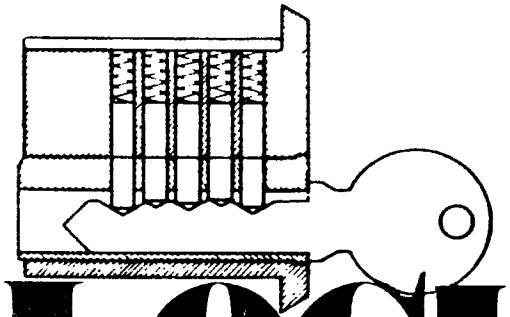
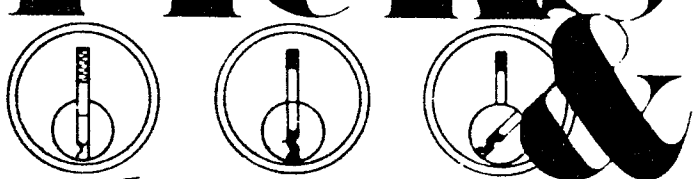
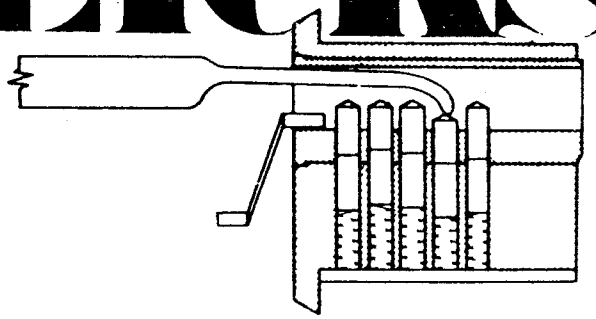


LOCKS, PICKS & CLICKS





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LOCKS,
PICKS
&
CLICKS

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FORWARD

Full knowledge of facts has always been an indispensable instrument of war. Ignorance and error concerning the enemy's plans and intentions allow him to execute surprise moves which may decide the course of the war. In war, there are many methods used to collect facts on the enemy's plans, but most methods are indirect.

Peace time methods employed by domestic investigative agencies are at best slow and tedious. In times of war, they are completely inadequate. Agents, working in enemy territory, cannot usually interview employees, interrogate officials, or adopt any of the routine methods. They must sometimes strike directly, or not at all. Some direct methods of course, will be illegal. But the end, particularly in war time, justifies the means.

Security is always a relative term, and, contrary to the general belief, locks can always be opened without keys and safes opened without prior knowledge of the combination. One of the foremost lock-makers stated: - "No lock ever invented is absolutely pick-proof." Once the agent understands the simplicity of locking devices and is trained in methods used to circumvent them, the "secure" hiding place can be entered and thoroughly searched for evidence.

The agent should not attempt a job unless he is sure he can handle it. He should never gamble with the possibility of failure where the war effort is concerned. Vital information may be lost through mistakes and inefficiency. If the work requires the services of experts he should remember that such experts are available.

The purpose of this monograph is to assist agents in obtaining facts in the most direct of all ways: by surreptitious entry into the luggage or premises of the enemy to obtain information which the enemy believes is secure from search. The methods described are those developed by a group of trained specialists who have behind them a unique record of successful entries.

of this type are employed to acquire information without proper authority.

The agent's problem in every instance is to gain access to the material, copy it, and return it to its proper place so that none of its secret quality is lost. For success, this requires careful planning, the use of experts, and security from interruption during the search. It also requires that the premises be left in exactly the same condition as they were before the entry. For this purpose, a technique of surreptitious entry has been developed that has proved its efficacy in hundreds of instances.

The agent in the field is sometimes faced by the same problem. He wishes to obtain access to secret documents, copy or memorize their contents, and leave the premises in the same condition as he found them. To arouse suspicion that entry has been made, would in many cases, be as fatal as being caught in the act of rifling the safe. The agent should therefore learn thoroughly the technique of surreptitious entry, so as to adapt it, as the occasion requires, to a similar job in enemy territory.

SEARCH TECHNIQUES

The well-planned search has an excellent chance of success. Although there is no rule-of-thumb method that can be applied, careful planning and proper preparation prior to the entry should never be omitted. In brief, the entry must be rehearsed until every member of the group thoroughly understands his particular task. Let us first look at the methods considered helpful in planning.

Planning

It goes without saying that such a job is not done in any impromptu fashion. It is the climax of weeks of careful planning and preliminary investigation.

This preliminary work is accomplished in four stages:

1.) General survey to decide whether:

(a) To take owner of building or superintendent into confidence and ask his co-operation; or

(b) Rent space in the building for a hideout and operate without knowledge of owner and superintendent; or

(c) Rent space but also take one man into confidence; or

(d) Enter the space without consent of the owner or superintendent.

2.) Contacts, with ---

(a) Owner or superintendent if either is to be taken into confidence.

(b) Watchman and other persons who may be on the scene when the job is done, so that all members of group will recognize these persons.

(c) Other persons, such as employees of the office to be entered, in order to ascertain the usual activities of the office personnel.

3.) Plan of entry: -

(a) Protective measures prescribed for persons taken into confidence.

(b) Obtain or make keys where necessary and feasible.

(c) Arrange escape route.

4.) Preliminary entry: - The plan of entry and exit is tested by an actual survey which differs from the final entry only in the omission of any attempt to obtain and photograph the documents.

5.) Preliminary Contacts: - After the office or building has been designated, the building superintendent should be investigated. His personal characteristics, his loyalty, his ability to keep a secret when intoxicated or sober should be studied. Only after the investigator has been completely satisfied on these points should the superintendent be approached. It may be extremely difficult to persuade the superintendent to cooperate. The first thirty minutes of conversation will be the most difficult, as the agent must sell the idea of the proposed entry without disclosing his true identity or the true purpose of the search. A reasonable excuse must be invented to fit each individual entry. The impression the agent makes at this time cannot be underestimated, for he must create confidence. The agent must convince the superintendent or owner that this entry is a patriotic duty; that the skilled group who will effect entry are competent and that there is no risk of discovery. The agent must, by intimation, leave the impression that unless this search is made the superintendent is guilty of sabotaging the war effort. The agent must not forget that the superintendent has everything to lose if his co-operation is discovered: he may be faced with a law suit, the loss of a tenant, or lose his job and reputation. In nearly every case, there is no reward except the superintendent's satisfaction of helping with the war effort. The exceptional case is that in which money is used to persuade. But the trouble with cash-persuasion is that loyalty cannot be bought.

After the agent is sure that the superintendent is on his side, he can be of material assistance in helping to neutralize the other building employees. The agent should know beforehand the number and background of employees likely to be encountered on the night of the search. The superintendent's records will reveal considerable background information; but personnel records are not always accurate, and sometimes background investigations may be necessary. The night logbook of the building will reveal the amount of traffic on the floor of the designated office. This should be reviewed for the past month to determine the night of the least elevator traffic. However, this record is also open to wide error, for frequently the night attendants are careless about logging people in and out of the building. Finally, the time of the watchman's rounds should be noted.

6.) Building Security: - In preparing for the entry everything should be done to make the operation safe, and if possible, easy. Pass keys should be obtained from the superintendent for the space to be entered and for the building facilities and exits. At least three duplicate keys should be made, and given to various members of the group, so that in the event of interruption, no one will be trapped. A floor plan, which can usually be obtained from the superintendent, should be studied by all members of the searching party. Structural peculiarities, if any, of the building should be noted; particular attention should be given to hallways, and stairways which could be used as a means of quick escape.

try is made solely for survey purposes. It should be made in complete silence and with extreme caution, even if the superintendent accompanies the agent. This silence should be maintained until the premises have been searched for dictaphones and innocent traps. These include threads, strings, Scotch tape, paper clips or any small article which if disturbed, will indicate that the premises have been entered. Even a sound-on-film recording device may be encountered. This is silent, operates automatically, and is equipped with a switch which is so sensitive that it starts recording the moment a word is spoken in the room. The evaluator must be constantly on the alert for these traps, and under no circumstances, should he remove an object from a dust-covered surface unless he can replace the dust. Dust may be replaced by partially filling a small atomizer with dark powder (talc mixed with powdered charcoal).

After these precautions have been observed, the agent must make a detailed survey of the physical characteristics of the premises. The agent should examine the windows to ascertain if "black-out" curtains are needed. The number, size, and method of affixing the "black-out" curtains may have to be considered. Next, the agent makes a sketch (using the floor plan) of the position of the furniture, safes, and files. The name of the occupant of each office may be obtained through checking the telephone extension numbers with the office switchboard. When a safe is found its name, description, and locking device should be noted. This information will materially help the safe expert with his task as he will need time to study in detail the specific locking device prior to the proposed entry. When possible, lock numbers should be noted so that a key may be made. Next, a room, apart from the area to be searched, should be selected for the camera equipment. A small cleaning storage room, an electric closet, wash room, or small inner office should be selected for this purpose. In the event of an interruption, it requires ten minutes to dismantle the camera. When camera space is selected outside of the office being searched, there is always the possibility of returning at a later hour and removing the equipment. Escape routes should be studied in the event of an interruption. Communication between security men on the outside and the group working within the space must be studied. In some cases the use of the portable radio is not practical and the group

may be forced to use dial telephone (lobby to space), or a prearranged signal. In one case, a security man on the opposite side of the street from the entrance of the building signalled an interruption by lighting a cigarette which was observed by a security man watching from a window in the office being searched.

Having completed the survey the group must then be selected and trained for their specific tasks.

Selecting Personnel For Searches

Great care should be exercised in the selection of the members of a searching group. Success is only possible through the co-ordination of every member of the group regardless of the task he must perform. The member who must spend the entire night in a darkened elevator, provided for an emergency exit, is considered just as important as any other member. Below are listed the personnel and their specific duties.

1. Agent-in-charge who must organize the search and assume full responsibility.

2. A safe expert who must open safes by the manipulation method.

3. A lock expert who must have the ability to pick any type of lock.

4. A camera expert who must be able to produce excellent prints under hazardous working conditions and assemble and dismantle a portable camera in ten minutes time.

5. A Flaps and Seals expert who must be able to open any type of envelope and wax seal and replace same within thirty minutes time. This work must be done so skillfully that envelopes can be examined under Ultra-Violet Ray and defy detection.

6. An evaluator who must be able to run through papers and documents and decide, in a matter of split seconds, what documents and papers must be photographed.

buildings, who must have courage and active minds capable of meeting any emergency.

8. Radio operators who must know their equipment, have courage, and who do not lose their heads in the event of an interruption.

Equipment

Equipment carried by searching party is listed below. (All suitcases, bags, and props should bear stenciled cover name.)

Portable Photorecord or Recordax Camera.

Camera replacement kit containing two extra flood lights, 2 sections of extension cord twenty feet in length, extra lens assembly, and a half dozen assorted fuses.

Ample supply of film (always carry at least two extra rolls of film).

Building sway props, or cover props properly stenciled with cover name.

Individual cover identification cards made up with photograph and fingerprints.

Bag containing an ample supply of flashlights and sufficient extra batteries to last six hours. The three cell flashlight is superior to a blackjack in an emergency.

Portable Ultra-Violet Ray kit to examine questioned letters and documents.

Kit containing a set of "black-out" curtains.

Flaps and Seals kit complete.

Emergency interruption kit containing several lengths of rope, adhesive tape, and gags.

The specific type of entry must be your guide relative to arming the group. Gas guns, pencil type, are useful where care must be exercised in searching the offices of important officials.

With the aid of the floor plan and notes taken during the night of the preliminary survey the final plan is discussed and decided by the group. Time of actual entry is set, evaluators are briefed on any available background of suspect and suspect's associates. If portable radio sets are to be used they must be tested in the area. The camera expert must carefully check his equipment. Security men must know precisely what is expected in case of an interruption. Time of arrival must be set. An inventory of all equipment must be carefully checked before departure is made in order that no incriminating evidence may be left behind indicating that the office had been searched.

