A. C. KLOPPING.

SOFA BED.

APPLICATION FILED JAN. 10, 1911.

993,691.

Patented May 30, 1911.

4 SHEETS—SHEET 1.

Fig. 1.

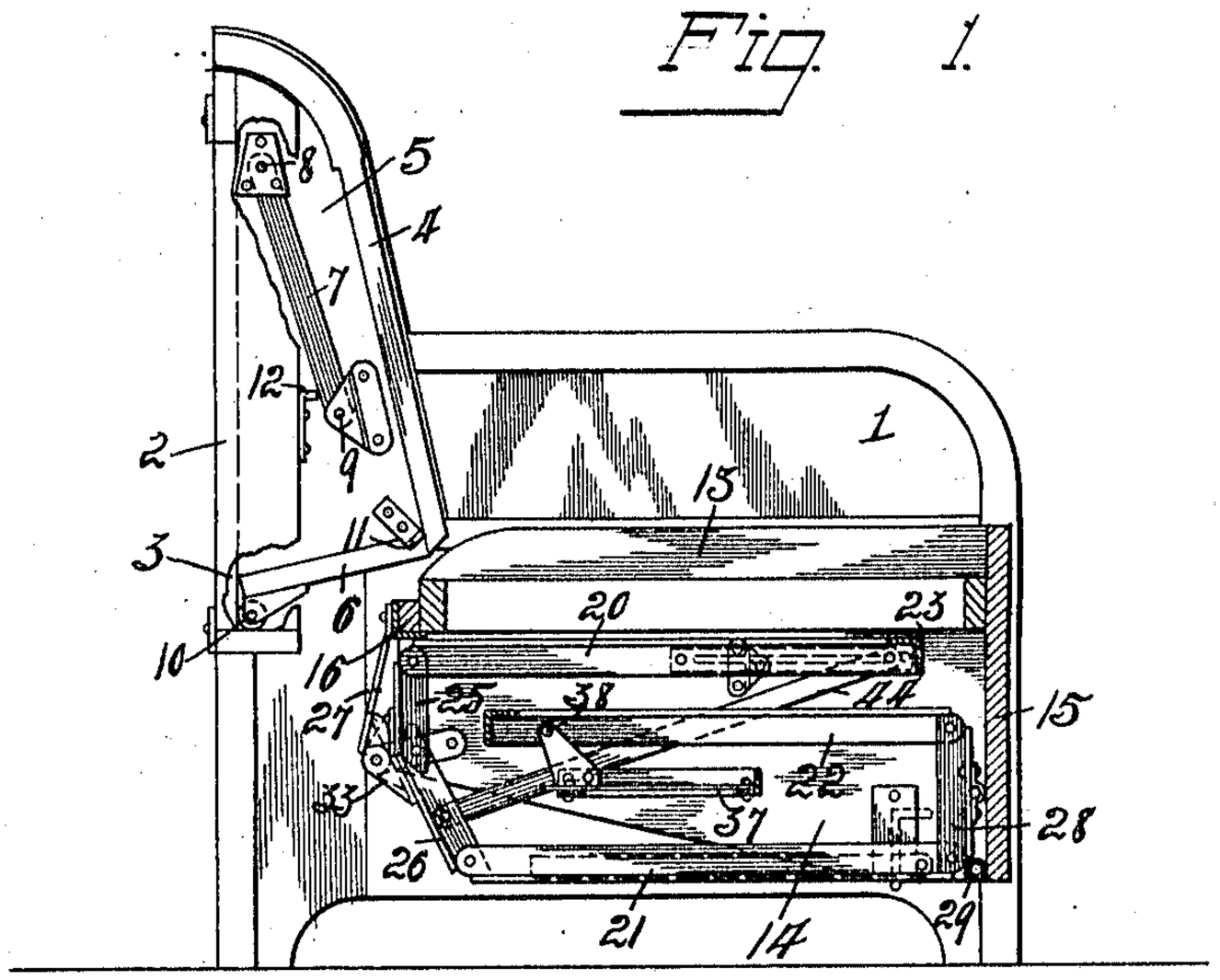
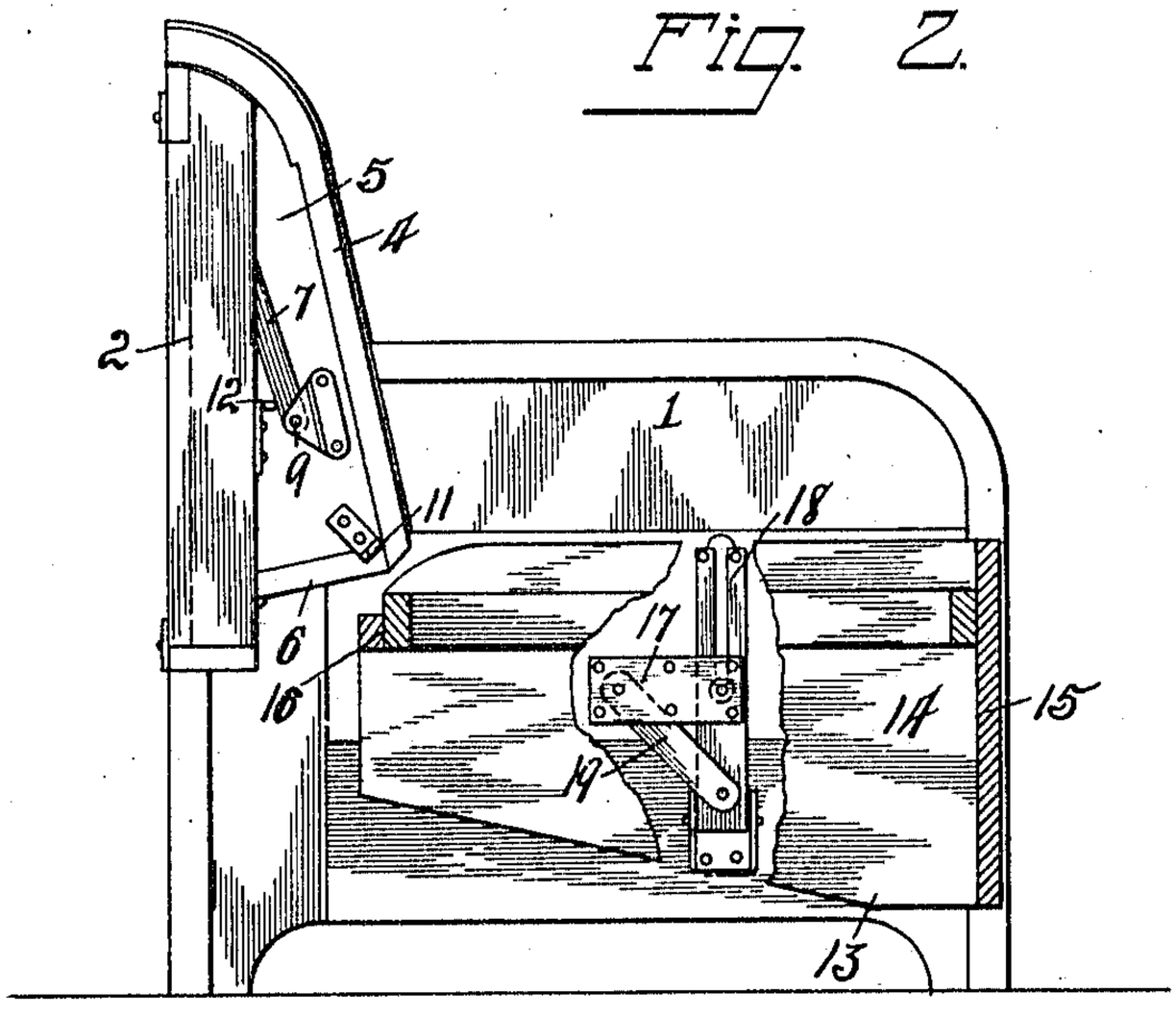


