L. T. BRADSTREET.

SLEEPING CAR.

APPLICATION FILED JULY 2, 1917.

1,292,425.

Patented Jan. 28, 1919.

Fig. 1.

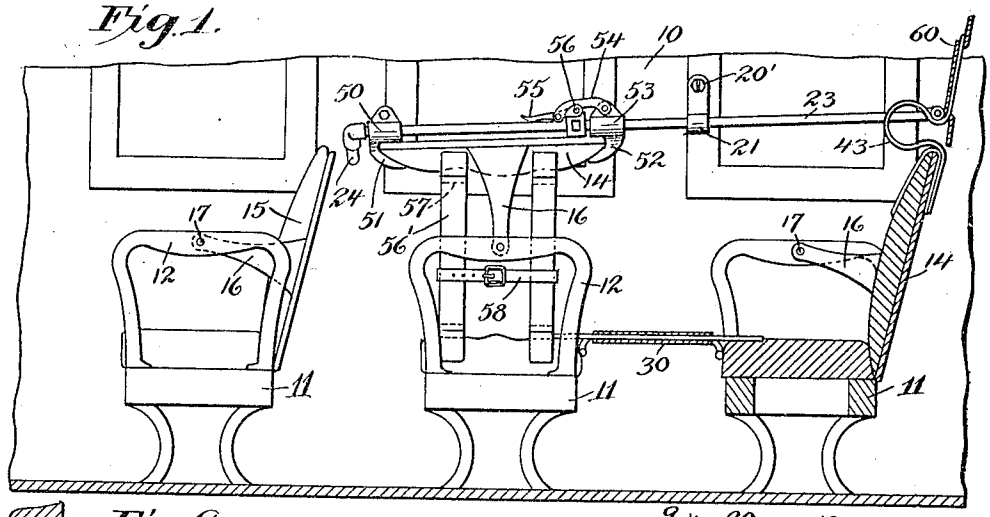


Fig. 9.

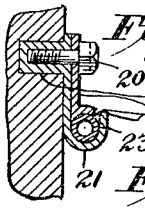


Fig. 2.

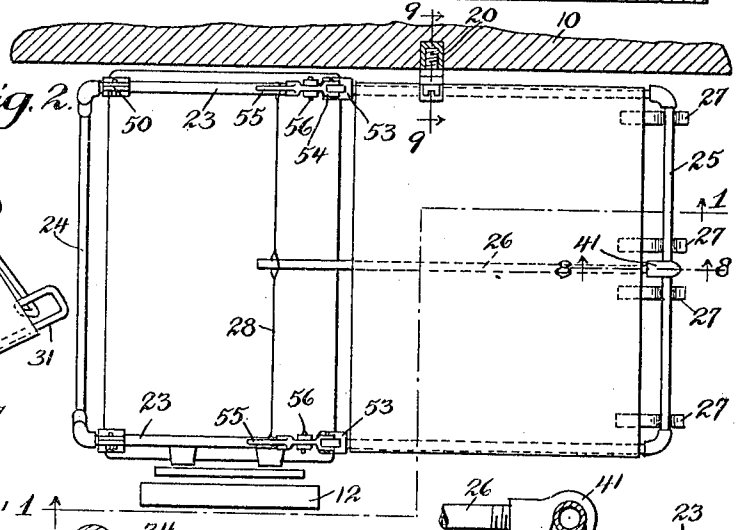


Fig. 5.

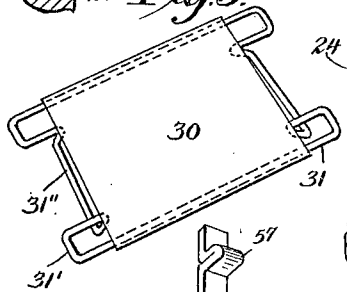


Fig. 10.

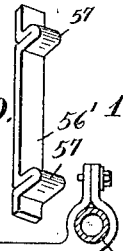


Fig. 8.

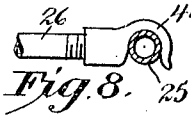


Fig. 7.

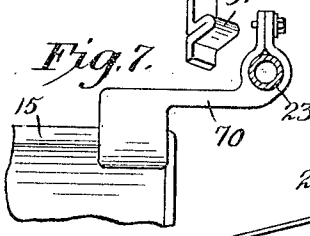


Fig. 3.

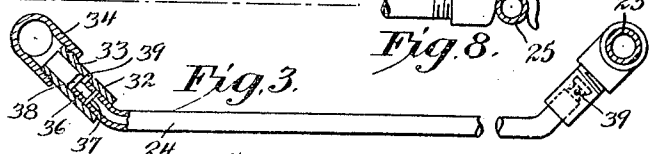


Fig. 4.

