

July 15, 1958

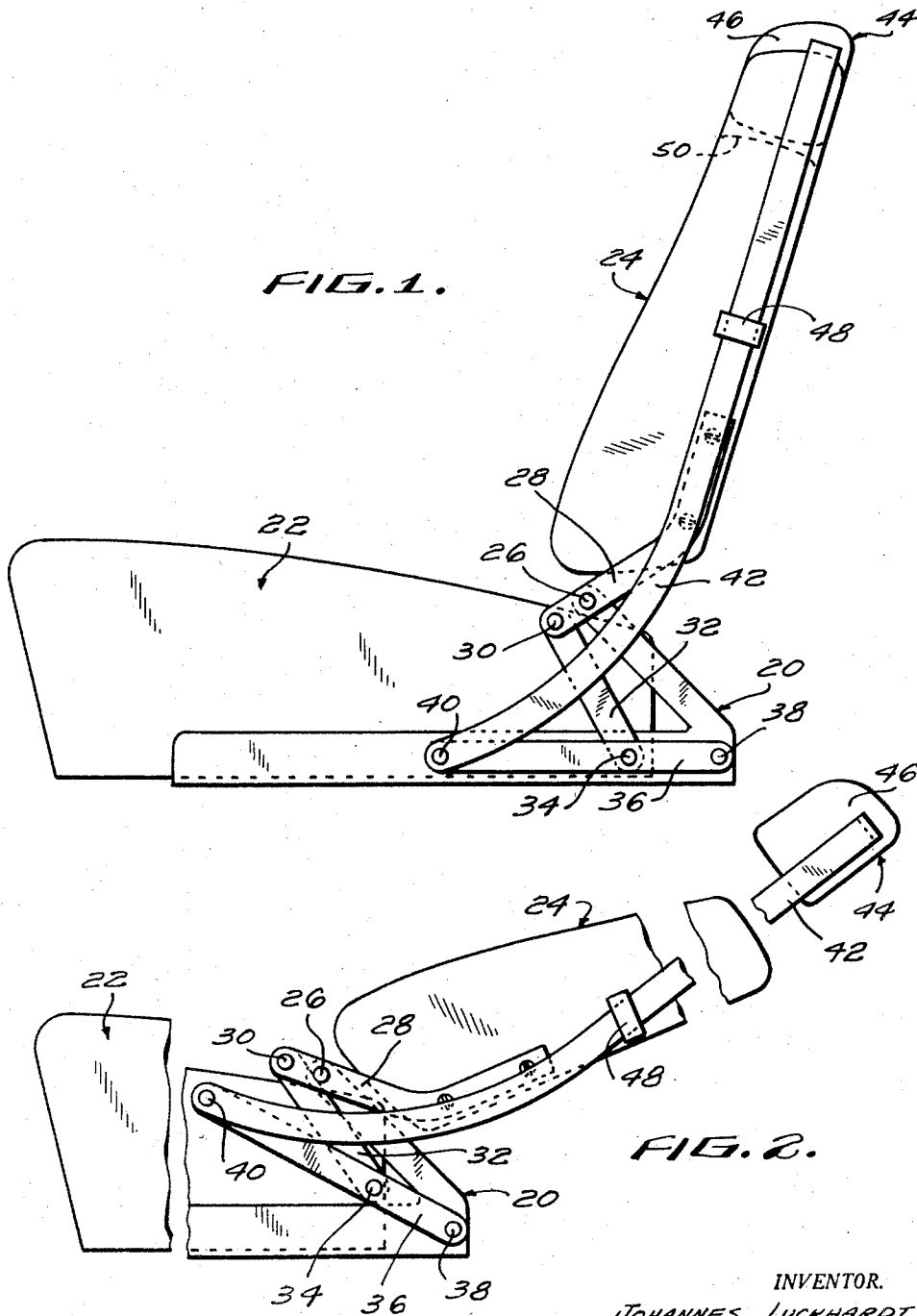
J. LUCKHARDT

2,843,183

ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

Filed Aug. 19, 1954

5 Sheets-Sheet 1



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FIG. 3.

