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H. BLASE ET AL

1,812,618

FOLDING BED

Filed Aug. 2, 1929

2 Sheets-Sheet 1

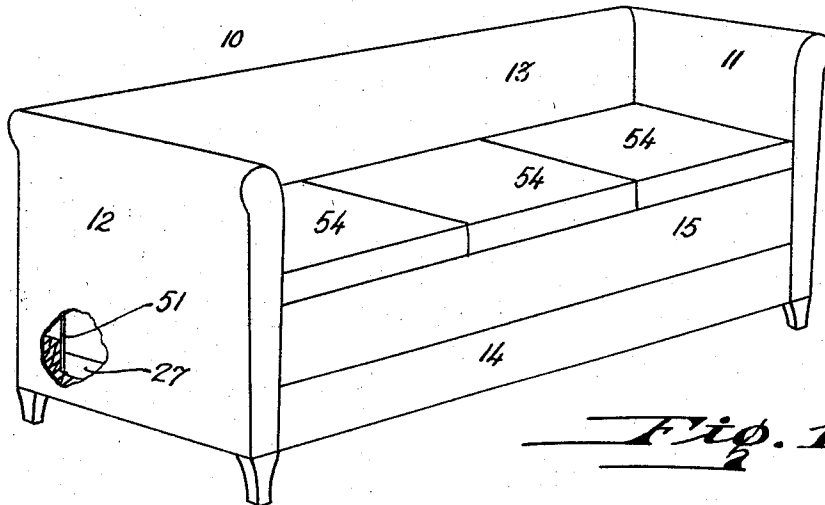


Fig. 1.

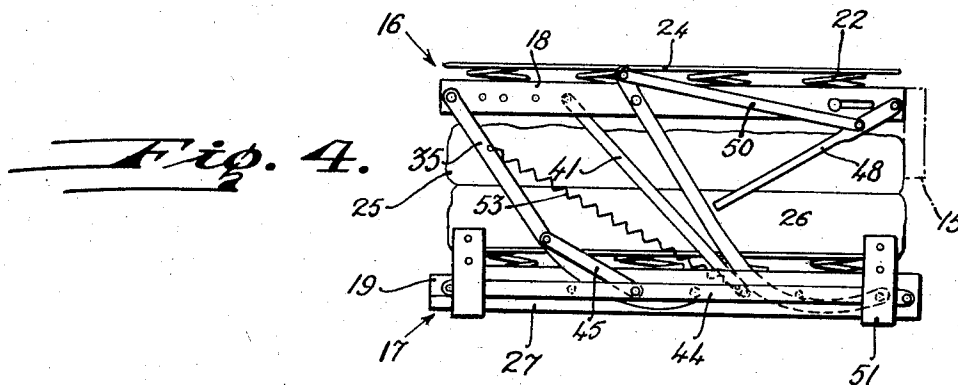


Fig. 4.

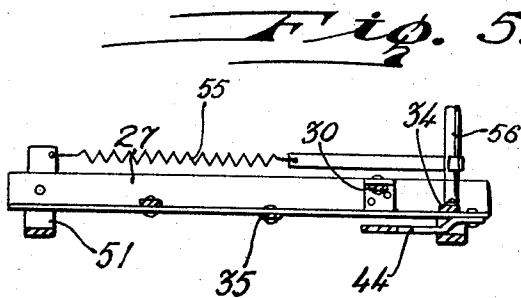


Fig. 5.

