(No Model.)

I. BRADFIELD.

CAR COUPLING.

No. 427,222. Patented May 6, 1890.

Fig. 1.

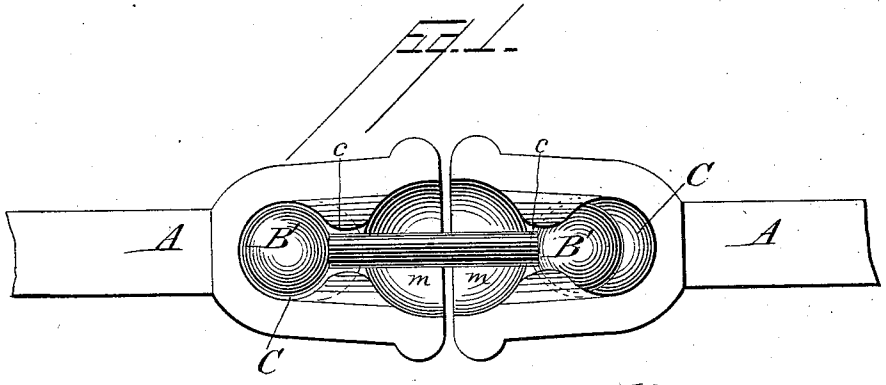


Fig. 2.

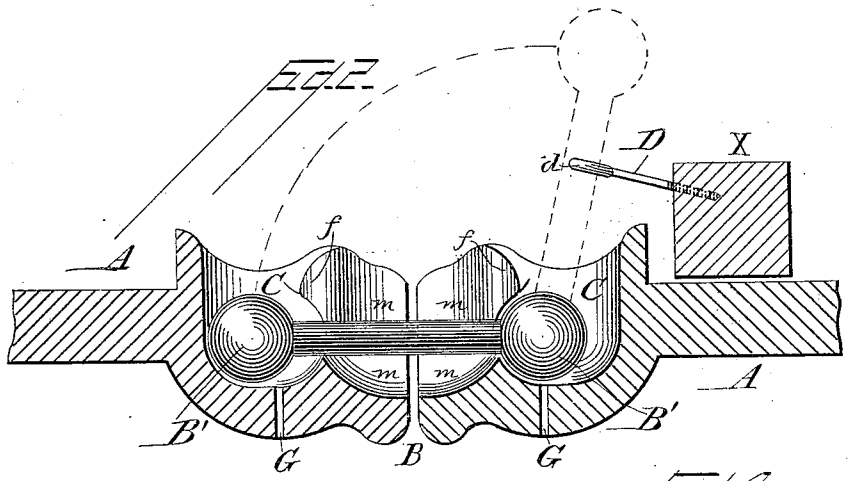


Fig. 3.

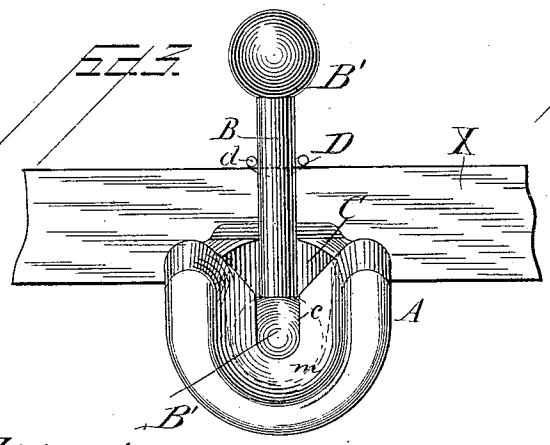


Fig. 4.

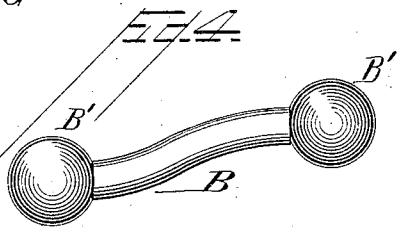
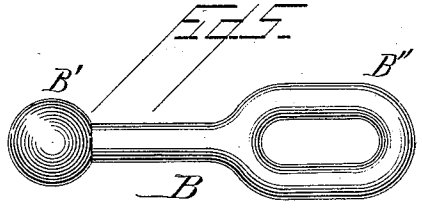


Fig. 5.



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ISAAC BRADFIELD, OF POMEROY, OHIO.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 427,222, dated May 6, 1890.

Application filed May 27, 1889. Serial No. 312,339. (No model.)

To all whom it may concern:

Be it known that I, ISAAC BRADFIELD, a citizen of the United States, residing at Pomeroy, in the county of Meigs and State of Ohio, have invented new and useful Improvements in Railway-Car Couplings, of which the following is a specification.

This invention relates to an automatic car-coupling device having a swivel coupling-bar provided with spherical ends adapted to work in sockets formed in the draw-heads, and such draw-heads being provided with semi-elliptical recesses in their ends for giving access to the hand of the attendant to grasp the coupling-bar when it is desired to uncouple the cars.

The object of my invention is to provide a simply-constructed and reliable automatic coupling device, in which the draw-heads are provided with sockets adapted to receive and hold in place the spherical-ended coupling bar or pin, which bar, in connection with such sockets, forms swivel-joints for giving freedom of motion and evenness of wear of the parts.