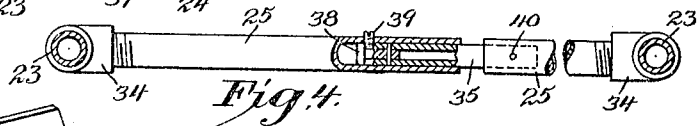
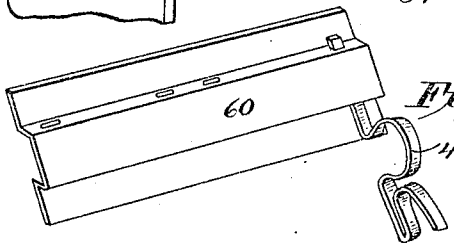


Fig. 6.



Inventor:

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by his attorneys

Mitchell, Chadwick & Kent

UNITED STATES PATENT OFFICE.

LORENZO T. BRADSTREET, OF ROWLEY, MASSACHUSETTS.

SLEEPING-CAR.

1,292,425. Specification of Letters Patent. Patented Jan. 28, 1919.

Application filed July 2, 1917. Serial No. 178,143.

To all whom it may concern:

Be it known that I, LORENZO T. BRADSTREET, citizen of the United States, residing at Rowley, in the county of Essex and State of Massachusetts, have invented new and useful Improvements in Sleeping-Cars, of which the following is a specification.

This invention relates to improvements in sleeping cars. More particularly it relates to devices for converting coaches equipped with the ordinary reversible seats for day use into sleeping cars provided with upper and lower berths according to the general type shown in Letters Patent No. 534,626, granted to me on February 26, 1895. The present invention consists of improvements in the general style of apparatus there disclosed. Objects of the invention are to provide so that the apparatus, which serves to convert the day coach seats into berths, is removable from them; is firmly locked on the car wall when in place, so as to be proof against accidental dislocation, notwithstanding the jumping or other vertical shocks of passengers, or of road beds; in which the cost of construction is reduced while at the same time the strength and rigidity of the frame is increased; in which the member of the frame which crosses at the foot of the berth is arranged at a lower level, thus providing an extension space of two of three inches which is very useful for tall passengers; so that the assembling of the parts both at the foot and head requires only the simple operation of right-handed screwing, which is familiar to all passengers; so that a headboard is provided, effectively separating from each other upper berths that adjoin endwise; so that auxiliary supports are provided for the aisle edge of the upper berth, relieving the pivotal supports of the seat back from some stress; so that the lower berth can be made by adaptation of any ordinary car seats, without requiring special grooves in the frame thereof for holding the filling piece; and so that the other advantages which characterize the disclosed apparatus may be provided. It is also an object to provide so that the entire apparatus which is added for converting the seats into berths can be stowed during the day in a small space, without being in the way of persons using the seats.

These objects are accomplished by the combinations and arrangements of apparatus illustrated in the accompanying drawings, which show one embodiment of the invention; but it is to be understood that the invention may be embodied in other forms of apparatus within the scope of the appended claims. It is intended that the patent shall cover, by suitable expression in the appended claims, whatever features of patentable novelty exist in the invention disclosed. In the accompanying drawings:

Figure 1 is a side elevation of apparatus embodying the invention, partly in section as indicated by the line 1—1 of Fig. 2;

Fig. 2 is a plan of the apparatus shown in Fig. 1;

Fig. 3 is an end elevation, on an enlarged scale, of the foot rail of the upper berth, partly in section;

Fig. 4 is an end elevation, likewise on an enlarged scale, of the head rail of the frame of the upper berth, partly in section;

Fig. 5 is a perspective view of one of the filling pieces, which together combine with the car seats to make the lower berth;

Fig. 6 is a perspective view of the headboard;

Fig. 7 is a fragmentary view, on an enlarged scale, of a modification by which a wider berth may be made, extending part way into the aisle of the car;

Fig. 8 is a fragmentary view showing a detail, in section on the line 8—8 of Fig. 2, on an enlarged scale;

Fig. 9 is an end elevation of another detail in section on the line 9—9, on the enlarged scale; and

Fig. 10 is a perspective of another detail.

The drawings illustrate the apparatus as it may be applied to a day coach having reversible seats. The side wall of the coach is marked 10. The seats have frames 11, arms 12, seat upholstery 13, back frames 14 and back upholstery 15. The back frames have the side arms 16 pivotally connected at 17 to the middle of the side arms 12 in the ordinary manner. The apparatus which is added to this to convert two seats into upper and lower berths, capable of holding two persons in each berth, involves nothing permanently added to the car, or to furniture, except a metallic screw socket 20 with depending hook 21, Figs. 2 and 9, which may preferably be set in the wall of the car.

