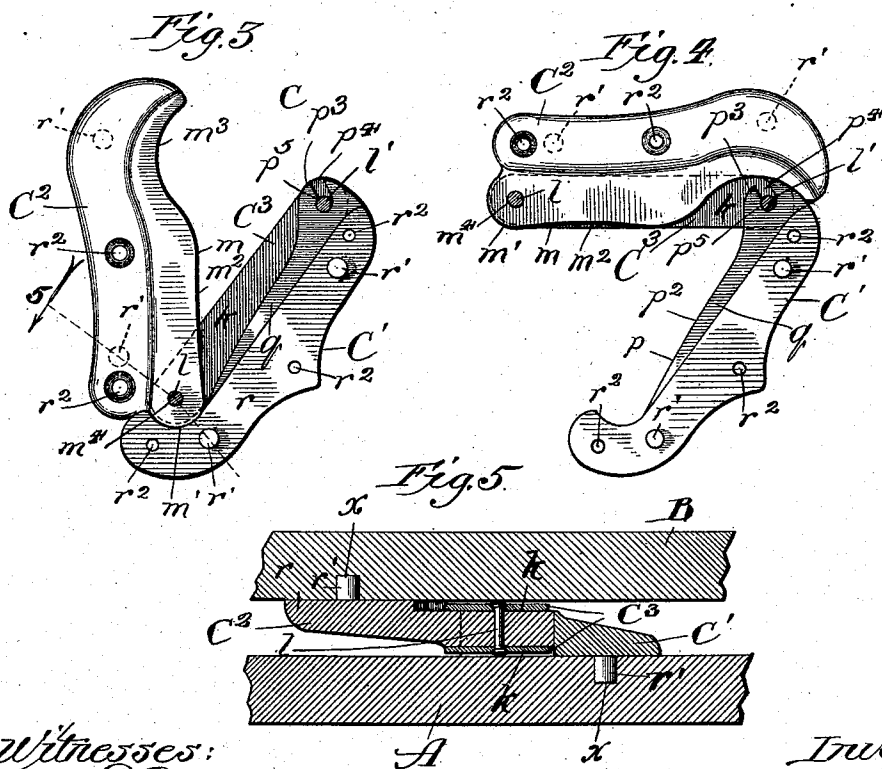
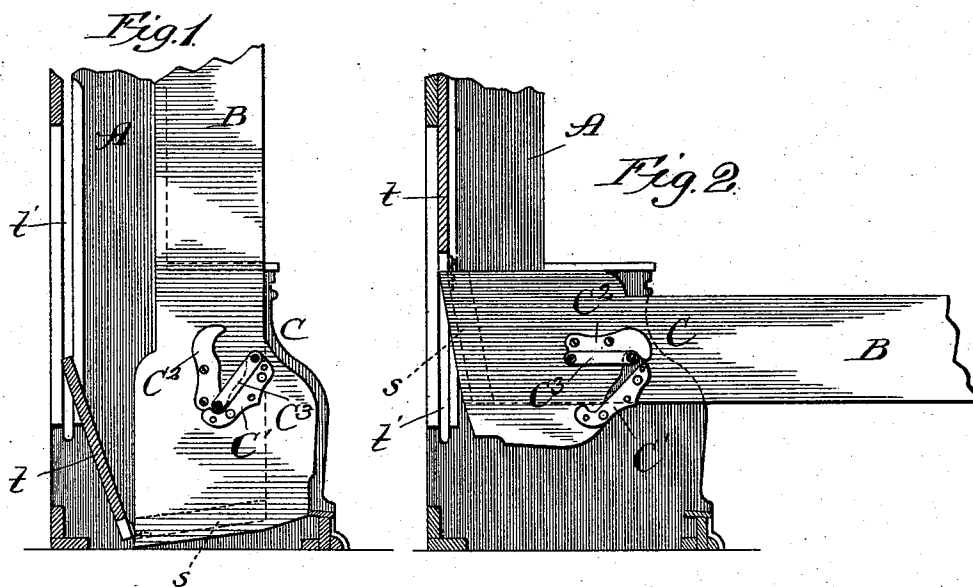


(No Model.)

J. PERSON.
FOLDING BED HINGE.

No. 532,579.

Patented Jan. 15, 1895.



