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PATENTED AUG. 4, 1908.

T. F. HARRIS & R. A. EIFERT.

CONVERTIBLE BED SEAT.

APPLICATION FILED MAR. 18, 1908.

3 SHEETS—SHEET 2.

Fig. 3.

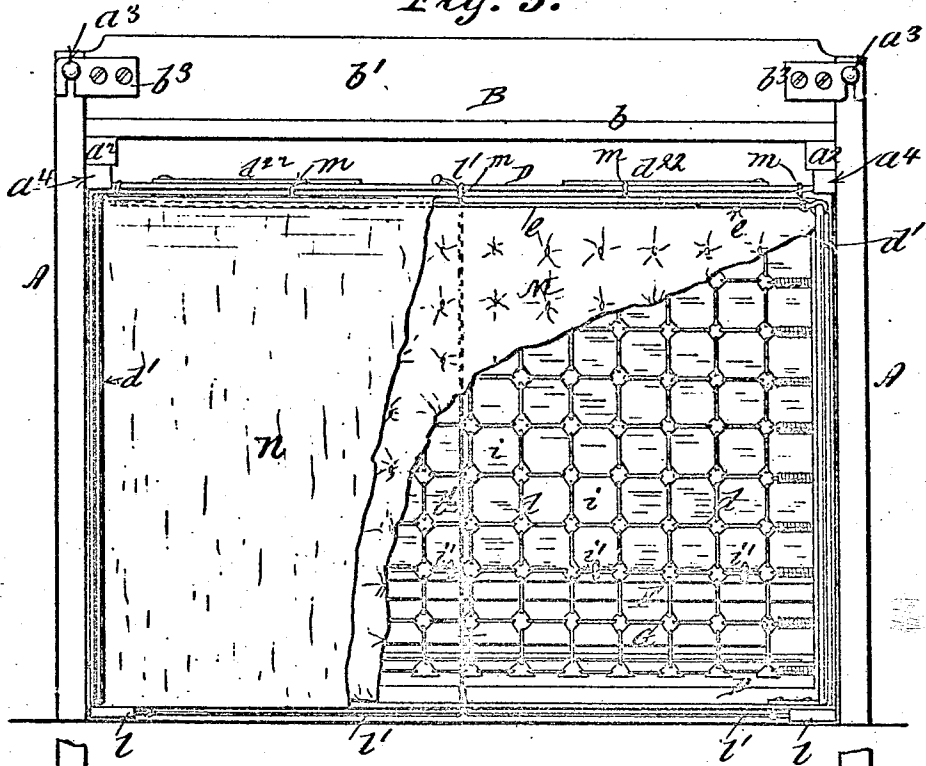


Fig. 5.

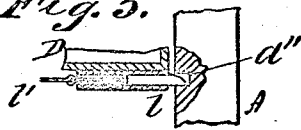
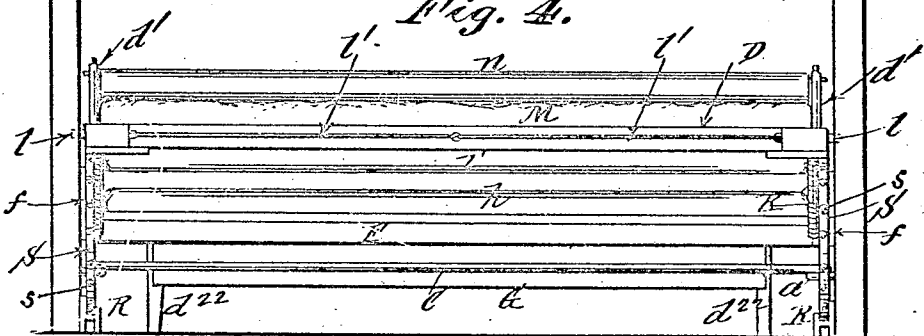


Fig. 4.



