

Visual Guide to

Lock Picking

Fig. 6.

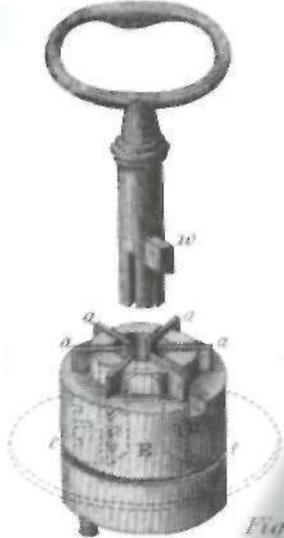


Fig. 2.

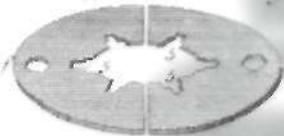


Fig. 5.



WARDED LOCKS
PIN TUMBLER LOCKS
WAFFER LOCKS
EXERCISES
AND MUCH MORE

*ROXTON'S
Fig. 10.*

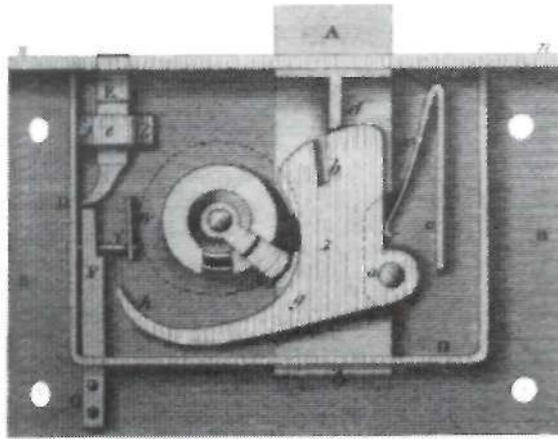


Fig. 11.



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Lock Picking

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LOCK is a well known instrument used for securing doors, chests, &c. and preventing them from being opened without a proper key. The simple and common lock, consists of a strong bolt, which is generally fitted into a case of metal, so as to admit of a motion backwards and forwards. The bolt should be inclosed on all sides, in such a manner as to prevent any access to it, except by a small opening, through which the key is to be introduced to withdraw it ; which opening should be surrounded inside the lock, by numerous wards or pieces of metal, forming a crooked and interrupted passage, to prevent the introduction of any improper instrument or false key, to pick the lock and withdraw the bolt. ... Indeed, an ill-disposed person might provide himself with a bunch of keys, called skeleton keys, which would open almost any lock constructed upon the above principles. A skeleton key means one which is cut out, so as to leave only the extreme part of the bit entire which moves the bolt, the other part being reduced to a thin piece, of just sufficient strength to move the bolt without breaking. It will easily be seen, that such a key would not be likely to meet with any interruption from wards, as very little solid metal is left....

In order to produce a lock free from these objections, many ingenious mechanics have turned their attention to the subject of lock-making. In fact, the object of securing property from the depredations of others is so important, that few instruments have had more pains and ingenuity bestowed on them than locks.

Most of the contrivances for locks were supposed to possess some particular advantage, such as strength to resist violence, or security against being picked. Some speculators have acted upon a different principle altogether—that of attaching an alarm, a large bell, a species of fire-arms, &c. to a lock, in such a manner that an attempt, to violate the lock would set the bell a-ringing, or discharge the fire-arms ; thereby causing a great noise and confusion, that the depredator might not escape. Our limits will not permit us to enter into the details of all the schemes that have been proposed to give security to locks ; but we shall notice principally such as have come into use by their own recommendation. ...

The subject of locks is so very extensive, that it would far exceed our limits to give a description of all the different forms and arrangements that have been proposed by various persons. (J. F.)

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Introduction

The first thing to remember when learning to pick locks is that it is an art. You can be told exactly what to do, but you probably won't be able to just go and succeed in picking any lock right away. Like most learned skills lock picking takes practice. Lots of it. This book presents the various methods and techniques used in picking locks and the tools needed to accomplish it. It also tries to give a brief overview of how the locks work in order to better understand them. Most of the time, this is unnecessary; but there are many times when the knowledge will be invaluable. This book does not try to go into detail of the legal implications. You are responsible for determining your own local laws and regulations. Do not do anything illegal. Period. You will find there are many legitimate times when having the ability to pick locks is useful.

