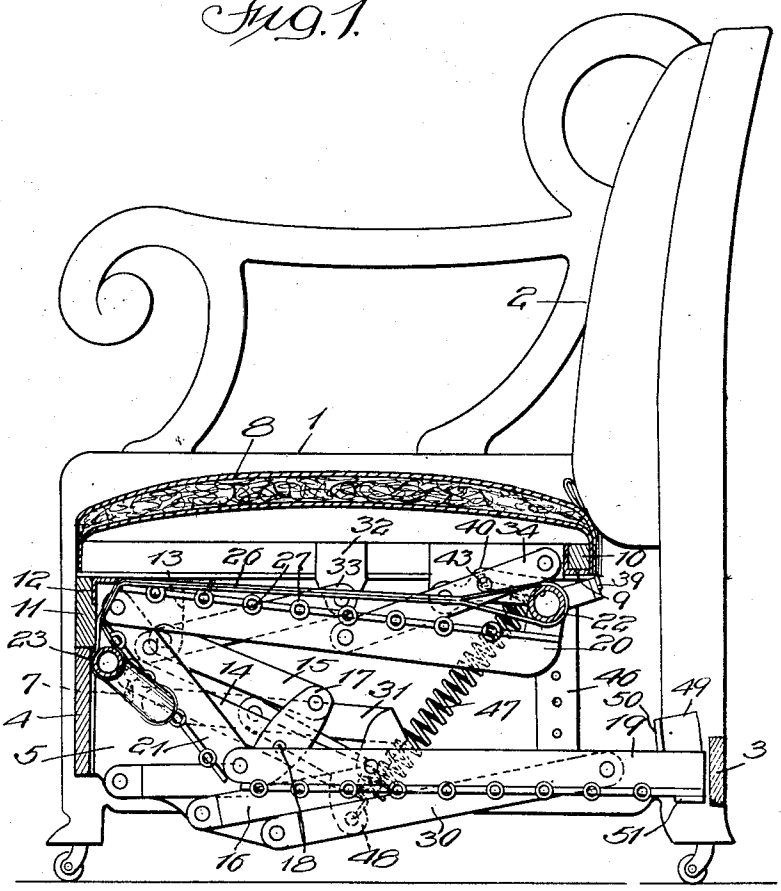
July 3, 1928. 1,675,883

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BED DAVENPORT

Filed Nov. 15, 1920 4 Sheets-Sheet 1

Fig. 1.




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Filed Nov. 15, 1920 4 Sheets-Sheet 2

