(No Model.)

J. S. PEACOCK.

PADLOCK.

No. 421,966. Patented Feb. 25, 1890.

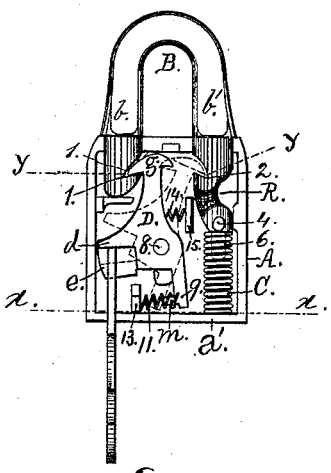

Fig. 1.

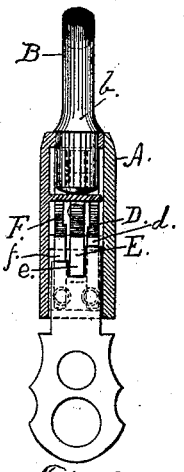

Fig. 3

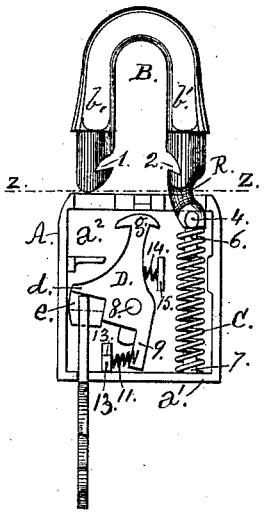

Fig. 2.

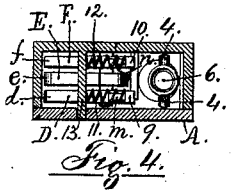

Fig. 4.

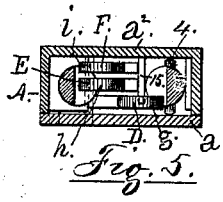

Fig. 5.

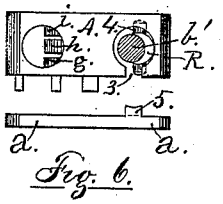

Fig. 6.

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UNITED STATES PATENT OFFICE.

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PADLOCK.

SPECIFICATION forming part of Letters Patent No. 421,966, dated February 25, 1890.

Application filed April 23, 1889. Serial No. 308,306. (No model.)

To all whom it may concern:

Be it known that I, JACOB S. PEACOCK, a citizen of the United States, residing in Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Padlocks, of which the following is a specification.

My invention relates to improvements in that class of locks known as "fast-shackle spring-padlocks"—that is to say, in which the shackle is of **U** shape, one arm longer than the other, and arranged in the case so as to slide longitudinally therefrom to bring the shorter arm outside the case, and then so that the shackle may be turned upon the other arm as a pivot to open the shackle, the interior of the lock being provided with tumblers to engage an arm of the shackle when the same is returned to the case, the key being introduced at the end opposite the shackle and in a line parallel therewith.

The invention relates to improvements in the construction of the tumblers, shackle, and case; and the objects of my improvements are, first, to facilitate the introduction of the fast end of the shackle into the shell or case when putting the lock together; second, to force the shackle from the case automatically when the tumblers are disengaged from the arm of the shackle by the proper key, and, third, to so construct and arrange the tumblers and shackle that when the tumblers are acted upon by a wrong key to disengage them from one arm of the shackle one or more of them will engage the other arm and prevent the withdrawal of the shackle from the case.

In the accompanying drawings, which form a part of this specification, Figure 1 is a side elevation of the lock with the side of case removed, showing the shackle locked in place and the key in position to unlock it. Fig. 2 is a similar view, but showing the shackle withdrawn from the case and the key and tumblers in the position occupied by them when the tumblers unlock the shackle. Fig. 3 is an end elevation, the end of the case being removed and showing the parts in the position as occupied by them in Fig. 1. Fig. 4 is a bottom view of the lock on the line *x x*, Fig. 1, the key being removed from the case. Fig. 5 is a transverse sectional view on the line *y y*, and Fig. 6 is a top view on the line *z z*, Fig. 2.

In the drawings, A represents the lock-case, and B the shackle.

b is the short and *b'* the long arm of the shackle. Each arm has a notch cut therein adapted to be engaged by the tumblers. 1 represents the notch in the short arm, and 2 that in the long one.

All parts of the case are cast integral with each other, excepting the front side *a*, which is secured to the case after the locking mechanism has been placed therein. There is a slot 3 cut through the top of the body of the case, extending from the opening through which the long arm of the shackle passes to the plate *a*, as shown in Fig. 6. This allows the fast end of the shackle with the transverse stop 4 on the inner end to be readily introduced into the case. This slot is closed by a filling spur or plug 5 on the inner face of the side plate *a* when that plate is fastened on the case.

