

No. 637,976.

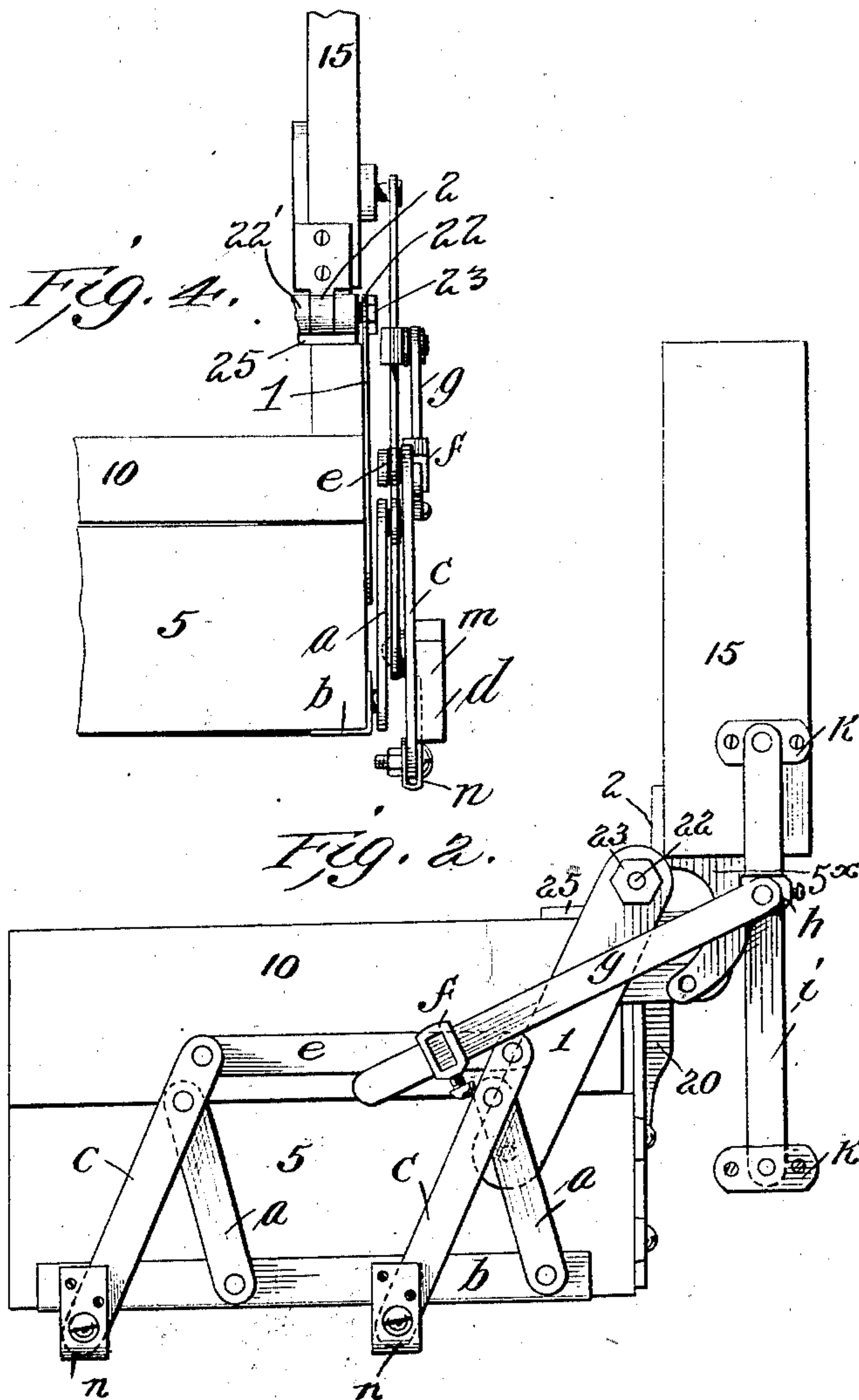
Patented Nov. 28, 1899.