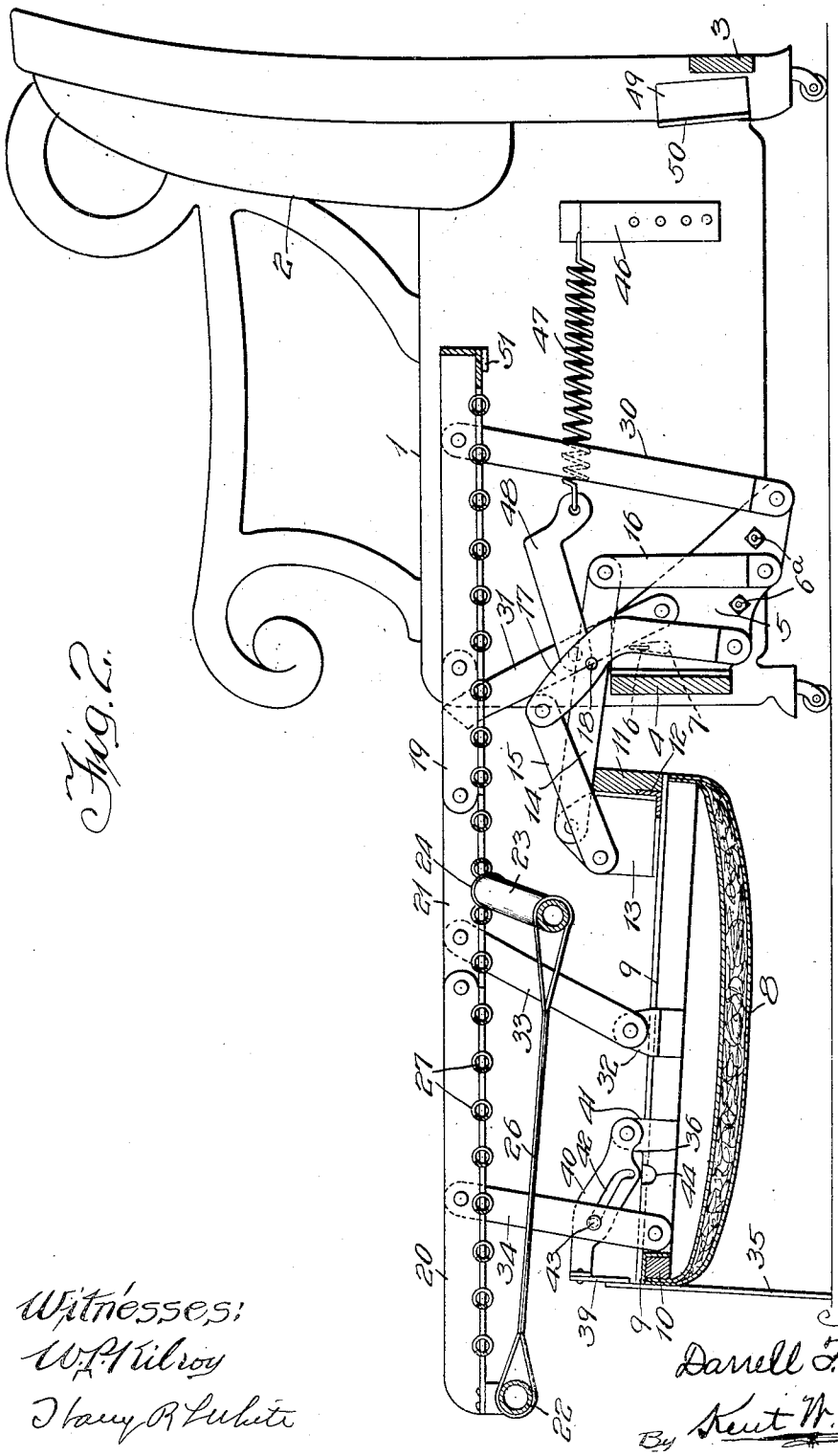


Fig. 2.

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Filed Nov. 15, 1920 4 Sheets-Sheet 3

