

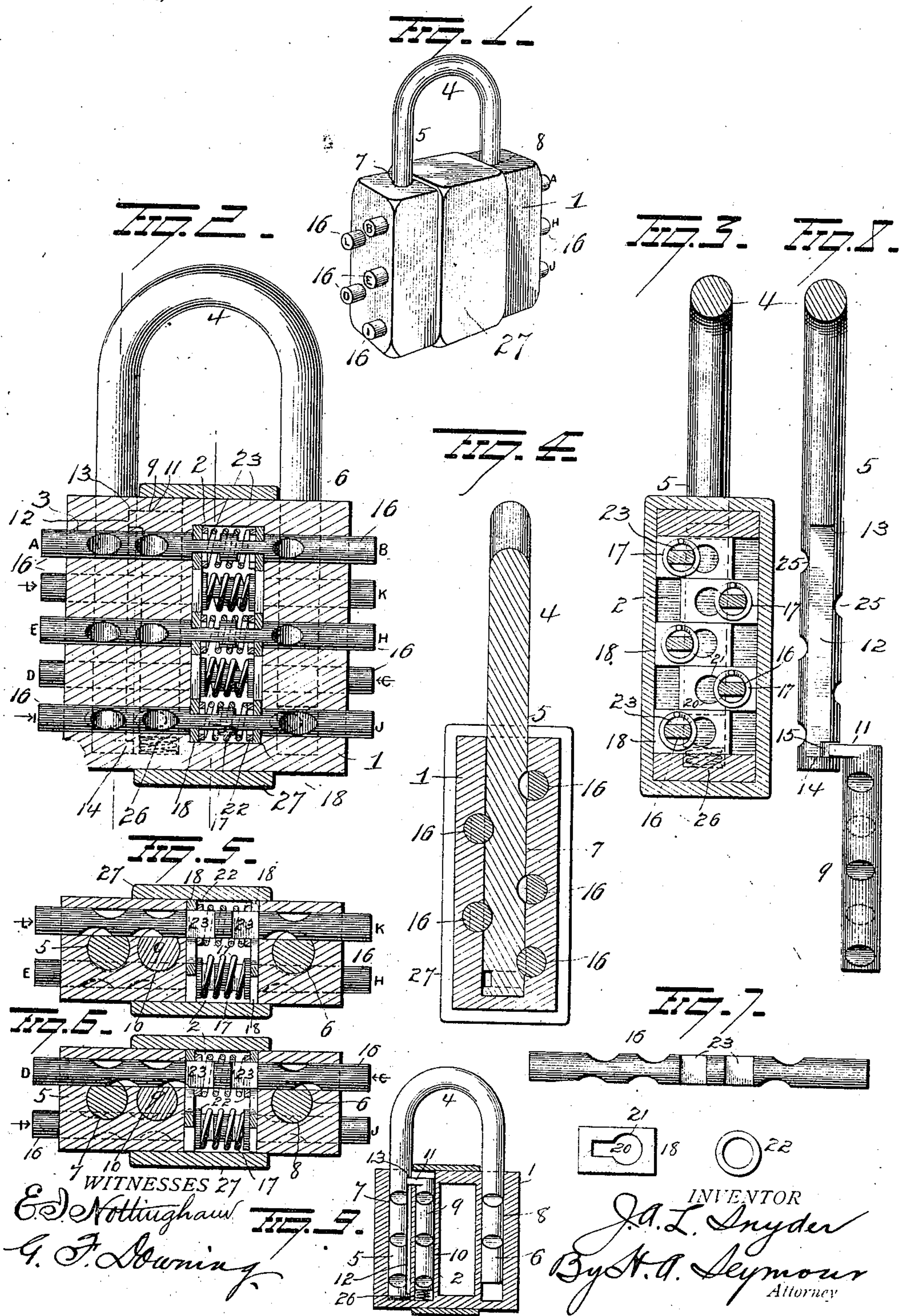
No. 625,989.

Patented May 30, 1899.

J. A. L. SNYDER.
PERMUTATION PADLOCK.

(Application filed Sept. 16, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

JOHN AUTES LATROBE/SNYDER, OF SOMIS, CALIFORNIA.

PERMUTATION-PADLOCK.

SPECIFICATION forming part of Letters Patent No. 625,989, dated May 30, 1899.

Application filed September 16, 1898. Serial No. 691,102. (No model.)

To all whom it may concern:

Be it known that I, JOHN AUTES LATROBE SNYDER, a resident of Somis, in the county of Ventura and State of California, have invented certain new and useful Improvements in Combination-Padlocks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it ap-
10 pertains to make and use the same.

My invention relates to an improvement in combination-locks, and particularly to padlocks designed for use as bicycle-locks, such as shown and described by Letters Patent
15 No. 603,711, the object of my present invention being to simplify, improve, and strengthen the construction disclosed by my former patent, whereby to simplify and improve the same
20 and render it more efficient, secure, and convenient to manipulate.

