An airplane seat assembly is provided with a unique seat cushion for selectively varying the height of the seat, automatic return means for the back and seat, an indicating means to designate the seat number, and a disappearing headphone set which can be adjusted to accommodate the height of the user. The seat includes an inflatable bag which is interposed between the seat cushion and the seat base, and the inflatable bag includes a check valve which permits air to enter the bag but prevents the escape of air. The bag is filled with a resilient plastic material which expands the bag when the seat is not occupied to draw air into the bag through the check valve. When the seat is occupied, the valve can be opened to release a desired quantity of air to lower the level of the seat to accommodate the height of the user. The seat cushion is removable secured to the base to permit the withdrawal of the bag for use in emergencies. The seat is controlled by a constant rate torsional leaf spring so that it will raise when the occupant rises, and the back is hydraulically returned to the upright position when the seat is raised. The seat indicator includes an indica-carrying wheel rotatably mounted behind an opening in a panel mounted adjacent the headrest, and a spring urged plate engages flats on the wheel to releasably lock the wheel against rotation. When the seat designation is to be changed, the shaft on which the presser plate is mounted may be pushed against the urging of the spring to disengage the plate from the wheel to permit rotation thereof. The headphone set includes a plurality of telescopingly related tubes which are pivotally secured to each other. The tubes can be withdrawn from a channel or guide tube mounted in the back, and the extended tubes can be pivoted to position the earphone adjacent the ear of the user.

4 Claims, 33 Drawing Figures
AIRPLANE SEAT ASSEMBLY

BACKGROUND AND SUMMARY

With the increasing emphasis on passenger comfort, it is desirable to provide an airplane seat which can be readily adjusted for use by passengers of varying physical characteristics. Further, with the increasing use of airplanes for both passenger and cargo use, it is desirable to provide a seat assembly which facilitates the conversion of an airplane from a passenger carrier to a cargo carrier and vice versa.

The invention provides a seat assembly which can readily be adjusted to accommodate occupants of varying height, which facilitates the conversion of the airplane, and which provides an inflatable life preserver in the event of an emergency. The seat includes an air bag which can be deflated as desired to lower the height of the seat, and the bag can be withdrawn from the seat in emergencies for use as a life preserver. Seat-indicating means are located adjacent each headrest of the seat assembly, and the indicia of the indicating means can be changed when desired, as when the seat assemblies are installed to convert the plane to passenger-carrying use. The indicia-carrying indicator wheel is releasably but securely locked in the desired position in a tamper-proof manner. The headphones are normally concealed adjacent the headrest and can be withdrawn and adjusted as desired to accommodate occupants of varying height. The seat and back automatically return to raised positions when the occupant leaves his seat.

DESCRIPTION OF THE DRAWING

The invention will be explained in conjunction with an illustrative embodiment shown in the accompanying drawing, in which

FIG. 1 is a front perspective view of a two-passenger seat assembly with the backs up and the seats down in a sitting position;

FIG. 2 is a front perspective view of the seat assembly with one back reclined and one seat down and the other back and seat up in the normal unoccupied position;

FIG. 3 is a perspective view of a seat from below;

FIG. 4 is a perspective view of a seat showing the cover being removed;

FIG. 5 is a fore and aft sectional view of an unoccupied seat showing the air bag fully inflated;

FIG. 6 is a similar sectional view showing the air bag partially deflated, as when being used by a person of average height;

FIG. 7 is another sectional view showing the air bag further deflated, as when being used by a short person;

FIG. 8 is a perspective view of the air bag showing the air valve into which the push button control fits;

FIG. 9 is a similar perspective view of the other side of the air bag showing the air valve for inflating the air bag by mouth when it is to be used as a life preserver;

FIG. 10 is a perspective view of the assembled metal seat pan;

FIG. 11 is an exploded perspective view of the seat;

FIG. 12 is a view of the occupant blowing up the air bag by mouth in preparation for using it as a life preserver;

