

March 5, 1957

M. SHANKMAN

2,784,404

CONVERTIBLE BED FORMING SEATING DEVICE

Filed June 22, 1954

5 Sheets-Sheet 1

FIG. 1.

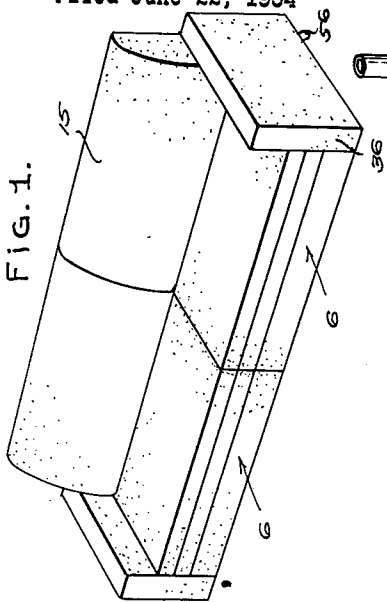


FIG. 2.

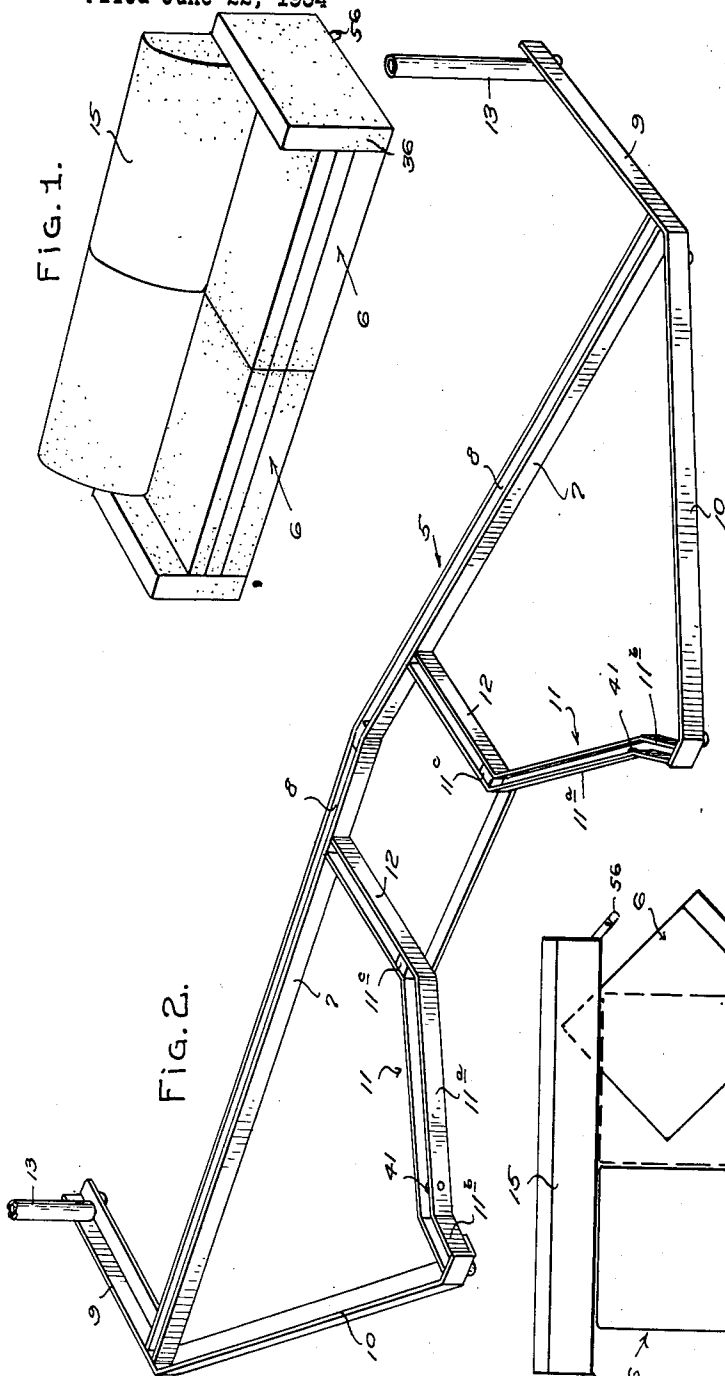


FIG. 4.

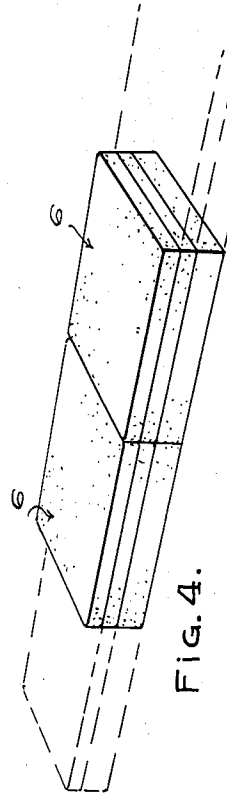
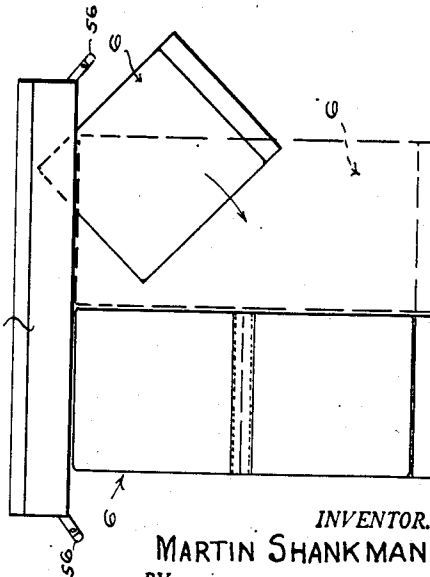


FIG. 3.



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5 Sheets-Sheet 2

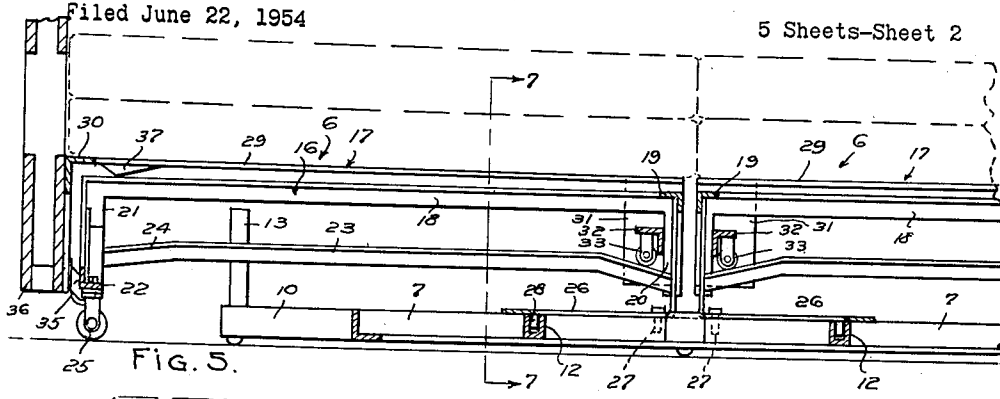


FIG. 5.

