Nov. 4, 1969 D. J. FOOTE 3,475,931

PADLOCK SHACKLE GUARDS

Filed April 12, 1968 2 Sheets-Sheet 1

FIG - 1

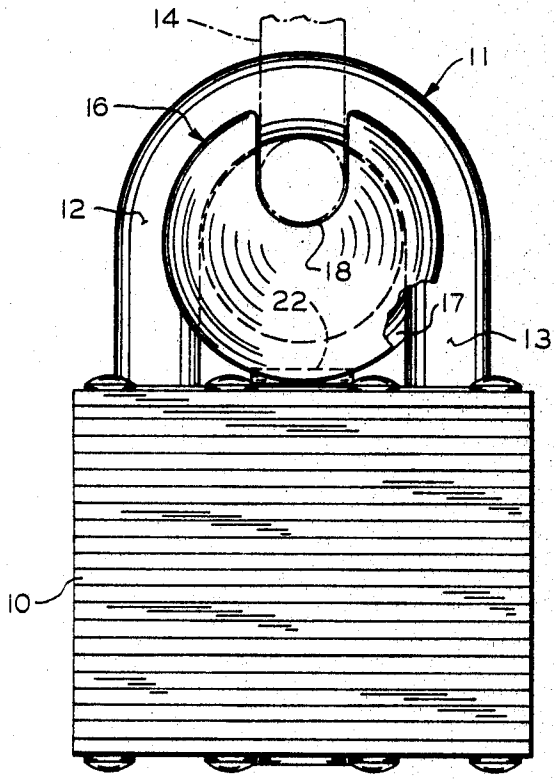
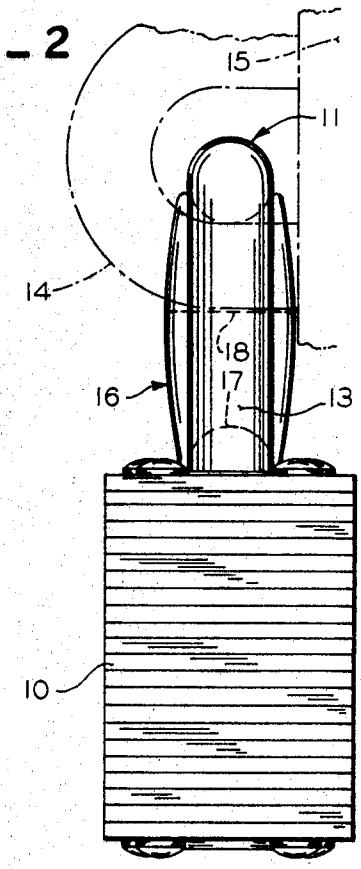


