March 16, 1943. D. F. EBBERT 2,313,813

COLLAPSIBLE BED

Filed March 11, 1942 3 Sheets-Sheet 1

Fig. 1.

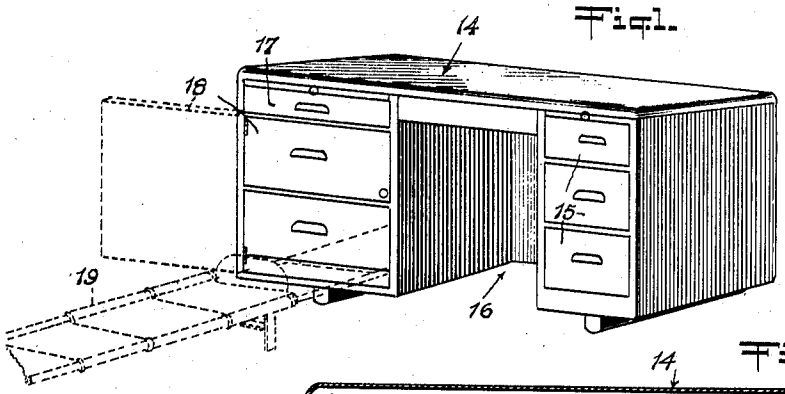


Fig. 2.

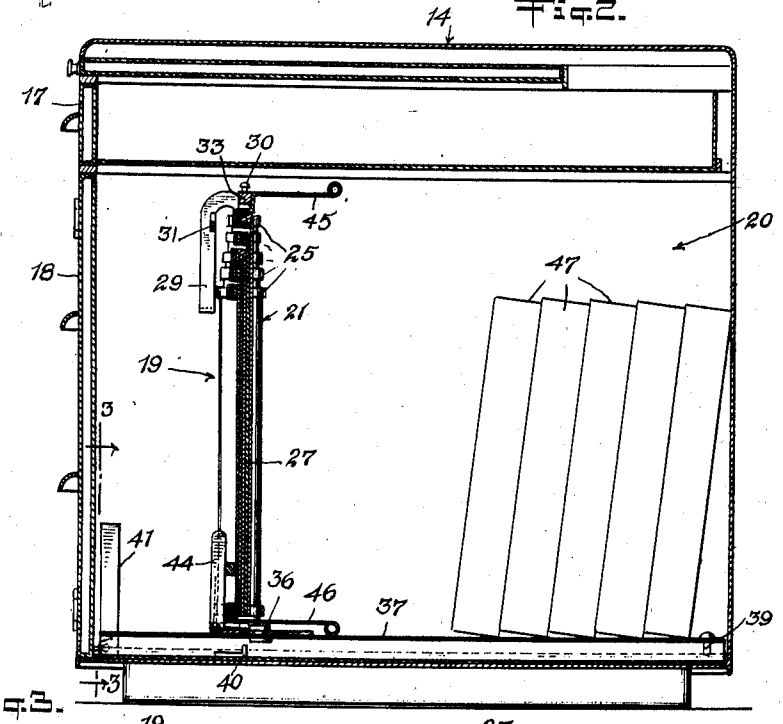
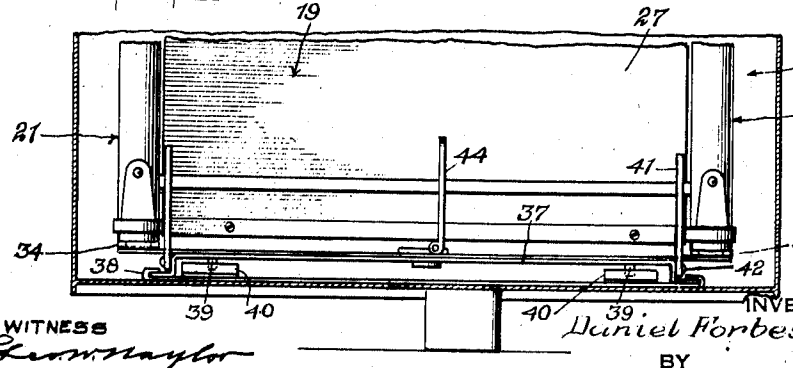


Fig. 3.