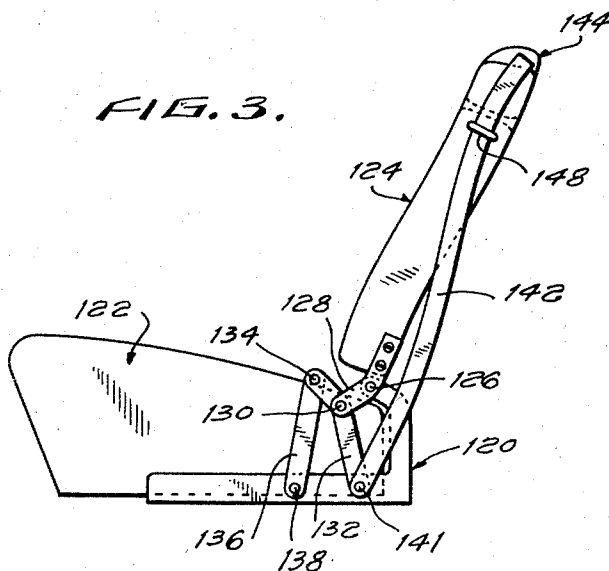
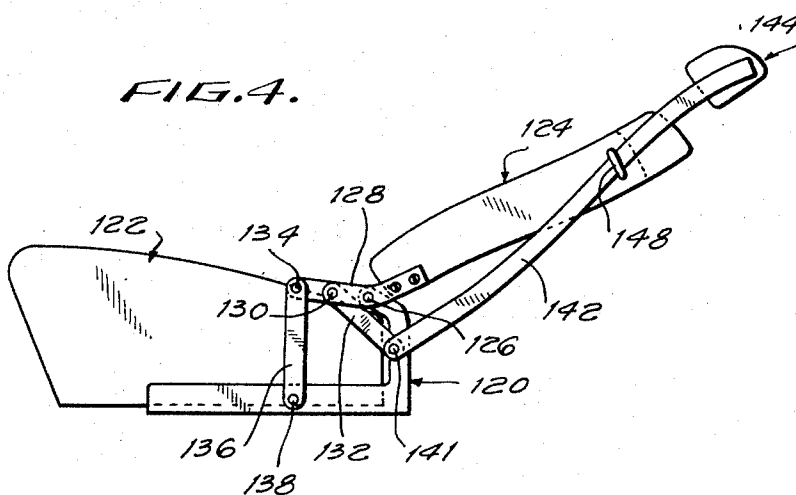


FIG. 4.



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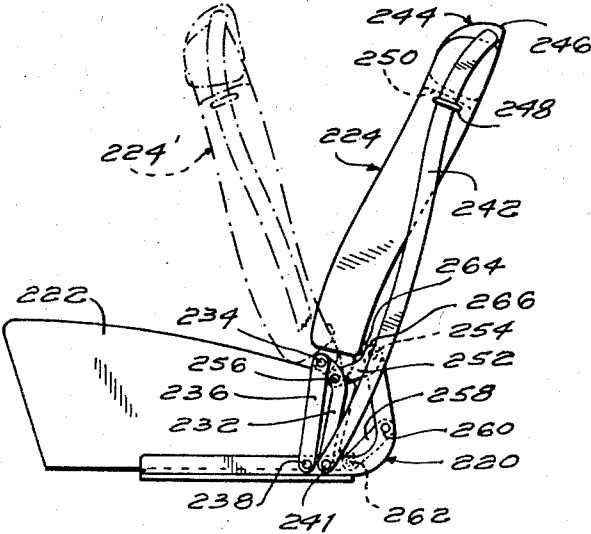


FIG. 5.

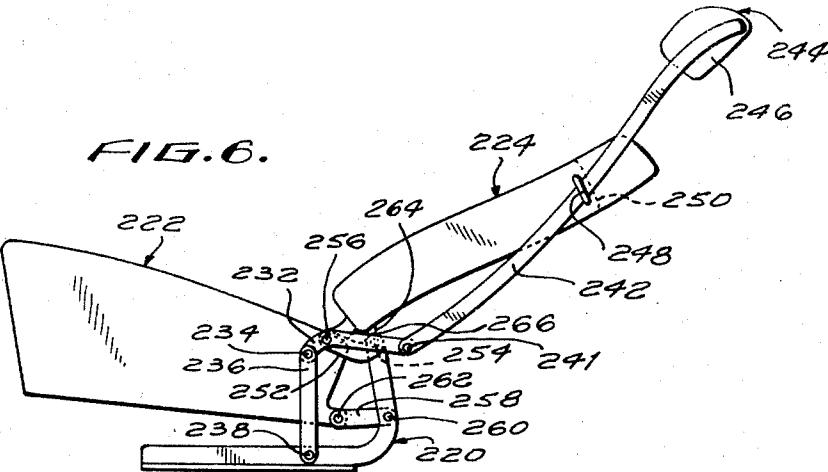


FIG. 6.

