

S. KARPEN.
SOFA BED.
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948,396.

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Fig. 1.

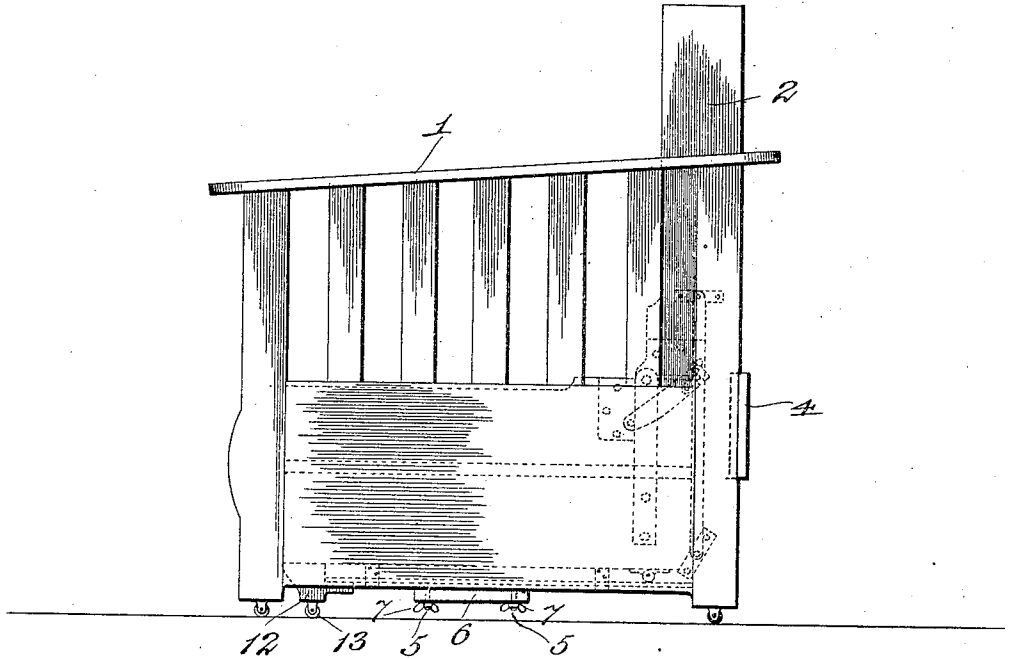


Fig. 2.

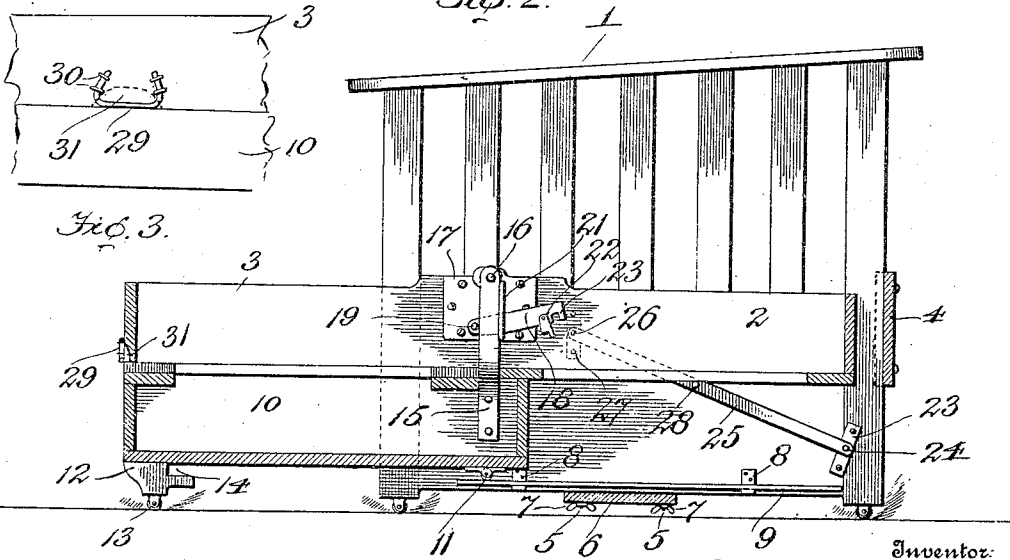


Fig. 3.

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SOFA-BED.

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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 Sofa-Bed, of which the following is a specification.

This invention relates to improvements in that class of sofa-beds termed "davenport," and has particular reference to that species or style thereof known as "automatic," a term employed in the trade to denote a sofa-bed in which the seat and back of the device can be arranged in bed-form upon the sofa-frame without the necessity of first moving the latter away from the wall adjacent which the sofa may be located, for the purpose of permitting the back to lower, and in which the back does not extend beyond the back of the frame or base of the structure when said back is so lowered into bed-form.

