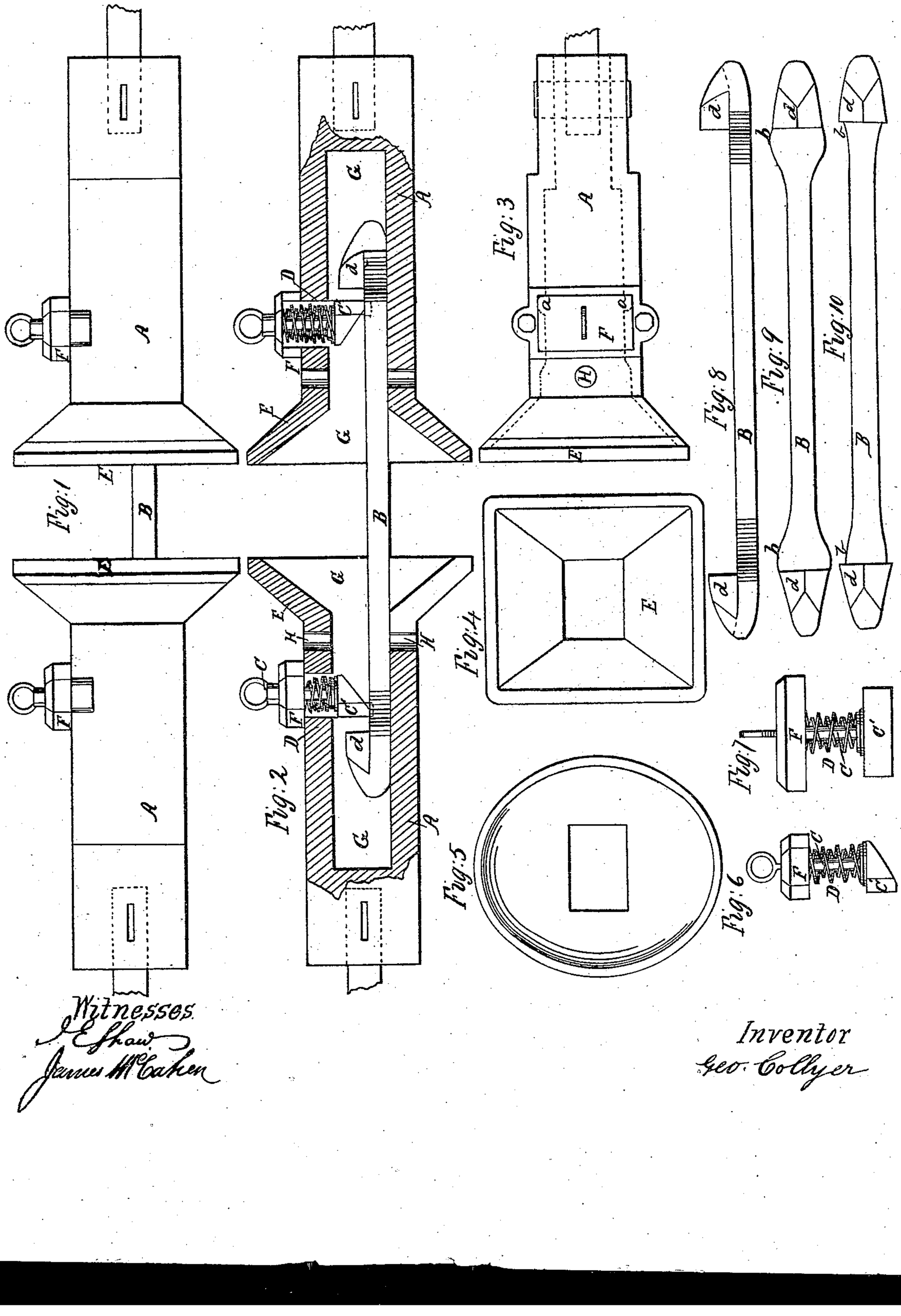
G. Collyer,

Car Coupling.

No. 37,612. Patented Feb. 10. 1863.



Witnesses.
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UNITED STATES PATENT OFFICE.

GEORGE COLLYER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **37,612**, dated February 10, 1863.

To all whom it may concern:

Be it known that I, GEORGE COLLYER, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Couplings for Railroad-Cars; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, in which—

Figure 1 is a side view, and Fig. 2 a vertical longitudinal section, of two coupling-boxes; Fig. 3, a top view, and Fig. 4 a front end view, of a single coupling-box; Fig. 5, a variation in the shape of the front end; Fig. 6, a side view, and Fig. 7 a front view, of the tumbler or latch detached; Fig. 8 a side view, and Figs. 9 and 10 top views, of coupling-bars.

The drawings are on a scale one inch therein representing four inches in the working-couplings.

