

Sept. 2, 1969

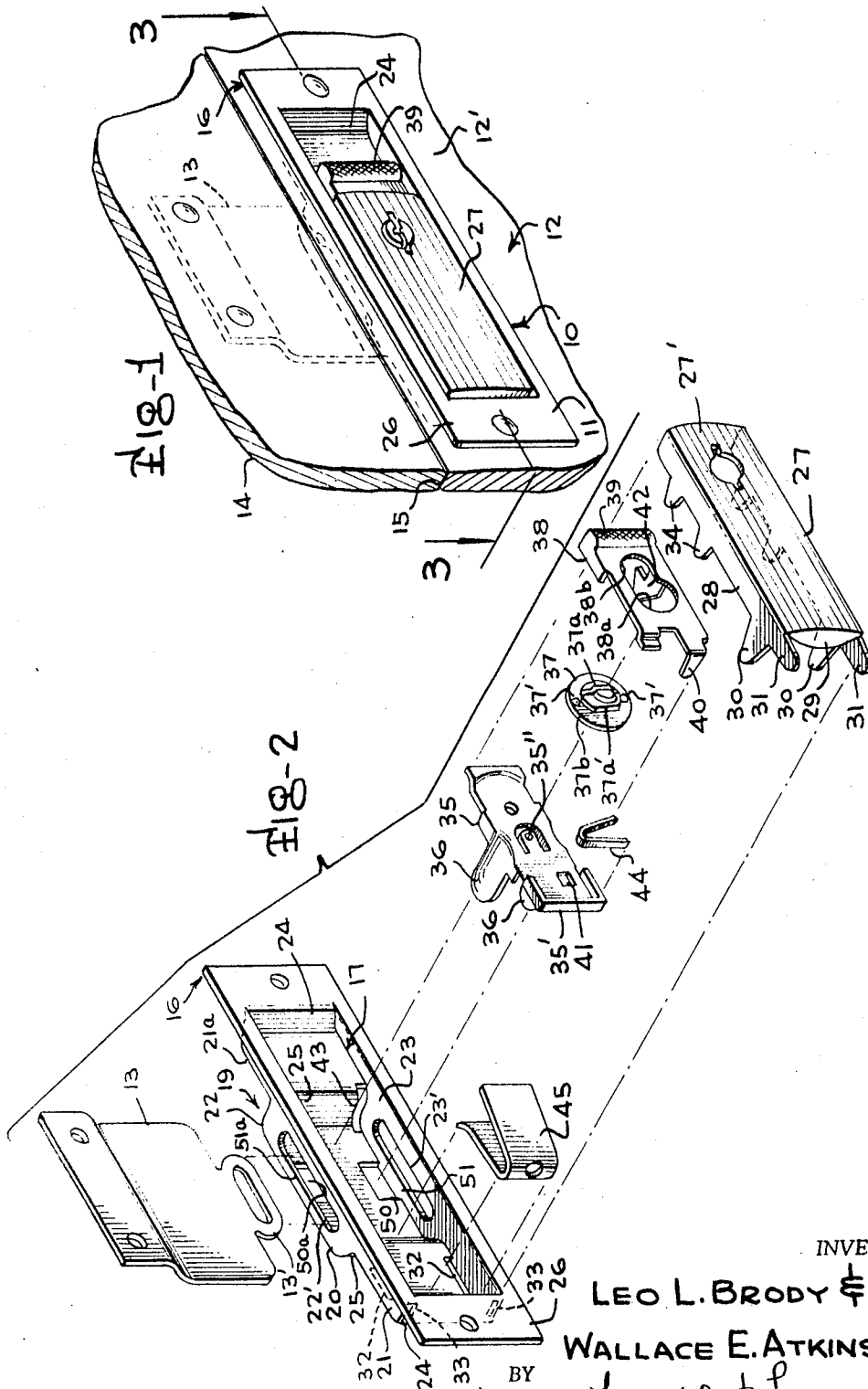
L. L. BRODY ET AL

3,464,240

LUGGAGE LOCK

Filed March 21, 1968

2 Sheets-Sheet 1



INVENTORS

LEO L. BRODY &

WALLACE E. ATKINSON

BY
Mason, Fenwick & Lawrence
ATTORNEYS

Sept. 2, 1969

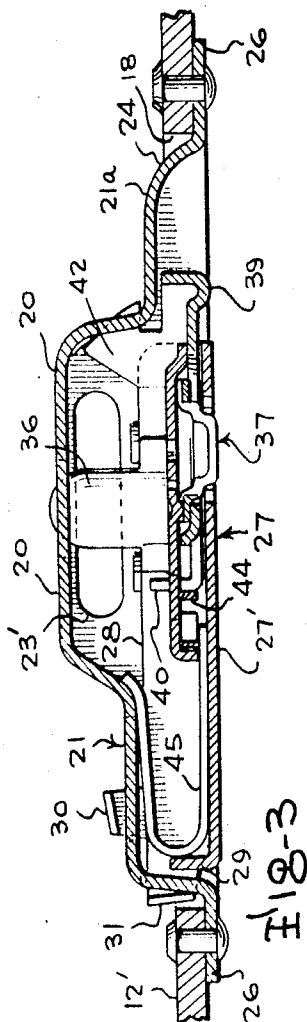
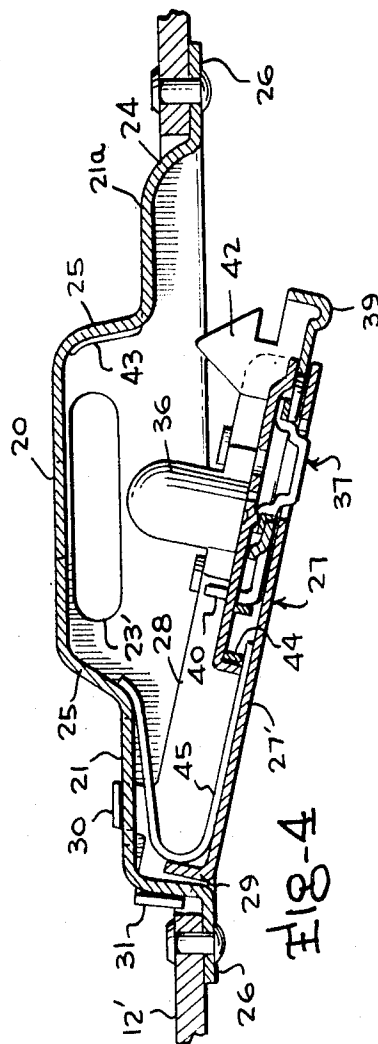
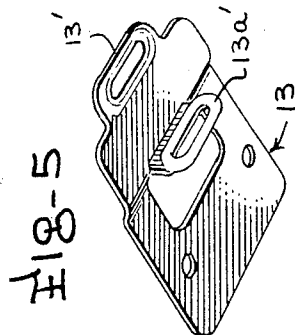
L. L. BRODY ET AL

3,464,240

LUGGAGE LOCK

Filed March 21, 1968

2 Sheets-Sheet 2



INVENTORS

LEO L. BRODY &
WALLACE E. ATKINSON

BY
Mason, Fenwick & Lawrence
ATTORNEYS

1

3,464,240

LUGGAGE LOCK

Leo L. Brody, Germantown, Tenn., and Wallace E. Atkinson, Petersburg, Va., assignors, by mesne assignments, to The Trojan Luggage Company, Memphis, Tenn., a corporation of Tennessee

Filed Mar. 21, 1968, Ser. No. 715,010

Int. Cl. E05b 65/52; A45c 13/00; E05c 1/14

U.S. Cl. 70—71

11 Claims

ABSTRACT OF THE DISCLOSURE

A latch and lock structure for luggage cases and containers having hinged sections, including a keeper for one of the case sections, and a latching unit for the other case section including a cup member defining an outwardly opening well. A hinged latch member having a tongue for interlocking with the keeper and a reciprocatively slidable manual actuator carried by the latch member having a hook latchable with the cup member are located within the well.

BACKGROUND AND OBJECTS OF THE INVENTION

The present invention relates in general to a combined latch and lock structure especially adapted for application to containers or receptacles having separable parts to be releasably secured in closed position, and more particularly to a combined latch and lock structure for luggage cases and similar containers having a cover section hinged to a body section, wherein the latching and locking components of the mechanism are located in a well member and are pivotally supported therein to normally lie substantially flush or in semirecessed relationship with the adjacent surface of the luggage.

