(No Model.) 2 Sheets—Sheet 1.

C. W. RASMUSEN.

CAR COUPLING.

No. 265,865. Patented Oct. 10, 1882.

Fig. 1

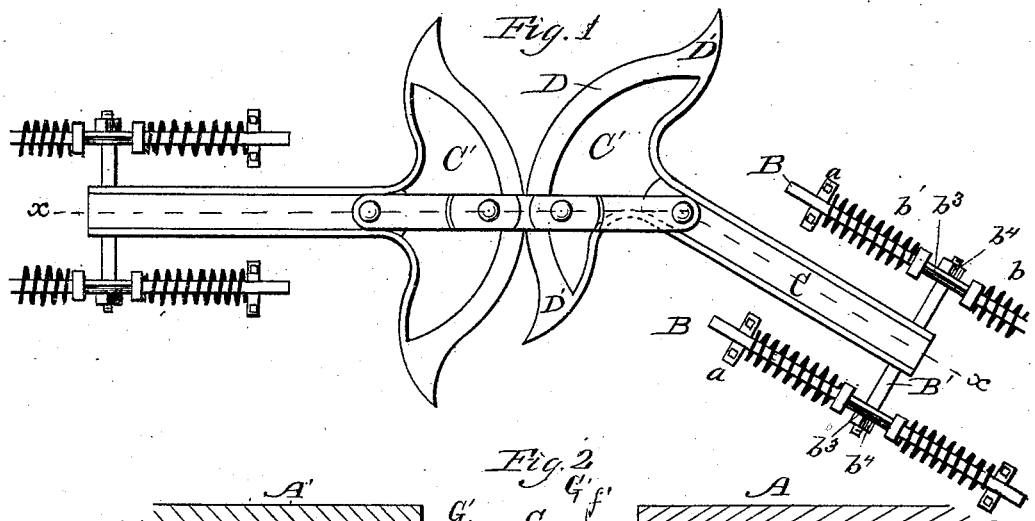


Fig. 2

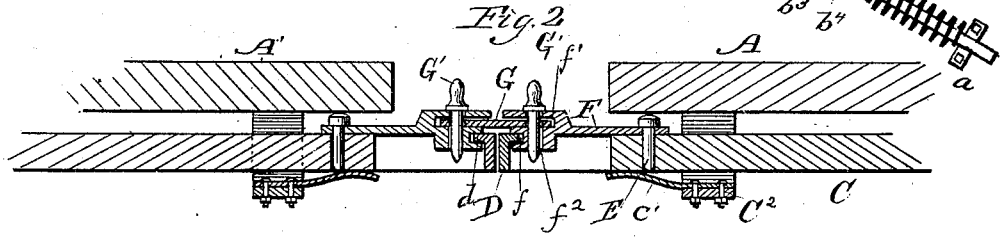
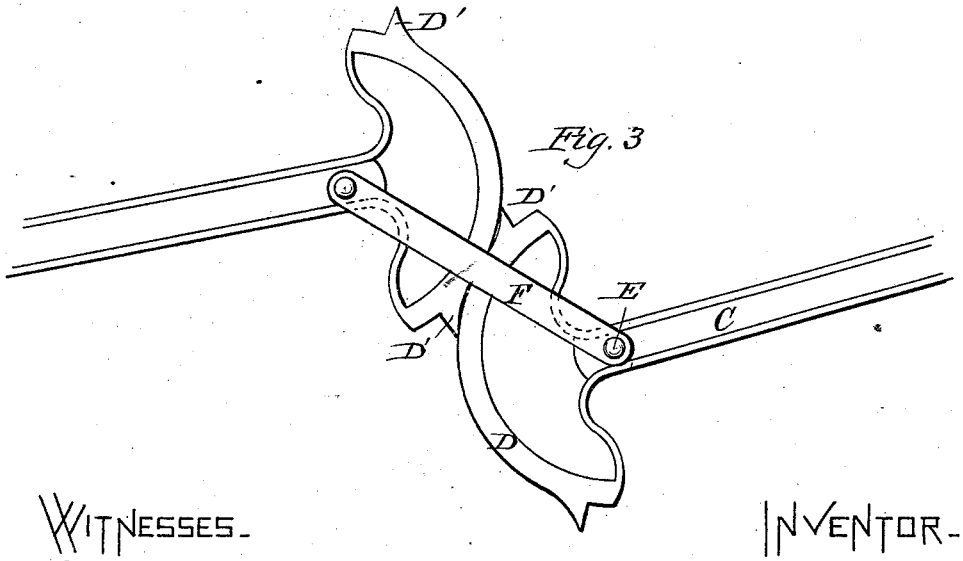


