B. J. LA MOTHE.

Railway Car.

No. 10,721. Patented Apr. 4, 1854.

Fig. 1.

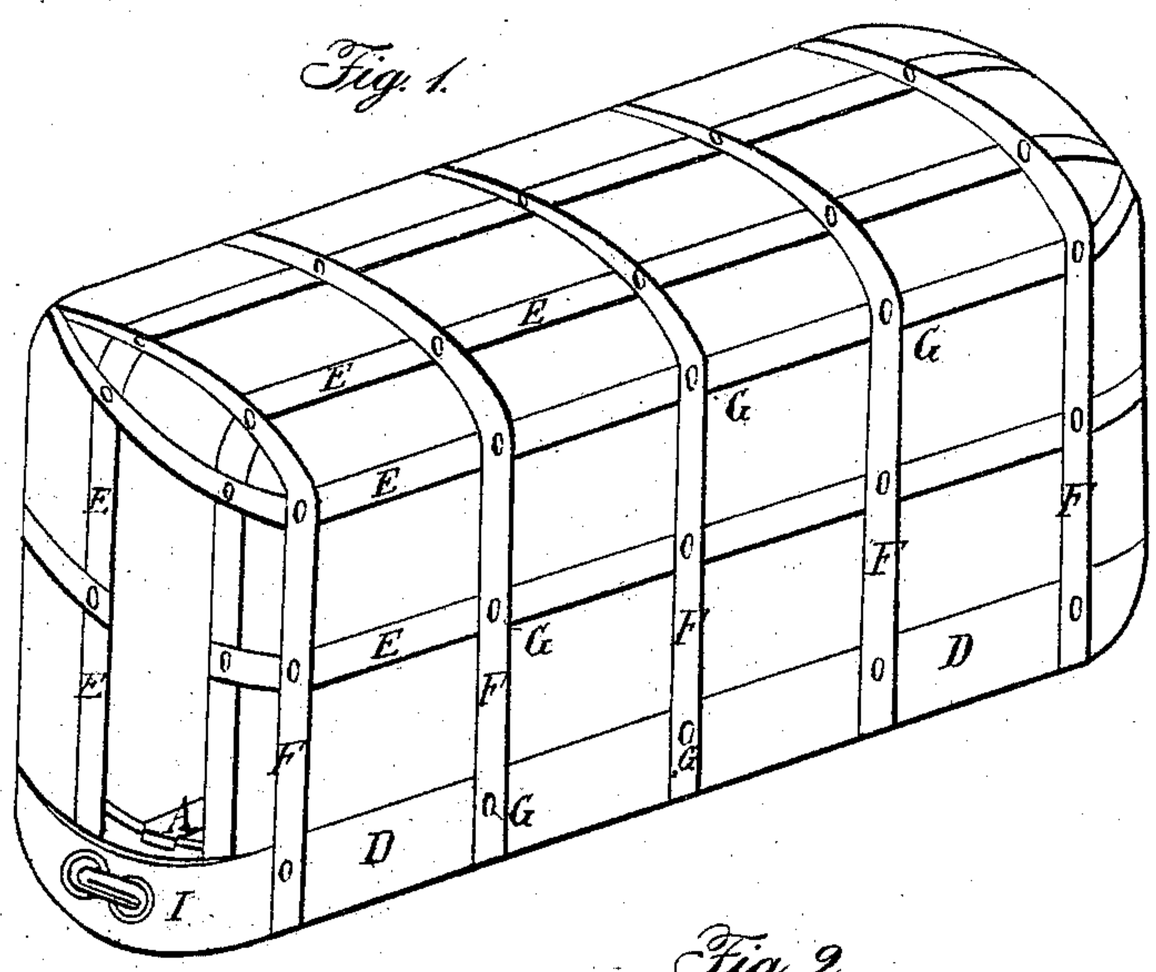


Fig. 2.

