

[54] COMBINATION LOCK CONSTRUCTION

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70/70, 71, 74, 312, 316-318

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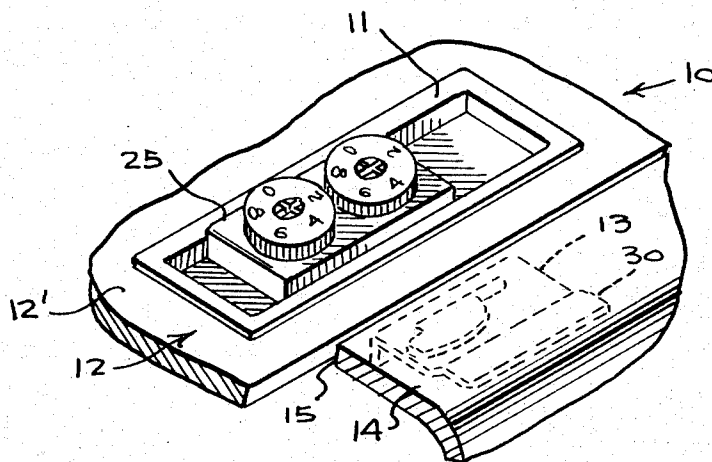
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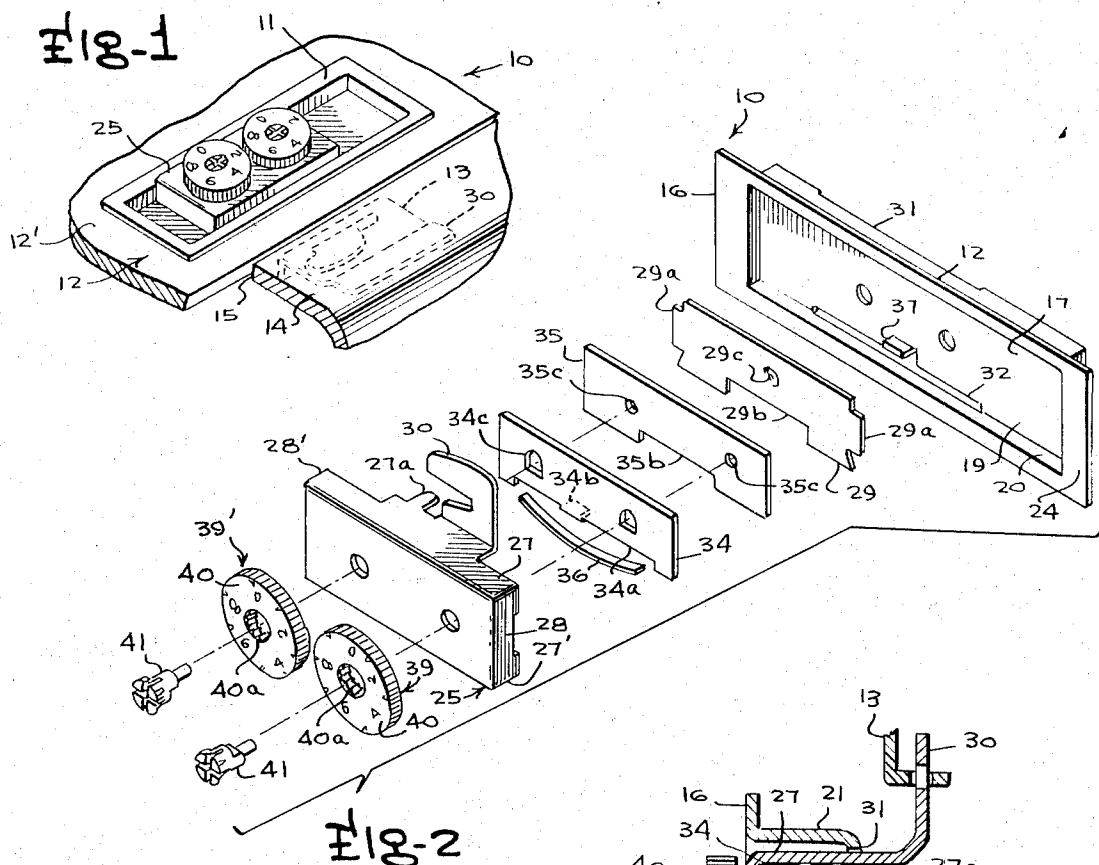
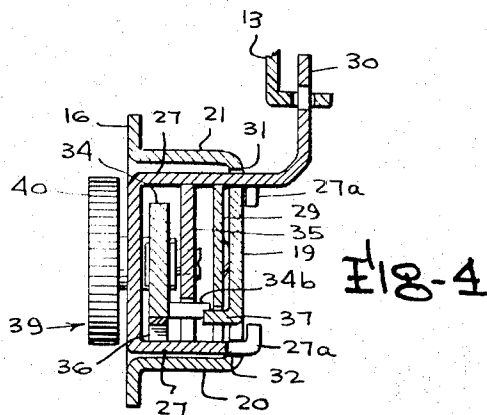
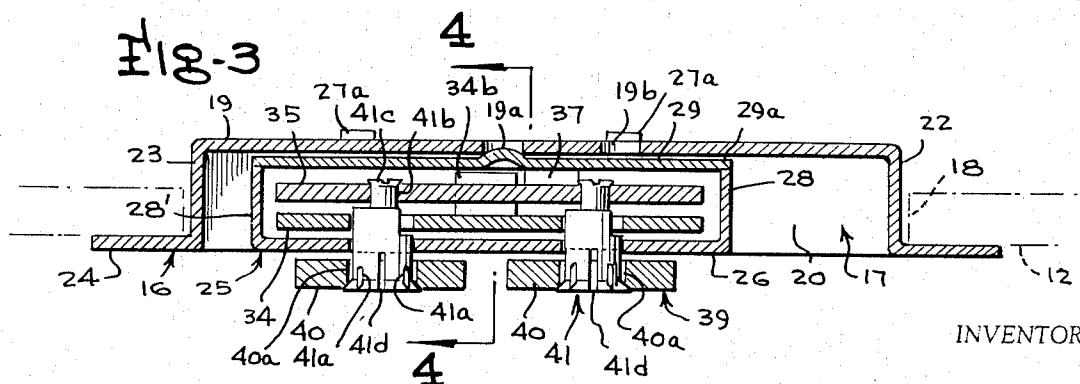
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[57] **ABSTRACT**

