United States Patent [19]

Reid

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[54] **LATCH**

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[52] **U.S. Cl.** **292/66,** 292/68, 292/210, 292/DIG. 49

[51] **Int. Cl.** **E05c 5/00**

[58] **Field of Search** ..... 292/63, 64, 66, 68, 107, 292/113, 209, 210, 337, DIG. 31, DIG. 49

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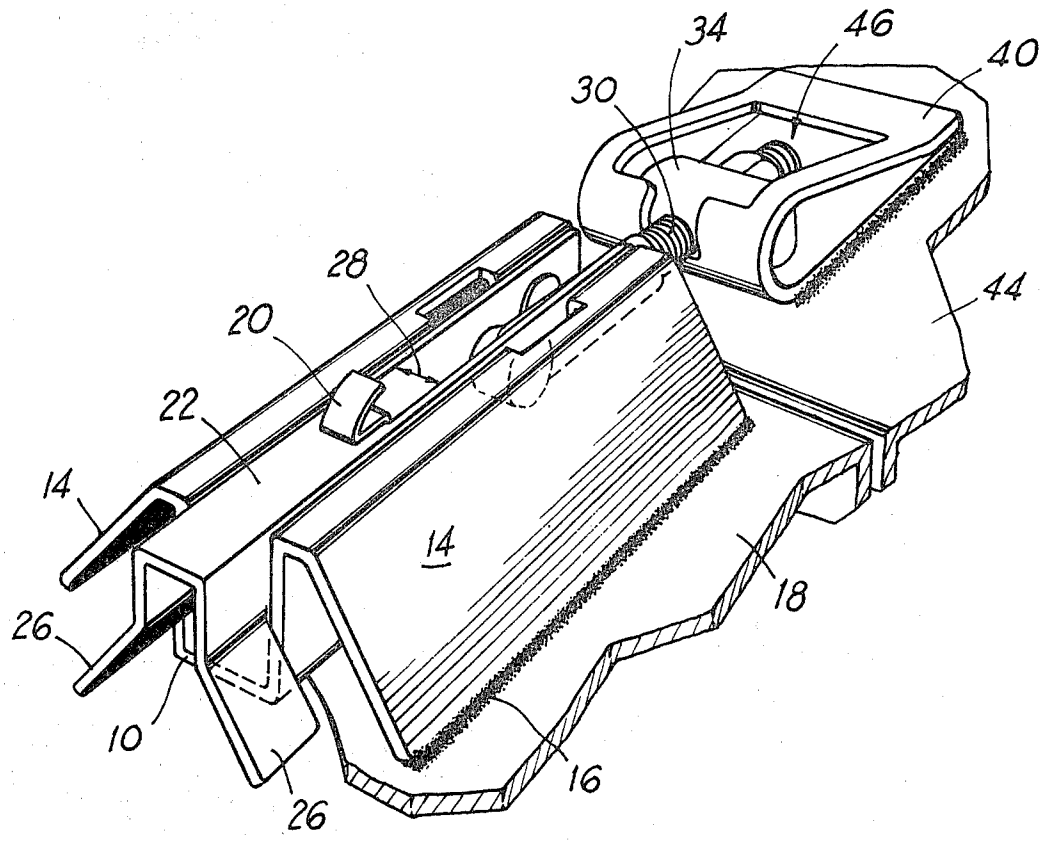
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Assistant Examiner—William E. Lyddane
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[57] **ABSTRACT**

A latch is disclosed for locking engagement with a strike. The latch comprises a U-shaped channel member having a floor, two confronting side walls projecting upwardly from the floor, and two flanges diverging outwardly from atop the side walls. An elongated handle is pivotally mounted to the side walls within the channel motor. A draw bolt is pivotally mounted to the elongated handle. Strike engaging means are adjustably mounted to the draw bolt.

