Nov. 28, 1967 J. W. BLAKE 3,355,232

ASH RECEPTACLE FOR AUTOMOBILES

Filed Jan. 24, 1966

FIG. 1

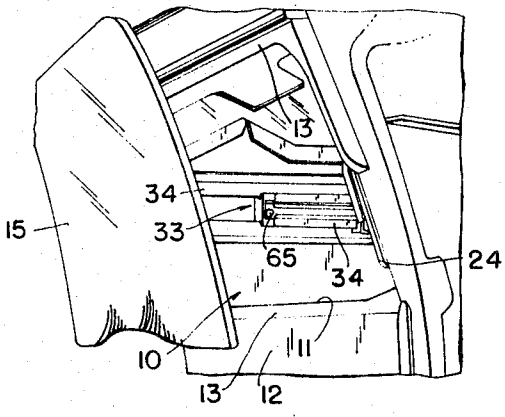


FIG. 2

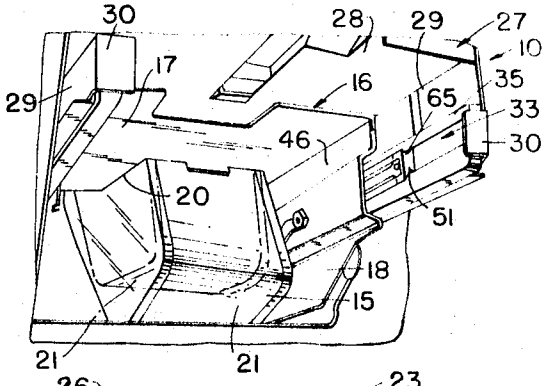


FIG. 3

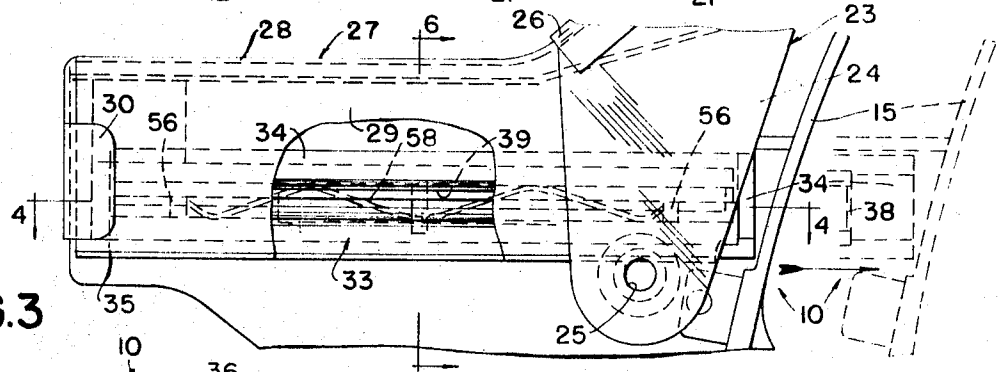


FIG. 4

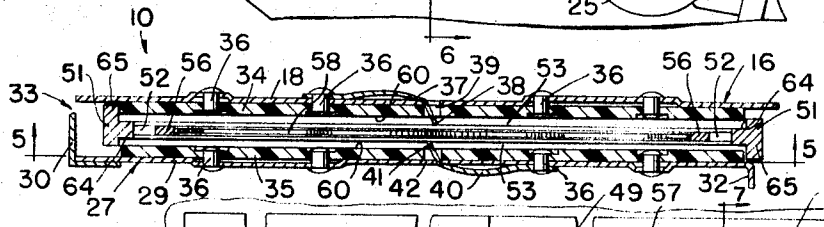


FIG. 5

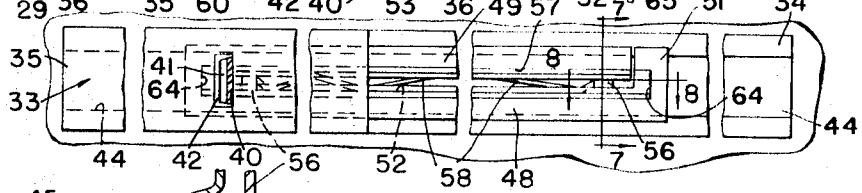
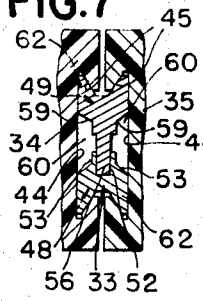


