J. A. ARTON.

CONVERTIBLE SOFA.

APPLICATION FILED FEB. 20, 1914.

1,119,563.

Patented Dec. 1, 1914.

3 SHEETS—SHEET 1.

Fig. 1.

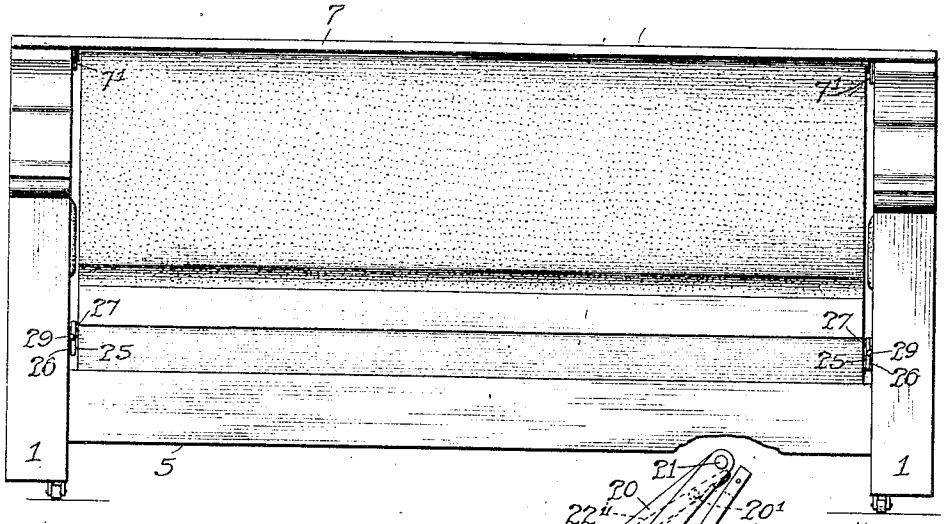
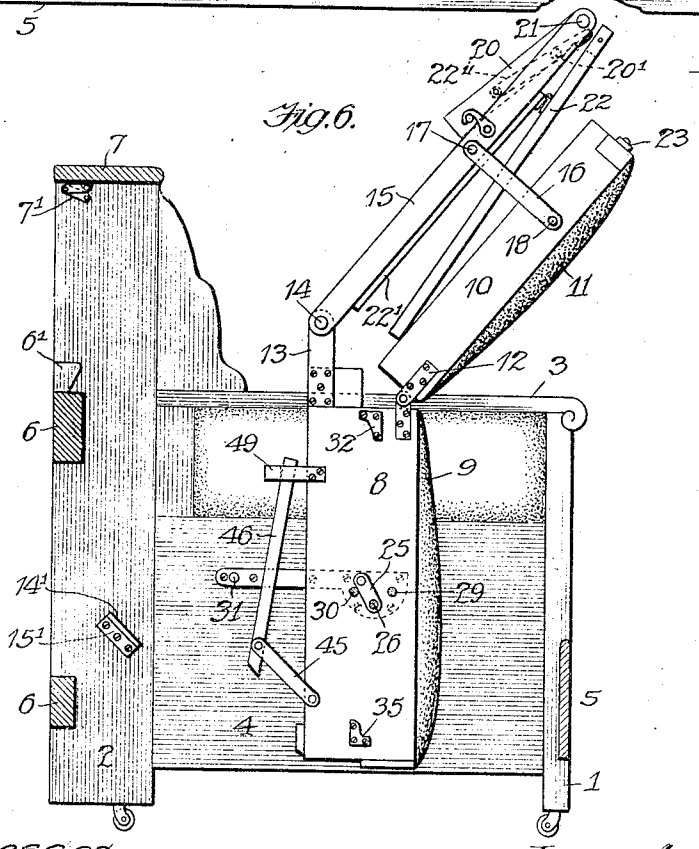


Fig. 6.



Witnesses

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3 SHEETS—SHEET 2.

