Aug. 31, 1943. D. N. KELLY 2,328,218

STUDIO COUCH

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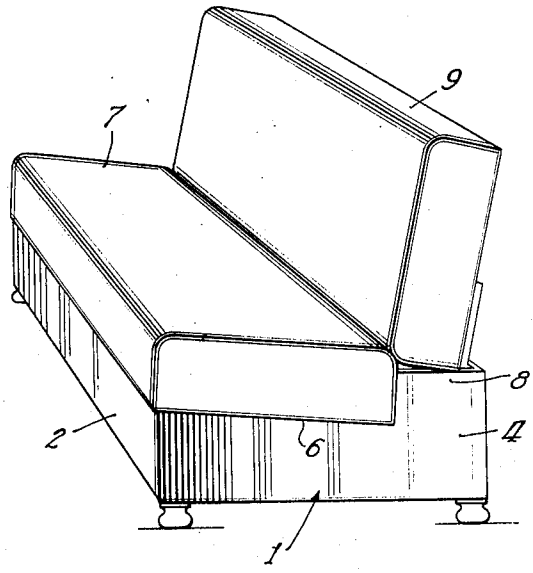
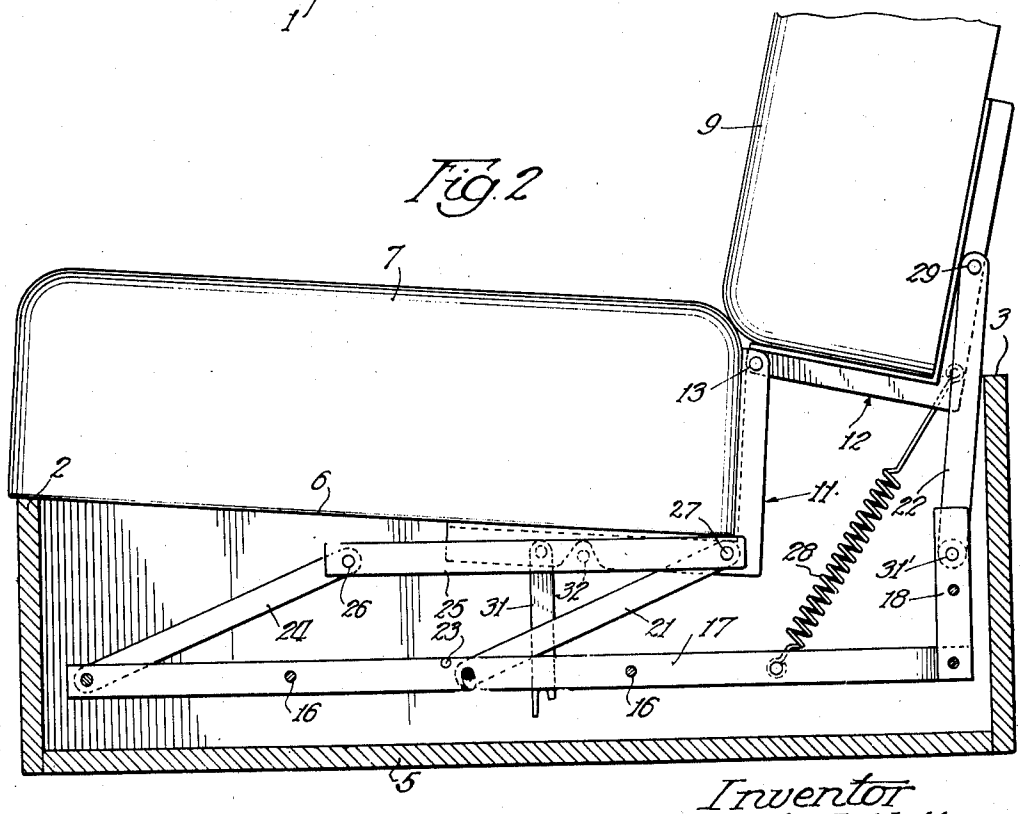


Fig. 1.

Fig. 2



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Fig. 3.