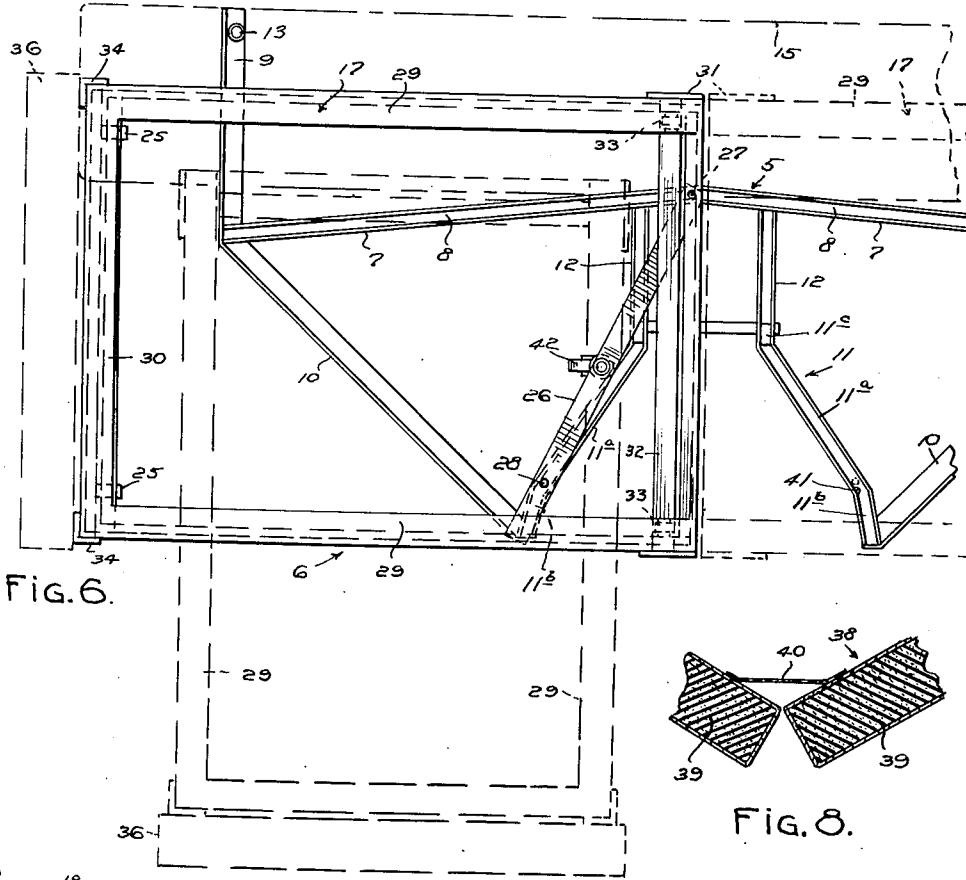


FIG. 6.

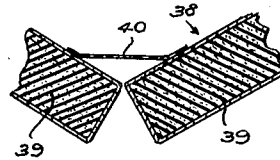


FIG. 8.

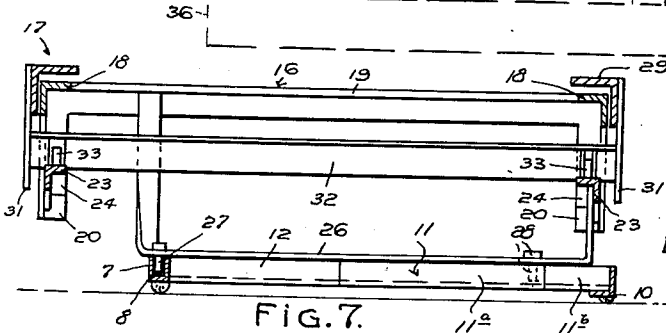


FIG. 7.

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CONVERTIBLE BED FORMING SEATING DEVICE

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5 Sheets-Sheet 3

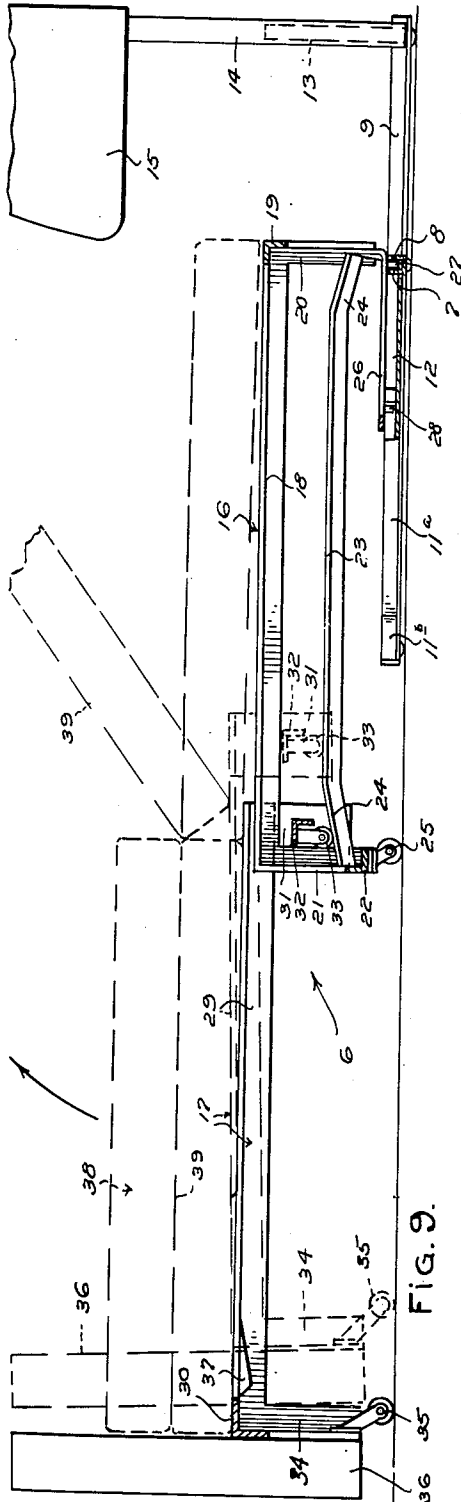


FIG. 9.

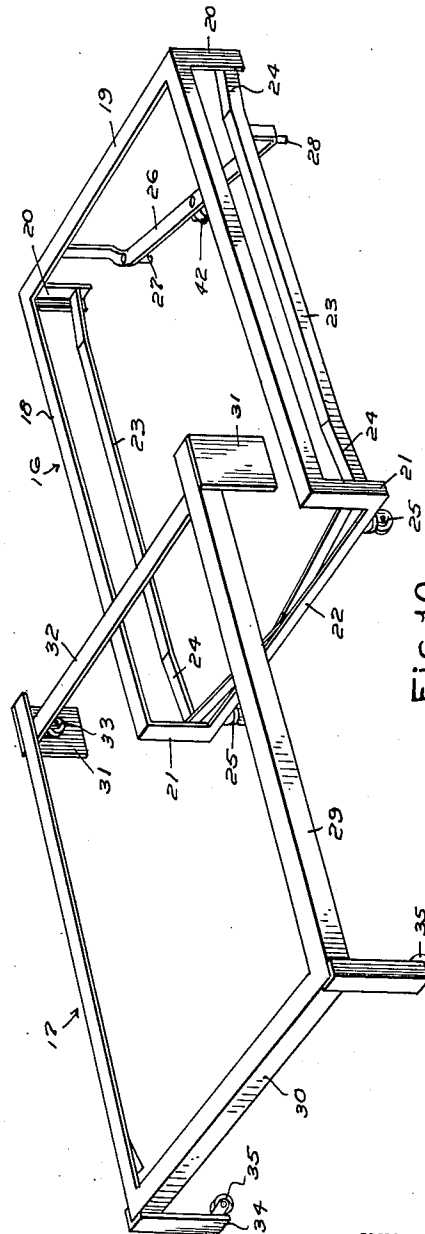


FIG. 10.

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CONVERTIBLE BED FORMING SEATING DEVICE

