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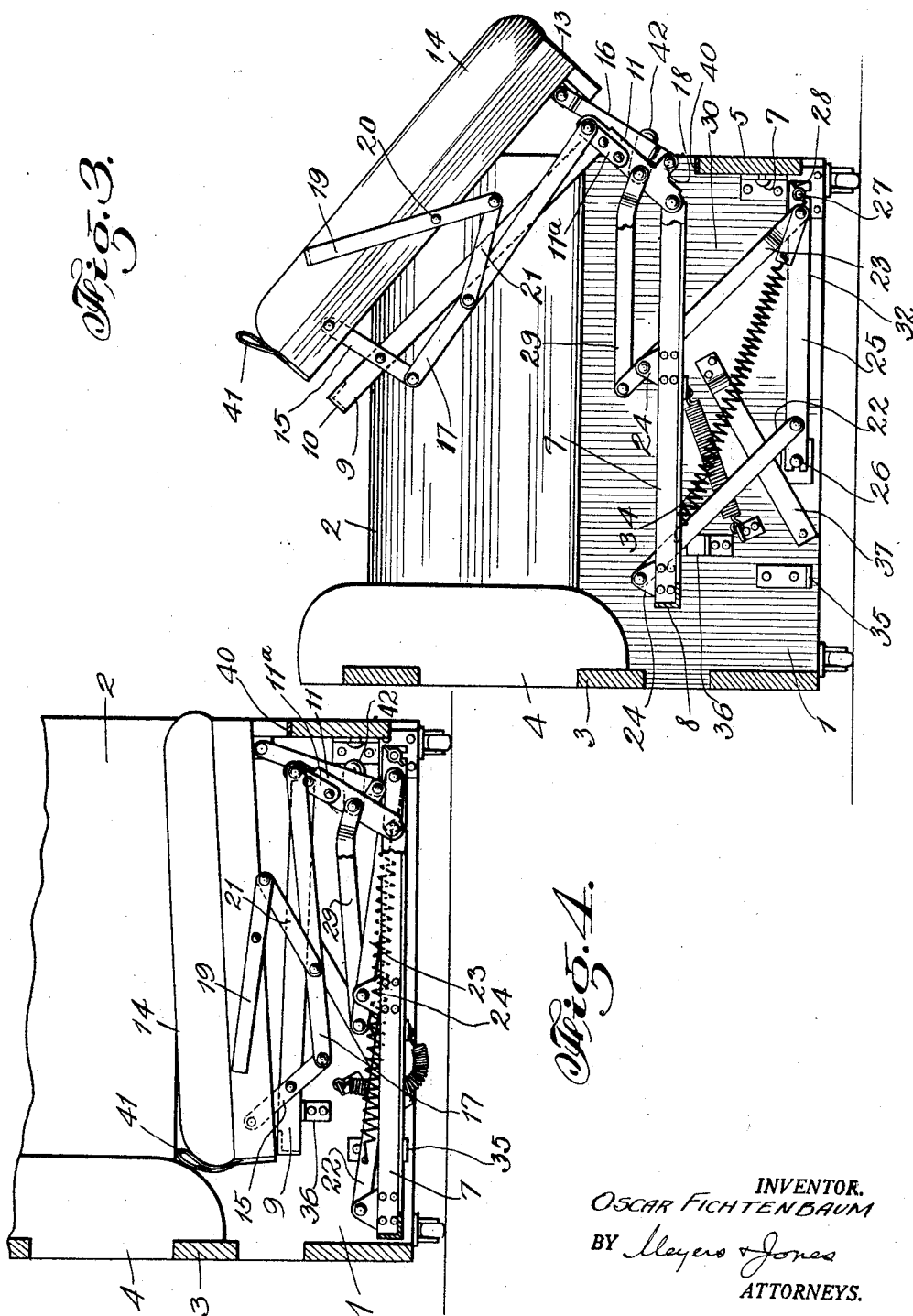
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FOLDING BED OR COUCH

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UNITED STATES PATENT OFFICE

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FOLDING BED OR COUCH

Application filed April 28, 1930. Serial No. 448,113.

This invention is an improvement in folding beds or couches, and particularly of the type commonly known as davenports.

One of the primary objects of the invention is the provision of a simple, strong and durable structure, of a foldable nature, enabling it to be moved into open or bed position, and closed or couch position.