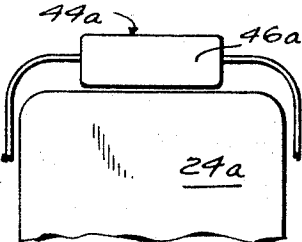


FIG. 7.

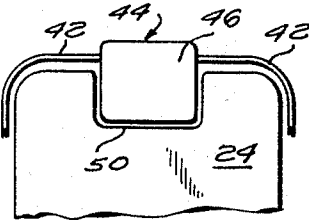


FIG. 8.

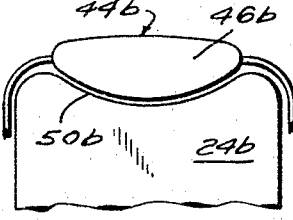


FIG. 9.

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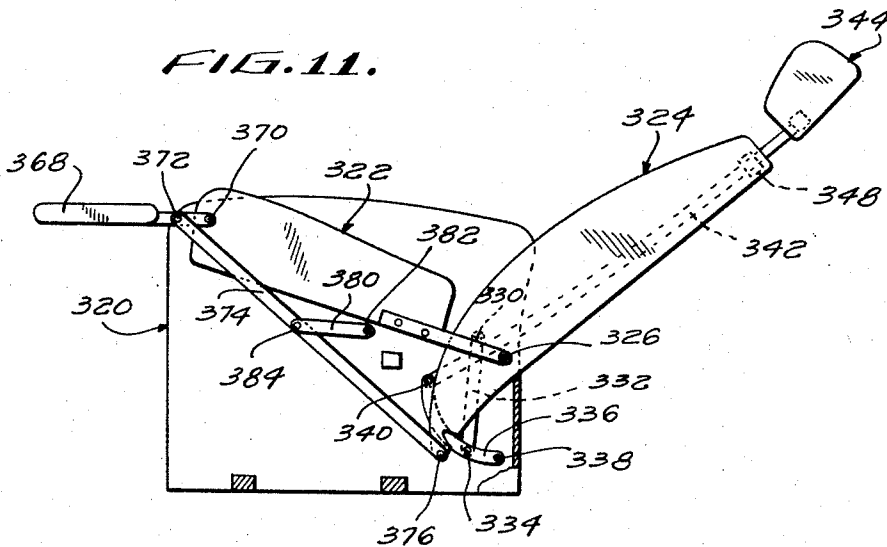
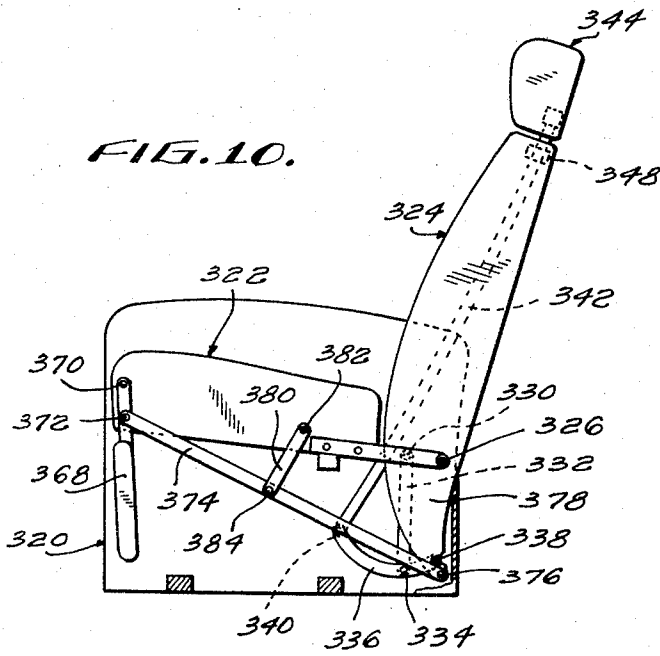
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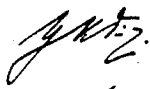
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ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