WITNESS

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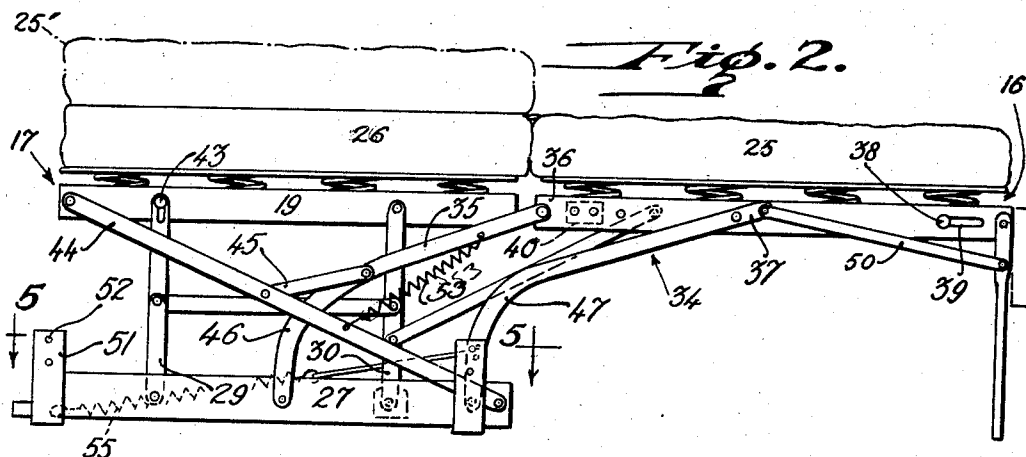
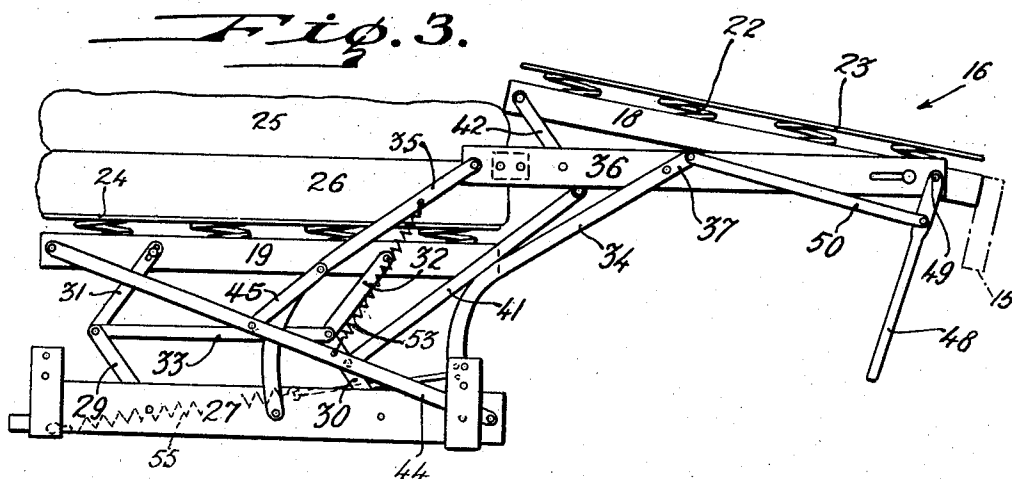
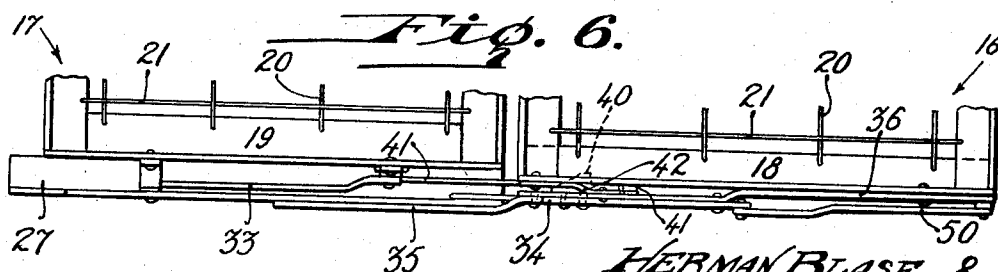
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2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

HERMAN BLASE AND KENNETH B. COWAN, OF NEW YORK, N. Y.; SAID COWAN ASSIGNOR TO SAID BLASE

FOLDING BED

Application filed August 2, 1929. Serial No. 383,644.

Our invention relates to folding beds in which a pair of sections serve in extended or folded condition as a bed or as a couch.

