

E. C. FISHER.
 COMBINED COUCH AND FOLDING BED.
 APPLICATION FILED APR. 21, 1911.

1,037,227.

Patented Sept. 3, 1912.

3 SHEETS—SHEET 1.

Fig. 1.

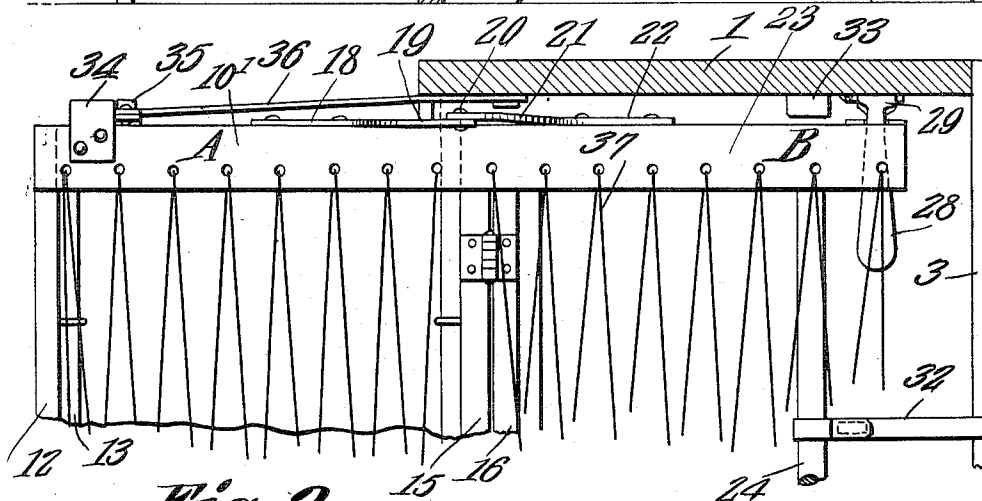
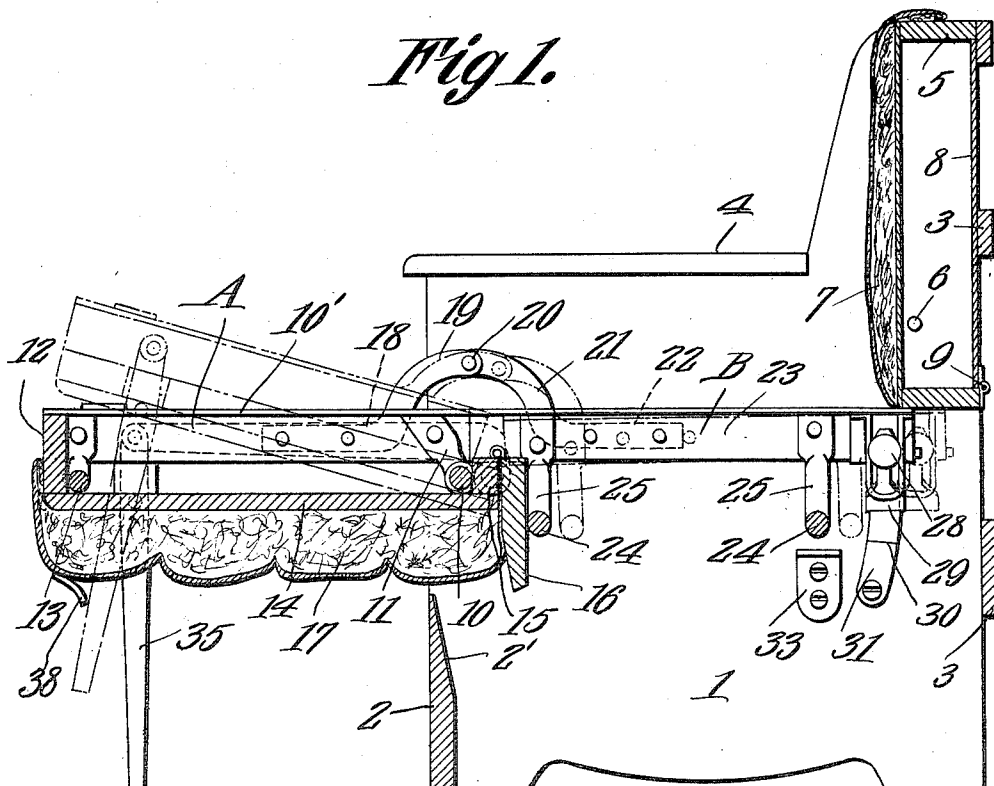


