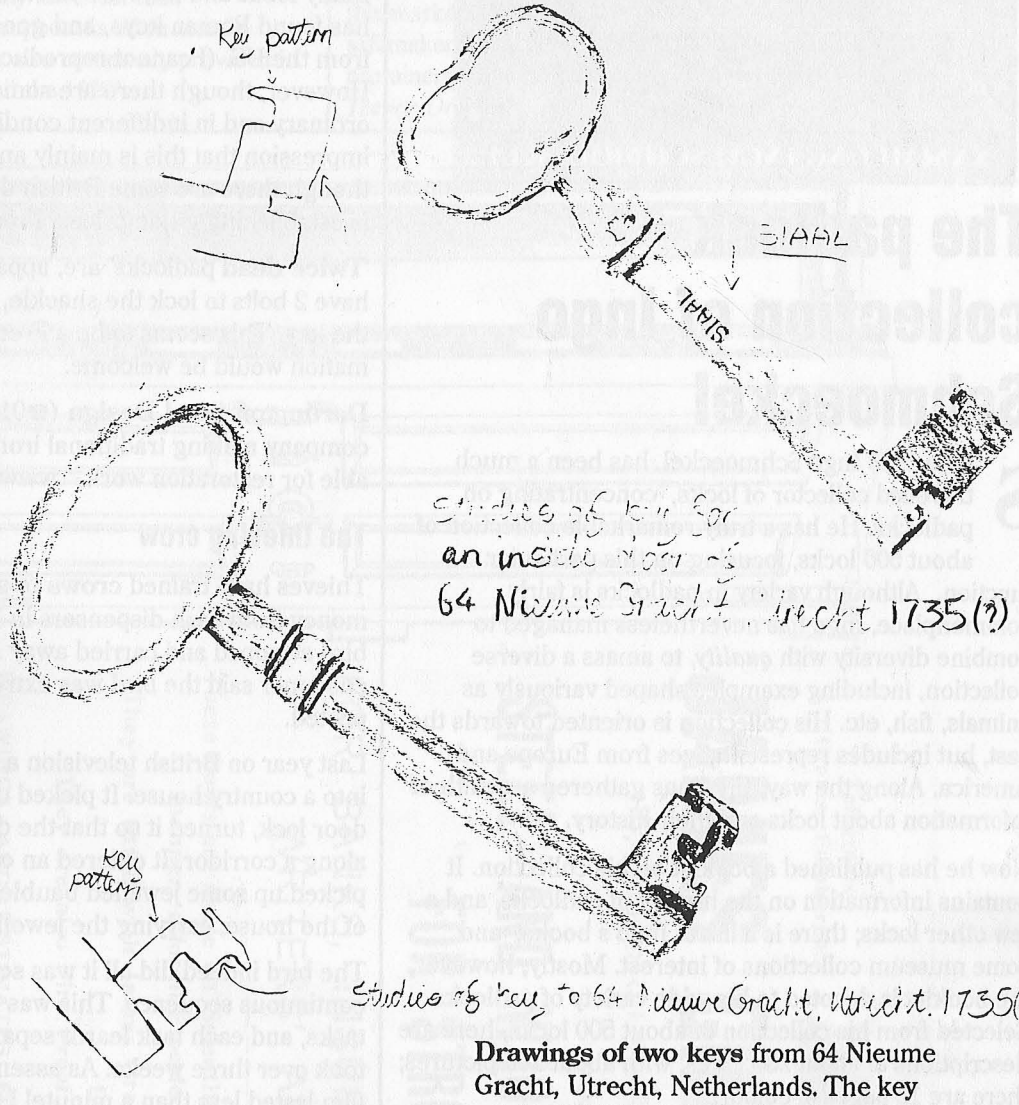
LOCKS & KEYS

The Newsletter for lock collectors

Issue 14 — March 2001



Drawings of two keys from 64 Nieume Gracht, Utrecht, Netherlands. The key marked SIAAL is a pipe key for an inside door. The lock was moved early in its history, being remounted upside down because a lock of the required hand was not available.

The other key is a pin key. Both are fairly simply warded. They date from the building of the house in about 1735.

Astri Robinson

"*Locks & Keys*" needs more subscribers. If you know any other collectors, please ask them to subscribe to their own copies!

"*Locks & Keys*" welcomes contributions, preferably with uncoloured illustrations on separate sheets. Unfortunately, colour photographs tend to be too dark to reproduce well. PC disks with files in Word7, Works4.5, Write, Wordpad, or saved as .rtf can be used.
Please send an sae if you need a reply.

In This Issue

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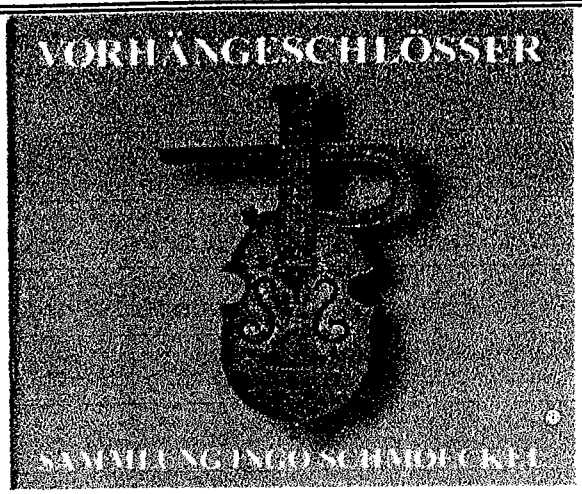


The padlock collection of Ingo Schmoeckel

Since 1968 Ingo Schmoeckel has been a much travelled collector of locks, concentrating on padlocks. He has a truly remarkable collection of about 500 locks, focusing on this particular function. Although variety in padlocks is fairly commonplace, Ingo has nevertheless managed to combine diversity with *quality*, to amass a diverse collection, including examples shaped variously as animals, fish, etc. His collection is oriented towards the east, but includes representatives from Europe and America. Along the way, Ingo has gathered a wealth of information about locks and their history.

