

912,773.

WITNESSES  
E. Nottingham  
G. J. Downing.

INVENTOR  
J. F. Augenbraun  
By H. A. Seymour  
Attorney

# UNITED STATES PATENT OFFICE.

PETER F. AUGENBRAUN, OF STAMFORD, CONNECTICUT, ASSIGNOR TO THE YALE & TOWNE MANUFACTURING COMPANY, OF STAMFORD, CONNECTICUT.

## DUPLEX OR MASTER-KEY LOCK.

No. 912,773.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, PETER F. AUGENBRAUN, of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Duplex or Master-Key Locks; 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 appertains to make and use the same.

My invention relates to an improvement in duplex or master key locks, and more particularly to an improvement on the construction disclosed in Patent 474,783, granted to The Yale & Towne Manufacturing Company, May 10th, 1892.

In the lock disclosed in the patent above referred to, the plugs and pin chambers of the pin tumbler locks, are arranged side by side and parallel, thereby necessitating the employment of a large escutcheon plate, and absolutely preventing the use of the invention on certain types of locks such as the flat padlock.

The object of my invention is to retain all the advantages of the duplex lock of the patent above referred to without materially increasing its size over that of a single lock of the same type.

A further object is to provide a duplex lock with a single centrally pivoted latch bolt directly engaged by the cam of each key plug, whereby the latch or bolt is positively and directly actuated by each cam.

With these ends in view my invention consists in a casing or body carrying two rotating plugs and a series of pin tumblers for each plug, the pin chambers of each lock being formed in that portion of the housing intermediate the two cylindrical plugs, the pin chambers in the casing for the pin tumblers of the two plugs being in parallel planes and projecting in opposite directions.

My invention further consists in two pin tumbler locks each having a cam on its plug, and a latch or bolt adapted to be engaged directly by each cam and turned to its unlocking position.

My invention further consists in the parts and combinations of parts as will be more fully described and pointed out in the claims.

My improvement is especially designed for use in padlocks and I have so shown and described it, but it may be applied to locks

of other types, hence I would have it understood that I do not confine the application of the invention herein claimed to any particular type of lock.

In the accompanying drawings, Figure 1 is a view in end elevation of a padlock embodying my invention. Fig. 2 is a view in section of same the plugs being removed, and the shackle shown in elevation. Fig. 3 is a view in transverse section on the line  $x-x$  of Fig. 2. Fig. 4 is a view on the line  $y-y$  of Fig. 2. Fig. 5 is a view in elevation of the plugs and tumblers casing. Fig. 6 is a view in elevation of one of the cams and Fig. 7 is a similar view of the latch or bolt.

1 represents a lock casing and 2 a shackle, the shank 3 of which is held by any suitable means from complete withdrawal from the casing. The shank 3 is recessed at its end for the reception of a spiral spring 4 which operates to throw the shackle outwardly when released from the latch or bolt 5. The casing 1 is oval in shape as shown in Figs. 3 and 4, and is provided with an integral top having two holes therein for the passage of the shackle.

Located within the casing 1, and permanently secured therein by pins 6 or other suitable devices, is the plug and tumbler housing 7. This housing is enlarged at its outer or lower end, as at 8, to form the cover or face plate of the lock, the said face plate conforming in shape and size to the open lower end of the lock case 1 and completely closing same when the parts are assembled. This housing is held centrally, or in proper position within the casing 1, by the shoulder 9 integral with the housing 7 at one end of the latter, and by the recessed block 10 interposed between the opposite end of the housing and the locking casing 1, the block being recessed to receive the shank of the shackle as shown in Fig. 2.

The housing 7, which corresponds to the cylinder of an ordinary pin tumbler lock, is recessed as shown in Fig. 3, to receive the two cylindrical plugs 11 and 12, each of which is provided with a key slot for the insertion of a key. As shown in Fig. 1, the two plugs rest parallel and close together, and occupy but slightly more space than that necessary for one plug and its tumblers.