FIG. 13 shows the occupant wearing the inflated air bag as a life preserver;

FIG. 14 is a perspective view similar to FIG. 2 showing the middle arm rest folded back, one ash tray pulled out as in use, the under seat luggage retainer bar, and a hostess step;

FIG. 15 is a fragmentary perspective view of the middle arm rest showing the control panel;

FIG. 16 is a similar perspective view showing the middle arm rest folded back;

FIG. 17 is a fragmentary perspective view of the rear portion of the arm rest;

FIG. 18 is a sectional view through the arm taken along the line 18—18 of FIG. 15;

FIG. 19 is a fragmentary perspective view of the upper corner of a back showing the seat designation panel and one stereo head phone;

FIG. 20 is a sectional view along the line 20—20 of FIG. 19 showing the number and letter dials being changed;

FIG. 21 is a view similar to FIG. 19 showing the stereo head phone extended and adjusted;

FIG. 22 is a sectional view along the line 22—22 of FIG. 21 showing the number and letter dials locked in place;

FIG. 23 is a sectional view through the telescoped head phone;

FIG. 24 is a view similar to FIG. 23 showing the head phone extended and swiveled into place;

FIG. 25 is a top view, partially broken away, showing the two stereophonic head phones extended and positioned for use;

FIG. 26 is a rear perspective view of the seat assembly with one tray in the storage position and one tray in the use position.

FIG. 27 is a fragmentary view showing a portion of the seat and back return mechanism;

FIG. 28 is a side elevational view, partially broken away, of the left hand seat with the back reclined and the seat portion down;

FIG. 29 is a view similar to FIG. 28 with the back and seat in the upright positions;

FIG. 30 is a view similar to FIGS. 28 and 29 with the back pushed forwardly beyond its normal position;

FIG. 31 is a fragmentary side view of the seat in the lowered position;

FIG. 32 is a view similar to FIG. 31 showing the seat in the raised position; and

FIG. 33 is a fragmentary front view of the seats taken along the line 33—33 of FIG. 31.

DESCRIPTION OF SPECIFIC EMBODIMENT

Referring to FIGS. 1 and 2, the numeral 30 designates generally an airline seat assembly for two passengers. The assembly includes a frame 31, a pair of back portions 32 and 33, and a pair of seat portions 34 and 35. The frame includes supporting legs 36 for securing the seat assembly to the floor of the plane and a pair of outer stationary arm rests 37 and 38. A middle arm rest 39 extends between the two seats and is movable from the use position illustrated in FIGS. 1 and 2 to a generally vertical position illustrated in FIG. 14.

The backs 32 and 33 are rotatably mounted on the frame for movement between an upright position illustrated in FIG. 1 and a reclined position occupied by the back 32 in FIG. 2. The seats 34 and 35 are also rotatably mounted on the frame for movement between a generally horizontal position illustrated in FIG. 1 and an upright position occupied by the seat 35 in FIG. 2.
As will be explained more fully hereafter, when a passenger leaves his seat, the seat automatically swings upwardly to the upright position of seat 35 in FIG. 2 to provide maximum walking space for the passenger. Upward movement of the seat triggers a hydraulic operating mechanism which dresses the back to the upright position.

The seats 34 and 35 are identical, and for convenience the following description will apply to the seat 34. Referring to FIGS. 3-5, the seat 34 includes a generally rectangular top surface 40, a generally rectangular bottom surface 41, a pair of generally vertically extending sides 42, a slightly upward and forwardly inclined front 43, and a slightly upwardly and rearwardly inclined back 44.

