Jan. 13, 1931. J. D. BELL 1,789,094

DAVENPORT

Filed Feb. 9, 1927

Fig. 1

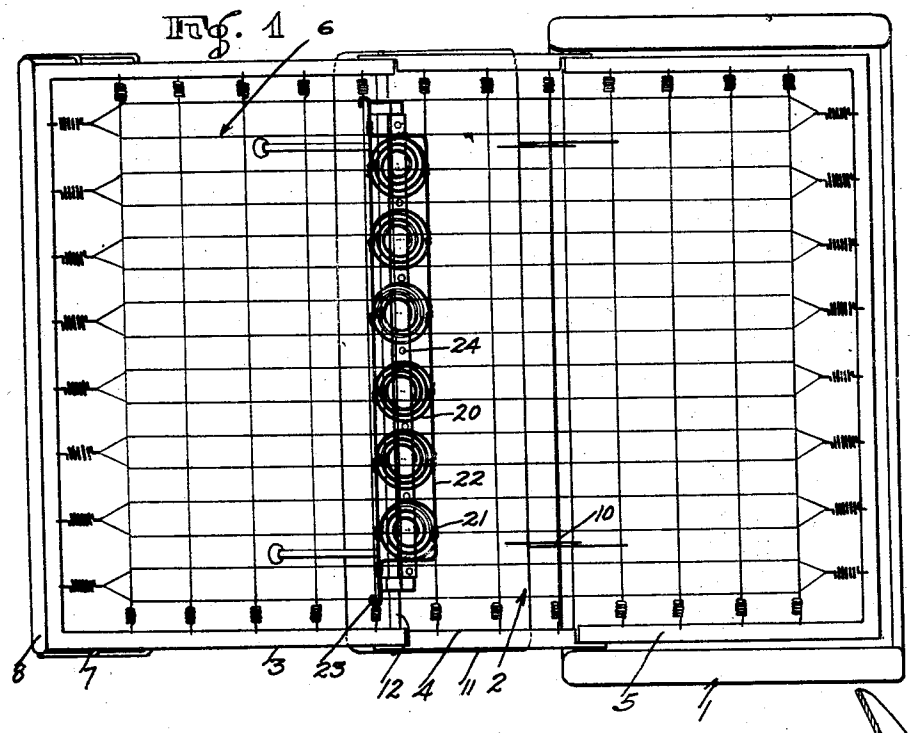


Fig. 2

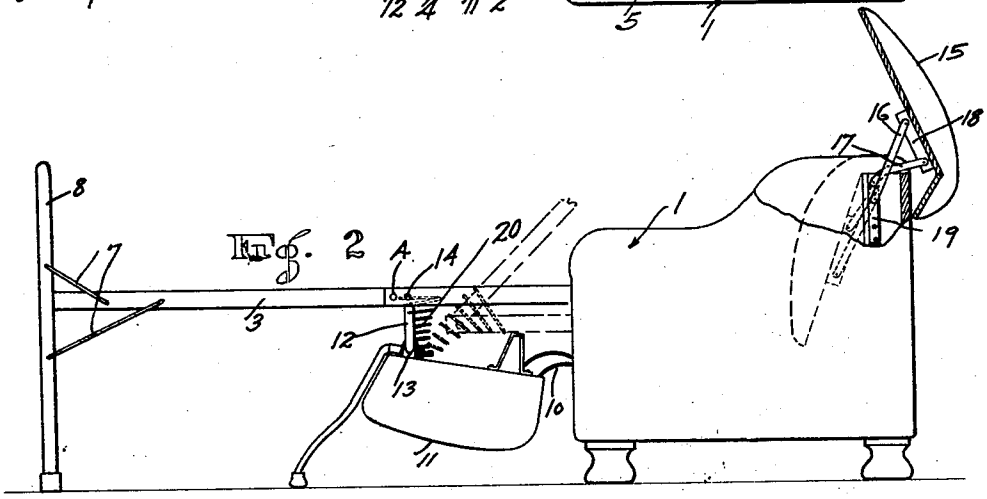
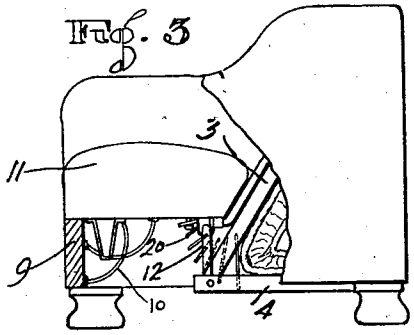


Fig. 3



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UNITED STATES PATENT OFFICE

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DAVENPORT

Application filed February 9, 1927. Serial No. 166,963.