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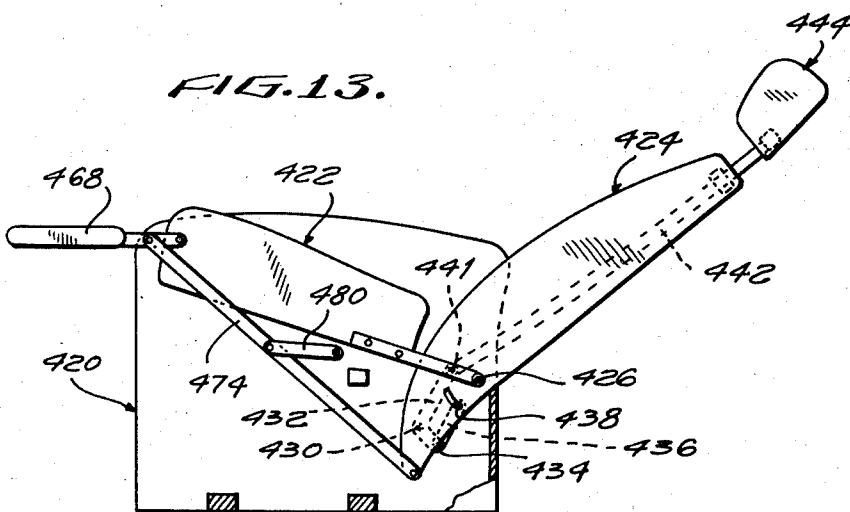
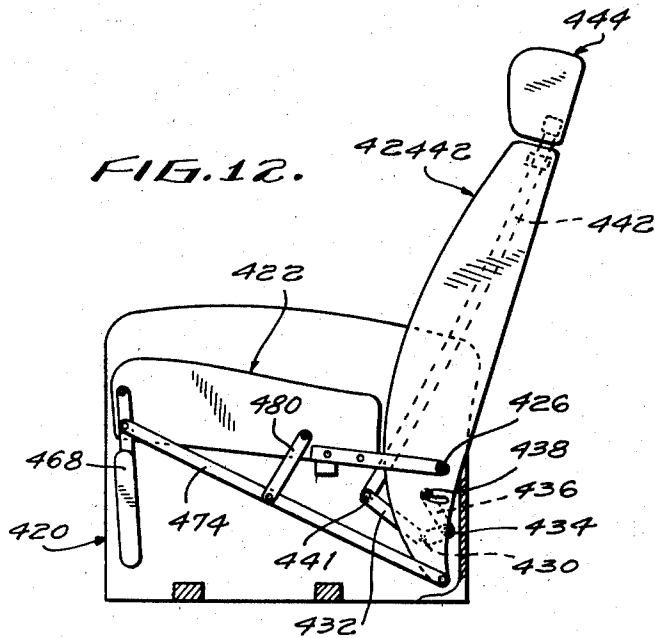
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ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

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ARTICLE OF REPOSE FOR SUPPORTING THE BODY OF A PERSON

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Application August 19, 1954, Serial No. 450,869

14 Claims. (Cl. 155—107)

This invention relates to articles of furniture and more particularly to articles of repose for supporting the body of a person wherein a back-rest being movable relative to a support may be brought from a sitting position into a reclined position.

An object of the invention is to provide an article of repose of above-described type with means for an automatic increase of the length of the back-rest when the back-rest is brought from the sitting position into the reclined position, so that the height of the article determined by the length of the back-rest when the latter is in the sitting position may be made as low as possible. This is of a special advantage in connection with seats with reclining back-rests for use as front seats in motor vehicles.

Another object of the invention is to provide an article of repose of above-described type with a separate head-rest movably arranged on the back-rest and with means for an automatic displacement of the head-rest relative to the back-rest when the latter is brought from the sitting position into the reclined position and vice versa.

Another object of the invention is to improve on the construction of articles of repose for supporting the body of a person as now customarily made.