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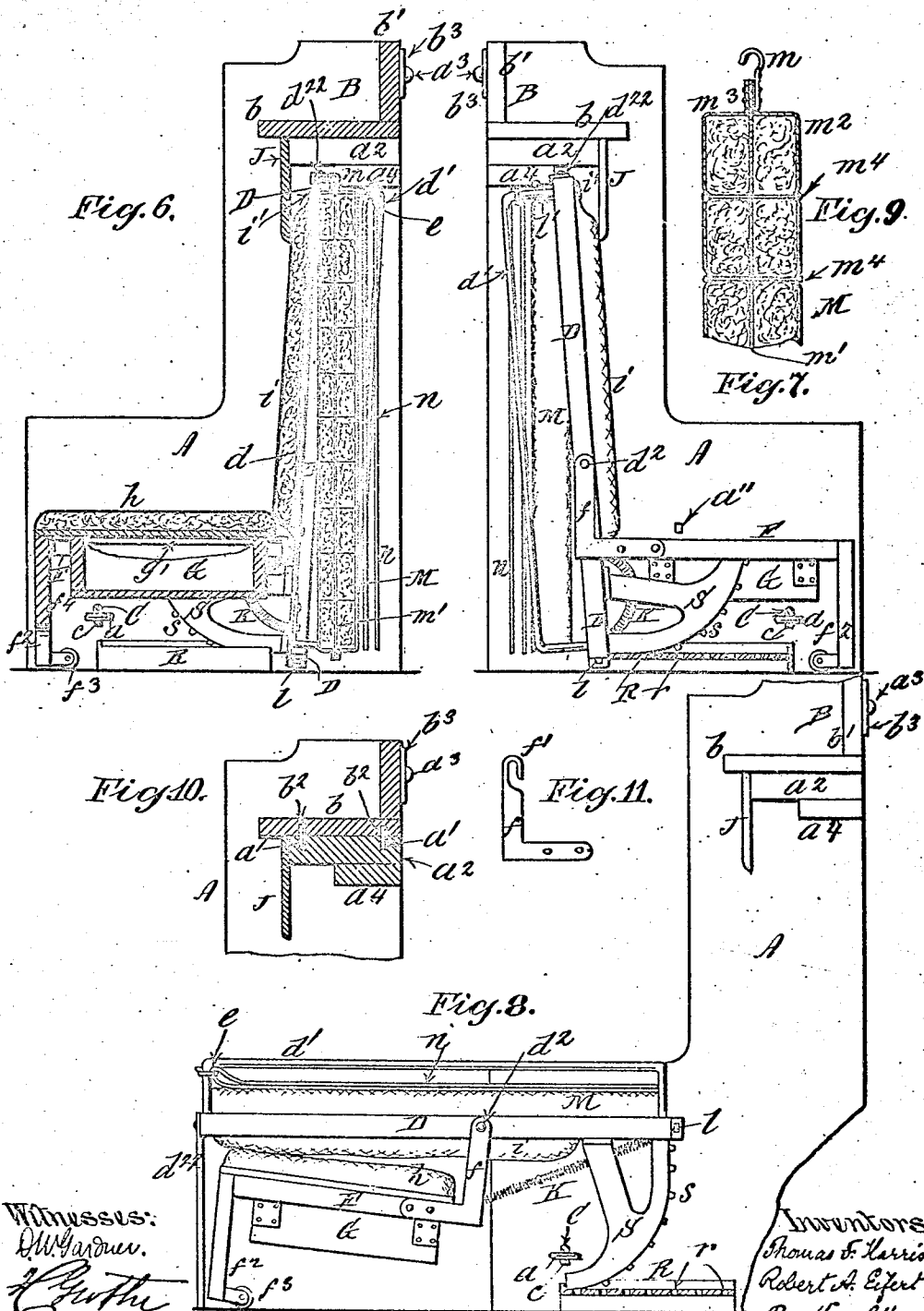
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

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CONVERTIBLE BED-SEAT.

No. 895,264.

Specification of Letters Patent.

Patented Aug. 4, 1908.

Application filed March 18, 1908. Serial No. 421,946.

To all whom it may concern:

Be it known that we, THOMAS F. HARRIS and ROBERT A. EIFERT, citizens of the United States, residing, respectively, in the borough of Manhattan and borough of the Bronx, city, county, and State of New York, have invented certain new and useful Improvements in Convertible Bed - Seats, of which the following is a specification.

