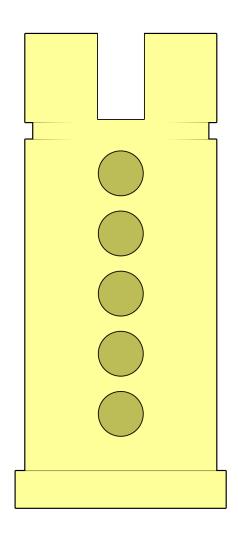


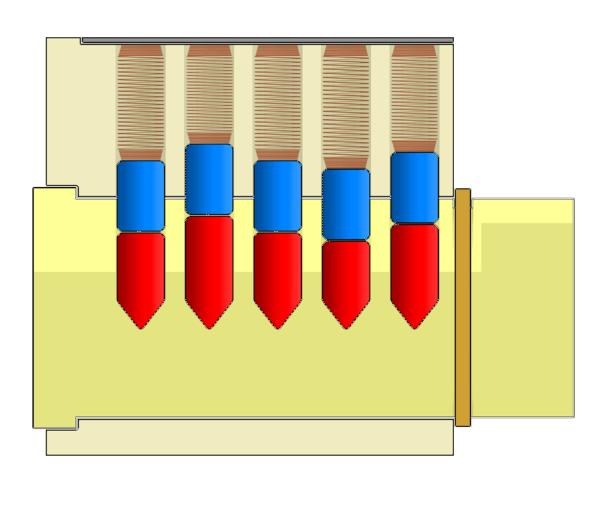
One Bitting Too High





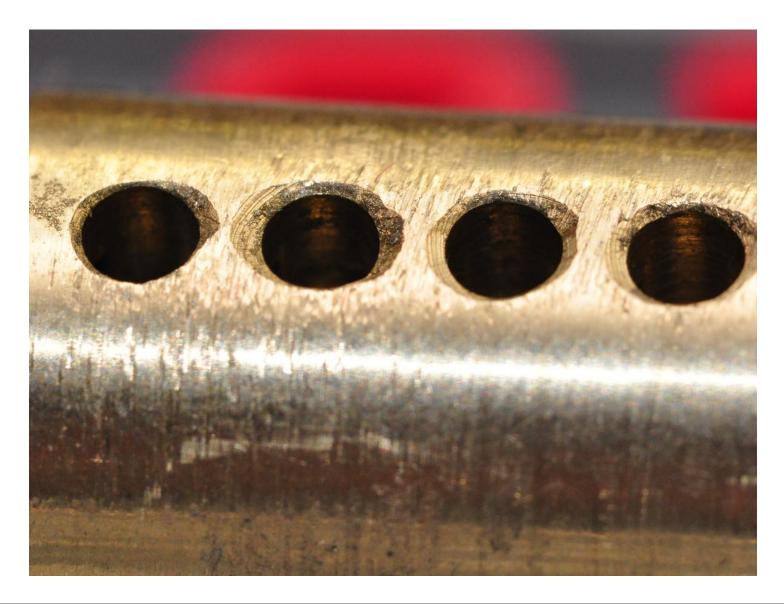
In a Perfect World







In the Real World



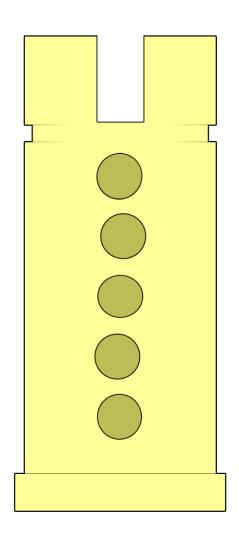


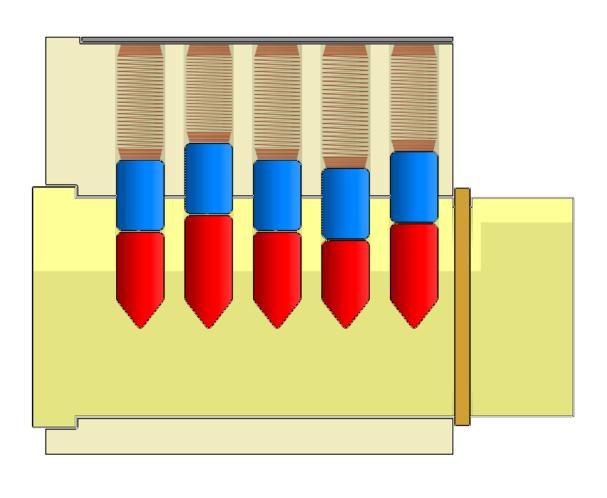
In the Real World





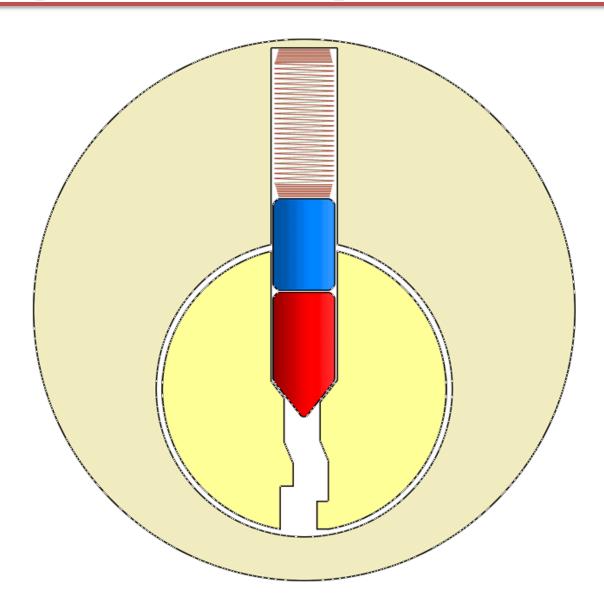
In the Real World







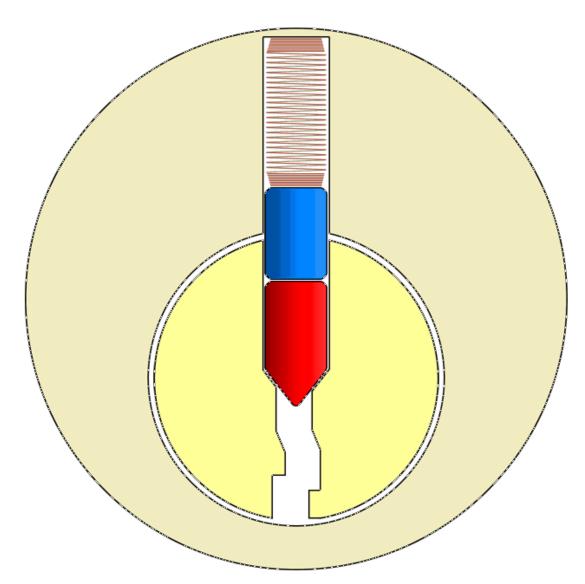
"Setting" a Binding Pin





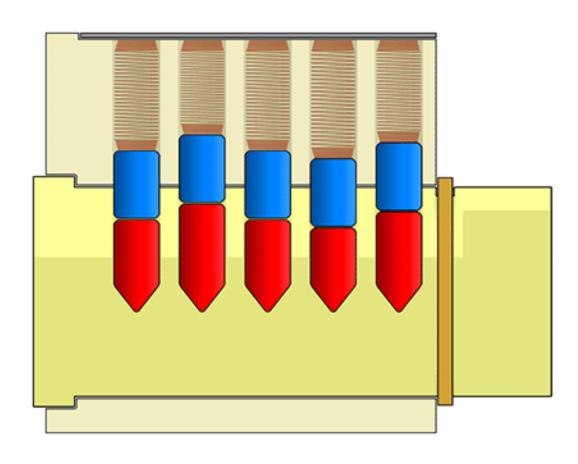
The Key Pin Can Still Move

Freely





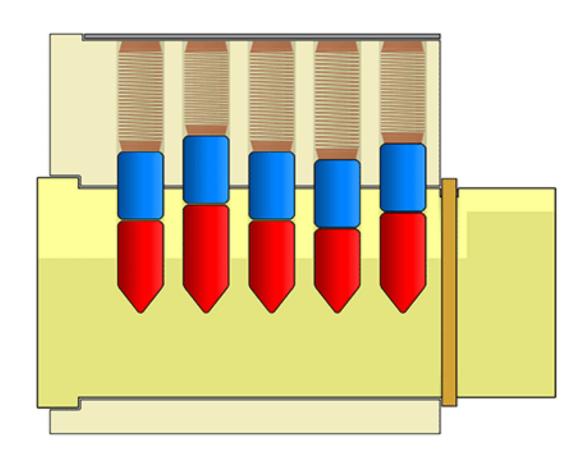
Setting Multiple Pins





Take Caution to Avoid Over-

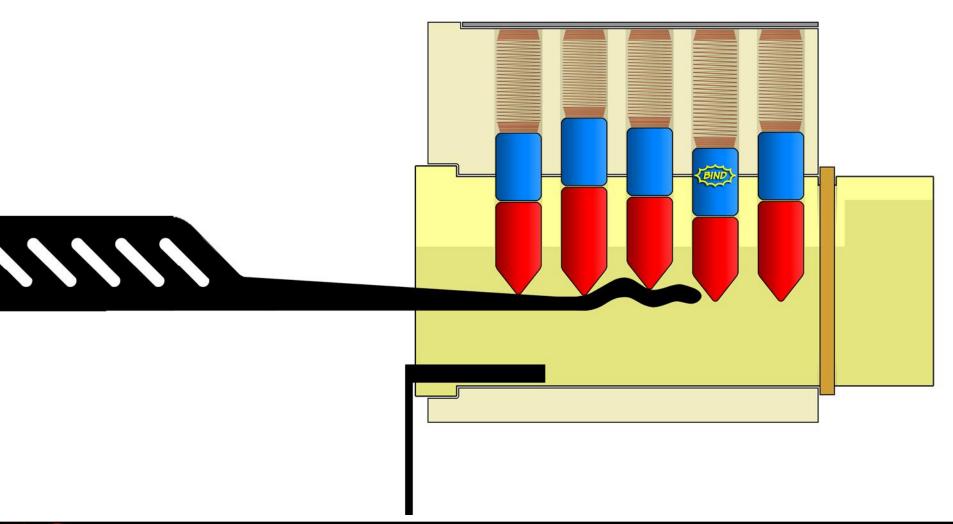
'ifting





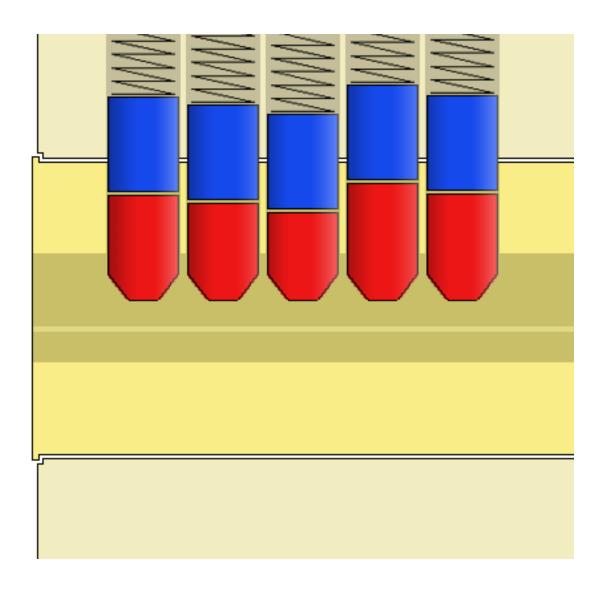
Other Tools One Uses







Raking



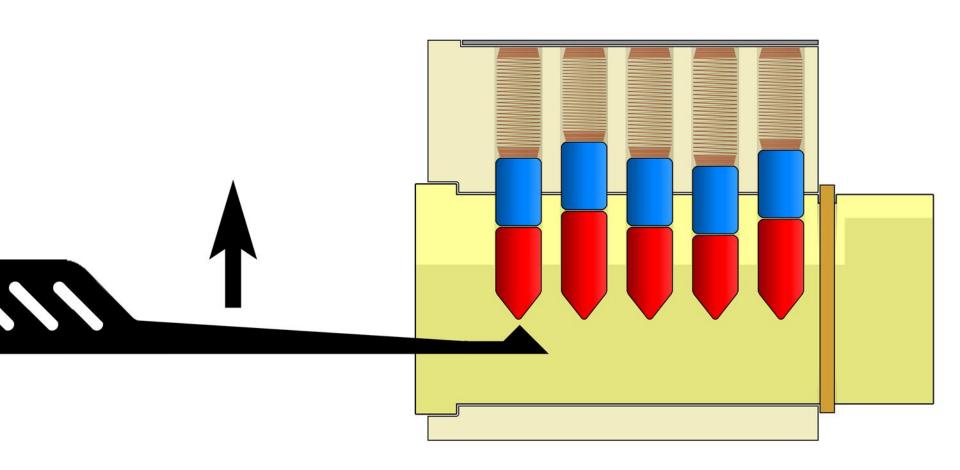


The Half-Diamond





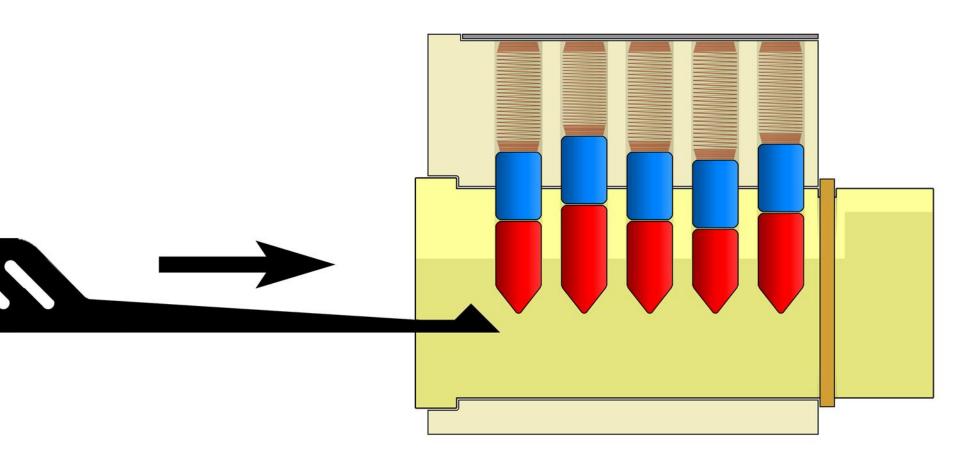
Lifting with a Half-Diamond





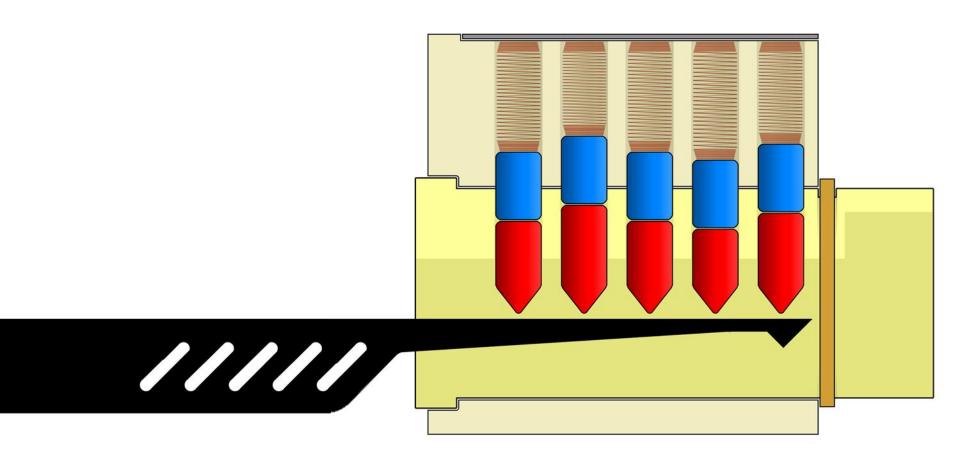
Raking/Shoveling with a Half-

Diamond



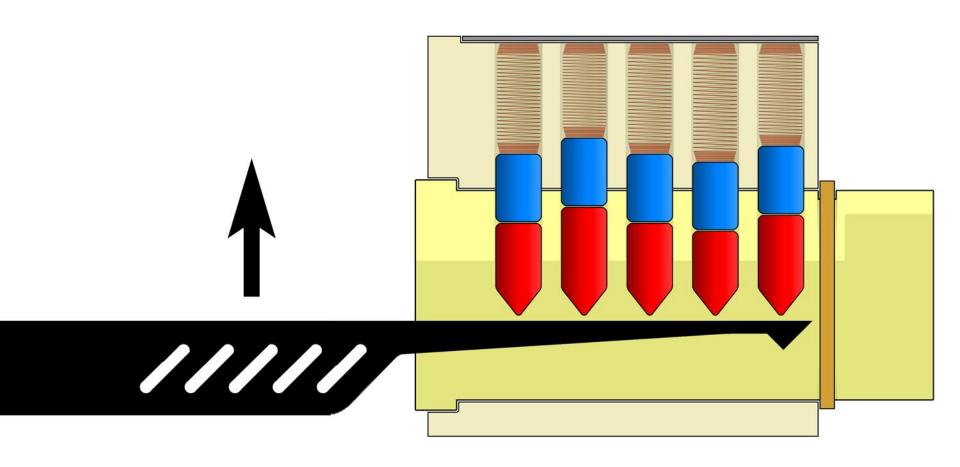


Using the Flat Underside



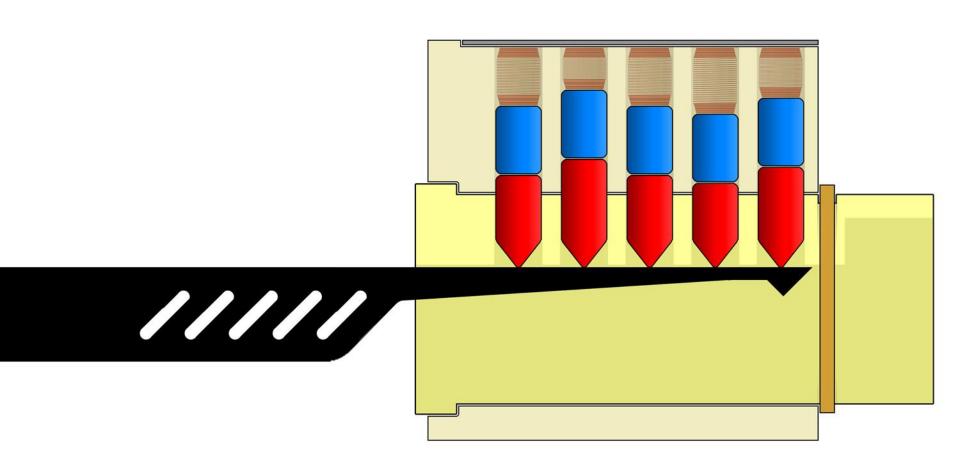


Using the Flat Underside



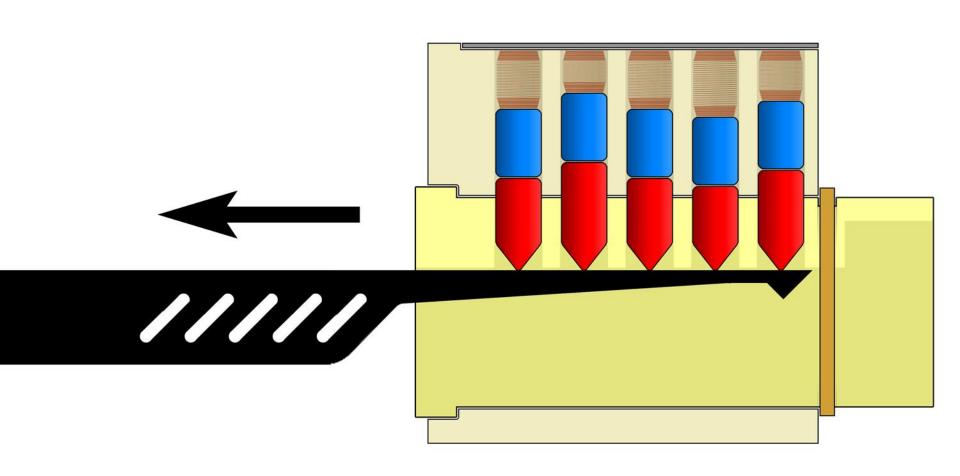


Counting Pin Stacks



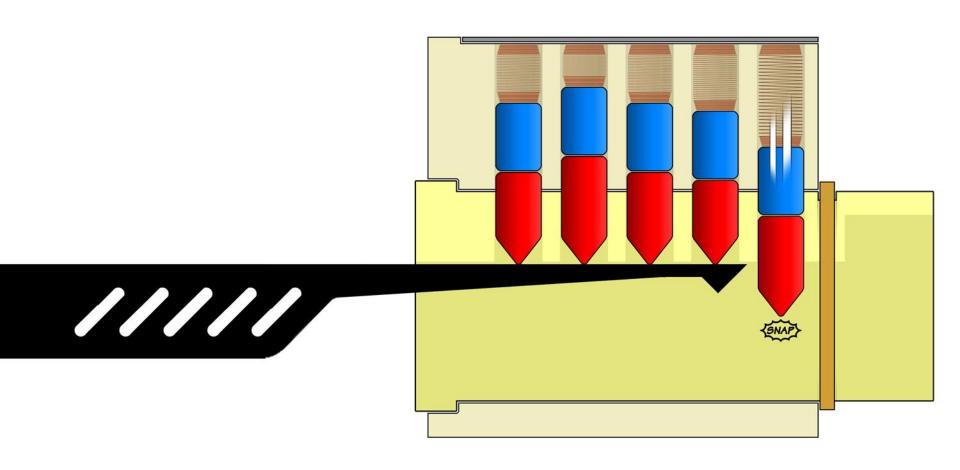


Counting Pin Stacks



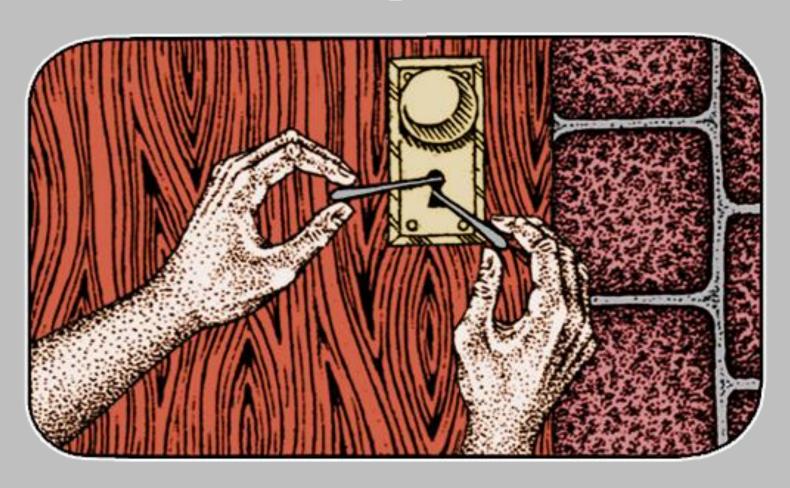


Counting Pin Stacks





Turning Tools



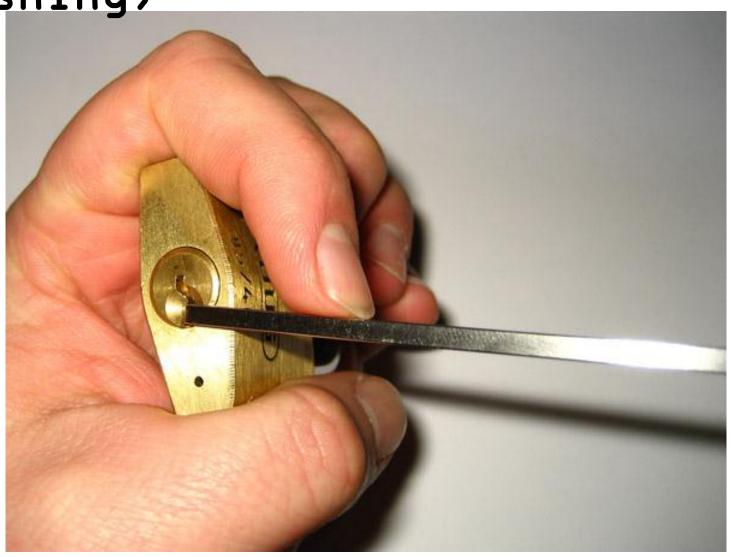
Bad Turning Tool Usage (Pulling)





Better Turning Tool Usage

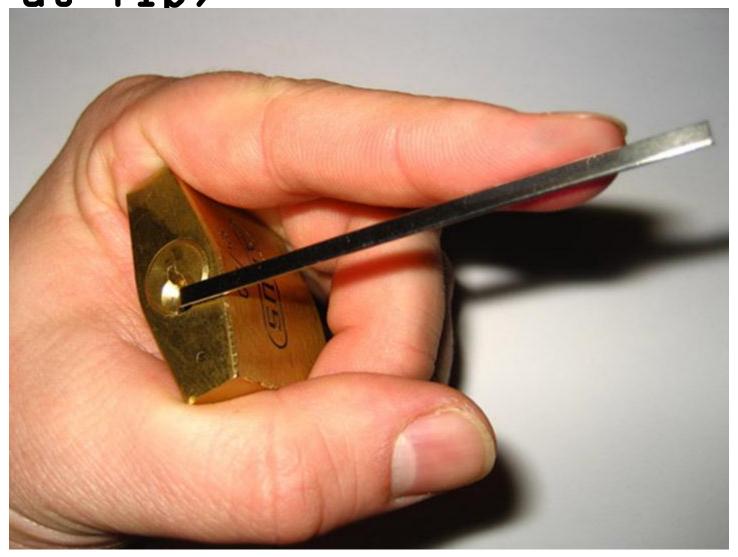
(Pushing)





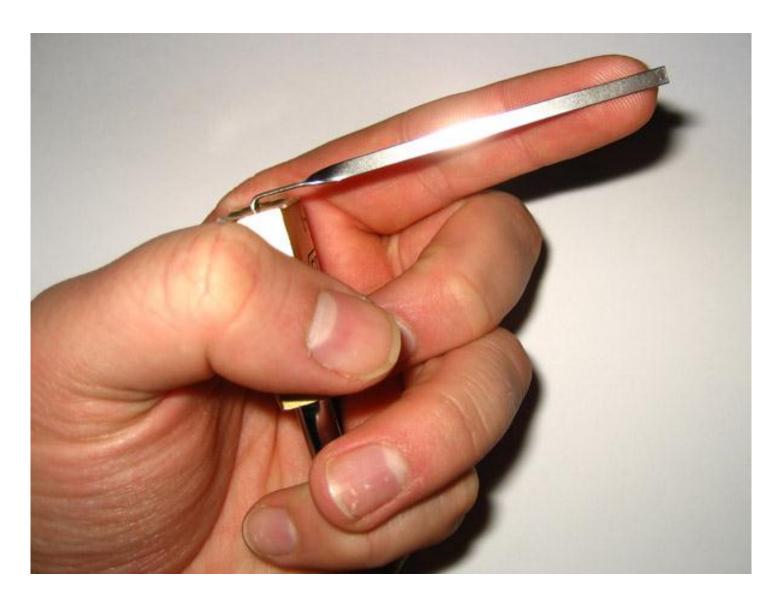
Best Turning Tool Usage (Pushing

Out at Tip)



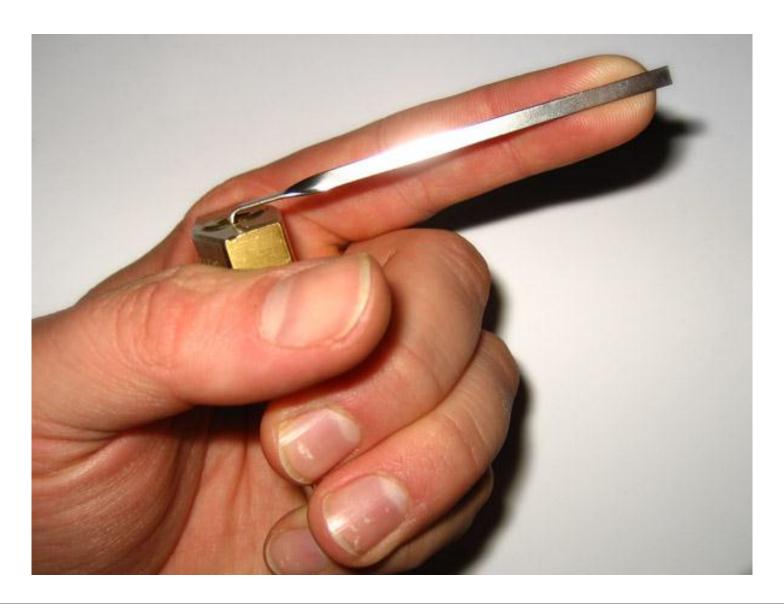


Good Turning Tool Pressure





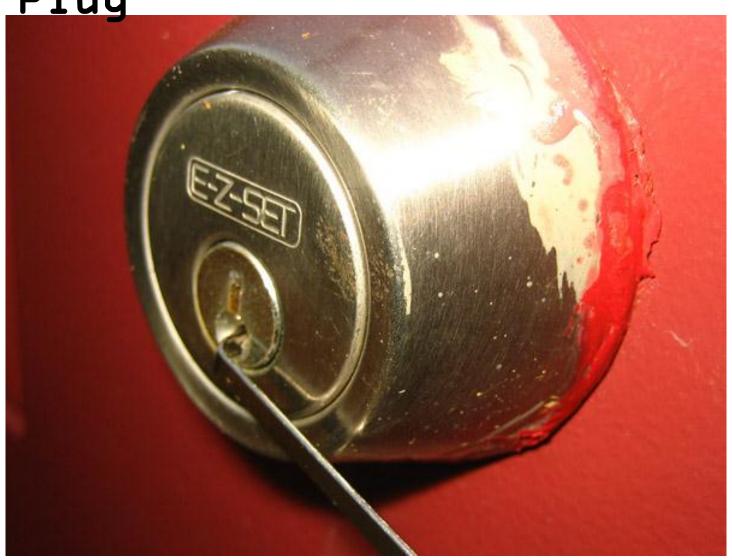
Too Much Turning Tool Pressure!





