

2 Sheets—Sheet 1.

BED LOUNGE.

Patented Sept. 20, 1887.



G. G. Jackson -

Inventor.
Andrew Stark
By Chas S Burton
His Attorney.

(No Model.)

2 Sheets—Sheet 2.

A. STARK.

BED LOUNGE.

No. 370,095.

Patented Sept. 20, 1887.

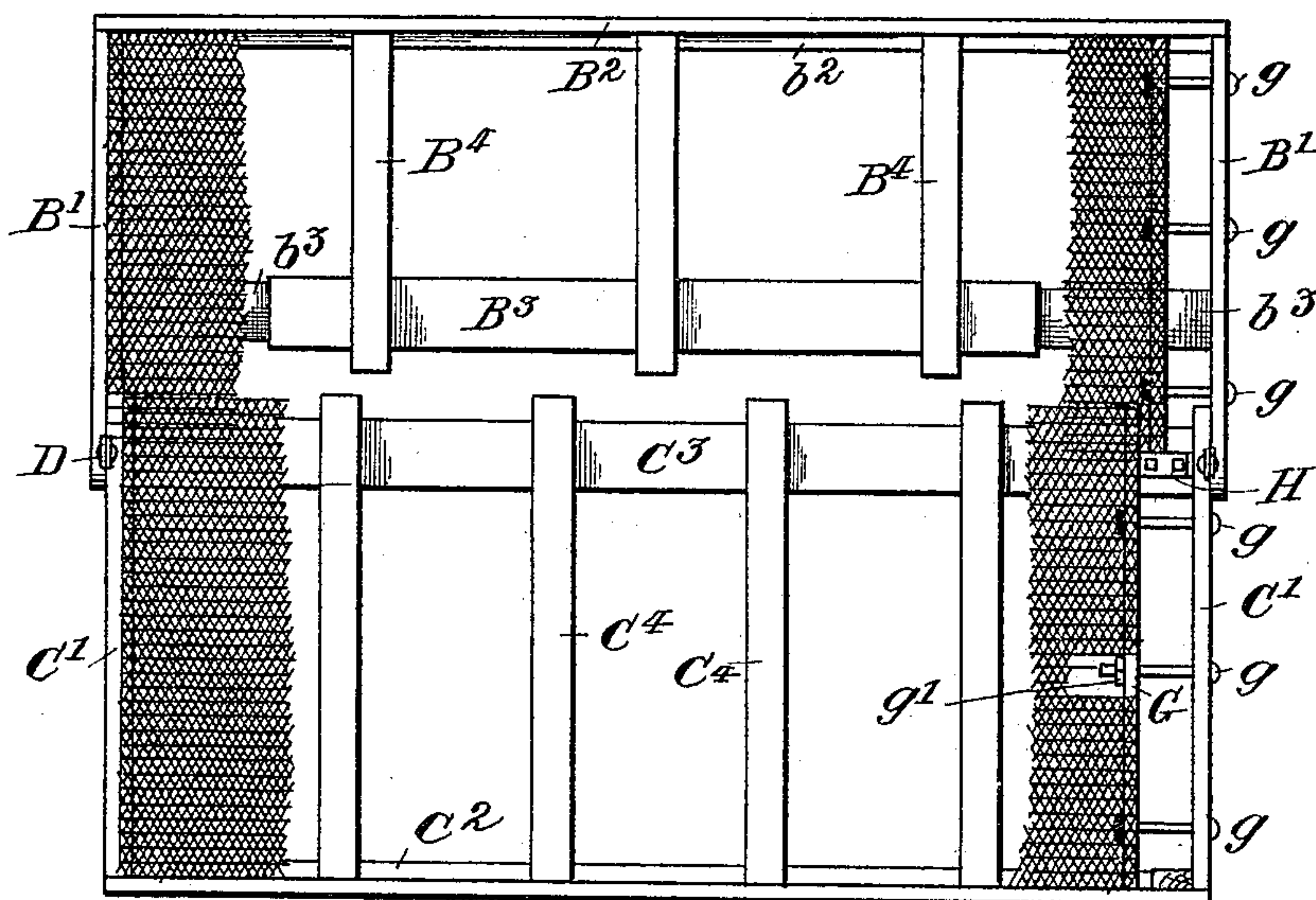


Fig. 6.

