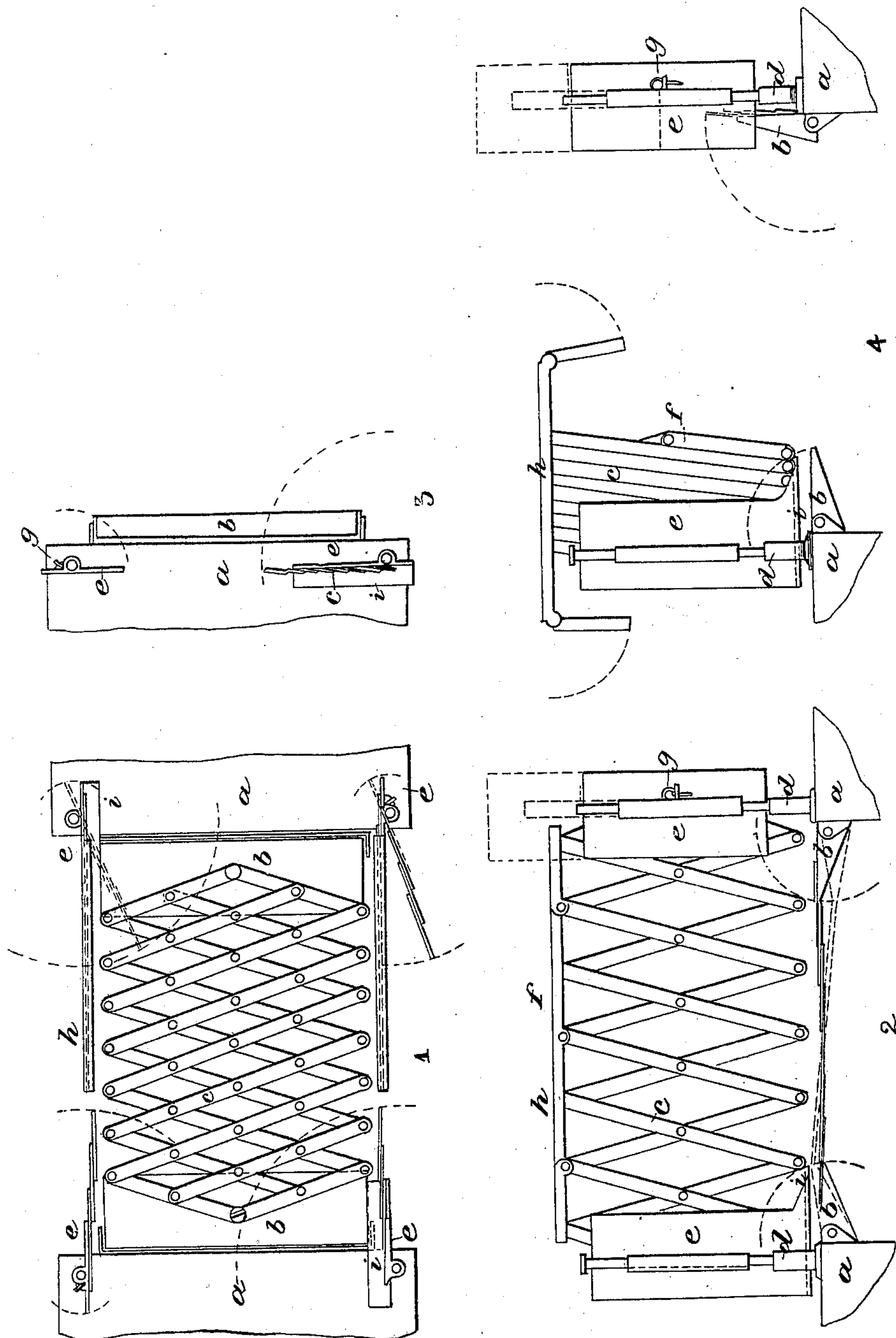


HEMPSTEAD & HILLS.

Safety Bridge.

No. 57,453.

Patented Aug. 21, 1866.



Witnesses

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LORENZO HEMPSTEAD AND LESTER S. HILLS, OF HARTFORD, CONN.

