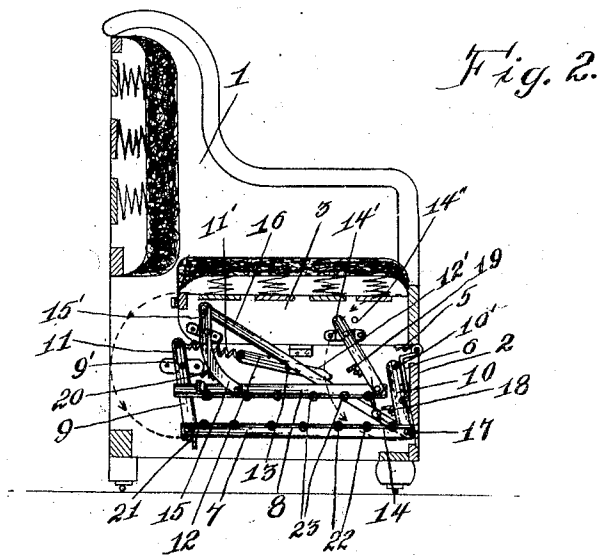
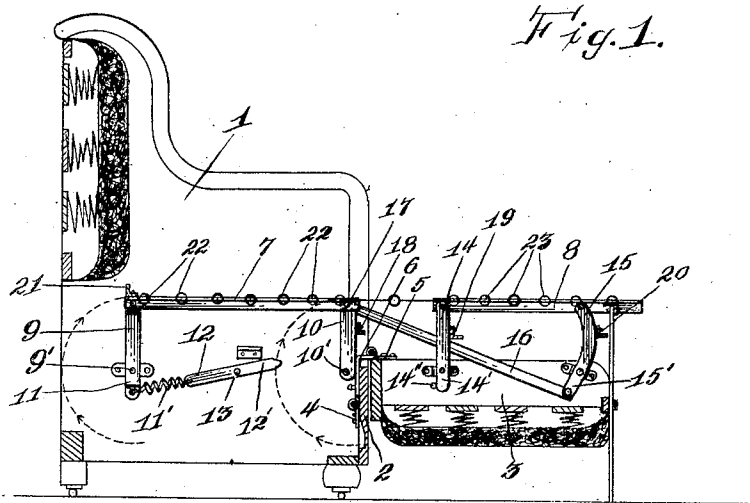


F. L. ANDREN.
 CONVERTIBLE SOFA.
 APPLICATION FILED MAR. 13, 1911.

1,058,934.

Patented Apr. 15, 1913.

2 SHEETS—SHEET 1.



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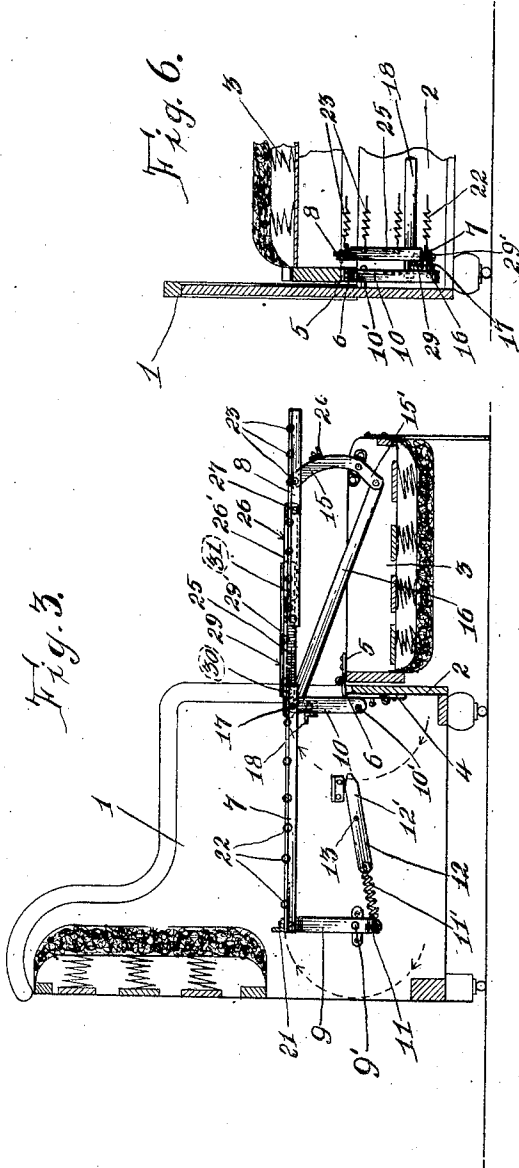