Fig. 2.



WITNESSES:

C. H. Bills.

G. Gaskell.

INVENTOR.

Adolph C. Klopping.

By Owen & Owen,

His attys.

A. C. KLOPPING.

SOFA BED.

APPLICATION FILED JAN. 19, 1911.

993,691. **Patented May 30, 1911.**

4 SHEETS—SHEET 2.

Fig. 4.

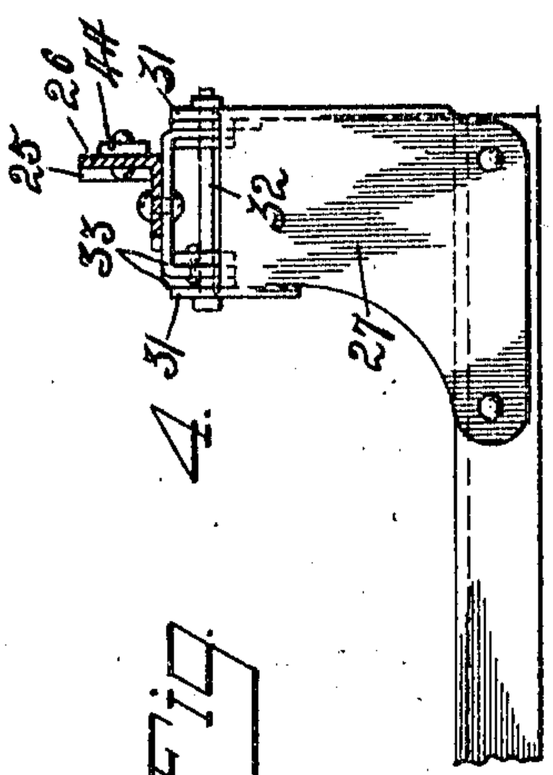


Fig. 3.