This is set at a convenient place between the two seats which are to be converted into berths.

The frame of the upper berth consists of two side rods 22 (which may be made either of ordinary iron piping, or of light and strong tubing) a foot rod 24, a head rod 25, suitable fittings for connecting them between the side rods, and also preferably rod 26 medially dividing the upper berth into two longitudinal portions. The frame thus constituted rests at four points of support on the top edge of the back of that seat which is at the head of the berth, these being marked 27; on a side support 21 midway of the side, as already mentioned; on a broad foot support comprising the turned-up back of the other seat; and on two supports on the aisle side at the foot, which hold this back in its turned-up position and themselves rest on the upholstery of the seat beneath. The only further element necessary for the upper berth is a strip of canvas extending across from one rod to the other, over that seat which is at the head and over the space between the two seats. The usual upholstered back of the seat which is at the foot constitutes the support for the lower limbs of persons lying in the upper berth. If the berth is used for two persons they may be separated by the dividing rod 26, the head end of which hooks over the head rod as seen in Fig. 8, and the end of which that is toward the foot is held in the middle by a simple tie 28, and is supported on the turned-up back 14 of the seat at the foot. The sagging of canvas which naturally occurs on each side of the medial rod 26 makes it a conveniently comfortable support for one to lie on each side of it, without interference from and without crowding his neighbor. The four head supports 27 being in the nature of springs, as illustrated, make the berth reasonably comfortable, notwithstanding the absence of a mattress. For the lower berth the two seats are used, with intervening filler 30 composed of one or two sections of canvas each supported on a stout wire frame 31. Preferably there are two of these, each half of the width of the seat, so that each person has a separate section in which to lie unmolesting and unmolested by his neighbor. These frames, which embody an improvement over the device for the same purpose illustrated in my previous patent, are long enough in a horizontal direction to overlie the upholstery of both seats, and are deep enough near their ends, by reason of turned down portions of the wire, to engage between those two seats. The shape is shown in Figs. 1 and 2 from which it is clear that the projecting portions 31′ at each end, one at each side of each section, four in all, support the frame as a whole on the seat upholstery 13, while the middle portions 31″ at each end of each section are recessed inward and turned downward so as to engage the vertical faces of the upholstered edges of the seats, thus preventing the section as a whole from sliding too far on either seat, and thus sliding off of the other seat.

One of the features of novelty is the provision of quickly detachable side and end rods of rigid length, in place of the telescopic arrangement previously known; and another feature is found in the connections by which the end rods are inserted between the side rods, notwithstanding the rigidity. The foot rod extends at a level slightly below the plane of the side and head rods, as is clearly seen in Figs. 1 and 3. In order to attach and detach readily this foot rod, the main portion of whose length is straight, there is at each end an upturned portion at an angle of about 45° equipped with a special device for connecting it to an elbow on the end of the side rod. The rod 24 is bent upward at 24′ at each end, at the said angle, and there carries a nipple 32 which is loose upon it, and which projects beyond its end and has a right hand screw thread 33 adapted to engage the elbow 34 on the side rod 22. In order to attach this nipple to the rod 24 which is a tube and of whose end it constitutes an extension, an internal-plug-extension of the tube 24 is provided, marked 36. This has a body adapted to fill the end of the tube 24 for a distance, wherein it is permanently fastened in place, as by a pin 37. Its outer head 38, which may project to any desired short distance beyond the end of tube 24, is as large as the outside diameter of that tube. The space between this head and the end of the tube constitutes a groove into which a screw pin or set screw 39 may be driven, removably. Both ends of the tubular rod 24 being bent alike, there being a nipple 32 loose on each end to install the rod 24 it is only necessary to screw the nipples 32 into the elbows 34 until in each the hole and pin 39 comes opposite the space between the head 38 of the plug 36 and the end of tubular rod 24. At that position the pin 39 may be screwed in, far enough to engage between the plug head and the end of the tube 24. This puts the foot rod securely in place. This construction has somewhat the same effect as if the rod 24 were solid instead of hollow, and a groove were cut into its material near its end, the space between the head 38 and the end of the rod 24 being in the nature of a groove. At the same time the device permits the use of tubing 24 so light and thin that it could not hold an adequate groove. The head rod is similarly adjusted, except that this has no upturned ends, but goes across in the plane of the side rods 23. By reason of the division of this rod into two, joined together by the same means by which one of the members 32 is