The actual methods of lock picking are really quite simple. You are just exploiting the design of the lock in order to open it without the key. Applying these techniques, however, can be quite difficult. As you practice you will find that, a lock that used to take you an hour to pick might now only take you ten minutes. A lock that used to take you five minutes might now only take you a few seconds. As you practice these skills you will become more efficient.

Always keep in mind why you are picking any particular lock and realize that there is often a better way. Make sure that you have a good, legitimate, and legal reason for what you are doing. There are many professional locksmiths around the country making a good living doing legitimate lock picking.

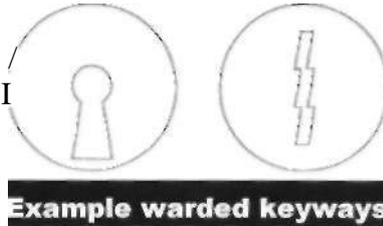
1

Warded Locks

Warded locks are probably one of the oldest types of lock in existence. In modern days, warded locks have been deprecated for most purposes. Used on many things, including door locks, in the early part of the twentieth century, they were common. Because they are so easy to pick, they do not provide much security. Despite this, they are still better than nothing at all. The ancient Chinese and Russians resorted to concealing the keyhole in elaborate artwork. In hopes of increasing the security of their warded locks.

Identifying Warded Locks

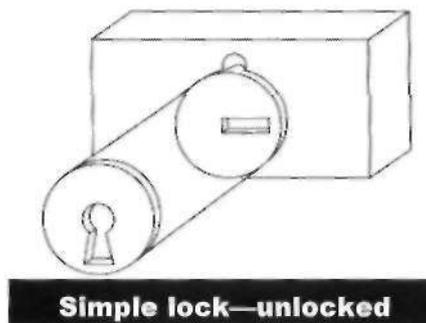
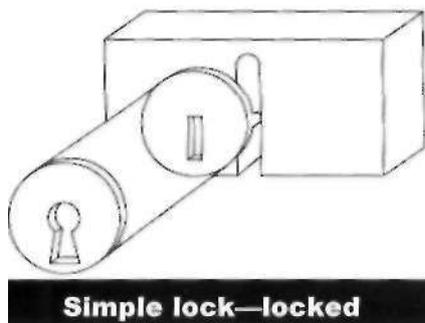
Today warded locks can be found on cheaper padlocks. If the *keyhole* looks something like one of these figures on the right, then it most likely is a warded lock. The keys for this type of lock will generally slide in and out with almost no friction or resistance.



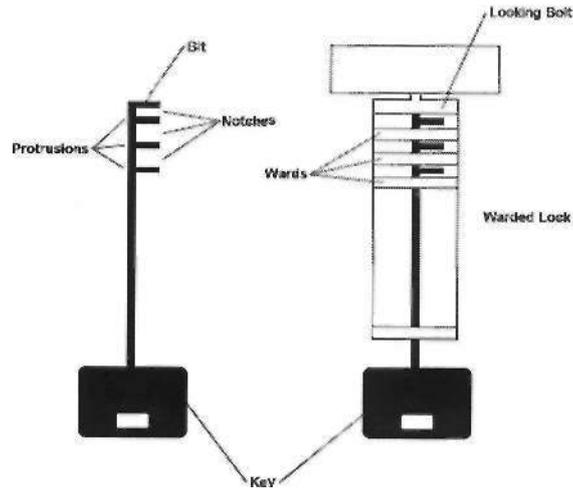
How Warded Locks Work

When opening a lock, the goal is usually to rotate, move, or, in some fashion, actuate the *locking bolt*. This, in turn, frees the shackle, deadbolt, or other mechanism holding the locking bolt.