A Surreptitious Entry

In the fall of 1940, a European refugee, Stephen K. Ziggly, arrived by plane in New York. Stephen Ziggly's reputation as an international banker was well established. Several American banking institutions offered him the facilities of their offices, but in January, 1941, he leased an elaborate suite of offices in Chicago to handle the investments of his European clients. He signed a five year lease, insisting upon extensive alterations.

Shortly after Ziggly occupied the suite, he complained about the carelessness of the cleaning staff, and insisted on employing his own. On another occasion he became greatly agitated when he found the night watchman inspecting his premises. Shortly thereafter he purchased new locks for all of the outside and inner doors of his offices.

Ziggly's activity was of interest to the U.S. authorities because it was known, through our agents abroad, that Ziggly had maintained profitable relations with high-ranking Nazi Officials. Within a month after Ziggly opened his office, a check was made of his banking transactions. Close censorship was placed on his cables and mail; his telephone wires were tapped, and he was placed under a twenty-four-hour surveillance. However, nothing irregular developed. In consequence, the group, whose experiences form the basis of this monograph, was employed in April 1941, to make an entry into Ziggly's office to see if they could discover evidence of any enemy espionage.

The agent in charge of the searching party first approached the superintendent of the office building who consented to cooperate (without compensation), provided the owner of the building concurred. The owner, as it turned out, was very helpful.

On one point only was he insistent, this being that the searching party must invent a reasonable excuse for entering the building, since a small staff of employees were on duty throughout the night, and no question of suspicion should be allowed to enter their minds.

The agent suggested that the group should take the cover of engineers who were testing the sway of the building. He explained that all buildings develop cracks, at stress points, from swaying, and that the possibility of air-raids makes it plausible for the owner to want the stress points tested. This particular cover had been used over thirty times by the group. It had a signal advantage: during these tests elevators had to be shut down, presumably to prevent their movement from disturbing the delicate testing instruments; actually to discourage traffic in the building during the search.

Following closely the group's cover story, the owner dictated a letter to the superintendent and night staff, advising them of the proposed tests. The order also placed all elevators under the control of the engineers. To hold the traffic in the building to a minimum all tenants were to be checked in by the superintendent during the tests. In addition, a number of other precautions were adopted. The "engineers" obtained excellent identification cards, instruments which could be used for measuring stress, and a delivery truck, plainly lettered, "The North West Engineering Corp." In order to identify the personnel of Ziggly's office, two security agents, in painters' coveralls, were sent to clean the hall walls immediately outside of Ziggly's suite. Two days later the security men were confident they could identify the personnel.

Several nights later a preliminary survey was made of Ziggly's suite. The agent, accompanied by the lock expert, entered the office by picking the lock. Leaving the lock expert to the task of making a key for the door, the agent sketched in the exact location of the furniture, file cabinets, and safes, on a floor plan of the space. He tentatively related each job, which he saw had to be accomplished during the proposed search, to one of his experts.

Behind Ziggly's desk on the window sill, was a large suitcase, out of which ran a cleverly concealed wire to a base plug. The agent quickly disconnected the plug. Inside the suitcase he found a sound-on-film recording device. Then the extent of the trap became apparent. This particular sound recorder has an extremely sensitive switch which is thrown automatically when a word is spoken in the room, the vibrations being picked up by microphones.

gly's desk, another beneath a small table in the center of his office. All conversation is recorded silently on film. Had the lock expert not been extremely quiet while picking the lock, Ziggly would have known of the entry the next morning. Inside of what appeared to be a cellaret, the agent found a "burglarproof" safe. Its description and handle number were noted in order to acquaint the safe expert with his task the night of the proposed search. The survey was continued until completed in detail.

Before leaving the office, a careful check was made to see that everything was in good order. The highly polished floor, covered with prints from rubber heels, was polished in its entirety. Every object in the room was left in its original position.

A small wash-room outside of the office suite was selected for the photographer. Communications between the lobby and elevator were checked and a parking place which would be inconspicuous was selected for the cars.

Three days later, at one o'clock in the morning, the superintendent was approached as a stranger. The agent showed him the group's credentials and asked him to stop the elevator service. That night two elevators were turned over to the group. Two security men were posted in the lobby, who were to communicate by the elevator's telephone if anyone wanted service to Ziggly's office. The other members of the party went to Ziggly's floor, leaving in the elevator their coats, shoes, caps, etc. One member of the party preceded the others, effected entry by the key previously made, to ascertain positively that the group was not walking into a trap. (In a previous search of other premises a drunken employee had been found asleep on a couch, and the search had to be postponed until a later date.) As the remainder of the group entered, and each specialist began working on his particular assignment, radio communications were tested.

It was well that this entry had been carefully planned, for, ten minutes after work had been begun, an alert was flashed over the radio to the searching party to the effect that one of Ziggly's employees had entered the building.

The searching party retired in an orderly fashion to a vacant office that had been provided for such an emergency. Again radio communication was established, this time from the vacant office to the car parked near the entrance. Meanwhile the security agents in the lobby were enacting a prearranged delay. One agent insisted that the employee identify himself, and that before he could allow him to go to Ziggly's office he would have to check his name with the night Superintendent. Needless to say five minutes were wasted by the agent in telephoning empty offices. At last another agent, stationed in the elevator, called to state that Ziggly's office had been evacuated. Returning to Ziggly's employee the first agent went into a highly technical explanation of the sway tests being conducted and told him that there would be a short delay until the delicate instruments were disconnected as any movement of the elevators would cause the building to vibrate. The agent stated that no further calculations could be made until at least twenty minutes after the elevator had been shut down again, and wished to know how long the employee expected to be in the office. The delay was so well enacted that the employee realized that he was interfering with important work. He stated that he was out with a young lady, that he was short of cash, and that all he wanted in the office was to obtain a bottle of liquor from his desk, and that he would be in the building only long enough to get it and leave. The employee's request was granted and ten minutes after he left the building the search was resumed. Again the radio was tested.

The safe expert had the safe open in twenty minutes. Nothing was removed until accurate measurements were taken of the position of each article in the safe. Here a second trap was discovered--a string on top of a dust-covered, tin box. This required twenty minutes to measure and sketch. This done, the contents of the safe were examined one at a time by a trained evaluator before photographing. This evaluator knew four languages and had to use everyone of them before the search was completed. In all, approximately two thousand photographs were taken of letters, reports and codes. One envelope contained instructions to agents on the use of microfilm. The cameraman, who had set up the photorecord camera in the small washroom down the hall, completed his job in about four hours. Several wax-sealed letters were opened, the contents photographed, and the seals replaced without a trace of the tampering.

job finished, the next half hour was used for cleaning up. Everything was carefully replaced, the desks rubbed with a cloth to destroy finger prints, the floors re-waxed, the safe dial set at its original number, and the shades adjusted to their original height. Finally, the last member of the party to leave the room carefully swept the rug to destroy footprints.

Details of the material obtained by the searching party cannot be disclosed until after the war. The evidence, however, clearly showed that Ziggly was operating an espionage ring, using agents in six U.S. cities. Within a month after the search, all six were rounded up. Apparently Ziggly never suspected that his office had been searched, for he did not warn the agents, and his own activity did not decrease until he was pickedup. He is now in a U.S. penitentiary.

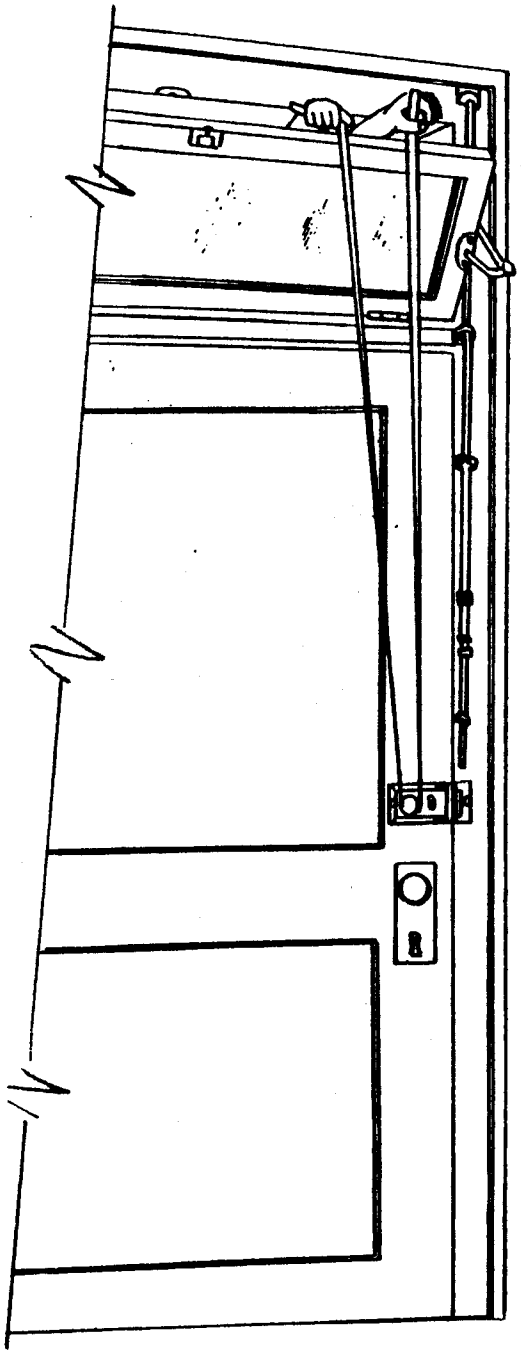
This is the story of a successful search, completed by a well-trained group of experts. But entries are often made with a smaller group. Sometimes two men can operate successfully using a small portable photostating machine instead of a camera. Sometimes keys can be secured in advance and the services of the lock-expert may be eliminated. It cannot be over-emphasized however that each entry is an individual problem and has to be planned according to the particular circumstances.

In retrospect, one careless move on the part of the agent may render worthless the work that has taken months to accomplish. Calm seriousness must replace any holiday spirit attending these searches. Colorless care must supplant the spectacular; efficiency must rout ostentation.

SIMPLE METHODS OF ENTRANCES AND OPENINGS WITHOUT KEYS

CELLULOID STRIP

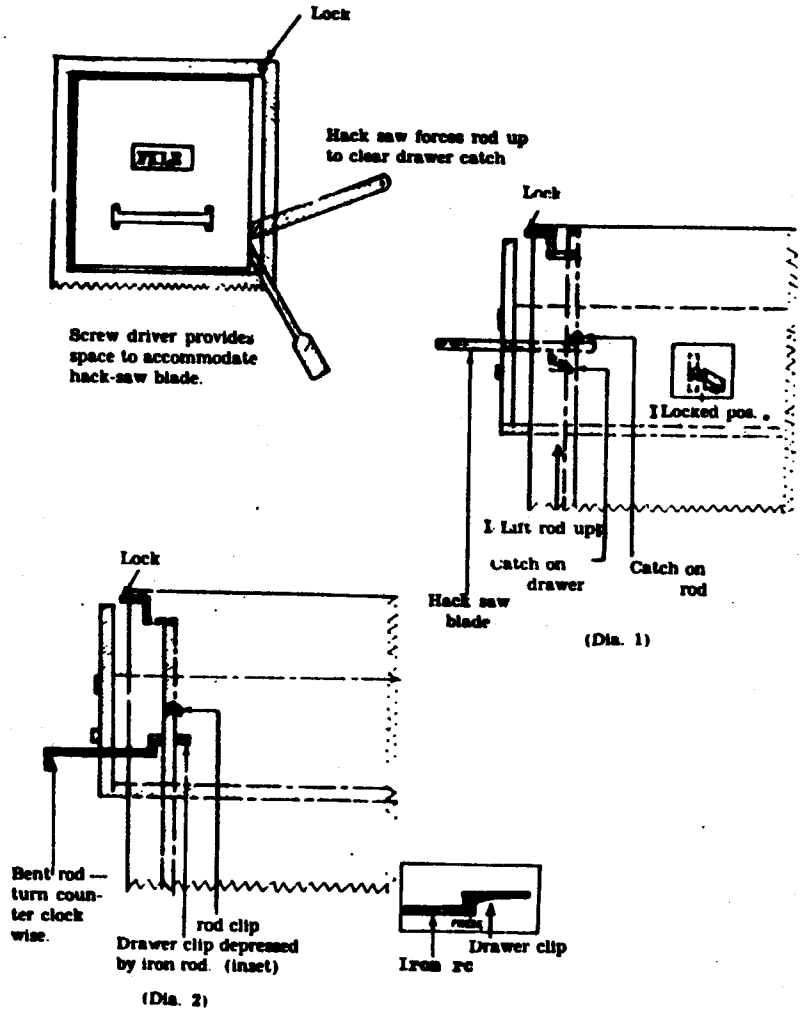
The use of a celluloid strip may be a simple method of entrance where a pin tumbler office lock is encountered. If the door is slightly sprung out of true, a slight pressure is sufficient to insert the celluloid strip between the lock and the strike on the door frame. Pressure on the inserted celluloid strip will force the catch back and the door will open. Photograph shows the strip being started near the catch.