Fig. 2.

WITNESSES.

G. H. Bills.

G. Gaskell.

INVENTOR.

Adolph C. Klopping

By Owen & Owen,

His attys.

A. C. KLOPPING.

SOFA BED.

APPLICATION FILED JAN. 19, 1911.

993,691.

Patented May 30, 1911.

4 SHEETS—SHEET 3.

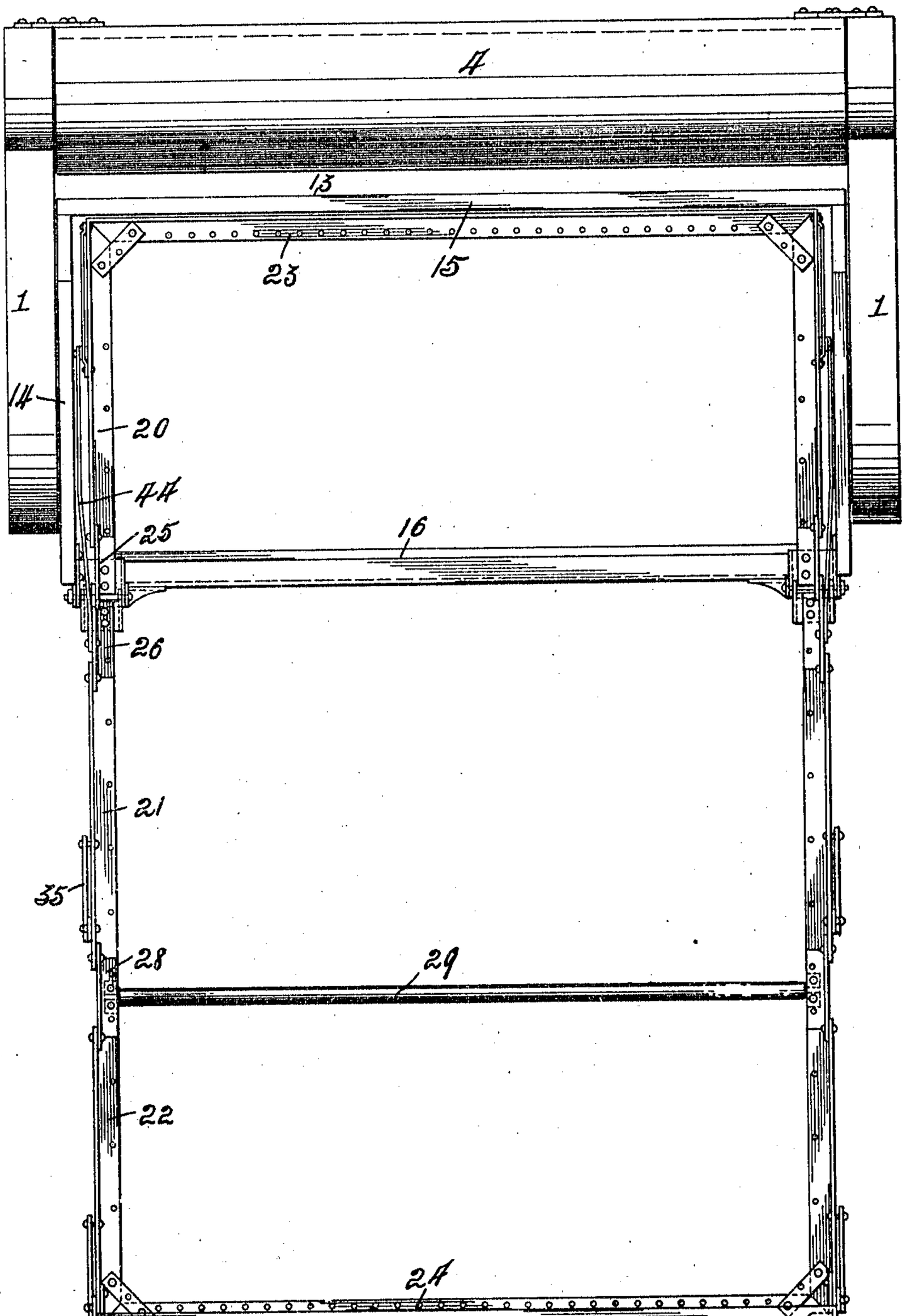


Fig. 5.

WITNESSES

C. H. Bills.

S. Gaskell.

INVENTOR.

Adolph C. Klopping,

By Owen & Owen,

His attys.

A. C. KLOPPING.

SOFA BED.

APPLICATION FILED JAN. 19, 1911.

993,691.

Patented May 30, 1911.

4 SHEETS—SHEET 4.

Fig. 6.