Filed June 22, 1954

5 Sheets-Sheet 4

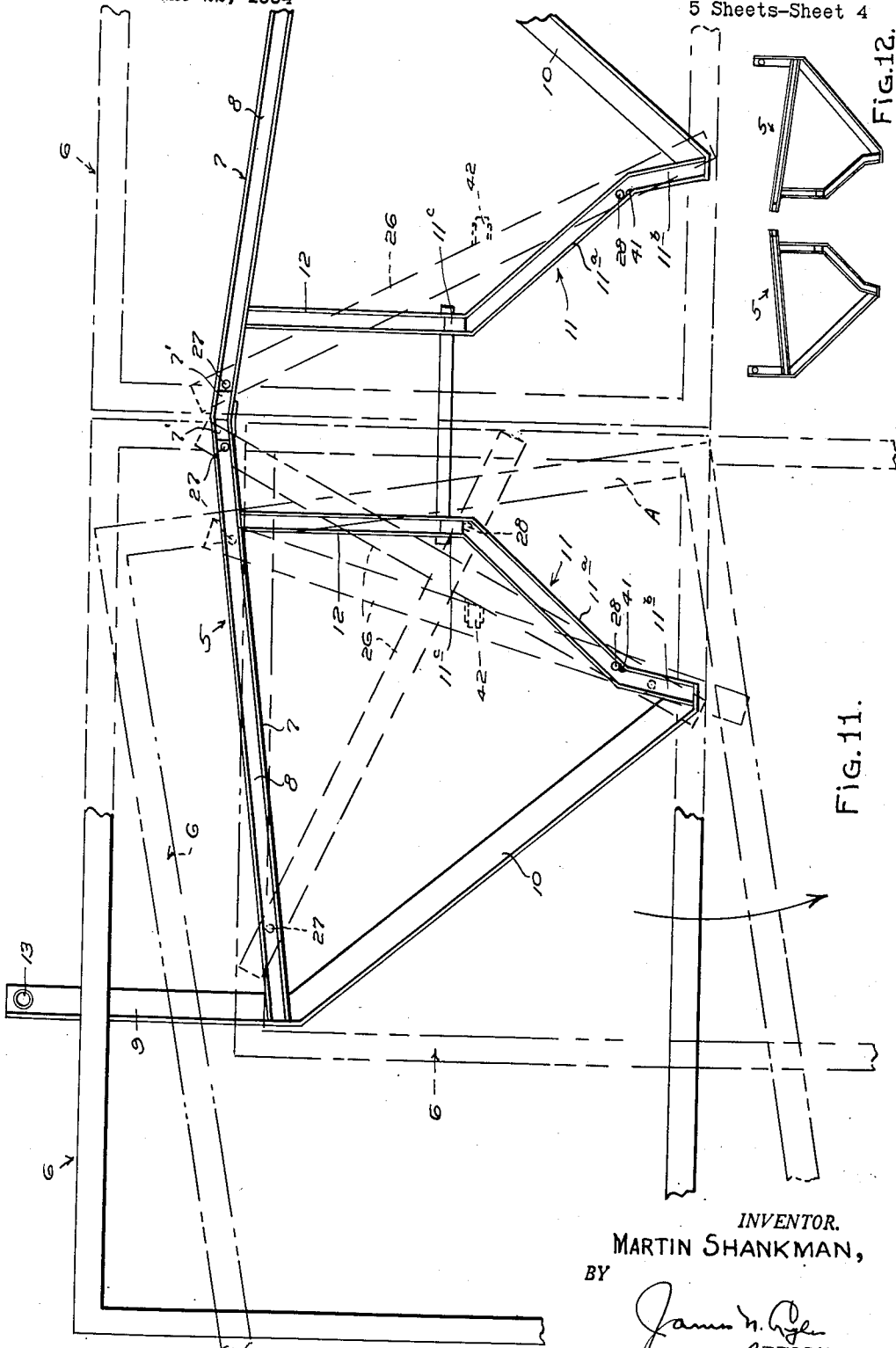


FIG. 11.

FIG. 12.

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CONVERTIBLE BED FORMING SEATING DEVICE

Filed June 22, 1954

5 Sheets-Sheet 5

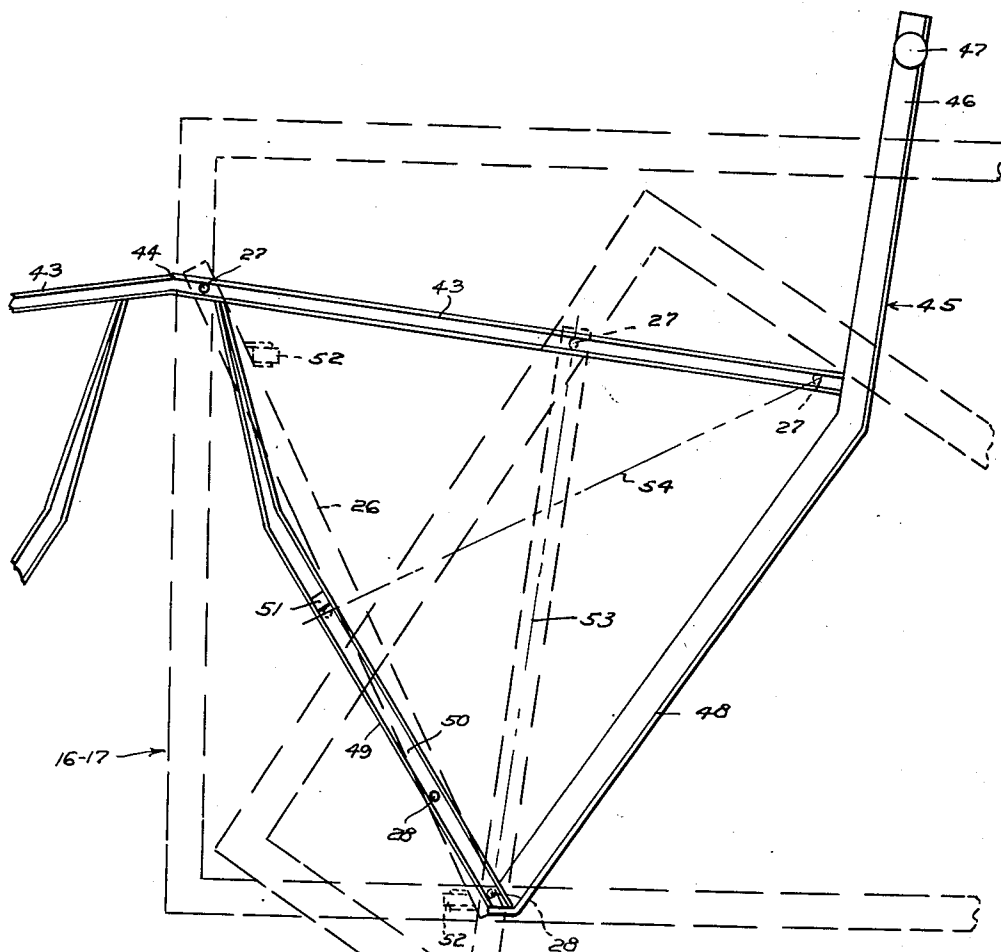


Fig. 13.

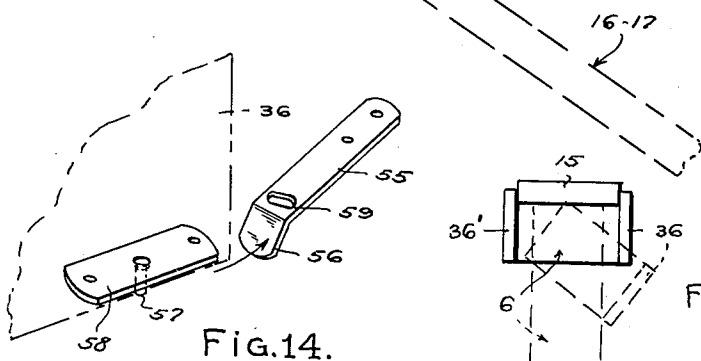


Fig. 14.

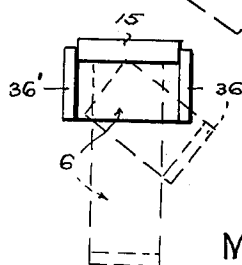


Fig. 15.

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1

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CONVERTIBLE BED FORMING SEATING DEVICE

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Application June 22, 1954, Serial No. 438,397

28 Claims. (Cl. 5—20)

This invention relates to improvements in convertible sitting and bed furniture, convertible couch beds being an important embodiment of the invention, and is a continuation in part of my co-pending application, Serial No. 165,240, filed May 31, 1950.

It is among the objects of the invention to provide convertible sitting and bed furniture, one embodiment of which is an upholstered arm chair of conventional proportions and appearance, which admits of use of a permanently installed upholstered back and which requires neither hinges, drawers nor supporting box structures, which admits of conversion of such chair into a bed by simple adjustment of the seat to position at any desired angle to the back for adaptation to available space and which admits of extension of the seat to form a full length bed and which admits of ready removal of the bed component from the rest of the chair for transfer and use of the bed elsewhere, and which admits of conversion of the arm chair into a contour chair by simple displacement of the seat to place the associated arm of the chair parallel to its back.

It is among other objects of the invention to provide a convertible couch bed of conventional proportions and appearance by which all of the utilities set forth in the previous object are accomplished and which moreover admits of conversion of the couch bed into a double bed without rubbing and scuffing in such conversion (or alternatively may be embodied in a Bahama type bed without a back) or a love seat and single bed, each bed section of which convertible couch bed may be positioned by simple adjustment at an angle to the back for adaptation to available space as, for instance, for seating around a bridge or coffee table or television set, which admits of removal of each bed component of the rest of the couch for use elsewhere and which may be used as a child's bed with safety provisions at both sides and which admits of ready separation of the couch unit into a plurality of sections easily movable by one person through narrow passageways, and admits of re-assembly into the couch, all without the need for any tool.

