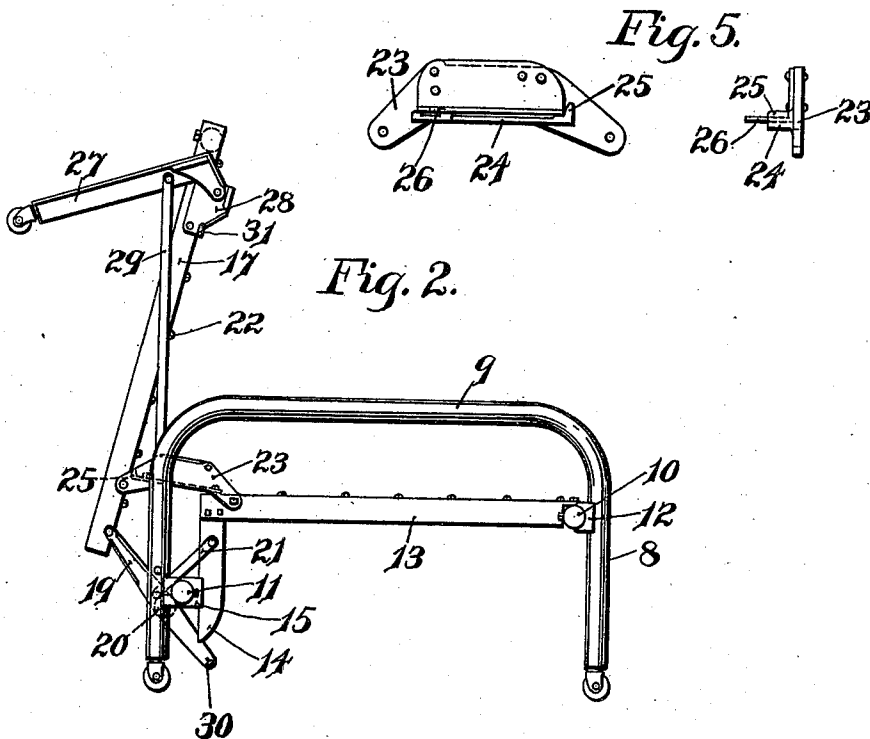
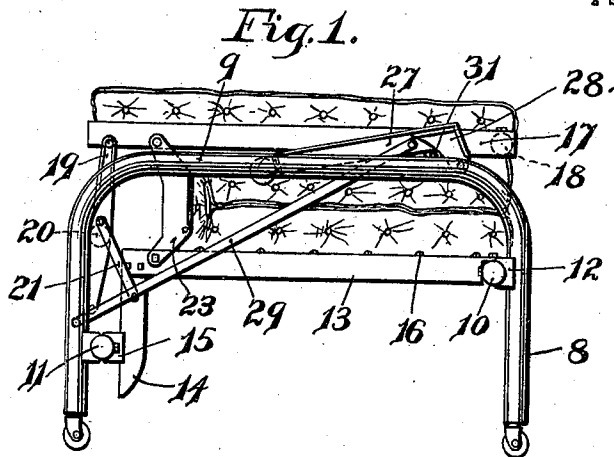


977,696.

H. B. ARNOLD.
FOLDING BED.
APPLICATION FILED APR. 8, 1910.

Patented Dec. 6, 1910.

2 SHEETS—SHEET 1.



WITNESSES:
W. H. H. H. H.
J. B. Lynch.

