United States Patent

[11] 3,630,559

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[73] Assignee **Southco, Inc.**
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[54] **OVERCENTER DRAW LATCH**
6 Claims, 7 Drawing Figs.

[52] **U.S. Cl.** **292/113,** 292/341.18, 292/DIG. 60
[51] **Int. Cl.** **E05c 5/00,** E05c 19/14
[50] **Field of Search** ..... 292/109, 110, 113, 114, 240, 247, 341.18, 341.19, DIG. 49, DIG. 31

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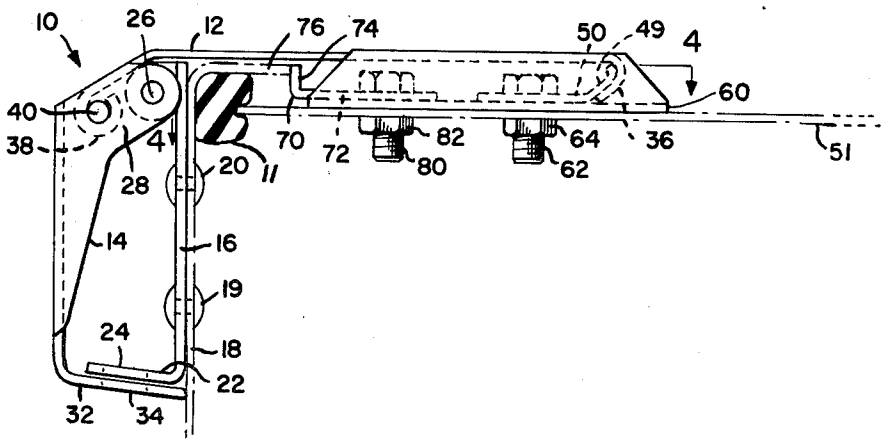
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ABSTRACT: A 90° overcenter draw latch is provided with adjustable strike means to lock and control the amount of force which the latch exerts, and adjustable stop means to control the force exerted between the members being locked together. The device is made tamper-proof.



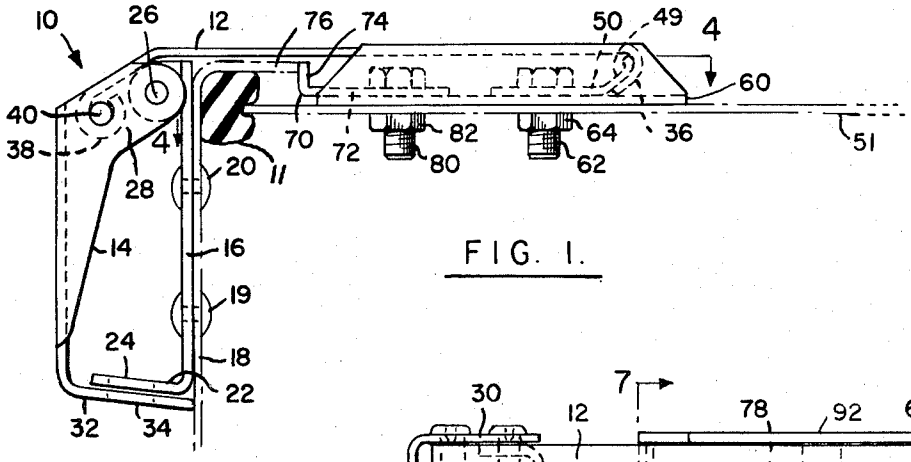


FIG. 1.

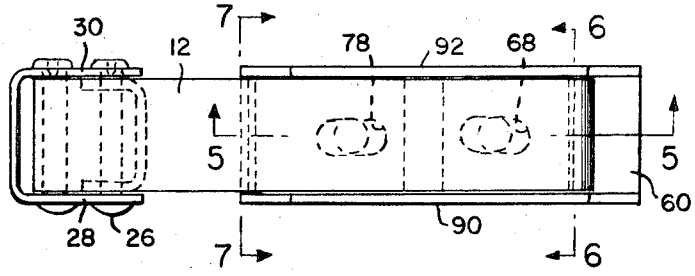


FIG. 2.

