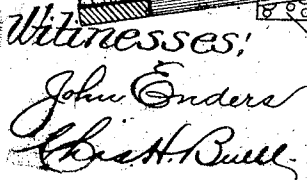


SOFA BED.

Patented Feb. 22, 1910.

950,137.



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SOFA BED.

APPLICATION FILED MAR. 26, 1909.

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3 SHEETS—SHEET 2.

950,137.

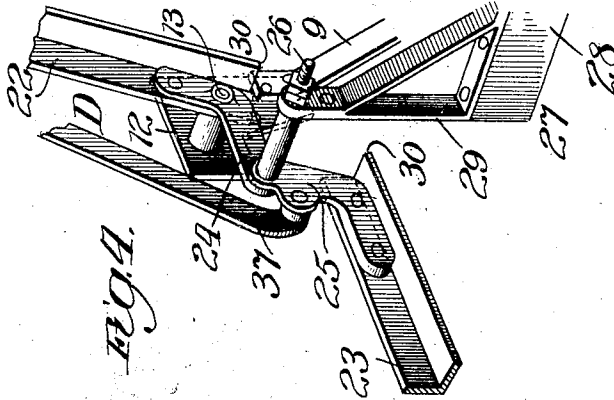


Fig. 4.

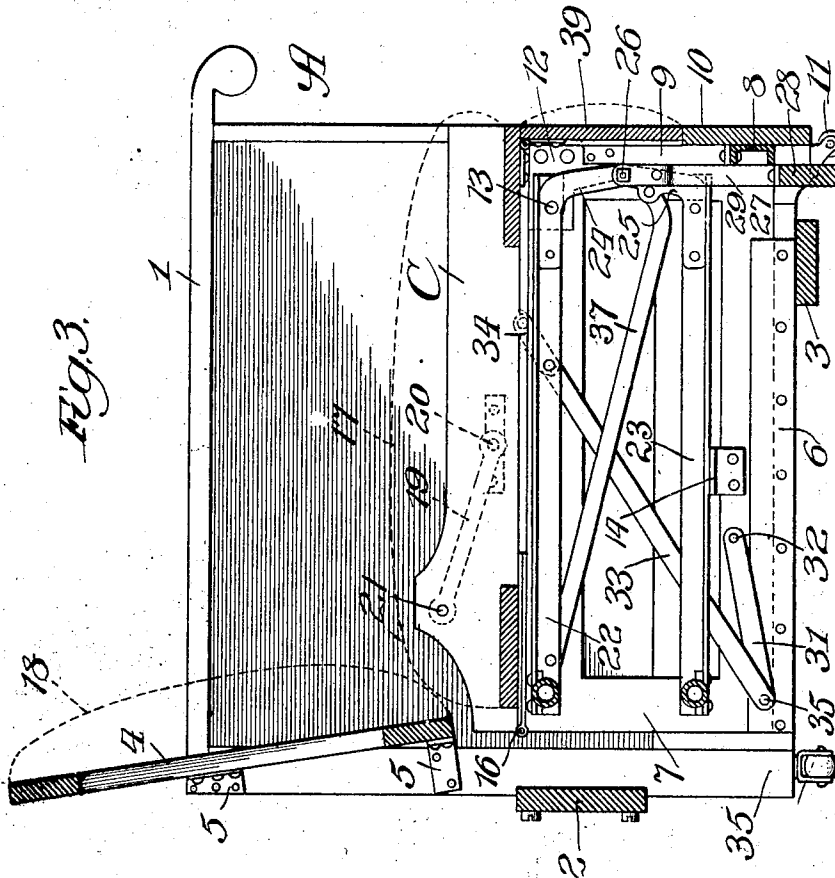


Fig. 3.

