United States Patent [19]

Foote

[11] **3,787,082**

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[54] **HASP AND STAPLE ASSEMBLAGE**

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

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[52] **U.S. Cl.** **292/281**

[51] **Int. Cl.** **E05c 19/08**

[58] **Field of Search** 292/246, 247, 281–287

[56] **References Cited**

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[57] **ABSTRACT**

The hasp plate has swingably associated therewith the inner end portion of a novel type of strap of shackle-like formation with the extremities of its legs extending through slots therefor in the hasp plate and being engaged below the under-surface of the plate by a recess-accommodated, non-accessible hinge pin. Similarly the legs of the staple eye extend through slots therefor in the staple plate and are held against withdrawal by a non-accessible pin seated in a recess in the under-surface of the staple plate. Both the hasp strap and the staple eye may be easily assembled with their respective plates in a simple and expeditious manner.

4 Claims, 10 Drawing Figures

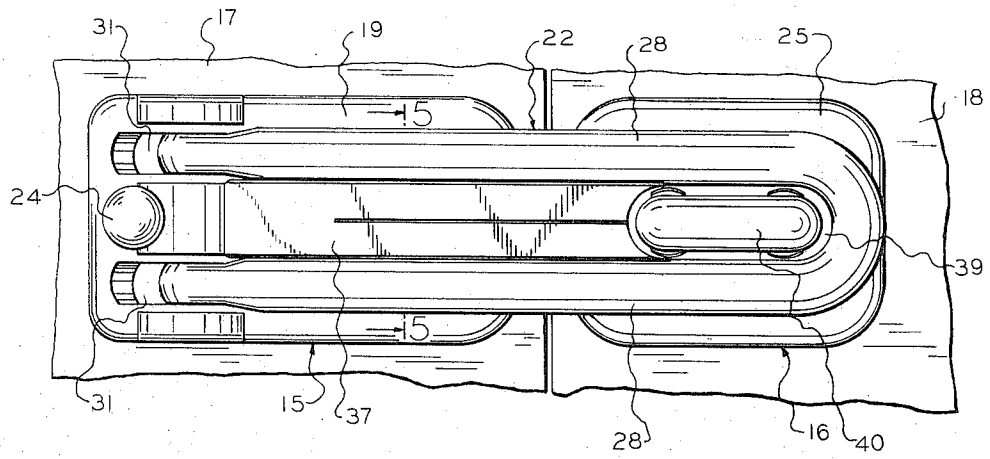


FIG - 1

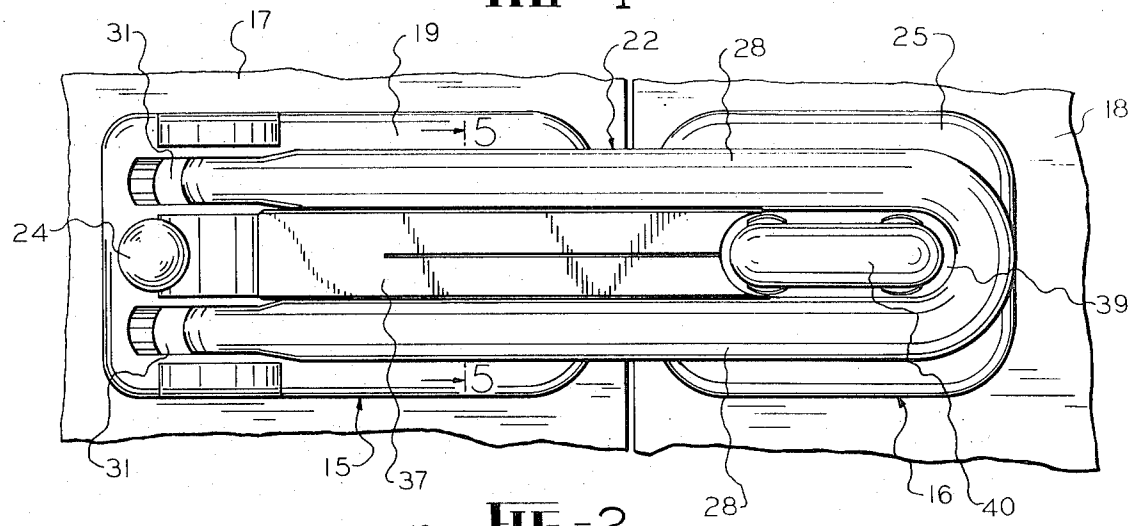


FIG - 2

