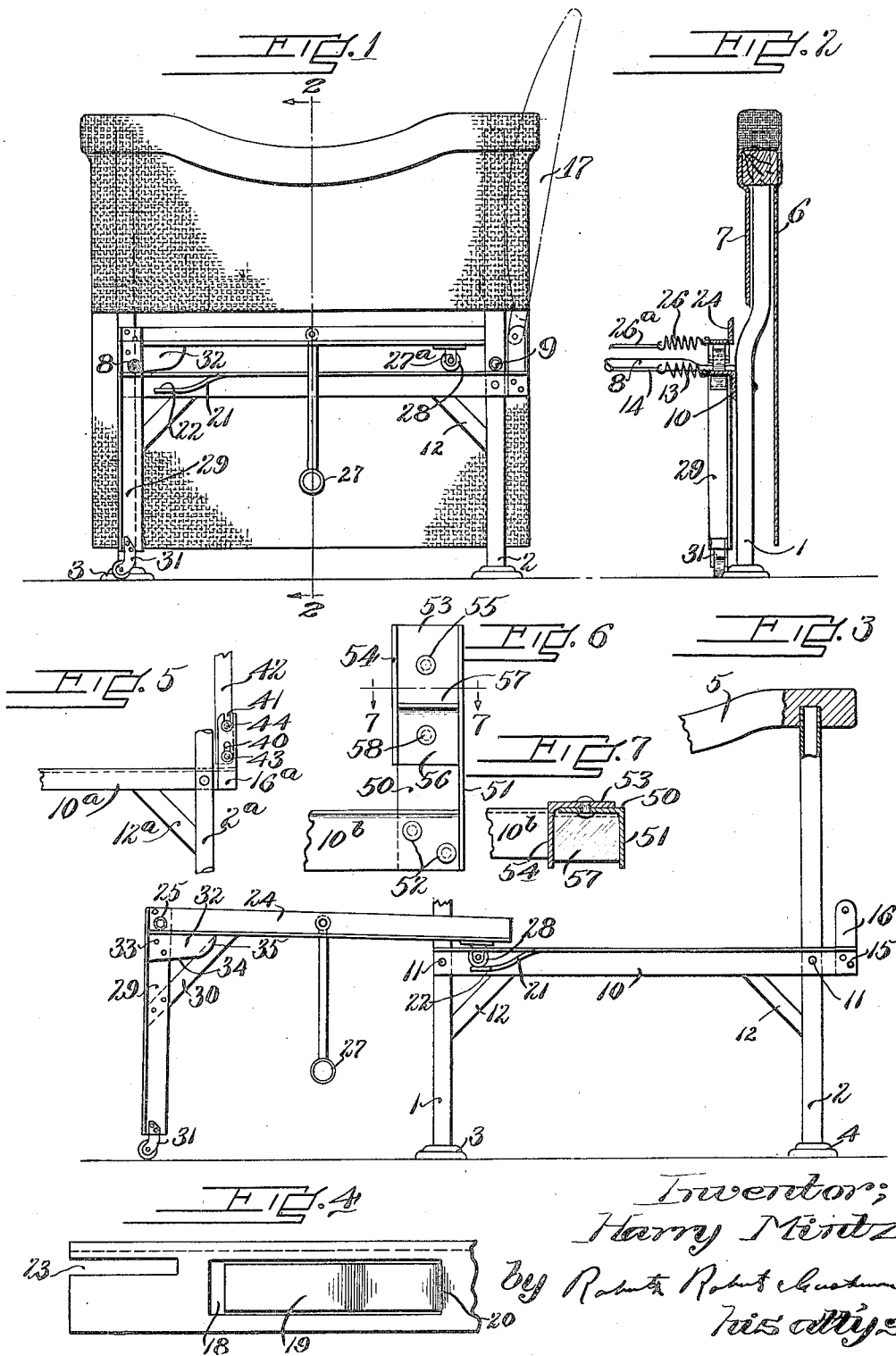


H. MINTZ.
DAVENPORT BED.
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Inventor;
Harry Mintz.

By Robert Robert Chastain
his attys.

UNITED STATES PATENT OFFICE.

HARRY MINTZ, OF BOSTON, MASSACHUSETTS.

DAVENPORT BED.

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To all whom it may concern:

Be it known that I, HARRY MINTZ, a citizen of the United States of America, and resident of Boston, in the county of Suffolk and State of Massachusetts, have invented new and useful Improvements in Davenport Beds, of which the following is a specification.

This invention concerns folding beds of that kind commonly known as "davenport" and relates more particularly to devices of the type wherein the mattress supporting frame comprises complementary parts of substantially like dimensions, one of which is movable and overlies the other and relatively fixed part when the device is used as a couch or day-bed, the movable part being so arranged as to permit it to be drawn outwardly from off the other part of the frame whereby substantially to increase the width of the device for use as a bed.

