G. FISCHRUPP.

FOLDING BED.

APPLICATION FILED FEB. 20, 1913.

1,078,908.

Patented Nov. 18, 1913.

4 SHEETS—SHEET 1.

Fig. 1.

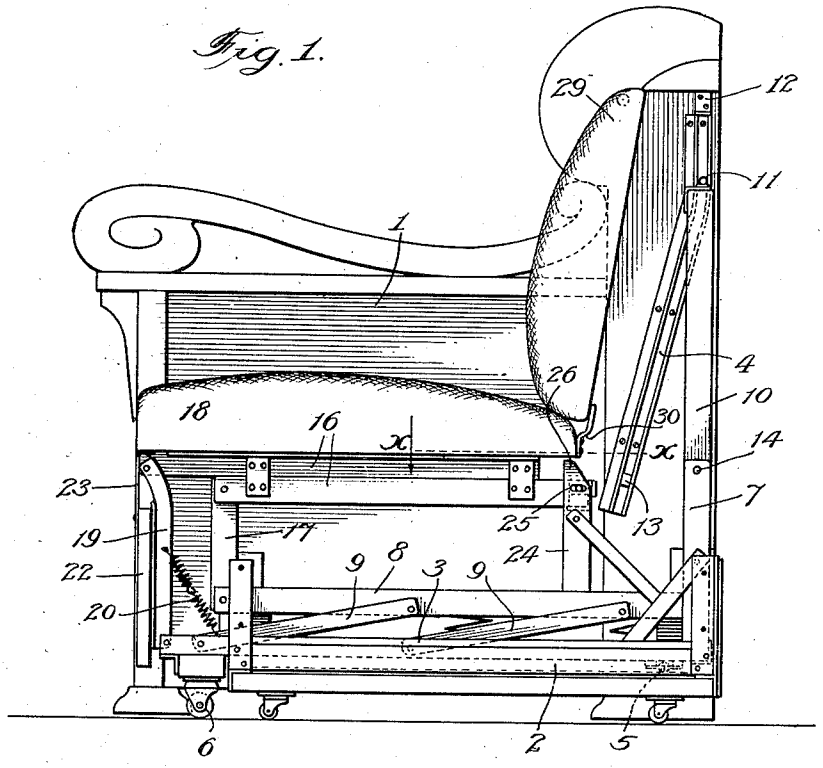


Fig. 2.

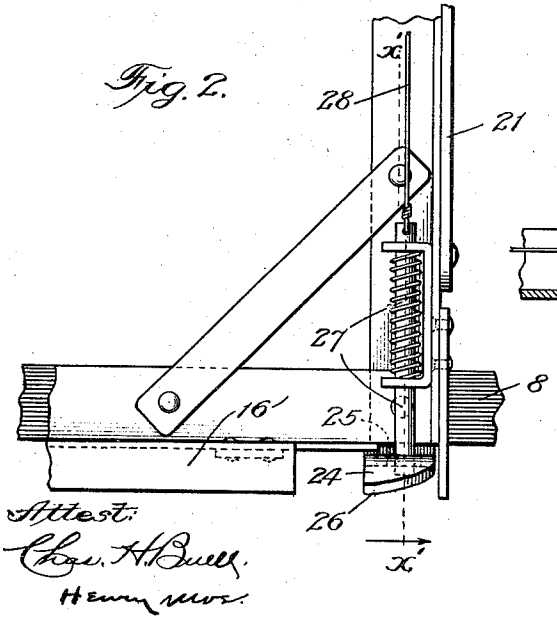
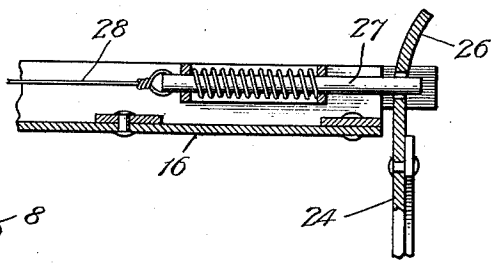


Fig. 3.