Now he has published a booklet on his collection. It contains information on the history of padlocks, and a few other locks; there is a list of Ingo's books; and some museum collections of interest. Mostly, however, the booklet is devoted to his wide variety of padlocks. Selected from his collection of about 500 locks, here are descriptions of about 230 locks, with about 100 pictures; there are 12 pages of colour.

This is a professionally produced booklet to a high standard of photography, design, printing, and paper. It will certainly become a much sought after addition to the literature. The text is in German, but an English translation (of which the Editor has a draft copy) will accompany orders from English speakers. This translation is now being polished, and should be ready by the time you receive this issue, or very soon after.

"Vorhangeschlosser sammlung Ingo Schmoeckel" ("Padlock collection of Ingo Schmoeckel") is available from Herr Ingo Schmoeckel, Herzog-Adolf-Strasse 9, D 61440 Oberursel im Taunus, Germany. British buyers should mail a £10 banknote, Americans $25 in notes.

Feedback

The **lock market** is alive and well on the Internet! That is the message from *Don Jackson* in America. He is a careful watcher of Internet auctions. I do not spend much time in them, but my observation still seems to have some validity. Many locks and keys are offered and sold. *Jon Osler* has found Roman keys, and good books, but mainly from the US. (I cannot reproduce his picture, sadly.) However, though there are some plums, many are very ordinary and in indifferent condition. I still have the impression that this is mainly an American market, though there are some British dealers. As to whether it is establishing guide prices, I remain undecided.

Twice dead padlocks' are, apparently, locks which have 2 bolts to lock the shackle, operated by 2 turns of the key. This seems to be a French idea; more information would be welcome.

Dartington Steel Design (☎01803 868671) is a small company making traditional iron door furniture, suitable for restoration work. www.dartington.com

The thieving crow

Thieves have trained **crows** to swoop down and steal money from cash dispensers in Messina, Sicily. One bird swooped and carried away £160 in its beak. The customer said the bird was extremely fast and unexpected.

Last year on British television a crow was shown flying into a country house. It picked up a key, put it into a door lock, turned it so that the door opened, then flew along a corridor. It entered an open dorway, then picked up some jewelled bauble. Then it flew back out of the house, carrying the jewel!!

The bird indeed did all it was seen to do. But not in one continuous sequence. This was broken down into small tasks, and each task learnt separately. In all, filming took over three weeks. As assembled for showing, the film lasted less than a minute! I found this a fascinating display, which I doubt has been shown in Sicily.

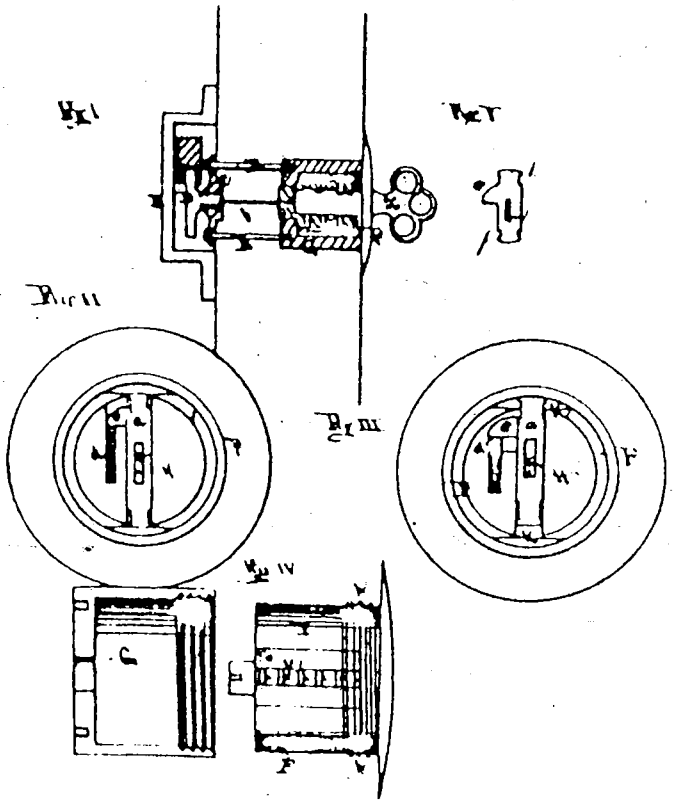
Correction to #13 (on page 2): English Heritage is restoring **Constitution Arch** at Hyde Park Corner. Marble Arch is at the other end of Park Lane (Pevsner, *Buildings of England*: London, vol 1, 1957, p. 520). Thanks to *Jon Millington* for clarification. This item was a result of a garbled report by someone who saw part of a TV programme. I am not very familiar with these arches, but now you tell me, I am clear that there is a large metal sculpture on top of Constitution Arch. I didn't remember anything on Marble Arch, but that means nothing. Believing the arch concerned was Marble Arch, I looked up some details for that.

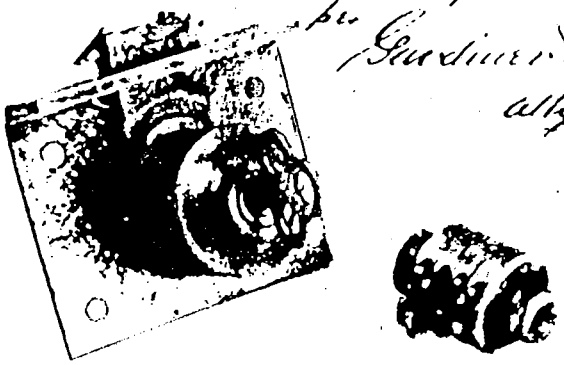
Shepardson lock: an early version of the disc tumbler variety

H. S. Shepardson,

Lock.

No. 99,013. Patented Jan. 18. 1870.





The race to invent a secure lock in the 19th Century produced some oddities that have become valuable. This brass tumbler device —the innards alongside it are illustrated in the accompanying patent drawing—turned out to be too complex to produce profitably at that time.