TRANSOM ENTRANCE

Frequently the transom above the door has been left open or unlocked. If open step on the door knob and crawl through. If the transom is only partailly open loop a rubber covered electric extension cord under the inside door knob as shown in the photograph. Once the extension cord is in place hold both ends firmly and the knob can be turned by drawing upwards on one of the ends.

OPENING FILE CABINETS



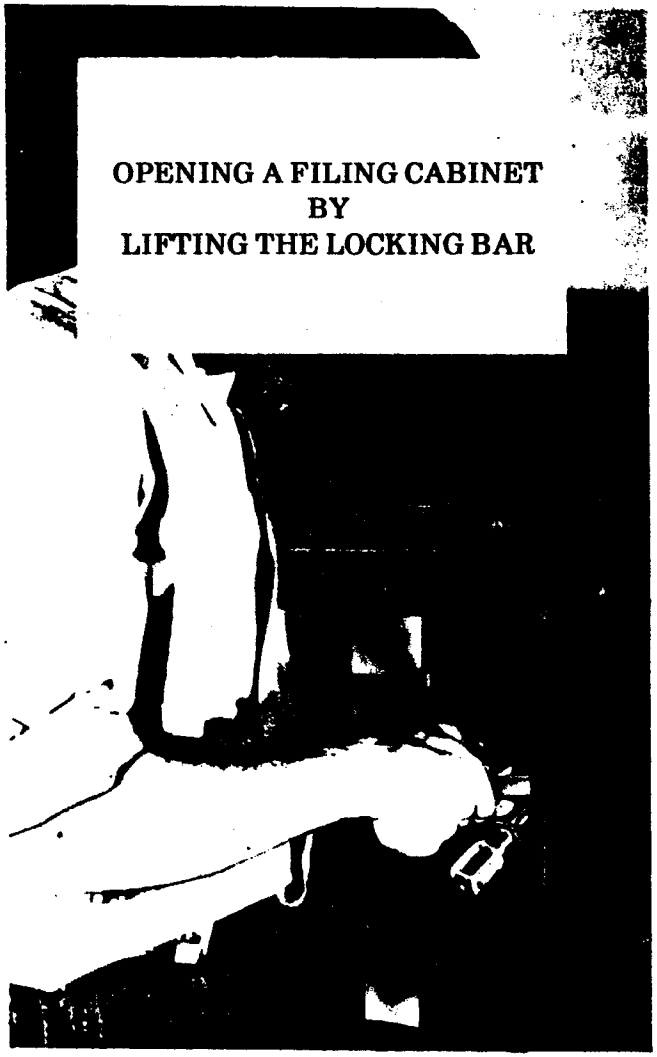
Opening File Cabinets

The two types of file cabinets in the diagrams illustrate simple and quick methods of entry. The tools for these methods can be obtained easily. For Dia. 1 the tool must be rather thin but fairly strong and about twelve inches long. (An example of the size is a hack saw blade.) For Dia. 2 the tool should be a round iron rod not more than a ¼ inch in diameter and bent as shown in Dia. It should also be at least twelve inches long.

If the rod in the file should be in the rear portion, different methods must be used. Sometimes the rod will protrude through the bottom partition and by tipping the file one can gain access to the rod. Then the rod can be forced upward releasing the drawers.

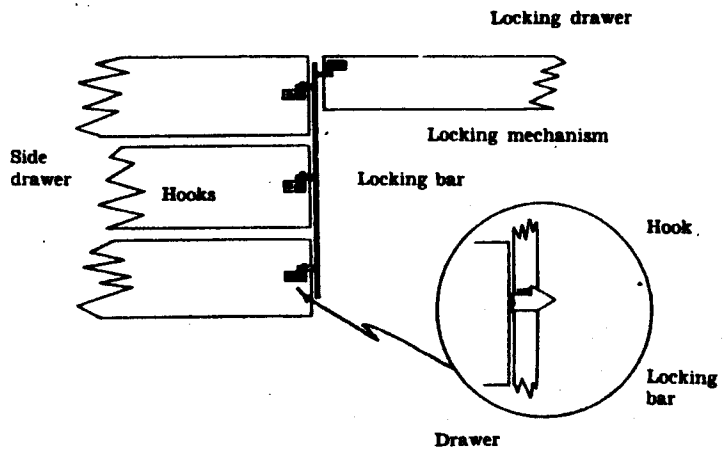
Another simple method is to tilt the cabinet backward, raising it about 6 or 8 inches off the floor, then release it quickly letting it fall back to its normal position. If the locking device is so constructed, the drawer catch will disengage itself from the catch on the rod, thus releasing the drawer. Then reach hand inside the file cabinet and operate rod to open the remaining locked drawers.

These various methods can be used instead of picking the locks on file cabinets. Of course the methods do not pertain to all files and one will have to resort to picking the lock many times. But in the cases where they may be used they are quicker and easier.



Desks

Many desks are constructed so there is a space between the back panel of the desk and the back of the desk drawers. By reaching up between this space and locating the locking bar, you can raise the bar, which in turn will unlock the side drawers. The lock may be picked if it is the same type lock as described in, "Instructions for Picking Pin Tumbler Locks."

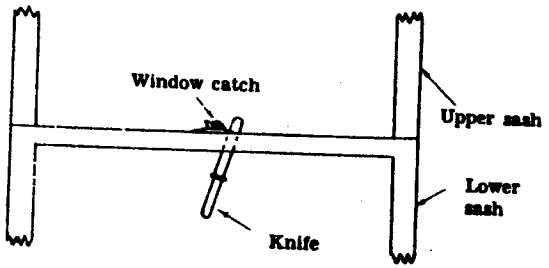


Rear View Of Drawers

When the locking drawer is closed the locking bar is depressed via a spring mechanism which automatically locks the side drawers. If you raise the locking bar by hand it will release the hook catches and the side drawers can be opened.

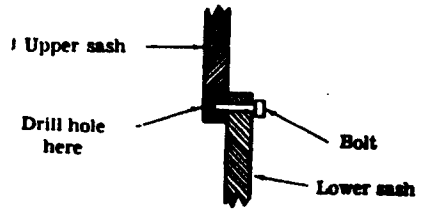
OPENING OFFICE WINDOWS

In some cases it may be advisable to enter the office by means of the window. The locking device for windows should not present much of a problem. (See sketch below)



Slip a knife blade through the space between the upper and lower sash and the catch may be moved to the unlocked position.

In the event the upper and lower sash are locked by means of a bolt slipped into a hole drilled through the lower sash and partially into the upper sash, drill a small hole in back of the bolt and push the bolt back out of the upper sash by means of a nail. (See sketch below)



FORCED ENTRANCES

Forced entrances are never recommended as the value of any information gained in this manner is obviously nullified. Too often a suspect is prematurely warned and months of preliminary work may be wasted. The following list of "Dont's" may be helpful.

1. Don't attempt an entry unless you have surveyed the premises and are thoroughly familiar with the habits of the tenants. Be prepared to meet any contingency.

2. Don't forget to establish communication with someone outside as you must be warned in ample time to replace the evidence in case of interruption.

3. Don't attempt to cover your entry by simulating a burglar.

4. Don't use a jimmy to open a door. The jimmy will leave its mark and either the lock strike will be torn from the door or the lock broken.

5. Don't cut out a section of glass near the knob and break it in with a heavily padded object.

6. Don't use a Stillson wrench on the outside rim of a pin tumbler lock. The set screw of the cylinder will be broken or the lock destroyed.

7. Don't loosen the moulding adjoining the door strike and saw the bolt.

8. Don't fail to make a note of the number the safe dial is set on.

9. Don't fail to examine the hinges and edges of the door of the safe for makeshift traps such as transparent scotch tape, etc.

10. Don't fail to examine the exterior of the safe for wired alarms. (Look under the lower hinge of the door.)

11. Don't do photography within the subject office. It will take too long to dismantle the equipment in case of interruption. A nearby suite should be employed.

12. Don't remove too much material from the files at one time as you will have trouble getting it back in its proper order.

13. Don't smoke or use the drinking fountain or any of the office sanitary provisions.

14. Don't fail to leave the office in the same condition as found upon entry.

LOCK PICKING

The purpose of this section is to give a brief practical review in the art of picking locks. The degree of skill that may be attained, depends upon a study of locking devices, and frequent practice.

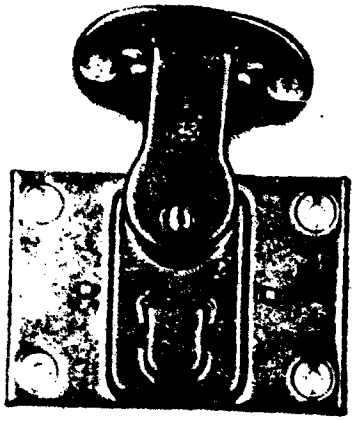
Let us assume that our agent finds himself in a foreign country, and that it was impractical to carry the necessary tools on his person. He may find it difficult to obtain these tools, and the first part of this monograph is devoted to the method of making them. Raw stock material, a pair of pliers, and a file are all that is required to make the necessary tools and these should be available anywhere.

The most practical type of pick and tension tool has been selected for various types of locks that may be encountered. Immediately following the description of the construction of the picking tools, the methods employed in picking the specific lock are described.

The agent must bear in mind that all locking devices are opened by employing only two mechanical operations. If he remembers this, he will find lock picking simplified.

In opening a lock by means of a pick, the agent must first find the bolt of the lock, and then apply pressure to the bolt with the tension tool. The tumblers are then raised, one at a time, by means of the pick, to the unlocked position.

