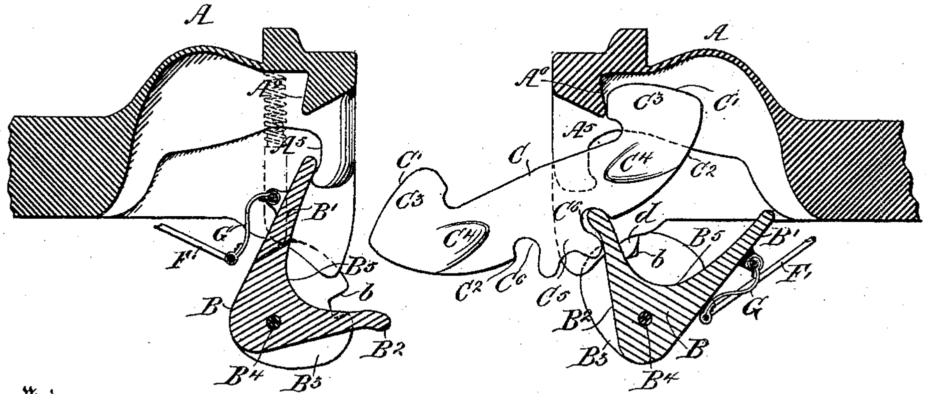
(No Model.) 3 Sheets—Sheet 1.

T. H. WALSH.

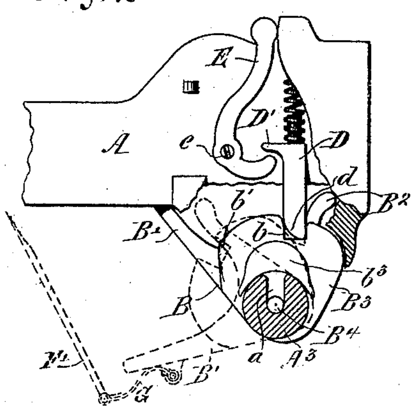
CAR COUPLING.

No. 417,846. Patented Dec. 24, 1889.

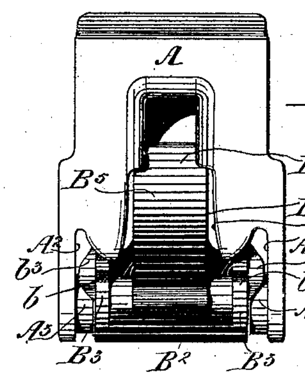
— Fig. 1. —



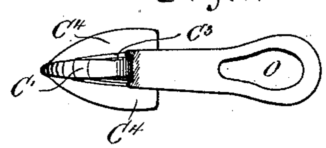
— Fig. 2 —



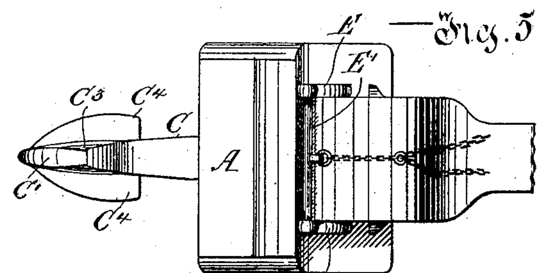
— Fig. 3 —



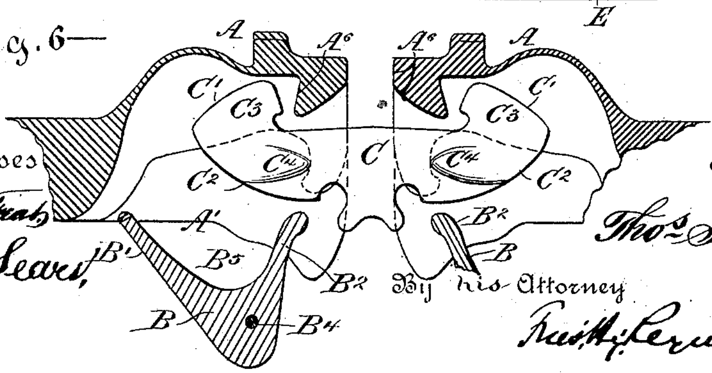
— Fig. 4 —



— Fig. 5 —



— Fig. 6 —



Witnesses

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CAR COUPLING.