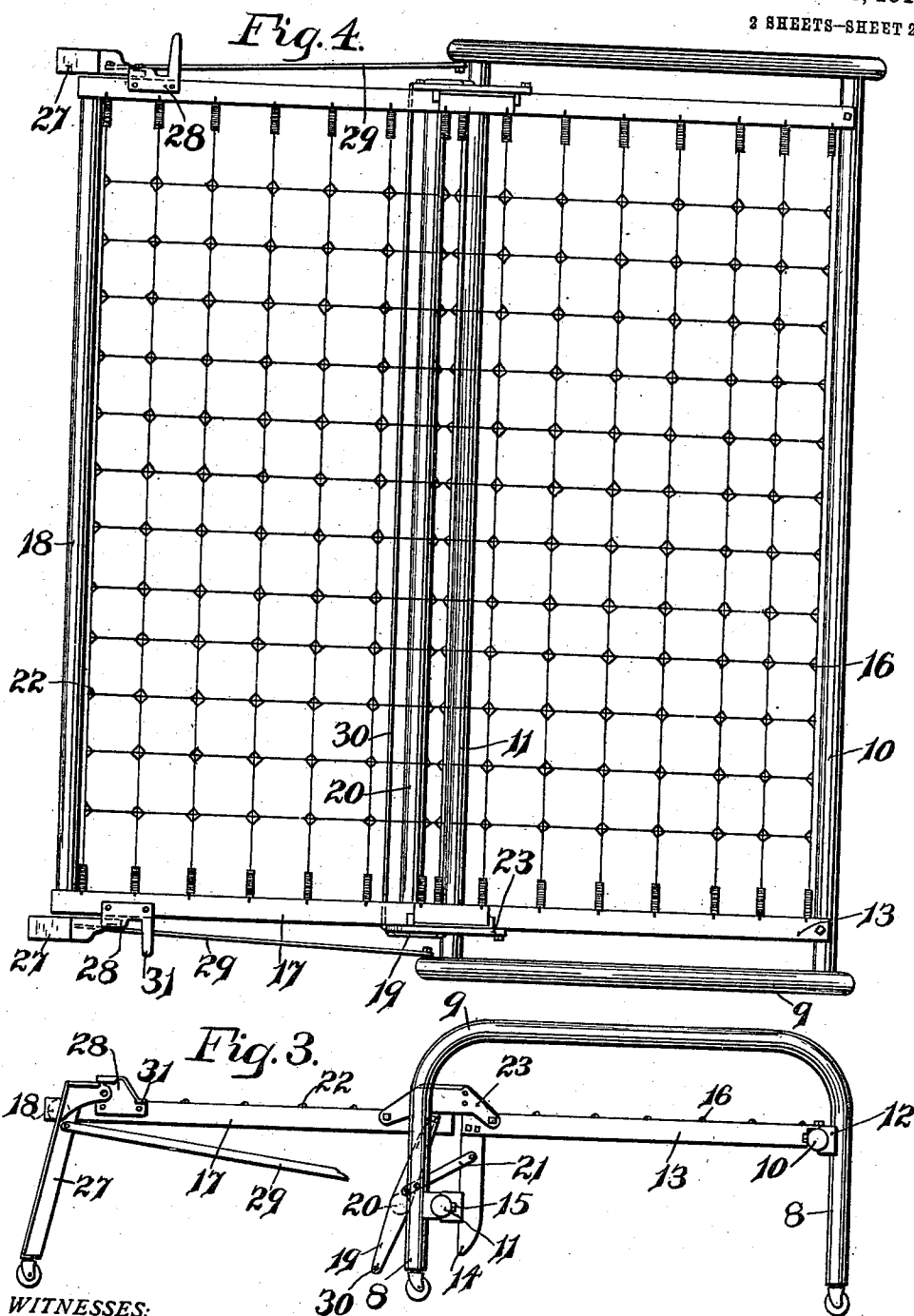
INVENTOR.
Harry B. Arnold.
BY
Arthur B. Jenkins,
ATTORNEY.

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UNITED STATES PATENT OFFICE.

HARRY B. ARNOLD, OF NEW BRITAIN, CONNECTICUT, ASSIGNOR TO THE NATIONAL SPRING BED COMPANY, OF NEW BRITAIN, CONNECTICUT, A CORPORATION OF CONNECTICUT.

FOLDING BED.

977,696.

Specification of Letters Patent.

Patented Dec. 6, 1910.

Application filed April 8, 1910. Serial No. 554,204.

To all whom it may concern:

Be it known that I, HARRY B. ARNOLD, a citizen of the United States, and a resident of New Britain, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Folding Beds, of which the following is a specification.

