

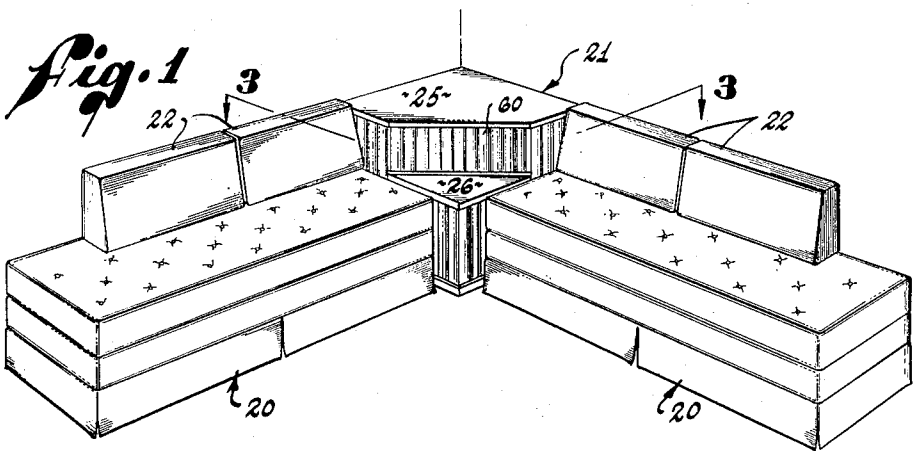
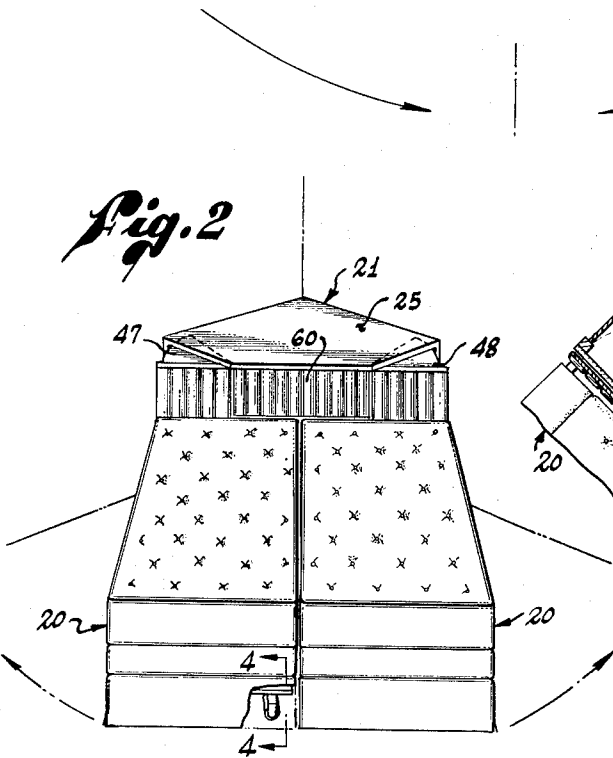
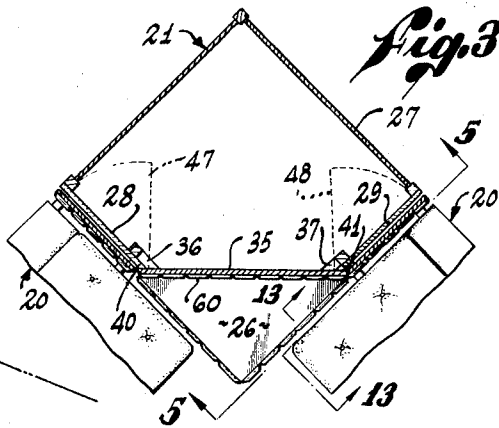
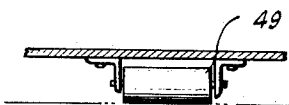
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T. S. ZIEGENFUSS
SOFA-BED

