

[54] **ADJUSTABLE TYPE OF ARMREST UNIT**

3,145,052	8/1964	Morgan.....	297/414 X
3,489,458	1/1970	Karlson.....	297/422 X
3,632,161	1/1972	Arfaras et al.....	297/194 X

[75] Inventor: **Gerard T. Hogan**, Southington, Conn.

[73] Assignee: **Universal Oil Products Company**, Des Plaines, Ill.

FOREIGN PATENTS OR APPLICATIONS

42,022	9/1965	Germany	248/118
636,904	9/1963	Belgium	297/194
532,900	2/1941	United Kingdom.....	297/414

[22] Filed: **Dec. 23, 1974**

[21] Appl. No.: **535,601**

Primary Examiner—James T. McCall
Attorney, Agent, or Firm—James R. Hoatson, Jr.; Philip T. Liggett; William H. Page, II

[52] **U.S. Cl.** 297/115; 297/411; 297/414; 312/235 A

[51] **Int. Cl.²**..... A47C 13/00

[58] **Field of Search** 297/422, 412, 414, 418, 297/411, 194, 118, 116, 115, 119, 232, 135; 248/118; 296/37 R; 244/122 R; 312/235, 235 A; 5/329; 224/29 D

[57] **ABSTRACT**

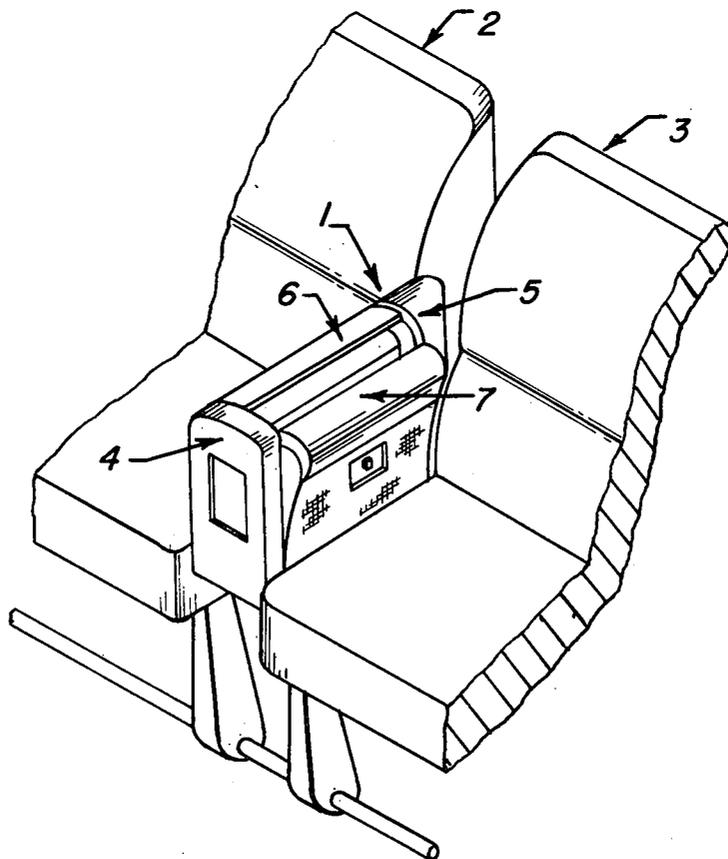
A pair of movable and adjustable armrest sections are provided to have their upper cap sections move arcuately in and out from armrest support framing that is positioned between adjacent seats in a multiple seat arrangement. In one embodiment, a snack tray can be provided in the upper level of the framing to be exposed and useable when the movable armrest sections are pulled out for use by the seat occupants.

[56] **References Cited**

UNITED STATES PATENTS

1,105,822	8/1914	Murphy	297/411 X
1,652,801	12/1927	Scully	5/329 X
3,068,048	12/1962	Mahon et al.....	312/235 R

5 Claims, 5 Drawing Figures



ADJUSTABLE TYPE OF ARMREST UNIT

The present invention relates to an armrest unit which has two separate adjustable armrest sections and is especially designed and adapted to be used between adjacent seats in a multiple seating unit arrangement.

