No. 608,163. Patented July 26, 1898.

F. V. WALSTROM & J. ERICKSON.

BICYCLE LOCK.

(Application filed May 13, 1897.)

(No Model.)

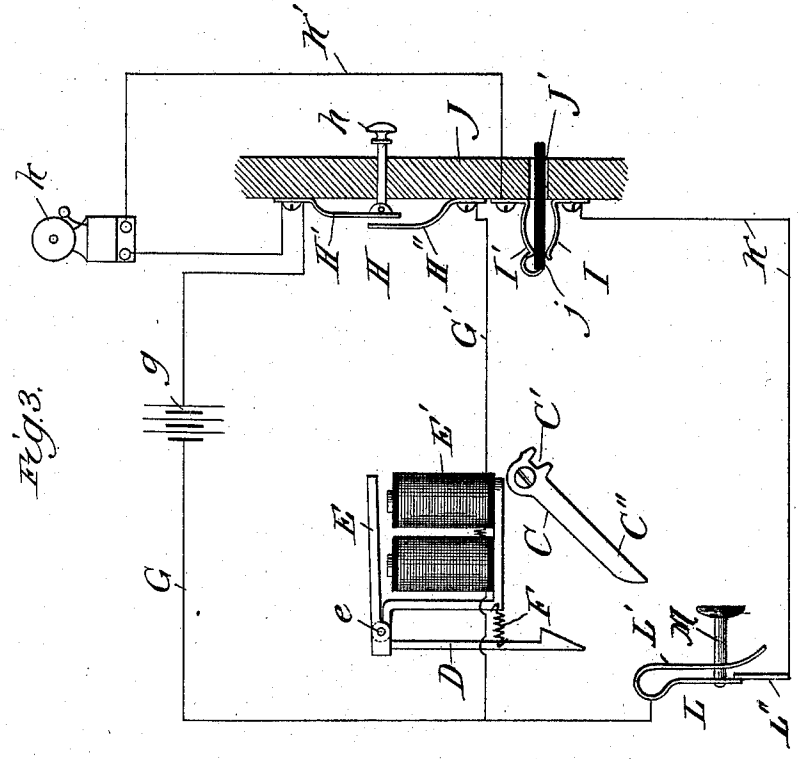


Fig. 3.

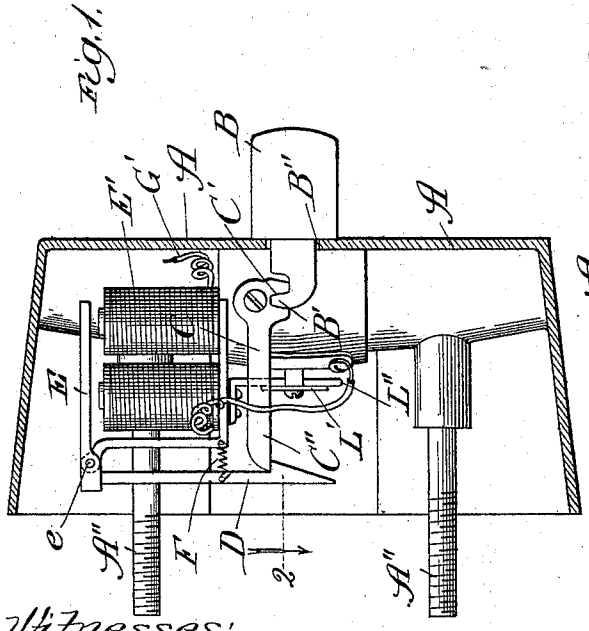


Fig. 1.

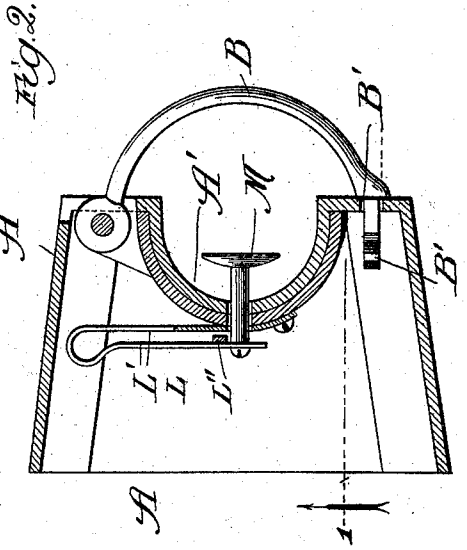


Fig. 2.

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UNITED STATES PATENT OFFICE.

FRANK V. WALSTROM AND JOHN ERICKSON, OF CHICAGO, ILLINOIS.

BICYCLE-LOCK.

