

J. SCHWENNESEN.

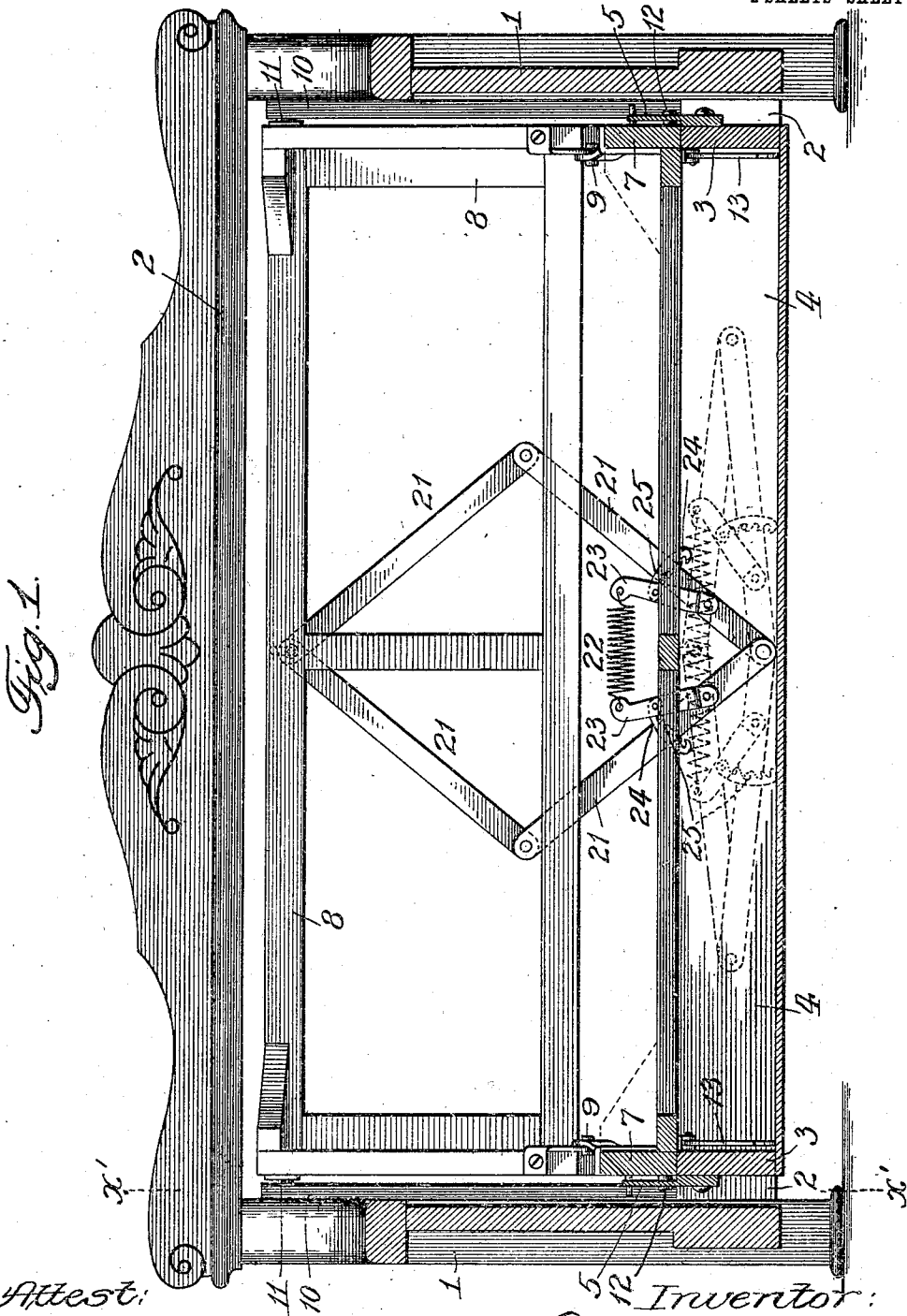
SOFA BED.

APPLICATION FILED OCT. 29, 1909.

956,190.

Patented Apr. 26, 1910.

