

(No Model.)

2 Sheets—Sheet 1.

J. R. HOWARD.
CAR COUPLING.

No. 267,082.

Patented Nov. 7, 1882.

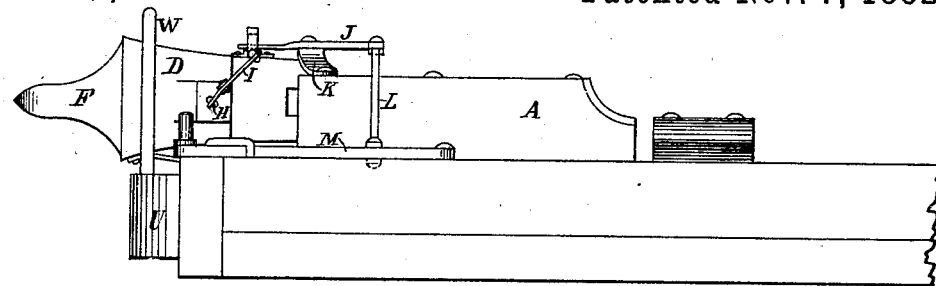


Fig. 2.

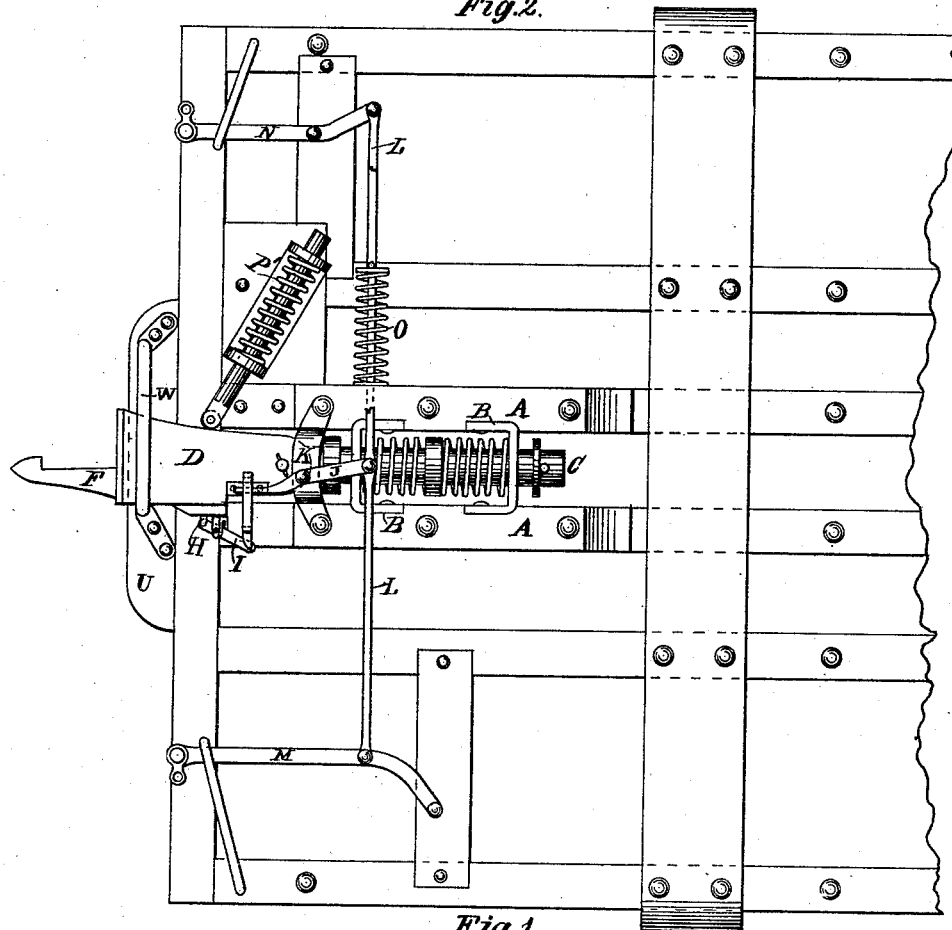


Fig. 1.

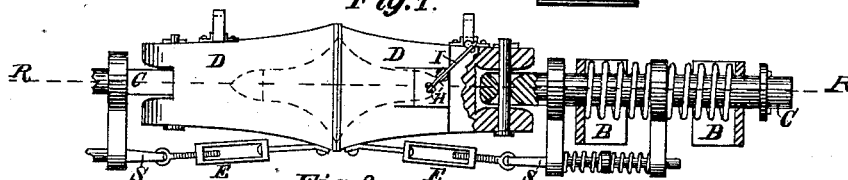


Fig. 3.



Fig. 4.

Witnesses:
Charles H. Leone
George H. Hills.

Inventor:
John R. Howard.

(No Model.)

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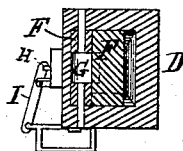


Fig. 5.