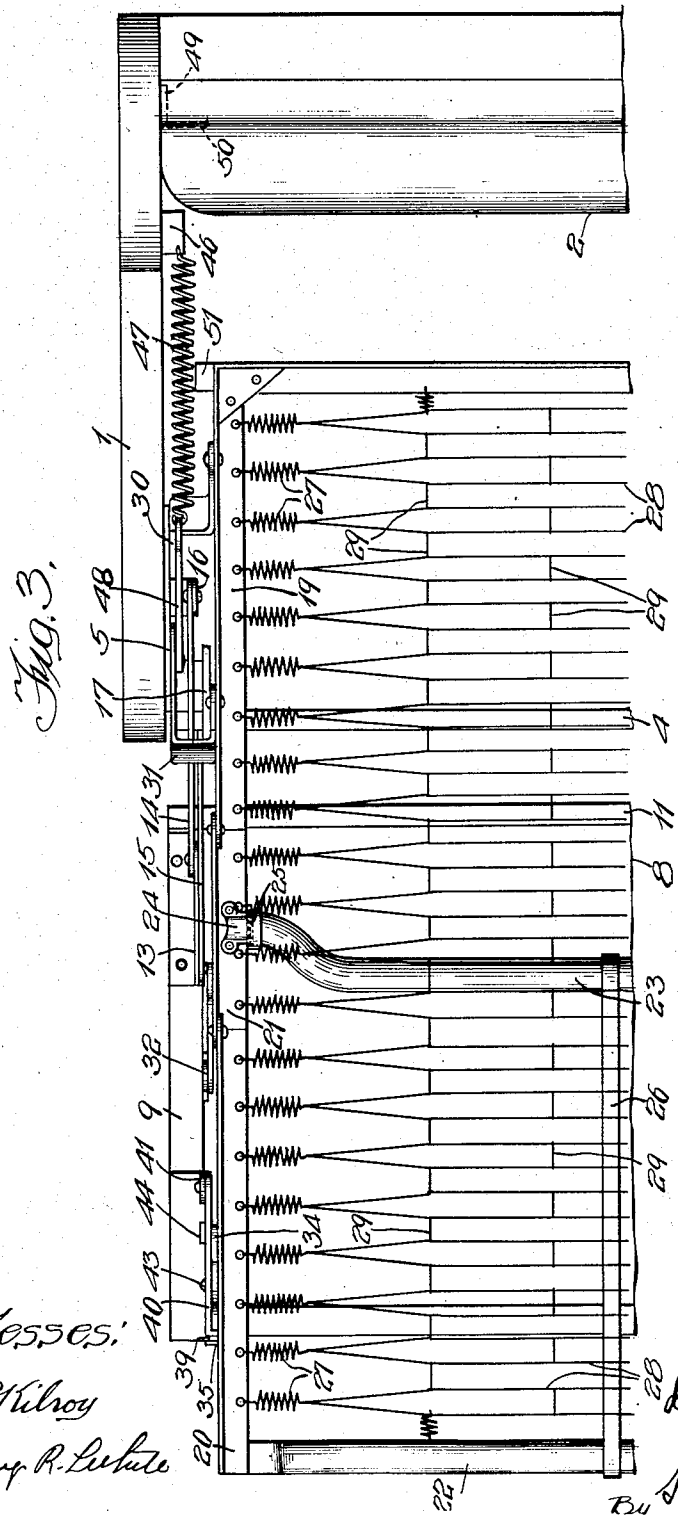


Fig. 3.

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BED DAVENPORT

Filed Nov. 15, 1920 4 Sheets-Sheet 4

Fig. 4.

