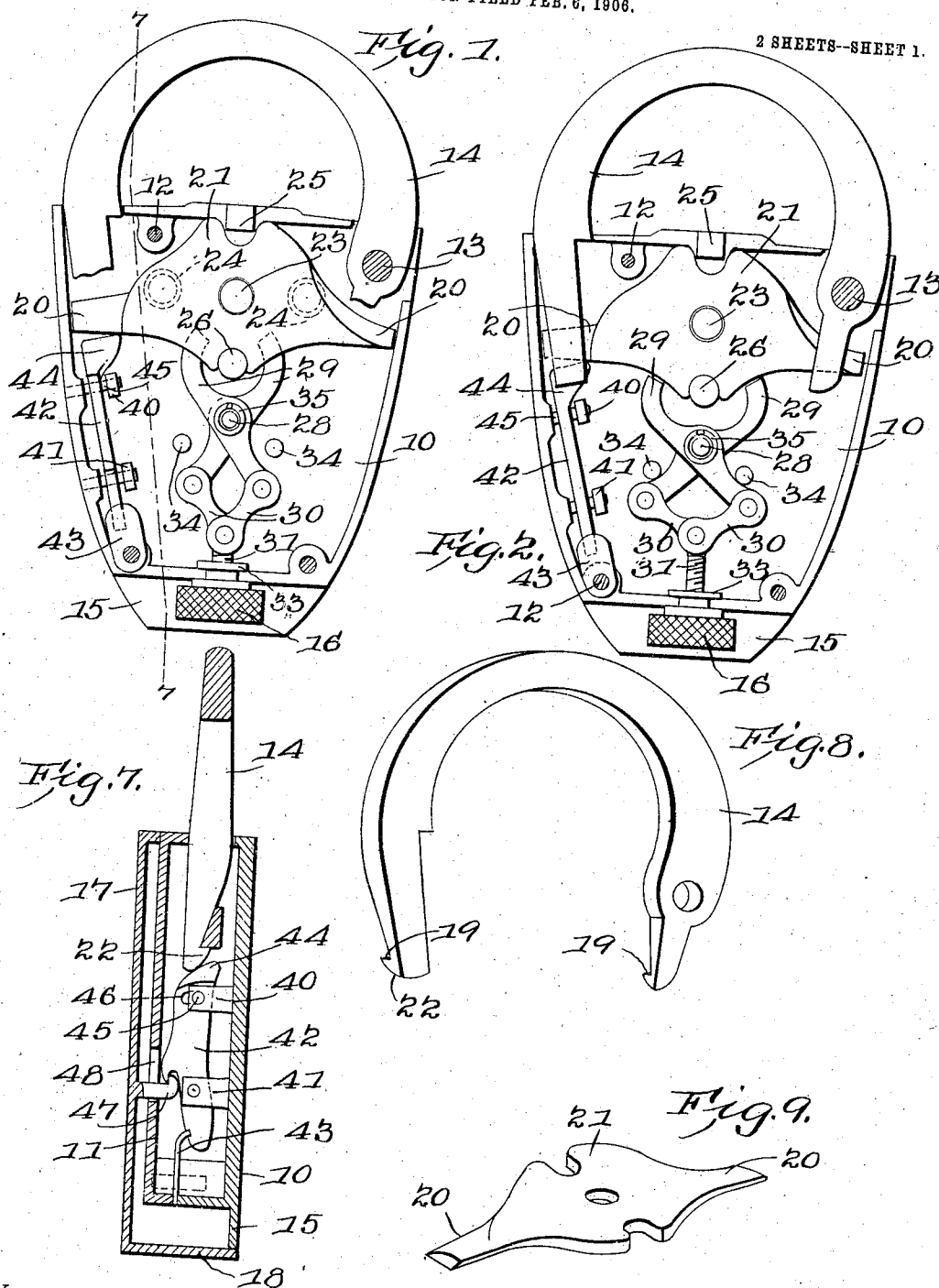


No. 834,917.