With this and other objects in view the invention consists in the construction and novel combination of parts fully described hereinafter, illustrated in the accompanying drawings, and pointed out in the claims appended hereto, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims, may be resorted to without departing from the spirit of the invention.

In the drawings forming a part hereof:—
Fig. 1 is an end view with the bed in unfolded position, and with the main structure in section.

Fig. 2 is a plan view of one end of the bed.
Fig. 3 is a view similar to Fig. 1, showing the structure partly folded.

Fig. 4 is a view similar to Fig. 3, showing the structure completely folded.

In the present construction, which is an improvement over my prior Patent No. 1,626,801, granted May 3, 1927, the main frame of the couch, bed or davenport, is composed as is usual, of end pieces 1, having the usual cushions 2, and connected by back pieces 3, sundry of which carry the back cushion 4, and a front or base board 5, which is detachably connected with the end pieces 1, by means of angle pieces 6, each having one part secured to the end piece, and another part extending at right angles thereto, against which the base member 5 abuts.

The angle pieces 6 have vertical slots or notches, which are engaged by headed studs 7 on the base member. This enables quick and easy detachment of the base member when desired. The folding bed structure includes a main frame, composed of a vertically movable substantially U-shaped portion, consisting of arms 7, and a connection 8 between the rear or inner ends of the arms, and a swing-

ing section also of substantially U-shape, composed of arms 9 connected at what is their outer ends when the bed is unfolded, by a connecting member 10, and the vertically movable section is connected to the swinging section, by links 11.

The links 11 are pivoted at their rear ends to the arms 7 of the vertically movable portion, and at their front ends to the arms 9 of the swinging portion, so that the swinging portion may swing into substantial parallelism with the vertically movable portion when the bed is folded, or in substantial alignment therewith, when the bed is unfolded, as shown in Fig. 1 bracket plates 11a are rigidly secured to the links 11 on the outer face thereof, and the pivotal connection between the sections 9 and 11 extends through said brackets. The ends of the brackets 11a overlap the sections 9.

The couch or davenport seat composed as is usual, of a wooden frame 13, and a cushion 14 secured thereto, is supported at its ends, and connected to the swinging portion of the frame structure, by levers 15 and 16, a pair of levers being arranged at each end of the couch. The levers 15 are pivoted to the frame 13, to the adjacent end member 9 of the swinging portion of the frame, and to links 17, which are pivoted at one end to the ends of the brackets 11a which overlap the sections 9, the pivotal connection between the swinging portion of the frame and the levers 15 being intermediate the ends of the said levers. The levers 16 are pivoted to fixed brackets on the seat frame 13, and to laterally extending lugs 18 on the links 11 before mentioned.

A leg 19 is pivoted to each end of the seat frame intermediate the ends of the leg, as indicated at 20, and that end of the leg adjacent to the swinging portion 10 of the frame structure is connected by a link 21 to the link 17 before mentioned, intermediate the ends thereof. The arrangement is such that when the parts are in the position of Fig. 1, the leg will be swung by its connections 21—17, into vertical position, to support the swinging portion of the frame structure.

The vertically movable frame portion 7—8,

is supported by links 22—23, a pair of links being arranged at each end of the frame structure. The links are pivoted to brackets 24 extending upwardly from the arms 7 of the frame structure, and to a strip 25, which is removably supported on the adjacent end piece 1 of the couch frame. Each of these strips 25, as shown in Fig. 3, has a horizontal notch at one end, which engages a headed stud 26, secured to the end member 1, and at the other end a vertical notch, which slips over a threaded stud 27, also held on the adjacent end piece. A wing nut 28 engages the stud, and by means of the nut the strip may be clamped in place on the end piece. Each strip is easily disengaged by loosening the wing nut, lifting the forward end, and moving the strip horizontally forward to disengage the stud 26.

As shown in Fig. 3, the levers 23 extend above their connection with the arm 7 of the frame portion 7—8, and the upper ends of the levers are connected by links 29 with the elements 11 before mentioned. The frame portion 7—8 swings on the levers 22—23 in folding and unfolding the bed, and means is provided for cushioning the movement of said frame portion. The said means includes coil springs 30, each of which is connected at one end with the adjacent lever 22 near the top thereof, and at the other end to the pivotal connection of the link 23 with the element 25.