Turning Tool Position: "Edge of

the Plug"



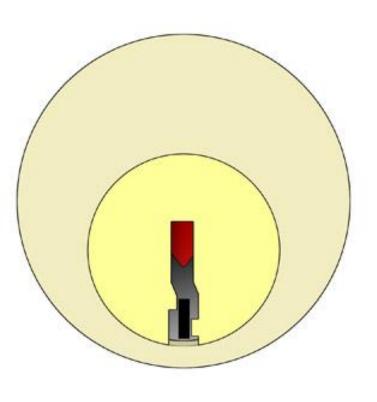


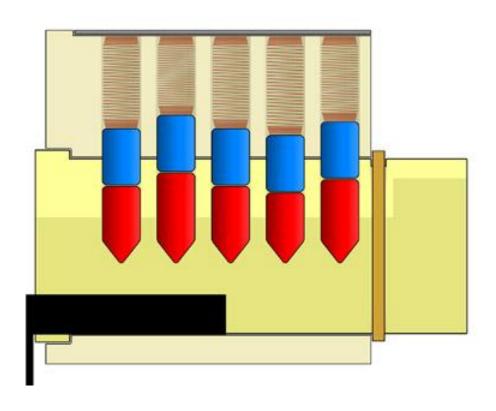
"Standard" Turning Tools





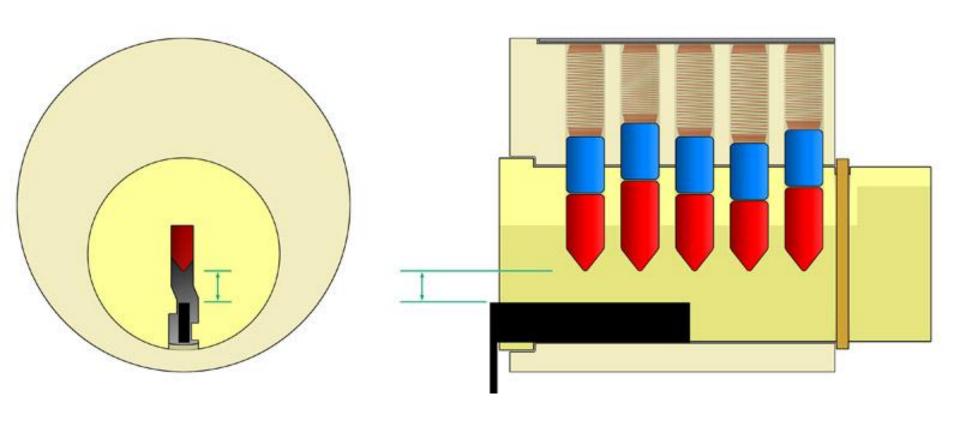
Space in the Keyway







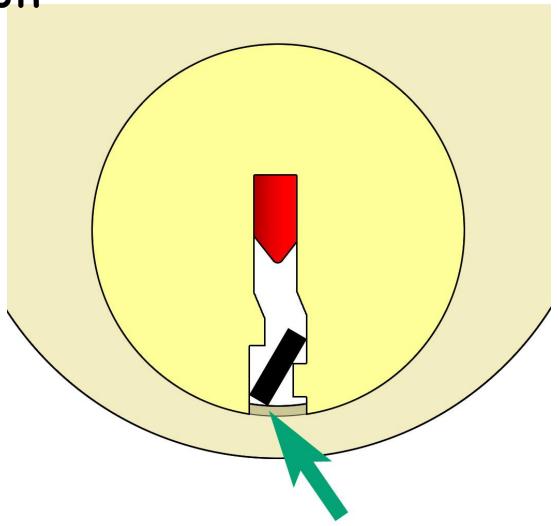
Space in the Keyway





Careful to not Cause Extra

Friction





"Standard" vs "Flat" Turning Tools





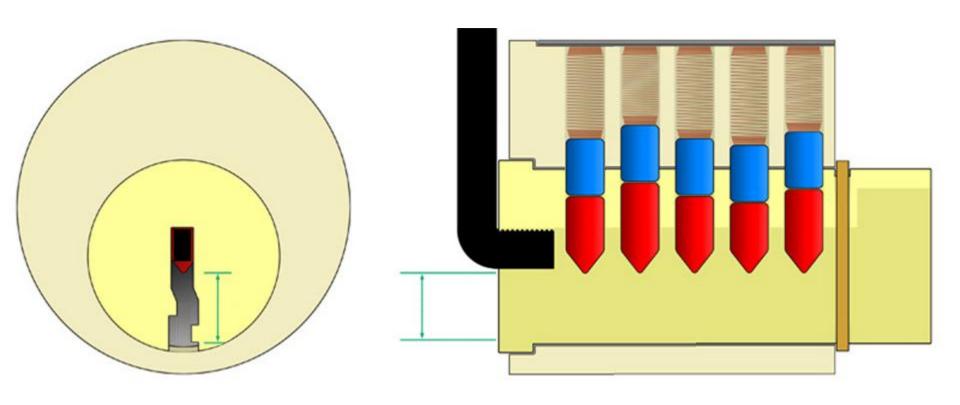
Turning Tool Position: "Center of

the Plug"



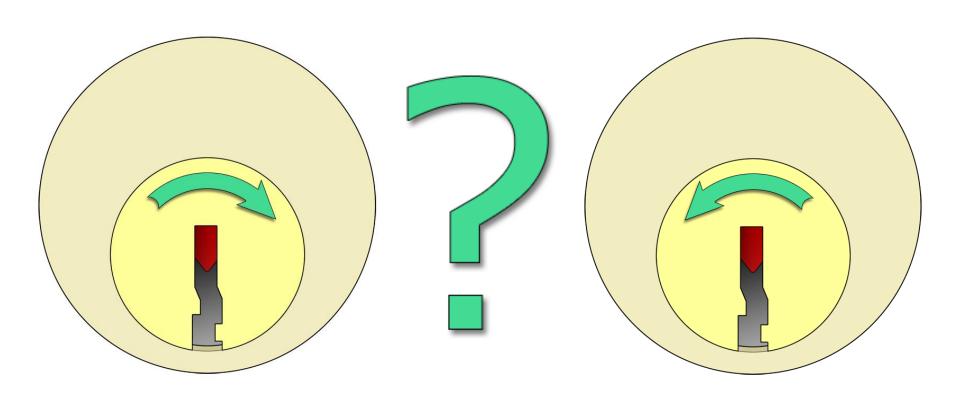


More Space in the Keyway





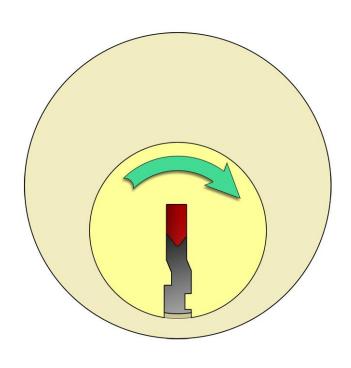
Turning Direction





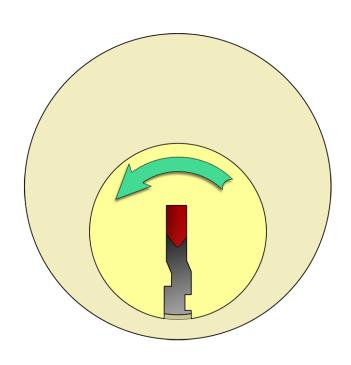
Turning Direction





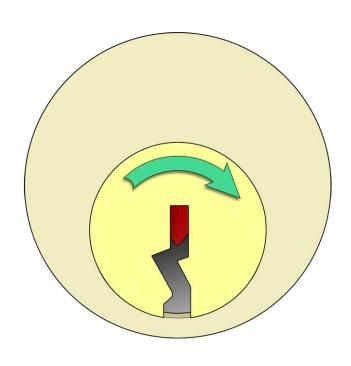
















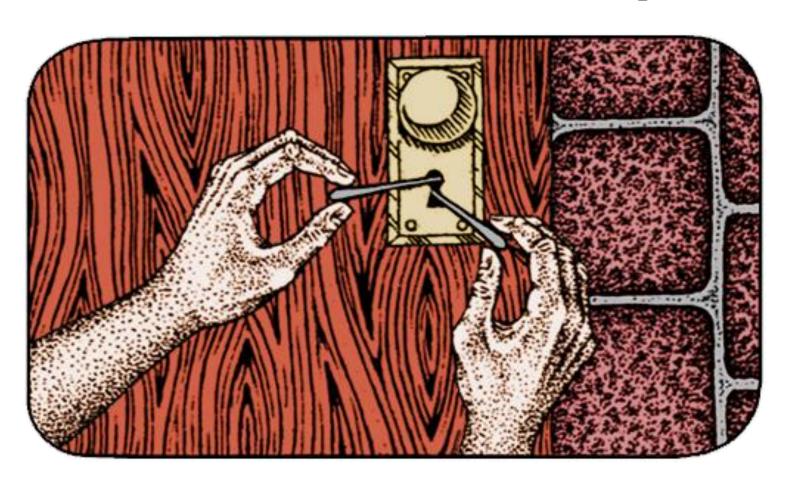








Who Wants To Try?

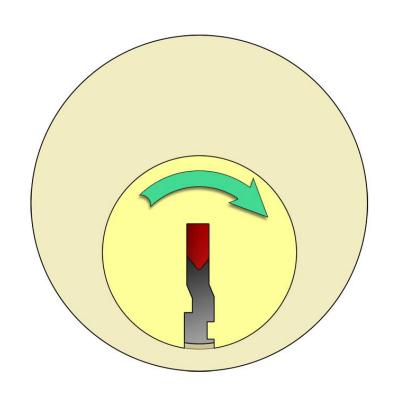


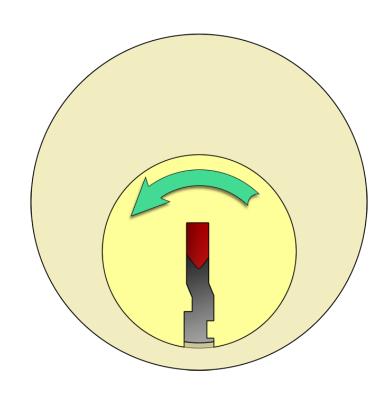
Practice Locks



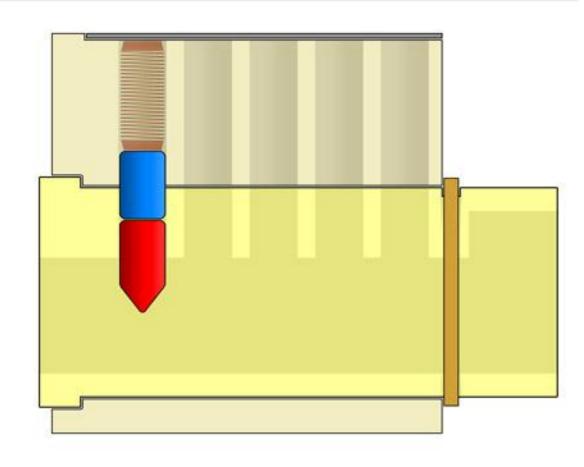


Either Direction Will Work

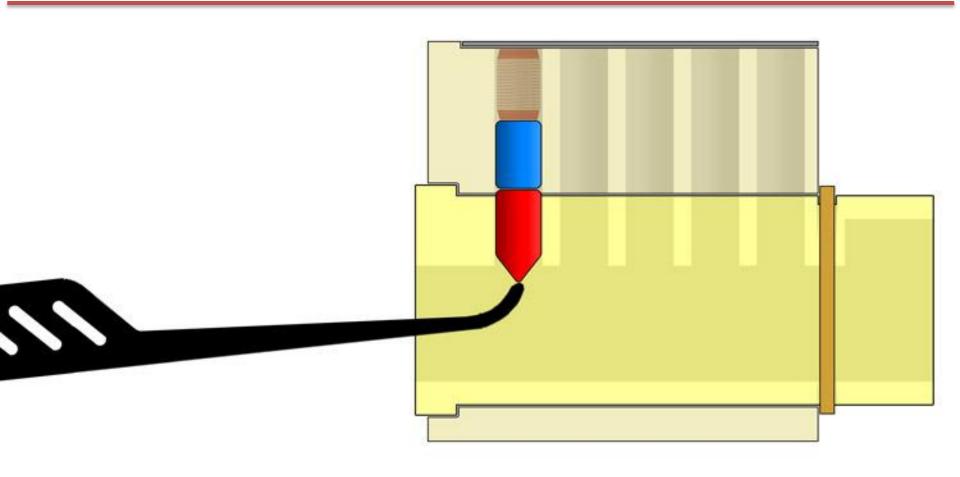




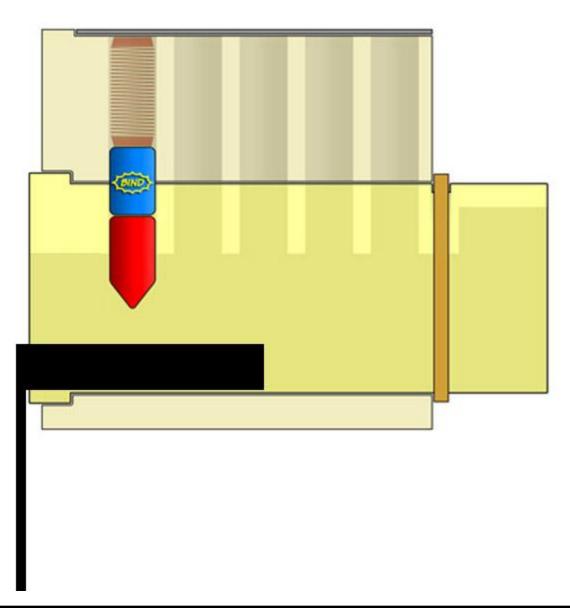




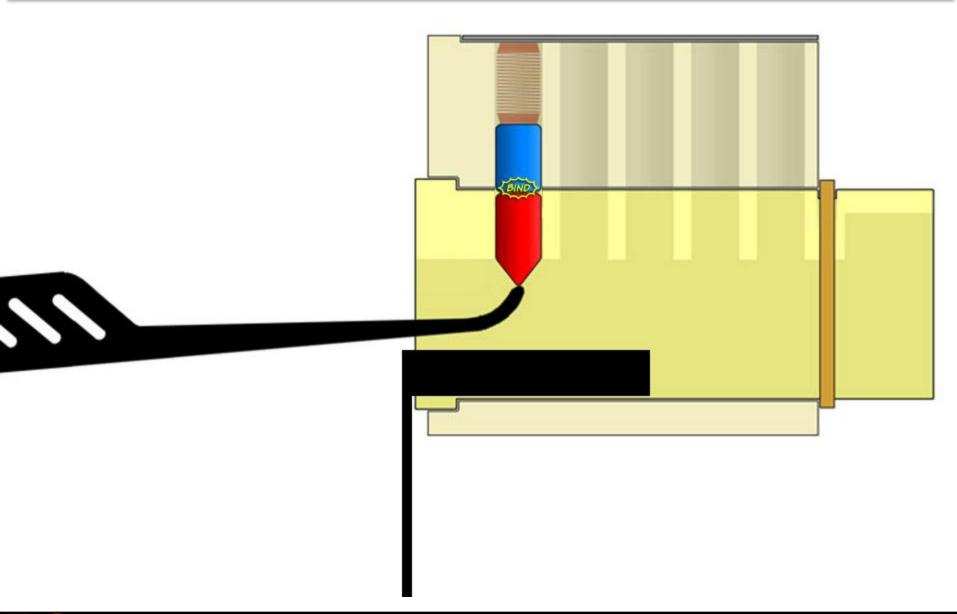






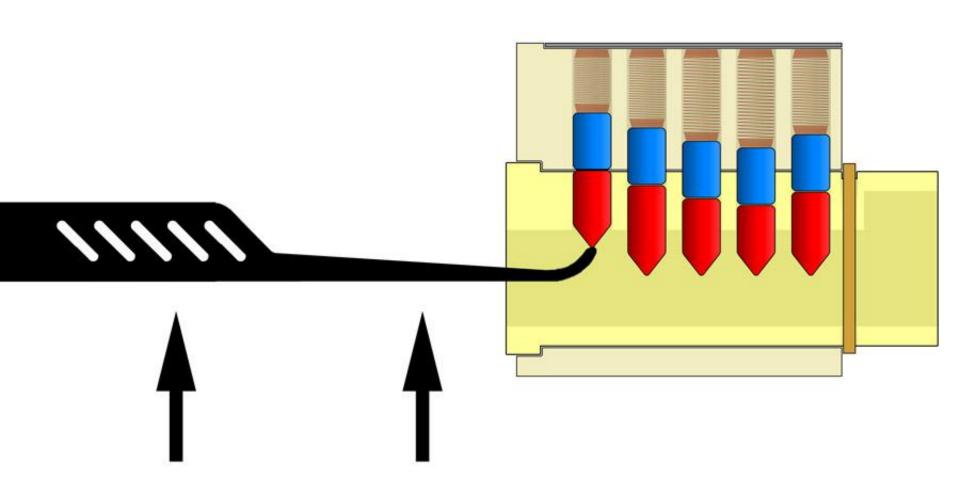






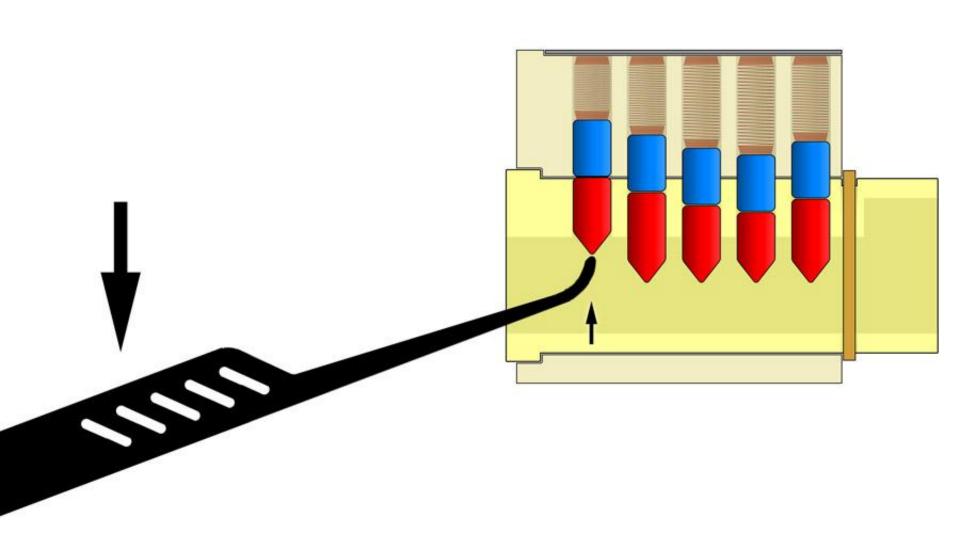


Direct Lifting





Rocking Lifting





RELAX

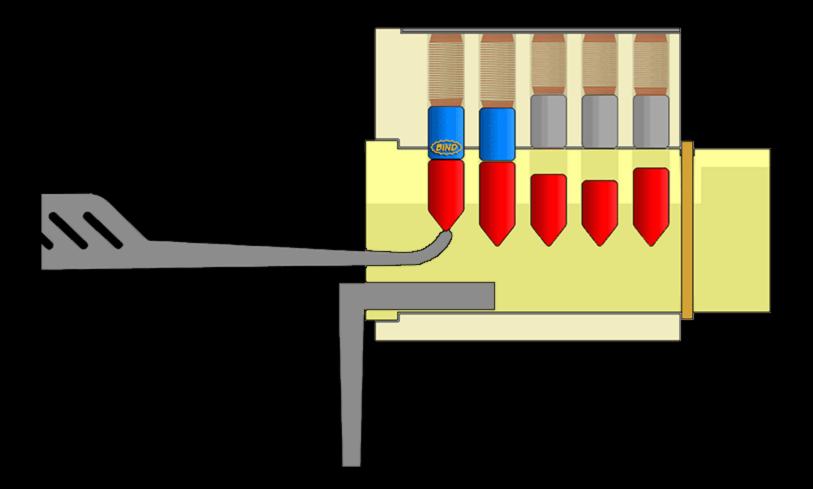


The Two Most Important Things...



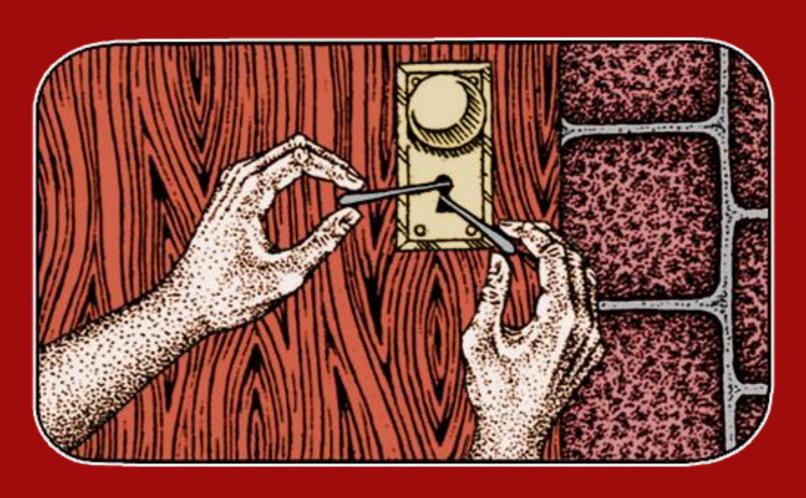


Questions?





Wafer Locks



Wafer Locks



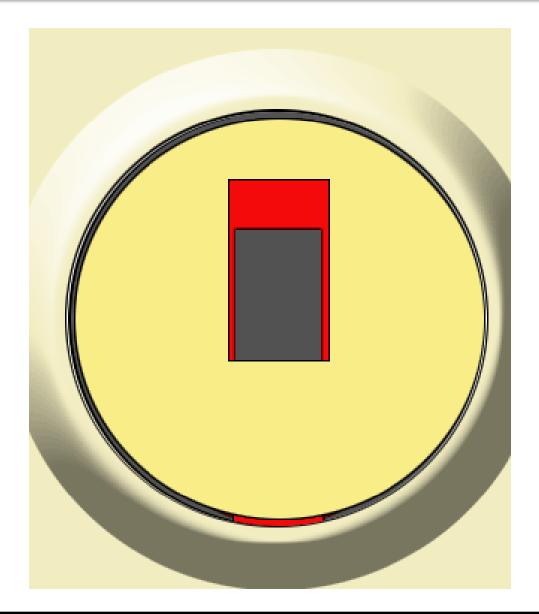


Wafer Locks



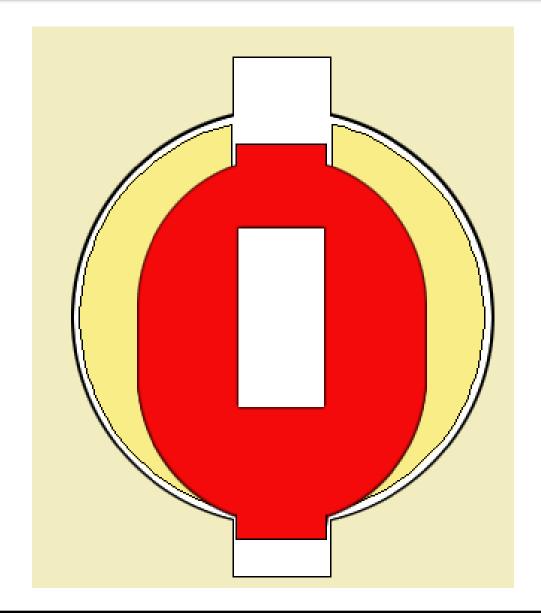


Wafer Locks - Outer View



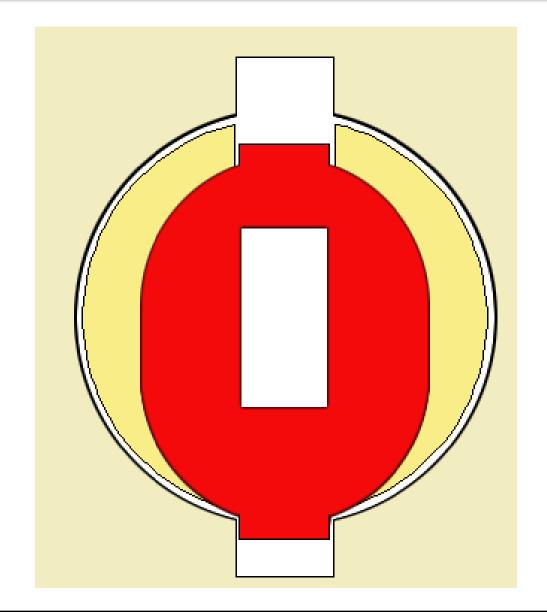


Wafer Locks - Inner View





Wafer Locks - Operating Action





Wafer Lock Usage





Wafer Lock Usage



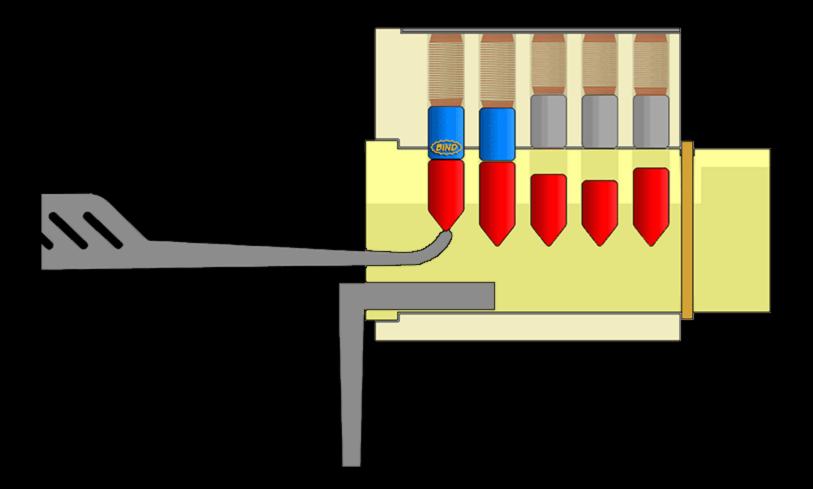


Wafer Lock Usage



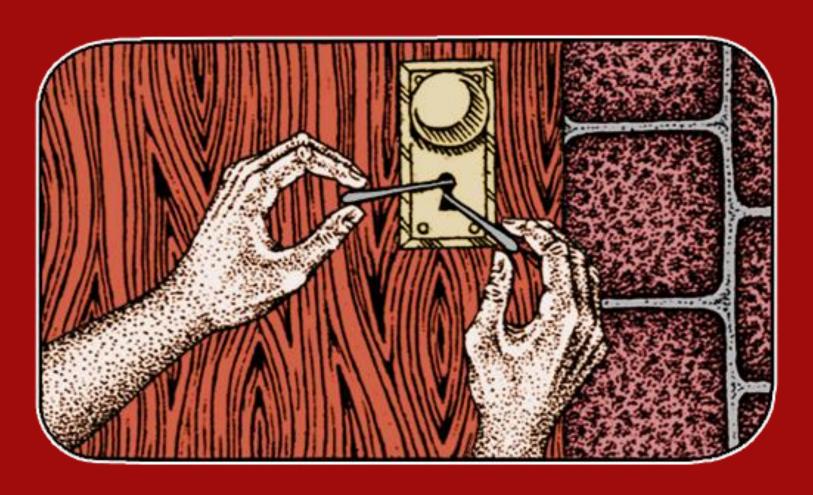


Questions?

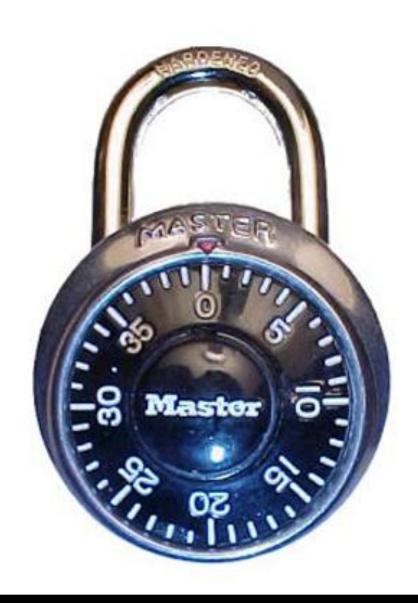




Combination Locks



Combination Locks





If You Are Doing This...





If You Are Doing This..... What You





Padlock Shims





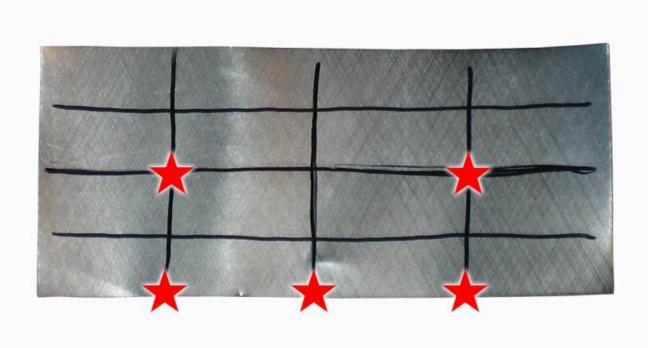
Padlock Shims















































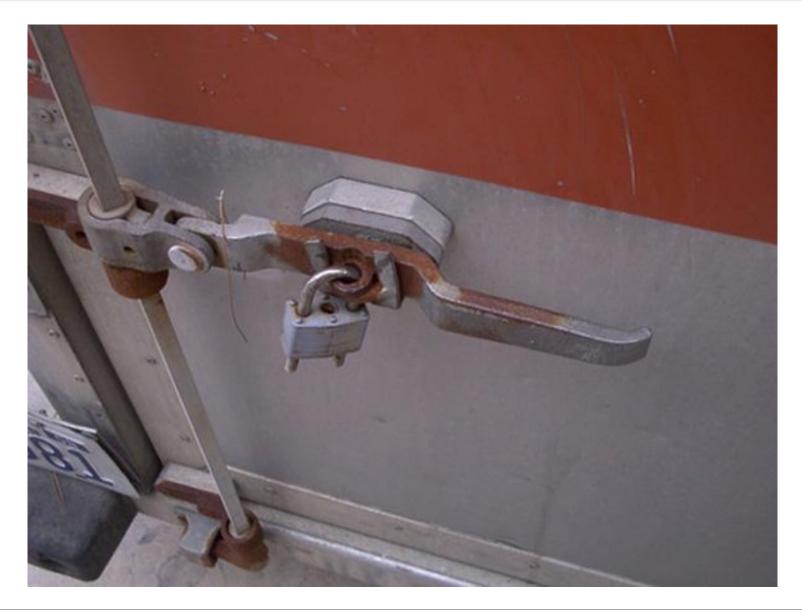






























Single Latch or Dual Latch?























