United States Patent [19]

Foote

[11] **3,783,657**

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[54] **PADLOCK BODY AFFIXED SHACKLE ENVELOPING GUARD**

[75] Inventor: **Daniel J. Foote,** Wauwatosa, Wis.

[73] Assignee: **Master Lock Company,** Milwaukee, Wis.

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[52] **U.S. Cl.** **70/52,** 70/54

[51] **Int. Cl.** **E05b 67/02,** E05b 67/33

[58] **Field of Search** ..... 70/54, 55, 56, 52, 70/51, 38 A, 38 B, 38 C, 53; 292/281

[56] **References Cited**

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Primary Examiner—Robert L. Wolfe

Attorney—Curtis B. Morsell, Sr.

[57] **ABSTRACT**

To provide a metallic protector for substantially enveloping the major exposed portion of a retracted and locked padlock shackle an eccentrically shaped guard is affixed to the end portion of the padlock body in covering relation to the normally exposed portion of the shackle. The outer end of the guard is slotted so that when the shackle is unlocked and reciprocated outwardly for staple eye engaging or releasing purposes, it will freely move outwardly through the slotted end of the guard while the guard remains immovably affixed to the padlock body.

7 Claims, 7 Drawing Figures

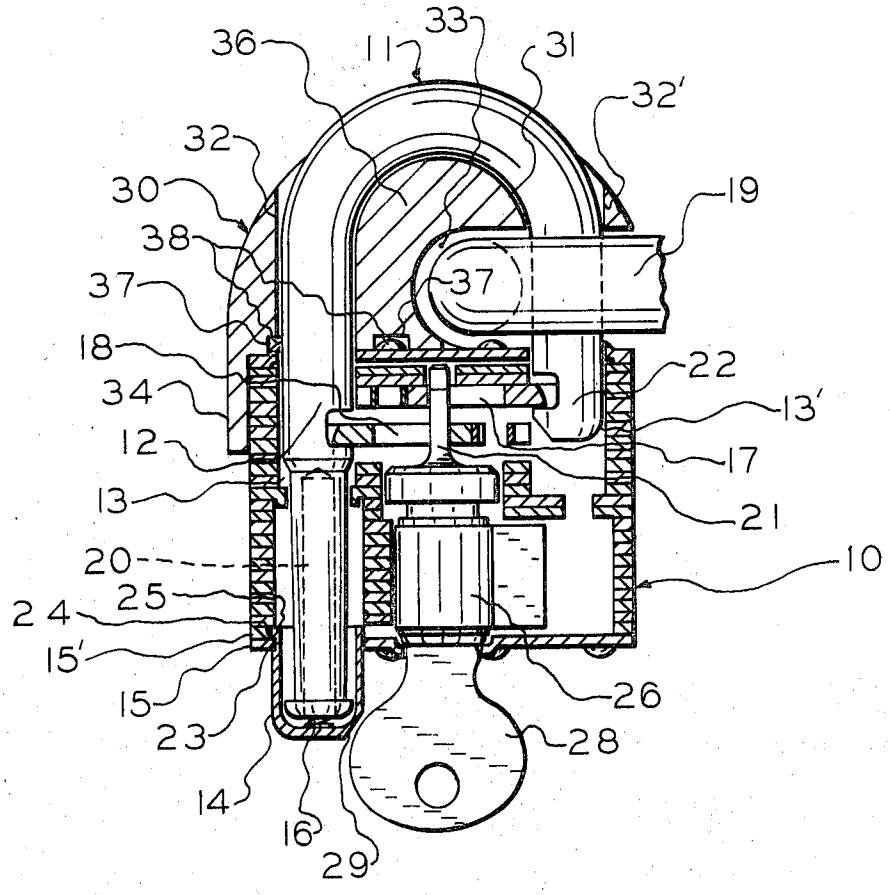


FIG - 1

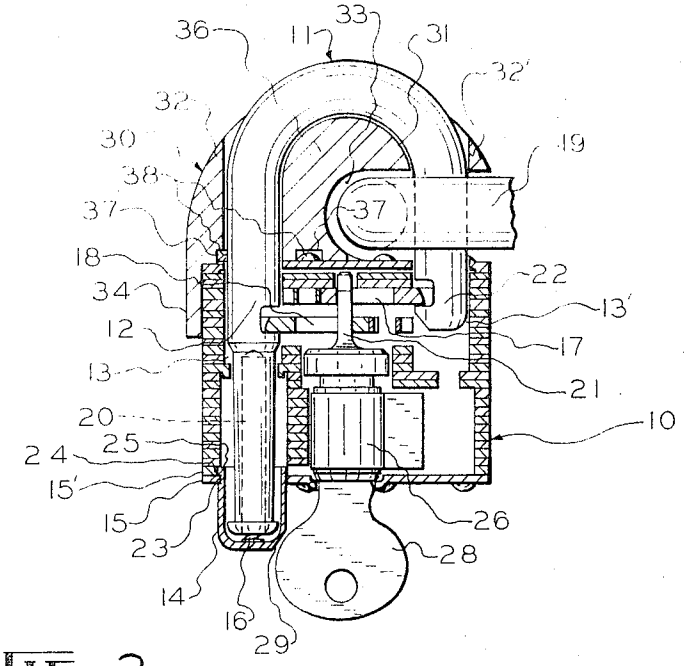


FIG - 2

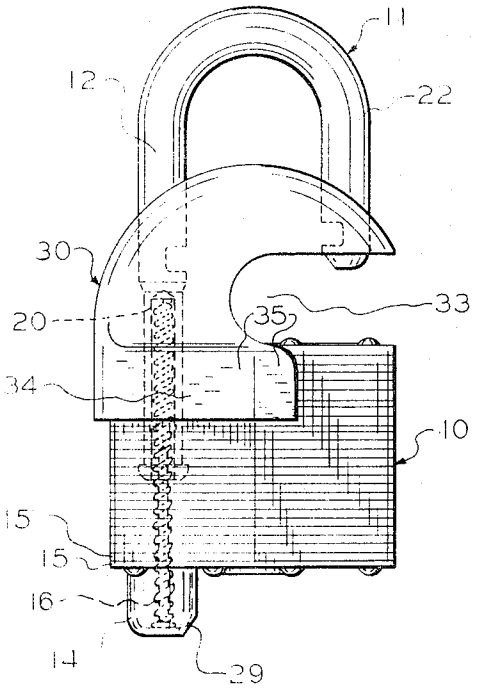


FIG - 3

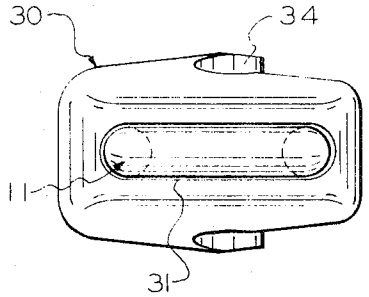


FIG - 4

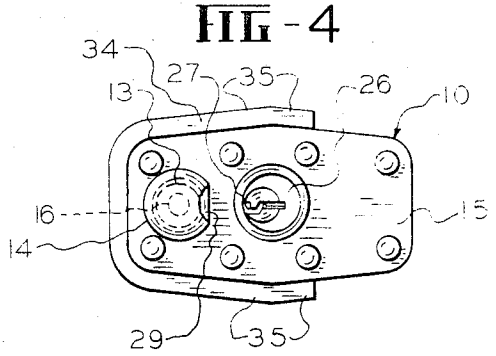


FIG - 5

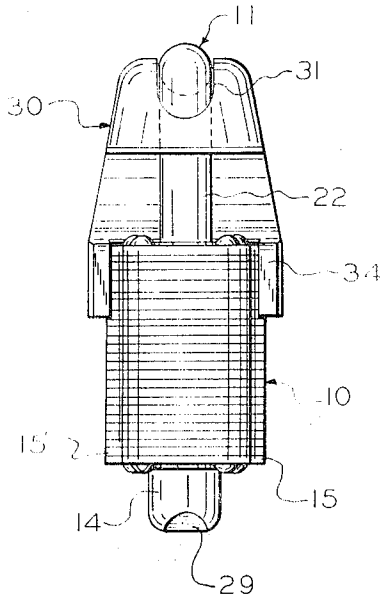


FIG - 6

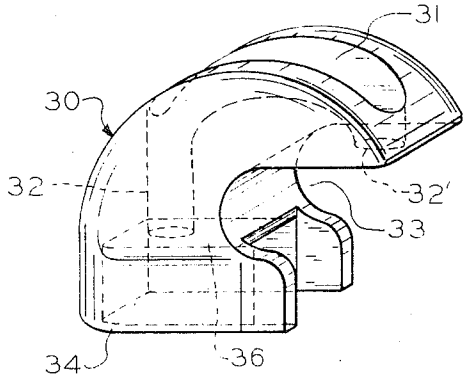
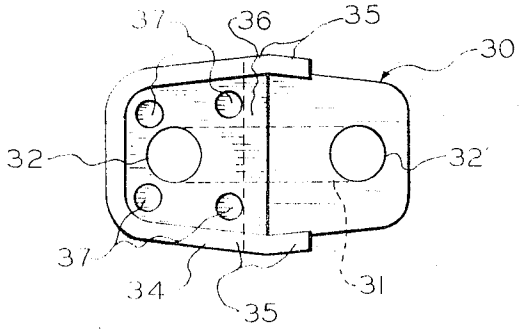


FIG - 7



PADLOCK BODY AFFIXED SHACKLE ENVELOPING GUARD

BACKGROUND OF INVENTION AND ITS OBJECTIVES

