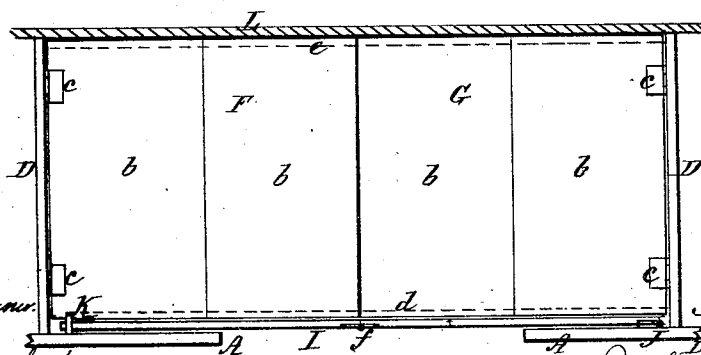
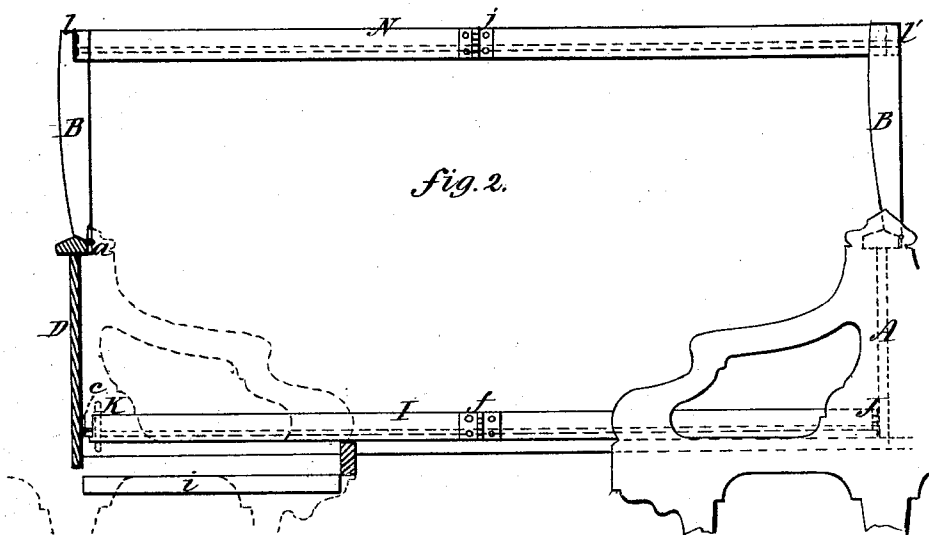
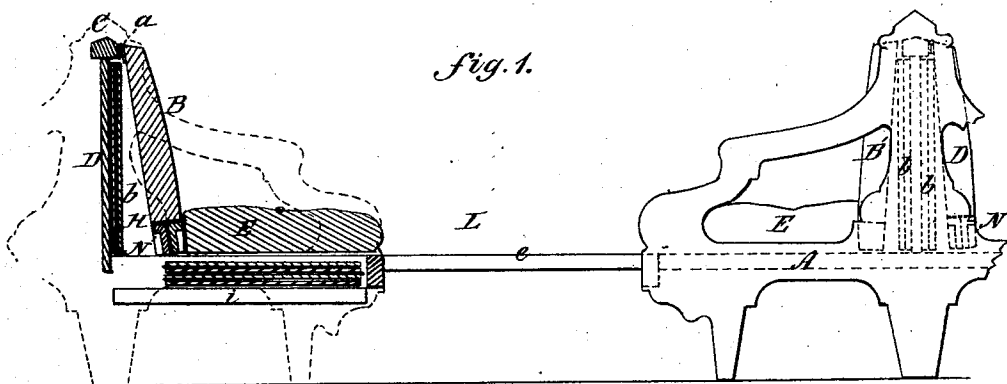


J. T. & D. R. LEIGHTON.
Sleeping-Cars.

No. 145,664.

