Nov. 4, 1969 D. J. FOOTE 3,476,429

HASP STAPLE AND PLATE ASSEMBLY

Filed March 21, 1968 2 Sheets-Sheet 1

FIG. 1

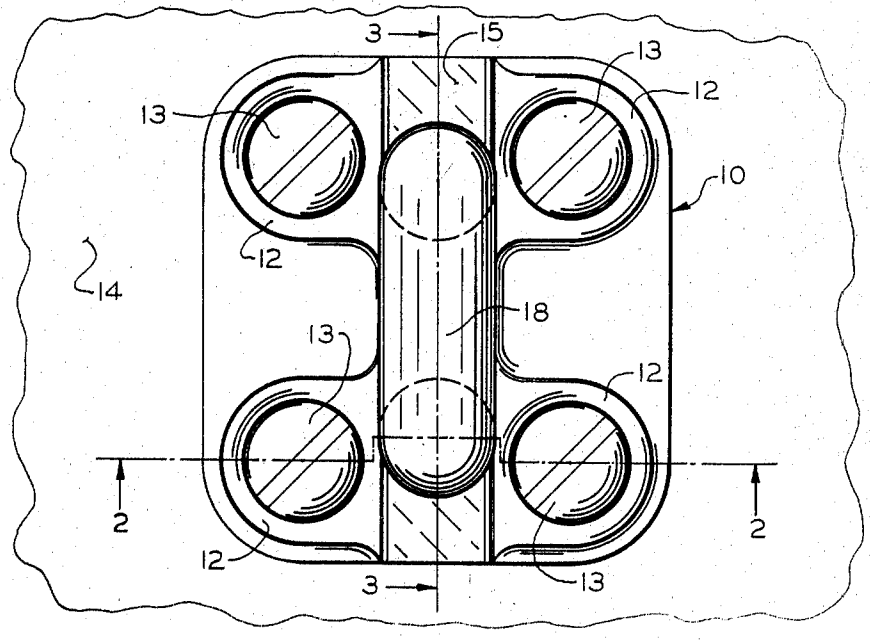


FIG. 2

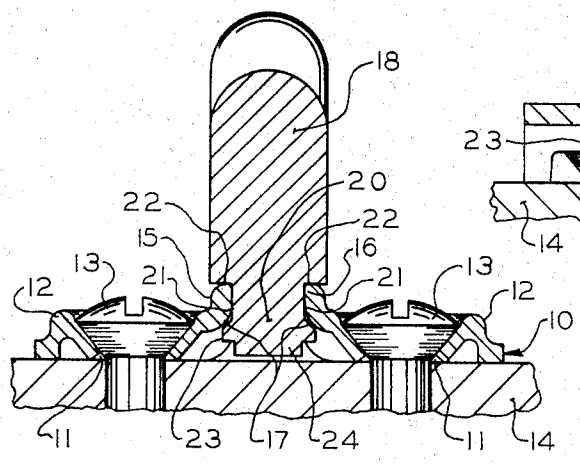
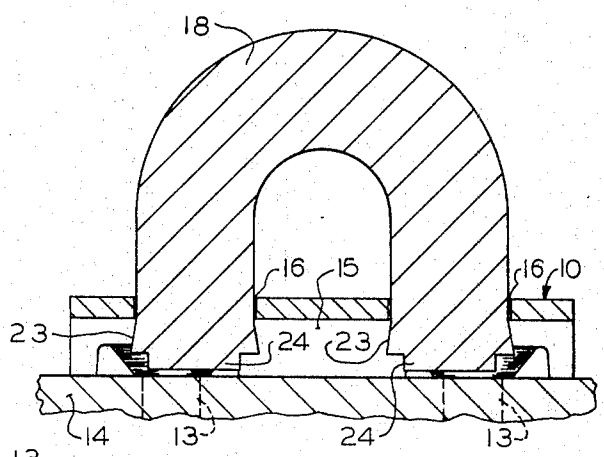