Witnesses:
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JOHN PERSON, OF CHICAGO, ILLINOIS.

FOLDING-BED HINGE.

SPECIFICATION forming part of Letters Patent No. 532,579, dated January 15, 1895.

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To all whom it may concern:

Be it known that I, JOHN PERSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Folding-Bed Hinges, of which the following is a specification.

My invention relates to improvements in hinges of the class employed more especially in folding-beds for securing together the stationary supporting-frame and counter-balanced swinging couch portion.

My object is to provide a hinge, more especially for the purpose mentioned, of improved construction, whereby the opening and closing of the bed are rendered particularly easy to accomplish; the action will be steady and free from any rattling or jarring movement, and, furthermore, whereby the swinging-couch and stationary frame portions may be readily detached from each other when desired.

To the above ends, my invention consists in the general construction of my improved hinge, as well as in details of construction and combination of parts all as hereinafter set forth and claimed.

In the drawings—Figure 1 is a vertical and broken section of a folding-bed, in its raised or closed position, and showing my improved hinge connecting the swinging-couch with the stationary-frame; Fig. 2, a view of the same character as Fig. 1 but showing the bed in its lowered or open position; Fig. 3, an enlarged view of my improved hinge showing the relative positions of the parts when the bed is closed, one of the links being removed for purposes of illustration; Fig. 4, a view the same as Fig. 3, but showing the relative positions of the parts when the bed is open; and Fig. 5, an enlarged broken sectional view of the stationary frame and couch portion at one side of the folding-bed, the hinge being in a section on line 5 of Fig. 3 and viewed in the direction of the arrow.

A is the stationary frame-portion of the bed, and B the swinging couch. The couch B may be provided with the usual hinged leaf or pillow-holder *t* which moves at its free edge in a guide *t'* on the main frame, and with the usual box *s* containing the counter-balancing weights.

C is the hinge formed of a stationary member or track-piece *C'*, a rocking member *C*² and a link connection *C*³. The members *C'* and *C*² are provided on relatively opposite sides with flat faces *r* from which project studs *r'*; and they are also provided with screw-holes *r*², all preferably disposed as shown. The studs *r'* fit in the sockets *x* in the parts A and B of the bed and are held rigidly to the said parts by means of screws passing through the said screw-holes. The member *C'* is formed on its inner side, at the surface *r*, with a recess *q* presenting a shoulder and straight surface. The upper edge of the said member, adjacent to the recess *q*, presents a tread *p* having a rounded socket *p'* at one end, slightly bulging curved portion *p*² and rounded projecting end-portion *p*³ provided with a socket *p*⁴ having a recess *p*⁵ in its base. The rocking-piece *C*² is provided on its inner side, at the surface *r*, with a recess *n* corresponding with the recess *q* of the track-piece *C'*, and its edge *m*, which forms the tread of the rocker-piece, has a rounded end *m'* adapted to fit the socket *p'*, an inwardly curved edge *m*² to fit the surface *p*² and an ogee recessed portion *m*³ of the relative length and of the contour indicated. At the center of the arc described by the end-portion *m'* is a bearing opening *m*⁴ for a transverse pin *l*.

The link-connection *C*³ comprises two parallel bars *l* *l* held together at one end against opposite sides of the member *C*² by the pin *l* and fastened in rigid relation at its opposite end-portion by a pin *l'* adapted to enter the socket *p*⁴ of the member *C'* and rest in the recess *p*⁵.

The hinges on opposite sides of the bed are made exactly alike, except that their side faces are reversed, as will be readily understood, to fit and be fastened against the surfaces of the parts A and B at the opposite sides of the bed. In other words, the hinges are provided in pairs, one being the right-hand hinge and the other the left-hand hinge.

The track-pieces *C'* are fastened to the stationary frame A at the proper location and so as to extend at an angle of about fifty degrees to the horizontal plane; and the rocker-pieces *C*² are fastened to the sides of the couch portion to extend longitudinally thereof, whereby, when the bed is raised or closed,

they will extend approximately in the vertical plane. The rocker-pieces C^2 carry the link connections C^3 and both they and the track-pieces C' are fastened in place while the frame A and couch B are separated.