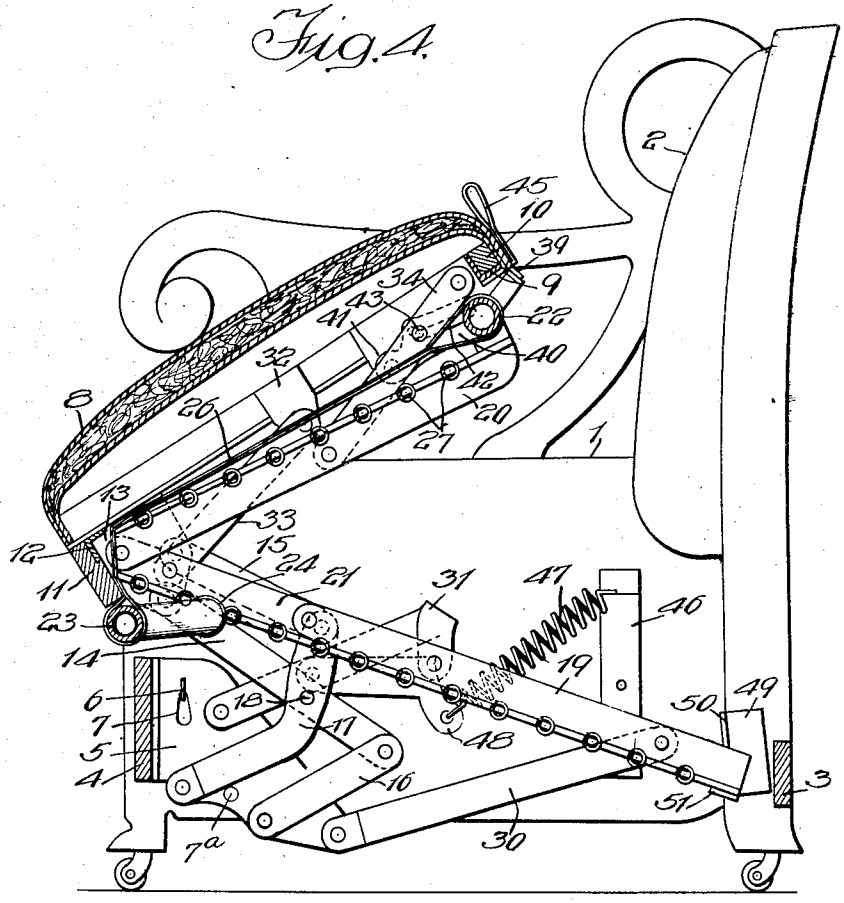



Fig. 5.

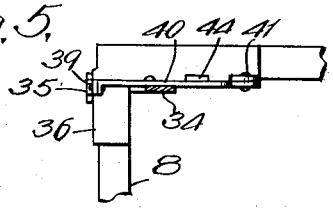
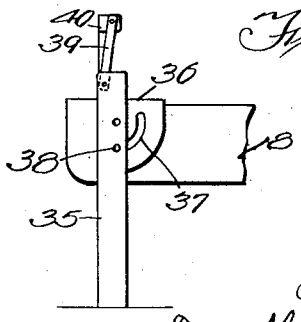



Fig. 6.




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Patented July 3, 1928. 1,675,883

# UNITED STATES PATENT OFFICE.

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## BED DAVENPORT.

Application filed November 15, 1920. Serial No. 424,113.

This invention relates to a bed davenport in which the seat is overturned forwardly carrying with it a sectional bed bottom foldable under the seat and extended by the overturning thereof into a horizontal position above the seat.

Among the principal objects of the present invention are: to provide a well balanced construction which is easily operated in folding or unfolding the bed sections; to make a compact construction which will be low and comfortable; to provide a frame which will permit of a seat with a soft edge; to so position and proportion the parts that a fixed back can be employed; to simplify the supporting parts for the bed sections; to provide a folding leg support which is automatically operated in overturning the seat, and in general, to produce the construction herein shown and described. The invention consists in the novel construction, combination and arrangement of the several parts.

In the accompanying drawings, Fig. 1 is an end elevation, partly in section, of an article of furniture constructed in accordance with the principles of this invention, in position for use as a davenport; Fig. 2 shows the device extended in bed form; Fig. 3 is a plan view, showing one end of the bed davenport; Fig. 4 illustrates the construction in an intermediate position; and Figs. 5 and 6 illustrate the leg folding construction.

One of the objections to bed davenports has been that they were not satisfactory for use with a stationary back, and therefore, that the back could not be satisfactorily upholstered or permanently connected to the davenport ends, and that the newer types of canebacks and ends could not be used. Another objection to this type of bed has been that the supports for the different sections and for the seat hinge were connected separately at different points on the inside of the davenport ends. The present invention overcomes these difficulties and many others, by mounting the seat hinge and certain of the bed section supports upon the same plate and by swinging the bed sections further forwardly so that they are clear of the back in open position, but so that the seat fits tightly against the back when it is closed.

Referring now more particularly to the drawings, the ends 1, only one of which is shown, are connected by a back 2 which may be either fixed or movable, and by one or more cross boards 3 at the rear. The ends are also connected at the front of the davenport frame by means of a front board 4 attached at each end to a supporting plate 5 formed with a pointed recess 7 by means of which it is suspended from a hook 6 projecting inwardly from the davenport end 1. One or more fastening bolts $6^a$ are commonly inserted through each end 1 and corresponding holes $7^a$ in the plate 5. Thus a strong supporting frame is provided which is not likely to become wabbly in use, as the ends are strongly braced against relative movement.

