

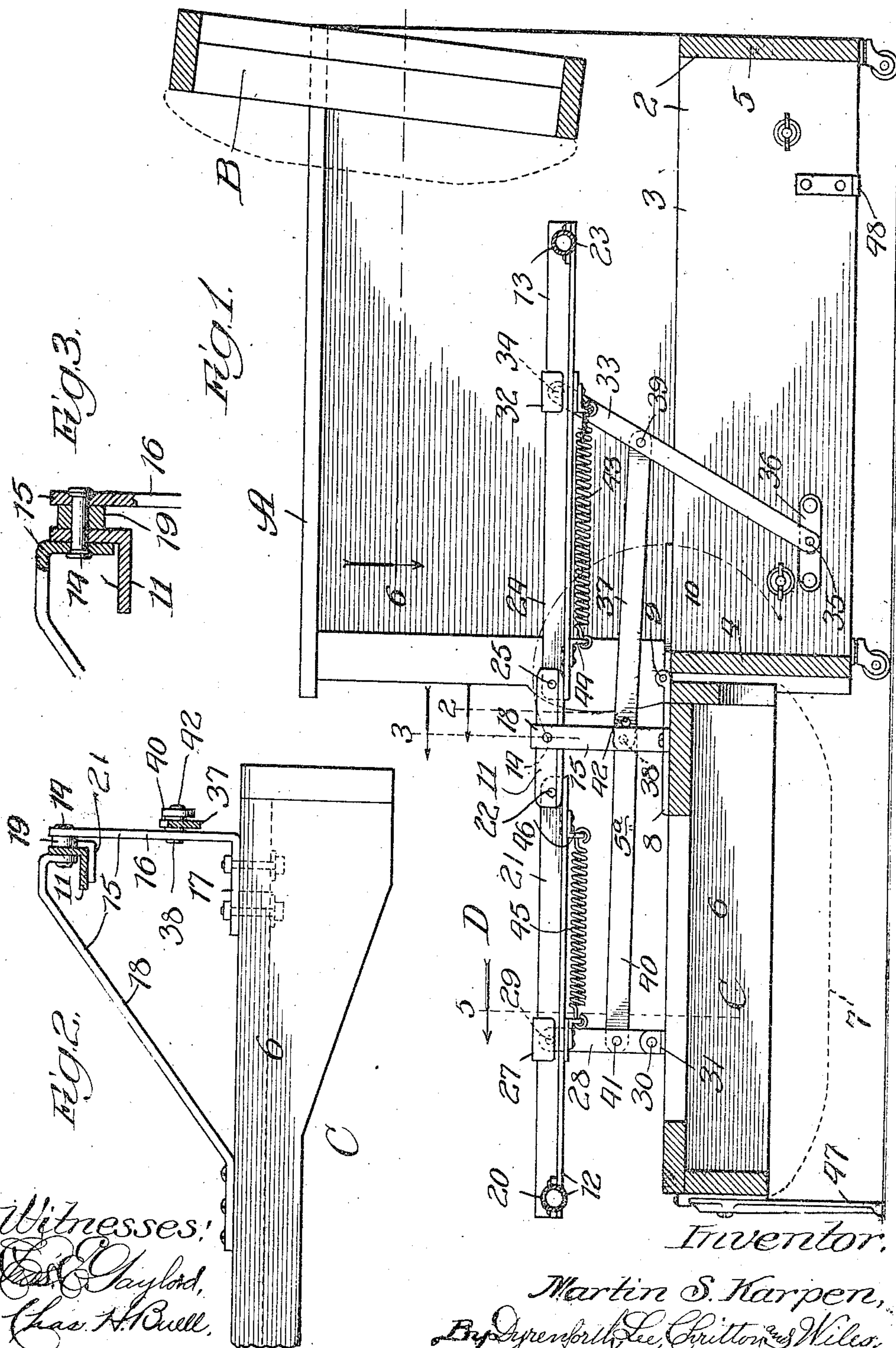
SOFA BED.

APPLICATION FILED MAY 9, 1910.

995,682.

Patented June 20, 1911.

