R. D. CHATTERTON.

Car Bumper.

No. 41,483. Patented Feb. 9, 1864.

Fig. 1.

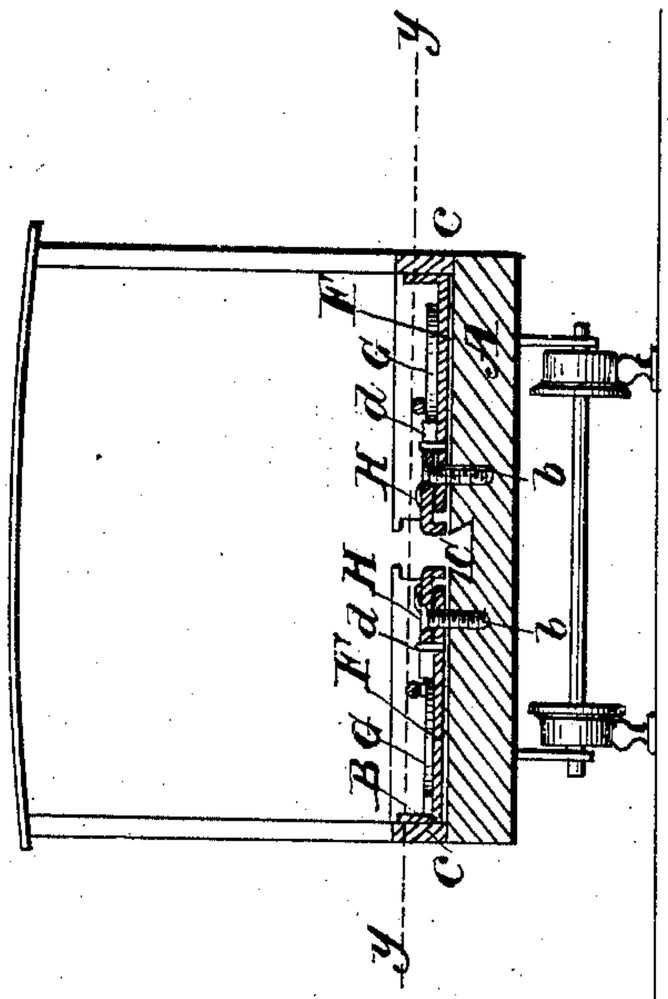

Fig. 2.

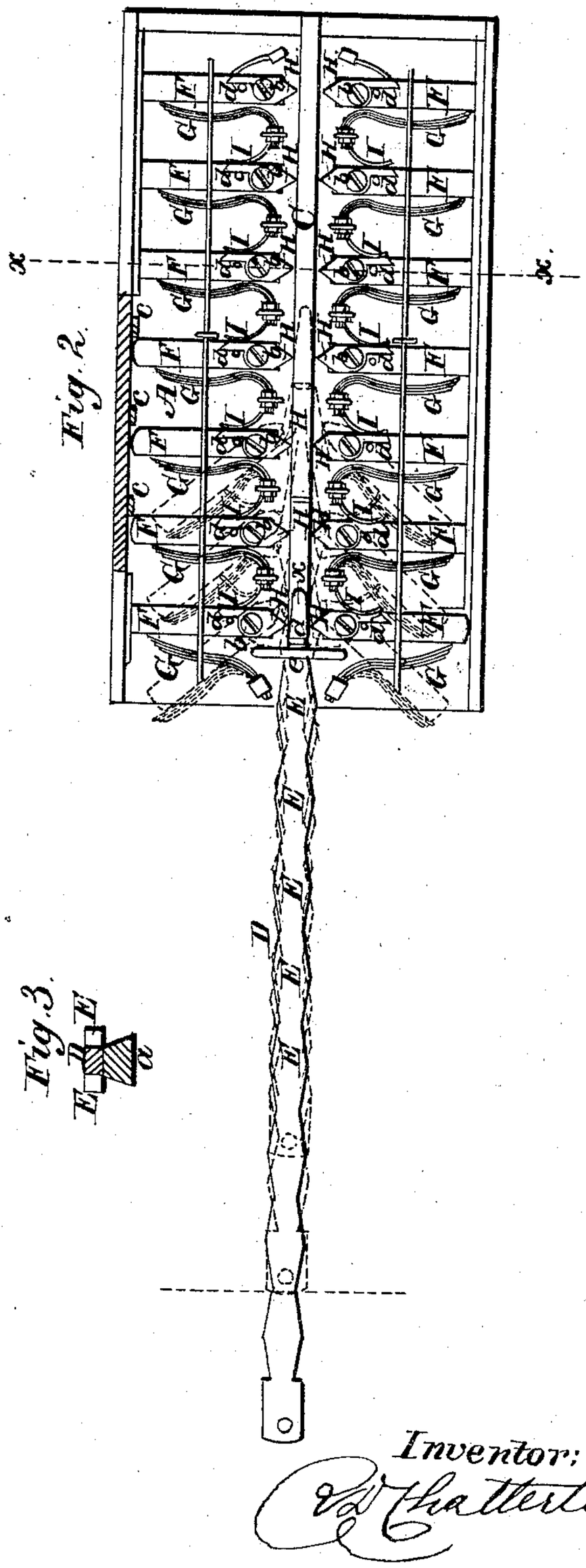

Fig. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

RICHARD D. CHATTERTON, OF BATH, ENGLAND.

IMPROVEMENT IN BUFFERS FOR RAILROAD-CARS.

Specification forming part of Letters Patent No. **41,483,** dated February 9, 1864.

