June 1, 1965 R. A. HOPKINS 3,186,757

CHAISE LOUNGE

Filed Nov. 15, 1963 5 Sheets-Sheet 1

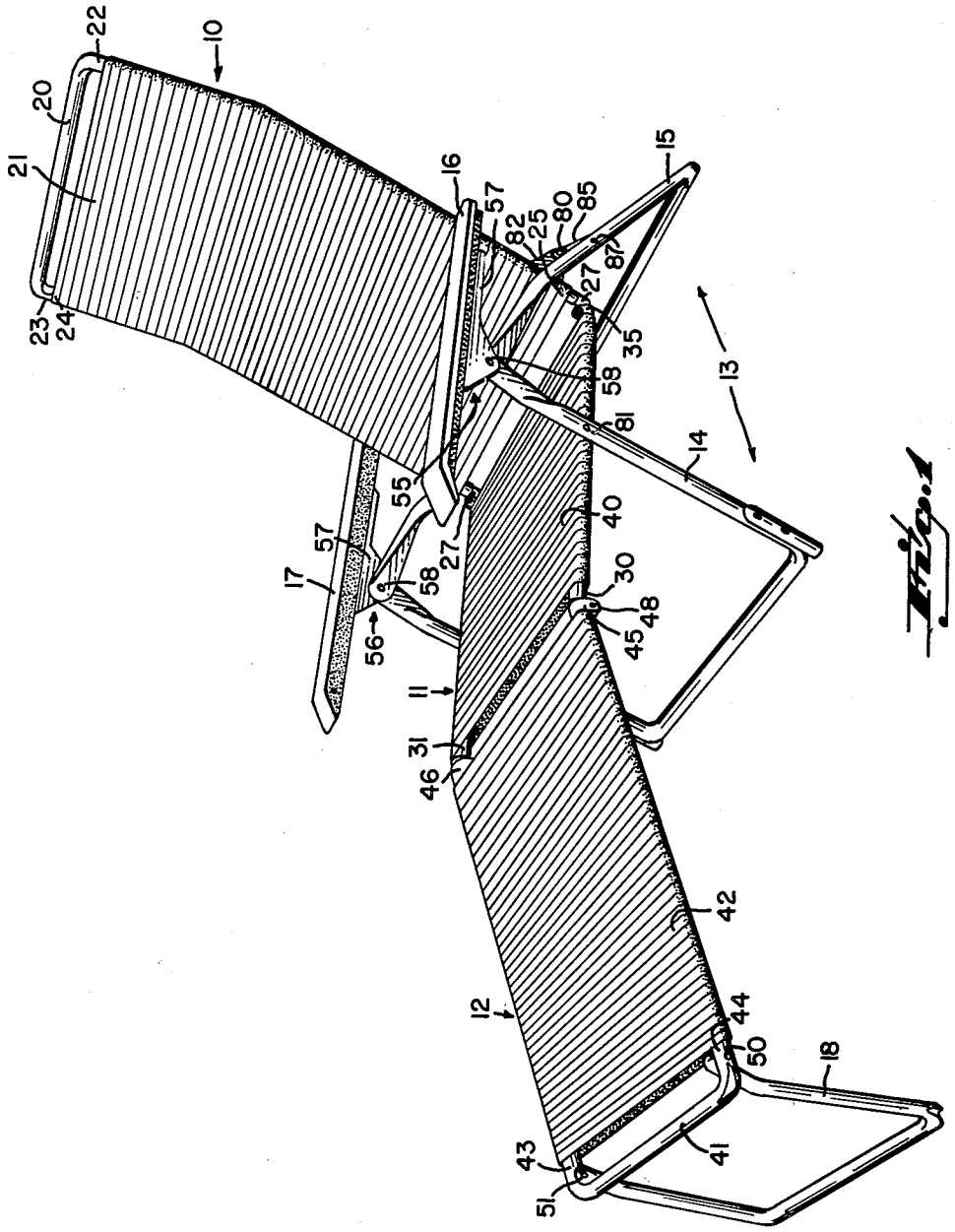


Fig. 1

INVENTOR.
Robert A. Hopkins

BY
Wood, Herron & Evans
ATTORNEYS

June 1, 1965 R. A. HOPKINS 3,186,757

CHAISE LOUNGE

Filed Nov. 15, 1963 5 Sheets-Sheet 2

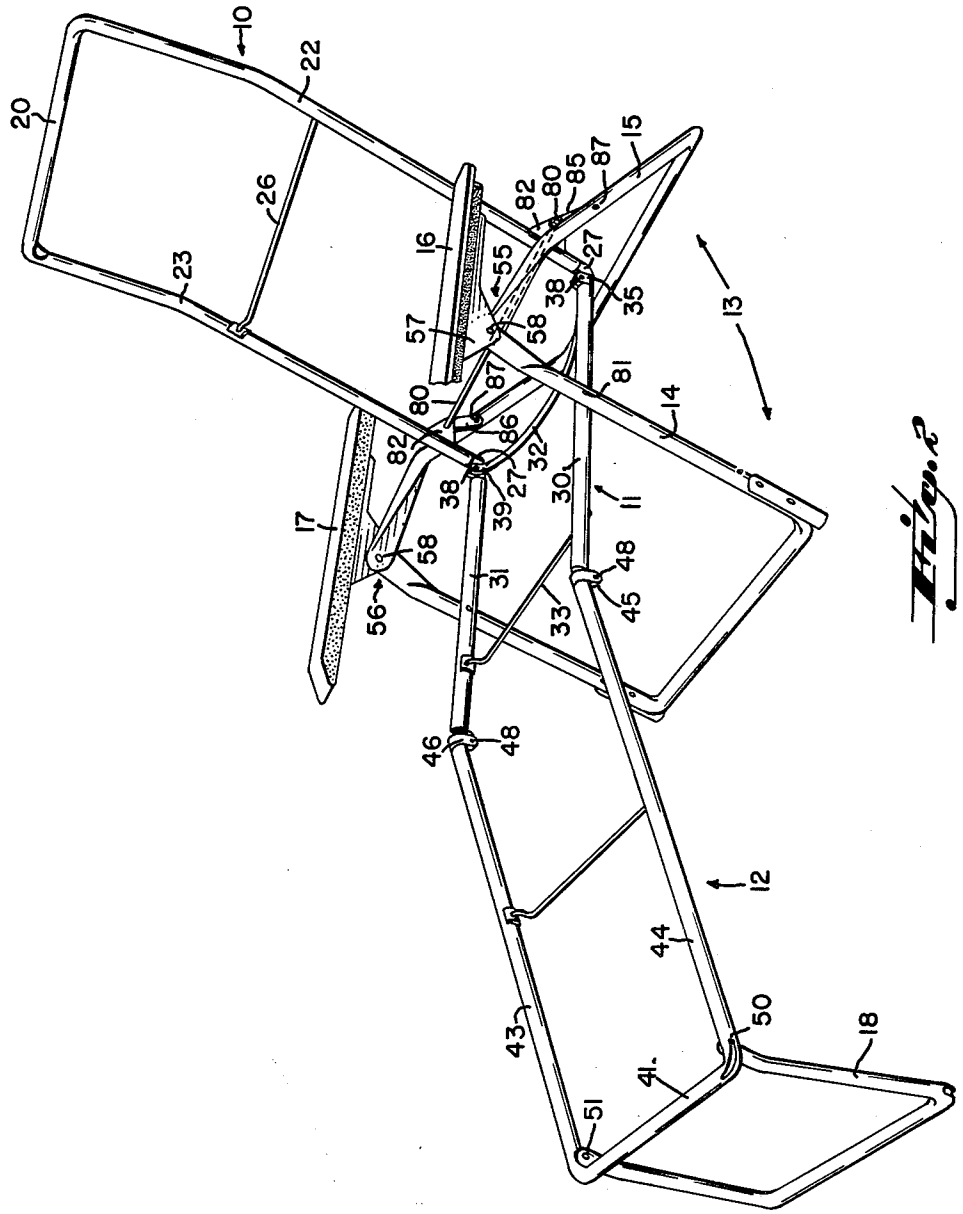


Fig. 2

INVENTOR.
Robert A. Hopkins

BY
Wood, Herron & Evans
ATTORNEYS

June 1, 1965 R. A. HOPKINS 3,186,757

CHAISE LOUNGE

Filed Nov. 15, 1963 5 Sheets-Sheet 3

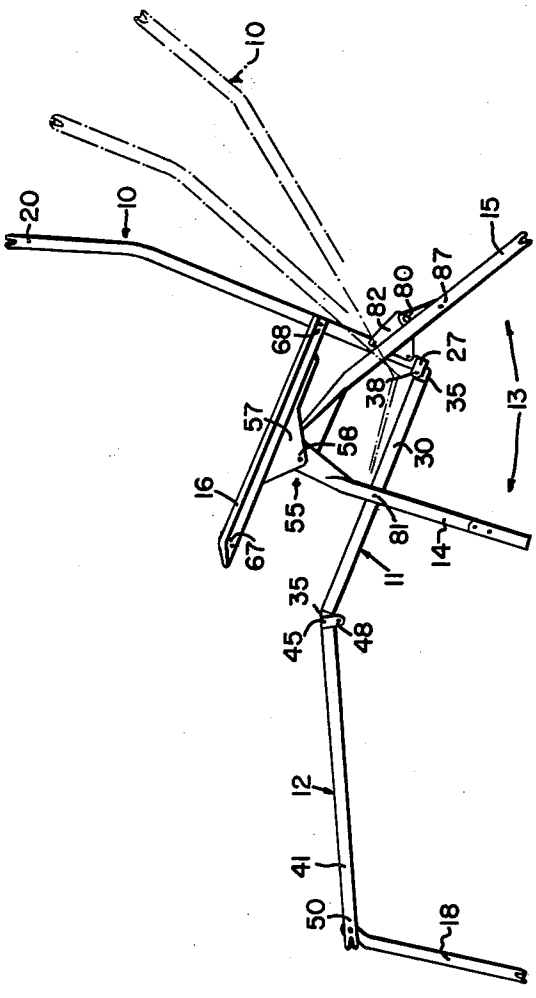


Fig. 3

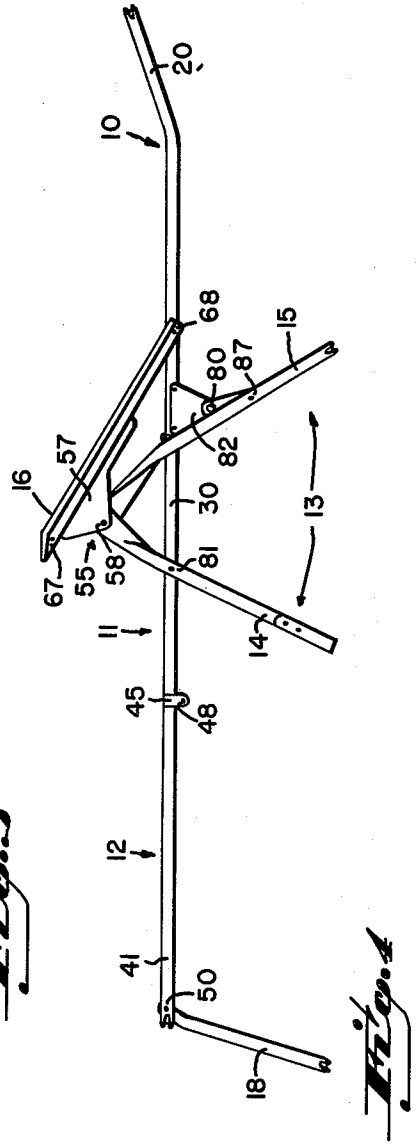


Fig. 4

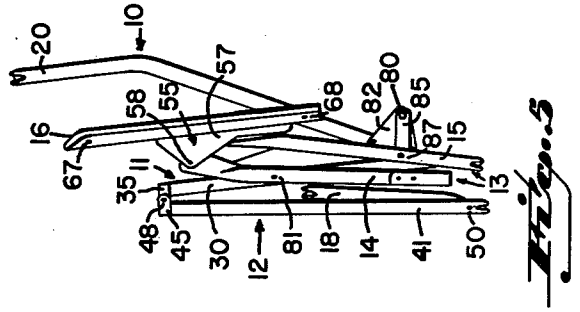


Fig. 5

INVENTOR.
Robert A. Hopkins
BY
Wood, Herron & Evans
ATTORNEYS

June 1, 1965 R. A. HOPKINS 3,186,757

CHAISE LOUNGE

Filed Nov. 15, 1963 5 Sheets-Sheet 4

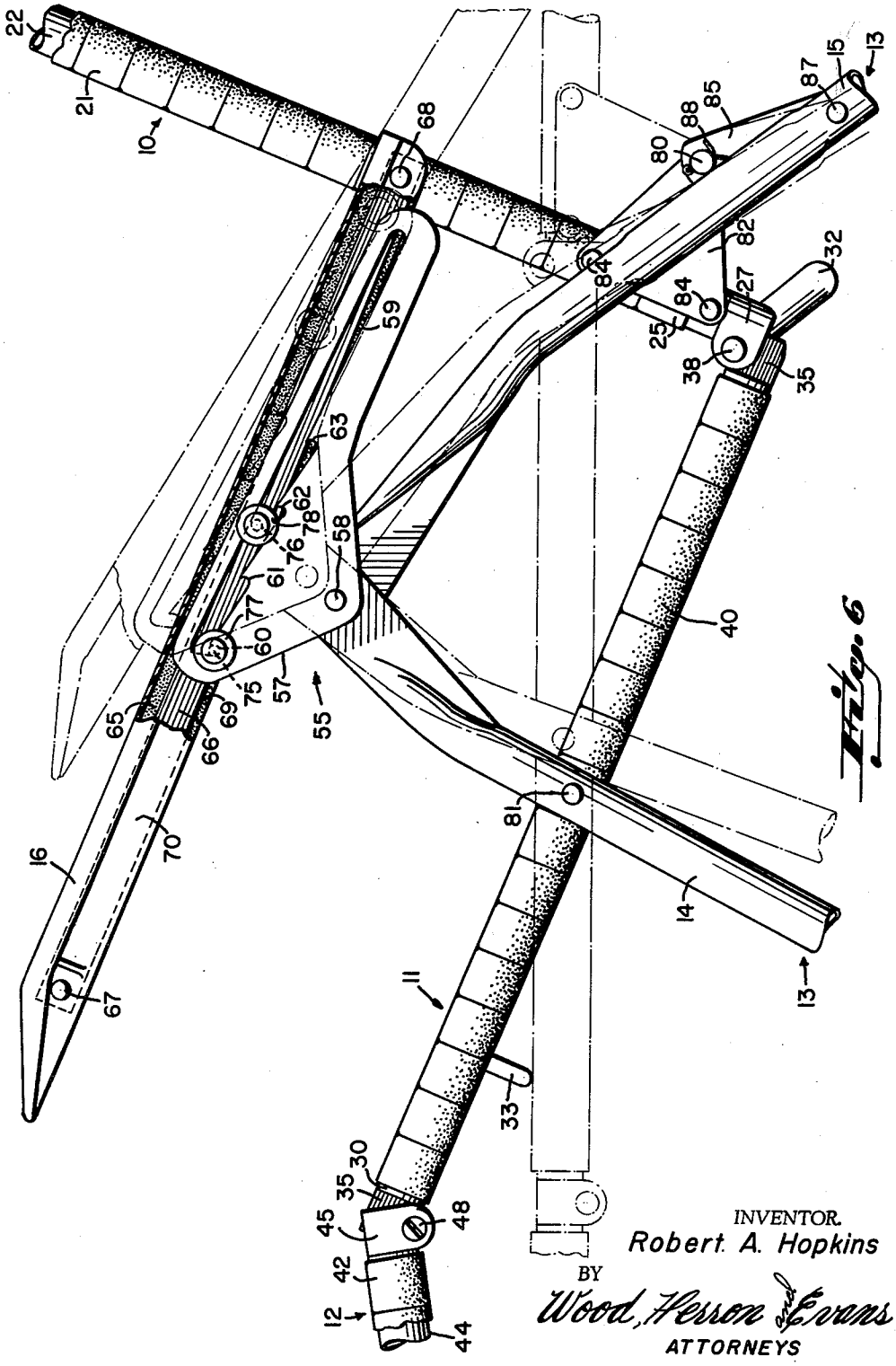