4 Claims, 7 Drawing Figures



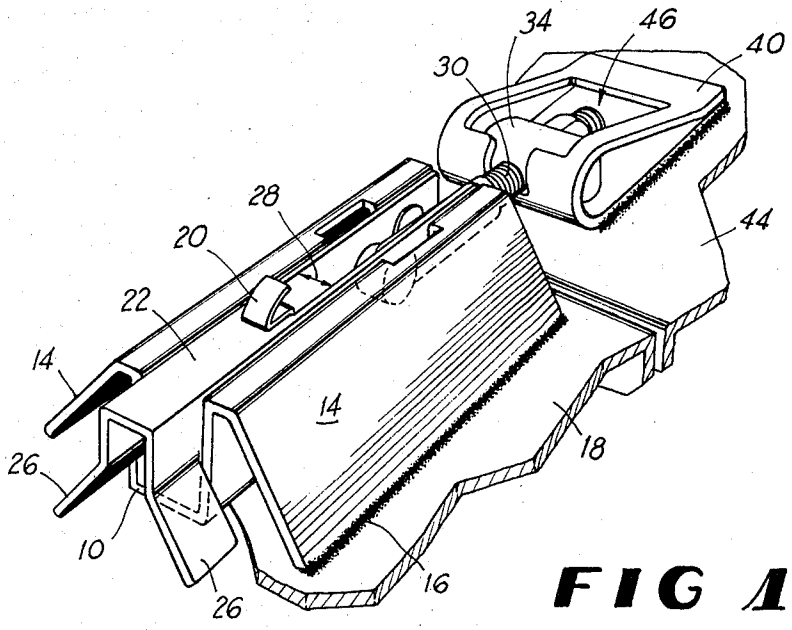

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FIG 1

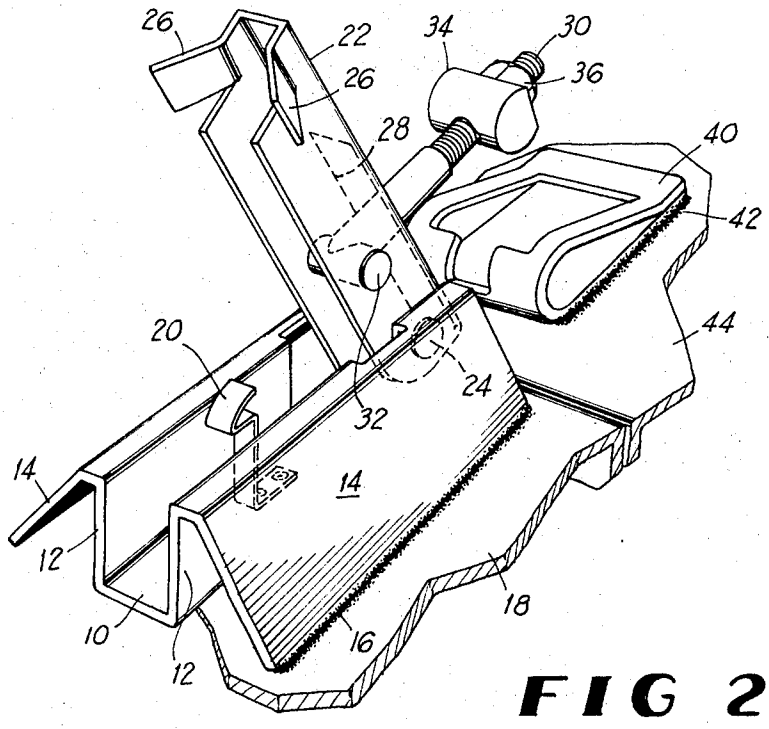

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FIG 2

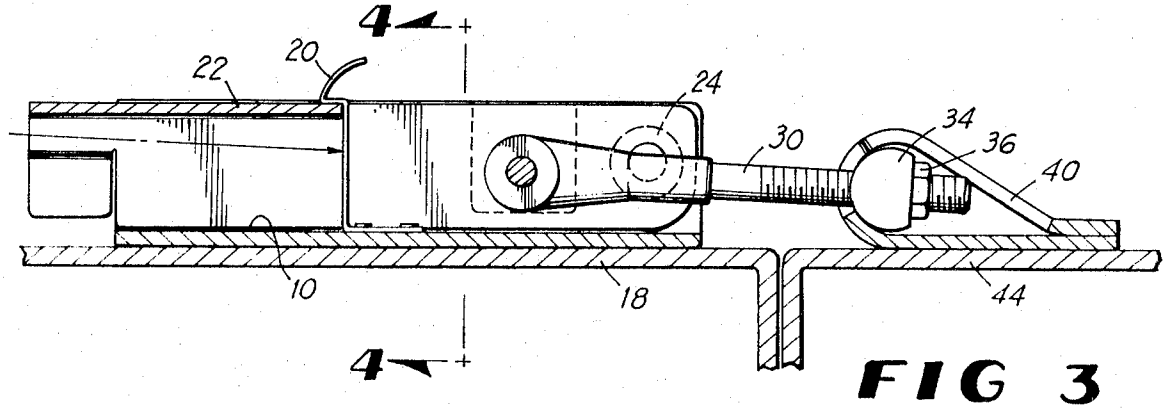


FIG 3

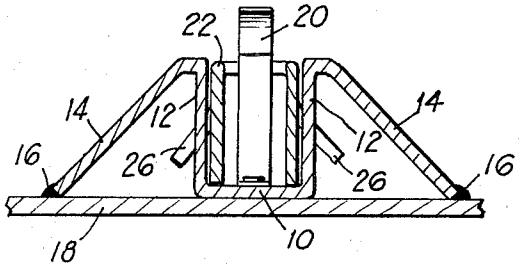


FIG 4