Fig. 2.

Witnesses

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3 SHEETS—SHEET 2.

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Fig. 3.

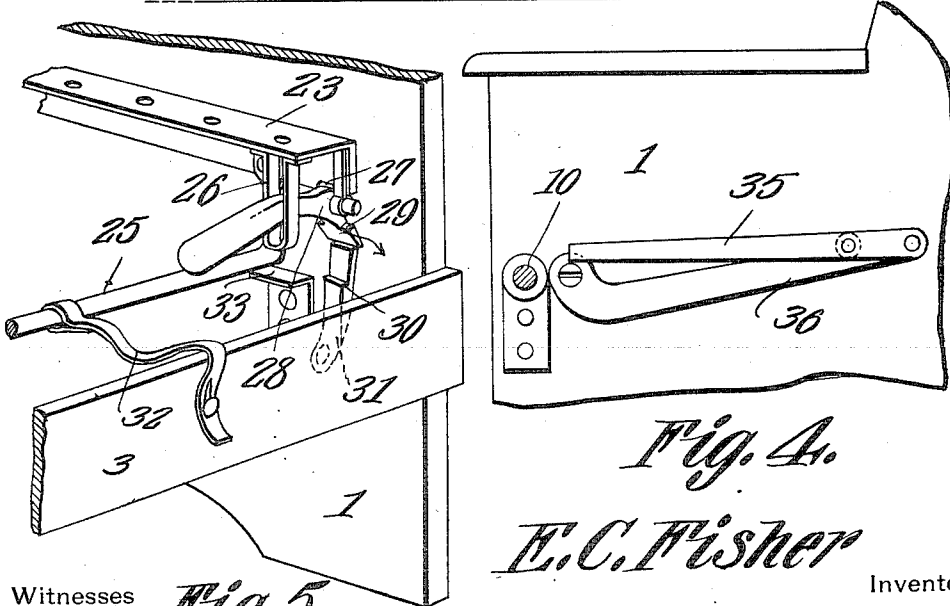
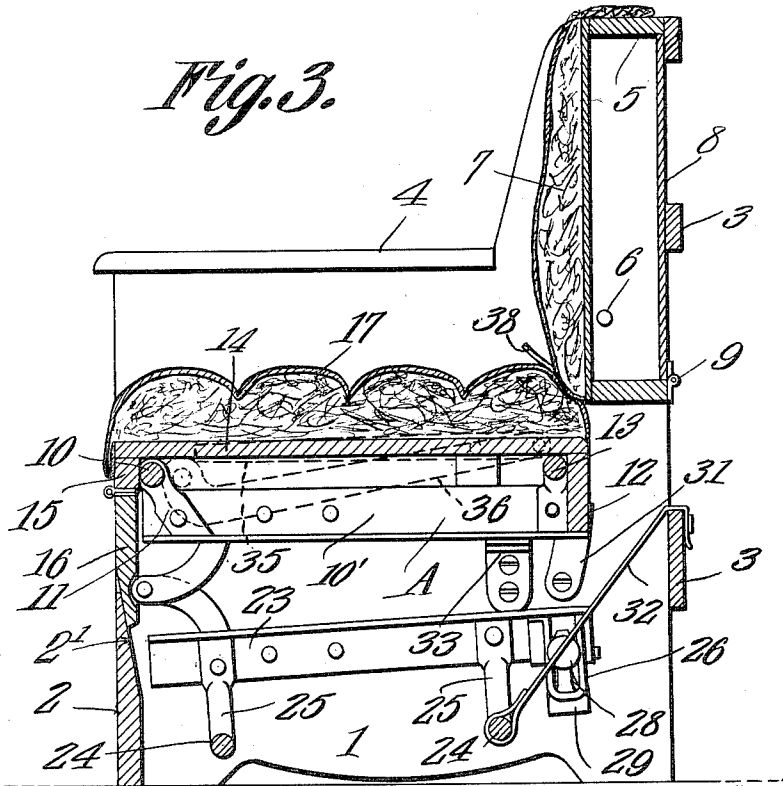