14 and 15 are two sets of pin tumbler chambers, formed in the housing. These tumbler chambers are arranged in parallel

planes, and project in opposite direction, and each set of chambers is preferably arranged obliquely or tangentially to the plug of the other lock as clearly shown in Fig. 3.

5 By locating the pin chambers of each lock, obliquely to the plug of the other lock, the two cylindrical plugs may be placed close together and provide ample room for the tumblers without materially widening the housing beyond that necessary to afford support for the rotary plugs, thus permitting the duplex lock mechanism to be used on the flat type of padlocks, which would be impossible if the pin tumbler chambers were  
10 on the same side of the housing.

The plugs and pin tumblers may be of any of the well known forms, and each plug is provided at its upper end with a cam 14<sup>a</sup>, each cam having shoulders 15<sup>d</sup> adapted to  
20 engage the centrally located lug 16 and be limited in its rotary movements thereby. Each cam is also provided with an upwardly projecting lip 17, the two lips engaging the latch or bolt 5 on opposite sides of its  
25 longitudinal center and on opposite sides of axis of the latch or bolt as clearly shown in Fig. 4. This latch or bolt 5 is provided with two oppositely disposed springs 18, which tend to hold the latch or bolt 5 centrally  
30 within the casing 1, and with its two ends within the notches 19 in the shackle 2.

By turning either plug 11 or 12, by its proper key, its cam 14 will be turned, and moving in contact with the latch or bolt 5,  
35 turn the latter in a direction to disengage its ends from the recesses in the shackle thus permitting the spring 4 to force the shackle upwardly to its unlocked position. By now releasing the key, the springs 18 turn the  
40 latch or bolt into contact with the shank of the shackle, and when the latter is again forced to its locked position, the ends of the bolt will move into their recesses in the shackle.

45 Each pin tumbler lock is independent of the other, so far as the operation of either is concerned, thus permitting me to use one pin tumbler lock to be actuated by a master key and the other by a change key. The  
50 change key pin tumbler locks may be set up so that each padlock will have a key of its own, while the master key mechanism in any series of padlocks may be set up to the same master key, or they could be made in series  
55 of say one thousand locks, each to have its own change key which will not operate any of the others of the series, and this series to be divided into smaller series each smaller series having its own master key.

60 It is evident that many slight changes might be resorted to in the relative arrange-

ment of parts shown and described without departing from the spirit and scope of my invention hence I would have it understood that I do not wish to confine myself to the  
65 exact construction and arrangement of parts shown and described, but,

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

70 1. In a lock, the combination with a casing and a housing therein, the housing having two plug chambers and a series of tumbler chambers communicating with each plug chamber, of two disconnected and inde-  
75 pendently acting plugs, and a single bolt having connection with each plug whereby it may be actuated by either.

2. In a lock, the combination with an oblong casing and a similarly shaped housing  
80 therein the said housing having two plug chambers located in the plane of the long diameter of the housing, of a plug in each plug chamber, tumblers for locking the plugs, and a single bolt actuated by either plug.  
85

3. The combination with a casing and housing therein and a shackle, the housing being provided with two plug chambers, a bolt for locking the shackle, and two key  
90 plugs in the housing, each key plug adapted to actuate the bolt independently of the other plug.

4. The combination with a housing, two key plugs mounted to turn therein, a cam on each key plug and tumbler chambers in said  
95 housing, the tumbler chambers for the two plugs projecting in opposite directions, of a latch or bolt directly engaged by the cams of both plugs, and adapted to be actuated by  
100 either.

5. In a padlock, the combination with a casing and a shackle, of a housing within the casing, two pin tumbler locks in the housing, the tumbler chambers of the two locks being  
105 parallel and projecting in opposite directions, and a single pivoted bolt actuated directly by the key plug of each pin tumbler lock, the toes of said bolt adapted to enter recesses in the shackle.

6. The combination with a housing, two  
110 key plugs therein, tumblers for said plugs, and a shackle, of a shackle locking bolt pivoted in a plane intermediate the two plugs and adapted to be actuated by either plug.

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

PETER F. AUGENBRAUN.

Witnesses:

SCHUYLER MERRITT,  
CHARLES E. VAIL.