Lock Picking Infopaedia

3rd Edition

WithoutaKey.co.uk

A Brief History

The Lock Picking Infopaedia has been provided free for over 15 years. First published online in 1997 it quickly became one of the most copied and distributed manuals after the MIT guide that gained infamy in the preceding years.

This edition has been updated to reflect the greater availability of tools and techniques that a would-be lock picker will encounter and will be updated again in the future with modern graphics and photos when time allows.

We hope you enjoy reading the Infopaedia, and that it helps you understand, and defeat the locks you'll come across.

Good Luck!

The WithoutaKey Team

WithoutaKey.co.uk

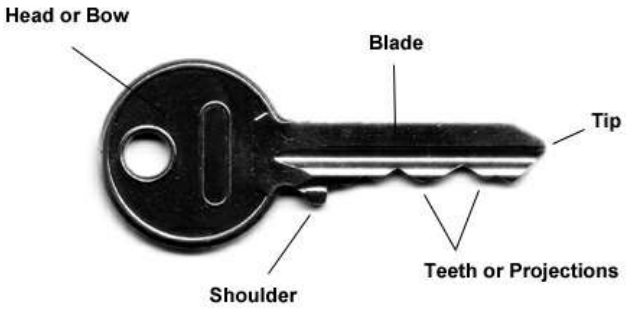
Contents

Mechanisms

Mechanisms

In order to be able to pick a lock it is helpful to understand how the lock works. The main types of lock which will be discussed here are Warded, Pin tumbler, Wafer/Disc Tumbler, Lever and Combination.

Before discussing how the different types of locks work I will first explain the basic parts of a lock and provide some other information which should help readers to understand the explanations given.

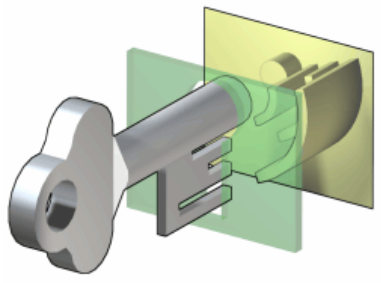


The simplest of all locks to pick and to understand is the warded lock, which is where I shall start.

Warded

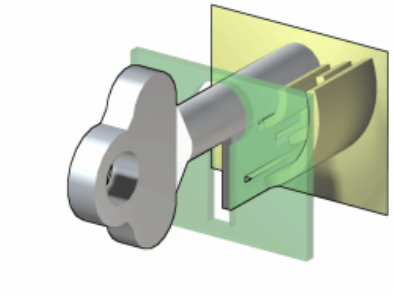
The warded lock is of a relatively simple design.

The diagram below shows a simple warded lock with a correct key in place. It can be seen from the diagram that the key has a number of cuts in it to allow the key to pass the protruding pieces of metal. These pieces of metal are the actual wards of the lock and will vary in length and position.

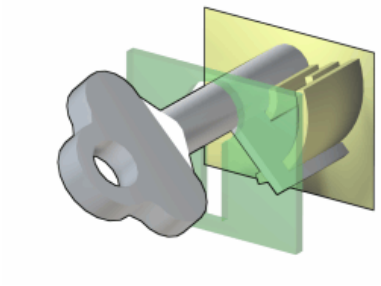


This type of lock has one or more 'wards' which prevent the incorrect key from throwing the bolt. Wards protrude inside the lock preventing a wrong key from turning and therefore from operating the bolt.

The warded lock can be found in many forms. The diagram below shows how a warded padlock works. These are usually the cheaper priced padlocks.



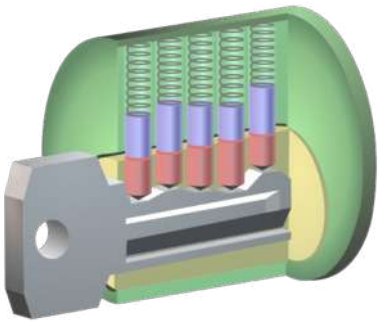
Only the correct key will open the lock due to the wards which restrict an incorrect key from turning within the lock.



When considering how this type of lock works it is important to remember that the wards do not move in any way and are simply protrusions along the keyway to prevent any key apart from the correct key from turning inside the lock and thus moving the bolt.

Pin Tumbler

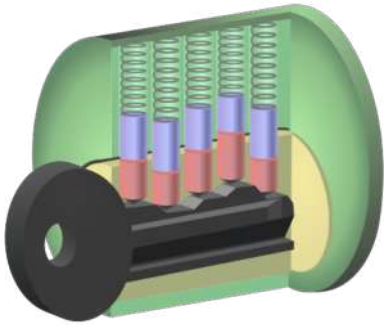
The inside of a pin tumbler lock can be seen from the diagram



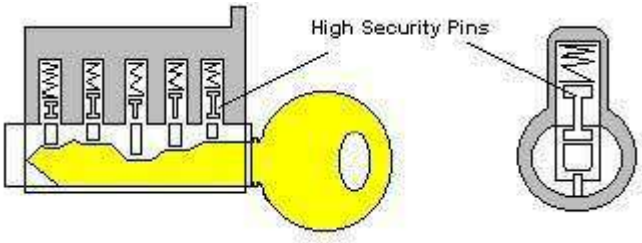
The pin tumbler lock consists of pairs of bottom pins in red, which are usually made of brass, and top drivers (in blue) constructed from steel. In the majority of locks there will be five sets of these pins and drivers.