2,806,228

Filed Sept. 19, 1955

3 Sheets-Sheet 1



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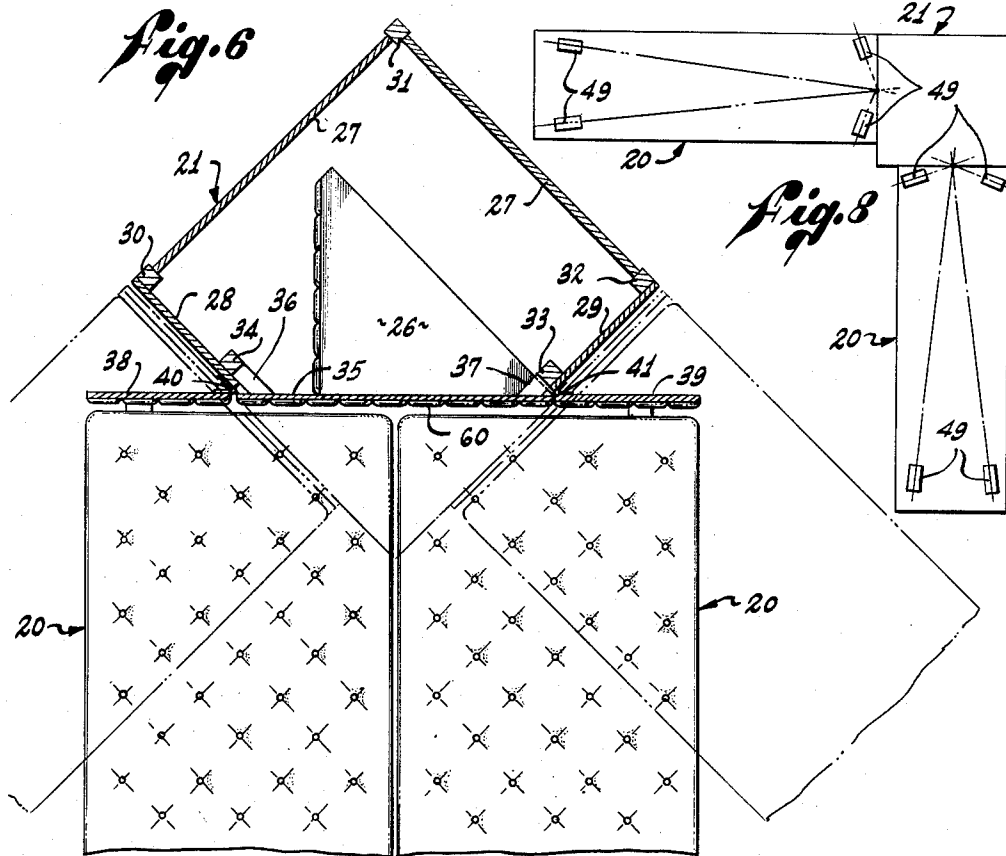
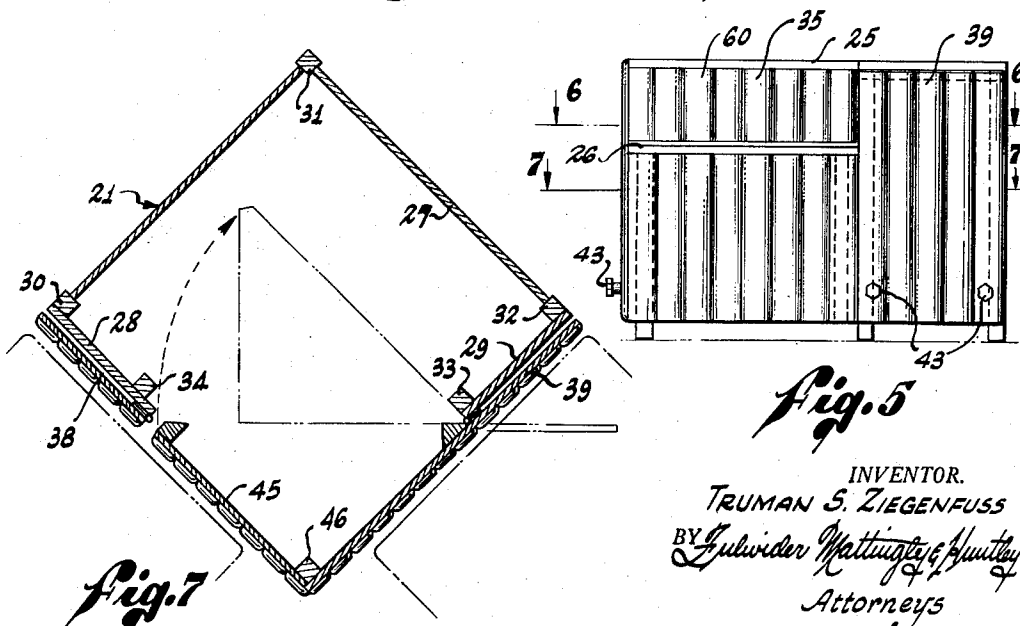
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3 Sheets-Sheet 2



