

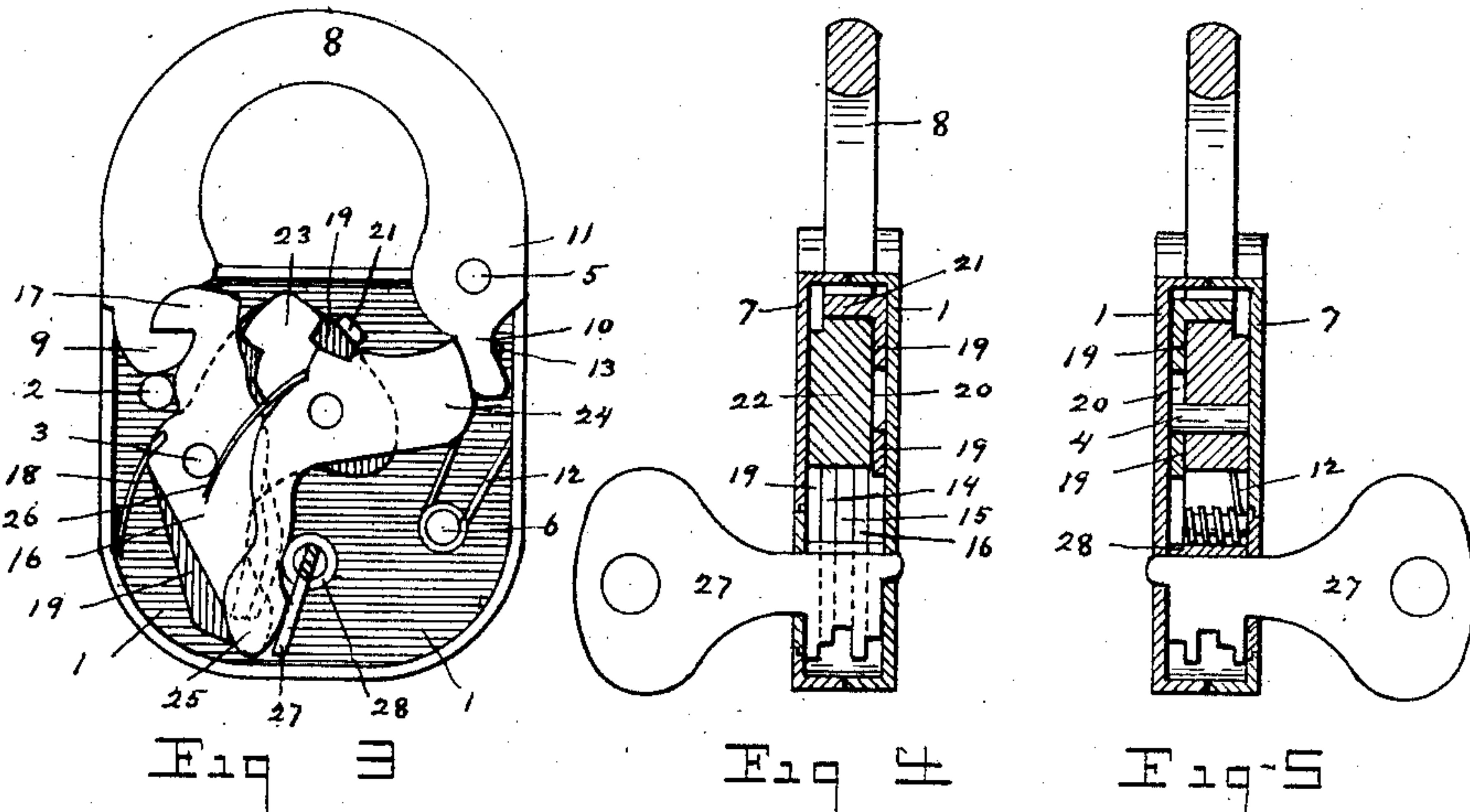
