



# LOCKS & KEYS



Number 7

The Newsletter for lock collectors

November 1998

## Any comments?

**I** do appreciate the comments and contributions which you send me. I assume that all contributions may be used unless you say otherwise.

Anything which you think might be of interest to readers is welcome. Please tell me what you most like/least like about the Newsletter, and the subjects you would like to see. More reports of places of interest you have visited, for example. Also I am still awaiting descriptions of your most prized locks, and where you found them. An auction has been suggested; there are however fewer than 50 subscribers, so what do you think?

The first issue had a description of the Bilfix lock; a detailed history of all the various patents and makers has now been received.

I would also like to know if readers are happy to have their names and addresses published in the newsletter - many readers are actually acquainted anyway.

Thanks are due to Mr Jim Evans of Arthur Hough & Sons for the distribution of this issue. This company is the biggest key-making company you've never knowingly bought a key from - unless perhaps you have been in the business for over thirty years.

"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 Word2, Works3, Write, or saved as .rtf can be used.

## He lives!

**A**sk people to name a magician (other than the current TV Mr Magic), and one will be outstanding as the only magician most people can name: a magician who died in 1926.

Harry Houdini performed many types of entertainment in his career. He was not, perhaps, the greatest sleight-of-hand magician, though early on he not only presented classic magic but even billed himself 'King of Cards'. He performed mental magic, paper magic, fortune-telling, comedy and clowning, contortions, a circus strongman act, and was a trapeze artiste. He was also a pioneer aviator, filmmaker and actor, and more. Yet it is not for any of these things that Houdini is remembered.

### Handcuff King

Houdini was not the first 'Handcuff King'. Like others, he was a small time magic act, doing some handcuff escapes. He added another magical demonstration: the substitution trunk, with a performance which he named 'Metamorphosis'.

### Escapologist

Changing the trunk from a transposition to an escape began his own metamorphosis into an escapologist. And if he could escape from a trunk, so he could also escape from other things. In the course of his career he escaped from packing cases, a boiler, coffins, safes, straitjackets, all manner of handcuffs, including jumping handcuffed into rivers, mailbags, sacks, milk churns, a water-filled glass tank, and prisons. He made nearly fifty escapes from prisons. On one occasion he escaped from the

*continued on p.4*

## Inside This Issue

1 *He lives!*

2 *Padlocks*

3 *Clark padlock*

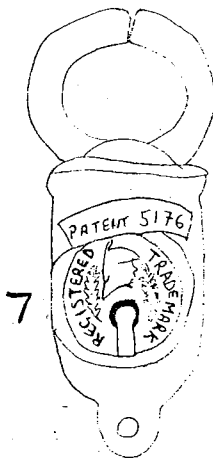
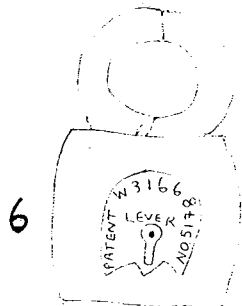
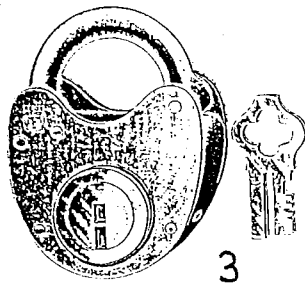
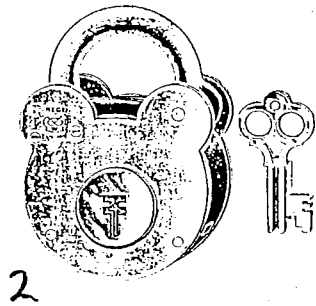
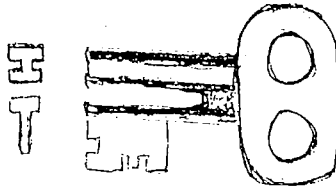
6 *Bell locks again*