To all whom it may concern:

Be it known that I, RICHARD D. CHATTERTON, of Bath, in the county of Somerset and Kingdom of Great Britain and Ireland, now temporarily residing in Cobourg, in the Province of Canada, have invented a new and Improved Buffer for Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a transverse vertical section of a railroad-car with my improvement applied to it, *x x*, Fig. 2, indicating the line of section; Fig. 2, a horizontal section of the same, taken in the line *y y*, Fig. 1; Fig. 3, a detached transverse section of the coupling-bar pertaining to the same.

Similar letters of reference indicate corresponding parts in the several figures.

This invention consists in having a wedge or a series of wedges attached to or forming part of the coupling-bar of a car, and using in connection therewith a spring or springs and one or more levers, arranged in such a manner that when the coupling-bar is forced in, by collision or otherwise, the wedges of the coupling-bar will act against the springs through the medium of the levers, the fulcra of the latter being so placed as to increase the resistance or power of the springs and render the latter very effective in resisting concussions—so much so that in case of two trains of cars coming in contact under ordinary speed the momentum will be completely absorbed by the resistance of the springs, and the cars prevented from being thrown from the track, either by the force of impact or by recoil.

The invention further consists in using, in connection with the levers aforesaid, supplemental levers, arranged with springs in such a manner as to form a draw-buffer in case of recoil and still admit of the coupling-bar being readily drawn out when required to be adjusted for use.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A represents the bed or bottom of a railroad-car, between which bed and the flooring of the car a space, B, is allowed to receive the levers and springs pertaining to my invention.

At the center of the car-bed A there is made a dovetail groove, C, which extends the whole length of the bed, and receives the lower dovetail part, *a*, of a coupling-bar, D, the part *a* of the coupling-bar being allowed to slide freely in the groove C. The upper part of the coupling-bar, which is above the groove C, is notched or recessed at its sides to form a series of continuous double-wedge-shaped projections, E, as shown in Fig. 2.

On the bed A, at each side of the groove C, there are placed a series of levers, F, the fulcra *b* of which are so placed that the arms of the levers nearest the groove C will be much shorter than the arms at the opposite sides of the fulcra. The levers F are arranged parallelly at each side of the groove C, and in a transverse position with the bed A, and between the levers there are placed springs G, arranged in such a manner as to bear against the long arms of the levers and to have a tendency to keep the ends of said arms in contact with stops *c* at the sides of the bed A, and to keep the levers F parallel with each other at each side of the groove C, which is designed to be their normal position.

H represents a series of supplemental levers, which are much shorter than the levers F, and have the same fulcra, *b*. The levers H project a trifle beyond the ends of the short arms of the levers F, and have each a spring, I, bearing against it, said spring having a tendency to keep the levers H in contact with pins or stops *d*, attached to the long arms of the lever F, at a short distance from the fulcra *b*, as shown in the figures.

The springs I act upon the levers H in a reverse direction to that in which the springs G act upon the long arms of the levers F; but the springs I, in consequence of being much weaker than the springs G, and bearing against the levers H near the fulcra *b*, do not appreciably detract from the power or effect of the springs G.

The ends of the supplemental levers H which adjoin the edges of the groove C project within the path of the movement of the wedge-shaped projections E of the coupling-bar D.

The operation is as follows: The inner end of the coupling-bar D is connected to the car by a pin, *d*×, which bears against a loop or guide, *e*, through which the coupling-bar passes, and in case of a collision it will be seen

that the coupling-bar will be driven inward, and the projections E of he coupling-bar will actuate the supplemental levers H, and these, in consequence of their inner ends bearing against the pins or stops *d* on the long arms of the levers F, will actuate the latter in pairs and overcome the resistance of the springs G, as shown in blue in Fig. 2. As the coupling-bar is forced or driven in, the several levers F at each side of the groove C will be successively acted upon by the projections E, all the preceding levers being actuated each time a new pair is actuated; hence the coupling-bar meets with a gradually-increasing resistance until the momentum caused by the collision is completely absorbed.

The strength of the springs G is very materially augmented by the position of the fulcra *b* of the levers F, and this is an important feature, as it enables springs of moderate and practicable dimensions being used.

In case of any recoil, it will be seen that the projections E will act upon the supplemental levers H, as shown by the black dotted lines in Fig. 2, and the recoil will also be absorbed by the resistance of the springs I. It is on this account that the projections E are made of double-wedge form.

It is designed to have the first and last cars of a train provided with the springs, levers, and coupling-bar, as herein described, that being deemed sufficient to avoid all accidents from collisions.

I would remark that the coupling-bar D may, when the train is in motion, be inserted fully into the groove C, and have a pin, $d^{\times}$, fitted in the front part of D, behind the loop or guide *e*. In this case the space which would otherwise be between the cars, owing to the length of the bar D, would be avoided, and when necessary the front pin $d^{\times}$ may be withdrawn and the bar D drawn out under the draft movement of the engine until the back pin $d^{\times}$ catches against the loop or guide *e*.

I would further remark that I do not confine myself to any precise number or arrangement of springs and levers, for various modifications of the same may be devised and all answer the same end.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The employment or use, in a buffer for railroad-cars, of springs G, levers F, and wedge-shaped projections E on a sliding coupling-bar, D, arranged to operate in the manner substantially as and for the purpose herein set forth.

2. In combination with the levers F, the supplemental levers H and springs I, arranged to operate in connection with the coupling-bar D, substantially as and for the purpose specified.

R. D. CHATTERTON.

Witnesses:
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