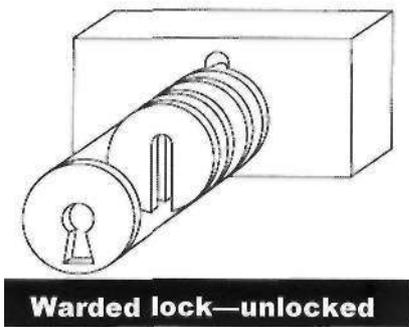
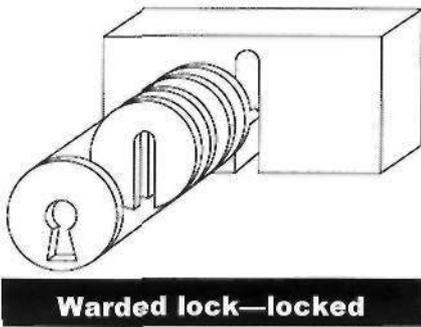
Let us begin by looking at one of the simplest types of lock. This would consist of a *keyway*, which is a hole to insert the key, and a locking bolt that the key's *bit* turns. The figures below demonstrate this type of lock.



Warded locks take this one step further. They simply have *wards*, which are discs of metal or other obstructions that get in the way of any key other than the designated one. This means that all keys for a particular type of warded lock have the same bit for rotating the locking bolt. The difference lies in the *notches*. The correct key will rotate, simply because it has notches that line up with the wards.



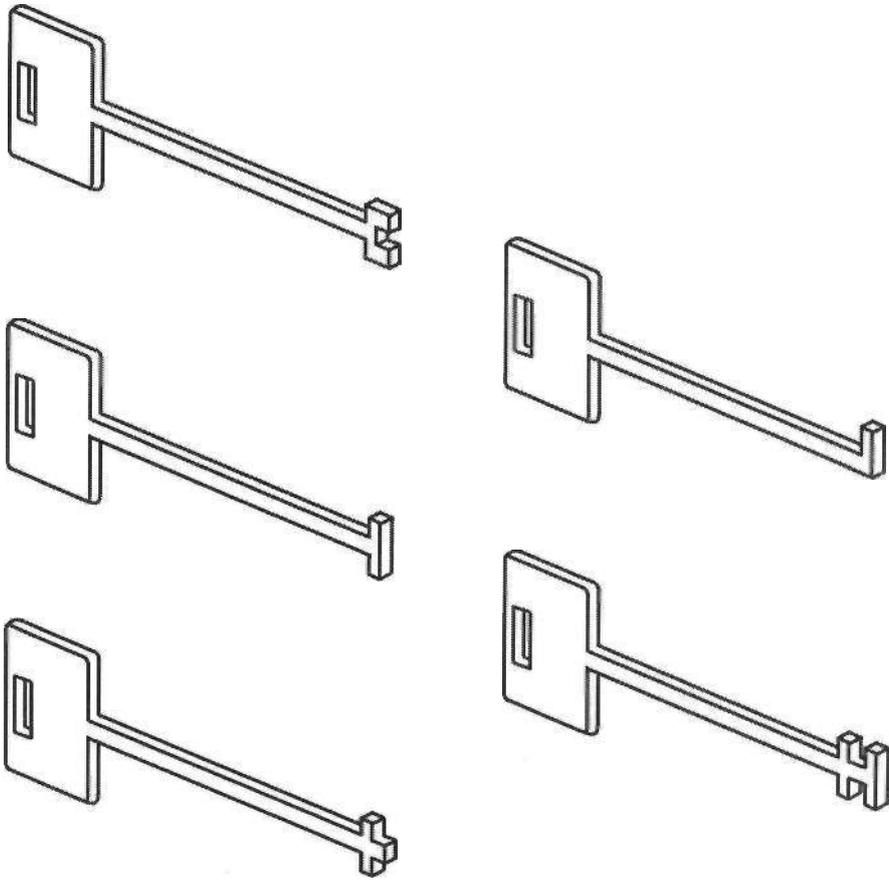
Since each lock has the wards in a different location and the notches have to line up appropriately, theoretically, only the correct key will open the lock.



