Dec. 17, 1968 R. I. N. WEINGART 3,416,333

TRAVEL LOCK

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FIG. 1

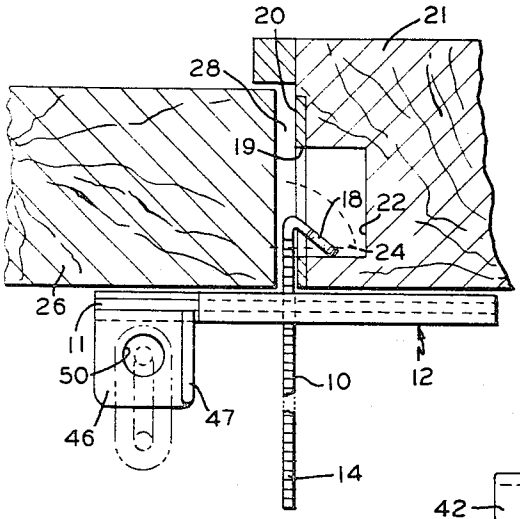


FIG. 2

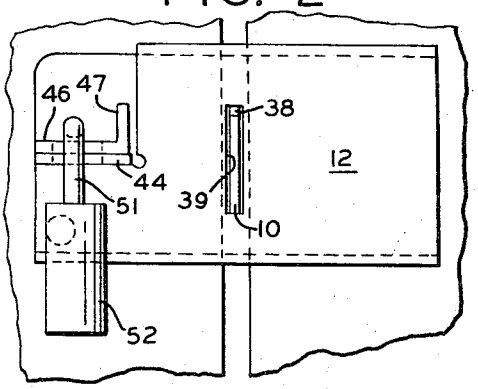


FIG. 3

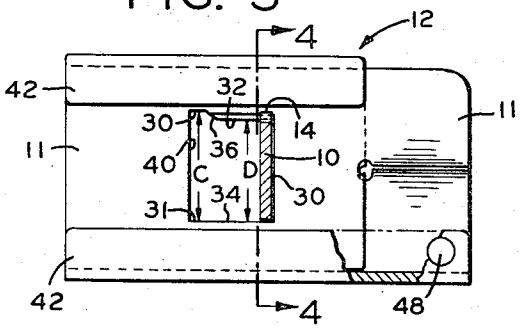


FIG. 5

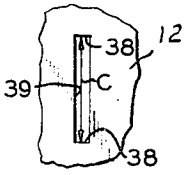


FIG. 4

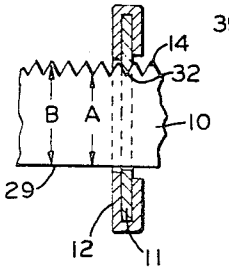


FIG. 7

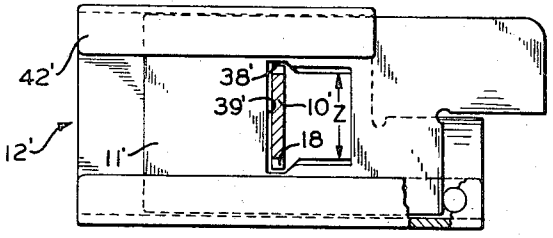


FIG. 6

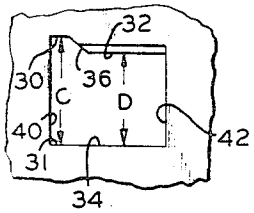


FIG. 8

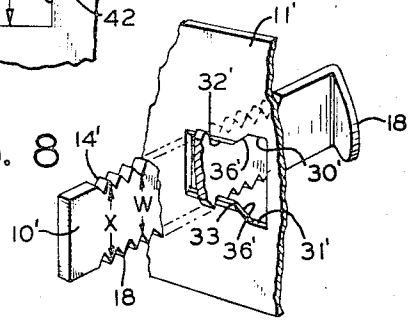


FIG. 10

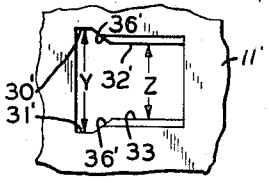
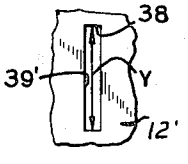


