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3,125,367

LATCHING ASSEMBLY

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Fig. 1. 2

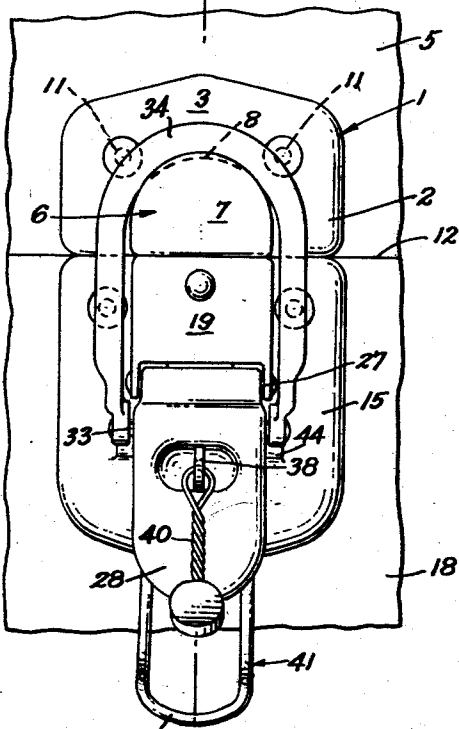


Fig. 2.

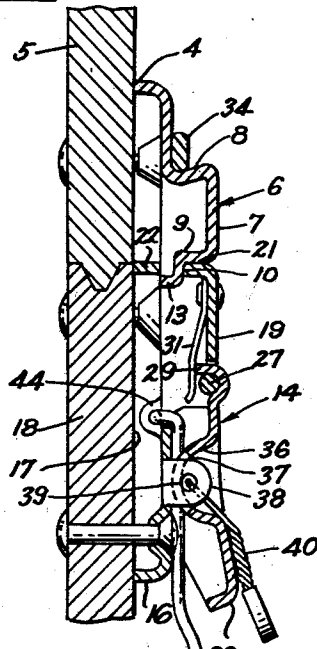


Fig. 3. 2

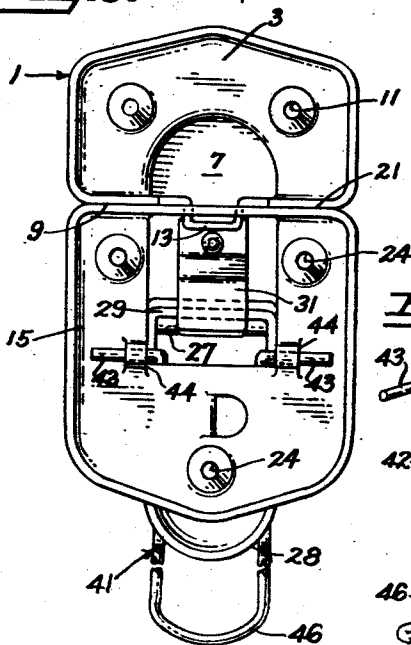


Fig. 4.

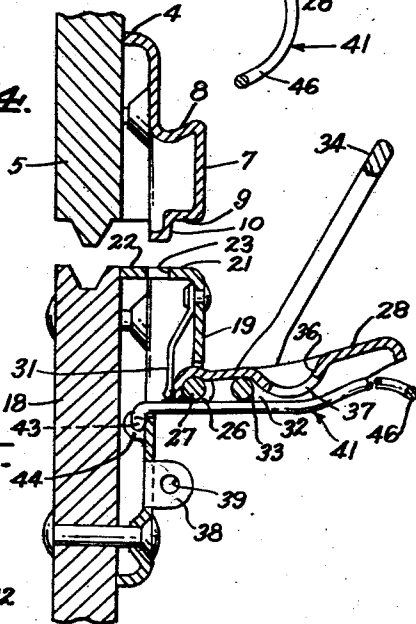
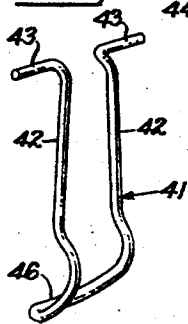


Fig. 5.