WITNESS

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COLLAPSIBLE BED

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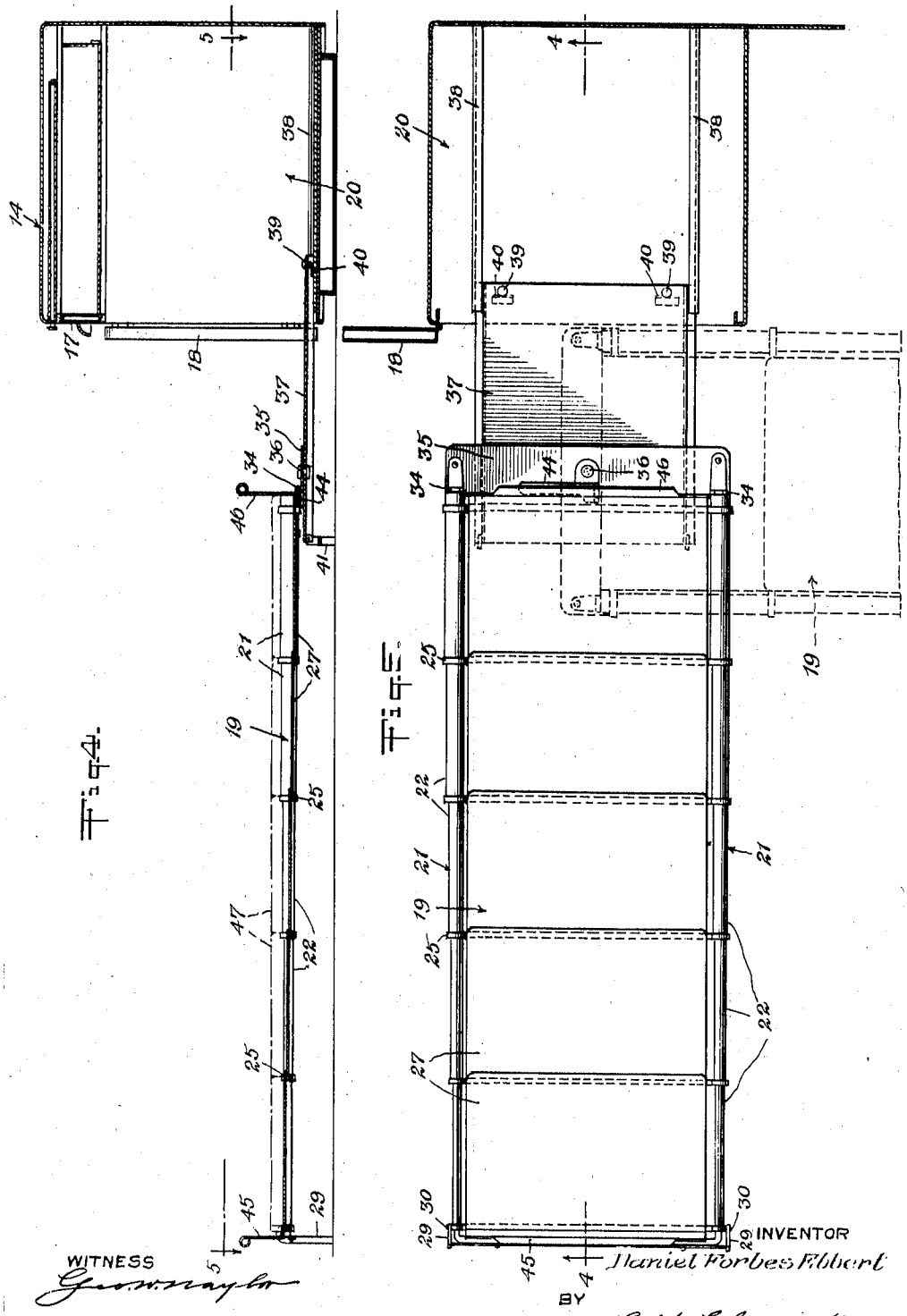


Fig. 4.

Fig. 5.

