

W. G. SMOOT.
CAR-COUPLING.

No. 172,667

Patented Jan. 25, 1876.

Fig. 1.

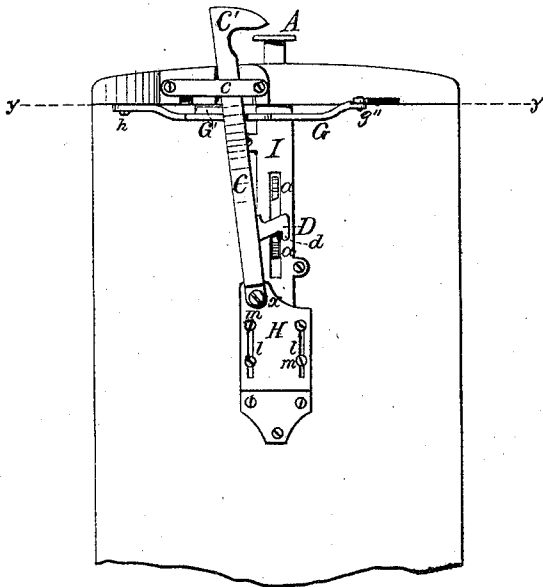


Fig. 2.

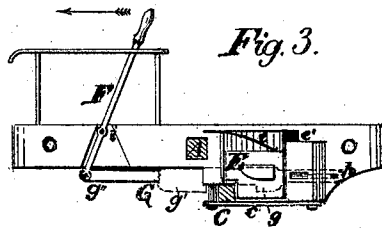
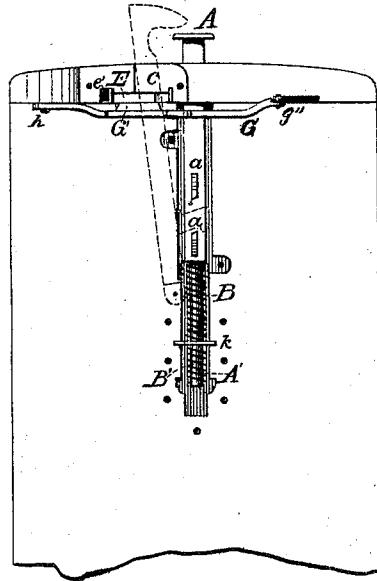
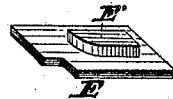


Fig. 4.



Fig. 5.



Attest:
Louis Bagger
Wm Bagger.

Inventor
William G. Smoot,
by Louis Bagger
his Atty.

UNITED STATES PATENT OFFICE.

WILLIAM G. SMOOT, OF WASHINGTON, DISTRICT OF COLUMBIA.

IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. **172,667**, dated January 25, 1876; application filed May 31, 1875.

To all whom it may concern:

Be it known that I, WILLIAM G. SMOOT, of Washington, in the county of Washington and District of Columbia, have invented certain new and useful Improvements in Car-Couplings; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification, and in which—

Figure 1 is a bottom plan of a car having my improved coupling. Fig. 2 is a similar view, the plates H and I having been removed. Fig. 3 is a vertical section through the plane indicated by the line *yy* in Fig. 1, and Figs. 4 and 5 are detached parts of my improved coupling.

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

This invention is an improvement upon the car-coupling described and shown in the Letters Patent No. 162,111, granted to me on the 13th day of April, 1875; and the improvement consists in the construction and arrangement of certain devices, whereby the rigidity of the coupling hook and stem is entirely obviated, as hereinafter more fully explained.

In the drawing, A represents the bumper or coupling tongue, which is forced forward by a spring, B. C is the stem of the coupling-hook C', which has a laterally-projecting arm, D, that engages with two downward-projecting arms, *a a*, on the bumper-stem A. These two arms may be united by a cross-piece; but that is not necessary. The arm D has a lip, *d*, which serves to keep it and the coupling-stem in the proper position. The forward part of the coupling-stem C moves in a slot, *e*, and is, when the cars are coupled, retained in its position by the lock-plate E. This latter slides in a vertical slot or recess in the front part of the platform of the car, and falls into position by its own weight, assisted by the spring *e*, which is arranged within the recess in which the lock-plate E moves above said plate. The spring *e* is, however, not essential to the operation of the plate E, as the latter may be made of sufficient weight to fall into

position without the aid of spring *e*. Another spring, *e'*, is arranged vertically within the recess in which plate E slides, so as to press against either side of said plate. This is for the purpose of allowing the plate E and coupling-stem C some elasticity of motion side-wise, which becomes desirable in turning curves. The spring *e'* may be arranged on either side of the plate E, and it may be either a rubber cushion or an elliptic or spiral steel spring, or the coupling stem may be provided with an elastic spring or cushion along the line of contact with plate E, which would be an equivalent to spring *e'* shown in the drawing.