Fig. 6

INVENTOR.
Robert A. Hopkins
BY
Wood, Herron & Evans
ATTORNEYS

June 1, 1965 R. A. HOPKINS 3,186,757

CHAISE LOUNGE

Filed Nov. 15, 1963 5 Sheets-Sheet 5

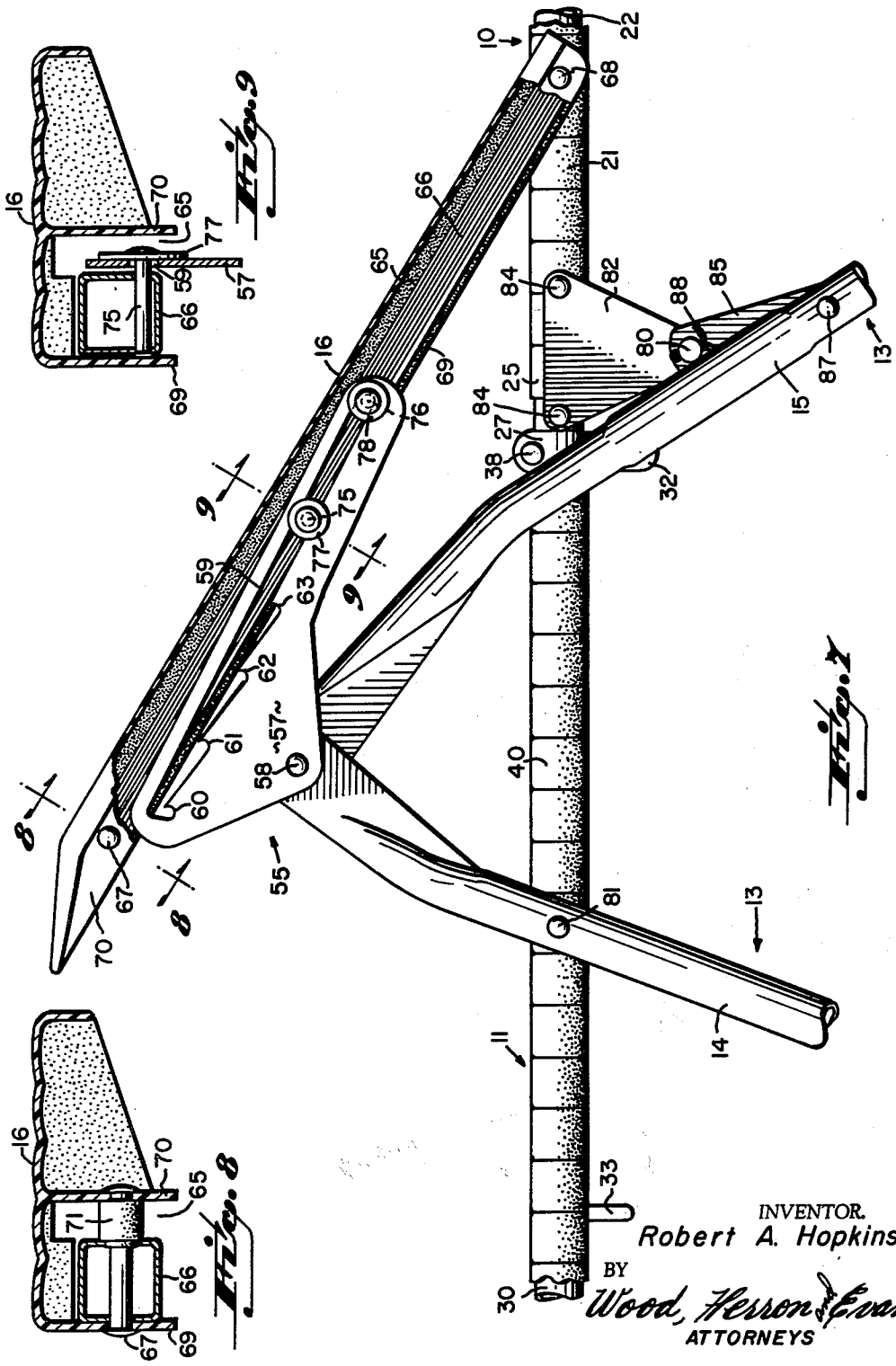


Fig. 1

Fig. 8

Fig. 9

INVENTOR.
Robert A. Hopkins
BY
Wood, Herron & Evans
ATTORNEYS

United States Patent Office 3,186,757 Patented June 1, 1965

3,186,757

CHAISE LOUNGE

Robert A. Hopkins, Loveland, Ohio, assignor to Bell Intercontinental Corporation (Balcrank Division), New York, N.Y., a corporation of Delaware

Filed Nov. 15, 1963, Ser. No. 324,055
2 Claims. (Cl. 297—28)

This invention relates to an article of furniture and more particularly to a foldable chaise lounge. It should be appreciated, however, that this invention is applicable to both foldable and nonfoldable articles of furniture.