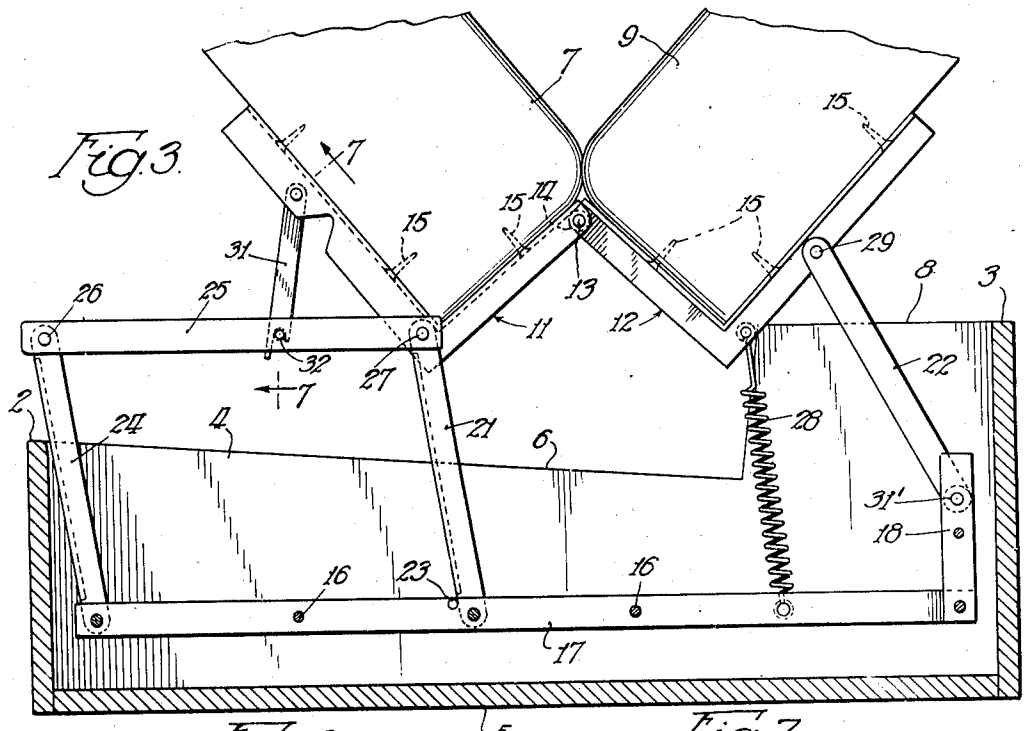


Fig. 6.

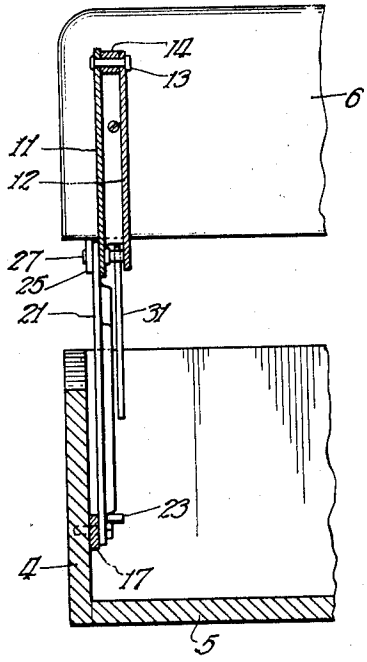
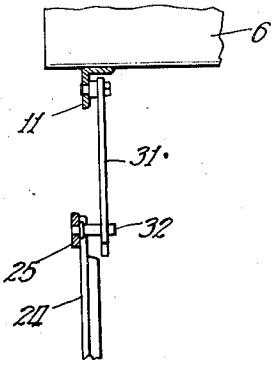


Fig. 7.