Another object is to provide for standing the coupling-bar on one end in one of the sockets, so as to be supported in an inclined position, and will be caused to automatically drop into position in the socket of the other draw-head by the concussion produced by the cars bumping together.

Another object is to provide a suitable recess open at the top in the adjoining ends of the draw-heads to admit the hand of the attendant for grasping and raising the coupling-bar when it is desired to uncouple the cars.

The matter constituting my invention will be defined in the claims.

I will now describe my improved coupling device by reference to the accompanying drawings, in which—

Figure 1 represents a top plan view of the device. Fig. 2 represents a longitudinal vertical section of the draw-heads and a side view of the swivel coupling-bar. Fig. 3 represents an end view of one of the draw-heads with the coupling-bar in elevated position ready for automatic action. Fig. 4 represents a side view of a bent swivel coupling-bar adapted for coupling cars of different heights. Fig. 5 represents a top view of a combined link and swivel coupling-bar.

The draw-heads A A are each provided with a socket C, having at the front end overhanging shoulders *f* for partially embracing the spherical end B′ of the coupling-bar. Between the shoulders *f f*, I provide a vertical slot *c* for passage of the stem of the coupling-bar. At the front end of each draw-head I form a concave recess *m*, of semi-elliptical form, extending down below the base of the coupling-bar B, when properly located in the draw-heads, as shown in Fig. 2. These concave recesses *m m* in the two adjoining draw-heads are open at the top and form a cavity of sufficient size to admit the hand of the brakeman or other attendant, so that he may safely grasp the stem of the coupling-bar in order to raise it in uncoupling the cars without danger of having his fingers jammed or injured between the draw-heads.

A vertical passage G extends from the bottom of each socket C through the draw-head for draining the sockets of water, or for permitting the escape of cinders, dirt, &c. The coupling-bar B is formed of a cylindrical stem provided at the ends with balls or spheres B′. The spherical ends are made of suitable size to fit loosely within the sockets C and be securely held within such sockets against a longitudinal strain or pull by the overhanging shoulders *f*. Just back of the socket C, in one of the cross-timbers X of the car or other special piece of timber, I insert a forked support D, composed of a rod having at its front end the branches or forks *d*. It is preferably screw-threaded and arranged in a slightly-inclined position, projecting in line with the draw-bar, as shown in Fig. 2. This support D is so arranged as to hold the coupling-bar B in a position slightly inclined backward from a vertical line, as indicated by dotted lines in Fig. 2. In Fig. 3 the coupling-bar is shown in full line in an elevated position, ready to be tilted or thrown down into the socket of the adjoining draw-bar by the concussion produced when the cars are bumped together. In order to provide for coupling cars of different height, or cars in which the draw-heads are arranged at different heights, I provide a coupling-bar, as shown in Fig. 4. For coupling a car having my new and improved

draw-head to the old form of draw-head adapted for a link I provide a coupling-bar such as is shown in Fig. 5, having at one end a ball B′ and at the other end the link B″.

The action of my improved coupling device is very simple and can be safely operated by any attendant. When the cars are uncoupled, the coupling-bar B is simply stood on one end in one of the sockets C and inclined slightly backward, so as to be supported by the forked supporting-rod D. The operation of coupling the machine is automatically performed when the coupling-bar is in the raised position. It is only necessary that the draw-heads be bumped together, when they will be slightly retracted by reason of the strong spring by which they are connected to the cars at their inner ends. This motion will throw down the elevated end of the coupling-bar, so that its ball will fall into the socket of the opposite draw-head, completing the coupling operation. By reason of the concave shape of the sockets C the overhanging shoulders *f*, the spherical ends B′, and of the properly-adjusted length of the stem of the coupling-bar, such bar cannot be thrown out of the sockets during the travel of the cars, for the reason that the vibration of the cars and draw-heads will keep the hemispherical ends B in the same relative position in the two sockets C, so that the overhanging shoulders *f f* will uniformly or to the same extent embrace each of the hemispherical ends *b b′*. In the act of uncoupling the bar is slipped forward in one socket, so that the hemispherical end B′ in the other socket will be pushed back free from the shoulders *f f*, and thus permit the stem of the bar to freely pass out or upward between such shoulders. The concave recesses *m m* not only freely admit the hand of the operator, but permit lateral play of the coupling-bar without binding or straining the parts during the motion of the cars.

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

1. In a coupling-device, a swivel coupling-bar having hemispherical ends, in combination with the draw-heads having sockets C C, and having in their adjacent ends the elliptical recesses *m m*, open at the top and extending around and below the stem of the coupling-bar, for safely admitting the hand of the attendant for raising such bar, substantially as and for the purpose described.

2. In a coupling device, the draw-head having a socket C, overhanging shoulders *f f*, and a recess in its front end, in combination with a swivel coupling-bar having hemispherical ends, and a forked supporting-rod D *d*, secured above the socket C in line with the draw-head, for supporting the coupling-bar in an inclined position, substantially as and for the purpose described.

ISAAC BRADFIELD.

Witnesses:
J. B. SCOTT,
J. A. MCKENZIE.