

(No Model.)

A. E. KINTNER.
MAGNETIC LOCK.

No. 494,146.

Patented Mar. 28, 1893.

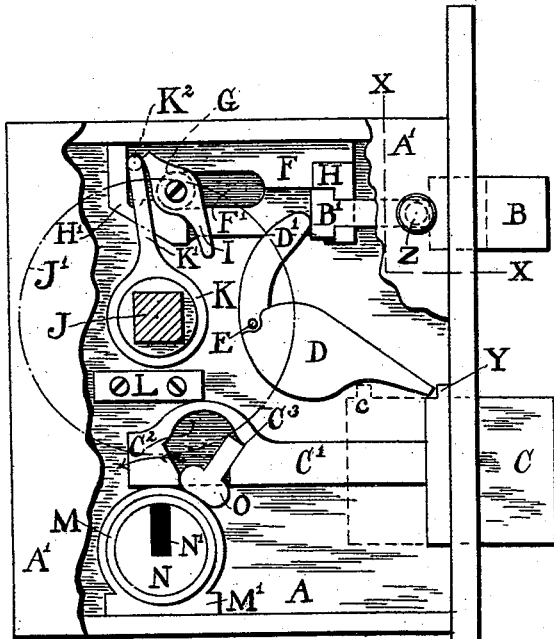


FIG. 1.

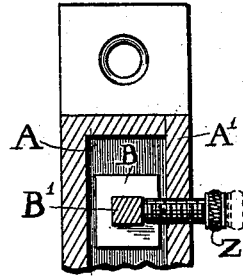


FIG. 3.

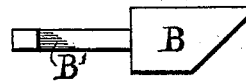


FIG. 4.

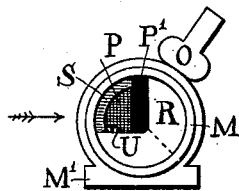


FIG. 5.

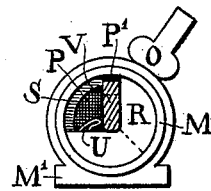


FIG. 6.

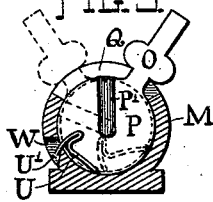


FIG. 7.

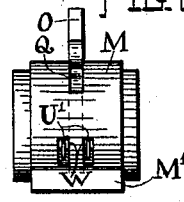


FIG. 8.

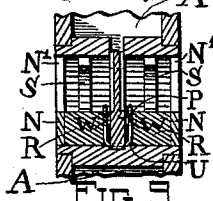


FIG. 9.



FIG. 10.



FIG. 12.



FIG. 11.

WITNESSES:

FIG. 2.

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UNITED STATES PATENT OFFICE.

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MAGNETIC LOCK.

SPECIFICATION forming part of Letters Patent No. 494,146, dated March 28, 1893.

Application filed April 4, 1892. Serial No. 427,585. (No model.)

To all whom it may concern:

Be it known that I, ALCUIN E. KINTNER, a citizen of the United States, residing at Painesville, in the county of Lake and State of Ohio, have invented a certain new and Improved Magnetic Lock, of which the following is a full, clear, and complete description.

My invention relates to improvements in magnetic locks in which a bifurcated tumbler situated within a drum, operates in connection with a magnetic key and both the bolt and latch, being governed by a thumb screw on the inside of the door.

The object of my improvement is to provide a springless lock of simple construction and few parts, capable of being opened only by means of a magnetic key and having no opening through said lock.

That the invention may be seen and fully understood by others, reference will be had to the following specification and annexed drawings in which—

Figure 1. is a side view of a mortise lock, the inner face plate having been partially broken away to show the relative position of the several parts when both the bolt and latch are thrown forward. Fig. 2 is a similar view showing the bolt and latch thrown back. Fig. 3 is a section on the line *x. x.* Fig. 1, and illustrates the connection of the thumb screw with the latch. Fig. 4. is a side view of the latch. Fig. 5 is a top view of the drum with the escutcheon removed. Fig. 6 is a similar view showing the key in section and the tumbler attracted thereto. Fig. 7 is a cross section of the drum. Fig. 8 is a side view of the drum looking in the direction of the arrow in Fig. 5. Fig. 9 is a longitudinal section of the drum looking toward the tumbler. Fig. 10 is a side view of the block hereinafter described. Fig. 11 is an enlarged view of the bifurcated tumbler, and Fig. 12 is a side view of the magnetic key.

Similar letters refer to similar parts in the drawings and specification.

