R. BRADSHAW.

COMBINED BED AND SEAT.

APPLICATION FILED FEB. 11, 1919.

1,367,013. Patented Feb. 1, 1921.

2 SHEETS—SHEET 1.

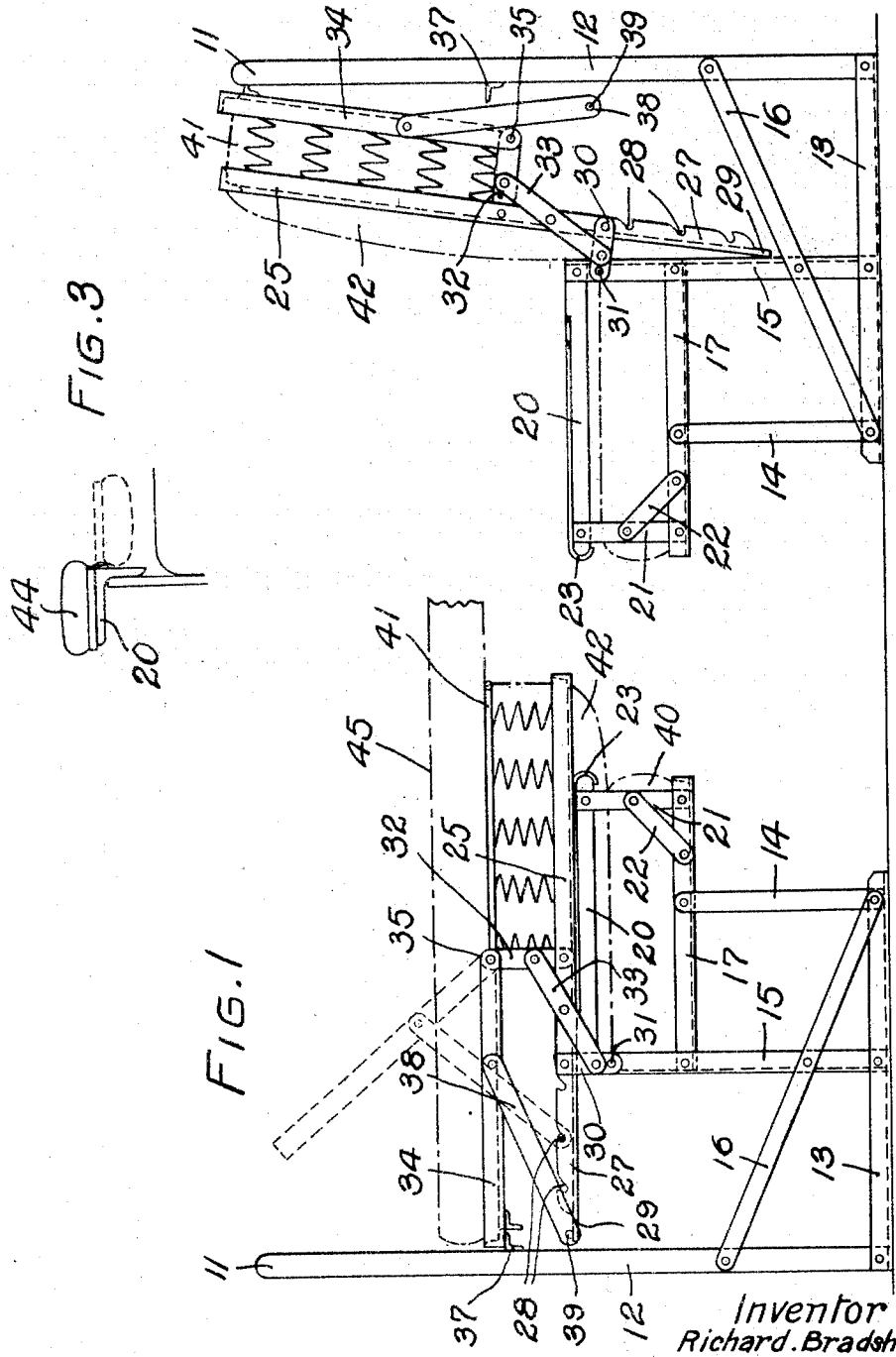


FIG. 3

FIG. 1

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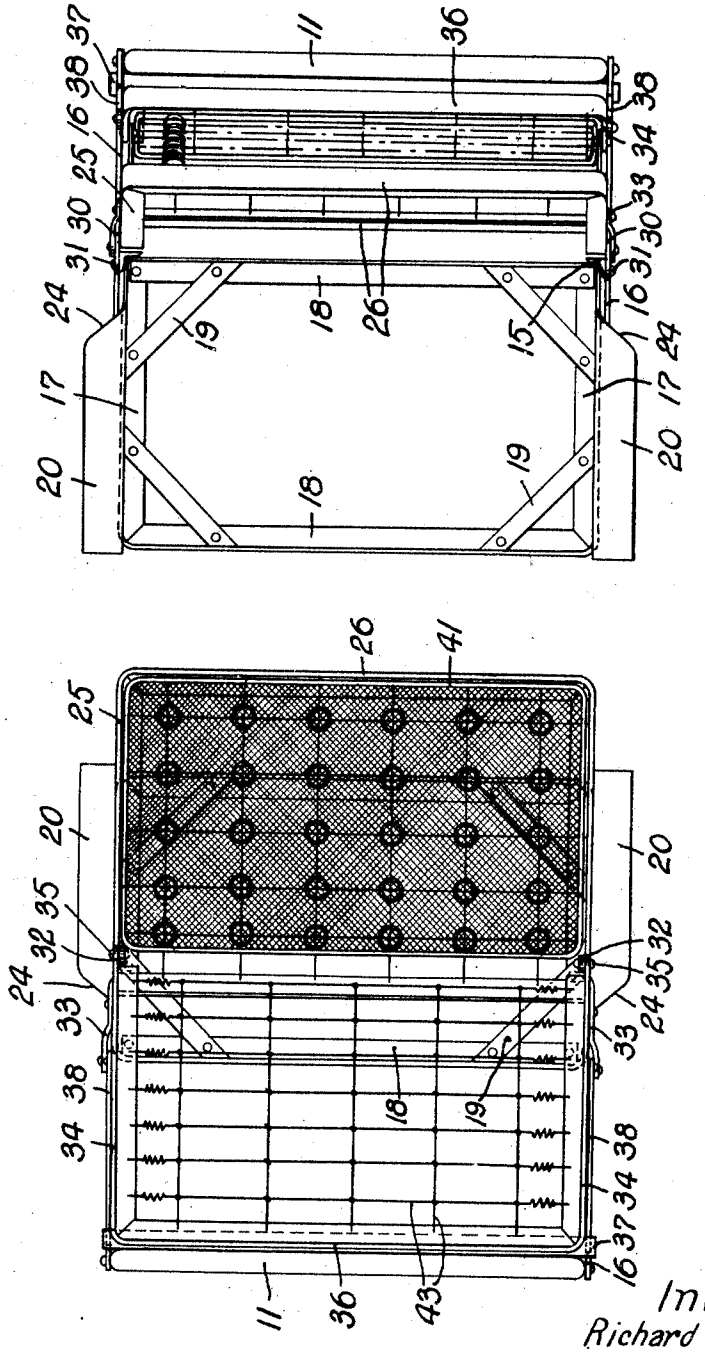


FIG. 2

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UNITED STATES PATENT OFFICE.

RICHARD BRADSHAW, OF MONTREAL, QUEBEC, CANADA.

COMBINED BED AND SEAT.

1,367,013. Specification of Letters Patent. Patented Feb. 1, 1921.

Application filed February 11, 1919. Serial No. 276,254.

To all whom it may concern:

Be it known that I, RICHARD BRADSHAW, a subject of the King of Great Britain, and resident of the city of Montreal, in the Province of Quebec and Dominion of Canada, have invented certain new and useful Improvements in Combined Beds and Seats, of which the following is a full, clear, and exact description.

This invention relates to improvements in combined seats and beds for hospital trains, and the object of the invention is to provide an inexpensive, efficient and sanitary structure which will provide seating accommodation by day and sleeping accommodation by night.

A further object is to provide a structure which when arranged for sleeping accommodation has all the necessary features of a hospital bed.

Another object is to provide a structure which may be arranged to provide a seat and table.

The invention consists briefly in providing a pair of seats facing one another and having the backs thereof adapted to swing forwardly over the seats and meet to form a support for a mattress. Each of the seat backs is provided with an adjustable portion which forms a head rest. When table accommodation is desired, one of the seat backs is swung downwardly, as for a bed, and its upper surface forms a table. The other half of the structure is arranged as a seat.

In the drawings which illustrate the invention;—

Figure 1 is a side elevation of the device showing one half of the structure arranged as a seat and the other half arranged as for a bed or a table.

Fig. 2 is a plan view showing the same arrangement as in Fig. 1, the cushions being broken away in the upper part of the figure to show the framework.

Fig. 3 is a fragmentary front elevation illustrating the application of upholstery to the seat arms.

The device consists of a pair of exactly similar seats which may be arranged to form between them a bed, and therefore the construction of only one seat need be described.

