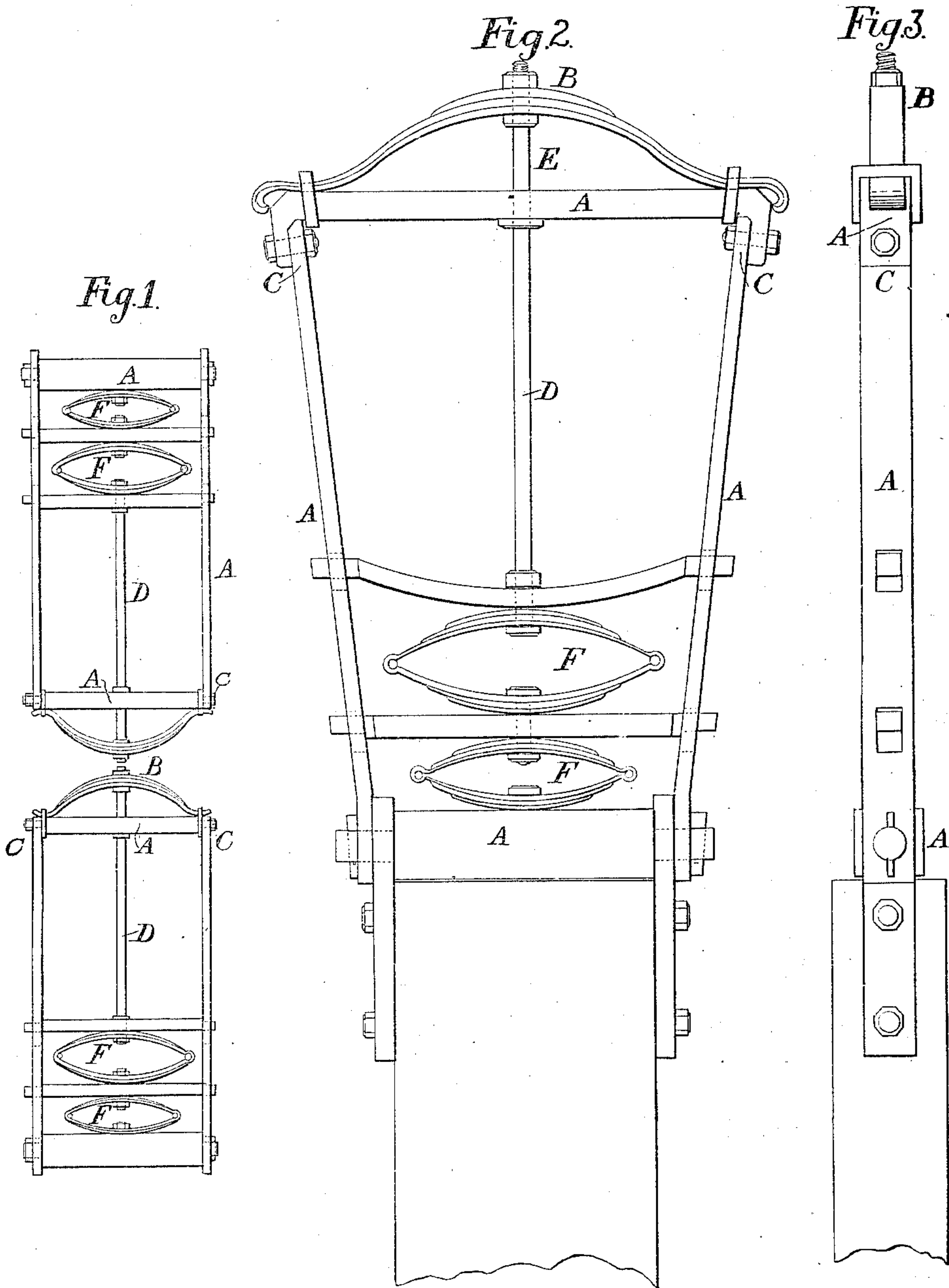


No. 20,070.

PATENTED APR. 27, 1858.

S. R. JONES.
ELLIPTIC CUSHION FOR RAILROAD CARS.



UNITED STATES PATENT OFFICE.

SAMUEL R. JONES, OF YORK, PENNSYLVANIA.

ELLIPTIC CUSHION FOR RAILROAD-CARS.

Specification forming part of Letters Patent No. 20,070, dated April 27, 1858; Reissued October 26, 1858, No. 615.