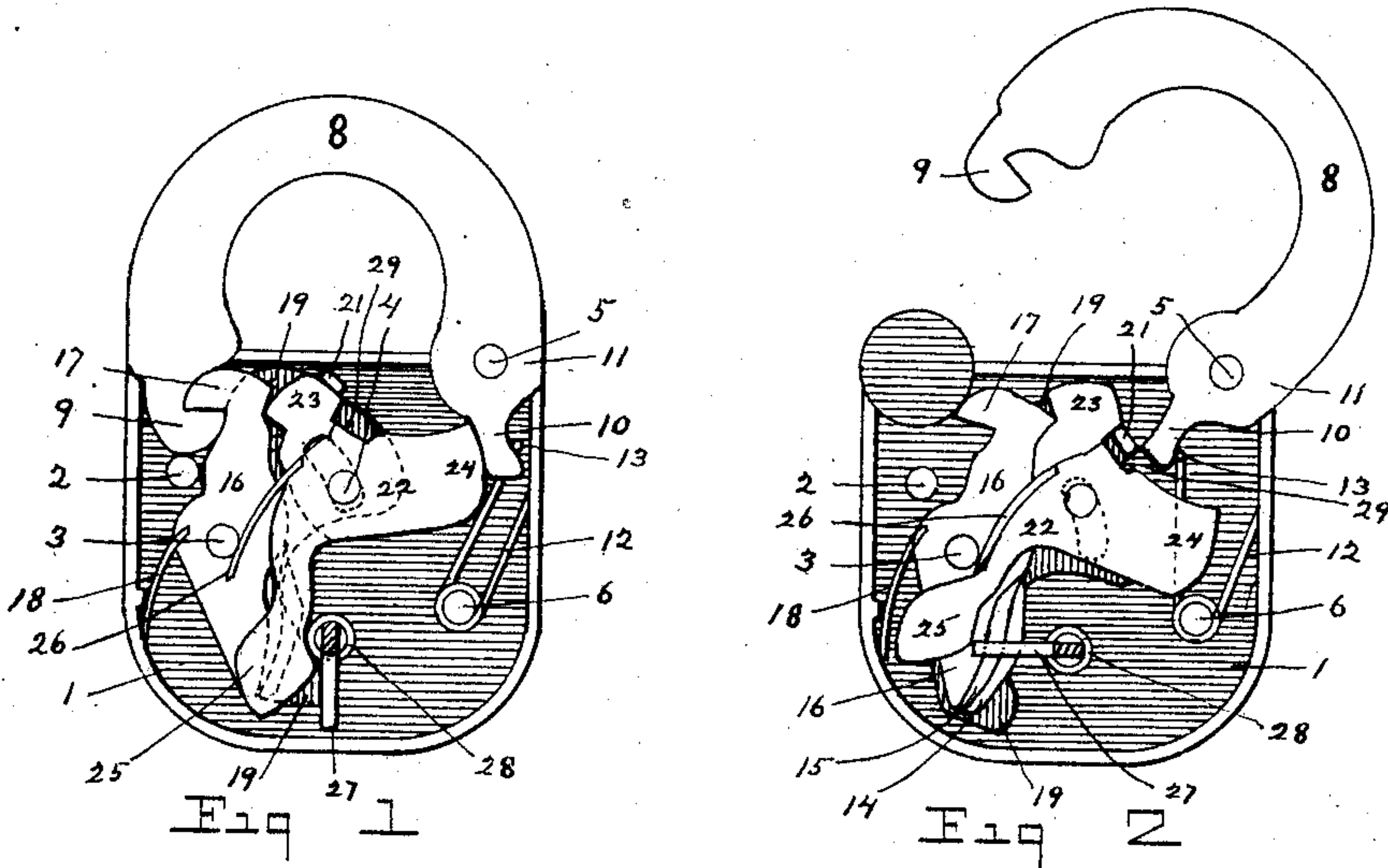
S. R. FRAIM.