No. 417,846. Patented Dec. 24, 1889.

Fig. 7

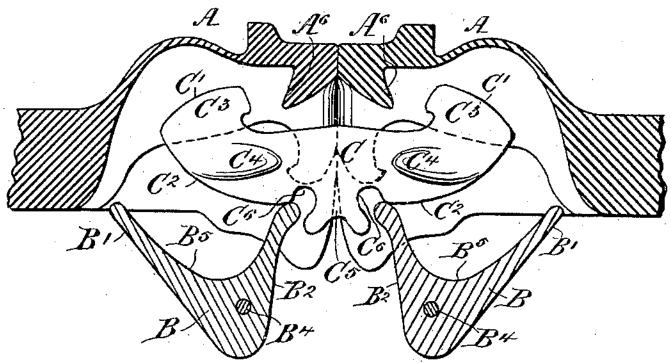


Fig. 11

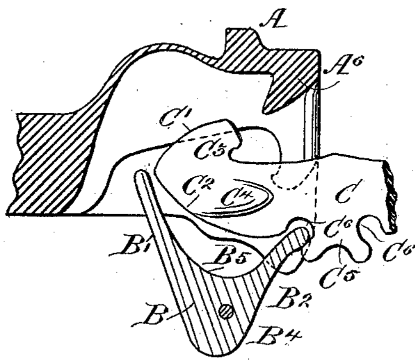
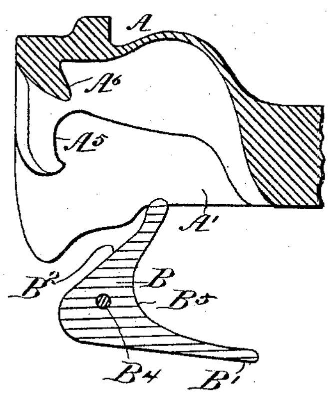


Fig. 12



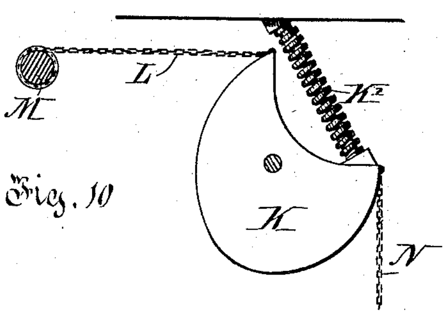


Fig. 10

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CAR COUPLING.

