

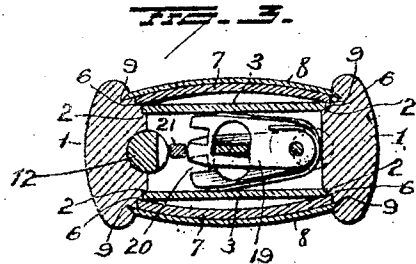
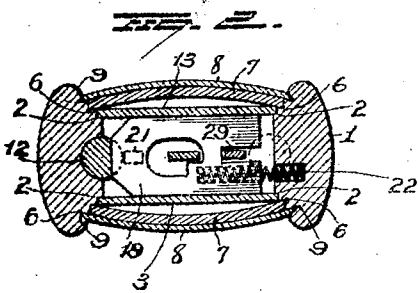
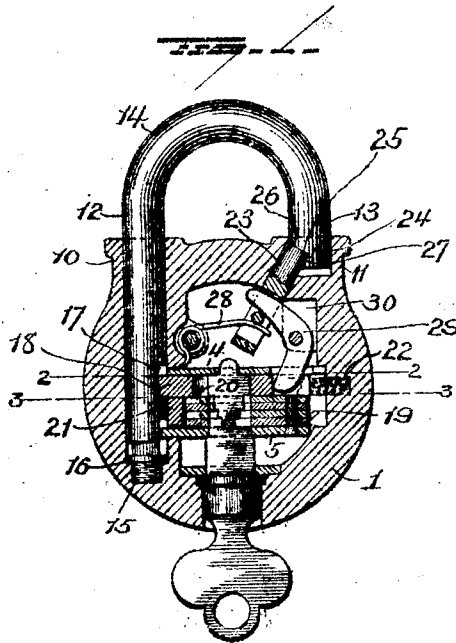
March 23, 1926.

1,577,939

H. L. TUNISON

PADLOCK

Filed June 23, 1924



Inventor

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# UNITED STATES PATENT OFFICE.

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## PADLOCK.

Application filed June 23, 1924. Serial No. 721,733.

*To all whom it may concern:*

Be it known that I, HAROLD L. TUNISON, a citizen of the United States, and resident of Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in 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 appertains to make and use the same.

This invention relates to improvements in padlocks,—one object of the invention being to so construct a padlock in which the shackle is locked at both the heel and the toe portions, that the toe or free end portion may be made to project a minimum distance into the case, and so that any attempt to withdraw the locked shackle would tend to cramp the toe bolt and shackle.

With this and other objects in view, the invention consists in certain novel features of construction and combinations of parts as hereinafter set forth and pointed out in the claims.

In the accompanying drawings,—

Figure 1 is a view in elevation with a portion of the casing removed, showing an embodiment of my invention.

Figure 2 is a sectional view on the line 2—2 of Figure 1, and

Figure 3 is a sectional view on the line 3—3 of Figure 1.

The casing of the lock may comprise a casing member 1 which may be circular or annular and formed with seats 2 for the edge portions of the end plates 3—3 of a lock frame,—the latter also including parallel, spaced plates 4 and 5 as shown in Figure 1. The casing member 1 is also formed at each side with circular seats 6, offset from the circular frame-plate seats 2, for the accommodation of the peripheral portions of armor face plates 7—7 which will preferably be made of hardened steel and may be concavo-convex and caused to engage the frame plates 3. The armor plates may be held in place by means of veneer or finish plates 8—8, which latter cover the armor plates and may be secured to the casing member 1 by having their peripheral beveled portions sprung into undercut circular recesses or seats 9 in the casing member 1.

The casing member 1 is formed with tu-

bular bosses 10 and 11 for the accommodation of the members 12—13 of a shackle 14. The shackle member 12 extends downwardly in the casing and engages a spring 15, which latter serves to project the shackle when the same shall have been unlocked and outward movement of the shackle will be limited by engagement of a shoulder 16 on the shackle member with the frame plate 5. The shackle member 12 provides the heel portion of the shackle and has made therein, a notch 17 for the reception of one end of a bolt 18.

