

No. 778,728.

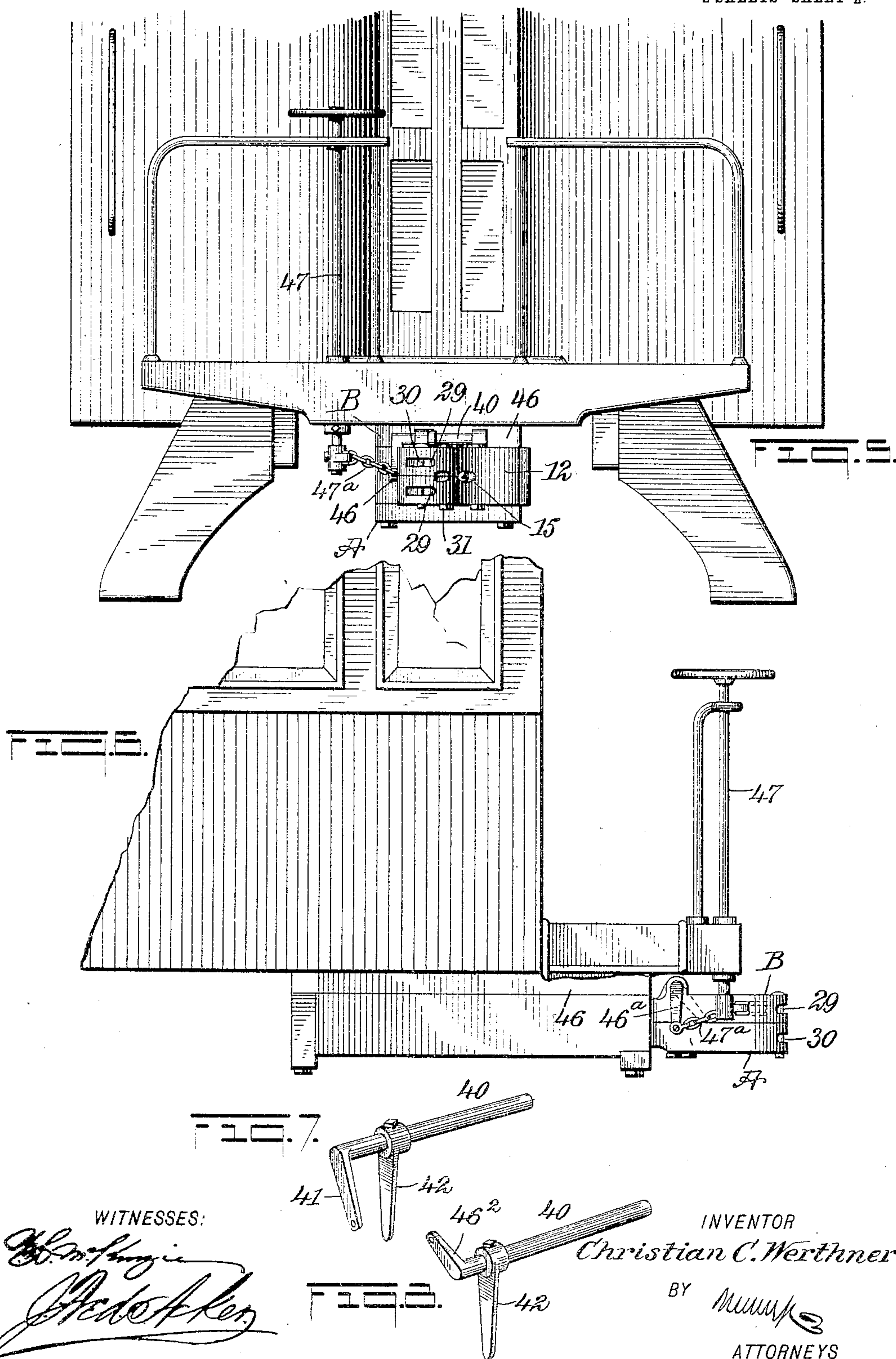
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C. C. WERTHNER.