When the correct key is inserted into the lock the point at which the top drivers and bottom pins separate will be brought to the same position. This position is called the shear point or shearing line. When this point is reached the cylinder will be allowed to turn and the lock will open.

The lock below has had a wrong key inserted. It can seen that the key has failed to raise some of the pins to their correct height and has also raised some pins too high. Therefore, the cylinder is unable to turn.



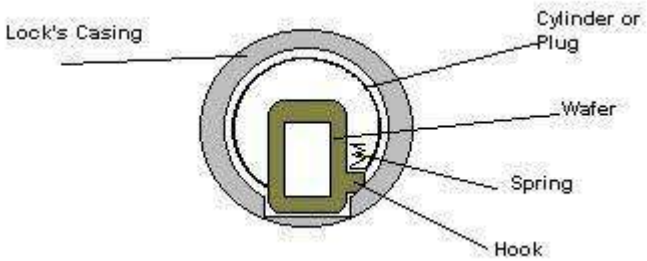
Many high security locks use mushroom or spool pins in order to make picking this type of lock much harder. This can be shown from the diagram below.



Pins of the shapes shown above increase the difficulty of picking pin tumbler locks as they give the impression, when picking the lock, that the pin has been picked. In actual fact the pin is still preventing the cylinder from turning but the recess of the high security pins allows the cylinder to turn slightly, giving the impression that particular pin has been raised to the correct height.

Wafer

The wafer lock is found on desks, filing cabinets, some coin operated machines and on doors of cars. Although similar in appearance to pin tumbler locks their internal mechanism is very much different.
The diagram below shows the inside of a typical wafer lock.



The wafers or disc tumblers are simply metal discs with a rectangular hole in the centre. Within a wafer lock there are usually around five of these discs depending on the security of the lock. When the key is inserted into a wafer lock it will pass through this rectangular hole.

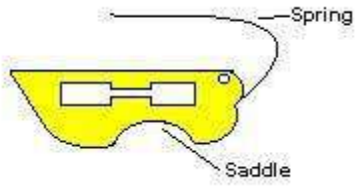
Located on the side of each disc is a spring. The wafers will lock as the spring will force this disc down through the bottom of the cylinder and into the outer casing of the lock. Therefore, the key's function is to raise each disc out of the casing so that the wafer is instead in the centre of the cylinder. If the key was to raise a wafer too high the cylinder would also be unable to rotate as the disc would protrude through the top of the cylinder instead.

Wafer locks may be one of two types, either single or double sided. Double sided provides far more security than a single sided lock and can be found on automobiles. The discs of a double sided lock will protrude through both the top and bottom of the cylinder. This is because the discs will be arranged with the first wafer with the spring forcing it downwards. The second wafer's spring will force it upwards. The third will be forced downwards. This alternating arrangement continues depending on the number of wafers in the lock.

The double sided lock can be distinguished from the more common single sided lock as the key will have notches on both sides of the blade.

Lever Lock

This type of lock consists of usually four or five levers. A typical lever can be seen below.



Each lever is lifted to a different height by the key which allows the notch in the lever to align with the post of the bolt. The key continues to turn and therefore moves the locking bolt through the notch where it finally comes to rest in the second gate, the key having rotated 360 degrees.

This type of lock comes in mainly two forms. Each is operated with a different type of key. Many door locks used in the UK for instance use a bit type key. Whereas lever locks found on lockers, suitcases, and desks use a flat type key, however, the principle behind each type is the same. These two types of keys can be seen at the top of this page.

Combination Locks

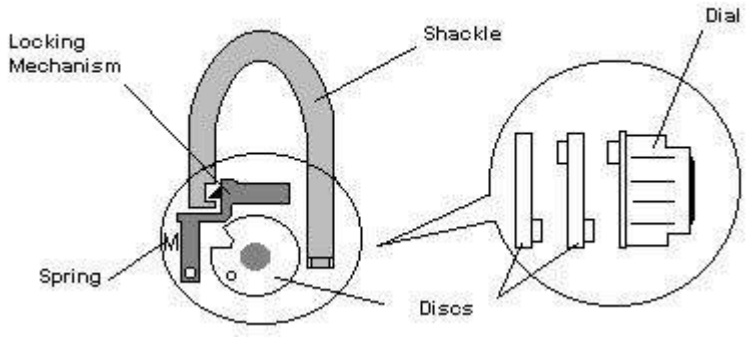
Combination locks appear in a number of forms and are mainly found on padlocks and brief cases. The lock may be of a dial design similar to the type of lock on a safe, or may consist of a number of small disks each with numbers on them, and having to be placed in a certain order for the lock to open. The combination lock may also be of the push button variety as found on a number of padlocks.

Although the principle behind the three styles is the same, i.e. lining up gates of various parts of the lock in order for the bolt to move, the design of the types are different and will therefore be discussed separately.

The Dial Combination

This type of combination lock consists of a small dial on the face of the lock and will usually have some sort of a mark or arrow on one side. This arrow is used to point to the various numbers located around the edge of the dial. In order to open the lock the dial will need to be turned several times clockwise and anti-clockwise aligning the arrow with a different number each time until the lock finally snaps open.

Inside this lock are a number of discs, usually about 2 depending on the amount of numbers in the combination. On each disc there is a small notch or gate cut from it. The purpose of this gate is that when the dial has been rotated in the correct sequence, the bolt which will be holding the shackle in place will be allowed to move into the gap provided by these gates therefore freeing the shackle and allowing the padlock to open. The diagram below shows inside a typical combination
padlock of this type with the front removed, where a disc and bolt can be seen in place.