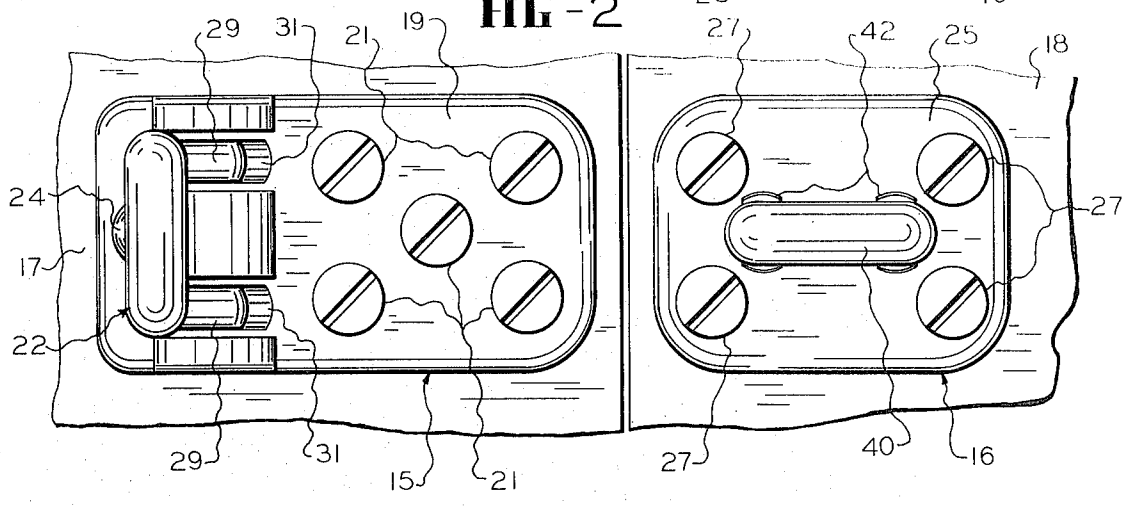


FIG - 3

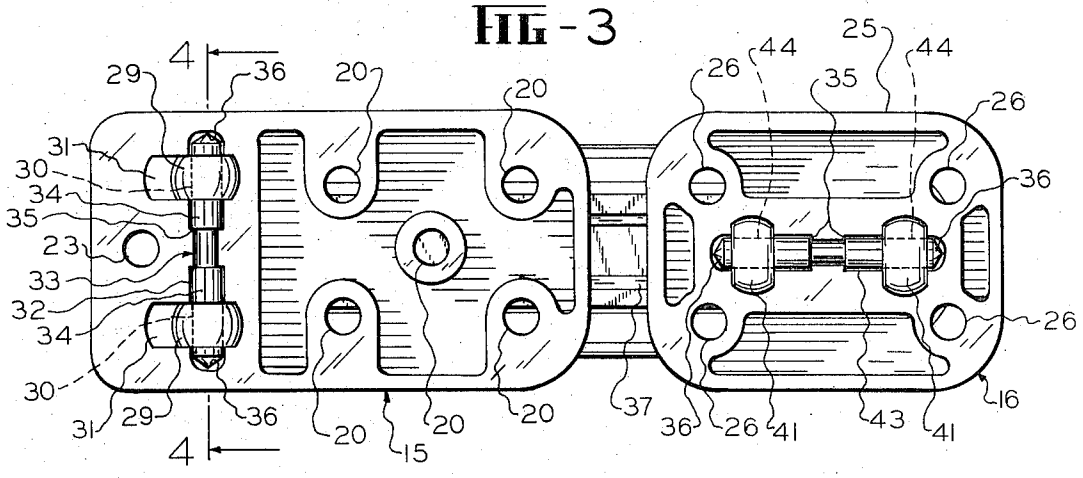


FIG-4

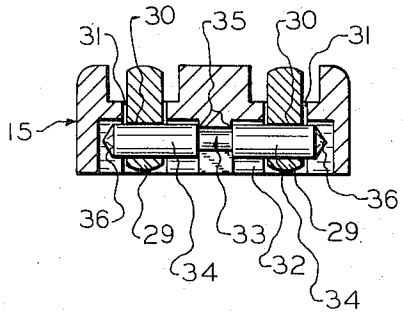


FIG-5

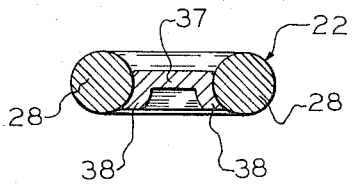


FIG-6

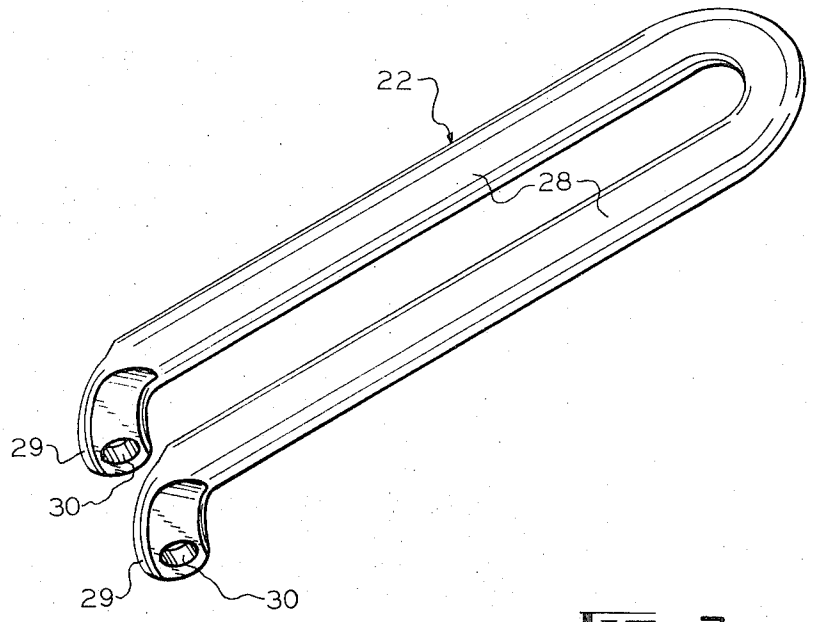


FIG-7

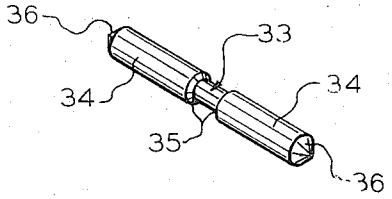


FIG-8

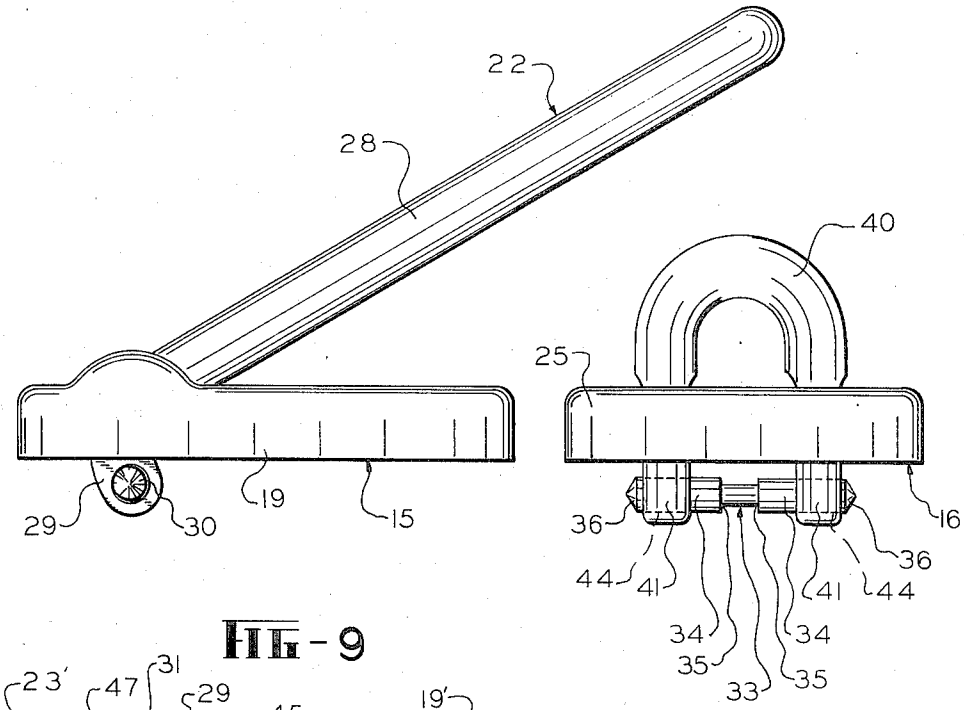


FIG-9

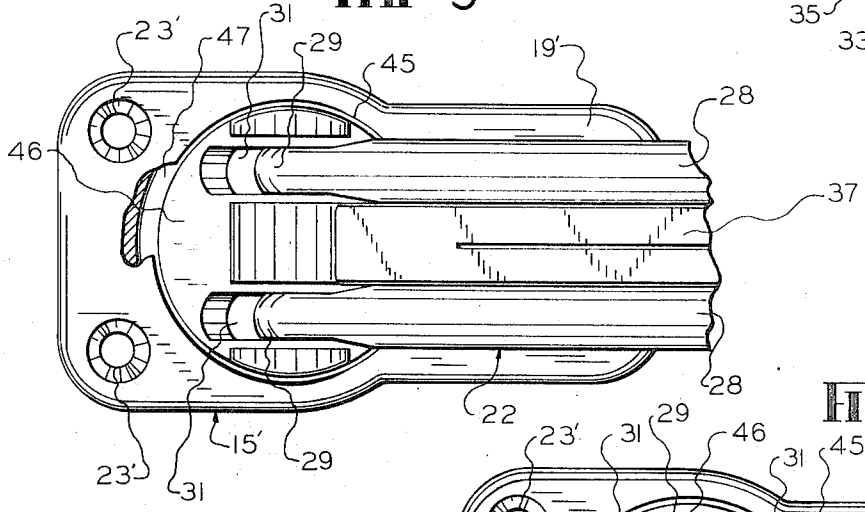
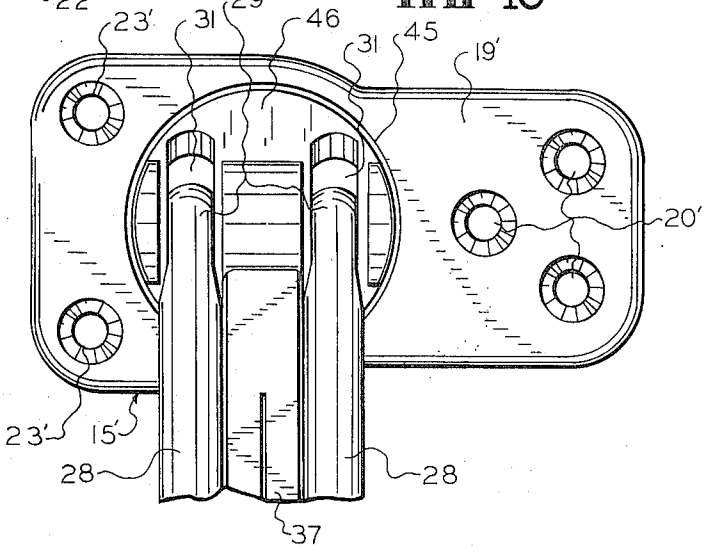