SPECIFICATION forming part of Letters Patent No. 608,163, dated July 26, 1898.

Application filed May 13, 1897. Serial No. 636,302. (No model.)

To all whom it may concern:

Be it known that we, FRANK V. WALSTROM and JOHN ERICKSON, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Bicycle-Locks, of which the following is a specification.

The object of the invention is to provide a lock for the racks or holders for supporting bicycles which are so frequently placed outside buildings and are therefore liable to have their contents stolen, which may be readily unlocked from a point at a distance therefrom, and also so arrange the lock that an alarm shall be given in event of its being broken or the bicycle otherwise being removed by an unauthorized person.

This improvement is illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of the lock on the line 1 of Fig. 2. Fig. 2 is a horizontal section on the line 2 of Fig. 1; and Fig. 3 is a diagrammatic illustration of the electrical connections of the lock, together with the circuits and the keyboard for operating it.

Like letters refer to similar parts throughout the several views of the drawings. All sections are taken in the direction indicated by the arrows.

A designates a casing, preferably of cast metal, which is of such a form and size as to be adapted to serve as a rack or holder to support a bicycle and to contain the necessary mechanism for the lock and alarm. To accomplish the former purpose, the front of the casing is provided with a vertical groove A′ of a proper size to receive, preferably, the rim of one of the wheels of the bicycle. Bolts A″, extending from the casing through the surface against which it is supported, may be used to hold it in place, nuts being screwed upon the outer ends.

To secure the bicycle to the casing, the latter is provided with a hasp B, hinged at one side of the groove and having at the opposite end or shank a hook B′, this hooked end extending through a small opening B″ into the interior of the casing when the hasp is closed.

Within the casing, pivoted at one side thereof, is a latch or lock-bolt C, having a notch C′, adapted to engage the hook B′, and an extension C″. This extension projects toward the back of the casing, its end being in a position to be engaged by a tumbler D, which is mounted upon the outer extremity of the movable armature E of an electromagnet E′. The armature E is pivoted at *e* and is normally held away from the poles of the magnet by a spring, which may be a spiral tension-spring, as shown at F, bringing the tumbler D into the field of movement of the extension of the latch.

From the magnet E′ conductors G G′, including in their circuit a battery or other source of electrical energy *g*, lead to the opposite sides of a contact device H, situated at any desired point. This contact device may be a circuit-closer when, as shown in the accompanying drawings, the circuits are intended to be normally open, consisting of a metallic strip H′, connected to the conductor G, adapted to be forced into contact with a similar strip H″ by a key or push-button *h*.

Preferably in proximity to the key *h* are two metallic strips I I′, normally in contact, which may be located upon the back of a board J, supporting the key *h*, upon opposite sides of a slit or opening J′ therein, into which a check or numbered piece of insulating material *j*′ may be inserted to separate the contact-strips.

From the strips I I′ lead conductors K K′, the latter of which includes in its circuit a bell *k* or other audible or visual alarm or signal, the conductor G, and the battery *g* to a contact device L. This preferably consists of a metallic spring-strip L′, connected to the circuit of the conductor K′, which normally rests against the metallic stop L″, which is in turn connected to the conductor K. A projection or button M, extending through a hole in the surface of the groove A′ opposite the hasp, is engaged by the tire of the bicycle locked in the rack, and being pressed inward opens the circuit. The conductor G′, leading to this electromagnet, and the conductor K and stop L″ are insulated from the metallic portions of the lock, while the terminals of the other conductors and contact-strip L′ may be connected to or in contact with it.

In use the operation of the device is as follows: A person wishing to secure a bi-

cycle in the rack, it being mounted at the proper height, with the hasp released, places the rim of one of the wheels in the groove A′ and turns the hasp over the inside of the rim, pressing the shank through the hold B″. The latch and tumbler being in the position shown in Fig. 3, the latch being prevented from falling beyond about that angle by its extension C′ coming in contact with the casing or a stop attached thereto, the hook B′ strikes against the left-hand side of the notch C′ and presses it upward until the opposite side of the notch is forced down on the hook and the extension is engaged by the tumbler D, when the bicycle is locked in place, and the alarm-circuit is opened by the pressing in of the button M. The person then goes to the point or station where the key and check-board may be under the care of an attendant and receives a check corresponding to the number of the lock in which the bicycle is placed, the attendant removing it from the slot registering with the contacts I I′ of this circuit, and thus closing it at this point. It will be seen that if it is attempted to remove the wheel by breaking open the hasp the button M will be released, closing the circuit through the contact device L, conductors K, K′, and G, and the check-contacts I I′, thus causing the alarm-bell to ring and notifying the attendant. This would also occur if an unauthorized person released the bicycle by pressing the key *h* without inserting the check in the slot J′. When the holder of the check desires to release the bicycle, he returns the check to the attendant, who inserts it in the proper slot, thus opening the circuit, so that the alarm-bell will not ring when the button M is released. He then presses the key *h*, and the circuit is closed through the contact device H, conductors G G′, and the electromagnet E, thus energizing the latter, and by the consequent motion of the armature and tumbler dropping the latch and releasing the hasp.