Some People Seemingly Don't Know

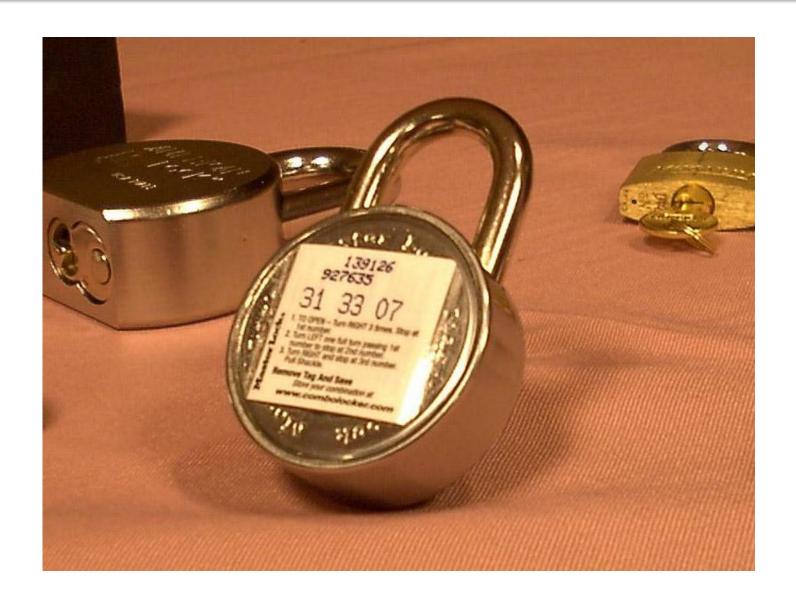
The



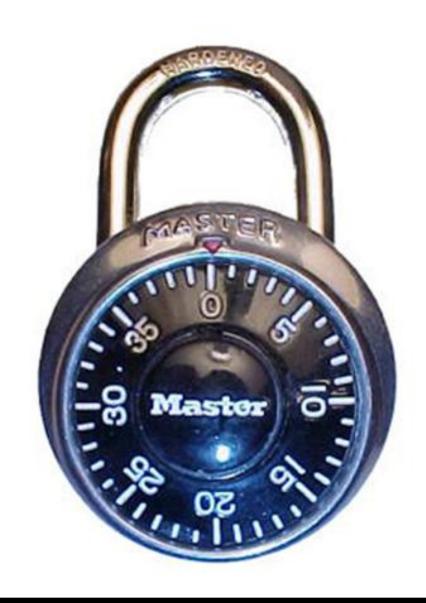
Some People Seemingly Don't Know







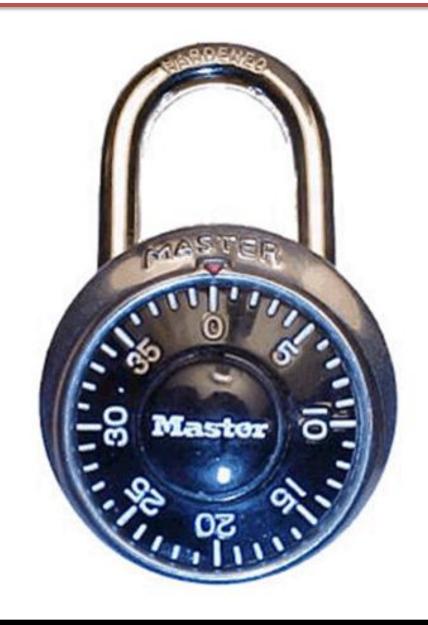




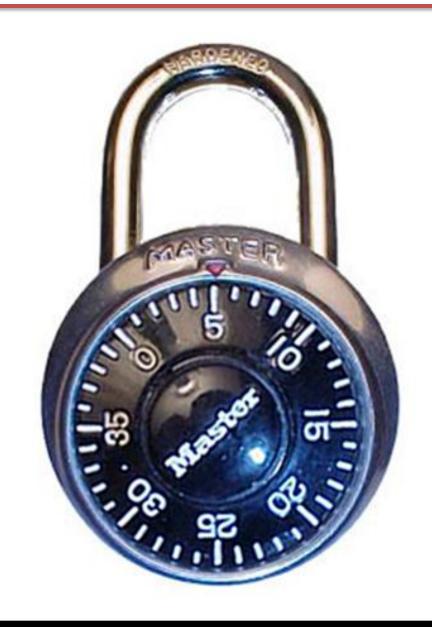
































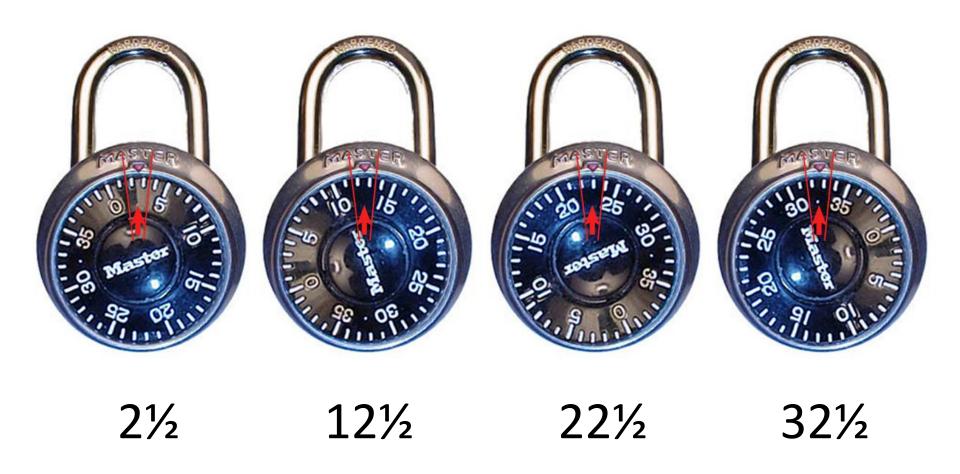




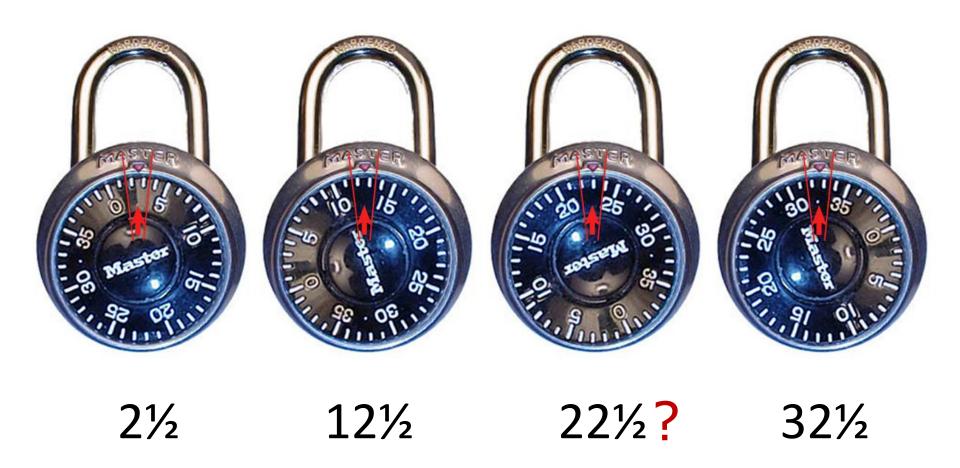
























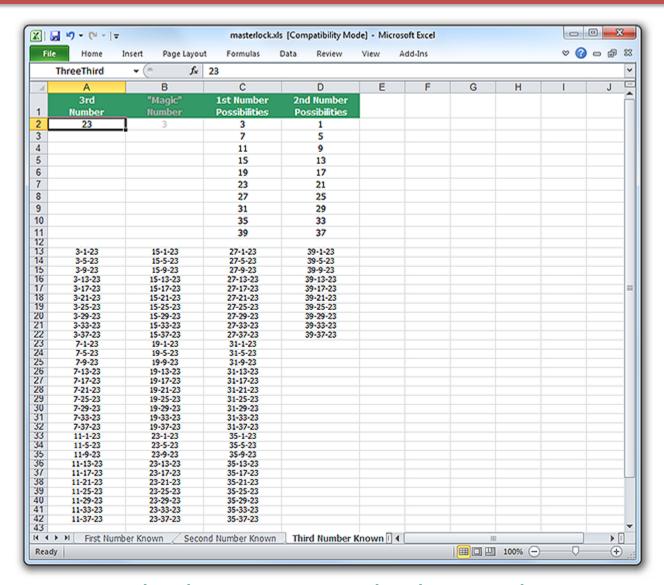












http://deviating.net/lockpicking/media/masterlo



Decoding Multi-Wheel

Combinations





Padlock





Pad





Pad 🗽

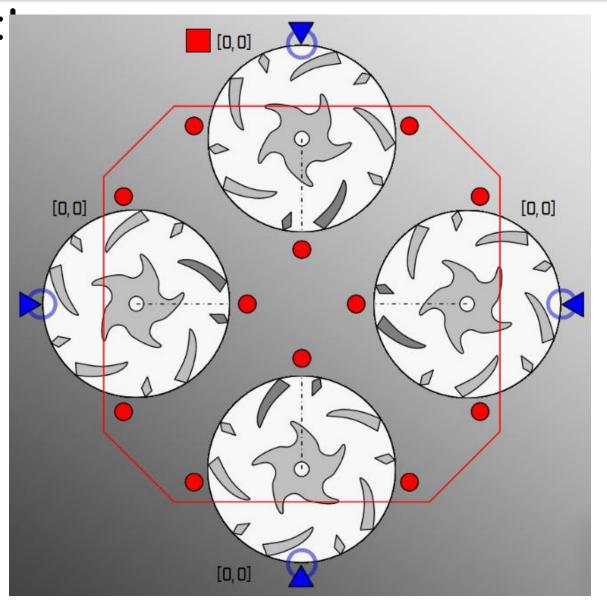






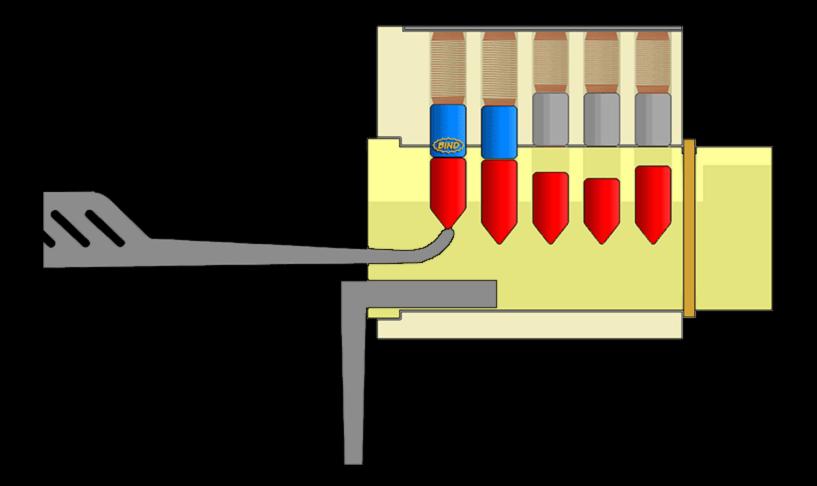


Padloc |



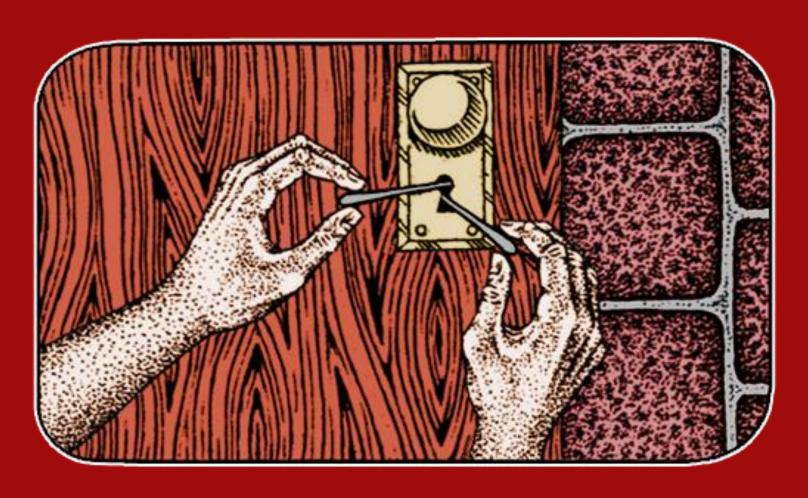


Questions?

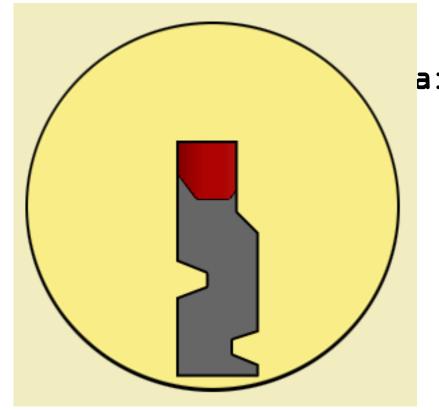




Pick-Resistant Locks

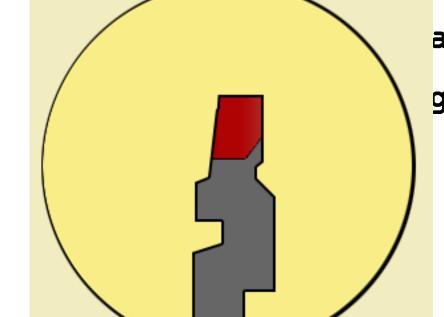


Simple...



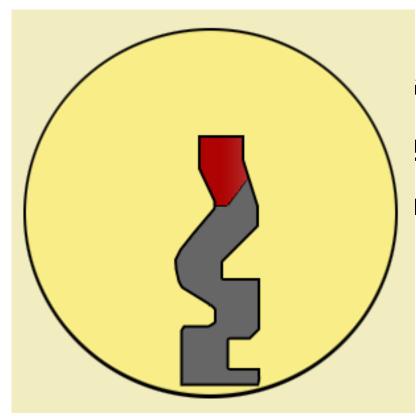
aight and wide

Simple...
Medium...



aight and wide ght but narrow

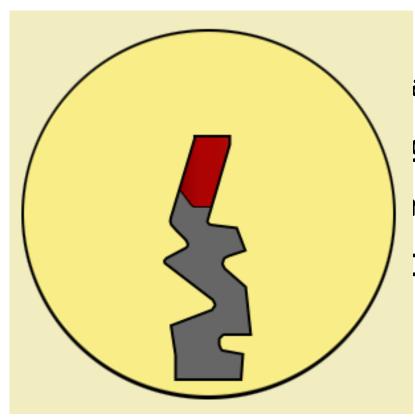
Simple...
Medium...
Complex...



aight and wide ght but narrow nner and curvy



Simple...
Medium...
Complex...
Hard...

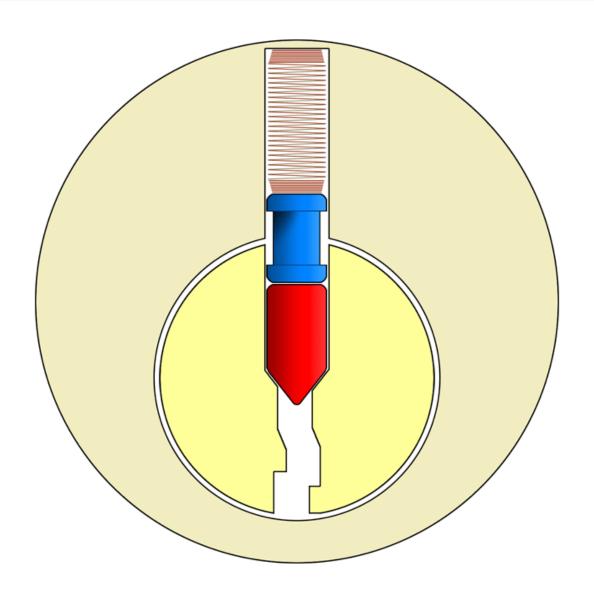


aight and wide ght but narrow nner and curvy lots of angles

Simple... straight and wide Medium... ... straight but narrow Complex... ... thinner and curvy Hard... ../ lots of angles Fiendish... ... overlapping wards

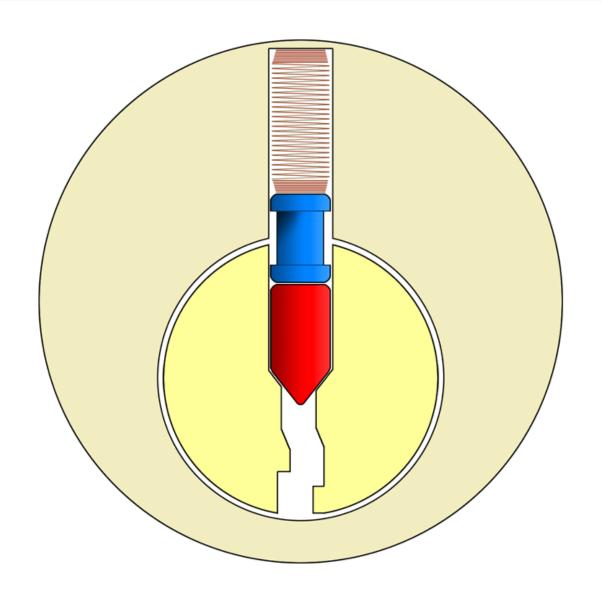


Pick-Resistant Pins





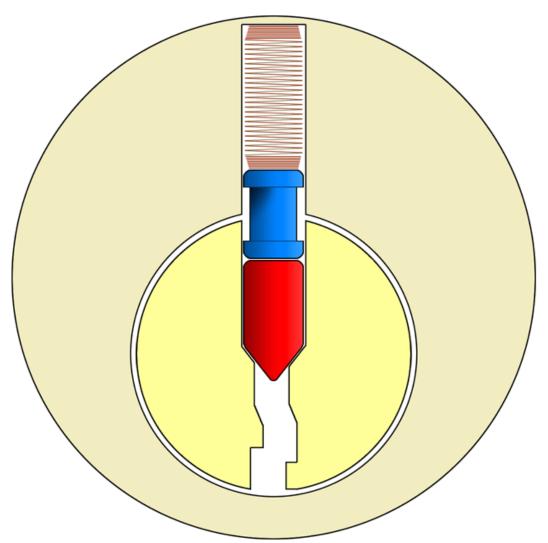
Pick-Resistant Pins - Spool Pin





Pick-Resistant Pins - Spool Pin

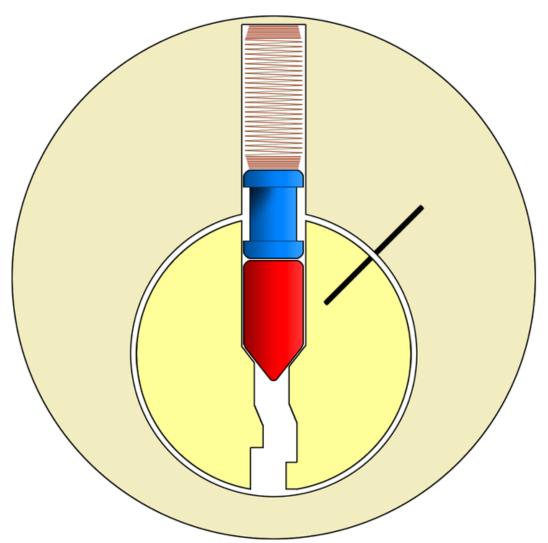
Bindin~





Pick-Resistant Pins - Spool Pin

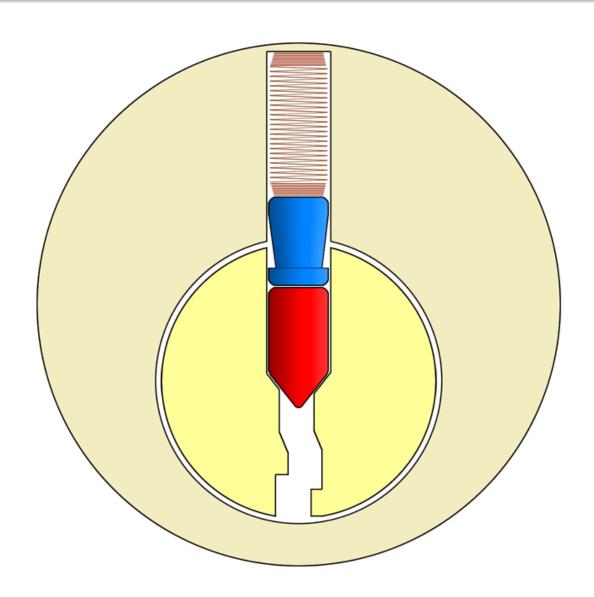
Pickin~





Pick-Resistant Pins - Mushroom

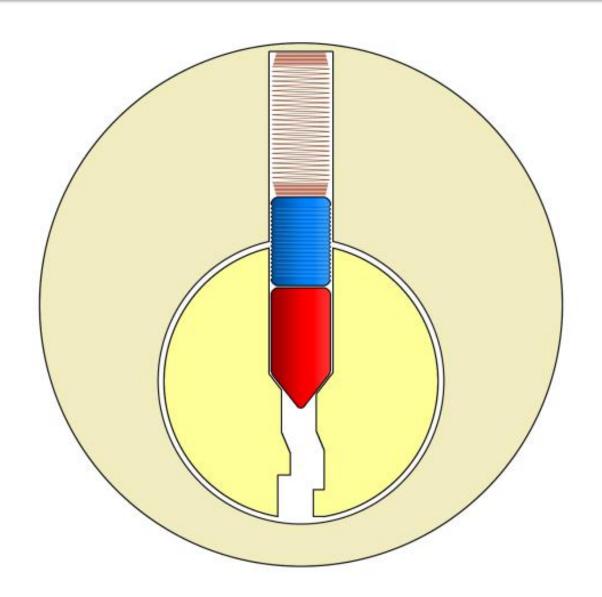
Pin





Pick-Resistant Pins - Serrated

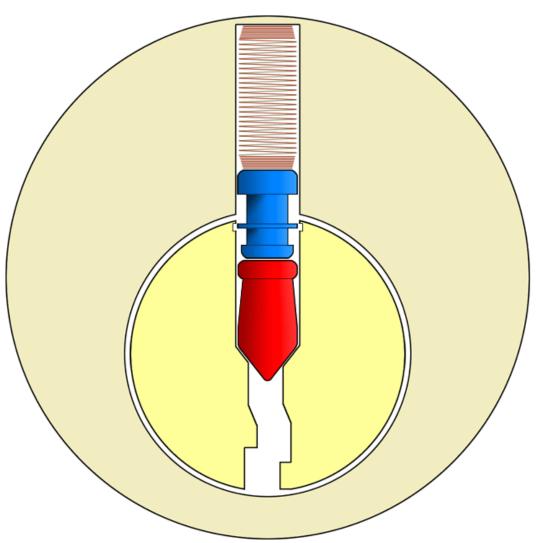
Pin





Pick-Resistant Pins - ASSA

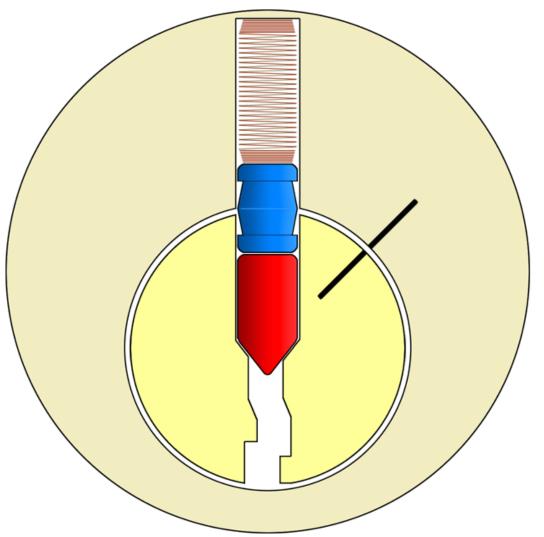
"Sneak"" ""





Pick-Resistant Pins - TrioVing

"Double Muchacami Dia





Pick-Resistant Locks

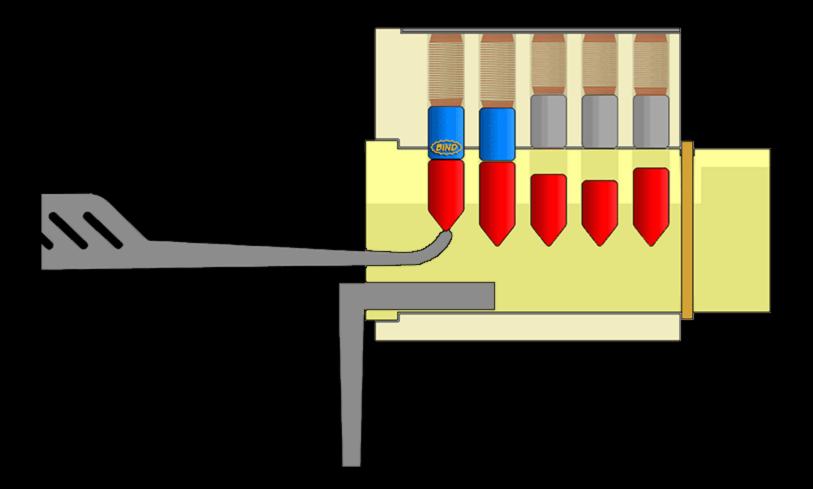
a substantial improvement...



...can be picked, but only with

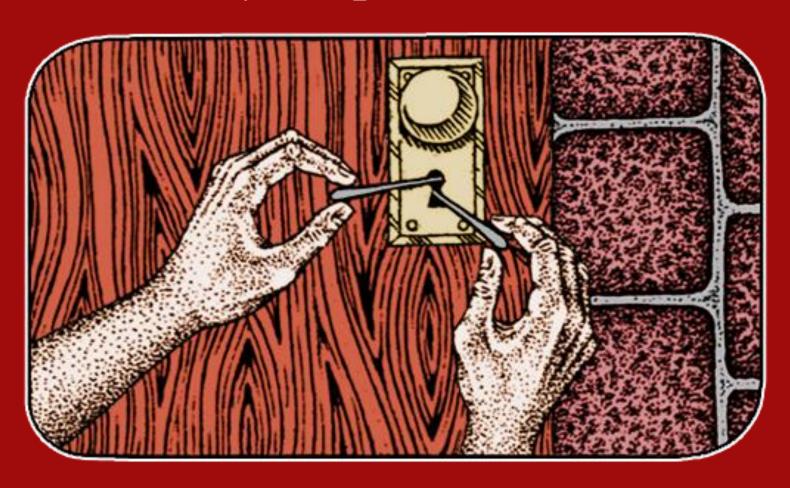


Questions?





Bumping Attacks



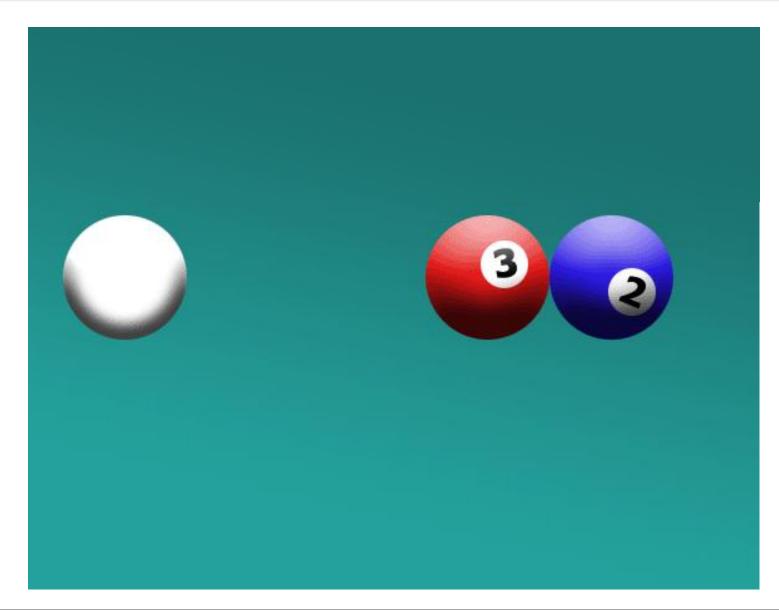
Lock Bumping

- Just a Special Key
- Little Special Skill
- Many Locks are Vulnerable
- Exploit Related to Pick Physics



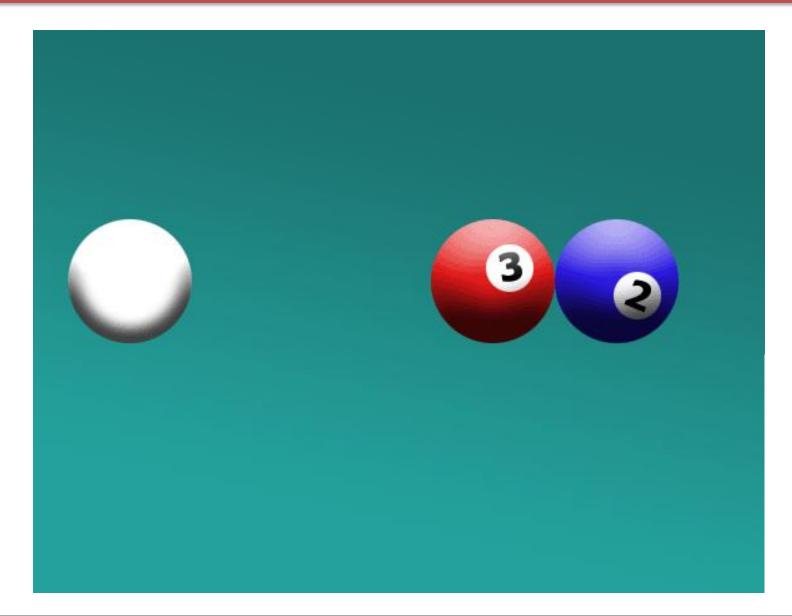


Lock Bumping





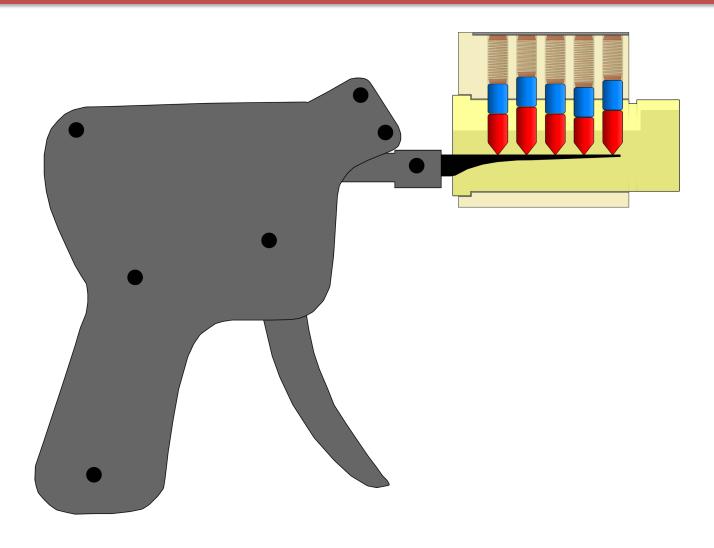
Lock Bumping



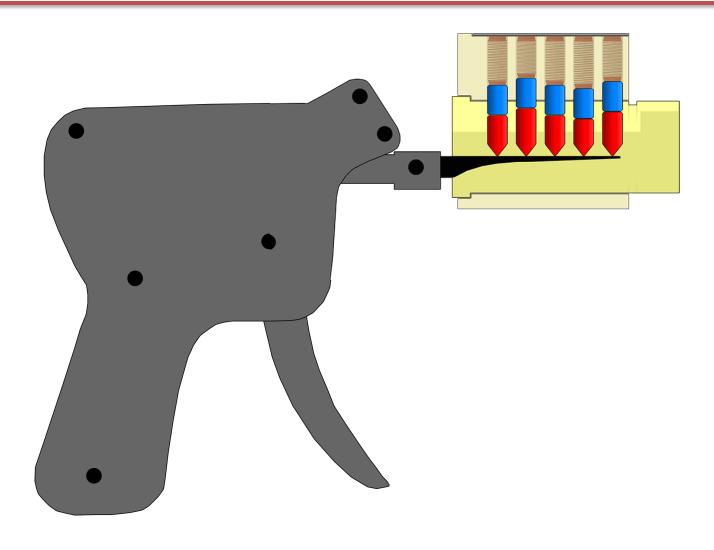




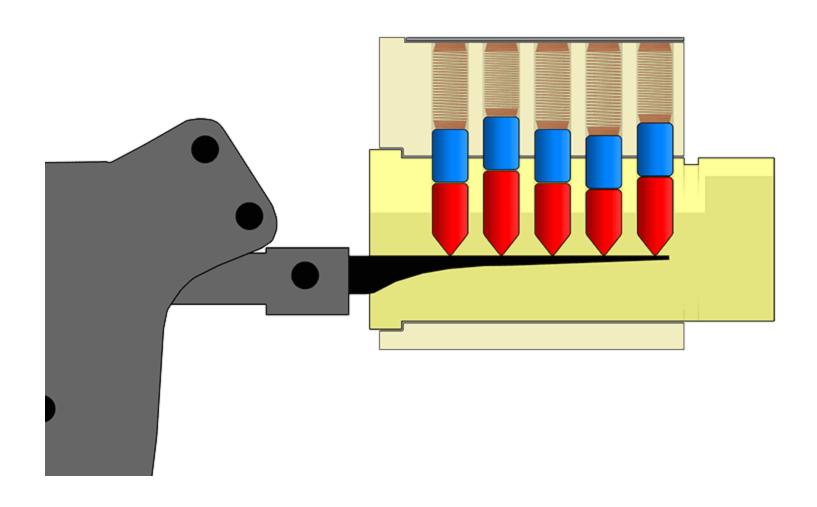






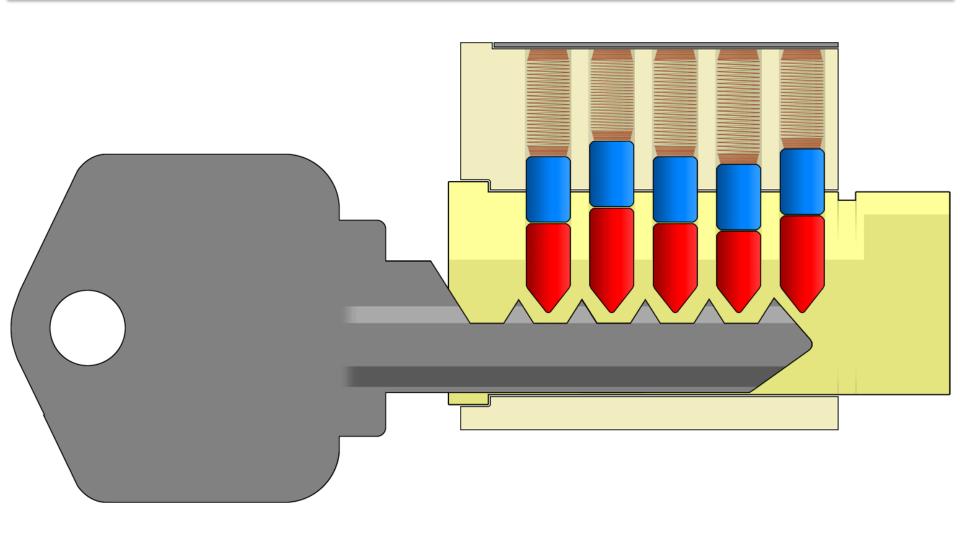






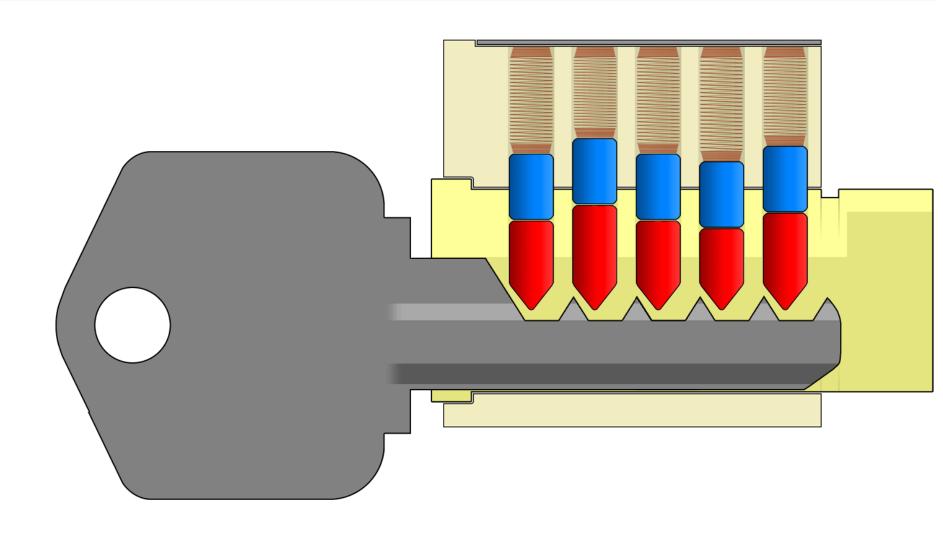


Lock Bumping - Pull Method



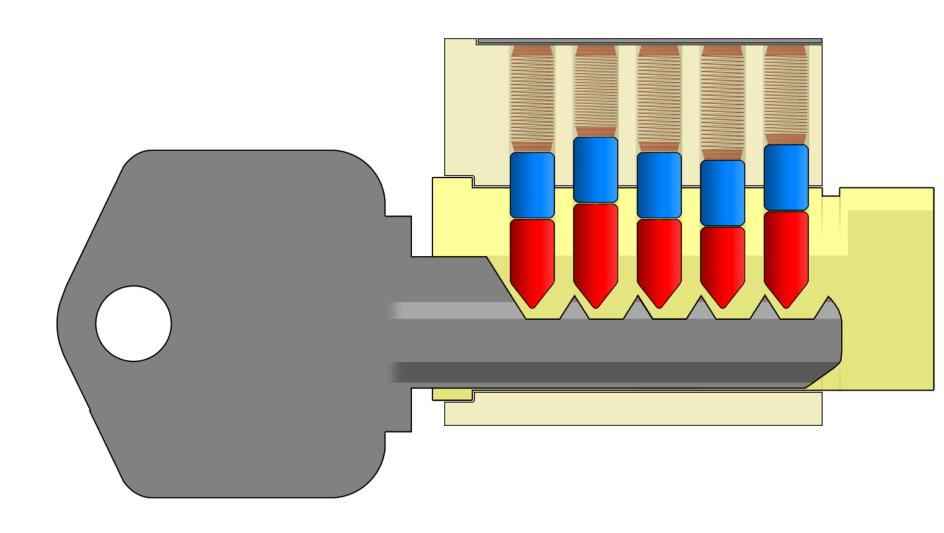


Lock Bumping - Push Method





Lock Bumping - Push Method





Lock Bumping



http://toool.nl/bumping.pdf



Lock Bumping

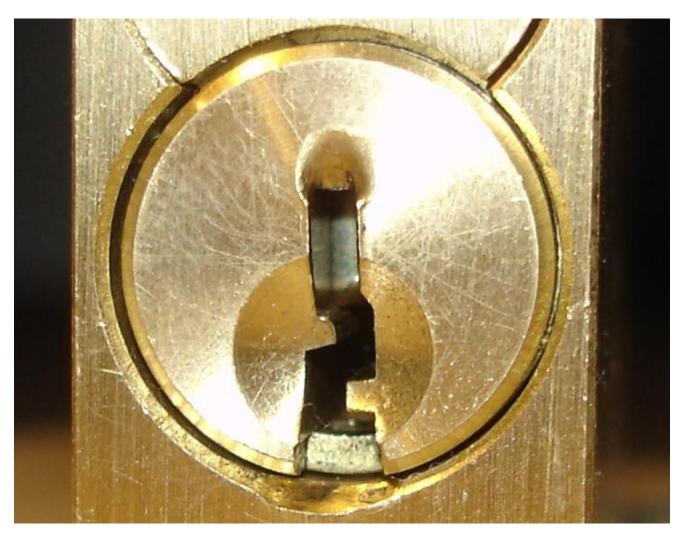
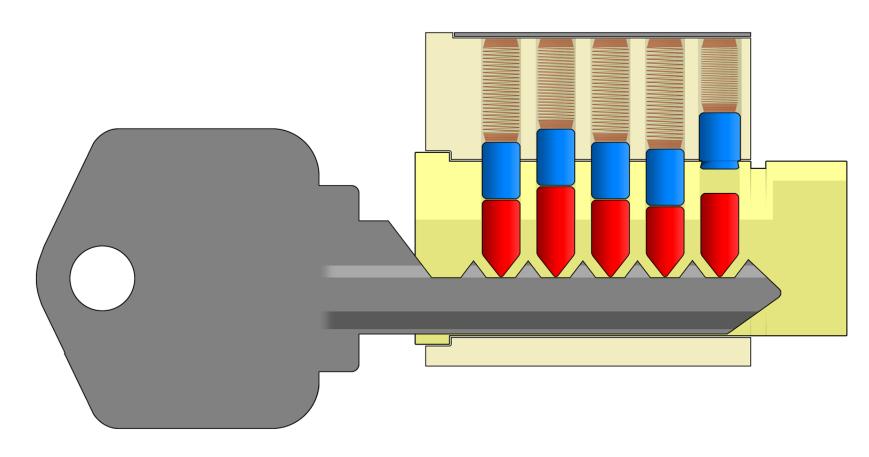