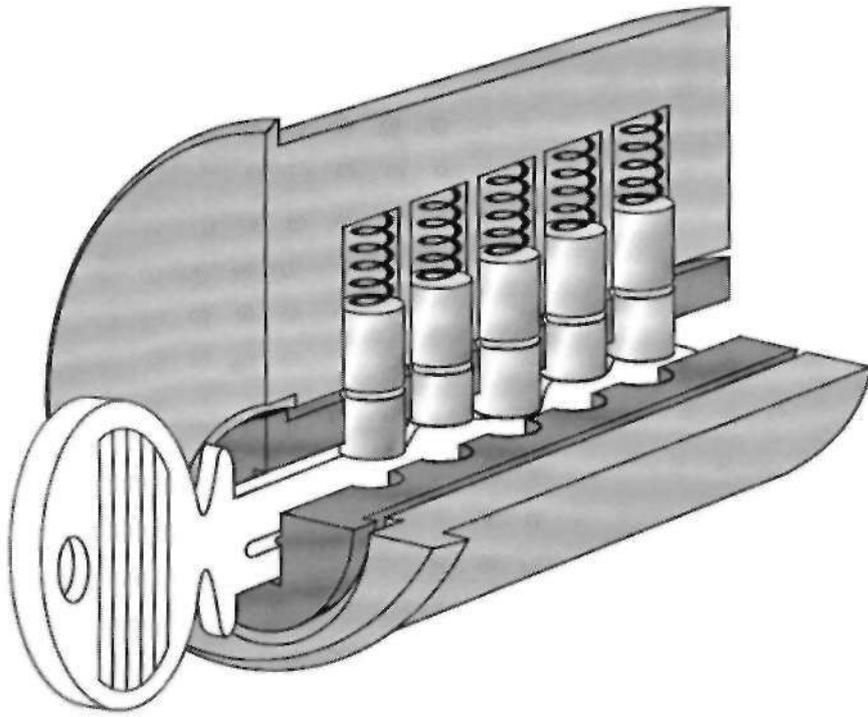
Picking Warded Locks

Picking warded locks is relatively quite simple. All you need to do is rotate the locking bolt. Unfortunately, the wards will be in your way. But, if your key doesn't have any metal protrusions that get in the way of the wards, then the wards won't stop it from turning. So, let's look back at the simple lock design we described first. Let's make a key with just a *stem* and a *bit*. The bit can turn the locking bolt, and there are no obstructions on the stem to get in the way of the wards. This key would have only the bare minimum amount of metal needed to make it work. Because of this, they are called *skeleton keys*.

So, the best way to pick a warded lock is to have a collection of skeleton keys for the various types of warded locks. Try each one in your set on the lock. Insert the key as far as you can and attempt to turn it. If it doesn't work, try moving it around slightly, then move on to the next one. Making your own skeleton keys is also easy. Directions for making skeleton keys are depicted in detail in a later volume.



Skeleton Keys





Pin Tumblers

The *pin tumbler* is the most commonly found lock in the US. It is the meat and potatoes of lock technology and is one of the oldest technologies available. A form of the pin tumbler lock was even found in ancient Egyptian pyramids. They had long wooden keys and eventually gave way to locks of iron. In fact, they are even older than the spoon and fork. Linus Yale, founder of the Yale Lock Company, implemented the modern pin tumbler in 1865.

Identifying Pin Tumblers

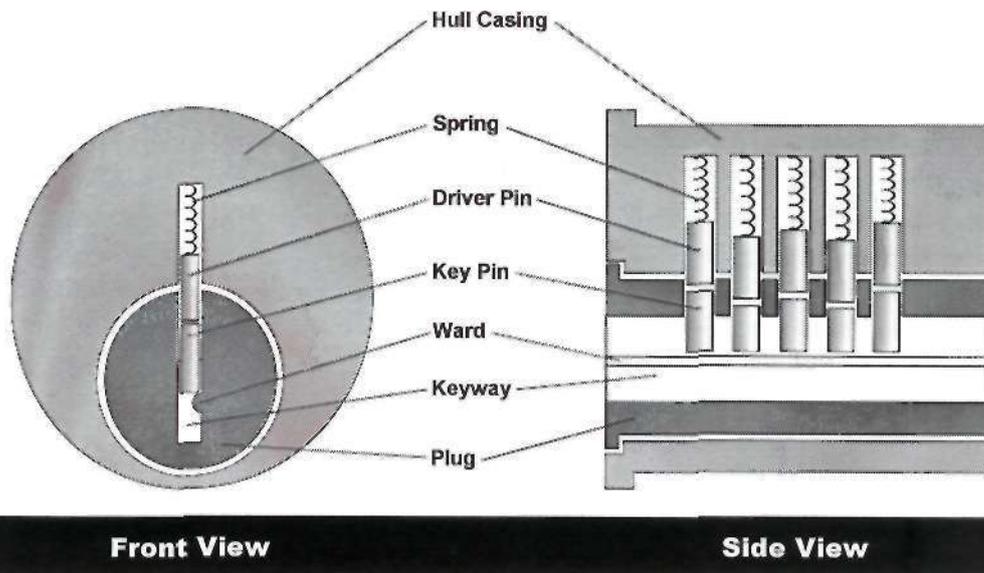
Pin tumblers can be found everywhere, most commonly on house dead bolts, door knobs, some cabinets, etc... They usually have *pins* that stick into the keyway. These are round and somewhat pointed. They are spring loaded, which means you can push up on them; and they will spring back down. They look somewhat similar to *wafer tumbler* locks, which will be discussed in the next chapter.