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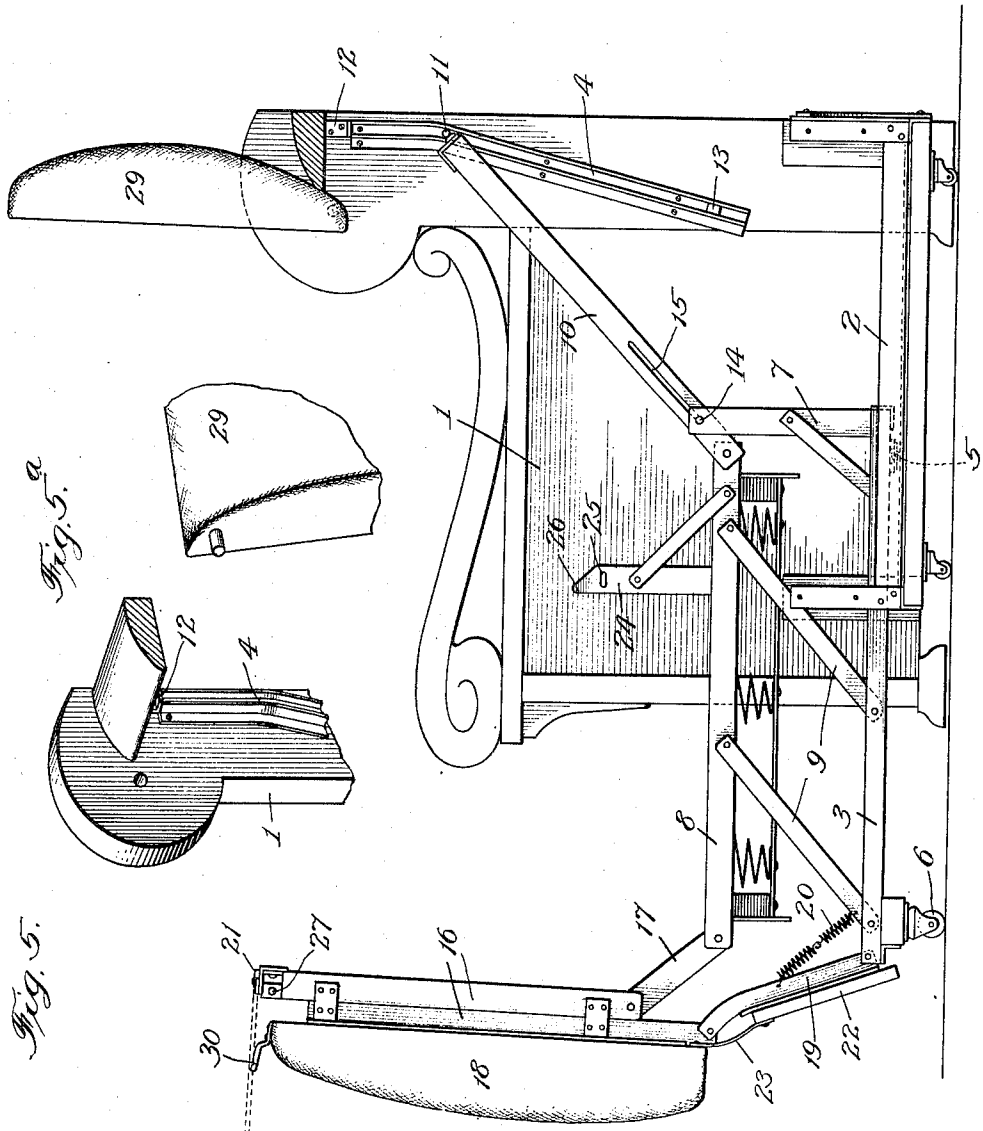


Fig. 5.

Fig. 5a.

Fig. 4.

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4 SHEETS—SHEET 3.