An upholstered seat 8 is pivotally mounted or hinged upon the supporting plate 5 by means of a double link construction at each end, so that it is swung forwardly in advance of the front board 5 when it is invented, but the front edge of the seat is flush with the front board when it is returned within the frame. The seat preferably comprises a frame 9 of angle iron which is disposed with one open side outwardly to afford a seat for a strip 10 of wood or other suitable material fastened thereto at each side and end of the frame so that the upholstering of the seat may be attached thereto. At the front side of the seat is a board 11 which is aligned with the front board 4 when the seat is within the frame, as shown in Fig. 1, and this board 11 is braced and attached to the frame 9 by means of an angle iron strip 12 forming a part of the frame. By constructing the seat frame of angle iron in this manner, the maximum space is left or provided for the upholstering of the seat to give it a so-called soft edge all around.

At each end of the seat frame adjacent the front board 11 is a bracket 13 which is also attached to the frame and to the board 11, and pivoted to this bracket at some distance apart are links 14 and 15. The first link 14 is connected by means of a link 16 to the lower portion of the supporting plate 5 at some distance from the front board 4, and the other link 15 is connected by means of a curved link 17 with the same plate 5, but at a point nearer the lower edge of the front board 4. The links 14 and 17 are also connected to each other by a pivot 18 so that the seat is hinged at each end to the

front of the davenport frame in such a manner that the front board 14 is not engaged, the hinges are invisible when the seat is closed, and the seat is offset forwardly by the hinging construction.

The sectional bed bottom consists of three sections, a back section 19, a front section 20, and an intermediate section 21. These sections are connected together for pivotal movement in the ordinary manner, and the front section preferably has a tubular brace 22 offset and flattened at its ends and connected to the side rails of the front section. The ends of a U-shaped truss tube 23 are mounted in brackets 24 attached to the end pieces of the intermediate section, with an anti-friction bearing 25 to facilitate the rotation of this truss tube. A strap or connection 26 may be provided connecting the intermediate portion of the tubes 23 and 22 to prevent the truss tube 23 from assuming a position where it will turn the wrong way or engage the front board 4 when the bed sections are folded.

Connected to the various bed sections is a bed fabric comprising helical springs 27, a continuous wire 28 connected thereto and held in position by the spacers 29. This fabric tends to pull the frame inwardly and the truss tube 23 is provided for bracing the sides apart. When a considerable weight is applied to the fabric, a great compression is applied at the ends of the tube 23 and the anti-friction bearing 25 greatly increases the ease with which the tube may be turned and whereby the sections may be folded and unfolded.

In order to support the bed sections, a link 30 is connected at one end to the innermost and lowermost extension of the plate 5, and at the other end to the side of the rear section 19 adjacent its rear end. Another link 31 is connected at one end to the plate 5 adjacent its top and at the other end to the front portion of the rear bed section 19. Attached to the underside of the seat and to the intermediate portion of each end piece thereof, is a bracket 32 in which one end of a link 33 is pivoted, the other end being connected to the intermediate bed section 21 adjacent the front side thereof. The outermost section 20 is supported by a single link 34 at each side, the link being connected to the underside of the seat frame adjacent the outermost end thereof when in the position shown by Fig. 2. It will be seen therefore that two of the bed sections are supported from the underside of the seat by links which incline inwardly and the innermost bed section is supported from the plate 5 by two links at each side which are inclined in opposite directions when the bed is in its open position.