On the surface of the disc to the back of the lock will be a small protrusion which will catch a similar protrusion on the underside of the second disk. The second disk will also have a small protrusion on the face of it which will catch on a protrusion located on the back of the dial. When the dial is rotated the protrusion on its underside will come into contact with the protrusion on the first disk thus rotating it. This will in-turn rotate the second disk as the protrusion on the underside of the first disk comes into contact with the one on the face of the second and thus moves the two as one. When the dial is being turned in the correct sequence the disks will be turned only the right amount in order to line the gates in each disk with the bolt allowing it to move out of the shackle and opening the lock.

There are two main types of dial padlock which can affect the way in which it will be picked, which will be discussed later. The way in which they differ is how the bolt locking the shackle is constructed. Many of the older padlocks of this type could be snapped shut once open after the dial had been turned, even though the position of the gates were no longer at the same point. This was due to the bolt having a spring loaded part to it, as in the diagram above

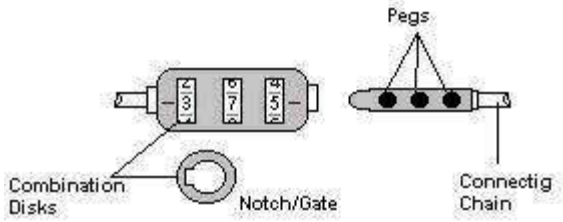
This meant that once the lock had been open and the dial rotated rearranging the position of the gates and therefore moving the bolt back in line with the shackle, the shackle could be pushed downwards moving this spring loaded part inwards which would then spring back outwards into the notch in the shackle thus locking the padlock.

The new style however, does not use this spring loaded part to the bolt which is instead completely solid.

Therefore, when the padlock is open and the dial rotated the bolt will be forced out of the gates, and the padlock will be unable to be pushed into the lock.

The Disk Combination

This type of combination is found on a number of bicycle chains and brief cases and also on some types of padlocks, see below.

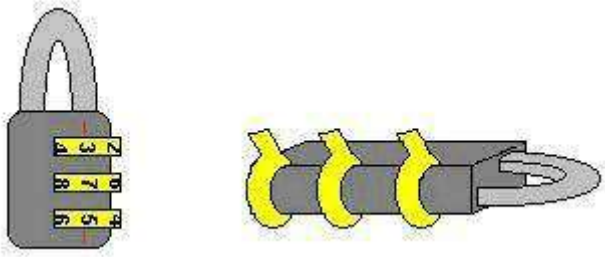


The diagram shows this type of lock in its most simplest form, a simple bicycle lock, however the principle behind this type of this lock applies to all locks of this design given a few added differences in their construction here and there.

The main differences in their construction lies behind whether the combination of the lock can be changed. I will first discuss the basic design of a lock with a standard factory set combination which are much simpler in their construction and will later explain the more complex type which allows the owner of the lock to change the combination, as on brief cases for example.

Both type of locks will consist of a number of discs which will be numbered on their outer edge. However, with the lock which cannot have its combination changed there will be a notch on the inside directly behind one of the numbers
of each disc. It is when these notches are in line that part of the lock will be allowed to move, thus opening the lock. On the bicycle chains above for example, one end of the chain consists of the locking part and the other will be a plug with a number of small pegs on its edge. The pegs will be just large enough to move through the notches of the discs.
When the lock is locked the plug will be in place which will position these

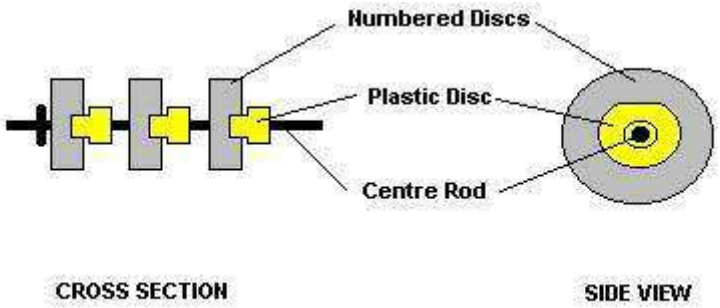
pegs behind each disc and will be prevented from moving due to the solid part of the discs. However, when the discs are in their correct order the notches The same principle of the bicycle lock lies behind locks which may instead have a shackle instead of a plug as is the case with other types of bicycle locks and padlocks. The diagram below shows a different type of bicycle chain, this time with a shackle, and also a padlock. will be positioned where the pegs are and thus allow the plug to be removed.



The difference between the simple bicycle lock explained above and the locks with shackles is simply that it is a section of the shackle which has the pegs on which allows the shackle to lock instead of a plug.

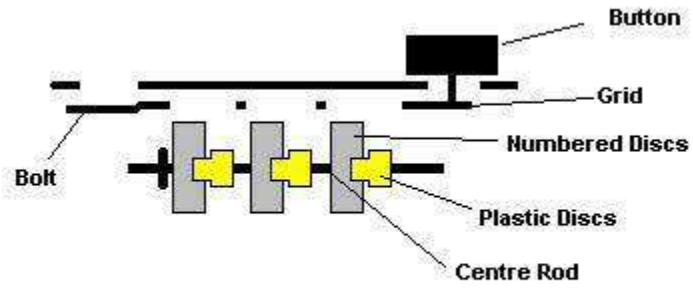
Combination disc locks which can be changed are constructed in a slightly different way, and this is that it is not the disc itself which has the notch removed but is instead a separate part of the mechanism.