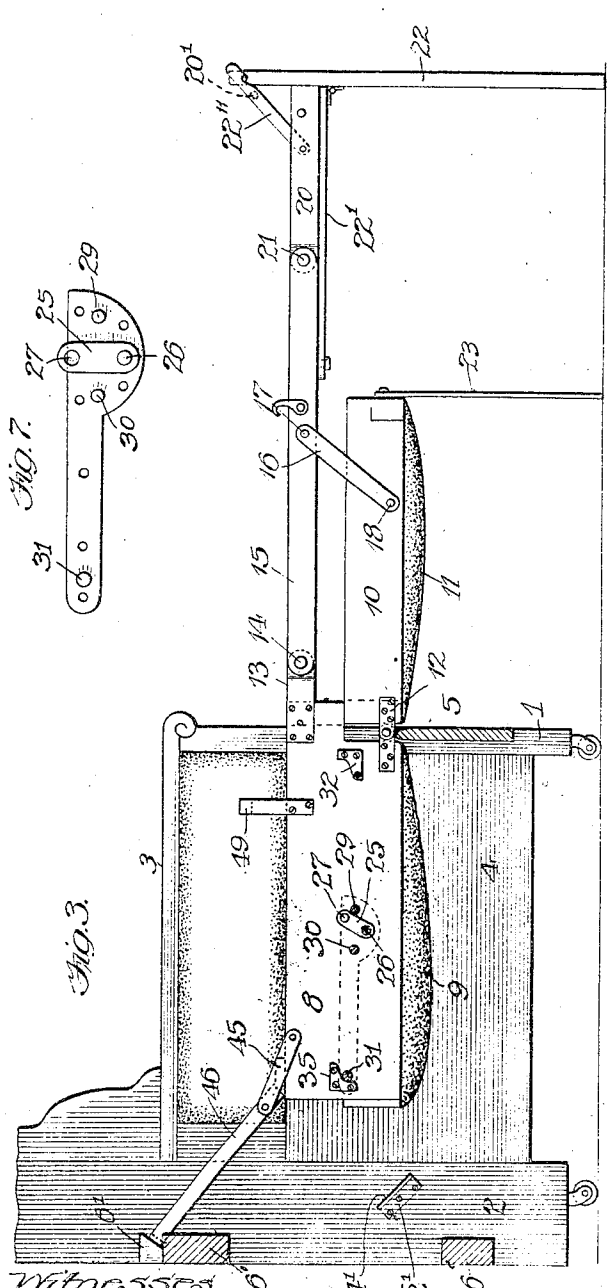


Fig. 3.

Fig. 7.

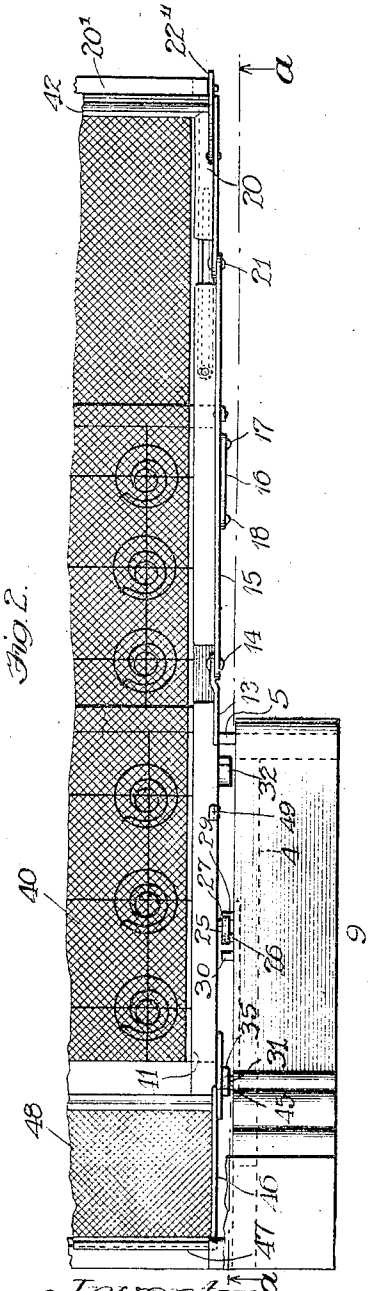


Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 4.