Although the device as herein described is arranged to operate on a normally open circuit, it is not intended to limit the invention to this, since the accomplishing of the result by the changes in the electrical condition of the circuit which would arise from the opening of a normally closed circuit would be equally within the spirit of the invention.

When the term "contact device" is used in the claims without other limitation, it is to be understood as meaning any circuit-changer or other device which by changing the electrical condition of the circuit will accomplish the desired result.

It will be seen that though this lock is primarily intended for securing bicycles it might be equally well used for other vehicles or by simple changes in the form of the casing for other objects.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a bicycle-lock, the combination of a rack or holder to receive some portion of the bicycle, a movable hasp to secure the bicycle in place in said rack, a latch to engage the same, a tumbler engaging said latch, and an electromagnet for actuating the tumbler, electrically connected with a contact device for changing the electrical condition of the circuit, substantially as described.

2. In a bicycle-lock, the combination of a rack or holder to receive some portion of the bicycle, a movable hasp to secure the bicycle in place in said rack, a latch to engage the same, a tumbler engaging said latch, and an electromagnet for actuating the tumbler, the magnet being connected by a normally open circuit to a contact device for closing the same, substantially as described.

3. In a bicycle-lock, the combination of a casing adapted to receive some portion of the bicycle and serve as a rack therefor, a movable hasp to secure the bicycle in place in said rack, a latch to engage the same, a tumbler engaging said latch, and an electromagnet for actuating the tumbler, the latch, tumbler and magnet being located within the casing, and the magnet electrically connected with a contact device for changing the electrical condition of the circuit, substantially as described.

4. In a bicycle-lock, the combination of a locking mechanism, an alarm separate from said lock but electrically connected therewith, and a contact device at the lock adapted to be operated by the bicycle upon its insertion or removal, substantially as described.

5. In a bicycle-lock, the combination of an electrically-actuated locking mechanism, an alarm separate from said lock but electrically connected therewith, and a contact device at the lock adapted to be operated by the bicycle upon insertion or removal, substantially as described.

6. In a bicycle-lock, the combination of a locking mechanism, an alarm separate from said lock but electrically connected therewith, and a contact device in the alarm-circuit also separated from the lock and adapted to be operated by the insertion or removal of a check to be given to the person securing the bicycle in the lock, substantially as described.

7. In a bicycle-lock, the combination of a locking mechanism, an alarm separate from said lock but electrically connected therewith, a contact device at the lock adapted to be operated by the bicycle upon its insertion or removal to open or close the alarm-circuit, and a second contact device in said circuit, substantially as described.

8. In a bicycle-lock, the combination of an electrically-actuated locking mechanism, a key or button to control the same, an alarm electrically connected with said lock, and a contact device in the alarm-circuit and situated in proximity to the controlling-key, substantially as described.

9. In a bicycle-lock, the combination of an electrically-actuated locking mechanism, an alarm electrically connected with said lock,

and a contact device at the lock adapted to be operated by the bicycle upon its insertion or removal, substantially as described.

10. In a bicycle-lock, the combination of an electrically-actuated locking mechanism, a key or button to control the same, an alarm electrically connected with said lock, a contact device in the alarm-circuit at the lock, and a second contact device in said circuit and situated in proximity to the controlling-key, substantially as described.

11. In a bicycle-lock, the combination of a locking mechanism, an alarm separate from the said lock but electrically connected therewith, and a contact device at the lock, the movable projection or button of which is adapted to be engaged by the portion of the bicycle within the lock to open the circuit, substantially as described.

12. In a bicycle-lock, the combination of a locking mechanism, an alarm separate from said lock but electrically connected therewith, and a contact device in the alarm-circuit also separated from the lock and adapted to be closed by the removal of a check to be given to the person securing the bicycle in the lock, substantially as described.

13. In a bicycle-lock, the combination of an electrically-actuated locking mechanism, a key or button to control the same, an alarm electrically connected with said lock, a contact device in the alarm-circuit adapted to open the same when the bicycle is in place in the lock, and a second contact device in the same circuit adapted to be closed by the removal of a check to be given to the person securing the bicycle in the lock, substantially as described.

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