joined to the rod 24, each end of the rod has a right hand screw thread. When each has been screwed into the connecting elbow 34 to its proper distance a screw 39 can be inserted between the plug head 38 and the end of tube 35 (Fig. 4), corresponding to the end of tube 24 in Fig. 3, thus fixing the length of the head rod 25, so that turning of it will neither increase nor diminish the distance between the side rods 23. In this case there is a connecting tube 25 between the parts of head rod 25, which is pinned to one of them at 40, and is loose within the other with the fastening means above described. The central dividing rod 26 is provided with a hook 41 to engage over the head rod 25 as clearly illustrated in Fig. 8. Its foot end terminates about three fourths of the way down the berth where it is engaged in a loop 42 in a cross tie 28.

The described parts constitute the upper berth frame. They are supported in position, first, by head springs 43, each so bent as to have a saddle that will fit removably over the top edge of the seat back, and so as to have hooks in which the head rod can rest; second, by engagement on one side in the wall supports 21, 22; and third by resting on the turned-up back of the other seat. The wall support has the hook 21 into which the side rod 23 fits, and has the locking member 22 covering the rod when in the hook, held by bolt 20′ which can be removed to permit insertion of the rod 23 and which when replaced fits about that rod so as to prevent its coming out of the hook. This permanently locks and supports the side rod 23 so long as the bolt 20′ stays in place. That bolt may have a slot cut in its head, as illustrated, making it thus possible for the entire apparatus to be put up and taken down with a screw driver, the only parts requiring a tool being this bolt and the screw pins 39. Both of these may if preferred be made with knurled or butterfly heads so that they can be operated by hand without any tool.

Engagement of the side tubes 23 with the supporting and up-turned seat back at the foot of the berth is another feature of the invention. This comprises the foot clamp 50 which has a body portion carried on and inclosing the tube 23 and capable of being clamped rigidly in a place thereon by a nut as indicated, and a claw portion 51 adapted to hook under that edge of the turned-up back 14 which is toward the foot. A similar claw 52, adapted to engage the end of the turned-up back 14 which is toward the head, is carried on a body portion 53, which is freely movable on the rod 23, by means of a link 54 operated by a lever 55. The fulcrum of this arrangement is at 56, where a block is clamped permanently on the rod 23, at a selected proper place so that the distance between the claws 51 and 52 will be correct to fit the backs to which the apparatus is to be applied. The fulcrum 56 being fixed, an upward swinging of the lever 55 throws the foot end of the link 54 upward, over and downward toward the head end, thus slipping the claw 52 along on the rod 23 until clear of the back 14. This permits removal of the berth frame from the back. Its restoration is accompanied by the reverse of the same simple operation. When in place the frame is held securely on the turned up seat back 14 by these claws 51, 52. Although the back 14 is well supported on its pivots 17 when thus turned up, a supplementary support may be provided by the struts 56′, which may be sufficiently broad and made of sufficiently thick material, and which are formed with laterally projecting folds 57, as clearly seen in Fig. 10. adapted to engage over the upholstery of the seat and under the upholstery of the turned up back, so as to prevent the back from tending to swing on its pivot. A belt 58 or other suitable means may be used to hold these strut members 56′ in place. The struts themselves may be of any desired degree of stiffness or resiliency so as to assume and carry a part of the stress imposed upon the up-turned part of the back by the upper berth frame resting thereon and to impose it on the upholstery of the seat instead of on the arm 12 thereof.

A head board may be provided, indicated by the reference numeral 60, having slots 61 through which the upstanding ends of the head-rod-holding springs 43 penetrate. Preferably this may be made of metal pressed into shape. This partition, supported on the same device which supports the frame of the berth, makes an effective separation between the head of a passenger and the immediately adjacent feet of the next.

In use the apparatus is taken down by unscrewing the two nipples 32 at the foot, the one 35 in the head, and the bolt 20′ at the wall. Then, upon throwing over the levers, 55, all of the parts can be lifted out of place, and stacked conveniently under the seat against the wall of the car. The apparatus is set up by the reversal of the same simple operation.

A modification is illustrated in Fig. 7 where a bracket 7 is shown extending outward into the aisle from the top edge of the back at the head end. It is not necessary for this to be fastened down upon the the back, but it may rest thereon being formed with a saddle, because the fastening at 20 and 52 hold the frame down.

I claim as my invention:—

1. In combination with railway car seats, a berth frame comprising two longitudinal

rods, and cross rods joining them at head and foot; a socket piece set in the car wall having in its socket a screw thread and having a depending hook adapted to engage one of the said rods of the berth frame; a keeper adapted to hold the rod within the hook; and a bolt penetrating said socket and securing said keeper and berth frame removably in place, the said frame being adapted to have additional support on backs of the car seats.