The shell A, Figs. 1, 2, and 3, is common to all mortise locks, and the inside face plate A', is broken away in Fig. 1 and entirely removed in Fig. 2. The shape and action of the latch head B, Figs. 1, 2, 3 and 4 and bolt head C, Figs. 1 and 2 are also common with other locks used for a similar purpose. The

latch B has the shank B' in the form of the letter "T" and in place of the usual spring to throw the latch forward, the counterweight D Figs. 1 and 2 is used. The counterweight is pivoted to the shell A at E, and the head D', presses against the head of the latch. The preponderance of weight in the body D of the counterweight has a constant tendency to drop thereby forcing the latch forward when no other auxiliary force is opposed thereto.

The principal wear in a common latch mechanism results from violently closing the door to which said latch is attached. In the arrangement described above, the wear is reduced to a minimum, since no part of the lock is brought into action by forcing back the latch except the latch itself and the counterweight. In addition to the above mentioned advantage of a counterweight, over a spring in connection with a latch, a more even steady movement of said latch results from the use of the counterweight, and not so much force is necessary to push back the latch as is usual when a spring is used.

If it is desired to reverse the position of the lock, it is only necessary to remove the face plate A', take out the latch B, turn it over and reinsert it, thus bringing the bevel surface of said latch into its proper position.

In the upper part of the shell A, is the slide F, provided with the slot F', which permits the slide F to work back and forth guided by the post G, fastened to the shell A, and indicated by dotted lines in Figs. 1 and 2. The forward end of the slide F, is raised as at H, and has a slot or notch cut therein to receive the shank of the latch B. The inner end H' is also raised. Pivoted to the top of the post G is the dog I. Below the slide F, is the rod J, to both ends of which are attached the knobs for turning back the latch, one of said knobs being represented by the dotted lines J', Figs. 1 and 2. Surrounding the rod J is the collar K bearing in openings in the face plates of the shell A and having the arm K', forming an integral part thereof. At the end of the arm K' is the pin K², either forming an integral part of the arm or fastened thereto. The arm K' swings freely over the elevated end H' of the slide F, and the pin K², projects downward. When the knob J' is turned to the left the pin K² of the arm K' bears on the

elevated end H' of the slide F, and through the medium of said slide draws back the latch B, until the lower end of the counterweight D strikes against the under surface of the latch as shown in Fig. 2. The same result is obtained if the knob is turned to the right through the intervention of the dog I illustrated by the dotted lines I' Fig. 2. Upon releasing the knob, the counterweight at once

throws the latch forward again. The shank C' of the bolt C is recessed at C² Figs. 1 and 2 and passes between the guides L and the drum M. In both ends of the drum M, are the escutcheons N, having the key holes N', Figs. 1, 2 and 9. Projecting from a central slot or opening in the upper part of the shell of the drum M is the arm O, which throws the bolt C, and secures the same in the manner hereinafter fully explained. The drum M rests in the openings provided therefor in the face plates of the shell A, best shown in Fig. 9. It is preferably cylindrical, but may be square or polysided, and is secured at the base M' to the shell H. Bisecting the drum M vertically is the disk P Figs. 5, 6, 7, 8 and 9, of which the arm O forms an integral part. The arm O, projects through the slot Q in the upper part of the drum M, the diameter of the disk P is a little larger than the inner diameter of the drum, said disk working in a groove in the drum, best shown in Figs. 7 and 9. The disk P is further held in place by the blocks R, one on each side. In both sides of the disk P are the indentations P' of suitable shape to receive the head of the key. Each side of the disk P, but remote therefrom and forming an integral part of the drum M, or securely attached thereto are the guides S, Figs. 5, 6 and 9. In the lower periphery of the disk P is a notch which receives the base of the tumbler U, the bifurcation of said tumbler extending upward on both sides of the disk. A part of the block R is cut away as shown in Fig. 10 and a pocket is thereby formed between the block R and the disk P, one on each side, when said blocks are in place in which the bifurcations of the tumbler U travel.

The key V Figs. 6 and 12 is a permanent magnet and has the notch V' near the end. The simplest form of a key is shown here for convenience of explanation, but any form may be used which registers with the opening in the escutcheon and the indentation in the disk. More than one guide on the inner surface of the drum may also be used, so that a convoluted key with several notches therein may be substituted for the one shown in the accompanying drawings.