FIG - 2



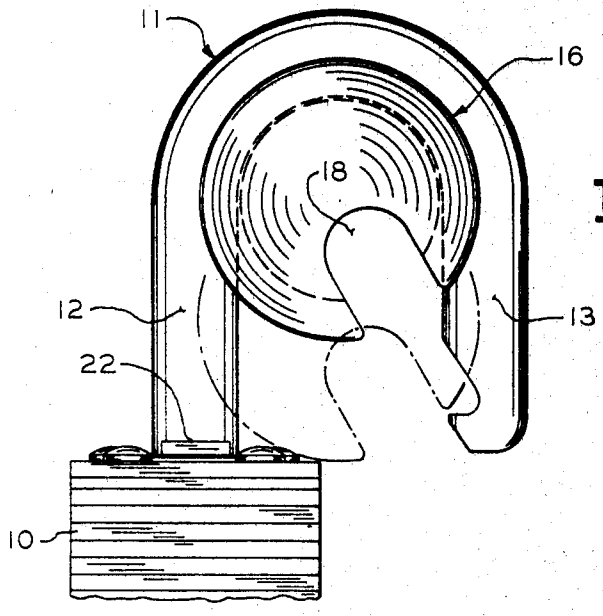


FIG - 3

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PADLOCK SHACKLE GUARDS

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FIG - 4

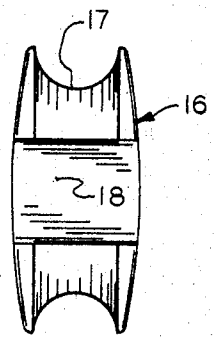


FIG - 5

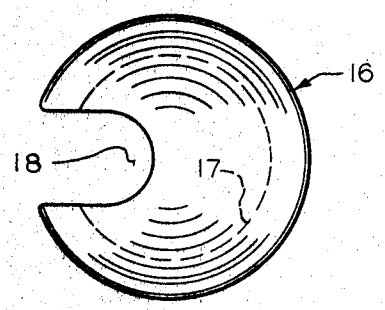
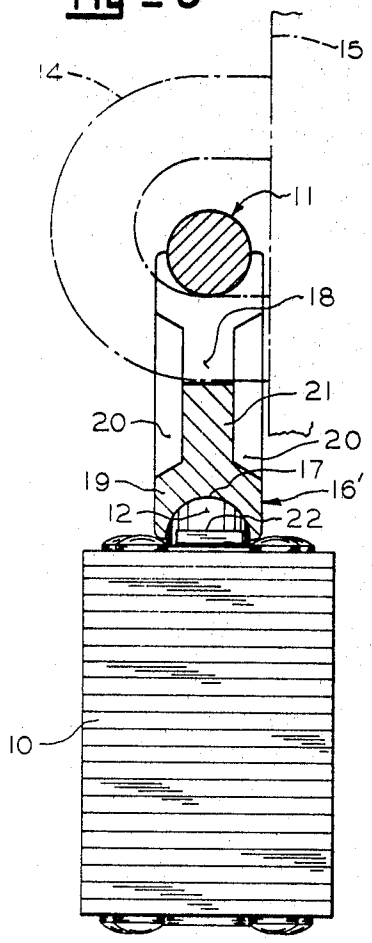


FIG - 6



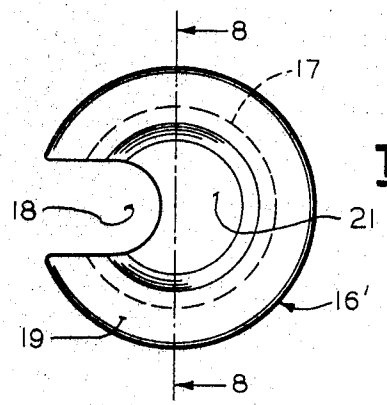


FIG - 7

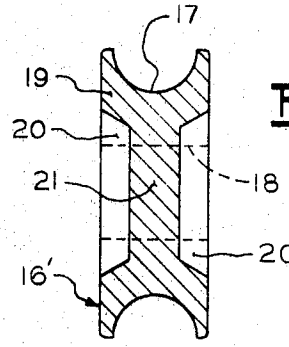


FIG - 8

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PADLOCK SHACKLE GUARDS

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Int. Cl. E05b 67/38

U.S. Cl. 70—54 9 Claims

ABSTRACT OF THE DISCLOSURE

A sheave-like disc, securely confined within the space bounded by the legs of a padlock shackle when the latter is in closed condition, is turnable in said space. The disc which functions as a shackle guard, is formed with a recess extending inwardly from a margin which provides a relatively small opening to receive a hasp, staple eye, hook or the like when the padlock is applied for closure locking purposes. The guard-forming disc, when associated with a closed padlock shackle, will prevent the insertion of a bar, rod, or tool such as might be unauthorizedly used to exert leverage and pressure between the body of the lock and the shackle in an effort to force or pry the shackle sufficiently to gain its release. Additionally, the relationship of the guard to the closed shackle is such as to thwart efforts to cut or sever the shackle, and it furthermore blocks the shackle leg openings in the padlock body to deter the insertion of shims or tools around the shackle legs for the purpose of reaching and manipulating the lock levers to surreptitiously release the same for lock opening purposes. Due to the fact that there is relative turning movement between the guard disc and the closed shackle legs, the padlock, when applied to a hasp, staple eye or the like, will hang on its normal depended position, avoiding undesired canting or tilting.