Burglars and thieves have for many years used various methods of attack on padlocks in attempts to gain entry to buildings or closures, which are padlock protected, with the intent of stealing personal property or valuables housed within such closures. 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 shackle enveloping guard functions to protect the locked and retracted padlock shackle and render it invulnerable to the surrepticious application thereto of a saw, cutter, pry or the like by a thief or tamperer.

As a further objective the invention aims at the provision of a padlock shackle enveloping guard in which a notch is provided, accessible when the shackle is unlocked and projected outwardly to free the short leg of the shackle from the padlock body, for the engagement with the short leg of the shackle and its ultimate accommodation thereby, of an eye, hook or hasp element projecting from the closure to be locked.

Another object of the invention is to provide a shackle enveloping guard which is affixed to the padlock body and relatively freely movably envelopes the shackle, and is so constructed that the outer end portion of the shackle may reciprocate through the outer end of the guard when the shackle is unlocked and is reciprocated outwardly by spring urged means.

A further object of the invention is to provide a padlock body affixed shackle enveloping guard which does not require pivoting of the shackle for hasp-eye engaging and disengaging purposes, but permits reciprocation of the shackle relative to the padlock body and the body affixed guard.

Still another object of the invention is to provide a padlock shackle guard which adds to the sturdy and heavy appearance of the padlock assemblage and serves to warn thieves or temperers that such padlock will resist their attempts to sever or pry the shackle or release the padlock.