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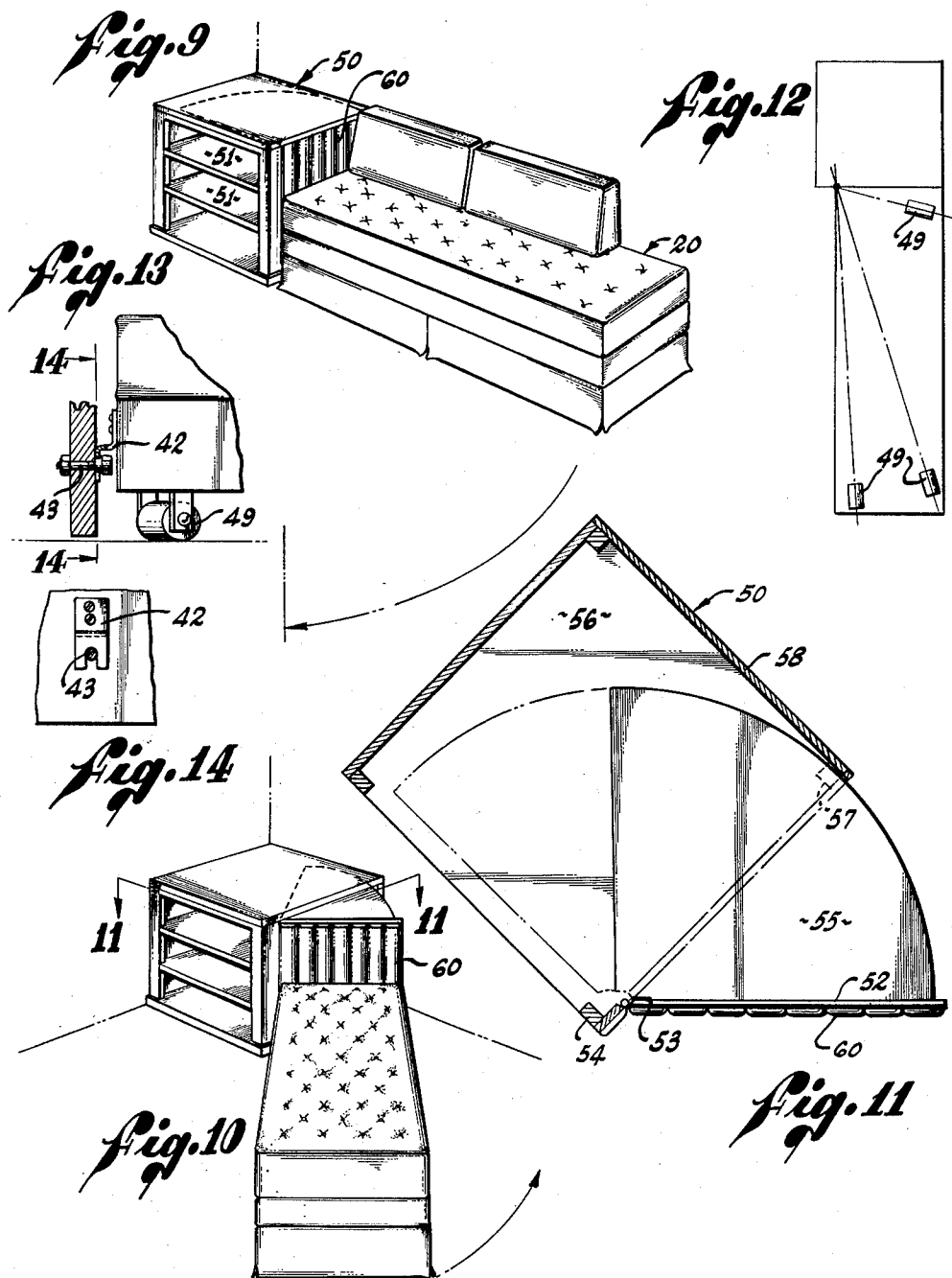
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3 Sheets-Sheet 3



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SOFA-BED

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8 Claims. (Cl. 5—8)

This invention relates generally to beds, lounges, and sofas, and more particularly to an article of furniture of this type which is convertible from a sofa for daytime use to a bed for nighttime use.