2 SHEETS—SHEET 1.



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John Enders
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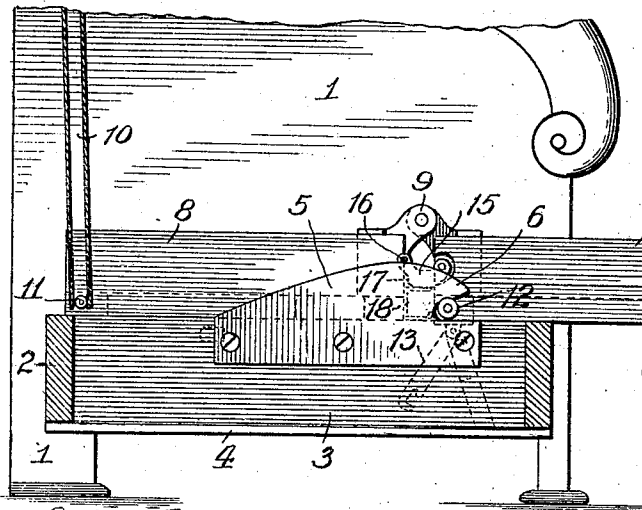
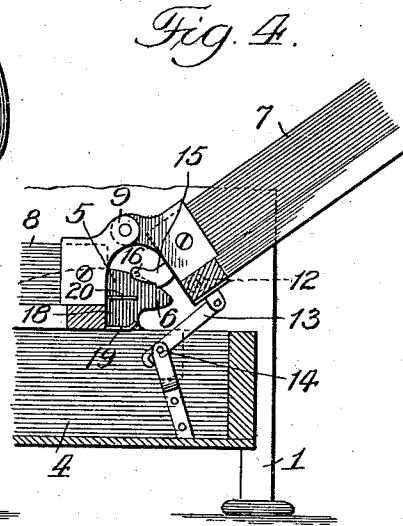
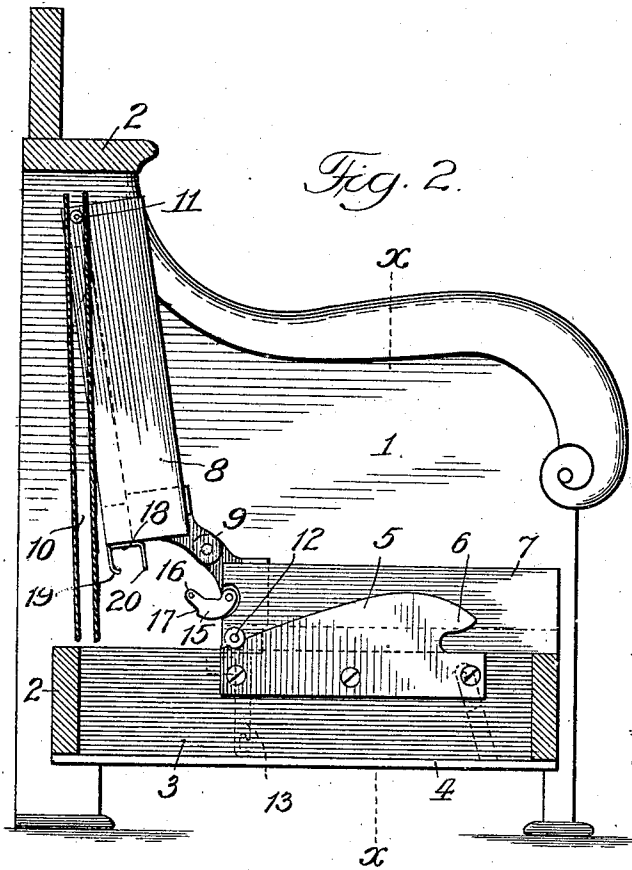


Fig. 3.

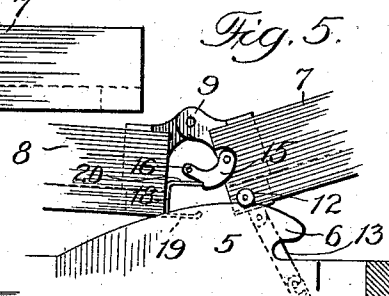


Fig. 5.

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UNITED STATES PATENT OFFICE.

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SOFA-BED.

956,190.

Specification of Letters Patent.

Patented Apr. 26, 1910.

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To all whom it may concern:

Be it known that I, JACOB SCHWENNESEN, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sofa-Beds, of which the following is a specification.