FIG-10



HASP AND STAPLE ASSEMBLAGE

BACKGROUND OF THE INVENTION

No matter how strong and tamper-proof a padlock may be, its effectiveness for security purposes, is no greater than that of the complementary member or members with which it is engaged. Where a padlock is used with a conventional hasp and staple assemblage, unauthorized release and removal of the padlock by a thief or tamperer can be accomplished if he can separate the staple eye legs from the mounting plate which is normally affixed to a support, wall or door. Unauthorized access might also be gained by a removal of the staple plate and/or the hasp assemblage from the complementary door members to which they are affixed. Such difficulties are overcome by the hasp and staple assemblage of the present invention which provides in the hasp unit inaccessibility to the securing means for both the hasp plate and the staple plate when the swingable strap is in its secured staple engaging position, and non-accessible and covered means for hingedly associating the hasp strap with the hasp plate. Additionally, the legs of the staple eye, which extend through openings therefor in the staple plate, are non-removably held to said plate by covered and non-accessible means located between the support and the inner face of the staple plate. Consequently, if extreme forces should be applied to the staple eye or the other elements of the hasp and staple assemblage they will be ineffectual to cause withdrawal of the eye legs from the staple plate or removal of the hasp and/or staple plates from their mountings, or detachment of the hasp strap from the hasp plate. The herein disclosed improvements are applicable to padlocks of all sizes, but find particular utility in connection with the use of large padlocks which require relatively large and heavy duty, alloy steel staples which resist cutting and severance.

To the best of applicant's knowledge and belief there are no examples in the prior art of hasp and staple assemblages wherein the means for attaching the hasp strap and the staple eye to the hasp plate and staple plate, respectively, are of the covered, non-accessible type here disclosed, together with the non-accessible and covered means for securing the hasp and staple plates to their mounting members.

SUMMARY OF THE INVENTION

Specific objects of the invention are to provide a hasp and staple assemblage in which the mounting means for the hasp and staple plates are covered and inaccessible to a tamperer when the hasp strap is in its flat staple eye engaging position; in which the means for hingedly connecting the hasp strap to its plate is covered, concealed and inaccessible; wherein there are means for preventing the unauthorized withdrawal of the legs of the staple eye from its mounting plate; and wherein the staple eye is so mounted that it may deflect laterally slightly to facilitate alinement with the hasp strap, when necessary.

The invention has as its further objectives the provision of a heavy duty hasp and staple assemblage which is not vulnerable to a tamperer, is strong and durable, is practical to manufacture and is extremely easy to assemble, and which is otherwise well suited for the purposes set forth.

BRIEF DESCRIPTION OF THE DRAWING

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

FIG. 1 is a plan view of the improved hasp and staple assemblage with the units shown mounted on a door or the like and an adjoining frame member or support, the hasp strap being in its operative flat portion engaging the staple eye;

FIG. 2 is a similar plan view only with the hasp strap being swung to its open position at right angles to the planes of the hasp and staple plates;

FIG. 3 is an inverted plan view of the hasp and staple assemblage in the position of FIG. 1, the supporting surfaces being omitted;

FIG. 4 is a transverse sectional view taken approximately along line 4—4 in FIG. 3;

FIG. 5 is a transverse sectional view taken approximately along line 5—5 in FIG. 1;

FIG. 6 is an inner end and side perspective view of the shackle-like hasp strap with the strap cover plate removed;