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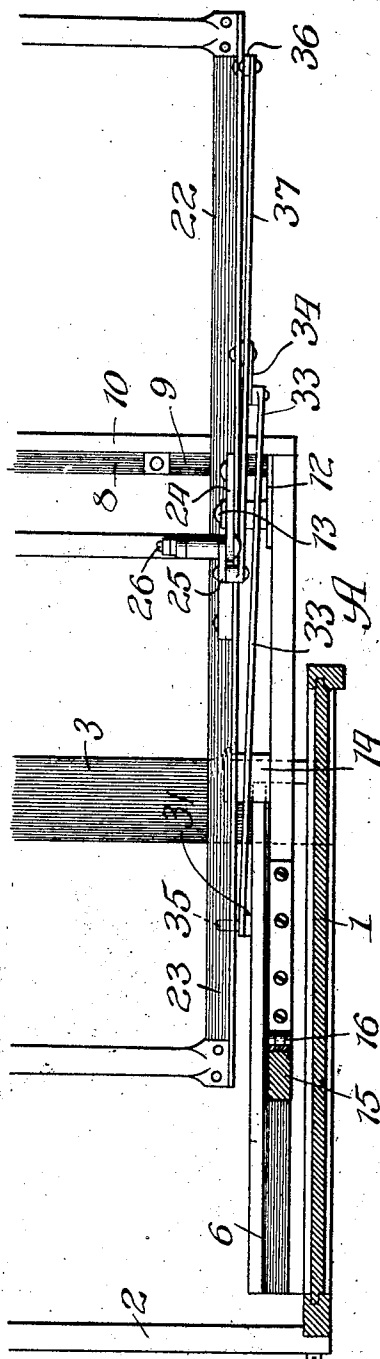
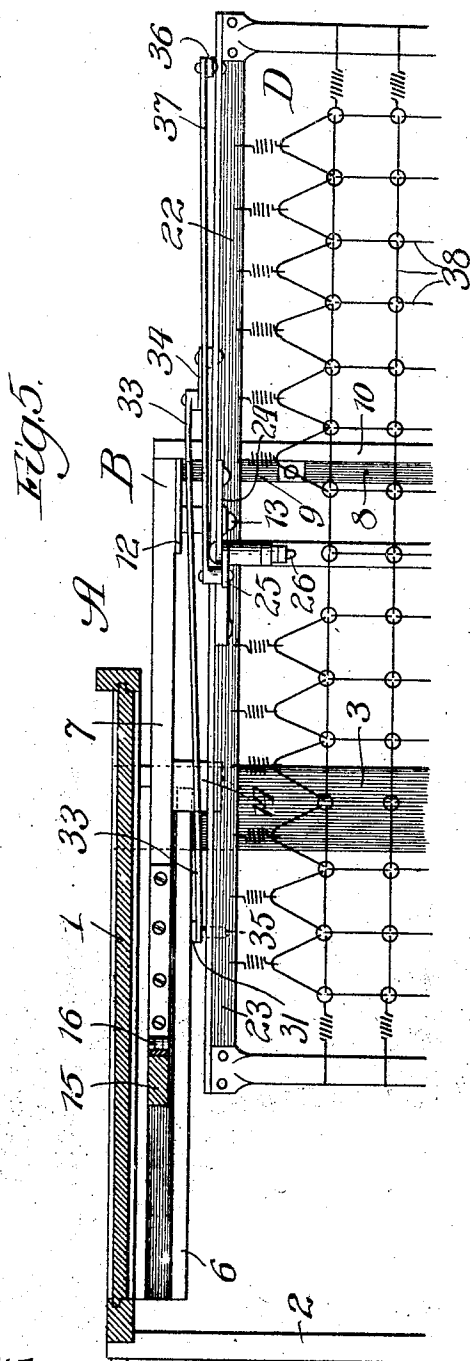
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# UNITED STATES PATENT OFFICE.

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SOFA-BED.

950,137.

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Application filed March 28, 1909. Serial No. 485,974.

*To all whom it may concern:*

Be it known that I, SOLOMON KARPEN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Sofa-Beds, of which the following is a specification.

My invention relates particularly to combination sofas and beds in which a foldable mattress-frame, or bed-frame, is normally housed within the main frame beneath the seat of the sofa and equipped with a foldable mattress or flexible bed-bottom, the parts being so related as to afford room between the sections of the folded bed-bottom 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 which is durable, handy of operation, and which affords a comfortable sofa of pleasing appearance when in the sofa-form and which affords a thoroughly comfortable bed when in bed-form.