PADLOCK.

APPLICATION FILED OCT. 14, 1908.

907,026.

Patented Dec. 15, 1908.



WITNESSES:
Anna Lammam
Mabel L. Lefore.

INVENTOR
Samuel R. Fraim,

Fig 6 Fig 7 Fig 8 BY *John J. Thompson* ATTORNEY

UNITED STATES PATENT OFFICE.

SAMUEL R. FRAIM, OF LANCASTER, PENNSYLVANIA.

PADLOCK.

No. 907,026.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed October 14, 1908. Serial No. 457,614.

To all whom it may concern:

Be it known that I, SAMUEL R. FRAIM, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Padlocks, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention relates to an improvement in self-locking padlocks having spring-actuated tumblers for locking the nose of the shackle, a spring-actuated lever for locking the heel of the shackle and the tumblers, and a supplemental or guard lever for locking the combined heel lever and thereby causing the nose and heel-locking devices to be doubly locked and affording a combination that has to be operated by the key in the prescribed order before the shackle can be released, and thus retaining the locking elements in an immovable position when the lock is closed, so that the shackle cannot be freed by jarring or by blows upon the lock, the locking elements being, however, free from this locking influence when the shackle is open and the closing of the shackle being effected with slight effort and without the use of the key.

The objects of the invention are to produce a simple and durable lock of this class, composed of few parts and constructed with particular reference to locking the nose and heel of the shackle, and to positively locking the tumblers and combined heel lever, when they are engaged with the shackle.

With these and other objects in view my invention consists in the combination, with the shackle of a padlock, of a series of tumblers, a combined heel and tumbler locking lever, and a supplemental guard lever, all adapted to coact with the key, so that said supplemental guard lever will first be actuated by the key and retired before the heel locking lever and tumblers can be acted upon by the other bits of the key.

While I have herewith described my invention as illustrated in the accompanying drawings, which form a part of this specification and in which like reference characters designate corresponding parts in all the views, it is fully understood that I do not confine myself to the exact construction as shown, as slight changes may be made without departing from the spirit of the invention.

Figure 1, is a front view of the lock with the cap of its case removed and its shackle

and lock mechanism in a locked position. Fig. 2, is a similar view with the shackle and lock mechanism at the instant of unlocking before the key has been given a complete revolution. Fig. 3, is a similar view showing the lock mechanism in the first position of unlocking with the guard lever retired by the key. Fig. 4, is a vertical sectional view of the lock with its lock mechanism in a locked position, looking toward the left side. Fig. 5, is a similar view looking toward the right side. Fig. 6, is a detached view of the supplemental guard lever. Fig. 7, is a detached side view of the combined heel and tumbler locking lever. Fig. 8, is a detached plan view of the same.

Referring to the drawings, 1, indicates a lock-case which may be of any desirable form, and which is provided with the studs 2, 3, 4, 5, and 6, which also serve as rivets for securing the cap 7, of the case in place in the usual way. The shackle 8, is formed with the locked nose 9, and the downwardly extending heel 10, adjacent to its pivot point 11, which is pivoted upon the stud 5, and retained in a normal open position, as shown in Fig. 2, by the action of the double armed coiled spring 12, which is mounted upon the stud 6, with its short arm bearing against the side wall of the case and its long arm formed with the bearing end 13, at right angles thereto, and adapted to engage the heel 10, of the shackle.

Pivoted upon the stud 3, are the tumblers 14, 15, and 16, which are all formed with the registering hooked ends 17, to engage the hooked nose 9, of the shackle, but said tumblers may be of different thicknesses and of different widths and of different curves to conform to the bits of the key and allow of the usual changes and combinations, all of said tumblers being retained in a normally closed position in contact with the stud 2, (which acts as a stop) by the springs 18. While pivoted upon the stud 3, under said tumblers 14, 15, and 16, is the supplemental guard lever 19, which is provided with the slot 20, which engages the stud 4, and guides the action of said guard lever. Said guard lever 19, is further provided with the curved heel for engagement by the key bit and near its upper end with the lug 21, extending outward at right angles to the face of said lever.