Referring now to FIG. 11, the seat includes a generally pan-like metal base 45, a generally U-shaped side-reinforcing frame 46, a front stiffener 47, a box-like air bag 48, a cushion 49, and an upholstery cover 50. The metal base 45 provides a bag-receiving receptacle defined by a generally flat bottom 51, upwardly extending side walls 52, an upwardly extending front wall 53, and a generally S-shaped rear wall 55. The side-reinforcing frame 46 and stiffener tube 47 are received by the receptacle formed by the base, and the frame 46 includes a pair of side portions 56 and a rear portion 57. A bottom flange 58 extends inwardly from the bottom of each side portion and the rear portion. The forward portion of each of the sides 56 is cut away at 59 to accommodate the stiffener tube 47, which extends between the sides. When the seat is assembled, the stiffener tube 47 is positioned in the notches 59, and the stiffener tube and the side-reinforcing frame are positioned in the base 45 as shown in FIG. 10.

The air bag 48 is generally rectangular and is sized to be received by the enclosure formed by the side-reinforcing frame and the front stiffener tube. The bag includes spaced parallel upper and lower rectangular surfaces 60 and 61 (FIG. 9), and a perimetric side wall 62. The bag may be formed of plastic, rubber or other flexible air-tight material, and the interior of the bag is filled with plastic foam 63 (FIGS. 5-7), such as urethane, that expands when air is forced into it. The foam should be of a type that will retain air.

The foam cushion 49 is positioned above the air bag, and the upholstery cover 50 covers the components of the seat and holds them in position. Another foam cushion 64 is positioned below the base pan 45 and held thereto by a bottom upholstery panel 65. Referring to FIG. 4, the upholstery cover 50 includes front and rear flaps 66 and 67, respectively, and side flaps 68 and 69. When the seat is assembled, the upholstery cover is fitted over the foam cushion 49, reinforcing frame 46 and base pan 45, and the flaps 66-69 are secured to the lower surface of the bottom upholstery panel 65. The flaps can be secured by means of double-faced interlocking or adhesive strips 70, strips of interengagable nylon hooks and loops such as Velcro strips, or the like.

The air bag 48 is provided with a conventional check valve 71 having a stem which extends through opening 72 in the side-reinforcing frame 46 and opening 73 in the upholstery cover 50. The check valve permits air to enter the inflatable bag, but prevents the escape of air from the bag unless the valve element is held open. The valve element may be opened as desired by a valve actuator 74 which includes a valve depressor 75, pushbutton 76, and a sheathed cable 77 for transmitting the linear movement of the pushbutton to the depressor. The pushbutton 76 may be operatively connected to a button 78 (FIG. 15) in the center arm rest 39 to permit the occupant to actuate the valve 71 as desired.

A fore and aft cross-sectional view of an unoccupied seat is shown in FIG. 5. When the seat is unoccupied, the resilient filler material 63 within the bag expands the bag to the position illustrated, drawing air in through the check valve 71. When the occupant sits in the seat, the check valve 71 will prevent the escape of air from the air bag, and the top of the seat will be maintained relatively high above the floor of the plane.

In this condition the seat will accommodate a relatively tall occupant, who will want a maximum amount of leg room.

A person of average height might desire to have the top of the seat positioned a little closer to the floor of the plane, and such an occupant can press the operating button 78 to cause the valve depressor 75 to open the check valve to release the desired amount of air from the bag. FIG. 6 shows a cross-sectional view of the seat with the bag partially deflated to accommodate an occupant of average height.

A short occupant may wish to release even more air from the bag to permit his feet to rest solidly on the floor of the plane, and FIG. 7 shows a cross-sectional view of the seat with the bag further deflated. When the occupant leaves the seat, the resilient filler material 63 expands the bag to the unoccupied position illustrated in FIG. 5, drawing air into the bag through the check valve.

If the airplane must land over water, the seat can be quickly disassembled to remove the air bag for use as a life preserver. The upholstery covers 50 and 65 are removable secured by the strips 70, and these covers can be quickly and easily separated. The upholstery cover 50 can then be pulled away to expose the other components of the seat, and the air bag 48 can be removed.

