

July 21, 1931.

M. THUM

1,815,877

FURNITURE

Filed April 13, 1927

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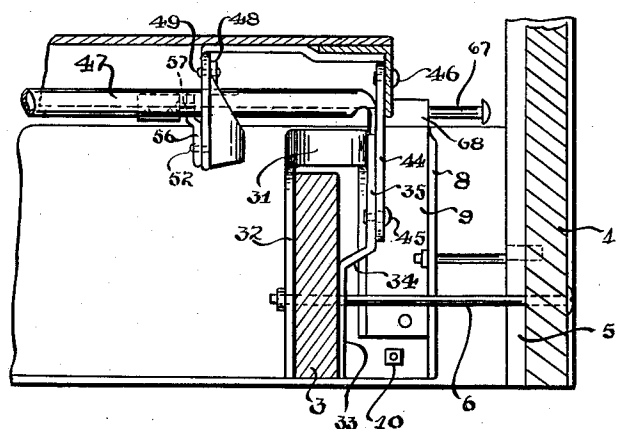


Fig. 2

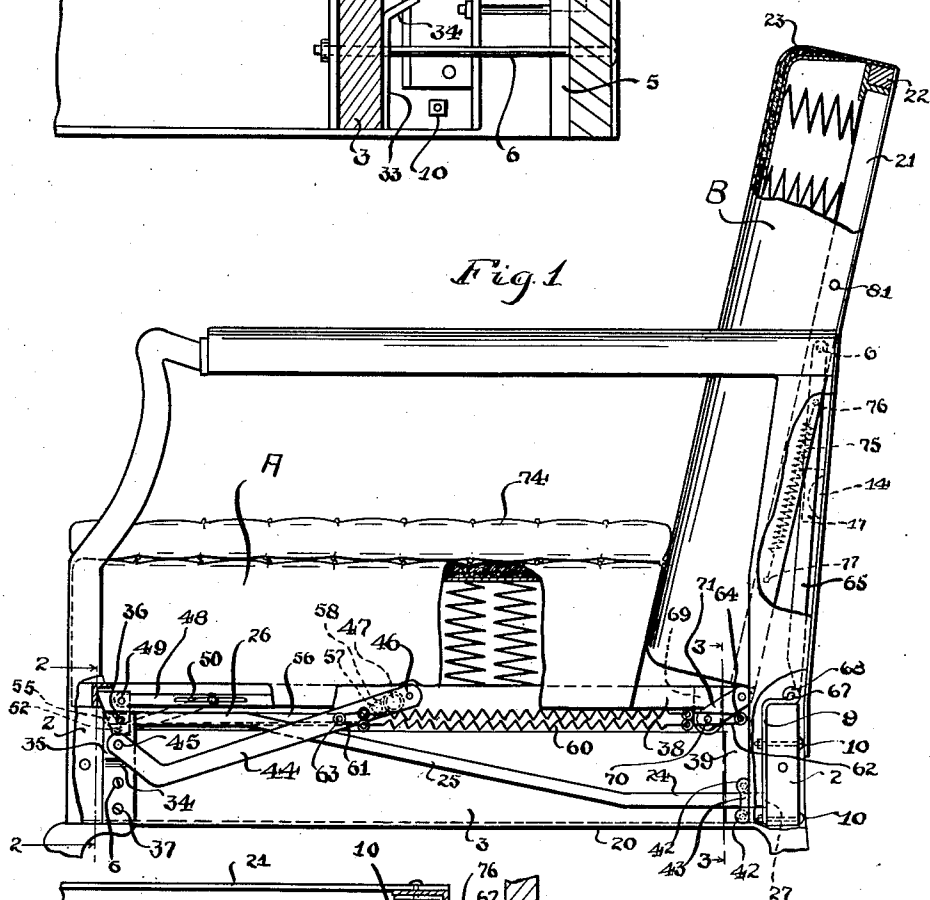


Fig. 1

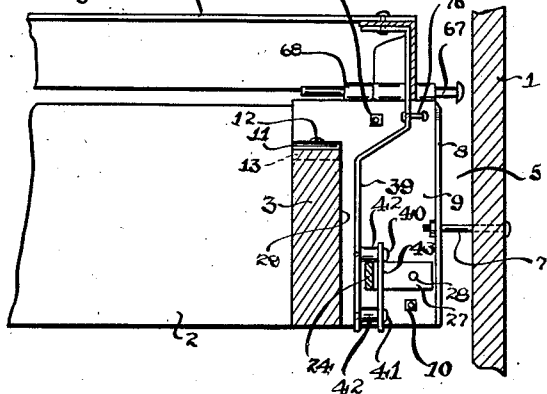


Fig. 3

