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(54) **REMOVABLE CONSOLE ASSEMBLY FOR A MOTOR VEHICLE**

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(57) **ABSTRACT**

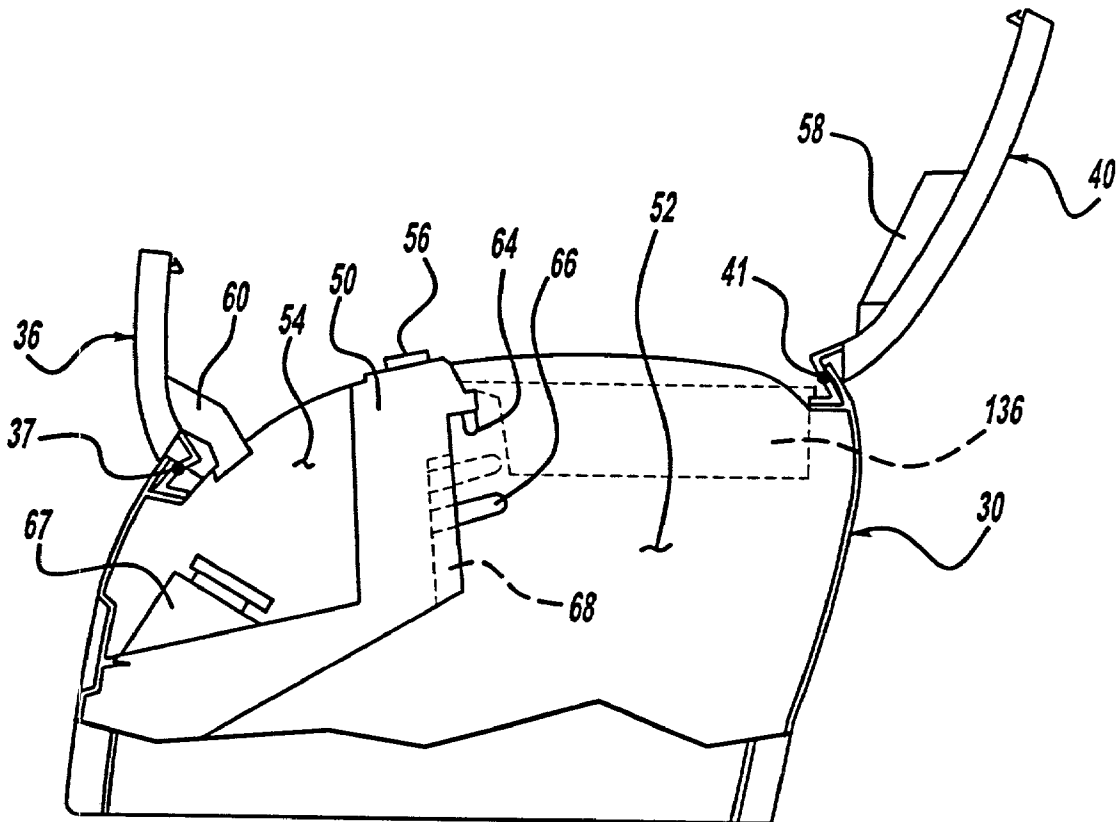
A removable console assembly is provided that includes an upwardly extending main body defining an inner cavity. The main body has an open upper side and first and second panels pivotally attached to the main body for providing access to the inner cavity. A locking mechanism selectively locks both the first and second panels to the main body to prevent access to the inner cavity. A mounting assembly is attached to the floor for releasably receiving the main body. A latching arrangement includes a latch extending from a bottom surface of the main body and a handle disposed within the inner cavity for manually operating the latch. An electrical connector is provided and includes a first and second portions. The first portion is carried by the mounting assembly and electrically interconnected to a battery of the motor vehicle. The second portion in selective electrical communication with the first portion for providing power to various components of the console assembly.

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(22) Filed: **Dec. 21, 2000**

**Related U.S. Application Data**

(63) Non-provisional of provisional application No. 60/175,054, filed on Jan. 7, 2000.