FIG. 9



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FIG. 11

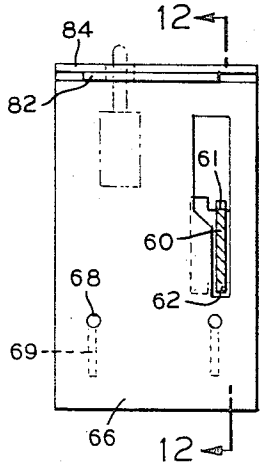


FIG. 12

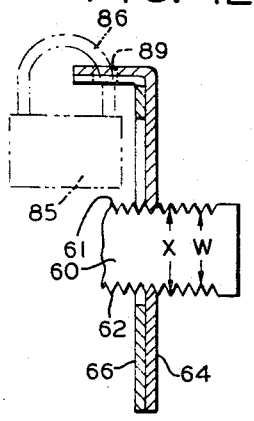


FIG. 13

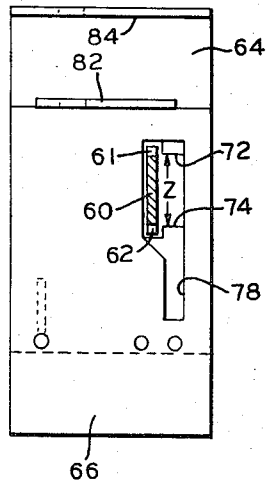


FIG. 16

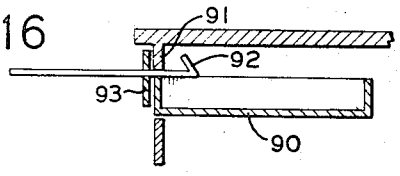
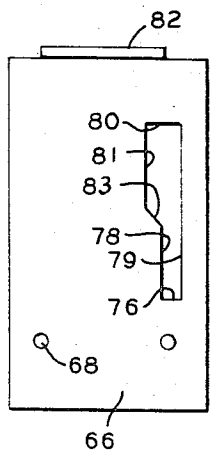


FIG. 14



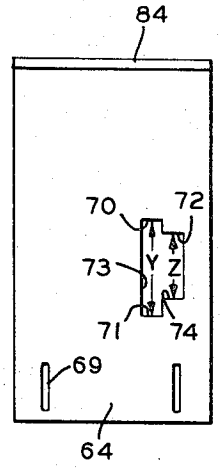


FIG. 15

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3,416,333

TRAVEL LOCK

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8 Claims. (Cl. 70—14)

ABSTRACT OF THE DISCLOSURE

A lock having a locking bar with teeth along an edge and an abutment to be inserted behind a portion of members to be locked, and a locking plate which has an opening to receive the bar, and be secured thereto, the plate engaging the outside of the member, and a holding plate, secured to the locking plate by a padlock and which holds the bar in teeth engaging position.

This invention relates to portable locks, primarily for travel purposes, for closet, desk and dresser drawers in hotel rooms, and for a variety of other purposes and which employs a padlock for the locking element.

The device of the present invention employs an elongated locking bar with a hook shaped abutment at one end which is inserted in a strike plate opening in a door frame and extends rearwardly through the space between the door and frame, the locking bar having teeth or notched serrations along opposed longitudinal edges or along only one of such edges.

The principal feature of the invention consists in the provision of a pair of cooperating plates having openings through which the locking bar passes and which are in face-to-face contact for limited sliding movement. One of these plates is a locking plate, i.e., locks itself to the locking bar and the bar to the plate and prevents relative movement between them. Its opening has two opposed edges spaced apart a distance to snugly receive the toothed edge or edges and thus prevent relative movement with the locking bar so long as the latter is held with its opposed flat faces at right angles to said edges. The other plate is a holding plate for the locking bar and it holds the locking bar in the foregoing position which is accomplished by providing an opening shaped to freely pass the locking bar therethrough but to hold it close enough to prevent the locking bar from rotating.