Other objects and constructional details of the invention will be apparent from the following description when read in conjunction with the accompanying drawings forming part of this specification, wherein:

Fig. 1 is a side elevational view of a motor vehicle seat according to the invention,

Fig. 2 is a side elevational view of the seat shown in Fig. 1, wherein, however, the back-rest is in a reclined position,

Fig. 3 is a side elevational view of a different embodiment of a motor vehicle seat according to the invention,

Fig. 4 is a side elevational view of the seat shown in Fig. 3, wherein, however, the back-rest is in a reclined position,

Fig. 5 is a side elevational view of still another embodiment of a motor vehicle seat according to the invention,

Fig. 6 is a side elevational view of the seat shown in Fig. 5, wherein, however, the back-rest is in a reclined position,

Fig. 7 is a fragmentary front elevational view of the upper portion of a back-rest and the associated head-rest structure,

Fig. 8 is a fragmentary front elevational view of another embodiment of a back-rest and an associated head-rest structure,

Fig. 9 is a front elevational view of a further embodiment of a back-rest and an associated head-rest structure,

Fig. 10 is a side elevational view of an arm-chair according to the invention, a portion of a side frame of the support being broken away,

Fig. 11 is a side elevational view of the arm-chair shown in Fig. 10, wherein, however, the movable members of the chair are in a reclined position,

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Fig. 12 is a side elevational view of a further embodiment of an arm-chair according to the invention, a portion of a side frame being broken away, and

Fig. 13 is a side elevational view of the arm-chair shown in Fig. 12, wherein, however, the movable members of the chair are in a reclined position.

Referring now to Figs. 1 and 2, 20 generally indicates a support or base of a motor vehicle seat. A seat structure 22 is immovably engaged with said base 20.

A back-rest structure 24 is swingably mounted on the frame 20 at 26. The arm 28 of the back-rest structure 24 is pivoted at 30 to the upper end of a link 32. The lower end of said link 32 is pivoted at 34 to another link 36 swingably mounted on the base 20 at 38. The front end of the link 36 is pivoted at 40 to a rod 42 of a head-rest structure generally indicated by 44. The pivot 34 of the link 32 is arranged between the pivots 38 and 40 of the link 36. As best shown in Fig. 8, the head-rest structure 44 comprises a main body 46 and a pair of rods 42. Each rod 42 is readily connected with the main body 44. Furthermore, each rod 42 is slidably engaged with a ring 48 (see Fig. 1) secured to the back-rest 24. Moreover, each rod 42 is pivotally connected with a linkage as described above in connection with Fig. 1 (see linkage 32, 36).

As shown in Figs. 1 and 8, the back-rest 24 is provided with a recess 50 for receiving a portion of the main body 46 of the head-rest structure 44 when the back-rest 24 is in its sitting position. The recess 50 has a substantially U-shaped configuration. When the back-rest 24 is swung about its pivot 26 from the sitting position shown in Fig. 1 into the reclined position shown in Fig. 2, the link 32 causes a rocking of the link 36 about the pivot 38, whereby the head-rest structure 42, 46 is displaced from the position shown in Fig. 1 into the position shown in Fig. 2, so that the main body 46 of said head-rest structure reaches a position farther away from the top end of the back-rest 24. Thus, the main body 46 of the head-rest structure 44 assumes a position in the reclined position wherein it may support the head of a person resting on the seat.

It will be readily understood, that upon a return of the back-rest 24 from the reclined position shown in Fig. 2 into the sitting position shown in Fig. 1, the head-rest structure 44 is automatically returned into its original position relative to the back-rest 24.

The arrangement of the recess 50, receiving the greater portion of the main body 46 of the head-rest structure 44 when the back-rest 24 is in the sitting position, results in a comparatively low height of the back-rest 24, so that the combined back-rest and head-rest structure does not disturb a person sitting on a rear seat in a motor vehicle, when the back-rest 24 of the front seat is in the sitting position.

According to the embodiment shown in Figs. 3 and 4 again the seat structure 122 of the seat of a motor vehicle is immovably engaged with the base 120. The arm 128 of the back-rest 124 swingably mounted on the base 120 at 126 is pivoted to an intermediate point of a link 132 at 130. The upper end of said link 132 is pivoted at 134 to another link 136 swingably mounted on the base 120 at 138. The lower end of the link 132 is pivoted at 141 to the rod 142 of the head-rest structure 144. The rod 142 is slidably engaged with a ring 148 secured to the back-rest 124.