This invention relates to that class of sofa beds in which the seat and back frames or sections are pivotally connected together and have movement upon a stationary main frame or housing, so as to be brought into a horizontal position to constitute a bed. And the present improvement has for its object to provide a simple and efficient structural arrangement and combination of parts whereby the seat and back frames or bed sections are automatically locked in their open condition as the same are shifted to form a bed surface, and with which the easy and convenient opening and closing movements of said sections, on the part of the operator, are attained in a ready and certain manner, all as will hereinafter more fully appear.

In the accompanying drawing:—Figure 1, is a longitudinal sectional elevation on line $x-x$, Fig. 2, is a transverse sectional elevation on line $x'-x'$, Fig. 1, showing the parts in a sofa position. Fig. 3, is a similar view of the parts in a bed position. Fig. 4, is a detail transverse section showing the parts in an intermediate position during the operation of returning the parts from a bed to a sofa position. Fig. 5, is a similar view of the parts in the next succeeding step.

Similar numerals of reference indicate like parts in the several views.

Referring to the drawings, 1 represents upright end members fixedly connected together by longitudinal members 2, to constitute the usual stationary supporting frame or housing of a sofa bed.

3 are transverse boards arranged in adjacent and parallel relation to the aforesaid end members 1, to constitute the ends of a receptacle 4 in the lower portion of the supporting housing for the bed clothes. Arranged as described the upper surfaces of said transverse boards provide slideways and rests upon which the connected bed sections hereinafter described have movement and are supported.

5 are lifting rails secured to the sides of the aforesaid transverse boards, and formed with curved upper surfaces which project above said boards, and with overhanging forward portions 6, for uses hereinafter stated.

7 is the seat frame or bed section adapted for transverse movement in the main housing and preferably upon the top surfaces of the boards 3, as shown.

8 is the movable back frame or bed section connected at its lower end to the aforesaid seat frame 7, by hinges 9, and having engagement at its upper ends with upright guide tracks 10 on the main housing, preferably by means of track rollers 11 as shown.

12, are track wheels secured to the ends of the seat frame 7 near its inner side and having engagement with the aforesaid lifting rails 5, and adapted in connection therewith to impose an upward tilting movement to the outer side of the seat frame 7, in the operation of drawing said frame outward to form a bed, and as hereinafter more fully set forth in the operation of the mechanism.

13, are depending fulcrum arms pivotally attached to the under side of the seat frame 7, and near the inner side of the same as shown. Said fulcrum arms are of a hook shape at their free ends for intermittent engagement with the fulcrum pins 14 attached to the main housing and for uses hereinafter set forth in the operation of the mechanism.

15 are pawls pivoted to the seat frame 7 near the inner side of the same. Said pawls are provided at their free ends with lateral pins 16 adapted to ride upon the lifting rails 5 aforesaid, and are formed with intermediate notches 17, adapted to engage the hereinafter described projecting fingers on the movable back frame aforesaid.

18 are stop pieces secured to the lower end of the movable back frame 8, and preferably of the channel form shown, to provide lower stop fingers 19 for abutment against the inner side of the seat frame 7, and an upper projecting finger 20 for engagement with the intermediate notches 17 of the pawls 15, aforesaid.

21 are opposed pairs of toggle links, arranged in the diamond form shown, and pivoted at their upper ends to the movable back frame 8, and at their lower ends to the main supporting housing.

22 is a spring arranged between the lower

opposed toggle links, and preferably connected thereto by the tension adjusting means now to be described.

23 are links pivoted at one end to the toggle links aforesaid, and connected at their other ends to the respective ends of the spring 22, aforesaid.

24 are ratchet segments pivoted to the links 23 and engaging pins 25 on the toggle links, to afford a stop adjustment, for varying the tension of the spring 22. The described construction is adapted to afford a very effective counterbalance for the weight of the movable back frame 8, and render easy the operation of changing the parts from a sofa to a bed position and vice versa.

