

March 25, 1930.

M. THUM

1,751,897

FURNITURE

Filed Oct. 28, 1925

3 Sheets-Sheet 1

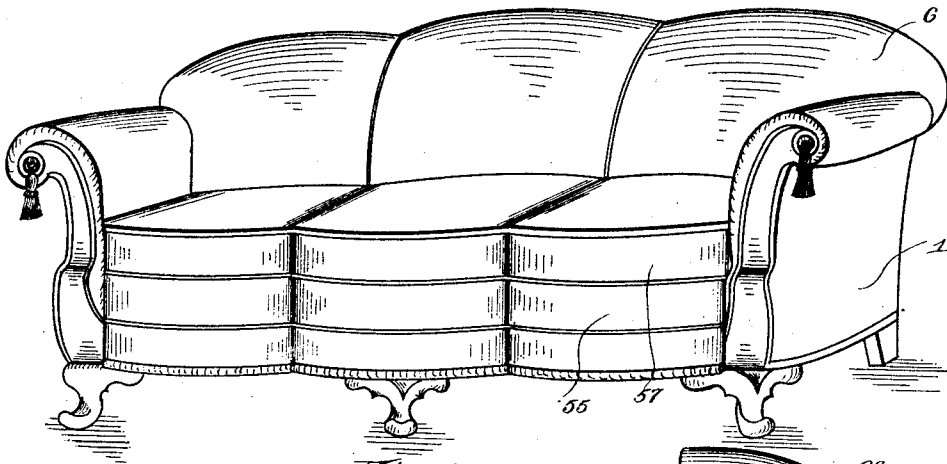


Fig. 1

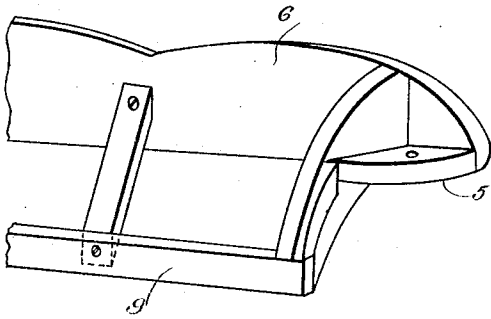


Fig. 3

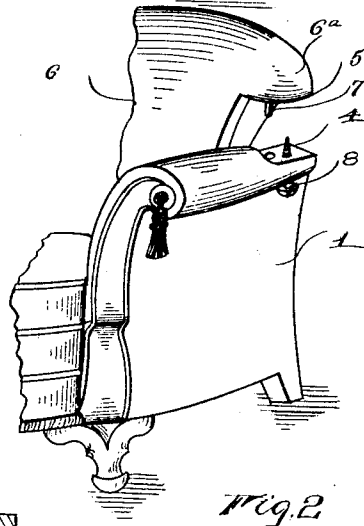


Fig. 2

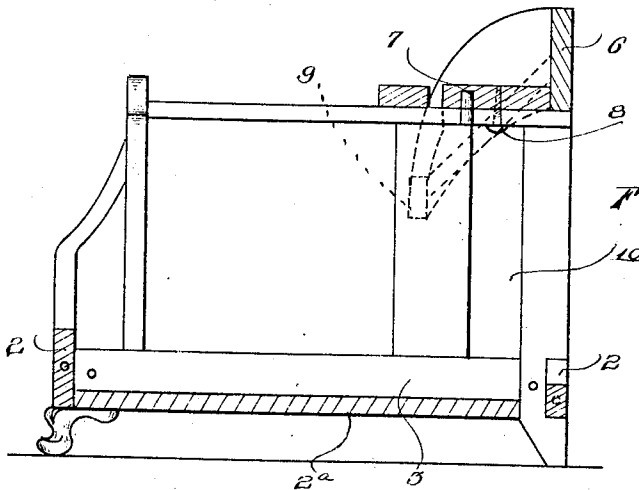