To all whom it may concern:

Be it known that I, SAMUEL R. JONES, of York, county of York, State of Pennsylvania, have invented an Elliptic Cushion—a
5 New and Improved Mode of Protecting Railroad-Cars from Disasters by Collisions; and I do hereby declare that the following is a full and exact description thereof, reference being had to the drawings and to the
10 letters of reference marked thereon.

The nature of my invention consists in having an iron frame the sides of which line the inner surface of side-plates of car-body and on the front of which I place a semi-
15 elliptic spring, ends resting on front of frame, and center resting on an iron shaft, extending to elliptic springs (or a series) which will rest on the bolster of car-body.

Figure 1, represents the cushions as they
20 will appear meeting from adjoining cars, for connection. Fig. 2, an upper view of cushion, and as it will appear when applied in front of locomotive. Fig. 3, a lateral view of cushion, as applied to locomotives
25 having a gum pad for the place of contact.

My specifications are as follows: The letters A refer to the several parts of frame, in and before which I construct the following machinery, composing the elliptic cushion, the letters B refer to the semi-elliptic
30 buffers which span the front end of frame as a bridge so as to keep the front end clear and safe, with the front corners of frame C, serving as abutments, with bands to secure
35 ends, so as to render the buffers tense by the pressure upon the center from within or rear by a hollow (iron) sliding shaft D, containing a gum pad incased in a spiral spring, which will line the shaft to assist
40 and contribute to the elasticity of the pad, and in which I have a shaft E, extending to one or more (series) elliptic springs F or various forms which are attached to rear plate resting against the bolster to maintain
45 a constant pressure against the shaft, which, with the elliptic springs will serve as an elastic pier, to the semi elliptic buffer, and is intended to be appended to railroad cars (locomotive, passenger, &c.,) to obviate the
50 jolting, and jerking of cars, and to ward off the disasters threatened to and occasioned

by the sudden and violent force arising from the clashing or collisions of cars.

The nature and principle of my invention is as follows: the arch of the semi elliptic
55 buffer at either end of cars will face and antagonize as the usual flat, and from their elastic form, and nature will afford such a rebound as to be unattended by jerking or jolting, because the ends of the semi elliptics
60 will be at rest (except a very slight sliding motion,) but having a center or focus upon which to act, the force will alone apply here, yet with a pressure motion like a cushion, as all the operations of the cushion will be ap-
65 plied and confined to the machinery in the frame (instead of being associated with or connected with the timbers of the cars) and consequently all the jarring sensations will be confined and spent there with out allow-
70 ing any to be communicated to the car, except under a very modified form; and as the thickness of the buffers at either end of car (unitedly) will occupy some space, between
75 cars, the platforms cannot approach for contact, as these must yield before the cars are endangered; the primary object, and action of the semi elliptic spring in my cushion will result in subserving the purpose of a
80 buffer and secondly, in making the buffer a part of the machinery consecutively to ease off concussions, so as to be at all times contemporaneous when needed, than if they were distinct in their machinery—more
85 difficult and complex in their nature and action.

The sliding spring shafts also share their relation, and parts, in the machinery, by bracing and sustaining the buffer and will
90 just in proportion to the force applied, but will not apply or conduct the violence to the rear springs until the corresponding shoulders meet when both (buffer and shaft) will be forced back upon the series; to spend the
95 violence of the collision in the cushion composed of the buffer, shafts, and springs all of which are independent of the car and in nowise associated with it, except in the relation to hang a frame in which all violence will be received and spent.
100

The elliptic springs as a series or combination in form and number is the part em-

ployed to ease off the concussion mainly, as
their elastic properties will be called into
requisition as an emergency may occur, and
even here they vary in form and size, their
5 strength and pliancy being in proportion to
render them effective wherever they may
operate, of course the machinery will be
heavier and stronger if applied to a steam
car, than a passenger, and if each did not
10 vary, the first or front would bear all the
violence without a conduction of force to a
second, (and so likewise from a second to a
third and so on through the series) to brace
and sustain each other in sustaining the

buffer or else a second would be useless, and 15
this would require one too heavy and stiff
to be sufficiently elastic to be effective.

I claim—

1. The local relation, and mode of appli-
cation of the semi elliptic buffer. 20
2. The combination and arrangement of
the elliptic cushion as described, arranged,
and operating substantially as described and
set forth.

SAMUEL R. JONES.

Witnesses:

F. JAS. EVANS,
JOHN T. WILLIAMS.

[FIRST PRINTED 1911.]