How Pin Tumblers Work

It may take some time to grasp the inner workings of the pin tumbler. So, please don't get discouraged. If you are not completely comfortable with the concept, read this section over again a few times. In addition to the diagrams here, it will help if you actually get a lock and take it apart to see how the internal parts interact with each other. Be warned, there are small parts under spring pressure that will fly all over the room if you are not careful. Perhaps try doing this with the lock inside a clear plastic bag.

Parts of a Pin Tumbler Lock

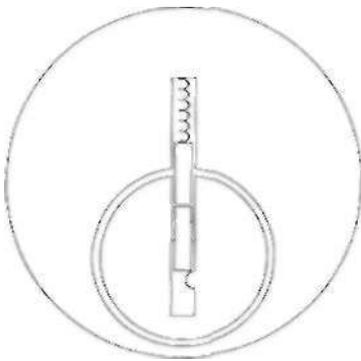
Although most pin tumbler locks have five pin columns, the number may vary depending on the quality of the lock.



- The *keyway* is the opening into which the *key* is inserted.
- The *wards* in the pin tumbler design are lengthwise protrusions on the sides of the keyway. The wards fit into the grooves along the side of your key. They also keep the pins from coming out.
- The inner cylinder, which rotates as you turn your key, is called the *plug*.
- The *hull*, or *casing*, of the lock is the outer cylinder, which is fixed in place and does not move.
- Each set of pins has a *spring*, which pushes the pins down.
- Each pin column in the lock actually has two pins inside. One rests on top of the other, so you can only really see one with your eyes, unless you take the lock apart. The top pin is dubbed the *driver pin*. All of the driver pins are typically of the same size.
- The lower pin of each set is called the *key pin*, because it is the one that actually comes into contact with the key. When the key is not inside the keyway, the key pins often rest on the ward. The key pins vary in length and match up with the notches in the key. They usually have a somewhat pointed end that is visible.

Theory of Operation

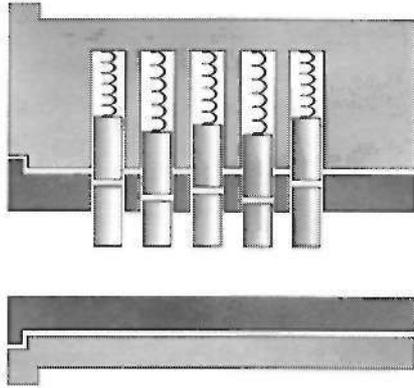
When the correct key is inserted into the lock, the key pins rest on the notches of the key. Notice how the size of the notches complements the size of the key pins exactly. When the key notch is at the correct height, the separation between the driver pin and the key pin will be at the same height as the separation between the hull and the plug. This line of separation is called the *shear line*. When this occurs, there is no longer anything obstructing the shear line that prevents the plug from rotating. The key can now turn and will unlock the lock.