The diagram below shows the internal workings of a brief case lock with these separate parts labelled.



These separate parts of the lock are usually smaller plastic discs which instead of having a notch removed on its interior have a point removed on its exterior, (see above).

The case locks due to a small grid which is part of the bolt and attached to the button which is pushed outwards to open the lock. It is this grid which fits around the metal and also the plastic discs and locks the case as the plastic discs will protrude through each section of the grid.

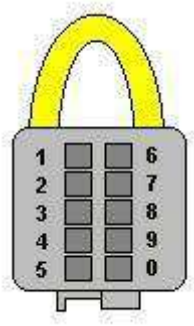


CROSS SECTION

When the correct combination has been entered the metal numbered discs will in-turn rotate the plastic discs to the point at which a part has been removed.
Therefore the plastic discs will no longer protrude through this grid and will allow the grid and bolt to move opening the case.
In order to change the combination of a brief case lock a small switch is moved on the inside of the case. This has the effect of moving a small rod and with it these plastic discs. Therefore, if the numbered discs are now rotated they will not interfere with the plastic discs which will remain in the same position allowing a new combination to be chosen. When the switch on the inside of the case is again moved the rod will slide back and the plastic discs will enter the numbered discs, this time with the point allowing the grid to open where the numbers of the new combination are.

Push Button Combination

This type of combination lock is shown in the diagram



When the correct numbered buttons are depressed the switch on the base of the lock will be able to move and the shackle will snap open.

This type of lock consists of a grid which when moved will open the lock. Notches cut from the buttons will allow this grid to move and therefore, the lock to open It is where these notches are located on each button which decides on the combination of the lock.

The numbers which do not form part of the lock will have notches which will already be in line with the grid, however the notches on the buttons forming the combination will only be in line when they are depressed therefore allowing the lock to open.

Tools

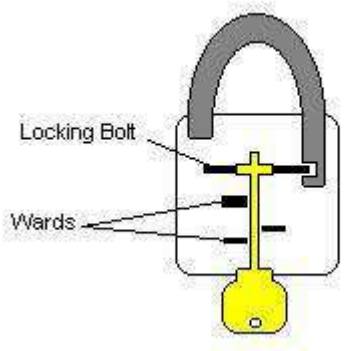
Tools

In order to be able to open a lock it is important to have the right tools for the job. This section will teach you what tools are required for the particular lock you are attempting to open.

Warded

The majority of warded locks come in the form of padlocks. The tools needed for such a lock can either be made or purchased at low cost. These being skeleton keys. This type of lock is the only type which skeleton keys are available for. At this point it should be noted what a skeleton key actually is in order to dispel any myths about them.

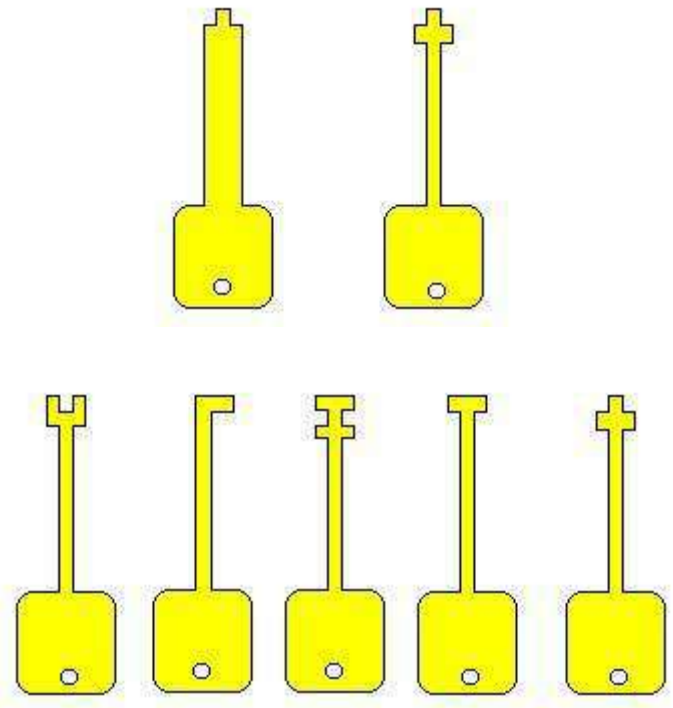
A skeleton key is simply a key which only consists of enough metal to open the lock. With the warded lock, with reference to the mechanisms section, it can be seen that part of the lock does not move, i.e. the actual ward. This is where a key which only has enough metal to operate the locking part, comes in. The diagram below illustrates the function and operation of the skeleton key.



As can be seen, part of the key has been filed away preventing the key from being stopped by the ward, thus allowing the remaining end section to come into contact with the locking mechanism and open the lock.

These skeleton keys can be bought quite cheaply, however, they can also be made with little difficulty. A skeleton key for a particular make of a warded lock which opens other locks in the same series can be made quite easily by removing part of the key which would be obstructed by the ward. The diagram below shows how a key to a lock can be made to open other locks of the same series and possibly warded locks of other manufacturers.

The following illustration depicts other skeleton keys which can be manufactured.