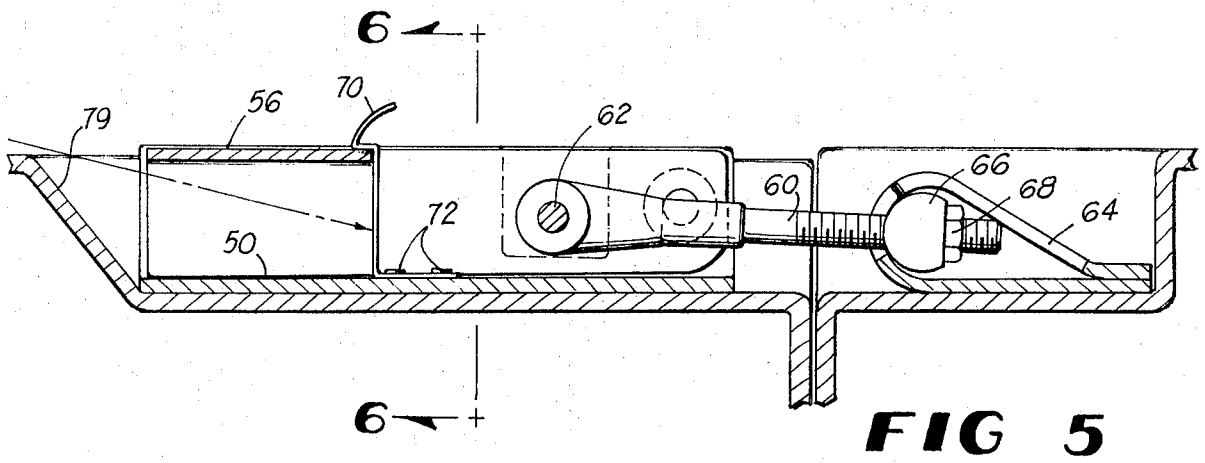


FIG 5

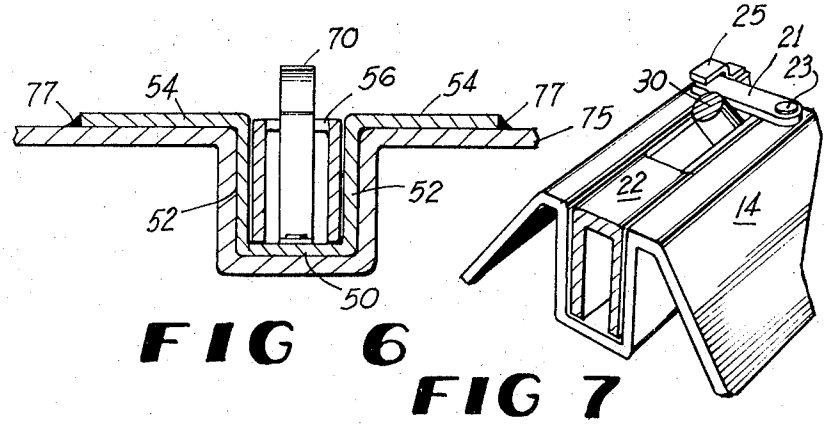


FIG 6

FIG 7

LATCH

BACKGROUND OF THE INVENTION

This invention relates generally to latches, and particularly to latches of the type associated with strikes in securing relatively large structures together such as heavy-duty metallic containers and lids.