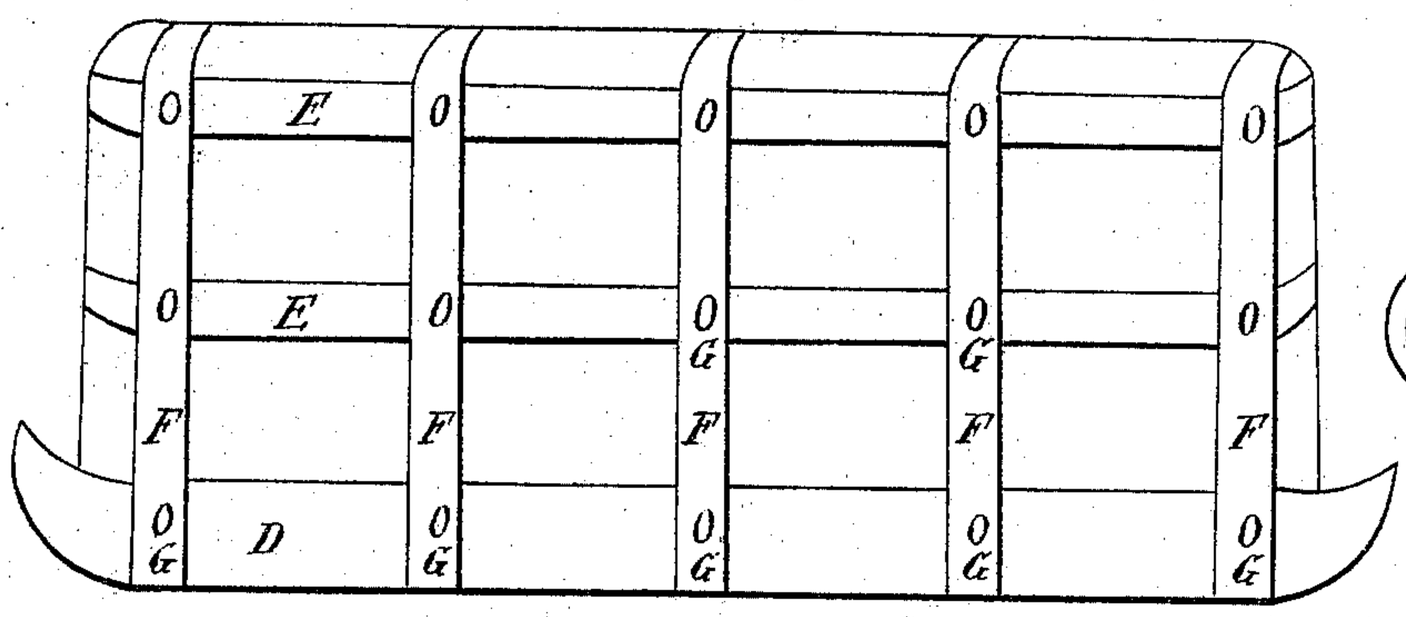


Fig. 3

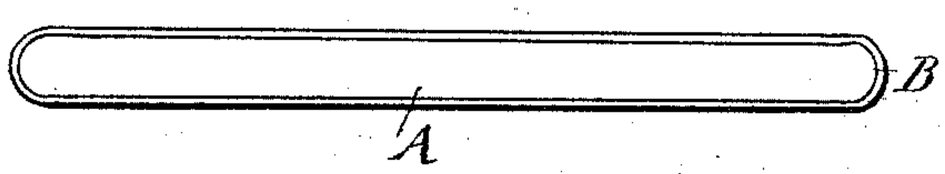


Fig. 4.

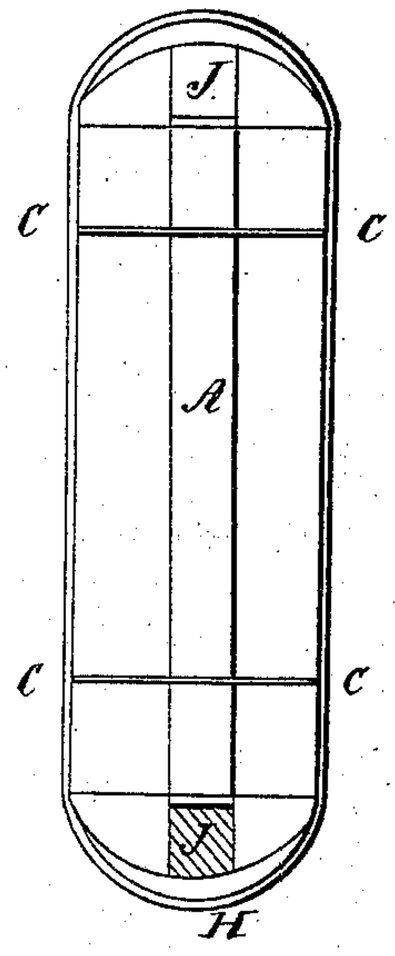
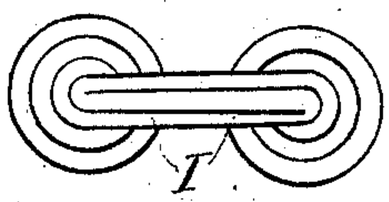


Fig. 5.



Witnesses:

D. V. Poor

J. Davidson

Inventor:

Bernard J. La Mothe M.D

UNITED STATES PATENT OFFICE.

BERNARD J. LA MOTHE, OF NEW YORK, N. Y.

IMPROVEMENT IN RAILROAD-CARS.

Specification forming part of Letters Patent No. **10,721**, dated April 4, 1854.