More particularly, the invention is directed to an adjustable armrest construction where a movable pivotally connected, or hinged, armrest section for each side of an armrest unit will have transverse arcuate movement to, in turn, provide individual selective positioning to thus accommodate each person that is seated each side of the armrest means.

In vehicle seating it is generally customary to have a single armrest member between adjacent seats in a row of seats, and this single armrest arrangement permits only one of any two adjacent seat occupants to make use of the intermediate armrest such that there will be no discomfort for the other seat occupant. Of course, in a low percentage of instances and where space permitted, there have been row type seating arrangements where each seat is provided with its own pair of armrests; however, such armrests have typically been of the fixed, non-adjustable type.

In order to provide more comfort and a better accommodation for varying sized persons to be seated in a vehicle, or even to be seated in theatre seating, it is the intent of the present invention to provide for a certain amount of transverse adjustability to the armrest means for each seat occupant in a multiple seat arrangement. For example, in airplane "first class" seating it has been customary to provide wider seats and wider armrests between adjacent seating units so as to provide less cramped seating for the larger and/or heavier passengers, particularly in comparison with the seating sizes and arrangements being used in "coach" seating areas. However, extra wide seats may actually be somewhat unsuitable for the thin or petite individual to the extent that the armrests may be too far apart and will cause some discomfort for the seat occupant to use them.

As heretofore noted, it is thus an object of the present invention to provide a special form of intermediate armrest means for use between adjacent seating units where there will be a separate, movable armrest member for each side of the unit and resulting individual armrest adjustability for each person to be seated in the adjacent seating units.

It may also be considered an object of the present invention to provide an armrest-divider unit for use between adjacent seats, where there is a small snack tray, or glass holding tray, incorporated into the upper part of the framing, along with the opposing, movable and adjustable armrest sections at each side of the unit.

In a broad embodiment, the present invention provides an adjustable armrest means for use between adjacent seating units in a multiple seat arrangement, which comprises in combination, fixed position armrest support framing that is attachable to adjacent seating units and will extend upwardly between them, a movable armrest section including a longitudinal cap portion positioned each side of said support framing, with each such section being hingedly connected to said support framing from its lower portion to thereby permit arcuate movement for the upper cap portion of each armrest section and individual adjustability for the positioning of each armrest cap portion for each seat occupant on each side of the armrest support framing.

Preferably, each movable armrest section will have adjustable latching or catch means which will permit its adjustable fixed positioning. For example, a movable member may have protruding catch means to selectively engage any one of a series of spaced recesses to thus provide different transverse positions and the latching means can, in turn, be operated from a suitable push-button or lift member, which is provided on the exterior of the movable armrest section.

The entire armrest unit may be fixedly attached to the seat framing so as to be positioned between adjacent seating units; however, an optional arrangement may provide for a removable or demountable type of armrest means where the armrest unit will be detachably mounted in the manner of present forms of "stab-in" armrest units. The removability feature provides for easy replacement or repair of an entire armrest assembly as well as permit removability in the event that a seat occupant desires to remove the assembly and recline over a two-seat area. In the event of a stab-in or removable mounting arrangement, there may be means provided to use the conventional "slave" cable means such as are presently in use in connection with present and prior forms of removable armrest constructions.

An armrest assembly of the present type may also incorporate a snack tray or drink holding tray, such as hereinbefore suggested, with the tray means being provided in the upper portion of the armrest assembly. Where there is space for a wide armrest unit, it may be possible to provide a tray which is exposed and useful at all times. However, where space may be somewhat limited, there may be provided a snack tray which is maintained below the level of the armrest cap means for each of the proposed adjustable and movable armrest sections at each side of the unit requiring that each of the adjacent seat occupants adjust the armrest sections into positions toward themselves such that the upper snack tray will be exposed and useful for the placement of drinks, cigarettes, or other articles.

Still other advantages and variations in design and construction of the present special armrest unit will be apparent by reference to the accompanying drawing and the following description thereof.

FIG. 1 of the drawing is an isometric type of view indicating the placement of the present form of improved adjustable armrest unit between adjacent seats, such as between passenger seats in a multiple seat vehicle arrangement.

FIG. 2 of the drawing is a sectional elevational view through one embodiment of adjustable armrest unit providing for in-and-out, transverse movement for each of a pair of armrest members.