The locking plate opening has an extension having dimensions at least as large and preferably of the same size as the opening in the bar holding plate so that when the two latter openings and the extension opening are aligned, which is effected by sliding the plate slightly out of coincidence, the bar can pass freely through both openings and the plates moved tightly against the door and frame or other members to be locked. The plates are now moved into coincidence during which movement the bar is moved from the opening extension to the opening, in which position one of said two opposed edges of the opening enters the root between two teeth or if there are teeth along both edges of the bar, both opposed edges, which are preferably bevelled, enter the roots.

To hold the plate in coincidence and the whole assembly in locked relation, overlying lugs extending forwardly from each plate have aligned apertures to receive the shackle of a padlock or other securing element. To assure easy sliding movement of the two plates, there should be provided trackways on one plate or other equivalent means.

In the drawings:

FIG. 1 is a broken horizontal section through a door and frame and showing the lock with the parts in locked relation;

FIG. 2 is a front elevation of the structure of the present invention and the parts in locking relation;

FIG. 3 is a rear elevation of the lock of FIG. 2;

FIG. 4 is a section taken on line 4—4 of FIG. 3;

FIG. 5 is a broken view of the holding plate;

FIG. 6 is a broken view of the locking plate showing the contour of its opening;

FIG. 7 is similar to FIG. 3 except that the locking bar has teeth along opposed edges and the view also shows the second locking plate laterally offset from the first locking plate;

FIG. 8 is a perspective view showing the locking bar in its locking position, normal to the locking plate;

FIG. 9 is a broken view of the holding plate;

FIG. 10 is a broken view of the locking plate;

FIG. 11 is a front elevation of a modified form wherein the holding plate moves vertically with reference to the locking plate;

FIG. 12 is a section on line 12—12 of FIG. 11;

FIG. 13 is a front elevation similar to FIG. 11 but showing the holding plate in lowered position;

FIG. 14 is a plan view of the holding plate;

FIG. 15 is a plan view of the locking plate; and

FIG. 16 shows the application of the lock to a dresser drawer.

The lock of the present invention includes a flat locking bar **10**, a locking plate **11** and locking bar holding plate **12**. The locking bar has serrations or teeth **14** extending along one or both of its longitudinal edges. While the provision of teeth along only one edge, as shown in FIG. 4, gives good results, a greater measure of security is afforded if the teeth are formed along both edges as shown in FIG. 8. In other words, forcing of the lock requires the teeth to shear off the ends of the slot in the locking plate and the provision of teeth along both edges about doubles the force required to effect this shearing action. The locking bar also has a laterally extending hook-like abutment **18** at its inner end which is received in an opening **19** in a strike plate **20** in a fixed door frame **21**. This door frame has an opening **22** which is generally aligned with opening **19** and normally receives a spring pressed latch bolt **24** extending from a lock (not shown) in a door **26**. The bolt is shown in broken line because it is in a retracted position when the abutment **18** of the locking bar is in the position of FIG. 1. There is normally a slight space or clearance shown at **28** between a hinged door and the door frame which is sufficient to receive the thin flat locking bar. The plates have openings which receive the locking bar, said openings having dimensions which are related to the dimensions of the width of the locking bar and its teeth. The locking bar **10** shown in FIG. 4 has teeth **14** along one edge, the other edge **29** being straight and there is a dimension A between the root located between two adjoining teeth, and the opposite straight edge **29** and there is a second dimension B which is the overall width of the bar.

The locking plate has an opening which includes two opposed edges **30** and **31** which are spaced apart a distance C which is slightly greater than dimension B.