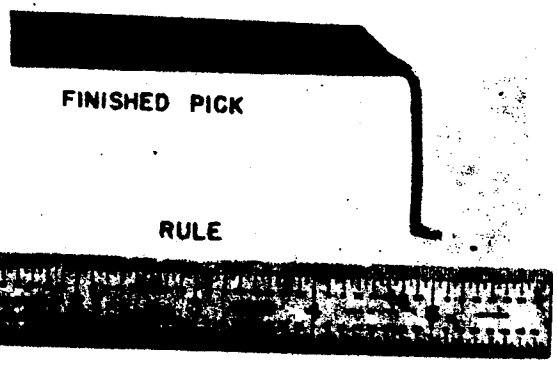
METHOD OF PICKING SUITCASE LOCK



LOCK

KEY

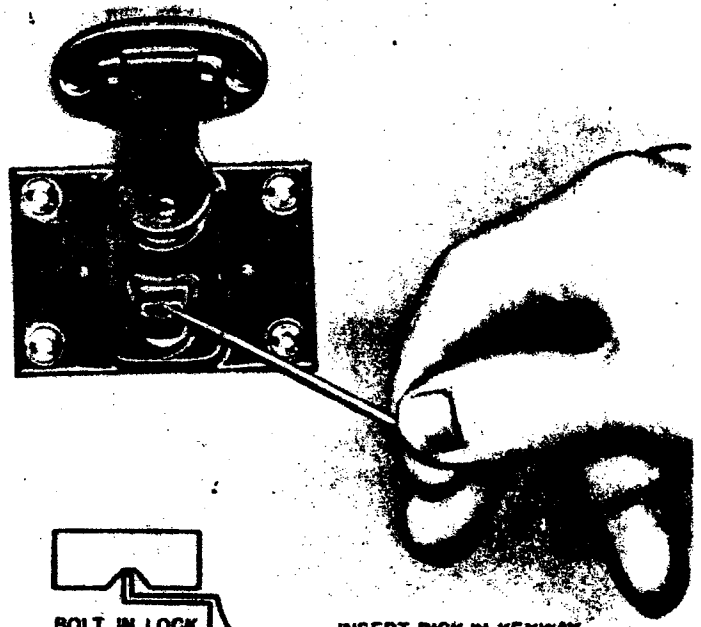
RAW MATERIAL



FINISHED PICK

RULE

METHOD OF PICKING SUITCASE LOCK



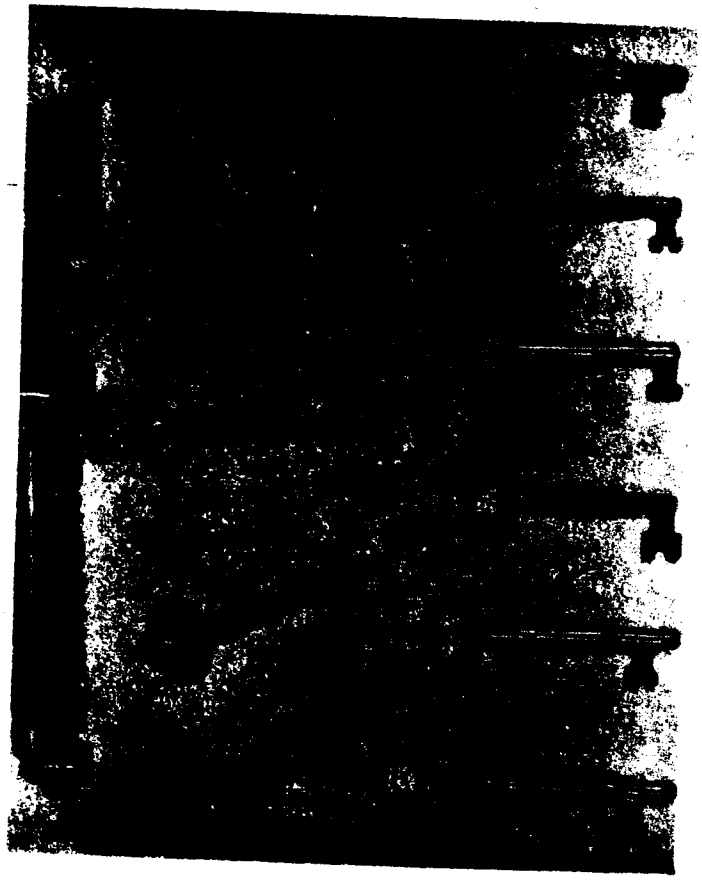
BOLT IN LOCK

PICK IS TURNED TO RIGHT TO OPEN

INSERT PICK IN KEYWAY AND LOCATE BOLT

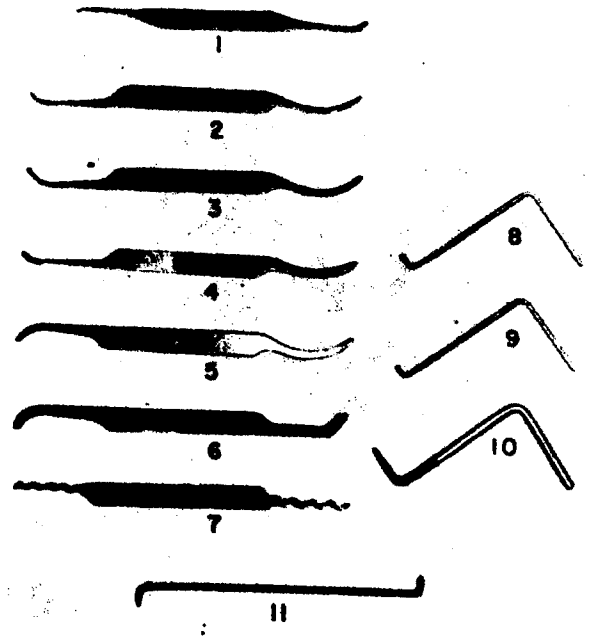
THERE ARE NO TUMBLERS IN THIS TYPE LOCK

SKELETON KEYS

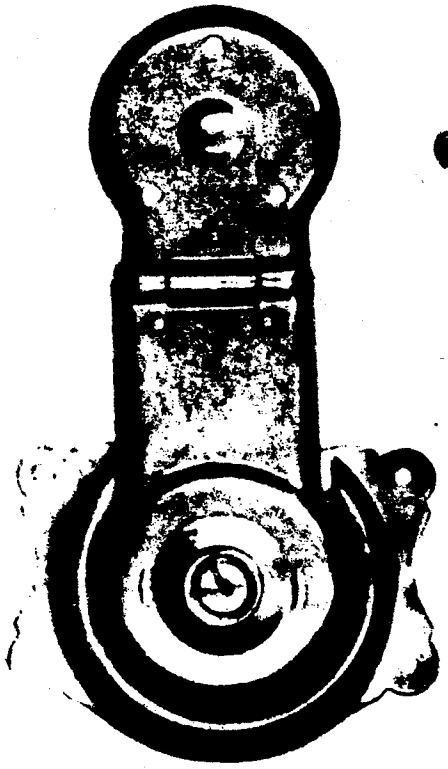


PROFESSIONAL LOCK PICKING TOOLS

The lock picking tools shown will open about seventy percent of all locks encountered. This set of professional tools has been especially designed by one of the formost locksmiths. Numbers one, two, three, four and five are picks. Number seven is known as a rake and should only be used to loosen a tumbler that is sticking, never to open locks. The method employed is to work in a small quantity of powdered graphite moving the rake slowly up and down. The rake when carelessly used will so SCAR the keyway and tumblers that tampering is obvious. Numbers eight, nine, ten and eleven are tension tools.



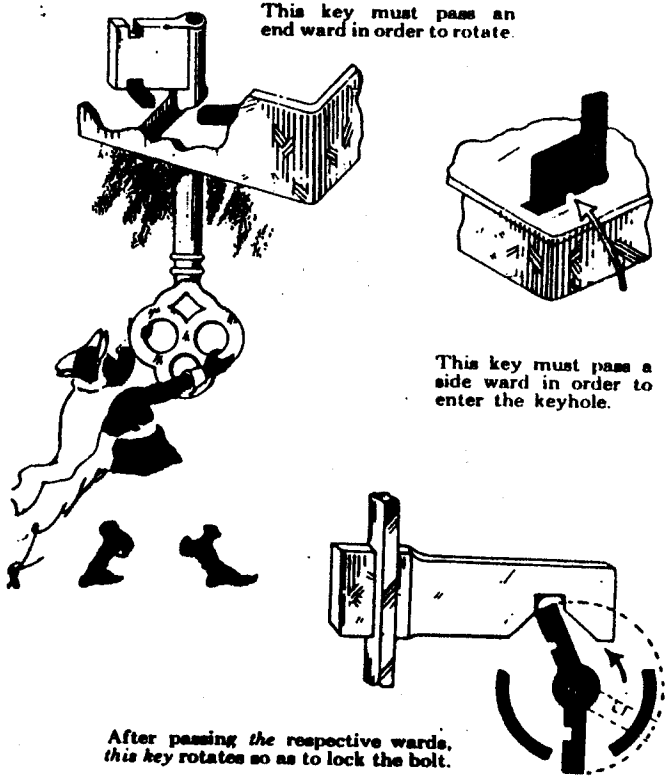
TRUNK LOCK



KEY

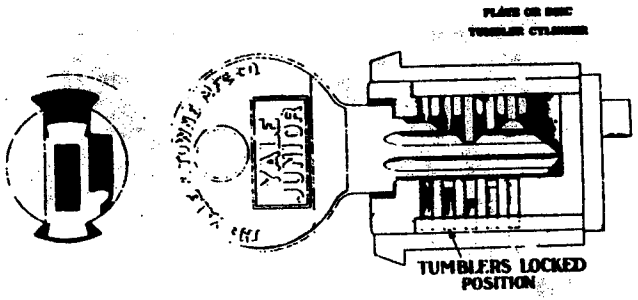
TO PICK USE SAME METHOD EMPLOYED IN SUITCASE LOCK

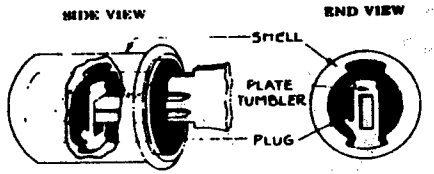
The Fundamental Lock Mechanisms



Wafer Or Disc Tumbler Locks

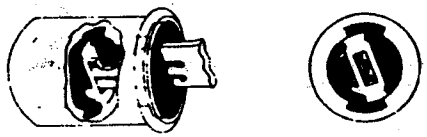
The wafer tumbler lock is used mostly on desks or padlocks. The same procedure in picking a wafer or disc tumbler lock is followed as is described in picking a pin tumbler lock, pages 55 and 56. This lock is so constructed that it changes from a locked to an unlocked position by a half revolution of the plug.





LOCKED

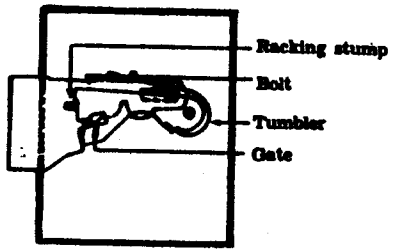
Until the proper key is inserted, the pistons extend into the shell, thus preventing the plug from turning.



UNLOCKED

The proper key aligns the pistons, bringing them out of the shell and within the diameter of the plug, which may then be turned to operate the bolt.

DESK LOCKS (lever tumbler)



The bolt is now in a locked position. Notice the position of the tumbler resting on the racking stump. The racking stump is affixed to the bolt.

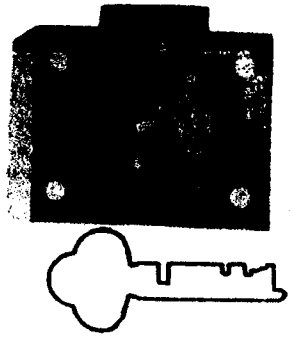
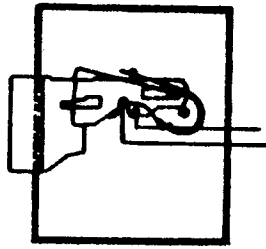
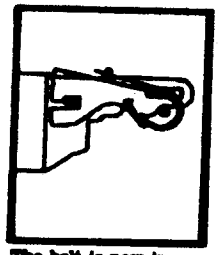


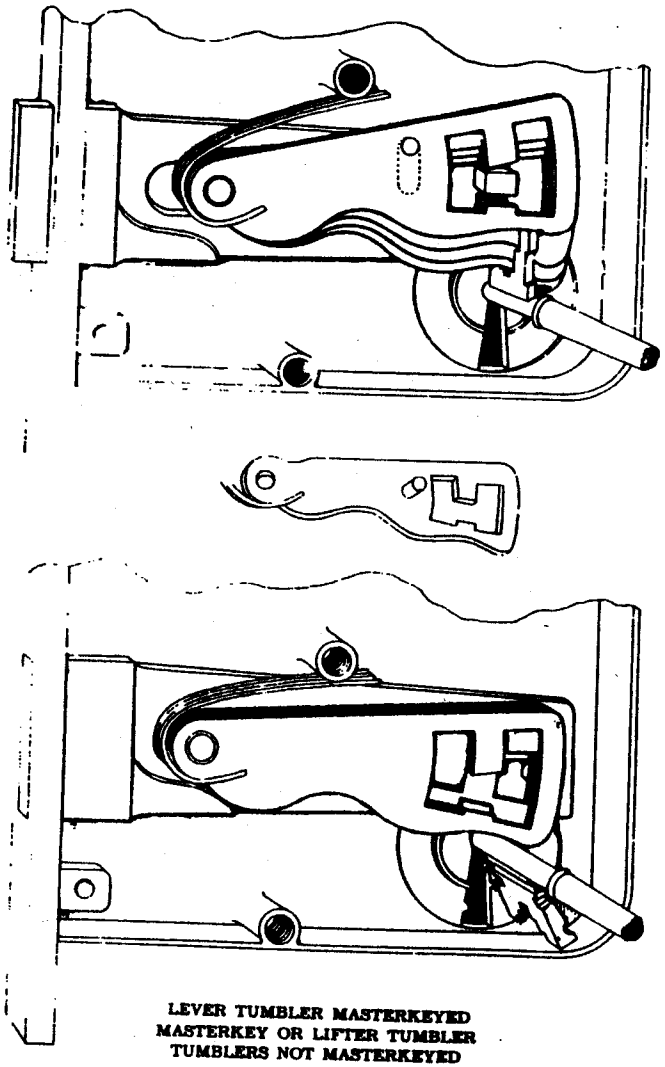
Illustration of lock installed on desk drawer.