FIG. 3 of the drawing is a longitudinal sectional elevational view through the armrest unit of FIG. 2, as indicated by the lines 3—3 in FIG. 2.

FIG. 4 of the drawing is a partial sectional view indicating one form of latching arrangement to provide adjustable fixed positioning for each of the movable armrest sections of the unit.

FIG. 5 of the drawing indicates diagrammatically how the entire armrest assembly may be removably held in place between adjacent seating units and, additionally, indicates diagrammatically how push-button means and a short cable section may be combined with the armrest assembly to, in turn, engage additional push-button operated cable means to effect seat back adjustment.

Referring now particularly to FIG. 1 of the drawing, there is indicated the placement of an armrest assembly 1 intermediately between adjacent seating units such as 2 and 3, with the armrest unit 1 being provided with fixed position end portions 4 and 5 as part of the armrest support framing and movable side armrest sections 6 and 7 providing suitable upper cap portions to serve as the actual arm supporting portions for the occupants of the adjacent seats. As will be described hereinafter, each of the armrest sections 6 and 7 will be adjustable transversely by moving through an arcuate path so that they may individually accommodate each of the passengers in the adjacent seats.

With particular reference to FIGS. 2 and 3 of the drawing, there is indicated that each of the movable armrest sections 6 and 7 will have upper cap portions such as 8 and 9 as well as leg members, such as 10 and 11, which will carry down to the support pin means 12 and 13, which in turn will be supported from the lower framing of the armrest assembly. As best shown in the FIG. 3 longitudinal section, the fixed end portions 4 and 5 of the support assembly may comprise a plurality of interconnected plates in order to provide structural rigidity. Specifically, the forward end section 4 is indicated as comprising a pair of spaced plates 14 and 15 with flanged edge portions to abut against and join with a peripheral band member 16. There is also indicated the utilization of a front trim plate such as 17 which will fit over the band member 16 to provide a suitable trim or finish piece for the front portion of the assembly. The rearward fixed section 5 is, in the present embodiment, indicated as being formed of spaced plates 18 and 19, each of which have flanged portions to engage a top and side encompassing band 20 which is, in turn, encompassed at least in part by trim piece 21. There is also indicated the use of a special V-form of trim 22 to serve as the rearward portion of the armrest assembly in a manner which will generally conform with the adjacent sloping seat back portions of the seating units 2 and 3 (as best indicated in FIG. 1).

It is to be understood that the end sections 4 and 5 may be fabricated of metal and/or plastics in a variety of ways and it is not intended to limit the present invention to any one set of materials or to any one construction and assembly arrangement. The present drawing is merely suggestive of one method construction and arrangement for the support framing. In order to provide rigidity for the entire armrest support framing, there are also utilized longitudinal tie members between the end sections along both the upper and lower portions of the unit. For example, as best shown in FIG. 2 of the drawing, there are spaced lower U-shaped tie members 23 and 24 which may be attached to the end plate 15 by clip angles 25. Similarly, as indicated in FIG. 3, there may be clip angles 26 to attach the other ends of the longitudinal members 23 and 24 to the vertical plate 18 of end framing 5.

Extending longitudinally along the upper portion of support framing, there is indicated the placement of a tray form of beam or tie member 27 to be used for connecting the upper end portions of the spaced apart end frame sections 4 and 5. The tray form of member 27 may be attached to the interior end plate 15 by clip angle means 28 while at the opposing end a clip angle 29 will provide attachment of the tray means 27 to the interior vertical end plate member 18. Again, it is to be noted that various types of struts or longitudinal tie means may be utilized to effect the attachment of the

end sections 4 and 5 into a substantially rigid support framing and the construction and assembly of the adjustable armrest unit should not be limited to the particular simplified embodiment being illustrated and described in the present application.