One feature of the invention is the construction of a convertible arm chair that comprises three readily separable pieces, viz.:

1. A trackway unit;
2. A back;
3. A bed forming seat section.

Similarly, the couch bed unit (of greater length than the width of the arm chair) comprises four such pieces that include two separate bed-forming seat sections that are in side-by-side relation in couch use.

The track unit for the couch bed has a horizontal longitudinal track section resting on the floor and unitarily therewith one transverse track section (likewise resting on the floor), for each bed-forming seat unit. Each seat unit has an arm rest and has a pair of support studs that ride or slide respectively along longitudinal and transverse sections of the track unit when the arm rest is moved in

2

an arcuate path relative to the back to a limiting position in which the arm rest is parallel to the back. In any position to which the seat section may thus be moved, the seat section which consists of two superposed bed elements may be extended, the upper of the bed elements that carries the arm rest of the couch being slidable along a trackway formed in the lower of said sections to a limiting position for forming a full length bed. Anti-friction supports such as casters support the outer portion of the seat section and the outer portion of the extended section when drawn outward to form the bed.

As a consequence, the seat section of the arm chair or either or both seat sections of the couch unit may be displaced as such by riding at one end along the respective track sections with the casters at the other end riding on the floor, in the arcuate displacement of one or both arm rests as the case may be to position parallel to the back rest or to any desired oblique position between the normal position of the arm rest and the extreme position in which it extends parallel to the back. In any such position, the seat section may then be extended to a full length bed, and such extension is also possible without displacing the arm rest to an angle relative to the back by simply pulling it outward longitudinally of the couch bed or of the width of the chair.

The trackway and bed carrying pivots serve:

(a) First to pull the two bed sections apart to prevent rubbing which action is the result of the spacing of the pivot point in the transverse track section inwardly from the front end of such trackway when the unit is in the couch forming position.

(b) In movement of the bed section through an arc, it advances from under the upholstered back.

(c) The edges of the bed section are drawn together after their rear ends abut and are subsequently extended, jointly to form a double bed as distinguished from twin beds.

In returning the bed sections to the seat forming position, the reverse action will be clearly apparent and the seats are moved into the seat forming position, partially to underlie the back section and with their ends shifted together without binding or rubbing.

Other novel features of construction and operation of the device will be clearly apparent during the course of the following description, reference being had to the accompanying drawings wherein has been illustrated preferred forms of the device, and wherein like characters of reference are employed to denote like parts throughout the several figures.

In the drawings:

Figure 1 is a perspective view of a convertible bed forming couch, constructed in accordance with the invention,

Figure 2 is a perspective view of a supporting trackway for shiftable bed forming seat sections,

Figure 3 is a diagrammatic top plan view illustrating the manner of shifting the seat sections from a seating arrangement to a bed forming position,

Figure 4 is a perspective view of a modified form of bed forming couch,

Figure 5 is a fragmentary vertical longitudinal sectional view through a pair of adjacent seat sections in the couch forming position,

Figure 6 is a top plan view of the structure substantially as shown in Figure 5,

Figure 7 is a transverse section, taken substantially on line 7—7 of Figure 5,

Figure 8 is a fragmentary section through a pair of extensible seat cushions.

Figure 9 is a longitudinal vertical section through one seat section in the extended bed forming position,

Figure 10 is a perspective view of extensible frame

devices constituting the supporting means for one seat section,

Figure 11 is a top plan view showing the supporting trackway with a pair of seat sections correlated therewith and shown in dot and dash lines,

Figure 12 is a top plan view of a modified form of trackway,

Figure 13 is a fragmentary top plan view of a further modified form of trackway,

Figure 14 is a perspective view illustrating a latch means for retaining the bed sections in their couch forming position, and

Figure 15 is a diagrammatic illustration of the invention in the form of an arm chair.

Referring specifically to the drawings, and particularly to Figures 2 and 11, the numeral 5 designates a rigid trackway for the shiftable support of seat sections, indicated as a whole by the numeral 6. The trackway 5 has been here illustrated as being fabricated from a plurality of sections of channel irons, although it will be apparent that other forms of rigid trackways may be employed, and the invention is not restricted to the precise method of forming the track. The trackway 5 includes a pair of straight tracks 7 having channels 8 to be traversed by a connecting guide device formed on the seat frames, to be hereinafter described. The tracks 7 each form a relatively long trackway that is rigidly connected at their outer ends with an angle iron 9, welded or otherwise connected thereto. The angle irons 9 are inwardly and forwardly angled as at 10 with the angle 10 extending inwardly substantially 45 degrees from the angle 9. Angle irons 9 and 10 constitute a floor support for the trackway. The forward terminal end of the two angles 10 are bent inwardly in opposed relation, as clearly shown in Figures 2 and 11. As clearly shown, the tracks 7 are angled forwardly and are substantially identical in length. Rigidly connected with the longitudinal track sections 7 and with the forward end of the respective angles 10 adjacent their terminal ends, are transverse track sections 11 in the form of channel irons. Each track section 11 comprises a forwardly extending straight portion 12 that is rigidly welded or otherwise connected to the tracks 7, the portions 12 thus being parallel. The track sections 11 from the portions 12, are acutely angled outwardly from the portion 12 toward the respective ends of the trackway, as at 11^a, while the outer end of each track section 11 is reversely angled inwardly, as at 11^b, for a purpose to be presently described. It should be here noted that the trackway, including the tracks 7 and 11, are disposed in an identical horizontal plane. The rear end of each of the angles 9 is provided with a rigid perpendicular tubular leg 13 to form a connecting means between the track structure and rigid tubular posts 14 (Fig. 9), forming a part of the frame of the back rest 15. No attempt has been made to detail the upholstered back rest 15, since this has been adequately illustrated in the co-pending application, above identified. However, it should be here stated to facilitate a clear understanding of the invention that the back rest 15 extends forwardly to partially overlie the mechanism of the trackway and extends somewhat beyond the opposite ends of the trackway. The legs 13 telescopically receive the posts 14, whereby the back rest is rigidly supported in the elevated position against shifting and may be conveniently removed by lifting upwardly.

Since the seat sections 6 are identical in construction, with the exception that they are formed right and left, a detailed description of one will suffice for both. As clearly shown in Figures 5, 6, 7, 9 and 11, each seat section embodies a base frame member indicated as a whole by the numeral 16 and a companion over-riding seat frame indicated as a whole by the numeral 17. Each of the frames 16 and 17 is generally rectangular in top plan and more clearly shown in Figures 7 and 10. The base frame 16 is defined by upper parallel side angles 18 connected at one end by an angle 19. Each corner of the

frame 16 is provided with legs 20 and 21. The legs 21 are suitably connected together at their lower ends by an angle iron 22. The end of the frame as defined by the legs 21 and angle iron 22 may be suitably transversely braced against flexing. Rigidly connected with the legs 20 and 21 at each side of the frame 16 are horizontally disposed tracks 23, the opposite ends of each track being inclined downwardly, as at 24, to their points of connection with the legs 20 and 21. The intermediate section of each track 23 is downwardly spaced from and parallel with the side angles 18. The frame 16 is ground supported at one end by casters 25 connected with the angle iron 22. The opposite end of the frame 16 is shiftable supported upon the trackway 5 by a rigid and angularly disposed bar 26 having its terminal ends upturned and welded or otherwise connected to the angle iron 19 and one track 23 respectively, as clearly shown. The bar 26 is provided with rigid depending pins 27 and 28 for riding engagement in the track groove 8 and the groove of the track section 11 respectively in a manner to be presently described. The angle irons 18 are provided with spaced apart apertures throughout their length for the connection with suitable spring devices, (not shown).