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LATCHING ASSEMBLY

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1 Claim. (Cl. 292-247)

This invention relates to a latching assembly, and is more particularly concerned with a device of this type which is especially suitable for tightly drawing together and fastening the cooperating edge portions of separable parts of a container structure, such as a closure or lid and a receptacle or casing, the latter having an opening adapted to be closed by said closure or lid.

The primary object of the present invention is to provide a latch assembly of the type described herein which is simple yet very strong and efficient in operation and which is cheap to manufacture.

Particularly it is an object of the invention to provide a latch assembly arrangement wherein both a fixed hook and the base for the pivoted toggle type pulling loop or member are so made as to material and structure as to form hollow but strong unitary elements respectively; namely the hook member is made of a single piece of preferably stamped material formed hollow but so as not to collapse under the force exerted thereon for the pulling closure elements into closed position and holding them locked; and the base on which the pulling and locking elements are pivotably mounted is also made of stamped hollow structure in a single piece so as to form a firm supporting and locking component.

I am aware that some changes may be made in the general arrangements and combinations of the several devices and parts, as well as in the details of the construction thereof without departing from the scope of the present invention as set forth in the following specification, and as defined in the following claim; hence I do not limit my invention to the exact arrangements and combinations of the said device and parts as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts as illustrated in the accompanying drawings.

With the foregoing and other objects in view, which will be made manifest in the following detailed description, reference is had to the accompanying drawings for the illustrative embodiment of the invention, wherein:

FIG. 1 is a front view of my latch assembly.

FIG. 2 is a cross-sectional view of the latch assembly, the section being taken on lines 2-2 of FIG. 1.

FIG. 3 is a rear view of the latch assembly, and

FIG. 4 is a view of the latch assembly with the closure of receptacle open.

In my latch assembly the hook member 1 is formed from a single piece of press formed hollow member. The base 2 of the hook member has a flat outer face 3 and flanges 4 around its edges extending toward the underface of the base so as to define a cavity with the edges of the flanges in contact with the adjacent wall 5 of the closure member.

A hook 6 is formed on the base 2 by punching or pressing out of the flat face 3 a boss, the outer face 7 of which is flat and substantially semi-circular, and the semi-circular outer periphery of which boss 7 is formed into a concave channel or groove 8 for nesting the loop or other locking element therein. The diametrical edge of the semi-circular boss 6 is closed by bottom wall 9 from the middle of which latter extends outwardly and downwardly a hollow tongue 10 as particularly shown in FIGS. 2 and 3. Suitable counter-sunk screw holes 11 are provided on the base 2 for screws, rivets or the like, for securing the hook member to the closure so that the diametrical edge 9 of the hook 6 is in general registry with the joining edge 12 of the closure. It is to be noted that

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the tongue 10 is also formed with inwardly extending flanges 13 which serve to render the same solid and firm.

The lower or loop member 14 of the latch assembly includes a hollow base 15 pressed out of a single piece of material so as to have circumferential flanges 16 thereof bearing against the adjacent face 17 of the receptacle 18. A boss 19 is formed integrally or pressed out of the base 15 in alignment with the hook boss 6 so that the upper edge 21 of the boss 19 is in registry and in contact with the lower edge 9 of the hook boss 7. The top flange 22 of the loop boss 19 has a keeper slot 23 therethrough in registry with the tongue 10 so that when the latch assembly is brought together the tongue 10 enters into and engages the keeper slot 23. The base 15 has the usual countersunk holes 24 for rivets or fasteners to suitably fasten the base 15 to the receptacle wall 18 in said registering position.

The lower edge of the keeper boss 19 is cut away and has a pair of spaced ears 26. On a pivot pin 27 in said ears 26 is pivoted a handle 28. The handle 28 is also hollow with flanges extending into abutment with the face 15. For toggle action on the handle 28 the pivoted end of the handle has a curved abutment flange 29 extended beyond the pivot shaft 27 into the hollow keeper boss 19. A leaf spring 31 secured to the inner face of the keeper boss 19 bears against the toggle flange 29 so as to hold the handle 28 in open position and to snap it into closed position over center as the handle 28 is pulled into latching position. Through the side flanges 32 of the latch handle 28 extends another pivot pin 33 on the outer ends of which is pivoted a loop 34. The loop 34 is substantially U-shaped with the ends of its legs being journaled on the pin 33. The height or length of the U-shaped loop is equal to the distance from the pivot pin 33 in the latched position of the handle 28 to the channel 8 on the hook boss 7 so as to tightly engage the latter.