Various pivot and hinge means may also be provided for making a hinged connection between leg support members 10 and 11 to the lower support framing; however, a preferred construction will provide for a simple hinged type of connection between the lower portions of each of the adjustable armrest sections 6 and 7 with respect to the support framing such that the opposing and separate armrest sections may be moved independently and transversely toward each adjacent seating unit to permit each seat occupant to have individual adjustability as to the in-and-out positioning of their particular armrest section. The present embodiment indicates that the spaced leg members 10 and 11 will connect to the bolt or pin means at 12 and 13; however, again, it is to be noted that separate support means and separate pin means may be provided for each of the individual adjustable armrest sections 6 and 7 where it is deemed desirable to provide separate pivoting or hinging arrangements for the separate pairs of support leg means. In the present instance the drawing indicates the use of two plate means 30 extending between the longitudinal lower strut members 23 and 24 and each of the plates 30 in turn support upwardly extending spaced bracket means 31 which will hold the pin members 12 and 13. Each of the latter is also indicated as having sufficient length such that the respective leg members 10 and 11 will be spaced apart a sufficient distance to provide for spring means 32 between each of the adjacent pivoting members, whereby the springs can provide for the urging of each of the leg members and the accompanying separate and opposing armrest cap sections 8 and 9 into a "closed" position.

The operation of the movable armrest sections is best illustrated by reference to FIG. 2 of the drawing where it will be noted that both of the movable sections 6 and 7 are free to move in a transverse arcuate manner (as shown by the dotted line positions) by pivoting about their respective lower hinged connections to the support framing. The armrest sections of FIGS. 2 and 3 with slight spring biasing from the spring means 32 will assume a desired position from a frictional engagement with a seat occupant's arm resting on the upper cap portions 8 and 9. However, as will be described hereinafter, there may be actual fixed adjustment positions from suitable latching means whereby seat occupant can set his adjacent armrest section to a desired position which will be maintained until the latching mechanism is released and the armrest section pushed or pulled to a different position.

FIG. 2 of the drawing also indicates the use of a pliable fabric, plastic or other upholstery type of material along each side portion of the armrest assembly so as to provide a finish or trim which will hide the interior of the supporting frame and the movable supporting leg members, etc. Specifically, there is indicated the use of flexible side pieces 33 and 34, the upper portions of which are attached to longitudinal bar sections at 35, extending between arm members 10, and to the bar member 36 which extends between arm members 11. At the lower side portions of the unit the flexible side pieces 33 and 34 can be attached to the sides of the respective U-shaped tie beams 23 and 24. Also, as indicated by the dashed line positions, the side pieces

will move along with the movable armrest cap sections 8 and 9 as the latter are adjusted outwardly to suit a passenger's comfort.

Referring now to FIG. 4 of the drawing, there is indicated a curved perforate bar member 37 as being mounted below the tray member 27 to accommodate a movable latch member 38 which is attached to a pin or rod means 39 extending between arm members 10. In the particular arrangement shown, the bar member 38 is attached to and pivots over the top of the pin member 39 so that its interior end may move vertically up and down responsive to a lifting or pushing of the exterior end portion 40. The interior end portion of bar member 38 is also indicated as having a raised portion 41 which can engage the various openings or notches, such as 42, in the fixed curved member 37. In the present drawing, the raised portion 41 is indicated as being engaged with the innermost recess opening 42 such that the cap member 8 is retained in a "closed" position; however, as indicated by the dashed lines 38' for member 38, when external end portion 40 is lifted slightly, there is a pivoting of bar member 38 over the top of pin 39 such that raised portion 41 will become disengaged from curved member 37 under the tray 27 and the movable armrest section together with its cap portion 8 can pivot outwardly to assume a position which will be closer to the occupant in the adjacent seat. In addition, a spring 43 is provided around the pin member 39 with one end portion engaging the leg 10 and the other end against the back of bar member 38 so that there is a continuous spring biasing of the latter member in an upward direction against the curved plate member 37 and such that the raised catch portion 41 will automatically be urged upwardly to effect engaged positionings with each successive hole 42 in bar member 37. However, by the lifting of end portion 40 and the positioning of the cap portion 8 to the approximate desired location, the raised portion 41 can engage a hole 42 nearest the desired position and there will be the subsequent holding of the entire movable armrest section in this desired location.