Amazing MAZAK

Brass has been known to man for nearly three thousand years. Earlier, man had discovered copper. Some 'copper' ores produced a superior metal. These metals varied in performance and colour, but were generally harder and tougher. In colour, they varied from reddish brown, to yellow. Most of these alloys were actually what we would now call 'bronze': an alloy of copper and tin. The yellow metal is an alloy of copper and zinc. Although a Greek text mentions 'false silver', zinc was not confirmed as an element until the 16th century.

The die is cast

Repetitive casting became a common production method for iron and brass. From the beginning of the 20th century, efforts were made to cast zinc. However, in many cases rapid deterioration set in after only a few months of service, and results were disastrous.

The problem was studied by the New Jersey Zinc Co. In 1923, the problem was found to be caused by impurities of other metals, such as lead or tin, often present in zinc ores. No deterioration occurred if very pure zinc (99.99+%) were used. The investigators developed a series of alloys they named Zamak (called Mazak in the UK), containing Zinc aluminium, magnesium and copper. In 1942 the British Standards Institution issued BS 1004 covering two of the Zamak compositions which have the best all-round balance of properties. The British standard allows less latitude for impurities than is specified in the US.

Mazak grows up fast

Mazak was extensively used in the war industries. Zinc has an unusual and valuable property. Contrary to other metals, it expands when it freezes. This enables it to retain fine details of a mould, and very little fettling is required for products of pressure die-casting. Molten zinc is forced under pressure into a chilled mould. Since the war, it has been used for a wide range of low cost products and components.

Not only is zinc fairly cheap; it can produce in high volume items which would previously have required a prohibitive amount of machining. That Zamak is practically unrepairable is not a problem because replacements are cheap - provided they are available.

Zinc locks

Zamak and pressure die casting made possible the disk tumbler lock, forms of which date from the 1870's, but which was previously too expensive to produce. Padlocks and other lock components were also made.

Even in the 1950's, however, there were quality control problems caused by impurities. For example, tin should not exceed 0.002%, lead 0.005%! Beyond those amounts, dimensional stability is reduced (it flows like plastic under prolonged stress), and corrosion proceeds rapidly in a humid atmosphere. This corrosion is irreversible, and can lead to almost complete disintegration.

Look at your zinc locks now

This article was prompted by corrosion of a cylinder rimlatch case made about 1953, which has suffered just such corrosion. Sadly, the only advice the Science Museum can offer is to keep exhibits cool and dry - **there is no known cure.**

R Phillips

For more details, see

MORGAN, S. W. K. *Zinc and its alloys.* Chichester, Ellis Horwood

Jaws: eat your safe out!

After finding biscuit beetles (*Stegobium paniceum*) in my breakfast cereal, I examined the contents of the pantry. *Stegobium* had invaded various types of pasta, pine kernals, sesame seeds, biscuits, and dried beans, shich showed the characteristic round holes - mos of which are exit holes.

However, the most astonishing target of their attentions was a foil-wrapped stock cube. The metal foil had been neatly nibbled away in several places. As the foil was otherwise intact, at least one hole must have been the entrance hole by which the first female got inside to lay eggs.

No lead poisoning?

Metal-eating by insects is not often reported, but several beetles are known to have attacked metal. They include the domestic woodworm beetle *Anobium punctatum* (which is closely related to *Stegobium*). In 1851 there was a report of *Anobium* chewing exit holes through first 2mm, then 4mm lead lining in a wooden cistern. In most cases, the metal is similar in hardness to the wood normally eaten and thus presented little problem for their strong mandibles.

Has anything been gnawing at your safe lately?

Details abridged from *Richard A Jones*, in:

Br. J. Ent. Nat.Hist., 10: 1997, p101

The Editor had a similar experience some years ago.

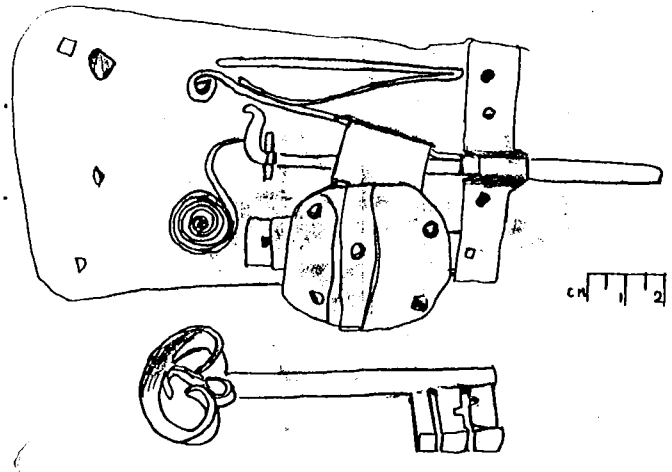
◆

French iron rimlock

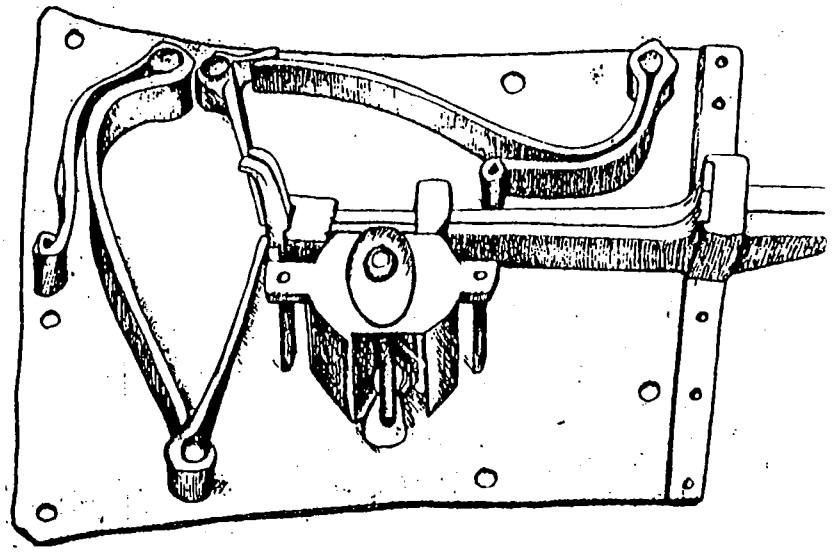
The picture at left shows a lock bought by a reader. Springlatches of broadly similar types were used both for doors, and also for iron chests.