W. T. ROLPH.
SOFA AND BED.

(Application filed June 7, 1899.)

(No Model.)

3 Sheets—Sheet 2.



Attest,
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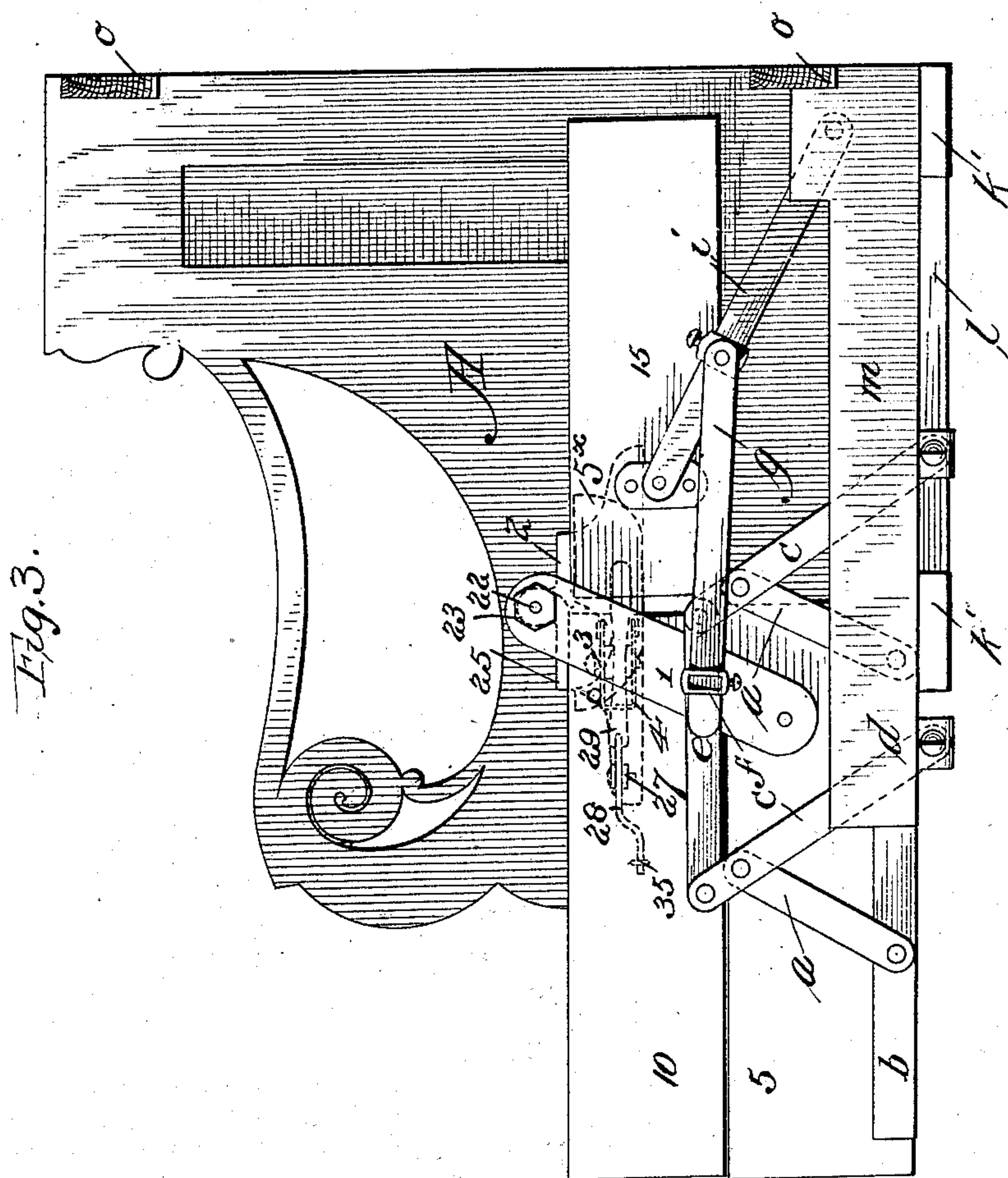
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UNITED STATES PATENT OFFICE.