A combination lock structure for luggage cases and the like, having a cup member defining a forwardly opening well and a lock housing nested in the well and movable between latching and release positions. A pair of manually adjustable dial wheels carried on the front of the lock housing control hub members which extend through specially shaped openings in a fence plate or slide plate which normally locks the housing against movement from latching position. When the dial wheels are turned to the proper lock combination, the hub members permit movement of the fence plate or slide plate to a position releasing the housing for unlatching movement. The dial wheels are releasably coupled to their associated hub members to permit relative movement for changing the combination when the lock is unlocked and in unlatching position.

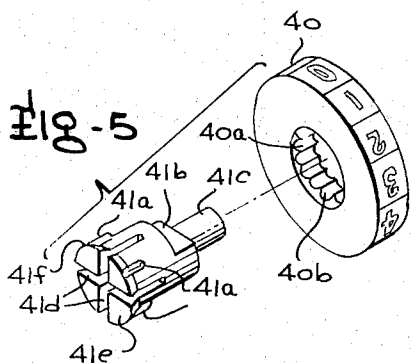
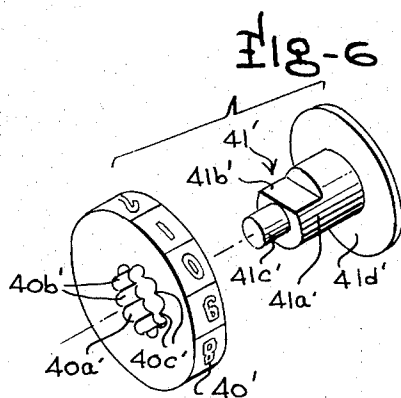
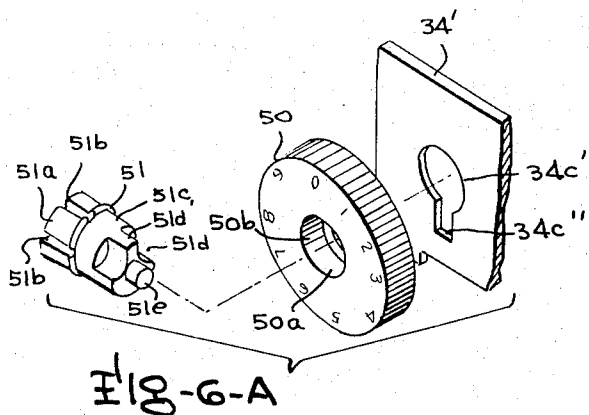
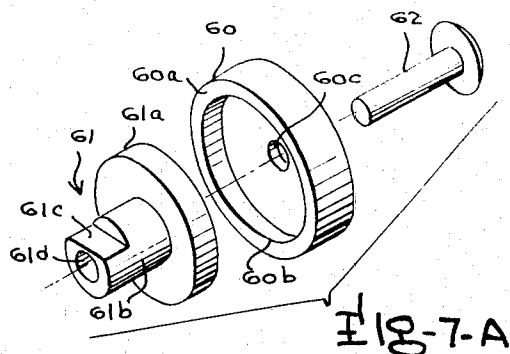
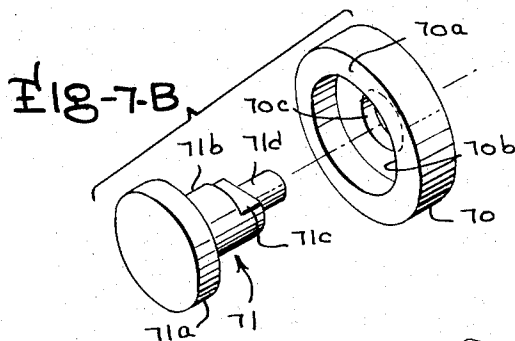
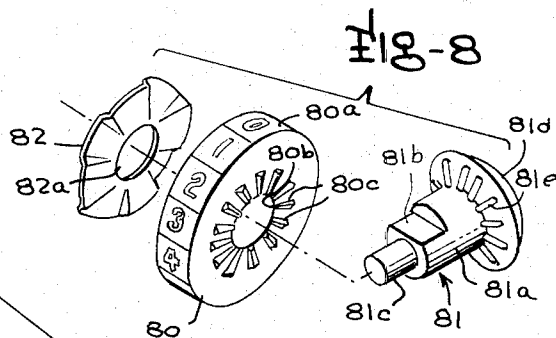
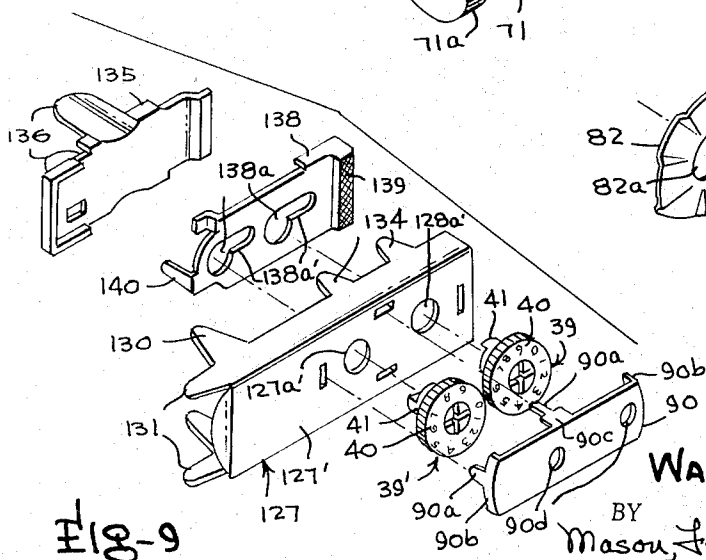
12 Claims, 11 Drawing Figures