Our invention is designed to afford a simple, compact structure readily convertible into either a settee or a bed with the least possible exertion,—the bed portion being counterpoised in part, as hereinafter set forth.

Another object is to produce a device the several sections of which may be quickly and conveniently separated for purposes of cleaning, transportation, storage &c., at the same time attaining economy of space under all conditions of use.

The invention consists in the construction and arrangement of parts hereinafter described and claimed specifically.

In the accompanying drawings, Figure 1, is a front elevation of the device arranged as a settee, portions being broken away to show internal construction; Fig. 2, is a top view, partly broken away; Fig. 3, is a rear elevation, partly broken away; Fig. 4, a rear view of the lower part of the frame, showing the bed in horizontal position; Fig. 5, a sectional detail on a larger scale of one of the bolts; Fig. 6, is a vertical section upon plane of line 6—6—Fig. 1; Fig. 7, is a vertical section upon plane of line 7—7—Fig. 1; Fig. 8, is a vertical section upon plane of line 8—8—Fig. 1, the bed being shown in its horizontal position; Fig. 9, is a sectional view upon a larger scale of the upper portion of the mattress; Fig. 10, a detail section on plane of line 10, 10—Fig. 1; Fig. 11, a detail view of one of the seat frame arms.

The frame consists essentially of the two end members or standards A, A, the top member B and the coupling rod C, the latter connecting and spacing the lower portions of the end members A, A, while the top member B connects the upper portions thereof. The coupling rod C is simply a plain rod bent at each end to form a hook *c*, for engagement with an eye *a*, attached to the inner side of the adjacent end member. The upper member B is preferably made in the form of a horizontal shelf *b*, with an upright back *b'*, and is formed at each extremity with dowel pins

*b*², *b*², which fit in sockets *a'*, *a'*, in the bracket blocks *a*², *a*², on the inner sides of the end members A, A, and also with hook plates *b*³, *b*³, which engage with shouldered studs *a*³, *a*³, on the rear edges of said end members A, A. It will be seen that by thus constructing the frame it may be readily taken apart or re-assembled.

The bed and seat portions are not positively attached to the frame. The bed portion when in position in the frame simply rests upon stationary rack brackets R, R, upon the lower inner sides of the end members A, A,—said rack brackets R, R, being each formed with a series of horizontal rack shoulders *r*, *r*, for engagement with corresponding teeth or shoulders *s*, *s*, on the curved segments S, S.

The segments S, S, are rigidly secured to the lower corners of the spring bed frame D and are of suitable curvature to act as rockers upon which to turn the bed from the upright to the horizontal position, or vice versa,—the intermeshing of the shoulders upon the rack brackets with those on the rocker segments preventing slip and maintaining the parts in proper relation to each other. When in the recumbent position it is held by spring latches *l*, *l*, mounted thereon, which automatically engage mortises *a''*, *a''*, on the inner sides of the end members A, A, when the bed frame reaches a horizontal plane. These spring latches *l*, *l*, are withdrawn from the mortises *a''*, *a''*, by means of cord *l'*, when it is desired to raise the bed,—said cord *l'*, passing centrally through the frame and between the bed spring *d*, and the mattress M, so as to be conveniently accessible from the front or outer side of the bed when lowered. The spring latches *l*, *l*, sustain the rear or inner side of the bed positively against any tendency of the rocker segments S to yield by reason of possible excess of weight on that side of the bed beyond the plane of contact between the segments and the racks. Otherwise the rear or inner side of the bed frame is supported by and upon said segmental rockers S, S.

The mattress M is attached to and suspended upon the outer or upper member of the frame D, by hooks *m*, *m*, or equivalent means. It is of peculiar construction in that it is provided with a central reinforcing sheet *m'*, to the edges of which the outer tickings *m*², *m*², are secured thereby forming a three ply margin for the attachment of the hooks

m, *m*, and insuring an even distribution of strain throughout the mattress, as will be understood by reference to Fig. 9, in which it will be seen that the ties *m*¹, pass through and secure together all three thicknesses of ticking *m*¹, *m*², *m*³. Hence, especially when the bed frame D is in its upright position with the mattress hanging free thereon, as shown in Figs. 6 and 7, the reinforcing sheet *n*¹, performs an important function in preserving the shape of the mattress.