FIG. 3



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Fig-4

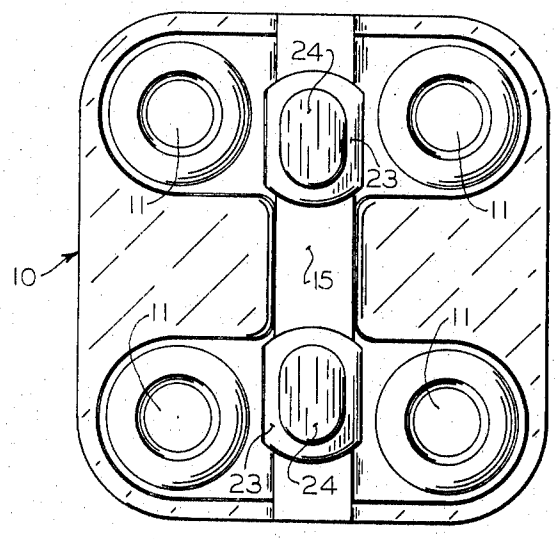


Fig-5

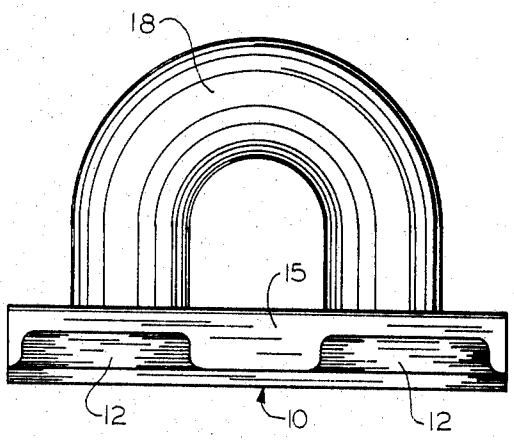
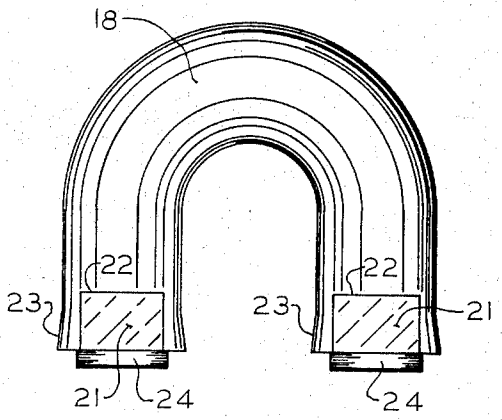


Fig-6



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3,476,429
Patented Nov. 4, 1969

3,476,429

HASP STAPLE AND PLATE ASSEMBLY

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Filed Mar. 21, 1968, Ser. No. 714,894
Int. Cl. E05c 19/08
U.S. Cl. 292—281 6 Claims

ABSTRACT OF THE DISCLOSURE

The hasp plate, along its longitudinal median and between the pairs of screw holes therein, is formed with an inverted trough or hollow rib, in the roof of which are formed spaced-apart ovate openings to receive the reduced and shouldered extremities of the shackle eye legs. The latter, adjacent the inner surface of the trough roof, are formed with integral staked enlargements forming laterally projecting flanges which overlap the trough roof stock adjacent the margins of the openings therein with side wall portions of said flanges being downwardly outwardly flared to cooperate with and react against side wall portions of the plate trough which are outwardly downwardly curved on a slight radius. Thus, the staple eye legs are so effectively anchored to the hasp plate that their extremities cannot be withdrawn through the plate openings notwithstanding the application of extreme forces and pull against the stable eye, thereby deterring unauthorized separation of the staple eye from the hasp plate to insure effective locked retention of a padlock inserted through the staple carried by the plate.

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 with which it is engaged. Where the padlock is used with a conventional hasp and staple assembly, 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 hasp plate which is normally affixed to a support, wall or door. With many of the common types of hasp staple and plate assemblies this can be accomplished by the insertion of a tool or crowbar into the staple eye. Then by the application of force the legs of the eye, which are extended through openings therefor in the hasp plate, can be forced outwardly, separating the eye from its plate and permitting the locked padlock shackle to be removed from the staple eye, without the use of the proper key, whereby unauthorized opening of the closure served by the lock, staple and plate assembly, can be gained. This difficulty and objection is overcome by the staple and plate assembly of the present invention wherein the end portions of the staple eye are so affixed to the hasp plate that extreme forces applied to the eye will be ineffective to cause a withdrawal of the eye legs from the hasp plate openings and consequent detachment of the eye. The herein disclosed improvement is applicable to padlock arrangements of all sizes, but finds particular utility in connection with the use of large padlocks which require relatively large and heavy hasp staples in the nature of heavy duty, round alloy steel staples. The same are to be distinguished from conventional staples which may be formed of wire stock which are susceptible of being easily cut or severed by a bolt cutter or file. The hasp staple and plate assembly of the instant invention, because of the positive securement of the ends of the staple eye in the hasp plate enhances the effectiveness of the heavy type padlock and staple structures above commented on.