photo courtesy of datagram

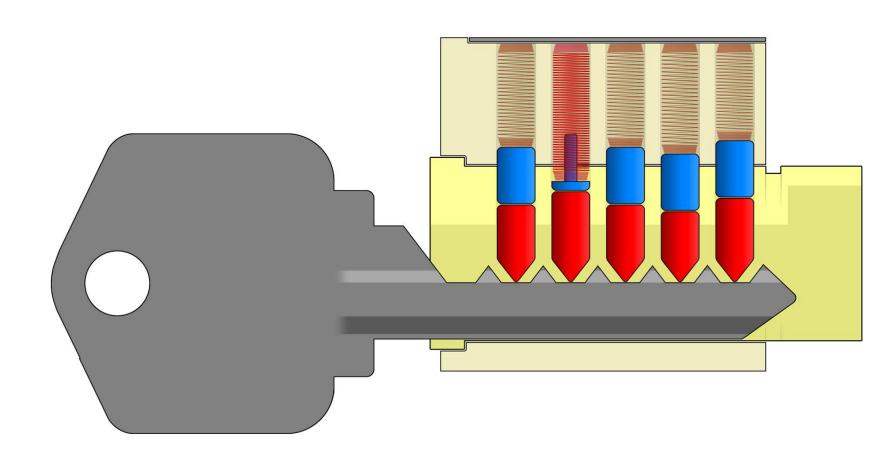


Bumping Countermeasures - Top Gapping





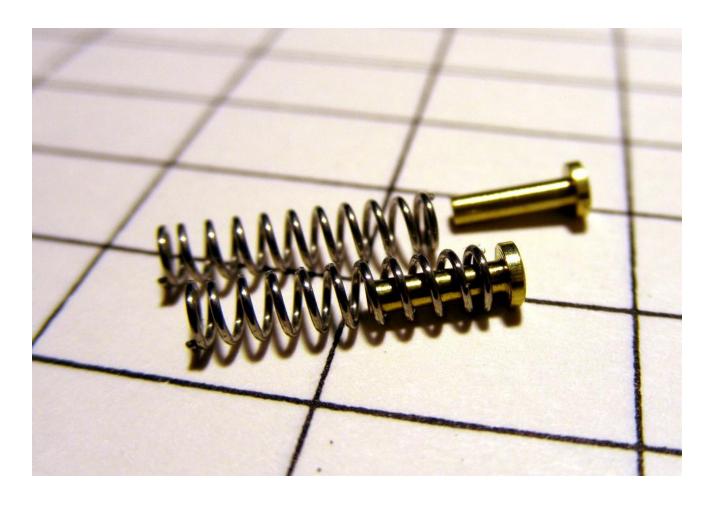
Bumping Countermeasures - Anti-Bump Driver Pin





Bumping Countermeasures - Anti-

Bump Driver Pin





Bumping Countermeasures -Anti-

Bump



Search Documentation Cylinders brochures, pricing information, manuals, parts lists, etc. can be found on the literature grid section. Click here to visit the literature Read More > Contact Kaba Ilco Corp. 400 Jeffreys Road Rocky Mount, NC 27804 1-800-334-1381 View Contact Information > Connect and Share ILCO® News

Key News - 7 New Key Blanks

Tri-Code HS Optional Kit for Edge

TKO Software - Available Updates

Engrave-It ™XP

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Home > Products > Cylinders > Bump Halt

Bump Halt™ (Bump Resistant Cylinders)



Bump Halt provides a "bump resistant" solution for the IIco line of Key in knob / Key in Deadbolt, Mortise and Rim Cylinders. This Innovative Patent Pending solution to bumping will resist the transfer of force from the bump key to the pins.



Kits are also available that will enable conversion of a new or existing Ilco Cylinder.

- Effective vet cost efficient
- No special tools or machining required
- Available factory installed or as aconversion
- Conversion kits contain 10 pins, 10 springs and instructions (one pin and one spring will resist bumping; add anadditional pin and spring to increase the security.

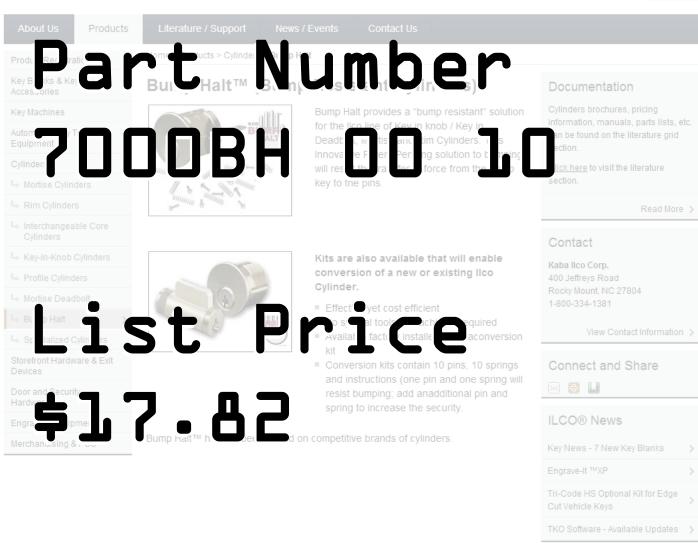
Bump Halt™ has not been tested on competitive brands of cylinders.

Bumping Countermeasures - Anti-

Bump



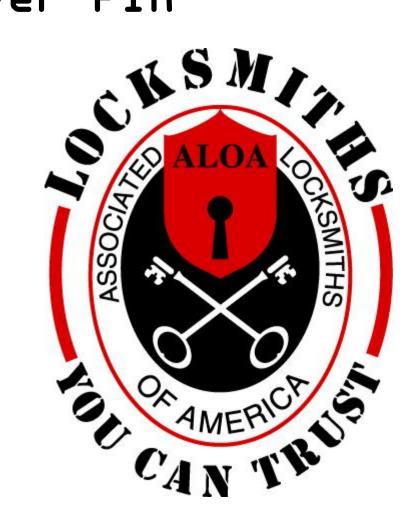
Search





Bumping Countermeasures - Anti-

Bump Driver Pin











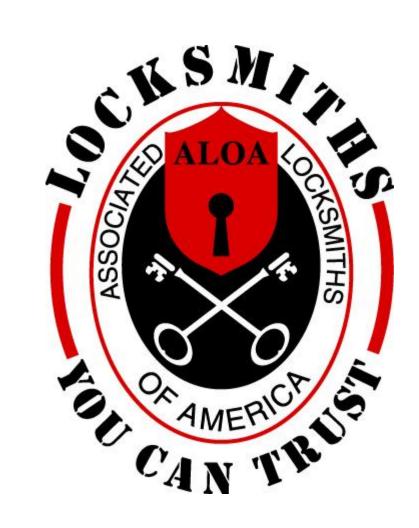














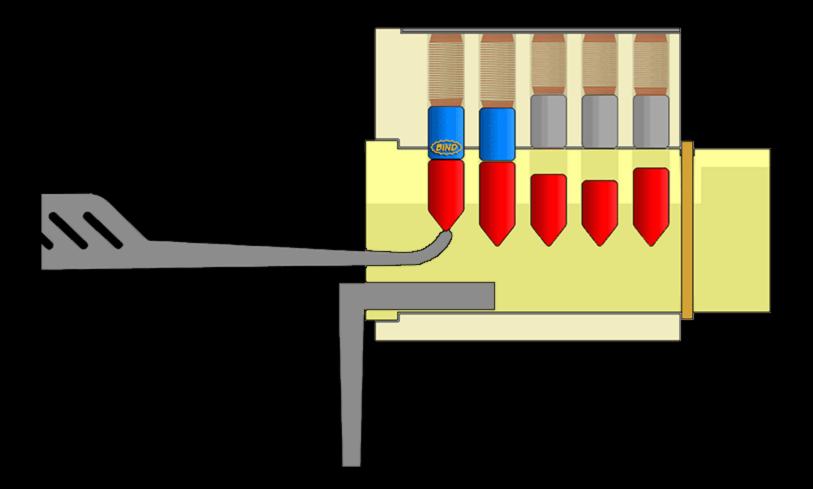
- 1. ALOA logo / ALOA number
- 2 Name
 Discrepancies
- 3-Estimates & Itemized Invoice





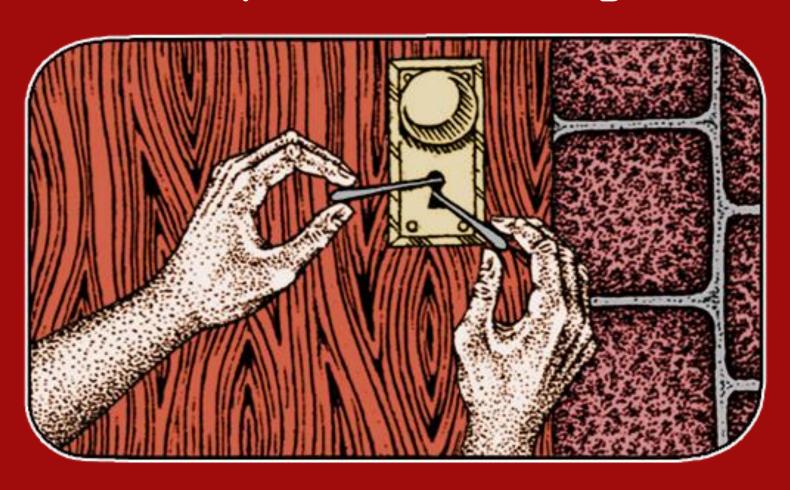


Questions?





Impressioning



Why Impressioning?





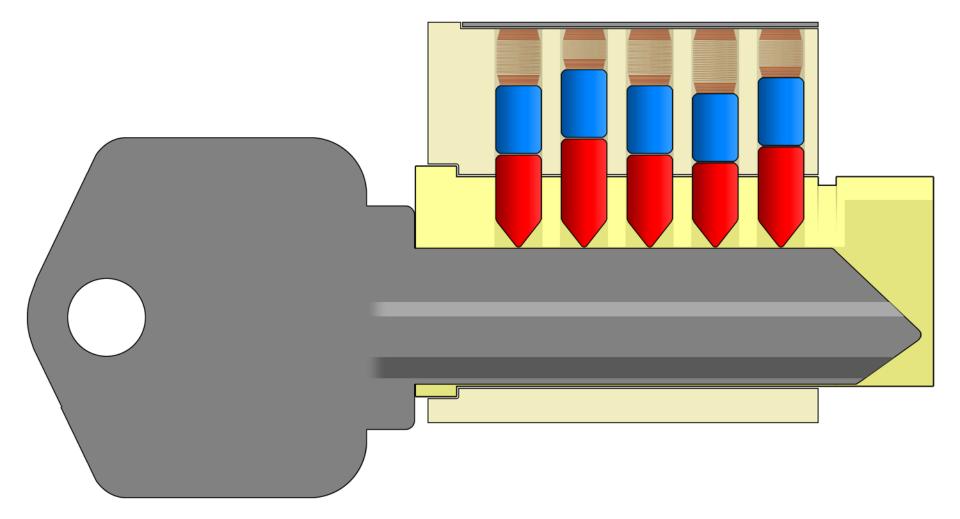
Why Impressioning?





Impressioning - Blank Key to

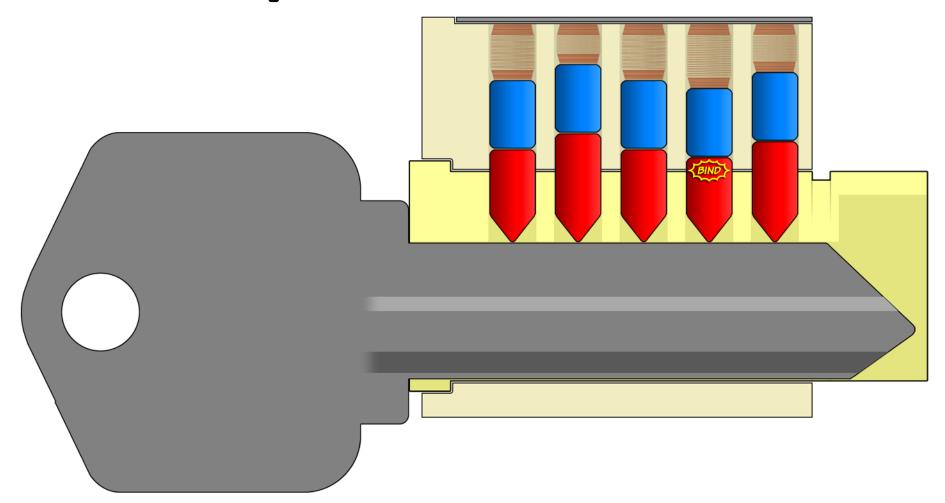
Raise all Stacks





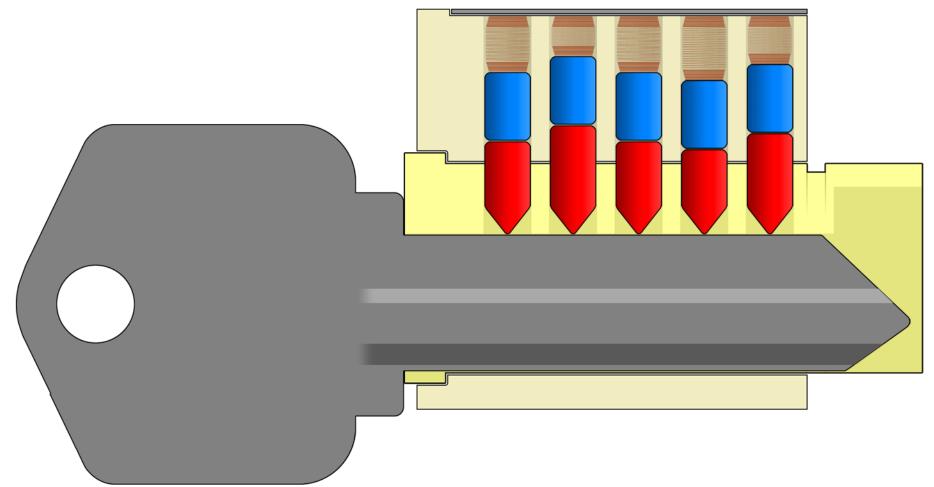
Impressioning - Turn Hard to

Bind a Key Pin



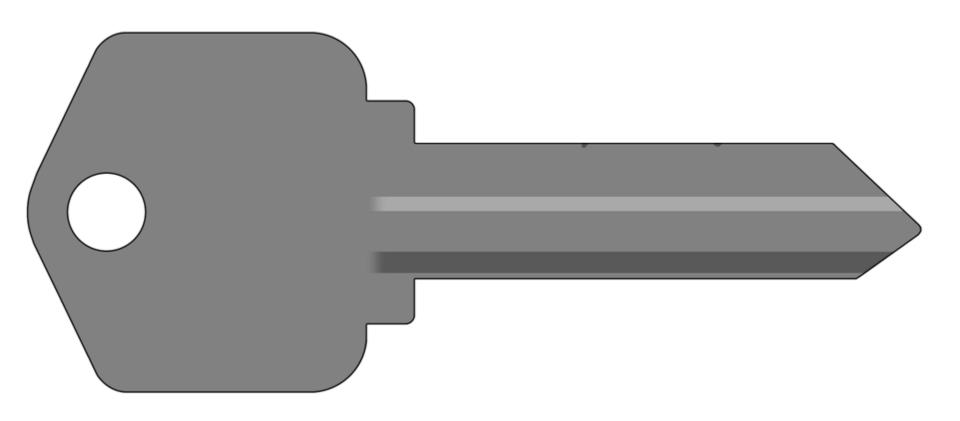


Impressioning - Binding and Wiggling Causes Rubbing



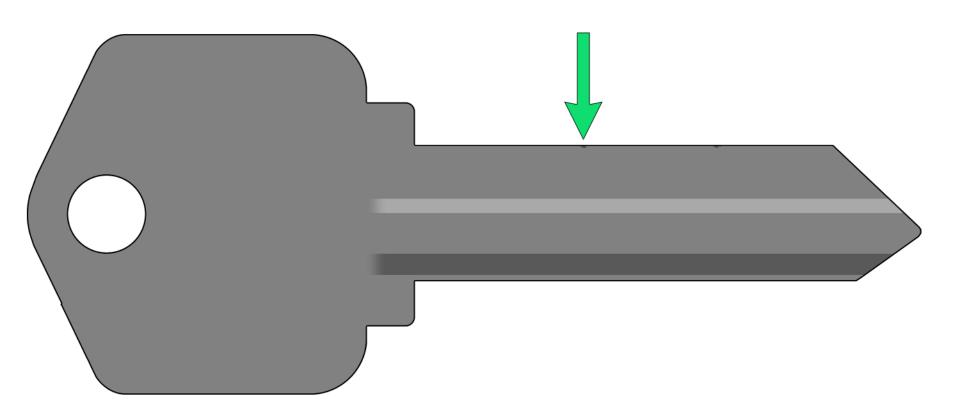


Impressioning - Observe the Rub



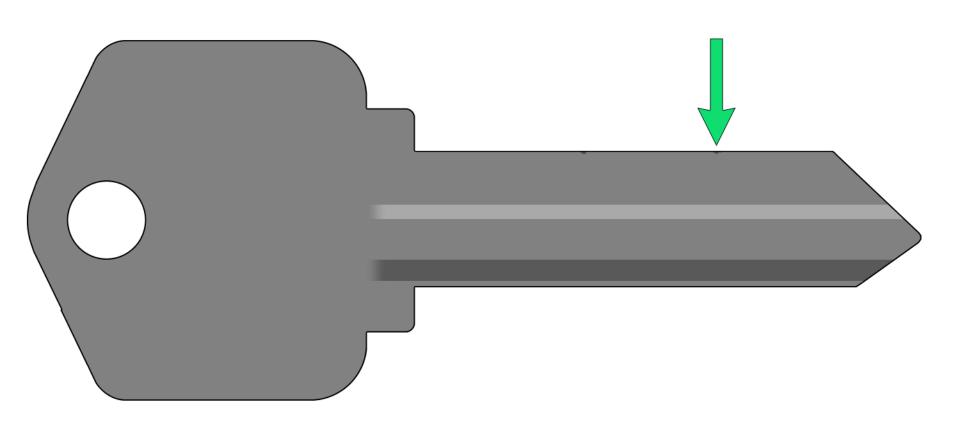


Impressioning - Observe the Rub



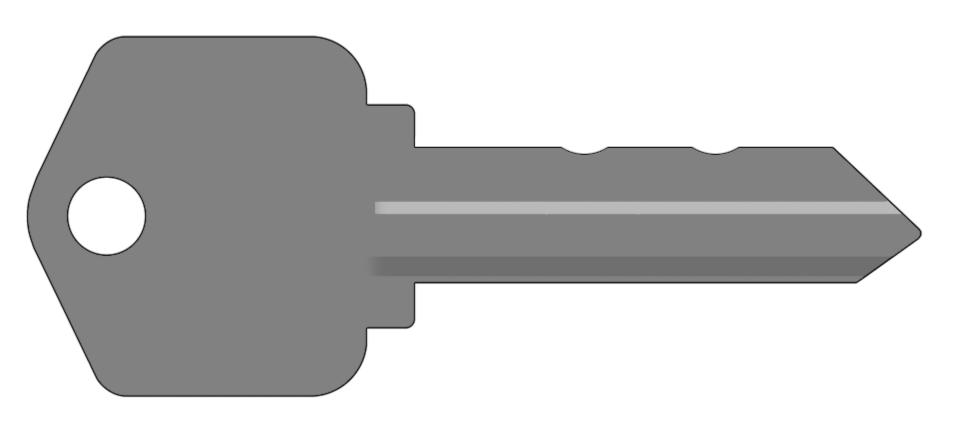


Impressioning - Observe the Rub





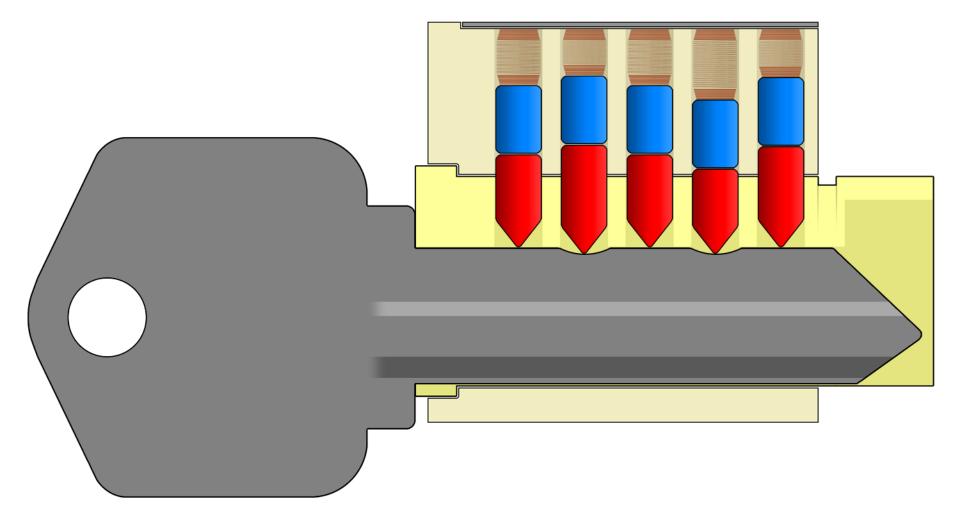
Impressioning - File Down at the Rub Marks