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COMBINATION LOCK CONSTRUCTION

BACKGROUND AND OBJECTS OF THE INVENTION

The present invention relates in general to a combination lock structure involving a plurality of rotatable combination dial members arranged along parallel axis of rotation to be set to a pre-determined combination of dial numbers for releasing the lock, and more particularly to a combination lock structure for application to containers or receptacles having separable parts to be releasably secured in closed position, such as luggage receptacles and the like. The particular construction herein disclosed includes a cup member to be mounted on a luggage surface and define a forwardly opening elongated well extending rearwardly in recessed relation from the surface, in which a movable lock housing is supported for sliding or pivotal movement relative to the well between latching and unlatching positions when the proper combination has been dialed, together with a latch member projecting from the movable housing to assume latching and unlatching positions relative to a keeper aperture.

While combination locks have been used for many years in a wide variety of locking applications, such combination locks for the most part have been relatively complex and expensive construction, involving a plurality of peripherally gated tumbler wheels operated from a single dial. The present invention is concerned with a significantly simplified type of combination locking mechanism suitable for less costly locking applications, such as for luggage cases, jewelry boxes, storage boxes for valuables, and similar applications, wherein a plurality of dial members are adapted to be angularly positioned to a pre-determined combination number and are associated with a movable plate carried by the locking housing in such a way as to admit movement of the housing in a manner to release the lock from latching relation to the keeper. The dial wheels and their associated hubs are releasably intercoupled in such a way as to permit the combination to be changed when the lock is in unlocked or open condition.

An object of the present invention is the provision of a novel combination lock construction applicable to a wide variety of installation conditions, which is relatively simple in construction and is particularly adaptable for use on luggage receptacles and the like having a pair of hinged separable container sections.

Another object of the present invention is the provision of a novel combination lock construction which can be relatively inexpensively manufactured and wherein a plurality of adjustable dial members are rotatably supported in side-by-side relation on a housing member enclosing a slidable plate serving as a bolt and movable reciprocally between latching and unlatching positions in a forwardly opening well of a 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 drawings illustrating preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 is a perspective view of a combination lock mechanism embodying the present invention illustrated in closed position on a luggage receptacle;

FIG. 2 is an exploded perspective view of the combination lock mechanism of FIG. 1;

FIG. 3 is a horizontal section view taken along the line 3—3 of FIG. 2;

FIG. 4 is a vertical section view taken along the line 4—4 of FIG. 3;

FIG. 5 is a fragmentary exploded perspective view, to enlarged scale, of the dial wheel and hub of one embodiment;

FIGS. 6, 6A, 7A, 7B and 8 are fragmentary exploded perspective views of other dial wheel and hub assemblies that may be used in the combination lock mechanisms of the present invention; and