Chest locks were usually made as though to be mounted 'vertically', although actually they sometimes were fitted cut into the edge of the lid. The keyhole of this lock cannot be seen, but it is assumed to be for a horizontal door latch.

This type of rim lock is generally called 'gothic' or 'German'. It appeared in Germany in the 15th century, and spread through the Low Countries and France. Its simple form continued into the 17th century. Co-existing with it from the 16th century were more sophisticated mechanisms, and more refined manufacture and decoration.



Rimlatch, of hammered iron: European, possibly 16th century



Typical Gothic rim spinglatch, with hatchet shape, and drawback handle on inside, and pipe key

Metal springlatches

Most early springs were of iron, which is not very springy, so scotch springs, whose movement is minimal, were mainly used. Steel was rare and expensive, but could make better leaf springs, and scroll springs. These latches did not lock, the bolt being supported by the spring, sometimes with another spring adding friction by bearing on the bolt lathe. Wards were generally simple. The key with this example has been largely reconstructed, and it is difficult to know what is original. This example appears not to have any means of withdrawing the bolt on the inside. As the key could only turn about 3/5 of a circle, it could hold the bolt withdrawn. Later, a simple lever or turning mechanism allowed the bolt to be withdrawn from the inside, or there is a bent out end to the latch tail to allow it to be drawn back by the fingers.

Hard labour and handcraft

To say that it is crudely made is no more a criticism that that its design is simple. The smith received his iron from the ironmaker as rough billets or irregular long bars. Sometimes the bloom was not completely consolidated, and billets could still contain particles of slag. The smith then had to make any sheet or section he needed, by hammering on his own anvil, possibly with the assistance of a striker. Water-powered tilt hammers were common at smelting sites, but rare elsewhere. There is some uncertainty when and where rolling mills first appeared. Either in Sweden at the end of the 15th century, or Germany early in the 16th are possibilities. However, rolling mills were nowhere common until late in the 17th century. Clearly, this lock has been made of hammered sheet.

The date

The design and workmanship make it difficult to be exact about its origin and date. It might be French, 16th century. However, it could have been made anywhere across northern Europe in the period 15-17th centuries. There is a good example of skilled ironwork (among many in Austria) on a door in Hohensalzburg Castle. The lock is basically similar to that shown above, and probably dates from the 15th or early 16th century.

R Phillips

based on information from the National Museum of Technology, Prague

Chinese padlocks: a few notes ...

In the middle of 1999 *Richard Poynter* bought two padlocks. Essentially, they are chinese expanding barb padlocks. They are ornate brass locks with a green jewel at the top of the stem of each lock. The locks are in the shapes of musical instruments. The brass keys have a man's head at the handle end, and, although similar, are different. One has hair, the other is bald.

The face of each lock is of a different design, and appears to have been embossed onto the lock.

Apparently identical engravings appear on the backs of both locks.

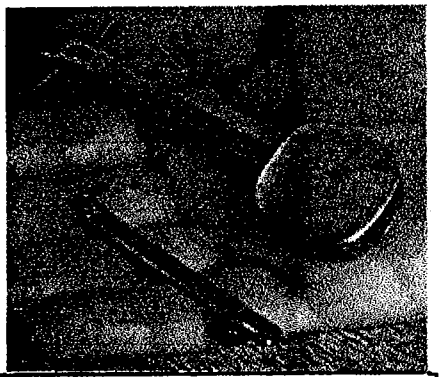
These were at first thought to be the only ones of their kind in captivity in the US. However, several more soon appeared on eBay, from US sellers. *Jon Millington* visited China, and brought back several others. *Ingo Schmoeckel* sent a picture of yet other chinese padlocks in the form of musical instruments. *Bob Heilemann* found some pictures in a Japanese book. These had an inscription apparently in Japanese, and were c.1603-1867. Don Jackson also has one, believed to be Japanese.

There thus appear to be numerous chinese padlocks in the form of musical instruments. Some are old, whilst others seem to be newly made. And they seem to come from both Japan and China.

Many of these can be identified as specific, mainly oriental, instruments. In the picture of Ingo Schmoeckel 's orchestra, the third and fourth of the top row are Pipas, the fourth is silver. The top row second has three strings, and is a Gambus, a wooden lute-like instrument from Indonesia. The silver padlock at right, with square body, is a Shamisen. This is a Japanese instrument with a wooden frame, and strings plucked with a large plectrum. The violin bottom left looks new. All the others look individually hand made.