WILLIAM T. ROLPH, OF MINNEAPOLIS, MINNESOTA.

SOFA AND BED.

SPECIFICATION forming part of Letters Patent No. 637,976, dated November 28, 1899.

Application filed June 7, 1899. Serial No. 719,709. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. ROLPH, a citizen of the United States, residing at Minneapolis, Minnesota, have invented Improvements in Sofas and Beds, of which the following is a specification.

My invention relates to combination sofas and beds, and is an improvement on that form of sofa-bed disclosed in Letters Patent of the United States granted to me June 22, 1897, No. 585,122.

The object of my present invention is to provide means whereby when the arrangement is shifted or converted from the form of a sofa into that of a bed the parts will automatically move away from the wall against which the sofa-bed may be located. In this action of converting the arrangement from a sofa into a bed, the back, which normally lies parallel to the face of the wall, must swing backwardly and downwardly to assume a horizontal position in the same plane with the bottom portion of the sofa. Heretofore, so far as I am aware, it has been necessary to draw the whole bed by main force outwardly from the wall in order to allow this back portion to swing downwardly. By my invention the whole bed moves automatically away from the wall at the same time that the back is swung downwardly. No more effort is necessary in unfolding the bed or in folding it up in sofa form than is required in the arrangement previously used, and the effort necessary to draw the bed away from the wall and push it back is rendered entirely unnecessary by my invention.

In the accompanying drawings, Figure 1 is a plan view of the invention. Fig. 2 is a view from one end with one of the end frames removed and with the parts in position for use as a sofa. Fig. 3 is a view of a cross-section with the parts in the position assumed by them to form the bed, this view showing in dotted lines the lever arrangement for supporting the parts and regulating their movement in folding and unfolding. Fig. 4 is a detail view.

The general form of the invention is similar to that shown in my prior patent, consisting of the bottom portion 5 in the form of a box or receptacle open at the top, the second part 10 resting thereon and forming the frame

or base of the sofa, and the third section 15, which forms the back of the sofa when in upright position and part of the bed-frame when in a horizontal position. The first and second parts 5 and 10 are connected together pivotally by arms 20, secured to the base or box-bottom 5, said arms having lateral extensions 21 at their upper ends, carrying the pivots 22, which extend through ears 22' on plates 25, secured to the inner and upper sides of the end frames of the second part 10. Arms 1, connected with the bottom section 5, extend upwardly and at a slight inclination toward the rear at the outer ends of the second part 10 and connect with the pivots 22, a nut 23 being used to hold these parts together. The third part or back-section of the sofa is pivoted in the same ears which connect the other two parts, it having secured thereto pivot-ears 2, which fit between the ears 22', to receive the same pivot-pin which connects the other parts. The two parts 10 and 15 are held in right-angular relation to form the sofa by means of catch-levers 29, which are pivoted at 3 and are under pressure of springs 4, so that their ends, which have pins thereon, will engage openings in curved extensions of plates 5', which carry the pivot-ears 2 of the part 15. These catch-levers are arranged at each end of the bed, and they may be operated simultaneously to disengage the parts by means of a lever 47, arranged at the center of the parts 10, said lever being connected with the turning-plate 47', connected by bars 35 with releasing-levers 28, pivoted at 27, as shown. When the lever 47 is turned, parts 10 and 15 will be released from each other and the upright part may be swung downwardly to form the bed.