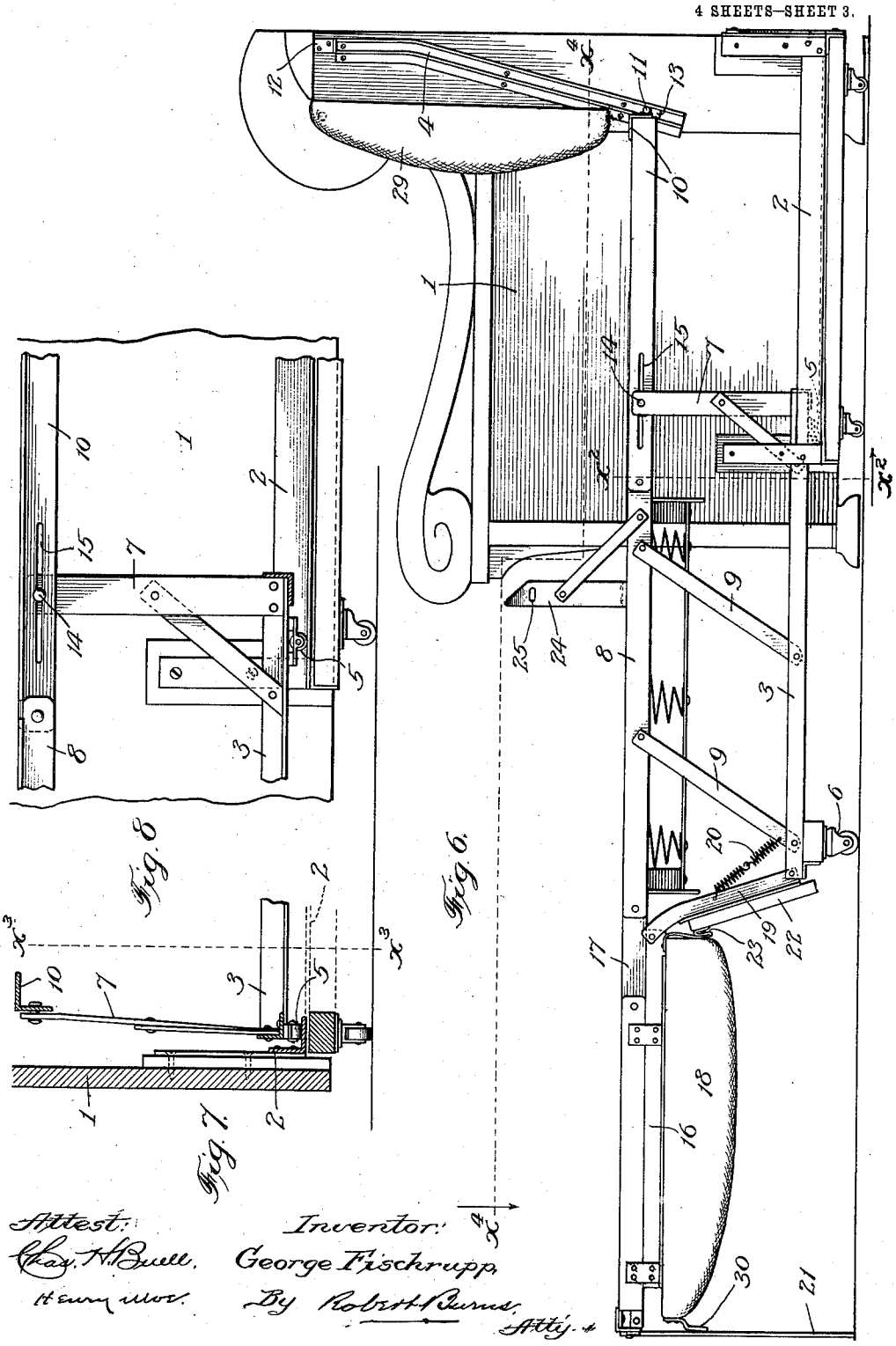


Fig. 6.

Fig. 6.

Fig. 7.

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4 SHEETS—SHEET 4.