Referring more particularly to the drawings, 11 designates a frame which forms the head or foot of the device when arranged as a bed. The uprights or posts 12 of this frame are connected at their lower ends to the extremities of feet 13, which extend in parallelism and may be secured to the floor of a car. A short upright 14 is connected to the opposite extremity of each foot from the uprights 12 and a longer upright 15 is connected to each foot intermediate the uprights 12 and 14. A brace 16 connects the front end of each foot with intermediate points on the uprights 15 and 12. The seat frame comprises a pair of side members 17, each horizontally disposed and secured at an intermediate point to the top of the upright 14 and at the back end to the upright 15 at a point below the top thereof. The seat frame is completed by the front and back cross pieces 18. The seat frame members are preferably of angle iron arranged with their flanges vertically and horizontally disposed, the horizontal flanges being turned toward the center of the seat and the vertical flanges projecting above the horizontal and forming an upstanding peripheral rim for the seat frame. The seat frame is stiffened by diagonal braces 19 at the corners. An arm rest 20 is provided at each side above the seat frame, these arms being supported at their rear ends on the tops of the uprights 15 and at their forward ends by short uprights 21 rising from the front corners of the seat frame. The uprights 21 are connected by braces 22 with intermediate points on the side members 17. These arm rests may be of any suitable construction but are preferably of angle iron having flanges of unequal width, the narrower flanges depending and being secured to the uprights and the wider flanges projecting outwardly from the seat and curled under at their front ends, as shown at 23. At the back end of each arm rest, the top flange is cut away for a distance, as shown at 24, Fig. 2.

The seat back frame comprises a pair of longitudinal members 25 connected at their upper ends and at intermediate points by transverse members 26. These seat back frame members are formed and arranged as described in connection with the seat frame and have in the tail portions 27, projecting beyond the lower transverse member, notches 28 cut in the upstanding flange and a tip portion 29 from which the upstanding flange has been cut away. This tip portion is arranged to swing clear of the frame 11. Approximately in line with the end of the lower transverse member 26, each side frame

member 25 is provided with a downwardly or forwardly projecting lug 30. The free extremities of these lugs are pivotally secured at 31 to the uprights 15 a short distance below the arm rests 20. At a point mid-way between its ends, each side frame member 25 is provided with a rearwardly or upwardly projecting lug 32. A brace 33 extends between the lugs of each pair and is connected intermediate its ends to the side frame member.

The head rest comprises a pair of side members 34, each pivotally connected at one end to the free end of a lug 32, as at 35. The opposite extremities of these members are connected by a transverse member 36. A transverse supporting member 37 for the head rest is secured to the frame 11. A link 38 is pivotally secured at one end to an intermediate point of each member 34. The free extremities of these links are connected by a transverse rod 39 adapted to lie on the tips 29 of the back side frame members 25 or in the notches 28 of the same members.

A seat cushion 40 of any suitable construction rests upon the seat frame and reaches nearly to the tops of the arm rests 20. This seat cushion is retained in place by the upstanding peripheral flange of the seat frame. The back frame carries a spring structure 41 similar to a spring mattress. The thickness of the spring structure brings it approximately into line with the free extremities of the lugs 32. Padding or upholstery 42 may be provided on the back frame to cover the spring structure. The head rest frame carries a link fabric or woven wire fabric 43.

If desired, an upholstered cover 44 may be hingedly or otherwise attached to the arm rests 20.

The operation of the device is extremely simple. Two seats, as previously described, are fixed to a car floor facing one another. When used as seats, these devices are in their normal position, as shown in the right hand portion of Fig. 1; that is, with the head rest frame folded on top of the spring structure 41 and the back in a slightly inclined position, its upper rear edge resting against the top of the frame 11. When it is desired to convert the device to a bed, each of the seat backs will be swung forwardly and downwardly, so that the backs cover the seats and the side frame members 25 of the backs lie on the arm rests 20. The whole back swings on the pivots 31. The head rest frame is now moved through an angle of 180°, so that instead of being supported on the spring structure 41, its free end is supported on the transverse member 37 of the frame 11. The transverse rod 39 carried by the link 38 rests upon the tips 29 of the members 25. When both seat backs are thus swung downwardly, they will just meet intermediate the seats and it will also be seen that the fabric of the head rests is in the same horizontal plane as the upper surface of the spring structures in the back. A mattress 45 may now be placed on the device and a bed made up in the usual manner. The spring structures 41 come in the middle portion of the bed, where the patient's weight is carried, so that the bed will be very comfortable. The fabric in the frames at the head and foot of the bed supports very little weight and no discomfort will be experienced from the lesser resiliency at these points. The bed is considerably above the level of the seat cushions and at approximately the height usually found in hospital beds, so that the occupants may be tended without it being necessary for the attendant to stoop. If the occupant of the bed is able to sit up, the bed may be adjusted, as indicated in the left hand portion of Fig. 1, by merely grasping the cross piece 36 of the head rest frame and lifting it. The links 38 will draw the rod 39 along the tails of the side members 25, where it will catch in one or other of the notches 28 and hold up the head rest. This head rest being provided on each half of the device is a very great convenience, as it enables the cars to be made up in a train either end leading and also enables other adjustments to be made for the convenience and comfort of the patients. If the beds are only required for night use, the mattresses 45 will be stored in the upper berths in the usual manner and both seats arranged as shown in the right hand half of Fig. 1, thus providing a full width seat each for the occupants of the bed and the upper berth. If it is desired to serve meals in the car or if the occupants wish to write letters, play games, etc., both may sit on the one seat and the back of the other may be swung into the bed position, producing the arrangement shown completely in Fig. 1. The upper surface of the turned-over seat back, which may be covered by a tightly stretched fabric, forms a satisfactory support for the tray on which the patient's meals are served or for games, writing materials, etc.