In order to support the free edge of the seat, a leg 35 is pivoted eccentrically at each end of the seat to a corner bracket 36 provided with a guide slot 37 into which extends a projection 38 from the leg 35. A link 39 connects the upper end of each leg with the free end of a lever 40, the other end of which is pivoted on a lug 41 projecting upwardly from the corner bracket 36. In this lever 40 is a slot 42 to receive a pin 43 projecting from the link 34, and the adjacent edge of the corner frame is provided with a notch 44 to seat the head of the pin 43 when the lever is folded down thus folding the leg 35. It will be seen that as the seat 8 is raised or lowered, the bed sections will be moved relatively thereto and the supporting link 34 for the outermost bed section will cause the movement of the leg operating lever 40 by the engagement of its pin 43 in the slot 42. The slot 42 is so made that the leg 35 which it controls will be folded at or before the time that the seat reaches a position as shown by Fig. 4, and the leg will not be unfolded, when the seat is overturned forwardly, until the seat is moved outwardly beyond this position. This insures that the supporting legs 35 will be folded before the seat is closed against the back 2. A strap loop 45 is commonly provided at the inner edge of the seat which may be grasped in opening it.

A support 46 is attached to the inner side of each davenport end and it has a projecting ledge to engage and uphold the seat in its closed position. In order to assist in raising and lowering the bed bottom, a spring 47 is attached at one end to the support 46 and at the other end to a link 48 which is pivoted intermediate the ends of the link 31. The corresponding ends of either one or both of the links 48 and 31 are offset or bent so that when the bed sections are folded, the link 48 is movable alongside link 31 taking the position shown in Fig. 1, so that both in this position and in that shown in Fig. 2, the spring 47 is under tension, thereby tending to assist in opening and inclosing the bed and acting as a counterweight for the seat itself, as the seat holds the sections open and the engagement of the seat with the back 2, together with its weight, holds the parts in their closed position.

At the rear inside edge of each end frame 1 is a bracket 49 which may be made of angle iron with one edge 50 thereof projecting in a substantially upright direction and adapted to engage a lug 51 extending laterally from the rear end of the rear bed section 19. When the bed sections are folded, these lugs 51 engage the edges 50 and lodge underneath them to prevent this side of the rear bed section from rising before the front side thereof in unfolding the bed. This will be more apparent from Fig. 1, as the spring 47 is under tension when the seat is closed in

the frame, and if the seat is first raised a little bit, the spring would tend to raise the innermost or rear end of the inner section 19; but this would prevent the proper unfolding of the sections, and it would then be necessary to raise the innermost end of the bed section 19 with a very short leverage which would make it heavy and hard to open. The edge 50 is therefore provided to engage this innermost end of the inner bed section so that the initial raising of the seat allows the rear bed section to raise only until the lugs 51 engage the edges 50 whereupon the springs 47 straighten out or aline the two bed sections 19 and 21, as illustrated in Fig. 4, and the further movement of the seat in overturning simply draws these two sections outwardly by swinging them about the plates 5 using the leverage in its double link hinges in raising the front side of the intermediate section, and in drawing the inner section upwardly after it until all the sections are in horizontal alinement.

In the closing operation this action is reversed, the outer bed section 20 folding over leaving the other two sections 19 and 21 in alinement until the seat is nearly closed at which time the alinement of the two sections is broken, and when the seat is closed, they take the position shown by Fig. 1 in which the inner end of the inner section 19 is engaged by the edge 50 of the support 49. The absence of frictional engagement and the balancing of the parts produce a structure which is easily folded and unfolded. There are four supporting links at each end of the bed for the bed bottom sections, and as the frame, the supporting plates 5, the bed bottom sections, and all of the supporting links are of metal, the connections and distance apart of the connections are fixed, so there is no occasion for the parts to become improperly connected or dislocated. The parts once properly set are always in the same position and there is no chance for connecting or spacing the bed section supporting member wrong distances apart. This eliminates much labor and trouble in setting up the fixtures as the metal parts are usually placed in position after the frame parts are fitted and assembled.

