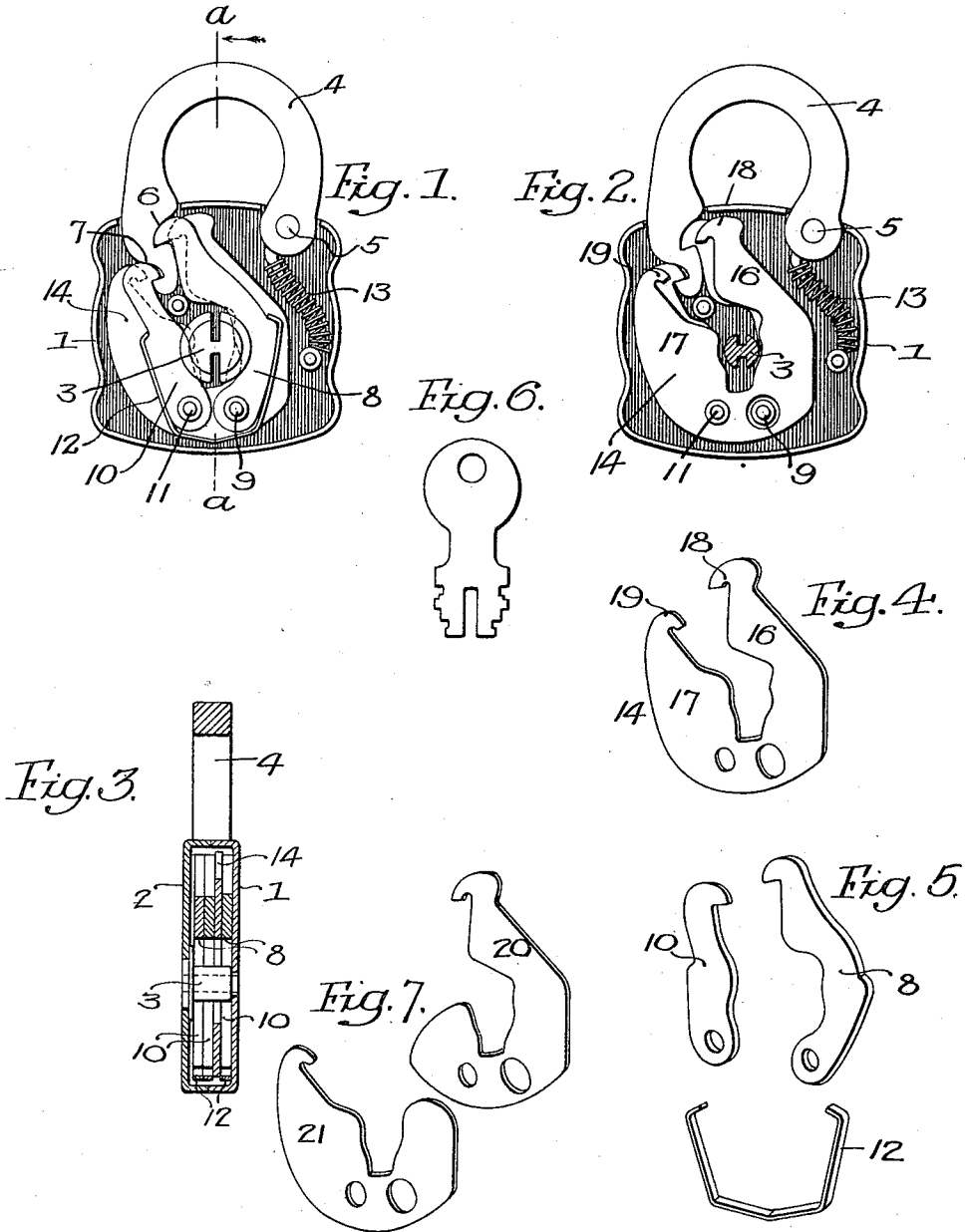


F. SOLEY.
PADLOCK.
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1,060,510.

Patented Apr. 29, 1913.



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UNITED STATES PATENT OFFICE.

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To all whom it may concern:

Be it known that I, FRANK SOLEY, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Padlocks, of which the following is a specification.

My invention relates to improvements in padlocks of the type having two sets of locking dogs which engage a double notched shackle.

The object of the invention is to provide means which will prevent the opening of the lock by striking the case at the edge without the use of the proper key.

In the accompanying drawings:—Figure 1, is a view of my improved lock with one-half of the casing removed and showing both sets of dogs engaging the shackle; Fig. 2, is a view similar to Fig. 1, with the locking dogs removed and illustrating my improved safety plate; Fig. 3, is a sectional view on the line *a—a*, Fig. 1; Fig. 4, is a perspective view of the safety plate; Fig. 5, is a perspective view showing two of the locking dogs and their springs; Fig. 6, is a side view of the key used in connection with the lock; and Fig. 7, is a view illustrating a modification of my invention.

Referring to the drawings, 1 is the back casing of the lock and 2 is the front casing.

3 is the key plug of one of the ordinary forms having slots for the reception of the key, as illustrated in Fig. 6; a key post, however, may be used if desired.

The shackle 4 is pivoted to a post 5 in the ordinary manner, and the nose of the shackle has two notches 6 and 7, as in this type of lock there are two locking dogs which engage the shackle.

8 is one locking dog, mounted on one side of the key plug and pivoted on a post 9. 10 is the other dog pivoted on a post 11.