When the bolt C is thrown forward as shown in Fig. 1. it cannot be forced back, because the head of the disk arm O bears against the shoulder C³, formed by the peculiar shape of the recess C². The guide L above, and the drum M below hold the shank C' always in a horizontal position and it will be readily seen

that the arm O must be moved sufficiently to release the shoulder C³, before the bolt can be withdrawn. The points U' of the tumbler U extend through the openings W, Figs. 7, 8 and 9 in the drum M and engage with the lower surface of said openings, thereby preventing the turning of the disk P in the direction of the arrow in Fig. 1. To throw back the bolt C, insert the key V in the opening N', thrusting it in until the end encounters the indentation P', in the disk P, then withdraw the key sufficiently to clear the indentation and turn it to the left until it comes in contact with the horizontal portion of the block R, when the bifurcation of the tumbler, (said tumbler being preferably of soft iron) which is on the side of the disk with the key, will attach itself thereto by magnetic attraction. The key is turned back drawing the points U' from the openings W in the drum, until it is again vertical, when it is thrust into the indentation P' in the disk P, and once more turned in the direction of the arrow in Fig. 1, causing the disk P, to revolve and by the arm O, to carry the bolt C back until the several parts assume the position illustrated in Fig. 2, and by dotted lines in Fig. 7. At the same time that the last partial revolution is given to the key it is necessary to turn the knob J' sufficiently to raise the lower end of the counterweight clear of the projection Y on the bolt C. The under surface of the counterweight is dished sufficiently to clear the projection Y when the bolt is thrown back as shown by dotted lines c Fig. 1. The key is removed from the lock by raising it from the indentation in the disk and turning it back until it is free from the guide. The notch V', must be of sufficient width to receive the guide S, when the end of the key is in contact with the indentation P'. To throw forward the bolt insert the key as before, turn in the direction of the arrow in Fig. 1. until the end registers with the indentation P' in the disk P, then turn the key in the opposite direction, which will revolve the disk and carry the arm and bolt forward and the points U', of the bifurcated tumbler U will fall by their own weight into the openings W, the convex under surface of the counterweight offering but little opposition to the projection Y, as the bolt slides into place.

By means of the thumb screw z, Figs. 1 and 3, the latch and bolt may be securely fastened from the inside so that they cannot be moved by the knob or key. This result is obtained by having a screw threaded opening in the face plate A', and a thumb screw inserted therein immediately back of the latch head and when the thumb screw is turned down the inner end securely fastens the latch, and since the latch cannot be turned back the intervention of the counterweight pivoted at E, and bearing on the head of the latch shank B' prevents the return of the bolt, by reason of the projection Y.

The thumb screw shown in the accompanying drawings is for a right handed lock, but there may be a similar opening in the opposite face plate to accommodate the thumb screw when the lock is reversed.

What I claim, and desire to secure by Letters Patent, is—

1. In a magnetic lock, the latch operating conjointly with a counterweight pivoted to the face plate, one end of said counterweight in constant contact with the rear terminal of said latch, in combination with a slotted slide, pivoted dog, arm and pin, collar, knob spindle and knobs, substantially in the manner as and for the purpose specified.

2. In a magnetic lock, the knob spindle passing through a collar having an extending arm K' provided with a pin at the end thereof, engaging and operating in combination with a slotted slide, a dog pivoted to the face plate through said slot, the latch and a pivoted counterweight substantially in the manner as and for the purpose set forth.

3. In a magnetic lock, the knob spindle J having the knobs attached thereto, extending through a collar and an arm attached thereto said arm provided with a pin in the end thereof, operating conjointly with a slotted slide, pivoted dog, latch and counterweight in combination with a bolt provided with a projection Y in the manner as and substantially for the purpose set forth.

4. In a magnetic lock, the recessed shank C' of a bolt, sliding between a guide and drum, in combination with a disk and arm O in connection with a drum in the manner substantially as and for the purpose set forth.

5. In a magnetic lock an indented disk provided with the arm O and a notch in the lower edge, having a bifurcated tumbler therein, in combination with a slotted drum having the openings W, two blocks and slotted escut-

eons, in the manner substantially as and for the purpose set forth.

6. In a magnetic lock a slotted drum having the openings W, and two or more guides, a disk provided with an arm which actuates the recessed shank of the bolt and with a notch in the bottom having the base of the bifurcated tumbler therein and the blocks on opposite sides of said disk in combination with the magnetic key in the manner substantially as and for the purpose set forth.

7. In a magnetic lock, two blocks and slotted escutcheons, and indented disk having the arm O and a bifurcated tumbler received at its base into a notch in the lower edge of said disk within a slotted drum, said drum being provided with the openings W, and one or more guides, in combination with a magnetic key, having one or more notches therein, in the manner substantially as and for the purpose set forth.

8. In a magnetic lock, in combination, a shell having a pivot E, post G, and guide L, secured thereto, a collar through which is the rod J, having knobs attached to opposite ends thereof, a latch and slide actuated by an arm K' and pin K², of a collar, and a dog, a thumb screw, counterweight, a bolt having a projection Y, and a recessed shank, a slotted drum having the openings W and one or more guides, an indented disk having an arm O, a bifurcated tumbler received at its base into a notch in the lower edge of said disk, two blocks and slotted escutcheons arranged in the manner substantially as and for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALCUIN E. KINTNER.

Witnesses:

W. H. BURRIDGE,
F. A. CUTTER.