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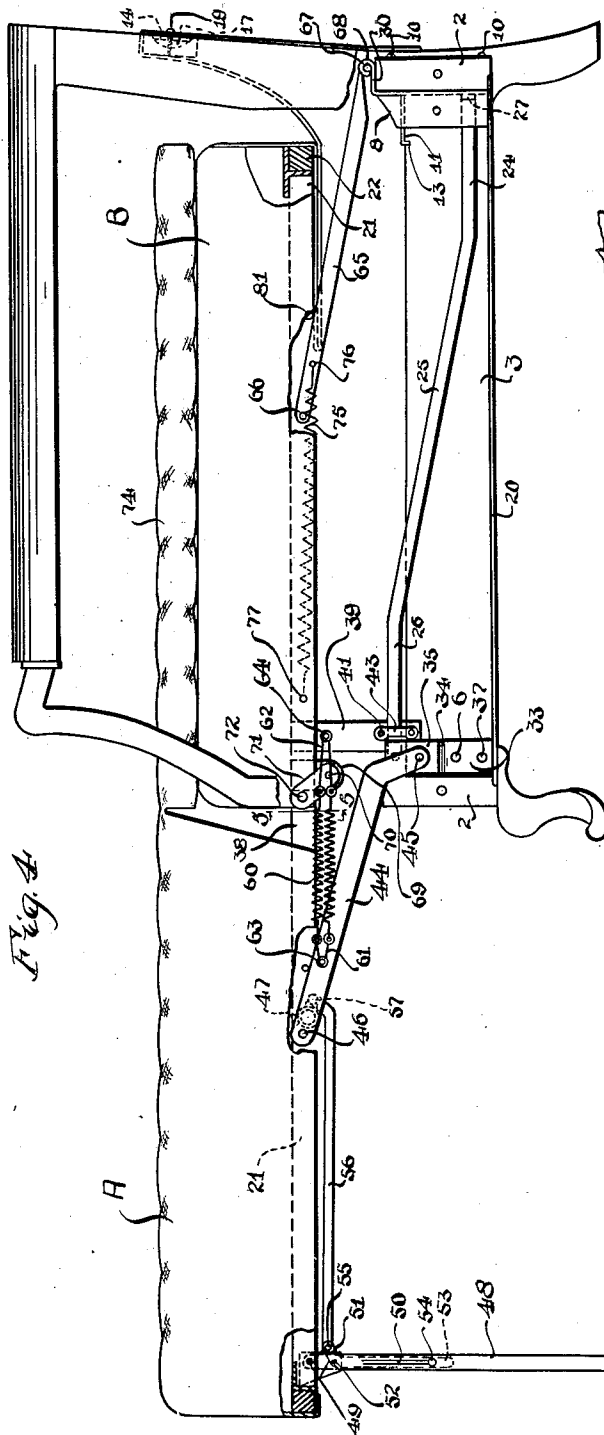


Fig. 4

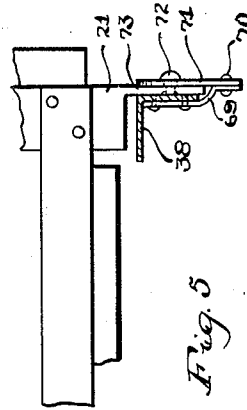


Fig. 5



Fig. 6

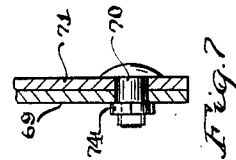


Fig. 7

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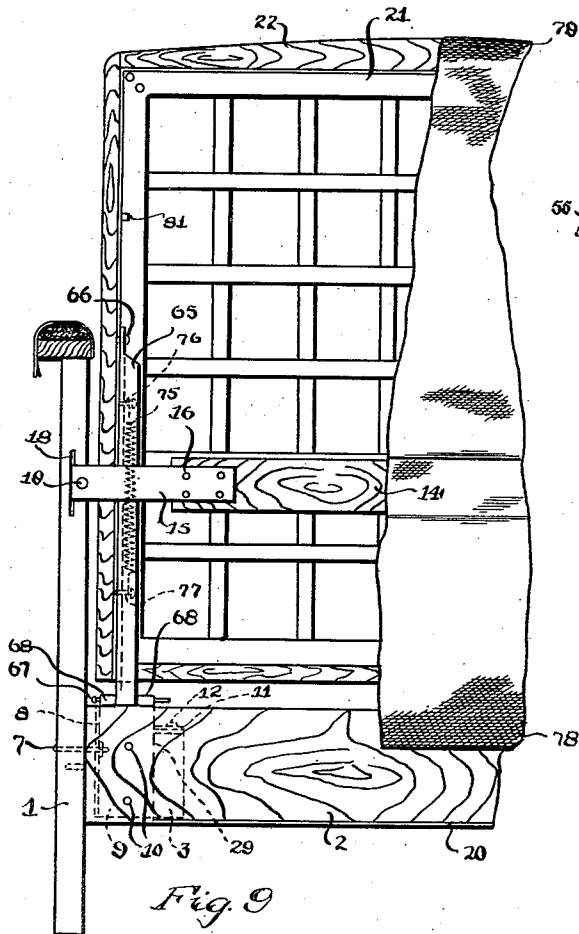