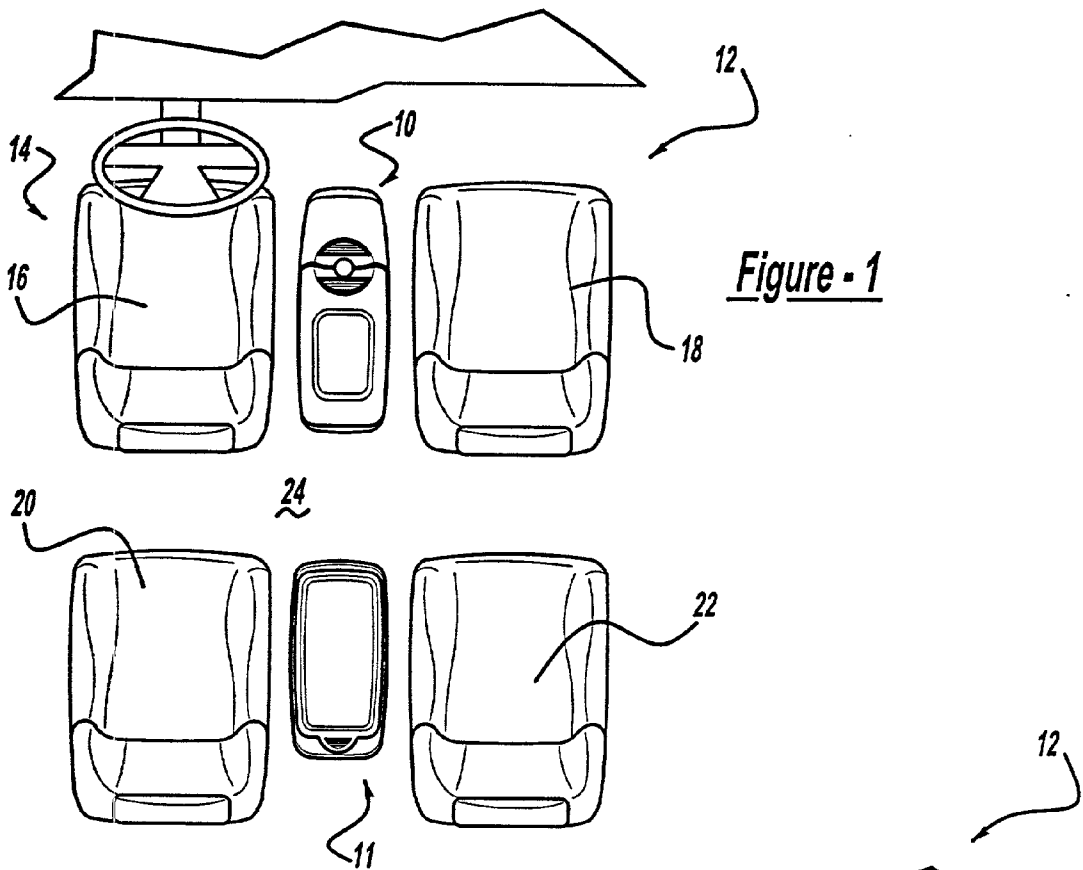


Figure - 1

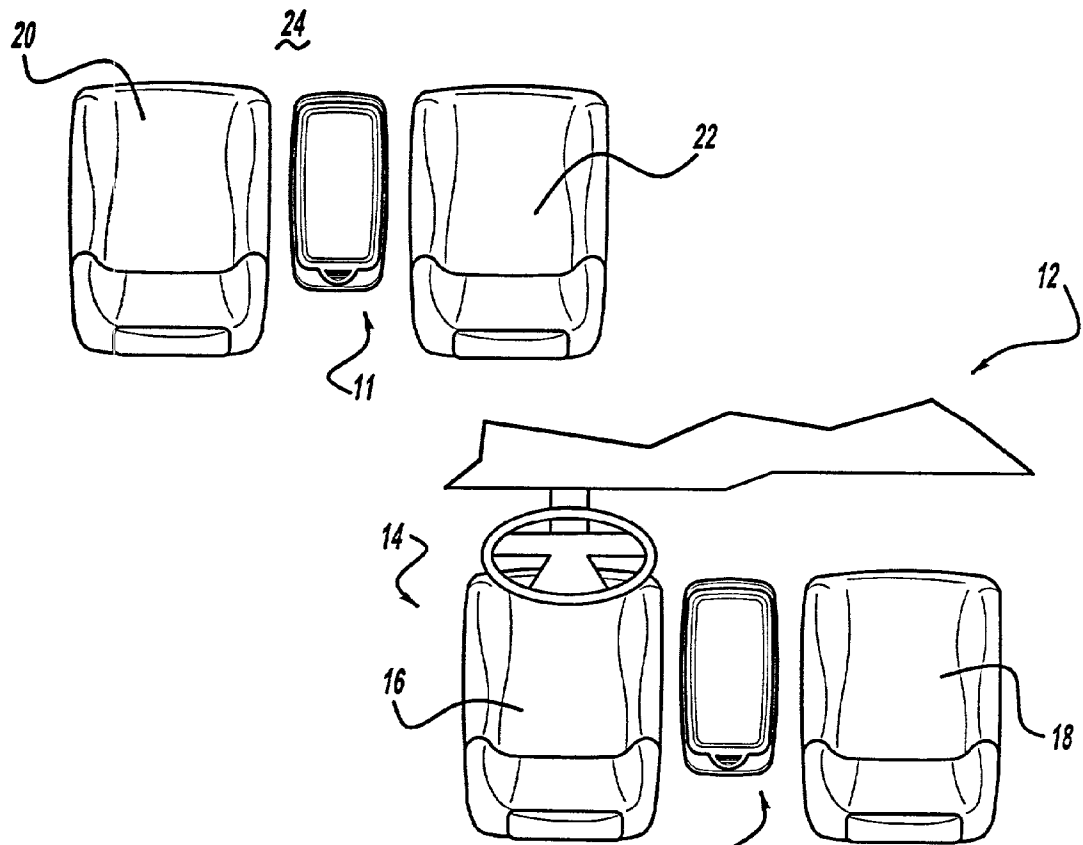
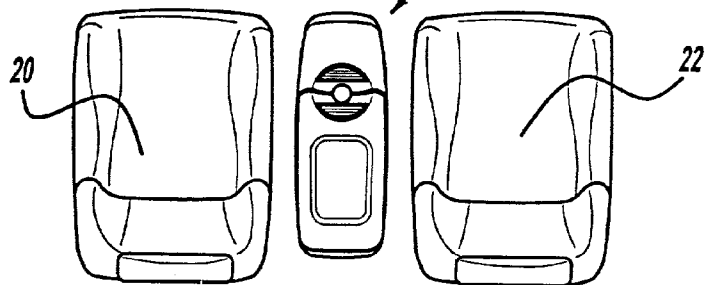