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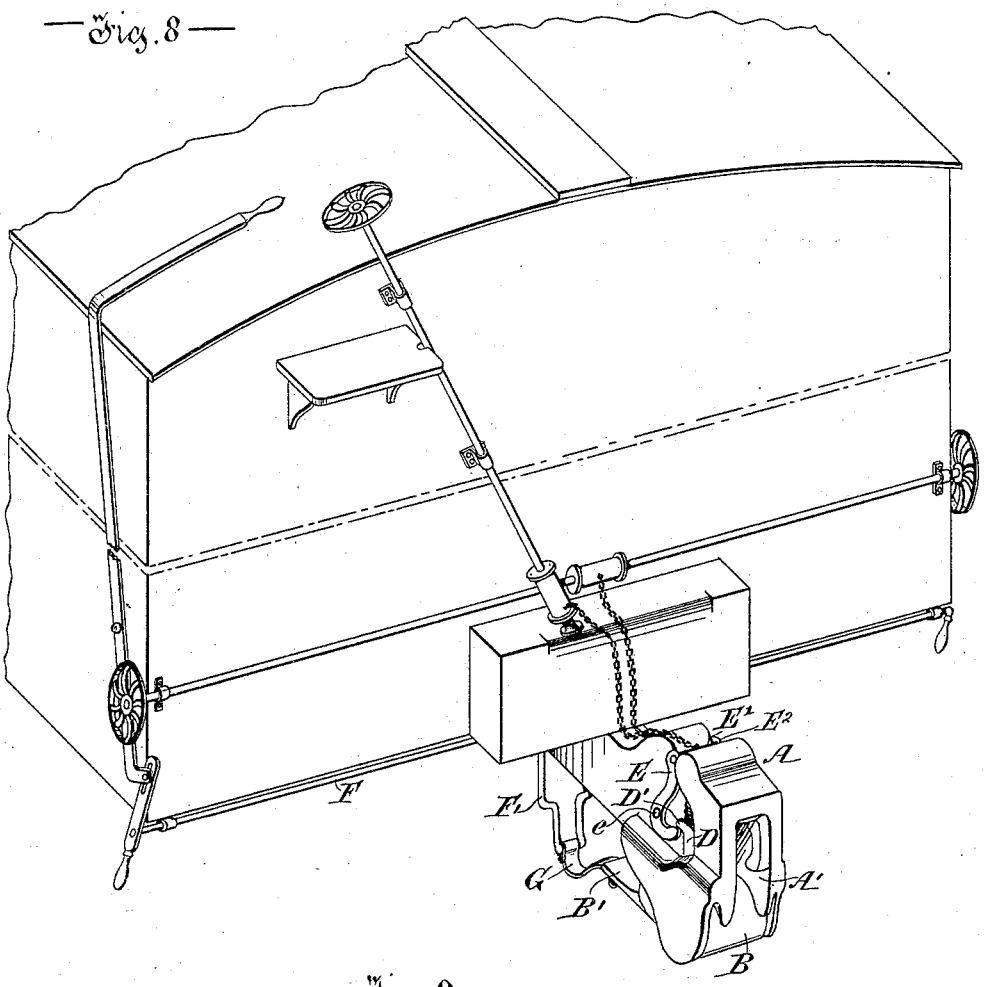
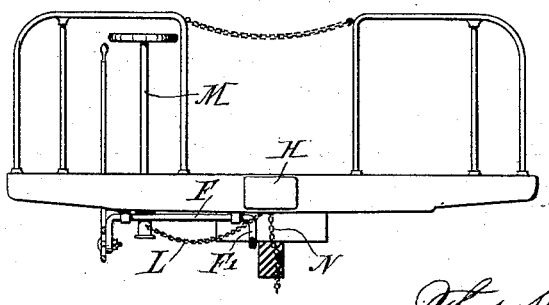
—Fig. 8—



—Fig. 9—



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UNITED STATES PATENT OFFICE.

THOMAS H. WALSH, OF MONTREAL, QUEBEC, CANADA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 417,846, dated December 24, 1889.

Application filed June 10, 1889. Serial No. 313,807. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HERMAN WALSH, of the city of Montreal, in the district of Montreal and Province of Quebec, Canada, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare that the following is a full, clear, and exact description of the same.

The object of my invention, which is specially intended for use with freight-cars, but equally well adapted to passenger-coaches, is to produce that which will automatically connect cars coming together, or, being coupled, to disconnect them or allow them to meet without connection, as may be desired, and is operated from either side or the top of either car, still or in motion, allowing for all possible differences in the position of the several cars making up the train, and doing away, to a very great extent, with the lateral motion.

It may be briefly described as follows: At the mouth of the bumper-head the sides are carried down, and between them is pivoted what I term a "rocker," having two arms of unequal length, which is the special device by which the coupling and uncoupling of the cars are effected, it receiving and guiding the link-bar into the desired position and retaining it there. Between these arms is the surface against which the link-bar impinges when the cars are brought together to be coupled. A bridle actuated by a lever from the sides or top of the car and operating with spring-bolts serves to lock this rocker in the proper position when the cars are coupled or to hold it in place when the cars are uncoupled, permitting cars to come together without being coupled when desired, and when the cars are to be coupled retaining the rocker in such a position as to be acted upon by the link-bar and not displaced by the motion or movement of the car before such action. The link-bar, which is formed with returned ends or combs on top and ears or lugs on each side near its ends and concave-faced shoulder under center, is so carried in the draw-head that its nose will at all times be above the level of the pivot-point of the rocker, so that when the rocker is thrown outward for coupling and the draw-heads are brought together the head or nose of the link-bar will strike the curved surface between the arms of the rocker and turn it backward on its center until the concave face of the shoulder under the link-bar meets the lip of the rocker, the rocker itself then by its upward throw retaining the end of the link-bar and gradually guiding it into place, the coupling being effected just before the draw-heads come together, and when the link-bar is in this position the rocker is locked in place by spring-bolts passing down through the draw-head and into corresponding recesses in the rocker. To allow the cars to come together without coupling, the rocker is thrown back, (the position it always is in after uncoupling,) so that the link-bar will enter the draw-head without engaging with it and be drawn out again when the cars are pulled apart. The link-bar can be thrown out of the draw-head, if desired, by the action of the lever throwing rocker outward after raising and releasing the bolts, as before mentioned; but for full comprehension of the invention reference must be had to the annexed drawings, forming part of this specification, in which—