The bolt 18 and a plurality of spring pressed tumblers 19 are disposed between the frame plates 4 and 5 and between the end plates 3—3 of the lock frame. The tumblers are provided with open slots or notches 20, which when brought into alignment with the use of a proper key, will receive a fence 21 rigid with the bolt 18 and disposed at right angles thereto. Normally, the bolt 18 is projected into locked engagement with the heel member of the shackle by the action of a spring 22 and said bolt is retracted by means of a suitable key against the resistance of said key to release said bolt from locked engagement with the heel of the shackle.

A toe bolt 23 is mounted in a diagonal position in the upper portion of the lock casing and extends into the tubular boss 11 into which latter the toe of the shackle enters. The toe or free end 24 of the shackle is provided with a notch 25 having beveled walls 26 and 27, the latter being in a plane approximately parallel with that of the diagonal toe bolt 23 and said toe bolt is normally projected so as to enter said notch when the toe of the shackle enters the casing boss 11, by the action of a spring 28. A bent or bell-crank lever 29 is pivotally mounted at the juncture of its arms in lugs 30 within the casing and one arm of said bell-crank lever passes through a slot in the frame plate 4 and has loose connection with the bolt 18, while the other arm of said bell-crank lever passes through a slot in the toe bolt and is thus freely connected with the latter.

From the construction and arrangement of parts above described, it will be seen that when the bolt 18 is retracted from locked engagement with the shackle heel, it will transmit motion through the bell-crank lever 29 to the diagonal toe bolt 23 and retract the

latter to release it from locked engagement with the shackle toe. When the shackle is depressed, the notch in its heel portion will move into alignment with one end of the bolt 5 18 and the notched toe of the shackle will enter the boss 11. The bolt 18 will be at once projected by the action of the spring 22 and the bell-crank lever will be moved to project the toe bolt into locked engagement 10 with the toe of the shackle,—such movement of the bell-crank lever and the toe bolt being assisted by the action of the spring 28.

By projecting the secondary or toe bolt into the shackle at an angle, as shown, I am 15 enabled to construct a padlock in which the shackle is locked at both heel and toe without projecting the free end or toe of the shackle more than a minimum or very limited distance into the casing and further- 20 more with the use of the diagonal toe bolt engaging the shackle toe in the manner previously explained, any attempt to withdraw the locked shackle would tend to cramp the bolt and shackle together.

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

1. In a padlock, the combination with a casing and a shackle, the latter having heel and toe portions, of a key controlled trans- 30 versely disposed bolt cooperative with the heel portion of the shackle, a diagonal disposed sliding bolt cooperative with the toe portion of the shackle, both of said bolts

normally engaging the shackle simultaneously, and means operatively connecting said bolts. 35

2. In a padlock, the combination with a casing, of a shackle having heel and toe portions, the toe portion having an angular notch in proximity to its end, said notch having a two diagonal wall, a key controlled bolt cooperative with the local portion of the shackle, a diagonal sliding bolt to enter the notch in the toe portion of the shackle and 40 lie substantially parallel with the diagonal walls of said notch, means operatively connecting said bolts, and key controlled means for retracting the two bolts simultaneously. 45

3. In a padlock, the combination with a casing and a shackle having heel and toe portions, of a key controlled bolt mounted in the casing, a spring for moving said bolt into locking engagement with the heel portion of the shackle, a diagonal bolt mounted 50 in the casing and cooperable with the toe portion of the shackle to lock the same, a spring tending to move said diagonal bolt to locking position, and a lever pivoted between its ends in the casing, one arm of said lever being operatively connected with the first mentioned bolt and the other arm of said lever being operatively connected with said diagonal bolt. 55

In testimony whereof, I have signed this specification. 60 65

HAROLD L. TUNISON.