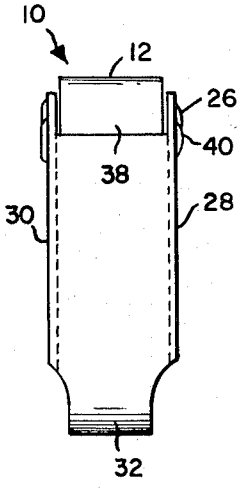


FIG. 3.

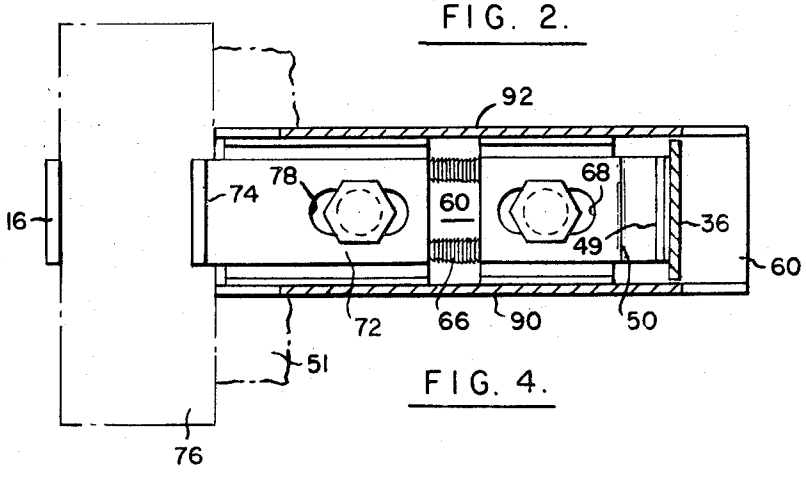


FIG. 4.

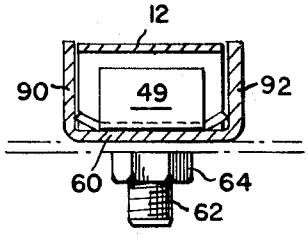


FIG. 6.

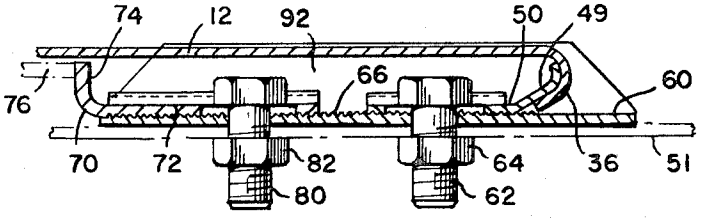


FIG. 5.

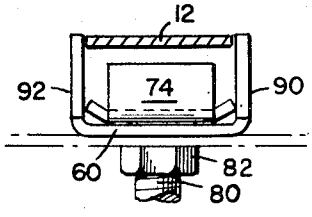


FIG. 7.

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OVERCENTER DRAW LATCH

BACKGROUND OF THE INVENTION

This invention relates to latches of the type used on containers, such as trunks and the like, and in particular to latches for mounting around an outside corner, that is 90° latches, of the overcenter type.

In the prior art it is well known to have overcenter latches which have a provision for being locked in place. Devices of this type are rather simple and merely pull the members to be locked together in the same fixed relationship as determined by their originally installed position. They provide little if any leeway in installation for adjusting the amount of force exerted by the latch or the degree to which the parts to be locked are drawn together.

We have invented a new latch fastener which provides a degree of adjustability in both of these areas.

SUMMARY OF THE INVENTION

Our invention comprises a 90° corner-mounted overcenter draw latch with adjustable strike means and adjustable stop means. In the most preferred embodiment of our invention the latch is made tamper-proof.

Accordingly, it is an object of this invention to provide a new latch fastener of the type hereinafter described which provides a degree of adjustability in the areas mentioned above.

It is a further object to provide a quick-opening, tamper-proof, 90° corner-mounted overcenter draw latch.

Another object is to provide such a draw latch having an adjustable gasket compression stop and adjustable strike, the gasket compression stop and strike being concealed when the fastener is in the closed position.