Fig. 4

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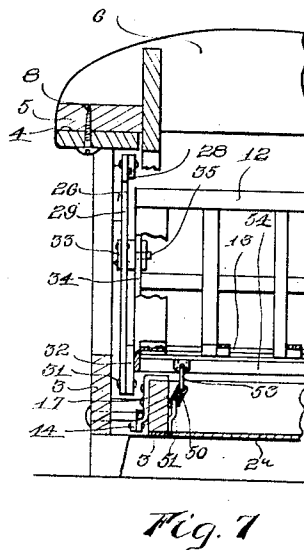
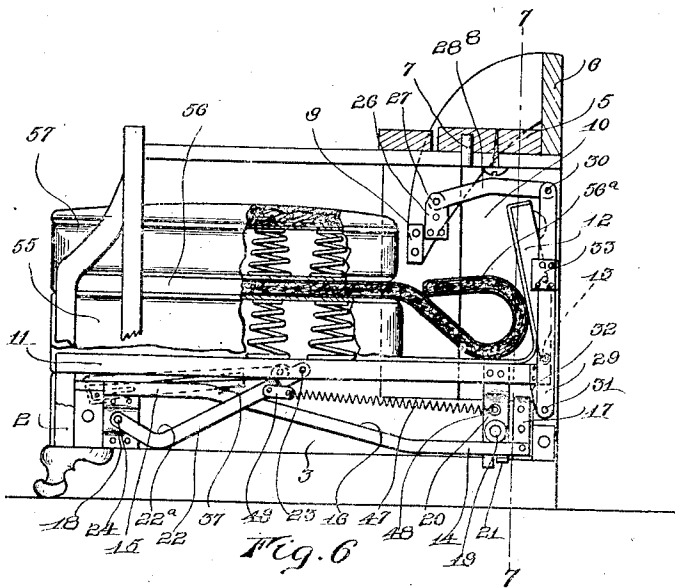
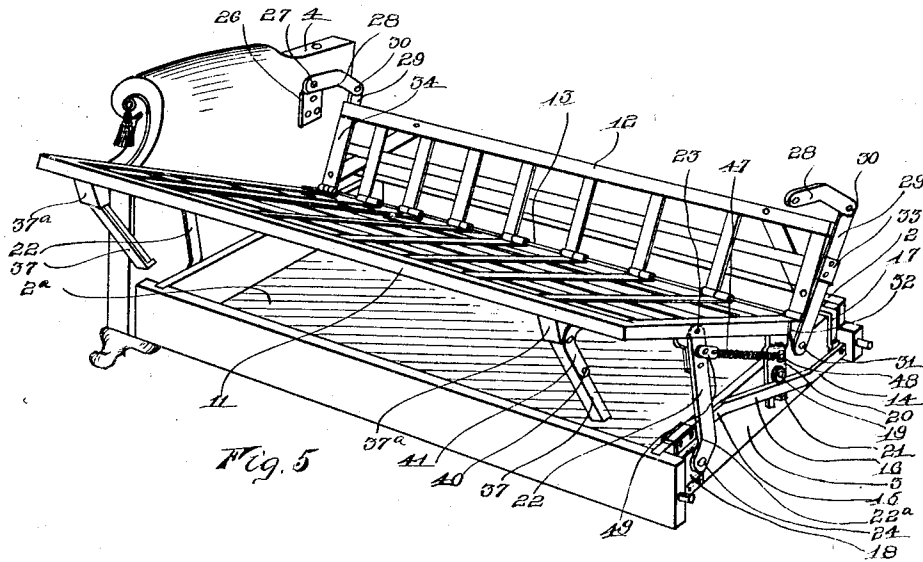
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3 Sheets-Sheet 2