When the back-rest 124 is swung about its pivot 126 from the sitting position shown in Fig. 3 into the reclined position shown in Fig. 4, the linkage 136, 132 connected with the back-rest structure 124 at 130 causes automatically a displacement of the head-rest structure 144 rela-

tive to the back-rest 124 into the position shown in Fig. 4.

According to the embodiment of a motor vehicle seat shown in Figs. 5 and 6, the seat structure 222 is immovably engaged with the base 220. The rear end of an upper connecting link 252 is pivoted to said base 200 at 254. The front end of said upper connecting link is pivoted to the rear end portion of the seat structure 222 at 256. A lower connecting link 258 is pivoted in a similar manner to the base 220 at 260 and to the rear end portion of the seat structure 222 at 262.

A back-rest 224 is swingably mounted on the upper connecting link 252 at 256 in coaxial alignment with the pivotal connection between said upper connecting link 252 and the seat structure 222. An abutting element 264 secured to the lower end of the back-rest 224 is arranged for abutting engagement with an abutting surface 266 at the upper end of the base 220.

When the back-rest 224 is moved backwardly, the upper connecting link 252 is swung about its pivot 254, so that the seat structure 222 is lifted from the sitting position shown in Fig. 5 into the reclined position shown in Fig. 6, when the back-rest 224 reaches the reclined position shown in Fig. 6.

On the other hand, it is possible to swing the back-rest 224 from its normal sitting position, shown in full lines in Fig. 5, about the pivot 256 into a forwardly inclined position 224', shown in dash and dot lines in Fig. 5, when the seat is arranged in a two-door car and a person wishes to enter same for sitting on a rear seat.

Furthermore, the back-rest 224 is pivoted to a link 232 at 256 in coaxial alignment with the pivotal connection of said back-rest 224 with the upper connecting link 252. The upper end of the link 232 is pivoted at 234 to the upper end of another link 236, the lower end of which is pivoted to the base 220 at 238. The lower end of the first-mentioned link 232 is pivoted at 241 to the rod 242 of the head-rest structure 244. The rod 242 is slidably engaged with a ring 248 secured to the back-rest 224. When the back-rest 224 is in the sitting position shown in full lines in Fig. 5, most of the main portion 246 of the head-rest structure 244 extends into a recess 250 of the back-rest 224.

When the back-rest 224 is swung from its sitting position shown in full lines in Fig. 5 into the reclined position shown in Fig. 6, the linkage 232, 236 connected with the back-rest 224 at 256 and with the base 220 at 238 causes an automatic displacement of the head-rest structure 244 relative to the back-rest 224 into the position shown in Fig. 6.

Fig. 7 illustrates a different embodiment of the head-rest structure. According to said Fig. 7, the main portion 46a of the head-rest structure 44a is entirely outside the back-rest 24a.

Fig. 8, as mentioned above, illustrates a head-rest structure of the motor vehicle seat shown in Figs. 1 and 2. The same construction is used also in above-described embodiments of Figs. 3-6.

Fig. 9 illustrates a further embodiment of the head-rest structure. According to said Fig. 9, the lower surface of the main portion 46b of the head-rest structure 44b is curved and the back-rest 42b has a correspondingly curved recess 50b for receiving a portion of the main portion 46b of the head-rest structure 44b when the back-rest 24b is in the sitting position.

According to the embodiment of an arm-chair shown in Fig. 10, the back-rest 324 and the seat 322 are pivotally connected with the support 320 at 326. A leg-rest 368 swingably mounted at 370 on the front portion of the seat 322 is pivoted at 372 to the front end of a connecting link 374, the rear end of which is pivoted at 376 to a downward extension 378 of the back-rest 324. A guiding link 380 swingably mounted on the support 320 at 382 is pivoted to said connecting link 374 at 384.

The above-described link mechanism causes a movement of the back-rest 324, seat 322 and leg-rest 368 in dependence on each other.

On each side of the back-rest 324 the rods 342 of a head-rest structure 344 are slidably engaged with a ring 348 secured to the structure of the back-rest 324. Preferably, as indicated in the drawings, the rods 342 are arranged within the structure of the back-rest, so that they are invisible when the back-rest is in the position shown in Fig. 10. The lower end of each rod 342 is pivoted at 340 to a link 336 swingably mounted on the support 320 at 338. The upper end of another link 332 is pivoted to the back-rest 324 at 330. The lower end of said link 332 is pivoted to the link 336 at 334 at a point between the pivotal connections 338 and 340 of said link 336 with the support 320 and with the rod 342 respectively. Thus, upon a movement of the back-rest 324 from a sitting position shown in Fig. 10 into the reclined position shown in Fig. 11, the seat 322, the leg-rest 368 and the head-rest structure 344 are brought into the position shown in said Fig. 11.