It is my purpose to have the parts 5, 10, and 15 move automatically away from the wall. For this purpose I support the base or bottom section 5 upon links *a*, these being connected, therefore, near the bottom edge of the first part or bottom-section 5 and extending up therefrom parallel with each other and across the ends of said section, there being a pair of these parallel links at each end of the bottom-section 5. The lower pivotal connection of these parallel links is made with a metal strip *b* of right-angular form, the horizontal flange of which is secured to the bottom of the sec-

tion 5, and the vertical section of which extends upwardly a slight distance along the end piece of the bottom-section. At their upper ends these parallel links *a* are pivotally connected with a second pair of parallel links *c*, pivoted at their lower ends to the main supporting-frame *d* of the bed. The upper ends of the parallel links *c* are extended above the pivotal connections with the links *a* and are connected with each other by a rod *e*. On this rod is pivoted or swiveled a block *f*, having an opening therethrough which receives the end of a rod *g*, extending rearwardly and connected by another block *h* with a link *i*. This latter block receives the link *i* and is pivotally connected to the rod *g* and both blocks are provided with set-screws for adjustment. The link *i* is pivoted at its lower end to the main stationary frame of the bed, and at its upper end it is pivoted to the section 15. Suitable pivot-blocks may be used, as at *k*, between the links and the stationary frame and between the link *i* and the part 15, and these may be of metal and secured in place by screws. This link-and-lever arrangement is used at each end of the sofa-bed, and it lies between the ends of the parts 5, 10, and 15 and the ornamental stationary end frames *A* of the sofa-bed. By reason of this lever arrangement the bottom-section does not have to be pulled by main force away from the wall in converting from the sofa to a bed; but this bottom-section will move easily by reason of being supported on the parallel links and its horizontal position will be maintained. This movement toward and from the wall takes place automatically as the parts are shifted to form the sofa or to form a bed, and in action it will be only necessary to manipulate section 10 of the sofa, and then the combination of links and levers will cause the movement of parts to take place toward and from the wall.

I do not wish to limit myself to the precise form of bed having the bottom-section in the form of a box, as my invention may be carried out in connection with any horizontal section which is preferably combined with the back-section.

The main stationary frame consists of bottom sills *k'*, connected by cross-sills *l* and having end pieces *m* resting on the sills *k'*, and to these latter end pieces the controlling-links are secured, the parallel links *c* being pivoted in clips *n*, let into the inner sides of the end pieces *m* and held by screws. The ornamental main frames or sides of the sofa-bed *A* also rest on the sills *k*, and these end frames are connected together by back strips *o*.

In operation in order to convert the arrangement from the form of a sofa to that of a bed it is also necessary to lift up on the intermediate section 10, so that this, together with the back-section 15, will turn on the pivots 22. This causes the back-section to assume a horizontal position, while at the same time it moves laterally from the wall, and

this action causes the intermediate section to assume an upright position in respect to the back-section and the bottom-section. During this action the intermediate section 10 and the section 15 maintain their right-angular relation, but as soon as the parts have been thus positioned and have moved laterally from the wall it is only necessary to operate the catch-releasing mechanism, so that the intermediate section 10 can be lowered from an upright to a horizontal position over the box-section.

In converting from the form of a bed to that of a sofa the intermediate or base section 10 is first raised until the locking mechanism is engaged to hold this section at right angles to the back-section, which is now in a horizontal position, and then by simply pressing down upon the front or upper edge of the base-section this will swing down into horizontal position, while the back will rise into vertical position and all the sections will swing toward the wall.

The tilting of the seat-section 10 up or down moves the box or base 5 outward or inward in a horizontal plane, according to the direction of the tilt, and it follows that the horizontal outward movement of the box or base will tilt the seat up and the horizontal inward movement will tilt it down through the suspended relation between the parts. It will thus be seen that either tilting the seat or moving the box or base horizontally out or in changes the sections 10 and 15 from their sofa-forming position to their bed-forming position and from their bed-forming position to their sofa-forming position, and in so doing the angle relation between the sections 10 and 15 is maintained, thus enabling the swinging or turning to be made in advance of the plane of the back of the sofa, so as to dispense with the necessity of moving the sofa from the wall while effecting the conversion from a sofa to a bed, or vice versa.

I claim as my invention—

1. In combination in a sofa-bed, two sections forming the base and back of the sofa respectively, pivotal connections between them, means for causing the parts to move laterally or toward and from the wall as the seat is tilted from a horizontal to a vertical position or the reverse, and means for moving the back with the tilting of the seat, substantially as described.

