H. G. VOIGHT.

PADLOCK.

APPLICATION FILED AUG. 6, 1918.

1,333,355.

Patented Mar. 9, 1920.

Fig. 1.

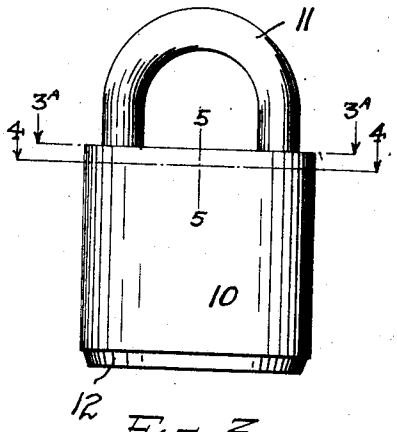


Fig. 2.

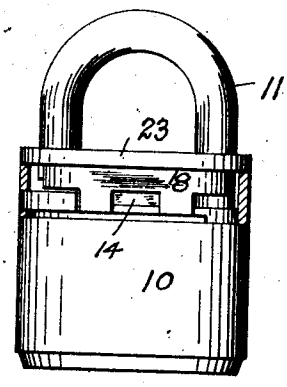


Fig. 3.

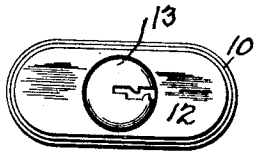


Fig. 3A.

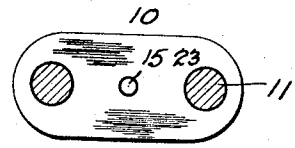


Fig. 4.

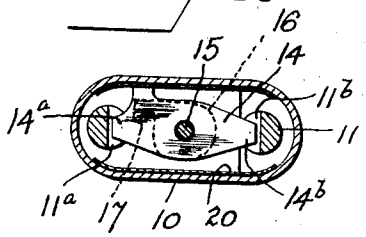


Fig. 5.

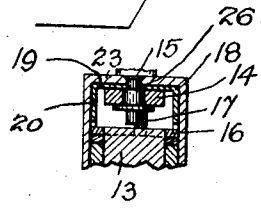
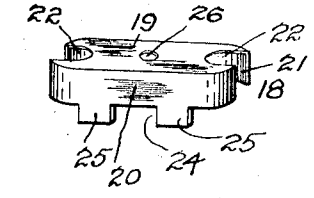


Fig. 6.



INVENTOR

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UNITED STATES PATENT OFFICE.

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PADLOCK.

1,333,355. Specification of Letters Patent. Patented Mar. 9, 1920.

Application filed August 6, 1918. Serial No. 248,613.

To all whom it may concern:

Be it known that I, HENRY G. VOIGHT, a citizen of the United States, residing in New Britain, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Padlocks, of which the following is a full, clear, and exact description.

This invention relates to padlocks and it has particular reference to pin tumbler padlocks, where the shackle is locked and released by means of a bolt or dog inside the case, which is movable by the key plug out of engagement with one or more notches in the shackle and is moved back to locking position by means of a spring when the shackle is moved back to locking position.

In padlocks of this and similar types, it has been found that, owing to the use of comparatively soft metal for casting or otherwise forming the case or shell, the padlock can be successfully attacked and opened in some cases by drilling through the case at a point opposite the locking bolt and then engaging and releasing said bolt by way of the drill hole. For example, it has been common practice to make the cases of cast bronze, and when such a soft metal is employed, it has been possible in some instances to bore a hole with a penknife, which will give such access to the bolt as to permit the same to be released.

The primary object of the present invention is to provide a padlock of armored or protected construction, whereby this method of attack will be thwarted.

Another object of the invention is to provide an improved padlock construction in which it is practically impossible to release the bolt by drilling through the side wall of the case. Still another object of the invention is to provide a very simple and economical armor for the locking bolt, which prevents the same from being released from the side of the case and which can be very easily and conveniently assembled with the other parts of the padlock at a very slight increase in cost. Owing to the simplicity of the construction and ease of assembly, the slight increase in cost, due to the incorporation of a single added part, is far outweighed by the increase in security.

To these and other ends, the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawing:

Figure 1 is a side elevation of a padlock embodying my improvements;

Fig. 2 is a similar view showing a part of the case or shell cut away to disclose the protective armor or sheath for the locking bolt;

Fig. 3 is an end view of the padlock;

Fig. 3^{A} is a section on line 3^{A}—3^{A} of Fig. 1;

Fig. 4 is a section on line 4—4 of Fig. 1;

Fig. 5 is a section on line 5—5 of Fig. 1; and

Fig. 6 is a detail perspective view of the bolt protecting sheath.