8 *Chatwood wallsafe lock*

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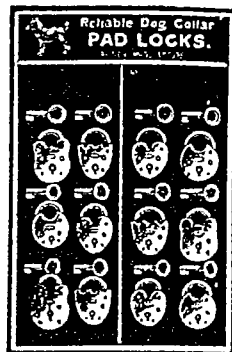
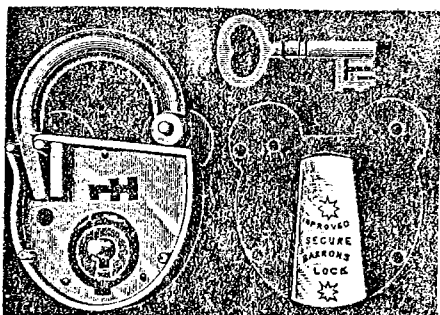
## Padlock notes and queries

1 Round brass bush turns with key



8

9



No. 21 REAL BARRONS, 2-LEVER and WARD—

2 2½ 3-in.  
31/- 31/6 32/6 40/- per doz.

Card No. 37—Small Size 4/2

### Thirsk Padlock

The padlock shown in issue #5 p.7 is no longer at Thirsk church, and has not been within living memory. Quite likely it disappeared soon after Twopeny drew it. However, a similar lock was found in Germany in the closing stages of WWII, and taken to the United States of America. Nothing was known of its provenance, although it appeared to have been in a museum.



### Mystery Padlocks

Trevor Dowson has sent some details about several of the mystery padlocks shown in the last issue. The top centre padlock has a round brass bush which turns with the key. The keys for such locks are variously grooved or slit. In the one shown in last issue, both grooved and slit (1). There are two more of similar type shown here, (2 & 3). The bottom middle and right padlocks retain keys when unlocked. The key turns on the top pin, but the bottom pin is fixed and prevents the key making a complete revolution.



### Waines Padlocks?

Two crab claw padlocks, possibly American. (6 & 7). See query 16 on p.6.



### Barron Padlocks

(8) shows a Barron type lock from a distributor's catalogue of about 1929. See query 15 on p.6.



### Card of Padlocks

(9) shows one card of cheap padlocks from c.1929. Such patterns were unchanged for many years. They were distributed by wholesalers who bought from many small makers, and discouraged makers' putting their own names on the locks. This was to prevent retailers going direct to the makers. Post-war international trade agreements later required goods to be marked with maker and country of origin.



### Clarke Combination Padlocks

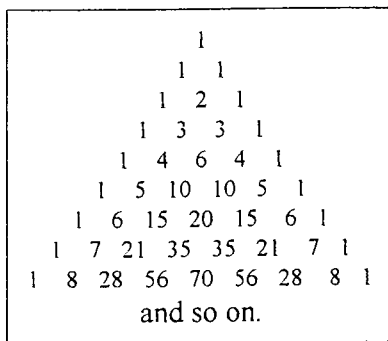
Clarke padlocks, hard to find today and very expensive, were made with 8, 10 or 12 buttons. Least rare is the 12 button version with a hinged cover. When someone ordered a Clarke padlock, they had to specify how many buttons were to be active, as these have a notch in a different position from the others. My intention here is to explore the different combinations these locks offer. The first thing to realise is that these are combination rather than permutation locks because it does not matter in which order you press the buttons. Suppose you set your padlock to open on DOG, then it will also open on DGO, GDO, GOD, ODG and OGD. In other words, there are six permutations for the letters D, G and O, but only one combination.

The 12 button padlock with, for example, 3 buttons active, can be set to only 220 different combinations, a surprisingly low number. You get the same total with 9 buttons active, showing that you do not necessarily have more combinations with more buttons active. If all 12 were active, you would have to press them all to open the lock and as, of course, the order of pressing does not matter, this gives just one combination. From the following table you can see that you get the maximum number of combinations when half the buttons are active. If any number of buttons could be made active there would be 4096 combinations.