Pin Tumbler & Wafer

The tools required to open these two types of locks are similar and will therefore be looked at together.

Unfortunately, contrary to popular belief, there are no skeleton keys which open this type of lock as is depicted in films, but is more down to skill and practise.

Hook Picks

These are for the use of 'pure picking' as will be explained in the techniques section.

All that is needed here is to understand what they are and to appreciate that they come in a variety of sizes.

Rakes

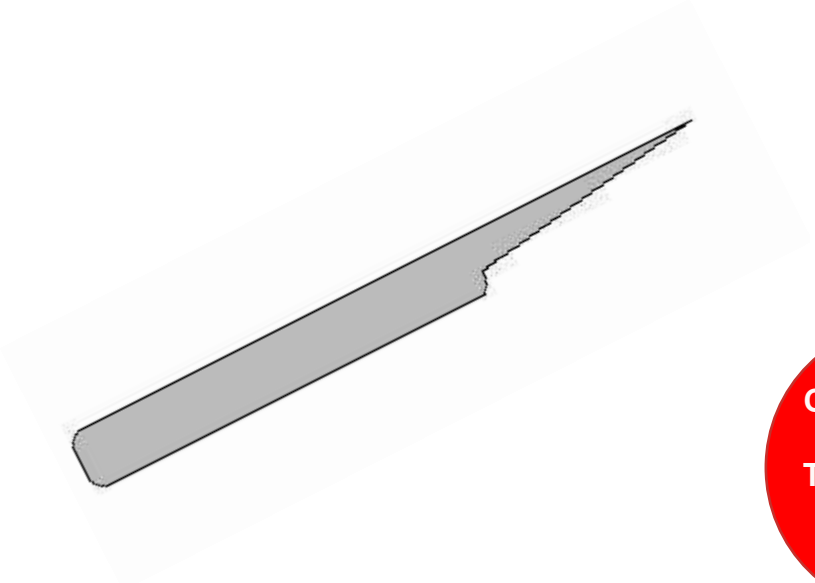
Rakes come in a variety of shapes and sizes. The diagram below shows some

Turning Tools/Tension Wrench

A vital requirement in the picking of these types of locks.

Bypass Pick

This tool can be easily made by grinding a hacksaw blade to a tapered point similar to that shown below.



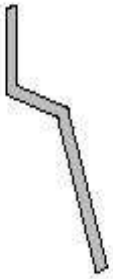
Lever

Lifter Pick

The size of this will be determined by the lever lock to be picked.

Turning Tool/Tension Wrench

This tool, although has the same name as that used for pin and wafer locks, is very different in construction. Both by way of shape and strength of metal used.
The reason for this will be discussed in the techniques section.

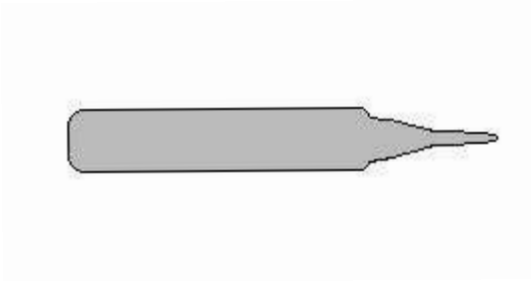


Combination Brief

Combination Probe

This type of probe doesn't require the strength of the similar bypass pick used for pin tumbler locks but instead must be extremely thin.

This probe is for the sole purpose of opening brief case combination locks.



The probe which I constructed for this use was made from a feeler gauge. In particular a number 12

Constructing Picks

Although picks are relatively cheap to purchase it can often be quite difficult obtaining them and finding outlets which will sell them to you.
This need not be a serious problem as adequate picks can be constructed by oneself with a little hard work and patience.

In order to make a pick it is a vital requirement that you have a grinder, as files will not shape the metal required to make a strong and long lasting pick. This brings us to an important issue, i.e., what metal should be used and where can it be obtained? Well for a pick to be of any use it must fulfil two main criteria. It must be strong and it must also be thin, (to get past any fancy key hole which stands between you and the mechanism).

Such metal can easily be found in the form of hacksaw blades. These can be marked into the shape of picks by use of a permanent pen and can then be ground carefully to the shape required. This metal is extremely useful and can be used to construct the hook picks, rakes, bypass pick and lever lock lifter pick.

Feeler gauge sets, as available from hardware or automobile shops, also provide metal which can be used. Although some of these are only useful for shims they can be used for picks or probes, (especially combination probe), depending on their strength and thickness.

The metal used for turning tools both for pin tumbler/wafer and lever will vary. For a turning tool used to open a pin tumbler or wafer lock any springy metal which can be bent to the shape illustrated above, i.e, the straight forward simple turning tool type A, without the tool losing its shape will be sufficient.

The lever lock turning tool must be constructed from a much more rigid and stronger metal. It should be such that once in the required shape will not bend as it must be able to exert a strong turning force.

Techniques

Techniques

Warded

The method of opening warded padlocks was discussed in the tools section. The way in which these locks can be opened is by way of skeleton key. All that is left to say is to try each key in your set, whether bought or constructed yourself, by first placing the key in to the lock as far as possible. If you have no success in opening the lock move the key out of the lock slightly and turn the key again.

Depending on the number of keys in your set you should be able to open many locks with the minimum of effort by trying all keys in this way.

Pin tumbler and Wafer

Pure Picking

This type of picking requires much more skill, patience and practice than the following method of raking but once learned is an extremely useful method to have accomplished.