3 SHEETS--SHEET 1.



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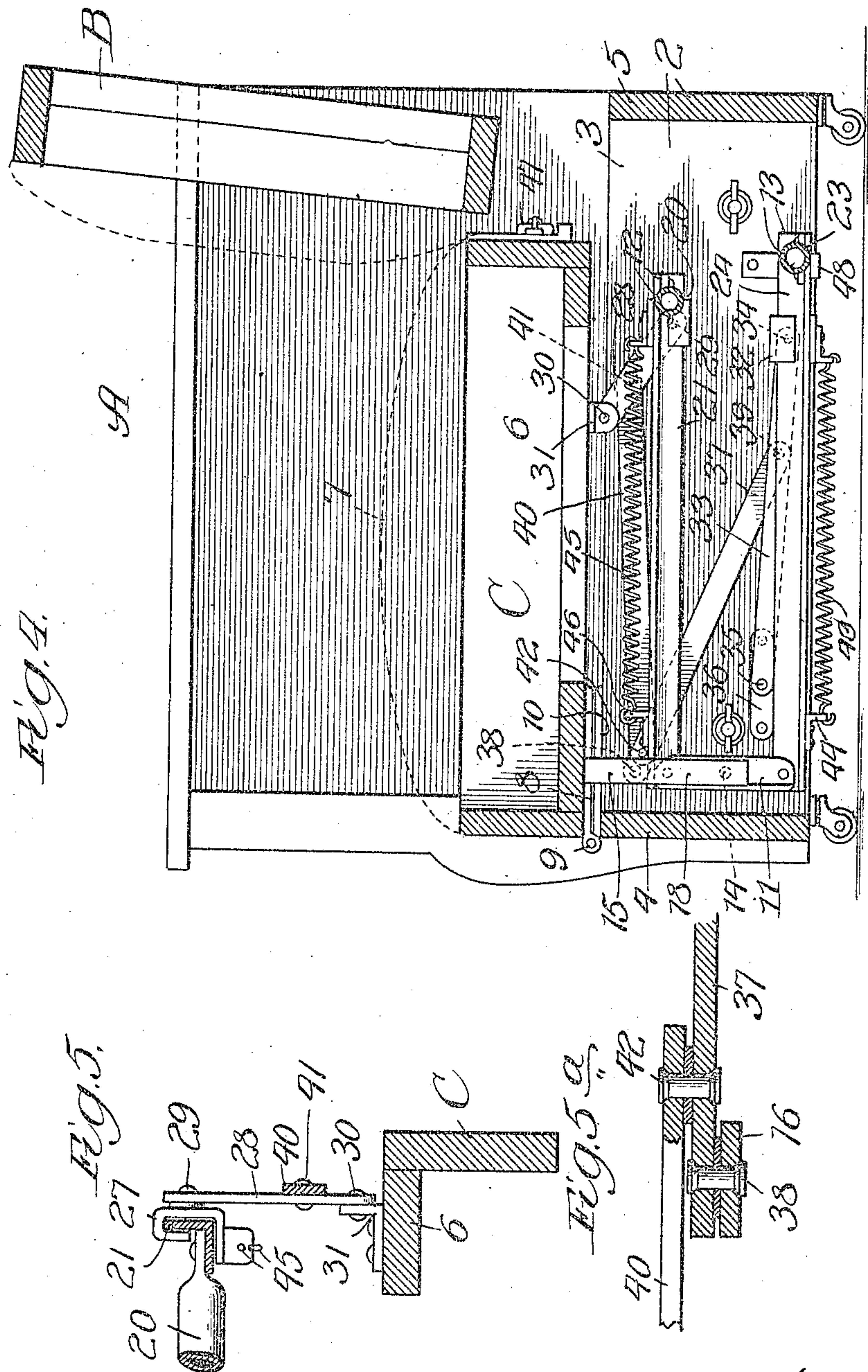
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3 SHEETS-SHEET 2.



