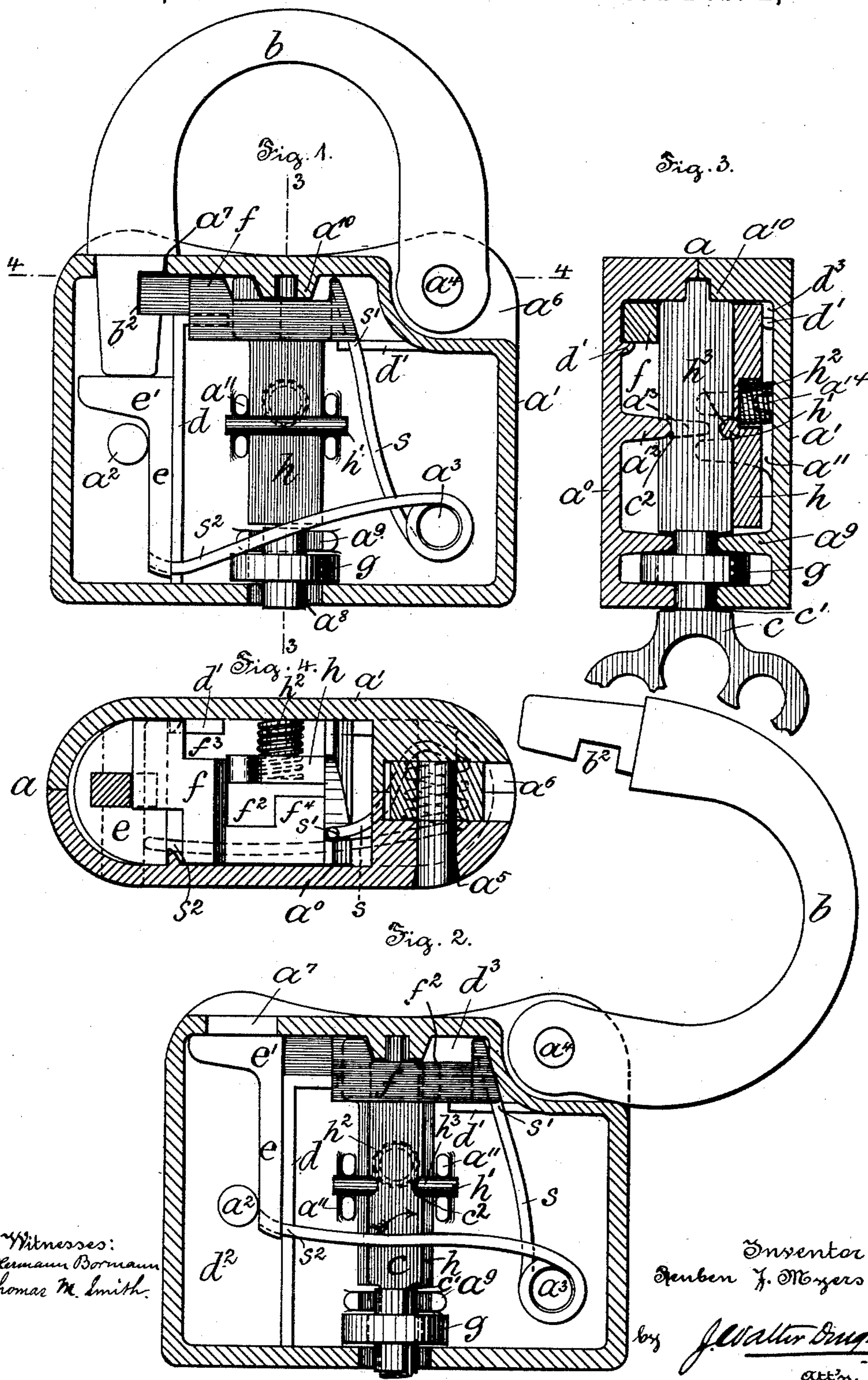


R. J. MYERS.
PADLOCK.

Patented Feb. 2, 1892.



UNITED STATES PATENT OFFICE.

REUBEN J. MYERS, OF MOUNT JOY, PENNSYLVANIA.

PADLOCK.

SPECIFICATION forming part of Letters Patent No. 468,113, dated February 2, 1892.

Application filed July 28, 1891. Serial No. 400,925. (Model.)

To all whom it may concern:

Be it known that I, REUBEN J. MYERS, a citizen of the United States, residing at Mount Joy, 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.

My present invention relates, in general, to that class of padlocks which are provided with a shackle hinged at one extremity to the housing with means for automatically throwing the free extremity of the shackle out of the housing when the shot-bolt of the lock is shifted by the key, and with suitable devices for automatically locking the free extremity of the shackle when the same is inserted into the housing; and it relates more particularly to certain improvements in the construction and mode of operation, of the means for automatically throwing the free extremity of the shackle out of the housing, and to the arrangement and construction of the devices for automatically locking the free extremity of the shackle in closed position.