The over-riding and extensible seat frame 17 is defined by a pair of parallel side angles 29 connected at its leading end by an angle 30. At their opposite ends, the angles 29 are provided with rigid outwardly disposed flat plates 31, connected at assembly by a cross bar 32. The bar 32 is provided adjacent each end with a roller 33. Since the frame 17 must have shiftable over-riding engagement with the frame 16, it is essential that during the over-riding shifting movement of the frame 17, adequate clearance be provided for the spring assembly of the frames and at assembly the frame 17 is engaged over the frame 16 prior to the installation of the bar 32 and its rollers 33, whereby the bar will extend transversely through the frame 16 to dispose the rollers 33 in contact with the upper surface of the tracks 23. Since the bar 32, as clearly shown, will underlie the angles 18 and overlie the tracks 23, the inner end of the frame 17 will be prevented from disengagement with the frame 16. The bar 32 at assembly is rigidly connected to the side plates 31 in any convenient manner. The forward end of the frame 17 is provided with rigid legs 34 and these legs 34 at their lower ends carry rollers 35 to facilitate axial shifting movement of the frame 17 with respect to the frame 16. An upholstered arm rest 36 of any desirable construction is connected with the legs 34 in a convenient manner. The vertical flanges of the angle irons 29 have sliding engagement with the vertical flanges of the angle irons 18 through the medium of which the frame 17 is extended and prevented from laterally shifting movement. The incline sections 24 of the tracks 23 permit the frame 17 to drop downwardly at either extremity of movement so as to properly position the frame 17 in its fully retracted and fully extended position with respect to the angles 18. The frame 17, when starting its shifting movement to over-ride the frame 16, immediately rises above the frame 16, due to the incline sections 24 of the track 23, providing adequate clearance between the spring devices of the frames, and when the frame 17 has been shifted to fully over-lying position with respect to the frame 16, its inner end is maintained at an elevation sufficient to provide clearance for the spring devices. The under surface of each angle 29 at its forward end adjacent the angle 30 is provided with rigid wedge blocks 37 that maintain the forward end of the frame 17 at a sufficient elevation that facilitates the movement of the frame 17 when starting its initial shifting movement to the extended position. It will be apparent to those skilled in the art that the sides of the frame 17 will be suitably covered and upholstered in a conventional manner in accordance with the upholstering of the back rest 15 and the arm rests 36.

In the fully collapsed or couch forming position, the

inner ends of each seat section 6 are in abutting engagement. The upholstered forward corners of the seat sections would in the absence of other precautions have a rubbing contact during the initial swinging movement which would result in the upholstery soon becoming worn and ragged at this point. To overcome this objectionable feature, the track sections 11 have been angled inwardly at their outer ends as at 11^b to control the movement of the pin 28 in its respective groove. With the pins 27 and 28 engaging the grooves of the trackway 7 and 11, respectively, it will be found that when the operator grasps the arm rest 36 and starts the outward swinging movement of the particular seat section, the pin 28 will first shift forwardly into the angled section 11^b of the track section to move the abutting ends of the seat sections slightly apart shown by dotted lines (A) in Figure 11, and a continued forward swinging movement in the direction of the arrow shown in Figure 11 causes the pin 27 to traverse the groove 8 in a straight line toward the end of the couch, while the pin 28 rides backwardly beyond the section 11^b of the track 11 to traverse the track section 11^a, to dispose the seat section in a position with its arm rest parallel with the back rest 15 and with the seat section at right angle to the back rest. Suitable stops 7' are positioned in the track groove 8 to limit the maximum shifting movement of the pin 27 to position the seat section in an accurate parallel position with respect to the back rest and a suitable stop 11^c limits the movement of the pin 28 rearwardly to dispose the seat section at a right angle to the back 15. It will be apparent that the seat section may be shifted to any desired angularity with respect to the back rest for forming angle seats, similar to that illustrated in Figure 3.

Each seat section supports a two-part cushion pad 38, embodying pad sections 39 that are connected together by a transversely stitched fabric strip 40. While the strip 40 is shown as of a single section that is permanently connected to the opposite pad sections 39, it may be found desirable to form this strip 40 in two sections to be connected together by a well known separable slide fastener, thus readily permitting the separation of the pads for replacement or recovering in the event of damage. Pad sections 39 are preferably formed of foam rubber or the like and are adapted to be folded one upon the other to form a double pad when the device is in the seat forming position of Figure 1, or to be unfolded one from the other to be co-extensive with the frames 16 and 17 when in the extended position. The pad sections 39 when in the folded position are wholly supported upon the spring devices of the frame 17, and when the frame 17 has been shifted to the extended position, the pad is unfolded to extend over the spring devices of the frame 16 as well to form in effect a full length sleeping bed. As shown in Figure 8, the fabric section 40 is formed sufficiently narrow so that when the sections 39 are unfolded, the abutting ends of the sections will be compressed to the extent that an objectionable joint in the mattress will be eliminated.

To prevent accidental shifting of the seat sections forwardly upon their tracks when being employed as a seating device, the tracks 11, adjacent the outer angled sections 11^b, are provided with inwardly extending semi-spherical abutments 41 that lie in the path of forward movement of the pins 28. In order for the seat sections to be shifted forwardly, sufficient pressure must be exerted by the operator to cause the pins 28 to first over-ride the abutments. Thus, the seat sections are held firmly in their seat forming position under normal usage.

In the use of the device so far described, the frame members 16 and 17 are assembled as previously described with the rollers 33 disposed on the tracks 23 and with the plates 31 and the vertical flanges of the angles 29 overlying the sides of the frame 16 with just sufficient clearance to permit a freely sliding movement of the frame 17 with respect to the frame 16. With the frames thus

assembled, the pins 27 and 28 are engaged within the grooves of their respective tracks. The seat sections, when in the fully collapsed seat forming position, underlie the overhanging back rest for a substantial area of their seating surface with the exposed area of the seating surface calculated to conform with conventional seating devices, and with their inner ends in abutting engagement effectively forming a couch of adequate length. Any means may be employed to prevent the disengagement of the pins 27 and 28 from their respective grooves. Now, when the operator desires to form a bed, he grasps the arm rest 36 of one seat section shifting it forwardly in a horizontal arc, causing the pin 28 to first over-ride the abutment 41 and then to ride forwardly in the groove of the track section 11^b to space the abutting ends of the seat sections from each other. A continued forward arcuate movement causes the pin 27 to traverse its groove 8 while the pin 28 rides rearwardly in its respective groove of the track 11 in a reverse movement. The spacing of the pins 27 and 28 apart and the angularity of the bar 26 has been calculated to effectively control this arcuate motion. When the seat section has been fully shifted forwardly to the dotted line position of Figure 11 with the frames at right angle to the back rest 15 and with the arm rest 36 parallel with the back rest, the device is ready to be extended. Since the frames are supported at one end by the resting engagement of the bar 26 upon the upper surfaces of the tracks, the opposite ends of the frame are supported in their forward arcuate movement by the casters 25, the whole being easily and conveniently shifted in its arcuate movement with a minimum of effort. The operator then proceeds to grasp the arm rest 36 and slides it forwardly in a direction axial with the frame 16 and immediately the frame 17 begins its outward shifting movement, the wedge blocks 37 ride off the upper surface of the angles 18, causing the frame 17 to drop downwardly to engage its rollers 35 with the floor. This initial movement also causes the rollers 33 to ride up the incline section 24 of the tracks 23 to elevate the inner end of the frame 17 above the spring devices of the frame 16, and when the rollers 33 engage the parallel track section 23, the inner end of the frame 17 will be maintained in its elevated position of clearance throughout the shifting movement of the frame 17 until the rollers 33 engage the opposite incline ends 24 to cause the inner end of the frame to drop downwardly to its bed forming relationship with the frame 16. Thus, the frame 17 is supported by the rollers 33 and 35 throughout its continued outward movement. The frame 17 is limited in its outward movement by the abutment of the bar 32 with the legs 21. With the frames in the extended position, the operator then proceeds to unfold the pads 39 to fully overlie both the frames 16 and 17. While the movement of the seat devices have just been described in a manner to form a bed device at right angles to the back rest, it follows that the shifting of the seat may be stopped at any point in its arcuate movement and the frame 17 extended to form a bed that is angularly arranged with respect to the back rest. When the device is to be collapsed, the operator first folds the pads one upon the other and then proceeds to shift the frame 17 to over-riding position with the frame 16, after which the collapsed structure is shifted in a reverse arcuate path to underlie the overhang of the back rest. During this movement as the inner end of the frame approaches its maximum inner movement, the pin 28 rides forwardly in the track section 11^b to maintain the seat sections in suitable spaced relation until they are accurately aligned one with the other. The operation of the opposite seat section is identical to that just described. As clearly shown in Figure 3, when both seat sections have been turned through the maximum range of 90 degrees, and have been extended to bed forming position, they are in parallel closely arranged relation providing a pair of twin beds that jointly form a double bed having an over-all length substantially equal to a conventional bed.