Figure - 2



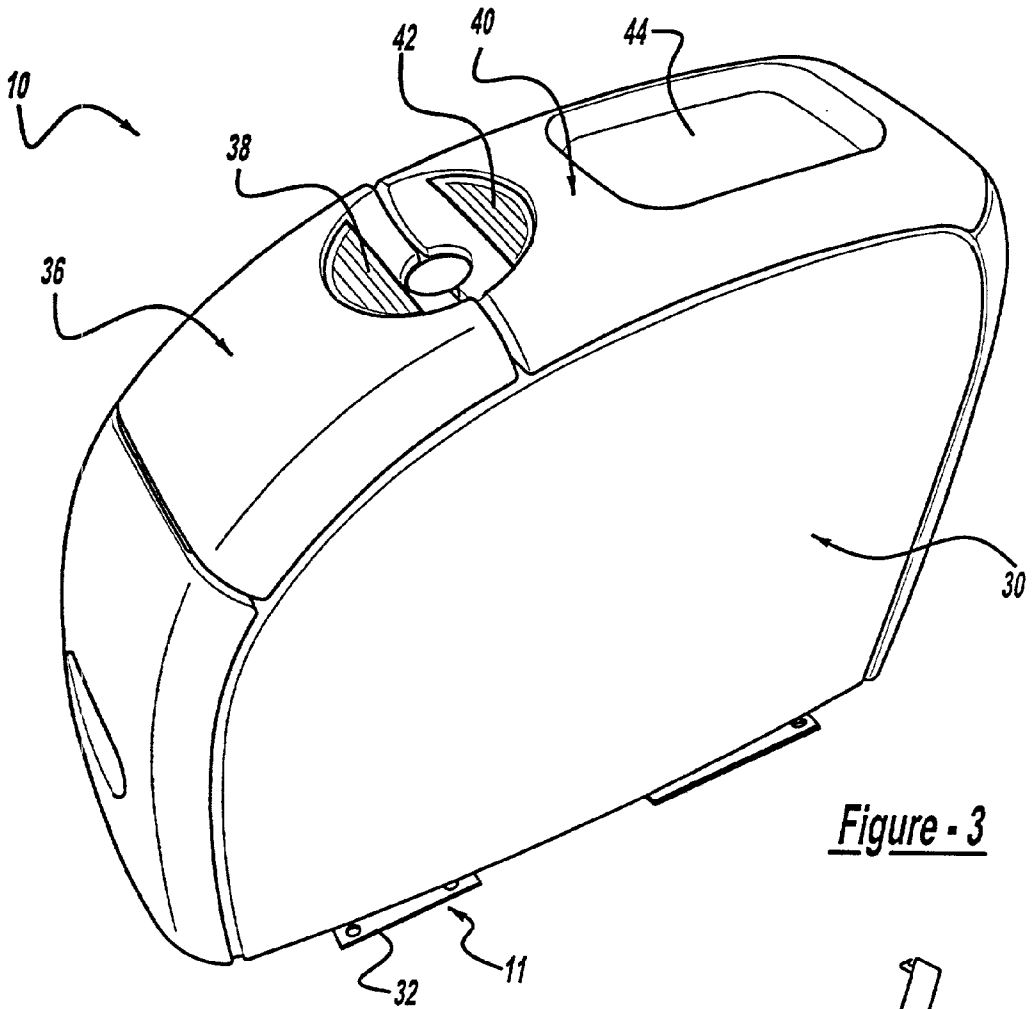


Figure - 3

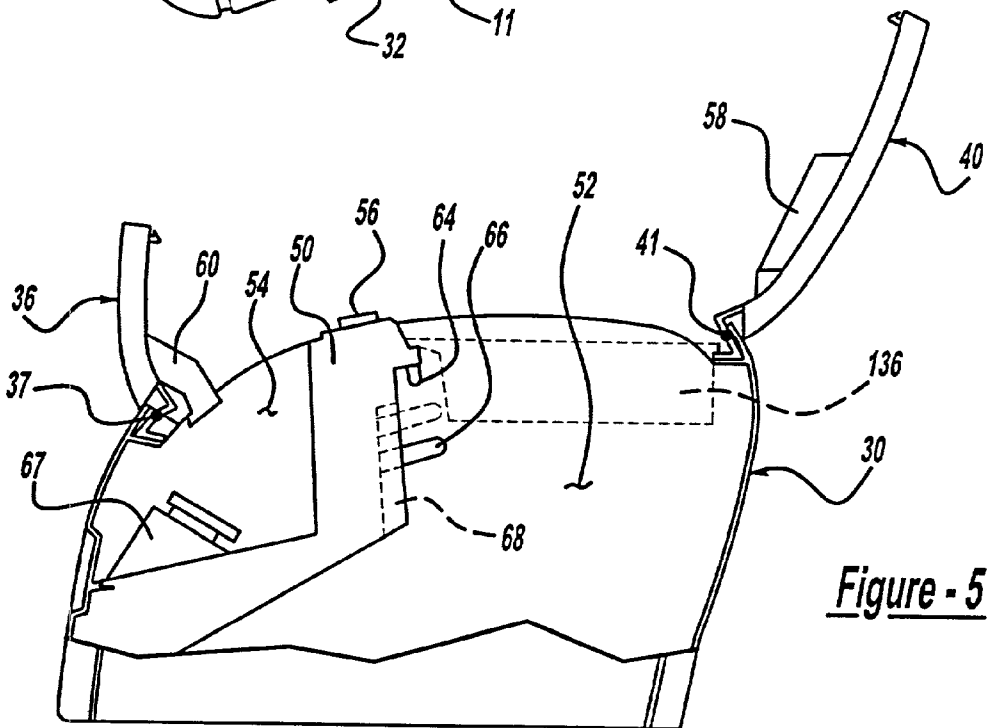


Figure - 5