Other objects of the invention are to provide a padlock shackle enveloping guard which is easily permanently affixed to a padlock body, which is simple in design and construction, which is easy to manipulate, which is relatively inexpensive, and which naturally enhances the safety features of the padlock shackle with which it is associated.

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 body affixed shackle enveloping guard. The R. L. Owen et al. U.S. Pat. No. 3,453,846, owned by applicant's assignee discloses a shackle guard which is affixed to & moves with the shackle, which is also true of the shackle guard disclosed in the Beaver U.S. Pat. No. 3,392,555.

BRIEF DESCRIPTION OF THE DRAWINGS

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

FIG. 1 is a vertical sectional view of a shackle-equipped padlock wherein the body of the padlock fixedly carries a shackle enveloping guard, the shackle being shown retracted and locked onto a hasp element or the like;

FIG. 2 is a front view of the padlock and guard assemblage with the shackle unlocked and in its outwardly projected position wherein the disengaged short leg of the shackle may be engaged with or disengaged from a hasp element or the like;

FIG. 3 is a plan view of the padlock and guard assemblage with the shackle in its retracted and locked condition;

FIG. 4 is a bottom view of the assemblage with the key removed;

FIG. 5 is a side view of the assemblage looking at the open mouth of the guard;

FIG. 6 is a front and side perspective view of the guard disassociated from the padlock; and

FIG. 7 is a bottom view thereof.