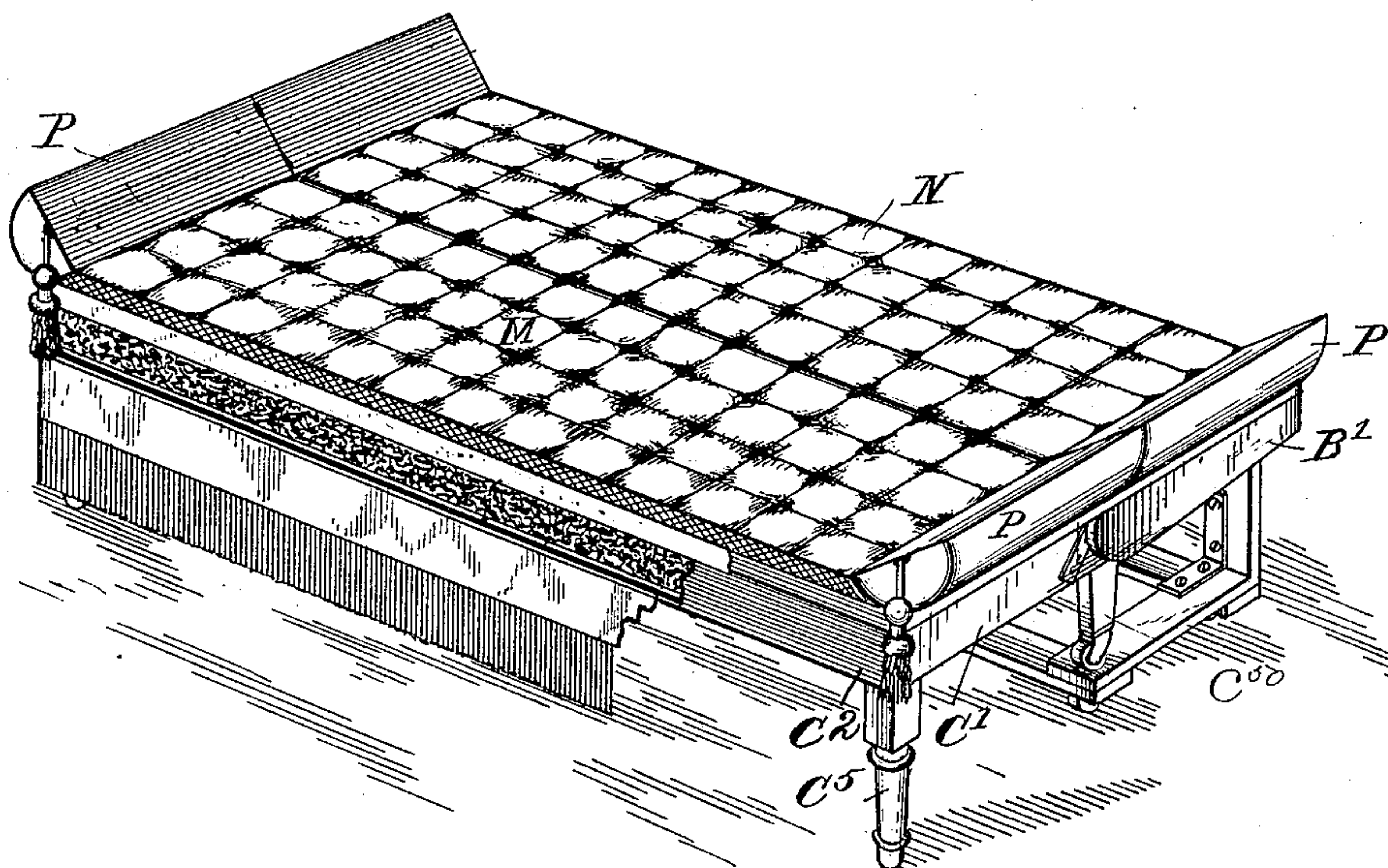


Fig. 7.

Witnesses:
Saml. B. Dover.
G. L. Jackson.

Inventor:
Andrew Stark
By Chas. S. Burton
his atty.

UNITED STATES PATENT OFFICE.

ANDREW STARK, OF CHICAGO, ILLINOIS.

BED-LOUNGE.

SPECIFICATION forming part of Letters Patent No. 370,095, dated September 20, 1887.

Application filed May 25, 1886. Serial No. 203,191. (No model.)

To all whom it may concern:

Be it known that I, ANDREW STARK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Bed-Lounges, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof, in which—

10 Figure 1 is a front perspective showing the lounge with the back raised. Fig. 2 is a transverse section of the lounge, showing the back more inclined than in Fig. 1 and with the cushions removed. Fig. 3 is a transverse section showing the lounge with cushions transformed into a flat bed, the back being laid horizontal. Fig. 4 is a plan of the framework as appearing when the back lies horizontal. Fig. 5 is a detail end elevation showing the connection between the back-frame, seat-frame, and base-frame. Fig. 6 is a plan of the back and seat frame with part of the elastic web stretched thereon and in position as a flat bed. Fig. 7 is a perspective showing the device in form of a bed and showing a slightly-modified form of the supporting parts.