It is a further object to provide such a fastener which can be mounted on a container requiring a minimum of space over the side and providing rapid actuation in both locking and unlocking and positive self-locking action necessitating a minimum locking and unlocking force at the handle which is transferable to the container for purposes of controlling the gasket compression.

These and other objects of our invention will become apparent from the following description with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation of an assembled latch in accordance with the most preferred embodiment of our invention shown in the locked position mounted on a container shown in phantom;

FIG. 2 is a top view of the device shown in FIG. 1;

FIG. 3 is a left end view of the device shown in FIG. 1;

FIG. 4 is a view taken as indicated by the lines and arrows 4—4 in FIG. 1;

FIG. 5 is a view taken as indicated by the lines and arrows 5—5 in FIG. 2;

FIG. 6 is a view taken as indicated by the lines and arrows 6—6 in FIG. 2; and

FIG. 7 is a view taken as indicated by the lines and arrows 7—7 in FIG. 2.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Although specific forms of the invention have been selected for illustration in the drawings, and the following description is drawn in specific terms for the purpose of describing these forms of the invention, this description is not intended to limit the scope of the invention which is defined in the appended claims.

Referring to the figures, the latch fastener comprises an overcenter latch means designated generally **10** having a latch **12**, a handle **14** and a base **16**. The base is fixedly mounted to the lid **18** of the container by means of rivets **19** and **20**. The base is essentially a flat plate with a pair of mounting ears at one end and a tab **22** at the other end. The tab has a hole **24** therein for insertion of a lock. The mounting ears of the base have a tubular rivet **26** passing therethrough which retains the ears **28** and **30** of the handle **14** for pivotal movement thereabout. The other end of the handle **14** has a tab **32** which overlies the tab **22** on the base in the closed position shown in FIG. 1; said tab having a hole **34** therein which is aligned with the hole **24** in the tab **22** in the closed position for reception of a lock.

The latch **12** has a hook **36** at one end and a rolled hinge element **38** at the other end. The hinge element is retained for pivotal movement about a tubular rivet **40** which is fixedly attached to the ears **28** and **30** of the handle **14**. As can be seen from FIG. 1 the center line of the rivet **40** is below a line passing through the axis of the rivet **26** and the point of engagement of the hook **36** with the strike **50**. As will be apparent to one skilled in the art, such an arrangement provides an overcenter condition in the fully latched position shown, so that force tending to open the lid **18** would result in a rotary force on the rivet **40** in a counterclockwise direction or locking direction about the rivet **26** providing a positive self-locking feature.

The hook-shaped portion **36** of the latch **12** fits about the complimentally configured curved end **49** of the strike **50** in mating relationship. The strike **50** fits into the strike base **60** which is mounted on the side **51** of the container. The strike base **60** and the strike **50** are fastened to this side by mounting hardware such as a standard screw **62** and nut **64**. The strike **50** is kept from sliding under pressure by matching serrated treads on the mating surfaces of the strike and strike base. These treads **66** are clearly shown from the top in FIG. 4 and in section in FIG. 5.

The adjustability of the strike with respect to the base is provided by means of the slotted hole **68**. Thus when the bolt and nut **62** and **64** are loosened so that the serrated treads may be separated vertically, the strike can be moved axially within the confines of the base. This repositioning of the strike provides a means of adjusting the amount of force necessary for closing the latch to the fully closed position shown in FIG. 1. Further, when used in connection with the stop **70**, it becomes a means for adjusting the amount of force which the lid **18** will exert on the stop **70**.

The stop **70** is located on the strike base and is used to control the force exerted between the lid and the side of the container, or the amount by which a gasket (**11**, FIG. 1), between the lid and the side, may be compressed. The stop has a flat body portion **72** and an upwardly extending tab **74** which engages the inwardly depending flange **76** of the lid **18** to retard its motion under the action of the latch. The body portion **72** is provided with serrated treads which match the treads in the strike base as clearly shown in the figures. It is also provided with a slotted adjustment hole **78** through which passes fastening means, that is, the bolt **80** which together with the nut **82** retained the stop and strike base on the side of the container. When the nut and bolt **82** and **80** are sufficiently loosened the stop **70** can be moved axially in order to adjust the position of the lid with respect to the side. Thus if there were a gasket between the lid and the side the pressure on the gasket could be controlled by the position of the stop. When the nut and bolt are tightened the serrated treads prevent axial movement of the stop with respect to the strike base.