Latches used in conjunction with associated strikes in releasably securing heavy-duty container components rigidly together have heretofore been quite susceptible to damage during handling. When subjected to handling blows they frequently have been deformed to such degree as to become non-operative. In an effort to alleviate this problem some containers have been provided with surface recesses adjacent the lid interface portions of the containers and the latches mounted within the recesses. Though such dispositions do provide protection, they also serve to inhibit access and thereby reduce the ease by which the latches are locked to and released from associated strikes. On the other hand, where such protected latches have been made more readily accessible in an effort to facilitate actuation the resulting facility has itself exposed the latch to damage or unintended release.

Accordingly, it is a general object of the present invention to provide an improved latch.

More specifically, it is an object of the present invention to provide a ruggedized latch adapted for use in releasably securing relatively large structures together such as heavy containers and lids.

Another object of the invention is to provide a latch which is readily adjustable for use with an associated strike.

Another object of the invention is to provide a latch, the components of which are protectively disposed and yet which may be operated with facility.

Yet another object of the invention is to provide a latch incorporating safety lock means.

SUMMARY OF THE INVENTION

In one form of the invention a latch is provided for locking engagement with a strike. The latch comprises a U-shaped channel member having a floor, two confronting side walls projecting upwardly from the floor, and two flanges diverging outwardly from atop the side walls. An elongated handle is pivotally mounted to the side walls within the channel member. A draw bolt is pivotally mounted to the elongated handle. Strike engagement means are adjustably mounted to the draw bolt.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view of a latch embodying principles of the present invention in one form shown in locked position with an associated strike.

FIG. 2 is a perspective view of the latch shown in FIG. 1 with the latch shown in a position unlocked from an associated strike.

FIG. 3 is a side view in cross section of the latch shown in FIG. 1.

FIG. 4 is a cross-sectional view of the latch shown in FIGS. 1 through 3 taken along plane 4—4.

FIG. 5 is a side view in cross section of a latch embodying principles of the invention in another form shown locked to an associated strike.

FIG. 6 is a cross-sectional view of the latch shown in FIG. 5 taken along plane 6—6.

FIG. 7 is a fragmentary view of a modification to the latches shown in the other figures.

DETAILED DESCRIPTION OF THE DRAWING

Referring now in more detail to the drawing, there is shown in FIGS. 1 through 4 a latch comprising a U-shaped channel member having a planar floor 10 and two parallel confronting side walls 12 projecting upwardly from the floor. Two flanges 14 diverge outwardly from atop the side walls 12. These flanges extend downwardly in spaced relation with the side walls to terminate in the plane in which floor 10 lies. The distal edges of flanges 14 are welded at welds 16 to the surface of a container 18. A resilient spring catch 20 is riveted to floor 10.

An inverted U-shaped handle 22 is pivotally mounted within the U-shaped channel member by means of pivot cylinder 24 which is journalled through aligned holes in walls 12. The end of handle 22 distal cylinder 24 comprises two divergent tabs 26 which extend beyond the end of the U-shaped channel member. The top of handle 22 is slotted at 28.

In the locked position shown in FIG. 1 resilient catch 20 extends through slot 28 and into holding engagement with top surface of handle 22. To release the handle and enable it to pivot upwardly and out of the U-shaped channel member, the resilient catch is pushed forward to a position at which it no longer overlays the handle top thereby enabling the handle to be pivoted upwardly. That the end of handle 22 distal cylinder 24 is open enables it to be pivotally lifted out of its seated position within the channel member by the insertion of a tool such as a screwdriver within the handle followed by an upwardly prying motion. In performing this operation tabs 26 serve to guide the tool into the handle end.

An integral draw bolt 30 is pivotally mounted to handle 22 by means of pivot pin 32. The draw bolt has an unthreaded portion adjacent pin 32 and a threaded portion distal the pin. A barrel nut 34 is disposed on the threaded portion of the draw bolt and hexagon lock nut 36 run up the threaded portion of the draw bolt thereby positioning the barrel nut for locking engagement with an associated strike 40 welded at 42 to container lid 44. A suitable gasket may be compressibly disposed between the container and lid which, upon locking of the latch, may provide an air tight closure.

