Lock Bumping Science

Like every other mechanical tool, bump keys operate on well-known scientific facts. Once you have a basic grasp of some simple principles, you will come to understand exactly how lock bumping works. Let me take you on a guided tour through the science of lock bumping.

First, take a moment to think about how the inside of a lock is constructed. It is a simple mechanism, really; it is a series of stabilizing pins that hold a rotating bolt in place. The pins are spring-loaded, with two sets of pins sitting one on top of the other. When the regular key is inserted, the pins are lifted up against the spring so that the bolt may slide out of the way. The lock opens easily.

Next, we are going to look at a popular conversation piece. You have probably seen it before, maybe on a desk at the office. It is the “Newton’s Cradle” construction. Five balls are hung by wire or cord, so close together so that they touch on both sides. When the first ball on the end is lifted and allowed to swing forward, the kinetic force travels through the middle three orbs and is conducted to the fifth ball. This fifth ball pops suddenly forward, driven by the energy of the first ball.

The pins in a tumbler lock can be manipulated to move in much the same way. The grooves on a bump key are all the same, cut to the maximum depth that the tumbler lock manufacturer uses. Because of this, the cuts are deep enough to cause all the pins to drop into them, no matter how short or long the pins themselves are. Once the pins are in contact with the bump key, the principle of Newton’s Cradle is put to the test. The bump key is struck, generally from the back. The energy from the blow travels to the first set of pins, which stay in place and transfer their energy to the second set. The key pins (the second set) are momentarily driven down against the spring mechanism.

The initial blow against the bump key is like the first ball swinging into the second. The kinetic energy the key was subjected to continues traveling just like it does in the Newton’s Cradle demonstration. The second set of pins driving down against the springs is comparable to the fifth ball suddenly swinging up.

However, in Newton’s Cradle, the fifth ball will immediately swing back. For us, that means that the second set of pins will soon be popping back into their regular position. The person who is attempting to bump the lock must turn the key quickly in order to move the bolt in time. This is where the judicious use of pressure comes into the equation. Timing is also very important.

With practice, you will soon get a feel for the right sequence of movements. Lock bumping can be taught in a short time and used for your convenience for a lifetime. Isn’t science great?

About the Author

Provided by John Davenport from bump key. John has created thousands of professional bump keys and is the industry's foremost expert in lock bumping.
Source: www.isnare.com