It will be noted that the stop and the strike are independently adjustable. Thus, for a given position of the stop various degrees of closing force could be provided by adjusting the strike. Similarly, for a given position of the strike, adjustment of the position of the stop can provide not only adjustment of the force necessary to close the latch, but also adjustment of the position of the lid and the compression of any gasket between the lid and the side.

The device is made tamper proof by making the strike base channel-shaped. That is, the strike base has upwardly extending sidewalls **90** and **92** which conceal the mounting hardware when the fastener is in the fully closed position, as clearly

shown in FIG. 1. Thus, when a lock is appropriately positioned through the holes 24 and 34 in the position shown in FIG. 1, the mounting hardware is inaccessible and the device is tamper-proof.

As can be seen in the end views FIGS. 6 and 7, the edges of the strike and stop are inclined upwardly at an angle of approximately 30°. This is to facilitate their clearing the rounded inside corners formed in the strike base by the upwardly extending side walls. These longitudinally extending edges of both the strike and the stop are made to fit closely within the confines of the area defined by the upwardly extending sides 90 and 92 so that they will not cock in use.

It will be understood that various changes in the details, materials and arrangement of parts which have been herein described and illustrated in order to explain the nature of this invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the following claims.

It will further be understood that the "Abstract of the Disclosure" set forth above is intended to provide a nonlegal technical statement of the contents of the disclosure in compliance with the Rules of Practice of the United States Patent Office, and is not intended to limit the scope of the invention described and claimed herein.

What is claimed is:

1. An overcenter draw latch having an overcenter latch means for fixed attachment to a first portion of a container; an adjustable strike means for fixed attachment to a second portion of said container and engagement by said latch means for adjusting the force necessary to close said latch; and a separate adjustable stop means for fixed attachment to said second portion of said container and engagement by said first portion of said container to adjustably fix the position thereof upon drawing the latch closed.

2. The invention of claim 1 wherein said strike means and said stop means are independently adjustable toward and away from one another on a common base; said base and said stop means and said strike means having mating means thereon to prevent slippage therebetween due to the force exerted on closing said latch.

3. The invention of claim 2 wherein said mating means comprises treads.

4. The invention of claim 1 wherein mounting hardware is provided for fixedly attaching the adjustable strike means to the external surface of said second portion of said container and means are provided on said strike means to prevent tampering with said hardware when said latch is in the closed position.

5. The invention of claim 4 wherein said last mentioned means comprises side walls extending upwardly from a base to closely confine and embrace a portion of said latch means positioned to overlie said hardware when the latch is in the closed position.

6. A 90° corner-mounted overcenter draw latch for use on a container having a first portion and a second portion movable toward and away from said first portion in a closing and opening relationship respectively and having a gasket between said portions, said gasket being compressed between said portions in the closed relationship, comprising: an overcenter draw latch means for fixed attachment to said first portion of said container; an adjustable strike means for fixed attachment to said second portion of said container and engagement by said latch means for adjusting the force necessary to close said latch, having a base for fixed attachment to said second portion of said container and a strike adjustable to a plurality of fixed positions with respect to said base, said base and said strike having mating means to prevent slippage therebetween due to the force exerted on closing said latch, said mating means comprising treads on said base and said strike; and adjustable stop means for fixed attachment to said second portion of said container and engagement by said first portion of said container to fix the position thereof upon drawing the latch closed and to adjust the compressive force on said gasket, comprising a base for fixed attachment to said second portion of said container and a stop adjustable to a plurality of fixed positions with respect to said base, said base being the same base as the base of said strike means, said base and said stop having mating means to prevent slippage therebetween due to the force exerted on closing said latch and the engagement of said first portion with said stop, said mating means comprising treads on said base and said stop; and hardware mounted through said base and said second portion for fixedly attaching said base to said second portion of said container; said base having means to prevent tampering with said hardware when said latch is in the closed position, comprising side walls extending upwardly from said base to closely confine a portion of said latch means positioned to overlie said hardware when said latch is in the closed position.

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