Patented Dec. 16, 1873.



Attest:
Wm. H. Wagner
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Inventors:
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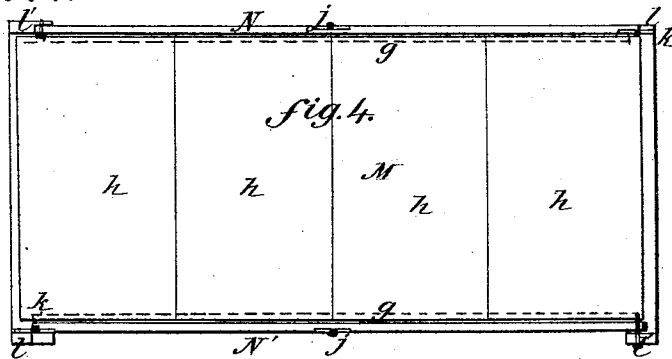


fig. 5.

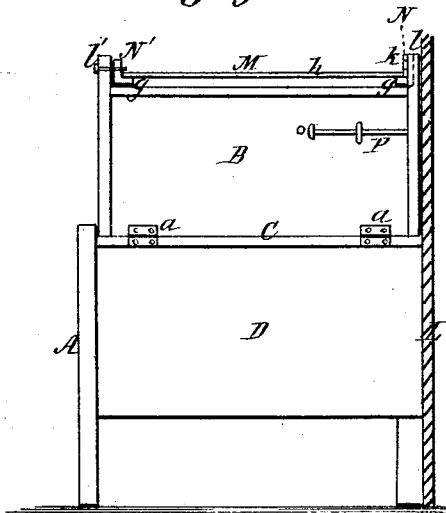


fig. 6.

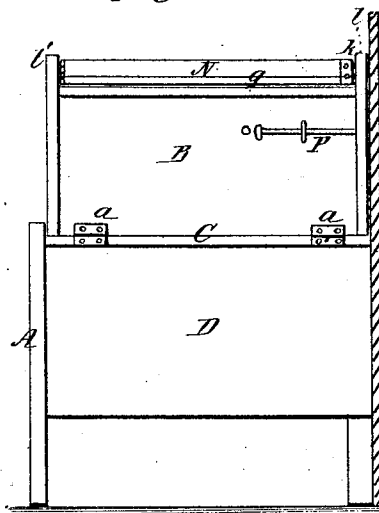
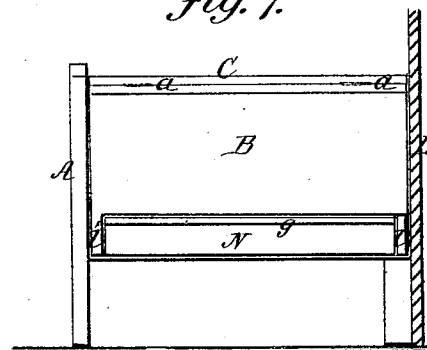


fig. 7.



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UNITED STATES PATENT OFFICE.

JAMES T. LEIGHTON AND DOMINICUS R. LEIGHTON, OF NEW HAVEN, CONN.

IMPROVEMENT IN SLEEPING-CARS.

Specification forming part of Letters Patent No. **145,664**, dated December 16, 1873; application filed November 15, 1873.

To all whom it may concern:

Be it known that we, JAMES T. LEIGHTON and DOMINICUS R. LEIGHTON, of New Haven, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Sleeping-Couches for Railway-Cars, of which the following is a specification:

