(No Model.)

B. W. SWEET.

CAR COUPLING.

No. 345,262. Patented July 6, 1886.

Fig. 1.

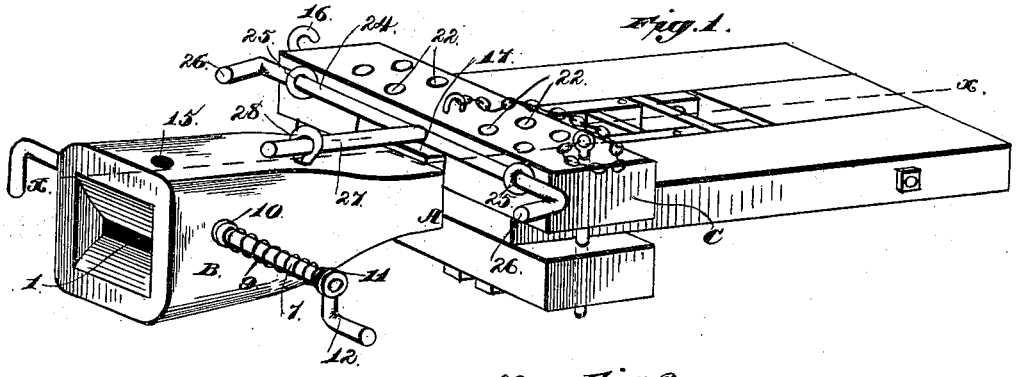


Fig. 2.

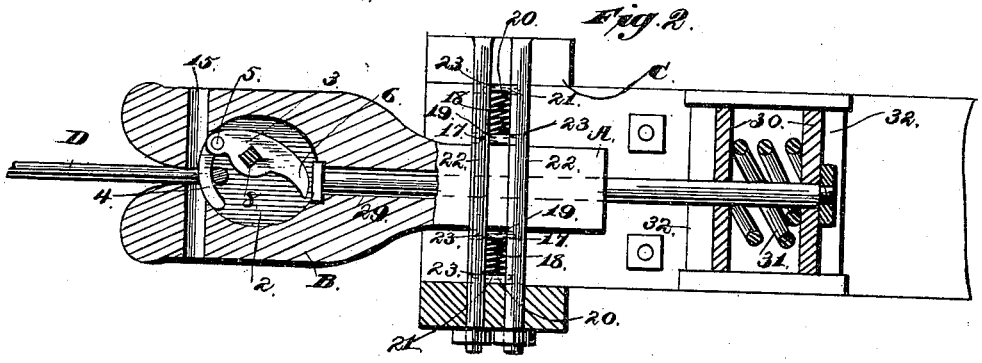


Fig. 3.

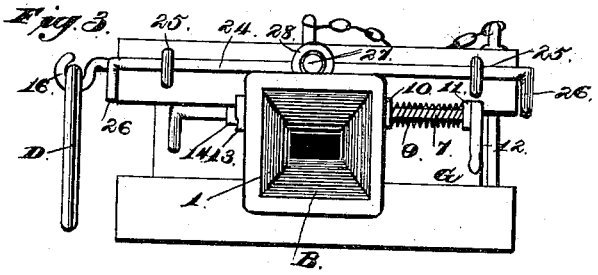


Fig. 4.

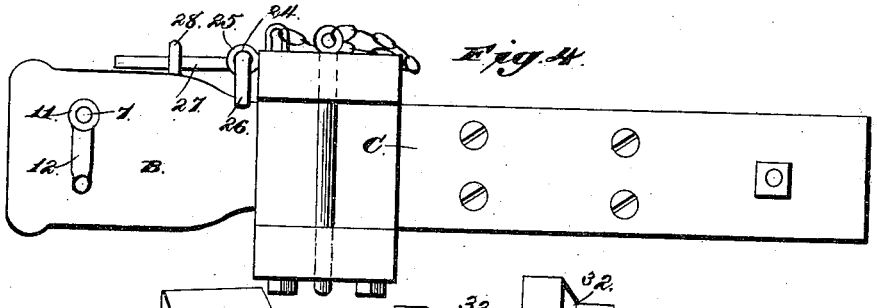
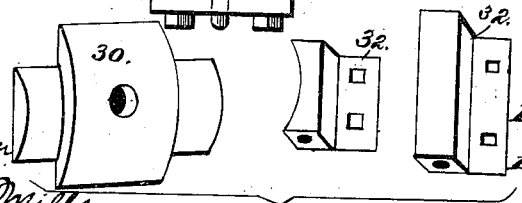


Fig. 5.