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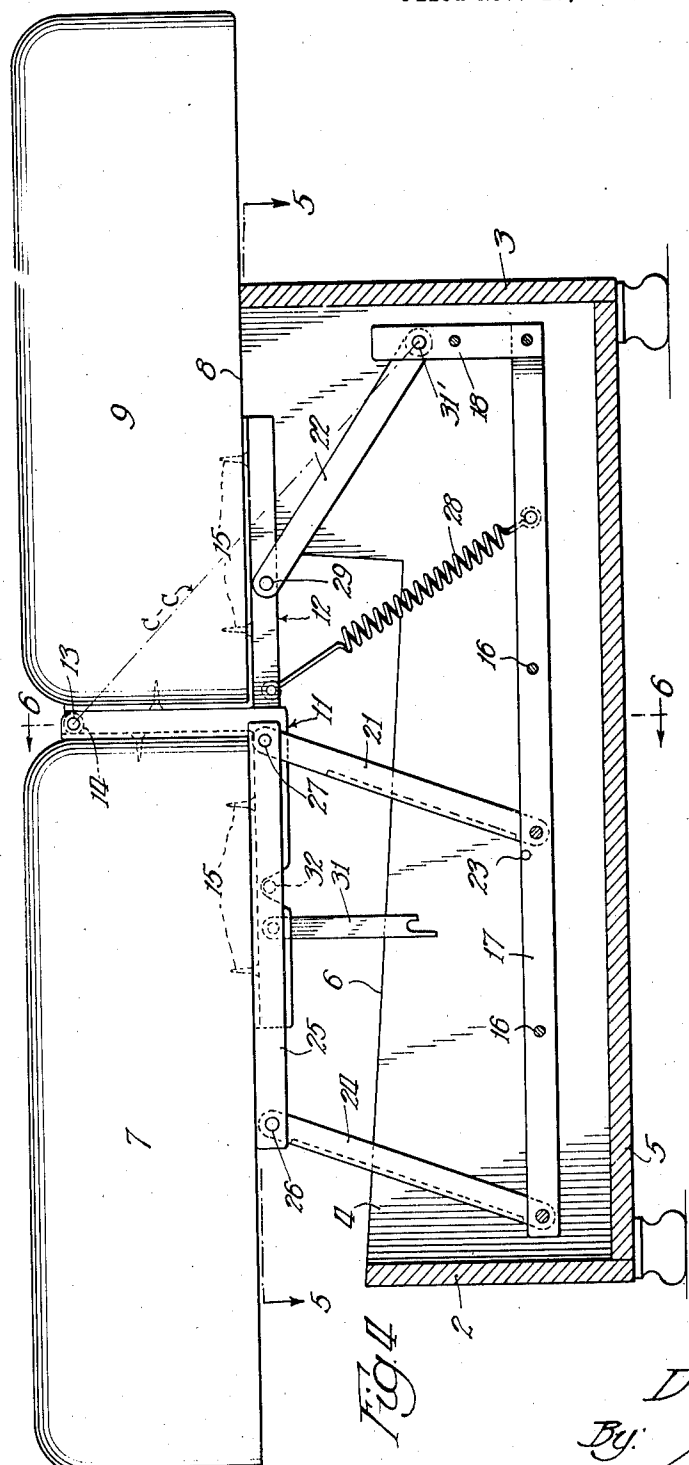


Fig. 4

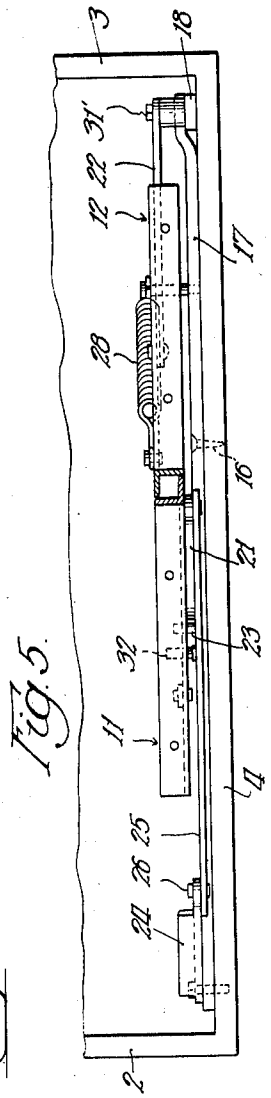


Fig. 5

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UNITED STATES PATENT OFFICE

2,328,218

STUDIO COUCH

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Application November 15, 1939, Serial No. 304,517

8 Claims. (Cl. 5—47)

The invention relates generally to sofas or studio couches and the like, and more particularly to a couch utilizing novel mechanical means for converting the same from a couch to a bed or back to a couch.

The invention has among its objects the construction of a couch of the kind described which is relatively simple in construction, very durable, and inexpensive to manufacture.

A very important object of the invention is the construction of such a couch which may be easily and readily converted into a bed or vice versa in substantially a single continuous operation.

Another important object of the invention is the production of such a couch in which the seat cushion is pitched or slanting to provide maximum comfort when the device is used as a couch and in which the seat cushion may be raised upwardly to provide a bed of substantially the same height as an ordinary bed.