12 is a spring which passes around the base of both dogs and bent to engage shoulders on the dogs, as shown in Fig. 1. Each dog has a hooked head. The head of the dog 8 enters the notch 6 in the shackle, and the head of the dog 10 enters the notch 7 in the shackle, so that when the parts are in the locked position the heads of both dogs engage the shackle, but when the proper key is inserted and turned in the right direction the dogs are separated and the shackle can be turned on its pivot. There may be as many sets of these dogs as de-

sired and, in the present instance, I have shown three sets of dogs. These dogs can be so arranged that different keys will be required to open different locks. The shackle is forced open, when relieved from the control of the dogs, by a spring 13 bearing against a projection on the pivot end of the shackle.

A lock constructed as described above can be readily opened by a quick blow on the edge of the casing, as the spring will yield, causing the dogs to fly apart. To overcome this objection I utilize a safety plate 14, shown clearly in the perspective view, Fig. 4, which is pivoted on the post 11. This flat plate has an enlarged hole through which the post 9 freely passes, so as not to effect the movement of the plate. The plate has a deep notch forming two arms 16 and 17 having hooks 18 and 19, respectively, at their outer ends. The notch is shaped at the lower end to receive the key and key plug 3, and the safety plate can be actuated by the proper key so that, when the dogs are moved to the unlocked position, the safety plate is moved to a mid-position to allow for the withdrawal of the shackle.

The flat safety plate 14 is located between any of the sets of dogs, or at the back or at the front of the lock and is held in position by the side friction of the dogs. The least jar or movement of the lock will cause the safety plate to move and, as the distance between the two heads 18 and 19 is only sufficient to allow the ends of the shackle to pass when the safety plate is moved to the central position, in the event of any one trying to open the lock by striking it, for instance on the right hand side, the blow will cause the safety plate to be shifted so that the head 18 will engage the notch 6 of the shackle. If the lock be struck on the opposite side then the safety plate will be shifted in the opposite direction and the head 19 of the plate will engage the notch 7 of the shackle. It will thus be seen that it is almost impossible to open a lock having a safety plate therein.

While I have illustrated in the drawings a lock having a single safety plate, it will be understood that two or more safety plates may be used without departing from the spirit of the invention.

The lock may be made with two independent plates 20 and 21, Fig. 7, each pivotally

mounted on a post and each having a single head, so that, when the lock is struck on the edge, one plate will move into engagement with the ends of the shackle and the other will be thrown out of engagement and, when the lock is struck on the opposite edge, the other plate will be thrown into engagement and the first mentioned independent plate will be thrown out of engagement; both independent plates being loosely mounted and one being independent of the other, but both plates are controlled by the key so that they can be moved out of locking position when it is desired to open the lock by the insertion of the proper key.

While my invention is particularly adapted as a safety means to prevent the opening of a lock without a key, the safety plate or plates act the same as a washer or additional tumbler in multiplying the number of key changes which can be made in the lock.

It will be understood that the form of the lock may be modified without departing from the essential features of the invention.

I claim:—

1. The combination in a lock, of a casing; a shackle pivoted to the casing and having a notch on each side of the nose; with two locking dogs, one dog being arranged to enter one notch of the shackle and the other dog being arranged to enter the other notch of the shackle; with a loose plate pivotally mounted in the lock, and arranged to engage the shackle and to be actuated by a key.

2. The combination of a casing; a pivoted shackle having a notch in each side of its nose; two locking dogs pivotally mounted in the lock and arranged to engage the shackle; springs tending to hold the dogs in engagement with the shackles; a loose plate pivotally mounted in the lock and having two notched heads spaced apart to allow for the free passage of the end of the shackle and so arranged that, when the plate is shifted in one direction, one head will engage the nose of the shackle and, when moved in the opposite direction, the other head will engage the nose of the shackle.

3. The combination in a padlock, of a casing; a shackle pivoted thereto and having a notch at each side of the nose; a key support; locking dogs pivoted to the casing, one locking dog being mounted on one

side of the casing and the other on the opposite side thereof and arranged to engage the shackle; a spring tending to hold the locking dogs in engagement with the shackles; a flat plate pivotally mounted in the lock and notched to form two arms, and having a head on each arm; the walls of the notch being so formed as to allow for the passage of a key and shaped to permit a key to shift the plate into the mid-position; the heads being spaced apart sufficiently to allow the nose of the shackle to pass freely into the notch of the plate and so proportioned that any jarring of the lock casing will cause one of the heads to engage the ends of the shackle and prevent the withdrawal of the shackle even when the dogs are clear thereof.

4. The combination in a padlock, of a casing; a shackle pivotally mounted thereon and having a notch on each side of the nose; a key plug; two posts below the key plug; a series of dogs pivotally mounted on each post; springs forcing the dogs toward the post and into engagement with the ends of the shackle; one set of dogs having hooks arranged to enter the notch on one side of the shackle; the other set of dogs having hooks arranged to enter the notch in the other side of the shackle; with a plate pivotally mounted on one of the said posts and free of the other, said safety plate having an opening for the reception of the key, and having two heads spaced apart for the free passage of the ends of the shackle, when held in position by the proper key, but so arranged that any jarring of the casing of the lock will cause either one of the heads of the safety plate to engage the shackle.

5. The combination in a lock, of a casing; a shackle having a notch at each side of its nose; a locking dog arranged to engage the shackle and to be actuated by a key; with a flat plate pivotally mounted in the lock and having two hooks arranged to engage the shackle and to be actuated by a key.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

FRANK SOLEY.

Witnesses:

WM. E. SHUPE,
WM. A. BARR.