With these objects in view my invention consists in certain novel features of construction and combinations and arrangements of
25 parts, as will be more fully hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in perspective of my improved lock. Fig. 2 is a longitudinal sectional view. Figs.
30 3 and 4 are vertical transverse sectional views. Figs. 5 and 6 are horizontal transverse sectional views. Fig. 7 is a view showing tumbler 16, a locking-plate 18, and a washer 22. Fig. 8 is a detail view showing
35 one of the shackle-legs and the relation of the securing-pin 9 thereto. Fig. 9 is a longitudinal sectional view of the lock-casing with the tumblers removed and the shackle shown in elevation.

1 represents the body portion or casing of my improved lock and is preferably composed of a single piece of metal provided with a longitudinal slot or opening 2 a little to one side of the center thereof, intersected by a plu-
45 rality of tumblers or pin-guides 3, five of these guides or holes, arranged alternately, being shown in the drawings.

The shackle 4 is provided with a long arm 5 and a shorter arm 6, adapted to be fitted in
50 parallel shackle-arm guides or sockets 7 8, formed parallel with the longitudinal slot or

opening 2. A key or securing-pin 9 is disposed in a key guide or socket 10 in close proximity to the long shackle-arm socket 7 and communicating therewith near its upper
55 end. The key or pin 9 is provided at its upper end with a lug or projection 11, adapted to bear against a flat portion 12 of the long shackle-arm 5, said long shackle-arm having a shoulder 13 at the upper end of the flat por-
60 tion and a shoulder 14 at the lower portion thereof and provided with a groove or recess 15 near its lower end, extending partially around it to permit the partial turning of the shackle when the lock is unlocked and the
65 pin or key 9 is in place.

Fitted in the transverse tumbler or locking-pin seats or guides 3 are the tumblers or locking-pins 16, each being of a length greater than the width of the lock-casing and fitted
70 between the walls of the slot or opening 2, with coiled springs 17 and locking-plates 18. Each plate 18 is provided with an elongated slot 20, enlarged and rounded at one end, as at 21, so as to be of sufficient size to permit
75 a tumbler or pin 16 to turn therein. Each tumbler or pin is provided with parallel flat faces 23, which are engaged by the contracted portion of the slot or opening 20 of a plate 18 when the tumbler or locking-pin is in the po-
80 sition desired. Each tumbler or locking-pin 16 is provided with two of these plates 18 (at the respective walls of the opening or slot 2) and have the coiled spring 17 between them, thus permitting the tumblers or locking-pins
85 16 to be pushed in either direction and returned to their normal position. Suitable washers 22 may be placed at each end of the spring to prevent its displacement when the plates are moved. The plates 18 when their
90 slots 20 are fitted in portions 23 of the tumblers or pins 16 will move therewith and prevent any unauthorized withdrawal of the tumblers or pins.

The shackle-legs 5 6 and the key or pin 9
95 are recessed or cut away in the planes of the tumblers or locking-pins to form tumbler-seats 25, and the tumblers or locking-pins are similarly cut away or recessed at intervals on one side in alinement with the shackle-legs
100 and key or pin 9 and are cut away or recessed on their opposite sides slightly out of the

plane of the shackle-legs and key or pin. When the parts are first assembled, the actuating-springs or the tumblers or locking-pins normally hold the recesses thereof in alinement with the shackle-legs and pin 9, and hence permit the easy removal of the shackle from the lock. The end of each tumbler or locking-pin is provided with a letter or indicating numeral or sign, and when it is desired to form a certain combination it is simply necessary to give the tumbler or locking-pin a half-turn, the result of which will be to present the side of the tumbler to the shackle-arms and pin 9, where the recesses are out of alinement therewith, and hence the spring will normally hold a portion of the tumbler or pin in the recessed portion of the shackle-legs and pin 9 and prevent the withdrawal of the shackle from the lock. Any number of these tumblers or locking-pins may be turned and form part of the combination.

When it is desired to unlock the lock, it is simply necessary to push the tumblers forming part of the combination, when the recesses therein will be brought into alinement with the shackle-legs and pin 9. A spring 26, provided at the lower end of the pin 9, will then force same upward, and the projection 11 on the upper end of the pin 9 will bear against the shoulder 13 of the shackle-arm 5 and force same upward. The pin 9 will then serve to hold the tumblers forming part of the combination in such position that the recesses therein will be in alinement with the shackle-arms and permit the easy withdrawal of the shackle until the shoulder 14 of the long arm 5 of the shackle abuts against the lug or projection 11 of the pin 9, which will prevent the entire withdrawal of the shackle, but permit it to turn (due to the recess 15 in the arm 5) a sufficient distance to release the articles locked. A metallic band 27 is adapted to fit snugly around the frame, inclosing the opening 2 and preventing the withdrawal of the pin 9.

When it is desired to lock the device, it is simply necessary to force the shackle downward until the shoulder 13 engages the lug or projection 11 on the pin 9, which will force said pin downward and release the tumblers or locking-pins held thereby and permit same to spring into the recesses in the shackle-arms and pin 9, and hence lock the shackle in place.