Referring to FIG. 9, the side of the air bag opposite the valve 71 is provided with an air valve 80 and an inflating tube 81 which permits the air bag to be fully inflated by blowing air into the air valve as illustrated in FIG. 12. The air valve 80 may be a conventional check valve which permits air to be forced into the bag but prevents the escape of air, or the valve can be replaced by a simple tube which can be capped to prevent the escape of air. After the bag is removed from the seat, it can be fully inflated by mouth to provide maximum effectiveness as a life preserver.

A looped strap 82, which may be of the same material as the air bag 48, and molded integrally therewith, is secured to one of the sides of the air bag and extends therebeyond to provide a pair of arm loops 83 and 84. The inflated air bag can be worn as a life preserver by inserting an arm through each of the loops 83 and 84 to position the bag against the chest as shown in FIG. 13.

**SEAT-INDICATING MEANS**

Referring now to FIGS. 19-22 a box-like frame 85 is mounted on the back 32 adjacent the headrest 86 thereof. The frame 85 includes side panels 87, only one of which is shown and a front panel 88 which is provided with seat-designation openings 89, 90 and 91. A wheel 92 is rotatably mounted within the frame on an
axle 93 which extends between the side walls of the frame, and a wheel 94 is rotatably mounted on axle 95. The wheel 92 includes a rim 95 having a knurled portion 96 along one side thereof and a polygonal central portion 97 which includes a plurality of flat surfaces 98. Suitable designating indicia such as letters or numbers can be imprinted on the flats 98, and the wheel 92 is positioned relative to the opening 91 so that each flat and the indicium thereon will be positioned adjacent the opening as the wheel is rotated.

Similarly, the wheel 94 includes a rim having a knurled circular portion 99 and a polygonal portion having indicia-bearing flat surfaces 100 which pass directly behind the opening 89 as the wheel rotates. Another indicating wheel 101 (FIG. 19) is rotatably mounted on the axle 95 for rotation behind the opening 90.

In the particular embodiment illustrated the wheels 94 and 101 are imprinted with numbers, and the wheel 95 is imprinted with letters to provide both a numerical and letter designation for each seat. For example, the indicating wheels in FIG. 21 are set to designate seat 120.

When the indicating wheels are set to provide the desired designation, they are releasably locked by a presser plate 102 carried by a shaft 103. The shaft is slidable mounted on the axle 95 by means of longitudinally extending slot 104 and extends slidable through an opening in a downwardly extending support bracket 105 secured to the frame 86. A helical spring 106 encloses on the shaft between the axle 95 and an abutment flange 107 secured to the shaft urges the presser plate against the indicator wheels. When the wheels are set to position the desired indicia in the openings 89-91, a flat of each of the wheels extends parallel with the presser plate, and the spring 106 urges the presser plate into engagement with these flats to restrain rotation of the wheels.

The forward end of the shaft 103 is aligned with an opening 108 in the front panel 88, and the presser plate can be moved rearwardly when it is desired to change the seat designation by inserting a key or other relatively sharp object through the opening 108 and pushing the shaft 103 against the bias of the spring as shown in FIG. 20. With the shaft held in its rearward position illustrated in FIG. 20, the indicating wheels can be rotated as desired to change the seat designation, the knurled portions of the wheels facilitating rotation thereof with one finger. When the wheels have been rotated to position the desired indicia in the panel openings, the shaft 103 can be released to lock the wheels. The length of the shaft 103 is such that the forward end thereof is positioned slightly behind the opening 108 when the wheels are locked to make it difficult to unlock the wheels without a tool and to prevent unauthorized changing of the seat designation.

The seat designation numbers are located adjacent the headrest of each of the backs so that each occupant will have no difficulty in determining his proper seat. The seating assembly is movably secured to the floor of the airplane, and if the airplane is to be converted to cargo-carrying use, the seating assemblies can be readily removed. When the plane is reconverted to passenger service, each seating assembly can be secured to the airplane floor without regard to its prior location since the designation of each seat can be easily changed to indicate its new position.