It may be found desirable to completely eliminate both the back rest and the end arms to form in effect a Hollywood or Bahama bed, shown in Figure 4 and, since the end arms and the back rest are not essential to the operation of the device, the tracks and seat sections will be identical in construction and operation to that already described. It may also be found desirable that each seat section and its associated track support be employed as the well known sectional furniture. To provide for this contingency, the track 5 is formed in two identical sections, shown in Figure 12, and as such are capable of supporting the seat sections in the manner already described, as it will be apparent that each seat section is shiftable transversely of its particular trackways independent of the other. With such an arrangement, the seat sections may be employed in end to end arrangement to form the complete couch or may be separated and arranged in the most convenient manner for the particular size of room.

Should the operator desire to completely remove the seat section for use independent of the trackways, this may be done by merely lifting the inner end of the seat frame 16, causing the pins 27 and 28 to become disengaged from their respective grooves. Now, since the forward end of the frame is ground supported by the casters 25, means are provided to facilitate the shifting of the inner end of the frame. For this purpose, a caster 42 has been connected to and intermediate the length of the bar 26, which caster normally is free from engagement with the floor. Thus, through the medium of the casters 25 and 42, the seating device can be easily shifted about after the removal from trackway 5 and with a minimum of effort.

In the form of the trackway illustrated in Figure 13, there is provided a pair of substantially identical straight track sections 43 that are channeled and correspond to the tracks 7 and channels 8 of the first form of the device. The tracks 43 are horizontally disposed and may or may not be connected together, as at 44. Should the device be employed as sectional furniture, it will be apparent that each track section 43 and its associated elements, to be described, will be separated and provided with any desirable means for connecting them together when the seat sections are adapted to jointly constitute a full length couch. The outer ends of the track sections 43 are rigidly connected to a preferably angle iron frame member 45 that embodies a rearward extension 46 that rigidly carries a perpendicular post 47 adjacent its end. The post 47 constitutes the detachable supporting means for the back section 15, and corresponds generally to the members 13. The frame member 45 extends forwardly of the track 43 and is angled inwardly, as at 48, in a horizontal plane to form a rigid brace for a track section 49. The track section 49 is likewise of channel formation and is rigidly connected at its forward end to the terminal forward end of the brace 48, while its opposite end is rigidly connected to the side of the track 43 adjacent its inner end. The track 49 is angled laterally to form a straight channel 50 for its major length. A stop member 51 is disposed in the channel 50 to limit the pivotal movement of the seat frames 16 and 17. As before described, the seat frames 16 carry a diagonal bar 26, carrying the depending track engaging pins 27 and 28. While but one caster 42 was illustrated in the preferred form of the device, it is also contemplated that a pair of such casters be supported by the bar 26, shown by dotted lines in Figures 13 at 52. With the frames 16 in their supported engagement upon the trackways, the casters 52 will be in spaced relation to the floor, but when the seat sections are detached from the trackways for other desirable positioning, the casters 52 function with the rollers 25 to facilitate the movement of the device.

With the frames 16 and 17 in the couch forming position and with their inner ends in abutment, it will be seen that the pin 28 is disposed inwardly from the outer

end of the channel 50, while the pin 27 is disposed adjacent the inner end of the trackway 43. Now, when a seat section is to be shifted to an angular position with respect to the back 15, the operator moves the outer end of the seat section forwardly which action causes the pin 27 to ride outwardly along the track 43, while the pin 28 is shifted forwardly in the channel 50 of the track 49, producing in effect a combined sliding and arcuate movement of the seat section in a horizontal plane to a point where the pins 27 and 28 are disposed upon a line 53, at which time the pin 28 has partaken of its maximum forward motion in the channel 50, and this initial movement has caused the seat section to shift away from the end of the adjacent seat section, thus permitting the arcuate swinging movement of the seat section in a manner to avoid any rubbing contact with the adjacent seat. When the seat section is shifted to a point where it lies at an angle of ninety degrees with respect to the back 15, the pins 27 and 28 will be disposed upon the line 54, the pin 27 having completed its maximum outward movement along the track 43, while the pin 28 has shifted inwardly along the channel 50 to a point where it engages the stop 51. In all other respects, the movement of the seat sections is substantially identical to that form of the invention first described.

It may be found desirable to provide a suitable latch means whereby the seat sections may be latched against accidental movement when in the couch forming position and, to this end, there has been provided a flexible latch plate 55, shown in Figure 14. The latch plate 55 is connected in any desirable way (not shown) to the track frame and in a position to lie in the path of swinging movement of the seat sections. The plate 55 is provided with a downwardly inclined lip 56 that is engaged by a pin 57 carried by a plate 58 that is rigidly connected upon the bottom of the end arm 36. The plate 55 is further slotted at 59 for the reception of the pin 57 when the seat sections are in the fully closed or couch forming position. As the seat sections are shifted inwardly, the pin 57 rides over the lip 56, flexing the plate 55 downwardly to permit the engagement of the pin 57 within the slot 59, thus securely holding the seat sections against accidental forward motion, such as would happen when a person is sitting upon the seat and bracing himself against the back 15. Various other suitable latches may be employed as may be found desirable, and the form of latch here illustrated is merely an example of a means to prevent shifting of the seats. The lip 56 projects outwardly of the side of the arm 36 whereby the operator may flex the plate 55 downwardly to release the pin 57 to permit the operation of the seat section.

It will be apparent from the foregoing that a very simple and highly practicable convertible bed couch has been provided. The structure when in the seat forming position presents a most comfortable and desirable couch, and when in the bed forming position presents a very desirable and comfortable sleeping unit. The frames are rigid and easily shiftable with respect to each other upon the novel form of trackways and are converted to sleeping beds with a minimum of effort. The device has relatively few and simple parts that are not likely to become disarranged or require any attention. The extended bed of this application, as it will be clearly apparent, requires no center bar, such as prior art patents employ. The unit is relatively light in weight when completely assembled and upholstered, and in actual practice weighs between 200 and 250 pounds, as contrasted with the weight of other types of couch beds that may be between 300 and 325 pounds.

With the structure herein disclosed, an effective contour chair is possible by swinging the seat section forwardly at a right angle to the back and, without extending the seat frames, the user can thus sit upon the seat with his back against the back rest and his legs resting over the arms. With the seat in the contour chair posi-

tion, a child may lie across the length of the couch and be protected against rolling therefrom by the back and arm rests. Further, the arms and back rest may be dispensed with and the couch may function as a conventional Bahama bed, or the seat sections may be completely detached from the trackways and shifted about to form sectional furniture or may be shifted to another room, if desired. The article of furniture has great versatility because of the facility for positioning the seats at any desired angle. The fact that the back and arm rests are permanently installed affords great flexibility in styling. Recognized foam rubber or equivalent plastic is preferably used for the cushions and presents flat faces that permit a flat abutment of the sections, whereby creases or unevenness in the bed surface is avoided. It is contemplated that the cushions employed shall have a lower layer that is denser than the upper layer and gives the user the choice of a soft or firm mattress for the head.

The modified form of the device shown in Figure 15, illustrates the structure employed in the form of a chair, having the same seat 6, the seat attached arm 36 and the fixed overhanging back 15. However, an additional arm is desired, as at 36' and this arm will be fixed with respect to the back 15. In all other respects, the seat is supported and operates in a manner substantially identical to that previously described.

While the embodiments shown permit extension of the seating section or each seating section into a full length bed, it is of course understood that this feature could be omitted within the scope of the broader claims to afford facilities merely for angular displacement of the seat section or each seat section to dispose the corresponding arm rest parallel to the back so as to afford a contour chair or a pair of contour chairs or to use the latter embodiment as a child's bed in which the back and the two arm rests in position extending parallel to the back serve as guards.

It is to be understood that while preferred forms of the device have been illustrated and described, changes are contemplated as readily fall within the spirit of the invention as determined by the scope of the subjoined claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A convertible bed-forming seating device having a fixed trackway, a pair of superposed frame members comprising a lower and an upper frame member each of about half bed length and conjointly forming a seating structure of about half full bed length, said structure having means supported by and coacting with the trackway, said trackway determining an arcuate path for said seating structure, so that the same is shiftable as a unit in a horizontal plane along an arcuate path at seat-forming height, the superposed frame member having guide means for shifting the same along the other frame member in an endwise manner to form a full length bed directed at any angle from zero degrees to ninety degrees relative to the length of the seating structure.

