(No Model.)

C. E. MARK.

CAR COUPLING.

No. 296,859. Patented Apr. 15, 1884.

Fig. 1.

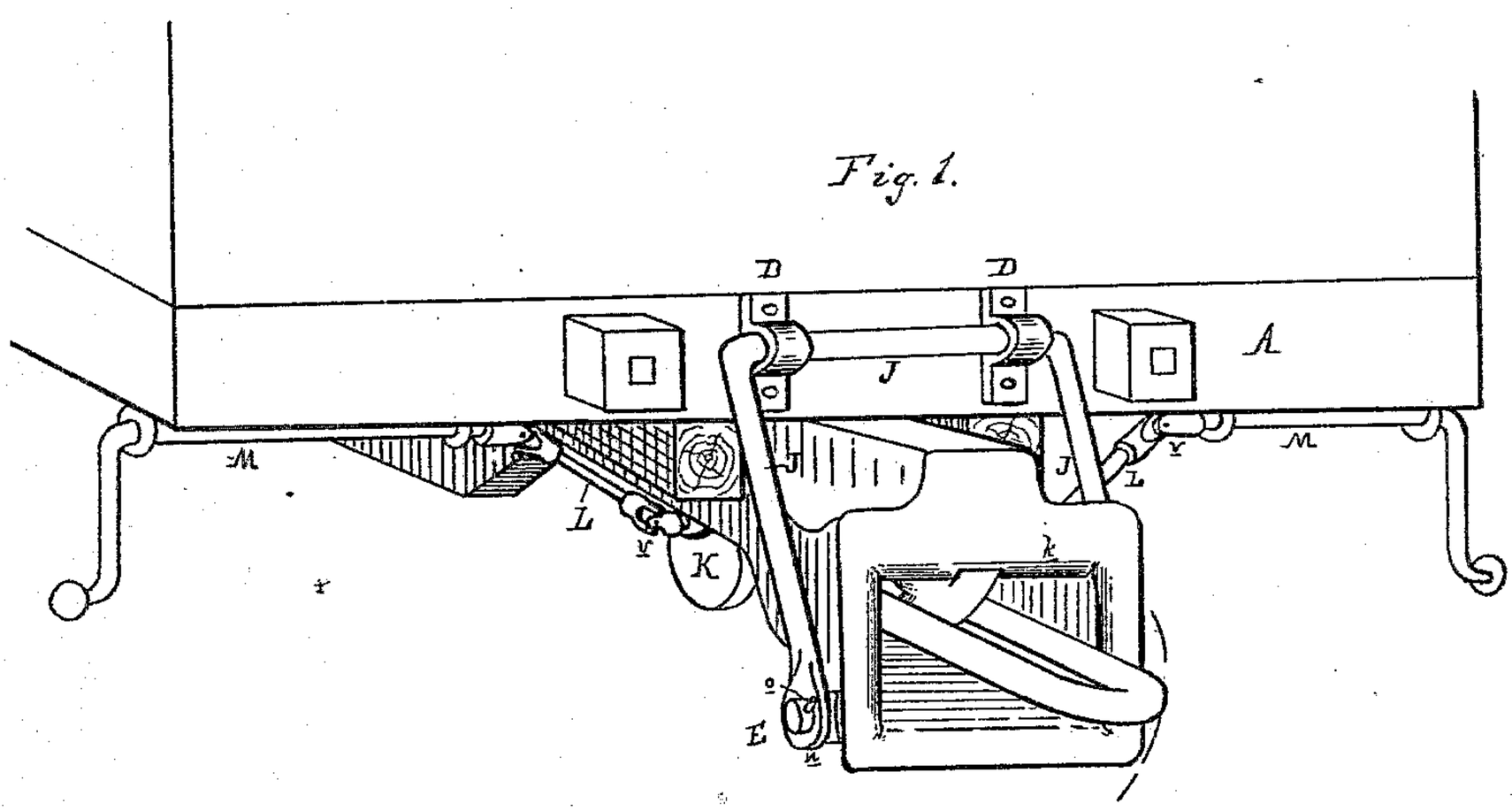
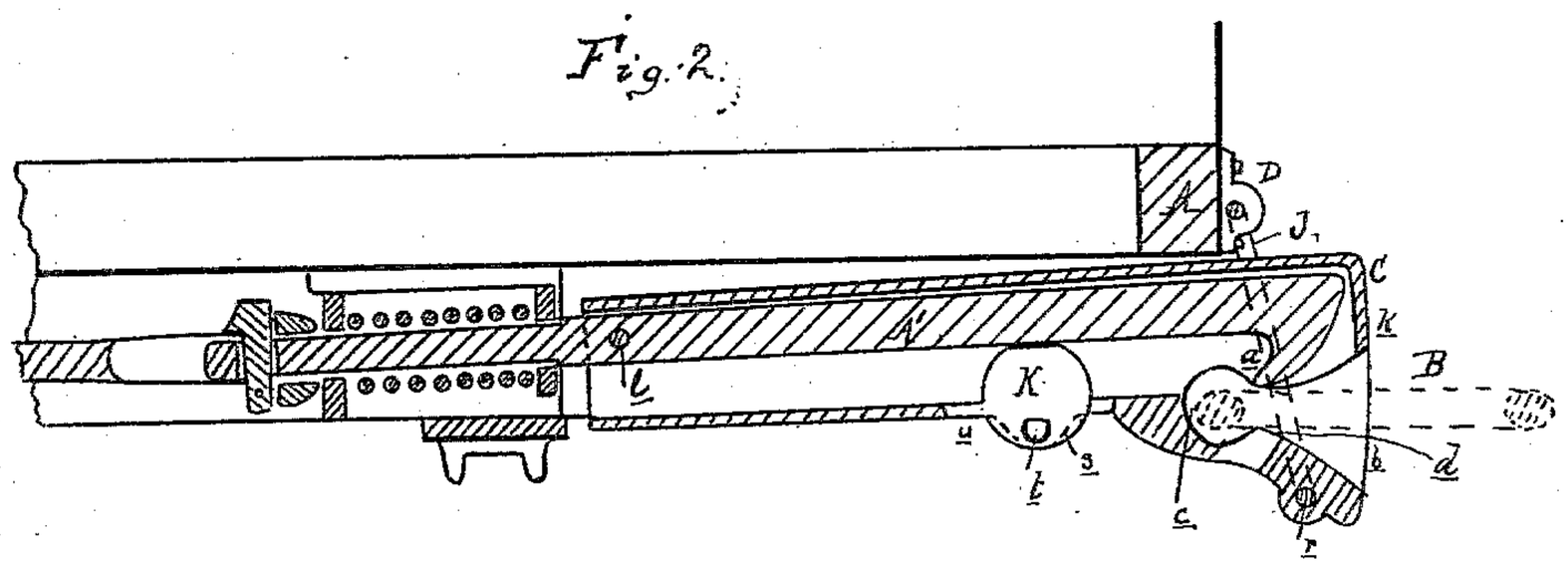