While, as before stated, the improvements comprising the present invention primarily relate to the "automatic" class of sofa-beds, yet, as will hereinafter appear, the invention is equally applicable to what is commonly termed in the trade as "half-automatic" sofa-beds, so that I do not wish to be understood as limiting the invention to the style of sofa-bed in connection with which it is described and illustrated, it being understood, furthermore, that the only difference between the "automatic" and the "half-automatic" styles of beds is that in the former the seat and back, when lowered into bed-form, project forwardly a sufficient distance to prevent the back from projecting or extending in rear of the frame of the structure, whereas, in the latter style, the back and seat extend beyond the back and front respectively, of the said frame. In the one case, therefore, the sofa must first be moved from the wall to permit the lowering of the back, and in the other instance no such preliminary operation is necessary.

The various objects of the invention, together with the novel features thereof will hereinafter appear in the following description and be particularly pointed out in the claims.

Referring to the drawing—Figure 1 is an end elevation of a sofa-bed embodying my improvements, the device being illustrated

in sofa-form and the parts located between the ends being shown in dotted lines. Fig. 2 is a vertical transverse sectional view, the device being illustrated in bed-form. Fig. 3 is a fragmentary detail hereinafter referred to.

Similar numerals of reference refer to similar parts in all figures of the drawing.

I have illustrated my invention in connection with the conventional style of sofa-bed frame, in so far, as the same comprises, the opposite end-pieces 1, back 2, and seat 3. At their rear edges, the two end-pieces 1 are connected by a rear connecting-piece 4, the ends of which are secured to the end-pieces in any suitable manner, as by screws, as shown.

In order to firmly brace the end-pieces, the rear connecting-piece 4, may have its ends recessed (see dotted lines) so as to both abut against the end-pieces and overlap the same. The bottom or lower edges of the two end-pieces are preferably provided each with a pair of depending bolts 5, and the latter project through suitable holes formed in the ends of a lower connecting-piece 6, beyond which latter the bolts may be provided with wing-nuts 7. The frame thus described, it will be seen, is securely braced, and yet may be shipped in knock-down shape, to set the same up merely requiring the application of the two connecting-pieces 4 and 6.

Along the inner side of each of the end-pieces 1, and secured to the lower rail thereof, preferably by means of L-shaped hangers 8, is a track 9, horizontally disposed and extending from near the rear to near the front edge of the end-piece. Adapted to move back and forth above the tracks 9, is a base 10, of box-like construction, and intended, as is usual, for the reception of bedding or other articles. At each of the two rear corners of the movable base referred to, is located a caster or roller 11, the latter designed to ride upon the subjacent track and thus support the rear end of the base movably upon the track. Each of the two front corners of the base 10 is provided with a foot 12, the rear edge of which may be recessed as at 14, to receive the front end of the adjacent track 9 when said base is in its rearmost position. A caster or roller 13, is located in each of the aforesaid feet 12, and rests upon the floor, as do the lower ends of

the end-posts of the end-pieces 1. It will thus be observed that while the rear end or back of the base 10 is supported movably upon the tracks 9, the front end thereof is similarly supported upon the floor.

Bolted securely to the inner sides of the end-walls of the movable base 10 and near the rear thereof, is a pair of vertical standards 15, which rise above said base a sufficient distance for connection at their upper ends to the transverse pintles 16, of a pair of hinge-sections 17. The hinges formed by the sections 17 are of the style known as "automatic", and besides the sections referred to, include a notched latch 18, pivoted at one end, as at 19, to one of the sections 17, and having its opposite end overlying the companion hinge-section and notched, as at 20, to engage a bail or stud 21, when the hinge-sections are swung to substantially a right angle. The latch also carries a releasing-dog 22, designed to coöperate with the bail or stud to release the latch from the latter when the hinge-sections assume a lesser angle. This construction and operation of hinge is so well-known in relation to this class of inventions as not to require any further mention. The hinges mentioned are employed to connect the meeting ends of the seat and back-sections at their adjacent corners, whereby, as will be apparent, the seat may be raised and lowered independent of the back, to give access to the base, and also, the back locked at an angle to the seat to convert the device into sofa-form. By the arrangement shown, it will be seen that the seat is at all times, that is, whether in sofa or bed-form, supported by the box-like base, while the back is supported at its front end by the box-like base only when it is in its lowered or bed-form.

To a plate 23, secured to each of the end-pieces 1, near their rear lower corners, is pivoted, as at 24, throw-bars 25, the opposite or upper ends of the bars being similarly pivoted, as at 26, to similar plates 27, secured to the outer faces of the end-pieces of the back 2. These throw-bars serve to project the base, seat and back under certain conditions hereinafter explained, and also to limit the forward movements of these parts as well as to guide, turn, and support the back during its movements. Projecting inwardly from each of the two throw-bars 25, is a supporting-stud or pin 28, the same being so located with relation to the back and seat as to be in line with the upper edge of the latter when the back is lowered, and hence constituting a support for the rear end of the back when the latter is lowered into the same plane as the seat.