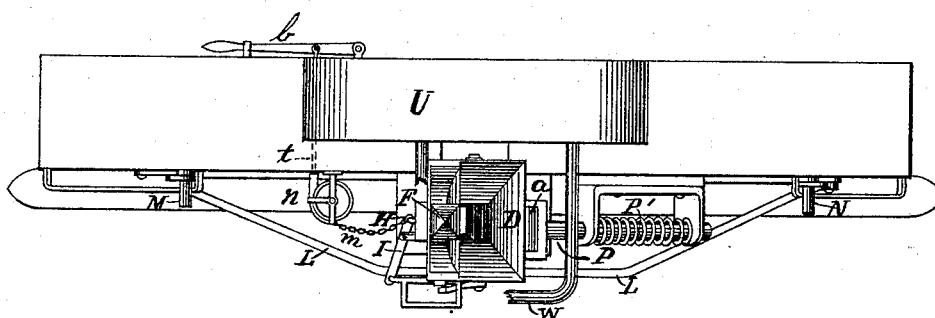


Fig. 6.

Witnesses:

Charles H. Crane.
Charles Warner.

Inventor.

John R. Howard.

UNITED STATES PATENT OFFICE.

JOHN R. HOWARD, OF SOMERVILLE, MASSACHUSETTS.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 267,082, dated November 7, 1882.

Application filed July 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. HOWARD, a citizen of the United States, residing in Somerville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Self-Acting Elastic Car-Coupler, (and to my knowledge and belief the same has never been in use,) of which the following is a specification.

The object of my invention is to self-couple cars of various heights and on the sharpest curves, and have them disconnect from the sides of the car by a fly-back frictionless lever disconnection; also, to have them disconnect from the top of the car by a lever that works conjointly with or independent of the fly-back lever disconnection; also, to have the whole train elastic when coupled together, so as to avoid that sudden jerk which is caused by starting and stopping; also, to have a double fastening to do away with all danger of the train breaking apart while in motion. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an inverted plan of the machine; Fig. 2, an inverted elevation of the machine. Fig. 3—a sectional view—also represents the machine coupled, and shows in detail the mechanism of the different connections of the coupler-head. Fig. 4 is a section of the line R in Fig. 3, and shows a view in detail of the fastenings. Fig. 5 is a cross-section of Fig. 4; Fig. 6, an end view, and shows the mechanism for disconnecting from the top of the car.

Similar letters refer to similar parts throughout the several views.

The wooden sills A A and the iron cross-heads B B constitute the frame-work of the machine. Through these cross-heads the shaft C moves back and forth. On this shaft, between the cross-heads, are two heavy spiral springs, separated by a band or collar that is keyed to the shaft. The neck of the shaft has an angulated hole in it and a band or collar the same distance from the cross-head as the shaft is to move back. The rear end of shaft has a washer or collar keyed on it a like distance from the rear cross-head, to allow for the advance. On the band which forms the shoulder on shaft C and on the band which separates the spiral springs are arms extending per-

pendicularly. Through the end of these arms the small shaft S moves back and forth. On this shaft, between the arms, are confined two spiral springs, separated by a band keyed to the shaft. The tension on these springs is such as to reduce the leift of coupler-head D (when connected with shaft S) to the minimum. The shaft C connects with the coupler-head D by a bolt and makes a joint that gives vertical and lateral motion. The coupling-screw E connects with the shaft S, with a welded eye; the swivel end bolts to the center, on the top side of coupler-head D, close to outer rim. By manipulating this screw the coupler-head is kept adjusted, all of which is shown in detail in Fig. 3.

The coupler-head D is a hollow casting, which has an aperture sufficient to receive at the same time the opposite end of fastening-bar F, (see Fig. 5,) which bar has a projecting and hook-shaped end. It also has legs which slide into grooves in the coupler-head. Between these legs the pawl G is attached by a bolt passing through coupler-head D, the legs of fastening-bar F, and the pawl. On the back of this pawl is an extension, which hinges to the rod H, which rod has a spiral spring on it. The end of rod goes out through a hole in the side of coupler-head D, all of which is shown in detail in Fig. 4.

To the rod H the lever I connects and ships into a standard, and on the end of said lever is hooked a looped connection, which moves in a slide-plate that is fastened to the under side of coupler-head D. Through this looped connection the lever-bar J rests free and clear. Said lever works on a pivot on the plate K and rod L, which rod runs from the lever M, over the sills A A, down to lever N. There is another rod that runs from lever M, under the sills A A, to lever N, which has the spiral spring O, confined on it close beside the sill A. There is a piece of the rod L left out from sill A to lever N, so as to show the under rod and the spiral spring O, as seen in Fig. 1. These pawls G G are operated to disconnect the coupler-heads by pulling either of the levers M or N outward from either side of the car. On letting go the handle it immediately flies back, so the lever-bar J will play clear in the looped connection, and the pawl G in coupler-head D is ready to fasten. The eyes on the handles

on lever M and N are for the purpose of receiving hooks on the outer edge of car, so as to hold the levers there and prevent the cars from coupling when necessary.

5 The device which holds coupler-head D in the center of car has a wrought-iron bed-piece with lugs, through which a bar, P, with a spiral spring, P', secured thereto between the lugs, moves laterally. On the end of bar next
10 to coupler-head D is a roller, and to keep this roller perpendicular there is a short pin in the rear lug-hole, which fits into a groove on the top side of the bar, which prevents it from turning.