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UNITED STATES PATENT OFFICE.

BENJAMIN W. SWEET, OF RODNEY, MICHIGAN.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 345,262, dated July 6, 1886.

Application filed April 21, 1886. Serial No. 199,610. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN W. SWEET, a citizen of the United States, residing at Rodney, in the county of Mecosta and State of Michigan, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to car-couplers; and it consists in the construction and arrangement of the parts, which will be more fully hereinafter described, and pointed out in the claims.

One object of my invention is to provide a freight-car coupler which will allow the link to automatically couple and secure itself without any aid and be readily released when desired, thereby avoiding injurious results to brakemen.

A further object of my invention is to provide means whereby the draw-head may be raised or lowered to adapt it to be connected to cars of varying heights, said means being operated from above the platform of the car either by hand or foot power.

A still further object of my invention is to make the parts of the coupler of simple construction, strong and durable, effectual in their desired results, easily handled and operated, readily applied to any cars now in use, and cheaply manufactured.

I attain these objects by the mechanism illustrated in the accompanying drawings, wherein like letters of reference indicate similar parts in the several views, and in which—

Figure 1 is a perspective view of my improved car-coupler. Fig. 2 is a sectional view on the line *x x* of Fig. 1, with the lifting-rod removed. Fig. 3 is a front elevation of my improved coupler. Fig. 4 is a side elevation of the same. Fig. 5 is a detail perspective of the draw-bar, rod, cushion, plates, and lugs.

A indicates the draw-bar, having the usual form of draw-head, B. The said draw-head B is mounted in the frame-work C, which is secured to the under side of the car, to which it is applied by well-known means. The draw-head B is provided with the usual opening, 1, for the entrance of the link D, constructed in such a manner that the said link D can be raised or lowered at any inclination, to suit draw-heads of varying heights.

As shown in Fig. 2, the inner portion of the draw-head B is constructed with an elliptically-formed slot, 2, in which a locking-cam, 3, is mounted. The front portion of this locking-cam 3 is slotted, and receives an arm, 4, which is pivotally secured therein by the pivot 5. The edges of the arm 4 are concavo-convex in form, the outer edge being convex and conforming to the contour of the elliptical slot 2 at this point, and rests against the same when in a locked position, while the inner edge is concave and conforms to the contour of the inner portion of the link D. The rear portion of the locking-cam is provided with an extension, 6, which strikes against the rear portion of the elliptical slot 2 and limits its downward movement, allowing the arm 4 to perform its desired function. A short operating-shaft, 7, passes transversely through the draw-head, and where it passes through the locking-cam 3 it is formed with a square bearing-surface, 8, which causes a positive action of the said locking-cam 3. This shaft 7 extends outward from one side of the draw-head B, and has a coiled spring, 9, surrounding it, which has a bearing-surface between two washers, 10 and 11, one of which is adjacent to the draw-head and the other on the outside end of the said extended portion of the shaft. The outside end of the said extended portion of the shaft is also provided with a crank, 12, which is screwed onto the end, and acts to operate the locking-cam 3 and release the link D. On the other side of the draw-head B a locking-plate, 13, is cast or formed therewith, which is engaged by a projection, 14, on the end of the shaft 7. A hole, 15, is also provided in the draw-head B, through which a coupling-pin may be passed in case of a disarrangement and consequent inoperativeness of the locking-cam 3. This coupling-pin will be attached to the draw-head B in a convenient manner, so that it can be readily used when necessary. A hook, 16, is also secured to the supporting frame-work of the draw-head, so that in case the link has been displaced from the draw-head the extra one can be supplied in its place.