Fig. 9

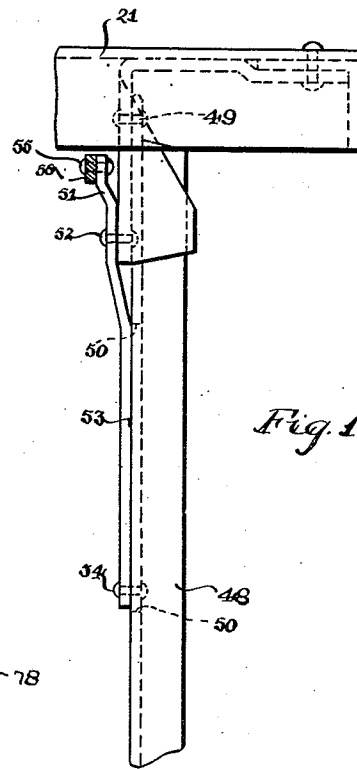


Fig. 12

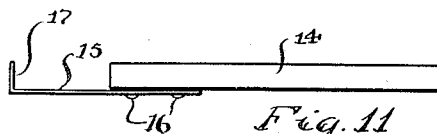


Fig. 11

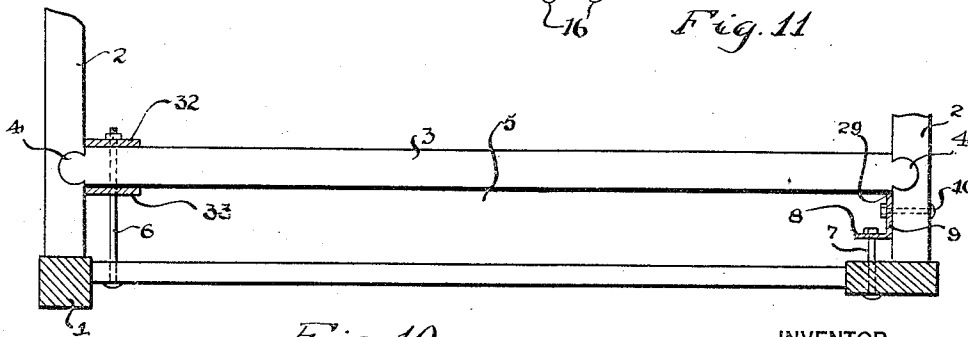


Fig. 10

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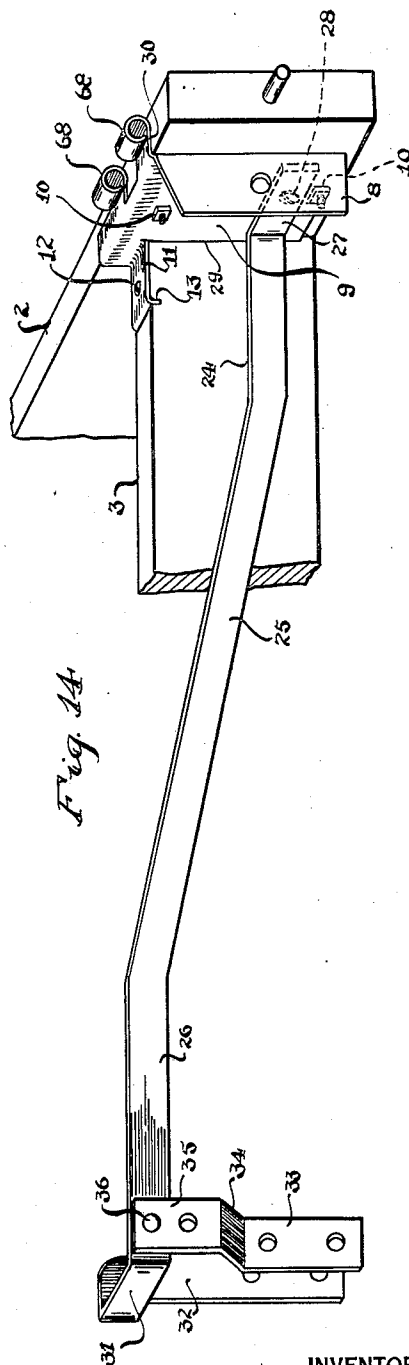
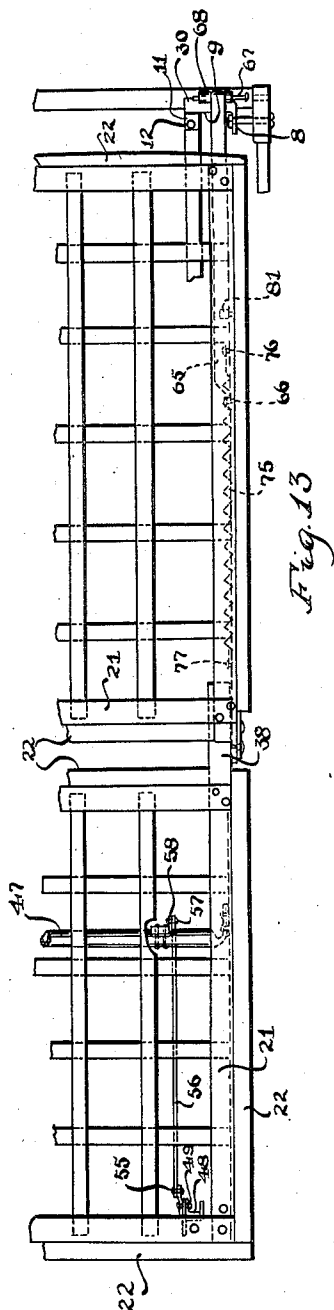
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4 Sheets-Sheet, 4