Fig. 4.

Witnesses

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3 SHEETS—SHEET 3.

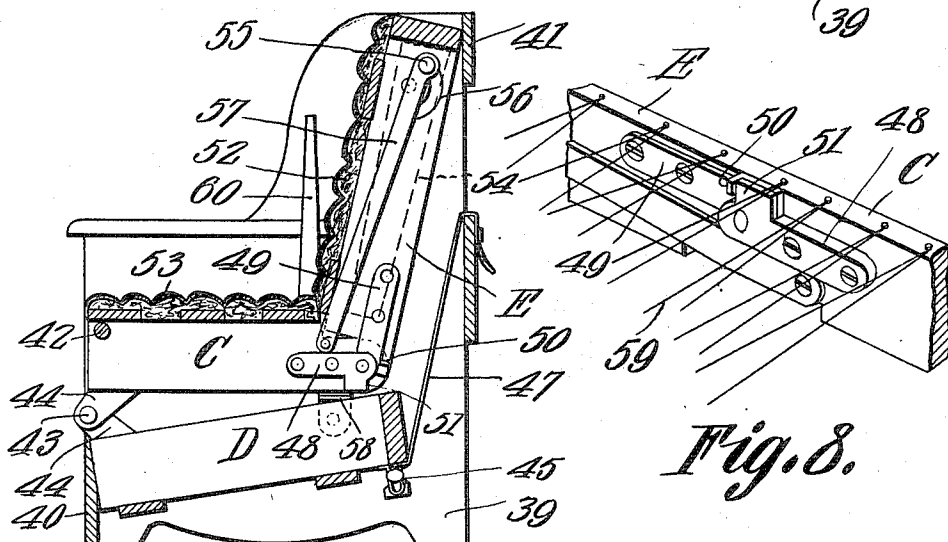
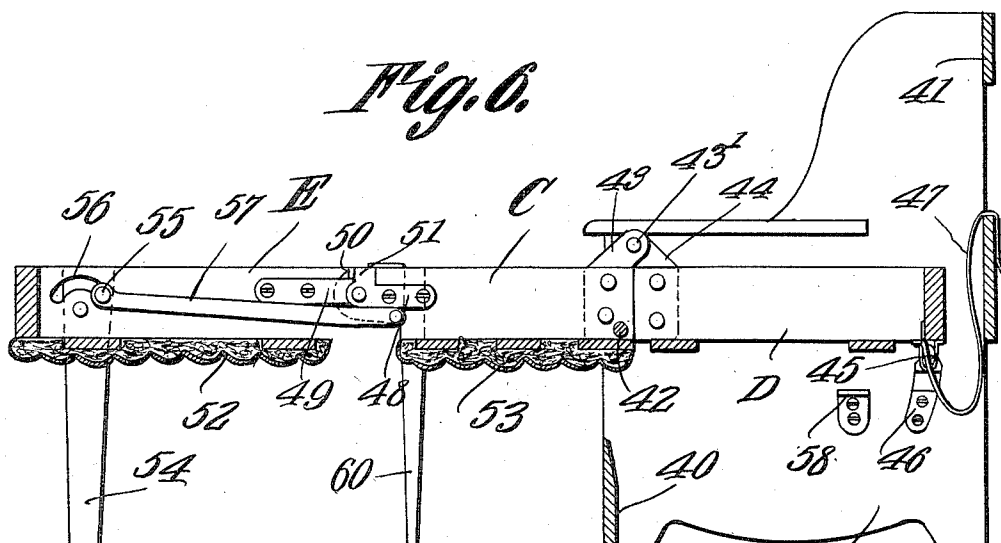


Fig. 8.