FIG. 4 also shows the use of a recessed trim member or escutcheon plate 44 which is attached to the longitudinal tie bar member 35 which extends between the spaced leg members 10. The trim member 44 should be sized and designed to permit a passenger to insert a thumb or finger behind the end knob portion 40 on bar 38 such that there may be easy manipulation and operation of the adjustment means for the movable armrest section. It is also to be noted that FIG. 4 of the drawing only illustrates a locking mechanism for one adjustable arm section for one side of the assembly, but that a similar arrangement and operation will be provided for the opposing movable arm section with cap member 9 such that there may be adjustability to a desired fixed positioning for such cap member. It is also to be noted that varying types of latching mechanisms may be utilized and it is not intended to limit the present invention to the specific form illustrated in FIG. 4. It is, however, desired that any latching mechanism be readily adjusted by the seat occupant and that it be spring biased to assist in providing ease of locking and for maintaining a desired fixed location.

In FIG. 5 of the drawing, there is indicated diagrammatically a non-attached, "stab-in" positioning of the entire armrest assembly 1 with respect to the seat framing such that the unit may be readily inserted and removed from its positioning intermediate adjacent

seats in a multiple seating arrangement. The drawing is diagrammatic in indicating the use of depending bars or leg members 45 for insertion into suitable socket means 46 maintained as a part of the seat framing, and there is no intent to limit the detachable mounting arrangement to any one design or construction. FIG. 5 also illustrates the fact that there may be push-button control means for seat back adjustment, such as at 47, mounted in a forward portion of the armrest assembly. Actually, there may be a pair of push-button means 47 mounted in the assembly such that each of the adjacent passengers will have individual push-button operations for their individual seat backs. Where there is a disengageable type of mounting arrangement for the armrest assembly, there can also be a seat back operating arrangement where the push-button means 47 and a short cable means 48 will terminate in a movable pin or button means at 49, and the latter will be mounted to be in alignment with another push-button means at 50 to operate cable means 51 that is mounted in the seat unit framing and which will extend to the seat back adjusting valve or other adjustment mechanism.

It will be obvious that various structural modifications may be made in connection with the armrest supports framing, as hereinbefore noted, and further variations made with respect to the shape and configuration of the movable armrest cap sections, such as 8 and 9, as well as with respect to the lower hinging means and the supporting leg means connective with the cap portion. Various types of construction and trim materials may also be utilized and again it is not intended to be limiting with respect to the use of any one type of material or combination of materials for any one section of the unit. For example, the movable armrest cap members 8 and 9 may well be formed of a self-skinning type of rigid foam material such that there is a washable finish with good wearability, as well as being of a lightweight type of material. Trim portions may be of chrome finished metal, aluminum, painted metal, etc., or, optionally, there may be any one of various types of plastic materials utilized for the entire section or for a finish over a metal section.

I claim as my invention:

1. An adjustable armrest means for use between adjacent seating units in a multiple seat arrangement, which comprises in combination, fixed position armrest support framing that is attachable to adjacent seating units and will extend upwardly between them, a movable armrest section including a longitudinal cap portion positioned each side of said support framing, with each such section being hingedly connected to said support framing from its lower portion to thereby permit arcuate movement for the upper cap portion of each armrest section and individual adjustability for the positioning of each armrest cap portion for each seat occupant on each side of the armrest support framing.

2. The adjustable armrest means of claim 1 further characterized in that spring biasing is provided for each of the movable armrest sections in a manner biasing each such section to a non-extended positioning.

3. The adjustable armrest means of claim 1 further characterized in that spring biased latching means is provided for each of the movable armrest section, said latching means providing catch means for multiple fixed positions of holding each movable armrest section in a transverse arcuate position, and each latching means is further provided with externally positioned movable means effecting the disengagement of a latch-

7

ing member with respect to fixed support framing means to permit the movement and adjustability of each armrest section.

4. The adjustable armrest means of claim 1 further characterized in that each movable armrest section has an upper longitudinal cap member suitable for effecting the support of a seat occupant's arm and each cap member is transversely movable on supporting leg members connective with pin means mounted within the lower portion of the armrest support framing,

8

whereby to effect a hinged connection with such framing and the permitting of arcuate movement for the upper cap portion of each arm section.

5. The adjustable armrest means of claim 1 further characterized in that mounting means is provided for the entire adjustable armrest means whereby there may be the non-fixed, disengageable mounting of such armrest means from its positioning between adjacent seating units.

* * * * *

15

20

25

30

35

40

45

50

55

60

65