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UNITED STATES PATENT OFFICE

MARTIN THUM, OF ROCHESTER, NEW YORK

FURNITURE

Application filed April 13, 1927. Serial No. 183,325.

The present invention relates to furniture and more particularly to the type in which there is provided a bottom member adapted to occupy an inner position where it acts as a seat and an outer position where it acts as an extension for the furniture to provide a bed bottom or other reclining surface. An object of this invention is to associate with the bottom member a back member which has a pivotal and lost motion connection with the bottom member permitting the back member to occupy an upright position and also a horizontal position with the gap between the bottom member and the back member closed. Another object of the invention is to provide a construction in which the back member is so mounted and connected to the upholstered bottom member that, upon the movement of the bottom member from an outer to an inner position, the back member will move from a horizontal to an upright position with its lower end in abutment with the rear end of the bottom member, and, upon the movement of the bottom member outwardly from an inner position, the back member will lower to a horizontal position and will advance relatively to the bottom member to close the gap between the bottom member and the back member. A further object of the invention is to so support the back member that it moves toward and from its upright position without any portion thereof being projected beyond the back of the furniture, thus permitting the furniture to be situated close to a wall without any interference with such wall during the adjustment of the back. Still another object of the invention is to construct the back of the furniture that the upper portion of the back of such furniture does not project above the bottom member when the latter is in its outer position. Still another object of the invention is to provide a novel mounting for a back cloth so that the back cloth will cover the back member and the back of the furniture when the back member is in an upright position, and will close the space between the back of the furniture and the back member when the back member is in a horizontal position. A still further object of the invention is to provide a novel means of mounting the springs which assist in moving the bottom member in one direction. A still further object of the invention is to provide an upholstered member which is so constructed that the upholstering cloth or covering may be effectively secured in place by tacks or fasteners notwithstanding the frame of the upholstered member is made mainly from metal. Another and still further object of the invention is to provide a novel means of connecting the bottom member to a track or support on which the bottom member moves, such means being constructed to prevent disconnection between the bottom member and the track of support. Still another and further object of the invention is to provide a novel means of connecting a back piece to the side frames or pieces so as to insure proper alignment of the parts and an effective connection between them. Still other objects are to provide a novel connection between the side pieces and the bottom frame, to provide a novel means of supporting the tracks whereby effective alignment is secured and durable support therefore obtained, and to utilize this track supporting means as an anchorage for the side pieces and also as a support for the links or swinging members on which the back member is mounted.

To these and other ends, the invention consists of certain parts and combinations of parts, all of which will be hereinafter described; the novel features being pointed out in the appended claims.

Fig. 1 is a view with parts in section showing the furniture in its position where it acts as a seat, the bottom member being in its inner position;

Fig. 2 is an enlarged fragmentary section on the line 2—2, Fig. 1;

Fig. 3 is an enlarged fragmentary section on the line 3—3, Fig. 1;

Fig. 4 is a view partially in section showing the furniture adjusted to provide a bed, the bottom member being in its outer position;

Fig. 5 is a section on the line 5—5, Fig. 4;

Figs. 6, 7 and 8 are detail views of the piv-

total lost motion connection between the bed and the bottom member;

Fig. 9 is a rear fragmentary view of the furniture with the back cloth partially removed;

Fig. 10 is a fragmentary view showing the manner in which an end frame connects to the bottom frame;

Fig. 11 is a fragmentary view of one end of the back piece;

Fig. 12 is a fragmentary view showing the mountings for one of the supports;

Fig. 13 is a fragmentary top view of the two frames of the bottom and the back member, showing said parts in horizontal alignment; and

Fig. 14 is a fragmentary perspective view of one of the tracks and its supporting means.