It may be preliminarily stated that in the preferred construction which is illustrated in the accompanying drawings, there are employed a main-frame; a forwardly shiftable carriage mounted therein; a rearwardly swinging seat pivotally connected with the rear portion of said carriage and linked to the main frame in such a manner that when the seat is swung rearwardly to a standing position, the carriage will be shifted forwardly automatically, and vice versa; and a folded mattress-frame mounted on said carriage and normally housed beneath the sofa-seat. In the illustration given, the mattress-frame comprises front and rear sections equipped at their meeting portions with angular arms which are pivotally connected together, the front section being also pivotally connected with the carriage in front of and below the pivotal connections between the arms of said sections, whereby the front-portion of the rear mattress-frame section will be dropped or lowered when the front section is moved to the folded position. Mounted on the rear portion of the carriage is a pair of swinging links equipped with studs which, in the swinging motion of the links, slidably engage beneath the rear portion of the rear mattress-frame section, whereby the rear mattress-frame section will be maintained in a horizontal position

in the raising and lowering movements. The swinging links mentioned are connected by links with the front mattress-frame section, so that the first-named links will be swung during the operations of folding and unfolding the front mattress-frame section.

In the accompanying drawings—Figure 1 represents a sectional view of my improved combined sofa and bed, showing the bed in extended position; Fig. 2, a broken sectional view taken as indicated at line 2 of Fig. 1, and showing the manner of mounting the carriage mentioned; Fig. 3, a section similar to Fig. 1, but showing the structure in sofa-form; Fig. 4, a broken perspective view showing the connection between the front and rear mattress-frame sections and a truss employed in connection therewith; and Fig. 5, a broken horizontal sectional view showing the structure in bed form.

In the construction illustrated, A represents a main frame; B, a forwardly and rearwardly shiftable carriage connected therewith; C, a rearwardly swinging seat pivotally connected with the rear portion of said carriage and linked to the main frame; and D, a foldable mattress-frame mounted on the carriage B.

The frame A may be of any approved construction. As shown, it comprises end-standards 1 which constitute also the arms of the sofa; rear connecting members 2 and a bottom connecting member 3. As shown, the frame supports a back 4 which extends between the rear portions of the end-standards and is rigidly connected therewith by angle-form members 5. Preferably, the back inclines rearwardly and upwardly somewhat as shown. The end-standards 1 are equipped on their inner surfaces at or near their lower ends with guides, or runways, 6 upon which the carriage B is mounted. In the form shown, the carriage B comprises a pair of rectangular frames, or slides, 7 mounted in the guides or runways 6 and connected at their lower front corners by a channel-bar 8 and braces 9. The bar 8 is concealed by a front piece 10 which forms a part of the carriage. The carriage is equipped at its front portion with casters 11 adapted to travel on the floor. The slides 7 are fitted at their upper front corners with plates 12 carrying studs 13 which afford pivots for the front section of the mattress-

frame. The lower members of the slides 7 are provided with stops, or rests, 14.

The seat C preferably comprises a frame 15 which is joined by hinges, or pivots, 16 to the rear upper corners of the slides 7; and an upholstered pad 17, which is shown in dotted lines. The back 4 is provided with an upholstered pad 18. The seat C is connected with the end-standards 1 by links 19. The links 19 have pivotal connections 20 joining their front ends to the end-standards 1, and pivotal connections 21 joining their rear ends to the end-members of the seat-frame 15.

The mattress-frame D comprises a front section 22 and a rear section 23, both sections being of substantially U-shape. Said sections have their arms equipped at their extremities with angularly-disposed arms 24 and 25 respectively, said angularly-disposed arms being connected at their extremities by pivots 26. As has been indicated, the end-members of the section 22 are connected by the pivots 13 with the upper front corners of the slides 7. The pivots 26 are joined by a substantially U-shaped truss 27, which comprises a longitudinal member 28, and up-turned braced arms 29. The arms 29 are pivotally connected at their upper ends with the pivots 26. The truss is therefore adapted to depend from the pivots 26, regardless of the condition of the structure, that is regardless of whether the structure is in the folded or unfolded condition. Abrupt shoulders 30 at the extremities of the end-members of the front and rear mattress-frame sections are adapted to abut against each other when the bed is in the extended position. Links 31 are connected by pivots 32 with the rear portions of the slides 7. Said links are adapted for actuation by relatively long links 33, which are joined by relatively short links 34 to the end-members of the mattress-frame section 22. The links 33 are connected with the links 31 by pivots, or studs, 35 which, as shown in Fig. 2, bear beneath the rear portion of the rear mattress-frame section 23.

The mattress-frame section 22 is equipped with pivotally connected legs 36 which have extensions at their upper ends that are joined by links 37 to the arms 25 attached to the rear mattress-frame section. This expedient provides for the automatic folding and unfolding of the legs 36 in the operation of folding and unfolding the mattress-frame. The mattress-frame is equipped with a flexible bed-bottom, or wire mattress, 38.