Number of buttons on padlock ( <i>n</i> )	Number of buttons active ( <i>r</i> )													Total combinations (=2 <sup><i>n</i></sup> )	
	0	1	2	3	4	5	6	7	8	9	10	11	12		
8	1	8	28	56	70	56	28	8	1						256
10	1	10	45	120	210	252	210	120	45	10	1			1024	
12	1	12	66	220	495	792	924	792	495	220	66	12	1	4096	

Individual entries in the table can be obtained using the formula  $nCr = \frac{n!}{r!(n-r)!}$

For example, if  $n = 8$  and  $r = 3$  then  $nCr = \frac{8 \times 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1}{3 \times 2 \times 1 (5 \times 4 \times 3 \times 2 \times 1)} = \frac{8 \times 7 \times 6}{3 \times 2 \times 1} = 56$

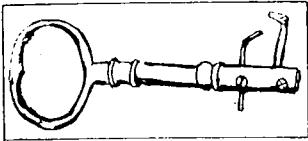


The figures in the table above may remind you of Pascal's triangle, of which the first nine rows are shown in diagram alongside. Each number is the sum of the two on either side in the row above.

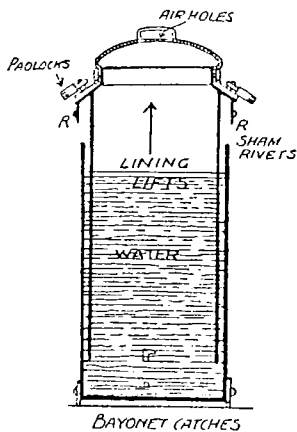
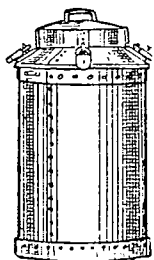
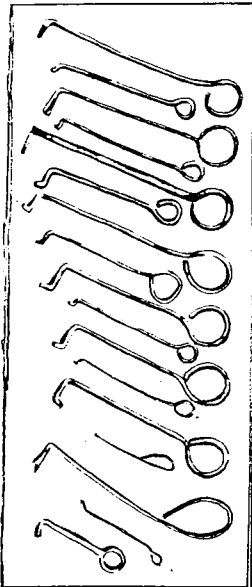
As to whether these padlocks can be picked by feel, the answer depends to some extent on their condition. You can try each button in turn, pressing it down very gently to try to feel a slight click when the notch of an active button begins to engage with the disc which rotates when the right combination is set.

Jon Millington, Bristol

One of Houdini's adjustable picks, and several warded and lever



ADJUSTABLE WARDLOCK PICKER.



The milkchurn escape

## He lives (continued from p. 1)

condemned cell, moved other prisoners into different cells, retrieved his clothes from yet another locked cell, and returned to the governor's office via the street door!

### World's highest-paid entertainer

Some affected to disparage Houdini as a 'box magician' ('if I had his magic box I could be a magician like him'). The early part of this century, before cinema's rise, was an era when giants trod the boards of the live theatre. The test of success was at the box-office. For over two decades Houdini was the highest-paid entertainer in the world.

Houdini had invented a new branch of magic. He was its king. Such was the demand for him that his brother Hardeen was summoned back to perform Houdini's show, with duplicate props, in neighbouring towns. Yet when Houdini died, even Hardeen was unable to assume the crown: Houdini took the crown and the throne with him, and most of the kingdom.

There have been escapologists since: Joseph Dunninger, briefly; Murray; Alan Alan; David De-Val; and nearest to Houdini in performance and spirit, James Randi, to name but some. Even if you have heard of any of these, they all, nevertheless, stand in Houdini's shadow, as a second Houdini, but never his equal.

### The world's greatest showman

Houdini's methods are mostly known to magicians; most indeed were known in his lifetime. Yet even his own brother Hardeen was not Houdini's equal. Houdini was the greatest magician mainly because he was the greatest showman. Others have been technically competent and supported by able assistants. George Bernard Shaw said that Houdini was one of the three best-known characters, real or fictional, in world history: along with Jesus Christ and Sherlock Holmes.

### Publicity, and private charity

In whatever town he was performing, from the USA to Russia, Houdini the unstinting charity entertainer would make a point of privately visiting local hospitals. Sitting on patients' beds, he performed close-up magic. At the other extreme were jail-breaks before a crowd of reporters, or a manacled bridge jump or straitjacket release hanging from a crane before a huge crowd.