It has been an objection of this invention to provide an article of furniture such as a chaise lounge which may be used as both a contoured chair or chaise lounge and as a flat lounge. In this type of furniture, the term contoured chair or lounge designates a chair having an angulated or inclined seat which extends upwardly from back to front. Otherwise expressed, an object of this invention has been to provide an item of furniture having a "contoured seat" when the back of the item is up to support a person in a sitting position and has a flat or horizontal seat when the back is extended flat to support a person lying down.

Contoured seat chaise lounges have been sold commercially in the past. However, in all of these prior chaise lounges the seat remained contoured or tilted in all positions of the back. If the back folded down or tilted into a horizontal plane so that it supported a person lying down, his or her knees were located higher than his back; a relatively uncomfortable position. Furthermore, if a person desired to lie on his stomach, as is common when sunbathing, these lounges were suitable only for the proverbial "Crooked Man" with a crooked back.

Still another object of this invention has been to provide a chaise lounge in which both the tilt of the back support and the seat are adjustable and so interconnected that the tilt of the seat is changed simultaneously with changes of the angle of inclination of the back rest or support.

Still another objective of this invention has been to provide and improved arm rest and adjustment mechanism for changing the angle of inclination of the back rest of a chaise lounge or other similar item of foldable furniture.

The preferred embodiment of the lounge may be envisioned as incorporating three panels: a back rest, a seat, and a leg suport hingeably interconnected in end to end relationship. These panels are mounted upon a supporting frame in the form of front and rear legs pivotally and adjustably connected at their tops to a pair of laterally disposed arm rests. Each arm rest is in turn pivotally attached at its rear to the seat panel so that adjustment of the arm rests relative to the legs causes a change of angle of inclination of the back panel. When the angle of inclination of the back panel is altered, the angle of inclination of the seat panel is simultaneously altered; the interconnection being such that lowering of the back panel toward a horizontal position causes the back of the seat to rise into the same horizontal plane.