The principal objects of my present invention are, first, to provide a safe, efficient, durable, and comparatively inexpensive padlock; second, to reduce the number and simplify the construction of the working parts of such a lock, and, third, to construct and arrange the shot-bolt and locking-tumbler in such manner that the shot-bolt cannot become detached from the shackle by any concussion or blow on the exterior of the lock.

My invention consists of a padlock provided with a hinged shackle, a sliding shot-bolt provided with a recess or notch and adapted to engage the free extremity of the shackle, a rotatable key for actuating the shot-bolt, and a spring-actuated sliding tumbler adapted to normally engage and detain the shot-bolt and interposed in range of the key, the construction being such that the tumbler is shifted into line with the recess or notch and releases the bolt when the key is rotated.

My invention further consists in the improvements hereinafter fully described, and pointed out in the claims.

The nature and characteristic features of the present invention will be more fully understood from the following description, taken

in connection with the accompanying drawings, forming part hereof, and in which—

Figure 1 is a transverse section of a lock embodying features of my invention, showing the shot-bolt in engagement with the free extremity of the shackle, and also showing a spring having one extremity thereof in engagement with the shot-bolt and the other extremity thereof in engagement with the traveler. Fig. 2 is a view similar to Fig. 1, showing the shackle in open position and the traveler in engagement with the shot-bolt, and also showing the key partly rotated in order to open or unfasten the lock. Fig. 3 is a section on the line 3 3 of Fig. 1, showing the spring-actuated sliding tumbler shifted by the rotation of the key, and Fig. 4 is a section on the line 4 4 of Fig. 1, showing a shot-bolt provided with a recess, and a spring-actuated sliding tumbler adapted to normally engage said shot-bolt, but susceptible of being shifted by the rotation of the key into alignment with the recess to permit of the actuation of the shot-bolt.

In the drawings, *a* is a two-part housing whereof one part *a'* is provided with pins *a²*, *a³*, and *a⁴*, and the other part with orifices *a⁵*, engaging said pins. One extremity of a shackle *b* works in a recess *a⁶*, formed in the housing *a*, and is pivotally connected with the pin *a⁴*. The free extremity of this shackle *b* is adapted to enter an orifice *a⁷* in the housing *a*.

a⁸ is a circular orifice provided with side-wise projecting slots and formed in the housing *a*, in order to permit of the insertion of a flat key *c*.

d and *d'* are ribs cast or otherwise formed upon the interior side walls of the housing *a* and serving, together with the side walls of the housing, to constitute ways *d²* and *d³*, in which the traveler *e* and shot-bolt *f* work.

a⁹ are bridge-pieces which, together with the circular portion of the orifice *a⁸*, form bearings for the trunnions of a perforated collar *g*.

a¹⁰ are bearings cast or otherwise formed upon the interior of the housing *a* and adapted for the reception of the pointed extremity of the key *c*.

a¹¹ are slotted ways projecting from the in-

terior of the part a' of the housing a and adapted for the reception of trunnions h' , connected with the tumbler h .

a^{12} is a web projecting from the interior of the part a' of the housing and provided with a semicircular projection a^{13} , which enters a corresponding notch in the edge of the key, and thus permits of the rotation of the latter. The shot-bolt f slides in the ways d^3 and may be shifted into or out of engagement with a slot b^2 , formed in the free extremity of the shackle b . The center portion of the shot-bolt f is cut away so as to form a cavity f^2 , Fig. 4, for the reception of the tumbler h and the key c .

f^1 is a lug projecting from one of the side walls of the cavity f^2 into range of the key c , so that the rotation of the latter tends to shift the shot-bolt f out of engagement with the free extremity of the shackle b .

f^3 is a recess formed in the side wall of the cavity f^2 and adapted to receive the tumbler h when the latter is depressed by the rotation of the key c , so that the bolt f is released and may be shifted out of engagement with the shackle, it being understood that when the bolt is in engagement with the shackle the spring h^2 causes the tumbler h to be shifted into engagement with the side wall of the cavity f^2 , thus preventing the bolt from being shifted by a jar or concussion on the exterior of the lock. The spring h^2 may of course be retained in position in a number of different ways. However, excellent results have been attained in practice by supporting one extremity of the spring in a recess in the tumbler and the other extremity upon a stud or projection a^{14} , projecting from the part a' of the housing, as shown in Fig. 3. The traveler e is provided with a lip e' for closing the shackle-aperture a^7 and serves, first, to throw the shackle b out of the lock, and, second, to engage with the shot-bolt after the shackle is opened in order to retain the former in open position, as shown in Fig. 2.

s is a spring mounted upon the pin a^3 and having one extremity s' thereof in engagement with the shot-bolt and the other extremity s^2 thereof in engagement with the traveler e , so as to cause the traveler e to be shifted normally into position for closing the shackle-aperture a^7 , and so as to cause the shot-bolt f to be shifted into engagement with the shackle b , it being understood, however, that the traveler normally detains the shot-bolt in open position, Fig. 2, until the free extremity of the shackle contacts with and depresses the traveler, whereupon the shot-bolt is released and enters the slot b^2 in the shackle b .