Figure 1 is a sectional elevation of my invention with the parts in position for coupling; Fig. 2, a side view of one draw-head with casting partly broken away; Fig. 3, a front view of draw-head and rocker; Fig. 4, a view of compound link; Fig. 5, a top view of draw-head with link-bar in place; Fig. 6, a sectional elevation of two draw-heads in position when apart and cars being drawn; Fig. 7, a sectional elevation showing position of parts when draw-heads come together; Fig. 8, a view of end of freight-car with my invention attached; Fig 9, a view of passenger-car platform with my invention attached; Fig. 10, a plan view of detail in connection with same; Fig. 11, a view of draw-head and part of link-bar just before coupling is effected; Fig. 12, a view of draw-head with rocker thrown back.

A A are the draw-heads, of the shape shown in the drawings, cut away underneath, as shown at A′, and having sides carried down, so as to furnish a bearing in which the rocker is carried. This rocker B is made with two arms B′ B^2 and irregular arc-shaped flanges B^3, in which are formed recesses *b b*, the whole being mounted on a spindle B^4, resting in

slots *a*, formed in circular projections or shoulders A^3 on the inner faces A^2, and on the sides of the flanges B^3 are arc-shaped safety-shoulders b^3, which rest upon the circular projections A^3 when the rocker is in position coupled. The contact-surface B^5 between the two arms is that upon which the link-bar (to be presently described) first impinges when the cars are being coupled.

C is the link-bar (shown in side elevation in Figs. 1, 6, and 7,) formed with upper and lower curved surfaces (respectively lettered C′ C^2) at the ends or noses, returned ends or combs C^3 C^3, projecting above its upper edge, and ears or lugs C^4 C^4 on either side at or near the ends.

C^5 is a concave-faced shoulder on the under side of the link-bar, which forms between its ends and the ends of the curved under surfaces C^2 recesses lettered C^6 C^6.

D D are spring-bolts with beveled lower ends *d d*, which act upon the flanges B^3 of the rocker to retain it in the desired positions, D′ D′ being lugs or projections formed on such bolts.

E E are curved levers pivoted at either side to the draw-head at *e* and connected together by a bar E′, thus forming a bridle, (designated E^2,) which may be drawn upon from either side or the top of either car through any suitable system of rods, chains, and drums, as shown on elevation, Fig. 8.

To bring the position of the rocker to the front ready for coupling, as shown in Fig. 1, or to throw one link-bar out if two cars, each with link-bars in place, are approaching each other, or to throw the rocker backward for uncoupling, I arrange across and under the end of the car a bar F, furnished with proper means at either side for rotating it and having secured thereon a downwardly-projecting lever F′, connected by an **S**-shaped link G, hinged, with the end of the inner arm B′, on the rocker.