FIG. 9 is an exploded fragmentary perspective view of parts of a hinged pivot lock housing and combination dial wheels embodying the present invention.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to the drawings, wherein like reference characters designate corresponding parts throughout the several figures, and particularly to FIGS. 1 to 4, one embodiment of the combination lock mechanism 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 a luggage case, and a keeper 13 which may be mounted on the separable cover section 14 of the luggage case. The 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 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 dimensions extending horizontally on the front wall of the luggage case. The well or cup member 16 has a rectangular well portion 17 projecting through a suitable accommodating opening 18 cut in the front wall 12' of the luggage or container. The well 17 is bounded by a planar base panel 19, parallel bottom and top walls 20 and 21 extending perpendicular to the base wall 19, and parallel end walls 22 and 23 also extending perpendicular to the base wall 19. The marginal portions of the cup member 16 on all sides thereof extend outwardly beyond the walls 20—23 and define an integral rectangular frame 24 which is designed to butt against the front surface of the wall 12' of the luggage and define mounting and locating flanges to be disposed flush against the surface of the luggage case wall 12'.

In the embodiment of FIGS. 1 to 4, a rectangular lock housing member 25 is recessed within the well defined by the well member 17 and has a substantially planar front wall 26 and inwardly projecting flanges including top and bottom flanges 27, 27' at the longitudinal edges of the front wall and end flanges 28, 28', collectively defining a rearwardly opening box-like structure. The rearmost edges of the flanges 27, 27' and 28, 28' lie in a common plane paralleling and spaced rearwardly from the plane of the front wall 26, and the end flanges near the centers thereof have notches to receive correspondingly shaped tongues 29a of a spring plate 29 closing the rear of the box-like housing 25. The top flange 27 has a bendable tab 27a and a hook-like extension 30 disposed in side-by-side relation extending from the rear edge thereof, while the bottom flange 27' has

an extension projecting from the rearmost edge thereof of substantial length having a pair of longitudinal spaced bendable tabs 27a' projecting therefrom. The bendable tab 27a and hook-like member 30 are designed to be passed through an accommodating slot 31 at the top edge of the base panel 19, while the extension having the bendable tabs 27a' are to be projected through an accommodating elongated slot 32 in the panel 19 at the bottom edge thereof, after which the bendable tabs 27a, 27a' are bent inwardly against the underside of the base panel 19 to retain the lock housing member 25 in assembled relation in the well or cup member 16. The slots 31 and 32 are of appropriate length paralleling the longitudinal or major axis of the well member to accommodate an appropriate extent of reciprocative movement of the housing member 25 between latching and unlatching positions.

Within the chamber defined by the front wall 26 in the flanges of the housing member 25, progressing from front to rear, are a fence plate 34 and a retaining plate 35. The fence plate has a width corresponding to the distance between the confronting interior surfaces of the end flanges 28, 28' and is shallower than the distance between the top and bottom flanges 27, 27', to be guided for vertical movement transverse to the major axis of the well 17, and is resiliently biased to one limit position, for example the top or raised position as viewed in FIG. 2, by the bowed leaf spring 36 whose ends fit in the channel-shaped recess formed along the major portion of the lower edge of the fence plate 34. The fence plate 34 also has a rearwardly projecting locking lug or tongue 34b at the mid-region of the recess 34a, which projects rearwardly through an elongated recess 35b in the retaining plate 35 and a similar recess 29b in the spring plate 29 to normally lie immediately adjacent the forwardly bent locking tongue 37 bent from the base panel 19 of the well member with the locking lug 34b and locking tongue 37 in alignment with each other along the axis of movement of the housing member 25. The relative location of the locking lug 34b and locking tongue 37 when the housing 25 is in locked position is such that the locking tongue 37 forms an abutment or stop which would prevent movement of the housing 25 toward the unlocked position within the well.

In the embodiment illustrated in FIGS. 2, 3 and 5, a pair of dial wheel assemblies 39, 39' are disposed in side-by-side relation immediately forwardly of the front wall 26 for rotation about parallel axes perpendicular to the plane of the front wall 26. These dial wheel assemblies 39, 39' include an annular wheel member 40 having numbers on the front face or on the periphery thereof, as desired, and in the preferred embodiment have a forwardly countersunk central opening 40a which is bounded by concave notches or a serrated surface defining teeth 40b, in which is releasably interfitting a hub member 41. In the embodiment illustrated in FIGS. 1 to 5, the hub member has four teeth or ribs, indicated at 41a, to interfit in the concave notches of the central opening 40a of the wheel member 40 at any of ten different angular positions corresponding to the ten numbers on the wheel member of the dial wheel assembly, and a flange or enlarged head formation 49f at the forward end of the hub to interfit in the countersunk portion of opening 40a. The hub member 41 of each dial wheel assembly has a generally cylindrical shank portion rearwardly of the teeth shaped near its rear-

most end to define a non-round gating or control portion having a flat 41b thereon at one angular position, and has a constricted diameter cylindrical extension 41c projecting from its rearmost end which interfits into the similarly sized circular openings 35c in the retaining plate 35 and is deformed to provide a retaining head or enlargement rearwardly of plate 35 in a conventional manner.

