United States Patent

[11] 3,584,485

[72] Inventor **Oliver A. Peterson**
Honolulu, Hawaii

[21] Appl. No. **849,386**
[22] Filed **Aug. 12, 1969**
[45] Patented **June 15, 1971**

[73] Assignee **Joe F. Rogers**
Honolulu, Hawaii
a part interest

[54] **MAGNETIC LOCK AND KEY**
5 Claims, 7 Drawing Figs.

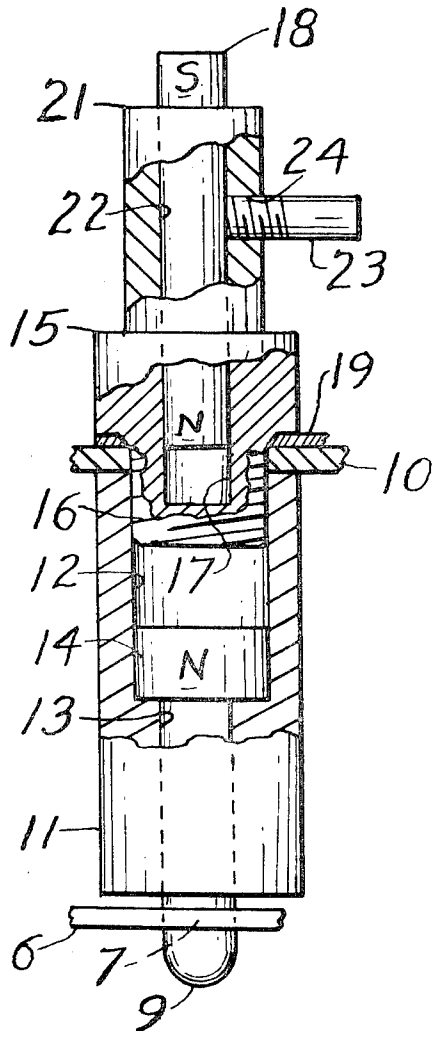
[52] **U.S. Cl.** **70/276,** 70/81, 292/144
[51] **Int. Cl.** **E05b 47/00,** E05b 63/02, E05b 65/52
[50] **Field of Search** 292/144, 138; 70/276, 413, 81, 85, 86, 456; 335/302, 306; 248/206A

[56] **References Cited**
UNITED STATES PATENTS

468,807	2/1892	Kintner	70/413X
1,445,589	2/1923	Horiguchi	70/276
2,468,969	5/1949	Galey	292/144
3,292,400	12/1966	Merila	70/456

Primary Examiner—Albert G. Craig, Jr.
Attorney—Earl E. Moore

ABSTRACT: The invention is for an electric lock wherein a magnetic bolt is worked by a magnetic key and the key is designed to work the bolt only when inserted with the proper polarity.