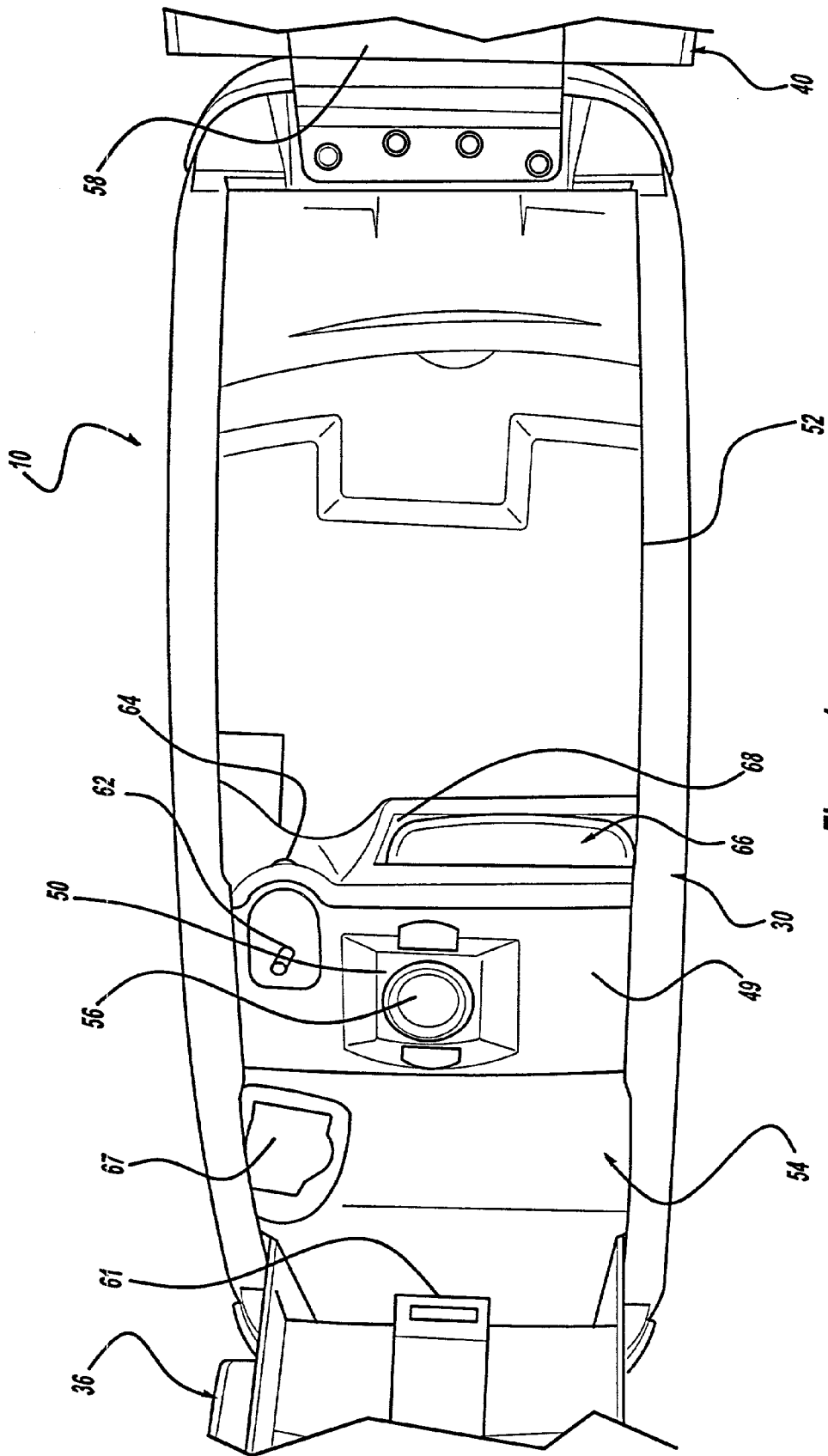


Figure - 4

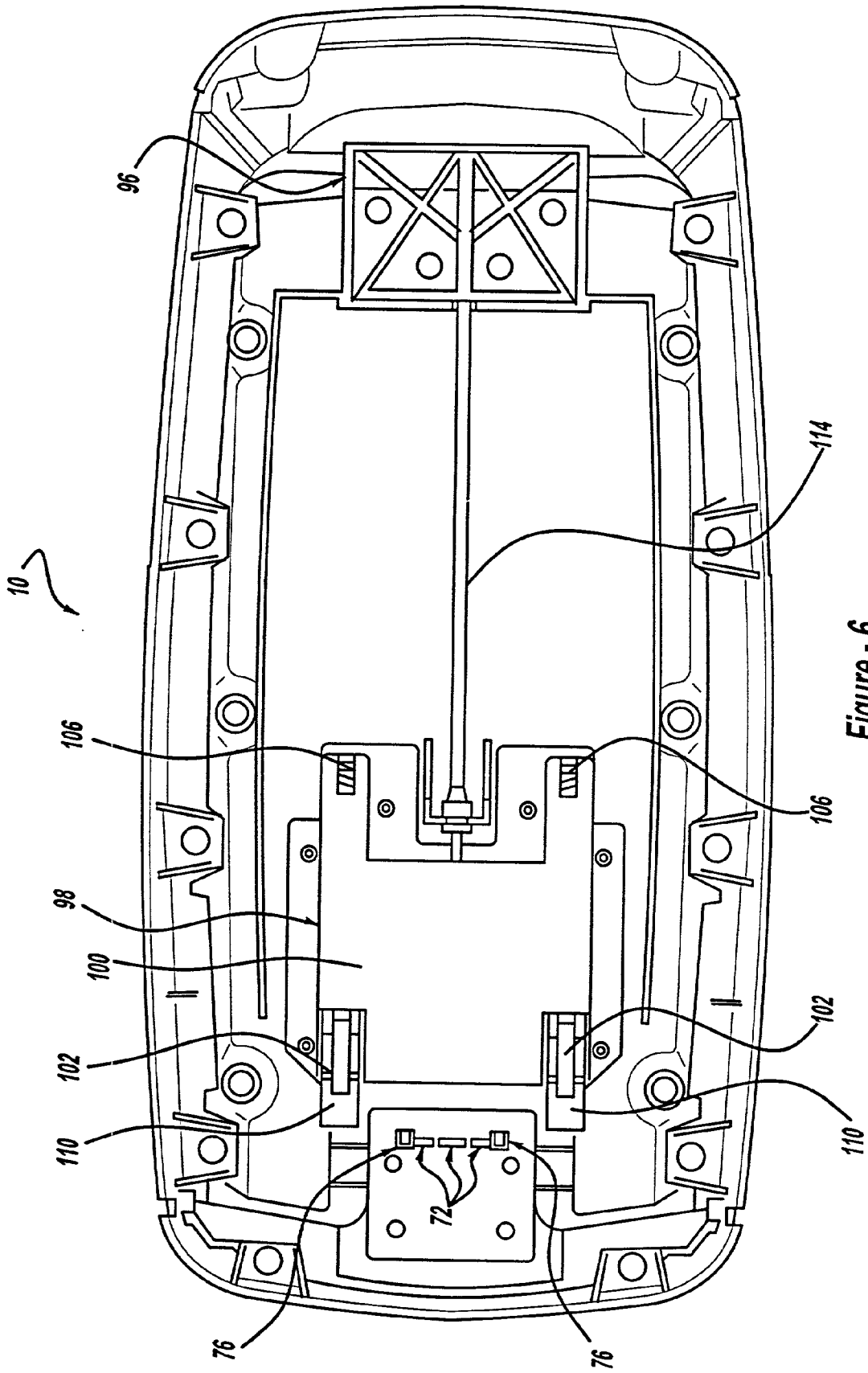


Figure - 6