My invention relates more especially to that class of folding beds in which a movable part or member is pivotally connected with the main or supporting part or member of the bed, and the object of the invention is to provide a bed of this class that may be compactly folded with little inconvenience or labor, and when so folded is at once in proper condition for use as a couch; one that may be readily and easily opened out or unfolded and with little or no other preparation is immediately ready for use as a bed; and a further object of the invention is to provide a device of this kind in which full and unrestrained action of the woven fabric is obtained, thus providing a structure having all the requisites for ease and comfort in its use as a bed or couch.

One form of device embodying my invention and in the use of which the objects herein set out, among others, may be attained is illustrated in the accompanying drawings, in which—

Figure 1 is a view in end elevation of a bed embodying my invention, the structure being folded and shown in condition for use as a couch. Fig. 2 is a similar view showing the folding part or member partially opened out, the mattress being removed. Fig. 3 is a view of the bed from the same point of view but with the folding part or member entirely opened out, the mattress being removed. Fig. 4 is a top plan view of the bed with the parts or members in the position shown in Fig. 3. Fig. 5 shows a face and end view of the hinge link or carrier connecting the movable part or member with the main or supporting part or member.

The main or supporting part or member of the structure, in its preferred form and as shown herein, includes end pieces and a fabric supporting frame. These end pieces are constructed of any suitable material shaped in any desired manner, preferably being composed of metal bent to provide legs 8 connected by an integral top piece or

rail 9. Side rails 10—11 of proper length are rigidly connected to the end pieces, being secured at their ends to the legs as by means of brackets 12 partially embracing the legs and rails and secured in any suitable manner.

The main fabric supporting frame includes end rails 13 each rigidly secured at one end to the side rail 10 and each having a fabric frame support 14 rigidly secured at the opposite or inner end, these fabric frame supports extending downwardly and being rigidly secured as by brackets 15, similar in construction to the brackets 12, to the side rail 11, which brackets also secure said side rail to the legs at a point lower than the side rail 10. The entire main or supporting part or member is thus rigidly constructed and the main woven fabric 16 is secured in any suitable manner to the end rails 13.

The pivotally supported or swinging member of the bed includes end rails 17 rigidly connected at or near their outer ends by a side rail 18 of a length to locate said end rails within and between the end pieces of the main supporting member and in the same plane as the end rails 13, which are also located between the end pieces of the main supporting member.

Swinging arms 19 are each pivotally attached at one end to the inner end of each end rail 17, a rod 20 with its ends located in sockets in the arms holding them from movement toward each other, and a tie-rod 30 securely fastened to the ends of the arms preventing them from separating. Each of said arms is connected by a link 21 with one of the fabric frame supports 14, said links each being pivotally attached at one end to the arm and at the other end to the fabric frame support. This construction provides a very rigid frame to which the woven fabric 22 is secured in any suitable manner.

As a means to determine and fix the relative positions of the swinging member and the main or supporting member of the bed hinge links 23 are employed. Each hinge link is pivotally secured at one end to an end rail 13 of the main fabric frame and at the opposite end to an end rail 17 of the swinging fabric frame. Each hinge link has a stop 24 so positioned that when the bed is unfolded it will rest upon an end rail 13 and thus support the inner end of the rail 17, said end rails being then located with

the fabric supported thereon practically in a horizontal plane. These stops are preferably integrally formed with the hinge links and each has an upturned edge 25. A plate 5 26 is secured to each hinge link, in the construction shown this plate constituting part of an angle iron resting upon a stop 24 of a hinge link and forming a holding means for a portion of the main fabric 16, the end of which at or near the inner edge is secured to 10 said plate.

A folding leg 27 is pivotally secured to each end rail 17 of the swinging member of the bed, any suitable means of attachment 15 being employed. In the form shown a leg bracket 28 is firmly secured to the end rail and the leg pivotally attached to said bracket. A link 29 is pivotally attached to each leg 27, the opposite end of each link being pivotally attached to a leg 8 of one of the end pieces of the supporting member of the structure. The pivotal points of attachment of the legs and links are so arranged that when the swinging member of the 25 bed is folded over the legs will be swung into and occupy the position shown in Fig. 1, and when the swinging member is opened out the legs will be brought into and occupy the position shown in Fig. 3, in which they support the outer edge of the swinging member of the bed. Each bracket has a prong 30 31 projecting lengthwise of the bed and in position to encounter the top rails 9 and thus determine the folded position of the swinging member of the bed with respect to 35 the stationary member.