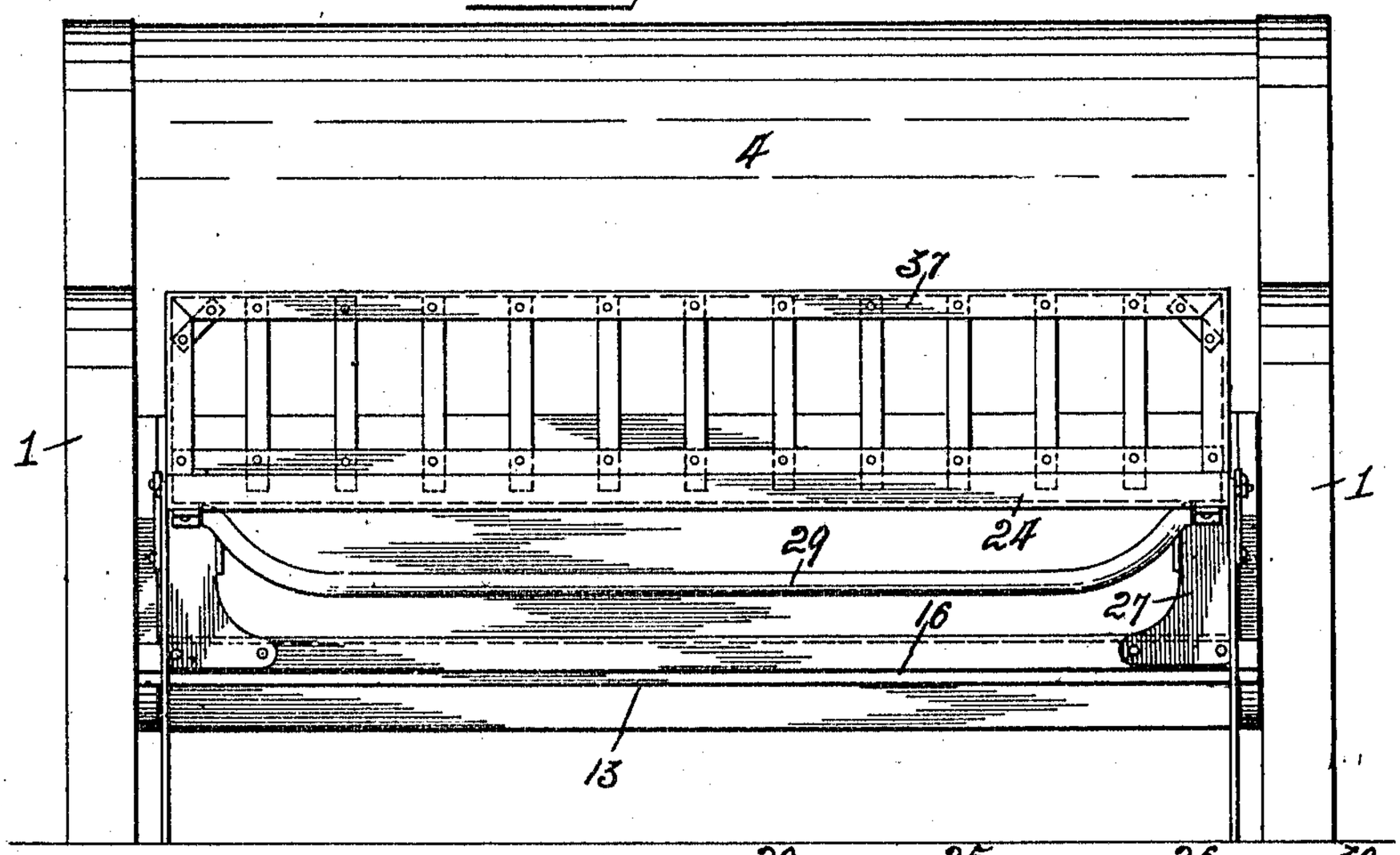
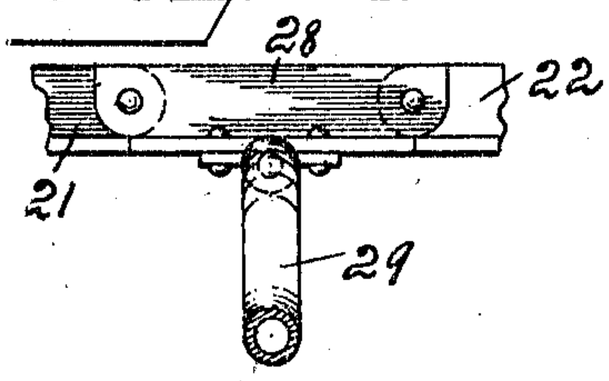


Fig. 7.