When the shackle b is in a closed position, as shown in Fig. 1, the shot-bolt f is in engagement with the slot b^2 of the shackle and the traveler e is held in a depressed position by the extremity of the shackle. Moreover, the shot-bolt f is positively held by the tumbler h , as shown in Fig. 4.

In order to open the lock, a flat key c is inserted through the aperture a^8 and rotatable collar g , past the tumbler h and through the cavity f^2 of the shot-bolt f until the pointed extremity of the key engages the bearing a^{10} , whereupon the key is rotated in the direction indicated by the arrow in Fig. 2, with the result that one edge of the key shifts the tumbler h through the ways a^{11} and, against the force of the spring h^2 , out of engagement with the side wall of the cavity f^2 and into alignment with the recess f^3 , so that the shot-bolt f is released. At the same time the other edge of the key shifts the shot-bolt f , against the force of the spring s' , out of engagement with the shackle b . As soon as the shackle is released and before a complete revolution of the key is made the traveler e throws the shackle out of the housing a , and during the completion of the remaining portion of the revolution of the key the traveler e engages the extremity of the shot-bolt f and retains the same in open position, as shown in Fig. 2.

In order to relock the padlock, the shackle b is pushed into the housing a , and this motion of the shackle depresses the traveler e , and thus releases the shot-bolt f , which is automatically shifted by the spring s' into engagement with the shackle, and this motion of the shot-bolt permits the spring h^2 to shift the tumbler h in the ways a^{11} so as to engage the interior side wall of the cavity f^2 , with the result that the shot-bolt is locked to place.

The key c cannot be inserted into the lock unless it is fitted to enter the oblong slot a^8 in the housing a , the oblong slot in the rotatable collar g , and the space between the tumbler h and web a^{12} . Moreover, the key cannot be rotated unless it is provided with notches c' in the respective edges thereof, adapted for the reception of the bearings of the collar g , and with similar notches c^2 , adapted for the reception of a rib h^3 upon the tumbler h , and semicircular projection or projections a^{13} upon the web a^{12} , so that in manufacturing the hereinabove-described locks in large quantities it is possible to change the position, size, or number of the ribs upon the tumbler h and to provide keys with corresponding notches in the edges thereof. In such case each key will only open the lock to which it is especially fitted, because if it were attempted to open a lock with a key that did not have notches adapted to accommodate the ribs on the tumbler the key would force the tumbler into contact with the projection a^{14} or with the part a' of the housing, whereby the further rotation of the key would be prevented, and thus it would be impossible to shift the shot-bolt out of engagement with the shackle.

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

1. A padlock provided with a hinged shackle, a sliding shot-bolt provided with a recess and

adapted to engage the free extremity of the shackle, a spring for shifting said bolt into engagement with the shackle, a rotatable key for shifting the shot-bolt out of engagement with the shackle, and a spring-actuated sliding tumbler adapted to normally engage the shot-bolt and interposed in range of the key, the construction being such that the tumbler is shifted into line with the recess and releases the bolt when the key is rotated, substantially as and for the purposes set forth.

2. In a padlock, a shot-bolt having a cavity for the reception of a rotatable key, a projection for engaging the key, and a recess, and a spring-actuated tumbler working in ways and adapted to normally engage the side wall of said cavity and to be shifted into alignment with the recess, substantially as and for the purposes set forth.

3. A padlock provided with a two-part housing united by pins, a shackle hinged to said housing, a traveler for throwing open the shackle and closing the shackle-aperture, a sliding shot-bolt for engaging the shackle, and a spring mounted on one of said pins and having one extremity in engagement with the shot-bolt and the other extremity in engagement with the traveler, substantially as and for the purposes set forth.

4. A padlock provided with a recessed shot-bolt, and a spring-actuated tumbler having a

ribbed face adapted to engage a correspondingly-notched key, the construction being such that the rotation of the key shifts the tumbler into line with the recess of the shot-bolt and permits of the actuation of the shot-bolt, substantially as and for the purposes set forth.

5. A padlock provided with a housing, a recessed shot-bolt, ways connected with one side wall of said housing, a spring-actuated tumbler having trunnions working in said ways, and a web connected with the other side of said housing and engaging said tumbler and recessed for the insertion of a key, substantially as and for the purposes set forth.

6. A padlock provided with a housing having an aperture, a shot-bolt, a bridge-piece, a perforated rotatable collar supported by said aperture and bridge-piece, a tumbler working in suitable ways, and provided with a ribbed surface, a web, bearings, and a key provided with notches corresponding with said web and ribbed surface, substantially as and for the purposes set forth.

In witness whereof I have hereunto set my signature in the presence of two witnesses.

REUBEN J. MYERS.

Witnesses:

A. B. STOUGHTON,
THOMAS M. SMITH.