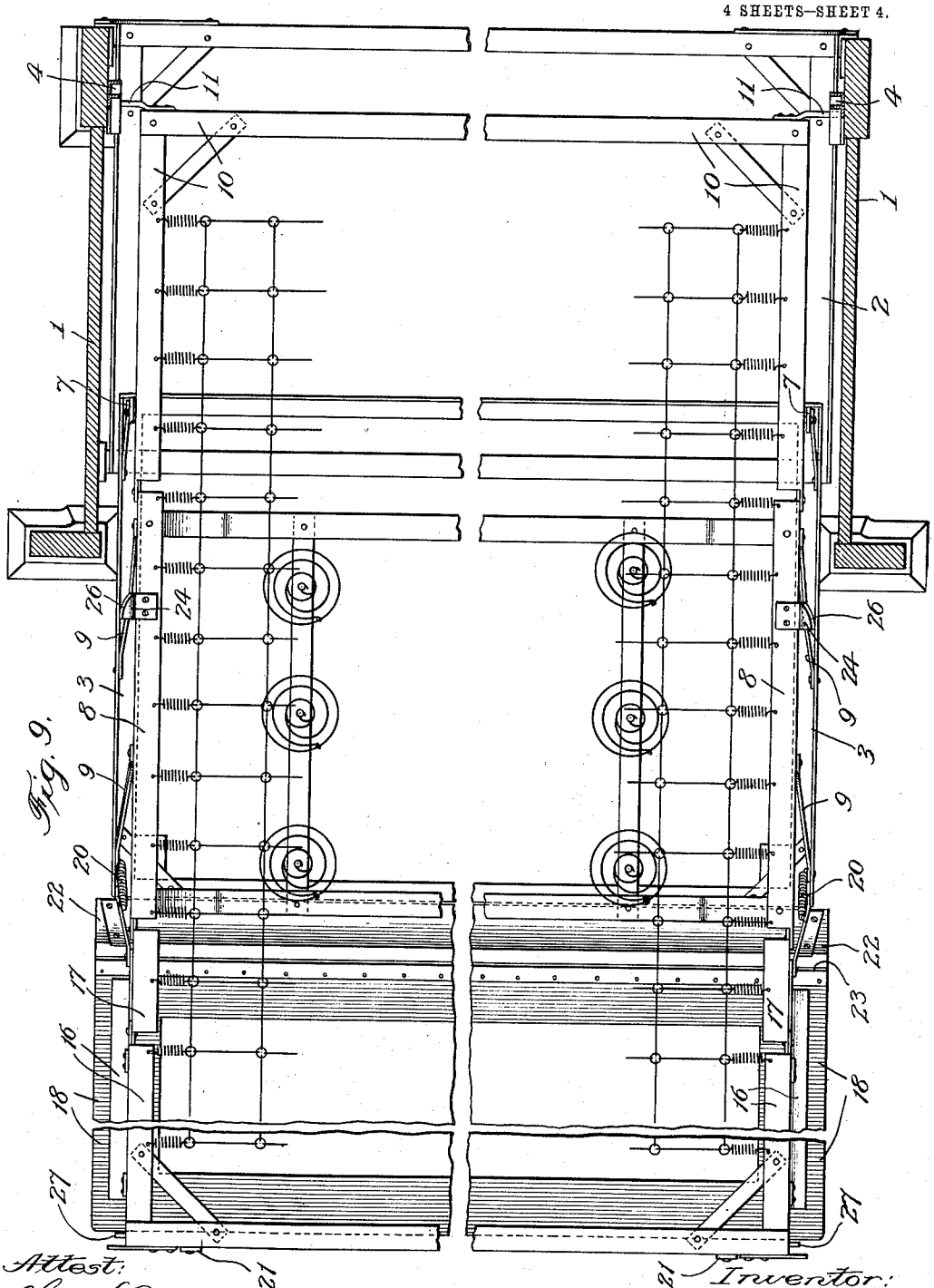


Fig. 9.

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UNITED STATES PATENT OFFICE.

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FOLDING BED.