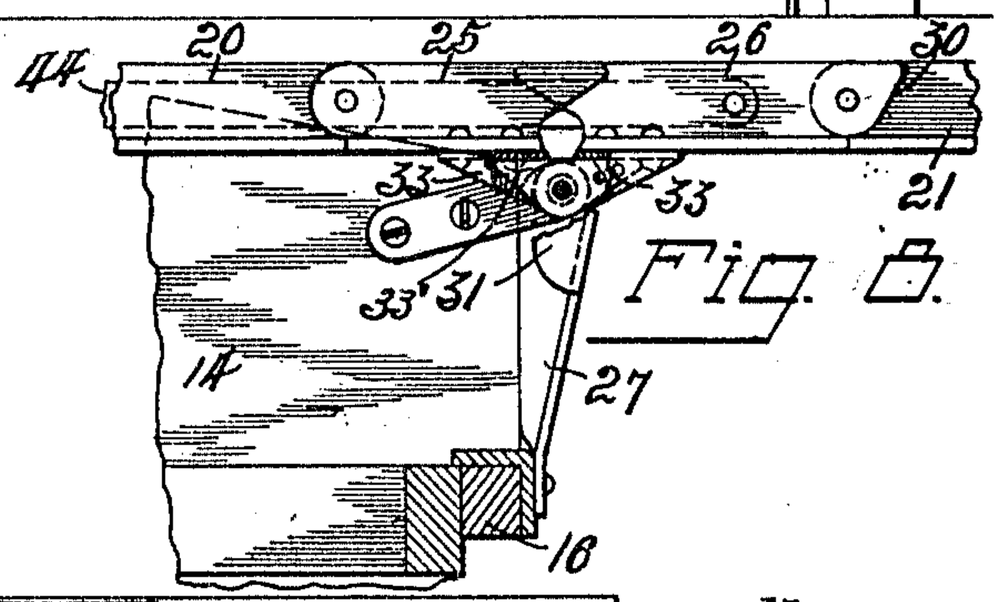
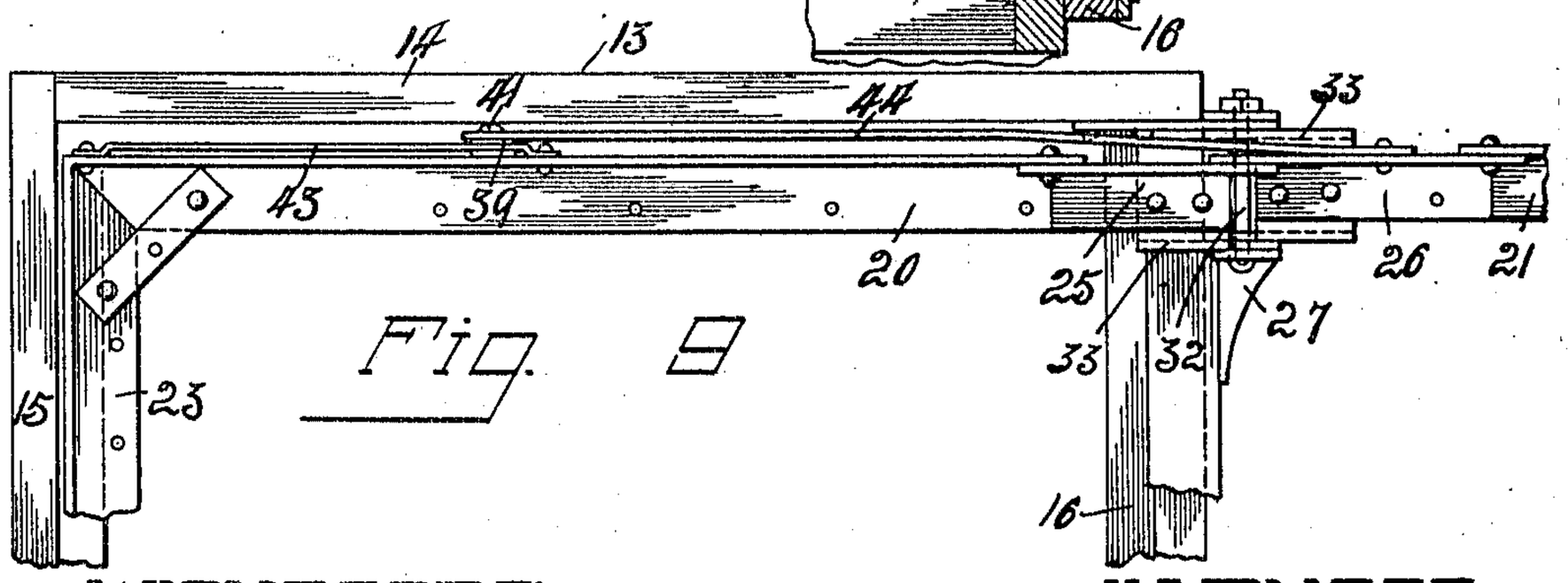


Fig. 8.



