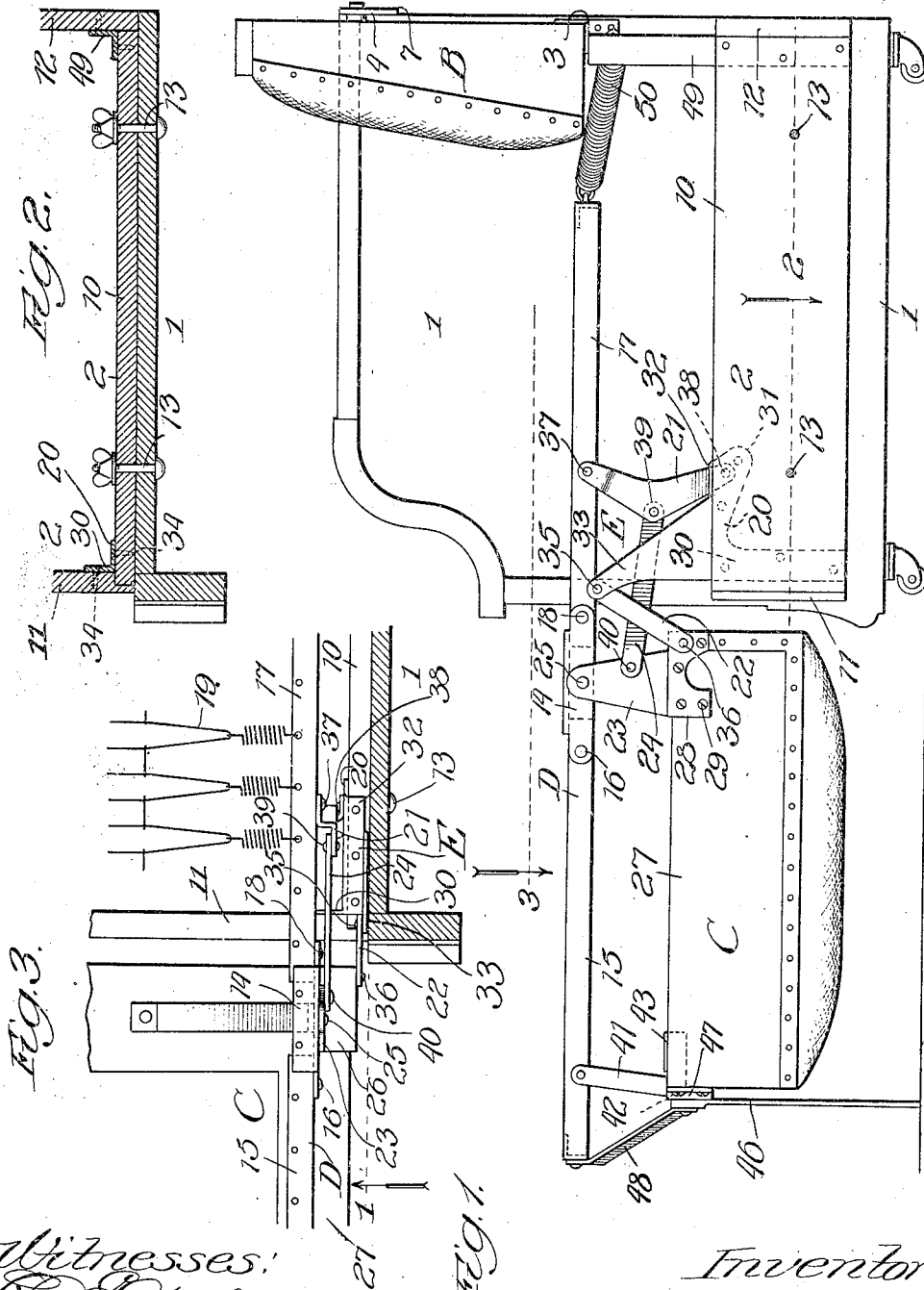


1,044,059.

Patented Nov. 12, 1912.