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UNITED STATES PATENT OFFICE.

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COMBINED COUCH AND FOLDING BED.

1,037,227.

Specification of Letters Patent.

Patented Sept. 3, 1912.

Application filed April 21, 1911. Serial No. 622,524.

To all whom it may concern:

Be it known that I, EDWARD C. FISHER, a citizen of the United States, residing at Lincoln, in the county of Logan and State of Illinois, have invented a new and useful Combined Couch and Folding Bed, of which the following is a specification.

This invention relates to folding beds of the couch or "davenport" type and one of the objects of the invention is to provide a bed of this character the mattress supporting sections of which are connected by hinges of novel form whereby, when said sections are folded, a mattress can be folded between them.

A further object is to provide mattress supporting sections one of which has novel means for guiding and supporting it during the folding operation.

A further object is to provide a novel form of catch for supporting one of the sections of the mattress supporting structure, said catch being automatically disengaged during the first portion of the folding operation.

Another object is to provide a folding bed, each section of which extends throughout the width of the bed, all of the sections being hingedly connected and being shiftable to extended or to folded positions by one operation.

With the foregoing and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a central vertical longitudinal section through one form of folding bed embodying the present improvements, the said bed being shown extended and one of the positions of one of the mattress supporting sections, when partly raised, being shown by dotted lines. Fig. 2 is a plan view of one side portion of the mattress supporting sections, adjacent parts being shown. Fig. 3 is a view similar to Fig. 1 but showing the bed folded. Fig. 4 is a view showing, in side elevation, one

of the legs of the bed, said leg being folded and being illustrated in the position assumed by it when housed. Fig. 5 is a perspective view of one of the supporting catches used in connection with the bed, adjacent parts of the bed being also shown. Fig. 6 is a view similar to Fig. 1 but showing another form of bed. Fig. 7 is a view similar to Fig. 6 and showing the bed folded for use as a couch. Fig. 8 is a perspective view of one of the hinges of the bed structure and the parts connected thereby.

Referring to the figures by characters of reference 1 designates one of the side supporting members of a couch, preferably of the "davenport" type, this member being of any desired shape, and size, it being understood that two members are to be employed there being connections there-between such as indicated at 2 and 3 and each of these members having an arm rest 4. The connecting member 2 and the side members 1 constitute a housing for the reception of the shiftable parts of the structure. The back of said structure is formed of a box extending between the side members 1 and connected thereto by trunnions 6 arranged adjacent the lower portion of the back, said box, when in its normal position, being placed on edge and with the bottom thereof in a substantially vertical position, said bottom being provided with a tufted covering 7, or any other suitable finish which is exposed when the structure is used as a couch. The top of the box is likewise normally in a substantially vertical position, as indicated at 8, and is hingedly connected to the box, as at 9. It is to be understood that under certain conditions, this box can be swung downwardly between the arm rests 4 and with its top 8 uppermost, whereupon said top can be swung open to give access to the interior of the box. This box is designed to hold bed clothing or the like.