DESCRIPTION OF THE PREFERRED EMPEDIMENT

Referring now more particularly to the drawings, it will appear that a padlock body (illustrated as being laminated, although this is not necessary) is indicated generally by the numeral **10.** As is standard, said body has projecting from an end thereof a shackle designated generally by the numeral **11.** The shackle is slightly modified from standard practice in that it's long leg **12** which reciprocates in a bore **13** therefor in the padlock body, is longer than normal so that in the retracted position of the shackle, as in FIG. **1,** the inner end of the long leg extends into a cup-like thimble **14** rigidly carried by the bottom plates **15** and **15'** of the body. Said thimble **14,** in the retracted position of the shackle, also houses the contracted lower end portion of a coiled spring **16.** This spring extends through an opening **20** therefor in said shackle long leg to react against an upper internal portion of said leg in a manner to reciprocate the shackle outwardly from the opposite end of the padlock body (see FIG. **2**) when the padlock locking levers **17** and **18** are operated by the associated key controlled mechanism **21** to release both of the shackle legs. This arrangement permits the shackle to reciprocate somewhat longer than normal from the outer end of the padlock body, substantially lifting the free end of the short leg **22** of the shackle beyond its end of the body and out of its bore **13'** is to provide a substantial gap for engaging a hasp element **19** or eye with said short leg, or disengaging it therefrom.

As is best shown in FIG. **1** the upper end portion of the hollow thimble **14** has a force fit within openings therefor in the plates **15** and **15'** of the padlock body **10.** Additionally the extreme bottom plate **15** during assembly, may be bumped into a recess **23** therefor in a wall of the thimble with the body lamination **15'** thereabove, on its side adjacent the body cavity for the long leg, being recessed, as at **24,** to receive the shoulder **25** on the upper end of the thimble.

The locking levers **17** and **18** and the means for engaging the same with notches in the shackle legs **12** and **22** is of the dual locking lever type similar to that shown in the Foote U.S. Pat. No. 3,475,930 of Nov. 4, 1969. As shown in said patent the cylinder **26** has a bottom key slot **27** to removably receive an operating key **28.** In this connection it should be observed that an exterior bottom portion of the thimble **14** is recessed, as at **29,** to provide clearance for the head of the inserted key **28** when the latter is turned.

The improved shackle guard is indicated generally by the numeral **30.** As shown most clearly in FIG. **6** it is helmet shaped with the major interior thereof being solid as at **36,** and being formed on its curved top with an outwardly opening arcuate groove or recess **31** whose opposite inner end portions merge into shackle leg bores **32** and **32'** which open through bottom wall portions of the solid interior of the guard. The right hand side of the guard (relative to FIGS. **1, 2** and **6**) is provided with an inwardly extending mouth **33** which exposes a portion of the short leg **22** of the shackle in the retracted position of the latter and accommodates a shackle leg-engaged hasp element **19** or the like, as in FIG. **1.** Or it provides the clearance gap for the disengagement from or initial engagement with the hasp element when the shackle is in its projected position of FIG. **2.** Below the solid interior portion of the guard **30** there is a depending three-sided skirt **34** of a size to clampingly embrace portions of the upper front and rear faces and the left hand side (as viewed in FIGS. **1, 2** and **4** of the drawings) of the padlock body, said skirt terminating short of the right hand end of the padlock body. The front and rear walls of the skirt are slightly angled as **35,** to conform to the angularity of the corresponding walls of the padlock body. In the face of the bottom of the solid interior **36** of the guard there are spaced recesses **37** to accommodate the heads of those body rivets **38** which the guard portion **36** overlies.

When the improved guard **30** is permanently mounted on the shackle end of the padlock body **10** the relationship is as shown in FIGS. **1, 2** and **5.** The skirt portion of the guard has a force fit onto the previously mentioned upper portions of the body **10.** Additionally, if desired, any suitable means may be employed for effecting a permanent bondage as between the guard and the shackle end portion of the padlock body. When the shackle **11** is retracted it's curved outer end seats snugly in the arcuate recess **31** in the outer end of the guard. All portions of the long leg of the shackle are housed in the body bore **13** and the guard bore **32.** The only exposed portion of the short leg of the shackle is, when the assembly is in service, surrounded by the hasp element or eye **19** with the latter substantially filling the guard mouth **33.**