The primary object of the invention is the provision of operating means for readily yet compactly folding a pair of sections, which serve as a bed in the extended position, into a folded position with one section above the other to form a couch when so folded; the top section of the bed then providing a seat for the couch; yet an operating means of such character that, in a folding bed wherein each section always carries a coil-spring permanently secured thereto (such spring as deep or thick as an ordinary bed coil-spring) and the mattress to be spread over the bed when in extended condition is as thick as an ordinary folded-over mattress, the following advantages are nevertheless present,—

(a) When the bed is to be collapsed into a couch, and after the above-mentioned mattress has been folded over to lie one half thereof above the other on the inner section, the outer section may be swung in to overlie the inner section without interference as between either section and the other or as between the inswinging section and the folded over mattress on the inner section; and

(b) When the bed has been collapsed into such couch, the folded over mattress in its entirety will be housed properly in a vertical storage space then existing between the two sections, much deeper than has heretofore been possible—as shown in Fig. 4.

Preferably, when the bed is collapsed into a couch, one or more loose auxiliary cushions are employed over the coil spring of the upper section; and when the parts are expanded to provide a bed these cushions may be placed on a nearby chair or on the floor and out of the way.

In aid of the foregoing advantages, an object of the invention is the provision of a pair of horizontally disposed coacting foldable bed sections, one of which vacates its position by collapsing vertically while the other is swingable into the vacated position to locate both sections one vertically above the other.

Further in aid of the said advantages, a

further object of the invention is the provision of means for initially rocking the outer one of a pair of horizontally aligned bed sections, and then swinging that one of the sections at an inclination to the other to separate the adjoining edges of the sections before commencing the swinging-in movement of said outer section.

With these and other objects in view, the invention resides in certain novel constructional features, the essential characteristics of which, hereinafter fully described, are particularly pointed out in the appended claims, and illustrated in the accompanying drawings which show the particular embodiment of the invention at present preferred, and in which:—

Fig. 1 is a perspective of the improved foldable bed in folded condition.

Fig. 2 is an end elevational view of the bed with the outer covering removed, but with the sections swung into parallelism after having been first brought from the condition of Fig. 1 or Fig. 4 to that of Fig. 3, and with the mattress unfolded and overlying both sections and hence the bed in its entirety.

Figure 3 is a like view, but showing the bed sections in the initially separated or rocked positions.

Figure 4 is an end elevational view showing the folded position.

Figure 5 is a horizontal sectional view on the line 5—5 of Figure 2.

Figure 6 is a top plan view of one end of the device shown in Figure 2.

Referring particularly to the drawings by reference character, the numeral 10 designates the foldable bed in its entirety, the outer casing of which includes end walls 11 and 12, a rear connecting wall 13 and a front connecting rail 14, which may be constructed of wood and upholstered with any suitable material, the front panel 15 being of like constructional material.

The front and rear sections 6 and 17 are provided with frames 18 and 19, the metal of which preferably consists of right angularly disposed flanges, which are perforated to receive longitudinally disposed wires 20

and transverse wires 21 for supporting spiral springs 22 which carry yieldable webs 23 and 24 of any appropriate wiring, thereby providing resilient supports for the mattress portions 25 and 26 of the respective bed sections.

As the end structures of said bed sections are identical a description of one is equally applicable to the other. Below one end of the rear section 17 is a base member 27 on which are pivotally carried the lower ends of members 29 and 30 of collapsible linkage, which also includes top members 31 and 32. The latter members are pivoted at their upper ends on the frame 19, while a transversely disposed link 33 pivotally connects the opposite ends of said members between said frame and the base member 27, as shown. Also pivotally carried on the base 27 are the lower ends of a pair of supporting struts 34, 35, the upper ends of which are pivoted on an arm 36, while an extension 37 is provided on the strut 34 for a purpose to hereinafter appear.

The front frame 18 is pivotally movable on a pin 38 which is slidable in a slot 39 in the arm 36, while said frame normally rests on a stop 40 on said arm. This arm, while carrying said frame, is swingable rearwardly on the struts 34, 35, while a link 41, which is terminally pivoted on the linkage member 30 and on one arm of a lever 42, the other end of which is pivoted on the frame 18, urges the members of the collapsible linkage rearwardly to depress the frame 19, while the opposite arm of the lever urges the rear edge of the frame 18 upwardly and slightly rearwardly to clear the folded over mattress portions now on section 17, on the initial part of the swinging movement of the front section 16.