Impressioning - Repeat the

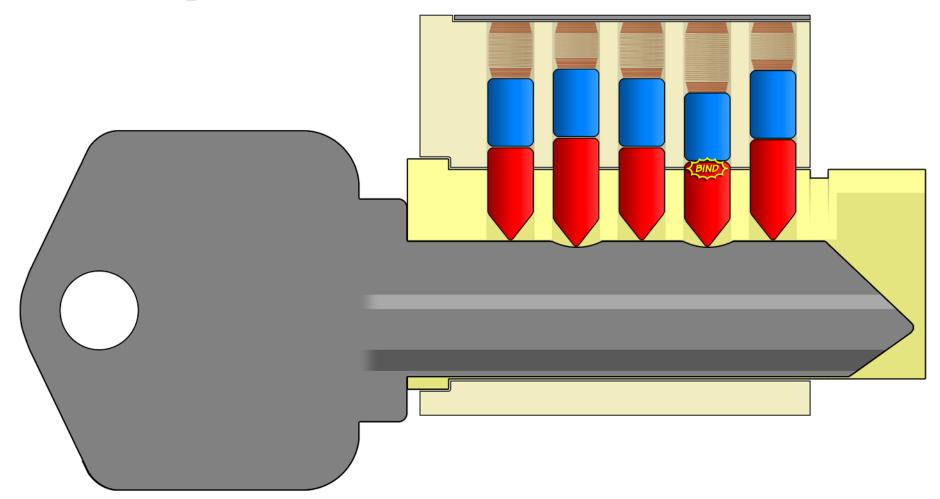
Process





Impressioning - Stack 4 is still

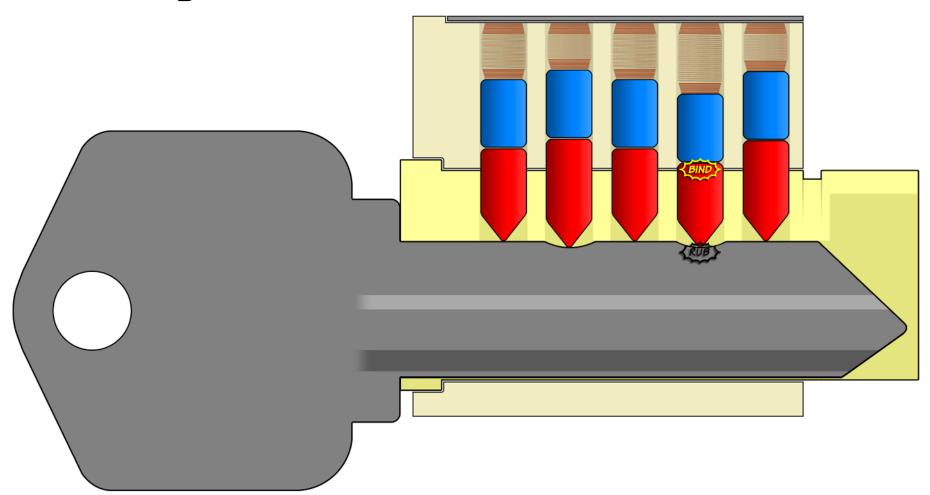
Binding





Impressioning - Stack 4 is still

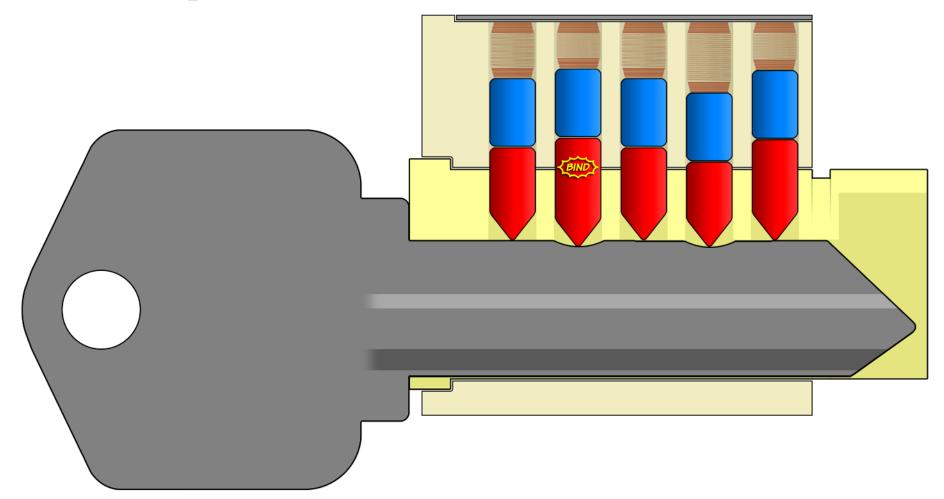
Rubbing





Impressioning - Stack 2 is still

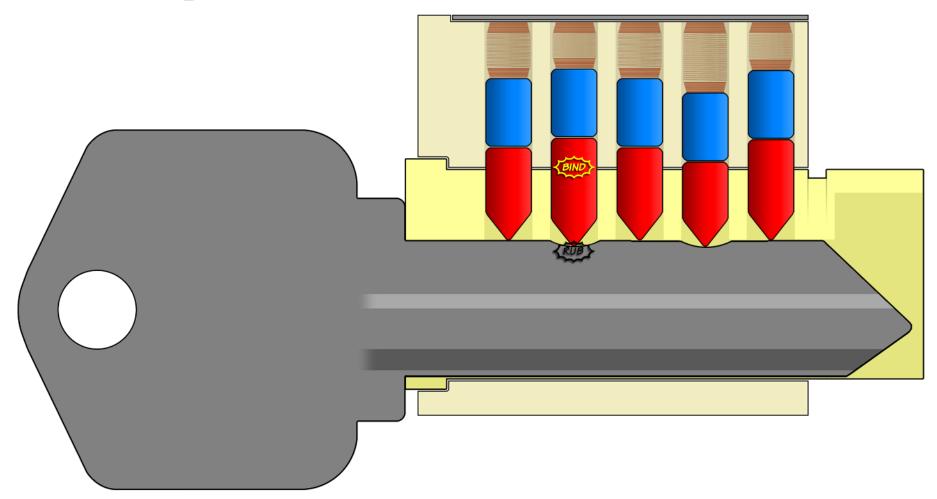
Binding





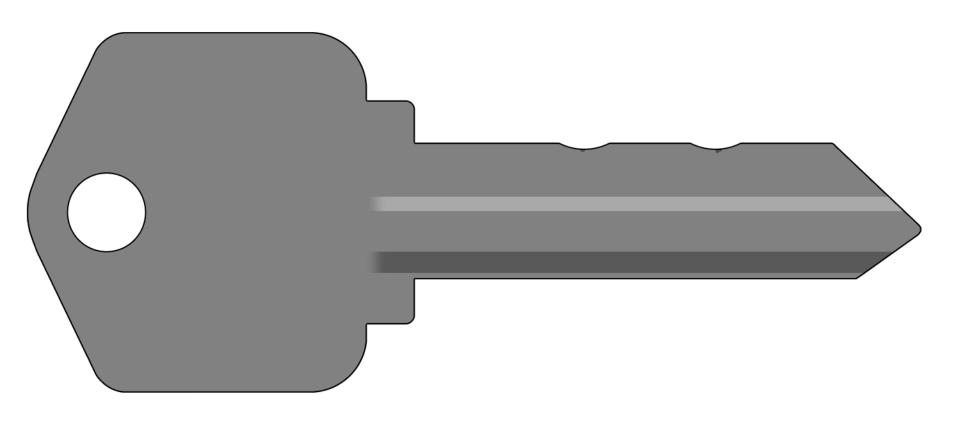
Impressioning - Stack 2 is still

Rubbing



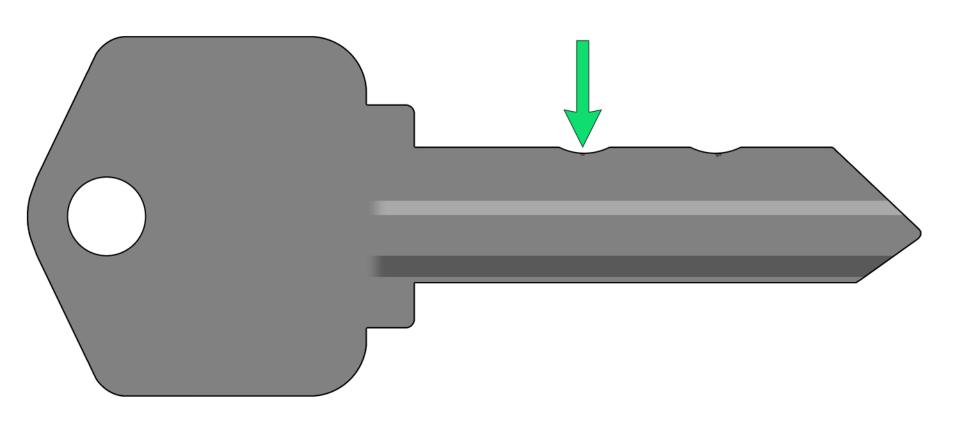


Impressioning - Continued Rub





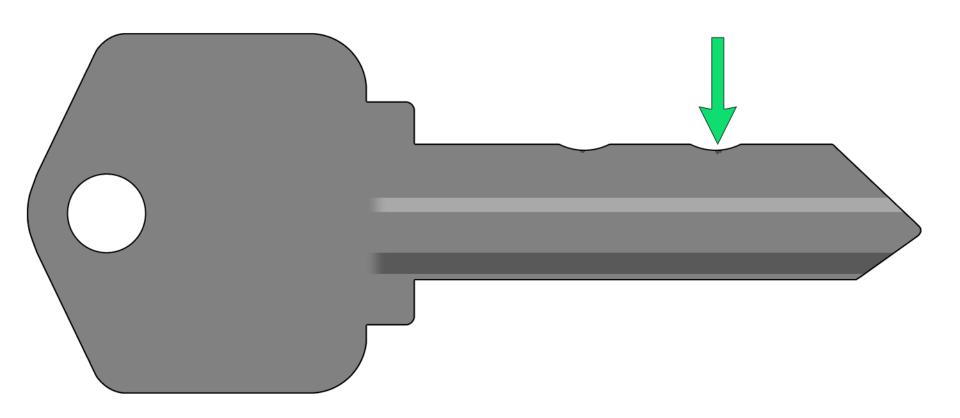
Impressioning - Continued Rub





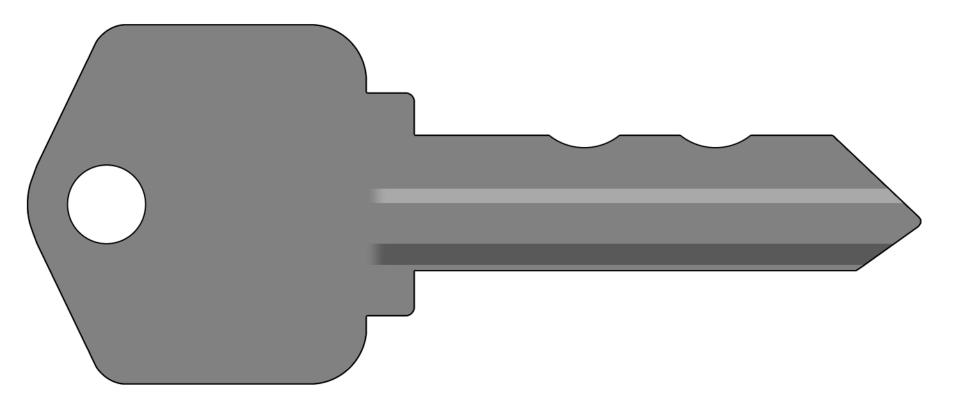
Impressioning - Continued Rub

Marks



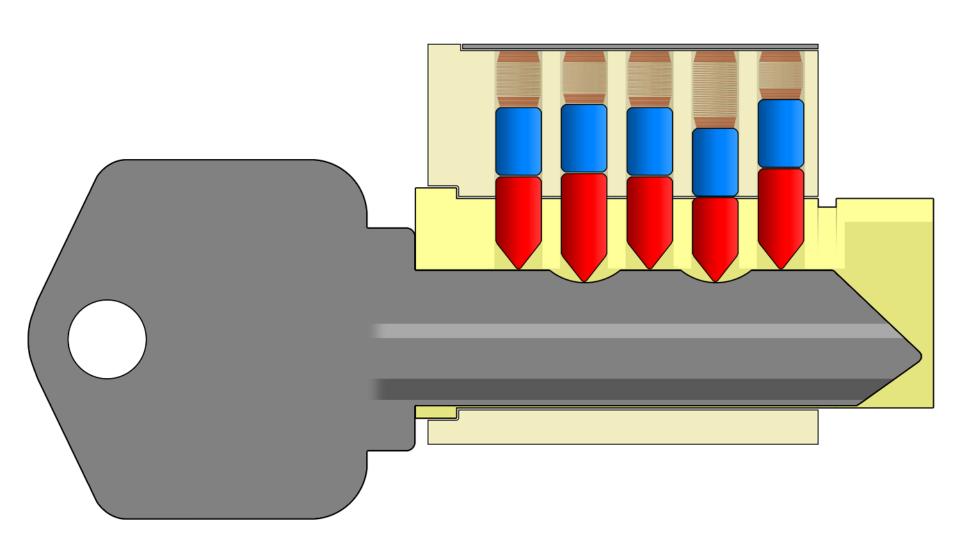


Impressioning - Continued Filing





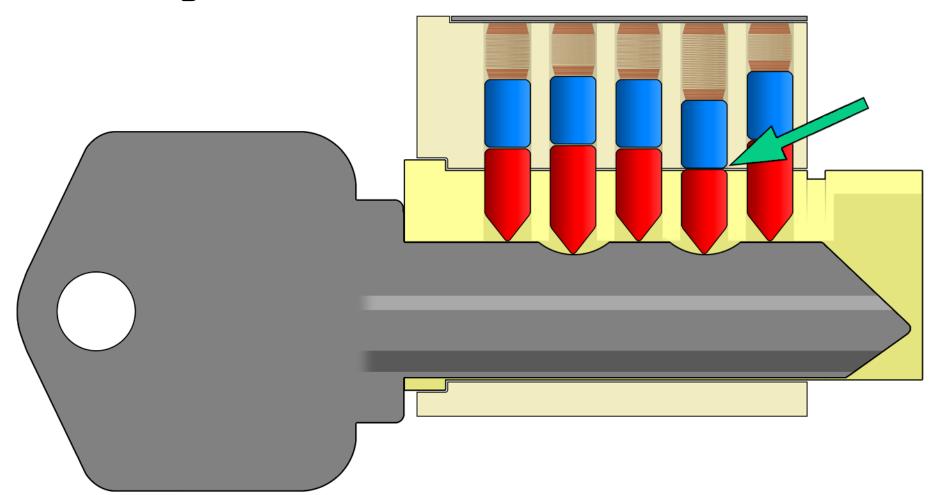
When the Key is Inserted Now...



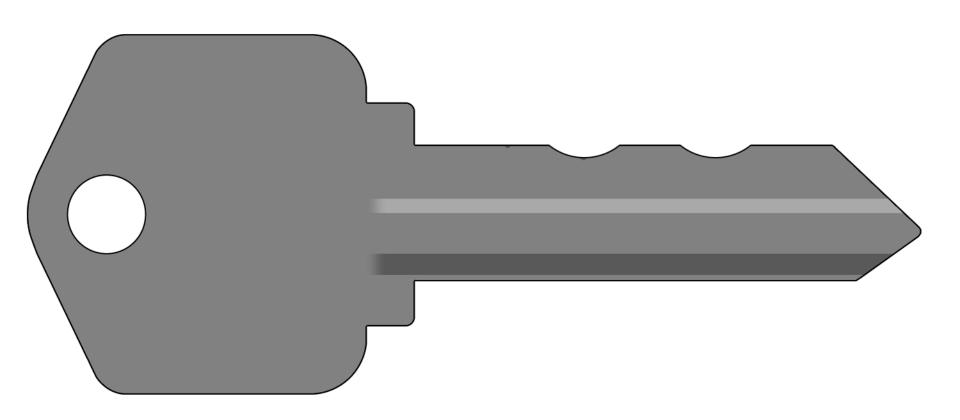


Pin Stack Number 4 is No Longer

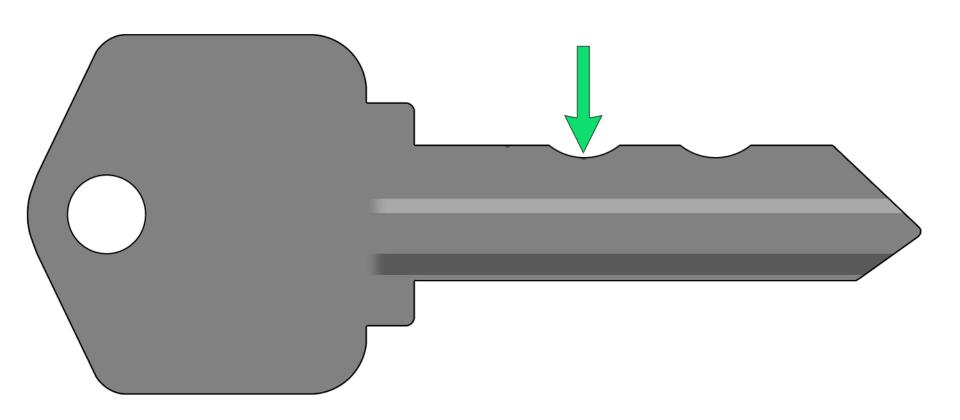
Binding



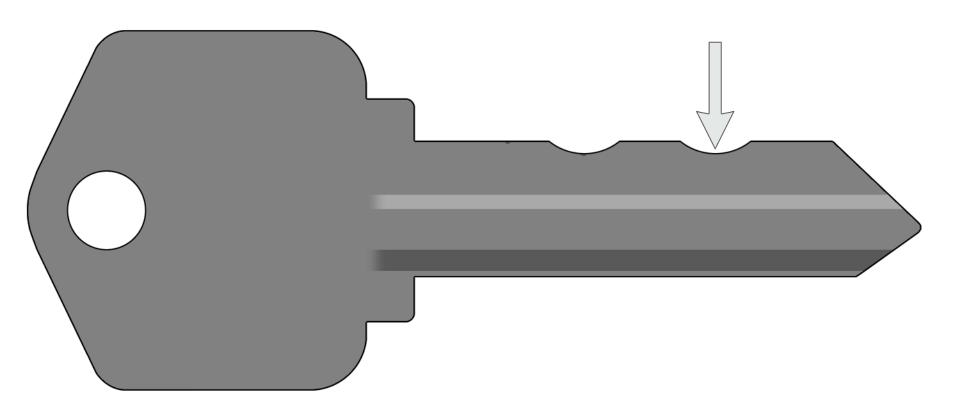




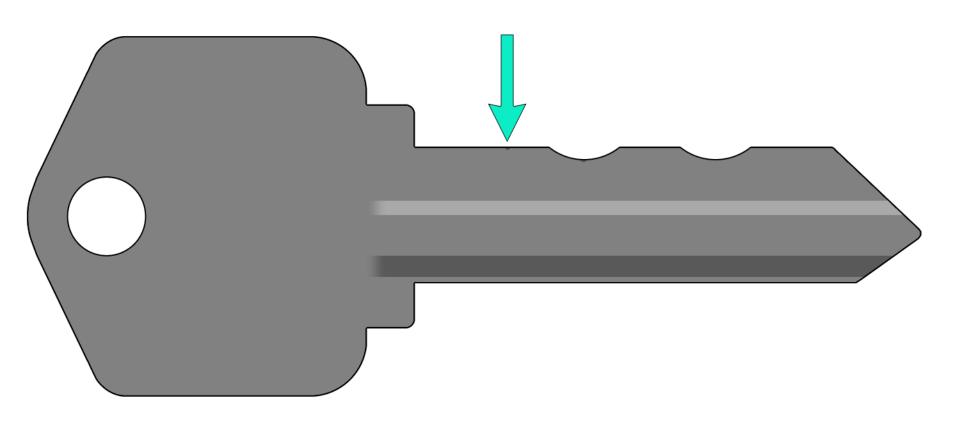




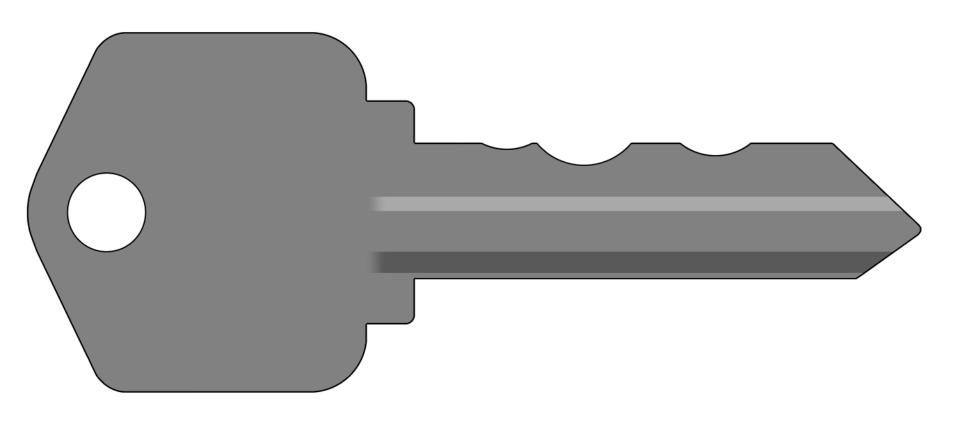
















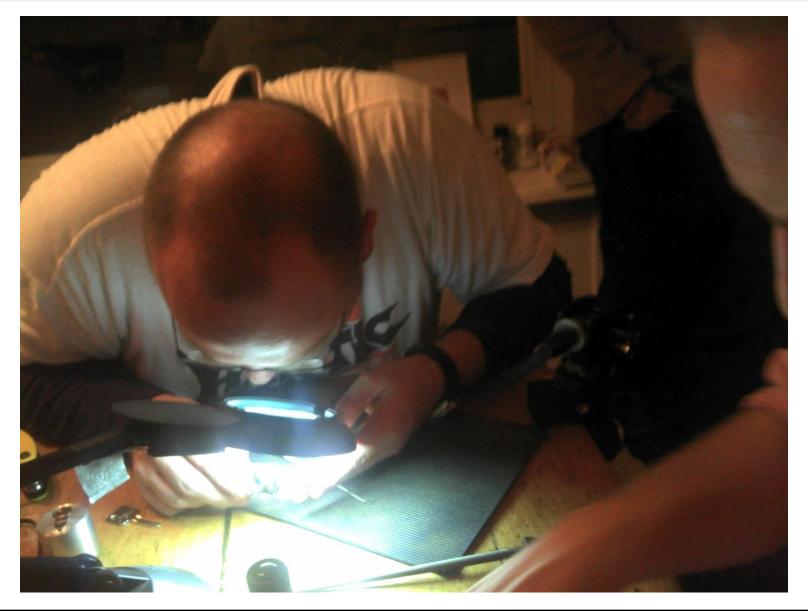










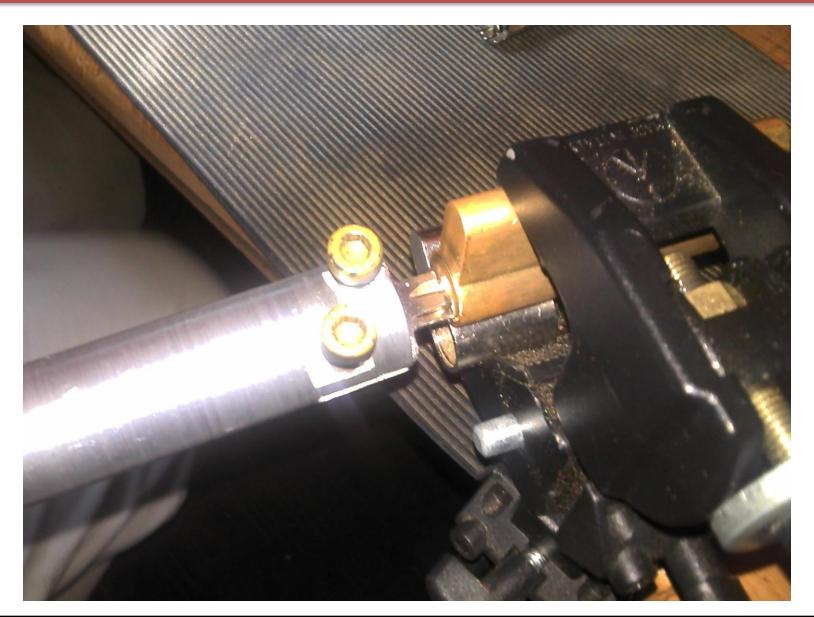








Open!



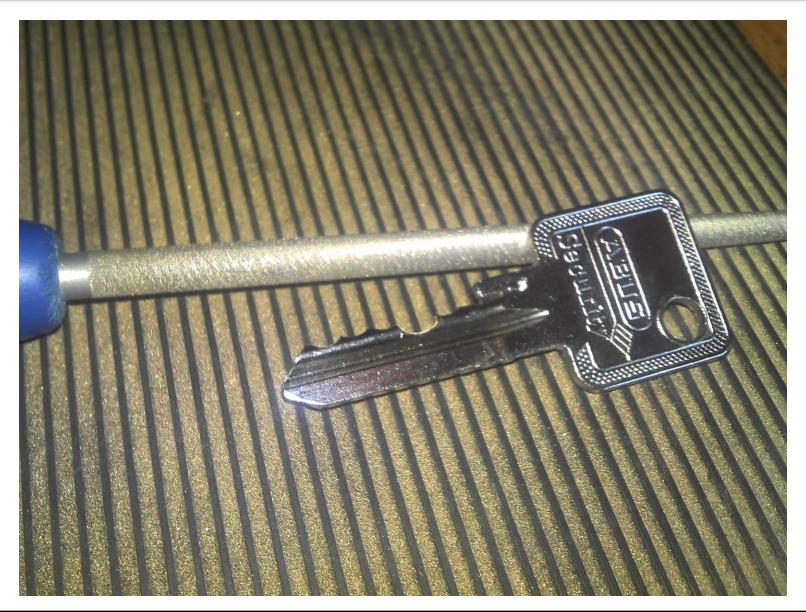


Open!





Open!





Impressioning Competitions





Impressioning Competitions



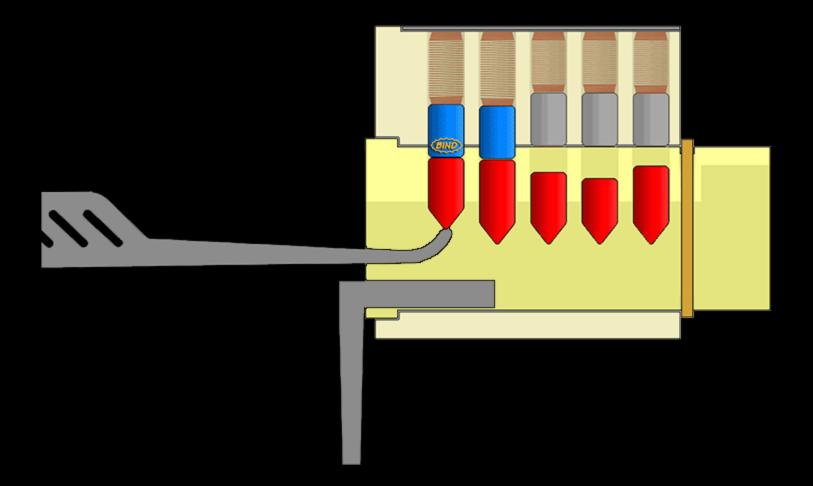


Impressioning Competitions





Questions?

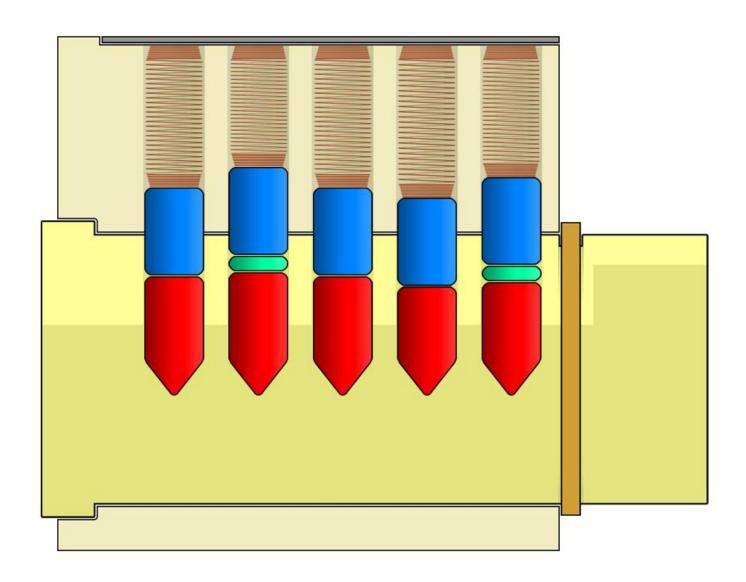




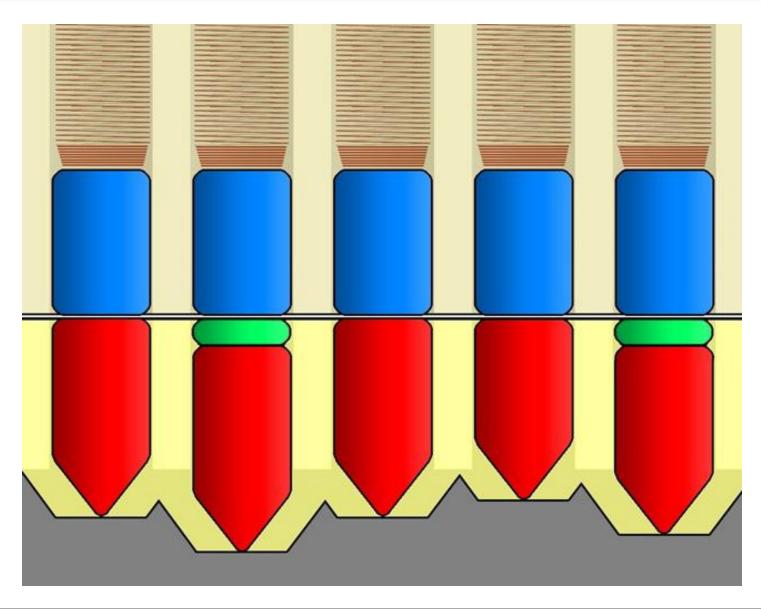


- Varied permissi
- Sometimes keywa
- Privilege Escal

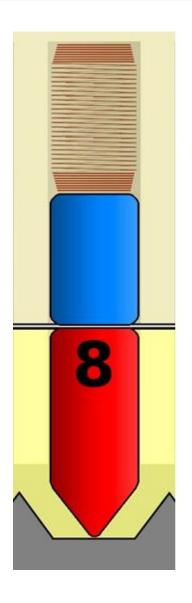


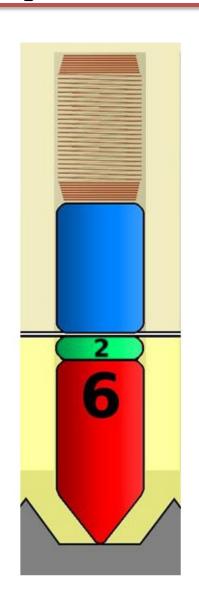


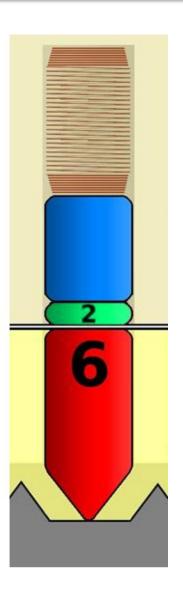














Depti

de Original key cut



Depti

D Leave this position

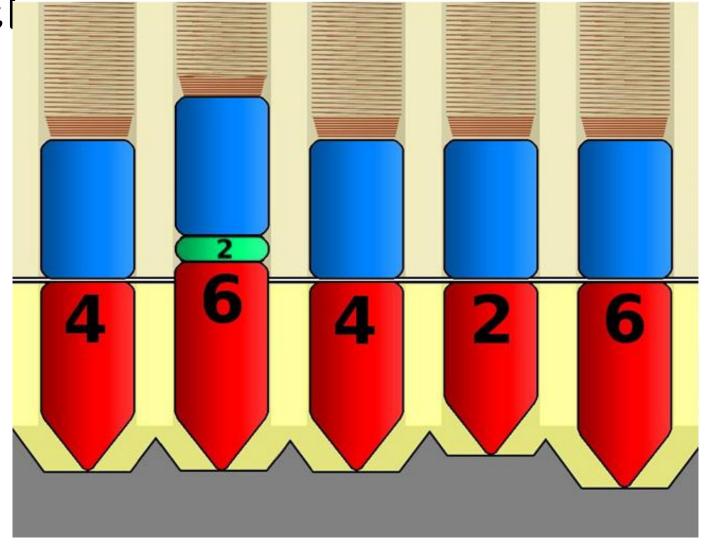


Depti

2 Cut down slightly...



Dept



+ Cut down a little



Depti

Lock



Finding the Master Bitting Depths



"Master-Keyed Lock Vulnerability"

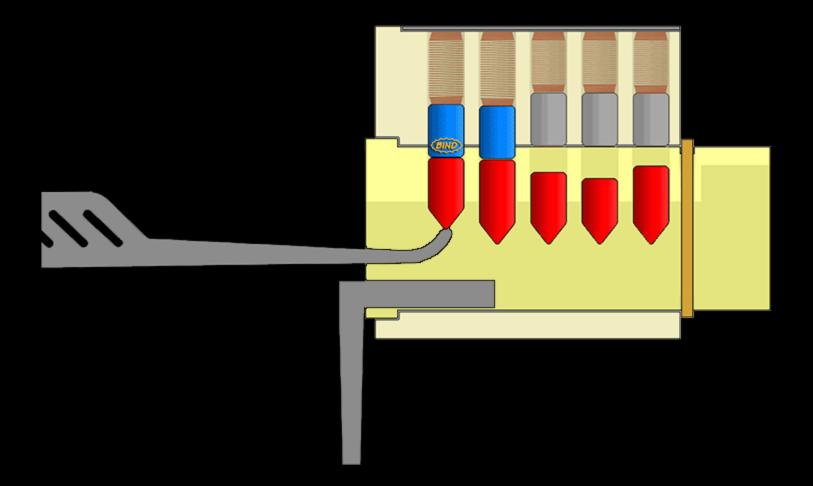
by Matt Blaze 2003-01-27

http://www.crypto.c
om/papers/mk.pdf

http://www.crypto.c
om/masterkey.html

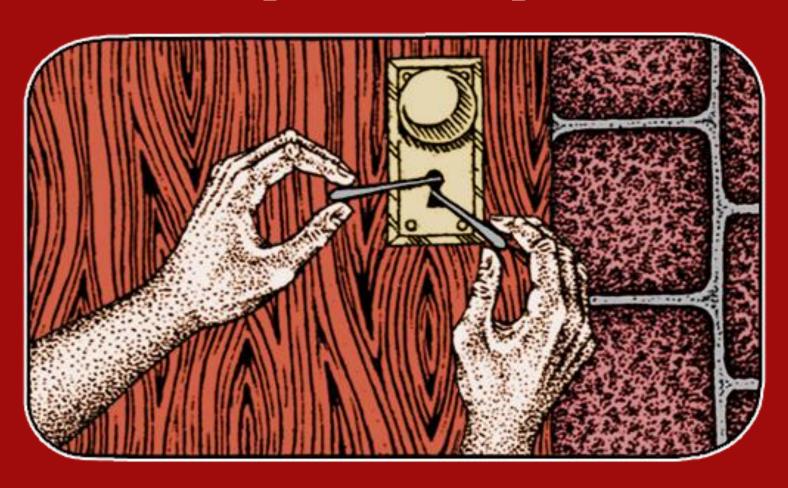


Questions?





Distinguishing Picks



There are many lockpick vendors...







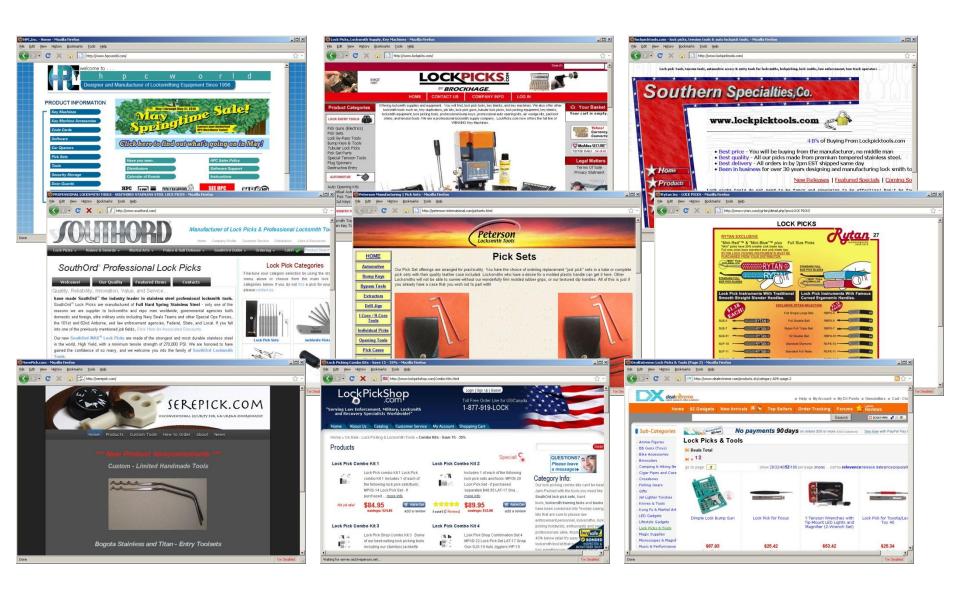


There are many lockpick vendors...





There are many lockpick vendors...





Selling many lockpicking tools



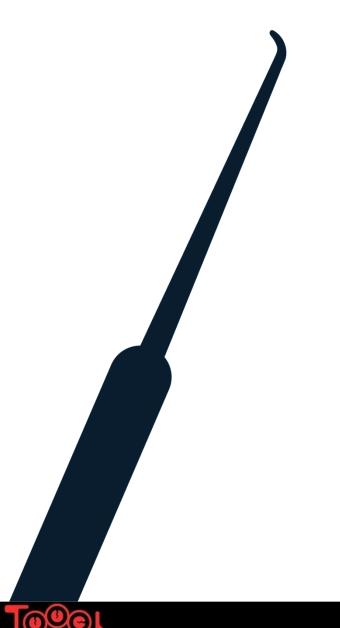


First, let's talk about metal…

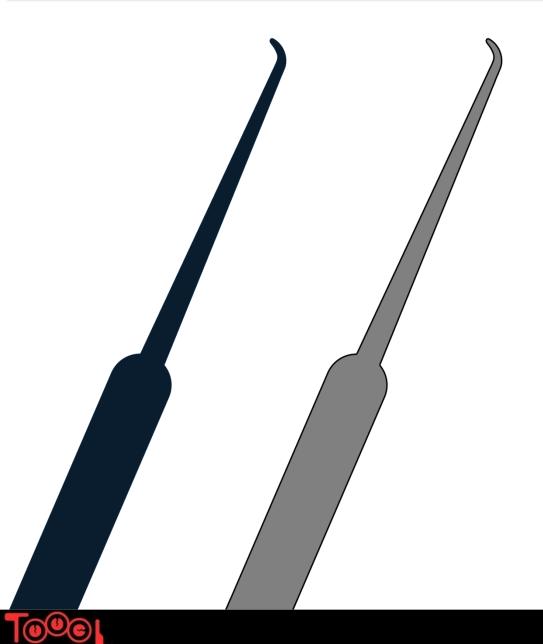




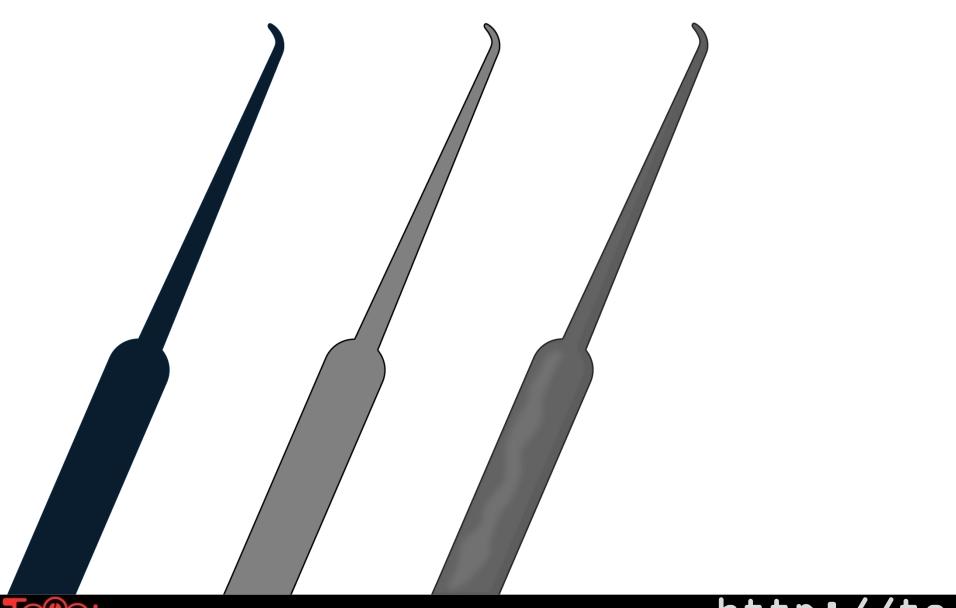
Spring Steel



Stainless Steel

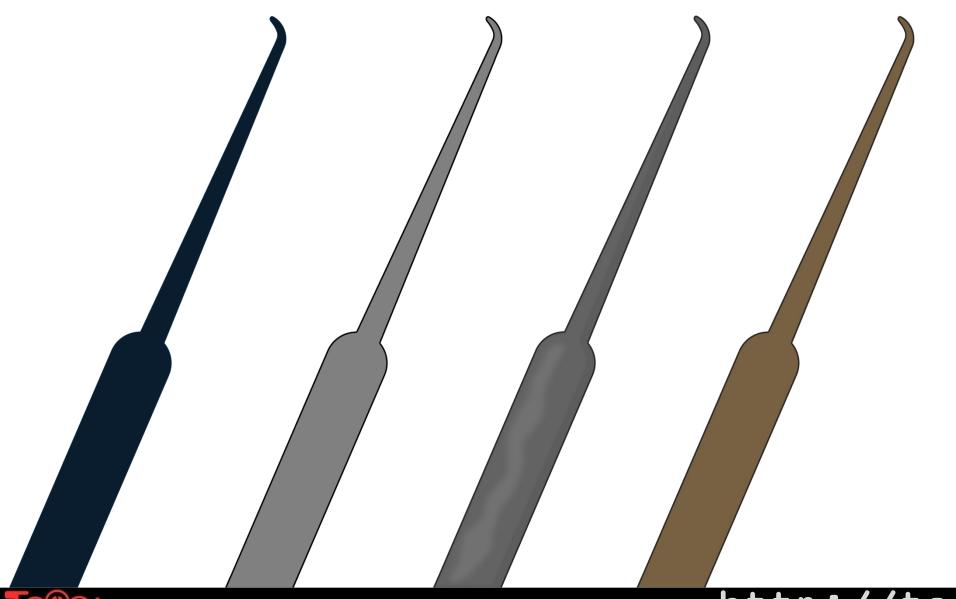


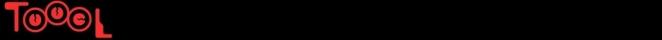
Titanium





Other Metals?