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COLLAPSIBLE BED

Filed March 11, 1942 3 Sheets-Sheet 3

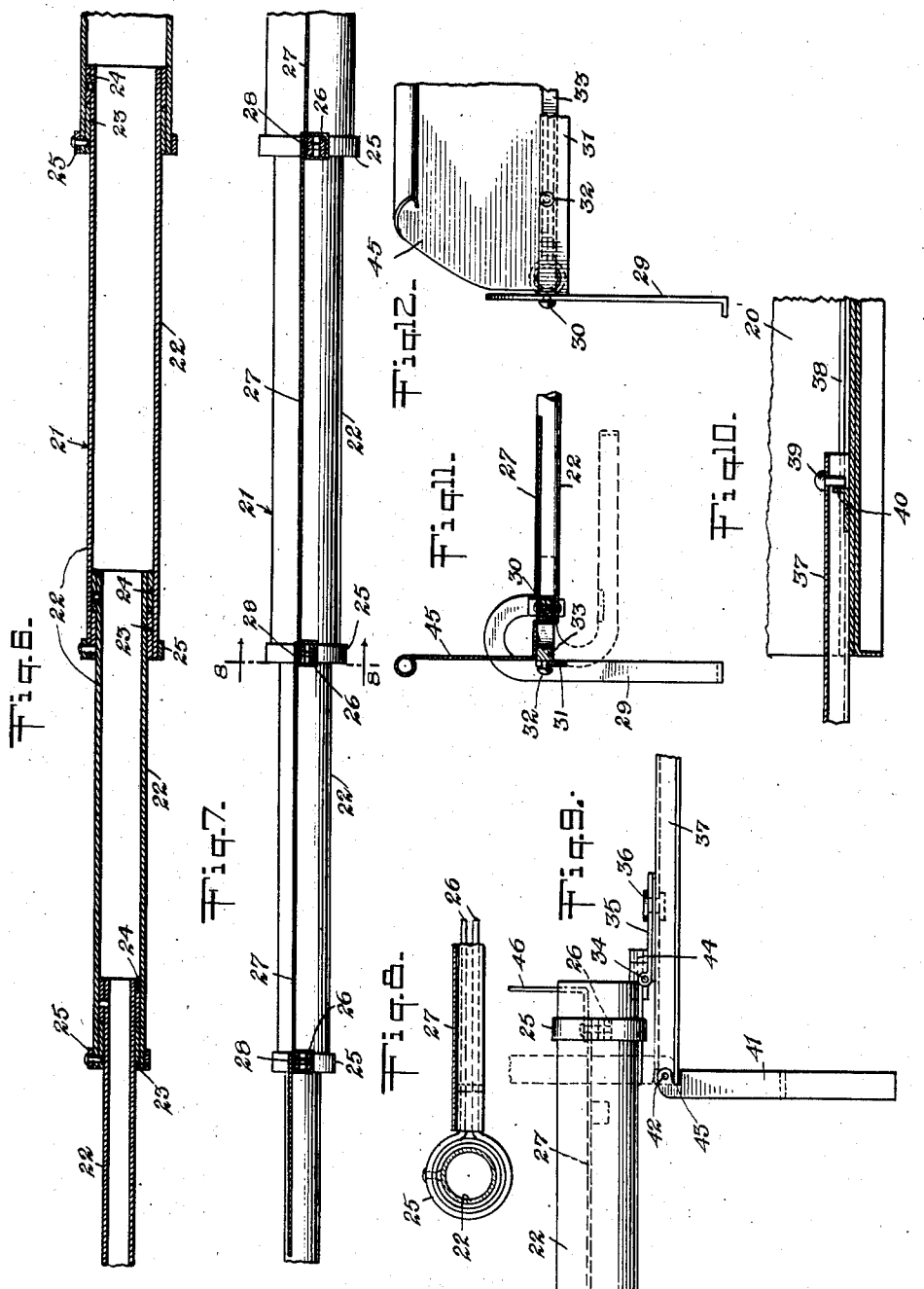


Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 12.

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Patented Mar. 16, 1943 2,313,813

UNITED STATES PATENT OFFICE

2,313,813

COLLAPSIBLE BED

Daniel Forbes Ebbert, Wheeling, W. Va.

Application March 11, 1942, Serial No. 434,163

10 Claims. (Cl. 5—157)

This invention relates to an improved collapsible bed.

It is an object of this invention to provide an improved collapsible bed which may be readily extended or assembled into a comfortable, sturdy bed of attractive appearance, and which may also be readily collapsed and concealed within an attractive ornamental piece of furniture serviceable for other purposes, such as a desk, window seat, radio cabinet, or the like.