After pressure has been applied on the bolt with pressure pick "A," pick "B" then forces the tumbler upward until the gate of the tumbler lines up with racking stump causing a slight give on pressure pick "A." The racking stump is then free to move through the gate to an open position.

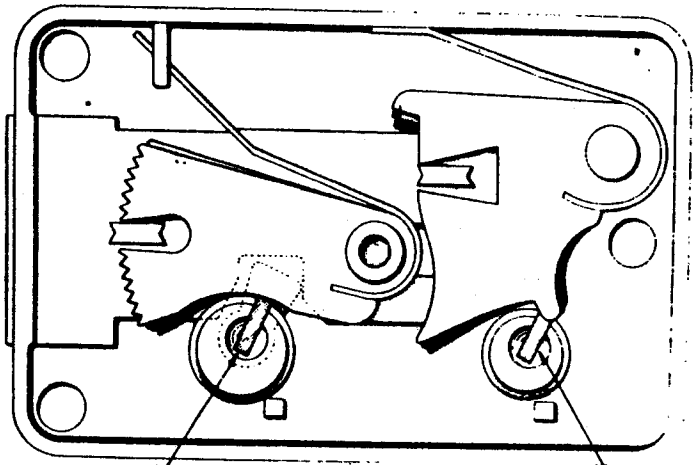


The bolt is now in an open position.



LEVER TUMBLER MASTERKEYED
MASTERKEY OR LIFTER TUMBLER
TUMBLERS NOT MASTERKEYED

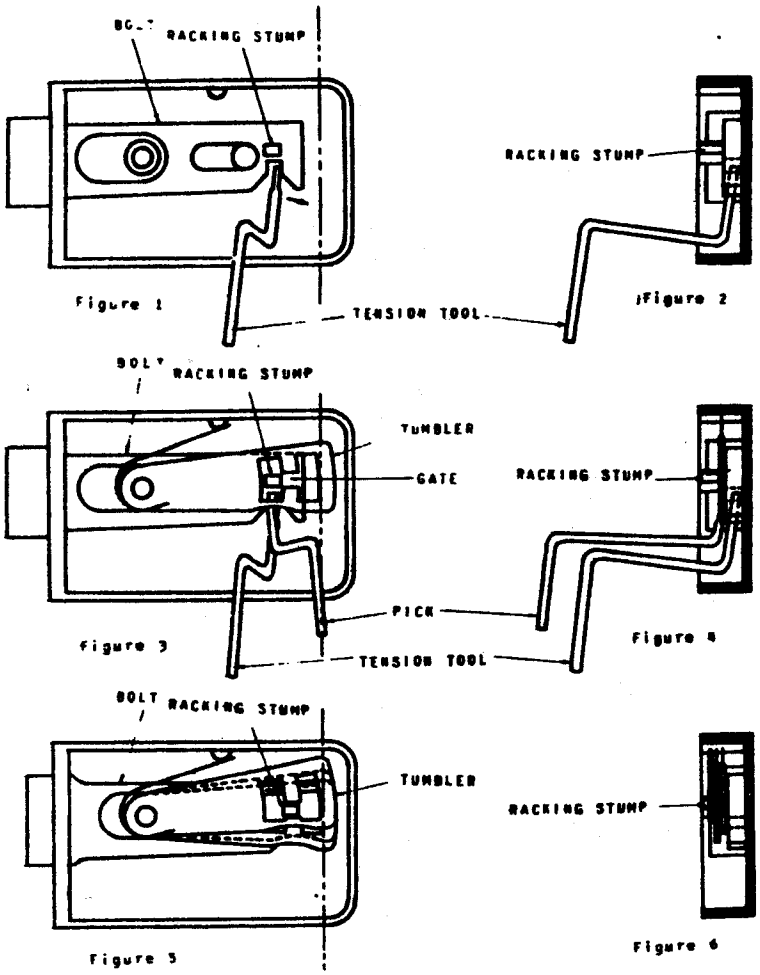
SAFE DEPOSIT LEVER TUMBLER
GUARD KEY HOLDING DEADLOCK TUMBLERS IN RELEASED POSITION
CUSTOMERS' KEY



UNLOCKED POSITION

CUSTOMER'S KEY

GUARD KEY HOLDING, ETC



THREE TUMBLER BIT KEY LOCK

Instructions For Picking Bit Key -Lever Tumbler- Locks

Figure 1 is a sketch of the bit key lock (front plate removed) showing the tension tool inserted in the proper position. The tumblers have been removed to demonstrate clearly the action of the tension tool. Figure 2 is a side view.

Figure 3 is a front view with only one of the three tumblers in place. The tumbler is being held in the opening position by the pick. With the gate of the tumbler aligned opposite the racking stump the tension tool is free to move the bolt into the unlocked position. Figure 4 is a side view.

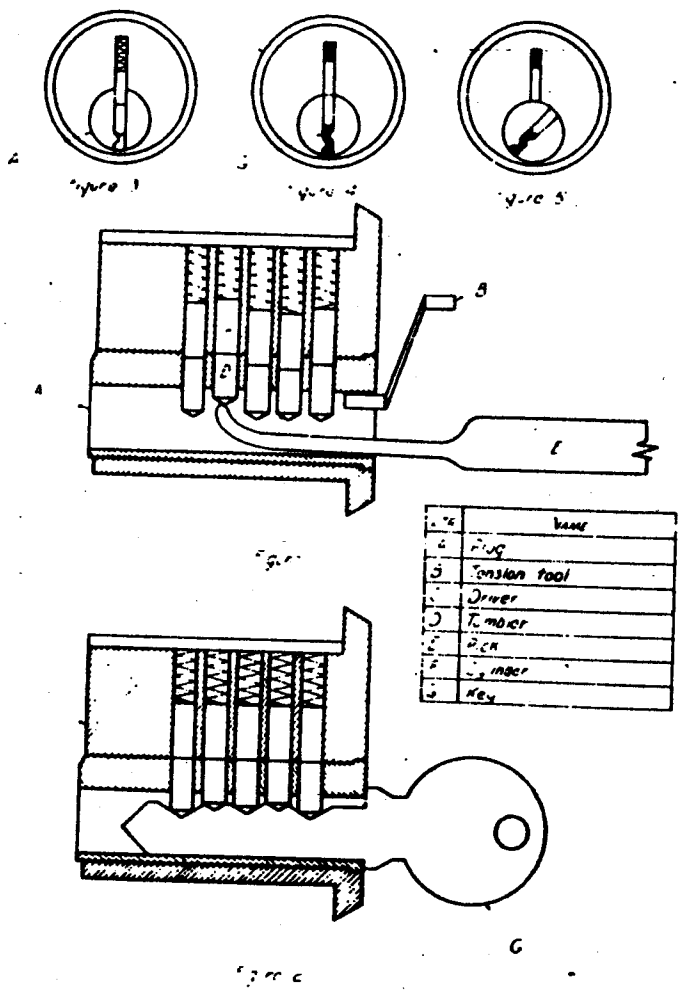
Figure 5 is a front view showing all three tumblers in the opening position with the bolt partially disengaged. This is the position the tumblers assume when the proper key is used. The various depths of the cuts in the key can be seen from the different heights of the tumblers, as shown in figure 6. Figure 6 is a side view.

Insert the tension tool into the keyway and locate the key notch in the underside of the bolt and apply pressure. The racking stump which is affixed to the bolt is now bringing pressure on the tumblers. The pick is next inserted into the keyway. One of the three tumblers will be found to be taking up most of the strain. When this tumbler has been located it must be raised to the unlocking position. As the tumbler is moved to the raised position care must be exercised not to raise the gate of the tumbler above the racking stump. If the tumbler retains its drag as it is raised, a slight give may be felt as the gate of the tumbler aligns itself with the racking stump as shown in figure 3.

Still applying pressure to the tension tool, the next tumbler that is tight against the racking stump must be located. Once located, this tumbler is raised by means of the pick until again the tension tool gives slightly. This will indicate that the gate of the second tumbler has aligned itself with the racking stump. The last tumbler must now be raised to the opening position. As the gate of the last tumbler aligns

risen with the racking stump the pressure being applied to the tension tool will force the racking stump through the gates of all three tumblers and the lock will open.

It is important to keep in mind that the pressure being applied to the tension tool must not be fully released at any time as to do so will cause the tumblers that have already been raised to spring back into their original position and the complete operation will have to be repeated.



CROSS SECTION OF A PIN TUMBLER LOCK

Instructions For picking Pin Tumbler Locks

Let us carefully examine the pin tumbler lock as shown by the drawings on the opposite page. In picking a pin tumbler or Yale type lock, the pick, aided by the tension tool, must accomplish the same purpose as the key.

Figure 2, shows a cross section of the lock with the key inserted. Note that the pins which are of different lengths are raised to a level with the outside rim of plug "A" by means of the cuts in the key. When the pins are in this position, the plug can be turned, opening the lock.

Figure 1, shows the pick "E" raising the pin "D" to the level of plug "A", the tension tool "B" properly inserted. (Described below.)

Figure 3, shows a front view of the lock with the pins in the locked position.

Figure 4, shows that the key "G" has raised the pins to the rim of plug "A".

Figure 5, shows the pins in the proper position and the plug "A" being turned to the opening position of the lock.

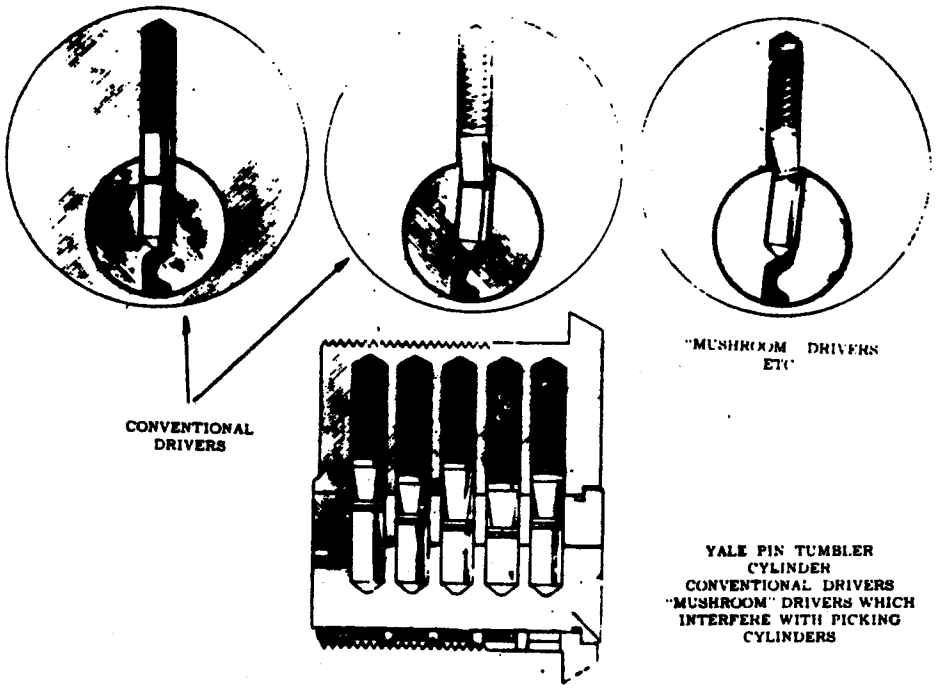
In order that the lock will operate freely it must be manufactured so that there will be a slight clearance between the moving parts. When the key was withdrawn from the lock the drivers "C" have forced the pins "D" into the locked position. In other words all of the pins "D" are below the rim of the top line of plug "A."