Another object of the invention is the production of a couch of the kind described having a bedding compartment in its base which is accessible from the front of the couch when the latter is in couch position, rendering it unnecessary to convert the couch into a bed before the bedding compartment is accessible.

A further object of the invention is the production of such a couch which is so constructed that it will be rigid and firm whether in a couch or bed position, and in which, when in the bed position, the cushions are so supported in a horizontal position that they are firmly locked in place.

A further object of the invention is the production of such a couch which is so constructed that the cushions when in the horizontal position will oppose each other so that application of weight upon the cushions will more rigidly lock them in place.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

To this end my invention consists in the novel construction, arrangement, and combination of parts herein shown and described and more particularly pointed out in the claims.

In the drawings wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a perspective view of a couch embodying the features of the present invention;

Fig. 2 is an end elevational view of the couch with the cushions of the same in couch position, the end wall of the base portion being cut away to disclose the actuating mechanism;

Fig. 3 is a view similar to Fig. 2 with the cushions in open position so that in use bedding or the like may be removed from or inserted in the base portion;

Fig. 4 is also a view similar to Fig. 2 with the cushions in the bed position;

Fig. 5 is a sectional view taken substantially on the line 5—5 of Fig. 4;

Fig. 6 is a sectional view taken substantially on the line 6—6 of Fig. 4; and

Fig. 7 is a sectional view taken substantially on the line 7—7 of Fig. 3.

Ordinary sofa or studio couches designed to be used as a couch or bed have, in the past, been so constructed that the back cushion could be brought into a horizontal position adjacent the seat cushion to form a horizontal bed. The bed thus formed was relatively low compared with the usual bedstead as the seat cushion remained at substantially the same height when used as a bed as when used for a couch. Also, when the seat cushion was pitched or placed in a slanting position, in converting the device into a bed, the front or high edge of the seat cushion was lowered to bring the cushion into a horizontal position.

The present invention provides a couch in which the seat cushion is pitched at the desired angle and in forming the bed, is raised upwardly into a horizontal position adjacent the back cushion to provide a bed of normal height. The operation of converting the couch into a bed or vice versa is accomplished in a single continuous action. That is, when the seat cushion is raised into its horizontal position, the back cushion will automatically assume its horizontal position, and when the action is reversed, by merely rotating the back cushion into back forming position, the seat cushion will resume its original pitched seat position. Also, the front edge of the seat cushion may be rotated upwardly to render the bedding compartment below the same accessible without bringing the back cushion into horizontal bed position.

The studio couch illustrated in Fig. 1 comprises a base portion designated generally by the numeral 1 constructed of wood or other suitable material having a front side wall 2, a rear side wall 3, end walls 4, and bottom 5, the compartment so formed providing adequate space for bedding and the like. The end walls are formed with an offset upper edge to form a low portion 6 designed and shaped to receive the seat cushion

7 and a raised or higher portion 8 adjacent the rear of the couch. The upper edge of the portion 6 slopes rearwardly to pitch the seat cushion at a proper angle for maximum comfort. When the device is in a couch position, the seat cushion 7 will rest on the portion 6 of the base 1, while the back cushion is carried in an upright position above the portion 8. When in a bed position, the back cushion 9 is rotated into a horizontal position above the portion 8 of the base and rests thereon, said portion partially supporting the same, while the seat cushion is raised upwardly into the horizontal plane of the back cushion, as more clearly shown in Fig. 4, thus forming a bed of substantially the same height as the usual bedstead.