It has been the usual practice for many years in the design and construction of combined latch and lock mechanisms for luggage cases and the like to provide a spring biased bolt on one of these luggage sections which is urged into latching relation with a keeper on the other separable luggage section whenever the sections are moved to a closed relationship. If a movable finger piece of some sort were provided in such prior devices to permit the operator to overcome the spring bias and release the latch, it usually constituted a projection or extension from the lock body or casing, disrupting the continuity and aesthetic appearance of the casing.

Recently, it has become very popular in the luggage industry to provide a channel-shaped extrusion at the line of separation between the luggage sections, or adjacent this line of separation, commonly referred to as a valance, to provide an outwardly opening channel or groove extending entirely around the luggage into which the lock mechanism, and frequently the hinge mechanism and handle supports are mounted so that they are either flush with the surface of the case or nearly so. Such a valance type construction involves the use of a rather expensive valance extrusion to provide the channel strip, and introduces complexities into the manufacture of the luggage because of the need to incorporate the valance strip therein with the outer edge of the valance strip substantially flush with the adjacent surface of the luggage. Also, when the latch and lock mechanism are to be recessed into the channel or groove defined by the valance strip, a relatively wide channel must be provided having sufficient transverse width to accommodate the lock structure.

An object of the present invention is the provision of a novel catch and lock structure which may be assembled with luggage in semirecessed relationship with a wall of the luggage case, disposing the outer surface of the latch

2

and lock mechanism substantially flush with the surface of the case, without requiring a valance strip extending entirely around the perimeter of the luggage case to define a groove into which the lock structure is received.

Another object of the present invention is the provision of a combined latch and lock structure designed to be mounted in a shallow, rectangular well or cup recessed into the surface of the case, having relatively small transverse and longitudinal dimensions to occupy only a small area of the case.

Yet another object of the present invention is the provision of a novel combined latch and lock structure of the above defined type, which is simple and compact in construction, attractive in appearance and reliable in operation, and which is capable of manufacture in an economical manner.

Still another object of the present invention is the provision of a novel latch and lock structure designed to be mounted in a shallow, rectangular well or cup recessed into the surface of a luggage case, wherein the latch and lock body is of the hinged body type without requiring the use of a hinge pin and which is associated with the well or cup member in such manner as to avoid an unsightly gap at the juncture of the pivoted latch body and the well or cup member.

Other objects, advantages and capabilities of the present invention will become apparent from the following detailed description, taken in conjunction with the accompanying drawing illustrating a preferred embodiment of the invention.

BRIEF DESCRIPTION OF THE FIGURES

FIGURE 1 is a perspective view of a combined latch and lock mechanism constructed in accordance with the present invention, shown in position on a portion of a luggage receptacle;

FIGURE 2 is an exploded perspective view of the components of the latch and lock mechanism;

FIGURE 3 is a longitudinal section view, to enlarged scale, of the latch and lock mechanism and associated well member shown in closed or latched condition and taken along the line 3—3 of FIGURE 1;

FIGURE 4 is a longitudinal section view similar to FIGURE 3, showing the latch and lock mechanism in unlatched condition, and

FIGURE 5 is a perspective view of a modified form of keeper.

DETAILED DESCRIPTION OF A SPECIFIC EMBODIMENT OF THE INVENTION

Referring to the drawing, wherein like reference characters designate corresponding parts throughout the several figures, the combined latch and lock structure of the present invention is indicated generally by the reference character 10 and comprises a latch section 11, which may, for example, be mounted on a tray or body portion 12 of the luggage case, adapted to coact with a keeper 13 which may be mounted on the separable cover section 14 of the luggage case. Such latch section and keeper are usually mounted on the front wall of their respective receptacle sections adjacent the plane of separation between the receptacle body and cover, indicated by the reference character 15.

