

(No Model.)

2 Sheets—Sheet 1.

B. GOLDENBERG.
LOCK.

No. 483,147.

Patented Sept. 27, 1892.

Fig. 1.

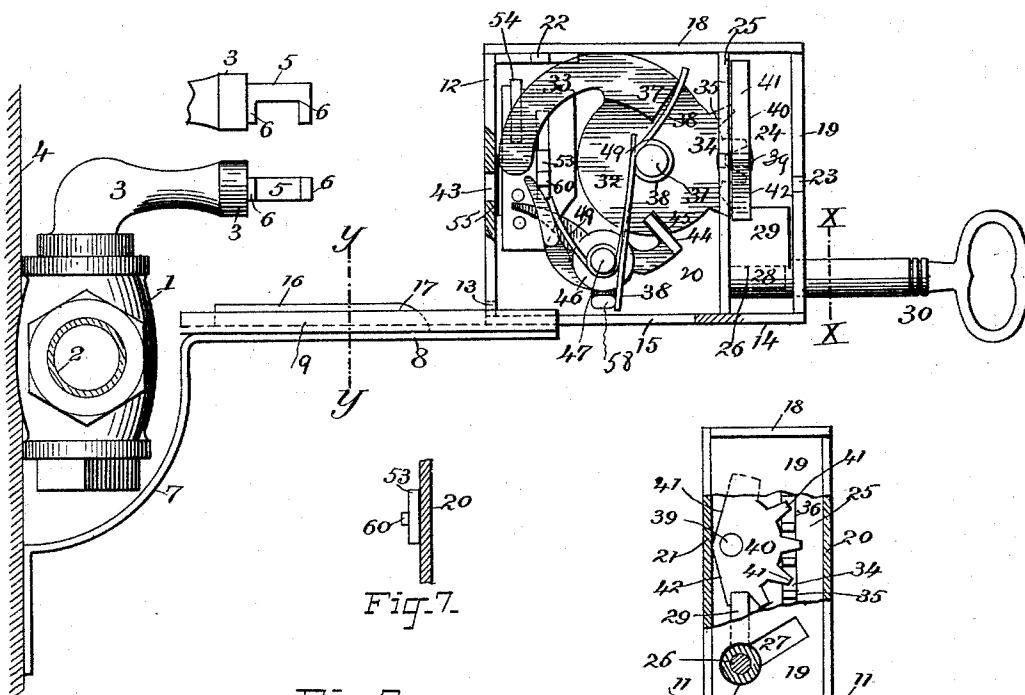


Fig. 7.

Fig. 2.

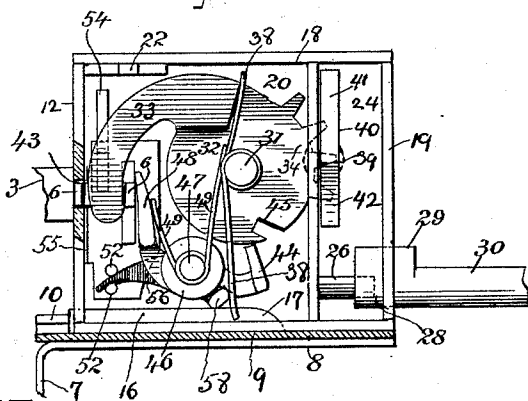
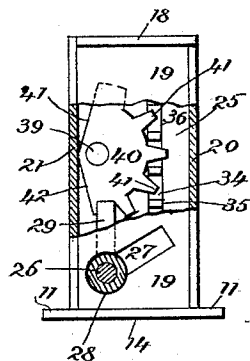


Fig. 3.



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Fig. 4.