FIG. 7 is a perspective view of a pin which hingedly associates the inner end of the hasp strap with the recessed under-side of the hasp plate, the same form of pin also being used to secure the inner ends of the staple eye within the recessed under-side of the staple plate;

FIG. 8 is a side view of the hasp and staple assemblage showing the manner in which the inner end portions of the hasp strap and staple eye are projected out of their plate recesses for easy pin insertion before attachment of the strap cover plate during assembly;

FIG. 9 is a fragmentary plan view of a modified form of hasp wherein the inner end portions of the hasp strap are hingedly mounted in a turn-table or disc which forms the central portion of the hasp plate; and

FIG. 10 is a similar fragmentary plan view of the modification only showing the position the hasp strap may assume when disengaged from the staple eye.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now more particularly to the drawings it will appear that the improved hasp and staple assemblage includes a hasp unit and a staple unit, generally indicated by the numerals **15** and **16** respectively. One of said units, as the hasp unit **15**, may be borne, for instance, by a door **17** or a similar closure member adjacent the freeable edge thereof and the other unit, the staple unit, may be borne by a stationary frame member **18** adjacent to and in operative alinement with the hasp unit. The hasp unit includes a flat plate **19** with a group of openings **20** therein for receiving securing means **21**. Also, the hasp plate **19** may be formed with a more remote opening **23** which can receive an auxiliary securing means, such as bolt **24**. Similarly, the staple unit includes a flat plate **25** formed with a group of openings **26** for receiving securing means **27**. The various receiving means mount the hasp and staple plates **19** and **25** on the exposed outer faces of the complementary supports **17** and **18** as in FIG. **2**. When the hasp strap **22** is in its downturned operative position, it covers and protects the securing means **27** for the staple plate, in addition to covering the group of hasp

plate securing means **21**, rendering the same inaccessible.

The previously mentioned hasp strap **22** has its inner end portion hingedly connected to the hasp plate **19** by novel and inaccessible hingepin means, which will be described hereinafter. Said strap **22**, shown in detail in FIG. **6**, takes the form of a U-shaped, elongated shackle with its curved, closed end outermost and with the free ends of its legs **28** being down-turned and rounded, as at **29**. Each of said downturned shackle leg portions **29** has a transverse hinge pin-receiving opening **30** therein.

Extending through the hasp plate **19** near its left hand end relative to FIGS. **1** and **2** are a pair of transversely spaced-apart elongated, stepped openings **31**. The space between said openings **31** corresponds to the distance between the shackle leg portions **29** and said openings are of a size to permit the free insertion and removal of the shackle leg portions **29** and hinging movements of the strap shackle. The underside of the hasp plate **19** (see FIGS. **3** and **4**) is formed with an eccentrically shaped recess **32** joining the openings **31** and extending therebeyond. Said recess corresponds to the shape of a hinge pin, generally indicated by the numeral **33** and shown in detail in FIG. **7**. The mid-portion of said hinge pin is of reduced diameter with enlarged diameter portions **34** on opposite ends of the reduced portion and forming shoulders **35**. The extremities of the portions **34** taper outwardly, as at **36**. The eccentrically shaped recess **32** in the under-side of the hasp plate **19** corresponds in shape to the hinge pin **33** and is of a size to snugly accommodate the latter.

The structure thus far described greatly facilitates the assembly of the hasp shackle with the hasp plate **19** when the latter is in an unmounted condition. For this purpose the hasp strap shackle of FIG. **6** bare of its cover plate (later to be described) is manually positioned relative to the hasp plate in the manner shown in FIG. **8** with the shackle leg ends **29** being pushed through the hasp plate openings **31** until they project below the bottom surface of the hasp plate, exposing the openings **30**. Then the hinge pin **33** is pushed into the openings **30** to a balanced position, transversely joining the protruding shackle leg portions **29**, extending equally beyond the outer faces of both leg portions **29**. An upward pull on the shackle-like strap **22** will cause the parts to assume the position shown in FIGS. **3** and **4** with the eccentric recess **32** snugly receiving the pin **33** and the leg portions **29** being lodged in the end enlargements of the recess **32**. The lodgment is such that a tamperer cannot apply end-wise force to the hinge pin **33**, if he could gain access thereto, to longitudinally shift the hinge pin in an attempt to separate the hinge connection between the hinge pin and the strap leg portions **29** as the complementary shoulders shown at **35** in FIG. **4** will preclude any axial or longitudinal displacement of said hinge pin. Also, should a tamperer use a tool or drill to unauthorizedly enter a side overhang of the hasp plate, the tool would strike one of the tapered ends **36** of the hinge pin and slide off, ineffectively.