FIG. 7



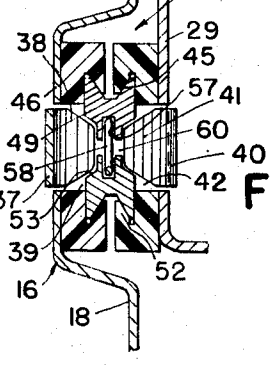


FIG. 6

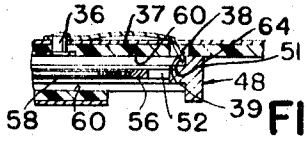


FIG. 8

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ASH RECEPTACLE FOR AUTOMOBILES

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13 Claims. (Cl. 312—242)

ABSTRACT OF THE DISCLOSURE

There is disclosed an ash receptacle for installation within an automobile dashboard, including an ash receiving receptacle body slidable from a fully retracted and enclosed position within the dashboard to a fully open position forwardly of the dashboard, in a successive compound slidable action relative to fixed mounting means for the receptacle. For this purpose, the mounting member is provided with a fixed way of plastic material on each of two sides within which the receptacle body is received; and the body is equipped on each of its outer sides with a guide. The guides present upper and lower, mutually facing and elongated guide surfaces; and a slide unit is received between each set of upper and lower surfaces for a compound sliding action therebetween.

Each slide unit is of two-part construction, including slide members in vertically spaced relation to one another in a common plane; and these members are biased away from one another for sliding guidance in the guide tracks by leaf spring means. Each guide member also has transversely extending formations at an end thereof, which formations are successively engaged by elements fixedly carried by the respective body and mounting members in the successive movements of the slide members and body relative to one another in the double-action withdraw and retraction of the receptacle.

An ash box is mounted at the forward end of the receptacle in a readily removable manner, enabling it to be emptied without removal of the body member of the receptacle from the mounting member.

The present invention relates to an automobile dashboard ash receptacle having an improved and lengthened compound or double extension action in sliding to a fully extended access position from a fully retracted closed position, and vice versa. The improvements pursuant to the invention also make possible a smooth, silent and non-binding slide of the receptacle which, coupled with the mentioned increased length of extension, have been impossible of attainment in comparable ash receptacles heretofore proposed. The improved receptacle pulls out to a position in which its ash box is conveniently accessible to the driver, without dangerously diverting his attention from the road, as well as to a front seat passenger.

It is an object of the invention to provide an improved automotive ash receptacle having a compound, double extension feature, incorporated therein by novel track and slide means, which makes possible a greatly increased length of extension to full access position, as compared with presently available designs, together with a smooth, silent and bind-free slide in being drawn out and retracted.

More specifically, the receptacle utilizes pairs of fixed and longitudinally movable guide track members at opposite sides of an elongated slidable receptacle body carrying the ash box or tray, which members are inexpensively molded, at relatively low equipment and material cost, of a suitable plastic composition having good anti-friction quality, such as nylon. One member of each pair is considerably elongated, approximating the length of the receptacle body, and is fixedly secured to a mounting housing or frame member, itself fixedly secured to the dashboard within the exposed forward upright panel of the

latter. The other track member horizontally parallels the first and is equally elongated in length, being fixedly secured to the side of the receptacle body, the track members of each pair being in close side-by-side relation to one another.

In accordance with the invention, each of the track members is molded to provide upper and lower track grooves in vertically spaced, parallel relation to one another for the reception of specially formed upper and lower slides. These slides are preferably in the form of inexpensively produced die castings.

In further accordance with the invention, each slide comprises an upper and a lower member or part disposed in fixed parallel and vertically spaced relation to one another. The upper slide part has upwardly forked legs shaped for mating sliding reception in the upper guide grooves of the fixed and movable track members, the legs and grooves being preferably of a triangular cross section. Similarly, the lower slide or slide part on each side of the receptacle unit has correspondingly shaped legs mating downwardly into track grooves of the fixed and movable track members of the pair; and the two slides are urged, by appropriate interposed spring means, in opposite vertical directions for a snug mate with the track members, though without setting up excessive and objectionable running friction.