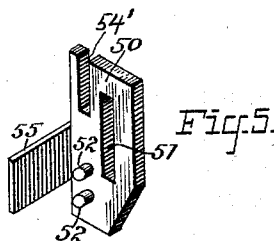
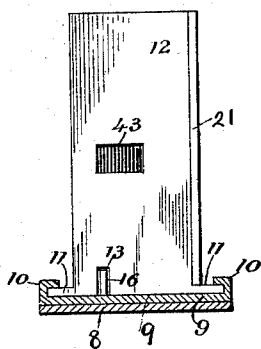


Fig. 5.

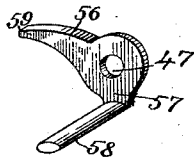


Fig. 6.

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UNITED STATES PATENT OFFICE.

BENJAMIN GOLDENBERG, OF NEW YORK, N. Y.

LOCK.

SPECIFICATION forming part of Letters Patent No. 483,147, dated September 27, 1892.

Application filed July 26, 1891. Serial No. 400,728. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN GOLDENBERG, a citizen of the United States, residing in the city of New York, county of New York, and State of New York, have made new and useful Improvements in Locks, of which the following is a specification.

My invention has for its object to direct the performance of an act through the performance of another, and the specific class of devices used in the accomplishment of this is found in the class of key-traps, and, among others, the specific act which I shall describe herein as illustrating the method of using my invention is the closing or shutting off of the water in a main by means of a valve located in a house in order to permit the locking of the house-door, these two elements being preferably in the same house, although not of necessity so.

It will be apparent that my invention can be applied to the performance of acts not specifically noted herein, such as the switching off of an electric current prior to and permitting the sealing of an opening closed by a window, door, &c. It must be apparent that the combinations and kinds of acts that may be made mutually depending upon one another are quite extensive.

My invention further consists in the details of structure and combination of parts herein, among the many features of which is a device for rendering the movable parts of the lock more inaccessible than usual, so as to prevent, or at least render less possible, the picking of the lock, all of which will be hereinafter set forth.

In the drawings, Figure 1 is a side elevation of the lock, the key in the lock, the cover of the lock being removed, disclosing its interior, a service-pipe and cock, and a bracket and bed, illustrative of the position of the parts during the operation of approaching the lock to the cock to release the key; Fig. 2, a side elevation of the lock with the cover removed to illustrate the mechanical union of the valve-stem and position the movable parts occupy with relation to each other during the act of removing the key from the lock to permit its use in the unsealing of some other aperture or the performance of some other act; Fig. 3, an end elevation of the right-hand

end of the lock, a portion of it being broken away to disclose its interior, a key inserted and detained therein and cut in two on the line *x x*, Fig. 1, for the purpose of preventing confusion of parts; Fig. 4, a left-hand end elevation of the lock and bracket, the bracket being in section, taken on the line *y y*, Fig. 1; Fig. 5, a perspective view of a detail of the lock mechanism which prevents the automatic union of the lock and cock, except when the same are properly united; Fig. 6, a detail of the lock mechanism for operating the element shown in Fig. 5; Fig. 7, a detail of the lock mechanism.

Same figures of reference indicate like parts throughout the several views.

In the drawings, 1 is a cock, valve, or switch controlling a supply of water, gas, electricity, or any other material for the consumption in a building, and 2 a main or supply pipe leading to the valve.

3 is the valve-stem.

The cock can be supported in any desirable manner—as, for instance, to a wall, as at 4. The valve-stem 3 is provided with an outwardly-extending finger 5, shouldered at 6, which can either move right or left, for the purpose herein set forth. A bracket 7, provided with an outwardly-extending bed 8, is secured to the wall 4 under the valve 1 in such a way that the bed 8 will be located directly under the valve-stem 3 when it is turned to shut off the gas, water, &c. Secured to the bed 8 is a plate 9, having lapped side 10, which is adapted to engage with projections 11, formed on the lock. The plate 9 I shall call the “guide-plate,” and its function is to guide the lock up to the valve-stem when the joint act of shutting off the water and releasing the key is being performed.