This method of opening can be used on both the pin tumbler and wafer lock and will require the use of the hook picks.
The first step is to place the appropriate hook pick into the lock so that it goes all the way into the lock.

The turning tool is then placed into the keyway and a gentle turning motion applied. Nothing more than a gentle pressure is applied otherwise the pins would bind, i.e., jam in the lock.

With the pressure on the turning tool a small prying motion is applied to the pick to slowly raise the last pin. The aim, it should be noted, is to raise all the top pins into the top chamber of the lock. Therefore, the bottom pins should be allowed to fall back into the lower casing once the pick has moved on to the next pin. In fact the lower pin should never be raised above the shear line. Whilst lifting each set of driver pins and lower pins the point at which the top of the bottom pin reaches the shear line a minute click should be felt and the pin will lose any springiness.

Once this is felt move the pick down and out towards the front of the lock so that contact with the next pin can be made. The same prying motion and sensitivity should be used. Continue until all pins have been raised to the shear line when the lock will finally yield.

Throughout the process only a gentle turning motion will have been applied.

Raking

This method, if learned properly, is probably the fastest way to open a pin tumbler r wafer lock.

The principle behind this technique is to quickly cause the pins to vibrate thus causing them to bounce about the shear line. This will cause some of the top drivers to be lifted out of the plug, however, others will still be holding the plug in place. The method causes the pins to be lifted in a haphazard fashion and so is hit and miss. By using different shaped rakes the pattern of lift is varied and so the success rate is increased.

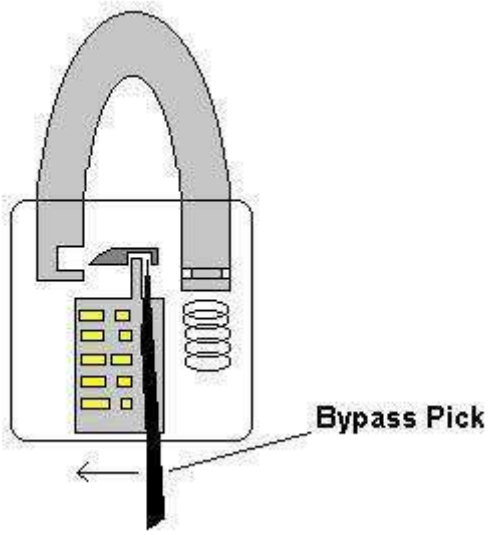
The method of raking will also work on wafer locks. The process of raking causes the wafers to bounce up and down and to find the correct positions which will allow the cylinder to turn.

The rake should be placed to the back of the lock. The turning tool is then placed into the keyway but no pressure is applied. It is only as the pick is leaving the lock when the tension, a gentle pressure, is applied.
Each rake should be tried at least fifteen times until another one is used.

Bypassing

This method can be used on padlocks and also filing cabinets which are locked with a pin protruding through the top of the cabinet.

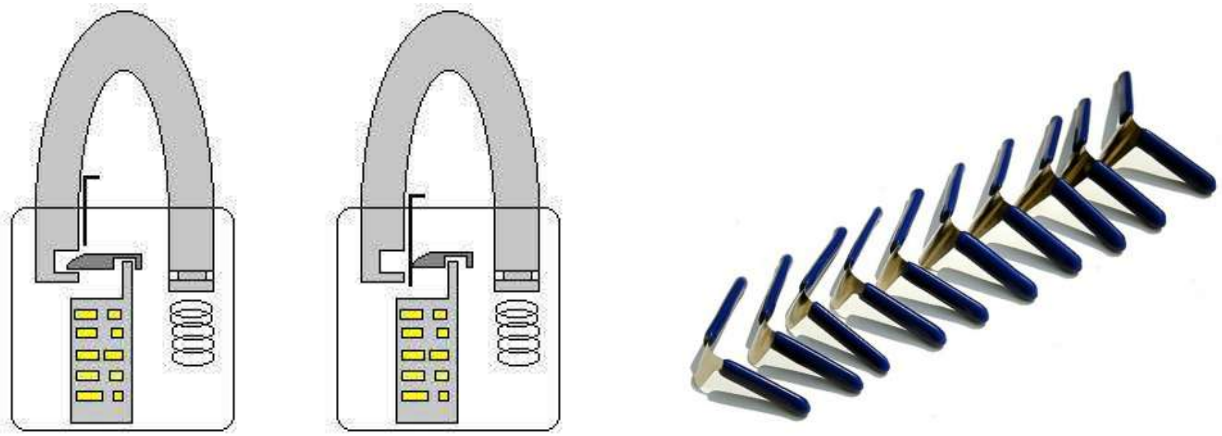
The bypass pick as shown in the tools section will be used. The method is simple and effective as it does not require the skill which is needed for the above two methods. The only thing which is needed is an understanding of what the bypass pick is used for which the following diagram should show.



Shimm

Shimming is a simple method of opening padlocks protected by pin tumbler. This method also avoids having to actually 'pick' the lock, by again only attacking the part of the lock which locks the shackle in place.

The diagram below shows how the shim operates and unlocks the shackle.



Lever

This type of lock is in wide use in the UK on door locks and padlocks.
To open this type of lock the lifter pick and turning tool as described in the tools section are required.

The turning tool applies a constant pressure on the bolt of the lock throughout the lifting of the levers.