Fig. 3



WITNESSES.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4

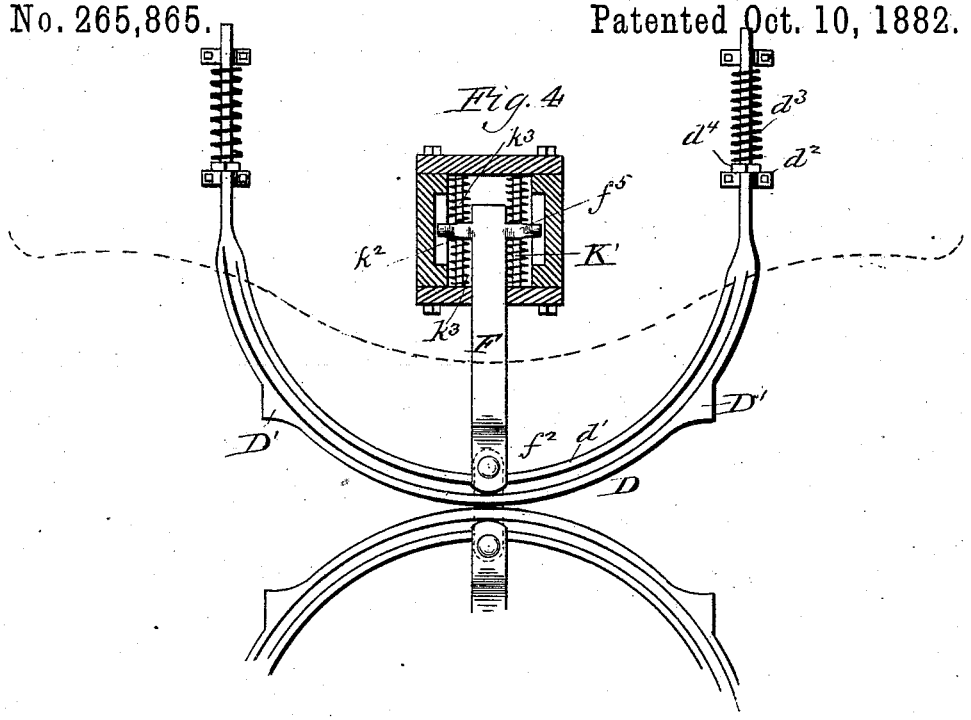

Fig. 5

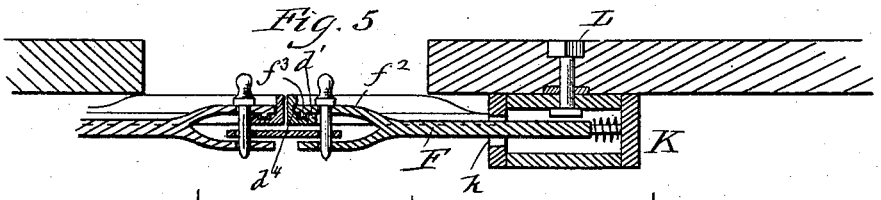

Fig. 6

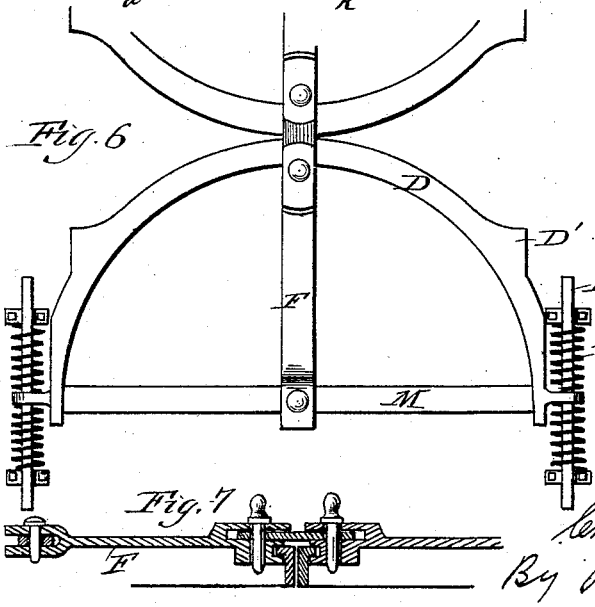

Fig. 7

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UNITED STATES PATENT OFFICE.

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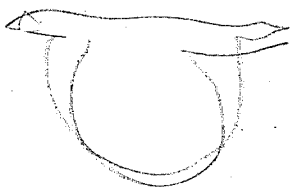

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 265,865, dated October 10, 1882.