Structures of the type just described have, in the past, usually consisted of somewhat complicated mechanical arrangements requiring considerable effort and attention to unfold from the daytime position into the extended nighttime position. Prior devices have also had the disadvantage that they consumed an excessive amount of floor space when extended into the nighttime position.

It is a major object of the present invention to provide a sofa-bed structure of the class described wherein the bed-unit may be swung horizontally from daytime to nighttime positions, which is attractive and utilitarian in appearance, in both said positions.

It is another object of the invention to provide a sofa-bed structure of the class described incorporating an attached table which changes its shape as the bed is moved between daytime and nighttime positions whereby to be always best adapted for use with the bed.

It is still another object of the invention to provide a structure of the class described which includes an attached table member having a relatively low adjoining end table conveniently positioned when the bed unit is in the daytime position for use as a sofa, which end table disappears when the bed unit is moved into the nighttime or sleeping position.

An additional object is to provide a convertible sofa-bed structure which incorporates a full-sized conventional bed complete with standard width springs and mattress.

Still another object is the provision of a two bed unit which includes a full-width headboard for the combined beds when in sleeping position.

A still further object of the invention is to provide a structure of the class described which includes an attached and extendible table surface which operates during the change from the daytime position to the nighttime position to fill in the angular space adjacent the head of the bed whereby to prevent articles from falling into such space and thus interfering with subsequent swinging action of the bed.

The foregoing and additional objects and advantages of the invention will be apparent from the following detailed description of several presently preferred embodiments thereof, consideration being given also to the attached drawings in which:

Figure 1 is a perspective view of a corner sofa-bed unit embodying my invention, the same being shown in the daytime position;

Figure 2 is a perspective view like Figure 1, but with the bed units swung into the nighttime or sleeping position;

Figure 3 is a fragmentary top plan view of the unit shown in Figure 1, the same being broken away and sectioned as indicated by the line 3—3 in Figure 1;

Figure 4 is a fragmentary elevational view taken on

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the line 4—4 in Figure 2 illustrating a supporting roller used in connection with the bed units;

Figure 5 is an elevational view of the device shown in Figure 1 as seen looking in the direction of the arrows 5—5 in Figure 3 and with the bed unit removed;

Figure 6 is a horizontal section taken on the line 6—6 in Figure 5, with the beds attached and swung to sleeping position;

Figure 7 is a horizontal section taken on line 7—7 in Figure 5 with the beds swung to daytime position;

Figure 8 is a diagrammatic plan view of the device shown in Figure 1 showing the arrangement of supporting rollers therein;

Figure 9 is a perspective view of a modified form embodying the invention showing a single bed unit and attached table, the same being shown in daytime position;

Figure 10 is a view like Figure 9 but with the beds swung to nighttime position;

Figure 11 is an enlarged horizontal section taken on the line 11—11 in Figure 10;

Figure 12 is a diagrammatic plan view similar to Figure 8 showing the roller arrangement in the device shown in Figure 9;

Figure 13 is an enlarged elevational section taken on the line 13—13 in Figure 3; and

Figure 14 is a fragmentary elevational view of the bed unit removed from the table unit and as seen looking in the direction of the arrows 14—14 in Figure 13.

A corner sofa-bed unit incorporating the invention is illustrated in Figures 1 through 8 and includes a pair of full-size twin-bed units 20 of conventional configuration which are attached to a corner table structure 21 containing a pivotal arrangement to be described, which permits swinging of the bed units 20 from the position shown in Figure 1 to the position shown in Figure 2. Wedge-shaped bolsters 22 may, if desired, be provided to form back rests for the bed units 20 when in the daytime position shown in Figure 1 whereby to convert each bed unit 20 into a divan or couch.