Referring to the drawing, I have shown my improvements as applied to a padlock of the general type set forth in Patent No. 729,792, granted to Sargent & Company, on June 2, 1903, as assignee of Albert A. Page, but it will be obvious from the following description that the invention can be carried into effect in padlocks of other types. The padlock shown in the drawing has a case 10 and a sliding shackle 11. The shackle is adapted to be secured and released by pin tumbler lock mechanism, including a face plate 12, a key plug 13 and a dog or bolt 14, which coöperates directly with the shackle. The pin tumbler lock mechanism, including the face plate 12, is secured in the case or shell 10 by any suitable means, such as the usual pins (not shown). I have not considered it necessary to illustrate the pin tumbler mechanism in detail, as the same may be of the usual or any preferred type. In the example shown, the bolt 14 is of the swinging type, being fulcrumed intermediate of its ends on a pin or pivot 15. The bolt is located in the upper part of the case against the under surface of the upper case wall between the sockets for the shackle legs, and the pin 15 passes through the upper or inner case wall and is riveted on the outside, as shown in Fig. 5. One end, 14^{a}, of the bolt is adapted to engage a notch 11^{a} in the shorter shackle leg, while the other end, 14^{b} of the bolt, is adapted to engage a notch 11^{b} in the longer shackle leg. A spring of the usual kind (not shown) normally holds the bolt in the locking position shown in Fig. 4, wherein its ends are engaged in the respective shackle notches. In order to per-

mit the release of the bolt by the key plug 13 when turned by the proper key, suitable means of connection are provided between the inner end of the key plug and the bolt, and in the example shown, a washer or cam 16 on the inner end of the key plug engages a pin 17 projecting downward from the under surface of the bolt. A construction of this kind is shown in detail in Patent No. 1,093,080, granted to Sargent & Company on April 14, 1914, as assignee of E. J. Shipman, and for that reason I have not considered it necessary to illustrate and describe it in greater detail.

Heretofore, it has been possible to attack successfully a padlock of the type indicated by drilling or cutting through the shell or case (usually of bronze) at such a point as to permit access to the bolt. By forming a hole opposite the bolt it has been possible to push a wire or the like through the hole into engagement with one end of the bolt and thereby release the same. In order to thwart such a method of attack, I provide means for preventing access to the bolt by drilling, and this means preferably takes the form of a protective armor, which incloses the bolt at the sides, said armor or sheath being of such hardness as to prevent drilling or cutting. In the example shown, I use a protective sheath 18 of thin, hard metal, which is inserted into the case around the bolt and suitably held in that position. In the embodiment shown, the sheath 18 is bent up from thin, sheet steel to the shape shown in Fig. 6, and then hardened by tempering or otherwise so as to make it drill proof. The sheath can be readily stamped up in the form of a cup, having a bottom 19 and side walls 20. The end walls are cut away at 21 to form notches 22, which receive the respective shackle legs. The bottom 19 of the cup, which is located in this instance at the top of the padlock, is placed against the inner face of the top wall 23 of the shell, and the side walls 20 inclose and protect the swinging bolt 14. In the present instance, the side walls have notches 24 to clear the rounded part of the bolt, but the bolt ends are effectively inclosed and protected from attack by lugs 25 at the respective sides of the clearance opening.

One feature of importance consists in the fact that the protective sheath can be attached to the padlock shell by the same means which serves to mount the bolt. Thus, the employment of an extra part for fastening the sheath to the case is obviated. A convenient method of attaching the sheath to the padlock shell is to provide the top wall 19 with a central opening 26 adapted to fit over the pivot 15. In assembling, the padlock shell is placed in an inverted position, so that the wall 23 is lowermost and the sheath 18 is fitted over the pivot pin beneath the bolt, after which the pivot pin is riveted or clenched at the outside, as shown in Fig. 5. It will be obvious that the protective sheath can be very readily made and that it can be very conveniently assembled with the other parts.

Thus, the cost of the padlock is increased only to a slight degree, owing to the fact that the single extra part, viz., the sheath, can be produced very inexpensively. The security of the padlock is greatly increased, however, owing to the fact that means are provided for effectively preventing attack on the bolt by drilling through the side wall of the case or shell. The sheath is sufficiently hard to resist drilling or cutting by any ordinary means, being preferably of hardened carbon steel.

Various changes may be made in the details of the construction without departure from the scope of the invention as defined in the claims.

What I claim is:

1. In a padlock, a case, a shackle, locking means for the shackle including a bolt, and a cup-shaped protective member of hard metal in the case inclosing the bolt.

2. In a padlock, a case, a shackle, a pivoted bolt for locking the shackle, and a bolt-protecting sheath mounted on the bolt pivot.

3. In a padlock, a case, a shackle, a shackle bolt, means for mounting the shackle bolt on the end wall of the case, and a protective sheath having a wall lying against the end wall of the case and provided with a side wall which prevents access to the bolt by drilling through the side of the case.

4. In a padlock, a case, a shackle, a swinging shackle bolt, a pivot on the end wall of the case between the shackle legs, said bolt being mounted on said pivot, and a cup-shaped protective member of hard metal having a perforation engaging the bolt pivot and secured between the bolt and the end wall of the case.

5. In a padlock, a case, a shackle, shackle-locking means in the case including a bolt, means for operatively securing said bolt to the interior of said case, and a bolt protecting sheath of hard metal mounted between said bolt and case.

6. In a padlock, a case, a shackle, a key controlled locking bolt within said case for locking said shackle, and a drill proof lining of thin hard metal within said case constructed to inclose said bolt and to prevent access to the same by drilling through said case.

In witness whereof I have hereunto set my hand on the 1st day of Aug., 1918.

HENRY G. VOIGHT.