2 SHEETS—SHEET 1.



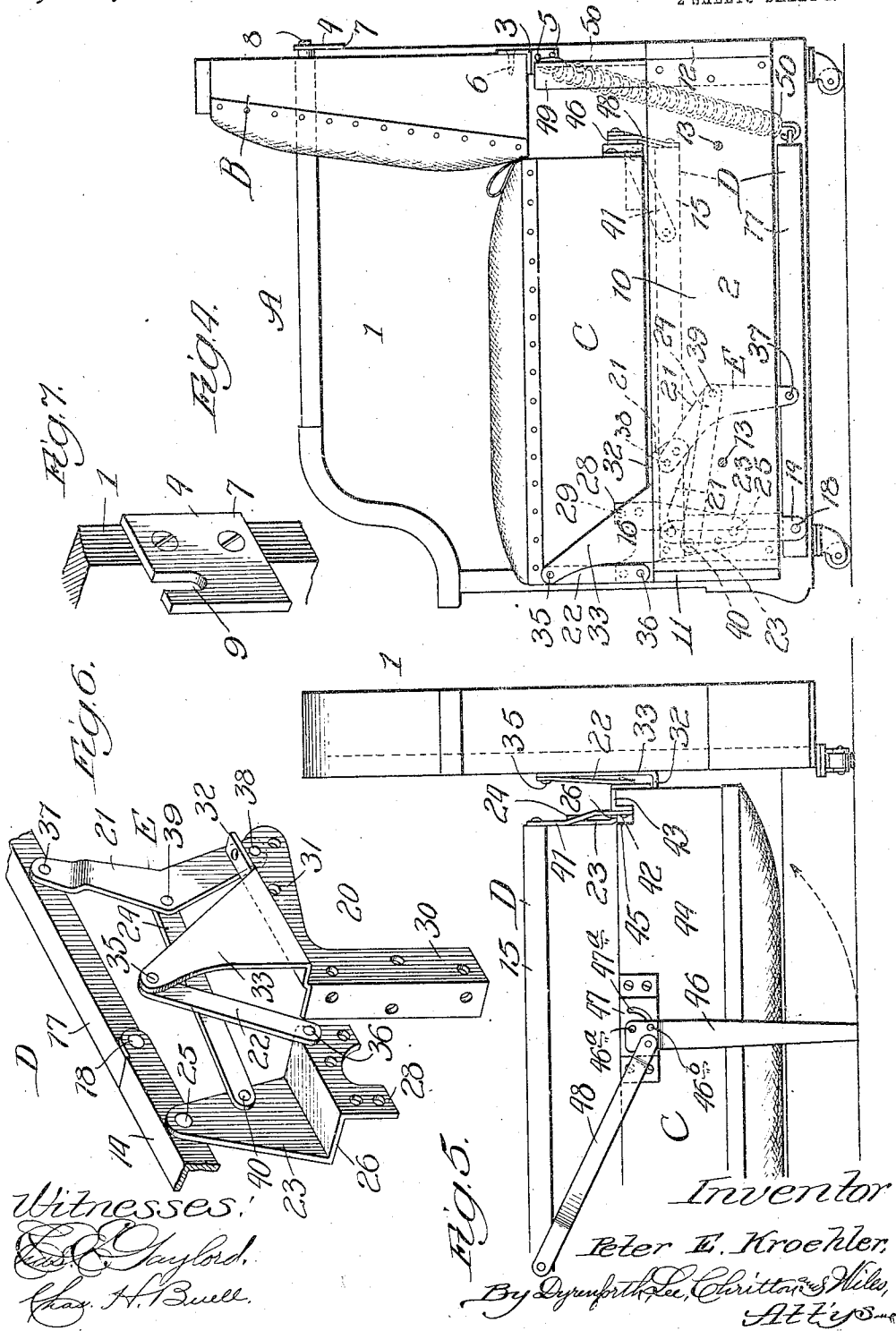
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Patented Nov. 12, 1912.

2 SHEETS—SHEET 2.

1,044,059.



# UNITED STATES PATENT OFFICE.

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SOFA BED, COUCH, &c.

1,044,059.

Specification of Letters Patent.

Patented Nov. 12, 1912.

Application filed February 8, 1912. Serial No. 676,217.

*To all whom it may concern:*

Be it known that I, PETER E. KROEHLER, a citizen of the United States, residing at Naperville, in the county of Dupage and State of Illinois, have invented a new and useful Improvement in Sofa Beds, Couches, &c., of which the following is a specification.

My invention relates particularly to combination sofas and beds, or combination couches and beds, of the type in which a foldable mattress-frame is normally housed within the main frame beneath the seat of the sofa and equipped with a flexible bed-bottom or wire mattress, the parts being so related as to afford room between sections of the folded mattress for the bedding, that is, the mattress-pad, bed-linen and covers.