A further object is the provision of a collapsible bed of the above character which has an improved type of frame and springs which lend adequate support and strength to the bed and, at the same time, are comfortable and provide the desired amount of resiliency.

My improved collapsible bed has many uses. Thus it may be used as an auxiliary bed in homes and hotels, and also may be used to replace the conventional types of beds and cots and studio couches. My bed will also be useful in apartments where space is limited, and also in trailers, Army trucks, or the like. In short, my collapsible bed may be used in place of the usual types of beds, studio couches, cots, or the like, and has the advantage that, when it is not in use, it can be readily concealed within an attractive piece of furniture, which is useful for other purposes, and thereby the bed occupies a minimum amount of space.

Other objects and uses will be apparent from the following detailed description of the drawings showing one form of my invention, in which:

Fig. 1 is a perspective view of a desk having my improved collapsible bed concealed therein;

Fig. 2 is a sectional view through the compartment of the desk in which the collapsible bed is concealed;

Fig. 3 is a detail sectional view in the direction of the arrows on the line 3—3 of Fig. 2;

Fig. 4 is a view similar to Fig. 2 with the bed fully extended;

Fig. 5 is a plan view in the direction of the arrows on the line 5—5 of Fig. 4;

Fig. 6 is a longitudinal sectional view through several of the telescopic frame members;

Fig. 7 is a longitudinal sectional view showing the arrangement of the overlapping spring plates in my improved bed;

Fig. 8 is a cross sectional view in the direction of the arrows on the line 8—8 of Fig. 7;

Fig. 9 is a detail sectional view showing the manner in which the bed is supported at its inner end;

Fig. 10 is a detail sectional view showing the slide supporting the bed at its inner end;

Fig. 11 is a detail sectional view showing one of the collapsible legs for supporting the bed at its outer end; and

Fig. 12 is a fragmentary elevational view of the outer end of the bed showing the foot plate and one of the legs.

My improved bed may be used in association with any attractive piece of furniture large enough to contain it when it is collapsed. Thus it may be used in connection with window seats, radio cabinets, desks, or the like.

For the purposes of illustration, in the accompanying drawings, I have shown my bed in connection with a desk 14 having conventional drawers 15 on one side, a well or recess 16 to accommodate the legs of the user of the desk, a conventional drawer 17 on the top of the opposite side, and facsimile drawers 18 beneath the drawer 17 and consisting of a door which may be hingedly connected, as shown, to the desk so that it can swing between open and closed position.

My improved bed, indicated generally by the numeral 19, is mounted within the compartment 20 which is closed by the door 18. My bed is of extensible and collapsible construction so that it may be fully extended, as shown in Figs. 4 and 5, to provide a comfortable bed extending outwardly from the front of the desk at any desired angle, or it may be fully collapsed and positioned inside of the compartment 20 when not in use, so as to be completely concealed from view.

The bed preferably comprises a pair of telescopic frame members 21 positioned along the two sides of the bed and each consisting of a plurality of telescoping tubular sections 22, with the sections at the inner end being larger than the sections at the opposite end, and being arranged in graduated relationship, as shown. The adjacent sections are in concentric nesting relationship and may slide with relation to each other, in the usual telescopic manner, and suitable means are provided to prevent the adjacent sections from completely releasing their engagement with each other. For this purpose I preferably provide an internal collar 23 at the outer end of each section, and an external collar 24 at the inner end of each section adapted to engage each other in abutting relationship, as shown in Fig. 6, when the sections are fully extended.

I also provide each section with an external collar 25 at its outer end, serving as supports for the transverse members 26 extending across the bed between the collars 25 on the two frame

members. Each transverse member 26 has connected thereto a spring plate 27, made of some suitable resilient or spring material, of sufficient strength to support the user of the bed. For this purpose I have found a resilient metal plate to be satisfactory. Each plate 27 is connected at its outer end to a transverse member 26, and for the remainder of its length is free from any connection with any other part of the bed. The plate 27 is of sufficient length so that when the frame members 21 are fully extended, the inner end of each plate rests upon the next adjacent plate and transverse member, in superimposed overlapping relationship, in the manner most clearly shown in Fig. 7. In this manner, when the bed is collapsed, the plates may slide, one on top of the other, and will offer no resistance or interference with the collapsing. Also, due to the resilient springy character of the plates, when the bed is in fully extended position and in use, the plates will provide a comfortable spring-like support for a mattress.