According to the embodiment of an arm-chair shown in Figs. 12 and 13, again the back-rest 424 and seat 422 are swingably mounted on the support 420 at 426. The arrangement and connections of the leg-rest 468 and the links 474 and 480 are the same as described above in connection with Figs. 10 and 12.

The lower end of the rod 442 of the head-rest structure 444 is pivoted at 441 to a link 432 rockably connected with the back-rest 424 at 430. The rear end of the link 432 is pivoted at 434 to another link 436 swingably mounted on the support 420 at 438. Each rod 442 passes through the inside of the back-rest.

When the back-rest and, through the linkage 474, 480, the seat 422 and leg-rest 468 are brought from the sitting position shown in Fig. 12 into the reclined position shown in Fig. 13, the linkage 432, 436 connected with the back-rest 424 at 430, the support 420 at 438 and the rod 442 of the head-rest structure 444 at 441 causes a movement of the head-rest structure 444 relative to the back-rest 424 into the position shown in Fig. 13.

I have described preferred embodiments of my invention, but it is understood that this disclosure is for the purpose of illustration and that various omissions or changes in shape, proportion and arrangements of parts, as well as the substitution of equivalent elements for those, herein shown and described may be made without departing from the spirit and scope of the invention as set forth in the appended claims.

Each of the embodiments shown in the drawings may be equipped with means for locking the movable parts in a predetermined position. Furthermore, stopping means may be arranged for limiting the extreme sitting and reclined positions of the movable members of the article.

What I claim is:

1. An article of repose for supporting the body of a person, comprising: a support, a back-rest structure, means movably connecting said back-rest structure with said support, a head-rest structure slidably engaged with said back-rest structure, a first link swingably mounted on said support, and a second link pivoted at different regions thereof to said first link and to said back-rest structure, one of said first and second links being pivoted to said head-rest structure.

2. An article of repose for supporting the body of a person, comprising: a support, a back-rest structure, means movably connecting said back-rest structure with said support, a head-rest structure slidably engaged with said back-rest structure, a first link swingably mounted on said support, and a second link pivoted at different regions thereof to said first link and to said back-rest structure, said first link being pivoted to said head-rest structure, and the pivotal connection of said second link

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with said first link being at a point between the pivotal connection of said first link with the support and the head-rest structure.

3. An article of repose for supporting the body of a person, comprising: a support, a structure including a movable seat, a movable back-rest and means coordinating the movements of said seat with movements of said back-rest, said structure being rockably mounted on said support, a head-rest structure slidably engaged with said back-rest, a first link swingably mounted on said support, and a second link pivoted at different regions thereof to said first link and to said back-rest, one of said first and second links being pivoted to said head-rest structure.

4. An article of repose for supporting the body of a person, comprising: a support, a structure including a movable seat, a movable back-rest and means coordinating the movements of said seat with movements of said back-rest, said structure being rockably mounted on said support, a head-rest structure slidably engaged with said back-rest, a first link swingably mounted on said support, and a second link pivoted at different regions thereof to said first link and to said back-rest, said first link being pivoted to said head-rest structure, and the pivotal connection of said second link with said first link being at a point between the pivotal connections of said first link with the support and the head-rest structure.

5. An article of repose for supporting the body of a person, comprising: a support, a back-rest structure, means movably connecting said back-rest structure with said support, a head-rest structure slidably engaged with said back-rest structure, a first link swingably mounted on said support, and a second link pivoted at different regions thereof to said first link and to said back-rest structure, said second link being pivoted to said head-rest structure, and the pivotal connection of said second link with said back-rest structure being at a point between the pivotal connections of said second link with the first link and the head-rest structure.

6. An article of repose for supporting the body of a person, comprising: a support, a structure including a movable seat, a movable back-rest and means coordinating the movements of said seat with movements of said back-rest, said structure being rockably mounted on said support, a head-rest structure slidably engaged with said back-rest, a first link swingably mounted on said support, and a second link pivoted at different regions thereof to said first link and to said back-rest, said second link being pivoted to said head-rest structure, and the pivotal connection of said second link with said back-rest structure being at a point between the pivotal connections of said second link with the first link and the head-rest structure.