This completes the construction of the invention and the operation may be briefly described as follows: Taking the parts in the position illustrated in Fig. 1, the operation

of converting the device from a sofa to a bed necessitates merely that the seat be raised so as to start the back to lower or cause it to advance a slight distance beyond a vertical line drawn through the lower pivotal point 24 of the throw-bars 25. When this has been accomplished, the weight of the back acting on the front ends of the throw-bars, causes the latter to advance the back and with it the seat and base, so that when the back has been wholly lowered to a horizontal position, as shown in Fig. 2, the seat will be in a vertical position or still at right angle to the back. By a slightly backward movement of the seat, the automatic releasing-dog 22 serves to release the latch 18 from the stud or staple 21, and thus the seat and back become unlocked and the former may be lowered into the same plane as the back, all as illustrated in said Fig. 2. To convert the device from a bed to a sofa, simply necessitates re-elevating the seat until it and the back become locked as before, then lowering the seat, which causes the back to re-elevate. In this operation the throw-bars 25 act to guide the back to its vertical position and at the same time serves to draw the base and seat backward, the seat regaining its horizontal position by the time the back has reached its vertical position.

The front cross-piece of the seat may be provided with any suitable form of handle for facilitating its manipulation. In this instance, as an example of a very inexpensive style of handle, I employ a bail 29 of heavy wire, securing the same in position upon the front and near the lower edge of the seat, by means of a series of staples 30. Back of the bail, I recess the lower edge of the cross-piece of the seat, as shown by dotted lines, Fig. 3, and indicated at 31. This handle can be readily grasped and is not in sight, being covered by the usual sofa covering material.

Having described my invention, what I claim is:

1. In a sofa-bed, the combination, of opposite ends, a seat and back hinged together and movable between the ends, means for supporting the seat and front end of the back when lowered, a pair of throw-bars pivoted at their lower ends to a stationary part of the frame and at their upper ends to the back, and means carried by the throw-bars for supporting the rear end of the back when the latter is lowered.

2. In a sofa-bed, the combination, of a frame, horizontal tracks arranged therein, a seat supported for movement on the tracks, a back hinged to the seat, a pair of throw-bars pivoted to the frame in rear of the seat and at their upper ends pivoted to the back, and means carried by the throw-bars for supporting the back when the latter is lowered.

3. In a sofa-bed, the combination, of a frame, a seat and a back hinged together and mounted for movement in said frame, a pair of throw-bars for advancing the seat and back pivoted at their lower ends to the frame and at their upper ends to the back, and studs projecting from an intermediate portion of the throw-bars for supporting the rear end of the back when lowered, substantially as shown and described.

4. In a sofa-bed, the combination, of a frame, a movable back and seat hinged together and mounted in the frame, means for guiding and advancing the seat and back as the latter is lowered, and means for supporting the back when lowered, said back supporting-means being thrown into and out of operative position by the seat and back advancing-means.

5. In a sofa-bed, the combination, of a frame, a base slidably mounted therein, standards secured to and rising from the base near the rear end of the latter, a seat and a back located at opposite sides of the standards, hinges connecting the back and seat and having their pintles connected to said standards, the front end of the back when in a horizontal position being supported by the base, and means for supporting the rear end of the back, said means being automatically projected into its supporting position by the movement of the back.

6. In a sofa-bed, the combination, of a frame, horizontal tracks located therein, a base located above the tracks and partly supported thereby and in advance thereof having rollers, a pair of standards secured to and rising from the base a short distance from the rear corners thereof, a seat and back hinged together and to the upper ends of the standards, and means for guiding the back during its movements and for supporting the rear end of the back when lowered.

7. In a sofa-bed, the combination, of a frame, a pair of horizontal tracks supported by the frame, a base having rollers at its rear corners adapted to move over the tracks and extending at its front beyond the tracks and provided with feet having rollers located in the same plane with the feet of the

frame, standards secured to and rising from the base a short distance from the rear end thereof, a seat mounted on the base, a back hinged to the seat and to the standards, and means for guiding and advancing the back as the same is lowered, and means for supporting the rear end of the back when it is so lowered.

8. In a sofa-bed, the combination of, a frame, horizontal tracks secured to the end-pieces thereof and terminating short of their front edges, a movable base provided with rear rollers mounted on the tracks and having its front end projecting therebeyond, feet at the front end of the base, said feet being recessed to receive and abut against the ends of the tracks, rollers for the feet, a pair of standards rising from the base, a back and seat carried by the base, hinges connecting the seat and back and having their pintles connected to the standards, and means for guiding the back when raised and lowered and for advancing the same with the seat and base during such lowering movement of the back.

9. In a sofa-bed, the combination, of a frame, hangers depending from the end-pieces thereof, horizontal tracks located on the hangers and terminating in rear of the front edges of the end-pieces, a box-like base located above the tracks and provided with rollers at its rear corners moving over the tracks and at its front end beyond the tracks having rollers, vertical standards carried by the base, a seat and a back above the base, hinges connecting the seat and back and having their pintles connected to the standards, and opposite throw-bars pivoted at their lower ends to the end-pieces and at their upper ends to the side-walls of the back, and provided with studs projecting into the path of the back and adapted to support the same when the back is lowered.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SOLOMON KARPEN.

Witnesses:

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