The supporting and actuating mechanism comprises two similarly but oppositely constructed assemblies mounted on the respective ends 4 of the base. Carried by the seat and back cushions are L-shaped supporting members designated generally by the numerals 11 and 12 respectively, constructed of angle iron or other suitable material and extending adjacent the meeting edges of the respective cushions and the bottoms thereof. The members 11 and 12 are pivotally connected by a pin 13 at the upper ends thereof adjacent the meeting edges of the cushions, thereby pivotally connecting the seat and back cushions to each other adjacent their meeting edges. The members, as shown in Figs. 5 and 6, are constructed with the flanges thereof oppositely positioned, the flange on the member 11 extending inwardly and that on the member 12 extending outwardly so that the members may be positioned as shown with their side walls oppositely disposed and spaced by the washer 14 on the pin 13. The members may be secured to the respective cushions by any suitable means such as screws 15. Secured to the inner face of each end wall 4 by screws 16 or the like is a base member 17 constructed of flat stock of suitable dimensions. The base member 17 is formed with an upwardly extending arm 18 of similar stock rigidly carried by the base member and forming a part thereof. Pivotally connected at its ends by suitable means to the base member 17 and the seat cushion 7 is an arm 21, the latter being shown as constructed of angle iron and connected to the member 11 approximately at the juncture of the bottom and rear side wall of the cushion. An arm 22 is pivotally secured by suitable means at one end to the arm 18 of the base member and at the opposite end to the member 12 adjacent the bottom of the cushion 9. It will be noted that the arm 22 is connected to the back cushion at a point spaced from the meeting edge thereof as will be hereinafter described. The arms 21 and 22 furnish support for the respective cushions as well as determine the particular movement of the cushions. A pin 23 extends inwardly from the base member 17 and is engageable with the arm 21 to prevent the latter from rotating outwardly beyond the position shown in Fig. 3.

Also pivotally connected to the base member 17 adjacent the front wall 2 is an arm 24 substantially identical with the arm 21 and connected to the latter by a horizontal cross member or cross bar 25, the bars 24 and 25 being pivotally connected by a pin 26, the opposite end of the bar 25 being pivotally connected to the member 11 and the arm 21 at the juncture of the latter, all three being pivotally connected by the common pin 27. The arms 24 and 25 support the seat cushion in a bed position and carry the same when the latter is moved from couch to bed position and vice versa.

It will be noted that when the seat cushion is resting upon the arms 25, the latter will be adjacent the side wall of the member 11 along the bottom of the cushion and will thereby minimize any tendency of the seat cushion to twist or move longitudinally relative the couch base.

The operation of the couch is as follows:

Assuming the couch to be in the position shown in Fig. 2, the seat cushion 7 will rest upon the lower portion 6 of the couch base and as the seat cushion 7 is pivoted to the supporting assembly at only one point, namely, at the pin 27, it will be free to assume the pitch of said lower portion. In this position, the arms 21 and 24 will be inclined rearwardly with respect to the base member 17, the cross arm 25 furnishing no support for the seat cushion. The back cushion 9 is in a more or less vertical position with respect to the seat cushion, and is supported by the arms 22, the latter also being substantially in a vertical position.

When it is desired to remove the bedding from the couch base, the seat cushion is rotated upwardly about the pin 27. This will cause the arms 21 and 24 to be rotated upwardly and outwardly about their connections with the base member 17 to the position shown in Fig. 3. As the seat cushion is moved into this position, the back cushion will rotate slightly about the pin 13 and about the point of connection of the member 22 with the member 12, the member 22 also rotating forward about its point of connection with the upright 18 of the base member. A suitable catch is provided to hold the cushions in the position shown in Fig. 3 so that the bedding may be removed from or placed into the couch base. In the construction shown, this catch takes the form of a small bar 31 pivoted at one end to the member 11 adjacent the bottom of the cushion and engageable at the opposite end with a pin 32 extending from the cross arm 25, the arm 31 being provided with a suitable notch of a size to receive the pin. The arm is again disengaged from the pin 32 by raising the seat cushion to withdraw the arm from the pin, thereby allowing the seat cushion to be again rotated about the point 27 into the position shown in Fig. 2. The seat cushion when being rotated back into its normal position is also urged laterally rearwardly to pivot the arms 24 and 21 about their connections with the base member 17. If it is desired to move the cushions into bed position instead of back to seat position, the seat cushion is merely rotated downwardly about the pin 27 which will then allow the back cushion to rotate about the pin 13, thereby bringing the cushions into the position shown in Fig. 4. In this position, both cushions lie in a common horizontal plane. The seat cushion is supported by the arms 21 and 24 in connection with the cross arm 25, while the back cushion rests upon the upper portion 8 of the couch base.

I have found in practice that a smooth easy mechanical action free from binding and sticking during movement of the cushions is obtained when the distance of the pivot point 29 of the member 22 and member 12 from the meeting edge of the back cushion and the corresponding distance from the pivot point 31' of the member 22 and upright 18 from the horizontal portion of the base member 17 are substantially equal to the distance the seat cushion is to be raised in bringing it into the horizontal plane of the

back cushion 9 when forming the bed. If the above is observed in constructing such a couch, the members 21 and 24 may then be readily determined for an arm 22 of any desired size.