### The escaper

Escaping is what made Houdini famous. Certainly he could untie knots with his toes, and pick locks (8,300 times), (and not just handcuffs). However, to tell the truth, most escapology is not actually about picking locks. It is more about subtlety.

### Milkchurn escape

Houdini invented the milkchurn escape in 1906 and it stayed in his act until the end\*. The large-sized churn was filled with water and examined - it was certainly water-tight. Then Houdini, who could hold his breath for nearly 4 minutes (time yourself with a watch), was locked in. The lid was locked on with several padlocks - the members of the committee from the audience could even use their own! After Houdini escaped, the locks were still all intact and locked.

The version most often used (though it was not the one shown on the posters) in fact had a double body. The 2 parts were kept together by a bayonet catch which could be released from inside. No amount of external examination by the public would detect this; the can being already filled with water, the public never did make effective examination of the inside!

### Lockpicks

Houdini retained any challenge handcuffs from which he escaped - thus accumulating a large collection. He invented several devices for opening handcuffs, though despite being strip-searched, often used a cunningly hidden duplicate key - sometimes hidden in his mop of wiry hair! His lockpicking tools, however, were mostly skeleton keys to tackle the warded locks so commonly used in the USA and Europe in his time.

Interest in this man has never waned, which proves a most remarkable thing about him - 'HOUDINI LIVES!'

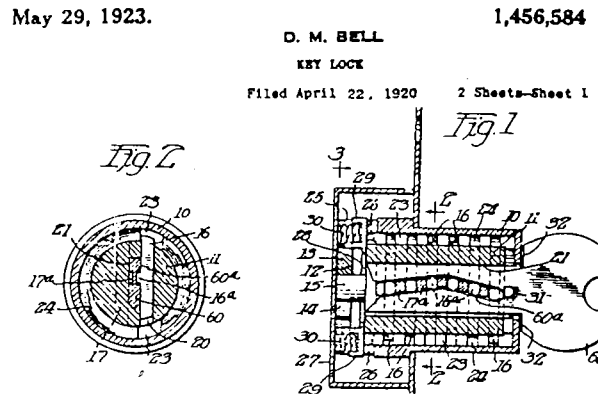
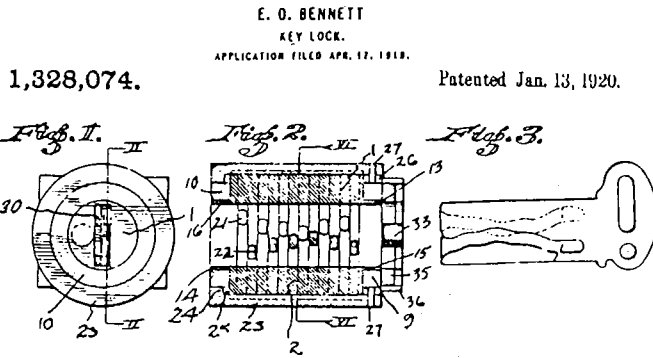
\* Thanks to the help of a reader, *Locks & Keys* can supply A3 copies of Houdini's poster for this escape, in glorious colour @£2.50 including postage.

M R Phillips

## Bell Lock

The original Bell type lock was invented by Edward Bennett of Oakland, California January 13, 1920. It has 8 or more narrow rectangular tumblers with a stud that engaged in a slot on each side of the key which "mechanically" positioned each tumbler to the proper height to open the lock. When the key was removed the gravity feed tumblers would drop into slots and lock the plug.

This lock was improved by Dillwyn Bell (Bell Lock) of Chicago, Ill. May 29, 1923 by adding a notch at the end of the key to better pick up the tumblers.



Bell Key



Eagle Supr-Security Key

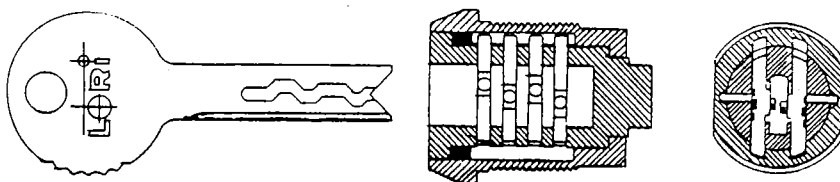
These Bell type locks were manufactured by the Dudley Lock Corporation of Chicago, Ill. and the Bell Lock Div. of the Automatic Instrument Co. in Grand Rapids, Mich. They were also sold under names such as the Mills Novelty Co. and the Durand Steel Locker Co. of Chicago, Ill.