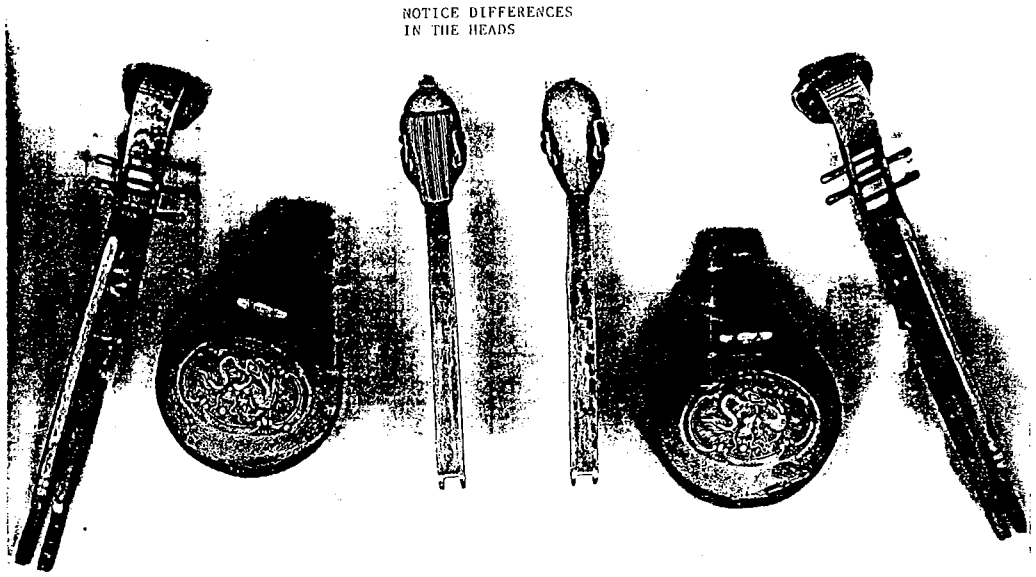
Some of these might now be made for the tourist trade. They are pretty objects, small and easy for travellers to take home, and unusual in appearance to western tourists. However, they do seem to have been made mainly for domestic use originally. They seem to come from a wide variety of workshops, in both China and Japan. Some of them might have been intended for use as charms.

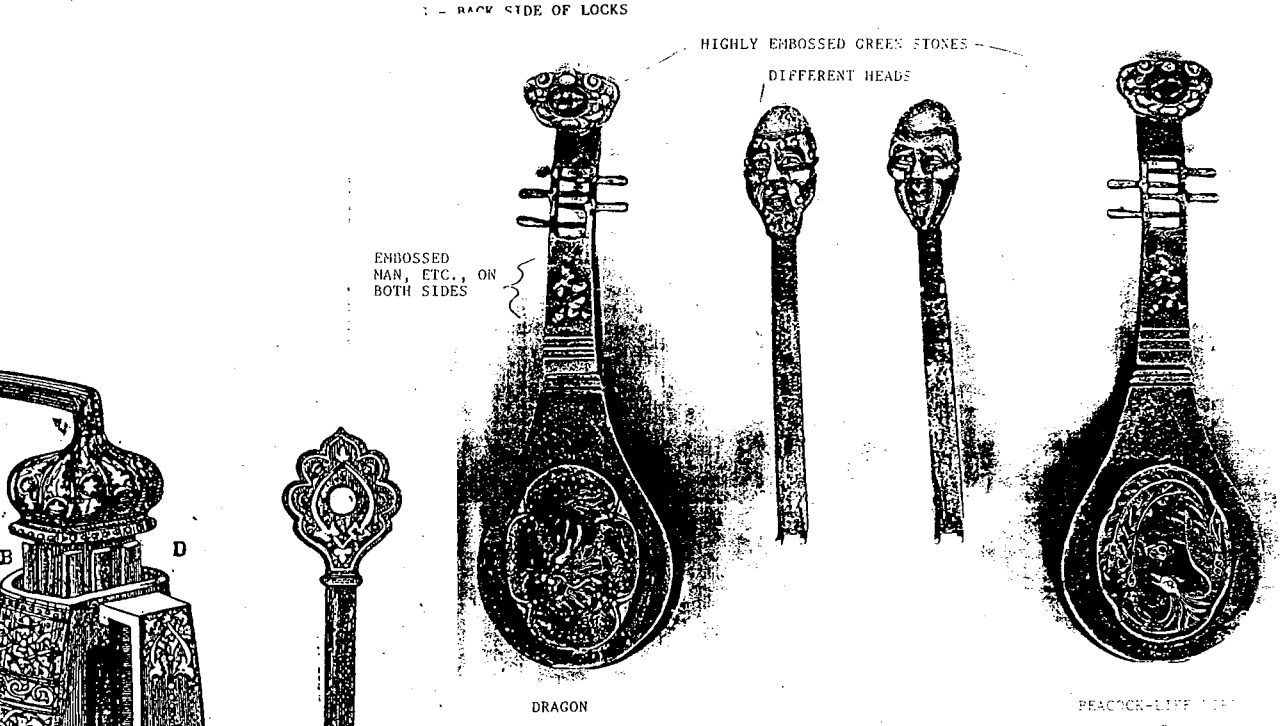
Actually, chinese padlocks are made in a great variety of forms obviously designed to be decorative. Function only requires a cylinder shape. Yet there are numerous designs, such as animals, fish, birds, dragons, and other shapes. These come also from Japan, India, and Arabic countries. Many seem to have been intended originally for interior use, as cabinet locks.

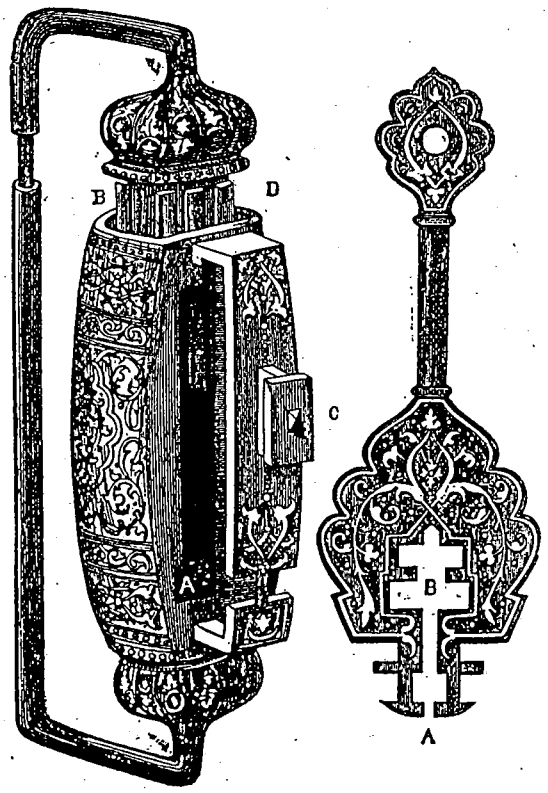


"Violin Lock" in hand.
A stringed Japanese musical instrument, known as a samisen, was the inspiration for the design of this slide-key padlock.