It will be noted that when the cushions are in the bed position, the application of weight upon the cushions will tend to urge both cushions towards one another. That is, the seat cushion 7 will tend to move towards the back cushion as the arms 21 and 24 tend to pivot rearwardly about their respective connections with the base member 17. Likewise, the arm 22 will prevent any lateral movement of the back cushion 9 and will at most allow the cushion to move towards the seat cushion as the arm 22 tends to rotate about its pivot connection with the portion 18 of the base member. The application of weight upon the front edge of the seat cushion will be resisted by the arm 25 and the connection between the same and the member 11 of the seat cushion. Consequently, the seat cushion, while in a bed position, will remain horizontal at all times. Application of weight upon the free or upper edge of the back cushion will have little effect as the cushion is pivotally connected by the pins 13 to the seat cushion, the arm 21 and upright portion of the member 11 cooperating with one another to form a brace which will prevent the back cushion from rotating about the back wall 8 as weight is applied to the extreme free edge of the cushion. It will also be noted that there is no danger of the back cushion rotating about the pin 13 when weight is applied to the seat cushion because the arm 22 has been rotated inwardly past the line of centers designated in Fig. 4 by the line C—C of the pin 13 and the connection of the arm 22 with the portion 18 of the base member. The back cushion can therefore be raised only by rotating the free end thereof upwardly and can not be done through movement of the seat cushion. Thus, it will be apparent that the cushions, when in a bed position, are rigidly locked in place, the application of weight upon the cushion tending to intensify the locking action rather than lessen it, and there is absolutely no danger of either of the cushions having the least tendency to move from one position to the other.

To move the cushions back into couch position, the free or upper edge of the back cushion is raised upwardly to rotate the back cushion about its connection with the arm 22. This will cause the arms 21 and 24 to rotate downwardly about their connection with the base member 17, thereby lowering the seat cushion to the position shown in Fig. 2, the back cushion also assuming the position shown.

The cushions may also be moved in a single operation directly from couch position to bed position, without moving the seat cushion to the position illustrated in Fig. 3 for insertion or removal of bedding, by taking the seat cushion and moving the same laterally outward and slightly upward to rotate the arms 21 and 24 upwardly and outwardly from the position shown in Fig. 2 to the position shown in Fig. 4. As the seat cushion is raised from couch position to bed position, the back cushion will pivot about the pin 13 into a horizontal position. A spring 28, having its ends connected respectively to the L-shaped member 12 and the base member 17, reduces the amount of force necessary to move the cushions into the various positions, particularly when the cushions are moved to allow access to the bedding compartment.

It will be noted from the above description that I have provided a sofa or studio couch having a slanting seat cushion which may be readily converted in a single operation from couch to bed or bed to couch and in which the bed so formed is of substantially ordinary bed height, the seat cushion being raised upwardly into the horizontal plane of the back cushion to achieve these results. I have likewise provided such a couch having a bedding compartment which is accessible without lowering the back cushion into the bed position, the bedding compartment being readily accessible from the front of the couch. It will also be noted that I have provided a couch in which the cushions are securely locked in couch or bed position, the application of weight upon the cushions more securely locking them in position.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence, I do not wish to be understood as limiting myself to the exact form, construction, arrangement, and combination of parts herein shown and described and for the purposes herein set forth.

What I claim as new and desire to secure by Letters Patent is:

1. In a couch, the combination of a back cushion movable into horizontal or back-forming positions, a seat cushion, said cushions being pivotally connected adjacent their meeting edges, and a supporting assembly at each end of said couch, each of said assemblies including a pair of arms pivotally secured in spaced relation at one of their respective ends to the couch base, and one of said arms pivotally secured at the other end to the seat cushion adjacent said meeting edge thereof, a link member connecting said arms, and another arm pivotally secured at one end to the couch base adjacent the back thereof and at the opposite end to the back cushion, at a point spaced from said meeting edge thereof, and resilient means secured to said back cushion adjacent said last mentioned edge and the couch base.

