S. GRIFFITH & J. S. PATTERSON.

Car-Bumper.

No. 167,333. Patented Aug. 31, 1875.

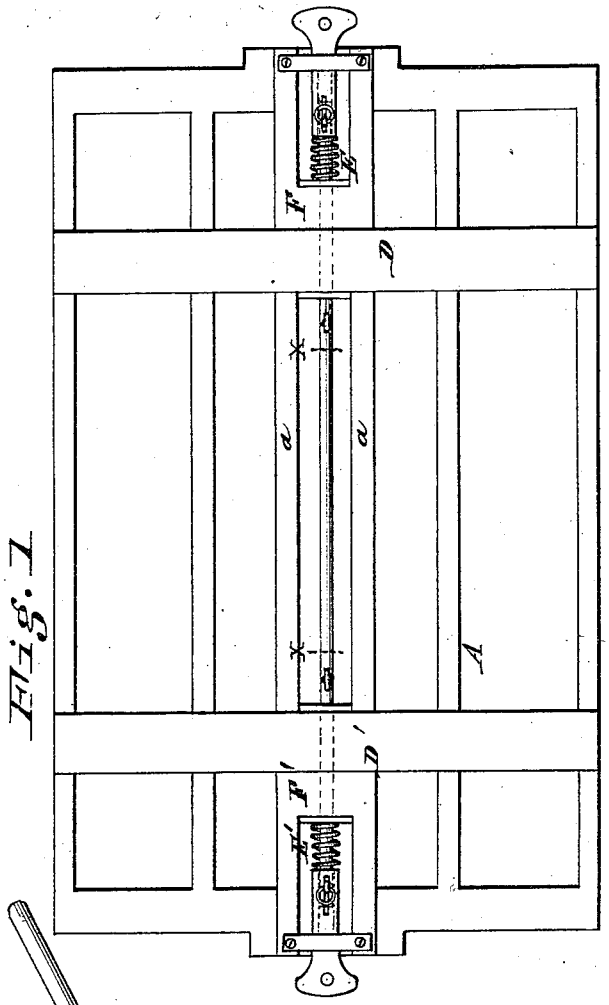

Fig. 1

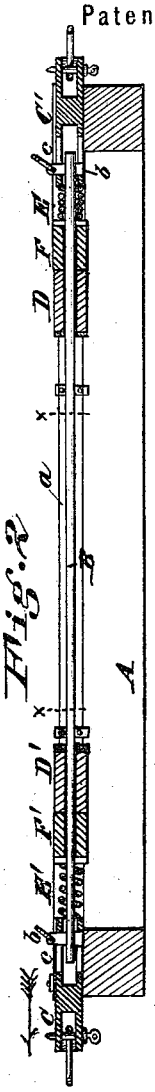

Fig. 2

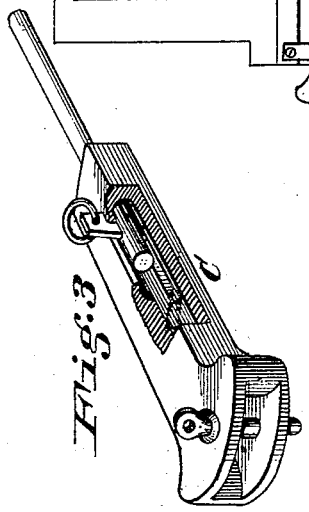

Fig. 3

Inventors

John S. Patterson

Samuel Griffith

By F. Millward

Attorney

Attest

Edgar J. Stoss

John E. Jones

UNITED STATES PATENT OFFICE.

SAMUEL GRIFFITH AND JOHN S. PATTERSON, OF CINCINNATI, OHIO.

IMPROVEMENT IN CAR-BUMPERS.

Specification forming part of Letters Patent No. **167,333**, dated August 31, 1875; application filed March 22, 1875.

To all whom it may concern:

Be it known that we, JOHN S. PATTERSON and SAMUEL GRIFFITH, of Cincinnati, Hamilton county, State of Ohio, have invented an Improvement in Railroad-Cars, of which the following is a specification:

Our invention relates to railroad-cars in which the draw-bar and bumpers are connected in such a manner that the bar by which the car is drawn extends entirely through the car, and connects with the bumpers or coupling-boxes on each end, between the ends of which and the car-frame springs are interposed, so that in operation of pulling the car the strain is applied to the compression of the rear spring, and the frame of the car is thus relieved from tensile strain, while in the act of bumping each spring is adapted to be compressed at the end at which the shock is received without producing any effect upon the other.

Our improvement consists in a novel disposition of the springs, and the manner of connecting the draw-bar to the bumpers, all as will be fully explained hereinafter.

Figure 1 is a plan of a car-frame embracing our invention. Fig. 2 is a longitudinal section of the same. Fig. 3 is a perspective view of one of the coupling-heads, with a portion of the draw-bar.

A is the car-frame, and B the draw-bar. The bar extends the full length of the space between the end timbers of the car-frame, and has no positive connection with the frame. This bar is fitted at each end into the sockets of the coupling-boxes or bumper-heads C C′, the coupling-boxes being slotted at *e* for the introduction of keys *b*, through which the strain on the bar is imparted. The outer ends of the coupling-heads may have any preferred devices provided therein for coupling to the next car. Between the inner ends of the coupling-heads C C′ and the cross-timbers D D′ of the frame springs E E′ are introduced, through which, when under compression, the strain necessary to propel the car is imparted. When the strain is in the direction of the arrow, Fig. 2, the spring E is compressed, and the bar B is under tensile strain; but no tensile strain is imparted to the timbers of the car, as the strain is applied through the rear spring of the car, and not, as is usual, through the forward spring. When the car is pulled in the opposite direction the strain is still applied at the rear of the car through spring E′. In the act of bumping, each spring receives the shock direct, and not through the draw-bar, so that there is no compressive strain applied to the draw-bar at any time.

To decrease the weight of the draw-bar the part lying between the lines *x x* may be less in area in cross-section than the area in cross-section of the bar B in a section through the keys *b*, so that if the bar breaks it shall break at a point between the lines *x x*, and in that case keys *e* must be inserted, which will act after the breaking of the bar to catch the strain, and prevents the pulling out of the end of the bar.

The springs E and E′ bear, respectively, against blocks of wood F and F′, which are not only firmly secured to the longitudinal timbers or sills of the car-body, but are also sustained against giving way under strain by bearing directly against the cross-timbers or bolsters D and D′, between which extra sills *a a* are placed upon the sills adjacent to the coupling-bar, to transmit the strain in a direct line from block F to block F′, or vice versa.

We claim—

The slotted coupling-heads C *c* and C′ *c*, in combination with the draw-bar B, keys *b* and *b*, springs E and E′, fixed blocks F and F′, cross-timbers D D, and extra sills *a a*, all arranged substantially as and for the purpose set forth.

In testimony of which invention we hereunto set our hands.

SAMUEL GRIFFITH.
JOHN S. PATTERSON.

Witnesses:
JOHN E. JONES,
J. L. WARTMANN.