Another object of the invention is to provide an automotive ash receptacle having improved slide and track means of the general sort described above, plus simple coupling means associated with the slides for coaction with the tracks in controlling the double extension sliding motion of the receptacle body between end limits at a fully drawn out position and a fully retracted or collapsed position. As hereinafter described in detail, such compound coupling and motion limiting means preferably take the form of leaf springs carried on the fixed mounting member and on the receptacle body member to project through openings in upright sides of the latter, and in the respective track members thereof; and the ends of the springs engage certain abutments on the track slides for the desired purpose. In this manner the motion of the box or receptacle body member is in part controlled in its extension movement, and is end-limited in its fully drawn out access position. Likewise, the slide parts have further abutment means at opposite ends thereof engaged with ends of the guide tracks on the sliding receptacle body and on the fixed housing member, thus to establish and limit the fully retracted position of the body, in which position an ornamental outer panel or escutcheon plate on the receptacle body comes laterally flush with adjacent surfaces of the vehicle dashboard.

Another aspect of the invention is in the provision of an ash receptacle as described, in which the sliding receptacle body carries adjacent its forward end an ash box or tray which can be manually removed for the dumping of its content, without disturbing the mount of the sliding member upon the dashboard. If desired, the body may also carry an electric lighter in this forward zone.

The foregoing as well as other objects will become more apparent as this description proceeds, especially when considered in connection with the accompanying drawings illustrating the invention, wherein:

FIG. 1 is a fragmentary perspective view showing the improved automotive receptacle of the invention, with its body member and associated slide unit partially drawn outwardly in relation to the dashboard; this view being from the front of the receptacle and dashboard;

FIG. 2 is a fragmentary rear perspective view showing the receptacle in a partially retracted or return position, just prior to final closure in relation to the dashboard, also indicating in dot-dash line the manner in which an ash

receptacle or box member, per se, may be removed from the receptacle body for emptying;

FIG. 3 is a fragmentary side elevational view of the receptacle body, partially broken away to expose a portion of its associated guide track and slide provisions, and with certain fastening rivet means omitted in the interest of simplicity and clarity; this view also showing in dotted line at the right the partially withdrawn position of the receptacle body;

FIG. 4 is a view in horizontal section, along line 4—4 of FIG. 3, of the guide track and slide means on one side of the receptacle body, when the latter is in a fully collapsed or retracted position within the dashboard, as in solid line in FIG. 3;

FIG. 5 is a view, partially broken away, in horizontal, upright section on line 5—5 of FIG. 4, showing the track and slide unit in a fully extended condition;

FIG. 6 is a fragmentary view in vertical transverse section on line 6—6 of FIG. 3;

FIG. 7 is a fragmentary view in vertical section on line 7—7 of FIG. 5; and

FIG. 8 is a fragmentary view in horizontal cross section on line 8—8 of FIG. 5.

Referring first to FIGS. 1, 2 and 3, the ash receptacle of the invention, generally designated by the reference numeral 10, is slidably receivable in a rather large size rectangular opening 11 stamped in the automobile dashboard 12, with some marginal recessing at 13 to receive the rectangular front escutcheon plate 15 of receptacle 10 in flush realtionship to surrounding portions of the sheet metal dashboard; and the plate 15 harmonizes in finish appearance with the dashboard.

In general, the receptacle 10, as rigidly secured appropriately to the rear of escutcheon plate 15, comprises a receptacle body 16 of considerable size in an inverted U-shaped cross section along its front-to-rear extent, as defined by a top receptacle panel 17, to which side walls 18 are fixedly secured at their tops, depending in substantially parallel relation to one another from top panel 17. Walls 18 each carry one of two elongated tracks of the receptacle structure 10, for coaction with a movable slide unit and a further elongated track fixed to mounting means for the unit 10, in a manner to be described. The sliding body member 16 of unit 10 is open at its rear.

In accordance with one aspect of the invention, the top receptacle body panel 17 is provided adjacent a side thereof, as shown in FIG. 2, with a rectangular opening 20, which opening removably receives from above a rather deep, rectangular ash box or tray 21. Appropriate means are provided for frictionally holding this ash box or tray in an operative, snapped-in position shown in solid line in FIG. 2, but enabling the box or tray 21 to be lifted out, as indicated in dot-dash line in FIG. 2, for emptying and cleaning, then replacement.