Background of the invention

Burglars and thieves have for many years used various methods of attack on padlocks in an attempt to gain entry to dwellings, warehouses, garages, factories, cabinets, or other lock controlled closures with the intent of stealing personal property or valuables housed within such closures. If the padlock body or case is such as to resist blows thereon or attempts to pick the lock cylinder, a burglar may then attempt to force open the padlock shackle by inserting in the opening bounded by the shackle legs a suitable prying tool, or an attempt may be made to file, cut or sever the shackle or to insert devices into the case openings around the shackle legs for the purpose of releasing the padlock lever or levers to thereby surreptitiously open the padlock. Padlock manufacturers, consequently, have striven to make their locks stronger and tamper proof, but the shackle has often, heretofore, proven to be one of the most vulnerable points of attack. Pursuant to the present invention the improved padlock shackle guard functions to protect and guard the space within the inverted U-shaped padlock shackle and, when the padlock thus equipped hangs from a staple eye or hook, access thereto cannot be gained by forcing to open position the padlock shackle.

The improved padlock shackle guard may be provided in different types and sizes in order to fit padlock shackles of varying dimensions and is preferably adapted to be applied to the padlock shackle at the factory during the manufacturing operations. The improved padlock shackle guard, being in the nature of a sheave-like disc is susceptible of being turned within the shackle and then, in conjunction with the padlock applied to a hasp or the like, provides for a universal mounting whereby the padlock

may hang in a normal position regardless of the hasp position of mounting.

The disc-like shackle guard, besides preventing the insertion of a pry bar or tool to forcibly break the shackle loose from the padlock body, by substantially filling the space within the shackle, will prevent the use of a large pry bar which might otherwise be inserted to tear the hasp, which carries the locked padlock, from its mounting.

Another object of the invention is to provide, for application to a padlock shackle, a rotatable disc-like guard which adds to the sturdy and heavy appearance of the padlock and serves to warn burglars or thieves that a padlock so equipped will resist attempts to disengage or release the same and to furthermore resist hammer blows which might otherwise so affect the padlock body as to release the locking levers by transmitted vibrations.

Still further objects of the invention are to provide a padlock shackle guard which is easily incorporated in padlock shackles of various types and sizes, which is simple in design and construction, which is easy to manipulate, which is relatively inexpensive, and which materially enhances the safety features of the padlock shackle to which it is applied.

Description of the prior art

As far as applicant is aware there is nothing presently available which is similar in major respects to the present improved padlock shackle guard. The closest known approach thereto is the padlock shackle guard disclosed in the prior Owen and Foote application for Padlock Shackle Guards, Ser. No. 673,492, filed Oct. 6, 1967 and assigned to the assignee of the present application. In the shackle guard of the prior application the guard or shield is fixedly mounted within the space bounded by the shackle legs and the hasp receiving recess in the shield is in a lower corner. The guard or shield of the prior application cannot move relative to the shackle, as is the case with respect to the shackle guard of the instant application, with the result that when the shackle guard-equipped padlock of the prior application is locked onto a supported hasp the padlock cannot have universal movement relative to the hasp and the lock may consequently hang in a canted or tilted position as opposed to the arrangement in the instant invention wherein the movable guard will permit the padlock to hang normally and freely.

Brief description of the drawings

In the drawings wherein the same reference characters designate the same or similar parts in all of the views:

FIG. 1 is a side view of a padlock equipped with the improved shackle guard with the padlock locked onto and depending from a hasp, a peripheral portion of the guard being broken away and the hasp being shown in broken lines;

FIG. 2 is an end view of the showing in FIG. 1;

FIG. 3 is a fragmentary end view of the padlock with the locking leg of the shackle thereof released and swung away from the padlock case illustrating the manner in which the guard disc may be turned or shifted within the confines of the released shackle:

FIG. 4 is an end view of the guard disc;

FIG. 5 is a side or face view thereof;

FIG. 6 is an end view of a padlock locked onto and depending from a hasp wherein the shackle is equipped with a slightly modified form of guard disc with the shackle and guard disc being shown in vertical section and the hasp being shown in broken lines;

FIG. 7 is a side or face view of the modified form of guard disc; and

FIG. 8 is a sectional view thereof taken on line 8—8 in FIG. 7.

Description of the preferred embodiments

Referring now more particularly to the drawings, it will appear that a padlock body or case is indicated by the numeral **10**, and the same, as is standard, has projecting from an end thereof a shackle designated generally by the numeral **11**. Said shackle has an extension or long leg **12** extending into a cavity in the padlock body **10**, mounted to permit yielding reciprocatory movement of the shackle when the latter is released, and also swinging movement thereof. The releasable or short leg **13** of the shackle is lockingly engaged by suitable conventional spring-urged mechanism (not shown) within a cavity in the body **10**. Said lever mechanism is, in turn, set or released by conventional mechanism (not shown).