This invention relates to improvements in sofa beds or davenports of the type wherein a sectional folding mattress or bed frame is so constructed and arranged that it may be readily extended for use as a bed on inverting the seat of the davenport and also readily folded into small compass lying rearwardly of the seat, in such manner that adequate space is provided for the bedding, there being in combination with the bed frame a bed end or foot piece of the same size and general construction and appearance as the ordinary stationary bed end. The improvement comprises a novel and efficient reinforcing bed spring arrangement which is associated with the spring fabric and with the seat member in such manner as to provide added comfort and stability in the bed structure, the arrangement of the springs being such that the folding and unfolding of the bed is made easier rather than interfered with.

One of the purposes of the invention is to provide in a folding sofa bed of the character described additional bed springs which will afford added comfort to the user of the bed, prevent sagging of the spring fabric and generally improve the structure without making the folding or unfolding operation more difficult and without increasing the bulk of the bed when it is folded.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawing, and set forth in the claims hereto appended, it being understood that various changes in the form, porportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Referring to the drawing:

Fig. 1. represents a top plan view of a davenport bed constructed in accordance with this invention as when extended for use.

Fig. 2 represents a side elevation of the bed as shown in Fig. 1 and as being broken away and shown in section, and other parts being shown in dotted lines.

Fig. 3 represents an end elevation of the bed as when folded and arranged for use as a sofa or davenport, one end of the davenport frame being broken away to show the manner of folding.

The sofa bed of this invention as shown in the accompanying drawing is made up of the usual davenport or sofa frame 1 to which is connected a sectional folding mattress or bed frame generally designated 2, which bed frame comprises an outer section 3, a smaller intermediate section 4, and an inner or rear section 5, all pivoted to one another. A spring fabric 6 made of suitable wire and springs as generally employed in the art, is joined to the several sections of the bed frame. This fabric being flexible will permit of the folding and unfolding of the bed sections. The outer section 3 has pivotally connected thereto by means of links 7, a bed end 8 of the regular stationary bed type, which bed end when the sections are folded, will lie against and in front of the front section 3. The rear section 5 has a pivotal and slidable connection with the davenport frame permitting the upward extension of the rear end thereof when the bed frame is folded. It is not thought necessary to illustrate this means of connection as such means is common in the art. Connected with the front board 9 of the davenport frame by means of hinges 10 is an invertible seat 11. A U-shaped bar 12 is pivoted as at 13 to the under side of the seat adjacent the forward edge of the latter and has its ends pivoted as at 14 to the intermediate section 4. The particular bed of this invention, except the improvements thereto disclosed in this application, is the same as shown in my pending application for patent filed April 12, 1924, Serial No. 706,066. Mounted on the back of the frame 1 is a back rest 15 joined to the davenport frame by means of cross links 16 and 17 which are pivoted at certain ends to a plate 18 on the back 15 and at their other ends to a plate 19 on the frame 1. The links 16 are straight whereas the links 17 are

curved and said links are so arranged, as shown in detail in Fig. 2, that when the back is in raised position as shown in said figure, it cannot be jarred or accidently caused to swing over into position of use.

The spring arrangement of my invention comprises a plurality of spiral springs 20 arranged in a row extending transversely of the bed between the seat and intermediate section 4. These springs at their upper edges are secured by suitable fastenings 21 to a rectangular, preferably stiff, wire frame 22. This frame extends beneath the spring fabric 6 and is joined to said fabric by the fastenings 21. At its ends the frame 22 is provided with hooks 23 which hook over the outer edges of the spring fabric and assist in holding the frame in place. The lower ends of the springs are secured to the under side of the seat 11 adjacent the forward edge of the seat when the latter is inverted, by means of a clamping or securing strip 24, the ends of the spring being clamped under this strip which is secured by suitable fastenings to the seat. The upper ends of the springs and the frame 22 are disposed at the juncture of the intermediate and front sections of the bed frame. It is found that by locating the springs at this point, the fabric will better accommodate itself to the curves of the body of the occupant of the bed and a more comfortable spring arrangement having the necessary resiliency and stability will be provided. It is thought unnecessary to describe in detail the operation of folding the bed so that it lies rearwardly of the seat, and also the operation of extending the bed into position of use inasmuch as this is carefully defined in my pending application above referred to. However, when the mattress or bed frame is folded and lies in the position shown in Fig. 3 rearwardly of the seat member 11, the springs 20 are disposed in a substantially horizontal position instead of the vertical position shown in Fig. 2. In this way the springs will bend and flex so as to accommodate themselves to the folded bed frame without interfering with the folding operation or in any way adding to the bulk of the bed when folded. On unfolding and extending the bed into position of use, these springs will be disposed in position shown in Fig. 2 and will thereby provide the necessary support for the spring fabric at the proper point of the bed.