Accordingly, no provision need be made to remove the sliding receptacle body 16 from the dashboard for this purpose, as has been found necessary in previous designs discussed above; and this is one of the advantages of the present improvement. It is contemplated that suitable means (not shown) may also be made for the mounting on the top receptacle panel 17 of a conventional electric cigar or cigarette lighter, which may be readily connected and wired by reason of the extended accessibility of the receptacle body 16 made possible by the compound double extension track and slide means of the invention.

The body 16 is slidably received within a fixed mounting housing, also of inverted U-shaped cross sectional outline, which has means for fixedly mounting the same to the dashboard structure rearwardly of the opening 11. Such means may take the form, as shown in FIG. 3, of an inverted U-shaped yoke 23 having rigid depending parallel arms 24 embossed and apertured at 25 for a suitable bolt or rivet mount within the dashboard; and the yoke 23 may also be similarly formed at its top for this purpose. It is welded or otherwise fixedly secured along

an upwardly and forwardly inclined bridge portion 26 to a correspondingly inclined forward portion of a mounting member or housing 27 of receptacle 10. This housing includes a top panel 28 having integral upward side walls or panels 29, each provided at its rear (FIGS. 3 and 4), with a 90° inturned stop clip 30, which may, of course, also be an integral formation of wall 29. It is to be understood that the side walls 18 of receptacle body 16 are identically shaped (though oppositely oriented in lateral facing relation to one another). Similarly, the side walls 29 of the mounting housing 27 of the receptacle are identical, but oppositely oriented. As viewed in FIG. 4, the fixed housing wall 29 has an outwardly bent flange formation 32, however, this formation is non-functional.

Now referring to FIGS. 3 through 8, a track and slide unit 33 is associated with each side of the receptacle 10, between the wall 18 of its body member 16 and the fixed wall 29 of mounting member or housing 27. This unit comprises a pair of elongated guide tracks 34, 35 fixedly connected, in parallel, laterally spaced relation to one another, to the walls 18, 29, respectively, as by the series of rivets 36, which appear in FIGS. 4 and 8 but have been omitted from FIGS. 3 and 5 for clarity. One of such rivets also serves to connect a special leaf spring 37 to the outer surface of receptacle body wall 18, the end of spring 37 being bent inwardly at 38 and projected through a side hole 39 in wall 18 and track 34, midway of the length of the latter, for a purpose to be described. Another, similar leaf spring 40, externally secured to the fixed housing wall 29 by a rivet 36, has its inturned end 41 projecting through a hole 42 in the fixed housing wall 29 and guide track 35, for a generally similar purpose to be described. Pursuant to the invention, the tracks are equal in length and almost coextensive (FIGS. 3 and 4) with body 16.

As illustrated in FIG. 7, the guide tracks 34 and 35 on the respective receptacle body and housing members are molded in an identical cross section, though oriented oppositely in facing one another. Each includes a slide way 44 opening inwardly of the track-slide unit 33, which way presents an outer upright surface and, adjacent the top and bottom of the way, an inwardly inclined slide retainer surface 45. As indicated above, the tracks 34, 35 are coextensive in length, being molded of a suitable synthetic plastic compound having a low coefficient of friction, such as nylon. As shown in FIG. 6, the wall 18 of the receptacle body member 16 is inwardly relieved at 46 to afford space to receive the track and slide unit 33.

That unit is completed by a pair of elongated lower and upper slides 48, 49, respectively, the nature of which is best shown in FIGS. 4, 6, 7 and 8 of the drawing. That is, each elongated lower slide 48 is of U-shaped cross section in a horizontal plane along line 8—8 of FIG. 4. It is preferably in the form of a zinc or aluminum casting having upright end legs 51 (FIG. 5); and along its intermediate length it has an upwardly opening groove 52 between the legs 51 to accommodate a spring, to be described. Likewise, in the space between the legs 51, the bottom slide 48 is recessed inwardly at 53 on each of its sides.

The upper slide member 49 is of lesser length than lower slide member 48 being, as shown in FIG. 5, slightly shorter than the distance between the upright legs 51 of slide member 48; and, a bit within the ends of a slide member 49, the latter is molded to provide depending tang-like lugs 56, which project down into the slot 52 of lower slide 28. The two lugs 56 thus serve to space the slides 48, 49 vertically relative to one another.