It will be noted from the just-described embodiment that a lateral blow directed against the latch will be deflected by flanges 14 thereby protecting the handle and draw bolt seated within the U-shaped channel member. Though the handle and draw bolt are so protected, they nevertheless may be easily actuated by insertion of a tool into the handle through its open end between tabs 26 within the bounds of the U-shaped channel member. The threaded draw bolt and barrel nut combination enables the latch to be adjusted with facility. The provision of spring 20 provides a safety measure to inhibit unintended release of the latch.

Referring now to FIGS. 5 and 6 another embodiment of the invention is shown comprising a U-shaped channel member having a floor 50, two side walls 52 projecting upwardly from the floor and two flanges 54 projecting normally from the tops of the side walls in a common plane. An inverted U-shaped channel member is mounted in said first U-shaped channel member by means of pivot pin 58. A draw bolt 60 is pivotally

mounted to the handle by means of pivot pin **62** for use with an associated strike **64.** As in the previous embodiment, the draw bolt has a threaded and an unthreaded section with a barrel nut **66** positioned on the threaded portion by means of lock nut **68.** A resilient catch **70** is secured to floor **50** by means of rivets **72** to releasably catch the top surface of handle **56.** The principal distinction of this embodiment over that shown in FIGS. **1** through **4** is the disposition of flanges **54** in a common plane and the elimination of divergent handle tabs. This configuration enables virtually the entire latch to be mounted with a recess within a planar structure **75** with the flanges welded to the surface of the structure by weld **77.** With this disposition both handle **56** and the U-shaped channel member floor and side walls are seated well within the recess and thereby protected from extrinsic blows. The entry of the recess itself is preferably beveled at **79** to facilitate insertion of a tool within the open end of the handle.

In FIG. **7** an alternative to the safety lock provided by spring **20** is shown in the form of a lock bar **21** riveted about a pivot point by rivet **23** atop side wall **12.** In this figure, the lock bar is seen traversing the opening in the U-shaped channel member and seated within catch **25** secured atop the other side wall. In this position the lock bar prevents drawn bolt **30,** disposed in an unlocked orientation, from overhanging the entrance into container **18** where it could be struck and damaged by the placement of lid **44** or articles to be contained therethrough. When the latch is in a locked position with a strike, this same lock bar inhibits handle **22** from being inadvertently lifted until the bar is rotated to a position paralleling the channel member side walls or overlaying flanges **14.**

Though the latch is particularly well-suited in securing relatively large structures together it may of course also be used with rather small structures such as cabinets and the like.

It should also be understood that the just-described embodiments merely illustrate principles of the invention in two preferred forms. Many modifications may of course be made to the specifically illustrated latches without departure from the spirit and the scope of the invention as set forth in the following claims.

What is claimed is:

1. A latch for use with a strike and comprising a U-shaped channel member having a floor, two parallel sidewalls projecting upwardly from said floor and two flanges extending downwardly and outwardly from the upper edges of said sidewalls and terminating substantially in the plane of said floor, whereby said latch may be positioned on a planar surface with the floor and the outer edges of the flanges in contact with said surface, an elongated handle pivotally mounted to said sidewalls within said channel member, a draw bolt pivotally mounted to said elongated handle, and strike engaging means adjustably mounted on said draw bolt.

2. A latch as in claim **1** wherein said handle is in the form of an inverted U-shaped channel with the end of said channel opposite the pivot being open and adapted to receive a tool for operating said handle.

3. A latch as in claim **1** wherein the handle is adapted to be moved about its pivot to a position in which it lies entirely within the channel of said U-shaped channel member and wherein a lock bar is rotatably mounted atop one side wall of said member, said lock bar being adapted to be rotated to a position extending across said channel to prevent egress of the handle therefrom, said lock bar being located adjacent the position occupied by the pivotal connection between the draw bolt and handle when the handle lies within said channel, whereby movement of the draw bolt about its pivot will be inhibited.

4. A latch as in claim **2** further including a pair of divergent tabs on the handle extending beyond the end of the U-shaped channel member and adapted to guide a tool into the handle end.

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