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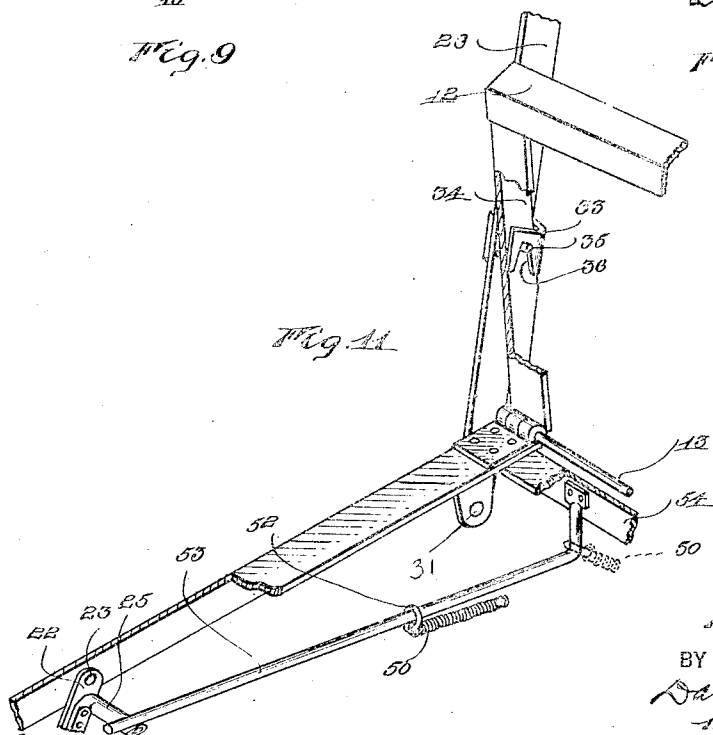
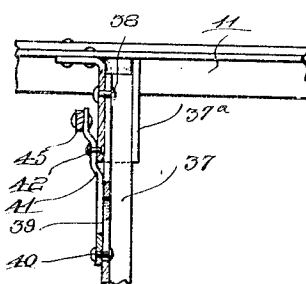
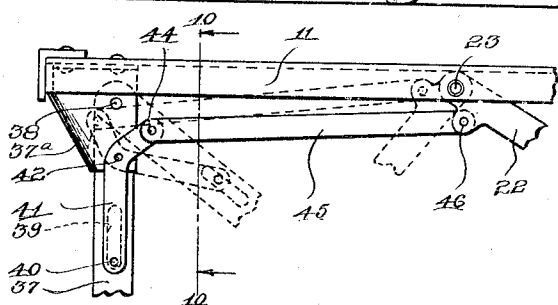
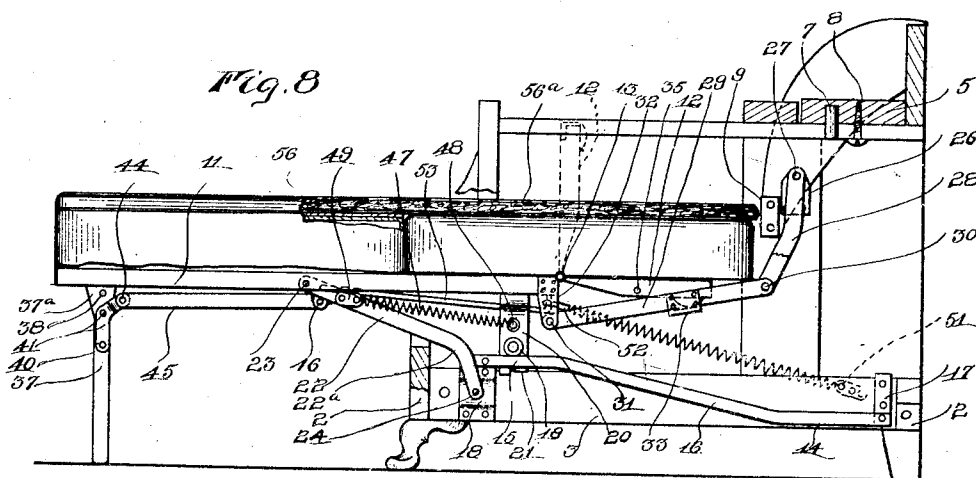
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Filed Oct. 28, 1925

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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FURNITURE

Application filed October 28, 1925. Serial No. 65,464.