The purpose of this invention is to provide a bed-lounge of simpler construction than those in present use and to attain therein the following advantages: first, that the cushions or mattresses shall not be reversed in changing from a lounge to a bed, and vice versa; second, that when laid flat to form a bed the cushions may be sustained upon spring-web or other yielding support, which shall sustain the said cushions similarly throughout the entire bed, there being no hard middle rib or hollow where the cushion rests upon a rigid part of the frame or lacks the elastic support; third, that the back may be set at any desired inclination and remain as set without the use of any locking mechanism; fourth, that it may be changed from lounge to bed and from bed to lounge without moving from the wall against which it may be placed when used as a lounge—that is, so that the rear top line of the back shall descend approximately vertically when it is changed in form from lounge to bed. While attaining these advantages I aim to render it easy of manipulation and ornamental in appearance by means of certain details of construction set out in the claims.

A is the base. B is the back-frame. C is the seat-frame.

The base is preferably made in the form of a box, as shown in Figs. 2, 3, and 4, and such box affords a convenient receptacle for the bedding when the device is to be used as a lounge; but it may be made without inclosing sides, as seen in Fig. 7, although in such structure some of the minor advantages above recited are sacrificed.

In the forms illustrated in Figs. 1 to 5, inclusive, A' is the bottom of the box A. A² A² are the ends; A³, an intermediate vertical transverse partition. A⁴ is the front side. A⁵ is the rear side.

The back-frame B is composed of the similar ends, B' B', the top or back rail or bar, B², the longitudinal bar B³, and the spring-supporting cross-bars B⁴. The longitudinal bar B³ is secured at the ends to the end bars, B', by means of the straps b³ b³, by which the said bar B³ is suspended to the level of the lower edge of the end bars, B'. The top or back rail, B², is provided with the lip b² in its inner surface, at the lower edge, to afford fastening for the upper or rear ends of the cross-bars B⁴, and said bars are further supported by being extended across the longitudinal bar B³, and, if desired, they may be fastened thereto.

The seat-frame is composed of the similar end bars, C' C', the front bar, C², joining the end bars, the rear bar, C³, also joining the end bars near their rear ends, and the cross-bars C⁴, secured to the lip c² on the front bar, C², and resting on and preferably secured to the rear bar, C³. The end bars and the front bar of the seat-frame and the end bars and the top bar of the back-frame stand edgewise, forming three sides of an open box-like frame; but the rear bar of the seat-frame and the longitudinal bar B³ of the back-frame are placed flatwise at the back or bottom of the box-frames, for a reason which will hereinafter appear. The end bars of these two frames overlap a short distance, and the frames are hinged together by hinges D D, secured to the end bars and folding at a line forward of the rear end of the seat-frame, as seen in Figs. 2, 3, and 5. The seat-frame has at the front edge the legs C⁵, which rest upon the floor. The rear end may be supported by similar legs, C⁵⁰, which, however, rest not upon the floor,

but upon the base-frame A, as seen in Fig. 7. In the preferred construction shown in the other figures the rear of the seat-frame is supported by resting the rear bar, C³, on the upper edges of the end bars, A² A², of the base-frame A. In either case the forward side of the back-frame is upheld by the same support, being hinged to the seat-frame at that edge, as described.

The back-frame is further supported by the links E, which are pivoted to the end bars, B', of the back-frame some distance from the forward or lower ends, and extend thence to the rear bar, A⁵, of the base-frame, being pivoted thereto near the upper edge. A convenient mode of making this construction is seen in the plan of the frames, Fig. 4, rigid studs $\alpha^5 \alpha^5$ being projected outward from the ends of the back bar or board of the base-frame A, and similar studs, $b' b'$, being projected inward from the end bars, B' B', of the back-frame, and the links E E being pivoted on said studs. The length of the links E E should be preferably approximately equal to the distances of the pivots b from the folding-line of the hinge D, and that distance somewhat less than half the length of the end bars, B', for a reason which will hereinafter appear.