Fig. 3.

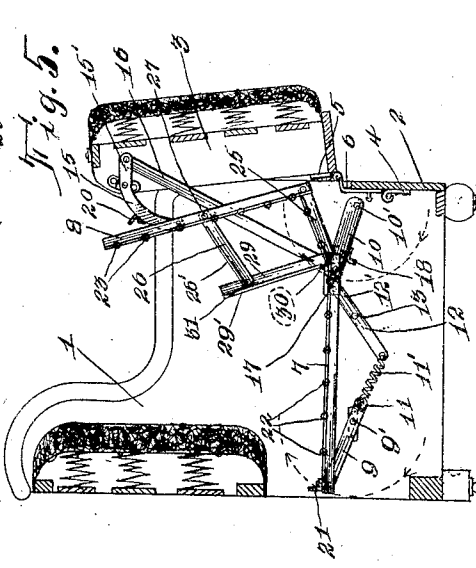


Fig. 5.

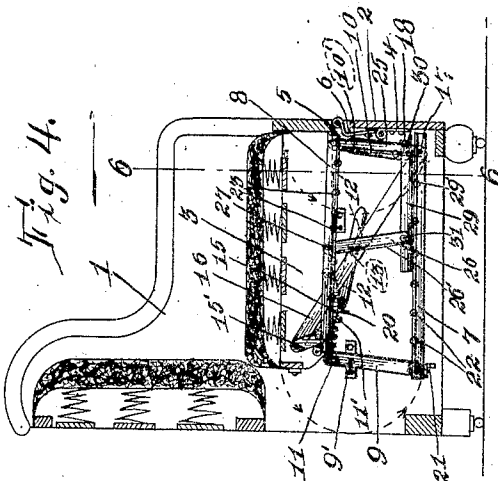


Fig. 4.

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UNITED STATES PATENT OFFICE.

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CONVERTIBLE SOFA.

1,058,934.

Specification of Letters Patent.

Patented Apr. 15, 1913.

Application filed March 13, 1911. Serial No. 614,041.

To all whom it may concern:

Be it known that I, FRITZ L. ANDREN, a citizen of the United States, residing at the city of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Convertible Sofas, of which the following is a specification.

My invention relates to those combination articles of furniture in which a sofa having a fully upholstered seat may be converted into a bed equipped with a separate and complete set of springs.

By applying the principles of my invention the bed-frame, together with the springs, mattress and bedding may be folded and lowered into the body of the sofa under the upholstered seat. This is done by the movement of the seat itself, and in like manner the movement of the seat in the other direction raises the said bed into position for use. When the bed is in use the sofa seat is reversed under the bed-frame. The construction is simple and inexpensive. A device is provided which, when the movable parts are actuated in either direction, the initial movement is aided and the final movement retarded.

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

Figure 1 shows a cross section of one form of my device looking from the center toward the end when opened to be used as a bed; Fig. 2 is a similar view of the same when folded for use as a sofa. Fig. 3 is a view similar to Fig. 1 of a modified form of the apparatus. Fig. 4 is a view of the modified form when folded for use as a sofa. Fig. 5 shows the modified form partly opened; Fig. 6 is a cross section on line 6—6 of Fig. 4.

In describing this invention it is to be assumed that the cross sectional end views represent one end of the piece of furniture, the other end having a duplicate construction, and the movable parts of the two ends being framed together by connecting bars as indicated.