Otherwise, as best shown in FIG. 6, upper slide 49 is provided, between its lugs 56, with a downwardly opening groove 57; and a mildly undulatory wire spring 58 is received in the upper and lower slide grooves 57, 52, respectively, of slides 49, 48, the ends of spring 58 being longitudinally restrained by and between the depending lugs 56 of the first named slide. Thus, spring 58 acts ver-

tically between slides **48**, **49** to exert a mild spreading action thereon to maintain the same in sliding engagement within the respective receptacle and mounting member tracks **34**, **35**, but without undue friction.

Like the lower slide **48**, the upper slide has recesses **59** in its opposite sides, which recesses coact with the recesses **53** of the lower slide in providing, in effect, elongated horizontal grooves **60** at either side of the slidetrack unit **33**, into which the inturned tongue ends **38**, **41** of the respective leaf springs **37**, **40** project, as shown in FIGS. 3, 6 and 8. As shown in FIGS. 7 and 8, the die-cast slides **48**, **49** are forked, being provided with triangular section leg extensions **62** to mate against the inclined surfaces **45** of the respective tracks **34**, **35**.

It will be noted (reference being had to FIGS. 3 and 8 in particular) that the upright end legs **51** of the lower slide **48** present, at one end of each of the side grooves **60**, an abutment shoulder **64**, against which the two ends **38**, **41** of springs **37**, **40** are adapted to engage when the slide unit **33** is fully extended, i.e., in the position of FIG. 8. Likewise, on the opposite side of the upright lower slide legs **51**, the latter are formed to project outwardly in lugs **65**; and in the fully contracted condition of the track and slide structure (FIG. 4) these lugs **65** are adapted to abut the ends of the respective tracks **34**, **35** to limit slide movement in this direction.

In operation, assuming that the body member **16** of the receptacle **10** is in the fully closed condition of its parts, represented in FIGS. 3 and 4 of the drawing, the stop lugs **65** of the slide unit **33** rest adjacent the ends of the track **34** on receptacle body wall **18** and the track **35** on the wall **29** of mounting housing **27**. A pull of the escutcheon plate **15** outward to the dotted line position of FIG. 3 will, for example, cause the fixedly related slides **48**, **49** on one side of the receptacle body to move outwardly with the body member track **34**, drawing the forward end stop lug **65** away from engagement with the forward end of the fixed, housing-attached slide **35**. This motion continues until the inturned end **38** of the spring **37** on receptacle body wall **18** at that side comes into engagement with the shoulder **64** at the forward end of guide groove **60**, whereupon the coupling connection thus effected results in a further outward extension of receptacle body **16** and its track **34** along the slides **48**, **49**, which are then in effect anchored to the fixed housing **27**. This motion in turn terminates when the forward leg shoulder **64** on bottom slide part **48** comes into engagement with the end **41** of the housing mounted spring **40** (FIG. 8), when the body **16** is stopped in fully extended position for use of the ash box **21** or a lighter (not shown) mounted thereon; and the ash box **21** may be conveniently removed, when desired, as indicated in dot-dash line in FIG. 2.

A reversal of motion attending a closing push on the receptacle escutcheon plate **15** has a reverse sequence of compound motion steps, until the slide end lugs **65** are engaged against opposite ends of the tracks **34**, **35**, as illustrated in FIG. 4. In regard to the track-slide unit **33** on the opposite side of the receptacle body **16**, the action is similar and coordinated.

It is thus seen that the compound motion of the receptacle **10** in the described manner is effected easily, noiselessly and in a smooth, non-binding fashion. The parts of the slide and track unit or structure **33** are such as to insure against undesired lost motion or vibration, and are such as to enable a minimum cost of production of the receptacle assembly.

Most important, however, the length of extension of receptacle body **16** to its full access position is substantially double the combined end-to-end lengths of the tracks **34**, as coupled together by the fully extended slides **48** and **49**. As the result, the ash box or tray **21** is presented to the driver at an approximately knee zone, or closer, permitting him to de-ash his cigarette or cigar without perceptibly taking his gaze from the road; and the same convenience is had for a front seat passenger.

What I claim as my invention is:

1. A guide structure for a longitudinally extensible ash receptacle, or a like device having a body member slidable in relation to a fixed mounting member, said structure comprising means providing a pair of parallel guide tracks each fixedly secured on a surface of one of said respective members and spaced vertically from one another in a substantially common plane, said tracks providing transversely spaced, parallel guide surfaces, and a slide unit having elongated, oppositely acting slide members spaced vertically from one another and movable longitudinally relative to one another in slidable engagement with and guidance by said respective guide surfaces, said slide unit being movable longitudinally relative to both of said tracks for a compound, double extension and retraction travel of said body member relative to said mounting member in the operation of said guide structure.