The advantage of this type of construction is that it permits a contoured chaise lounge to be folded flat and used as a comfortable bed. Furthermore, the interconnection of the panels and particularly the relationship of the pivot axes enables this folding to and from the flat altitude to be performed by a person seated or lying in the lounge merely by unlocking the arm rests and shifting his or her weight. Otherwise expressed, to shift from a contoured chair to a flat lounge position, the person seated within the chair need only lift the arm rests and lean rearwardly. Alternatively, to bring the lounge from the flat altitude to the contoured altitude, it is only necessary for the person lying in the lounge to lift himself to the seated

position. Because of the relationship of the pivot axes and the center of gravity of a person lying on the lounge, the back panel will lift and remain in engagement with the back of the person in the lounge as he rises to the seated position. When the person lifts himself into the seated position from a prone position, his center of gravity is located approximately over the pivot between the seat and the back so that the rear section of the seat is forced downwardly causing the back panel to be raised to the chair position. Furthermore, because the back of the seat lowers automatically as the person rises to the seated position, moving from the prone to the seated position requires less physical effort than would be the case if the seat remained stationary.

Still another advantage of the lounge constructed as described above is that in all altitudes of the seat and back, the lounge is in a state of static balance without any appreciable weight on the arm rest adjustment mechanism.

Still another advantage of the above described construction is that the lounge achieves all of the above described objectives and advantages while still retaining foldability. In other words, the above described lounge, with all its attendant advantages, may be folded into a relatively flat, compact package for shipment or storage. When folded, the front and rear legs come together and the three panels—the back panel, seat panel and leg support panel—all pivot into approximately parallel planes to form the flat folded article.

These and other objects and advantages of this invention will be more readily apparent from a description of the preferred embodiment in which:

FIGURE 1 is a perspective view of the lounge in the contoured position with the back raised,

FIGURE 2 is a view similar to FIGURE 1 but with the covering material removed,

FIGURE 3 is a side elevational view of the lounge with the back raised,

FIGURE 4 is a side elevational view of the chair with the back folded down into the horizontal plane,

FIGURE 5 is a side elevational view of the lounge in the fully folded position,

FIGURE 6 is an enlarged side elevational view of a portion of the lounge with the back raised, the position of the components being illustrated in phantom when the back is lowered into a horizontal position,

FIGURE 7 is a view similar to FIGURE 6 but with the back lowered into the horizontal plane,

FIGURE 8 is a cross sectional view taken along line 8—8 of FIGURE 7,

FIGURE 9 is a cross sectional view taken along line 9—9 of FIGURE 7.

Referring to the drawings and particularly to FIGURE 1, it will be seen that the lounge of this invention comprises three hingeably connected panels; a back panel **10**, a seat panel **11**, and a leg support panel **12**. All three panels are mounted upon and supported by a supporting framework indicated generally at **13**. The supporting frame **13** includes a front leg frame **14**, a rear leg frame **15**, a pair of laterally disposed adjustable arm rests **16**, **17** and an end frame **18**.

The back panel **10** consists of a U-shaped tubular rod **20**, around which is wrapped a covering **21**. A spacer bar **26** is located between the two sides **22**, **23** of the back frame so as to maintain the proper spacing between the sides. The covering **21** consists of a long strip of plastic material wrapped around the two side bars **22**, **23** of the back frame so as to stretch therebetween. It is connected at one end **24** to one side **23** of the frame and at the opposite end **25** to the other side **22** of the frame by conventional clips.

In order to hingeably connect the back panel **10** to the

seat panel 11, cast metal hinge plugs 27, 28 are rigidly mounted in the ends of the back frame side bars 22 and 23 respectively. The plugs are secured within the ends of the tubular frame by rivets which extend through aligned apertures (not shown) in the frame and the plugs.

The seat panel frame consists of a pair of laterally disposed side bars 30, 31 interconnected by a pair of spacer bars 32, 33. Hinge plugs 35, identical to the plugs 27, 28 of the back panel, extend from all four ends of the side bars 30, 31. The two plugs 35 which extend from the rear of the seat are hingeably connected to the plugs 27, 28 of the back panel by a pair of pivot pins 38. The pivot pins extend through apertures (not shown) of these plugs as well as through upwardly extending flanges 39 of the rear spacer bar 32 so as to interconnect the plugs and the bar. As may be clearly seen in FIGURE 2, the middle section of the cross bars 32, 33 between the side bars 30, 31 is offset downwardly relative to the end sections so that the middle sections cannot engage or place pressure upon a person seated within the lounge.

The seat panel is covered with a long strip of plastic material wound around and stretching between the two side bars 30, 31 of the seat panel frame. Opposite ends of the strip of plastic material 40 are connected by conventional clips to the side frame bars.

The leg support panel 12 comprises a U-shaped frame member 41 wrapped or covered by a strip of plastic covering material 42 in the same manner as the seat and back panels. Here again the strip of covering material is wrapped around the side sections 43, 44 of the leg support panel frame 41 and stretches therebetween. The open ends of the U-shaped frame have hinge plugs inserted therein and rigidly connected thereto by rivets, not shown. The hinge plugs 45, 46 are identical to the hinge plugs 35 of the seat panel and are connected thereto by pivot pins 48.