CAR COUPLING.

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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 778,728, dated December 27, 1904.

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To all whom it may concern:

Be it known that I, CHRISTIAN C. WERTHNER, a citizen of the United States, and a resident of Toronto, in the Province of Ontario and Dominion of Canada, have invented a new and Improved Car-Coupler, of which the following is a full, clear, and exact description.

My invention relates to an improvement in car-couplers; and the purpose of the invention is to provide a self-locking coupler adapted for either freight or passenger service and to so construct the said coupler that an uncoupling may be instantly and rapidly accomplished and whereby when two opposing draw-heads are brought together they will have a locking engagement, yet each draw-head and its draw-bar will be free to accommodate themselves to any curve, ascension, or declivity in the track.

Another purpose of the invention is to so construct the coupler that it will be durable, simple, and economic and so that while the coupler is of the knuckle or Janney type it is possible to utilize the improved coupler as a link-and-pin coupler when necessary.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an end view of a freight-car and the improved coupling applied thereto. Fig. 2 is a partial side elevation of a freight-car and a side elevation, partly in section, of the improved coupling applied. Fig. 3 is a plan view of the improved coupler and frame carrying the same and adapted for attachment to the bottom portion of a car. Fig. 4 is a section taken practically on the line 4-4 of Fig. 2, being also a plan view of the lower portion of the coupler, illustrating the operative mechanism of the same. Fig. 5 is an end view of a portion of a passenger-car, illustrating the application of the improved coupler. Fig. 6 is a side elevation of the coupler applied to a passenger-car, and Figs. 7 and 8

are detail views of the means employed for releasing two opposing and locked draw-heads.

As is customary, the coupler consists of a head and a draw-bar, the head and draw-bar being made in two horizontal sections—namely, a lower section A and an upper section B. The head of the coupler consists of a hook member 10, and adjacent to the said hook member in each section of the coupler a curved recess 11 is produced, in which recessed portions of each head of the coupler a knuckle 12 is mounted for operation, and the said knuckle is made as light as possible by producing recesses 13 in its outer face, as is shown in Fig. 2. The knuckle 12 is common to both sections of the head of the coupler, and it is held in pivotal relation to the hook 10 of the draw-head by a suitable pivot-pin 14. The knuckle is provided with an opening in its forward portion, which forward portion is curved, and when the knuckle is in locking position, as is shown in positive lines in Fig. 3, the knuckle at one end is back of the hooks 10 of the sections of the coupler and at the opposite end extends outwardly and forwardly in the form of a horn, and when the knuckle is in open position its inner end is brought at or near the outer end of the hooks 10 of the head of the coupler, as is shown by dotted lines in Fig. 3 and by positive lines in Fig. 4.

The draw-bar 16 of the two sections of the coupler are adapted to mate, and the lower draw-bar is provided with an offset 17, which enters a corresponding depression in the upper draw-bar section of the coupler. Near the rear end of the draw-bar sections of the coupler recesses 17^a are made in the inner faces of the said sections, as is shown in Fig. 4. The draw-bar sections of the coupler are secured together by means of suitable bolts 17^b.

The draw-bar sections of the coupler are mounted in a frame D, which frame is adapted to be secured to the bottom of a car by means of suitable bolts *d* or the equivalent of the same. This frame D consists of side members 18 and 19 and end members 20 and 20^a, the head of the coupler extending outward beyond the said frame D. A bar 21 is secured to the inner face of the side member 19 of the

frame, and an opposing bar 22 is secured to the inner face of the opposing side member 18, the latter bar having its forward end inclined, as is shown best in Fig. 3. A cross-bar 23 completes the construction of the frame D, and this cross-bar 23 extends from the part 21 to the part 22 on the inner faces of the side members 18 and 19 of the frame. When the draw-bar section of the coupler is placed in the frame, the cross-bar 23 extends transversely through the recesses 17^a in the sections of the coupler, and the said draw-bar is provided with a slot 24^a. A pin 24 is passed through the sections of the draw-bar and through the slot 24, enabling the draw-bar sections to have more or less end movement.