It is usual to employ a two part mattress with a bed of this kind, and when used as a day-bed or couch one half of the mattress is folded over and rests upon the other. When however, the frame is extended to form a full size bed, the mattress is unfolded and covers both halves of the frame. So unfolded, the mattress overlies the rear or inner edge of the extended portion of the mattress supporting frame, such edge then being adjacent to the front edge of the fixed part of the frame. If with the parts thus positioned, the edge of the movable frame member be spaced substantially above the plane of the fixed frame, an undesirable ridge will be formed in the mattress at this point, while the engagement of the rear edge of the metallic frame member with the under surface of the mattress tends to wear the latter very rapidly resulting in the formation of holes in the covering at this point long prior to any substantial deterioration of the cover in other places.

In order to facilitate the extension of the movable frame it is common to provide it with rollers adjacent to its rear edge, the front edge having depending legs provided with casters which serve to support it when extended. The frame is thus very free to move outwardly and tends so to move when the occupant seated thereon leans against the back rest. Moreover, if the occupant sits on the front edge of the couch the tendency is to tilt the rear part of the movable

frame upwardly, swinging its legs beneath the couch.

The principal object of the invention is to provide for overcoming the above noted defects common to beds of this type and as one mode of accomplishing this object, depressions may be formed in the forward portions of the end members of the fixed frame in which the rollers carried by the movable frame may seat as such movable frame nears its fully extended position. The rear edge of such frame may thus be made to coincide substantially with the plane of the fixed frame, thus eliminating the formation of a ridge in the mattress and the tearing or abrasion of the same, while at the same time permitting the employment of antifriction rollers between the parts. The forward part of the movable frame may also be provided with shoe members or runners which slide over and rest upon the front portion of the fixed frame when the movable frame is in normal unextended position, thus providing the friction necessary to prevent accidental extension of the movable frame member and at the same time providing an elongated bearing or support for the front part of such frame whereby tilting of the same is prevented.

In the shipping of folding beds of the class to which the present invention relates, and in which the back rest usually projects above the ends, it is desirable so to connect the back rest to the frame as to permit it to be folded down over the mattress supporting frame. This connection however, preferably should be of such character as to permit the back rest to be properly and operatively positioned upon arrival of the bed at its destination without necessitating the services of a mechanic or the employment of independent connecting devices such as may be lost during transit or mislaid after arrival. A further object of the invention, is accordingly, to provide simple and easily operable means for permanently connecting the back rest to the bed frame in such a manner as to permit it readily to be folded for transport, but which at the same time will serve to securely retain the back rest in upright position for use.

In the accompanying drawings, there is shown by way of example one mode of attaining the above object, and in which—

Fig. 1 is a vertical, transverse cross sec-

tion through the frame of the bed looking toward the end thereof from the inner side;

Fig. 2 is a vertical cross section longitudinally of the bed and in the plane of line 2—2 of Fig. 1, but showing the opposite end of the bed;

Fig. 3 is a view similar to Fig. 1 but showing the bed extended, the covering for the end of the bed and the back rest being removed;

Fig. 4 is a fragmentary detail plan view of the forward end of one of the side rails of the fixed mattress-supporting frame;

Fig. 5 is a fragmentary end elevation of the frame, illustrating a preferred form of connection for securing the back rest thereto; and

Figs. 6 and 7 are detail views illustrating a further modified form of connection.

The frame of the bed comprises a pair of front leg members 1 and a similar pair of rear leg members such as 2. These members may be formed of metallic pipe or tube, or may be of any other desirable material, and are preferably provided with foot members 3, 4, respectively. Arm rests such as 5 are secured to a front and rear leg at each end of the device, such arm rests being of any desired construction and forming no part of the present invention. The several legs are connected together by a fixed, mattress-supporting frame, comprising front and rear rails 8, 9, and end rails such as 10, these rails being arranged to form a substantially rectangular structure. The end rails 10 preferably consist of angle bars rigidly or otherwise secured as indicated at 11 to the respective legs. The front and rear rails are preferably of tubular construction having their ends flattened for connection to the end rails, it being understood, however, that the exact formation of these rails is immaterial to the carrying into effect of the present invention. The end rails 10 are so arranged that the vertical flange thereof is directed downwardly while the horizontal flange is inwardly directed, and brace members 12 may be employed for connecting the vertical flanges to the respective leg members whereby to brace the latter and form a rigid structure.