1,078,908. Specification of Letters Patent. Patented Nov. 18, 1913.

Application filed February 20, 1913. Serial No. 749,578.

To all whom it may concern:

Be it known that I, GEORGE FISCHRUPP, a citizen of the United States of America, and a resident of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Folding Beds, of which the following is a specification.

This invention relates to the sofa type of folding beds, and has for its object to provide a simple and efficient structural arrangement and combination of the folding bed members, in which said bed members are automatically brought into an elevated, even and horizontal plane, during the opening operation of the parts, and which in the closing operation are adapted to fold together in a manner which provides ample space for the reception of the mattress, pillows and bed clothes, all as will hereinafter more fully appear.

In the accompanying drawings: Figure 1, is an elevation of the present sofa-bed mechanism, with an end arm or standard of the main frame removed, the folding bed members being shown in their folded condition. Fig. 2, is an enlarged detail plan view, on line x—x, Fig. 1, of the locking mechanism between the outer and central folding bed members. Fig. 3, is a detail transverse section of the same, on line x'—x', Fig. 2. Fig. 4, is a companion view to Fig. 1, showing the folding bed sections in a partly unfolded condition. Figs. 5 and 5^a, are detached detail perspective views, illustrating the pivotal connection of the sofa frame and the back cushion member. Fig. 6, is a companion view to Figs. 1 and 4, showing the folding bed sections in a fully unfolded condition. Fig. 7, is an enlarged detail transverse section, on line x^2—x^2, Fig. 6, illustrating the central folding bed member, its supporting truck and accessories. Fig. 8, is an enlarged detail longitudinal section of the same, on line x^3—x^3, Fig. 7. Fig. 9, is a sectional plan view, on line x^4—x^4, Fig. 6.

Similar reference numerals indicate like parts in the several views.

Referring to the drawings, 1 represents the main frame of the sofa-bed, and comprising the usual upright end members or arms secured together in proper separated relation by the usual connecting rails and members. In the present construction the said end members are provided on their inner faces with stationary horizontal track rails 2, for the guidance and support of the movable truck 3, which in turn supports the hereinafter described central folding bed member. Said end members are also provided with upright track or guide rails 4, for the guidance of the rear end of the hereinafter described rear folding bed member. The movable support or truck 3, aforesaid, is of any usual skeleton construction, and is provided at its rear end with track wheels 5 having movement on the horizontal track rails 2, aforesaid. At its forward end said truck is provided with caster wheels 6, adapted to roll upon the floor and support the forward end of the truck.

7 is a fixed bracket member on the rear end of the truck 3, adapted for supporting engagement with the front portion of the rear folding bed member, as hereinafter more fully described.

8 is the central folding bed member or section, upholstered in any usual manner, and connected to the truck 3, aforesaid, by a series of radius links 9, so arranged that in an independent outward movement of the bed member 8 with relation to the truck 3, said bed member will at the same time rise to an elevated plane, to form a portion of the elevated bed surface adapted to support the mattress, etc., when the sofa-bed is unfolded for sleeping purposes. In the folding together of the sofa-bed, the said bed member 8, as it is moved inwardly is adapted to drop to its original position upon the frame of the truck 3, to provide ample space between said central bed member 8, and the front bed member 16, for storage of the mattress and bed clothing.

10 is the rear folding bed member or section, upholstered in any usual manner, and connected at its front end to the rear end of the central bed member 8, in a pivotal manner, while at its rear end said bed member 10, is provided with lateral studs 11, which have sliding engagement in the grooves of the upright guide rails 4, before described. With a view to limiting the travel of the studs 11 in the aforesaid guide grooves, said grooves are provided with top and bottom stops 12 and 13, as shown. In the present improvement said rear bed member 10, is connected in a pivotal and sliding manner to the fixed bracket member 7 of the movable truck 3 before described, at a point a short distance to the rear of its point of pivotal connection to the central bed member 8, and

preferably by means of a pivot pin or stud 14, and an elongated bearing slot 15, as shown.