For guarding an enclosure or the like so as to prevent surreptitious entry thereinto and theft, common practice is to apply the released padlock shackle to a staple eye or hasp **14** projecting from a surface **15**. Then, the shackle is pivoted so as to register the short shackle leg **13** with its opening in the padlock body, whereupon when the shackle is reciprocated or forced inwardly, the shackle will be locked into the body **10** and relative to the hasp **14** or other element it engages.

In attempts to unauthorizedly open a padlock to gain surreptitious entry to the enclosure protected thereby, a burglar or tamper may subject the padlock body to severe blows or pick the lock cylinder in an attempt to move the pin tumblers in the keyway. Should the padlock under attack be so strong as to resist this type of tampering, the burglar may then work on the padlock shackle to attempt to force it open or to tear the hasp to which the padlock is attached from its mounting. For these attempts a strong and heavy prying tool might, in conventional structures be inserted into the unprotected space within the outline of the shackle legs. Or, a burglar might attempt to file, cut or saw the shackle, or insert a shim into a shackle leg opening and thereby manipulate and release the locking lever mechanism.

The sheave-like guard disc of the present invention provides a simple means for thwarting all of the above-mentioned unauthorized attacks on the locked padlock. Consequently, when the locked padlock to whose shackle the improved guard has been applied hangs from a staple eye or hook, it cannot be forced or released nor can the unauthorized opening of the padlock be accomplished. Furthermore, because the guard disc may turn freely within the shackle and relative to the hasp or hook which is engaged therein, relative universal movement is attainable and the padlock will hang or assume its normal position, avoiding undesired canting, tilting or angularity.

As illustrated in FIGS. 1–5 of the drawings in its preferred form the novel shackle guard, generally indicated by the numeral **16**, takes the form of a sheave-like disc of circular contour with an annular peripheral groove **17**. Said disc is furthermore provided with a relatively small opening in the form of a U-shaped recess **18** extending radially inwardly from a margin of the disc and which is of sufficient sizes to snugly receive a hasp **14**, staple eye, hook or the like when the padlock is applied for closure locking purposes, as shown in FIGS. 1 and 2. Additionally, in the preferred form of the invention the opposite faces of the guard disc **16** are convex in cross-section or outwardly bowed, thus forming surfaces which project outwardly of the planes of the shackle surfaces, thereby rendering it very difficult to apply a cutter or other tool to the shackle legs in an attempt to cut, sever or mutilate the same. The guard disc **16** which may be formed of ferrous, non-ferrous, or die cast materials is of a size to occupy substantially all of the space within the outline of the shackle legs when the shackle **11** is in its locked and retracted position, but the disc is free to turn in complete circles within said space, being guided and retained by the shackle legs, portions of which seat within the disc groove **17**, as is best shown in FIGS. 1, 2, and 3. However, when the shackle **11** is released and

projected outwardly, the space bounded by the shackle legs is materially increased in size, as in FIG. 3. This is important because it then is possible to bodily shift the disc within the outline of the shackle legs as from the full line position to the broken line position and by additionally turning the disc **16** the recess **18** therein may be brought into a position in registration with the accessible open end of the shackle. In such position the hasp **14**, staple eye, hook or the like can be entered into the disc recess. Thereafter, when the disc is shifted back to the closed end of the shackle and the shackle is retracted into the padlock body and locked, free circular movement of the disc will cause it to assume a correct position relative to the shackle and hasp so that the padlock will hang correctly, as in FIGS. 1 and 2, or assume any desired normal position, it being appreciated that the circular movement of the disc within the closed shackle and free movements of the shackle on the hasp permit the padlock to be susceptible of universal movement.

In FIGS. 6, 7, and 8 of the drawings there is illustrated a slightly modified form of sheave-like guard disc **16'**. It is constructed so that its peripheral portion which is formed with the annular groove **17** is in the nature of an annular flange or rim **19**. Inwardly of the rim **19** the body of the disc **16'** on both faces is dished inwardly, as at **20**, leaving a web **21**. Said form of guard disc **16'** is, of course, provided with a radially inwardly extending recess **18** for receiving a hasp **14**, or the like. The modified form of guard disc **16'** functions in the same manner as the guard disc **16** of the principal form of the invention.