To open the lock, first insert the tension tool "B" moving it to the right or left until the drivers "C" are held tight against plug "A." This operation has taken up all of the clearance which permitted the drivers to move the pins freely. Holding the tension tool firmly in this position the pick is inserted into the keyway. The purpose of the pick is to raise the pins "D" to the top of plug "A," care being used not to raise the pins above this point. Usually it will

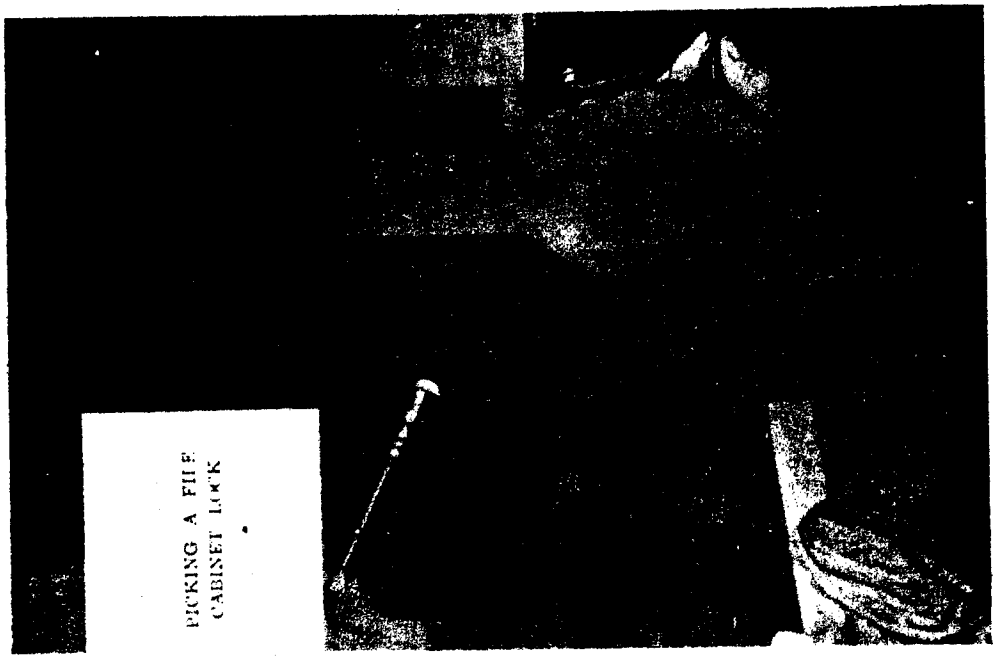
be found that one of the pins is held more firmly than the others and once this pin is located it should be raised first to the top of plug "A." As the pin reaches the top of plug "A," an indication should be received. This may be a decided give or it may be so slight that it will be hardly felt. When this indication is given on the tension tool, the search with the pick for the next pin should begin. It is important to keep the pressure on the tension tool. This pin in turn must be raised to the top of plug "A." Again an indication should be given on the tension tool. This process is continued until all the pins have been raised to the top level of plug "A." When this has been accomplished the tension tool will turn the plug and the lock will open.

The experienced locksmith will vary the amount of pressure on the tension tool from light to heavy during the process of picking the lock. Different locks require different pressures.

If unsuccessful after ten or fifteen minutes, it is a good plan to release the tension tool in order that all the pins will drop back in place and the operation started over again. This is done in the event one of the pins has been raised too high, in which case the lock cannot be opened.



YALE PIN TUMBLER
CYLINDER
CONVENTIONAL DRIVERS
"MUSHROOM" DRIVERS WHICH
INTERFERE WITH PICKING
CYLINDERS



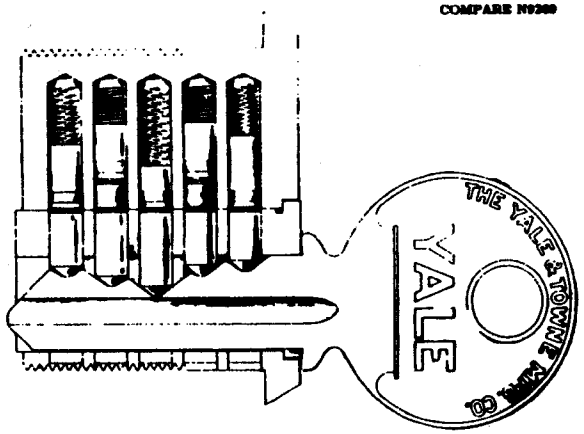
PICKING A FILE
CABINET LOCK

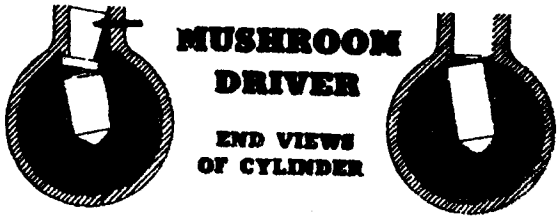
Mushroom Tumbler Lock

The mushroom tumbler lock is difficult to pick and should not be attempted until the agent has been thoroughly efficient in picking pin tumbler locks. Positive identification that the lock is equipped with mushroom tumblers will be found when an attempt is made to raise one of the tumblers. As the tumbler is raised one will feel the plug turn about one-eighth of an inch. Once this indication has been felt the following procedure is recommended. Carefully search with the pick until the tumbler is located, which gives a slight pressure in the opposite direction on the tension tool, as the tumbler is raised. This is the signal that the tumbler which must be raised first is located. Slightly release the pressure on the tension tool, and carefully raise the tumbler until the mushroom driving pin releases itself and slips above the trap. As the tumbler slips above the trap immediately increase the tension on the tension tool and you will feel a slight give. The same procedure must be followed in locating and raising the remaining tumblers.

Care must be exercised not to release the tension tool too much as to do so will cause the drivers that have already been raised to fall back into place.

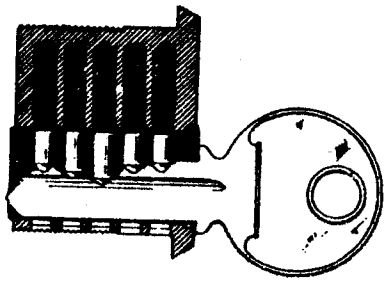
N-9308
MASTERKEYED CYLINDER
NOTE EXTRA PIN IN 2ND & 4TH HOLES PROVIDING 2ND JOINT IN THESE TWO PIN HOLES, THUS PERMITTING 2 DIFFERENT KEYS TO OPERATE CYLINDER—THE BASIS OF MASTER KEY WORK.
COMPARE N9309





Note how the "Mushroomed" end of the driver engages with the notched cylinder shell when picking is attempted.

The smooth, conventional type driver and cylinder shell do not offer this extra resistance to picking.

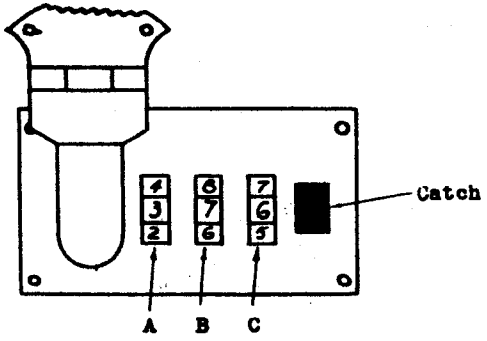


Extra Security against Picking

Picking a pin-tumbler cylinder lock requires expert skill. Therefore, it is rarely attempted. The average burglar has neither the knowledge nor time. Nevertheless, to still further increase the security of *the* pin-tumbler mechanism, Yale invented the Mushroom Driver. This patented device makes picking by other than a master locksmith very nearly impossible.

SESAME LOCKS

Sesame locks are used on brief cases, luggage, steel desks, steel cabinets, etc. Examine the sketch shown below.



This simple combination lock can usually be opened in about thirty minutes time by using the following system. There are three dials numbered from zero to nine. In describing this procedure the three dials are indicated by the letters A, B, and C, reading from left to right. Reading the three dials from left to right set dial "A" on zero, dial "B" on zero and dial "C" on zero. Move dial "C" to 1, 2, 3, 4, 5, 6, 7, 8, and 9, pressing the catch after each time the dial is moved to a number. Next move dial "B" to number 1, dial "A" remaining at zero and rotate dial "C" to all numbers, pressing the catch each time dial "C" is moved to another number. This process is continued until all 10 numbers of dial "B" and "C" have been tried and then dial "A" is set on number one and the complete operation resumed until all numbers have been tried in combination with number one of dial "A." Dial "A" is then moved to number two and the process repeated until the lock opens.

"SAFE BURGLAR" METHODS

Fortunately most men who can open safes are honest and in business commercially as safe experts. The safe expert is frequently called upon to open safes when the combination has been lost or misplaced. When the expert is called in to open a safe, the usual procedure is to drill a hole through the door of the safe (above the fence); then with the aid of a flashlight examine the position of the tumblers so that they may be aligned in the opening position and the safe opened. Naturally the safe expert with his knowledge of locking devices knows the exact spot to drill. One can have little respect for the intelligence of the safe burglar for failing to follow this simple method. Some experts try the manipulation method before drilling a safe. This method is described in another part of this monograph. Police records reveal that the manipulation method has been used by some criminals in opening safes.

Safe burglar methods have been carefully studied in an effort to secure material that may be helpful; however, the results are disappointing. Probably the most important information was found in the confession of a criminal who had opened ninety safes. This criminal stated, "Twenty-five of the safes I opened were improperly locked and all I had to do was find the last number of the combination." The method of opening an improperly locked safe is detailed in the description of the manipulation method.

Explosives

Dynamite, easily obtained, was one of the first explosives used. The best method discovered was to drill a hole above the dial and insert the finger of a glove filled with dynamite into the aperture. When exploded the locking mechanism was destroyed. This method was not always successful as the door of the safe might jam. The safe manufacturer confronted with the unfavorable publicity that accompanied each successful opening set to work to overcome this menace. A device was invented known as the dynamite trigger, which deadlocked the door when the lock was destroyed.

No sooner had the dynamite trigger become standard equipment on most safes than the underworld experimented with a more powerful explosive to open safes. Nitro-glycerine or "soup," as it is commonly called, (which is made by boiling dynamite) was developed as a substitute. Two methods were used in opening safes with nitro-glycerine. One method was to drill a small hole above the locking device and force cotton saturated with nitro-glycerine into the hole, exploding it with a percussion cap. However, the dynamite trigger would function and a deadlock would result. Another method of using nitro-glycerine is to drive a tempered steel wedge into the top seam of the door. A cup is fashioned of yellow laundry soap close to the opening made by the wedge. The seam of the door is carefully sealed with soap and nitro-glycerine poured into the cup, from whence it seeps around the inner edge of the door. When exploded, the safe door is blown off. Needless to say both the dynamite and the nitro-glycerine explosions are likely to attract the police and the work of the burglar has to be perfectly timed if the job is to be successful.

Rip Job

Safes of comparatively light construction are particularly vulnerable to the "rip" type of attack. A hole is drilled in the upper left-hand corner of the front plate which is attached to the casing of the door by rivets. Inserting a long jimmy in this hole, the tip of the plate is pried away from the casing. By inserting the jimmy under the plate and tearing it from the casing, access is gained to the bolts or lock and the safe is opened.