To all whom it may concern:

Be it known that I, BERNARD JOACHIM LA MOTHE, of the city, county, and State of New York, have invented a new and improved mode of constructing railroad-cars for the purpose of preventing the loss of life from railroad accidents; and I do declare that the accompanying model, with drawings and description thereof, are a full and exact representation.

The nature of my invention consists in giving greater strength, elasticity, and tenacity to said railroad-cars than they possess by any of the ordinary modes of construction, which object is obtained from the nature of the materials used and the peculiar mode of their construction, adaptation, and connection with each other.

To enable others skilled in the art of making railroad-cars to use and apply my invention, I will proceed to describe its construction and application, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a partial front, side, and top view of the same. Fig. 2 is a side view. Fig. 3 is a lateral view of the center beam and iron brace. Fig. 4 is an upper view of the floor, keel, or center beam and securing transverse rods. Fig. 5 is a front view of a steel spiral spring.

The keel or center-beam for the floor of my car (marked A) is made of wood and extends the whole length of the floor. Said beam is bound with a brace of iron, (marked B,) secured to the beam by means of bolts or rivets, &c. The other wooden parts for the floor or bottom of the car are made in the usual mode, and are kept in their position with transverse rods or bars of iron, (marked C,) repeated as often as the solidity of the floor requires.

The frame of the car is made of continuous bands of the most elastic steel, (or equivalent material,) constructed and fastened with each other as follows: The lowest longitudinal or horizontal band (marked D) is wider and thicker than any of the others, and forms the circumference of the floor or bottom of the car. The other longitudinal bands (marked) E run in the same direction with the former, are placed at equal or respective distances, and each bent in accordance with the proper shape of the car. Each of the bands must be of one single piece so far as practicable. The longitudinal bands may be made single, double, or triple. The transverse bands may be also made single, double, or triple, so that there shall not be less than three bands, while the number may be increased *ad libitum* in each intersection of the angles or rectangles formed by them. This arrangement of multiplying the longitudinal or transverse bands adds greatly to the strength of the car, for I find that if two single bands crossing each other in the manner herein indicated bear one hundred pounds one single band and two forming a pair crossing each other in the same manner will bear from three to four times as much. My mode of arranging these bands is shown in Fig. 6, presenting a sectional view, in which A′ A″ represent the longitudinal bands, and B′ B″ the transverse bands. The transverse bands, (marked F,) also placed at equal distances, each of one single piece, and bent to the proper shape of the car, form with the longitudinal bands described above rectangular squares, with the addition that the transverse bands run in pairs, one of the two passing externally over the longitudinal bands and the other passing internally over them, directly under the one externally. The longitudinal and transverse bands thus repeatedly arranged in said position are then firmly secured together in each intersection of the rectangles formed by them by means of rivets or screws, as marked by G. In a full-size car the bands will be placed at regular distances of from twenty inches to two feet or more apart. From such an arrangement great strength and elasticity are the result. As an illustration, it is hoped will not be amiss to mention that the frame of a model on this plan thirty-three inches in length, five in width, and six in height, and said frame only weighing four pounds, yet supports one thousand pounds on the top without being crushed, &c.

At each end of the floor in direct line with the beam A is a semicircular spring of steel leaves, (marked H,) being also an extension of the lower longitudinal band described at D.

I is a double spiral spring, made of steel rods or bars, also in direct line with the beam A and the semicircular spring H.

J is a spring of vulcanized india-rubber between the beam A and the semicircular spring H. These two springs J and H will be immediately under the platform. The spiral spring I will project beyond the platform. The three springs acting on the same plane in harmony with each other are calculated to offer great resistance, with elasticity, in cases of collision, &c.

The internal surface of the life-preserving car will be lined throughout with soft and yielding materials.

What I claim herein as my invention, and desire to secure with Letters Patent, is—

1. The construction of the frame of rail-road-cars with continuous elastic steel bands or equivalent material, in the manner and for the purpose set forth in the foregoing specification, namely: the transverse bands in pairs, each of one single piece, to extend from one side of the frame to the other at equal or respective distances, bent to the proper shape of the car, and the longitudinal bands to pass single between the above, forming with them rectangular squares, and the three bands repeatedly in such position to be firmly secured together by means of rivets or screws in each intersection of the rectangles formed by them, thereby obtaining with said material and from such an arrangement combined with lightness far greater strength and elasticity than the cars now in ordinary use possess, and consequently affording far more protection to life in cases of accidents in rail-road traveling.

2. I do not claim the frame of single transverse and single longitudinal bands, but limit my claim to the use of single, double, triple, or multiplied longitudinal bands, combined with single, double, triple, or multiplied transverse bands, so that there shall not be less than three bands, while the number may be increased *ad libitum* in each intersection of the angles formed by them, the whole being constructed and used in the manner and for the purposes above mentioned.

BERNARD J. LA MOTHE.

In presence of—

H. N. POOR,

N. DAVIDSON.