F is an elastic web, as of woven wire, which is stretched longitudinally between the end bars of the seat-frame. F' is a similar web, similarly stretched between the end bars of the back-frame. I prefer to secure them, as illustrated, by fastening one end directly to one end bar and the other to a stretching-bar, G, and connecting said stretching-bar with the other end bar by the bolts $g g$, which are inserted horizontally through both the stretching-bar and the end bar, the nuts g' being applied inside the stretching-bar G'. By screwing up the nuts g' the stretching-bar G' may be drawn closer to the end bar and the web given any desired tension. The web being thus connected to the upper edges of the end bars tends to distort them by binding them inward at the said upper edges. This tendency is resisted at the front edge of the seat-frame and the top or rear edge of the back-frame by the front and top bars, respectively, of said frames; but the rear bar, C³, of the seat-frame cannot be set edgewise at the front bar, nor secured at the upper edge of the end bars, because if so placed it would be immediately in contact with the cushions when the device is arranged as a flat bed and prevent the continuous elasticity of the bed, which is sought.

In order, therefore, to supply the longitudinal bracing needed for the upper edges of the rear ends of the end bars of the seat-frame, I provide the corner-brackets H H, which I secure upon the upper surface of the rear bar, C³, close into the angles between said bar and the end bars. The end bars of the back-frame being made to lap over the end bars of the seat-frame, on the outside thereof, also get the benefit of the bracing afforded by these brackets.

To increase the comfort of the bed, the spiral

springs K K may be provided, resting on the cross-bars B⁴ and C⁴ and extending up against the under surface of the elastic web F. The said cross-bars are provided expressly for this purpose.

By drawing the seat-frame forward the back-frame, moving with it at the lower forward side, is caused to decline at the upper rear side, but, nevertheless, is supported in all positions by the brace-links E E; and the approximate equality of the two upper sides of the triangle formed by the link, the end bar, B', and the end bar, A², (the equality, that is to say, of the length of the link and of that part of the end bar, B, from the pivot of said link to the edge of the bar A²,) causes the line of descent of the upper bar, B², to be substantially vertical, so that if the lounge stands against the wall it may be laid flat to form a bed without disturbing the position of the base-frame, merely drawing the seat forward and allowing the back to descend, as described.

The friction of the rear bar, C³, of the seat-frame resting and sliding on the end bars, A², of the base-frame, is sufficient to prevent the weight of the back or even any moderate pressure thereon from causing the back to descend, except after it has already been lowered almost to a horizontal position; but since it is desirable to use the device as a reclining-bed, and to be able to set the back almost horizontal and rely upon its fixedness in that position, I provide the spring J, attached at one end to the lower rear part of the base-frame and at the other end to link J', which in turn is connected to the forward edge of the rear bar, C³, of the seat-frame. When the seat is farthest back, the spring will lie on the bottom of the box which forms the base-frame, its joint to the link J' folding, as illustrated in dotted line, Fig. 2; but when the seat is pulled forward to a position, as that shown in Fig. 2, where the friction between the frames cannot be relied upon to prevent unintentional movement, the link J' pulls up the spring into line with itself, as seen in full lines in Fig. 2, and further forward movement of the seat is resisted by the spring, and with constantly-increasing force as the seat moves farther forward, so compensating for the constant loss of resistance due to the diminishing angle between the back and seat frames. In order that, notwithstanding the friction described, the seat-frame may be easily pulled forward when desired, I provide rear bar, C³, of the seat-frame with the rollers L L, flush with or slightly above the lower surface, and located rearward of the rear edge and immediately above the end bars, A², of the base-frame A. By lifting the forward edge of the seat-frame the weight of the said frame at the rear is thrown onto the rollers, relieving the friction otherwise arising between the two frames when moved in contact, and rendering it easy to pull the seat-frame forward as far as desired; but upon resting the feet C⁵ upon the floor the bar C³ comes into contact again with the bars A²,

and, besides, the feet themselves, resting on the floor, tend very greatly to resist the forward movement of the seat.

The cushions on the back and seat M and N, respectively, are caused in all positions to match, and to have the support under their entire extent of the elastic web by the following feature of construction: The seat-web extends rearward beyond the folding-line of the hinges D D. The seat-cushion also extends rearward beyond said line, but not quite so far as the web, but to a distance about equal to its thickness. The back-web, on the contrary, stops short of the said folding-line as much as the seat-cushion extends beyond it, and the back-cushion is coextensive at its lower surface with the web on which it rests, but projects forward in an undercut or beveled lip, *m*, and the rear edge of the seat-cushion is beveled or curved at its rear corner at *n*, as about the folding-line of the hinges D. When, now, the back is folded up, the lower edge of its web moves up around the curved or beveled corner *n* of the seat-cushion, and its cushion, whose lip *m* slightly overhangs the said curved or beveled corner *n* when the back is horizontal, also moves said lip up around said corner, and thus at all positions the junction between the cushions is kept close and uninterrupted, and each cushion has the web always supporting it back of the entire extent. The seat-web, by extending slightly farther back than its cushion, projects under the back-web, which therefore overlaps it a short distance when the back is laid horizontal. This insures that the two webs cannot, by being unequally loaded, be stretched away from each other and cause a rift between them, through which the cushions might be forced to their damage and the disturbance of the equality of the surface of the bed.