The member 31 of the collapsible linkage is also provided with a slot at its upper end, which is slidable on the pivot pin 43 to allow of limited rocking movement of the bed section 17. To ensure positively guided and interconnected movement of the bed sections, the rear strut 35 and a connecting link 44, which is pivoted on the base 27 and frame 19, are also pivotally connected by a link 45. On manipulation of the section 16, the weight of the descending section 17, assisted by the opening springs 53, draws the section 16 upwardly, through the medium of the link 45, while the weight of said latter section retards and controls the downward movement of the section 17.

Said springs 53, are provided with terminal hooks to attach the same to each strut 35 and link 44.

The link 44 also moves the section 17 slightly rearwardly during the downward movement of the section 17, while the frame 18, also during the swinging movement, resumes its horizontal position, pressure being applied if desired to the rear portion of the

section 16 to return the same, with the lever 42, to the stop 40. The struts 34, 35 are also provided with stops or bent portions 46, 47 which contact with the base 27 to arrest the folding movement of the section 16.

Front supporting means for the latter section, when in the extended position, include a leg 48, which is terminally pivoted at 49 to the arm 36, while the extension 37 of the strut 34, hereinbefore referred to, pivotally carries one end of a link 50, the opposite end of which is pivoted to said leg below its terminal pivot. Movement of the extension 37 about the pivot of the strut causes the link 50 to draw the leg 48 between the respective sections 16, 17, when folded.

The panel 15, which is attached to the frame 18, moves with the latter and rests above the connecting rail 14 when the bed is folded to form a couch as in Fig. 1. Both mattress portions being now folded within the deep storage space within the couch as shown in Fig. 4, any appropriate set of cushions 54 may be spread over the top of the couch as shown in Fig. 1.

Each base member 27 has, fixed to the respective ends thereof, vertically disposed plates 51, in which apertures 52 are provided for receiving fastening elements to attach said members to the ends 12 of the foldable bed.

In order to assist in closing the bed, closing springs are provided as shown at 55; there being two of these springs, one on each side of the bed, as in the case of the opening springs 53; but there being a torque rod extending the length of the bed as indicated at 56 to which rod preferably through the medium of connecting strips, as illustrated, (see Fig. 5) the inner ends of both closing springs 55 are connected for equalizing action, while the outer ends of said springs are attached to the base 27, at the lower arm of its plates 51.

While we have described what we deem to be the most desirable embodiment of our invention, it is obvious that many of the details may be varied without in any way departing from the spirit of our invention, and we therefore do not limit ourselves to the exact details of construction herein set forth nor to anything less than the whole of our invention limited only by the appended claims.

What is claimed as new is:

1. A foldable bed comprising a base, a pair of bed sections adapted to be disposed on the same horizontal plane, one of said sections movable downwardly, a link pivotally mounted on said latter section and on said base, collapsible link mechanism also connecting said latter section and said base, the other bed section swingable upwardly in a vertical plane, struts terminally pivoted on said base and on said swingable section, means comprising a link pivotally connecting said swingable section and said collapsible link mechanism,

whereby swinging movement of said swingable section collapses said mechanism to lower said downwardly movable section, and a link pivotally connecting one of said struts and said first mentioned link, whereby the descending weight of said last mentioned section is delivered to said strut to swing said swingable section upward.

2. In a foldable bed comprising a base, a collapsible bed section, including a frame, collapsible links disposed between said base and said frame, a second bed section having a frame and an arm pivoted thereto, a pair of struts terminally pivoted on said base and on said arm, said second bed section being upwardly swingable on said struts, a lever pivoted on said arm, one arm of said lever pivoted on said latter frame, and a link terminally pivoted on said collapsible links and on the opposite arm of said lever for rocking said latter frame on swinging movement of said second bed section, substantially as and for the purpose described.

3. In a foldable bed comprising a base having a rear bed section vertically downwardly collapsible thereon, said section and said base having interposed collapsible links, a swingable front bed section including a pair of arms, a frame pivoted on said arms, struts terminally pivoted on said arms and on said base, said front bed section swingable upwardly on said struts, levers pivoted on said arms, one of the ends of each of said levers pivoted on said frame, and links terminally pivoted on said collapsible links and on the opposite ends of said levers, the first mentioned ends of said levers adapted to rock said pivoted frame for moving the latter clear of said rear bed section on initial swinging movement of said front bed section.

In testimony whereof we have affixed our signatures.

HERMAN BLASE.
KENNETH B. COWAN.