The portions of the hub members 41 designed to occupy the openings 40a are rendered spring-like or resiliently yieldable by providing diametric cross-cuts 41d of an appropriate axial depth therein, whereby the quadrant portions 41e defined by the cross-cuts and carrying the four teeth or ribs 41a position the teeth so that they are normally interfitted in the notches of openings 40a but are capable of being flexed inwardly to permit relative angular movement or rotation of the hub 41 with respect to its associated dial wheel 40 to assume a new combination position. Rearwardly of the portions in the dial wheel openings 40a and in the front wall openings 26a, the hub members have flats 41b which extend through the specially shaped openings 34c in the fence plate 34. It will be observed from the drawings that the openings 34c are of semi-circular configuration concentric with the axes of the hub members over the upper halves of the openings 34c, as viewed in FIG. 2, but that the lower halves of the openings 34c are rectangular. Thus, when the wheel members 40 and their associated hub members 41 are at appropriate angular positions to dispose the flats 41b in downwardly facing positions, the fence plate 34 is then free to be displaced upwardly by the bowed leaf spring 36, thereby displacing the locking lug 34b upwardly above the level where it would be intercepted by the locking tongue 37 upon attempted movement of the housing 25 toward unlocking position. The housing 25 is then released for movement from the locking to the unlocking positions.

The spring plate 29 has a rearwardly projecting detent nose 29b formed by distorting the spring plate 29, which extends into either detent sockets 19a and 19b in the base panel 19 at the locked and unlocked positions of the housing 25, in the embodiment illustrated in FIGS. 1-4, or may coact with a forwardly distorted nose formation in the base panel 19, to in either case resiliently restrain the housing 25 in the position to which it has been manually adjusted.

The hub members 41 are frictionally retained in the angular positions to which they have been adjusted, relative to their associated wheel members 40, by the interfitting of the projections 41a in the notches of dial wheel openings 40a, until the dial wheels are forced to new angular positions while the hubs are held stationary. This may be accomplished when the existing combination has been dialed and the housing 25 is shifted to release or unlocking position. At the unlocking position, the locking lug 34b is disposed above the stationary locking tongue 37, thus holding the fence plate 34 in the raised position where the rectangular lower halves of fence plate openings 34b seat against the hub flats 41b and hold the hubs against rotation. The dial wheels 40 can then be forceably rotated to new angular positions establishing new combinations for the lock, as desired by the owner. In one example, as illustrated in FIGS. 1 to 5, the hubs 41 have four teeth to interfit at various relative angular positions with the notches or

serrations in the openings 40a having for example, twenty notches.

Another form of dial wheel and hub assembly is illustrated in FIG. 6. In this form, the hub member 41' has an enlarged head 41d' disposed forwardly of the dial wheel 40' and a cylindrical shank portion 41a' having a smooth cylindrical surface, located in the center opening 40a'. Rearwardly of the shank 41a' is a flat 41b' like the flat 41b of the FIG. 5 form and a constricted diameter rearward end portion 41c' to fit in the openings 35c in plate 35. The dial wheels 40' are of molded plastic and have a plurality of circumferentially spaced cavities 40b' in outwardly encircling relation to center opening 40a' forming the bounding surface of the openings 40a. The dial wheel portions between these cavities 40b' define fingers or narrow gripping ribs 40c' about the opening 40a' which yieldably engage the shank 41a' of the associated hub and frictionally retain the dial wheel and hub against relative angular movement. However, when the combination has been dialed and the fence plate 34 is held by the lug 34b and underlying tongue 37 in unlatching position, the fence plate holds the hubs 41' against rotation and the dial wheels 40' can then be forcibly rotated to new combination positions by the owner, just as with the first-described embodiment.

It will be noted that the dial wheel 40 shown in FIG. 5 and the dial wheel 40' shown in FIG. 6 have the dial numbers on the periphery of the dial wheel, rather than on the forwardly facing surface thereof, as the dial wheels can obviously be provided with the dial number located either on the cylindrical periphery or on the forwardly facing surface, as desired.

FIG. 6A illustrates another form of dial wheel and hub assembly, wherein the dial wheel 50 is similar to the dial wheel 40 but has a smooth cylindrical surface 50b bounding the central opening 50a. The fence plate 34' of the lock assembly in this embodiment has an opening 34c' which is shaped differently from the previously described opening 34c as it includes an upper enlarged circular portion and a lower narrow extension 34c''. The hub member 51 in this embodiment includes a slightly enlarged head portion 51a at the forward end which is subdivided into four quadrants by diametric cross-cuts 51b to render the head portion 51a spring-like or resiliently yieldable. Rearwardly of the head portion 51a is a cylindrical shank portion 51c having a non-round gating or control portion shaped to define a generally T-shaped end formation 51d formed of a semi-cylindrical portion and a radially extending rib portion 51d', the latter being sized to interfit into the extension 34c'' of the opening 34c' in the fence plate 34'. A constricted diameter cylindrical extension 51e may also be provided to fit into the openings 35c in the plate 35 and be enlarged rearwardly thereof. The center opening 50b of the dial wheel 50 has a large diameter cylindrical portion opening through the forward face of the dial wheel which is of a diameter relative to the normal outer diameter of the head portion 51a of the hub to form a tight friction fit therewith, so that the resiliently yieldable quadrant sections defined by the cross-cuts 51b are frictionally restrained against relative rotation within the larger cross-section portion of the central opening 50b. A thin constricted diameter rim is provided at the rearmost end of the opening 50b having an inner diameter sized to receive and permit rotation of the shank portion 51c of the hub. When the