While it is preferred to construct the bed units 20 with the special rollers to be described and which cooperate with the pivotal structure of the table unit 21, they may, if desired, be of conventional construction supported on ordinary casters. The important features of the invention reside primarily in the construction of the table unit 21.

Turning now to a discussion of the table construction, it will be seen that the table unit 21 includes an upper conventional height table surface 23 of irregular pentagonal configuration and a lower triangular, end-table surface 26. As can be seen in Figure 3, the two surface areas 25 and 26 combine to cover a generally square floor area. Two sides of the square combined structure are adapted to be placed in the corner of a room, leaving the other two sides facing outwardly. The head ends of the two bed units 20 abut the outwardly facing edges of the aforesaid square area.

As can be seen best in Figure 6, the table unit 21 is constructed as a box-like unit having wall-adjacent vertical back panels 27 and two relatively narrow vertical side panels 28 and 29 which face outwardly of the corner in which the table unit 21 is placed. The panels 27, 28 and 29 are all joined together by vertical corner pieces or legs 30, 31, 32, 33 and 34.

The front vertical surface of the table structure 21, which extends diagonally across the table above the height of the triangular end-table portion 26, is closed by an apron member 35 secured to the legs 33 and 34 by extending glue blocks 36 and 37. It should be noted that the apron 35 is not attached to the end-table 26 which swings under the apron, as will be described. The front exposed surface of the apron 35 is covered with

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padded upholstery 60 as are other portions of the structure to be described.

The bed units 20 are respectively provided with headboards 38 and 39, which headboards are secured by vertical piano hinges 40 and 41 to the vertical panels 28 and 29 arranged so that the headboards may fold back flat against the panels.

The portions of the headboards 38 and 39 which extend above the top surface of the bed units 20, are in the present arrangement, approximately one-half the width of the bed unit 20 and are adapted to swing through an angle of approximately 45° between limits in one of which the headboard lies flat against the vertical table panel 28 or 29, as the case may be, and in the other of which the headboard lies in a common plane with the front apron 35. The width of the apron member 35 plus the widths of the upper headboards is equal to the combined width of the bed units 20 and the apron is arranged to form with the headboards 38 and 39 a complete headboard for the two beds when swung together, as shown in Figure 2.

Each of the bed units 20 is secured to its respective headboard by a pair of bifurcated clip members 42, each of which is adapted to hook over the head of a bolt 43 secured in the respective headboard and projecting forwardly therefrom as shown in Figures 13 and 14. The fit of the clip members 42 over the bolts 43 is fairly loose so as to permit a small amount of vertical play between each bed unit 20 and its respective headboard 38 or 39. Also it will be seen that the bed units 20 may easily be removed from the headboards by lifting the head end of the bed so as to lift the clips 42 thereon off of the bolts 43.

As thus far described, it will be seen that each of the bed units 20 in the device shown in Figure 1 may be swung to approximately 45° from a position such as shown in Figure 1 to that shown in Figure 2. This swinging action takes place about a hinge axis defined by the hinges 40 or 41 which, it will be noted, is in the present illustration located approximately at the center of the head end of the bed. To facilitate swinging in this manner, each of the bed units 20 is supported on four elongated rollers, each of which is located adjacent one corner of the bed unit and arranged with its rotary axis pointing towards the swinging hinge axis, as is shown in Figure 8. Due to the aforesaid play in the clips 42, unevenness of the floor or a slight slope thereof will not bind the hinge action and prevent free swinging of the bed.

As has been previously suggested, it is desired that the sofa height end-table 26 be provided for use as a coffee table or to receive ash trays or the like during the daytime use of the sofa-bed unit, i. e., when in the position shown in Figure 1, whereas it is desired to fold the table portion 26 out of the way during the nighttime position, such as is shown in Figure 2. To this end, one of the headboards 38 or 39 (in the present instance the right-hand headboard 39) is made generally L-shaped, that is with the portion below the top surface of the bed unit 20 extending the full width of one of the major sides of the table surface 25. The end-table 26 is then constructed as an integral shelf-like part of the right-hand headboard 39. Thus, the end-table 26 is accessible to both bed units 20 when in daytime position and folds or swings under the upper table surface 25 when the right-hand bed unit 20 is swung out into the nighttime position shown in Figure 2. In swinging the beds from one position to the other the bed carrying the end-table 26 (right-hand in the present illustration) is moved first.