The toggle handle 28 is dished inwardly at an intermediate portion thereof to form a recess 36. A slot 37 at the bottom of said recess 36 extends over a lug 38 struck out of the base 15 in registering position with said slot 37 so as to project through the latter into said recess 36. A transverse hole 39 on the lug 38 can be then utilized for the purpose of a wire 40 or other similar device for sealing or locking the latch in its latched position.

The type of fiberglass cases on which the herein latch is used requires firm sealing, therefore the latch is provided with an auxiliary lever 41 to assure additional leverage for lifting the toggle handle 28. This auxiliary lever 41 is in the form of a general U-shaped wire frame the legs 42 of which terminate at their respective free ends in outwardly projecting journal fingers 43. The legs 42 are compressible together so as to facilitate insertion through the cutaway slit 43 under the keeper boss 19. The journal fingers 43 are journaled in suitable bearings 44 struck inwardly from the hollow base 15, as shown in FIGS. 2 and 4. The outer or closed end of the U-shaped lever 41 is bent into a finger rest 46 into which a finger can be inserted for exerting leverage for lifting the wire frame 41 and with it the handle 28.

In operation the unitary hook member 1 is easily fastened in its selected position. Then the closure is aligned with the receptacle 18 and the base 15 is placed in registry with the unitary hook member and fastened in said registering position. The raising of the handle 28 will raise the pivot 33 of the loop 34 so as to lift the loop 34 above the hooked channel 8 and then outwardly away from the channel into the position shown in FIG. 4 to permit the opening of the closure. For closing, the toggle handle is lifted outwardly toward the position shown in FIG. 4 and then to the end upwardly until the loop 34 is brought over the hook channel 8. Thereupon the tog-

gle handle 29 is forced downwardly so as to pull the loop 34 into the hook channel 8. Then the toggle handle 28 is forced downwardly so as to pull the loop 34 into the hook channel 8 and is then snapped into said latched position. Then the latch can be sealed in the aforesaid manner.

The elements of said latch assembly are simple and the base of the loop as well as the entire hook member are of a unitary character made of a single piece in firm but hollow structure. The arrangements of the loop relatively to the integral hook are positive so as to prevent any accidental misalignment or opening. It allows facility of operation, yet secure latching in locking position.

I claim:

A latch assembly for fastening cooperating edge portions of separable parts of a structure comprising,

- (a) a unitary hook member adapted to be secured to one of said parts,
- (b) a latch member secured to another part of said structure for coaction with said hook member,
- (c) said hook member being of a hollow spaced structure,
- (d) a hollow hook boss integrally projecting from said hook member and having a hook channel formed therearound,
- (e) a tongue extended from the lower end of said hook member toward the latch member of said assembly,
- (f) said latch member including a hollow base,
- (g) a hollow latch boss extended from said base in registry with said hollow hooked boss and having a slot therein for receiving said tongue,
- (h) a latch handle pivoted on said latch boss,
- (i) a leaf spring secured to the inside face of said latch boss and engaging the latch handle inwardly of said pivot to urge said latch handle over the center of its pivot,

- (j) a loop pivoted on said latch handle and extensible over said hook channel when said handle is pulled into latching position over to said base,
- (k) a lug extended from said base under the closed position of said latch handle,
- (l) said latch handle having an inwardly dished portion and having a slot therethrough in registry with said lug in the latched position of said handle.
- (m) said lug extending through said slot and having means therein for locking said latch handle in latched position,
- (n) said base having a transverse slot below said latch handle pivot,
- (o) a pair of journals struck out of said base below said latch handle pivot and at the ends of said transverse slot,
- (p) an auxiliary lever extended along the underside of said latch handle and beyond the free end of said latch handle,
- (q) inner ends of said auxiliary lever being journaled in said journals at said transverse slot,
- (r) and said auxiliary lever being curved to be engageable by a finger to exert leverage fulcrumed about said journals to lift said latch handle about its pivot.

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