The latch section 11 comprises a well or cup member 16 of generally rectangular configuration, stamped, for example, from sheet metal, and having its major dimension extending horizontally on the front wall of the case. The well or cup member 16 has a well portion 17, of generally rectangular configuration, projecting through a suitable accommodating opening 18 cut in the front wall 12' of the luggage or container. The well 17 has a rearwardly projecting, central keeper well portion 19

and is bounded by a central base wall portion 20, laterally flanking base wall portions 21, 21a and parallel top and bottom walls 22 and 23 extending perpendicular to the base walls 20 and 21. Parallel end walls 24 extend from the base wall portions 21, 21a to the outermost surface of the well member 16, and transition end walls 25 extend from the base wall 20 to the base wall portions 21, 21a. The marginal portions of the cup member 16 on all sides thereof extend outwardly beyond the well-forming walls and define an integral rectangular frame 26 which is designed to butt against the front surface of the wall 12' of the luggage case and define mounting and locating flanges to be disposed flush against the surface of the luggage case wall 12'. Both the top and bottom walls 22, 23 in the central well portion 19 have elongated keeper slots 22', 23' to accommodate passage of the loop formation 13' on the end of keeper 13 into the well portion 19.

Recessed within the well 17 defined by the cup member 16 is a generally rectangular latch body 27 having a substantially planar outer wall 27' forming the front wall thereof and inwardly projecting upper and lower flanges 28 along the longitudinal edges of the latch body 27 to define an inwardly opening channel-shaped structure. The spacing between the flanges 28 is substantially the same as the spacing between the top and bottom well bounding walls 22, 23 and the longitudinal dimension of the latch body 27 is slightly less than the major dimension of the well 17.

One longitudinal end of the latch body 27, which is the left hand end as viewed in FIGURE 2, has a shortened inwardly projecting flange 29, and adjacent this end of the latch body 27, the top and bottom flanges 28 each has a rearwardly projecting bendable lug 30 and a longitudinally projecting bendable lug 31. The width of the top and bottom flanges 28 measured from the outermost surface of the planar outer wall 27' of the latch body to the rearmost edge of the flanges 28 corresponds substantially to the depth of the well 17 in the region of the base wall portions 21, 21a, and the base wall portion 21, toward the left hand end of the well 17, as viewed in FIGURE 2, has a pair of slots 32 therein to permit passage of the rearwardly projecting lugs 30 therethrough. The left hand end wall 24 bounding the well 17 is also provided with upper and lower slots 33 to permit passage of the lugs 31 therethrough.

It will be noted from FIGURES 3 and 4 that the ends of the lugs 31 projecting through the slots 24 are bent inwardly toward each other along bend axes lying in a plane which diverges rearwardly somewhat to the left of the perpendicular plane to the front wall 27' of the latch body when the body is in closed position, the angles subtended between the plane of these bend axes and the perpendicular plane being the same as the angle through which the latch body moves between its open and closed limit positions. Thus the longitudinal lugs 31 form the pivot or hinge connection between the latch body 27 and the cup member 16 and are bent at an angle which provides an even spacing between the hinged end of the latch body 27, having the flange 29, and the adjacent end wall 24 bounding the well 17 to prevent an unsightly gap at this end of the latch body. The rearwardly projecting lugs 30 are bent inwardly toward each other behind the base wall portion 21 along bend axes which are spaced slightly rearwardly from the edges of flanges 28 and parallel the plane of the base wall portion 21 when the latch body is in open position, as illustrated in FIGURE 4. Thus the bend axes of lugs 30 lie in a plane which is inclined slightly to the plane of the base wall portion 21 when the latch body 27 is in closed position, as illustrated in FIGURE 3, and the inwardly bent portions of the lugs 30 form stop members cooperating with the inwardly bent portions of the lugs 31 to limit the outward pivotal movement of the latch body 27.

The top and bottom flanges 28 of the latch body 27 also

have bendable lugs 34 adjacent the free end thereof to be bent inwardly toward each other about the back of a rear tongue plate 35 having integral, rearwardly projecting, duplicate latch tongues 36 extending from the top and bottom edges thereof, adapted to project into the keeper loop 13' extending through either of keeper slots 22', 23' depending upon the orientation of the latch as a right hand or left hand latch relative to the luggage case handle. Interposed between the tongue plate 35 and the front wall 27' of the latch body 27 is a locking disk 37 and an actuator or slide member 38. The actuator 38 has an integral finger piece formation 39 on the end thereof which normally projects beyond the free end of the latch body 27 to be exposed to manipulation by the finger of the operator, and includes at the other end thereof a rearwardly projecting lug 40 extending into a longitudinally elongated slot 41 in the tongue plate 35 defining the range of relative movement permitted between the actuator 38 and the tongue plate 35. A hook formation 42 extends rearwardly from the bottom edge of the actuator 38, as viewed in FIGURE 2, into a catch slot 43 in the right hand transition wall 25 and is resiliently urged into latched relation with the adjoining edge region of base wall portion 21a by the hair pin-shaped spring 44.