The construction of the end-table 26 may be seen best in Figures 6 and 7, wherein it will be noted that it includes the lower portion of the headboard 39, a complementary vertical panel 45 being joined thereto at an angle of substantially 90° by a vertical strut or glue strip 46. The triangular top portion 26 is then secured

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to the lower part of the headboard 39 and the vertical panel 45 to form the lower level end-table surface previously described.

It is desirable to fill in the angular space between the headboards 38 and 39 and the adjacent edges of the upper table surface 25 when the bed unit 20 is swung to the nighttime position shown in Figure 2. To this end a sector-shaped horizontal panel 47 is secured to the headboard 38 adjacent its upper edge, and a similarly shaped panel 48 secured in the same position to the headboard 39. These sector-shaped panels are positioned just below the surface of the table top 25 and slots are provided in the panels 28 and 29 whereby the sectors may swing in under the table top 25, as shown by the phantom lines in Figure 3, when the bed units 20 are swung out against the wall that is shown in Figure 1. The horizontal sectors 47 and 48 not only prevent articles from being dropped over the edge of the headboard behind the same, whereby to be relatively inaccessible, but they provide additional table surface handy to the occupant or occupants of the bed units 20 when the same are in nighttime position.

A modified form of the invention, incorporating a single bed unit 20, and a fixed table or cabinet 50 is illustrated in Figures 9 through 11. Here the stationary unit 50 may be constructed as an open front cabinet-like structure adapted to be positioned against a wall and having shelves 51 accessible from the front thereof. The unit 50 is provided with a hinged panel or headboard 52. The headboard 52 is secured to a vertical member 54 which is an integral vertical leg-like portion of the stationary table structure 50.

The attachment of the bed unit 20 to the headboard 52 is by clips 42 and bolts 43 exactly the same as in the previous embodiment and the roller support of the bed unit is similar except that only three rollers 49 need be used in the present embodiment. The fourth corner of the bed unit 20 as used in connection with the structure 50 is supported by the attachment clip 42 thereof engaged with the bolt 43 projecting from the headboard 52. The latter, in turn, is supported on the hinge 53 which should preferably be of the piano hinge variety.

As in the previous arrangement, it is desirable, when the bed unit is swung out from the wall, to fill in the sector-shaped space between the swinging headboard 52 and the adjacent top edge of the structure 50. For this purpose a horizontal sector-shaped panel 55 is secured to the headboard 52 adjacent its upper edge and arranged to swing under the top surface 56 of the structure 50. A vertical glue block 57 secured to the back panel 58 of the table 50 is in sliding engagement with the under surface of the horizontal panel 55 whereby to additionally support the same in any of its positions.

Each of the forms of the invention illustrated herein shows the front surfaces of the headboards as covered with a padded and fluted upholstery covering indicated generally by the reference character 60. The same upholstery covering 60 is, as previously stated, secured to the front surface of the apron 35 so that when the bed units of the first described embodiment are swung into the nighttime position as shown in Figure 2, the entire headboard is uniformly covered with the same type of upholstery.

While the structures shown and described herein are fully capable of achieving the objects and providing the advantages hereinbefore stated, it will be realized that they may be varied somewhat without departure from the spirit of the invention. For this reason, I do not wish to be limited to the form shown and described, but rather to the scope of the appended claims.

I claim:

1. A combination table-sofa-bed comprising in combination: a stationary structure having a table top with at least one edge adapted to fit along the wall; a bed unit positioned with the head adjacent said stationary struc-

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ture, said bed unit being movable along the floor and having pivotal anchorage means constraining the same to swinging movement about a fixed vertical axis at the head thereof, between a sofa position in which said bed unit extends along said wall and a sleeping position in which said bed unit is at an angle to said wall; and a second table top lower than said stationary table top, said second table top being secured to said bed unit adjacent the head thereof for swinging movement with said bed unit whereby said second table top underlies said stationary table top when said bed unit is in one of said positions thereof and swings out from under said stationary table top when said bed unit is moved to the other of said positions.