The draw-bar A passes back through the frame-work C, between two plates, 17 17, which rest against spiral springs 18 18, arranged in

slight recessed portions 19 19 in the faces of said plates, above and below the faces thereof, which are in contact with the draw-bar A. Adjacent to the frame-work plates 20 20 are secured, which have recesses 21 21 formed therein, which form seats for the upper and lowermost ends of the springs 18 18, the said plates 20 20 being suitably secured to the frame-work C. Passing vertically through the said frame-work C are four screw-bolts, 22 22, which are arranged as supporting-guides for the extensions 23 23 on the plates 17 and 20, which rise and fall in the said guides when the draw-bar is depressed or lowered. To the forward portion of the frame-work C, adjacent to the draw-head B, a rod, 24, is inserted, and has a bearing in two eyes, 25 25, secured to the said frame-work. This rod 24 has two end projections, 26 26, which keep it in place in the eyes 25 25, and a central projecting rod, 27, at right angles to the same, which passes through an eye, 28, cast integral with or secured to the draw-head B. By raising the short rod 27 it draws the head B upward and brings it on a level with the head on the car to which it is desired to couple it, and by depressing the said rod the draw-head is lowered and adjusted to couple with a car having a low draw-head. The draw-bar A is cushioned by the spring-actuated plates 17 and 20, through which it passes, thus rendering the movement easy, both in coupling to cars of different heights of draw-heads and in change of position of the cars in turning curves and running downgrade. The end of the draw-bar A is further cushioned by a rod, 29, which passes partially through said draw-bar, being driven through the same from the front end through the opening 1, said rod 29 passing through apertures in plates 30 30, which form seats for a longitudinally arranged spring, 31, the said rod 29 also passing through this spring. Suitable vertical lugs, 32, secured to the side of the frame-work C, form rests for the plates 30 30 to act against.

As shown in Fig. 5, the plates 30 are modified, and are adapted to be formed with plano-convex faces and projections, which rest against and act in conjunction with the lugs 32, also shown in said figure. By this means an easy hinging action of said plates is allowed as the draw-bar is raised or lowered.

The parts of the coupler are all braced by suitable tie-bolts and rendered strong and durable.

In coupling a car having my improved coupler attached thereto the link D enters the opening 1 of the draw-head and strikes the pivoted arm 4 of the locking-cam 3. The said arm is forced back and allows the link to enter the elliptically-formed recess 2. The end of the link strikes against the rear portion of the locking-cam 3, and the pivoted arm 4 then drops down by gravity, and as the link is drawn outward by the momentum of the cars the said pivoted arm is drawn against the front part of the elliptical slot 2, and thereby secures the link D. When the pivoted arm drops down, its lowermost point falls below the opening 1 into a suitable recess, and is thereby braced against the drawing action of the link. In releasing the link or uncoupling the cars the shaft 7 is turned by its operating-crank and the locking-cam 3 raised, which also raises the pivoted arm 4 and allows the link to have a free passage.

This draw-head B may be constructed in any well-known manner and in one operation by a core casting. The locking-cam with its pivoted arm is made in such form that it is readily inserted into the head through the opening 1, and the shaft 7 then passed through it, thus securing it in place.

It is obvious that many minor changes could be made and substituted for those shown and described without in the least departing from the nature and principle of my invention.

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

1. In a car-coupler, the combination, with the draw-head, of a locking-cam having a pivoted arm in its front portion mounted in an elliptical recess in said draw-head, a shaft passing transversely through the draw-head and locking-cam, a locking-plate secured to the outer portion of one side of the draw-head, which is engaged by a projection on the end of the shaft, and an extension of the said shaft projecting from the opposite side of the draw-head having a coiled spring thereon and an operating-crank secured to its end, substantially as described.

2. In a car-coupler, the combination, with the draw-bar, of a series of spring-cushioned plates engaging with the top and bottom sides thereof, vertical bolts forming guideways for the extended portions of the said plates, and a lifting-rod mounted in eyes secured to the frame-work, and having suitable end stays and a central extension engaging with an eye secured to the draw-head, whereby said draw-head may be raised or lowered, substantially as and for the purposes specified.

3. In a car-coupler, the combination, with the draw-head B, of a locking-cam, 3, having a pivoted arm, 4, mounted in an elliptical slot, 2, formed in said draw-head, a shaft, 7, passing transversely through the draw-head and locking-cam, a crank for raising the locking-cam and releasing the link, and means for raising and lowering the draw-head, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

BENJAMIN W. SWEET.

Witnesses:
J. W. SWEET,
G. A. SHIELDS.