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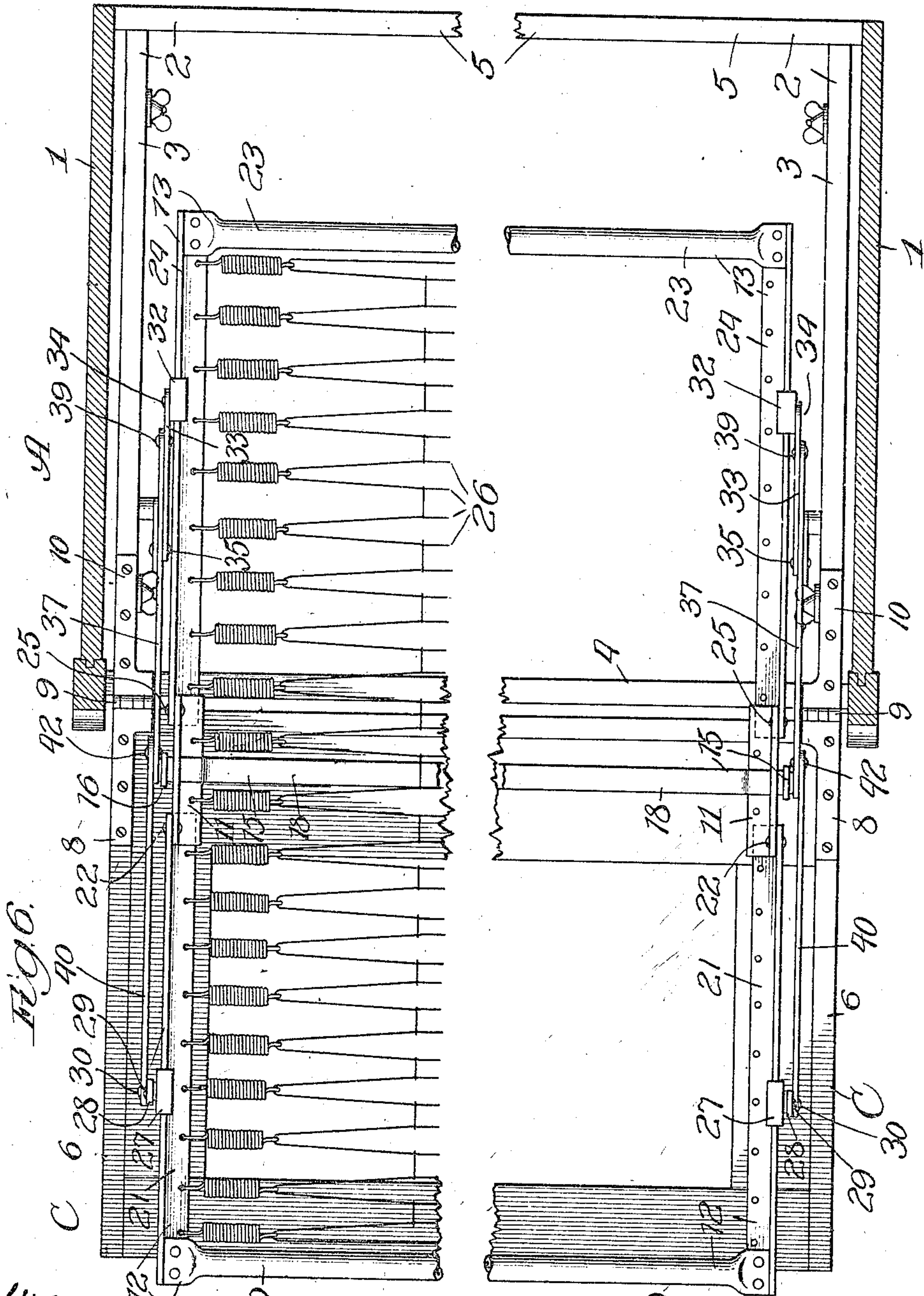
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

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SOFA-BED.

995,682.

Specification of Letters Patent. Patented June 20, 1911.

Application filed May 9, 1910. Serial No. 560,206.

To all whom it may concern:

Be it known that I, MARTIN S. 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, or combination couches and beds, in which the 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 the 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 which will operate in an improved manner, and which may be produced at very moderate cost.

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

Figure 1 represents a sectional view of my improved sofa-bed in the open or bed position; Fig. 2, a broken sectional view taken as indicated at line 2 of Fig. 1, and showing the manner in which the intermediate bed section employed is mounted on the pivotal portion of the forwardly swinging sofa-seat; Fig. 3, a broken section taken as indicated at line 3 of Fig. 1 and showing a detail of the pivotal mounting of the intermediate bed-section; Fig. 4, a section similar to Fig. 1, but showing the structure in sofa form; Fig. 5, a section taken as indicated at line 5 of Fig. 1, and showing a detail of the manner in which the front bed section is foldably or collapsibly connected with the sofa seat; Fig. 5^a, a section taken as indicated at line 5^a of Fig. 1; and Fig. 6, a horizontal section taken as indicated at line 6 of Fig. 1.

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 pivotally connected at its front portion with the front portion of the main frame; and D, a foldable bed normally housed in folded condition beneath the seat C and having an intermediate section pivotally connected with brackets, or hangers, carried by the pivotal portion of the sofa seat.