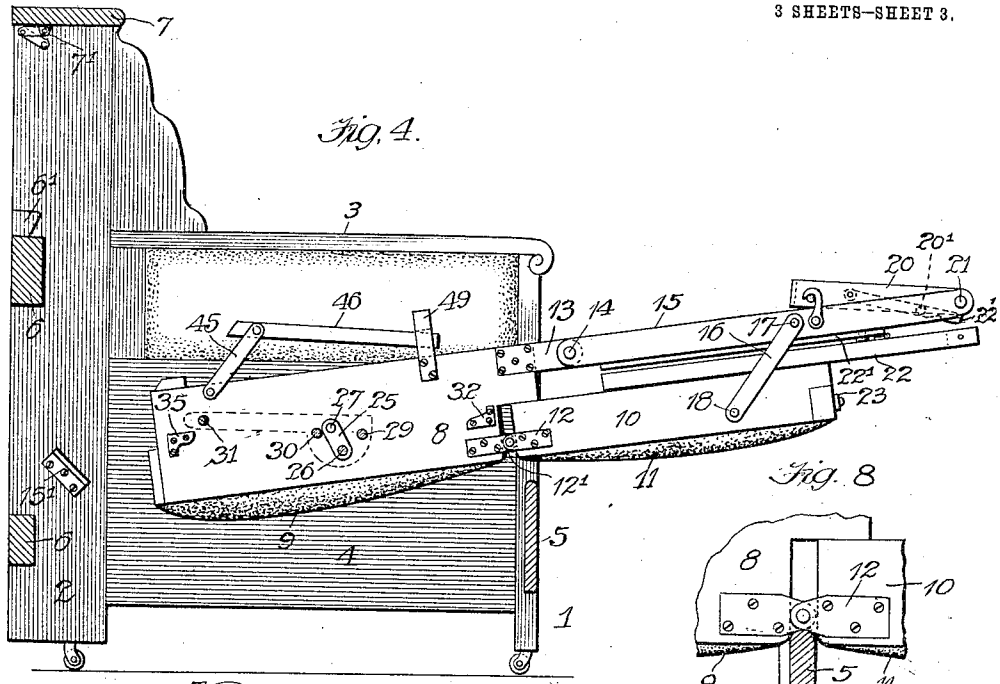
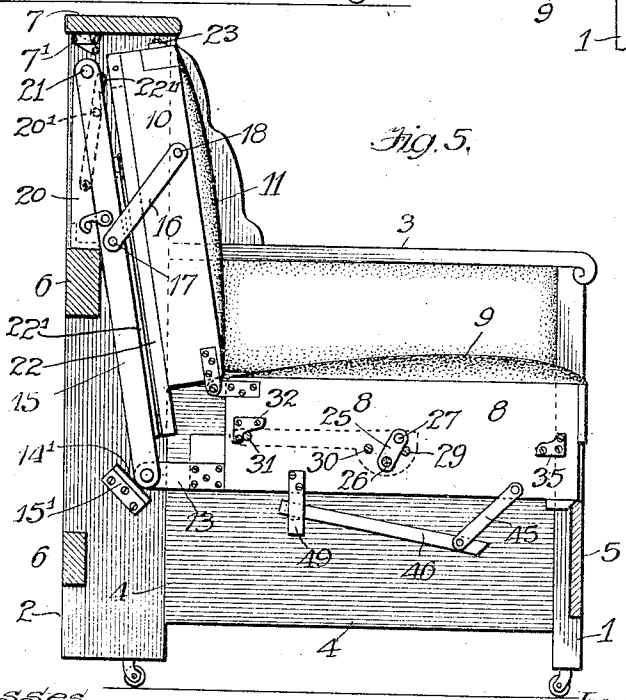


Fig. 8

Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

JOHN A. ARTON, OF CHICAGO, ILLINOIS.

CONVERTIBLE SOFA.

1,119,563. Specification of Letters Patent. Patented Dec. 1, 1914.

Application filed February 20, 1914. Serial No. 819,934.

To all whom it may concern:

Be it known that I, JOHN A. ARTON, a citizen of the United States, residing at the city of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Convertible Sofas, of which the following is a specification.

My invention relates to sofa or davenport beds, in which upholstered portions are provided for general use, while a bed which may be disclosed for use when desired, is contained within or under the upholstery. In such articles of furniture it is usual to provide an upholstered back which is not substantially displaced when the sofa is used as a bed and the framing of which forms no part of the bed structure; but, by applying the principles of my invention I am able to use the framing of the back to support and form a part of the bed. I thereby effect a great economy, as well as give an opportunity for free movement of air and full ventilation which are not possible when the independent or stationary back is used. I am also able to provide an unusually large space within which a mattress of full size and thickness and an abundance of bedding may be stored, and I provide a full facing board for the front of the sofa by which the front legs may be rigidly tied together. The whole device is simple and compact, cheap to manufacture, and the movable parts are completely balanced, easy to handle, largely automatic in action, and impossible of accidental displacement.