PATENTED NOV. 6, 1906.

C. LIACI.
KEYLESS PADLOCK.
APPLICATION FILED FEB. 6, 1906.

2 SHEETS--SHEET 1.



WITNESSES:

E. H. Stewart
Jno E Parker

Costmo Liaci, INVENTOR.

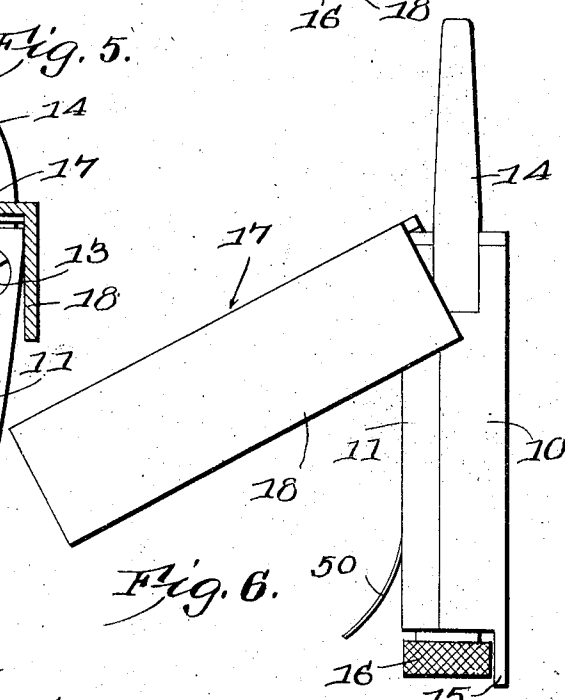
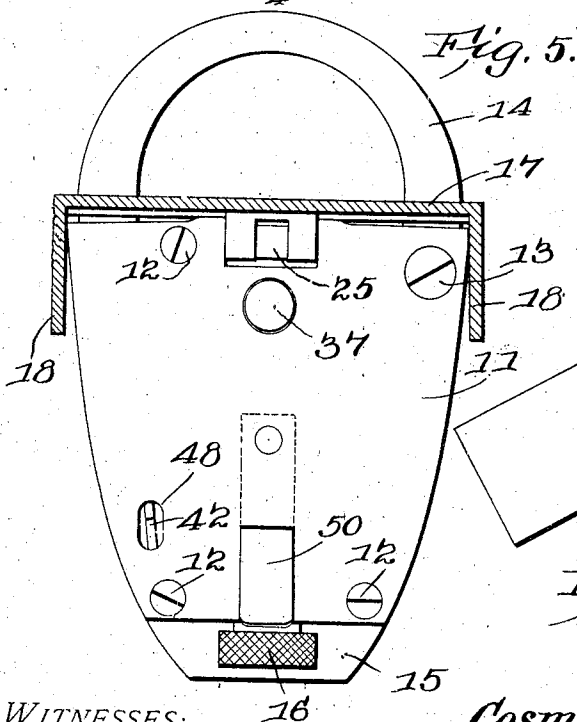
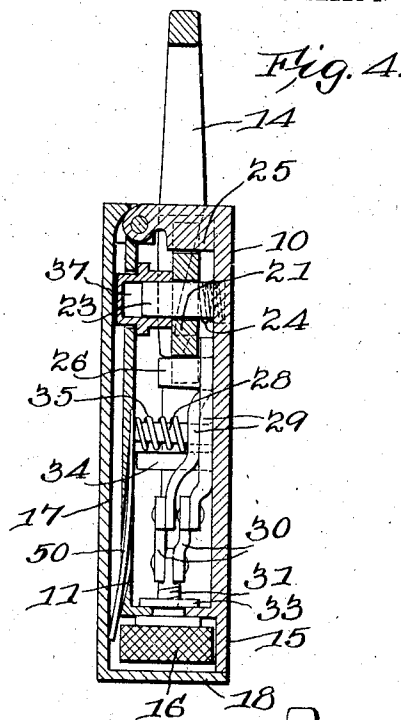
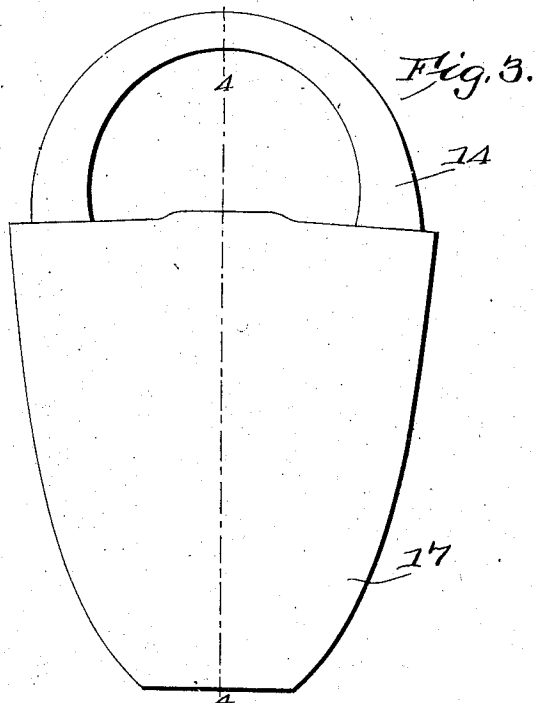
By *Chas. H. Coe*
ATTORNEYS