To thwart the possible insertion of a very thin prying tool between the lower peripheral portion of the guard disc **16** or **16'** and the top of the padlock body **10**, the top plate of the body may be formed with an integral rigid rib **22** (see FIGS. 1, 3, and 6). Said rib or protuberance **22** is so located and proportioned as to project into the disc groove **17** when the shackle is in its retracted, locked condition. It does not interfere with the free turning of the disc and is merely an added safe-guard.

As will appear from the foregoing description, by means of the present invention there is provided a turnable padlock shackle guard substantially filling the space between the legs of a padlock shackle, when the shackle is in retracted and locked position, to prevent the unauthorized opening of said padlock. The guard can be applied to locks of either the key-operated or permutation type and is adaptable to shackles of various sizes. When the padlock whose shackle is equipped with the improved guard disc is applied to a hasp, hook or the like in locked position the free circular movement of the guard disc within the closed shackle legs will insure a correct position of the dependent padlock, eliminating any tendency of the same to assume a tilted or unnatural position. The shackle guard disc cannot be removed from the locked shackle and with the inclusion of the guard disc in the assemblage it is virtually impossible to insert a crowbar or other tool between the shackle legs **12** and **13** in an attempt to force or pry the lock open. The hasp receiving opening **18** in the guard disc is too small to permit the introduction of any effective tool. The guard also functions to render it impossible to insert shims or other devices into the shackle leg openings in the padlock body to surreptitiously manipulate the locking lever mechanism to open the lock. The overlapping relationship of the peripheral flanges of the disc to opposite surface portions of the shackle legs, together with the outwardly bulged or bowed side faces of the disc, (in respect to the principal form of the invention) renders it impractical to cut or saw through the shackle.

From the foregoing description it should be clear that the improved padlock shackle guard greatly enhances the safety and tamperproof factors of the padlock to which it is applied, does not interfere with the normal operation and functioning of the padlock, is free of manufacturing

complications, is of simple and strong construction, and is well adapted for the intended purposes.

What is claimed is:

1. The combination with a shackle-equipped padlock, of a guard blocking the major portion of the space within the shackle outline when the latter is in closed condition relative to the padlock body, the guard being in the form of a disc having peripheral means turnably and shiftably receiving inner portions of the shackle legs.

2. The shackle-equipped padlock and guard combination of claim 1 wherein the guard is solid but is provided with an edge recess positionable, when the guard is turned and shifted relative to the released shackle, for engagement with a hasp or the like, with the guard being turnable within the shackle outline when the shackle is in its closed condition to re-position the guard recess and engaged hasp for free hanging movement of the padlock relative to the engaged hasp or the like.

3. The shackle-equipped padlock and guard combination of claim 1 wherein the guard is non-removably associated with the legs of the closed padlock shackle.

4. The shackle-equipped padlock and guard combination of claim 1 wherein the guard is also formed with a U-shaped recess extending radially inwardly from an edge portion thereof to accommodate a hasp or the like engaged by the shackle.

5. The shackle-equipped padlock and guard combination of claim 1 wherein the guard is also formed with a recess extending inwardly from an edge portion thereof to accommodate a hasp or the like engaged by the shackle, the guard being freely turnable on the engaged shackle legs in the closed condition of the shackle and being both turnable and rectilineally movable on the engaged shackle legs in the released, projected position of the shackle to vary the position of the guard recess.

6. The shackle-equipped padlock and guard combination of claim 1 wherein a peripheral portion of the guard is in close proximity to the top of the padlock body.

7. The shackle-equipped padlock and guard combination of claim 1 wherein the opposite faces of the guard disc are outwardly bowed.

8. The shackle-equipped padlock and guard combination of claim 7 wherein the outwardly bowed faces of the guard disc project outwardly of the planes of the shackle surfaces.

9. The shackle-equipped padlock and guard combination of claim 2 wherein the guard disc is non-detachably associated with the shackle.

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E. J. McCARTHY, Assistant Examiner