Right: Ingo Schmoeckel's *orchestra - see text for details*







ARABIAN PADLOCK.

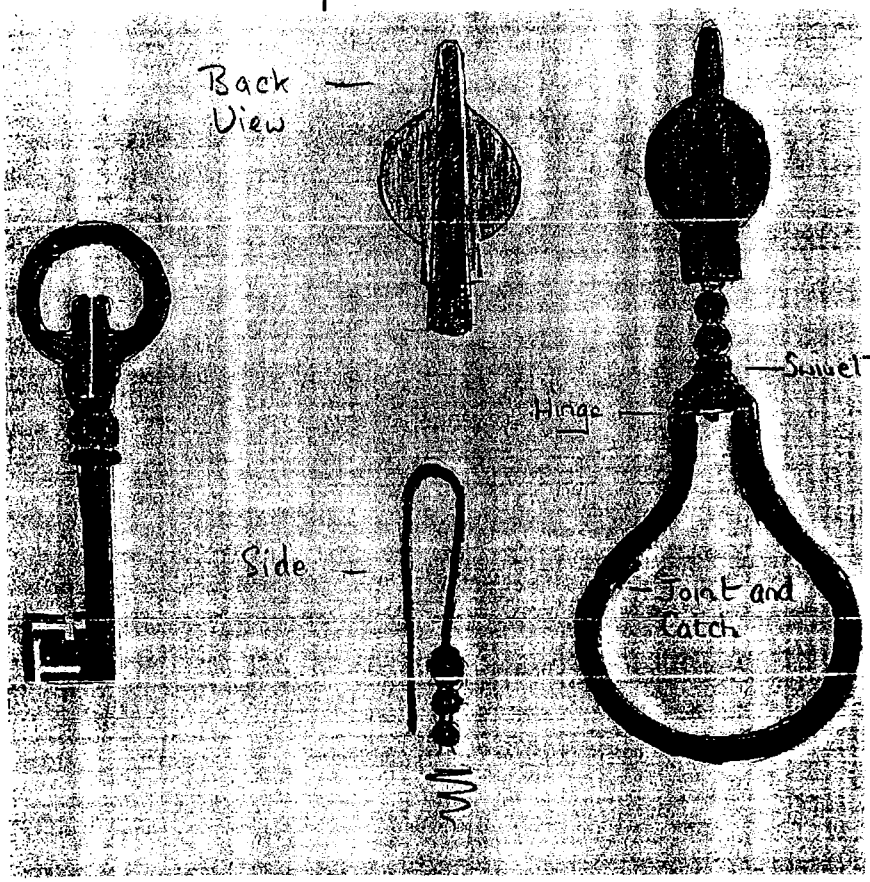
Top picture: Richard Poynter's *padlocks, back view showing engraving*
Above: front view, with green stones at top end; on left the design is a dragon, on right a peacock-like bird
Left: Arabian lock, early 19th or late 18th century. The point of the key A enters the lock at A; it is slid up, the bar C moving through key slot B. Thus the lock's internal spring barbs whose ends are visible at B,D, are compressed, and the shackle is released. Ababian locks are often engraved with arabesque or calligraphic designs.

Write in to "Locks & Keys" with your questions about locks. Somebody will surely be able to supply answers. The Editor will be pleased to print a composite answer to questions. When replying, please mention the number of the question.

◆◆◆

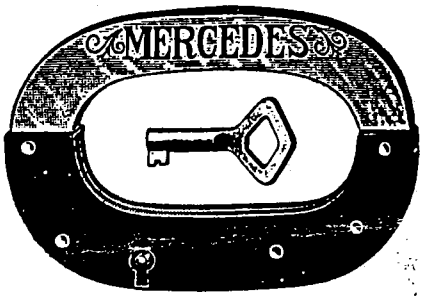
Few new questions have been received, but there are some answers.

21] The picture shows a keyring and key. The keyring is of steel (or iron), and black, either with age or chemically treated. The key retains some gold-coloured coating. Was this meant to be part of, or carried on, a chatelaine? Any information welcome. *Colin Lewis*



19] *Trevor Dowson* has identified the padlock shown in the last issue. It is a bicycle lock found in a Brown Brothers catalogue of 1926. (See picture right) Same design, finish, and decoration; but a different name, of the same number of letters! Are there more like this, with yet other names?

20] *Trevor Dowson* has also identified the James Hill patent lock. Illustrated on p.12 is a page of a catalogue of James Hill & Co.,



No. 3713c. Crank Spring Padlock, enamelled black and plated finish, with two keys to each. Size overall 4¼ in. × 2⅝ in. light pattern, each **–/11**

100a Queen Victoria Street, London EC, of 1925. Keys were marked 'Jas. Hill & Co. London', locks were trademarked JASIL in a circle. These locks were made in iron with brass bushes, or all brass. They used either wards, or 2 or 4 levers. Instant reversibility was the selling point. Dealers could reduce their stocks by half, as every lock could suit any required hand! Reverse striking plates were also available. Locks were made in sizes 6" - 8". Yet despite their obvious advantage to the ironmonger and builder, they are not commonly seen. However, locks mounted upside down for want of a lock of correct hand are quite commonly seen!

Paladin Press is a small independent alternative press in Colorado. It publishes many unconventional, practical and hobby books, and reprints of old military manuals. There are indoor and outdoor hobbies covered, together with some computer, personal finance, and other social subjects. Paladin also publishes some videos; they are all US NTSC format. However, there are now some inexpensive video players available in Britain which play NTSC.

Paladin publishes the practical lock books by 'Eddie the Wire', and Steven Hampton', among others.

I hope to have more on Paladin Press in a later issue.

Paladin Press books can be bought in Britain from : Outdoorsman's Bookstore 22 High Street, Horley, Surrey RH6 7BB ☎01293 772496; and online from: www.paladin-press.com
Outdoorsman's Bookstore also sells the useful Workshop Practice Series, from Nexus Special Interest Books (formerly Argo Press (Model Engineer books)).