My primary object is to provide an improved construction of the character indicated, the improvement being especially directed to the means for mounting the folding bed-frame and swinging seat, a further object being to provide a practical knock-down construction which will facilitate shipment.

A still further object is to facilitate the manufacture of the metal fixtures employed in the structure and the mounting of the same in the sofa-structure, so that the metal fixtures may be manufactured in a factory equipped for that class of work and supplied to the manufacturing trade generally, that is, to sofa-bed manufacturers, to be by them embodied in a complete sofa-bed or couch-bed.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents a sectional view taken, as indicated, at line 1 of Fig. 3, the view showing one of the ornamental end-standards of the improved structure removed and the structure in bed-form; Fig. 2, a broken horizontal sectional view taken, as indicated, at line 2 of Fig. 1 and illustrating the manner in which the ornamental end-standards of the frame are detachably connected with the box-frame which connects them and serves as a base whereon the folding-bed and seat are mounted; Fig. 3, a broken plan section taken, as indicated, at line 3 of Fig. 1; Fig. 4, a view similar to Fig. 1, but showing the structure in sofa-form; Fig. 5, a broken front elevational view, the back not being shown; Fig. 6, a broken perspective view

illustrating one of the mountings for the folding bed-frame and swinging-seat; and Fig. 7, a broken perspective view illustrating means for detachably connecting the sofa-back to the ornamental end-standards.

In the construction illustrated A represents a main frame; B, a stationary back supported by the end-standards of the main frame; C, a seat mounted on the main-frame and pivotally connected or linked to the front portion of said frame and adapted to be swung to an inverted position in front of the same; and D, a foldable bed normally housed in folded condition beneath the seat C and having an intermediate section connected with brackets or hangers carried by the pivotal portion of the sofa-seat.

In the form shown the frame A comprises ornamental end-standards 1, which constitute the arms of the sofa; and a rectangular or box-form frame 2 disposed between the end-standards and detachably secured thereto. The back B is detachably mounted between the upper portions of the end-standards 1, being rigidly secured thereto by connecting members 3 and 4. The members 3 comprise brackets which are secured, as by screws 5, to the inner surfaces of the rear-portion of the end-standards 1 and afford supports for the lower portions of the back, said back being detachably attached to said brackets, as by means of screws 6. The connections 4 comprise plates 7 which are fixed to the rear edges of the standards 1, as shown in Figs. 4 and 7; and slotted studs 8 which project rearwardly from the back at or near its ends and enter slots 9 with which the plates 7 are provided. Any suitable detachable connections may be employed in lieu of those shown. The box-frame 2 comprises end-members 10 and front and rear longitudinal members 11 and 12 connecting the same, the front member 11 forming a front piece for the main frame. Bolts 13 afford detachable connections between the end-members 10 of the box-frame and the ornamental end-standards 1 of the main frame.

The folding-bed D comprises an intermediate section 14; an upper or front section whose end-members or arms are connected with the end-members of the intermediate section by pivots 16; a lower or rear section 17 whose end-members or arms are connected with the opposite ends of the end-

members of the intermediate section by pivots 18; and a flexible bed-bottom 19 stretched upon the foldable frame and adapted to fold therewith.