The object of our present invention is to render the conversion of the seats of railway-cars into sleeping-couches with as little trouble, expense, and additional weight to the car as possible, and preserve the proper arrangement and compactness of the seats for day travel. In carrying out these objects we employ a single folding hinged rail for the outer edge of the lower slat bottom, the said rail being hinged to the inner side of the chair-arm, and, extending between the seats, is held at its free end within a staple or angle-iron, and, in folding up, is closed with its hinged sections within one of the seat-backs; and, in these particulars, is distinguished from the separate hinged folding arms for the same purpose, having both a horizontal and vertical adjustment within each seat-back, as secured to us in a patent dated September 16, 1873, and numbered 142,923; and with which improvement the sectional slat bottom, when folded, stands vertically between the seat-backs, instead of folding horizontally upon the hinged arms, as in our said patent, whereby less space is required between the chair-backs for the storage of these parts, and much greater convenience in putting up the slat bottoms and adjusting the parts is obtained. We likewise make the upper couch directly upon the seat-backs when turned up, by the combination of hinged seat-backs with hinged inner and outer supporting-rails; and our improvement therein consists also, broadly, in the upper couch-supports, constructed and arranged to be folded separately and independently from the seat-backs, and yet carried by them when folded and unfolded, and especially in the disposition of such parts as will allow these hinged supports to be folded parallel with the seat-backs, and be carried with them out of

the way down between the seats and the backs when the latter are adjusted for day travel. With these improvements, a folding slat bottom is supported by the hinged rails at both its inner and outer edges, which gives the advantage of the use of a transverse folding bottom, which can, when not in use, be put away upon cleats directly beneath the seat. By these improvements, the parts which form the upper couch-support are brought down, folded, and stored away on a level with the chair-seats, while the chair-frames are fixed, and require only movable seats and hinged backs to effect the accommodation of the things stated for the formation of the upper and lower couches, while a distinguishing and highly important advantage resulting from the use of these improvements lies in the fact of a reduction in the weight of sleeping-cars of over fifteen tons, and a gain thereby of the cost of running one car.

In the accompanying drawings, Figure 1 represents an elevation of one chair, and a vertical cross-section of another, with the seats of a sleeping-car arranged for day travel; Fig. 2, a similar view, showing the couches of a section formed for night travel; Fig. 3, a horizontal section, showing the lower couch; Fig. 4, a top view of the upper couch; Fig. 5, an end view of the same; Fig. 6, a similar view with the inner hinged side rail folded upon the edge of the seat-back; Fig. 7, a similar view, showing the hinged seat-back turned down, and with its hinged folded side rail lying parallel with and beneath the lower edge of said back.

The chair-frames A are made double, with the seat-backs B of each, or of every other chair, hinged at the upper edge C to the top of a partition, D, fixed vertically between the seat-backs, and forming a part of the fixed chair-frame, and upon which the seat-backs are supported when turned up upon their hinges *a*, and form supports for the upper couch, as described and shown in our patent aforesaid, and need not, therefore, be more particularly stated in this patent. The seats E are made separate and removable from the

backs B, and when the latter of each alternate seat are hinged to the partitions, then one of the seat-backs B' of adjacent chairs is also made separate and removable for converting the seats into couches; and, in such change, the separate seats E and backs B' are placed beneath the lower couch out of the way. The bottom for this couch is of slats *b*, of two separate and distinct sections, F and G, each section being connected by hinges *c*, or otherwise, to the partitions D of the chair-frames.