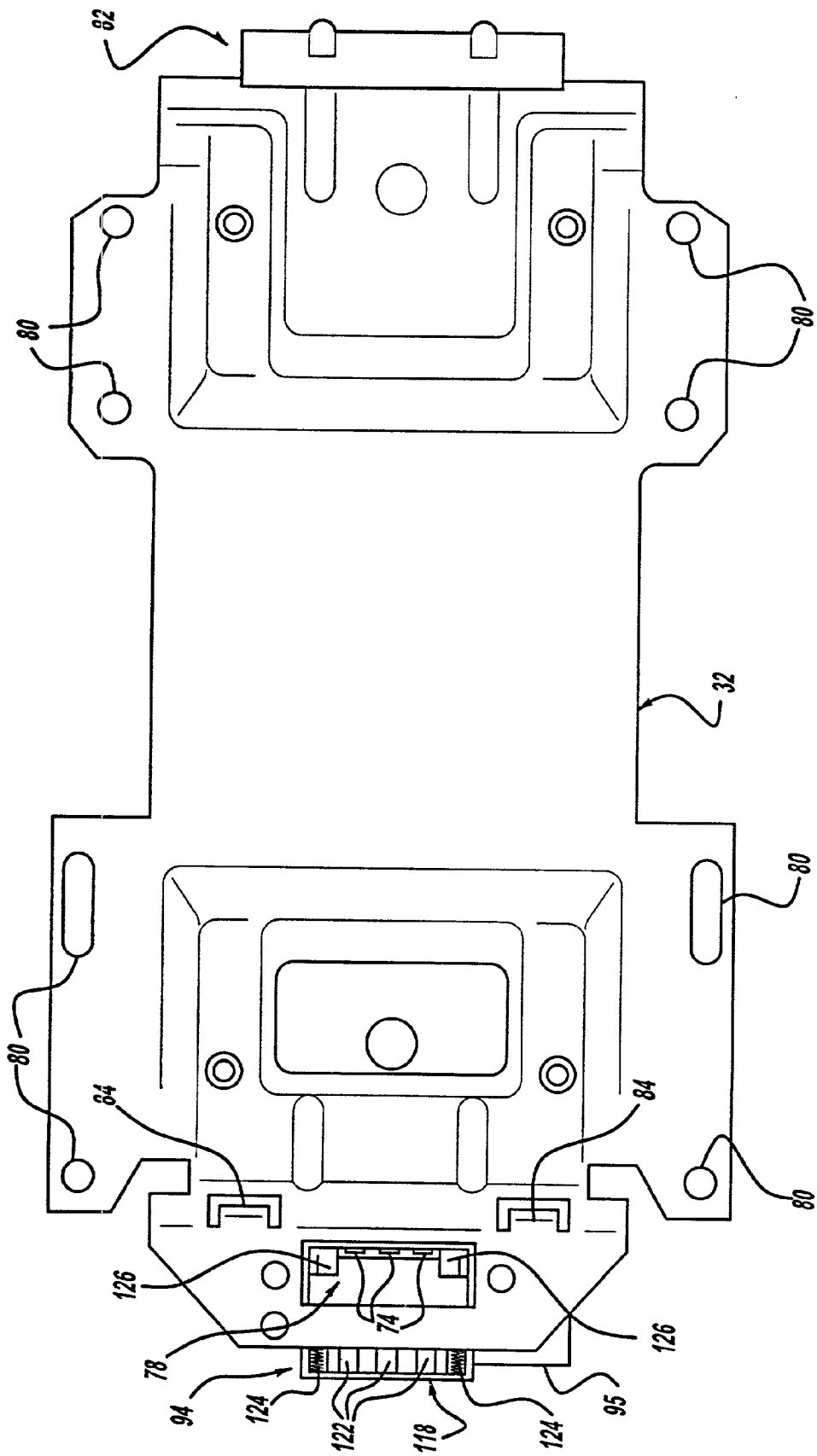
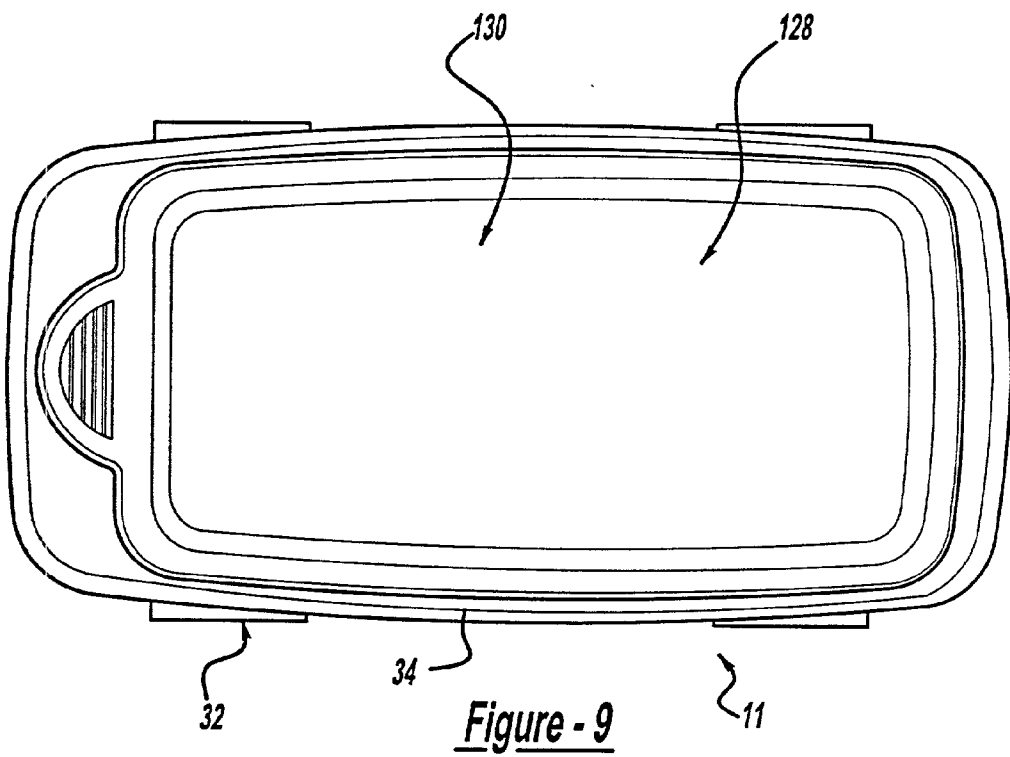
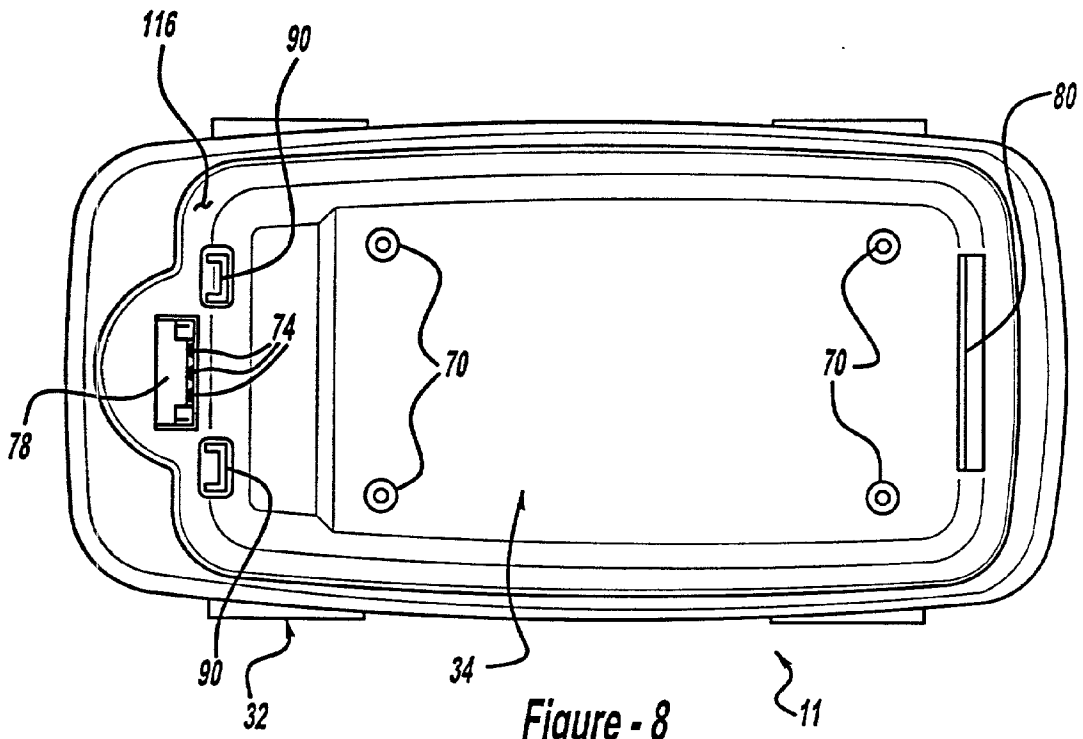