A rod 10 is mounted at its end upon the side supports 1 and substantially in vertical alinement with the connecting strip 2. This rod is mounted for rotation and has arms 11 extending therefrom adjacent its ends, these arms being secured to the sides of one of the mattress supporting sections. Said section has been indicated generally at A and its side members, which are preferably formed of angle strips, are connected at one end by a back strip 12 and by a cross rod 13 located in contact with the

strip 12. This rod 13 and the strip 12 have a cushion supporting board 14 or the like, secured to them, and extending over and fastened to the rod 10 hereinbefore referred to. A front strip 15 extends downwardly from that edge of board 14 adjacent the rod 10, and an apron 16 is hingedly connected to the strip 15 and normally hangs downwardly as shown in Figs. 1 and 2, the lower portion of this apron 16 being preferably beveled so as to fit snugly against the beveled face 2' of the connecting strip 2 when the bed is folded. The cushion supported by the board 14 has been indicated at 17 in Figs. 1 and 3.

Each of the side strips 10' of the bed section A has hinge members 18 secured thereto adjacent the rod 10, each of the hinge members terminating in an arcuate arm 19 pivotally connected, as at 20, to arcuate arms 21 extending from hinge members 22 which, in turn, are secured to side strips 23 of bed section B. These side strips are also preferably formed of angle members designed to abut against the side strips 10' when the bed is extended or unfolded, it being understood that the pivot 20 is disposed in alinement with the adjacent ends of the strips 10' and 23. Cross rods 24 connect the side strips 23 each of these rods being formed preferably with upwardly extending arms 25 at the ends thereof and which are attached to the side strips 23. These rods and the side strips complete the section B.

Each of the side strips 23 is provided, at its back end, with a depending loop 26 arranged at one side of a slot 27 formed within the strip and which receives a dog 28, the trunnions of which are journaled within the side strip 23 while one arm of the dog is adapted to move freely within the loop 26. The other arm of the dog is broadened to form a head 29 adapted to engage one of a series of teeth 30 formed upon a plate 31 secured to the adjacent side member 1. One or more straps 32 are attached to the rear rod 24 and to the lower connecting strip 23, these straps serving to limit the downward movement of the back end portion of section B.

Brackets 33 are secured to the side members 1 and are arranged at the sides of the path of section B and in the path of lips 34 which project laterally from the side strips 10' of section A. This is clearly indicated in Fig. 2. Legs 35 are pivotally connected to the side strips 10' at points close to the lips 34, these legs being provided with short upper arms connected by links 36 to the inner sides of the supporting members 1. The parts are so proportioned that when the bed is unfolded links 36 will swing the legs 34 and bring them into position at right angles to the section A so as to support said sec-

tion. When, however, the bed is folded, the parts will cooperate to swing the legs and house them between the section A and the side supporting members 1.

It is to be understood that the side members 10' may be connected by a spring bed bottom or the like designed to support a mattress and a similar bed bottom may connect the members 23, these bed bottoms being indicated generally at 37.

When it is desired to fold the bed, the section A is swung upwardly about the rod 10 as a pivot. As the hinge members 18 and 22 have upwardly extending curved arms 19 and 21 respectively, these arms being pivotally connected at points above the rod 10, it will be apparent that this swinging movement of section A will result in a rearward sliding movement of section B due to the fact that said section is supported at its front end by the hinge 22 and at its back end by the dogs 28. After section B has thus been pushed backwardly a short distance during the raising of the section A, the dogs 28 will slip off of the teeth 30 engaged thereby, as indicated by the arrow in Fig. 5 and section B will then promptly swing downwardly about the pivots 20 until stopped by the straps 32. Continued upward and backward swinging of the section A will result in the gradual lowering of the front end of section B, and the two sections will ultimately assume the positions indicated in Fig. 3, the shape of the hinges 18 and 22 being such as to leave sufficient space between the sections A and B to permit a mattress or the like to readily fold between them. As the section A swings back to its closed position, the apron 16 moves downwardly and forwardly into contact with the connecting strip 2 so that, after section A has been completely inverted with its cushion 17 uppermost, the mechanism of the bed will be completely housed back of the strip 2 and the apron 16 and between the side supporting members 1. After the section A has been inverted as shown in Fig. 3, the back of the couch can be swung to an upright position as shown in said figure, the lower portion thereof thus lapping the back portion of the cushion 17. As the board 14 of the section A is located below the lower end of the back of the couch, it will be seen that the said section A can be made of greater depth than the cushion 17 and the bed produced by unfolding the sections A and B will thus be longer than twice the exposed portion of the cushion 17. In other words, a comparatively long bed can be produced without increasing the depth of the seat to an objectionable extent.