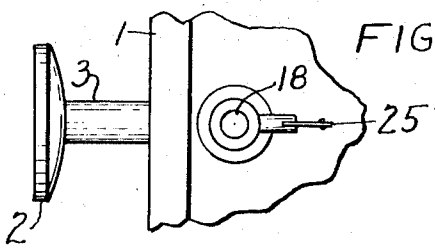


FIG. 3

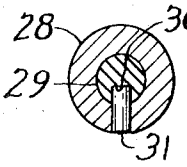


FIG. 7

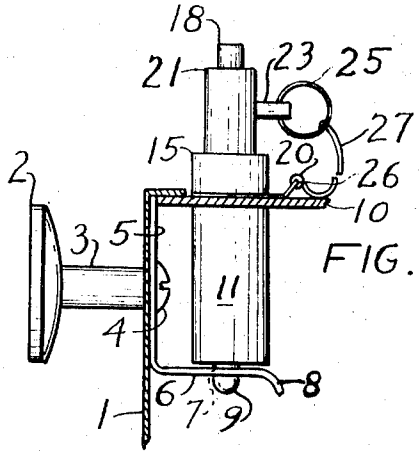


FIG. 2

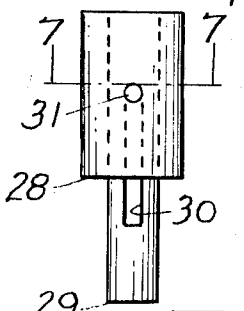


FIG. 6

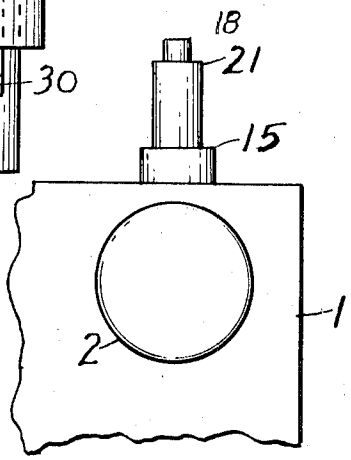


FIG. 1

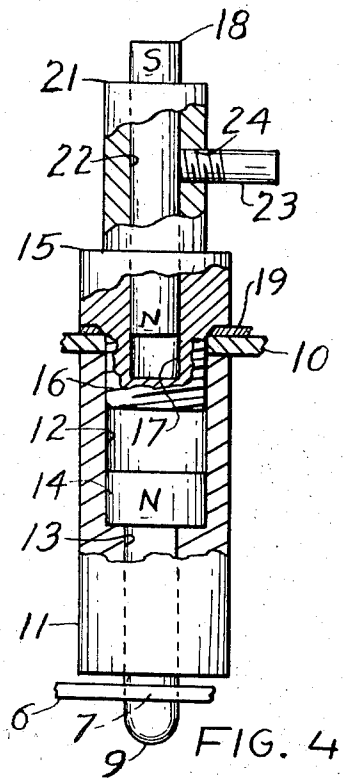


FIG. 4

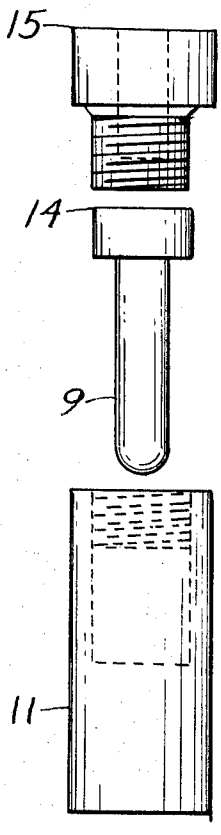


FIG. 5

INVENTOR
OLIVER A. PETERSON

Earl E. Moore
ATTORNEY

MAGNETIC LOCK AND KEY

This invention relates to a magnetic locking device wherein the bolt is controlled by a magnetic key means. The locking device is especially suitable for use with medicine cabinets in homes and hospitals. Also useful on other types of closed boxes and the like as well as upon gates, doorway panels and various control means in electrical circuits and mechanical devices of many kinds.

The invention has special use for locking medicine cabinets to prevent young children from entry thereinto, but permitting adults to enter the cabinet easily when they are familiar with the operation of the lock. Mentally retarded persons will normally be barred from entry to various cabinets, machine and heater rooms unless they are capable of learning the operation of the lock.

One of the principal objects of the invention is to bar entry to or through certain cabinets, rooms, and garden areas by unauthorized persons who do not possess the proper key necessary to open a predesigned locking means or have an understanding of the key when attached to the locking device.

Another object is to prevent the entry of certain persons into forbidden areas unless they know how to use the particular key means.

Other objects and purposes of this invention will be learned by a careful inspection of the attached drawings and by a careful reading of the specification.

IN THE DRAWINGS

FIG. 1 is a front elevational view of a portion of a door to a medicine cabinet or the like having the invention installed in combination therewith;

FIG. 2 is an elevational view, some parts in section, showing the invention taken in a view at right angles to that shown in FIG. 1;

FIG. 3 is a top plan view of that shown in FIG. 2;

FIG. 4 is an enlarged elevational view of the locking device per se, and showing some parts in section and certain parts broken away;

FIG. 5 is an exploded enlarged elevational view which more clearly shows certain elements of the invention and their assembly arrangement;

FIG. 6 is an enlarged elevational view showing a modified form of the invention;

FIG. 7 is a sectional view taken along the line 7–7 of FIG. 6.

In the illustrations disclosed, all elements of the same construction are given the same reference character in the various views.

The numeral 1 indicates an upper corner of a medicine cabinet's door having a pull knob 2 with a stem 3 which has a threaded bore that receives the threaded stem of a screw 4. The stem of the screw passes through a bore in the door 1. Under the head of the screw is a plate 5 and this plate is integral with the right angled plate 6 that has a bore 7 to accommodate a locking bolt 9. The distal edge of the plate 6 has a curved lip 8 so that when the plate or bolt keeper is pushed toward the bolt 9, the bolt is retracted into its housing in a well-known manner.

The top wall of the cabinet is indicated at 10. It is deemed unnecessary to show all the walls of the cabinet as same is not necessarily a part of the invention, but it is important to point out in this particular showing that the door 1 is vertically hinged to the left wall of the cabinet in order to make the showing in FIG. 1 clearly understandable.

The locking device includes a base portion or bolt housing 11 having a large bore 12 which is threaded at the top portion thereof, and a smaller bore 13 through which the stem of the bolt readily reciprocates. To prevent the stem of the bolt from passing entirely through the small bore, the stem is provided with an integral disclike head 14 which is free to reciprocate in a portion of the large bore 12.