Figure - 7



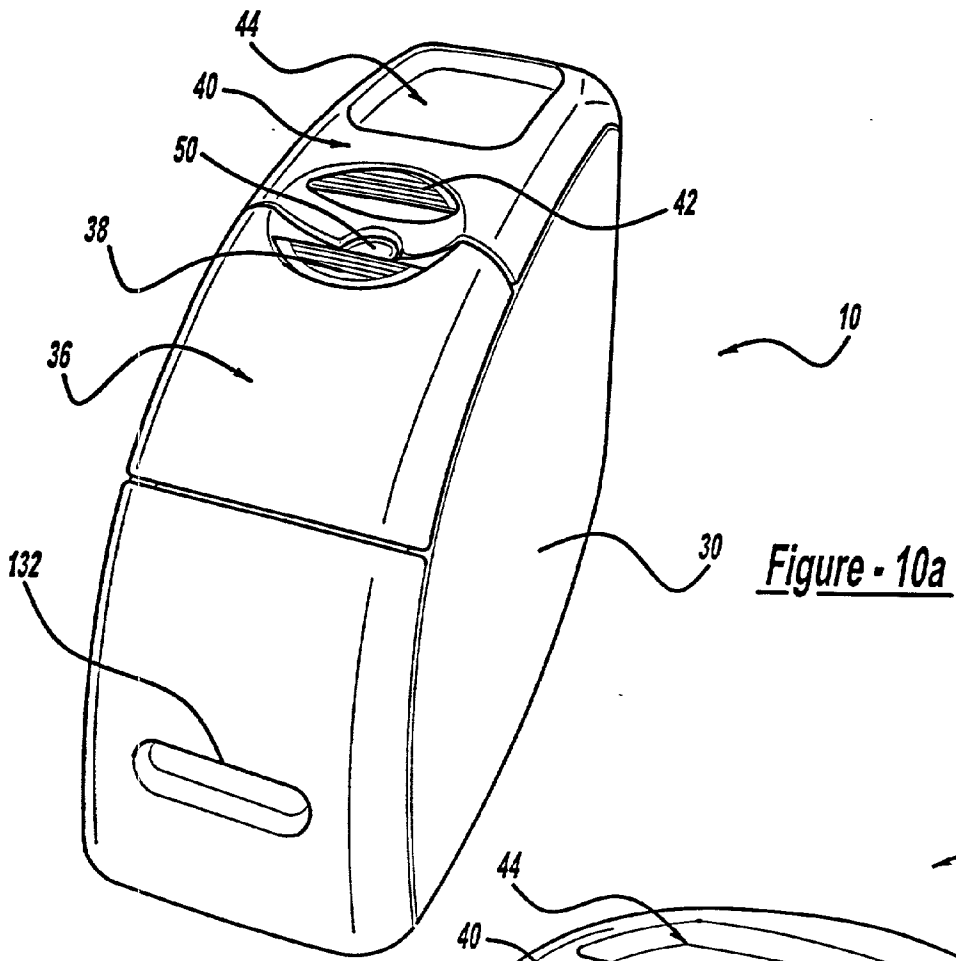


Figure - 10a

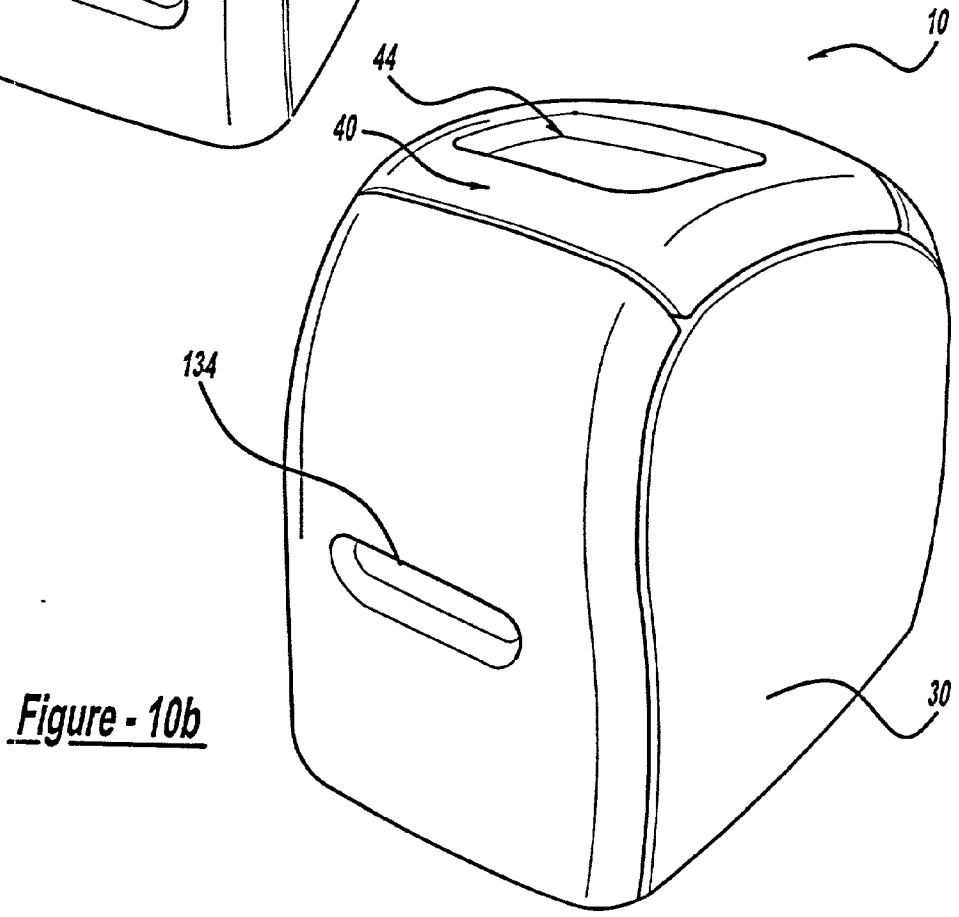


Figure - 10b



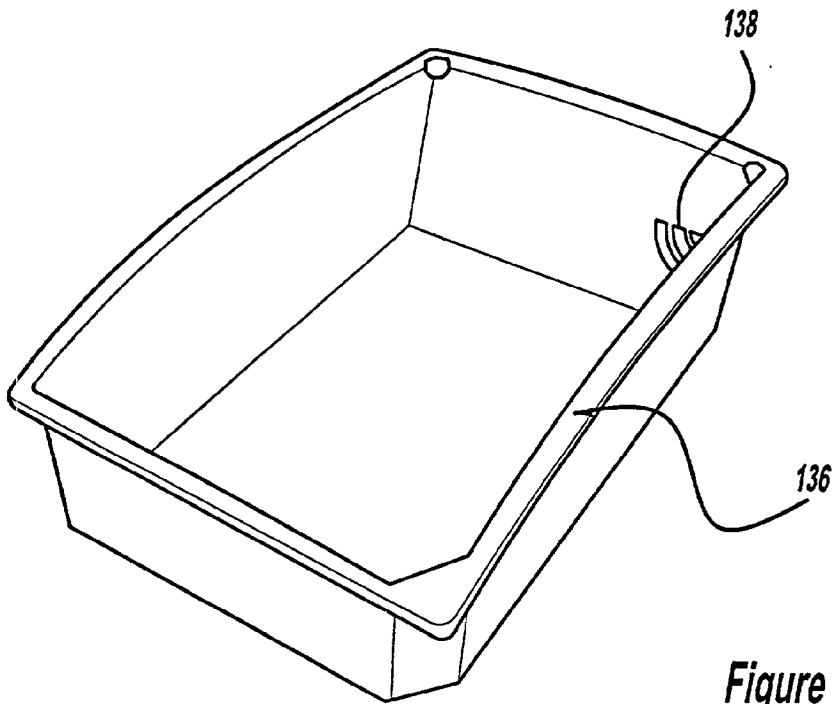


Figure - 11

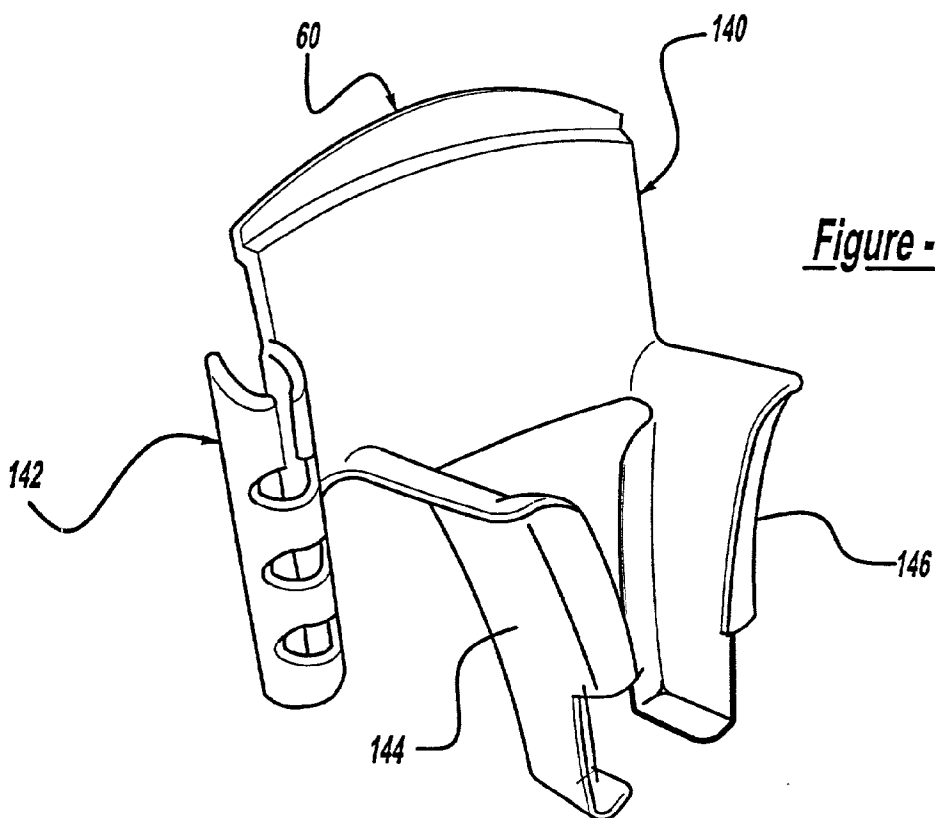


Figure - 12

## REMOVABLE CONSOLE ASSEMBLY FOR A MOTOR VEHICLE

### CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to a provisional application filed Jan. 7, 2000, and assigned U.S. Ser. No. 60/175,054.

### BACKGROUND OF THE INVENTION

[0002] 1. Technical Field

[0003] The present invention generally pertains to motor vehicles. More particular, the present invention pertains to a removable console for a motor vehicle.

[0004] 2. Discussion

[0005] The comfort and convenience of passenger vehicles has been a continuous goal of automakers. Significant features available in vehicles distinguish them from those produced by other automakers, making them more attractive for purchase by the general public. In adding such features, automakers must ensure that the overall level of product safety is maintained.

[0006] One concern for vehicle owners is the storage space available within a vehicle. To achieve added storage space, automakers have developed various consoles and other devices and methods for storage of items. However, consoles and other storage devices traditionally remain fixed to one location of a vehicle. This could limit potential interior configurations and offer the vehicle as an easier target for thieves.

[0007] By way of a non-limiting example, minivans typically have a second row of seats for additional occupants. Not only would storage space be required between the driver and the front seat passenger but also between two additional passengers in the second row of seats. As is well known, minivans are not only used as passenger vehicles but also as cargo vehicles. The rear row of seats are typically removable in order to provide space for larger cargo items. If a traditional console were to be introduced between the rear passenger seats, use of the vehicle for large cargo items would be limited, as the console is not removable. By introducing a removable console, this problem could be overcome.

[0008] By way of a second, non-limiting example, vehicle security is a concern for all vehicle owners. Particularly, vehicles with soft, convertible style tops are more susceptible to break-in, as the top can be easily torn open. Traditional storage consoles which are fixed in place, even though locked, are easily broken open once a thief has entered the vehicle. If a removable console were to be introduced, vehicle owners could take the complete console and its contents with them or temporarily locate the console in the vehicle trunk, effectively removing its access from potential thieves.

[0009] In light of the above examples and in an effort to increase comfort and convenience for vehicle occupants, it would therefore be desirable to have a storage console which is not only removable from but also re-locatable within a vehicle.

### SUMMARY OF THE INVENTION

[0010] It is a general object of the present invention to provide a removable console for a motor vehicle.

[0011] In one exemplary form, the present invention provides a removable console assembly for a motor vehicle having a floor. The removable console assembly includes an upwardly extending main body portion defining an inner cavity. The main body portion has an open upper side. The removable console assembly further includes first and second panels providing access to the inner cavity. The first panel is pivotally attached to the main body portion adjacent a forward upper edge of the main body portion. The second panel is pivotally attached to the main body portion adjacent a rear upper edge of the main body portion. A single locking mechanism is carried by the main body for selective locking of both of the first and second panels to the main body portion to prevent access to the inner cavity. A mounting assembly is attached to the floor releasably receiving the main body portion. A latching arrangement includes a latch extending from a bottom surface of the main body portion and a handle for manually operating the latch. The handle is disposed within the inner cavity. An electrical connector is provided including a first portion and a second portion. The first portion is carried by the mounting assembly and electrically interconnected to a battery of the motor vehicle. The second portion releasably and electrically engages the first portion. The first portion extends from the bottom side of the main body portion. A 12 volt outlet is disposed within the inner cavity and electrically connected to the first portion. A lamp is disposed within the inner cavity and electrically connected to the first portion.