The bed clothes *n*, when not in use, are folded over a line *e*, extending between the end bars *d*¹, *d*², on the frame D, so that when the latter is in its upright position they, like the mattress M will hang free in the space between the rear of said frame and the plane of the rear edges of the end members A, A. The advantages of thus freely suspending and airing the mattress and bed clothes when not in use are obvious and important, from a sanitary point of view, while the convenience of manipulation is worthy of consideration, since the simple act of raising or lowering the frame D disposes of the bedding.

The inner side of the seat frame F is pivotally connected with and supported upon the end members of the bed frame D, by means of rear arms *f*, *f*. If preferred the ends of these arms may be made in the form of hooks *f*¹, for engagement with the pivots *d*², on the frame as shown in Fig. 11, so that the seat frame F may be quickly and conveniently detached from the bed frame D when desired,—the weight of the seat frame always tending to maintain the hooks *f*¹ in engagement with the pivots *d*². The front of the seat frame F is formed with legs *f*², on the lower ends of which are mounted rollers *f*³, to facilitate the operation of moving the seat from one position to the other. It may also be provided with a front board *f*⁴, to conceal the space under the seat frame in which we arrange a longitudinal box or receptacle G, for the storage of extra bedding or other things, as may be desired. It is obvious that this receptacle G, may be supported in various ways. In the construction shown in the drawings, it is provided with lugs *g*, *g*, which rest upon corner flanges *f*⁵, *f*⁵, on the frame F. The seat *h*, is removable from the frame F and constitutes the lid of the receptacle G. It is held against lateral or longitudinal movement upon the frame F by shoulders *g*¹, *g*¹, on its under side which engage with the inner edges of said frame.

The back cushion *i*, is secured to the bed frame D, at suitable points, as at the upper and lower edges of the cushion, and elsewhere if desired. Hooks *i*¹, are preferably employed for this purpose, so that the cushion may be readily removed or replaced. For simplicity of drawings, we have herein shown both seat and back cushions of plain structure but they are intended to represent

the usual upholstered cushions used for similar purposes. In this connection we wish to state also that any other form of bed spring may be substituted for that shown in the drawings, as we do not wish to limit ourselves thereto.

A flap board J is pivotally supported upon and between the end members A, A, being hung just below the shelf *b*, so as to conceal the upper edge of the bed frame &c., when raised, and impart a suitable finish to the device when used as a settee. The shelf *b*, may obviously be utilized for various purposes, and constituting a portion of the rigid frame work, is not affected by a change in position of the parts underneath.

The bed frame D when lowered may be supported by the seat frame F, if desired, but in order to relieve the seat and back cushions of the weight of the bedding &c., and enable the bed spring to perform its function, we prefer to use foldable legs *d*²², *d*²², pivotally attached to the front or upper member of the bed frame, and of such length as to sustain the bed frame in perfect horizontal alinement.

In order to facilitate the conversion of the device into a settee from the recumbent or bed position, we connect the seat frame F and the bed frame D by means of one or more springs K of such length that when the parts are advanced as the bed frame is lowered, the spring or springs K will be stretched more or less, thereby storing energy which will be utilized to assist in overcoming inertia and weight as the springs counteract at the beginning of the retractile movement of the parts. Owing however to the partial counterpoise attained by the use of the segmental rockers as a means of support for the bed frame, these springs are of secondary importance, and may be dispensed with if desired. It is to be understood that when in the upright position the bed frame D is inclined backward, its upper edge resting against stops *a*¹, *a*¹, on the underside of the shelf *b*, in which position it is maintained by gravity.

It will be seen that by our construction and arrangement the whole device may be readily taken apart or re-assembled. Thus, the seat and seat back cushions are removable, the receptacle may be lifted out of the seat frame, the latter may be detached from the bed frame, the bed frame and segmental rockers may be raised from the racks and lifted from the frame, and the frame itself may be taken apart by raising the coupling rod and top member.