The left-hand end 12 (in the drawings) of the casing of the lock is provided with an upwardly-extending slot 13, and the bottom wall 14 of the lock-casing is also slotted, as at 15. At a place on the guide-plate 9 aligning with the slots 13 and 15 is located a thin metallic strip 16, which when the lock is moved toward the cock will enter the slots and operate in the manner hereinafter described. The strip 16 is rounded at one end, as at 17, to enable it to better engage the mechanism of the lock.

The lock-casing comprises the walls 12 14

18 19 and side plates 20 21, the plate 21 being adapted to be removed from the casing and secured thereto by the projections 22 23, which pass through holes in the plate 21. The casing can be constructed in any desirable manner.

At the right-end portion of the lock-casing is formed a chamber 24, divided off from the main portion of the casing by the septum 25. The key-spindle 26 is secured to the septum 25 and projects toward the end plate 19 of the casing, said plate being apertured, as at 27, Fig. 3, to conform to the shape of the heel 28 and toe 29 of the key 30. The end plate 19 may be made so as to be readily removable to enable various conformations of key and accompanying devices to be attached to various locks, which will permit the use of variously-conformed keys with the same lock, thereby obviating the necessity of making a new lock for every differently-shaped key—that is to say, by this a differently shaped or conformed key can be used with the same locking mechanism without changing any other part of the particular lock than the removal of the keyway. Both the septum 25 and end plate 19 can be united into one element for the same purpose, and either the end plate 19 alone or that and the septum 25 will be termed the “keyway” in the claims, unless otherwise designated. These keyways can be made to conform to the standard styles of keys and locks and can be interchangeable with my lock whenever it is so desired.

Secured in the sides 20 21 of the lock-casing and extending across the interior thereof is a spindle 31. Upon this spindle is rotatively supported what I term the “bolt-plate” 32, which has extending therefrom the segmental bolt 33, the function of which is to enter between the shoulders 6 of the finger 5 of the valve-stem when said finger is moved into the lock, and by means of which the lock and valve are mechanically united.

The main body of the bolt-plate, or that portion which surrounds the spindle 31, is preferably made concentric with the said spindle. Opposite the bolt 33 is formed a segmental rack 34, the teeth 35 of which extend through a slot 36 cut in the septum 25. A shoulder 37, formed on the bolt-plate, engages with one end of a spring 38, which is supported upon the spindle 31, the other end of which extends downwardly and engages with another element of the lock mechanism hereinafter described.

Upon the septum 25 is a short bolt or spindle 39, which rotatively supports a segmental rack 40, having teeth 41. The segmental rack 40 extends at right angles to the rack 34, the teeth 41 of the rack 40 and the teeth 35 of the rack 34 engaging. The untoothed portion of the rack 40 is squared, as at 41 and 42, which squared sections in their turn abut against the wall 21 of the lock-casing, thereby limiting the oscillation of the rack 40 when moved in either direction. The toe 29 of the key 30

enters one of the teeth of the rack 40, which teeth may be spaced. To permit this, a portion of the rack cut away will be found most convenient. It must now be plain that if the key be turned to the left (considering Fig. 3) the bolt-plate must be vibrated and the finger-bolt 33 moved up and past an opening 43 cut in the plate 12 of the lock-casing, so that when the finger 5 is inserted in this opening, as in Fig. 2, the bolt 33 will pass between the shoulders 6 and secure the valve-stem within the lock. It is not intended, however, that a movement of the key to the right (considering Fig. 3) shall throw the bolt, as this is the function of the spring 38, for should the bolt 33 be capable of movement up and down by means of the key 30 it would not be necessary to mechanically unite the valve-stem and lock together in order that a removal of the key may be obtained. It is only intended that a movement of the key to the left to free the bolt from the valve-stem should be had, the squared section 42 of the segment 40 limiting the throw in this direction. The movement of the key to the right is prevented by the dog 44 engaging with the detent 45, formed in the bolt-plate. When in this position, the toe 29 of the key 30 is held out of alignment with the opening 27 in the plate 19, so that the removal of the key from the lock is prevented until the dog 44 is thrown out of contact with the detent 45. The dog 44 when released from the detent 45 by the insertion of the valve-stem into the lock permits the spring 38 to throw the bolt 33 into the position assumed in Fig. 2, the detent then pressing against the under surface of the bolt-plate 32. The dog 44 is carried by or formed upon the rocker-arm 46, rotatively supported upon the short spindle 47. The opposite end of the rocker-arm 46 is provided with a striker-plate 48, against which the finger 5 strikes when it is moved into the lock. A spring 49, secured upon the spindle 47, engages at one end with the striker-plate 48 and at the other end with the spindle 31, so that when the parts are moved to bring the detent 45 in alignment with the dog 44 the spring will operate to throw the dog back into the detent.