16 is the front folding bed member or section, upholstered in any usual manner and having its rear portion connected in a pivotal manner by an intermediate bed section 17, to the front end of the central bed member 8, aforesaid. Said front bed member 16, carries the usual sofa-bed seat or cushion 18, and in the present improvement the rear end of said front bed member 16, is connected to the front end of the supporting truck 3, before described, by radius links 19, as shown.

20 is a diagonally disposed spring secured at one end to the radius link 19 of the front bed member 16, and at the other end to the radius link 9 of the central bed member 8, at points removed from the points of pivotal connection of said links to the truck 3. The function of said spring 20, is to yieldingly resist a movement of the links 9 and 19 away from each other, and aid in an easier operation of the parts in the folding and unfolding movement of the bed members.

21 are folding legs secured as usual to the front edge of the front bed member 16, to afford a support for such edge when the parts are unfolded for use as a bed.

22 is the front board of the base portion of the main frame 1, and in the present construction said board 22, is attached to and carried by the radius links 19 of the front bed member 16, and is connected to the rear edge of said bed member by a flexible web 23, to permit of the necessary independent movements of the bed member 16 and front board 22, and provide a closure for the front of the sofa-bed, and conceal the parts and the articles inclosed, when the parts are folded together in the form of a sofa.

24 are fixed standards near the rear end of the central bed member 8, and disposed at the respective sides of the same. In the present construction the upper ends of said standards are formed with bolt receiving orifices 25, and outwardly inclined ends 26, which act as strike plates for the hereinafter described spring actuated bolts, to guide the same into locking engagement in the orifices 25, aforesaid.

27 are the transverse bolts above referred to, arranged for sliding movement at the free end of the front bed member 16, and provided with the usual actuating springs by which they are impelled outward for engagement with the above described orifices 25 of the standards 24, upon the central bed member 8.

28 is a pull rod or cord, preferably common to both bolts 27, so that a pull on said rod or cord will cause a simultaneous retraction of both bolts.

29 is the back member of the sofa, which in the present construction is pivoted to the upright end members of the main frame 1, so as to be capable of being swung upward and out of the way in the folding and unfolding movements of the bed members, and also of being swung backward to the rear portion of the main frame to constitute the head board of the bed, when the bed members are unfolded, as illustrated in Fig. 6. In the present improvement the back member 29 is disposed a distance forward of the upright guide tracks 4 of the folding rear bed member 10, to provide space between said rear bed member and said back member 29 for the reception of a portion of the mattress and portions of the bedclothes.

30 are stops on the rear edge of the seat portion 18 of the sofa, against which the lower rear edge of the aforesaid back member 29 has abutment when the parts are arranged as a sofa.

The operation of the present construction is as follows:—In an unfolding movement of the parts from the folded condition thereof, illustrated in Fig. 1, to the unfolded condition illustrated in Fig. 6, the operator initially draws the movable support or truck 3 outward from the main frame 1, into the position illustrated in Fig. 4, after which the spring actuated bolts 27 are withdrawn from their engagement with the standards 24 of the central bed member 8, and the front bed member 16, carrying the sofa seat 18, is tilted forward into the position illustrated in Fig. 4. In such front tilting movement of the forward bed member 16, the radius links 19 provide a fulcrum for said bed member 16, so that the same will cause a partial straightening of the intermediate bed section 17, and in addition will effect a partial upward and forward movement of the central bed member 8, upon its radius links 9, and in turn a partial downward movement of the rear bed member 10, toward a horizontal plane, as illustrated in said Fig. 4. The further and final movement of said front bed member 16 to a horizontal plane, automatically raises the central bed member 8, and lowers the rear bed member 10, to a common horizontal plane adapting the series of bed members to receive the mattress and accessories for sleeping purposes. During such opening movements of the parts, the sofa back 29 is initially swung up out of the way, as illustrated in Fig. 4, and subsequently lowered into the position illustrated in Fig. 6, to constitute the head of the bed. The folding of the bed members to a sofa condition is the reverse to that just described in the unfolding operation.