2. In combination in a sofa-bed, the two sections hinged together and forming the base and back respectively, a bottom-section in the form of a box, pivotal connections between the several sections whereby the back-section may be moved to and from a horizontal position and whereby the base-section of the sofa may be raised or lowered in relation to the box-section and supporting means for the sections to cause them all to move toward and from the wall as the parts are shifted from one form to the other, substantially as described.

3. In combination in a sofa-bed, the stationary frame a horizontal section, a back-section in pivotal connection therewith, and parallel links supporting the horizontal section from said frame to allow it to move outwardly while maintaining its horizontal position, substantially as described.

4. In combination in a sofa-bed, a horizontal section, links supporting the same to permit lateral shifting movement in a horizontal plane, a back-section, pivotal connections between the horizontal section and back-section a controlling connection for the back-section to cause it to move toward and from the wall or laterally, and a connection between said controlling connection and said supporting-links to shift said horizontal section, substantially as described.

5. In combination in a sofa-bed, the stationary frame a horizontal section, a back-section, pivotal connections between the sections, links in connection with the back-section, links for controlling the movement of the horizontal section, and connecting-bars between the links of the back-section and the controlling-links of the horizontal section, substantially as described.

6. In combination in a sofa-bed, a horizontal section and a back-section adapted to be raised and lowered in their fixed relation to each other and to assume a horizontal position in the same plane to form the bed, and controlling and supporting connections to permit the parts to be bodily moved toward and from the wall or laterally with the sections maintained in their raised angle relation and reversely swung or turned in the sofa-space in changing the parts from a bed to a sofa form or the reverse, substantially as described.

7. In combination in a sofa-bed, the stationary frame a horizontal section, a back-section adapted to be raised and lowered parallel links forming a support for the horizontal section, bars connected with the upper ends of the parallel links, links supporting the back-sections and rods connecting the said links with the connecting-bar of the parallel links, substantially as described.

8. In combination, a stationary frame a horizontally-moving box-section, back-section pivotally connected therewith, a second section pivotally connected with the other sections and arranged over the box-section, supporting means for the horizontal section comprising parallel links and links connecting the back-section with the stationary frame, substantially as described.

9. In combination, a stationary frame a horizontally-moving box-section, a back-section pivotally connected therewith, a second section pivotally connected with the other section and arranged over the box-section, supporting means for the horizontal section comprising parallel links and links connecting the back-section with the stationary frame, said links being in connection with the parallel links, substantially as described.

10. In combination in a sofa-bed, the main stationary frame, a horizontal section, a back-section pivotally connected therewith, and supporting means for the horizontal section comprising a pair of parallel links at each end connected with the section at their lower ends and a second pair of links connecting with the upper ends of the first pair, said second pair having their lower ends connected with the main stationary frame, substantially as described.

11. In combination in a sofa-bed, the main stationary frame, a horizontal section, a back-section pivotally connected therewith, and supporting means for the horizontal section comprising a pair of parallel links at each end connected with the section at their lower ends and a second pair of links connected with the upper ends of the first pair, said second pair having their lower ends connected with the main stationary frame, said second pair of links having extensions above the upper pivots of the first pair of links with a bar connecting said extensions, substantially as described.

12. In combination, the box-section 5, the section 10, the back-section 15, pivotal connections between the sections, supporting means comprising two pairs of links at each end of the horizontal sections, the links connecting the back-section with the main frame, the bar connecting the upper ends of one pair of the links at each end of the horizontal sections and the rods connecting said bars with the links of the back-section, substantially as described.

13. In combination, the bottom or box section, the seat-section above the same adapted to be raised and lowered in relation thereto, a movable supporting means for the sections to permit both to be moved toward and from the wall or laterally, substantially as described.

14. In combination, the bottom or box section, the base-frame, a section above the box-section in pivotal connection therewith, and supporting means between the main stationary frame and the box and upper section comprising swinging links, substantially as described.