Pivoted upon the stud 4, in contact with the guard lever 19, is the combined heel and tumbler locking-lever 22, which is formed

with the head 23, to engage the tumblers, the heel 24, to engage the shackle heel 10, the downwardly extending lever 25, to engage the key bit, and the transverse slot 29, in its upper edge adapted to receive the lug 21, of the guard lever, while said lever 22, is held in a normal position with its heel in contact with the shackle heel 10, by the action of the springs 26, which bears against the stud 3. The key 27, is of the usual pattern and is operated within a key post 28.

The operation of the lock is as follows:—
The key being inserted and having its bits brought into contact with the tumbler and locking levers, the lower bit of the key first comes into engagement with the guard lever 19, which it swings upon the stud 3, and withdraws the lug 21, from engagement with the head 23, and brings it into the position as shown in Fig. 3, where it will enter the slot 29, as the lever 22, is raised, said guard lever 19, now having been actuated to its fullest extent by the key bit; the remaining bits of the key are brought into engagement with the tumblers 14, 15, and 16, and the combined lever 22, which being acted upon by the bits of said key are brought into the positions as shown in Fig. 2, which releases the shackle 8, and allows its actuating spring 12, to force it open, and by a further turn of the key its bits are carried out of engagement with the tumblers 14, 15, and 16, and the levers 19, and 22, thus allowing the tumblers 14, 15, and 16, to be actuated by their springs 18, and brought to a normal position, and the combined locking-lever 22, is allowed to rise until the upper side of its heel 24, comes into contact with the heel 10, of the shackle 8, thus restraining its head 23, from engaging the tumblers 14, 15, and 16, and allowing them to be forced back when the nose 9, of the shackle 8, is introduced within the case, but the instant that said shackle 8, attains its closed or locked position the lower end of the shackle heel 10, will be swung clear of the upper edge of the lever-heel 24, and thus allow said lever 22, and the guard lever 19, to attain or return to their normal locked positions, thus securing the shackle 8, at its nose 9, by the tumblers 14, 15, and 16, at its heel 10, by the combined lever 22, which also secures said tumblers 14, 15, and 16, and is itself secured by the guard lever 19, so that the lock is locked in four places at one and the same time.

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

1. In a padlock of the class described, comprising a pivoted shackle having a hooked nose and a projecting heel, a spring mounted within the case and formed with an angular

end in engagement with said heel, a series of pivoted tumblers adapted to be actuated by the key and provided with registering hooked ends to engage with the hooked nose of the shackle when said shackle is in a locked position, a combined locking lever pivoted within the case and formed with a head adapted to engage and retain said tumblers in a normally locked position, and a heel portion adapted to engage the heel of said shackle and retain said shackle in a normally locked position, and a depending portion integral with said lever and adapted to be engaged and actuate said lever by the key, a supplemental guard lever pivoted within the case and formed with a lug adapted to retain said combined lever in a normally locked position, and a key actuating portion extending below its pivot point.

2. In a padlock of the class described, the combination with the shackle thereof formed with a hooked nose and a heel extension, of a series of tumblers adapted to engage the nose of said shackle to retain the same in a closed position, a combined locking lever formed with a head adapted to engage said tumblers when in a normally closed position, and a heel portion adapted to engage the heel of the shackle, said lever further provided with a transverse slot in its upper edge and a depending key actuating portion, a guard lever pivoted within the case and formed with a projecting lug adapted to engage the head of the combined lever when the lock is in a closed position and to enter the slot in said lever when the lock is in an open position.

3. In a padlock of the class described, comprising a pivoted shackle formed with a hooked nose and an extending heel, and a series of key actuated pivoted tumblers adapted to engage the hooked nose of said shackle, of a combined locking lever formed with a tumbler retaining head, a heel retaining body and a key actuating depending portion pivoted within the case and adapted to engage the tumblers and the heel of the shackle when said lock is closed, and also adapted to be engaged by the heel of the shackle when the latter is open to hold said lever in an unlocked position, a supplemental guard lever formed with a key actuating portion and a projecting lug adapted to be normally in engagement with the head of said combined lever, thus securing said locking lever until actuated by the key.

In testimony whereof I affix my signature in presence of two witnesses.

SAMUEL R. FRAM.

Witnesses:

WM. J. COULTER,
MABEL L. LEFEVRE.