WITNESSES:

C. H. Bills.

G. Gaskell.

INVENTOR.

Adolph C. Klopping.

By Owen & Owen,

His attys.

UNITED STATES PATENT OFFICE.

ADOLPH C. KLOPPING, OF TOLEDO, OHIO, ASSIGNOR OF ONE-HALF TO THE TOLEDO PARLOR FURNITURE COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

SOFA-BED.

993,691. Specification of Letters Patent. Patented May 30, 1911.

Application filed January 19, 1911. Serial No. 603,574.

To all whom it may concern:

Be it known that I, ADOLPH C. KLOPPING, a citizen of the United States, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Sofa-Bed; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates particularly to sofa or davenport beds of the type in which the seat thereof is reversible and carries a bed-frame which can be compactly folded therein when not in use, or unfolded therefrom in the form of a bed. With the articles of this class heretofore constructed, so far as I am aware, the bed frames extend longitudinally of the sofa or davenport frame, thus requiring a space at least six feet long to accommodate such piece of furniture. For this reason the sale of sofa-beds has been largely restricted, as in numerous cases the lack of sufficient space prevents the use and sale thereof, such being particularly the case in flats or apartment houses.

The object of my invention is the provision of a simple, efficient and economically constructed bed of this character, the bed frame of which is so constructed as to adapt it for lengthwise instead of transverse folding within the seat frame, thus enabling the sofa or davenport frame to be shortened to substantially the width of the bed-frame, and effecting a saving of about two feet in the length thereof.

A further object of my invention is the provision in a davenport of this class, of a box-back having a front part which is so constructed and mounted as to enable it to be opened to a greater extent without interference on the part of the seat than has been possible with the box or storage backs heretofore used, thus facilitating the depositing of articles in or removal of the same from the back and enhancing the practicability and commercial value thereof.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which,—

Figure 1 is a vertical cross-section of a sofa frame, seat and bed-frame, with parts of the sofa frame broken away and the bed frame folded under the seat. Fig. 2 is a similar view thereof with the bed-frame removed and an end of the seat frame partly broken away. Fig. 3 is a similar view with the sofa frame back open, the seat frame inverted and the bed frame unfolded, with parts broken away. Fig. 4 is an enlarged section on the line x x in Fig. 3. Fig. 5 is a plan of the article with the bed frame open or unfolded. Fig. 6 is a front end view thereof. Figs. 7 and 8 are different enlarged details of the bed-frame, and Fig. 9 is an enlarged plan of a portion of one side of the bed-frame and associated end of the seat-frame.

Referring to the drawings, 1, 1 designate the opposite ends of a sofa or davenport frame, the back of which is of hollow construction and comprises the back frame 2, the rear side 3, and the box like front 4 which latter has the rearwardly projecting sides 5 and bottom piece 6, to provide a compartment for the storage of pillows, bedding or the like. The front 4 is adapted to open forwardly from the back, as shown in Fig. 3, and when in the closed position shown in Figs. 1 and 2 its upper edge curves over the top of the back-frame 2 and the rear edges of the parts 5 and 6 preferably rest against the part 3 of the back.

The front 4 is suspended for swinging opening and closing movements within the back-frame 2 by links 7, one at each end thereof, which links pivot at their upper ends to the inner sides of the frame 2 adjacent the top thereof, as at 8, Fig. 3, while their lower ends are pivoted to the front sides 5 above their lower ends, as at 9, Fig. 3. Upon a forward swinging of the upper portion of the front 4 its lower portion is caused to swing upwardly in sliding contact with the back piece 3. To facilitate this movement the rear edge of the part 6 of the front 4 is provided at its ends with anti-friction rolls 10 for contact with the back piece 3. The opening movements of the front 4 are limited by a stop-lug 11 at the

lower forward portion of each end thereof coacting with a stop-lug 12, which is secured to the frame 2 in suitable position for such purpose, as shown in Fig. 3. It is apparent that a hanging of the front 4 in this manner will enable it to open much farther than would be possible if it were hinged at its lower edge to the back-frame, as the pivotal point thereof is thus disposed above the seat-frame 13 and the upholstering thereof, so that such parts will not interfere with an opening of the front. This construction of front 4 also when open provides a box into which pillows, etc., may be deposited.

The seat frame 13 of the davenport comprises the opposite ends 14, the front-piece 15 and the rear piece 16, the back-piece being of much shallower form than the front piece 15 as shown. The seat frame is mounted for pivotal movements within the davenport frame, and for such purpose is shown in the present case as having plates 17 secured to each end thereof, each of which is provided with a stud adjacent one end for working in a vertical guide 18 secured to the associated davenport end 1, and having its opposite end connected by a link 19 to a pivot stud located below the lowest point of movement of the plate stud in the guide 18 as shown in Fig. 2. This form of tumbling means and its manner of operation is the same as that described in my former application Serial No. 572,233 filed July 16, 1910. The tumbling means for the seat frame form no part of my present invention, however, and may be of any suitable form.