Referring to the illustrated embodiment of the invention 1 indicates the end frame, 2 the longitudinal members of the box frame and 3 the transverse members of the box frame, the transverse members being morticed at 4 at their ends to the longitudinal members 2 in spaced relation to the ends of the latter as shown in Fig. 10 to provide spaces 5 at opposite ends of the box frame.

In order to firmly secure the sides 1 to the box frame in a detachable manner, bolts 6 are passed through a side frame 1 and a transverse piece 3 and bolts 7 are passed through the side frame 1 and flanges 8 which project laterally from plates 9 which by bolts 10 are secured to the inner faces of the rear longitudinal member 2 beyond the transverse pieces 3. These plates 9 also serve as a means for uniting the transverse pieces 3 to the rear longitudinal pieces 2 and to this end, they have projections 11 struck up therefrom, overhanging the transverse pieces 3 and being secured thereto by screws 12 and having their forward ends turned downwardly at 13 and anchored in grooves in the transverse pieces 3.

The side pieces are also connected by a back piece or strip 14 which has plates 15 secured at 16 to opposite ends thereof and projecting beyond the ends of said plates, being turned laterally at 17. The laterally turned portions at two ends are adapted to be received in vertical curves 18 cut in the rear sides of the end pieces 1, screws 19 pass through the plates 15 and hold said plates to the end pieces. Bottom 20 closes the rectangular frame 2 and 3 which provides a receptacle in which may be kept any suitable material.

Mounted on the frame thus provided are the bottom member and the back member, both of these members embodying a metallic box spring frame 21 surrounded by a wooden frame 22 bolted or otherwise secured to the metal frame work thereof and serving as an anchoring means for the upholstering covering 23, the upholstering covering being tacked to the underface of the wooden frame 22.

This enables the bottom and the back member to be quickly upholstered.

The bottom member is mounted to move on the main frame of the furniture from a lower inner position where it closes the receptacle or box and acts as a seat to an outer higher position in front of the frame where it acts as a portion of a bed bottom. This movement, in this instance, is effected through two tracks supported in the spaces 5 at opposite ends of the rectangular bottom frame. Each of these tracks has an inner horizontal portion 24, an intermediate inclined portion 25 and an outer horizontal portion 26 in a higher horizontal plane than the inner horizontal portion 24. In this instance, these tracks are spaced both from the transverse pieces 3 and the side frames 1. The rear end of each track is turned laterally at 27 and riveted at 28 to the plate 9 which by reason of the fact that the said plate 9 has a straight edge 29 for engaging the side face of the transverse piece 3 and a laterally turned portion 30 for engaging the top edge of the rear longitudinally extending piece 2, acts as a spacing member for the rear end of the track. The forward end of the track is turned inwardly at 31 and then rearward and downwardly at 32 to provide a bracket arm adapted to be secured to the inner face of the adjacent transverse member 3. A supporting bracket 33 is secured to the outer face of the transverse member 3, is deflected at 34, and is provided with an upwardly extending portion 35 which is secured at 36 to the forward end of the track portion 26. The bolt 6, hereinbefore mentioned, in passing through the transverse piece 3 also passes through the brackets 32 and 33 while in addition bolts 37 pass through the two brackets and the transverse piece to hold the brackets and the forward end of the track in position.

The bottom member has two rearwardly extending portions 38 on the side pieces of its box frame 21 and from these extensions depend supports 39. Each support extends downwardly between a track and a transverse piece 3 as shown in Fig. 3 and carries two posts 40 and 41 operating respectively above and below the track and carrying rollers 42 to cooperate with the upper and lower edges of the track. A connecting piece 43 connects the outer ends of the posts on the outside of a track so that the track lies between the two rollers 42, the support 39 and the connecting piece 43, whereby the support 39 is firmly tied to the tracks against accidental disconnection. The bottom member is also supported or guided by two links 44 each of which is pivoted at 45 to the outside bracket 33 which supports the forward end of the track and is also pivoted at 46 to one of the sides 21 of the box frame of the bottom member. In this instance, these two links are connected by

a longitudinally extending member 47 so that they may move in unison.

With the end in view of supporting a bottom member in its outer upper position two legs 48 are provided each of which is pivoted at 49 to the front piece of the box frame of the bottom member and is provided with a longitudinally extending slot 50. An operating lever 51 for each of these legs is provided, pivoted at 52 to the box frame below the pivot 49 and having an arm 53 provided with a projection 54 which operates in a slot 50 of the adjacent leg. The other arm of this lever has pivoted thereto, at 55, a link 56 which is in turn pivoted at 57 to an arm 58 extending laterally from the connecting bar 47. This connection effects the movement of the leg 48 automatically to supporting position as shown in Fig. 4 to the folding position as shown in Fig. 1 or vice versa.