The front portion of the seat has pivotally joined thereto a front piece 39 which is complementary to the front piece 10 and serves therewith to conceal the mechanism when structure is in sofa-form. The front piece 39, in the illustration given, is adapted to fold down against the lower surface of the

seat-frame when the seat-frame is in the standing position shown in Fig. 1.

The operation will be readily understood from the foregoing description. Ordinarily, the bed is made up while the structure is in the unfolded condition shown in Fig. 1, the bedding, which includes the mattress-pad, bed-linen and covers, being secured to the mattress-frame so as to fold therewith. For clearness of illustration, the bedding has been omitted from the drawings. When it is desired to convert the structure to sofa-form, the front section 22 is swung upon the pivots 13, thereby lowering the pivotal points 26 and also swinging the links 31 downwardly and rearwardly. This results in depressing the rear bed-section 23 to a position where it rests upon the stops 14, the front mattress-frame section 22 assuming a superposed position above the rear mattress-frame section, and the bedding being folded between the mattress-frame sections. After the bed has been folded upon its carriage, the seat C is swung forwardly and downwardly, in which operation the carriage B is retracted, the parts finally assuming the position shown in Fig. 3. It will be understood that during the operations of swinging the seat, the links 19 swing upon the pivots 20, and the carriage is automatically moved through the medium of the links 19 and the pivotal connections 16.

When it is desired to convert the structure from sofa-form to bed-form, this is accomplished by swinging the seat rearwardly and upwardly to the standing position indicated in Fig. 1, in which operation the carriage B with the folded bed mounted thereon is automatically shifted to the forward position shown in Fig. 1. The bed is then unfolded by swinging the front bed-section 22 forwardly and upwardly on the pivots 13. In this operation, the pivots 26 are raised to the position shown in Fig. 1, thereby lifting the front end of the rear mattress-frame section, and in the same operation the links 31 are swung to the vertical position, thereby lifting the rear portion of the rear mattress-frame section. In fact, the rear mattress-frame section moves upwardly by a parallel movement; and in the folding operation the rear mattress-frame section moves downwardly by a parallel movement.

It will be noted that the front mattress-frame section is pivoted on the slides 7 at a height corresponding substantially with the desired height of the bed, and that the rear mattress-frame is joined to the front mattress-frame section by angular hinge-members adapted to raise and lower the front portion of the rear mattress-frame section in the unfolding and folding of the bed, the links 31 serving at the same time to carry the rear portion of the rear mattress-

frame section so as to maintain the horizontal position. This provision affords an exceedingly simple and stable construction, and at the same time affords ample room for the bedding between the sections of the mattress-frame in the folded position of the bed.

While it is preferred to employ a rearwardly swinging seat and connect the same to the frame and to the carriage in such manner as to provide for the automatic advancement and retraction of the carriage upon which the folded bed is mounted, the invention, in its broadest aspect, is not limited to such a construction: In the construction shown, the links 19 are connected with the frame and seat above the plane of the pivotal connection between the seat and carriage, and in such relation that the rear ends of the links 19 will swing upwardly when the seat is swung rearwardly and the carriage advanced. This is merely the preferred arrangement, however.

The foregoing detailed description has been given for clearness of understanding only, and no undue limitation should be understood therefrom. The appended claims define the invention in the light of the specification and drawings, and should be construed as broadly as is permissible in view of the prior art.

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

1. In a structure of the character set forth, the combination of a frame, a forwardly movable carriage, a movable seat, and a folded bed mounted on said carriage and normally housed beneath said seat, said bed comprising a front section swingingly mounted on the front portion of said carriage at a height corresponding approximately with the height of the bed in the extended position thereof, and a rear section adapted for raising and lowering with relation to said carriage and connected with and actuated through the medium of said front section.

2. In a structure of the character set forth, the combination of a frame, a movable seat, a forwardly movable carriage within said frame, and a folded bed mounted on said carriage, said folded bed comprising a front frame-section swingingly connected with the upper front portion of the carriage, a rear frame-section, and angularly-disposed arms carried by the meeting portions of said frame-sections and pivotally joined together at their extremities, whereby the rear section will be lowered and raised with relation to said carriage in the folding and unfolding of the bed.