The spring arrangement of my invention which includes a plurality of spiral springs 20 act to push the spring fabric and bedding rearwardly (see Fig. 3) and to prevent the sharp bending of the spring fabric.

It will be noted that the row of springs is arranged so that there are provided a plurality of resilient supports at approximately the center of the bed, which resilient supports stand vertically when the seat is inverted and the bed frame extended and sway forward and rearward, or in other words extend rearwardly and forwardly in inclining positions on the movement of the seat. The flexing of the springs permits the springs to assume these different positions. In this way the compact folding of the bed assembly is provided for without interfering with the springs in their serving as a central resilient support for the bed frame. These springs are of greater length than the vertical length of the front board and their lower ends when the seat is invented, lie in substantially the same horizontal plane as the top of the front board. However, when the bed is folded these springs are concealed behind the front board and beneath the seat and lie in the position shown in Fig. 3.

I claim:

1. A sofa bed comprising a sofa frame, a sectional, foldable bed frame comprising an outer section, an intermediate section and an inner section pivotally connected with one another and a flexible spring fabric joined with said frames, an invertible seat hinged lengthwise across the front side of the sofa frame to be inverted into a stationary position in front of said frame; means of operative connection between the seat and intermediate frame, means of operative connection between the inner frame and davenport frame, said two means of connection providing for movement of the bed frame from extended position into collapsed position with the bed frame lying for the most part rearward of the seat and a plurality of springs interposed between and connected with the spring fabric and under side of the seat along the rear edge of said seat, which springs are joined to the fabric at a point adjacent the juncture of the intermediate and outer sections and are vertically disposed when the seat is inverted and substantially horizontally disposed when the bed frame is folded whereby the springs along the rear edge of the seat urge the spring fabric rearwardly in the sofa frame away from contact with the seat edge to permit the seat to rest in a horizontal position when folded.

2. A sofa bed comprising a sofa frame, a sectional, foldable bed frame comprising an outer section, an intermediate section and an inner section pivotally connected with one another and a flexible spring fabric joined with said frames, an invertible seat hinged on the sofa frame, means of operative connection between the seat and intermediate frame, means of operative connection between the inner frame and davenport frame, said two means of connection providing for movement of the bed frame from extended position into collapsed position with the bed frame lying for the most part rearward of the seat, a plurality of springs

interposed between and connected with the spring fabric and under side of the seat along the rear edge of said seat, which springs are joined to the fabric at a point adjacent the juncture of the intermediate and outer sections and are vertically disposed when the seat is inverted and substantially horizontally disposed when the bed frame is folded and a rectangular frame to which said springs are connected at their upper ends, which frame is fastened to said spring fabric whereby the springs along the rear edge of the seat urge the spring fabric rearwardly in the sofa frame away from contact with the seat edge to permit the seat to rest in a horizontal position when folded.

3. A sofa bed including a sofa frame, a foldable sectional mattress frame consisting of an outer section, an intermediate section and an inner section, a flexible spring fabric joined to the sections of said frame, an invertible seat member pivotally connected with the sofa frame, means of connection between the bed frame and sofa frame, together with means of connection between the seat and bed frame providing for holding of the bed frame into position lying rearwardly of the seat and within the sofa frame, and a row of springs extending transversely of the bed frame being joined at certain ends to the spring fabric adjacent the juncture of the intermediate and outer frames and joined at their other ends to the under side of the seat member at a point adjacent the rear edge of said seat member when the latter is inverted, said springs lying in a substantially horizontal position when the seat member is folded to force the spring fabric rearwardly away from engagement with the rear edge of the seat member.

4. A sofa bed including a sofa frame, a foldable sectional mattress frame consisting of an outer section, an intermediate section and an inner section, a flexible spring fabric joined to the sections of said frame, an invertible seat member pivotally connected with the sofa frame, together with means of connection between the seat and bed frame providing for holding of the bed frame into position lying rearwardly of the seat and within the sofa frame, a row of springs extending transversely of the bed frame being joined at certain ends to the spring fabric adjacent the juncture of the intermediate and outer frames and joined at their other ends to the under side of the seat member at a point adjacent the forward edge of said seat member when the latter is inverted, a rectangular wire frame extending beneath the spring fabric and secured thereto, to which said springs are secured and a clamping strip for securing the other ends of the springs to the seat member.

JOSEPH D. BELL.