2. In combination with railway car seats, a berth frame composed of side and end rods; means for anchoring one of the side rods to the side wall of the car, in position for its foot portion to rest on an up-turned back of the seat; and supports for the head end thereof, comprising springs having saddle formations adapted to rest removably upon the top edge of the back of a seat.

3. In combination with railway car seats, a rectangular, berth frame; supports for the head end thereof, comprising metallic strips arranged with saddle formations open downward for resting on the back of the seat, and ends pointing upward; and a head board having slots through which said ends may project, thereby supporting the head board.

4. In combination with railway car seats, a rectangular berth frame adapted to rest on the up-turned back of a seat; and auxiliary supports for said back in its up-turned position comprising strips adapted to be set vertically at the end of the seat; having portions bent inward horizontally to engage between the seat and the up-turned back, and terminal portions extending vertically over the end of the seat and back.

5. In combination with railway car seats, a rectangular berth frame adapted to rest on the up-turned back of a seat; and auxiliary supports for said back in its up-turned position comprising strips adapted to set vertically at the end of the seat; having portions bent inward horizontally to engage between the seat and the up-turned back, and terminal portions extending vertically over the end of the seat and back; and means engaging said vertical strips to hold them in said position.

6. In combination with railway car seats, a rectangular frame adapted to be supported with its foot resting on an up-turned back of a seat; a fabric spread between the side rods over the part where the up-turned back does not extend; dividing means comprising a rigid rod adapted to lie midway between the side rods, to engage the head rod, and to rest upon the up-turned back; and a flexible tie extending over the up-turned back between the side rods and engaging the foot end of said dividing rod, thereby holding it in the middle.

7. In combination with railway car seats, a berth frame comprising side and end rods adapted to be supported on the backs of two seats, one of them being up-turned; the end rod at the foot being dropped a little below the level of the side rods to which it is attached.

8. In combination with railway car seats, a berth frame comprised of side and end rods of rigid length, and means for attaching together the said rods with right handed screw connections only; said attaching means including a nipple rotatable on the end of a rod, and adapted to make screw connection with the adjacent rod.

9. In combination with railway car seats, a berth frame comprised of side and end rods of rigid length, and means for attaching together the said rods with right handed screw connections only; said attaching means including a nipple rotatable on the end of a rod, and adapted to make screw connection with the adjacent rod; and a pin preventing the unscrewing of said nipple.

10. In combination with railway car seats, a berth frame comprised of side and end rods of rigid length, and means for attaching together the said rods with right handed screw connections only; said attaching means including a nipple rotatable on the end of a rod, and adapted to make screw connection with the adjacent rod; said rod being tubular and having a terminal plug projecting from its end, provided with a head, whereby said pin may engage between said head and the end of said tube.

11. In combination with railway car seats, a berth frame having side and end rods and adapted to rest on the up-turned back of a seat; and means for securing said back and frame together, comprising a link movable on one of the side rods, having a claw adapted to hook under said up-turned back; and means to secure said claw in position thereunder and to loosen and remove it therefrom.

12. In combination with railway car seats, a berth frame having side and end rods and adapted to rest on the up-turned back of a seat; and means for securing said back and frame together, comprising a link movable on one of the side rods, having a claw adapted to hook under said up-turned back; and means to secure said claw in position thereunder and to loosen and remove it therefrom; comprising a link, a lever and a fulcrum support for the lever on said rod.

13. In combination with railway car seats, a berth frame having side rods; means for securing it to the up-turned back of a seat, comprising a pair of claws on the side rod; one at each edge of said back; the one at the foot being fixed and the one at the other edge of the back being movable into and out of engagement.

14. In combination with railway car seats, a berth frame having side rods and means to

attach it and the backs of two seats together, comprising a claw at the foot adapted to hook under the back of the seat, and a hook on the back of the other seat adapted to engage the head end of the frame.

15. In combination with railway car seats, a berth frame having side rods and means to attach it and the backs of two seats together, comprising a claw at the foot adapted to hook under the back of the seat, and a hook on the back of the other seat adapted to engage the head end of the frame; and means on the side of the car for clamping the side rod, preventing its elevation and thereby preventing the turning down of said back.

16. In combination with railway car seats, a filler for combining two seats to constitute a berth, comprising a rod frame bent into form having terminal projections extending horizontally and adapted to rest upon the adjacent seats, and other projections extending downward and engaging between the seats.

Signed by me at Boston, Massachusetts, this 29th day of June, 1917.

LORENZO T. BRADSTREET.