IMPROVED SAFETY-BRIDGE FOR RAILROAD-CARS.

Specification forming part of Letters Patent No. 57,453, dated August 21, 1866.

To all whom it may concern:

Be it known that we, LORENZO HEMPSTEAD and LESTER S. HILLS, of the city and county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Expansion-Bridges for Railroad-Cars; and to enable others skilled in the art to make and use the same we will proceed to describe its construction and operation, referring to the drawings, in which the same letters indicate like parts in each of the figures.

The nature of this improvement will be understood from the specification and drawings.

The object desired to be attained thereby is to provide an expanding and contracting flooring and railing combined for railroad-cars, so constructed that it will adjust and adapt itself to the constant varying motion of the cars for the purpose of protecting persons while passing to and fro from one car to another.

It consists of a platform or floor and side railing, composed of lattice-work, to support and protect persons passing from one car to another, and so made that it will adapt itself to the swaying, surging, expanding, and contracting and rocking motion of the cars, and so that it may be quickly and easily attached and detached therefrom, or otherwise turned up or around out of the way when the cars are detached. It is composed of metallic lattice-work, constructed with some variation in design, but substantially as shown in the drawings, the cross pieces or bars of which are secured together so as to produce the greatest amount of strength, expansion, and contraction with the least number of pieces.

In the accompanying drawings, Figure 1 is a top or plan view, showing sections of the car-platform and the mode of securing and adjusting the device thereto. Fig. 2 is a plan or side view of the same. Fig. 3 is a sectional top or plan view of a platform with the lattice floor and railing detached therefrom, showing the swing-bed to which the lattice-floor is secured and the hinge-plates to which the lattice-railing is secured, also showing a shoe or shelf upon lower end of one of the plates to which the railing is secured, the object of which is to furnish a support for the rail when detached from one side and closed up. Fig. 4 is a side elevation of the same.

a represents the platform of a car. *b* is a table hung by proper hinges, so that its upper surface will turn down, when desirable, on an incline below the level of the platform, and so that it may be easily turned into a perpendicular or right-angled position with the platform *a*.

c is a lattice-work floor, each end of which is secured to the table *b* by means of a king-bolt or its equivalent, so that it shall be held securely in place, and allow it to freely adjust itself to the varying motion of the cars, and be easily attached and detached, when desirable, either at one or both ends thereof.

It is particularly desirable to form the joints of this lattice-work so that the distance from center to center of the fastening bolts or rivets shall be about three times greater in a line of its width than they are in a line of its expanding length, so as to allow a greater amount of expansion and contraction and render it more compact when closed, both in regard to the railing and floor.

d are posts, the lower ends of which are secured to the platforms *a* just each side of the passage-way, as now in use, from one car to another. *e* are hinge-plates, by means of which they are held and turn on the posts *d*. Upon the lower ends of these plates are formed shoe or shelf *i*, the object of which is to provide a support for the lower end of the railing when it is closed up.

f is the railing, one end of which is secured to one of the plates *e* by bolts or other proper fastenings. The other end is also secured, when in use, to the plate *e* on the opposite car-platform by means of a lock or pin, *g*. Thus it will be seen that by the combined action of the oscillating plates *e* and the hanging of the railing by one point at each end it, with the floor *c*, is allowed to surge, sway, contract, and expand with the motion of the cars.

h is a cap to cover the upper end of the railing, which is made in one or more pieces, and hung to the railing in the center, or at other most convenient points.

Now it will be clearly seen that when the cars are in motion the floor and railing will expand and contract, and otherwise adapt themselves to the constant varying motion thereof, and that persons may pass from one

car to another with the greatest safety, which heretofore has been practiced to the great risk and sad experience of many persons.

We believe we have thus shown the nature, construction, advantage, and operation of this improvement so as to enable others skilled to make and use the same therefrom.

What we claim, therefore, and desire to secure by Letters Patent, is—

1. The combination of the lattice-work floor *c* and railing *f*, to constitute an expansion-bridge for railroad-cars, when the same is con-

structed and arranged substantially as described.

2. The combination of the swing-table *b* with the floor *c*, substantially as described.

3. The combination of the hinge-plates *e* with the expanding railing, as and for the purpose described.

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