Further describing my invention with reference to the drawings, in which like figures of reference denote like parts throughout: 1 represents the end of the body portion of a sofa of substantial construction. 2 represents the front or finishing piece of the same. To the latter the seat portion 3 is pivoted by a hinge which consists of a strap 4 attached

to the front piece of the sofa body, a similar strap 5 attached to the corresponding finishing piece of the sofa seat, and the two attached by a connecting piece 6 provided with loops through which pintles are passed to engage with said straps and form a hinge with a double joint. The frame-work of the bed includes end rails 7 supported by the stationary portion of the sofa, and 8 attached to the swinging or seat portion. The rail 7 is supported in the position shown in Fig. 1 by crank levers 9 and 10 which are pivoted at their upper ends to the rail and at their lower ends to the sofa body. The crank lever 9 is extended downwardly from the lower pivot to form a short arm 11, to which is attached a spring 11' connected with the shift lever 12 pivoted to the sofa body at 13. The end rail 8 is pivotally attached in a manner similar to that already described by means of the crank levers 14 and 15 to the inside of the seat portion of the sofa. Crank lever 14 has a lower arm 14' which at the point of greatest extension rests against a stop 14". The crank lever 15 has a short arm 15' and a connecting rod 16 is pivotally attached to the lower extremity thereof at one end, while the other end has a similar pivotal attachment at the point 17 at which crank lever 10 is attached to the end rail 7. Longitudinal bars 18, 19, 20 and 21 connect the construction thus shown to the similar construction which is mounted within the other end of the sofa, and on the frames thus formed and attached to the end rails are stretched spring mattresses which may be of the woven wire type or of wire mesh having their ends provided with the spiral springs 22, 23.

When the parts described are in the position shown in Fig. 1 and the outer portion of the swinging portion is lifted, the spring 11' being under tension and acting through the crank lever 9, the end rail 7, and the connecting rod 16, aids in the initial portion of the lift. The apparatus on the stationary portion begins to revolve on the pivots 9, 10' under the tension of the spring and later under the influence of gravity until the swinging portion is nearly vertical. At this point the end rail 8 will drop from its own weight, folding itself on the swinging part as shown in Fig. 2. At about this point the end of the connecting rod 16 will strike the

short end 12' of the lever 12 and turn it on the pivot 13 until it takes the position in which it appears in Fig. 2, at which position the spring is in such relation to the short arm 11 of lever 9 that the tension thereof will be exerted to retard the movement of end rail 7 and the connected parts as the whole swings into the position shown in Fig. 2. It will be observed that the double joint hinge provided at the upper part for folding the sofa seat proper and the lower joint thereof permits the seat with its attached apparatus to swing in until the front or finishing piece, both of the seat and of the stationary portion, are in line.

In the modified form shown on Sheet 2 the parts are hinged together and the construction of the devices in the stationary part of the couch are precisely as described, so also the end rail 8, the crank lever 15 and the connecting rod 16. The second crank lever however, may be dispensed with on the movable part of the couch, and the end rails 7 and 8 are pivotally connected by a bridge piece 25 at their adjacent ends. The ends of the woven wire or other mattress are attached to this bridge piece. The rigid alinement of the end rails 7 and 8, and the bridge piece 25 is effected by means of the member 26 pivotally attached at 27 to the end rail 8 and the members 29 pivotally attached at 30 to the end of the bridge piece 25. Member 26 has a right angle flange 26' and member 29 has a right angle flange 29'. The two are pivoted together at 31. When the bed sections are extended as in Fig. 1 flange 26' rests upon the top of the end rail 8. Flange 29' rests upon the top of the bridge piece 25 and also upon the flange 26'. It will be noted that the members 26 and 29 pivoted together as shown form a toggle joint which, when extended, holds the end rails and the connecting bridge piece 25 in rigid alinement.

When this device is folded the end rails as shown in Fig. 4 are spaced from each other by the length of the bridge piece 25 and the member 26.