The present invention relates to furniture and more particularly to the type in which there is provided a frame having a bottom member which is shiftable to an inner position where it will act as a seat or couch, and to an outer position where it will provide for the extension of the furniture to enable the same to be used for a bed or other suitable purpose. An object of this invention is to provide a novel construction in which the bottom member also acts as a closure for a receptacle in the bottom of the frame in which bed clothes or other articles may be arranged, the bottom having a movement which will permit ready access to such receptacle. Another object of the invention is to so construct the furniture that it may be shipped or stored in a knock-down condition. Still another object of the invention is to mount the bottom member with the supporting means therefor entirely upon a bottom frame to which an upholstered back and side pieces are detachably connected. A further object of the invention is to provide an extension for the body member which through a novel means is moved toward and from extended position upon the movement of the bottom member outwardly or inwardly. A still further object of the invention is to provide a support for the bottom member when it is in its outer position, with novel means for effecting the movement of the support toward and from supporting position with the movement of the body member outwardly or inwardly. Another and further object of the invention is to provide a novel means of connecting the retracting spring to the bottom member so that the latter is free from the action of the spring after such bottom member has moved inwardly to a certain position. Still another and further object of the invention is to provide a construction employing a cushion member resting upon the body member and having a quilt extension at the rear edge thereof which will serve as a cover for other cushions supported in rear of the first mentioned cushion.

To these and other ends, the invention consists of certain parts and combinations of parts, all of which will be hereinafter de-

scribed: the novel features being pointed out in the appended claims.

In the drawings:

Fig. 1 is a perspective view of a davenport bed constructed in accordance with this invention;

Fig. 2 is a fragmentary perspective view showing the back construction partially removed;

Fig. 3 is a perspective view showing a portion of the back frame;

Fig. 4 is a sectional view through the back and side frame with the bottom member and upholstering removed;

Fig. 5 is a fragmentary perspective view showing the bottom in a position which it occupies in moving toward and from its inner position;

Fig. 6 is a transverse section through the furniture with the bottom member in its inner position;

Fig. 7 is a fragmentary section on the line 7-7, Fig. 6;

Fig. 8 is a transverse section showing the bottom member in an outer position;

Fig. 9 is a detail view of the controlling means for the legs or supports;

Fig. 10 is a section on the line 10-10, Fig. 9; and

Fig. 11 is a fragmentary perspective view of the bottom member showing the manner in which the hinge bottom extension is locked against falling forward when in its lower position.

In the illustrated embodiment there is provided a frame comprising two upholstered sides or ends of the davenport connected by a lower or bottom frame comprising, in this instance, longitudinal members 2 connected by transverse members 3 which are spaced from the ends of the longitudinal members so as to provide sockets or spaces in which the mechanism to be described is adapted to be mounted. This box-like frame is closed by a bottom 2^a to form a receptacle for receiving bed clothes or other articles. The ends or sides 1 are preferably provided at their rear with seats 4 adapted to be engaged by seats 5 formed on an upholstered back 6, the upholstered back having projections 6^a

at opposite ends on the underside of which the seats 5 are arranged. Dowel pins 7 center the back on the seats 4 and screws 8 secure the back in position. The back projects forwardly and downwardly from the seats so that in the rear of and below its lower portion formed by the longitudinally extending member 9 of the back a chamber 10 will be provided extending longitudinally of the furniture.

A bottom member is provided which, in this instance, consists of a main portion 11 the area of which is substantially equal to the box frame so that when this member 11 is in its inner position, it will close the receptacle between the sides 1 and will extend from the front longitudinal member 2, upon which it will rest, to and over the rear longitudinal member 2 of the box frame. In addition to the main member 11 the bed bottom may have an extension member 12 hinged to a rod 13 forming the rear edge of the main bottom member.