The operation of my invention is as follows: When the cars are to be coupled, the link-bar hangs in either draw-head in the position shown in Fig. 1—*i. e.*, with the inner face of the comb C^3 resting against the beveled upper inner surface of the draw-head, (the side lugs C^4 nearly in contact with the side projections A^5 A^5 in the draw-head,) and the concave face of the shoulder C^5 under the link-bar fitting and resting upon the lip of the rocker-arm B^2. It will be seen that in this position the lowest point or nose of the link-bar, when its draw-head is half-down, (lowest,) is above the outer lip or edge of the arm B^2 of the rocker in the other draw-head, which is thrown forward until the concave shoulder C^5 of the link-bar comes in contact with the lip of the rocker, which then continues the motion of the rocker forward and necessarily above the pivot-point on which it turns, and when the link-bar with its draw-head is half up, (the other extreme,) or any point between these extremes, the nose of the link-bar impinges against the surface B^5 of the rocker first, and then the action is same as before, and as the link-bar strikes the surface B^5 of the rocker it slides up it, at the same time throwing over the rear arm B′, and the front arm B^2, rising, engages in the recess C^6 with the link-bar C, raising it as it passes in. The other end of the link-bar rests in the draw-head, in which it is suspended upon the outer lip or edge of the arm B^2 of that rocker. This operation is continued until the flanges B^3 of the rocker (with which the beveled ends *d* of the bolts D have always been in contact) have been turned over sufficiently to bring these bolts to the edges of the recesses *b b*, into which they at once slide, completing the action of coupling by bringing the lugs C^4 C^4 into position behind the side projections A^5 A^5 just before the draw-heads come together, the link-bar then resting upon the edges of the outer arms B^2 of both rockers, and from the motion and action being in a free position to grip with its lugs C^4 against the side projections A^5 of the draw-head, at any parallel upward or downward movement of the draw-heads apart, there being a space of one and one-half inch (or more or less, if desired) for the draw-heads to move apart before the link-bar grips or the load takes on both draw-heads. The shape of the extreme end of the link-bar with the lugs C^4 approximates nearly to that of a triangular arrow-head and insures the entrance of the link-bar into the draw-head at all possible positions. It will be observed that when the strain comes on the coupling the link-bar, being free, will rise to take the load as the draw-heads are drawn apart at any angle and assume the position shown in Fig. 6, clear of the rocker. In uncoupling, the rocker B is thrown back to the dotted position shown in Fig. 2, and the arm B′ rests on the **S**-shaped link G of the lever F′, and is held there secure by the pressure of the bolts D D on the flanges B^3 B^3 of the rocker B, and cannot get out of that position, (unless freed by being thrown into position for coupling, as described, and shown in Fig. 1,) and in this position the end of the link-bar, being unsupported, falls, being free to be withdrawn or uncoupled on separating the draw-heads. The rocker B, being thrown back to position, as for uncoupling, admits of the draw-heads coming together without being coupled, as the position of the rocker B (shown in Fig. 12) shows a beveled front upon which the under side C^2 of the link-bar C slides into the mouth of the draw-head A, but which does not throw the link-bar into position, and on separating the draw-heads the link-bar C withdraws freely without coupling, and should the draw-heads come together with no link-bar in either, but one or both the rockers B lying outward, the draw-heads would easily throw the rockers back on their centers.

In throwing the rockers B out to the front by the means described, ready for coupling, as shown in Fig. 1, the rocker is in that posi-

tion held sufficiently rigid by the pressure of the bolts D D on the rear angles b' of the flanges B^3 B^3, so made for that purpose, and cannot be shaken from that position except by the force of the link-bar impinging upon it in the act of coupling or draw-heads coming together, as above described; but if the rocker be left ready for coupling, and coupling be not desired, such rocker can be thrown back quickly, as for uncoupling, from top or sides of car, and the draw-heads can then come together without coupling.

When the draw-heads A are coupled, the link-bar C is always free in any position of the draw-heads when together, whether parallel, up, or down, and when the draw-heads are drawn apart the curved under side C^2 of the nose of the link-bar throws the link-bar up into position by sliding upon the lips of the rockers, and when one draw-head is half-down, from the other draw-head being coupled and on being drawn apart, the face of the comb C^3 of the link-bar comes in contact with the upper beveled face A^6 of the draw-head, and thus throws the first strain upon the comb C^3 of the link-bar and upon the face of such cross-piece A^6 of the draw-head, thus drawing the link-bar C up and off the lips of the rocker-arms and relieving the rockers from all strain. There is never in any position of the draw-heads, when coupled, a strain to any extent on the rockers, these being merely for the purpose of coupling or uncoupling and to hold up and guide the link-bar into position to take the load on the draw-heads being separated. Should, however, any strain come upon the rocker, it would then be borne by the semicircular safety-shoulders b^3 in contact with circular projections A^3, so that the ability of the rocker to resist pull would be equal to that of the draw-head itself.