In practice, we prefer to make each section, F G, of two slats, *b*, so that when folded they will stand vertically against the partition and within the space H, formed between it and the seat-back B, and thereby dispose of the bulk of the folded slats *b* vertically instead of horizontally, and in this way bring the seat-backs B closer together, and to the partition. When unfolded for the couch, the slats are sustained at their outer edges by resting on a ledge, *d*, of an outer rail, I, hinged in two parts, and also at one end, J, to the inner side of one of the chair end frames, while its free end projects into, and is held by, a loop or staple, K, fixed to the inner side of the other chair end frame, so that the rail I lies against the inner sides of these end frames. The inner edges of these slat sections *b* rest upon a wall-ledge, *e*, and are thus securely held in place between the inner side of the rail I and the wall L of the car. The joint *f* of the rail I flexes inward, and it folds up in turning it upon its end hinge J, so as to rest against the slats, which must be previously folded vertically within their receiving-space. A single extensible hinged rail in this way serves to sustain the outer side of the lower couch from one end to the other, making it much more convenient for use and of less expense than to employ separate hinged arms attached to each chair for this purpose. The upper couch is formed upon a slat bottom, M, supported directly upon an inner and outer extensible rail, N and N', which are hinged at their outer ends to the outer corner of one and the inner corner of the other of the free edges of the hinged seat-backs B, so that when the latter are turned up their lower edges become their top sides and form supports for each end of the side rails N and N', which reach from one upturned back to the other; and upon a ledge, *g*, on the lower inner side of each rail, the short slats, *h*, of the bottom rest, so that these slats may, like the lower slat bottom, fold crosswise, and thus, occupying little room, are stored away when not used upon cleats *i*, as shown in Fig. 1, directly beneath one of the seats, which convenience could not be obtained by long slats supported at the head and foot ends of the couch and folding lengthwise for storage. These rails N and N' are each of two sections, hinged at *j*, so as to be folded together and turned upon their end hinges *k* to fold them upon the

seat-back edges, in which positions they are carried by and form a part of said backs, and by them are brought up into positions to be unfolded to span and connect the two backs, or carried down out of the way when the backs are brought into position with the seats of the chairs. In this change the folded rails N and N' will occupy positions beneath the lower edges of the seat-backs, as shown in Fig. 1, and parallel with them, and occupying no more space than the chair-backs, but moving with them into and out of positions for seat and couch travel without in the least interfering with the chair-frames, or requiring other fixtures to complete the organization of the upper couch-support. As the joints *j* of these rails are made so that they can only fold inward, the slatted bottom M, when arranged between them, must therefore hold them rigid. The hinges *k* of the rails are secured to projecting ends *l* from the seat-backs B, and the free ends of these rails are made to lap inside with such projections *l'*, to hold the rails in place; and this junction of these parts may also be fastened together by a pin passing through the lapped ends, while the upturned backs are securely locked in positions to the car-wall by bolts P on the backs fitting into the wall L, or in any other way that will render the frame formed by the backs and hinged rails rigid and fast to the wall to form the couch-support.

The dispositions of the chairs are made in the usual manner adopted for sleeping-cars, and we do not confine ourselves to the particular arrangement of these and other parts as shown; yet we deem such to be a very good and convenient disposition to carry into useful effect the improvements which form the subject-matter of this patent.

With the improvements described, our sleeping-car will not exceed in weight nineteen tons, while the average of sleeping-cars now in use is thirty-five tons.

We claim—

1. The single hinged extensible rail I, in combination with the separate slat sections F G and the chairs, constructed for adjustment to form the lowest couch, substantially as described.
2. The single extensible rail I, hinged at one end, J, to one chair-frame, and supported and held at its free end by an angle-iron or staple, K, at the other chair-frame, and spanning the space between the chairs, substantially as described.
3. The section slat bottom G and the single hinged folding rail I, arranged to fold one beside the other, as and for the purpose described.
4. The combination, in a sleeping-car, of the hinged connecting-rails N N' with the hinged seat-backs B, to form a frame upon which to support the upper couch, as described.
5. The rail-support N N' for the upper couch,

connected to and carried by the seat-backs B, whether in the extended or folded positions of these parts, as described.

6. The rail-supports N N', hinged to the corners of the lower edges of the hinged backs B, and folded parallel with and beneath the lower edges of said backs, turned down to the seats, as described.

7. The rail-supports N N', hinged at their opposite ends l, in combination with the end

projections l', with which the rails lap and are braced, as described.

8. The bottom M, composed of slats h h h h, in combination with the ledges g of the hinged rails N N', as and for the purpose described.

JAMES T. LEIGHTON.

DOMINICUS R. LEIGHTON.

Witnesses:

THOS. E. WILLIAMS,

L. S. STRICKLAND.