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2 SHEETS—SHEET 2.



WITNESSES:

Edw. Howard
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Cosmo Liaci,

INVENTOR.

By

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UNITED STATES PATENT OFFICE.

COSMO LIACI, OF NEW HAVEN, CONNECTICUT, ASSIGNOR OF ONE-FOURTH TO RAFFAELE GAGLEARDI, ONE-FOURTH TO LUIGI COLAVECCHIO, AND ONE-FOURTH TO EGIDIO FERRAINOLO, OF NEW HAVEN, CONNECTICUT.

KEYLESS PADLOCK.

No. 834,917.

Specification of Letters Patent.

Patented Nov. 6, 1906.

Application filed February 6, 1906. Serial No. 299,807.

To all whom it may concern:

Be it known that I, COSMO LIACI, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Keyless Padlock, of which the following is a specification.

The principal object of the present invention is to provide a keyless padlock in which the shackle or similar member can be opened only after the adjustment and manipulation of a series of members, and, further, to so arrange the lock-casing that all of the parts will be concealed from view, the casing being solid and without projecting buttons, disks, or other members.

A further object of the invention is to provide a padlock in which the opening means are shielded and protected from exposure or accidental damage.

A still further object of the invention is to provide a padlock that cannot be opened by throwing back tumblers by a key or the like or by blows on the exterior of the padlock-casing.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts herein-after fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a sectional elevation of a padlock constructed in accordance with the invention, the shackle being in locked position. Fig. 2 is a similar view with the shackle-locking bolt in position to be released by pressure. Fig. 3 is a face view of the front of the padlock with the shield in closed position. Fig. 4 is a transverse section of the padlock on the line 4 4 of Fig. 3. Fig. 5 is a view similar to Fig. 3, the shield being open and illustrated in section. Fig. 6 is a side elevation of the padlock with the shield in open position. Fig. 7 is a sectional elevation of a portion of the padlock on the line 7 7 of Fig. 1, showing the shield-locking mechanism. Fig. 8 is a perspective view of the shackle detached. Fig. 9 is a similar view of the shackle-locking bolt.

Similar numerals of reference are employed

to indicate corresponding parts throughout the several figures of the drawings.

The lock-casing proper is formed of two members 10 and 11, that are connected together by a number of securing-screws 12 and 13, the screw 13 forming also the pivot on which the shackle 14 is mounted. The casing resembles in general contour an ordinary form of padlock, and at the lower end of said casing is a downwardly-projecting flange 15, that projects below the body of the casing and affords a space for the milled head 16 of a dog-manipulating screw which may be turned for the purpose of locking or releasing the shackle-engaging bolt.