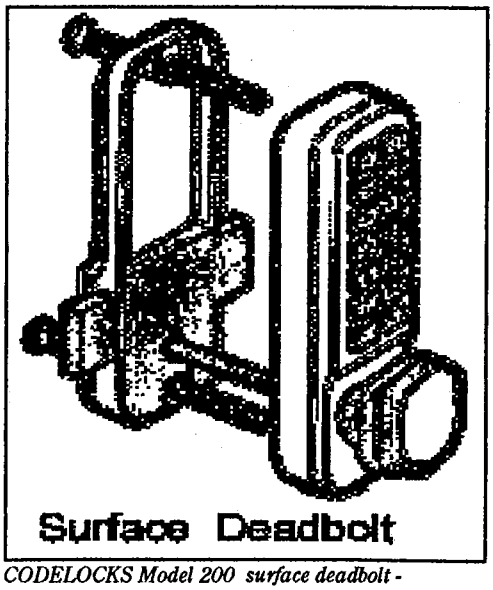
Mechanical push button combination locks

Ilco Unican launched the original pushbutton lock in 1964, when Aaron Fish, now Chairman of the Company, and his tiny band of visionaries, sold the first 50 pushbutton locks to Bell Canada. Now, more than 30 years later, the number of pushbutton locks in use worldwide is over one million and growing.

The early ones were made by Ilco-Unican, using the SIMPLEX chamber from the much more expensive UNICAN locks seen on doors requiring easy access for staff in hospitals, courts, and embassies. These locks have only five buttons to contend with, but the buttons can be set up to require two or more to be pressed at once, and the order of pressing them is significant. They have the advantage of being usable blindfold, and it is not difficult to conceal which buttons are being pushed.

Pressing more than two buttons simultaneously is not easy. The number of combinations available without pressing more than two buttons together is said to be 880. Possibly this is not many differs; but it is not easy to go right through the possible combinations without making an error.

The original locks cost from about £275; but if you needed the prestige of a lever handle, the price went up to £325. The system depends on the SIMPLEX chamber, which is an amazing piece of clockwork costing about £60 to replace.



CODELOCKS Model 200 surface deadbolt - available in three finishes: brass, antique brass, silver

Later, from about 1985, came the very popular locks with a total of 14 buttons, working in a completely different way. They are numbered from 1 to10, plus X, Y, and Z; the bottom right button being labelled C.

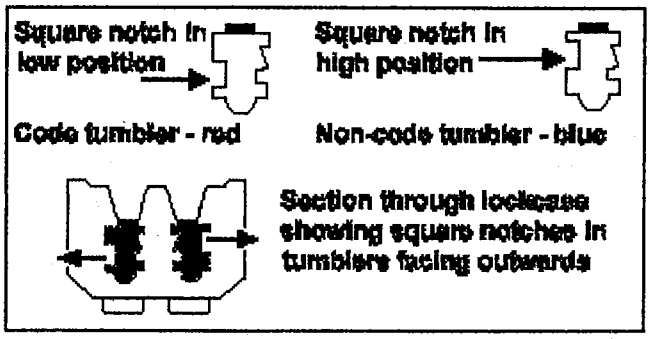
All buttons except C push a small tumbler from its rest position. The C button releases any pushed tumblers to return to the rest position, although the buttons themselves always spring back without altering the tumbler positions.

If all buttons have been pushed, pressing the C button can be hard work! This situation happens frequently in schools etc. It should be a reflex action to hide the buttons being pressed to avoid unauthorised persons seeing what the code is.

The earlier examples of these locks came from Japan, and were labelled ERA, DIGITAL, and LOCKEY - priced at around £100.

Taiwan started production later, and the price dropped significantly. China now supplies this type of lock, labelled BORG. The Taiwanese locks seem to be mainly marketed by a firm called Codelocks and the priced dropped initially to £69, and currently £39 - which is incredible value.

To see how the lock works, imagine a metal bar with notches cut at regular intervals. The tumblers are held at right angles to this and are of two different types. The non-locking ones have a gap corresponding with the bar notches at the 'rest' (not pushed) position. If these buttons are pressed, the tumbler notch moves to block the bar. The locking tumblers have the gap corresponding to the bar notches, so locking it until the



CODELOCKS code tumblers

button corresponding is pressed.

This system would result in a lock approaching 1' high, so the bar is pivoted at half way - in use one half moves up, and the other down.

It does not matter in which order the buttons are pressed, provided only the 'locking' buttons are, and the non-locking buttons left unpressed.

Locks are normally supplied with one spare of each type of tumbler. Do not let the lock fitter take them away, unless he will be servicing the locks!

The locks are normally supplied with five locking tumblers fitted, and this will give 1,287 different codes. Fitting the extra tumbler will increase this to 1,716 codes to go through. Five tumblers are normally enough; some users prefer, which cuts the number to 715 codes. Users often like a 'group' of buttons to press for convenience, but then have to make sure nobody is watching.

There is a latching system for the tumblers to hold

Pushbutton locks

(continued from p.9)

them in once pressed. The 'latch' on the tumbler is only about 0.5 X 2mm, though it only engages about 1mm of the width. This can cause trouble with tumblers springing back when more are pressed. This can be cured to some extent by swapping tumblers from left to right or vice versa. I have found little trouble since I have stopped oiling the locks. We have 30+ locks in use and only two have given trouble in the last year - both oiled by an enthusiast.

A PushButton code, or combination, can be entered in any order or sequence; e.g 1234 can be 4321 or 1342 or whatever sequence is most convenient to remember.

With 13 buttons, a total of 8,191 different codes are available, any of which can be entered in any sequence.