Fig. 2.



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CHARLIE EDGAR MARK, OF FLINT, MICHIGAN.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 296,859, dated April 15, 1884.

Application filed January 23, 1884. (No model.)

To all whom it may concern:

Be it known that I, CHARLIE EDGAR MARK, of Flint, in the county of Genesee and State of Michigan, have invented new and useful Improvements in Car-Couplings; and I hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in the construction and operation of car-couplings, by means of which the projecting end of the coupling-bar and buffer is supported in a swinging bail or gate, and the link is guided to its entrance in the adjacent mouth of the adjacent coupling, which may be upon a different plane.

The invention consists in the peculiar construction of the necessary parts to accomplish the said before-mentioned results, and in their combinations and operation, as more fully hereinafter described.

Figure 1 is a perspective showing my improved coupling attached to the front of a car, in section. Fig. 2 is a central longitudinal section of the same.

In the accompanying drawings, which form a part of this specification, A represents the front end of a car. To this front are suitably secured the boxes D, in which the bail or gate J swings. This bail or gate is in the form of a parallelogram, preferably, as shown, three of the sides thereof being formed of one piece of iron, leaving two free ends, in which are formed eyes *n* to receive the bolt or bar E, which is secured therein by the key *o* or by other suitable means. This bar forms the fourth side of the gate, and passes through a hole, *r*, cast or formed in or upon the lower side of the buffer, near its front end. It will be seen that this method of securing the bail or gate to the car and to the buffer or draw-bar compels the bottom of said gate to stand forward of a line perpendicular to its point of attachment to the car. This allows the front end of said draw-bar and buffer to have a small vertically-radial movement, while its necessary reciprocating movement under the expansion or retraction of the buffer-spring is not interfered with. Should, from any cause, the draw-bar break while the train to which the car is attached is in motion, or the coupling-pin break, it will readily be seen that the bail or gate would play an important part, as it would now take the drawing strain and avoid the necessity of stopping the train for repairs or replacement of the broken parts.