In 1949 the Bell Lock Div. was sold to the Eagle Lock Co. in Terryville, Conn. Eagle Lock continued manufacturing and selling these locks.

In 1962, Eagle Lock introduced one of the first "high security" line of locks in the country. It was invented by Frank Testa, an engineer with this company. It employed three basic lock principles, Bell Type, Disc Tumblers, and a side bar in one lock and was highly pick resistant.

### Bell Lock Patents

Pat. No.	Date	Inventor	
1,328,074	1-13-1920	E. Bennett	Oakland, Cal.
1,456,584	5-29-1923	D. Bell	Chicago, Ill.
1,979,186	10-30-1934	H. Biemer	Berlin, Germany
2,020,260	11-5-1935	B. Larson	Bell Lock Co.
2,023,207	12-3-1935	P. Olson	Bell Lock Co.
2,023,208	12-3-1935	P. Olson	Bell Lock Co.
2,035,781	3-31-1936	D. Bell	Dudley Lock Co.
2,079,628	5-11-1937	P. Olson	Bell Lock Co.
2,123,270	7-12-1938	D. Bell	Dudley Lock Co.
2,155,440	4-25-1939	P. Olson	Bell Lock Div.
2,155,734	4-25-1939	P. Olson	Bell Lock Div.
2,158,761	5-16-1939	P. Olson	Key Machine
3,035,433	5-22-1962	F. Testa	Eagle Lock Co.
3,263,461	8-2-1966	J. Tartaglia	Duncan Industries
3,059,749	5-1-1970	J. Regan	Eagle Lock Co.
3,581,534	6-1-1971	F. Testa	Lori Corporation



The tooling for the Bell Type Locks was purchased from the Eagle Lock Co. in 1976 by the Lori Corporation of Southington, Conn.

Illustrated is the present Lori "Double Side Bar" Bell Type Cam Lock.

## Questions from readers

**W**rite 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.



15] Robert Barron patented the lever lock on 27th May 1774. Many writers have since claimed that he did not invent the 'lever lock' as we know it, since the lever gatings were in the bolt lath and not in the levers themselves. His patent, however, covers both methods of construction. Barron had high expectations of his invention, believing that 1 lever would make the lock secure, so used 2 to make it absolutely certain. At that time, the tentative method of lock picking was not known, but it was soon found that 2 levers were not impossible to overcome. Is it possible that Barron chose his method of construction because it made a stronger lock? And has anyone encountered a Barron lock with more than 2 levers?

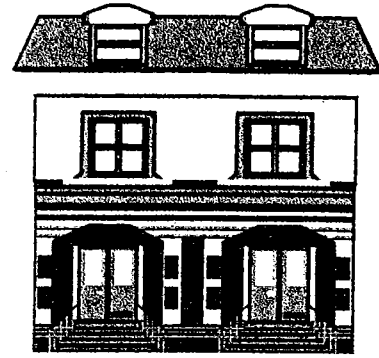
Most Barron locks still had wards. Did the locksmith also make the keys and cut the ward cuts, or only the tumbler steps?

I am trying to trace the Barron family, and anyone else who made such locks. Can anyone give any information about the family, and whoever else made Barron type locks? They were certainly being made in Willenhall into the 1930's. (see p.2)

*D A Greenfield*

16] Can anyone give any information on Waines patent, number 5176? This might be British or American. I have a crab claw padlock (see illustration 6 on p.2) with no name, but the patent number, and W3166 LEVER, which I believe is Waines'. The other padlock 7 carries the same patent number. It has a rotating brass medallion marked with a head wearing a crested (Grecian?) helmet, surrounded with laurel wreaths and REGISTERED TRADE MARK.