combination has been dialed and the fence plate 34' is moved upwardly by interfitting of the extension 34c'' of the opening in fence plate 34' with the radial rib portion 51d' of the hub and the fence plate is held in the upwardly displaced or unlatching position by the tongue 37 underlying the lug 34b, the fence plate holds the hubs 51 against rotation and the dial wheels 50 can then be forcibly rotated to new combination positions by the owner, as was described in connection with the embodiments shown in FIGS. 5 and 6.

FIG. 7A shows another form of dial and hub assembly, wherein the dial wheel 60 is of rearwardly opening cup shaped configuration having a cylindrical perimeter 60a surrounding a rearwardly opening cylindrical cavity 60b and located concentrically relative to a center opening 60c in the front face of the dial wheel. The hub 61 in this embodiment has an enlarged diameter cylindrical head portion 61a at its forward end sized to frictionally interfit in the cylindrical cavity 60b of the dial wheel, from which a smaller diameter portion projects including the cylindrical shank portions 61b and the non-round gating portion thereof defined by the flat 61c at one angular position along the shank of the hub. The hub also has a bore 61d extending there-through corresponding to the center hole 60c in the dial wheel 60, and a headed rivet 62 extends through the opening 60c in the bore 61d to project through and be enlarged rearwardly of, the holes 35c in plate 35 to retain the dial wheels 60 and hub 61 in assembled relation. The relative diameters of the cylindrical cavity 60b and the enlarged head portions 61a of the wheel and hub are sized so that the hub is normally frictionally held against relative rotation with respect to the wheel, but when the proper combination has been dialed and the fence plate 34 is displaced to and held in the unlatching position, the fence plate holds the hub 61 against rotation and the dial wheels 40 can then be forcibly rotated to new combination positions by the owner to establish a new combination.

FIG. 7B discloses yet another construction of the dial wheel and hub assembly, wherein the dial wheel 70 is in the form of a rearwardly opening cup of similar construction as the dial wheel 60, having an annular cylindrical rim 70a bounding a forwardly opening cylindrical cavity 70b and including a central opening 70c which is of larger diameter than the opening 60c. The hub member 71 has an enlarged head portion 71a at its forward end of cylindrical configuration to frictionally fit into and be restrained normally against relative angular movement within the cavity 70b, and includes a rearwardly projecting, smaller diameter shank portion 71b having a flat 71c in its gating portion, and a constricted diameter cylindrical rearward end portion 71d projecting from the shank 71b to interfit in the openings 35c of the plate 35.

Still another form of dial and wheel assembly is illustrated in FIG. 8, wherein the dial wheel 80 is of cylindrical configuration, having the dial numbers on the cylindrical periphery 80a, and having a central opening 80b and a plurality of shallow recesses or grooves 80c in the front face of the dial wheel extending radially from the central opening 80b. The hub member 81 has a cylindrical shank portion 81a including a flat 81b near the rear portion thereof and a rearwardly extending, constricted diameter end portion 81c to interfit in the openings 35c of the plate 35. Additionally, the hub 81a includes an enlarged diameter head portion 81d at

its forward end having radially extending teeth 81e projecting rearwardly from the rearmost face of the head portion 81d to interfit in the radially extending recesses 80c of the dial wheel member 80. A wavy or undulating spring disc 82 having a central opening 82a of appropriate diameter to accommodate the cylindrical shank portion 81a of the hub is disposed between each dial wheel 80 and the front wall 26 of the lock housing number 25 to resiliently bias each dial wheel 80 forwardly to interengage its radial recesses 80c with the teeth 81e of the enlarged head of the hub member 81. When the proper combination has been dialed and the fence plate 35 is displaced to the unlatching position wherein the fence plate restrains the hub members 81 against rotation, the dial members 80 can then be manually rotated to new combination positions relative to the hub members 81, as the spring disc 82 will permit sufficient rearward axial movement of the dial wheels 80 during attempted rotation thereof to withdraw the teeth 81e from the recesses 80c and interfit them in other recesses 80c then the ones in which they were previously located.