2. The device according to claim 1, wherein the trackway supports the frame members in a manner to permit the seat to be shifted in a forward horizontal arcuate path toward a limiting position at a right angle to the seat-forming position.

3. A convertible bed-forming seating structure of the character described that embodies a horizontal trackway consisting of longitudinal and transverse sections, the seating structure comprising a pair of superposed frame members consisting of a lower and an upper frame member, each of about half bed length and conjointly forming a seating structure of about half full bed length, said structure being provided with a pair of means near one end thereof that are slidably engaged with the respective track sections in a manner that supports the seating device and guides its displacement as a unit in a horizontal

arcuate movement, the lower of said frame members being floor supported at its opposite end, at seat-forming height, guide means longitudinally of the superposed frame members for extensibility thereof in a horizontal plane to form a full length bed, directed at any angle from zero degrees to ninety degrees relative to the length of the seating structure, the seating device having a cushion that is shiftable with the seating device and that is unfoldable to be co-extensive with the seating device when in the extended bed-forming position.

4. A convertible bed-forming couch that includes a pair of substantially identical seat section of substantially identical height each of said sections comprising a pair of superposed frame members, each seat section being independently shiftable as a unit horizontally at couch forming height throughout its movement, said seat sections being each provided with a double seat cushion, horizontal guide means determining movement of each of said seat sections as a unit in a horizontal arcuate path, means connecting the seat sections to the guide means, means limiting the arcuate movement of each seat section at a position at right angles to its couch-forming position, the pair of frame members of each seat section being extensible in an endwise manner to form a full length bed, the double seat cushion when the frame has been extended to overlie and be co-extensive with the extended frames.

5. The device according to claim 3, in conjunction with rolling means carried by the outer ends of each of the frame members of each seat device for supporting the outer ends from the floor when extended as a bed.

6. A convertible bed-forming couch that includes a pair of substantially identical seat sections of substantially identical height, each of said sections comprising a pair of superposed relatively slidable frame members, said seat sections being each provided with a double thickness seat cushion, the seat sections when disposed end to end jointly forming a full length couch, a horizontal trackway including longitudinal and transverse sections, riders mounted on and extending under the respective seat sections and engaging the respective track sections, to be guided thereby for determining independent horizontal swinging movement of the sections, each as a unit at couch forming height in a horizontal arcuate path limiting the arcuate movement of the seat sections to a position substantially at right angles to their couch-forming position, whereby the superposed frame members of each seat section are extensible with respect to each other in an endwise manner to form a full length bed extending at any angle with respect to the length of the couch between 0 degrees and 90 degrees, the seat cushion when extended to single thickness condition overlying and being co-extensive in length with the extended frame to constitute a mattress for the full length bed.

7. A structure of the character described convertible from a full length couch to a full length double width bed, comprising a pair of seating devices, each seating device being a frame assembly, each frame assembly consisting of an elongated inner portion and an elongated outer portion, each outer portion being shiftable in an endwise direction with respect to the corresponding inner portion and the inner and outer portions complementally forming a full length bed section, a horizontal trackway for each seating device, having guideway portions in relative angular relationship, means carried by the said inner sections and engaging said portions of the trackway and mounting said seating devices for horizontal movement each as a unit toward and from each other in an arcuate path, from a position where the seating devices lie and to end to form a full length couch to any position of acute angularity from their couch-forming positions or where they lie side by side to constitute a full length double bed.

8. The device according to claim 7, wherein the angularly arranged trackway portions are substantially

straight track sections, and one of said sections is angled inwardly at its outer extremity, thereby to impart a combined longitudinal and arcuate movement to the seating device in a manner to cause the same to move away from its companion seating device in the initial swinging movement from couch-forming to bed-forming position.

9. A convertible bed-forming couch device that embodies a pair of seat sections, each of said sections comprising an open base frame having superposed thereon an open upper overriding frame, a trackway guideway portions in relative angular relationship said open base frame having rider means engaging the respective portions of the trackway for each seat section to be independently shifted as a unit in a horizontal arc to dispose it in a position substantially at a right angle to the couch-forming position, the seat sections when in the couch-forming position having their inner ends in opposed and abutting relation, means included in the trackways to initially shift the abutting ends apart when the sections partake of their horizontal arcuate movement, said trackways comprising means to limit the swinging movement of the seat sections to dispose them with their sides in parallel abutting relation, whereby each seat section is extensible to form a full length bed and cushioned pads carried by each seat section that are extensible to be co-extensive with the extended seat sections.

10. The device according to claim 9, wherein, the upper frame supports a double connected cushion pad co-extensive therewith, the upper frame and its supported pad being wholly supported upon the base frame throughout its arcuate swinging movement and in vertically spaced relation thereto, means to anti-frictionally support the upper frame throughout its movement with respect to the base frame, the frames when fully extended being covered by the pad for their full lengths, the sections when shifted to their maximum bed-forming position being parallel and in lateral abutting engagement to form a full width double bed.

11. The device according to claim 9, wherein an overhanging back rest is detachably connected to the trackway, the base frames being supported at one end upon the trackway and with their opposite ends being supported upon caster wheels that ride upon the floor, the over-riding frame of each section having an arm rest connected thereto at one end and with the over-riding frames and their arm rests being wholly supported upon the base frame throughout the arcuate swinging movement, the trackway including longitudinal and transverse track sections, the latter section being angled inward at its outer extremity to cause the seat sections to shift apart during the initial swinging movement, whereby said track sections will also control the movement of the seat sections each as a unit when they are swung to couch-forming position, so that the inner ends of the seat sections will abut one another throughout their width simultaneously with the seat sections being disposed in partly underlying relation to the back rest and parallel therewith.

12. A convertible bed-forming couch that includes a pair of substantially identical seat sections, each of said sections comprising an open base frame having superposed thereon an open upper overriding frame, a horizontal trackway that comprises a longitudinal and a transverse track section for each seat section, one end of the base frame of each seat section having a pair of downward projections that engage the respective track sections, whereby said trackway will guide independent shifting of each of said seat sections as a unit in a horizontal arc at seat forming height and with said projections slidable upon the longitudinal and transverse track sections, each of said seat sections extensible to form a full length single bed, the outer end of each base frame being anti-frictionally floor supported throughout the movement of the seat.

13. A seating device that embodies a pair of super-

posed frames comprising a lower and an upper frame member each of about half bed length and conjointly forming a seating structure of about half full bed length, said structure extensible with respect to each other in an endwise manner to form a full length bed, a horizontal trackway that includes a longitudinal section and a transverse section, the lower of the frames having a pair of studs near the inner end thereof that slidably engage the respective track sections, so that the seating device is supported at one end by the track sections, the opposite end of the stud carrying frame having casters that are floor engaging throughout the movement of the frame, whereby said superposed frames are shiftable as a unit in an arcuate path in a horizontal plane at seat-forming height, prior to extension to a full length bed, directed at any angle from zero degree to ninety degrees relative to the length of the seating structure.

14. A convertible bed-forming couch device that embodies a pair of substantially identical seat sections, a horizontally disposed track support that has resting engagement upon the floor, trackways for each of the seat sections that are rigidly connected to said track support, the trackways for each seat section consisting of a longitudinal and a transverse member that are grooved, the seat sections each including a pair of telescopic frames that are extensible in an endwise manner to form a full length single bed, an inner frame of each seat section having downward projections near the rear end thereof that engage the respective grooves of the trackways, each seat section being shiftable as a unit in a forward horizontal arc and guided by the track sections to a maximum displacement at a right angle to the couch-forming position, the frames being extensible to a bed-forming position in any position of the seat sections.

15. A convertible bed-forming couch device that embodies a pair of substantially identical seat sections, a horizontally disposed track for the seat sections, the track consisting of a longitudinal and a transverse groove track section for each seat section, each seat section comprising an inner and an outer frame and with the frames being telescopic with respect to each other and extensible in an endwise manner to form a full length bed, the inner frame being provided with a pair of downwardly extending lugs near its rear portion with one lug engaging the groove of the longitudinal track section and the other lug engaging the groove of the transverse track section and with the lugs partaking of a combined sliding and pivotal movement in their respective grooves when the seat section is shifted in a horizontal arcuate path from couch-forming position to bed-forming position, the seat sections when in the couch-forming position being in end to end abutting relation and when in the maximum displaced bed-forming position lying in side to side abutting relation.