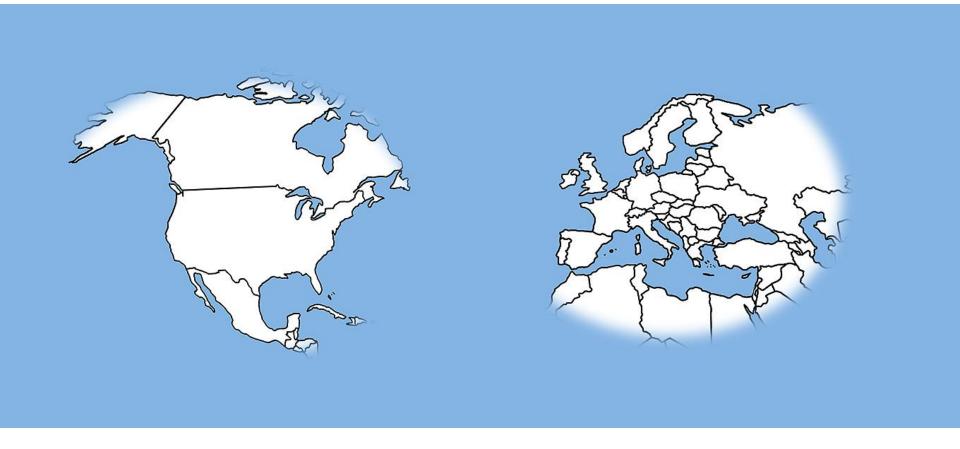




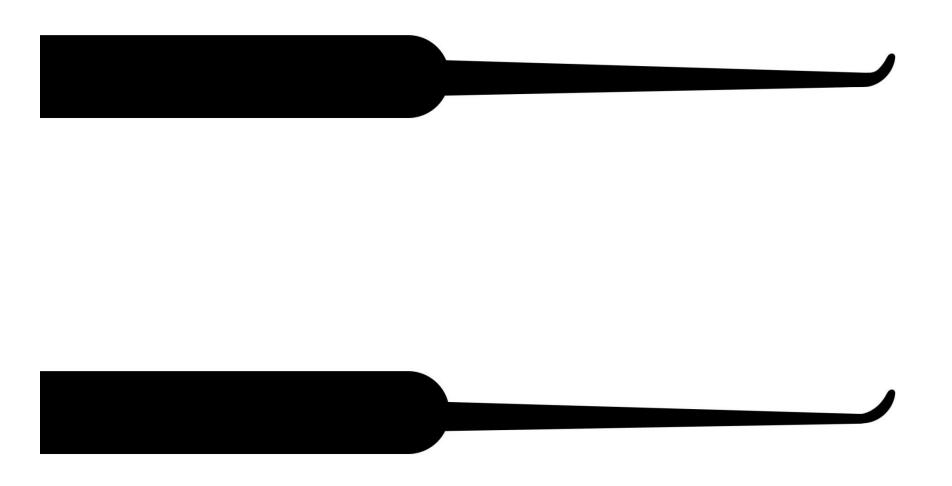
Thickness



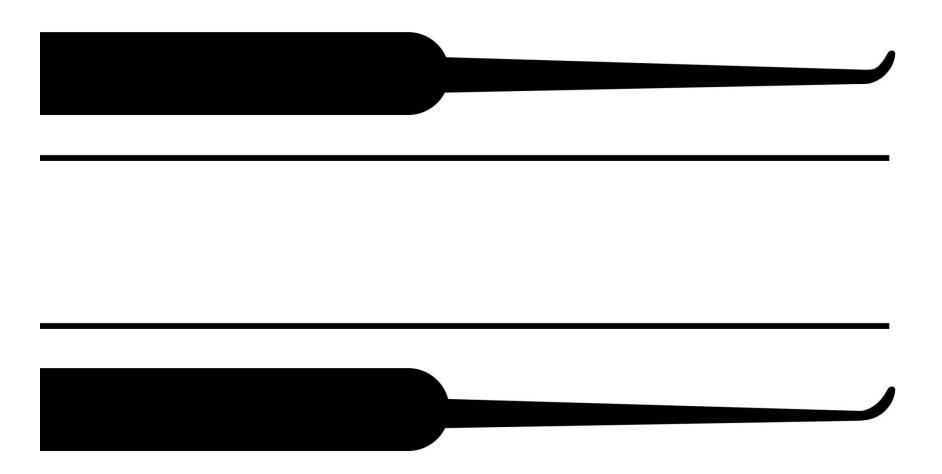




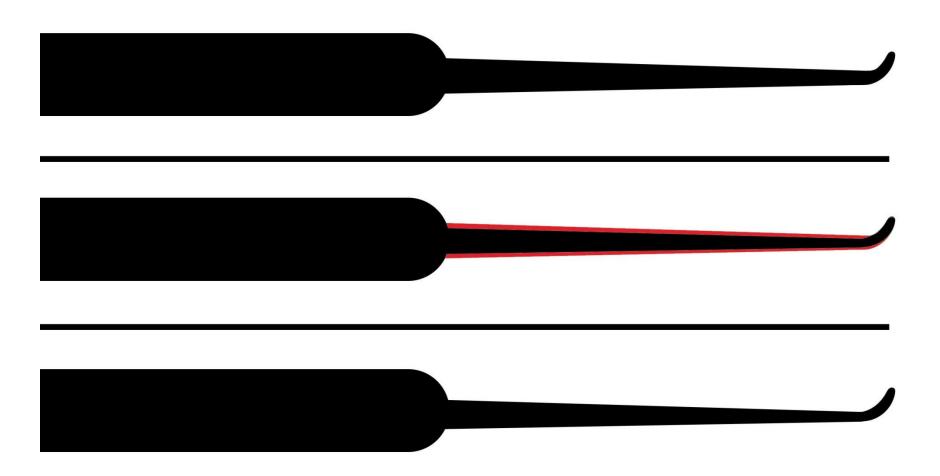






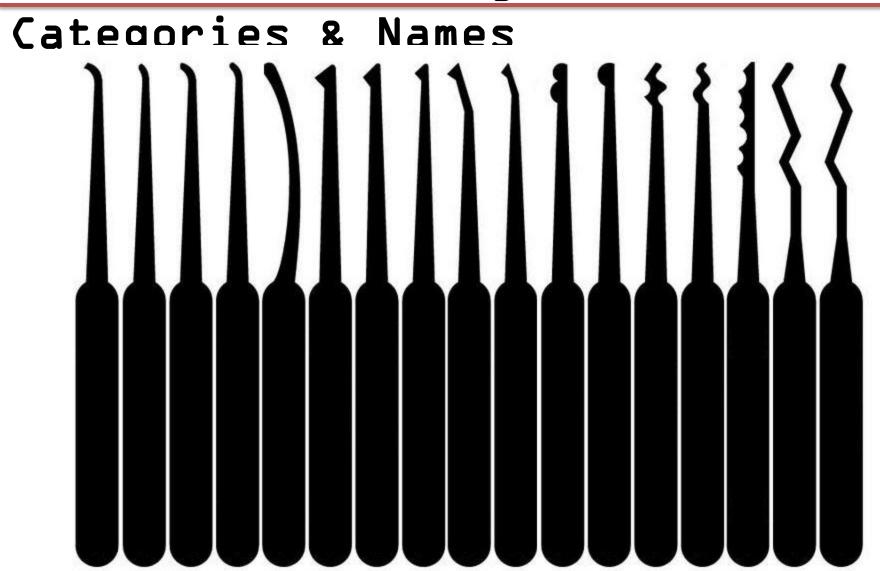






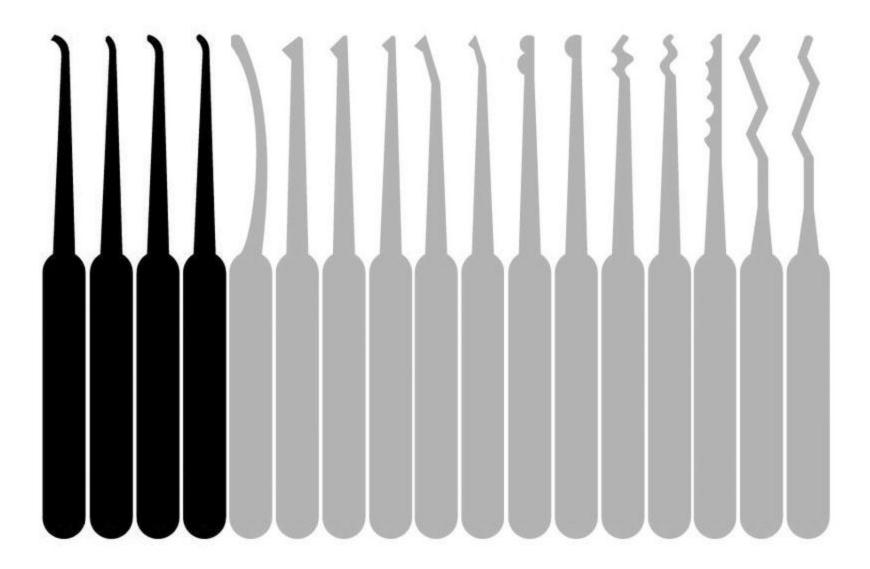


The *real* confusing mess...



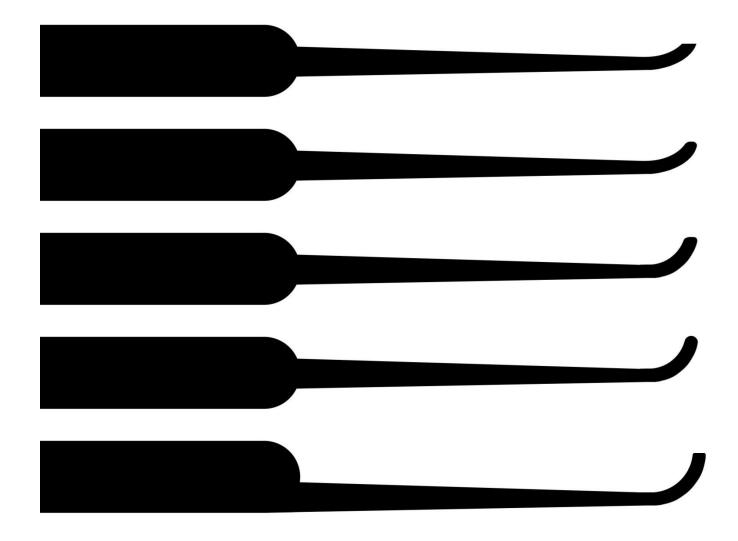


What would you call these?



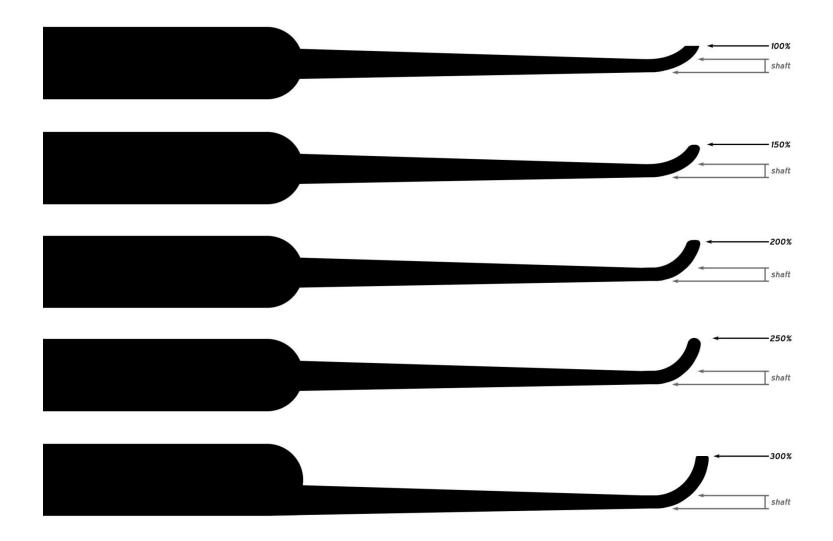


Hooks (a.k.a. Lifters)



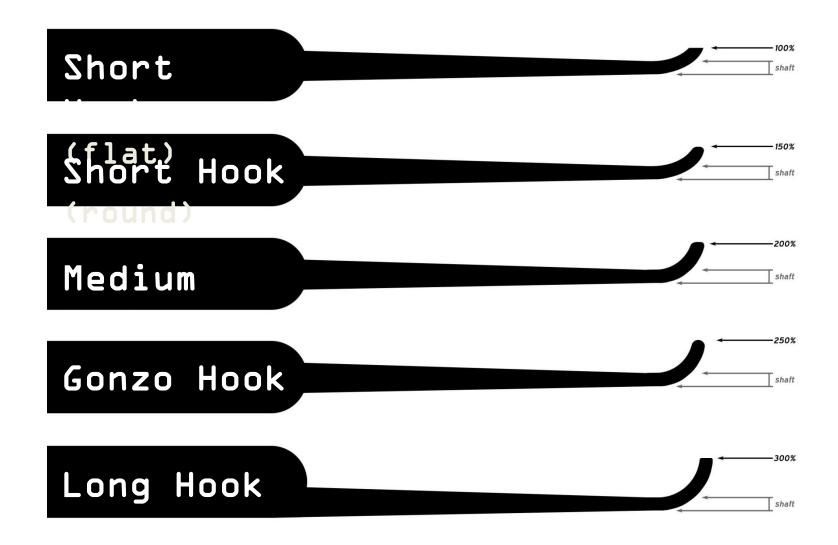


Hooks (a.k.a. Lifters)



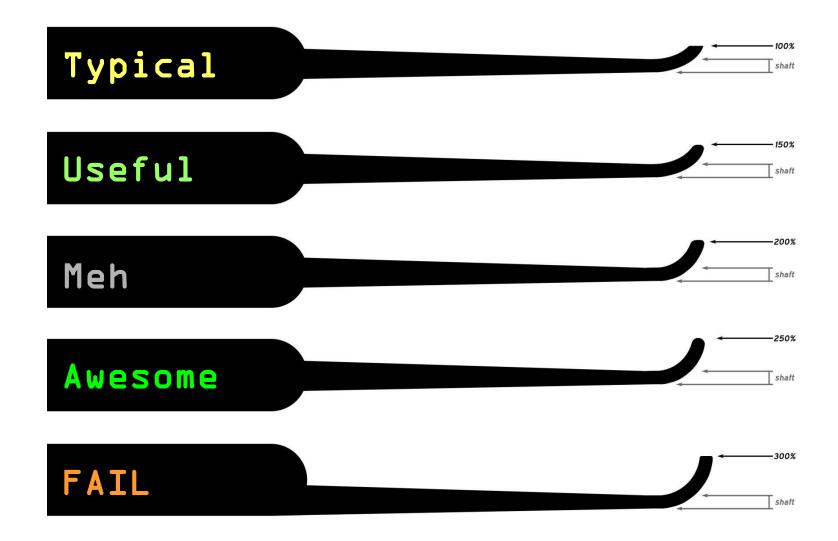


Hooks (a-k-a- Lifters)



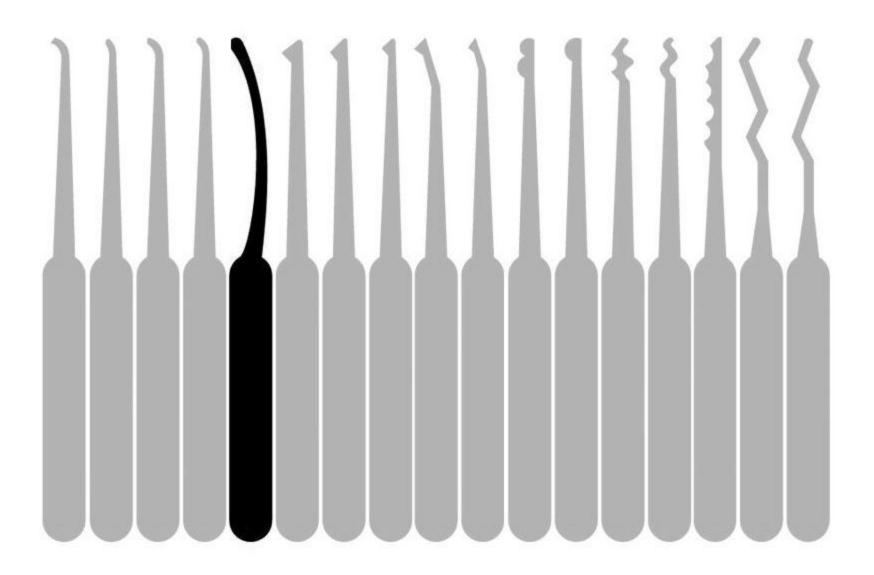


Hooks (a-k-a- Lifters)



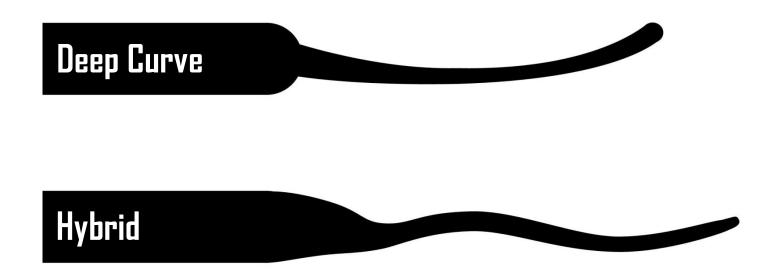


What would you call these?



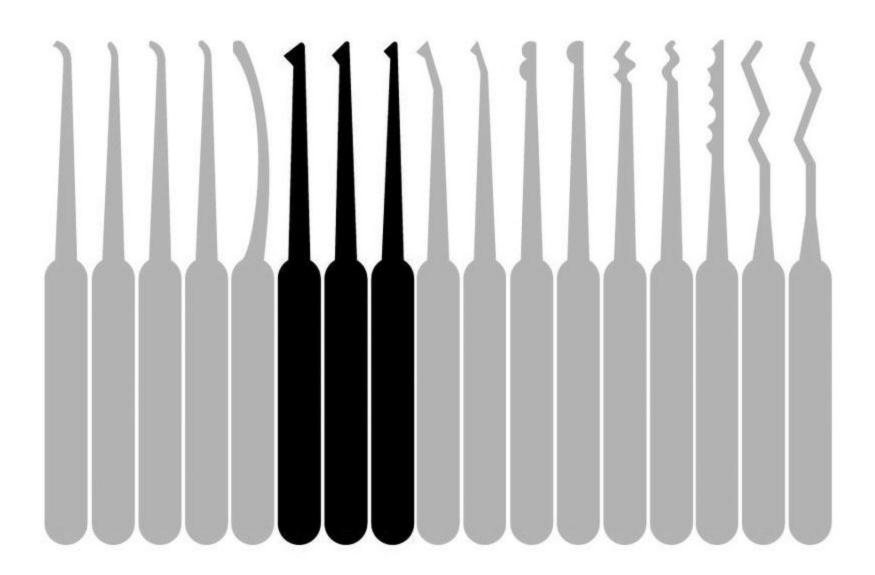


Reach Tools

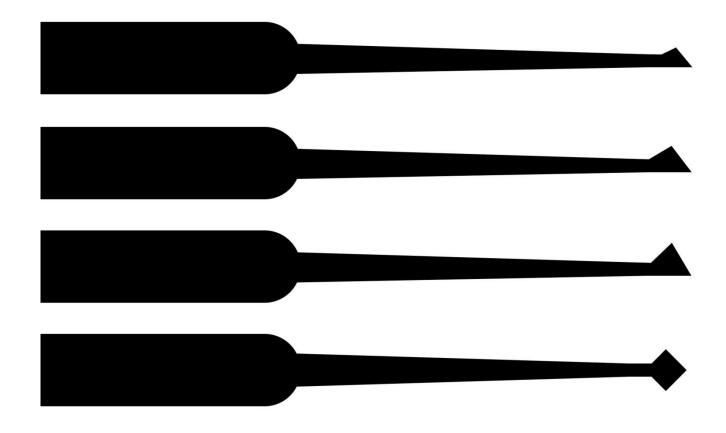




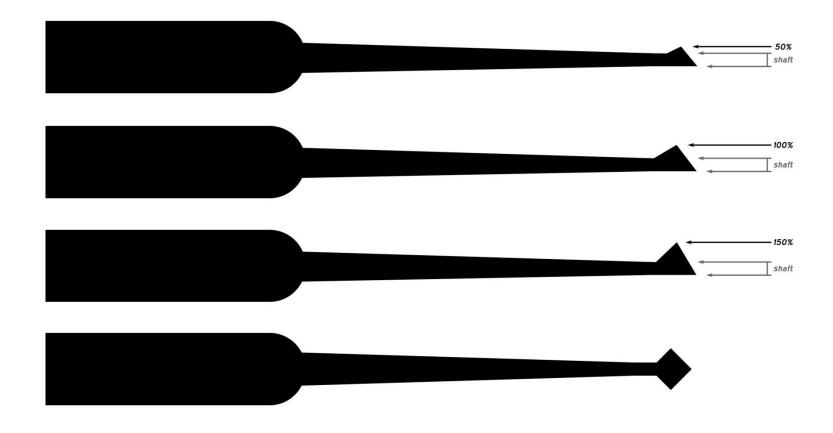
You've all seen these...



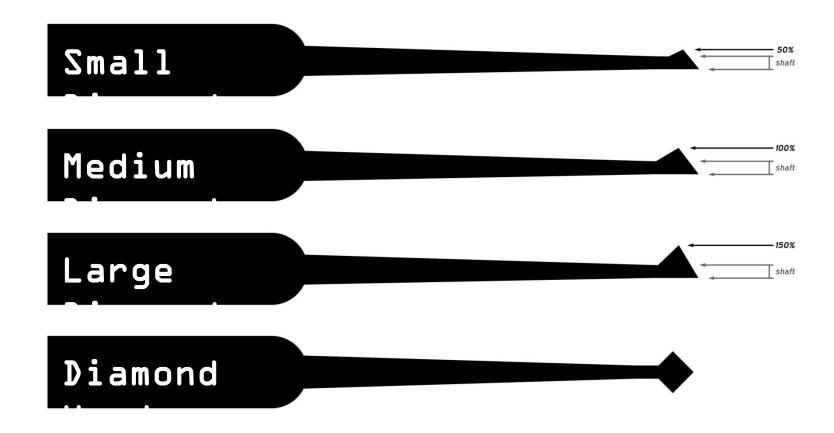










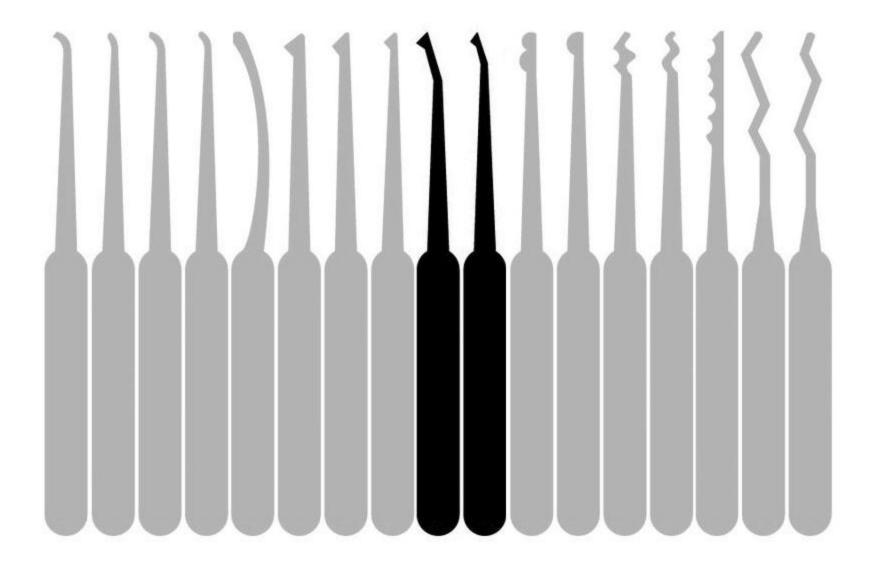






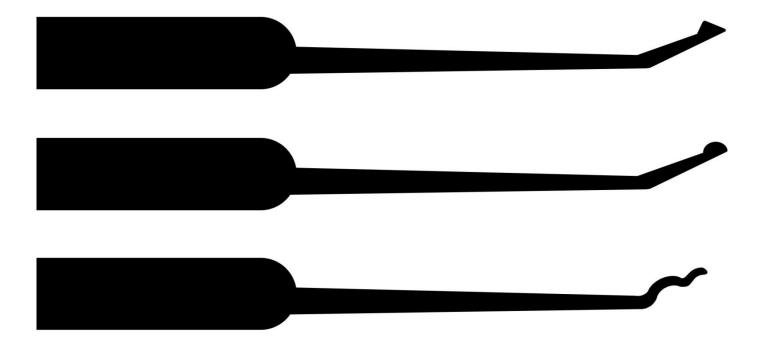


How would you categorize these...?



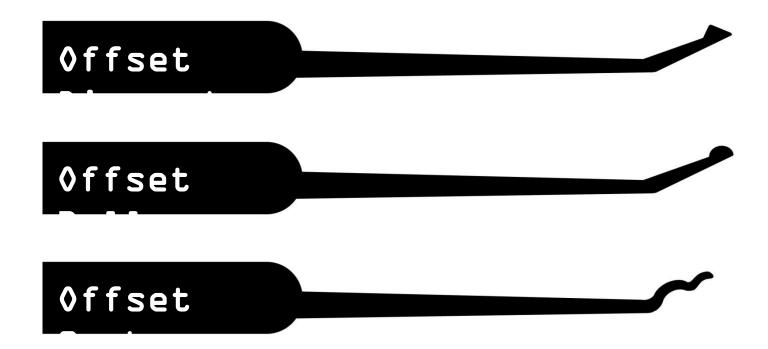


Offset Tools



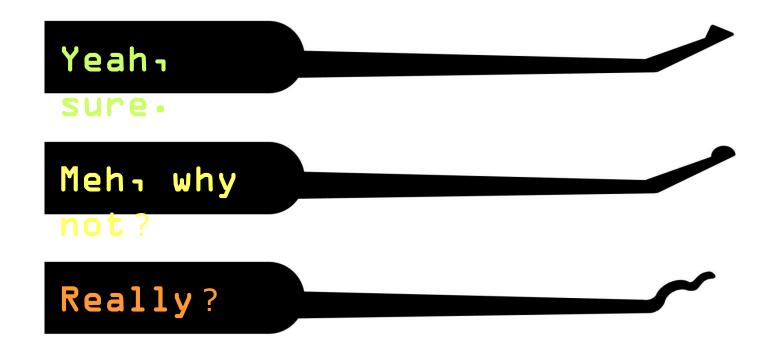


Offset Tools



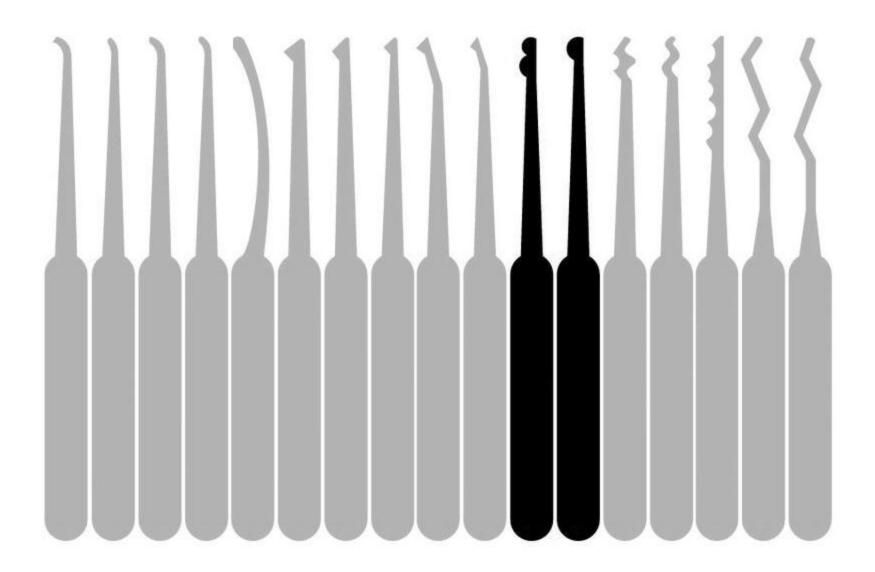


Offset Tools



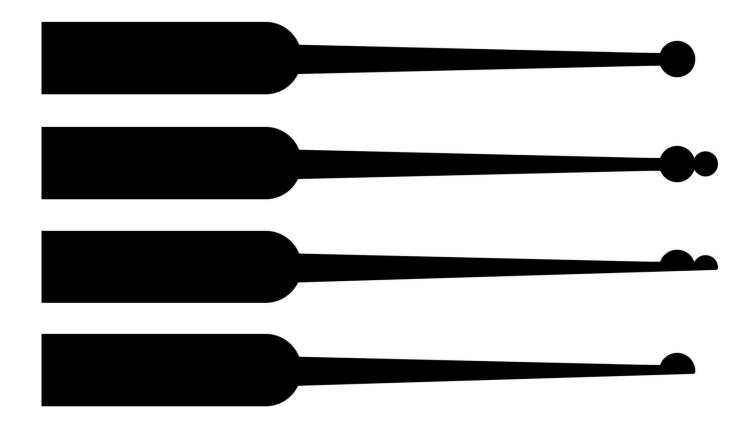


Balls, balls, balls...



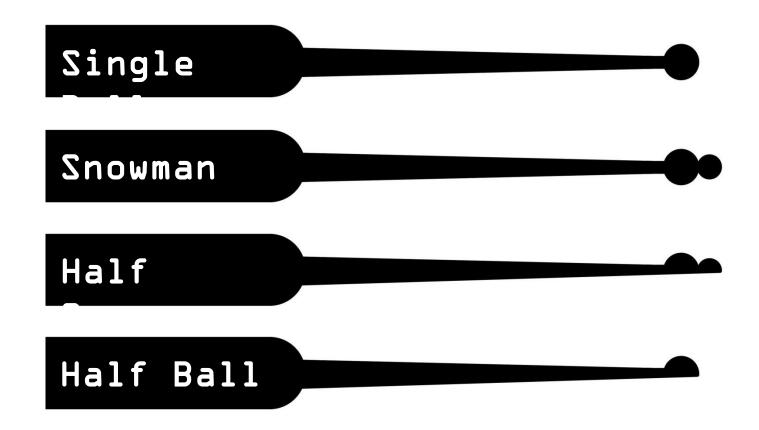


Balls balls balls...