3. In a structure of the character set forth, the combination of a frame, a forwardly movable carriage connected therewith, a movable seat, and a folded bed mounted on said carriage and normally

housed beneath said seat, said folded bed comprising front and rear bed-sections equipped at their meeting portions with angularly-disposed arms pivotally connected together near their extremities, pivotal connections between the front bed-section and the upper front portion of the carriage, swinging links adapted to support the rear portion of the rear bed-section, and links connected with said first-named links and actuated through the medium of the front bed-section.

4. In a structure of the character set forth, the combination of a frame, a movable seat, a forwardly shiftable carriage, and a folded bed mounted on said carriage and normally housed beneath said seat, said folded bed comprising front and rear bed-sections equipped at their meeting portions with angularly-disposed arms pivotally joined together near their extremities, pivotal connections between the front bed-section and the front upper portion of said carriage, and a U-shaped truss-member connecting said angularly-disposed arms.

5. In a structure of the character set forth, the combination of a frame, a movable seat, a forwardly shiftable carriage, and a folded bed mounted on said carriage and normally housed beneath said seat, said folded bed comprising front and rear bed-sections equipped at their meeting portions with angularly-disposed arms which are pivotally connected together, pivotal connections between the front bed-section and the front upper portion of said carriage, folding legs connected with the free edge-portion of the front bed-section, and links connecting said folding legs with the rear bed-section.

6. In a structure of the character set forth, the combination of a main frame, a rearwardly swinging seat, a forwardly shiftable folded bed normally housed beneath said seat, said seat having pivotal connections at its rear portion with the supports of said shiftable bed, and links connecting said seat with said main frame.

7. In a structure of the character set forth, the combination of a main frame, a rearwardly swinging seat, a forwardly shiftable carriage, pivotally connected at its rear portion with the rear portion of said seat, links connecting said seat with the main frame, and a folded bed mounted on said carriage and normally housed beneath said seat.

8. In a structure of the character set forth, the combination of a main frame having end-standards equipped at their lower portions with horizontally disposed guides, slides movable in said guides, a connecting member joining the front lower portions of said slides, a seat pivotally connected with the rear portions of said slides, connections

between said seat and said main frame, and a folded bed mounted on said slides and normally housed beneath said seat.

9. In a structure of the character set forth, the combination of a main frame, a rearwardly swinging seat equipped at its front edge with a depending front piece, a forwardly shiftable carriage equipped at its lower portion with a complementary front piece, and a folded bed mounted upon said carriage and normally housed beneath said seat.
10. In a structure of the character set forth, the combination of a main frame comprising end-standards, a back rigidly connected with said end-standards, a rearwardly swinging seat adapted to assume a standing position adjacent to the back, a forwardly shiftable carriage pivotally connected with the rear portion of said seat, links connecting said seat with the end standards of said main frame, and a folded bed mounted on said carriage and normally housed beneath said seat.
11. In a structure of the character set forth, the combination of a main frame, a movable seat, a forwardly shiftable carriage, and a folded bed mounted on said carriage and normally housed beneath said seat, said folded bed comprising front and rear bed-sections equipped with angularly-disposed arms which are pivotally connected together near their extremities, pivotal connections between said front bed-section and said carriage, links pivotally connected with the lower rear portions of the end-members of said carriage, links connecting said first-

named links with the front bed-section, and means connected with said links and slidably engaging the rear portion of said rear bed-section.

12. In a structure of the character set forth, the combination of a frame, guides supported thereby, slides mounted on said guides, a member connecting said slides, a suitably attached rearwardly swinging seat, and a folded bed mounted on said slides and normally housed beneath said seat.

13. In a structure of the character set forth, the combination of a supporting frame a movable seat, and a folded bed normally housed beneath said seat and comprising a pair of bed-frame sections superposed one above the other and equipped with angularly-disposed arms, pivotal connections between said arms, pivotal supports for the upper bed-frame section upon which said section is adapted to turn, and a swinging truss depending from said first-named pivotal connections and normally occupying a substantially vertical position beneath the front portion of said seat.

14. In a structure of the character set forth, the combination of a frame, a forwardly shiftable carriage, a seat hinged at its rear portion to the rear portion of said carriage and adapted to swing rearwardly, and a folded bed mounted on said carriage and adapted to move forward therewith and unfold to bed-form.

SOLOMON KARPEN.

In presence of—

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