The single spring 47 on each side assists not only in opening the bed but also in closing it and it cushions the return of the sections within the frame. As the truss bar 23 is mounted on antifriction bearings it does not oppose the folding or unfolding operation, and the opening and closing action is therefore very simple and easy. The engagement of the rear of the seat 8 with the back 2 may assist in holding the seat in place when it is closed.

I claim

1. In a bed davenport, a frame including a fixed front board, a plurality of foldable bed sections, a supporting plate at each end of the frame behind the front board extending neither above nor below the board immediately at the back thereof but extending rearwardly and downwardly therefrom, links connecting some of the sections to the seat, hinging links pivoted in the downwardly extending plate portion behind and below the front board to swing the seat forwardly and support it adjacent the frame, a holding support for the outer side of the seat when it is inverted, operated by the movement of the outer links which connect one of the sections to the seat, and other links also pivoted in the downwardly extending plate portion for swingingly mounting the rear bed section in the frame, the plates constituting the sole support in the frame for the seat and the bed sections.

2. In a bed davenport, a frame, an invertible seat, a plate attached to the frame at each end thereof, a hinge construction attached to each plate for invertibly mounting the seat in the frame, a three section pivotally connected bed bottom, a pair of links pivotally connected to each plate and directly pivoted to the corresponding end of the rear bed section and extending divergently at their upper ends when the sections are unfolded, and a separate link pivoted at each end of the other bed sections pivotally connected to the underside of the seat and inclined inwardly toward the frame at their upper extremities.

3. In a bed davenport, a frame, a plate at each end of the frame, an invertible seat including a hinge construction at each end attached to the plates, a plurality of pivotally connected bed sections, pivoted supporting links therefor attached only to the underside of the seat and to the plates at each end of the frame, and means to assist in folding and unfolding the bed sections, said means comprising a spring connected at one end in the frame and having connection at the other end with one of the section supporting links so that the two rear bed sections are alined when the seat is partially raised and remain so until it is returned into the frame.

4. In a bed davenport, a frame, a plurality of pivotally connected bed sections foldable in the frame, a single plate at each end of the frame, means for invertibly mounting the seat and for foldably connecting the bed sections to the seat and to said plates, and a spring adapted to raise the pivotally connected end of the innermost bed section so that pivotally connected ends of the innermost bed sections will be in alinement as soon as the seat is raised a predetermined amount in unfolding the bed sections and before it is wholly inverted.

5. In a bed davenport, a frame, a single supporting plate at each end of the frame, a foot board fixed at the front of the frame,

a seat invertibly hinged on the plates to swing forwardly free of the foot board when it is inverted, a plurality of pivotally connected bed sections, a depending truss bar pivoted at its ends to an intermediate relatively movable bed section, means for spacing the truss bar relatively to one of the other bed sections in folding and unfolding, links for supporting the bed sections from the seat and from the plates at the ends of the frame, and a spring at each end of the frame connected to one of said links for alining the innermost bed section and the section to which the truss is pivoted in opening and closing the sections, whereupon the spacing means will hold the truss bar clear of the upper edge of the front board in folding and unfolding the edge.

6. In a bed davenport, a frame, a plurality of pivotally connected bed sections, means at each end of the frame for invertibly mounting the seat and for swingingly mounting the bed sections therein, a member projecting inwardly from the frame at each lower rear edge thereof, means projecting from each end of the innermost bed section adapted to engage below the corresponding member, and a spring connected to the innermost bed section and adapted to raise the outer side of this section in unfolding, the innermost end of the section being engaged below the projecting member until this bed section is turned outwardly by the inversion of the seat.

7. In a bed davenport, a frame, a plurality of connected bed sections, a seat invertibly hinged in the frame and supported at its inner edge by the hinge when inverted, means including a plurality of links for supporting the bed sections from the frame and from the seat, a pair of supporting links each pivoted at the outer side of the seat and having a slotted operating member at right angles thereto at the end of the seat, and a projection from one of the links engageable in said slot for folding the leg when the bed sections are moved relatively to the seat at the folding movement thereof.

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