In order to uncouple the cars, the plate E is lifted so as to disengage the coupling-stem C, which is done as follows: Plate E has a wedge-shaped projection, E', which engages with the wedge-shaped projection G' on the sliding arm G. The latter is pivoted at one end, indicated by *g''*, to the lever F, and at the other end slides in suitable bearings *h*. Arm G has two downward-projecting brackets or catches, *g g'*, the object of which is to operate the coupling and coupling-stem C, if, by any chance or accident, it should become "hung," or refuse to work. If, for instance, upon lifting the lock-plate E, so as to release C, the latter should still remain in its locked position, the arm *g'* will push it back or unlock it; and, also, if it should fail to lock or couple automatically, it can be pushed into the locked or coupled position by arm *g*, by simply operating the lever F, which has its fulcrum at *i*. The rear part or tenon of the bumper-tongue, denoted by A' in the drawing, passes through a plate, *k*, secured vertically across the recess in which A slides, and against which the spring B abuts. Another spring, B', is coiled around that part of the tenon A' that projects below or on the other side of plate *k*. H is a sliding plate provided with slots or guides *l* that slide upon the bolts *m*, which serve the double purpose of guiding and securing plate H. To the side of this plate which faces the bottom of the car there is secured a lug, *n*, having an aperture through it to admit of the insertion and easy motion of the tongue or tenon A', and small enough to prevent the spring B' from passing through,

so that the latter will be confined upon A' between the plate *k* and lug *n*.

The coupling-stem C, already described, is pivoted at *x* to the sliding plate H, and by this arrangement the rigidity of the coupling-stem is entirely overcome, so that when the train is set in motion there is no sudden shock or jerk, as is the case where the coupling or draw-head is secured rigidly onto the platform or body of the car.

The operation of my improved car-coupling will be readily understood from the foregoing description. When the lever F is moved in the direction indicated by the arrow, the lock-plate E is raised by wedge G', secured onto plate G, coming in contact with wedge E', and the tension of the spring B will force the bumper A outward, and with it the projecting arms *a a*, which slide in a slot in the covering-plate I. The result is that the laterally-projecting arm or bracket D, which is placed obliquely or slantingly in its relation to the coupling-stem C, is forced forward, thus impelling the coupling-stem, and with it the coupling-hook, back from the bumper into the uncoupled position. When, on the other hand, the cars come together, in "making up" the train, the pressure upon the bumper-head A will move the projecting arms *a a* backward, thereby forcing the coupling-hook C' into the locked or coupled position, while the lock-plate E, which will then be in its position back of the coupling-stem, makes accidental uncoupling absolutely impossible. It will also be observed that the bumper-head A continues to operate by the spring B independent of the position of the coupling-hook C', whether this is locked or open. By this arrangement, while the cars are coupled, the two opposite bumper-heads A will always bear against each other, thereby at all times taking up the slack, and preventing any sudden shock when the cars are brought suddenly or violently together, as in making a short stop, or in case of collisions. By the combination and arrangement of the coupling-stem with the springs B' and *e'*, the coupling is made elastic and flexible both in a longitudinal and lateral direction, so that, as has been already stated,

when the train is started there will be no sudden shock or jerk; nor will there be any jarring or jolting in turning curves, because the coupling-hook on each car will be cushioned by the elastic spring or cushion *e'*. The coupling-head C' may be recessed to receive one end of an ordinary coupling-link, or it may be provided with a projecting bracket, perforated to admit of the insertion of a coupling-pin.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination of the coupling-stem C with the sliding plate H, having slots or guides *l* sliding upon bolts *m*, and lug *n* sliding upon bumper-stem A', substantially as and for the purpose set forth.

2. The combination of the sliding plate H, having the lug *n*, with the bumper-stem A', having coiled upon it the spring B', substantially as and for the purpose set forth.

3. The combination of the coupling-stem C pivoted at *x* with the sliding arm G operated by lever F, and having projections or catches *g g'* arranged and operating substantially as and for the purpose set forth.

4. The combination of the sliding arm G having the laterally-projecting wedge G' with the lock-plate E having the laterally-projecting wedge E', substantially as and for the purpose set forth.

5. The combination of the lever F, arm G, and lock-plate E having projecting wedge E', substantially as and for the purpose set forth.

6. The combination of the lock-plate E with the spring or cushion *e'*, substantially as and for the purpose set forth.

7. The combination of the lock-plate E with the spring *e*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WILLIAM G. SMOOT.

Witnesses:

LOUIS BAGGER,
WM. BAGGER.