To the inner edges of the horizontal flanges of the rail members 10 are connected coil springs 13 which serve resiliently to connect the mattress-supporting fabric 14 to such end rails. This mattress-supporting fabric may be of any well known construction such as the hair-pin fabric commonly employed for this purpose. The rails 10 project to the rear beyond the legs 2 and to their free extremities are secured brackets 16 to which is pivoted the back-rest 17 indicated in broken lines in Fig. 1. This back-rest may be of any desired construction and may be omitted entirely if it should be desirable so to

do. Near their forward ends the horizontal flanges of the end rails 10 are provided with elongate openings 18. These openings are preferably formed by a punching operation whereby tongues 19 are produced which are integrally united at their rear ends as indicated at 20 to the metal of the flange. These tongues are inclined downwardly and forwardly from their junctions with the flanges as indicated at 21 and their forward portions 22 extend in a substantially horizontal direction being spaced a predetermined distance below the under surface of the flange. The horizontal flange of each end of rails 10 is also provided with an elongate slot 23 extending inwardly from the forward end thereof.

A movable mattress-supporting frame is also provided, this frame comprising end rails 24 connected at their forward ends by means of a front rail 25 and having depending brackets connected by means of a second rail 27. The end rails 24 of the movable frame are so arranged that their vertical flanges are directed upwardly, while the horizontal flanges thereof extend inwardly and serve for holding the springs 26 by means of which the mattress-supporting fabric 26^a is positioned. To each of the end rails 24 near its rear end is secured a bracket 27^a having journaled therein an anti-friction roller 28. These rollers 28 rest upon the upper surfaces of the respective end rails 10 which serve as guides therefor, and the rollers are of such width and so positioned that when the movable frame is drawn forwardly the rollers pass down the inclines 21 of the respective tongue members 19 until they rest upon the horizontal portions 22 thereof. Depending from the front of the movable frame are legs 29 which are connected to the end rails 24 of such frame by means of braces 30. At their lower ends the legs 29 may be provided with casters 31 of usual construction. At each end of the movable frame is arranged a shoe or runner 32 secured as by means of rivets 33 to the respective legs 29. These shoes comprise substantially flat plates whose lower edges are rearwardly and upwardly inclined as indicated at 34, such edges terminating in curved portions 35.

In the normal position of the parts the movable frame is superposed upon the fixed frame, occupying the position shown in Fig. 1. In this position the two-part mattress rests upon the fabric 26^a of the movable frame and as so arranged the device may be used as a couch or day-bed. When the parts are thus positioned the rear end of the movable frame is supported by the movable rollers 28 which rest upon end rails 10, while the forward edge of such frame is supported by the shoes 32 whose lower edges 34 bear upon the forward portions of the end rails 10. As

the edges 34 engage such end rails frictionally, they tend to oppose any forward sliding of the movable frame relatively to the fixed frame, so that the parts remain in normal position. The bearing afforded by the shoe 32 also serves to prevent any tendency of the movable frame to tilt when the occupant sits upon the forward edge of the same, as might happen were such frame supported merely by the rollers 28 and the casters 31. When in this position the mattress-supporting fabric 26^a lies in a plane substantially above that of the supporting fabric 14 carried by the fixed frame. When, however, the movable frame is drawn forwardly, as indicated in Fig. 3, the rollers 28 pass down the incline 21 until they rest upon the horizontal surfaces 22. This permits the rear end of the frame to drop relatively to the fixed frame so that the rear portion of the mattress-supporting fabric 26^a is brought substantially into the plane of the fabric 14, the supporting surface of the two frames thus constituting a substantially continuous and uninterrupted surface. After the frame is extended as just described, the mattress may be unfolded whereby to form a bed of full width, one portion of the mattress lying upon the fabric 14 and the other section resting upon the fabric 26^a. Little, if any ridge is formed in the mattress at the junction of the two supporting fabrics, nor does the rear edge of the fabric 26^a lie in such a position as to cause abrasion of the mattress covering where it engages the same. When it is again desired to employ the device as a couch or day-bed, the mattress is merely folded over on the movable frame. The latter is pushed rearwardly, the roller riding up the incline 21 onto the upper surface of the rail 10. Upon continuing the movement of the frame the curved surface 35 engages the ends of the rails 10 and serves to guide the edge 34 into bearing relation thereto, so that in the final position the parts are arranged as seen in Fig. 1.

In the modified and preferred arrangement indicated in Fig. 5, one rear leg of the frame is indicated at 2^a, the end cross bar at 10^a, and the brace therefor at 12^a. In this case the upstanding bracket 16^a is provided with a pair of elongate slots 40 and 41, the latter of such slots being open at the upper end of the bracket. The end member 42 of the back rest frame is provided with a pair of pins or rivets 43, 44, normally arranged within the slots 40, 41, respectively. In the position indicated in Fig. 5, the back rest 42 is retained securely in upright position by the engagement of the two pins in the respective slots, but if it be desired to swing the back rest forwardly over the mattress supporting frame it is merely necessary to lift such back rest vertically until the pin 44 is disengaged from the slot 41, where-

upon the back rest frame may be swung about the pin 43 as a pivot until it is brought into substantial parallelism with the frame on which the mattress is supported. It is to be understood that a similar arrangement of parts is provided at the opposite end of the back rest frame.