7. An article of repose for supporting the body of a person, comprising: a support, a seat, an upper connecting link pivoted at different regions thereof to said seat and to said support, a lower connecting link pivoted at different regions thereof to said seat and to said support, a back-rest structure pivoted to said upper connecting link, said back-rest structure being capable of abutting engagement with said support, a head-rest structure slidably engaged with said back-rest structure, and controlling means interposed between said back-rest structure and said head-rest structure for effecting movements of the latter in dependence on movements of the former.

8. An article of repose for supporting the body of a person, comprising: a support, a seat, an upper connecting link pivoted at different regions thereof to said seat and to said support, a lower connecting link pivoted at different regions thereof to said seat and to said support, a back-rest structure pivoted to said upper connecting link, said back-rest structure being capable of abutting engagement with said support, a head-rest structure slidably engaged with said back-rest structure, and con-

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trolling means positively connected with said support, said back-rest structure and said head-rest structure, said controlling means propelling said head-rest structure in a direction away from said back-rest structure upon a movement of the back-rest structure from its upright position into a reclined position.

9. An article of repose for supporting the body of a person, comprising: a support, a seat, an upper connecting link pivoted at different regions thereof to said seat and to said support, a lower connecting link pivoted at different regions thereof to said seat and to said support, a back-rest structure pivoted to said upper connecting link, said back-rest structure being capable of abutting engagement with said support, a head-rest structure slidably engaged with said back-rest structure, a first link swingably mounted on said support, and a second link pivoted at different regions thereof to said first link and to said back-rest structure, one of said first and second links being pivoted to said head-rest structure.

10. An article of repose for supporting the body of a person, comprising: a support, a seat, an upper connecting link pivoted at different regions thereof to said seat and to said support, a lower connecting link pivoted at different regions thereof to said seat and to said support, a back-rest structure, pivoted to said upper connecting link, said back-rest structure being capable of abutting engagement with said support, a head-rest structure slidably engaged with said back-rest structure, a first link swingably mounted on said support, and a second link pivoted at different regions thereof to said first link and to said back-rest structure, said second link being pivoted to said head-rest structure, and the pivotal connection of said second link with said back-rest structure being at a point between the pivotal connections of said second link with the first link and the head-rest structure.

11. An article of repose for supporting the body of a person, comprising: a support, a seat, an upper connecting link pivoted at different regions thereof to said seat and to said support, a lower connecting link pivoted at different regions thereof to said seat and to said support, and a back-rest structure pivoted to said upper connecting link, said back-rest structure being capable of abutting engagement with said support.

12. In an article of repose as claimed in claim 11, said pair of connecting links being pivoted to the rear end portion of said seat.

13. An article of repose for supporting the body of a person, comprising: a support, a back-rest structure including a frame, means movably connecting said back-rest structure with said support, a head-rest structure slidably engaged with said back-rest structure, said head-rest structure including a main head-rest body and a pair of connecting rods laterally extending therefrom and projecting downwardly at the sides of said back-rest structure, each connecting rod being slidably engaged with said back-rest structure, and controlling means positively connected with said support, the frame of said back-rest structure and said connecting rods, said main head-rest body being arranged outside the upper edge of said back-rest structure when the latter is in its upright sitting position, said controlling means propelling said main head-rest body in a direction away from said back-rest structure upon movement of the back-rest structure from its upright position into a reclined position.

14. An article of repose for supporting the body of a person, comprising: a support, a back-rest structure including a frame, means movably connecting said back-rest structure with said support, a head-rest structure slidably engaged with said back-rest structure, said head-rest structure including a main head-rest body and a pair of connecting rods laterally extending therefrom and projecting downwardly at the sides of said back-rest structure, each connecting rod being slidably engaged with said back-rest structure, and controlling means positively con-

connected with said support, the frame of said back-rest structure and said connecting rods, the upper edge of said back-rest structure having a recess and at least a portion of said main head-rest body being within said recess of the back-rest structure when said back-rest structure is in its sitting position, said controlling means propelling said main head-rest body in a direction away from said back-rest structure upon movement of the back-rest structure from its upright position into a reclined position.

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