For supporting the bottom member there may be provided at opposite faces of the transverse pieces 3 two tracks. Each of these tracks has a lower horizontal portion 14 and an upper horizontal portion 15, these portions being connected together by an inclined portion 16. The lower horizontal portion 14 of each track is supported on a hanger 17 while the forward portion is supported on a bracket or plate 18 both of which are secured on the transverse pieces 3 so as to space the tracks from the outside of the transverse pieces. On the upper edge of each of these tracks a roller 19 runs, said roller being mounted to project laterally from a support 20 which depends from the bed bottom member 11 at one side near the rear edge of such bottom member. This leg or support may have a lip 21 projected laterally therefrom to cooperate with the underside of the track in order to hold the roller and the support in cooperative relation with the track. Each bracket or plate 18 may also act as a support for a swinging member 22 which is pivoted at 23 to the bottom member 11 adjacent the center of said bottom member and is pivoted at 24 to the bracket or plate 18. The swinging members 22 on opposite sides of the bottom member 11 are connected by a rod 25 so that both members turn together as a single member. It will be apparent that through the supports 20 and the links 22 the bottom member readily is moved from an inner position to an outer position. When in the outer position the links 22 extend over the front longitudinal member 2 of the box frame as illustrated in Fig. 8, due to the fact that each has a bend 22^a therein and when in an inner position the links lie in the recesses at the ends of the box frame as illustrated in Fig. 6, the roller 19 traveling on the track during the movement

of the bottom member and supporting the bottom member in a lower position, when the bottom member is in its inner position, than when the bottom member is in its outer position.

In order to control the movement of the extension member 12 of the bottom member 11 when the bottom member is in its outer position, two plates 26 may be secured to the inner faces of the side pieces 1, each plate having a pintle 27 thereon on which a link 28 is pivoted, this link being held in the pintle 27 by the ends of the upholstered back 6, which are slightly spaced from the side pieces 1 in order that these links 28 may have a swinging movement. These pintles or pivots 27 are in a plane above the bottom member so that each link 28 may swing to a substantially horizontal position as shown in Fig. 6, or a substantially vertical position as shown in Fig. 8. Links 29 are preferably pivoted at 30 to the links 28 and at 31 to depending brackets 32 on the rear ends of the bottom member 11 below the swinging axis of the extension. On the inner sides of these links 29 are provided laterally projecting guide pieces 33 which receive the sides 34 of the bottom member 12, see Fig. 11. These guide pieces open upwardly to permit the extension to swing upwardly when the bottom member is in its outer position in order to permit access to the receptacle below. As the bottom member 11 moves outwardly the links 28 move downwardly and the links 29 which are in a vertical position as shown in Fig. 6, swing forwardly at their lower ends so that they eventually assume substantially horizontal positions as shown in Fig. 8, where they will support the bottom member 12 in a horizontal plane with the bottom member 11. After the bottom member 11 moves inwardly, the links 29 swing to substantially vertical positions as illustrated in Fig. 6 and carry the extension 12 to a substantially vertical position but leaning slightly forward.

In order to prevent the swinging member 12 falling forward in its folded position, a holding means may be provided which consists, in this instance, of pins 35 on the inner faces of the sides of the extension member which enter into notches 36 formed in the guide pieces 33, as illustrated in Fig. 11.

With the end in view of supporting the bottom member 11 in its outer position, legs or supports 37 may be provided preferably pivoted at 38 to the underside of the bottom member near the forward or outer edge thereof. Preferably the bottom member has channelled brackets 37^a depending therefrom in which the legs or supports are pivoted so that the legs are supported in three directions by the bracket to strengthen the same while they are in supporting positions. These legs or supports each have slots 39

formed therein and which operate pins 40 on levers 41 pivoted at 42 to the brackets 37^a to which the legs 38 are pivoted. Pivottally connected to these links 41 at 44 are links 45 which in turn are pivoted at 46 to the swinging members 22. It is apparent that, as the swinging members 22 move, motion will be communicated to the links 45 and 44 which will effect the swinging of the supports or legs 37. This arrangement makes it possible to connect with the legs or supports below their pivots 38 while, at the same time, throwing their operating mechanism up close under the bottom member 11. It is apparent that as these legs swing to and from their operative position, the bottom member 11 has its upper edge elevated with reference to the box frame so that the legs or supports clear the lower edge of the box frame. When the bottom member is in its innermost position, the legs lie snugly on the underside of the bottom member and above the receptacle so as to be invisible. It will be noted that all the mechanism is supported on the box frame except for the links 38 which detachably connect with the side members 1 and are held in such detachable connection by the back member. This arrangement makes it possible to upholster the side members and the back member independently of the box frame and the removable bottom member supported thereon. It is also possible to mount this movable bottom member on the box frame while the latter is detached from the side or their members and the back member. The back member when in position provides a chamber beneath and in rear of the lower portion of the same in which the swinging extension 12 may be received. The pivotal connections 31 between the links 29 and the links 28 are forward of the pivots 27 of said links 28 and as a consequence the pivots 31, before the links 29 begin their ascent to their vertical positions, drop slightly so that the swinging frame 12 drops slightly in order to insure the non-interference of the underside of the upholstered back member.