Pockets 25 are located in the end portions of the recesses 17^a of the draw-bar sections of the coupler, and springs 26 are fitted in these pockets, which springs have engagement with the front and the rear edges of the cross-bar 23, as is also best shown in Fig. 4, so that the coupler is spring-controlled and has cushioned end movement. At one or both sides of the said draw-bar sections of the coupler springs 28 engage with the sides of the said draw-bar sections and with the blocks or extension members 21 and 22 of the frame D, according to whether one or two springs 28 are employed. These side springs 28 permit of a lateral movement of the coupler, yet tend to always return the coupler to normal position when not subjected to tension.

The draw-head of the coupler at its forward end is provided with openings 29, and through these openings a pin 30 is adapted to be passed from the top to the bottom, so that the coupler may be adapted to couple with any form of coupler of the link-and-pin type, as two openings 29 are provided, one above the other, and the coupling-pin 30 passes through both.

Where the two sections A and B of the coupler connect at the front and slightly at one side—that side adjacent to the horn of the knuckle 12—a recess 31 is produced. This recess 31 of an entering coupler is adapted to receive a pin 32 of the coupler with which the coupling is to be effected, and the pin of the entering coupler will enter the recess 31 of the coupler with which it is to engage, thus forming a perfect lock between two opposing couplers when in coupling position, yet permitting the draw-bars to move backward or forward or laterally.

The pins 32 of a draw-head are mounted to slide in longitudinal grooves 33, produced in both sections of the coupler, and the said pins when the knuckles are in position for coupling are back of the knuckles, as is shown in Fig. 4, and when the knuckles are in coupling position the pins extend forwardly through the openings 15 in the knuckles, as is illustrated in Fig. 3.

A lever 34 is pivoted on the draw-head be-

tween the sections of the coupler and has movement in substantially X-recesses 34^a, produced in both sections A and B of the coupler, and one end of the said lever passes through an opening in the pin 32 of the coupler, while the other end of the said lever passes through an opening 35 in a bar 35^a, which bar is held to slide in longitudinal recesses 36, made in both sections A and B of the coupler, parallel with the recesses 33, in which the pin 32 has sliding movement. This sliding bar 35^a is connected, by means of a link 37, with an offset 38 upon the rear side of what may be termed the "inner" end of the knuckle 12, as is shown in Fig. 4.

The bar 35^a and the pin 32 of a coupler are operated, preferably, by a shaft 40, which is journaled in suitable bearings at the upper portion of the coupler adjacent to its head, and the shaft 40 at one end is provided with a crank-arm 41, and adjacent to the said crank-arm a finger 42 is secured, which finger passes down through the said slot 35 in the sliding bar 35^a. The crank-arm 41 of the shaft 40 is connected by a chain 43 with a crank-arm 43^a, located at the inner end of an uncoupling or operating shaft 44, journaled at the end of a car when the car is a freight-car, as is illustrated in Figs. 1 and 2. The said operating-shaft 44 at its outer end is provided with a crank-handle 45.

In the operation of coupling, when two draw-heads are brought together, the knuckles being in the open position, (shown by dotted lines in Fig. 3 and in positive lines in Fig. 4,) should a draw-head strike the knuckle either near its inner or its outer end the knuckle struck will be carried inward to coupling position, and the pins 32 of the draw-heads, by reason of the aforesaid link-and-lever connections, will be forced outward, so that the said pins enter the recesses 31 in opposing coupling-heads. In the event an uncoupling is desired it is simply necessary to operate the handle 45, so as to carry the sliding bars 35^a in the coupling-heads outward, whereupon the pins 32 will be drawn inward, occupying the position shown in Fig. 4, and the knuckles will be carried outward, permitting the two heads of the couplers to readily separate.