The frame A may be of any suitable construction. As shown, it comprises ornamental end-standards 1 which serve as arms for the sofa; and a box-form frame 2 interposed between the lower portions of said end-standards and comprising end members 3 fixedly secured to the lower portions of the end-standards 1 and connected by a front piece 4 and a rear member 5.

The back B is disposed between the rear upper portions of the end-standards 1, being rigidly connected therewith in any suitable manner.

The seat C comprises a frame 6 and cushion 7 (indicated by dotted lines). The seat is pivotally connected with the main frame, the seat having the base portion of its frame equipped with hinged members 8 which are joined, by pintles 9, to hinge members 10 secured to the front upper corners of the box-form frame 2.

The bed frame D preferably comprises an intermediate section 11; a front section 12, and a rear section 13. The intermediate section 11 comprises end members or bars (shown of angle form) which are connected, by pivots 14, with hangers 15 which are securely attached to the seat frame 6 near the pivots of the seat and normally depend into the front portion of the box 2 when the structure is in sofa form. Each hanger 15 comprises a vertical bar 16 having an in-turned end 17 securely fastened to the pivotal portion of the seat frame; and a brace 18 secured to the longitudinal member of the seat frame at one end and having its other end separated from the free end of the member 16 by a space adapted to receive the end members of the intermediate bed section 11. As shown in Figs. 2 and 3, the end members of the intermediate bed section are spaced from the free ends of the members 16, by washers 19.

The front bed section 12 comprises a longitudinal member 20 having arms 21 which are connected, by pivots 22, with the adjacent ends of the end members of the intermediate bed section 11. The rear bed section 13 comprises a rear longitudinal member 23 and forwardly extending arms 24 which are connected at their front ends, by pivots 25, with the corresponding ends of the end members of the intermediate bed section 11.

The foldable bed frame just described is equipped with a foldable wire mattress, or flexible bed-bottom 26.

Describing the structure in the open condition, when the seat C occupies an inverted position in front of the main frame, the hangers 15 at such time constitute standards upon which the intermediate bed section 11 is pivotally mounted. The end members 21 of the upper or front bed section are equipped with slides 27 joined by links 28 to the seat frame 6 some distance from the free or swinging edge of the seat. The links 28 are joined to the slides 27 by pivots 29 and are joined, by pivots 30, to clips 31 secured to the seat frame 6. The end members 24 of the rear bed section are equipped with slides 32. Links 33 connect said slides to the front portion of the box-form frame 2. The links 33 are connected at one end, by pivots 34 with the slides 32 and at the other end, by pivots 35, with clips or bars 36 secured to the inner surfaces of the end members 3 of the box-form frame 2. The members 16 forming part of the supports for the intermediate bed section are connected by the links 37 with the links 33, the front ends of the links 37 being joined by pivots 38 to said members 16 and the rear end of said links being joined by pivots 39 to the intermediate portions of the links 33. The links 28 are joined by links 40 to the links 37 near the pivots 38, the front ends of the links 40 being connected by pivots 41 to the links 28 and the rear ends being connected by pivots 42 to the links 37. The detail of the connections between the links 37 and 40 and the supporting members 16 is shown in Fig. 5^a. Coil-springs 43 connect slides 32 to clips 44 attached to the pivotal portion of the rear bed section 13. Springs 45 connect the slides 27 with clips 46 secured to the pivotal portion of the front bed section 12. The springs aid in the operation of unfolding and elevating the bed, as will be readily understood.

The free, or swinging, edge of the seat C is equipped with folding legs 47.

The operation will be readily understood from the foregoing description. The bed is made up while the structure is in the open position shown in Fig. 1, the bedding being properly secured to the foldable bed frame, and the structure is then converted to sofa form by swinging the seat rearwardly to the position shown in Fig. 4. When the seat is swung to the folded position, the links 33 are swung rearwardly through the medium of the links 37, the slides 31 moving rearwardly along the end members 24 of the rear bed section. During this movement, the links 28 are swung toward the free edge of the sofa seat, the slides 27 moving toward the member 20 of the front bed section, this