Coil springs 47 may be secured at 48 to the supports 20 and through links 49 to the swinging supports 22 below the pivots 23 of the latter. With this arrangement the springs 27 are tensioned when the bottom member 11 is in its inner position as illustrated in Fig. 6, so that they tend to assist in the outward or forward movement of the bottom member, but, when the bottom member is swung out to its outer position, the tension on these springs becomes relieved. Springs 50 are secured at 51 to the inner faces of the transverse pieces 3 and have rings 52 at their forward ends which operate on guides or rods 53, see Fig. 11. These guides or rods 53 rest at their forward ends on the connecting rod 25 and inclined downwardly from said rod 25 to upright extensions 54 on said rods, each

upright extension being secured at its upper end to the main portion 11 of the bottom member. This arrangement permits the springs to be readily removed over the forward ends of the rods. When the bottom member is in its innermost position the rings 52 of each spring 50 is moved forwardly on the rod 53 but as the bottom member swings outwardly the ring 52 moves rearwardly on the rod 53 until the upright extension 54 is reached, after which the spring 50 is placed under tension as illustrated in Fig. 8, so that it will act with the other spring 50 to assist in moving the bottom member to its inner position.

The bottom member 11 projects into the pocket 10 under the upholstered back and on this bottom member is adapted to be supported a removable cushion 55 which is coextensive in length with the bottom member 11, but, in width, is less than the bottom member, extending from the forward edge of the bottom member to a point substantially below the forward edge of the upholstered back. This cushion 55 has a quilt 56 permanently secured thereon throughout the top surface, this quilt extending to one side of the cushion 55, as illustrated at 56^a. This extension is substantially the width of the main portion which is secured to the cushion. When the bottom member is in its innermost position, this extension 56^a lies in a lowered position in the pocket 10 beneath the upholstered back and when the bottom member is in its outer position, this quilt serves to cover the cushion member 57 which rests upon the bottom member 11 beyond the cushion 55 and upon the extension 12 as illustrated in Fig. 8. These cushions 57 when the bottom member is in its innermost position, rest upon the cushion 55, as illustrated in Figs. 1 and 6.

When it is desired to convert the furniture from a seat or couch into a bed, the user pulls upwardly and forwardly upon the bottom member 11. This causes the bottom member to swing on the links 22 and at the same time the supports 20 travel on the tracks 14. The forward portion of the bottom member at first moves upwardly, exposing the receptacle beneath the bottom member so that any bed clothing or other material in the receptacle may be readily reached. Continued movement of the bottom member causes the extension member 12 to swing downwardly on the bottom member due to the fact that the links 28 will swing downwardly, throwing the links 29 from their vertical positions to substantially horizontal positions, as illustrated in Fig. 8. At the same time the springs 50 will slide on the rods 53 until the links 52 engage the abutments 54. This occurs about the time that the pivot 30 passes vertically over the pivot point 34 of the links 22 so that thereafter the springs 50 are tensioned and this while the upward portion of the bottom

member 11 is descending so that the weight of the bottom member assists in tensioning the springs. When the bottom member reaches its extreme outer position the pull of the springs is substantially aligned with the pivots 23 so that there is little or no tendency for the springs 50 to draw the bottom member rearwardly. As the links 22 swing outwardly with the bottom member, they, through the connections 45 throw the supports 37 downwardly to supporting positions, as illustrated in Fig. 8. After the outer position of the bottom member is reached, the divided or separate cushions 57 are placed on the bottom member and its extension in rear of the cushion 55 and are covered by the quilt extension 56^a which is permanently attached to the cushion 55. This arrangement enables the quilt to cover the joints between the separate cushions 57 in order that the user will not be made uncomfortable by such joints.