*Bob Heilemann*



## Places of interest

**S**everal former police stations and prisons which are now museums were noticed in issue #6. Another one, possibly better than some, is 'Crime through time', Nicholson House, Old Court Road, Newent, Glos. GL18 1AG ☎01531 821888.

This was formerly the magistrates' court and police station. The site had judicial associations since a Protestant was tried, condemned, and martyred there in 1558. The court and police station closed in 1975; earlier this year it opened as a museum. It has a private collection of police, crime, and punishment items. The Victorian cells and court remain.

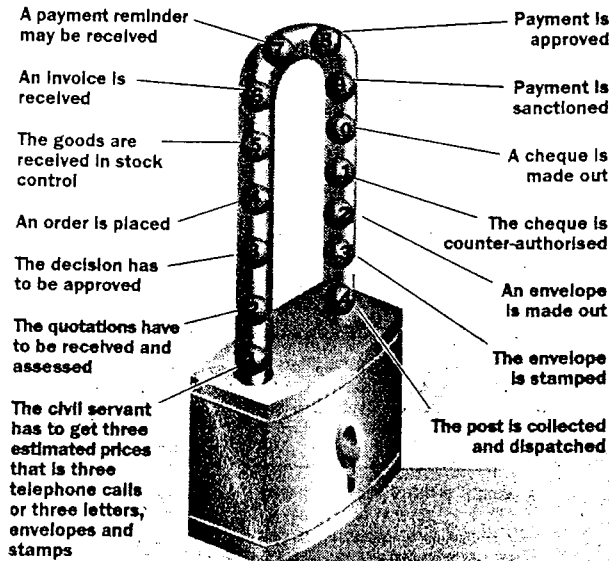
Reports from visitors would be welcome.

Buxton Museum & Art Gallery, Terrace Road Buxton, Derbyshire SK17 6DJ, ☎01298 24658, has the Douglas Collection. This is in store, and needs prior appointment to see. Douglas was a man of various talents; he collected locks and keys, and also several folders and scrapbooks of documents. He was a maker of miniatures, most of which were sold to adult collectors, though there are a few at Buxton. He also had dealings with Houdini whilst he was in Britain, and probably made some props for him.

Birmingham Museum and Art Gallery (Department of Science & Industry), Chamberlain Square, Birmingham B3 3DH, ☎0121 303 2834 has a small collection of locks from the nineteenth and twentieth centuries, mainly of local makers, including Edwin Cotterill - see issue # 4. *information from Trevor Dowson*

## Would you credit it?

### COST OF A 98p PADLOCK: £73.50



**C**hancellor Gordon Brown has moved to cut the cost of government purchasing. He has issued some civil servants with credit cards.

The scheme, with careful safeguards, should save paperwork and about £60M a year. Visa UK think this estimate is modest, and hope the scheme will be extended to other public services, such as the Health Service. A quarter of a million cards are in use by USA officials already. At least fifty thousand will be issued in Britain.

Someone worked out that it cost the government over £70 pounds to buy a cheap padlock. As taxpayers, I thought you'd like to know!

### HOW OFFICIALS HAVE BEEN WASTING THEIR TIME

The National Audit Office recommended the issue of credit cards to civil servants after uncovering the following procedure for purchasing inexpensive items.

- Requisitioner identifies requirement, obtains three quotes and completes requisition form (time taken 60 minutes).
- Delegated budget-holder reviews requirement and gives approval (10 minutes).
- Commodity manager reviews and endorses the requirement (10 minutes).
- Local purchase officer receives request,

registers details, checks three quotations, completes order form, matches paperwork when received and informs requisitioner of arrival (90 minutes).

- Accounts officer receives invoice, inputs on to accounting system, returns payment and requests approval form (10 minutes).
- Delegated budget-holder authorises payment request (10 minutes).
- Accounts officer completes cheque form and dispatches payment (10 minutes).

Total time spent: 3 hours and 20 minutes.