A, Figs. 1, 2, and 3, represent the coupling-box; B, Fig. 2, the coupling-bar; C, Figs. 2, 6, and 7, the tumbler or latch; D, spiral springs; E, Figs. 1, 2, 3, and 4, the front or open end of the coupling-box; F, Figs. 1, 2, 3, 6, and 7, a box through which the rod of the tumbler C slides and into which the springs D recede when the tumbler C is drawn up to permit the withdrawing of the coupling-bar B.

I will now proceed to describe the construction and mode of operation of my improvements. I make the coupling-bar B and tumbler C of wrought-iron, all other parts represented of cast-iron. The coupling-box A is is about six inches square, excepting the front end, Fig. 4, which is oblong, being about ten inches by eleven inches. The tumbler C, it will be seen, moves in a vertical line, being provided with tongues C′, Figs. 2 and 6, which slide in corresponding grooves *a a*, Fig. 3, in the sides of the coupling-box. The side of the tumbler C, which faces and comes in contact with the detent *d* of the coupling-bar, is very slightly beveled from top to bottom. This arrangement and mode of construction enable any operator to uncouple the cars at any time without starting the train backward or forward, no matter how close may be the contact between the tumbler and the coupling-bar. The natural position of the tumbler C is shown in Fig. 2. When two cars are to be coupled, the coupling-bar B, having had one of its ends inserted into the coupling-box of either car, is kept in a position about horizontal by the tumbler and its springs. One car standing still and the other approaching it, the outer end of the coupling-bar comes in contact with the tumbler in the coupling-box of the approaching-car, which tumbler, being kept down by its springs, arrests the further entering of the bar until, the latter having been pushed back by the continued motion of the approaching car, the inserted end of the bar strikes the rear wall of cavity G, and the outer end of the bar at once rises and passes under the tumbler with which it is in contact. The tumbler immediately assumes the position shown in Fig. 2—the cars being now coupled. The coupling-bar B is made shorter than the combined length of the two cavities G when the front ends E of the coupling-boxes are in contact, and therefore the bar cannot strike at the same time with both its ends the real walls of the cavities.

I construct the coupling-bars in two forms, having expansions *b*, Figs. 9 and 10. Each form is designed for a particular office. The expansions *b* of the bar (represented in Fig. 9) extend laterally outside of the detent *d*. I use a bar of this form to connect the train to the locomotive-engine. Whenever it happens that the engine is thrown from the track it is very desirable that the connection between the engine and the train should be speedily broken. This is especially desirable when the accident happens near an embankment or side cut on a mountain, because the engine, being in most cases much heavier than the train, drags the latter with it, it may be, down the embankment. Now, if we use a coupling-bar such as is shown in Fig. 9, then when the engine leaves the rails as long as its wheels remain on the the cross-ties and the engine is so kept in about a horizontal position the couplings will not come undone, but as soon as the wheels on one side leave the cross-ties the engine is canted over, the expansion *b* raises the tumbler C, the engine is uncoupled from the train, and the latter is left on the track.

In the bar represented in Fig. 10 the expansions *b* are less than those in Fig. 9, the detent *d* extending outside of the expansions. I design to use this form in connecting the cars which compose the train. This form of bar does not of itself uncouple the cars, but re-

quires the tumbler C to be drawn up by an operator before the uncoupling is effected. When a train is moving rapidly and one of the cars is thrown from the track, in most cases its front trucks turn either to the right or to the left, its rear trucks taking the opposite direction, which throws the car across the track, and the next succeeding car runs into it, sometimes through it. It is therefore desirable that we should connect the cars of a train by couplings which, as well as being self coupling, shall be strong and not easily uncoupled. The flat ends of the bars obviate the tendency that a round bar has to turn over, which turning might endanger the uncoupling of the cars when not desired.

The bars might be made of a uniform width, as wide throughout as I have represented the expansions *b* to be, but thus constructed they would not work well unless the proportions of the other parts were materially altered, since the bar, having less lateral play in the box, could not so well adapt itself to the varying motions of the cars, as, for instance, when the train is turning curves.

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

1. The combination of the tumbler C, springs D, and grooves *a*, substantially as described, whereby operators are enabled to uncouple the cars without moving the train backward or forward, no matter how closely the tumbler and the detent of the coupling-bar may be pressed together.

2. The employment of coupling-bars, such as shown in Fig. 9, having expansions *b* near the ends of the bars, which expansions of themselves uncouple the cars in case the latter get off the track.

3. The employment of coupling-bars such as shown in Fig. 10, having expansions *b* near the ends of the bars with less lateral breadth than the detent, so that, although one or more cars of the train may get off the track, the cars shall not be thereby uncoupled.

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Witnesses:
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