[0012] Additional benefits and advantages of the present invention will become apparent to those skilled in the art to which this invention relates from a reading of the subsequent description of the preferred embodiment and the appended claims, taken in conjunction with the accompanying drawings.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0013] FIG. 1 is a top view of a vehicle passenger compartment including a removable console assembly constructed in accordance with the teachings of a preferred embodiment of the present invention, the console assembly shown operatively mounted in a first position within the passenger compartment of the vehicle;

[0014] FIG. 2 is a top view similar to FIG. 1, illustrating the console assembly operatively mounted in a second position within the passenger compartment;

[0015] FIG. 3 is a perspective view of the console assembly of the present invention illustrated with first and second panels articulated to closed positions;

[0016] FIG. 4 is a top plan view illustrating the inside of the console assembly having the first and second panels articulated to open positions;

[0017] FIG. 5 is a partially cut away side view of the console assembly detailing the internal structure of the console assembly;

[0018] FIG. 6 is a bottom plan view of the console assembly;

[0019] FIG. 7 is a top plan view of a mounting bracket;

[0020] FIG. 8 is a top plan view of the mounting bracket of FIG. 7 having a bracket cover attached thereto;

[0021] FIG. 9 is a top view of the mounting bracket and mounting bracket cover of FIG. 8, further illustrating a removable mat for use when the console assembly is not 10 connected to the mounting bracket;

[0022] FIGS. 10a and 10b are front and rear perspective views, respectively, of the console assembly;

[0023] FIG. 11 is a perspective view of a removable tray for setting in the inner cavity of the console assembly; and

[0024] FIG. 12 is a perspective view of a removable bracket for holding a cellular telephone within the console assembly.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0025] Referring generally to the figures, a removable console assembly constructed in accordance with the teachings of the preferred embodiment of the present invention is generally identified at reference numeral 10. As shown in the environmental views of FIGS. 1 and 2, console assembly 10 is particularly intended to be removably attached to a floor 24 of a motor vehicle 12.

[0026] In an exemplary embodiment, the motor vehicle 12 is shown to include a passenger compartment 14 having first and second rows of vehicle seats. The first row includes a driver seat 16 and a passenger seat 18. The second row of vehicle seats is located rearward of the passenger compartment and similarly includes a pair of seats 20 and 22. In the embodiment illustrated, the seats 16-22 are conventional bucket seats which are conventionally interconnected to a floor 24 of the motor vehicle 12.

[0027] In the environmental view of FIG. 1, the console assembly 10 is shown operatively attached to the floor 24 between the driver and passenger seats 16 and 18. In the environmental view of FIG. 2, the console assembly 10 is alternatively shown attached to the floor 24 between the seats 20 and 22 of the second row of seats.

[0028] A base unit 11 is fixedly attached to the floor 24. The base unit 11 enables selective attachment of the console assembly 10 thereto. As seen in each of FIGS. 1 and 2, the base unit 11 is accessible when the console assembly 10 is not attached thereto. Without attachment of the console assembly, the base unit 11 acts as a simple tray, described in greater detail hereinbelow.

[0029] In one application, the motor vehicle 12 is a minivan. However, it will become understood by those skilled in the art that the teachings of the present invention are applicable to various other motor vehicles including but not limited to trucks and the like.

[0030] FIG. 3 depicts a perspective view of the console assembly 10. The console 10 includes a main body 30, a first panel 36 and a second panel 40 for accessing the interior of the console assembly 10. Additionally, the first panel 36 has a latch handle 38 as well as the second panel 40 having a similar latch handle 42, each usable for opening the respective panel. The second panel 40 also forms a recessed area 44 for holding items. The console 10 is latched on top of the

base unit 11 which includes a base plate 32 and a base plate cover 34 (see FIGS. 8 and 9). Base plate 32 and base plate cover 34 will be described in greater detail below.

[0031] Both the first and second panels 36, 40 are pivotally attached to the main body 30, by hinges 37,41 respectively, as best shown in FIGS. 4 and 5. As depicted, the first and second panels 36, 40 are in an open position. A separation wall 50 runs between the sides of the main body 30, thus forming a first cavity 52 and a second cavity 54. Integrated into the top face of the separation wall 50 is a locking mechanism 56 which is used to selectively lock the first and second panels 36, 40. A combined map and tissue holder 58 is integrated into the second panel 40 as well as the first panel 36 having a detachable cellular phone holder 60. An electrical connection 67 is disposed within the second cavity 54. The separation wall 50 also includes a light switch 62 and a corresponding light 64 that is positioned to light the first cavity 52.

[0032] A latch handle 66 is slidably connected to the separation wall 50 and is operable to detach the console 10 from the base unit 11. The latch handle 66 is connected to a release mechanism 98 (see FIG. 6), the details of which will be explained in greater detail hereinbelow. The latch handle 66 is disposed within a slot 68 and is biased in a first position. The latch handle 66 can be moved from the first position (shown) to a second position (shown in phantom) for activating the release mechanism 98, thus detaching the console 10 from the base unit 11. Because the latch handle 66 is disposed within the console 10, it is not accessible when the first and second panels 36,40 are locked.

[0033] With reference to FIG. 6, a first set of interface connectors 72 extend from a bottom face and are in electrical communication with other electrical components of the console 10. Once mounted, the first set of interface connectors 72 mate with a second set of interface connectors 74 of the base unit 11 (see FIG. 7). Additionally, posts 76 are disposed on either side of the first set of interface connectors 72 and extend downward from the bottom face of the console 10. As the console 10 is attached to the base unit 11, posts 76 act on a connector block 78 (see FIG. 7), sliding the connector block 78 from a first position to a second position completing an electrical connection between the base unit 11 and the console 10.

[0034] The base unit 11 includes a base plate 32 and a base plate cover 34 as described earlier. The base plate cover 34 is attached to the base plate 32 via a plurality of screws extending through apertures 70. FIG. 7 shows the base plate 32 in further detail and FIG. 8 details the base cover 34. The base plate 32 is attached to the vehicle floor 24 by way of bolt or screw, through a plurality of holes 80. The base plate 32 also includes a primary latch receptor 82 and secondary latch receptors 84. The primary and secondary latch receptors 82, 84 are accessible through the base plate cover 34 through corresponding openings 80, 90. Towards a first end of the base plate 32 is an electrical connection unit 94 that includes an electrical connector 95. It should be noted that the base plate 32 is preferably in permanent electrical connection with a vehicle battery (not shown) via the electrical connector 95.

[0035] As best seen in FIG. 6, the bottom of console assembly 10 includes a primary latch 96 and a latch assembly 98 that interface with the primary latch receptor 82 and

secondary latch receptors **84**, respectively. The primary latch **96** can be integrally formed with the bottom of the console assembly **10** or attached thereto using any one of a number of fastening mechanisms commonly known in the art. The latch assembly **98** includes a latch plate **100** slidably attached to the bottom of the console assembly **10**. The latch plate **100** includes secondary latches **102** that extend downward from the console **10**. The latch plate **100** is biased in a first direction by springs **106**. The secondary latches **102** each include a sloped face **110**. As described previously, the latch assembly **98** is operatively attached to the latch handle **66**. The preferred embodiment of the present invention includes a cable **114** that operatively interconnects the latch plate **100** and the latch handle **66**. The biasing force of the springs **106** cause the latch plate **100** to pull on the cable **114**, thus biasing the latch handle **66** in the first position, as described hereinabove.