Punch Job

The "punch job" is a simple but crude method which can only be used on fire-insulated safes that are very old or cheaply constructed. The dial and ring are cut off with a chisel, and a punch smaller in diameter than the spindle, is used to drive the spindle through the door into the safe. When the spindle is punched out, the curb and tumblers are driven from their seat in the lock case. With the tumblers removed, the fence drops into the unlocked position, and the safe is opened. All better grade safes are provided with protection against this type of attack.

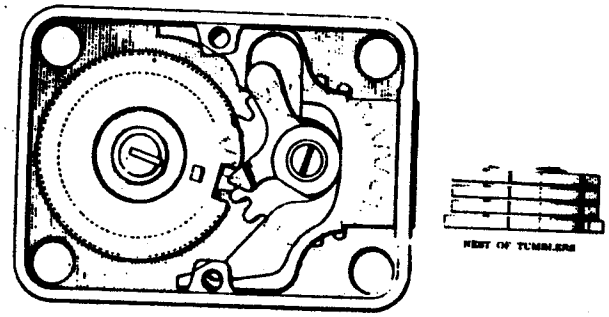
Can Opening

New methods were soon found. One safe burglar invented what was soon to be called the "can opener' method. The safe is turned upside down and a hole drilled through the bottom part of the light sheet metal covering. A five foot tool of heavy steel, similar in design to the ordinary kitchen can-opener, is inserted into this hole. The tool cuts the bottom out of the safe.

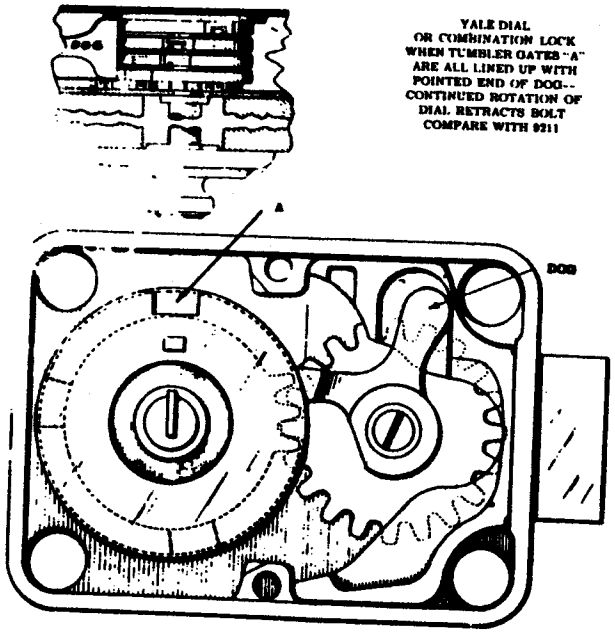
Torch Job

To perform successfully a "torch" job, the criminal must be a thoroughly skilled burner, with a complete knowledge of the construction details of the safe or chest he is attacking. The oxyacetylene torch is used only on so-called "burglar-proof" safes. This method necessitates transportation of considerable bulky apparatus, which involves risk of detection when entering the premises. A successful torch attack upon a good burglar resistant chest is rare.

YALE
DIRECT SPINDLE COMBINATION LOCK
(IN UN-LOCKED POSITION)



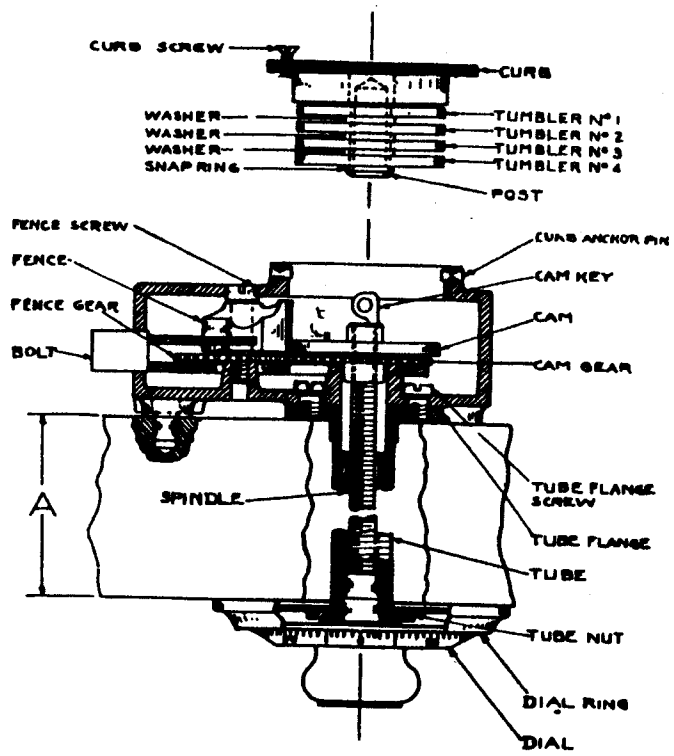
YALE DIAL
OR COMBINATION LOCK
WHEN TUMBLER GATES "A"
ARE ALL LINED UP WITH
POINTED END OF DOG--
CONTINUED ROTATION OF
DIAL RETRACTS BOLT
COMPARE WITH 9211



COMBINATION LOCKS

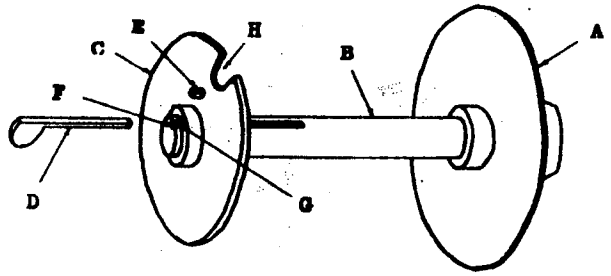
The Combination Lock, or, as it is commonly called, the Dial Lock, has in the United States completely superseded the key lock for use on safe and vault doors. With four tumblers and one hundred numbers on the dial, there are one hundred million possible combinations, all of them equally useful. The Combination Lock is very simple and when properly made can be used indefintely; any realignment of the mechanism provides a new combination. There are usually three tumblers, which are so arranged that when each tumbler has been located properly with relation to the others, the bolt mechanism is released or undogged so that the bolts may be retracted by special mechanism. Combination locks may operate independently of time locks, or may be interlocked with them. On the earlier safes the spindles proved to be a fertile source of trouble, as they could be driven backward providing an avenue for the introduction of explosives into the safe or vault. The two usual types are the conical, or taper spindle, and the shoulder spindle. These are made of the finest steel, hardened with the utmost care and constructed to resist burglary, either by drilling or forcing.

Combination Lock Terminology



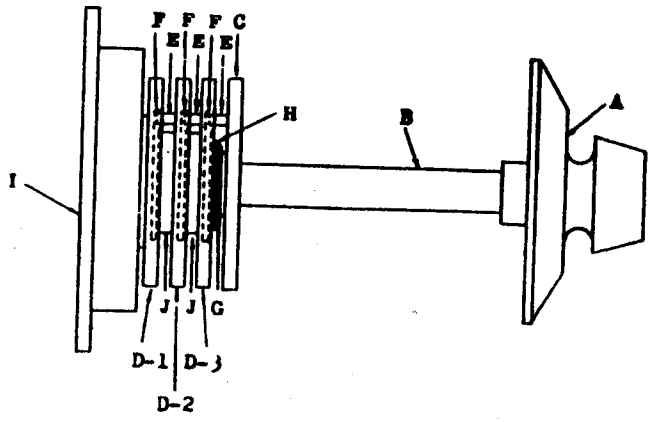
How A Combination Lock Operates

Let us carefully examine the combination lock and its terminology, as shown in the drawing on the opposite page. At first this appears to be a very intricate mechanism. Actually it is very simple when one understands its operation. A brief description of the operation of the combination lock follows. The driving mechanism shown in the sketch below consists of the dial, the spindle, and the driving cam. As the dial is turned, the driving cam moves in the same direction, as it is keyed to the spindle.



A — Dial
B — Spindle
C — Cam
D — Key
E — Driving pin
F — Spindle keyway
G — Keyway of cam
H — Gate

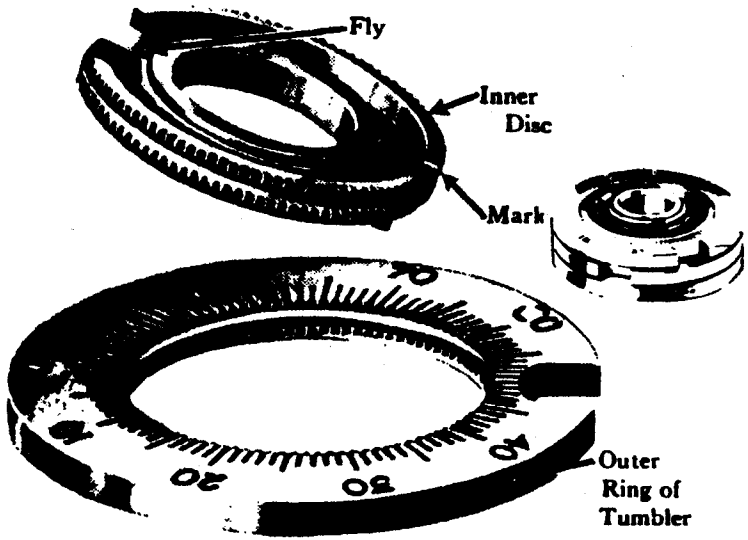
The second sketch shows the dial, the spindle, the driving cam, and the tumblers assembled in position.



A — Dial
B — Spindle
C — Cam
D — Tumblers (3)
E — Driving pins
F — Flys (3)
G — Post (Tumblers revolve on the post)
H — Snap ring (Holds tumblers on post)
I — Curb or back plate
J — Washers

The tumblers are moved in the turning direction by driving pins "E" affixed to the back of the driving cam and tumblers 1-2-3. These pins engage the flys attached to the front of the inner disc of the tumblers.

A photograph showing both sides of the tumbler is shown below.



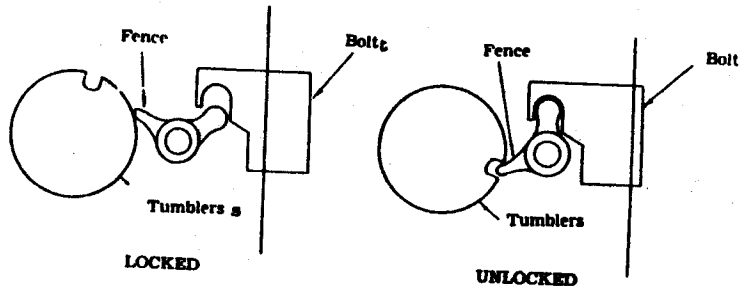
It would be well to note that the fly which is inserted in the inner rim of the tumbler will operate regardless of the direction in which the tumbler is turned. As the cam revolves in the turning direction, the pin "E," shown in sketch two, engages the fly "F" of the number three tumbler. The cam may make a complete or partial revolution before the fly "F" and tumbler number three moves in the turning direction.