The principles of my invention are illustrated in the drawings, in which—

Figure 1 shows a front view of my invention when closed and used as a couch; Fig. 2 is a top view of one end thereof when extended for use as a bed; Fig. 3 is a section of Fig. 2 on the line *a—a;* Fig. 4 is a similar section just before the movable parts assume their final position; Fig. 5 is a section on the same line when the parts are in the position shown in Fig. 1; Fig. 6 is a section on said line *a—a* when the movable parts are in a position intermediate between those shown in Figs. 4 and 5; Fig. 7 is an enlarged detail of a reinforcement; Fig. 8 is a detail of a hinge by which the seat is secured to the back.

Further describing my invention by reference to the drawings, in which like characters of reference denote like parts throughout: 1 and 2 are respectively the front and rear legs of a davenport frame.

3 and 4 are the arm and end pieces by which the front and rear legs are connected.

5 is a facing strip connecting the front legs, and which may be suitably finished to correspond to the exterior finish of the sofa.

6 are tie-strips connecting the rear legs.

7 is a cover and finish for the top of the back secured thereto by the hinge 7'.

8 represents a seat covered with upholstering 9.

10 represents a back covered with upholstering 11 and pivotally attached to the seat by a hinge 12 adjacent to their proximate edges, which are rounded off to form a notch 12' whose function will later be explained. A rigid extension 13 of the seat terminates in hinges 14, to which are attached the side members 15 of the bed frame. Said members 15 are connected by a link 16 to the back 10 by means of the pivots 17 and 18. An extension 20 of said side member 15 is pivoted at 21 thereto, and is adapted to be closed on the same, as shown in Fig. 4 or extended as shown in Fig. 3. Legs 22 are hinged to slides 22' which may be pulled forward and dropped into position for extension 20 to rest on, as shown in Fig. 3. Braces 22'' hook over the projecting ends of a tie rod 20' connecting the legs 22, making a rigid construction when the bed members are extended. The braces are connected by a rod 23. When unhooked and turned backward and laid on the top of the bed before closing, the rod forms a support for the bedding. And when the extension 20, as shown in Fig. 4, is turned back the mattress and bedding will be folded over the rod 23 and held firmly in place while the changes are being made from bed to sofa or vice versa.

A swinging link 25 has one end pivoted at 26 to the end piece 4, and has the other end pivoted at 27 to the end 8 of the seat. The movement of the seat in either direction is limited by the stops 29 and 30. It will be seen that when thus mounted, the seat will have a possible movement from front to rear which is determined by the said stops. A stop 31 is attached to the inner face of the side piece of the bed frame projecting inwardly toward the seat. A lug 32 is secured to the end of the seat section in such a position that when the same is moved forward to its limit of movement, the said

lug will rest on the said stop, but so that when the seat is moved rearwardly to its limit of movement, as established by the stop 30, lug 32 will be disengaged from stop 31. A similar lug 33 is secured to the end of the couch seat on the other side of the pivot 27 in such a position that when the seat is inverted on said pivot 27, the said lug will rest upon the stop 31, when the seat is at the forward point of movement as limited by stop 29, but so that when the seat is pushed back and the link 25 is in contact with stop 30, lug 33 will be disengaged from said stop 31.

In order that the relative positions of the pivot 26 and the stops 29, 30 and 31 may be made positive and invariable, I provide metallic reinforcement plates, as shown in Fig. 7, upon which the said pivot and stops are mounted. They are secured to the inner faces of side pieces 4 which preferably are recessed to receive them.

A bed fabric 40 has the upper end secured to the cross-bar 41, and the other end attached to the cross-bar 42 on the extension member 20. When said element 20 is extended the fabric will be held under tension, but when turned to the position shown in Fig. 4 the fabric will be released. The part inclosed by 20 will fold over the corresponding part of the fabric adjacent thereto, while that over the upholstered portions of the back and seat will be free to drop into the vacant space adjacent to and back of the upholstering.