The upturned edge 25 on each of the hinge links forms a stop to limit the swinging movement of the end rails 17 on their pivotal attachment to the hinge links 23, the 40 initial movement of the swinging member of the bed from its open toward its closed position being upon the pivots attaching the end rails to the hinge link 23 until said rails encounter said stop, when further swinging 45 movement is upon the pivot attaching the hinge links to the end rails 13.

The operation of the device will be readily understood from the showing of the different 50 positions of the structure as brought out in the drawings.

The function of the hinge link 23 is in effect that of a carrier as well as a hinge link, the swinging member of the bed being carried 55 by said hinge link from one position to another to relatively locate it in proper place with respect to the supporting member of the structure. The arms 19, links 21, rod 20 and tie-rod 30 form a strut frame that 60 rigidly holds the inner ends of the rails 17 in place, resists the lengthwise strain of the helical springs supporting the ends of the woven fabric, and at the same time locates all members extending from one end of the 65 structure to the other so far below the woven

fabric that there is no interference with the full elastic action of said fabric.

I do not limit my invention and the scope of the following claims to the foregoing illustration and description of the preferred 70 form of the invention in which it is shown as embodied, as these may be departed from to a greater or lesser extent without avoiding the invention.

I claim—

1. A folding bed including a supporting frame having end rails rigidly connected by a side member secured thereto, said frame being open at the opposite side, means rigidly fixed against movement and located 80 beyond the point of possible contact with a fabric supported by said member for holding the end rails rigidly in fixed relation at the open side of the frame, a carrier pivotally secured to said frame, and a swinging 85 bed member pivotally supported on said carrier.

2. A folding bed including a supporting frame having end rails rigidly united at their ends by a side piece secured thereto, 90 said frame being open at the opposite side, downwardly projecting supports from the end rails at the open side of the frame, a rail rigidly connecting said supports and located below the point of possible contact 95 with a fabric supported by said frame, a carrier pivotally secured to said end rails, and a swinging bed member pivotally supported on said carrier.

3. A supporting member, a fabric supporting frame located below the tops of the supporting member and open at one side, fabric frame supports projecting downwardly therefrom at the open side thereof, a 100 rail secured to the supporting member and rigidly connecting the lower parts of said fabric frame supports, a carrier pivotally attached to said supporting member, and a swinging bed member pivotally supported 110 on said carrier.

4. A supporting member, a fabric supporting frame including end rails each secured at one end to the supporting member, said frame being open at the opposite ends 115 of the rails, fabric frame supports projecting downwardly from the rails at the open ends of the frame, a rail secured to said fabric frame supports to rigidly connect them, a carrier pivotally secured to said end rails, and a swinging bed member pivotally supported 120 on said carrier.

5. A supporting member including two end frames, a bar connecting said frames at one side, a fabric supporting frame having end rails rigidly secured to said bar, fabric 125 frame supports projecting downwardly from the opposite ends of each of said end rails, a rail secured at its opposite ends to each of said end frames and also secured to said fabric frame supports, a carrier piv- 130

totally secured to each of said end bars, and a swinging bed member pivotally supported on said carrier.

6. A main supporting member including two end pieces each having a top rail and legs projecting downwardly therefrom, a side bar rigidly connecting the legs on one side of said main supporting member and located toward the top, a bar located nearer the bottom and rigidly connecting the legs at the opposite side of the said main supporting member, a fabric supporting frame including end rails secured to one of said bars, downwardly projecting fabric frame supports from the opposite ends of said end rails and secured to the other of said side bars, a carrier pivotally secured to said end rails, and a swinging bed member pivotally supported on said carrier.

7. A fabric supporting frame including end rails, means located beyond the point of possible contact with a fabric supported by said frame for rigidly connecting said end rails, a carrier pivotally secured to said frame, a swinging bed member including a fabric supporting frame pivotally mounted on said carrier, said frame having a side rail but open at the side attached to said carrier, and a strut frame rigidly uniting the ends of said swinging member.