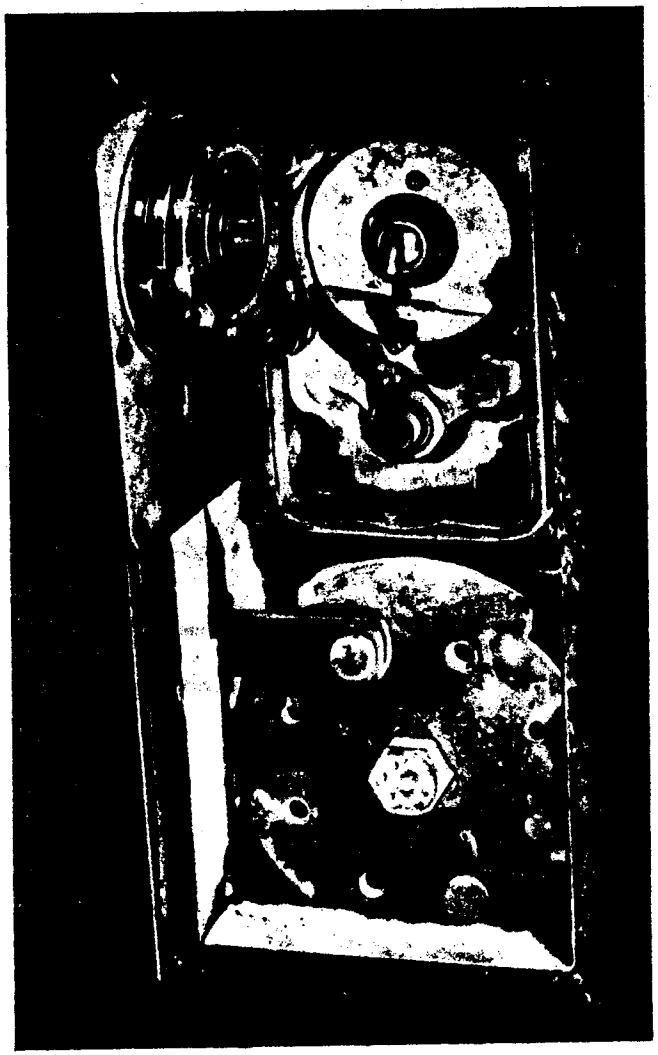
Now let us see just what happens when the tumblers have been aligned in the opening position.

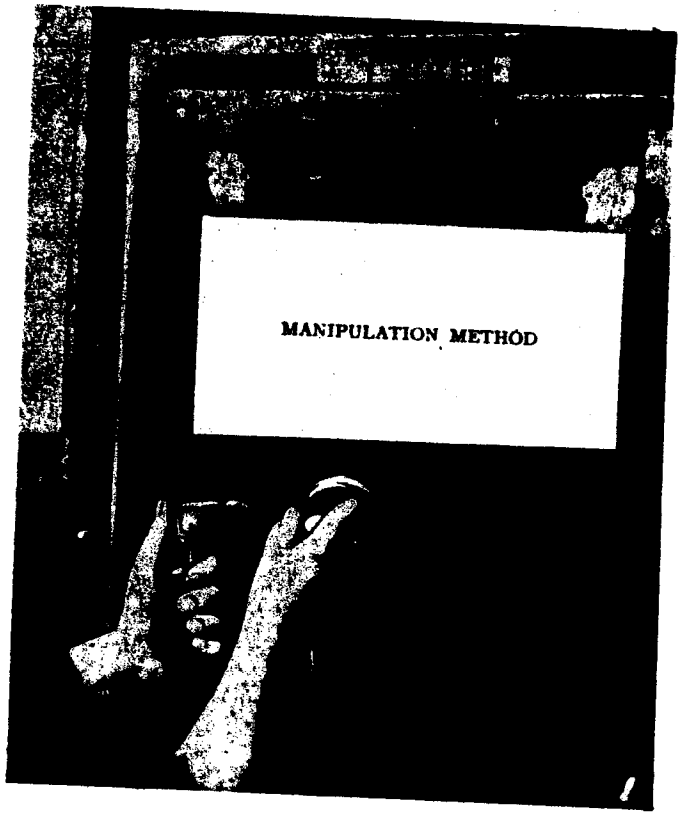
After the cam has set the third tumbler in place, the dial is revolved slowly to the left, until the gate of the cam reaches the same position as the gates of the tumblers. The fence may now be drawn into the aligned gates. Further motion of the dial to the left will draw the fence down (note sketch on the following page) and bring the bolt of the lock to the open position. The handle on the door of the safe is given a partial turn which releases the bolts and the safe can be opened.

The operation described is that of a lock with a friction type fence. Essentially all combination locks operate in much the same manner.

REAR VIEW OF LOCK






MANIPULATION METHOD

Opening Improperly Locked Safes By Manipulation

Safes can be opened by manipulation, without prior knowledge of the combination, but there are few men possessing this skill. Not only are years of experience and a complete knowledge of locking devices necessary, but the person must also be adaptable to this type of work. This method is practical commercially, depending largely upon the type safe to be opened.

For our purpose several important procedures should be noted, one of these being the opening of safes which have been improperly locked. It is possible that when the safe was last closed, the locking device was improperly secured. By this is meant that the dial was given a partial twist, the result being that only one of the tumblers has been disengaged (the number 3 tumbler) from the unlocking position, and that the remaining tumblers are still in the open position. (Open position meaning unlocking position.)

Let us follow through the various steps taken by the expert in opening an improperly locked safe. First let us examine the photos, pages 78, 79, so that we are thoroughly familiar with the working parts of a combination lock. Now let us study the drawing of the combination lock, paying particular attention to the terminology of its various parts.

A preliminary examination of the exterior of the safe has enabled the expert to identify it as an Allsteel "Cabinet Type" with a three tumbler Yale OC7M type lock. The expert from past experience has a mental picture of the locking device's moving parts and knows that its opening or stop number will be found at number 15 on the dial. Naturally he has no previous knowledge as to the direction in which the dial was turned when the safe was improperly locked. The dial is now turned slowly either to the left or right, great care being exercised at this point as the dial must turn freely. In turning the dial, should the expert feel

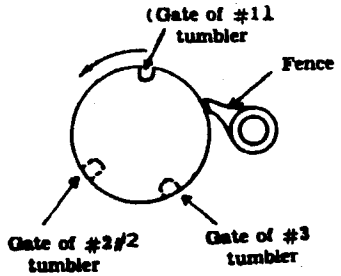
the driving cam engage the tumbler, the direction of the dial must be reversed. The dial is moved to approximately number five, at which point the expert knows that the gate of the cam will be aligned opposite the fence. The dial is now vibrated rapidly on the chance that the number three tumbler is only slightly disengaged, (one or two points) from the unlocking position. The vibration may cause the tumbler to realign itself in the opening position; the cam will force the fence into the gates of the tumblers. By revolving the dial from five to fifteen the bolt of the lock will be drawn back.

Failing in the first attempt to open the safe the expert knows that it may still be opened, providing he can locate the number that will bring the third tumbler into the opening position. To best describe the procedure, let us assume that the correct number for the third tumbler is 40, and that the expert has started to search for it. Previously the expert had been vibrating the dial at 5. The dial is now moved slowly to the right, to let us say 80, where the expert feels the cam engaging the third tumbler. (Any further turning of the dial to the right will disturb the position of the tumbler.) At this point (80) the dial is turned to the contact number (5) and vibrated rapidly. To further simplify matters let us assume that the combination was set on numbers divisible by five. The dial is turned to the right to 75, then left to five, where the dial is vibrated rapidly. Receiving no indication, the expert revolves the dial to the right to 70 and again left to five and vibrates the dial rapidly. As no indication was felt, the process continues, decreasing the numbers five points each time until number 40 has been reached. From 40 the dial is moved to five at which point the expert feels the fence being engaged. He continues turning the dial until it automatically stops at number 15. The moment the fence started engaging the gates, the bolt was set into motion to the unlocked position, which was reached when the dial stopped turning at number 15. (Refer to sketch indicating combination lock in locked and unlocked position.)

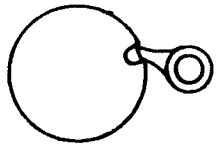
OPENING SECURELY LOCKED SAFES BY MANIPULATION

If it is established that the safe is securely locked, the expert must find all of the numbers of the combination. This he proceeds to do in the following manner.

The expert revolves the dial four or more revolutions to the right, (this particular lock starts to the right) in order to assure himself that all three tumblers are engaged. At this point it might be well to explain just what we mean by saying all three tumblers are engaged when the dial is moved four revolutions to the right. The first revolution turned the pin of the cam to a position where it engaged the fly affixed to tumbler number three. The second revolution finds the cam and third tumbler moving in the direction of rotation. As the second revolution is nearing completion the pin affixed to the number three tumbler engages the fly of the number two tumbler, so now the cam, tumbler number three, and tumbler number two are all moving in the direction of rotation. As the dial makes another revolution accompanied by tumblers three and two, the pin affixed to the number two tumbler engages the fly of the number one tumbler. As the rotation of the dial continues for the fourth time, the cam, tumbler number three, two, and one, are all rotating in the turning direction. All three tumblers will continue rotating in this direction until the direction of rotation is reversed. It should be noted that although all three tumblers are moving, the gates must be aligned opposite the fence before the safe can be opened.

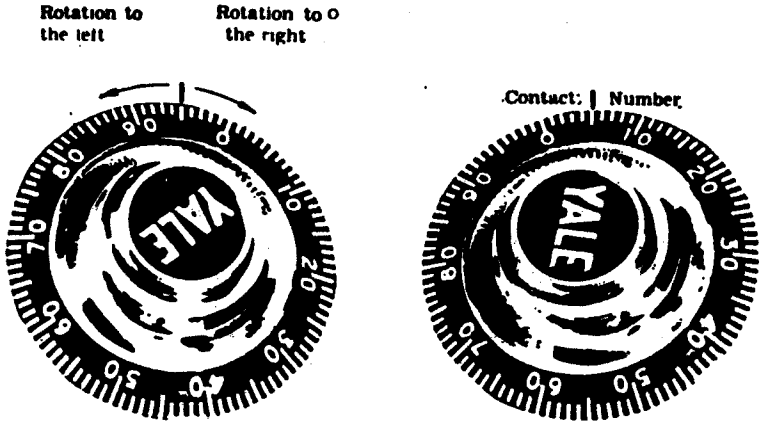


Rear view of the tumblers when all are engaged and revolving to the right.



Rear view. All gates aligned opposite the fence, fence engaged; dial is now at number five.

The expert knows that the stop number is 15 and that the contact number (where the fence will engage the gate of the cam) is approximately five. Since a number of a combination is rarely set near the contact number (5) he will start his search about ten numbers away. In this case the expert after revolving the dial four revolutions to the right will stop on number 95 and then turn the dial left to five where he will vibrate the dial rapidly.



Receiving no indication, the dial is turned right to 90 then left to five and again vibrated rapidly.

This process of decreasing the numbers by fives is continued until an indication is received, let us say at number 40. This indication is received when the dial being set on 40, is turned to the left to the contact number (5). At the contact number the expert receives a more intense click or the indication may be by means of his highly trained sense of touch, or, as in many cases, a combination of both touch and sound. The reason for this is simple. If one could observe the three tumblers moving as the expert tries the various numbers, he would see the gate of one of the tumblers aligned opposite the fence. Because the gate

of this tumbler is aligned, the fence moves a fraction of an inch closer to the tumblers; therefore, when the dial is vibrated, the fence partially drops a little further into the gate of the cam. This causes the indication to be felt or heard as the gate of the cam passes and repasses the fence.

Now he had a "lead," or a number which he suspects as being one number of the combination. However, he must now identify the tumbler to which this number applies. To do this he proceeds as follows: To assure himself that all the tumblers are engaged, and have not been disturbed during the search for the indication, the dial is now turned four or more times to the right and set on number 40. He next revolves the dial three times to the left and sets it on any number other than 40, for example, 80. The moment the dial is turned to the left, the number one tumbler becomes disengaged, so he knows that the number one tumbler is set on 40. After turning the dial three times to the left and setting it on 80, he now turns two revolutions to the right and sets the dial on any number other than 40, let us say 50. Now tumbler number one is set on 40, tumbler number two on 80 and tumbler number three on 50. The dial is now turned to the left to the contact number, (5), and vibrated. Should he receive the same indication previously received, he can safely assume that number 40 applies to the first tumbler and is the first number of the combination.

In the event the expert does not receive the indication with the tumblers set in this manner, using the method described above, he proceeds to set the second tumbler on 40, and the third and first tumblers on any other number. Thus by trying each tumbler separately on 40, he can identify the tumbler whose gate is aligned opposite the fence.

After one number is found and its tumbler identified, the same procedure is used to find another number of the combination and identify its tumbler. Once two of the numbers are found, the last number can easily be determined by elimination.

It will be seen from the forgoing that the manipulation method requires the services of an expert. Such men are available and should be employed when necessary. Only in the rarest instances can the amateur, working under ideal conditions, open a securely locked safe by manipulation.