HEAD PHONE

Each of the housings 85 adjacent the headrests is equipped with a head phone assembly 110 which can be retracted into the housing when not in use (FIG. 19) and withdrawn therefrom for positioning adjacent the ear of the occupant (FIG. 21). The front panel 88 of the frame or housing is provided with an opening 111, and a generally rectangular guide tube 112 is mounted within the frame behind the opening. The guide tube 112 telescopically houses outer, intermediate, and inner tubes 113, 114 and 115, respectively, which can be telescoped within the guide tube so that only the end of the inner tube 116 projects through the opening 111 (FIGS. 19 and 23) and which can be withdrawn for use (FIGS. 21, 24 and 25).

The rearward end of the outer tube 113 is pivotally secured by a pin 116 to a bracket 117 which is slidable mounted within the guide tube 112. The bracket 117 includes shoulders 118 which are engageable with corresponding shoulders 119 on the forward end of the guide tube 112 to prevent withdrawal of the bracket from the tube. Similarly, the rearward end of the tube 114 is pivotally secured by pin 120 (FIG. 25) to bracket 121 which is slidably received within tube 113 but which cannot be withdrawn therefrom, and tube 115 is pivotally secured by pin 122 to bracket 123 which is slidally received by the tube 114 and retained therein.

The pivot pin 116 extends generally horizontally, and the pivot pins 120 and 122 extend generally vertically, and the tubes 113-115 can thereby be swiveled up and down about the pin 116 as illustrated by the solid and phantom lines in FIG. 21 while the tubes are rotated in generally horizontal planes relative to each other to position the earphone 124 carried by the tube 115 adjacent the ear of the occupant. The head phone can be swiveled upwardly as at 110a in FIG. 21 for a relatively tall person, and can be swiveled downwardly as at 110b in FIG. 21 for a relatively short person.

A similar head phone assembly 125 is mounted within a housing 126 secured to the back at the other side of the headrest. The head phone assemblies are designed to position the ear phones thereof close to, but not touching, the occupant's ears, so that the occupant can enjoy stereophonic sound while retaining freedom of movement. The sound can be adjusted to the level preferred by the occupant but yet still be soft enough so that it will not disturb the person seated next to him.

CENTER ARM REST

The center arm rest 39 is rotatable between a lowered position illustrated in FIG. 1 and a raised position illustrated in FIG. 14. However, the arm rest is generally retained in the lowered position except for special situations such as cleaning the plane, moving the seating assemblies, or removing the seats to use the air bags as life preservers.

The arm rest is hingedly secured to a generally vertically extending support 130 by a plurality of hinge brackets 131 which extend rearwardly from the arm rest and a plurality of upwardly extending hinge brackets 132 on the support. The hinge brackets are rotatably secured by a hinge pin 133.

The arm rest includes an elongated tubular metal core 134 (FIG. 18) which is surrounded by self-coating film foam padding 135 and an upper foam cushion 136.
Control panels 137 and 138 are recessed into each side of the arm rest to provide a control panel for the occupant of each of the seats 34 and 35. Each panel has control buttons for seat height 78, hostess call 139, air control 140, reading light 141, lumber control 142, music channel selection 143, balance 144, volume 145, and an ear plug receptacle 146. The control buttons are set in the upwardly inclined face of the control panel so that the occupant can select the desired button without difficulty. The cables for the various controls extend from the control buttons through the tube 134 and through an opening 147 (FIG. 16) in the support 130.

TRAY

Referring now to FIG. 26, trays 150 and 151 are positioned behind the backs 32 and 33, respectively. Each back is provided a recess 152 for receiving the tray when it is folded to the storage position which is occupied by tray 151, and each tray is supported by a pair of tray-support arms 153 which are secured to the frame independently of the backs so that adjustment of the reclining back does not interfere with the position of the tray. Each tray is rotatably secured to the support arms by pins 154 which are slidable within slots 155 in the sides of the tray to permit the tray to be moved toward or away from the user. The trays may be releasably locked in the storage position by the latches 156. A conventional magazine pouch 157 is secured to each back below the tray.