For the arm-rests for the lounge I provide the rolls P P, which are made in semi-cylindrical halves hinged together at the end, and adapted each to be opened out, exposing a flat surface the full length of the width of the bed when the back is laid horizontal. I prefer to secure the lower half of the seat-cushion and to place them so that the diametrical plane on which they open (indicated by the lines *v v* on Fig. 1) shall stand sloping slightly upward from the seat-cushion. When opened out, one of them affords an upward-sloping cushion, which serves as a bolster on which the usual pillows are placed when the device is used for a bed, while the other is serviceable at the foot, or may be removed.

To prevent the lounge when the back is erect from being pushed back against the wall, whereby it might be forced over forward, to the damage of the cushions and straining of the hinge, as well as to the damage to the ornamentation of the wall, I provide the blocks A⁶, which are secured to the outer surface of the back-board A⁵ of the base and extend rearward the full distance that the back in any position overhangs beyond the base. These blocks

are the same height as the box A, and that is about the usual height of the base-board or "mop-board" of an interior wall, and therefore when the lounge is pushed back toward the wall they come in contact with the mop-board and prevent any other part coming in contact with the ornamented portion of the wall above such mop-board. Said blocks also afford support for the back-frame when it is laid flat.

The middle cross-bar, A³, in the base-frame serves the purpose of resisting the tendency of the longitudinal bar C³ to bow downward at the middle under the strain of the webs F and F', stretched on the seat and back frames, respectively, and by upholding the weight at the middle to prevent the sagging of the bed when occupied.

I am aware that heretofore structures have been designed having the back and seat hinged together and the seat supported on a base and adapted to slide thereon, while the back has been sustained by a link connected to the base or support, so that the sliding of the seat caused the back to descend; and in particular I am familiar with patent to J. C. Emery, No. 5,641, dated June 20, 1848, which shows such a structure; but in his said structure and in all of like character heretofore, so far as I am aware, the link connecting the back to the supporting-base has been pivoted to said base at a point forward of the back and above the seat, and, being so pivoted, the back in descending must also move its upper edge backward, and cannot be laid flat to form a bed without moving the device out from the wall more or less, whereas when the link is pivoted, as in my structure, the change from sofa to bed may be effected while the base stands in such position that the back, when raised, is close against the wall.

I claim—

1. In combination, substantially as set forth, the seat-frame, the back-frame, and the base-frame, the two former hinged together near the rear edge of the first and the lower edge of the second and supported and adapted to slide on the base-frame, and bracing-links connected to the back-frame above said hinged edge and extending thence back and down to and pivoted at the rear portion of the base-frame below the level of the hinge, between said seat and back frames, whereby in unfolding the upper edge of the back-frame descends along an approximately-vertical line to bring said back-frame horizontal, substantially as set forth.

2. In combination, substantially as set forth, the seat-frame and the back-frame hinged together and the elastic web stretched onto each of said frames, the web on the seat-frame extending rearward beyond the hinge-axis and the web on the back-frame terminating at the lower edge above said hinge-axis.

3. In combination with the seat-frame and back-frame, the elastic webs stretched upon them, respectively, the web on the seat-frame

extending rearward beyond the hinge and the web on the back-frame terminating at the lower edge above the hinges, and the cushions on the seat and back, respectively, the former
5 extending rearward beyond the hinge and beveled on the upper edge and the latter terminating at the lower or forward edge above or behind the hinge and undercut or beveled at that edge.

10 4. In combination with the seat-frame having the foot and head bars and the web stretched between them, and having the rear longitudinal bar joining said head and foot bars, the base-frame having the middle bar to resist the
15 bowing of the longitudinal bar of the seat-frame when strained by the web, substantially as set forth.

5. In combination with the seat-frame and base-frame, the two former hinged together and sliding on the base-frame, and the back-frame 20 linked to the base-frame, substantially as described, the retractile spring connected to the seat-frame and to the rear part of the base-frame, tending to resist forward movement of the seat-frame relatively to the base, substan- 25 tially as set forth.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 22d day of May, A. D. 1886.

ANDREW STARK.

Witnesses:

CHAS. S. BURTON,
F. W. PARKER.