A novel opening means is provided for the bottom member and, in this instance, comprises two springs 60 of coil formation arranged in parallel relation and connected at their opposite ends by loops 61 and 62. The loop 61 passes detachably about a headed bolt 63 on one of the swinging links 44 while the loop 62 passes detachably about a headed bolt or projection 64 on a support 39. It is apparent that as the bottom member moves inwardly on the tracks, the links 44 will swing on their pivots 45 and place the springs 60 on tension so that the links move from the untensioned position of the springs shown in Fig. 4 to the tensioned position of the springs shown in Fig. 1. By having twin springs or two parallel springs it is possible to obtain sufficient strength for assisting in the open movement of the bottom member without loss of tension as would be the case if one or a single spring of equal strength were employed.

The back member B, hereinbefore mentioned, is in this instance movable from an upright position as shown in Fig. 1 to a horizontal position as shown in Fig. 4. To this end the back member B is supported by two links 65 pivoted at 66 to the sides of the box frame or the back member and pivoted at 67 to the rear longitudinally extending piece 2. To this latter end, the laterally turned portions 30 of the attaching plates 9 are provided with rolled ears 68 through which the pivot pins 67 are passed. These pivot pins 67 are only loosely passed through the ears 68 but their ends lie in close arrangement to the side pieces 1 as shown in Fig. 13 and in this way the pins are held in their operative positions. The removal of the side frames or pieces permit the removal of the pins and consequently detachment of the back supporting links 65.

A pivotal lost motion connection is provided between the bottom member A and the back member B which will close up the space

between the back member and the bottom member automatically with the lowering of the back member and yet will permit the back member to have its top surface in abutting relation with the rear end of the bottom member when the back member is in the upright position shown in Fig. 1. This connection, in this embodiment of the invention, comprises two brackets 69 dropped from the inner sides of the rear extensions 38 of the box frame of the body member and pivotally supporting at 70 two links 71 to which are pivoted at 72 portions 73 on the side pieces 21 of the box frame of the back member. In this instance, each pivot pin 70 has an annular groove in which a split ring 74 of the form shown in Fig. 6 is adapted to be compressed to the form shown in Fig. 8, thus providing an effective means for detachably securing the back member B to the bottom member A. This link connection 70 together with the link connection 65 gives to the back member a unique movement. Assuming the parts to be held in the positions as shown in Fig. 1, when the bottom member A is moved outwardly, thus drawing on the back member B through the links 71 the back member, through the links 65 moves at its upper end forwardly and downwardly and not rearwardly. Eventually the links 65 swing the links 71 forwardly and bring the forward end of the back member B in close relation to the bottom member A. This action is reversed on the inner movement of the bottom member. At no time does the back member swing rearwardly in rear of the plane of the back of the furniture and as a consequence when the furniture is close to a wall it is possible to shift the parts from seat or davenport construction to a bed construction without shifting the furniture as a whole or causing the back to engage or contact with a wall.

The upholstery of the bottom member is greater in thickness than the back member B and has a quilt extension 74 which is adapted to cover the bottom member when the furniture is used as a davenport as shown in Fig. 1 or to be extended over the back member B as shown in Fig. 4 when the furniture is used as a bed. Springs 75 anchored to the links 65 at 76 and to the box spring of the back at 77, serve to assist in returning the parts to the position shown in Fig. 1 from the position shown in Fig. 4. The back piece 14 lies substantially in the plane of the quilt top surface of the bottom member when the parts are in a position shown in Fig. 4. The springs 75 assist in moving the back B on the links 71. When the bottom member A is in its outer position, its weight is sufficient to hold these back springs 75 against action, but once the front edge of the bottom member A is lifted the pivots of the links 71 are shifted and the springs 75

come into action and shift the links 71 and 65 relatively to the bottom member to space the back member B from the bottom member A, after which the bottom member A and the back member recede together.

A back cloth is provided secured at 78 to the rear longitudinally extending piece 2 and to the back piece 14. Between the back piece 14 and the back member the back cloth has a free portion being secured at 79 to the back piece at the upper portion of the latter. With this arrangement when the back piece B lowers, the back cloth falls or collapses as shown in Fig. 4 so that the space between the rear end of the back member B and the back piece 14 is closed, thus covering the compartment or receptacle in the box frame.