Connected to the casing base or housing 11 is shown a plug 15 having a reduced end portion 16 which is threaded to mesh

with the threads of the bore 12. Within this plug 15 there is a bore 17 with its bottom end closed and which bore is configurated and sized to accommodate a predesigned slidable key element or bar 18. Between the shoulders of the plug 15 and the cabinet top wall 10 there is a flat gasketlike plate 19 having an extended portion 20 which is to be dealt with later.

Mounted on top of the plug 15 there is a readily removable sleeve or key case 21 with a bore 22 that is sized to neatly receive the slidable key element or bar 18. To hold the key bar in place, a locking screw 23 is employed and which has one end threaded and meshed with the threads of a bore 24. A bore at the distal end of this stem or screw accommodates a ring 25 and the extended portion or ear 20 of plate 19 also has a bore accommodating a ring 26. A flexible chainlike member 27 of suitable length joins the two mentioned rings and allows the sleeve 21 to be removed from the top of the plug and then layed down upon the cabinet top 10 or to dangle along the side of the cabinet.

The modified form shown in FIGS. 6 and 7 reveals a sleeve 28 having a bore to accommodate a slidable key bar 29 which is provided with an elongated slot 30. A stem 31 is inserted through a bore in the sleeve, the inner end of which is slightly smaller in diameter than the slot so as to ride therein, but the outer end is a bit larger in diameter so that it can be machine pressed into the bore and thus be held permanently fixed to the sleeve. Such a key bar and sleeve arrangement is for use wherein an attempt might be made to steal the bar and thus make the invention useless. Obviously, the sleeve would be chained or otherwise fixed to the lock or cabinet. Also, in this case, the key bar 29 has its ends polarized and therefore performs in the same manner as the key means 18 of the first form of the invention.

OPERATION

Note that the bar or key element 18 is a magnet and in FIG. 4 it is shown as having the North pole at the bottom and the south pole at the top. Also, it might be said here, that plastics of well-known kinds and nonmagnetic materials may be employed in the lock wherever desired except for the parts that must be magnetic.

The key and bolt of course are magnetic. The magnets are of full strength and sufficiently permanently magnetized so that when the key 18 is reversed and the south pole thereof is pushed to the bottom portion of the bore 17, the strength of the key can easily draw the head 14 of the bolt to make contact with the bottom of the reduced portion 16 of the plug. In such a manner the bolt stem 9 is freed of the keeper 7.

When the key is removed from the plug 15 and left on top of the cabinet or dangling therefrom, the key element 18 is preferably positioned in the sleeve 21 as shown in FIG. 4. The reason for this is that a young child or a mentally retarded person will not understand how to use the key.

Certain novel features and details of this invention are disclosed herein, and in some cases in considerable detail, and this is in order to make the invention clear in at least one or two forms thereof. However, it is to be clearly understood that the invention as disclosed is not necessarily limited to the very exact form and details disclosed since it is apparent that various modifications and changes may be made without departing from the spirit and scope of the invention as claimed and described.

Having thus described my invention, what is claimed and believed new and which is desired to be secured by Letters Patent is:

1. A magnetic lock comprising a casing means with a first guide means having a bolt reciprocable therein, and a second guide means accommodating a key for operating the bolt, said key having a portion with a magnetic north pole and another portion with a magnetic south pole, and said bolt having portions with opposite poles, the arrangement is such that when one pole of the key is inserted in the second guide means and brought close to a portion of the bolt having opposite polarity

the bolt is drawn thereto and thus made to clear a keeper, but when the key is retracted away from the bolt, the bolt is free to return to a position to engage a keeper, the bolt includes a stem having an enlarged integral head, the first guide means having a small bore to accommodate the stem and a larger communicating bore to accommodate the head of the bolt, and the casing means including a plug closing one end of the larger bore, said plug having a bore forming said second guide means with one end open and another end closed so that when a portion of the key is inserted therein said key cannot enter into the larger bore.

2. The lock recited in claim 1 wherein the key comprises a sleeve means and a bar which slides therein so that the said portions of the key can be extended from either end of the sleeve.

3. The lock recited in claim 1 wherein the plug and main body of the casing are removably joined together so that a wall of a cabinet and the like can be held firmly between them.

4. The lock recited in claim 1 wherein the key includes a sleeve means and a bar which slides therein so that the said portions thereof can be extended from either end of the sleeve, means to hold the bar in a plurality of adjusted positions, the casing being divided into a pair of parts so that one part can be placed within a cabinet and the other part can be placed outside of the cabinet, and means for holding the two parts together.

5. The lock recited in claim 1 wherein the key includes a sleeve means through which an adjustable bar is slidable, an elongated slot in the bar, and a stud extending through the sleeve and into the slot so that the bar can be extended only a limited extent from the sleeve means.