It should be obvious from what has been said heretofore that when the shackle **11** of the improved padlock and guard assemblage is unlocked and in its position of upward reciprocation depicted in FIG. **2,** the mouth of the guard **30** is completely open and accessible due to the fact that the short leg **22** of the shackle has been lifted free of the padlock body and the guard mouth. In this position the padlock shackle may be engaged with an eye, hasp element or other part of a device to be locked with the eye or hasp element being pushed into the guard mouth **33.** Then, the shackle is pushed to its inwardly reciprocated position wherein it may be locked by the engagement of the ends of the locking levers **17** and **18** with the shackle leg notches. The short leg of the shackle passes through the usual opening or eye in the element of the device to be locked. In the locked and hasp element engaging position of FIG. **1** the shackle is fully protected against the application of tools such as a tamperer might use in an attempt to pry, distort or saw the shackle. To release the padlock assemblage from the locked element it is merely necessary to unlock the locking mechanism through movement of the key **28,** whereupon the spring **16** will automatically project the shackle to its outwardly reciprocated position illustrated in FIG. **2,** permitting the disengagement of the hasp element **19.** It should be observed that during the reciprocatory movements of the shackle **11** relative to the padlock body **10** the shackle legs move freely through the bores **32** and **32'** provided therefore in the guard **30.** Also the curved, closed outer end of the shackle moves from its seated position within the guard groove **31** to the projected position and vice versa. The guard **30** is permanently attached to the padlock body so that the shackle is free to reciprocate relative thereto but does not pivot, pivotal movement being unnecessary.

From the foregoing detailed description it will be seen that the present invention provides a padlock body affixed shackle enveloping guard that will effectively prevent the unauthorized opening of the padlock shackle, thereby enhancing the safety features of the padlock and making the same relatively tamper-proof. The guard does not interefer with the normal operation and functioning of the padlock to which it is applied and is applicable to padlocks of various types, sizes and styles including key actuated padlocks or permutation padlocks. The guard is free of manufacturing complications, is easily permanently mounted on a portion of the padlock body, is of simple and strong construction, and is well adapted for the intended purposes.

What is claimed is:

1. In combination: a padlock body having first and second ends; a lockable shackle reciprocatably carried by the body and projecting from the first end thereof, said shackle having a pair of legs, both of which are extended into the padlock body when the shackle is in its inwardly reciprocated position; a thimble carried by and projecting beyond the second end of the body and in alignment with one of the legs of the shackle; and means extending into said thimble and reacting against one of the legs of the shackle to automatically reciprocate the shackle outwardly when it is unlocked.

2. The combination recited in claim **1** wherein one of the shackle legs is a short leg and the other shackle leg is a long leg with the means which extend into the thimble reacting against the long leg of the shackle which is in alignment with said thimble.

3. The combination recited in claim **2** wherein when the shackle is retracted the extremity of the long leg is accommodated by said thimble.

4. The combination recited in claim **1** wherein the shackle is non-removably reciprocatably carried by the body.

5. The combination recited in claim **1** wherein the body has a shackle enveloping guard affixed thereto which reciprocatably movably receives portions of the shackle so that the shackle, when unlocked, may reciprocate while the guard remains affixed to the body.

6. The combination recited in claim **5** wherein one of the legs of the shackle is a short leg which moves free

of the body when the shackle is unlocked and reciprocated outwardly and the guard has a mouth therein registering with the freed short leg of the shackle when the shackle is in its unlocked, outwardly reciprocated position.

7. In combination: a padlock body having first and second ends; a U-shaped shackle extending reciprocatably into the padlock body and including a short leg reciprocatable free of the first end of the body and a long leg which, when the shackle is in its retracted position extends beyond the second end of the body; means housed within the body for locking the shackle in its retracted position; a guard secured at its inner end portion to the first end of the body and substantially enveloping the shackle when the latter is in its retracted position, said guard being formed with openings wherein portions of the shackle are protectively lodged when the shackle is in its retracted position but permitting outward projections of the shackle relative to the first end of the body and the anchored guard when the shackle locking means is released, the guard, in a side portion thereof adjacent the short leg of the shackle, having a mouth therein; a thimble carried by and projecting beyond the second end of the body and in alignment with the long leg of the shackle and receiving the extended inner end portion of the latter in the retracted position of the shackle; and a spring extending into said thimble and reacting against the long leg of the shackle to automatically project the shackle outwardly when the latter is unlocked.

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