The operation of the invention will be understood from the foregoing description but it may be summarized as follows: Assuming that the parts are in positions shown in Fig. 1 and it is desired to convert the davenport or seat into a bed or couch, the user pulls forwardly on the forward end of the bottom member A causing the supports 39 to travel on the track and the links 44 to swing on their pivot. This action was assisted by the spring 60. As the bottom member moves outwardly its forward edge swings upwardly and opens the receptacle beneath it to access. The supports 48 also swing from folded position under the bottom member to supporting position as shown in Fig. 4. The back member B begins to move with the movement of the bottom member A. At first, the upper end of the back member through the links 65 moves downwardly and inwardly, its inward movement however being slight as compared with its downward movement. This movement is continued until eventually as the bottom member approaches its final position, the links 65 together with the weight of the back member finally advance the lower end of the back member toward the rear end of the bottom member A to close the gap between them. To reconvert the bed into a davenport or seat the forward edge of the bottom member is lifted thus throwing the pivot 70 forwardly so that the springs 75 swing the back member B on the links 65 and 71 and advance it away from the upholstered portion of the bottom member which then follows the back member rearwardly, the back member swinging on the bottom member and coming to rest with its lower end abutting the rear end of the upholstered portion of the bottom member.

When the back member B is in its lowered position, two pins 81 project from the inner faces of the two upright sides of the frame 21 and cooperate with the links 65 in rear of the pivots 66, thus supporting the rear end of the back member B, the forward end being supported by the frame 21 of the bottom member A. When the back member is in its upright position, the forward ends of the upright

sides of the frame 21 of the back member rest upon the rear ends of the extensions 38 of the bottom member A. This point is as will be seen by referring to Fig. 1, so positioned with reference to the pivots 66 and 67 of the link 65, that the link acts as a brace when the back member is in an upright position to prevent the back member being moved forwardly or backwardly so long as the bottom member is not moved as a result, pressure on the back member to shift the furniture will not disturb the position of the back member.

From the foregoing it will be seen that there has been provided an article of furniture in which the back member and the bottom member are utilized for forming a bed. The back member is connected to the bottom member so as to move with the bottom member from the inner position of the latter to the outer position and vice versa. This connection is such that when moving to the outer position with the bottom member, the gap between the back and the bottom member is automatically closed and when moving inwardly with the bottom member, the back member establishes an abutting relation with the rear end of the bottom member. This result is accomplished by providing pivotal lost motion connection between the bottom and the back member preferably in the form of links. The back member is also supported on the frame so that it moves inwardly and downwardly from its upright position, thereby enabling it to be positioned in close proximity to a wall of a room without interfering with the wall. A back cloth is provided for the furniture connected to the back member in such a manner as not to interfere with the movement of the back member and acting when the back member is in its lower position to close the space between the back member and the back piece of the furniture. When the back member is in its lower position, the back piece does not project above the upper surface of the bottom member.

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

1. In furniture, the combination with a frame, a movable bottom member having an upholstered portion and an extension in the rear of the upholstered portion, of means for supporting said bottom member to permit the latter to move with its extension from an inner to an outer position and vice versa, a back member having a pivotal lost motion connection with the extension permitting the back member to rest at its lower end on the extension when the bottom member is in its inner position and to move forwardly on the extension to lie horizontally in the plane with the bottom member when the bottom member is in its outer position with the lower end of such back member in close proximity to the rear end of the upholstered portion of the bottom member, and a link piv-

otally connected to the frame and to the back member to guide the latter in its movement from its upright to its horizontal position, the link having its pivotal connection with the frame adjacent the rear of the latter and its pivotal connection with the back member intermediate with the upper and lower end of said back member so that as the bottom member is drawn outwardly the weight of the back member will advance the back member toward the rear end of the bottom member, and a spring connecting with said swinging link between its two pivotal connections and with the back member in advance with the pivotal connection with the link of such back member so that as the bottom member moves inwardly the spring will shift the lower end of the back member from the rear end of the upholstered portion to permit the lower end of the back member to rest on the extension.

2. In furniture, the combination with a frame, a trackway on the frame, a bottom member, a means carried by the rear end of the bottom member for moving on the trackway, and a swinging member pivotally connected to the frame at the front portion of the latter and to the bottom member between the front and rear ends of the latter so that the bottom member swings upwardly at its forward end in moving to its inner or outer position, of a back member, means for supporting the back member so that the latter moves forwardly at its lower end and its top end moves downwardly, and a swinging link pivoted to the back member and to the bottom member, the pivotal connection to said back member lying to one side and above the pivotal connection to the bottom member when the back and the bottom members are in the same plane and to the other side and above the pivotal connection to the bottom member when the back and bottom members are in seat forming position.

3. In furniture, the combination with a frame having a back piece, and a bottom member movable to an inner or an outer position on said frame, of a back member pivotally connected at its lower end with the rear end of the bottom member, means for supporting said back member on the frame so that the upper edge of the back member may move downwardly as the lower end of the back member moves forwardly and a back cloth secured to the back member and to the back piece of the frame, covering the back member when it is in its upper position and the space between the back member and the back piece when the back member is in its lower position.

4. In furniture, the combination with a bottom frame and side frames secured to the bottom frame and extending upwardly above the same, of a back piece, plates secured to opposite ends of said back piece and projecting

beyond the ends of said back piece, their outer ends being secured to the side frames, a back member, and links supporting said back member, said links being pivoted to the back member and to the frame and being arranged to lie when the back member is in its upright position between the ends of the back piece and the side frames.