The seat frame 13 carries the bed-frame which is shown as comprising the three major sections 20, 21 and 22 which are of substantially equal length and adapted to fold one over another within the seat frame, as indicated in Fig. 1, or to be opened out into horizontal alinement, as indicated in Figs. 3 and 5. The inner frame section 20 has the cross-bar 23 at its inner end, while the outer section 22 is provided at its outer end with the cross-bar 24. The side bars of the intermediate bed-frame section 21 are foldably connected at their inner ends to the outer ends of the side bars of the inner frame section 20 through the medium of the links 25 and 26, which links are pivoted at their inner or adjacent ends to a standard 27 rising rigidly from the associated end of the rear piece 16 of the seat frame, when such frame is in inverted position. The outer ends of the links 25 and 26 are pivoted, as indicated, to the respective ends of the bars of the bed-frame sections 20 and 21. The adjacent ends of the bars of the bed-frame sections 21 and 22 are pivotally connected by single links 28, which links are braced apart by a transverse brace-bar 29, that is bowed downwardly from adjacent one end to the other thereof, and has its ends pivoted in the lower central portions of the links 28 to fold therewith upon a folding of the bed-frame within the seat frame. The bars of the bed-frame sections and the connecting links are preferably of angle iron with the adjacent ends of the horizontal flanges thereof abutting when the frame is unfolded and with the vertical flanges thereof lapping each other and pivoted together as shown. The links 25 are adapted to fold to right-angle position relative to the brace 20, while the outer ends of the vertical flanges of the links 26 are cut as at 30 to coact with the horizontal flanges of the bars 21 when said links and bars have been folded to less than a right angled position relative to each other, as shown in Fig. 1. The ends of the vertical flanges of the links 28 lap within the adjacent ends of the frame bars 21 and 22 and are fashioned to permit a placing of the links 28 at right angles to both of the bars 21 and 22, as shown in Fig. 1.

The standards 27 are provided at their upper ends with laterally projecting apertured ears 31, 31 which provide bearings for a pivot bolt 32 to which the inner ends of the links 25 and 26 are pivoted through the medium of the inverted U-shaped brackets 33, one of which is secured to the inner end of each of such links, as shown. This manner of supporting the links 25 and 26 provides broadened bearings therefor to strengthen the same against lateral twisting movements which might be exerted thereon by strains applied to the bed-bottom fabric, which is intended to be attached to the horizontal flanges of the bed-frame bars. The brackets 33 which are attached to the links 26 have tongues 33′ projecting inwardly from the under sides thereof and coacting with the under sides of the other brackets 33 to limit the relative opening pivotal movements of the links 25 and 26, as is apparent.

A set of legs 34, which are adapted to support the bed-frame adjacent the links 28 are pivoted at their upper ends to the bars 21 and when set up are braced against folding movement relative to such bars by braces 35, as shown. A similar set of legs 36 supports the outer end of the frame and is braced in a manner similar to the legs 34.

37 designates a foot board or frame which is pivoted to the frame bars 22, as at 38, to adapt it to fold over the adjacent end of a mattress mounted on the bed frame and in parallel position with the bars 22.

The inner bed-frame section 20, when the bed-frame is open or in folded position, is supported at the sides thereof by links 39 which pivot at their lower ends, when the seat frame is in inverted position, to brackets 40 secured to the inner sides of the seat frame ends and have their upper ends pro-

vided with pivot studs 41 which project within guide slots 42 provided in bars 43, which bars are secured to the sides of the frame bars 20 adjacent the rear ends thereof as shown in Figs. 3 and 9. A bar or link 44 connects each of the bed-frame links 26 to the stud 41 of the adjacent link 39, whereby a folding movement of the links 26 will effect rearward movements of the links 39 relative to the bed-frame section 20, the studs 41 working in the guide-bars 43 during such movement, thus causing the bed-frame section 20 to lower within the seat frame into substantially parallel position with the reclining links 39 as indicated in Fig. 1. The connection of the bars 44 with the bed-frame links 26 is such that the lowering of the rear end of the bed-frame section 20, which is effected by the lowering movement of the links 39, will be proportionate to the lowering of the outer or pivot ends of such section, which is caused by the swinging of the links 25 into vertical position upon a folding of the bed-frame.

To fold the bed-frame, supposing the same to be in open position, as shown in Figs. 3 and 5, the operator first folds the foot piece 31 over upon the bed-frame section 22 then folds the section 22 upon the section 21, and the sections 21 and 22 are then raised and turned over the inner section with the section 22 disposed between the sections 20 and 21 in proper spaced relation thereto to accommodate the single or double thicknesses of the mattress as the case may be. During the folding of the sections 21 and 22 over the section 20 the ends 30 of the links 26 coact with the horizontal flanges of the sections 21 to effect a positive turning of such links with the section 21 when the latter has reached a predetermined point in its turning movement, and the turning of the links 26 in this manner actuates the bars 44 to move the upper ends of the links 39 rearwardly relative to the frame section 20 to effect a lowering of such section into substantially parallel relation to the links 39, the links 25 also lowering upon their pivots for such purpose.