To unfold the couch and extend the bed, the upper portion of the back is swung forwardly so as to cause the lower portion thereof to swing rearwardly and upwardly

relative to the seat. The back portion of the section A is then pulled upwardly and forwardly, a tab 38 being preferably provided for facilitating this operation. During the first portion of the upward and forward swinging of the section A the arms 19 and 21 of hinges 18 and 22 respectively cooperate to swing section B rearwardly and thence upwardly at its forward end until the front ends of the side strips 23 are brought against the back ends of the side strips 10' whereupon section A is swung bodily upwardly about rod 10 as a center, the dogs 28 sliding upwardly over the teeth 30 until the two sections A and B have assumed substantially horizontal positions whereupon said dogs remain in engagement with the nearest teeth and thus lock the sections B against downward movement unless section A is first swung upwardly in the manner hereinbefore described.

The form of couch herein before described has its sections A and B extended in the direction of the length of the extended bed. In Figs. 6 to 8 inclusive, however, another form of couch has been illustrated, wherein the mattress supporting sections are arranged transversely of the extended bed. In this form the side supporting members 39 are connected, as before, by front and rear strips 40 and 41 respectively, there being a cross rod 42 connecting said members at points above the strip 40. This rod is secured to one end portion of the intermediate section C of the mattress supporting structure and arms 43 extend outwardly from the section C at that end adjacent rod 42 and are pivotally connected, as at 43', to similar arms 44 secured to the inner sections D of the mattress supporting structure. This section is provided, at its rear end, with dogs 45, similar to the dogs 28 hereinbefore described, and which are adapted to engage toothed strips 46 secured to the side supporting members 39. Straps 47 connect the back end of section D to one of the connecting strips 41 and operate in the same manner as do the straps 32 for supporting section D when the structure is folded. When the sections C and D are unfolded, their adjacent ends abut, as clearly shown in Fig. 6. Section C has a hinge plate 48 secured to the sides thereof and which are pivotally engaged by hinge plates 49 secured to the sides of the section E of the mattress supporting structure. The plates 49 lap the plates 48 and have laterally extending lugs 50 designed to swing against the shoulders 51 formed upon the plates 48 so that, when the section E is swung into alinement with the section C the lugs 50 will move against the shoulders 51 and thus limit the relative movement of the two sections. This structure has been clearly indicated in Fig. 8. The outer section E con-

stitutes the back of the couch when the structure is folded, there being a cushion 52 upon one face of the section, and which is exposed when the structure is folded. The intermediate section C of the structure constitutes the seat of the couch when the structure is folded, and has a cushion 53 arranged on one face thereof.

Legs 54 are pivotally connected to the sides of the section 52 and have short arms from which pins 55 are extended laterally through arcuate slots 56 in the sides of section E. These pins 55 are connected, by links 57, to the sides of the section C, said links being located between the sides of the sections. The parts are so proportioned that when section E is brought into alinement with section C the legs 54 will be swung into position at right angles to the section E so as to support said section. When, however, the parts are folded, said legs will be swung relative to the sides of section E and will become housed between the section and the side supporting members 39 of the couch.