When upholstery 44 is provided for the arm rests, it must be swung out of the way when making up the bed, as the bed frame rests directly on the arm rests, unless allowance has been made in the length of the lugs 30 and other dimensions. The device provides much greater and more accessible space under the seats for storing luggage than is found in an ordinary sleeping car. There will be sufficient space between the seat and back cushions 40 and 42 respectively for the accommodation of clothing during the night, so that the sleeping space will not be encumbered with hammocks or racks, such as are used in ordinary sleeping

cars. The high bed, besides its advantages as a hospital bed, conduces very greatly to the occupant's comfort, as it raises him above the level of the window sills of an ordinary car, so that a patient confined to bed may lie perfectly flat and, by merely turning his head, see almost as much from the window as a person sitting up. The greater elevation of the bed also brings the patient well above the floor drafts, which are so prevalent in railway trains.

While the invention has been described as a seat and bed for hospital trains, it will be understood that it is not limited to this particular use but may be used with equal facility for permanent barracks, boats, summer camps, sleeping porches and the like. When so used, one or both halves of the device may be movable on the floor. The invention is of course not limited to the particular form shown, as the framework may be made of wood and a handsome piece of furniture produced, which will be suitable for use in dwelling houses and apartments.

Having thus described my invention, what I claim is;—

1. In a device of the class described, a pair of chairs arranged face to face, each including a hingedly mounted back and each back including a hingedly connected extension normally arranged in parallelism with the back, each of said backs being forwardly movable into engagement with one another to form the central portion of a bed bottom, the extensions thereof being movable into alinement to form the head and foot sections of a bed bottom, and means carried by the back for adjusting the back extensions to inclined position to form elevated ends for the bed bottom.

2. In a device of the class described, a chair including a back hingedly mounted at its lower edge, an extension for said back hingedly connected thereto adjacent the mounting of the back, notched members carried by said back being extensions of the ends thereof across the line of support, and a pivoted member carried by the extension engageable with the notched member to support the extension at an inclination upon the back, said notched member being formed to hold the pivoted member against movement out of operative relation.

3. In a device of the class described, a chair including a back frame rigid with respect to a seat, and a back hingedly connected with respect to the seat, said hingedly connected back including a hingedly connected extension and rigid arms, said back being movable forwardly into horizontal position over the seat, and the extension being movable backwardly into horizontal position in alinement with the back and into supporting engagement with the back frame, and adjustable means for supporting said extension in inclined position on the arms of the back.

4. In a device of the class described, a rigid chair structure comprising a seat frame, legs, arms and a rigid back frame, a movable back frame hingedly connected to said seat frame at a center equidistantly in front of the movable back frame and below the arms, said back frame normally resting against said rigid back frame in a rearwardly inclined position and movable forwardly to a horizontal position of rest upon the arms.

5. In a device of the class described, a rigid chair structure comprising a seat frame, legs, arms and a rigid back frame, a movable back frame hingedly connected to said seat frame at a center equidistantly in front of the movable back frame and below the arms, said back frame normally resting against said rigid back frame in a rearwardly inclined position and movable forwardly to a horizontal position of rest upon the arms, said rigid back frame being spaced from the seat frame, and the movable back being adapted to occupy said space when in normal position.

6. In combination with a device according to claim 5, an extension frame hingedly connected to the movable back frame and movable during the forward folded position of the back frame into a position at rest upon the rigid back in alinement with the movable back and spanning the space between said seat and rigid back.

7. In combination with a device according to claim 5, notched extensions of the movable back frame normally occupying the space between the seat and rigid back, an extension frame hingedly connected to the movable back and means adjustable upon said notched extensions to support the extension frame in inclined position.

8. A device of the class described including side members, seat frame, and a back frame connected intermediate their ends, said back frame being movable forwardly from a rearwardly inclined to a horizontal position upon the seat, and an extension frame pivotally connected to said back frame, and means for supporting said extension frame upon one end of the back frame during one position thereof and upon the other end of the back frame during another position thereof.

In witness whereof, I have hereunto set my hand.

RICHARD BRADSHAW.