To convert the bed again to a couch the cushions 57 are removed and placed upon the cushion 55 and the user pulls upwardly and pushes backwardly on the forward edge of the bed bottom 11, this action being assisted by the springs 50. As the bottom member moves backwardly the links 28 swing upwardly toward substantially horizontal positions illustrated in Fig. 6, swinging the bottom member extension 12 upwardly and causing the pins 35 thereon to enter the notches 36 in order to limit the forward swinging movement of the extension 12. After the pivots 23 reach their vertical positions over the pivots 24 of the links 22, the springs 50 begin to slide forwardly on the rods 53 so that thereafter the bottom member moves rearwardly under its own weight and with slight pressure without any help from the springs 50. As the links 22 swing rearwardly they begin to tension the springs 47 which are substantially free from tension when the bottom member is in its outer position, and these springs 47 become more and more tensioned as the bottom member continues its movement. These springs tend to exactly balance the bottom member until the pivots 23 of the links 22 are directly over the pivots 22 so that the bottom member will maintain its adjusted position in order that the interior of the receptacle may be reached without supporting the bottom member with the hands. This is due to the fact that the bottom member travels up the anchored tracks. The supports 37 also fold automatically under the bottom member.

From the foregoing it will be seen that there has been provided an article of furniture in which the bottom or box like frame providing a receptacle entirely supports the bottom member which will fold it in substantially parallel relation thereto. The upholstered side pieces are detachably connected to the bottom frame and the upholstered

back is detachably connected to the side pieces. This permits the whole structure to be shipped in a knock-down condition and readily assembled and the sides and back to be upholstered separately. Provision is made whereby the bottom frame or box like structure acts as a receptacle which is closed by the shiftable bottom member which may be moved to a position to expose the contents of the receptacle. A novel means is provided for connecting the springs with the bottom member so that such springs are inactive when the bottom member is in its inner position. A novel means is provided whereby the supports for the outer edge of the bottom member may be automatically and compactly folded on the underside of the bottom member. A novel means is also employed for automatically moving the bottom member extension to and from extended position. This means employs swinging links pivoted to the frame above the body member in spaces between the ends of the upholstered back and the sides. A cushion is employed which has a permanent quilt attachment to cover a divided cushion member to provide a smooth surface on which one may lie.

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

1. In furniture, the combination with a frame, of a bottom member movable to an inner and to an outer position on the frame, an extension for the rear edge of the bottom member pivoted on the latter to move to and from an extended position, and means connected with said extension for causing the latter to swing upwardly as the bottom member moves inwardly, said means comprising two links pivoted to the bottom member, guides on the links with which said extension engages, and links pivoted to the first mentioned links and also to the frame above the bottom member to cause the first mentioned links to swing upwardly.

2. In furniture, the combination with a frame, of a bottom member movable to an inner and to an outer position on the frame, an extension for the rear edge of the bottom member pivoted to such bottom member, two links pivoted to the bottom member on a common axis below the axis of swinging of the extension, guides on the links with which said extension engages, and means connected with the links to cause them to move from a substantially horizontal position as the bottom member moves to its outer position and to a substantially vertical position as the bottom member moves to its inner position.

3. In furniture, the combination with a frame, of a bottom member movable to an inner and to an outer position on the frame, an extension for the inner edge of the bottom member hinged to the latter to move to and from extended position, two links pivoted to the bottom member on axes different from the

axes of swinging of the extension, guiding means on said links for said extension, and means for supporting said links so that said links move upwardly at their inner ends as the bottom member moves inwardly and vice versa.