The rockers B are separate and interchangeable, as are also the link-bar C and all parts. The rocker B can be put on or taken off by removing the bolt from the **S**-shaped link G of the lever F′, and by turning the back of the rocker B down and under to the front and then lifting it upward the axis B^4 of the rocker can pass up and out of the slots a of the circular parts A^3 of the draw-head, and in same way can be put back again in place, and when once in position cannot get out of place under any conditions whatever.

For passenger-cars the coupling and uncoupling are the same as for freight-cars, (above described,) and the position of the parts for so doing is shown on Figs. 8 and 9. On passenger-cars the usual springs (indicated at H) on the cars retain the coupling rigid after being coupled by forcing the draw-heads apart, and for uncoupling the forcing of the draw-heads together, and compression of the springs H permits uncoupling from either car-platform, as shown in Fig. 9.

The device which I prefer to adopt for uncoupling passenger-cars is shown in Fig. 10, and consists of a horizontal cam-bar K, pivotally arranged in close proximity to and just above the draw-head under platform. This is operated by a chain L, connected to it and wound on a vertical shaft M, operated in the same way as an ordinary hand-brake. The cam-bar is also connected by a chain N to the bridle, and it will be seen that by the rotation of the shaft M the cam K is drawn upon and through the bridle, the bolts D D raised, and the rocker B, by the action of the lever F′, is thrown backward, allowing the link to be drawn out, as before described. A spring K′, with one end bearing against the cam and the other against the platform, returns the former to its normal position.

By making one end of the link-bar C in the shape of an ordinary car-link, as at O, and the other half remaining unchanged, as shown in Fig. 4, these draw-heads A can be coupled up with any ordinary old-style link-coupler, all that is required being an extra link of this shape. It will be seen that when once the link-bar is placed in a draw-head there is never any necessity thereafter to go between cars for coupling or uncoupling. The bolts D D, being absolutely free from any effect of differing position of the draw-heads or link-bar, can at all times from sides or tops of cars be withdrawn quickly and with the greatest ease in the action of coupling or uncoupling, only two short motions being required. The link-bar C, hanging in its draw-head, always retains one position, from which the motion of the car does not shake it, to prevent it, as it approaches the other draw-head, from entering it freely and unobstructed, and the springs and bolts and all parts are strongly protected, and, being flush with the casting cannot get out of order in any weather or climate and can be put on or taken off with the greatest ease.

The parts of my coupler are very simple and few, being only a rocker and two bolts, to hold it when coupled, and the link-bar, which merely displaces the old style of link and requires no more iron to make it.

These draw-heads can be placed in same position as old-style draw-heads and cost very little more than the old, and all parts can be cast without difficulty and placed in position without screws or fittings.

What I claim is as follows:

1. In a car-coupler, the combination of a rocker with arms pivoted in the draw-head and adapted to engage with and guide the link-bar into place and means for holding same in position and releasing it, all substantially as described.

2. In a car-coupler, the combination, with the draw-head, of the detachable rocker with solid arc shoulders, as and for the purpose described.

3. In a car-coupler, the combination, with the draw-head, of the rocker B, with the side flanges recessed, bolts working in such re-

cesses and against flanges, levers for raising such bolts, and means for actuating such levers, all as herein described.

4. In a car-coupler, the combination, with the draw-heads of cars and rocker, of the link-bar C, constructed as shown, and for the purpose set forth.

5. In a car-coupler, the combination, with the draw-head, of the link-bar C, formed with a link O, as and for the purposes set forth.

6. In combination with the draw-head, rocker B, and link-bar C, the cam-bar K, means for operating same, and connections with bars E′, all as herein described, and for the purposes set forth.

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