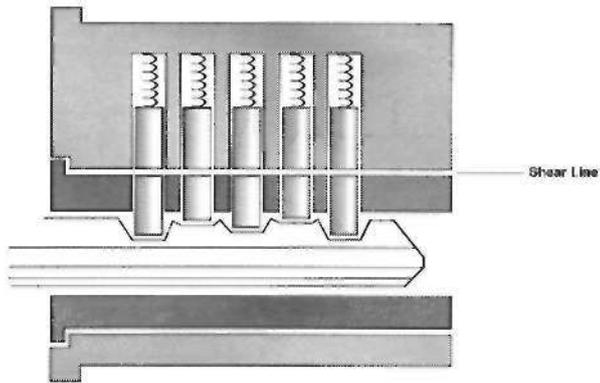
Front view



Front view—key inserted & plug rotated



Side view cutaway



Side view cutaway—with key inserted

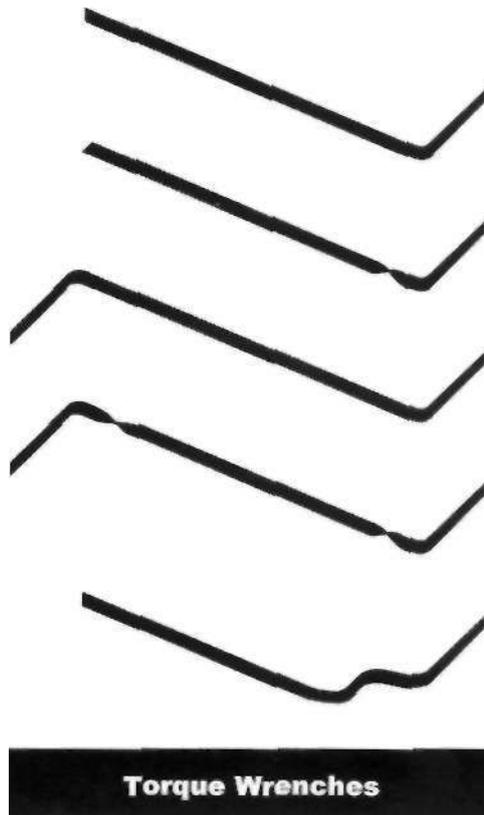
Standard Tools

The *handle* is that portion of the pick that you hold. Because you make actual contact with this portion, you should be especially careful to find one with which you are completely comfortable. The handles used for most of the picks will probably be the same for all of the picks and rakes in your set. The reason it is so critical to find one with a good feel is because the picks are your only form of sensory input of what is going on inside the lock.

The *tang* or *stem* of the pick is the long thin metal portion between the tip and the handle. This should be strong enough not to bend excessively; but at the same time, it should be thin enough to be maneuverable in the keyway and not obstruct the pin's movement.

The *tip* should allow for easy insertion, removal, and maneuverability in the keyway. It should also give you a good feel for the pins. This sense of feedback is very crucial to your success.

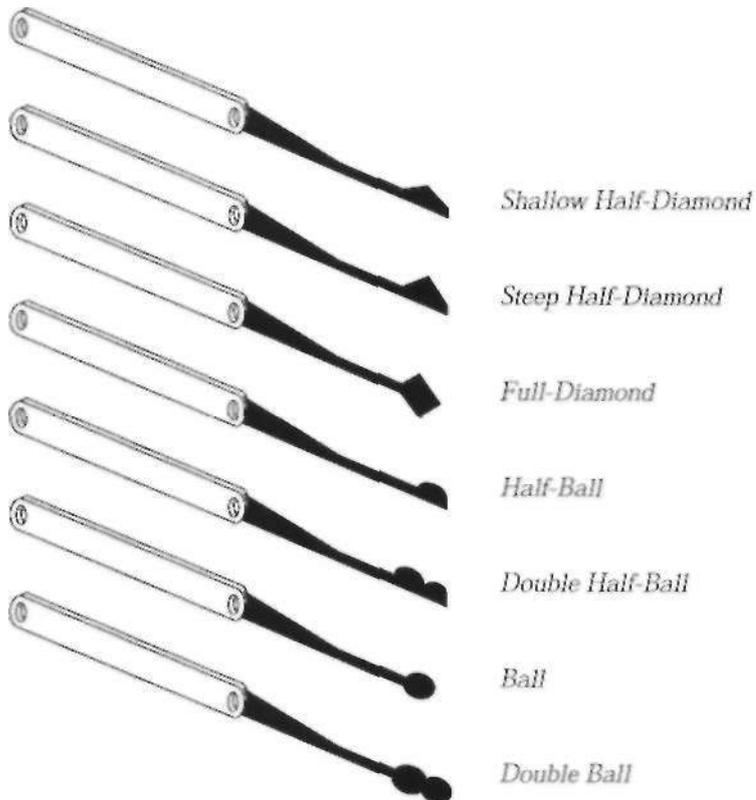
Don't get too caught up in the memorization of the various rake designs. If for some reason one doesn't work, you can just try another one. Each lock has its own personality, and through experience you will learn which picks work best in which locks.