What we claim as our invention and desire to secure by Letters Patent is,

1. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable

lower coupling, stationary shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said stationary racks, and a bed frame secured to said segmental rockers, for the purpose described.

2. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling, stationary shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental rockers, and a stationary rest on each of said end members for the support of said bed frame in a rearwardly inclined position, for the purpose described.

3. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling, stationary shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, and means for supporting said bed frame in a horizontal position, for the purpose described.

4. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling, stationary shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, a stationary back rest on each of said end members for supporting said bed frame in a rearwardly inclined upright position, and means for supporting said bed in a horizontal position, for the purpose described.

5. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling, stationary shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, a backrest on each of said end members for the support of said bed frame in a rearwardly inclined upright position, and a mattress attached to said bed frame by means which allow said mattress to hang vertically free of said bed frame when the latter is in a rearwardly inclined upright position, for the purpose described.

6. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling, stationary shouldered racks upon said end members, segmental rockers

formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, a back rest on each of said end members for the support of said bed frame in a rearwardly inclined position, and means upon said bed frame for suspending bedding vertically in the space behind the bed frame when in its inclined upright position for the purpose described.

7. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling, stationary shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, a back rest on each of said end members for the support of said bed frame in a rearwardly inclined upright position, a slidable seat frame formed with rear arms which are pivotally connected to said bed frame, for the purpose described.

8. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling, stationary shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, a back rest on each of said end members for the support of said bed frame in a rearwardly inclined upright position, a slidable seat frame formed with rear arms which are pivotally connected to said bed frame, and roller bearings supporting the front portion of said slidable seat frame, for the purpose described.

9. In a convertible bed seat of the character designated, the combination with the frame work, of stationary shouldered racks, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, a slidable seat frame formed with rear arms which are pivotally connected with the bed frame, receptacle supported within said seat frame, and a removable seat fitting on said seat frame and constituting the cover of said receptacle, for the purpose described.

10. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling, stationary shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, a back rest on each of said end members for the support of said bed frame in a rearwardly inclined upright position, a slidable seat frame formed with rear arms which are pivotally connected to said bed frame, and a spring connected at one end

of said bed frame and at the other end to the slidable seat frame, for the purpose described.

11. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling, stationary shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, a back rest on each of the said end members for the support of said bed frame in a rearwardly inclined upright position, a slidable seat frame formed with rear arms which are pivotally connected with the bed frame, and foldable legs on said bed frame adapted to support it independently of the seat frame, when the bed frame is in the recumbent position, for the purpose described.

12. In a convertible bed seat of the character designated, the combination with the frame work, of stationary shouldered racks, segmental rockers formed with shoulders engaging those on said stationary racks, a bed frame secured to said segmental racks, and a slidable seat frame formed with rear arms having hooks which engage with pivot studs on the bed frame, so as to be detachable therefrom, for the purpose described.

13. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling rod, shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said racks, a bed frame secured to said segmental racks, and a back rest for the support of said bed frame in a rearwardly inclined position, for the purpose described.

14. In a convertible bed seat of the char-

acter designated, the combination of a frame consisting of end members united by a detachable top member and a detachable lower coupling rod, shouldered racks upon said end members, segmental rockers formed with shoulders engaging those on said racks, a bed frame secured to said segmental racks, a back rest for the support of said bed frame in a rearwardly inclined position, and a slidable seat frame formed with rear arms which are detachably connected with pivot studs upon the bed frame, for the purpose described.

15. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a top member made in the form of a shelf and a lower coupling rod, shouldered racks on said end members, segmental rockers formed with shoulders engaging those on said racks, a bed frame secured to said segmental racks, and a back rest for the support of said bed frame in a rearwardly inclined upright position, for the purpose described.

16. In a convertible bed seat of the character designated, the combination of a frame consisting of end members united by a top member made in the form of a shelf, and a lower coupling rod, shouldered racks on said end members, segmental rockers formed with shoulders engaging those on said racks, a bed frame secured to said segmental racks, a back rest for the support of said bed frame in a rearwardly inclined upright position, and a flap pivotally mounted immediately below said top shelf and arranged to conceal the top of the bed frame when in said upright position, substantially as set forth.

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