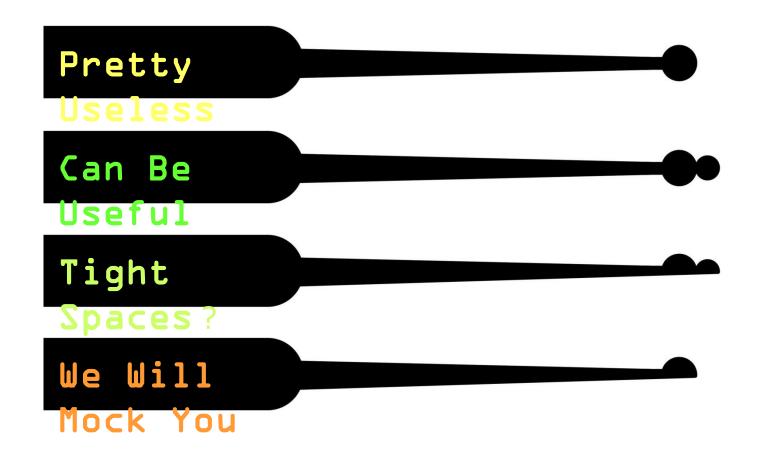


Balls, balls, balls...



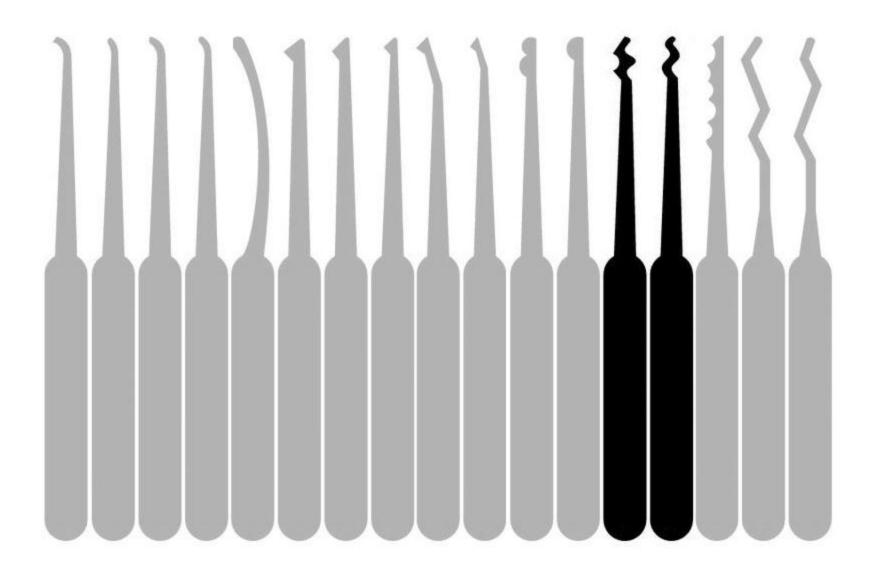


Balls, balls, balls...





What would you call these?





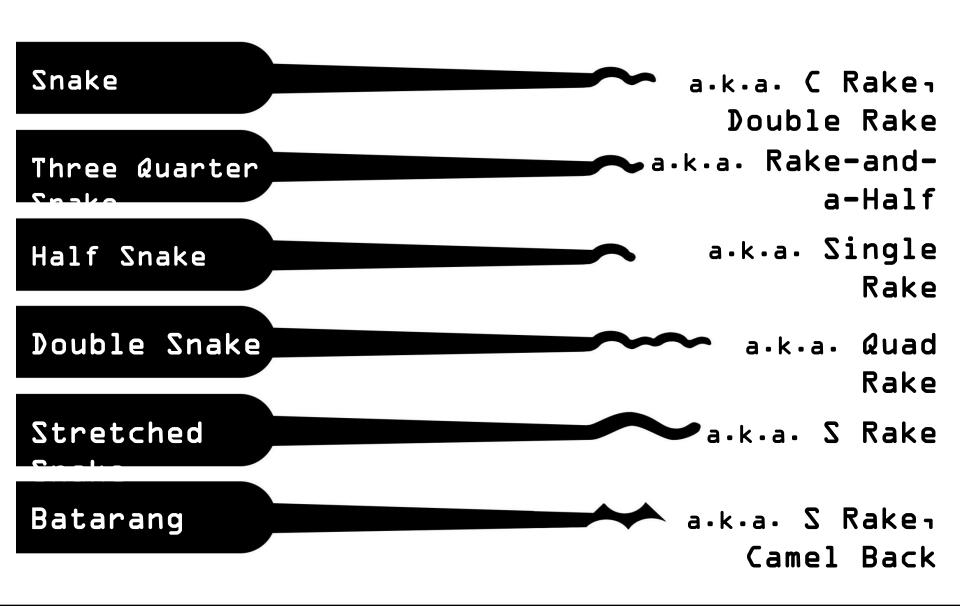
Raking tools... Welcome to Crazy

Land



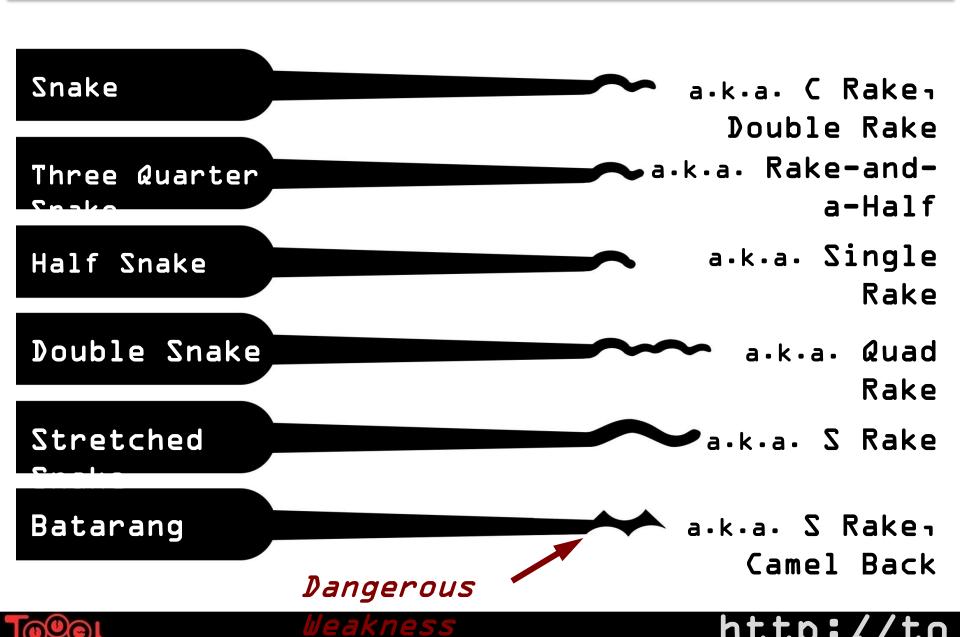


Raking Tools

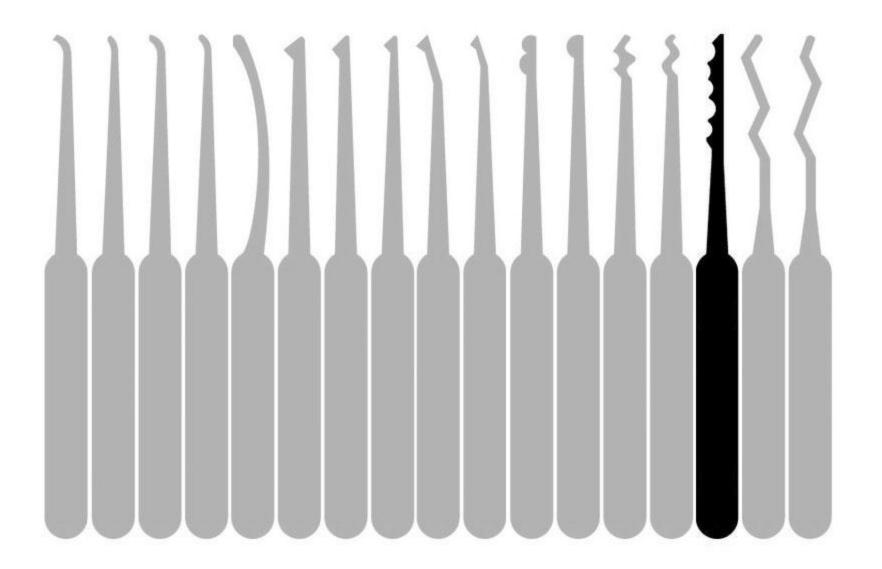




Raking Tools



What about something like this...



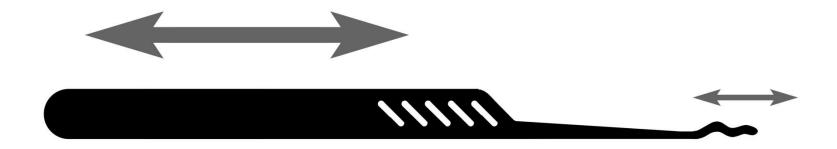


"Raking" vs. "Lifting"

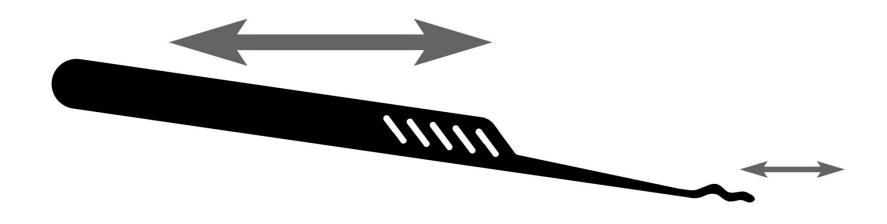




Raking

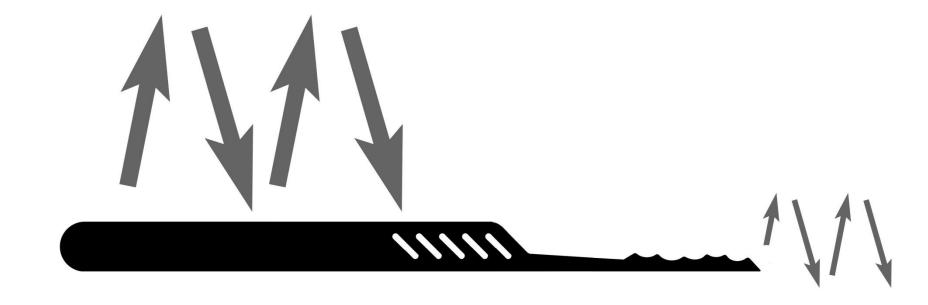






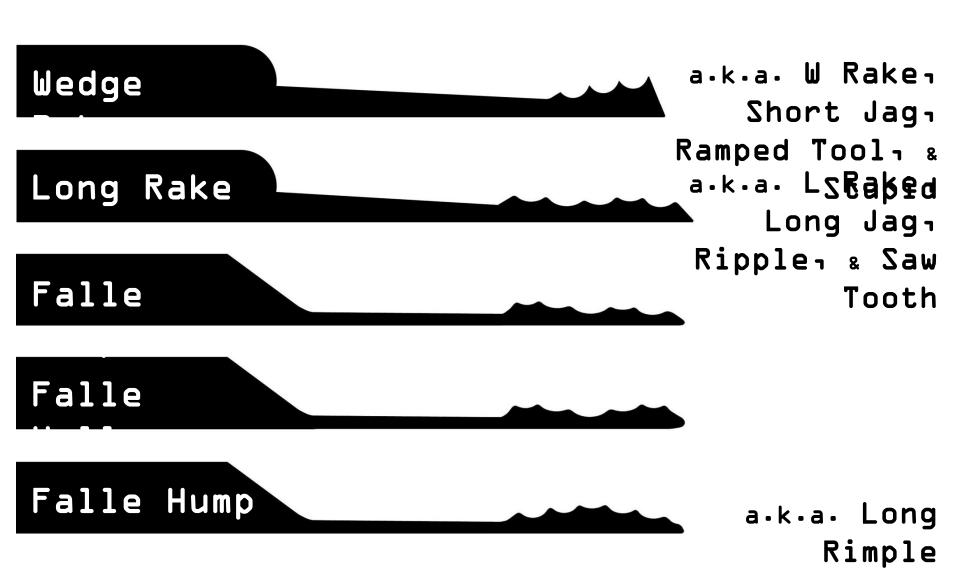


Lifting





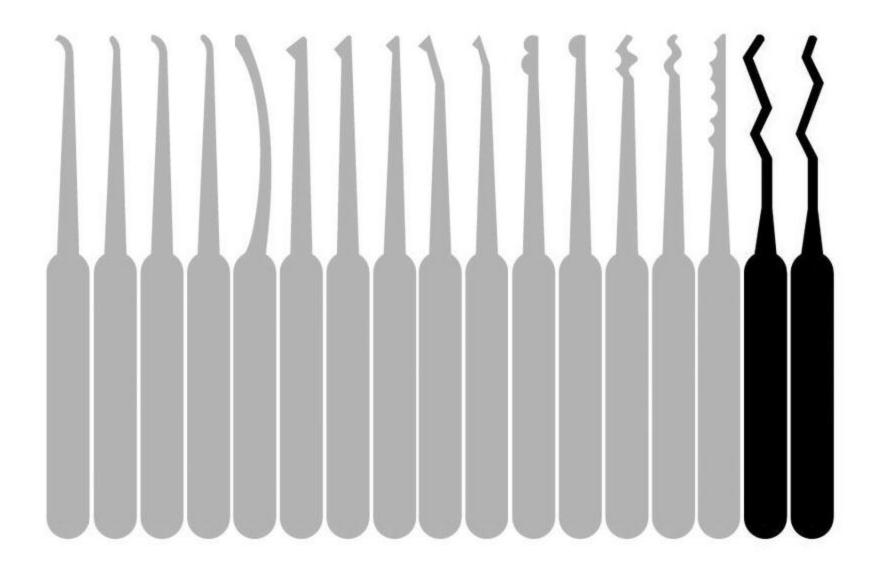
Jagged Lifters





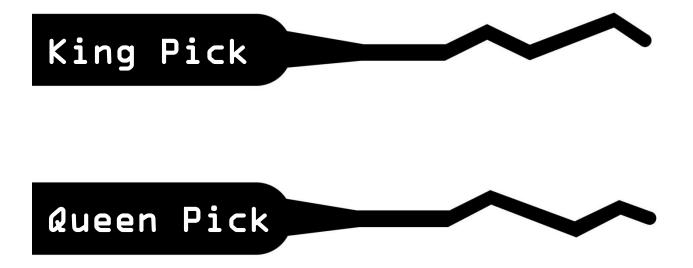
http://to

So what on earth are these?





King & Queen





A major innovation in pick tools

Thanks to Minnesota...



... with a nod to Colombia



Raimundo's Family of Tools



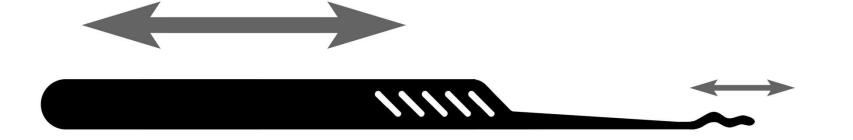


It Started with Two Tools...

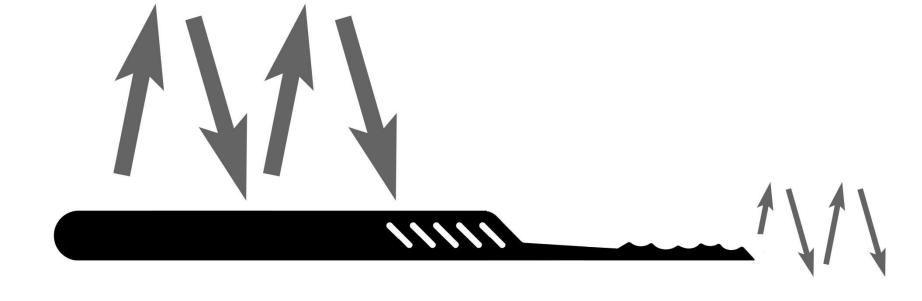




What is Jiggling?

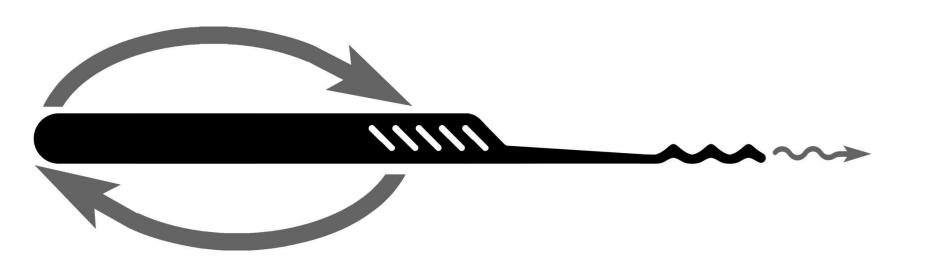


In Between Raking & Lifting ...





What is Jiggling?



... There is "Jiggling"



Bogóta Family



Bogota

Single Hump a-k-a-





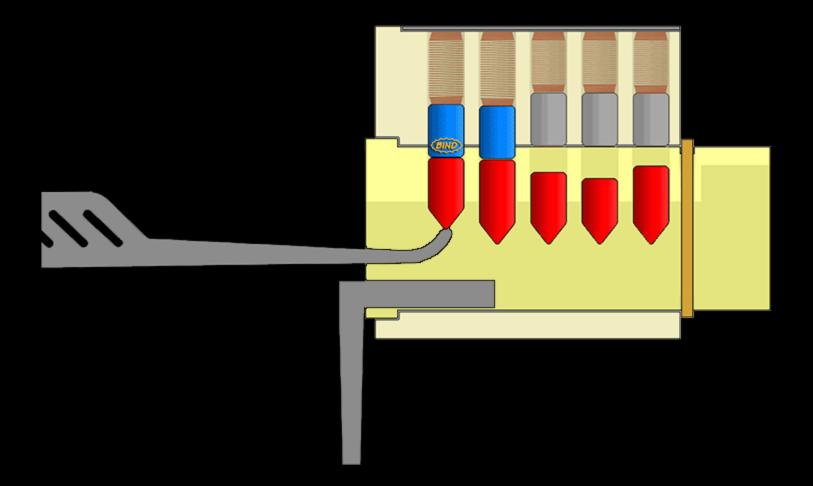
Bogóta Family



http://theamazingkin
g.com/bogota.html

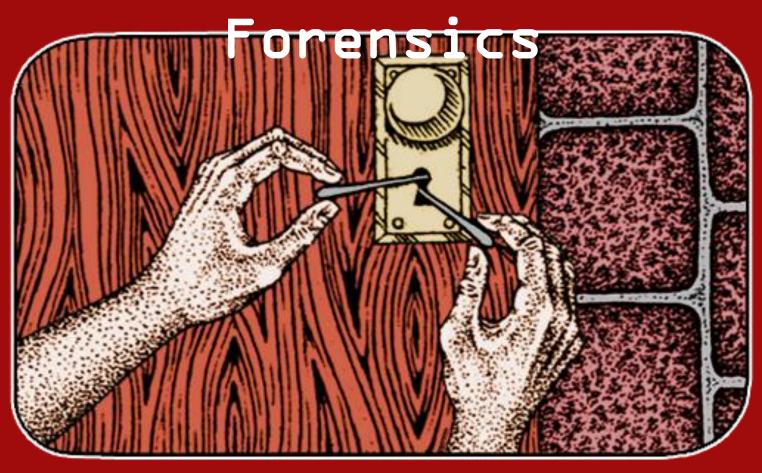


Questions?

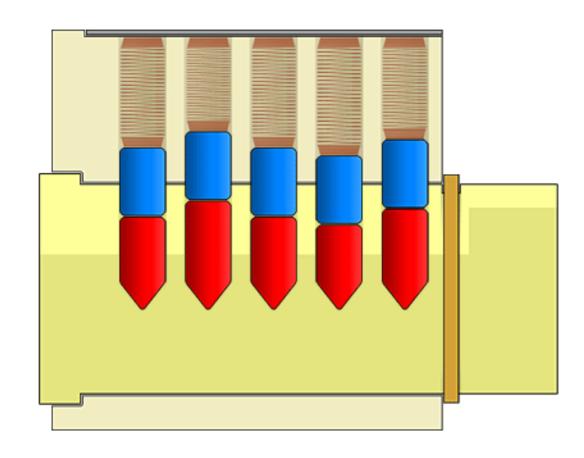




Lockpicking &



Keys Touch Very Specific Places





Virgin Pins Have Specific Patterns From Manufacturing





Concentric Tiny Ridges on Pin

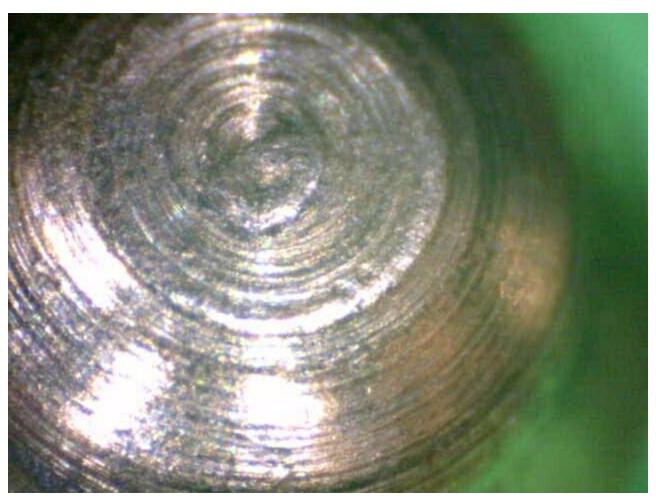
Face





Those Rings "Polish Away" With

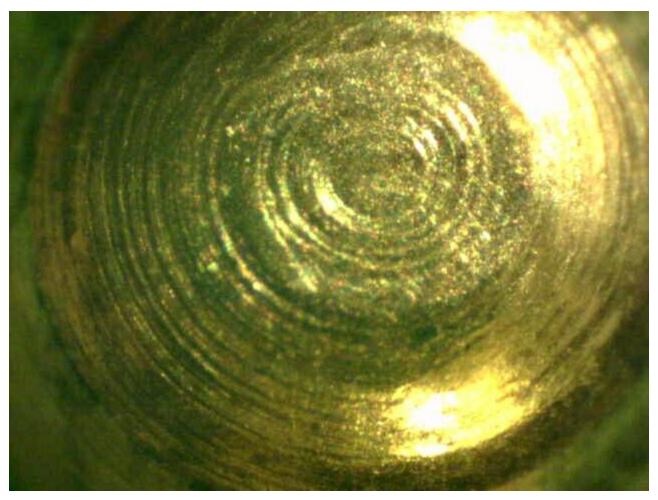
Uses Uses





Those Rings "Polish Away" With

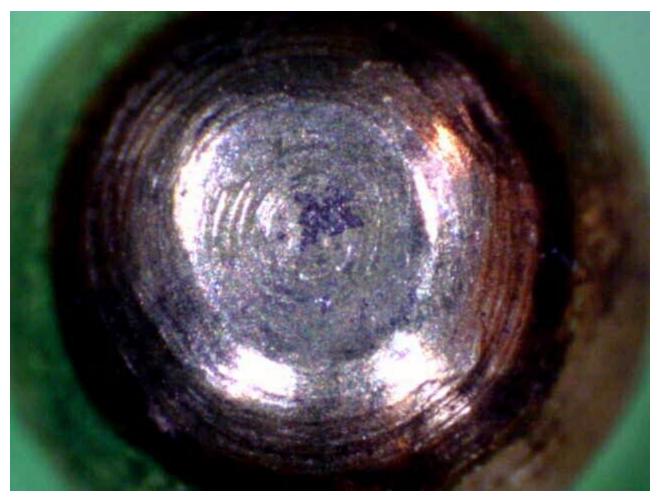
Uses Uses





Those Rings "Polish Away" With

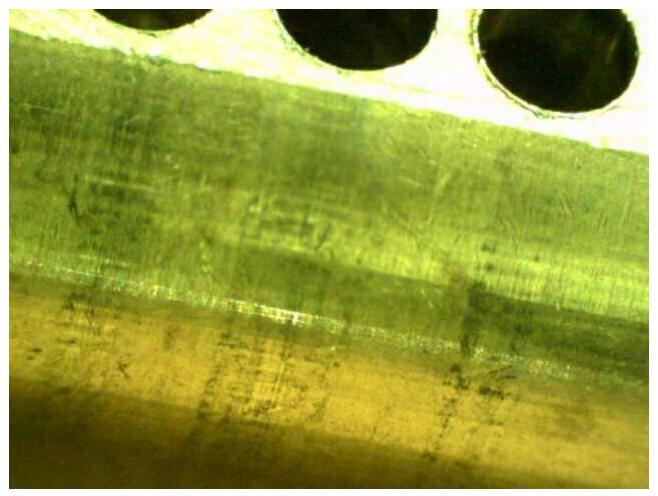
Uses 5000 Uses





The Plug Picks Up Marks From

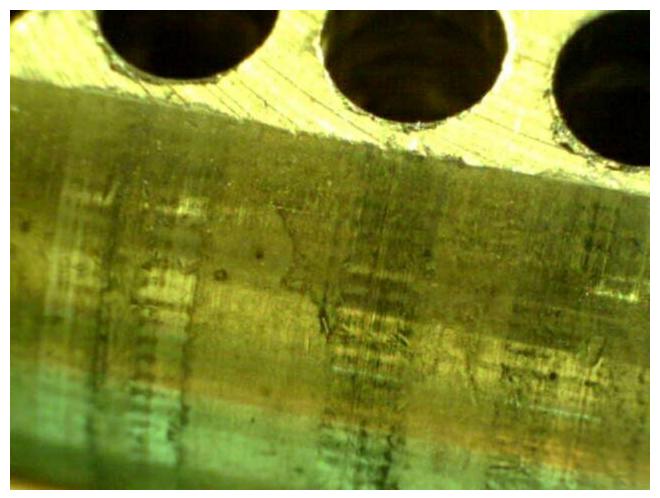
Driver Pins 250 Uses





The Plug Picks Up Marks From

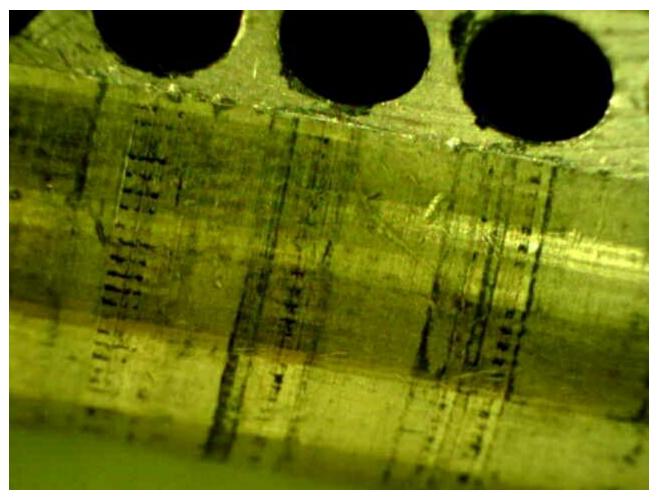
Driver Pins 1500 Oses





The Plug Picks Up Marks From

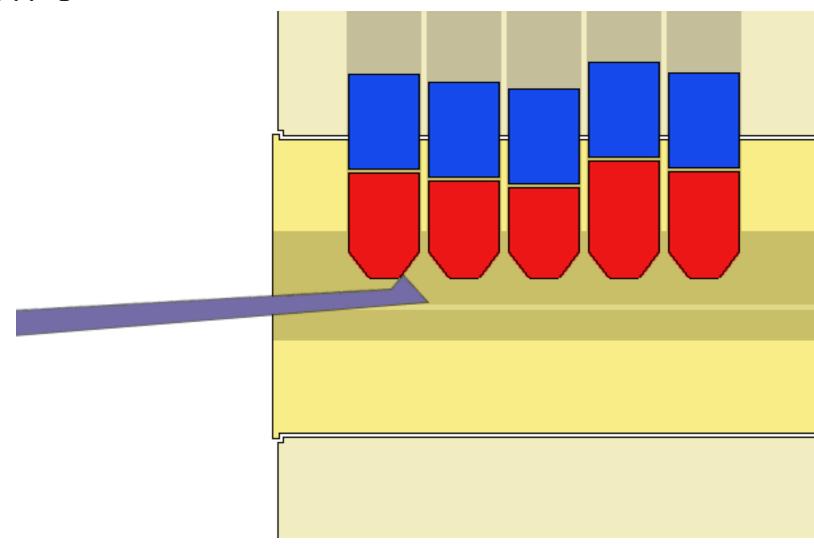
Driver Pins 5000 Oses





Picks Touch Places That Keys

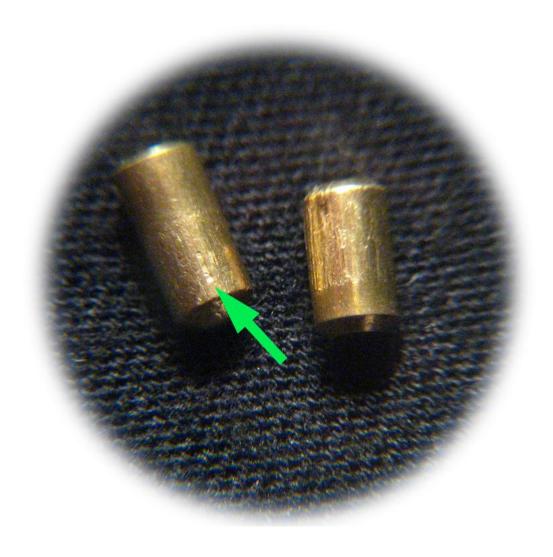
Don't



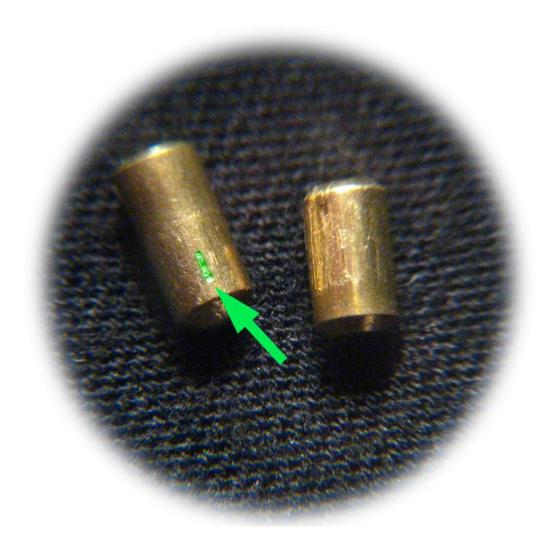










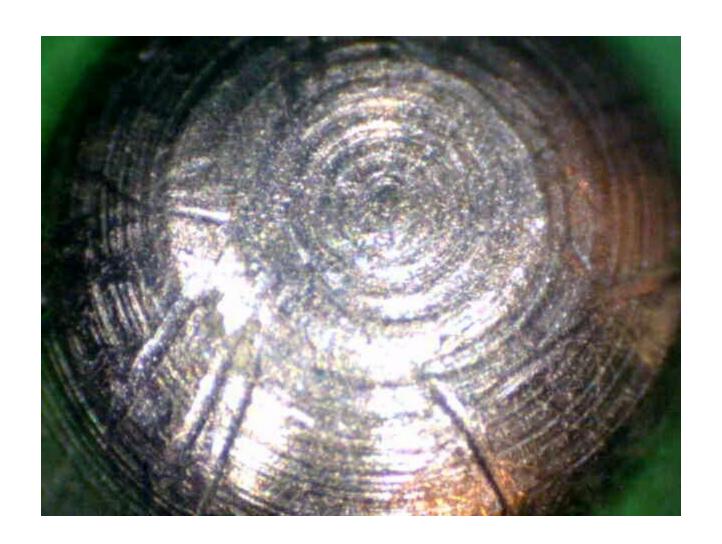






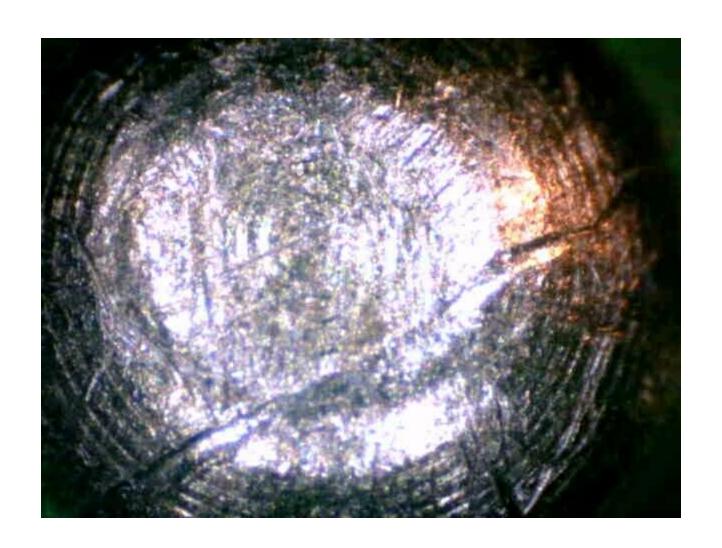


Forensics - Lifting Picking





Forensics - Raking



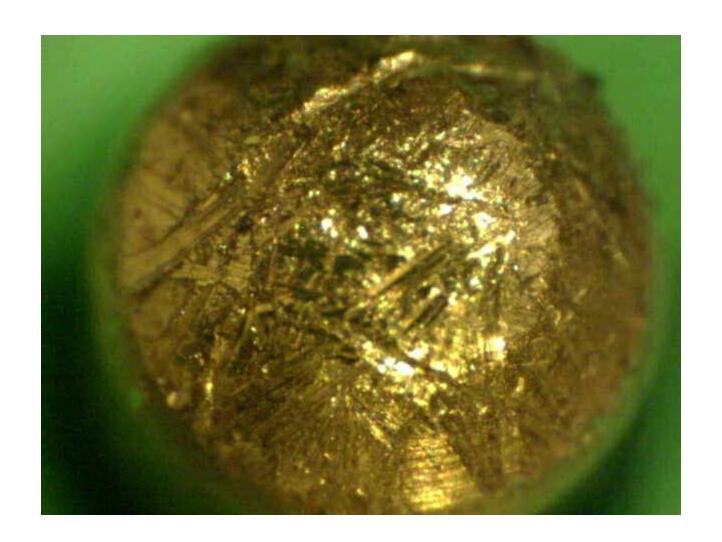


Forensics - Mixed Styles of Picking



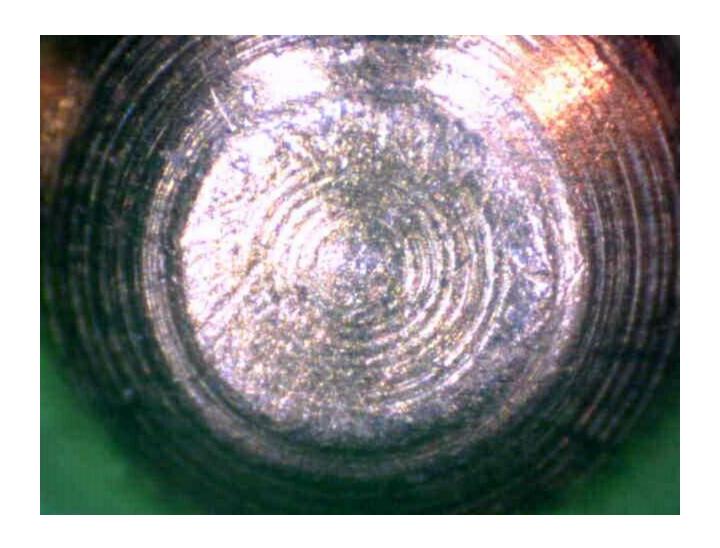


Forensics - Ugh... Who Did This ??