To the upper end of the section 10 of the casing is hinged a shield 17, having a marginal flange 18, within which the casing as a whole may be arranged when the shield is closed, so that all of the movable parts of the lock are concealed and protected.

Both the pivoted and the locking ends of the shackle 14 are provided with shoulders 19, and the shouldered ends are tapered or inclined in order that they may ride freely in one direction over the tapered ends 20 of a locking-bolt 21, the tapered locking end of the shackle being extended to form a cam 22 for a purpose hereinafter described.

The locking-bolt is in the form of a plate, from the opposite sides of which extend the locking-tongues 20, and at the center of the plate is an opening for the reception of a guiding-pin 23, that is secured to the rear plate of the section 10 of the casing, and on opposite sides of the pin are coiled springs 24, that tend to thrust the plate outward and maintain its locking-tongues in engagement with the shoulders 19 of the shackle. The upper and lower portions of the plate are recessed, the upper recess extending around a lug 25, to which the shield is pivoted, while the lower recess receives a guiding-pin 26, that projects from the rear wall of the casing 10.

The casing 10 is further provided with a pin 28, on which are mounted two locking-dogs 29, that may be moved to a position under the locking-bolt 21 (shown in Fig. 1) or to a position free from the bolt, as shown in Fig. 2. The tails of these dogs are connected

by links 30 to a screw 31, which extends into a threaded opening formed in the milled nut 16, the inner end of said nut being provided with a groove that fits within an opening 5 formed in the lower wall of the casing, said nut being held from endwise movement by collars 33, which are preferably formed integral with said nut.

When the shield is moved to open position, 10 access may be had to the nut 16, and the latter may be turned in order to throw the dogs 29 below the locking-bolt 21 or may be turned in the contrary direction to move said dogs to a position free from the bolt, as 15 shown in Fig. 2, excess movement of the dogs being prevented by stop-pins 34. The dogs are held down in proper position by a helical spring 35, encircling the pin 28, and when said dogs are in the position shown in Fig. 1 20 it is impossible to depress the locking-bolt sufficiently to disengage the same from the shackle 14; but when the dogs are in the position shown in Fig. 2 the locking-plate may be pressed down to disengage the shackle. 25 To manipulate the locking bolt or plate, a button 37 is slidably mounted on the pin 23 and extends through an opening in the upper portion 11 of the casing, and by depressing this button after the dogs have been moved 30 to the position shown in Fig. 2 the bolt may be moved down and the shackle thrown open.

It will be observed that to successfully open the lock it is necessary to first turn the 35 nut 16 in the proper position and then press downward on the button 37, and these operations must be carried on in proper order or sequence, so that it is extremely difficult for a person unfamiliar with the construction of 40 the lock to open the same or to lock the same, it being observed that when the shackle is moved to open position the tail end of the pivot-lug of the shackle will move over the locking-bolt, and if the locking-dogs are then 45 moved to the position shown in Fig. 1 it will be impossible to close the shackle, while if the parts are allowed to remain in the position shown in Fig. 2 and the shackle moved to closed position the locking-bolt will en- 50 gage and hold the same, so that it is not always necessary to manipulate the dogs 29.

It will be observed that both ends of the shackle engage with the locking bolt or plate, so that when the shackle is subjected to 55 strain equal force will be exerted on both ends of the locking-bolt and the latter cannot be readily twisted or broken.