I provide a light frame work consisting of the arms 45 and 46 pivoted together and attached to each end of the seat end 8 and connected to each other by the rod 47. Said frame work is covered by a fabric 48 and is adapted to be turned over the space under the seat and be locked in place by the retaining member 49 attached to the seat end 8 as shown in Figs. 4, 5 and 6. When the seat is reversed the device is turned backwardly, as shown in Figs. 2 and 3, so that 46 engages the back on the bracket 6′ and braces the seat in the forward position.

Assuming the parts in the relative positions shown in Fig. 5, which represents the structure closed and used as a sofa, and that it is desired to change the same for use as a bed: the top board of the back 7 (which closes over the back and thereby locking the parts in the sofa position) is turned up on the hinge 7′ and the seat is pushed backward and slightly rises on the link 25. It is thus freed from contact with the finishing piece 5 and rides upward on the slanting face 14′ of block 15′. The link 25 then takes the position shown in Figs. 4 and 6, and the back and seat remaining in the same relative positions, are rotated on the pivot 27, until the back is approximately in the horizontal position. A horizontal pull on the back will then cause the member 15 to have longitudinal movement relatively to the part 10, and being forwardly extended, its relation to 10 is determined by the swinging link 16. The said members will be separated and then brought together again at the farthest throw of said link, as shown in Fig. 4. Continued movement of the bed and back first downward then forward, causes the whole structure, including the seat, to move forward on the link 25, depositing the same so that the notch below the hinge 12 will engage the rounded upper edge of the finishing piece 5, and allow legs 23 to drop, of their own weight on the floor, while the lug 33 will be drawn over the stop 31, thereby locking the parts in place and effectively supporting them. The bedding support, consisting of members 45 and 46 is then turned back so that 46 is engaged with and supported by the block 6′ in the inside of the rear upright, thereby forming a secure bracing against any displacement of the bed as extended. Member 20 is then turned to the position shown in Fig. 3, thereby tensioning the bed fabric, whereupon the bedding may be extended and prepared for use. A reversal of these operations will restore the parts to the original positions as shown in Fig. 5.

It will be observed that when the seat is revolved the lug 33 engages with the stop 31, by a forward sliding motion. The latter is produced by the contact of the member 13 upon the slanting face 14′ of the block 15′. The forward motion also causes the front edge of the seat 50 to pass over and take a position resting upon the upper edge of the finishing strip 5, whereby the seat is fully supported both front and rear. Clearance, whereby the said part 50 is caused to pass over and finally be deposited in the position stated on the finishing strip 5, is provided by the action of the link 25 which guides the seat over said finishing strip 5 before and at the highest point of movement of the link and deposits the same thereon at the latter part of movement as it comes in contact with the stop 29. When thus deposited no weight should rest on the link 25 or its pivots.

I claim:

1. In a convertible sofa; a frame, a reversible seat mounted on the frame work, a back hinged to the normally upper side and rear edge of the seat, projections extended from the lower part of the seat, bed members pivoted to said projections, and links pivoted at one end to said bed members and at the other end to said back.

2. In a convertible sofa; a frame, a reversible seat mounted on the frame work, a back hinged to the normally upper side and rear edge of the seat, projections extended from the lower part of the seat, bed members pivoted to said projections, links pivoted at one end to said bed members and at

the other end to said back, and extension members pivoted to said bed members.

3. In a convertible sofa; a frame, a reversible seat mounted on the frame work, a back hinged to the normally upper side and rear edge of the seat, projections extended from the lower part of the seat, bed members pivoted to said projections, links pivoted at one end to said bed members and at the other end to said back, extension members pivoted to said bed members, and a bed fabric attached at one edge to the normally front edge and underside of the seat and at the other edge to the extension members whereby when said last named members are extended the said fabric is tensioned.

4. In a convertible sofa; the combination of a frame, a seat revoluble thereon, a back hinged to the normally upper side and rear edge of the seat, a frame work on the rear of said back pivotally connected to the rear of the seat, and means for movably holding said frame work in relation to said back.

5. In a convertible sofa; the combination of a frame, a seat revoluble thereon, a back hinged to the normally upper side and rear edge of the seat, a frame work on the rear of said back pivotally connected to the rear of the seat, and links pivoted at their ends to said frame work and to said back member.

6. In a convertible sofa; the combination of a frame, a seat revoluble thereon, a back hinged to the normally upper side and rear edge of the seat, a frame work on the rear of said back pivotally connected to the rear of the seat, means for movably holding said frame work in relation to said back, an extension device pivoted to said frame work, and a bed fabric attached at one end to the underside of the seat and at the other end to said extension device.