The locking disk 37 has a central, substantially dome-shaped portion 37a bounded by a circular peripheral flange 37b, the dome-shaped portion 37a having a key slot therein and having a flat 37a' deformed in one lateral portion thereof. The actuator 38 has a specially shaped opening therein including a circular portion 38a of a diameter sized to just accommodate the dome-shaped portion 37a of the locking disk therein and having a horizontal excursion 38b connected therewith having a vertical dimension corresponding to the size of the dome-shaped portion 37a at the diametric axis perpendicular to the flat 37a' thereon. The spring 44 bears against an end flange 35' of the tongue plate 35 and against the lug 40 or some other abutment surface or shoulder of the actuator 38 to continuously bias the actuator 38 to its outermost limit position wherein the lug 40 butts against the right hand end of the slot 41. A detent projection 35'' on the tongue plate 35 coacts with detent sockets 37' on the flange 37b of the locking disk 37 to resiliently locate the disk 37 at either a locking position wherein the flat 37a' faces upwardly or an unlocking position wherein the flat 37a' faces downwardly. When the flat 37a' is facing downwardly in the unlocking position, it will be apparent that it is aligned longitudinally with the lowermost edge of the excursion 38b of the opening in the actuator 38 to permit relative movement of the actuator 38 to the left, as viewed in FIGURE 2, through the range of movement permitted by the slot 41. This movement is adequate to release the hook formation 42 of the actuator 38 from its accommodating slot 43 in the right hand transition wall 25. A generally U-shaped leaf spring 45 compressed between the front wall 27' of the latch housing and the left hand base wall portion 21 then resiliently shifts the latch body 27 outwardly about its hinge axis defined by the lugs 31 to swing to the open position. This swings the latch body 27 outwardly a sufficiently distance to withdraw the uppermost latch tongue 36 from the keeper loop 13' projecting through the elongated slot in the wall 22 or 23, depending on the orientation of the latch, and permits upward withdrawal of the keeper 13 from latched relation with the latch section 11.

The central base wall portion 20 also has slots 50, 50a therein adjacent the top and bottom walls 22, 23 sized to accommodate insertion of the latch tongues 36 therethrough when the latch body 27 is in closed position. The bridge or web of metal 51, 51a between these slots 50, 50a and the keeper slots 22', 23' serve to support whichever latch tongue 36 engages the keeper for the particular installation to resist bending of the latch tongue when the luggage case is closed and internal pressure is exerted

by the keeper loop 13'. Without the backup support provided by the bridge 51 or 51a and the opening 50 or 50a, the latch tongue 36 could bend outwardly under heavy or sudden internal pressure exerted when the case is heavily packed or when a packed case is dropped.

An alternate form of keeper 13a is illustrated in FIGURE 5, which corresponds to the keeper 13 illustrated in FIGURES 1 and 2, except that an additional loop formation 13a' is struck from an intermediate portion of the keeper to an inwardly projecting plane spaced upwardly from the keeper loop 13' to provide an integral built-in loop adapted to receive a hook on the edge of a dividing curtain or separator within the luggage case so as to hold the latter in place, and thus avoid the need for separate loops for the divider curtain hooks, if divider curtains are provided in the luggage.

By the construction hereinabove described, a considerably simplified lock construction for a hinged lock of the recessed type has been provided, eliminating the need for a hinge pin and the operation of inserting and heading such a hinge pin. The particular arrangement of the lugs 30 and 31 provides a novel and desirable means of hingedly connecting the latch body 27 to the cup member 16 while limiting the extent of outward pivoting movement allowed for the latch body and maintaining an even spacing between the hinged end 29 of the latch body 27 and the adjacent wall 24 of the well 17 so as to prevent occurrence of any unsightly gap in this region. The bent spring 45 biasing the latch body 27 outwardly when the slide 38 is disengaged allows easier assembly than has been heretofore provided in hinged latch and lock structures. By providing corresponding access slots 22', 23' in the top and bottom walls of the well member and providing latch tongues 36 projecting rearwardly from the upper and lower edges of the tongue plate 35, the lock is made readily reversible so that it can serve interchangeably on either side of the suitcase and eliminate the requirement of separate dies, separate parts and the cost of assembly attendant to latches which can be used only on the right hand side or the left hand side of a luggage case.