Referring to Figs. 6 and 7, a further arrangement whereby the back may be secured to the frame is illustrated. In these figures the cross bar of the frame is indicated at 10^b. To the rear end of such cross bar is secured an angle-iron comprising end flanges 50 and 51, the flange 50 being secured to the vertical flange of the bar 10^b by means of rivets such as 52. Associated with this angle-iron is a second angle-iron comprising the flanges 53, 54. The flange 53 is secured against the flange 50 of the first angle-iron by means of a rivet such as 55, the two angle-irons as thus connected forming a vertical channel. Within this channel is arranged a bracket comprising the vertical flange 56, and the horizontal flange 57, the vertical flange being secured to the flange 50 of the first named angle-iron by means of a rivet 58. The flange 57 of this bracket constitutes a bottom for the aforementioned channel. The end members of the back piece are slipped down into the channels thus provided at either end of the frame, until the lower ends of such back piece members rest upon the respective bracket flanges 57. The back piece is thus secured in upright position for use but may be removed by lifting it out of engagement with the channels.

While the tongue member 21 has been indicated as integral with the rail 10, it is evident that it might be formed as an independent element while the same result might well be attained in other ways, as for example, by bending the end rail downwardly to form the desired depression near its forward end. It is also clear that the friction shoes 32 might be formed in other ways and that the movable frame might be constructed in any other and desired manner without in any way departing from the spirit of the present invention. It is also to be understood that while the present invention has been shown as applied to a frame of metallic construction, the principle involved is equally applicable to frames otherwise made.

I claim:—

1. A bed of the davenport type comprising a fixed mattress-supporting frame, a complementary extensible frame normally superposed upon said first frame, and an antifriction roll carried by a member of one of said frames and engaging a member of the other thereof, said roll normally serving to hold the frames in vertically spaced relation, said latter frame member having a depression therein for the reception of said

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roll whereby the supporting surfaces of said frames may be permitted to lie in substantially the same plane when said roll is seated in said depression.

5 2. A bed comprising a frame having an end rail provided with an elongated opening therethrough, a forwardly inclined tongue member integrally united to the rail at the rear end of said opening and projecting downwardly through said opening, and a movable frame member having a supporting element resting upon said rail and movable downwardly along said tongue member into said opening.

15 3. A folding bed having a fixed mattress-supporting frame provided with spaced end rails, each of said rails having a downwardly and forwardly inclined member adjacent its front end and forming a continuation of its upper surface, said inclined members at 20 their lower ends merging into substantially horizontal elements, a movable frame normally overlying said fixed frame and having antifriction rollers adjacent to its rear edge, said rollers resting upon the respective end rails of the fixed frame and being movable downwardly along the inclined members thereof, and means for supporting the forward edge of said movable frame when extended.

30 4. A bed of the class described comprising a fixed frame, a movable frame normally superposed thereon, antifriction means for supporting said movable frame at its front and rear edges respectively, and friction means interposed between said frames when in normal superposed position and constructed and arranged to oppose free sliding of said upper frame.

40 5. A folding bed comprising a fixed frame

and a movable frame normally superposed thereon, said movable frame having depending legs provided with casters at its forward edge and antifriction rollers adjacent to its rear edge, said rollers resting upon the fixed 45 frame, and a contact shoe carried by the movable frame adjacent to its forward edge and constructed and arranged to rest upon the fixed frame and to form a support for the movable frame when the latter is in normal position.

6. A bed of the davenport type comprising a fixed frame and a movable frame normally superposed thereon, antifriction means for supporting said movable frame 55 to slide forwardly relatively to said fixed frame, and a contact shoe carried by the movable frame and having a rearwardly and upwardly inclined lower surface constructed and arranged to ride up on the 60 fixed frame upon rearward sliding of the movable frame into normal position.

7. A device of the class described comprising a pair of rectangular, mattress-supporting frames, one of said frames normally 65 being supported upon the other, antifriction rollers interposed between the rear edge portion of the movable frame and resting upon the end rails of the lower frame, casters for supporting the front edge of the 70 movable frame, and a pair of contact shoes carried by the movable frame adjacent to its front edge, said shoes having elongate bearing surfaces constructed and arranged to rest upon the forward part of the lower 75 frame when said movable frame is in normal position.

Signed by me at Boston, Massachusetts, this 25th day of January, 1922.

HARRY MINTZ.