The operation of the present mechanism is as follows:—With the seat and movable back frames in the sofa position illustrated in Fig. 2, the operator pulls the seat frame 7 outward, and during such movement, the movable back frame 8 gradually moves into a horizontal position, and its downward and outward movement is controlled by the upright tracks 10 and track rollers 11 before described. In said outward movement of said frames, the lifting rails 5, through track wheels 12, impose an upward tilt to the outer side of the seat frame 7, until the same nears its fully out position, when said track wheels 12 drop from the forward overhanging portion 6 of said rails, to a position underneath said overhanging portions, as illustrated in Fig. 3, to lock the seat frame 7 against any rocking movement on the main housing, and thus maintain the seat frame and back frame in a very effective manner in the bed forming position of the parts. With the seat and movable back frames in the bed position just described, and as illustrated in Fig. 3, the operator lifts the forward side of the seat frame 7 until the hook shape ends of the fulcrum arms 13 are brought into engagement with the fulcrum pins 14, after which said forward side of the seat frame is tilted downward, with the fulcrum pins 14 as a fulcrum upon which such tilting movement of the seat frame takes place. In the described tilting movement the notches 17 of the pawls 15 engage the projecting fingers 20 on the movable back frame 8, as illustrated in Fig. 5, to impose an initial upward movement upon the inner side of the same, and a corresponding initial upward movement of the track wheel 11 upon the upright tracks 10, the operator then pushes the seat frame inward until the same and the movable back member reaches the sofa position first described.

With the present construction the seat frame 7, while in a sofa position, can be tilted up independently of the other parts to afford access to the bed clothes in the receptacle 4, aforesaid.

Having thus fully described my said invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a sofa bed, the combination of a main supporting housing, a pair of bed frames hinged together and having shifting movement in said housing, lifting rails carried by the main housing and having overhanging forward ends, and track wheels on one of the bed frames engaging said lifting rails, substantially as set forth.

2. In a sofa bed, the combination of a main supporting housing, having upright and horizontal tracks, a pair of bed frames hinged together and having movement on said tracks, lifting rails carried by the main housing and having overhanging forward ends, and track wheels on one of the bed frames engaging said lifting rails, substantially as set forth.

3. In a sofa bed, the combination of a main supporting housing, a pair of bed frames hinged together and having shifting movement in said housing, lifting rails carried by the main housing and having overhanging forward end track wheels on one of the bed frames engaging said lifting rails, a depending fulcrum pivoted to said bed frame and having a hook shaped free end, and a fulcrum pin on the main housing for intermittent engagement with said fulcrum arm, substantially as set forth.

4. In a sofa bed, the combination of a main supporting housing, a pair of bed frames hinged together and having shifting movement in said housing, lifting rails carried by the main housing and having overhanging forward ends, pawls pivoted to one of the bed frames, and fingers on the other bed frame for engagement with said pawls, substantially as set forth.

5. In a sofa bed, the combination of a main supporting housing, a pair of bed frames hinged together and having shifting movement in said housing, lifting rails carried by the main housing and having overhanging forward ends, track wheels on one of the bed frames engaging said lifting rails, a depending fulcrum arm pivoted to said bed frame and having a hook shape free end, a fulcrum pin on the main housing for intermittent engagement with said fulcrum arm, pawls pivoted to one of the bed frames, and fingers on the other bed frame for engagement with said pawls, substantially as set forth.

6. In a sofa bed, the combination of a main supporting housing having upright and horizontal tracks, a pair of bed frames hinged together and having movement on said tracks, lifting rails carried by the main housing and having overhanging forward ends, track wheels on one of the bed frames engaging said lifting rails, and means for

counterbalancing the weight of the rear-most of the bed frames, substantially as set forth.

5 7. In a sofa bed, the combination of a main supporting housing having upright and horizontal tracks, a pair of bed frames hinged together and having movement on said tracks, lifting rails carried by the main housing and having overhanging forward ends, track wheels on one of the bed frames engaging said lifting rails, and means for counterbalancing the weight of the rearmost of the bed frames the same comprising a pair of opposed toggle links connected at 10 their upper ends to said bed frame and at the lower ends to the main housing, and a spring connected at its respective ends to opposed toggle links, substantially as set forth.

20 8. In a sofa bed, the combination of a main supporting housing having upright and horizontal tracks, a pair of bed frames

hinged together and having movement on said tracks, lifting rails carried by the main housing and having overhanging forward ends, track wheels on one of the bed frames engaging said lifting rails, and means for counterbalancing the weight of the rearmost of the bed frames, the same comprising a pair of opposed toggle links connected at 25 their upper ends to said bed frame and at their lower ends to the main housing, pairs of links pivoted at one end to opposed toggle links, a spring connected to the other end of said links, and ratchet sectors and pins for effecting an adjustment of said links and spring, substantially as set forth. 30 35

Signed at Chicago, Illinois, this 25th day of October 1909.

JACOB SCHWENNESEN.

Witnesses:

JNO. J. HORGER,
ROBERT BURNS.