It will be appreciated that each of the dial wheel and hub assemblies illustrated in FIGS. 5, 6, 6A, 7A, 7B and 8 may be employed in other types of latch and lock structures than the type shown in FIGS. 1 to 4. For example, each of these types of dial wheel and hub assemblies can be employed in a luggage lock of the type illustrated in U.S. Pat. No. 3,464,240 issued to Leo L. Brody and the applicant of the present application, wherein the lock housing is a hinged or pivoted member normally located in recessed position within the well of a cup member and which may be arcuately swung outwardly from the well to an unlatched position upon operation of a finger operated actuator or slide plate. The relevant components of the lock structure shown in said earlier U.S. Pat. No. 3,464,240 are illustrated in FIG. 9, the reference characters of FIG. 9 used herein being three digit reference characters in the one hundred series in which the last two digits correspond to the reference characters used in said U.S. Pat. No. 3,464,240. As illustrated in FIG. 9, the lock housing member is formed by the latch body 127 having bendable tongues 134 which are bent inwardly toward each other about the back of a rear tongue plate 135 having integral, rearwardly projecting, duplicate latch tongues 136 extending from the top and bottom edges thereof adapted to project into a keeper loop extending through either of the keeper slots in the top or bottom walls of the cup member of the luggage latch assembly. Interposed between the tongue plate 135 and the front wall of the latch body 127 is an actuator or slide plate 138 having an integral finger piece formation 139 on the end thereof which normally projects beyond the free end of the latch body 127 to be exposed to manipulation by the finger of the operator. Supported forwardly of the front wall 127' of the latch body 127 by a cover member 90 are a pair of dial wheel and hub assemblies 39, 39'. In the embodiment illustrated, the cover member 90 has bendable tabs 90a at the ends and sides thereof to extend through accommodating slots in the front wall 127' of the latch body 127 and be bent inwardly or outwardly to mount to cover member 90 on the latch body 127. Outwardly convex, rearwardly projecting flanges 90b are provided at the opposite ends of the cover member 90, and flange segments 90c are provided in the medial portions along the

sides of the cover member 90, to properly locate and permit rotation of the dial wheels 40 of the assemblies 39, 39' against the front wall 127', while the hubs 41 extend rearwardly through circular openings 127a' in the latch body front wall. The rear portions of the hubs have flats or other non-round gating formations thereon normally located in the circular portions of the openings 138a in the actuator or slide plate 138. When the dial wheel and hub assemblies are employed in the type of latch and lock construction disclosed in FIG. 9, there is no need for any flanges or enlarged heads at the front ends of the hubs and no need for constricted diameter rearwardly projecting end portions similar to the end portions 41c, as the dial wheel and hub units are retained in assembled relation between the cover member 90 and tongue plate 135. The dial wheels and hubs of the lock assembly illustrated in FIG. 9 may be releasibly restrained against relative rotation by any of the arrangements illustrated in FIGS. 5, 6, 6A, 7A, 7B or 8, so that the hubs are normally restrained against relative rotation with respect to the dial wheels but the dial wheels may be rotated to new combination positions relative to the hubs when the slide member 138 is held in the inwardly displaced, release position wherein the rear portions of the hubs occupied by the flats 41b are disposed in the extensions 138a' of the openings in the actuator or slide plate 138. The dial members are provided on the front faces of the dial wheels 40 in this embodiment, and are viewed through slight holes 90d in the cover member 90.

It will be apparent that the T-type gating formation as indicated at 51d in FIG. 6A can be provided on the hub members used with the swinging latch housing of FIG. 9 as well as other hub end formations. For example, a radial slot may be provided in the inner end portion of the hub, coactive with a complementary tongue or nose at a side of the openings in the actuator 138 to permit the actuator to be moved to release position when the proper combination is dialed, or a small eccentric boss may be provided on the inner end of each hub, and a circular opening encompassing the path of rotation of the respective bosses provided in the actuator, each opening having an extension slot for the boss of each hub to accommodate releasing movement of the actuator when the proper combination has been dialed.

What is claimed is:

1. A combination lock assembly comprising a keeper, a movable latch member supported for movement between latching and release positions including a housing and a formation to be projected into interlocking relation with said keeper, a pair of rotatable dial assemblies including dial wheels carried at the front of said housing for manipulation to angular positions forming a selected combination and hub members coupled therewith for rotation with the dial wheels and extending into said housing, a slide member guided for movement within the housing perpendicular to the dial wheel axes between release and locking positions, said slide member and hubs having coactive shaped surfaces for restraining said slide member at locking position when the dial wheels are displaced from the selected combination and shaped to accommodate movement of the slide member to release position when the dial wheels occupy said selected combination, said slide member having means restraining the hubs against rotation at the release position of the slide member, said

dial wheels having openings for receiving hub portions therein, said dial wheels and hubs having contacting confronting surfaces for releasibly intercoupling the dial wheels and hubs together at selected relative angular positions establishing the combination for the lock, a pair of relatively perpendicular diametric cross cuts extending through the hub portions occupying said openings of said dial wheels rendering the regions of the hub portions within said openings flexible radially inwardly to release the hubs from said dial wheels for permitting manual rotation of the dial wheels to other angular positions relative to their hubs for establishing other combinations for the lock when the hubs are held by the slide member in its release position.