7. In a convertible sofa; the combination of a frame, links pivoted at one end to the inside of the frame ends, a seat pivoted at its ends to the other ends of said links so as to be reversible thereon, and means adapted for mutual engagement between the seat and the frame when the links are inclined in one direction and for disengagement when the links are inclined in the other direction.

8. In a convertible sofa; the combination with the frame thereof, of a seat member having bed forming devices attached thereto, links to support the seat member pivoted at one end to the end of the frame and at the other end to the seat, means for limiting the throw of the links, and means adapted for mutual engagement between the seat and the frame when the links are inclined forwardly and for disengagement when the links are backwardly inclined.

9. In a convertible sofa having a frame, a seat section having a back section hinged thereto and bed elements carried by the seat and back; the combination therewith of means for pivotally attaching the seat section to the frame and means for connecting the bed elements to the back whereby when the seat is inverted and the back section is projected forwardly and outwardly the bed elements are moved into lateral alinement with the seat section.

10. In a convertible sofa; a frame, a reversible seat pivotally connected thereto, a back hinged to the seat and movable outwardly and downwardly as the seat is rotated, bed members pivotally connected to the seat, and levers to connect the back and said bed members whereby the latter are extended when the back is moved into alinement with the seat.

11. In a convertible sofa; the combination with the frame thereof of a seat member, mutually engaging devices on the seat member and the frame, a plurality of seat supporting links pivoted at one end to the seat member and at the other end to the frame whereby said seat member may be moved in one direction to bring said engaging means into relation and in the other direction to put said devices out of relation, and bed elements secured to the seat.

12. In a convertible sofa; the combination with the frame thereof of a seat member, mutually engaging devices on the seat member and the frame, a plurality of seat supporting links pivoted at one end to the seat member and at the other end to the frame whereby said seat member may be moved in one direction to bring said engaging means into relation and in the other direction to put said device out of relation, and guiding means for directing the engaging devices into engaging relation when the seat is moved therefor on said links.

13. In a convertible sofa; the combination with the frame thereof of a seat, a plurality of links pivoted at their lower ends to the inside faces of the frame end pieces and at their upper ends to the ends of the seat members, stops to limit the throw of said links, lugs on the inside face of said end pieces adjacent to the rear end thereof, and stops on the ends of the bed section on opposite sides of its pivotal point adapted alternatively to engage said lugs when the seat is reversed on its pivots.

14. In a convertible sofa; the combination with the frame thereof, of a seat, a plurality of links pivoted at their lower ends to the frame end pieces and at their upper ends to the end of the seat, lugs on the inside of the frame end pieces, stops on the seat adapted to engage said lugs, and guiding means on the frame to direct the stops into engagement with said lugs.

15. In a convertible sofa having a frame and a seat carried thereon by a plurality of swinging links, one end of each of said links being attached to said frame and the other

to said seat, and means for engagement between the said seat and said frame when the seat is moved forward on said links; the combination therewith of a brace pivoted on the seat and engageable with the frame whereby the seat member will be secured in its forward position.

16. In a convertible sofa; the combination of a frame, a seat provided with bedding space thereunder pivoted to the frame by a plurality of swinging links, means for engagement between the seat and frame when the seat is moved forward on said links, and a device on the seat adapted to fold over the bedding space or to be extended into engagement with the frame whereby the seat will be secured in its forward position.

17. In a convertible sofa; the combination of side bed members, an extension pivoted thereto and adapted to be closed thereon, legs to support said extension, and a member pivoted to the extension adapted to brace the legs or be turned backwardly in advance of the extension so that a mattress may be folded over said member and be supported thereby.

18. In a convertible sofa; the combination of side bed members, an extension pivoted thereto and adapted to be closed thereon, and a member pivoted to the extension adapted to be turned backwardly in advance of the extension so that a mattress may be folded thereover and supported thereby.

19. In a convertible sofa having a seat and bed members attached thereto, an extension member pivoted to the bed members and slides under the said bed members having legs hinged thereto and adapted to be extended to support the extension members.

In witness whereof, I have hereunto subscribed my name, this 18th day of February, 1914, in the presence of two subscribing witnesses.

JOHN A. ARZON

Witnesses:
C. K. CHAMBERLAIN,
A. S. PHILLIPS