Referring now to FIG. 12, the seat assemblies may also be provided with ashtrays 158 and 159 in the stationary arm rests 37 and 38, respectively, the ashtrays being movable between the open position occupied by the ashtray 158 and the closed position occupied by the ashtray 159. An underseat luggage retaining bar 160 and a hostess step 161 may also be secured to the frame if desired.

SEAT AND BACK ACTUATING MEANS

The back-reclining mechanism is illustrated in FIGS. 27-30 and permits the back to move rearwardly to a reclining position shown in FIG. 28 and returns the back to an upright position shown in FIG. 29. Both back portions 32 and 33 and seat portions 34 and 35 function in the same way, and the description of the actuating means will be limited to the back 33 and the seat 35.

When the occupant is sitting in the seat, the back may be reclined to the position shown in FIG. 28 by pushing the control button 162 on the inside surface of the arm rest 38. The button is operatively connected to a hydraulic motor 163 by a cable 165, and the hydraulic motor permits the occupant to selectively position the back between the upright position and the fully reclined position by means of the button 162.

When the seat 35 is occupied, as shown in FIG. 28, the bottom of the seat engages a control button 166 (FIG. 29) on the top side of the front rectangular stretcher tube 167. The control button operates a switch cylinder 168 which extends vertically within the stretcher tube and which recycles a hydraulic switch cylinder 169 when the pushbutton 166 is actuated.

When the occupant rises from the seat 35, the seat is automatically raised to the vertical position shown in FIG. 29 by a sector spring 170 located between the two seats (FIGS. 31 and 32), which pivots the seat upwardly about left and right pivots 171 and 172. As the seat reaches its upright position, the rearward portion of the bottom surface thereof engages a control button 173 on the rear side of the stretcher tube 167 which operates the hydraulic switch cylinder 169 which extends horizontally within the stretcher tube. The switch cylinder 169 is operatively connected to the hydraulic motor 163 by a cable 174 which connects with the cable 165 by a T-connector 175. The switch cylinder 169 activates the release valve of the hydraulic motor 163, thereby causing the back 33 to return to the normal upright position shown in FIG. 29.

The hydraulic motor 163 is pivotally mounted on pivot pin 176 which extends through the pair of brackets 177 and 178, which are in turn mounted between a pair of brackets 179 and 180. The tray support 153 is held between the bracket 180 and a third bracket 181. The three brackets 179-181 are attached to a plate 182 which is secured to the rear stretcher tube 183. Pivot pins 184 extend through the three brackets, 179-181, and pivotally supports the back 33, the brackets 177 and 178, and the tray support.

Referring now to FIG. 30, when the back is pushed forwardly, beyond the normal upright position shown in FIG. 29, the brackets 177 and 178 pivot about the pin 184 as grooves 185 provided in the brackets swing rearwardly relative to pin 186 which extends between the brackets 179 and 180.

The hydraulic motor 163 includes a cylinder 187 which is pivotally secured to the pin 176 and a piston 188 which is pivotally secured to a pin 189 which is attached to the back. As the piston 188 extends from the cylinder 187, the back pivots about the pin 184 from the reclin position to the upright position. The end of the grooves 185 are pushed against the pin 186 as the piston extends, and the brackets 177 and 178 are thereby prevented from rotating counterclockwise. A similar set of brackets and support pins can be mounted adjacent the other end of stretcher 183.

