

UNITED STATES PATENT OFFICE.

DAVID BOWLES, OF MARYVILLE, TENNESSEE, ASSIGNOR OF ONE-HALF TO
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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 447,522, dated March 3, 1891.

Application filed October 24, 1890. Serial No. 369,201. (No model.)

To all whom it may concern:

Be it known that I, DAVID BOWLES, a citizen of the United States, residing at Maryville, in the county of Blount and State of Tennessee, have invented a new and useful Car-Coupling, of which the following is a specification.

This invention relates to car-couplings; and the objects of the same are to provide means for coupling and uncoupling the car and for raising and lowering the link by the same mechanism, all from a point at the side or at the top of the car, and also to provide a draw-head adapted to cushion and resist the force of the blow incident to the coupling of cars. These objects I attain by the present invention, which consists of the details of construction hereinafter more fully described and claimed, and as illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of the end of a freight-car, taken slightly from the under side, and showing the manner in which my improved coupling is attached to the car, as well as the devices for raising and lowering the pin and for operating the link. Fig. 2 is a central longitudinal section of two of my improved draw-heads, showing a link in one and the other ready to receive the link. Fig. 3 is a perspective detail of the pin-supporter and link-operator. Fig. 4 is a plan view of the draw-head.

Referring to the said drawings, the letter C designates a car-body having the draw-bar D connected thereto in the usual or in any preferred manner. Pivoted to the front end of the draw-bar is the draw-head H, supported by the ordinary stirrup U beneath the dead-block K at the end of the car, and the upper face of the draw-head is inclined, as at I, where it bears against the steel facing of said dead-block. The front end of the draw-head inclines slightly outward at the top, as shown and as is usual. When two draw-heads come together their inclined outer ends abut, whereby they are caused to rise, and this motion throws the inclined face I against the facing of the dead-block, thereby creating a certain amount of friction, which assists the force of

the spring upon the draw-bar in resisting the concussion produced by the coupling.

Within the draw-head H is located a strong buffer-spring F, and in front of this spring is a block B, pressed normally forward thereby. The front end of this block has an extension E at its upper side, which is provided with a slot or opening O in its end. The interior of the draw-head is of the shape best seen in section in Fig. 2, whereby the block B is permitted not only to pass forward underneath the lower end of the pin, but also to have a slight vertical movement at its forward end, and all its movements are limited to a certain degree by a stud D', which extends downwardly through a slot or opening O' in the bottom of the draw-head. The pin P has a web W upon its rear face, extending from the shoulder near its upper end about two-thirds of the distance to its point or lower end, and the opening through the upper side of the draw-head is shaped accordingly, so that the pin may move therethrough when the pin-supporter (the block B) has been moved to the rear, as seen at the left of Fig. 2. The link L on entering the mouth of the draw-head strikes the end of the block B below its extensions E and bears the same to the rear against the force of the spring F until the extension moves from beneath the end of the pin P. The latter then drops, passing through the link, and its web W passes downwardly in the opening O until its lower end strikes the upper side of the inner end of the link L, as seen at the left of Fig. 2. The cars are thereby coupled, and they may be uncoupled at any time by raising the pin by any of the well-known devices for this purpose.

The pin-lifting and link-operating means I preferably employ are of the following construction: In eyes 1 on the end of the car is journaled a horizontal rock-shaft 2, having a flat plate 3 projecting forwardly from its center. Mounted on a pivot 4 near the rear edge of this plate is the bifurcated end of an arm 5, whose front end is connected by a rigid link 6 with the upper end of the pin P. When the draw-head rises and falls, the rock-shaft 2 will oscillate a trifle in the eyes 1, and as

the draw-head and pin move from side to side the link 6 and arm 5 will also move, the pivot 4 permitting it. The ends of the rock-shaft 2 are squared, outside of which their extremities are reduced and threaded. An operating-lever 10 depends from one or both ends of the rock-shaft, such lever having a squared head 11, which engages the square end of the shaft and is held thereon by a nut 12. At one end of the shaft is an upwardly-extending operating-lever 15, passing through a guiding-loop 16, carried by the car, if the same be a box-car, and the upper end of this lever is turned inwardly, as at 17, so that it may be operated by a person standing upon the transverse center of the car-top. The depending lever 10 can of course be operated by a person standing on the ground at one side of the track.