The wrench is a very important tool. Its purpose is to turn the plug. The shorter end is inserted into the keyway, and the longer end turns the plug. It is important to select the appropriate wrench for the lock you are working with. The torque wrench is used to apply a rotational force on the plug. It is important that the wrench is not too large since you have to insert it into the keyway and still have room to maneuver the pick. Also, it cannot be too small, because then it would either be too weak or not able to grip the keyway and rotate it.

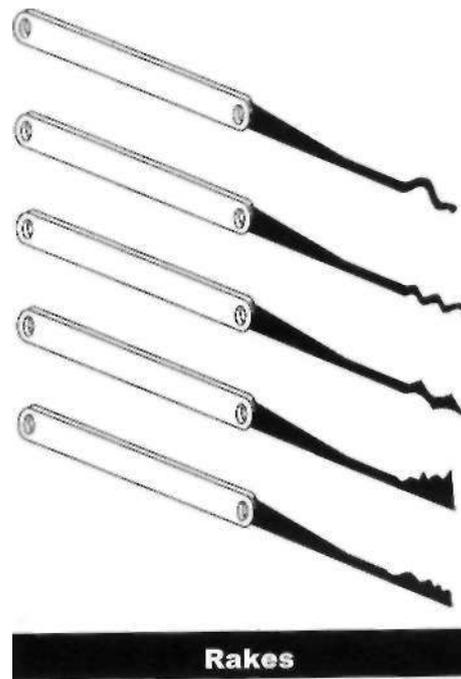
**Hook picks**

These hook picks are used for standard picking of locks. With them you can feel each pin individually and lift them without disturbing the neighboring pins.

**Various lock picks / rakes**

Many of the tools listed may be used for various purposes. They may be appropriate for both raking or picking.

- *Shallow Half-Diamond.* Some advantages of this pick are that it is easy to insert, remove, and rake over the keys both forward and backward. It is good for locks where the key pins are of similar length; but if the difference is too great, the diamond won't be able to reach up high enough to one pin without lifting the one next to it too high.
- *Steep Half-Diamond.* This pick is similar to the shallow half-diamond except that it can accommodate greater differences in pin height. However, because it is steeper, it is harder to move from pin to pin. You can get half-diamond picks with a different *front angle* and *back angle*
- *Full Diamond.* Useful when the lock has pins on both sides.
- *Half-Ball.* Works well for disc tumblers.
- *Double Half-Ball.* Just like a half-ball, but with twice the tip.
- *Ball.* Useful when the lock has disks on both sides.
- *Double Ball.* Twice the fun.



Designs for rakes differ greatly. They vary in the number and shape of bumps. Some vaguely resemble keys, while others look almost seemingly random.



As the name implies, the key extractor is used to remove broken key segments that are still stuck in the lock's keyway. They are usually hook shaped, or have one-way teeth that allow it to be inserted easily, and can grip and pull the obstructing object out.

Keyless Entry

Keep in mind that even if you read this book and fully understand the operation of a pin tumbler lock you will still probably be completely unable to pick them on your first attempt. There is no substitute for practice. Get yourself locks of varying qualities in order to experiment. You will also need a set of picks to work with. If you need to, you can even make your own. Several strategies for this are outlined in our later volumes. The easiest way, by far, is to purchase a set from a security supply company, or other distributor.

In order to successfully pick the pin tumbler, all you really need is a torque wrench and a hook pick. There are many other ways to unlock a pin tumbler, though. Picking a lock is the standard and most versatile method. Raking, however, is often a much more suitable solution than normal picking due to its ease and quickness. For more speed, you can also use an automatic picking tool or bypass the lock entirely.

You have probably seen many movies where an actor will pick a lock with some random household object, or even an authentic lock pick. But usually the actor will use only one tool: the pick. The general populace, therefore, readily believes that a lock can be opened with just one tool. This is generally not the case. Most methods of picking require a tool to turn the plug. This tool that applies a rotational force is called the *torque wrench*. It can be any object that can be inserted in the keyway and rotate it. The second tool is usually a *pick* or *rake* that is used to manipulate the pins. It would be difficult for the same tool to manipulate pins, while also turning the cylinder.

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