The pivot pins 171 and 172 for supporting the seat are mounted, respectively, to an end longitudinal stretcher 191 and a center longitudinal stretcher 192. The end longitudinal stretcher 191 is provided with openings 193 to reduce the weight thereof, and the center longitudinal stretcher is solid. The front and rear stretcher tubes 167 and 183 and the end and center longitudinal stretcher tubes 191 and 192 are all supported by the supporting legs 36 of the seat assembly. The seat pivot pin 172 is rotatably supported by the longitudinal stretcher 192, and a sector 194 is secured to the outer end of the pin. A constant rate torsional leaf spring 170 is attached to the sector by anchor plate 195 and a bolt 196 (FIG. 31), and the leaf spring extends forwardly over a pivot roller 197 secured to the stretcher 192 and forms a coiled end 197a beyond the roller. Flip-up pivot plate 198 guides the leaf spring as it winds up. The leaf spring has a natural tendency to coil about the pivot roller 197 as shown in FIG. 32, and thereby maintains the seat in the raised position when it is unoccupied. When the occupant sits down, the pivot pin 172 rotates clockwise as viewed in FIGS. 31 and 32 and unwinds the leaf spring about the roller 197 into an unnatural straight position with just a short coiled end 197a as shown in FIG. 31. When the occupant rises, the leaf spring winds up as shown in FIG. 32 and returns the seat to the raised position.

The operation of the seat and back actuating mechanisms is apparent from the foregoing description. When
the seat is occupied, the seat 35 will be in the down position illustrated in FIG. 28, and the occupant may wish to have the back in the reclined position as shown. When the occupant rises, the leaf spring returns the seat to the upright position where it engages the control button 173. The control button operates the release valve of the hydraulic motor 163 to extend the piston 188, thereby returning the back from the reclined position to the upright position, in which it will not interfere with the passenger in the next seat rearward. The seat is automatically raised to an upright position to provide maximum walking space for the passengers, and the back is automatically returned to the approved upright position for takeoff and landing.

When the passenger returns to the seat, the seat is lowered to actuate the control button 166 which operates the switch cylinder 168 to recycle the switch cylinder 169 to permit it to operate the release valve of the hydraulic motor when necessary. The hydraulic circuitry which operatively connects the pushbuttons, switch cylinders, and hydraulic motor is conventional and well-known in the art, and a detailed description thereof is believed unnecessary.

In the event that the passenger behind the seat 33 desires additional room when leaving his seat, he can push the back 33 of the unoccupied seat forwardly from the upright position as shown in FIG. 39.

While in the foregoing specification we have described a specific embodiment of our invention in considerable detail for the purpose of illustration, it is to be understood that many of the details hereinafter can be varied considerably by those skilled in the art without departing from the spirit and scope of the invention.

We claim:

1. An airplane seat assembly including a frame, a generally upwardly extending back portion mounted on the frame, and a seat portion mounted on the frame, wherein the improvement comprises: said seat portion having a rigid base, a cushion secured to the base and extending thereabove, an air-tight, inflatable box-like bag interposed between the cushion and the base, resilient filler material capable of retaining air when expanded and expelling air when flattened and located within the bag and urging said bag to an expanded condition of maximum height and air capacity; unidirectional valve means on said bag for permitting air to flow into said bag to expand it under the urging of said filler material; and hand actuated release means associated with said valve and accessible to an occupant of said seat for opening said valve to expel air from said bag and said filler material under pressure from the weight of said occupant to adjust the height of said occupant in said seat; said cushion being removably secured to the base to permit removal of the bag from between the cushion and the base, said base including a generally rectangular metal pan having a generally planar bottom and upwardly extending side walls, said bag being generally rectangular and received within said side walls of said pan, said cushion further being generally rectangular and having a top, bottom and side walls, said assembly further comprising a cover extending over the top and side walls of said cushion and over the sides of said pan, said cushion being removably secured to the bottom of said base; said valve means extending through the side wall of said pan.

2. The assembly of claim 1 further comprising blow tube means associated with said bag for inflating the bag by mouth when the bag is removed from the seat portion to provide greater buoyancy when said bag is used as a flotation cushion.

3. The assembly of claim 1 further comprising double-faced interlocking tape release means removably securing said cover to said base.

4. The structure of claim 1 wherein said bag further comprises a looped strap secured to one side thereof and extending beyond it to provide a pair of arm loops.