5 At each end of the structure I employ a mounting E (Figs. 1 and 6) adapted to support the intermediate and rear bed-sections and link the front or pivotal portion of the seat to the frame. Each mounting E com-  
 10 prises a frame-carried bracket 20 mounted in or to the front corner of the box-frame 2; a link 21 mounted on the member 20 and adapted to support the rear bed-section; a link 22 mounted on the member 20 and  
 15 adapted to support the pivotal portion of the seat in the manner shown in Fig. 1; a seat-carried bracket or hanger 23 adapted to support the intermediate bed-section; and a link 24 which joins the link 21 to the seat-  
 20 carried bracket 23. The bracket-members 23 are attached to the lower front corners of the seat (in sofa-form) and depend freely into the box-frame 2 in the rear of the frame-member 11. The end-members of  
 25 the intermediate bed-section 14 are connected to the free ends of the bracket-members 23 by pivots 25. When the structure is converted from a sofa to a bed, the pivots 25 are carried from the position shown by  
 30 dotted lines in Fig. 4 to the position shown by full lines in Fig. 1; and the intermediate bed-section is thus carried to the elevated position. Each bracket-member 23 has an  
 35 angle-form base-portion with a horizontal portion 26 adapted to bear against the lower edge of the end-member 27 of the sofa-seat frame, and a flange 28 adapted to embrace the outer surface of the end-member 27 to  
 40 which it is secured by screws 29. Each frame-carried bracket 20 comprises an upright angle-form portion 30 adapted to fit within the front corner of the frame 2, as shown in Fig. 2; a rearwardly-extending  
 45 arm 31 having an outturned flange 32 which is adapted to rest upon the upper edge of the end-member 10 of the frame 2; and an upwardly-extending arm 33 carried by the flange 32. The angle-form upright portion  
 50 30 is secured within the corner of the frame 2, as by screws 34. The arm 30 inclines forwardly somewhat and the upper end of the link 22 is joined to the upper end of the arm  
 55 30 by a pivot 35. The lower end of the link 22 is joined to the base-flange 28 of the bracket by a pivot 36. The link 21 is somewhat angular in form and is connected at one end by a pivot 37 to the adjacent end-member of the bed-section 17 and is connected  
 60 at the other end by a pivot 38 to the rear portion of the vertical flange of the arm 31 of the bracket-member 20. The knee-portion of the link 21 is connected by a pivot  
 65 39 to one end of the link 24, and the opposite end of the link 24 is connected by a pivot 40 to the vertical portion of the bracket 23.

The arms of the front bed-section 15 are connected by links 41 to the free edge-portion of the seat C, said links 41 being shown connected, by pivots 42, to clips 43 with which said frame is equipped, the rail 44 of  
 70 the seat-frame being notched, as indicated at 45, to accommodate the lower portion of the link 41 and the clip 43.

The swinging edge-portion of the seat is equipped with foldable legs 46 which are at-  
 75 tached, by pivots 46<sup>a</sup>, to clips 47 carried by the rail 44, and operated by links 48 connected with the longitudinal rail of the front bed-section 15 in a manner which will be understood. The legs swing in a plane par-  
 80 allel with the free edge of the seat, and are equipped with studs 46<sup>b</sup> which move in curved guide-slots 47<sup>a</sup> with which the plates 47 are provided. When the legs are extended they rest upon the floor, and support the  
 85 free edge of the sofa-seat.

As has been indicated, the frame-carried brackets 20 serve as a secure connection be-  
 90 tween the end-members 10 and front longitudinal member 11 of the box-frame 2. In the rear corners of the box-frame are secured angle-form standards 49 which rise a considerable distance above the frame 2 and have attached to their upper ends heavy coil  
 95 springs 50 which are connected with the rear bed-section 17. The members 49 serve as a means for securely connecting the end-members 10 to the rear member 12 of the box-frame 2.

The operation may be stated briefly. As-  
 100 suming the structure to be in bed-form, as shown in Fig. 1, the bed may be made up and secured to the folding bed-frame in the usual manner, whereupon the structure may  
 105 be converted to sofa-form by the simple operation of swinging the seat from the inverted position shown in Fig. 1 to the righted position shown in Fig. 4. The  
 110 springs 50 are under some tension when the structure is in the form of folding. In the final portion of the folding operation, the springs are placed under a heavy tension, so that they will aid in the operation of un-  
 115 folding the structure. When the seat is swung to the sofa-forming position, the bed-frame and bed are automatically folded.

The operation of converting from sofa-  
 120 form to bed-form is accomplished by swinging the seat from the sofa position to the inverted position in front of the main frame, in which operation the bed is automatically  
 125 unfolded or spread out, in a manner now understood in the art. In this operation the legs 46 are automatically turned to the standing position in the manner described.

The improved mountings E enable the  
 130 chief metal parts of the structure to be produced and assembled in a factory equipped for such work; and the metal parts or fixtures may thus be supplied to the manufac-

5 turers of sofa-beds and couches whose factories are usually equipped with wood-working machinery. The matter of attaching the metal fixtures to the wooden parts of the structure is easy of accomplishment. Moreover, the metal fixtures are mounted on the box-frame 2; and the box-frame and back may be readily detached from the ornamental end-standards of the structure for convenience in shipping.

10 The foregoing detailed description has been given for clearness of understanding only, and no undue limitation should be understood therefrom.