15 The yoke W, which goes around coupler-head D and fastens to the bunter U, is of round bar-iron. The back of coupler-head D rests hard against it, as shown in Fig. 2. There is room on the other side for the coupler-head D
20 to spring over when rounding the sharpest curves. It is also deep enough to allow the coupler-head D to depress or elevate, for in coupling cars by this method it is necessary for one coupler-head to depress one-half of the difference and the other elevate one-half, so
25 the fastening-bars FF will enter straight their respective sockets in coupler-heads D D.

The mechanism for disconnecting from the top of the car consists of a chain, a guarded
30 swivel-pulley, rod, and lever. The chain is shackled to rod H. (See Fig. 6.) The lever-bar I is connected at the same time to said rod by said shackle. The chain then goes around the "guarded" pulley, care being taken to have
35 the chain slack enough for the movement of coupler-head D. It then connects with a rod flush with the under side of the cross-beam of the car. Said rod goes through a hole in the cross-beam to the platform, where it connects
40 with the lever, the end of which is hinged to the platform. The handle rests between the ears on a short standard. By raising the handle of this lever the fastening disconnects. If it is a box-car, the rod must be lengthened, so
45 the lever will be at the top of the car. This lever works conjointly with or independent of the fly-back disconnection. On Fig. 6 a part of the yoke W is broken out to show the connections of the levers which operate the pawl G.

50 To connect this coupler-head with the old-style link and pin it is necessary to remove the bolt that secures the fastening-bar F to coupler-head D and detach said bar. Then replace the bolt through two short pieces of
55 pipe, to take the place of the legs of bar removed to keep the pawl G in its proper place. Then push the hook-shaped end of the bar into the funnel-shaped socket in coupler-head D, so it will fasten. The legs of the bar will then
60 project outward. The ends of said legs are of sufficient size to admit of a hole large enough for a pin of sufficient strength to pass perpendicularly through said legs, so the old-style link can be connected between said legs by
65 said pin.

Having fully described my invention, what

I desire to claim and secure by Letters Patent is—

1. In a car-coupling, the coupler-head D, provided with a funnel-shaped socket and the pointed hook-shaped fastening-bar F, rigidly
70 secured thereto, substantially as described.

2. The coupler-head D, provided with a funnel-shaped socket and a projecting hook-shaped fastening-bar, in combination with the spring-actuated pawl G, all arranged and adapted to operate substantially as and for
75 the purpose described.

3. The coupler-head D, provided with a funnel-shaped socket and a projecting hook-shaped fastening-bar rigidly attached thereto, in combination with a pivoted pawl located within said socket, a spring for operating said
80 pawl in one direction, and one or more levers for operating said pawl in the other direction, substantially as described.

4. The coupler-head D, provided with a funnel-shaped socket and a projecting hook-shaped fastening-bar rigidly attached thereto, in combination with a pivoted pawl located
90 within said socket, a spring for moving said pawl inward, the lever I, provided with a sliding looped connection, the levers J, N, and M, a rod or rods connecting said levers J, N, and M, and the spring O, all constructed, arranged,
95 and adapted to operate substantially as and for the purpose specified.

5. The coupler-head D, provided with a funnel-shaped socket and a projecting hook-shaped fastening-bar attached rigidly thereto, jointed to shaft C, in combination with the spring-actuated shaft S and the swiveling screw-rod E, that connects said shaft with said
100 coupler-head, whereby said coupler-head is maintained in a horizontal position until moved up or down in the act of coupling, and the yoke W, that retains said coupler-head in a central position on one side, and the laterally-movable bar P, that retains said coupler-head
105 in a central position on the other side until moved laterally in the act of coupling, substantially as described.

6. The shaft C, mounted in cross-heads B B, and provided with three bands or collars, in combination with two springs surrounding said
115 shaft between said cross-heads, and separated by the central collar, and in connection with the vertically and laterally movable coupler-head D, as set forth, substantially as described, for the purpose specified.

7. In combination with a coupler-head, jointed so as to be movable vertically and laterally, as set forth, the shaft S, mounted in suitable bearings, and provided with a central collar and two springs between said collar and bearings, and the swiveling screw-rod E, connecting the shaft S and the coupler-head, whereby
125 the coupler-head is maintained in a central or horizontal position until moved up or down in the act of coupling, substantially as described.

8. In combination with the laterally-movable coupler-head D, the bar P, mounted in suit-

able bearings and provided with the anti-friction roll α , and the spring P' , all arranged and adapted to operate substantially as and for the purpose specified.

- 5 9. The combination of the laterally-movable coupler-head D, the yoke W, that surrounds said coupler-head, and rigidly secured to the bunter U in close proximity to said coupler-head on one side, so as to prevent said coupler-

head from passing beyond a central position, 10 and the laterally-movable spring P' , so as to allow said coupler-head to move a limited distance on the other side, substantially as described.

JOHN R. HOWARD.

Witnesses:

CHARLES H. CRANE,
GEORGE H. HILLS.