

(No Model.)

R. D. S. TYLER.
LOCK.

No. 546,286.

Patented Sept. 10, 1895.

Fig. 1.

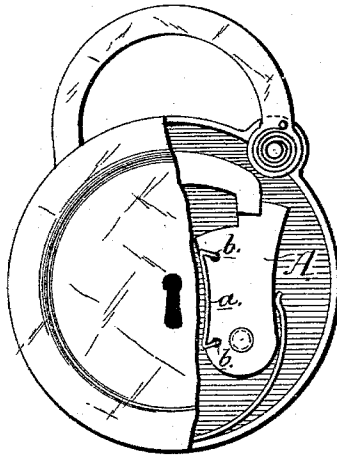


Fig. 2.

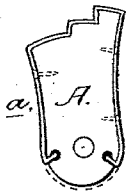


Fig. 3.

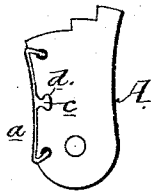
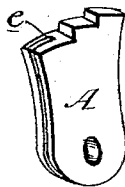


Fig. 4.



WITNESSES

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LOCK.

SPECIFICATION forming part of Letters Patent No. 546,286, dated September 10, 1895.

Application filed July 10, 1895. Serial No. 555,459. (No model.)

To all whom it may concern:

Be it known that I, RADOLPHUS D. S. TYLER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in 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 locks generally, and especially to padlocks and others using pivoted tumblers as a component of their construction; and my invention consists of the parts and the construction and combination of parts hereinafter described, and claimed.

In the drawings I have shown, for purposes of illustration a lock of well-known form having one form of my invention applied to one of its tumblers; but I do not limit myself to this precise form of lock, as my invention is applicable to locks of other forms and of any size.

Figure 1 represents a plan view of a lock with its case broken away to expose one of its tumblers. Fig. 2 is a detail of a tumbler, showing another form of my invention applied to it. Figs. 3 and 4 illustrate another tumbler with other forms of my invention applied to it.

Locks have usually been made of metal—such as iron, steel, and brass—and some attempts have been made to construct them in whole or in part of aluminum. In making locks of the metal first above indicated the great drawback has been their excessive weight, which is an important factor in certain classes of locks, such as those used in the railway-mail service, as the handling of the mails is usually paid for by weight, and it will be understood that the aggregate weight of the thousands of mail-bag locks which are daily in use is of enormous proportions and calls for the expenditure of many thousands of dollars annually.

Hard-metal locks have heretofore been used for the mail-service for the reason that they offered the greatest security against unlawful and unauthorized opening, and because they have stood the hard usage to which said locks are subjected, and, also, because the hardness of their tumblers and other parts

greatly prolonged the life of the locks, it being understood that such locks are frequently opened and closed by means of keys, the continued use of which resulted in the tongues or bits of the keys wearing away the faces of the tumblers or the parts which are subjected to wear because of their movement to such an extent that the lock would in the course of a comparatively short time become insecure and difficult to open with the keys usually supplied with the locks. To lessen the weight of the locks attempts have been made to use lighter metals, like aluminum, but while lightness has been secured in such instances it has been at the expense of wear and stability, since such locks are softer than the usual metal kinds and do not stand the tests of repeated opening and closing for as near as long a period as the harder and more heavy locks.

Experiment has shown that the lighter metal locks such as those composed in whole or in part of aluminum may be made so that they will not only stand the tests as to durability, strength, and lightness, but may be opened and closed a number of times far in excess of even the hard-metal locks heretofore used. These very essential features are obtained by protecting the wearing surfaces of the tumblers by means of a surface relatively harder than the body of the part itself.

In the drawings I have shown several of the ways in which my invention may be applied. In Fig. 1 the tumbler A is of a well-known form, and along the working face of the same, which is usually engaged by the bits of the key in opening the lock, is secured a thin strip of metal *a*, such as hard steel. A desirable way of securing this strip in place is to form kerfs or recesses *b* in the tumbler and then bend the ends of the plate *a*, so that they may be sprung into said kerfs or recesses and be held therein by expansion or the friction between the parts. It is also obvious that the plate may be riveted in place without departing from the spirit of my invention. The plate may extend over only a part of the working side of the tumbler or may extend the full length thereof. It may entirely surround the tumbler, or its ends may be secured to the back or non-working face and then be carried over one or both

ends of the tumbler and its working face. It is also obvious that the plate *a* instead of being secured at its ends, as shown in Fig. 1, may be formed with a lug or projection *c* on its rear side at a point between its ends adapted to fit a corresponding recess *d* in the tumbler, whereby the plate is locked in place. Another way of securing the plate is to cut a kerf *e* in the tumbler and set the plate edge-wise therein, as shown in Fig. 4, with its outer edge flush with the edge of the tumbler. From this description it will be seen that while I am permitted to use the lighter and softer metals for the manufacture of my locks I so protect the tumblers which are subjected to great wear that the life of the lock exceeds that of the usual heavy metal locks, and I obtain this durability at a corresponding saving in weight, and thereby produce a lock which is useful for ordinary purposes, but especially valuable for closing the mouths of mail-bags, pouches, and other receptacles used for the transportation of mail-matter.

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

1. In a lock, a tumbler the outer face or wall of which adjacent to the key hole is provided with a separate thin flat plate of relatively harder material, which extends lengthwise of the tumbler whereby the bits of the key sweep across the plate in the direction of the length thereof when the key is turned about its axis. 30

2. In a lock, a tumbler the wearing face of which is provided with a plate or wearing surface relatively harder than the body of the tumbler and sprung into engagement therewith. 35

3. In a lock, a tumbler the wearing face of which is provided with a thin flat plate or surface relatively harder than the body of the tumbler, said plate having a projection on its rear side adapted to fit a corresponding recess in the tumbler and having its opposite ends secured to the tumbler. 40 45

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

RADOLPHUS D. S. TYLER.

Witnesses:

T. WALTER FOWLER,
LOUIS MELIUS.