2. A combination lock assembly as defined in claim 1, wherein said dial wheels each have a center opening having a plurality of circumferentially spaced recesses in the surface of the opening, and each of said hubs have projections at a location thereon to interfit in said recesses at any of a plurality of different angular positions relative to the associated dial wheel for establishing the combination of the lock assembly.

3. A combination lock assembly as defined in claim 1, wherein said hubs are each in the form of a separable member having a front hub portion releasibly seated in the opening of one of said dial wheels capable of angular movement relative thereto, and wherein the contacting confronting surfaces of the dial wheel and hubs normally restraining the front hub portions in the dial wheel openings with a frictional force which is sufficiently releasible when the front hub portions flex inwardly to be overcome upon manual rotation of the dial wheels when the hubs are held by the slide member in its release position.

4. A combination lock assembly as defined in claim 1, wherein said dial wheels each have a center opening having a plurality of circumferentially spaced recesses in the surface of the opening providing a plurality of circumferentially spaced, narrow substantially line of contact surfaces engaging confronting surfaces of the hubs.

5. A combination lock assembly as defined in claim 1, wherein each of said hubs have a flat formation thereon adjacent said slide member, said slide member having openings defining shaped surfaces thereof for cooperating with each of said hubs including round portions normally maintaining the slide member in locking position and non-round portions coactive with said flat formations to permit movement of the slide member to release position at selected angular positions of the hubs.

6. A combination lock assembly as defined in claim 2, wherein each of said hubs have a flat formation thereon adjacent said slide member, said slide member having openings defining shaped surfaces thereof for cooperating with each of said hubs including round portions normally maintaining the slide member in locking position and non-round portions coactive with said flat formations to permit movement of the slide member to release position at selected angular positions of the hubs.

7. A combination lock assembly adapted to be mounted on first and second wall portions of separable sections of a container adjacent a line of separation therebetween for securing the sections together, comprising a keeper to be affixed to the first wall portion, a latching unit to be mounted on said second wall por-

tion including an elongated base member, a latch member supported on said base member for movement between latching and release positions, said latch member including a housing having a catch projecting into selected alignment with said keeper for interlocking engagement therewith, a pair of rotatable dial wheels disposed at the front of said housing for manipulation to angular positions forming a selected combination, each of the respective dial wheels having hub portions coupled therewith and extending into said housing, a fence plate guided within the housing for movement between release and locking positions, said fence plate and hub portions having means normally restraining said fence plate at locking position including coactive formations accommodating movement of the fence plate to release position when the dial wheels occupy said selected combination, the fence plate having means for holding the hubs against rotation when the fence plate is at release position, said dial wheels having openings for receiving parts of the hub portions therein providing confronting contacting intercoupling surface formations for releasibly gripping the same together at selected angular positions establishing the combination of the lock, a pair of relatively perpendicular diametric cross cuts extending through the hub portions occupying said openings rendering the regions of the hub portions therein flexible radially inwardly to release the dial wheels from said hubs to permit manual rotation of the dial wheels to other angular positions relative to their hubs for establishing other combinations for the lock when the hubs are held by the fence plate in its release position.

8. A combination lock assembly as defined in claim 7, wherein said dial wheels each have a center opening having a plurality of circumferentially spaced recesses in the surface of the opening, and each of said hub portions have projections at a location thereon to interfit in said recesses at any of a plurality of different angular positions relative to the associated dial wheel for establishing the combination of the lock assembly.

9. A combination lock assembly as defined in claim 7, wherein each of said hub portions have a flat formation thereon adjacent said fence plate, and said fence plate being movable in a direction transverse to the dial wheel axes and parallel to said wall portions between release and locking positions, and fence plate having openings for each of said hub portions including round portions normally maintaining the fence plate in locking position and non-round portions coactive with said flat formations to permit movement of the fence plate to release position at selected angular positions of the hub portions.

10. A combination lock assembly as defined in claim 7, wherein said base member includes a base panel paralleling said wall portions, an outwardly projecting first lug on said base panel, and an inwardly projecting second lug on said fence plate disposed in intercepting alignment with the first lug along a path of movement of the fence plate toward release position when said fence plate is in locking position, said second lug being displaced transversely of the axis of said path when the fence plate is moved to said release position.

11. A combination lock assembly as defined in claim 7, wherein said latching unit comprises a cup member defining a forwardly opening elongated cavity bounded by an outer marginal frame, said housing being a box-like substantially rectangular member nested in said

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cavity for sliding movement therein between said latching and release positions, said housing having a front panel which is substantially flush with the plane of said outer marginal frame, and said dial wheels being disposed outwardly of said plane.

12. A combination lock assembly as defined in claim 8, wherein said latching unit comprises a cup member defining a forwardly opening elongated cavity bounded

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by an outer marginal frame, said housing being a substantially rectangular member nested in said cavity for pivotal movement outwardly of the cavity between said latching and release positions, said housing having a front panel which is substantially flush with the plane of said outer marginal frame, and said dial wheels being disposed outwardly of said plane.

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