When it is desired to place a new tumbler or locking-pin in the combination or to take out of the combination one already in, it is simply necessary to remove the band 27 and move the plates 18 of that particular tumbler or pin until the enlarged portion 21 is in alinement with the tumbler and then give the tumbler a half-revolution and move the plates 18 back, thus permitting the contracted portion of the slot 20 to engage the flat parallel faces 23 of the tumbler, and hence secure same in place.

As many tumblers or pins as desired may be placed in the combination, and it will be readily seen that with my improved lock the

owner of the lock can readily change the combination of his lock as often as he likes with practically little trouble.

Various slight changes might be made in the general form and arrangement of the several parts described without departing from the spirit and scope of my invention, and hence I would have it understood that I do not wish to limit myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a lock, the combination with a frame having sockets or guides for shackle-legs and a shackle having legs to enter said sockets or guides, of tumblers disposed in said frame and adapted to coöperate with the shackle-legs to lock them, and a securing-pin movably disposed in a socket in the frame parallel with one of the shackle-leg sockets and coöperating with the tumblers to hold them out of engagement with the shackle to permit the release of the latter.

2. In a lock, the combination with a frame having shackle-leg guides or sockets, a shackle having legs to enter said guides or sockets and having recesses, of a securing-pin movable in a socket in said frame parallel with one of the shackle-leg sockets and having recesses normally in the same plane as the recesses in said shackle, tumblers movable in said frame and having recesses, some of which are in alinement with said shackle-legs and securing-pin and some out of alinement therewith and said pin adapted to hold those tumblers, the recesses of which are not normally in alinement with said shackle-legs, in such alinement when the lock is unlocked.

3. The combination with a frame, a shackle in said frame and tumblers to engage said shackle, of a securing-pin in said frame, a lug on said pin to engage the shackle when the latter is withdrawn and means for forcing said pin and shackle outward when said lock is unlocked.

4. The combination with a frame having an opening therein and a shackle in said frame, of tumblers or locking-pins extending through said opening, plates connected to said pins and securing same in place and a spring between each pair of said plates.

5. In a lock, the combination with a casing, and a tumbler therein having recesses, of locking-plates on said tumbler or locking-pin and adapted to enter the recesses therein and to bear against the casing and springs disposed between said locking-plates whereby to hold said tumbler or pin and return it to its normal position.

6. In a lock, the combination with a frame having an opening and a tumbler or locking-pin in said frame and passing through said opening, said tumbler or locking-pin having

- recesses, of locking-plates each having an elongated slot therein one end of the slot enlarged to permit the turning of the pin and the other end contracted to engage the recessed portion of the pin and a spring disposed between and bearing against the locking-plates, whereby to retain said plates in place and retain the tumbler or pin in and return it to its normal position.
- 10 7. The combination with a lock-frame and a shackle to enter the same, of a securing-pin movable in said frame in proximity to one of the shackle-legs and communicating therewith, a projection or lug on said securing-pin, 15 shoulders on one of said shackle-legs adapted to be engaged by said securing-pin and means for forcing the securing-pin and shackle outwardly.
- 20 8. The combination with a lock-frame and a shackle to enter same, of a securing-pin movable in said frame in proximity to one of the shackle-legs and communicating therewith, a projection or lug on said securing-pin, 25 shoulders on one of said shackle-legs adapted to be engaged by said securing-pin, means for forcing the securing-pin and shackle outwardly and a band adapted to prevent the escape of the securing-pin.

9. In a lock, the combination with a frame having an opening therein and having shackle-leg sockets, of a series of tumblers mounted in said frame and extending across the opening therein, means connected to said tumblers within the opening in the frame for changing the combination of said tumblers and a removable band encircling the frame and closing the opening therein, substantially as set forth.

10. In a lock, the combination with a frame having shackle-leg sockets therein, of tumblers disposed in said frame and adapted to cooperate with the shackle-legs to lock the a securing-pin movably disposed in a socket parallel with one of the shackle-leg sockets and adapted to be engaged by a shackle when the shackle is withdrawn, and a band encircling the frame and preventing the escape of said securing-pin, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN ALFRED LATROBE SNYDER

Witnesses:

F. A. SNYDER,

H. C. BEASLEY.

Affidavit having been filed showing that the name of the patentee in Letters Patent No. 625,989, granted May 30, 1899, for an improvement in "Permutation-Padlocks" should have been written and printed *John Antes Latrobe Snyder* instead of "John Autes Latrobe Snyder," it is hereby certified that the proper correction has been made in the files and records pertaining to the case in the Patent Office, and should be read in the Letters Patent that the same may conform thereto.

Signed, countersigned, and sealed this 11th day of July, A. D., 1899.

[SEAL.]

WEBSTER DAVIS,
Assistant Secretary of the Interior.

Countersigned:

C. H. DUELL,
Commissioner of Patents.