The opening has two other edges **32** and **34** which are spaced apart a distance D which is greater than dimension A. Edge **32** is bevelled and edge **34** is shown as forming a continuation of edge **31** and there is a diagonal section **36** between edges **30** and **32**. It will be seen from the foregoing that the locking bar can pass freely between edges **30** and **31** but that when this bar is moved to the left the bevelled edge **32** enters the roots between two teeth, and lower edge **34** substantially touches the lower straight edge **29** of the locking bar. The diagonal section **36** facilitates entry of the bevelled section into said root. Thus it is clear that so

long as the bar is held against rotation on its major axis, plate **11** is locked to the bar and the bar locked to the plate.

The bar is held in this latter position by means of a slot or opening in holding plate **12** having two short edges **38** spaced apart a distance equal to dimension C and two longer edges **39** spaced apart a distance greater than the thickness of the locking bar so the latter can move freely through this slot. Between edges **30–31** there is a vertical edge **40** of a length equal to dimension C and an opposite edge **42** equal to dimension D.

The openings in the plate are so located that narrow slot **38–39** is aligned with opening **30–31** when plate **11** has been moved to the right when viewed as in FIG. 7 but the inner ends of edge **32–34** are aligned with edges **38** when the plates are in coincidence as in FIGS. 2 and 3. This sliding movement is facilitated by trackways **42** formed along the upper and lower edges of plate **12**. Any other guiding means such as a pin-and-slot arrangement may be used.

Holding plate **12** has a lug **44** struck out and bent forwardly and locking plate **11** has a similar lug **46** which overlies lug **44** and also has an upwardly extending flange **47** which limits movement of locking plate **11** to the left when viewed as in FIG. 2. Lower flange **42** has a pin **48** passing to the plate **12** which limits movement of plate **11** to the right (FIG. 7). The lugs have openings **50** which are aligned when the plates are in coincidence and the shackle **51** of a padlock **52** passes through these openings and locks the plate against any movement.

The locking bar is placed with its anchor **18** in the strike plate slot with its body section extending forwardly as in FIG. 1. The plates, one offset relative to the other, are now applied to the bar, the latter passing through slots **38–39** in plate **12** and **30–31** in plate **11**. When the plate encounters the door and frame, they are moved into coincidence and the padlock applied. It was earlier pointed out that a greater safety factor is provided if the bar has teeth along both edges.

This is the arrangement of FIGS. 7 and 8 where bar **10'** is identical with bar **10** of FIG. 1 except that is has lower teeth **18** as well as upper teeth **14'**. The locking plate **11'** is also identical with plate **11** except that it is modified to receive the lower teeth **18**. In other words, the upper edge has section **30'** and **32'** connected by diagonal section **36'**. The lower edge, instead of being straight, has short section **31'** and bevelled section **33** connected by diagonal section **36'**. The holding plate **12'** with its flanges **42'** has the narrow slot with opposed edges **38'—38'** and **39—39** of identical proportions to holding plate **12**.

The dimensions X and Y are identical with corresponding dimensions B and C of FIGS. 4 and 3 while the dimensions W and Z are slightly less than corresponding dimensions A and D.

In the modified arrangement of FIGS. 11–15 the locking bar **60** with upper teeth **61** and lower teeth **62**, is identical with the locking bar **10'** FIG. 8 and the locking plate **64** and holding plate **66** are slidable vertically with reference to each other and one plate has pins **68** which pass through slots **69** in the other plate to guide the plates in their sliding movement instead of the trackways **42** in the first embodiment.

A plan view of the locking plate is shown in FIG. 15 and there is an opening with two opposed short edges **70** and **71** which are spaced apart a dimension Y which is greater than the overall width X of the locking bar. A third edge **73** has the dimension Y. It also has a side extension with two opposed edges **72** and **74** which are bevelled and which are received in the roots between two adjoining teeth **61** and **62** along each edge. These edges are spaced apart a distance greater than W which is the distance between the roots of two opposed teeth of the locking bar.

The holding plate has an opening with a lower section having a lower end wall **76** of a length greater than the thickness of the locking bar, thus presenting two opposed edges **78** and **79** which perform the function of holding the locking bar so that the upper and lower toothed edges of the locking bar are always generally at right angle to edges **72** and **74**.