16. The device according to claim 15, wherein the transverse track sections at one end are acutely angled, the transverse track engaging lug traversing the acutely angled portion when the seat sections are shifted from their couch-forming position whereby the seat sections are caused to be initially shifted apart to prevent rubbing and wearing at their abutting ends.

17. A convertible bed-forming seating device that includes a horizontal floor supported base frame, a trackway rigidly connected to the frame in a horizontal manner and with the trackway consisting of longitudinal and transverse grooved track sections, an elevated upholstered back rest supported by the base frame, a pair of seat sections of identical form, each seat section comprising an inner and an outer frame that are telescopic with respect to each other to be extended in an endwise manner to form a full length bed, the inner portion of the inner frame being slidably and pivotally supported upon the track sections, the seat sections when in the seat forming position being in end to end abutment and partially underlying the back rest throughout their length, the

seat sections adapted to be shifted apart and then forwardly in a forward horizontal arc and being guided by the track sections, the outer end of the inner frame having floor engaging casters, the outer frame being anti-frictionally supported upon the inner frame for end to end extension, the outer frame being wholly supported upon the inner frame when in a telescoped position, an arm rest fixedly connected to the outer end of the outer frame and rollers for the support of the outer end of the outer frame when it is extended to bed-forming position.

18. The device according to claim 17, wherein the inner frame is provided with a pair of parallel tracks and wherein the inner end of the outer frame is provided with a pair of track rollers that engage the parallel tracks when the frames are shifted apart or retracted to telescoped position and means upon the parallel tracks at each end to shift the outer frame in a vertical plane to provide a clearance when the frames are shifted in an endwise manner, the said means supporting the outer frame against accidental movement from either of its maximum positions of adjustment, a double thickness cushion that is co-extensive with the top of the outer frame to be shiftable therewith, the cushion being extendable when the frames are extended to bed-forming position to be co-extensive with the frames.

19. A bed-forming arm chair that comprises a fixed back rest and a fixed arm rest and a horizontally arranged trackway that is connected with the back rest, said trackway having guideway portions in angular relation to each other, a seat section that is provided with an arm rest and with the seat section including a pair of superposed frame members comprising a lower and an upper frame member, each of about half bed length and conjointly forming a seating structure of about half full bed length, said structure being extensible in a horizontal endwise manner to form a full length bed, two rider means carried by the lower of the frame members that have riding and guiding engagement with the respective portions of the trackway for swinging of the superposed frames as a unit in a forward horizontal arcuate path prior to extension of the seat section to the bed-forming position to be directed at will at any angle from zero degrees to ninety degrees relative to the length of the seating structure.

20. A convertible seating device that comprises a fixed back rest and a fixed arm rest, a horizontal trackway connected to the back rest, said trackway having guideway portions in angular relation to each other, a seat section comprising a lower and an upper frame member each of about half bed length and conjointly forming a seating structure of about half full bed length, said structure having an arm rest connected thereto, two rider means carried by the seat section that have riding and guiding engagement with the respective portions of the trackway, whereby, the seat section is forwardly shiftable as a unit by the guidance of the trackway in a horizontal arcuate path and limited in its movement by the trackway to a position where its connected arm rest is disposed in a position parallel to the back rest for conversion of the seating device into a full length bed directed at any angle from zero degrees to ninety degrees relative to the length of the seating structure.

21. A bed-forming seating device that includes a base frame and a seat structure, the seat structure including a lower and upper frame member each of about half bed length and conjointly forming the seat structure, said structure having guide means therebetween for extensibility in a horizontal manner at seat forming height to form a full length bed, horizontal guide means associated with the lower frame member, the latter having means connected in guiding relation to the guide means for determining the movement of the seat section as a unit in a horizontal arcuate path, whereby the seat section

is extensible to a full length bed at any degree of angularity with respect to the base frame, and a double seat cushion supported upon the seat section and shiftable with the seat section, the said cushion being adapted for end to end positioning thereof.

22. A convertible bed couch that includes a floor supported back section and a pair of shiftable and extensible seat sections associated with the back sections and normally being disposed parallel to the back section in seat forming position, the seat sections each provided with end arms that have resting and shiftable support upon the floor, trackways connected to the back section, certain of the trackways being forwardly extended from the back in parallel spaced relation to the floor, the extended trackways having floor engaging legs rigidly connected thereto, each seat section comprising a pair of telescopic frames, with one frame of each seat section having transverse engagement with said trackways in a manner that permits each seat section to be swung forwardly from the back section in a horizontal arcuate path to be disposed in a position at a right angle to the back section and with the seat sections when forwardly swung, being in parallel relation, the seat sections when swung to the forward position being extensible to form a full length bed frame having springs, double cushions for each seat section that are extensible to completely overlie the bed frame when extended, the full length beds when formed being at a right angle to the back section.

23. A convertible bed-forming couch that includes a pair of substantially identical seat sections of substantially identical height that are each provided with a double folded seat cushion, the seat sections jointly forming a full length couch, a rigid and horizontally disposed trackway that has track connections with each of the seat sections, each of the seat sections being independently shiftable in a horizontal arcuate path and guided in their arcuate movement by the trackway whereby the seat sections are disposed at a right angle to their couch-forming position, the sections maintaining their couch-forming height throughout their arcuate movement, each of the seat sections including a pair of frame members that are extensible in an endwise manner to form a full length bed, the double seat cushion being extensible when the frames have been extended to overlie and be co-extensive with the extended frames.

24. The device according to claim 23, wherein the seat sections when in the couch forming position, are in end to end abutting relation and with their folded cushions in abutting engagement, the trackway being in horizontal parallel relation to a supporting surface such as a floor, each of the seat sections embodying a plurality of rigid frames that are slidably extensible endwise with respect to each other and with one of the frames being supported and guided by the trackway near one end and anti-frictionally supported at its opposite end upon the supporting surface, the other of said frames being supported for their major length by the first named frame throughout the arcuate movement of the sections and anti-frictionally supported at its opposite end by floor engaging casters, the frames when shifted forwardly in an arcuate path adapted to be slidably extended in a horizontal straight path to form a full length bed with the extensible frame being supported at one end by the casters throughout its arcuate and extensible movement.

25. The device according to claim 23, wherein the trackway is rigidly connected to an upstanding upholstered back rest that partially overlies the seat sections when in the couch forming position to be co-extensive therewith and to expose an area of the seat sections and their cushions to a depth corresponding to the depth of a conventional seating device, the seat sections when shifted in a forward horizontal arcuate path being guided and partially supported by the trackway in a manner to dis-

15

pose each seat section at a right angle to the back rest and with the seat sections in parallel relation.

26. A device of the character described comprising an elongated transverse support having a pair of substantially horizontal trackways having a longitudinal section and a pair of sections extending forwardly therefrom and parallel to each other, and a pair of seat sections each of which consists of a pair of supporting frames, one of which telescopically engages the other so that an outer frame of each pair may slide endwise with respect to an inner frame of each pair, means for shiftably connecting the inner frame of each section with the longitudinal trackway section and the forwardly extending trackway sections for horizontal arcuate movement, said trackways comprising portions upon which the seat sections ride during such arcuate movement to a position in which the seat sections shall be substantially at a right angle to the transverse support.

27. The device according to claim 25, in conjunction with rolling means carried by the outer ends of each of the frames of each seat section for supporting the outer ends from the floor during the arcuate and extensible movements of the frames, the inner end of the inner frame of each seat section being anti-frictionally supported upon the transverse support and the extended trackways against displacement.

28. A convertible bed-forming couch that includes a pair of substantially identical seat sections of substantially identical height independently shiftable horizontally

16

at couch forming height throughout their movement, said seat sections being each provided with a double seat cushion, the seat sections jointly forming a full length couch, a horizontal trackway fixed with respect to said couch and determining movement in a horizontal arcuate path, means mounted on the respective seat sections and connected for riding engagement on said trackway, means limiting the arcuate movement of the seat sections at a position at right angles to their couch-forming position, each of the seat sections including a pair of frame members that are extensible in an endwise manner to form a full length bed, the double seat cushion when the frame has been extended to overlie and be co-extensive with the extended frames.

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