8. A folding bed including a stationary fabric supporting frame open on one side, means located beyond the point of possible contact with a fabric supported by said member for rigidly connecting said end rails at the open side of the frame, a swinging fabric supporting frame open on one side, a carrier pivotally connecting said stationary and swinging frames, a strut frame rigidly uniting the ends of the swinging frame, and means for supporting said frames.

9. A folding bed including a stationary fabric supporting frame having end rails and a rail at one side thereof, said frame being open at the opposite side, fabric frame supports projecting downwardly from the end rails at the open side of said frame, a side rail rigidly connecting said fabric frame supports below the point of possible contact with a fabric supported by said frame, means for supporting said frame, a carrier pivotally attached to the open side of said frame, a swinging member including end rails and a rail closing one side, said swinging member being open on that side adjacent to the stationary frame, said swinging frame being pivotally attached to said carrier, a strut frame rigidly uniting the ends of the swinging frame at the open side thereof, and means for supporting said swinging frame.

10. A stationary frame with means of support therefor, said frame being open on one side, a swinging frame open on the side ad-

jacent to the stationary frame, a carrier pivotally uniting said frames, means located beyond the point of possible contact with a fabric supported by said stationary frame for holding the end rails thereof rigidly in fixed relation, arms pivotally secured to the end rails of the swinging frame at the open side thereof, a strut uniting said arms at a distance from said pivot, and means for supporting the swinging frame.

11. A stationary fabric supporting frame open at one side and including end rails, means for supporting said frame, means located beyond the point of possible contact with a fabric supported by said frame for holding said end rails rigidly in fixed relation, a carrier pivotally attached to said stationary frame, a swinging fabric supporting frame including end rails pivotally attached to said carrier, said swinging frame being open on that side adjacent to the stationary frame, arms pivotally secured to the end members of the swinging frame, said arms being pivotally connected with the stationary frame, and means for supporting the swinging frame.

12. A stationary fabric supporting frame open at one side and including end rails, downwardly projecting fabric frame supports from the end rails at the open side of the frame, a bar rigidly connecting said fabric frame supports at a distance from the top of the frame, a carrier pivotally attached to the open side of said frame, a swinging fabric frame support open at one side and pivotally attached to said carrier at its open side, arms pivotally secured to both of said frames and arranged to bear upon said bar, and means for supporting said frame.

13. A supporting member, a swinging bed member, a movable, pivotal connection between said members, and a strut frame including swinging arms pivotally connected to both of said members at different points and having cross-rods rigidly uniting said arms.

14. A supporting member, a swinging bed member, a movable, pivotal connection between said members, a strut frame including swinging arms pivotally attached to the swinging bed member and having stiffening rods extending between said arms, and a link connecting each of said arms with said supporting member.

15. A supporting member, a carrier pivotally attached at each end of said member, a swinging bed member pivotally attached at each end to one of said carriers, and a strut frame including arms pivotally attached to the ends of the swinging bed member, and a plural number of rigid tie-rods uniting said arms.

16. A supporting member including a fabric supporting frame having downwardly extending supports rigidly secured thereto,

a side rail secured to the supporting member and sustaining said frame support, a carrier pivotally attached to the fabric supporting frame, a swinging bed member pivotally attached to said carrier, and a strut frame pivotally connecting the swinging bed member and the supporting member.

17. A supporting member including a fabric supporting frame, fabric frame supports projecting downwardly therefrom, a rail secured to the supporting member and rigidly connecting said fabric frame supports, a carrier pivotally attached to said supporting member, a swinging bed member pivotally attached to said carrier, and a strut frame rigidly connecting the ends of the swinging bed member and pivotally con-

nected to the swinging member and the supporting member and including a link having a bearing upon said rail.

18. A supporting member including a fabric supporting frame, and a top rail located above said fabric supporting frame, a carrier pivotally attached to the fabric supporting frame, a swinging bed member pivotally attached at one edge to said carrier, and a stop at the outer edge of the swinging bed member arranged to engage said top rail to limit the movement of the swinging bed member.

HARRY B. ARNOLD.

Witnesses:

M. R. CODAIRE,
I. TOWERS.