15. In combination, the main frame, a horizontally-moving section, and swinging links between the main frame and said section, said links comprising two pairs at each end of the section, one pair having their lower ends pivotally connected with the section and the other pair having their lower ends connected with the main frame and their upper ends pivoted to the upper ends of the first pair, substantially as described.

16. In combination in a sofa-bed, a base-section, a back-section, the pivotal connections between them, detachable means for holding the sections in right-angular relation or for permitting both sections to assume a horizontal position and supporting means for causing the sections to move laterally toward

and from the wall when the base-section is raised in converting the arrangement from one form to the other, substantially as described.

17. In combination in a sofa-bed, a back-section, a base-section at right angles thereto, pivot-supports for said sections, means for holding the sections at right angles to each other as they are moving on the pivots, link-supporting means for causing the sections to move toward and from the wall or laterally as they move on their pivots and releasing means whereby the base-section may be lowered from its upright position, substantially as described.

18. In combination in a sofa-bed, the back-section, the base-section, pivotal connections between them, locking means for holding the sections in right-angular relation, said locking means when released permitting both sections to assume a horizontal position, a horizontal section and movable supporting means for the parts to cause them to move toward and from the wall or laterally in shifting from one form to the other, substantially as described.

19. In a sofa-bed, a longitudinally-divided bed-bottom having its two sections standing normally at an angle to each other, means adapted to move the two sections bodily outward away from the back of the sofa and to turn or swing them in such movement and reverse their positions without changing their relative angle, and means for dropping the raised section when reversed and have both sections lie in the same horizontal plane, substantially as described.

20. In a sofa-bed, a longitudinally-divided bed-bottom having its two sections hinged together and standing normally at right angles to each other, and means for pivotally mounting and suspending the two sections to permit them to be moved bodily as one piece outward on the suspension means and raised and swung or turned on the pivots in such movements to reverse the position of the sections, as to horizontal and vertical, without changing their relative angle, and when reversed permit the outer section to be dropped into a horizontal plane with the inner section, substantially as described.

21. In a sofa-bed, a divided bed-bottom having an inner and outer section hinged together, means normally holding the two sections at right angles in relation to each other for one section to lie horizontal and the other section to stand vertical, a pivotal support at

each end of the sections and means for suspending and swinging the sections on the pivotal support, whereby the bottom as a whole can be turned in front of the vertical plane of the sofa-back without changing the relative angle between the sections, substantially as described.

22. In a sofa-bed, a divided bed-bottom having an inner and outer section hinged together, means for holding the sections normally in right-angle relation to each other, a pivot at each end on which the sections turn as a whole maintaining their normal relation when turned into a reverse position, a stationary base, a movable base, and means for suspending and swinging the sections by the horizontal movement of the movable base, substantially as described.

23. In a sofa-bed, a divided bed-bottom having an inner and outer section, means normally holding the two sections at a right-angle relation to each other, a hinge-and-pivot connection between the two sections at each end, a movable base or support carrying the sections and pivots and means suspending the sections over the base to move laterally and swing up and down on the pivots and reverse the relation of the sections as to vertical and horizontal, substantially as described.

24. In a sofa-bed, a divided bed-bottom having an inner and outer section, means normally holding the sections at an angle to each other, a hinged connection between the two sections, a pivot at each end on which the sections are mounted, and a swinging support carrying the sections for the travel of the sections forward and backward to reverse the relation of the two without changing the relative angle between them, substantially as described.

25. In a sofa-bed, an inner and an outer section hinged together, means normally holding the two sections at an angle relative to each other, forming the seat and back of the sofa when so held, and a pivotal support for the sections on which they can be turned or tilted as a whole, said pivotal support having both a vertical and lateral movement for raising and lowering the sections bodily and moving them from and toward the back of the sofa, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

WILLIAM T. ROLPH.

Witnesses:

B. F. BROOKS,

JNO. GRAU.