[0036] In attaching the console assembly **10** to the base unit **11**, initially, the primary latch **96** is received through opening **88**, into the primary latch receptor **82**. The console assembly **10** is then pivoted downward about the interface between the primary latch **96** and the primary latch receptor **82** until the sloped faces **110** of the secondary latches **102** rest upon a top surface **116** of the base cover **34**, immediately above the openings **90**. To finalize attachment, an operator pushes downward on the console assembly **10**, wherein the downward movement causes the sloped faces **110** of the secondary latches **102** to ride along the top surface **116** and thus forces the latch plate **100** to slide against the biasing force of the springs **106**. Having slid to a sufficient degree, the secondary latches **102** move downward past the top surface **116** and into the openings **90**, latching with the secondary latch receptors **84**. In this manner, the console assembly **10** is attached to the base unit **11** by the interface between the primary latch **96**, the secondary latches **102** and the primary and secondary latch receptors **82**, **84** respectively.

[0037] With reference to FIG. 7, the electrical connection unit **94** will now be described in detail. The electrical connection unit **94** comprises a main body **118**, the connector block **78**, interface connectors **74**, connector rails **122** and springs **124**. The connector rails **122** are in permanent electrical connection with a vehicle battery via a connector **95**. The interface connectors **74** are in selective electrical connection with the connector rails **122**. The connector block **78** is slidable within the main body **118** along the connector rails **122**. The springs **124** bias the connector block **78** in a first position wherein the interface connectors **74** are out of electrical communication with the connector rails **122**. When the console **10** is attached to the base unit **11**, the connector block **78** is slid into a second position wherein the interface connectors **74** contact the connector rails **122**. This is achieved by the posts **76**, that extend downward from the console **10**, acting on sloped surfaces **126** of the connector block **78**, thus pushing the connector block **78** against the biasing force of the springs **124**. The second position enables the connector block **78** to act as a bridge between the connector rails **122** and the interface connectors **74**. The interface connectors **74** contact the interface connectors **72** extending from the bottom of the console **10**, thus providing power to the console **10**. Upon detachment of the console **10**, the springs **124** again bias the

connector block **78** to the first position, thus breaking the bridge between the connector rails **122** and the interface connectors **74**.

[0038] As can be seen in FIG. 8, the base plate cover **34** is configured wherein only the second set of interface connectors **74** remain exposed. As a result of the above described operation of the electrical connection unit **94** vehicle occupants are safe from an electrical shock which could occur had the exposed interface connectors **74** remained in a connected state.

[0039] FIG. 9 depicts the base unit **11** as it would function without the attached console **10**. The base plate cover **34** is selectively covered by a formed mat **128**, made of a material such as a thermoplastic rubber. A recessed area **130** in the base plate cover **34** functions to hold various items (not shown) during vehicle operation.

[0040] Front and rear views of the console **10** are shown in FIGS. 10a and 10b, respectively. As shown, the front face of the main body **30** includes a first recess **132**, and the back face of the main body **30** includes a second recess **134**. Used in conjunction, the first and second recesses **132**, **134** serve as handles for holding the console **10** when not attached to the base unit **11**.

[0041] FIG. 11 depicts a holder tray **136** which may be introduced into the first cavity **52**. The holder tray **136** also has several openings **138** to allow light from the light **64** to pass through. Implementing the holder tray **136** enables items to be separated within the first cavity **52**. The holder tray **136** is also shown in phantom in FIG. 5.

[0042] FIG. 12 shows the detachable cellular phone holder **60**. The cellular phone holder **60** comprises two distinct portions which include a phone holding mechanism **140** and a pen holder **142**. The phone holding mechanism includes first and second flexible retaining arms **144**, **146** which flex accordingly to hold varying sizes of cellular phones. The cellular phone holder **60** can be attached and removed from the interior of the second cavity **54** using a clip (not shown) that clips to a bar **61** (see FIG. 4) attached to the first panel **36**.

[0043] While the invention has been described in the specification and illustrated in the drawings with reference to a preferred embodiment, it will be understood by those skilled in the art that various changes may be made and equivalents may be substituted for elements thereof without departing from the scope of the invention as defined in the claims. In addition, many modifications may be made to adapt a particular situation or material to the teachings of the invention without departing from the essential scope thereof. Therefore, it is intended that the invention not be limited to the particular embodiment illustrated by the drawings and described in the specification as the best mode presently contemplated for carrying out this invention, but that the invention will include any embodiments falling within the description of the appended claims.

What is claimed is:

1. A removable console assembly for a motor vehicle having a floor, the removable console assembly comprising:
  - a main body defining a cavity, the main body having at least one open side;
  - at least one panel providing access to the inner cavity;

- a latching arrangement including a handle for manually operating the latching arrangement, the handle disposed within the inner cavity; and
- a bracket assembly for attachment to the floor, the bracket assembly releasably receiving the main body and including:
- an electrical connection mechanism having a first member for permanent electrical connection with a battery of the motor vehicle and a second member selectively in electrical engagement with the first member;
  - at least one mounting point for receiving the latching arrangement for holding the removable console assembly in position on the bracket assembly; and
  - an electrical connector for selective electrical contact with said second member;
- wherein the console assembly is selectively releasable from the bracket, for one of either repositioning or removing the console assembly by operating the handle.
- 2.** The removable console assembly of claim 1, wherein the second member of the electrical connection mechanism is slidably engaged with the first member and the electrical connection mechanism further includes:
- a first set of connection tabs disposed within the first member, the first set of connection tabs for permanent connection with the battery;
  - a second set of connection tabs disposed on the second member; and
  - at least one spring for biasing the second member in a first disengaged position such that the second set of tabs are out of electrical connection with the first set of connection tabs;
- wherein the second member is movable to a second engaged position such that the second set of tabs are in electrical connection with the first set of connection tabs.
- 3.** The removable console assembly of claim 2, wherein the main body further includes at least one engagement post for positioning the second member in the second engaged position when the main body is received by the mounting bracket.
- 4.** The removable console assembly of claim 1, further including a light disposed within the inner cavity.
- 5.** The removable console assembly of claim 4, further including an electrical switch for selectively operating the light.
- 6.** The removable console assembly of claim 1, further including a cellular phone holder disposed within the inner cavity.
- 7.** The removable console assembly of claim 1, further including a tissue holder disposed within the inner cavity.
- 8.** The removable console assembly of claim 1, further including a removable tray disposed within the inner cavity.
- 9.** The removable console assembly of claim 1, further including a separation wall within the inner cavity, thus defining first and second sub-cavities within the inner cavity.
- 10.** The removable console assembly of claim 1, further including an electrical connector disposed within the inner cavity.
- 11.** The removable console assembly of claim 10, wherein the electrical connector is a 12-volt cigarette type connector.
- 12.** The removable console assembly of claim 1, wherein the bracket assembly functions as a tray when said main body is detached.
- 13.** A removable console assembly for a motor vehicle having a floor, the removable console assembly comprising:
- a main body defining a cavity, the main body having at least one open side;
  - at least one panel providing access to the inner cavity;
  - a latching arrangement including a handle for manually operating the latching arrangement, the handle disposed within the inner cavity;
  - a bracket assembly for attachment to the floor, the bracket assembly releasably receiving the main body, the bracket assembly including at least one mounting point for receiving the latching arrangement for holding the removable console assembly in position on the bracket assembly; and
- wherein the console assembly is selectively releasable from the bracket by operating the handle, for one of either repositioning or removing the console assembly.
- 14.** The removable console assembly of claim 13, further including a cellular phone holder disposed within the inner cavity.
- 15.** The removable console assembly of claim 13, further including a tissue holder disposed within the inner cavity.
- 16.** The removable console assembly of claim 13, further including a removable tray disposed within the inner cavity.
- 17.** The removable console assembly of claim 13, further including a separation wall within the inner cavity, thus defining first and second sub-cavities within the inner cavity.
- 18.** The removable console assembly of claim 13 further including an electrical connector disposed within the inner cavity.
- 19.** The removable console assembly of claim 18 wherein the electrical connector is a 12-volt cigarette type connector.
- 20.** The removable console assembly of claim 13 wherein the bracket assembly functions as a tray when said main body is detached.

\* \* \* \* \*