

Feb. 21, 1928.

1,659,664

H. B. PAGE

PADLOCK

Filed Jan. 24, 1924

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 5.

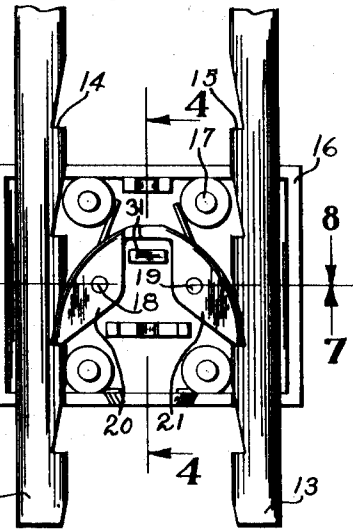
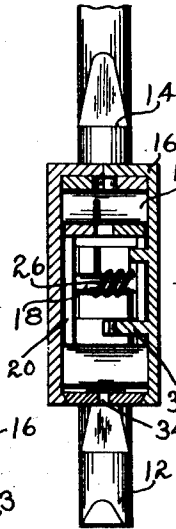
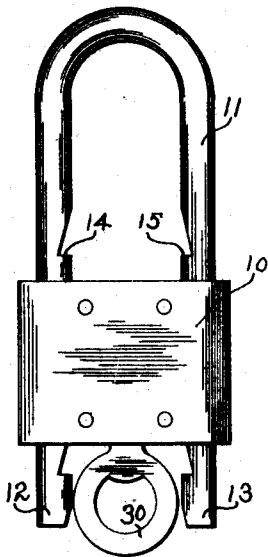


Fig. 6.

Fig. 3.

Fig. 10.

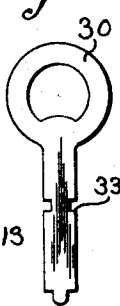
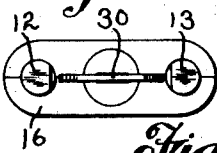


Fig. 7.

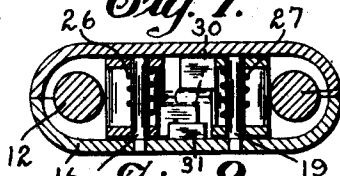


Fig. 8.



Fig. 9.

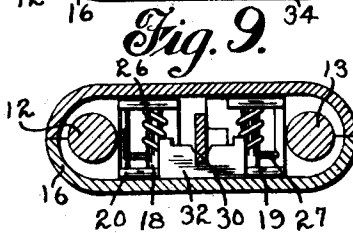
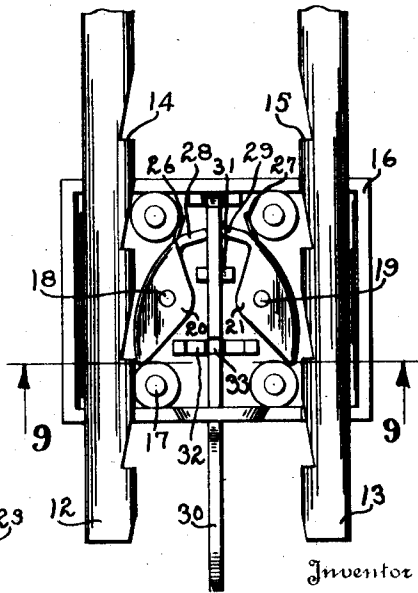
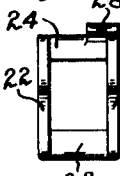


Fig. 11.



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UNITED STATES PATENT OFFICE.

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PADLOCK.

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This invention relates to locks and, more especially, to padlocks which may be used for various purposes to which such locks are adapted.

5 While I have illustrated and described my invention as pertaining to a padlock in which the shackle is entirely removable from the lock body, it will be understood that the invention in all of its aspects is not to be
10 limited to this type of lock, but is also applicable to padlocks of the usual or any preferred type.

One object of my invention is to provide a new and improved lock of this character, the working parts of which are of simple form and inexpensive to make and assemble, and at the same time provide a lock which is effective in operation and unlikely to get out of order.