In the closed condition of the present sofa-bed, as shown in Fig. 1, the foot portion of the mattress is adapted to fold upon itself within the space intermediate of the

front bed member 16 and the central bed member 8, while the other portion of the mattress will rest upon the rear folding bed member 10, and in actual practice is usually tied or otherwise attached to the same.

With the present improved construction ample space is provided for the bed clothes, pillows, etc., usually employed for sleeping purposes.

Having thus fully described my said invention what I claim as new and desire to secure by Letters Patent, is:—

1. In a folding bed of the character set forth, the combination of a main frame, a supporting member having horizontal movement in said frame, a central bed member connected to said supporting member by a series of radius links, a front bed member connected to said supporting member by radius links and to the central bed member by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member, and means for imposing vertical motion on the rear end of said rear bed member.

2. In a folding bed of the character set forth, the combination of a main frame, a supporting member having horizontal movement in said frame, a central bed member connected to said supporting member by a series of radius links, a front bed member connected to said supporting member by radius links and to the central bed member by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member, and means for imposing vertical motion on the rear end of said rear bed member, the same comprising an upright guide secured to the main frame and guiding means on said bed member engaging said guide.

3. In a folding bed of the character set forth, the combination of a main frame, a supporting member having horizontal movement in said frame, a central bed member connected to said supporting member by a series of radius links, a front bed member connected to said supporting member by radius links and to the central bed by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member, means for imposing vertical motion on the rear end of said rear bed member, and a latch mechanism for locking said front and central bed members in their folded condition.

4. In a folding bed of the character set forth, the combination of a main frame, a supporting member having horizontal movement in said frame, a central bed member connected to said supporting member by a series of radius links, a front bed member connected to said supporting member by radius links and to the central bed member by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member, means for imposing vertical motion on the rear end of said rear bed member, and a latch mechanism for locking said front and central bed members in their folded condition, the same comprising side standards on the central bed member having their upper ends outwardly inclined and provided with bolt receiving orifices, and spring actuated bolts carried by said front bed member and adapted to engage said bolt receiving orifices.

5. In a folding bed of the character set forth, the combination of a main frame, a supporting member having horizontal movement in said frame, a central bed member connected to said supporting member by a series of radius links, a front bed member connected to said supporting member by radius links and to the central bed member by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member, means for imposing vertical motion on the rear end of said rear bed member, and means for effecting a pivotal and sliding engagement between the supporting member aforesaid and the rear bed member at a point to the rear of the pivotal connection between the rear and central bed members.

6. In a folding bed of the character set forth, the combination of a main frame, a supporting member having horizontal movement in said frame, a central bed member connected to said supporting member by a series of radius links, a front bed member connected to said supporting member by radius links and to the central bed member by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member, means for imposing vertical motion on the rear end of said rear bed member, and means for effecting a pivotal and sliding engagement between the supporting member aforesaid and the rear bed member at a point to the rear of the pivotal connection between the rear and central bed members, the same comprising, a standard on said supporting member provided with a pivot stud near its upper end, the side rail of the rear bed member having an elongated slot for engagement with said stud.

7. In a folding bed of the character set forth, the combination of a main frame, a supporting member having horizontal movement in said frame, a central bed member connected to said supporting member by a series of radius links, a front bed member connected to said supporting member by radius links and to the central bed member by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member, means for imposing vertical motion on the rear end of said rear bed member, and a tension spring interposed be-

tween the radius links of the central and forward bed members.

8. In a folding bed of the character set forth, the combination of a main frame, a supporting member having horizontal movement in said frame, a central bed member connected to said supporting member by a series of radius links, a front bed member connected to said supporting member by radius links and to the central bed member by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member, means for imposing vertical motion on the rear end of said rear bed member, and a front board for the main frame carried by the radius links of the front bed member.