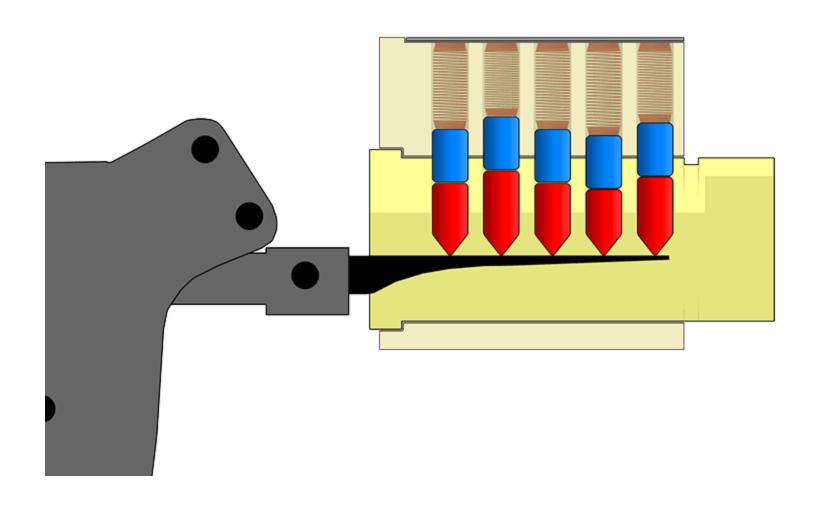


Forensics - Even Skilled Pickers and Soft Touches Leave Marks





Forensics of Snapper Guns



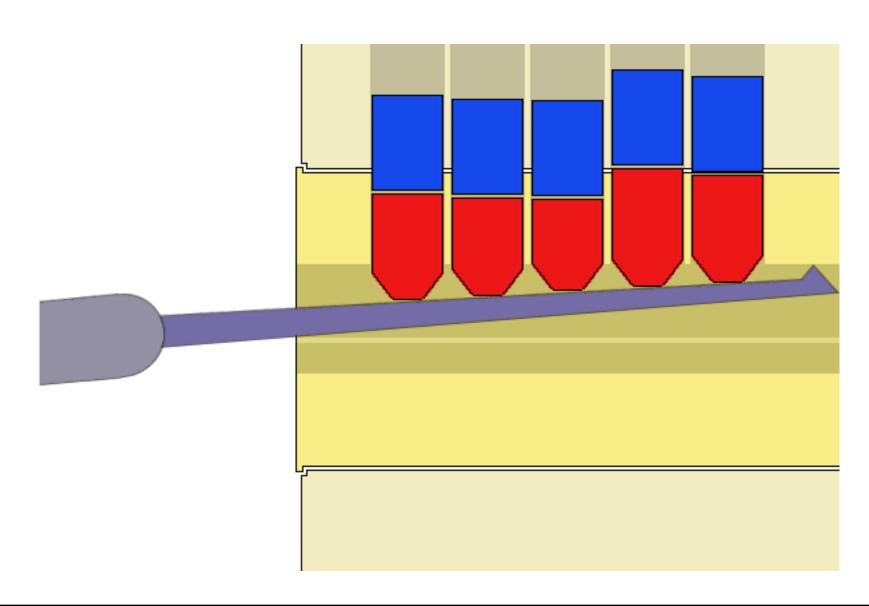


Repeated Snap Marks



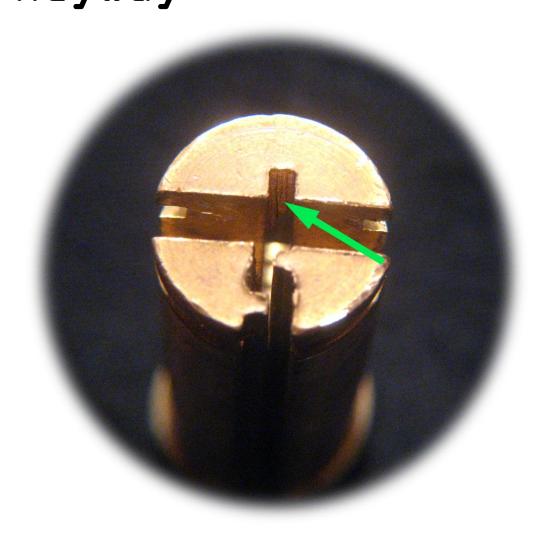


Some People Poke Too Deep



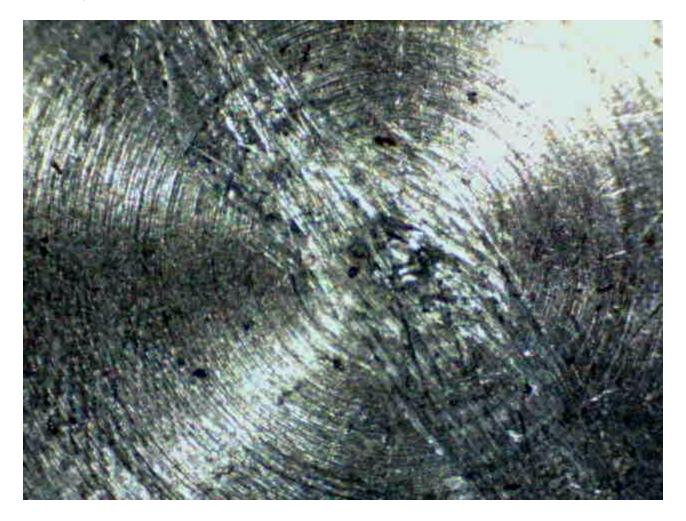


Tools Too Deep - Marks in Rear Top of Keyway





Tools in Too Deep - Marks on Tail Cap





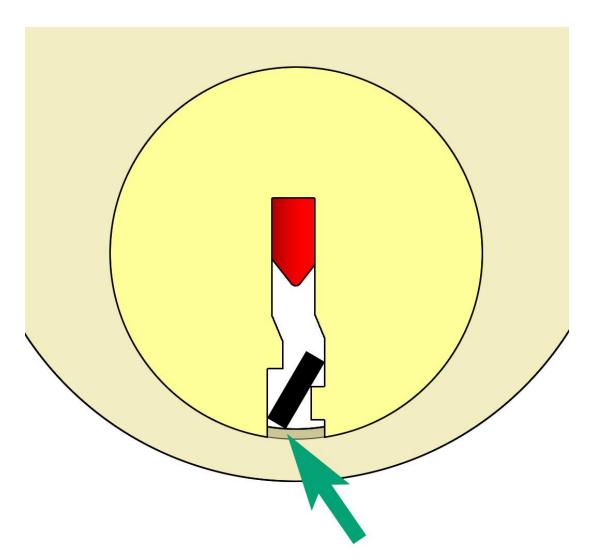
Tension Tools in the Keyway





Tension Tools can "Pinch" the

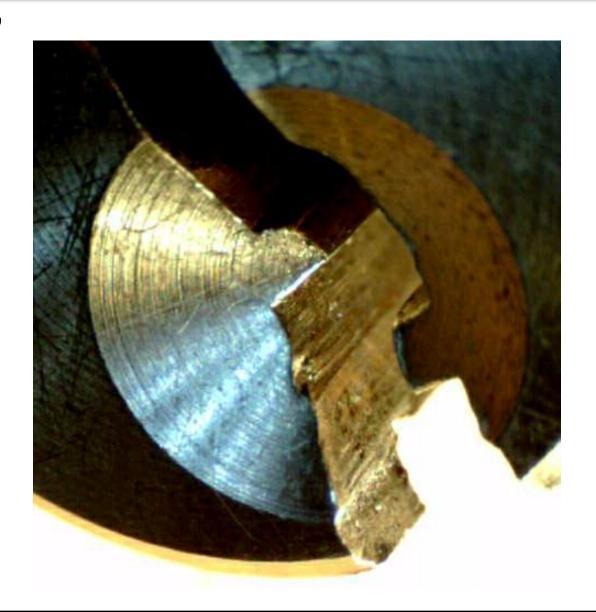
Keyway





Tension Tools can "Pinch" the

Keyway



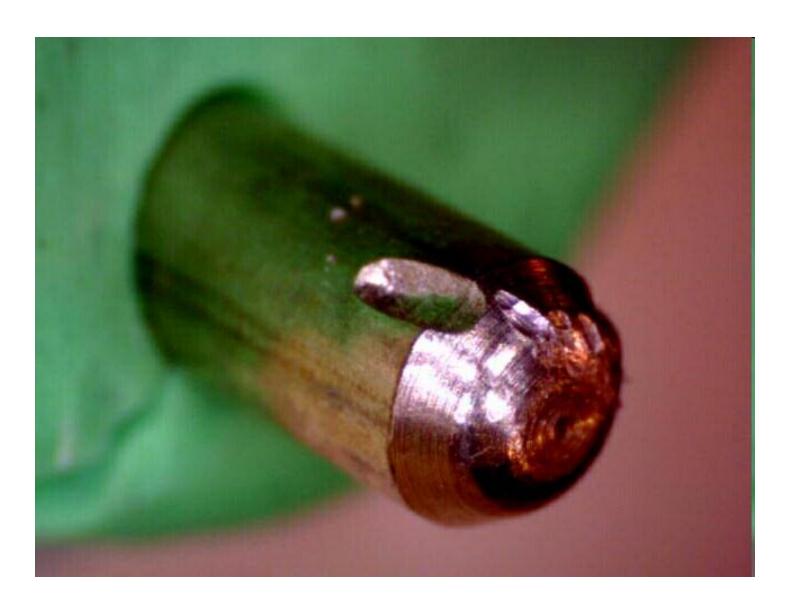


Fraudulent Toolmarks

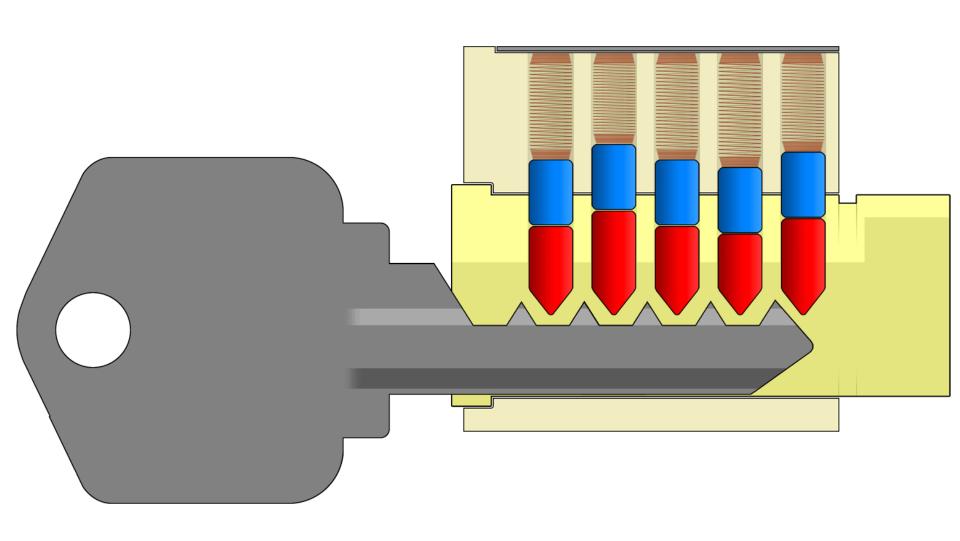




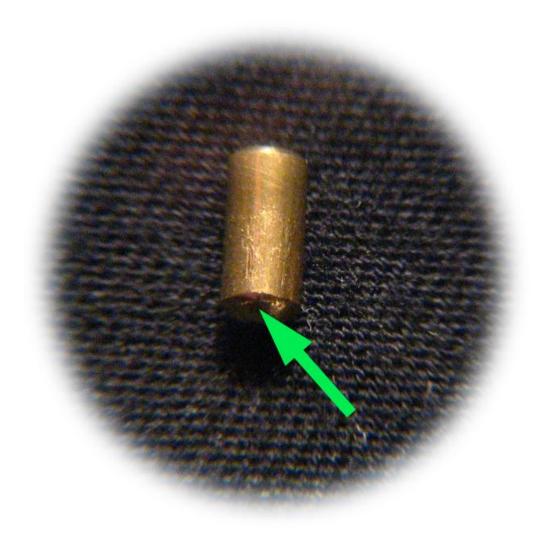
Fraudulent Toolmarks



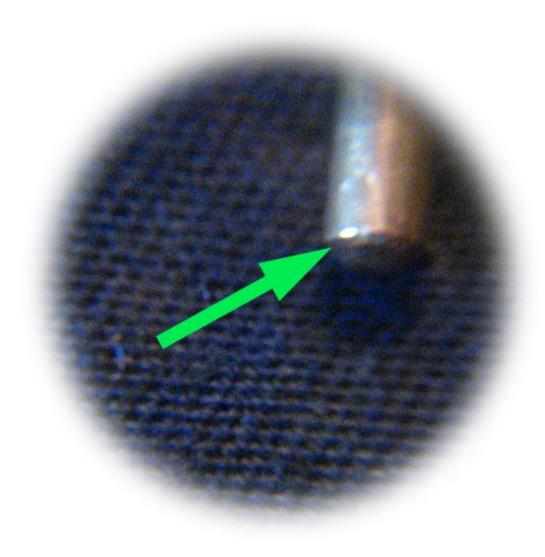




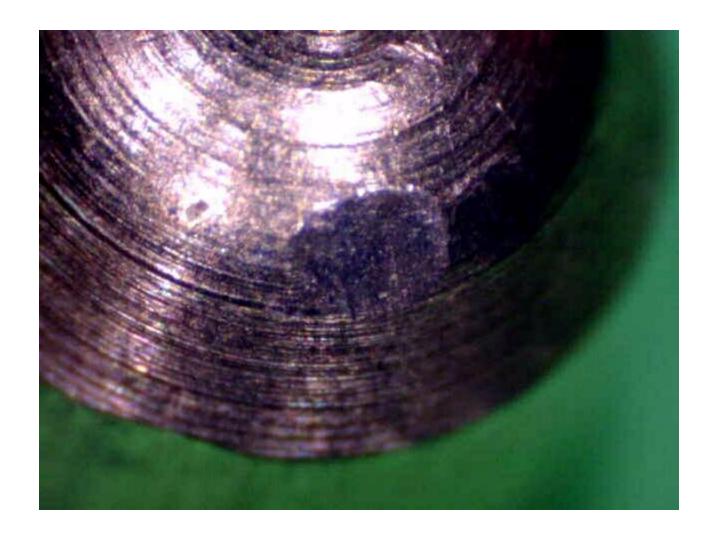




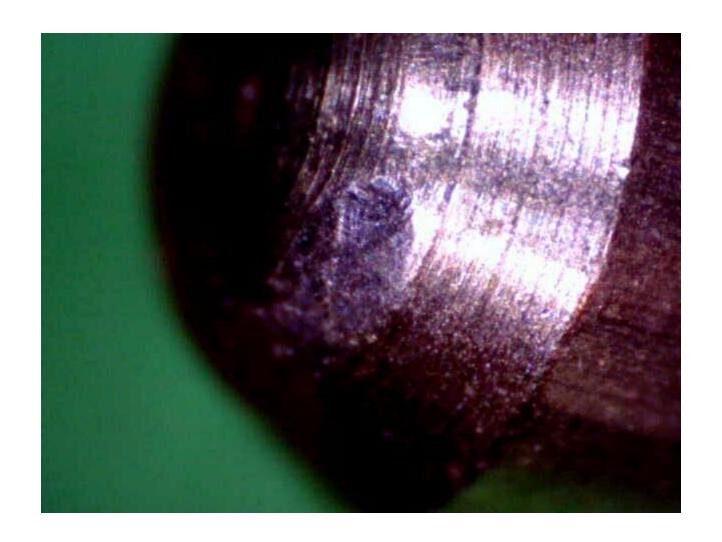






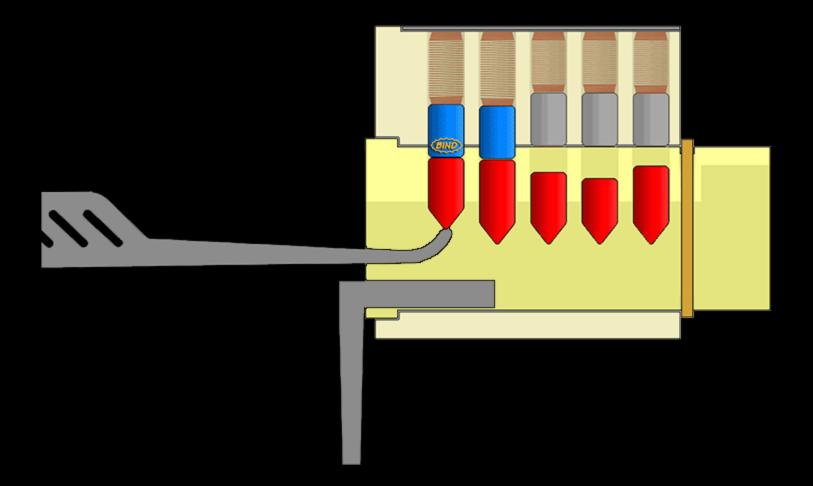






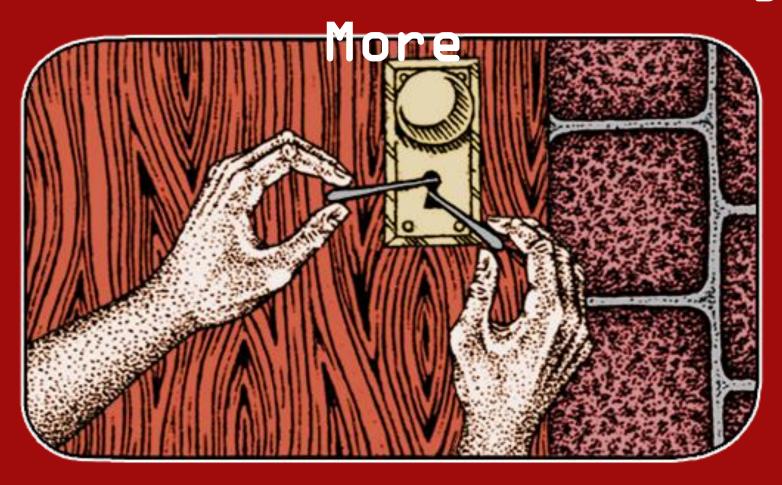


Questions?





Resources for Learning



Resources For Learning More

• Books

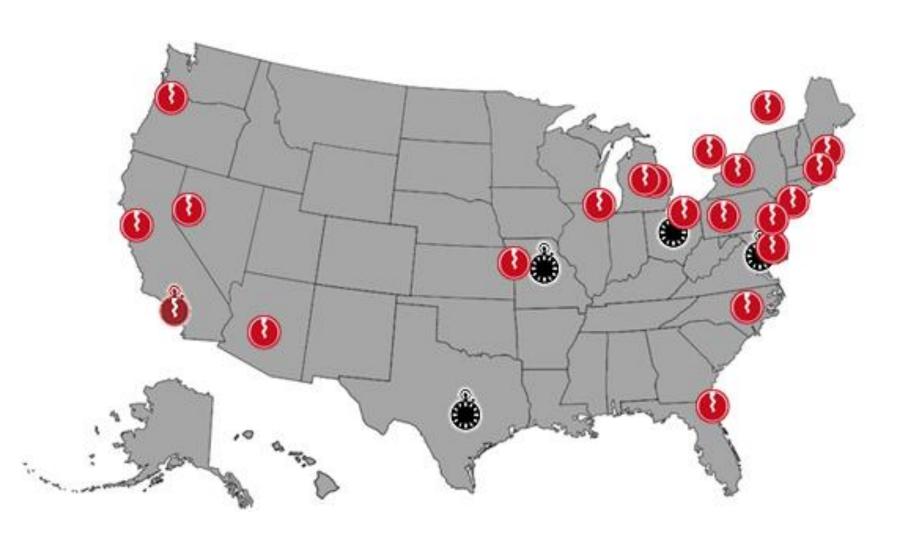
- High Security Mechanical Locks by G ham
- Locks, Safes, & Security by Marc T

Videos

- YouTube & Google
- http://connect.waag.org/toool
- http://deviating.net/lockpicking/vide#s.h
- On The Web
 - http://toool.us
 - http://blackbag.nl http://deviating.net

- http://tooo.

Resources For Learning More





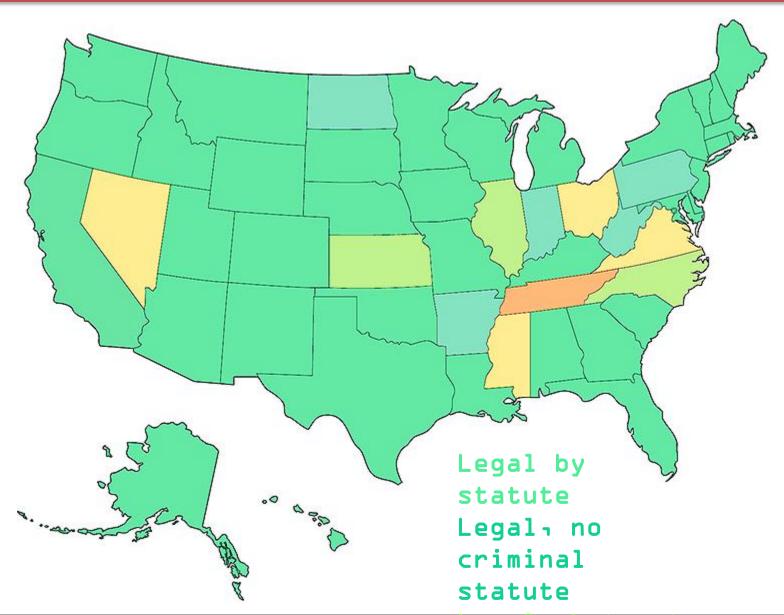
Legal Questions

- •We are not lawyers
- Purchase/Shipping through mail
 - Lock manufacturer
 - Auto dealer
 - Law enforcement
 - Repo man
 - Bona fide locksmith
- Possession & use
 - Burglary tools statutes
 - During an illegal act





Legal Questions





Legal, but natetp://tp

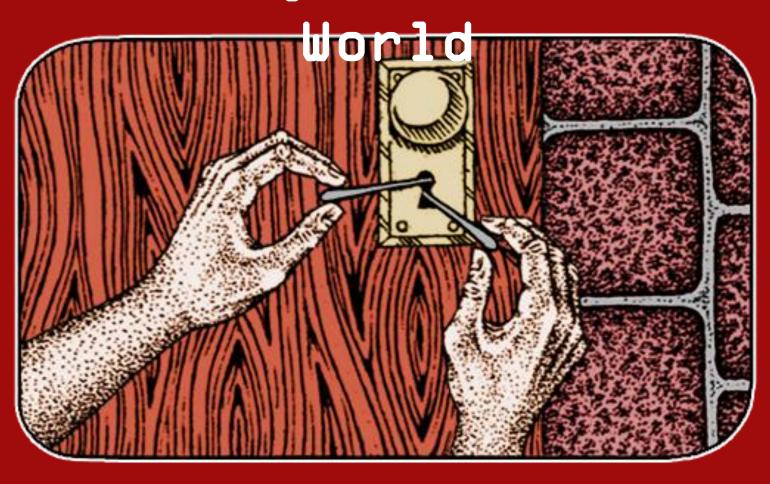
Acquiring Locks

- Free
 - -Basements, garages, **Janus**ales
 - Ask neighbors, ask locksmiths
- For sale
 - Vary your sources
 - Hardware store vs. eBay
- Specialized
 - Progressive kits
 - Ultimate practice 1 000kg

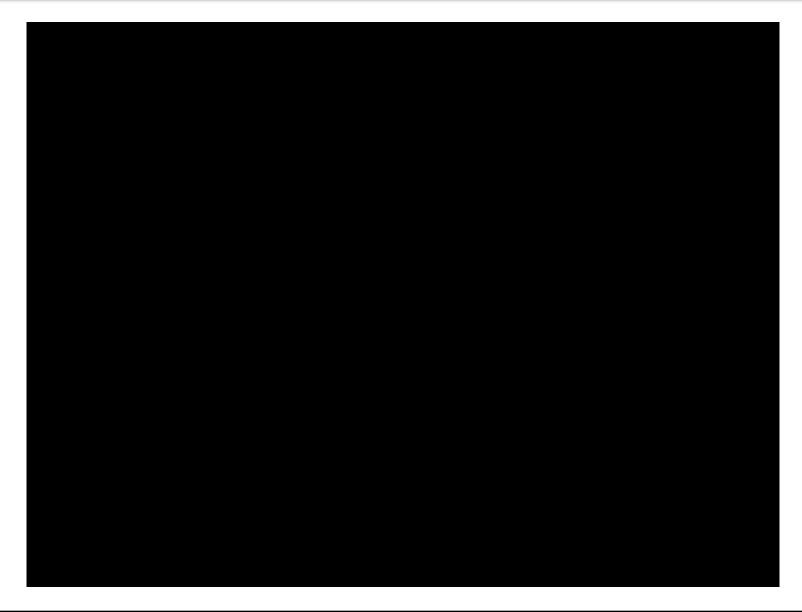




Security in the Real



Security in the Real World





Security in the Real World

- Technical Finesse or
 - -\$100 lock in a \$10 doo
- Doors
 - -Solid core, heavy hing
 - Anti-thrust bolts and
- Windows
 - -Shatterproof film
 - Vulnerable to lifting?
 glass)





Security in the Real World

Lockpicking

Quick & Dirty ← guard
against these attacks

Covert & High-Tech



What People Think



Some People Think We Are Shady...



...But We Are Regular Folks





Young and Old...



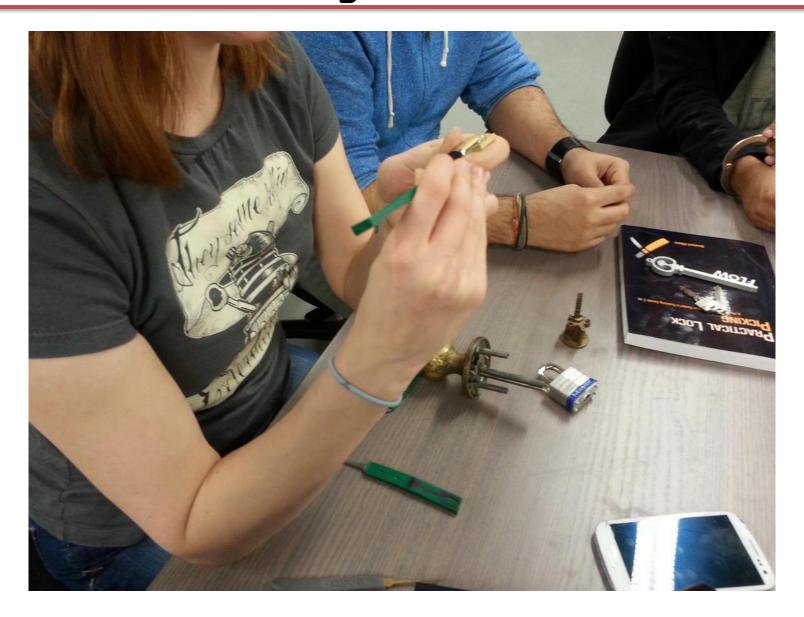


...Men and Women





We Like Working With Our Hands...





...And Learning New Things



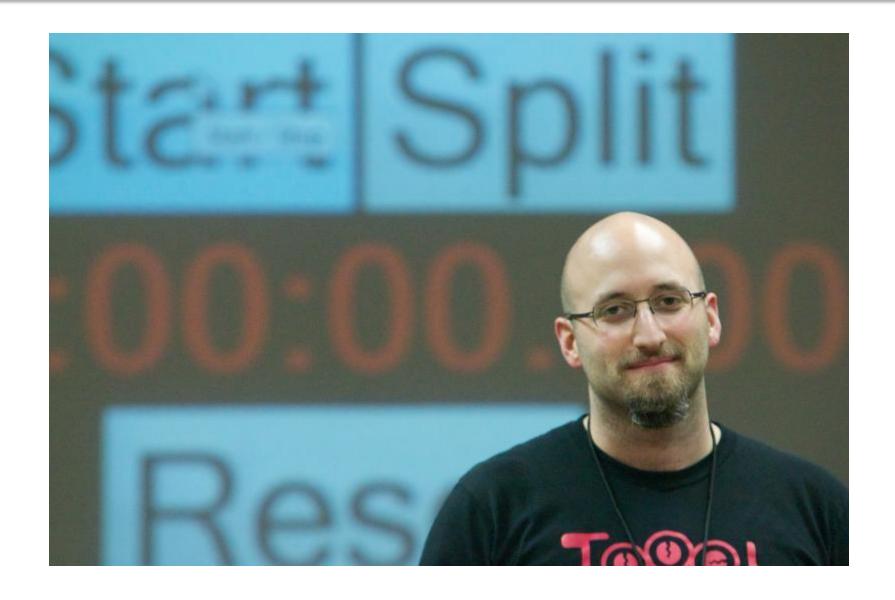


It's Healthy Competition



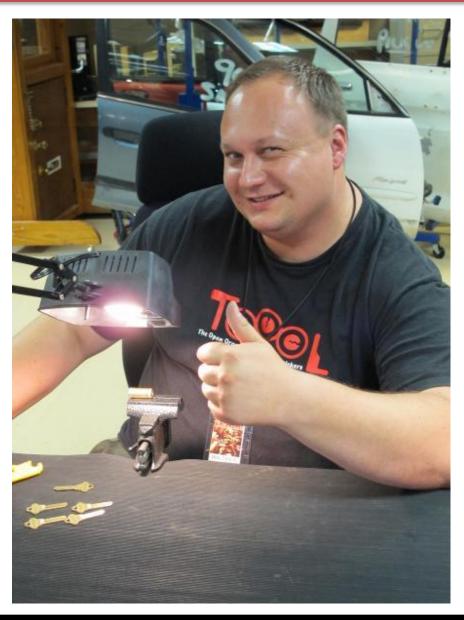


Where The Fastest Time Wins





Thank You For Listening





Thank You Very Much



http://to ool.us

infolltooo



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