Additional resiliency is also imparted to the bed by the construction of the frame members which will yield slightly in response to the weight of the user. In this connection, the telescopic sections of the frame member should be made of a material of sufficient strength to support the user, such as metal.

The bed is preferably supported a spaced distance above the floor by suitable legs. Thus at the outer end I provide a pair of legs 29 having a curved or hooked upper portion, and pivotally connected at their ends to the collar 25 of the outermost telescopic sections, as shown at 30. The legs 29 may pivot from a collapsed or folded position, as shown in dotted lines in Fig. 11, to an upright position, as shown in full lines in Figs. 11 and 12.

To maintain the legs in upright position I provide a transverse bar 31 connected between the legs, and provided with recesses or cut-outs to accommodate the studs 32 mounted on the bracket 33 connected between the ends of the two frame members 21.

At the inner end I connect the frame member 21 by means of horizontal hinges 34 to a plate 35 which, in turn, is connected by a vertically disposed pivot 36 to a slide 37. The slide 37 engages a pair of guide tracks 38 mounted in the base of the compartment 20. In this manner, the slide may be shifted inwardly so as to be wholly positioned within the compartment, or may be extended outwardly, as shown in Figs. 4 and 5, so that the major portion thereof projects outwardly from the front of the compartment. A suitable stop, such as the pair of studs 39 engageable with the fixed abutment 40, may be provided.

At its outer end I provide the slide with a pair of legs 41 pivotally supported, as shown at 42, and shiftable between an elevated position, when not in use as shown in dotted lines in Fig. 9, to a downwardly depending vertical operative position, as shown in full lines. To permit the legs to shift to operative position and to help retain them in that position and lend additional support thereto, the legs are provided with recessed or cut-out portions 43 which accommodate the laterally projecting flanges on the two sides of the slide.

When my improved bed is not in use, the telescopic frame members are collapsed, slide 37 is shifted inwardly so that it is wholly within the compartment 20, and the collapsed bed may then be pivoted upwardly on the hinges 34 assuming a vertical position. The entire bed is then contained within the compartment 20, in the manner shown in Fig. 2.

In order to retain the collapsed bed in vertical position, I provide the arm 44, pivotally mounted adjacent the central portion of the slide between the hinges 34. The arm can be pivoted upwardly in a vertical position, as shown in Figs. 2 and 3, to retain the collapsed bed in vertical position, or may be pivoted downwardly to horizontal position to release the bed.

When it is desired to use the bed, the door 18 is opened and the slide 37 is drawn outwardly and legs 41 shifted to depending operative position, as shown in Fig. 9. The arm 44 is pivoted downwardly to release the bed which is then shifted to horizontal position and extended outwardly. It will be appreciated that the legs 29 are shifted into operative position to support the outer end of the bed.

The bed can be shifted around the vertical pivot 36 to any desired angle, and this is clearly indicated in Fig. 5 where the bed is shown in full lines as extending straight outwardly from the front of the desk, and in dotted lines as extending at an angle of 90° thereto. At the foot and head ends, respectively, of the bed, I preferably provide a foot plate and a head plate 45 and 46, respectively, in the manner shown. A suitable mattress may be placed over the resilient metal plates 27, and for this purpose I have found that satisfactory results are obtained by using a mattress of the type shown in full lines in Fig. 2, and in dotted lines in Fig. 4, consisting of a plurality of separate cushions 47 each of a size to substantially cover one of the plates 27. The cushions in the illustrated embodiment are formed of a resilient flexible material, such as sponge rubber or the like, having a fabric cover disposed thereabout.

When the bed is not in use it is collapsed inside of the compartment 20, and the mattress may be placed inside of the compartment in back of the bed, as shown in Fig. 2.

From the foregoing it will be seen that I have provided an improved collapsible bed which is comfortable to use, which is of relatively inexpensive, yet nevertheless rugged construction, and which, when not in use, may be readily collapsed and concealed within an attractive piece of furniture suitable for other purposes.

It should be understood, of course, that modifications may be made in the illustrated and described embodiment of my invention. Thus, instead of using the bed in connection with a desk, I may use it in connection with other articles of furniture, such as a window seat or radio cabinet. In the illustrated desk, the top drawer 17 may be employed for stationery, etc., and I may also provide a drawer in the rear of the desk serving as a miniature bar.