With the strap shackle hingeldy connected to the hasp plate and the attainment of the condition of FIGS. **3** and **4**, the strap shackle, held in the position of FIG. **8**, is fitted with its cover plate, indicated by the numeral **37**. The latter is introduced to the underside of the shackle legs **28** and the outwardly and downwardly flared and curved sides **38** of the plate **37** have a force fit with peripheral portions of the legs **28**. The top surface of the plate, between the legs **28**, may carry decorative or identification material. The end of the plate **37** adjacent the inner end of the hasp strap forms an abutment to prevent displacement of the hasp strap relative to the hasp plate to a position similar to that shown in FIG. **8** and precludes unauthorized access to the hingepin **33**. The forward end of the strap plate **37** terminates in an arc adjacent the inner end of the eye **40** to provide an elongated opening **39** between the outer ends of the strap legs **28** and of a size and shape to receive a staple eye **40**, when the assemblage is arranged for usage.

The staple unit of the assemblage heretofor generally indicated by the numeral **16** includes the previously mentioned staple plate **25** proportioned as shown in FIGS. **1, 2,** and **3** and adapted for mounting in the manner previously described on a support element **18** so as to be overlapped by the hasp strap **22** when the latter is in its down-swung operative position. The staple eye **40** has the free ends of its legs mounted in the staple plate **25** and said eye extends longitudinal of said plate intermediate the longitudinal margins thereof so that the protruding portion of the staple eye will aline with the elongated opening **39** in the hasp strap structure.

Both the staple eye **40** and the shackle portion of the hasp strap **22** are preferably relatively heavy and are formed of a strong alloy metal. The staple eye **40** is generally of inverted-U formation and the free extremities **41** of the eye legs are adapted to extend through spaced-apart openings **42** therefor (see FIG. **2**) in the staple plate. The underside of the staple plate is formed, intermediate its side edges with an eccentric recess **43** of the same size and shape as recess **32** formed in the underside of the hasp plate only it extends at right angles to the direction of extent of the hasp plate recess **32**. Said staple plate recess **43** joins the recesses **42** and said recess **43** corresponds to the shape of the previously mentioned hinge pin **33**. It should be observed that the pin **33** used for the securement of the staple eye to its plate is identical to the pin shown in FIG. **7** used for the hinged mounting of the hasp strap. The reduced mid-portion of the pin for the staple eye, where it joins the separated enlargements **34**, provides shoulders **35** as previously described and the enlarged portions **34** of the staple pin **33** pass through openings **44** therefor in the staple eye ends **41**. The extremities of the staple eye pin **33** are tapered as at **36**.

When the staple plate **25** is in an unmounted condition the assembly of the staple eye **40** therewith may be effected very easily. The legs of the staple eye are pushed through the plate openings **42** (see FIG. **2**) until they project below the bottom surface of the staple plate, as in FIG. **8**, exposing the staple leg end openings **44**. Then the pin **33** is pushed through the openings **44** to a balanced position, joining the protruding staple eye portions **41**. An upward pull on the staple eye **40** will cause the parts to assume the position shown in FIG. **3** with the eccentric recess **43** snugly receiving the pin **33** with the eye leg portions **41** being lodged in the end enlargements of the recess **43**. The seating of the eye pin **33** and the ends of the staple eye legs is such that a tamperer cannot gain access to the staple eye mounting pin and the shoulders **35** will prevent any unauthorized attempt to shift the pin longitudinally, with the tapered

ends 36 of the pin discouraging application of a drill or tool thereto, applied axially.