2. In a couch, the combination of a back cushion movable into horizontal or back-forming positions, a seat cushion, said cushions being pivotally connected adjacent their meeting edges, a supporting assembly at each end of said couch, each of said assemblies comprising a base member secured to the couch base, an arm pivotally connected at one end to said member and at the other end to the seat cushion adjacent said meeting edge thereof, said base member having an upwardly extending portion adjacent the rear of the couch, a second arm pivotally connected at one end to said upwardly extending portion and at the opposite end to said back cushion at a point spaced from said meeting edge thereof, and a pair of connected arms, the free end of one being pivotally connected to said first mentioned arm at its connection with said seat cushion and the free end of the other arm connected to said base member adjacent the front of the couch base, said last mentioned arms providing additional supporting means for said seat cushion.

3. In a couch, the combination of a back cushion movable into horizontal or back-forming positions, a seat cushion, said cushions being pivotally connected adjacent their meeting edges, a supporting assembly at each end of said couch,

each of said assemblies comprising a base member secured to the couch base, an arm pivotally connected at one end to said member and at the other end to the seat cushion adjacent said meeting edge thereof, said base member having an upwardly extending portion adjacent the rear of the couch, a second arm pivotally connected at one end to said upwardly extending portion and at the opposite end to said back cushion at a point spaced from said meeting edge thereof, a pair of connected arms, the free end of one being pivotally connected to said first mentioned arm at its connection with said seat cushion and the free end of the other arm connected to said base member adjacent the front of the couch base, said last mentioned arms providing additional supporting means for said seat cushion, and means carried by the couch base engageable with said back cushion when the latter is rotated into a horizontal position to maintain the said cushion in such position.

4. In a couch, the combination of a couch base, a back cushion movable into horizontal or back-forming positions, a seat cushion, said cushions being pivotally connected adjacent their meeting edges, and a supporting assembly carried by said base at each end thereof, each of said assemblies including, an arm pivotally connecting said back cushion and the couch base, a member, a pair of links pivotally connected at their ends to said base and member respectively, means for pivotally connecting said member to one of said cushions adjacent the meeting edges of the latter, said member being engageable with said seat cushion to support said seat cushion when the latter is in a bed-forming position.

5. In a couch, the combination of a couch base, a back cushion movable into horizontal or back-forming positions, a seat cushion, said cushions being pivotally connected adjacent their meeting edges, and a supporting assembly carried by said base at each end thereof, each of said assemblies including, a pair of supporting arms pivotally connected at one of their corresponding ends to the couch base and at their opposite ends to a substantially horizontal member, means for pivotally connecting said member to said seat cushion and a third arm pivotally secured at one end to the back cushion and at the opposite end to the couch base.

6. In a couch, the combination of a couch base, seat and back cushions pivotally connected to one another and movable into bed or couch positions, said base having a relatively low portion engageable with the seat cushion when in couch position to support the same thereon, means pivotally connected to said base and back cushion for supporting the latter in couch position, said base having a relatively high portion engageable with the back cushion when in bed positon to support the same thereon, and further means for supporting said seat cushion from said base in bed position adjacent said back cushion.

7. In a couch, the combination of a back cushion movable into horizontal or back-forming positions, a seat cushion, said cushions being pivotally connected adjacent their meeting edges, and a supporting assembly at each end of said couch, each of said assemblies including a pair of arms pivotally secured in spaced relation at one of their respective ends to the couch base, and one of said arms pivotally secured at the other end to the seat cushion adjacent said meeting edge thereof, a link member connecting said arms, and another arm pivotally secured at one end to the couch base adjacent the back thereof and the opposite end to the back cushion, at a point spaced from said meeting edge thereof.

8. In a couch, the combination of a couch base, seat and back cushions pivotally connected to one another and movable into bed or couch positions, said base having a relatively low portion engageable with the seat cushions when in a couch position to support the same thereon, a supporting assembly carried by said base at each end thereof, each of said assemblies including an arm pivotally secured at one end to the back cushion and at the opposite end to the couch base for supporting said back cushion in a couch position, said base having a relatively high portion engageable with the back cushion when in bed position to support the same thereon, said assemblies each including a pair of arms connected at one of their corresponding ends to the couch base and at their opposite ends to a connecting member, said connecting member being pivotally connected to said seat cushion and operative to support the latter in bed position adjacent said back cushion.

DWIGHT N. KELLY.