A second pair of springs 34 is arranged between the end pieces 1 and the arm 7 of the frame portion 7—8, the said spring being connected to the arm 7 intermediate the ends of the arm. Both springs 30 and 34 are tensioned when the bed is unfolded, as indicated in Fig. 1, and the springs 30 are arranged to be tensioned when the bed is folded, as shown in Fig. 4, the springs 34 being at this time in the position shown in the said figure.

When the bed is completely folded, the arms 7 seat upon rests 35 secured to the end pieces 1, and the arms 9 of the frame portions 9—10, seat upon rests 36, also secured to the end pieces.

Guide or brace strips 37 are secured to the end pieces 1 of the bed structure, the said strips inclining upwardly and forwardly, as shown, and being cam shaped. That is, the forward ends of the strips are offset with respect to the rear ends, so that the planes of the strips converge toward the front of the bed. As the frame structure moves in the position of Fig. 1, the levers 22 move along the inclined faces of the strips, which provide stays for the levers when in vertical position. Wear plates 40 are secured to the upper edge of the front board 5, in positions corresponding to the location of the link members 11, for contact with the said members in certain positions. A strap 41 is provided in

connection with the seat board 13 for convenience in manipulating the same.

The operation of the device is as follows: With the parts in the position of Fig. 4 to unfold the bed, the strap 41 is grasped, and the seat is moved outwardly into the position of Fig. 3, carrying with it the swinging portion 9—10 of the frame structure. This portion swings upon the links 11, and the movement is continued until the parts occupy the position of Fig. 1. The spring 34 is thus placed under tension, cushioning the outward swing of the seat, and the movement of the seat and associated parts causes the legs 19 to assume the position of Fig. 1, that is, a position to support the swinging frame portion and associated parts. To fold the bed, the strap 41 is grasped, and the parts are moved in the reverse direction. This movement is cushioned by the contraction of the spring 34, and the expansion of the spring 30. In folded position, the frame portions rest upon the rests 35 and 36.

The central or link section composed of the elements 11 and associated parts, include also a tubular longitudinal bar 42, which is cranked slightly at its ends, as shown at Fig. 2, the cranked portions being pivotally connected with the links 11.

The elements 7—8, 9—10 and 11, constitute a folding mattress frame, and the entire frame is movable, moving when the couch is folded, and when it is unfolded. During the unfolding, the vertically movable portion 7—8, so described for convenience, swings upwardly and outwardly away from the back. The entire mattress frame including the seat and associated parts may be detached from the couch body, by means of the strips 25, the parts being supported by the strips. The springs 30 and 34 cushion the folding and unfolding movement of the seat, so that but slight effort is required to fold or to unfold the couch. Foldable head and foot boards or pillow rests are provided, which are indicated at 60. These boards are at the ends of the swinging section of the mattress frame.

In my prior patent above referred to, a construction is provided enabling the seat to drop below the outer mattress frame section when in unfolded position, the said connection including slotted links. In the present arrangement the same result is obtained through the link 16 and the lever 15 and associated parts. When the seat is folded, the levers and links enable the seat to drop down close to the frame section, while in unfolded position, as shown in Fig. 1, the seat drops well below the mattress frame, and has the additional support of the legs.

What is claimed as new is:—

A folding bed or couch, comprising a couch structure including a seat frame and a seat, a mattress frame composed of relatively wide inner and outer sections pivotally connected

by an intermediate relatively narrow section, the sections being arranged to fold with the relatively wide sections substantially parallel in the seat frame and to unfold with all of the sections occupying the same plane, a lever 5 pivotally connected between the relatively narrow section and one end of the seat, a second lever pivotally connected at one end to the opposite end of the seat and intermediate 10 its ends to the outermost section, a bracket carried by said intermediate section and extending beyond the pivotal connection between said section and the outermost section, a link pivotally connected at one end to said 15 bracket and pivotally connected at its other end to the other end of said second lever, legs pivoted to the seat and connections between said legs and link for moving said legs into upright position to support the outermost section in unfolded position and for swinging 20 the legs into folded position within the seat frame when the sections are swung into the seat frame.

Signed at New York, in the county of New York and State of New York, this 25th day 25 of April, A. D. 1930.

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