A′ represents a hook coupling-bar, the hook end thereof being adapted to engage with a coupling-link, B, by means of the hook *a*, after the link has entered the flaring mouth *d* of the metallic box C, which incloses the hook end of the draw-bar and guides the entering link into the chamber *c* through the contracted mouth *d*, leading thereto. This chamber is nearly circular in form, and situated sufficiently far from the flaring mouth *b* of the box to allow the end of the link B to enter said chamber, when the hook *a* of the draw-bar will enter and project through the link.

The draw-bar and its inclosing-box are pivotally connected together by means of the bolt *l*.

Between ears *s*, formed or cast upon the lower face of the box C, (said ears being shown in dotted lines in Fig. 2,) is the cam K, eccentrically secured upon a shaft, *t*, which is journaled in said ears, a slot, *u*, being formed or cast in the bottom of said box C, to allow the cam to rotate and act upon the under side of the draw-bar A′. The periphery of this cam is flattened at the point farthest from the cam-shaft, which latter, at each end, is connected with the diagonally-located rods L by means of universal joints *v*, and the opposite ends of said rods are connected, by means of similar universal joints, with the inner ends of the crank-shafts M, which are pivotally secured to the bottom of the car and project beyond its sides, to allow said cam to be operated without the necessity of entering between the adjacent cars to guide the link or to uncouple the device from its adjoining fellow.

In order to obtain solid bearings for the crank-arms M, they should be pivotally secured to the bottom of the car, and as the bottom of the buffer-box C is upon a lower plane, the necessity of the diagonally-located connecting-rods and universal couplings is readily seen.

In practice, when the hook *a* is engaged with the link B, the peculiar form of the hook, par-

tially turning back upon itself at the point, and the peculiar form of the chamber *c* and contracted throat leading to said chamber, have a tendency to keep the projecting end of the link on a level plane. At this time the cam is turned out of contact with the draw-bar. Now, if it is desired to release the hook from its engagement with the link, it is necessary to turn said cam into contact with the draw-bar until the hook *a* is withdrawn from said link. By turning the cam until the flattened portion of its periphery rests against the draw-bar, it locks the latter in its then raised position, so that in shunting cars the entering link will not disturb said draw-bar, so that accidental coupling will not be had. By leaving the cam in such contact that one end of the flattened portion thereof is presented to and against the draw-bar in making up trains, the impact of the entering link will throw the cam over, and thereby allow the hook automatically to engage with said link. When the link is entered, and it is desired to enter its opposite end into the mouth of a coupling on an adjoining car which is upon a lower plane, the operator, standing by the side of the car, with his hand upon one of the cranks, turns the cam slightly, but sufficiently to slightly raise the draw-bar, and by this means the projecting end of the link is allowed to fall from its level position sufficiently to enter the lower mouth of the adjacent coupling.

What I claim as my invention is—

1. In a car-coupling, and in combination with a draw-bar and buffer, a swinging bail or gate pivotally pendent from the end of the car, and pivotally connected to said draw-bar and buffer on one side of a vertical line drawn through the pivotal connection to the car, whereby a swinging support for said draw-bar and buffer is provided, which will give a slight upward movement and not interfere with their reciprocating movements, substantially as and for the purposes specified.

2. In a car-coupling, and in combination with the hooked end of the draw-bar, and with an inclosing metallic case, a cam eccentrically secured to a shaft which is pivotally secured to the lower side of said case and working in a slot therein, said cam being operated from either side of the car by means of crank-arms secured in suitable boxes at the bottom of the car by means of diagonally-located connecting-rods and universal joints, substantially as and for the purposes specified.

3. In a car-coupling, and in combination with the hooked end of the draw-bar and with an inclosing metallic case, a cam the periphery of which is flattened opposite to or at the point farthest from the shaft to which said cam is eccentrically secured, said shaft being pivotally secured to the lower side of said case, with the cam working in a slot therein, and operated from either side of the car by means of crank-arms secured in suitable boxes to the bottom of the car, the inner ends of said crank-arms connecting with the cam-shaft by means of diagonally-located connecting-rods and universal joints, substantially as and for the purposes set forth.

4. In a car-coupling, and in combination, a hooked draw-bar inclosed within a metallic case, a cam, diagonally-located connecting-rods connecting the cam-shaft with crank-arms by universal joints, the parts being constructed and operating substantially as and for the purposes described.

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Witnesses:
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