15 A still further object of my invention is to provide an improved lock of the character described, which may be easily unlocked and in which the shackle will be automatically locked when inserted into the openings provided therefor.

20 A still further object of my invention is to provide an improved lock of this character, which shall have a one-way connection between the parts of the shackle and the locking mechanism so that while the shackle may be inserted into the lock without the use of the key, it will be automatically locked therein and may not be removed until the proper key is used to release it.

25 Another object of the invention is the provision of a simple lock of this character such that a great number of locks can be made, each of which will be operable by different keys, while at the same time a master key may be readily made which will fit all of the locks.

30 To these and other ends the invention consists in the novel features and combination of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevational view of a padlock embodying my improvements;

Fig. 2 is an edge view of the same;

35 Fig. 3 is a bottom plan view of the lock;

Fig. 4 is a sectional view on line 4—4 of

Fig. 5;

Fig. 5 is an elevational view of the lock-

ing mechanism with the cover of the lock case removed;

Fig. 6 is a view similar to Fig. 5, showing the parts in unlocked position;

Fig. 7 is a sectional view on line 7—7 of Fig. 5;

Fig. 8 is a sectional view on line 8—8 of Fig. 5;

Fig. 9 is a sectional view on line 9—9 of Fig. 6;

Fig. 10 is a view of the key employed in my improved lock; and

Fig. 11 is a detail view of one of the pivoted detents used in the lock.

In Fig. 1 of the drawings I have shown at 10 a lock case with which is employed the shackle 11. As illustrated in the drawings and shown more particularly in Figs. 5 and 6, the shackle 11 is adapted to be inserted in and removed bodily from the lock case, although it will be understood that I do not wish to limit myself to this type of shackle. To this end, the arms 12 and 13 of the shackle are provided with a plurality of ratchet teeth or notches 14 and 15, designed to cooperate with detents to be hereinafter described, which hold the shackle against removal from the lock case.

To the lower half 16 of the lock case are secured posts 17, which serve to hold the two halves of the case together. Additional posts 18 and 19 may also be secured to this part of the case, and upon these posts are pivoted detents 20 and 21, which at their lower edges are designed to enter the teeth or notches 14 and 15 so as to hold the shackle in position. The detents 20 and 21 comprise, as shown in Fig. 11, side wings 22 and 23 connected at their upper and lower ends by the cross bars 24 and 25. They may of course be formed in one piece, the lower cross bars forming the lower edges of the detents to engage the ratchet teeth of the shackle.

The springs 26 and 27 may be coiled about the posts 18 and 19, one end of each of the springs engaging one of the posts 17, while the other end engages one of the lower cross bars 25 to normally urge the detents outwardly, as shown in Fig. 5, into locking position.

At their upper ends these swinging detents are formed with overlapping lugs 28 and 29, which are oppositely disposed upon

the detents so that the key 30 may be inserted between them as shown in Fig. 7, when the detents are in locking position. A stop 31 may be provided upon the lock case to form an abutment to limit the movement of the detents under the tension of the springs when the shackle is entirely withdrawn from the case. A ward 32 may be secured to the lock case and the key is provided with the notch 33 to clear this ward and permit the proper key to rotate freely when inserted in the key opening 34. It will be obvious that by placing this ward at different positions in the lock or by changing its size, a number of key changes may be provided. At the same time a master key may readily be prepared for a great many locks by merely providing the key with a relatively wide notch 33, so that it will clear any of the wards regardless of where they may be placed in the lock case.

When the key is inserted into the keyhole, as shown in dotted lines in Fig. 7, it will lie flatwise between the overlapping lugs upon the detents, the edges of the key projecting respectively beyond the edges of the lugs so that when the key is rotated, the sides thereof adjacent the edges engage the edges of the lugs and move the upper ends of the detents outwardly, as shown in Fig. 6, causing the lower edges of these detents, which enter the ratchet teeth in the shackle, to move inwardly and be withdrawn from the teeth to release the shackle and permit it to be withdrawn from the lock case. As soon as the key is removed, the detents at once assume their locked positions, due to the influence of the springs 26 and 27 so that when the shackle is re-inserted in the lock case, it is immediately engaged by the detents and locked in place.