It is to be further noted that it may be desirable to

anchor the hasp plate to a support, wall, or door by means of long steel bolts and companion nuts which prohibit the unauthorized separation of the hasp plate from the support. In this event, however, it is especially necessary that means be provided for preventing a tamperer from separating the staple eye from the hasp plate through the application of force to any portion of the assembly. The present invention effectively guards against this contingency.

To the best of applicant's knowledge there are no examples in the prior art of hasp staple and plate assemblies wherein the extremities of the staple eye legs which are passed through openings therefor in the hasp plate, are provided, inwardly of the plate surface, with flanges which prevent withdrawal of the eye legs through the plate openings, which flanges are downwardly inwardly flared for co-action with flared surfaces on the plate thus adjacent.

SUMMARY OF THE INVENTION

A specific object of the invention is to provide a hasp staple and plate assembly wherein the plate, along its longitudinal median, is formed with an inverted trough or hollow rib having staple eye leg openings in its roof with the inner portions of the eye legs having staked enlargements which overlap margins of the roof openings and are downwardly, outwardly flared for retentive co-action with complementary flared, adjacent side wall portions of said trough roof.

The invention has as its further objectives the provision of a heavy duty hasp staple and plate assembly which is not vulnerable to a tamperer, precludes separation of the staple eye from the hasp plate, is strong and durable, is practical to manufacture and assemble, and is otherwise well suited for the purpose set forth.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings wherein 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 staple and plate assembly with the plate shown mounted on a support;

FIG. 2 is a transverse vertical sectional view taken along line 2—2 in FIG. 1;

FIG. 3 is a longitudinal, vertical sectional view taken along line 3—3 in FIG. 1;

FIG. 4 is a bottom view of the staple and plate assembly disassociated from a support;

FIG. 5 is a side view of the staple and plate assembly; and

FIG. 6 is a side view of the staple eye.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now more particularly to the drawings, it will appear that one component of the assembly is a specially formed hasp plate indicated generally by the numeral **10**. The same is of metal and is of rectangular formation with curved corners. Inwardly of each corner is a screw or bolt hole **11** surrounded by a boss **12** shaped to accommodate the head of a screw **13** or other fastening means whereby the hasp plate **10** is secured flatly to a support **14**, such as a wall, door or the like. Along the longitudinal median of the hasp plate **10**, between the pairs of screw hole bosses **12**, is an upwardly protruding inverted trough or hollow rib **15** having a roof or top wall in which there are a pair of spaced-apart openings **16** of slightly ovate form, for a purpose hereinafter to be set forth. At this point it should be set forth, however, that adjacent the sides of said openings **16** the inner faces of the side wall portions of the inverted

trough or hollow rib **15** are outwardly, downwardly curved on a radius as indicated at **17** in FIG. 2, with the side wall portions of the trough **15** therebelow being outwardly, downwardly inclined.

A second component of the assembly is a metallic staple eye **18** of inverted U-formation, which in its final, assembled condition has the lower end portions of its legs **19** formed as is best shown in FIGS. 2, 3, 4, and 6. Thus, it will be seen that the lower stem portion **20** of each staple eye leg (see FIG. 2) has its sides flattened, as at **21**, to reduce the breadth of said stem portion and to create shoulders **22** thereabove that seat on the top surface of the roof of the rib **15** laterally of its opening **16**. Said flattened stem portions **21** in the assembled condition of the hasp plate and staple closely accommodate the flattened inner face portions of the upwardly directed sides of the rib **15** adjacent their junction with the rib roof. The eye leg stem portions **20**, below or outwardly of their flattened sides, are formed with annular flanges **23** of substantially ovate form, in the nature of staked enlargements, produced by a machine operation. The sides and ends of said staked annular flanges, which underlie the stock of the rib roof around the openings **16** therein, are downwardly, outwardly flared, as is best shown in FIGS. 2, 3, and 6 and co-act with the downwardly, outwardly curved portions **17** of the inner side walls of the rib **15**, previously described. Below or outwardly of the leg stem flanges **23** the leg stems are of reduced, ovate form, as at **24**.