The mechanism before described, when properly constructed and operated, will suffice to secure the performance of the acts herein spoken of—that is, it will render necessary the mechanical union of the lock and valve (thereby shutting off the water) to permit the key to be withdrawn from the lock to enable the house-door to be again sealed with the same key.

Should the bolt 33, by reason of the breaking or disengagement of the spring 38 from the shoulder 37 of the bolt-plate, have a tendency to drop down so far that the teeth 41 on the rack 40 should be thrown past the opening 27 in the plate 19, so as to prevent the key being inserted in the rack 40 to release the valve and lock, the squared section 41 will be brought up against the wall 21 of the valve-

casing, and thereby prevent such abnormal play of the bolt. As the mechanism now stands it is only necessary to bring the valve-stem into mechanical union with the lock in any desired position by passing the finger 5 through the opening 43 in the lock-casing, which finger will strike the striker-plate 48, release the dog 44 from the detent 45, permitting the spring 38 to throw the bolt 33 between the shoulders 6, at the same time turning the rack 40 so as to bring the toe 29 of the key 30 into alignment with the opening 27 in the plate 19, thus permitting the removal of the key. However, in order to make the removal of the key from the lock without the mechanical union of the valve and lock more difficult I use the following mechanism, to the specific detail of construction of which, however, I do not limit myself: A plate 50, Fig. 5, having a slot 51 and pins 52, is movably supported against the wall 20 of the lock-casing. A guide 53, Fig. 7, is formed thereon and works within the slot 51 and permits its upward and downward movement. Another guide 54, working in a slot 54', provided for it in the plate 50, may be used to assist in preserving the plate in a perpendicular position; but this I do not consider essential. An arm 55 is formed on the plate 50 and is adapted to open and close the aperture 43 in the lock-casing, so as to prevent the striker-plate 48 being surreptitiously operated to free the dog 44, it being necessary in order to remove the arm 55 from in front of the aperture 43 to place the lock upon the bed 8 of the bracket 7. A bell-crank lever 56, Fig. 6, is pivotally supported upon the spindle 47, the lower end 57 of which has an outwardly-extending arm 58. The upper end of the lever 56 enters between and engages with the pins 52 on the plate 50. A projection 60 is formed on the guide 53 (see Fig. 7) to limit the upward movement of the arm 59 of the lever 56, the lower end of the spring 38 engaging with the arm 58 and tending to keep the arm 55 constantly before the aperture 43, except when the same is moved downward by the arm 58 coming in contact with the metallic strip 16, as shown in Fig. 2. When this happens by reason of the lock being guided to the valve-stem to unite them and free the key, the arm 59 of the lever 56 is vibrated downwardly, moving with it by reason of its engagement with the pins 52 the plate 50 and with it the arm 55. The contact of the metallic strip 16 and the arm 58 is preferably so timed that the upper portion of the slot will be past the aperture the moment the finger 5 on the valve-stem enters it.

Many changes and modifications may be made in my device without departing from the spirit of my invention.