The lifter pick lifts each lever and once it is lifted to the correct height will be kept in place by the strong force of the bolt which is created through the pressure applied to it by use of the turning tool. Therefore, a very strong turning tool is needed as the spring on the levers cannot easily be overcome thus returning each lever to its original position once the lifter pick has been removed.

The lifter pick can be placed to the back of the lock lifting each lever in turn, however, I prefer to lift the lever which is harder to push up first thus allowing the bolt to exert more pressure on the other levers as they are lifted.

Once a lever has been lifted to its correct height there should be a slight give in the bolt as there will be one less lever preventing it from sliding. The lever that has been lifted should also become easier to lift as the edge of the bolt will not be making contact with it because it will be in the gate of the lever.

Move onto the next lever, either the next one in line or the one which is hardest to move. This time less pressure should be required on the tension wrench but do not allow the first lever to fall back to its original position. The remaining lever(s) can be picked in the same way until the bolt slides all the way across and the lock opens.

Combination

This type of lock can be one of the most interesting type of locks to open as there are now so many different kinds of combination lock on the market.

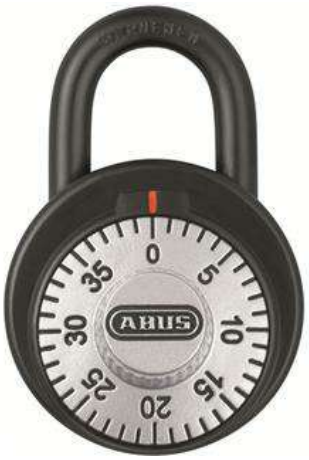
Although the inner workings of these locks can vary significantly the principle behind the combination lock is essentially the same. This is that gates in the various moving parts must be aligned to allow a bolt of some kind to move and thus open the lock.

As there are now so many different kinds of combination locks used, especially in the form of padlocks I will break down each type and show you how each one can be breached.

Padlocks

Dial

Many padlocks employ a combination in the form of a dial as shown in the picture to the right.



The way in which this lock works has already been discussed in the section on mechanisms and so with an understanding of this the way in which they can be opened can be explained.

It must be understood that what turning the dial in the correct sequence does is to place all the gates into the same place, and so allow the bolt to slide into it, thus allowing the shackle to be free to lift up.

In order to open this lock the first thing to do is to place pressure on the shackle.
This is done by holding the lock in your weaker hand and placing a finger under the shackle and forcing it upwards. What this does is to cause the bolt which is keeping the shackle locked to pivot upwards. This in turn causes the part which would move into the gap created by the gates to rub against the wheels and so cause friction. This will mean that in theory once this locking part reaches the gates the dial should thump and then become less stiff. Due to the other wheels also pressing on this locking part and restricting the movement of this locking bolt the feeling of this thump and this lack of friction will be somewhat reduced.

This means that it is important to concentrate fully on trying to feel when these gates are reached. It may also be useful to place the lock to the ear whilst turning the dial in order to hear more easily the point at which this thump occurs.

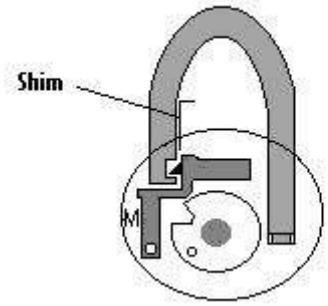
When the first number is reached the dial must be rotated the opposite way one full turn where the same process is used to sense the second number.

The third number will be found quite easily as when it is reached, after changing the direction of the dial for the second time, the shackle should spring open.
This number will also cause the dial, when turning to begin with, to get stuck and click quite audibly, which should not be mistaken for the first number.

Dial: With Push Closed Clasp

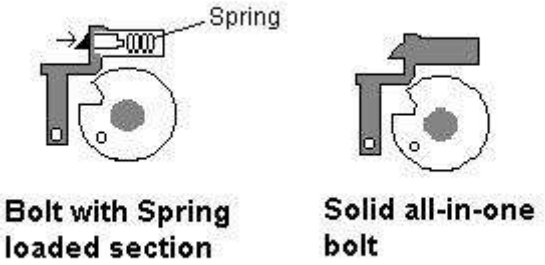
Although these type of locks can be opened in the same way as explained above, due to their ability to push close them it leaves them open to a method which does away with the need for the sensitivity method above. Thereby, allowing them to be opened much quicker and with less effort.

The method by which these can be opened is by shimming. A shim is inserted down the side of the shackle to push the locking bolt backwards.



With the non snap-closed lock once the dial has been rotated in the correct sequence and the shackle is open, if the dial were to be turned with that shackle still in the unlocked position then the lock would be unable to be locked as the bolt would not spring back.

However, this is where the snap closed padlock differs, as once the dial has been rotated with the shackle out of the lock the lock can be again locked



as the Many of these combination dial locks have a circular body and therefore allow easy access to the spring loaded bolt.

One further point should be noted in connection with the dial padlock. This is that once a person has locked the shackle in place they very often neglect to rotate the dial a sufficient amount to alter the position of all of the wheels inside the lock. Therefore, a lock of this type can often be opened very quickly by simply rotating bolt will spring back when the shackle is pressed into the lock.
The diagram below shows the difference between the locking bolt used in the non snap-closed and the snap-closed lock.

the dial anti-clockwise, slowly. This is because the majority of people are right handed and so will rotate the dial, when locking it, clockwise. As they only rotate it say half a turn the only wheel that will be displaced will be the top one thus remaining intact the remaining positions of the gates. Therefore, by rotating the dial back in the opposite direction it should replace the gate in the position needed to allow the bolt to move and the lock to open.
This can be opened in the following way.