2. The guide structure of claim **1**, in which said slide members have spring means acting between and urging the same oppositely against said track guide surfaces.

3. The guide structure of claim **1**, in which said tracks are in close transverse relation facing one another with said slide unit interposed therebetween, and spring means acting between and urging said slide members oppositely against said track guide surfaces.

4. The guide structure of claim **1**, in which said tracks are provided with motion control means in substantially fixed relation to one another in the space therebetween, said slide members having formations adjacent the ends thereof engageable with said motion control means in effecting the extension travel of said body member.

5. The guide structure of claim **3**, in which said tracks are provided with motion control means in substantially fixed relation to one another in the space therebetween, said slide members having formations adjacent the ends thereof engageable with said motion control means in effecting the extension travel of said body member.

6. The guide structure of claim **1**, in which said tracks are provided with motion control means in substantially fixed relation to one another in the space therebetween, said slide members having formations adjacent the ends thereof engageable with said motion control means in effecting the extension travel of said body member, said track control means comprising a leaf spring externally secured to each of said body and mounting members and having an end projecting through the track thereof for engagement with a slide member formation to move said body member for said longitudinal extension travel, and to limit said extension travel.

7. The guide structure of claim **3**, in which said tracks are provided with motion control means in substantially fixed relation to one another in the space therebetween, said slide members having formations adjacent the ends thereof engageable with said motion control means in effecting the extension travel of said body member, said track control means comprising a leaf spring externally secured to each of said body and mounting members and having an end projecting through the track thereof for engagement with a slide member formation to move said body member for said longitudinal extension travel, and to limit said travel, at least one of said slide members having means abuttingly engageable with said body member track to limit opposite longitudinal retraction travel of said body member.

8. The guide structure of claim **1**, in which said members of said slide unit have mating transverse engagement to limit transverse movement thereof toward one another.

9. The guide structure of claim **4**, in which said members of said slide unit have mating transverse engagement to limit transverse movement thereof toward one another, said tracks being molded of a plastic material having a low coefficient of friction for lessened resistance to slide at said guide surfaces thereof.

10. The guide structure of claim **1**, in which said guide tracks are considerably elongated to provide a full exten-

sion of said body member approximating the combined length of the tracks.

11. The guide structure of claim 1, in which said guide tracks are considerably elongated and of substantially equal length, thus to provide a full extension of said body member approximating twice the length of each track.

12. The guide structure of claim 1, as combined with a receptacle body member having an ash box mounted thereon for ready removal, without removal of said body member from said mounting member.

13. A guide structure for a longitudinally extensible ash receptacle, or a like device having a body member slidable in relation to a fixed mounting member, said structure comprising means providing a pair of parallel guide tracks each fixedly secured on a surface of one of said respective members, said tracks providing transversely spaced, parallel guide surfaces, and a slide unit having elongated, oppositely acting slide members movable transversely relative to one another for slidable engagement with and guidance by said guide surfaces, said slide unit being movable longitudinally relative to both of said tracks for a compound, double extension and retraction travel of said body member relative to said mounting member in the operation of said guide structure, said tracks being in close transverse relation facing one another with said slide unit interposed therebetween, said slide members having spring means acting between and urging the same oppositely against said track guide surfaces, said tracks being provided with motion control means in substantially fixed relation to one another in the space therebetween, said slide members having formations adjacent the ends thereof engageable with said motion control means in effecting the extension travel of said body member, said track control means comprising a leaf spring externally secured to each of said body and mounting members and having an end projecting through the track thereof for engagement with a slide member formation to move said body member for said longitudinal extension travel, and to limit said travel, at least one of said slide members having means abuttingly engageable with said body member track to limit opposite longitudinal retraction travel of said body member, said members of said slide unit having mating transverse engagement to limit transverse movement thereof toward one another, said tracks being molded of a plastic material having a low coefficient of friction for lessened resistance to slide at said guide surfaces thereof, said receptacle body member having an ash box mounted thereon for ready removal, without removal of said body member from said mounting member.

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