The cars being coupled, as above described, and as illustrated at the left of Fig. 2, if it be desired to uncouple them, it is obvious that it can be easily done by moving one of the operating-levers in the proper direction to raise the pin; but if we assume that the car at the right of Fig. 2 is approaching that at the left, and it is desired to guide the link in the left draw-head into the right, such link can be raised and lowered by the operator in the following manner: If one of the operating-levers be turned so as to press the pin P downwardly, the lower end of the web W bearing upon the upper side of the inner end of the link L will depress the same, whereby the link will be tilted over the mouth of the draw-head and its outer end will be raised. Conversely, if the pin be raised, so that the weight thereof is taken off the end of the link, the latter will fall slightly at its outer end, the force of the spring S being only sufficient to balance the link and maintain it in horizontal position when the weight of the pin and its operating devices is added thereto. This spring S, I should have stated before, is a leaf-spring connected to the upper side of the block B near the rear ends of both and bearing upwardly at its free front end against the top of the opening in the draw-head, which is shaped accordingly.

By the above means the shape of the draw-head causes the same to serve in part as a buffer, or at least causes the friction of the same upon the under side of the dead-block to assist the force of the springs at the rear of the draw-bar. An automatic coupler is produced wherein the pin will drop through any ordinary link when it enters the mouth of the draw-head; but the pin may be drawn from the link by an operator either on the top of the car or on the ground at the side of the same, and means are provided from both of the positions last mentioned for raising and lowering the outer end of a link, which may be locked in the draw-head, in order to guide it into the mouth of an approaching draw-head to effect the automatic coupling

of cars. The car-coupling herein described therefore embraces improvements in draw-heads, buffers, gravity-pin supports, pin-lifters, and link-lifters.

What is claimed as new is—

1. In a car-coupling, the combination, with the draw-head and the pin moving vertically therethrough, of a rock-shaft mounted in bearings across the end of the car and having a flat plate at its center, an operating-lever at the end of said shaft, an arm having a bifurcated rear end which embraces said plate and is pivoted near the rear edge thereof, and a rigid link pivotally connecting the front end of this arm with said pin, as and for the purpose set forth.

2. In a car-coupling, the combination, with a rock-shaft mounted in bearings across the end of the car and having squared extremities, an arm extending forwardly from said rock-shaft, a link connected to said arm, and a coupling-pin connected to said link, of an operating-lever depending from the rock-shaft at one side of the car, another operating-lever rising from the rock-shaft at the other side of the car, passing over the corner of the car, and extending to the transverse center of the car-top, both said levers having squared heads engaging the extremities of said rock-shaft, and means for holding said heads thereon, as set forth.

3. In a car-coupling, the combination, with the car-body having a metal-faced dead-block, of the draw-bar mounted beneath said body, the draw-head pivotally connected to said draw-bar, the upper side of said head inclining outwardly and its front end inclining downwardly and inwardly, and a stirrup depending from the car and supporting the draw-head, the whole constructed as and for the purpose set forth.

4. In a car-coupling, the combination, with the draw-head, a block moving longitudinally therein and having a forward extension E at the upper side of its front end, a spring moving said block forwardly, a stud on said block for limiting its movement, the draw-head being so shaped interiorly as to permit the rise and fall of the front end of said block as well as its longitudinal movement, and a spring pressing said front end downwardly, of a link, a pin passing vertically through the draw-head and link and through a notch in the extension of the block, and means for operating the pin, the whole constructed as and for the purpose set forth.

5. In a car-coupling, the combination, with the draw-head, a block moving longitudinally therein and having a forward extension E at the upper side of its front end, a spring moving said block forwardly, and a stud on said block for limiting its movement, the draw-head being so shaped interiorly as to permit the rise and fall of the front end of said block as well as its longitudinal move-

ment, of a link adapted to enter said draw-
head and stand beneath said extension, and
a pin passing downwardly through the draw-
head and a notch in the front end of said
5 extension, said pin having a web on its rear
side extending downwardly for a portion of
the length of the pin, the whole constructed
as and for the purpose hereinbefore set forth.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in 10
presence of two witnesses.

DAVID BOWLES.

Witnesses:

G. S. W. CRAWFORD,
R. H. HANNA.