Application filed July 14, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. RASMUSEN, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My present invention, which is especially designed as an improvement upon that for which Letters Patent No. 259,719 were granted to me on the 20th day of June, 1882, has for its object to provide a car-coupling of such construction as will in a great measure avoid the shocks incident to the passage of the cars around the curves of the roadway. This object I accomplish by the mechanism hereinafter described, illustrated in the accompanying drawings, and particularly defined in the claims.

Figure 1 is a plan view of my improved coupling, the parts being shown in the relative position assumed in traversing a curve. Fig. 2 is a longitudinal section upon line *x x* of Fig. 1. Fig. 3 is a plan view of a coupling having modified form of connecting-bar for uniting the draw-heads. Figs. 4 and 5 are respectively a plan and longitudinal sectional view of a modified form of my coupling. Figs. 6 and 7 are respectively a plan and a longitudinal sectional view of another modification of my invention.

A A′ designate the platforms of two connected cars, to which my improved coupling is applied, said coupling consisting of two main duplicate parts, one of which is attached to the under side of each platform. Securely fastened to the platforms are the yokes *a*, in which are supported, in a manner free to slide therein, the rods B, which project some distance beyond the yokes and carry the spiral springs *b b′*. The outer ends of these springs rest within sockets of the yokes *a*, and their inner ends rest within the washers b^3, which bear against the square central portions of the rods B.

Upon the axle B′ is pivotally hung the shank C of what I designate the "draw-head" or "buffer" C′, and the reduced ends of this axle pass through suitable perforations in the enlarged portions of the rods B, and are retained in place by means of the jam-nuts b^4. The shank C is journaled to the axle B′, as shown, and against the under side of this shank bears the spring-plate *c′*, which is attached securely to the bottom of the yoke C^2, and serves to keep the shank pressed normally upward. The height of this yoke is made considerably greater than the thickness of the shank, thereby permitting the free vertical vibration of the latter upon its axle. Each draw-head or buffer C′, attached to the shank C, consists of the face-plate D, having the curved bearing-surface, and at its top the backwardly-projecting guide-flange *d*. The ends of the buffers are curved to form the stops D′, the function of which is to limit the movement of the draw-heads, and so prevent their displacement.

Through the forward portion of the shank C is formed a suitable perforation to receive the pin E, by which the connecting-bar F is pivoted to the shank. One end of this bar F is perforated to receive the pin E, and the opposite end is provided with the rabbets *f f′*, and with the perforation f^2. Into the rabbet *f* fits the flange *d*, thus forming a connection by means of which the movement of the bar across the draw-head is accurately guided. The rabbet *f′* receives the perforated coupling-link G, and through the link and the bar is passed the retaining-pin G′. As will be seen, the curved plate D describes the arc of a circle to the radius of which the connecting-bar F corresponds in length, thus securing the curved bearing-surfaces constantly together, while permitting them to turn freely one upon the other.

From the above-described construction it will be seen that when the coupling-link is attached to the pivoted connecting-bars the cars will be coupled closely together, and it is also apparent that the usual slight vertical motion of the cars incident to the action of the car-springs will be readily permitted by the movement of the shanks of the draw-heads upon their journals, and as the ends of the cars are deflected in turning a curve the bearing-surfaces of the draw-heads will turn on each other, being held constantly together by the connecting-bars, which travel freely over the guide-flanges as the direction of strain changes. The spiral springs upon the rods B serve to

avoid any sudden shocks when the draw-heads or buffers are bumped together or when the cars are started suddenly.

In the modified construction shown in Fig. 3 a single bar is employed to connect the draw-heads, instead of the separate bars and link shown in Figs. 1 and 2. Each end of this bar is perforated, and through these perforations and corresponding ones in the shank C are passed the pins by which the bar is pivotally connected. The stops D′ upon this modified form of coupling are placed nearer the center of the curved bearing-surfaces; but in other respects the construction of the draw-heads and connections is identical with that shown in Figs. 1 and 2.