9. In a folding bed of the character set forth, the combination of a main frame, a sofa back pivoted at its upper end in said frame, a supporting member having horizontal movement in the main frame, a central bed member connected to said supporting member by a series of radius links, a front bed member connected to said supporting member by radius links and to the central bed member by an intermediate bed section, a sofa seat carried by said front bed member and provided with an abutment stop for the lower end of the hinged sofa back, a rear bed member pivoted at its front end to the central bed member, and means for imposing vertical motion on the rear end of said rear bed member.

10. In a folding bed of the character set forth, the combination of a main frame having a horizontal track in its lower portion and an upright track in its rear portion, a truck provided with casters at its front end and with wheels at its rear end engaging the horizontal track aforesaid, a central bed member connected to said truck by a series of radius links, a front bed member pivoted to said truck by radius links and to the central bed member by an intermediate bed section, and a rear bed member pivotally connected at its front end to the central bed member and having at its rear end means for engaging the upright track aforesaid.

11. In a folding bed of the character set forth, the combination of a main frame having a horizontal track in its lower portion and an upright track in its rear portion, a truck provided with casters at its forward end and with wheels at its rear end engaging the horizontal track aforesaid, a central bed member connected to said track by a series of radius links, a front bed member pivoted to said truck by radius links and to the central bed member by an intermediate bed section, a rear bed member pivotally connected at its front end to the central bed member and having at its rear end means for engaging the upright track aforesaid, and a latch mechanism for locking said front and central bed members in their folded condition.

12. In a folding bed of the character set forth, the combination of a main frame having a horizontal track in its lower portion and an upright track in its rear portion, a truck provided with casters at its forward end and with wheels at its rear end engaging the horizontal track aforesaid, a central bed member connected to said truck by a series of radius links, a front bed member pivoted to said truck by radius links and to the central bed member by an intermediate bed section, a rear bed member pivotally connected at its front end to the central bed member and having at its rear end means for engaging the upright track aforesaid, and a latch mechanism for locking said front and central bed members in their folded condition, the same comprising side standards on the central bed member having their upper ends outwardly inclined and provided with bolt receiving orifices, and spring actuated bolts carried by said forward bed member and adapted to engage said bolt receiving orifices.

13. In a folding bed of the character set forth, the combination of a main frame having a horizontal track in its lower portion and an upright track in its rear portion, a truck provided with casters at its forward end and with wheels at its rear end engaging the horizontal track aforesaid, a central bed member connected to said truck by a series of radius links, a front bed member pivoted to said truck, by radius links and to the central bed member by an intermediate bed section, a rear bed member pivotally connected at its front end to the central bed member and having at its rear end means for engaging the upright track aforesaid, and means for effecting a pivotal and sliding engagement between the truck aforesaid and the rear bed member at a point to the rear of the pivotal connection between the rear and central bed members.

14. In a folding bed of the character set forth, the combination of a main frame having a horizontal track in its lower portion and an upright track in its rear portion, a truck provided with casters at its forward end and with wheels at its rear end engaging the horizontal track aforesaid, a central bed member connected to said truck by a series of radius links, a front bed member pivoted to said truck by radius links and to the central bed member by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member and having at its rear end means for engaging the upright track aforesaid, and means for effecting a pivotal and sliding engagement between the truck aforesaid and the rear bed member at a point to the rear of the pivotal connection between the rear

and central bed members, the same comprising a standard on said truck provided with a pivot stud near its upper end, the side rail of the rear bed member having an elongated slot for engagement with said stud.

15. In a folding bed of the character set forth, the combination of a main frame having a horizontal track in its lower portion and an upright track in its rear portion, a truck provided with casters at its forward end and with wheels at its rear end engaging the horizontal track aforesaid, a central bed member connected to said truck by a series of radius links, a front bed member pivoted to said truck by radius links and to the central bed member by an intermediate bed section, a rear bed member pivoted at its front end to the central bed member and having at its rear end means for engaging the upright track aforesaid, and a tension spring interposed between the radius links of the forward and central bed members.

Signed at Chicago, Illinois this 18th day of February, 1913.

GEORGE FISCHRUPP.

Witnesses:

ROBERT BURNS,

HENRY MOE.