5. In furniture, the combination with a bottom frame and detachable side frames detachably secured thereto, of a back member, supporting links for the back member pivotally connected to the latter, and pivotal connection between the links and the bottom frame embodying removably pintles held against removal by the side frames.

6. In furniture, the combination with a bottom frame embodying two longitudinally extending pieces, a track supported by the bottom frame at one end thereof, a plate to which one end of the track is secured, said plate being secured to a longitudinally extending piece of the bottom frame, a side frame secured at one end of the bottom frame, and a bolt connecting said side frame with said plate.

7. In furniture, the combination with a bottom frame embodying two longitudinally extending pieces and two transverse pieces spaced from the ends of the longitudinally extending pieces and connecting said longitudinally extending pieces, of tracks arranged beyond said transverse pieces on said bottom frame, and securing plates for one end of each of the tracks bolted to the inner face of one of said longitudinal pieces and each having a horizontal flange for cooperating with the upper edge of the longitudinally extending piece to position the plate vertically and a vertical edge for cooperating with the outer face of a transverse piece to position the plate horizontally.

8. In furniture, the combination with a bottom frame embodying two longitudinally extending pieces and two transverse pieces connected to the longitudinally extending pieces in spaced relation to the ends of said longitudinally extending pieces, the upper edges of the transverse pieces being below the upper edges of the longitudinally extending pieces, bed tracks supported by the bottom frame beyond the outer faces of the transverse pieces, and attaching plates for one end of each of the tracks, each attaching plate being bolted to the inner face of one of the longitudinally extending pieces and having a lip cut therefrom and overlying the adjacent transverse piece, said lip being secured to the transverse piece and having a flange at its free end extending into the transverse piece so as to strengthen the connection between the transverse piece and the longitudinally extending piece.

9. In furniture, the combination with a bottom frame embodying two longitudinally

extending pieces and a transverse piece connecting the longitudinally extending pieces and spaced from the ends of said longitudinally extending piece, of a track supported on the outer sides of the transverse piece by said bottom frame, and means for supporting one end of the track on the bottom frame comprising two bracket members secured to the inner and the outer faces of the transverse piece and depending from the track member, the bracket member that is secured to the outer face of the transverse piece having an offset portion to space the track member from the transverse piece.

10 10. In furniture, the combination with a bottom frame embodying two longitudinally extending pieces and a transverse piece connecting the longitudinally extending pieces and spaced from the ends of said longitudinally extending piece, of a track supported on the outer sides of the transverse piece by said bottom frame, and means for supporting one end of the track on the bottom frame comprising two bracket members secured to the inner and the outer faces of the transverse piece and depending from the track member, the bracket member that is secured to the outer face of the transverse piece having an offset portion to space the track member from the transverse piece, a side frame secured to the longitudinally extending pieces, and a bolt passing through said side frame, two track supporting bracket pieces and the transverse pieces between them.

35 11. In furniture, the combination with a bottom frame embodying two longitudinally extending members and a transverse piece connecting them and spaced from the ends of the longitudinally extending members, a track member supported on the outer side of the transverse piece, a plate to which one end of the track member is secured bolted to the inner face of a longitudinally extending member, a back member, and a supporting link for the back member pivotally connected to the back member and pivoted on the plate which secures the end of the track member.

12. In furniture, the combination with a frame, a bottom member having an upholstered portion and a rigid extension in rear of and in a plane below the upholstered portion, of means for supporting said bottom member to permit the member to move from an inner to an outer position and vice versa, a back member having an upholstered portion, a swinging support for the back member mounted to carry the back to an upright position with the lower end of the back member resting on the rigid extension of the bottom member and in close proximity to the upholstered portion of said bottom member and to carry the back member downwardly so that the upholstered portion lies in the plane of the upholstered portion of the back member, and a swinging link pivotally con-

nected to the back member and to the bottom member and having the pivot thereof on the back member lying in advance of the pivot on the bottom member, when the back member and bottom member are in the same plane, said pivot lying in rear of the pivot on the bottom member when the back member rests in an upright position on the extension of the bottom member.

13. In furniture, the combination with a bottom member having an upholstered portion, and means for supporting the bottom member for movement from an inner to an outer position and vice versa, of a back member having an upholstered portion, a supporting link for the back member pivoted to the supporting frame adjacent the rear of the latter and to the back member between its upper and lower ends, and a link pivotally connected to the bottom member adjacent the rear of the latter and to the back member adjacent the lower end of the latter but above the pivotal connection with the bottom member to provide a pivotal and lost motion connection between the bottom member and the back member, and a spring connected to the back supporting link between the pivotal connections of the latter and connected to the back member below the pivotal connection of said back supporting link with the back member.

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