In both forms of the device it will be seen that the action of the hinge connecting the two parts is the same, viz., that when the parts are folded together the front finished pieces of the movable and stationary parts of the sofa are in alinement. When opened the faces of these two pieces are out of contact by the swinging of the hinge on the lower pintle. That this may be positive a cam device is provided on the lower part of the crank lever 10 by setting the lower pivot 10' close to the end and to the inner edge of the same. When the crank lever is turned to the horizontal position, the sofa portion being perpendicular, the hinge will be freed and then permitted to swing inwardly as shown in Figs. 5 and 2; when extended so that the sofa portion approaches the horizontal and

the crank lever approaches the vertical, the hinge will be forced out by the cam as shown in Fig. 1 so that the two finished pieces of the front will be out of contact.

I claim:

1. In a convertible article of furniture, a stationary part, a bed section pivotally secured thereto at each end by a plurality of crank levers, a movable part hinged to the stationary part, a bed section pivotally attached to the movable part by a plurality of crank levers, and a rod to connect one of the crank levers on the stationary part to one of the crank levers on the movable part.

2. In a convertible article of furniture, a stationary part, a bed section pivotally secured thereto at each end by a plurality of crank levers, a movable part hinged to the stationary part, a bed section, means for pivotally attaching said section to the movable part, said attaching means including a lever bar having a dependent end, and a rod to connect the dependent end of said lever bar to the bed section on the said stationary part.

3. In a convertible article of furniture, a stationary part, a bed section pivotally secured thereto at each end by a plurality of crank levers, a movable part hinged to the stationary part, a bed section, means for pivotally attaching said section to the movable part, said attaching means including a lever bar having a dependent end, and a rod to connect the dependent end of said lever bar to the swinging end of one of the crank levers on said stationary part.

4. In a convertible article of furniture having a stationary and movable part, a bed section pivotally secured to each end of the stationary part by a plurality of crank levers, a second bed section pivotally connected to the movable part, a bridge piece to connect the two bed sections, a toggle joint pivotally connected to said bridge piece and the bed section, and provided with a portion adapted to engage the same on the upper edges thereof.

5. In a convertible article of furniture having a stationary and movable part, a bed section pivotally secured to each end of the stationary part by a plurality of crank levers, a second bed section pivotally connected with the movable part by a crank lever having a long and a short arm, a bridge piece to connect the two bed sections, a device to hold the said bed sections in continuous relation to each other, and a rod pivotally secured to the first bed section and to the short arm of said crank lever on the said movable part.

6. In a convertible article of furniture; the combination of a stationary part, a bed member movable thereon, a movable part, a hinge with a plurality of knuckles severally attached to the said parts, a connecting mem-

ber having a right angle bend pivoted at its ends to the ends of said knuckles, and means actuated by the bed member whereby when said movable part is reversed the hinge is swung outwardly to extend the said movable part.

7. In a convertible article of furniture; the combination of a stationary part, a bed member movable thereon, a movable part, a hinge with a plurality of knuckles severally attached to the said parts, a connecting member having its ends pivoted to the ends of said knuckles and a cam device actuated by the bed member whereby said movable part when reversed is given positive lateral movement.

8. In an article of furniture having stationary and movable parts pivotally attached to each other; the combination thereof with of a bed section a plurality of crank levers, one of the same having a long and a short arm whereby said bed section is pivotally movable on the stationary part, means for connecting the bed section to the movable part, and a spring device mounted on

said stationary part and attached to the short arm of said crank lever shiftable by said bed section.

9. In an article of furniture having stationary and movable parts pivotally attached to each other; the combination thereof with of a bed section on the movable part, a bed section on the stationary part, means for pivotally attaching the said section to said stationary part said means including a crank having a long and a short arm, an elastic device on the stationary part and connected to the short arm of the crank, means actuated by the movable part to shift the spring device relatively to the said short arm, and a rod to connect the said bed sections with each other.

In witness whereof, I have hereunto set my hand, this 4th day of March A. D. 1911, in the presence of two subscribing witnesses.

FRITZ L. ANDREN.

Witnesses:

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