I claim—

1. The combination, with the bolt-plate having a finger extending therefrom, the bolt-plate being recessed between the finger and the body thereof, a segmental rack on the bolt opposite the finger, and another segmental

rack adapted to engage the rack on the bolt-plate, and a keyway for the key, the said key being adapted to enter the teeth of the last-mentioned rack, substantially as described. 70

2. The combination, with the bolt-plate having a bolt and a rack, another rack adapted to be operated by a key engaging the teeth of the rack, the last-mentioned rack engaging the rack on the bolt-plate, and a stop independent of either of the racks, adapted to engage the key-operated rack to limit its movement in either direction, substantially as described. 80

3. The combination, with the bolt-plate 32, rotatably supported on the spindle 31 and having the concentric bolt 33 at one end and the segmental rack 34 at the other, a segmental rack 40, rotatably supported on the septum 25, the racks 34 and 40 engaging, and a key 30 for vibrating the rack 40, substantially as described. 85

4. The combination, with the key-operated segmental rack 40, having the inclined face 42, adapted to strike the wall 21 of the lock-casing, a key for vibrating the said rack, and a bolt operatively combined with the said rack, the wall 21 limiting the movement of the bolt within the space required for the locking or unlocking movement of the parts, substantially as described. 95

5. The combination, with the bolt-plate 32, rotatably mounted on the spindle 31, having the concentric bolt 33 on one side and the segmental rack 34 at the other, a spring 38, secured on the said spindle and bearing against the lug 37, a rocker-arm 46, centered on the spindle 47, having the striker-plate 48 at one end and the inclined dog 44 at the other, a detent 45 in the bolt-plate, and a spring 49 about the spindle 47, one end of which engages the rocker-arm, substantially as described. 105

6. The combination of a valve or the like having a projection 5, provided with outwardly-extending shoulders 6, a lock-casing having the aperture 43, a bolt-plate 32 on the spindle 31, having the concentric bolt 33 on one side and the segmental rack 34 on the other, a spring 38, secured on the said spindle and bearing against the lug 37, a rocker-arm 46 on the spindle 47, having the striker-plate 48, opposing said aperture, and an inclined dog 44, a detent 45 in the bolt-plate, and a spring 49, engaging the spindle 47 and rocker-arm, the striker-plate 48 being adapted to free the dog 44 and throw the bolt 33 between the shoulders 6, substantially as described. 110 115 120

7. A lock-casing having the septum 25, a segmental rack 40, rotatably secured thereto and provided with the inclined face 42, a wall 21 to engage therewith, the key-spindle 26 on the septum, an opening 27 in the end plate 19, conforming to the shape of the key and aligning with the key-spindle, a bolt-plate 32 on the spindle 31, a segmental rack 34, engaging the rack 40, and a concentric bolt 33, substantially as described. 125 130

8. A lock-casing having the aperture 43, the sliding plate 50, guided on the casing, a plate 55, extending from said plate and opposing the said aperture, a lever 56 on the spindle 5 47, having two arms 58 59, the arm 59 engaging the plate 50, a spring 38, engaging said lever, the slot 13 15 in the casing, and a support for the lock, having the strip 16, aligning with said slot and adapted to engage the arm 10 58 of the lever 56, substantially as described.
9. A lock-casing having the removable septum 25 and end plate 19, the end plate 19 being apertured to conform to shape of a key, the septum having the key-spindle 26, aligning with said aperture, and the segmental rack 40, adapted to be vibrated by a key, substantially as described.

10. The bracket 7, having the bed 8, the plate 9, with overlapping sides 10, secured to the bed, and a strip 16, fixed to the plate 9, 20 in combination with the lever 56, having the arms 58 59, the arm 58 being adapted to engage the strip 16, and the movable plate 50, having the outwardly-extending plate 55, the arm 59 of the lever 56 engaging the plate 50, substantially as described. 25

Signed at the city, county, and State of New York the 24th day of July, 1891.

BENJAMIN GOLDENBERG.

Witnesses:

JOSEPH G. LEVY,
BENEDICT S. WISE.