action occurring through the operation of the links 40. During this movement, also, the supporting members 16 of the intermediate bed section are carried to the vertical depending position within the front portion 70 of the box 2, the joint at the pivot 25 collapsing downwardly, while the members 16 are being carried to a plane so as to overlap the outer or upper portions of the end members of the intermediate bed section 11. That is to say, while the pivots 14 are being carried from the position shown in Fig. 1 to the position shown in Fig. 4, the outer ends of the end members of the intermediate bed section and the supports for the intermediate bed section, relatively speaking, approach each other, or fold with relation to each other. After conversion to sofa form, the rear or lower bed section occupies the position in the lower part of the box-form frame 2, where it may rest upon stops 48, while the front bed section 12 is spaced above the rear section a sufficient distance to accommodate the folded bedding. In the folding operation, the seat and front bed section are caused to approach each other somewhat, as will be readily understood by comparing Fig. 1 with Fig. 4. In converting from sofa form to bed form, it is only necessary to swing the seat from the position shown in Fig. 4 until it occupies an inverted position in front of the sofa, as shown in Fig. 1. During this operation, the links 37 and 40 operate to actuate the links 33 and 28, thereby moving the slides 32. The unfolding operation is assisted by the coil-springs 43 and 45 (one pair would suffice), which were placed under tension in the folding operation. It will be noted that in the operation of swinging the seat to the open position, the supports 15 carry the pivots 14 of the intermediate bed section to the elevated position shown in Fig. 1, and during this movement the intermediate bed section is swung on its pivots 14, while at the same time the slides 27 and 32 are actuated to elevate the front and rear portions, respectively, of the front and rear bed sections. In the open condition of the structure, the bed occupies an extended position in front of the sofa-back, and the construction is such as to prevent any possibility of collapse while in the open position.

The foregoing detailed description has been given for clearness of understanding only, and no undue limitation should be understood therefrom, but the appended claims should be construed as broadly as 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 seat connected therewith and adapted to swing to an inverted position in front of the frame, an

intermediate bed section pivotally connected with said seat, front and rear bed sections pivotally connected with said intermediate bed section, slides connected with said front and rear bed sections, links connecting said slides respectively with the seat and frame, and means for swinging said links during the operation of unfolding the seat.

2. In a structure of the character set forth, the combination of a frame, a seat connected therewith and adapted to swing to an inverted position in front of the frame, an intermediate bed section pivotally connected with said seat, front and rear bed sections pivotally connected with said intermediate bed section, slides connected with said front and rear bed sections, links connecting said slides respectively with the seat and frame, and links connected with said first-named links and with said seat and serving to automatically swing said first-named links in the operation of swinging the seat.

3. In a structure of the character set forth, the combination of a frame, a sofa-seat having its front portion hingedly connected with the front portion of the frame, hangers depending from said seat near the hinge connections thereof, an intermediate bed section foldably connected with said hangers, front and rear bed sections pivotally connected with said intermediate section, a pair of links pivotally connected with the seat and adapted to elevate the free edge of the front bed section, a pair of links pivotally connected with said frame and adapted to elevate the rear portion of the rear bed section, and links connecting said pairs of links with said hangers.

4. In a structure of the character set forth, the combination of a frame, a sofa-seat having its front portion hingedly connected with the front portion of the frame, hangers depending from said seat near the hinge connections thereof, an intermediate bed section foldably connected with said hangers, front and rear bed sections pivotally connected with said intermediate section, a pair of links pivotally connected with the seat

and adapted to elevate the free edge of the front bed section, a pair of links pivotally connected with said frame and adapted to elevate the rear portion of the rear bed section, links connecting said pairs of links with said hangers, and springs adapted to aid in actuating said first and second named pairs of links in the operation of unfolding the structure.

5. In a structure of the character set forth, the combination of a frame, a forwardly swinging seat mounted thereon, an intermediate bed section suspended beneath the front portion of said seat, front and rear bed sections foldably related to said intermediate section, slides connected with said front and rear bed sections, links connecting said slides with the seat and frame, means for actuating said links in the operation of swinging the seat, and springs attached to the front and rear bed sections near their pivotal points and adapted to aid in actuating said slides in the operation of unfolding the structure.

6. In a structure of the character set forth, the combination of a frame, a seat having its front portion hinged to the front portion of said frame, hanger-arms depending from the front portion of the seat within said frame, brace-members attached to the seat and co-acting with said hanger-members, an intermediate bed section pivotally mounted on said hanger-members and brace-members, front and rear bed sections pivotally connected with said intermediate section, links pivotally connected with the seat and having slidable engagement with the front bed section, links pivotally connected with the lower front portion of the frame and having slidable engagement with the rear bed section, and links pivotally connected with said first and second named links and also connected with said hanger-members.

MARTIN S. KARPEN.

In presence of—

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R. A. SCHAEFER.