When the improved coupler is applied to a freight-car, the frame D is attached directly to the bottom of the car; but when the coupler is applied to a passenger-car, as is shown in Figs. 5 and 6, a board 46 or its equivalent is secured to the top of the frame D, and this board or its substitute is attached to the bottom of the car. When the coupler is applied to a passenger-car, I employ the usual brake-lever 47, which at its lower end is connected, by means of a chain 47^a, with a short crank-arm 46^a, extending downward when in working position, and the said shaft 40 under these

conditions is provided with a finger 42, as has been described with reference to the shaft 40, used in connection with freight-cars, the said finger entering the opening in the sliding block 35^a of the coupler.

This coupler is exceedingly simple. Its working parts are few, and the motions of the said parts are positive. Furthermore, the coupling is exceedingly strong, and when opposing couplers are brought together they are held closely united until purposely released, and yet the couplers are free to move beneath the car as the condition of the road-bed may require.

When the pins 32 are in their locking position relative to opposing draw-heads, they can be held in such positions by passing auxiliary pins 39 through the draw-heads and through the outer end portions of the locking-pins, which auxiliary pins 39 can be withdrawn in any suitable manner.

If after uncoupling the handle 45 is dropped to its normal position, which it will always find without any especial care, or if the brake-lever 47 is turned back to its normal position after uncoupling, the knuckle 12 will be ready, whether open or closed, to receive the head of an opposing coupler and interlock, no matter in what position the knuckle 12 may be.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a car-coupler, a knuckle, a pin movable to and from the knuckle and adapted to engage therewith, the said pin being withdrawn from the knuckle when the latter is in open position, and an operative connection between the knuckle and the said pin, whereby when the knuckle is moved inward to coupled position the pin is moved outward to engagement with the knuckle.

2. In car-couplers, a draw-head, a knuckle therefor, a pin having sliding movement in the draw-head, adapted in the coupling position of the draw-head to pass out through the said knuckle, a shaft, and an operative connection between the shaft, the knuckle and the pin, the pin being withdrawn when the knuckle is in open position and carried outward when the knuckle is in coupled position.

3. In a car-coupler, a draw-head, a knuckle forming a pivotal portion of the draw-head, the draw-head adjacent to said knuckle being provided with a recess, a pin adapted to slide outward through the knuckle and inward from the knuckle, a shaft, and an actuating mechanism for the knuckle and the said pin, which mechanism is operated from the said shaft.

4. In car-couplers, a draw-head, a knuckle pivoted in the draw-head, having an opening therein, the forward slotted portion of the draw-head having a recess therein, a pin having movement to and from the opening in the said knuckle, a sliding bar located within the draw-head parallel with the pin, a lever connection between the sliding bar and pin, and a link connection between the sliding bar and knuckle, a shaft, and an actuating connection between the said shaft and the said sliding bar.

5. In a car-coupler, a knuckle, a pin movable to and from the knuckle, a sliding bar connected with the knuckle to move therewith, and a connection between the sliding bar and the pin, whereby when the sliding bar is moved in one direction the pin is moved in the opposite direction.

6. In a car-coupler, a draw-head, a knuckle pivoted in the draw-head and having an opening therein, a pin having movement to and from the opening in the knuckle, a sliding bar connected with the knuckle to move therewith, an operative connection between the sliding bar and the said pin, whereby the pin is withdrawn from the knuckle when the latter is in open position, and extends outward through the opening in the knuckle when the latter is in coupled or locking position, and actuating means connected with the sliding bar for moving the same to carry the knuckle to open position and to withdraw the pin.

7. In a car-coupler, a knuckle, provided with an opening, a pin adapted to slide outward through the opening in the knuckle and to move inward from the knuckle, a sliding bar connected with the knuckle to move outward when the knuckle is carried to open position and to move inward when the knuckle is carried to coupled position, and an operative connection between the sliding bar and the said pin whereby the pin is withdrawn from the opening in the knuckle when the latter is in open position and is carried outward through the opening in the knuckle when the latter is in coupled position.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHRISTIAN C. WERTHNER.

Witnesses:

R. L. SEWELL,
A. E. MERNER.