It will be obvious that I have provided a very simple and effective locking mechanism for locks of this character and that the locks are capable of being made with a large number of key changes, subject to the operation of a master key of simple character.

While I have shown and described a preferred embodiment of my invention, it will be understood that it is not to be limited to all the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the appended claims.

What I claim is:

1. In a padlock, a lock case, a U-shaped shackle cooperating therewith, said shackle having ratchet teeth upon the legs thereof, the opposite faces of said lock case being provided with aligned openings so that the legs of the shackle may be passed entirely through the case, a pair of detents pivoted in the case intermediate their ends, means upon one end of each of the detents for engaging the ratchet teeth on the shackle, said

detents being provided at their other ends with overlapping lugs, said lugs being adapted to be engaged by the rotation of the key to move the detents into disengaging position to release the shackle.

2. In a padlock, a lock case having aligned openings in the opposite faces thereof, a shackle having legs adapted to enter said openings and pass entirely through the case, detents pivoted intermediate their ends within the lock case, and having means at one of the ends thereof to engage the ratchet teeth on the shackle, the other ends of said detents being provided with overlapping lugs, and means to engage said lugs to simultaneously withdraw both of said detents from engagement with the shackle.

3. In a padlock, a case having aligned openings in opposite faces thereof, a shackle having legs to enter said openings and pass entirely through the case, said legs being provided with ratchet teeth on their opposing surfaces, a pair of detents pivoted intermediate their ends within the case, means at one end of each of the detents to effect a one-way variable engagement with the ratchet teeth of the shackle, said detents being provided at their other ends with overlapping lugs adapted to be engaged by a key to move said detents to withdraw them from engagement with the shackle.

4. In combination, a lock case, a shackle completely detachable from the case and provided with arms insertable therein, detents pivoted in the case intermediate their ends, but adapted at one end thereof to engage said shackle, each of said detents being formed at its other end with a projecting lug, said lugs being disposed in spaced overlapping positions, and adapted to receive a key therebetween and adapted upon the rotation thereof to move the adjacent ends of the detents outwardly and thereby move the opposite ends of the detents inwardly to disengage them from the shackle.

5. In combination, a lock case, a shackle completely detachable from the case and provided with arms insertable therein, detents pivoted in the case intermediate their ends, but adapted at one end thereof to engage said shackle, each of said detents being formed at its other end with a projecting lug, said lugs being disposed in spaced overlapping positions said lugs being adapted to receive a key therebetween and adapted upon the rotation thereof to move the adjacent ends of the detents outwardly and thereby move the opposite ends of the detents inwardly to disengage them from the shackle, and a ward secured to the lock case and adapted to cooperate with a notch in a key.

6. In a padlock, a case, a shackle having legs designed to be slidably received in the case and provided with notches, detents pivoted in the case, each of said detents com-

prising side members connected by upper and lower cross-bars, the lower cross-bar of each detent being adapted to engage in a notch upon the shackle.

5 7. In a padlock, a case, a shackle having legs designed to be slidably received in the case and provided with notches, detents pivoted in the case, each of said detents comprising side members connected by upper
10 and lower cross-bars, the lower cross-bar of each detent being adapted to engage in a notch upon the shackle, and operating lugs secured at the upper ends of the detents and
15 adapted to be engaged by the key to release the detents from the shackle.

8. In a padlock, a lock case, a U-shaped shackle cooperating therewith, said shackle having a series of ratchet teeth upon the legs

thereof, the opposite faces of said lock case being provided with aligned openings so that
20 the legs of the shackle may be passed entirely through the case, an opening for a key at the opposite end of said case from which said shackle is inserted, a pair of detents mounted
25 in said case opposite one another and extending towards said shackle and the end of the casing having the key opening therein and adapted to engage the teeth on the shackle, said detents being arranged to receive
30 a key therebetween and upon rotation of the key to be disengaged from said shackle.

In witness whereof, I have hereunto set my hand this 18 day of January, 1924.

HARRY B. PAGE.