I claim:

1. A collapsible bed comprising a pair of spaced telescopic frame members, transverse members connected with and extending between pairs respectively of telescopic sections of the frame members, and a plurality of resilient plates, each of said plates being connected at one end to a transverse member and being arranged in overlapping relationship at its opposite end with respect to an adjacent plate and transverse member so that said plates may slide one on top of the other when the frame members are telescoped to collapse the bed.

2. A collapsible bed as set forth in claim 1 in

which the bed is supported at opposite ends in spaced relation with respect to the floor by pivotally mounted legs shiftable between operative and inoperative positions.

3. A collapsible bed comprising a pair of extensible and contractible frame members, each member consisting of a plurality of telescopic sections and each section having an external collar secured therearound, transverse members extending between the frame members and connected to the said collars, and a plurality of resilient plates, each of said plates being connected at one end to a transverse member and being arranged in overlapping relationship at its opposite end with respect to an adjacent plate and transverse member so that said plates may slide one on top of the other when the frame members are telescoped to collapse the bed.

4. A collapsible bed comprising a pair of extensible and contractible frame members, each member consisting of a plurality of telescopic sections having cooperable interengageable parts to prevent the complete separation of the sections, and each section being formed with an external collar secured therearound, transverse members extending between the frame members and secured to the collars, and a plurality of resilient plates, each of said plates being connected at one end to a transverse member and being arranged in overlapping relationship at its opposite end with respect to an adjacent plate and transverse member so that said plates may slide one on top of the other when the frame members are telescoped to collapse the bed.

5. A collapsible bed in combination with an article having a compartment therein, said bed comprising a pair of collapsible and extensible frame members, body supporting means positioned between and supported from the frame members, a slide shiftable between a position inside of said compartment and a position projecting partly therefrom, and a connecting member having vertical pivotal connection with said slide and horizontal pivotal connection with the adjacent end of the bed.

6. A collapsible bed for use with an article having a compartment therein comprising a pair of spaced telescopic frame members shiftable between fully extended operative and fully collapsed inoperative positions transverse members extending between pairs respectively of telescopic sections of the frame members, a plurality of resilient plates, each of said plates being connected at one end to a transverse member and being arranged in overlapping relationship at its opposite end with respect to an adjacent plate and transverse member so that said plates may slide one on top of the other when the frame members are telescoped to collapse the bed, a mounting plate hingedly connected adjacent one end of the bed, and a slide pivotally connected to the mounting plate and disposed in the compartment of the article so as to be shiftable between a position entirely inside of the compartment, and a position projecting partially therefrom.

7. A collapsible bed including a pair of spaced side frame members each consisting of telescopically related sections, transverse supporting members, there being one transverse member between each pair of sections of the frame members and having the opposite ends thereof secured to the outer ends respectively of said sections, and a plurality of plates constituting a bedding support, said plates being connected at one end with said transverse members respectively and each of said plates being arranged in overlapping relationship at its opposite end with respect to an adjacent plate so that said plates may slide one on top of the other as the sections of said frame members are telescoped into each other to collapse the bed.

8. A collapsible bed including a frame consisting of spaced side members and transverse members, each of said side members consisting of telescopically related sections, said transverse members being connected at the ends to pairs respectively of said sections, and resilient plates constituting a bedding support, said plates being connected with said transverse members respectively and overlapping each other, the provision and arrangement being such that the plates slide one on top of the other as the sections of the side members are telescoped into each other to collapse the bed.

9. In a bed, a frame consisting of relatively slidable sections so as to be collapsible endwise, and plates constituting a support on which a person may recline, said plates being connected with said sections respectively of the frame in overlapping relation so that the plates may slide one on top of the other as the frame is collapsed endwise.

10. The combination with an article of furniture having a compartment therein, of a collapsible bed, a plate movable between a position inside of said compartment and a position projecting partly therefrom, said bed in collapsed condition being disposable within said compartment when said plate is positioned inside of said compartment, and a connecting member having vertical pivotal connection with said plate and horizontal pivotal connection with one end of the bed, so that the latter may be brought into any position within an arc of a circle when the plate is in its projecting position and the bed is disposed exteriorly of the compartment.

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