Supporting the front end of the leg support panel 12 above the ground is the U-shaped end frame 18 which is pivotally attached to the front end of the frame by pivot pins 50, 51. The pivot pins 50, 51 accommodate folding of the end frame against the bottom of the leg support panel when the lounge is fully folded for storage in the manner shown in FIGURE 5.

The U-shaped leg frames 14 and 15 are hingeably connected at their upper ends to adjustable locking mechanisms indicated generally by the numerals 55, 56. Since these adjusting mechanisms are identical, only one 55 will be described in detail. Referring particularly to FIGURES 6 through 9, it will be seen that the upper ends of the front and rear legs 14 and 15 are pivotally secured to an adjusting plate 57 by a pivot pin 58. An elongated slot 59 in the plate 57 has four notch sites 60, 61, 62 and 63 in its lower edge. Together the notch sites define a saw-tooth edge along the bottom and forward section of the slot 59. The top of the plate 57 resides within a recess 65 in the bottom of the arm rest 16. Also located within this slot is a follower pin supporting tube 66 which is connected by a pair of rivets 67, 68 to opposite sides 69, 70 of the recess defining walls. In order to securely hold the tube 66 within the recess, spacer sleeves 71 are located between one side of the tube 66 and the wall 70.

A pair of spaced follower pins 75, 76 are attached to the tube and extend into the slot 59 of the plate 57. Each of these pins is in the form of a rivet which extends laterally through the tube 66 and the slot 59. Large washers 77, 78 are secured between the head of each rivet and the plate 57 so as to prevent the rivets from pulling out of the slot.

As may be clearly seen in FIGURE 6, the forwardmost follower pin 75 is located adjacent the bottom of the tube 66 while the rear follower pin 76 is located close to the middle of the tube. By so positioning the pins, the rear pin remains in engagement with the top of the slot in all positions of the arm rest relative to the plate 57.

The forwardmost pin 75 may be located in any one of the notch sites 60–63 so as to position the back panel 10 in any one of four angulated positions. When the back panel 10 is in the flat position, as shown in FIGURE 7, the rear pin 76 engages the back of the slot 59 to preclude the back panel from moving below the horizontal position. The two pins 75, 76 located in the slot 59 limit the angular movement of the plate 57 about the pivot pin 58 and yet permit it to rotate about this pivot into the position shown in FIGURE 5 in which the chair is fully folded for storage.

Referring now particularly to FIGURES 2, 6 and 7, it will be seen that the back panel 10 of the lounge pivots about a rear support rod 80 as it is moved through the various angulated positions to the flat lounge position illustrated in FIGURE 7. As may be clearly seen in FIGURE 6, the support rod 80 is offset from the hingeable pivot connection 38 between the back panel 10 and the seat panel 11 and is so positioned relative thereto that as the back panel 10 is rotated about the back support rod 80 toward the flat position of FIGURE 7, the back of the seat panel 11 and the hingeable connection 38 are raised or lifted. To accommodate this raising of the seat panel, it is pivotally connected by a pair of pivot pins 81 to the front leg frame 14. Thus when the back panel 10 is located in a horizontal plane, the seat panel 11 and the leg support panel 12 are located in the same plane. As the back panel is raised and pivots about the support rod 80, the chaise lounge is converted from a perfectly flat lounge as shown in FIGURE 7 to a contoured chair or lounge shown in FIGURE 1.

The support rod 80 is attached to the back panel 10 of the lounge by a pair of generally triangular support brackets 82, 83 which are connected by rivets 84 to the side bars 22, 23 of the back panel frame 20. A pair of pivot links 85, 86 are connected at their upper ends to the support rod 80 and at their lower ends to opposite sides of the rear leg frame 15. The lower connection of the links 85, 86 to the rear legs are a pair of pivot pins 87 about which the links are free to pivot but which preclude the support bar 80 from sliding downward when it is resting against the rear leg frame 15. Conventional cotter pins 88 hold the support bar 80 in assembled relation with the links 85, 86 and the brackets 82, 83.

When the lounge is to be used as a contoured chair, the arm rests are located in the position shown in FIGURE 6 in which the forward follower pin 75 is located in the forwardmost notch site 60 of the slot 59 and bracket 57. In this position the rear of the chair seat is located below the front of the seat. At this time the rear follower pin 76 abuts against the top of the slot 59 and holds the plate 57 against pivotal movement relative to the supporting leg frames. To adjust the angle of inclination of the back panel 10, the arm rests are lifted and the front follower pin 75 shifted from the notch site 60 to one of the other notch sites 61–63. This may be accomplished by a person seated in the chair by simply lifting the arm rests and leaning back. As the back panel pivots about the rear support rod 80, the seat panel pivots about the pivot pins 81 and the rear of the seat panel is moved upwardly.