2. The construction of claim 1, and a third table top lower than said stationary table top, said third table top being secured to said bed unit adjacent the head thereof for swinging movement with said bed unit in the opposite direction from that of said second table top, whereby said third table top underlies said stationary table when said second table top is swung out from under said stationary table top, and said third table top is swung out from under said stationary table top when said second table top underlies said stationary table top.

3. A combination table-sofa-bed comprising in combination: a fixed structure having a table top with a back edge adapted to be positioned along a wall and a side edge substantially perpendicular to said back edge; a bed unit having a vertical headboard positioned adjacent said side edge, said bed unit being adapted to move along a floor surface; a pivotal anchorage for said headboard constraining the same to swinging movement about a fixed vertical axis lying substantially in a vertical plane through said side edge and spaced from the intersection of said back and side edges, whereby to constrain said bed to horizontal swinging movement from a sofa position in which a side of said bed is in extended alignment with said back edge, and a sleeping position in which said bed side is at an angle to said back edge; and a horizontal table top lower than said structure and secured to said headboard to move therewith, said table top being positioned to swing under said first table top when said bed is moved to one of said positions and to swing out from under said table top when the bed is moved to the other position.

4. The construction of claim 3, the headboard of said bed unit extending across less than the full width of said bed unit, said fixed structure having a vertical panel extending along an oblique line, said vertical panel combining with said partial headboard to provide a full-width headboard for said bed unit when said bed unit is swung to sleeping position.

5. A combination table-sofa-bed comprising in combination: a stationary table having a five-sided top with two back edges intersecting at substantially right angles to fit in the corner of a room, a shorter side edge intersecting one of said back edges at substantially right angles, and a diagonal front edge intersecting the front end of said side edge; a bed unit positioned with the head thereof adjacent said table; a pivotal anchorage for said bed defining a fixed vertical axis substantially at the intersection of said front edge and said side edge, said anchorage constraining said bed to swinging movement along the floor between a sofa position along one of the walls forming said corner and a sleep position at an angle to said wall; and an end-table structure secured to

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the head of said bed to swing therewith, said end-table being lower than said five-sided top whereby to swing under the latter when said bed is moved to one of said positions and out-from-under the same when said bed is moved to the other position.

6. The construction of claim 5, said secondary table top having a triangular shape which is complementary to said five-sided top, whereby said combined table top forms a square when said secondary table top is swung out from under said five-sided top.

7. A combination table-sofa-bed comprising in combination: a stationary table having a five-sided top with two back edges intersecting at right angles to fit in the corner of a room, two shorter side edges each intersecting one of said back edges at right angles, and an oblique front edge connecting the front ends of said side edges, the peripheral length of said front edge plus said side edges being equal to a predetermined length X; a pair of rectangular beds each of width equal to one-half X, each of said beds having the head thereof adjacent said table; a separate pivotal anchorage for each of said beds, said anchorages defining a pair of vertical pivot axes at the opposite ends of said front edge, each anchorage engaging its respective bed at a point along the head end thereof spaced from a back edge thereof a distance equal to the length of a side edge of said table top, whereby said beds are each constrained to swinging movement between a sofa position wherein a back edge thereof aligns with a back edge of said table, and a sleeping position in which the head of said bed lies in a common vertical plane with said front table edge and whereby when said beds are both swung to said sleeping positions they adjoin to form a continuous bed of width equal to X; and an end-table structure secured to the head of one of said beds to swing therewith, said end-table having a top surface lower than the top of said stationary table whereby to swing under the latter when said bed is swung to said sleeping position.

8. A combination table-sofa-bed comprising in combination: a table structure, the horizontal cross-section of which is the five sided figure resulting from cutting a corner from a square on an oblique line; a pair of beds, each having the head thereof pivotally anchored on a vertical pivot axis lying at a respective end of said oblique line whereby to constrain said beds to swinging movement in a horizontal plane between limiting positions wherein said beds are respectively parallel in a sleeping position or at right angles in a sofa position; an end-table structure secured to the head of one of said beds, said end-table structure having a triangular cross-sectional shape complementary to said five-sided figure whereby to form a complete square cross-section therewith when said last named bed is in said sofa position, said end-table being at a lower elevation than said first table structure whereby to swing under the same when said last named bed is swung to said sleeping position.

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