One of the principal features of the invention, however, resides in the employment of 60 a shield which covers all of the operating parts of the lock, and when this shield is closed the lock presents no keyhole, buttons, disks, or other means which would suggest the manner of opening the lock. This

shield serves to protect the movable parts 65 when the locks are used in exposed position—as, for instance, switch-locks—and no person can successfully tamper with the lock without previous knowledge of the manner of opening the shield. 70

Arranged within the lock-casing are two studs 40 and 41, and to the latter is pivoted a spring-catch 42, one end of which is engaged by a spring 43, while the opposite end is provided with a cam 44, that is arranged to be 75 engaged by the cam 22 at the free end of the hasp. The stud 40 carries a pin 45, arranged to extend through a slot 46 in the catch 42 for the purpose of guiding the latter and limiting its play. The catch 42 is arranged to 80 engage a keeper 47 in the form of a stud projecting from the inner face of the shield and arranged to extend through a suitable opening 48 in the portion 11 of the lock-casing.

When the shield is moved down to the position shown in Figs. 3, 4, and 7, the keeper 47 85 passes through the opening 48 and is engaged by the catch 42, and the shield is held in locked position until the shackle or bow 14 is pressed inward, whereupon the cam 22 at the 90 free end of the shackle will engage the cam 44 and move the catch 42 to an extent sufficient to release the keeper 47, whereupon the shield is thrown partly open by a spring 50, that is carried by the portion 11 of the casing. 95

I claim—

1. A padlock including a casing and a shackle, a shield within which a portion of the casing is inclosed, and a concealed shield-locking means movable to release position 100 by inward pressure on the locked shackle.

2. The combination with a padlock including a casing and a shackle, of a pivoted shield within which a portion of the casing is arranged, and a concealed shield-locking means 105 movable to release position by inward pressure on the locked shackle.

3. The combination in a padlock, of a casing, a shackle having a cam-shaped end, a shield for inclosing a portion of the casing, 110 and a spring-catch for locking the shield in closed position, the cam being arranged to engage said catch and move the same to release position when inward pressure is exerted on the locked shackle. 115

4. In combination, a keyless padlock including a casing and a shackle, a shield pivoted to the casing and normally inclosing a portion of said casing, manually-operable lock-opening means also concealed by the 120 shield, a spring tending to throw the shield to open position, a keeper projecting from the innerface of the shield and extending through an opening in said casing, a spring-actuated catch for engaging the keeper, means for pivotally supporting said catch within the casing, the shackle and the catch having inter- 125 engaging cams to permit movement of the

catch to release position when pressure is exerted on the locked shackle.

5 5. The combination in a padlock, of a casing, a shackle, a locking-bolt arranged to engage both ends of the shackle, a push-button arranged to effect bodily movement of the bolt and extending through an opening in the casing, and a shield normally concealing the button.

10 6. In a padlock, the combination with a casing, of a shackle, a spring-actuated manually-operable shackle-engaging member, a pair of pivotally-mounted locking-dogs, a screw, links connecting the screw to said dogs, and means for adjusting the screw to move said dogs into and from alinement with said locking member.

15 7. The combination with a padlock, of a casing, a shackle, a spring-actuated manually-operable bolt for engaging the shackle, a pair of pivotally-mounted locking-dogs movable into and out of alinement with the bolt, a screw, links connecting the screw to the dogs, and a manually-operable nut mounted
25 in the casing and engaging said screw.

8. In a padlock, the combination with a casing, having a front opening, of a shackle, a shackle-locking bolt, a spring tending to move the bolt to shackle-engaging position, a button engaging said bolt and extending
30 through the casing-opening, a pair of pivotally-mounted dogs movable into and out of alinement with said bolt, a screw, means for connecting the dogs to the screw, and a manually-operable nut projecting from the casing
35 and mounted on said screw.

9. The combination with a padlock, of a casing, a pivotally-mounted shackle, both ends of which are provided with locking-shoulders, a spring-actuated plate having a
40 pair of oppositely-directed arms arranged to simultaneously engage said shoulders, and an operating-button projecting from said plate.

In testimony that I claim the foregoing as my own I have hereto affixed my signature
45 in the presence of two witnesses.

COSMO LIACI.

Witnesses:

MICHELE RICCIO,
ANTHONY SPINELLO.