The total is arrived at as follows:

'C' plus 1 digit = 13 'C' plus 6 digits = 1716 'C'plus 11 digits = 78
" 2 " = 78 " 7 " = 1716 " 12 " = 13
" 3 " = 286 " 8 " = 1287 " 13 " = 1
" 4 " = 715 " 9 " = 715 Total = 8191
" 5 " = 1287 " 10 " = 286

Most people will set a code in the range of 4 to 7 digits, and the total number of codes in this range is 5434.

The code mechanism is the key to the lock and can cause most trouble. When fitting, if more than one spindle is supplied, use the longest possible. The knobs are hollow, and a short spindle can become disengaged causing a lockout - or in!

We only have the springlatch version and some latches have caused difficulty by 'walking off' the bolt lath with the action of the rather strong spring. I've got round this problem by squeezing a little Araldite™ (epoxy resin) into the bolt groove. It is necessary to work the latch for a short while until the adhesive has set. Codelocks were aware of this problem and had taken steps to prevent it happening, so it is likely that current production locks will not suffer from it.

Codelocks were also delighted to announce that their Push Button lock had won an award as the Access Control Product of the Year - mid 1999.

The Push Button lock has stood up to determined attacks without failing. There is no point in putting a large wrench on the knob and using force, as it has a ball-bearing clutch and will 'give', only to relocate a quarter turn later.

There are ways of opening the lock without the code. Attacking the rubber buffers can give access to the securing bolts so that they can be cut. It is also said that drilling a hole near the bottom corner of the buffer nearer to the stile will give room for a pick to be inserted to hook back the latch. I have not had much success!

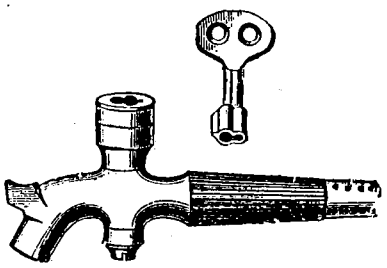
There are other digital locks from other makers (approximate prices, ex. VAT). Borg @ £60, and a newer one which works with a sash lock @ £95. Keylex have several models, £87 - £430. Lockey have models for rim or mortice from £87; available with key override @ £170. Perhaps it's no wonder that Codelocks sold a good many locks, @ £39. The price is now back to £70. In Britain, Codelocks at Headley, Thatcham RG19 8AT are very helpful.

The Unican Group can trace its lock making roots back to the early nineteenth century. Ilco Unican is a world leader in key blanks, key machines, mechanical pushbutton and electronic access controls, reaching over 150 countries worldwide. Unican developed the first mechanical pushbutton lock and remains the world's largest maker in this product category. In 1985, Unican took over the assets of Dominion Lock Company (in liquidation), and is now based in Montreal. Ilco is part of the Unican group.
(http://www.ilcounican.com/home2.asp/) In February 2001, the expanding Swiss company Kaba announced it was acquiring Ilco Unican. UK. & Rep. of Ireland: Unit 10, 50, Sulivan Rd. London, England SW6 3DX ☎0171-610-6168 info@ilcounican.com

There is a 6 page evaluation of Simplex 5 button locks at http://www.indra.com/archives/alt-locksmithing/hobbit.html

Peter Cowie

Some curious keys: loose key taps, of wood or brass, for knocking into bung holes of barrels (especially beer!). This from H Thompson & Sons, Norwich 1909.
Trevor Dowson



No. 1447. With Loose Key.

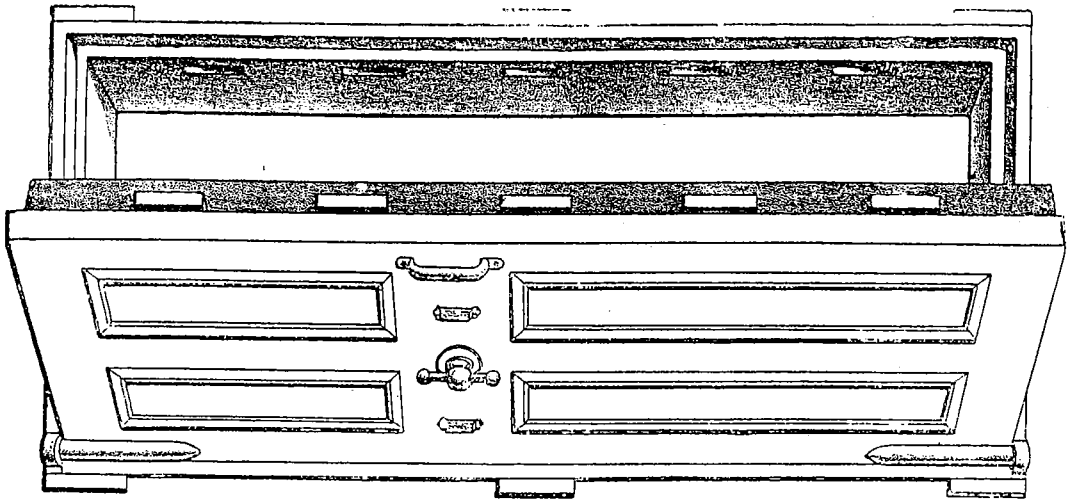
½	⅝	¾ in.
2/9	3/6	4/6 each.

James Gray & Son

For about half a century, James Gray & Son, of Edinburgh, ironmongers, supplied strongroom doors. Many of them went to strongrooms in solicitors' and insurance offices, and village bank branches. These were often little more than a walk-in cupboard. Most of the old village banks have subsequently become private houses, and many have lost their strongroom doors, though the cupboards often remain. Strong walk-in cupboards were also commonly provided in up-market suburban houses until the 1920's.

Many offices in stone buildings with solid walls had a simple 'strongroom' formed by putting a simple single plate door across a corner of a room. These doors were less elaborate than that shown in the advertisement. They were locked directly by a large lock, about a foot square. Gray had designed his own, which was not patented. It was a substantial lock with two sets of levers, but basically conventional.

Early in the twentieth century, Gray & Sons withdrew from this market in the face of competition from the leading safemakers. The company remains in business as a prominent Edinburgh ironmonger in the New Town.
Trevor Dowson



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