Prior to the assembly of the staple with the hasp plate, the leg stem portions **20** of the staple eye **18** are devoid of the annular flanges **23** and are of such uniform contour and dimensions as to be susceptible of insertion through the ovate openings **16** in the hasp plate **10**. This insertion of the leg stems **20** is such that the shoulders **22** seat on the top of the rib roof surrounding the openings **16**. The extremities of the eye stem portions **20** are then subjected to a machine operation which forms the annular flanges **23** heretofor described. The same are located relative to the curved inner wall portions of the side walls of the ribs in the manner previously described and as is best shown in FIG. 2. This arrangement plus the fact that the throat of the hollow rib **15** leading to the openings therein is more restricted, insures that the stem portions of the eye legs cannot be withdrawn through the rib openings **16**. However, the flared and curved complementary surfaces above referred to permit slight rocking movement of the staple to either side of its vertical center line, which is desirable. After the leg stem portions **20** are formed and secured relative to the hasp plate as above described, the assembly is heat treated.

The anchorage as between the leg stem portions **20** of the staple eye and the rib portion of the hasp plate is so strong and effective that the staple can withstand extreme forces and pull to which it might be subjected.

This characteristic, while important regardless of the size of the assembly, is highly desirable in connection with relatively large padlocks which may be used with large and heavy hasp staples. Such assemblies are rendered tamper-proof because the staples and padlock shackles are difficult to cut or sever and moreover the staple and plate assembly of the hasp will resist separation.

If it is desired to provide special means for preventing a tamperer from releasing the hasp plate from a supporting surface, as by the application of a screwdriver or tool between the bottom surface of the plate and the supporting surface, the hasp plate may be secured to its support by means of long steel bolts and companion nuts (instead of the illustrated screws **13**) which would prevent the unauthorized separation of the hasp plate from its support. Then, if a tamperer should resort to the use of a tool inserted in the staple eye in an attempt to withdraw the legs of the staple eye from the hasp plate openings, the structure of the present invention is such as to effectively preclude this undesirable contingency.

From the foregoing it will be evident that the present invention provides a hasp staple and plate assembly of very rugged construction suited for heavy duty usage. The connection of the staple eye legs with the hasp plate is such as to preclude separation of the eye legs from the plate notwithstanding the application of unusual forces and pull. The instant hasp staple and plate assembly functions in a normal manner, is free of manufacturing complications, is of simple, strong and tamper-proof constructions, and is well adapted for its intended purposes.

What I claim is:

1. A hasp staple and plate assembly, comprising: a plate anchorable to a support and having a hollow, outwardly protruding rib with spaced-apart openings in its roof; and a staple eye having legs whose end portions extend through the roof openings, said leg portions being reduced in size and forming shoulders which seat on the top of the roof surrounding the openings in the latter, the extended end portions of said eye legs also being formed with flanges which underlie marginal, inner surface portions of said roof openings.

2. The hasp staple and plate assembly of claim **1** wherein inner side wall portions of the rib and the sides of the eye flanges are formed as cooperating wedging surfaces.

3. The hasp staple and plate assembly of claim **1** wherein extended portions of the staple eye legs between the flanges and the shoulders have flattened side portions and side wall portions of the rib immediately below the roof openings are flattened to engage the flattened side portions of the eye legs.

4. The hasp staple and plate assembly of claim **3** wherein the side walls of the rib are generally downwardly, outwardly diverging.

5. The hasp staple and plate assembly of claim **4** wherein intermediate portions of the side walls of the rib are downwardly, outwardly curved.

6. The hasp staple and plate assembly of claim **5** wherein the rib extends along the longitudinal median of the plate.

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