It is apparent that I have provided a simple, strong and durable form of bed-davenport, the bed-frame of which is adapted to be compactly folded length-wise within the seat so as to materially shorten davenports of this class over those previously made and to adapt them for use in much smaller spaces than has heretofore been possible.

The purpose of connecting the sections 20 and 21 by the double links 25 and 26 instead of by a single set of links is to permit an angling of such connection when the bed-frame is folded as shown in Fig. 1, so that the seat-frame may be turned at a less distance from the floor than would otherwise be the case.

I wish it understood that my invention is not limited to any specific construction or arrangement of the parts except in so far as such limitations are specified in the claims.

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

1. In a davenport, a hollow back having a forward opening front portion, and hanging means for said front portion adapted to permit the upper end of such portion to swing forwardly and downwardly and the lower rear edge thereof to move up in a straight line.

2. In an article of the class described, a hollow back having a forwardly opening front portion, said front portion having a swinging pivot located above the lower end thereof.

3. In an article of the class described, a hollow back having a forwardly opening front portion, and swinging links pivotally suspending said front portion from the stationary part of the back.

4. In an article of the class described, a hollow back having a forwardly opening front portion, and links pivotally attached to and extending downwardly from a stationary portion of the back and pivotally attaching to the front portion thereof above its lower end.

5. In an article of the class described, a hollow back comprising a rear stationary part and a forwardly opening front part, and links pivotally suspending the front part from the rear part and attaching to the front part above its lower end, the lower rear edge of said front part having sliding contact with the rear part when being opened.

6. In an article of the class described, a hollow back having a rear stationary part and a box-like forwardly opening front part, and swinging means pivotally suspending the front part from the rear part and attaching to the front part above the lower edge thereof.

7. In an article of the class described, a hollow back having a stationary rear part and a forwardly opening box-like front part, links swingingly suspending the front part from the back part and attaching to the front part above the lower edge thereof, and anti-friction means carried by the lower rear edge of the front part for rolling contact with the rear part when the front part is being opened, said rear and front parts having portions which coöperate to limit the relative opening movements thereof.

8. In an article of the class described, an invertible seat frame, a multiple section bed-frame carried thereby, said bed-frame comprising at least three major sections having links pivotally connecting the same and be-

ing foldable within the seat frame to place the major sections in spaced relation one over another.

9. In an article of the class described, an invertible seat frame, a bed-frame carried by the seat frame and comprising three major sections, double sets of links connecting the two inner sections and single sets of links connecting the two outer sections, the whole being foldable within the seat frame to place the major sections one over another therein.

10. In an article of the class described, an invertible seat frame, standards rising from the rear edge of such frame when in inverted position, a multiple section bed-frame mounted on such standards and comprising at least three major sections and connecting sections therefor, the whole being foldable within the seat frame with the major sections disposed one over another therein.

11. In an article of the class described, an inverted seat frame having parts forming bearings at an edge thereof, a bed-frame comprising at least three major sections and connecting sections therefor, the connecting sections between two of the major sections being pivotally carried by said bearing parts, legs carried by a part of the bed-frame sections to coöperate with the seat frame to support the bed-frame when in unfolded position, said bed-frame and legs being capable of folding within the seat frame with the major sections disposed one over another.

12. In an article of the class described, an invertible seat frame, a bed-frame foldably carried by said seat frame and comprising at least three major sections and connecting sections therefor adapted to fold within the seat frame with the major sections disposed one over another, and means connecting a portion of the connecting sections and the inner major section of the bed-frame to effect vertical movements of the inner section within the seat frame when the bed frame is folded or unfolded.

13. In an article of the class described, an invertible seat frame, a bed-frame carried thereby and comprising at least three major sections and connecting links therefor, said connecting links being adapted to permit a folding of the bed-frame to place the major sections in substantial parallelism with each other, with the outer section disposed intermediate the other sections, the links connecting the inner and intermediate sections being pivoted to a part of the seat frame, and means laterally bracing the connecting links of the two outer sections.

14. In an article of the class described, an invertible seat frame, a multiple section bed-frame carried thereby and capable of length-wise folding therein with at least one section thereof disposed between two other sections thereof, a foot piece foldably carried at the outer end of the outer bed-frame section, and means attached to the outer bed-frame sections and adapted to cooperate with the seat frame to support the bed-frame in unfolded position.

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

ADOLPH C. KLOPPING.

Witnesses:
M. G. GASKELL,
C. W. OWEN.