15 What I regard as new and desire to secure by Letters Patent is—

1. In a structure of the character set forth, the combination with a frame, and a seat adapted to swing to an inverted position in front of the frame, of a folded bed normally housed in the frame beneath said seat and comprising a plurality of foldably related sections, and mountings comprising a pair of brackets carried by the front portion of said frame, links connecting said brackets with the rear bed-section, links connecting said brackets with the seat, links connecting said first-named links with the seat, and supporting means for the front bed-section connected with the lower portion of said seat.

2. In a structure of the character set forth, the combination with a frame, and a seat adapted to swing to an inverted position in front of the frame, of seat-carried brackets depending from the lower side of the pivotal portion of said seat, frame-carried brackets mounted in said frame at the front corners thereof, and a folded bed normally housed in said frame beneath said seat and comprising an intermediate section pivoted on said seat-carried brackets and front and rear sections pivotally joined to said intermediate section, links mounted on the rear portions of said frame-carried brackets and connected with the rear bed-section, links connecting said frame-carried brackets to said seat-carried brackets, and links adapted to actuate said first-named links when the seat is moved to the inverted position.

3. In a structure of the character set forth, the combination with a frame, and a seat adapted to swing to an inverted position in front of the frame, of seat-carried brackets depending from the lower side of the pivotal portion of said seat, frame-carried brackets mounted in said frame at the front corners thereof, and a folded bed normally housed in said frame beneath said seat and comprising an intermediate section pivoted on said seat-carried brackets and front and rear sections pivotally joined to said intermediate section, links mounted on the rear portions of said frame-carried brackets and connected with the rear bed-section, links connecting said frame-carried brackets to said

seat-carried brackets, and links connecting said first-named links to said seat-carried brackets.

4. In a structure of the character set forth, the combination with a frame and seat adapted to swing to an inverted position in front of the frame, of frame-carried brackets having rearwardly extending arms and having also upwardly extending arms, seat-carried brackets, a folded bed comprising an intermediate section pivotally connected with the seat-carried brackets, and front and rear sections pivotally connected with the intermediate section, links connecting the rearwardly extending arms of the frame-carried brackets to the rear bed-section, links connecting the upper ends of the upwardly-extending arms of the frame-carried brackets to the base-portions of the seat-carried brackets, and links connecting the vertical portions of the seat carried brackets to the intermediate portions of said first-named links.

5. In a structure of the character set forth, the combination with a frame comprising end-standards and a box-frame extending between said end-standards and detachably joined thereto, of a seat surmounting said box-frame and adapted to swing to an inverted position in front of it, frame-carried brackets having members depending into the front corner-portions of said box-frame and secured thereto and having rearwardly-extending arms secured to the end-members of said box-frame and having, also, upwardly-extending arms at their front portions, and a folded bed normally housed in said frame beneath said seat and comprising an intermediate section pivoted on members carried by the seat, and front and rear sections pivotally joined to said intermediate section, links connecting said rearwardly-extending arms of said brackets to the rear bed-section, links connecting the upwardly-extending arms of said brackets to the seat, and link-connections between said first-named links and the seat.

6. Metal fixtures for a structure of the character set forth, comprising a pair of seat-attachment brackets, a pair of frame-attachment brackets, a folding bed-frame comprising an intermediate section pivotally connected to the seat brackets, and front and rear section pivotally connected with the intermediate section, links connecting the frame-attachment brackets to the rear bed-section, links connecting the seat-attachment brackets to the frame-attachment brackets, and links connecting the seat-attachment brackets to said first-named links.

7. A metal fixture for a structure of the character set forth, comprising a frame-attachment bracket, having a vertical portion for attachment in the corner of a frame and

having a rearwardly-extending frame-engaging arm and having, also, an upwardly extending arm at its front portion, a seat-attachment bracket having a base-portion  
5 adapted for attachment to a seat and having a vertical portion, adapted to pivotally support a bed-section, a link pivotally connected with the rearwardly-extending arm of said first-named bracket and adapted to support  
10 the rear section of a bed, a link connecting

the upwardly-extending arm of said first-named bracket to the base-portion of said second-named bracket, and a link connecting the intermediate portion of said first-named link to the vertical portion of said second-named bracket. 15

PETER E. KROEHLER.

In presence of—

R. A. RAYMOND,

O. C. AVISUS.