While but one specific embodiment of the latching device has been particularly shown and described, it is apparent that various modifications may be made therein within the spirit and scope of the invention, and it is desired, therefore, that only such limitations be placed thereon as are imposed by the prior art.

What is claimed is:

1. A combined latch and lock structure adapted to be mounted on wall portions of separable sections of a container adjacent a line of separation therebetween, comprising a keeper to be affixed to the wall portion of one of the sections, a latching unit on an exterior surface of the wall portion of the other section including a cup member formed from sheet material having marginal flanges disposed in a common plane adapted to be mounted flush against said exterior surface and having a base panel portion spaced inwardly from said plane and top and bottom side walls and end walls collectively defining an outwardly opening well extending inwardly from said common plane and elongated along a major axis paralleling the plane of separation, an elongated latch member hinged adjacent an end of the well and for pivotal movement between a latched position nested in said well and an outwardly inclining release position, said latch member having an outer surface of corresponding width and smaller length than said well located substantially adjacent to and paralleling said common plane at the latched position of said latch member, said latch member including a rearwardly projecting tongue for interlocking with said keeper at said latching position when said container sections are in closed condition and an actuator member supported rearwardly of said outer surface for reciprocative movement longitudinally of said well and relative to said outer surface from a projected position to

a retracted position, said actuator member having a finger piece end portion projecting beyond the free end of said outer surface and located within said well in said latched position and a rearwardly projecting hook formation engageable in latching relation with said base panel portion at said projected position and releasable therefrom upon movement of said actuator member to said retracted position.

2. A latch and lock structure as defined in claim 1, wherein a first end wall of said cup member adjacent the hinged end of said latch member has a pair of slots therein and said latch member includes a first pair of vertically spaced, bendable lugs at said hinged end projecting through said slots and bent substantially normal to said major axis along bend axes lying in a plane inclined in rearwardly diverging relation to the principal plane of said first end wall at an angle corresponding to the angle defined between said latched and release positions.

3. A latch and lock structure as defined in claim 2, wherein said base panel portion has a pair of slots adjacent said hinged end, and said latch member includes a second pair of bendable lugs projecting rearwardly through said last-mentioned slots and having a substantially perpendicular bend rearwardly of said base panel portion along parallel bend axes inclined to the plane of said outer surface to dispose the bent end portions of said second lugs in substantially parallel abutment with the adjacent base wall portions when the latch member assumes said release position.

4. A latch and lock structure as defined in claim 1, wherein said latch member includes an elongated latch body formed of an integral sheet metal stamping having an outer rectangular panel defining said outer surface and rearwardly projecting top and bottom flanges at the perimeter thereof, said outer rectangular panel having a first end disposed immediately adjacent one end wall of said cup member at the hinged end of the well and a second end spaced from the other end wall, a backing plate secured to said flanges in rearwardly spaced relation to said panel, and said actuator member comprising an elongated actuator plate slidably interposed between said backing plate and said outer rectangular panel having said finger piece end portion projecting beyond said second end of said panel into the space between said second end and said other end wall.

5. A latch and lock structure as defined in claim 4, wherein a first end wall of said cup member adjacent the hinged end of said latch member has a pair of slots therein and flanges of said latch body include a first pair of vertically spaced, bendable lugs at said first end projecting through said slots and bent substantially normal to said major axis along bend axes lying in a plane inclined in rearwardly diverging relation to the principal plane of said first end wall at an angle corresponding to the angle defined between said latched and release positions.

6. A latch and lock structure as defined in claim 4, wherein said base wall portion has a pair of slots adjacent said hinged end, and said flanges of said latch body include a second pair of bendable lugs projecting rearwardly through said last-mentioned slots and having a substantially perpendicular bend rearwardly of said base panel portion along parallel bend axes inclined to the plane of said outer surface when the body occupies said latched position to dispose the bent end portions of said second lugs in substantially parallel abutment with the adjacent base wall portions when the latch member assumes said release position.