4. In furniture, the combination with a frame, of a bottom member movable to an inner and to an outer position on the frame, an extension for the inner edge of the bottom member hinged to the latter to move to and from extended position, two links pivoted to the bottom member on axes different from the axes of swinging of the extension, guiding means on said links for said extension, means for supporting said links so that said links move upwardly at their inner ends as the bottom member moves inwardly and vice versa, and means for holding the extension to said links to prevent its disconnection with the links as the latter move upwardly.

5. In furniture, the combination with a frame, of a bottom member movable to an inner and to an outer position on the frame, an extension for the inner edge of the bottom member hinged to the latter to move to and from extended position, two links pivoted to the bottom member on axes different from the axes of swinging of the extension, guiding means on said links for said extension, means for supporting said links so that said links move upwardly at their inner ends as the bottom member moves inwardly and vice versa, and means for holding the extension to said links to prevent its disconnection with the links as the latter move upwardly, said means comprising pins on the extension and notched portions carried by the links with which said pins engage.

6. In furniture, the combination with a frame, of a bottom member, a link for supporting said bottom member pivoted to the frame and to the bottom member in rear of the forward edge of the latter, a support for the forward edge of the bottom member pivoted to the latter, and operating connection between said swinging link and the support embodying a link pivoted to the first mentioned link below the pivot of the latter, and a double arm lever pivoted to the bottom member below the pivot of the support, one arm extending upwardly and having the last mentioned link pivotally connected thereto and the other arm having sliding connection with the support.

7. In furniture, the combination with a frame, of a bottom member, a swinging member pivoted to the frame and to the bottom member to guide the bottom member in its travel from an inner to an outer position or vice versa, a coil spring secured to the frame, and a guide on the bottom member on which the other end of the coil spring is adapted to slide, and an abutment on the bottom member with which the spring will cooperate as

the bottom member is being moved outwardly after the pivotal connection between the swinging member and the bottom member has moved over the pivotal connection between the swinging member and the frame on the outer movement of the bottom member, so that the spring is tensioned to assist in the return of the bottom member.

8. In furniture, the combination with a frame having a receptacle at the bottom thereof, of a bottom member movable to an inner position to close the receptacle and to an outer position on the frame, means for supporting the bottom member to guide it in its travel from its inner to its outer position or vice versa, and during such movement causing the bottom member to swing upwardly at its outer edge to expose the interior of the receptacle, an extension for the rear edge of the bottom member pivoted on the latter to move to and from an extended position, and a means for causing the extension to swing upwardly as the bottom member moves inwardly, the extension being connected to the means to swing upwardly independently of such means to permit access to the receptacle when the extension is in extended position.

9. In furniture, the combination with a frame having a fixed back, a chamber below the back extending upwardly in rear of the lower edge of the back, and a receptacle below said chamber, of a bottom member movable to an inner and to an outer position on the frame and when in its inner position closing said receptacle and having its rear edge situated beneath the back within said chamber, an extension for the rear edge of the bottom member pivotally connected to the bottom member on an axis fixed relatively to the latter so that such extension may swing upwardly at its rear edge from its extended position, links pivoted at points fixed relatively to the frame at their upper ends above that portion of the bottom member lying within the chamber when the bottom member is in its inner position, and a freely separable connection between said links and said extension causing the extension to swing upwardly and to project into that portion of the chamber in rear of the lower edge of the fixed back as the bottom member moves to its inner position, the extension being movable relatively to said links when the bottom member is in its outer position to permit access to the receptacle.

10. In furniture, the combination with a frame, a back fixed relatively to the frame, and a receptacle spaced from the lower end of the back to provide a chamber between the upper portion of the receptacle and the lower portion of the back of a bottom member movable to an inner and an outer position on the frame and when in the inner position closing said receptacle and extending beneath the back within the chamber, links pivoted to the frame and to the bottom member in rear

of the free edge of the latter to cause the free edge of the bottom member to swing upwardly to expose the contents of the receptacle as the bottom member moves outwardly, an extension for the rear edge of the bottom member adapted to move upwardly on the latter from an extended position, and means for effecting the movement of the extension upwardly to a position within the chamber from extended position as the bottom member is moved to its inner position.

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