**IF AT FIRST**

**YOU DON'T SUCCEED . . .**

*professional*  
**CALL A LOCKSMITH!**

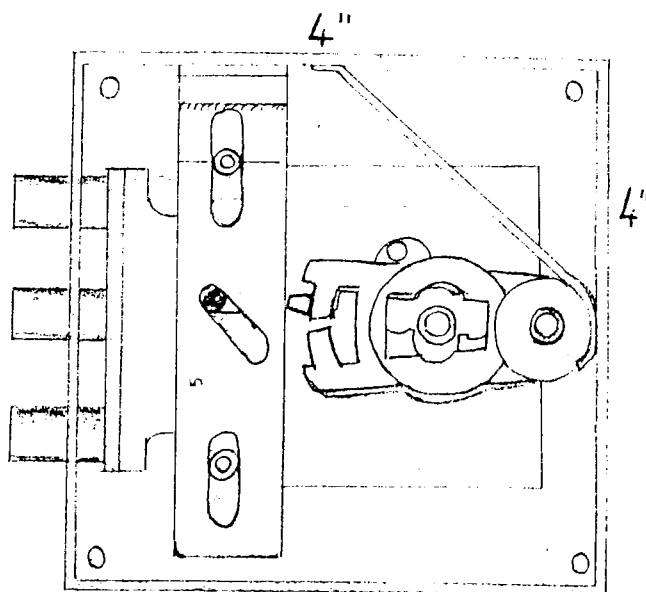
## Chatwood wallsafe lock

The diagram shows a wallsafe lock marked, in English, not German or French, MADE IN SWITZERLAND. It is approximately square. The bolt lathe is bent up at a right angle inside the lock case, and 3 small round bolts are riveted on.

Also inside the case are 2 members which move vertically, to provide multi-point locking. The ends of these members are bent at a right angle, and have threaded holes. In this example, moving bolts for top and bottom of the door have not been used: the holes in the case for some sort of connecting rod are plugged. The 7 levers are a pack riveted together. The order cannot be changed. They are end-gated, and the belly is enclosed.

### Double-bitted pin key

The pin key is double-bitted. Only the bottom lever is sprung. It has a pin which at rest presses down all the other levers. In operation, one of the bits lifts each lever, whilst the corresponding step of the other bit prevents the lever being overlifted. Wrong keys can jam if the corresponding bits are not both correct. As the bolt lathe moves, a pin on it works in a slot cut diagonally in the upward and downward members. This causes them to move outwards or inwards at right-angles to the 3 fore-edge bolts.



The key is 2.2" long, suggesting a door for a wallsafe. It is a one-piece forging with an oval bow, and appears to be original. It is marked CHATWOOD BOLTON 37187 10. Presumably it predates the merger of Chatwood and Milner in 1957. I have a list of Chatwood numbers which suggests a date of 1925/6 for this. As far as I am aware, marking country of origin on goods as 'made in -' is a post-war requirement.

So this lock puzzles me somewhat. No doubt it is my ignorance that I had not seen a wallsafe with three-way locking. Can anyone tell me more about this lock?

### A modern Chubb wallsafe

Then I was called to service a wallsafe. It was about fifteen years old, marked CHUBB MILNER RANGE. It has an angle iron lockcase welded to the inside of the doorplate. The cover is held on by self-tapping hex head screws. There are 2 large round bolts on the fore-edge, and one at top and bottom. The key closely resembles that of the older lock, but is a pipe key, marked CHUBB. The problem was that the drillpin was loose.

### Loose levers

The lock resembles the older lock, but is smaller in overall case size. The bolt lathe is extended front and back. The fore-edge bolts are clipped onto the bolt lathe outside the small lockcase. The vertical bolts are operated as in the older lock, but the vertical sliding members are likewise outside the lock case. They are also longer, the vertical bolts being clipped directly to their ends. On this specimen, the levers are loose, (and so could be re-arranged), and there is no cover to the lock. The levers kept falling out as I replaced the lock on the door.

Unfortunately, in my frustration, I did not have the presence of mind to put this lock on the photocopier, nor to measure it. There did not seem to be any provision of a lockcase cover, but it might have been removed in the past. This lock also possibly has a continental origin?

*M R Phillips*