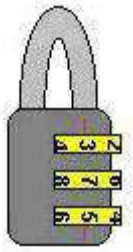
With tension applied to the button on the base of the lock gently push the buttons on the left hand side downwards. These will be numbered 1-5.
The numbers will all have gates in them to allow a grid inside to slide. This sliding action occurs when the button at the base is pressed, thus moving the bolt out of the shackle. However, the buttons restrict this sliding motion thus retaining the shackle in place.

The correct combination will allow the grid inside to move as the gates/notches located on the buttons will be higher up on the buttons than on the buttons that are not part of the combination. Therefore, by entering the correct combination what happens is that all the gates will line up allowing the grid to move and the bolt to move out of the shackle.
Coming back to the process of 'picking' this type of lock once the buttons have been pushed downwards, providing tension has been applied to the button at the base it should be found that some of these numbered buttons have not been lowered as far as they could go. The reason for this is because these buttons have the gates on them lower down which are not part of the
The next step is to push down, without tension, the second column of numbers, i.e. 6-0. Now by placing pressure on the sliding button all that is required is

to gently push the buttons upwards one by one. As the buttons which are part of the combination have their gates already in line with the grid the effect of applying pressure onto the slide is to restrict their movement upwards. The numbers not forming part of the combination however, will be free to slide upwards. All that is now required to do is to ensure that all the buttons that are part of the combination are fully depressed and all the numbers not forming part of the combination are fully out of the lock. The lock should now yield.

Disk

This type of padlock can be seen in the diagram below.



Combination

Therefore, by applying pressure on the slide whilst these were up it caused the grid to enter into gates slightly thus restricting their movement downwards. The next step is to raise the numbers which didn't lower fully into the lock, as half of the combination has been found and you are simply removing the numbers which aren't part of the combination.

Push Button

This type of padlock is relatively new. An illustration of this can be seen below.

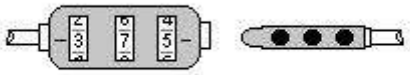
Again the key to opening this type of lock, as is the case with most combination locks, is to apply pressure.

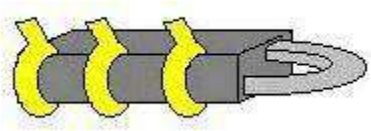
The pressure should be applied to the shackle which should have the effect of causing one of the disks to become much more tighter and harder to turn.
This is the disk which will be worked on first. All that is required is to turn this disk, whilst still retaining the pressure on the shackle, until the tension is relieved. This will be the point at which the section on the shackle which was being restricted from moving through the disk can now pass through as the gate will be at this position.

Finding the correct number on the first disk which you worked on will create tension to be placed on one of the other disks. The correct number of this disk can be found by applying the same technique as before.
As these types of locks only have three disks all that will be required to do now is to rotate the final disk until the lock snaps open under the pressure of your tugging at the shackle.

Bicycle Chain

This will no doubt take the form of one of the two pictures shown





These can be opened in much the same way as the disk padlock as explained above.

A few important points should be noted. Tension must be applied in order to be able to know where the gates are positioned. As the gates are points in the disks where no metal exists, the corresponding peg on the shackle will no longer be causing tension and so will become loose.

However, due to the other disks taking up that tension once the first number has been found it can often be difficult to feel. This is where practice will pay off as this distinction will become easily recognisable.

Briefcase

This type of lock can most easily be opened with the use of a specially designed tool. This tool has already been described in the tools section and so reference to it should be made.

The operation of this type of lock should be fully understood in order to be able to open it. Therefore, the reader should refer back to the mechanics section where this lock has been discussed. As with all locks, however,

the best way to understand how a lock works is to open it up yourself, a point which cannot be stressed enough.
If the inner workings of this lock are studied it should be seen that the point at which the correct number is, a small notch is located. This is what with the aid of the The correct side to insert the probe is to the side of the dial furthest away from the button and nearest the hasp. It should be placed down the side of the metal disk until contact is made with the plastic ring which the disk is on.
The plastic ring rotates with the metal ring due to projections on it in a star shaped pattern. However, on this plastic ring is a smooth section and it is this section which is directly next to the number of the combination. This is what the probe pick is trying to find when it is inserted down the side of each disk.

In this way the correct combination can be found.
Probe. the probe, or feeler pick is attempting to find. The point of this is also much flatter than other sections of the disk and so this too can be felt

Recommended

How To Open Locks Without Keys Or Picks
Publisher: Paladin Press (July 1999)
ISBN: 0873641922

Complete Guide to Lock Picking by Eddie the Wire
Publisher: Loompanics Unlimited (April 1984)
ISBN: 0915179067

Secrets Of Lock Picking by Steven Hampton
Publisher: Paladin Press; ; (May 1987)
ISBN: 0873644239

Complete Course in Professional Locksmithing by Robert L. Robinson
Publisher: Burnham Inc Pub (June 1973)
ISBN: 091101215X

Professional Locksmithing Techniques by Bill Phillips
Publisher: McGraw-Hill 2nd edition (February 1996)
ASIN: 0070498679

Visit http://www.withoutakey.co.uk for more information.

Acknowledgements

Page 7. Wikipedia - Lock Images

Manual of Lockpicking

Copyright Information