After the hasp and staple unit have been assembled as described and mounted on relatively movable support surfaces 17 and 18, the swingable member 17 may be locked in its closed position by swinging the hasp strap to its flat extended position wherein its aperture 39 receives the outwardly protruding closed end of the staple eye 40. A padlock or the like (not shown) may be applied to the latter. It should be mentioned that the openings 42 in the staple plate allow some latitude of sidewise movement of the staple eye which is desirable in alining it with the hasp strap opening 39 should warpage or shifting of the supporting surfaces 17 and 18 occur.

A slight modification of the hasp unit of the assemblage is illustrated in FIGS. 9 and 10 of the drawings. There, the hasp plate 19' is formed with a circular recess 45 in which is mounted for rotation a turnable circular plate or disc 46 with the periphery of the latter being received by a circular groove 47 in the hasp plate 19' surrounding the opening 45. The downturned leg portions 29 of the hasp strap shackle are projected through openings 31 therefor in the turnable plate 46 and are secured against removal from the plate 46 by a shouldered pin 33 seated in a recess therefor on the underside of the circular member 46 in the same manner as is described in the principle form of the invention.

With the inner end of the hasp strap being carried by the turnable hasp plate disc 46 when the extended outer end of the hasp strap is released from the staple eye 40 the weight of the hasp strap may cause the disc 46 and attached hasp strap to gravitate to the depending perpendicular position shown in FIG. 10. Thus, the released hasp strap may be maintained in a flat out of the way, depending position against the front face of the door or supporting surface 17.

From the foregoing description it will be evident that the improved hasp and staple assemblage provides individual hasp and staple units wherein the securing means for the staple eye 40 and for the inner end of the hasp strap are inaccessible to a tamperer as they are lodged within accommodating recesses in the bottom portions of the hasp and staple plates. When the hasp strap is in its downturned secured position relative to the staple eye the securing means for the hasp and staple plates are covered and are inaccessible. The means for hingedly mounting the inner end of the hasp are novel, simple, and effective; and assembly of the hasp strap and staple eye relative to their plates may be effected in a very convenient and expeditious manner. The improved hasp and staple assemblage besides being simple to manufacture and install, is strong and tamper proof, is relatively inexpensive, and is well adapted to the purposes set forth.

I claim:

1. In a hasp and staple assemblage wherein there are adjacent hasp and staple plates secured to related support members with each plate having pairs of openings therethrough, the hasp plate having a hasp strap associated therewith and the staple plate having a staple eye associated therewith, the strap and eye both having legs on their inner end portions extending into the openings in their respective plates; similar means embedded in the undersides of both plates for preventing removal of the strap and eye from their respective plates.

2. In a hasp and staple assemblage wherein there are adjacent hasp and staple plates secured to related support members with the staple plate having an outwardly projecting staple eye associated therewith, the hasp plate having transversely spaced-apart, local openings therethrough with a recess formed in its underside communicating with said openings; a U-shaped hasp strap having angularly extended legs at its inner end movably received by said hasp plate openings; and a hinge pin lodged in said recess in the underside of said hasp plate and joining the opening received legs of the hasp strap to prevent their removal from said plate openings, the hasp strap when hingedly swung being engageable with or disengageable from the staple eye.

3. The assemblage recited in claim 2 wherein the stock of the hasp plate adjacent the recess in its underside and the hinge pin are formed with cooperating means for preventing unauthorized axial displacement of the latter.

4. The assemblage recited in claim 2 wherein the hasp strap is a shackle-like member with a closed outer end and spaced-apart side leg portions with a plate closing the space between portions of said side legs but terminating short of the closed outer end of the hasp strap to provide an opening for receiving said staple eye when the hasp strap is swung over the staple plate.

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