In putting the frame and couch-portion together, the couch is lifted between the upright sides of the frame and the pins l' of the links are slipped into the sockets p^4 of the track-pieces C' . The box s is provided with weights sufficient to hold the bed with desired steadiness in a vertical position when raised. The rocker-pieces C^2 may be turned at their ends m' in the sockets p^2 of the track-pieces from their vertical position, shown in Fig. 3, to a position at about twenty degrees from the vertical plane before the surfaces m^2 engage the track-surfaces p^2 .

When the bed is being lowered and the surfaces m^2 strike the track surfaces p^2 the fulcrum shifts slightly until the couch extends at an angle of about forty-five degrees. In the further lowering of the couch the fulcrum is shifted more abruptly to the pin l' while the recessed surfaces p^4 of the rocker-pieces slide upon the end surfaces p^3 of the track-pieces. During the movement the links extend in the recesses q, n , and embrace the reduced edge portions of both the hinge members C' and C^2 to hold them steady against lateral play; and they also serve to prevent slipping of the surfaces upon each other. The recesses p^3 at the bases of the sockets p^4 prevent any undue jarring of the couch in its movements from causing the pins l' to spring out of the sockets p^4 . The construction of the tread surfaces of the rocker-pieces and track-pieces produces a very even and steady movement of the couch-portion both when raised and lowered. Thus in lowering the bed it rocks initially without change of fulcrum from the vertical position to an angle of about fifty degrees, at which time the weight of the foot portion of the couch commences to overbalance the weighted head-portion. In its further movement, as the relative weight of the foot-portion increases, the fulcrum changes comparatively slowly, until the couch is at an angle of forty-five degrees, whereby the action of the counter-balance weight will increase but more slowly than that of the foot-portion, and will nearly but not quite counter-balance the increased weight which the operator must sustain. While the couch is being moved from an angle of forty-five degrees to the horizontal plane the entire head-portion of the couch is lifted abruptly, while the surfaces m^3 move across the surfaces p^3 , and the action of the counter-balance is thus increased to an extent which causes the couch at its foot to rest lightly, though with sufficient firmness, upon the floor. In closing the bed the counter-balance decreases first of all rather abruptly while the

lower part of the couch is moving from the greatest angle of its extent, and less abruptly as it moves to an angle of say fifty degrees, after which it will swing gently of its own accord to the vertical plane. The action is much more smooth and easy than can be accomplished with rocking hinges of any other construction of which I am aware, while, owing to the links, the couch moves with great steadiness and without noise.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a folding-bed hinge the combination of a track-piece, having a tread presenting a socket toward one end and a rounded head at the opposite end, and disposed at an angle about midway between the vertical and horizontal planes, a rocker-piece, having a tread presenting a rounded head at one end, to engage the socket of the track-piece, and a recess toward its opposite end, to engage and slide upon the head of the track-piece, and a link-connection pivotally secured at opposite ends respectively to the track and rocker-pieces, substantially as and for the purpose set forth.

2. In a folding-bed hinge the combination of a track-piece, disposed at an angle about midway between the vertical and horizontal planes, having a tread p formed with the concave bearing surface p' at one end, convex bearing surface p^3 at the opposite end and an intervening bearing surface p^2 , a rocker-piece having a tread m formed with the convex bearing surface m' at one end, concave bearing surface m^3 at its opposite end and intervening bearing surface m^2 , and a link connection comprising two parallel side-bars pivotally secured at opposite ends, respectively, to the ends of the track and rocker pieces, the said track and rocker-pieces being recessed on their rear sides to receive the side bars of the link, the parts being constructed and arranged to operate substantially as and for the purpose set forth.

3. In a folding-bed hinge, the combination of a track-piece, C' , having a tread p , formed with the bearing surfaces p', p^2, p^3 and the socket p^4 , a rocker-piece, C^2 , having a tread m , formed with the bearing surfaces m', m^2, m^3 , and bearing opening m^4 , and a link, C^3 , comprising parallel side-bars k secured together and to the rocker-piece at one end by a pin l passing through the said bearing-opening m^4 , and secured together at their opposite ends by a pin l' which engages the track-piece at the socket p^4 , the whole being constructed and arranged to operate substantially as and for the purpose set forth.

JOHN PERSON.

In presence of—

J. N. HANSON,
J. H. LEE.