When the lounge is to be used to support a person lying down, the arm rests are lifted so as to remove the front pivot pin 75 from the notch sites and the back panel pushed all the way to the back. This may be accomplished by a person seated in the chair by merely lifting the arm rests and leaning rearwardly. In the flat position of the back panel, the rear pivot pin 76 abuts against the back of the slot 59 and holds the back panel in the horizontal plane. Because of the relative positions of the rod 80, about which the back panel 10 pivots, and the hinge pins 38 between the back panel 10 and the seat panel 11, the rear of the seat is raised and the front lowered as the back panel 10 moves toward the flat or horizontal position. When the back panel 10 is located in the horizontal plane, the seat panel 11 and the leg sup-

port panel 12 are also located in the same horizontal plane.

To fold the lounge for storage, as shown in FIGURE 5, the arm rests are lifted and moved to a position in which the forwardmost pin 75 is located in the forward notch site 60. Continued forward movement of the back panel 10 causes the support plate 57 to pivot about the pivot pin 58 and lifts the support rod 80 from engagement against the rear of the rear leg frame 15. The end frame 18 may then be folded under the leg support panel 12 and the leg support panel 12 folded up toward the seat panel 11. The lounge is thus ready for storage or shipment in a compact package.

As should now be obvious, the chaise lounge of this invention may advantageously be used both as a contoured chair and as a perfectly flat lounge. It may also be folded into a compact package such as shown in FIGURE 5 for storage.

While a preferred embodiment has been illustrated and described herein, numerous modifications and alterations of the lounge will be obvious to those skilled in the art without departing from the spirit of the invention. Therefore, I intend that the invention be limited only by the scope of the appended claims.

Having described my invention, I claim:

1. A folding chaise lounge comprising a seat panel, a back panel pivotally connected at its lower end to one side of said seat panel, a leg support panel pivotally attached to the opposite side of said seat panel, a supporting frame for said panels including front-supporting and rear-supporting legs attached by a pair of adjustable connections to a pair of laterally disposed arm rests, a pivot connection between said seat panel and said front supporting legs said back panel being pivotally connected to said arm rests and pivotably about a back panel pivot supported upon the top of said rear-supporting legs whereby upon adjustment of said arm rests relative to said supporting legs the angle of inclination of said back panel will be varied, a link pivotally attached at one end to said rear legs and at the other end to said back panel pivot, said back panel pivot between said rear-supporting legs and said back panel being vertically offset and so disposed relative to said pivotal connection between said back panel and seat that as said back panel is adjusted rearwardly said one side of said seat panel is raised, each of said adjustable connections comprising a plate pivotally attached to said supporting legs, an elongated slot in said plate having a plurality of notch sites located along said slot, a pair of spaced follower pins attached to each of said arm rests and extending through said slot, at least one of said follower pins being locatable in said notch sites to lock said back panel in an adjusted angle of inclination.

2. A foldable three-section chaise lounge comprising a back panel, a seat panel and a leg support panel, said seat panel being hingedly connected along one side to said back panel and along an opposite side to said leg support panel, said panels being mounted upon a supporting framework including front-supporting legs and rear-supporting legs for angular movement relative thereto, a pivot connection between said seat panel and said front supporting legs, a back panel pivot supported upon the upper surface of said rear legs about which said back panel is adjustable, a link connected at one end to one of said legs and at the other end to said back panel pivot, a pair of laterally disposed arm rests pivotally attached at one end to said back panel and adjustably attached to said front-supporting and rear-supporting legs whereby said back panel may be adjusted about said back panel pivot from a generally vertical position to a generally horizontal position upon adjustment of said arm rest relative to said framework, said back panel pivot being so located relative to said hingeable connection between said seat panel and back panel that said first side of said seat panel is raised as said back panel is lowered about said back panel pivot toward a horizontal position, said three panels all being located in approximately the same horizontal plane when said back panel is in a generally horizontal position, and said three panels all being located in different planes angulated relative to each other when said back panel is located in a generally vertical position.

References Cited by the Examiner

UNITED STATES PATENTS

799,128	9/05	Wilmot et al.	297—320
1,640,968	8/27	Southern	297—316
2,031,124	2/36	Perlesz et al.	297—320
2,200,647	5/40	Vanderploeg	5—37
2,573,073	10/51	Vale	297—320
2,703,599	3/55	Vincent	297—320
2,964,097	12/60	Moore	297—28
3,031,228	4/62	Tydor	297—39
3,075,811	1/63	Brown	297—359

FOREIGN PATENTS

503,866	4/39	Great Britain.

FRANK B. SHERRY, *Primary Examiner.*