In Figs. 4 and 5 is shown a modification of my invention, in which the draw-heads are each formed preferably of a single curved plate, D, having at the back the double angular flange d' and upon the face the stops D′. The ends of these draw-heads are sustained, in a manner free to slide therein, by the yokes d^2, attached to the under side of the platform of the car, and upon these ends and between the yokes are placed the spiral springs d^3, against which bear the washers d^4, rigidly fixed to the end portions of the draw-heads. The connecting-bars F in this modification are yoke-shaped at their forward ends, the arms being perforated to receive the pins for the coupling-link. The upper arm, f^2, of each bar rests upon the flange d', and is provided with a depending lug, f^3, which travels in the groove formed by the curved plate D′ and the upturned portion of the flange d', and the end of this arm moves in the groove d^4, formed, as shown, in the back of the curved plate D. These grooves in the back of the curved plate D serve to guide the bar in its movement across the draw-heads and to hold the bar and draw-head constantly together. The rear end of the bar F enters the box K, slotted, as shown at k, to receive it, and is provided with the cross-arms f^5, through which pass the rods K′, which are secured to the ends of the box, and upon which said cross-arms are held in a manner free to slide. The ends of the cross-arms f^5 work in suitable grooves, k^2, formed in the sides of the box, and on each side of the cross-arms, upon the rods K′, are held the spiral springs k^3, which act upon the connecting-bar. The box K is pivotally attached to the headed bolt L, which depends from the platform of the car.

From the above-described construction it will be seen that the connecting-bar F, being sustained by the pivoted box K, is able to accommodate itself to the different positions of the draw-heads in traversing a curve; and it will also be seen that by reason of the fact that the perforations in the cross-arms have rounded edges and are somewhat larger than rods K′, upon which they slide, and that the height of the slot in the box is greater than the thickness of the connecting-bar, a slight vertical movement is allowed to the bar, caused by the action of the car-truck springs. The bars F being spring-seated, and being held, as shown, to the draw-heads, the relative position of the two is uniformly the same, and as the draw-heads turn in passing around a curve they are retained closely connected by bars which move from side to side on the draw-heads.

In Figs. 6 and 7 is shown another modification of my invention, in which the draw-heads are each formed of a curved plate, D, the ends of which are securely attached to the cross-bar M. This cross-bar M, to which is pivoted the connecting-bar F, is secured at its ends to the rods N, which are sustained, in a manner free to slide therein, by the yokes n, fastened to the under side of the platform of the car. Upon the rods N are held the springs n', two on each rod, which give a yielding action to the draw-head and the connecting-bar. Each draw-head is provided with the stops D′, and with the back guide-flange, d, over which fits the connecting-bar F, the construction of which is the same as that illustrated in Figs. 1 and 2.

It will be noticed that in the several forms of couplings above described the broad laterally-curved bearing surfaces or plates describe arcs of circles to the radii of which the connecting-bars correspond in length, and by this construction the bearing-surfaces are secured constantly and uniformly together, while moving freely one upon the other. It will also be seen that the bearing-surfaces of the draw-heads are made imperforate or without the usual link-opening, and that the connecting-link lies outside the bearing-surfaces. This construction is regarded as advantageous, for the reason that were link-openings made in the face-plates they would tend to weaken the same, and for the further reason that the coupling of the cars can be more readily effected where there is not the necessity of accurately guiding the link into a slot.

I am aware of Patent No. 11,498, of August 8, 1854, in which the draw-heads are provided with curved ends and provision is made for disconnecting the cars in case of accident; and I do not wish to be understood as claiming matter therein shown. In my present construction of car-coupling the shortest possible curves can be traversed without uncoupling the cars and while retaining the draw-heads closely together.

I am aware of Patent No. 87,158, granted February 23, 1869, and of Patent No. 239,272, granted March 22, 1881; and I do not wish to be understood as making claim to the inventions embraced therein.

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

1. A car-coupling having draw-heads provided with broad laterally-curved bearing-surfaces, and having connecting bars or bar pivoted back of said bearing-surfaces at such distance as to permit said surfaces to move freely one upon the other from side to side, and at the same time to hold them constantly together, substantially as described.

2. A car-coupling having draw-heads each provided with a broad laterally-curved bearing-surface, and each provided with a connecting-bar pivoted back of said bearing-surface, and having mechanism, substantially as described, for uniting said connecting-bars, substantially as set forth.

3. A car-coupling having draw-heads with broad laterally-curved bearing-surfaces, and having connecting-bars pivoted back of said draw-heads, and having guides on the draw-heads for the free ends of said bars, and having mechanism for uniting the free ends of said bars, substantially as described.

4. A car-coupling having laterally-curved bearing-surfaces, and having connecting bars or bar in length proportionate to the curve of said surfaces, as described, so that the draw-heads may be held constantly together, and having stops to limit the movement of said draw-heads, substantially as described.

5. The combination, with the draw-heads having the laterally-curved bearing-faces D and journaled shanks C, of the spring mechanism for said shanks, and pivoted connecting mechanism for the draw-heads, substantially as described.

CHARLES W. RASMUSEN.

Witnesses:
JAMES H. PEIRCE,
GEORGE P. FISHER, Jr.