A pin 6 projects downward from the end face of the long arm *b'* of the shackle, and is encircled by the upper coils of a spiral spring G, which rests on the bottom plate *a'* of the case, embracing a stud 7 on that plate, which serves to hold it in place. The transverse stop 4 serves as an auxiliary upper bearing for the spring in case it should slip by the shoulder formed about the pin 6 on the end of the arm *b'*, thus permitting the spring to be coiled more loosely about the pin 6 than would otherwise be the case, so as to greatly reduce the friction between the pin and the spring. When the shackle is pushed into the case and engaged by the tumblers, the spring G is compressed, as shown in Fig. 1; but as soon as the shackle is released from the tumblers the expansion of the spring forces the shackle out of the case until the short arm thereof is free from the case and the stop 4 bears against the top plate, as shown in Fig. 2.

In the lock I have in use and as described in this specification I am in the habit of using three tumblers, though this number may be varied. These tumblers D, E, and F vibrate vertically about the same pin 8, projecting from the fast or rear side *a'* of the case. They are engaged by the pin somewhat below the center, and have projections *d*, *e*, and *f*, respectively, which project over the key-opening in the bottom of the case in position

to be engaged by the wards of the key. The outer tumblers D and F have downwardly-projecting extensions 9 and 10, on the front faces of which are formed lugs *m n*, embraced by ends of spiral spring 11 and 12, respectively, the other ends of the springs resting against a transverse rib 13, formed on the bottom plate of the case. These springs serve to keep the heads of the tumblers in engagement with the notch 1 in the short arm of the shackle or in position to be engaged therewith. The center tumbler is acted upon in the same way by a spiral spring 14, set back of it above the pin 8. This spring has its other bearing against a plate 15, projecting from the side *a'* of the case, and the adjacent sides of the tumblers D and F are grooved, as shown in Fig. 3, to allow the spring free play.

Above the projections *d e f* the tumblers taper toward their heads *g h i*. On the under side these heads extend outward at approximately right angles with the tapered portions of the tumblers, and form hooks which catch into the notches 1 and 2 of the shackle-arms, while the tops of the heads are rounded, as shown in Figs. 1 and 2.

The projections *d*, *e*, and *f* of the tumblers, which are engaged by the wards of the key, vary in depth, and the wards of the key must correspond to open the tumblers simultaneously, as seen in Fig. 3.

In their normal position, when the shackle is locked in the case the forward hooks of the tumblers engage in the notch 1 of the arm *b* of the shackle, as shown in Fig. 1. When the proper key is inserted in the lock and forced against the projections *d*, *e*, and *f*, the tumblers are thrown back and disengaged from the notch in the arm *b*.

As it frequently happens that there is difficulty in engaging the shackle with a hasp because of the short distance the former can be thrown back for the purpose, I have formed a recess R in the outside of the circular part of the fast end of the shackle at a point where that arm is brought into contact, when withdrawn from the case to its greatest extent, with the rim of the opening in the top plate, through which it passes, so that when the shackle is thrown back to be engaged with the hasp the rim of the opening is received in the recess R, and the shackle is enabled to be readily hooked into hasps of any size it can hold in the loop between its arms *b b'*.

As will readily be seen, when the arms of the shackle are forced down into the case to lock it there the end of the short arm *b*, acting on the rounded heads of the tumblers, throws them back to allow the arm to pass, the springs 11, 12, and 14 forcing the heads of the tumblers into engagement with the notch 1 as it comes opposite to them.

The use of a key having wards differing from those of the key of the lock will engage one of the tumblers before it does the others, releasing it from the short arm of the shackle and throwing the head back, so that the hook catches into the notch 2 of the long arm, thus preventing the spring *c* from throwing the shackle out of the case, even should the two remaining tumblers be released from the notch in the short shackle-arm.

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

1. The lock-case having a slot 3 in the top plate thereof, extending from the opening through which the fast arm of the shackle is inserted to the side plate *a*, in combination with said side plate, having a filling-plug to close said slot, substantially as and for the purpose specified.

2. The combination, with the arm of a shackle having a stop formed thereon to hold it in the case, of the case provided with an opening adapted to receive the arm and stop, and a closing-plate constructed to reduce the size of said opening and prevent the passage of the stop, substantially as specified.

3. In a padlock, the combination of the case and a shackle having an arm permanently secured therein, said arm having a recess R, formed in the periphery thereof, adapted to receive the rim of the opening through which the arm is connected with the case when the shackle is thrown back to engage a hasp, substantially as and for the purpose specified.

4. In a padlock, the combination, with the fast end of the shackle, of a transverse stop 4 and downwardly-extending pin 6, formed thereon, a stud 7, projecting upward from the bottom of the case, and a spring coiled about the pin and stud, substantially as and for the purpose specified.

5. The combination, with the case and the shackle having notches in the inner sides of both arms, of a spring bearing on the fast arm of the shackle to force the same out of the case, a series of tumblers pivoted on the same pin 8, and adapted to engage the notches in both arms, and having projections *d*, *e*, and *f* of unequal depth extending over the key-opening, certain of the tumblers having downwardly-projecting extensions 9 and 10, a transverse rib 13, formed in the case opposite the extensions 9 and 10, springs bearing on the rib 13, and the extensions to force the heads of the tumblers into engagement with the notch in one of the arms, a plate 15, projecting from the side of the case above the pin 8, and a spring bearing on said plate, and the tumbler unprovided with a downward extension, all constructed and operating substantially as specified.

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