This opening has an upper extension lying to the left of edge **78** and having a width defined by edge **80** equal substantially to the combined lengths of edge **70** and **72**. Edge **81** is joined with edge **78** by a short diagonal edge section **83**.

Holding plate **66** has a flange **82** and locking plate has a flange **84** at their upper ends with aligned holes **89** so that when the plates are in coincidence, as in FIGS. 11 and 12, the shackle **86** of a padlock **85** passes through aligned openings **89** to secure the two flanges together.

To lock the bar to the locking plate the holding plate is dropped (FIG. 13) so that the wide section at the upper end of the opening in plate **66** is generally aligned with the opening in locking plate **64**. The bar passes through the opening defined by edges **70**, **71** and **73**. The holding plate is now moved up to the position of FIG. 11 wherein the bar is confined to the strict vertical position and the teeth are engaged and hold against movement by bevelled edges **72** and **74**.

FIG. 16 shows the manner of use of the lock to secure dresser drawer **90** within a frame **91**. The abutment **92** of the locking bar is inserted behind the frame and the drawer closed with the bar between the frame and upper edge of the drawer. The plates **93** are then applied to the bar and the plates moved rearwardly their full limit of travel and the padlock (not shown) secured to the plates.

While there have been described herein what are at present considered preferred embodiments of the invention, it will be obvious to those skilled in the art that many modifications and changes may be made therein without departing from the essence of the invention. It is therefore to be understood that the exemplary embodiments are illustrative and not restrictive of the invention, the scope of which is defined in the appended claims, and that all modifications that come within the meaning and range of equivalency of the claims are intended to be included therein.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A portable auxiliary locking device for members such as doors, drawers and the like which are mounted in frames, said locking device including a relatively long, thin locking bar with teeth along at least one edge and provided with a laterally offset portion forming an anchor to be received in an opening in one of said members to be locked relative to the other, a locking plate having an opening within which the bar is positioned in a position perpendicular to the plate, said opening being formed at one end thereof with two opposed edges which are spaced apart a distance greater than the overall width of the locking bar and the other end with two other edges extending in the same direction and spaced apart a distance less than said width but greater than the distance from the roots of the teeth to the other side of said bar so that when the locking bar is moved from one end of the opening, where it is free to move therein, to the other end, where movement is restrained, the bar is secured against relative movement, a locking bar holding plate mounted in slidable, face-to-face relation to the locking plate and in general coincidence therewith, and having an opening shaped to pass the bar freely therethrough and whose opposed longitudinal edges substantially engage the opposed faces of the bar and prevent rotation of the same on its major axis and thus hold the teeth in locked relation to the locking plate, and means

for locking the plates against relative movement when the plates are in said position.

2. The structure defined in claim 1 wherein said latter locking means comprises lugs on each plate and having apertures which are in register when the plates are in coincidence, and a lock passing through said aperture to secure the plates against sliding movement.

3. The structure defined in claim 1 wherein teeth are formed along both edges of the locking bar and said two other edges of the opening in the locking plate are received in the roots of two opposed teeth.

4. The structure defined in claim 1 wherein lugs are formed on the sliding plates which are in register when the plates are in coincidence and have holes which are also in register when in said position, and a padlock passing through said aligned holes from the locking means.

5. The structure defined in claim 1 wherein one of the plates has flanges along opposed edges receiving the corresponding edges of the other relatively slidable plate.

6. The structure defined in claim 1 wherein the relatively slidable plates have pin-and-slot connection therebetween.

7. The locking device defined in claim 1 wherein the opening in the holding plate has an extension whose edges are spaced apart a distance greater than said longitudinal

edges to permit, when the plates are slid out of coincidence, sidewise movement of the locking bar from said first two opposed edges, when the locking plate is unsecured with reference to the locking bar, to said other two edges when the locking plate is free to move relative to the locking bar.

8. The locking device defined in claim 7 wherein said locking bar and plate are provided with flanges which overlay each other when the plates are in coincidence and having aligned holes when in such position, and a locking element passing through said flanges to secure them together.

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U.S. Cl. X.R.

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