To fold the bed the section E is swung upwardly and, as the hinge plates 48 and 49 prevent said section from swinging upwardly relative to the section C, it will be apparent that both of the sections C and E will thus be raised. At the same time the arms 43 and 44 will push backwardly on the section D so as to slide the dogs 45 backwardly out of engagement with the toothed strips 46, whereupon the sections D will drop downwardly until stopped by the straps 47. Continued upward movement of the sections C and E will result in the lowering of the front end portion of the section D, and thus, after the sections C and E have passed the center of gravity, the joint between the two sections C and E will be broken, section C swinging downwardly onto the supporting brackets 58 in the path thereof, while section E will swing backwardly against the connecting strips 41. The parts will thus assume the positions illustrated in Fig. 7.

It is to be understood of course that each of the sections C, D and E is to be provided with a suitable bed bottom such as is indicated generally at 59 for the purpose of supporting a mattress, and, as the pivots 43 are located at points removed from the adjacent faces of the sections B and C, it will be obvious that a mattress can be readily folded between these sections, and that a portion of said mattress can also be folded between the strips 41 and section E.

To unfold the bed, the foregoing operation is reversed, the section E being pulled forwardly and downwardly until section C is brought into alinement with section D whereupon said section D will be swung upwardly so as to cause the dogs 45 to slip over the teeth on strips 46. After the cen-

ter of gravity has been passed sections C and E will shift relative to each other so as to move into alinement, whereupon the legs 54 will be swung downwardly to supporting position and the various parts will thus be disposed as indicated in Fig. 6.

It will be seen that in this form of couch the sections extend transversely of the extended bed instead of longitudinally thereof as in the structure shown in Fig. 1 although in each form the divisional lines of the sections extend at right angles to the sides of the couch.

As shown in Fig. 6, the section C may be provided with supplemental legs 60 fixedly connected thereto and whereby the structure will be more firmly supported.

What is claimed is:—

1. A device of the class described including a pivotally supported one part seat invertible to constitute a bed section, a rear section hinged thereto and shiftable thereby into or out of position for use, means for securing said rear section adjustably in position for use, the first mentioned section constituting means for releasing the rear section from its securing means, and flexible and adjustable means for limiting the downward movement of the rear section when released.

2. A device of the class described including a supporting structure, a combined seat and mattress supporting section pivoted to the supporting structure, a rear mattress supporting section hinged to the seat section and shiftable thereby into or out of position for use, toothed members connected to the supporting structure, and means carried by the rear section for engaging said members to support said section in position for use, the seat section constituting means for shifting the rear section rearwardly out of engagement with the supporting members.

3. A device of the class described including a supporting structure, toothed members connected to said structure, a combined couch seat and mattress supporting section pivoted to the supporting structure, a rear section hinged to the seat section and shiftable thereby into engagement with the toothed members and into position for use, said seat section constituting means for moving the rear section out of engagement with the toothed members, and flexible means for limiting the downward movement of the rear member when released.

4. A device of the class described including a supporting structure, a combined couch seat and mattress supporting section pivoted to said structure, a rear section hinged thereto and movable thereby into or out of position for use, a toothed member connected to the supporting structure, means carried by the rear section for engag-

ing said toothed member when the rear section is raised to position for use, said seat section constituting means for shifting the rear section backwardly out of engagement with the toothed member.

5. A device of the class described including a supporting structure, a combined couch seat and mattress supporting section pivoted to said structure, a rear section hinged to said section, said sections being foldable together, the seat section constituting means for shifting the rear section into or out of position for use, a toothed member connected to the supporting structure, means carried thereby for engaging the toothed member during its movement into position for use, said seat section constituting means for shifting the rear section out of engagement with the toothed member during the first portion of the folding movement of the seat section.

6. A device of the class described including a supporting structure, a combined couch seat and mattress supporting section pivoted to said structure, a rear section hinged to the first mentioned section and shiftable thereby into and out of position for use, cooperating means upon the supporting structure and the rear section for supporting said section in position for use, said means being disengaged by the elevation of the seat section, and a strap connecting the rear section and the supporting structure for limiting the downward movement of said section when disengaged from its holding means.