7. A latch and lock structure as defined in claim 4, wherein said side walls of said cup member each have a keeper slot therein aligned along a vertical axis to accommodate passage of an end portion of the keeper into said well when said case sections are closed, said backing member having a pair of like vertically spaced tongue

members adjacent the respective top and bottom flanges projecting rearwardly therefrom to intercepting positions between said keeper slots when the latch member occupies said latched position, and said keeper end portion having a loop formation disposed within said well in alignment with the uppermost tongue member to receive the latter when the case sections are in closed position.

8. A latch and lock structure as defined in claim 5, wherein said side walls of said cup member each have a keeper slot therein aligned along a vertical axis to accommodate passage of an end portion of the keeper into said well when said case sections are closed, said backing member having a pair of like vertically spaced tongue members adjacent the respective top and bottom flanges projecting rearwardly therefrom to intercepting positions between said keeper slots when the latch member occupies said latched position, and said keeper end portion having a loop formation disposed within said well in alignment with the uppermost tongue member to receive the latter when the case sections are in closed position.

9. A latch and lock structure as defined in claim 4, including a locking disk supported between said backing plate and outer panel for rotation about a center axis of the disk normal to said panel, said locking disk including an outwardly projecting central dome formation providing a circular periphery concentric with said center axis over most of its circumference and a flat along a chord thereof over the remainder of its circumference, said actuator member having an opening including a circular portion rotatably accommodating said dome formation at said projected position and an excursion portion extending from said circular portion toward said finger piece end portion of less width than the diameter of said circular periphery sized to permit passage of the dome formation into said excursion portion only when said flat is in parallel alignment with the longitudinal axis of said well, said locking disk having a key slot therein for rotation of the disk responsive to turning of a key, and detent means for releasably restraining said disk at first and second angular positions respectively orienting said flat in angular relation and in parallelism with said longitudinal axis for respectively locking and unlocking said actuator member.

10. In a latch and lock structure, a latching unit including a keeper, a latch body movable between a latching position and an unlatching position relative to said keeper and having an outer surface, a finger actuated slide member supported for rectilinear reciprocative movement relative to said latch body from a first position restraining said latch body in latching position to a second position releasing the latch body to assume said unlatching position, a combination key barrel and locking disk sup-

ported by said latch body for rotation about a center axis of the disk normal to said outer surface, said locking disk including an outwardly projecting central dome formation providing a circular periphery concentric with said center axis over most of its circumference and a flat along a chord thereof over the remainder of its circumference, said slide member having an opening including a circular portion rotatably accommodating said dome formation at said first position and an excursion portion extending from said circular portion of less width than the diameter of said circular periphery sized to permit passage of the dome formation into said excursion portion only when said flat is in parallel alignment with the axis of reciprocation of said slide member, said locking disk having a key slot therein for rotation of the disk responsive to turning of a key, and detent means for releasably restraining said disk at first and second angular positions respectively orienting said flat in angular relation and in parallelism with said axis of reciprocation for respectively locking and unlocking said slide member.

11. A latch and lock structure as defined in claim 1, wherein said tongue is located immediately adjacent one of said side walls of said cup member, said last-mentioned side wall having a keeper slot therein to accommodate passage of an end portion of the keeper into said well when said case sections are closed, said keeper end portion having a loop formation disposed within said well in alignment with the tongue to receive the latter when the case sections are in closed position, said base wall panel having a slot therein aligned with said tongue for passage of an end portion of the tongue therethrough, and said one of said side walls having an integral web portion between said last-mentioned slot and said keeper slot to support said tongue against bending away from the center axis of the cup member.

References Cited

UNITED STATES PATENTS

40	2,970,858	2/1961	Norrenburg-Sudhaus	70—75 X
	3,031,874	5/1962	Levine	70—70
	3,125,874	3/1964	Gehrie	70—75
	3,162,034	12/1964	Humphries	70—70
	3,371,511	3/1968	Atkinson	70—71
45	3,390,556	7/1968	Constable	70—75

MARVIN A. CHAMPION, Primary Examiner

EDWARD J. MCCARTHY, Assistant Examiner

U.S. Cl. X.R.

292—163