7. A device of the class described including a supporting structure, stop brackets thereon, a combined couch seat and mattress supporting section pivoted to said structure, a rear section hinged to said seat section and movable between the brackets, said seat section constituting means for shifting the rear section into and out of position for use, means for supporting the rear section in position for use, and flexible means for supporting said section out of position for use, said seat section constituting means for lowering the rear section past the brackets, the seat section being movable onto the brackets.

8. A combined couch and bed including a supporting structure, a one part combined seat and mattress supporting section pivoted thereto, a couch back section hinged to the seat section, a bed section, hinges connecting the sides of the bed and seat sections, the pivots of said hinges being remote from the sides of the sections to space the bed section from the seat section when housed thereunder to form a mattress receiving space, all of said sections constituting mattress supporting members extending transversely of the extended bed, said sections being foldable relative to each other

to form the seat and back of the couch, and stop devices upon the seat and back sections and movable together when the couch is unfolded to support the meeting portions 5 of the back and seat sections.

9. A device of the class described including a supporting structure, a central section pivoted thereto, a rear section hinged to the central section and shiftable thereby into 10 and out of position for use, cooperating means upon the supporting structure and the rear section for securing said rear section at desired elevations and in position for use, said section being shiftable rearwardly out 15 of engagement with the supporting means during the elevation of the central section about its pivot, said central section constituting means for lowering the rear section within the supporting structure, a front section hinged to the central section, said front 20 and central sections being foldable relative to each other to form the seat and back respectively of a couch, and stop devices upon the meeting portions of the seat and back 25 sections and movable together to limit the downward movement of said meeting portions when the couch is unfolded.

10. A device of the class described including a supporting structure, a mattress supporting section pivoted thereto, a rear section hinged to said mattress supporting section, a toothed element secured to the supporting structure, a dog pivoted to the rear section, a guide loop therefor, means operated by the said mattress supporting section 35 for shifting the rear section to move the dog into engagement with the toothed element, said mattress supporting section constituting means for shifting the rear section 40 backwardly to disengage the dog from the toothed supporting element.

11. A device of the class described including a supporting structure, a combined seat and mattress supporting section pivoted 45 thereto, a rear section hinged to said seat section, said rear section constituting a mattress supporting member, a toothed supporting element secured to the supporting structure, a dog pivotally connected to the 50 rear section, said seat section constituting means for shifting the rear section into position for use to move the dog into engage-

ment with said toothed element, said seat section also constituting means for shifting the rear section backwardly to disengage the 55 dog from the toothed supporting element.

12. A device of the class described including a supporting structure, a combined seat and mattress supporting section pivoted to said structure, a rear mattress supporting 60 section hinged to said seat section, a dog pivoted thereto, a guide loop depending from the sections and movably engaged by the dog, a toothed supporting element in the path of the dog, said seat section constituting means for shifting the rear section into 65 position for use and for elevating the dog into engagement with the toothed supporting element, said seat section also constituting means for shifting the rear section backwardly to disengage the dog from the toothed supporting member during the initial 70 swinging movement of the seat section in an upward direction, and flexible means connecting the rear section to the supporting structure for limiting the downward movement of said structure when released from 75 the supporting element.

13. A combined couch and bed including a supporting structure, a one-part combined 80 seat and mattress supporting section pivoted thereto, a couch back section hinged to the seat section, a bed section, hinges connecting the sides of the bed and seat sections, the pivots of said hinges being remote from 85 the sides of the sections to space the bed section from the seat section when housed thereunder to form a mattress receiving space, all of said sections constituting mattress supporting members when extended to 90 form a bed, said sections being foldable relative to each other to form the seat and back of the couch, and stop devices carried by the back and seat sections and movable together to limit the relative movement of 95 said sections and to hold the sections in alinement when unfolded.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

EDWARD C. FISHER.

Witnesses:

J. J. WILMERT,
D. J. GILCHRIST.